



UNIVERSITY ENDOWMENT LANDS

INFRASTRUCTURE & SOLID WASTE SERVICES

Local infrastructure and services are foundational to any community. UEL maintains water, sewer, and storm water systems that support local drinking water, sewage treatment and storm drainage. The UEL also supports solid waste management for the Village.

Population growth puts increasing pressure on aging infrastructure. As we grow and develop, it will be critical to undertake careful, long-term planning for the costs associated with this growth and to consider the way we design, develop and manage our assets to ensure the sustainable delivery of services.

HOW CAN WE CONTINUE TO PROVIDE RESIDENTS WITH SUSTAINABLE INFRASTRUCTURE AND SOLID WASTE SERVICES?

TRENDS & ISSUES

- **Area D is growing.** This puts pressure on our aging infrastructure. Future growth must be managed carefully to plan for quality and efficient infrastructure.
- **Area D is a compact community.** Compact communities are more cost effective to service and maximize investment in infrastructure.
- **Our infrastructure is aging and in need of upgrades.** The lifespans of our assets vary: water and sewer pipes (60-120 years); buildings, sidewalks, and trees (40-60 years); road pavement and traffic signals (20-40 years); playgrounds/playfields (10-20 years) and vehicles, information technology and other equipment (less than 10 years). Several upgrades are needed or in progress:
 - Our storm water system requires more groundwater recharging (where water enters aquifers)
 - Combined storm and sewer systems are being separated to manage heavy rainfall
 - A larger water main is needed on Toronto Road to support fire flow
 - Sewer line upgrades are needed
- **Climate change will result in more extreme weather.** We are likely to experience hotter and drier summers and experience more extreme events (like windstorms and heavy rainfall), which will challenge our water supply, wastewater and drainage systems.
- **Innovations in infrastructure can help mitigate climate change.** Transportation, buildings and infrastructure are major sources of greenhouse gas (GHG) emissions and energy consumption. Innovation in infrastructure design, upgrades, and operation can significantly reduce emissions.
- **Water use per person is decreasing.** Water use per person is decreasing due to rising rates and efficient building fixtures and design. The UEL pays the regional water district a 20% markup on water rates and the recent development of the Seymour Capilano water filtration plant has led rates to increase by ~50% over the past ten years.
- **Green spaces are critical to stormwater management.** Our parks, open spaces, and landscaping help to absorb stormwater, recharge groundwater, and reduce the risk of flooding.
- **Zero waste is a challenge and an opportunity.** Metro Vancouver aims to recycle up to 80% of the region's waste by 2020. The UEL currently recycles about 62% of waste, but we do not have recycling/compost bins in public spaces. There are also issues with illegal dumping in some lanes and alleys, often coinciding with students moving in and out. There is an opportunity to have zero waste stations and to work with property owners to prevent dumping.

KEY FACTS

- UEL's water supply is sourced from lakes on the north shore, bought in bulk from Metro Vancouver.
- Our water system has capacity to meet our needs (for drinking water and fire service), but is aging and in need of upgrades.
- There are 796 kilometres of sanitary sewer mains and 626 km of combined (sewage and stormwater) sewers in the UEL.
- Every year, millions of litres of liquid waste flow into our sewers and connect to Metro Vancouver's Waste Water Treatment Plant.
- There are 3.177 kilometres of storm water systems in the UEL. Most water drains north under Northwest Marine Drive, through ravines in Pacific Spirit Regional Park and into Burrard Inlet.
- UEL's Ten-year Capital Plan valued water, sanitary, stormwater, lighting and roads at \$51.3 million (2015), requiring over \$1 million per year to maintain these assets.
- Area D landowners hire haulers to collect their solid waste.
- The UEL Public Works team collects solid waste from Jim Everett Memorial Park.
- Transportation, buildings and infrastructure are major sources of energy consumption.

RELATED POLICIES & PLANS

- BC Building Code
- Land Use, Building and Community Administration Bylaw
- Official Community Plan
- Works and Services Bylaw
- Integrated Stormwater Management Plan (2018)

GOALS

The UEL can work towards the following goals and objectives:

Goal 1: Increase the resilience of infrastructure and assets

- Ensure all existing and new infrastructure is adapted to future climate conditions

Goal 2: Provide sustainable infrastructure service delivery to the community

- Protect the natural environment and serve community needs
- Explore Natural Asset Management
- Update the Infrastructure Plan every 5 years
- Conserve and reuse water

Goal 3: Improve opportunities to reduce and eliminate solid waste

- Reduce and ultimately eliminate the disposal of solid waste to landfill or incinerator

IDEAS

To maintain and improve infrastructure, the UEL can explore a wide range of policies, projects and partnerships. The following provides options to spark discussion about the best way forward. It is not a complete list of options and no decisions have been made at this point.

WE WANT TO KNOW WHAT YOU THINK!

Share your thoughts on the future of Area D by:

- Visiting us at AreaDPlan.ca
- Telling us what you think in an online survey
- Coming to one of our events

Prepare For Climate Change. Continue to strengthen our approach to climate change by collaborating with Metro Vancouver and others to develop a climate change action plan, with a focus on improving the ability of the area's infrastructure to adapt to change.

Increase Natural Assets And Green Infrastructure. "Natural assets" refers to the stock of natural resources and ecosystems that yield a flow of benefits to people. For instance, vegetation, trees, and soils absorb carbon, provide cooling in summer, reduce and treat stormwater, increase groundwater recharge, and lower flood risk from heavy rainfall.

