
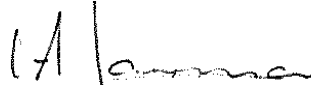






**CITY OF HAMILTON**  
**PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT**  
**Transportation Planning and Parking Division**  
**Growth Management**  
**and**  
**PUBLIC WORKS DEPARTMENT**  
**Transportation Operations and Maintenance**  
**Engineering Services**

<b>TO:</b>	Chair and Members Public Works Committee
<b>COMMITTEE DATE:</b>	July 6, 2022
<b>SUBJECT/REPORT NO:</b>	Complete Streets Design Manual (PED21020(a)/PW21002(a)) (City Wide) <b>(Outstanding Business List Item)</b>
<b>WARD(S) AFFECTED:</b>	City Wide
<b>PREPARED BY:</b>	Trevor Jenkins (905) 546-2424 Ext. 1473 Peter Topalovic (905) 546-2424 Ext. 5129
<b>SUBMITTED BY:</b>  <b>SIGNATURE:</b>	Brian Hollingworth Director, Transportation Planning and Parking Planning and Economic Development Department 
<b>SUBMITTED BY:</b>  <b>SIGNATURE:</b>	Ashraf Hanna Director, Growth Management Planning and Economic Development Department 
<b>SUBMITTED BY:</b>  <b>SIGNATURE:</b>	Edward Soldo Chief Road Official Public Works Department 
<b>SUBMITTED BY:</b>  <b>SIGNATURE:</b>	Mike Field Acting Director, Transportation Operations and Maintenance Public Works Department 


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<b>SUBMITTED BY:</b>	Susan Jacob Acting Director, Engineering Services Public Works Department
<b>SIGNATURE:</b>	

**RECOMMENDATION**

- (a) That the Complete Streets Design Manual attached as Appendix "A" to Report PED21020(a)/PW21002(a) be approved as the basis for planning and designing City streets;
- (b) That staff be directed to update roadway design manuals and guidelines to reflect Complete Streets Design Manual, including, but not limited to, the Construction and Materials Specifications Manual, Traffic Signal and Pavement Marking Designs Drawings, and other documents identified by staff;
- (c) That staff be directed to update the relevant sections of the Comprehensive Development Guidelines and Financial Policies to incorporate complete street elements, in consultation with the Development Industry Liaison Group;
- (d) That staff be directed to undertake a mapping exercise as part of the Council approved Road Classification Harmonization Study and Right-of-Way Review (Project ID 4031955987) to categorize all existing and planned roadways based on the Complete Streets Typologies and compare existing and future Right-of-Way opportunities and constraints, and to inform future Official Plan updates and on-going planning studies;
- (e) That the matter respecting Item ABO, regarding the results of the public consultation on the core components of the Complete Liveable Better Streets Design Manual, and with a recommended Complete Liveable Better Streets Design Manual be identified as complete and removed from the Public Works Committee Outstanding Business List.

**EXECUTIVE SUMMARY**

The Complete Streets Design Manual (CSDM) is a tool that will change the way streets are designed in Hamilton. The complete streets approach is about considering the needs of road users of all ages and abilities and building streets that meet their needs, whether they are walking, cycling, taking transit, driving a private automobile, or delivering goods. The approach prioritizes road safety for everyone and aims to enhance the public realm and complement the adjacent land uses. Several local

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policies support the CSDM, including the Urban and Rural Official Plans, the Transportation Master Plan (TMP), the climate emergency declaration, and Vision Zero. The CSDM will be an effective tool that practitioners, advocates, and all Hamiltonians can use to transform the way streets are designed and achieve city-building visions.

The development of the CSDM operationalizes the Complete, Liveable, Better Streets policy that Council adopted as part of the 2018 TMP Update. It builds on the Phase 1 of the CSDM summarized in Report PED21020/PW21002 which was approved by Council in 2021. The Manual provides design guidance to create streets that will help expand Hamilton's transportation system to facilitate safer, multi-modal transportation. The Manual is intended to provide high-order design guidance, supplemented by other existing design guidelines, policies and plans, such as area-specific design guidelines and secondary plans.

This Report seeks City Council approval of the CSDM and to get direction to update municipal street design guidelines, manuals, and standards based on the CSDM Recommendations. Updates to engineering design standards and manuals will be subject to separate approvals by Council as applicable.

