

Valleyview South Master Plan

Background Report



Prepared by:



In partnership with:



MORRISON HERSHFIELD

INUKSHUK PLANNING & DEVELOPMENT LTD



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SYSTEMS

DECEMBER 2022

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Table of Contents

1.0 INTRODUCTION	1
2.0 STUDY AREA OVERVIEW	3
2.1 LEGAL DESCRIPTION, SIZE AND TENURE	3
2.2 LAND DESIGNATION, ZONING AND USES	4
2.3 HISTORY AND HISTORIC LAND USE	7
2.3.1 <i>First Nation History and Occupation</i>	7
2.3.2 <i>Whitehorse Upper Tank Farm</i>	9
2.3.3 <i>Surrounding Area</i>	12
3.0 ENVIRONMENTAL CONDITIONS	13
3.1 GEOLOGY	13
3.2 TOPOGRAPHY	13
3.3 HYDROGEOLOGY	14
3.4 ASPECT AND VIEWS	15
3.5 ECOLOGY	16
3.5.1 <i>Ecoregion and Vegetation</i>	16
3.5.2 <i>Wildlife and Wildlife Habitat</i>	16
3.5.3 <i>Ecologically Sensitive Areas</i>	17
3.6 TRAILS	17
3.7 CONTAMINATION	18
3.7.1 <i>Whitehorse Upper Tank Farm (Lots 429 and 430)</i>	18
3.7.2 <i>Other Properties</i>	21
4.0 HERITAGE RESOURCES	23
4.1 ARCHAEOLOGICAL RESOURCES	23
4.2 HISTORIC RESOURCES	24
5.0 PLANNING AND POLICY CONTEXT	23
5.1 DEVELOPMENT PLANS AND INTERESTS	23
5.1.1 <i>Northwest and Northeast Parcels</i>	23
5.1.2 <i>East and Southeast Parcels</i>	25
5.1.3 <i>Southwest Corner</i>	26
5.1.4 <i>West and Central Parcels</i>	28
5.2 RELEVANT GOVERNMENT POLICIES AND PLANS	32
5.2.1 <i>City of Whitehorse</i>	32
5.2.2 <i>Kwanlin Dün First Nation</i>	34
5.3 ADJACENT LAND USES	34
5.3.1 <i>Erik Nielsen Whitehorse International Airport</i>	34
5.3.2 <i>Adjacent Neighbourhoods</i>	37
5.3.3 <i>Wasson Place and Burns Road</i>	38
5.4 RESIDENT & STAKEHOLDER INPUT TO DATE	39

5.5	OTHER CONSIDERATIONS	40
5.5.1	<i>Land Tenure Mix</i>	40
5.5.2	<i>Land Development Context</i>	41
5.5.3	<i>Market Demand and Risk</i>	42
6.0	SITE SERVICING	43
6.1	TRANSPORTATION	43
6.1.1	<i>Current Network</i>	43
6.1.2	<i>Potential Access Points</i>	43
6.1.3	<i>Active Transportation</i>	48
6.1.4	<i>Transit</i>	49
6.2	WATER	50
6.2.1	<i>Current Network</i>	50
6.2.2	<i>Potential Connections</i>	50
6.3	WASTEWATER	53
6.3.1	<i>Current Network</i>	53
6.3.2	<i>Potential Connections</i>	53
6.4	STORMWATER	57
6.5	POWER AND COMMUNICATIONS	57
7.0	SUMMARY OF PLANNING CONSIDERATIONS	59
REFERENCES		65

APPENDIX A. STUDY AREA MAPS **71**

- Map 1. Ownership
- Map 2. Elevation
- Map 3. Slopes
- Map 4. Aspect
- Map 5. Environmental and Special Places
- Map 6. Servicing

List of Figures

Figure 1. Geographic context of Valleyview South planning area	1
Figure 2. Valleyview South Master Plan process	2
Figure 3. Aerial view of Valleyview South planning area and approximate parcel locations	4
Figure 4. Valleyview South area OCP designation	5
Figure 5. Valleyview South area zoning	5
Figure 6. Early site plan for the Canol refinery and Whitehorse Upper Tank Farm	9
Figure 7. Valleyview South area air photo, 1963	11
Figure 8. Valleyview South area air photo, 1985	11
Figure 9. Schematic cross-section of estimated vertical extent of soil and groundwater Contamination on WUTF and adjacent areas as of 2013	18
Figure 10. Site diagram showing 2013 site restoration strategy for WUTF	20
Figure 11. Table 2 Proposed Land Uses & Percentage of Total Area	31

Figure 12. Table 4 Summary of Proposed Housing Mix	31
Figure 13. Conceptual Urban Centre location for Valleyview South	32
Figure 14. Figure 9 illustration from draft OCP	32
Figure 15. NEFs and predicted responses	36
Figure 16. Phase 1 commercial-industrial development concept on Lot 429	38
Figure 17. 2012 buffer concept	39
Figure 18. Proposed active transportation connector	48
Figure 19. Transit routes around planning area	49
Figure 20. Overview of City of Whitehorse water and sanitary system	51
Figure 21. Valleyview South water and sanitary mains and potential connections	52
Figure 22. Profile of gravity connection to Hamilton Boulevard Trunkmain at Alaska Highway	54
Figure 23. Profile of gravity connection to Hamilton Boulevard Trunkmain at north end of McIntyre subdivision	54

List of Tables

Table 1. Valleyview South parcel legal descriptions, tenure and size	3
Table 2. Valleyview South OCP designations, zoning and current land uses	6
Table 3. Timeline of remediation-related activity for the former WUTF	19
Table 4. Areas of Environmental Concern (AECs) on Lots 429 and 430	21
Table 5. YG Land Management Branch Whitehorse land lottery results, 2017-2021	42
Table 6. Potential transportation access points and routing in the study area	45
Table 7. Active transportation distances and travel times from centre of Valleyview South area	48
Table 8. Potential sanitary system connection points and routing in the study area	56
Table 9. Overview of parcel-specific opportunities, constraints and inter-dependencies	61

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List of Frequently Used Acronyms

ASL	Above sea level	NEF	Noise Exposure Forecast
AST	Above ground storage tank	OCP	Official Community Plan
AZR	Airport Zoning Regulations	POR	Plan of Restoration/Remediation
CGC	Canada Games Centre	RCAF	Royal Canadian Air Force
CoW	City of Whitehorse	ROW	Right-of-way
DDDC	Da Daghay Development Corporation	SGA	Self Government Agreement
ENWIA	Erik Nielsen Whitehorse International Airport	WCCSC	Whitehorse Cross Country Ski Club
ESA	Environmental Site Assessment	VSMP	Valleyview South Master Plan
HPW	Yukon Highways and Public Works	YG	Government of Yukon
KDFN	Kwanlin Dün First Nation	YPL	Yukon Pipelines Limited
LTO	Yukon Land Titles Office	WKA	Wildlife Key Area
NEB	National Energy Board	WPYR	White Pass and Yukon Route
		WUTF	Whitehorse Upper Tank Farm

1.0 Introduction

The City of Whitehorse (CoW) Planning and Sustainability Services Department is leading the development of a master plan for the area located between the Valleyview and Hillcrest neighbourhoods, referred to as “Valleyview South”. The Valleyview South area is located near the geographic centre of Whitehorse and contains a mix of private, government, and First Nation land parcels. It has long been envisioned by the City for residential development. Refer to Figure 1.



Figure 1. Geographic context of Valleyview South planning area

The Valleyview South Master Plan (VSMP) is intended to:

- Help accommodate the growth of Whitehorse’s population and needs of future residents;
- Ensure the new development will fit in with existing neighbourhoods;
- Integrate the area with existing infrastructure, such as roads and water/sanitary systems;
- Identify and protect key environmental features;
- Provide direction on what types of land uses will occur, and where;
- Identify major future roads and active transportation corridors;
- Identify open space, parks, and trail connections; and
- Provide recommendations on all other relevant aspects of future development.

A multi-disciplinary team led by Groundswell Planning was retained by the City in September 2022 to undertake the Master Plan. The planning process is anticipated to take 12 months and is organized into four phases, as shown in Figure 2 below.



Figure 2. Valleyview South Master Plan process

Some of the area’s landowners are poised to develop, either in the short or long-term; these owners are referred to as the “development partners”. Other landowners have no development plans and will help ensure the existing land uses on their parcels are, at a minimum, not adversely affected, and ideally – stand to be enhanced, by the master plan.

This Background Report represents the completion of Step 5 in the process and will equip the area’s landowners and development partners for a productive discussion in Step 6 by establishing a shared understanding of the Valleyview South study area’s:

- Current land holdings, tenure and land uses;
- Heritage and history, including values and resources;
- Environmental conditions and values;
- Broader planning context, including plans and policies that may influence individual and collective development by the landowners;
- Outcomes of previous community engagement about development in the area;
- Current municipal infrastructure – roads, water, sanitary, power and communications – and opportunities to service future development; and
- Key considerations, opportunities and constraints that will affect the master plan.

With the planning context established, the development partners will be equipped to initiate Phase 4 and begin exploring neighbourhood design options in January 2023.

2.0 Study Area Overview

2.1 Legal Description, Size and Tenure

The planning area consists of 14 surveyed land parcels, two unsurveyed parcels, three surveyed roads, and numerous easements totaling approximately 114 hectares (ha). Refer to Table 1 and Map 1 Ownership. (Note that easements are not included in the table).

Table 1. Valleyview South parcel legal descriptions, tenure, and size

Parcel	Legal Description	Ownership	Size (ha)
Lot 66	LOT 66 Valleyview Subdivision 76832 CLSR YT Plan 95-12 LTO YT	City of Whitehorse	3.60
Unsurveyed area	None	Government of Yukon	2.67
KDFN C-117B	LOT 1225 QUAD 105D/11 96822 CLSR YT Plan 2010-0048 LTO YT	Kwanlin Dün First Nation	5.23
KDFN C-141B	LOT 1228 QUAD 105D/11 96822 CLSR YT Plan 2010-0048 LTO YT	Kwanlin Dün First Nation	5.01
Lot 12	LOT 12 Valleyview Subdivision 76359 CLSR YT Plan 94-64 LTO YT	City of Whitehorse	4.12
Lot 431	LOT 431 GROUP 804 51614 CLSR YT Plan 26170 LTO YT	Government of Yukon	2.93
Lot 262-2	LOT 262-2 GROUP 804 51139 CLSR YT Plan 25056 LTO YT	Alacrity Enterprises Incorporated	3.34
TKC C-30B	LOT 1190 QUAD 105D/11 88070 CLSR YT Plan 2003-0223 LTO YT	Ta'an Kwäch'än Council	12.32
Lot 427-1	LOT 427-1 GROUP 804 57304 CLSR YT Plan 35408 LTO YT	Shaw Satellite Services Incorporated	1.58
Lot 427	LOT 427 GROUP 804 51614 CLSR YT Plan 26170 LTO YT	City of Whitehorse	0.36
Lot 438	LOT 438 GROUP 804 51614 CLSR YT Plan 26170 LTO YT	Government of Yukon	0.51
Lot 2	LOT 2 QUAD 105D/11 64319 CLSR YT Plan 52219 LTO YT	Guru Nanak Sikh Organization	0.58
Lot 426	LOT 426 GROUP 804 51614 CLSR YT Plan 26170 LTO YT	Government of Yukon	2.80
Unsurveyed area	None	Government of Yukon	19.91
Lot 429	LOT 429 GROUP 804 51614 CLSR YT Plan 26170 LTO YT	P.S. Sidhu Trucking 46447 Yukon Inc.	18.56*
Lot 430	LOT 430 GROUP 804 51614 CLSR YT Plan 26170 LTO YT	P.S. Sidhu Trucking 46447 Yukon Inc.	29.90
Surveyed Roads			
Road (#8034222)	51139 CLSR YT Plan 25056 LTO YT	City of Whitehorse	.058
Road (#8006307)	51614 CLSR YT Plan 26170 LTO YT	City of Whitehorse	.075
Road (#8006308)	51614 CLSR YT Plan 26170 LTO YT	City of Whitehorse	.079
TOTAL			113.63

*Not including a 7.3 ha portion not included in the planning area.



Figure 3. Aerial view of Valleyview South planning area and approximate parcel locations (Credit: Alistair Maitland)

2.2 Land Designation, Zoning and Uses

The proposed 2022 City of Whitehorse Official Community Plan (OCP) designates the planning area as primarily Residential – Urban (refer to Figure 4). Section 15.18 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.” Sections 15.18.1 to 15.18.5 provide overarching policies for Residential – Urban lands, including:

- In addition to municipally serviced residential, parks and natural areas, playgrounds, schools, places of worship, community halls, recreation facilities, retail shops and personal service uses are suitable uses;
- Areas will be primarily residential in nature with limited non-residential uses – designed to be compatible with the residential character - intended to support the creation of Complete Communities; and
- Development will consider pedestrian connections, bicycle parking, electric vehicle charging stations, and impacts of parking areas on surrounding properties.

Under the City’s current Zoning Bylaw, most of the area is designated Future Planning (or First Nation – Future Planning), and the unsurveyed piece is zoned PE – Environmental Protection. Refer to Figure 5.

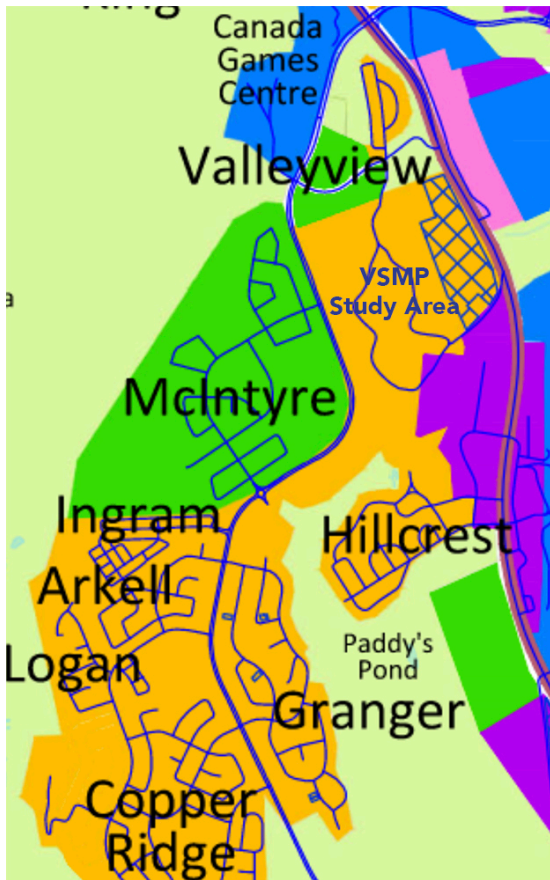


Figure 4. Valleyview South area proposed OCP designations: Residential – Urban (orange), First Nations Development Land (green), TKC Lands (hatching), and Greenspace (pale green) (Source: City of Whitehorse, November 2022)

The planning area hosts a limited but diverse range of land uses currently. The northwest and southwest portions serve as well-used neighbourhood greenspace, while other undeveloped and unoccupied parcels relatively receive little visitation. Land use on Lots 429 and 430 have been limited to contaminated remediation activities in recent years. Parcels in the southeast portion provide places of worship and telecommunications services. An overview of land designations, zoning and current land uses by parcel is included in Table 2.

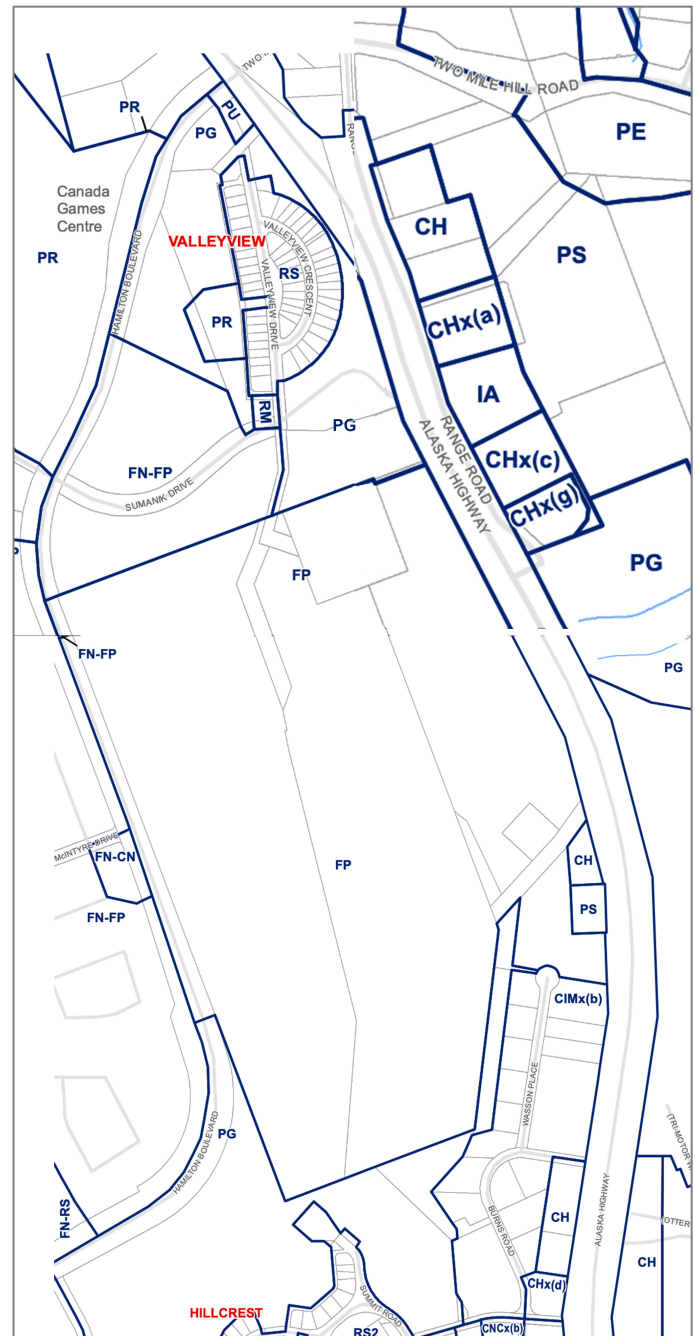


Figure 5. Valleyview South area zoning (Source: City of Whitehorse, 2020)

Table 2. Valleyview South OCP designations, zoning and current land uses

Parcel	Ownership	OCP Designation*	Zoning®	Current Land Use
Lot 66	City of Whitehorse	Greenspace	PG – Greenbelt PR – Parks and Recreation	Neighbourhood park and greenspace for Valleyview residents
Unsurveyed parcel	Government of Yukon			Greenspace for Valleyview residents
KDFN C-117B	Kwanlin Dün First Nation	Residential Urban	FN-FP – First Nation Future Planning	Greenspace for Valleyview residents; powerline (C-141B)
KDFN C-141B	Kwanlin Dün First Nation			
Lot 12	City of Whitehorse	Greenspace	PG – Greenbelt	Greenspace for Valleyview residents
Lot 431	Government of Canada			Greenspace; not well used by local residents due to lack of trails and steep topography; powerline on Lot 431
Lot 262-2	Alacrity Enterprises Incorporated	Residential Urban	FP - Future Planning	Mostly cleared but undeveloped
TKC C-30B	Ta'an Kwäch'än Council			Greenspace; likely not well used by local residents due to lack of trails and steep topography
Lot 427-1	Shaw Satellite Services Incorporated	Industrial/ Commercial	CH – Highway Commercial	Satellite receivers
Lot 427	City of Whitehorse			Greenspace
Lot 438	Government of Canada			Greenspace
Lot 2	Guru Nanak Sikh Organization			Temple
Lot 426	Government of Yukon	Industrial/ Commercial	FP - Future Planning	Greenspace
Unsurveyed parcel	Government of Yukon		PG – Greenbelt	Greenspace for Hillcrest and Granger residents; well-used
Lot 429	P.S. Sidhu Trucking 46447 Yukon Inc.	Residential Urban	FP - Future Planning	Remediation and gravel excavation
Lot 430	P.S. Sidhu Trucking 46447 Yukon Inc.			Remediation
Road (#8034222)	City of Whitehorse	Residential Urban	FP – Future Planning	Road access to Lot 262-2
Road (#8006307)		Residential Urban		Road access to Lots 429 and 430
Road (#8006308)		Industrial/ Commercial		Road access to Lot 427-1 (now cut off from highway)

* Draft proposed OCP versus 2010 OCP ® Current zoning; a new Zoning Bylaw will be developed once the draft OCP is officially adopted

2.3 History and Historic Land Use

2.3.1 First Nation History and Occupation

Groundswell thanks First Nation government staff for their guidance and contributions in drafting this section and acknowledges its limitations. It is intended as an overview to establish planning context and drew from the Kwanlin Dün literature, CoW 2040 Official Community Plan, and other sources. It should not be mistaken as a complete or thoroughly researched historical text.

