

West Dawson and Sunnydale Local Area Plan

Inventory and Analysis Discussion Paper

Draft Report
December 2007

Inukshuk Planning & Development Ltd

1.0 Introduction

The West Dawson and Sunnydale area is 4372ha on the west side of the Yukon River opposite Dawson City, YT. The human populations of the study area reside in two distinct neighbourhoods: West Dawson and Sunnydale. West Dawson is situated off the Top of the World Highway, in relatively close proximity to Dawson City. West Dawson is primarily a rural residential area with a young population of approximately 50 people (winter population) (Community Services, 2005). Lot sizes in this neighbourhood have an average area of 1.5-2ha.

Conversely, the neighbourhood of Sunnydale is characterized by agriculture and lot sizes exceed 10ha on average. Consequently the distribution of residences in the Sunnydale area is more dispersed than in West Dawson. The demographics of the population of Sunnydale is reported to be both older and much smaller than that of West Dawson. During the initial assessment period, consultations with residents of the study area revealed that the two communities are fairly insular, and that little collaboration on issues in the study area occurs between them.

Preparation of this working paper included compiling inventory information from a number of sources including: local knowledge, scientific data from the Agricultural and Forest Management Branches of Yukon Energy, Mines and Resources, the Yukon Geological Survey, and tenure information from Community Services. Members of both neighbourhoods and Tr'ondëk Hwëch'in elders were consulted for local knowledge at start-up meetings in October 2007.

Inventory information was then analyzed according to four separate themes; a bioregional assessment, existing ownership and land use, existing landscape conditions, and land capability. This assessment was based on two scenarios: a status quo scenario in which development continues at its present rate, and a scenario in which a bridge is built across the Yukon River. Characteristics of both scenarios are listed in Table 1. Protection strategies for neighbourhoods, such as the FireSmart and secondary access routes to neighbourhoods program are important planning considerations in either scenario.



Figure 1: West Dawson and Sunnydale Study Area Context Map

Status Quo	Bridge Built
Seasonal isolation and lifestyle of residents is unchanged	Increased accessibility reduces isolation and lifestyle of residents
Slow rate of development	Increased rate of development
Current traffic on roads is unchanged	Increased traffic on roads in all seasons
Roadways provide seasonal recreation opportunities	Increased dependence on trails for recreation opportunities

1.1 *Bioregional Assessment*

The bioregional assessment provided residents an opportunity to highlight key issues and valued components of the study area. Local knowledge was incorporated into the assessment at this stage through the use of icons to depict features of the study area, and arrows to represent trails and major migration corridors. The information collected from the bioregional assessment has been captured spatially in Map 1.

A number of key observations resulted from consultation with residents:

- The distribution of wildlife is relatively uniform throughout the study area and includes bear, moose, caribou, and fox. Conservation Officer Services also reported marten, lynx, and wolf, grouse, geese, and Sandhill cranes. No spatial information for the ranges of these species was available (Conservation Officer Services, 2007). Major migration corridors reported by residents correspond to creeks in the study area. OK Creek was reported as a major migration route for a number of species. Bear movement was reported near the courses of two dry creeks in Sunnydale.
- Reported heritage sites are mostly situated along the Yukon River. One heritage area, the Klondike Big Inch Claim has been sold under the Yukon Agricultural Program (Lands Branch, 2007). This insinuates that some heritage protection may be required for other sites.
- Recreation is associated by residents with the road network rather than with the distribution of trails. Such activities include snowmobiling, dog mushing, snowshoeing, and hiking. More hiking/snowshoeing opportunities were reported in the West Dawson area than in Sunnydale. Trails are used predominantly for winter recreation, especially snowmobiling. A sheltered area along Sister Island also serves as a winter trail along the Yukon River. This sheltered area also provides swimming and other summer recreation opportunities to residents.
- Residents reported that they prefer an unplanned approach to trails and trail maintenance.
- Water sources are scarce in the study area. The only year-round access for water is provided from Swede Creek. Water from OK Creek is reported to have a high mineral content and is unsuitable for drinking. OK Creek also freezes completely in the winter. Residents believe that the difference in the two water supplies is caused by the presence of two aquifers in the study area. These aquifers may be separated by permafrost.



Figure 2: Dog musher in Sunnydale.

