



ACCESS GUIDELINES

TRANSPORTATION SERVICES



Disclaimer

Users are advised that this document is intended to be used as a guideline.

The final approval of a proposed access onto a Regional road will be determined by the Region's Transportation Services Department based on a comprehensive review of supporting technical documents and safety audit studies.

Comprehensive Engineering and Safety Audit Studies, as recommended by the Region Access Guidelines, should be undertaken by a qualified Professional Engineer, to the satisfaction of the Region.

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1 Definitions

Access – A means for a vehicle or pedestrian or cyclist to enter or exit a property.

Access Connection – A driveway, street, turnout or other means that provides movement of vehicles to or from the public road network.

Corner Clearance – The distance between a driveway and a signalized intersection or major access connection, measured from the extension of the curb of the intersection to the centreline of the driveway.

Driveway – A roadway or service drive providing for the movement of vehicles within a development and connecting to a public street.

Influence Area (Intersection) – That area beyond an intersection of two streets that comprises decision and maneuver distance, plus any vehicle storage length, that is to remain free of any driveway or side street connection.

Interconnection – An access between two or more adjoining properties that provides vehicular movement without using the public road network.

Major Unsignalized Access Connection – An unsignalized intersection of a Regional road with another Regional road or municipal road. Includes private driveways to large developments that generate traffic that have a significant impact on traffic operations and/or safety of the Regional road network.

Minor Unsignalized Access Connection – An unsignalized intersection of a Regional road and a private access to small developments that generates low traffic volumes.

Raised Median – A physical barrier on a roadway to separate traffic traveling in opposite directions. The barrier is intended to prohibit drivers from traveling across it except where designated openings are provided.

Shared Access – A driveway that connects two or more adjoining properties to the public road network.

2 Introduction

2.1 What is Access Management?

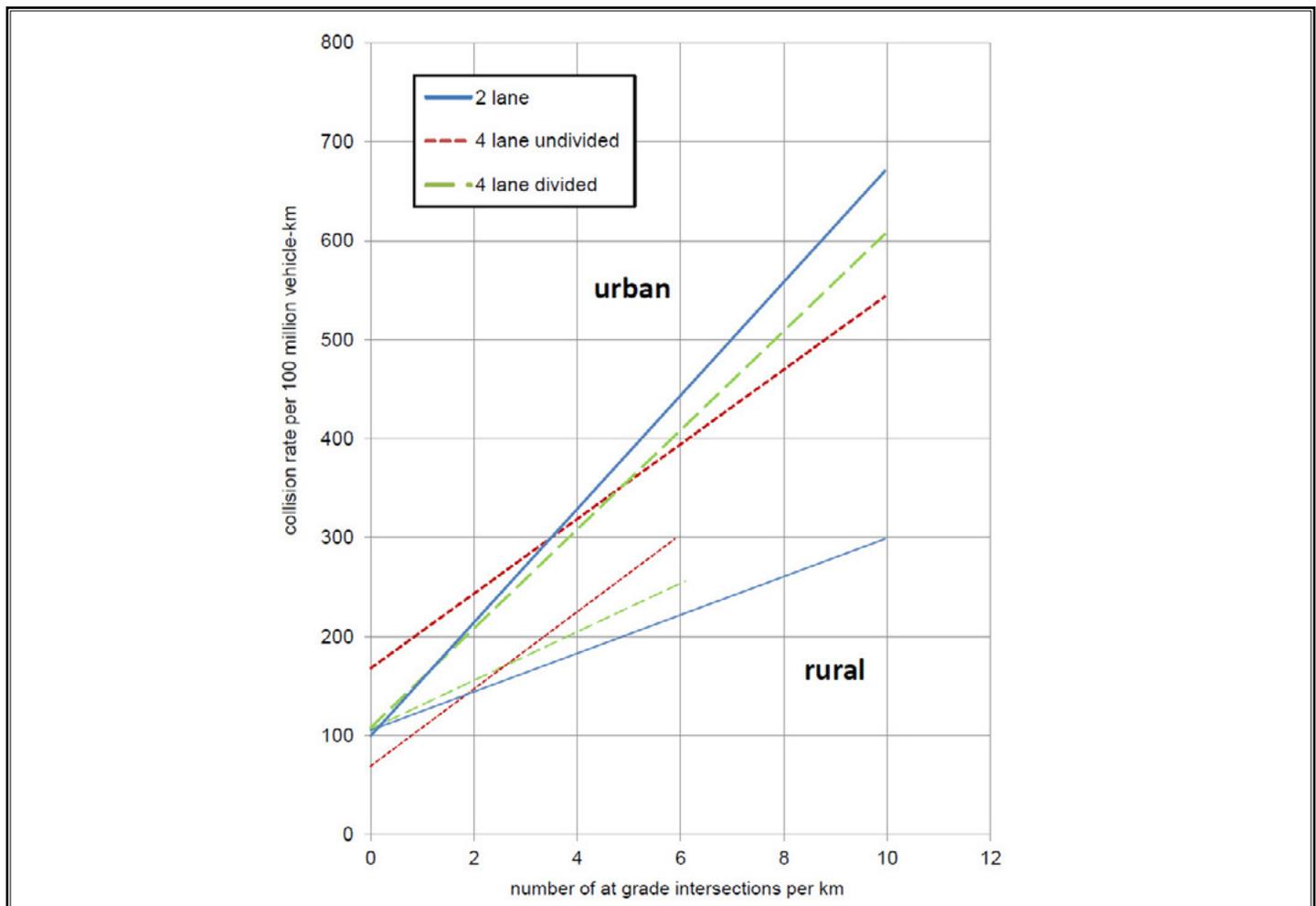
Access management is an effective practice that the Regional Municipality of York uses to manage new and re-development accesses onto Regional roads, to preserve the transportation capacity of Regional roads for all modes of transportation, including walking, cycling, auto and transit.

Access management establishes the recommendations for appropriate location and design elements of the proposed public roads and private entrances onto Regional roads. It is important to maintain seamless integration and transition from Regional roads to municipal roads and private accesses, as well as maintaining a consistency in engineering design and treatment practices in the Region.

Collisions impact all parties involved and are costly to York Region. There are costs associated with cleanup, emergency services (paramedic, fire and police) and result in unnecessary delay to other road users. Access Management plays an important role in reducing the frequency and severity of collisions, by minimizing turning movement conflicts, access frequency and locations.

Figure 1 illustrates the relationship between collision rate and the frequency of access.

Figure 1: Collision Rate Versus Frequency of Access



Source: Figure 8.1.2, Chapter 8, Geometric Design Guide for Canadian Roads

2.2 Principles of Access Management

In addition to ensuring the safety and efficiency of the Regional road network, an access management system can help preserve community character, advance economic development goals by moving goods and people in an efficient manner, and protecting significant public investment and amenities within the road allowance.

The following are the main principles for access management:

1. Ensure safety for all road users;
2. Prevent and minimize conflicts and collisions;
3. Congestion management through adequate intersection spacing;
4. Increase efficiency and preserve capacity of the Regional transportation network;
5. Accommodate all modes of transportation (auto, walking, cycling and transit); and
6. Ensure access for new development will not negatively impact the Regional transportation system.

Transportation professionals are encouraged to consult with Regional staff when undertaking the technical analyses associated with developments. While a proposed access or intersection may meet the basic requirements outlined in these Guidelines, the analyses listed below are still required. Staff will utilize these analyses to determine the appropriateness of the proposed location and the type of access control. These analyses may include, but are not limited to:

1. Intersection operation and corridor capacity analysis;
2. Queueing analysis for existing and future conditions;
3. Corridor progression and travel time analysis;
4. Intersection and corridor traffic microsimulation analysis;
5. Sightline analysis;
6. Intersection functional design;
7. Safety audit and analysis including potential hazards for pedestrians and cyclists; and
8. Gap analysis for existing access.

2.3 Supporting Documents Related to Access Management

2.3.1 York Region Official Plan

York Region adopted a conservation-first approach to service the needs of residents. This approach aims to maximize the use of existing infrastructure while strategically accommodating future infrastructure investments. The intent is to improve the quality of life of residents by enhancing travel experience, promoting healthy lifestyles while also managing the financial impacts of growth and enhancing the natural environment.

Access management will help reduce unnecessary turning movement conflicts, accidents and preserve corridor capacity, there are specific and general policies in the current Regional Official Plan (ROP) that speak to access management. The Regional Official Plan Policies related to access management are summarized in **Table 1**.

Table 1: Regional Official Plan Policies

Policy	Description
5.2.3	That communities be designed to ensure walkability through interconnected and accessible mobility systems. These systems will give priority to pedestrian movement and transit use, provide pedestrian and cycling facilities, and implement the York Region Pedestrian and Cycling Master Plan.
5.6.12	That mobility plans shall be completed to ensure that: <ul style="list-style-type: none"> a. Communities are designed to have interconnected and accessible mobility systems, with a priority on pedestrian movement, and on transit use and access; b. the street network includes continuous collector streets that run both north-south and east- west and/or a grid system of streets linked to the Regional Street network
7.2.53	To restrict vehicle access from developments adjacent to Regional streets to maximize the efficiency of the Regional street system through techniques such as suitable local street access, shared driveways and interconnected properties. Exceptions may be made to this policy in Regional Centres and Corridors, and main streets.
7.2.61	To require local municipalities to plan and implement, including land takings necessary for, continuous collector streets in both east-west and north-south directions in each concession block, in all new urban developments, including new community areas.

2.3.2 York Region Transportation Master Plan

The Transportation Master Plan (TMP) establishes the vision for future transportation services, identifies existing constrained areas in the road network, forecasts future travel demand and defines actions and policies to address road, transit and active transportation needs in York Region by 2041 and later. The relevant policy/action items from the Region Transportation Master Plan related to access management are summarized in **Table 2**.

Table 2: Transportation Master Plan (2016) Relevant Policies and Action Items

Policy/Action Item	Description
A26	Review and update the Region's "Access Guideline for Regional Roads" to ensure a balance between safe, efficient traffic movement and the needs of pedestrians, cyclists, transit users and adjacent development
P9	Plan, design and operate the Regional road network to efficiently move the most people and goods.
P10	Plan for and protect corridors and rights-of-ways for transportation, transit and infrastructure corridors and facilities to meet current and projected needs.

2.3.3 Designing Great Streets

York Region developed Designing Great Streets (DGS) to update the Regional road design process to better integrate road design within the community, and to respond to the challenges of a rapidly growing Region. It outlines a process for developing context sensitive designs that engages the public and stakeholders and fits into the Municipal Class Environmental Assessment processes. The Designing Great Streets Guidelines identifies six street typologies for Regional roads, the typologies are summarized in **Table 3**.

Table 3: Road Classification (Designing Great Streets)

Road Type	Typical Design Speed	Description
City Centre Street	40-50 km/h	City Centre Streets run through York Region's most urbanized and dense mixed-use areas, including Provincial Urban Growth Centres and Regional Centres. City Centre Streets prioritize transit and pedestrians to the greatest extent possible. These roads are critical in supporting the planned function, density, range and mix of uses in urbanizing contexts throughout York Region, and in providing choice to a growing number of residents, workers and visitors.
Avenue	50-60 km/h	Avenues are designed to support transit, active modes of transportation and high levels of vehicle and goods movement. They may be flanked by areas transitioning from large format retail to medium- to high-density street-oriented development, increasing in density near transit nodes and growth centres.
Main Street	40-50 km/h	Main Streets are found in smaller urban settings and often include a main street and/or a historical building fabric and small-scale street-oriented built form, surrounded by stable residential neighbourhoods. Though not necessarily dense, these areas have an urban and active character which serves important needs in the community.
Connector	60-70 km/h	Connectors prioritize goods and vehicle movement, while also being transit and active transportation-supportive. They are predominantly residential or industrial, with small- to medium-scale built form that is typically set back from the street.
Rural Road	80-90 km/h	A large part of York Region is served by Rural Roads, which play an important role for agricultural and goods movement. Rural Roads move through much of York Region's typical agricultural fabric. Traffic and goods movement dominate, though active transportation facilities may also be present where demand exists.
Rural Hamlet Road	40-60 km/h	Rural Hamlet Roads run through small communities throughout York Region. They serve residents working or living in the area and motorists and goods vehicles travelling through York Region. Hamlets are often centered around an intersection and include a small number of commercial or other uses that serve the community.

2.3.4 York Region Pedestrian & Cycling Planning and Design Guidelines

These guidelines provide assistance with the planning and design of active transportation infrastructure along Regional roads. There is an emphasis on high quality facility types, best practice design treatments for intersections and better integration with other York Region planning and design initiatives. The intent is a better balance of urban design elements including a more comfortable space for pedestrians and cyclists. Designers should refer to this document to ensure planned accesses conform to the design elements of pedestrian and cycling facilities along Regional roads, as required.

2.4 Collaboration with Approval Agencies

Since access management involves land use and transportation planning, it requires co-operation between government agencies responsible for transportation and land development decisions. As such, collaboration is required between York Region, the Ontario Ministry of Transportation, the City of Toronto, the Regions of Peel and Durham and the nine local municipalities within York Region (Cities of Markham, Richmond Hill and Vaughan, Towns of Aurora, East Gwillimbury, Georgina, Newmarket, Whitchurch-Stouffville, and the Township of King).

Communication with the Ontario Ministry of Transportation and surrounding municipalities is also imperative for those corridors that are currently under their respective jurisdiction but may eventually be transferred to the Region. In the interest of providing for future optimal traffic movement efficiency and safety, the Ministry and the local municipalities are encouraged to consider the Region's Access Guidelines when reviewing development proposals that directly impact potential future Regional roads and intersections.

2.5 Documents Referenced in the Guidelines

The following documents were reviewed and consulted in the development of these Guidelines:

- Transportation Association of Canada Geometric Design Guideline (2017)
- Ontario Traffic Manual Book 12 Traffic Signals (2012)
- Ministry of Transportation Ontario Geometric Design Manual (1994)
- Ministry of Transportation Ontario Access Management Guideline (2013)
- AASHTO - A Policy on Geometric Design of Highways and Streets (2011)
- NCHRP - Report 420 Impacts of Access Management Techniques (1999)
- Transportation Research Board Access Management Manual (2014)
- York Region Design Standards and Templates (Current)
- Access Guidelines for Regional Roads (September 2007)

3 Access Restrictions

The following sections are frequent situations where access will be restricted, or need further analysis and investigation.

3.1 Rapid Transit Corridors

All unsignalized accesses proposed onto a rapid transit corridor will be restricted to right-in and/or right-out operation only. Full movements can only be provided at an existing or future signalized intersection.

Non-conforming accesses will be restricted and/or consolidated in the future when a rapidway is constructed or the site is redeveloped.

A map of the existing and future rapid transit corridors can be found in the York Region Official Plan and Transportation Master Plan.

3.2 High-Occupancy Vehicle (HOV) Lane Corridors

Due to the wider cross-section and to prevent potential turning movement conflicts, operational and weaving issues, all unsignalized accesses proposed onto High-Occupancy Vehicle (HOV) corridors will be restricted to right-in and/or right-out operation only. Full movements can only be provided at existing or future signalized intersections.

Non-conforming accesses will be restricted, consolidated or closed in the future when the site is redeveloped.

3.3 Corridors with a Six-Lane Cross-Section

Similar to High-Occupancy-Vehicle lane corridors, all unsignalized accesses proposed onto corridors with six-lane cross-section will be restricted to right-in and/or right-out operation only due to wider cross-section and to prevent potential turning movement conflicts, weaving and operational issues. Full movements can only be provided at existing or future signalized intersections.

Non-conforming accesses will be restricted, consolidated or closed in the future when the site is redeveloped.

3.4 School Access

Direct accesses from schools are not permitted onto Regional roads due to safety concerns related to higher speeds and higher through traffic volumes. Accesses from schools shall be provided via a local road with a lower posted speed limit and lower through traffic volumes.

Non-conforming accesses will be restricted, consolidated or closed in the future when the site is redeveloped.

3.5 Signalized Intersections

Signalized intersections will only be considered under the following conditions.

- Traffic signals are warranted based on the Traffic and Pedestrian Signal Policy (Appendix A)
- The proposed intersection spacing meets the recommendations outlined in these Access Guidelines
- The traffic signal will not materially impact the corridor operation, including the impact to the existing access, intersections, upstream and downstream signals

- Meet all the safety requirements for traffic operations, sightlines and geometric design to accommodate all modes of transportation
- Existing non-conforming signalized intersection will be relocated, restricted, consolidated or closed in the future when the site is redeveloped

It should be noted that 215 m spacing is not considered optimal for traffic signal coordination. A 300 m spacing or greater is more desirable for optimal traffic signal coordination.

3.6 Offset Intersection

An offset or misaligned intersection is not permitted. This type of design will result in turning movement conflicts, traffic operation safety concerns, and insufficient queuing space for turning vehicles.

Non-conforming offset intersections will be relocated, restricted, consolidated or closed in the future when the site is redeveloped.

3.7 Access That Requires Vehicle Reversing Onto Regional Roads

All proposed new residential and commercial driveway/access or loading shall be designed to accommodate vehicles exiting the site in a forward motion specifically this shall be accommodated in site circulation. Any access design that requires vehicles backing onto Regional roads will not be permitted.

Non-conforming driveways, access and loading will be redesigned, restricted, consolidated or closed in the future when the site is redeveloped.

3.8 Access with Sightline Issues

Any proposed new access with sightline issues (vertical and/or horizontal) is generally not permitted onto Regional roads as it may reduce road safety. It will also impact corridor efficiency and levels of service, as well as potential safety concerns for pedestrians and cyclists. If this type of access is the only means to provide accessibility to the site, the Region will restrict the access to right-in and/or right-out operation only and will also require full mitigation measures, including engineering design, intersection control and provision for future inter-connection with adjacent developments or public roads.

Non-conforming intersection, driveway or access with sightline issues will be redesigned, restricted, consolidated or closed in the future when the site is redeveloped.

3.9 Access Located Within Turning or Taper Length

Any proposed new access to Regional roads shall not be located along turning lanes at intersections.

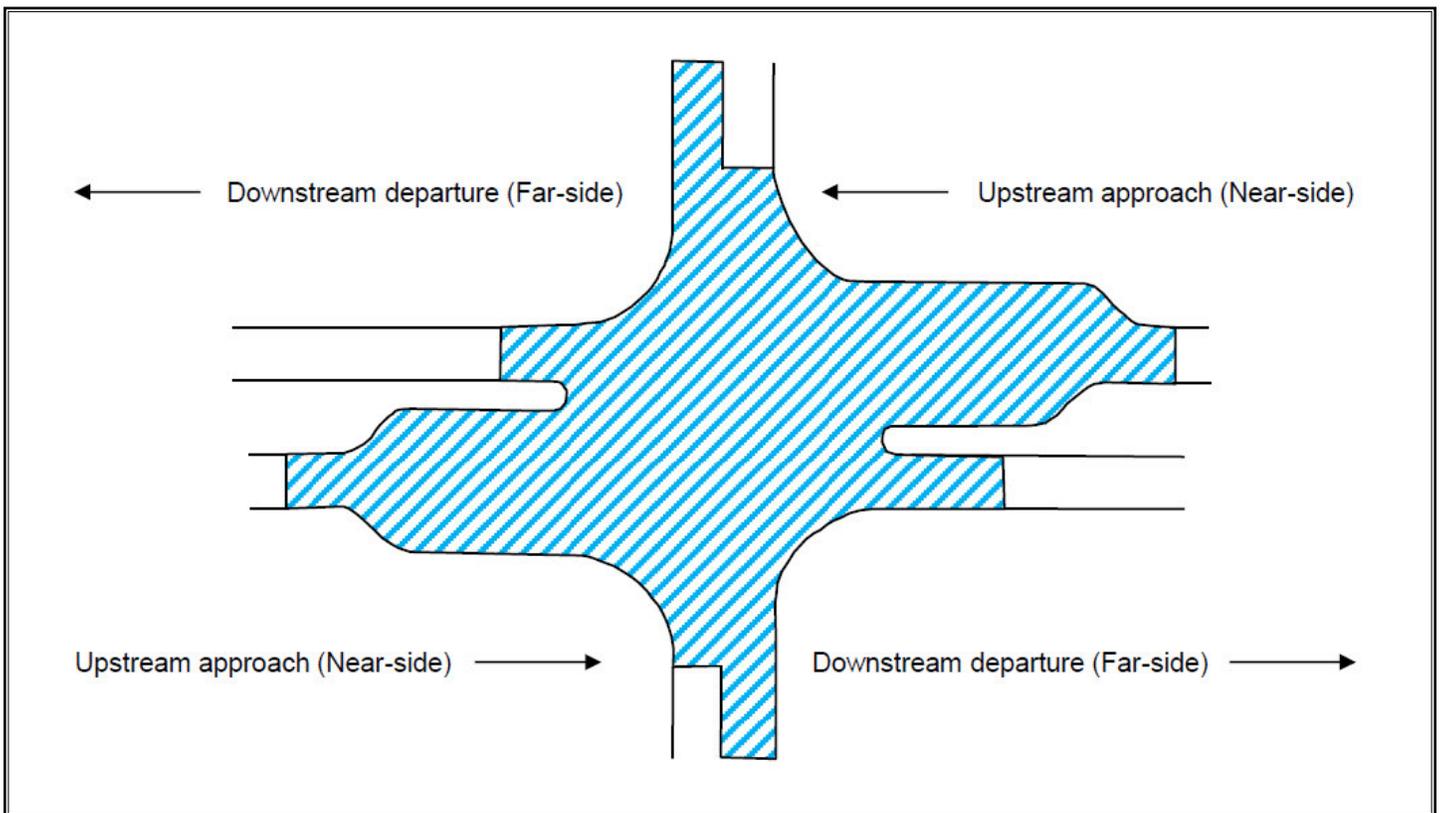
Non-conforming intersection or access will be redesigned, restricted, consolidated or closed in the future when the site is redeveloped.

3.10 Access Within Intersection Area of Influence

Accesses are generally not permitted within the intersection area of influence in order to minimize turning movement conflicts and impact on intersection operation and safety. The intersection area of influence includes queuing area and turning lane tapers. As such, the influence area for the approach lanes will vary based on traffic conditions and geometry. The influence area for the receiving lanes is based on minimum driveway spacing for unsignalized intersections.

If access must be provided to accommodate the proposed development, the applicant shall demonstrate that the access will not cause undue hazard to other road users and intersection operations, through justifications and recommendations of the required technical studies to the satisfaction of the Region. The applicant is required to consult with Regional staff on the technical requirements, prior to undertaking any access justification studies.

Figure 2: Intersection Area of Influence (including Roundabout)



For more details on the access restrictions, please refer to Section 5 of this document.

4 Access Assessment Checklist

Prior to undertaking an access operational study or engineering design, the consultant should review, but is not limited to, the following:

1. Development area of influence or study area;
2. Corridor and land use contexts (existing and future);
3. Corridor design speed;
4. Location and spacing of existing/future intersections and adjacent development accesses;
5. Traffic control type required for the proposed development access (signalized or unsignalized)
6. Improvements required to Regional corridors;
7. Availability of existing right-of-way and identify constraints; and
8. Access and adjacent Regional corridor traffic volumes

In order to assist the consultant and reviewer, a checklist has been developed to be included as part of a development application. The checklist is shown in **Table 4**.

Table 4: Access Submission Checklist

Check	Requirement	Related Section of the Access Guidelines
	Driveways and intersections on both sides of the road within 100 metres of the development proposal	5.6, 5.7
	Distances to adjacent driveways, median openings, intersections, and traffic signals	5.6
	Pavement markings/lane configuration and signage on the Regional road(s) and proposed access	5.11, 6.6
	Access configuration for the site, including number of lanes	3.10
	Pedestrian and cycling connections from the site to municipal active transportation and transit networks (sidewalks, bike lanes, etc)	5.12
	All proposed transportation elements such as traffic signals, auxiliary lanes, and centre concrete median	3.10
	Vehicle parking and internal circulation plans	6.5
	Proposed and/or existing land uses	5.1
	If parking is located close to the access, the minimum clear throat distance must be achieved and the distance should be labeled on the Site Plan	6.5
	Sight distance (stopping sight distance and decision sight distance)	5.8

5 Access Management Guidelines

These Guidelines are intended to establish appropriate locations and functional designs of the proposed public roads, private accesses and entrances to Regional roads. The guidelines are applicable to any development application that involves vehicular access to Regional Roads.

The primary purpose of these guidelines is to ensure safety and protect the Region's investment in the transportation network. They also provide a degree of context sensitivity to minimize collisions, maintain corridor capacity, preserve community character and advance economic development goals.

These guidelines are intended to assist both designers (transportation consultant and planner), and municipal staff (Regional and local) to understand and comply with the Region's standards and requirements.

5.1 General Description for Access Type

There are a number of access types in York Region. The functionality of the access is typically associated to the land use of the site. The land use type, parcel size, density, and trip characteristics such as frequency of the vehicles that will be using the access are factors taken into consideration.

