Water

COMPONENT GOALS

01

UBC will practise responsible water management and use at the building and site scale by advancing water conservation and efficiency, exploring alternative water supply and treatment solutions and building water supply resiliency.

02

UBC will use a low-impact development approach to rainwater management at the site scale to mitigate risk and respect the natural hydrology of the campus.



CONTEXT

In the Lower Mainland of BC there exists a relative abundance of water. However, there are still times when water supplies are low or deficient.

With the impacts of climate change, even more frequent periods of drought in future summer months as well as more frequent intense and severe rainfall in the winter are expected. UBC will be a leader in conserving water and will improve rainwater management by managing this valuable resource and supporting the regional water balance between water use and rainfall.

CIRS – Rainwater is collected from the roofs is measured, and then directed through a bioswale to a deep well without burdening the stormwater infrastructure **PHOTOGRAPHER:** DON ERHARDT



Pathway to Net Positive

Although the University has made great strides in increasing water use efficiency, it is committed to continual improvements in monitoring and research to better understand how water is used, the potential for water reuse strategies, the role UBC should play in the greater region in the event of water emergencies, and how best to adapt to increased droughts brought on by climate change. The GBAP will align with and integrate building and landscape guidance called for in the Water Action Plan.

Rainwater management will be envisioned, designed and built as a holistic system of Lowimpact development with green roofs and at-grade solutions combined for new building projects and, where possible, for renewals. Low-impact development (LID) recommendations for UBC include: reduced hard surfaces, thicker top soil, climate-adaptive landscapes, bioswales, French drains and rain gardens. On building sites more than 300 meters from the cliffs, the opportunity to use LID will be optimized; however, a more cautious approach is required closer to the cliffs to mitigate the risk of cliff erosion.

Key Directions

GBAP priority actions focus on the reduction of water use in buildings paired with metering and benchmarking of indoor and outdoor water use. Reductions in cooling tower water use, review of plumbing fixture efficiencies and landscape/irrigation guidelines will be undertaken. Alternate water supply sources best practices will be established.

Rainwater management priority actions include improving LID site rainwater management to help mitigate the risk of floods and cliff erosion on campus as well as developing criteria and guidelines for the use of green and blue roofs. Bioswale at the Beaty Biodiversity Centre improves the quality of rainwater runoff **PHOTOGRAPHER:** PHILIP BERTOGG



- Rainwater Management Features on University Blvd.
- PHOTOGRAPHER: DON ERHARDT
- SOURCE: UBC BRAND & MARKETING

FIVE-YEAR IMPLEMENTATION PLAN - SHORT-TERM PRIORITY ACTIONS

- Investigate opportunities to reduce cooling tower water use in existing and new buildings.
- Develop criteria and guidelines for green roof and blue roof projects, based on rainwater management capacity, co-benefits, life cycle costs, and maintenance and operation considerations.
- Implement water metering requirements into (building) policy in alignment with the Water Action Plan.
- Review and update plumbing fixture efficiency requirements for new buildings and retrofits to current leading practice.
- Update landscape design standards and associated irrigation design standards.
- Develop guidelines for alternative water supply sources and systems in buildings (e.g., rainwater harvesting or water reuse systems) and on-site storage in buildings.
- Promote the use of seasonal rainwater features in policy which do not use potable water and consider life cycle costs.
- Require all tier 1, 2 and 3a projects to achieve the equivalent to LEED v4 Rainwater Management credit, Option 2.

TARGETS AND INDICATORS

Target: Reduce the water use intensity on campus by 16% in 2025 and 24% in 2030 (relative to a 2017 baseline), resulting in total water consumption remaining at or below 2017 levels despite growth.

Target: Meter and report on water consumption for individual UBC buildings to enhance our ability to make strategic decisions on water conservation by: 1) ensuring all new buildings include water metering, 2) maintaining or replacing existing meters as required, and 3) adding meters where economically viable, over the next five years.

Target: Maximize rainwater management using lowimpact development on building sites that are more than 300 m from cliffs.

Indicator: Increase infiltration, retention and detention of rainwater on campus.



Figure 8. A plan of rainwater infiltration area across campus.

Source: UBC LEED Implementation Guide for Building Design and Construction v4 (2016).