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LEGEND

	Snowshoe / Hiking		Moose		Historic Site/Building
	Snowmobile / ATV		Bear		Boat Launch/Dock
	Dogsled		Caribou		Cemetery / Grave Site
	Swimming		Fox		Lookout / Views
	Camping Area		Geese/Ducks		Restaurant / Dining
	Firing Range		Rare Flora		Source of Water
	Golf Course		Llama Farm		Helicopter Landing Site
	Wood Cutting		Fishing		Marshy Area
	Trapping		Farming		Animal Movement
	Mining		Ferry		Site Boundary
	Ferry				Road
					Trail
					Proposed Trail
					Creek
					Intermittent Creek

SOURCE

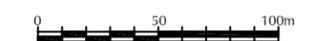
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Yukon
Community Services



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Map 1
Bioregional Assessment
(Community Values Mapping)
West Dawson / Sunnydale Local Area Plan

1.2 Existing Landscape Conditions

The existing landscape conditions were assessed based on existing sources of information. The forest, drainage, and contour information have been gathered into a conglomerate Map 2. Characteristics of the existing landscape condition include:

- Soils and soil drainage information was only available for 26% of the eastern edge of the study area along the Yukon River. Of this 26% only a quarter was cited as having poor soil drainage for a number of reasons including steep slopes and permafrost (Walmsley and McKenna, 1987). The areas of poor soil drainage were evenly distributed across both the West Dawson and Sunnydale neighbourhoods.
- Steep slopes characterize the study area. Slopes of 30% or more characterize approximately 2721ha or 62% of the study area. These slopes are generally southeast facing with good solar aspect. A small proportion of the sloped area face southwest along Swede Creek, and northwest along OK Creek.
- The study area is composed of five watersheds. These watersheds drain into OK Creek, Dawson Creek, Swede Creek, and Benson Creek with two dry creeks providing intermittent drainage in Sunnydale.
- A single ecologically distinct area exists in the study area. This floral area of interest is composed of a significant population of a rare orchid, *Cypripedium guttatum*. This population is thought to be quite ancient. These orchids may be vulnerable to poaching and protection has been recommended for this area (Wildlife Viewing Program, 2005).
- Detailed information on permafrost was not available (Yukon Geological Survey, 2007). However, continuous permafrost is generally found on north facing slopes, near valley bottoms, or in areas of fine-grained soils.

1.3 Vegetation Communities

The study area is predominantly mixed coniferous and deciduous forest with only a small proportion having been purposefully cleared for agricultural and other land uses. Black spruce and white birch are the most common species in the West Dawson and Sunnydale area (Forest Management Branch Inventory, 1990). Stands in the forested area of the study area are proportionally dominated by:

- Balsam Poplar (*Populus balsamifera*): 130ha or 3% of the study area
- Black Spruce (*Picea mariana*): 1169ha or 27% of the study area
- Trembling Aspen (*Populus tremuloides*): 725ha or 16% of the study area
- White Spruce (*Picea glauca*): 754ha or 17% of the study area
- White birch (*Betula papyrifera*): 1490ha or 34% of the study area.
- Non-forested: 192ha or 4% of the study area

Map 3 depicts the spatial distribution of stand dominance in the West Dawson and Sunnydale area.

- Forest age is generally between 61-120 years. Black spruce is recorded as having the lowest stand age of 21-40 years. White spruce is recorded as having the oldest stand age of 121-150 years.
- West Dawson is generally characterized by spruce and birch.
- In addition to these species, Sunnydale has a greater diversity in terms of stand dominance with areas of balsam poplar and trembling aspen.