From a traffic safety perspective, all access types should be treated in the same manner to ensure that:

- Access shall be located at an appropriate location to minimize turning movement conflicts and queue spillbacks;
- Access design and location shall meet sightlines and other safety requirements for all modes of transportation;
- Active transportation facilities shall continue through driveways and all intersections via appropriate crossings;
- Access turning radii and width shall be adequate to accommodate the largest type of vehicles that will access the site; and
- Access location and design do not negatively impact the capacity and operations of the existing Regional corridors

5.2 Direct Access

Although, the Regional Official Plan discourages direct access to Regional roads if the proposed development has alternative access connections, there are situations where direct access may be required.

Direct access to a Regional road will be considered for the following site conditions. However, the appropriate type of traffic control for the direct access (i.e. right-in and/or right-out or full moves) will be subject to the requirements provided in these guidelines.

- Subject lands are landlocked, notwithstanding the provisions of these Access Guidelines regarding outparcels, and joint and cross access;

- Subject site has unique land constraints that preclude access via a local street, such as significant environmental impact, historical or archaeological features, insufficient lot depth, conflicting foot print of existing buildings, gradient or minimal frontage onto a local road;
- Alternative access creates unacceptable traffic operations, (as defined by the Region) on or in close proximity to a Regional intersection or Provincial highway ramp terminals;
- Alternative access, such as a joint driveway and cross access system cannot be established, as per the provisions of this Access Guideline regarding joint and cross access; or
- Land parcels are developed with uses which rely solely on pass-by traffic, i.e., service stations; and
- It provides additional functionality to accommodate pedestrian and cyclists via sidewalks/trails/ bicycle paths to reduce travel time from developments abutting Regional roads; including but not limited to parallel roads along the full frontage of a subdivision, cul-de-sacs, internal/external links to other areas and to transit facilities

5.3 Alternative Access Arrangement

Where minimum driveway spacing requirements cannot be achieved for a particular property, driveways shall be consolidated or a joint access system shall be established or planned, provided that the adjacent land use(s) is complementary in nature.

A system of joint use driveways and cross access easements shall be established wherever feasible, consistent with the Regional Official Plan Policy 7.2.53. The site design shall incorporate the following:

- A continuous service drive or cross access corridor extending the entire length of each block served, to provide for driveway separation consistent with these Guidelines;
- A design width sufficient for two-way travel, and to accommodate private automobiles, service vehicles, loading vehicles, emergency vehicles, and active transportation; and
- Easements and potentially stub-outs and other design features to provide for cross access to abutting properties via a service drive, where cross access cannot be immediately obtained

Pursuant to this section of Access Guidelines, affected property owners shall:

- Record a reciprocal easement allowing cross access to and from other properties served by the joint use driveways and cross access or service drive
- Record a reciprocal agreement that remaining access rights along the subject corridor will be dedicated to the Region and pre-existing driveways will be closed and eliminated after construction of the joint-use driveway and cross access
- Record a joint maintenance agreement defining maintenance responsibilities of property owners
- Consolidated access requirements are applicable for all Regional roads

5.4 Number of Accesses

Generally, only one access per development may be permitted onto a Regional road, provided that conditions of **Sections 5.2 and 5.3** are met. Additional access can be provided via interconnections with adjacent developments or existing local roads and driveways.

Where development is consolidating existing parcels, consolidation and/or removal of existing driveways will be required. Where development is being undertaken in a phased implementation, temporary driveways may be permitted until such time that the ultimate access arrangement for the development has been made. At which time the temporary driveway may be removed at the sole discretion of the Region.

Active transportation connections for pedestrians and/or bicycles shall be provided on-road or off-road to the Regional road network, where appropriate. A finer-grid road network is encouraged via sidewalks, trails or bicycle paths with formal entry to the road network to provide the most direct linkages for pedestrian and cyclists. Active transportation accesses shall comply with AODA requirements.

5.5 Access Restriction

The access restrictions are described in Section 3 of these Access Guidelines. More detailed guidance is provided in this chapter.

The Region, in the interest of public safety and traffic operations, may impose movement restrictions such as right-in and/or right-out only, even if direct access to the site is permitted from a Regional Road. The reconfiguration of the driveway and the construction of raised concrete median islands to facilitate these restrictions shall be the full responsibility of the Owner.

As raised concrete median is required to ensure turning movement restrictions, the Region will not permit median breaks to accommodate a full movement access at locations where there are existing raised concrete medians or rapidways.

5.6 Access Control and Spacing

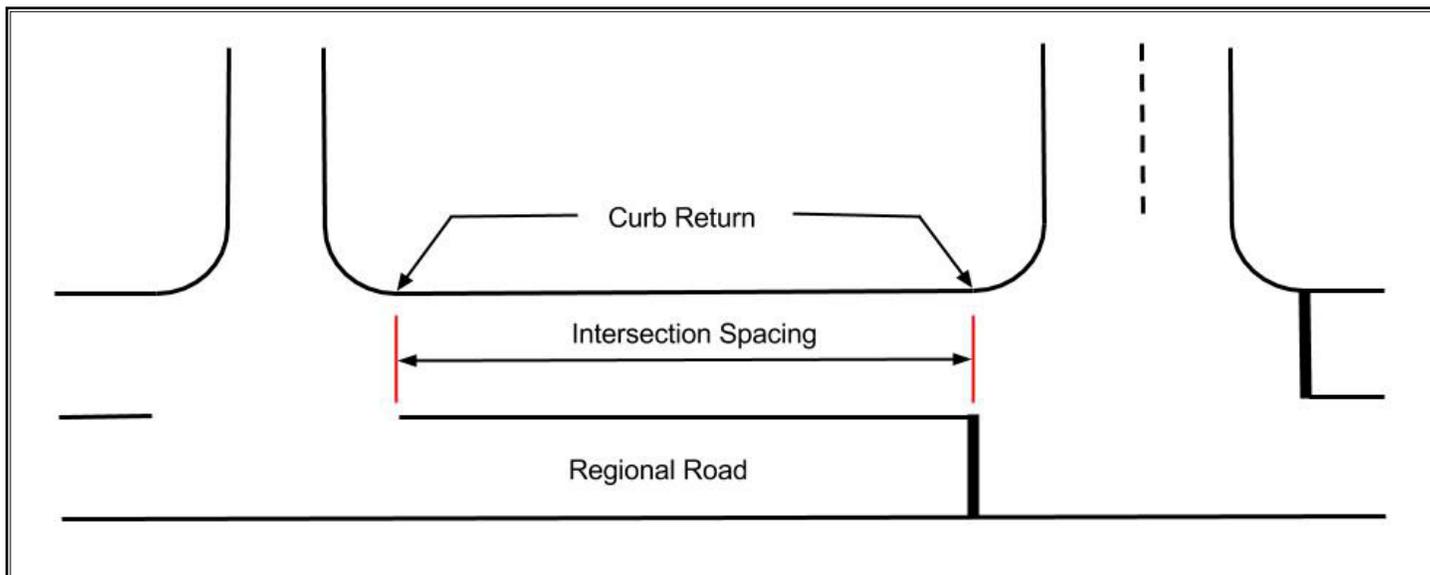
A proposed new traffic signal is only permitted if the following requirements are met:

- Traffic signals are warranted based on the Traffic and Pedestrian Signal Policy (**Appendix A**)
- The proposed intersection spacing meets the recommendations outlined in these Access Guidelines
- The traffic signal will not materially impact the corridor operation, including the impact to the existing access, intersections, upstream and downstream signals
- Meet all the safety requirements for traffic operations, sightlines and geometric design to accommodate all modes of transportation

The Region's Traffic Signal Warrant Policy uses the Ontario Traffic Manual (OTM) Book 12 criterion that includes traffic/pedestrian volumes, conditions and characteristics of an intersection and peak traffic hours to determine the technical need for the installation of new signals. In cases where the requirement in the Policy is not satisfied, Regional Council's authorization will be required to install the traffic signals.

It should be noted that spacing between intersections should be measured from end to start of curb returns, as shown in Figure 3.

Figure 3 – Intersection Spacing Measurement



5.6.1 Signalized Intersections

Table 5 illustrates the desirable spacing for existing and proposed signalized intersections on Regional roads based on the design speed. Signal spacing may only be reduced to a minimum based on OTM Book 12 if substantiated through a comprehensive corridor progression and safety analysis, transportation impact study, and considering the land use context and community factors.

It should be noted that if design speed is not available either, 85th percentile, or 10 km/h above the posted speed limit, whichever is higher, should be used, with consultation with the Region.

Table 5: Intersection Spacing Between Signalized Intersections

Design Speed	Signalized Intersection Spacing	
	Required	Minimum*
60 km/h	300 m	215 m
70 km/h	300 m	215 m
80 km/h	350 m	300 m
90 km/h	400 m	350 m
100 km/h	800 m	400 m

Note: *Minimum spacing only if safety and operational criteria are met

It should be noted that, based on the OTM Book 12, the following minimum signal spacing is required to allow “back-to-back” left turn lanes and proper tapers (but minimum signal spacing does not consider optimal traffic signal coordination):

- Minimum intersection spacing of 215 m for roads with posted speed of 60 km/h or less (design speed of 70 km/h)
- Minimum intersection spacing of 350 m for roads with posted speed of 80 km/h and over (design speed of 90 km/h)

In addition, based on the OTM Book 12, where a new infill intersection is planned, the distance between signalized intersections should include a progression analysis to ensure that proper coordination of the signals is possible for a range of traffic demands

5.6.2 Unsignalized Intersections

The spacing requirement for unsignalized and roundabout access from an existing or future access or intersection is summarized in **Table 6**. If the proposed access may have an opportunity to be signalized in the future, **Table 5** must be used instead. In addition, this table can only be reference if the proposed access does not fall within the “Access Restriction” requirements identified in **Section 3** of the Guideline.

It should be noted that if design speed is not available either, 85th percentile speed, or 10 km/h above the posted speed limit, whichever is greater should be used.

Table 6: Unsignalized Intersection Minimum Spacing

Design Speed	Required Access Spacing		
	Full Moves	Restricted Access*	
		Required	Minimum**
50 km/h	155 m	70 m	40 m
60 km/h	190 m	80 m	50 m
70 km/h	225 m	90 m	60 m
80 km/h	260 m	100 m	70 m
90 km/h	295 m	105 m	75 m

Note: *Restricted access limits certain movements, i.e. Right-in and/or Right-out

**Minimum based on certain conditions such as no exclusive right turn lane, or slip-around design with right-turn taper only, no storage

For the full moves access, these are minimum values based on a 15 metre minimum storage length for left turn plus taper, as outlined in the Regional standard drawings DS-101 to DS-104 (**Appendix B**). If the Transportation Mobility Plan Study confirms that additional storage length is required beyond the minimum storage, the minimum spacing above must be adjusted to accommodate the additional storage requirement. It should be noted that exclusive turn lane (left and right) may not be required at the time of the proposed development, however, it should be protected to address any future operational needs.

Similarly, for the restricted access, the required values are based on 30 metre minimum storage plus taper for right turn lane, and the minimum values are based on slip-around design with taper only with no storage, as outlined in the Regional standard drawings DS-100 to DS-104 (**Appendix B**). If the Transportation Study confirms that additional storage length is required beyond the minimum storage, the minimum spacing above must be adjusted to accommodate the additional storage requirement. It should be noted that an exclusive or slip-around right turn lane may not be required at the time of the proposed development, however, it should be protected to address any future operational needs.

It should be noted that the final approval on the access location will be determined by York Region's Transportation Services Department. If the minimum intersection/access spacing cannot be met, justification must be provided to the satisfaction of the Region, based on but not limited to the following requirements.

- i) Intersection and corridor capacity analysis
- ii) Queueing analysis for existing and future conditions
- iii) Corridor progression and travel time analysis
- iv) Intersection and corridor traffic microsimulation analysis
- v) Sightline analysis
- vi) Weaving analysis
- vii) Intersection functional design
- viii) Safety audit and analysis including potential hazards to pedestrians and cyclists
- ix) Gap analysis for existing access

5.7 Intersection Alignment

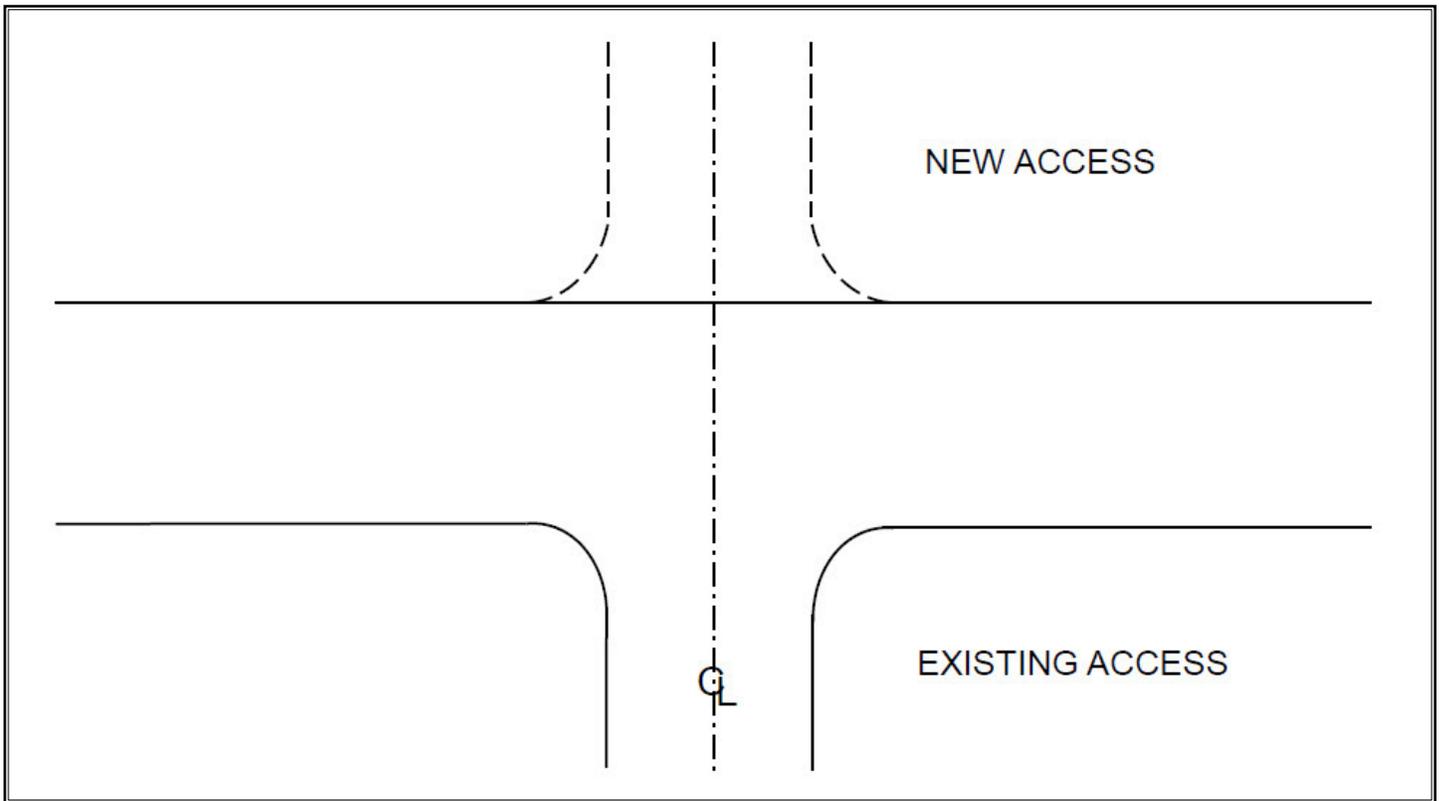
Introduction of any new access to a Regional road will have direct impacts on the existing traffic operations along the corridor and existing intersections within the influence area. Any proposed access onto a Regional road must be located at appropriate location and aligned with existing or future intersections.

A proposed jog or an off-set access with the existing intersections, will result in turning movement conflicts, traffic operation safety problems, and insufficient queuing space for turning vehicles.

The centreline of a proposed new access onto the Regional road must be aligned with the centreline of any opposing existing accesses or public road. **Figure 4** illustrates the driveway alignment.

For existing non-conforming misaligned or offset intersections, they will be consolidated or closed in the future when the site is redeveloped or changed in land use designation.

Figure 4: Intersection Alignment



5.8 Sightline Requirements

5.8.1 Stopping Sight Distance

Stopping sight distance usually allows for drivers to come to a stop under normal circumstances. The minimum stopping site distance for level grade on wet pavement for different design speeds is summarized in **Table 7**.

Table 7: Minimum Stopping Sight Distance

Design Speed (km/h)	50	60	70	80	90	100
Minimum Stopping Sight Distance (m)*	65	85	110	140	170	210

Source: Table 2.5.2, Chapter 2, Geometric Design Guidelines for Canadian Roads

5.8.2 Decision Sight Distance/Turning Sight Distance

The AASHTO GDM defines decision sight distance as “the distance needed for a driver to detect an unexpected or otherwise difficult-to-perceive information source or condition in a roadway environment that may be visually cluttered, recognize the condition or its potential threat, select an appropriate speed and path, and initiate and complete complex maneuvers.” Decision sight distances by design speed and maneuver type are shown in **Table 8**.

Table 8: Decision Sight Distance

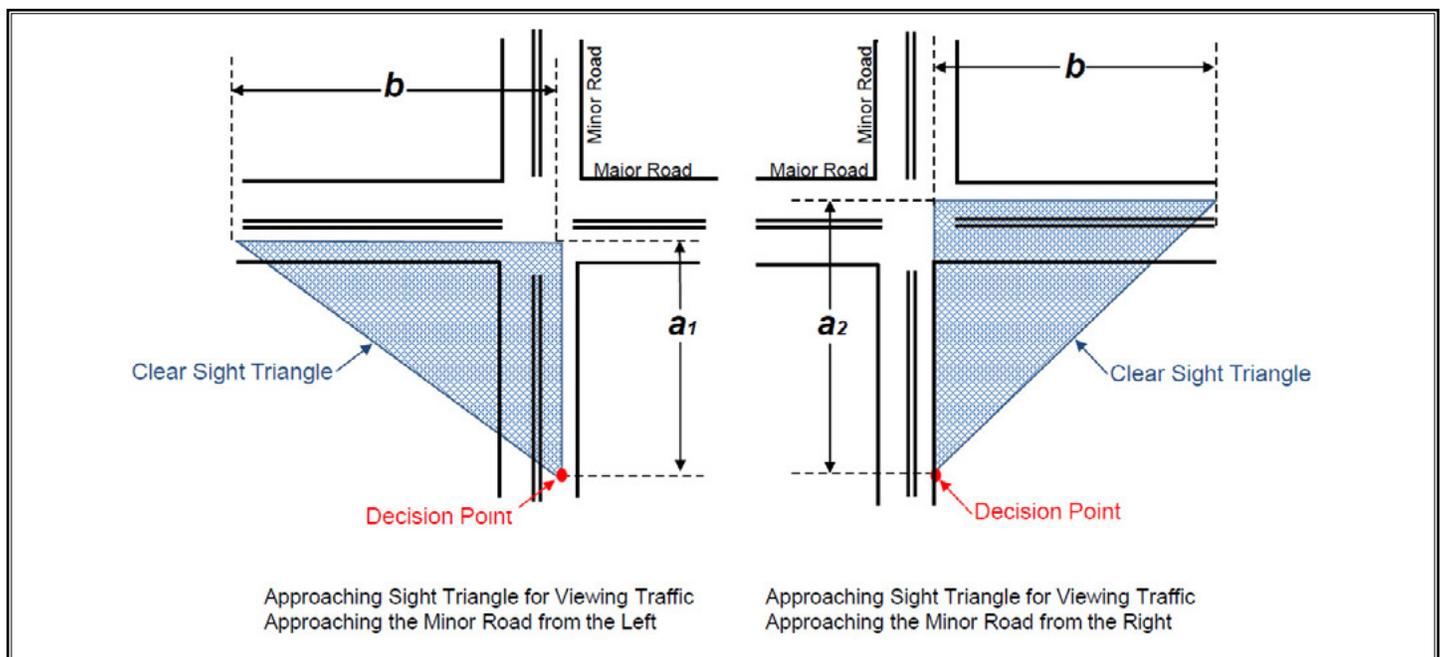
Design Speed (km/h)	Decision Sight Distance (m)				
	Avoidance Maneuver				
	A	B	C	D	E
50	75	160	145	160	200
60	95	205	175	205	235
70	125	250	200	240	275
80	155	300	230	275	315
90	185	360	275	320	360
100	225	415	315	365	405
110	265	455	335	390	435
120+	305	505	375	415	470

Source: Table 2.5.6, Chapter 2, Geometric Design Guidelines for Canadian Roads

5.9 Daylight Triangle

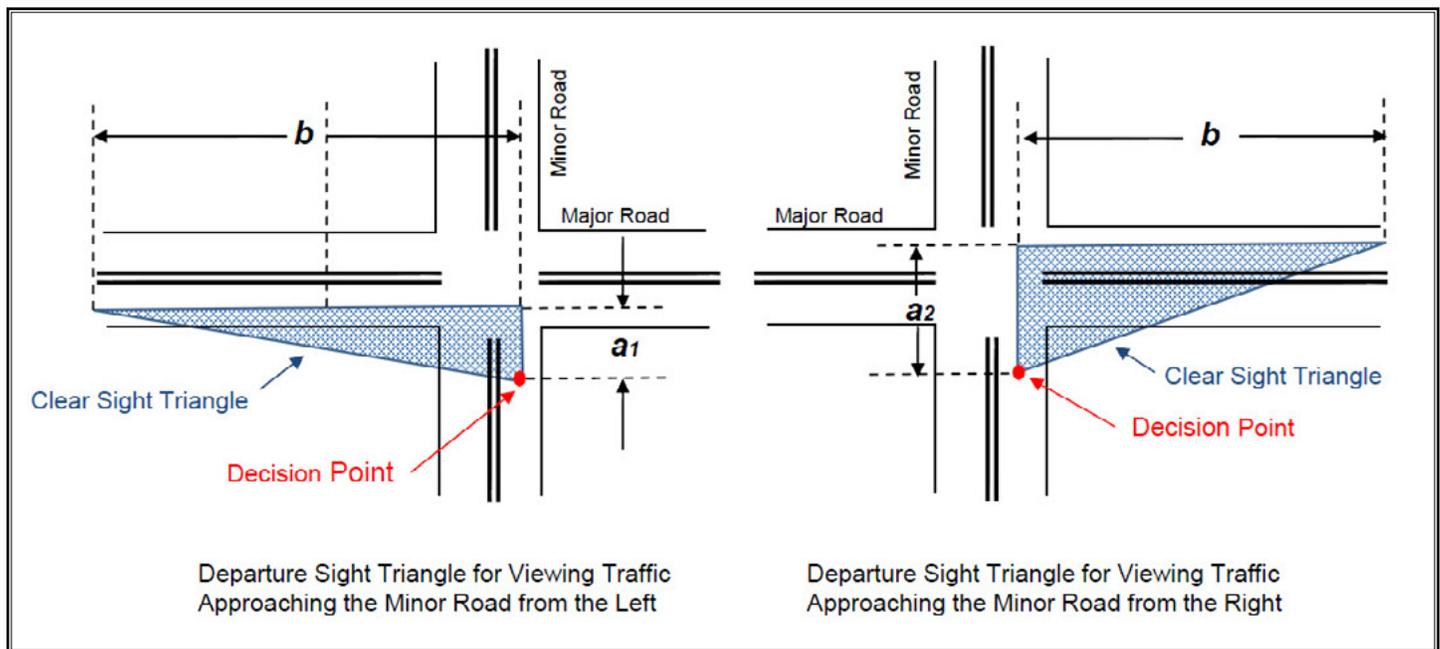
Sight triangles are an integral part of the Regional right-of-way that provide adequate sightlines for road users, accommodate traffic signal equipment, illumination and servicing/utilities. **Figure 5** and **Figure 6** illustrate the daylight triangle requirements at an intersection.

Figure 5: Approach Sight Triangle



Source: Figure 9.9.1, Chapter 9, TAC GDG

Figure 6: Departure Sight Triangles



Source: Figure 9.9.2, Chapter 9, TAC GDG

Further information on daylight triangles can be found in design standard drawings DS-211 to DS-213 (Appendix C) or the York Region *Site Triangle Manual: Design guidelines and Standards for Sight Triangles*. It is also required that:

- Driver and pedestrian visibility (based on 1.05 m driver eye height) is to be maintained within the sight triangle
- Proposed elements within the sight triangles shall maintain or improve safety at intersections for all road users
- Landscaping and architectural features may be permitted within the sight triangle if the proposal does not obstruct views of luminaires, traffic signals, traffic signs, and falls outside the clear zone
- Unnecessary grading is not permitted within the sight triangle
- All proposed elements must conform to AODA standards and requirements
- Daylight triangle shall be measured from the ultimate right-of-way, not existing right-of-way

5.10 Medians

Where a non-traversable median is located to limit turning and crossing opportunities on a Regional road, the corridor should provide for the following:

- At full-moves driveways: median breaks providing adequate left and U-turn storage, comprising of a minimum of 15 metres; and
- At right-in and/or right-out driveways: extension of the median at least 30 metres beyond both sides of the centreline of the subject access

The minimum spacing between two adjacent median openings should be determined by the distance required to accommodate exclusive left turn lanes between them, or the spacing guidelines in **Table 6**, whichever is greater. Consideration shall include accommodating the queues generated by existing developments and unique land uses.

