CITY OF NANAIMO
THE HARBOUR CITY

BUSINESS PLAN 2025

Public Works

ENGINEERING AND PUBLIC WORKS

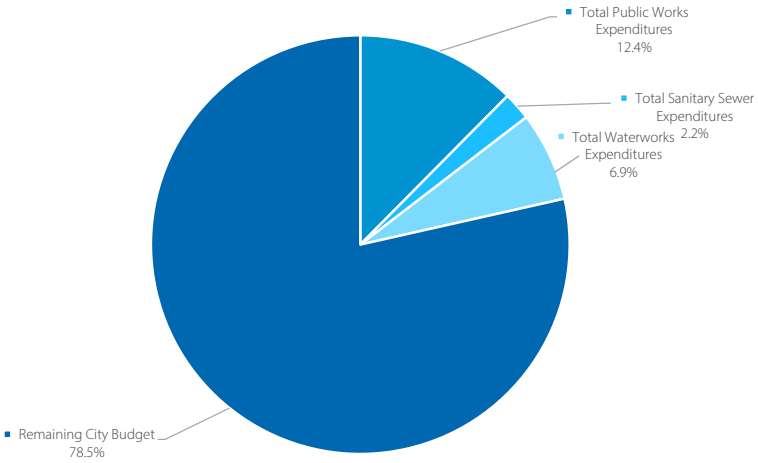
DEPARTMENT OVERVIEW

The Public Works Department constructs, operates and maintains critical City owned infrastructure. These include drinking water supply, treatment and distribution, sanitary sewer and storm drainage collection, sanitation, recycling, cemeteries, roads and traffic and corporate fleet services. Public Works and Engineering together plan, design, construct and maintain infrastructure while continually performing condition assessments and feed back to continue the asset management life cycle.

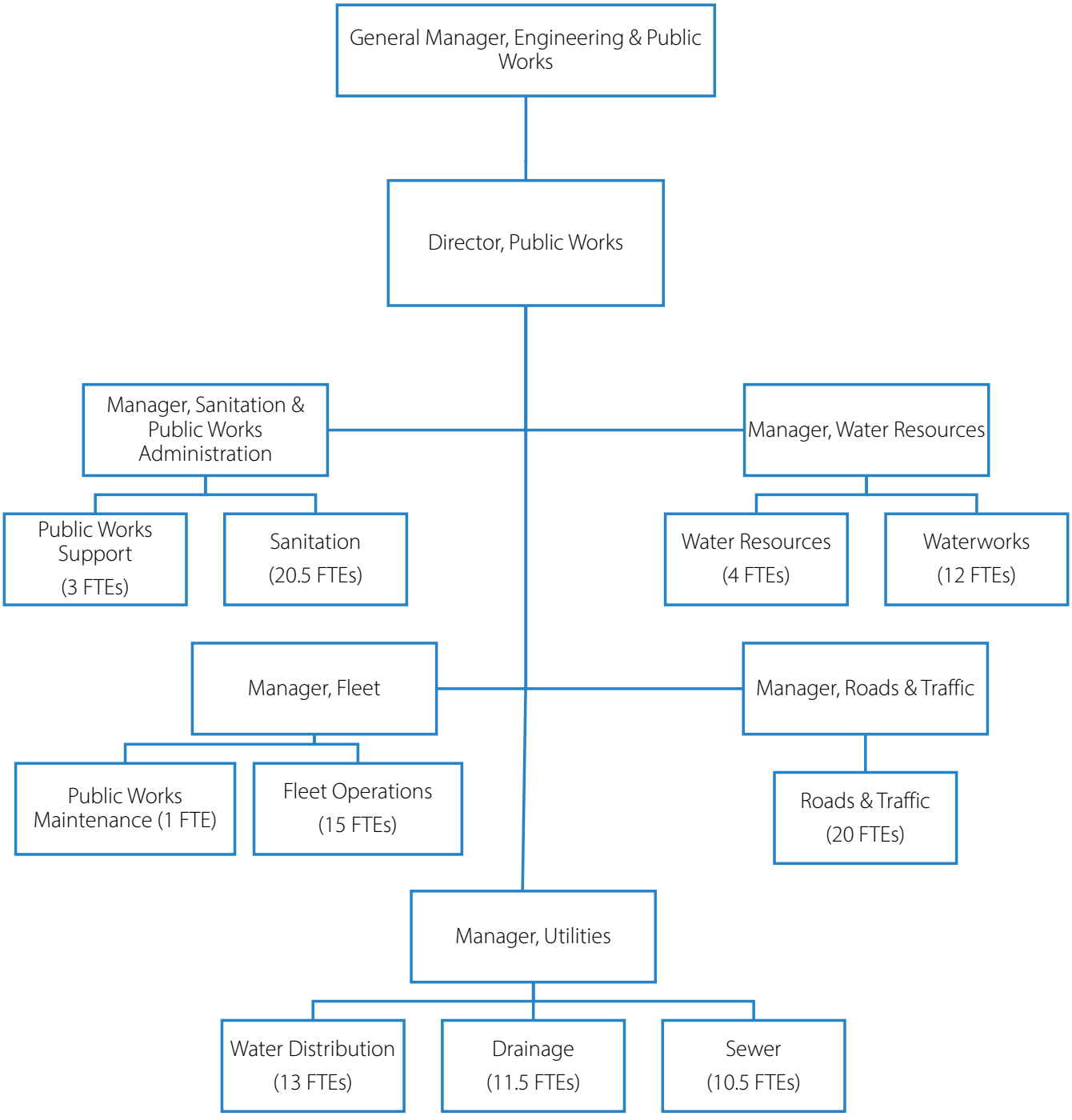
The Public Works Department is composed of six primary groups:

- Administration
- Sanitation & Cemeteries
- Roads and Traffic
- Utilities
- Water Resources
- Fleet

Department's Share of the Budget



Operating Expenditure Budget: $45,970,881



Excludes the following FTEs:

- Two Water Meter Readers, funded from Water and report to Finance
- One Custodian funded by Public Works and reports to Park and Facility Operations

ADMINISTRATION

The Administration of Public Works provides essential support to the city's operations and services. These are front-line staff that interact with the public, provide clerical and financial support, records management, organize, and ensure that other staff have the day-to-day resources they need.

