

BIKE PLAN IMPLEMENTATION - ENHANCED LIGHTING

Recommendation

That the March 19, 2024, Integrated Infrastructure Services report IIS01729, be received for information.

Requested Action	Information only		
ConnectEdmonton's Guiding Principle	ConnectEdmonton Strategic Goals		
CONNECTED This unifies our work to achieve our strategic goals.	Urban Places		
City Plan Values.	ACCESS		
City Plan Big City Move(s)	Community of Communities Greener as we Grow	Relationship to Council's Strategic Priorities	Mobility Network Climate Action and Energy Transition
Corporate Business Plan	Transforming for the future		
Council Policy, Program or Project Relationships	<ul style="list-style-type: none"> Active Transportation Implementation Acceleration - Approach 3 (Capital Profile CM-20-0330) The Bike Plan (2020) The Bike Plan Implementation Guide (2021-2026) Policy C544 Active Transportation Policy 		
Related Council Discussions	<ul style="list-style-type: none"> September 27, 2022, UPE01101, Bike Network Redeveloping Area Completion Options 		

Previous Council/Committee Action

At the January 31, 2023, City Council meeting, the following motion was passed:

That Administration provide a report with options for enhanced lighting on existing active mode infrastructure to support safety and encourage mode shift.

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Executive Summary

- Lighting is an important component of Edmonton's active transportation network; upgrading routes with proper lighting would increase comfort, security and safety, assist with wayfinding and increase the aesthetic of the built environment.
- Lighting on active transportation facilities is guided by current City policies and standards providing direction to include lighting on active transportation facilities located within road right-of-way. Administration is initiating updates to existing policies providing direction for lighting for off-street facilities in open spaces such as the River Valley, utility corridors and parks to ensure consistent lighting across the city.
- An initial review of the active transportation network, including facilities in road right-of-way and open spaces where current policies provide direction to include lighting, revealed that approximately 86 km of bike routes require enhanced lighting to meet current requirements.
- Lighting on active transportation facilities is currently added and upgraded through City growth and renewal projects and the development of new neighbourhoods. A shift from this approach could accelerate mode shift and further support safety.
- Administration outlined additional approaches that could accelerate the implementation of lighting upgrades on existing active transportation facilities. An estimated budget between \$20 million and \$65 million is required for this work.

REPORT

The active transportation network creates opportunities for active mobility through the provision of high-quality infrastructure. Expanding the active transportation network with routes that are safe, accessible and predictable for people of all ages and abilities provides more choices in how people move around the city. It also supports reaching the goal of 50 per cent mode share for public transit and active modes, and fast track the City's progress to achieving the goals of the Energy Transition Strategy.

Lighting is an important component of Edmonton's active transportation network, with lighting ranked a medium to high priority in the Bike Plan Implementation Guide. Upgrading routes with additional lighting would increase comfort and safety, assist with wayfinding and increase the aesthetic of the built environment. Intersections, bridges and other auxiliary structures are elements of the mobility system where lighting is particularly important for visibility, decision making and hazard identification.

Existing Practices and Current State

Lighting on active transportation facilities is guided by a number of existing City policies and standards, as outlined on page one of this report.

Facilities within road right-of-way, such as off-street shared pathways and protected bike lanes, are provided with lighting to enhance public safety and security and ease the challenges associated with winter cycling. For shared pathways and other connections in the River Valley, parks, utility corridors and other open spaces, the policy provides guidance to balance the social benefits of lighting with environmental impacts, with the following key considerations:

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- Lighting is avoided in natural areas, including the River Valley, to minimize impacts to the natural environment.
- Lighting is not currently required as part of the base-level development of parks but can sometimes be included if a bike route is identified in the park. Park lighting is considered a shared or enhanced level of development, funded on a cost-shared basis by the City and the community.
- Lighting is recommended on facilities outside the River Valley, such as utility corridors, if they are paved and highly used. Lighting is influenced by land ownership and approvals from utility operators.

