

CITY OF NANAIMO

20 Year Investment Plan and Asset Management Update

March 23, 2017



Executive Summary

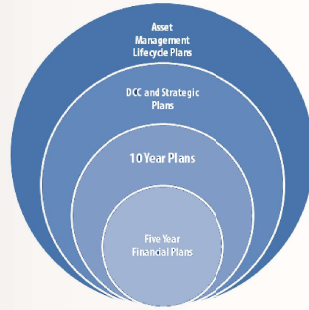
The 20 Year Investment Plan and Asset Management Update will provide Council with an overview of the City's long term investment plans and funding strategies. The plan includes current investment in strategic initiatives and programs, annual investment programs for renewal of existing infrastructure and new/upgraded infrastructure required for growth to maintain current levels of service. The plan will support Council's review and decision making regarding current planning processes, the City's Asset Management System and funding strategies.

The City's planning processes include:

- Asset Management Lifecycle Plans for each infrastructure type
- Strategic Plans adopted by Council
- 10 Year Departmental Project Plans that incorporate AM and Strategic Plans
- Five Year Financial Plans

Projects are identified in longer range planning processes and prioritized in departmental 10 year plans and then in the City's Five Year Financial Plans. As projects move ahead in each planning process additional work is completed to refine timing and cost estimates and to coordinate with other types of infrastructure projects. Resource and funding constraints are considered when projects are included in the City's Five Year Financial Plan.





20 Year Investment Plan

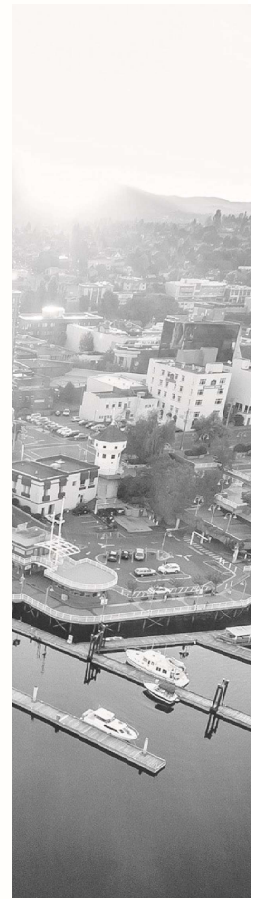
The 20 Year Investment Plan has been prepared for attention directing purposes and to allow Council to review and make decisions. Projected investment over the next 20 years is \$1.1 billion and current funding strategies may provide \$794 million. Strategies have been identified to address the projected funding shortfall of \$258 million. The projected shortfall includes \$117 million in development contribution charges for new/upgraded infrastructure. Completion of the current DCC review and new bylaw is intended address this shortfall.

The Asset Management Update will Provide:

- An overview of the City's AM System
- Infrastructure information by asset type – eg water, sewer, transportation
- AM System improvement initiatives

Staff Recommendations:

- Continue annual 1% property tax increases to 2022 for the General Fund Asset Management reserve.
- Complete DCC review and adopt new DCC bylaw.
- Develop financial policies including a Reserve Policy and a Debt Policy.
- Continue to develop the City's AM System including adoption of an AM Policy and an AM Strategy.
- Complete the next Asset Management Update in five years to re-assess the effectiveness of the City's asset management capacity and funding strategies.



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Long-Term Planning: 20 Year Investment Plan

Long Term Planning Framework

Long term plans support the delivery of a wide range of needed and desired services, and the implementation of Council's strategic priorities, for the community. Long term plans help prepare the organization to move ahead with needed investigation and design work, and with the timing and allocation of resources and funding.

City provided services include:

- Fire and Police protection
- Water
- Sanitary sewer
- Transportation
- Drainage
- Solid waste collection
- Recreation
- Culture
- Social



Strategic priorities are identified in the City's Official Community Plan, planNanaimo, the Community Sustainability Action Plan and in supporting master plans adopted by Council. Examples of strategic plans include the Strategic Plan Update (2016 – 2019), Transportation Master Plan, Cultural Plan for a Creative Nanaimo, Beban Park Master Plan Update and Harewood Centennial Park Improvement Plan. Implementation of these priorities requires investment in community partnerships, planning processes and infrastructure.

Asset management lifecycle plans are maintained for all types of City infrastructure. These attention directing plans support identifying needed condition assessment programs and are compared to current maintenance information to identify priority projects for infrastructure renewal.

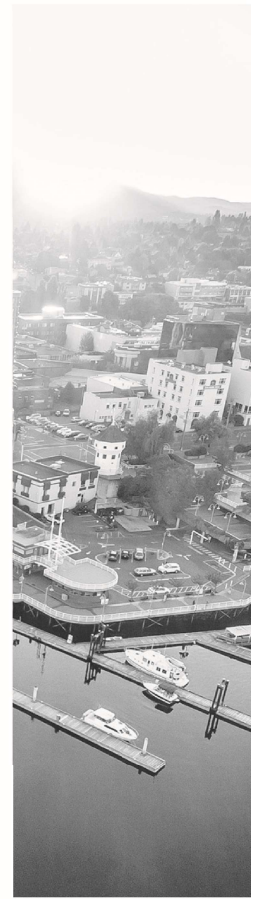
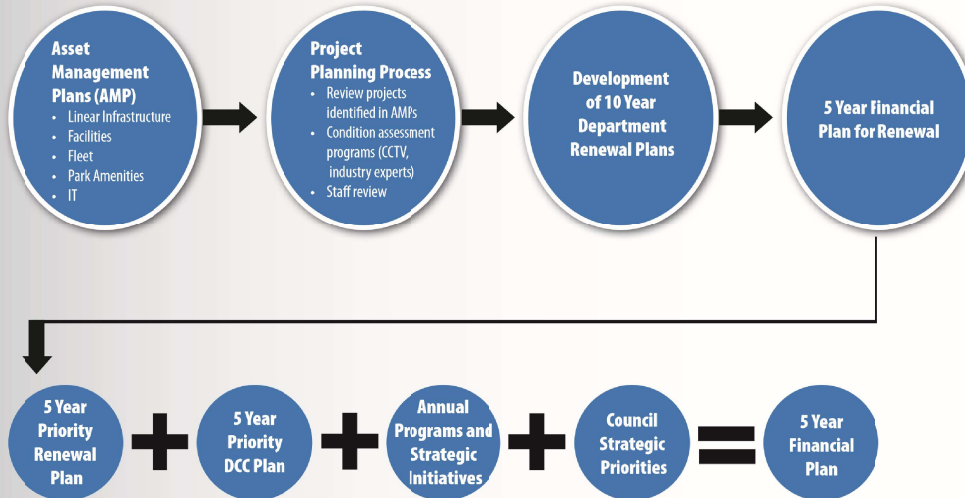
Review of the City's infrastructure capacity and identification of new/upgraded infrastructure needed due to growth are undertaken in periodic DCC Reviews. The last DCC review was completed in 2008. The current DCC review process is now ready for Council's review and direction and for stakeholder consultation. Detailed information will be provided in a separate DCC Review report.



Five Year Financial Plans

In accordance with the laws of British Columbia through the Community Charter, municipalities must prepare a five year financial plan each year. Priority projects are identified and included within the City's Financial Plans that minimize risk to delivery of services, support development in the community, and implement Council's strategic priorities and plans within reasonable funding levels.

