CITY OF HAMILTON

PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT
Transportation Planning and Parking Division
and
PUBLIC WORKS DEPARTMENT
Engineering Services Division
and
Transportation Operations and Maintenance Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	January 11, 2021
SUBJECT/REPORT NO:	Complete Liveable Better Streets Design Manual (PED21020/PW21002) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Rachel Johnson (905) 546-2424 Ext. 1473 Peter Topalovic (905) 546-2424 Ext. 5129
SUBMITTED BY: **SIGNATURE:**	Brian Hollingworth Director, Transportation Planning and Parking Planning and Economic Development Department 
SUBMITTED BY: **SIGNATURE:**	Gord McGuire Director, Engineering Services Public Works Department 
SUBMITTED BY: **SIGNATURE:**	Edward Soldo Director, Transportation Operations and Maintenance Public Works Department 

RECOMMENDATION

(a) That staff be directed to consult with the public on the following core components that will comprise the Complete Liveable Better (CLB) Streets Design Manual:

(i) the eight Complete Streets Typologies described in Appendix “A” attached to Report PED21020/PW21002;

(ii) the CLB Street Design Decision Support and Audit Tool attached as Appendix “B” to Report PED21020/PW21002;

(iii) the Illustrative Applications of Complete Streets Design Strategies to Existing Streets attached as Appendix “D” to Report PED21020/PW21002;

(iv) the Typical Complete Streets Design Features attached as Appendix “E” to Report PED21020/PW21002;

(b) That Appendix “C” attached to Report PED21020/PW21002 being the Background Review and Jurisdictional Scan be received;

(c) That staff report back to the Public Works Committee on 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 that will guide planning and design decisions for development applications, roadway reconstruction projects, planning studies, and environmental assessments for road infrastructure;

(d) That the final Complete Liveable Better Streets Design Manual include an implementation strategy that addresses project scoping, capital planning tools, and an analysis of any incremental cost to future capital and operating budgets;

(e) That staff be directed to engage the Development Industry Liaison Group (DILG) and other relevant stakeholders to discuss potential updates to the City of Hamilton Comprehensive Development Guidelines and Financial Policies Manual 2017 to incorporate complete streets design elements into new development and redevelopment.

EXECUTIVE SUMMARY

The development of a Complete Liveable Better (CLB) Streets Design Manual was a key recommendation of the 2018 City-wide Transportation Master Plan (TMP). Work on the CLB Streets Design Manual commenced in 2019. The purpose of this Report is to present the main elements of the Design Manual including street typologies, a decision framework and tool, best practices review, key design features of complete streets, and some example applications to existing streets, and to seek Council’s approval to engage with the public on these key elements, prior to reporting back to Council with a recommended CLB Streets Design Manual and supporting implementation tools.

Complete street design principles can create safer and equitable streets for all road users. The formalization of a design guideline and design process for complete streets will provide more predictability when creating designs for the development of new streets and rehabilitating or retrofitting of existing ones.

This Report contains several key elements that will ultimately comprise the CLB Streets Design Manual.

One key element of complete streets design is to determine what type of street is being designed so that the appropriate design elements can be applied. The term "Street Typology" refers to the type of street being designed and, is used as a way to further categorize the street classifications used by the City, such as major arterial, minor arterial, collector, and local road. Defining typologies and applying these to the City's streets identifies and informs trade-offs when evaluating the needs of different road users, with the goal of prioritizing the most vulnerable users and maximizing the "person capacity" of a street. It does this while acknowledging that streets have many competing priorities, which may vary depending on their context within the City.

As part of the CLB Streets Design Manual development process, a Best Practices Review and Jurisdictional Scan was undertaken. That review supported the development of CLB Streets Typologies as well as the development of a Decision Support and Audit Tool to help designers interpret the design manual and evaluate the street they are designing.

Illustrative applications of complete street design strategies to existing streets in Hamilton have also been developed to show what it would look like to apply the typologies and related design features to existing streets reflecting the Hamilton context.

