Report to Council

TREVOR STREET

ACCESS & EGRESS

Aug 20, 2024

AREA OF CONCERN

114 Homes
Trevor, Regent and Selby Streets

ONE WAY IN & ONE WAY OUT

LANDS OF INTEREST

CITY OWNED PROPERTY

PRIVATE LANDS IN QUESTION

AREA OF CONCERN & LANDS OF INTEREST

CITY OWNED PROPERTY

PRIVATE LANDS IN QUESTION

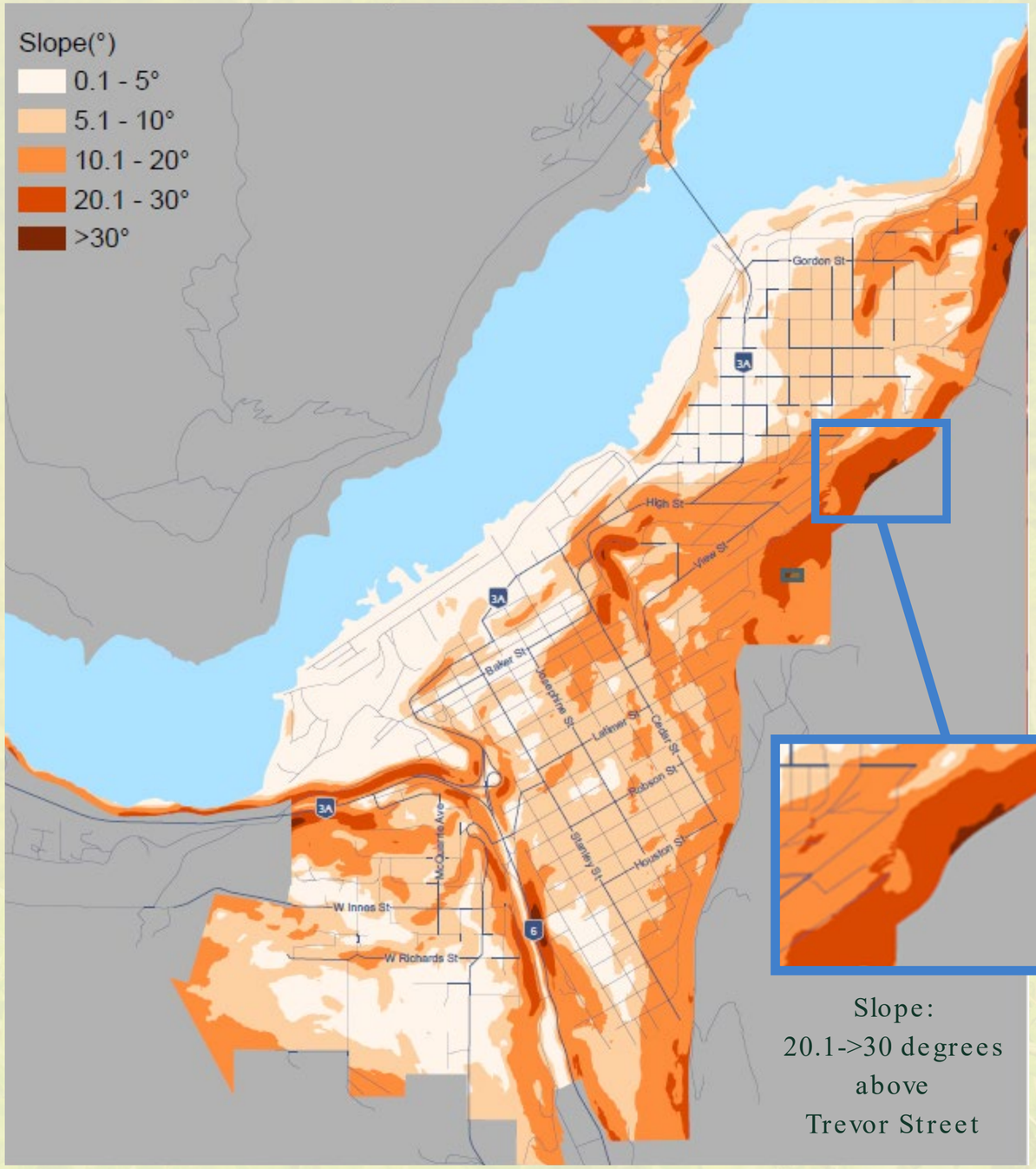
AREA OF CONCERN

WHY IS THIS AN AREA OF CONCERN?

