

Ravine and River Valley Trail Systems

Renewal Options and Future Connectivity

Recommendation

That the November 28, 2017, Integrated Infrastructure Services report CR_3973, be received for information.

Previous Council/Committee Action

At the August 23, 2016, City Council Meeting, the following motion was passed: That Administration provide a report on the following:

- Potential options and strategies for renewal of the trail system, strategies to mitigate against future trail degradation and the potential capital costs associated with these renewal and mitigation strategies, and
- Information on other river valley trail links and connections that are currently planned and unfunded.

Executive Summary

The trails within the North Saskatchewan river valley and ravine system allow people to enjoy nature through a variety of activities. Maintaining trails in some locations can be challenging due to the impacts of flooding, erosion, and slope stability. Administration is committed to managing the trails' condition through a holistic asset management perspective that takes into account the ever present natural changes that occur in this environment.

Strategy and policy related planning is required to steward decision making relating to growth and development within the river valley. This work ensures that as the trail system is developed (growth) and maintained (existing) it will continue to meet the needs of users. Currently, river valley planning is occurring on two fronts:

- In growth and development as informed by the Ribbon of Green where work is underway to expand in two study areas, specifically the northeast and southwest quadrants of the city.
- Similarly, planning is underway to enhance our asset management systems related to open space infrastructure, including trails in the river valley.

Report

The North Saskatchewan river valley and ravine system is one of Edmonton's most highly valued attractions. The associated trail system provides the opportunity for

recreational use and important connections for users to access other areas within the city. As part of the history of its development to achieve these objectives, trails have intentionally been located through natural tree stands, on slopes and vistas, and close to waterways, which are inherently at greater risk to the adverse impacts of flooding, erosion, and instability. When natural forces impact a trail they can become unsafe for recreational use and for City maintenance activities. This leads to accelerated trail degradation and resulting trail closures.

The North Saskatchewan river valley area formally accommodates a variety of trails, defined by Parkland Bylaw 2202 under two primary categories: *improved* or *unimproved*. Improved trails are greater than 1.5 meters wide and have upgraded surfaces including granular, concrete, or asphalt treatments. Unimproved trails are typically less than 1.5 meters wide and have a natural surface. Without any formalized acknowledgement for their use, unimproved trails are not planned, constructed, operated, or maintained by the City.

Strategy for Capital Investment for Existing Improved Trails

The Integrated Infrastructure Services Department is responsible for planning and executing corporate asset management. This includes applying best practices to inform decision making on renewal and rehabilitation programs for all infrastructure assets including open spaces. To realize the maximum asset value and provide benefits to the asset user, a holistic approach to asset management is taken. This is done by balancing the cost, risk, and performance of these assets with the expected level of service.

When making informed decisions regarding the asset management of infrastructure, it is important to understand the future plan and strategies that are trying to be achieved. Currently the North Saskatchewan River Valley and Ravine System Master Plan - Ribbon of Green (1992) and the Capital City Recreation Park Plan (circa 1970s) are the strategic level plans that inform direction relating to the permitted services and operations in the River Valley. These strategies balance river valley accessibility for the public, with protecting the natural landscape and wildlife habitats areas. The Ribbon of Green divides the river valley into three distinct planning disciplines:

- Preservation Areas - These areas are characterized by high ecological sensitivity and some degree of physical development constraint.
- Conservation Areas - These areas are characterized by moderate ecological sensitivity, and high accessibility as a result of adjacent urban development.
- Extensive Use Areas - These areas are characterized by parks and facilities bordering major roads and pathways.

There are approximately 179 km of improved trails in the river valley. To maintain the present level of service to citizens with a tolerable amount of risk, the forecasted capital expenditures are projected to be between \$1.5 - \$3.5 million per year exclusively for trail rehabilitation from 2019 to 2022. The River Valley is a very complex environment, and each project is distinctively unique in nature and solution. Each is developed on an individual and context sensitive basis and navigates a rigorous regulatory environment.

Guiding Principles of Asset Management

As the river valley and ravine system is ever changing, trails in these areas are more vulnerable to the potential adverse impacts arising from flooding, erosion, and instability. This can lead to degradation of trails ranging from minor distresses to more extensive failures, undermining and damage, and must be factored into the asset management of the trails. Administration is developing a multi-criteria approach to assess issues and prioritize projects, starting with trails that have a higher score based on a set of draft criteria included in [Attachment 1](#).

Strategies to Mitigate Against Future Trail Degradation

While recreational objectives will always drive the demand for trails, geotechnical and hydrotechnical engineering assessments are also considered as part of the overall criteria used during the planning and replacement of existing trail alignments. Comprehensive assessment and planning must be undertaken based on a number of factors, including an engineering assessment that could result in increased setbacks from areas of flooding, erosion and instability. This planning approach is expected to decrease future trail degradation, reduce closures, and lower maintenance requirements, resulting in better long term performance and reduced costs for the city. Nonetheless, all development within the valley lands will continue to involve some level of risk associated with exposure to natural and climatic events.

