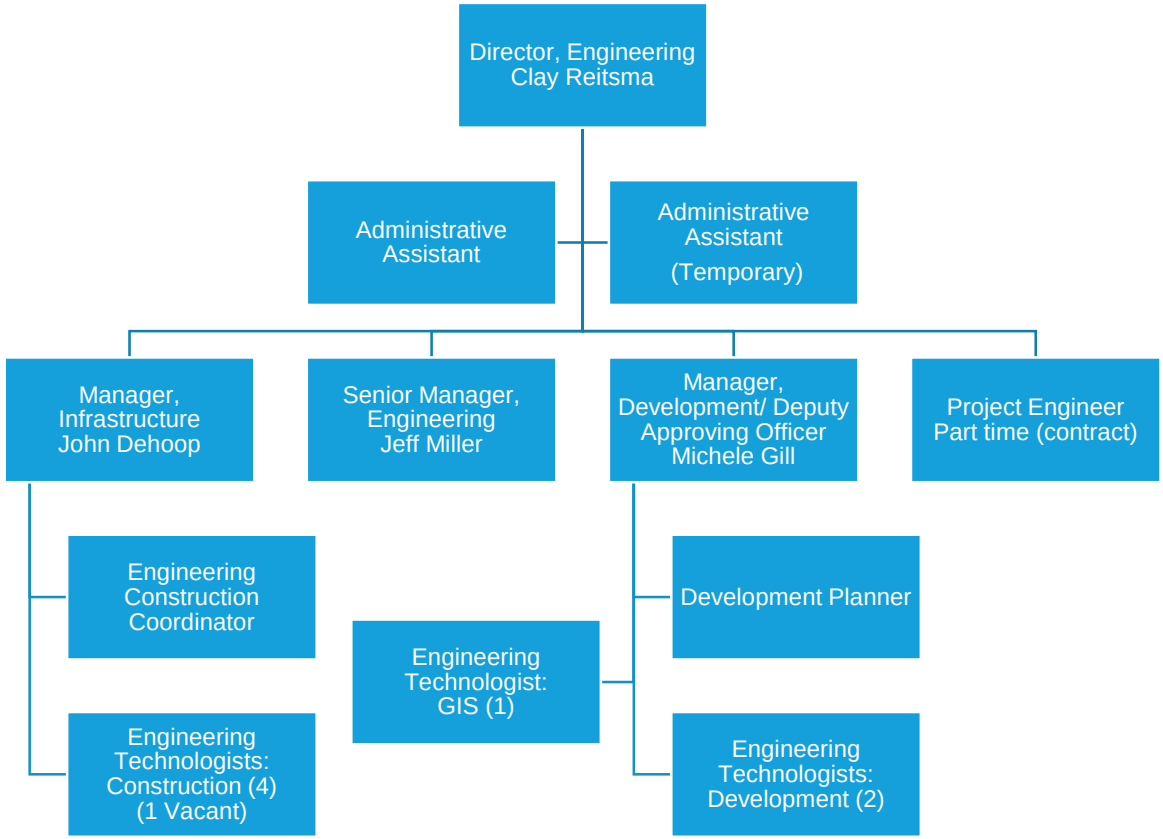
MUNICIPALITY OF NORTH Cowichan

ENGINEERING DEPARTMENT 2023 BUSINESS PLAN

Committee of the Whole

MUNICIPALITY OF NORTH Cowichan

ORGANIZATIONAL STRUCTURE



STAFFING LEVELS

16

Total positions
as of
September 6, 2022

14 Permanent Full Time (1 Vacant)

1 Contractor

1 Temporary

(Exempt 4; CUPE 11; Contract 1)

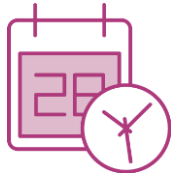
DEPARTMENT FOCUS

The Engineering Department is primarily responsible for:

- providing technical expertise to other departments with respect to municipal services and projects;
- reviewing and approving development projects;
- designing and overseeing construction of capital projects;
- implementing the asset management plan; and
- providing technical expertise in the creation and management of Council's approved 5 year Capital plan.

CORE BUSINESS

The Engineering Department is responsible for four key services:



ASSET MANAGEMENT

CAPITAL PROJECTS

DEVELOPMENT ENGINEERING

PERMITTING

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ASSET MANAGEMENT

- The Engineering Department is responsible for the following assets under the Municipality's Asset Management plan:
  - Drinking water treatment and distribution assets.
  - Wastewater collection and treatment assets.
  - Stormwater conveyance and treatment assets.
  - Roads and active transportation assets.
  - Natural assets (with assistance from Environment Group).
- Key asset management responsibilities:
  - Implementing systems to monitor asset condition.
  - Planning for replacement of assets (for lack of capacity or end of useful life).
  - Replacement of assets prior to end of useful life.
  - Preparing Requests for Proposals (RFPs) and tender packages and evaluating responses to RFP calls and tenders.

