RFD 14-021 - 2014 Road Maintenance Resources Report

BACKGROUND

During the 2014 budget discussions, Council requested that Public Works review their resource requirements for Road Maintenance Services. The direction from Council was that the level of service needs to improve. It was stated by Council that Council would support a plan to increase the amount of resources within the Road Maintenance Service area in order to improve the level of service.

In order to demonstrate where and when additional resources would be required, two flow charts were put together listing the major activities along with the manpower requirements associated with each activity. One flow chart outlines the activities with the existing staff allocations and the second flow chart outlines the proposed increase in staff allocations.

There are some additional pieces of equipment identified that would go hand in hand with the additional staff.

FINDINGS

It became evident when going through the exercise of identifying the number of staff allocated to the different activities, that there has been an erosion of manpower hours dedicated to many of the activities. In each of the following activities, the current shortfalls are identified along with what it will take to ensure there are adequate resources to fulfill the road maintenance requirements. Rather than identify a number of staff as one group attending to one specific activity, the report identifies where the staff will be required to more efficiently deliver all of the road maintenance programs. The thought is that by being able to complete all of the budgeted activities in a more timely manner the road maintenance level of service will improve throughout. Currently there are a number of activities that do not get completed on an annual basis even though there is funding set aside for them.

It is important to note that the overall roadway network increases annually. The gravel surface roadway inventory is gradually decreasing and the hard surface roadway inventory is increasing. The change in surface type is directly attributed to the road surfacing projects that occur on an annual basis and the fact that most new subdivisions are required to have a paved surface.

The following list of activities, along with some brief notes outlines the proposed increase in staff level:

Snow and Ice Control:

The Snow and Ice control activity consists of utilizing ten graders and eight snow plow trucks (six County owned and two contract) to remove snow from the rural and subdivision roadways. There are also two 1.5 ton trucks equipped with snow plows and sanders and two skidsteers, which are typically utilized on narrow roads, back alleys, parking lots and for removing snow from approaches. All the plow trucks are equipped with sanders to address icing and traction issues. As the County accumulates additional kilometres of hard surface roadways there will be less of a need for motor graders and more of a need for tandem axle snow plow trucks. Currently, Road Maintenance Services shares one tandem axle truck with Engineering Services. The overland drainage crew utilizes the truck in the spring, summer and fall as part of their operation. This particular truck is returned to Road Maintenance Services once the snow

and ice control operation commences. The review indicates a need for an additional tandem axle gravel /snow plow truck. The additional truck would be utilized during the spring, summer and fall to fully utilize existing attachments and for general material hauling needs. In the winter season it would plow snow and sand roads. To date, Road Maintenance Services has used 100 kilometres of hard surfaced road per snow plow truck as a baseline for what each snow plow truck can be reasonably expected to maintain. Currently there are 825 kilometres of hard surfaced road in the County. In order to provide a better overall level of service, it is proposed that the baseline be reduced from 100 kilometres per truck to 90 kilometres per truck. The additional truck would enable us to achieve this increased level of service.

Currently, on average, the snow removal and ice control activity is understaffed by two positions. Increasing the seasonal spray patch operator to full time and hiring one additional operator would be appropriate.

Hard Surface Repairs:

There is a steady increase in hard surfaced roads throughout the County. With that comes an increase in the amount of maintenance work required. In addition, as the population increases within Parkland County so does the amount of traffic on the roadways. Pothole related issues accounted for 55% of complaints pertaining to hard surface road concerns in 2013.

Currently, there is one Spray Patcher Unit in place to address potholes and other deficiencies such as major cracking and isolated depressed areas. Also in place is an apparatus called an Edger Patcher which is mounted onto a tandem axle gravel truck. This unit is used to address deficiencies such as wheel rutting, shoulder breakouts and potholes. The unit is typically put into service in spring and is used until Chip Sealing begins (Middle to end of July). Alongside that, there are a minimum of two personnel performing hand pothole patching throughout the majority of the spring and into the summer. Skin patching with a grader and skid steer patching are typically used for larger areas of surface or subsurface failure and are scheduled at various times throughout the late spring through the summer. The other activities that are commonly utilized to address deficiencies on hard surface roads are Cold Pour Crack Sealing and Graded Aggregate Chip Sealing . Cold Pour Crack Sealing is typically performed in the later spring and early summer and is an application of an oil product into open cracks on the road surface. Graded Aggregate Chip Sealing is performed typically in the late summer and is used on roadways that have an oxidized or dried out surface but are generally in good condition otherwise.