Overview of the City's Long Term Planning Process



20 Year Investment Plan

The 20 Year Investment Plan has been prepared for attention directing purposes and to allow Council to review and make decisions. Projected investment over the next 20 years is \$1.1 billion and current funding strategies may provide \$794 million. Strategies have been identified to address the projected funding shortfall of \$258 million. The projected shortfall includes \$117 million in development contribution charges for new/upgraded infrastructure. Completion of the current DCC review and new bylaw may address this shortfall.

Components of the 20 Year Investment Plan include:

1. New/upgraded infrastructure investment identified in the current Development Cost Charges Review
2. Provisional 2017 – 2021 Financial Plan
 - a. Priority infrastructure renewal projects
 - b. Priority DCC projects
 - c. Strategic projects
 - i. Examples: Affordable Housing Strategy, Social Wellness Strategy, property acquisition, Harewood Centennial Park, new pedestrian, cycling and transit amenities
3. Departmental 10 year plans
 - a. Priority infrastructure renewal projects;
 - b. Priority DCC projects;
 - c. Projects where further investigation is ongoing/ required:
 - i. Examples: renewal of the Public Works Yard, renewal of the Curling Club facility, Beban Park: power distribution upgrade, renewal of recreational dams, renewal of the Departure Bay Activity Centre;
4. Infrastructure lifecycle plans.



Current Funding Strategies

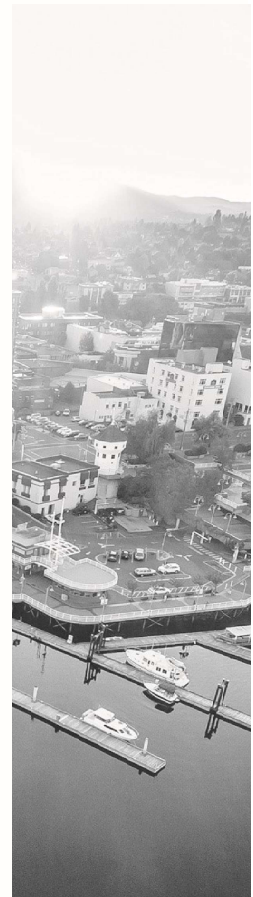
The City maintains reserves that fund the majority of annual investment plans. Annual contributions to these reserves are from general revenues, user fees, DCCs and senior government grant programs and reflect the City's current funding strategies

Current funding strategies in the 20 year plan include:

- \$7M allocation of annual general revenues to projects;
- Council's current commitment for increases to the City's asset management reserves through annual increases to property taxes and user fees (Appendix A);
- Contributions to specific reserves for IT, Equipment Replacement (Fleet) and Facility Development (Parks and Recreation);
- Current DCC bylaw rates and contribution levels to DCC reserves; and
- Community Works Fund.

The newly created Strategic Infrastructure Reserve, other senior government grants and private contributions have not been included in current funding strategies, except for transportation DCC projects. Approximately \$12 million in grant funding for specific transportation projects has been included in the 20 Year Investment Plan.

Borrowing can be used and repayment will spread funding needs over a longer period of time. The cost of debt has not been included in current funding strategies.



Long Term Planning Purpose and Risks

Significant diligence, collaboration and collection of the best available information is used to develop long term plans. The purpose of long term plans are attention directing to identify significant issues and allow time to develop and implement strategies. Variables that impact long term plans are:

- Changes to useful life or remaining useful life assumptions;
- Changes to timing and cost estimates;
- Unplanned liabilities which may impact contributions or require an unplanned allocation from reserves; and
- Inflation as all expenditures and revenues are reported in 2016 dollars.

As planning processes advance to detailed design, tender and construction phases changes in cost estimates may be realized.

As well, significant constraints both external and internal may impact the ability of the City to execute its investment plans. These constraints may include political, economic, social, technical, environmental and legal.



Excluded Projects

Pending ongoing assessments, renewal or replacement of Fire Station #1 and expansion of the Police Operations Building are not included in the 20 Year Investment Plan.

20 Year Investment Plan

The 20 year projected investment is \$1.1 billion. Current funding strategies provide up to \$794 million. The projected deficit is \$258 million. This deficit is divided between \$141 million for strategic priorities, annual programs and renewal of current infrastructure and \$117 million for new/upgraded infrastructure required for growth.

Summary Analysis				
Projected Infrastructure Investment		20 Year Total	%	
Transportation, Drainage, Fleet, Facilities, Parks		543,862,373	52%	
Sanitary Sewer		112,873,642	11%	
Water		394,776,602	38%	
		1,051,512,617	100%	
Current Funding Strategies		20 Year Total	%	
Transportation, Drainage, Fleet, Facilities, Parks		419,381,250	53%	
Sanitary Sewer		100,391,892	13%	
Water		274,046,546	35%	
		793,819,688	100%	
Projected Funding Shortfall		20 Year Total	%	
Transportation, Drainage, Fleet, Facilities, Parks		(124,481,123)	48%	
Sanitary Sewer		(12,481,750)	5%	
Water		(120,730,056)	47%	
		(257,692,929)	100%	
20 Year Total Project Funding Excess/ (Shortfall)		Total	DCC	Renewal/ Upgrade
General		(124,481,123)	(42,930,326)	(81,550,798)
Sanitary Sewer		(12,481,750)	(24,066,329)	11,584,579
Water		(120,730,056)	(49,846,834)	(70,883,222)
		(257,692,929)	(116,843,489)	(140,849,440)

Excludes proposed DCC Transportation project Brechin/Island Hwy/Northfield Intersection Upgrades. The project is anticipated to be a cost share, with senior government funding \$30M of the projected \$35M cost.



20 Year Investment Plan Analysis by Fund

The funding gaps are unique to each fund: general, sewer and water. It is important to also consider the need to maintain reasonable reserve balances to support the organization's financial resiliency and ability to respond to unexpected changes in investment timing or costs. Changes can occur due to early infrastructure failure, and cost estimates cannot be finalized until the detailed design and tender phases of each project.

General Fund

- Projected shortfall is \$124 million which includes \$43 million for DCC contributions.
- The funding gap is most significant in the first 10 years.
- Projects in the 20 Year Investment Plan include: Wellcox Access, Port Theatre Expansion, Waterfront Walkway Development (in front of Yacht Club), Curling Club facility renewal, Public Works Yard facility renewal and renewal of recreational dams.

Sewer Fund

- Projected DCC contributions shortfall is \$24 million.
- Projected balance in sewer reserves is \$11.6 million.
- The current 2017 – 2021 Financial Plan includes borrowing for DCC projects with repayment from non DCC reserves.

Water Fund

- Projected shortfall is \$121 million which includes \$50 million for DCC contributions.
- Funding gap is most significant in last 10 years of the plan due to construction of a new dam projected to start in 2027.

Debt

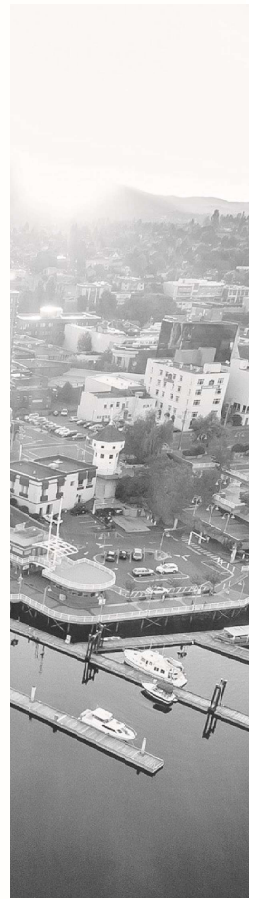
Borrowing is used to 'spread' funding needs over a longer period where appropriate. The cost of borrowing has not been included in the 20 Year Investment Plan.



