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Date September 27, 2022 **Report No.** 2022-609

To Chair and Members
Combined COW-OPA

From Inderjit Hans, P.Eng., PMP
General Manager, Public Works Commission

1.0 Type of Report

Consent Item ☐
Item For Consideration ☒

2.0 Topic Trail Safety Audit Report [Financial Impact-None]

3.0 Recommendation

- A. THAT Report 2022-609 titled, Trail Safety Audit Report, BE RECEIVED;
and
- B. THAT Staff report back to City Council annually on the progress of the
Trail Safety Action items.

4.0 Executive Summary

The City of Brantford's Trail Safety Audit provides a comprehensive review of the City's roughly 15km of multi-use paths and 40km of off-road trails.

The consultant, WSP Global Inc. (WSP), completed a full cycling tour of the City's trail facilities between June 3 and June 14, 2022. WSP investigated safety issues and opportunities for amenity improvements which included; pavement condition, pavement marking treatments, wayfinding signage, and a review of Accessibility for Ontarians with Disabilities Act (AODA) compliance. The Audit also recommends amenity upgrades and the need for a public education program.

The audit, attached as Appendix “A” to this report, outlines a phased approach of works to be completed over a ten year period starting in 2022 with a focus on priority locations.

5.0 Purpose and Overview

This report provides City Council with the results of the Trail Safety Audit completed by WSP. Contained in this report is an overview of the methodology, the results of the consultation with key stakeholders, and a list of action items for an improved and safe trail system.

6.0 Background

At its meeting held September 28, 2021, City Council referred the following resolution to the 2022 Estimates Committee:

Trail Audit Safety

WHEREAS The City of Brantford and its residents can be rightfully proud of our first rate trail system; and

WHEREAS non-residents also recognize the importance and quality of our trails; and

WHEREAS our trail system is part of a greater regional trail system; and

WHEREAS our trail system also is a significant regional transportation corridor; and

WHEREAS over the course of the last 2 years, usage of our trails has increased exponentially; and

WHEREAS the surge in usage includes many different types of users including recreational walkers, dog walkers, parents and young children, recreational and competitive runners, photographers, young cyclists, recreational cyclists, competitive cyclists, scooter riders, wheelchair users, blind users, deaf users, illegal users on motorized vehicles, parks and public works vehicles and equipment and park patrollers vehicles; and

WHEREAS not all of these uses are complementary to one another; and

WHEREAS the conflicting uses are compounded by the physical nature of much of our trail system; and

WHEREAS the increased usage over the last 2 years has demonstrated previously unrecognized safety hazards which remain undocumented except in anecdotal fashion; and

WHEREAS areas of concern include but are not limited to the following conditions:

- Natural narrowing of the width of unpaved trails;
- Dangerous loose trail surface materials;
- Erosion;
- Dangerous 90 degree blind corners;
- Lack of daylight triangles;
- Inherently dangerous local conditions;
- Deteriorated asphalt surfaces;
- Plant material encroachment;
- Poor drainage; and
- Forced rerouting of out of service trails;

NOW THEREFORE BE IT RESOLVED:

- A. THAT the CAO BE DIRECTED to prepare a Request for Proposal (RFP) to engage a consulting firm with appropriate experience to deliver a Trail Safety Audit that includes the City's entire off-road and non-road right of way trail network located in City property and that the work BE FUNDED from RF0537 (Roads and Related) in the amount of \$100,000; and
- B. THAT staff BE DIRECTED to include the following as part of the Safety Trail Audit RFP:
 - i. Full walking or cycling tour of all off-road and non-road right of way trails;
 - ii. Consultation with members of council;
 - iii. Recommendations on the remediation that is required for locations requiring safety improvements and cost estimates for each;
 - iv. An interim update report to Council in December 2021
 - v. Identification of City Policies, on-going maintenance practices, staff requirement and public education program that are required to ensure continued safe usage;
 - vi. Prioritizing and creating a schedule and budget to implement the improvements
 - vii. A report and presentation to Council no later than January 31, 2022; and

C. THAT the CAO BE DIRECTED to include in the Capital Budgets an annual item for trail safety improvements in the amount of \$200,000 to implement improvements as recommended by the Trail Safety Audit.

At its meeting held January 22, 2022, City Council passed the Trail Safety Audit project in the amount of \$100,000 and amended the Trail Safety Improvements project by increasing the annual allocation to \$300,000 per year from 2022 through 2028.

WSP was retained by the City, through a competitive Request for Proposal process, to complete the Trail Safety Audit.

