Green Rainwater Infrastructure

2021 - 2023 Monitoring Results

What is GRI?

Green rainwater infrastructure (GRI) blends natural systems such as plants and soils with engineered systems like pipes and weirs to capture, filter, and absorb rainwater where it lands with the goal of restoring the natural hydrology.



Rain garden. A green rainwater infrastructure garden, designed in a bowl shape where rainwater is collected. Plants and specially designed soil mixes filter out pollutants before the water is absorbed into the ground.



Rainwater tree trench. A type of green rainwater infrastructure designed around street trees that collects rainwater into underground trenches where it is filtered and soaked into the ground or used by the trees.

Why are we building GRI?

On average, it rains over 160 days and between 1200 – 1600 millimetres a year in Vancouver. About 70% of the rainfall arrives as light showers (less than 24 mm per day), and another 20% as rain storms (between 24-48 mm per day). The last 10% of annual rainfall volume arrives as extreme rainstorms (greater than 48 mm per day). With climate change, the City is expecting big rain storms to increase in intensity and frequency, and for a higher volume of total rainfall annually — especially in fall and winter.

With more hard built landscapes that don't absorb water, over time the city has changed the way it interacts with rainwater, which has impacted our environment. Roads, sidewalks, driveways, and other hard surfaces accumulate pollutants like sediment, heavy metals, oils, pesticides, fertilizers and more. When it rains, some of this unseen material is transported into ditches, catch basins, and nearby waterbodies without any treatment. These pollutants can be harmful to aquatic species that use creeks, rivers, and the ocean as habitat. GRI intercepts rainwater runoff to capture, clean, absorb and evapotranspirate rainwater runoff.

Why do we monitor GRI?

Supported by the Rain City Strategy and the Healthy Waters Plan, the City of Vancouver is increasing the amount of GRI used in the city to support our drainage system. We have GRI assets distributed across the City that help us to manage rainwater. Monitoring helps us to:

- 1. Better quantify the benefits of GRI for our communities
- 2. Understand how well designs are performing, and what systems have capacity to treat more rainwater
- 3. Improve GRI designs to make them more adaptive to climate change



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How well is GRI working in Vancouver?



Want to learn more? Read the <u>Vancouver Green Infrastructure Performance Monitoring</u> <u>Report 2021-2023</u>