Currently there are 4 flagpersons hired for traffic control during the summer season for the various road repair activities. The current number of flagpersons is inadequate to cover all of the activities within the season. Hiring two additional flagpersons will enable more work to be done safely, in a shorter period of time and on a more consistent basis. The Spray Patcher Unit has proven to be the most effective and efficient tool for addressing small to medium sized deficiencies on the hard surfaced roadways. This one man operation produces a high quality, permanent repair. Acquiring an additional Spray Patcher unit with an additional full time equipment operator would greatly increase productivity and as a result there

would be a reduction in the amount of pot-hole related concerns. It is noted that the additional full time equipment operator would also be utilized during the winter months as a plow truck operator.

Other Activities:

Included are guiderail repair, roadside brushing, sign installation/repair and refuse pick-up. The majority of these activities are performed throughout the year on an "as required basis" as manpower becomes available. Sign installation and repairs are handled by a permanent, full time Sign Technician

The work in these areas is labour intensive and as a result, not all the work is attended to in a timely manner with current staffing levels. Having two additional seasonal Maintenance Service Worker II positions available would enable the work to be completed as planned.

Work for Others:

Road Maintenance Services provides backup services for a number of other departments. Over the past four years, there has been an average of 7,000 hours of time recorded per year working for other departments. This included both regular time and overtime. The majority of the time has been spent working on Engineering Services projects. The amount of time spent specifically on Engineering projects equates to approximately 5,200 hours per year, including both regular time and overtime. The majority of work occurs between the months of May through October. This is a direct result of Road Maintenance personnel assigned to the Engineering subdivision surfacing projects (base course and asphalt surfacing). The remaining 1,800 hours are spread out amongst several other service areas.

There is a need to focus the efforts of staff towards completing maintenance items while maintaining services to other departments. The review has shown it necessary to replace, in the road maintenance service area, the two personnel currently being assigned to the Engineering Services subdivision surfacing program. This will allow Public Works to re-establish their previous manpower level to address road maintenance items including the ability to perform the deep strength pothole patching repair, which will help minimize areas that have recurring surface failures year after year.

SUMMARY

To conclude, there are a number of areas that are operating with inadequate resources within the road maintenance services programs. The deficiencies can be rectified by adding the following resources:

Staff:

1. Increase the current Equipment Operator II (Spray Patch operator) by 0.33 FTE - to full time from the proposed 0.67 FTE. This operator is required for winter operations as well.
2. Add one full time Equipment Operator II (Spray patch operator) (1.0 FTE) – Operate snow plow truck for winter operations.
3. Add two seasonal Maintenance Service Workers (1.0 FTE total) - Brushing, guardrail, refuse pick up, hand pothole patching.
4. Add two temporary flagpersons (0.83 FTE total) - Traffic control to enable multiple projects to occur at any given time.
5. Personnel currently assigned to Engineering Services (1.60 FTE)

New staff equates to 3.16 FTE plus the 1.60 FTE existing staff brings the total requirement to 4.76

Equipment:

1. Tandem Axle Gravel/Snow Plow Truck
2. Spray Patch Truck (or comparable unit)

Costs for Additional Resources

Staff:

1. 1.33 FTE - Equipment Operator II's - Full time - $115,090 (1 new position and increase to an existing position)
2. 1.0 FTE – New maintenance Service Worker II's - Seasonal - $69,000 (2 positions)
3. 0.83 FTE – New flagpersons – Temporary - $26,000 (2 positions)
4. 1.60 FTE – New Equipment Operator II's - Seasonal - personnel assigned to Engineering Services projects - $131,300 (2 positions)

Equipment:

1. Tandem Axle plow/sand truck - $250,000 (Capital Cost) - $88,600 (Annual Operating Cost*)
2. Spray patch truck - $265,000 (Capital Cost) - $48,000 (Annual Operating Cost*)

Initial capital cost for equipment - $515,000

Total annual operating cost for additional resources - $477,690 (say $520,000 – includes materials)

**Annual Operating Costs include the recovery of the initial Capital Cost of the equipment*