Chapter 9 of the TAC Geometric Design Guide for Canadian Roads and Excerpt from the City's Access Management Guidelines

Transportation Association of Canada

Geometric Design Guide for Canadian Roads

CHAPTER 9 – INTERSECTIONS

June 2017

Physical and operational constraints limit how and to what extent the through roadway pavement is transitioned from the superelevated section to normal crown at the intersections; the designer should determine the "best fit" that minimizes safety risks and local right-of-way effects at a reasonable cost, based on the methods described in this section.

Too great a difference in cross-slope may cause vehicles travelling over the ridge formed between the through pavement and the auxiliary lane pavement downstream of the turning roadway to sway with possible hazard (see **Section 9.7.4**).

In some cases, such as the retrofitting of an intersection in a built-up area, the use of superelevation on a main line curve may not be possible due to existing physical controls, and retaining a normal crown may represent the optimum configuration. The selection of the most appropriate cross-slope or superelevation rate is based on the specific conditions at the intersection, such as physical vertical controls and the principal traffic movements. In many cases, it is advantageous to explore the opportunity to provide at least 0.02 m/m of superelevation (reverse crown) on the curved roadway to enhance the safe operation of through traffic.

Reducing or eliminating superelevation along main line curves through intersection areas and along turning roadways assists in providing reasonable operating conditions for turning vehicles. Drivers travelling through an intersection area typically reduce their speed when they encounter a conflict zone. For this reason, reduced superelevation on low speed roadways is generally not detrimental to effective operation through the intersection.

9.7.6 REALIGNMENTS FOR RETROFIT

An existing urban intersection may undergo a retrofit for a variety of reasons, including:

- Eliminating or reducing a geometric condition that contributed to vehicular traffic or pedestrian safety problems
- Increasing capacity by adding through or turning lanes, and/or improved channelization

When an intersection retrofit is undertaken, the initial objective is generally to eliminate elements that cause unsafe operating conditions. Consideration is also given to upgrading all elements within current design domain. A detailed review of the collision history at the intersection is often beneficial in identifying geometric elements that may be contributing to undesirable operating conditions.

Examples of common types of intersection retrofitting related to operational concerns include:

- Improving intersection skew angles
- Flattening or eliminating horizontal curves through or approaching the intersection
- Regrading the intersection area or the approaches to improve sightlines
- Adjusting the approach profiles to provide flatter grades where vehicles start and stop
- Adjusting lane widths
- Eliminating one or more legs on multi-legged intersections
- Removing obstructions (e.g., hedges and road hardware) that affect sightlines
- Modifying channelization to better separate and define permitted vehicular traffic and pedestrian movements
- Reducing pedestrian crossing distances by decreasing curb return radii or introducing chokers
- Introducing refuge areas to assist pedestrians in safely crossing multilane roadways
- Adding bicycle lanes
- Adding transit vehicle stops (e.g., bus bays)
- Conversion to modern roundabout.

Additional right-of-way is often required to achieve the retrofit. Occasionally, the additional right-of-way needed for an intersection improvement can be obtained at the time of redevelopment of adjacent properties.

Retrofitting of major intersections is an effective means of increasing route safety and capacity. In built-up areas, it may not be physically possible or economically viable to acquire the additional right-of-way needed to achieve all of the desired geometric and capacity improvements. In these cases, the designer must be selective in assessing which features may have to be compromised or deferred.

Through the identification of the geometric elements that are most important to satisfactory operation, the designer may be able to make certain trade-offs with respect to the other elements, without significantly compromising vehicular or pedestrian safety. In general, the most important elements are those that provide the minimum stopping sight distance at the intersection or, if possible, decision sight distance. Also important is the elimination of the elements or combinations of elements that confuse or surprise drivers, such as poorly designed or inadequate channelization, abrupt changes in horizontal alignments, and interference created by adjacent commercial development.

Table 9.7.2 summarizes desirable and undesirable geometric design practices used in retrofitting an intersection, where physical constraints do not permit the implementation of all desired geometric features. **Figure 9.7.11** provides an illustration of an acceptable intersection retrofit, where it is not feasible to correct a small shift in horizontal alignment across an intersection.

Intersections with substantial deflections between approach alignments can produce operational and safety problems for through vehicles as they navigate through an intersection. Forced path changes for through vehicles violate driver expectations and may pose problems for unfamiliar drivers. Violation of driver expectancy can result in reduced speeds through the intersection. Crashes influenced by a deflection in travel path are likely to include rear-end, sideswipe, head-on, and left-turning/through crashes. Acceptable deflection angles through intersections vary by individual agency, but are typically related to the design and/or posted speed on an intersection approach. Typical maximum deflection angles are 3° to 5°.[64]

Table 9.7.2: Opportunities for Retrofit

Desirable	Undesirable
• Reduced boulevard, median, or lane widths. • Reduced superelevation with acceptable friction factor (see **Chapter 3**). • Increased gradients. • Reduced K values for sag vertical curves, considering roadway lighting and operating speeds. • Generally, horizontal alignments for through traffic across intersections should be direct with no offset. This is particularly important where signals are present or are planned for the future. On occasion, for roadways with low design speeds or having stop control, a small shift (up to a maximum of 1.5 m) may be permitted, but is not recommended. If such an approach is used, supplementary positive guidance (e.g., pavement markings) should be considered to guide drivers along the appropriate path. • Some encroachment on other lanes by occasional large turning vehicles.	• Inadequate stopping sight distance. • Unexpected changes in alignment for any permitted direction of traffic. • Potential head-on conflicts or wrong way movements. • Unexpected pedestrian crossing locations. • High end of design domain on an approach to an intersection in combination with low end of design domain within the intersection area. • Multiple elements at low end of the design domain. • Encroachment on sidewalks by the design turning vehicle.

