CPKC EXTREME WEATHER FIRE RISK MITIGATION PLAN

As required by the *Railway Extreme Heat and Fire Risk Mitigation Rules*

Contents

1.0 Background:

Rail infrastructure is essential to Canada's economy.

Railways are critical to the nation's supply chain, depended upon by Canadians each day to deliver essential goods to their communities and move exports to international markets. Railways have limited routing options when a critical element of rail infrastructure, such as a bridge, is damaged and inoperable, by fire or any other natural occurrence.

Provincial and federal authorities annually report on the causes of wildfires, which state that most wildfires are caused by natural occurrences, such as lightning, especially during extreme hot and dry conditions. It is possible that in some situations, such as a mechanical failure, a train could cause a fire. However, such instances are rare and the facts clearly demonstrate that railroads are not a significant cause of wildfires. Canadian Pacific Kansas City ("**CPKC"**) invests significantly in wildfire prevention, monitoring, and mitigation to maintain safe operations and to protect critical infrastructure from operational disruption caused by wildfires.

2.0 Extreme Weather Fire Risk Mitigation Plan ("Plan")

In addition to CPKC plans that are in place to comply with the requirements for the *Prevention and Control of Fires on Line Work Regulations*, CPKC has developed and implemented this Plan across its Canadian network. Explained in more detail in this document, this Plan includes relevant fire prevention, detection, monitoring and response activities and measures from existing plans and programs, supplemented by measures that are implemented in locations where fire danger levels are "Extreme" as defined under the Canadian Wildland Fire Information System.

This plan is in effect annually from April 1 to October 31.

2.1 Plans for the Prevention and Control of Fires on Line Works

In accordance with the federal *Prevention and Control of Fires on Line Works Regulations*, CPKC has detailed plans for individual regions on its network that address the requirements for Fire Preparedness and Fire Hazard Reduction Plans. These plans are reviewed and updated annually to ensure accuracy and completeness. They are then provided to Provincial agencies responsible for wildfire prevention and control.

These plans include the following:

- Procedures for:
  - Identifying and addressing fire hazards;
  - Maintaining up to date contact information for fire services;
  - Reporting fires;
  - Notifying fire services at least 24 hours in advance when planning to conduct high-risk work[1] in an area where the fire danger level is high to extreme;
  - Extinguishing or controlling a fire;
  - Communicating fire plans and contact information for fire services to employees who conduct railway operations; and
  - Training employees and contractors who conduct high-risk work.

[1] As defined in the *Prevention and Control of Fires on Line Works Regulations,* high-risk work means work that involves the use of a rail-grinding train or the controlled burning of brush.

- Measures for:
  - Reducing or eliminating identified fire hazards;
  - Fire prevention for each area where CPKC operates, including detailed schedules, equipment specification, fire prevention and suppression equipment lists, key CPKC and contract personnel contact information and required fire suppression that will be used when CPKC conducts high-risk work e.g. during grinding operations; and
  - Fire suppression including minimum suppression equipment for maintenance crews and key locations.

CPKC has prevention measures in place regarding typical track maintenance activities e.g. rail cutting, grinding or welding that are applied as necessary relative to the level of fire risk in an area. Following are examples of these measures.

2.1.1 Fire Suppression during Track Maintenance Activities (e.g. Rail Cutting, Welding)

The use of the following measures may differ depending on the type of activity being performed and the level of fire risk with measures being added as required based on conditions. These measures include the following:

- Training in the operation and use of fire suppression equipment provided to all personnel working on the operation.
- Verification that all suppression equipment is in good repair and ready for immediate use.
- All sparks are immediately extinguished with water and hot slag resulting from thermite.
- Welding operations is buried on the rail bed portion of the right-of-way clear of any potential fuel sources.
- The areas where such work has been completed are patrolled periodically during the day and prior to completion of the operation for the day. This patrol is equipped with sufficient suppression equipment.
- Requirement for all employees to:
  - Take precautions to prevent fires on or along CPKC's right-of-way;
  - Promptly report fires by first available means of communication;
  - Extinguish and prevent the spread of fires outside the right-of-way; and
  - Investigate and report probable cause of fire.

2.1.2 Fire Suppression during Rail Grinding

In addition to the measures described under 2.1.1, the following measures are also in place for use as needed during rail grinding. The use of these measures may differ depending on the type of grinding (e.g. production rail, specialty asset grinding) and the level of fire risk. They are implemented and supplemented as required based on conditions.