Trevor St area residents are at an increased risk of aggressive wildfire behaviour due to slope, fuel type, and exposure to embers.

SLOPE:

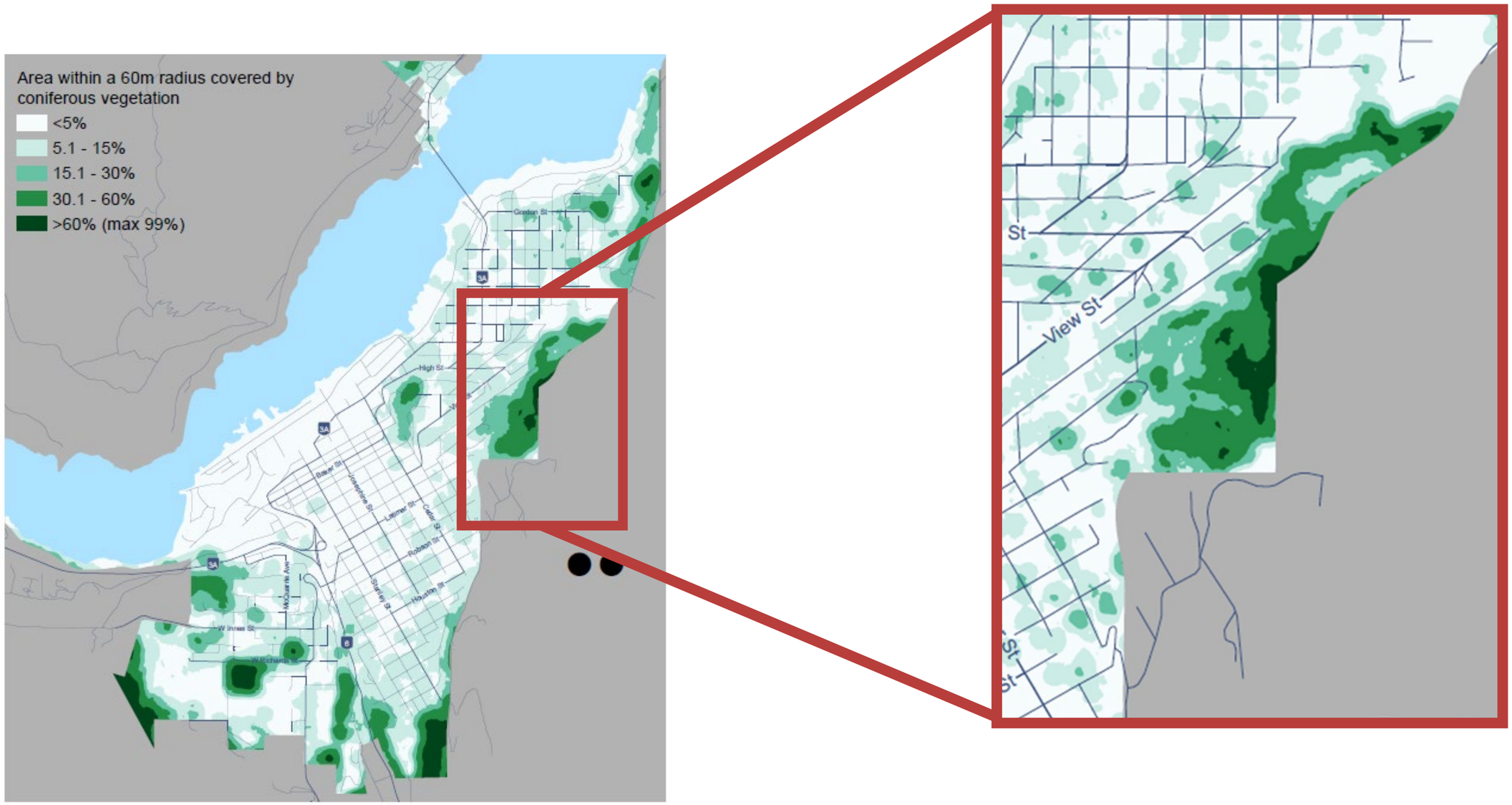
how it affects fire behaviour



Slope:
20.1->30 degrees
above
Trevor Street

Fire moves faster uphill. In fact, for every 10-degree increase in slope, a fire will double in speed. This is because the slope provides a similar effect to the wind, effectively laying the flames down into the slope and pre-heating the vegetation, allowing it to ignite more rapidly.

