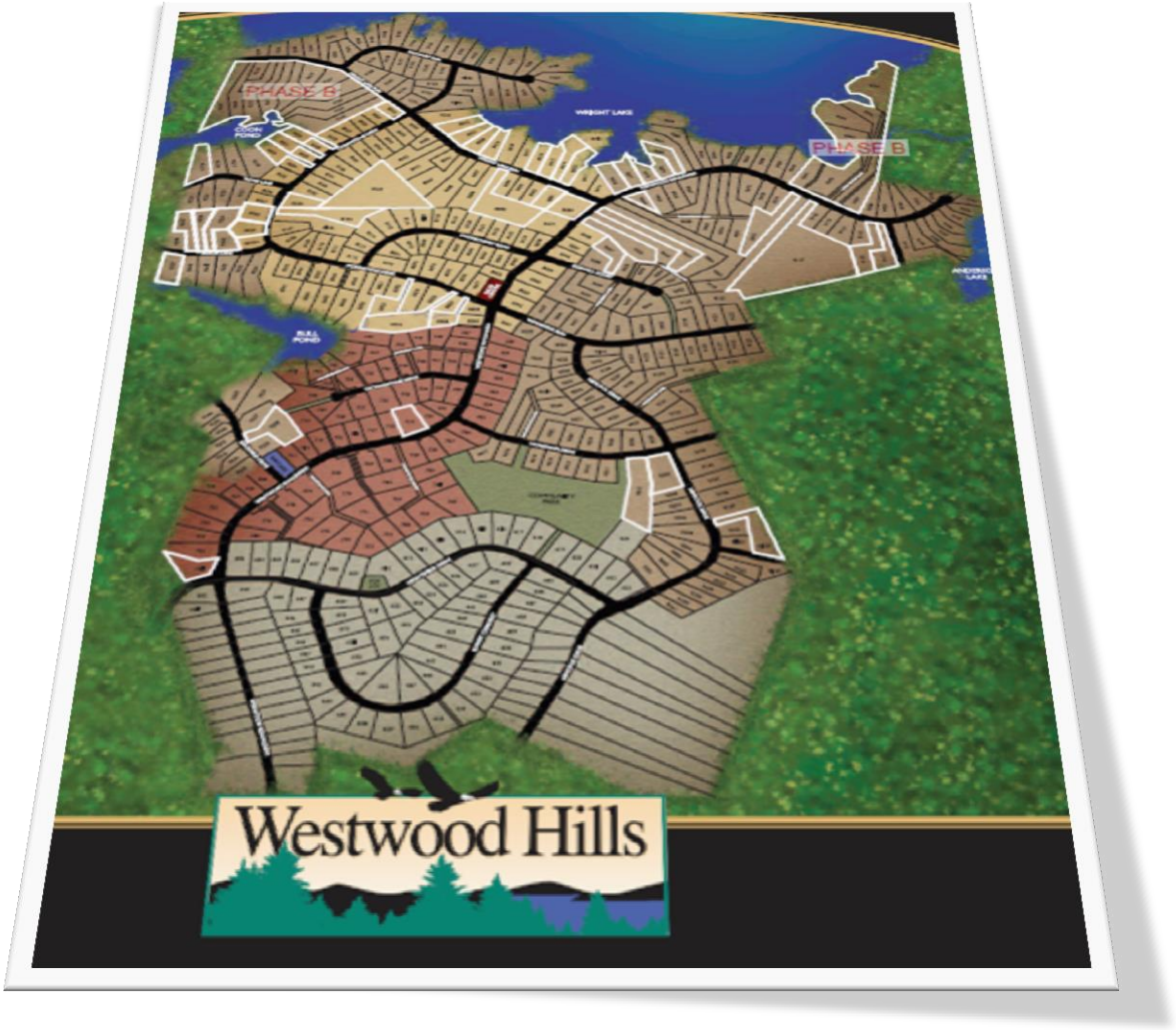
Wildland Urban Interface Community Wildfire Protection Plan

Prepared for: Westwood Hills, Halifax Regional Municipality, Nova Scotia



By: Kara McCurdy – Wildfire Prevention Officer

PURPOSE

The purpose of the Community Wildfire hazard rating is to provide a comprehensive assessment of the wildfire hazards and risks within the Westwood Hills Subdivision within Halifax Regional Municipality. The assessment estimates the risks, likelihood of occurrence of a significant wildfire events and hazards, the potential for undesirable effects resulting from an advancing wildfire, associated with wildland fire in proximity to communities. This information in conjunction with values at risk information defines the areas of concern and mitigations are offered that will aid land owners, managers and other stakeholders in developing short term and long term fuel and fire management plans.