Administrative services for the Public Works Department is provided by three staff located at the Public Works yard. Seasonal and temporary staff provide additional support as required.

The strong and diverse knowledge base, and high level of service and public interaction provided the by Administration, deflect calls from supervisors and managers resulting in efficiency and higher operational productivity.

Level of Service:

- Public Works is the primary point of contact for the public for many operational requests, questions or concerns. A front counter is available at Public Works for the public to access and reach staff in Public Works during normal working hours.
- Provide information and generate work orders in a range of areas including: solid waste, street cleaning, roads, and utilities.
- Permit processing and approvals including water use, third party utility construction, etc.
- After Hours call response to emergency inquiries.
- 24/7 remote alarm monitoring of infrastructure throughout the City.
- Records management for the department.
- Assistance for financial transactions and processing of invoices.

Public Works Administration provides both an interface for residents and a dispatch centre for operations. Fleet Services also has internal administrative functions.

2024 Accomplishments

Administration staff created, dispatched and closed more than 4,000 work orders in 2024. It is estimated that around 50% of the calls are resolved by the admin staff person providing the information. The rest result in the creation of a work order, for assignment to field personnel.

Administration staff received and responded to the following phone calls:

Calls Received	2021	2022	2023	2024 Projection
Number of Calls	39,713	21,250	20,000	20,000
Duration of Calls	417:10:01	628:22:14	600:00:00	600:00:00

Administration staff received and responded to the following emails which include five email boxes (Public.WorksInfo, PW.Dispatch, PW.Secretary, Cart.Requests, and Zero.Waste), but does not include individual personal emails:

Emails Received	2021	2022	2023	2024 Projection
Number of Emails Received	5,382	7,699	12,949	12,500
Number of Emails Sent	16,084	6,767	7,801	8,000
Total	21,466	14,446	20,750	18,000

Majority of the calls are resolved by the admin staff person providing the information. The rest result in the creation of a work order, for assignment to field personnel.

Administration staff created, dispatched and closed:

- 7,667 work orders in 2019
- 7,418 work orders in 2020
- 8,826 work orders in 2021
- 8,560 work orders in 2022
- 5,438 work orders/tasks in 2023 (Sept 11/23 Sewer & Drainage switched to Cartegraph work order system)
- 8,500 work orders/tasks projected for 2024

2025 Opportunities

- The public-facing level of service in this area is high. Each resident who calls is able to speak with a member of the admin team. Residents are accustomed to this service. It is increasingly rare in cities of this size. Many cities have opted to move to an automated answering service, including taking advantage of the power of AI tools trained on City information (bylaws, development application processes, meeting information, events, etc.). While staff do not feel this is necessary at this time, there are events that make this high level of service hard to maintain. In 2024 staff will continue to use the voicemail box to provide information during periods of high call volumes.
- The implementation of Cartegraph for asset and work management tasks has streamlined administrative operations.

SOLID WASTE MANAGEMENT

The City provides weekly curbside collection of garbage, recycling and comingled kitchen/yard waste organic materials. The service uses standardized carts and automated collection vehicles to more than 30,000 residential addresses. This service is provided for single-family and multi-family, up to and including fourplexes. Larger multi-family, strata, commercial and industrial solid waste collection is completed by the private sector.

Characteristics of the program are:

- Provide residential solid waste collection including weekly collection of food and garden waste and bi-weekly collection of residential garbage and recyclables.
- Monitor contamination of the recycling and organic materials.
- Provide public education and promotion for Waste Reduction and Recycling.
- Support waste reduction activities and education for public events.
- Provide public spaces cleaning services.
- Support other departments in clean-up of encampment debris.
- Sanitation services support the City Plan goals' of Green Nanaimo - Resilient & Regenerative Ecosystems, Connected Nanaimo- Equitable Access, Healthy Nanaimo- Community Wellbeing & Livability, and Prosperous Nanaimo - Thriving & Resilient Economy.

Level of Service:

- User fees fully cover the costs of solid waste collection.
- The delivery of curbside collection services is a daily activity that requires a high level of management and effort to match the high degree of complexity. Any failure in delivery results in a high level of public interest.
- Servicing of waste receptacles throughout the community.
- Collection of illegally dumped items from public property.
- Collection of dumped hazardous items including needles.

- Clean up littering and other unsightly areas of public property.
- Perform daily cleaning and sweeping around the downtown area.

In addition to Solid Waste Collection Services, the Sanitation Section facilitates other initiatives including:

- The Partners in a Cleaner Community Program - Working with local community groups to litter pick city roadsides.
- Reuse Rendezvous - The city-wide swap meet.
- The Nanaimo Recycle Trunk Sale- a free event for residents to give used items a new life.
- A WildSafeBC coordinator - funded jointly with Parks, Recreation and Culture, and Development Engineering to provide education on preventing wildlife conflicts.

2024 Accomplishments

- Nanaimo has one of the few services that pick up three different types of waste with a single vehicle – many others use multiple vehicles.
- Injuries in the sanitation section have fallen by over 90% since the implementation of the program in summer 2018.
- Expanded collection fleet to 12 trucks, including rentals to support operational upsets.