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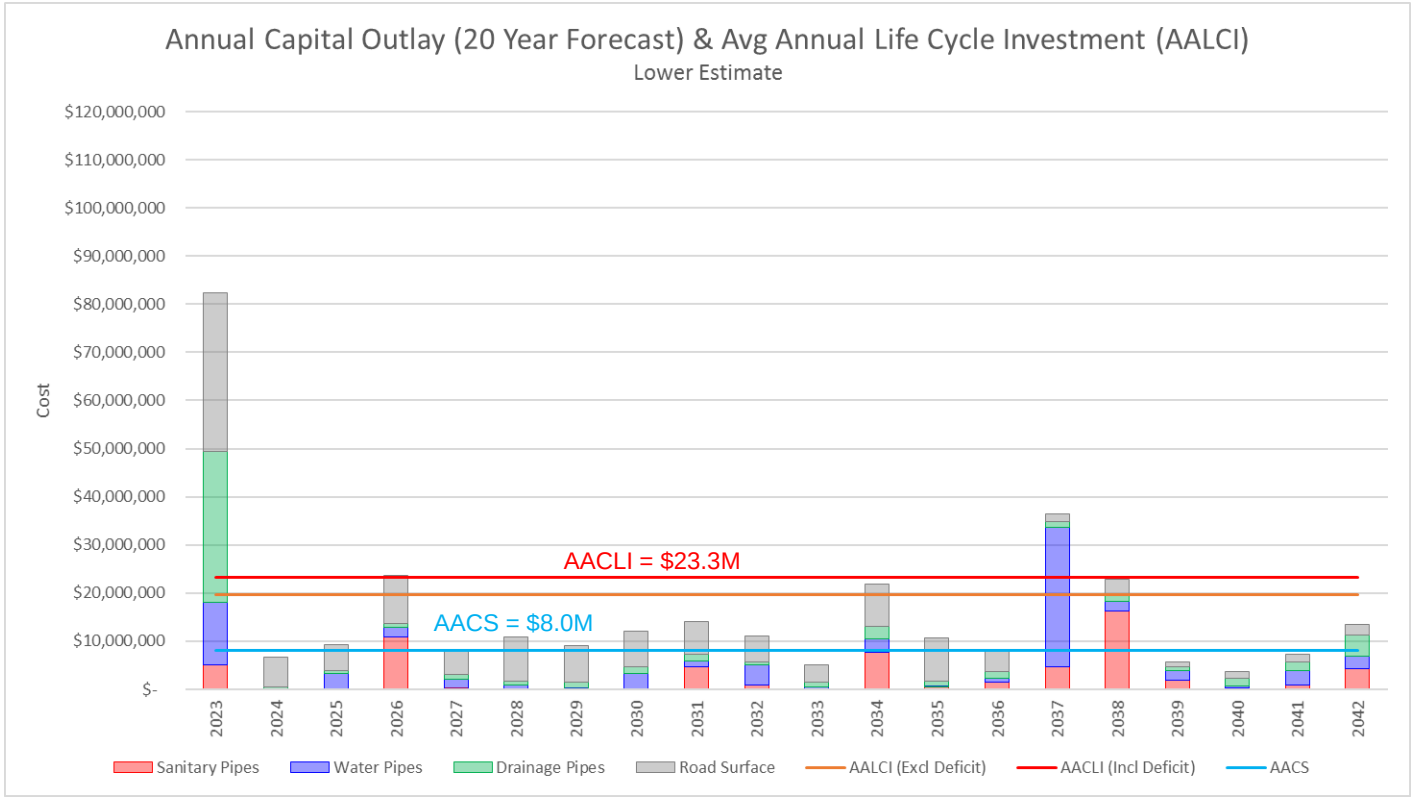
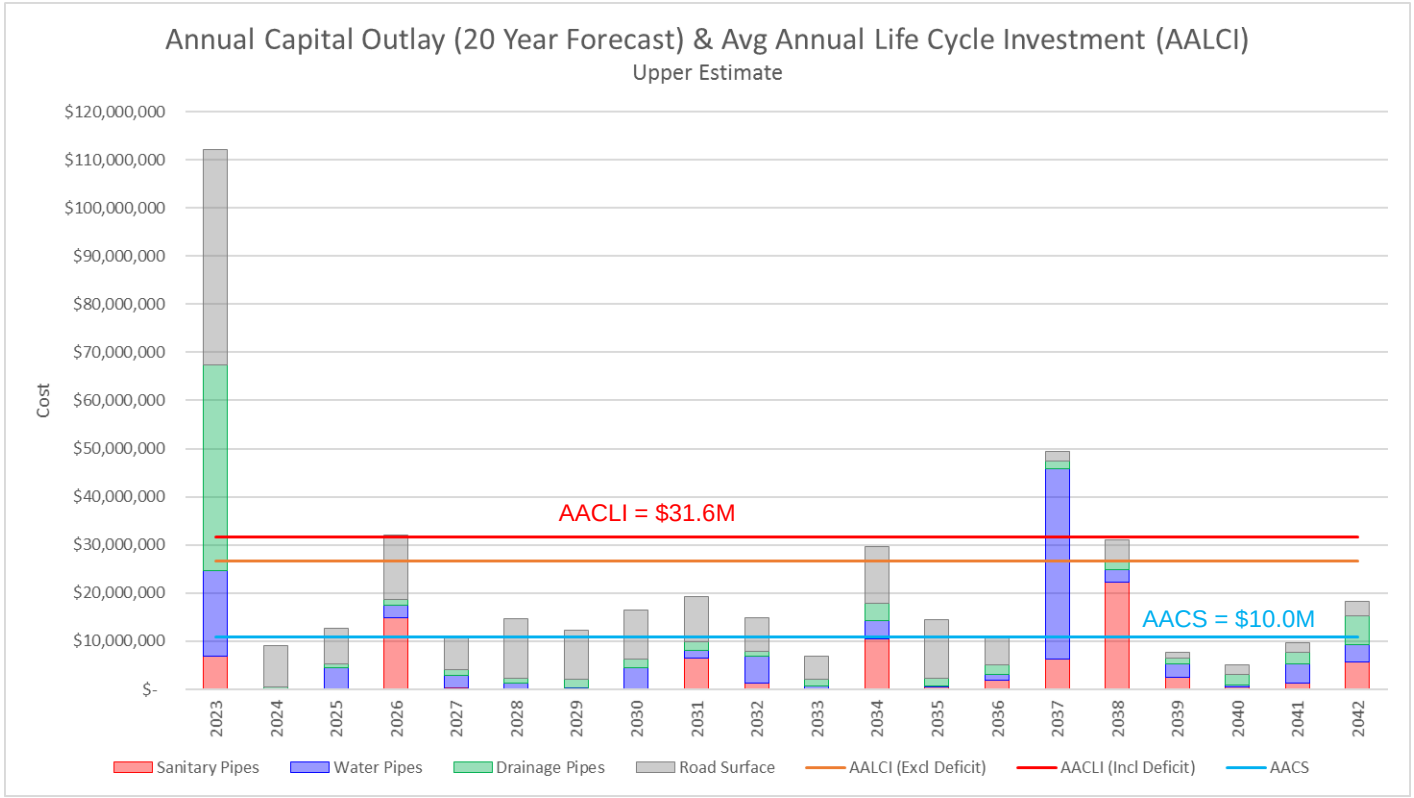
MUNICIPALITY OF NORTH Cowichan

