Presented For

HILLIARD'S BAY

ESTATE +
PROVINCIAL PARK

Hazard and Risk Assessment

JULY 2022

The Wildfire Hazard and Risk Assessment is a tool used to determine the overall wildfire risk to the community of Hilliard's Bay by looking at the values at risk, wildland fuels, fire occurrence, fire behaviour potential, and suppression capability. The assessment is used to identify and prioritize the recommendations based on levels of risk, available resources, and budgets.

VALUES AT RISK ASSESSMENT

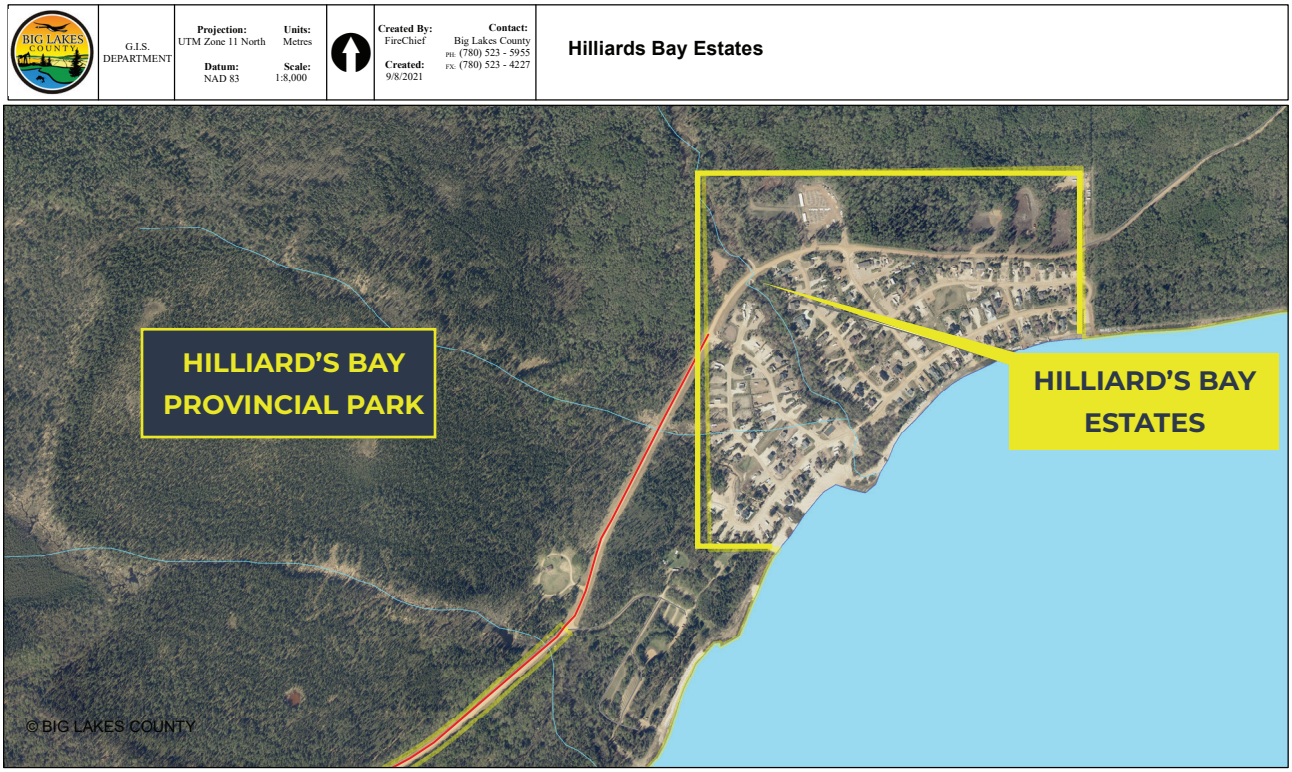
The community of Hilliard's Bay presents several challenges related to wildland fire. Critical infrastructure in the area is primarily Alberta Park's structures and is at risk to wildfire as little vegetation management has been completed near them with varying levels of adequate building construction.

The critical infrastructure in Hilliard's Bay Provincial Park is predominantly constructed with little setback from wildland fuels and combustible material siding. These buildings include; pumphouse, water treatment, lift station, maintenance shop, and staff housing. There is no critical infrastructure within the community of Hilliard's Bay.

There are 100 primary residential and critical infrastructure structures within the community of Hilliard's Bay Estates and the provincial park. These are presented with numerous challenges given their proximity to the adjacent wildland fuels. There are also wildland fuels intermixed throughout the community in pockets, as well as a fuel wick running through the community along the creek.