Measures include:

- All water sources fully topped up.
- Prior to start, all water delivery systems checked.
- All train crews required to report any fire observed along the Right of Way.
- Site inspected prior to crew departing.

- People positioned to perform patrols; operate hoses and spray as needed.
- Deployment of various equipment for patrols and fire suppression, e.g. as part of grinding train; BTMF truck, Hi rail fire suppression vehicles.
- Grinding restricted or stopped during certain conditions, e.g. heat during the day; periods of high wind.

During periods of extreme fire risk, the frequency or the number of times certain measures above may be increased, or supplemental measures be applied. Examples of this include:

- Additional people positioned to perform patrols; operate hoses and spray as needed on various equipment, e.g. trailing end of grinding train; BTMF truck, Hi rail fire suppression vehicles.
- Deployment of additional equipment for patrols and fire suppression, e.g. as part of grinding train; BTMF truck, Hi rail fire suppression vehicles.
- Expanded patrols.
- Supplemental spraying including before and after grinding.

2.2 Management of Vegetation and Other Combustible Materials on CPKC's Right of Way

2.2.1 Vegetation Management Plan for Fire Mitigation

CPKC has a robust vegetation management plan in accordance with various Transport Canada regulations and approved rules to limit growth on its right-of-way and in rail yards. Trees and brush are cleared in the proximity of the right-of-way to prevent vegetation encroachment and mitigate fire risk. The current plan can be found at the following link:

https://www.cpkcr.com/en/community/vegetation-management

In general, brush cutting activities meet CPKC's standard of < 0.5T/Ha of cut fuel loading after mechanical work. This and other best vegetation management practices are employed to reduce the chance of fires from vegetation management activities. Inspection of right of ways will be undertaken in advance of fire season to identify historic mechanical cutting that does not meet this standard, and exceptions will be addressed at this time.

CPKC employs a bare ground spray program to all assets across its Canadian network that includes a ballast bare ground herbicide application pattern with a 32ft spray pattern (16ft from track center) to eliminate the fuel source close to the ballast edge.

Hand spraying, to eliminate vegetation close to infrastructure such as propane tanks, bungalows, switch heaters, signals, etc. has become a primary focus of the vegetation program.

Right of Way Herbicide Application for brush control is completed one year after mechanical treatment to ensure that the woody stem regrowth is at a sapling stage to ensure that CPKC is not creating future heavy fuel loading. Selective herbicides that only target woody growth are applied to encourage plant communities on the right-of-way that require minimal maintenance, are self-sustaining, and reduce the fire fuel loading risk.

Periods of Extreme Fire Danger or other elevated fire Risks

Only essential mechanical vegetation management activities will be completed during periods of high to extreme fire danger levels. Non-essential, high risk vegetation management activities will be halted during these periods. Table 1 Identifies Essential and Non-Essential vegetation management activities.

Table 1 - Essential and non-essential vegetation management activities.

Essential	Non- Essential
Ballast Herbicide Application - Spray Train & Hi-Rail	Mechanical Brush Cutting
Hazard Tree Removal	Non- Essential Tree Removal
Crossing Sightline Vegetation Removal	
Signal Sightline Vegetation removal	

Essential and low risk management activities will be allowed to continue with risk mitigations put into place, including appropriate water trucks and/or fire suppression equipment on site.

Table 2 outlines measures that will be implemented during Moderate to Extreme Fire danger to prevent wildfires during vegetation management activities:

Table 2 – Extreme and Elevated Fire Risk Mitigations

Fire Danger Class	Restriction	Duration
Moderate	After 3 consecutive days of moderate fire rating or greater, maintain a fire watcher after work for a minimum of one hour.	Until after the fire danger class falls below moderate.
High	Maintain a fire watcher after work for a minimum of 2 hours.	Until after the fire danger class falls to moderate for 2 consecutive days or falls below moderate.
Extreme	Cease activity between 1 p.m. PDT (Pacific Daylight Savings Time) and sunset each day and maintain a fire watcher after work for a minimum of 2 hours.	Until after the fire danger class falls below Extreme for 2 or more consecutive days.
Extended Extreme	After 3 consecutive days of Extreme, cease activity all day.	Until after the fire danger class to Extreme for 3 or more consecutive days or falls below Extreme.

