



Atmospheric River Event

FLOODING & OPERATIONAL IMPACTS

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Division Manager-Protective Services & Emergency Management

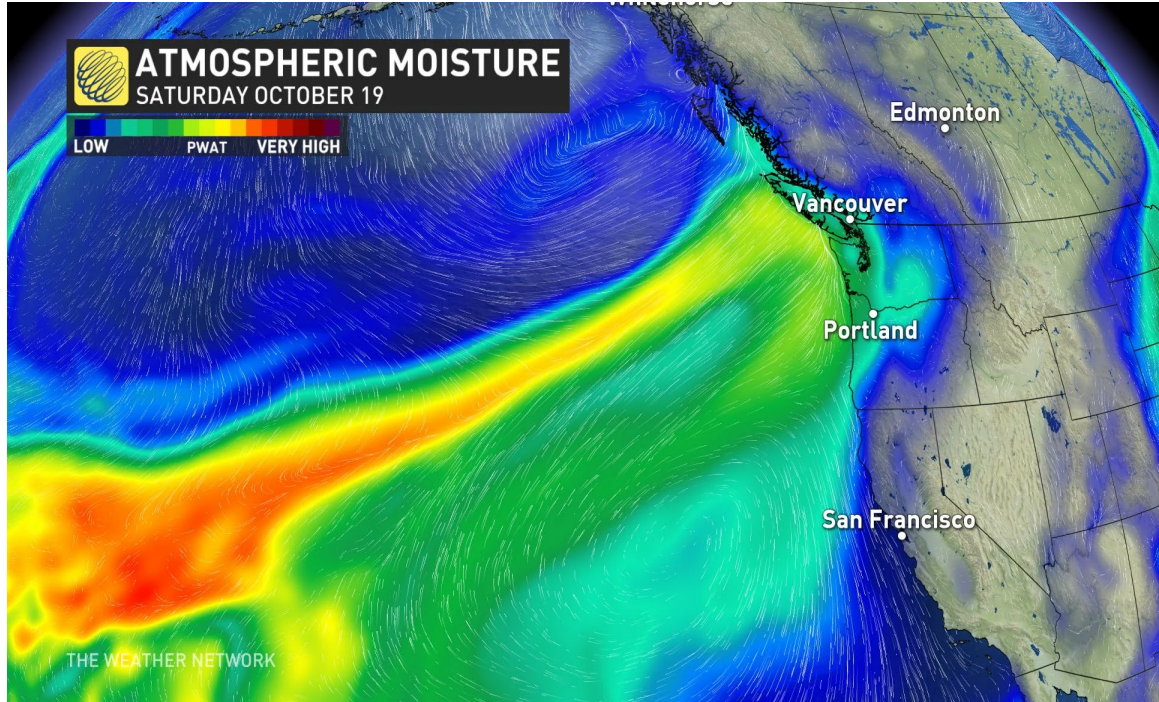
Metro Vancouver Flood Resiliency Committee November 20, 2024
Orbit 71955885

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AGENDA

1. What is an Atmospheric River
2. Atmospheric River Forecasting
3. Atmospheric River Actual Rainfall Amounts
4. Organizational Response