If one of two adjacent median openings is anticipated to be signalized in the future then the minimum spacing between these median openings should be determined by the distance required to accommodate exclusive left turn lanes between them, or the spacing guidelines in **Table 5**, whichever is greater.

5.11 Dedicated Turning Lanes

5.11.1 Exclusive Left Turn Lanes

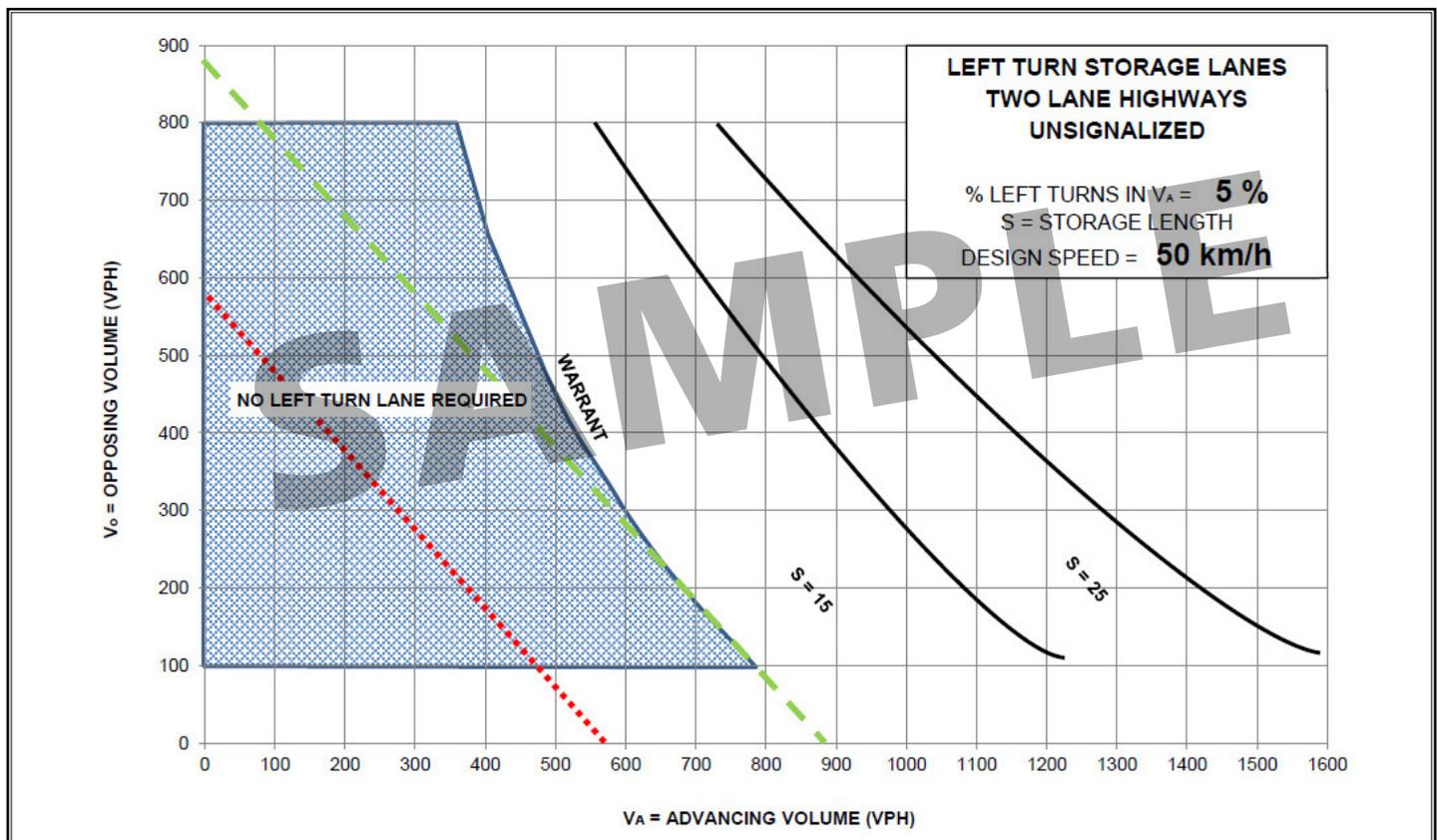
5.11.1.1 Signalized Intersections

Generally, at all signalized intersections there shall be exclusive left turn lanes on all approaches and shall be designed to the satisfaction of the Region.

5.11.1.2 Unsignalized Driveways and Intersections

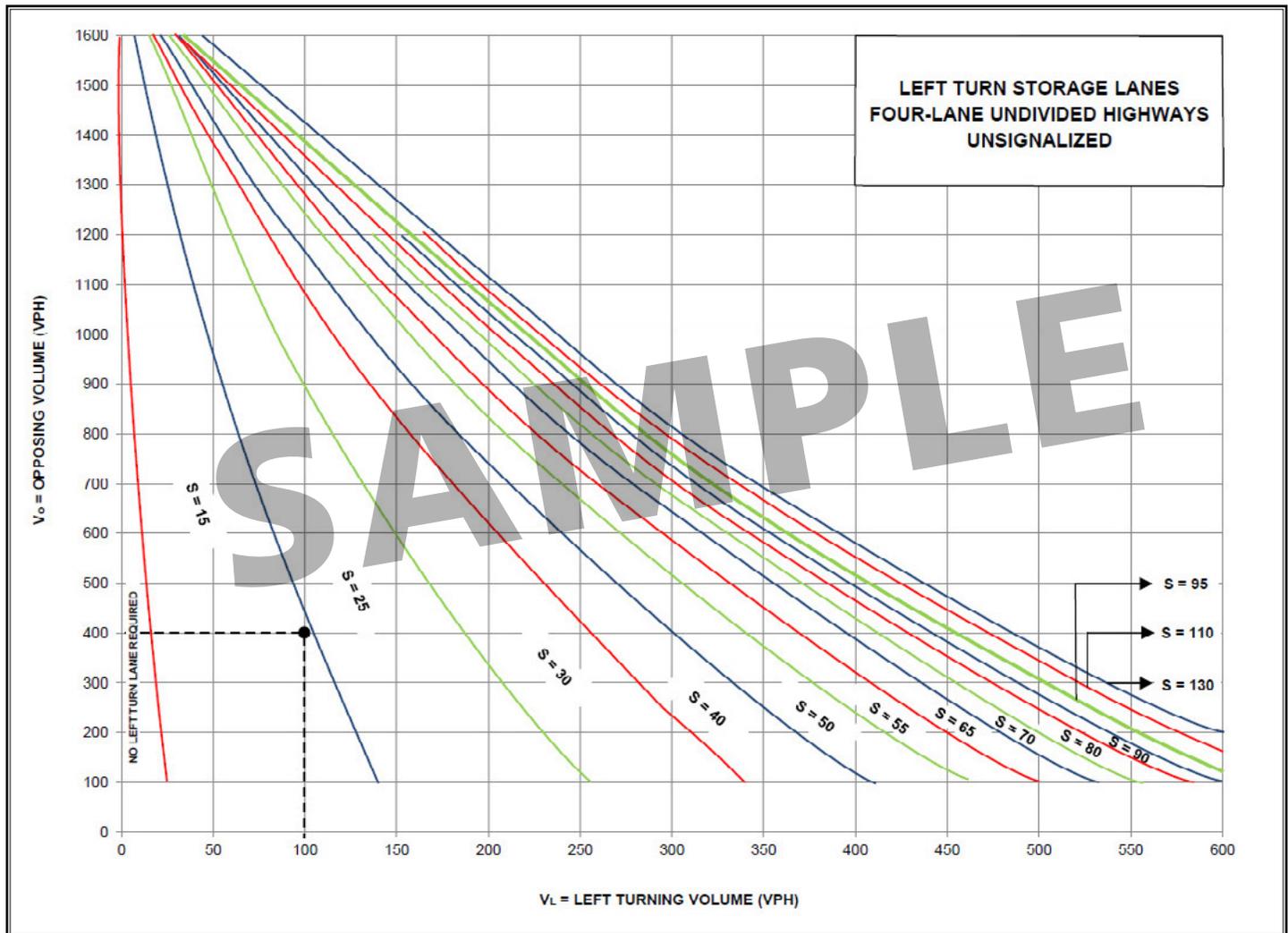
Generally, at all unsignalized intersections there shall be exclusive left turn lanes on Regional Roads to maintain the efficiency of general purpose lanes and to minimize rear end collisions. In addition, the warrant for left turn lanes on two-lane roads shall be based on Chapter E, Section E.A.1 of the Geometric Design Standards for Ontario Highways by the Ministry of Transportation, Ontario. A sample warrant is shown in **Figure 7**.

Figure 7: Sample Unsignalized Left-Turn Warrant (Two-Lane Road)



The warrant for left turn lanes on 4-lane roads shall be based on *Chapter E, Section E.B.1 of the Geometric Design Standards for Ontario Highways by the Ministry of Transportation, Ontario*. A sample warrant is shown in **Figure 8**.

Figure 8: Sample Unsignalized Left-Turn Warrant (Four-Lane Road)



Exclusive left turn lanes shall be designed and constructed to the satisfaction of the Transportation Services Department. The engineering design guidance and requirement of the exclusive left turn lane are illustrated in York Region’s Design Standard (DS-100 to DS-104, **Appendix B**).

All warrant analysis for left-turn lanes shall be based on the worst peak hour of the 10-year horizon.

As indicated in Section 3.3 of the Guideline, all unsignalized accesses proposed onto corridors with six-lane cross-section will be restricted to right-in and/or right-out operation only. Full movements can only be provided at existing or future signalized intersections. For non-conforming accesses, it will be restricted, consolidated or closed in the future when the site is redeveloped.

5.11.2 Exclusive Right Turn Lanes

Currently, an exclusive right turn lane is generally required when there will be 100 or more right turning vehicles. There is no other empirical warrant analysis for exclusive right turn lanes. Exclusive right turn lanes are reviewed and required on case-by-case basis for the interest of safety, traffic operation, transit operation and other requirements.

The requirement for exclusive right turn lanes should be determined by, but not limited to, the following criteria:

- A requirement identified by the intersection capacity analysis
- Existing operational and safety issues such as weaving and rear-end collisions
- The right turn volumes significantly impact the through lane operations
- When the volume of decelerating and accelerating vehicles compared with the through traffic volume causes undue hazard
- The driveway or intersection would be difficult for approaching drivers to see
- The driveway or intersection can only be entered at significantly lower than posted speed limit
- Right turning traffic consists of a higher number of trailers or large vehicles
- There is a high frequency of number of bus stops for loading and unloading customers

Exclusive right turn lanes shall be designed and constructed to the satisfaction of Transportation Services Department. The engineering design guidance and requirement of the exclusive right turn lane are illustrated in York Region's Design Standard (DS-100 to DS-104, **Appendix B**).

Right-turn lane requirement shall be based on the worst peak hour of the 10-year horizon.

Exclusive right turn lanes should not be considered on corridors with a six-lane cross-section, unless it is required for safety or other requirements. In locations where an active transportation facility exists or are proposed, the location and design of right turn lane shall follow OTM Book 18 as well as York Region Pedestrian and Cycling Planning and Design Guidelines. Furthermore, any active transportation facilities shall continue through all accesses/intersections. Right turn lanes shall be designed to the satisfaction of York Region's Transportation Services Department.

5.12 Access and Transit Stops

Proposed access and transit stop locations should be coordinated and carefully designed in such a way to minimize adverse operational and safety impacts on both the proposed accesses and York Region Transit buses/facilities.

The following factors must be considered in the design of access in coordination with the transit stops:

- Sight line requirements for the proposed access;
- Exclusive right turn requirement to accommodate bus stops;
- Transit stops should be designed to accommodate a bus length up to 18 metres (60-foot);
- Relocation of bus stop is acceptable but generally 50-100 metres from the original stop;
- Meet AODA requirement;
- Pedestrian crossing;
- Proposed access design should not interfere with transit riders from entry and exit from bus stops;

The consultant preparing engineering design for the proposed access is required to consult and coordinate with York Region Transit staff and the York Region Pedestrian & Cycling Planning and Design Guidelines to ensure that the design is acceptable to the Region.

6 Design Elements

6.1 AODA Requirements

All intersection and access design shall meet the AODA requirements. It is encouraged that the consultant contact and consult with Regional staff (Electrical Design) prior to undertaking the design exercise. The AODA Act (2005) and Guidelines can be found on the following link:

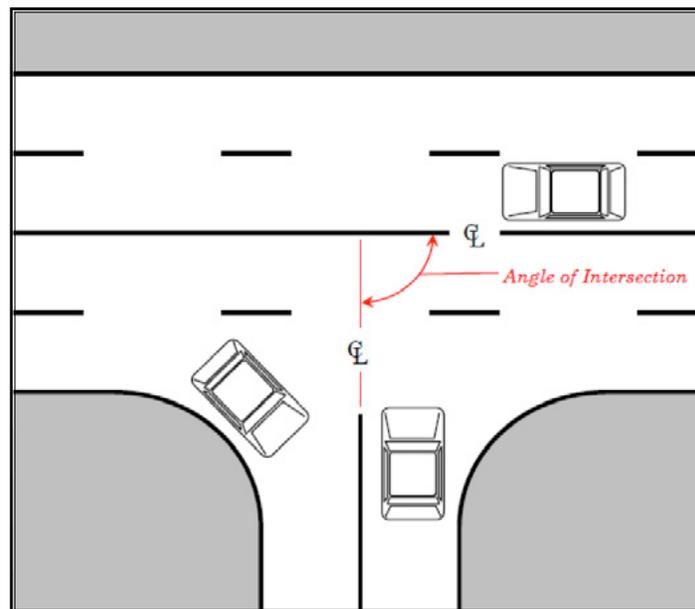
www.ontario.ca/laws/statute/05a11. York Region's Design Standard drawings for AODA compliant intersections can be found in **Appendix D**.

6.2 Driveway Angle at Intersection

The angle at an intersection is the degree at which a driveway or road intersects with the arterial road as measured between the centreline of the new driveway and the centreline of the arterial road. It is desirable that the centreline of the new driveway and the centreline of the arterial road meet at right angles to ensure safe sight lines to and from the site.

The angle of intersection at which a driveway intersects with the arterial road should be 90 degrees as illustrated in **Figure 9**. The angle of intersection must not be less than 80 degrees or greater than 100 degrees. Engineering and safety justification is required for all driveways less/more than 90 degrees. In certain cases, if the driveway angle doesn't meet the criteria above, an engineering, safety analysis and design study shall be conducted, to the satisfaction of the Region.

Figure 9: Angle at Intersection



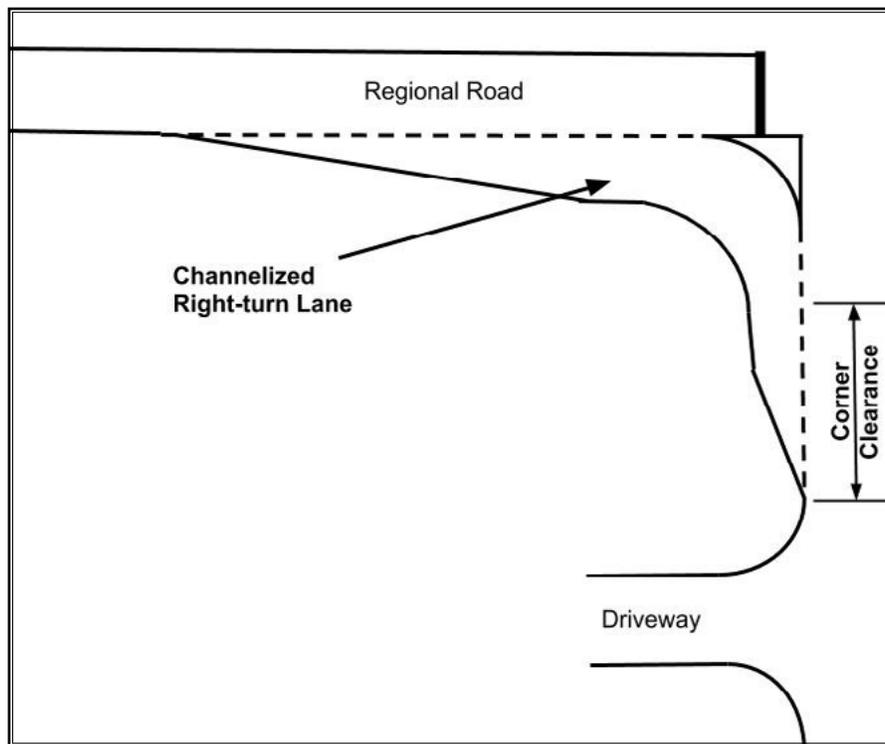
6.3 Driveway Gradient

Based on the TAC Geometric Design Guide, grade breaks at intersections in the order of 0.5% to 2% are typical for a design speed of 70 km/h or higher. For lower design speeds more substantial grade breaks can be accommodated if required for the specific conditions. At a design speed of 50 km/h, a maximum grade change in the order of 3% to 4% produces some discomfort for vehicular traffic but is normally not detrimental to the safe operation of the intersection, provided that the stopping sight distance for the design speed is achieved. (TAC GDG 2.3.2.3)

6.4 Downstream Corner Clearance of Channelized Right Turn

At intersections with channelized right turn lanes, no access shall be permitted within the acceleration lane and taper. This provision is required to minimize turning movement conflicts and provide sufficient distance for vehicles to accelerate and merge safely into the through lane. **Figure 10** illustrates the downstream corner clearance.

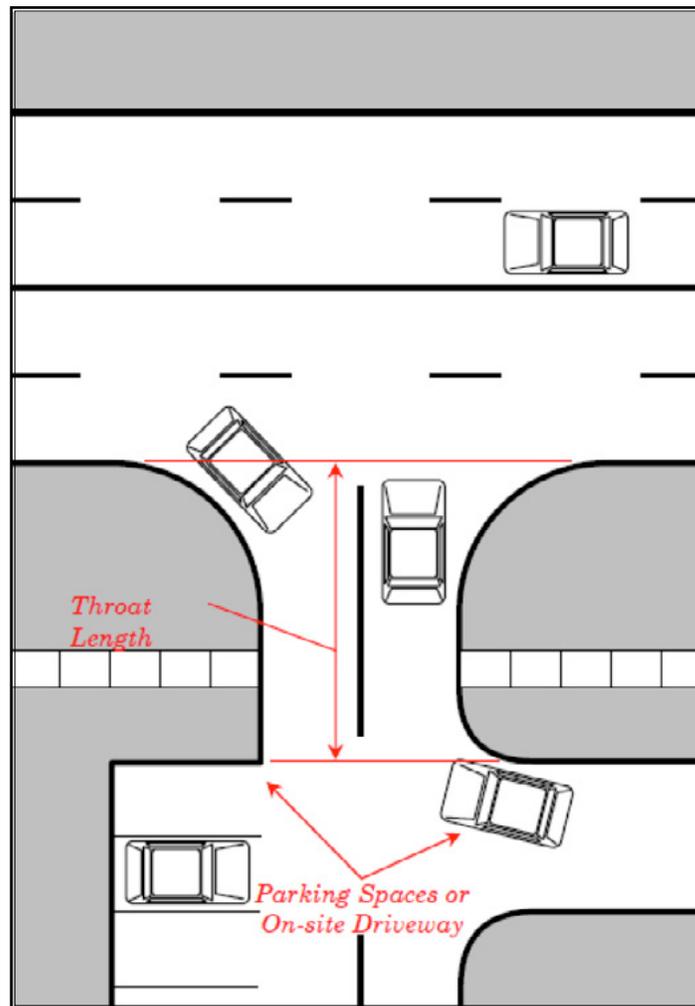
Figure 10: Corner Clearance From intersection



6.5 Driveway Clear Throat Distance

Clear throat distance is measured from the street line to the first point of on-site vehicular conflict. The access clear throat distance shall be designed to reflect the anticipated storage length for ingress and egress vehicles, in order to prevent these vehicles from interfering with the safety and operations of the Regional Road. The minimum value is 15 metres (about two vehicle length). **Figure 10** illustrates the required clear throat distance.

Figure 11: Minimum Driveway Clear Throat Distance



6.6 Driveway Width and Corner Radii

The lack of adequate driveway size can significantly influence safe and efficient traffic operation; therefore it is important to provide adequate driveway width and radii minimum. Factors that must be considered include:

- Proposed land use,
- Type of operation (1-way or 2-way traffic flow),
- Volume of traffic, and
- Type of vehicles the driveway will serve

For example, if the driveway is to serve as a fire route, then the Ontario Building Code shall apply. Plans must be adequately dimensioned to simplify review process.

Driveway width should be restrictive enough to discourage erratic maneuvers, control the location and angle of conflict points, and limit entry/exit to the intended number of lanes of operation. Whether a driveway will operate with one-way or two-way traffic flow must also be considered.

A depiction of driveway width and corner radii is illustrated in **Figure 12**. A summary of the typical driveway corner radii dimensions are summarized in **Table 9**. The radii are based on the Regions design standard drawings, DS-200 to DS-2018, attached in **Appendix C**.

Figure 12: Driveway Design Width and Corner Radii

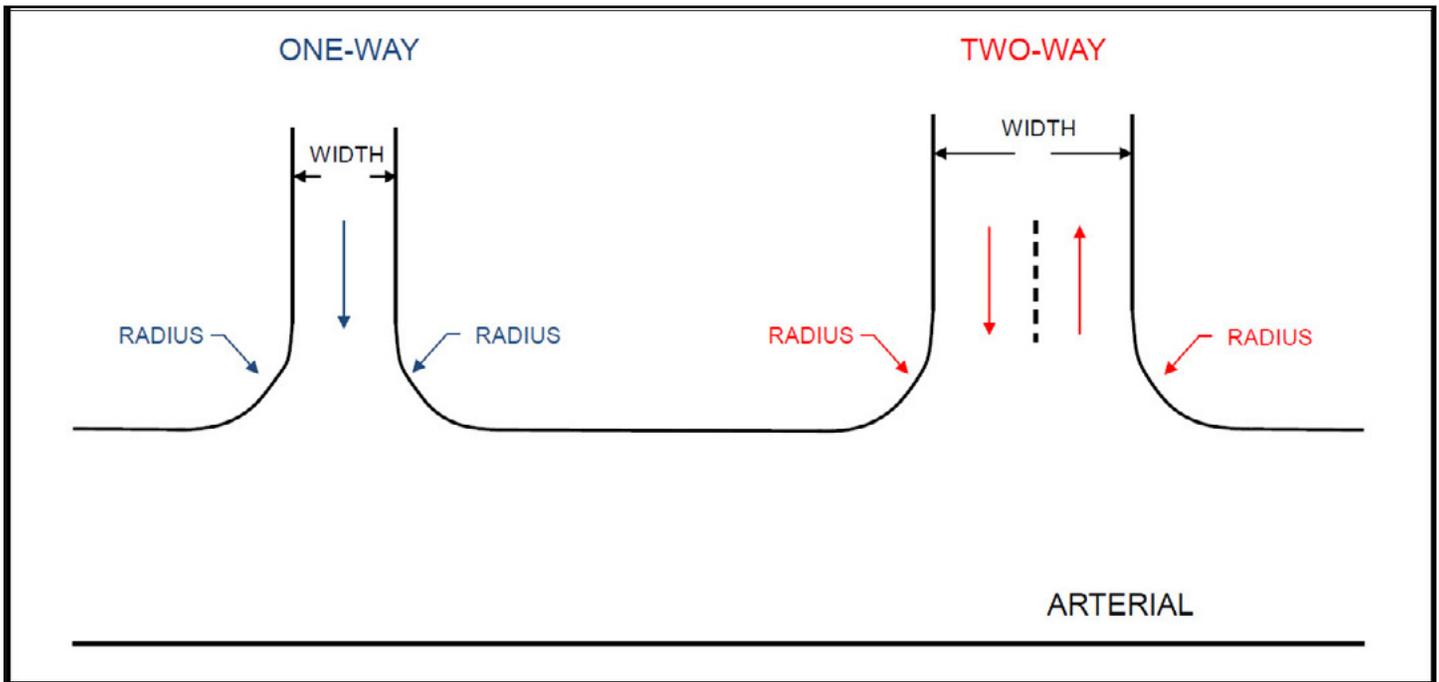


Table 9: Typical Driveway Corner Radii Dimensions

Driveway Type	Land Use		
	Residential	Commercial	Other
One-way	5 m	6 m	
Two-way	5 m	6-16 m	
Temporary construction			15 m
Entrance on fill			5 m
Rural	5 m	9-20 m	5-8* m

*Farm equipment entrance

6.7 Local Street Connectivity

York Region encourages the development of local road networks that connect with existing surrounding local streets. Local street connectivity to permit the convenient movement of vehicular, bicycle and pedestrian traffic between residential neighborhoods or facilitate emergency access.