2.2.2 Railway Tie Disposal

As part of ongoing infrastructure renewal activities, railway ties are routinely replaced to support safe railway operations. The railway ties that are removed must be picked up and stored on a temporary basis until they can be shipped to third party facilities who have the capacity to accept the ties and are able to safely dispose of them in accordance with regulations. CPKC will undertake a review of scrap tie inventory locations in areas of extreme fire risk and prioritize loading and removal of ties in active extreme fire risk areas vs. those in lower risk locations.

2.3 Prevention, Monitoring and Mitigation

CPKC's maintenance practices are performed with a focus on fire prevention but also include significant control measures in the unlikely event that a fire is started due to railway activities. These controls ensure an issue can be addressed quickly by staff on site. These measures have been in place for many years and continue to be refined and improved.

CPKC also employs technology and equipment, scheduled and emergent patrols, 24/7/365 staffed Operations Centre and Public Safety Communications Centre and forecasting information to provide monitoring, detection and response to wildfire threats.

These measures are detailed in the following sections.

2.3.1 Ambient Air Temperature Real Time Monitoring

CPKC determines the current real time ambient air temperatures on its network through the operation of trackside Hot Bearing Detectors (HBD), which are equipped with air temperature sensors and communicate real time actual temperature readings directly to passing trains via radio communication. CPKC has approximately 400 HBDs across its system spaced at no greater than 40 miles apart and most typically spaced every 20-25 miles on mainline tracks. The ambient air temperature communications provide an immediate and practical method for train speed restrictions to be applied by the crew that is operating a train.

2.3.2 Hot Wheel and Bearing Detectors

CPKC HBDs include both bearing and wheel temperature detectors at every site. The HBD's alert the train crew in real time via direct radio communication if a condition is detected, providing specific information that allows the train crew to stop and inspect the location for the cause of the alarm. In setting HBD Alerts, CPKC takes various factors into consideration, including extreme fire risk and adjusts the Alerts if warranted. The operation of CPKC's network of HBDs allows for early detection and correction of any conditions reducing the risk of train operations being a fire ignition source.

2.3.3 Forecasting

In addition to continuous real time monitoring of trackside temperatures across the network, CPKC utilizes professional weather forecasts and fire risk forecasts to proactively identify upcoming risk areas and communicate it to operating personnel to enable planned actions per our operating procedures. The following are communicated regularly:

- Four-times-a-day weather planning reports which includes 24 and 48 forecasts for severe weather threats.
- Issuance of warnings, watches, and advisories related to severe weather (cold, heat, rainfall, thunderstorm, wind) and natural hazards (tornadoes, earthquakes, landslides, flooding) alerting.
- Weekly Weather Severity Reports comparing maximum and minimum average temperatures and precipitation levels to prior years.
- Network-wide wildfire forecast maps issued weekly between April and October, based on data extracted from provincial and national-level wildland fire services.
- Canada-wide Extreme Fire Danger Rating notification system issued daily, year around. Precision mapping achieved by imbedding and overlaying Canadian Wildfire Information System GIS data over CPKC track network data.

2.3.4 Employee Communication and Awareness

CPKC keeps its employees informed of any safety or operating requirements or risks through regular communication. This includes communicating information and guidance through operating bulletins, which employees review at the start of shift each day when issued. In preparation for periods of extreme hot and dry weather, CPKC issues communications to its employees to raise awareness of elevated risk of fires, preventative measures and fire control actions.

Annually, prior to onset of fire season, CPKC communications to its employees includes the following:

- Fire Plans and Required Actions: Sent to employees that are responsible for inspecting and maintaining CPKC's rail infrastructure, this communication highlights the current high to extreme fire risk over many areas of our network, provides links to our annual provincial fire plan documents as well as various resources to obtain the current fire risk levels across our network.
- Locomotive Fire Prevention Inspection: Sent to employees that are responsible for inspecting and maintaining locomotives.

2.3.5 Train Crew Reporting of Right-of-Way Conditions

CPKC train crews are required to monitor for and report any fires or potential fire on the right-of-way as part of their duties. On many subdivisions, the frequency of scheduled trains provides a regular presence of train crews monitoring for potential fires.

CPKC General Operating Instructions govern the required actions of all train crews, including reporting via the Rail Traffic Controller into a centralized Operations Center for immediate escalation and response, if required.