- Implemented Optimized Collection program, dividing the collection into two categories of Recycling/Organics and Garbage/Organics supporting Green Nanaimo - Resilient & Regenerative Ecosystems.
- Continued Optimization reducing service delays.
- Curbside audits of recyclables during summer 2023 and summer 2024 have resulted in substantial reductions in contamination rates, sufficient for the Contamination Remediation Plan to no longer be required.
- Expansion to two (2) Clean Team crews, working with Bylaws, has resulted in over 107mt of waste being collected and disposed of (current to mid-year).
- Work orders relating to missed collections and other operational issues have reduced significantly.
- Participated in consultation with Recycle BC for contract renewal. Staff are anticipating more favourable terms in the next contract.
- In the first 6 months (Jan-Jun) 2024, 101 new accounts are being added to existing refuse collection routes. An ongoing increase of service users is expected:

Service User (HH)	2021	2022	2023	2024 Projection
Total	29,670	29,933	30,144	30,350

- No significant changes in the collection of materials per household from residential curbside collection services:

Kilograms per household	2021	2022	2023	2024 Projection
Landfill	220	216	227	228
Recycling	124	114	106	108
Organics	277	271	255	255
Total	**621**	**601**	**588**	**591**

- Gradual increase in total collection due to population increase:

Total Volume (tonne)	2021	2022	2023	2024 Projection
Landfill	6,492	6,694	6,848	6,900
Recycling	3,687	3,720	3,198	3,275
Organics	8,242	8,206	7,699	7,700
Total	**18,421**	**18,421**	**17,745**	**17,875**

2025 Opportunities

- The Sanitation fleet consists of ten full-time and two spare trucks. Two new trucks are planned for 2025 to replace end-of-life trucks.
- Disposal cost (tipping fees) continue to increase.

Stream	2022	2023	2024	2025 Projection
Landfill Waste	$140.00	$145.00	$150.00	$155.00
Organic Materials	$107.96	$114.87	$120.04	$125.00

- Staff will support RDN's implementation of mandatory waste separation in the ICI sector, primarily through education of developers and commercial and institutional property owners/managers.
- Increased resources for public space cleanliness (Clean Team, etc) will require additional supervisory staff.
- To ensure that residential curbside collection remains efficient and sustainable in the face of urban growth, the City conducted an optimization of the fleet equipment lifecycle and spare equipment ratio. As a result the lifecycle of collection trucks was reduced from 10 years to 8 years, supporting City Plan's goals around Community Wellbeing and Livability.
- The next renewal of the Recycle BC contract for residential recyclables collection comes into force Jan. 1, 2025.
- A Recycling Self-Consolidation Enhancement was started in 2023 to review options for the consolidation and transportation of recycling materials, supporting Green Nanaimo and Prosperous Nanaimo goals of City Plan. A draft of the report suggests that the status quo continues to be the most cost effective approach with the current levels of service.
- Mid-way through 2024, the contamination rate has decreased to 2.7%. It will take continued focus on auditing and education to ensure that the contamination rate does not worsen in 2025.
- Continued switch-out of existing streetside waste receptacles and expansion of service to new areas with the new receptacle enclosures will improve levels of service. Recyclables and organics receptacles will be considered for target areas.

CEMETERIES

The City owns, operates, and maintains three cemeteries:

Location	Status	Total internments
Townsite/ Chinese Cemetery	Open for sales of new plots.	1,051
Bowen Cemetery	Closed for sales of new plots. Open to burials in existing plots.	14,822
Wellington Cemetery	Closed for sales of new plots. Open to burials in existing plots (very uncommon).	125

Public Works operates these sites under the Cremation, Interment and Funeral Services Act and City of Nanaimo "Cemetery Bylaw 2009 No. 7084". A contractor maintains the cemetery grounds. As a public service, the cemeteries are operated as an alternative to private burial services. The Revenue Services Section (Finance Department) receives and administers requests for plot purchase, burials, and genealogy research requests. The trend appears to be an increasing preference for cremation burials.

2024 Accomplishments

In 2023, there were 88 interments conducted, including 16 full burials and 60 cremation burials.

2025 Opportunities

- Transfer of some administrative tasks from Finance to Public Works Administration to improve customer service and operational effectiveness.
- There are currently no dedicated cemetery staff. This means that opportunities may be missed to develop and expand service offerings, revenue potential, and cultural significance of the sites. Burial work is carried out by the sanitation section which can put undue pressure on the department who is primarily focused on delivering daily waste collection services.
- The public interest in these sites can be tied to emotional reactions, so a high level of empathy and emotional intelligence is required for employees who come into contact with interested members of the public or family members of those interred.
- Townsite/Chinese Cemetery is the only site with remaining capacity for new plots. To continue offering burial services, alternative memorials could be explored, including columbarium, ash gardens, etc.
- There is no asset management plan for facility renewals. As such, the office building at Bowen cemetery and the memorial archway at Townsite cemetery are in need of significant work to restore them to good condition.
- Considering the limited space available for expansion, and in order to provide a long-term and sustainable business model and service plan, staff have launched a business model review in 2023. This work is ongoing and supports City Plan's goals of a Thriving and Resilient Economy and Equitable Access and Mobility. Based on the results of this work, Council will have to make a decision on increased investment to maintain the service or not.

ROADS AND TRAFFIC

With the exception of Provincial Highway 19 and Trans-Canada Highway 1, the City owns and maintains its road network, including pavement management, winter clearing, signage, and pedestrian and cycling facilities.

In 2024, there were:

- 540 km of roads, 450 km of sidewalks, and 119 km of bicycle lanes/cycle tracks,
- 54 signalized intersections, 4 roundabouts, and 26,107 traffic signs,
- 1,576 pay parking spaces (285 on-street and 1291 off-street,)
- 18 bridges and 28 railroad crossings,
- 4,770 City owned streetlights and 4,286 lights leased from BC Hydro, and
- 1,399 marked crosswalks and 79 pedestrian activated crosswalk-warning beacons.

