CHAPTER I
ACCESS MANAGEMENT GUIDELINES

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CHAPTER I
ACCESS MANAGEMENT GUIDELINES

I.1 INTRODUCTION

I.1.1 Purpose

The purpose of this Chapter is to provide guidelines with respect to access management to rural lands for roadside development, design and construction of rural primary highways, secondary highways, and local roads. These guidelines are intended primarily for use in managing access to roads under the jurisdiction of the Minister of Alberta Infrastructure.

I.1.2 Background

Written guidelines on access management are intended to provide uniformity and consistency. Designers, planners, Construction Managers/ Engineers and Development and Planning Technologists should use this Chapter as a guide to management and control of access to provincial highways.

Proper access management on highways maintains or enhances safety for the through traffic. In Alberta, 6%-10% of collisions and fatalities on rural primary highways are as a result of striking approaches. Many of these approach road fatalities occurred at farm/field/residential accesses rather than at road allowances or major road intersections. It is noted from other jurisdictions that access management plays a key safety role in all classification of highways. Records in Manitoba indicate 40% fewer collisions occurred on controlled access highways than on non-controlled highways. Furthermore, 20% of all collisions in Manitoba are approach related.[1] In Saskatchewan, accident fatality rates for fully controlled access highways are approximately 1/3 to 1/2 of those for highways with no access control.[2] Essentially, proper access management such as reduction of existing private entrances and restriction of new entrances on a highway is a key factor in preserving or improving the safety record of highways.

In terms of highway operation, random entrance and exit volumes interrupt the through traffic. For highways with high traffic volumes, these frequent interruptions sometimes result in unstable traffic flow causing a subsequent drop in the operating speed of the traffic. This deterioration in the level of service for the highway could consequently require undue highway upgrading well ahead of its normal design life.

The access management guidelines outlined in this document are based upon a hierarchical roadway design classification system. This classification system is a continuum from roadway facilities of unrestricted access (local roads) to facilities with complete access control (freeways).

The proposed ultimate classification of the higher category roadways normally evolves over a period of time. For example, an existing arterial highway projected ultimately to be a freeway will go through developmental changes from the two lane arterial stage, through an expressway stage, then into its final freeway form. Access to adjoining lands will change through these roadway development stages whereby temporary at-grade private and public road intersections will be phased out and replaced by grade separated interchanges at selected locations. The failure to recognize and protect a particular roadway for its projected ultimate classification can lead to its early obsolescence.

I.1.3 How to Use this Chapter

Users are encouraged to become familiar with this Chapter prior to its application. Moreover, it is particularly important to understand the definitions - administrative classification, design classifications and access types - that are outlined in section I.4.

Steps for the selection of the appropriate access management scheme for a particular roadway are as follows:

[1] The Manitoba Dept. of Highways and Transportation, Manitoba Highway Classification Study, p. 12.
[2] The Saskatchewan Dept. of Highways and Transportation, Control of Access Manual, p. 1.

1. Refer to Figure I-1.3a (Existing Classification of Primary Highway System) to determine the existing design classification of the roadway.

   Example: Highway 43, east of junction Highway 32, is classified as Major Expressway on Figure I-1.3a.

2. Refer to Table I.4.1 on page I-18 to find the reference section for access management assessment.

   Example: Major arterial is listed and referenced to Section I.5.4.

3. Proceed to the appropriate section of Section I.5 for guidelines.

   Example: Section I.5.4 Major Arterials on page I-25.

Rural collectors and local roads are not identified on the maps. They require less stringent access management. In this case, only Table I.4.1 is used for reference to select the appropriate section for assessment.

Figure I-1.3d (Future Vision of Primary Highway System) was used as the basis for developing the access management guidelines. It has been included in these guidelines for general information only. Figure I-1.3d should not be used when determining the design classification reference section for access management assessment.

FIGURE I - 1.3a

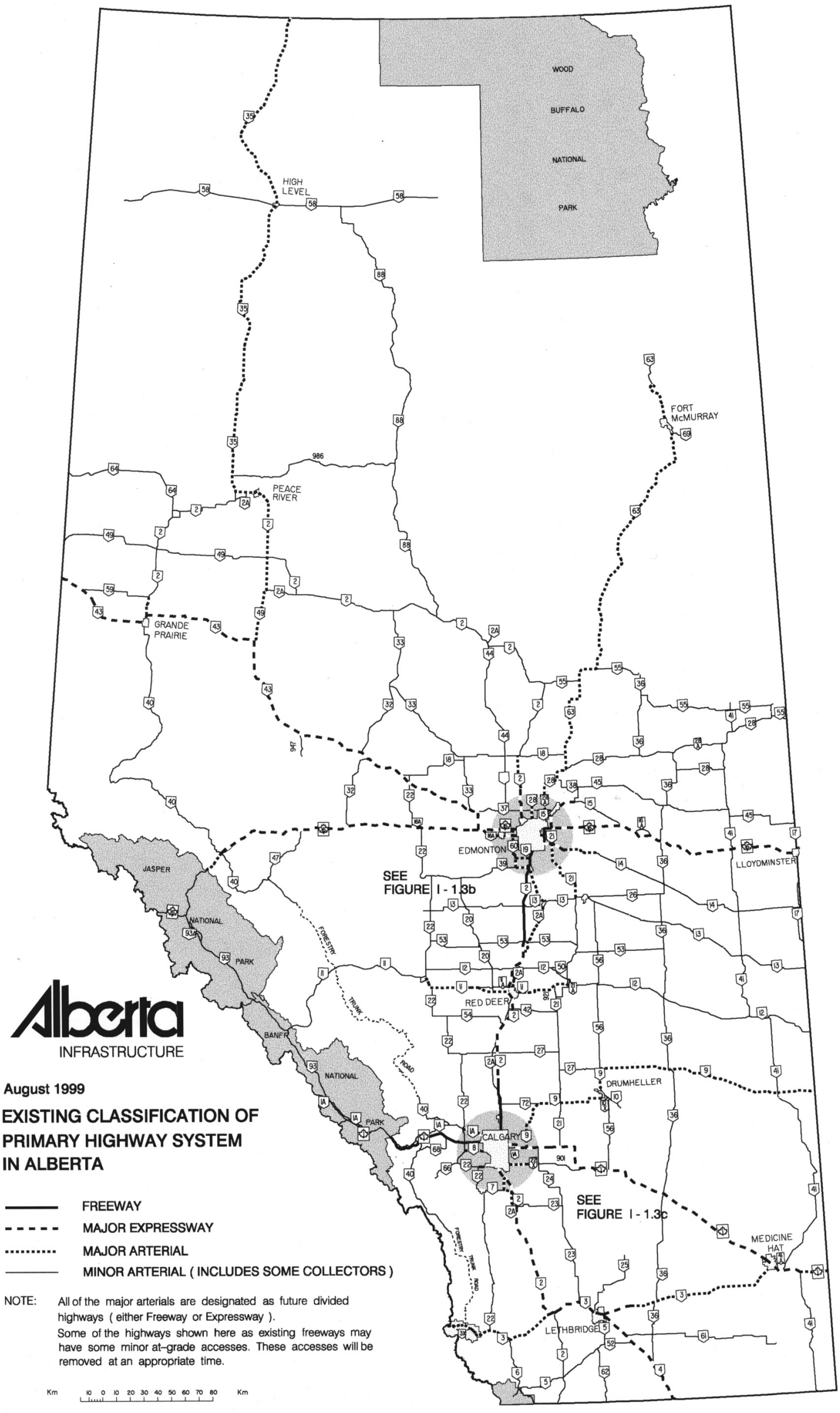

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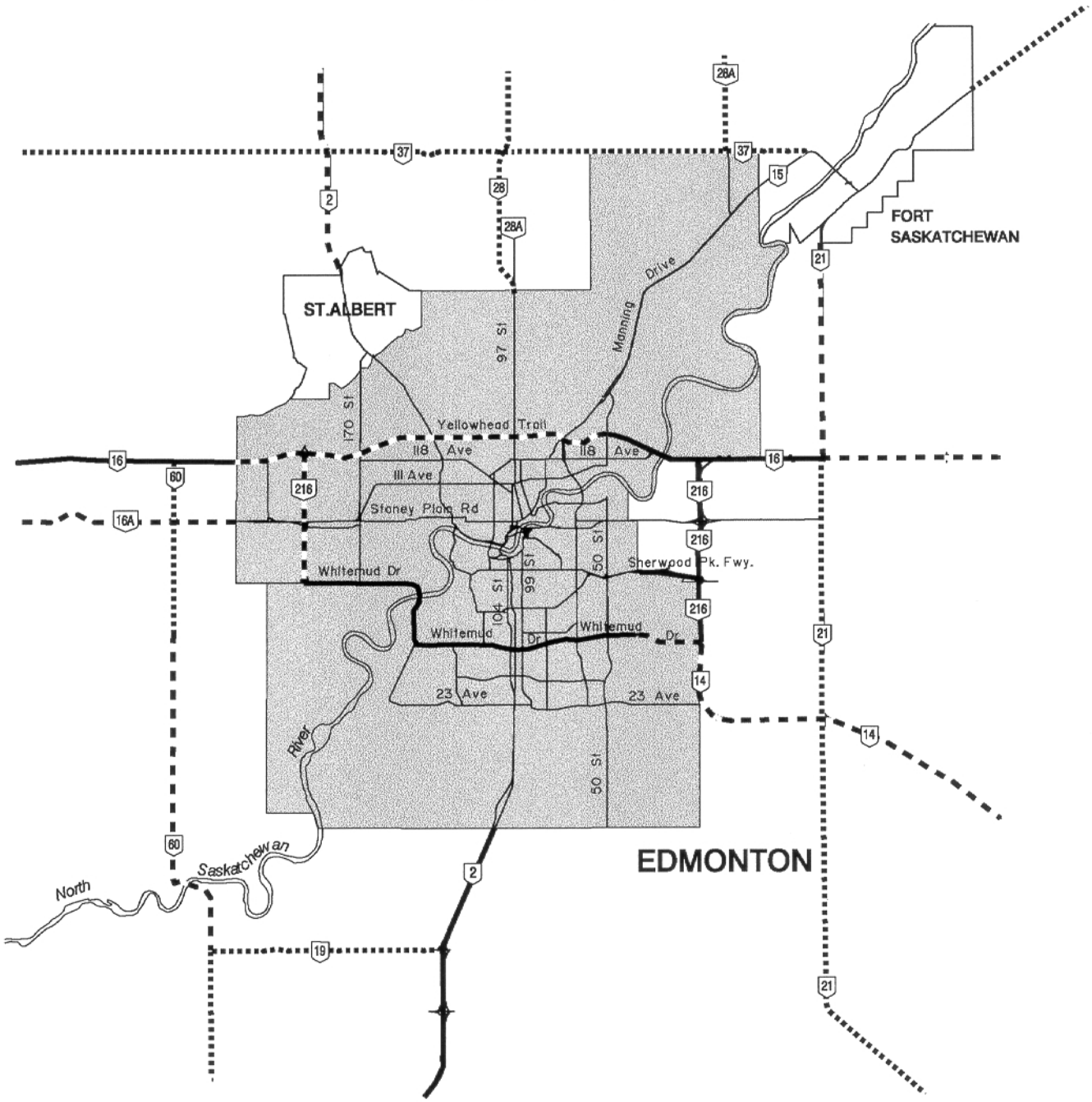
FIGURE I - 1.3b