Goals

- Enhance the life safety for residents and responders.
- Lessen undesirable Fire outcomes to Property and Infrastructure
- Lessen undesirable fire outcomes to the environment and quality of life.

Objectives

- Identify level of risk in the community
- Identify fire behavior potential
- Group values at risk based on subdivisions with similar hazards
- Identify factors that limit mitigation efforts
- Recommend actions that will reduce hazards to values at risk.

Other outcomes

- Promote community awareness
- Improve wildfire prevention through education
- Promote appropriate hazardous fuel reduction
- Promote improved levels of response

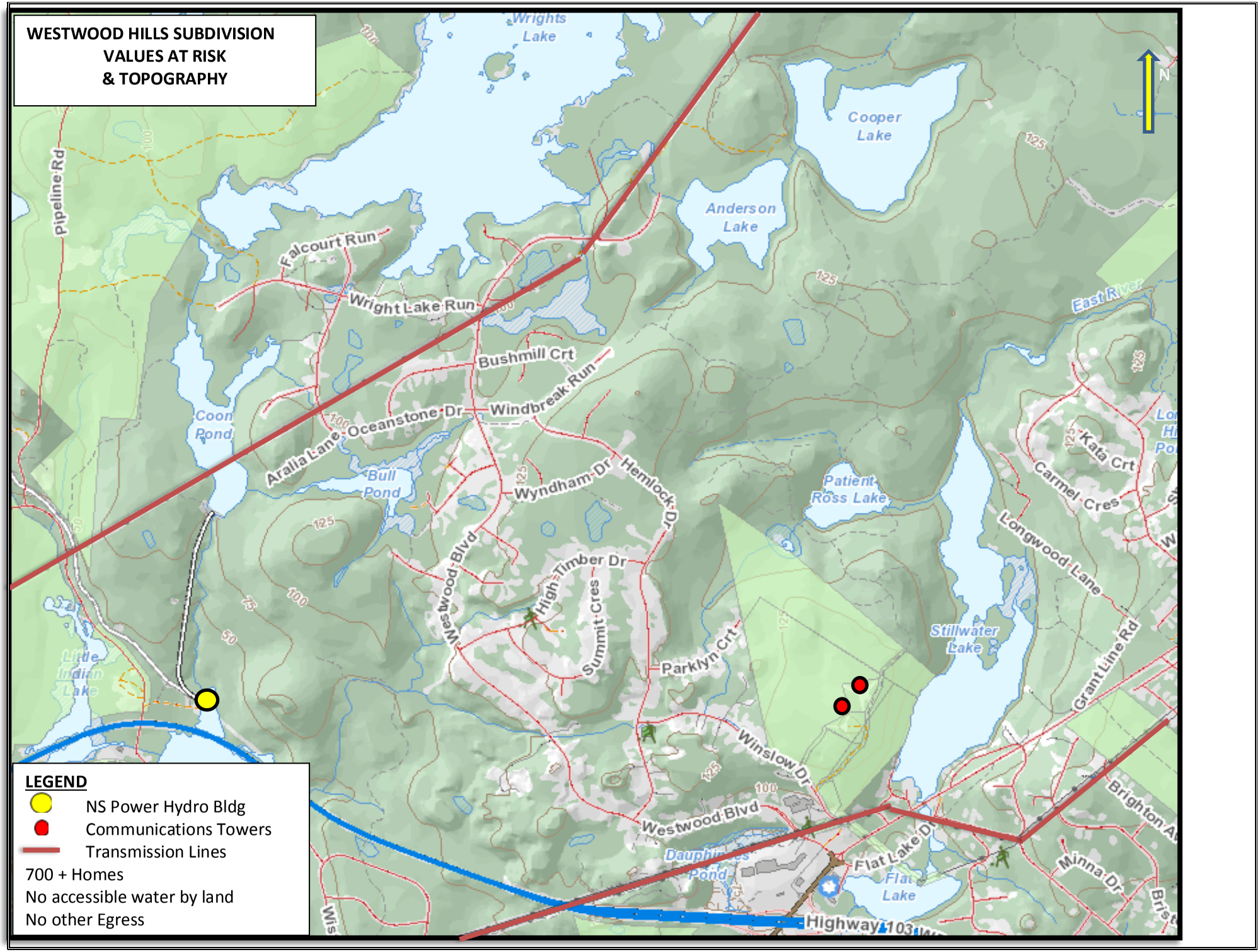
Study Area Profile

The Westwood Hills Subdivision is in Halifax Regional Municipality at the end of Hammonds Plains Road, not far from St. Margaret's Bay, about 25km's from the edge of the city limits and 15km to Bedford. The subdivision was built around 1995. Highway 103 Exit 5 is another access for the subdivision. Within the community there are 700 single unit dwelling lots covering approximately 1500 acres of land.