The last key element of the CLB Streets Design Manual that is included in this Report is a "toolbox" of typical complete streets design features with practical applications that can be used to develop complete streets. The design features cover a number of categories, including crossing treatments, speed management, curbside management, active transportation features, and streetscaping. These are analogous to the All Ages and Abilities (AAA) analysis and tools used to create AAA streets.

Taking, into account, feedback from the public, the CLB Streets Design Manual project will be finalized and presented to Council for its consideration, taking, into account, the following objectives:

- Ensuring cohesion between the CLB Streets Design Manual and other City policy documents, design guidelines, and engineering standards;
- Develop a monitoring plan;

- Identify any financial implications of Complete Streets and Return on Investment (ROI); and,
- Ensuring that impacts and benefits for all road users are explicitly considered with particular focus on transit users and operators, emergency vehicles, and waste collection services.

Alternatives for Consideration – Not Applicable

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: There are no financial implications associated with this Report. The final CLB Streets Design Manual will identify any financial implications of complete streets as well as estimated Return on Investment (ROI).

Staffing: None

Legal: None. Staff do not foresee any by-law changes at this point in the development of the CLB Streets Design Manual.

HISTORICAL BACKGROUND

The City of Hamilton's Transportation Master Plan (TMP) (Reports PED18137 and PED18137(a)) sets the policy directive regarding complete streets in the Complete Liveable Better Streets Policy and Framework section. As part of the TMP, Complete Streets concepts and design features were developed and vetted through the public engagement process of the TMP update in 2018. Extensive engagement was undertaken, including a round of public engagement specifically focussed on Complete Streets. These workshops collected input on design concepts, typologies, and implementation methods. The TMP did not, however, drill down into specific engineering details and applications to real-world and unique to Hamilton conditions. Accordingly, this is a focus of the current work and of the CLB Streets Design Manual.

The CLB Streets Design Manual will implement several actions contained within the TMP.

Action 36 of the TMP is to operationalize complete streets analysis, tools and techniques in a routine way for all road and trail related design and construction projects in the City. The CLB Streets Design Manual is intended to achieve this by providing designers and decision makers with a consistent set of tools to evaluate, engage with design, implement, and monitor street projects. This also includes the use of AAA analysis and design principles, including the development of bike boulevards and other treatments as outlined in Appendix "E" attached to this Report.

The TMP also recommends that the CLB Street Typologies initially established as part of the TMP be harmonized with the existing Road Classification System and related Right-of-Way (ROW) widths (Action 37 of the TMP). The typologies are presented in the TMP as an overlay to the functional road classifications of Major and Minor Arterial, Collector, Local, and Rural road. They help to better clarify what design treatments are required for the various types of roads in the City, dependent on the context.

Further building on the goal of harmonizing current and complete street approaches, Action 38 in Table ES.3 of the TMP encourages the use of the multi-modal level of service (MMLOS) approach to evaluate road designs and facilitate the implementation of CLB streets. The Level of Service (LOS) rating refers to the speed, convenience, comfort and security of transportation facilities, and services as experienced by motor vehicle users. The MMLOS rating applies the LOS to all modes of transportation including walking, cycling, and transit, and it is considered more consistent with a complete streets approach. MMLOS is also associated with AAA infrastructure and Vision Zero because it recognizes that each mode has a level of service and improving the service level for each mode is a more comprehensive strategy for designing streets.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The CLB Streets Design Manual will support existing City of Hamilton plans and policies. These include but are not limited to:

- The Official Plan;
- Transportation Master Plan;
- Cycling Master Plan;
- Recreational Trails Master Plan;
- Urban Design Guidelines within Secondary Plans; and,
- Development specific guidelines and policies including the City of Hamilton Comprehensive Development Guidelines and Financial Policies Manual Review.

The final CLB Streets Design Manual will also need to be informed by, and tie into, the on-going Truck Route Master Plan Review Study.