Development of the residences within Hilliard's Bay Estates are for the most part built with non-combustible materials. As well as the construction materials, most of the lot sizes provide good spacing between each other and wildland fuels.

The community has been divided into divisions (geographic areas) to better describe the risk to different locations within the community. This also assists in operational planning and operations as it pertains to wildland fire.


BIG LAKES COUNTY
G.I.S. DEPARTMENT
Projection: UTM Zone 11 North
Units: Metres
Datum: NAD 83
Scale: 1:8,000
Created By: FireChief
Created: 9/8/2021
Contact: Big Lakes County
PH: (780) 523 - 5955
FX: (780) 523 - 4227
Hilliards Bay Estates
HILLIARD'S BAY PROVINCIAL PARK
HILLIARD'S BAY ESTATES
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EAST DIVISION
WEST DIVISION

ROOF TYPES

An assessment of roof types on all primary residential structures was completed as part of the Wildfire Hazard & Risk Assessment. While this provides limited information on the survivability of a structure by only taking into account one variable, it is a reasonable demonstration of the common building construction in the area.

Community division	Asphalt shingle	Tin	Cedar shake	Other	TOTAL STRUCTURES
East division	49	13	1	3	**66**
West division	22	4	0	0	**26**
Parks division	1	6	1	0	**8**
TOTAL ROOFS	**72**	**23**	**2**	**3**	**100**

WILDFIRE HAZARD ASSESSMENT

When assessing the wildfire hazard, care is taken to assess the wildland fuels in the area. Fuel types are identified within a 2km boundary and are assessed by its risk of surface fire and ember shower impacts to the community.

The wildland fuels surrounding Hilliard's Bay are composed primarily of the mixed wood fuel type being composed of both deciduous and coniferous fuels. Within a 2km range of the community there are varying ranges of mixed wood percentages, however there are some areas of concern with heavier pockets of coniferous fuels present. The wick of vegetation running through the community along the creek is an area of concern as well. The wick being similar to the mixed fuels surrounding the community also has a risk of combustible understorey vegetation that could easily carry surface fire through the backyard of numerous properties.

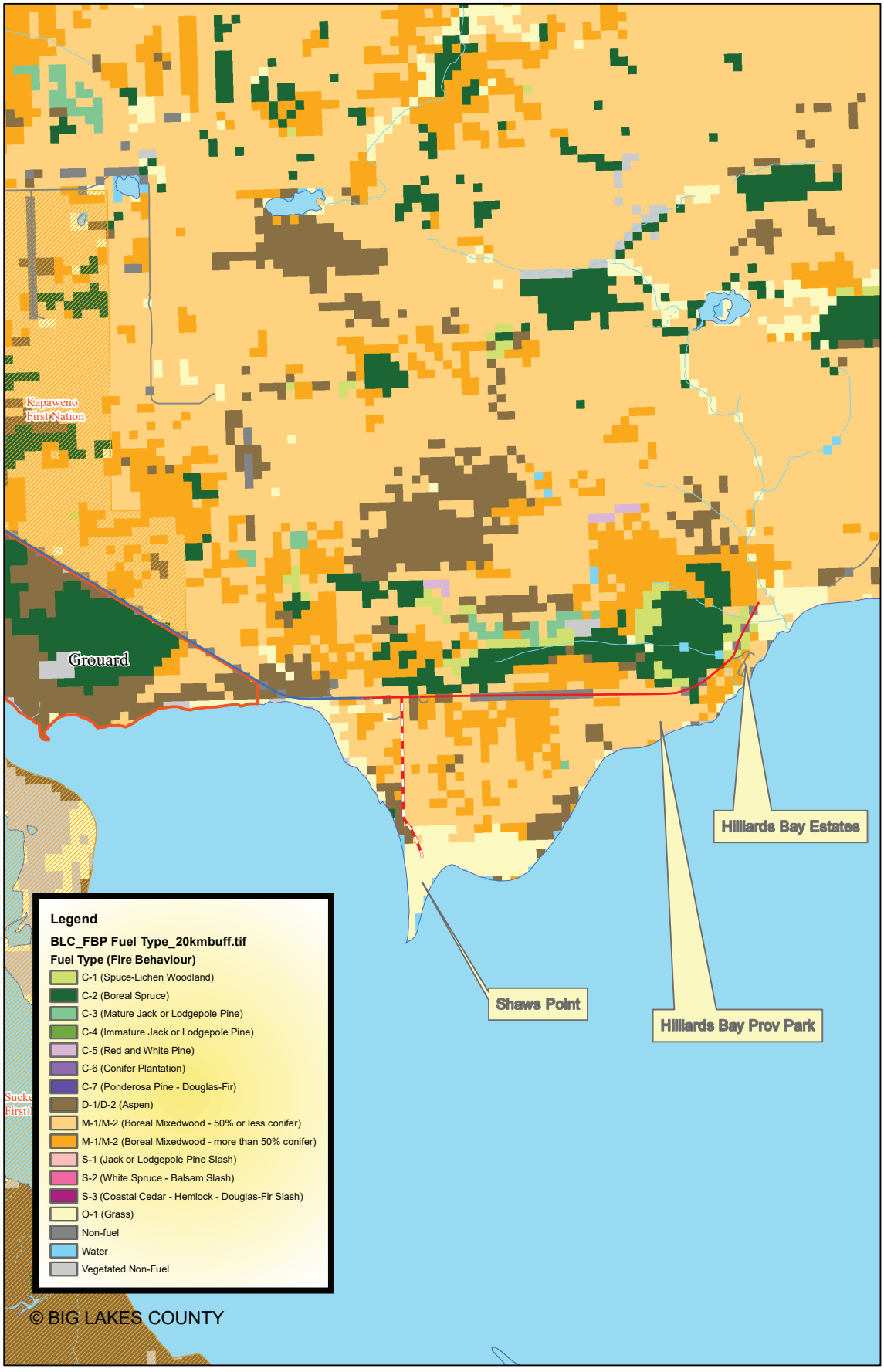
The Hilliard's Bay Provincial Park is faced with the same fuel loading and type as the Estates.

