5.0 Implementation

5.1 Implementation Overview

Implementation of Context Sensitive Solutions will be coordinated between York Region, local municipalities and other partners

York Region and its nine local municipalities share responsibility for road design, planning and construction projects. Implementing *Designing Great Streets* will require continued coordination and clear allocation of responsibilities between the Region and local municipalities.

The adoption of a context sensitive solutions approach requires changes to the road design process. As one of the central goals of CSS is to undertake interdisciplinary planning and design, the implementation of this approach will involve a range of partners and stakeholders. For each project, the Region will take the lead on outlining the division of responsibilities and scope of work for each partner. This division of responsibility will vary for each project, depending on scope and needs.

The Region will also take the lead on public consultation and the involvement of a range of partners. In addition to staff from Regional and local municipalities, road design projects may include consultants, engineers, local Conservation Authorities and other relevant Provincial bodies. The Region must also ensure the road design process is coordinated with development approvals so any upgrades to the boulevard as part of redevelopment or infill align with future expectations for overall road design.

Implementation of an effective CSS approach may require training for Regional and municipal staff, for partners and any others involved in road design projects using this approach. It will also require updates to several existing Regional policies and programs to ensure they are in line with, and supportive of, the CSS approach and typologies. These include the *York Region Official Plan*, the Municipal Streetscape Partnership Program, the *Region's Road Design Guidelines* and *Access Guidelines for Regional Roads.* A truly context sensitive design for York Region will only be possible if the CSS approach becomes fully ingrained in the Region's processes including capital and lifecycle budgeting and cost estimating.

The current division of responsibility for construction, operations and road maintenance will not change with the adoption of CSS. This scenario may evolve over time.

It is expected that the design guidelines and sample cross-sections created as part of these guidelines will be part of a living document that may be revised and updated periodically. As projects are implemented and monitoring enables York Region to compare observed operating conditions with planned operating conditions, the need for improvements and updates to these guidelines should be regularly assessed.

York Region and local municipalities will continue to share responsibility for road design, planning and construction

5.2 Municipal Class Environmental Assessment

The Context Sensitive Solutions Decision Making Process must be integrated with the Municipal Class Environmental Assessment process

The Municipal Class Environmental Assessment (Class EA) is an approved planning document that describes the process proponents must follow to meet the requirements of the *Environmental Assessment Act (EA Act)*.
This process requires the evaluation of the environmental effects of the proposed alternatives to a project, as well as alternative methods of carrying out a project and includes the mandatory requirements for public input.

Class EAs expedite the environmental assessment of smaller recurring projects. They are a method of dealing with projects that commonly re-occur, are similar in nature and present a limited scale of predictable ranges of environmental effects.

Common Class EA projects include:

- Operational and maintenance improvements for roads, watermains, sewers and related infrastructure
- Construction of new roads, watermains, sewers and related infrastructure
- Construction of stormwater management and related erosion and sediment control, flood control and water quality control facilities

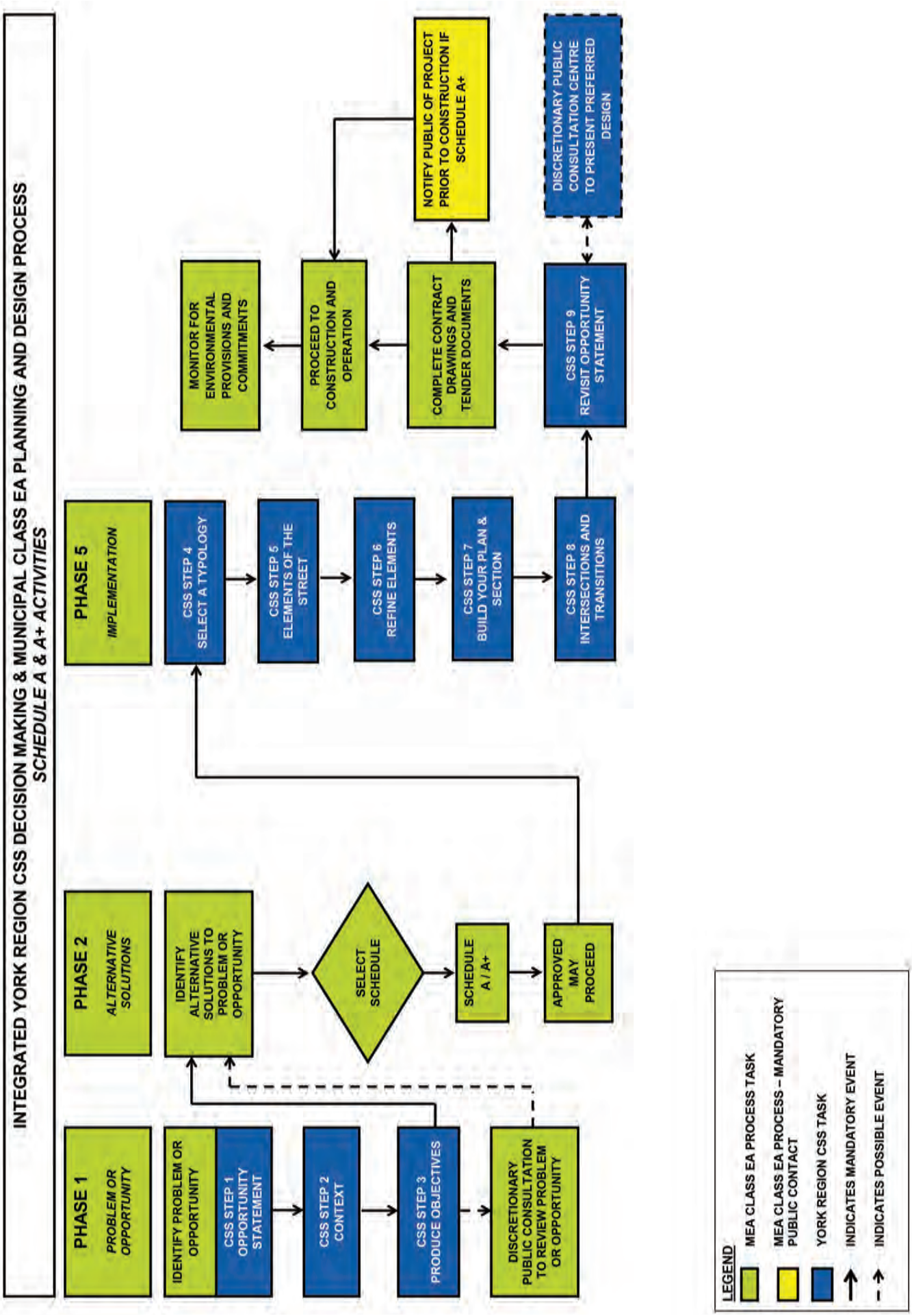
Projects requiring Class EAs are categorized according to their environmental significance and impacts on the surrounding environment, as follows:

