

Transit Design Guide

Date: April 6, 2022

To: Planning and Housing Committee

From: Chief Planner and Executive Director, City Planning

Wards: All

SUMMARY

The expansion of Toronto's rapid transit network has the opportunity to bring about a positive transformation in mobility and residents' experience of the city, provided the infrastructure is designed and integrated into the city's public realm in an appropriate and thoughtful manner. In anticipation of the need to provide City design guidance for transit facilities and infrastructure, City Planning launched work on the Transit Design Guide in 2019 as a tool and resource to aid in the design and development of rapid transit projects and infrastructure across the city and support staff's on-going role in the review of these projects. Each component or element of a transit project – from a station site, to an electrical substation building, to linear infrastructure – has an impact on surrounding communities and the public realm.

The Transit Design Guide (Guide) is intended to inform how transit can enhance and contribute to the city's public realm and surrounding context. The Guide provides design guidance and process direction for consideration in the design of new and upgraded transit infrastructure, brings together new design and process direction, and provides references to existing guidance for the various subject matter. The purpose is to bring clarity and consistency around the City's expectations for the design of transit infrastructure. This includes recommendations, applicable at each stage of planning and development, and in co-ordination with stakeholders and delivery sponsors and/or agents, to eliminate or mitigate obstacles in the design and delivery of transit projects. The content of the Guide builds on existing guidance, as well as consolidating and clarifying lessons learned and best practices from staff's experience, as well as projects in Toronto and other municipalities. The Guide is intended to be a living document, for which additional chapters will be developed over time, as needed. The chapters that have been completed to-date, and shown in Attachments #1 through #6, include: Introduction, Ancillary Structures, Bus Terminals, Elevated Guideways, Elevated Stations, and Portals and Retaining Walls.

The purpose of this report is to provide background on the Guide, overview of the current contents of the Guide, how the Guide has been and will continue to be used to

support the City in its dialogue with the Province and transit agencies, and an outline of next steps in its continued development.

RECOMMENDATIONS

The Chief Planner and Executive Director, City Planning recommends that:

1. Planning and Housing Committee receive this report and Attachments #1 through #6 for information.

FINANCIAL IMPACT

There are no financial implications resulting from the recommendations included in the report in the current budget year or in future years.

EQUITY IMPACT STATEMENT

The provision of convenient, accessible and well-designed transit infrastructure is a Provincial interest and a key tenet of the City's Official Plan. To this end, the Transit Design Guide provides the City, its consultants and Agencies involved in the delivery of transit projects, a set of guidelines to ensure that new and upgraded transit infrastructure across the city is well integrated and demonstrates design excellence.

The intended outcome of the Transit Design Guide is well designed and functional transit infrastructure, which will positively impact all, including equity-seeking groups and vulnerable residents. An overarching principle of the Guide is ensuring equitable outcomes in transit design across the city. Design resources should be equitably allocated to ensure high-quality urban integration, user experience, resiliency and sustainability, operations, and accountability in those communities that need it most. These communities should not disproportionately bear negative transit design externalities.

Investment in transit design can go beyond the benefits of increased transit access and support expression of community identity, well-being, and culture.

DECISION HISTORY

On February 26, 2020, Council adopted, with amendments, Official Plan Amendment (OPA) 456 which was then subsequently reviewed and approved by the Minister of Municipal Affairs and Housing, coming into force on June 9, 2021. This report recommended the adoption of Official Plan transportation policy and text changes,

including policies related to the design of higher-order transit, as part of the City's Five Year Official Plan Review and Municipal Comprehensive Review that began in 2011. (<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.PH13.3>)

COMMENTS

The public facing elements of rapid transit systems, including station sites and related facilities and infrastructure, should be designed not only for efficient movement and to encourage transit use, but to integrate into the existing and planned context, provide a high-quality experience for pedestrians and transit users, and ultimately to help build more complete and sustainable communities. The staff-initiated Transit Design Guide responds to current and on-going transit expansion in the city with a focus on the design of public-facing transit elements. This Report presents an overview of the Guide and the project context.

This report on the Transit Design Guide is presented in four parts:

- 1) Background
- 2) Overview of the Transit Design Guide (work to-date)
- 3) Using the Guide
- 4) Next Steps

1. Background

Official Plan Amendment (OPA) 456 included transportation policy and text changes, including policies related to the design of higher-order transit, as part of the City's Five Year Official Plan Review and Municipal Comprehensive Review that began in 2011. Of particular relevance to the development of the Transit Design Guide was the policy and text in Section 3 of the Official Plan, Section 3.1.X. Higher-Order Transit. In response to the recent shift towards alternative models for the delivery of new higher order transit infrastructure, the City developed public realm guidance related to higher-order transit. This new policy section articulates the City's policy goals for the public realm around higher-order transit infrastructure, to support efficient movement by integrating higher-order transit with other modes as well as to achieve community building objectives. This is the policy basis for the development of the Transit Design Guide.

