

INFORMATION REPORT

TO:	Mayor and Members General Issues Committee
COMMITTEE DATE:	January 20, 2023
SUBJECT/REPORT NO:	Cycling Infrastructure 2023 (PED23042/PW23008) (City Wide) (Outstanding Business List Item)
WARD(S) AFFECTED:	City Wide
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COUNCIL DIRECTION

Council has requested a consolidated summary of planned capital investments in cycling infrastructure annually as contained in the Capital Budget. This Report provides a summary of cycling projects completed in 2022 and a list of planned investments for 2023.

Additionally, at the December 5, 2022 General Issues Committee, the following motion was approved:

That staff were directed to provide an update on the status of the Cycling Master Plan including date of implementation:

(a) That staff be requested to identify what portion of the City's cycling budget is used to fund active transportation;

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- (b) That staff be requested to identify all funding sources used to implement the Cycling Master Plan;
- (c) That staff identify what other jurisdictions are doing in terms of efforts to invest in their active transportation infrastructure;
- (d) That staff be asked to report back to GIC on options available to accelerate the completion of the Cycling Master Plan by 25% to 50%; and,
- (e) Additionally, that staff be requested to identify the corporate policies (such as Vision Zero Action Plan, Complete Street Design Manual and Climate Action Plan) that would be used to inform active transportation investments.

INFORMATION

Summary of 2022 Cycling Project Implementation

A total of 14 cycling infrastructure projects were delivered in 2022 by means of a joint effort between Transportation Planning and Parking (TPP) and Transportation Operations and Maintenance (TOM), and Engineering Services. Combined, these projects represent a total of 14 kms of new and upgraded cycling infrastructure. This included three kms of new bicycle lanes, nine kms of upgrades to existing bicycle lanes, two kms of bicycle boulevards and five hundred metres of new multi-use paths/bicycle paths. All lengths stated in Report PED23042/PW23008 are centreline lengths (includes both directions of travel).

Projects delivered in 2022 included those identified in the current and prior year's Capital Budgets. A complete listing of projects implemented in 2022 is attached as Appendix "A" to Report PED23042/PW23008.

In total, \$1.4 M was invested in cycling infrastructure in 2022. Some of the planned projects in 2022 were not able to be implemented due to a need for additional design, material supply chain challenges, weather-related installation issues, internal installation priorities (i.e. Main Street safety upgrades), construction delays, and a need to conduct further feasibility assessments. These projects will move to 2023 as priority installations.

Cycling Investment in 2023 Capital Budget

The 2023 Cycling Project Budget is informed by the Cycling Master Plan (CMP), which identifies a priority program of cycling infrastructure for implementation. This includes the consideration and integration of an All Ages and Abilities (AAA) design approach and the objective to develop a robust cycling network and minimum grid across the City.

Based on the Capital Budget and other funding sources as described below, the total planned investment in cycling expenditure in 2023 is \$3.3 M. Figure 1 shows cycling investment in Hamilton in the past four years, plus the planned investment for 2023. It should be noted that 2020 and 2022 were significant years for investment largely due to the Ontario Municipal Commuter Cycling (OMCC) Program, and the Investing in Canada Infrastructure Program (ICIP).

Similarly, the planned investment in 2023 is significantly enhanced by funding from senior levels of Government. Additional funding for 2023 and beyond has been approved through the ICIP and Transit Stream. The total funding through the ICIP programs is \$10.5 M (to be spent over 2021 to 2033). For the COVID Stream, there is no requirement for matching City funds, while under the Transit Stream, the City's contribution is 26.7%.

An application has been submitted to Infrastructure Canada as part of the Active Transportation Fund. As identified in Report PED22082, the application included a capital funding request amount of \$4.6 M, with total project costs of \$7.7 M. At the time of this Report writing, Infrastructure Canada was in the process of announcing the list of awarded projects for municipalities that have submitted an application.

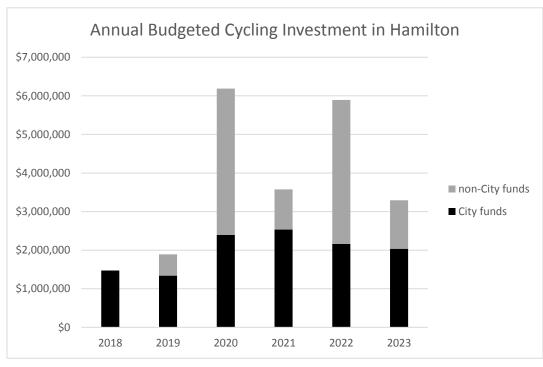


Figure 1: Annual Budgeted Cycling Investment in Hamilton

Projects not within the road right-of-way have not been accounted for in Figure 1.