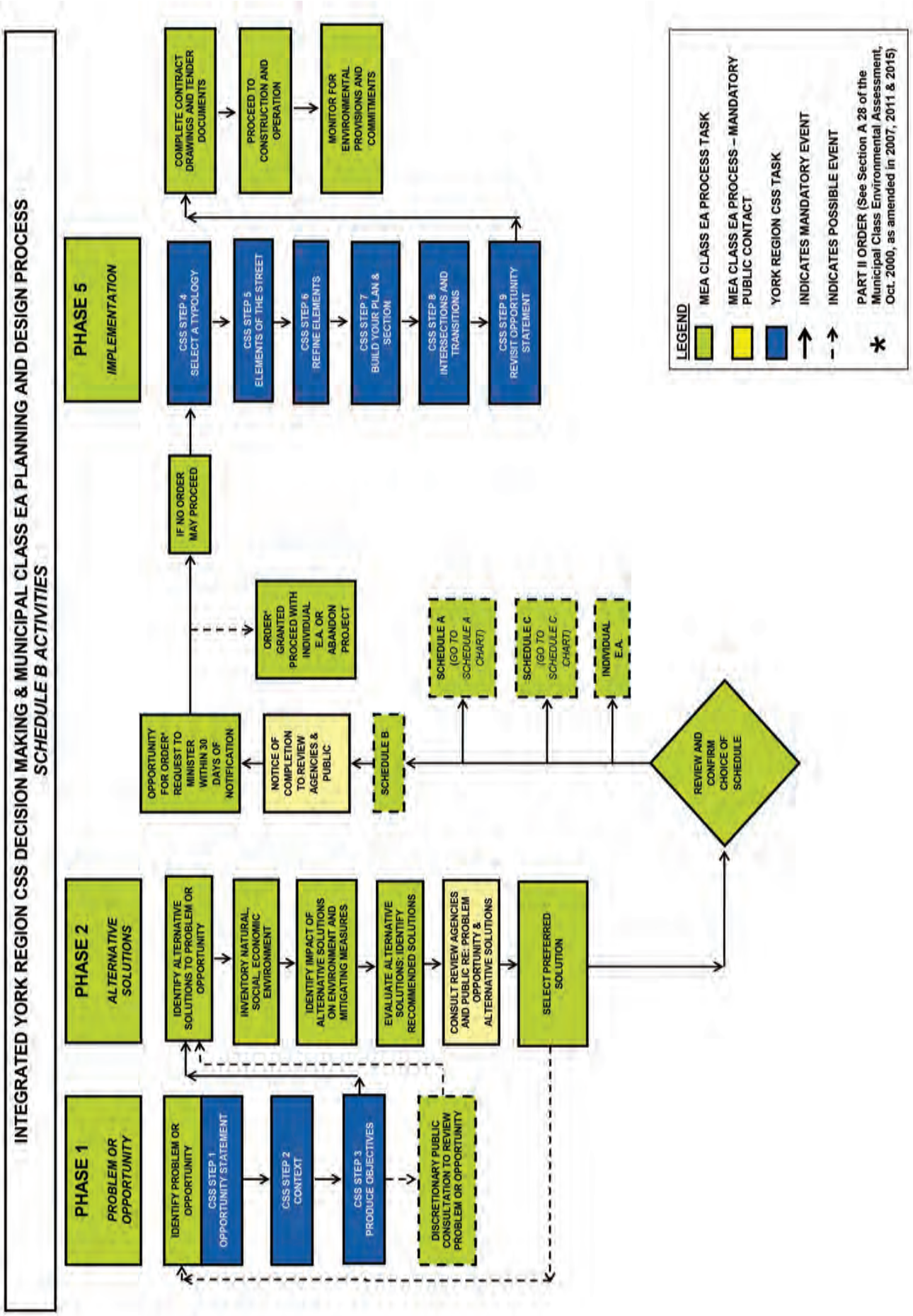
- Schedule A: Projects are limited in scale, have minimal adverse environmental effects and include municipal maintenance and operational activities
- Schedule A+: Projects are pre-approved under the Class EA, however it is deemed appropriate to inform the public of the project prior to its implementation
- Schedule B: Projects have the potential for some adverse environmental effects. The proponent is required to undertake a screening process, involving mandatory contact with the directly affected public and relevant government agencies to ensure they are aware of the project and their concerns are addressed
- Schedule C: Projects have the potential for significant environmental effects and must proceed under the full planning and documentation procedures specified in the Class EA process

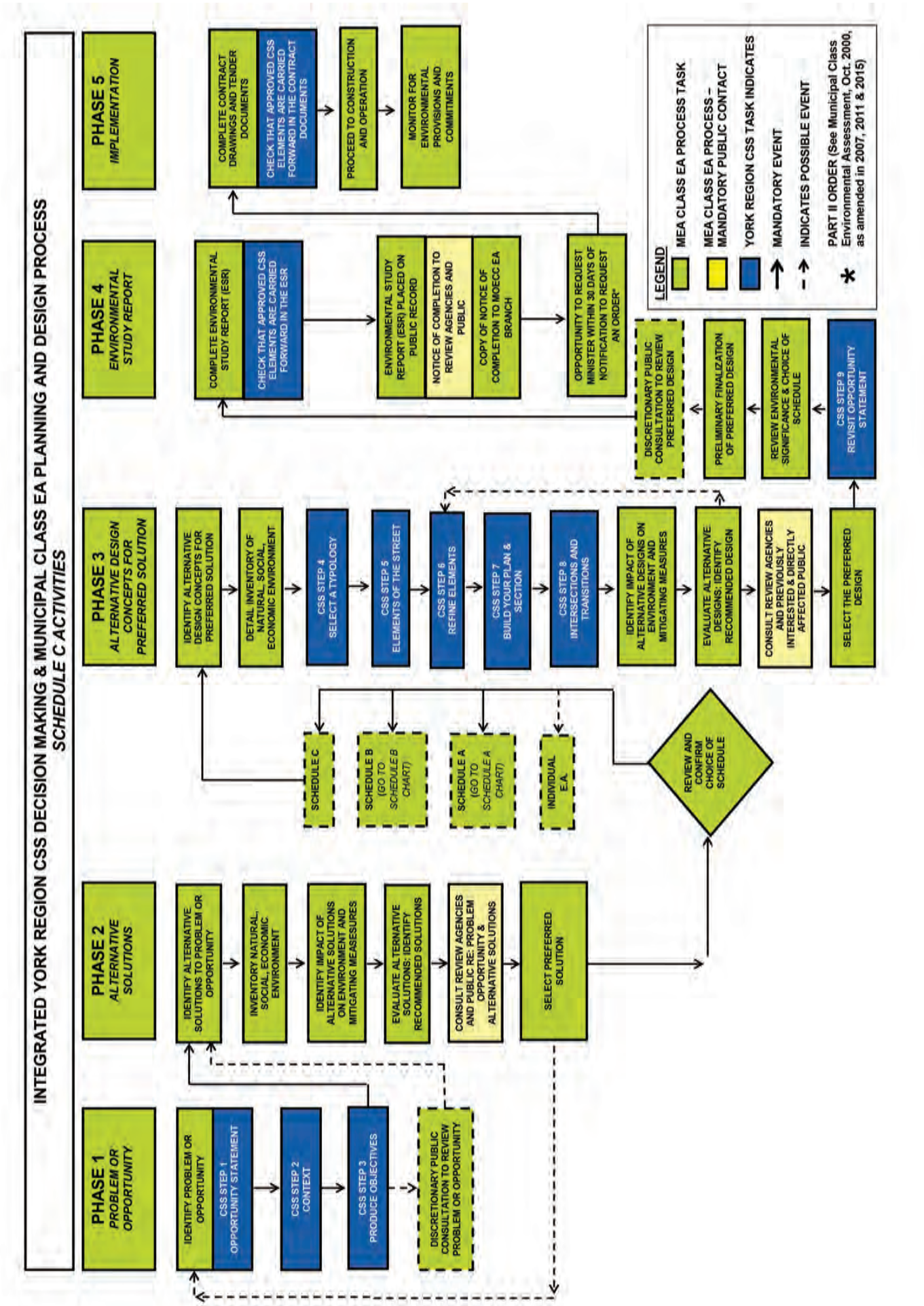
The CSS Decision Making Process highlighted in the Executive Summary and detailed in Section 6.0 must be integrated with the Municipal Class EA planning and design process as shown in the following Schedule A, Schedule B and Schedule C flowcharts to ensure the CSS approach becomes rooted in environmental assessment projects.

Note that some details in the Municipal Class EA Planning and Design Process not related to the CSS Decision Making Process have been omitted for the sake of clarity. The following flow charts do not replace the Municipal Class EA Planning and Design Process.

Complex projects with less predictable or more significant environmental impacts may require an Individual Environmental Assessment. The CSS Decision Making Process also needs to be incorporated when carrying out Individual Environmental Assessments.