NELSON WILDLAND URBAN INTERFACE ANALYSIS
CONIFER VEGETATION DENSITY



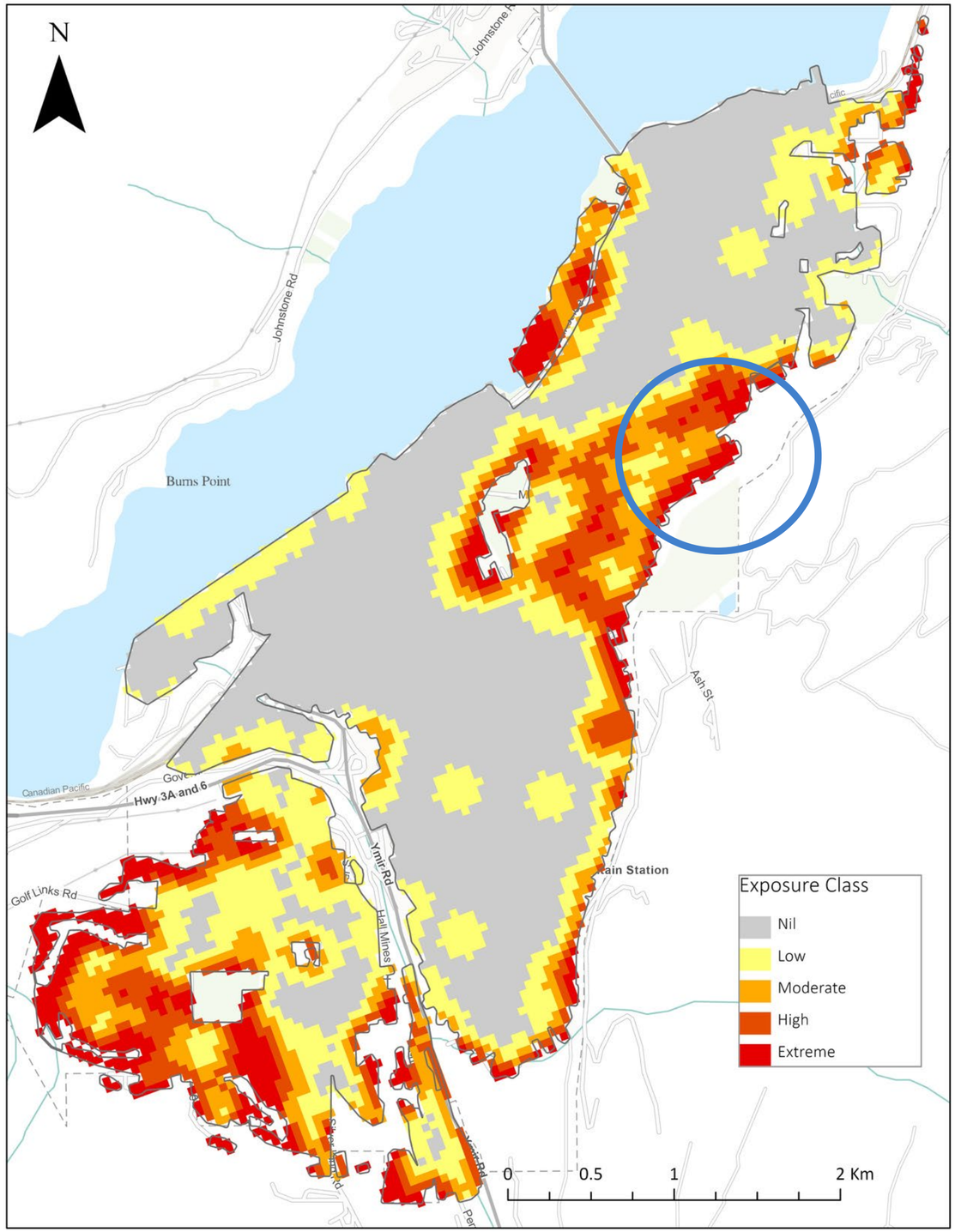
More than 90% of homes damaged or destroyed by wildfires are ignited by EMBERS

Source: FireSmart BC

SHORT RANGE EMBER SPOTTING FOR NELSON

Dr. Jen Beverly, Associate Professor with the University of Alberta. 25 years experience studying wildfire.