Figure 3: Typical forest cover of West Dawson and Sunnydale

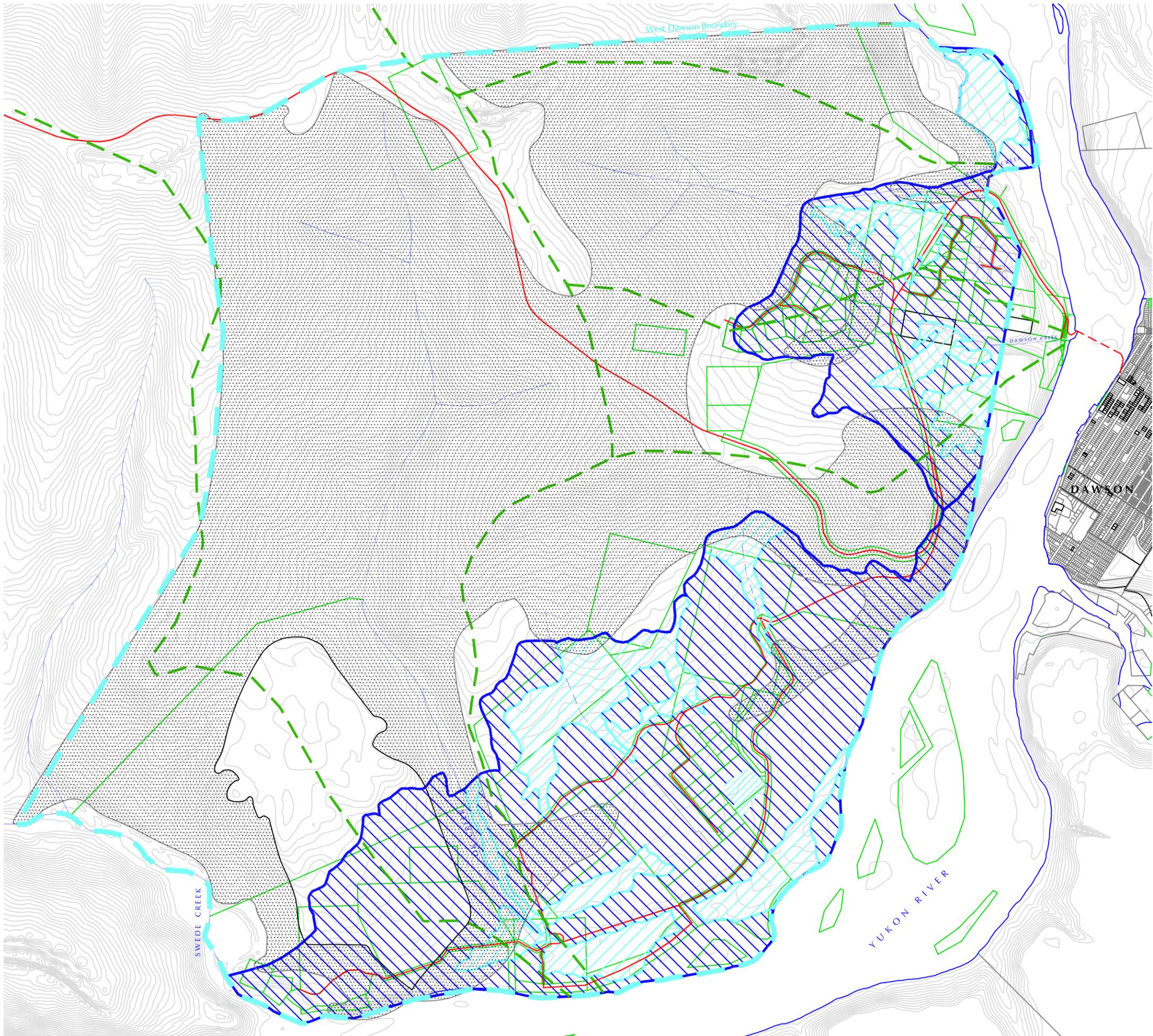
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-  Steep Slope
-  Good Drainage
-  Poor Drainage

-  Watershed
-  Watercourse
-  Intermittent Creek
-  Study Area
-  Road



SOURCE

Walmsley, M & McKenna, K. 1987. Dawson 116 B/3 SE. Westland Resource Group, Victoria B.C.
 Walmsley, M & McKenna, K. 1987. Swede Creek 116 B/4 SE. Westland Resource Group, Victoria, B.C.
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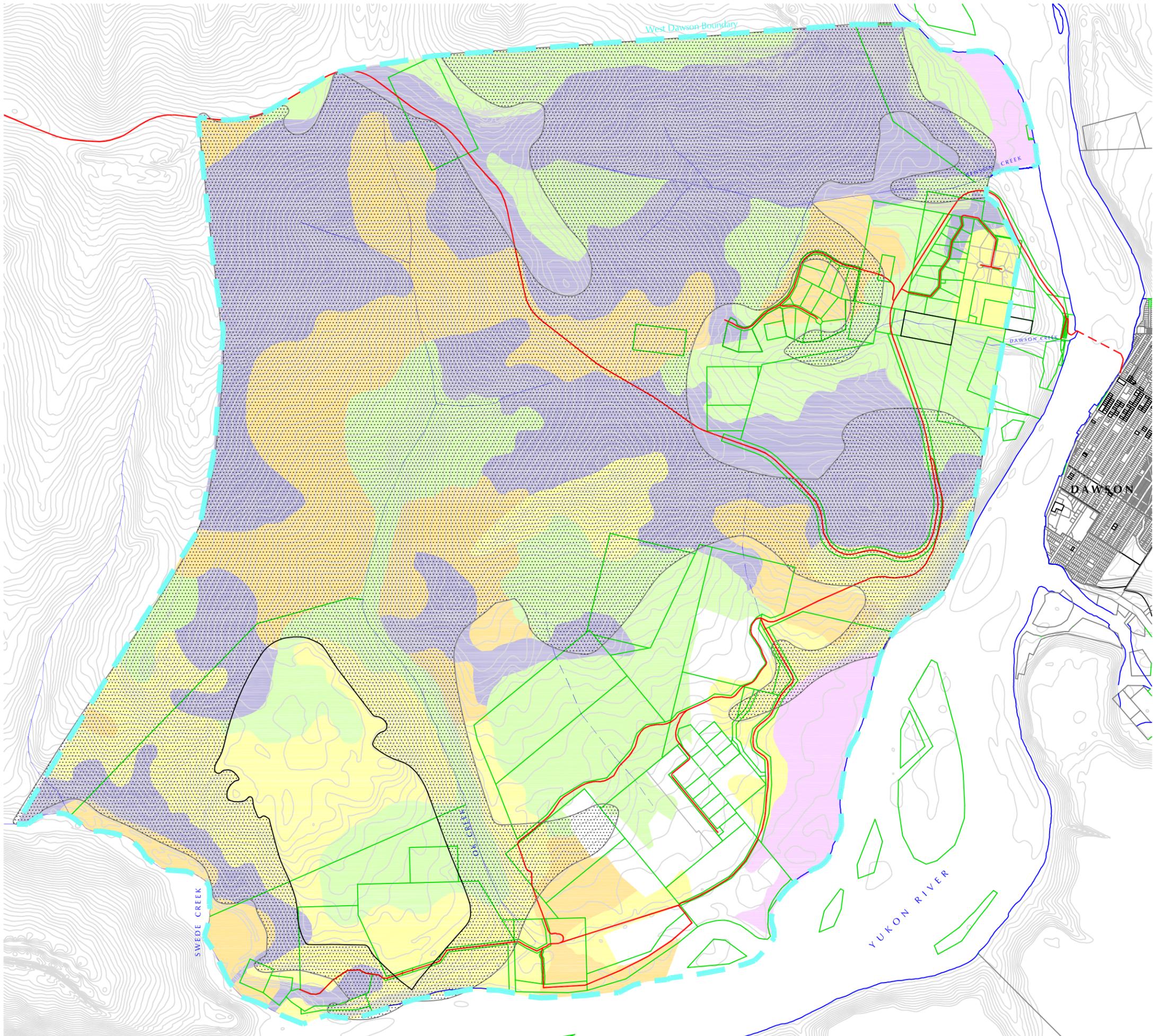