Weather Network Radar Image

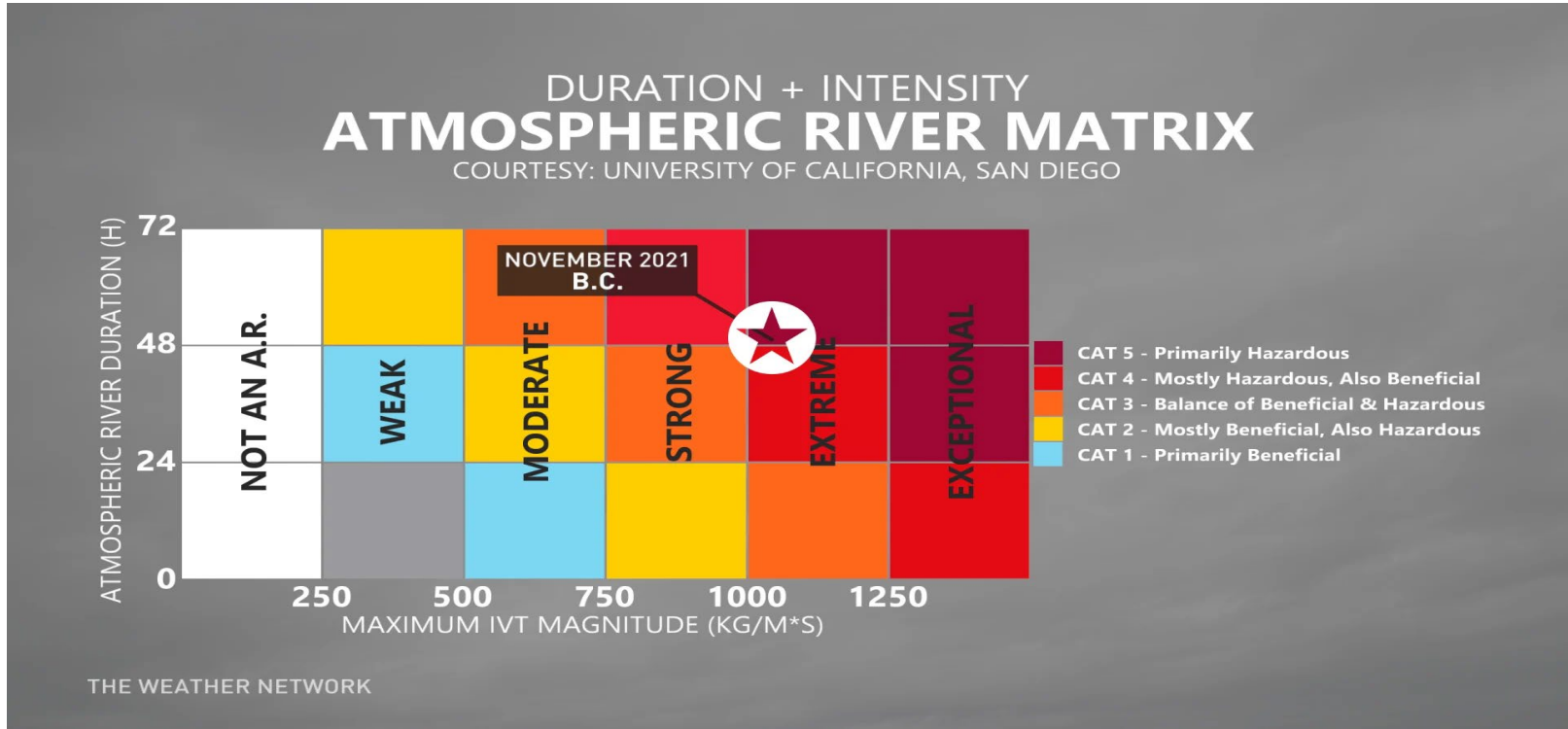
WHAT IS AN ATMOSPHERIC RIVER ?

- Atmospheric rivers are, for the most part, what you might imagine from the name — rivers in the sky.
- They're long, narrow bands in the atmosphere that carry large amounts of water vapour, usually from the tropics where water and atmospheric moisture are abundant.
- These rivers in the sky can occur anywhere in the world, but they often impact the West Coast of North America, such as British Columbia.



Atmospheric River-NOAA
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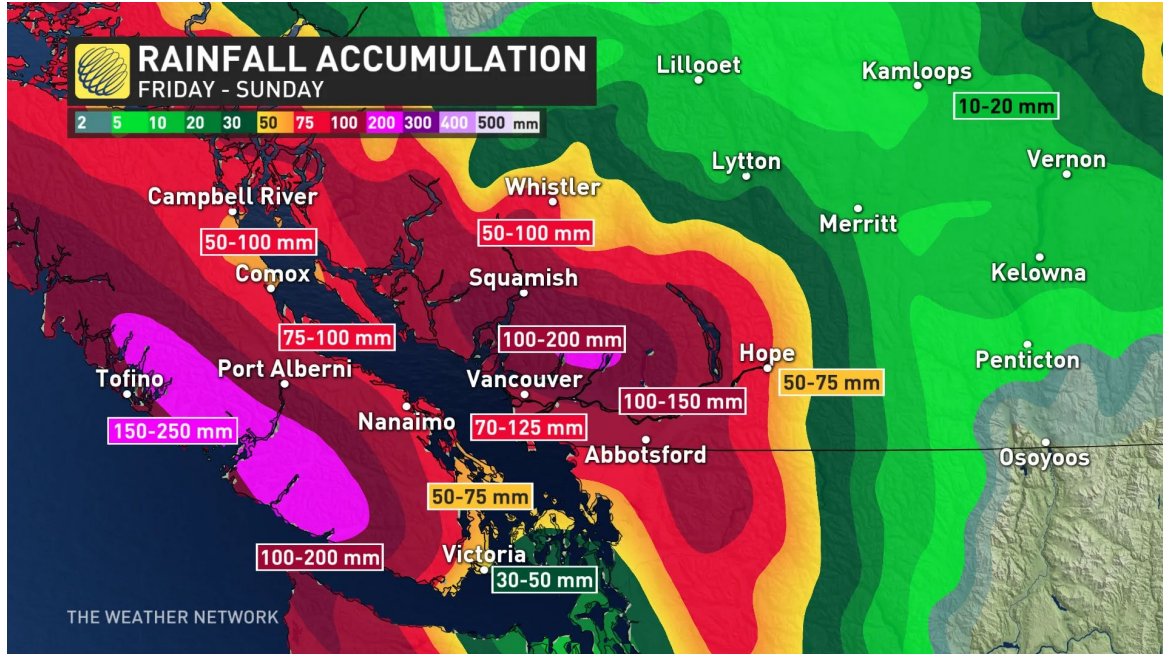
WHAT IS AN ATMOSPHERIC RIVER ?