INTEGRATED YORK REGION CSS DECISION MAKING & MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS
SCHEDULE A & A+ ACTIVITIES
PHASE 1
PROBLEM OR OPPORTUNITY
IDENTIFY PROBLEM OR OPPORTUNITY
CSS STEP 1 OPPORTUNITY STATEMENT
CSS STEP 2 CONTEXT
CSS STEP 3 PRODUCE OBJECTIVES
DISCRETIONARY PUBLIC CONSULTATION TO REVIEW PROBLEM OR OPPORTUNITY
PHASE 2
ALTERNATIVE SOLUTIONS
IDENTIFY ALTERNATIVE SOLUTIONS TO PROBLEM OR OPPORTUNITY
SELECT SCHEDULE
SCHEDULE A / A+
APPROVED MAY PROCEED
PHASE 5
IMPLEMENTATION
CSS STEP 4 SELECT A TYPOLOGY
CSS STEP 5 ELEMENTS OF THE STREET
CSS STEP 6 REFINE ELEMENTS
CSS STEP 7 BUILD YOUR PLAN & SECTION
CSS STEP 8 INTERSECTIONS AND TRANSITIONS
CSS STEP 9 REVISIT OPPORTUNITY STATEMENT
COMPLETE CONTRACT DRAWINGS AND TENDER DOCUMENTS
PROCEED TO CONSTRUCTION AND OPERATION
MONITOR FOR ENVIRONMENTAL PROVISIONS AND COMMITMENTS
NOTIFY PUBLIC OF PROJECT PRIOR TO CONSTRUCTION IF SCHEDULE A+
DISCRETIONARY PUBLIC CONSULTATION CENTRE TO PRESENT PREFERRED DESIGN
LEGEND
MEA CLASS EA PROCESS TASK
MEA CLASS EA PROCESS – MANDATORY PUBLIC CONTACT
YORK REGION CSS TASK
INDICATES MANDATORY EVENT
INDICATES POSSIBLE EVENT


INTEGRATED YORK REGION CSS DECISION MAKING & MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS
SCHEDULE B ACTIVITIES
PHASE 1
PROBLEM OR OPPORTUNITY
PHASE 2
ALTERNATIVE SOLUTIONS
PHASE 5
IMPLEMENTATION
IDENTIFY PROBLEM OR OPPORTUNITY
CSS STEP 1 OPPORTUNITY STATEMENT
CSS STEP 2 CONTEXT
CSS STEP 3 PRODUCE OBJECTIVES
DISCRETIONARY PUBLIC CONSULTATION TO REVIEW PROBLEM OR OPPORTUNITY
IDENTIFY ALTERNATIVE SOLUTIONS TO PROBLEM OR OPPORTUNITY
INVENTORY NATURAL, SOCIAL, ECONOMIC ENVIRONMENT
IDENTIFY IMPACT OF ALTERNATIVE SOLUTIONS ON ENVIRONMENT AND MITIGATING MEASURES
EVALUATE ALTERNATIVE SOLUTIONS: IDENTIFY RECOMMENDED SOLUTIONS
CONSULT REVIEW AGENCIES AND PUBLIC RE: PROBLEM OPPORTUNITY & ALTERNATIVE SOLUTIONS
SELECT PREFERRED SOLUTION
REVIEW AND CONFIRM CHOICE OF SCHEDULE
SCHEDULE A (GO TO SCHEDULE A CHART)
SCHEDULE C (GO TO SCHEDULE C CHART)
INDIVIDUAL E.A.
SCHEDULE B
NOTICE OF COMPLETION TO REVIEW AGENCIES & PUBLIC
OPPORTUNITY FOR ORDER* REQUEST TO MINISTER WITHIN 30 DAYS OF NOTIFICATION
ORDER* GRANTED PROCEED WITH INDIVIDUAL E.A. OR ABANDON PROJECT
IF NO ORDER MAY PROCEED
CSS STEP 4 SELECT A TYPOLOGY
CSS STEP 5 ELEMENTS OF THE STREET
CSS STEP 6 REFINE ELEMENTS
CSS STEP 7 BUILD YOUR PLAN & SECTION
CSS STEP 8 INTERSECTIONS AND TRANSITIONS
CSS STEP 9 REVISIT OPPORTUNITY STATEMENT
COMPLETE CONTRACT DRAWINGS AND TENDER DOCUMENTS
PROCEED TO CONSTRUCTION AND OPERATION
MONITOR FOR ENVIRONMENTAL PROVISIONS AND COMMITMENTS
LEGEND
MEA CLASS EA PROCESS TASK
MEA CLASS EA PROCESS – MANDATORY PUBLIC CONTACT
YORK REGION CSS TASK
INDICATES MANDATORY EVENT
INDICATES POSSIBLE EVENT
* PART II ORDER (See Section A 28 of the Municipal Class Environmental Assessment, Oct. 2000, as amended in 2007, 2011 & 2015)


INTEGRATED YORK REGION CSS DECISION MAKING & MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS
SCHEDULE C ACTIVITIES
PHASE 1 PROBLEM OR OPPORTUNITY
IDENTIFY PROBLEM OR OPPORTUNITY
CSS STEP 1 OPPORTUNITY STATEMENT
CSS STEP 2 CONTEXT
CSS STEP 3 PRODUCE OBJECTIVES
DISCRETIONARY PUBLIC CONSULTATION TO REVIEW PROBLEM OR OPPORTUNITY
PHASE 2 ALTERNATIVE SOLUTIONS
IDENTIFY ALTERNATIVE SOLUTIONS TO PROBLEM OR OPPORTUNITY
INVENTORY NATURAL, SOCIAL, ECONOMIC ENVIRONMENT
IDENTIFY IMPACT OF ALTERNATIVE SOLUTIONS ON ENVIRONMENT AND MITIGATING MEASESURES
EVALUATE ALTERNATIVE SOLUTIONS: IDENTIFY RECOMMENDED SOLUTIONS
CONSULT REVIEW AGENCIES AND PUBLIC RE: PROBLEM OPPORTUNITY & ALTERNATIVE SOLUTIONS
SELECT PREFERRED SOLUTION
REVIEW AND CONFIRM CHOICE OF SCHEDULE
SCHEDULE C
SCHEDULE B (GO TO SCHEDULE B CHART)
SCHEDULE A (GO TO SCHEDULE A CHART)
INDIVIDUAL E.A.
PHASE 3 ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED SOLUTION
IDENTIFY ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED SOLUTION
DETAIL INVENTORY OF NATURAL, SOCIAL, ECONOMIC ENVIRONMENT
CSS STEP 4 SELECT A TYPOLOGY
CSS STEP 5 ELEMENTS OF THE STREET
CSS STEP 6 REFINE ELEMENTS
CSS STEP 7 BUILD YOUR PLAN & SECTION
CSS STEP 8 INTERSECTIONS AND TRANSITIONS
IDENTIFY IMPACT OF ALTERNATIVE DESIGNS ON ENVIRONMENT AND MITIGATING MEASURES
EVALUATE ALTERNATIVE DESIGNS: IDENTIFY RECOMMENDED DESIGN
CONSULT REVIEW AGENCIES AND PREVIOUSLY INTERESTED & DIRECTLY AFFECTED PUBLIC
SELECT THE PREFERRED DESIGN
PHASE 4 ENVIRONMENTAL STUDY REPORT
COMPLETE ENVIRONMENTAL STUDY REPORT (ESR)
CHECK THAT APPROVED CSS ELEMENTS ARE CARRIED FORWARD IN THE ESR
ENVIRONMENTAL STUDY REPORT (ESR) PLACED ON PUBLIC RECORD
NOTICE OF COMPLETION TO REVIEW AGENCIES AND PUBLIC
COPY OF NOTICE OF COMPLETION TO MOECC EA BRANCH
OPPORTUNITY TO REQUEST MINISTER WITHIN 30 DAYS OF NOTIFICATION TO REQUEST AN ORDER*
DISCRETIONARY PUBLIC CONSULTATION TO REVIEW PREFERRED DESIGN
PRELIMINARY FINALIZATION OF PREFERRED DESIGN
REVIEW ENVIRONMENTAL SIGNIFICANCE & CHOICE OF SCHEDULE
CSS STEP 9 REVISIT OPPORTUNITY STATEMENT
PHASE 5 IMPLEMENTATION
COMPLETE CONTRACT DRAWINGS AND TENDER DOCUMENTS
CHECK THAT APPROVED CSS ELEMENTS ARE CARRIED FORWARD IN THE CONTRACT DOCUMENTS
PROCEED TO CONSTRUCTION AND OPERATION
MONITOR FOR ENVIRONMENTAL PROVISIONS AND COMMITMENTS
LEGEND
MEA CLASS EA PROCESS TASK
MEA CLASS EA PROCESS – MANDATORY PUBLIC CONTACT
YORK REGION CSS TASK INDICATES
MANDATORY EVENT
INDICATES POSSIBLE EVENT
* PART II ORDER (See Municipal Class Environmental Assessment, Oct. 2000, as amended in 2007, 2011 & 2015)

5.3 Maintenance and Operations

Operational service providers need to be consulted throughout the Context Sensitive Solutions decision making process and long term project lifecycle cost considered.