Trevor Street community is at risk of short range ember spotting. This map shows that risk from moderate to extreme



APPROACH PATHWAYS

ADJACENT PRIVATELY MANAGED FOREST

Private
Managed
Forest

Anderson Creek Timber presents a large fuel load adjacent to the community, the City needs to capitalize on any opportunity to enhance fuel mitigation within its boundaries to try and offset this risk until additional solutions can be developed on a larger scale.

We are unable to apply for grant funding on privately owned lands. A land swap would provide us the opportunity to fuel mitigate a buffer between the community and the Interface

During a wildfire, areas with inadequate access/egress routes will be triaged, severely limiting response tactics.

BCWS Considerations on Structure Protection:

The BCWS emphasizes that during wildfire incidents, the safety of first responders is paramount. Structures that are difficult to access due to single-road entry points or limited turnaround space pose increased risks to fire crews. As a result, these structures may not receive protection if the situation does not allow for safe operations.

BC Wildfire Service

Community Wildfire Hazard Assessment

COMMUNITY DESIGN	Rating	
ACCESS		
Two or more primary roads in and out. One primary and one secondary access. One road in and out (entrance and exit are the same).	0 3 5	5A
BRIDGES *(Please note construction type and GVW)*		
No bridges or bridges with no weight and/or width restrictions. Low weight bridges restricting emergency vehicle access.	0 5	0
PRIMARY ROAD WIDTH *(main access / egress routes)*		
At least 7m wide. Less than 7m wide.	0 4	0
SECONDARY ROAD CHARACTERISTICS		
Majority of structures on primary access road. Majority of structures on secondary access roads with some primary road access. Majority of structures on secondary roads. Majority of structures located on secondary roads with some dead-end roads. Dead end road systems that limit emergency crews to remain in the area under certain fire conditions due to lack of egress.	0 1 2 4 5	5
EVACUATION PLAN		
Updated plan in place, community is aware. Plan in place not implemented community unaware. No plan.	0 3 5	3 B
FIRE DEPARTMENT		
Volunteer FD more than 25 members. Volunteer FD more than 20 less than 25. Volunteer FD less than 20.	1 3 5	1
FIRE SMART		
Community has FireSmart certified representative and strategies are in place. Community has started a FireSmart program, strategies not in place. Community presently has no FireSmart initiatives.	0 3 5	5 C
MUTUAL AID/AUTOMATIC AID		
Fire department has a mutual aid/auto aid agreement in place. Fire Department has no aid agreements.	0 5	0 D
TOTAL COMMUNITY DESIGN RATING is based on the community's ability to withstand fire front contact to critical infrastructure	**Rating 19**	

Trevor Street single access route is over 1000 meters long, where as the City's bylaw states the maximum length of dead-end development is no longer than 250m. This single-access route also goes against National best practices.

NFPA 1141: Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas

11.1.4 Number of Means of Access

A land development shall have one or more means of access in accordance with the below table:

Required Number of Access Routes for Residential Areas

NUMBER OF HOUSEHOLDS	NUMBER OF ACCESS ROUTES
0-100	1
101-600	2
>600	3

Trevor, Regent and Selby Streets have 114 households and only 1 Access Route

Required Number of Access Routes for Nonresidential Areas

NUMBER OF PARKING SPACES	NUMBER OF ACCESS ROUTES
0-1250	1
1251-3000	2
>3000	3

Inadequate access and egress routes have been responsible for hundreds of fatalities over recent years.

LIMITED EGRESS

leading to negative outcomes during wildfire evacuations

New South Wales Bushfires (2019-2020)

Black Summer Bushfires Report:

"The fires resulted in 26 fatalities, with significant impact attributed to the limited evacuation routes and the rapid spread of fires in areas with only one point of ingress and egress“

(Black Summer Bushfires Report, p. 65) (Australian Disaster Resilience Hub) (NSW Environment and Heritage)

Lahaina Fire

Lahaina Fire Comprehensive Timeline Report:

"Approximately 20% of Hawai'i's developed communities have only one point of ingress and egress. The limited evacuation routes during the Lahaina fire on August 8, 2023, led to severe traffic congestion and delays, significantly impacting the ability of residents to evacuate quickly, contributing to the tragic outcomes - 102 fatalities;" (FSRI) (U.S. Fire Administration).