ASSET MANAGEMENT



ASSET MANAGEMENT

MUNICIPALITY OF NORTH Cowichan



ASSET MANAGEMENT: DRINKING WATER

Assets: Approximately **240 km** of pipes valued at **$208M**, 5 dams, 7 pump stations, 16 reservoirs, and 10,000 connections.

SOUTH END	CROFTON	CHEMAINUS
-Groundwater source (Cowichan Aquifer) -162 km of pipes -4 pump stations -12 reservoirs -Backup water can be supplied via South End water system via City of Duncan water system.	-Surface water source (Cowichan River) via Paper Excellence pulp mill -27 km of pipes -2 pump stations -3 reservoirs -2 dams (@ Crofton Lake) -Backup water can be supplied from South End water system.	-Surface water source (Holyoak Lake) and ground water source (Chemainus Aquifer) -54 km of pipes -1 pump station -2 reservoirs -3 dams (2 @ Holyoak, 1 @ Banon Reservoir)

- City of Duncan supplies water to a few areas surrounding the City limits within the Municipality.
- Private water systems have been discouraged with the exception of bare land stratas and 25 homes in Genoa Bay (circa 1967).

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ASSET MANAGEMENT: DRINKING WATER

Management of drinking water supply, including treatment, reservoirs, distribution system

KEY SERVICES

- Ensure compliance with Island Health requirements for drinking water (Chemainus, Crofton, South End). Oversight of compliance reporting to the Province (9 reports per year).
- Future planning of water supply and distribution infrastructure.
- Define and manage capital projects for replacement of existing infrastructure and construction of new infrastructure.
- Manage Local Area Service requests for water services from the public.
- Engineering technical assistance to Operations.
- Assist with emergency response.
- Working with First Nations and other local governments.