7.0 Corporate Policy Context

Economic Development Strategy Review and Update (2016):

- Build on the activities and future tourism-related opportunities of the area's trails and waterways
- Create a wayfinding program (including signage, trail maps showing supporting infrastructure, access points, parking and business/points of interest) for Brantford's trail system
- Consider developing (or finding an existing) a map-based app that focuses on the opportunities to access the City's local trail system (cycling, hiking, running, etc.) and creating connections to local business and tourist offerings

2020 Transportation Master Plan Update (Report 2020-427), section 3.6.2.1:

GOALS: Provide safe and convenient bicycle routes for all user types: utilitarian (commuting), recreational (personal or family discretionary), or sport (advanced, high level recreation).

OBJECTIVES:

1. There is a continuous network of safe and direct bicycle routes.
2. There is an ability to navigate the bicycle network with ease.
3. End-of-trip facilities support cycling as a preferred mode of transportation.
4. The bicycling environment is safe.

5. Provide unique and specific design environments appropriate for the different types of users.

Council Priorities 2019-2022:

- Desired Outcome #3: A safe, efficient transportation system connects the community across neighbourhoods, with neighbouring communities and provincial transportation networks.
- Tier 2 (e) Priority: Develop a comprehensive plan to integrate active transportation network measure for improved connectivity and enhanced maintenance.

8.0 Input From Other Sources

WSP Global Inc. (Consultant)

The Economic Development and Tourism Department, responsible for destination marketing and attracting visitors to the City's trail system and complementary amenities.

Additional input was provided from various stakeholders, as outlined in section 9.2 Public Consultation.

9.0 Analysis

Brantford, specifically Brant's Crossing, is known as the Hub of Ontario Trails. Three major branches of the Trans Canada Trail come together at Brant's Crossing and connect users to Port Dover, Hamilton or Paris.

Many of Brantford's renowned cultural sites are accessible via the trail network, including Glenhyrst Art Gallery of Brant, Bell Homestead National Historic Site, Her Majesty's Royal Chapel of the Mohawks National Historic Site and Woodland Cultural Centre. The City's trail system is also adjacent to the majority of the City's most recognizable Public Art, including the Brant War Memorial, Boer War Memorial and Bell Memorial. Other adjacent attractions include Earl Haig Family Fun Park and Brantford Rotary Bike Park.

In addition, the Trans Canada Trail arms joining Brantford to Hamilton and Port Dover are also part of what is now known as "Brock's Route", which aligns with the route that Major General Isaac Brock took between Hamilton and Port Dover through Brantford in the War of 1812 – 1814.

The City of Brantford retained WSP, to complete a safety audit of the City's trail system. The trail system consists of roughly 15km of multi-use paths and 40km of off-road trail.

WSP completed a full cycling tour of the City's trail system, between June 3 and June 14, 2022, to investigate the following:

- Trail grading, cracks, eroding asphalt, blind corners, barriers/obstructions, plant material encroachment, conflict zones, unsafe crossings, etc. and anything else to be deemed a safety concern to a cyclist or pedestrian; and
- Review of wayfinding signage throughout the trail network to provide recommendations for improvements.

In the audit the consultant also identifies:

- City policy and on-going maintenance practices as they relate to the continued safe usage of the trail network;
- Identification of a public education program that is required to ensure continued safe usage of the trail network;
- Preparation of remediation plan and repairs recommended for locations requiring safety improvements and cost estimates for each, including:
 - Engineering review for any stabilization requirements of trails and/or geotechnical improvements required;
 - Feasible design options presenting realistic solutions for improving safety on the trails identified and improvements recommended; and
- Cost-benefit analysis of asphalt versus granular trails and present the cost of converting trails to asphalt or maintaining current conditions for the surface treatment.

The following is a summary of the consultants actions and recommendations.

9.1 Study Approach

The WSP team completed a full cycling tour of the City's trail system. Findings were cross referenced with the City of Brantford Roads and Transportation Design and Construction Manual, City of Brantford Accessibility Plan (2020-2025), City of Brantford Wayfinding and Directional Signage Standards, City of Brantford Trail Standard Drawings,

and the Ontario Traffic Manual (OTM) Book 18 – Cycling Facilities (2021). The City of Toronto Multi-Use Trail Design Guidelines (2015), were also utilized as reference for best practices in trail design during the audit.

Data was collected on mobile phones using Survey123 and a georeferenced waypoint relating to survey data and a photo was taken for each location of interest.