Westwood Hills Subdivision consists of hummock hills with elevations range from 262-495ft. The predominant soils are well drained sandy loams that have developed on granitic till and are very similar to soils found in the South Mountain Eco district. For the most part the soils are shallow and stony and the landscape is dotted with large granite boulders. Soils on this parent material tend to be coarse to moderately coarse, well drained and commonly gravelly with surface stones limiting both machine operability and stocking levels to trees.
Dispersed throughout this chaotic topography are small streams and rivers, bogs and swamps and several large lakes. The largest river, the Gold River, drains the western portion of the Eco district. The Pockwock Lake watershed is a significant water supply source for the municipality of Halifax and is within the Eco district. Approximately 7.4 % or 13,657 hectares of the Eco district is comprised of lakes and rivers. The predominant feature of this Eco district is the red spruce forest which occupies all slope positions throughout the area. Hemlock will be found on the lower and toe slopes near watercourses. White pine and black spruce with a heavy cover of ericaceous shrubs will be found on the shallow and drier soils of the ridges. Black spruce will occupy the poorly drained soils associated with the lower level ecosites. Occasionally stands of tolerant hardwood will be found on the deeper well drained soils of larger hills. Hurricanes have played a significant role in shaping the forests of this Eco district. Most likely due to its geographic position near the Atlantic Coast and at the end of two major coastal bays this area is impacted more frequently. The added moisture from rains and fog during the spring and summer seasons may also reduce the possibility of fires as compared to the drier South Mountain Eco district where red and white pine, white birch and red oak, indicators of a fire history, are more prevalent.

Westwood Hills Subdivision was chosen based on its:

- It is experiencing ongoing suburban development into the wildland urban interface
- Its risk based on fuel types, past fire occurrences
- Values that are at risk that affect communications and critical infrastructure
- Interest from the Association and residents in doing Fire Smart initiatives with the community