The CSDM will support existing City of Hamilton documents. These include, but are not limited to:

- City of Hamilton Strategic Plan (2016 to 2025);
- Hamilton Transportation Master Plan Review and Update;
- Accessibility for Ontario with Disabilities Act (AODA);
- Urban and Rural Officials Plan;
- Vision Zero Action Plan;
- Cycling Master Plan;
- Development specific guidelines as policies including the City of Hamilton Comprehensive Development Guidelines and Financial Policies Manual;
- Recreational Trails Master Plan;
- Truck Route Master Plan;
- Hamilton Pedestrian Mobility Plan;
- Draft Climate Change Action Strategy; and,
- Draft Urban Forestry Strategy.

**Alternatives for Consideration – See Page 12**

**FINANCIAL – STAFFING – LEGAL IMPLICATIONS**

Financial: The CSDM will assist in the scoping and budgeting of future projects. No direct financial impacts are associated with the adoption of the Manual. Many local transportation projects are already being planned, designed,

and constructed using a complete streets approach, such as Upper Wellington Street (environmental assessment stage), Scenic Drive (design stage) and the ongoing work on Wilson Street in Ancaster (reconstruction stage). The financial impacts of taking a complete streets approach are expected to be low for most projects. By following a complete streets approach, projects can be budgeted for properly starting at the planning stage, thus avoiding design changes in later stages. Many complete streets design features, such as sidewalks and cycling facilities, have been approved by Council through previous plans like the Pedestrian Mobility Plan, Vision Zero Action Plan, and Cycling Master Plan. Some changes will also reduce costs, such as adopting narrower lane widths and putting cycling facilities on the boulevard instead of on-street, negating the need to build the cycling facilities pavement structure to support an automobile. There are potential financial impacts related to property acquisition should there be substandard right-of-way, or for widening structures (e.g. bridge, culverts). The role of the Manual is to improve, standardize, and formalize the role of complete streets across all projects in the City.

Staffing: None

Legal: None

## **HISTORICAL BACKGROUND**

In 2018, Council adopted the Complete, Liveable, Better Street Policy and Framework as part of the TMP Update (Report PED18137/PED18137(a)), which established overall complete streets principles and defined a typology toolkit for looking at complete streets locally. Action 36 of the TMP identified the need to develop a CSDM, using a Vision Zero approach, to operationalize the policy into all street design and construction projects.

In 2021, Council approved Phase 1 of the CSDM (Report PED21020/PW21002). The Phase 1 work developed the main elements of the Design Manual, including eight street typologies, a decision framework and tool, best practices review, and design features of complete streets. Staff were directed to engage with the public on these elements and then report to Council with a CSDM.

## **POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS**

Should Council approve this Report, staff will be directed to update roadway design manuals and guidelines to reflect the CSDM guidance. This will ensure that fundamental complete street elements are embedded in the standards that design

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projects rely on, such as lane widths, corner radii, design and control vehicles, sidewalk widths, and cycling facility design. This includes, but not limited to:

- Construction and Materials Specifications Manual;
- Traffic Signal and Pavement Marking Designs Drawings;
- Comprehensive Development Guidelines and Financial Policies; and,
- Other design guidelines and standards, as identified by staff.

## **RELEVANT CONSULTATION**

A Technical Advisory Committee (TAC) guided the development of the CSDM. The TAC included representatives from:

- Public Works: Transportation Operations and Maintenance (Transportation Engineering, Roadway Safety, Transportation Systems, Maintenance), Engineering Services (Design, Infrastructure Renewal), Transit (Hamilton Street Railway (HSR)), Chief Road Official, Environmental Services (Forestry and Horticulture, Landscape Architectural Services);
- Healthy and Safe Communities: Healthy Environments (Health Hazards, Air Quality and Climate Change); and,
- Planning and Economic Development: Planning (Urban Design and Heritage, Sustainable Communities), Growth Management (Engineering Approvals, Infrastructure Planning), Transportation Planning and Parking (Transportation Planning, Sustainable Mobility, Parking) and the Light Rail Transit (LRT) Office.

The TAC met four times throughout Phase 2, and separate meetings were held with individual groups throughout the study.