Level of Service:

- Snow and Ice Control (SNIC) reduces risk and maintains functionality of the transportation network during adverse weather. Routes are prioritized with the goal of clearing major routes first, particularly emergency and transit routes. Local streets are the lowest priority and are cleared once higher priority routes have been completed. No service is provided to laneways.
- Potholes – roads crews respond to complaints from the public and reports from staff, and repair as identified.
- Traffic Signals – 50% of the system is inspected once per year, and conflict monitors are tested every year.
- Street Sweeping – Major roads are swept once per month, other streets once per year.
- Sidewalk Sweeping – downtown sidewalks are swept twice per week.
- Sidewalk Cleaning – downtown pressure washing completed every second year.
- Street garbage receptacles are provided and maintained. Currently there are over 100 streetside receptacles in the City that are emptied at least weekly.
- Sidewalk settlements greater than 25mm vertical displacement are repaired.
- Boulevard and roadside vegetation control is completed once per year during the summer.
- Centreline road markings are repainted every year. Stop signs and yield signs are inspected annually; other signs are replaced as needed.
- Crosswalks are inspected annually (including pedestrian flashers).
- Traffic Safety – respond to traffic concerns and provide technical data collection and analysis.
- Provide and maintain transit amenities including bus shelters, benches, garbage cans and signs.
- Crack Sealing – roughly 40,000 lineal metres of roadway is crack sealed every year. This is a decrease from prior years due to continued increases in pricing
- Asphalt Rehabilitation and Patching – There are programs in place to patch and renew asphalt with the aim to maintain the travel and driving surfaces.

2024 Accomplishments

- Renewed asphalt road surface, including patching on King, Dover, Highland Blvd, Norwell Dr., Boundary Rd., Fourth St.
- Full road rehabilitation of Labieux Rd., Tenth St., Comox Rd.
- Completed upgrade of rail crossing at Albert St. in partnership with Southern Railway.
- Ongoing maintenance of Wellcox Trestle completed, including replacement of steel girder.
- Promptly and effectively responded to pothole and sidewalk repair requests

- Provided a high level of service in supporting other City Utility operations with sidewalk reinstatement and paving repairs following underground utility work.
- Supported Culture and Events Section in completing the street banner program
- Supported Downtown Nanaimo Business Improvement Area and Old City Quarter in their local promotions (banners, custom street name signs, etc.)
- Presented Council with update on asphalt asset management, highlighting the funding gap between current conditions and desired conditions. Asphalt asset management plan will be updated based on funding decisions made through the budgeting process.
- Installation of new and upgraded traffic signals and pedestrian accessibility improvements
- Obtained Council approval of Pothole Inspection and Maintenance, Sidewalk Maintenance, and Winter Maintenance policies
- Coordinated efforts with Parks to clear Active Transportation corridors

2025 Opportunities

- There is a steady rise in expectation for levels of service. This ranges from concerns with congestion or lack of sidewalk connectivity, to feelings of inadequate parking. Balancing resources to meet these expectations is a major challenge for staff.
- Staff retention and succession planning is critical, as most of the entry level positions within the department are temporary or casual. This prevents junior staff from acquiring the full range of skills necessary to qualify for more senior positions.
- With implementation of new Complete Street Standards, operation and maintenance requirements are increasing as well.
- Wellcox Trestle is deteriorating rapidly and requires significant ongoing maintenance efforts and investment until such time as it can be replaced.

- Road Rehabilitation Asset Management – The asphalt in the City's roads is deteriorating faster than it is being rehabilitated. The City typically has funding for several million dollars per year of asphalt renewal, unchanged significantly for years. As part of the financial plan, staff include a consideration for additional spending towards asphalt rehabilitation.
- Rail Crossings and Cost – There are 28 rail crossings in the City for either roads or trails. There are annual costs attributed to maintaining these crossings and considerable costs any time road or trail improvements are undertaken near the crossing. **Significant changes to Federal rail standards mean these crossings are a financial and regulatory barrier to undertaking road and trail improvements along the entire length of the tracks in the City.**
- Traffic Medians and Boulevard Maintenance – increase in assets continues to cause challenges for operations and maintenance. The level of service demanded by the public is higher than what the City is currently able to provide (financially and personnel).
- Continuing escalations in material and contract costs may result in reduced quantity of work if budgets remain unchanged.

WATER SUPPLY AND DISTRIBUTION

The City operates and manages a water supply and distribution system for consumption and fire protection to the residents and businesses of Nanaimo, South West Extension, Snuneymuxw First Nation and the District of Lantzville. This infrastructure includes dams, reservoirs, pump stations, pressure reducing stations, supply mains, distribution mains, services and water meters. The City's drinking water supply originates from the protected South Nanaimo River Watershed, consisting of over 209 square kilometers of privately managed forest land. The City owns and operates two dams within the watershed to ensure consistency of supply throughout the year and release of water to maintain the environmental health of the river. Two parallel pipelines run from the South Fork dam in the watershed to the South Fork Water Treatment Plant. The South Fork Water Treatment Plant filters and conditions the water to a quality exceeding Canadian Drinking Water Guidelines. Following treatment, drinking water is distributed through approximately 30 km of transmission mains to 9 balancing reservoirs with a combined storage of 59 million liters. Water is then conveyed to customers, primarily by gravity, through approximately 600 km of supply and distribution piping.

Characteristics of the system include:

- 2 Water Supply Dams
- 660 km of distribution watermain (as of Jul 2024)
- 93 km of transmission watermain
- 8 reservoirs (storage tanks)
- 3,400 Fire Hydrants (as of Jul 2024)
- 12,000 valves
- Jump Lake Dam Reservoir
- South Fork Dam Intake
- South Fork Water Treatment Plant
- 6 pump stations

- 27,611 service connections
- Energy Recovery Facility
- 13.7 billion litres of treated water supplied per year
- 2 Water Filling Stations
- 1 Emergency Pump Station

Level of Service:

- Operate and maintain water storage and distribution infrastructure including main flushing, water testing, air valve & valve maintenance and inspection in compliance with the Drinking Water Protection Regulation.
- Complete dam inspections and reporting for 10 dams (2 for potable water and 8 for recreation/conservation), in accordance with the British Columbia Dam Safety Regulations and Canadian Dam Association Guidelines.
- Operate telemetry system to monitor water system 24/7 in real time.
- Operation of a membrane water filtration plant to supply the entire City and neighbouring communities, max capacity 116 million litres per day.