Strategies to Reduce the Funding Gap

To address the funding needs for current infrastructure renewal, Council may consider strategies to reduce the gap between funding required and available funding. These strategies can include:

- Continue 1% increases to property taxes to 2022 for contribution to General Asset Management Reserve;
- Complete the DCC review and adoption of new bylaw;
- Decommission underutilized/inefficient infrastructure;
- Implement improvements to the City's AM System
 - o Develop governance documents including an Asset Management Policy and an Asset Management Strategy
 - o Develop levels of service
 - o Develop risk frameworks
 - o Develop performance monitoring;
 - o Ensure appropriate monitoring and application for grant funding and private contributions.



Asset Management Update

Why Asset Management?

Delivering services and achieving organizational objectives requires a robust asset management system. "Asset management translates the organization's objectives into asset-related decisions, plans and activities, using a risk based approach." (International Standard ISO 55000, 2014).

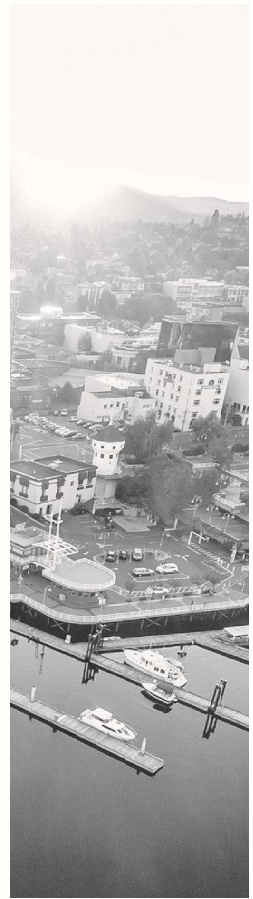
As outlined in ISO 55000, a robust asset management system must:

- Be informed by all stakeholders, regulatory and financial constraints.
- Be a key responsibility of leadership at all levels in the organization.
- Be a collaborative and integrated activity across the organization and include engineering, development environmental, social and financial disciplines.
- Include operating and performance monitoring and evaluation to ensure processes are achieving organizational objectives.
- Include continuous improvement initiatives that provide value in improving efficiency and effectiveness to achieving organizational objectives.

The required changes in financial reporting for municipalities in 2008 brought needed attention to aging infrastructure, and challenges facing local governments in funding operations, renewal and growth of their infrastructure. Asset management (AM) principles and practices were developed to help local governments face these challenges.

Increased global awareness and promotion of AM is evident in the Government of Canada's inclusion of asset management in the New Building Canada Plan and Gas Tax agreements. Furthermore, a growing number of provincial governments require or recommend demonstration of asset management capacity to determine local government's eligibility for grant funding.

The City of Nanaimo's investment in infrastructure supports delivery of needed and desired services to the community. The City faces operational, environmental, social and financial challenges in delivering these services due to: ageing infrastructure, growth, changing regulatory standards and the community's demand for new services. A robust asset management system (AM System) provides decision makers with information and analysis for infrastructure investment.



The City of Nanaimo has completed significant work in developing its asset management system and continues to improve collaboration, processes and information to support Council's decision making. In early 2013, Council received the City's first Asset Management Plan, '2012 Asset Management Update'. The update followed a multi-year process to: provide education and training, develop long term infrastructure renewal plans for all asset types and develop a funding strategy.

Council confirmed its support for the City's asset management system through:

- Creation of asset management reserves and annual contributions to those reserves through annual increases to property taxes and sewer and water user fees; and
- Included asset management as a strategic priority in its 2012 – 2015 Strategic Plan.



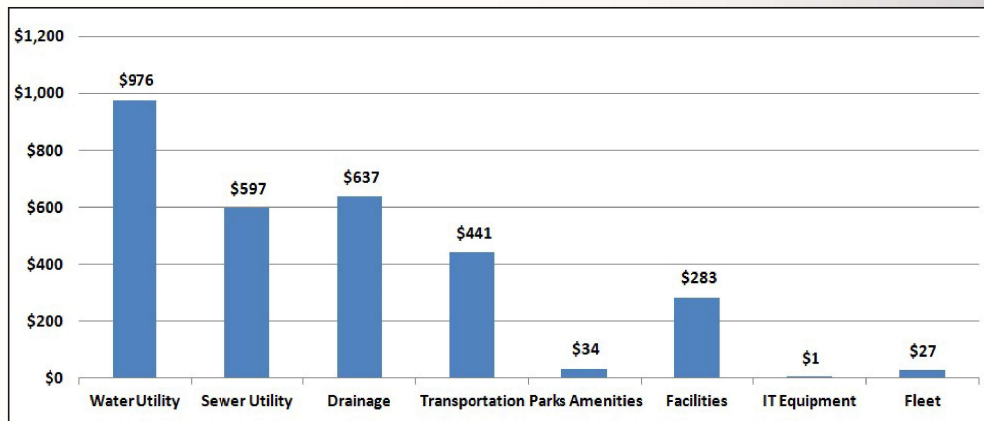
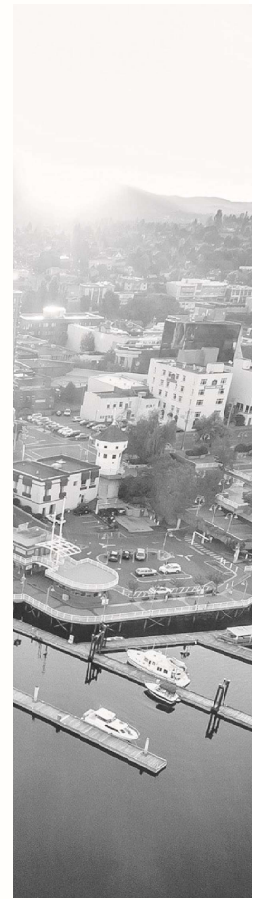
City Infrastructure Overview

The City provides a wide range of services to the community that require stewardship of a diverse group of assets. These assets provide needed and desired services to support the economic, environmental and social well being of the community.

The City currently owns and operates \$3 billion in infrastructure assets that support provision of police and fire protection, transportation, drainage, water, sewer, parks, recreation and cultural services.

The table below provides an overview of key asset types.

Infrastructure	Description	Current Asset Value - \$M	%
Water Utility	Water supply dams, water treatment plant, reservoirs, mains, control stations	976	33%
Sewer Utility	Mains, lift stations and forcemains	597	20%
Drainage	Mains	637	21%
Transportation	Roads, bridges, sidewalks, traffic signals, street lighting	441	15%
Parks Amenities	Playfields, playgrounds, trails, recreational dams	34	1%
Facilities	Civic offices, public works yard, fire and police buildings, parkades, recreation and cultural buildings	283	9%
IT Equipment	Fibre optic network, major servers	1	0%
Fleet	Cars, pickups, heavy equipment, sanitation equipment, fire apparatus, zambonis	27	1%
Total		2,996	100%



Asset Management Steering Committee

The City's Asset Management Steering Committee continues to lead and coordinate ongoing improvements to the organization's AM capabilities and competencies. The committee has representation from across the organization including engineering, development, facilities, IT and finance disciplines. Members of the committee lead specific initiatives such as review and updating infrastructure lifecycle planning models, participation in senior government programs and implementation of AM process and information improvements.

To date, the City's asset management activities have been primarily focused on:

- Development of organizational knowledge and capacity;
- Development and maintenance of long term asset management plans including renewal of current infrastructure and new/upgraded infrastructure required due to growth;
- Integrating asset management in strategic planning; and
- Participation in provincial and national asset management programs.