In winter 2021, the first round of consultation was launched on Engage Hamilton. It consisted of an online survey and a street design activity where respondents could design their own complete street and submit it. The focus of this round of public participation was to present the Phase 1 work and to gain insights into what the community felt about complete streets in Hamilton. The key findings of the survey found that:

- When asked how complete streets will impact them, respondents' top replies were having expanded travel choices, having street designs that accommodate people of all modes, and making it safer for all road users;
- When asked if any local roads represented examples of complete streets, Locke Street, Cannon Street, Charlton Street West and Bay Street were cited by multiple respondents. These examples were noted for having infrastructure that

supported people walking and cycling, having vehicles travelling at slower speeds and street designs that had a clear separation between people driving, walking and cycling;

- When asked what challenges Hamilton faces in implementing complete streets, respondents noted that existing street designs don't accommodate all road users and that land-use patterns can make it challenging to accommodate users in different areas. They also were concerned that the car-centric culture will be a challenge to change; and,
- When asked what they would like clarified about the design manual, respondents were most interested in knowing how complete streets will be implemented and how priority will be assigned.

In spring 2022, a focus group was held with Mobility Lab to present preliminary cross-section designs, which included representatives from the Hamilton Cycling Committee, Cycle Hamilton, Environment Hamilton, McMaster University, Mohawk College, Hamilton Health Sciences, Smart Commute Employer partners and residents. Feedback on the draft typologies was used to revise the designs.

The project team also presented and collected feedback from the:

- Advisory Committee for Persons with Disabilities;
- Development Industry Liaison Group;
- Cycling Advisory Committee;
- Seniors Advisory Committee; and,
- Strategic Roadway Safety Committee.

Phase 2 of engagement took place in winter 2022 using Engage Hamilton. An online survey presented the draft cross-sections and asked open-ended questions asking whether respondents felt the concepts reflected the objectives of the street typology. Over 1,300 comments from 190 individuals were received, which were overwhelmingly positive. Recurring themes heard through the survey include:

- Strong support for the draft typologies and proposed roadway designs presented in the survey. The average level of support among all typologies was well over 90%.
- Support for better managing motor vehicle speeds, especially on Connector and Neighbourhood Streets.
- Support for greenspaces that include more native plants and pollinators.
- Interest in seeing proposed designs for intersections and the inclusion of more pedestrian crossings along roadways.
- Concern about roadway designs that do not include cycling facilities or unprotected cycling facilities.

- Comments regarding the accessibility of proposed street designs, specifically related to sidewalks, transit access, winter access and maintenance, drop-offs, and access to businesses/residential units.

Feedback from the survey was used to update the draft cross-sections and Manual content.

## **ANALYSIS AND RATIONALE FOR RECOMMENDATION**

The Complete, Liveable, Better Streets policy recognizes that no one-size-fits-all solution is appropriate for street design, as different streets will have different priorities. The design process needs to recognize that the primary function of a road may range from goods movement to a local road to a higher-order rapid transit corridor. However, within all of these contexts, a sensitive approach needs to balance the requirements of multiple users, whether they relate to mobility, placemaking, utilities, green infrastructure, or curbside uses. To address these diverse demands, street design requires unique solutions that reflect the street's specific location, context, and future role.

The objectives of Hamilton's approach were developed to establish consistent decision-making parameters throughout the design process. The objectives are:

- **Consider the street context:** context sensitive street design ensures that a street is designed to maximize its potential as a part of Hamilton's overall street network.
- **Create attractive, vibrant places:** streets that attract and support pedestrians contribute to its sense of vibrancy, further encouraging future visits from residents and visitors.
- **Prioritize transit and active transportation:** providing a connected network of active transportation and transit options enhances the convenience of these modes, contributing to an increasing number of trips made with active modes of transportation.
- **Provide safe and accessible options:** complete streets need to be designed to improve safety and accessibility for all road users, regardless of age and ability, a vital component of Vision Zero.
- **Prioritize connectivity:** complete streets need to be designed to consider the role of each street within the overall transportation network. Each street project enhances the overall connectivity for travellers of all modes.
- **Consider cost effectiveness:** the design of complete streets needs to consider the environmental, social and economic benefits and costs associated with their construction, operation and maintenance. Designing for the long-term can reduce the number of retrofit projects needed in the future and improve the resiliency of the transportation network.

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## **The Complete Streets Design Manual**

The Complete Streets Design Manual is a compendium of design guidance for users and practitioners to be equipped to understand the principles of complete streets. The guide touches on several elements, including street design, intersection design and implementation. The Manual establishes street cross-section design parameters based upon the Official Plan right-of-way (ROW) requirements and provides design guidance for specific complete street elements that are appropriate for a particular context.

The Manual consists of five chapters which are summarized below.

### **Chapter One: Introduction**

Chapter One sets the stage for complete street designs and opportunities to make streets more complete, ranging from standalone projects, plans and studies, major street projects, and maintenance and operations initiatives. Complete streets are supported through several existing Council-approved plans, strategies and guidelines.