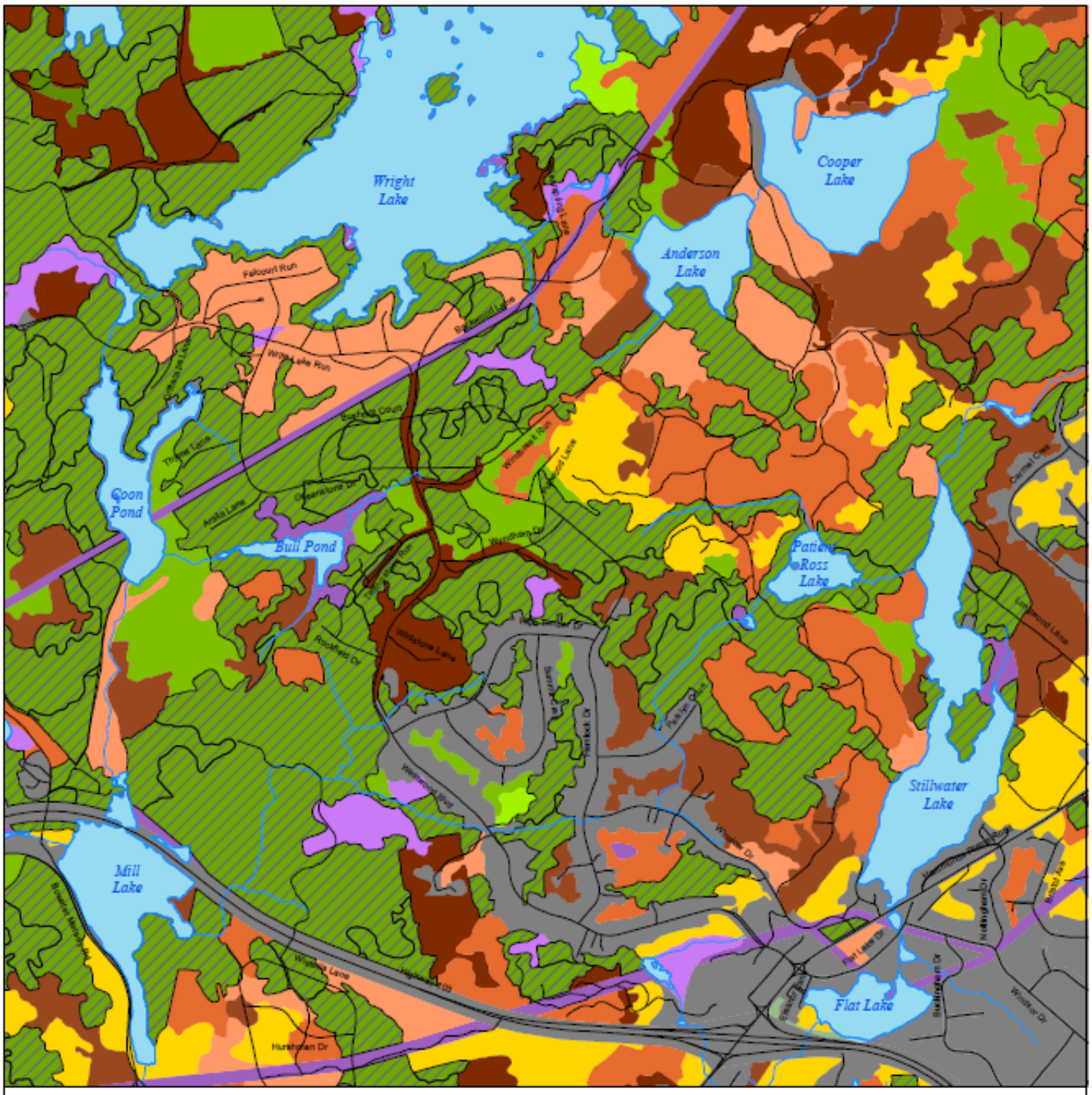

WESTWOOD HILLS SUBDIVISION
VALUES AT RISK
& TOPOGRAPHY
N
Wrights Lake
Cooper Lake
Anderson Lake
Pipeline Rd
Falcourt Run
Wright Lake Run
Bushmill Crt
Windbreak Run
Oceanstone Dr
Aralia Lane
Coon Pond
Bull Pond
Wyndham Dr
Hemlock Dr
Westwood Blvd
High Timber Dr
Summit Cres
Parklyn Crt
Winslow Dr
Westwood Blvd
East River
Kata Crt
Carmel Cres
Longwood Lane
Patient Ross Lake
Stillwater Lake
Grant Line Rd
Brighton
Minna Dr
Flat Lake Dr
Flat Lake
Dauphinee Pond
Little Indian Lake
Highway 103
LEGEND
NS Power Hydro Bldg
Communications Towers
Transmission Lines
700 + Homes
No accessible water by land
No other Egress

Forest Fuels Types in Nova Scotia:

Coniferous (Needled)	**C1**	Spruce-Lichen Woodland
	C2	Boreal Spruce
	C3	Mature Softwoods with understory
	C4	Immature Pine (Dense stands similar to fir)
	C5	Red & White Pine Mature
	C6	Conifer Plantation
	C7	Pine/Fir mix grassy understory/shrubs
Deciduous(Leafed)	**D1**	Leafless Aspen
Mixedwood	**M1**	Boreal Mixedwood – leafless
	M2	Boreal Mixedwood – Green
	M3	Dead Balsam Fir/Mixedwood – Leafless
	M4	Dead Balsam Fir/Mixedwood – Green
Slash	**S1**	Slash – 1-2 seasons old/thin
	S2	Slash White Spruce/Balsam – 1-2 seasons old
	S3	Hemlock/Fir Slash – 1 season old
Open	**O1A**	Matted Grass
	O1B	Standing Grass
Nova Scotia Special	**NS1**	Spruce/Fir with shrubs/bog like plants

Forest Fuels of Concern in Westwood Hills:

C2 – Softwood Fuels - Spruce and Fir mixed with Hemlock, some stands contain white pine (mature), areas that were once classed as clear cuts would be considered a S3 which can be immature softwoods and wind fall. There are patches of mixed wood stands with a 30-50% softwood component. The primary forest structure is of softwoods. One of the more volatile fuel types in a wildfire situation due to their resin, structure, ability to shed and water content in dry conditions.



