Chapter Thirty-five

ACCESS CONTROL/ ACCESS MANAGEMENT

BUREAU OF DESIGN AND ENVIRONMENT MANUAL

Chapter Thirty-five
ACCESS CONTROL/ACCESS MANAGEMENT

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Chapter Thirty-five
ACCESS CONTROL/ACCESS MANAGEMENT

Chapter 35 discusses the general concepts of access management, describes common access management techniques, and presents detailed figures on providing access control for interchange crossroads and for crossroads intersecting expressways. Additional access control criteria and access management techniques are contained in the following chapters:

- Chapter 36, Section 36-7.01, provides general guidelines for designing the connections of proposed driveways and entrances to State highways in conjunction with new construction highway projects, and modifying the connections of existing driveways and entrances to State highways in conjunction with new construction, reconstruction, or 3R highway projects.
- Chapter 37 briefly describes access control criteria around interchanges.
- Chapter 44 presents access control drawings illustrating the mainline of rural and urban freeways.
- Chapter 45 discusses access control policies regarding expressways and includes illustrations of access control at frontage road/service drive intersections.
- Chapter 46 discusses access management techniques regarding Strategic Regional Arterials.

The IDOT Bureau of Operations handbook entitled, *Policy on Permits for Access Driveways to State Highways* (governed by the Illinois Highway Code sections 605 ILCS 5/4-209, 4-210, 4-211, and 4-212 and 92 Ill. Admin. Code 550) discusses procedures for obtaining access to non-access controlled State highways. It also describes the design requirements for driveways and entrances in conjunction with individual permits. Section 36-7.02 of this Manual also provides general information regarding the highway access permit process for new or revised individual entrances to a State highway.

35-1 GENERAL CONCEPTS

35-1.01 Definitions

1. Access Control. The condition where the public authority regulates the right of abutting owners to have access to and from a public highway by declaring the highway to be either fully or partially access controlled. This is accomplished through the purchase of access rights or right-of-way, driveway controls, turning restrictions, or geometric design (e.g., grade separations).

2. Access Management. The process of governing access to land development by a public agency where the agency considers the highway facility and its surrounding activities as part of an overall system. Individual parts of the system (e.g., zoning, land-use planning, site plan development, driveway permits, public transportation, roadway network) should be properly integrated and coordinated. Through proper application of access management, the objectives of providing safe and efficient traffic flow coupled with access to abutting properties can be achieved.

3. Controlled Access Highway. A highway where the right of abutting property owners or occupants of land to access, light, air rights, or view, in conjunction with a highway design, is controlled by a public authority (605 ILCS 5/8-101).

4. Full Control of Access. Highways which are designated to have full control of access are referred to as freeways. Priority is given to through traffic and access to the highway is only provided at interchanges with selected public roads. All other intersecting roads are either terminated at the right-of-way line, perpetuated with grade separations, or interconnected with other roads. Access is provided to properties abutting the freeway via frontage roads, service drives, or the existing public road system. Full control of access maximizes the capacity, safety, and vehicular speeds on the highway.

5. Partial Control of Access. An expressway design is the common term used for this type of facility. Priority is given to through traffic. Some intersections will be provided and private entrance connections will be allowed by permit. The proper selection and spacing of intersections and other connections provides a balance between the mobility and access functions of the highway.

   Partial access control is required on rural multilane highways designated as expressways. These highways generally are of significant length and connect major termini. In urban areas, an existing highway or street may be designated as an expressway design with partial access control. In addition, some suburban highways on the minor arterial system, which are planned for upgrading to a multilane highway, should be investigated and considered for partial access control.

   Access to expressways is provided by means of interchange facilities or by the following at-grade connections:

   - selected public crossroads,
   - frontage roads,
   - service drives, and
   - one point of direct access from an abutting property which is used solely for farming purposes and/or one point of access for a single family residence. Such points of access must meet the spacing requirements as stated in Chapter 45.

   Direct commercial access to an expressway is prohibited.

6. Managed Access. On highways with neither full nor partial control of access, the concepts of access management are applied to provide an optimum balance between mobility and access functions. Private development is not guaranteed direct access to State-marked highways. However, reasonable access is guaranteed.

7. Control by Regulation. All highways warrant some degree of access management. Control by regulation is exercised by the Department, county highway departments or municipalities to specify the location of private access to and from the public road system. Occasionally, statutory control is used on arterials to restrict access to only public roads and major traffic generators. Zoning may be used to effectively control development on adjacent property so that major generators do not hinder traffic operations. However, zoning restrictions are at the discretion of the local government. Driveway regulations and permits are used to control the geometric design of an entrance, driveway spacing, and driveway proximity to public road intersections.

8. Access Control Line. A line established by the Department that prohibits ingress to and egress from a highway facility. When an existing access controlled highway is reconstructed, the access control lines should be reviewed for possible revisions.

35-1.02 Authority

35-1.02(a) Freeways and Expressways

Chapter 605 ILCS 5 of the Illinois Compiled Statutes is commonly known as the *Illinois Highway Code*. Section 8-101 of the *Code* authorizes the Department, a county, or municipality to evaluate and establish an access controlled type highway which promotes the safety and convenience of highway traffic.

The governing agency also has the authority to control existing and future highway access to land abutting an access controlled highway (Section 8-107) and may extinguish the right of access by purchase or condemnation (Sections 8-102 and 8-103). The *Illinois Highway Code* further authorizes the relocation or termination of intersecting roads (Section 8-106) and the location of first access points on a side road or street (Section 8-101). BDE is responsible for the administration of access requirements for access-controlled highways. The details of access control around major intersections on expressways or along interchange crossroads are shown in figures contained in this Chapter.

35-1.02(b) Other State Highways

Chapter 605, Section 5/4-210, of the *Illinois Highway Code* authorizes the Department to adopt and amend reasonable and necessary rules, regulations, and specifications covering standard entrance or exit driveways that serve residential, farm, commercial, industrial, and roadside service establishments and other uses of property abutting upon highways. These regulations are contained in the *92 Ill. Admin. Code* 550, *Policy on Permits for Access Driveways to State Highways.* The central Bureau of Operations is responsible for administration of the Permit

Policy. In a general sense, Section 5/4-210 of the *Code* enables the Department to manage access to its network of non-access controlled State routes.

In addition, under Section 5/4-210, the Department may introduce controls such as conversion of streets or highways to one-way traffic operation, the prohibition of turning movements, the channelization of traffic by marked lanes, and the wide use of a variety of median types and median barriers.

35-2 ACCESS CONTROL CRITERIA

35-2.01 General

The extent of access control on any freeway or expressway is indicated by the access control line. During the development of location/design studies for a project, access control information is placed on aerial mosaics. The aerial mosaic exhibits are placed in an 11 in x 17 in format and are designated as an appendix to the Phase I report. See Section 35-5 for information on the preparation of access control plans. Access control lines are also placed on construction plans and right-of-way plats and plans.

The access control line is generally coincident with or parallel to the right-of-way line of the normal roadway section and is continuous throughout or intermittent, depending upon the degree of access control provided. The access control line, however, must assume various configurations at grade separation structures and bridges and also must be extended along intersecting highways. The extended distance along intersecting highways shall be sufficient to protect traffic movements near intersections or at interchange ramp terminals.

35-2.02 Access Control Along Interchange Crossroads

The development of the Interstate System and other access-controlled highways in Illinois has demonstrated the importance of minimizing congestion at freeway interchanges. This has been achieved by optimizing the relationship between the highway facilities and the use of land in interchange areas. Sound development of the area of influence around an interchange requires:

- proper land-use of the area adjacent to the interchange to maximize potential development, and
- proper highway design and length of access control along the crossroad.

Land-use planning in the interchange area is the responsibility of the local agency. One of their most valuable assets is undeveloped land. Unplanned development of this area can result in a substantial economic loss to the community and congestion on the adjacent highway system.

The design of the crossroad and the need for access control is a function of the design speed and projected traffic volumes. Also, operational maneuvers between the ramp terminal and the nearest access connection and adequate distance for advance guide signs have an important role in determining access control distances along the crossroad.

If private driveways, commercial entrances, and public streets are located too close to ramp terminals, they cause congested conditions due to conflicts between the ramp traffic, the through traffic on the crossroad, and the turning traffic at the first access connection. Substantial relief from these conditions can be obtained by the extension of access control a predetermined distance along the crossroads. This essential length of protected roadway will allow crossroad/ramp traffic to enter or leave the crossroad free of conflict with access

connection traffic. Such a design will also result in safer and more efficient access to land around the interchange area.

To promote safe and efficient traffic operations in the proximity of interchange ramp terminals and to promote proper land-use planning, the Department has adopted several methods of establishing access control limits along crossroads. Figures 35-2.B through 35-2.J present the Department's access control criteria for interchange areas. These apply to various combinations of interchange type (diamond, parclo, or trumpet), mainline facility type (freeway or expressway), crossroad type (two-lane or multilane divided), ramp type (on, off, or slip), and type of control at ramp terminal intersections with the crossroad (controlled ramp or free-flow). Each figure includes narrative information specifically applicable to that figure. In addition, the following comments apply to all figures:

1. Dimension Values. Figure 35-2.A presents the values for distances (D), bay tapers (T), and lengths to first access condition (L) based on the design speed of the crossroad.

2. Application to Both Sides. The lengths of access control (A/C) as shown in the figures should be provided equally on both sides of the crossroad. This will preclude minor entrances from developing between the ramps and access connections creating closely spaced offset intersections.

3. Existing/Proposed Access Connections. The lengths as shown in the figures should be used for determining the location of access connections. However, where there are existing access connections on the crossroad, the exact termination points of access control may require a detailed study. The study may determine that certain access connections be closed and relocated to a new service drive or frontage road.

   For both existing and proposed connections, the specific design should also include consideration of the character of the area, cultural development, location of property lines, and skew angle of the intersection.

4. Extension of Access Control Beyond Minimums. At certain locations, it may be desirable to extend access control beyond the minimum limits to a nearby intersection or a major traffic generator. However, because the interchange area has marked potential for economic benefit to the community and for providing motorist services, discretion should be used in extending access control beyond the requirements. In all cases, an analysis should be made to determine if an extension of access control beyond the minimum requirements is a sound investment in the interest of highway safety and efficiency and consistent with abutting land use.

5. Controlled Ramp Terminal. A controlled ramp terminal is one through which traffic operations are normally regulated by either stop signs or traffic signals and entrance to or exit from such a terminal is through short-radius turns at a relatively slow speed. The establishment of minimum access control limits adjacent to a controlled ramp terminal is based on the need for auxiliary right- or left-turn lanes on the crossroad and for proper signing distance.

In evaluating operational maneuvers as a basis for establishing the extent of access control, the nearest access connection, whether existing, proposed, or future, is considered to be capable of generating traffic volumes of such magnitude as to require auxiliary turning lanes between the ramp terminal and access connection. Such consideration is necessary because the nature of such connections is readily susceptible to changes in development.

6. Free-Flow Ramp Terminals. A free-flow ramp terminal permits traffic to either enter or exit the crossroad at a relatively high speed without regulation of these maneuvers by either stop signs or traffic signals. The establishment of access control limits beyond free-flow ramp terminals, to the nearest access point, is based on the need for providing adequate space for critical operational maneuvers and to provide adequate geometric facilities for these maneuvers. Adequate distance for the placement of guide signs must also be provided.

USE TO DETERMINE MINIMUM "L" IN ACCESS CONTROL FIGURES			
Design Speed on Crossroad	**D**	**T**	**G + C**
US Customary			
30 mph	250 ft	150 ft	180 ft
40 mph	300 ft	175 ft	300 ft
45 mph	350 ft	200 ft	350 ft
50 mph	425 ft	225 ft	450 ft
55 mph	500 ft	250 ft	550 ft
60 mph	550 ft	275 ft	650 ft
70 mph	600 ft	300 ft	900 ft
Metric			
50 km/hr.	75 m	45 m	55 m
60 km/hr.	95 m	50 m	90 m
70 km/hr.	110 m	60 m	110 m
80 km/hr.	130 m	70 m	135 m
90 km/hr.	150 m	75 m	165 m
100 km/hr.	170 m	85m	190 m
110 km/hr.	185 m	90m	270 m

L = Length used to determine location of first access connection, ft (m)
T = Length of taper of left-or right-turn lanes, ft (m)
D* = Deceleration distance (which includes T) to a stop condition for left- and right-turn lanes, ft (m)
G = Distance a motorist travels while seeking a gap in the median lane after a free-flow entry, ft (m)
C = Distance traveled while changing lanes (assume 3 seconds of travel time), ft (m)
R_1 = Radius return (see Section 36-2), ft (m)
R_2 = Control radius (see Section 36-2), ft (m)

In some areas, the storage distance (S) may govern, and the length of the turn lane will be either D or S + T, whichever is larger. See Section 36-3 to determine S.