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Map 2 Existing Landscape Conditions

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LEGEND

-  Steep Slope
-  Balsam Poplar Dominated Stands
-  Black Spruce Dominated Stands
-  Trembling Aspen Dominated Stands
-  White Spruce Dominated Stands
-  White Birch Dominated Stands
-  Non-Forested Area
-  Watercourse
-  Intermittent Creek
-  Study Area
-  Road

SOURCE

Yukon Forest Management Branch. 1990. Forest Cover Mapsheet 116b/3. Energy, Mines and Resources, Yukon Territory
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Map 3 Vegetation Communities

1.4 Existing Land Use and Land Tenure

Land use and land tenure information was compiled from numerous secondary sources including taxation records mineral claims, agricultural application records, settlement land distribution records, building permits, leasing records of the Yukon Government and others. Land tenure in the study area has experienced some transition. Some lots have first reverted from private ownership to either the Crown or to the Commissioner for taxation reasons. Subsequently some of this land was then transferred to the Commissioner from the Crown during the devolution of Federal responsibilities to the Yukon Government. Land use and land tenure information has been compiled based on the availability of information and is presented spatially in Map 3.

- 75% (3288ha) of the study area is classed as open space. This land is registered with the Yukon Government. Of the remaining 25% of land in the study area, 885ha is registered to the Tr'ondëk Hwëch'in as settlement land. Settlement land is currently undeveloped. Consequently only a small proportion of land in the West Dawson and Sunnydale area has been developed.
- The dominant land use classes in the study area are agriculture and rural residential.
- Agricultural titles and applications are recorded for 240ha or 5% of the study area. These lots are exclusively distributed in Sunnydale. 135ha (3%) of land in Sunnydale has been cleared for agriculture, although some of these clearances are not located on land recorded as agricultural and may represent old farms. Only 64ha (27%) of the 240ha currently recorded as agricultural land has been cleared. Recent agricultural applications on record show a high interest in farming in Sunnydale.



Figure 3: A farm in Sunnydale.

- Privately owned rural residential land accounts for 130ha or 3% of the study area. Rural residential land is predominantly found in West Dawson, with the exception of a single subdivision on former agricultural land in Sunnydale.
- Commercial recreational land accounts for 48.5ha (1% of the study area). The Top of the World Golf Course accounts for the majority of this land, with two rifle ranges forming the remainder. One rifle range is located in Sunnydale. The other is located off the Top of the World highway on the northern boundary of the West Dawson and Sunnydale area.

- Industrial land refers to placer claims in good standing and gravel pits. Currently gravel pits registered to Highways and Public Works are located at both primary access points to West Dawson along the Top of the World highway, with a third near the northern boundary of the study area (Highways and Public Works, 2007). A fourth gravel pit is centrally located near Sunnydale. Gravel pits account for 7.5ha or less than 1% of the study area.
- Placer claims in good standing account for 122.9ha or 3% of the study area. The distribution of placer claims is exclusive to West Dawson where a number of claims overlap rural residential properties (Skyline Air Photo Locator, 2007). This is not uncommon in the Yukon where sub-surface and surface rights are equally protected. No mining can take place within the immediate area around homes or private infrastructure (Community Services, 2007).
- A relatively small and eclectic trail system can be found in the study area. The majority of trails are found in West Dawson, with only two trails reported in Sunnydale. Many trails in the study area did not appear to have been recently used during the assessment. Residents have commented that they frequently use roads for recreational purposes.
- Roads in the West Dawson and Sunnydale area are predominantly unplanned. Many roads, Sunnydale Road in particular, meet other roads at awkward angles and intersections have poor associated lines of sight. Many roads do not currently meet road standards in the Yukon.