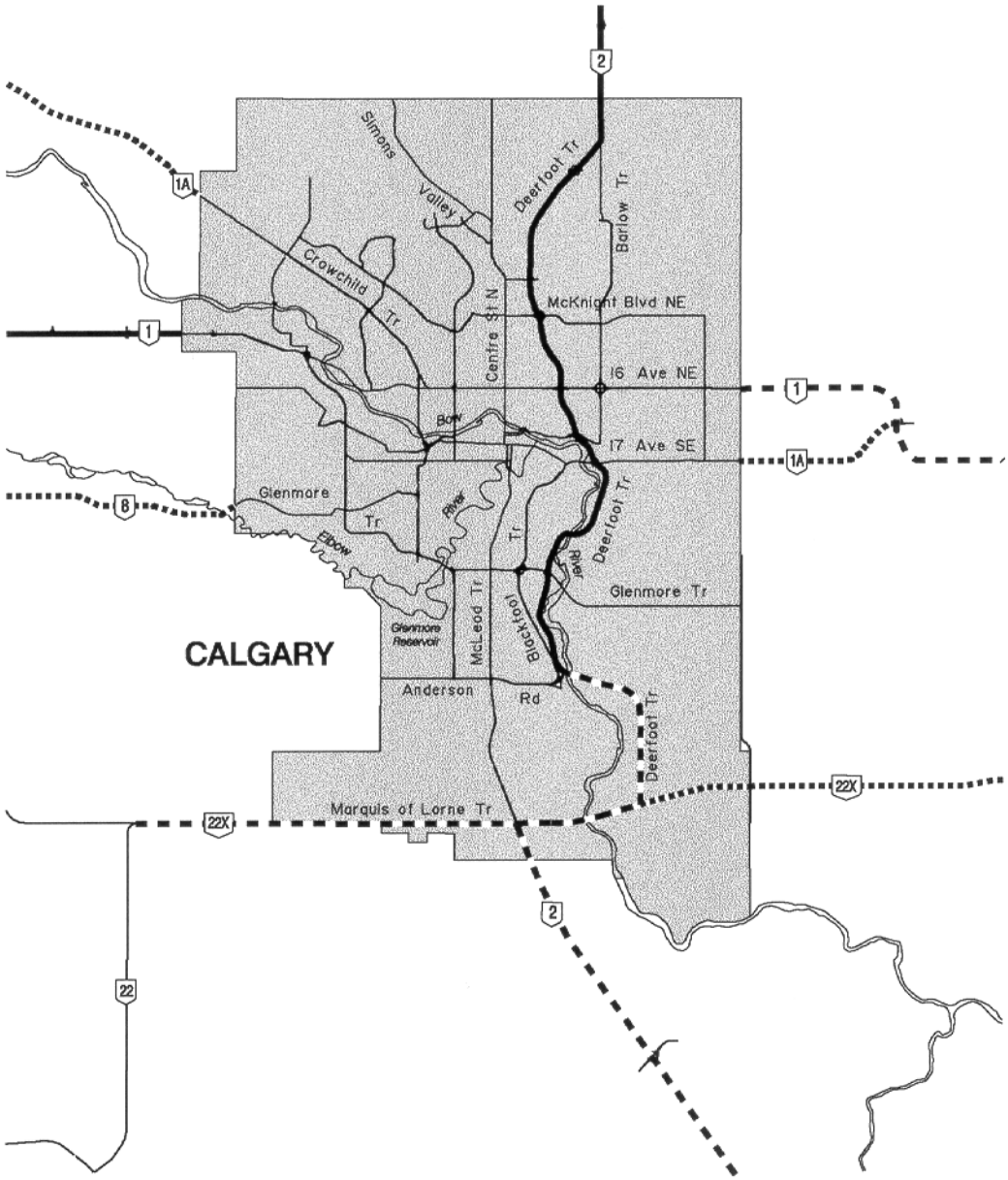


EXISTING CLASSIFICATION OF PRIMARY HIGHWAY SYSTEM IN EDMONTON VICINITY

FREEWAY
EXPRESSWAY
MAJOR ARTERIAL

design file: 960627b.map

FIGURE I - 1.3c



EXISTING CLASSIFICATION OF PRIMARY HIGHWAY SYSTEM IN CALGARY VICINITY

- FREEWAY
- EXPRESSWAY
- MAJOR ARTERIAL
- OTHERS

design file: 960627b.map

FIGURE I - 1.3d

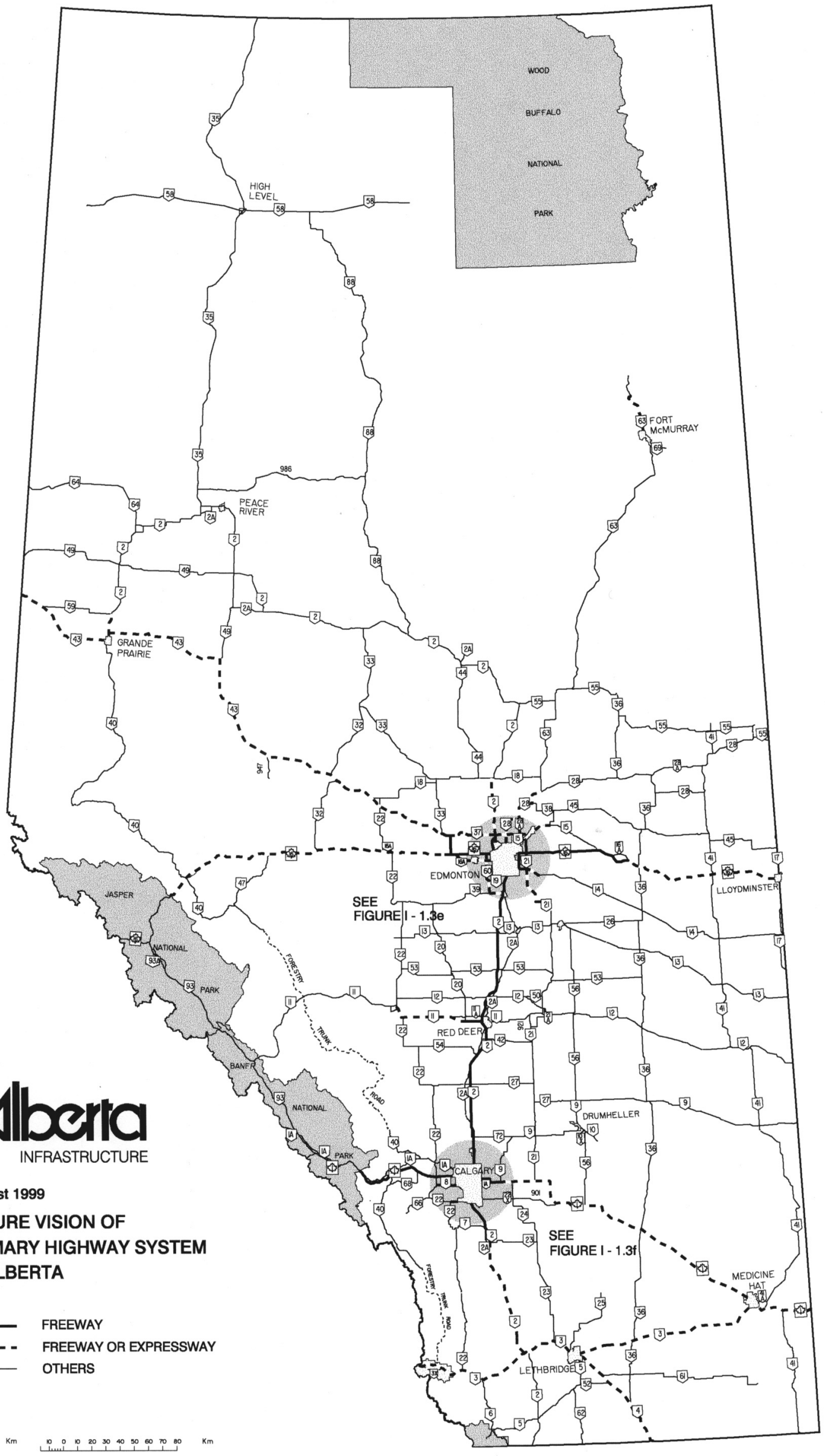


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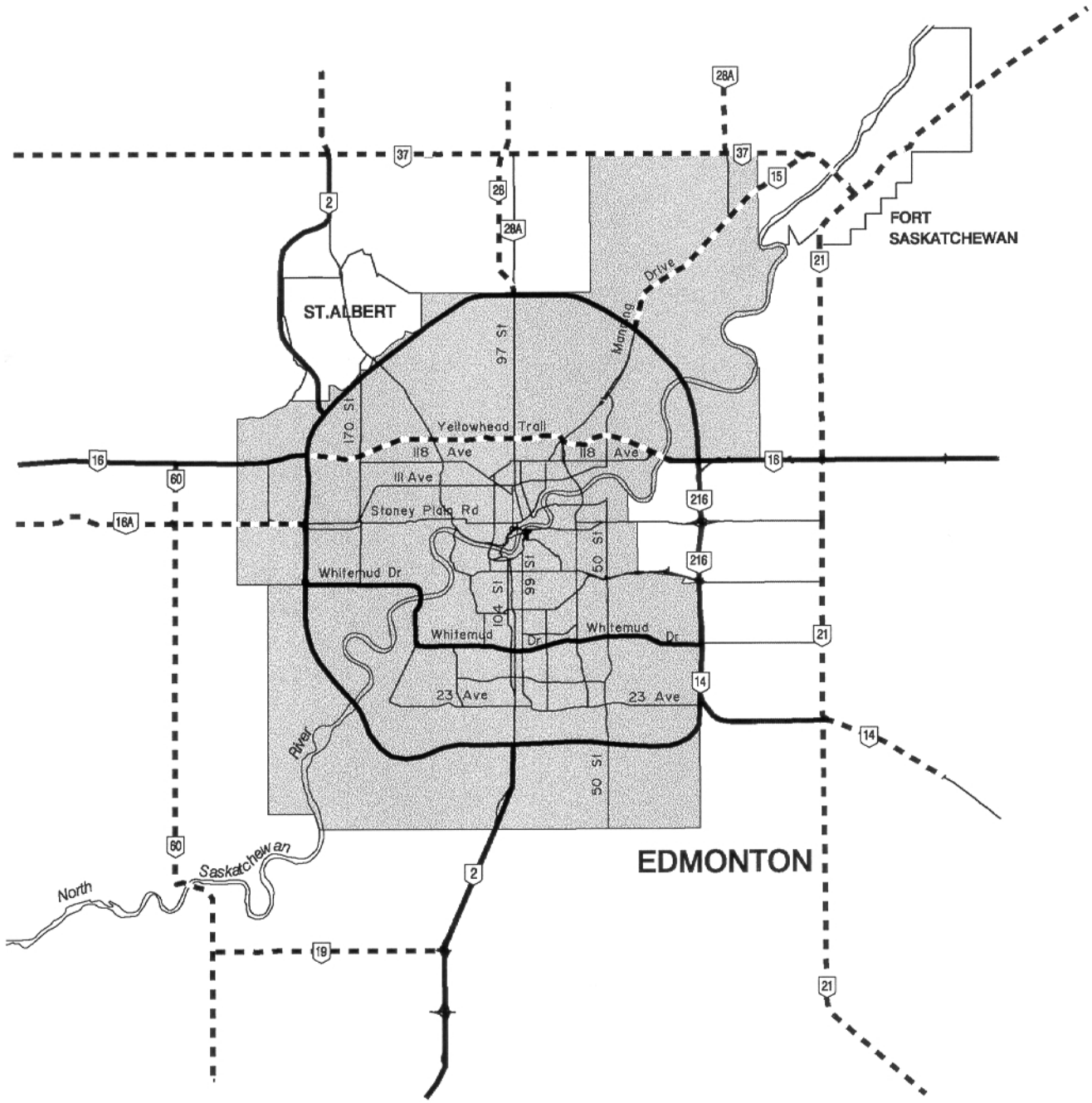
FIGURE I - 1.3e



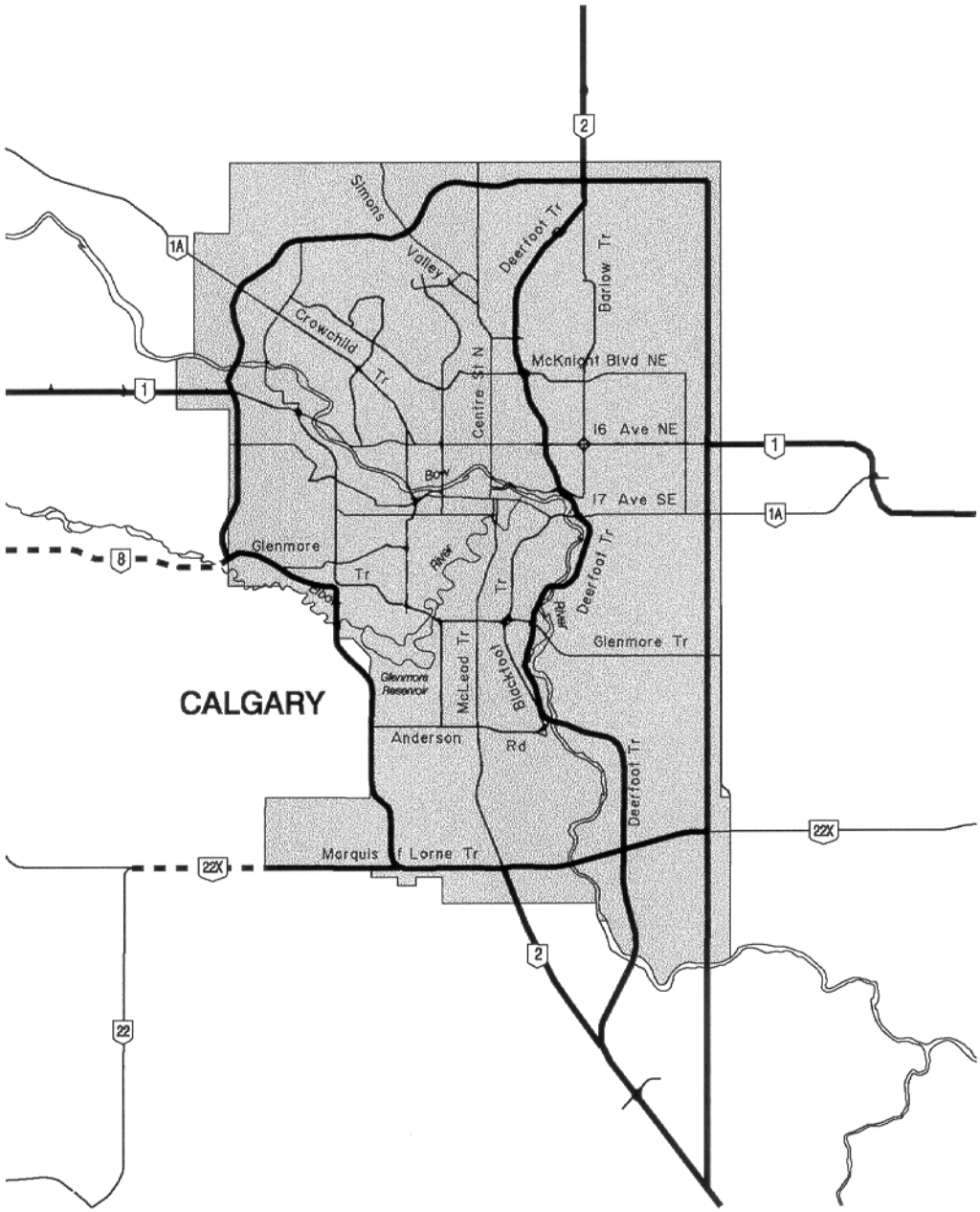
FUTURE VISION OF PRIMARY HIGHWAY SYSTEM IN EDMONTON VICINITY

FREEWAY

FREEWAY OR EXPRESSWAY

design file: 960627a.map

FIGURE I - 1.3f



FUTURE VISION OF PRIMARY HIGHWAY SYSTEM IN CALGARY VICINITY

FREEWAY

FREEWAY OR EXPRESSWAY

design file: 960627a.map

I.2 LAND USE AND ACCESS MANAGEMENT

Access management and land use management are inextricably bound. The goals of proper access management for any particular roadway design classification or projected classification cannot be achieved without paralleling rural land use goals which support and protect the role of a hierarchical road system throughout the province.

With respect to the provincial primary highway system, legislation has evolved intended in part to protect the system from indiscriminate land development.

While the access management guidelines found in this document tend to deal with access situations on an isolated basis, the following basic land use philosophy is encouraged.

a) Concentrated subdivision and development supported by the framework of an area structure plan or highway vicinity management agreement is encouraged along primary highways particularly in high demand development areas.

b) Subdivisions, such as a farmstead separation or first parcel out of an unsubdivided quarter section, should be reviewed on the basis that they do not proliferate the number of access points to the primary highways.

c) Significant changes in use of existing means of access to the primary highway classes, which negatively affect the operation of the highway classes, should be discouraged.

d) New developments/subdivisions should be directed to access local roads as opposed to creating new or using existing temporary direct private means of access to the primary highway classes. It is by far preferable to improve a local road intersection with a highway as opposed to improving existing temporary private intersections.

e) Means of access to a development should not be permitted in the vicinity of major at-grade rural intersections. Development accesses within major intersection improvement areas compromise the safety and operation of the major intersection.

I.3 ADMINISTRATION

I.3.1 Provincial Jurisdiction

The Minister of Infrastructure has the direction, control and management of:

- all primary highways, (outside of the city corporate limits)
- highways through Indian Reserves, the title to which is vested in the Crown in right of Alberta and that are not the subject of an agreement with a rural municipality under section 13 (Public Highways Development Act),
- highways in cities if the title to the highway is vested in the Crown in right of Alberta pursuant to Section 22 (Public Highways Development Act), and