- Rigorous raw and treated water sampling and testing program.
  - 49 raw water tests in the watershed,
  - 1,379 treated water tests at the WTP,
  - 99 treated water tests at in town reservoirs, and
  - 1,200 treated water tests throughout the water distribution system,
- Provide water for fire suppression.
- Watermain Breaks – Provide 24/7 response by certified water operators.
- Current Water Audit revealed a very low level of real losses of 1,139 million litres, corresponding to an Infrastructure Leakage Index (ILI) of 1.13, (the lowest level of losses that can be achieved).
- 500 Hydrants flushed during annual flushing program.

2024 Accomplishments

- Completed Phase 1 of the Midtown Water Supply with the installation of the primary water supply main. Continued installation of Phase 2 involving a redundant supply main including a new dedicated service to the Nanaimo reginal General Hospital. Continued engaging residents and businesses of the construction activities and road closures. Established a value design working group with the engineer, owner and contractor resulting in over $5 million in cost savings.
- Installation a new emergency backup generator at the College Drive Pump Station.
- Completed design of a new siphon power generation facility at Jump Lake Reservoir.
- Updated Water System Emergency Plan to including drought and climate change initiatives.
- Updated Water Supply and Recreational Dam Emergency Plans.
- Continued water conservation demand management measures. The average daily consumption of water for all users in Nanaimo during 2023, was approximately 344 liters per person per day. The average daily consumption of water for residential users in 2023, was approximately 190 liters per person per day.
- Completed first phase of the hydraulic analysis and dam safety review assessment for Middle Chase River Dam.
- Completed the electrical service upgrades at the South Fork Water Treatment Plant and procured contract for the supply and installation of two load sharing redundant emergency back-up generators.
- South Fork Water Treatment Plant - completed new separate primary power supply for the critical remote communications and electrical control systems, providing greater resilience to inclement weather.
- Continued implementation of the Cross Connection Control (CCC) Bylaw program which improves the level of protection to the water supply system and reduces the risk of contamination. Over 1,200 registered accounts are currently active and administered through the Cross Connection Control Program.
- Provided 24/7 emergency response for watermain breaks and all water supply and distribution emergencies by certified water operators.
- Revenue from the sale of electricity to BC Hydro Reservoir No. 1 Energy Recovery Facility for 2023 was $ 89,424.
- Continued with the four year membrane age study with University of British Columbia for the South Fork Water Treatment Plant.
- Completed the 2024 Formal Annual Dam Safety inspections.
- Continued valve maintenance on supply and distribution systems.
- Completed the 2024 flushing program, maintaining high quality of potable water.
- Continued with communication and security upgrades at the Jump Creek and South Fork Reservoirs.
- Implemented the Water Supply Strategy recommendations, goals and objectives as part of the City Plan. This will develop further understanding of climate change impacts to drinking water supply and resilient infrastructure upgrades needed to support the future population of the region.

2025 Opportunities

- Update and development of an Operations and Maintenance Manual for Water Supply.
- Completion of Formal Dam Safety Reviews for all water supply and recreational dams.
- Continue the Water Supply Cathodic Protection review and installation of 4 cathodic protection sites to extend the life of steel water supply mains.
- Review timing of the Towers Reservoir project currently deferred in the Financial Plan.
- Aging Watermain Infrastructure – The City has a mixture of pipes and other components ranging from very new, to very old, that form the Water Distribution System. Infrastructure such as pipes, have a limited lifespan and eventually require renewal to remain reliable. Approximately 6% of the infrastructure, with a value of about $60 million, is near the end of the typical useful life and requires heightened monitoring and eventual replacement.
- Watermain Breaks – The most breaks are on pipes made from Asbestos Cement that were installed in the 1960's and 1970's. Typically, the City experiences several breaks a year on this type of pipe. Significant progress made replacing AC watermain older than 40 years with pressure of 80 psi or higher, whenever repaving, and if adjacent to a capital project.
- Individual service connection piping to each property has reached the end of its lifespan and causing water leaks throughout the City; while not major, these create nuisance and expense for property owners and the City.
- WorkSafe BC regulation changes such as asbestos pipe and confined spaces enhance the safety of workers; however, they often have an impact on efficiency and increase costs.
- The growth in population and corresponding increase in infrastructure, such as more pipes, valves, pump stations, reservoirs, etc., requires additional staff resources and operational funding. Over the past 10 years, the City has seen population growth of about 23% without a corresponding increase in staffing. Over this 10 year time period, an additional $6 million in water distribution infrastructure has been added to the City through transfer from development. A business case has been put forward for an additional water operator.

SANITARY SEWER

The City provides and maintains a safe and healthy sanitary sewer collection system for residential, multi-family, commercial and industrial properties. The City works closely with the RDN who operate the Greater Nanaimo Pollution Control Centre, treating sewage to a secondary level before discharge to the ocean.

Characteristics of the system include:

- 597 km of gravity sewer mains and 31 km of forcemains (pressure pipes from pump stations).
- 26,727 lateral sewer service lines totalling 287 km to individual properties.
- 9,099 manholes and 15 pump stations.
- 4 low-pressure sewer systems in specific neighborhoods.
- 13 flow monitor stations.
- 3 chemical injection sites to control fat build-up or odours.

Level of Service:

- Ongoing maintenance and upgrades of sewer services to properties in the city.
- Conduct routine sewer main flushing of certain pipes. There are pipes on 3, 6 and 12 month flushing programs to ensure they remain operational.
- Ongoing maintenance and cleaning of sewer pump stations.
- Provide 24/7 emergency response for all sewer related emergencies by certified wastewater operators.
- Video inspections of sewers to monitor and evaluate physical condition.
- Maintain annual Pipe Condition Assessment program.
- Conduct inflow and infiltration monitoring and remediation program.

2024 Accomplishments

- Maintain yearly sewer flow and rainfall monitoring program for city wide sewer model calibration.
- Continued implementation of Cartegraph Asset Management Software for sewer.
- Video inspection and condition assessment of 9.0 km of sewer pipe completed by City forces and contractor to date.
- Manhole inspections for public safety and infiltration and inflow issues.
- Infiltration and inflow maintenance in easements and rights-of-ways.
- Responded to and completed 2802 Cartegraph tasks to date (Jul 19, 2024).
- 27 service repairs/ upgrades as of Jul 19, 2024.
- 48 kms flushed (Jul 19, 2024).
- Cleared 12 plugged services, 3 plugged mains.
- Upgrade remote data acquisition and recording of pump station maintenance information.
- Conducted condition assessment of Sanitary pump stations to prioritize upgrades of stations.
- Fielding Road Step system partial upgrade.

