



TO: GENERAL COMMITTEE

SUBJECT: GROVE AND DUCKWORTH STREETS SEPARATED CYCLING FACILITY IMPLEMENTATION

WARD: 1 AND 2

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SUBMITTED BY: M. BANFIELD, RPP, DIRECTOR OF DEVELOPMENT SERVICES

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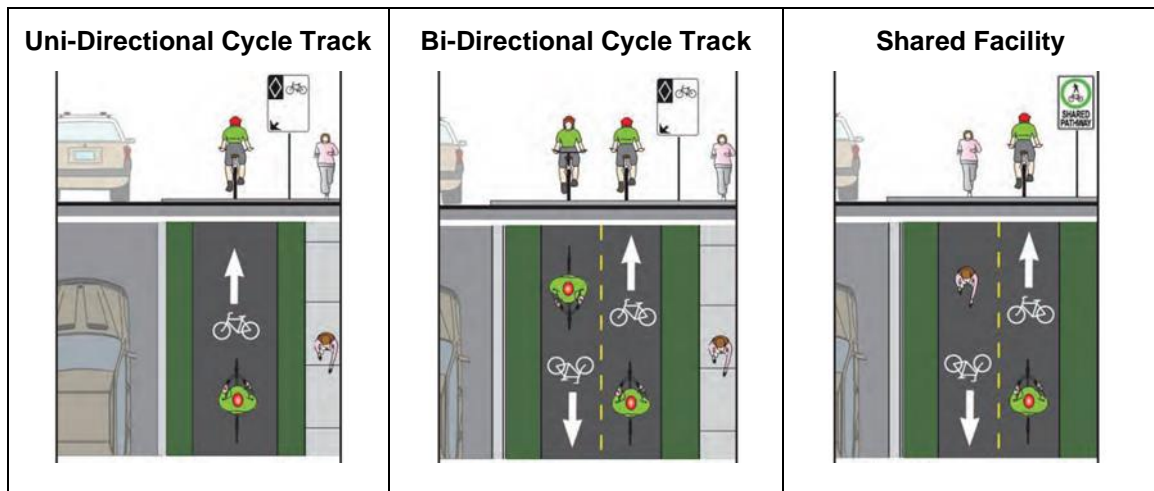
RECOMMENDED MOTION

1. That the Staff Report DEV049-23 concerning the Grove and Duckworth Street Separated Cycling Facility Implementation be received for information purposes.

PURPOSE & BACKGROUND

2. The purpose of this staff report is to report back on Council Motion 23-G-097 Item 10 and 11:
 - “10. That staff in the Development Services Department report back to General Committee concerning the feasibility to accelerate the implementation of separated cycling facilities, including separated cycling facilities on Grove Street from Johnson Street to Bayfield Street and on Duckworth Street from Grove to St. Vincent Street.
 - a) That if the report finds there is no additional cost to implement separated bike lanes, separated bike lanes be implemented as part of Grove Street and Duckworth Street.
 - b) That if the cost to provide separated bike lanes comes at an additional cost, that staff propose to General Committee costed safety measures to provide additional protection to painted bike lanes on Duckworth Street and Grove Street.
 11. That staff in the Development Services Department report back to General Committee with a costing analysis of separated bike lanes on existing collector, arterial, and higher-order roads. (DEV019-23)”
3. This motion was provided by Council in consideration of staff report DEV019-23 related to the implementation of cycling lanes on Grove Street via road right-sizing as well as the ongoing road reconstruction project on Duckworth Street and watermain renewal project on Grove Street.
4. It should be noted that a memorandum is being submitted to the Affordability Committee on September 27, 2023, regarding cycle tracks on newly built streets in the Hewitt and Salem secondary plan areas.