RELEVANT CONSULTATION

Several internal stakeholders were consulted as part of the CLB Streets Design Manual Technical Advisory Committee (TAC) including:

- Public Works - Transportation Operations and Maintenance (TOM), Engineering Services, Transit (HSR);
- Healthy and Safe Communities - Public Health Services - Healthy Environments; and,

- Planning and Economic Development - Community Planning and Design, Development Planning, Growth Management.

Engagement with and between these groups will continue throughout the finalization of the CLB Streets Design Manual and beyond.

External consultation was also undertaken with staff from various municipalities as part of the best practices review and jurisdictional scan. These municipalities currently have existing complete streets design guideline/manual documents:

- City of London - London Complete Streets Design Manual;
- City of Kitchener - Complete Streets Kitchener;
- City of Toronto - Toronto Complete Streets Guidelines;
- City of Edmonton - Complete Streets Design and Construction Standards; and,
- City of Boston - Complete Streets Design Guidelines.

Consultation with the public occurred as part of the development of the TMP in 2018. Complete Streets concepts and design features were developed and vetted through the TMP public engagement process. This included a round of public engagement specifically focussed on Complete Streets. These workshops collected input on design concepts, typologies, and implementation methods.

Engagement will continue as the project moves forward, focused on the internal TAC for the project and external stakeholders through the City's Mobility Lab focus group which includes the following organizations: Hamilton Cycling Committee; Cycle Hamilton; Environment Hamilton; McMaster University; Mohawk College; Hamilton Health Sciences; and, Smart Commute Employer partners and residents. Public Engagement throughout Q1 2021 will be facilitated through a dedicated Complete Streets website and opportunity for feedback through surveys and focus groups.

ANALYSIS AND RATIONALE FOR RECOMMENDATION(S)

Complete Streets are the socially, economically, and environmentally sustainable design of urban rights-of-way. Through proper design, Complete Streets can improve safety, accessibility, connectivity, sense of place, and the public realm overall. A CLB Streets approach recognizes that there is no one-size-fits-all solution to street design. The priorities of any given street depend on its role within the overall transportation network, the surrounding land-use context, and the City's vision for the future role of the street. Importantly, the priorities for a street may not be constant along the entire length of the street and may change as the street transitions from one context to another. For example, a rural road may gain on-street parking and sidewalks through a rural settlement area. An urban road may feature a compact ROW with higher operating speeds as it transitions into a more suburban context.

The development and application of Complete Streets in Hamilton must consider both existing urbanized areas and greenfield areas. For existing urbanized areas, Hamilton has some unique challenges with respect to the application of complete streets.

Because of its unique geography, and because the City developed initially along traditional development patterns, much of Hamilton has significant built-environment constraints. Many of the City's streets, for example, are narrow, by modern standards (most major roadways in the 1800s were often built with 50-foot street widths, designed for the passage of persons, horses and carriages only) and in many parts of the City, buildings and houses are built out to the street's edge. Much of the older part of the City of Hamilton, therefore, has limitations naturally associated with smaller rights-of-way, aging and layered infrastructure, and limited opportunities for the wholesale revamping of City systems. However, in some cases, these present opportunities to create more compact and pedestrian-oriented streets.

One of the key elements of a comprehensive complete streets framework is the development of "street typologies". The CLB Streets Typology was developed as part of the City's 2018 TMP Review and Update and refined for this next stage of the design guidelines development. It includes eight types of streets which respond to the different street contexts found throughout the City of Hamilton, and they are intended to be an overlay to the existing street classifications that include major and minor arterials, collectors and local roads. One change, since the TMP, was the addition of an "Industrial Street" classification to reflect the unique needs of industrial and employment areas.

The typologies can be found in Table 1 and they are detailed further in Appendix "A" attached to this Report.