University of California-Atmospheric River Matrix

ATMOSPHERIC RIVER FORECASTING

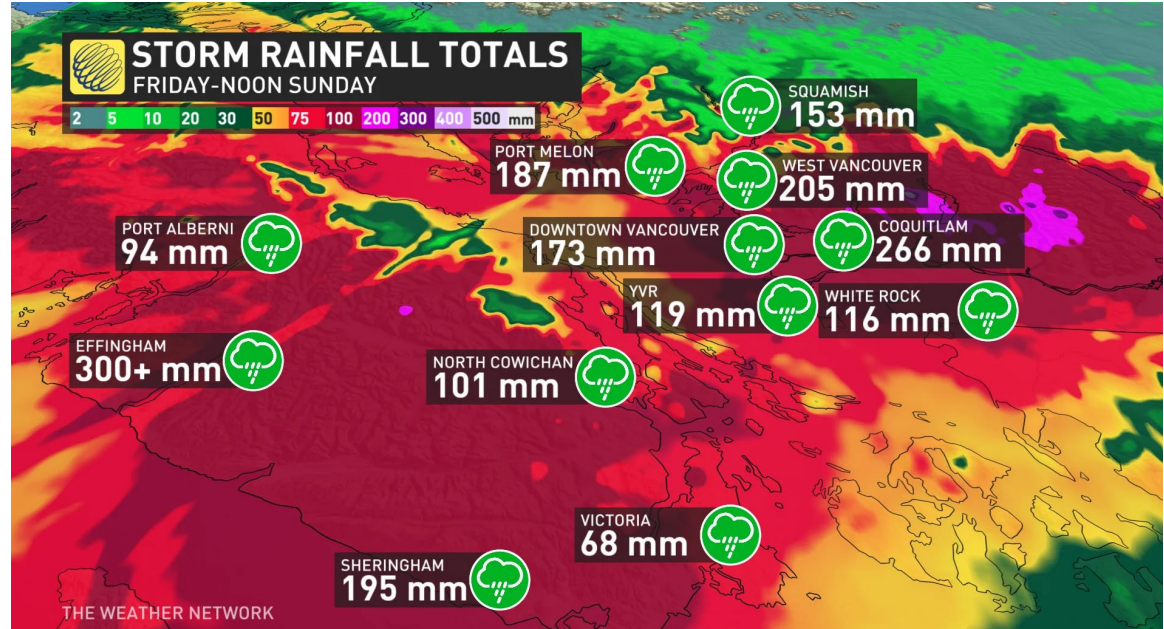
- Original Forecast for the Atmospheric River Event (AR - CAT 3)
- 100-200mm on the North Shore & MV Watersheds
- 70-150 mm in other areas of Metro Vancouver



Weather Network - Rainfall Accumulation Forecast

ATMOSPHERIC RIVER ACTUAL RAINFALL ACCUMILATIONS

- Coquitlam (Burke Mountain): 266 mm
- Coquitlam Dam 355mm
- West Vancouver: 205 mm
- Port Melon (Howe Sound): 187 mm
- Vancouver Harbour: 173 mm
- Squamish: 153 mm
- White Rock: 116 mm
- Vancouver International Airport (YVR): 119 mm