The Valleyview South Master Plan study area is located within the traditional territories of the Ta'an Kwäch'än Council (TKC) and Kwanlin Dün First Nation (KDFN). These first people refer to the Whitehorse section of the Yukon River as Chu Nji Kwan, which translates to "water, face, moonlight". Local Southern Tutchone oral history confirms inhabitation of the Ta'an Kwäch'än in the immediate section of Chu Nii Kwan/Yukon River to Tää'an Män/Lake Laberge including the river valley and the surrounding mountains Thè Mbay (Grey Mountain) to the east, Thay T'aw (Haeckel Hill) to the northwest, and T'si Ma (Golden Horn Mountain) to the south.

Southern Tutchone oral history, archaeological and geological research all indicate that ancestors of these modern-day First Nation citizens arrived in the Yukon River valley shortly after it became deglaciated, around 10,000 years ago. Around 12,000 years ago, glacial lakes receded very rapidly as an ancient ice dam at the end of Glacial Lake Laberge broke, draining the area that would eventually become Whitehorse. New plant and animal species made the post-glacial landscape a suitable environment for human occupants, and salmon drew people to the river to fish, gather and visit.

Generations of Coastal and Inland Tlingit, Kaska, Han, Gwich'in, Northern Tutchone, and other First Nations came to trade, feast, fish and gather with the Tagish Kwan¹ and Southern Tutchone in the Whitehorse area. These relationships have persisted through time and Kwanlin Dün and Ta'an Kwäch'än continue to have cultural affiliations with all the surrounding First Nations, as well as with the Inland and Coastal Tlingit.

These millennia-long patterns of occupation and use of the Yukon River valley at Whitehorse by first peoples largely continued after the arrival of peoples of European descent in the Yukon in the 1860s. It was the 1896 discovery of gold in the Tr'ondëk region, or modern-day Dawson City, that would drastically change the lives of Yukon First Nations people. The Gold Rush and subsequent construction of the White Pass & Yukon Route (WPYR) railway turned the newly named Whitehorse (first coined by stampedeers but made official in 1899 by the first Commissioner of the Yukon) into a transportation hub and mining district. Salmon stocks declined and First Nation people were forced to leave their villages, graveyards and summer fish camps as railway development, sternwheeler traffic, new settlements, and early dam construction altered the Yukon River valley. Many aboriginal people worked seasonally in wood camps and on riverboats, harvested fish and game commercially, "farmed" fox and mink, guided, and trapped during the winters, selling the pelts in town and at trading posts.

¹ There are various spellings of this word. The draft 2040 City of Whitehorse Official Community Plan uses "Ch'an".

First Nations people were granted a reserve in Whitehorse; however, it was transferred four times by the Indian Agent, Reverend John Hawksley, between 1915 and 1921 to accommodate the city's growing development as well as to separate Natives from White communities. As a result, First Nations people found themselves continually displaced and marginalized from the places they had long called home.

The building of the Alaska Highway during World War II significantly altered post-Gold Rush Whitehorse with the arrival of thousands of United States army personnel and civilian contractors. As with the Gold Rush-era upheaval, some Yukon First Nations people participated in the new economic opportunities, but their broader geographic, economic, political, and cultural marginalization increased as they were pushed out of traditional use areas, forced to attend federal residential schools, and forbidden from holding cultural ceremonies, owning land, holding public office, or even voting. Continued growth and urban expansion forced First Nations to move and relocate several times as new neighbourhoods took the place of hunting and gathering areas along the Alaska Highway.

The neighbourhoods of Hillcrest and Takhini were built to house Canadian Army and Royal Canadian Air Force families during the WWII era; Valleyview followed by the mid-1950s and housed civilian/federal officials. "Upper Whitehorse", as these neighbourhoods were called, alienated traditional hunting areas. Yukon First Nation Elder Lucy Wren recounted her mother being denied access to the Hillcrest area, her traditional grouse hunting grounds, by a military guard (KDFN, 2013).

The decades-long displacement of First Nations people from their homes in the Whitehorse valley – which by the 1960s included the present-day sites of Riverdale, Robert Service campground, S.S. Klondike National Historic Site, and Shipyards and Rotary parks – came to a head in the late 1960s and 1970s. The Whitehorse Indian Reserve No. 8 (or Lot 226/Old Village) in Marwell was located next to the city's sewage outfall, contaminated by oil and tar from the nearby refinery, and lacked electricity or plumbing. These dangerous and unsanitary conditions were a source of ongoing concern for the Whitehorse Indian Band (WIB) - a Department of Indian Affairs 1956 amalgamation of Indigenous peoples living between Tăkwădhān Kwăshăw/Marsh Lake and Tăă'an Măn/Lake Laberge – as well as federal and Yukon government leadership. A convergence of funding and political circumstances led to the 1984 decision to relocate people to McIntyre, a vacant four hundred lot subdivision built in the 1970s in anticipation of the Alaska Highway gas pipeline. McIntyre was effectively moved into by 1989 and, with the move, the WIB

“And the way they used to live, I heard an awful lot of stories...They'd have a great big camp...They'd have their gathering...Everybody would, you know, give gifts away to each Elder...And things like that. Some of the ladies, they'd bring tanned skin, give it to somebody else. Somebody else would give them tanned skin. And, and fur, things like that. Everything was just so neat...

And when the highway went through they spoil, they just push down an old house, old cabin that, that used to be their gathering place. They just destroyed everything...They dirtied up our country, that's for one thing we could say. I got a prayer at home...It says, “God help us to put our land straight. To clean up where they have dirtied” ..And it's a prayer that I read practically every day. Because it's the truth.”

Yadultin – Jessie Scarff

Excerpt from
Kwanlin Dun: Our Story in Our Words
(page 150)

was renamed Kwanlin Dün First Nation (KDFN). The present-day neighbourhood of McIntyre houses many KDFN citizens and is the location of the KDFN government’s administration buildings.

In 1973, Elijah Smith and a delegation of Yukon First Nation leaders traveled to Ottawa to present “Together Today for our Children Tomorrow; a statement of grievances and an approach to settlement by the Yukon Indian People” to former Prime Minister Trudeau, effectively kickstarting the negotiation process for a modern-day treaty, the first in Canada. After an intense 20-year negotiation, the Umbrella Final Agreement was signed between the Council of Yukon Indians and federal and territorial governments in 1993.

In 1987, the Ta’an Kwäch’än re-established themselves as a distinct First Nation; they formerly separated from KDFN in 1998. In 2002, TKC signed its final and self-government agreements, a century after Ta’an Kwäch’än Chief Kishxóot (Jim Boss) wrote to King Edward VII and Ottawa demanding that his people be compensated for lost land and wildlife impacts – the sending of this letter, and the brief response, representing the first attempt at modern land claims negotiations by a Yukon First Nation. TKC’s agreement gave them ownership and authority over 796 square kilometres (km²) of Settlement Land in a traditional territory spanning over 12,000 km². One of those Settlement Land parcels is C-30B, located adjacent to the Alaska Highway in the eastern portion of the study area.

KDFN signed its land claims agreements in 2005, assuming ownership and legislative authority for over 1036 km² of Settlement Land within its Traditional Territory. Two of those Settlement Land parcels, C-117B and C-141B, are located within the study area to the north and south of Sumanik Drive.

2.3.2 Whitehorse Upper Tank Farm

World War II is a distinct milestone in the history of the Yukon Territory, and in particular, Whitehorse. The United States (U.S.) military had a three-pronged approach to protecting the vulnerable northwest corner of North America from Japanese attack: first, upgrading airports and communications along what became known as the “Northwest Staging Route”; second, the construction of the Alaska Highway from Dawson Creek to Fairbanks, Alaska to link the airports; and third, the construction of a 960-kilometre pipeline to pump crude oil from the oil fields at Norman Wells, Northwest Territories to a new refinery at Whitehorse. All three

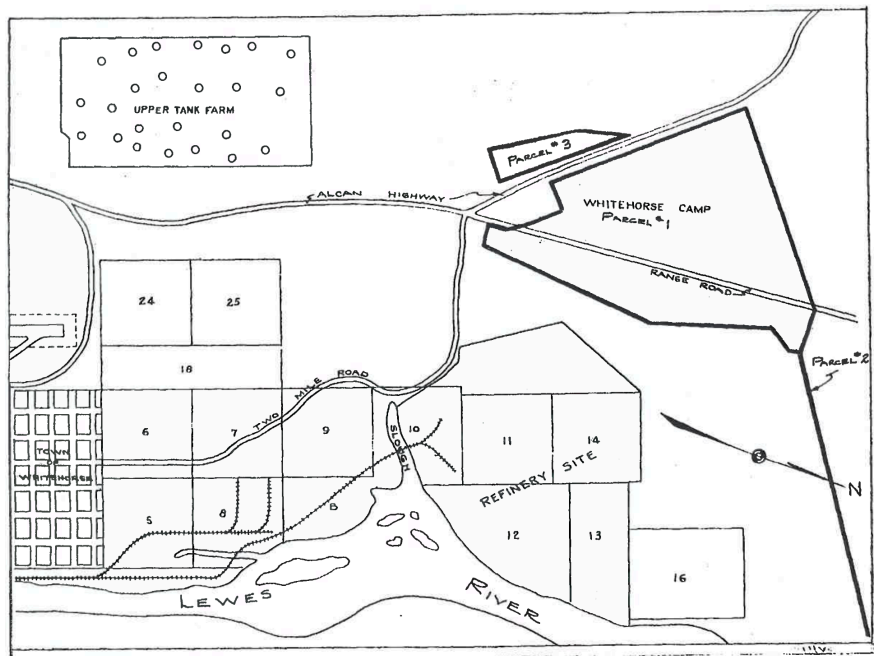


Figure 6. Early site plan for the Canol refinery and Whitehorse Upper Tank Farm (Source: YA, RG 91. Series 8 cited in Midnight Arts et al, 1999)

schemes geographically intersected in the area encompassing the then-rudimentary Whitehorse airfield on the upper terrace of the Yukon River valley and the lands located to the west of it.

The Canol (short for “Canadian Oil”) refinery opened in 1944 in the Marwell area of Whitehorse. The intent of a related pipeline between Skagway and Whitehorse (part of Canol No. 2) was to deliver gasoline barged to the Alaskan port to the Yukon. After the Canol refinery started operation, refinery products were shipped in the other direction as well (Midnight Arts, 1999).

The Whitehorse Upper Tank Farm (WUTF) was established west of the newly expanded Whitehorse airfield upon request of the U.S. military, with several pipelines (from Skagway and to the refinery) connecting to it and the 24 large tanks used for the storage of gasoline, furnace oil and arctic stove oil (EBA, 1999). The end of the war and withdrawal of U.S. military interests saw a complicated chain of Canol No. 1 and 2 asset purchases and transfers involving the Canadian and U.S. governments and WPYR Company. In 1958, the Canadian government accepted transfer of the portion of the Skagway pipeline located within Canada and leased a portion of WUTF to WPYR; by 1962, WPYR had purchased it outright (Midnight Arts, 1999).

In 1958, Yukon Pipeline Limited (YPL) purchased the WUTF and operated it as a light petroleum storage facility for the Yukon until 1995, when it applied to the National Energy Board (NEB) to abandon the facility because it was no longer economically feasible to operate (Golder Associates, 2013). YPL was granted an order to abandon, subject to a plan of remediation, in 1996. Dismantling of the storage tanks and the pipeline that serviced the site was completed in 1997, and a Plan of Restoration (POR) was submitted to NEB in 1999. The property was acquired by private owners in the late 1990s (Whitehorse Star, 2012) and released by NEB in 2009 as meeting the POR for current usage. Environment Yukon formally designated the WUTF site as a contaminated site in 2011 to have greater oversight of remediation. That remediation has now progressed to the point that only a portion of the former WUTF site remains designated.

Whitehorse Upper Tank Farm (WUTF) and the OCP

Groundswell acknowledges the research efforts of City staff for this section.

The first known reference to the WUTF in the City’s OCP dates back to 1983, when it was directed that, “The White Pass Tank Farm shall be relocated at the earliest possible opportunity” in order to accommodate a new major residential district in the Hillcrest/Valleyview/Airport area of about 8000 people. The direction to relocate the WUTF was repeated in 1987 and 1994, with the Utah siding area suggested as an alternate location.

The 2002 OCP created a “White Pass Tank Farm Direct Control District” for residential development and outlined parameters for an Area Development Scheme – essentially a master plan - to be created for it. The Direct Control District reappeared in the 2010 OCP to “allow Council to directly control the use and development of land and buildings within the area.”



Figures 7 (above) and 8 (below). Valleyview South area air photos 1963 and 1985. The 24 tanks associated with the WUTF are visible in both photos. By 1985, the surrounding area has further developed, including the then-vacant McIntyre subdivision to the west of the WUTF, Mount McIntyre Recreation Centre to the west of Valleyview, and Burns Road area to the south of the WUTF.



2.3.3 Surrounding Area

The neighbourhood of Hillcrest was built in the late 1940s to house the Royal Canadian Air Force (RCAF) personnel stationed in Whitehorse to monitor Russian signals at the height of the Cold War (McLaughlin, N.D.) Six house designs commonly used on Canadian military bases, but the “Steelox” brand of prefabricated housing was unique to Hillcrest (Ibid). The RCAF base was closed in 1968-9 and the housing was sold. By that time, the neighbourhood of Valleyview had been built to house civilian federal contractors and their families. The Hillcrest Industrial Subdivision was surveyed in 1976, and in 2009, expanded with the creation of Wasson Place and eight additional lots (Hillcrest Community Association, 2020). The subdivision of Granger was developed in the early 1990s to the southwest of Hillcrest.

“The streets of Whitehorse were dusty and rutted, with wooden sidewalks ...By contrast, both the Canadian Army and the RCAF built new, fully serviced homes on the bluffs above town...Townspople envied the perks for military and federal officials’ families in “Upper Whitehorse”: subsidized food from outside suppliers sold in the PX store, low-cost housing, indoor plumbing, modern furnaces, recreational facilities and secure incomes supplemented by northern allowances.”

Excerpt from *Whitehorse: An Illustrated History* (page 198)

The Mount McIntyre area immediately to the west and northwest of the Valleyview South study area has a 70+ year legacy of recreational use. RCAF servicemen developed Roundel Hill for downhill skiing about 500 metres west of the present-day intersection of Sumanik and Hamilton Drives. In the early 1970s, the former ski hill was incorporated into a new network of ski trails by the Whitehorse Cross Country Ski Club (WCCSC), which constructed a ski stadium and warming shacks immediately west of Valleyview. By the late 1970s, the club was building the Mount McIntyre Recreation Centre to host a World Cup race (RC Strategies, 2018). The Lions Aquatic Centre was opened in 2003 to the west of Hamilton Boulevard and north of the WCCSC stadium; by 2005, ice sheets, running track, gymnasium and indoor fields had been added and the now-complete Canada Games Centre (CGC) helped host the 2007 Canada Games.



View of Canada Games Centre from the unsurveyed YG lands to the east

3.0 Environmental Conditions

3.1 Geology

The Valleyview South study area is largely comprised of a broad, gently rolling terrace on the west side of the Yukon River valley. The terrace is at about elevation 722 metres above sea level (ASL) and is bounded to the east side where the land slopes down about 25 metres to the Erik Nielsen Whitehorse International Airport terrace level. Refer to Map 2 Elevation.

The landscape of the study area was formed as a kame delta, which is a broad sand and gravel deposit created during deglaciation. Glaciers in the Whitehorse valley advanced from, and then retreated to, the south. A meltwater stream flowing along the west side of the melting glacier filling the Whitehorse valley discharged just west of the study area, depositing the sand and gravel near the ice front into a pro-glacial lake that likely formed north of the front. Given the proximity of these deposits to the ice fronts, the resulting landforms are sometimes called “ice-contact deltas”. The meltwater channel that supplied the sediment forms the broad, north-trending valley lying between the neighborhood of Copper Ridge and the WCCSC trails and Copper Haul Road to the west.

Subsurface conditions in the study area have been revealed through extensive drilling over that past 45 years. Initial drilling was conducted in 1978 to explore groundwater supply potential of the meltwater channel mouth just west of the study area in the McIntyre subdivision. Subsequently, the study area was extensively drilled (beginning in 1996) to assess contamination from the former WUTF. This drilling has amounted to approximately 30 wells and boreholes drilled across and around the area, with many of the boreholes advanced to between 30 and 40 metres depth (Golder Associates, 1998). To date, bedrock has not been encountered; in fact, the nearest bedrock was found in the 1978 water wells drilled west of the study area (across Hamilton Boulevard) at a depth of about 50 metres and consisted of weathered granodiorite (Stanley Associates, 1978).

This drilling shows the site is underlain by a thick sequence of sand and gravel, with increasing sand at depth (where the fining of the soils with depth likely resulted from the kame delta being deposited in the aforementioned proglacial lake). This surficial geology creates a well-drained surface with no surface water features, other than the small wetland/intermittent pond at the south end of the study area. Along the east side of the area, silt is encountered at depth (due to the same fining mechanism).

3.2 Topography

The Valleyview South area is generally flat to gently rolling but is punctuated by a north-south trending line of closed depressions. These (roughly) six-to-eight-metre deep depressions, or “kettles”, were created by buried blocks of glacial ice that melted out after being buried by sand and gravels. The largest kettle depression is located at the south end of the study area, just north of the Hillcrest subdivision. This depression is about 20 metres deep and hosts a small intermittent pond/wetland area because it receives the local drainage. This is the only surface water feature in the study area.

Much of the study area is generally level; however, the central depressions and eastern edge of the study area are steeper, with slopes of 5 to 15% or more. Locally there may be steep slopes (>15%) from

gravel excavation activities, including on the southeast corner of Lot 429 and a residual gravel excavation depression on Lot 430 on the western edge of the property near Hamilton Boulevard. Refer to Map 3 Slopes.

There have been numerous deep excavations across the site conducted as part of remediation. These excavations appear to have been largely backfilled; however, the nature of the backfill, materials used, and compaction effort applied is unknown based on the information readily available at this time. Uncertain subsurface conditions at these areas of anthropogenic disturbance should be taken into consideration as part of site development planning. Further details of the remediation activities may reside with YG's Environmental Programs Branch.



Eastward panorama of topography of upper terrace (Lots 429 and 430)

3.3 Hydrogeology

Within the study area there is no documented surface water, other than one documented wetland located immediately north and west of Sunset Drive North in the Hillcrest subdivision.

Groundwater is relatively deep, ranging from 20 to 30 metres below ground surface, as measured in the (as of two years ago) 20 serviceable groundwater monitoring wells located within the study area (Golder, 2020). Groundwater flows from west to east, generally from the meltwater channel area located to the west of McIntyre subdivision and through the highly permeable sands and gravels underlying the study area, emerging as a series of springs in Baxter's Gulch (located east of the Alaska Highway) that forms the headwaters of a small creek that flows to the downtown and ultimately, Yukon River.

To some degree, groundwater and run-off will also flow south from the Valleyview South area towards the Hillcrest subdivision and surface water may pool within the former WUTF (Golder Associates, 2013) although this will be influenced by any works to alter slopes and elevations within the site.

Overall, the geological conditions present good development potential, with well drained soils and natural features that can form part of the development's stormwater management strategy.

3.4 Aspect and Views

The Valleyview South area features terrain facing in all directions. Northerly aspects are the most dominant and are distributed throughout the planning area. Southerly and westerly aspects are also found throughout but are generally more prevalent in the southwestern corner, centre, and western areas. Easterly aspects are more concentrated along the lower elevation areas adjacent to the Alaska Highway. Refer to Map 4 Aspect.

Lots in the southeast corner have an east view of the Whitehorse valley and Grey Mountain; however, that view extends to the Alaska Highway, ENWIA and Burns Road/Wasson Place area. The higher elevation parcels around Sumanik Drive – namely Lot 262-2 and upper portions of Lot 12 and 431 – offer some views to the north and Lake Laberge.