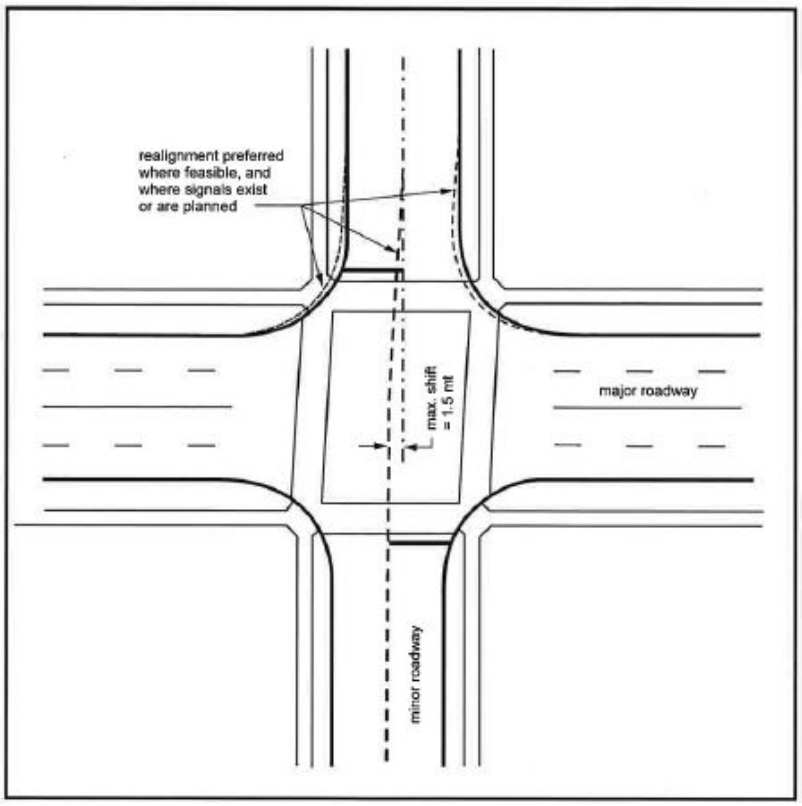


Figure 9.7.11: Shifts in Horizontal Alignment across Intersections

9.8 SIGHT DISTANCE

Potential road user (e.g., vehicles, cyclists and pedestrians) conflicts exist at every intersection. However, the possibility of these conflicts actually occurring can be greatly reduced through proper channelization and appropriate traffic controls. The avoidance of collisions and the efficiency of operation must still depend, to a large extent, on the judgement, capabilities, and responses of the individual road user. The intersection design must therefore provide sufficient sight distance for road users to perceive potential conflicts and to carry out the actions needed to negotiate the intersection safely.

Sight distance requirements must be considered both for approaching the intersection and departing from the stopped position at the intersection.

Technical Guidelines

Access Management Guidelines

Road Classification

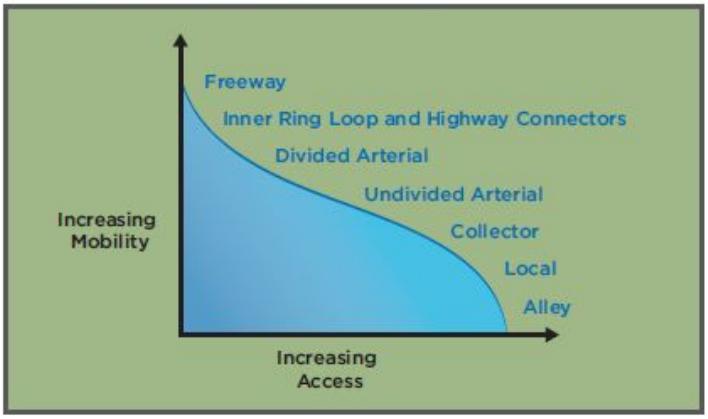
1 GUIDELINE

What this guideline means

In Edmonton, as in most jurisdictions, roadways are given functional classifications that classify different roadways by the degree to which they cater to vehicular mobility versus direct land access.

Roads are classified by their level of mobility and access. Roads with higher classifications are intended to provide greater mobility while lower classification roads emphasize access. In most circumstances the user should first confirm the classification of the road being accessed.