5. Prior to 2021, the standard cycling facility was generally on-street cycling lanes following in-place guidelines and best practices. The 2019 Transportation Master Plan was the first planning document recommending cycle tracks on select corridors. With the release of new provincial cycling guideline in 2021, the threshold to implement separated cycling facilities was lowered as compared to the previous guideline. Key recommendations from the new guideline note that separated facilities should be installed on streets with greater than three lanes and that a range of cycling facilities are acceptable on streets with three lanes or less with contextually specific considerations.
6. Off-street separated cycling facilities associated with capital projects are typically either cycle tracks or a multi-use (shared) facility as illustrated below:



(MMM, 2013)

7. For new City-led capital road projects, staff are including separated cycling facilities where possible and contextually appropriate. Typical projects are road widening or reconstruction capital projects.
8. For streets where no capital projects are forecasted, staff continue to recommend the implementation of on-street cycling lanes via road right-sizing, where contextually appropriate, as an interim measure that improves user safety at low cost.
9. On collector streets constructed within new developments in the secondary plan areas, buffered bicycle lanes are being implemented based on legacy standards. However, for collector streets where development applications have not been submitted, cycle tracks are the standard and will be implemented as described in the memorandum to the Affordability Committee on September 27, 2023.

ANALYSIS

10. The implementation of cycling infrastructure is completed as part of:
 - Road widening or reconstruction projects; or
 - Road right-sizing (removing travel lanes or narrowing travel lanes to fit on-street cycling lanes).

Accelerated Implementation of Physically Separated Cycling Facilities

11. The following addresses the feasibility of accelerating the implementation of separated cycling facilities. Currently, construction of new separated cycling facilities is bundled with major capital road projects where they are integrated as part of a complete design solution typically addressing multiple asset needs related to capacity and renewal. Considerations related to accelerating the implementation of separated cycling facilities include:
- Additional property requirements and associated costs.
 - Utility and infrastructure relocation requirements and associated costs.
 - Timing of infrastructure upgrades within the right-of-way, i.e., standalone implementation of cycle track projects are not cost effective when the existing infrastructure in the corridor does not require renewal or upgrades. In these instances, implementation is deferred to coincide with future renewal or widening project.
 - Fiscal constraints of the City’s capital budget limits the ability to accelerate implementation of separated cycling projects as these projects have to be evaluated against other high priority city-wide infrastructure and renewal needs.
12. Given the above, it is not feasible to accelerate the implementation of separated cycle tracks beyond what is already included in the 2023 Capital Plan. It should be noted that the City is implementing separated cycling facilities projects with new capital road projects and include the following projects:

Project	Cycling Facility Type	Total Project Cost¹
EN1257 McKay Road	Cycle Tracks	\$46M
EN1277 Bryne Drive South	Cycle Tracks	\$16M
EN1278 Bryne Drive North	Cycle Tracks	\$15M
EN1288 Bayview Drive	Cycle Tracks	\$16M
EN1271 Mapleview Drive – Yonge to Prince William	Dual Multi-use Paths	\$29M
EN1261 Yonge Street – Mapleview to Lockhart	Multi-use Path	\$24M
Total		\$146M

1 – 2023 Business Plan

Duckworth Street Reconstruction Project

13. The Duckworth Street reconstruction project extends from St. Vincent Street to Bell Farm Road and includes on-street cycling lanes, based on the municipal class environmental assessment completed in 2016 following provincial cycling guidelines released in 2013.
14. Following the release of updated provincial cycling guidelines in December 2021, a feasibility review was undertaken to assess implementing off-street separated cycling facilities on this project. This review determined that implementation was not feasible due to utility impacts and additional property requirements beyond what was approved in the municipal class environmental assessment.
15. To improve separation of the on-street facilities; two primary options exist:

Flexible bollards (removed seasonally)



(Develotech, 2023)

Pre-cast Curb Units with Flexible Bollards



(Develotech, 2023)

16. Costs for these options are as follows:

SEPARATION TYPE	CAPITAL COST PER KM ¹	ANNUAL O&M COSTS PER KM ^{2,3}	EQUIPMENT COST ⁴
Flexible Bollards	\$75,000	\$30,000	\$160,000
Pre-Cast Curbs with Flexible Bollards ⁵	\$600,000	\$45,000	\$160,000

1 - Includes design, construction administration, construction costs, contingency and NRHST

2 - Operational costs are estimates based on information supplied by WSP for cycle track winter maintenance; the City will need to gain operational experience to refine costs

3 - Flexible bollards removed annually during winter months

4 - Equipment costs include a mini sweeper unit; it is assumed that existing winter maintenance equipment is sufficient for a scaled implementation (note flexible bollards are removed seasonally)

5 - Requires cycling lane buffer for install

17. Choosing to implement either option would require a new capital project in the 2025 Business plan with a minimum capital cost of \$75,000 to \$600,000 per km plus an equipment purchase of \$160,000 and an estimated increase to the annual operating budget of approximately \$30,000 to \$45,000 per km. Issuing a change order as part of the current capital project is not feasible as the project does not have sufficient budget.