Legend

FuelType

- C5 Red/White Pine
- C1 Conifer
- C3 MatureSoftwoods
- C2 Boreal Spruce
- C4 Immature Dense Softwoods
- C6 Conifer Plantation 2-6m crown base HT
- D1/D2 Leafless/Green Hardwood; D2
- M1/M2-25 Leafless/Green Mixedwood 21-39% Conifer
- M1/M2-50 Leafless/Green Mixedwood 40-59% Conifer
- M1/M2-75 Leafless/Green Mixedwood 60-79% Conifer
- M3/M4-30 Leafless/Green Mixedwood 26-50% Dead
- M3/M4-60 Leafless/Green Mixedwood 51-75% Dead
- M3/M4-100 Leafless/Green Mixedwood 76%+ Dead
- CC10 Clearcut
- NS1 Nova Scotia Special (Ericaeous heath)
- O1/O2 Cured/Green Grass
- S1 Slash
- S2 Spruce/Fir Slash
- S3 Heavy Slash/ Windthrow
- SF Seasonal Fuel
- Nonn/UR Nonfuel/Urban
- Fuels of Concern

Wright Lake
Tantallon NS

Fuel Types

N

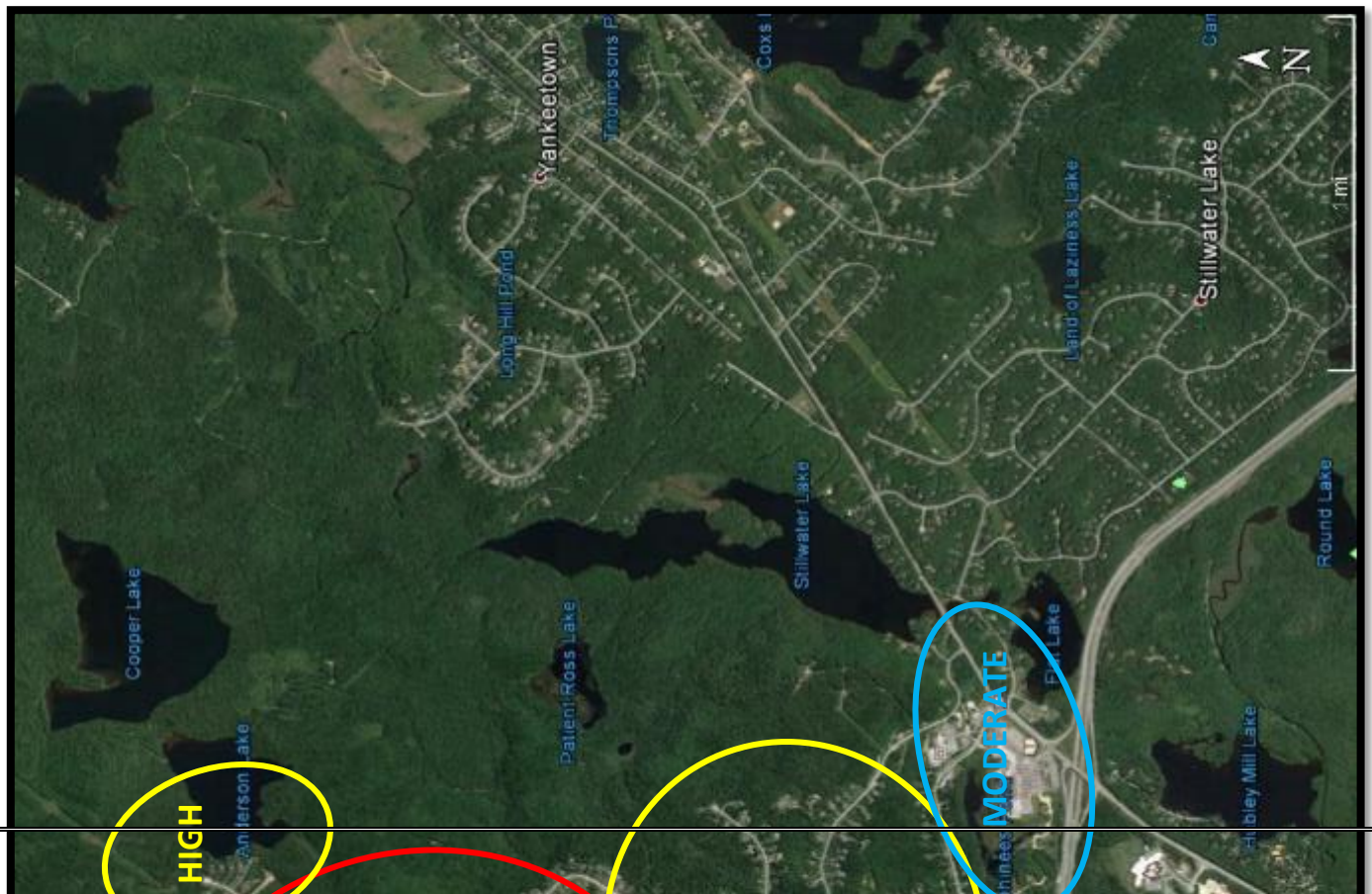
1:25,000

Map is for demonstration purposes only. Fuel Type data is from 2013.

Subdivision/Road	Risk Level	Reason
Westwood North, Rockfield, Wildstone, Homewood, Wyndham, High Timber, North Hemlock, Parklyn, Tattingstone, Bushmill, Oceanstone, Aralia, Thyme, Falcourt, Wright Lake, Chokecherry, and all feeder lanes	**EXTREME**	**Access:** One was in one way out in most of these feeder roads **Fuels:** Softwoods with little to no hardwoods of varying ages with a component of Deadwood. **Buildings**: Under 20 years of age. Single family dwellings, split entry, side split and two story, some larger. Vinyl/Wood siding, asphalt roofing, largely landscaped with softwood shrubs and bark mulch

Westwood Hills Risk for Wildfire

		Risk: Past fires north of area, expansive amounts of trees, homes are well spaced which aids in reduction of fire spread from home to home, transmission lines, extensive recreational use
South Westwood, Windslow Dr., Summit Crescent, Northeast Westwood by Anderson Lake and Hemlock South	**HIGH**	**Access:** Winslow/Westwood, still congestion possible. **Fuels**: Softwoods with little to no hardwoods, varying ages, lower amount of deadwood. **Buildings**: Under 20 years of age. Single family dwellings, split entry, side split and two story, some larger. Vinyl/Wood siding, asphalt roofing, largely landscaped with softwood shrubs and bark mulch **Risk:** Expansive amounts of trees, recreational use, , homes are well spaced which aids in reduction of fire spread from home to home
Hwy 213/Hwy103 and Tantallon Mall/Margaret's Center Area	**MODERATE**	**Access:** Extensive exits along highways and Hammonds Plains Rd. **Fuels:** Mixedwood, 60% softwood, urban areas paved **Buildings:** Concrete, metal, brick, asphalt or metal roofing, no landscaping/pavement/rock **Risk:** Is moderate still though with the proximity to forested area adjacent to Upper Tantallon.



