Memo

To: Peter Thomas, CAO
From: Jim Uhl
Date: June 22, 2021
Re: 44, 47, and 48 Streets between 45 and 46 Avenue
CC: Dolan Isaac

I did some additional work, with Dolan's assistance, on these roads and have come to a point where some answers are needed prior to proceeding with whatever work is approved.

First, questions:

1) What is the purpose of the work? Improve drainage? Improve road conditions? Reduce the use of the shoulders and swales as parking areas?
2) Is this intended to be a short or a longer term solution? We do not want to undertake something that will prove to add costs to a future project.

Observations (including ones previously stated):

1) The actual travelling lanes are in reasonable shape for gravel surface roads.
2) The drainage is terrible and is likely the major issue related to the condition of the roads.
3) There are no distinct ditches or swales and if there were any in the past, they have been compromised by traffic, maintenance, and driveway construction. Dolan noted that that water flows over the road at times so that is a good indicator.
4) Water standing on the shoulders of the road and in areas blocked by impediments in areas where traffic either travels or parks is probably the primary problem.
5) The road conditions seem to be the symptom whereby drainage and improper road use are the disease.
6) The lot grading and residence elevations along these roads may be factors when considering options. All of the roads in question have buildings that are at or below road level reducing options as some options would cause water concerns on these lots.

Recommendations:

1) Determine whether, in the future, we are looking at these roads as either urban (curb, gutter, surfacing) or rural (ditches and gravel surfacing) and proceed accordingly.
2) Determine the length of time we want the upgrades to last.

3) Get a detailed survey of the road top and both ditches. The cost estimate is $2,000.
4) Confirm a typical cross section. The current nominal road width is eight meters which seems about right.
5) Determine whether we want to see swales or ditches and culverts. At this point, it appears that swales could be utilized on 47 and 48 Streets, but some ditching and small culverts would be the best option on 44 Street.

Cost Estimates:

1) If we were to go with the **ditching and culvert option** on all three blocks (300 meters on 44 Street and 200 meters on each of 47 and 48 Streets, the total cost would be in the $280,000 range (pending the completion of a design). This is at this level as the cost of culverts alone will be in the $50,000 range. Not including installation costs of about $1,000 per driveway.
2) If we were to go with the **swale option** on 47 and 48 Streets and the ditching and culverts on 44 Street, the cost estimate would be in the $142,000 range. Again, pending design. As there are only 15 culverts on 44 Street, the cost is reduced significantly.
3) These costs DO NOT include the construction or culvert installations on vacant lots.

Cost Estimate Breakdown for Full Ditch and Culvert Option:

1) Subgrade Excavation (ditches). 1,400 metres x 2 meters x 0.5 meter = 1,400 cubic meters @ $20.00 per cubic meter = $28,000
2) Subgrade Preparation. 700 meters x 8 meters = 5,600 square meters @ $5.00 per square meter = $28,000
3) Driveway Rehabilitation (20 square meters each). 44 driveways @ $600 each = $26,000
4) Culvert Supply. 44 - 7 meter x 400 millimeter CSP culverts plus 3 – 180 meter centerline pipes on 44th Street = 338 meters @ $68 = $23,000
5) Culvert Installation. 47 culverts @ $1,000 per culvert = $47,000
6) Gravel Supply and Placement. 1,000 tonnes @ $30 per tonne = $30,000
7) Contingency. 15% = $27,000
8) Administration. 15% = $27,000

TOTAL PRELIMINARY COST ESTIMATE FOR DITCH AND CULVERT OPTION, $236,000

Cost Estimate Breakdown for 44 Street Ditch and Culvert and 47 and 48 Street Swale Option:

1) Subgrade Excavation (Swales). 800 metres x 2 metres x 0.3 metre = 500 cubic metres @ $20.00 per cubic metre = $10,000
2) Subgrade Excavation (Ditches). 600 metres x 2 metres x 0.5 metre = 600 cubic metres @ $20.00 per cubic metre = $12,000
3) Driveway Rehabilitation (20 square metres each). 44 driveways @ $600 each = $26,000
4) Culvert Supply (11 approach, 1 alley, 3 centerline culverts). 126 metres @ $68 = $9,000
5) Culvert Installation. 15 culverts @ $1,000 = $15,000
6) Gravel Supply and Placement. 1,000 tonnes @ $30 per tonne = $30,000
7) Contingency. 15% = $15,000
8) Administration 25% = 25,000

TOTAL PRELIMINARY COST ESTIMATE FOR DITCH AND SWALE COMBINATION OPTION, $142,000

CONCLUSION:

Trying to improve the surface condition of the roads in question without addressing the two major issues of drainage and improper traffic usage is, at best, a temporary fix.

Timely maintenance blading to maintain both crown and conditions will provide whatever benefits are available without the addition of a significant amount of material or surface reconstruction.

The addition of gravel to the existing surface will not provide much in the way of improvements. In fact, as the loose gravel (which will increase dust issues and wash boarding) gets pushed into the ditches, swales, and culvert ends, it could prove to be detrimental.

As always, if there is a decision to proceed in any specified fashion, we will do our absolute best to make sure we are spending Village funds as effectively as possible and are achieving the best possible results.

I hope this helps. I am available at any time to discuss further or assist in taking the next steps.

Jim Uhl