In addition to the Public Realm, Built Form and other related policies, OPA 456 sets out the vision for higher-order transit: "Higher-order transit contributes to the public life of the communities it serves, and helps promote a connected, inclusive and resilient city. The public facing elements, including station sites and related facilities and infrastructure, should be designed not only for efficient movement and to encourage transit use, but to integrate into the local community in a manner that provides a high-quality pedestrian experience, supports the envisioned context, facilitates the creation of complete communities and contributes to placemaking." (excerpt from OPA 456, Section 3.1.X. Public Realm – Higher-Order Transit).

In addition to this policy work, through on-going engagement on transit projects, staff identified a need to develop a guide that brought together, in one document, City design guidance for transit facilities and infrastructure. The Guide was initiated to document and catalogue best practices from past and on-going transit projects that City staff have collaborated on with other transit and provincial agencies.

City Planning began work on the Transit Design Guide, supported by a consultant team (Access Planning, Perkins+Will), by undertaking a collaborative process to identify the scope and range of transit infrastructure elements for which design guidelines were needed, as well as a gap analysis, and prepared a preliminary structure for the eventual Transit Design Guide.

At the outset of the project, City Planning engaged a Core Team of professionals from across various City Divisions, Agencies and other organizations in recognition that they all share an interest in achieving a quality public realm and unlocking the city-building potential of transit. The Core Team collaboration was instrumental in establishing the scope for the Guide. To-date, the Core Team has included members from City Planning (Transportation Planning, Urban Design, Community Planning, and Strategic Initiatives & Policy Analysis), Parks, Forestry & Recreation, Transit Expansion Office, Transportation Services, Engineering & Construction Services, Economic Development & Culture, CreateTO, TTC and Metrolinx (Design Standards). Focussed working sessions were held with TTC to review and discuss the findings and draft guidelines, to ensure alignment with the TTC's existing technical standards.

Throughout the process, the Core Team has helped to identify existing guidance, key subject areas and priority elements, undertake the gaps analysis, identify process challenges, and review the draft structure and content of the Guide. A series of workshops were held with the Core Team to review drafts of the Vision and Principles, Initial Directions and final working drafts. In addition to Core Team meetings, smaller format sessions were held with various stakeholders to discuss particular subject matter.

Staff and the consultant team presented the Guide to the City's Design Review Panel, first at the outset of the project, and later with a draft of the Guide. The Panel shared overwhelming support for this initiative and their input on content, graphic quality, and process helped to refine the final version of the Guide.

2. Overview of the Transit Design Guide

The Guide is intended to support the public interest by establishing a design vision, principles, strategies and guidelines to consistently achieve high-quality outcomes for the urban, architectural, and landscape design of rapid transit infrastructure and service in Toronto. More specifically, the Guide:

- Establishes shared objectives and design principles, developed in collaboration with City Divisions, the Toronto Transit Commission (TTC), Metrolinx, CreateTO, and other stakeholders involved in the delivery of rapid transit;

- Applies local and global best practices that are responsive to Toronto's varied and complex urban conditions and communities;
- Addresses outstanding gaps in the transit planning and design framework, relative to the established design principles and reconciles disparate guidance to develop a unified City position in the context of transit stations;
- Recommends strategies and/or processes to support the resolution of complex, multi-disciplinary design challenges; and
- Informs decision making by project teams, from initial business case to construction and operations.

The Guide applies to the urban, architectural, and landscape design of new and upgraded rapid transit sites and related public-facing infrastructure within Toronto, with a focus on the integration of transit in the urban context. The Guide does not apply directly to the engineering, construction, or operations of rapid transit facilities and lines. Where appropriate, it includes strategies and processes to resolve complex, multi-disciplinary design challenges, when the Guide's design principles and objectives are impacted. It is intended to supplement and create consistency amongst the large body of direct and indirect design guidance for transit projects and infrastructure, rather than replace existing policies, guidelines, regulations and standards.

The Guide provides design direction for various subject matter, but project teams will still need to ensure that each project responds to its unique project-specific requirements and urban context. In this regard, the Guide does not generally provide metrics or specification level guidance, but rather performance-based design direction, leaving room for project teams to adapt the design direction and apply creativity and professional judgement.

The five elements included in Attachments #2 through #6 (Ancillary Structures, Bus Terminals, Elevated Guideways, Elevated Stations, and Portals & Retaining Walls) were identified as priority elements to document at the outset of this work for a number of reasons. For one, little to no direct design guidance exists for some of these elements. Most of the elements identified are also part of the current transit projects across the city that City staff are seeking to influence (i.e. Ontario Line, Scarborough Subway Extension, Yonge North Subway Extension, and Eglinton Crosstown West Extension).

The Guide will be a living document, supplemented over time as needed and as resourcing becomes available to complete additional chapters for other elements. Attachments #2 through #6 to this Report, includes the first five chapters of the Transit Design Guide, in addition to an Introduction Section (Attachment #1).

Introduction (Attachment #1)

The Introduction section of the Guide sets out, at a high level, the City's vision, principles, planning and design objectives related to transit. The Guide's design guidance is organized around five principles – urban integration, user experience, resilience and sustainability, intermodal operations, and accountability – that define the broad objectives that transit infrastructure should achieve.