VALUES

Prioritized Values to Be Protected

Protection of residents life and firefighters safety are always the highest priority in fire mitigation and suppresion. The following resources should also be prioritized in fire planning.

● Watershed – Water is an important resource for many reasons. Fire has the potential to cause soil erosion and sedimentation of water resources. Foam has it's applications but be used cautiously around well systems and waterhsed areas that feed municipal water facilities.

● Utilities – Such as Power, radio towers, phone/roads and rail need be protected. Communications in a wildfire situation is vital to fire suppression and ordering fire resources for wildfires. Especially in the evacuation of residents in the community.

● Private property and infastructure – Destruction of private property or infastructure in the community would have a significant economic and social impact on local residents and businesses. It also leaves owners with the possibility of being homeless and loosing valuable personal items and pets.

● Aesthetics – Residents and visitors of the Westwood Hills Subdivision live where they live based on the landscape, views and availability to occupations. Wildland fires can affect all of this and take decades to re-grow the forests.

● Recreation – Residents and visitors use the forests for walking, ATV activities, and biking. Wildfires can destroy and prevent access to these recreational areas.

Local Businesses and Facilities

Convenience stores – Sobeys, NSLC, Sobeys Fuel, Wilsons Fuels, Petro Canada

Restaurants – MacDonald's, Mary Browns, Tim Hortons, Lefty's, Dairy Queen, Subway, Orange Julius

Facilities - RONA, Goodlife Fitness, Modern Heating, Public Library, Dental Center, TD Banking, UPS, Veterinary Clinic, St Margaret's Center

Emergency facilities – RCMP, Nova Scotia Power, Station 65 Upper Tantallon, Station 50 Hammonds Plains

Camps and day care facilities – Giant Steps Children's Center

Churches – St Nicholas Anglican Church

Heritage Buildings – None Noted

Schools – Sir John A MacDonald High School (Across Hwy 103)

Trails – ATV and foot trails surrounding community but non-designated by a group/municipality

Groups – Westwood Hills Association

Current Risk Situation

For the purposes of this report, risk will be considered to be the likelihood of ignition occurrence. This is primarily determined by fire history, fuel hazard, and hazard rating for the urban interface communities within. The hazard rating for the community is based on fuel types, proximity and density, fire weather, topography and building construction.