View of Grey Mountain from the boundary of Lots 429 and 430

Perhaps the most significant and expansive view in the central part of the planning area is found along the southern boundary between Lots 429 and 430, where the access road intersects the forested gully feature and there is a striking view of Grey Mountain. There is a northwesterly view towards Haeckel Hill from the interior of the parcels. While the current excavated state of Lot 429 partially blocks eastward views at present, these could be restored with site grading, subject to a carefully designed visual buffer from Burns Road and Wasson Place. Refer to Map 5 Environmental and Special Places.



Panoramic view of Wasson Place from Lot 426

3.5 Ecology

3.5.1 Ecoregion and Vegetation

The Valleyview South planning area is located within the Southern Lakes Ecoregion of the Boreal Cordillera Ecozone, which is characterized by extensive mountains and valleys separated by wide lowlands and an interior subalpine climate type with long, cold winters and brief and cool summers (Yukon Ecoregions Working Group, 2004).

Some portions of the study area have been previously cleared of vegetation, especially the WUTF area. For remaining areas, the vegetation is typical of low elevations of the Yukon Southern Lakes Ecoregion and largely consists of Lodgepole Pine with Trembling Aspen, White Spruce and some Paper Birch, with various understories such as feathermoss, lichen-grass, Labrador Tea, and willow (Golder Associates, 2013). The forested sections include a myriad of recreational paths and trails, particularly in the southwestern corner adjacent to Hillcrest and Granger.

3.5.2 Wildlife and Wildlife Habitat

Wildlife Key Areas (WKAs) are areas identified by the Government of Yukon as being critical to the life functions of wildlife (e.g., rutting, calving, nesting, and foraging habitat). No WKAs overlap the study area (GeoYukon, 2022). Also, no species of conservation concern, as designated by the Yukon Conservation Data Centre, overlap the Valleyview South area (GeoYukon, 2022).

The Valleyview South planning area is largely urban in nature. Anthropogenic disturbances such as noise, vehicle and people movements mean most larger animals such as Black Bear, American Porcupine, Moose, Grey Wolf and Canada Lynx stay away from the Study Area, although the occasional occurrence of these species should never be ruled out. Wildlife such as Red Fox, Coyote, Red Squirrel, Pine Marten and Least Chipmunk can likely be found in the Study Area along with a variety of small mammals such as voles and mice.

The trees and shrub vegetation in the study area will provide suitable foraging and nesting habitat for a variety of resident and migratory birds (e.g., White-winged Crossbill, Black-capped Chickadee, American Robin, Warbling Vireo). Of the bird species that potentially occur in the Study Area, two are species of conservation concern; namely:

- *Olive-sided Flycatcher* - Listed as Threatened under the federal Species at Risk Act (SARA). Potential foraging and tree nesting habitat is available in the area in areas away from paths and trails.
- *Common Nighthawk* – Listed as Threatened under SARA. Potential ground-nesting and foraging habitat may exist within the cleared area of the former Tank Farm. Common Nighthawks have been observed in the past on the Erik Nielsen Whitehorse International Airport (ENWIA) property, less than 700 metres southeast of the study area.

3.5.3 Ecologically Sensitive Areas

Under the proposed OCP, an “environmentally sensitive” area is a waterbody, water course, wetland, high value habitat area, or wildlife corridor. The area with the highest wildlife habitat value is likely the small wetland located immediately north of Hillcrest in the unsurveyed YG parcel. Another feature of note is the north-south forested gulley that straddles Lots 429 and 430 for an approximate distance of 600 metres. OCP-designated Greenspace in the planning area is not known or observed to have any particular sensitivity or ecological values.

3.6 Trails

Trails within the Valleyview South area are predominantly old roads and doubletrack (i.e., ATV-width trail), with limited amounts of singletrack (i.e., narrow width). The highest concentration of trails is in the greenspace areas adjacent to Hillcrest/Granger and Valleyview. Old roads constitute most of the trails found in the southeast and former WUTF areas. Other trails are functional in nature, such as those straddling the parcel boundaries between Lot 430 and KDFN C-141B and Lots 262-2/430 and TKC C-30B. A section of paved pathway intersects with the southeastern corner near Hillcrest. Refer to Map 5 Environmental and Special Places.

City trail planning and new construction was undertaken for the Hillcrest/Granger (or “Above the Airport” area) around 2016. No trail planning has been undertaken for Valleyview to date. No City-designated trails (other than the paved pathway) are known in the Valleyview South area. There is a significant network of City singletrack trails located in and around the cross-country ski trail network west and southwest of Valleyview. In the summer, the City manages the entire “Mount Mac” trail network; during the winter months, WCCSC retains tenure over the cross-country ski trails and only the City’s singletrack trails are available for public use free-of-charge.



Wetland near Hillcrest



Bottom of gulley feature on Lots 429/430



Trails northwest of Hillcrest

3.7 Contamination

3.7.1 Whitehorse Upper Tank Farm (Lots 429 and 430)

The former WUTF operation consisted of 24 above ground storage tanks (ASTs), each with a capacity of 1,621,000L, installed in 1944 on raised sand pads in unlined earthen berms and used for the storage of regular gasoline, furnace oil, and arctic stove oil (EBA, 1999).

The local geology, consisting primarily of deep gravel and sandy soils, was highly conducive to vertical migration of spilled and leaked hydrocarbon products from WUTF operation. An early report noted that *“in this type of soil profile, the surface releases of hydrocarbons would travel vertically under gravity drainage through the well-drained gravel and sand soil, leaving a zone of ‘residual phase’ hydrocarbons trapped within the pore spaces of the soil or adsorbed onto soil particles. In this respect, the contamination deriving from the surface releases has likely formed ‘columns of residual contamination’ with relatively limited areal extent that are not mobile as free product in the subsurface”* (EBA, 1999). The cross-section shown in Figure 9 provides a visual representation of subsurface geology and estimated “columns” of residual contamination as of 2013.

Yukon Contaminated Sites 101

The *Environment Act* and its *Contaminated Sites Regulation (CSR)* and *Special Waste Regulations* provide the regulatory framework for matters pertaining to contaminated sites. The CSR provides Generic Numerical Soil Standards and Matrix Numerical Soil Standards to assess soil quality at sites of interest. These standards are divided into categories based on land use and include standards for residential, commercial, industrial, and park land use.

Once a site is designated contaminated by YG, it cannot have the designation removed until it remediates the site as per YG requirements and receives a Certificate of Compliance. Designation does not preclude development of a property, but it requires that authorization from the Minister of Environment be obtained prior to initiating certain activities such as change in land use, excavation, or construction.

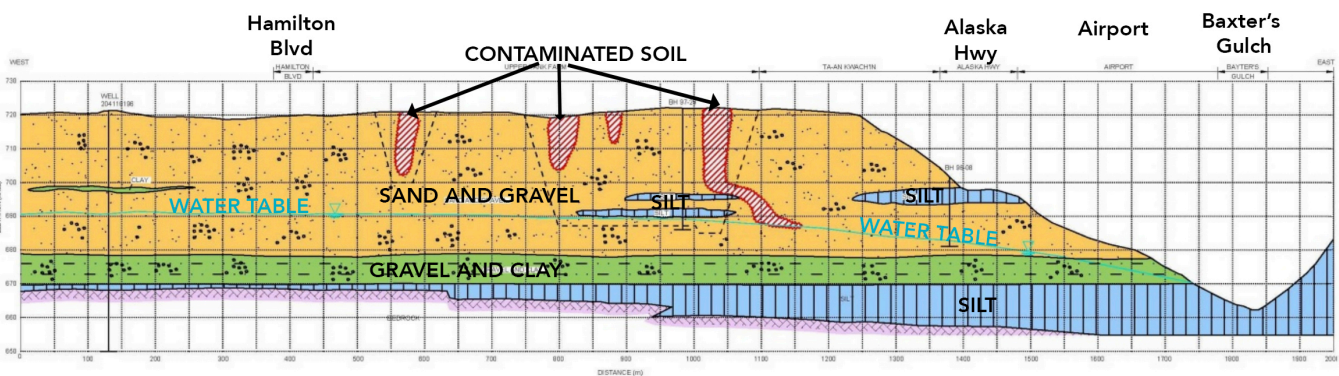


Figure 9. Schematic cross-section of estimated vertical extent of soil and groundwater contamination on WUTF and adjacent areas as of 2013. (Source: Golder Associates, 2013)

The first of many investigations to delineate the spatial extent and depth of contamination resulting from hydrocarbon leaks and spills associated with tank farm operation occurred in 1996, and groundwater monitoring continues to this day (with flow towards Baxter’s Gulch). Table 3 provides a general timeline of noteworthy activities on the site.

Table 3. Timeline of remediation-related activity for the former WUTF

Year	Milestone	Description
1995-6	Abandonment application	YPL applies to the National Energy Board (NEB) to abandon the facility and is granted an order to do so in 1996
1996	Phase I Environmental Site Assessment (ESA) (Golder Associates)	A screening level Phase I is carried out to determine Areas of Potential Environmental Concern (APECs)
1997	Site decommissioning	ASTs and associated pipelines and other infrastructure are removed from the site
1997	Phase II ESA (Golder Associates)	A program of monitoring well installations, groundwater sampling program, shallow soil vapour testing, and extensive test pitting in suspect areas (to a maximum of 3.0m) is carried out
1999	Plan of Restoration (EBA Engineering Consultants)	Document is prepared outlining the intended remediation activities required to meet standards agreed to by YG, NEB, and intervenors and to meet the abandonment order conditions
1999-2001	Ongoing remediation	Excavation and treatment of contaminated soils to a depth of 3.0-11.0m is carried out
2009	Release by NEB	Property is deemed as meeting the Plan of Remediation (POR) for current usage
2011	Ministerial designation under CSR	Environment Yukon formally designates the former WUTF as a contaminated site in January 2011 to gain oversight of remediation activities
2013	Plan of Remediation (Golder Associates) and assessment	Application is submitted to the Yukon Environmental and Socioeconomic Assessment Board (YESAB) to excavate, process, and treat remaining contaminated soils at depths greater than 11m in an on-site land treatment facility
2015	Certificate of Compliance	Certificate is issued for northwest portion of Lot 430 and portion of Road 51614 CLSR YT, meeting applicable CSR standards for residential and commercial land use as per Schedule 1
2020	Certificate of Compliance	Certificate is issued for a portion of Lot 429, 430 and Road 51614 CLSR YT, meeting applicable CSR standards for residential and commercial land use as per Schedule 1

From the outset, the intent was to remediate the property to meet numerical standards under the CSR. Indeed, it was noted that “the only area of the site where it may not be economical or technically feasible to restore the land to numerical standards is contamination that may be located immediately adjacent to the eastern property line.” This exception was further specified as being contaminants present within 30m of the eastern property line (Golder, 2013).

The 2013 Plan of Remediation was accepted and implemented (refer to Figure 10), resulting in the first of two Certificates of Compliance for the former WUTF in 2015. The certificate was specific to the northwestern corner of Lot 430, and YG Department of Environment issued the following disclaimer:

“It should be noted confirmatory sampling results indicate soil concentrations were below the CSR standards for residential land use within three metres below ground surface, and below commercial land use standards at a depth greater than three metres below ground surface in accordance with section 6(4) of

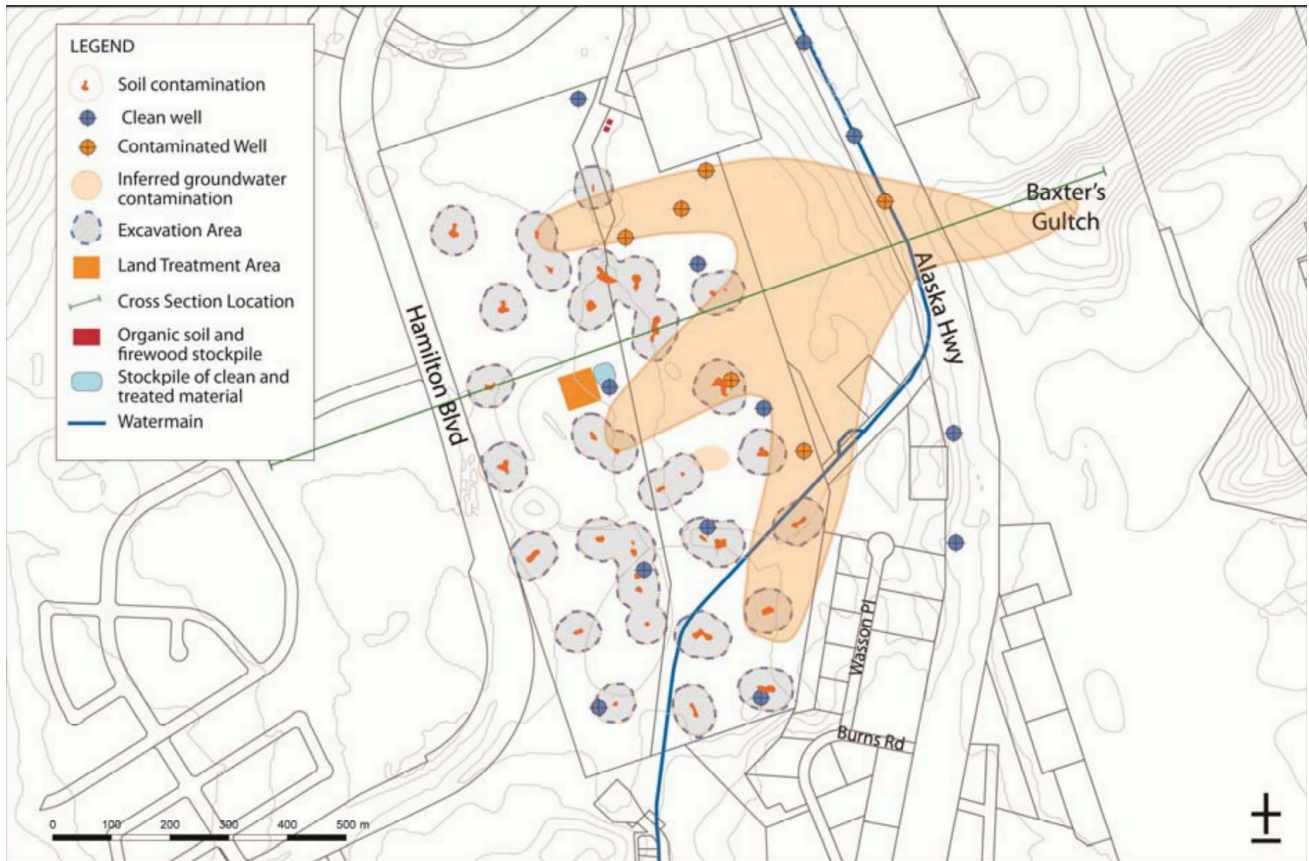


Figure 10. Site diagram showing 2013 site restoration strategy for WUTF (Source: Golder Associates, 2013)

the CSR. Specifically, soil concentrations greater than residential land use standards, but below commercial land use standards remain at depths of 12 metres and 15 metres at “Site B”, and at 15 metres at “Site I” within “Proposed Lot A.” Therefore, future development decisions should consider the impact of bringing soil with concentrations above commercial land use standards within three metres of the final grade of the site” (Connell, 2015).

The second certificate was issued in 2020 for much of the central, western, and southern portions of the WUTF site, with the following disclaimer:

“Multiple locations located within the lands to which this certificate applies have hydrocarbon concentrations above CSR residential land use standards but below CSR commercial land use standards at depths greater than three meters below current ground surface. These locations are considered remediated to numerical CSR standards as per Section 6(4) of the CSR, which stipulates the application of commercial land use standards at depths greater than three meters below ground surface. This Certificate of Compliance will no longer be valid if the elevation of ground surface changes such that the depths of these exceedances are no longer greater than three meters below the surface of the land, as the site will be considered contaminated.”

Both disclaimers effectively mean that future site grading needs to consider the locations noted in the certificates and, ideally, avoid bringing the new grade to within 3m of the elevations at which subsurface contamination is still present. Those locations are listed in Table 4 and indicated on Map 5 Environmental and Special Places. YG staff clarified the application of that 3m standard as follows: *“if a residential structure has a basement that extends 3m below grade then residential standards would apply to a depth of 3m below that basement, which would be 6m below grade. Commercial standards would apply at depths greater than 3m below the basement.”* (Schilder, pers. comm).

In practice, the grading issue does not pose a significant constraint to development. YG staff advised that should the site grading plan result in a “trigger” of the 3m buffer, targeted excavation and confirmatory sampling could be carried out in those specific locations with the objective of further remediating to meet the residential standard (Schilder, pers. comm).

The status of remediation, nor timelines for completion, of the remaining portion of Lot 429 under Ministerial designation is not well understood at present. Groundwater monitoring wells continue to show contamination above applicable standards with various hydrocarbon parameters (Schilder, pers. comm).

3.7.2 Other Properties

While Lots 429 and 430 were the focal point of WUTF activities, associated pipelines were or are still present on neighbouring properties. GeoYukon shows a pipeline designated right-of-way (ROW) straddling the City’s Lot 427 and adjoining surveyed road and crossing Lot 426 diagonally before descending to the Alaska Highway. A similar ROW can be seen crossing Lot 12 and KDFN C-141B before terminating at the Lot 430 parcel boundary. While not specified as pipeline in GeoYukon, sections of pipe are visible above ground in this area and this is almost certainly a section of historic pipeline running to/from the refinery in Marwell.



Typical post-remediation depression on Lot 430

Pipeline-related contamination was encountered on Lot 426 during the construction of the new access to Lot 2 from Wasson Place last summer (Idrees, pers. comm). YG undertook a Phase 1 of that property. It should be

Area of Environmental Concern	Depth of Contamination (metres)
C	5.0
CC	9.0
D	12.0
G	20.0
K	4.5-12.0
L	5.0
N	6.0
Q	6.0
R	4.0

Table 4. Areas of Environmental Concern (AECs) on Lots 429/430
(Source: Golder Associates, 2020)

noted that, in 2005, approximately 30 - 40 aged, rusty barrels were found on the lot filled with asphalt or roof tar. A sample of the contents was sent to lab, but there was difficulty analysing the material because it was near 100% hydrocarbon (YG Contaminated Sites, N.D.).

Residual pipelines and/or WUTF infrastructure are only one potential concern for adjoining properties; the other is off-site migration of contamination in soils and groundwater across property boundaries. Based on the local geology of the site, the areal extent of contaminant transport from APECs or AECs was considered limited (Golder, 2013); as such, off-site migration of contamination that has reached the groundwater table is understood to be the more likely issue of concern (note that groundwater flows west to east, with discharge emerging as a series of springs in Baxter's Gulch).

YG Environment staff caution was the focal point of remediation and related investigations was always the WUTF property, versus the broader contaminant plume; as such, they feel that it is very possible that down-gradient water quality was not fully delineated and/or investigated at neighbouring properties (Schilder, March 30).

A Phase 1 ESA was undertaken for Lot 262-2 in 2005, prior to Northwestel's sale of the property to its current owners. The ESA mentions a 40-year old underground storage tank and notes "*there are potential contaminant concerns associated with the soil in the vicinity*" and that "*if the previous report (on the tank removal) cannot be obtained, these concerns should be addressed through a soil sampling and analytical program*" (EBA, 2005). There is no mention of any potential for cross-property migration of contamination from the WUTF. It is unknown whether the missing report was ever obtained, or if it wasn't – whether the recommended follow-up investigation was carried out. YG staff commented that 17 years is a long interval and recommended that this ESA be updated to reflect current conditions and conform with industry standards (Schilder, June 30). Further, the property has been used for snow storage since that time, which could potentially add new sources of contamination.

YG Environment staff shared that groundwater has consistently been shown to flow in a northeasterly direction across the WUTF site. Given the proximity of the known groundwater contaminant plume to Lot 262-2 and the groundwater flow direction, they feel there is a possibility that an updated Phase I may find that groundwater contamination is present on the lower elevation portions of Lot 262-2. This concern is assumed to extend to TKC C-30B. Groundwater in the area appears to be quite deep (20-30 m) and it is possible that any groundwater contamination would not pose a risk to human health if suspect sites were developed (Schilder, pers. comm). However, in the absence of any site specific data, YG Environment staff cannot confirm this. The Team was unable to confirm the status of downgradient monitoring wells adjacent to TKC C-30B.

YG's online Contaminated Sites Registry also identifies a now-remediated site in the Valleyview playground, where an oil drum suspected to have been from the WWII-era was discovered, half-buried in the ground, in 2010. The area surrounding the drum was then excavated and about 110 m³ of soil contaminated with PHCs was removed and confirmatory sampling showed soil quality met the applicable standard by 2012.