### **Chapter Two: Undertaking Complete Streets Design**

Chapter Two focuses on the street design process and how it can be adapted to reflect the complete streets approach. The five-stage process outlines steps to taking a complete streets approach in capital projects for new construction, reconstruction, and rehabilitation of streets. The five steps are:

- **Plan:** Identify and prioritize candidate complete streets projects, which should be every street project.
- **Conceptualize:** Establish design priorities for the project, develop a vision for what the complete street design will look like, and engage with key internal and external stakeholders.
- **Design:** Develop the preliminary and detailed designs of the complete street, balancing trade-offs, priorities and stakeholder feedback while documenting the rationale for design decisions.
- **Implement:** Tender and construct the final complete street design and communicate with key stakeholders.
- **Monitor:** Evaluate the complete street's performance against project goals and document lessons learned for future projects.

### **Chapter Three: Complete Street Elements**

Chapter Three introduces the range of possible design elements that are the building blocks of complete streets that help improve the safety, accessibility, comfort and convenience of travelling by different modes. This chapter also guides designing other



elements within the (ROW), including placemaking, curbside activities, green infrastructure and utilities, and municipal services. The street elements are explored in Table 1.

**Table 1: Complete Street Design Elements and Principles**

Street Design Element	Principles
Pedestrian Realm and Placemaking	<ul style="list-style-type: none"> <li>• Design for universal access</li> <li>• Safe and comfortable for all ages</li> <li>• Create well-designed places and spaces</li> <li>• Complement adjacent land uses</li> </ul>
Cycling Facility Design	<ul style="list-style-type: none"> <li>• Design for all ages and abilities</li> <li>• Provide connected cycling facilities</li> <li>• Make cycling attractive</li> </ul>
Transit Facility Design	<ul style="list-style-type: none"> <li>• Provide safe and comfortable transit facilities</li> <li>• Accommodate multi-modal travel</li> <li>• Facilitate transit efficiency by providing transit vehicles with priority access</li> </ul>
Roadways	<ul style="list-style-type: none"> <li>• Design reflects context</li> <li>• Prioritize safety</li> <li>• Multi-modal streets</li> </ul>
Curbside Management	<ul style="list-style-type: none"> <li>• Flexible space</li> <li>• Ensure the safety of all road users</li> <li>• Balance competing uses</li> </ul>
Green Infrastructure	<ul style="list-style-type: none"> <li>• Prioritize low impact stormwater management features</li> <li>• Complement sustainable and active transportation</li> </ul>
Utilities and Municipal Services	<ul style="list-style-type: none"> <li>• Follow existing processes</li> <li>• Facilitate access to underground utilities</li> <li>• Surface-level uses, not utilities, should drive design</li> <li>• Aesthetic treatment</li> </ul>

## Chapter Four: Typologies

This chapter illustrates conceptual cross-sections for each of the eight street typologies. The Manual provides a three-dimensional rendering for each typology, the goals of the typology, typical operating attributes, and some local examples. The renderings offer a sense of how space in the ROW can be allocated and how individual street elements are integrated to form a complete street.

The eight typologies, approved by Council in January 2021, are:

- Urban Avenues;
- Transitioning Avenues;
- Main Streets;
- Connectors;
- Neighbourhood Streets;

- Industrial Roads;
- Rural Roads; and,
- Rural Settlement Roads.

Some typologies include alternative designs. These recognize common context-specific situations such as when the ROW for a typology varies in width, or when a corridor is part of the BLAST network and may have Bus Rapid Transit (BRT) lanes in the future.

The typologies represent the desired state for streets, recognizing that these are the designs that the City should be working towards. However, applying each typology to local streets will not necessarily look exactly as presented in the Manual in all cases due to context-specific constraints and considerations. For instance, the ROW available along some streets is narrower than in the Manual and would necessitate acquiring additional property. However, this may not always be possible, particularly in older parts of the city, due to the existing built environment. Other constraints that may influence the specific design include, but are not limited to, cultural heritage assets, the natural environment (e.g. existing mature trees, environmentally sensitive areas), the placement of surface and subsurface utilities, community feedback, and area-specific policies (e.g. heritage districts). These constraints and considerations can be conquered to advance complete streets through the processes and guidance laid out in Chapter 2.