Presentations to Council later this year will provide more detailed information on the City's draft AM Policy and draft AM Strategy.

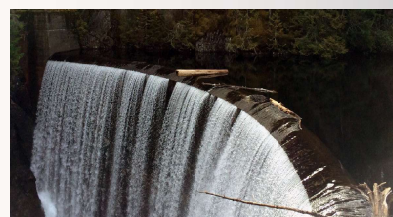


Asset Management Update

Asset Management includes all activities to operate, maintain, renew and construct infrastructure. The 2012 Asset Management Update focused on renewal of current infrastructure. Since then, further development of the City's AM System has included:

- Improvements to asset information, including implementation of condition assessment programs.
- Comprehensive review and update of long term renewal plans for all asset types, including useful life and replacement cost estimates.
- Comprehensive review and update of new/upgraded infrastructure required to accommodate growth.
- Participation in provincial and national asset management programs to develop AM governance, a risk framework and level of service measures to support the City's AM System.
- Increased cross-functional coordination through the Asset Management Steering Committee.
- Organizational changes and improvements to financial planning processes. Examples include creation of a Facilities management group and utilization of business cases.

The Asset Management Update includes both renewal of current infrastructure and new/upgraded infrastructure required due to growth.



Renewal of Current Infrastructure: Asset Management Lifecycle Plans

Asset management plans were prepared for each of the City's asset types (eg facilities, fleet, roads, drainage, sewer, water). The plans focus on renewal of current infrastructure include timing, costs and funding sources over the lifecycle of each asset type.

During 2016, cross-functional teams updated detailed asset management plans for all of the City's major asset types. This work required reviewing and updating complex models with:

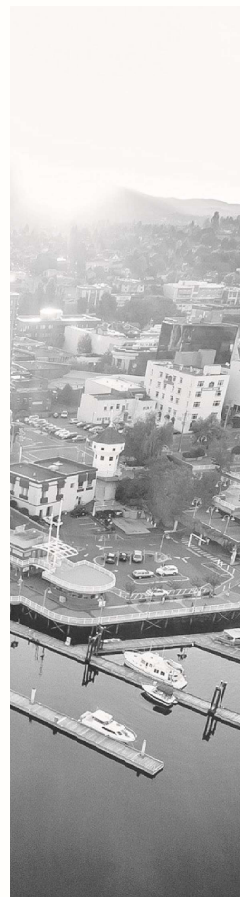
- Current inventory and condition data;
- Key assumptions for useful life or remaining useful life; and
- Projected infrastructure replacement timing and cost estimates.

New/Upgraded Infrastructure Due to Growth: Current DCC Review

The current DCC Review process included:

- Updated community growth estimates;
- Projected infrastructure investment including timing and cost;
- Proposed changes to current charges.

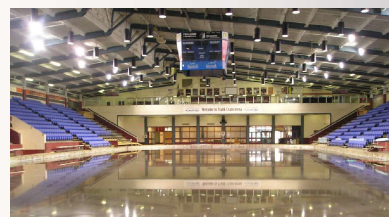
A separate DCC Review report will provide additional information and seek endorsement from Council for proceeding to next steps including stakeholder consultation and new DCC bylaw.



City Infrastructure Overview

The following sections provide updated information on each of the City's infrastructure types:

- Water Utility Infrastructure
- Sewer Utility Infrastructure
- General Fund
 - Transportation
 - Drainage
 - Parks Amenities
 - Facilities
 - Information Technology
 - Fleet



Water Utility Infrastructure

The City provides water that is clean and safe to drink with minimal service disruption, to satisfy all anticipated consumption and fire protection. The water utility is self funded through user fees which provide funding for annual operating and maintenance activities and for the infrastructure renewal program. In addition, development cost charges are collected from developers that provide funding for new/upgraded infrastructure required for growth.

The City's water system is made up of dams, reservoirs, facilities (pump/pressure reducing control stations), water treatment plant and over 600 kilometers of supply and distribution mains.

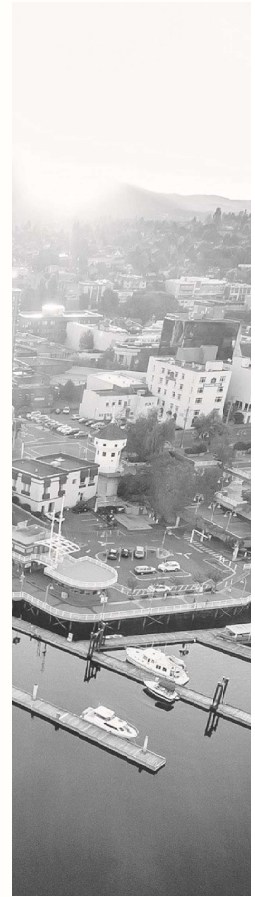
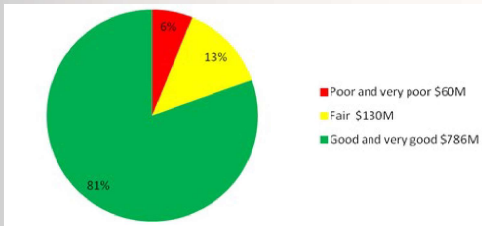
Department documents and processes are maintained to provide information on all infrastructure assets. Detailed information for mains including, location, material type and in-service year are maintained in the City's GIS system. Engineering drawings, often referred to as 'as built' drawings, are completed after construction of all water infrastructure and are the primary source of asset information.

The asset management update includes long term infrastructure investment plans for:

- Renewal of current infrastructure;
- New/upgraded infrastructure required for growth.

Water Infrastructure Current Condition

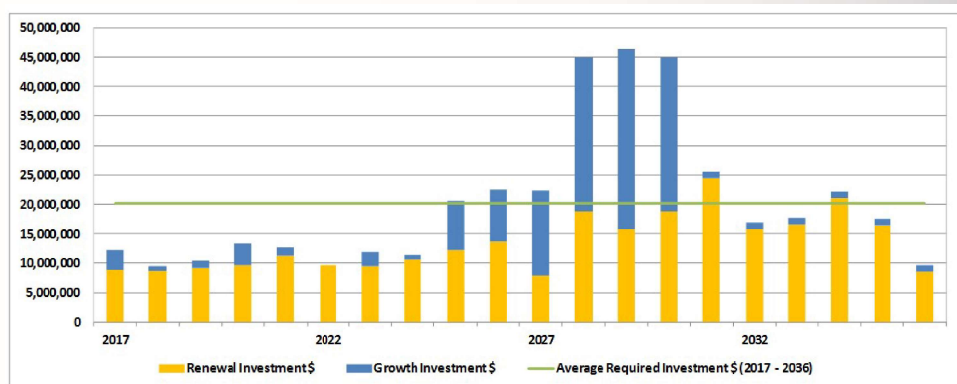
Condition of current infrastructure only, does not include capacity.



Water Infrastructure 20 Year Infrastructure Plan: Renewal and Growth

The graph is generated from the City's asset renewal models. Projected renewal needs in first five years will not be the same as projects in the City's approved Five Year Plan due to project prioritization, resource and funding constraints.

Due to growth, it is expected that a new dam will be needed to maintain adequate water supply. The cost of the new dam is estimated at \$88 million with design and construction anticipated to start in 2027.



Sewer Utility Infrastructure

The City provides sewer services that maintain public health and safety, with minimal service disruption and impact to the environment and property. The sewer utility is self funded through user fees which provide funding for annual operating and maintenance activities and for the infrastructure renewal program. In addition, development cost charges are collected from developers that provide funding for new/upgraded infrastructure required for growth.