Road Classification by Mobility and Access



Guideline

For the purposes of this guideline, Edmonton's roads are classified as follows:

Freeway
Whitemud Drive; Yellowhead Trail, from the east city limit to the westerly interchange with Anthony Henday Drive; Sherwood Park Freeway from the CPR grade separation to the east City limit; Stony Plain Road west of Anthony Henday Drive; Terwillegar Drive and 170 Street south of Whitemud Drive.

Inner Ring Loop and Highway Connectors
All inner ring loop and highway connectors shown in *Appendix B* but not including the "Provincial Highway Connectors" and not including roads classified as freeways.

1
GUIDELINE

Road Classification

Guideline

Divided Arterial
All roads defined as arterial roadways by the Transportation Systems Bylaw (*see Appendix C*), that have, or are planned to have, a raised curb and gutter median or a depressed ditch median.

Undivided Arterial
All roads defined as arterial roadways by the Transportation Systems Bylaw (*see Appendix C*), that do not have a median including arterial roads with painted left-turn lanes and two-way left-turn lanes.

Collector
All roads not included in the above definitions that have at least two travel lanes (one in each direction) such that vehicles coming from opposite directions can pass without pulling over toward the side. Collector roads provide neighbourhood travel between local and arterial roads and direct access to adjacent lands. Buses generally operate on collector roads within neighbourhoods.

Local
All other roads not included in the above classifications and not included in the Alley classification.

Alley
All roads at the rear of properties typically wide enough for one travel lane and without parking on the right of way.

Note that roads within the city limits but under provincial jurisdiction are not included.

Separation Distance: To/From Traffic Signals

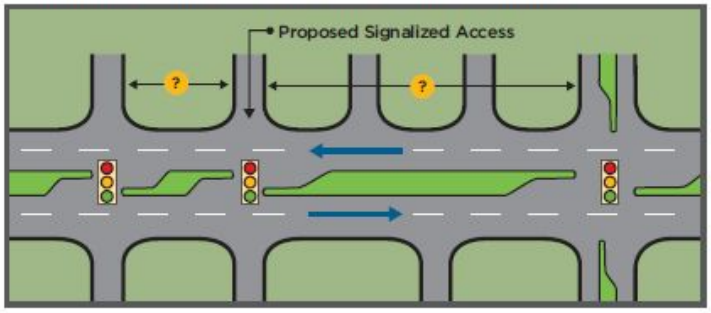
2 GUIDELINE

What this guideline means

Separation distances to/from signalized intersections should be relatively generous. This ensures reasonable traffic flow and safety, especially on major roads. Higher classification roads require greater separation distances due to higher traffic speeds and the complexity of driver decision making. A greater separation distance is also needed to allow room for queuing and deceleration.

This guideline must be used when the separation distance in question is between two all-turns accesses or intersections (including right-in/right-out/left-in accesses, and left-in/left-out accesses on one-way roads) and at least one of the accesses or intersections is controlled by traffic signals.

Separation Distance Guideline for a Proposed Signalized Access



Guideline

Classification of Road Being Accessed	Minimum Separation (metres) From Nearest Existing or Planned Traffic Signal
Freeway	Access not permitted
Inner Ring Loop and Highway Connectors	400
Divided Arterial	250 up to 4 lanes (2 travel lanes in each direction) 400 more than 4 lanes
Undivided Arterial, access signalized	250 up to 5 lanes (2 travel lanes in each direction and a centre left turn lane) 400 more than 5 lanes
Undivided Arterial, access non-signalized	100

3
GUIDELINE

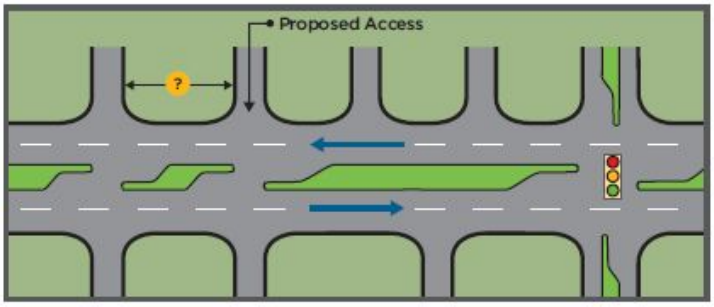
Separation Distance: Non-Signalized All-Turns Accesses

What this guideline means

A non-signalized all-turns access is an access that is, or is planned to be, controlled by stop signs or yield signs on the minor approaches and that allows all possible turning movements: left turns, right turns and through movements. For the purposes of this guideline it also includes non-signalized right-in/right-out/left-in accesses, non-signalized left-in/left-out accesses on one-way roads (treated as undivided roads), and non-signalized roundabouts.

These all-turns accesses are significantly more complex intersections and require a greater separation distance between them and other accesses to ensure reasonable traffic flow and safety, especially on major roads. Higher classification roads require a greater separation distance between accesses and/or intersections due to higher traffic speeds. A greater separation distance is also needed between accesses and traffic signals to allow room for traffic queues.

