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CHAPTER EIGHTY-SIX

ACCESS CONTROL

The regulated limitation of access is called access control and is accomplished on a new project by purchasing of Limited-Access Right of Way (L.A. R/W). Access control is a proven effective method to provide a safe environment for the highway user and preserves the investment in the geometric and capacity elements of a highway design. Full control of access means that connections are provided only with selected public roads through interchanges. Partial control of access allows connections with selected public roads and with selected drives necessary to serve the abutting properties. A drive necessary to serve a property may be on a local service road, on a frontage road, or directly connected with the highway, depending on the type of project. Cost studies should be made to determine the economics of each situation.

86-1.0 ACCESS STUDIES

86-1.01 Definitions

In addition to the definitions discussed in Sections 85-1.02 and 40-5.0, the designer should consider the following.

1. Landlocked Property. A property is considered legally landlocked where it is left without access by the purchase of limited access right of way across its existing access or where a physical barrier (e.g., a high fill, stream channel relocation) has been constructed across its existing access or property frontage.

2. Local-Service Road. The term may be defined as a road or street designated on the right-of-way plans to provide access to one or more properties. The term also applies to a proposed road or street open at one end only and designed specifically for service to one or more abutting properties or adjacent areas. The use of the term *access road* or *frontage road* is prohibited.

86-1.02 Preparation of Cost Studies for Access vs. Landlocking

If a property is left without access, a study should be conducted to determine whether it is more economical to provide access to the property or to leave it without access. An access study may not be necessary if it is obvious by inspection of the plans that it would not be feasible to provide access.

Conversely, it may be obvious that access should be provided without preparing an access study.

The designer should prepare a rough estimate to determine the construction costs per linear foot of the local service road, considering the amount of grading required, the typical pavement section, and drainage structures required. The designer will also need to determine the total area to be landlocked and the area required for the local-service road. Figure 86-1A, Comparative Cost Study for Local-Service Road (Form R/W-16), should be completed for each landlocked property showing the comparative cost study. Where there are two or more landlocked properties, the information for each property should be incorporated onto the form shown in Figure 86-1B, Local-Service-Road Study for Multiple Properties. All backup data should be included with Form R/W-16. Where more than one local-service road alternative has been studied to provide access to a property, the most practical and cost-effective alternative should be selected. Editable versions of these forms may also be found on the Department's website at www.in.gov/dot/div/contracts/design/dmforms/

Figures 86-1D and 86-1E illustrate a completed Form R/W-16 for a sample project shown in Figure 86-1C.

The designer will forward Form R/W 16 to the project manager. The project manager will forward this information to the Office of Real Estate for completion and recommendation.

86-1.03 Design Considerations for Local-Service Road

The designer should consider the following.

1. Minimum Criteria. Use the local road or street minimum design criteria for the type, thickness, and width of the roadway section, and for the minimum right-of-way requirements. It will be the responsibility of the designer to get this information from the local agency's officials. Such information should be used to determine the applicable surface type and exceptions based upon economic or legal factors as requested by the Office of Real Estate. If no local criteria exist, use the minimum AASHTO *Policy on Geometric Design of Highways and Streets* criteria or the criteria provided in Chapters Fifty-three and Fifty-five.

2. Closure. It will be the responsibility of the designer to ensure that each local-service road which forms a closed circuit will mathematically close.

3. Access. Each local-service road must connect to the public highway system. A local-service road must not be established for the purpose of crossing through one property to connect between two non-contiguous residues of another property unless a further connection is made to the public highway system. Otherwise, the local-access road will have two dead

ends and cannot be of public use. Consequently, the right of way cannot be condemned. Because public maintenance would be impractical, its transfer to a county or municipal authority would be prevented.