4.0 Heritage Resources and Values

4.1 Archaeological Resources

In preparation for remediation activities, an archaeological overview assessment was conducted in 2013 by Golder Associates on the former WUTF, as well as TKC's C-30B parcel. The overview confirmed the presence of one previously registered archaeological site, JeUs-30, just outside of the southwest corner of the tank farm property. JeUs-30 is a precontact lithic site in which a single retouched large blade fragment was found.

The report noted that past industrial activity has resulted in ground disturbance within the former WUTF but its authors deemed the potential for undocumented, subsurface archaeological sites within it to be low. The authors also predicted a low potential of culturally modified trees in most of the Project area. However, the report deemed the eastern boundary of the WUTF property, as well as C-30B, to have high potential for undocumented heritage resources given their relative proximity to the Yukon River, Baxter's Gulch, and JeUs-30.

Golder recommended the following:

- *"No further heritage assessment work be conducted within the disturbed areas of the former WUTF (i.e., locations that have been cleared and graded in the past, including the location of former tanks, valves, piping, loading racks and roads).*
- *A heritage impact assessment is only recommended for the undisturbed lands (i.e., ungraded forested lands) within the Project area, including the east margin of the WUTF and the adjacent Ta'an Kwäch'än Settlement Land parcel;*

Heritage Resources 101

Groundswell gratefully acknowledges the First Nation government staff who drafted this content.

Heritage resources in the Yukon are protected under the *Historic Resources Act* (HRA). The definition of heritage in the HRA is specific to tangible resources and does not include resources or values First Nations consider heritage (e.g., berry patches, knowledge, language, etc.).

Chapter 13 of the Umbrella Final Agreement (and individual Final Agreements (FAs) recognize that First Nations have their own values and definitions of heritage that may not be considered in current heritage management and legislation of public lands and have complete jurisdiction over heritage on their lands. Implementation of FAs has lagged, creating a legislative gap in the types of heritage and heritage resources that are protected or considered in the Yukon. An Intergovernmental Heritage Working Group (HWG) is currently working on new, collaborative heritage legislation that recognizes the FAs.

Ongoing management of heritage sites on public land is currently undertaken through the *Lands Act* but only applies to archaeological sites, burial grounds, and monuments and is usually only triggered through reviews under the *Yukon Environmental and Socioeconomic Assessment Act* (YESAA).

Management of heritage resources/values on TKC and KDFN lands are within the jurisdiction of both governments; however, neither currently have their own heritage policy or legislation.

Legislative and policy gaps will remain until First Nation governments develop heritage policy/legislation for their lands and Traditional Territories, HWG completes its work on new legislation, and the City collaboratively develops heritage policies. In the meantime, to ensure heritage resources are identified, considered, and managed, TKC and KDFN recommend a discussion of the scope of previous heritage assessments and a discussion about scope/process for newly planned assessments.

- *Heritage impact assessment at JeUs-30 to determine whether surface and sub-surface archaeological deposits will be impacted by the proposed Project;*
- *Mitigation of historic artifacts and features within the Project area through mapping, documentation, and photo documentation; and*
- *Other mitigation options will be addressed if significant heritage resources are identified within the Project area. These options include, but are not limited to, systematic data recovery, background research, removal and relocation, replication, and public education”.*

Based on their review of the Golder report, KDFN and TKC staff have indicated that, from their perspectives, it has gaps and limitations that need to be understood before it is used as a reliable source of recommendations for development. Subsequent discussions with the City have raised these key points:

- The lack of a Heritage Resources Overview Assessment (HROA) for the entire planning area is problematic and poses some level of risk (i.e., that further investigations could potentially affect development plans);
- A more detailed, site-specific Heritage Resources Impact Assessment (HRIA) may be a requirement of rezoning and development approval for individual land parcels; and
- Coordinating a HROA and/or HRIA may pose a challenge due to the different landowners and varying development timelines.

These discussions will continue in parallel with the planning process and recommendations for addressing heritage included in the implementation section of the final Master Plan report.

4.2 Historic Resources

Two known historic sites in the study area were recently documented by YG Archaeology Branch staff doing an assessment of a land application in the area (Whalen, pers. comm). One of them, a cinderblock bunker located on Lot 426, is registered in the Yukon Historic Sites Inventory (YHSI) and is believed to have served a storage function for the WUTF (Ibid).

The second is a wood structure located on Lot 2 that is believed to form part of one of several World War II era sand bunkers found in the area (Golder, 2013). Because this resource is located on private property, YG is unlikely to include it in the YHSI unless the owner provides access and permission to document it.



Concrete bunker on Lot 426

YG Historic Sites staff commented that it is likely that other sites related to the WUTF were dismantled and/or removed during previous remediation and cleanup efforts.

5.0 Planning and Policy Context

5.1 Development Plans and Interests

5.1.1 Northwest and Northeast Parcels

- *Lots 12, 66 and Unsurveyed Area (City of Whitehorse, Government of Yukon)*

The City and YG have no specific plans for these parcels aside from their current function as greenbelt and neighbourhood park space (Lot 66) for Valleyview. However, both governments share a common interest in considering the most appropriate function, including alternative uses, for these parcels as part of a broader scheme for a complete and successful future neighbourhood in the Valleyview South study area.

- *C-117B (Kwanlin Dün First Nation)*

C-117B is a Type 2 Settlement Land parcel designated for Residential and Commercial use under the KDFN *Self Government Agreement (SGA) Appendix B Part II*.

The delineation of commercial and residential use amounts to the allocation of 50% of the parcel's area for each land use. There is a further specification that the residential use is limited to *"single family dwelling units of a permanent nature only"*. The residential designation is assigned to the eastern half of the parcel, closer to the Valleyview subdivision, while the western, Hamilton Drive-facing half is designated for commercial. If desired, KDFN, Yukon, and the City may amend the SGA land use designations according to the process outlined in the SGA, or by a process they agree upon.



Valleyview playground/park located on Lot 66



Trail between Valleyview and Hamilton Boulevard on YG land

Currently, KDFN’s urban planning and development efforts are focused on the future of the McIntyre subdivision, including Crow and Swan streets, as well as a new joint development with YG on C-115B in the Range Point neighbourhood.

- **C-141B (Kwanlin Dün First Nation)**

C-141B is a Type 2 Settlement Land parcel designated for Residential and Commercial use under KDFN’s SGA. Like C-117B located across Sumanik Drive, the western half of C-141B is designated Commercial, while the eastern half closer to Valleyview Drive is designated Residential, with a specification that the residential use is limited to “single family dwelling units of a permanent nature only”.

KDFN’s Community Lands Plan associates C-141B with the goal of community (residential) development and revenue generation and citizens did not identify wildlife and heritage values on this site during consultation.

Again, KDFN’s urban planning and development efforts are currently focused elsewhere and it has no imminent plans to develop this parcel.

- **Lot 431 (Government of Yukon)**

YG has not indicated any plans or other interests for this parcel beyond its current function as greenbelt and host to ATCO Yukon Electric’s powerline.

- **Lot 262-2 (Alacrity Enterprises)**

Alacrity Enterprises has held its parcel for over fifteen years, purchasing it from Northwestel. It is working in partnership with a local builder to develop the site. Their vision is to provide an appealing mix of urban residential medium to high-density housing forms. Their draft site concept features



Firesmarting on KDFN C-117B



Westward view of KDFN C-141B powerline and depression along southern boundary

Type 2 KDFN Settlement Lands

Section 28 of KDFN’s SGA specifies that, on Type 2 parcels, KDFN can exercise planning, zoning and land development powers that are in accordance with its own laws, as well as with City legislation as it pertains to public health and safety. The City’s bylaws currently apply to KDFN settlement land within Whitehorse as laws of general application.

a mix of three-storey apartments situated near the road access to the parcel, with multi-storey townhouses situated around the periphery of the site. The development would feature a central courtyard space as well.

5.1.2 East and Southeast Parcels

- *C-30B (Ta'an Kwäch'an Council)*

C-30B is a Category B, Community block parcel of Settlement Land parcel undesignated under the TKC *Self Government Agreement (SGA)* Appendix B Part II. TKC can't exercise its own planning, zoning, and land development powers unless it displaces relevant YG and/or COW legislation.

TKC has not completed a comprehensive plan for its Settlement Lands in the Whitehorse area; however, a 2006 assessment helped identify suitable land uses and development opportunities and limitations for each parcel. The land use designation at the time was Commercial Service; a Residential Urban designation was deemed to be a suitable alternative and residential uses compatible with anticipated future development of the former WUTF (EDI, 2006). The report also noted the development constraints posed by C-30B's slopes and excluded the steep southern portion of the site (where slopes exceed 30%) from its calculations of developable area. Attendees of an open house held at the time reportedly expressed interest in the parcel for residential development; one suggested gravel extraction.

The gravel extraction idea would be pursued over a decade later. The parcel was formerly leased to the Da Daghay Development Corporation (DDDC), the arms-length economic development arm of TKC. In 2019, DDDC applied to amend the OCP to redesignate the parcel from Residential to Natural Resource for the



Alacrity parcel looking southwest from northeast corner



Brush trails on terrace portion of TKC C-30B

purposes of quarrying gravel. Further, it requested that the 300-metre buffer from residential properties set out in the OCP be applied to existing, versus future, residences only. The project was anticipated to have light operations to remove the estimated 1.6 million cubic metres of granular resources over a roughly 20 year period. The application was withdrawn to further discuss the future of the site.

Around the time of the OCP amendment application, DDDC began consulting with TKC citizens around a new administration building/gathering place. Over a series of months and numerous workshops, citizens informed a vision for the development and provided input on preferred locations. C-30B was added to the list of potential locations in the latter phases of the consultation and ultimately was selected as the preferred site (Da Daghay, 2019).

In June 2019, Kobayashi Zedda Architects developed a conceptual site plan for the building on the northern portion of the site, close to Lot 262-2; it was intentionally high level, and no civil or other engineering considerations were incorporated (Zedda, pers. comm). The question of other land uses or development on the site, which could impact site planning for the administration building, was not determined.



Looking south along the toe of TKC C-30B's steep slope

Since 2019 there has been some discussion of C-9B, which TKC is currently developing in Whistle Bend, as another potential location for the building. It is anticipated that planning will resume for this project in 2023.

- **Lot 427-1 (Shaw Satellite Services)**

Shaw Satellite Services intends to continue operating its two satellite dishes at this location; as such, unimpeded views of Grey Mountain are important. Shaw's access to Lot 427-1 from the Alaska Highway (via the City's surveyed road) was removed during the highway reconstruction between Two Mile Hill and Hillcrest several years ago. Currently it accesses its site via Wasson Place and a road traversing Lots 2 and 438 (connecting again with the City's surveyed



Shaw satellite dishes on Lot 427-1

road from the south). The acute angle formed by the intersection of the City's road and unsurveyed road on Lot 438 poses a significant impediment to a snow plow. Shaw is currently working with YG Highways and Public Works (HPW) to restore proper access to the parcel using Lot 426.

- *Lots 427 and Surveyed Road (City of Whitehorse)*

The City has no specific plans or interests for its surveyed road and Lot 427 "sliver", other than to consider them in the context of a complete, successful Valleyview South neighbourhood and potential role in an access strategy for the area.

- *Lot 438 (Government of Yukon)*

YG has not indicated any plans or interests for this parcel beyond its current function as vacant greenspace. Currently the parcel is being traversed by Shaw Satellite Services (via Lot 2 to the south) to access Lot 427-1.

- *Lot 2 (Guru Nanak Sikh Organization of Yukon)*

Lot 2 was the long-time home of the Adult Resource Centre owned by the Salvation Army. Guru Nanak Sikh Organization of Yukon (GNSOY) purchased the property several years ago for use as a Sikh temple. GNSOY plans to continue operating its temple and place of refuge and has no plans to expand. Unimpeded views of Grey Mountain are important, and walkways connecting the temple to residential areas would be welcomed.

When the property's access from the Alaska Highway was removed during reconstruction, HPW built a new driveway/access road through Lot 426 from the cul-de-sac bulb on Wasson Place. The organization recently received a 20-year land use permit from HPW for the access road; the two organizations are working on plans to connect water and sewer from Wasson Place next summer (power is connected underground to the Alaska Highway). GNSOY consented to Shaw using its property as a temporary thru-route to access the satellite dishes on Lot 427-1 and has no concerns with this arrangement continuing until a permanent solution is found.



Guru Nanak temple property

- *Lot 426 (Government of Yukon)*

Lot 426 is currently the subject of planning by HPW, which is working to restore road access and other site servicing that was disrupted by highway reconstruction. New sewer and water connections will be installed along the driveway to Lot 2. HPW is also in the early planning stages for a new access to Lot 427-1 so that Shaw may continue to maintain its equipment. This may use the Lot 2 access to gain part of the slope before branching off to the west.

5.1.3 Southwest Corner

- *Unsurveyed Area (Government of Yukon)*

YG has indicated that it has no specific plans for this area aside from its current function as greenbelt for Hillcrest and Granger. However, it has an interest in considering the most appropriate function, including alternative uses, of this area as part of a broader scheme for a complete and successful future neighbourhood in the Valleyview South study area.



Eastward view of Lot 426 slope with Wasson Place and Lot 2 driveway at bottom

5.1.4 West and Central Parcels

- *Lots 429 and 430 (P.S. Sidhu Trucking)*

The long-held intention, as well as municipal policy direction, for these parcels is residential use. Planning efforts under the current owner date back to 2012, when a visioning and design workshop series was convened by Golder Associates to get input from about 50 members of the public and stakeholder groups. The preferred concept proposed a housing mix composed of single detached, medium, and high density forms.

A portion of Lot 429 was redesignated for Mixed Use Commercial Industrial in 2020. A preliminary assessment of development potential and housing mix for the remainder of the lots – termed Phases 2, 3 and 4 (with 1 being the commercial subdivision) was prepared by 3 Pikas that same year. The study estimated a total of 1009 units and corresponding population of 2303 people at full build-out based on the study’s assumptions of land use and housing mix (3 Pikas, 2020). Refer to Figures 11 and 12.



Westerly panorama of concrete rubble and post-remediation excavations on Lot 430

**Figure 11. Table 2
Proposed Land Uses &
Percentage of Total Area**
(Source: 3 Pikas, 2020)

LAND USES	AREA (HA)	AREA (%)
Residential	33.0	65.1%
Mixed-use residential / commercial	0.3	0.7%
Parks & open space	11.9	23.6%
Roads	5.4	10.6%
TOTAL	50.6	100.0%

**Figure 12. Table 4 Summary of
Proposed Housing Mix**
(Source: 3 Pikas, 2020)

RESIDENTIAL HOUSING	% OF TOTAL AREA
Low density residential	60%
Medium density residential	29%
High density residential	10%
Mixed-use residential / commercial	1%

The City’s proposed OCP policy of 20 units/ha applies to the gross area, and the 1009 unit target achieves 19.9 units/ha. 0.3 hectares of mixed-use residential/commercial land use is envisioned.

As of last spring, Mr. Sidhu and his representatives indicated that the northwest corner was intended for a first residential phase of low density single family lots, with a second phase focusing on medium density townhouses (YukonBright, 2022). Higher density forms are the focus of the envisioned third and final phase of residential development in the portion of Lot 429 still under Ministerial designation.

A land use concept is currently under development and will hopefully be available for consideration by the Valleyview South development partners in early 2023.

5.2 Relevant Government Policies and Plans

5.2.1 City of Whitehorse

- *Proposed Official Community Plan (November 2022)*

An OCP is a statement of a community’s vision for future growth and sustainability, typically over a 10-year timeframe. It is a guiding document that both administration and Council refer to make decisions about development in the City. There are numerous key directions in the proposed 2022 OCP that will have a bearing on the Master Plan (refer to the sidebar on page 33 for a sampling). Two OCP directions of note include:

- “8.16 To create more Complete Communities, the development of Urban Centres will be supported in areas shown in Map 2 Urban Centres.”
- “8.37 Residential areas within the Urban Core that require a Master Plan will achieve a minimum overall density of 20 dwelling units per gross hectare, as illustrated on Figure 9 Illustration.”

The City has indicated that there will be flexibility around the application of 8.37 to the VSMP area in the planning process. This could mean the 20 units/ha requirement could apply to the entire area, versus individual parcels.

In addition to the specific policies, the OCP’s residential growth strategy (Section 9) focuses on encouraging development within existing neighbourhoods, as well as planning new neighbourhoods, to accommodate the city’s projected high population growth requirement. “Residential redevelopment” (which the OCP defines as “new dwelling units on lots where dwelling units do not currently exist”) within the Urban Core is targeted to provide a substantial portion of the 6150 additional dwelling units needed. Refer to Figure 13.

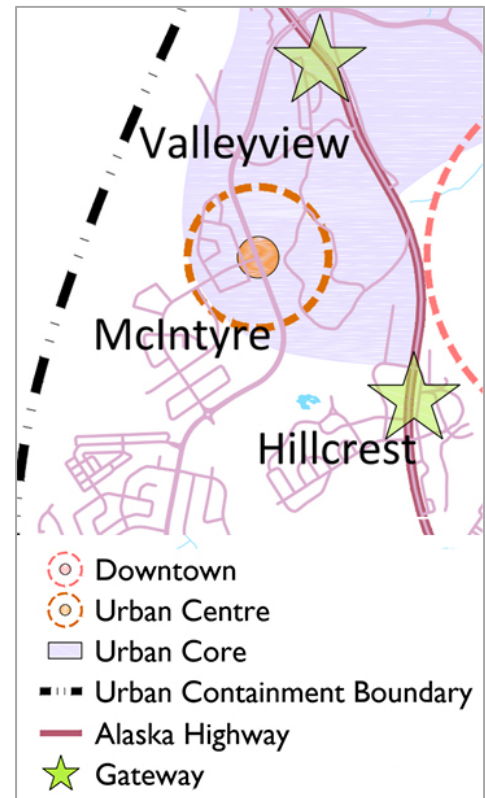


Figure 13. Conceptual Urban Centre location for Valleyview South (Source: City of Whitehorse)

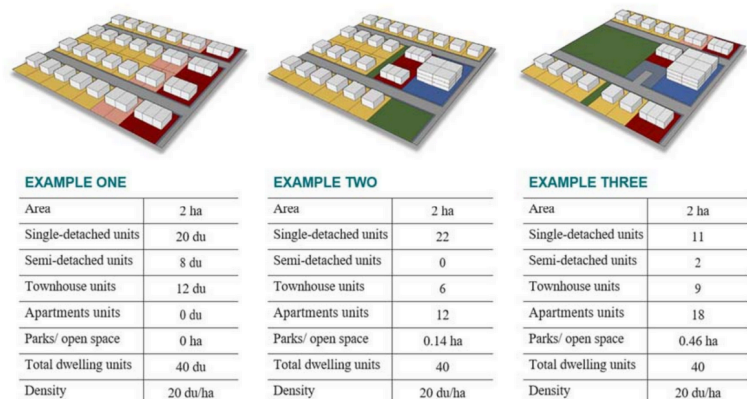


Figure 14. Figure 9 illustration from proposed OCP (Source: City of Whitehorse)

- *Trail Plan (2020)*

The City of Whitehorse actively manages trails located within municipal boundaries. Neighbourhood-level trail planning identifies highly valued and/or significant trails for formal City adoption, subsequent incorporation into the *Trails Maintenance Policy*, and ongoing maintenance by the City and/or its partners.

The City's 2020 Trail Plan sets out several strategic directions and actions with a direct bearing on trail planning in the Valleyview South area. These include Action #13: Establish Type 1 Trails connecting all neighbourhoods to downtown.

HPW made major additions to the City's paved path network along the Alaska Highway over the past two years. Leveraging this new infrastructure, along with critical trail arteries such as the Hamilton Boulevard multi-use pathway, will be key to ensuring the Valleyview South area is well connected for active transportation. Natural surface trails will ideally be integrated and connected to existing trail nodes in the Hillcrest/Granger/Paddy's Pond area and Mount Mac, allowing for year-round nature-oriented trail experiences of varying distances.

- *Parks and Recreation Master Plan (2018)*

The City of Whitehorse's Parks and Recreation Master Plan (PRMP) Key Strategic Direction #1 is "Prioritize resources towards parks and recreation opportunities that promote access, inclusion and broad participation". Action #3 speaks to animating outdoor parks and spaces with both structured and spontaneous opportunities, while #4 directs the City to "provide and support opportunities that promote physical literacy and foster participation throughout all stages of life."