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ASSET MANAGEMENT: STORM WATER

Management of storm water and flood protection

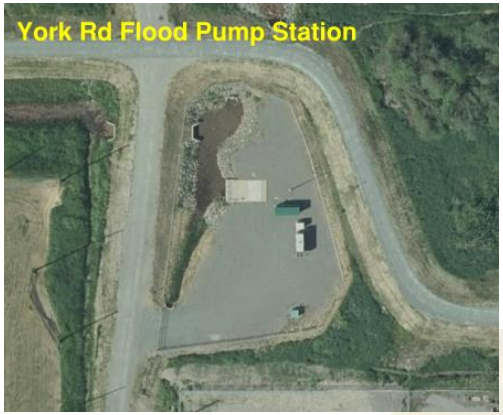
ASSETS

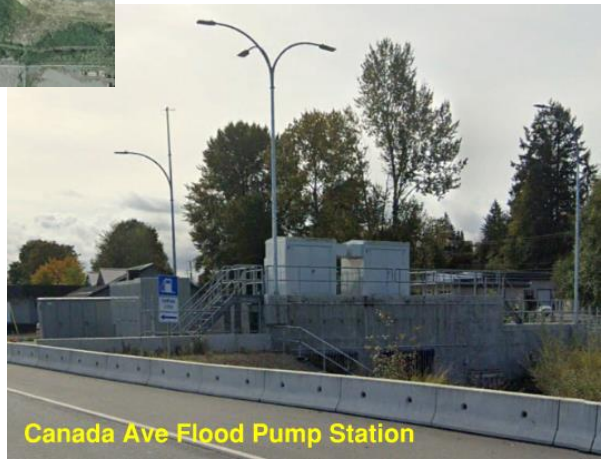
- 160km of pipes valued at $213M
- 16 managed wet lands
- 5 flood pump stations
- 4 km of dykes

KEY SERVICES

- Future planning of stormwater and flood protection infrastructure
- Define and manage capital projects for replacement of existing infrastructure and new infrastructure
- Engineering technical assistance to Operations
- Assist with emergency response
- Working with First Nations and other local governments

ASSET MANAGEMENT: STORM WATER





ASSET MANAGEMENT: WASTEWATER

Assets: Approximately **150 km** of pipes valued at **$188M**, 14 pump stations, 4 treatment plants.

SOUTH END	CROFTON	CHEMAINUS	MAPLE BAY
- JUB WWTP (aerated lagoon with tertiary add-on) - 103 km of pipes - 13 pump stations - Co-owned with Duncan - Serves DNC, Duncan, CVRD and Cowichan Tribes - Freshwater discharge to Cowichan River	- Crofton WWTP (secondary treatment, aerobic digestion) - 18 km of pipes - 4 pump stations - Serves DNC, Penelakut First Nation (Halalt First Nation pending) - Marine discharge to Osborne Bay	- Chemainus WWTP (secondary treatment, aerobic digestion, biosolids dewatering) - 29 km of pipes - 7 pump stations - Marine discharge to Stuart Channel	- Maple Bay WWTP (secondary treatment, membrane filtration) - 1 km of pipes (privately owned) - Marine discharge to Maple Bay

ASSET MANAGEMENT: WASTEWATER

Management of wastewater systems including, collection, treatment and capital upgrades

KEY SERVICES

- Ensure compliance with Provincial and Federal requirements for sewage effluent (Chemainus STP, Crofton STP, JUB STP, Maple Bay STP). Oversight of compliance reporting to the Province and Canada (28 reports per year).
- Future planning of wastewater collection and treatment infrastructure.
- Define and manage capital projects for replacement of existing infrastructure and construction of new infrastructure.
- Manage Local Area Service requests for wastewater services from the public.
- Engineering technical assistance to Operations.
- Assist with emergency response.
- Working with First Nations and other local governments.

MUNICIPALITY OF NORTH Cowichan

ASSET MANAGEMENT: WASTEWATER

ASSET MANAGEMENT: ROADS

KEY FACTS:

- Approximately **280 kilometres** of paved roads valued at **$220M**
- Bare land stratas own and maintain private roads themselves
- Approximately $3.0M per year is budgeted for renewals, replacement and improvements

7 bridges across rivers and streams:

- Lakes Road
- Herd Road
- Chemainus Road
- Canada Avenue (2 bridges nearing end of useful life)
- Gibbins Road
- Westholme Road

3 footbridges:

- Somenos Creek
- Chemainus Lake
- Kingston Park

4 large diameter culverts:

- Richards Trail
- Mary Street
- Drinkwater Road
- Menzies Road

MoTI roadways within the Municipality include:

- Crofton Road
- Tzouhalem Road
- Mount Sicker Road (Chemainus road east of Trans Canada Highway)