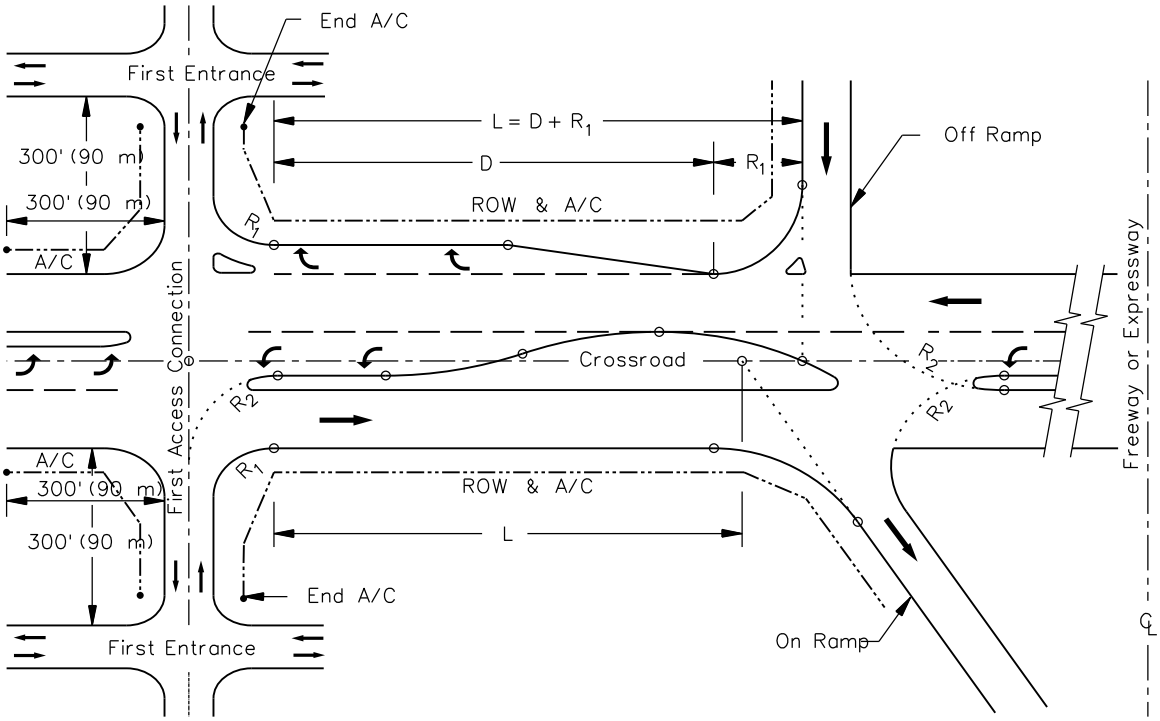
General Notes for Figures 35-2.B through 35-2.H

1. *Where the access connection is a marked route or potential high-volume generator, "L" should not be less than 700 ft (215 m) in rural areas and 500 ft (155 m) in urban areas. These distances will permit the proper placement of the M2-1 (Junction Marker) sign assembly or the placement of the D3 (street name) sign assembly for local roads and streets.*

2. *If the first access connection is a two-lane street or highway, the minimum distance to the first entrances on the access connection should be 300 ft (90 m). For multilane access connections, longer lengths must be considered to the first entrances to allow for the installation of left-turn lanes on the access connection. In all cases, access control is used in each of the four quadrants of the intersection of the first access connection with the crossroad.*

DIMENSIONS FOR ACCESS CONTROL FIGURES AND GENERAL NOTES

Figure 35-2.A



Notes:

1. *The critical length "L" between the off ramp and first access connection usually is governed by a need for a future right-turn lane into the access connection.*

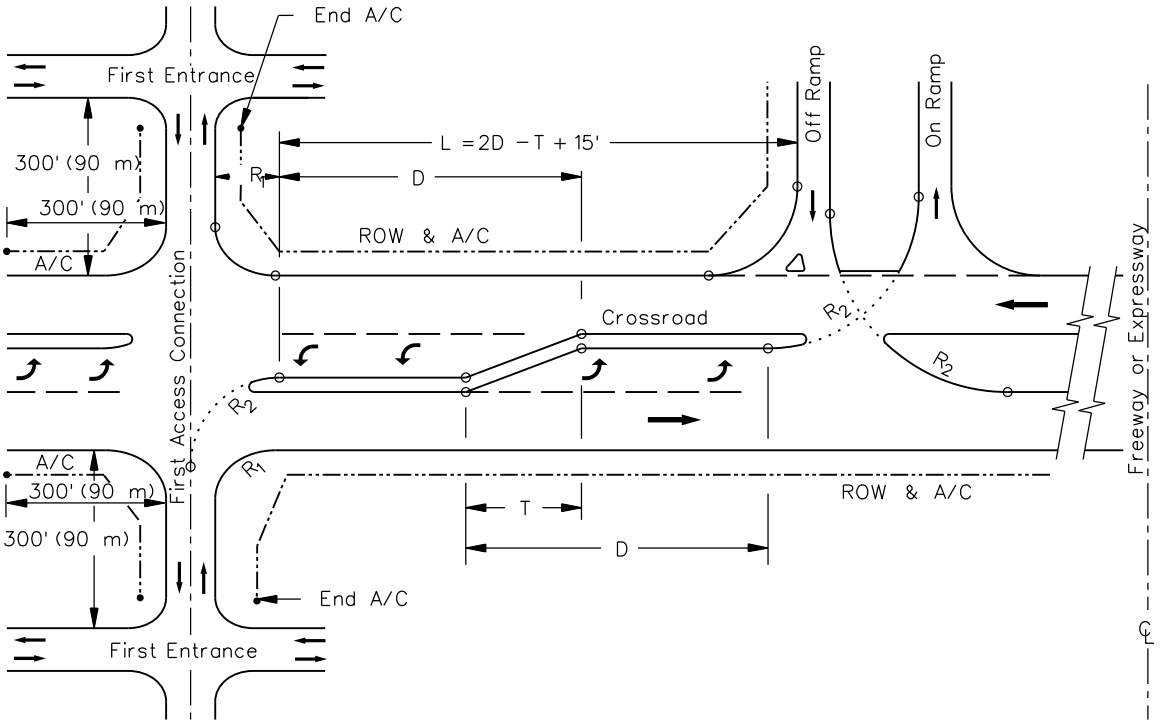
2. *In some cases, the length "L" on the same side of the crossroad as the on ramp may control the location of the first access connection. Check the length "L" on this side for sufficient signing distance. In rural areas, "L" should not be less than 600 ft (180 m). This distance will permit the proper placement of the Advance Route Turn assembly (Freeway) signs.*

3. *Also, refer to General Note 1 on Figure 35-2.A.*

4. *Refer to General Note 2 on Figure 35-2.A.*

ACCESS CONTROL ALONG CROSSROAD AT DIAMOND INTERCHANGE
(Two-Lane or Multilane Divided Crossroad)

Figure 35-2.B



Notes:

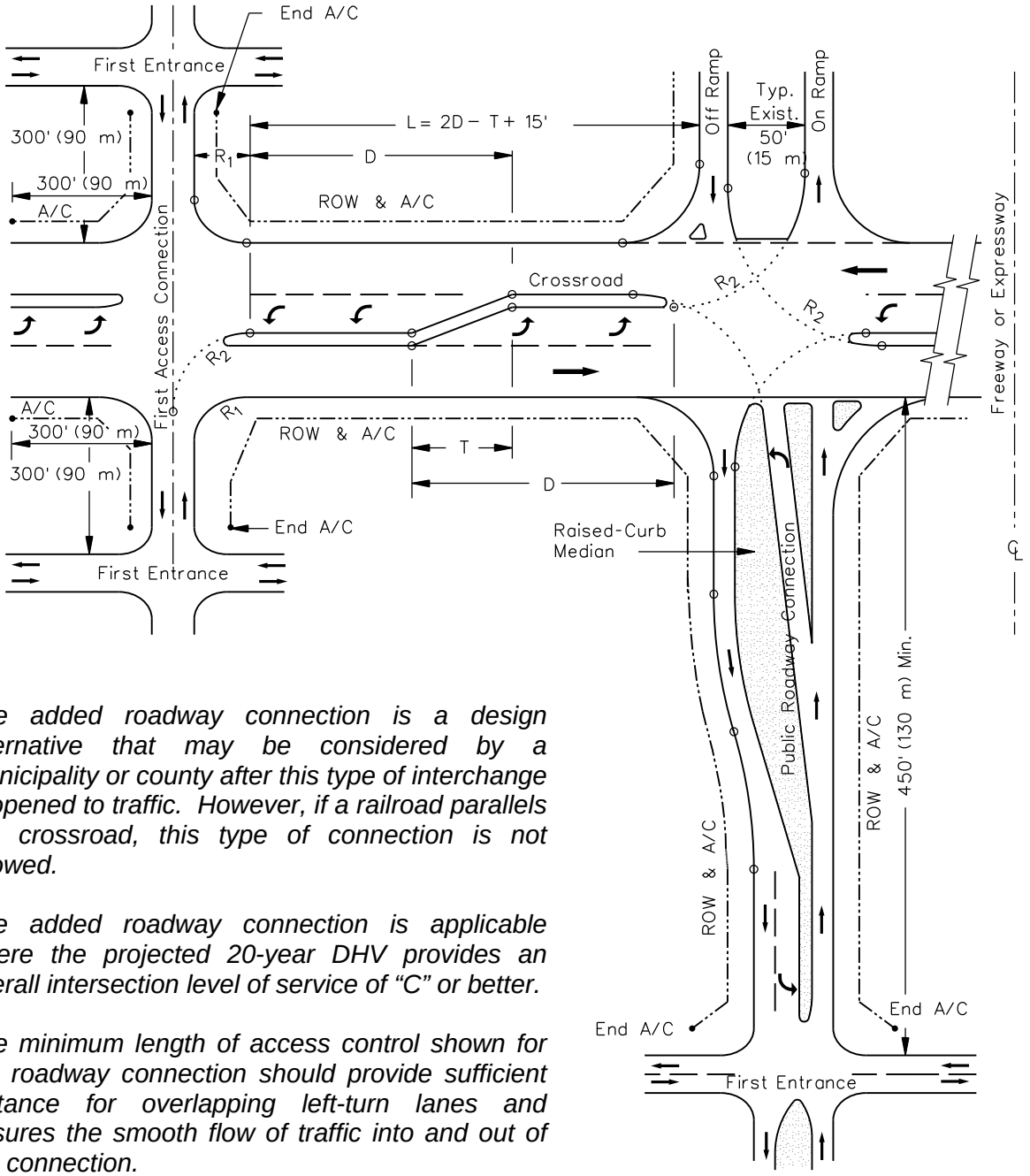
1. *The critical length "L" between the off ramp and first access connection is governed by the need for a left-turn lane into the access connection and the need for a left-turn lane into the on ramp. In addition, refer to General Note 1 on Figure 35-2.A.*

2. *On the opposite side of the crossroad from the off ramp, check the available distance to permit the proper placement of the Advance Route Turn assembly (Freeway) signs. In rural areas, this distance should not be less than 600 ft (180 m) from the access connection to the end of the left-turn lane on the crossroad.*

3. *Refer to General Note 2 on Figure 35-2.A.*

ACCESS CONTROL ALONG CROSSROAD FROM OFF RAMP AT TWO-QUADRANT PARCLO INTERCHANGE (Two-Lane or Multilane Divided Crossroad)

Figure 35-2.C



Notes:

1. *The added roadway connection is a design alternative that may be considered by a municipality or county after this type of interchange is opened to traffic. However, if a railroad parallels the crossroad, this type of connection is not allowed.*