7 Variance Control

7.1 Non-Conforming Driveways

Non-conforming access driveways shall be brought into compliance with the applicable recommendations of the Regional Access Guidelines, where appropriate, under the following conditions:

- When new access permits are requested
- 10 per cent or more increase in existing floor area
- Significant increase in Trip Generation
- As roadway improvements allow

7.2 Variance to these Guidelines

Variance guidelines and procedures allow deviations from the requirements outlined within Regional access requirements when justified and under unique circumstances.

The application of all access management standards or strategies should be consistent and based on a test of reasonability. A review of the potential access, impacts to the property, long-term development and traffic growth should be undertaken in consideration of Regional road access. Unique locations, unusual land use or specific access needs may necessitate access designs, locations or spacing that vary from the requirements within this Regional Access Guideline. Justification for deviation from the Regional Access Guidelines should be substantiated by a Traffic Engineering Consultant and should demonstrate that access will work without negative impact on Regional roadway operations.

The approval of a variation shall be consistent with the purpose and intent of the Regional Access Guidelines and shall not be considered until every feasible option has been explored.

Applicants for a variance from these guidelines must provide justification of unique or special conditions that make strict application of the provisions of the Regional Access Guidelines cannot be met. This shall include:

- Indirect or restricted access cannot be obtained;
- No engineering or construction solutions can be applied to mitigate the condition; and
- No alternative access is available from a street with a lower functional classification than the primary roadway

Under no circumstances shall a variance be granted, unless not granting the variance would deny all reasonable access, endanger public health, welfare or safety, or cause an exceptional and undue hardship on the applicant. No variance shall be granted where such hardship is self-created.

The Regional Municipality of York

17250 Yonge Street
Newmarket, Ontario L3Y 6Z1
Phone: 1-877-464-9675

Transportation Services Department

transportationservices@york.ca

Access York

Hours of operation: Monday to Friday: 8:30 a.m. to 4:30 p.m.
TTY: 1-866-512-6228 or 905-895-4293

York Region – Development Engineering Section
Manager of Development Engineering
Community Planning & Development Services Branch
Corporate Services Department

York Region – Roads and Traffic Operations
York Region – Traffic Data, AADT, Signal Timing Request
Traffic.data@york.ca

York Region – Transportation Planning Section
Manager of Transportation Development Planning
Transportation & Infrastructure Planning
Transportation Services Department

York Region – Development Planning Section
Manager of Development Planning
Community Planning & Development Services Branch
Corporate Services Department

Attachment 1



STATUS: Draft
Council Approved: No
CAO Approved: No

TITLE: TRAFFIC AND PEDESTRIAN SIGNAL POLICY	Edocs No.: 5980367 Original Approval Date: October 17, 2002 Policy Last Updated: June 25, 2015 Posted on Intranet: (date)
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POLICY STATEMENT:

This policy provides guidelines for the installation of traffic and pedestrian signals within the Regional road network.

APPLICATION:

The Traffic and Pedestrian Signal Policy will be used by staff in determining acceptable locations for the installation of traffic and pedestrian signals within the Regional road network.

PURPOSE:

This policy is meant to provide a technically sound and consistent method of determining appropriate locations for the installation of traffic and pedestrian signals within Regional road network.

DEFINITIONS

Traffic Signals: Electronic signalling devices positioned at road intersections to alternate right-of-way for all road users.

Traffic Signal Warrant: A set of criteria used to determine the relative need for and appropriateness of traffic signals. Warrants are usually expressed in the form of numerical requirements such as the volume of vehicular or pedestrian traffic, delay to cross traffic, or collisions.

Traffic and Pedestrian Signal Policy

Local Municipality: Municipalities located within the Regional Municipality of York: Town of Aurora, Town of East Gwillimbury, Town of Georgina, Town of King, City of Markham, Town of Newmarket, Town of Richmond Hill, City of Vaughan and Town of Whitchurch-Stouffville.

Pedestrian Signals: Electronic signaling devices positioned at road intersections and pedestrian crossings to specifically control pedestrian movements versus competing traffic flows.

Safety: Implies the minimum hazard to vehicles, pedestrians and other road users.

DESCRIPTION:

Regional Intersections

Traffic and pedestrian signals are required to balance alternating right-of-way between all road users and to facilitate access to local communities. The Region receives numerous requests annually from residents and other stakeholders to install signals to manage congestion or improve safety.

Unwarranted installation of traffic signals increases overall delay on the major street; negatively impacting the flow of traffic and potentially increasing the incidences of collisions. It is important that the Region's policy include a traffic signal warrant to determine when a traffic signal installation is beneficial.

The Ministry of Transportation Ontario's traffic signal criteria, as per Ontario Traffic Manual Book 12 is widely used by Ontario municipalities. Ontario Traffic Manual Book 12 outlines criteria that includes traffic/pedestrian volumes, conditions and characteristics of an intersection and peak traffic hours to determine the technical need for the installation of new signals. Regional staff are to directly reference Ontario Traffic Manual Book 12 in determining the need for the installation of new traffic and pedestrian signals on Regional roads. In cases where the policy is not satisfied, Council will continue to have the authority to approve signals at those intersections.

The Region will be responsible for all costs for installation, operation and maintenance of traffic and pedestrian signals at Regional intersections.

Private Entrances

Funding of traffic and pedestrian signals for private entrances remains at the expense of the property owner. Property owners are required to pay a one-time fee, valued at the net present value of 10 years of the Region's traffic signal operating and maintenance costs at the time of application, to offset operating and maintenance costs. Traffic and pedestrian signals associated with development applications will be subject to the Development Charge Bylaw.

Traffic and Pedestrian Signal Policy

RESPONSIBILITIES:

York Region:

- The Region shall assess the need for the installation of traffic and pedestrian signals on the Regional road network based on the criteria set out in Ontario Traffic Manual Book 12
- Council continues to have the authority to approve the installation of traffic and pedestrian signals whether they satisfy the criteria or not

Local Municipalities:

- The local municipalities, in consultation with Regional staff, shall aid in the assessment of the need to install traffic and pedestrian signals

REFERENCE:

On October 17, 2002, Regional Council adopted the current Traffic Signal Installation Policy, which is comprised of criteria from the Ontario Traffic Manual, industry best practices and a custom warrant to reflect municipal desires in developing areas of the Region.

On June 21, 2007, Regional Council amended the Pedestrian Signal Installation Policy adopted on February 21, 2002 to permit the use of mid-block pedestrian signals on Regional roads. The current policy is comprised of a custom procedure based on a combination of the 2002 Pedestrian Signal Installation Policy and industry best practices.

CONTACT:

Brian Titherington, Director Roads and Traffic Operations, Transportation Services Department.

<u>APPROVAL INFORMATION</u> <i>[complete the details from the approved policy report]</i>		
CAO Approval Date: N/A		
Committee: Transportation Services	Clause No.:	Report No. Edocs. No. 5980367
Council Approval: Minute No.	Page:	Date: June 25, 2015



Attachment 2

STATUS	Final
Council Approved	Y
CAO Approved:	Y

TITLE: Traffic Signal Warrants	Edocs No.: 32922 Original Approval Date: October 17, 2002 Policy Last Updated: December 18, 2008 Posted on Intranet: April 21, 2010
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POLICY STATEMENT:

The Traffic Signal Warrant policy is a policy providing a warrant process for the installation of traffic signals at locations along The Regional Municipality of York road network.

APPLICATION:

The Traffic Signal Warrant policy will be used by all Regional Employees, in particular Transportation and Works Employees who are involved in determining the locations for the installation of traffic signals along the Regional road network.

PURPOSE:

This policy is meant to provide a credible, technically sound and consistent method of determining warranted locations for the installation of traffic signals on Regional roads.

DESCRIPTION:

Traffic signals alternate the right-of-way between conflicting streams of vehicular traffic, or vehicular traffic and pedestrians crossing a roadway, with maximum efficiency and safety. Maximum efficiency implies the minimum delay to traffic. Safety requires that the traffic signals operate at the minimum hazard to vehicles and pedestrians.

The following warrants are to be used to determine whether or not traffic signals are justified at a location.

- 1. Traffic Control Signal Warrants as Outlined in Book 12 of the Ontario Traffic Manual**

These warrants are currently used within The Regional Municipality of York. They are comprised of the following:

Warrant 1 – Minimum Vehicle Volumes

Warrant 2 - Delay To Cross Traffic

Warrant 3 – Collision Experience

If any one warrant is satisfied by 100% or if any two warrants are satisfied by 80% or more, the installation of traffic signals is considered to be justified.

2. Safety Warrant

The safety warrant is an analysis based upon the safety performance of an intersection, compared to other intersections with similar characteristics. These characteristics are summarized into safety performance functions (SPFs). In simple terms, the existing safety performance of an unsignalized intersection can be determined and then compared to a projected safety performance, if traffic signals were installed.

If the rate of equivalent collisions is substantially lower with the installation traffic control signals than as an unsignalized intersection, then the installation of traffic control signals is considered to be justified.

3. “T” Type Intersections Warrant

The threshold volumes for side street traffic shall not be increased by 50% when evaluating "T" type intersections because the side street traffic still faces the same traffic flows on the major street.

4. Peak Hour Delay For Entering onto the Major Street from the Side Street

A Peak Hour Delay warrant is met when:

- The total delay experienced by the traffic on one minor-street approach (one direction only) controlled by a stop sign equals or exceeds four vehicle-hours for a one lane approach and five vehicle-hours for a two lane approach; and
- The volume on the same minor street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and
- The total entering volume during the hour equals or exceeds 800 vehicles per hour for intersections with four or more approaches or 650 vehicles per hour for intersections with three approaches.

5. Installation of Unwarranted Traffic Signals Paid by Local Municipalities

Area municipalities shall be permitted to pay for the installation of unwarranted traffic signals subject to a number of conditions being met.

- The Transportation and Works Department have no technical objections to the installation of traffic signals at the location requested.
- Warrant 1 and Warrant 2 are satisfied by at least 70%.
- All installation costs are incurred by the local municipality. Installation costs are estimated at \$120,000 per location, permanent installation, \$60,000, temporary installation.
- All on-going maintenance costs are incurred by the local municipality, until such time as the traffic signals become warranted. On-going maintenance costs are estimated at \$4,000 per location/annually. Actual costs will be charged to the municipality.
- When the traffic signal becomes warranted, the Region will reimburse the local municipalities 100% of the original installation cost of permanent signals. Temporary installation will be done in areas where road improvements are planned within five years. For temporary installation, the Region will reimburse the local municipality, the value of the material that is recoverable.

RESPONSIBILITIES:**Transportation and Works Department:**

- The Transportation and Works Department shall assess the need for the installation of traffic signals on the Regional Road system.

Area Municipalities:

- The Area Municipalities, in consultation with Regional staff, shall aid in the assessment of the need to install traffic signals.

REFERENCES:

Report 10(7), Transportation and Works Committee, adopted by Council December 18, 2008

CONTACT:

Director of Roads Transportation, Transportation and Works Department

APPROVAL INFORMATION

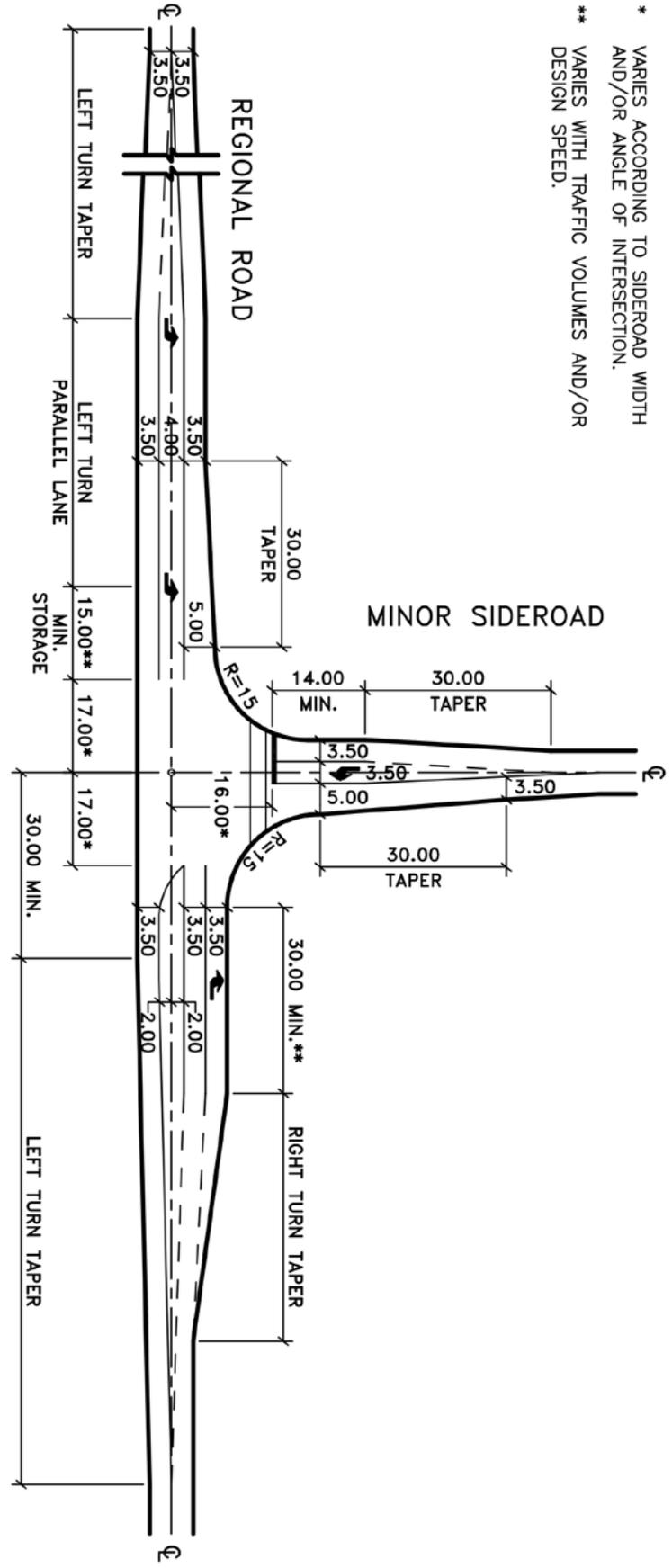
CAO Approval Date: September 20, 2002

Committee: Transportation and Works **Clause:** 8 **Report No:** 9

Council Approval: **Minute No.** 156 **Page:** **Date:** October 17, 2002

32922 P01/5/1
822254 P06 2008 Extract

* VARIES ACCORDING TO SIDEROAD WIDTH AND/OR ANGLE OF INTERSECTION.
 ** VARIES WITH TRAFFIC VOLUMES AND/OR DESIGN SPEED.



- NOTES
1. ALL DIMENSIONS ARE IN m UNLESS OTHERWISE NOTED.
 2. VALUES ARE FOR GRADES OF 2% AND LESS. SEE "TAC" MANUAL FOR GRADES GREATER THAN 2%.
 3. INCREASE RADIUS TO 18 FOR INDUSTRIAL AREAS OR AREAS WITH HIGH VOLUMES OF RIGHT TURNING TRUCKS.
 4. DESIGN SPEED IS POSTED SPEED PLUS 20 km/h.

HWY DESIGN SPEED (km/h)	LEFT TURN LANE TAPER (m)		PARALLEL LANE TAPER (m)		RIGHT TURN TAPER (m)
	LEFT TURN	PARALLEL LANE	LEFT TURN	PARALLEL LANE	
50	85	20	20	40	
60	100	30	30	50	
70	115	40	40	60	
80	130	50	50	70	
90	145	60	60	75	
100	160	70	70	80	

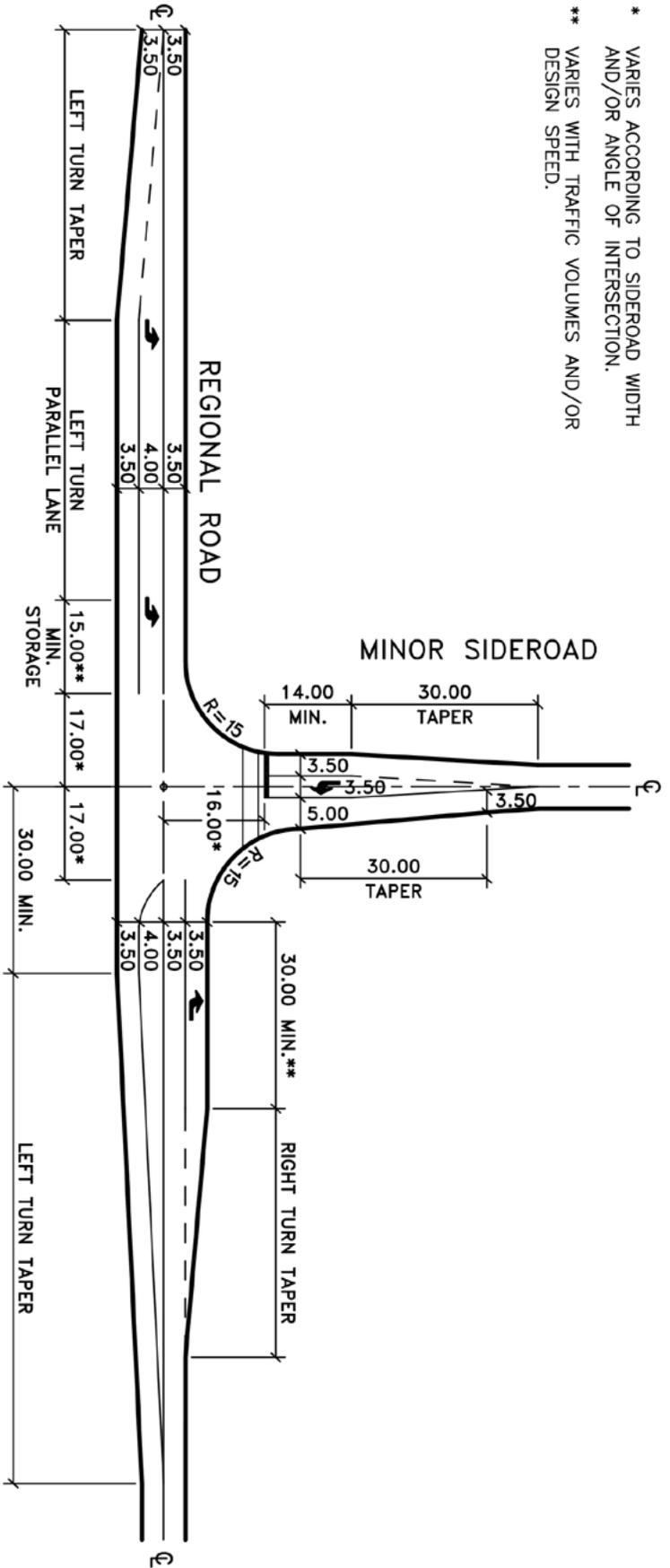


Transportation
York Region Services

"T" INTERSECTION
LEFT TURN LANE SPLIT

DATE:	OCTOBER 2016	SCALE	N.T.S.
REV.	X	X	DS-101

* VARIES ACCORDING TO SIDEROAD WIDTH AND/OR ANGLE OF INTERSECTION.
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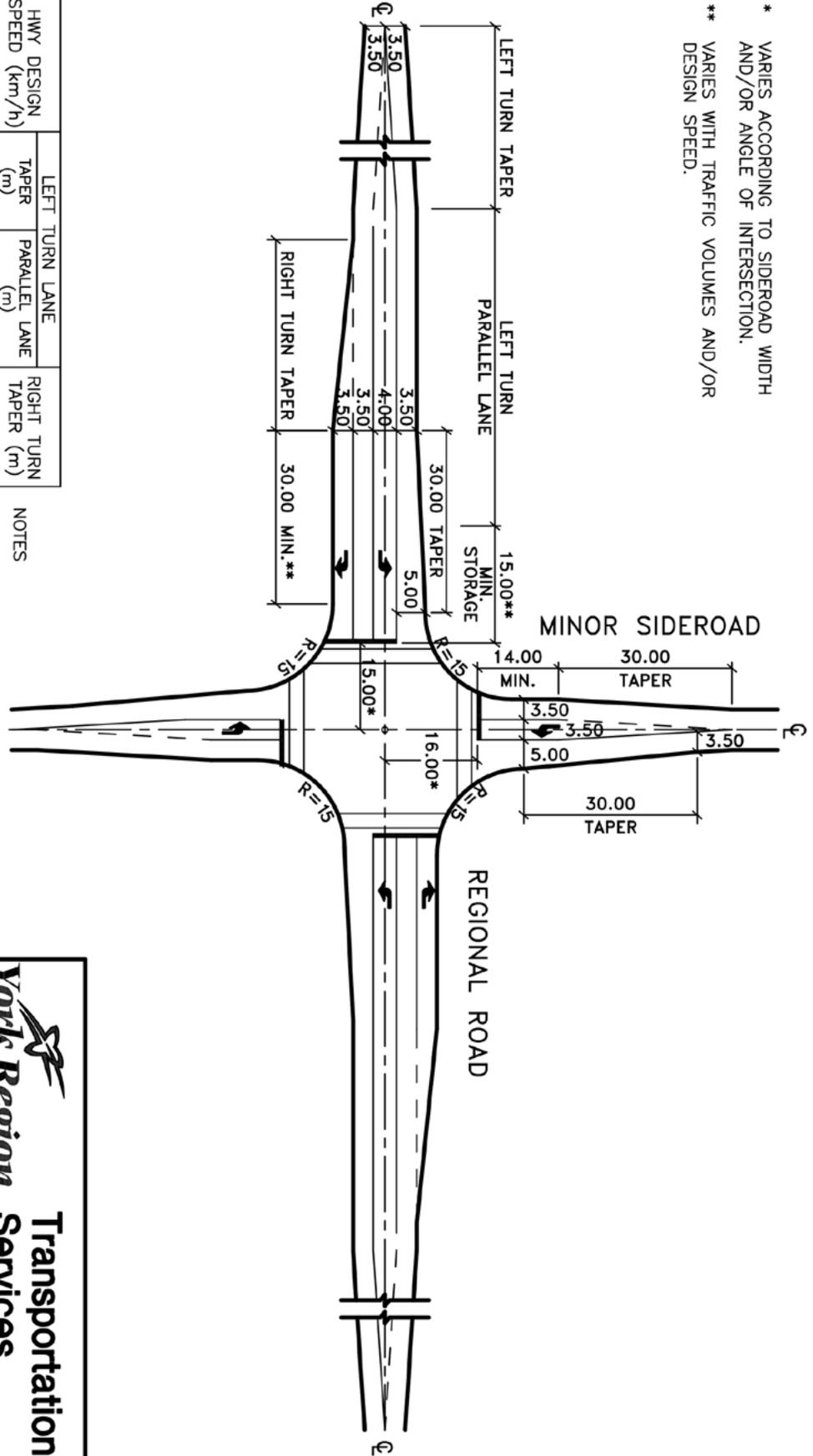
HWY DESIGN SPEED (km/h)	LEFT TURN LANE		RIGHT TURN TAPER (m)
	TAPER (m)	PARALLEL LANE (m)	
50	85	20	40
60	100	30	50
70	115	40	60
80	130	50	70
90	145	60	75
100	160	70	80

York Region  **Transportation Services**

"T" INTERSECTION
 LEFT TURN ON RIGHT OF CENTRELINE

DATE:	OCTOBER 2016	SCALE	N.T.S.
REV.	X	X	DS-102

* VARIES ACCORDING TO SIDEROAD WIDTH AND/OR ANGLE OF INTERSECTION.
 ** VARIES WITH TRAFFIC VOLUMES AND/OR DESIGN SPEED.