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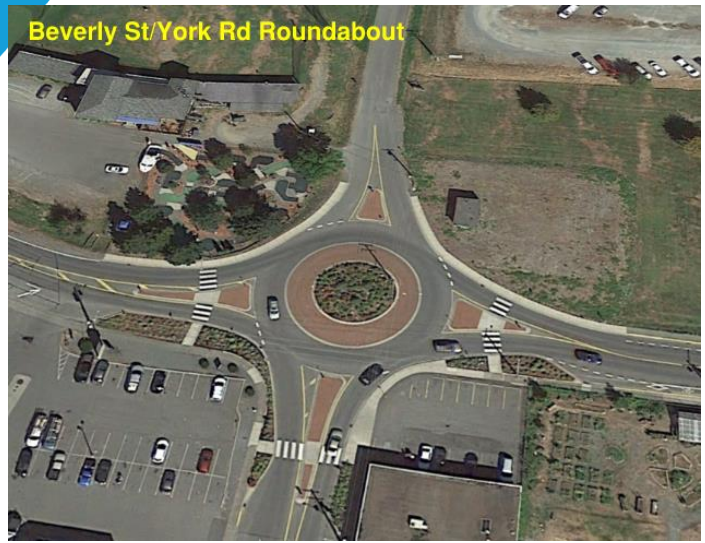
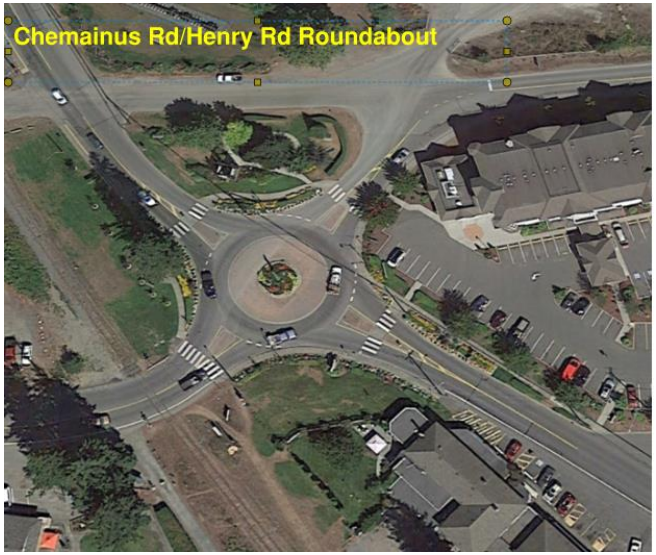
ASSET MANAGEMENT: ROADS

KEY SERVICES:

- Future planning of transportation and active transportation infrastructure.
- Define and manage capital projects for replacement of existing infrastructure and construction of new infrastructure.
- Manage traffic-related requests for service (traffic calming, signs, crosswalks, etc.) from the public.
- Engineering technical assistance to Operations.
- Assist with emergency response.
- Working with First Nations and other local governments and the Province.

ASSET MANAGEMENT: ROADS





DEVELOPMENT ENGINEERING

Supports the development of land as it relates to subdivision, municipal infrastructure and services

KEY SERVICES

- Process subdivision applications.
- Respond to subdivision inquiries.
- Review and prepare internal reports regarding servicing for the Planning Department related to:
  - Rezoning Applications;
  - Development Permits;
  - Development Variance Permits; and,
  - Building Permits.
- Construction approval and inspection of municipal infrastructure constructed by developers (water, sanitary sewer, drainage, roads).
- Processes applications for municipal services.
- Official Community Plan advisory services.

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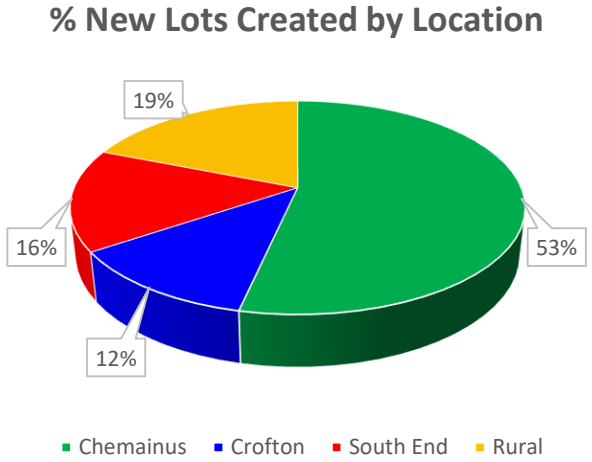
DEVELOPMENT ENGINEERING

KEY SUBDIVISION FACTS

- Estimated new lots created in 2021
  - Chemainus 23
  - Crofton 5
  - South End 7
  - Rural 8
  - **TOTAL 43**