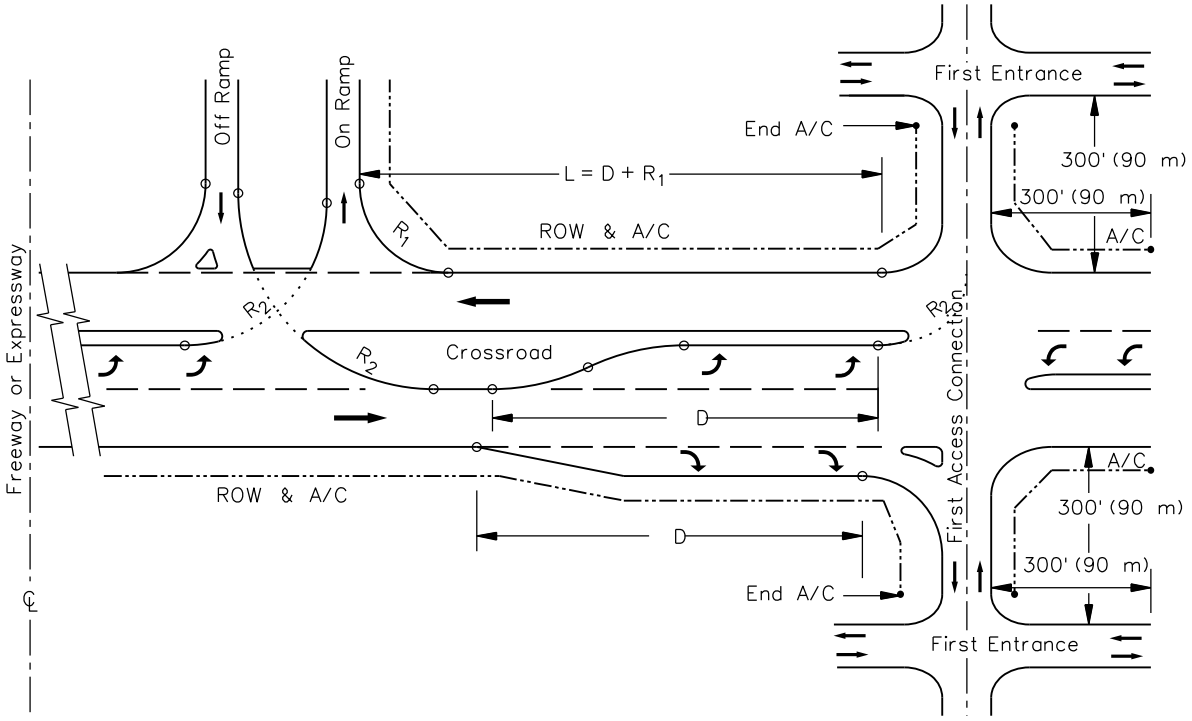
2. *The added roadway connection is applicable where the projected 20-year DHV provides an overall intersection level of service of "C" or better.*

3. *The minimum length of access control shown for the roadway connection should provide sufficient distance for overlapping left-turn lanes and ensures the smooth flow of traffic into and out of the connection.*

4. *Refer to General Note 2 on Figure 35-2.A for the proper design of access control for the first access connection on the crossroad.*

ACCESS CONTROL ALONG ADDED ROADWAY TO CROSSROAD ACROSS FROM OFF/ON RAMP AT TWO-QUADRANT PARCLO INTERCHANGE (Two-Lane or Multilane Divided Crossroad)

Figure 35-2.D



Notes:

1. *The critical length "L" between the first access connection and the on ramp usually is governed by the future need for a right-turn lane into the on ramp. In rural areas, "L" should not be less than 600 ft (180 m). This distance will permit the proper placement of the Advance Route Turn assembly (Freeway) sign.*

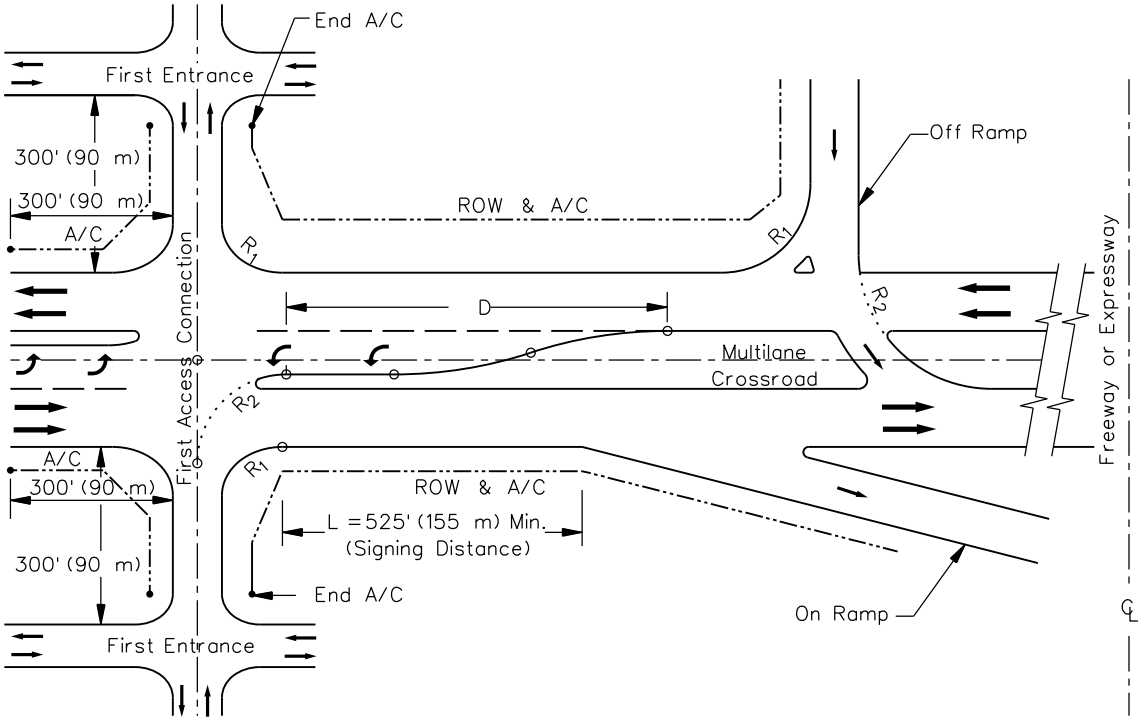
2. *In some cases, the future need of a right-turn lane into the access connection on the opposite side of the crossroad from the on ramp may control the location of the first access connection. Check the layout for the distance available to construct a right-turn deceleration lane.*

3. *Refer to General Note 1 on Figure 35-2.A.*

4. *Refer to General Note 2 on Figure 35-2.A.*

ACCESS CONTROL ALONG CROSSROAD FROM ON RAMP AT TWO-QUADRANT PARCLO INTERCHANGE (Two-Lane or Multilane Divided Crossroad)

Figure 35-2.E



Notes:

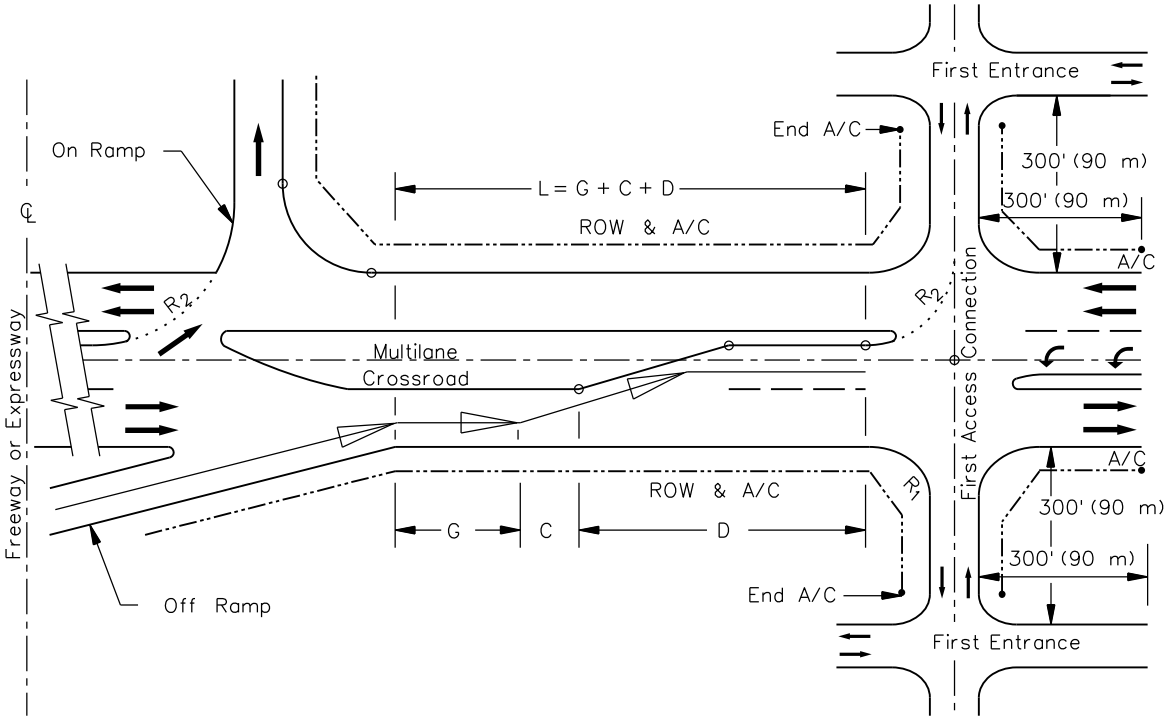
1. *The critical length "L" between the first access connection and the 1 ft (300 mm) stub of the free-flow on ramp is governed by the minimum advance signing distance. This minimum length will provide sufficient distance for the placement of the Advance Route Turn assembly (Freeway) signs.*

2. *Also, check the critical length "L" between the off ramp and the first access connection for adequate distance for a future right-turn lane into the access connection. In addition, refer to General Note 1 on Figure 35-2.A.*

3. *Refer to General Note 2 on Figure 35-2.A.*

ACCESS CONTROL ALONG CROSSROAD AT
FOUR-QUADRANT PARCLO (Type A) INTERCHANGE
(Free-Flow On Ramp)

Figure 35-2.F



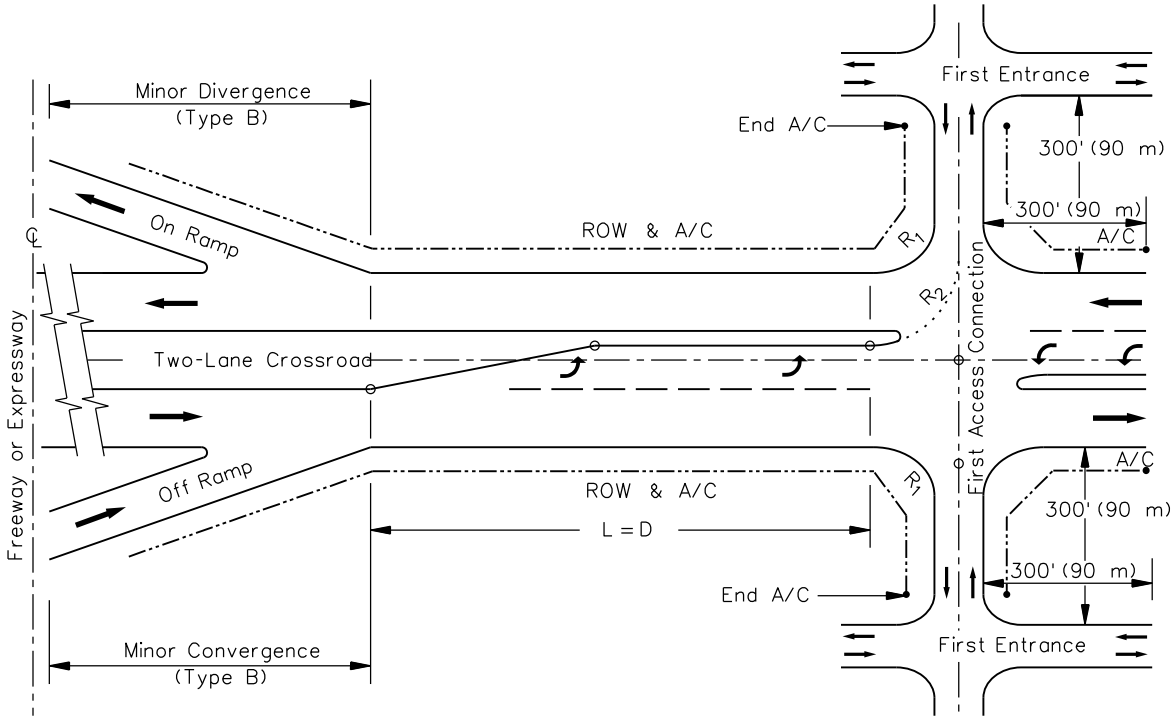
Notes:

1. *The critical length "L" is controlled by the free-flow off ramp maneuver. The minimum required distance to the first access connection is based on the design speed of the crossroad and is the combination of the operational maneuvers as shown schematically above. See the table in Figure 35-2.A for distances. Use the equation L = (n - 1) (G + C) + D, where n = 2 or 3 lanes, to determine the total required distances.*

2. *Refer to General Note 2 on Figure 35-2.A.*

ACCESS CONTROL ALONG CROSSROAD AT FOUR-QUADRANT PARCLO (Type B) INTERCHANGE (Free-Flow Off Ramp)

Figure 35-2.G



Notes:

1. *The critical length "L" between the ends of the Type B convergence and divergence on the crossroad to the first access connection usually is governed by the need for a left-turn lane into the access connection. Select a design speed and refer to the table in Figure 35-2.A.*