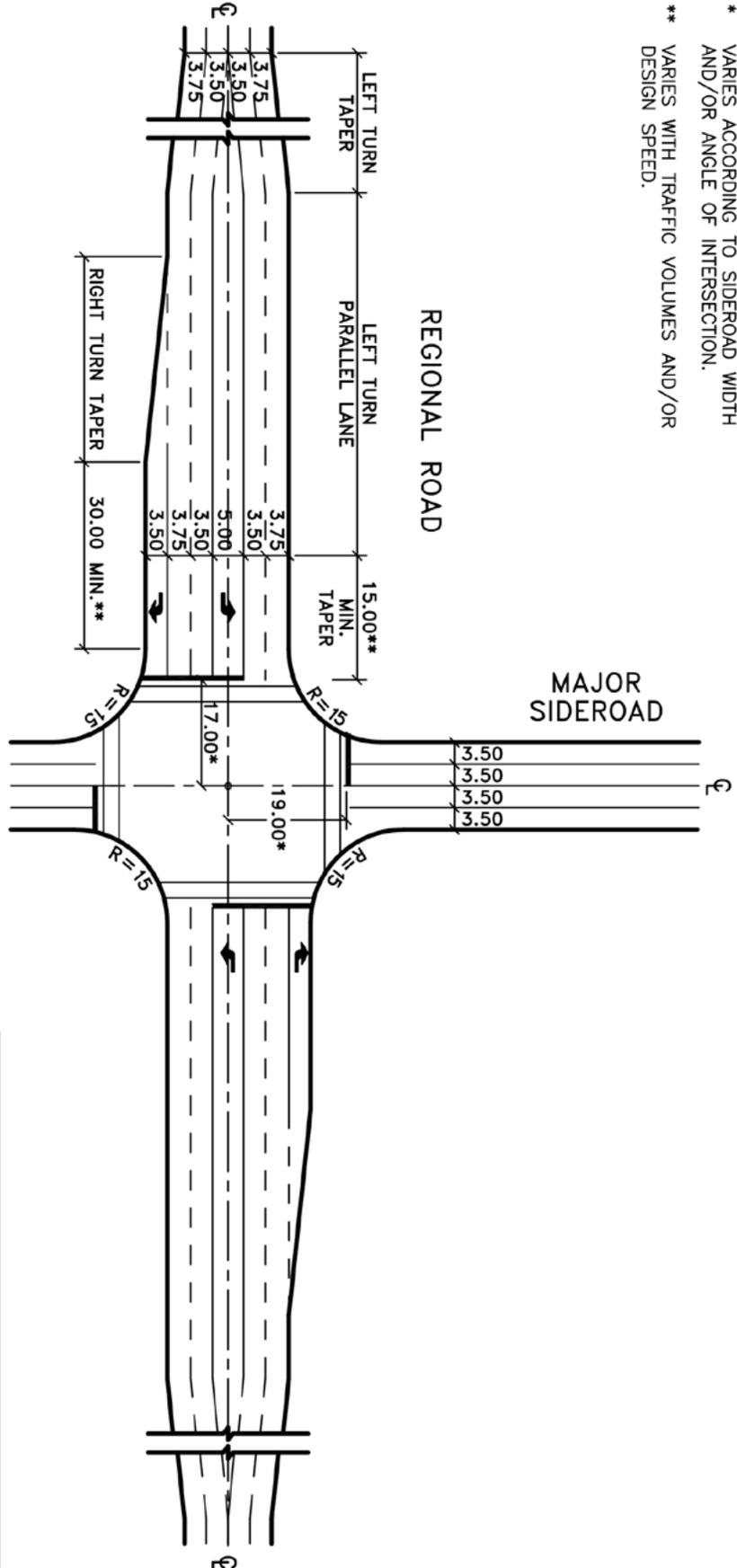
HWY DESIGN SPEED (km/h)	LEFT TURN LANE		RIGHT TURN TAPER (m)
	TAPER (m)	PARALLEL LANE (m)	
50	85	20	40
60	100	30	50
70	115	40	60
80	130	50	70
90	145	60	75
100	160	70	80

- NOTES
1. ALL DIMENSIONS ARE IN m UNLESS OTHERWISE NOTED.
 2. VALUES ARE FOR GRADES OF 2% AND LESS. SEE "TAC" MANUAL FOR GRADES GREATER THAN 2%.
 3. INCREASE RADIUS TO 18 FOR INDUSTRIAL AREAS OR AREAS WITH HIGH VOLUMES OF RIGHT TURNING TRUCKS.
 4. DESIGN SPEED IS POSTED SPEED PLUS 20 km/h.


York Region Services
 Transportation
 2-LANE "X" INTERSECTION

DATE: OCTOBER 2016 SCALE N.T.S.
 REV. X X **DS-103**

* VARIES ACCORDING TO SIDEROAD WIDTH AND/OR ANGLE OF INTERSECTION.
 ** VARIES WITH TRAFFIC VOLUMES AND/OR DESIGN SPEED.



- NOTES
1. ALL DIMENSIONS ARE IN m UNLESS OTHERWISE NOTED.
 2. VALUES ARE FOR GRADES OF 2% AND LESS. SEE "TAC" MANUAL FOR GRADES GREATER THAN 2%.
 3. INCREASE RADIUS TO 18 FOR INDUSTRIAL AREAS OR AREAS WITH HIGH VOLUMES OF RIGHT TURNING TRUCKS.
 4. DESIGN SPEED IS POSTED SPEED PLUS 20 km/h.

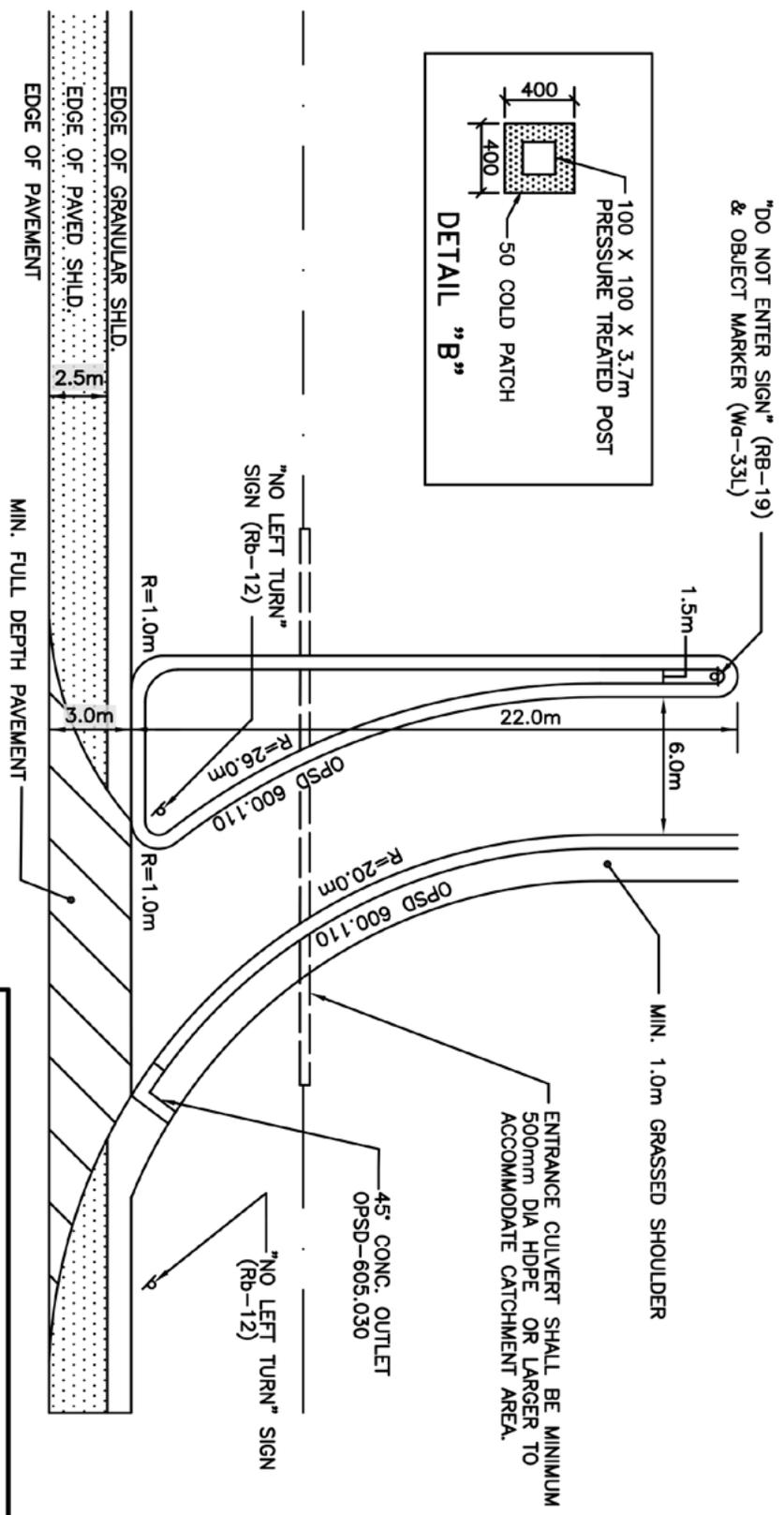
HWY DESIGN SPEED (km/h)	LEFT TURN LANE			RIGHT TURN TAPER (m)
	TAPER (m)	PARALLEL LANE (m)	PARALLEL LANE (m)	
50	85	20	40	
60	100	30	50	
70	115	40	60	
80	130	50	70	
90	145	60	75	
100	160	70	80	


York Region Services
Transportation

4-LANE "X" INTERSECTION
 (WITHOUT MEDIAN ISLANDS)

DATE: OCTOBER 2016 SCALE: N.T.S.
 REV. X X **DS-104**

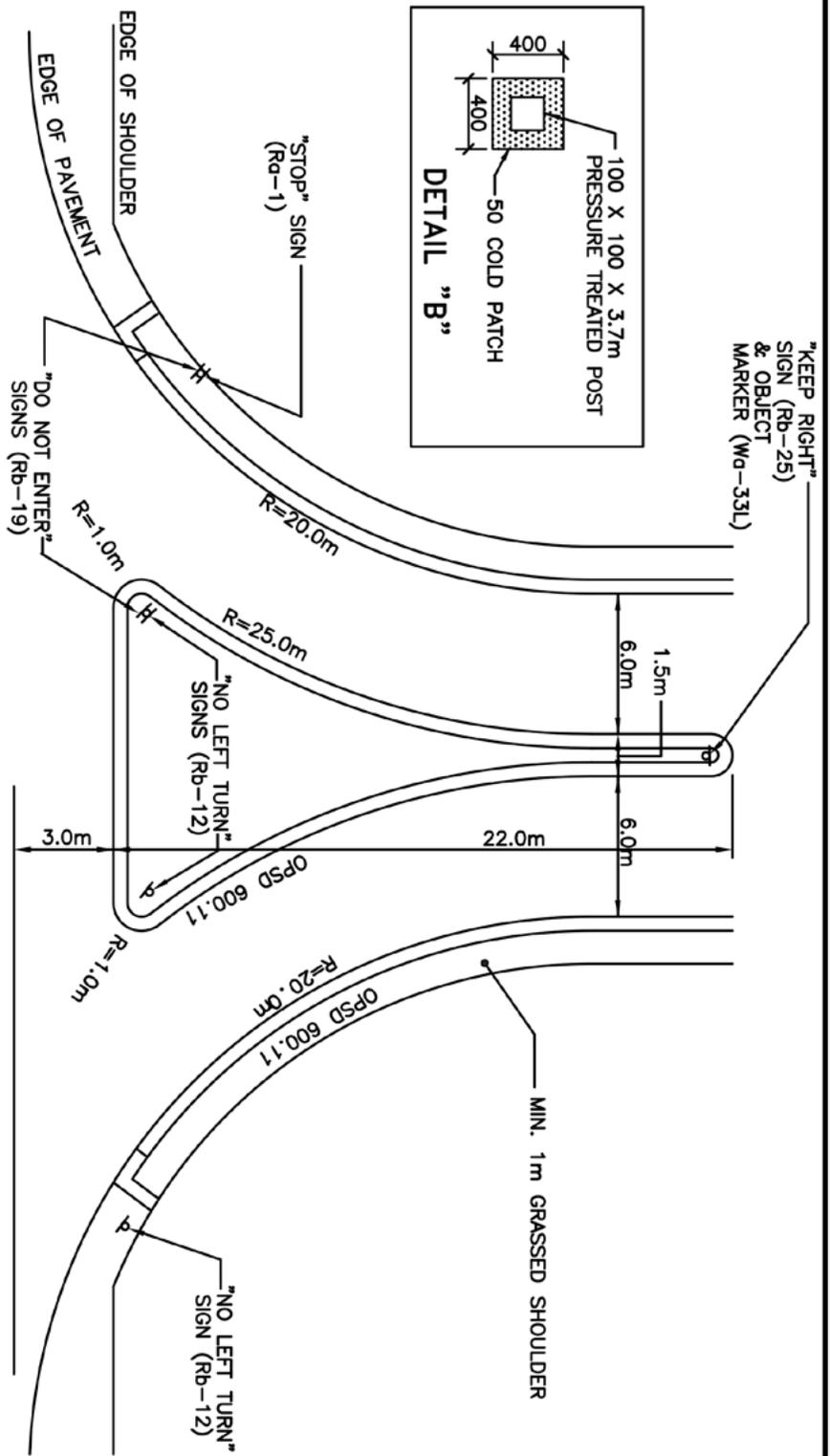
- NOTES
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
 2. CURB TYPE, CATCH BASINS, ETC. SHALL CONFORM TO ONTARIO PROVINCIAL STANDARDS. (INDICATE O.P.S.D. REFERENCE ON PLANS)
 3. SIGNS TO BE MOUNTED ON 4x4 PRESSURE TREATED WOOD POSTS.
 4. REFER TO DETAIL "B" WHEN A CONCRETE SLAB RAISED MEDIAN IS BEING USED (E-6.03)



York Region **Transportation Services**

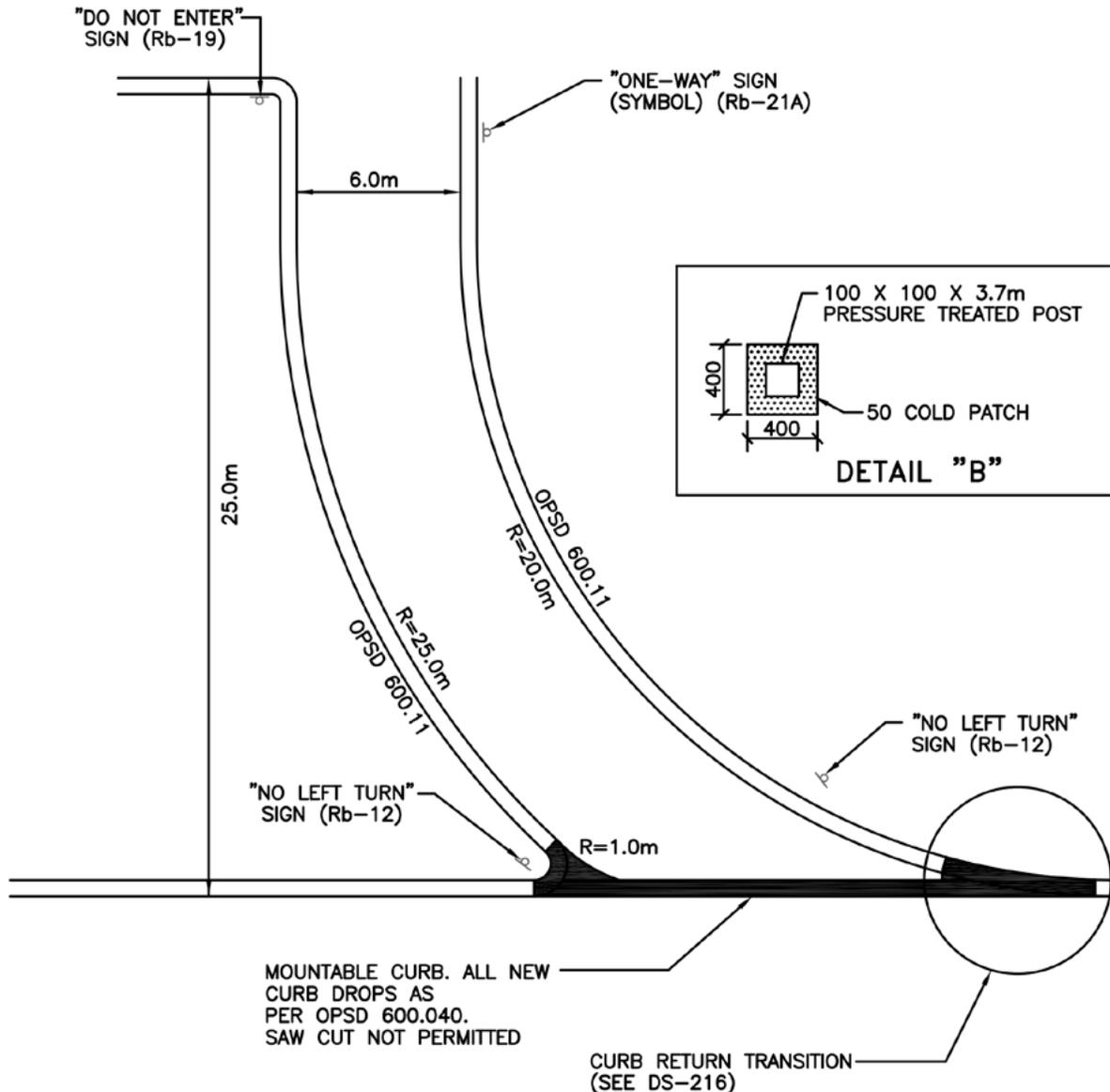
**COMMERCIAL -
TYPICAL RIGHT TURN IN ONLY
-RURAL**

DATE:	JANUARY 2019	SCALE	N.T.S.
REV.	X	X	DS-201



- NOTES
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
 2. CURB TYPE, CATCH BASINS, ETC. SHALL CONFORM TO ONTARIO PROVINCIAL STANDARDS. (INDICATE O.P.S.D. REFERENCE ON PLANS)
 3. SIGNS TO BE MOUNTED ON 4x4 PRESSURE TREATED WOOD POSTS.
 4. REFER TO DETAIL "B" WHEN A CONCRETE SLAB RAISED MEDIAN IS BEING USED (E-6.03)

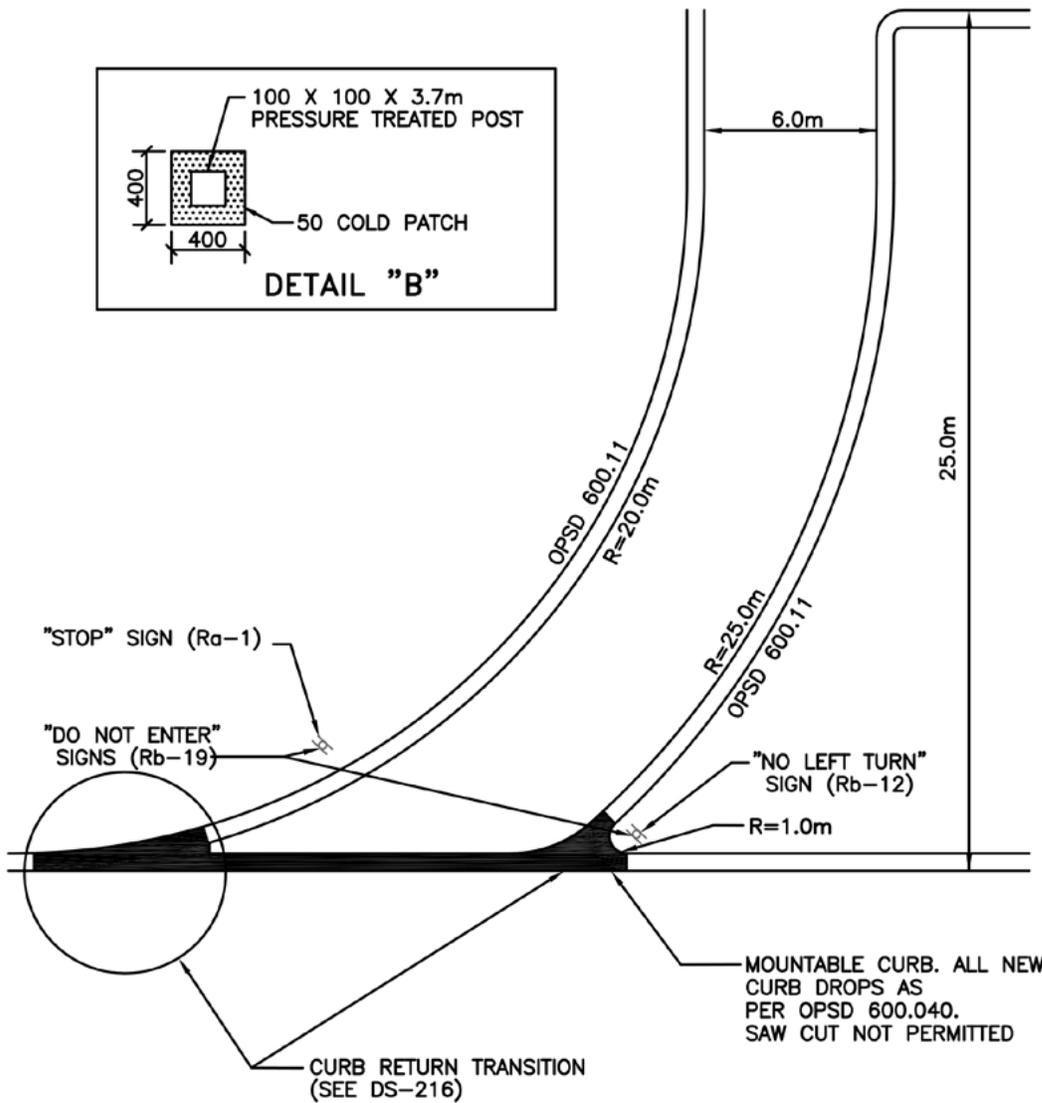
York Region		Transportation Services	
COMMERCIAL- TYPICAL RIGHT TURN IN/ RIGHT TURN OUT ONLY -RURAL			
DATE:	JANUARY 2019	SCALE	N.T.S.
REV.	X	X	DS-202



NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. CURB TYPE, CATCH BASINS, ETC. SHALL CONFORM TO ONTARIO PROVINCIAL STANDARDS. (INDICATE O.P.S.D. REFERENCE ON PLANS)
3. SIGNS TO BE MOUNTED ON 4x4 PRESSURE TREATED WOOD POSTS.
4. REFER TO DETAIL "B" WHEN A CONCRETE SLAB RAISED MEDIAN IS BEING USED (E-6.03)
5. SIDEWALK TO CARRY THROUGH ENTRANCE.