2023 Planned Linear Cycling Projects

Below is a summary of the various types of projects anticipated to be delivered in 2023. As these planned projects continue to proceed through the implementation process, consultation with the affected Ward Councillors will occur to communicate impacts and to facilitate community engagement. The 2023 Cycling Workplan List of planned projects was discussed at the December 7, 2022 meeting of the Hamilton Cycling Committee. Completion of these projects is contingent upon a variety of factors, however, it is expected that they will be begun, if not completed, within 2023. Any projects not fully completed in 2023 would be finalized in 2024.

A total of 35 cycling kilometres of infrastructure projects are planned to be installed in 2023. Additionally, seven projects are planned for the design phase, with implementation projected for 2024. The following table shows how these projects breakdown into the following categories by length. This does not include in projects that are outside of the Road Right-of-Way that are in design.

Table 1: 2023 Project Type Summary

Project Type	Total length (kms)		
Stand-Alone	15		
Part of Other Infrastructure	10		
Design Only Projects	10		
TOTAL	35		

Stand-alone Cycling Projects

Stand-alone cycling projects include projects identified in the CMP and Ward-specific studies. Approximately 15 kms of stand-alone projects are planned for 2023, as listed in Table 2, which includes the deferred projects from 2022. Funding for these projects is primarily through the On-street Cycling Budget (Project ID 4662217124), On-street Cycling Enhancements (Project ID 4032217050), Bicycle Boulevards (Project ID 4032217053), individual projects, and Ward-specific reserves. These projects are delivered jointly by Public Works - Transportation Operations and Maintenance (TOM) and Planning and Economic Development - Transportation Planning and Parking (TPP), with TPP completing initial feasibility studies and consultation, and TOM completing detailed design and installation.

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Table 2: 2023 Stand Alone Cycling Projects

Ward	Project Name	Limits of Project	Description	Project Plan	Length (kms)
1	Emerson Street/ Whitney Avenue*	Main Street to Whitney Avenue Emerson Street to Main Street	New buffered bicycle lanes with pre-cast concrete curbs and flexposts	Install	2.1
1	York Boulevard (Burlington Connection)	Dundurn Street to City Limits	Extension of barrier separated (mini-jersey barriers) bicycle lanes	Install	2.2
1	Dundurn Street Crossing	Baker Street and Lamoreaux Avenue	Provide a crossing for Dundurn Street that connects to Breadalbane Street Bicycle Boulevard	Install	0.1
1	Main Street (Ainslie Wood)	Whitney Avenue to Filman Road	Bi-directional barrier separated bicycle lanes	Install	0.8
2	Bay Street	Cannon Street to Hunter Street	Upgrade barriers to poured concrete	Install	0.8
2	Charlton Avenue/ MacNab Street*	MacNab Street to James Street Charlton Avenue to Herkimer Street	New bicycle lanes and bicycle lane enhancements	Install	0.2
2	John Street*	Burlington Street to Guise Street	Bi-directional barrier separated bicycle lanes	Install	0.4
3	Victoria Avenue South	South of Hunter Street to Stinson Street	Two-way barrier separated cycle track	Install	0.2
5	Centennial Parkway Multi- use-path (MUP)	Confederation Drive to Goderich Road	Multi-use path	Install	0.9
6, 9	Stone Church Road*	Arbour Street to Upper Red Hill Valley Parkway	Multi-use path	Install	0.7
8	West 5th Street (Keddy Trail Connector)*	Gateview Drive to Fennell Avenue	Multi-use path	Install	0.6
8	Inverness Avenue	Upper James Street to Upper Wellington Street	New bicycle lanes	Install	0.8

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Ward	Project Name	Limits of Project	Description	Project Plan	Length (kms)
8	West 5th Street (South)	Fennell Avenue to Governor's Boulevard (Mohawk College)	Multi-use path	Install	0.3
12, 14	Stone Church Road	Stonehenge Road to Upper Paradise Road	Bicycle lane enhancements	Install	1.5
12	Stonehenge Road*	Southcote Drive to Stone Church Road	Buffered bicycle lanes	Install	2.5
13	Cootes Drive*	Baldwin Street to Dundas Street	Multi-use path	Install	0.2
14	Upper Paradise Road	Stone Church Road to Rymal Road	Addition of painted buffers, pre-cast concrete curbs, and flexposts	Install	1

^{*2022} deferred projects

Cycling Projects as Part of Other Infrastructure Projects

Based on a Complete Streets approach, and guided by the CMP, a number of cycling projects are planned as part of other infrastructure projects such as road rehabilitations. A total of ten kms of cycling infrastructure is included as part of other 2023 Capital Projects as listed in Table 3. The majority of these projects are delivered by Public Works - Engineering Services Division.