“Green infrastructure” are designed and engineered elements such as bioswales and rain gardens that have been created to mimic natural functions and processes in the service of human interests. By inventorying, planning and developing plans to increase natural assets and green infrastructure, we can support climate adaptation and stormwater management in more cost-effective ways.

Conserve and Reuse Water. Water conservation will become more important as summers become hotter and drier. It will be critical to continue efforts to educate the public, limit water use (including lawn watering), capture and reuse greywater and rainwater.

Improve Stormwater Management. Stormwater management can reduce the flow and speed of runoff to our storm sewer infrastructure, helping us adapt to heavier and more frequent storm events. We can enhance our stormwater systems by updating our policies, upgrading systems and exploring natural and green infrastructure options.

Improve Infrastructure Through Development Contributions. Incorporate sustainable development principles into land use planning decisions including building the right densities, mixed uses, transportation options, solid waste disposal spaces and energy-efficient, green developments. New developments could explore systems to capture and reuse rainwater (i.e., stormwater ponds, rain barrels, artificial wetlands, green roofs) for irrigation.

Explore Development Cost Charge Policy. A growing Area D creates demand for new, upgraded or expanded infrastructure. To equitably assign the cost to future users, Development Cost Charges (DCCs) can be used – these are payments collected from developers at the time of building permit or certificate of occupancy for new or expanded connections or services. DCCs fund infrastructure associated with growth, such as roads, drainage, sanitary sewer, water and parks.

Support Zero Waste. Work with Metro Vancouver and the community to reduce, reuse, and recycle waste and divert organics from landfills and to incorporate adequate waste management space in new and redeveloped buildings. Also, explore the next level waste strategy of a transition to a take-make-reuse ‘circular economy’ model.

Create Vibrant Laneways. Explore ways to transform the area’s laneways to be more vibrant public spaces and to discourage the disposal of large solid waste items.

CASE STUDIES

NATURAL ASSET MANAGEMENT, GIBSONS

The Town of Gibsons is a coastal community of 4,600 people on British Columbia’s Sunshine Coast, and was North America’s first community to experiment with strategies to integrate natural assets into asset and infrastructure management and financial planning.

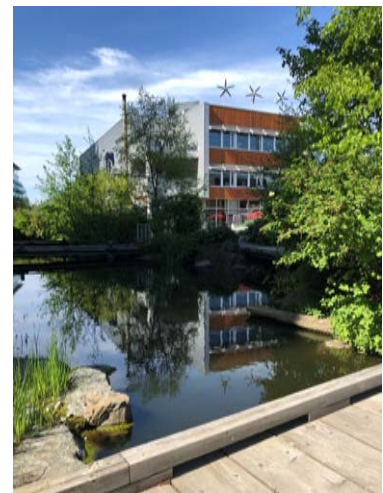
In Gibsons, the foreshore area provides protection from storm surges and sea level rise, creeks, ditches and wetlands help manage stormwater, and an aquifer stores and filters drinking water. The Town recognized the economic significance of these assets but had an incomplete understanding of what their service delivery depends on, and what the implications might be, if a natural asset were to fail or deliver lower levels of service. They decided to try natural asset management -- this involves inventorying natural assets, determining their condition and value, and preparing and implementing asset management plans to maintain or replace them, with the goal of ensuring sustainable service delivery to a community (Asset Management BC 2013). In the process, the Town developed an Eco-Asset Strategy to place nature and the local services that nature provides at the core of the Town’s infrastructure system, infrastructure plans and financial plans.



DOCKSIDE GREEN, VICTORIA

[Dockside Green](#) is a master-planned neighbourhood in Victoria, British Columbia that has implemented leading-edge stormwater management.

The majority of paved surfaces in the neighbourhood are permeable, which allows stormwater to infiltrate into the ground below. Stormwater is also captured by green roofs that cover most of the buildings' roof area, and green walls located on the sides of buildings. The remaining stormwater that runs off of these areas is collected and funneled into an interconnected system of naturalized creeks and ponds containing native plant species. The stormwater that is collected helps to irrigate the neighbourhood's



central greenway and other landscaped areas, and the creeks and ponds filter the stormwater. These features both manage stormwater on the site and create a more liveable, attractive urban environment.

Image Credit: Lisa Westerhoff

DEVELOPMENT COST LEVIES, VANCOUVER

In the early 1990s, new legislation allowed the City of Vancouver to introduce [development cost levies \(DCLs\)](#) on all new development to help fund new parks, childcare, replacement of affordable housing and expanded roads or water and sewer infrastructure. Vancouver’s policy is based on the principle that new development should pay its fair share of growth-related costs.

In 2003, Council approved a citywide financing growth policy that established a comprehensive system of DCL areas across the city (DCLs are enabled through the Vancouver Charter and the Local Government Act) as well as established a new citywide Community Amenity Contribution system (CACs are enabled through City Council). CACs were established by Council to be incremental to DCLs and to be allocated to a wider range of community benefits. This policy provided a way to help address the cost of growth as well as a comprehensive guide for the collection and spending of DCLs and CACs.



Today, DCL’s are applied to all developments in all zones, including those being rezoned, are charged based on flat rate, per square foot of new floor space to be built, and due when the building permit is issued. DCLs partially fund parks, childcare facilities, replacement housing, and engineering infrastructure. Projects are delivered via the City’s capital program.

MORE INFORMATION

[University Endowment Lands: Water, Sewer & Garbage Services Factsheet #5.](#)

[Province of BC Development Cost Charge Best Practices Guide.](#)