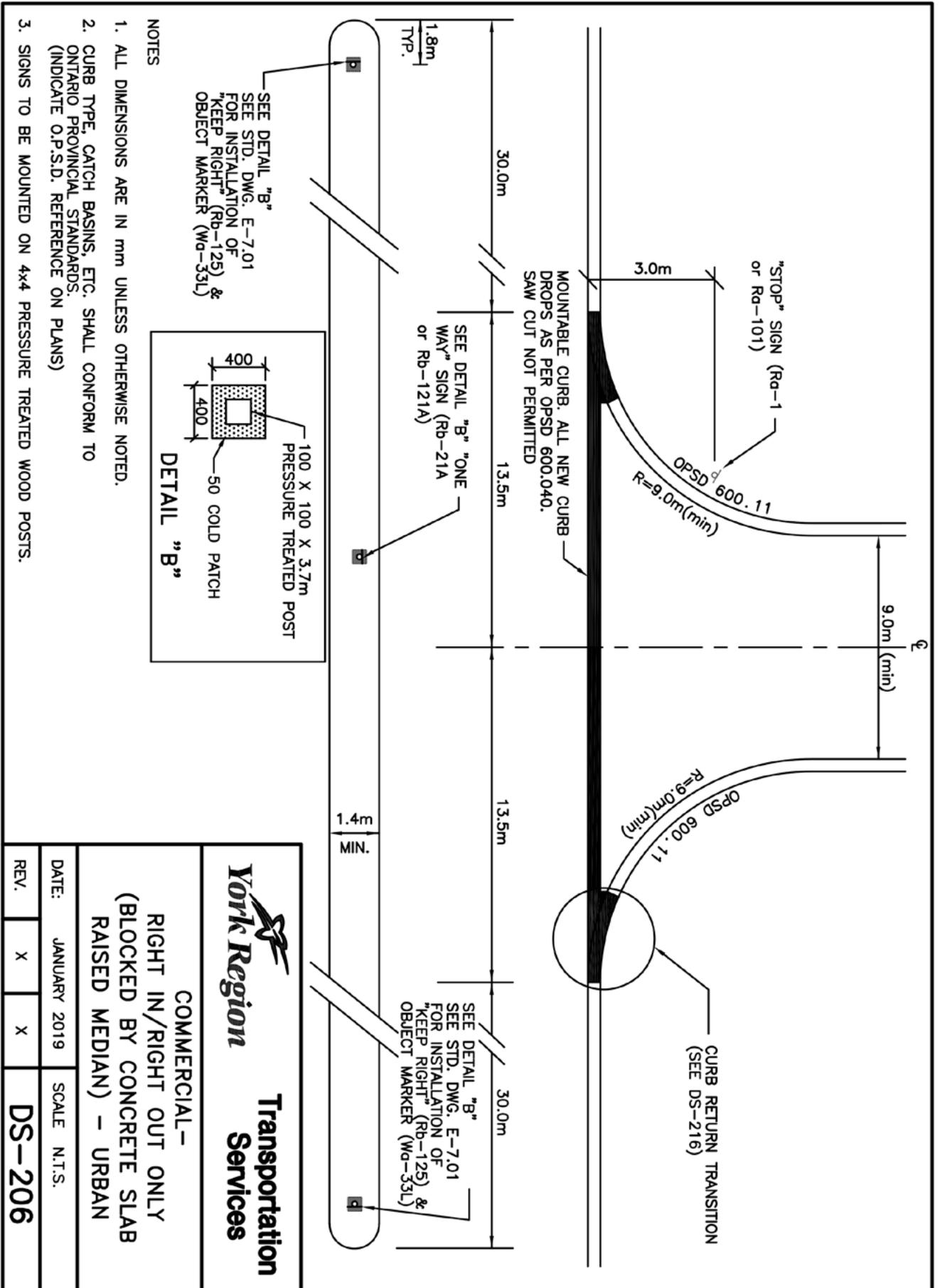
Transportation Services	
<p>COMMERCIAL- TYPICAL RIGHT TURN IN ONLY -URBAN</p>	
DATE: JANUARY 2019	SCALE N.T.S.
REV. X X	DS-204



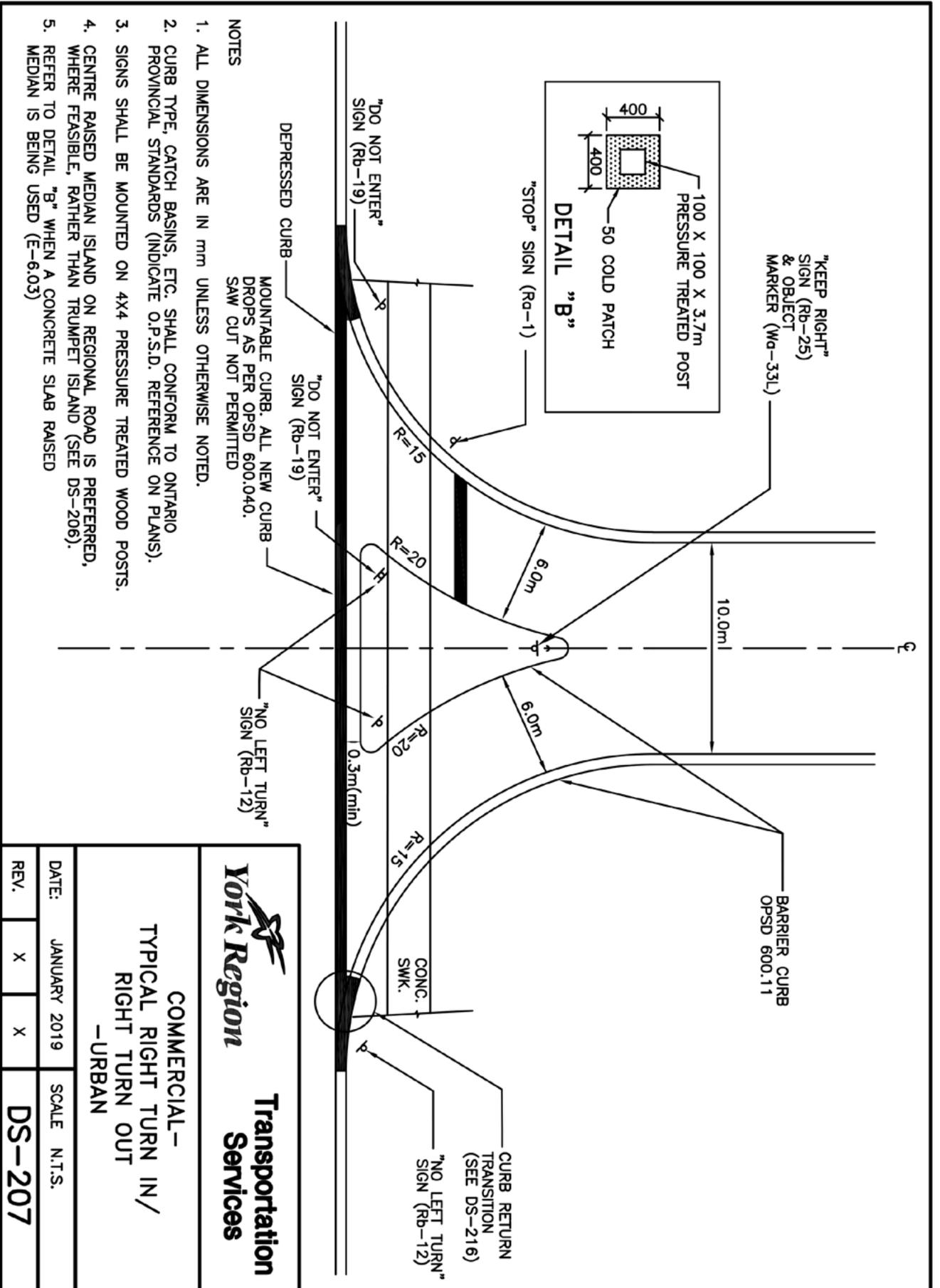
NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. CURB TYPE, CATCH BASINS, ETC. SHALL CONFORM TO ONTARIO PROVINCIAL STANDARDS. (INDICATE O.P.S.D. REFERENCE ON PLANS)
3. SIGNS TO BE MOUNTED ON 4x4 PRESSURE TREATED WOOD POSTS.
4. REFER TO DETAIL "B" WHEN A CONCRETE SLAB RAISED MEDIAN IS BEING USED (E-6.03)

	Transportation Services
COMMERCIAL- TYPICAL RIGHT TURN OUT ONLY -URBAN	
DATE: JANUARY 2019	SCALE N.T.S.
REV. X X	DS-205

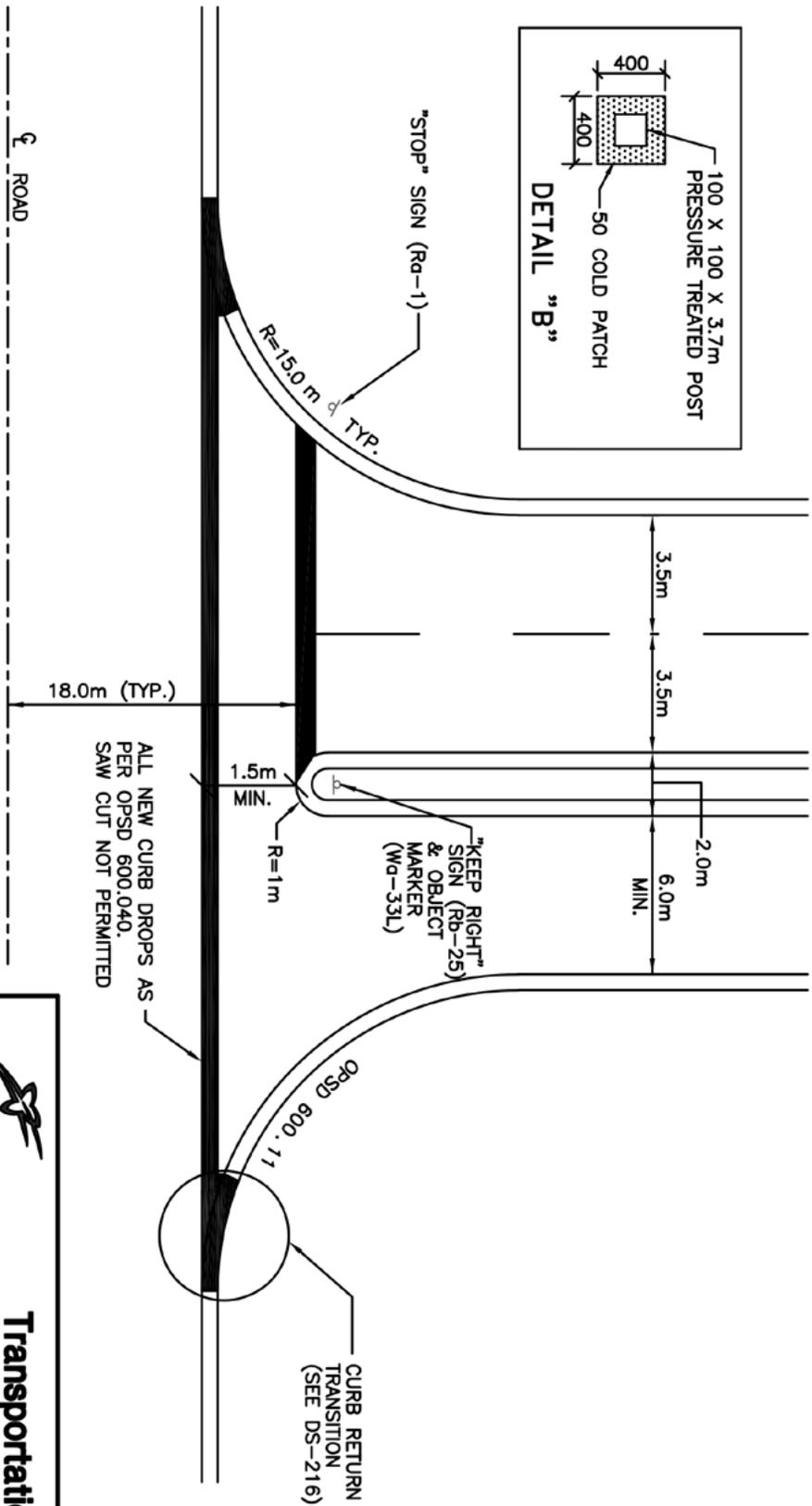
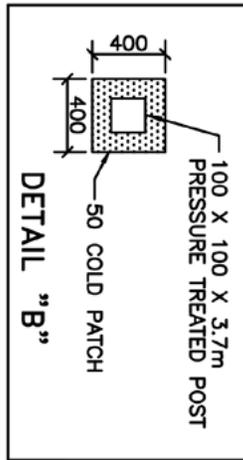


York Region		Transportation Services	
COMMERCIAL-			
RIGHT IN/RIGHT OUT ONLY			
(BLOCKED BY CONCRETE SLAB			
RAISED MEDIAN) - URBAN			
DATE:	JANUARY 2019	SCALE	N.T.S.
REV.	X	X	DS-206



- NOTES**
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
 2. CURB TYPE, CATCH BASINS, ETC. SHALL CONFORM TO ONTARIO PROVINCIAL STANDARDS (INDICATE O.P.S.D. REFERENCE ON PLANS).
 3. SIGNS SHALL BE MOUNTED ON 4X4 PRESSURE TREATED WOOD POSTS.
 4. CENTRE RAISED MEDIAN ISLAND ON REGIONAL ROAD IS PREFERRED, WHERE FEASIBLE, RATHER THAN TRUMPET ISLAND (SEE DS-206).
 5. REFER TO DETAIL "B" WHEN A CONCRETE SLAB RAISED MEDIAN IS BEING USED (E-6.03)

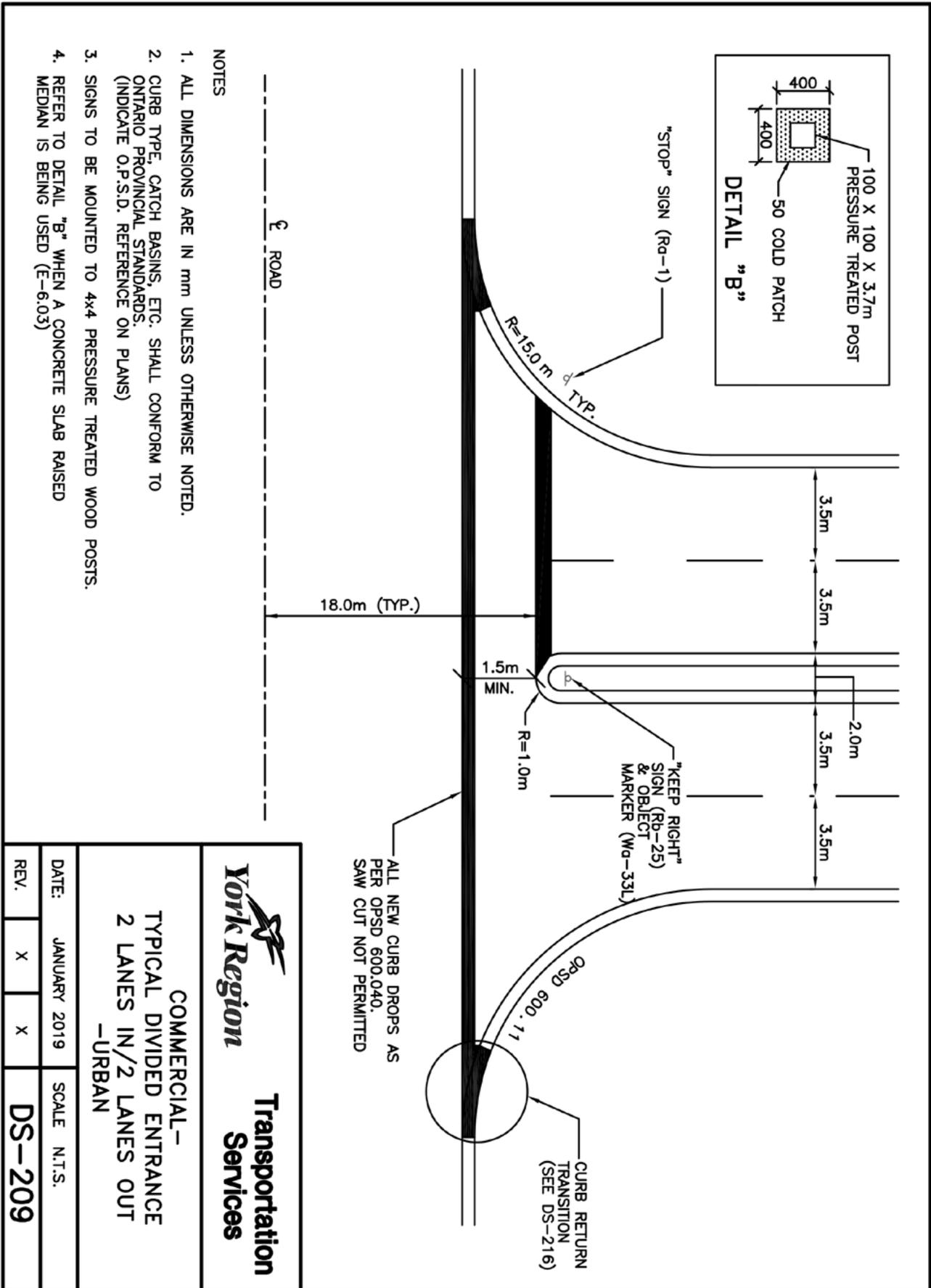
York Region		Transportation Services	
COMMERCIAL- TYPICAL RIGHT TURN IN/ RIGHT TURN OUT -URBAN			
DATE:	JANUARY 2019	SCALE:	N.T.S.
REV.	X	X	DS-207



NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. CURB TYPE, CATCH BASINS, ETC. SHALL CONFORM TO ONTARIO PROVINCIAL STANDARDS. (INDICATE O.P.S.D. REFERENCE ON PLANS)
3. SIGNS TO BE MOUNTED TO 4x4 PRESSURE TREATED WOOD POSTS.
4. REFER TO DETAIL "B" WHEN A CONCRETE SLAB RAISED MEDIAN IS BEING USED (E-6.03)
5. SIDEWALK TO CARRY THROUGH ENTRANCE.

York Region		Transportation Services	
COMMERCIAL-- TYPICAL DIVIDED ENTRANCE 1 LANE IN/2 LANES OUT --URBAN			
DATE:	JANUARY 2019	SCALE	N.T.S.
REV.	X	X	DS-208



- NOTES
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
 2. CURB TYPE, CATCH BASINS, ETC. SHALL CONFORM TO ONTARIO PROVINCIAL STANDARDS. (INDICATE O.P.S.D. REFERENCE ON PLANS)
 3. SIGNS TO BE MOUNTED TO 4x4 PRESSURE TREATED WOOD POSTS.
 4. REFER TO DETAIL "B" WHEN A CONCRETE SLAB RAISED MEDIAN IS BEING USED (E-6.03)



York Region Transportation Services

COMMERCIAL—
 TYPICAL DIVIDED ENTRANCE
 2 LANES IN/2 LANES OUT
 —URBAN

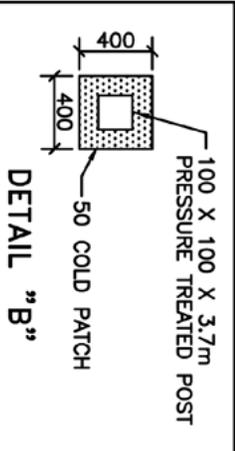
DATE:	JANUARY 2019	SCALE	N.T.S.
REV.	X	X	DS-209

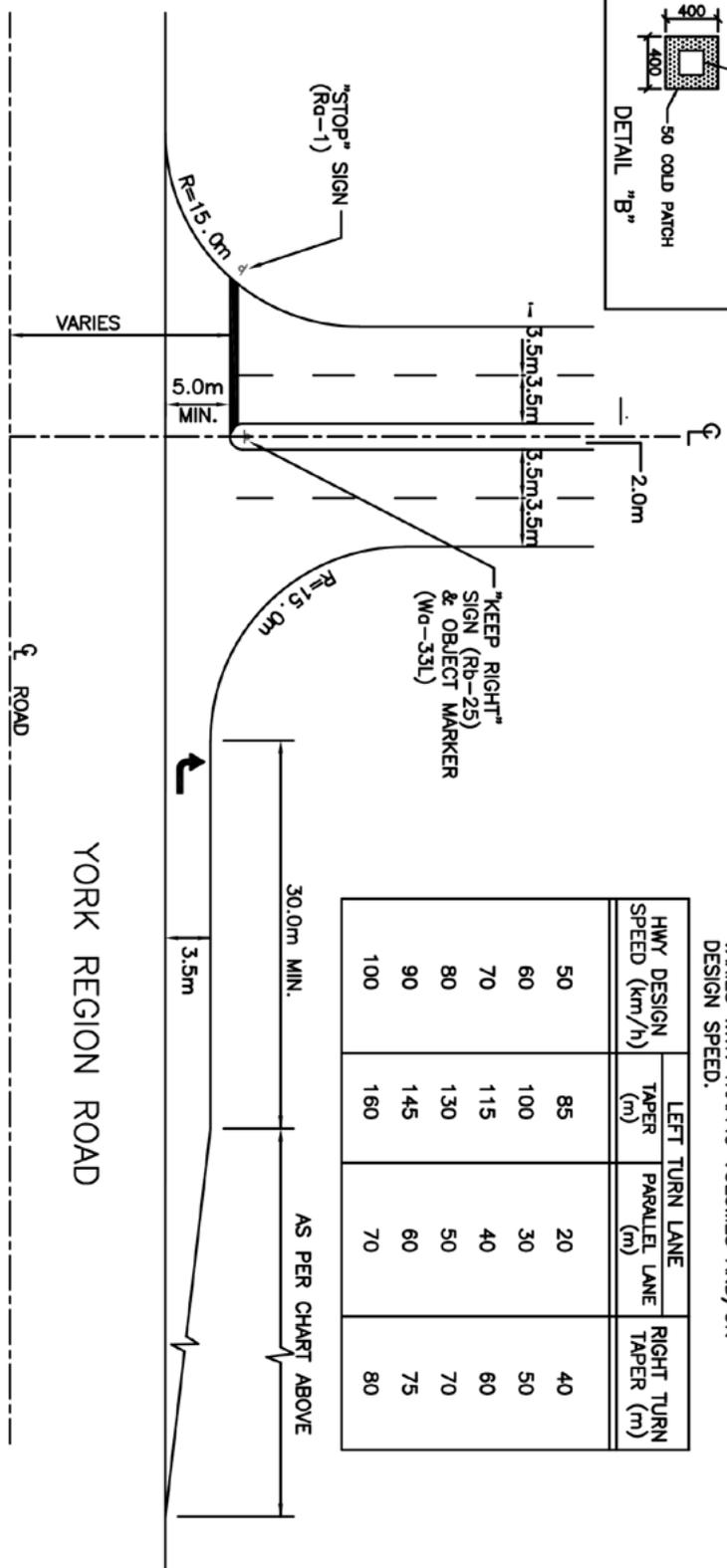
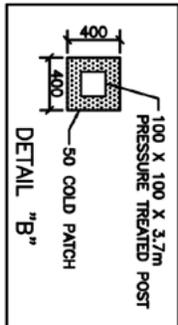
ALL NEW CURB DROPS AS PER OPSD 600.040. SAW CUT NOT PERMITTED

CURB RETURN TRANSITION (SEE DS-216)

"KEEP RIGHT" SIGN (Rb-25) & OBJECT MARKER (Wa-33L)

"STOP" SIGN (Ra-1)





* VARIES ACCORDING TO SIDEROAD WIDTH AND/OR ANGLE OF INTERSECTION.
 ** VARIES WITH TRAFFIC VOLUMES AND/OR DESIGN SPEED.

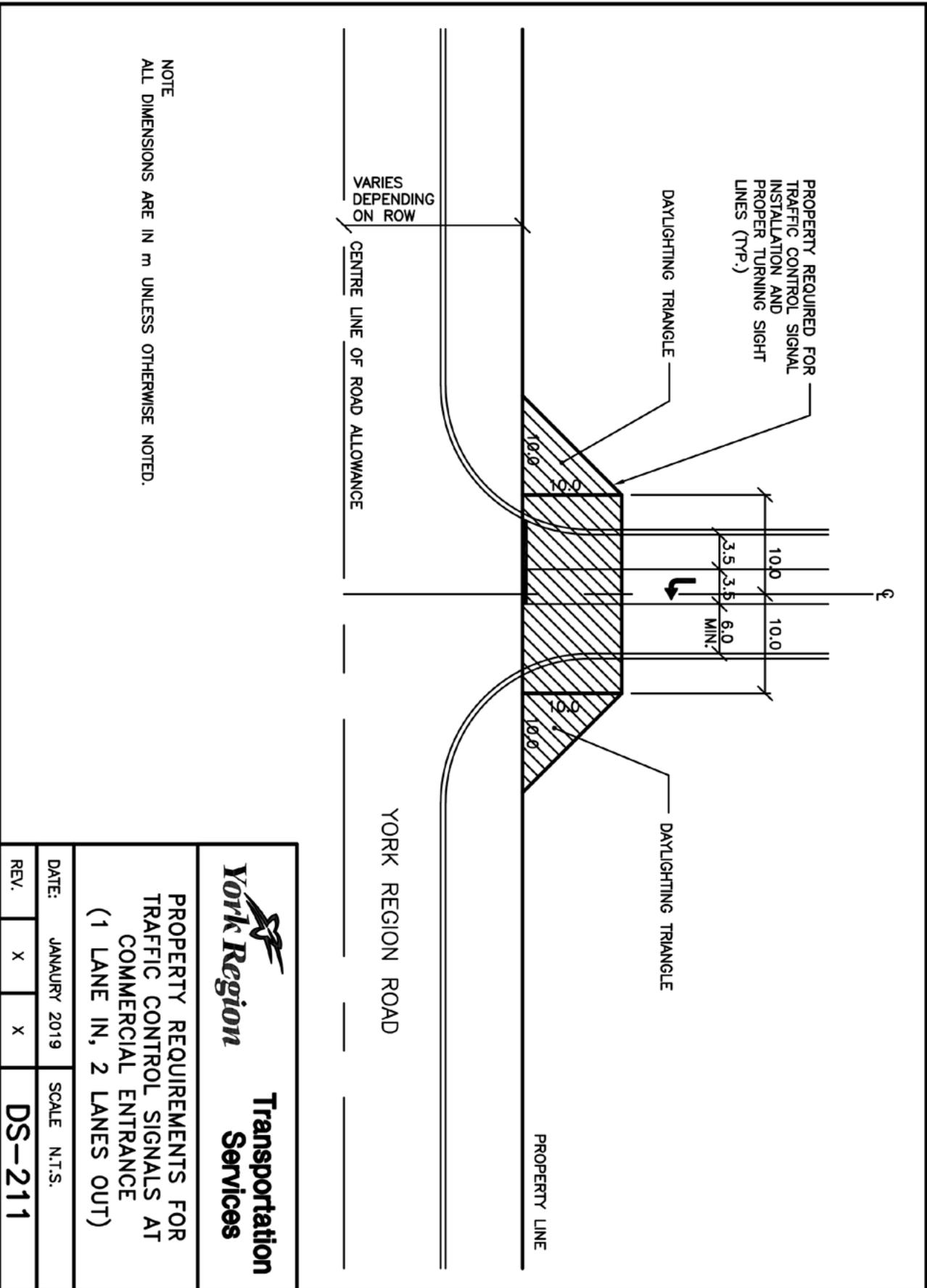
HWY DESIGN SPEED (km/h)	LEFT TURN LANE		RIGHT TURN TAPER (m)
	TAPER (m)	PARALLEL LANE (m)	
50	85	20	40
60	100	30	50
70	115	40	60
80	130	50	70
90	145	60	75
100	160	70	80

- NOTES
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE INDICATED.
 2. CURB TYPE, CATCH BASINS, ETC. SHALL CONFORM TO ONTARIO PROVINCIAL STANDARDS. (INDICATE O.P.S.D. REFERENCE ON PLANS)
 3. SIGNS TO BE MOUNTED ON 4x4 PRESSURE TREATED WOOD POSTS.
 4. REFER TO DETAIL "B" WHEN A CONCRETE SLAB RAISED MEDIAN IS BEING USED (E-6.03)
 5. SIDEWALK TO CARRY THROUGH ENTRANCE.