Table 3: Projects to be Delivered as Part of Other Infrastructure

Ward	Project Name	Limits of Project	Description	Project Plan	Length (kms)
1, 2	York Boulevard/ Cannon Street	Dundurn Street to Caroline Street/ York Road to James Street	Permanent barrier enhancements	Install	2
4	Barton Street	Woodward Avenue to Redhill Valley Parkway	Multi-use path	Install	0.4
6	Concession Street/Mountain Brow Boulevard	Upper Gage Avenue to Oakcrest Drive	Multi-use Path	Install	1.5
6, 11	Nebo Road	Rymal Road to Twenty Road	Multi-use Path	Install	1.3
9	Highland Road	Winterberry Drive to Glenhollow Road	Barrier Enhancements – Addition of painted buffers	Install	0.4

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Ward	Project Name	Limits of Project	Description	Project Plan	Length (kms)
9	Highland Road	Glenhollow Road to First Road	Barrier Enhancements – Addition of painted buffers	Install	1.4
10	DeWitt Road	Barton Street to Midway Street	New bicycle lanes - Painted buffers, pre-cast concrete curbs, and flexposts	Install	1.4
12	Southcote Drive	Highway 403 to Garner Road	Multi-use path	Install	1.6

In 2023, additional planning and feasibility projects related to the upcoming Light Rail Transit (LRT) project will occur, with anticipated implementation in 2024/2025. In an effort to mitigate potential impacts of LRT construction, existing cycling infrastructure on parallel routes will be analysed to identify potential improvements.

Outside of Road Right-of-way Projects with Cycling Components

Linear infrastructure through parks and open spaces comprises a significant component of cycling infrastructure in the City. A total of 13 kms of multi-use trails are in the preliminary to advanced design stage, as outlined in Table 4. The majority of these projects are delivered by Public Works - Environmental Services.

Table 4: Outside of Road Right-of-way Projects with Cycling Components

Ward	Project Name	Limits of Project	Description	Project Stage	Length (kms)
2	Hamilton Harbour Waterfront Trail Improvements	Waterfront	Multi-use Trail repairs and improvements	Design	2.0
4	Pipeline Trail	Brampton Street to Grace Avenue	New Multi-use Trail	Design	0.6
4	Pipeline Trail Gateway Parkette	1203 Main St East	New Multi-use Trail	Design	0.07
13	Olympic Park	Olympic Park	New Multi-use Trail	Design	1.9
1, 2, 6	Rail Trail Improvements	Corktown to Ward 6	Multi-use Trail repairs and Improvements	Design	8.0

Note: The above projects are subject to change

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o Projects in Design Stage

The following projects listed in Table 5 will proceed to detailed design in 2023. These are planned for implementation in future years. This will be based on available staffing and/or funding resources from the City and other levels of Government.

Table 5: Projects in Design Stage

Ward	Project Name	Limits of Project	Description	Project Plan	Length (kms)
1	Longwood Road/ Macklin Street	Franklin Avenue to Kay Drage Park	Multi-use path	Design	1.0
2	Catherine Street	Hunter Street to Cannon Street	Bi-directional barrier separated bicycle lanes	Design	0.8
3	Ferrie Street Wellington Street	Wellington Street to Victoria Avenue Ferrie Street to Simcoe Street	New cycling infrastructure	Design	0.3
5	Kentley-Nashdale	Barton Street Redhill Valley Parkway to Nash Road (Barton-Bancroft) Bancroft Street (Nash- Confederation GO) Kenora Avenue (Bancroft- Kentley)	Multi-use path and bicycle boulevard	Design	2.5
5	King Street at Red Hill Valley Parkway	Lawrence Road (Mount Albion Road to King Street) King Street (Lawrence Road to Pottruff Road)	Bi-directional barrier separated bicycle lanes	Design	0.6
10	Highway 8 (Stoney Creek)	King Street to Dewitt Road	Painted Bicycle lanes	Design	1.4
14	Kitty Murray Lane	Golf Links Road to Garner Road	Painted Bicycle lanes	Design	4.8

Cycling Master Plan Implementation Update

Staff track the completion rate of the CMP, based on its original network plan. It should be noted that the future build out of the network will require modern approaches to cycling infrastructure (i.e. physical separation) and the time and costs associated with these implementations will be greater than that envisioned in the CMP. This will result in a higher quality of infrastructure that will serve AAA, which could limit the quantity of linear cycling infrastructure implemented annually.