Separation Distance Guideline for a Proposed Non-signalized All-Turns Access



Guideline

Classification of Road Being Accessed	Minimum Separation (metres) From Nearest Existing Or Planned Non-Signalized All-Turns Intersection Or Access
Freeway	Access not permitted
Inner Ring Loop and Highway Connectors	400
Divided Arterial	250 up to 4 lanes (2 travel lanes in each direction) 400 more than 4 lanes
Undivided Arterial*	60 except approaching arterial/arterial or arterial/collector intersections where minimum separation is 100m

* See also *Guideline 12*

Separation Distance: Right-in/Right-out Access to Traffic Signal

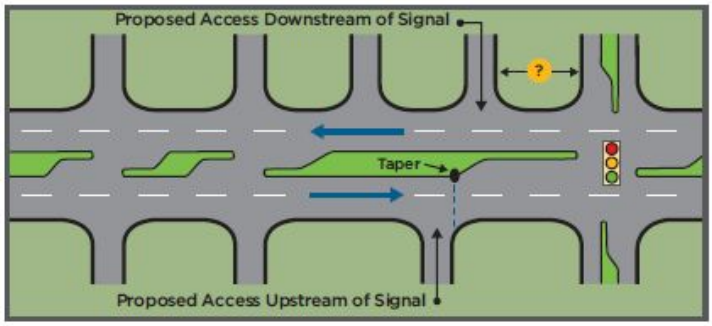
4
GUIDELINE

What this guideline means

A right-in/right-out access only allows right-turning movements for vehicles using the access. This access type usually exists on roads with medians, but can include accesses on the right side of a one-way road. These accesses can be located in an auxiliary lane, provided there is sufficient bay and taper for deceleration upstream of the access.

Compared to all-turns accesses, right-in/right-out accesses are very simple intersections and can therefore tolerate a smaller distance separating them from other accesses. However, a greater separation distance is necessary between the access and a traffic signal than compared to a non-signalized intersection.

Separation Distance Guideline for a Proposed Right-in/Right-out Access from a Traffic Signal



Guideline

Classification Of Road Being Accessed	Minimum Separation (m) From An Existing Or Future Signalized Intersection
Freeway	Access not permitted
Inner Ring Loop and Highway Connectors	200
Divided Arterial	Downstream of signal and with an auxiliary lane: 50 Downstream of signal without an auxiliary lane: 110 Upstream of Signal: upstream of left turn taper[1]; if no turn bay then not less than 50m

NOTES:

1. See *Guideline 8 Right-Turn and Left-Turn Lanes* for definition of taper

5 GUIDELINE

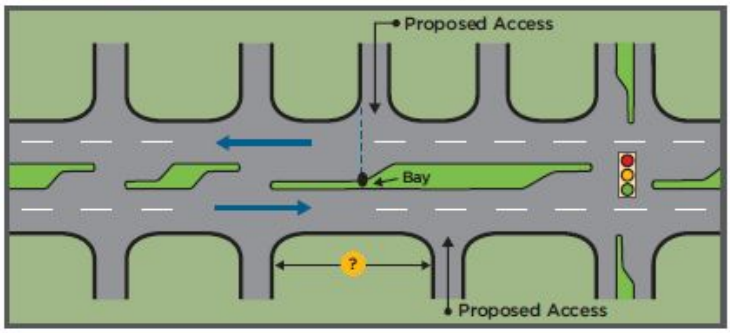
Separation Distance: Right-in/Right-out Access to Non-Signalized All-Turns Access

What this guideline means

A right-in/right-out access only allows right-turning movements for vehicles using the access. This access type usually exists on roads with medians, but can include accesses on the right side of a one-way road. These accesses can be located in an auxiliary lane, provided there is sufficient bay and taper for deceleration upstream of the access.

Compared to an all-turns access, the right-in/right-out access is a very simple intersection and can therefore tolerate a smaller separation distance between it and other accesses. The distance required between the right-in/right-out access and a non-signalized all-turns access is smaller than that required for a signalized access but larger than that required between right-in/right-out accesses.

Separation Distance Guideline for a Proposed Right-in/Right-out Access from a Non-signalized Access



Guideline

Classification Of Road Being Accessed	Minimum Separation (m) From An Existing Or Future Non-Signalized All-Turns Access Or Intersection
Freeway	Access not permitted
Inner Ring Loop and Highway Connectors	200
Divided Arterial	Downstream of intersection with an auxiliary lane: 50 Downstream of intersection without an auxiliary lane: 110 Upstream of Intersection: upstream of left turn bay[1]; if no Turn Bay then not less than 50m

NOTES:

1. See *Guideline 8 Right-Turn and Left-Turn Lanes* for definition of bay

Separation Distance Between Right-in/Right-out Accesses

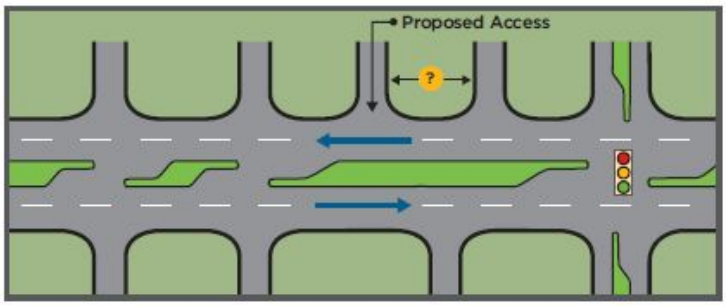
6 GUIDELINE

What this guideline means

A right-in/right-out access only allows right-turning movements for vehicles using the access. This type of access usually exists on roads with medians, but can include accesses on the right side of a one-way road. These accesses can be located in an auxiliary lane, provided there is sufficient bay and taper for deceleration upstream of the access.