The City's sewer system is made up of mains and facilities (lift stations). There are over 550 kilometers of sewer mains. Sewer treatment is provided by the Regional District of Nanaimo.

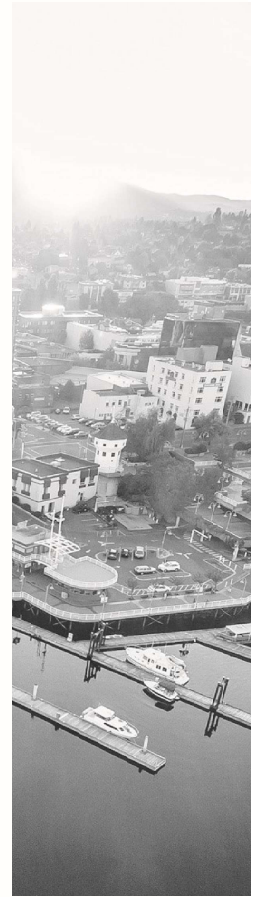
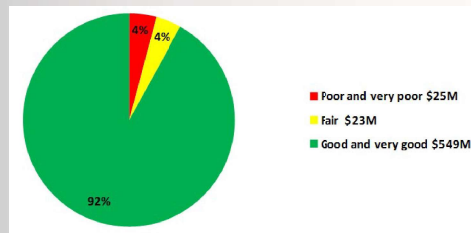
Department documents and processes are maintained to provide information on all infrastructure assets. Detailed information for mains including, location, material type and in service year are maintained in the City's GIS system. Engineering drawings, often referred to as 'as built' drawings, are completed after construction of all sewer infrastructure and are the primary source of asset information.

The asset management update includes long term infrastructure investment plans for:

- Renewal of current infrastructure;
- New/upgraded infrastructure required for growth.

Sewer Infrastructure Current Condition

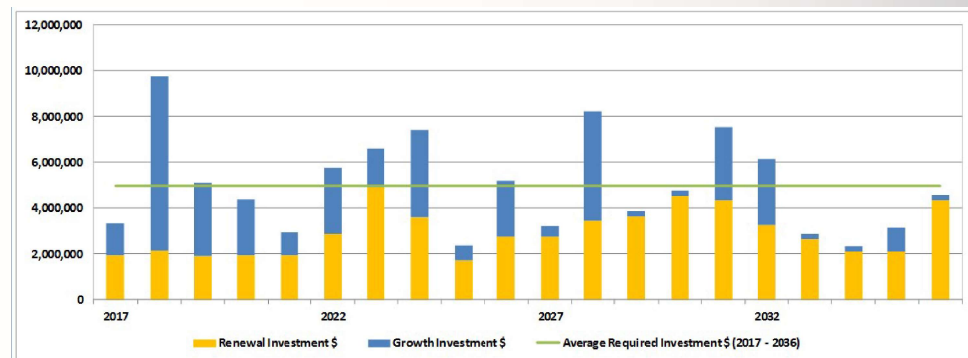
Condition of current infrastructure only, does not include capacity.



Sewer Infrastructure 20 Year Infrastructure Plan: Renewal and Growth

The graph is generated from the City's asset renewal models. Projected renewal needs in first five years will not be the same as projects in the City's approved Five Year Plan due to project prioritization, resource and funding constraints.

Due to growth, an upgrade to the Chase River Trunk is planned in 2018 for \$5M.



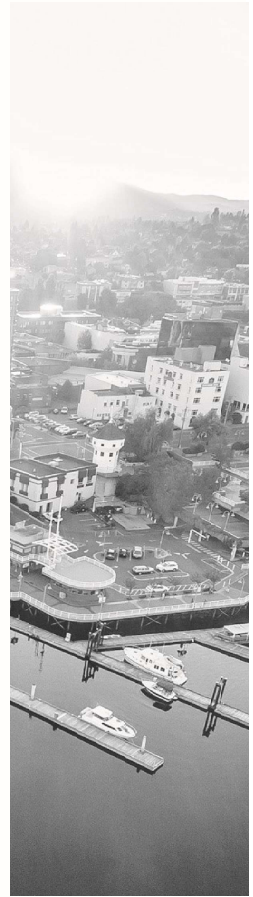
General Fund

Excluding the Water and Sewer Utilities, all other City services are primarily funded by property taxes. User fees are charged for some services including parks and recreation, solid waste collection and development services. In addition, development cost charges are collected from developers that provide funding for new/upgraded transportation, drainage and parks infrastructure required for growth.

General Fund long term infrastructure planning includes the following assets:

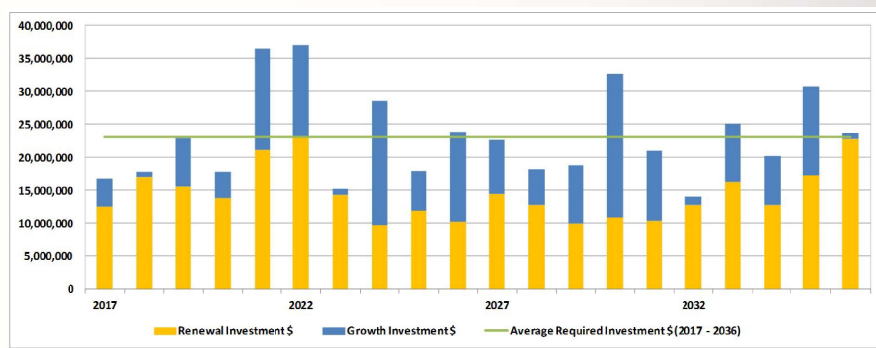
- Transportation
- Drainage
- Parks Amenities
- Facilities
- Information Technology
- Fleet

A summary of long term planning for the General Fund is followed by sections for each of the above-noted assets.



General Fund 20 Year Infrastructure Plan: Renewal and Growth

The graph is generated from the City's asset renewal models. Projected renewal needs in first five years will not be the same as projects in the City's approved Five Year Plan due to project prioritization, resource and funding constraints.



Transportation

The City provides transportation amenities that are safe, accessible, clean and convenient.

The City's transportation system includes roads (arterial, industrial, collector and local), bridges, sidewalks, traffic signals and street lights.

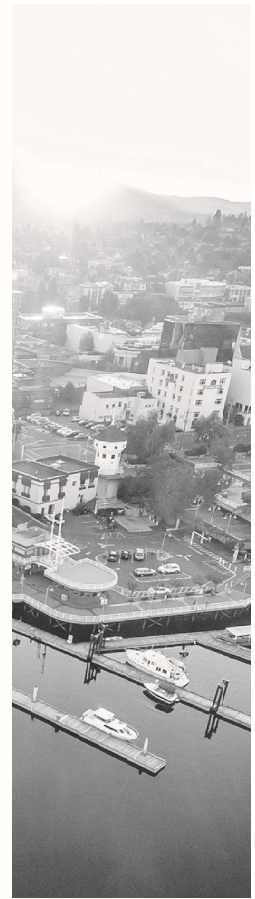
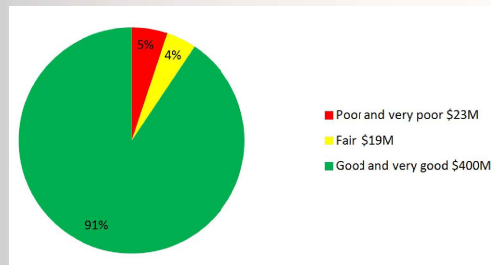
Detailed asset information for transportation infrastructure is maintained in the City's GIS system. Road inventory information is also maintained in the City's pavement management system (PMS). A condition assessment program is completed every three to five years that provides updated information to the PMS. Department documents are also maintained to provide additional information on bridges, sidewalks, traffic signals and street lighting.