2.3.6 CPKC Public Safety Communications Centre

CPKC's Public Safety Communications Centre (PSCC) works within the auspices of the police service and is responsible for accepting all calls from the general public, first responders, CPKC employees (including CPKC's Operations Centres), outside stakeholders, government entities and the policing community. They then deliver that information to relevant parties both internal and external to CPKC. The PSCC operate 24/7/365 and provide an "Alert" system that communicates information to CPKC managers across the network. This allows for immediate notifications of network disruptions or public safety incidents and a faster response by local officials.

2.3.7 Track Patrols

Additional track patrols are performed if fire or smoke have been reported on a portion of the right-of-way. CPKC utilizes various external service providers to supply real time monitoring and alerts of events that would initiate additional patrols.

2.3.8 CPKC Operations Centre

CPKC's Operations Centre, which controls all train movements, is operated 24/7/365 and includes staff dedicated to dispatching maintenance staff to reported issues on the network including reports of fire or smoke on the right of way.

2.3.9 On-Call Emergent Response Staff

CPKC maintains on-call maintenance staff 24/7/365 across the entire network to respond immediately to any reported condition and utilize the resources on hand as set out in our fire plans. Additionally, they

may contact and assist first responders including provincial fire services to respond to a reported fire on or near the right-of-way.

2.3.10 Community Emergency Planning Guide

CPKC has developed a Community Emergency Planning Guide and Integrated Contingency Plan to plan for and respond to incidents involving railroad property or equipment. The Guide is designed to supplement local emergency plans. It covers key information needed by planners and responders should an incident take place involving CPKC.

Among other things, the guide outlines:

- Emergency contact information to initiate CPKC response processes
- Hazardous materials shipping documents
- Incident response guidelines
- Rail car placarding requirements
- How to request a list of hazardous materials transported through a community

2.3.11 Integrated Contingency Plan

CPKC's Integrated Contingency Plan is an all-encompassing emergency response plan that guides CPKC's actions for any emergency situation.

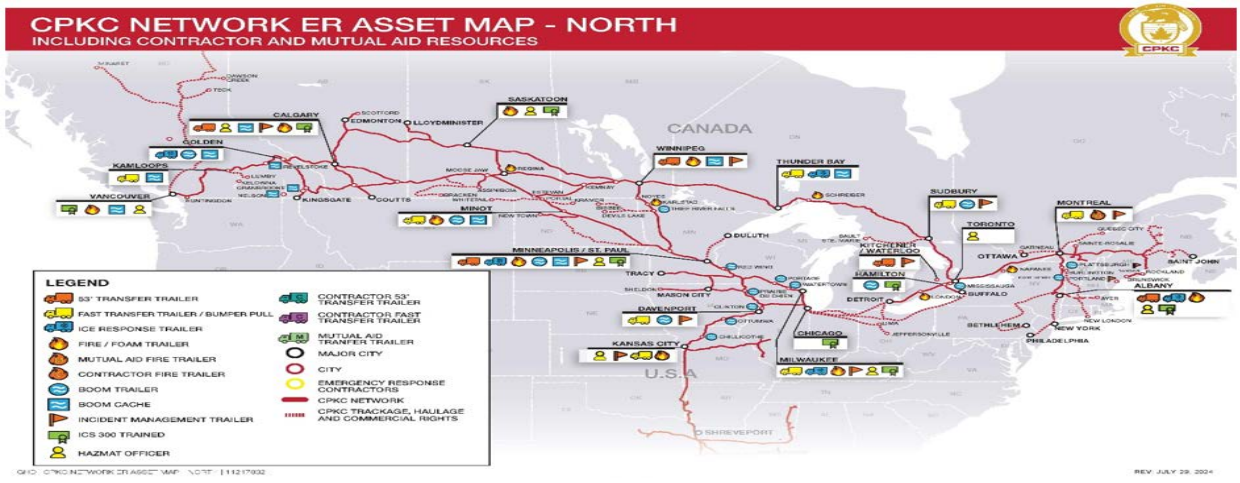
The Community Emergency Planning Guide and CPKC's Integrated Contingency Plan is available at:

https://www.cpkcr.com/en/safety/hazmat-safety/emergency-planning-guides

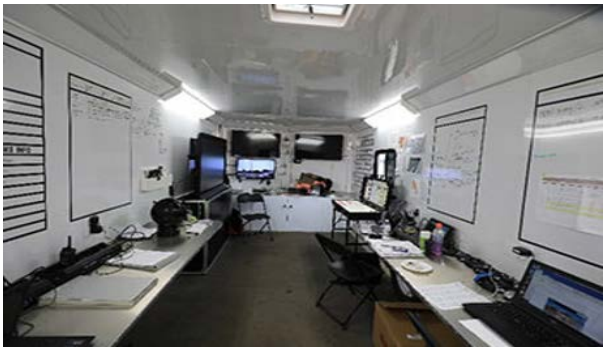
2.3.12 Emergency Response Network and Resources