The lifecycle and maintenance of a road are key concerns for road designers, affecting long-term cost, environmental sustainability and the perceived quality of the place and experience. It is important not to compromise the longevity and quality of materials, planting and furnishings to save on short-term costs.

Maintenance requirements should be considered when determining the placement and design of landscaping, medians, curbs and sidewalks to avoid accidental damages. Snow clearing is particularly important to ensure safe access for users of roads and sidewalks. Priority should be given to the clearing of snow from curb ramps at all intersections. Road design should consider the impacts of climate change on future maintenance requirements.

Winter maintenance activities need to be considered.

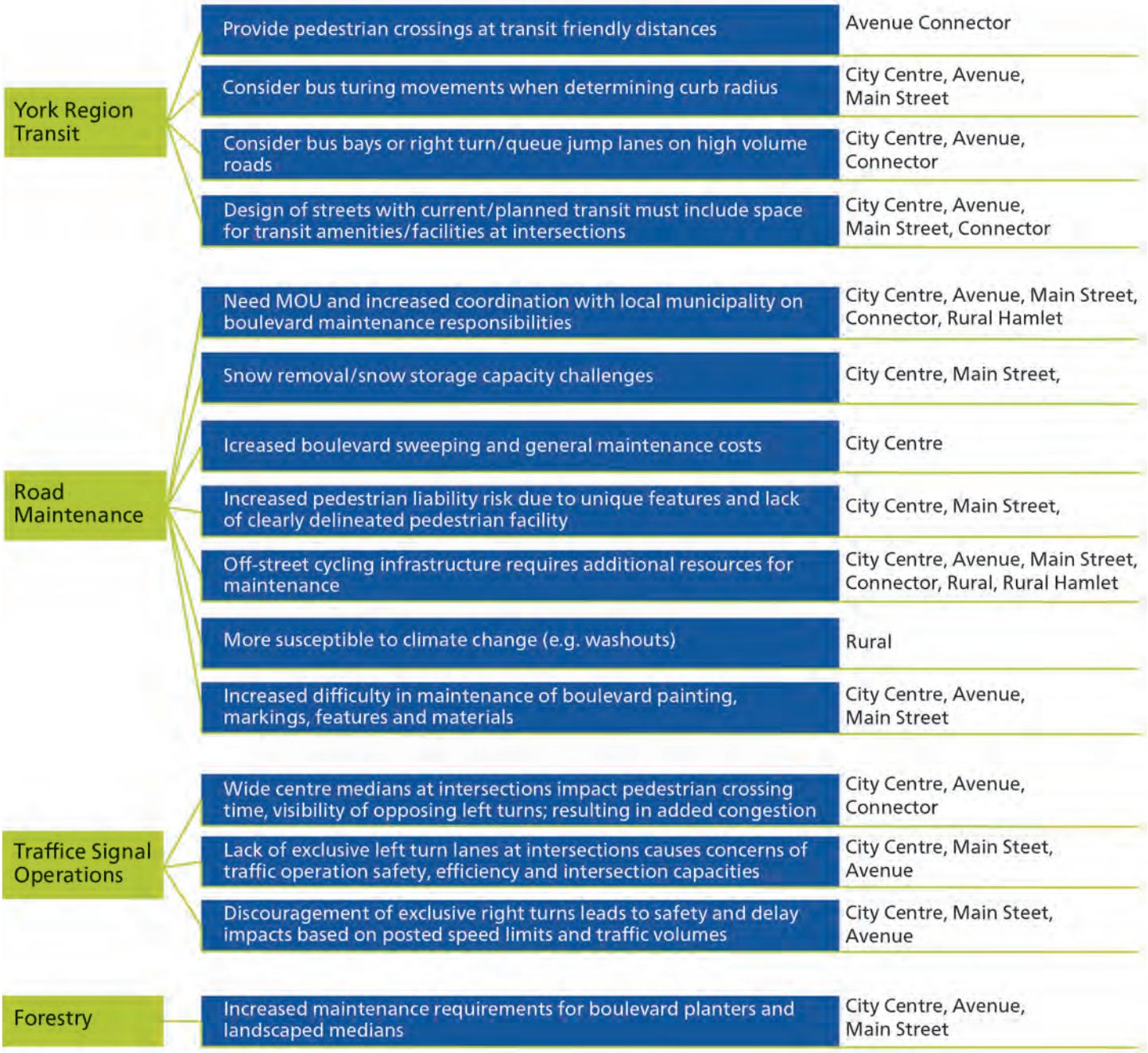
Use the below guidelines and the operational considerations found in Figure 1 to inform decision making.

- Design bullnoses of medians to be contoured, to reduce the risk of maintenance vehicles damaging the curb
- Consider the spatial needs of snow maintenance activities when planting shrubs, building planter boxes and designing lane widths, especially if space is limited on the inner boulevard
- Consider providing wider edge zones and/or planting zones in areas where more space is required for snow storage
- Align light poles, utility poles and street furniture to leave space for snow storage and/or sidewalk snow removal, as needed
- Consider planting coniferous trees or high shrubs outside the right-of-way in open, windswept areas to reduce snow drifting. Planting is preferable to snow fencing as a screen in rural areas
- Develop policies and management practices to address conflicts between on-street parking and snow clearing/street cleaning
- Consider a maintenance strip around the perimeter of landscaped medians to eliminate winter kill due to salt exposure
- Consider the maintenance of street trees and plantings to meet Regional urban forestry standards and refer to York Region Street Tree Preservation and Planting Design Guidelines
- For maintenance of pedestrian and cycling infrastructure, refer to the maintenance strategy contained in the York Region Pedestrian and Cycling Planning & Design Guidelines

The operational considerations outlined in Figure 1 have been collected from the Region's operational service providers and serves as a key reference during the road design process to ensure that the impacts of design decisions on the long term viability of the road are considered. Follow-up and project specific input from these operational service providers are encouraged and project lifecycle costing tool and estimates are available to assist. *(Please refer to York Region eDOCS #7860535 "DGS Life Cycle Costs 2018" for operations and maintenance related cost estimates. Alternatively, contact the Manager, Transportation Asset Management.)*

Decisions made during construction can have negative impacts on the long term operations and maintenance of a road.

Figure 1 - Operational Considerations to Inform Decision Making



6.0 Decision Making Process

6.1 Introduction

These Decision Making Process worksheets are a tool for road design teams to develop the most appropriate road cross-section for the project context

The recommendations in this study will be realized through the street design process as Regional roads undergo re-design, upgrading or regular maintenance.

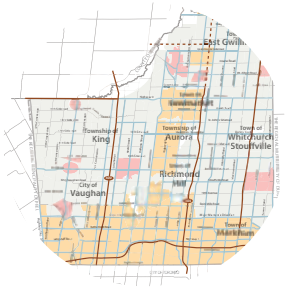
The process outlined in the following worksheets is to be used in concert with the design guidelines and typology descriptions outlined in previous sections of these guidelines. It was developed in close collaboration with the project steering committee, which included planners and engineers from York Region. It has also been tested by numerous Regional staff who will be involved in the street design process in the future. Feedback from outside consultants and staff from local municipalities within York Region and neighbouring Regions was also included.