- secondary highways numbered in the 900 series that the Minister by order designates as being under his direction, control and management.

The Public Highways Development Act is specific as to the control of access to all primary highways. All primary highways are controlled highways. Under this legislation, **a person is not, of right, entitled to any direct access to or from a controlled highway or to any land adjacent to it**. The Minister may, at any time, close any highway (public road) providing access to or from a controlled highway or any means of access between a controlled highway and land adjacent to a controlled highway.

I.3.1.1 Permits

New means of access to a controlled highway or significant changes in the use of an existing means of access to a controlled highway must have a permit. Permit issuance is a Region/District responsibility. The department's standard "Application for Development permit Near a Primary Highway" form is used for new or change in use of means of access. In the cases of roads other than controlled highways, where the Minister has control and jurisdiction, letters of approval shall be used by the Districts in the granting of new means of access or altering the use of existing means of access.

I.3.2 Municipal Jurisdiction

In rural areas (outside urban incorporated areas), the local taxing authority is the road authority for all public roads within their limits except those under provincial jurisdiction. The Municipal Government Act provides the councils of these municipalities the control and management of the public highways, roads, streets, lanes, alleys, and bridges, including the air space above and the ground below. This, together with their land use planning controls, should provide the necessary means for the prudent management of access.

I.3.3 Unauthorized Means of Access

Under the Public Highways Development Act (Section 43) it is an offense for a person without excuse or justification to obstruct or deposit any material on a highway, or interfere with, break, cut or otherwise injure a highway. By definition under the Act a "highway" means land used or surveyed for use as a public highway or road. The Act further provides that the highway authority concerned may remove the obstruction or material deposited on the highway and repair the highway and recover its expense in an action in debt. This may be done whether or not a conviction through the court is made.

Persons constructing means of access to a controlled highway without the benefit of a permit and when approval of access will not be forthcoming, shall be notified by the District Operations Manager, in writing. The reasons for not approving the means of access, as well as a prescribed time for the owner to remove the means of access, is to be specified. The letter shall be served on the owner either personally or by double registered mail. If the owner fails to comply with the request within the specified time and if, in the opinion of the District Operations Manager, the means of access constitutes in any way an immediate safety hazard to the travelling public, he/she shall cause to have the means of access removed but with prior written notice to the landowner of his intention.