The chapters that follow the Introduction provide the guidance for the design of various elements of transit infrastructure covered by the Guide, couched in the overarching vision and following the five principles identified. While chapters are intended to stand on their own, they have linkages and cross references to other chapters of the Guide for related elements.

Ancillary Structures (Attachment #2)

Ancillary buildings and structures are supporting elements that are necessary to the function and maintenance of transit infrastructure. These include restricted access sites such as a Traction Power Substation (TPSS), Emergency Exit Building (EEB) and vent structures. These are critical and necessary to the operation of the transit line and should be planned and designed to integrate seamlessly into their surrounding context.

Bus Terminals (Attachment #3)

Bus terminals are places of passenger exchange where transit riders seamlessly move through the system connecting between buses, rapid transit, and surrounding destinations. They are key access and egress points to the transit network where pedestrian and cyclist access is particularly important. They are critical to the operations of a high-capacity bus network, as well as the entire rapid transit system, by providing buses with a location to take recovery time for schedule adherence and operator breaks. Bus terminals are more than a terminus for bus routes, they are also hubs that anchor placemaking and activity.

Elevated Guideways (Attachment #4)

Elevated guideways are sections of track infrastructure between stations that are raised above grade or street level. A series of factors influence the layout and resulting guideway type, and these are outlined in this chapter.

Elevated Stations (Attachment #5)

An elevated station is the access point from the street to the platform for an elevated transit line, including rail, light rail or bus, and it is where passengers board or alight transit vehicles. The elevated station area encompasses the full site on which the station is located, from the station approach to the platform.

Portals & Retaining Walls (Attachment #6)

A transit portal creates a reinforced structure that provides an opening for transit vehicles to enter or exit, changing from a below-grade to an at- or above-grade alignment. Retaining walls are provided on both sides of tracks to reinforce the surrounding earth and adjacent grade. To facilitate the change in grade, these portals range in scale or length.

3. Using the Guide

The Guide applies to the development of transit infrastructure city-wide, and provides flexibility in its application, allowing for a variety of contextually appropriate design outcomes by using performance based language. One of the main objectives of the Guide is to provide clarity and consistency for all stakeholders involved in the design of

transit, of the City's expectations for transit to make a positive contribution to the quality of life and fit into the existing and planned context.

The Guide emphasizes the integration of design considerations for transit infrastructure at the earliest stage in the planning process. It should be read comprehensively and together with other City, Provincial and Agency documents that provide direction on the planning and design of transit infrastructure. The design guidance in each chapter addresses a specific element, and should be read together with the Introduction section of the Guide.

Responsibility for delivering transit projects in Toronto is shared among many parties, including the City, Metrolinx, the TTC, CreateTO and private developers. With so many different stakeholders potentially involved in the design and delivery of transit projects, this Guide serves as a reference for ensuring design consistency and excellence across all projects, modes and contexts.

City Planning staff are currently using the Guide to support City review and comments on the Provincial transit projects, many of which include the five elements developed for the Guide to-date. In particular, the Guide is informing the review of elevated stations and guideways on the Ontario Line and Eglinton Crosstown West Extension, and reviews of retaining wall structures in the Ontario Line Joint Corridor segment through Leslieville and Riverside. The Guide has also been a resource to staff through work on the Scarborough Subway Extension and Yonge North Subway Extension for ancillary structures and bus terminals.

City Planning staff will use the Guide to support discussions with the Transit Expansion Office and the Metrolinx design standards staff, as Metrolinx develops project-specific design guides for their proponents in procurement processes. The Guide will also be a resource for staff and consultants for any future transit projects for which the City may be the proponent (e.g., Waterfront East LRT, Eglinton East LRT).

The Guide will also provide a resource to support public consultation on transit projects as it articulates guidance for both the vision and elements that will see implementation across the city over the coming years.

4. Next Steps

Provincial Policy direction and the Official Plan provide general direction on the design of transit. As the Guide continues to be used through on-going coordination with the Province and Agencies in the design and development of transit and related infrastructure, staff will continue to document and share lessons learned and best practices, and update the Guide as needed. The Introduction and first five chapters of the Guide, as included in Attachments #1 through #6, are posted on the City's [Transit Design Guide website](#).

The Guide is intended to be a living document that captures the best practices for transit design as well as responding to on-going trends and projects to ensure its guidance is feasible and implementable. Work on the Guide will continue over the next several years. As additional chapters are developed through consultation with the Core Team,

they will be posted to the website once complete. The next set of chapters of the Guide will be developed throughout Q3 and Q4 of 2022, and will include the following elements: on-street bus and light rail transit stops, passenger pick-up and drop-off, maintenance and storage facilities and transit-oriented development integration. These elements are found in many of the on-going and planned higher-order transit projects, and the Transit Design Guide will continue to inform, and be informed by, this on-going transit work.

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SIGNATURE

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ATTACHMENTS

Attachment 1: Introduction & Background
Attachment 2: Ancillary Structures
Attachment 3: Bus Terminals
Attachment 4: Elevated Guideways
Attachment 5: Elevated Stations
Attachment 6: Portals & Retaining Walls