

# Report

Date November 30, 2021

File:

Subject Net New Staffing Request; Senior Manager of Engineering (Utilities)

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## PURPOSE

To consider a Senior Manager of Engineering (Utilities) position to oversee asset management and capital project planning and execution for utilities (water, sanitary and storm systems) within the Engineering Department for 2022.

## BACKGROUND

The Engineering Department has been struggling to deliver its capital program. Based on the current backlog of asset replacements and some of the already identified projects that are triggered by capacity issues and compliance with permits, additional staff resources are required.

Related to the undertaking of asset replacements and the construction of new infrastructure to service growth or to meet regulatory requirements, there would be benefits in enhancing our asset management practices. Improving our asset management practices would enable the department to better plan, execute, and strategically assign our resources to undertake a capital program of the magnitude necessary to meet our asset management obligations. The first step in the development of this function is to create a Senior Manager of Engineering (Utilities) position.

## DISCUSSION

### Alignment with Council's Strategic Plan

This position requested aligns with Council's Strategic Plan as follows and will lead or support several projects that advance some initiatives identified in Council's Strategic Plan:

1. Environment:
  - a. Strengthen environmental policy in all land use planning (Subdivision Bylaw/Engineering Standards Update).
  - b. Relocate the Joint Utility Board Sewage Outfall (support Director with the implementation of special projects).
2. Economy:
  - a. Attracting local businesses and the requisite opportunities and talent requires basic municipal services (water treatment and distribution, sewage collection and treatment, drainage and flood protection and roads and active transportation). Asset Management, the water & sanitary models and the Development Cost Charge (DCC) Bylaw facilitate the development of a coherent capital program and support the provision of basic municipal services.
3. Community:
  - a. Update subdivision bylaw (Subdivision Bylaw Update).

- b. Encourage appropriate development charges and amenities to support great development (Water & Sanitary Models Update, DCC Bylaw Update).
- c. Improve pedestrian safety on Boys Road (support Director with the implementation of special projects).
- d. Continue to implement existing neighbourhood plans (support the Manager of Development Services Group with off-site development impacts).