Weather Network-Actual Rainfall Accumulation

ATMOSPHERIC RIVER ACTUAL RAINFALL ACCUMILATIONS



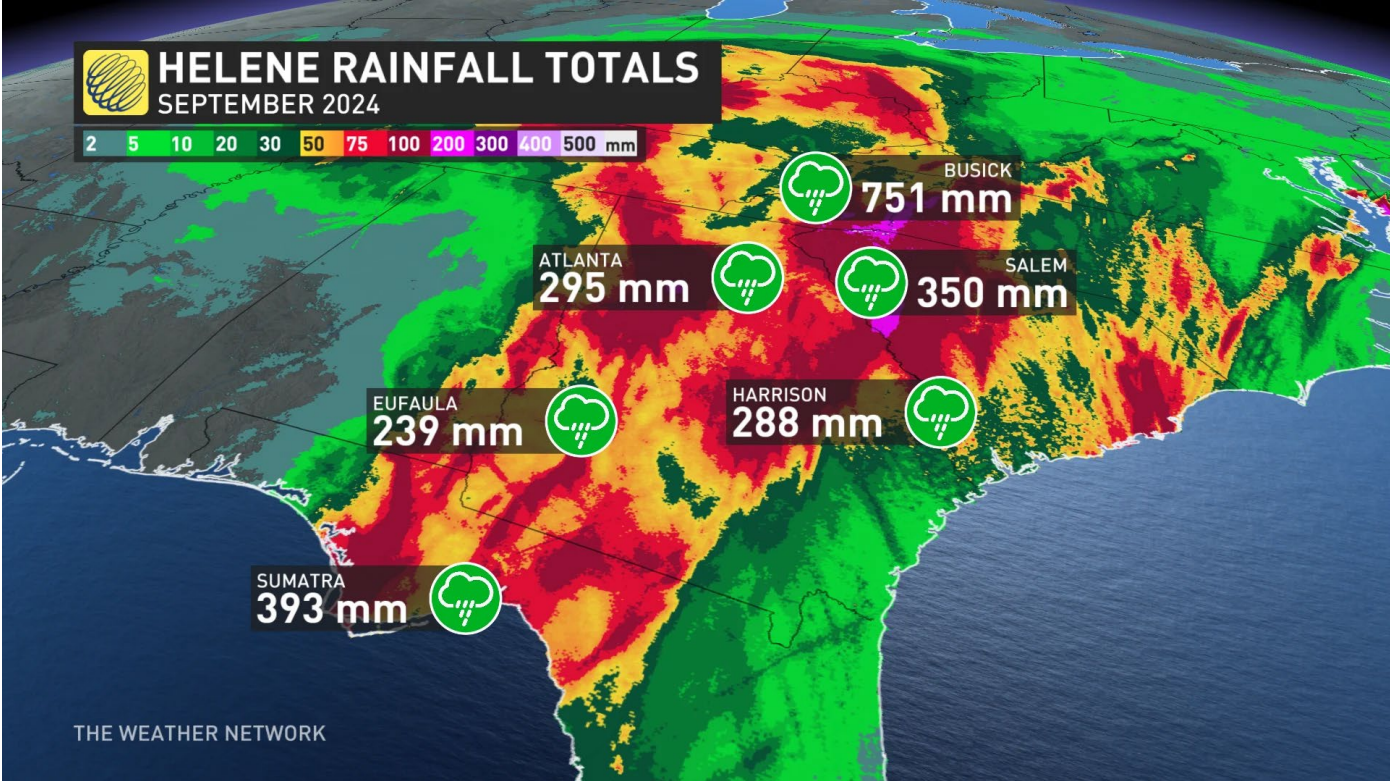
Precipitation Amounts					
Capilano Watershed		Seymour Watershed		Coquitlam Watershed	
Lower Capilano	322 mm	Lower Seymour	307 mm	Coquitlam FW	245 mm
Capilano FW	247 mm	Seymour FW	189 mm	Coquitlam Dam	353 mm
Hesketh	278 mm	Seymour Crossing	194 mm	Upper Coquitlam	272 mm
Palisade Lake	305 mm	Orchid Lake	238 mm	Disappointment Lake	258 mm
Average	288 mm	Average	232 mm	Average	282 mm

Forecasted Precipitation: The Oct. 18 watershed weather forecast called for 250-360 mm of rain during this storm event.