- *Subdivision Control Bylaw*

The City's *Subdivision Control Bylaw* (#2012-16) requires a dedication of 10% of a parcel for public use. This is typically called the "parkland dedication." This requirement does not apply to Settlement Land as First Nations cannot transfer title. Payment in-lieu-of land dedication is another option set out in the bylaw.

Relevant OCP Policies

The draft 2022 City of Whitehorse OCP contains many policies which will have a direct bearing or indirect bearing on the Valleyview South master plan, including (but not limited to) the following:

8.5 New residential neighbourhoods will be designed as Complete Communities by incorporating a range of residential and commercial uses, daycares, schools, community amenities, and transportation options. Parks, playgrounds, trails, community gardens and natural greenspaces will also be considered.

8.16 Urban Centres will include a mix of uses and built forms that are urban in character (e.g., pedestrian and transit-oriented, mixed-use buildings, taller structures).

8.18 Where mixed-use buildings are proposed in Urban Centres, commercial uses will be on the ground floor with residential uses above.

8.37 Residential areas within the Urban Core that require a Master Plan will achieve a minimum overall density of 20 dwelling units per gross hectare, as illustrated on Figure 9 Illustration.

9.3 The inclusion of supportive housing and publicly operated housing will be supported in all areas of the city, with priority location along transit routes.

9.4 Opportunities for affordable housing should be integrated into all neighbourhoods and distributed throughout the community, with preference given to locations within walking distance of Urban Centres, the Downtown and transit routes.

9.6 The development of secondary suites (e.g., living suites, garden suites) will be supported.

13.3 In any designation except Future Planning and Agriculture; the removal and off-site transport of granular resources may be considered as an interim land use

- *Municipal Infrastructure and Service Plans (Various)*

Numerous studies and plans completed by the City may have a direct or indirect bearing on the study area. These include the Transit Master Plan (2018), Bicycle Network Plan (2018) and in-progress Transportation and Water and Sewer master plans. These are referenced or discussed in Section 6.0 Site Servicing.

5.2.2 Kwanlin Dün First Nation

- *Traditional Territory Land Vision (2017)*

The Land Vision sets out four land-based goals for the Traditional Territory (TT) and Settlement Lands:

- 1) Community Development
- 2) Wildlife
- 3) Heritage
- 4) Revenue Generation

The Land Vision recommends that KDFN revenue generation goals be focused primarily on Settlement Lands within Whitehorse. It also directs that revenue generation be balanced with the need for some Settlement Lands to be reserved for community development (KDFN residential use). Opportunities to protect, manage and/or interpret wildlife and heritage values also should be considered.

- *Community Lands Plan (2020)*

KDFN's Community Lands Plan associates C-117B and C-141B with the goals of community (residential) development and revenue generation. The Plan also includes a set of community development and revenue generation policies directly relevant to C-117B/ C-141B, including the use of design and construction best practices, consideration of future generations, integration of planning with the City to ensure efficient land use, use of archaeological potential mapping, and pursuit of highest and best use (including leaving lands of ecological or heritage importance in their natural state).

Citizens did not identify wildlife and heritage values on C-117B and C-141B during consultation for the Community Lands Plan.

5.3 Adjacent Land Uses

5.3.1 Erik Nielsen Whitehorse International Airport (ENWIA)

With devolution, YG assumed operational responsibility for airport management. However, the federal government retains authority under the *Aeronautics Act* to set out the rules, regulations, and standards applicable for airport certification. Whitehorse has a certified airport. This means the *Whitehorse Airport Zoning Regulations* (AZR) approved by Order in Council in 1972 are in effect and take precedent over the *City of Whitehorse Zoning Bylaw* should a conflict arise. Both federal airport and municipal zoning regulations define the nature of permitted land uses in the vicinity of the airport. Transport Canada is the

delegated agency responsible for ensuring administrative compliance with the AZR. Each certified airport must have and maintain an airport operational plan specific to its location and operational classification. The operational classification may change over time.

The two documents of most relevance to study area planning are *TP1247E Land Use in the Vicinity of Airports* and *TP312 - 5th Edition Aerodrome Standards and Recommended Practices*. There are typically three major considerations to future development: electronic zoning, obstacle clearances and noise exposure levels. Each are addressed in the following sections.

- ***Electronic Zoning***

Nav Canada, together with Transport Canada, is responsible for ensuring there are no buildings, objects, or land use activities within the Building Restricted Area that may create electronic zoning conflicts impairing instrument landing system (ILS) navigation. Typically, the most significant sources of interference for ILS facilities are metallic objects having appreciable horizontal dimensions such as structural steel towers, metal-clad buildings, and power/telephone transmission lines. Either the building proponent or City may refer building plans to Transport Canada for a review if there is the potential for an electronic zoning conflict. At present there are no known electronic zoning concerns posed by prospective development in the Valleyview South area.

- ***Obstacle Clearances***

Obstacle limitation zoning defines the airspace around the airport that must remain free of obstacles. It also limits maximum building heights in that area. The 5th edition of TP312 reflects a shift from a design-based concept to an operational concept that factors in specific aircraft characteristics, aerodrome operating visibility condition, and level of service. YG Aviation Branch is scheduled to prepare an update to its obstacle clearance limits in the spring of 2023. No significant changes are anticipated.

The airport reference elevation is 693.752m ASL and the ground rises significantly on the west side of the Alaska Highway to the tank farm terrace elevation. Under a TP312 4th edition interpretation, this higher ground encroaches into the 14R-32L main runway obstacle limitation approach path and west side transitional approach slope. Existing trees and one residence at the corner of Valleyview and Sumanik Drives penetrate these limits (this potential conflict was identified in the 2020 Whitehorse Airport Development Plan).

Based on that previous assessment, it is possible that future building heights on at least three different Valleyview South lots (12, 431 and 262-2) in the vicinity of the intersection of Sumanik and Valleyview Drives may be affected by the transitional obstacle limitation slopes. Until the updates to the obstacle clearance study, it is not possible to say with certainty whether noise and building height restrictions may be necessary as development occurs within the study area. However, it is expected that results of the updates will either not significantly change or result in slight improvements to level of impact to future developments in the study area over the previous baseline.

- **Noise Exposure**

Exposure to aircraft noise near airports is a key planning consideration. The Noise Exposure Forecast (NEF) system provides a measurement of the actual and forecasted noise near airport, factoring in the subjective reactions of the human ear to specific aircraft noise stimulus and expressing these as numerical contours (Transport Canada, N.D.) Noise exposure contours are based on the busiest (peak) months of the year (which are in summer) to illustrate the maximum aircraft noise effect. Contours numerically predict a community’s response to aircraft noise. Refer to Figure 15.

Response Area	Response Prediction *
1 (over 40 NEF)	Repeated and vigorous individual complaints are likely. Concerted group and legal action might be expected.
2 (35-40 NEF)	Individual complaints may be vigorous. Possible group action and appeals to authorities.
3 (30-35 NEF)	Sporadic to repeated individual complaints. Group action is possible.
4 (below 30 NEF)	Sporadic complaints may occur. Noise may interfere occasionally with certain activities of the resident.

Figure 15. NEFs and predicted responses (Source: Transport Canada)

The ENWIA contours were prepared in 1985 based on the prevailing traffic level and aircraft mix at that time. Since that time, aircraft engine manufacturers have made substantial reductions in aircraft engine noise in response to concerns worldwide. For example, the Boeing 767-300ER currently flown by Condor Airlines is quieter than the much smaller B-737-200 used as the reference in the 1985 work.

Transport Canada recommends as a best practice in planning new airports to avoid developing, noise sensitive lands above a 25 NEF noise contour. However, it also recognizes that such a standard is impractical in most cases where development has grown up around airport lands. In the 1985 study, the southern portion of the Takhini neighbourhood was located partly within the 30-35 NEF contour. Assuming the central and eastern portions of the VSMP area had been developed back in 1985, the NEF contours would have been between 25 to 33 NEF.

Research has demonstrated there is a strong correlation between NEF contour levels and community noise level complaints. Since residents of Valleyview and Hillcrest are at a higher elevation than the airport itself they felt noise levels were higher than shown in the 1985 NEF mapping. The consultants who prepared the 2020 Airport Development Plan concluded that current aircraft noise levels were not significant enough to require preparation of a noise abatement plan. YG receives noise complaints sporadically, but these have been related to carrier off-runway run-ups, not to typical landing, takeoff, or overflying activities (Mayes, pers. comm).

It is important to note that the Canada Mortgage and Housing Corporation, as well as Transport Canada, recommend that above 30 NEF, the local authority having jurisdiction should encourage developers and builders to incorporate appropriate acoustical insulation features into building design plans. Changes to

the National Building Code and associated insulation levels since 1985 may have helped achieved this, but the Team was unable to verify. YG Aviation Branch has indicated it intends to work with Transport Canada to update ENWIA's NEF contours in fiscal 2023-24. The results of that work are unlikely to be ready within the Valleyview South planning timeframe.

Until the updates to the obstacle clearance study, it is not possible to say with certainty whether noise and building height restrictions may be necessary as development occurs within the study area. However, it is expected that results of the updates will either not significantly change or result in slight improvements to level of impact to future developments in the study area over the previous baseline.

5.3.2 Adjacent Neighbourhoods

The Valleyview South area is surrounded on three sides by existing neighbourhoods: Valleyview to the north, McIntyre to the west, and Hillcrest (and portion of Granger) to the south and southwest. The current character, form and amenities associated with these neighbourhoods will help to inform potential gaps and/or synergies that the plan might address. Note that all population estimates are based on the Yukon Bureau of Statistics December 2021 figures.

Hillcrest (pop. 720) is the oldest of the neighbourhoods (see Section 2.3) in the area and consists primarily of single family and duplex housing built in the late 1940s to 1960s on smaller lots. There are some mid-sized multi-unit residential buildings at the eastern end of the subdivision, closer to the Alaska Highway. There has also been pockets of multi-unit redevelopment along Hillcrest Drive in recent years. The neighbourhood has a local park, active transportation connections to the west and east, and greenspace on three sides – the south side featuring Paddy's Pond/Ice Lake regional park. It is located close to the Alaska Highway and Burns Road highway commercial and mixed-use areas, but the closest neighbourhood-oriented commercial amenities are located to the west in Granger.

Valleyview (pop. 159) is the second oldest and smallest of the neighbourhoods and features larger duplex and single family homes situated on large lots, many with commanding views. This secluded neighbourhood has greenspace to the west and east but is otherwise bounded by major arterial or collector roads. Valleyview has a large park space located on Lot 66, which includes a playground and hockey rink/hard surfaced court. The closest commercial amenities are the franchise outlets at the Canada Games Centre; the nearest grocery store is downtown.

McIntyre (pop. 494) became home to KDFN and its citizens in the mid-1980s. Today the neighbourhood is composed mainly of single family dwellings concentrated around the southern half of the subdivision. McIntyre Drive features numerous First Nation government administration buildings, including the beautiful new Community Hub, health centre, Nàkwät'à Kų potlatch house, gymnasium, and outdoor rink and playground. The Kwanlin Koyotes ski trail network also connects McIntyre to the WCCSC network. The eastern end of McIntyre closer to Hamilton Boulevard was cleared over the past year in anticipation of future housing development. The only commercial amenity in the neighbourhood is a gas station/convenience store located at the corner of McIntyre Drive and Hamilton Boulevard.

The planning area touches on the very northern greenspace of the Granger subdivision (pop. 1329) in the vicinity of the Elijah Smith Elementary School (which serves all the Hamilton Boulevard neighbourhoods).

The neighbourhood, built in the early-to-mid 1990s, consists of predominantly single family dwellings but there are several mid-sized apartment buildings at the north end and smaller townhome developments in the interior. The Granger Mall provides a range of neighbourhood-oriented commercial amenities, including a pub/offsales and grocery store. Granger also borders on Paddy's Pond/Ice Lake regional park.

5.3.3 Wasson Place and Burns Road

The Wasson Place and Burns Road area is a mixed-use commercial industrial subdivision occupied by a range of business and government activities, including YG Department of Environment's headquarters, Northern Windows' manufacturing plant, numerous shipping and delivery companies, and environmental consulting offices. Wasson Place is the more recent development and its cul-de-sac bulb borders on Lots 426 and 429 to the north.

In 2020, Sidhu Trucking applied for and received an OCP amendment to redesignate about 7.3 hectares of Lot 429 from Residential Urban to Mixed-Use Industrial-Commercial with the goal *"to attract high quality commercial interests generating lower than usual environmental noise levels in order to provide a transition zone between the existing Wasson Place subdivision and Future Phases of the Whitehorse Upper Tank Farm (urban residential area)."*

This proposed development includes 13 serviced lots and a buffer/public green space running north-south along the top of the escarpment. The buffer would vary in width and elevation from approximately 57 metres wide in the southwest corner to 120 metres wide in the northwest corner, averaging around 12 metres high. The buffer would be developed as per the 2012 concept. Refer to Figures 16 and 17.

The estimated quantity of material to be excavated to bring the grades down for development is about 750,000 m³. The application proposed creating a granular stockpile on Lot 430 for various future site development needs - such as site grading/drainage, road construction, and underground utilities, and lot grading – and hauling excess and waste material off-site (3 Pikas, 2020). Sidhu Trucking requires a Zoning Bylaw amendment to proceed with the work.

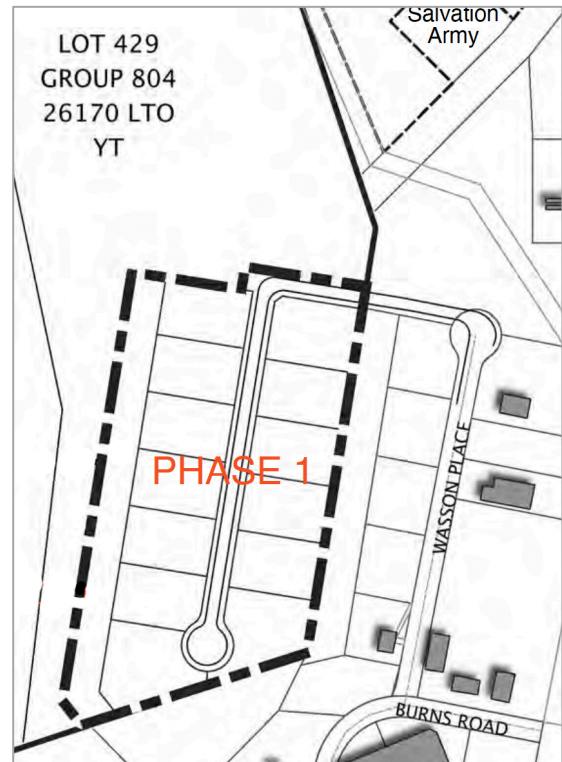


Figure 16. Phase 1 commercial-industrial development concept on Lot 429
(Source: 3 Pikas, 2020)

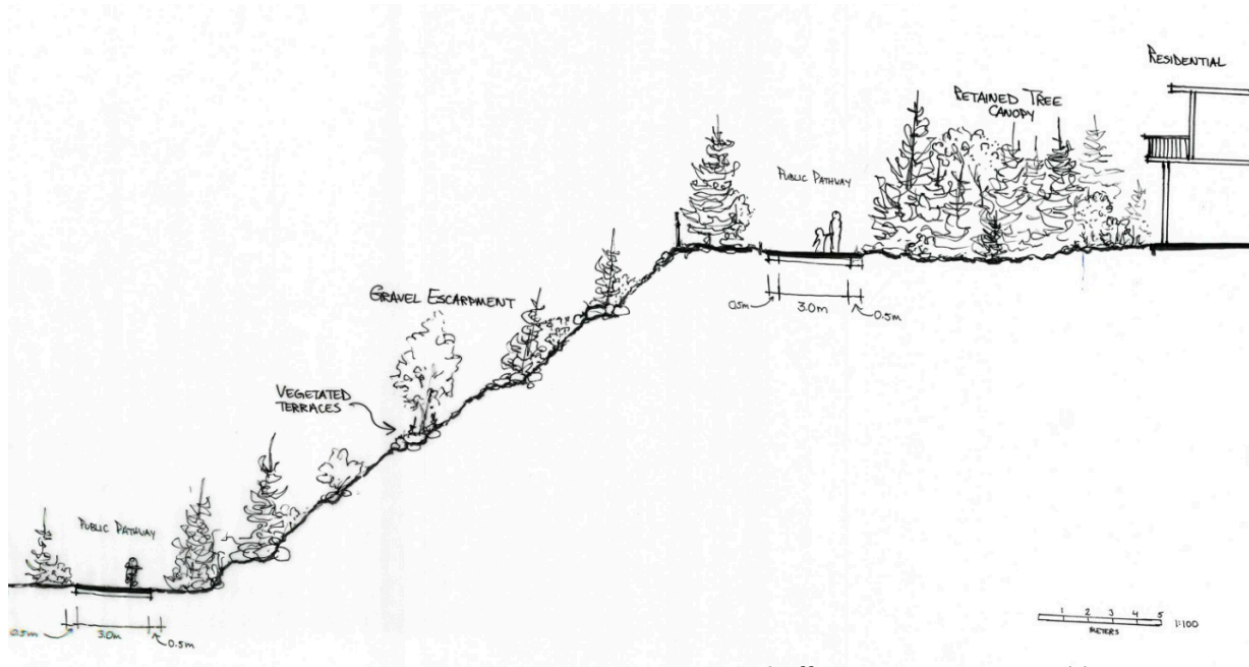


Figure 17. 2012 buffer concept (Source: Golder Associates, 2012)

5.4 Resident and Stakeholder Input to Date

In addition to the City's broad engagement around the future of the former WUTF and surrounding area, which dates to the early 1980s, previous public and/or stakeholder engagements focusing specifically on development in the Valleyview South area include:

- TKC's engagement for its future new administration building on C-30B in 2019;
- KDFN's engagement around C-117B and C-141B for the Community Lands Plan in 2018-2019; and
- Sidhu Trucking's Community Workshop Series (led by Golder Associates) for Lots 429 and 430 in 2012.

The input generated through the former two is detailed in Sections 5.1.1, 5.1.2 and 5.4.2. For the latter, input from about 50 stakeholder representatives and the public led to six draft principles to shape future development, as follows:

- 1) *"Clean up the property so it is safe for human habitation (to numerical standards);*
- 2) *Create a walkable and transit-oriented neighbourhood;*
- 3) *Provide a range of housing options to help address affordable housing needs in the community;*
- 4) *Create an interconnected and accessible network of trails and open space as part of a community-wide pedestrian system;*
- 5) *Infiltrate rainwater onsite and retain tree canopy and habitat where possible; and*
- 6) *Work together with neighbour to ensure a collaborative and integrated process."*

A range of other ideas and input were heard during this initiative, including a desire for a mixed use commercial area that could accommodate daily needs (e.g., grocery store, clinics, café, etc.), a community gathering place, preservation of views, variety of housing “looks”, and many others.

More recently, the OCP amendment application by Sidhu Trucking generated a very strong response from the neighbourhoods of Hillcrest and Valleyview. Dozens of e-mails and letters were sent to the City from concerned residents expressing opposition on the basis of the application’s deviation from the long-intended residential development, the associated prolongation (and associated nuisance) of gravel hauling activities, and further destruction of an area that was once an important neighbourhood trail connection.

As of mid-November 2020, a VSMP survey was opened to KDFN and TKC citizens and the public. Groundswell and its team will look forward to sharing further input and insights from the survey, as well as meetings with the community associations of Hillcrest, Valleyview and Granger.

5.5 Other Considerations

5.5.1 Land Tenure Mix

Unlike most new developments in Whitehorse, the planning area contains a mix of private, First Nation settlement, and public government lands. The plan may wish to consider how, or whether, different tenures should be factored in to create compatible joint development and/or a successful neighbourhood.

Settlement Land, which comprises nearly 20% of the study area, may not be sold, unlike Fee Simple land. It is expected that any lands developed and subdivided by public governments and/or private owners will be offered on a Fee Simple basis to purchasers. These Fee Simple parcels will then be registered at the Yukon Yukon’s Land Titles Office (LTO) and have the security of tenure required to secure financing from a lending institution. Since an amendment in 2015, the Yukon’s *Land Titles Act* also allows for the registration of Settlement Land interests (e.g., leases) in the LTO, providing for similar financing opportunities.