Table 1: Proposed Street Typologies for the City of Hamilton

Street Typology	Description	Example
Urban Avenues	Located in the most dense, mixed-use urban centres like downtown Hamilton. High people-movement capacity with priority for transit and active transportation.	John St., Cannon St., Centennial Parkway, Upper James St., Main St. W., Barton St. W. (west of Victoria)
Transitioning Avenues	Major streets that cross the city east-west or north-south. Medium/high people-movement capacity with a high degree of access control.	Victoria Ave, (north of Barton), Rymal Rd (east of Garth), Wilson St. W. (west of McClure)

Street Typology	Description	Example
Main Streets	Streets with historical narrow rights-of-way found in urban areas. Low/medium people movement capacity with street-oriented mixed uses.	BIA areas, Kenilworth Ave N. (north of Roxborough)
Connectors	Link residential and employment areas together and to other parts of the City. Medium people-movement capacity with moderate access control.	Wilson St., Stone Church Rd, Fennell Ave W.
Neighbourhood Streets	Provide direct access to residential areas. Lower speed streets with minimal through traffic. Could be bicycle boulevards.	Bay St. (north of Cannon), Pearl St. S. (south of Main), South Bend Rd E. (east of Upper Wellington)
Rural Roads	Roads outside of Hamilton's urban area, primarily in agricultural and rural industrial areas.	Most roads outside the urban boundary
Rural Settlement Areas	Found within small communities throughout rural area of Hamilton. Portions of rural roads that slow traffic as they pass through villages.	Binbrook Rd, Old Highway 8
Industrial Roads	Important goods movement corridors. Provide access by all modes of travel to industrial, warehouses, and other employment areas.	Nebo Rd; Burlington St., east of Wellington

The CLB Streets Typologies attempt to balance or re-balance the design of streets to meet the needs of all road users, and to shift the focus from assessing automobile capacity and throughput to considering the overall people-moving capacity of a street to attain the highest and best use of the transportation system. It does this while acknowledging that streets have many competing priorities, which may vary depending on their context within the City. For example, Urban Avenues are found in more dense, mixed-use activity centres. These streets achieve a high people-movement capacity by prioritizing transit and active transportation, while applying a high degree of private access control. Conversely, connector streets prioritize multi-modal access to employment and other community nodes and achieve a moderate people movement capacity with a moderate degree of private access control. The CLB Streets Typologies attached as Appendix "A" to this Report provides further details on these typologies.

Rapid Transit design considerations will also be integrated into the typologies as part of the finalization of the CLB Streets Design Manual. Multiple typologies may include Rapid Transit corridors, and therefore, rather then having a specific Rapid Transit

typology, it is more appropriate to include specific design features into the description of the typologies and the decision support and audit tool, which is further described below and in Appendix "B" attached to this Report. For Rapid Transit, corridors in particular, the form of development and application of Transit-Oriented Development (TOD) principles and guidelines go hand in hand with complete streets.

Similarly, the City's Truck Route network also has an influence on the design features for complete streets, and vice versa, and as such, the consideration of truck routes is both part of the typologies as well as the decision tool.

The City of Hamilton has existing Functional Road Classifications comprising of: major arterials, minor arterials, collector roads, and local roads in both urban and rural contexts. The CLB Street Typologies are informed by both the functional road classifications and street context. Table 2 below shows the proposed relationship between Functional Road Classifications and CLB Streets; where the street typologies act as an overlay on top of the road classifications.

Table 2: Functional Road Classifications and CLB Streets Typologies Overlays

	Functional Road Classifications (Urban and Rural)			
Context*	**Major Arterial** Rural Arterial	**Minor Arterial** Rural Arterial	**Collector** Rural Collector	**Local** Rural Local
Rural	Rural Road			
Rural Settlement	Rural Settlement Area			Neighbourhood Street
Employment Areas/Industrial	Transitioning Avenue	Transitioning Avenue or Connector or Industrial Road	Connector or Industrial Road	Connector or Industrial Road
Suburban	Transitioning Avenue	Transitioning Avenue or Connector	Connector or Neighbourhood Street	Neighbourhood Street
Urban	Urban Avenue or Transitioning Avenue	Urban Avenue or Transitioning Avenue or Main Street	Main Street or Connector	Neighbourhood Street
Urban Core	Urban Avenue or Main Street	Urban Avenue or Main Street	Main Street	Neighbourhood Street

* Geographic context is intended to represent broad definitions and differs from terminology used to describe Urban Structure in the Urban Hamilton Official Plan and Rural Hamilton Official Plan.