The asset management update includes long term infrastructure investment plans for:

- Renewal of current infrastructure;
- New/upgraded infrastructure required for growth.

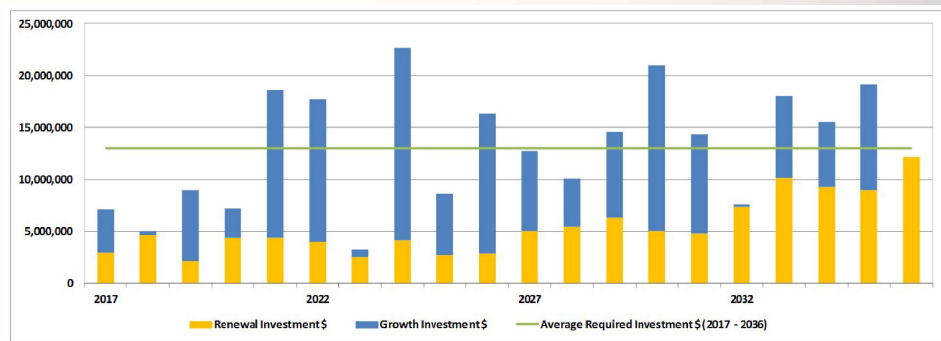
Transportation Infrastructure Current Condition

Condition of current infrastructure only, does not include capacity.



Transportation Infrastructure 20 Year Infrastructure Plan: Renewal and Growth

The graph is generated from the City's asset renewal models. Projected renewal needs in first five years will not be the same as projects in the City's approved Five Year Plan due to project prioritization, resource and funding constraints.



Drainage

The City provides a drainage system that minimizes impact to property and the environment.

The City's drainage system includes mains, ditches and retention ponds.

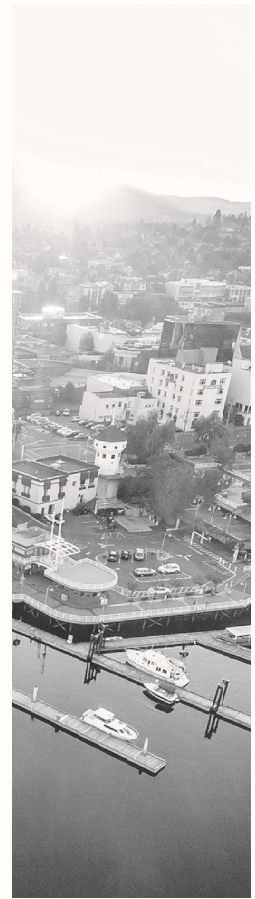
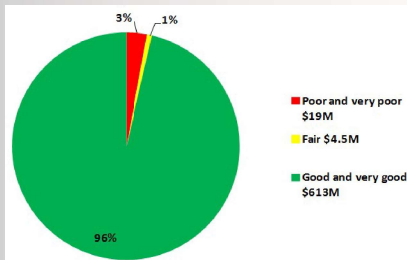
Detailed asset information for mains including location, material type and in service year are maintained in the City's GIS system. There is a ongoing data correction process underway to verify and update data in the GIS system. Engineering drawings, often referred to as 'as built' drawings, are completed after construction of drainage mains and are the primary source of asset information.

The asset management update includes long term infrastructure investment plans for:

- Renewal of current infrastructure;
- New/upgraded infrastructure required for growth.

Drainage Infrastructure Current Condition

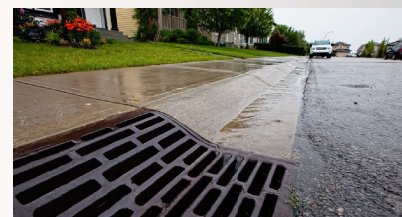
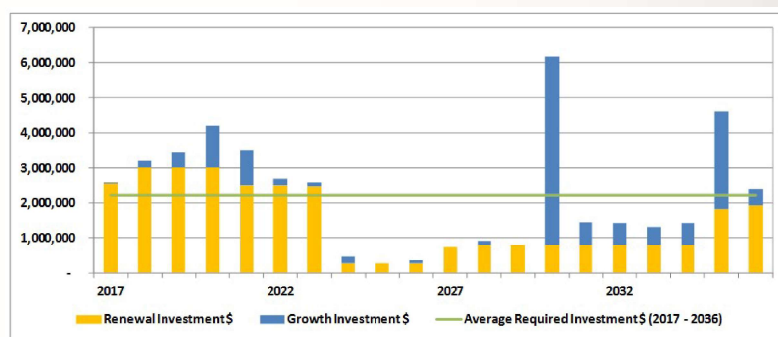
Condition of current infrastructure only, does not include capacity.



Drainage Infrastructure 20 Year Infrastructure Plan: Renewal and Growth

The graph is generated from the City's asset renewal models. Projected renewal needs in first five years will not be the same as projects in the City's approved Five Year Plan due to resource and funding constraints.

Due to growth, it is expected that the development of a 'wet pond' for \$2.9 million will be constructed in 2030.



Parks Amenities

The City's current parks amenities include:

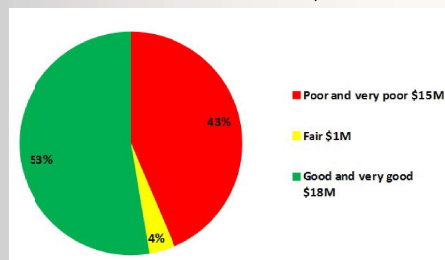
- 13 destination parks including Maffeo Sutton and Westwood Lake parks
- 87 neighbourhood parks
- 4 spray parks
- 23 sports fields including 2 artificial turf fields
- 61 playgrounds
- 12 tennis/sport courts
- 140 kilometres of trails
- 2 highway gateways
- 3 boat ramps
- 6 dams in recreational areas

The asset management update includes long term infrastructure investment plans for:

- Renewal of current infrastructure;
- New/upgraded infrastructure required for growth.

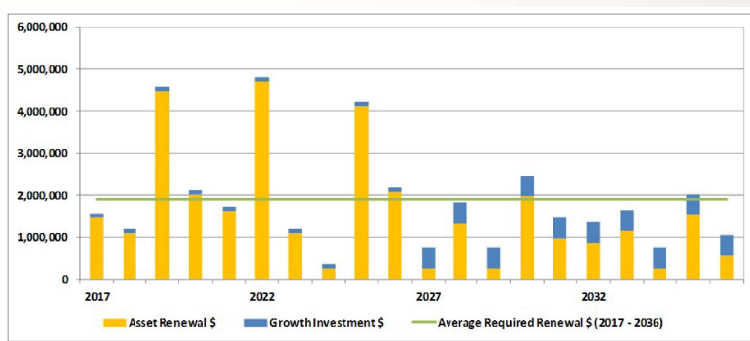
Parks Amenities Infrastructure Current Condition

Condition of current infrastructure only, does not include capacity.



Parks Amenities Infrastructure 20 Year Infrastructure Plan: Renewal and Growth

The graph is generated from the City's asset renewal models. Projected renewal needs in first five years will not be the same as projects in the City's approved Five Year Plan due to project prioritization, resource and funding constraints.