KDFN may grant an interest in its Settlement Lands under the authority of the KDFN *Lands Act*, which created the legal framework for Settlement Land tenure. An individual may obtain a lease, which is registerable at LTO for the purpose of financing, or an allocation, which is available to KDFN citizens only. Current KDFN policy is that residential leasehold interests on KDFN land will be generally for a term of 125 years. Most residential leases will require that “rent” be paid in full at the beginning of the lease term. Most homeowners will seek a mortgage with a financial institution, just as they would with a freehold title purchase.

KDFN’s *Lands Act* states: “The director must offer beneficiaries and citizens the opportunity to apply for an interest in respect of a planned development parcel prior to offering the opportunity to non-beneficiaries and non-citizens.” While the implementation of this provision remains a work in progress, it is understood that there will be preferential offering to citizens and beneficiaries at some stage of land development, prior to land or housing units being available to the public. This offering could apply to larger developer parcels or to individual lots or units.

TKC does not currently have lands legislation in place. In 2022, TKC Chief and Council passed a resolution to register its lands in the territorial registry, and TKC intends to lease to third parties under this mechanism. This political direction may have a direct and/or indirect bearing on whether, or how, C-30B may be developed for third party commercial and/or residential use, as was envisioned in the 2006 Settlement Lands assessment.

While Fee Simple lot offerings have traditionally been the outcome of public land development, there could be other options to consider. The *Territorial Lands Act* is the governing legislation for Crown land dispositions in Yukon. Currently, leases are the main form of alternative private land tenure on Crown lands (aside from reservations and/or licenses associated with natural resource rights). Leases are generally limited to a small number of recreational leases, which are issued in 10-year increments, with the option to renew at Year 10. However, the legislation is currently under review and much longer lease terms are one of the changes being contemplated (Groundswell, 2021). The City also offers leases to organizations, including private companies, for various land uses around the municipality.

5.5.2 Land Development Context

YG owns most of the undeveloped land within the Whitehorse municipal boundaries and historically has been the main land developer. The City and YG work cooperatively under the *Land Development Protocol Agreement* (2006). Typically, the City oversees planning activities and YG works to bring the resulting concepts to fruition with preliminary and detailed engineering design, installation of on and off-site infrastructure, and subdivision and sale of lots. YG's policy is to develop land on a cost recovery basis.

After construction is complete, the City assumes operations and maintenance responsibility for the resulting neighbourhood (to private property boundaries) and recovers associated operating and replacement costs through property taxes, water/sewer fees, etc. This model has historically applied to private land developments as well (i.e., Pineridge, Meadow Lakes, Raven's Ridge, etc.)

At present, a similar arrangement to lifecycle maintenance of infrastructure on Settlement Land within the City is anticipated (Groundswell, 2021). The City envisions the specific servicing responsibilities being outlined in a service agreement to be negotiated between the City and applicable First Nation and respecting the principles within the SGA and the municipal services and infrastructure agreement (Ibid). There is already precedent for this with the McIntyre subdivision. The question of who oversees and pays for the upfront costs of installing costly infrastructure is less clear at present.

5.5.3 Market Demand and Risk

The investigation of market demand was not scoped as part of the master plan; however, the Team feels that it warrants a brief discussion here, particularly given the significant role of private landowners (and private capital) in bringing the Valleyview South area to fruition.

Undeveloped land sales in Whitehorse have been dominated by Whistle Bend lot releases since 2013. Results of Whistle Bend land lotteries over the past five years would indicate that demand has met and vastly exceeded supply levels. There was a record high 460 applicants for the 2020/21 lottery of single family lots (YG Land Management Branch, 2021), although multiple applications from some families may

exaggerate true demand. Table 5 below shows the lot release and sales profile over the 2017-2021 period. It should be noted that the finalization of lottery and over-the-counter agreements for sale continues apace and current numbers may be different.

Table 5. YG Land Management Branch Whitehorse land lottery results, 2017-2021

Lot Type	Year	Location	# of Lots	Size (m ²)	Total Price	Price (per m ²)	# of Bids	# Sold	Sales Rate	Overbid Rate
Single Residential	2018	Whistle Bend	57	680	\$143,325	\$211	103	57	100%	81%
	2019		44	385	\$89,576	\$233	240	44	100%	445%
	2020		55	448	\$104,262	\$233	244	55	100%	344%
	2021		142	466	\$109,510	\$235	692	142	100%	387%
Duplex	2019	Whistle Bend	5	349	\$81,084	\$232	5	5	100%	n/a
	2021		1	392	\$85,571	\$218		2	200%	n/a
Townhouse	2017	Whistle Bend	8	251	\$66,895	\$267	8	8	100%	0%
	2019		3	243	\$57,878	\$238	25	3	100%	733%
	2021		20	252	\$68,220	\$271	77	20	100%	285%
Multi-Residential	2017	Ingram	1	5850	\$292,840	\$50	0	0	0%	
	2019	Whistle Bend	9	4330	\$617,675	\$143	7	7	78%	-22%
	2021		11	5900	\$729,235	\$124	11	11	100%	0%

The sales data indicates that demand for single family home and townhouse lots has been reliably strong in recent years. It also suggests that the market may be softer for multi-residential lots (although sales activity for parcels in closer proximity to Downtown may be more relevant). Broader macro-economic factors such as higher mortgage rates and more stringent lending terms on commercial properties, coupled with micro-economic conditions such as affordability-gearred municipal multi-unit residential development incentives and rent caps (Halliday, 2022) could potentially further soften the market for multi-unit residential lots.

It is very difficult to predict the likely absorption rate of future Valleyview South lots, single family or otherwise. The most recent Whistle Bend master plan projected a total of 1037 lots being released to market between 2022/23 and 2031, with an annual estimated average release of 137 lots (Groundswell Planning, 2021). First Nation land development and selected infill projects such as 5th and Rogers will further contribute to the mix of options.

The other aspect of market demand relevant to the Master Plan is that of commercial land needs. Residential and population growth within the planning area will generate additional annual spending potential on a range of retail, restaurant, and service categories. However, given the Valleyview South's proximity to downtown, and existing commercial amenities located nearby in Granger, this increased spending will need to be tempered by realistic market capture rates. The Team is currently undertaking a high-level commercial needs assessment and will share the results prior to the January design charrette.

6.0 Site Servicing

6.1 Roads

6.1.1 Current Network

The Valleyview South planning area is bounded by the Alaska Highway to the east and Hamilton Boulevard to the west and northwest. The four-lane Alaska Highway is a designated freeway with a posted speed of 60 km/hr through this section. Hamilton Boulevard is designated a major arterial road with a posted speed of 60 km/hr. Sumanik Drive bisects the northern portion of the study area and is designated a collector road with a posted speed of 50 km/hr.

In addition to the above noted transportation corridors, access into the study area includes:

- A surveyed road extending south from the intersection of Valleyview Drive and Sumanik Drive and into Lots 262-2, 429 and 430 (this access is gated at the boundary line of Lots 429/30);
- A right-in, right-out (RIRO) access to Lot 430 across from McIntyre Drive; and
- An unsurveyed road extending from the cul-de-sac bulb of Wasson Place to Lot 2.

Refer to Map 6 Servicing for an overview of the existing transportation network in and around the planning area.

The City is currently undertaking a Transportation Master Plan (TMP) for Whitehorse, the first update since 2006. According to the TMP analyses that have been conducted thus far, the intersection of the Alaska Highway and Two Mile Hill Road is one of the busiest intersections in the City. The movements with existing high volumes include the southbound left turn, eastbound through, and westbound through movements. The cycle lengths of the intersection are also extended due to the long crossing distances of all legs (over 40 metres) and size of the intersection.

Adding the traffic demand generated by a future development in the Valleyview South area to this already busy intersection is likely to be problematic from a City-wide traffic circulation standpoint. Ideally, the Master Plan would provide new opportunities to connect to and cross the Alaska Highway.

6.1.2 Potential Access Points

The development of additional or expanded access points into and out of the Valleyview South area will be informed by opportunities and limitations posed by the current transportation network, as well as guidance provided by the Transportation Association of Canada Geometric Design Guide for Canadian Roads (which provides standards for minimum intersection spacing and sight distances). Based on these factors, the Team offers the following general advice and observations (starting from the northwest corner and moving through the development area "clockwise"):

- **Northwest and Northeast/Sumanik Drive (Lots 12, 66, 262-6, 431, KDFN C-117B and C-141B, and unsurveyed YG land)**
 - Access to the parcels north and Sumanik Drive should be planned around the signalized intersections of Hamilton Boulevard with the Canada Games Centre and Sumanik Drive;
 - The curving alignment of Sumanik Drive poses potential sight line issues for new access points;
- **East/Alaska Highway (TKC C-30B)**
 - New access points directly to/from the Alaska Highway will be limited to the signalized intersection at Range Road;
 - An access point at the existing signalized intersection could facilitate downtown-bound traffic from the VSMP area to northbound right turn movements at either Alaska Highway/Two Mile Hill Road or Range Road/ Two Mile Hill Road intersections;
 - The creation of multiple developments or lots along the Alaska Highway would necessitate a service or frontage road located within the highway-adjoining parcels;
 - The upland portion of C-30B may be most easily accessed from the west/Lot 429, although direct access to the Alaska Highway could technically be possible;
- **Southeast (Lots 2, 426, 427-1, 438)**
 - This portion of the planning area may be most easily accessed from the west and northwest, although a connection from the south and/or east/northeast could be possible;
- **Southwest (Unsurveyed YG Land, Lot 430)**
 - The median and curve along Hamilton Boulevard and traffic circle at McIntyre Drive and Elijah Smith Elementary limit south and eastbound left turning movements into this portion of the planning area and RIRO accesses may be the only viable option;
- **West and Centre (Lots 429 and Lot 430)**
 - Having a fully functioning access to this area from Hamilton Boulevard will be needed to avoid excessive traffic originating from these parcels using internal collector roads and upstream existing signalized intersections at the CGC and Sumanik Drive; and,
 - The optimal access point along Hamilton Boulevard is at McIntyre Drive, requiring the modification of the current intersection to allow for southbound and westbound left turn movements, currently restricted by the existing median.

Please refer to Table 6 for an overview of potential new access points into the development area and associated pros and cons. The numbers included in the table are cross-referenced in Map 7 Potential Servicing.

Table 6. Potential transportation access points and routing in the study area

Map Label #	Connected Area	Potential Access Point/Road	Pros	Cons	Next Steps
1	YG/City/ C-117B parcels	Current signalized intersection at Canada Games Centre (to connect to Sumanik or end in a cul-de-sac)	<ul style="list-style-type: none"> Utilizes the existing signalized intersection Integrates well with active transportation routes 	<ul style="list-style-type: none"> Intersection would need to be upgraded to four legs, along with associated geometric and signal improvements 	Recommended for further discussion
2	C-117B and C-141B	On Sumanik Drive, west of Valleyview Drive intersection	<ul style="list-style-type: none"> Can integrate with existing signalized intersection at Sumanik Integrates well with active transportation routes 	<ul style="list-style-type: none"> Limited sight distance at the horizontal curve of Sumanik Drive Topography on C-141B would make tie-in at this location challenging without regrading 	Recommended for further discussion
Connection 1-2		Canada Games Centre intersection to Sumanik Drive	<ul style="list-style-type: none"> Allows for better utilization of and circulation within C-117B and City/YG parcels 	<ul style="list-style-type: none"> See above 	Recommended for further discussion
ROW1	Lot 262-2 (and Lots 429/430)	ROW1	<ul style="list-style-type: none"> Utilizes existing surveyed road (administratively easier) Improves internal and external connectivity of these parcels ROW is sufficient for higher traffic volumes and curved alignment calms traffic 	<ul style="list-style-type: none"> Intersection with Sumanik poses sightline issues due to the horizontal curve of Sumanik Drive; this can be addressed through intersection controls (e.g., 4-way stop or traffic circle) Different widths (30m and 20m) 	Recommended for further discussion
3	Lots 12/431 C-30B	Eastern portion of Sumanik Drive between Valleyview Drive and Alaska Highway	<ul style="list-style-type: none"> Provides access to Lot 431 	<ul style="list-style-type: none"> Horizontal and vertical curves on Sumanik complicate sight lines and safety May be limited to right-out only 	Recommended for further discussion
4	TKC (C-30B)	Existing signalized intersection of Range Road and Alaska Highway	<ul style="list-style-type: none"> Utilizes the existing intersection Integrates well with active transportation routes Provides only option for a fully functioning access into eastern portion of C-30B 	<ul style="list-style-type: none"> Intersection needs to be improved (three legs at present) Steep terrain and limitations posed by the highway frontage Backslope issues for any access roads across this steep parcel (requirement could vary from 1.5:1 – 3:1) 	Strongly recommended for further discussion
Connection 3-4		A service road (internal) paralleling Alaska Highway, extending from signalized intersection to Sumanik	<ul style="list-style-type: none"> Facilitates more development flexibility for TKC Facilitates development in Lot 431 if desired Improves the internal connectivity of this area 	<ul style="list-style-type: none"> Possible clear zone limitations to meet TAC standards (based on slope, ADT and design speed, clear zone distance requirement for the highway could be 5-6.5m and service road could be 2-5m) Steep terrain and backslope issues 	Recommended for further discussion

Table 6 continued. Potential transportation access points and routing in the study area

Map Label #	Connected Area	Potential Access Point/Road	Pros	Cons	Next Steps
		A new road (internal) traversing (roughly) east-west across C-30B	<ul style="list-style-type: none"> • Connects the western/higher and eastern/lower portions of VSMP area • Utilizes a fully functioning access point • Lines up most directly with McIntyre Drive to minimize distances for active transportation links 	<ul style="list-style-type: none"> • Sloping terrain between Alaska Highway and west boundary of C-30B • Alignment could pose potential complications for highway lot development 	Recommended for further discussion
5	TKC (C-30B)	ROW2 at Alaska Highway	<ul style="list-style-type: none"> • Access to Alaska Highway improves connectivity of this portion of study area • Utilizes existing surveyed road 	<ul style="list-style-type: none"> • May not be necessary or cost-efficient due to upstream and downstream signalized intersections • Acceleration/deceleration lanes would be required for access from highway, adding expense and complexity • Steep terrain and backslope concerns 	Not recommended
		A new road (internal) connecting Range Road signalized intersection to a RIRO highway access	<ul style="list-style-type: none"> • Improves internal and external connectivity of C-30B • Facilitates development of this portion of C-30B 	<ul style="list-style-type: none"> • Limited to right-out only • Steep terrain and backslope challenges 	Not recommended
		A new road (internal) connecting Range Road signalized intersection to Lots 426, 429, 438	<ul style="list-style-type: none"> • Utilizes existing surveyed road • Connects the western/higher and eastern/lower portions of VSMP area • Utilizes a fully functioning access point • Could be a strategic use for the least developable portion of C-30B 	<ul style="list-style-type: none"> • Steep terrain and backslope concerns • Provides a less direct connection and adds distance for active commuters 	Recommended for further discussion

Table 6 continued. Potential transportation access points and routing in the study area

Map Label #	Connected Area	Potential Access Point/Road	Pros	Cons	Next Steps
6	Southeast (Lots 426, 429)	Wasson Place/ Burns Road	<ul style="list-style-type: none"> • Connects the western/higher and portions of VSMP area to the Alaska Highway • YG already needs to replace lost access to Lot 427-1; potential for cooperation or cost sharing 	<ul style="list-style-type: none"> • Elevation difference between VSMP area and Wasson Place creates design challenges • Compromises separation of residential and quasi-industrial land uses • May require Burns/Wasson upgrades to handle increased traffic volume • Burns Road intersection with Alaska Highway is not ideal for additional traffic, as signalized Hillcrest Drive intersection is only 400m away 	Recommended for further discussion
7	YG parcel (southwest)	Various points adjoining the Hillcrest subdivision	Facilitates access into a portion of the study area with Hamilton Drive access challenges	<ul style="list-style-type: none"> • Narrow ROWs limit additional traffic volumes • Steep and undulating terrain • Paved pathway connecting to Park Lane (westerly access point) could be impacted • Hillcrest residents generally oppose through traffic from other areas 	Recommended for further discussion for access to small infill nodes
8	YG parcel (southwest)	Elijah Smith School paved pathway/ROW	<ul style="list-style-type: none"> • Facilitates access into a portion of the study area with access challenges • Integrates well with active transportation routes 	<ul style="list-style-type: none"> • Median along Hamilton Boulevard restricts south/eastbound left turning movements; would need to travel SW through roundabout before returning NE • Location is close to the downstream roundabout and within a school zone with more speed and safety concerns • Likely limited to RIRO access • Potential impacts to paved pathway 	Potential option to consider but not strongly recommended
9	Lot 430 (and adjacent parcels)	The existing unsignalized intersection of McIntyre Dr and Hamilton Blvd	<ul style="list-style-type: none"> • Utilizes the existing intersection • Maintains traffic flow and efficiency along Hamilton Blvd • Integrates well with active transportation 	<ul style="list-style-type: none"> • Median on Hamilton Blvd impacts circulation (left turns); further intersection upgrades are required (including possible upgrade to signalized intersection) 	Strongly recommended for further discussion

6.1.3 Active Transportation

The planning area is located approximately 3.5 kilometres from the downtown core². There are several major destinations within a 25-minute walk and 20-minute bike ride. This suggests there is moderate to high potential for future residents to use active transportation. Distances and travel times to major destinations are shown below, in Table 7.

Table 7. Active transportation distances and travel times from centre of Valleyview South area

Destination	Distance	Walking time	Cycling time
Canada Games Centre/ Mount McIntyre Recreation Centre	1.0 km	12 minutes	5 minutes
Yukon University	3.5 km	44 minutes	15 minutes
WalMart / Save-On-Foods	3.0 km	38 minutes	12 minutes
Main Street ³	2.0 km	24 minutes	10 minutes

The VSMP is well situated to leverage the City’s existing active transportation network, including recent improvements made as part of the Alaska Highway improvements over the past several years. Of relevance in this regard are:

- The Hamilton Boulevard motorized multi-use pathway that parallels Hamilton Boulevard from Copper Ridge to the Alaska Highway intersection (and connects to the Two Mile Hill paved pathway to downtown);
- The paved pathway that parallels the Alaska Highway to the signalized intersection with Range Road and then parallels Range Road to connect to Two Mile Hill; and
- The paved Airport Trail that intersects with the Alaska Highway pathway and connects to the downtown via the Black Street Stairs.

Refer to Map 6 Servicing for an overview of the existing active transportation network in and around the planning area.

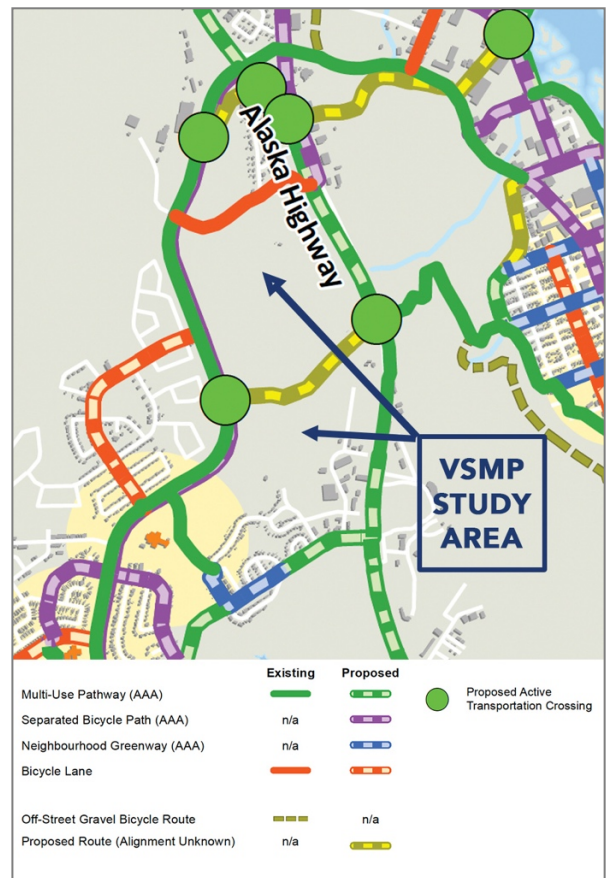


Figure 18. Proposed active transportation connector (Source: City of Whitehorse, 2018)

² Measured from the approximate centre of the planning area to downtown via Alaska Highway, Two Mile Hill Road, and Fourth Avenue.

³ Measured from the approximate centre of the planning area to downtown via the airport paved pathway and Black Street Stairs.