2025 Opportunities

- The City has a mixture of pipes, manholes and other components ranging from very new to very old that form the sewer system. Infrastructure, such as pipes, have a limited lifespan and eventually require renewal to remain reliable. Approximately 4% of the sewer infrastructure, with a value of about $25 million, is near the end of the typical useful life and requires heightened monitoring and near term replacement.
- Continued reduction of infiltration and inflows into sanitary sewer system, reducing the costs of treatment, through manhole grouting and smoke testing of the sewer system.
- Pipes in poor condition introduce unnecessary flow from rainfall and groundwater infiltration in the system causing system capacity reduction and treatment issues.
- Some of the major trunk sewers have greater volume than the Provincial requirements allow and monitoring stations have been installed to better understand the risks. Revenue from user fees and development cost charges are not keeping up with the need to expand sewers, creating financial pinch points.
- Climate change impacts capacity and inflow and infiltration. With increasing storm intensity and rainfall events, the peak flows the system is required to handle increase.
- Continue to work closely with RDN on source control issues and monitoring.
- Population growth and corresponding increase in infrastructure will need staff resources and operational funding. Over the past 10 years, the City has seen population growth of about 15% without a corresponding increase in staffing. Additional pipes require flushing, inspection and maintenance. As growth continues, without additional funding and staff, the condition and reliability of the sanitary sewer system infrastructure will decline. Over this 10 year time period, an additional $5.5 million in sanitary sewer infrastructure has been added to the City through transfer from development. A business case has been put forward for an additional sewer operator.

DRAINAGE (RAINWATER)

Drainage infrastructure, such as pipes, ditches, culverts, catchbasins, and detention ponds conveys rainwater to natural water bodies. The overall goals are to convey water away from roads, properties and buildings in a safe and sustainable way, while mitigating adverse impacts on natural watercourses, and contribute to the health of natural areas.

Characteristics of the system include:

- 600 km of storm drainage mains.
- 558 km of ditches.
- 16,482 storm lateral services totalling 158 km.
- 7457 manholes.
- 13,886 catch basins.
- 42 detention or pond facilities.

Level of Service:

- Catch basins (Road and Boulevard) are cleaned annually to prevent harmful sediments entering waterways and ensure environmental sustainability.
- Inlets and outlets are inspected regularly before and during major rainfall events to ensure storm drainage working correctly, mitigating flooding.
- Monitoring and maintenance of natural watercourse to ensure flow of water and to prevent flooding.
- Ongoing monitoring of the North Slope erosion area during King tides and major rainfall.
- Flushing and video inspection of storm pipe and culvert infrastructure.
- Annual vegetation control maintenance around storm infrastructure such as inlets, outlets, and detention ponds to ensure free flow and access.
- Inspections of storm water infrastructure in new subdivisions.
- Water Quality Control program sampling for City of Nanaimo swimming beach areas to ensure safe recreational swimming and published on City of Nanaimo website to ensure public access.

2024 Accomplishments

- Video inspection and condition assessment of 4.2 km of drainage pipe to date.
- Maintain yearly storm drainage monitoring program for 2 flow stations and 9 level stations.
- Continued implementation of Cartegraph Asset Management Software for drainage.
- 8,976 catch basins cleaned to prevent sediment and heavy metal contaminants from entering storm system, as of Jul 19, 2024.
- Coordination of Road Rehab and Traffic Calming programs to improve and safety.
- Cleaned and rehabilitated portion of Cottle Creek in conjunction with DFO.
- Scheduled cleaning of Departure Creek silt ponds on Aug 21,2024.
- Completed City wide storm drain infrastructure inventory for SD model.
- Replaced & upgraded 254 m of failed corrugated steel pipe and responded to 2057 Cartegraph tasks to date.
- Installed 3 new SD services, upgraded 11 existing services.
- Conducted seasonal water sampling program for fecal coliform on local area beaches. May- Sept.
- Installed Stormceptor at bottom of PW Yard to prevent pollution of Northfield Ck.
- Initiated contract with Generating Resources for Tomorrow (GRT) for environmentally friendly disposal of catch basin waste, street sweeping waste and hydro vac waste.

2025 Opportunities

- Climate change has increased the intensity and strength of storm events. Drainage infrastructure may not be able to handle events especially the short duration, high intensity events. Increased flooding of low-lying areas and properties may result due to more frequent storm events.
- Purchase of certain low-lying properties prone to flooding as they become available on the market.
- Sea level rise is expected to restrict the amount of storm water runoff and increase erosion on shorelines.
- Staff turnover due to retirement decreases historic knowledge, increasing the importance of training and asset management systems.
- Managing growth of storm infrastructure with competing priorities for General Revenue funding and staffing needs.
- Increased focus on Cottle Creek, Departure Creek and Wexford Creek for sediment removal to prevent flooding of properties during heavy winter and spring flows.
- The City will need to upgrade funding model to budget for an aging drainage infrastructure, and consider the benefits of a storm water utility.
- There are increasing amounts of private drainage infrastructure that play an important environmental role in both quantity and quality of storm water. These systems require maintenance to prevent contamination and continued operation. Education and messaging to property owners will be important as these systems age and need attention.

FLEET

The Fleet Section provides support, oversight and maintenance of the City's transportation and mobile equipment inventory. The group includes 15 permanent staff and a manager.

Characteristics of the system include:

- Maintains over 160 light, medium, and heavy-duty vehicles including 4 electric ice resurfacers, 19 electric vehicles, and 13 tractors/backhoes/loaders/ excavators.
- Maintains over 450 pieces of equipment including generators, mowers, compressors, trailers, attachments, etc.
- Generates over 3,000 work orders per year for vehicle maintenance and repair.
- Maintenance facility includes 6 service bays, 1 welding bay, and 1 small equipment shop.