Compared to an all-turns access, the right-in/right-out access is a very simple intersection and can therefore tolerate a smaller separation distance between it and other accesses. The separation distance between right-in/right-out accesses is smaller than that required for both non-signalized all-turns accesses and signalized accesses.

Separation Distance Guideline for a Proposed Right-in/Right-out Access from a Right-in/Right-out Access



Guideline

Classification Of Road Being Accessed	Minimum Separation (m) From A Right-In/Out Access
Freeway	Access not permitted
Inner Ring Loop and Highway Connectors	200
Divided Arterial	50

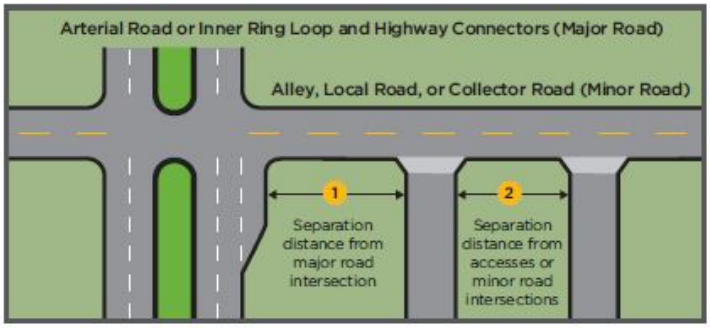
7
GUIDELINE

Separation Distances for Alleys, Local Roads, and Collector Roads

What this guideline means

Separation distances for alleys, local roads and collector roads can be significantly smaller than that required for other road classifications because access to adjacent land parcels is more important than orderly and efficient traffic flow. Therefore, smaller access separation distances can be tolerated on these minor roads, except near the intersection with major roads (i.e. arterial roads or inner ring loop and highway connectors) and near bus stops in the case of collector roads. For these exceptions *Guideline 13* must also be applied in conjunction with this guideline.

Access Separation Distances for Alleys, Local Roads, and Collector Roads



Guideline

Road Classification	1 Separation Distance From Major Road Intersection (m)	2 Separation Distance From Access or Minor Road Intersections (m)
Collector	40	30*
Local	40	20*
Alley	20	6*

* Where the separation distance is larger than the lot width, the lot access shall be positioned as far away from the road as possible.

The table shows minimum separation distances from major and minor road intersections. For intersections along bus routes, the requirements of Drawing # 4000 of the *Design and Construction Manual* must be met.

Right-Turn and Left-Turn Lanes

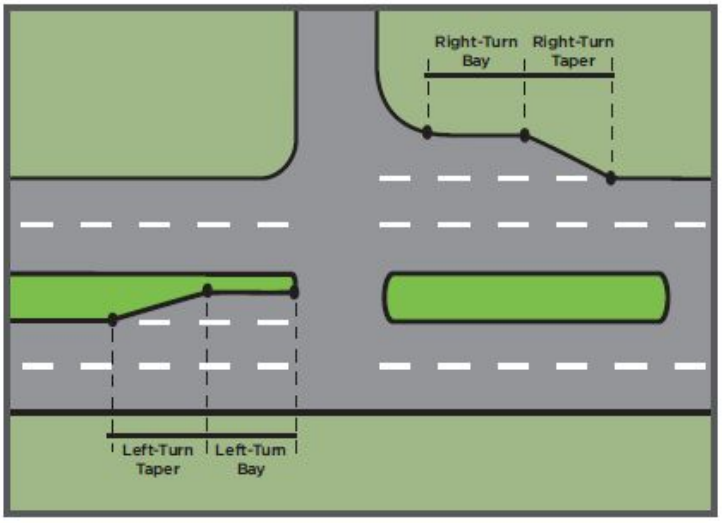
8 GUIDELINE

What this guideline means

Right-turn and left-turn lanes are separated from through traffic and are provided to serve a right or left turning vehicle and to prevent turning traffic from blocking or impeding through traffic.

Usually the turning lane is introduced by a taper—a transition that gently introduces the full width of the turning lane, allowing drivers to distinguish the lane and smoothly change lanes into the turn lane. In addition, a right-turn and left-turn lane is usually only for one access; however, in some cases, especially for right turning vehicles, several accesses use the same lane for turning and the lane is termed an auxiliary lane *(see Glossary for definition of auxiliary lane)*. On roads where traffic flow is important a turn bay is usually needed, especially for left-turning traffic. Alleys, local roads and collector roads rarely require right-turn or left-turn lanes.

