

DOUGLASDALE MCKENZIE SLOPE REPORT

EXECUTIVE SUMMARY

The City of Calgary retained a geotechnical consultant to complete a comprehensive Feasibility Study (Attachment 1) for slope stabilization and associated work along The City of Calgary owned escarpment, east of the Bow River adjacent to the communities of Douglasdale and McKenzie Lake (the Escarpment). The Study addresses safety concerns and the long-term stability of the Escarpment in order to repair the existing regional pathway in the area.

ADMINISTRATION RECOMMENDATION(S)

That the SPC on Transportation and Transit recommend that Council:

1. Receive this report for information;
2. Direct Attachment 2 - Legal Advice and Option Analysis of this report to remain confidential under Sections 27(1)(a) of the Freedom of Information and Protection of Privacy Act (FOIP) indefinitely;
3. Direct Attachment 1 - *Feasibility Study Bow River Regional Pathway Douglasdale/McKenzie Lake, Calgary AB*, Attachment 3 – Feasibility Study Boundary, Timeline of Closures and Slope Failures, and Attachment 4 – Feedback from the property owners, of this report to remain confidential under Sections 24(1)(a) and (g) of FOIP until all related matters are resolved;
4. Recommends Council approve the recommendations contained in Attachment 2 - Legal Analysis and Opinion.

RECOMMENDATION OF THE SPC ON TRANSPORTATION AND TRANSIT, 2015 NOVEMBER 18:

That Council:

1. Receive this report for information;
2. Direct Attachment 2 – Legal Advice and Option Analysis of this report to remain confidential under Sections 27(1)(a) of the *Freedom of Information and Protection of Privacy Act* (FOIP) indefinitely;
3. Direct Attachment 1 – *Feasibility Study Bow River Regional Pathway Douglasdale/McKenzie Lake, Calgary AB*, Attachment 3 – Feasibility Study Boundary, Timeline of Closures and Slope Failures, and Attachment 4 – Feedback from the property owners, of this report to remain confidential under Sections 24(1)(a) and (g) of the *Freedom of Information and Protection of Privacy Act*, until all related matters are resolved;
4. Recommends Council approve the recommendations **and Option Analysis 1**, as contained in Attachment 2 – Legal **Advice and Option Analysis**.

PREVIOUS COUNCIL DIRECTION / POLICY

On 2015 September 28 Council directed Administration to provide a report, with respect to funding request in Report PFC2015-0677, to the SPC on Transportation and Transit no later than 2015 November.

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BACKGROUND

Since the flood of 2005, slope movements on the Escarpment east of the Bow River adjacent to the communities of Douglasdale and McKenzie Lake have damaged The City's primary pathway (the Pathway) along a 3.5 km section. The slope continues to move, impacting the Pathway along five hot spots. Attachment 3 – Feasibility Study Boundary, Timeline of Closures and Slope Failures provides an overview of damage to the Pathway and repairs to date.

INVESTIGATION: ALTERNATIVES AND ANALYSIS

The Escarpment qualifies under Section 664 of the MGA as Environmental Reserve, which is intended for lands that have been set aside for the purpose of preserving existing characteristics of a natural plant or animal community and limit development to improvements that facilitate passive recreational use. The Pathway and landscaping for the Escarpment were completed sometime before the year 2000.

The Pathway has sustained damage from active slope movement following heavy rain and the extreme weather events of 2005, 2007, 2011, 2012, 2013, 2014 and 2015. Tension cracks and vertical exposed scarps adjacent to the Escarpment and within the Pathway resulted in tripping hazards and closures along a 2.2 km stretch of the Pathway. In 2015 August, the City completed repairs to the Pathway to allow it to be reopened to the public. However, the repairs do not stabilize the slope. It is unknown when new slope movements will occur, and how long the Pathway will be able to remain open to the public. The history of slope movements, damage to the Pathway and expenditures is detailed in Attachment 3 - Feasibility Study Boundary, Timeline of Closures and Slope Failures.

Since 2005, Roads has worked with Golder Associates (Golder) and Tetra Tech EBA (Tetra Tech), who are geotechnical consultants, to monitor slope instability, and to investigate and develop remediation options in accordance with the Slope Stability Management Framework. In 2015 August, Golder completed a report entitled *Feasibility Study Bow River Regional Pathway Douglasdale/McKenzie Lake, Calgary AB* (Feasibility Study) – Attachment 1. This study looked at the detailed surface and sub-surface geotechnical features of the escarpment, surface drainage, and the river morphology. The study also identified erosion hazard areas at the toe of the slope at the river level. The Feasibility Study closes the investigation phase and presents conceptual designs and cost estimates necessary for Council to make an informed decision on whether the project should proceed to design and implementation.

Options and Costs

Potential remediation options, their associated costs, and legal advice regarding each one of them are included in Attachment 2 - Legal Advice and Option Analysis.

Stakeholder Engagement, Research and Communication

Roads has been in communication with property owners adjacent to the Pathway since the original damage in 2005. Following the Pathway damage in 2012, Roads held two open houses with the residents of Mt. Alberta View S.E and representatives of the McKenzie Lake Community Association to review the results of the geotechnical investigations. On 2015 May 29 Roads held an information session with the community at large to inform the public of the

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plans to temporarily reopen the Pathway and finalize the Feasibility Study. Approximately 100 people attended the open house.