This integrated design process is an iterative process in which the needs of the various modes of transportation (pedestrians, cyclists, automobiles, trucks, transit and emergency services) and infrastructure systems (water, wastewater, stormwater, energy and communication) are considered and evaluated. The process is intended to draw on a range of expertise and professional judgment, including internal and external stakeholders, members of the public and politicians as deemed appropriate, to build consensus amongst the project design team for selection of the most appropriate roadway cross section.

Consideration should also be given to the capital and lifecycle costs of the roadway and boulevard elements including weighing the return on investment. For example, it may not be the best option to implement maximum widths for roadway and boulevard elements simply because the planned right-of-way is available. A capital and lifecycle costing tool and estimates have been prepared to assist. *(Please refer to York Region eDOCS #7860535 "DGS Life Cycle Costs 2018" for operations and maintenance related cost estimates, and/or eDOCS #8866816 "Capital Cost Estimates for DGS Typologies - 2018". Alternatively, contact the Manager, Transportation Asset Management.)*

The elements of the resultant roadway and boulevard cross section (Step 8) are to be inserted in York Region **Design Criteria for Transportation Projects** document.

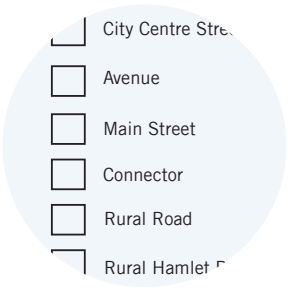
1 OPPORTUNITY STATEMENT



2 REVIEW CONTEXT

3 PRODUCE OBJECTIVES

4 SELECT A TYPOLOGY



5 DETERMINE ELEMENTS OF THE STREET

6 REFINE ELEMENTS

7 BUILD PLAN AND SECTION

8 BUILD INTERSECTIONS AND TRANSITIONS

9 REVISIT OPPORTUNITY STATEMENT

6.2 Decision Making Process Worksheets

The worksheets are contained on pages 131 to 144. The Typology Matrix is found in Appendix A and the Road and Boulevard Elements Toolbox is found in Section 3.

1

OPPORTUNITY STATEMENT

What are the problems or opportunities you are addressing through this project? Consider the Problem or Opportunity Statement identified in your Environmental Assessment, as well as the community beyond the street itself and planned future conditions. Write your Opportunity Statement in the box below.

move to step 2

2

REVIEW CONTEXT

Determining the policy and physical context of the street is the first step to developing a solution. Most importantly, consider the future of the area and how the street design will respond to anticipated conditions. Take note of the difference between what exists today and the community aspirations for the street. Consider that the street context may change along its length.

Part A - Planning Framework and Policy Context

A number of Provincial, Regional and Municipal policies already define major objectives and principles for the road system in York Region. They identify the future role of Regional roads and provide important direction and guidelines, including objectives for promoting active transportation and Transit-Oriented Development.

policies and key questions

Growth Plan for the Greater Golden Horseshoe

- Does the project contribute to growth management, improved transportation efficiency and economic vitality on a local and regional scale?
- Does the project contribute to the creation of compact, vibrant and complete communities?
- How does the project protect, enhance and conserve natural resources?
- Is the project supportive towards reaching intensification targets?
- Is the project aligned with the development goals of urban growth centres?

Oak Ridges Moraine Plan/Greenbelt Plan

- Is the project situated within the limits of these plans?
- How does the project address the goals and policies of these plans?
- Is the project protective of the integrity of the Oak Ridges Moraine and Greenbelt?

Metrolinx Regional Transportation Plan (Big Move)

- Is the project supportive of the strategies outlined in the Regional Transportation Plan?
- Does the Regional Transportation Plan include plans for the corridor or intersecting corridors?

York Region Official Plan

- What are the key aspects/directions that influence the future role and design of the street (consider different segments of the street)? For example:
  - Planned evolution of the street and context more broadly
  - Direction on active transportation, density and mix of uses
  - Sensitive areas nearby (natural habitat network, provincially-significant wetlands, water resources protection areas, well sensitive areas)
  - Current and planned transit service
  - Planned right-of-way width of each segment of the street
  - Promotion of healthy community design
  - Climate change mitigation and adaptation

York Region Transportation Master Plan

- What are the key directions for the future role and design of the street (Maps and Background Report E)?
- How does the Opportunity Statement support the objectives and the key policy areas in the Regional Transportation Master Plan?
- How does the project improve mobility?

Regional Road Design Guidelines

- How does the project address the guidelines and standards contained within this document?

move to next page

policies and key questions

York Region Design Standards for Pedestrian and Cycling Facilities

- Is the project using the appropriate facility(ies) considering its context and typology?
- How does the project address the guidelines or standards for the facility(ies)?

Regional Transit-Oriented Development Guidelines

- How does the project address objectives and principles of Transit-Oriented Development?
- Are there elements of the checklist or themes that affect the street?

York Region Forest Management Plan

- Is the project sensitive to the health and vigor of nearby living organisms including species at risk?
- How can the project contribute to the achievement of targets such as canopy cover and woodland cover?

Towards Great Regional Streets: Design Guidelines for 6-Lane Regional Roads

- Are there guidelines or standards in addition to those superseded by Designing Great Streets that this project needs to address?
- Are there any contradictions with other guidelines or policies?

York Region Transit Five-Year Service Plan and Strategic Plan

- How does the project address the long-term growth and expansion of York Region Transit?
- How does the project consider York Region Transit's latest service plans and initiatives?

Municipal Policies, Plans and Guidelines

- What are the key aspects of each relevant plan that influence the future role and design of the street? For example:
  - Current and planned adjacent land use and built form
  - Relevant streetscape or boulevard design objectives

Lake Simcoe Region Conservation Authority and Toronto and Region Conservation Authority

- What are the stormwater management quantity, quality and erosion goals and objectives for the watershed and how do they pertain to the street?
- What are the natural hazard management goals and objectives for the watershed and how do they pertain to the street?
- What are the natural heritage system goals and objectives for the watershed and how do they pertain to the street?

Part B - Capital and Lifecycle Costs

Consider the financial environment your project is going to be built and maintained in.

policies and key questions

Capital Costs

- What is the available/desired budget to build your project? See capital cost tool and estimates *(Please refer to York Region eDOCS #8866816 "Capital Cost Estimates for DGS Typologies - 2018". Alternatively, contact the Manager, Transportation Asset Management.).*

Lifecycle Costs

- What lifecycle cost assumptions are going to be applied to your project? See lifecycle cost tool and estimates. *(Please refer to York Region eDOCS #7860535 "DGS Life Cycle Costs 2018" for operations and maintenance related cost estimates. Alternatively, contact the Manager, Transportation Asset Management.)*

move to next page

Part C - Planned Physical Context

Identify the differences between what exists today and what is planned for the street. Consider key elements listed below and any other relevant characteristics.

street elements and key questions

Built Form and Land Uses

- What is the character of existing built form and what is the vision for planned built form (e.g. scale, density, architectural character)?
- Are there significant heritage elements (e.g. buildings, structures, districts)?

Planned Regional Road

- What is the existing and the planned right-of-way width? How do they differ?
- What are the issues that street improvements are planned to address (e.g. intensification, transit service, cycling facilities, capacity, goods movement)?
- What opportunities exist to complete the project as an integrated design with municipal services and utilities?
- What is the existing and planned character of the boulevard/streetscaping? How do they differ?

Open Space and Natural Features

- What and where are natural heritage resources and sensitive areas? (Refer to Part 1, York Region Official Plan)
- What are unique or special physical features (e.g. watercourses, distinct topography, views, mature trees and landscaping)?
- Are there existing or planned parks and open spaces nearby (e.g. cemeteries, golf courses, community centres, parks)?

Utilities

- What are the requirements for the roadway in the future?
- What are the required separation distances?

Primary Infrastructure

- Are there major pieces of infrastructure that impact or affect the planned road (e.g. hydro corridors, rail lines, grade separations)?

emerging directions relevant to the road:

move to step 3

3

PRODUCE OBJECTIVES

Consider information collected through Step 2 to determine objectives for the street that recognize opportunities and constraints. Rank the modes of movement in order of priority, as this is one of the most important determinants of street design.