WILDLAND FUEL TYPE	FIRE BEHAVIOUR POTENTIAL
Mature Spruce	**Extreme**
Mature Pine	**Extreme**
Mixedwood >50% Coniferous	**High**
Mixedwood <50% Coniferous	**Moderate**
Cured Grass	**Moderate**
Deciduous	**Low**

A main issue is the volatility of these fuels during the Spring hazard. Spread rates in cured grass before green up being pushed by prevailing winds out of the Northwest raises concerns in these fuel types for the location of the community.

Community Division	Wildfire risk
East division	**Very high**
West division	**Very high**
Parks division	**Very high**

WILDLAND FUELS MAP



RISK ASSESSMENT

Historical wildfire data found that there has been no significant fire history for the area within a 10km boundary of Hilliard's Bay in the last 20 years. Due to the low number of fire occurrences, lack of vegetation management, and little harvesting, there is a build up of forest fuels in the area that can lead to significant fire activity during periods of high-extreme fire hazard.

Multiple sources of ignition are present in the area and include:

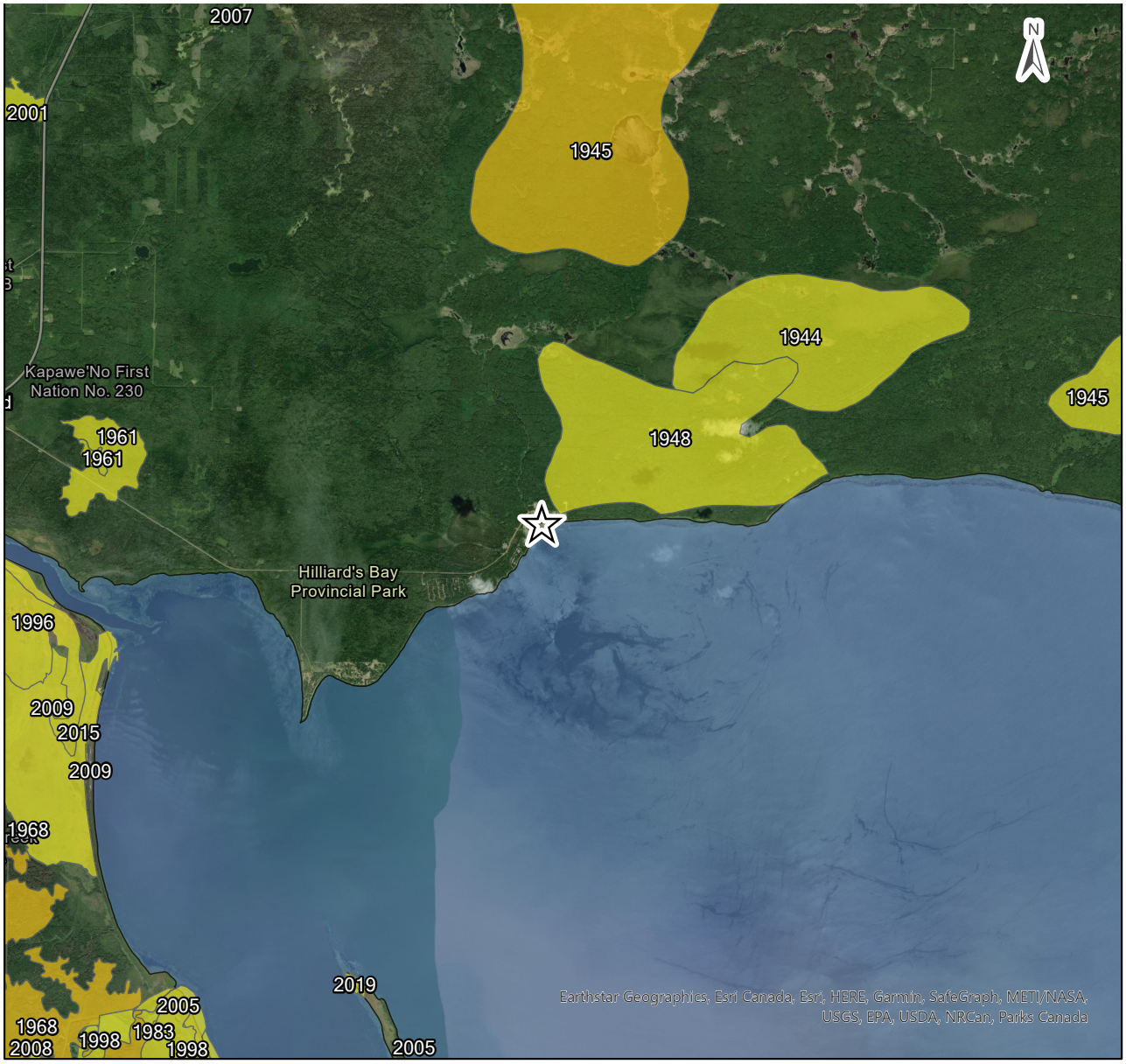
- Off-Highway Vehicles (OHVs)
- Residents
- Lightning

Each ignition source presents an issue for the community as most ignitions have the potential to compromise access and egress routes. With only a single access road to the West, early evacuations must be considered in the event of a wildfire. This access road is shared with the community of Shaw's Point, which depending on the time of year can have up to 12 000 residents on site. The greatest threat to life safety is the access road being compromised by fire while evacuations are underway.