Right-Turn and Left-Turn Bays



8 GUIDELINE

Right-Turn and Left-Turn Lanes

Guideline

Road Classification	Right-Turn Lane Needed?	Left-Turn Lane Needed?
Inner Ring Loop and Highway Connectors	Yes	Yes
Divided Arterial	Review context[2]	Yes[1]
Undivided Arterial	Review context[2]	Review context[2]

NOTES:

1. In cases where mature trees are in the median and there are no other left-turn bays, a left-turn bay may not be required.
2. Review context: For these situations, consider adjacent accesses, existing and future arterial road volumes, anticipated access volumes, and submit a proposal for Transportation's review and approval. A capacity analysis may be required at the direction of Transportation Services.

If a turn lane is warranted, the bay lengths and tapers in the following table should be used.

Posted Speed Limit (km/hr)	Minimum Taper and Bay Lengths (m)		
	Taper	Non-signalized Access Bay	Signalized Access Bay
40	40	30	30 + S[1]
50	50	40	40 + S[1]
60	60	50	50 + S[1]
70	70	60	60 + S[1]
80	70	80	80 + S[1]
90	80	90	n/a[2]
100	80	105	n/a[2]

NOTES:

1. "S" is the storage length for the turn bay, determined through a Traffic Analysis.
2. Signals rarely exist on roads with speed limits above 80 km/hr.

Access Type

9 GUIDELINE

What this guideline means

In Edmonton there are five types of accesses, described as follows along with how they are typically used:

Commercial Crossing
A concrete apron flared in width that connects an urban road to the private land. Used on roads with curb and gutter, usually for commercial, industrial and multi-family properties.

Private Crossing
A smaller version of a commercial crossing. Used for single-family homes.

Curb Return
A paved asphalt driveway with smooth radius concrete curbs connecting to the curbs of the adjacent road. Used on roads with curb and gutter where grade control is important.

Culvert Crossing (Rural)
An asphalt paved driveway with a culvert along the ditch line of a rural road. Used where rural roads (ditch drainage) exist, including crossing a bioswale.

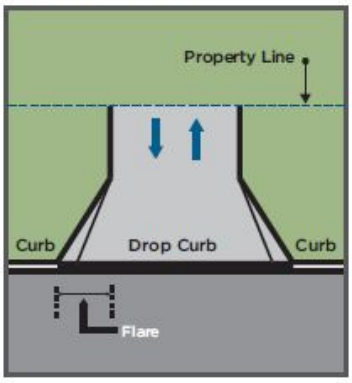
Alley Access
A paved connection at the grade of the lane directly to the private property. Used only in alleys.

9
GUIDELINE

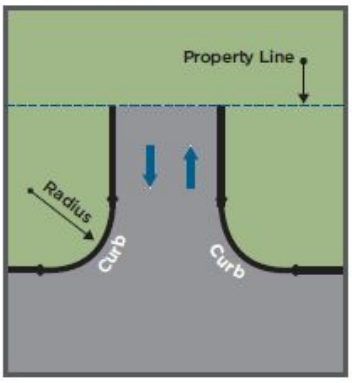
Access Type

What this guideline means

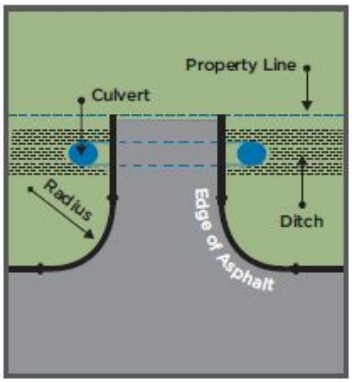
1. Commercial Crossing
2. Private Crossing



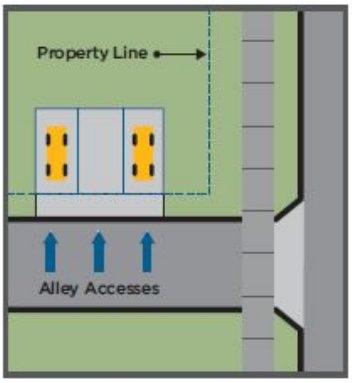
3. Curb Return Access



4. Culvert Crossing



5. Alley Access



Access Type

9 GUIDELINE

Guideline

Access types should be used as follows:

Alleys
Use the alley access format.

Culvert Crossings
Use with rural roads—in addition, approval from the Drainage Branch is required.

Private Crossings
Use only for single-family homes where the curb is not low profile or if the landowner chooses to request a private crossing.

Commercial Crossings and Curb Returns
For curb returns and commercial crossings the table below shows the preferred access type depending on the road classification. Commercial crossings are almost always used on collector and local roads. *(See Glossary for definition of commercial crossing.)*

Road Classification	Preferred Access Type	
	With Right-Turning Lane	Without Right-Turning Lane
Inner Ring Loop and Highway Connectors	Curb Return	Curb Return
Divided Arterial	Commercial Crossing[3]	Commercial Crossing[2]
Undivided Arterial	Commercial Crossing[3]	Commercial Crossing[2]

NOTES:

1. A commercial crossing can be used in a continuous turning lane; if the access is at the end of a turning lane a curb return must be used.
2. A curb return may be required to accommodate design and construction requirements, the applicant's aesthetic requirement, grade criteria and utility issues. Curb returns are required at signalized accesses.
3. All signalized accesses should be a curb return type.