Facilities

The City currently has over 100 facilities, which support delivery of services. These include:

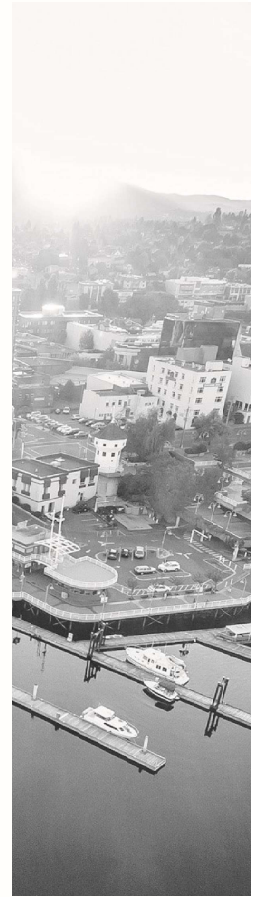
- Civic office buildings including City Hall and the Service and Resource Centre (SARC)
- Fire and police buildings
- Public works yards
- Recreation facilities including aquatic, arena and community centres
- Cultural facilities including the Port Theatre
- Parkades
- Port of Nanaimo Centre.

Asset management for buildings is complex, as they are made up of many components with different useful lives, different functions and different operating and maintenance requirements.

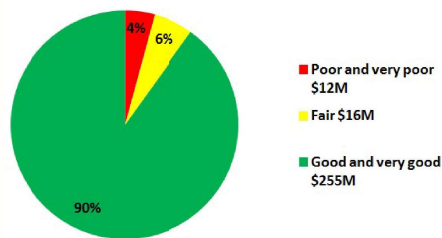
The facilities long term renewal plan is based on the replacement of existing components within each building to maintain current function and service levels. Department documents maintain inventory data for facilities and their components. Condition assessment programs have been implemented to support optimum functionality and replacement schedules for facilities. Ongoing energy saving initiatives will replace inefficient components with more energy efficient components. Significant work has been undertaken to improve facility asset information including the implementation of condition assessment programs.

The asset management update includes long term infrastructure investment plans for:

- Renewal of current infrastructure



Facilities Infrastructure Current Condition

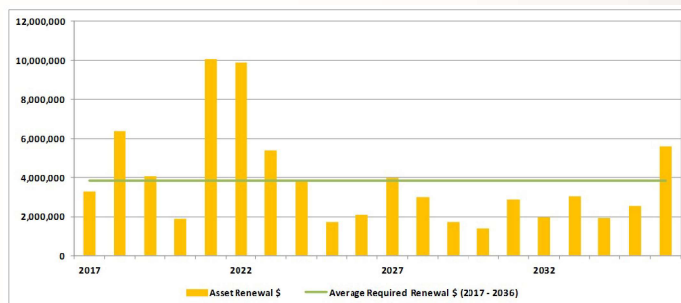


Facility Infrastructure 20 Year Infrastructure Renewal Plan: Renewal

The graph is generated from the City's asset renewal models. Projected renewal needs in first five years will not be the same as projects in the City's approved Five Year Plan due to project prioritization, resource and funding constraints.

The long term plan includes replacement of:

- Public Works Yard facility \$8.8M
- Departure Bay Activity Centre \$2.1M

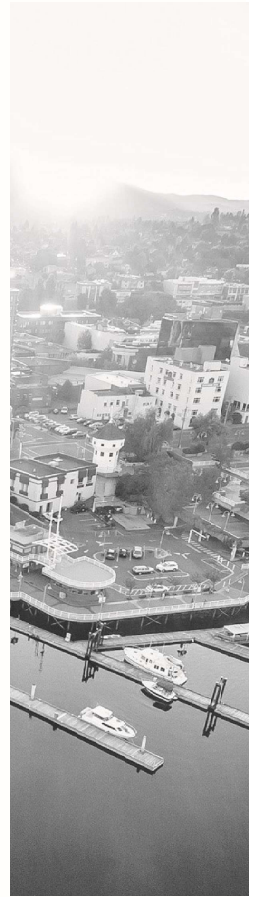
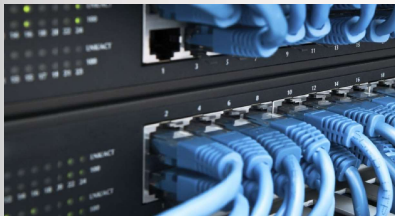


Information Technology

The City's technology equipment includes typical computer network hardware, software, communication infrastructure, radio systems and specialized equipment. These systems support over 140 business applications and 600 workstations distributed over many sites and supports day to day delivery of City services. Developing asset management plans for technology equipment is challenging as renewal can be required due to changing technologies, end of maintenance and support services as well as physical end of life. Replacement of assets may include different configurations and functionality as replacement with current functionality is no longer available.

The asset management update includes long term infrastructure investment plans for:

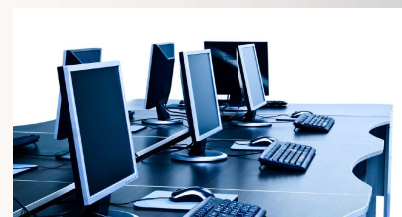
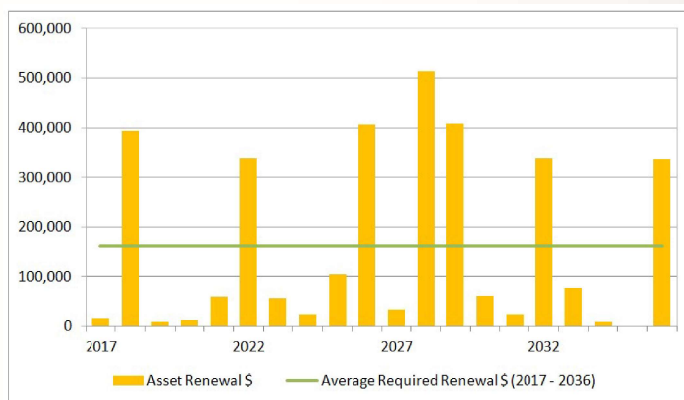
- Renewal of current infrastructure



Information Technology 20 Year Infrastructure Plan: Renewal

Includes only major IT hardware and fibre optic cable network.

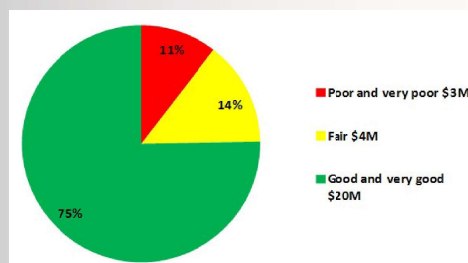
The graph is generated from the City's asset renewal models. Projected renewal needs in first five years will not be the same as projects in the City's approved Five Year Plan due to project prioritization, resource and funding constraints.



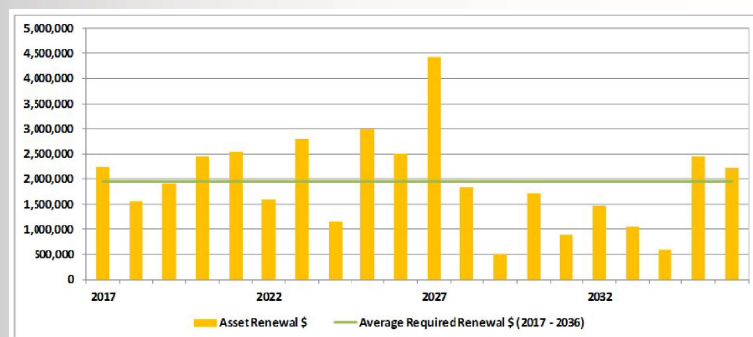
Fleet

The City's fleet includes cars, trucks, heavy equipment, solid waste collection equipment, fire apparatus and ice resurface equipment. The lifecycle of this equipment is relatively short lived compared to other City assets.