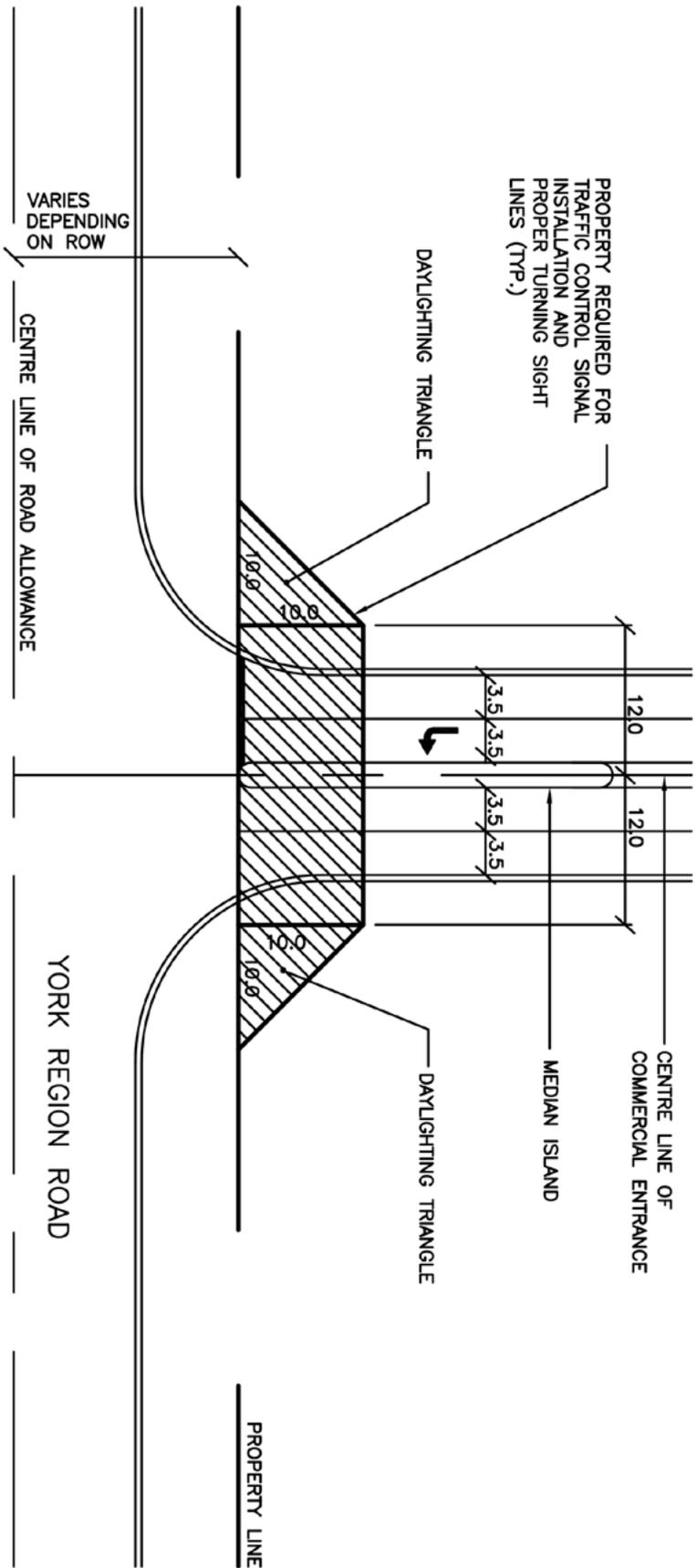
York Region **Transportation Services**

COMMERCIAL—
 TYPICAL DIVIDED ENTRANCE
 WITH RIGHT TURN LANE
 2 LANES IN/2 LANES OUT
 —URBAN

DATE: JANUARY 2019 SCALE N.T.S.
 REV. X X DS-210

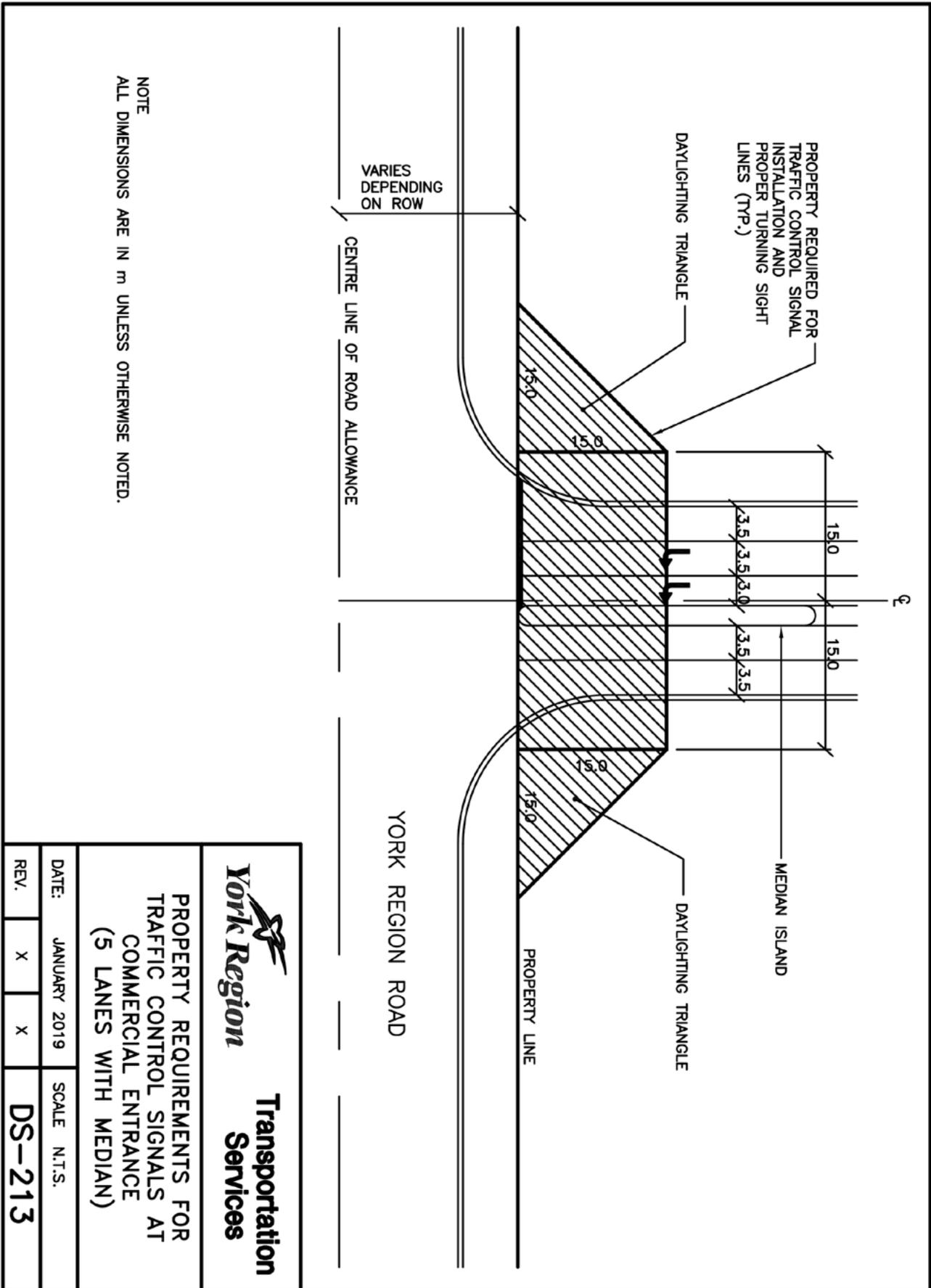


York Region		Transportation Services	
PROPERTY REQUIREMENTS FOR TRAFFIC CONTROL SIGNALS AT COMMERCIAL ENTRANCE (1 LANE IN, 2 LANES OUT)			
DATE:	JANUARY 2019	SCALE:	N.T.S.
REV.	X	X	DS-211



NOTE
ALL DIMENSIONS ARE IN m UNLESS OTHERWISE NOTED.

 York Region		Transportation Services	
PROPERTY REQUIREMENTS FOR TRAFFIC CONTROL SIGNALS AT COMMERCIAL ENTRANCE (4 LANES WITH MEDIAN)			
DATE:	JANUARY 2019	SCALE:	N.T.S.
REV.	X	X	DS-212

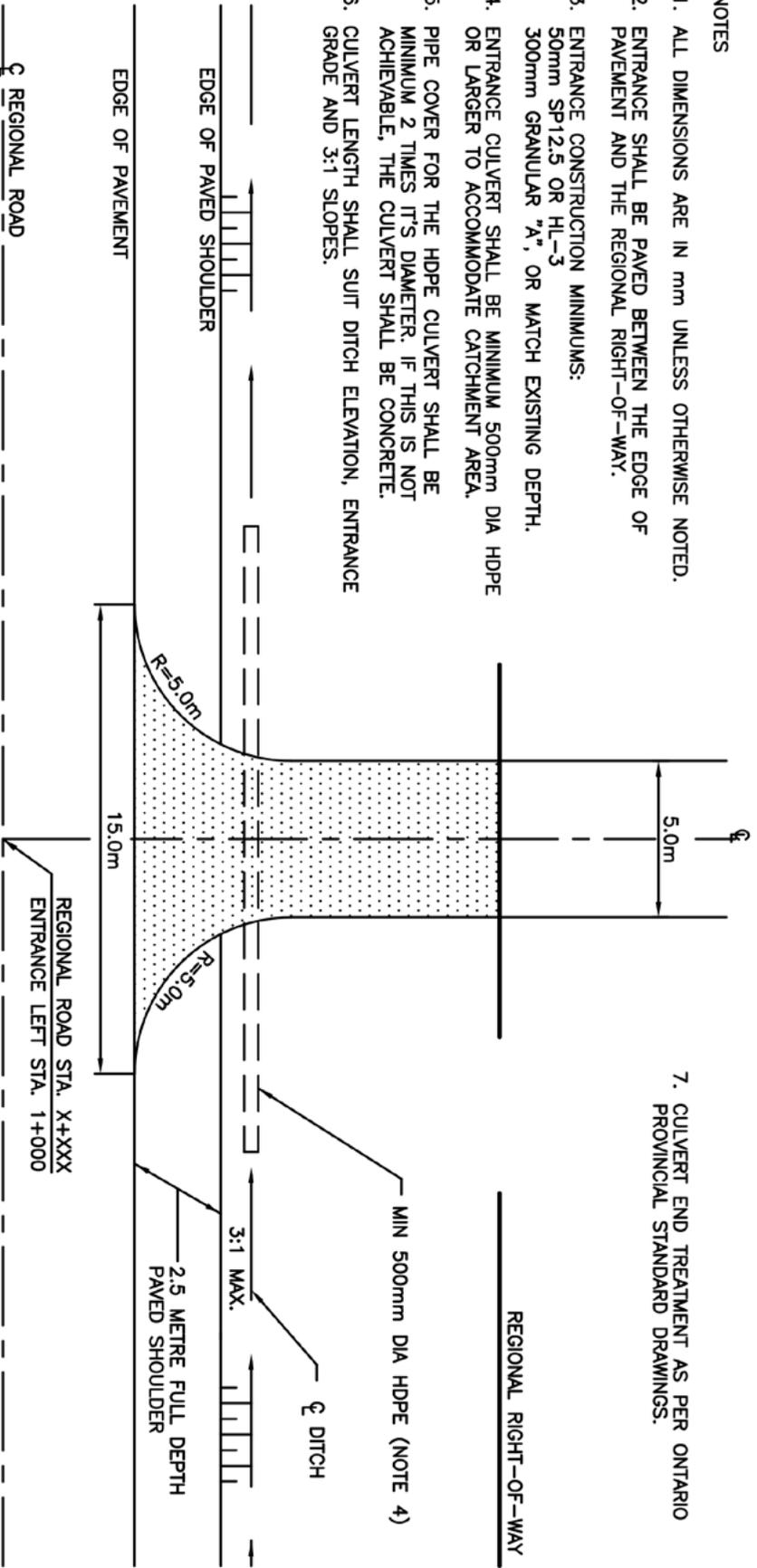


NOTE
ALL DIMENSIONS ARE IN m UNLESS OTHERWISE NOTED.

		Transportation Services	
PROPERTY REQUIREMENTS FOR TRAFFIC CONTROL SIGNALS AT COMMERCIAL ENTRANCE (5 LANES WITH MEDIAN)			
DATE:	JANUARY 2019	SCALE:	N.T.S.
REV.	X	X	DS-213

- NOTES
1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
 2. ENTRANCE SHALL BE PAVED BETWEEN THE EDGE OF PAVEMENT AND THE REGIONAL RIGHT-OF-WAY.
 3. ENTRANCE CONSTRUCTION MINIMUMS:
50mm SP12.5 OR HL-3
300mm GRANULAR "A", OR MATCH EXISTING DEPTH.
 4. ENTRANCE CULVERT SHALL BE MINIMUM 500mm DIA HDPE OR LARGER TO ACCOMMODATE CATCHMENT AREA.
 5. PIPE COVER FOR THE HDPE CULVERT SHALL BE MINIMUM 2 TIMES IT'S DIAMETER. IF THIS IS NOT ACHIEVABLE, THE CULVERT SHALL BE CONCRETE.
 6. CULVERT LENGTH SHALL SUIT DITCH ELEVATION, ENTRANCE GRADE AND 3:1 SLOPES.

7. CULVERT END TREATMENT AS PER ONTARIO PROVINCIAL STANDARD DRAWINGS.



298		ROW	EDGE OF PAVEMENT	REGIONAL ROAD	298
297			PAVED-SHLD.		297
296			1.0% MAX.		296
295			5%		295
			2%		
			EXISTING		
			0+970		
			0+980		
			0+990		
			1+000		
			ENTRANCE LEFT		
			1+010		
					295

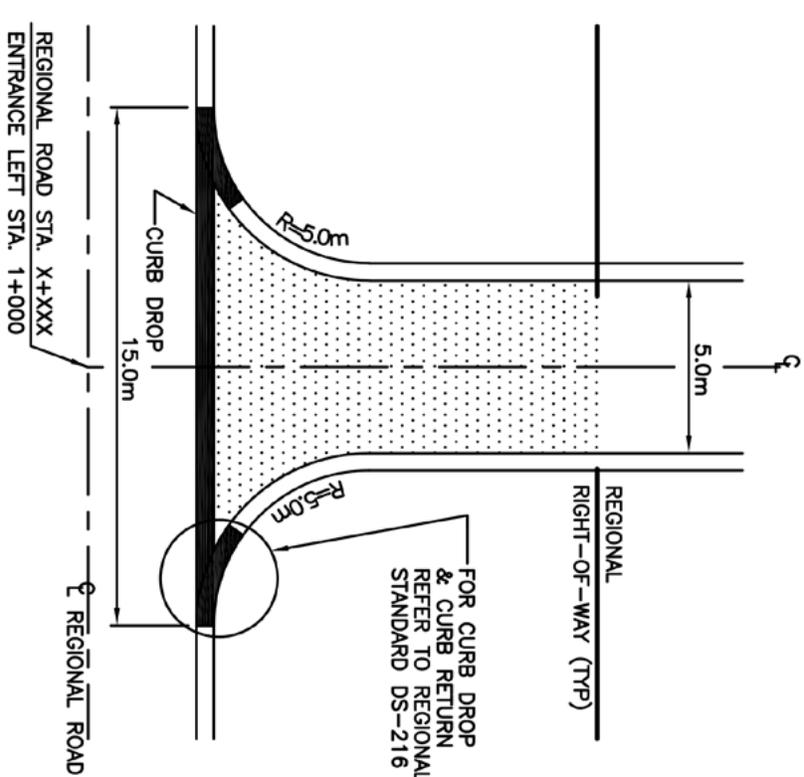
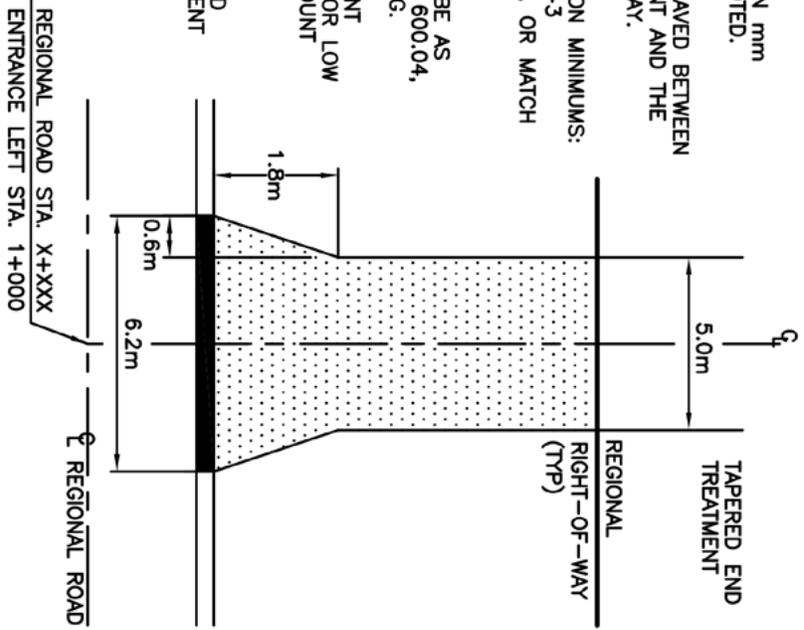
York Region **Transportation Services**

RESIDENTIAL ENTRANCE-RURAL

DATE:	APRIL 2019	SCALE	N.T.S.
REV.	X	X	DS-214

NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. ENTRANCE SHALL BE PAVED BETWEEN THE EDGE OF PAVEMENT AND THE REGIONAL RIGHT-OF-WAY.
3. ENTRANCE CONSTRUCTION MINIMUMS:
50mm SP12.5 OR HL-3
300mm GRANULAR "A", OR MATCH EXISTING DEPTH.
4. CONCRETE CURB MAY BE AS PER OPD 600.11 OR 600.04, DEPENDING ON EXISTING.
5. TAPERED END TREATMENT SHALL BE RESERVED FOR LOW SPEED/HIGH SPEED COUNT ROADS.
6. BLVD = BOULEVARD
EG = EXISTING GROUND
EP = EDGE OF PAVEMENT



298	EG	BLVD.	EP	298
297		2%	2%	297
296		2%	2%	296
295		2%	2%	295

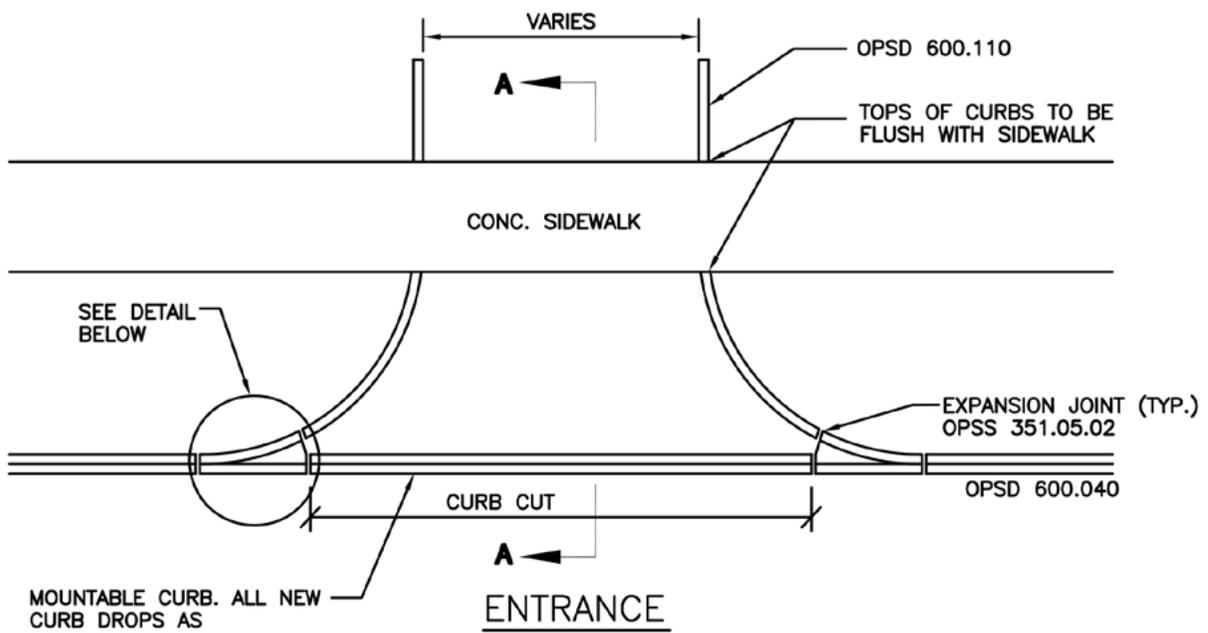
EG = EXISTING GROUND
 EP = EDGE OF PAVEMENT
 BLVD. = BOULEVARD
 STA. X+XXX ENTRANCE LEFT
 PROP. EXIST.



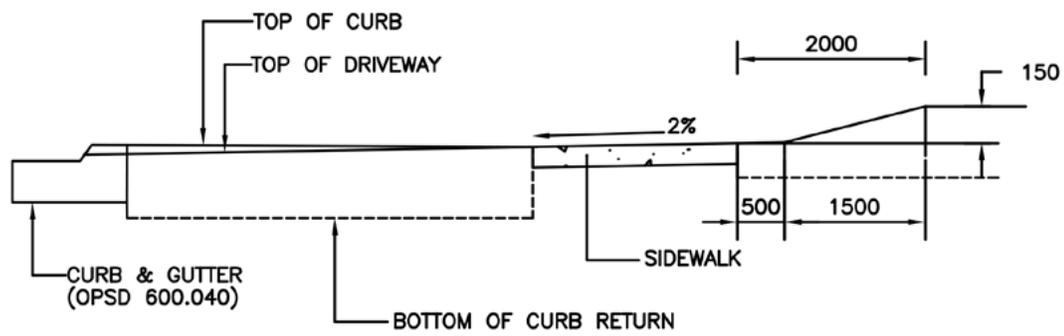
York Region **Transportation Services**

SINGLE FAMILY RESIDENTIAL ENTRANCE - URBAN

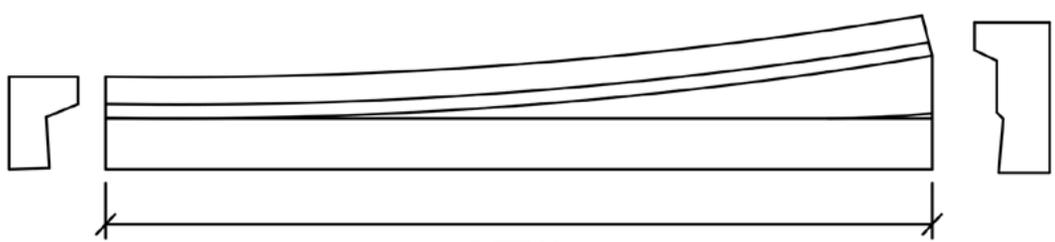
DATE:	APRIL 2019	SCALE	N.T.S.
REV.	X	X	DS-215



MOUNTABLE CURB. ALL NEW
CURB DROPS AS
PER OPSD 600.040.
SAW CUT NOT PERMITTED



SECTION A-A



DETAIL

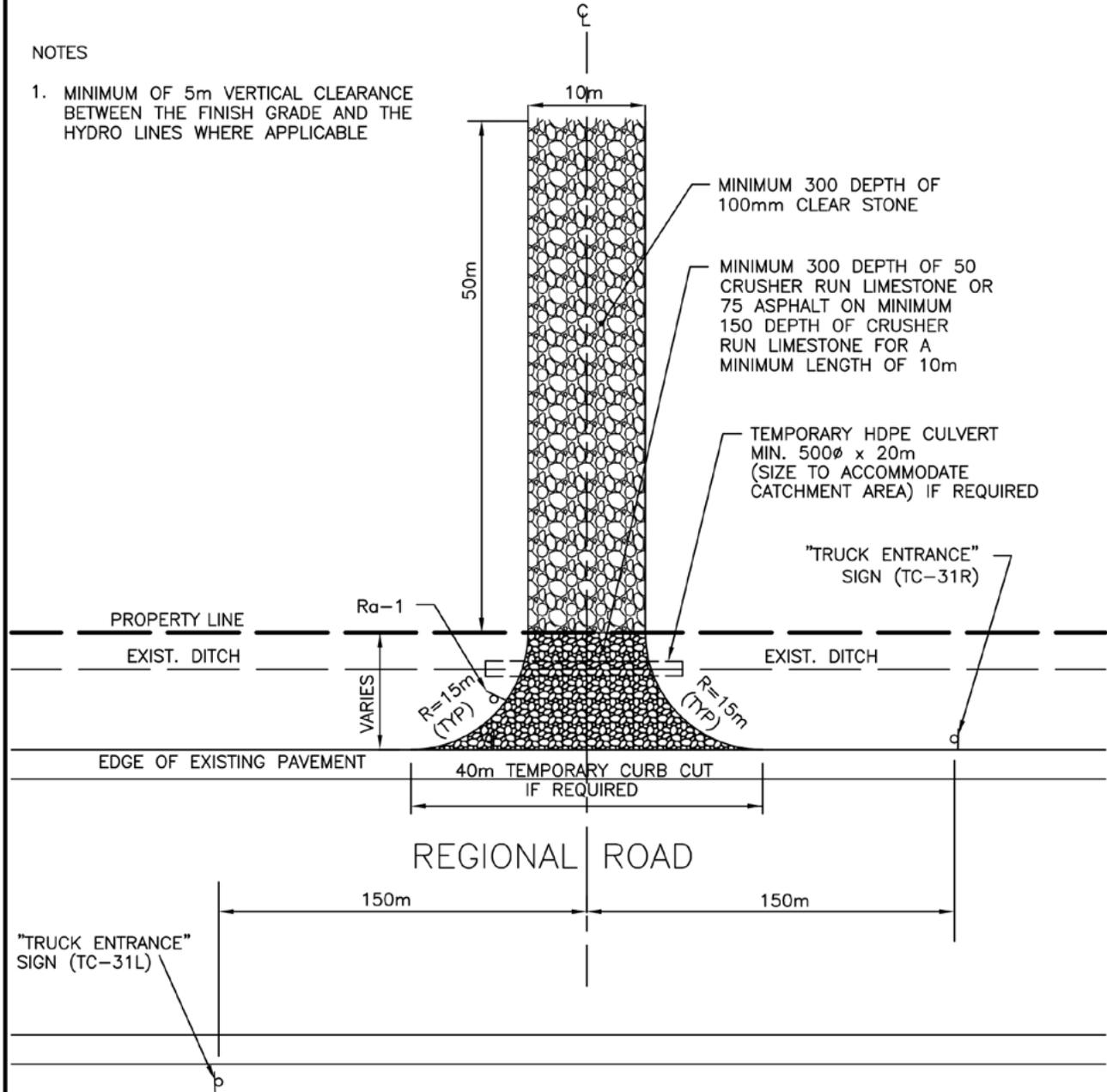
NOTES:

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. EXISTING CURB & GUTTER TO BE REMOVED AND REPLACED IN ONE POUR.
3. REFER TO DS-203 TO DS-209 FOR URBANIZED COMMERCIAL ENTRANCE DETAILS AND PAVEMENT STRUCTURE MAKEUP.