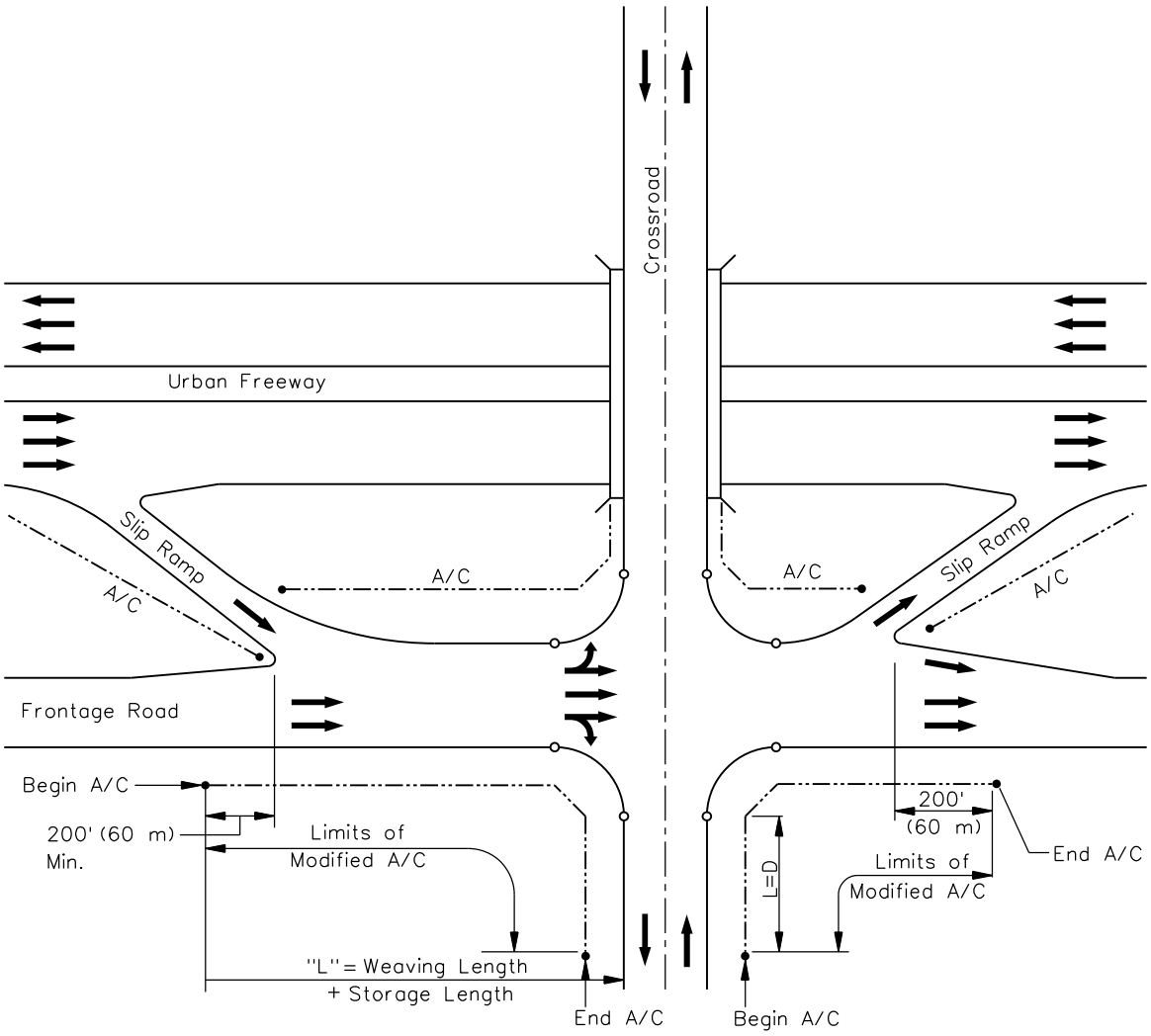
2. *In the case of a trumpet interchange stem which is designed as a multilane crossroad (Type A design), refer to Figure 35-2.G and use distances of "C" plus "D" to determine the critical length "L." Start at the end of the minor convergence.*

3. *Refer to General Note 1 on Figure 35-2.A.*

4. *Refer to General Note 2 on Figure 35-2.A.*

TRUMPET INTERCHANGE
(Two-Lane Divided Crossroad)

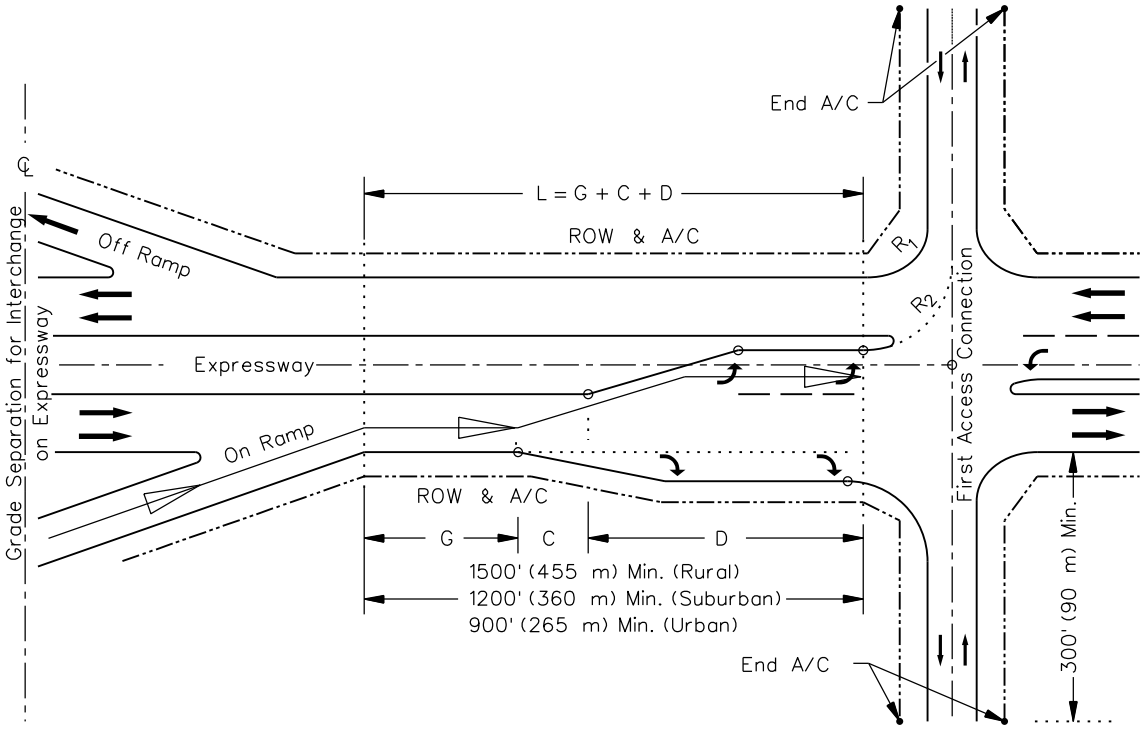
Figure 35-2.H



Note: The modified access control line is only used where single family residential entrances exist. For other types of development, full access control should be used along the frontage road and crossroad.

ACCESS CONTROL LIMITS NEAR URBAN FREEWAY SLIP RAMPS
(On And Off Of One-Way Frontage Road)

Figure 35-2.I



Notes:

1. *This figure illustrates the first access connection on an expressway type highway beyond the end of the entrance ramp terminal. The minimum required distance to the first access connection is based on the design speed of the expressway and is the combination of the operational maneuvers as shown schematically in the above figure. See the table in Figure 35-2.A for distances. Use the equation L = (n-1) (G+C) + D, where n = 2 or 3 lanes, to determine the total minimum required distance.*

2. *For details on the required length of access control on the first access connection, refer to Figures 35-2.K through 35-2.M.*

INTERCHANGE ON FOUR-LANE DIVIDED EXPRESSWAY
(Distance to First Access Connection on Expressway)

Figure 35-2.J

35-2.03 Expressways

35-2.03(a) Access Control at Crossroads

Where private driveways, commercial entrances, and access connections to public streets/highways are located too close to the expressway, they can cause hazardous and congested conditions due to conflicts between the expressway traffic, the through traffic on the crossroad, and the turning traffic at the access connections. Substantial relief from congested conditions can be obtained by the extension of access control a predetermined distance along the crossroad. This essential length of protected roadway will allow expressway traffic to enter or leave the crossroad free of conflict with access connection traffic.

The design criteria for access control on expressways are under the jurisdiction of BDE. Figures 35-2.K through 35-2.M illustrate examples of minimum access control requirements at expressway intersections with various crossroad configurations. At certain locations, it may be desirable to extend access control beyond minimum limits to a nearby intersection or a major traffic generator. Where future interchanges may be likely or are definitely planned at a crossroad, full control of access should be established along the crossroad to accommodate the actual type of future interchange or, if not known, at least 1000 ft to 1200 ft (300 m to 350 m) on each approach.

Figure 35-2.K illustrates an intersection of an expressway with a two-lane channelized crossroad. The use of left-turn lanes on both legs of the crossroad may be desirable from either a safety or operational perspective. If no access connections are existing or proposed and the 20-year DHV on the crossroad does not require more than two traffic lanes on the channelized approaches, terminate the access control along the crossroad near the ends of the mountable median strip or at a comparable point with flush channelization. The access connections shown in the figure indicate the minimum distance from the edge of the expressway where an existing or proposed public road or commercial access driveway may be connected.

Figure 35-2.L illustrates an intersection of an expressway with a multilane divided crossroad. Where a public road or commercial access connections are existing or proposed in the vicinity of the expressway intersection, terminate access control near the beginning of the radius returns as shown in the figure. Otherwise, terminate the length of access control along the crossroad opposite the theoretical nose location of a properly designed left-turn lane that will serve a future access connection. In determining the length of access control, assume that left-turn lanes will be required initially, for either safety or capacity, on both approaches of the crossroad intersection and for future turns into the access connections. The taper lengths for the left-turn lanes may be overlapped.

Figure 35-2.M shows an intersection of an expressway with an undivided crossroad (township road, county highway, or low-volume city street). Acquire access control along the crossroad for a minimum distance of 300 ft (90 m), as shown in the figure, which allows for the provision of constructing future overlapping left-turn lanes on the crossroad. The radius returns for existing, proposed, or future commercial access connections or public roads may begin near the point where the access control terminates.

With any of the three different crossroad designs, existing minor entrances may be permitted within the limits of access control under the following conditions:

- An existing private driveway for one single-family residence or one field entrance for farming purposes can be allowed to remain, by highway permit, as close as 100 ft (30 m) from the edge of the expressway traveled way.

- If it is determined that an existing commercial development will be significantly damaged, one low-volume entrance to such a development (on each side of the crossroad) can be allowed to remain by highway permit and access agreement as close as 200 ft (60 m) from the edge of the expressway traveled way. The decision to allow the existing commercial entrance to remain in operation must be carefully analyzed and a design exception must be requested in the Phase I report.

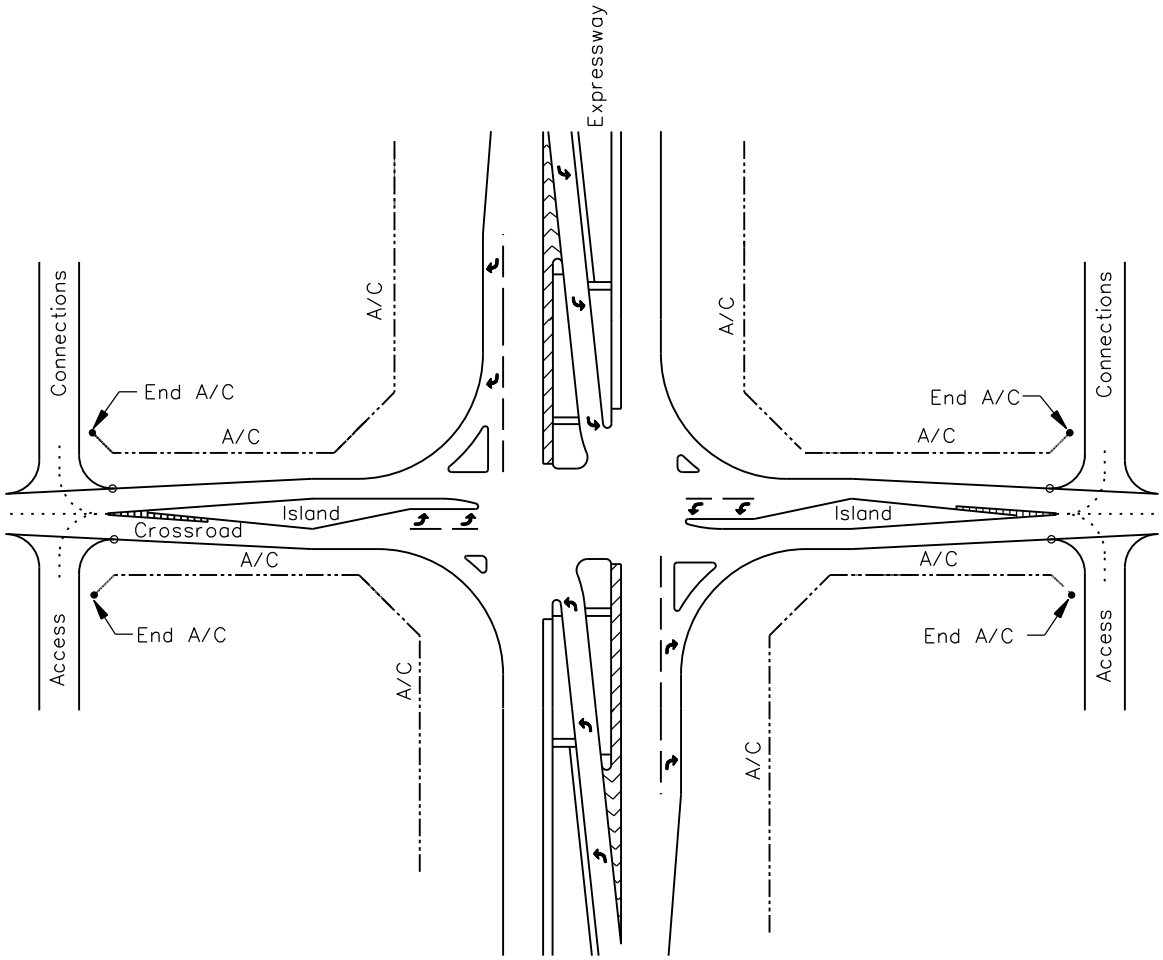
The design of access control as shown in Figures 35-2.K through 35-2.M will help to eliminate backups onto the expressway in the vicinity of the main intersection and thereby minimize any adverse operational effects on expressway traffic.