1.5 Aggregate and Agricultural Potential

The surficial geology of the West Dawson and Sunnydale area is characterized by glaciofluvial terraces, alluvial fans, alluvium plains, and colluvium deposits (Duk-Rodkin, 1996). Generally the entire study area is underlain by gravel and finer materials. Of these Glaciofluvial terraces are considered to be good potential aggregate sources. Other terrain types will either have finer materials mixed in or be limited by proximity to an active floodplain. The spatial distribution of potential aggregate sources is shown in Map 5 (Yukon Geological Survey, 2007).

- Based on this assessment, good potential aggregate sources make up 14% of the study area (617.6ha). Lower potential aggregate sources form the remainder of the study area, 3754.4ha.
- Potential aggregate sources are loosely distributed in three parts of the West Dawson and Sunnydale area. The majority is found in Sunnydale (445.5ha or 72%) and only 27.6ha (4.5%) is found in Sunnydale. The remainder, 144.5ha (23%), is found in the proximity of Swede Creek.

The distribution of agricultural land is located along the Yukon River. Of the 1738.7ha of land that was classed as agricultural, only 448.6ha (26%) is located in West Dawson. The remainder is distributed through Sunnydale. The distribution of agricultural land is shown in Map 5. Agricultural soils in the West Dawson and Sunnydale area have an agricultural capability ranging from Class 4 (the most productive soil in the Yukon) to Class 7. The majority of soils in the surveyed area have a relatively high capability class (Walmsley and McKenna, 1987).

- 68.5ha (15%) of 448.6ha of agricultural land surveyed in West Dawson is classed as 6-7.
- 181.9 (16%) of 1108.1ha of agricultural land surveyed in Sunnydale are classed as 6-7.
- The agricultural capability of higher potential soils in the West Dawson and Sunnydale is further characterized by the distribution of Class 4 and Class 5 soils. West Dawson is dominated by Class 5 soils, with Class 4 soils additionally constrained by topography. Sunnydale conversely is composed mainly of Class 4 soils located on relatively even grades.
- Agricultural productivity is relatively limited by topography, adverse climate conditions, and soil moisture deficiencies, and permafrost.
- Agricultural soils in the study area are considered valuable and recommendations for the conservation of Class 4 soils especially have been made.

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LEGEND

LAND USE

-  Privately Owned Rural Residential
-  Commercial Recreational
-  Industrial (Gravel Pits)
-  Institutional
-  Agricultural
-  Cleared Land
-  Flora Area of Interest
-  Undeveloped Yukon Land
-  Yukon Reserve

LAND TENURE

-  Agricultural Land Applications
-  Placer Claims In Good Standing
-  Active Gravel Application
-  Tr'ondek Hwech'in Settlement Land

-  Study Area
-  Road
-  Trails
-  Watercourse
-  Intermittent Creek

SOURCE

Skyline Air Photo Locator. 2007. Energy, Mines, and Resources Library. (Online: 11 December 2007) http://www.emr.gov.yk.ca/library/skyline_jump.html
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Map 4 Existing Land Use & Land Tenure

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LEGEND

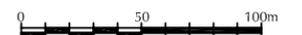
-  Class 4 and 5 Agricultural Capability
-  Class 6 and 7 Agricultural Capability
-  Potential Aggregate Source
-  Lower Potential Aggregate Source
-  Study Area
-  Road
-  Watercourse
-  Intermittent Creek

SOURCE

Duk-Rodkin, A. 1996. Surficial Geology, Dawson, Yukon Territory, Open File 3288. Geological Survey of Canada, Canada.
 Walmsley, M. and McKenna, K. 1987. Dawson 116 B/3 SE. Westland Resource Group, Victoria, B.C.
 Walmsley, M. and McKenna, K. 1987. Swede Creek 116 B/4 SE. Westland Resource Group, Victoria, B.C.
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Map 5 Agriculture and Aggregate Potential

1.6 Land Capability

Land capability for the West Dawson/Sunnydale study area was assessed based on slopes, soils, and drainage. Forest species were used as indicators for permafrost and vulnerability to forest fire based on the fuel type description and the hazard classes listed in the Firesmart 5-year plan for the Dawson Region (Tobler and Muraro, 2005). Land capability was designated in terms of high, medium, and low capability. The spatial distribution of land in the capability classes is presented in Map 4.