Level of Service:

- Operates several fleet maintenance shifts from 6:00 am - 8:00 pm to ensure adequate coverage and avoid equipment downtime.
- Maintains a government certified Designated Inspection Facility Licence. Preventative maintenance work and commercial vehicle inspections are completed to government standards and timelines. Annual audits from Commercial Vehicle Safety and Enforcement are conducted for compliance.
- Maintains fuel management system and provides monthly fuel consumption statistics for all departments.
- Works with ICBC and service providers to maintain insurance on the fleet.
- Provides oversight and advisory services for purchases or new additions to the fleet.
- Procures and deploys 15 - 25 new vehicles and pieces of equipment per year.

2024 Accomplishments

- Continued to implement City's Green Fleet Strategy in order to reduce Green House Gas (GHG) emissions and fuel consumption.
- Continued active participation in province-wide fleet management group.
- Generated over 3,500 work orders for vehicle maintenance and repair.
- Completed over 60 commercial vehicle inspections.
- Deployed two Ford F-150 Lightning trucks and three Ford E-Transit vans; which are the City's first fully electric light-duty trucks and vans.
- Employed a Fleet Sustainability Coordinator position that aligns with the City's Green Fleet Strategy and will enhance driver training, route planning, and reduce GHG emissions.
- Implementing fleet management system upgrade that integrates with the City's Corporate Asset Management System.
- Completed a Fleet EV Ready Study, which is roadmap for future vehicle electrification and GHG emission reduction strategies. The study also includes future infrastructure and facility upgrade requirements.

2025 Opportunities

- The Fleet Services facility is not adequately meeting the needs of the diverse fleet that the City maintains. A number of units within the City's fleet are unable to be serviced inside the facility due to the length of the units being greater than the building. In order to meet the growing needs of the community, and to continue to provide a high-level of maintenance to the City's fleet and small equipment, further advancement of a new fleet facility is required.
- As the City continues to grow, the size and complexity of the City's fleet and equipment is also increasing. Staffing levels and operational funding will need to increase to accommodate this growth.
- As advancement in green technologies continue, fleet services continues to pursue the corporate Green Fleet Strategy by exploring alternative fuel solutions in order to reduce GHG emissions and decrease fuel consumption. Electric vehicles are becoming more accessible; however, they are still not prevalent in the medium and heavy duty vehicle class.
- Conduct a fleet utilization study to guide the informed decision-making process on fleet retention and procurement.
- Continue to build strong relationships with other municipalities and local governments. The sharing of technical specifications and procurement solutions is highly beneficial amongst agencies.

2025 KEY INITIATIVES

Strategic Priority: Implementing City Plan

IAP Priority Action #6 City Fleet Electrification – Continue to implement City fleet electrification study.

IAP Priority Action #14 Chase River Hydrology Study - Develop and update a hydrology model for the Chase River watershed to account for extreme weather events and climate change and determine flood flows. Use results to complete floodplain modeling for Chase River.

IAP Priority Action #15 Departure Creek Enhancement – Continue to work with the Pacific Salmon Foundation, Departure Creek Streamkeepers, and Snuneymuxw First Nation partners to enhance the Departure Creek intake and side channel project with riparian restoration and consider creating wetland habitat and flood management at Departure Bay Centennial Park on Departure Creek.

IAP Priority Action #20 - Water Supply Strategy – Implement Water Supply Strategy which applies current climate science to estimate water supply storage and distribution infrastructure required to meet future growth and build resilience.

IAP Priority Action #21 Drinking Water and Watershed Protection Plan - Continue to support the Regional District of Nanaimo's Drinking Water and Watershed Protection Technical Advisory Committee.

IAP Priority Action #22 Water Conservation - Continue the City's Water Saving Rebate Programs to reduce water consumption.

IAP Priority Action #23 Sewer Inflow and Infiltration – Continue to work with the Regional District of Nanaimo towards reducing infiltration and inflow from the City's sewer system in support of the Regional District of Nanaimo's Liquid Waste Management Plan.

IAP Priority Action #27 Stormwater Utility - Investigate and pursue a stormwater utility to support viability and resilience of the City's grey and green stormwater system.

IAP Priority Action #28 Midtown Water Supply - Complete the Mid-Town Water Supply upgrade to provide redundancy and resilience in the water supply. Phase 1 | Pryde Avenue to Labieux Road. Phase 2 | College Drive to Pryde Avenue. Phase 3 | Labieux Rd to Vanderneuk Road.

IAP Priority Action #29 Vanderneuk Water Reservoir – Construct a new reservoir at Vanderneuk to support future growth and resilience.

IAP Priority Action #30 Solid Waste Governance – Develop and implement a construction recycling, deconstruction, and demolition bylaw. The bylaw will include measures to reduce the amount of waste that goes to landfill from construction and demolition activities and promote re-use of construction materials in Nanaimo.

IAP Priority Action #31 Zero Waste - Develop public events program as part of a waste reduction effort and experiential community education program.

IAP Priority Action #33 Zero Waste – Continue with Zero Waste education campaigns such as Waste Reduction Week, Single Use Item Reduction, and Green Giving.

IAP Priority Action #34 Zero Waste – Continue expanded City services such as Reuse Rendezvous and Trunk Sale to promote Zero Waste.

IAP Priority Action #49 Midtown Connector – Beban Park Link – in collaboration with the Mid-Town Water Supply infrastructure upgrades which includes a trail connection between the E&N Trail and Parkway Trail, complete an urban hard surface trail connection through Beban Park in accordance with the Beban Park Master Plan.

IAP Priority Action #112 – Explore partnering opportunities in areas related to skill development and training with Snuneymuxw First Nation.

IAP Priority Action #21 Chase River Hydrology Study - Continue to support the Regional District of Nanaimo's Drinking Water and Watershed Protection Technical Advisory Committee.