35-2.03(b) Access Control at Frontage Road or Service Drive Connections

Frontage road or service drive connections to expressways are in essence minor intersections and, therefore, require some measure of access control to ensure satisfactory operating conditions and safety. Frontage road connections should be designed to avoid storage deficiencies and operational difficulties in association with large traffic generators that may locate opposite or near the connection. Therefore, frontage road or service drive connections should be designed with access control provided as illustrated in Figures 45-2.H and 45-2.I. Access control is provided opposite the “T” to prevent future operational problems and could allow the connection of a public street in the future.

35-2.03(c) Elimination of Commercial Access

Direct access from commercial developments to the expressway is not permitted. Refer to Chapter 45 for a discussion on the design of commercial access points off of crossroads, frontage roads, and service drives.



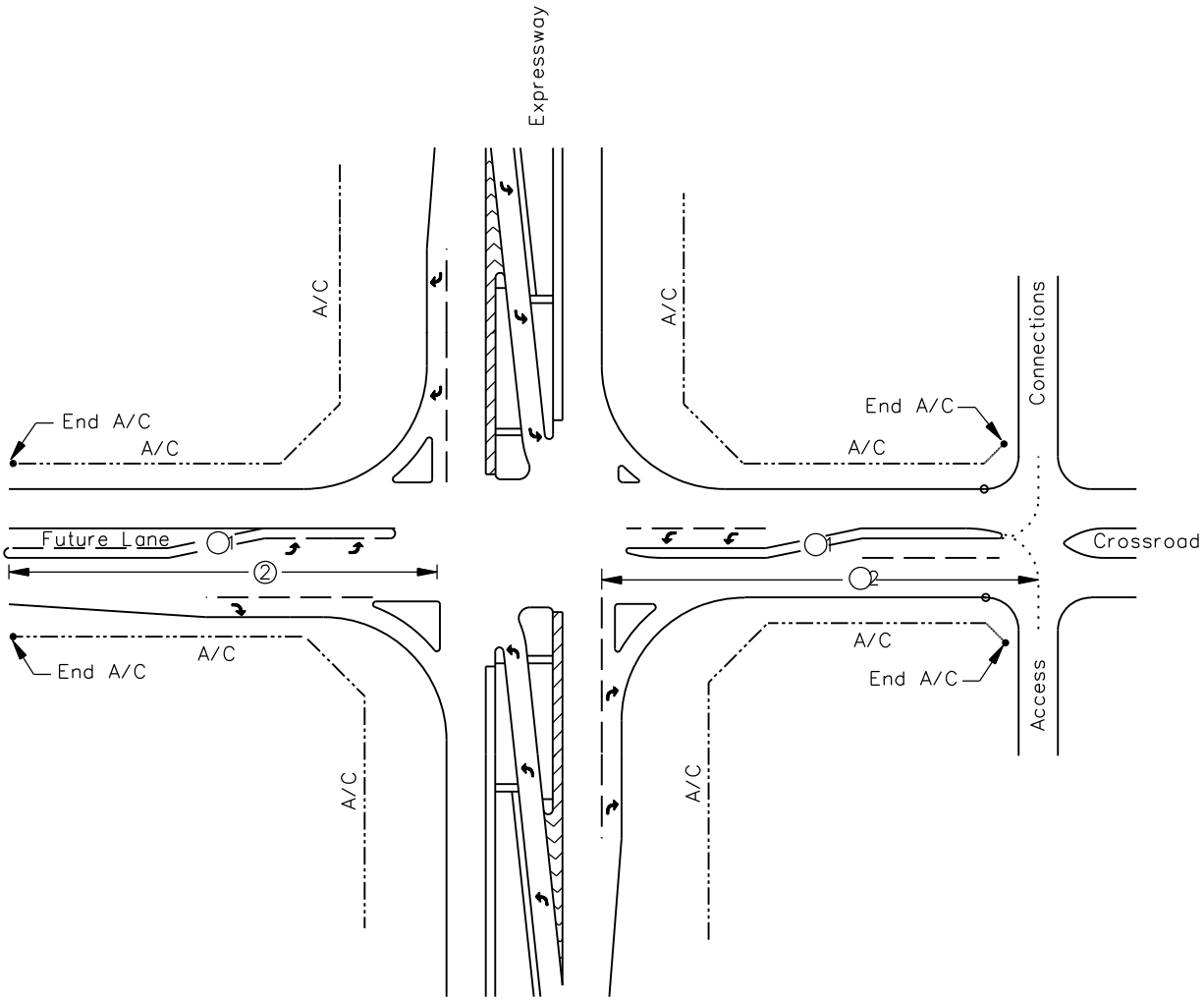
Notes:

1. *The channelizing islands on the crossroad usually are constructed as a raised-curb median for optimum delineation.*

2. *Refer to text in Section 35-2.03(a) for further guidance*

TWO-LANE DIVIDED CROSSROAD INTERSECTING EXPRESSWAY
(Limits of Access Control)

Figure 35-2.K



Notes:

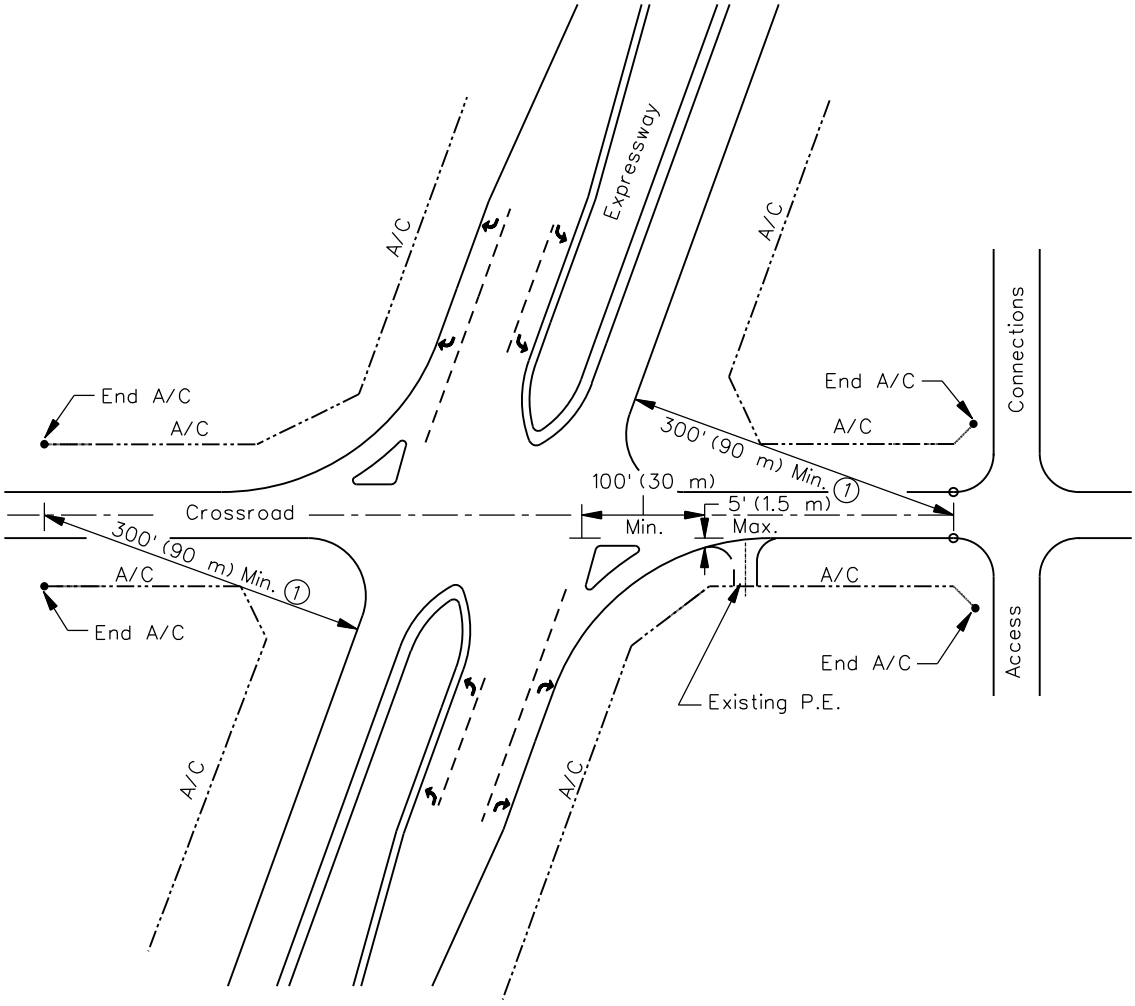
① *Construct as a raised-curb median for optimum delineation.*

② *The distance to accomplish the length of access control along the crossroad is approximately 525 ft (160 m).*

③ *Refer to text in Section 35-2.03(a) for further guidance.*

MULTILANE DIVIDED CROSSROAD INTERSECTING EXPRESSWAY
(Limits of Access Control)

Figure 35-2.L



Notes:

① *The 300 ft (90 m) minimum access control distance is measured at right angles from the edge of the expressway traveled way to or along the centerline of the crossroad.*

② *Refer to text in Section 35-2.03(a) for further guidance.*

UNDIVIDED CROSSROAD INTERSECTING EXPRESSWAY
(Limits of Access Control)

Figure 35-2.M

35-2.04 Access Restrictions Along Side Roads

Where a commercial entrance or street intersects a State highway, additional care should be taken to ensure future operational integrity of both routes, regardless of State highway cross section or current use of access control. This is typically completed by providing an access restriction along the side road for a sufficient distance beyond the nearest mainline edge of travel. See Section 36-7.02, item 4 for additional discussion. Additionally, Figure 36-7.D shows a typical design for a high-volume commercial entrance to a State highway utilizing an access restriction. This access restriction dimension is typically established at 300 feet (90 m) minimum, and can be increased based on proposed side road traffic. The district geometrics engineer will determine the proper distance for this dimension after analyzing traffic operations and performing a capacity analysis on the two closely spaced intersections. For existing locations without existing access control, or for locations where this length is proposed to be increased, coordination is required with the property owner, and purchase of access control rights will follow general land acquisition procedures and guidelines.

35-3 ESTABLISHING ACCESS CONTROLLED HIGHWAYS

35-3.01 Applicability

Highways are established as access controlled facilities where they comprise either a portion of a system of freeways (e.g., National System of Interstate and Defense Highways) or where a need to control access exists on the highway, such as on an expressway or on a portion of a highway (crossroads and side roads). Refer to the Illinois Compiled Statutes (605 ILCS 5/8-101).

35-3.02 Freeways or Expressways on New Location

An Access Control Plan is prepared as part of the location/design study. See Chapters 11 and 12 and Section 35-5 for details. After the detailed design for feasible alternatives is completed and after the Draft EIS is authorized for distribution, the district is required to conduct public involvement activities (usually an open house public hearing). Chapter 19 discusses the details of public involvement activities. The announcement for the public hearing should include a notice for road closures (see Chapter 11) and a statement on the implementation of corridor preservation. Guidelines for corridor preservation can be found in the *Land Acquisition Policy and Procedures Manual*.