- Relatively level slopes, good drainage, and good soils, especially Class 4 agricultural soils, characterize high capability land. Class 4 soils are considered among the most productive agricultural soils in the Yukon (Agricultural Branch, 2007). High capability lands are least vulnerable to forest fire. These areas are highly suitable for development or agriculture. High capability lands make up 960.6ha (22%) of the West Dawson and Sunnydale area.
- Medium capability lands show increasing slope to a maximum of 30% and poorer soils. Forest fire outbreak is an increasing concern in these areas. Medium capability land is suitable for development although some site improvements may be necessary. Limited agriculture may be possible. 1170.3ha (27%) of the study area is classed as having medium capability.
- Steep slopes of approximately 30% or more characterize low capability lands. These areas also have the highest vulnerability to forest fire outbreak. The headlands of two dry creeks in Sunnydale were designated as low capability for their protection. Low capability land comprises the majority of the study area (51% or 2241.1ha).



Figure 4: Sunnydale and Yukon River.

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LEGEND

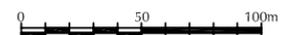
-  High Capability - area suitable for agriculture and/or development
-  Medium Capability - area suitable for some agriculture and/or development, may be limited by increasing slopes, lower agricultural capability or finer silts and clays.
-  Low Capability - area not suitable for development or agriculture
-  Study Area
-  Road
-  Watercourse
-  Intermittent Creek

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Map 6 Land Use Capability

2.0 Implications for Preparation of a Local Area Plan

The assessment of the West Dawson and Sunnysdale region has resulted in the following implications that will require consideration in the Local Area Plan.

2.1 Access and Transportation

- The construction of a bridge across the Yukon River remains the predominant issue for the Local Area Plan. Currently the necessity of ferry crossings across the river has limited development in both West Dawson and Sunnysdale. The seasonal lack of access to the area has enabled residents to pursue a lifestyle of relative isolation and independence. Given the number of problems observed with infrastructure and conflicting land uses reported by residents during the initial assessment, firm planning is important if a bridge is realized and the increased rate of development predicted for the area is actualized. Such a plan would provide some protection for the standard of living residents are currently accustomed to.
- The existing road network has evolved organically in response to necessity. Road improvements are a necessity regardless of a bridge built or status quo scenario. The standards for road construction will have to be addressed because Yukon Government does not maintain substandard roads. Increased traffic in the area as a consequence of bridge construction will compound the need for road improvements. Planning should consider infrastructural shortcomings such as roads meeting at poor angles and the lack of secondary access to neighbourhoods. Some potential secondary access routes are depicted in Map 5.
- The Top of the World Highway currently has little winter traffic and offers residents seasonal recreational opportunities. Consequently the existing trail network is not extensively used. If increased traffic through the area as a result of bridge construction limits recreational opportunities planning should help residents define the characteristics of a future trail network given their expressed preferences for an unplanned trail network.
- The Yukon River provides seasonal opportunities for recreation, as shown in Map 1. If the bridge is constructed some consideration should be made as to how this will impact summer and winter recreation along the Yukon River.



Figure 5: Intersection of the Top of the World highway and Sunnysdale Road

2.2 Rationalization of Land Tenure:

- The impacts of bridge construction and an increased rate of development could have subsequent effects on land use. Of particular concern is the loss of productive agricultural soils to ad hoc development.
- The local area plan should provide for the orderly development of land in either a bridge built or status quo scenario. A timeline and spatial location of future development is needed given the independence and quality of life expectations of residents, the potential for development on Tr'ondëk Hwëch'in settlement land, and the observed infrastructural shortcomings in the area.

2.3 Land Use Mix

- An orderly distribution of land use is required to address the concerns expressed during the initial assessment about conflicts between industrial land use and rural residential properties. Given the small proportion of industrial land use in the area, alternatives can likely be proposed. Residents would like to see appropriate segregation of land uses in West Dawson. Specifically they would like to see placer mining and rural residential land uses separated.
- Three pockets of developable land in either the medium or high capability classes exist and are shown on Map 5. The distribution of low capability land between pockets loosely corresponds to reported major wildlife movement routes. A comparison of capability characteristics is presented in Table 1. An assessment of the positive and negative features that would influence development is summarized in Table 2. These pockets have been labeled West Dawson and Sunnydale according to the neighbourhoods they encompass. For convenience, the third pocket has been named for the most prominent feature in the area - Swede Creek. Based on their current rural residential or agricultural characteristics these discrete pockets provide the opportunity for an overall development strategy that maintains neighbourhood character, subject to feed back from residents.