If the unauthorized means of access does not, in the opinion of the District Operations Manager, constitute an immediate safety hazard, then he/she shall prepare a draft Ministerial notice, together with an explanation of the situation, and forward the material through the Regional System to the Minister for his consideration.

It is an offense under the Public Highways Development Act for any person to construct a means of access to a controlled highway (primary highway) without the benefit of a permit.

I.3.4 Variance Procedures

While the guidelines within this report should be followed, it is recognized that there will be instances where exceptions may need to be considered. In order to maintain administrative control pertaining to exceptions, the following procedures shall be followed for roadways under the jurisdiction of Alberta Infrastructure.

1. For roadways in the design classification categories ranging from local up to and including arterials, proposed variances shall be reviewed by the District Operations Manager.
2. For roadways in the design classification categories ranging from major arterials up to and including freeways, proposed variance shall be referred to the Executive Director of Planning Services Branch.
3. Planning Services Branch should be notified of all variances for reference purposes for possible future guideline amendments.

I.3.5 Temporary Means of Access

There will be cases when a developer/landowner, in the pursuit of their proposed activities, will request the use of an existing access, or creation of a new means on a temporary basis, which is not in keeping with the access management guidelines. Temporary means of access should be avoided, particularly in cases where the proposed activity upon the land will be of a permanent nature and sensitive to a future change of access location.

When a temporary access is to be considered, the application should clearly state the temporary nature together with a specified time after which the applicant will discontinue the use of the means of access or cause to have the means of access removed, whichever case applies. A gas and oil well site development is an example of where a temporary access situation may be allowed during the site preparation.

I.3.6 Cost and Responsibility

I.3.6.1 Private Access

In cases where the department approves applications for new means of private access or requires improvement of an existing private mans of access, the applicant should normally be responsible for the cost and construction. The landowner/developer can be the applicant, but in all cases, the landowner must sign the application. The original access to a quarter section is generally built by Alberta Infrastructure.

I.3.6.2 Public Access

In cases where the department approves applications for new means of public access or requires the improvement (intersectional treatment) of an existing means of public access as a result of a particular development/subdivision, the applicant should normally be responsible for the cost and construction. The municipality should be the applicant even though in many cases they may require through their development agreement process a particular landowner(s)/ developer(s) to pay for the construction and cause to have the construction undertaken. This general philosophy applies to all roads administered by the Department.

I.3.7 Removal of Nonessential Accesses

Attempts should be made to remove all nonessential means of access. In all cases, prior consultation with the landowner regarding private access, or the local road authority regarding public access, is required.

I.3.8 Change of Use/Intensified Use of an Existing Means of Access

There will be cases when a developer/landowner will request to make joint use of an existing direct means of private access. In some cases the joint use of an existing access may be desirable as opposed to considering a new direct means of access. As examples, two dwellings using a joint private access is generally acceptable as would a new minor utility installation jointly using a field or farmstead access.

Normally any significant changes in the use of a private means of access or more intensified use of a private means of access should be avoided and the guidelines of the manual should be followed as though the existing means of access did not exist. New development proposals in the vicinity of existing means of private access which should not be used, may prompt the removal of the existing access, with indirect access being established by way of a service or local road to a public road access.

I.4 ROADWAY JURISDICTIONS, DESIGN CLASSIFICATIONS AND ACCESS TYPES

I.4.1 Roadway Jurisdiction and Design Classification

These access management guidelines are based upon a hierarchial design classification system - local roads, collectors, arterials, expressways and freeways. The design classification system used is based on the T.A.C. design classification system; this system is similar to the department Functional Classification system (see Sections I.4.1.2.1 and A.2).

In rural areas the higher classification roadways that exist or are projected, i.e., freeways, expressways, and arterials, are predominantly within the provincial primary highway system under the control and jurisdiction of the province. Collectors, mostly secondary highways, are generally under municipal jurisdiction. Local roads are normally under the local road authority jurisdiction. There are however cases where rural municipalities, particularly near the larger urban centres, have roads under their jurisdiction that are or will evolve into the higher design classifications, i.e., arterials and expressways. Generally most rural municipal road authorities will be limited to dealing with roadway design and access management for the arterial, collector and local road classifications.

Table I.4.1 shows the general relationship between rural roadway jurisdiction and classification.

Table I.4.1 General Relationship between Rural Roadway Jurisdiction and Classification

Jurisdiction	Administrative Classification	Design Classification	Reference Section
Provincial	Primary	Freeways	I.5.1
		Major Expressways	I.5.2
		Expressways	I.5.3
		Major Arterials	I.5.4
		Minor Arterials	I.5.5
Municipal *	Secondary	Expressways	I.5.3
		Major Arterials	I.5.4
		Minor Arterials	I.5.5
		Collectors	I.5.6
	Other	Minor Arterials	I.5.5
		Collectors	I.5.6
		Local Roads	I.5.7

* Secondary highways and public roads in Indian Reserves are under provincial jurisdiction.

I.4.1.1 Administrative Classification

Primary Highway

Primary highways are controlled highways under the jurisdiction, control and management of Alberta Infrastructure.

Secondary Highway

Secondary highways are the 500 to 900 numbered series of roadways normally under the jurisdiction, control and management of the local municipal government, except for those of the 900 series which the Minister, by order designates as being under his direction, control and management. Secondary highways in Indian Reserves are under the jurisdiction, control and management of Alberta Infrastructure.

Other Roads

Other roads are public roadways under the jurisdiction, control and management of the local municipal government. Public roads in Indian Reserves are under the jurisdiction, control and management of Alberta Infrastructure.

I.4.1.2 Design Classifications

I.4.1.2.1 Arterial Highways

In this chapter, arterial highways are further defined by the designations of Freeway, Major Expressway, Expressway, Major Arterial and Arterial. These five distinctions to the "arterial" class are desirable, especially for access management purposes, in order to ensure that appropriate decisions are made in regard to land use and highway design / planning.

Freeway

A rural freeway is a divided highway facility that accommodates large traffic volumes generally moving at high speeds under free flow conditions. The function of a freeway is traffic service. No direct land access is allowed on freeways because of the need for unrestricted traffic movement.

Major Expressway

A rural major expressway is an expressway which is projected to become a freeway in the ultimate stage.

Expressway

The primary function of an expressway is traffic service. An expressway may have some at grade intersections which may later be grade separated.

Major Arterial

A rural major arterial is an arterial which could become an expressway or a freeway in the ultimate stage.

Minor Arterial Road

A rural minor arterial road carries large traffic volumes moving at high speeds. Traffic service is the primary function of rural arterial roads. Direct access to an arterial road may be restricted.

I.4.1.2.2 Collector Road

A rural collector road has a traffic service function and a land access function, both of which are of equal importance.

I.4.1.2.3 Local Road

The main function of rural local roads is land access. The intended traffic service function of a local road is to allow vehicles to reach properties.

I.4.1.3 Access Types

Public Road Access

A public road access is the intersection of two public roadways or the intersection of a primary highway and a public road.

Highway Commercial Access

A highway commercial access is the means of access to a roadway from a parcel of land serving a highway commercial development such as a service station, truck stop, etc. The location and geometric standard of the access (or accesses) to be used is dependent on the specific use of the property and the roadway classification.

Rural Industrial Access

A rural industrial access is the means of access to a roadway from a parcel of land used in industry. The location and geometric standard of the access to be used is dependent on the specific use of the property and the roadway classification.

Rural Recreational Access

A rural recreational access is the means of access to a roadway from a recreational facility such as a golf course or a campground. The location and geometric standard of the access to be used is dependent on the type of facility and the roadway classification.

Multi Country Residential Access

A multi country residential access is the means of access to a roadway from a country residential subdivision which consists of more than one lot.

Farmstead Access

A farmstead access is the means of access to a roadway from a farm residence. The dimensions of the access must be adequate to accommodate farm machinery and truck movements.

Field Access

A field access is the means of access to a roadway from a parcel of land used for agriculture. It is similar to a farm access in that it must accommodate farm machinery and truck movements.

Utility Access

A utility access is the means of access to a roadway from a utility installation such as a microwave tower, pumping station, power company substation, etc.

Resources Access

A resource access is the means of access to a roadway from a well site, gravel pit, coal mine, log haul, etc.

I.5 ACCESS MANAGEMENT BY DESIGN CLASSIFICATION

For access management purposes, Alberta's roadways are divided into seven categories:

a) Freeways

b) Major Expressways

c) Expressways

d) Major Arterials

e) Minor Arterials

f) Collectors

g) Local Roads

Figure I-1.3a shows the existing classification of the primary highway system.

Table I.4.1 on page I-18, together with Figures I-1.3a, I-1.3b and I-1.3c can be used as a guide for selecting the appropriate section for access management assessment.

Table I.5 on page I-31 is a summary of the guidelines by design classification and access type.

I.5.1 Freeways

Full access control is required on freeways. No at-grade intersections are allowed.

Figure I-1.3a (Existing Classification of Primary Highway System), see page I-7, shows the highways which are classified as freeways.

The design and location of local access to freeways shall be governed by the following:

a) Requests for development access at or within 3 km of an existing or future system interchange shall be referred to the Executive Director, Planning Services for approval due to various design requirements (weaving, interchange spacing, staging, etc.).

b) Development at or near an existing or future land service interchange (within 1.6 km) shall be accessed via the interchange from the minor road only.

   i. The access road intersection with the minor road shall be compatible with existing and future minor road improvements.

   ii. The interchange configuration type together with the minor roadway's geometric design elements (horizontal alignment, vertical profile, intersection sight distance, weaving distance between at-grade intersections, adequate distance to accommodate the required guide and regulatory signs plus safety considerations) must be collectively considered when determining the closest proximity of an access road intersecting with the minor road in relation to the interchange itself. This "offset" of the access road intersection, measured along the minor road, should be a minimum of 425 m away from the nearest interchange ramp intersection, or a minimum of 150 m from the end of the proposed or constructed interchange ramp taper on the minor road, whichever distance is greater (see Figures I-5.1b and I-5.1c).