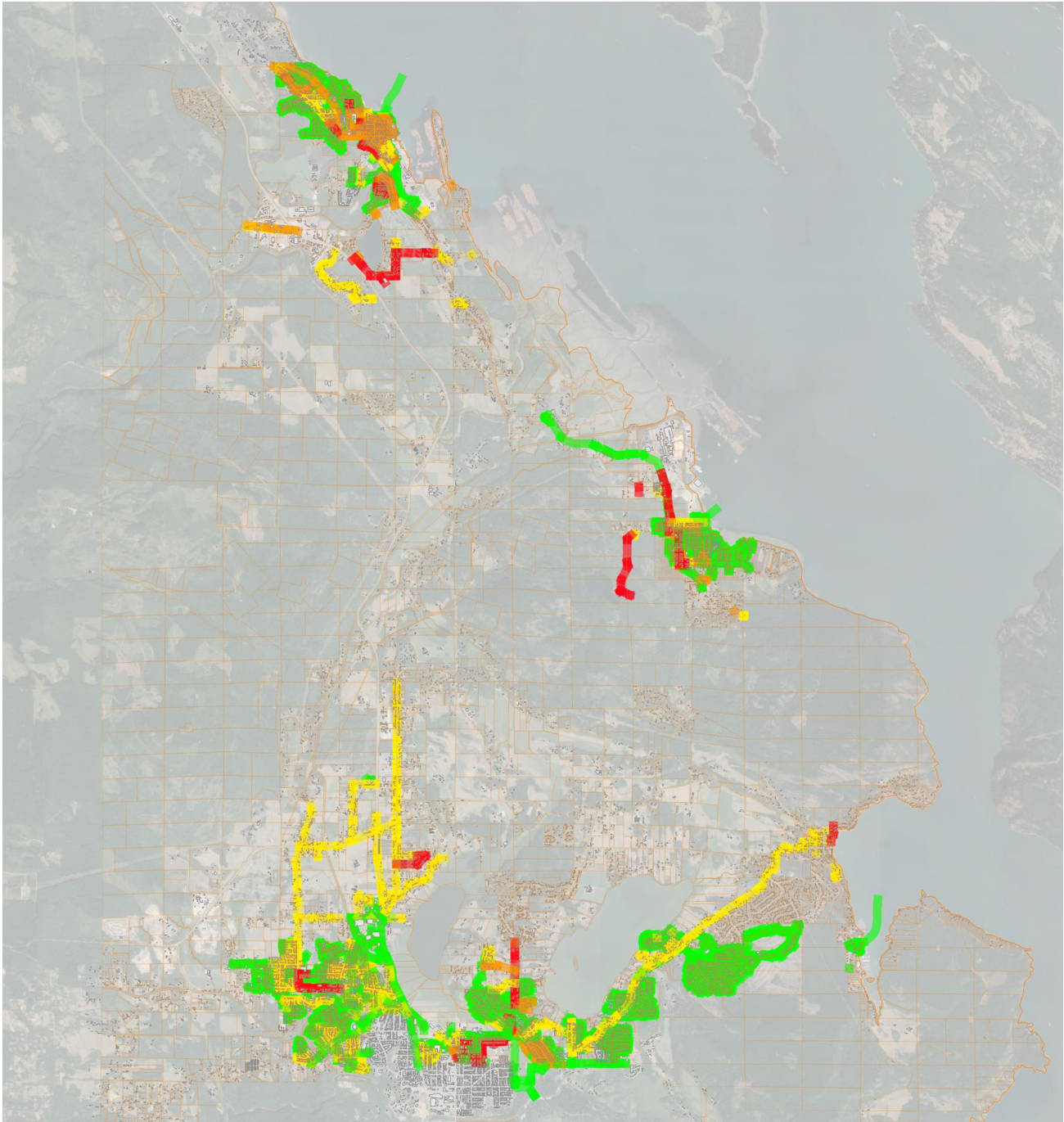
## **Request Rationale**

### ***Improve Asset Management Planning & Capital Program Delivery***

Asset management is an integral part of what the Engineering Department does. The Municipality provides extensive piping networks and pump systems, water reservoirs, water and wastewater treatment facilities, dikes, roads, and active transportation routes.

Based on the Asset Management Investment Plan (2019) prepared by Urban Systems, the Municipality has water, sanitary, storm and road assets with a replacement value of approximately \$950,000,000. The Municipality has a \$63,000,000 backlog of asset replacement work for linear assets alone that needs to be funded and addressed. In order to deal with the next 20 years of asset renewals, which are estimated to be \$252,000,000, plus the backlog, the Municipality needs to be saving \$16,000,000 per year. Year over year capital spending is approximately \$7,500,000. The next few figures show a sense of the amount and nature of work that needs to be done.

**Figure 1** shows the linear assets (excluding roads) for the entire Municipality that are beyond their Expected Useful Life (EUL) (red), within five years of reaching their EUL (orange), or within 5 to 10 years of reaching their EUL.



**Figure 1** Linear assets (excluding roads) that are beyond their EUL, or within the end of their EUL, within the next ten years.