Much of the Westwood Hills and area is either in the High to Extreme category for wildfire risk in the urban interface. Subdivisions are tucked into the forest stands in this community on top of a hummock (Elevation 200-400ft) and the type of fuel (softwood) age and load of fuel (mixed age/ladder fuels and dense) and the proximity of the forest to the homes is very close. Because of this the structure type is redundant and any conditions such as clogged gutters, open decking, debris on roof, and wood structures would have an even higher risk of being impacted by wildfire.

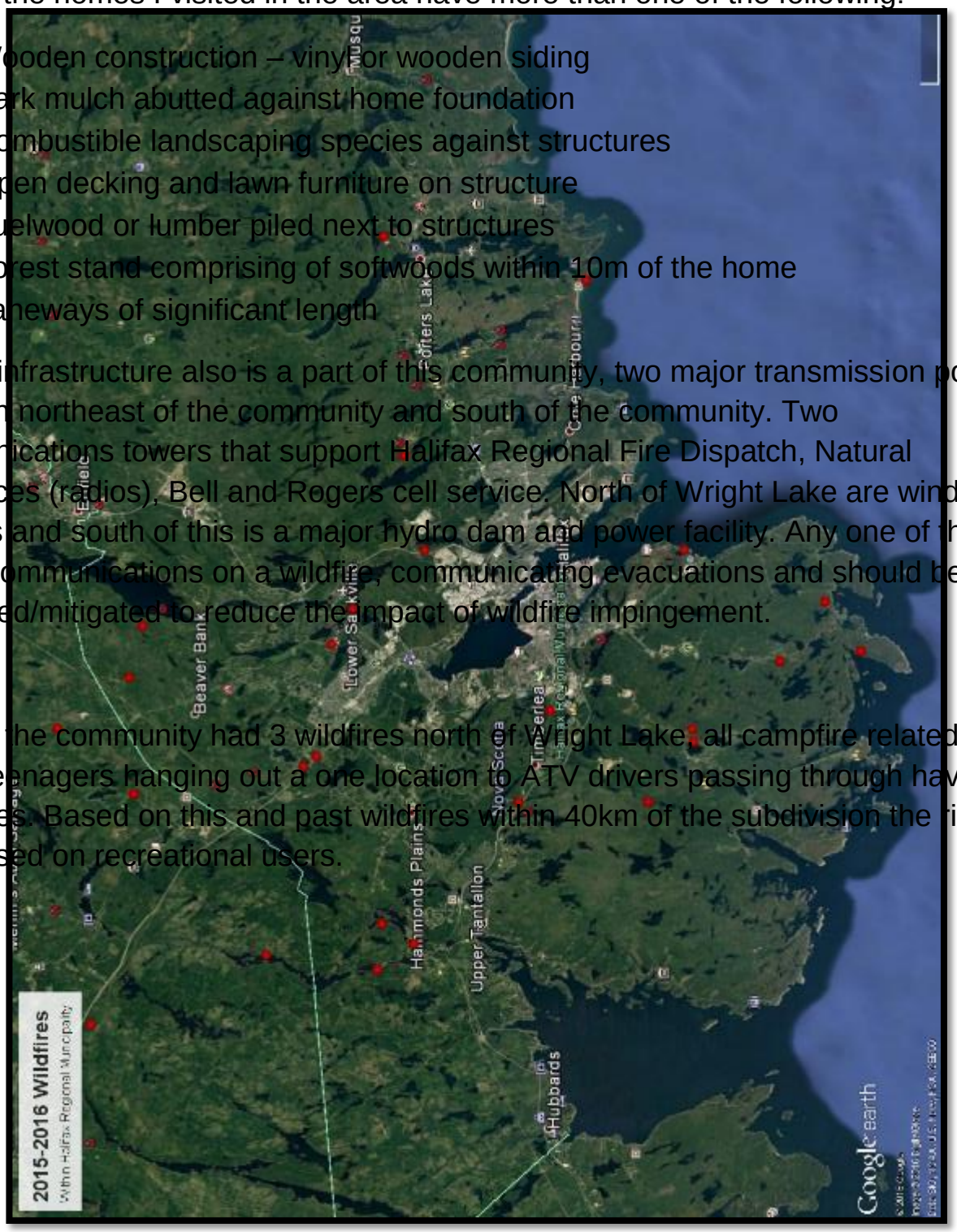
- These subdivisions also only have one entrance and egress an issue when it comes to evacuations
- No municipal hydrant system and no water access by land it is limited to air support in a wildfire situation. Water supply is therefore poor, meaning there are more volunteer/composite fire departments and Department of Natural Resources staff in comparison to the number of helicopters provincewide. Ground support is crucial in wildfire suppression and structure protection.