After the public hearing is completed, the Design Report, Final EIS, disposition of comments received, and other documents (see Chapter 12) are submitted for approval by the Regional Engineer. For major new alignment projects or at the request of the Regional Engineer, submit the documents to BDE with a request for design approval. Once design approval is given and the Access Control Plan approved by the Regional Engineer/BDE, the district can then proceed to prepare and file a Route Location Decision and an Order Establishing a Freeway. These two documents are forwarded to BDE for execution. See Chapter 12 for examples of these two documents.

35-3.03 Freeways or Expressways on Existing Location

There are two types of access control scenarios in this category:

1. Where a highway is being studied as part of an overall system and a location/design study is initiated to examine whether the freeway or expressway should be located on new or existing locations, it will be necessary to complete the design study, the preparation of environmental documents, and public involvement before an existing alignment can be established as the preferred alternative.

   Assuming the preferred alternative is designated along the existing highway, the district then submits all reports to the Regional Engineer and requests design approval. After approval of the Design Report, which includes the Access Control Plan, the district can prepare and submit an Order Establishing a Freeway to BDE for execution. In addition,

guidelines for implementing corridor preservation should be considered for the preferred alternative.

2. Where an existing segment of highway is already declared as an access controlled facility and the district wishes to extend the length of access control along the existing roadway or along a crossroad to provide for additional safety and mobility, it will not be necessary to prepare a design study on the proposed access extension. Instead, the following must be completed:

   - Discuss the proposal at a district coordination meeting.
   - Notify all existing property owners along the highway segment and discuss the proposed changes in access control with them. Document the results of each meeting. Single family residences and field entrances can be considered to remain in place by permit. No commercial entrances will be allowed.
   - Publish in the local newspaper an offer to hold a public informational meeting on the proposed changes in access control. Requests to hold a meeting must be submitted in writing to the district.
   - If the district decides to hold an informational meeting, summarize all comments received on the proposed changes in access control with proper documentation.
   - Submit a revised Access Control Plan and the disposition of any comments received on the proposed changes to BDE and request concurrence of the Plan. The revised Access Control Plan can be shown on an aerial mosaic, on revised plan sheets, or on an Intersection Design Study drawing as appropriate. FHWA must approve any changes in access control on the Interstate System.
   - Once the appropriate central office bureau has concurred with the revised Access Control Plan, the district can prepare a revised Order Establishing a Freeway and forward it to BDE for execution. The documents must include a copy of the previously approved Access Control Plan as an attachment.

A Route Location Decision is not required with either of the two scenarios described above.

35-3.04 Acquisition of Access Rights

The acquisition of access rights to property is a function of the Land Acquisition Office in each district. The *Land Acquisition Policies and Procedures Manual* includes a detailed discussion of the Department's policies and responsibilities in the acquisition of freeway (or expressway) rights-of-way and the provisions involved in purchasing access rights. To exercise full or partial control of access on an existing highway, the Department must acquire, by purchase or condemnation, the access rights of abutting property owners. However, the filing of an Order Establishing a Freeway on an existing highway (see Chapter 12) does not require the Department to immediately acquire all access rights but, whenever an access permit is

requested on such a route, the Department has the option of either issuing a temporary permit or acquiring the access rights of the applicant.

When establishing an access controlled highway on a new location, a location not replacing an existing roadway to which an abutting owner formerly had access, the Department need not acquire nor pay for access rights because none exist.

35-4 REVISIONS TO EXISTING ACCESS CONTROL

Normally, changes in established access control are made only to allow additional or modified access to a local public road or designated street system as opposed to direct access to private property. However, revised access to private property is technically possible and legal although considerably more difficult to achieve.

When a release of access control is primarily intended to enhance transportation needs, it is referred to as "relinquishment of access control," and the *Bureau of Operations Policy and Procedures Manual* will govern the release. When the release of access control is primarily intended to serve a commercial development, the release is referred to as "disposal of access control," and the Bureau of Land Acquisition will determine the value of the previously acquired access rights, which will be credited to the Department's road fund.

The detailed discussion of these procedures is contained in Chapter 6 of the *Bureau of Operations Policies and Procedures Manual* and in Chapter 12 of this *Manual* (see Order Establishing a Freeway). Also for major revisions to existing access control on freeways and expressways, such as adding a new access point, see Section 37-1 for documenting and processing any requested changes.

35-5 ACCESS CONTROL PLANS

35-5.01 General

During the location study phase of an expressway or freeway design, an Access Control Plan is prepared by the district/consultant and included as an Appendix to the design or combined study for the project (see Chapter 12). Design approval of the project will constitute approval of the Access Control Plan. The Access Control Plan must be approved prior to the execution of an Order Establishing a Freeway.

35-5.02 Aerial Photography

Aerial photography is requested from the Surveys, Mapping and Modeling Section at the same time that mapping is ordered for the project. Once the photography is obtained, a mosaic is made of the photographic prints to alleviate some of the distortion between frames.

After the aerial mosaic is completed, it is re-photographed and made into half-tone positive exhibits. These base exhibits are then used to prepare the actual Access Control Plan. Original half-tone positive exhibits on mylar are never enlarged or reduced in size due to the distortion that would be created by such a procedure.

The half-tone positives should be made into one of the following scale ratios:

Urban Areas	Rural Areas
US Customary	
1:100 or 1:200	1:500 or 1:600
Metric	
1:1000 or 1:2500	1:5000 or 1:7500

The larger scale exhibit is requested where the designer wishes to show more detail on the Access Control Plan. The final Access Control Plan is developed into 11 x 17 in. sheets and assembled into a booklet format for ease of use by design and right-of-way personnel.

35-5.03 Fully Access Controlled Highways (Freeways)

The following data and information should be shown on the Access Control Plans for freeways:

- point of beginning and ending (stationing proceeds from west to east or south to north);
- North arrow;
- centerline distances, numbered to indicate every 100 ft (100 m) (urban) and every 1000 ft (300 m) (rural);

- property lines and ownership of land;
- major drainage courses with structure symbol;
- identity of all crossroads or streets by number and/or name;
- design traffic on the freeway between interchanges and on all crossroads to be separated or relocated;
- current ADT on all roads to be closed;
- existing and approximate proposed right-of-way lines;
- interchange locations with approved type and the ends of access control located on crossroad;
- frontage roads and proposed service drives (service drives may be revised as a result of ROW negotiations);
- data on intersecting railroads to include name, number and type of tracks, and number of trains per day; and
- any information that might be relevant to major environmental issues (wetlands, natural areas, etc.).

35-5.04 Partially Access Controlled Highways (Expressways)

The data and information described in Section 35-5.03 should be shown on the Access Control Plans for expressways. In addition, indicate the following information:

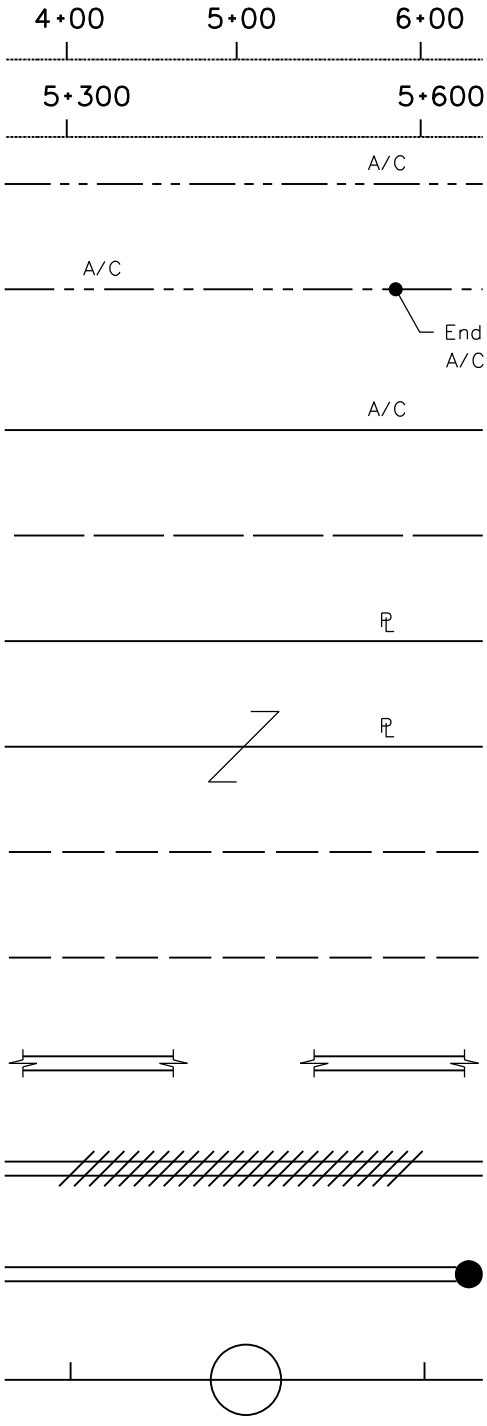
- all proposed or relocated field and private entrances to the expressway;
- proposed service drives and frontage roads and their direct connection to the expressway;
- proposed median crossovers;
- all existing entrances and median crossovers to be eliminated, where the expressway lies parallel and adjacent to an existing roadway; and
- limits of access control along each crossroad and at each direct connection.

35-5.05 Access Control Plan Symbols

To facilitate the preparation of Access Control Plans, Figure 35-5.A presents standard symbols for use. The symbols are drafted onto the half-tone positive exhibits. Attach a copy of the standard symbols to each Access Control Plan.

35-5.06 Construction and Right-of-Way Plans

Once the Access Control Plan has been approved through the design approval process, it is used as a guide in the preparation of construction plans and right-of-way plans. See Chapter 63 and the *Computer Aided Design, Drafting, Modeling and Deliverables Manual* for information on the preparation of plan sheets and CADD drafting guidelines.



Stationed Centerline (US Customary)

(Metric)

Proposed Right-of-Way Line with Access Control

End of Access Control Line

Access Control Line (When different from R.O.W. line)

Existing Right-of Way Line

Property Line

Same Ownership

Frontage Road or Service Drive

Relocated Road or Street

Mainline Pavement (Only show intermittently on each 11" x 17" sheet)

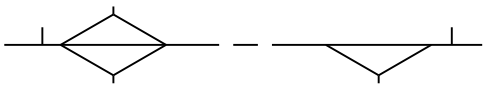
Existing Road to be Removed

Road Closure

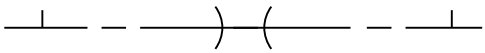
Interchange Location (Show approved type and ends of access control on crossroad)

LEGEND FOR ACCESS CONTROL PLANS

Figure 35-5.A
(1 of 2)

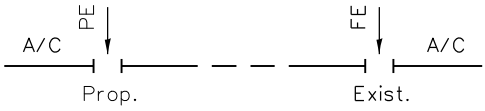


Intersection: Left - Crossroad Intersection
Right - Tee Intersection

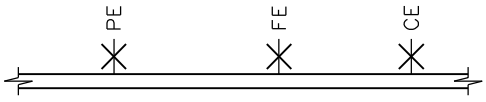


Crossover through Median (Connecting to service drive/frontage road or for U-turns)

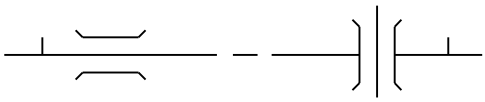
Crossover to be Eliminated



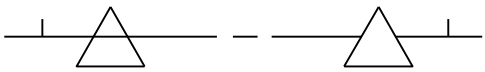
Existing or Proposed Access Points:
PE (Private Entrance)
FE (Field Entrance)



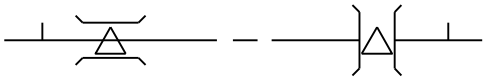
Existing Access to be Eliminated:
PE (Private Entrance)
FE (Field Entrance)
CE (Commercial Entrance)



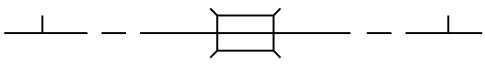
Highway Grade Separation:
Left - Mainline Over
Right - Mainline Under



Railroad Grade Separation:
Left - Mainline Over
Right - Mainline Under



Combination Highway/Railroad Grade Separation: Left - Mainline Over
Right - Mainline Under



Drainage Structure
(Over 20 ft (6 m) in Length)

LEGEND FOR ACCESS CONTROL PLANS

Figure 35-5.A
(2 of 2)

35-6 ACCESS MANAGEMENT

35-6.01 Access vs. Mobility

35-6.01(a) Basic Conflicts

A functional highway system must provide both traffic service and land access. However, this dual need creates a fundamental conflict. Achieving maximum efficiency and safety in traffic operations requires restriction of access and, conversely, increased access may result in a degradation of safety and capacity.

The typical business development and highway improvement cycle illustrate the problem. When businesses request and are granted access to a highway facility, they generate more traffic and consequently more businesses are attracted to the area, thereby generating a need for yet more access. As the cycle continues, the originally efficient highway becomes more congested and safety may be compromised.

With further increased development resulting in increased property values, major improvements of the existing highway become impractical, and new service on a new location may be warranted. The access-mobility conflict could be repeated on the new facility. Implementing access management techniques can reduce such occurrences from disrupting the transportation system.