Fleet Current Condition



Fleet 20 Year Infrastructure Plan: Renewal



Continuous Improvement: The City's Asset Management System

The City's Asset Management Steering Committee is leading and coordinating the following AM improvement initiatives.

Sustainability

The City has participated in many sustainability initiatives to increase both awareness of environmental impacts in the community and to reduce the City's annual energy consumption.

The pillars of sustainability include environment, socio-cultural and economic components. While these factors are often included in the City's planning processes, there is a need to improve the transparency and consistency of applying sustainability criteria and objectives in the City's asset management system from strategic to operational levels.

Leadership in Asset Management Program (LAMP)

Nanaimo is one of 12 municipalities across Canada participating in a federal program to develop asset management tools. These tools include asset management governance documents and defined levels of service.

Expected benefits for the City are:

- Asset Management Policy (AM Policy) for Council's approval that will establish governance parameters for the management of the infrastructure used to provide City services. The policy will also describe guiding principles adopted in applying asset management to achieve the organization's objectives. These principles may include sustainability.
- Strategic Asset Management Strategy (SAMP) document that articulates how the organization deploys resources, processes and systems to meet AM objectives. The SAMP will focus on specific actions to be undertaken in the organization to improve/enhance its AM capabilities and competencies and to develop a structured set of actions aimed at enabling good, or where proven cost-effective, best AM practices.



- Defined levels of service (LOS) will identify specific performance measures at the operational, management and strategic level. These measures will inform infrastructure investment decisions and provide important feedback on the effectiveness of the City's AM system.

Risk Assessment Framework

Nanaimo is participating in a federal grant program to develop a risk framework that will support infrastructure investment decision making.

Staff Training

AM training and learning opportunities are provided to staff.

Information Management

AM is data intensive, and the City currently uses the GIS system and other systems and tools to maintain inventory and condition information on its assets. A GIS Strategic Plan is under way. A primary focus will be asset management information needs. A business case is being developed for a computerized maintenance management system (CMMS). This system would integrate operating activities with asset investment planning. Further development and implementation of condition assessment programs for facilities and parks amenities infrastructure will be included in future financial plans.



Appendix

Appendix A

Asset Management Reserves

In 2013, Council approved the following annual increases for contributions to asset management reserves. In 2017, the annual contribution to the General Asset Management Reserve will be \$4.7 million.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
General AM Reserve	1.0%	1.0%	1.0%	1.0%	1.0%					
Sewer AM Reserve	5.0%	5.0%	5.0%	5.0%	5.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Water AM Reserve	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%		

Below is a summary of contributions and withdrawals to the City's asset management reserves.

	Actual				2017 - 2021 Financial Plan						
	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	
General Fund											
General Fund Asset Management	0	837,682	2,524,998	4,863,087	7,551,309	5,943,698	4,596,992	6,994,737	10,469,195		
Additions	897,309	1,822,389	4,394,824	3,777,925	4,723,913	4,701,921	4,709,745	4,753,458	4,797,070	34,578,554	
Withdrawals	59,627	135,073	2,056,735	1,089,703	6,331,524	6,048,627	2,312,000	1,279,000	2,413,000	21,725,289	
Balance @ December 31	837,682	2,524,998	4,863,087	7,551,309	5,943,698	4,596,992	6,994,737	10,469,195	12,853,265		
Sewer Fund											
Sanitary Sewer Asset Management	0	238,155	746,650	512,605	834,515	1,031,770	798,097	1,271,965	1,388,177		
Additions	238,155	508,495	793,114	1,093,156	1,415,425	1,688,327	1,968,368	2,273,314	2,587,906	12,566,260	
Withdrawals	0	0	1,027,159	771,245	1,218,171	1,922,000	1,494,500	2,157,102	1,628,246	10,218,423	
Balance @ December 31	238,155	746,650	512,605	834,516	1,031,770	798,097	1,271,965	1,388,177	2,347,837		
Water Fund											
Water Asset Management	0	308,840	943,649	1,225,984	1,135,280	2,311,281	3,986,835	2,622,744	3,162,909		
Additions	308,840	634,809	987,345	1,361,522	1,755,245	2,202,554	2,662,909	3,149,165	3,146,362	16,208,752	
Withdrawals	0	0	705,010	1,452,226	579,245	527,000	4,027,000	2,609,000	4,063,100	13,962,581	
Balance @ December 31	308,840	943,649	1,225,984	1,135,280	2,311,281	3,986,835	2,622,744	3,162,909	2,246,171		

In 2015, \$1.5M transferred from local improvement reserve to general asset management reserve

Definitions

Definitions

Asset: A useful or valuable resource with the intended purpose of providing a benefit or service.

Asset Management: An integrated approach involving planning, engineering and finance to effectively manage existing and new municipal infrastructure to maximize benefits, reduce risk and provide satisfactory levels of service to the community.

Asset Management Plan: A plan developed for the management of infrastructure assets that combines multi-disciplinary management strategies (including technical and financial) over the lifecycle of the asset type in the most cost-effective manner to deliver a specified level of service.

Asset Management Policy: Endorsed by senior management to establish responsible governance for the practice of asset management. The policy includes guiding principles in applying asset management to achieve the organization's objectives.

Asset Management Strategy: Focuses on specific actions to be undertaken in the organization to improve/enhance its AM capabilities and competencies and to develop a structured set of actions aimed at enabling good, or where proven cost-effective, best practices.

Asset Management System: A structured approach for the development, coordination and control of activities for managing assets that align organizational activities to deliver services and meet organizational objectives.

Asset Type: Group of assets that have similar characteristics and/or functionality.

Development Cost Charges (DCC): The Local Government Act allows the City to collect monies from developers to offset new/upgraded infrastructure investment needed for growth. The City of Nanaimo has enjoyed a prolonged period of steady growth and that growth is expected to continue. The City has been collecting DCCs since 2001. Periodic reviews of the expected investment in infrastructure and charges support Council's decision regarding rates. The current DCC review process is nearing completion.

ISO: International Organization for Standardization is an international standard setting body composed of representatives from various national standards organizations.

Level of service: A composite indicator that reflects the social, environmental and economic goals of the community and may include any of the following parameters: safety, customer satisfaction, quality, quantity, capacity, reliability, responsiveness, environmental acceptability, cost and availability.

Definitions - con't

Lifecycle costs: Lifecycle costs refer to the total cost of ownership over the life of an asset. This may include but is not limited to capital costs, operating costs, maintenance costs, renewal costs, replacement costs, environmental costs and decommissioning costs.

Stakeholders: Internal and external people and organizations that can affect or be affected by the organization's actions. Examples include members of the community including businesses, Council, employees, unions, suppliers and other governments.

Sustainability: The pillars of sustainability include ensuring that the current social, economic and environmental commitments are considered in investment decisions and that those decisions will not compromise the ability of future generations to meet their own needs.

Upgrade: Investment in added or enhanced components to existing infrastructure assets designed to increase service capacity required for growth. Upgrading may also be required to meet building code changes, new regulations, adjusted service levels, or technology improvements.

Acronyms

AM Asset Management

AM Policy Asset Management Policy

DCC Development Cost Charges

ISO International Standards Organization

SAMP Strategic Asset Management Strategy