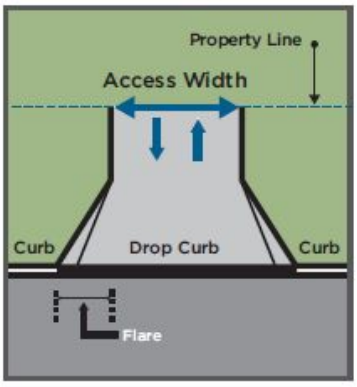
10
GUIDELINE

Access Width

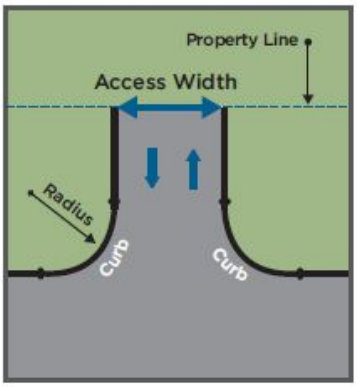
What this guideline means

Access width is the width of the driving surface at the private property line. This width depends on the vehicle types, the number of lanes required, and the access type.

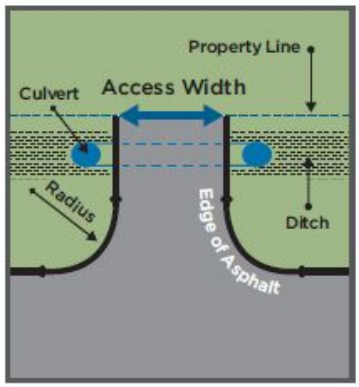
1. Commercial Crossing
2. Private Crossing



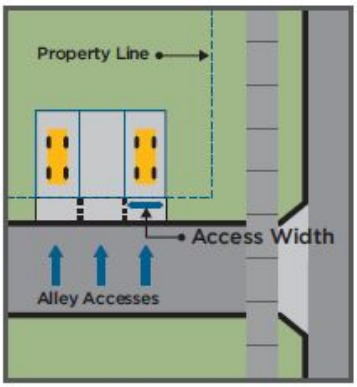
3. Curb Return Access



4. Culvert Crossing



5. Alley Access



Access Width

10 GUIDELINE

Guideline

The tables below can be used for commercial crossings and culvert crossings. Commercial crossings, as defined by the City, can be used for residential, industrial or commercial land use. *(See Glossary for definition of commercial crossings.)* For curb return accesses the tables below can be used as a guide, but the width requirement will be determined by an engineer. The widths in the tables below are recommended; operational problems could result if significantly larger or smaller values are used.

Access Widths for Commercial, Industrial, and Mixed Uses	
Lane Configuration and Design Vehicle Types	**Width (m)[1]**
Two-way, passenger vehicles	7.5 – 9.0
Two-way, medium trucks	9.0 – 11.5
Two-way, large trucks and Edmonton transit buses	11.5 – 13.5
One-way exit or entry, all vehicles	5.0[2]
Multiple lane (as identified by the City's engineer or through a Traffic Impact Assessment)	3.3 per lane[3]

Access Widths (m) for Residential Sites	
Type of Residence	**Width (m)[1]**
Multi-family sites	7.5 – 11.5[4]
Single family sites	3.5 – 8.0[5]

NOTES:

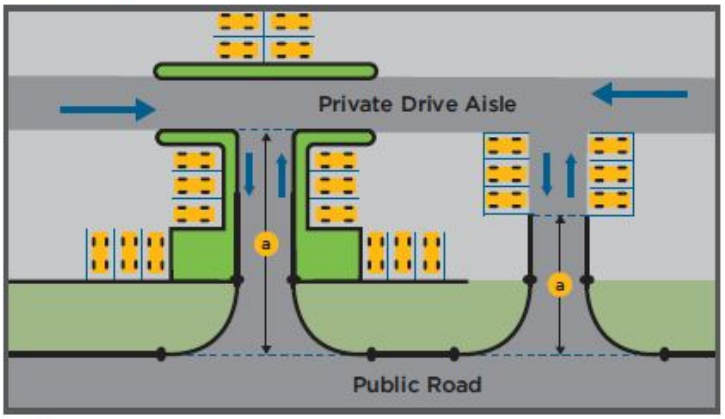
1. Width does not include median; if median is used, it should be between 1.0m and 4.0m wide.
2. 6.0m may be required for entrances that need to accommodate emergency vehicles.
3. If the access uses a median island, each direction should be at least 5.0m wide.
4. Often determined by the size of the on-site drive aisle.
5. For single-family homes, private crossing widths should be no wider than the garage door opening plus 1.5m.

11 GUIDELINE Access Throat Length

What this guideline means

Access throat is the length of the access from the public street curb to the first on-site intersecting drive aisle or parking stall. This length depends on the development size, land use and the road classification. For major developments a Traffic Impact Assessment (TIA) may be required to determine access throat lengths.