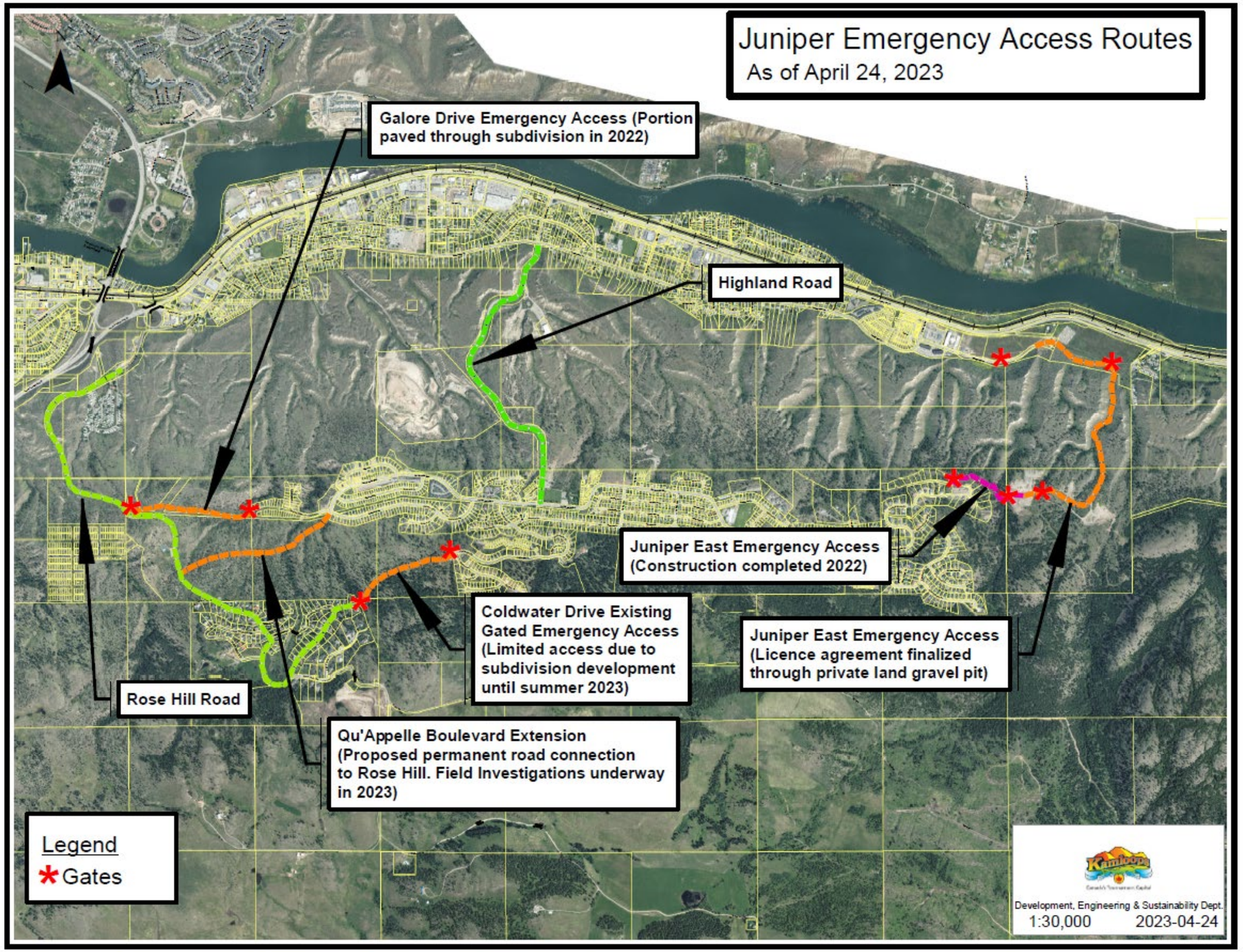
Camp Fire

NIST Technical Note 2252: A Case Study of the Camp Fire - Notification, Evacuation, Traffic, and Temporary Refuge Areas (NETTRA): 86 fatalities

"Evacuation was constrained by burnovers that closed the main egress artery... The presence of only one egress route in some areas severely limited the ability to evacuate safely and quickly"

(NIST Technical Note 2252, p. 65). NIST Technical Note 2252: A Case Study of the Camp Fire - Notification, Evacuation, Traffic, and Temporary Refuge Areas (NETTRA)

Example of:
REACTIVE Secondary Access Routes



Kamloops BC response to recent wildfires.

Development of additional emergency access routes.

Nelson now has the opportunity to begin developing proactive secondary access/egress routes

THANK YOU

Aug 20, 2024