4. Landlocking. Where there is not a substantial difference in the estimated costs between landlocking versus construction of a local-service road, the designer, in conjunction with the Office of Real Estate's representative, should recommend landlocking the parcel. If the comparative cost study indicates that the construction of a local -service road is justified, the typical section for the road should satisfy the local agency's criteria; see Item 1 above. The Office of Real Estate's representative will review the comparative cost study to determine the justification for landlocking versus the construction of the local-service road at the time of the preliminary field inspection.

5. Dead End. Additional right of way should be acquired at the end of a dead-end local-service road to accommodate a cul-de-sac where developer or local-agency criteria require such action.

6. Local-Service-Road Terminus. A local-service road that provides access to more than one property should end at the terminal property's boundary. Treat road work necessary beyond that point as drive construction for which temporary right of way should be acquired.

7. Right-of-Way Width. Once the engineering and economic feasibility of a local-service road has been established, select a right-of-way width which best fits the usage of the land that it is intended to serve, provides the least practical disturbance to neighboring properties, and considers all construction costs. Zoning restrictions (including minimum county or municipal criteria for a highway or street) should be considered regarding the potential uses of the property. Existing ordinances may be secured for consideration as documentation affecting the market value of the land. The designer should consider zoning restrictions due to their influence upon potential land use and to avoid a local-service-road right-of-way width which is inconsistent with the zoning restrictions. With a narrow right-of-way width, temporary right of way may be required to accommodate minor grading, etc.

8. Cattle Pass or Other Private Underpass. If a private underpass is provided, it should be justified by the Office of Real Estate. The appropriate right-of-way plan and profile sheet should include a note which reads as follows: *Structure No. _____ (Cattle Pass) Included to Mitigate R/W Damages.*

86-1.04 Preliminary Field Check

The Preliminary Field Check plans should show the most reasonable means of providing access to

each property that is not to be landlocked. More than one local-service road location may be studied to access the same property. The designer should complete the access study form (Form R/W-16) in Figure 86-1A for each proposed local-service road location. The form, together with a set of Preliminary Field Check Plans, should be provided to Office of Real Estate's representative at the Preliminary Field Check. The Office of Real Estate's representative should also complete Form R/W-16 and Figure 86-1B, the multiple-property form, if required, and return them to the Production Management Division as a part of the Preliminary Field Check Report.

If access problems are discovered after the time of the Preliminary Field Check, forward this information to the Office of Real Estate's manager by memorandum for the project manager's signature, requesting that the forms be completed and returned to the Production Management Division with the recommendations regarding access versus landlocking. Processing of forms and accompanying correspondence will be through the Production Management Division's project manager.

86-1.05 Federal Highway Administration Involvement

An access study and recommendation should be prepared and reviewed in-house and approved by the Production Management Division director. This applies whether the project is exempt or not exempt from FHWA oversight. However, if a unique problem arises, provide an extra set of plans at the Preliminary Field Check stage for the FHWA. Include one copy of each of the forms discussed in Section 86-1.02 and a complete set of plans showing all access provisions. This material should be transmitted by letter for the signature of the Production Management Division director with definite recommendations in the letter identifying each affected property owner and a recommendation to either provide access or landlock the particular property.

Access provisions as recommended by the Department may be included in the right-of-way plans after they have been reviewed and approved by the FHWA.

86-2.0 DESIGN CONSIDERATIONS

86-2.01 Interstate-Route Right of Way

Full access control will apply. The right of way will be designated as Limited-Access Right of Way (L.A. R/W).

86-2.02 Non-Interstate Route

For a non-Interstate route, the following will apply.

1. Freeway. Full access control will apply. The right of way will be designated as L.A. R/W.

2. Divided Roadway. Access control will consist of the following.

   a. New Location. Partial access control will apply. Access to a new facility will be only at selected public roads. Conduct cost studies to determine the need and effectiveness of local-service roads to serve abutting landowners.

   b. Existing Location with Additional Right of Way. The addition of lanes or other safety features requires a considerable expenditure of funds. The physical taking of land adds a considerable cost to the project. The acquisition of access control and construction of local-service roads is well-justified because it helps to prevent obsolescence of the design and helps to ensure future capacity and safety.