The CMP lays out the network plan for the City and has been updated on numerous occasions; most recently in 2018. It is scheduled for another update in 2023 as part of the Integrated Active Transportation and Recreational Trails Master Plan. The update is necessary as the original plan was based on mostly painted infrastructure and off-road paths. With the recent development of the Complete Streets Design Manual, and updates to Ontario Traffic Manual Book 18 – Cycling Facilities, the build out of the network will require new types of cycling and pedestrian infrastructure.

The CMP identifies a planned network based on a 2031 planning horizon, and when completed, would comprise of approximately 970 kms of bike lanes, cycle tracks, multiuse paths and other facilities (e.g. paved shoulders and bike boulevards). Approximately, 58% of the planned cycling network has been implemented with 42% remaining.

Figure two summarizes the implementation of the CMP by facility type to date.

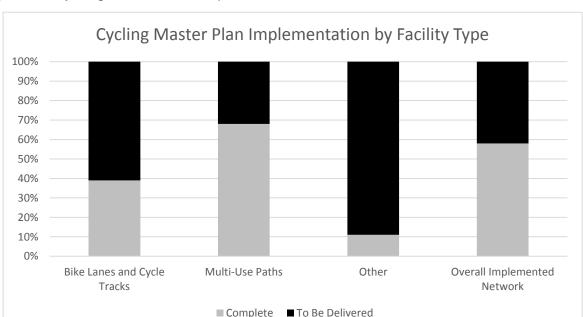


Figure 2: Cycling Master Plan Implementation

Cycling Master Plan Projected Implementation Timelines

Implementation progress is a moving target. When referenced to the 2009 CMP, approximately 69% of the network has been implemented. It is expected that the pending Integrated Active Transportation Master Plan update will identify further expansion of the network. Additionally, a key focus of the City's efforts are on upgrading existing facilities to accommodate AAA, e.g. conversion of painted bike lanes to barrier separated facilities.

Over the past several years, the City has implemented an average of 10-15 new cycling facilities annually, in addition to 5-10 kms of enhancements to existing cycling facilities. At the current rate of progress, the planned cycling network would require another 25-30 years to fully implement.

One of the challenges in completing the network is the need to also enhance existing in place infrastructure that does not meet AAA standards. This accounts for additional resources that are not being put towards implementing the planned network but enhancing the planned network.

Funding Sources and Investments in Cycling

To date, cycling projects have utilized funding from the following sources to varying extents based on the specific project and availability of programs from other levels of Government:

- City Capital Budget;
- Federal Gas Tax;
- Area Rating/Councillor Budgets;
- Grants:
- ICIP (Federal and Provincial);
- Active Transportation Fund; and,
- Development Charges.

Over the past five years, approximately \$15 M has been invested in cycling infrastructure expansion with 62% of funds coming from the City and 38% of funds from other levels of Government.

Funding from senior levels of Government has largely been since 2019 with approximately \$5.3 M secured. An application to the Federal Active Transportation Fund was made in 2022 which, if approved, would be an additional \$4.6 M, for a total of \$7.7 M in funding with applicable City contributions.

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Comparing Cycling Investments

The cost to construct and maintain cycling infrastructure varies widely by type of facility and whether it is a retrofit installation or new construction.

On average, cycling infrastructure costs between \$100 K - \$300 K per km for simple retrofit projects (e.g. Cannon Street style barriers) and \$1.0 M - \$2.0 M per km for new facilities. By comparison, a two-lane road resurfacing costs approximately \$450 K per km while a road widening from two lanes to four lanes would be \$3.5 M - \$4.5 M per km.

In 2020, the total cost to maintain one kilometre of roadway was \$12 K, however, this figure doesn't fully capture roadways with cycling facilities. Depending on the type of cycling facility, costs for operation and maintenance would be greater than roadways without.

In 2022, the Tax Supported Capital Budget and Financing Plan was \$386 M (see Report FCS21096) including the gross costs and all sources of financing. The 2022 Capital Levy was \$133 M. Of this amount, roads and bridges accounted for \$129 M and transit services \$77 M.

