Municipality Of Chatham-Kent

Infrastructure and Engineering Services

Drainage, Asset and Waste Management

Information Report

To: Mayor and Members of Council

From: Tim Dick, C.E.T.
Director, Drainage, Asset and Waste Management

Date: June 25, 2018

Subject: Erie Shore Drive – Update to 2017 Council Direction

This report is for the information of Council.

Background

At the December 11, 2017 Council meeting, the following three-part motion was passed:

That:

1) The Municipality of Chatham-Kent appoint an engineer to design a system of flood proofing such as direct drilled catch basins and drains to protect and alleviate on-road flooding of the Dyke Road.
2) A stakeholders committee be convened to determine a fair and equitable strategy to cover the expenses for the engineering and costing of the recommendation outlined within the 1998 Todgham and Case report.
3) Chatham-Kent Council demand that some of the money allocated to the Great Lakes Basin by the Federal and Provincial Governments be allocated to alleviate flooding issues along the Lake Erie Shoreline in Chatham-Kent."

The following is an update for all of Council regarding the status of their direction.

Comments

Part 1

Infrastructure and Engineering Services (IES) prepared and released a Request for Proposal (RFP) in late December 2017. Simultaneously, a geotechnical firm, Golder Associates, was retained to conduct specific soil composition and hydraulic testing on the dike itself. The draft Golder report was made available to all interested RFP participants.

The closing date for the RFP was February 14, 2018. No formal submissions were received. After several discussions with the Engineering Consultant community, they indicated the primary reasons for not participating were:

- An inability to satisfy the expectations of Council and the property owners.
- A strong indication of the need to follow the Drainage Act process.

There were no concerns indicated regarding the clarity or objective of the RFP. One of the interested participants submitted a letter of explanation outlining their reasons for not responding consistent with the points noted above.

Part 2

It is administration's understanding that an informal property owners group consisting of Erie Shore Drive residents and agricultural property owners has been formed. The 1998 Todgham and Case study was a preliminary report. A more detailed final report with updated cost estimates, revised design options and assessment rationale is required before any construction can commence. Regulatory and environmental regulations have changed significantly since 1998. Approvals are required from various Federal and Provincial government agencies prior to any project construction.

Part 3

Chatham-Kent applied for funding under Canada's Climate Change Adaptation Platform, chaired by Natural Resources Canada (NRCan). This funding is intended to support a comprehensive study aimed at assessing the effect of climate change on the Great Lakes using the Lake Erie Shoreline in Chatham-Kent as one case study. The purpose of the study is to advance the knowledge base and enhance the adaptive capacity of practitioners managing the coastal zone in the Great Lakes basin.

Chatham-Kent was approved for funding and a kickoff meeting was held on June 26, 2018. Work on the public consultation and preparation of the report will occur over the next 18 to 24 months. This information will be very helpful in determining the best solution for all properties along Chatham-Kent's shoreline.

Specifically, it will address key physical knowledge gaps that determine hazards and adaptation responses and use four collaborative case studies (multi-scale, multi-jurisdictional and multi-sector). The first objective is to develop climate change information on crucial but under-investigated drivers of coastal processes and "mainstream" this information into coastal zone management and planning in the lower Great Lakes, specifically Erie and Ontario.

The second objective will be to collaborate extensively, co-create knowledge and build the capacity of coastal managers to understand the risks and integrate climate change information into infrastructure development, policies, programs, and practices that initiate adaptation to climate change in Great Lakes coastal management activities. One of the outputs of the study will be to develop a Chatham-Kent Integrated Shoreline Management Plan Incorporating Climate Change Adaptation, which will use future ice

conditions and storm extremes for Lake Erie coastline to assess coastal hazards, such as flooding and erosion, and co-develop a vulnerability assessment and adaptation response strategies as summarized in a shoreline management plan.

Golder Associates Report

Recognizing that there were no responses to the RFP pertaining to the December 11th Council motion, administration instructed Golder Associates to perform additional work to analyze and provide recommendations on the condition of the road and the dike.

The report examines existing conditions and provides recommendations on future road reconstruction including grade raising. It also examines drain bank slope and overall dike stability.

The report concludes that considering the results of the boreholes and the slope stability analysis, the dike slope is stable under normal conditions. The existing roadway pavement structure was deemed adequate for the traffic volumes and loading conditions present. Finally, the report states that the dike slopes are likely to become unstable during extended significant flooding events (estimated at 3 to 8 days in duration).

The following are recommendations for the short term (all are in progress):

- Continue to monitor the slope weekly during peak flooding times.
- Continue to monitor erosion and scour along the drain slopes.
- Continue to control overtopping in designated sections of the dike and incorporate robust geosynthetic reinforcement and erosion control in those sections as required.
- Continue with riprap-lined channels to manage the flow of floodwaters down the slopes into the drain.

The following are recommendations for the long term:

- Perform a detailed topographic survey to support the relocation of the drain to the north and regrade the dike slope to a 2:1 incline.
- Alternatively, remove the upper 2.5 to 3.0 metres and reconstruct as a reinforced soil structure in accordance with the Drainage Act.
- Work with higher levels of government to study the feasibility and approvals for off-the –shoreline wave energy absorbing systems (i.e. breakwalls).

It should also be noted that the report does not recommend that any below ground surface drainage system(s) such as direct drilled catch basins be installed along the roadway and through the dike as it may lead to further instability of the dike slopes.

Conclusion and Drainage Act Clarification

Per the report to Council dated December 6, 2017, it remains the opinion of IES and the expert consultant community that the original recommendation be followed. It read: “The residents of Erie Shore Drive affected by lake flooding initiate the Drainage Act process by signing a Section 4 petition.”

Details on the Drainage Act petition process were provided in the December 6, 2017 report to Council. To re-iterate some key points, the initiation of a Section 4 petition under the Drainage Act does not require any formal action by Council or administration except to appoint a Drainage Engineer once the petition is received. Appointments are handled by the Drainage Board and supported by Council through the consent agenda.

Under the Drainage Act, petitions can be initiated by private landowners or by the road authority. Petitions signed or initiated by a municipality automatically become valid whereby petitions initiated by private property owners can be withdrawn. It is recommended that private landowners sign a petition in the case of Erie Shore Drive for several reasons:

- The water to be drained is on private property.
- The road authority already has a legal outlet to the existing internal Burk drain.
- Private owners retain control in terms of project scope, size, cost and retraction.
- Not all landowners are interested in or feel they need drainage relief.
- The Drainage Act is a legal process that allows property owners a means to fairly resolve common drainage issues with a structured appeal process in the event of conflicts.

Consultation

Consultation and feedback was received from participants who picked up the RFP for consideration.

Consultation was also held with Golder Associates during the preparation of the enhanced geotechnical report.

Financial Implications

The cost of the Golder Associates report was $16,800.00 plus HST.

Prepared by:

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Attachment: none

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