Access Throat



a Access Throat Length

Guideline

Land Use	Site Area (m²)	Minimum Throat Length (m)	
		Arterial	Inner Ring Loop and Highway Connectors
Light Industrial	Less than 10,000	15	40
	More than 10,000	30	70
Shopping Centre	Less than 45,000	30	60
	More than 45,000	45	130
Office	Less than 10,000	25	60
	More than 10,000	50	130
Drive-Through Restaurant	All sizes	40	70
Mixed-use	All sizes	30	70
Multi-family	All sizes	20	50

For collector roads at least 12m is required, while 6m is required for local roads and no throat is required for alleys.

Overlapping Left Turns on Undivided Roads

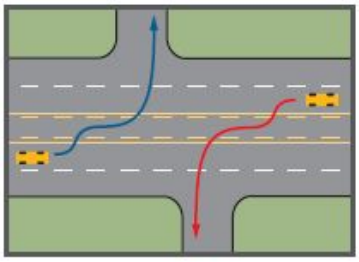
12 GUIDELINE

What this guideline means

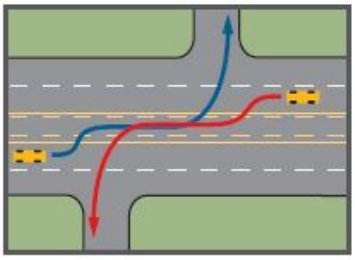
On undivided roads, accesses that are on opposite sides of a road could be misaligned. Depending on the misalignment, left-turning traffic from the road could overlap, resulting in a potential traffic conflict.

On lower volumes roads—such as alleys, local and collector roads—this conflict is generally acceptable. The exception is for accesses near an intersection with an arterial road; in these cases minimum separation distances must be used (*see Guideline 7*). On higher volume roads such as undivided arterial roads (including roads with two-way left turning lanes) it is desirable to separate such accesses by a minimum distance.

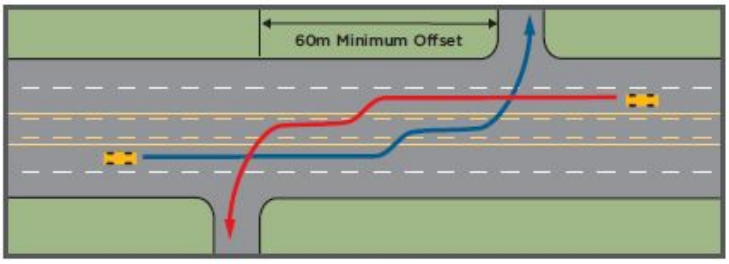
Misaligned Accesses without Overlapping Left Turns (desirable)



Overlapping Left Turns on Undivided Roads (undesirable)



Guideline



The minimum offset distance to avoid overlapping left-turns is 60m. This minimum offset only applies if overlapping left-turns are induced; if misaligned accesses do not result in overlapping left-turns then no minimum offset is necessary.

13
GUIDELINE

Redevelopment Sites

What this guideline means

The development should be treated as a redevelopment site if 1) the existing site is being replaced by a new development or is being renovated to accommodate a different intensity use, and 2) it is also clear that access separation distances for the site cannot be met due to off-site constraints (such as insufficient distance to accesses on adjacent properties).

Guideline

If access is proposed to arterial or expressway road classes then a pre-submission consultation is necessary (*see Section 2 Review and Approval Process*). The consultation could take the form of a meeting, or it could be a series of written exchanges between the applicant and Transportation Services. The primary purpose of the consultation is to establish access locations, access type, and the need for right and left turn lanes. To this end the following information should be collected prior to the consultation:

- Existing separation distances, access types and right and left turn lanes at the site and adjacent sites on both sides of the road(s) being accessed—an air photo will be adequate, with each feature labelled (identify distances to the nearest metre, access types and turn lanes).
- Existing location of all boulevard trees, bus stops and utilities that may limit access locations—an air photo with each feature labelled will be adequate. A site investigation and utility searches may be required.
- Any future road plans—contact Transportation Services (780-496-1795).

At least two alternative access strategies should be developed for the site; an access strategy identifies the location of each access and the access format (all-turns, right in/right out). The access strategy should be presented as a conceptual plan on an air-photo base showing the surrounding sites as well as an approximate building layout for the site in question; the conceptual plan could be hand-sketched or computer drafted. The strategy should use the following guiding principles:

- Separation distances from all-turns intersections or accesses should be optimized.
- All-turns access to the site should be oriented to the lower classification road unless the site's frontage to the minor road is too short or volume thresholds may be exceeded for the minor road. An all-turns access may not be feasible.
- Proposed access locations should have larger separation distances than existing separation distances.
- Sidewalks with larger pedestrian volumes should not be crossed by accesses, but if not possible, the site design and access configuration should render the access as a relatively minor access compared to other site accesses (for example, use a right-in/right-out format instead of an all-turns format and/or design the site circulation to feed into a small portion of the parking area).

Both Transportation Services and the site proponent should list the strengths and weaknesses of each access plan in terms of impacts on the adjoining roads and impacts on the site. Both parties should then work together to arrive at a mutually agreeable access and site plan. Given its responsibility for the safe operation of public roads, Transportation Services may reject a proposed access if deemed necessary.