9.2 Public Consultation

An extensive consultation and public engagement process was undertaken throughout the Summer of 2022, to understand existing trail conditions, and to identify strengths, gaps, concerns, and opportunities across the trail network. Staff also reached out to City Councillors, Ontario Ministry of Transportation, Brant Cycling Club, Brant Waterways Foundation, Six Nations of the Grand River and the Active Transportation Subcommittee, to obtain additional feedback.

A Let's Talk Brantford campaign was also launched that allowed residents to plot on a map locations where safety enhancements to the City's trails would benefit users today and in the future. Many recommendations were identified through this process including:

- Trail Maintenance (year round maintenance, debris, and pavement upkeep);
- Pedestrian and Cyclist Conflicts (trail etiquette);
- Accessibility (AODA compliance);
- Motorized Vehicle Use (frequent use of motorized vehicles on trails such as ATV's and dirt bikes);
- Public Safety Concerns (tacks on trails, weapons, other trail users, lack of lighting);
- Wayfinding and Trail Classification (better signage and classification for what users can expect on each type of trail);
- Trail Etiquette Education (trail etiquette education and promotional campaigns);
- Trail Connections;
- Overgrowth and Invasive Species; and
- Waste Collection (abundance of litter and lack of garbage cans).

9.3 Recommended Solutions

Recommendations for proposed safety solutions varied on a case by case basis and are outlined in Table 6 of the audit. These recommendations can be cross-referenced with the Audit Reference Maps found in Appendix “A” of the Audit report.

- Asphalt degradation remediation;
- Vegetation encroachment remediation;
- Hazard tree and branch removal;
- Erosion remediation;
- Slope instability remediation;
- Remediation of loose granular surfaces;
- Signage at blind corners; and
- Understory removal.

Additional works have been identified that fall outside the allotted capital budget, including the installation of railings at steep side slopes, updating pavement markings and signs at key trail locations, and upgrades to AODA related items. These works include;

- Lighting upgrades at certain locations;
- Provide railings at steep side slopes in three locations;
- AODA upgrade of tactile plates at key crossings;
- AODA signs installed at key locations throughout the city;
- Directional signs throughout the city; and
- Seating, bike rack and waste receptacle recommendations throughout the city.

It also identified the need for line painting and signage upgrades at key trail locations and intersections throughout the city. It is recommended that these works be included as part of the annual Pavement Marking program administered by the Operational Services Department and costs be included in the annual operating budget.

9.4 Education Component

Throughout the development of the Trail Safety Audit, it was identified that an education component is required to create a safer environment for all users. Conflicts between cyclists, walkers, wheelers, runners, rollerblades, e-bikes, and pets were brought up throughout the engagement process. Passive and Active educational programs were identified in the audit.

A Passive Education Program includes the addition of new signage along the City's trails, such as Regulatory Signage, that can be found in the Ontario Traffic Manual (OTM) Book 18. Courtesy and educational signage can be used to educate trail users about rights-of-way and trail etiquette. By-Law Enforcement signage was also suggested to increase traffic calming along sections of trail. Other passive measures include pavement markings, and trail etiquette social media messaging.

Specific education and signage is needed to notify trail users that ATV's, motorcycles, e-bikes, motorized bikes or snowmobiles are not permitted on trails. A targeted education campaign focused on motorized vehicles and trail use should be conducted in partnership with Brantford Police Services.

An Active Education Program involves interacting directly with trail users to introduce trail etiquette and safety standards. Suggestions for active education include hiring trail ambassadors, youth bike training, and family trail events.

9.5 Trail Surface Cost-Benefit Analysis

An analysis can be found in Tables 13 and 14 of the audit that outlines the cost and benefits of converting existing granular multi-use trails to asphalt trails, using the City of Brantford trail design standards. The sections of trail include parts of the SC Johnson Trail, CN Rail Trail, LE&N Trail and Shallow Creek Trail.

The conversion of multi-use trails to asphalt trails reduce the ongoing maintenance costs of granular surfaces and allows for an increase in the diversity of trail users due to the smoother surface. Upgrading the surface will also see reduced conflict points, and ease of maintenance, including during the winter months.

The total cost to convert these sections of trail to asphalt is approximately \$2,688,000. Given the benefits of the conversion, staff will prioritize and

submit the projects for consideration as part of future capital budget deliberations.

9.6 Trail Maintenance

Through consultation and the audit review process, the need for a more consistent process for maintenance of the trail facilities. Issues including overgrown foliage, piles of leaves, loose gravel, broken pavement, flooding, erosion, and waste collection were all identified.