Administration is initiating work to implement Breathe, which will provide an update to the City's standards and guidelines for park development replacing the previous Urban Parks Management Plan. This work, scheduled for completion in 2025, includes additional guidance for lighting across open spaces, including parks, utility corridors and stormwater management facilities. Revised standards for park development, including lighting expectations, will help inform future development and renewal work and could inform a future capital budget request.

Edmonton's active transportation network consists of approximately 1,390 km of district connector and neighbourhood routes. Lighting infrastructure on roadways and parks in the redeveloping area of the city is upgraded through infrastructure renewal and growth programs. In newly developing areas (i.e., outside of Anthony Henday Drive), lighting is primarily delivered through developer-funded neighbourhood construction. During the last 10-15 years, cycling conditions in Edmonton have improved with the addition of lighting infrastructure.

Within the existing 2023-2026 Capital Budget, funds are allocated to infrastructure programs that are anticipated to include upgrades to lighting and other active transportation elements. These include numerous neighbourhood, bridge, and goods movement renewal projects, as well as through the Active Transportation Implementation Acceleration Project.

To inform the development of other options, opportunities and challenges, Administration assessed lighting on Edmonton's current active transportation network to identify unlit and under-lit connections. Though not exhaustive, the analysis captures connections with substandard lighting and where current policy direction would require lighting. The assessment revealed that approximately 86 km of existing routes, representing approximately six per cent of the city's existing network, require enhancements to meet current lighting requirements.

Lighting Enhancement Options

Beyond the current approach to lighting enhancements, additional measures would be required to accelerate the delivery of lighting enhancements on existing routes that have lighting that do not meet current standards. Key considerations include:

- *Focus on enhancing lighting on key district connector routes.* Targeting these routes would best support Council's objectives. Approximately 30 km of existing district connector routes were found to require lighting. On-street routes comprising painted bike lanes and protected bike lanes were generally found to be adequately lit.

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- *Neighbourhood routes serve a more localized role.* Many fall within open spaces, such as parks, where existing policies differ, and lighting has been applied inconsistently in the past. Administration recommends further review be conducted through the implementation of Breathe to recommend appropriate lighting on these routes considering safety, design, aesthetics, light pollution and ecological factors. Administration has identified approximately 56 km of neighbourhood routes could benefit from lighting enhancements, but this number is expected to be higher once all neighbourhood routes in open spaces are considered.
- *Implement permanent lighting infrastructure following a more typical design process.* While the delivery of the Active Transportation Implementation Acceleration project is following a rapid implementation approach, considering design and aesthetic factors, a lighting program would be more successful if advanced with permanent infrastructure.

The implementation of additional lighting would require both capital funding (for planning, design and construction) and operating funding (for operations and maintenance of the additional lighting). Two options to accelerate the delivery of new and enhanced lighting on key district connector routes are presented below (Option 1 and Option 2) along with a description of the option to maintain the current approach (Option 3). As current City design standards are based on national best practices and continually evolving standards, a need to update the design standards has not been identified.

Option 1 - New Enhanced Lighting Capital Profile

This option would include the preparation of a new capital profile dedicated to enhancing lighting as part of the current or future budget cycles. To add new lighting and upgrade existing lighting on the District Connector routes identified above, the total amount required for planning, design, and delivery is estimated at \$25 million (-50 per cent to +100 per cent). This estimate was prepared only for the routes identified through Administration's initial assessment using typical construction costs. Further evaluation and prioritization would be necessary to confirm route feasibility and develop program priorities and timelines. The design for each lighting project would then proceed in alignment with the City's Project Development & Delivery Model (PDDM), including the completion of project specific lighting assessments before advancing to design and construction.

Expanding the initiative to include neighbourhood routes currently identified by Administration would increase the funding required to \$65 million (-50 per cent to +100 per cent), inclusive of the \$25 million for District Connector route lighting noted above. Additional planning and design funding would be required if a more detailed review of on-street routes, such as intersections, were desired.

