

Infrastructure Servicing Report Summary

Anmore South Neighbourhood Plan

Purpose of the Study

The Infrastructure Servicing Report was prepared by Aplin & Martin. The report summarizes the proposed water, sanitary, and drainage infrastructure servicing strategy and cost estimates for the Anmore South Preferred Plan.

- The proposed infrastructure services have been designed to service the Anmore South area at full build-out and address the area's topographical constraints. This anticipates the required infrastructure to service 2,202 total homes as well as commercial and institutional use. Conservative values of population equivalency were used for the servicing plans to ensure the infrastructure is adequately sized to deliver resilient services to future developments.
- The report provides detailed infrastructure servicing plans that demonstrate the layout of these networks.
- The proposed infrastructure systems design criteria have been derived in accordance with the Village's Subdivision and Development Control Bylaws.
- Through the public neighbourhood planning process, and as the rezoning of land use designations (residential, civic, parks, recreation, etc.) is confirmed, further detailed refinements to the servicing plans are expected at future design stages.

What we Learned

Existing Conditions

Water Servicing:

- The Village currently licenses water from the City of Port Moody, received from twinned mains running along East Road.
- Review of the existing infrastructure suggests limited hydraulic redundancy due to the single supply connection from Port Moody and the large number of dead-end mains. Storage infrastructure does not currently exist within the Village.

Sanitary Servicing:

- Most properties within Anmore currently rely on privately owned onsite septic systems for sanitary collection, treatment and dispersal.
- Municipally owned and operated sanitary infrastructure, such as wet well storage, pumping facilities and tie-in connections to Metro Vancouver wastewater conveyance systems do not currently exist within the Village.

Drainage Servicing:

- The Preferred Plan area consists of an undeveloped natural forest with elevations ranging from 25m to 160m and a general slope of 10% from northeast to southwest. Stormwater mainly runs overland and drains into Doctor's Creek, Schoolhouse Creek, and their tributaries. These watercourses leave the Plan Area at four distinguished outflow locations ultimately discharging to the Burrard Inlet.

Future Water Servicing

Purpose

- Water servicing infrastructure is proposed to service the entire Anmore South Preferred Plan area with a water system tie into the Metro Vancouver water supply main at the southwest corner of the Plan area.
- The infrastructure proposed also provides redundancy for the neighbouring Village of Anmore water system, with the potential for future tie-in locations at Fern Dr to the north and Sunnyside Rd to the east.

Infrastructure Design

- Topographical constraints and the current lack of water infrastructure mean a comprehensive system of booster pumps, pressure-reducing valves (PRV), feeder mains, distribution mains, and a reservoir contained within utility easements and public road right of ways is required.
- To maintain safe system operating pressures specified by the design criteria, four pressure zones were designed by setting pressure reducing valves to maintain the hydraulic grade across specific service areas.

Future Sanitary Servicing

Purpose

- A new sanitary system is proposed for Anmore South with the potential for future branch connections at Fern Dr to the north and Sunnyside Rd to the east.
- The proposed sanitary servicing plan is sized to service the projected population of Anmore South and provide potential for Village sanitary system expansion into neighbouring areas, ensuring infrastructure is prepared for long-term growth.

Infrastructure Design

- Topographical constraints and the current lack of municipal sanitary infrastructure within the Village, mean a comprehensive system of gravity mains (including private, strata operated low-pressure mains) along utility easements and public road right of ways will be required.
- The proposed servicing design utilizes steep grades for gravity-based outflow across the Plan area, with a land use block off the lower loop that may require a strata operated low-pressure systems to convey sanitary loads uphill.

Future Drainage Servicing

Purpose

- A new drainage system is proposed to maintain existing hydrology and ecological health within Anmore South and the wider neighbourhood area. The system is designed to preserve the predevelopment drainage pattern, minimize inconvenience with surface runoff under frequent events and allow for safe conveyance of major event runoff and no damage to life and property under extreme flood conditions.

Infrastructure Design

- The proposed servicing system includes underground storm mains (minor system), culverts and overland flow paths (major system) for conveyance to Schoolhouse Creek and surrounding unnamed tributaries to maintain predevelopment flow patterns.
- The proposed infrastructure is sized using 2050 climate projections, with the minor system designed for 1:10-year events under free flow conditions and the major system (creek channels and culvert crossings) capable of handling 1:100-year flows to minimize flooding risk and protect public safety.

- Key components of the servicing plan include:
 - New Storm sewers ranging from 300 mm to 450 mm in diameter.
 - Upgrades to the existing culverts under Sunnyside Rd, with new culverts at proposed road crossings (ranging from 750mm diameter circular to 1.5 m x 2.4 m box culvert).
- Oversized on-lot Low Impact Development (LID) best management practices, such as source control structures, are also proposed to facilitate flow control, volume reduction, and water quality targets, which eliminate the requirement for offsite detention facilities.

Key Takeaways

The proposed infrastructure services have been designed to service the Anmore South area at full build-out and address the area's topographical constraints. The proposed water servicing provides for improved supply and redundancy of water distribution. The proposed sanitary servicing provides Anmore South with a direct connection to the Metro Vancouver sewer district. The drainage management systems have a focus on redundancy, ecological sustainability, and alignment with long-term climate conditions. Detailed designs and further feedback are required at later design stages.

Recommendations

Water Servicing Infrastructure

- Implement the proposed water servicing infrastructure, including booster pumps, pressure reducing valves (PRVs) and a reservoir to ensure reliable water pressure and fire flow capacity for the Preferred Plan area.

Sanitary Servicing Infrastructure

- Implement the proposed gravity-based sanitary system design, leveraging steep grades to maintain efficient flow without backwater effects.
- Use low-pressure sewer system where needed in specific southern areas (e.g., Lower Loop) to convey waste uphill.

Drainage Servicing Plan

- Follow the proposed drainage plan, which integrates underground storm sewers with existing watercourses to maintain pre-development flow patterns while addressing infrastructure needs.
- Use climate projections to size systems for future conditions, including designing minor systems to manage 1:10-year events and major systems (e.g., creeks) to handle 1:100-year flows for flood risk reduction and public safety.
- Incorporate Low Impact Development (LID) techniques, such as:
 - Directing runoff from impervious areas to pervious zones for single-family lots and roadways.
 - Installing oversized bio-infiltration facilities for multi-family, mixed-use, and institutional areas to improve water retention, quality and flow control without conventional detention systems.