It is recommended that the City of Brantford develop a Trails Maintenance Policy or Standard to assist staff on routine trail inspection and maintenance. This is in line with best practices of other municipalities that operate similar trail facilities.

9.7 Phasing Priorities

The audit outlined a phased approach, of works to be completed over a ten year period, starting in 2022. The estimated cost to implement the remedial measures outlined below is \$1,900,000. The phased approach streamlines tasks based on implementation priority. A detailed description of the proposed works can be found on page 79-81 of the audit report.

Table 1 Phased Work Plan from 2022-2032

Year	Works Plan	Estimated Cost Per Phase
2022	<ul style="list-style-type: none">Degradation remediationVegetation and foliage removalSpot resurfacing and erosion mitigation – Fordview, Gilkinson and SC Johnson Trails	\$116,600
2023	<ul style="list-style-type: none">Asphalt degradation remediation – Wayne Gretzky Parkway (WGP) and D'Aubigny TrailsUpgrade Royal Oak Park Trail to 2 metre wide asphalt surface	\$135,960

2024	<ul style="list-style-type: none"> Asphalt degradation remediation – WGP Trail 	\$122,800
2025	<ul style="list-style-type: none"> Asphalt degradation remediation – WGP, L.E. & N and Veteran’s Memorial Trails Signage and understory removal at blind corners – SC Johnson and Oak Hill Trails 	\$120,000
2026	<ul style="list-style-type: none"> Remediation of excess slope and slope instability – Hamilton/Brantford Rail Trail 	\$135,675
2027	<ul style="list-style-type: none"> Loose granular surface remediation – Hamilton/Brantford Rail Trail Asphalt repaving – SC Johnson Trail 	\$130,000
2028	<ul style="list-style-type: none"> Asphalt repaving – Fordview Trail Asphalt paving of uneven granular trail – SC Johnson Trail 	\$110,200
2029	<ul style="list-style-type: none"> Asphalt repaving – Powerline Trail 	\$125,000
2030	<ul style="list-style-type: none"> Asphalt repaving – WGP and D’Aubigny Trail 	\$133,800
2031	<ul style="list-style-type: none"> Granular surfacing and drain tile to remediate saturation – Hamilton/Brantford Rail Trail 	\$110,850

2032+	<ul style="list-style-type: none">• Asphalt repaving – Fordview Trail and Hamilton/Brantford Rail Trail• Lighting upgrades at two key locations• Railings at steep sideslopes of three locations• Pavement markings and signs upgrades along trails and at intersections throughout network• AODA upgrades and sign installations• Seating, bike racks, waste receptacle and directional sign install throughout city	\$650,760
Total		\$1,891,645

The Lorne Bridge Rehabilitation and Trail alignment is currently in the design and engineering phase. It is expected that construction will begin taking place in 2023 and is funded through Capital Account BR1801 (\$850,000) and PK2212 (\$500,000).

10.0 Financial Implications

The approved funding for this Trail Safety Audit project was identified in the Capital Budget in the amount of \$100,000.00 (Project PK2208). The cost of the project came in underbudget in the amount of \$82,033.00. The remaining funds will be returned to the Capital reserve.

The estimated cost to implement the remedial measures outlined in the audit is \$1,900,000 over a ten year period starting in 2022.

During the 2022 Capital budget process, City Council approved capital project PK2205 Trail Safety Improvements of \$300,000 per year or \$2,100,000 through 2028. These funds will cover the cost for the maintenance projects outlined in the audit.

It is important to note that several of the enhancements recommended in the audit will have future staff and maintenance financial impacts. Parks and

Facilities services will evaluate the impact and bring forward future unmet needs through the budget process for Council consideration.

11.0 Climate and Environmental Implications

Improving the quality of the City's trail system, will increase the number of trail users, and potentially have a positive impact in reducing carbon emissions through reduced vehicular traffic.

12.0 Conclusion

The Trail Safety Audit completed by WSP provides a comprehensive review of the City of Brantford's trail system.

This report identifies remediation measures through a phased implementation process to provide a safe experience for the different types of trail users.



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General Manager, Public Works Commission

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Attachments (if applicable)

Appendix "A" – WSP Trail Safety Audit Report

In adopting this report, is a by-law or agreement required? If so, it should be referenced in the recommendation section.

By-law required ☐ yes ☒ no

Agreement(s) or other documents to be signed by Mayor and/or City Clerk ☐ yes ☒ no

Is the necessary by-law or agreement being sent concurrently to Council? ☐ yes ☒ no