York Region		Transportation Services
COMMERCIAL ENTRANCE CURB RETURN		
DATE:	SEPTEMBER 2019	SCALE N.T.S.
REV.	X	X
DS-216		

NOTES

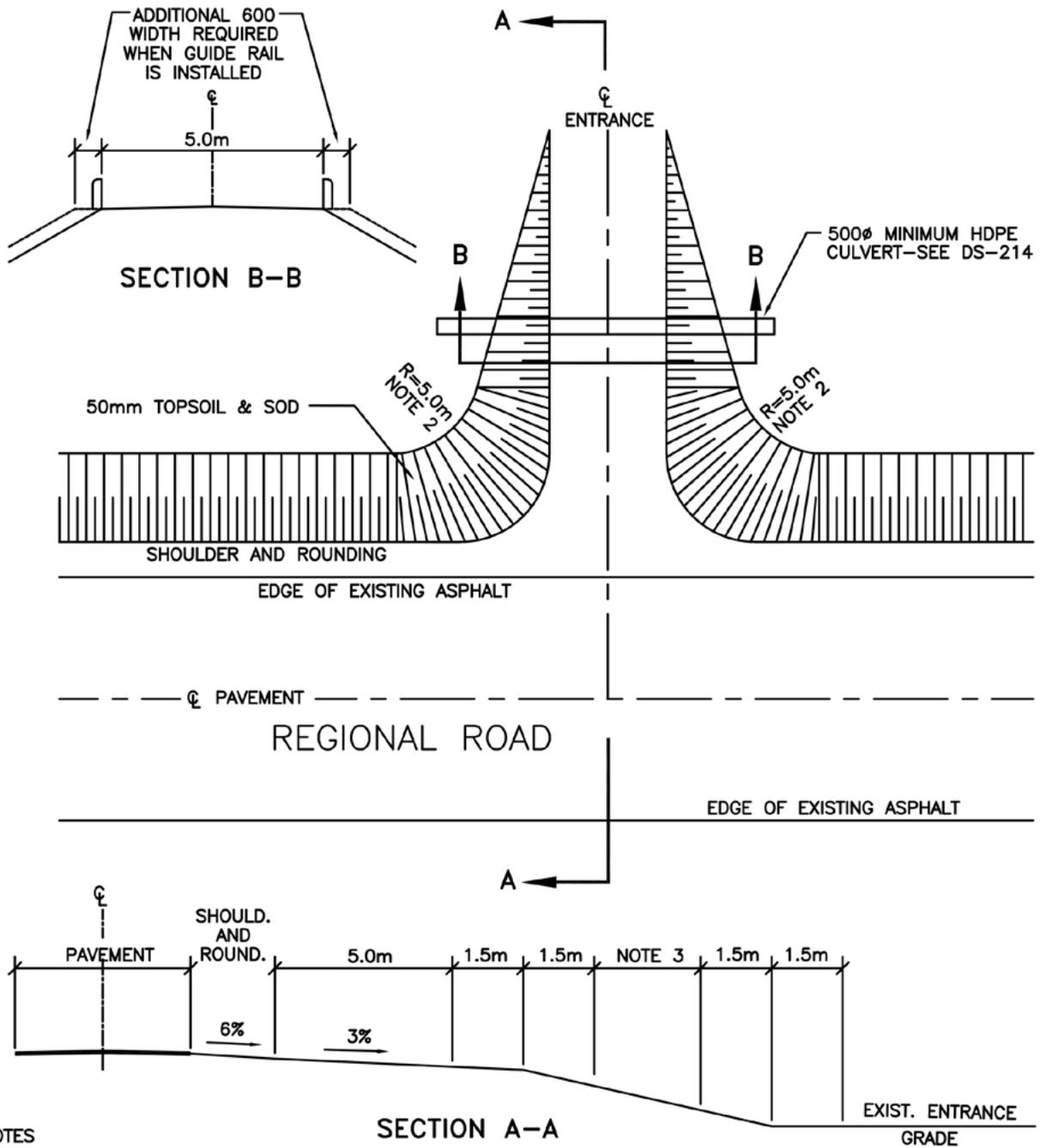
1. MINIMUM OF 5m VERTICAL CLEARANCE BETWEEN THE FINISH GRADE AND THE HYDRO LINES WHERE APPLICABLE



NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. TEMPORARY "TRUCK ENTRANCE" SIGNS(TC-31) SHALL BE INSTALLED ON THE SHOULDER, 150M IN ADVANCE OF THE ACCESS (NOTE: SEE DETAILS ON USE OF THESE SIGNS IN THE ONTARIO TRAFFIC MANUAL, BOOK 7.) THE APPLICANT WILL BE RESPONSIBLE FOR THE COST OF OBTAINING, ERECTING AND MAINTAINING THESE SIGNS.
3. TEMPORARY CONSTRUCTION ACCESS SHALL BE REMOVED FROM THE REGIONAL ROAD ALLOWANCE AND ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.

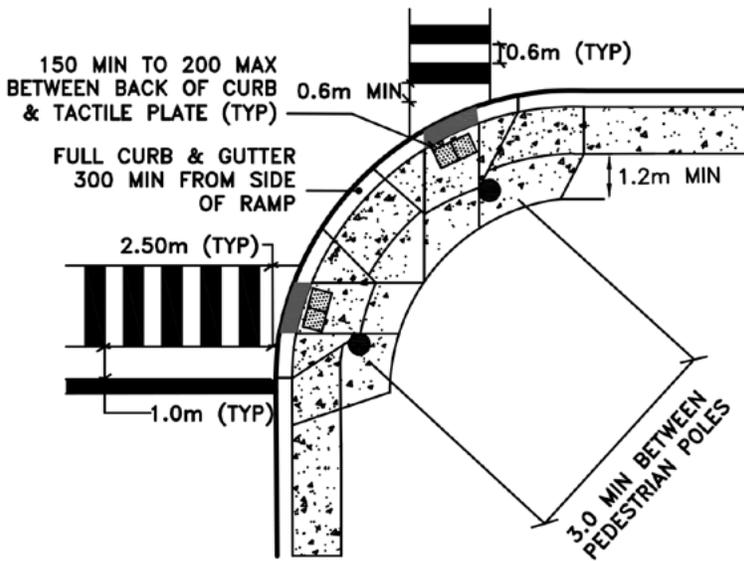
		Transportation Services	
MUD MAT FOR TEMPORARY CONSTRUCTION ACCESS			
DATE: SEPTEMBER 2019		SCALE N.T.S.	
REV.	X	X	DS-217



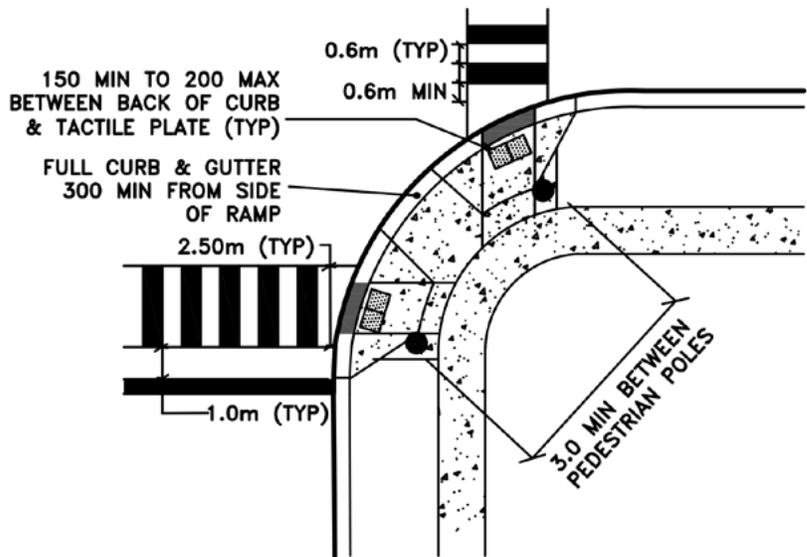
NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.
2. RADIUS TO BE 8.0m WHEN ENTRANCE IS USED FOR FARM EQUIPMENT.
3. DESIRABLE ENTRANCE CONFIGURATION, WHEN CONDITIONS PERMIT. DESIRABLE MAXIMUM GRADIENT: 6% FOR RESIDENTIAL ENTRANCES AND 10% FOR FARM AND FIELD ENTRANCES.
4. 200mm MINIMUM DEPTH OF GRANULAR "A"
5. MINIMUM PIPE COVER OF 300mm GRANULAR "A"
6. FOR FARM/FIELD ENTRANCE REFER TO GUIDE.

Transportation Services	
<p>SINGLE FAMILY RESIDENTIAL ENTRANCE –RURAL</p>	
DATE: DECEMBER 2015	SCALE N.T.S.
REV. X X	DS-218



RAMP WITHOUT BOULEVARD

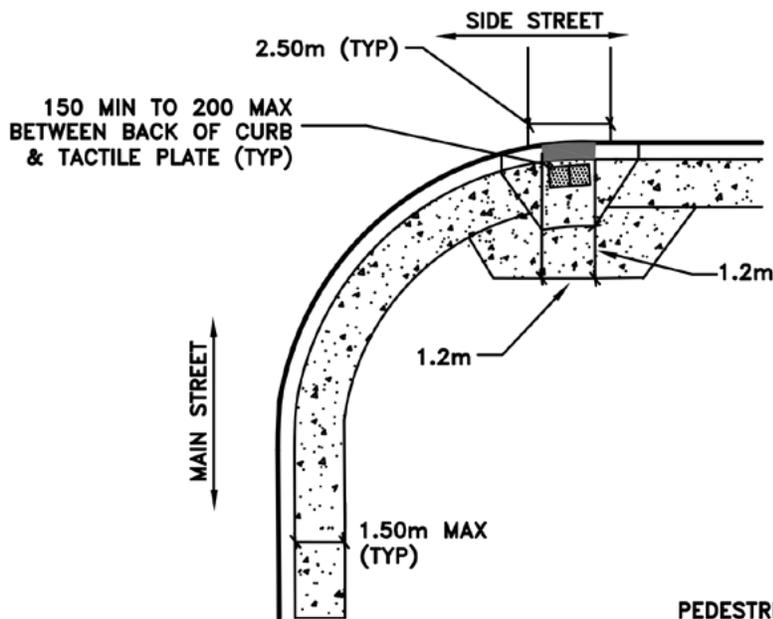


RAMP WITH BOULEVARD

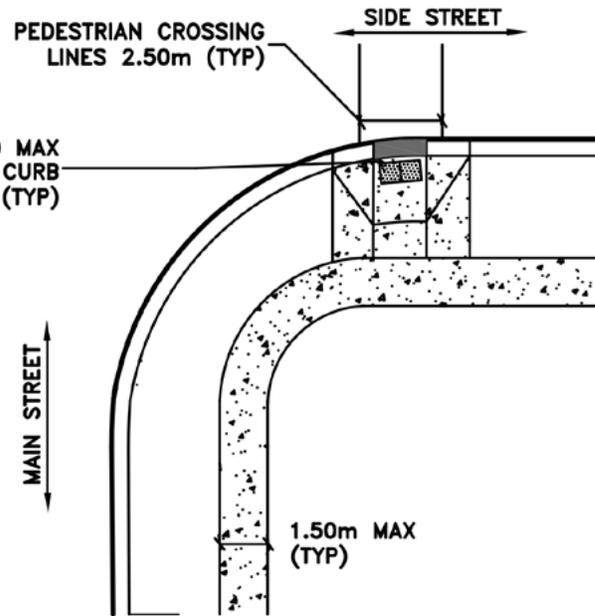
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. SEE STANDARD DRAWING DS-400 FOR PAVEMENT MARKING LEGEND
3. THIS STANDARD IS TO BE USED AS A GUIDE ONLY AND WILL REQUIRE ADJUSTMENTS TO SUIT FIELD CONDITIONS
4. THE FIRST ZEBRA MARKING MUST BE 0.6m FROM CURB
5. SEE STANDARD DRAWING E-6.07 FOR TACTILE WARNING PLATE DETAILS
6. TACTILE WARNING PLATES MUST EXTEND THE WIDTH OF THE DROPPED CURB RAMP
7. SEE STANDARD DRAWING DS-408 FOR FULL INTERSECTION LAYOUT
8. SEE STANDARD DRAWING DS-121 FOR RAMP DETAIL

		Transportation Services	
PEDESTRIAN EQUIPMENT AND CROSSWALKS WITH TACTILE WARNING PLATES (SIGNALIZED)			
DATE:	OCTOBER 2016	SCALE	N.T.S.
REV.	X	X	DS-119



RAMP WITHOUT BOULEVARD

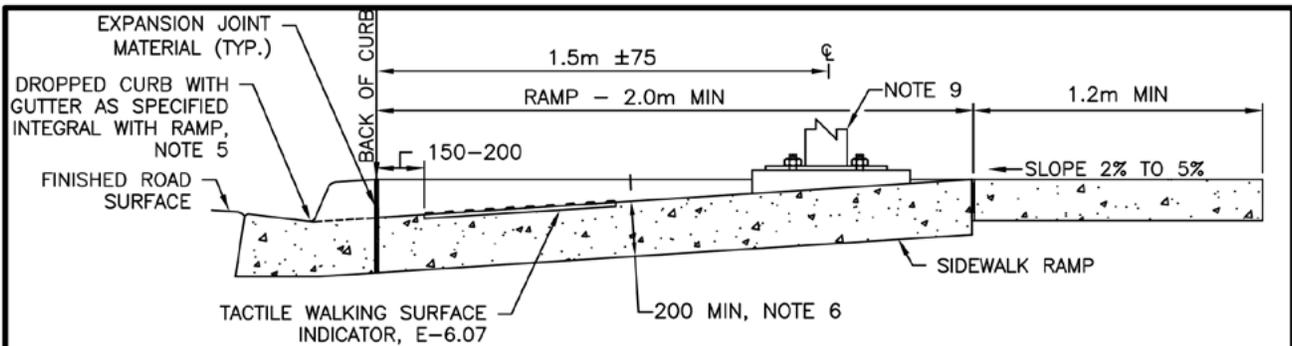


RAMP WITH BOULEVARD

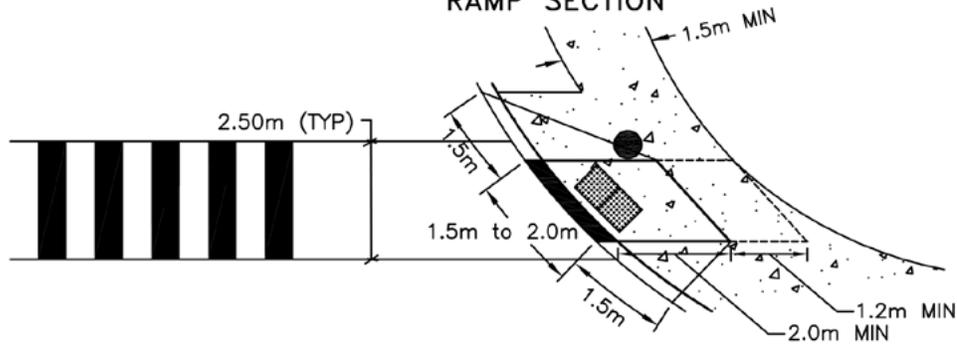
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. SEE STANDARD DRAWING DS-400 FOR PAVEMENT MARKING LEGEND
3. THIS STANDARD IS TO BE USED AS A GUIDE ONLY AND WILL REQUIRE ADJUSTMENTS TO SUIT FIELD CONDITIONS
4. TACTILE WARNING PLATES MUST EXTEND THE WIDTH OF THE DROPPED CURB RAMP
5. SEE STANDARD DRAWING E-6.07 FOR DETECTABLE WARNING PLATE DETAILS
6. SEE STANDARD DRAWING DS-408 FOR FULL INTERSECTION LAYOUT
7. SEE STANDARD DRAWING DS-121 FOR RAMP DETAIL

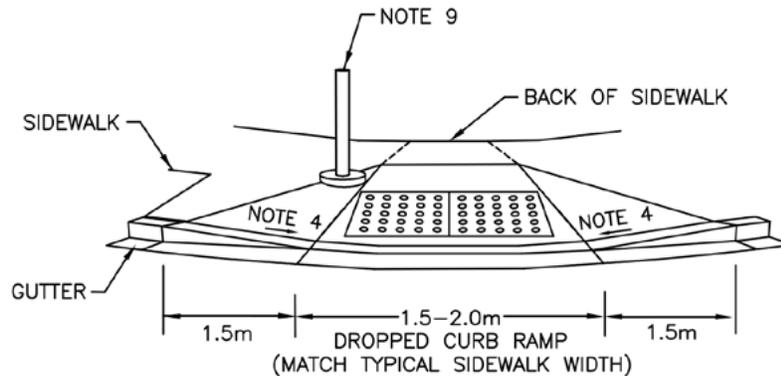
		Transportation Services
PEDESTRIAN CROSSWALKS WITH TACTILE WARNING PLATES (UNSIGNALIZED)		
DATE:	DECEMBER 2016	SCALE N.T.S.
REV.	X X	DS-120



RAMP SECTION



RAMP PLAN

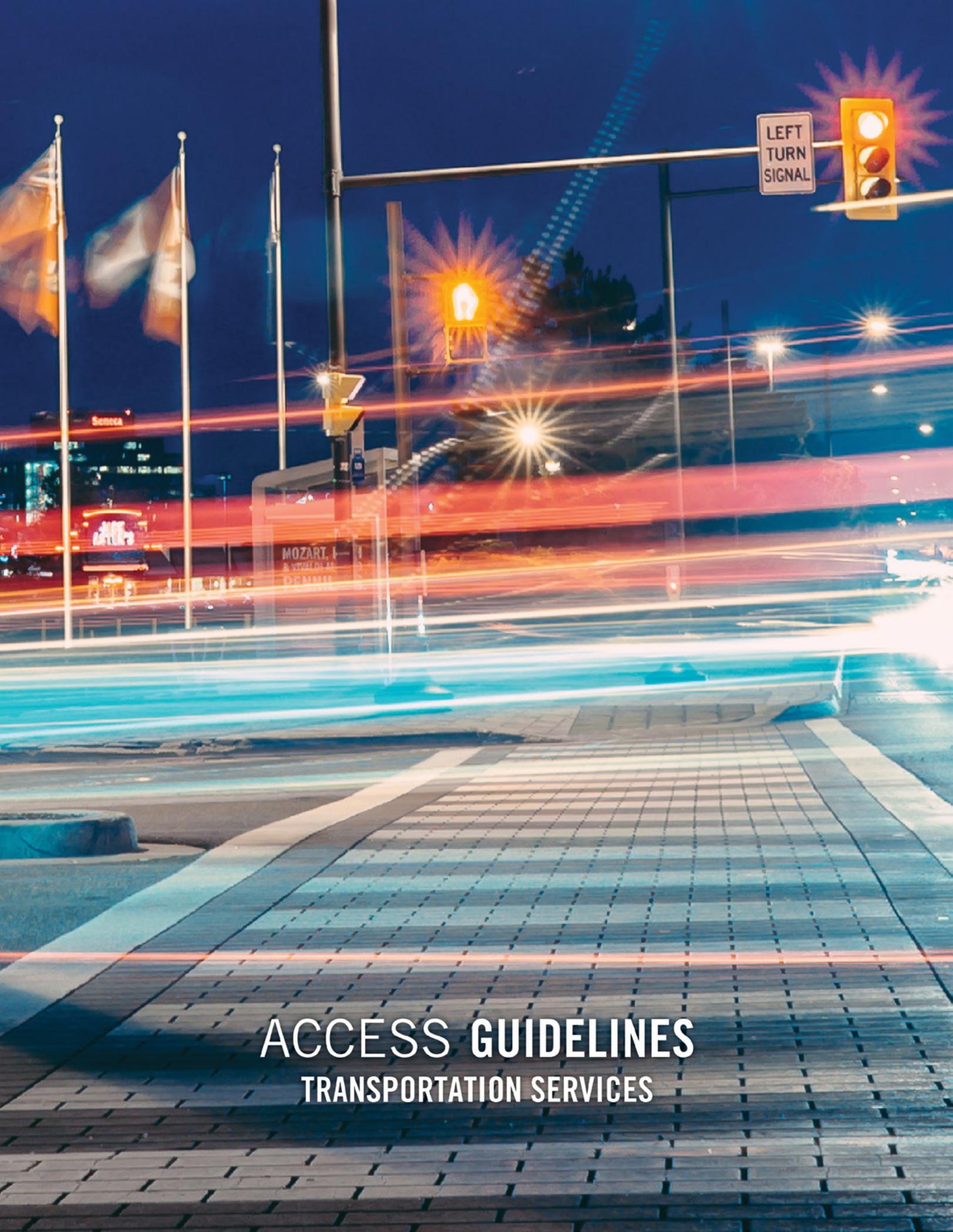


RAMP ELEVATION

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. SLOPE OF RAMP SHALL NOT EXCEED 10%.
3. CROSS SLOPE OF RAMP SHALL NOT EXCEED 2% IN EITHER DIRECTION.
4. CROSS SLOPE OF FLARED SIDE OF RAMP SHALL NOT EXCEED 10%.
5. DROPPED CURB AT RAMP SHALL BE MODIFIED TO ELIMINATE 30mm STEP AT GUTTER LINE.
6. MINIMUM THICKNESS OF RAMP IS 200mm. MINIMUM THICKNESS OF SIDEWALK AND FLARED SIDES ADJACENT TO RAMP IS 150mm.
7. TACTILE WARNING PLATES SHOULD EXTEND THE WIDTH OF THE DROPPED CURB RAMP.
8. SEE STANDARD DRAWING DS-408 FOR FULL INTERSECTION LAYOUT.
9. ACCESSIBLE PEDESTRIAN SIGNAL POLE FOR SIGNALIZED INTERSECTIONS ONLY.
10. JOINTS MUST NOT BE TROWELLED.

		Transportation Services
CONCRETE SIDEWALK RAMPS AT INTERSECTIONS		
DATE:	JANUARY 2019	SCALE N.T.S.
REV.	X X	DS-121



ACCESS GUIDELINES

TRANSPORTATION SERVICES