At an average of \$2.5 M per year of capital investment, City investments in cycling infrastructure would represent approximately 2% of the amount spent on roads and bridges. With contributing funds included, this would equate to 3% - 4% based on recent trends.

As with any capital investment, an asset management lens needs to be applied to ensure the Total Cost of Ownership is considered. The Cycling Asset Management Plan is expected by July 2, 2024 and will help inform the long-term financial plan for cycling for the City while ensuring the Cycling Asset Management and Master Plans align.

Benchmarking Investments Against Other Cities

The 2018 CMP assumed a cost of approximately \$71 M. However, this was based on the assumption of a high proportion of painted bike lanes which do not reflect an AAA network. Since 2018, there has also been significant inflation. Staff estimate that building out the remaining network to include a higher proportion of AAA facilities would require \$200 M - \$300 M.

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Like Hamilton, most peer cities have increased spending on cycling infrastructure in recent years, excluding operations and maintenance costs. Examples include:

- Halifax Regional Municipality (HRM) (population 439,000)
 - has set aside \$8.16 M for Integrated Mobility Plan projects in its 2022-23 budget, up from \$6.5 M in 2021-22. HRM has completed approximately 40% of its planned cycling network;
- Edmonton (population 1.1 million)
 - could spend about \$100 M in the next four years to rapidly expand the city's bike lane network;
- Winnipeg (population 749,000)
 - City council voted in 2015 to spend \$334 M over 20 years on a cycling and pedestrian strategy. However, the 2021 budget only allocated \$1.7 M for those projects; and,
- In its new plan, dubbed "Vision Vélo 2023-2027," Montreal is pledging to spend \$30 M per year for five years to vastly expand the network of secured bike paths.

At an average of \$2.5 M per year, the City of Hamilton is comparable or above many jurisdictions but lags behind recent cities that have made bold announcements about transformational cycling network investments.

Accelerating the Implementation of the Cycling Master Plan Implementation

Many municipalities in Canada are exploring how to accelerate delivery of active transportation facilities. These plans employ various strategies which can help inform Hamilton's analysis of the implementation of the CMP.

Should Council wish to accelerate implementation of the City's CMP, staff would suggest four main areas of focus:

- Increasing staff complement to deliver cycling facility projects and conduct streamlined public engagement;
- Developing "Quick Win" projects that have the characteristics that allow a timely delivery;
- Providing additional funds for current and future projects, as part of the capital budget process; and,
- Reprioritizing road resurfacing and construction projects to advance ones that have a cycling component.

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Increased Staff Complement

One of the key challenges to project delivery is the amount of staff dedicated to active transportation projects and how staff interact to advance the projects to the implementation stage. With current staff complement, accelerating the rate of delivery would be a challenge, even if additional budget was approved for construction costs.

Creating an Integrated Active Transportation Delivery Team (the Team) would assist in the delivery of cycling projects in that all staff resources from planning through design and construction would work together. This Team would be composed of Staff from across departments, that would work together in a common physical and online space but would remain in their existing positions and reporting structures.

This Team would be composed of existing Staff from TPP, TOM, and Engineering Services. Staff resources should be proportional to planned capital budgets and expected funding from Senior Levels of Government.

There are a number of benefits and potential cost savings to creating an integrated team and increasing the staffing complement. Critically, with over \$15 M in secured and potential funding for active transportation projects from Senior Levels of Government, it will be important to deliver projects and leverage this funding, taking into account, impacts of inflation. Also, given that other municipalities are similarly receiving funding and accelerating plans, there will be high competition for both talent and consulting resources.

Quick Win Projects

Identifying quick win projects would be a further strategy for accelerating implementation. Staff suggest that, if an Integrated Active Transportation Delivery Team were to be created, a three-year active transportation accelerated project plan could be developed to identify shovel ready projects that could be delivered in an accelerated timeline. Such a plan would require the expertise of the interdivisional Team to mitigate any potential delivery risks prior to committing to specific projects (e.g. poor asphalt quality) and take advantage of other works already planned (e.g. capital roadway projects). This plan would be informed by the Core Cycling Network Map, the CMP priority project matrix, the Complete Streets design process, and other supporting policies and work.

Additional Capital Funding for Active Transportation Projects

The City has been making sizeable investments in active transportation projects over the last three years and various grants have helped extend this investment significantly. While additional capital funding would be required in future years to support acceleration of implementation, staff would recommend that the initial priority to help

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with the acceleration of projects should be in the operating budget through additional staffing complement. Should new staff be approved for 2023, additional capital investments could begin to be made in phased increases between 2024 to 2031.