The City's 2018 Bicycle Network Plan envisioned a future connection through the Valleyview South area, specifically an All Ages and Abilities (AAA) multi-use pathway to connect from the Hamilton Boulevard MMUP to the Alaska Highway through Lots 429, 430, and C-30B. The conceptual alignment of this AAA pathway shows a connection south of McIntyre Drive and crossing of the Alaska Highway at the Airport Trail. In the interests of cost savings and connectivity, a future AAA pathway through Valleyview South should be consolidated with proposed collector roads. Refer to Figure 18.

6.1.4 Transit

Transit service currently extends to the periphery of the planning area in all directions. Routes #2, #3 and #6 run along Hamilton Boulevard to downtown, with Route #3 also running through Hillcrest and along the Alaska Highway and Range Road. The closest bus stops are located at McIntyre Drive, by the Canada Games Centre, at the Range Road/Alaska Highway intersection, along Sunset Drive North in Hillcrest, and Burns Road. Refer to Figure 19.

The City Transit Department is currently developing a transit stop standards document. The general goal is to situate transit stops within 400 metres of residences and businesses within the Urban Core.

Valleyview South's expected population density, in addition to the configuration of its collector roads (particularly the question of an Alaska Highway connection) will be key factors weighed in decisions about the level of transit service it receives. The City's Transit Department should be engaged during concept development to discuss opportunities and preferred scenarios.

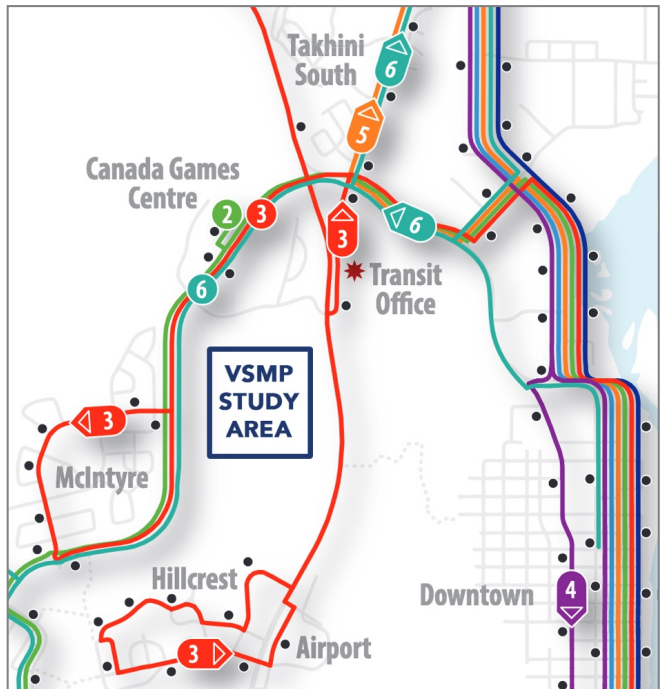


Figure 19. Current transit routes around planning area
(Source: City of Whitehorse)

6.2 Water

6.2.1 Current Network

The City's water system pulls water from the aquifer below Riverdale and pumps it (via the Selkirk Pump Station) up to the Riverdale Reservoir and Two Mile Booster Station. The Two Mile Booster Station then pumps the water up to the Valleyview Reservoir, located immediately west and upslope of the Mount McIntyre Recreation Centre. This large reservoir is a very important component of the City's water system, providing the water supply and pressure to Takhini, Range Point and Hillcrest subdivisions, as well as ENWIA and surrounding area. It also feeds water to booster stations and pressure control valve stations that ultimately supply all the neighbourhoods along Hamilton Boulevard as well as the Porter Creek, Whistle Bend, Kulan and Crestview subdivisions. An overview of the locations and connections of the major water infrastructure are shown in Figure 20.

The Valleyview South area is surrounded by the Valleyview Drive, Hamilton Boulevard, and Range Road watermains located to the north, west, north and/or east/southeast, respectively. Refer to Figure 37. Based on the proximity of the development to the Valleyview Reservoir, there is a significant amount of water supply to meet the fire protection needs of the proposed development.

6.2.2 Potential Connections

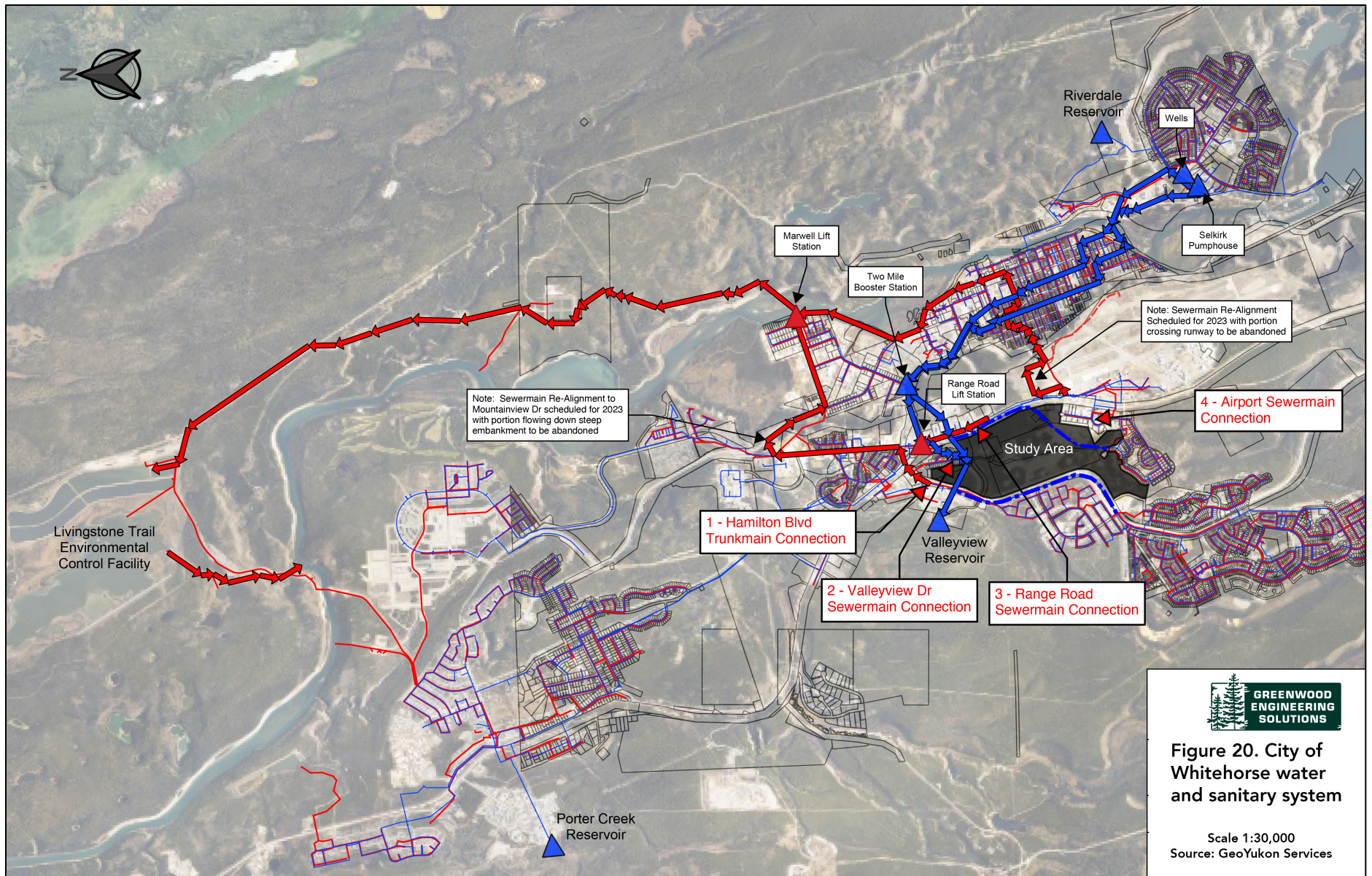
Because the water distribution system is pressurized, the supply for the proposed development area can potentially tie in anywhere. To optimize system reliability, achieve the necessary fire flows, maintain flow in the watermains for freeze protection, and to limit stagnant water that can result in quality issues, looped (versus dead end) watermain connections will be required. It is anticipated that multiple connections will be made to multiple watermains surrounding the planning area. High-level potential connection points are shown in Figure 20, but there is considerable flexibility in their placement.

The water supply needs for the area will be calculated to meet design criteria set out in the City of Whitehorse Servicing Standards Manual (see inset). The water demands and fire flow calculated the criteria will then be inputted into the City's water model to ensure that appropriate operating water pressures are maintained, the system can provide sufficient fire flow to hydrants, and Peak Hour Demand and Maximum Daily Demand plus Fire Flow can meet minimum pressure guidelines.

Staff with the City of Whitehorse Water and Waste Services indicated that the Two Mile Booster Station is struggling to keep up with demand during peak use times. The results of the City's Water and Sewer Master Plan Update that is currently underway may also inform any potential offsite upgrades that may be required and how (or if) these might impact the VSMP area.

City of Whitehorse Water Supply Design Criteria

- Average Daily Demand = 500 L/person/day
- Maximum Daily Demand = 2 x Average Daily Demand
- Peak Hour Demand = 3 x Average Daily Demand
- Fire Flow (flow and duration of flow) for the development shall be calculated using the latest version of the Insurance Advisory Organization (now known as the Fire Underwriters Survey).



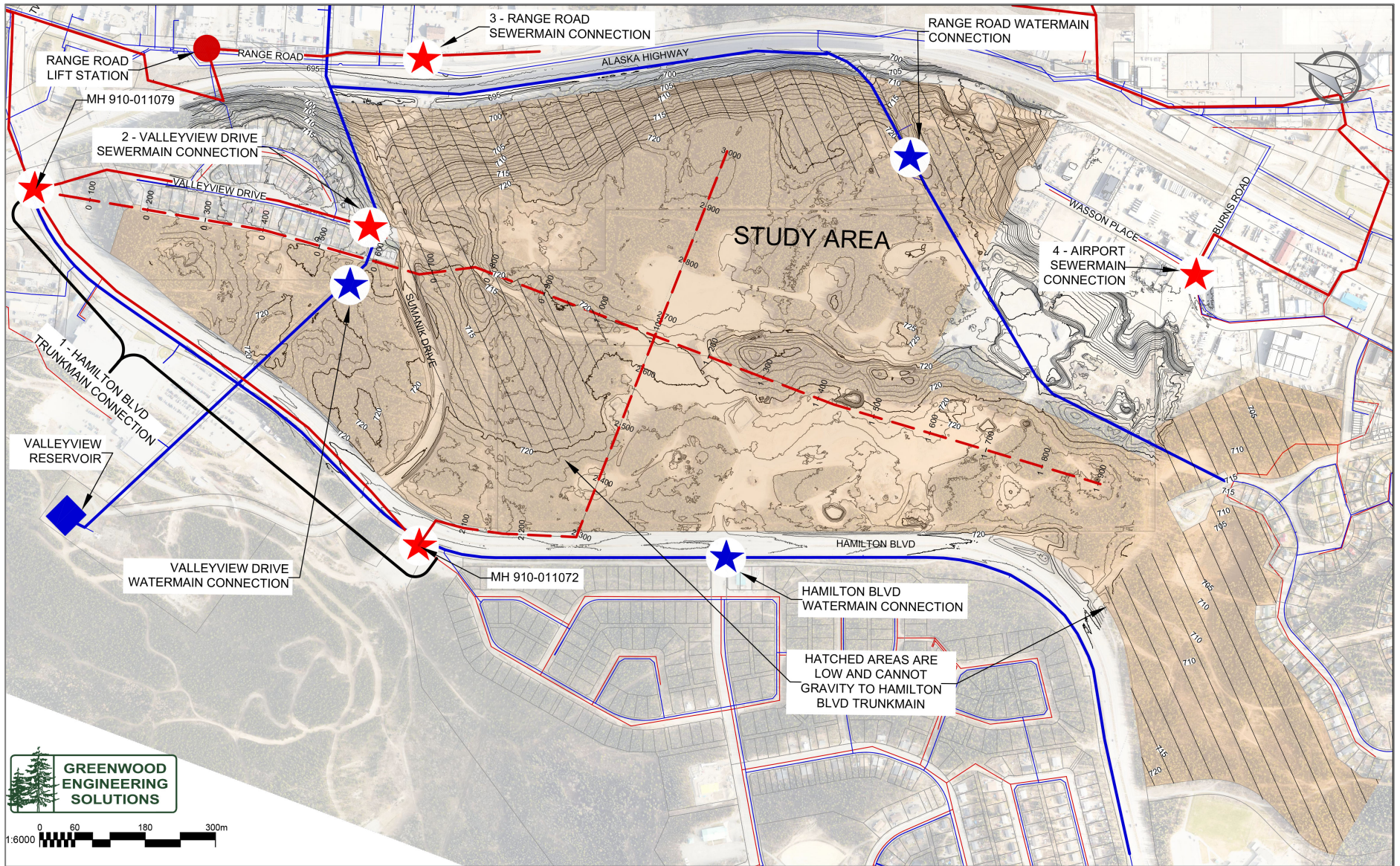


Figure 21. Valleyview South water and sanitary mains and potential connections

6.3 Wastewater

6.3.1 Current Network

The proposed development is part of the catchment area for the Marwell Lift Station, which pumps wastewater from the majority of the City's sanitary collection system up to the Livingstone Trail Environmental Control Facility for treatment. The City recently completed improvements to the Marwell Lift Station and continues to invest in the station and associated forcemain to meet the needs of the community. The City has also undertaken various upgrades to and rehabilitation work on the City-wide sanitary collection system; of particular relevance to Valleyview South are the pending realignments of the sewermain at the softball field near the intersection of Range Road and Mountainview Drive (to address slope instability issues) and sewermain that runs underneath the airport runway. Figure 40 provides an overview of the City's sanitary network.

6.3.2 Potential Connections

The Valleyview South planning area has no sanitary infrastructure at present. Typical sanitary sewer servicing design for a new development seeks to convey flow using a conventional gravity sewer to minimize pumping requirements. Utilizing gravity sewers reduces operation and maintenance costs and increases the system reliability because power requirements and operational and maintenance tasks are less when compared to the costs of constructing and operating lift stations. As such, elevations across the planning area have a major impact on the viability of different options to connect future development to the surrounding sanitary infrastructure. Sanitary infrastructure alignments logically follow roadways, given the significant expense and disturbance involved with deep utility construction – not to mention the inability to construct buildings over top. Furthermore, locating utilities in road rights-of-way improves access for maintenance and repairs.

With those points in mind, the Planning Team has identified four potential options to connect the Valleyview South area to the City's sanitary infrastructure, described below and illustrated in Figure 21 and Map 7 Potential Servicing:

- **Option #1. Hamilton Boulevard Trunkmain**

The sanitary sewer trunkmain on the west side of Hamilton Boulevard was sized to convey the flows from Copper Ridge, Ingram, Granger, Logan, McIntyre and Valleyview. It connects to the Canada Games Centre (CGC) as well. As outlined in the 2003 CoW Water and Sewer Study, the proposed "Tank Farm" subdivision was also included in the catchment area and designed capacity for this trunkmain.

The elevations within the Valleyview South area allow for the sanitary sewer to tie into the trunkmain on Hamilton Boulevard with a gravity connection. Two connection points to the trunkmain – just north of McIntyre subdivision and at the Alaska Highway (Manhole #910-011079) - are shown on Figure 21 but the development could theoretically tie in anywhere between these two points. Conceptual profiles for the two alignments, which intersect at the same invert, are shown below as Figures 22 and 23. Note that the tie-in near the Alaska Highway, shown in Figure 21, includes an inverted siphon to cross Sumanik

Drive. The profiles below are based on historical Lidar survey which may not reflect current conditions due to site grading undertaken in recent years.

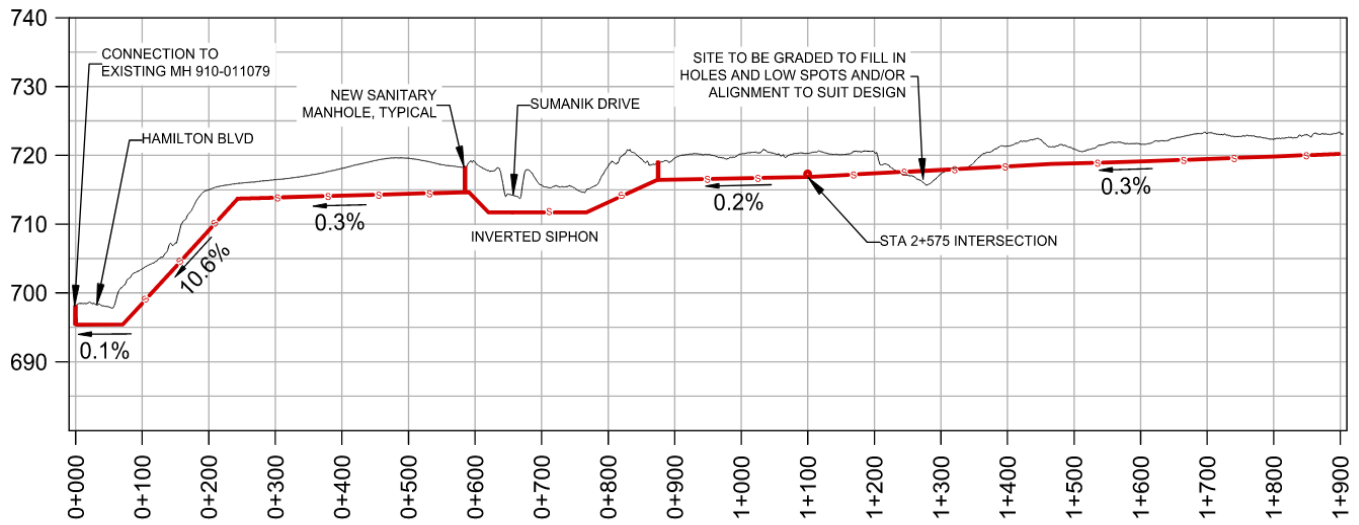


Figure 22. Profile of gravity connection to Hamilton Boulevard trunkmain at Alaska Highway

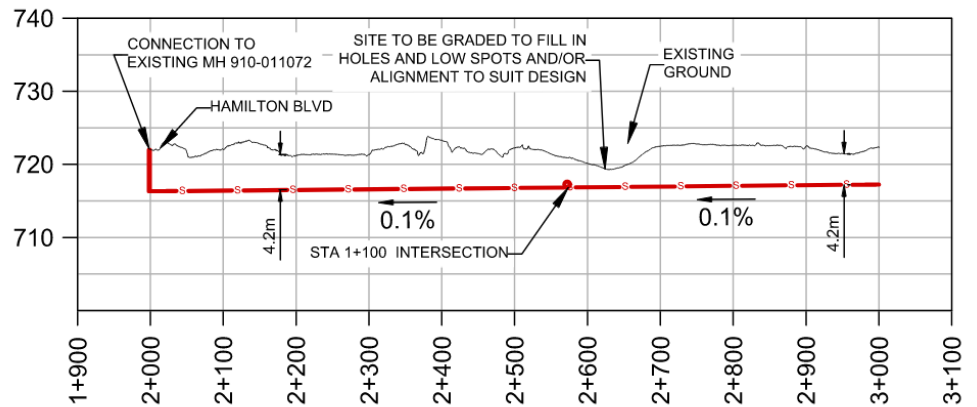


Figure 23. Profile of gravity connection to Hamilton Boulevard trunkmain at north end of McIntyre subdivision

There are portions of the development area (identified with hatching on Figure 21) that will not be able to connect to the Hamilton Boulevard trunkmain by gravity without raising the site grades with fill. These include much of KDFN C-141B, the north/central portion of Lots 429/430, and southwestern and eastern areas. Without their grades being raised, these areas will require a lift station to pump up to the sewermain that ties into the Hamilton Boulevard trunkmain; alternately, they could connect to the sanitary sewer system either with the Range Road and/or Airport connections discussed below.

- **Option #2. Valleyview Drive Sewermain Connection**

The sewermain on Valleyview Drive is a small diameter sewermain; however, there is sufficient remaining capacity to support an additional population of about 1000 people. Given the size of the development, only a portion of the Valleyview South area can tie into this sewermain. The feasibility of servicing Lot 262-2 using this main was previously investigated and it was determined possible with an inverted

siphon. Given the elevation of the existing sewermain, utilizing a gravity connection would be limited to the portion of the development at a higher elevation and lower elevations shown on Figure 21 would require a lift station to pump up to the Valleyview Drive sewermain connection. Individual properties could potentially have their own lift pump; however, multi-unit residential development would likely require a City-run lift station, which could be a small facility depending on the number of units served.