Figure I.5.1a Typical Freeway Access Management

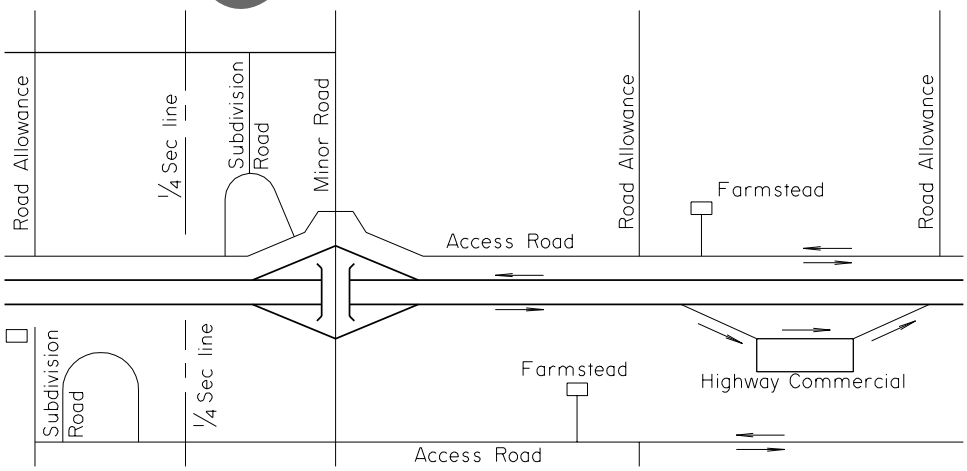


Figure I-5.1b Offset of Access Road Intersection at Diamond Interchange

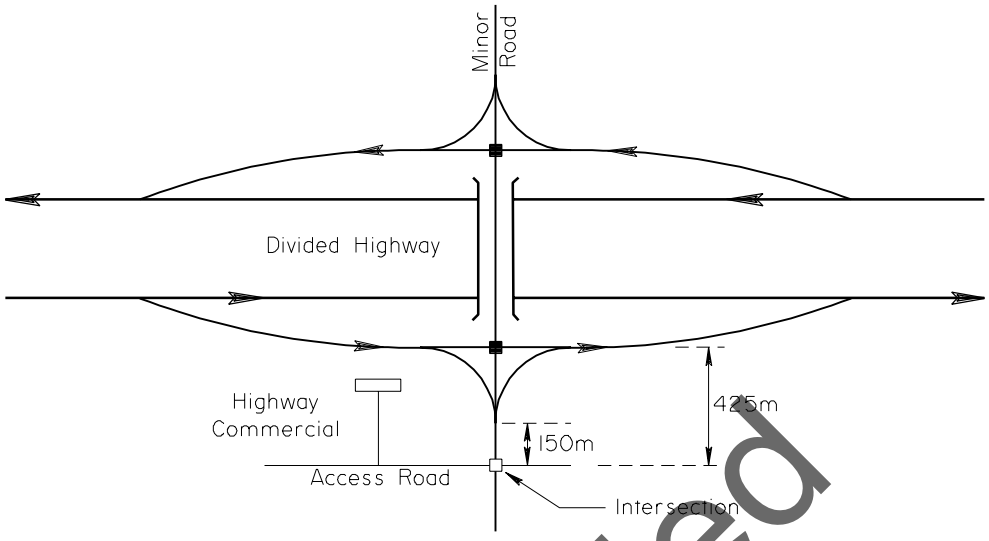
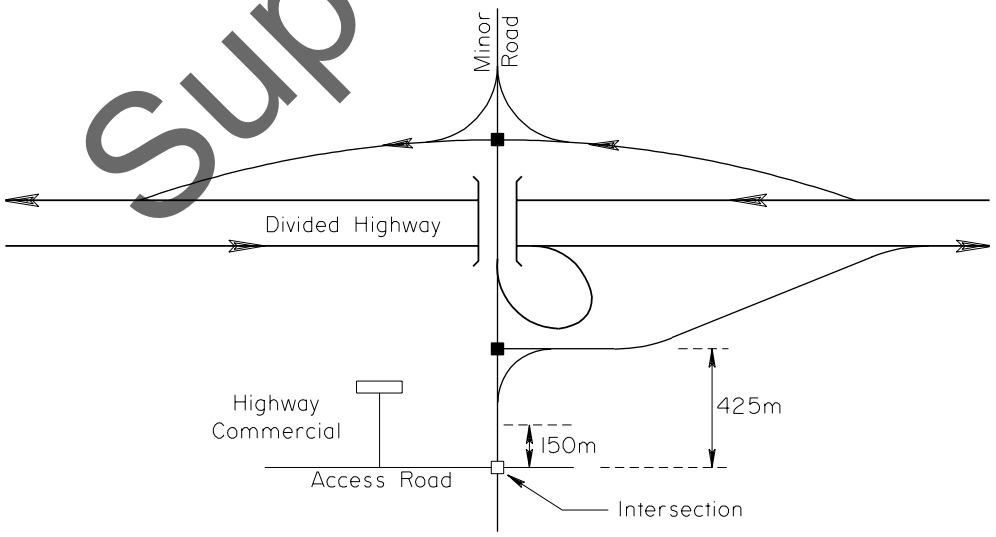


Figure I-5.1c Offset of Access Road Intersection at Parclo Interchange



iii. Development access must be restricted to the minor connecting roadway. No development access will be permitted to the freeway or to the entrance and exit ramps and loops of a freeway interchange (see Figure I-5.1d).

c) Developers are encouraged to develop within a quadrant of an existing or proposed land service (minor) interchange site. Advantages to the developer would include:

i. Reduction in roadway infrastructure cost.

ii. Access to more than one direction of travel.

d) Subject to detailed review, developments more than 1.6 km or one mile from an existing or future interchange may be permitted to operate independently, but must be served by one-way highway exit and entrance ramps.

i. The one-way highway exit and entrance ramp design shall be compatible with existing conditions and future highway improvements, designed to operate safely, and properly signed in advance. (See Figure I-5.1e.)

ii. The integration of one-way highway exit and entrance ramps with a continuous two-way service road paralleling the highway shall generally not be permitted.

iii. Either an exit ramp or an entrance ramp by itself will not be permitted.

Figure I-5.1d Avoid Successive Ramps

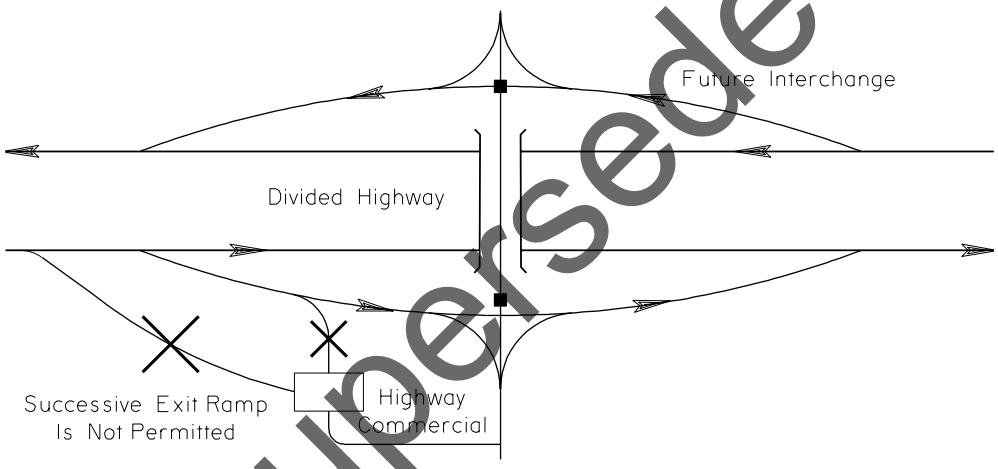
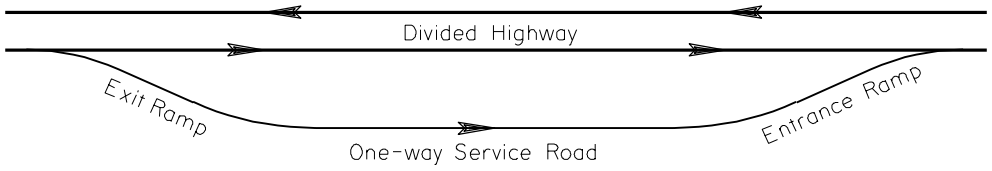


Figure I-5.1e One Way Highway Exit/Entrance Ramps



I.5.2 Major Expressways

This group includes expressways which are projected to become freeways at some time in the future. Existing private accesses to the highway may remain on a temporary basis. These accesses shall be removed when the highway is upgraded to freeway status, when there is a change in use of the access or when there are operational problems. Significant intensified use of an existing means of private access due to change in land use shall be discouraged. All new accesses should be compatible with future freeway plans.

I.5.2.1 Highway Commercial Access

Developers should be encouraged to use an access to a public road which intersects the highway at an existing or a future land service interchange site. (See Figure I-5.2.1.)

The design and location of highway commercial access to major expressways shall be governed by the following:

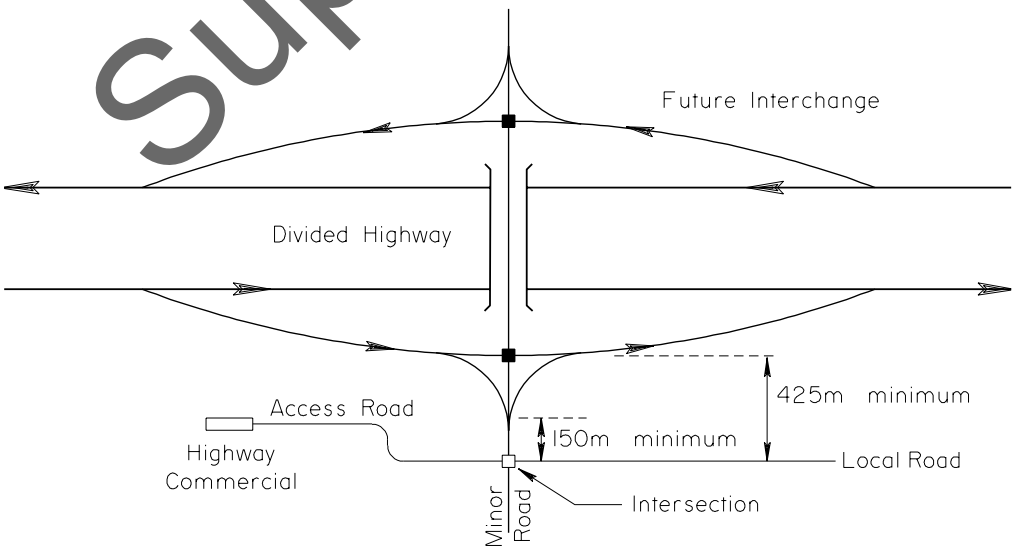
a) Requests for development access at or within 3 km of an existing or future system interchange shall be referred to the Executive Director, Planning Services Branch for approval due to various design requirements (weaving, interchange spacing, staging, etc.). Refer to Planning Services Branch for system interchange locations.

b) Developments closer than 1.6 km from an existing or future land service interchange shall be accessed via the interchange from the minor road only.

   i. The access road intersection with the minor road shall be compatible with existing conditions and future minor road improvements.

   ii. The interchange configuration type together with the minor roadway's geometric design elements (horizontal alignment, vertical profile, intersection sight distance, weaving distance between at-grade intersections, adequate distance to accommodate the required guide and regulatory signs plus safety considerations) must be collectively considered when determining the closest proximity of an access road intersection with the minor road in relation to the interchange itself. This "offset" of the access road intersection measured along the minor road, should be a minimum of 425 m from the nearest interchange ramp intersection, or a minimum of 150 m from the end of a proposed or constructed interchange ramp taper on the minor road, whichever distance is greater (see Figure I-5.2.1).