Actual Observed: 190-355 mm (**267 average**)

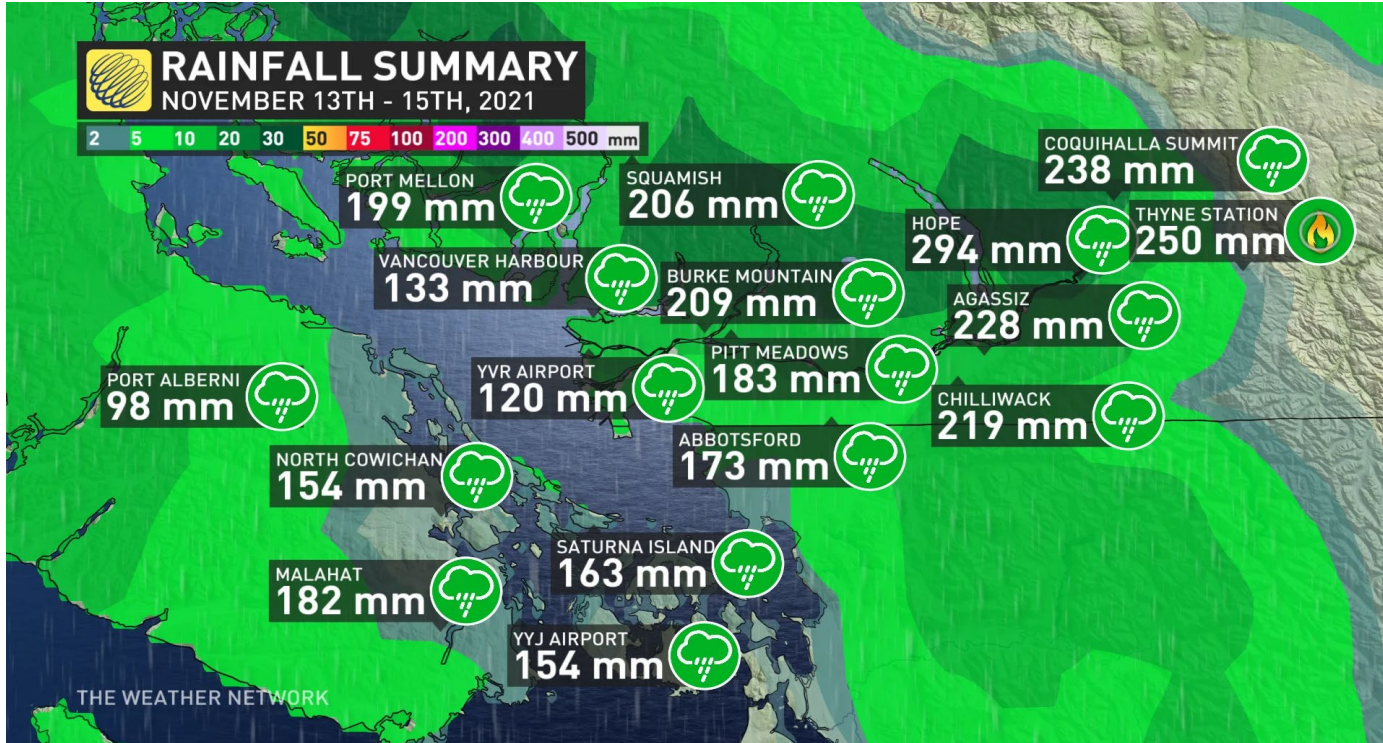
Comments: Rainfall was very heavy throughout the region, but heaviest on the front-side of the watersheds, and in North and West Vancouver. There were several hours of ~20 mm/hr on Saturday. The Lower Capilano FW station saw its highest one-day rainfall on Oct. 19 with 217 mm (2002-present), and highest event total precipitation (322 mm). Hourly rainfall at the Capilano Lakehead gauge is shown in the plot below.