The Ward 12 office, Douglasdale and McKenzie Community Association representatives, and several residents along the Bow River Escarpment receive regular email updates and written correspondence. Since 2014 December, Roads has issued bi-monthly updates to stakeholders who have provided their email contact information.

On 2015 October 15 Roads met with the property owners adjacent to the Pathway where the slope is in greatest need of repair and with the Community Associations to review the findings, of the consultant's Feasibility Study. Feedback from the property owners is included in Attachment 4.

Strategic Alignment

The recommendations of this report align with the following policies:

- Slope Stability Management Policy and Slope Stability Management Framework direction to mitigate slope stability risks and prevent damage to City land and infrastructure.
- Calgary Transportation Plan and Municipal Development Plan direction to promote safety for all transportation system users including actions to support walking and cycling as preferred mobility choices, and provide transportation services including regional pathways in a safe, effective, affordable and efficient manner.
- Natural Area Management Plan, Calgary Open Space Plan, and Biodiversity Strategy Plan direction to reduce habitat fragmentation and allow for wildlife movement; support the Escarpment's integration into the landscape of the City; and protect, enhance and promote the regional pathway system to encourage a healthy, low-cost, environmentally sustainable choice for recreation and transportation.

Social, Environmental, Economic (External)

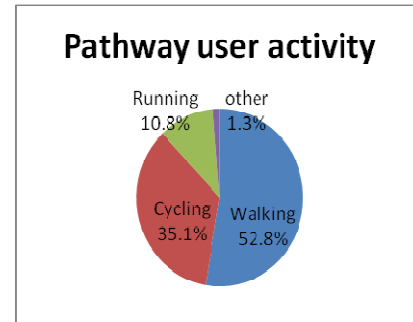
Social

The Pathway within the Feasibility Study boundary serves thousands of users each week. In October 2014, NRG Research Group conducted user counts on 4 sites along the Pathway (2014 Counts). The 2014 Counts report an average of 55 Pathway users per hour per site on weekend days; 64 per cent of users were observed running or walking. It is important to note the 2014 Counts were performed while damaged portions of the Pathway were fenced off and closure signage was in place. It is anticipated Pathway usage would be higher during the summer months, and if the Pathway was officially open to the public. Proceeding with slope stabilization and associated work would ensure the Pathway safely serves local and regional users.

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Table 1. 2014 Pathway Counts

Site Name	Average users per day	Average users per hour	Peak hour usage
North of 130 th Ave	385	32	92
130 th Ave	516	43	99
Mt Douglas Circle	478	40	82
Mt Alberta View	554	46	96
Total	1933		



Relocation of the Pathway closer to the adjacent properties may be necessary in some areas. This may have a negative impact on some of the property owners due to perceived privacy, and major construction on the Escarpment.

Environmental

The Escarpment is a disturbed element of the Bow River escarpment system. The Escarpment supports a poplar forest and river habitats, and provides a corridor for movement of wildlife such as migratory birds, coyotes and deer. The benefits of proceeding with slope stabilization are realized through the erosion control and storm water management components of the proposed project.

Economic

Adjacent property owners on Mt. Douglas Close SE and Mt. Alberta View SE are concerned with the loss of property value and the re-saleability of their properties as a result of the slope instability and the failing pathway system.

Financial Capacity

Current and Future Operating Budget:

There are no operating budget impacts in this report.

Current and Future Capital Budget:

Approximately \$4.4 million have been spent to date for localized slope stabilization, Pathway relocation, and isolated repairs. Of the total expenditures, approximately \$3.8 million has been recovered or will be recovered from the Disaster Recovery Program (DRP) for the extreme weather events of 2005, 2007, 2011, 2012 and 2013. Administration will continue to pursue cost recoveries from DRP and other provincial programs. However continuing to repair isolated damaged sections is not sustainable. Failure to take steps to repair the Pathway now will result in higher future costs and potentially greater technical challenges.

Roads typically funds high-priority projects that do not qualify for provincial funding. The 2016 capital budget of \$500,000 for Slope Stabilization is insufficient for the project work required. One-time funding and an increase of capital budget in 2016 is required to proceed with the recommendations in the Feasibility Study.

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The cost to date for studies that formed this report is approximately \$360,000. Of the total costs, \$130,000 is expected to be recovered from DRP. Ongoing and future cost for monitoring will be covered through capital funding.

Risk Assessment

Since the flood of 2005, slope movements on the Escarpment east of the Bow River adjacent to the communities of Douglasdale and McKenzie Lake have damaged The City's primary pathway along a 3.5 km section. The movements have continued over the years especially during severe weather events. Remedial measures are required to stop further movements and stabilize the pathway. See Attachment 2 – "Legal Advice and Option Analysis" for further details.

REASON(S) FOR RECOMMENDATION(S):

Roads completed a comprehensive feasibility study for slope stabilization and associated work for the 3.5 km stretch of the regional pathway system east of the Bow River adjacent to the communities of Douglasdale and McKenzie Lake. This study closes the investigation phase and presents conceptual design recommendations. Administration is asking for implementation of the recommendations in the feasibility study.

ATTACHMENT(S)

1. *Feasibility Study Bow River Regional Pathway Douglasdale/McKenzie Lake, Calgary AB* (Feasibility Study) (Confidential)
2. Legal Advice and Option Analysis (Confidential)
3. Feasibility Study Boundary, Timeline of Closures and Slope Failures (Confidential)
4. Feedback from the Property Owners Adjacent to the High Priority Area (Confidential)