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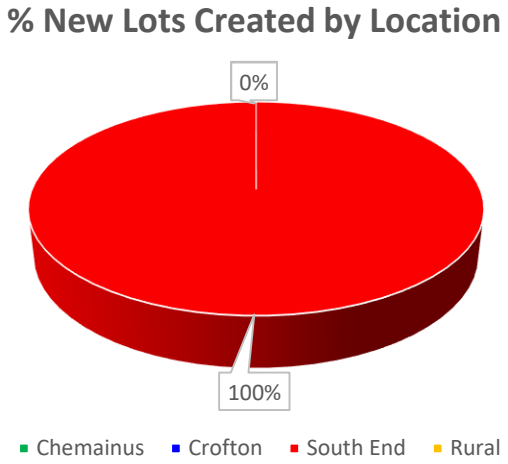
DEVELOPMENT ENGINEERING

KEY SUBDIVISION FACTS

- New parcels created in 2022 (to Nov 22/22)
  - Chemainus 0
  - Crofton 0
  - South End 49
  - Rural 0
  - **TOTAL** **49**



ENGINEERING: PERMITTING

OTHER FACTS

The Engineering Department issues the following permits:

- Utility Permits (Hydro, TELUS, Shaw and FortisBC)
- Highway (Driveway) Access Permits
- Highway (Road) Use/Construction Permits
- Blasting Permits
- Event Permits (Parades, Street Celebrations, Marches, etc.)
- Hydrant Use Permits
- Service Applications for water, sewer and drain connections

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CLIMATE EMERGENCY PRIORITIES

CLIMATE EMERGENCY PRIORITIES

Engineering

PRIORITY 1:

Consider CAEP actions that can be incorporated by Engineering that will reduce GHGs

PRIORITY 2:

Relocate the Joint Utility Board Sewage Outfall (Adaptation)

PRIORITY 3:

Develop climate adaptation measures (flood protection, water storage)

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MUNICIPALITY OF NORTH Cowichan

2023 BUSINESS PLAN

MODERNIZATION ACTIVITIES

Business Process Improvements

- Implemented Prospero to track land development applications (better tracking of applications).
- Implemented Tempest Calls for Service (CFS) to track complaints (better tracking of CFS).
- Implemented Permit Applications Tracking in Prospero.
- Implemented Multi-Assessment Archeological Permit/Template (expedites archeological reviews, reduces delay risks during construction).
- Engineers and Geoscientists BC (EGBC) Professional Practice Management Plan (ensures compliance with EGBC Professional Governance Act).

Asset Management Improvements

- Asset reporting to Finance for Public Sector Accounting Board (PSAB) and Tangible Capital Asset (TCA) automated (reduces administrative load).
- Web map access to video inspection and reports implemented (speeds up asset reviews for capital planning).
- Automated quality control for asset data entry (reduces entry errors and improves data accuracy for asset management planning).

NEXT STEPS/ADDITIONAL IMPROVEMENTS

Business Process Improvements

- Streamlining subdivision approvals (speed up processing times, consistency in decision-making):
  - Update subdivision approval checklists.
  - Implement more comprehensive usage of Prospero.
  - Review latecomer policy.
  - Clarify how bonding, deficiency holdbacks, and maintenance securities are managed.
- Migrate to more project/issues-based filing (better organization of data).
- Re-activate cross connection control program (better protection of public water supply).

Policy Improvements

- Traffic Calming Policy
- Cross Walk Policy
- Parking Policy
- Informational Sign Policy
- Update drainage design guidelines (consistent decision-making regarding drainage).

Asset Management

- Work with other departments to enhance asset management practices (move asset renewals forward, better renewals planning)
- Migrating sanitary and water models to InfoSewer and InfoWater (improves assessment of land development reviews and capital planning)

SERVICE REDUCTIONS/PROJECTS ON HOLD

Project	Rationale for Deferral	Implications of Deferment
Traffic Complaints (Traffic Calming, Cross Walks, Signs)	Insufficient internal/external resources. Master Transportation Plan (MTP) not yet complete (policy development part of MTP project).	Citizens not seeing action on complaints.
Development and Enforcement of Consistent AutoCAD Drawing Standards	Insufficient internal resources.	Splitting up assets classes into AutoCAD layers will speed up design drawing production, review, and data transfer to other corporate systems such as GIS. Not doing so result in more manual data entry and transfer taking up more staff time.
Subdivision Process Review & Improvements	Insufficient internal resources.	The processing of subdivision applications will take longer than what the development community is expecting. Further, if development continues at the current pace, or increases, processing times will increase further.