      Partial access control will apply. Access will only be from selected public roads. Consider using local-service roads to provide reasonable access to abutting properties. It may be necessary to provide direct access to an abutting parcel. Private direct access should be minimized. Adverse impacts should be analyzed or cost studies made to determine the best access alternative.

   c. Existing Location within Existing Right of Way. Partial access control will apply. Access control that will provide as much preference as practical to the highway user but yet serves the developments and abutting properties without the need for local-service roads is desirable. On a divided lane facility, access points on alternate sides of the highway should be opposite each other and located at crossovers if practical to minimize points of potential traffic conflicts. Where properties abutting the highway are numerous with narrow frontage, it may not be economically feasible or practical to acquire access rights.

3. Two-Way Facility. This is a connector route providing access between communities or to a higher-type roadway. For a new location, partial access control should be provided that will give preference to the highway user. On an existing alignment, developments and abutting properties must be served. The designer should provide reasonable access and minimize the right-of-way costs, as practical.

86-2.03 Limited-Access Right of Way on Crossroads at Interchange

This is shown in Figures 86-4A, 86-4B, 86-4C, 86-4D, 86-4E, and 86-4F. The figures are titled as listed below.

86-4A	L.A. R/W at Interchange, Case I
86-4B	L.A. R/W at Interchange, Case II
86-4C	L.A. R/W at Interchange, Case III
86-4D	L.A. R/W at Interchange, Case IV
86-4E	L.A. R/W at Interchange, Case V
86-4F	L.A. R/W at Interchange, Case VI

86-2.04 Opening in Limited-Access Right of Way

Where an opening is required, the designer should consider the following.

1. Width. If a project is designated a Partially-Controlled Access facility and some access points are permitted on the L.A. R/W, provide a 50-ft minimum opening at the right-of-way line. An opening of larger than 50 ft should be provided where necessary to accommodate the land use and to avoid excessive damage to adjoining properties. However, an opening wider than 60 ft is not necessary unless a drive is skewed. The opening for each drive should be measured at a right angle to the centerline of the drive outside the L.A. R/W line, or 25 ft on each side for a 50-ft opening. See Figure 86-2A, L.A. R/W Opening (Horizontal Curve), and Figure 86-2B, L.A. R/W Opening (Angled Approach). No dimensions are required on End L.A. R/W and Begin L.A. R/W. It is the responsibility of the designer to provide a minimum width for a road and street approach consistent with local-agency requirements or criteria.

2. Tabulations. Tabulate all openings in limited-access right of way using the centerline stationing on the respective plan and profile sheet as shown in Figure 86-2B(1), Access Openings Tabulation Example.

3. Designations. In designating right-of-way openings on the plan and profile sheets, the designer should consider the following.

   a. Indicate each End Limited-Access Right of Way, Access-Control Line and *(type)* Fence location by showing the station and offset distance. The symbol E may be used provided a legend is given. The fence should either be the chain-link type (CLTF) or the farm-field type (FFTF). Use the correct abbreviations on the plans rather than the complete description; see Chapter Fourteen.

   b. Indicate Begin L.A. R/W, ACL & *(type)* Fence locations by providing the station and offset distance. The symbol B may be used provided a legend is given.

c. Designate right of way across each private or commercial approach. However, do not provide a designation across a railroad, street or highway, or navigable stream or lake. If a railroad is abandoned, L.A. R/W across the old railroad right of way may be considered.

d. Each Begin Fence or End Fence point should be assigned a station and offset distance from a control line, except as shown in Item 1 above.

e. Examples for designating an opening are provided in the figures in Section 86-4.0.

4. Designating an Approach. On the plan and profile and interchange-details sheets, indicate the type of drive with the note *(width)* Class *(type)* Drive Req'd. Also include the station location and an arrow pointing to the right of way for drive construction. Include the drive details on the approach table.