The risks associated with delivering this work within the 2023-2026 Capital Budget cycle include higher than expected costs, concerns regarding light intrusion, and site-specific constraints such as utilities. The planning phase for this work may provide an opportunity to explore updated design approaches for pedestrian and cyclist scale lighting to mitigate utility conflicts, reduce light spill, and enhance aesthetics and user comfort.

This approach would need to be accompanied by a dedicated service package for the additional operations and maintenance costs associated with additional lighting inventory.

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Option 2: Dedicate Funding from Active Transportation Implementation Acceleration Profile

This option would dedicate a portion of the \$100 million of approved funding within Capital Profile *CM-20-0330 - Active Transportation Implementation Acceleration - Approach 3* toward new lighting on existing active transportation routes. This profile is currently dedicated toward construction of new active transportation network connections; upgrades to existing substandard facilities are generally not being considered. Work to expand the active transportation network is underway, and the full budget is anticipated to be required to expand the network.

Given the cost of implementation of active transportation infrastructure and lighting, an estimated reduction of 0.3 km to 0.7 km of active transportation network could be expected for each 1 km of new or enhanced lighting.

Option 3: Expansion through Renewal and Capital Projects (Current Approach)

The current approach includes opportunistic upgrading and expansion of lighting on roadways and parks through City-led renewal and growth programs and profiles. Administration will continue to explore opportunities to enhance the lighting on the active transportation network on an opportunistic basis through asset renewal and funding from other sources, such as grants.

Next Steps

Administration will continue to renew and expand lighting on roadways and parks through City-led renewal and growth programs and profiles (Option 3). As part of the 2023-2026 Capital Budget, significant funds have already been dedicated towards active transportation growth, renewal and transformative action. Administration will continue to explore opportunities to enhance the lighting on the active transportation network on an opportunistic basis through asset renewal and funding from other sources, such as grants. Planned upgrades to strategic plans guiding lighting on City open spaces are expected to lead to more consistent application of lighting through renewal and in the developing areas of the City.

Budget/Financial Implications

Should Council wish to accelerate lighting enhancements for the existing active transportation network, at Council's direction, an unfunded capital profile for Option 1 or an amendment to the existing Capital profile *CM-20-0330* for Option 2 would need to be brought forward for discussion as part of the 2024 Spring Supplemental Capital Budget Adjustment. However, with the 2023-2026 Capital budget already approved and limited funds available for capital investment, Council would need to re-prioritize funding from other growth and/or renewal programs for Option 1.

Community Insight

Including lighting on active transportation facilities is supported by City plans and policies, including The City Plan and Bike Plan, which were developed considering feedback and perspectives from a significant number of Edmontonians. However, the inquiries that Administration receives from Edmontonians related to lighting on active transportation facilities indicate members of the public have a range of perspectives. Some members of the public are supportive of lighting on active transportation facilities, noting the safety and accessibility

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benefits. In contrast, others have shared concerns related to light intrusion and environmental impacts.

GBA+

Insufficient lighting levels on the active transportation network may serve as a barrier to uptake of active modes as a preferred method of travel, particularly for some demographic groups. Barriers resulting from inadequate lighting levels may disproportionately impact those more reliant on affordable travel options or diverse groups of people, including women and gender minorities. Lighting levels along active transportation connections can directly impact the feeling of comfort and safety for users.

During the development of the Bike Plan, input highlighted that some users would avoid routes through poorly-lit areas, especially when traveling alone at darker times of the day (early morning, later evening), though these areas were traveled during daytime hours. Lighting was seen as being important for safety and something that could support more people - especially women - to ride at night or on dark winter mornings or evenings.

The development of City plans and policies supporting enhanced lighting include outreach to diverse groups of Edmontontians to evaluate impacts on different individuals and groups, and to develop actions to increase inclusion and ensure equality of outcomes. Lighting is an important consideration for the experience and comfort of different groups of individuals.

Enhancing lighting on the City's active transportation network is one measure to support walking, cycling and rolling as more viable travel options for diverse people. The influence on equity and diverse groups of people would be considered in the development of future lighting enhancement program priorities and timelines.