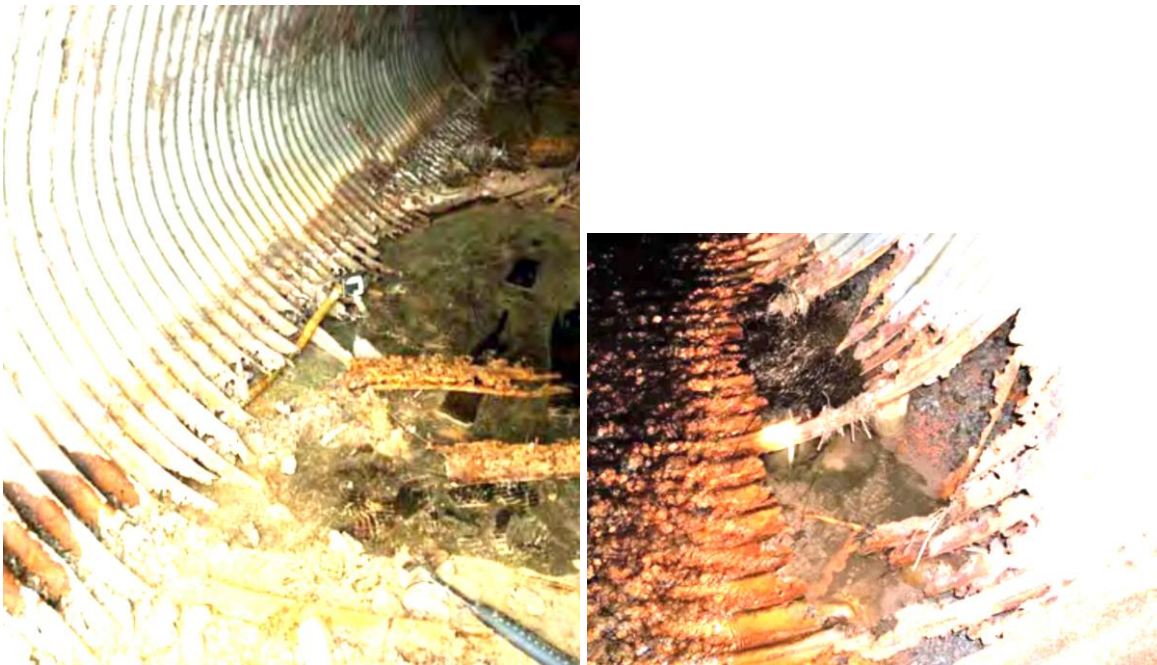
**Figure 2** are examples of tuberculated cast iron pipes. Tuberculation reduces the ability of the pipe to convey water to the point where there may be insufficient water flow for fire-fighting. Further, due to the reduction in conveyance, and during times when water velocities are high such as when water mains are being flushed or when a hydrant is in use, there can be a degradation in water quality.





**Figure 2** Examples of tuberculated cast iron pipe.

**Figure 3** are examples of Corrugate Metal Pipe (CMP) culverts where the bottom of the culverts have rusted out. This is a fairly common problem with CMP culverts, particularly as they near the end of their EUL. When this happens, water can run outside and beneath the culvert, eroding away the soils, potentially triggering a wash-out and failure of the road under which the culvert is conveying water.



**Figure 3** Examples of failing Corrugated Metal Pipe (CMP) culverts.

### ***Address Effects of Climate Change and Adaptation***

**Drainage System:** We need to update our drainage design standards to account for climate change, implement best management practices (green infrastructure), and control post-development runoff. In

the urban areas, we need to examine what would be involved in updating our master drainage plan and potentially developing stormwater management models for the urban areas.

*Roads:* Impacts to roads arise primarily due to drainage issues and the erosion that results from failing culverts or culverts with inadequate capacity. As it is inevitable that some roads will overflow, the Municipality needs to make sure that the said roads are protected to withstand the predicted more frequent and intense storms.

*Sanitary Systems:* We need to reduce Inflow and Infiltration (I&I) within the sanitary collection system. Not doing so will result in an increase in sanitary pump station overflows, pipes will reach capacity sooner than otherwise, and the performance of our treatment systems will be compromised due to hydraulic overloading. With the anticipated more frequent and more intense storm events, the effects of climate change will exacerbate the problem.

*Water Systems:* We need to develop more aggressive water conservation measures due to high water use in the summer months. Most of the increased water use can be attributed to lawn watering. In some cases, we need to examine ways to increase the amount of available water where conservation measures are not enough.

### ***Improve Service to the Public***

Engineering deals with a significant number of requests from the public. Some of which are relatively straightforward, and others are more significant. The more significant requests are typically entered in our Calls for Service (CFS) system. At present, Engineering has 242 outstanding issues tracked in the CFS system.