Objectives you identify for the street should serve as a 'check and balance' for each decision made throughout the process. They may need to be revisited as the process unfolds, however should be based on relevant policies, as well as analysis of the planned context for the street. If different segments of the street have different contexts, identify objectives and priority mode of movement for each segment independently.

consider the following items when ranking modes:

- Primary transportation function
- Integrating non-priority modes of movement
- Planned land uses and context
- Objectives for built form scale and orientation
- Objectives for boulevard and streetscape treatment
- Operational objectives (e.g. vehicular flow, connectivity and access management, parking provision, utilities)
- Key site specific conditions
- Community aspirations

rank mode of movement in order of planned priority:

(1 = highest; 4 = lowest; or N/A if not applicable)

- ☐ pedestrians
- ☐ cyclists
- ☐ transit
- ☐ vehicle movement (commercial and/or private vehicles)

move to step 4

4 SELECT ROAD TYPOLOGY

Refer to the Road Typology Matrix, which identifies a number of different characteristics for the six major road typologies. Decide which road typology best fits the objectives, Priority Mode of Movement and future context you identified in Step 2 and 3. These typologies refer to the street in its future condition. Identify the appropriate road typology for each different road segment, as required. A hybrid of two or more typologies may be most appropriate.

refer to road typology matrix to select the appropriate road typology(ies)

select appropriate road typology(ies):

- [ ] city centre street
- [ ] avenue
- [ ] main street
- [ ] connector
- [ ] rural road
- [ ] rural hamlet road

move to step 5

5

DETERMINE ELEMENTS OF THE STREET

For the road typology you selected, refer to the Toolbox in Section 3 to determine the Boulevard and Roadway Elements required to support the priority mode of movement. The total width of all elements required for your street design may exceed or be less than the width of the Planned right-of-way. In this case, cycle through Steps 5 and 6 as many times as required to adjust the elements, and respective widths, to fit within the Planned right-of-way.

Begin by noting all relevant **Mandatory Elements** and **Optional Elements** in the tables on the following page. To begin, use the **Maximum Widths** indicated in the Toolbox. In some cases, the combined maximum widths of a typology's mandatory and optional elements equal to more than the maximum ROW. In this case, not all maximum widths will fit into the cross section and included elements and element widths should be sensitive to context and mobility goals. Consideration should also be given to any property acquisition requirements and associated costs in determining the optional elements to use and element widths. Please refer to sections 4.2 and 4.3 for more specific roadway and boulevard element guidelines.

refer to toolbox to fill in applicable facility widths

- Mandatory Elements are a given within the street right-of-way and MUST be included.
- Optional Elements are features that WOULD BE GOOD to include should space or budget be available.

move to next page

using the toolbox, fill in element widths in the table below for each road typology you selected

boulevard element	(width) x (# sides) = total
Frontage Zone	
Pedestrian Clearway incl. Clearances	
Cycle Track incl. Clearances/Buffer	
Multi-Use Path incl. Clearances	
Planting and Furnishing Zone	
Edge Zone	
BOX A total boulevard width =	0

roadway element	(width) x (# sides) = total
Inside Travel Lane(s)	
Outside Travel Lane/Parking	
Continuous Centre Turn Lane	
Painted Centre Median	
Landscaped Median	
Shoulder, Buffer and Rounding	
BOX B total roadway width =	0

move to next page

total boulevard width (BOX A) 0

total roadway width (BOX B) 0

total right-of-way **REQUIRED** for your design 0

PLANNED right-of-way width (from Official Plan)

does REQUIRED width = PLANNED width?

yes ☐ move to step 7

no ☐ REQUIRED width **>** PLANNED width
move to step 6 Part A

no ☐ REQUIRED width **<** PLANNED width
move to step 6 Part B

6 REFINE ELEMENTS

PART A - Reduce the Width of the Required Right-of-Way

If the Required right-of-way width exceeds the Planned right-of-way width, revisit the elements included in the street section to **reduce** the Required right-of-way width. The **Priority Mode of Movement** identified in Step 3 will affect how decisions are made to eliminate or reduce the width of certain elements. Revisions should be made by going through the list below (in this order) until street and boulevard elements fit into the Planned right-of-way width.

There may be area specific pinch points in your project (grade seperations, protected natural or cultural heritage). Due to the varied nature of these areas specific constraints and the range of stakeholders involved, a process of refinements (like the one below) cannot be provided. Rather the project team is encouraged to discuss the issues and options with the appropriate stakeholder to arrive at area specific street section compromises.

refer to toolbox to refine elements

refine your section in this order:

1. Review Environmental Assessment to ensure planned right-of-way width is appropriate
2. Remove All or Some Optional Elements
3. Use minimum dimensions for all elements except for priority networks
4. Use minimum dimensions for priority network elements
5. Reduce design speed
6. Remove vehicle lanes
7. Consider acquiring land beyond planned right-of-way

back to step 5

6 REFINE ELEMENTS

PART B - Increase the Width of the Required Right-of-Way

If the Required right-of-way width is less than the Planned right-of-way width, revisit the elements that are included in the street section to **increase** the Required right-of-way width. You may be able to allocate more space to the **Priority Mode of Movement** or add more elements to the right-of-way. Refine your section in the order identified below to dedicate more space in the right-of-way to the Priority Mode of Movement, or to include more optional elements.

refer to toolbox to refine elements

refine your section in this order:

1. Review Environmental Assessment to ensure planned right-of-way width is appropriate
2. Add Optional Elements
3. Increase the width of elements related to the Priority Mode of Movement within the range provided in the Toolbox
4. Increase the width of elements related to other modes of movement (other than the Priority Mode)

back to step 5

7 BUILD PLAN AND SECTION

Drawing the street section below will be the visual check and balance that the street design you selected works. If you identify problems with the street layout at this stage, you may need to go back to Step 5.

At this point, consideration should again be given to the capital and lifecycle costs of the street section including the questions listed in Step 2 Part B of this Decision Making Process. Again, the capital and lifecycle costing tool and estimates are available to assist. *(Please refer to York Region eDOCS #7860535 "DGS Life Cycle Costs 2018" for operations and maintenance related cost estimates, and/or eDOCS #8866816 "Capital Cost Estimates for DGS Typologies - 2018". Alternatively, contact the Manager, Transportation Asset Management.)* If there are concerns, you may need to go back to Step 5 and revisit the elements and their widths from a financial standpoint.

did you identify any problems with the street section?

yes ☐ back to step 5

no ☐ move to step 8

8

BUILD INTERSECTIONS AND TRANSITIONS

Refer to the Intersections and Transitions sections of the report. Pay particularly close attention to urban intersections. Transitions between different typologies and between new and existing streets also require careful consideration.

Consider the following questions before moving to the next step:

- How are you incorporating recommendations in the Intersection section of the report?
- How will transitions be addressed between different typologies and between new and existing sections of the street?
- If there is a cycling facility in your plan/section, what best practice solutions can you incorporate at intersections? *Refer to MTO's Book 18* and *York Region Pedestrian and Cycling Planning & Design Guidelines* for best practices.
- How are you incorporating the recommendations of the General Guidelines (Section 4.6)?

move to step 9

9

REVISIT OPPORTUNITY STATEMENT

Does the solution address the problems or opportunities identified in the Opportunity Statement in Step 1?

- Does the street design fit with the future context?
- Does it make the community better?
- Are the objectives and modal priorities in Step 3 addressed?
    - If yes, input the elements of the final solution into the York Region **Design Criteria for Transportation Projects** document.