Reprioritizing Road Resurfacing and Construction Projects

As a complement to the development of a three-year "Quick Wins" project list and map, an expanded Integrated Active Transportation Delivery Team could also analyse the upcoming ten-year roads capital plan to determine which projects contain major active transportation opportunities and put forward a plan to accelerate or reprioritize these projects. This process could be coordinated with capital funding analysis to ensure that there is a unified approach to hiring additional staff, prioritizing quick wins, allocating additional capital budgets, and finally, reprioritizing capital projects, which would present the largest challenge. It is estimated that it would take up to six months to conduct such an analysis and develop draft plans for Council's review and consideration.

Strategies and Policies Used to Inform Active Transportation Investments

Several Council-adopted corporate policies are used to inform decisions related to active transportation investments. The following provides a summary of relevant documents. Documents, such as the Cycling Asset Management Plan, expected July 2024, will help inform future conversations on cycling as well.

2016 to 2025 Strategic Plan

The 2016 to 2025 Strategic Plan sets out seven high-level priorities to support Hamilton's vision to "be the best place to raise a child and age successfully." The Built Environment and Infrastructure priority set two key directions for the future transportation network. The first is that Hamilton needs to create a well-connected transportation network that allows people to get around conveniently without a car. The second is that the City should develop complete streets that meet the needs of all road users, including pedestrians and cyclists.

The City's Strategic Plan is relied upon to inform many active transportation investments and related strategies and action plans, including many of the following.

Transportation Master Plan

The TMP Update is a comprehensive and attainable blueprint that balances all modes of transportation to make Hamilton a healthier city. The TMP addresses all aspects of an integrated transportation system and is structured around a sustainable and balanced transportation system, healthy and safe communities, and economic prosperity and growth. The Plan sets an aspirational target for 15% of City-wide trips to be made by active modes.

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The TMP calls for Hamilton to provide an annual capital budget to support investments in active travel and for active travel needs to be integrated into the Ten-Year Capital Budget. The Plan also calls for the CMP to regularly evaluate alternatives to build a safer and continuous cycling network. The TMP actions are actively implemented to help support investments through different methods in Hamilton, and the upcoming Integrated Active Transportation Master Plan will support the vision of the TMP.

Complete Streets Design Manual and Policy

The Complete Streets Design Manual operationalizes the Complete – Livable – Better Streets Policy (CLBS Policy) adopted as part of the TMP Update. The manual is a compendium of design guidance for users and practitioners to understand the principles of complete streets and touches on several elements, including street design, intersection design and implementation. A central pillar of Hamilton's CLBS Policy is prioritizing transit and active transportation in the planning and design of the local transportation network.

Staff are utilizing the new standards established in the manual to inform the design of street projects and implementing them through standalone projects, major street projects, plans and studies, and operations and maintenance. The design manual is being used to inform the desired outcomes of street projects and is helping to direct their design through more human-focused design standards.

Climate Change Action Strategy

The Community Energy and Emissions Plan establishes "changing how we move" as one of five low-carbon transformations that will be pivotal in achieving a low-carbon future. To meet Hamilton's decarbonization goals, it notes that by 2050, 50% of short trips made within the urban area will need to be made using active travel.

The plan calls for expediting the rollout of the CMP and supports updating the plan regularly to align with the net-zero scenario. It also supports establishing local e-mobility services, such as shared e-bikes and e-scooters, to address those trips not suited for transit. Both calls to action inform active transportation investments.

Hamilton Strategic Road Safety Program and Vision Zero Action Plan 2019-2025

The Hamilton Vision Zero policy has a clear goal: no more fatalities or serious injuries on local roadways. The Vision Zero Action Plan actions the need to identify and fill in gaps within the active transportation network, as providing dedicated cycling facilities to create a cohesive cycling network will help achieve the goals of Vision Zero. It also actions the need to ensure that cycling and pedestrian network needs are implemented in all roadway projects.

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The analysis undertaken as part of the Annual Collision Report is used to identify problem areas for pedestrians and cyclists. The findings inform local active transportation investments and will be incorporated into the upcoming Integrated Active Transportation Master Plan prioritization framework.

As this Report addresses Item O, Cycling Master Plan/Active Transportation, it should be identified as complete and removed from the General Issues Committee Rate and Capital Budget Outstanding Business List.

APPENDICES AND SCHEDULES ATTACHED

Appendix "A" to Report PED23042/PW23008 - 2022 Cycling Investments