ATMOSPHERIC RIVER RAINFALL VS HURRICANE HELENE



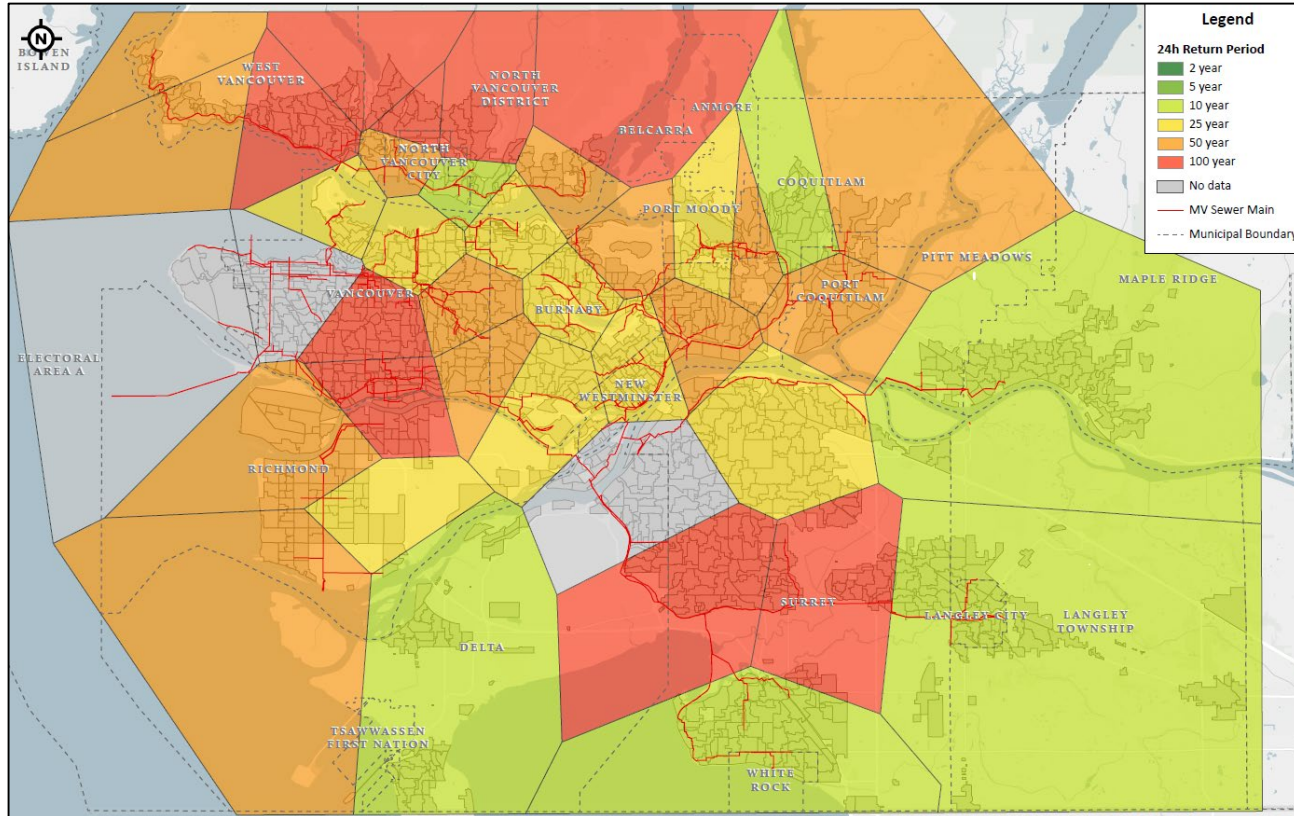
Weather Network- Hurricane Helene Rainfall Accumulation

OCTOBER 2024 AR VS NOVEMBER 2021 AR



Weather Network 2021 AR Rainfall Actual Accumulation

ATMOSPHERIC RIVER – RAINFALL ACTUALS



METRO VANCOUVER COMMUNICATIONS

MV Board Update, Website, Social Media



Station in Stanley Park. We are working closely with Vancouver @ParkBoard to minimize impacts to residents and the park. We will continue to provide updates as we respond to issues caused by this weekend's atmospheric river.



Metro Vancouver @MetroV... · 2024-10-20 ...
Heavy rainfall has impacted a number of regional parks. Some parks, roads & trails are closed. If you're going to a regional park, use extra caution. Expect flooding on trails, down...



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METRO VANCOUVER COMMUNICATIONS

MV Board Update, Website, Social Media



Dear Metro Vancouver Board Directors,

Update on Impacts of Atmospheric River on Metro Vancouver Operations

Metro Vancouver is currently responding to the impacts of this weekend's atmospheric river. Throughout the past week, staff have prepared for the weather event by increasing coverage and readying crews for deployment throughout the region.