35-6.01(b) Relationship to Functional Classification

The fundamental differences in the need for access versus mobility have resulted in the current practice of functionally classifying highways. The functional classification system is discussed in Section 43-1. Ideally, the balanced highway system will provide high-mobility arterials with full or partial access control, collectors to provide an intermediate level of access and mobility, and local roads and streets with limited mobility and a higher level of access. The highway system, when viewed in aggregate, fulfills both the needs of mobility and access via the functional classification system and the application of access management.

Access management techniques are directed primarily at principal arterials (other than access controlled highways) and minor arterials where the potential for conflicts are most severe.

35-6.02 Objectives of Access Management

Improved traffic service is a primary objective of access management. From a highway engineering perspective, the objectives of access management are to optimize the balance between safe, efficient transportation (or mobility), and access. Section 35-7 presents access management techniques that accomplish these objectives.

35-6.03 Benefits of Access Management

When successfully implemented, the application of access management to arterial streets will yield several benefits, as discussed in the following:

1. Enhanced Mobility. Significant benefits may be derived by minimizing the number of traffic conflict points, separating conflict areas, removing traffic queues from the through lanes, and providing more space for acceleration-deceleration at access points. The result is increased traffic-carrying capacity of the highway and a higher level of service (e.g., higher operating speeds, fewer delays, increased convenience, less driver frustration, lower operating costs).

2. Improved Safety. Access management techniques that enhance mobility also improve safety. Smoother traffic flow, with lower speed differentials between through traffic and turning traffic and with the number of crossing opportunities reduced or eliminated, results in improved safety. Reducing traffic crashes has tangible economic benefits by reducing injuries, property damage, and delays.

3. Property Owner Benefits. Access management techniques typically improve access to abutting properties along the highway corridor. The convenience of smoother-flowing traffic with safer access attracts commercial development and business. Growth in traffic attracts businesses and will likely increase commercial property values even if access is restricted to a few strategic points.

4. Preservation of Highway Investment. By increasing the traffic-carrying capacity of a highway, access management techniques can extend the functional service life of a facility and postpone the need for major highway improvements. Highway widening or relocation frequently results in disruption and/or displacement of people and businesses. New highways are expensive and often involve significant impacts. Access management offers an alternative that can postpone or eliminate the impacts of new highway construction or reconstruction and associated problems of relocations and traffic delays.

35-6.04 Disadvantages of Access Management

Although access management techniques may be in the best overall public interest, individual road users and property owners may object to the inconvenience associated with the elimination or denial of a specific access point. A property owner or business customer, for example, may be required to drive a longer distance to reach the desired location.

When proposing an access management strategy, the advantages and disadvantages of various alternatives should be considered and the public must be involved in the final decisions. If implementation of access management techniques eliminates previously available access, then the property owner may be entitled to compensation.

35-6.05 Elements of an Access Management Program

35-6.05(a) Coordination

An effective access management program on a particular street must involve not only the engineering aspects of highway design and traffic operations but also the broader issues of land-use planning and zoning, public involvement, and enforcement powers. Most of these issues are addressed outside the highway agency; therefore, close coordination with other agencies and the public is needed to develop and implement an effective program.

Highway agencies have some authority to regulate access; however, local governments control land use and zoning. Unless there is coordination between the highway agency and land-use planners, attempts by the highway agency alone to manage access are not likely to succeed. A comprehensive and rational access management plan, developed in cooperation with local agencies in charge of planning and zoning, has a much greater chance of success.

The following administrative processes are usually included in individual access management programs:

- zoning regulations,
- subdivision approval (Plat Act),
- site plan development (Access Agreement),
- driveway permits, and
- roadway design and construction.

35-6.05(b) Enforcement

In coordination with public involvement, attaining and retaining access management may be implemented via the following:

1. Regulatory Authority. A public agency can manage access to streets through the use of its regulatory authority to control traffic movements. These powers can be used to manage access directly (e.g., through the use of driveway permits and regulations) or indirectly (e.g., through the use of raised-curb median and curbs along the edges of the street). Access management is effectively achieved when abutting property owners are required to comply with regulations necessary for the efficient flow of traffic. This presently occurs through the plat approval process, with access agreements for major developments and through approval of individual driveway permits.

2. Eminent Domain. By using “eminent domain,” a highway agency can acquire private property when the action is deemed to be in the best interests of the public.

35-6.05(c) Engineering

The engineering component of an access management program consists of design criteria that control the number, location, and design of access points along the highway. The engineering components are grouped as follows:

1. Techniques. Access management includes the implementation of specific techniques that can be used individually or in aggregate to address an access problem. See Section 35-7.

2. Overall Design Criteria. Access management includes overall design criteria for the spacing between intersections, spacing between median openings, frequency of driveways, and the number of entrances and exits per property. These criteria are intended to provide the overall management of access along significant lengths of highway and, if the criteria are met, will help to ensure a continuous, high level of serviceability for the facility.

3. Detailed Design. All access elements must be properly designed to fulfill their intended function. For example, if a left-turn lane is installed, it must be sufficiently long to allow for vehicular storage. Driveway entrances should be designed for ease of entering and exiting considering their turning radii or flares, width, profile, etc.

Chapter 36 provides criteria and discusses details related to the spacing of intersections and design of median openings. The IDOT *Policy on Permits for Access Driveways to State Highways,* 92 *Ill. Admin. Code* 550 provides criteria and discusses details related to driveway location, spacing, and design.

35-7 ACCESS MANAGEMENT TECHNIQUES

In general, access management techniques are intended to minimize the frequency and severity of traffic conflicts, particularly at commercial driveway entrances. There are four major objectives for minimizing conflicts and increasing efficiency:

1. Category A — Limit the Number of Conflict Points. These techniques directly reduce the frequency of conflicts or reduce the area of conflict at some or all driveways on the highway by limiting or preventing certain maneuvers.

2. Category B — Separate Basic Conflict Areas. These techniques either reduce the number of driveways or increase the spacing between driveways or between driveways and intersections. They indirectly reduce the frequency of conflicts by separating turning vehicles at adjacent access points and by providing greater decision-making time for the through driver between successive conflicts with vehicles at driveways.

3. Category C — Reduce Deceleration Requirements. These techniques reduce the severity of conflicts by increasing driveway turning speeds or by improving sight distance.

4. Category D — Remove Turning Vehicles From Through Lanes. These techniques reduce both the frequency and severity of conflicts by providing separate lanes and adequate storage areas for turning vehicles.

With a decision to pursue access management on a particular street, many techniques are available from which to select an appropriate solution for a specific access problem. Figure 35-7.A summarizes 36 applicable techniques. Figures 35-7.B through 35-7.I provide sketches to illustrate some of the more common techniques.

Category A — Limit Number of Conflict Points

* A-1: Install raised curb median with left-turn deceleration lanes.
A-2: Install one-way operations on the highway.
A-3: Install traffic signal at high-volume driveways when warranted.
* A-4: Channelize median openings to prevent left-turn ingress and/or egress maneuvers.
A-5: Install physical barrier (curbs, ditches) to prevent uncontrolled access along property frontages.
A-6: Locate driveway opposite a three-leg intersection or driveway and install traffic signals where warranted.
* A-7: Install two two-way driveways with limited turns in lieu of one standard two-way driveway.
* A-8: Install driveway channelizing island to prevent outbound left-turn maneuvers.
A-9: Close certain median openings (raised curb-median used on the street).
* A-10: Provide barrier curb median adjacent to dual left turn lanes and the left turn taper.

Category B — Separate Basic Conflict Areas

B-1: Regulate minimum spacing of driveways.
B-2: Regulate minimum corner clearance.
B-3: Regulate minimum property clearance.
B-4: Regulate maximum number of driveways per property frontage.
* B-5: Consolidate access for adjacent properties.
B-6: Consolidate existing access wherever separate parcels are assembled under one purpose, plan, entity, or usage.
B-7: Encourage access onto a collector street (where available) in lieu of an additional driveway on main highway.

** See accompanying figure.*

ACCESS MANAGEMENT TECHNIQUES

Figure 35-7.A
(1 of 2)

Category C — Reduce Deceleration Requirements

C-1: Install traffic signals where warranted to meter traffic for larger gaps.
C-2: Time traffic signals to platoon traffic queues to create larger gaps.
C-3: Install visual cues (signing) at the driveway entrance.
C-4: Improve driveway sight distance.
C-5: Regulate minimum sight distance.
C-6: Optimize sight distance in the permit authorization stage.
C-7: Move sidewalk-driveway crossing laterally away from highway.

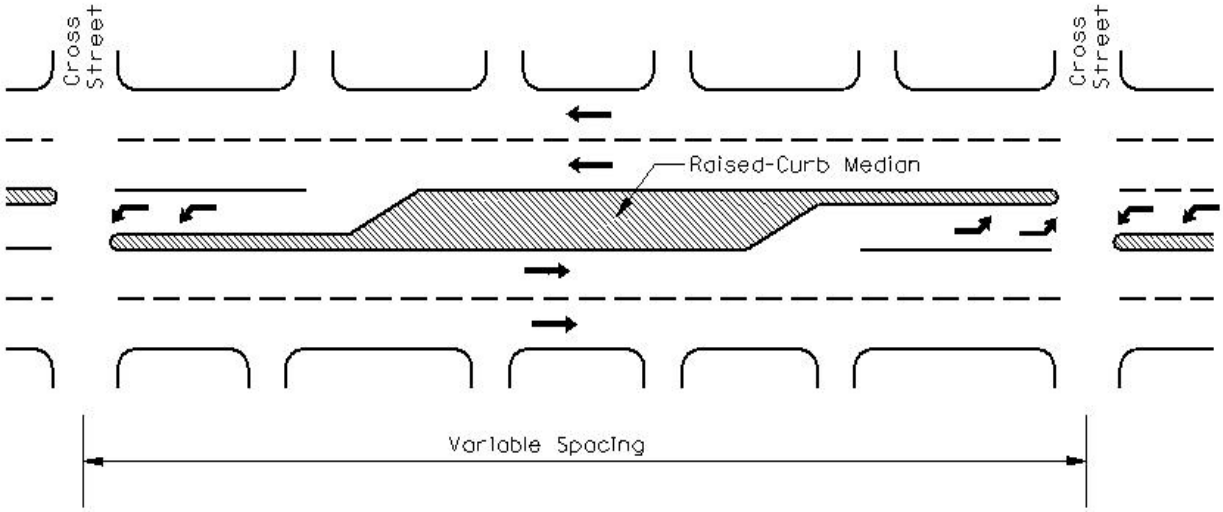
Category D — Remove Turning Vehicles From the Through Lanes

D-1: Install two-way left-turn lane.
* D-2: Install alternating left-turn lanes.
* D-3: Install left-turn deceleration lane in existing median.
D-4: Increase storage capacity of existing left-turn deceleration lane.
D-5: Install continuous right-turn lane.
D-6: Construct a local frontage road or service drive.
D-7: Install additional driveway when total driveway demand exceeds capacity.
D-8: Install right-turn deceleration lane.
D-9: Install additional exit lane on driveway.
D-10: Encourage connections between adjacent properties.
D-11: Encourage adequate internal design with circulation plan.
D-12: Provide a one-way frontage road.