Appendices

Appendix A: Typology Matrix

	City Centre Street	Avenue	Main Street
Road Typology			
Example	*Highway 7 - Markham City Centre*	*e.g. Yonge Street - City of Markham/City of Vaughan*	*e.g. Keele Street - Maple*
Primary Transportation Function	Transit priority, active transportation priority, vehicular movement	Transit priority, active transportation priority, vehicular movement	Active transportation priority, transit supportive, vehicular movement
OPERATIONAL ATTRIBUTES			
ROW Width Range	43m - 60m	43m - 45m	20m - 36m
Flow Characteristics	Interrupted flow by passive traffic calming (narrow lanes, on-street parking, mid-block crossings) and signals	Uninterrupted flow except at signals and roundabouts	Interrupted flow by passive traffic calming (narrow lanes, on-street parking, mid-block crossings) and signals
Posted Speed (km/h)	50 - 60	50 - 60	40 - 50
Maximum Number of Lanes	6 lanes	6 lanes	4 lanes
Median	Optional: Access Control, Turn Lane Protection, Pedestrian Refuge, Special Character, Landscaped Median	Optional: Access Control, Turn Lane Protection, Pedestrian Refuge, Special Character, Landscaped Median	No
Local Street Connectivity	Highly porous	Highly porous	Highly porous
Access Management	Highest degree of private access control desirable. Commercial Landing Zone (CLZ) and/or rear lot servicing provision necessary.	High degree of private access control desirable	Highest degree of private access control desirable. CLZ and/or rear lot servicing provision necessary.
Transit	Can accommodate dedicated transit facility, transit priority lanes and mixed traffic transit	Can accommodate dedicated transit facility, transit priority lanes and mixed traffic transit	Can accommodate transit priority lanes and mixed traffic transit
Goods Movement Corridor	Limited goods movement corridor. Ideally restricted to off-peak and/or weekends	Supports goods movement	Limited goods movement corridor. Ideally restricted to off-peak and/or weekends
Cycling Provisions	Cycle track	Cycle track	Cycle track

Connector	Rural Road	Rural Hamlet Road
		
e.g. Dufferin Street - City of Vaughan	*King Road - Township of King*	*e.g. Leslie Street - Sharon*
Goods movement priority, transit priority, active transportation supportive, vehicular movement	Vehicular movement, goods movement, active transportation supportive, agricultural movement	Vehicular movement, active transportation supportive
36m - 45m	26m - 36m	20m - 36m
Uninterrupted flow except at signals, roundabouts and controlled cross walks	Uninterrupted flow except at signals, stop signs, roundabouts and controlled cross walks	Uninterrupted flow except at signals, stop signs, roundabouts and controlled cross walks
60 - 70	80 - 90	50 - 60
6 lanes	4 lanes	4 lanes
Optional: access control, turn lane protection, pedestrian refuge, landscaped median	Optional painted median	Turn lane protection,
Moderately porous	Not porous	Highly porous
Moderate degree of private access control desirable	Access control not necessary	Moderate degree of private access control desirable
Can accommodate dedicated transit facility, transit priority lanes and mixed traffic transit	Can accommodate transit in mixed traffic	Can accommodate mixed traffic transit
Primary goods movement corridor	Primary goods movement corridor	Supports goods movement
Multi-use path	Paved shoulder with buffer, multi-use path optional	Multi-use path

	City Centre Street	Avenue	Main Street
Road Typology			
Example	*Highway 7 - Markham City Centre*	*e.g. Yonge Street - City of Markham/City of Vaughan*	*e.g. Keele Street - Maple*
Primary Transportation Function	Transit priority, active transportation priority, vehicular movement	Transit priority, active transportation priority, vehicular movement	Active transportation supportive, transit supportive, vehicular movement
OPERATIONAL ATTRIBUTES			
Crosswalks	Pedestrian crossings formalized only as controlled crosswalks mid-block and at intersection. Dedicated cycle crossing facilities on routes with cycle track.	Pedestrian crossings formalized only as controlled crosswalks. Dedicated cycle crossing facilities on routes with cycle track.	Pedestrian crossings formalized as controlled crosswalks & uncontrolled mid-block crossings. Dedicated cycle crossing facilities on routes with cycle track.
On-Street Parking	Optional (in curb lane)	No	Optional (in curb lane)
Minimum Intersection Spacing (m)	215m	215m	215m
Utilities	Underground & JUT preferred. Spacing must still be reserved for telecom/pedestals/hydro/ above ground boxes. Utility tunnels under sidewalk as a means to address space constraints.	Underground and JUT preferred. Spacing must still be reserved for telecom/pedestals/ hydro/above ground boxes. Utility tunnels under sidewalk as a means to address space constraints.	Underground and JUT preferred. Spacing must still be reserved for telecom/pedestals/ hydro/above ground boxes. Utility tunnels under sidewalk as a means to address space constraints.
Stormwater Management Approach	Limited space for SWM facilities. Adequate end of pipe treatments should be met, integrate low-impact development approaches.	Spacing should be provided for end of pipe swales and sediment control measures. Option to consider local SWM Ponds as outfall locations. Integrate low-impact development approaches.	Limited space for SWM facilities, Adequate end of pipe treatments should be met. Integrate low-impact development measures with streetscape elements.
Street lighting	Type of lighting and standards typically set by local municipality. Pedestrian-scale lighting required	Type of lighting and standards typically set by local municipality.	Type of lighting and standards typically set by local municipality. Pedestrian-scale lighting required.
HOV/ Transit Priority	Optional for four lanes. Required for six lanes	Optional for four lanes. Required for six lanes	Optional (four lanes)/ No (two lanes)

Connector	Rural Road	Rural Hamlet Road
		
e.g. Dufferin Street - City of Vaughan	*King Road - Township of King*	*e.g. Leslie Street - Sharon*
Goods movement priority, transit priority, active transportation supportive, vehicular movement	Vehicular movement, goods movement, active transportation supportive, agricultural movement	Vehicular movement, active transportation supportive
Pedestrian crossings formalized only as controlled crosswalks mid-block and at intersection. Dedicated cycle crossing facilities on routes with multi-use path.	Pedestrian crossings at signalized intersections.	Pedestrian crossings formalized only as controlled crosswalks mid-block and at intersection.
No	No	Optional (in curb lane)
215m	300-350m	215m
Utility corridor provided for above ground hydro and below grade telecommunications, gas, storm, and sanitary, to be placed at standard right-of-way offset locations.	Utility corridor provided for above ground hydro and below grade telecommunications, gas, storm, sanitary, to be placed at standard right-of-way offset locations.	Utility corridor provided for above ground hydro and below grade telecommunications, gas, storm, sanitary, to be placed at standard right-of-way offset locations.
Spacing should be provided for end of pipe swales and sediment control measures. Option to consider local SWM ponds as outfall locations. Integrate low-impact development approaches.	Rural ditching and effective sediment control measures e.g. rock check dams etc. to be used. Integrate low-impact development approaches.	Traditional SWM facilities, adequate end-of-pipe treatments should be met, integrate low-impact development approaches.
Type of lighting and standards typically set by local municipality.	Provided at intersections locations as required	Provided at intersections locations as required
Optional for four lanes. Required for six lanes.	N/A	N/A

		City Centre Street	Avenue	Main Street
	Road Typology			
	Example	*Highway 7 - Markham City Centre*	*e.g. Yonge Street - City of Markham/City of Vaughan*	*e.g. Keele Street - Maple*
	Primary Transportation Function	Transit priority, active transportation priority, vehicular movement	Transit priority, active transportation priority, vehicular movement	Active transportation supportive, transit supportive, vehicular movement
URBAN DESIGN ATTRIBUTES	**Land Use Designations**	Residential, Commercial, Mixed-Use, Office, Institutional, Open Space	Commercial, Mixed-Use, Office Residential, Institutional, Industrial	Mixed-Use, Residential, Commercial, Institutional, Open Space, Historic Districts
	Land Use Context	Transitioning from medium density to high density, mixed-use city centre.	Existing medium and large format retail transitioning to medium density street-oriented development.	Existing heritage building fabric not transitioning but with infill development and limited intensification.
	Planned Building Scale & Orientation	Mixture of street-oriented built form of varied size. Increase in density and height in growth centres (Markham, Vaughan, Richmond Hill).	Mixture of street-oriented built form of varied size. Increase of density and height adjacent to transit nodes and when approaching growth centres.	Mixture of small scale street-oriented built form.
	Boulevard Treatment	Boulevard should have an urban cross section including wide sidewalks, frontage zone, transit amenities, public art and street furniture.	Boulevard treatment should reflect the street's active transportation priority but also have an urban cross section including a cycle track, sidewalks, street trees and appropriate pedestrian and transit amenities.	The boulevard should have an urban cross section including wide sidewalks, frontage zone, transit amenities, public art and street furniture.
	Soft Landscape Elements	Street trees, shrub/perennial beds, raised planters, green infrastructure.	Street trees, shrub/perennial beds, raised planters, green infrastructure	Street trees, shrub/perennial beds, raised planters, green infrastructure
	Minimum Boulevard Width	7.75m	7.75m	5.15m