Pocket	Total area of pocket (ha)	Proportion of High Capable Land (%)	Proportion of Medium Capable Land (%)
West Dawson	588.7	42	58
Sunnydale	789.3	45	55
Swede Creek	646.5	51	49

2.4 Sociological Considerations:

- Observations of residents during the initial assessment indicated that the two neighbourhoods function as distinct communities with relatively little interaction or collaboration on issues. The local area should make some consideration of how and if residents would prefer to see community development in the future, either as two distinct communities, or as a single one.
- The two neighbourhoods have distinctly different characteristics. West Dawson is younger and larger than Sunnydale. Sunnydale residents also seem more insular and are less reflected in the consultation to date than those of West Dawson. Some consideration should be made to ensure that the opinions of Sunnydale residents are reflected in the Local Area Plan.



Figure 6: West Dawson from Dawson City waterfront.

Pocket	Positive characteristics	Negative characteristics
West Dawson	Currently rural residential in character – 13% of total area has been developed as private rural residential.	Moderately vulnerable to forest fire outbreak
	Established road network that can be readily improved on.	Some steep slopes that may require improvement before development is possible.
	Established Firesmart Plan that can be improved on.	Existing industrial land use conflicts that will have to be resolved.
	Distribution of high capable land along Top of the World highway provides an opportunity for cost effective development without the installation of much new infrastructure.	
Sunnydale	Is the largest development pocket.	Has an established agricultural character that may conflict with rural residential development.
	Has the highest proportion of high capability land.	Existing infrastructure is not well established and requires repair and updating.
	Has the highest proportion of Class 4 soils	Drained by two dry creeks that will require protection to avoid seepage and/or flooding.
Swede Creek	Land is predominantly owned by either YTG or Tr'ondëk Hwëch'in.	No infrastructure currently exists and the development of necessary roads may cost prohibitive.
	Tr'ondëk Hwëch'in have already specified development as a possibility for future economic development.	Only existing road into this pocket requires repair where it crosses OK Creek.
	No existing land use or neighbourhood character established.	Area is relatively isolated.
	Close to primary source of water in the study area.	

2.5 Political Considerations

- Sunnydale has no local government or official representation, while West Dawson has an established Community Association. This may require some consideration during the planning process to ensure that the opinions of Sunnydale residents are solicited.
- The West Dawson and Sunnydale study area has historically been a part of the Dawson City limits. It was only created as an official area in 1995. The need for political representation of residents is therefore a recent one. Residents may not see the need for, or desire, political representation.
- If a bridge is constructed the historic methods for community representation, if any, will no longer be adequate to ensure neighbourhood needs are met due to the potential speed of new development.

2.6 Climate Change

Due to climate change the West Dawson and Sunnydale area can expect to see a number of changes:

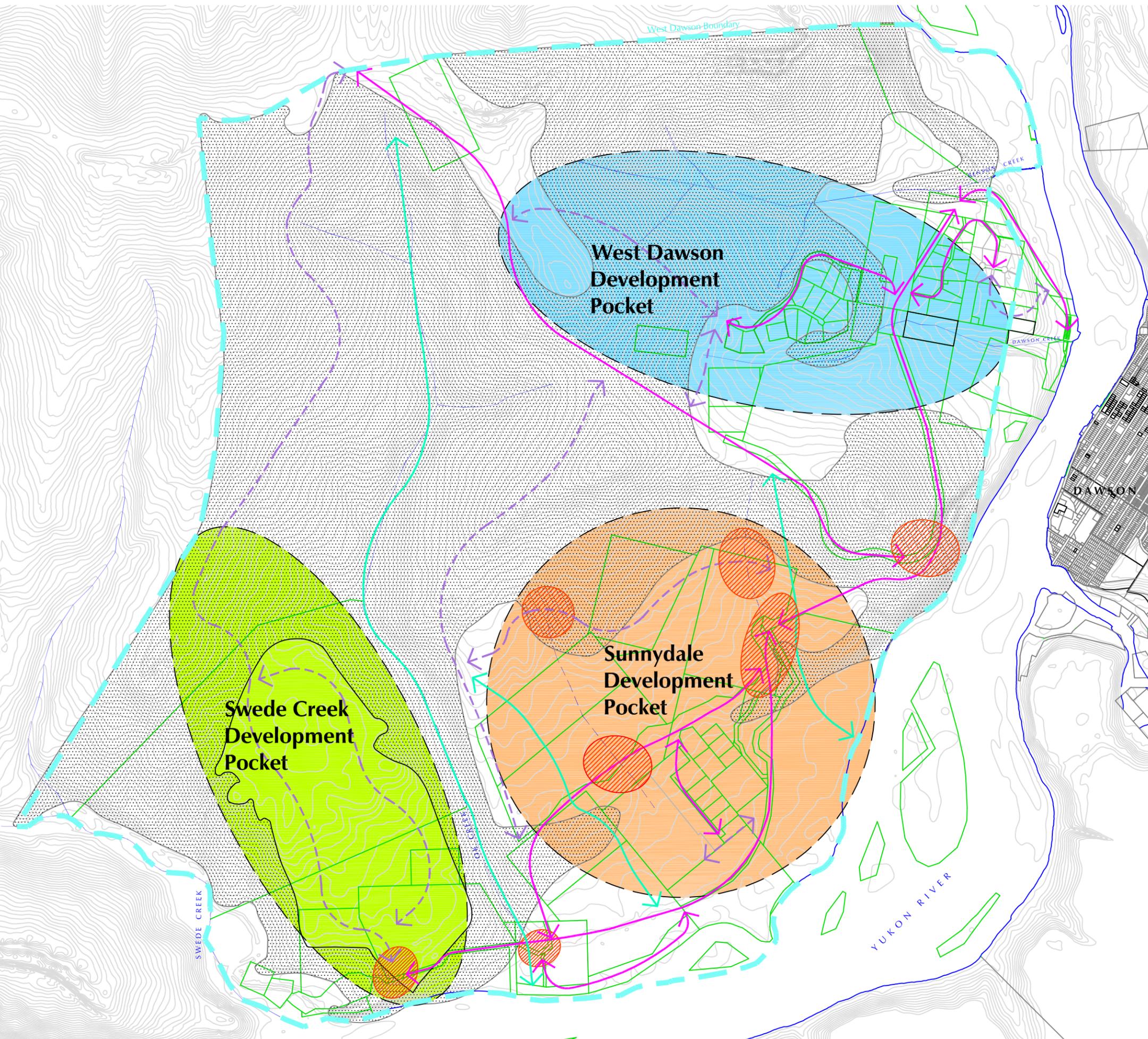
- A warmer climate in which agricultural areas may become more productive and therefore have increased value than is currently anticipated.
- Hot summers may increase the risk of forest fire to vulnerable areas. Trees may become stressed due to shifting hydrology, shifting hibernation periods, and changing winter conditions.
- The risk of insect outbreak may increase as milder temperatures affect seasonally restricted insect populations to a lesser degree.
- Permafrost breakdown may affect hydrology. Shifts may include changes in water quality if the reported permafrost barrier between aquifers breaks. Melting permafrost, especially along steep slopes, may slump. Slumping may shift current drainage patterns and negatively affect roadways, increase marshy areas, and increase the risk of flooding in low lying areas.
- Animal species may change their distribution and range in response to warmer weather. Some species such as caribou may become less frequent in the area, while others such as deer may become more prevalent. A northern shift in the range of herbivores may create additional stress for forest species. Additional stress may in turn increase the risk of forest fire.
- Increased variability of severe weather, especially rain, may create new challenges for residents. Increased windspeeds may also cause more trees to blow down indirectly contributing to an increased risk of forest fire.
- Shorter, warmer winter weather may affect the duration of an ice bridge in winter, which may increase the seasonal isolation of residents in a status quo scenario.

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LEGEND

-  Steep Slope
-  Future Development Concern
-  Wildlife Movement Route
-  Existing Circulation Route
-  Possible Circulation Route
-  Study Area
-  Watercourse
-  Intermittent Creek

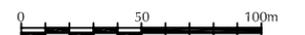


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Map 7 Development Considerations

3.0 Next Steps

The next steps in the development of the Local Area Plan for the West Dawson and Sunnydale area will include:

- Consultation and feedback from West Dawson and Sunnydale residents on the implications noted above.
- Strategies for managing the change that could be induced by bridge construction.
- Protection of the quality of life, lifestyle choices, character and population densities of existing neighbourhoods.
- Anticipating future requirements of infrastructure that both meets standards and ensures the safety of residents. The placement of secondary access routes should be a part of this process.
- Investigate land use conflicts reported by residents and their potential resolution.
- Propose strategies to accommodate wildlife corridors and ensure the maintenance of watersheds and other biophysical characteristics of the study area.
- Propose strategies to conserve prominent viewpoints and recreational opportunities of residents.
- Anticipate the effects of climate change and integrate them into the local area plan.

Plan References

Agricultural Branch, Energy Mines and Resources. 2007. Personal Communication. 7 December 2007.

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Tobler, P. and Muraro, J. 2005. FireSmart 5 Year Plan for the Dawson Region. EDI Environmental Dynamics Inc. Whitehorse, YT.

Lands Branch. 2007. File #2840-04. Energy, Mines, and Resources, Yukon Territory.

Wildlife Viewing Program. 2005. Population report: Cypripedum guttatum. Yukon Department of the Environment, Yukon Territory.

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Walmsley, M and McKenna, S. 1987. Swede Creek 116 B/4 SE. Westland Resource Group, Victoria B.C.

Yukon Forest Management Branch. 1990. Forest Cover Mapsheet 116 B/3. Energy Mines and Resources, Yukon Territory.