Most of the homes I visited in the area have more than one of the following:

- Wooden construction – vinyl or wooden siding
- Bark mulch abutted against home foundation
- Combustible landscaping species against structures
- Open decking and lawn furniture on structure
- Fuelwood or lumber piled next to structures
- Forest stand comprising of softwoods within 10m of the home
- Laneways of significant length

Critical infrastructure also is a part of this community, two major transmission power lines run northeast of the community and south of the community. Two communications towers that support Halifax Regional Fire Dispatch, Natural Resources (radios), Bell and Rogers cell service. North of Wright Lake are wind turbines and south of this is a major hydro dam and power facility. Any one of these is key to communications on a wildfire, communicating evacuations and should be reinforced/mitigated to reduce the impact of wildfire impingement.

In 2016 the community had 3 wildfires north of Wright Lake, all campfire related by either teenagers hanging out a one location to ATV drivers passing through having campfires. Based on this and past wildfires within 40km of the subdivision the risk is high based on recreational users.



Recommended Actions

Educate Residents on Wildfire Mitigation

- Clean gutters twice yearly
- Screen in Soffits, Chimneys, decking to reduce fire embers from entering home during wildfire
- Store outside furniture and combustibles in storage during high risk days
- Keep yard well-manicured, grass mowed, leaves raked and removed, trees/bushes trimmed
- Use fire resistive building materials when renovating, Asphalt/metal roofing, wood, brick, concrete siding, double pane windows, composite decking
- Use alternatives to bark mulch around the foundation of home and out buildings
- Use fire resistive plant species when landscaping

- Make sure Civic sign is visible to first responders
- Have a fire emergency plan in place (72hr preparedness kit) and fire suppression (sprinklers)
- Educate children about fire prevention and campfire safety
- An evacuation plan/kit for your pets

Community Protection

- Have a community evacuation plan in place:
    a. Evacuation Routes (Winslow and Westwood)
    b. Muster Station – Meeting Area/Comfort Center
    c. Accountability – Fire Warden who ensures everything is secure, everyone is evacuated and any information is communicated to the incident commander on fire scene
    d. Pets have an evacuation station
    e. Helipad – Ballfield
    f. Communications Plan – To keep residents informed on wildfire status and losses
- Under the Restrictive Deed Covenant for the residents, put in a clause under #2 and 4 that trees be allowed to be cut and removed and vegetation managed for fire hazard reduction.
- Educate local ATV Association on wildfire mitigation and impact
- Educate local Daycare on Wildfire prevention and evacuation

Optimal Action:

- Create a rear gated entrance to the community through Wright Lake Run, for evacuations, first responder access.
- Install Dry Hydrants, or access to Lake, Pump House for First Responders to use for structural and wildfire situations by truck.
- On single lanes create gravel pull offs for traffic passing both directions (Ex: Wildstone Lane & Homewood Grove)
- Future building of homes be constructed with a minimal 10m buffer around with fire resistive tree species, thinned, or no trees
- Future home building be made of Fire Resistive materials and homes are well spaced from one another to avoid the effect of the Fort McMurray incident.
- Create an entire community buffer around outside edge of all subdivisions that is thinned and fire smart.

- Create a 30m buffer around Communication Towers to reduce wildfire impact

Some other useful resources

www.firesmartcanada.ca – Fire Smart Resources -Manuals/videos

IBHS – (Insurance Institute for Business and Home Safety) - You Tube videos on Ember Storm Test on Wildfires

www.smokeybear.com – Children resources on Wildfires (www.smokeybear.ca)

www.northeastwildfire.org – Shared Prevention site with USA/Canada