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PROJECTED BUSINESS PLAN DELIVERABLES

Actions/Projects	Start Date	Strategic Alignment
Water model updates (Chemainus, Crofton, South End) .	2022	Council Strategic Plan
Sanitary model updates (Chemainus, Crofton, South End).	2022	Council Strategic Plan
Master Drainage Plan Update and Model Development.	2023	Council Strategic Plan
Create 10 year capital plan (dependent on OCP, CAEP, Asset Management Plan, Water Modelling, Sanitary Modelling, Master Drainage Plan, Master Transportation Plan, DCC Bylaw Update).	2022	Master Plan of Council (Asset Management Investment Plan)
Update Development Cost Charge (DCC) Bylaw (dependent on OCP, CAEP, Master Transportation Plan, Sanitary Modelling, Water Modelling, Master Drainage Plan).	2022	Council Strategic Plan

PROJECTED BUSINESS PLAN DELIVERABLES

Actions/Projects	Start Date	Strategic Alignment
Bell McKinnon LAP servicing assessment (water/sanitary models update, drainage assessment, traffic impact assessment).	2022	Council Strategic Plan
Update Subdivision Bylaw (incl Engineering Design Standards, green design standards).	2021	Council Strategic Plan
Relocate the Joint Utility Board Effluent Outfall.	2018	Council Strategic Plan
Improve pedestrian safety on Boys Road (timing dependent on JUB outfall pipe routing).	2023	Council Strategic Plan

DEPARTMENTAL ASSESSMENT (FINDINGS)

CONTEXT

In 2020/2021, management undertook a capacity assessment for the department for short term needs.

Key Findings

- Not able to keep up with current workload.
- Limited infrastructure planning/asset management capacity.
- Limited transportation/active transportation engineering expertise/capacity.
- Limited capacity to carry out capital projects internally. Need to streamline acquisition of contract capacity to help undertake work:
  - Assist with more complex studies related to infrastructure upgrade paths.
  - Ramp up and down capacity to clear asset replacement backlog, and execute capital projects.
  - Ramp up and down development review capacity as required.
- Limited capacity to respond to requests for service from public.
- Limited capacity to review and update business processes.

OPERATING BUDGET - SUPPLEMENTAL BUDGET REQUESTS NET NEW STAFFING REQUEST

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MUNICIPALITY OF NORTH Cowichan

Position	Rationale	Implications of Deferment	Projects Deferred/Delayed	Budget Impact
Senior Engineer | Transportation & Land Development	Department has limited transportation/active transportation engineering design and planning capacity. Department lacks sufficient capacity to adequately support Operations Department and Engineering Development Group. Engineering Association implementing new rules for oversight that will require additional engineering capacity. Succession planning.	Some projects will take longer to execute (delayed); some will have to be deferred. Challenges implementing asset management processes including timely asset renewals, assessment of development impacts, acquisition of co-funding. Continuing delays in processing land development applications. This include subdivision approvals and referrals from Planning and Building (Development Permits, Development Variance Permits, Rezonings, OCP Amendments, ALR Exclusions, Temporary Use Permits). Extensive delays addressing Calls for Service. Improvement to departmental business processes and compliance with Engineering Association's oversight requirements will be delayed.	Deferred: 1. Boys Rd Upgrade Project Delayed: 1. Canada Avenue Floodgate, Road Raising, and Bridge Design Project 2. Implementing MTP. 3. Updating Bylaws (Subdivision, DCC, Traffic) 4. EGBC-driven business process improvements. 5. Responding to transportation-related calls for service items.	$126K + Benefits Sources of Funding General Taxation: $126k

OPERATING BUDGET - SUPPLEMENTAL BUDGET REQUESTS NET NEW STAFFING REQUEST

MUNICIPALITY OF NORTH Cowichan

Position	Rationale	Implications of Deferment	Projects Deferred/Delayed	Budget Impact
Admin Assistant	Assessment of workload for routine duties (non-project related duties) shows that 2.5 FTE required to support Engineering Dept and Environment Group. Need to have admin support to assist with the development and implementation of improved business practices within the department. This will relieve Engineering managers and staff with some administrative work and will improve service delivery in general.	The implementation of business improvement processes will be further delayed, resulting in longer processing times for permits (Hydrant Use, Blasting, Events, Road Construction, Road Access), managing calls for service entries/tracking/responses. This position will assist with the administrative side of land development processing (day-to-day file management, bond releases, latecomer agreements).	Delayed: 1. Adoption of Laserfiche. 2. Bond list cleanup. 3. Permit application form updates. 4. Incorporation of additional business processes into Prospero. 5. Business process documentation.	$61K + Benefits Sources of Funding Utilities: $12k General Taxation: $49k

OPERATING BUDGET

	2022 Budget	2023 Budget	$ Change	% Change	2022 YTD	Supplemental	$ Change
REVENUE							
Sales of Service	$ 205,000	$ 209,100	$ 4,100	2%	$ 60,054	-	$ 4,100
TOTAL REVENUE	**$ 205,000**	**$ 209,100**	**$ 4,100**	**2%**	**$ 60,054**		**$4,100**
EXPENSES							
Administration	$ 1,550,166	$ 1,693,152	$ 142,986	9%	$1,194,325	$ 174,132	$317,118
Engineering Studies	338,835	130,000	(208,835)	(62%)	54,490	-	-
TOTAL EXPENSES	**$ 1,889,001**	**$ 1,823,152**	**$ (65,849)**	**(3%)**	**$1,248,814**	**$174,132**	**$251,269**

