



Roadside Ditch Alteration Policy

February 18, 2020



Benefits of Roadside Ditches

- Installed on streets without storm sewers
- Drain public roadway and private property
- Perform many of the same functions as storm water management ponds:
 - Reduce flooding and erosion
 - Control runoff for slower release to creeks and streams
 - Improve water quality through filtration
 - Ground water recharge (the original Low Impact Development)



Inventory and Current Practices

- Approximately 176 km of roadside ditches in Markham
- Approximately 50 km of residential roadways contain ditches on one or both sides
- Currently ditch maintenance work is undertaken on an “as needed” basis, with no schedule for regrading
- Many residential roadside ditches have not been regraded in 40 or more years



Maintenance Challenges

- Ditches fill with sediments over time and require periodic excavation and possibly replacement of driveway crossing culverts which typically have a 40 year lifespan
- Lack of public awareness:
 - ditches is part of the stormwater management system
 - the boundary limits of private property
- Unauthorized infilling of ditches and or improperly installed driveway cross culverts negatively affect positive drainage of upstream properties, resulting in upstream ponding issues



Unauthorized Ditch Infills

- Usually done by residential property owners to remove ditch from front lawn
- Culvert pipe installed across entire length of property and ditch filled with earth material
 - Channels water to edge of road, reducing lifespan of asphalt / road base
 - Limits water dispersal from runoff of subject and adjacent properties
 - May use inferior components that would not support the weight of vehicles, possibly resulting in collapse and serious injury
 - Reduction of stormwater storage capacity necessary in major weather events, increasing the likelihood of localized flooding
 - Negative effects compound as installations increase in the area



Proactive Ditching Program

- Adopt the Roadside Ditch Alteration Policy to provide a consistent direction for the City and resident to follow
- Establish an annual scheduled ditch restoration program
 - Re-ditch and replace driveway cross culverts to original grades in advance of any capital road improvement work
- Funding requested to accommodate approximate 4 km/year in addition to the current reactive work
- Coordinate activities with Environmental Services to enhance Storm Water Management systems in each community



Financial Considerations

- Based on a maximum cost of \$22 per linear meter, undertaking 4 km of ditch restoration work annually will cost an incremental \$88,000 per year in capital cost starting 2021 (\$22 x 4,000 lm)
- This will cover part-time staffing, material disposal, granular material and equipment rental expenses. The program will protect the City's investments in road maintenance and avoid early erosion of Markham's infrastructure.
- The additional funding requirement will be requested through the 2021 capital budget approval process as part of the pavement preservation program.



Sabiston Dr

Unauthorized infill



Ditch restoration





Hawkrigde Ave

Unauthorized infill



Infill accepted after modification





Thank you