The greatest risk to values in the area will likely come from ember showers across the community as well as surface fires advancing through the wicks of Hilliard's Bay.

HISTORICAL WILDFIRE DATA

PROXIMITY TO HILLARD'S BAY



Legend

Water Bodies

Site

Year of Wildfire Perimeter (Hectares Burnt)

- 0.0 - 2148.7
- 2148.7 - 8076.6
- 8076.6 - 17420.0
- 17420.0 - 35078.9
- 35078.9 - 61951.1
- 61951.1 - 147552.2

0 1 2 4 6

Kilometres

Scale: 1:100,000

Spatial Reference
Name: NAD 1983 10TM AEP Forest
PCS: NAD 1983 10TM AEP Forest
GCS: GCS North American 1983
Datum: North American 1983
Projection: Transverse Mercator

SUMMARY

A wildfire hazard & risk assessment is a tool used to quantify wildfire hazard within and surrounding a community. It is used to identify the risk to structures and the community as a whole to assist in prioritizing work in the areas of FireSmart disciplines. In the case of Hilliard's Bay, the risk is found to be substantial.

Fuel loading, a single access/egress route, distance from resources, and historical wildfire data are all considered when identifying the risk. To further identify ways to reduce the risk of wildfire to this community, a FireSamrt Mitigation Strategy and Structure Protection Plan are recommended. A FireSmart Mitigation Strategy will identify ways to reduce the risk to wildfire by addressing each FireSmart discipline and the work needed to reduce the risk.

A Structure Protection Plan will identify operational needs should a wildfire occur and provide solutions in dealing with an interface fire. In conjunction with regional partners, residents and industry, the County of Big Lakes can better prepare for a wildfire that may threaten Hilliard's Bay.

SEA HAWK

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