18. Flexible bollards are removed in the fall and reinstated in the spring after City-wide street sweeping is completed. This limits the in-service period to approximately five months per year.

19. It is assumed that the pre-cast curb solution can be left in place during the winter season; however, there is uncertainty on the feasibility of doing so until operational experience is gained. If annual removal is required, it would significantly increase annual operating and maintenance costs (not reflected in costs outlined in the preceding table).

20. There is uncertainty that using flexible bollards will materially increase rider comfort and/or use of on-street cycling facilities as they do not create a physical barrier that can prevent an automobile from entering the cycling facility. Alternatively, the cost to implement a pre-cast curb solution is

significant and would impact the City’s fiscal ability to implement other cycling projects in the capital plan.

Grove Street Watermain Replacement Projects – Duckworth to Nelson, Nelson to Johnson Street

21. The Grove Street watermain replacement projects were scoped to replace the watermain and asphalt road surface with select curb and catch basin replacements. Implementing off-street separated cycling facilities is not feasible due to the advanced stage of construction as the project was already tendered at the time Council approved motion 23-G-097.
22. Options to increase separation on Grove Street are limited to flexible bollards due to the width of the road platform.

SEPARATION TYPE	CAPITAL COST PER KM ¹	ANNUAL O&M COSTS PER KM ²	EQUIPMENT COST ³
Flexible Bollards	\$75,000	\$30,000	\$160,000

- 1 - Includes design, installation costs, contingency and NRHST
- 2 - Annual removal, storage, and reinstallation (bollards removed from mid-fall to mid-spring)
- 3 - Equipment costs include a mini sweeper unit

23. Issuing a change order for the current capital projects would be possible. This would require the operating budget to be increased by \$50,000 for annual operating and maintenance requirements and the capital budget by \$160,000 to purchase the street sweeping equipment.
24. As stated for Duckworth Street, the in-service period would be approximately five months per year and the effectiveness of this solutions is uncertain.

Separated Cycling Facility Costing Analysis in the Built Boundary

25. Provincial guidelines and industry best practice provide clear direction on the type of facilities to implement when undertaking capital projects. The expectation is that new City-led capital road projects will include off-street separated cycling facilities where appropriate.
26. Quantifying costs to implement off-street cycling facilities on a City-wide basis without detailed engineering design analysis would not provide an accurate representation as each street segment has unique needs that include:
 - Differing property requirements;
 - Underground municipal infrastructure renewal needs and/or capacity deficiencies;
 - Private utility relocation requirements; and
 - Asphalt, curb and/or sidewalk renewal or expansion needs.
27. In a greenfield scenario, the additional capital hard costs to implement cycle tracks over buffered bicycle lanes is \$600,000 to \$900,000 per km depending on facility details. This premium is due to the need to construct three separate paved surfaces that are not contiguous and additional concrete curbs for the cycle tracks.



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28. Operating and maintenance costs are higher for off-street separated cycling facilities, primarily due to the specialized equipment required for summer street sweeping, more time-consuming winter maintenance and resourcing requirements.

ENVIRONMENTAL AND CLIMATE CHANGE IMPACT MATTERS

29. There are no environmental or climate change impacts associated with the recommendation, other than supporting active transportation is key to increasing cycling use, preference, and cyclist's feeling of safety.

ALTERNATIVES

30. There are no alternatives as this report has been prepared for information purposes.

FINANCIAL

31. There are no costs associated with the recommendation.

LINKAGE TO 2022-2026 STRATEGIC PLAN

32. The recommendation(s) included in this Staff Report support the following goal identified in the 2022-2026 Strategic Plan:
- Infrastructure Investments
33. The continued expansion of the City's cycling network is critical in supporting planned growth as well as providing a viable transportation alternative that fosters active lifestyles, improves mobility equity, and supports the reduction of greenhouse gas emissions.