Liquid Waste Services

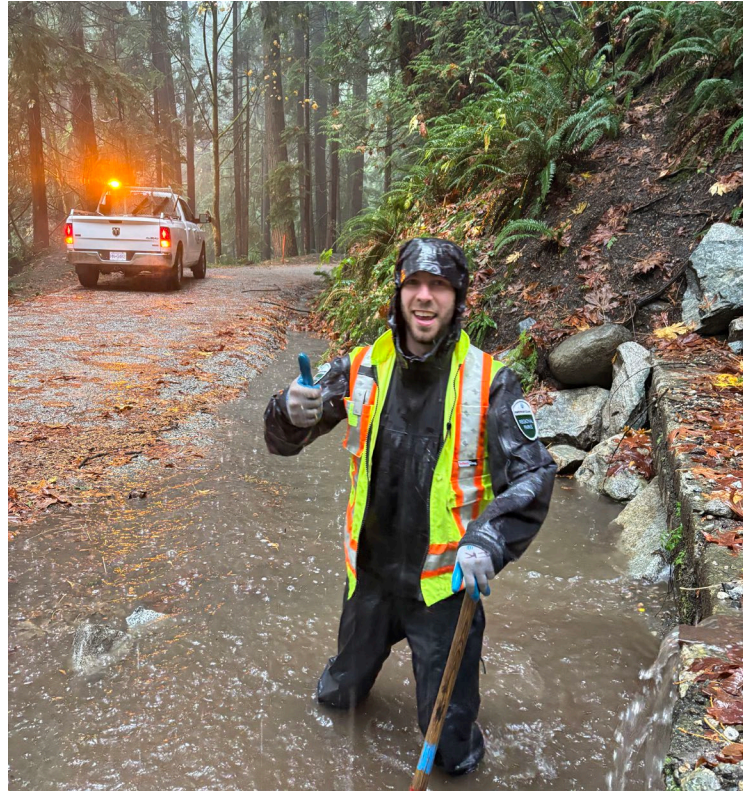
Liquid waste operations and maintenance teams procured emergency supplies such as sandbags, pumping systems, and tiger dams, and prepared the collection system and treatment plants for increased wet weather flows. Crews are at impacted sites, and will remain deployed around the clock until operational issues are resolved. We are working closely with member jurisdiction staff to minimize impacts to residents and the environment.

Currently, significant events include:



Metro Vancouver @MetroVa... · 2024-10-18 ···
Grouse Mountain Regional Park is closed due to heavy rainfall effective 4:30 pm Friday, October 18 and will remain closed until Monday, October 21, when park staff will assess and d...

REGIONAL PARKS



Capilano River Regional Park



Kanaka Creek Regional Park
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REGIONAL PARKS