- ***Option #3. Range Road Sewermain Connection***

The sewermain on Range Road flows to the Range Road Lift Station, which pumps flows across Range Road and into the Hamilton Boulevard trunkmain. The lift station is currently being replaced. While the lift station was not sized to service a Valleyview South development, there may be some capacity to service a portion of the lower elevations on the east side of the development area that cannot tie into the Hamilton Boulevard trunkmain or Valleyview sewermain by gravity. That said, a highway crossing would be required to tie into the sewermain, and further review would be required to ensure the proposed lift station can accommodate additional sewer flows. One potential synergy to explore is the section of Valleyview Drive watermain that crosses the highway; if this is aging out and due for replacement, then this option is potentially more viable.

- ***Option #4. Airport Sewermain Connection***

This sewermain services ENWIA and Hillcrest and ultimately flows through the downtown and into Lift Station 1, which pumps the wastewater flows from the downtown and Riverdale up to the Marwell Lift Station. Lift Station 1 is very old and in need of replacement and it's likely that the City will be replacing it within the next 5 to 10 years. The City has expressed concerns with the capacity of the sewer system in the downtown and there are issues with the sanitary sewers around Lift Station 1 surcharging. There are also several prospective development areas along the highway south of Hillcrest and around the airport that may have no other option than to utilize this sewermain for servicing.

Given these challenges and unknowns, it is not recommended that the proposed development be connected to the Airport sewermain. However, to avoid a lift station for the southwestern corner of that cannot connect by gravity to the Hamilton Boulevard trunkmain, as outlined on Figure 21, consideration could be given to utilizing this service connection. This would logically be done via a tie-in to the Hillcrest gravity sewermain or the line on Wasson Place.

- ***Option #5. McIntyre Sewermain Connection***

If development of the lower southwestern corner is desired but the Airport sewer main connection is not viable, another option could be to construct a lift station and pump flows across Hamilton Boulevard to tie into the sewermain at the southeast corner of McIntyre subdivision, likely at Hanna Crescent.

Please refer to Table 8 for an overview of potential new sanitary connection points into the development area and associated opportunities and challenges. The numbers included in the table are incorporated in Map 7 Potential Servicing.

Table 8. Potential sanitary system connection points and routing in the study area

Map Label #	Connected Area*	Potential Connection Point	Pros	Cons	Next Steps
1a	Central, western and higher elevation eastern areas (Lots 262-6, 429, 430, western portion of C-30B)	Hamilton Boulevard trunkmain north of McIntyre subdivision	<ul style="list-style-type: none"> • Sufficient excess capacity in the system for new development • Flexible routing; can adapt to ideal road layout 	<ul style="list-style-type: none"> • Can't connect lower elevation areas • Major fill required to connect C-141B 	Strongly recommended for further discussion
1b	Same as above plus northwestern areas (Lots 66, C-117B, YG land)	Hamilton Boulevard trunkmain north of McIntyre subdivision	<ul style="list-style-type: none"> • Sufficient excess capacity in the system to accommodate new development • Could connect almost entire Valleyview South area (or just #2 area) 	<ul style="list-style-type: none"> • Will require an inverted siphon for Sumanik Dr. • Potential impacts to gulley feature 	
2	Higher elevation portions of the Sumanik Drive parcels (and/or 3a/3b areas)	Valleyview Drive sewermain at south end of Valleyview subdivision	<ul style="list-style-type: none"> • Could service smaller or shorter-term developments • (With a lift station) could provide alternative for 3a/3b areas if Range Road gravity connection not viable 	<ul style="list-style-type: none"> • Limited excess capacity (about 1000 people) • Will require an inverted siphon 	Recommended for further discussion
3a	Lower elevation portions of northeast and eastern parcels (C-30B, Lots 12 and 431)	Range Road sewermain at Alaska Highway watermain crossing	<ul style="list-style-type: none"> • Could reduce costs if coupled with watermain replacement 	<ul style="list-style-type: none"> • Range Road lift station has limited excess capacity 	Recommended for further discussion
3b	Lower elevation portions of northeast and eastern parcels (C-30B, Lots 12 and 431)	Range Road sewermain at intersection with Alaska Highway	<ul style="list-style-type: none"> • Could reduce costs if coupled with C-30B access construction 		
4a	Southeast corner (Lots 426, 429, 438)	Airport sewermain at Burns Road	<ul style="list-style-type: none"> • Could service lower elevation areas that can't utilize 1a or 1b 	<ul style="list-style-type: none"> • Airport sewermain and associated lift station have limited capacity 	Recommended for further discussion
4b	Southwest corner (unsurveyed YG land)	Airport sewermain at various points adjoining Hillcrest subdivision	<ul style="list-style-type: none"> • Could service lower elevation area that can't utilize 1a or 1b 	<ul style="list-style-type: none"> • Hilly topography requires major grading to install new gravity sewermain • Limited system capacity 	Recommended for further discussion but for pocket development in close proximity to Hillcrest sanitary network
5	Southwest corner (unsurveyed YG land)	Hamilton Boulevard trunkmain north of McIntyre subdivision	<ul style="list-style-type: none"> • Could service lower elevation area that can't utilize 1a or 1b • Avoids putting additional pressure on Airport sewermain 	<ul style="list-style-type: none"> • Would require lift station and Hamilton Blvd crossing • Requires easement on KDFN land 	

*Based on a high-level assessment of servicing efficiencies and opportunities to reduce both on-site and off-site costs.

6.4 Stormwater

Stormwater will need to be conveyed from the hard surfaced roads, parking lots and driveways in the future development through the City's stormwater system, eventually discharging in the Yukon River. Stormwater system routing will presumably follow the road network where possible. With Whitehorse's higher precipitation events and the trend forecasted to continue with climate change, the City is generally requiring new developments to have onsite stormwater retention ponds that can contain run-off from major precipitation events for a period of time, reducing associated erosion and improving water quality in the nearest receiving waterbody. No constraints to siting that pond (or ponds) have been identified at this point.

6.5 Power and Communications

Current power and communications infrastructure in the planning area is believed to be limited to the following:

- ATCO Electric Yukon distribution lines (4x12 kV lines and 5x25 kV lines) traversing portions of Lots 12, Lot 431 and the entire southern and western boundary of C-141B;
- A 14 kV power supply line traversing Lot 438 to access the satellite dishes on Lot 427-1; and
- Supply lines to Lot 2 and the two satellite dishes on Lot 427-1 (the former underground and the latter overhead).

To the east of Lot 12, the ATCO distribution lines connect to the distribution and longer transmission network on the east side of the Alaska Highway. These poles are equipped with 3x 25 kV and 5x34 kV lines. From the northwestern corner of C-141B, the powerline goes both west and north. To the west, the powerline transitions to underground and provides power into the McIntyre subdivision (it appears that there is a conduit stub near the intersection of McIntyre Drive and Hamilton Boulevard, presumably to allow for future development). To the north, it transitions to underground and provides power to up to the Mount McIntyre Recreation Centre, intersection lights at Sumanik Drive and CGC, and powers streetlights on Hamilton Boulevard north of the intersection.

Based on ATCO's initial analysis, the Arkell Substation, which feeds the Hamilton Boulevard neighbourhoods, can accommodate 3350kVa of additional load, representing approximately half of the current load in Whistle Bend (March 2022 population of 2500). There is potential that new development in the Valleyview South area could be serviced from the Valleyview Drive and Sumanik Drive intersection (for the main electrical feed) and Alaska Highway (for the secondary feed). Supplementary service could be provided from Hamilton Boulevard if required.

As discussed in the previous section, fill will be required to raise the grades on KDFN C-141B and facilitate sanitary servicing and road access. ATCO reinstalled the 50-foot poles on C-141B in 2017, with 43 feet left above current grade. The bottom of the powerlines is about 29 feet above current grade and minimum residential overhead clearance is 17 feet, allowing for 12 feet of backfill. If a roadway were to cross under the poles, only four feet of backfill would be allowed in that location. ATCO does not support a scenario in

which the grades on C-141B and the low northern boundary of Lot 430 are raised but not the powerline easement due to concerns about the power poles being vulnerable to drainage issues in any resulting gully. Raising the poles (and with it, the grade) or going underground would be the preferred alternative. It costs about \$10,000 to raise one power pole, and about three times that amount to install underground electrical. ATCO's rough estimate for C-141B was \$100,000 for pole raising and \$300,000 for underground servicing across the entire parcel (based on 10 poles).

Internet and phone servicing usually "piggybacks" on the power distribution infrastructure and varies according to the number of lots and types of land uses planned in the development. No particular challenges are anticipated. Both power and communications lines can likely be located within the same shallow utility corridor.

Both ATCO and Northwestel should have more specific input to provide once there are some preliminary service population numbers and neighbourhood layout options to share.

7.0 Summary of Planning Considerations

The Valleyview South area presents an exciting new development opportunity in the heart of Whitehorse. It also establishes several new precedents for the Yukon, including:

- A broad range of private, public and First Nation landowners co-planning and (potentially) developing residential lands; and
- The planning and creation of a relatively large-scale brownfield residential development.

This overarching context sets the stage for the key opportunities and constraints the Team will be attending to in its efforts to assist the Valleyview South development partners, adjacent landowners, nearby neighbourhoods, and the multiple publics involved (i.e., First Nation citizens and Whitehorse residents-at-large) arrive at a broadly supported final neighbourhood concept. These include:

- *Neighbourhood connection and integration*

The former WUTF separated neighbourhoods for decades and the natural terrace above the Alaska Highway serves as an additional barrier. Integrating and connecting this area stands to be a win for many “Above the Airport” residents, current and future. This applies both to the transportation and active transportation networks and the creation of connected open space and trail corridors.

- *Recognizing, reducing and sharing risk*

The different landowners present a diversity of financial, legal, environmental, and social license contexts for prospective development. Market and financial risk will be top-of-mind for private landowners, while social license and political risk may weigh more heavily on public and First Nation governments. The OCP provides direction to incorporate neighbourhood elements (i.e., commercial) and densities that may be perceived as posing a higher market risk by private landowners. Alternately, the potential achievement of density targets in areas currently valued for greenspace poses political and social license risk to public governments. This general principle extends to the consideration and negotiation of how infrastructure costs should be allocated between partners.

- *Achieving mutually beneficial, cooperative development*

The mix of land parcels and landowners creates an enormous opportunity to achieve efficiencies and mutual benefits. This could involve everything from pursuing compatible land development (e.g., one landowner building higher densities to help support a neighbour’s mixed-use or commercial development), to coordinating servicing and access, to the reallocation of one property’s excess granular material to another that requires fill. This cooperative approach also needs to extend to the avoidance of negative impacts between each another’s development plans. The interdependence between property owners with respect to site grading, accesses, utility routing and more needs thoughtful attention (refer to Table 9). Public governments may want to consider strategies to avoid competing directly with either First Nations or private landowners in the marketplace.

- *Acknowledging and navigating a post-colonial context*

The Valleyview South area has a strong geographic connection to a history of First Nation displacement in the Whitehorse area. The WUTF was borne of a suite of American-led mega-projects that would radically upend what little stability First Nation people had regained after the Gold Rush. The construction of the Alaska Highway and WUTF further alienated people from their subsistence areas and were contributing factors in the serious and dangerous pollution of the “Old Village” where First Nation people were relocated on order by Settler governments. The historic character of Valleyview and Hillcrest may be viewed differently by those who associate them with quasi-military occupation and colonial privilege.

Development partners and the public should consider how the plan or future development can acknowledge this history and privilege and create an equitable neighbourhood. Furthermore, it should look to create linkages between the two Whitehorse-area First Nations and their respective land parcels in this area.

- *Servicing efficiencies and influence on physical planning*

The multiple landowners involved, along with the variety (i.e., size, configuration, etc.) of their respective parcels, creates complexity on the physical planning side. The current configuration and capacity of the existing road, water, sanitary and power distribution networks, coupled with design and servicing standards and cost considerations, further complicates things. In some cases, planning options may be limited. One example is the layout of a potential new road into the northwest corner (C-117B/City/YG), where an existing water main and curving alignment of Sumanik Drive could pose challenges to either cost-effective development or optimal site planning.

- *Information gaps and associated risks*

Master planning is intentionally high-level, and the “details” follow in subsequent stages of design, engineering, and regulatory and development approvals. That said, the lack of clarity on some aspects of heritage, airport zoning, and contamination status within the Valleyview South area poses some challenges that may need to be navigated through expert advice, thoughtful scenario planning, and use of the precautionary principle.

- *Fulfilling and contributing to OCP direction*

The OCP sets out broad direction for this future neighbourhood and its desired components: a commercial node, parks and playgrounds, mix of housing types and densities, public and community services such as schools and gathering places, and more. Furthermore, there is a new minimum density target to achieve, along with an overarching target for Urban Core redevelopment that could apply to the Valleyview South area. The role of each development partner and land parcel in helping to fulfill this direction, and how each will do so amid their own development visions and interests, will be explored and defined in the weeks to come.

Table 9. Overview of parcel-specific development issues and inter-dependencies

Parcel	Ownership	Key Development Issues	Inter-dependencies
Lot 66	City of Whitehorse	<ul style="list-style-type: none"> • Unusual parcel shapes and configurations that may constrain good site planning and access routing • Value and use of trails and greenspace • Somewhat contradictory guidance in draft OCP (i.e., designated Greenspace but is located within Urban Core, which is directed to help meet future housing demand through redevelopment/infill) 	<ul style="list-style-type: none"> • Governments may need to coordinate and consolidate parcels to facilitate orderly development and access routing • Road access, internal layout and development compatibility with one another and C-117B
Unsurveyed area	Government of Yukon		
KDFN C-117B	Kwanlin Dün First Nation	<ul style="list-style-type: none"> • SGA provisions re commercial and single family residential could limit built forms and possible layout options • Potential to function as an Urban Centre • Access to/from Sumanik Drive 	<ul style="list-style-type: none"> • Road access, internal layout and land use compatibility with Lot 66 and YG's land
KDFN C-141B	Kwanlin Dün First Nation	<ul style="list-style-type: none"> • SGA provisions re commercial and single family residential could limit built forms and possible layout options • Need for major fill/grading to develop • Powerline easement • Potential role as an Urban Centre • Access to/from Sumanik Drive or other 	<ul style="list-style-type: none"> • Road/site access coordination with C-117B, Lots 262-2, 429, 430 • Coordinated grading with Lot 430 to avoid compromising powerline
Lot 12	City of Whitehorse	<ul style="list-style-type: none"> • Sloping terrain • Access to/from Sumanik Drive • Powerline easement • Possible airport zoning and noise issues • Possible constraints to connecting lower elevations to sanitary network via gravity; may require lift station • Somewhat contradictory guidance in draft OCP (see Lot 66 and YG land above) 	<ul style="list-style-type: none"> • Access to lower portion of Lot 431 is dependent on Lot 12 • Sanitary connections across the two properties • Both could factor into optimal access routing or even sanitary servicing for lower elevation portions of C-30B • Possible "competition" with C-30B and Lot 262-6 for Valleyview sewermain capacity if gravity collection is not viable for lower elevation areas (and Alacrity prefers to service its property separate from other partners)
Lot 431	Government of Yukon		
Lot 262-2	Alacrity Enterprises Incorporated	<ul style="list-style-type: none"> • Shorter development timeframe • Improving access road intersection with Sumanik Drive • Possible airport zoning and noise issues could pose constraints to denser, multi-storey development • Integration of sanitary servicing with Lots 429/430 and connect to Hamilton Boulevard trunkmain or connection to Valleyview sewermain on its own • Potential for contamination 	<ul style="list-style-type: none"> • Development on northern portion of C-30B has the potential to create steep backslopes and cross-property grading challenges • Possible "competition" with Lots 12, 431, C-30B for Valleyview sewermain capacity if gravity collection is not viable for those parcels • Development compatibility with TKC C-30B and Lots 429 and 431

Table 9 continued. Overview of parcel-specific development issues and inter-dependencies

Parcel	Ownership	Key Development Issues	Inter-dependencies
TKC C-30B	Ta'an Kwäch'än Council	<ul style="list-style-type: none"> • Some moderate to steeply sloping terrain • Possible airport zoning and noise issues • Possible constraints to connecting lower elevations to sanitary network via gravity; may require lift station • Degree of integration and internal servicing connection between lower and higher elevation portions • Potential facilitation of an Alaska Highway road and active transportation connection for higher elevation parcels • Potential for groundwater contamination 	<ul style="list-style-type: none"> • Possible "competition" with Lots 12, 431, 262-2 for Valleyview sewermain capacity if gravity collection is not viable for lower elevation areas (and Alacrity prefers to service alone) • Development compatibility with Lots 429 and 431 • All central/southeast area partners and City transportation network stand to benefit from Alaska Highway access • City's road limited to internal access without connection across C-30B
Lot 427-1	Shaw Satellite Services	<ul style="list-style-type: none"> • Protection of views of Grey Mtn • Requirement for a new access from Alaska Highway or Wasson Place 	<ul style="list-style-type: none"> • Lot 2 for temporary access • Potentially Lot 426, City road or central parcels for restored access • Potential future building heights on Lots 426 and 438
Lot 427	City of Whitehorse	<ul style="list-style-type: none"> • Possible contamination due to pipeline ROW • Potential access routing for upper parcels 	<ul style="list-style-type: none"> • Central partners potentially reliant if Lot 427 factors into road routing
Lot 438	Government of Yukon	<ul style="list-style-type: none"> • Loss of access from Alaska Highway • Possible airport zoning and noise issues • Potential challenges to sanitary servicing 	<ul style="list-style-type: none"> • Potentially Lot 426, City road or central parcels for access • Development compatibility with Lots 426, 438
Lot 2	Guru Nanak Sikh Organization	<ul style="list-style-type: none"> • Requirement for new servicing • Protection of views and temple enjoyment • Connections to/from residential area 	<ul style="list-style-type: none"> • Lot 426 for access and servicing and access for Lot 427-1 • Development compatibility with Lots 426, 438
Lot 426	Government of Yukon	<ul style="list-style-type: none"> • Moderately steep escarpment • Site contamination • Potential use as a short-term access • Challenging to service and access 	<ul style="list-style-type: none"> • Development compatibility with Lots 426, 438
Unsurveyed area (SW corner)	Government of Yukon	<ul style="list-style-type: none"> • Undulating terrain with some steep slopes • Value of trails and greenspace • Constraints to providing sanitary, water and road connections (esp. with increased distance from Hillcrest) • Partial OCP designation as Greenspace 	<ul style="list-style-type: none"> • Road/site access and use compatibility with C-117B

Table 9 continued. Overview of parcel-specific development issues and inter-dependencies

Parcel	Ownership	Development Issues	Inter-dependencies
Lot 429 and Lot 430	P.S. Sidhu Trucking	<ul style="list-style-type: none"> • Potential role as an Urban Centre • Consideration of eastern or southern access • Housing mix and density • Possible airport zoning and noise issues in eastern portion (Lot 429) • Ongoing remediation for eastern portion and timing uncertainty (Lot 429) • Integration with Phase 1 mixed commercial-industrial (Lot 429) 	<ul style="list-style-type: none"> • City, TKC, or YG (Lot 426) for secondary access point to east or south • City, KDFN C-141B, and Lot 262-6 for northern access and connection to Sumanik Drive • Northern boundary with KDFN C-141B and grading coordination • Properties along potential sanitary routing
Roads (#8034222) (#8006307)	City of Whitehorse	<ul style="list-style-type: none"> • Optimum configuration and integration with Sumanik Drive intersection 	<ul style="list-style-type: none"> • Surrounding properties (KDFN C-141B, Lot 262-2, 429, 430)
Road (#8006308)		<ul style="list-style-type: none"> • Potential use for Alaska Highway connection from upper TKC C-30B, Lots 429, 430, etc. 	<ul style="list-style-type: none"> • Higher elevation parcels

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Interviewees/Contacts

Note: This list focuses on external contacts and does not include Valleyview South landowners and/or their representatives. Groundswell extends its gratitude for the information and assistance they provided in support of this report.

Mohammed Idrees	Yukon Transportation Engineering Branch
Renee Mayes	Yukon Aviation Branch
Klara Pelzer	ATCO Yukon Electric
Deborah Pitt	Yukon Aviation Branch
Cedric Schilder	Yukon Environmental Sustainability Branch
Christian Thomas	Yukon Archaeology Branch
Lee Whalen	Yukon Historic Sites Branch

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APPENDIX A

Study Area Maps