IAP Priority Action #20 - Implement the Water Supply Strategy which applies current climate science to estimate water supply storage and distribution infrastructure required to meet future growth and build resilience.

Strategic Priority: Social, Health and Public Safety Challenges
Continue to support CSO and Bylaw and provide public space cleaning with Clean Team 7 days a week.
Continue to implement and install new public waste receptacles to provide public space recycling in targeted locations
Strategic Priority: Maintaining and Growing Current Services
Complete update to Asphalt Maintenance Plan, incorporating Level of Service study and latest condition assessment data
Assess and implement maintenance requirements for Complete Streets Standards
Continue the curbside collection program for single family dwellings and eligible multi-family dwellings (duplexes, triplexes, and fourplexes), conduct collection analysis and perform optimization.
Strategic Priority: Capital Projects
Coordinate asphalt rehabilitation and patching with capital projects to optimize necessary expenditures
Continue to implement our new Corporate Asset Management Systems (CAMS)
Strategic Priority: Communicating with the Community
Provide operations and maintenance project update information to homeowners, businesses and the traveling public.
Upgrade to a new refuse collector trucks onboard computer system, and continue use of ReCollect App, Waste Wizard, and other communication channels.
Continue Zero Waste education campaigns such as waste reduction week, public events educational booth, recycling contamination reduction campaign and Single-Use item reduction.
Strategic Priority: Governance and Corporate Excellence
Implement Council Policies for Winter Maintenance, Pothole Repairs and Sidewalk Repairs
Develop Green Event policy to ensure waste created in public events are [properly diverted, recovered, and disposed of.

PROPOSED OPERATING BUDGETS

Public Works

	2024 Approved Budget	2025 Draft Budget	2026 Draft Budget	2027 Draft Budget	2028 Draft Budget	2029 Draft Budget
Revenues						
Cemetery Operations	$ 87,000	$ 87,000	$ 87,870	$ 88,750	$ 89,637	$ 90,534
Drainage	14,585	7,985	4,701	1,418	1,434	1,452
Fleet Operations	-	-	-	-	-	-
Public Works Support Services	1,230,000	1,230,000	1,255,375	1,280,382	1,305,175	1,331,901
Solid Waste Management	8,444,613	9,021,083	9,216,243	9,134,971	9,239,300	8,998,251
Transportation	79,477	57,022	60,628	64,268	67,946	70,663
Annual Operating Revenues	$ 9,855,675	$ 10,403,090	$ 10,624,817	$ 10,569,789	$ 10,703,492	$ 10,492,801
Expenditures						
Cemetery Operations	$ 287,310	$ 311,257	$ 309,611	$ 315,800	$ 321,847	$ 328,556
Drainage	2,491,320	2,614,275	2,662,233	2,704,213	2,752,476	2,813,584
Fleet Operations	3,694,734	3,947,502	4,035,221	4,116,941	4,194,884	4,285,644
Public Works Support Services	2,753,475	2,808,938	2,872,227	2,930,809	2,987,105	3,052,039
Solid Waste Management	8,599,198	9,178,826	9,044,124	8,969,128	9,041,550	8,896,524
Transportation	7,437,424	7,721,096	7,906,004	8,079,486	8,370,769	8,704,803
Annual Operating Expenditures	$ 25,263,461	$ 26,581,894	$ 26,829,420	$ 27,116,377	$ 27,668,631	$ 28,081,150
Net Annual Operating Expenditures	**$ 15,407,786**	**$ 16,178,804**	**$ 16,204,603**	**$ 16,546,588**	**$ 16,965,139**	**$ 17,588,349**
Staffing (FTEs) - Budgeted	**76.2**	**76.2**	**76.2**	**76.2**	**76.2**	**76.2**

Sanitary Sewer

	2024 Approved Budget	2025 Draft Budget	2026 Draft Budget	2027 Draft Budget	2028 Draft Budget	2029 Draft Budget
Revenues						
Sanitary Sewer	$ 9,829,022	$ 10,308,953	$ 10,821,845	$ 11,252,681	$ 11,700,750	$ 12,166,740
Annual Operating Revenues	$ 9,829,022	$ 10,308,953	$ 10,821,845	$ 11,252,681	$ 11,700,750	$ 12,166,740
Expenditures						
Sanitary Sewer	$ 4,347,498	$ 4,631,951	$ 4,765,414	$ 4,841,332	$ 4,920,309	$ 5,011,425
Annual Operating Expenditures	$ 4,347,498	$ 4,631,951	$ 4,765,414	$ 4,841,332	$ 4,920,309	$ 5,011,425
Net Annual Operating Revenues	**$ 5,481,524**	**$ 5,677,002**	**$ 6,056,431**	**$ 6,411,349**	**$ 6,780,441**	**$ 7,155,315**
Staffing (FTEs) - Budgeted	**10.8**	**10.8**	**10.8**	**10.8**	**10.8**	**10.8**

Waterworks

	2024 Approved Budget	2025 Draft Budget	2026 Draft Budget	2027 Draft Budget	2028 Draft Budget	2029 Draft Budget
Revenues						
Water	$ 26,993,552	$ 28,323,217	$ 29,756,848	$ 30,969,296	$ 31,926,098	$ 32,911,798
Annual Operating Revenues	$ 26,993,552	$ 28,323,217	$ 29,756,848	$ 30,969,296	$ 31,926,098	$ 32,911,798
Expenditures						
Water	$ 14,032,051	$ 14,757,036	$ 15,087,865	$ 15,396,866	$ 15,688,115	$ 16,019,590
Annual Operating Expenditures	$ 14,032,051	$ 14,757,036	$ 15,087,865	$ 15,396,866	$ 15,688,115	$ 16,019,590
Net Annual Operating Revenues	**$ 12,961,501**	**$ 13,566,181**	**$ 14,668,983**	**$ 15,572,430**	**$ 16,237,983**	**$ 16,892,208**
Staffing (FTEs) - Budgeted	**32.5**	**32.5**	**32.5**	**32.5**	**32.5**	**32.5**