Expansion of the Trail System - Future Connectivity

The strategic river valley plans are in need of periodic updating to accurately reflect citizens' current expectations around recreational needs, urban expansion and population growth. Updated strategic planning of the river valley trail system will help set direction and inform decisions relating to the development and maintenance of infrastructure. The broader objective includes minimizing impacts on the natural landscape and wildlife habitats, while encouraging use of the river valley, aligning with the City's active mode transportation policies, and providing a variety of experiences and opportunities for trail system users.

Administration is currently advancing the strategic planning for the northeast and southwest extended areas of the river valley to guide future development of the growth areas in these reaches adjacent to the river. The principles created will help guide future trail development in the river valley until the *North Saskatchewan River Valley and Ravine System Master Plan - Ribbon of Green* is updated and subsequent network plans are completed. These planning studies will provide the long range strategy for river valley amenities, trail connectivity, and prioritization.

In the past 10 years location-specific Concept Plans (or Master Plans) have been completed for a number of area-specific parks located within the river valley. These plans include the review of trails through each park, and provide recommendations for future trail connections. Typically these Concept Plans aid in building a common understanding of the scope and any potential funding required to advance the design and implementation of the plans. Currently a number of erosion and slope stability projects and trail projects are underway in the river valley and ravine areas. A summary of these projects is included in [Attachment 2](#).

Next Steps / Future Work

The ongoing refinement of an asset management system for open space assets will provide a holistic method for determining trails renewal and maximizing asset value. Guiding principles have been developed to support the decision making process. A capital funding request will be developed and brought forward for Council's consideration as part of the 2019-2022 Capital Budget considering all open spaces asset renewal, including river valley trails.

An updated plan for the North Saskatchewan river valley and ravine system and associated strategic plans that guide the level of activity and development within various land management units is required to support and integrate the asset management of trails with infrastructure growth in the river valley. Work is currently underway to advance the expansion of the Ribbon of Green to include the northeast and southwest reaches of the City.

Public Engagement

Public Engagement was not completed for the Ravine and River Valley Trail System Report. Public Engagement is conducted regularly during the development of strategic plans and development of capital projects.

Corporate Outcomes and Performance Management

Corporate Outcome: Edmonton is attractive and compact			
Outcome(s)	Measure(s)	Result(s)	Target(s)
Edmonton is attractive and compact	% of citizens that agree Edmonton is a well-designed and attractive city	53% (2016)	55%
	% of Edmontonians who feel they have access to amenities and services that improve quality of life	67% (2016)	70%

Source: [The Way Ahead Progress Report 2016](#)

Corporate Outcome: The City of Edmonton has sustainable and accessible Infrastructure			
Outcome(s)	Measure(s)	Result(s)	Target(s)
City of Edmonton has sustainable and accessible infrastructure	% of Edmontonians who feel they have access to amenities and services that improve quality of life	67% (2016)	70%

Source: [The Way Ahead Progress Report 2016](#)

Corporate Outcome: Edmontonians use facilities and services that promote healthy living			
Outcome(s)	Measure(s)	Result(s)	Target(s)
Edmontonians use facilities and services that promote healthy living	City park usage (% of Edmontonians who report using a City park in the past 12 months)	90% (2016)	83%

Source: [The Way Ahead Progress Report 2016](#)

Risk Assessment

Risk Element	Risk Description	Likelihood	Impact	Risk Score (with current mitigations)	Current Mitigations	Potential Future Mitigations
Natural Disasters	Flooding causing bank erosion	3 - Possible	3 - Major	9 - Medium	Trail closure. Projects to reroute trails and in some cases	Located trail above flood plains. Where needed have proactive geotechnical and

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					restore river bank.	hydrological engineering assessment of areas that are more prone to flooding. Implement structures with enhanced subgrade evaluation and preparation and incorporating good drainage, where possible. Proactive geotechnical and hydrological engineering assessment of areas that are more prone to flooding.
Public Perception	Perception that trails are not maintained can lead to poor public image, and bad reputation.	2 - Unlikely	4 - Severe	8 - Medium	Responding to inquiries. Providing trails closure and reason on edmonton.ca. Implementation of asset management principles.	
Public Liability	Slips, trips and falls resulting in injury.	4 - Likely	2 - Moderate	8 - Medium	Trail closure Regular maintenance. Projects in design or execution stage mitigating the issues. Implementation of asset management principles.	

Attachments

1. [Criteria for Asset Renewal Prioritization of Improved Trails](#)
2. [Planned River Valley Trails Work Funded and Unfunded](#)

Others Reviewing this Report

- T. Burge, Chief Financial Officer and Deputy City Manager, Financial and Corporate Services
- C. Campbell, Deputy City Manager, Communications and Engagement
- D. Jones, Deputy City Manager, City Operations
- L. McCarthy, Deputy City Manager, Urban Form and Corporate Strategic Development
- R. Smyth, Deputy City Manager, Citizen Services