CPKC's Emergency Response Network is comprised of Hazardous Materials & Emergency Response Officers strategically located across CPKC's network. In addition to the assets in our network, CPKC has a 24/7 emergency response contractor network that provides additional resources and personnel to provide effective response across CPKC's network. CPKC's significant resources may enable the railway to provide mutual aid to other industrial partners when needed

CPKC 24-Hour System Wide Emergency Contact Number: 1-800-716-9132



During any type of firefighting activity, defensive operations are employed to ensure the safety of non-affected areas. Transfer of heat via convection, conduction and radiation can continue or worsen the fire spread. Rail infrastructure protection in wildland firefighting involves the use of these standard strategies and tactics. This may include activities to prepare the area such as the removal of wildland fuels around rail infrastructure and utilizing the application of water or fire retardant materials to protect rail assets and the surrounding area in advance of the fire. CPKC's various resource e.g. fire response trailers are adaptable for rail infrastructure asset protection as the key components are contained on the trailer. Combine this with the additional cache of wildland equipment from CPKC (pumps, sprinklers, hoses, fittings, etc.) and the CPKC fire response trailer is a valuable tool in rail infrastructure asset protection.



In the event of larger incidents, CPKC maintains contracts with wildland teams that specialize in infrastructure asset protection which includes the use of fixed sprinkler systems to protect critical assets. These teams have worked with CPKC and the CPKC equipment integrates into the contract resources as needed. The interoperability provides expanded capabilities of the CPKC fire response trailer. In addition, these wildland firefighting teams have expertise in wildfire behavior which is incorporated through the incident command structure and guides CPKC's overall response to a wildfire event.

Following is a summary of CPKC's emergency response equipment that is used, as needed, in responding to wildfire events.

Incident Management Trailer

Incident Management Trailers are specially designed portable trailers that act as the communications hub in an emergency. These trailers provide a safe and functional space for CPKC's HazMat team, local responders and other agencies to update and review Incident Action Plans (IAP), Healthy and Safety Plans and Incident Command Site (ICS) forms.

Each trailer is equipped with state-of-the-art telecommunications equipment including live video feeds to connect with other staff in the field, operations and CPKC's headquarters.

CPKC Foam Fire Trailers

CPKC's fire response trailers are strategically staged across the CPKC rail system and designed to be response ready while being housed with vetted response contractors. This strategy allows response assets to be deployed quickly when needed, with the expectation of units responding within 60-minutes of notification. The fire response trailers were originally designed with the uptick in shipments of flammable liquids across North America in mind and have proved their value in these types of responses.

Foam fire trailers are equipped with AS-100 multipurpose 3X3 Fluorine-free Foam Concentre used to best extinguish ethanol and petroleum fires. They can be pulled by a larger pickup truck for delivery in the most remote locations. They are strategically located across CPKC's rail network for fast response times

The units contain the following (with some minor adjustments regionally):

- 750-gallon per minute portable pump
- 275-gallons of AS-100 multipurpose 3X3 Fluorine-Free Foam Concentre
- 2500+ feet of supply lines and firefighting hand lines
- Foam nozzles for High, medium and low expansion foams
- Firefighting nozzles for non-foam applications
- Master stream appliance (deck gun)
- Portable master stream appliance
- Multitude of various provincial and NFPA hose adapters and fittings
- 10,000-gallon portable water bladder tank. Same as utilized by Federal Forest Services- water can be loaded via helicopter and "bambi bucket" if needed
- Portable generator
- Heated blanket for the foam – keeping the foam viable when in colder temperatures for extended periods
- Mid-size units are air lift capable

Uniquely designed for the flammable liquid responses, actual field deployments have shown the versatility of this platform in other emergencies. With the suppression tools and resources, CPKC has successfully adapted the fire response trailer for the following utilizations.

Fire Response Trailers – SPU Type 3 (Structural Protection Unit Type)

CPKC Structural Protection Unit (owned and contracted) are strategically staged across the CPKC rail system in the higher risk wildfire areas and designed to be deployed for asset protections. They contain pertinent equipment such as pumps, hoses, sprinklers and water delivery attachments for structure protection and defence.