CLB Street Design Decision Support and Audit Tool

The CLB Street Design Decision Support and Audit tool is intended to help designers interpret the design manual and evaluate the street they are designing. The use of the tool will help determine the best application and treatments to ensure the street being designed is a CLB street, considering the street context and the adjacent land uses in which the project is located. Appendix "B" attached to this Report contains the proposed Decision Support and Audit Tool. The tool can also be used to audit the conditions of existing streets to inform future needs and opportunities, for example, as part of a Ward-specific complete streets study.

There are four key steps to implementing the Decision Support and Audit Tool. They are: data input; typology selection; street conditions assessment (current and proposed); and, a review of the results to assess how the design corresponds to a "complete street". The tool makes these steps transparent and easy to follow; facilitating good design practice as well as clear and transparent communication regarding the decision-making process. This evaluation process integrates MMLOS considerations as it rates each travel mode and its corresponding impacts including the speed, convenience, comfort and security of transportation facilities and services. It reflects the modal hierarchy established through the TMP which places pedestrians at the top of that hierarchy.

The first step in the decision tool is to assess the street's classification, ROW width, traffic volume, and transit capacity. Based on this information, in step two, the tool guides the designer to choose the appropriate street typology. A further assessment of the street follows in step three, to determine the current and future conditions of the street related to pedestrian, cycling and transit considerations; as well as, through movement, on-street parking, and green infrastructure.

Below is a summary of the assessment steps:

Step 1: Street classification assessment based on right-of-way width, traffic volume, and transit capacity.

Step 2: Select appropriate street typology.

Step 3: Current and future conditions street assessment related to pedestrian, cycling and transit considerations, as well as, through movement, on-street parking and green infrastructure.

The tool then determines from the assessments in steps one to three if the street design is balanced or needs further refinement. This objective process will achieve more

complete street designs while contemplating various community needs including the opportunity to reallocate space on overbuilt streets.

A core feature of the tool are the desired conditions by typology, illustrated in Table 3 below. These desired conditions are set based on a numerical score from one through five, corresponding to specific features, with one representing the lowest level and five representing an optimal condition. For example, on Urban Avenues, pedestrian, cycling, and transit features are set a high target value, whereas, on rural roads pedestrian accommodation and transit are set lower.

Table 3: Desired Conditions for CLB Typologies

	Pedestrian Realm	Cycling Facilities	Transit Service	Transit Service (on BLAST network)	Through Movement	On-Street Parking	Green Instructure
Urban Avenue	**4**	**4**	**4**	**5**	**3**	**2**	**3**
Transitioning Avenue	**5**	**5**	**4**	**5**	**4**	**1**	**3**
Main Street	**4**	**4**	**3**	**4**	**2**	**4**	**4**
Connector	**4**	**4**	**3**	**3**	**2**	**2**	**4**
Industrial Street	**4**	**4**	**3**	**3**	**3**	**1**	**2**
Neighbourhood Street	**3**	**2**	**1**	**1**	**1**	**3**	**4**
Rural Road	**1**	**4**	**1**	**3**	**4**	**1**	**2**
Rural Settlement Road	**4**	**3**	**2**	**3**	**3**	**3**	**3**

As noted previously, the decision tool must also account for other conditions beyond the basic typologies including Rapid Transit corridors, and Truck Routes. The on-going Truck Route Master Plan review will help inform the CLB Streets Design Manual by identifying strategic truck route corridors and appropriate design vehicles. In some cases, the application of complete streets design features may be used to reinforce the truck route network (i.e. divert trucks to appropriate routes).

Staff are beginning to pilot test this decision tool as part of on-going environmental assessments and other opportunities and will report back to Committee on its effectiveness.

