



## **Committee of the Whole Report**

**Report Number RD2020-003**

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**Meeting Date:** October 6, 2020

**Title:** Recommendations for the Maintenance and Improvement of Road Drainage

**Description:** As per Council resolution CW2020-009, staff were directed to provide a report to Council that outlines recommendations for the maintenance and improvement of road drainage.

**Ward Number:** All

**Author and Title:** David Lembke – Roads Operations Manager West A

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### **Recommendation(s):**

**That** Report RD2020-003 Recommendations for the Maintenance and Improvement of Road Drainage, be received;

**That** Staff be directed to present the in house ditching crew option for consideration in the 2022 Budget; and

**That** this recommendation be brought forward to Council for consideration at the next Regular Council Meeting.

**Department Head:**\_\_\_\_\_

**Financial/Legal/HR/Other:**\_\_\_\_\_

**Chief Administrative Officer:**\_\_\_\_\_

## **Background:**

The City has approximately 2400 km (centerline) of rural roads with roadside ditches. This equates to 4800 km of ditch that needs to be maintained. Required frequency of ditch maintenance can vary based on many factors including but not limited to size of the ditch (cross section), soil material, slope of the ditch sides, grade of the ditch, location of adjacent structures, amount of sediment deposited and timing of other operational / capital works.

A general rule of thumb would be that ditches should be cleaned/maintained at a frequency of every 15-25 years pending factors above. With the current program, the City can ditch approximately 100 km per year. It is evident that there is a need to modify the program to improve overall maintenance of our municipal ditches.

It is important to note that municipal ditches are designed to accommodate drainage of the right of way. They are not designed to accommodate run off from neighboring properties (depth or capacity). The operational ditching program does not include registered municipal drains.

In 2019, the then Deputy Mayor (Councillor Elmslie) hosted a series of forums within the City with public participation. There were many topics that arose through those discussions. One of the key recurring items was the need for ditching. This is a key component in the road structure in preventing premature degradation of our roads. Stemming from the meeting, the Deputy Mayor brought a report to Council summarizing the forum discussions

At the Council Meeting of January 28, 2020 Council adopted the following resolution:

### **CW2020-009**

**That** Report MAYOR 2019-001, **Deputy Mayor's 2019 Round Table Meetings on Roads**, be received;

**That** staff be directed to provide a report to Council that outline recommendations for the maintenance and improvement of road drainage by the end of Q2, 2020;

This report addresses that direction, but due to the Pandemic and corresponding state of emergency, the report was delayed.

## **Rationale:**

In 2019, City Wide ditching operations was completed using a combination of contracted equipment and labor, as well as in-house equipment and labor. Work

was completed sporadically, as work plans allowed over the course of the year. Activities included ditching, brushing, and shoulder berm maintenance for approximately 100 km of road side. This allowed Public Works Roads (Roads) to continue to alleviate priority drainage issues. The total cost in 2019 using contracted hours was \$486,000 over a twelve (12) month period.

Due to feedback from the Deputy Mayor's Roads 101 Public Meetings, Public Works - Roads were tasked with investigating all options available to the Corporation to enhance this operation.

Staff reviewed several alternatives to enhance the ditching program. From this review, Staff recommend that the Roads division create two (2) designated ditching crews, whose sole purpose is to complete ditching, brushing, and shoulder berm maintenance operations throughout the course of the year. In general, one (1) crew will be assigned to the East Operating Area and one (1) crew assigned to the West (A) Operating Area, however work will be completed when and where deemed necessary by the area managers.

Each ditching crew would be comprised of the following staff:

- A Roads Crew Leader (existing Staff)
- A Heavy Equipment Operator (new Staff requirement)
- Two (2) Equipment Operators (new Staff requirement)
- Two (2) Summer Students (existing Staff)

The required equipment for each crew would be:

- Rubber Tired Excavator (minimum of 175 HP) (new fleet requirement)
- A one (1) yard ditching bucket and brushing head (new fleet requirement)
- Two (2) Tandem Axle Dump Truck (existing fleet)
- One (1) Crew Cab Pickup Truck (existing fleet)

To have dedicated crews capable of working whenever conditions permit, we anticipate to significantly increase productivity. With two dedicated internal ditching crews, Staff currently expect to be able to maintain our ditch inventory in an effective manner. Staff will continue to monitor effectiveness and productivity of the program.