** See accompanying figure.*

ACCESS MANAGEMENT TECHNIQUES

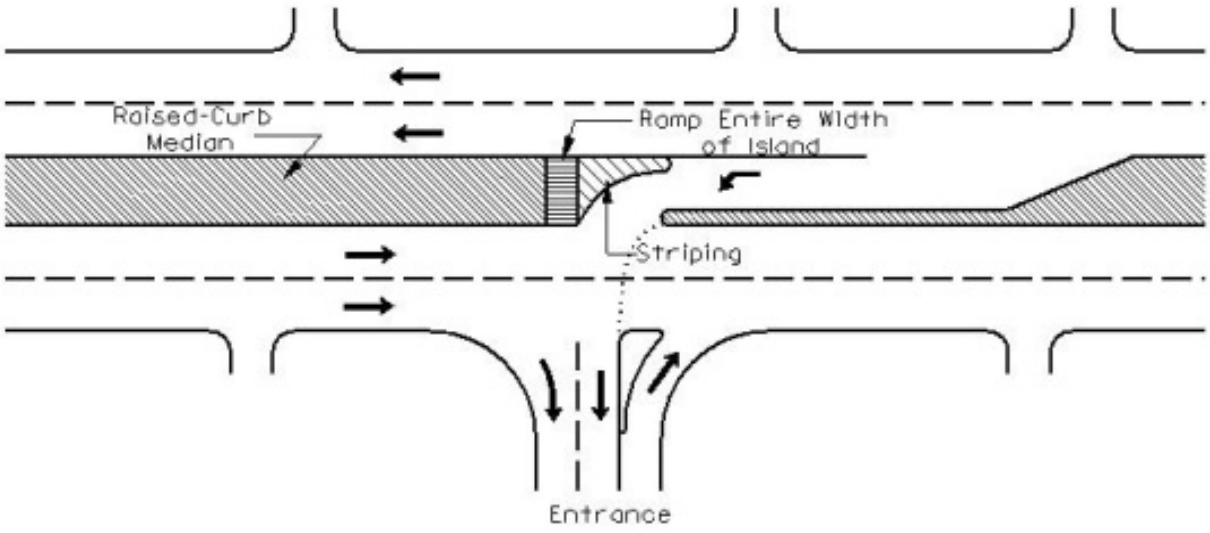
Figure 35-7.A
(2 of 2)



- Direct left turns prevented at all but major streets or major entrances.
- Desirable spacing between median openings is 660 ft (200 m) to 1320 ft (400 m)

A-1: INSTALL RAISED-CURB MEDIAN
(With Left-Turn Lanes)

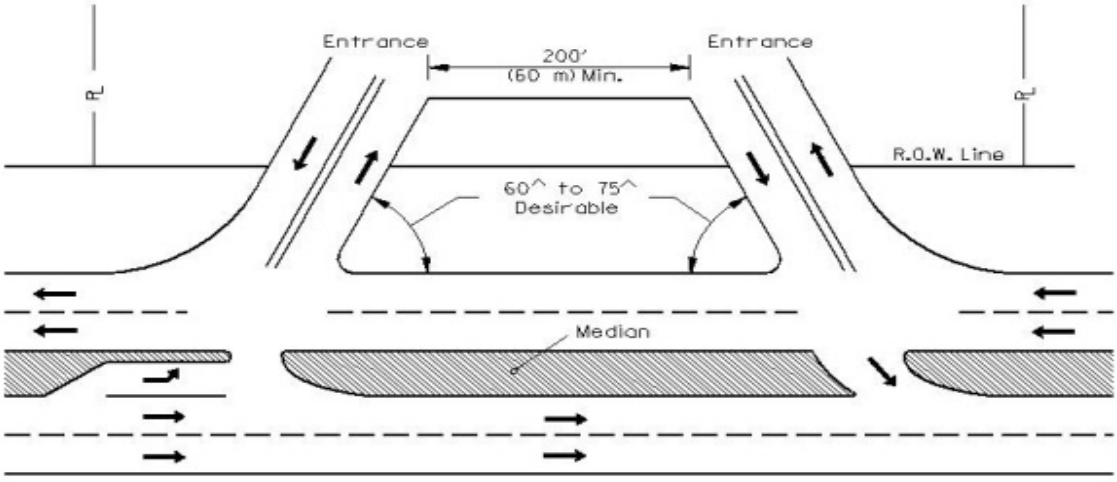
Figure 35-7.B



- Elimination of left-turn egress shown.
- Used on high-volume divided arterials where prevented left-turn volume from the entrance is relatively low.

A-4: CHANNELIZE MEDIAN OPENINGS

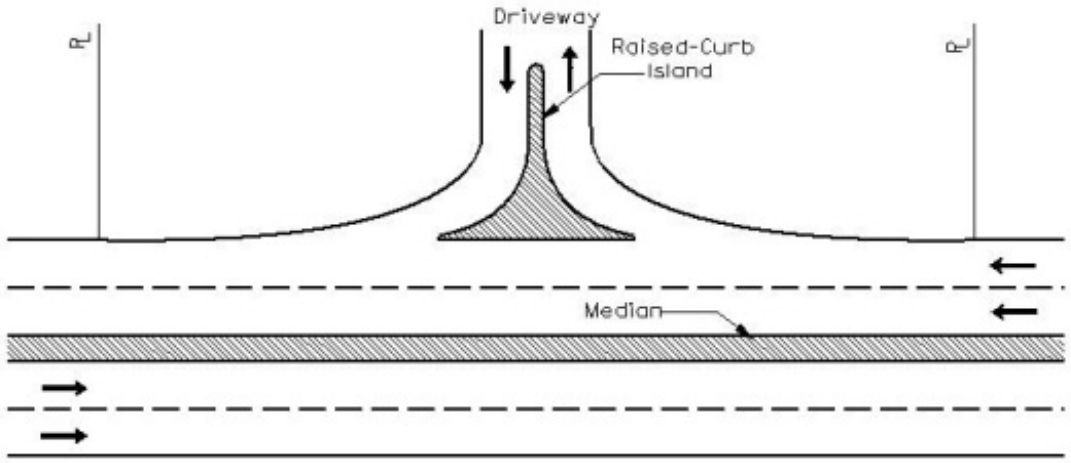
Figure 35-7.C



- Used where good internal circulation is available on property and frontage is relatively long.
- Reduces the frequency of conflicts at a single property.

A-7: INSTALL TWO TWO-WAY DRIVEWAYS
(With Limited Turns)

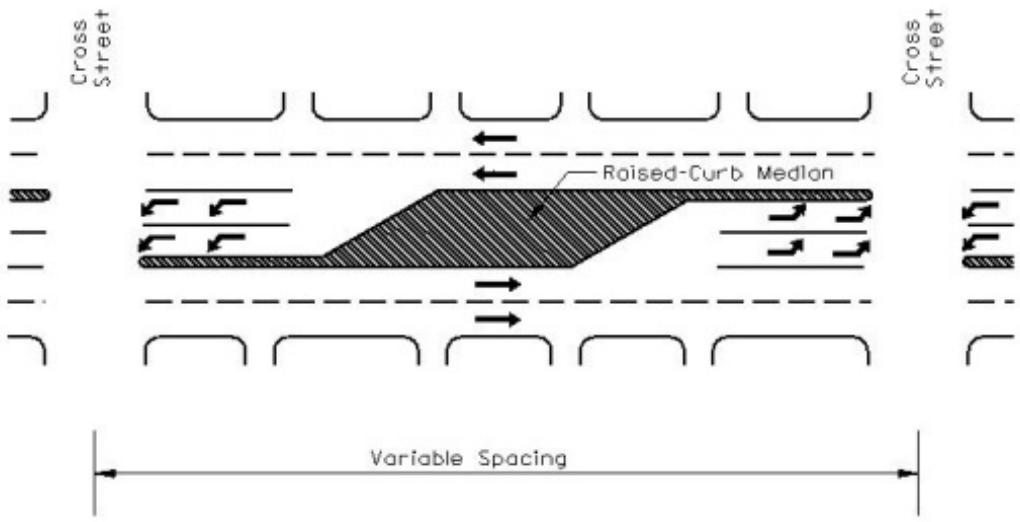
Figure 35-7.D



- Used on highway with medians in conjunction with major two-way driveways with low left-turn egress movements.
- Reduces conflict points from 9 to 2.

A-8: INSTALL DRIVEWAY CHANNELIZING ISLAND
(To Prevent Left-Turn Maneuvers)

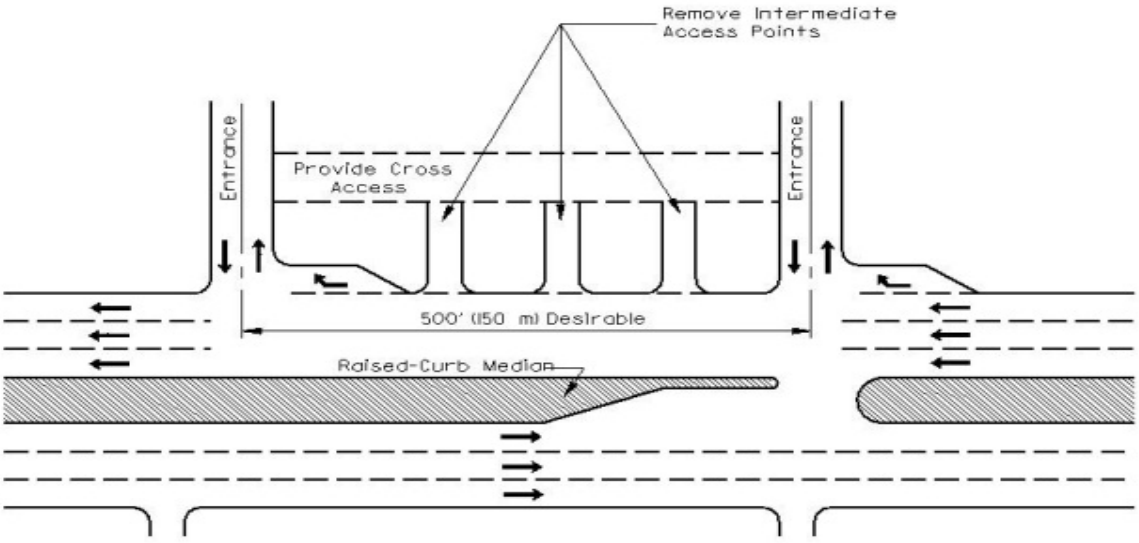
Figure 35-7.E



- Used to limit movements at access points near high-activity intersections

A-10: INSTALL BARRIER CURB MEDIAN
(With Dual Left-turn Lanes)

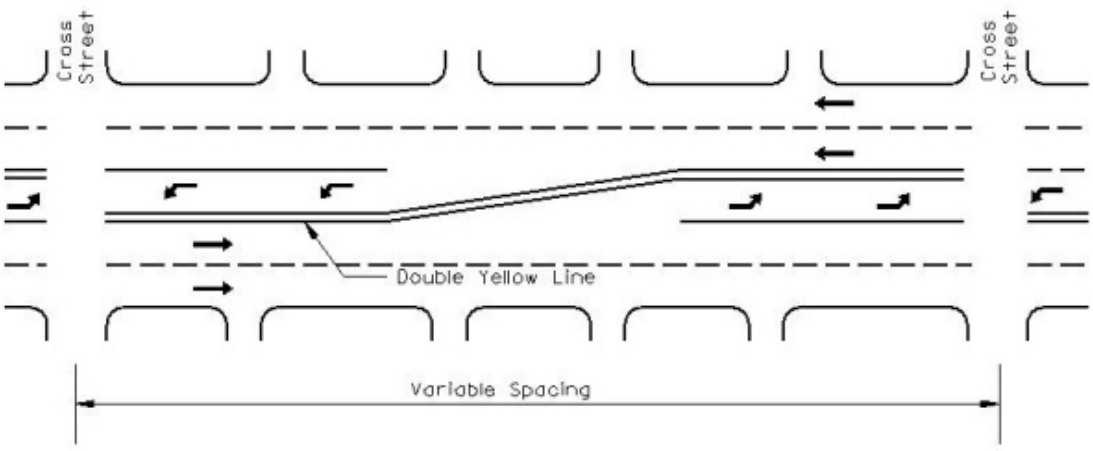
Figure 35-7.F



- Used where adjacent properties have continous parking lots.
- Used when separate parcels are assembled under one entity or usage.

B-5: CONSOLIDATE ACCESS FOR ADJACENT PROPERTIES

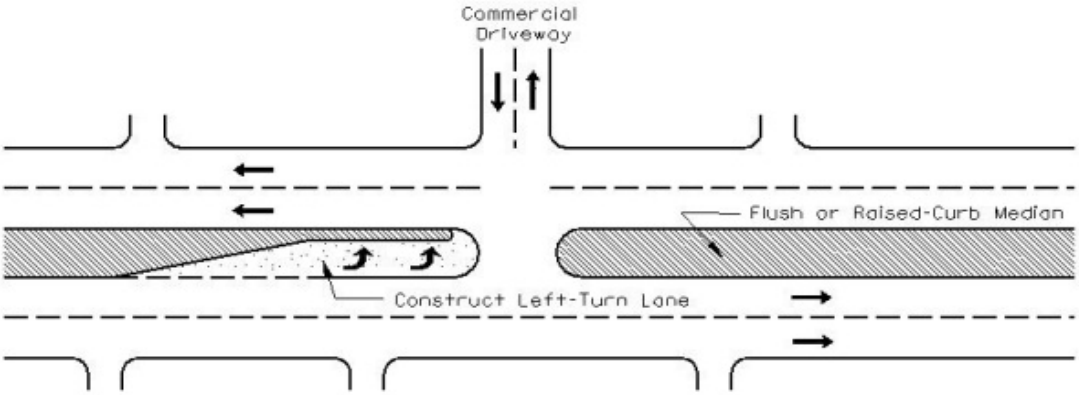
Figure 37-7.G



- Used in low-speed urbanized areas where right-of-way is restricted and left-turn demand into entrances is light.
- Usual spacing between cross streets is 450 ft (140m) to 650 ft (200m).

D-2: INSTALL ALTERNATING LEFT-TURN LANES

Figure 37-7.H



- Mainly used where median opening provides left-turn access into a commercial driveway.
- Reduces frequency of rear-end conflicts.

D-3: INSTALL LEFT-TURN DECELERATION LANE (Existing Median)

Figure 37-7.I

35-8 REFERENCES

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