### **Chapter Five: Intersections**

The final chapter provides examples of how different typologies can intersect and the type of intersection treatments applied. Intersections have a higher potential for conflict between road users, making them critical to improving roadway safety. The Hamilton Annual Collision Report 2020 highlights the importance of safer intersection design: from 2016 to 2020, 60.1% of all collisions took place at intersections. The Manual provides design guidance for the following intersection types commonly found across Hamilton and proposes new complete street elements. Key features of the intersections are summarized in Table 2.

**Table 2: Complete Street Design Manual Intersections**

<b>Intersection</b>	<b>Intersecting Typologies</b>	<b>Key Features</b>
Low Speed	Neighbourhood and Neighbourhood	<ul style="list-style-type: none"> <li>• Reduced corner radii to slow vehicle speeds while turning</li> <li>• Traffic calming measures to reduce vehicle speeds, such as raised intersections, curb extensions, traffic diverters and neighbourhood traffic circles</li> </ul>
Stop Controlled	Neighbourhood and Connector	<ul style="list-style-type: none"> <li>• Raised pedestrian and cyclist crossings across the local street to designate priority</li> <li>• Pedestrian crossings with refuge islands</li> <li>• Dedicated left-turn lanes onto minor streets</li> </ul>

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Intersection	Intersecting Typologies	Key Features
Urban Roundabout	Connector and Connector	<ul style="list-style-type: none"> <li>• Intersecting streets approach using a radial design to reduce speeds as vehicles enter and exit</li> <li>• Single lane entry/exit to reduce conflict points</li> <li>• Pedestrians and cyclists operate on the perimeter of the roundabout, fully separated from traffic</li> <li>• Uncontrolled crossings at each leg</li> </ul>
Compact Urban	Urban Avenue and Main Street	<ul style="list-style-type: none"> <li>• Raised corner islands to separate cyclists from motor vehicles and prevent motor vehicles from entering the cycling facility</li> <li>• Smaller corner radii to promote slower turning movements</li> <li>• Left turn lane setback on Urban Avenues to accommodate large, turning vehicles</li> <li>• Shared cycle track platform stops for transit users</li> <li>• Crossing distances are minimized for pedestrians</li> </ul>
Major High-Capacity	Transitioning Avenue and Transitioning Avenue	<ul style="list-style-type: none"> <li>• Corner radii that reduce speeds but can accommodate larger turning vehicle.</li> <li>• Widens to accommodate dedicated turn lanes</li> <li>• Protected intersection corners with small islands</li> <li>• Centre medians extended to provide refuge islands</li> <li>• Sidewalk is adjacent to multi-use path mixing zones to provide waiting space for pedestrians</li> </ul>

A significant aspect of the chapter is updated turning radii and control vehicles for the design of intersections. A smaller curb radius expands the pedestrian area, allowing for better pedestrian ramp alignment and reducing the distance they have to spend crossing, reducing pedestrian exposure risk and improving safety. A reduced radius also reduces vehicle speeds, which is critical at intersections as they are the site where drivers are most likely to encounter a pedestrian crossing a street.

**Road Classification Harmonization Study and Right-of-Way Review**

The Manual presents the typologies as an overlay to existing classifications such as major/minor arterial and collector roads, which help improve designs and helps implement the decision support tool. The TMP recommends the need to harmonize the Complete Street Typologies presented in this Report with the City’s existing road classification system. This harmonization will also include an update to planned ROW widths for City roadways and complement the review of development guidelines and financial policies. It will also inform future updates to the Official Plan. This Report recommends undertaking this study to ensure consistency between the CSDM, road classifications, and other related policies.

## **ALTERNATIVES FOR CONSIDERATION**

Council could direct staff to make modifications to the Complete Streets Design Manual and bring a revised Manual to Council for consideration. Council could also direct staff utilize the guidelines contained within the Manual to inform near term projects and report on the results in the future prior to formally adopting the Manual. This option is not recommended since many of the concepts in the Manual have already been demonstrated in Hamilton and other communities and would delay progress in achieving more complete streets and Vision Zero.

## **ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN**

### **Community Engagement and Participation**

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community.

### **Economic Prosperity and Growth**

Hamilton has a prosperous and diverse local economy where people have opportunities to grow and develop.

### **Healthy and Safe Communities**

Hamilton is a safe and supportive City where people are active, healthy, and have a high quality of life.

### **Clean and Green**

Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

### **Built Environment and Infrastructure**

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

## **APPENDICES AND SCHEDULES ATTACHED**

Appendix “A” to Report PED21020(a)/PW21002(a) – Complete Streets Design Manual