Figure I.5.2.1 (Major Expressways) Highway Commercial Development near Future Interchange Site



c) Subject to a detailed review, developments more than 1.6 km from an existing or future interchange may be permitted to operate independently, and must be served by one-way highway exit and entrance ramps.

   i. The one-way highway exit and entrance ramp design shall be compatible with existing conditions and future highway improvements.

   ii. Median openings (existing or new) shall not be permitted for new developments.

   iii. Existing median openings for existing developments shall be removed when the highway is upgraded or when safety conditions warrant their removal.

   iv. The integration of one-way highway exit and entrance ramps with a continuous two-way service road paralleling the highway shall not be permitted.

   v. Either an exit ramp or an entrance ramp by itself will not be permitted (see Figure I-5.1c).

Note: For other types of accesses refer to Table I.5.

I.5.3 Expressways

This group contains expressways which will not be upgraded to freeway status.

I.5.3.1 Highway Commercial Access

Highway commercial development at the intersection of a major public road with an expressway should be avoided unless such an intersection is a confirmed interchange location (see Section I.5.2.1). Development is encouraged to access the minor road only. However, consideration may be given to a right-in/right-out access in conjunction with the use of the minor road access, with the spacing dependent on the intersection design and signing requirements (a minimum spacing of 400 m shall be maintained) (Figure I-5.3.1).

I.5.3.2 Farmstead Access

Existing direct access may remain on a temporary basis and shall be removed when the highway is upgraded. No direct means of access shall be permitted for new farmsteads. Indirect access shall be provided by existing public roads. Joint use of an existing access may be considered. See Figure I-5.3.2.

Figure I-5.3.1 (Expressways) A Right-In and Right-Out Access

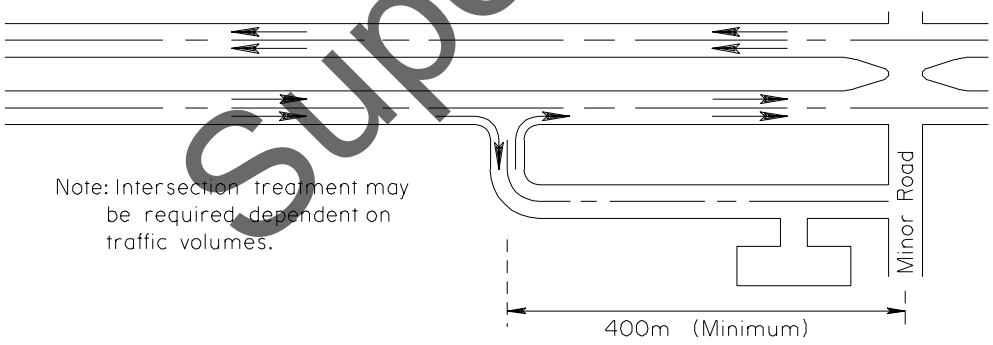
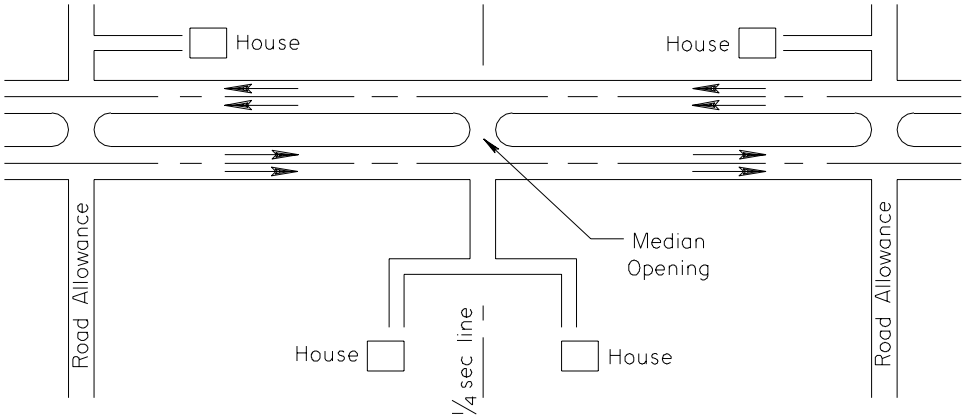


Figure I-5.3.2 (Expressways) Joint Farmstead Access



Note: For other types of accesses refer to Table I.5.

I.5.4 Major Arterials

Major arterials are existing rural arterial two-lane highways that could at some time become multi-lane expressways or freeways (see Figures I-1.3a, I-1.3b and I-1.3c for the highways that fit into this group). An existing arterial highway can evolve over a long period of time to ultimately become an expressway or a freeway. For example, an existing arterial highway projected ultimately to be a freeway will go through developmental changes from the two lane arterial stage through an expressway stage, then into its final freeway form. Access to adjoining lands will change through these roadway development stages, whereby temporary at-grade private and public roads will be phased out and replaced by interchanges at selected locations. In recognition of variability in staging of these roadways, flexibility is included in the access management guidelines to accommodate various scenarios.

Note: For various types of accesses refer to Table I.5.

I.5.4.1 Farmstead Access

Existing direct access may remain on a temporary basis and may be removed when the highway is upgraded. Indirect access via the public road system should be encouraged for new farmsteads. A limit of one direct access per quarter section is permissible if there is a lack of alternate local road access. Joint use of an existing direct access may be considered (see Figure I-5.5.1.)

I.5.5 Minor Arterials

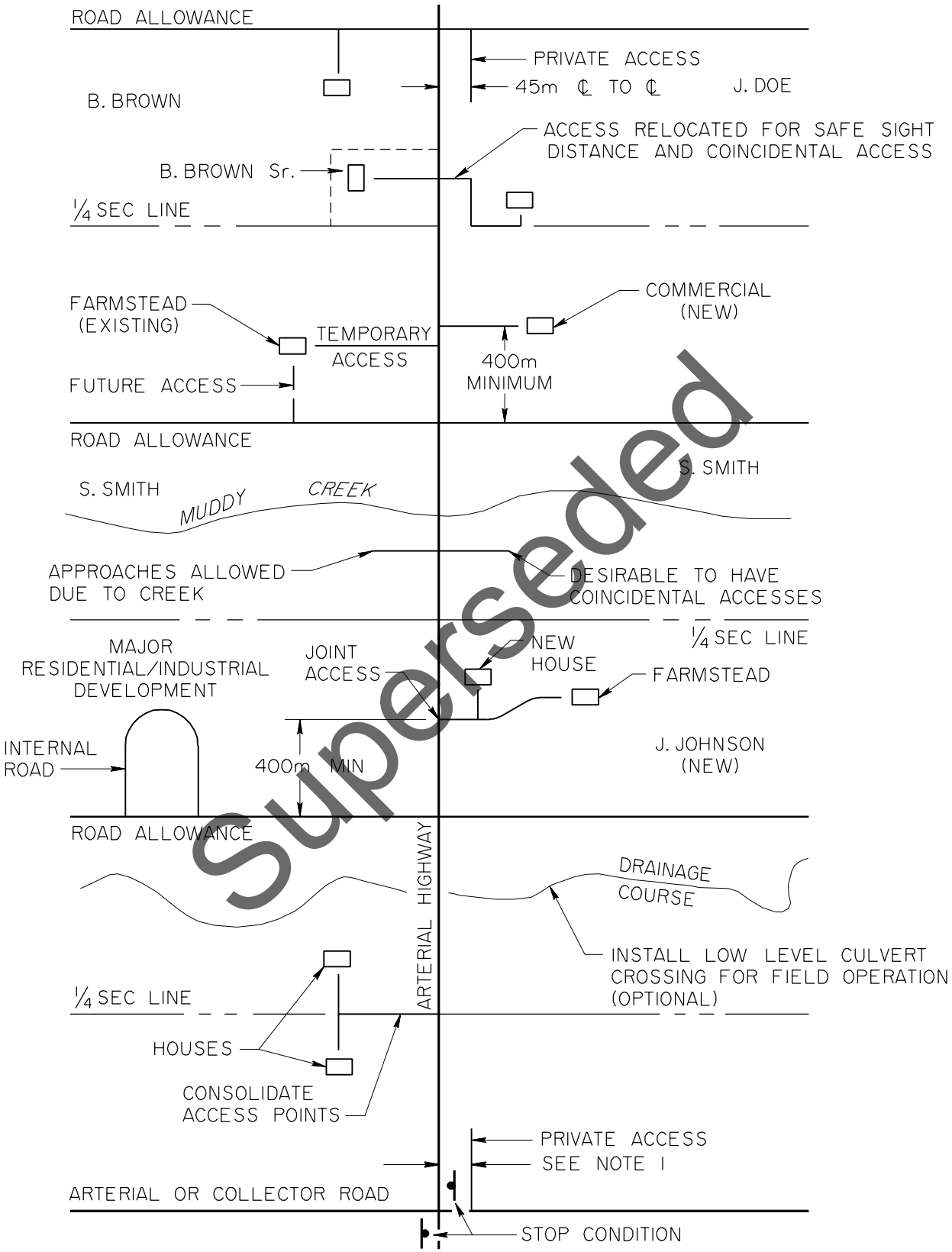
This category includes arterials which are not expected to be upgraded to an expressway or freeway classification. Generally this category contains two-lane primary highways.