### **Analysis of Resource Requirements**

While the Municipality needs to increase the amount of money being collected and deposited into reserve fund accounts to fund the replacement of existing assets, this money cannot be effectively utilized if the Engineering Department is not sufficiently staffed to undertake/oversee the capital work that needs to be performed. At current staffing levels the department has the capacity to execute approximately \$3,000,000 of capital project-related work. Utilizing consultants increases the capacity of the department but staff capacity is required to acquire consulting services and oversee the work of consultants. Presently, there is very limited capacity for asset management planning and execution, and for the undertaking of studies to set up future projects.

The Engineering Department is proposing to create two new positions; a Senior Manager of Engineering (Utilities) and a Senior Manager of Engineering (Transportation and Development Services). Staff are seeking to create only one of the two positions at this time: the Senior Manager of Engineering (Utilities), which is the higher priority. The Senior Manager of Engineering (Utilities) will help determine future resource needs if approved.

## The Role and Cost of This Position

This position will focus on the short and long-term planning of water, sanitary, drainage and flood protection infrastructure, oversee the infrastructure design team, and support the Operations Department with the operation and maintenance of all water, sanitary, drainage and flood protection assets. This position will be responsible for the following areas of expertise:

1. Water, sanitary, drainage and flood modelling.
2. Asset management processes.
3. Design of water, sanitary, drainage and flood protection infrastructure.
4. Sewage and water treatment.
5. Land development processes as it relates to servicing.

Until Council approves the creation of a Senior Manager of Engineering (Transportation and Development) position, this position will also assist the Director with overseeing and addressing issues related to transportation.

This position will also assist with the assessment of further resource needs.

## OPTIONS

1. **(Recommended Option)** THAT Council direct staff to include a Senior Manager of Engineering (Utilities) position in the 2022 Operating Budget.
2. (Alternative Option) THAT Council direct staff to defer the following projects included in the 2022 Engineering Business Plan; the 10-year capital plan, the subdivision bylaw/engineering standards update, the DCC bylaw update, the master drainage plan update and model development, and the pedestrian improvements on Boys Road.

## IMPLICATIONS

The cost of this new position is \$121,000 (excluding benefits). The position will be funded from the following sources: \$97,000 from utilities fees (sanitary and water) and \$24,000 from general taxation (roads and drainage).

If Council does not approve the creation of this position, some key projects required to improve the management of assets and identification of the requisite upgrades triggered by development, as well as some capital projects, will be delayed or deferred. The affected projects are:

1. 10-Year Capital Plan;
2. Subdivision Bylaw/Engineering Standards Update;
3. DCC Bylaw Update;
4. Water Models Update (Chemainus, Crofton, South End);
5. Sanitary Models Update (Chemainus, Crofton, South End);
6. Master Drainage Plan Update and Model Development;
7. Pedestrian Improvements on Boys Road;
8. Chemainus/Crofton STP Screen Upgrades;
9. Chemainus/Crofton STP Thickener Upgrades;

10. JUB STP Outfall Project;
11. Chemainus STP Municipal Waste Regulation Registration; and,
12. EGBC-driven business process improvements.

The completion of the OCP, followed by updating our various master plans and models, is important work that enables the updating of the DCC Bylaw. The DCC Bylaw is the mechanism by which the Municipality can collect funds from ongoing development to fund the off-site impacts of development. If the DCC Bylaw update does not occur, this represents a lost revenue opportunity to help offset the cost of development-related impacts to the Municipality's infrastructure.

## **RECOMMENDATION**

THAT Council direct staff to include a Senior Manager of Engineering (Utilities) position in the 2022 Operating Budget.

Report prepared by:



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Clay Reitsma  
Director, Engineering

Report reviewed by:



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Ted Swabey  
Chief Administrative Officer

## **Approved to be forwarded to Council:**



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Ted Swabey  
Chief Administrative Officer