Campbell Valley Regional Park

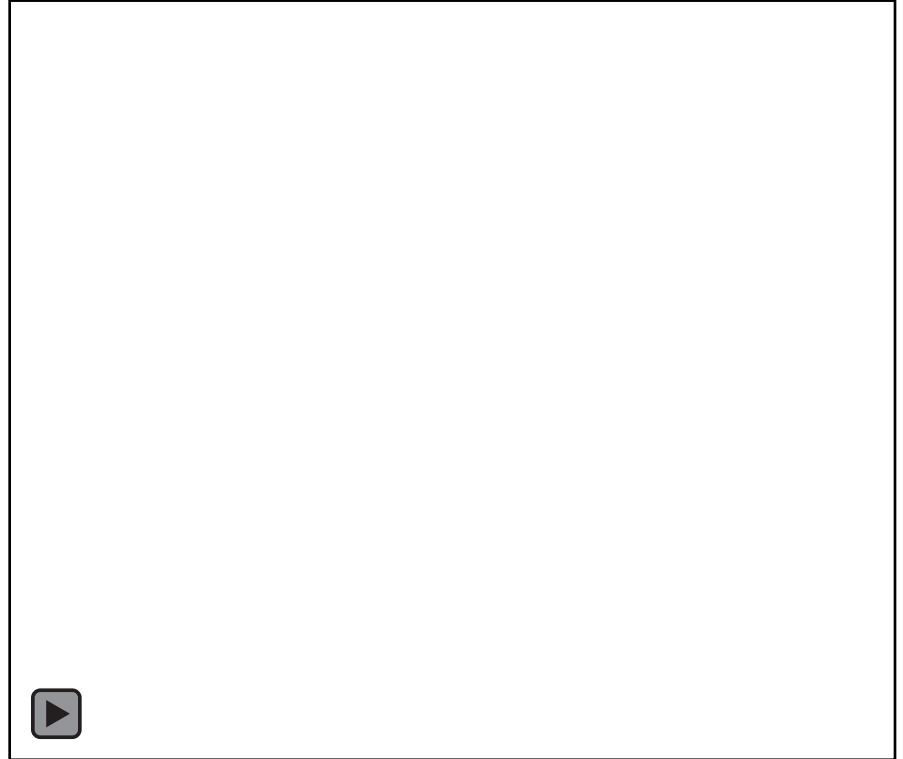


Delta South Surrey Greenway

REGIONAL PARKS



Capilano River Regional Park



Tynehead Regional Park

REGIONAL PARKS



Kanaka Creek Regional Park



Minnehada Regional Park

REGIONAL PARKS



Pacific Spirit Regional Park



REGIONAL PARKS



Delta Nature Reserve



REGIONAL PARKS



Lynn Headwaters Regional Park

REGIONAL PARKS



Pacific Spirit Regional Park



Widgeon Marsh Regional Park

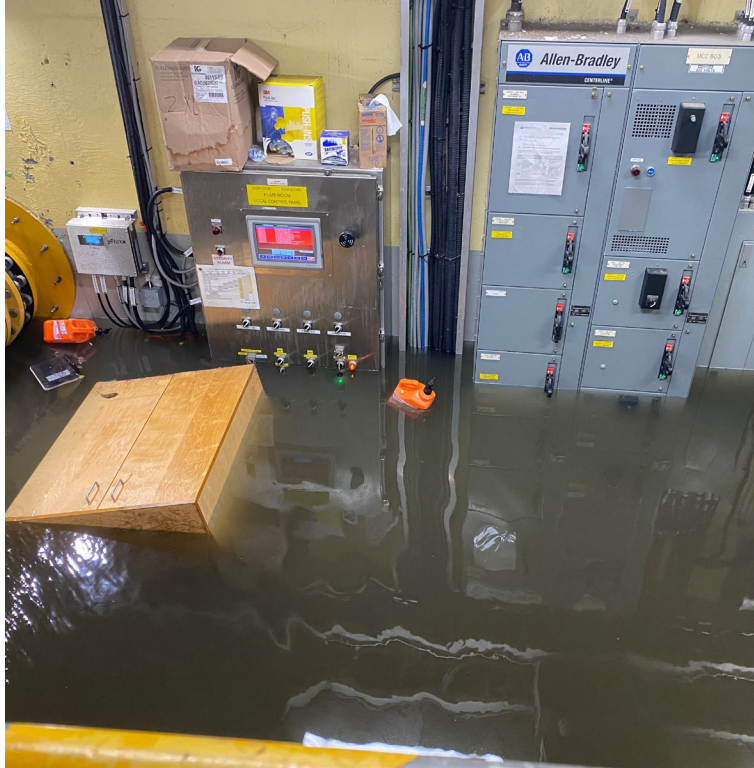
LIQUID WASTE SERVICES



Chilco Pump Station, Stanley Park



LIQUID WASTE SERVICES



Chilco Pump Station, Stanley Park



LIQUID WASTE SERVICES



Chilco Pump Station, Stanley Park



LIQUID WASTE SERVICES



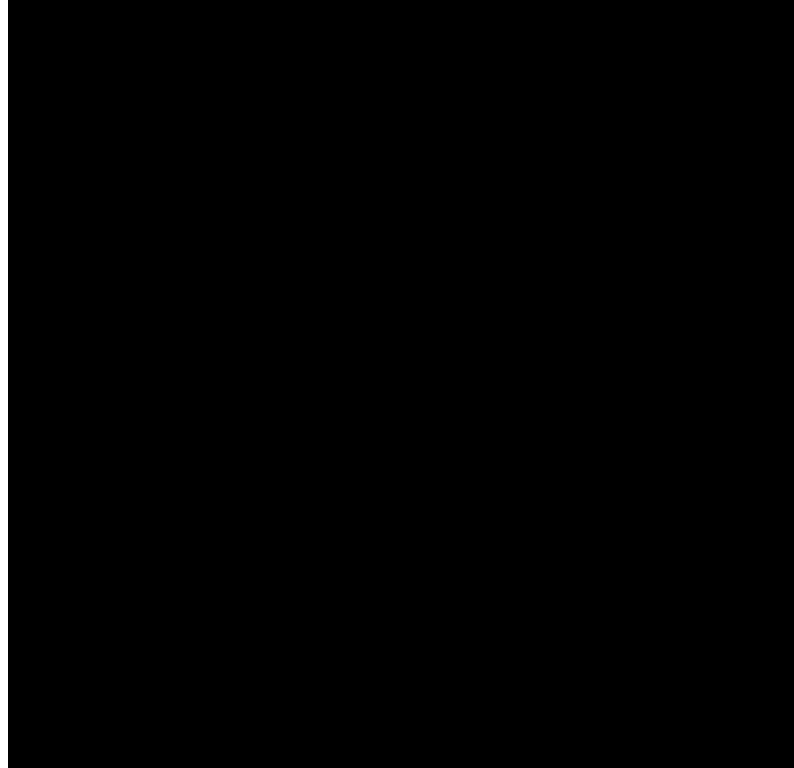
Blundell Sewer, Richmond



LIQUID WASTE SERVICES



Sewer Break, North Surrey



WATER SERVICES



Beaver Creek Washout



Pipeline Rd Washout

WATER SERVICES



HollyBurn Slide



Coquitlam Reservoir -Turbidity



DANGER
Debris flow hazard
**STOPPING
THIS AREA**

Grouse Mountain Regional Park

Questions?

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