Fire Boats

The portability of the equipment on the trailers allows response personnel to quickly transfer the equipment to a boat as needed. Many of the workboats utilized have the same flat deck design that allows for the mounting of the equipment in a similar fashion as the trailers. The portable pumps are secured to the deck of the boat, suction lines are placed on the intake side and custom supply lines are placed on the discharge side. Based on the application and need, water can be applied thru master streams or hand lines off the bow of the boat. The workboats utilized typically have a shallow draft, which allows the unit to position close to shore, and sometimes be "beached" on the shore. This adaptation of the fire trailer allows personnel to gain access to the rail line in areas that would otherwise be inaccessible while providing an unlimited water supply and increased safety to the response personnel. Crews can apply water via master streams while remaining safely on the boat, and back out easily and quickly should conditions warrant.

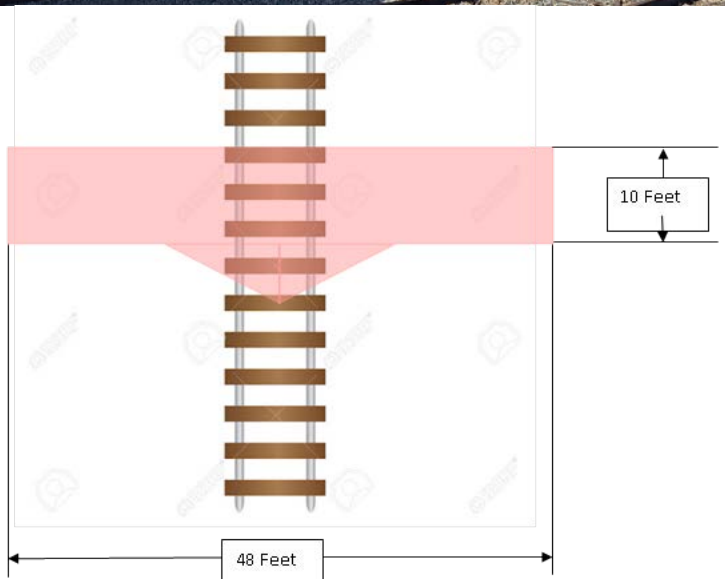
Fire Prevention and Suppression Trains

The portability of the equipment on the trailers allows response personnel to quickly transfer the equipment to a rail flat car as needed. Rail flat cars have the same flat deck design that allows for the mounting of the equipment in a similar fashion as the trailers. The portable pumps are secured to the deck of the rail car, suction lines are placed on the intake side and custom supply lines are placed on the discharge side. Portable tanks are also secured to the decking and either hoses or piping can be connected

to supply water to the pump. Based on the application and need, water can be applied thru master streams or hand lines the side of the rail car.

For longer duration events, CPKC has constructed fire prevention and suppression flat cars that utilize the same set up as above, but without removing equipment from the response trailers. These fire prevention and suppression flats typically have two to four portable tanks mounted to the deck totaling 6,000-12,000 gallons (22,700-45,424 liters) of water and can travel along the rail line to extinguish fires along the rail and right of way. Fire retardant products can also be added to the water tanks and applied to the Right of Way along with water for fire prevention. Portable pumps, hoses and necessary fittings are also contained on the unit to allow for refilling of water as needed. The fire flat cars will be positioned on the network based on analysis of fire hazard risk each year. Depending on the number of tanks required for each consist CPKC has the ability to position up to eight fire prevention and suppression flat car assets on the system. Fire retardant called Phos-Chek may be applied to critical infrastructure, including those over watercourses and if necessary, fire suppression equipment may draw water from waterways when required.

Figures - Fire Prevention and Suppression Flat Car Water Dispersion Pattern



3.0 Fire Risk Mitigation Plan Reviews and Municipal and Other Levels of Local Government Input

CPKC will review the Fire Risk Mitigation Plan at least every five years and update it as required.

In order for relevant Indigenous communities, municipal and other levels of local governments to provide safety related comments, CPKC has established a dedicated webpage on its public website CPKCr.ca with:

- A link to a copy of the most current Fire Risk Mitigation Plan; and
- A form that can be submitted with comments and / or questions.

The website will allow for continuous feedback.

Comments received will be:

- Acknowledged; and
- Reviewed and considered to determine if the Fire Risk Mitigation Plan requires modification. This may include further engagement with the commenter, if necessary.

CPKC will keep records of comments received for six years.