Connector	Rural Road	Rural Hamlet Road
		
e.g. Dufferin Street - City of Vaughan	*King Road - Township of King*	*e.g. Leslie Street - Sharon*
Goods movement priority, transit priority, active transportation supportive, vehicular movement	Vehicular movement, goods movement, active transportation supportive, agricultural movement	Vehicular movement, active transportation supportive
Mixed-Use, Residential Commercial, Industrial	Agriculture, Institutional, Industrial, Open Space, Commercial, Residential	Commercial, Residential, Open Space
Predominantly suburban residential/industrial/ commercial not transitioning.	Predominantly agriculture with clusters of low density residential, industrial clusters, institutional and commercial uses.	Clusters of low density residential and/or commercial plots, typically at a junction.
Mixture of small to medium scale built form set back from street or not oriented towards the street.	Typical agricultural rural fabric. Variety of built form sizes, oriented to but set back from the street.	Variety of built form sizes, oriented to but set back from the street in rural areas, mixture of small scale street-oriented built form in villages and hamlets.
Boulevard treatment should reflect the street's primary function of moving vehicles. The boulevard should have a semi-urban cross section including multi-use path, pedestrian and transit amenities.	Paved shoulder to support cycling. Multi-use path separated from street optional in higher demand areas.	Multi-use path to support retail activity. Street trees and pedestrian/feature lighting as upgrades.
Street trees, shrub/perennial beds, green boulevards, green infrastructure.	Naturalized drainage swales, street trees where there are no existing trees adjacent to the roadway, green infrastructure.	Street trees, green boulevard, green infrastructure.
6.30m	n/a	4.3m

Appendix B: Glossary of Terms

Term	Definition
Access Control	Determines the number and spacing of access points to roads, such as intersections, driveways and curb cuts, that are appropriate for a specific road type.
Active transportation	Any form of self-propelled transportation that includes walking, cycling, wheelchair, in-line skating or skateboarding.
Boulevard Elements	The elements of the road, e.g. street furniture, landscaping, illumination, multi-use paths and sidewalks between the curb of the road and the building frontage of a street.
Bump-Out or Curb Extension	A widening of the boulevard and narrowing of the roadway in a strategic location. Can be installed at intersections or mid-block and are always used in combination with on-street parking.
Clear Zone	The required set back area from the road to ensure safety in the case of errant vehicles.
Commercial Loading Zone (CLZ)	A curb lane next to commercial property signed for the purposes of allowing for the loading and unloading of materials
Context Sensitive Solutions	A collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community and environmental resources, while improving or maintaining safety, mobility and infrastructure conditions while also recognizing unique the attributes of different places and land-use contexts *(Joint AASHTO / FHWA Context Sensitive Solutions Strategic Planning Process, Summary Report, March 2007.*
Curb Return Radius	The radius defined by two sidewalks on perpendicular streets that come together at a corner
Cycle Track	Off-street bicycle facilities located within the boulevard, are vertically separated from vehicle traffic and designated for the exclusive use of cyclists.
Design Speed	A speed that is selected to inform the appropriate geometric design elements of the roadway. The Design Speed does not always match the Posted Speed.
Edge Zone	The area between the curb of the road and the adjacent site furnishing zone. This area provides clearance between roadway and boulevard elements.
Encroachments	When an object penetrates the boundary of the adjacent space, such as an awning that protrudes from the front of a building into the road area.
Environmental Assessment	The process required for the planning and design of municipal infrastructure projects, to ensure all environmental impacts are considered and any effects appropriately mitigated before a project is implemented.
Gateways	Features designed and located to announce a special place or area.
High Occupancy Vehicle (HOV) Lane	Lanes dedicated for vehicles with more than one or two occupants (buses, taxis, or carpool vehicles) at peak travel times or longer periods of time.
Joint Utility Trench (JUT)	A single trench used to bury multiple utilities underground, including pipes and cabling for water, gas, electricity and telecommunications.
Land Use	The official designation of the lands (property) as identified in the Official Plan. Typical land uses could include mixed-use, residential, industrial and agricultural.
Land Use Transition Zone	An area that can be either public or private property and provides a setback from the road right-of-way to the face of the building. The area allows for spill out spaces for patios and/ or retail overflow, such as flower stands or board signage.
Local Street Connectivity	The extent to which urban forms permit movement of people or vehicles in different directions (porous or not porous).

Term	Definition
Access Control	Determines the number and spacing of access points to roads, such as intersections, driveways and curb cuts, that are appropriate for a specific road type.
Low-Impact Development (LID)	An approach to managing stormwater run-off at the source by replicating natural watershed functions.
Median	Medians are placed between opposing traffic lanes and can be painted or raised. They serve a variety of functions, but are generally used on wider roads with higher speeds of vehicle traffic where access control is desired.
Multi-Use Path	A combined pathway for cyclists, pedestrians, in-line skaters, and personal mobility devices.
Noise Attenuation	The control or reduction of noise.
Operating Speed	The speed at which drivers are observed operating their vehicles during free-flow conditions.
Pedestrian Clearway	The designated area for pedestrian movement on the street.
Planting and Furnishing Zone	A zone which provide a buffer between the pedestrians and the road. Typically the zone provides opportunities for planted and hardscaped areas with street furniture.
Posted Speed	The maximum lawful vehicle speed for a road, as posted on road signage. It is typically based on the 85th percentile operating speed. The posted speed does not always match the Design Speed.
Rapid Transit Facilities	Facilities and travel lanes dedicated exclusively for the use of transit vehicles.
Regional Centre	Identified in the Regional Official Plan as the Region's downtowns - vibrant, higher-density, pedestrian friendly communities with a mix of uses.
Regional Road	Roadways that are under Regional jurisdiction, as opposed to Provincial or local municipal jurisdiction.
Right of Way (ROW)	The width of a road from property line to property line.
Road Typologies	A hierarchy of road/street types that allow for the implementation of context sensitive guidelines that respond to the adjacent land uses, streetscape requirements and engineering constraints.
Roadway Elements	The elements of the road, i.e. travel lanes, turning lanes, on-street parking, cycling facilities, medians, etc., between the two curbs.
Roundabout	Also called a Traffic Circle, this is a circular-shaped intersection in which traffic continuously flows through the intersection in a counter-clockwise direction.
Sight Triangle	A triangle at an intersection, formed by the two roads or rights-of-way and a third line, which must be kept clear of obstructions to clear lines of sight at the intersection.
Special Character Streets	Streets with unique built or natural heritage, scenic views and vistas or other unique identifiers.
Stormwater Management (SWM)	The practice of managing the flow of rainwater, melted snow or other precipitation over hard or soft surfaces (eg. buildings, roads, grass, etc).
Street Design Guidelines	Provide an overall and coordinated vision for the character and design of new street construction and renovation.
TAC Design Guidelines	The standards prepared by the Transportation Association of Canada to inform the design and construction of roads.
Transit Facilities	The support elements for a transit system such as shelters, signage and stations.
Urban Growth Centre	Areas identified by the Places to Grow Act (2005) for high density, mixed-use, public transit-oriented intensification.
Utilities	Above ground or below ground infrastructure that supply water, hydro, cable, phone, fiber optics and also deal with sanitation and storm water.

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> Typology Examples in Section 3: Google Streetview
> Page 91: Oregon Tranportation Research and Education Consortium, https://trec.pdx.edu/research/project/227/Evaluation_of_Bike_Boxes_at_Signalized_Intersections

GREAT STREETS

Building Roads that Build Community 2019