A program of this nature will also have ancillary benefits. In addition to enhanced ditching and brushing services, this alternative will also provide the benefit of providing staffing redundancy in an operation program with limited resources. We currently have one operator per required plow route. Due to historical short and long term vacancy in the approved head count, Staff have been forced to contract out operational routes at a significant increased cost. There are no other consistent means to temporarily staff these routes when leaves occur. The additional staff would allow Roads to continue to maintain the Council approved

Level of Service and response times and ultimately aid in limiting the Corporations exposure to liability claims, which cost the corporation \$173,000 in the last five (5) years. Furthermore, when these additional staff are not required for winter control, this allows Roads to continue other operations such as road side brushing outside of the Nesting Season (April 1 – August 25) as per the Migratory Bird Act and will provide additional resources to other off season programs such as sign replacement.

### **Other Alternatives Considered:**

Option 1: Fully Contracted Option to complete City Wide Ditching Operations for a four (4) month period from June 1 to October 1. This option includes the following contracted staff and equipment;

- Excavator and operator
- Two (2) Tandem Axle Dump trucks and operators
- Two (2) Traffic Control Technicians
- One (1) Third party construction inspector

The total cost for the Fully Contracted four (4) month option for the East and West Operating Areas is \$654,000.

Estimated ditching productivity for Option 1 is 60 km per year which is insufficient to manage our ditch inventory in an effective manner. Adding a second contracted crew would double the cost which makes the alternative not feasible.

Option 2: Hybrid Option to complete City Wide Ditching Operations for a four (4) month period from June 1 to October 1. This option includes the following contracted and in house staff and equipment:

- Contracted excavator and operator
- One (1) contracted third party construction inspector
- Two (2) contracted traffic control technicians
- Two (2) in house Tandem Axle Dump trucks with operators

The total cost for the Hybrid Option for the East and the West Operating Areas is \$429,000.

Estimated ditching productivity for Option 2 is 60 km per year. Again this option is insufficient to manage our inventory and expansion of the program would become infeasible.

It should be noted that Option 2, is for a four (4) month project window, not the twelve (12) month window we currently use.

## **Financial/Operation Impacts:**

The total cost for one designated ditching crew, whose sole purpose is to complete ditching operations is approximately \$253,000. The total operating cost to run two (2) crews is \$506,000 in 2020 dollars.

Staff propose that the Roads Operational City Wide Ditching Budget be reduced from \$515,000 to \$130,000 and the City Wide Brushing Budget be reduced from \$130,000 to \$80,000. Resulting in a reduction of \$435,000 from the City Wide budget. The resulting reduction, would then be applied to Public Works – Roads overhead operating budget, resulting in a need for an additional budgetary increase of \$70,000. For this net \$70,000 investment we will see an increase in headcount of six (6) staff and a significant increase in productivity.

If approved by Council, we will work with Fleet to determine the most cost effective means of acquiring the necessary fleet. Although the annual costs for the incremental fleet needs (two rubber tire excavators) are included in the financial calculations above, the initial capital requirements for the excavating equipment needs to be considered. An alternative to this would be to rent equipment.

## **Relationship of Recommendation(s) To The 2020-2023 Strategic Plan:**

This report aligns with the 2020-2023 Strategic Plan in the following;

### **Goal 1 – Asset Management**

- Ensure municipal assets are well maintained and managed;

### **Goal 2 – Increase Access to Transportation Options**

- Execute road needs plans and invest in life-cycle improvement measures and supporting maintenance programs;

### **Goal 3 – Increase Efficiency and Effectiveness of Service Delivery**

- Promote continuous improvement to Make It Better in all service areas

## **Consultations:**

Director of Public Works  
Roads Manager West B  
Manger of Fleet Services

## **Attachments:**

NA

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**Department Head: Bryan Robison**