CAPITAL BUDGET

Expense	2022	2023	2024	2025	2026	2027
Roads capital	$6,721,350	$1,915,410	$2,172,050	$3,029,360	$3,783,410	$3,859,080
Drainage capital	$1,033,540	$1,570,000	$556,090	$567,210	$578,550	$590,120

MUNICIPALITY OF NORTH Cowichan

KEY PERFORMANCE INDICATORS

	2018	2019	2020	2021	2022
LAND DEVELOPMENT					
# of Active Subdivision Applications in Process [3]	21	26	23	50	(62) 64 [1]
# of Lots Created by Subdivision	20	169 [4]	125 [4]	43	(49) 53 [1]
# of Residential Units Created	376	340	220	281	(395) 593 [2]
Single Family Dwelling	149	132	154	180	(77) 116 [2]
Duplexes (Expressed as Residential Units)	26	20	19	28	(4) 6 [2]
Suites	15	14	8	4	(4) 6 [2]
Multi-Family Structures (Expressed as Residential Units)	186	174	39	69	(310) 465 [2]

Notes

[1] Based on current statistics (up Nov 22/22; in brackets) extrapolated to Dec 31/22. Excludes subdivision applications in warranty period.

[2] Based on current statistics (up Aug 30/22; in brackets) extrapolated to Dec 31/22.

[3] Represents number of applications being managed in the year stated. This includes applications that are with a developer, that have a Preliminary Layout Approval issued, that are on hold waiting for information from a developer, or that are in for final approval (with staff).

[4] The higher number is due to the registration of a large number of lots from a single large land development project (Kingsview) in 2019 and 2020 (approximately 70 lots).

MUNICIPALITY OF NORTH Cowichan

KEY PERFORMANCE INDICATORS

	2018	2019	2020	2021	2022
LAND DEVELOPMENT (PLANNING REFERRALS TO ENGINEERING)					
# Building Permits	189	164	195	248	177
Single Family Dwelling & Duplex (Incl Sec Suites)	177	156	172	198	(84) 125 [2]
Multi-Family Structures	1	5	5	12	(20) 22 [3]
Commercial, Industrial & Institutional	4	0	8	14	(5) 5 [3]
House Move, Demo, Agricultural Structure, Accessory Building, Etc	7	3	10	24	(23) 25 [3]
# Planning Application Files Reviewed [4]	94	90	94	111	(66) 88 [1]

Notes

[1] Based on current statistics (up Sep 30/22; in brackets) extrapolated to Dec 31/22.
[2] Based on current statistics (up Aug 30/22; in brackets) extrapolated to Dec 31/22.
[3] Based on current statistics (up Nov 22/22; in brackets) extrapolated to Dec 31/22.
[4] Development Permits, Development Variance Permits, Rezoning Applications, OCP Amendments, ALR Exclusions, Temporary Use Permits.

MUNICIPALITY OF NORTH Cowichan

KEY PERFORMANCE INDICATORS

	2018	2019	2020	2021	2022
CAPITAL PROGRAM					
% approved capital spending v annual budget (excl specified projects)	-	-	-	89 [4,5]	63 [4,5,6]
ENGINEERING PERMITTING					
# of permits processed in TOTAL	-	295	264	337	(257) 343 [1]
# of driveway access permits processed [2]	-	5	4	18	(16) 21 [1]
# of highway construction/use permits processed	-	23	33	30	(31) 41 [1]
# of hydrant use permits processed	-	18	11	20	(16) 21 [1]
# of utility permits processed	-	170	172	188	(124) 165 [1]
# of blasting permits processed	-	10	6	15	(17) 23 [1]
# of service applications processed	-	48	32	58	(44) 59 [1]
# of event permits processed [3]	32	21	6 [3]	08 [3]	(9) 12 [1,3]

Notes

[1] Based on current statistics (up to Sep 30/22; in brackets) extrapolated to Dec 31/22.
[2] Excluding driveway access permits issued as part of a building permit review.
[3] Numbers are lower due to COVID-19 pandemic.
[4] Excludes financial contributions, monies for land purchase. Budgets adjusted as actual costs determined or best estimate. Projects deferred due to archeological finds, high tenders, or for reasons beyond staff's control are not included in statistic.
[5] Excludes **large capital projects** delayed due to **First Nations consultation** and actual/anticipated **high construction costs**: JUB STP Outfall Project, TCH Watermain & Trail Project, Chemainus/Crofton STP Screen Replacement Project, Canada Ave Floodgate Project, Genoa Bay Rd Rebuild Project.