I.5.5.1 Farmstead Access

A limit of one direct farmstead access per quarter section is desirable. Existing farmstead accesses, in excess of one per quarter, may remain on a temporary basis and may be eliminated at the time of future highway upgrading. Ideally accesses should be at least 400 m from the public road intersection or another access. However, in cases where existing farmstead accesses are less than 400 m from the public road intersection, they may be considered to remain on a temporary basis provided that safety and geometric standards are met.

New farmstead accesses should not be allowed where a farmstead presently exists on the quarter section. Access via the local road should be encouraged at new farmsteads. See Figure I-5.5.1. Joint use of an existing access should be considered.

FIGURE I-5.5.I ACCESS MANAGEMENT PRACTISES ON ARTERIALS



NOTES:

1. THE SETBACK REQUIRED FOR MINOR ACCESSES FROM MAJOR INTERSECTIONS, FOR EXAMPLE THE JUNCTION OF TWO ARTERIAL HIGHWAYS, SHOULD BE ASSESSED ON A SITE SPECIFIC BASIS. ACCESSES SHOULD BE LOCATED SO THAT THEY DO NOT ADVERSELY AFFECT OPERATION OF THE INTERSECTION.
2. GUIDELINES FOR LOCATION OF ACCESSES TO ROADWAYS IN LOW SPEED URBAN ENVIRONMENTS ARE NOT PROVIDED IN THIS DOCUMENT.

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I.5.6 Collectors

This category is composed of a network of roadways providing access to important market areas serving agricultural, commercial, industrial and recreational needs. Collector roads are predominantly secondary highways that may be paved having speed limits of 100 km/h.

General rules for collectors are listed as follows:

i. If a development is bordered by two roadways of different classification, access should be to the lower classification roadway.

ii. One access per quarter section (800 m length) is desirable but some situations may warrant a maximum of two, for example, if a quarter section is physically divided by a natural feature such as a ravine or creek (Figure I-5.6a).

iii. Private means of access should be located at least 400 m from a major intersection (an intersection with another collector or higher classification roadway).

iv. The distance between approaches should be at least 150 m. Utilizing a joint access should be considered.

v. Attempts should be made to remove all redundant field approaches.

vi. The desirable spacing between public road intersections is 1.6 km. A minimum spacing of 800 m may be considered.

Figure I-5.6b illustrates access management practices on collectors.

Figure I-5.6a Two Accesses per Quarter Section

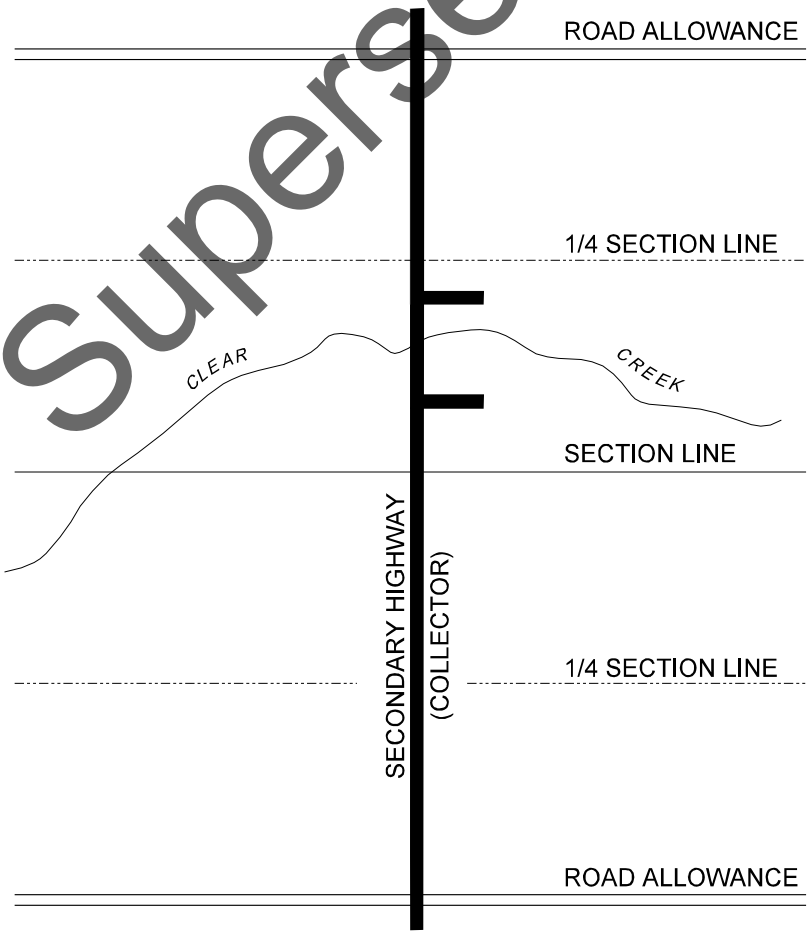
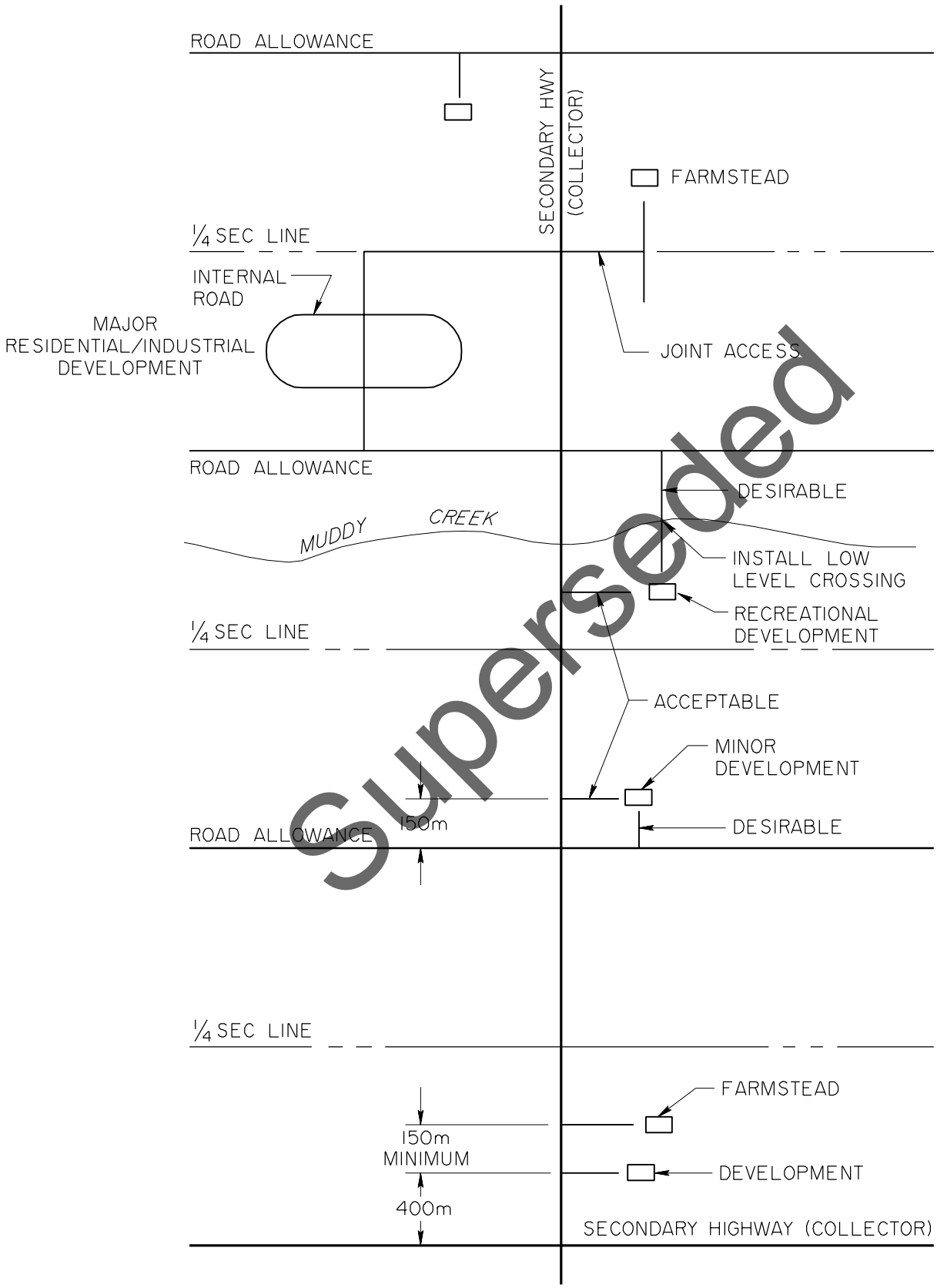


FIGURE I-5.6 ACCESS MANAGEMENT PRACTISES ON COLLECTORS



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I.5.7 Local Roads

As previously defined, the main function of a local road is land access. The intended traffic service function of a local road is to allow vehicles to reach properties.

Throughout these guidelines, a local road refers to a road where land access is its main function. For roads carrying traffic with a speed of >60 km/h, a maximum of two accesses per quarter section is desirable. If more than two accesses are requested for one quarter section, common accesses should be utilized. For speeds ≤60 km/h, a higher number of access points may be allowed. However, proliferation of accesses should be avoided. If reasonable and practical, offset intersections (see Figure I-5.7) should be avoided. Geometric standards should be considered when locating access points. Section I.6 outlines some of these standards.