Updating Existing Policies, Standards and Guidelines

While the CLB Streets Design Manual will be a stand-alone document, the impacts of

complete streets are far reaching and affect a number of existing City policy documents, guidelines, and engineering standards, including but not limited to:

- Comprehensive Development Guidelines and Financial Policies Manual Review (2017);
- Construction and Materials Specifications Manual and Standard Road Design Drawings;
- Secondary Plan Urban Design Guidelines;
- Traffic Calming Guidelines;
- City-Wide Corridor Planning Principles and Design Guidelines;
- Site Plan Guidelines; and,
- Secondary Plans.

It is unrealistic to update all of these guidelines to incorporate detailed recommendations on complete streets, and as such, it is intended that the final CLB Streets Design Manual will become a complementary reference to the above documents.

However, there are some near term changes that can be made to certain documents to help accelerate the implementation of key design features for complete streets. One area of opportunity is to implement changes to the Comprehensive Development Guidelines and Financial Policies Manual Review (2017) (referred to herein as the "Engineering Guidelines"). Drawing on national best practices and guidelines, including the NACTO Urban Streets Guidelines https://nacto.org/publication/urban-street-design-guide/ and various Ontario Traffic Manuals (OTM Book 18 Cycling Facilities and OTM Book 15 Pedestrian Crossing Treatments), a number of essential updates to the Engineering Guidelines have been identified as follows:

- Replacing references to guidance documents (e.g. replacing reference to the City's 1999 Design Guide for Bikeways with references to OTM Book 18 and NACTO);
- Identifying features to be included in new development (e.g. raised intersections, curb extensions and mini-roundabouts) to ensure traffic calming is build into development from the beginning, as opposed to as part of a retrofit;
- Reductions to design speeds;
- Adjustments to lane widths and pavement widths;
- Updates to recommended sidewalk widths;
- Updating Table C.1 Geometric Road Design Table to more clearly outline where cycling facilities are to be provided; and,
- Reducing minimum curb radii for certain types of roadways to encourage traffic calming.

As these engineering guidelines are used extensively by the development industry and some of the changes may affect the cost of new development (e.g. traffic calming features), staff intend to consult with the DILG prior to finalizing the changes.

Typical Complete Streets Design Features

As part of the current work, a design features "toolbox" was developed to illustrate potential interventions that can be used to advance complete streets. The design features are grouped into categories comprising crossing treatments, speed management, curbside management, active transportation and streetscaping, as outlined in Appendix "E" Typical Complete Streets Design Features attached to this Report. This also includes the use of AAA analysis and design principles, including the development of bike boulevards and other treatments.

Road Classification Harmonization Study and Right-of-Way Review

The TMP recommended the need to harmonize the CLB Street Typologies presented in this Report with the City's existing road classification system. This Report 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. This harmonization will also include an update to ROW widths for City roadways and will complement the review of the development guidelines and financial policies. It will also inform future updates to the Official Plan.

Best Practices Review and Jurisdictional Scan

As part of the current work on complete streets, the City's consultant, WSP, prepared a Background Review and Jurisdictional Scan, attached as Appendix "C" to this Report. This scan summarizes provincial, national, and international roadway design guidelines and standards that should be reflected in the City's CLB Streets Design Manual. The tabulated breakdown of design, implementation, and maintenance guidance at the various levels of government, both within Canada and the United States, as well as the table description of the City's Complete Streets typologies, may serve as tools for the project team's consideration in future phases.

The jurisdictional scan identifies common themes and principles and best practices that Hamilton can apply to the City's complete streets work. Each of the examined documents explores different Complete Streets typologies and Functional Road Classifications and their relationships. This is key in identifying common themes and assessing which typologies will work best for Hamilton, and it is notable that other cities have created overlays between the two types of road classifications. The five jurisdictional documents explore design principles and a summary of the highlights of these comparisons can be found in Appendix "C" attached to this Report.

ALTERNATIVES FOR CONSIDERATION

N/A

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” - Complete Streets Typologies
Appendix “B” - CLB Street Design Decision Support and Audit Tool
Appendix “C” - Background Review and Jurisdictional Scan
Appendix “D” - Illustrative Applications of Complete Streets Design Strategies to Existing Streets
Appendix “E” - Typical Complete Streets Design Features

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