Figure I-5.7 An Offset Intersection

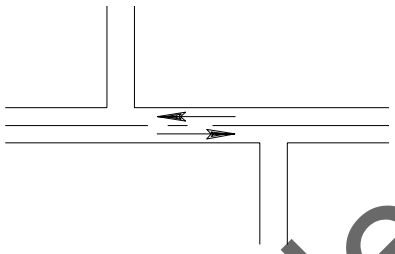

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Table I.5 Access Management by Design Classification

Access Type	Design Classification						
	Freeways	**Major Expressways**	**Expressways**	**Major Arterials**	**Minor Arterials**	**Collectors**	**Local Roads**
Public Road	Full access control is required on freeways. No at-grade intersections are allowed.	Allow existing intersections to remain on temporary basis. Remove when upgrading highway. Discourage new intersections. Minimum spacing 1.6 km.	Consider new access based upon demonstrated need. Minimum spacing 1.6 km.	Maintain minimum spacing of 1.6 km.	Desirable spacing between accesses is 1.6 km.	If a development is bordered by two roadways of different classifications, access should be provided from the lower classification roadway. The desirable spacing between public road intersections is 1.6 km. One access per **3** section (800 m) is desirable but some situations may warrant a maximum of two. Private means of access should be located at least 400 m from a major intersection (an intersection with another collector or higher classification roadway). A spacing of 800m between approaches is desirable. The distance between approaches should be at least 150 m. Utilizing a joint access should be considered. Attempts should be made to remove all redundant field approaches.	The main function of a local road is land access. A maximum of two accesses per **3** section is desirable. If more than two accesses are requested, joint accesses should be utilized. Proliferation of accesses should be avoided. Offset intersections should be avoided. Geometric standards should be considered when locating access points. For roads carrying traffic with speeds >60 km/h a maximum of two accesses per **3** section is desirable. For speeds $\leq$ 60 km/h a higher number of access points may be allowed.
Highway Commercial	Highway exit and entrance ramps considered. No at-grade intersections are allowed.	Developments <1.6 km from existing or future interchange, access via interchange from minor road only. Developments >1.6 km from existing or future interchange may operate independently. Must be served by one-way highway exit and entrance ramps.	Avoid development at intersection of major public road with expressway unless it is a confirmed interchange location. Encourage development to access minor road only. May consider right-in/right-out access in conjunction with minor road access. Minimum spacing is	Access must be compatible with future access management plans. All requests for access shall be referred to Executive Director, Planning Services Branch.	Do not allow access within 400 m of a public road allowance to allow for adequate intersection spacing (see Figure I.5.5.2). Allow maximum of two accesses per development (minimum spacing of 150 m) subject to design considerations.		
Rural Industrial	Full access control is required on freeways. No at-grade intersections are allowed.	Existing access may remain on temporary basis. Remove when upgrading highway. Do not permit direct access for new developments. Provide indirect access by existing public roads. Discourage spot development in favor of industrial parks.	Existing access may remain on temporary basis. Remove when upgrading highway. Do not permit direct access for new developments. Provide indirect access by existing public roads. Discourage spot developments in favor of industrial parks.	Existing access may remain on temporary basis. Remove when upgrading highway. Provide indirect access for new developments by existing public roads. Discourage spot development in favor of industrial parks.	Existing access may remain on temporary basis. May remove when upgrading highway. Provide indirect access by existing public roads. Discourage spot development in favor of industrial parks.		
Rural Recreational	Full access control is required on freeways. No at-grade intersections are allowed.	Existing access may remain on temporary basis. Remove when upgrading highway. Do not permit direct access for new developments. Provide indirect access by existing public roads. See Figure I.5.1.	Existing access may remain on temporary basis. Remove when upgrading highway. Do not permit direct access for new developments. provide indirect access by existing public roads.	Existing access may remain on temporary basis. Remove when upgrading highway. Provide indirect access for new developments by existing public roads.	Existing access may remain on temporary basis. May remove when upgrading highway. Preferably, should provide indirect access by existing public roads. May allow direct access but not within 400 m from a public road intersection. Development tends to be site		
Multi Country Residential	Full access control is required on freeways. No at-grade intersections are allowed	Existing access may remain on temporary basis. Remove when up upgrading highway. Do not permit direct access for new developments. Provide indirect access by existing public roads.	Existing access may remain on temporary basis. Remove when upgrading highway. Do not permit direct access for new developments. Provide indirect access by existing public roads	Existing access may remain on temporary basis. Remove when upgrading highway. Provide indirect access for new developments by existing public roads.	Existing access may remain on temporary basis. May remove when upgrading highway. Provide indirect access by existing public roads.		
Farmstead	Full access control is required on freeways. No at-grade intersections are allowed.	Existing access may remain on temporary basis. Remove when upgrading highway. Do not permit direct access for new farmsteads. Provide indirect access by existing public roads.	Existing access may remain on temporary basis. Remove when upgrading highway. Do not permit direct access for new farmsteads. Provide indirect access by existing public roads or may consider joint use of existing direct access.	Existing access may remain on temporary basis. May remove when upgrading highway. Encourage indirect access via public road system. Limit of one direct access per **3** section is permissible if lack of alternate local road access. May consider joint use of existing direct	Limit of one access per **3** section is desirable. Accesses should be >400 m from the public road intersection or another access. New access should not be allowed where farmstead exists on **3** section. Should consider access via local road or joint use of existing direct access.		
Field	Full access control is required on freeways. No at-grade intersections are allowed.	Existing access may remain on temporary basis. Remove when upgrading highway. Do not permit direct access for new developments. Provide indirect access by existing public roads.	Existing access may remain on temporary basis. Remove when upgrading highway. Do not permit direct access for new developments. Provide indirect access by existing public roads.	Access from field should be via the public road system. Do not convert existing accesses to other uses. Try to remove redundant field accesses. May consider new approaches where there is a demonstrated need (e.g., where physical barriers such as creeks or ravines exist)	Access from field should be via the public road system whenever possible. Do not convert existing accesses to other uses. Try to remove redundant field accesses. May consider new approaches where there is a demonstrated need (e.g., where physical barriers such as		
Utility	Full access control is required on freeways. No at-grade intersections are allowed.	Existing direct access may remain on temporary basis. Remove when upgrading highway. Do not permit direct access for new utility installations. Provide indirect access by existing public roads.	Existing direct access may remain on temporary basis. Remove when upgrading highway. Do not permit direct access for new utility installations. Provide indirect access by existing public roads. May considered a right-in/right-out access.	Existing direct access may remain on temporary basis. Remove when upgrading highway. Provide indirect access for new developments by existing public roads. May permit direct access if traffic is limited and infrequent. May consider joint use of existing access.	Access should be via the public road system or use on existing access. May permit direct access if traffic is limited and infrequent.		
Resource	Full access control is required on freeways. No at-grade intersections are allowed.	Provide indirect access by existing public roads. May consider temporary means of access. Developer may be required to provide access compatible with freeway/expressway standards.	Should provide indirect access by existing public roads. May consider temporary means of access. Developer may be required to provide access compatible with expressway standards.	May permit temporary access. Permanent access should be off the local road and be compatible with future expressway/freeway plans and standards.	May permit a new access but should consider access to a lower category roadway or joint use of an existing access. May permit temporary access during site preparation and drilling. If development becomes permanent, developer must relocate access.		

I.6 DESIGN STANDARDS AND GUIDELINES FOR ACCESS TREATMENT

This Section contains general information about design standards and guidelines regarding means of access to highways. Generally the design of private or public access to highways shall be treated in the same way as highway intersection design. All aspects of intersection design, with the exception of access management, are covered in detail in Chapter D of this Design Guide. The chief considerations used for locating accesses and establishing geometric parameters are covered briefly here.

I.6.1 Location of Access

When locating an access the following design parameters should be considered.

I.6.1.1 Distance from Curves

Intersections on horizontal curves are undesirable and should be avoided whenever possible. Superelevation on a curve has an adverse effect on turning vehicles. Intersections shall be placed away from the curve and set back a desirable distance of 150 m from the end of the curve. Where this criteria cannot be met, the minor road may intersect the highway on a curve only where it is permitted in Section D.3 of this Guide. In this case, horizontal and vertical sight distance should be checked. Each intersection should be evaluated individually on site to ensure that the configuration will promote safe operation.

I.6.1.2 Distance from Bridges

In cases where an access is located near the end of a bridge or grade separation structure, the sight distance at the intersection should be thoroughly checked with the sight distance criteria (intersection sight distance, ramp setback distance, etc.) as stipulated in Section D.4 of this Guide. In addition, storage length and taper length for the intersection may also affect the distance.

I.6.1.3 Distance from Interchanges and Intersections

An access road intersection with the minor road should be a minimum of 425 m from the nearest interchange ramp intersection, or a minimum of 150 m from the end of the interchange ramp taper, whichever distance is greater. See Figure I-5.1a.

I.6.1.4 Distance from Railways

When an access is located near or at a grade separated railway crossing, sight distance requirements as set out in Section D.4 should be met or exceeded.

The distance required between an intersection and an at-grade railway crossing should be determined site specifically considering turning movements, storage requirements, etc. If the intersection has the potential for intersectional treatment, the distance between the railway right-of-way and the approach should be adequate to accommodate the treatment. If these criteria cannot be met, the intersection should be relocated. Currently, Transport Canada has implemented regulations stipulating a minimum 30 m spacing between the railway and the intersecting road. Designers should use the latest regulations and guidelines from Transport Canada in their design.

I.6.2 Geometrics

It is extremely important that the geometric design standards be met at approach intersections. Chapter D shows the detailed guidelines to be used in intersection design. It also shows some standard treatments for lower volume intersections (or accesses) and provides a methodology to be used on higher volume intersections where a detailed analysis is required. Some other factors to be considered include intersection sight distance, gradients, skew angles and turning radii, design vehicles and speed.

I.6.2.1 Intersection and Decision Sight Distance

A driver entering the highway from an access should have an unobstructed view of the whole intersection and of a length of the intersecting highway sufficient to allow safe movement through the intersection. Both the horizontal sight triangle and the vertical alignment should be checked to ensure that the minimum intersection sight distance is provided. Chapter D contains intersection sight distances for various design speeds and design vehicles. For a major access, it is desirable to provide decision sight distance on the main alignment. Refer to Section B.2.6 for details on Decision Sight Distance.

I.6.2.2 Gradients

At all intersections at grade, vertical curves and gradients on the through highway and intersecting roadway should be designed such that greater than minimum stopping sight distances are obtained. The approach gradient of the access road where there is a stop condition should be designed for safety and maintenance requirements. The gradient on the main alignment should be as flat as possible to minimize operational problems for vehicles, accelerating and decelerating under snow and ice conditions. The design guideline for gradients on the main alignment and intersecting roadways is shown in Section D.3.3 of this Guide.

I.6.2.3 Skew Angles

The angle of intersection between an access and another roadway should be 90° or as near to right angles as practical for safety and economy. Design guidelines dealing with skew angle of intersecting roadways are shown in Section D.3.2.

I.6.2.4 Turning Radii

Intersections and accesses are designed to accommodate the design vehicles that are required based on current and anticipated turning movements. Section D.5.1 contains the guideline to be used in selecting an appropriate design vehicle. Having chosen a design vehicle, the turning radii, pavement widths and edge of pavement alignment may be determined based on the vehicles turning templates contained in Chapter D. All of the standard at-grade intersection treatments (with one exception - Type I) will accommodate design vehicles up to WB-23. Special vehicles (for example log haul trucks) require a special design treatment.

I.6.2.5 Intersection Treatment

Acceleration, deceleration, and bypass lanes should be provided at an intersection if warranted by traffic volumes or operational requirements as per the guidelines shown in Section D.7. If necessary, a detailed intersection analysis should be undertaken.