86-2.05 Bypass

Indiana Statutes require that where INDOT constructs a bypass around a city or town, the Department must designate and establish the highway as a limited-access facility.

86-2.06 Improvements Within Limited-Access Right of Way

No part of a private improvement will be permitted inside the limited-access right of way. A deviation from this policy must be approved in advance by the Production Management Division director and the Federal Highway Administration, where applicable.

86-2.07 Railroad

Limited-access right of way should not be shown across operating-railroad right of way. The description of the opening should be as discussed in Section 86-2.04. On a non-Interstate-route project where the new roadway parallels a railroad, it will not be necessary to take limited access right of way along the railroad. Consideration should be given to where more than the minimum distance exists between the highway and the railroad, and there is a possibility of commercial development on the property. Do not leave an area large enough to permit later development between a highway and a railroad which can result in a request for access to a limited-access facility at some future date.

86-2.08 Access to Adjoining Properties with a Common Approach

Figure 86-2C illustrates the preferred method for providing access with a common approach to adjacent properties.

86-3.0 FENCING

86-3.01 Warrants

Limited-access right of way should be fenced. Exceptions to this criterion include the following:

1. through a floodplain where the fence will be below the high-water elevation;

2. on new or reconstruction work where the property is a residence or a business and has a maintained lawn;

3. parallel to existing railroad right of way (see Section 86-2.07);

4. where entrances are relatively close and short runs of fence would provide minimal benefit;

5. where an existing fence is considered adequate or has been requested to remain by the property owner;

6. where a physical feature (e.g., large cut, public land, heavily-wooded area) discourages the development of an unapproved access point; or

7. other unique situation which may preclude the practicality and need for a fence.

For an Interstate-route rehabilitation project, the need to repair or replace the right-of-way fence should be discussed at the field check. If the field-check recommendation is different than the recommendation shown in the Engineer's Report, it should be indicated in the field-check minutes.

The guidelines for fence repair or replacement are as follows.

1. For a partial 3R project, the fence design life is about 10 years. Hence, if the fencing will last 10 years, a quantity of fence patching should be determined.

2. For a crack and seat project, the fence design life is about 15 years. Hence, if the fencing will last 15 years, a quantity of fence patching should be determined.

3. For a pavement rubblization and replacement project, the fence design life is about 25 to 30 years. Therefore, the fence should be replaced.

86-3.02 Application

Fence used to define and control limited-access right of way is placed on the access-control line. Two exceptions are at a separation structure or large culvert. The fence is terminated at the near corner of a bridge structure and begun again at the far corner. The fence may be either terminated at one side of a large culvert and started at the other side or carried over the top of the culvert.

Provide chain-link type fence in front of a house (lawn area) or in an urban or suburban or other area where aesthetics may be important to the occupant (e.g., motel, office, school, church). Farm-field type fence should be used at all other locations. A short section of farm-field type fence should not be used where it would detract from the appearance of the installation. The project engineer may change the type of fence shown on the plans upon receipt of reasonable written justification from a property owner.

86-3.03 Fence Posts

Group 1 fence posts should be used where new fence is required. Group 2 fence posts should be used for existing fence which requires repair or replacement. The fence-post type must be identified where fencing requirements are shown on the plan and profile sheets as in the example notes as follows:

L.A.R./W., A.C.L. & F.F.T.F. w/ Gp. 1 Posts Required
or
___ l ft of C.L.T.F. w/ Gp. 2 Posts Required

86-4.0 ACCESS-CONTROL FIGURES

The following figures illustrate INDOT's limited-access right-of-way policy and fencing practice.

1. L. A. R/W at Interchange. Figures 86-4A through 86-4F illustrate the application of limited-access right of way at an interchange. The following are shown.

    a. Case I. Figure 86-4A illustrates an outer-ramp connection with a divided facility in a rural or urban area.

b. Case II. Figure 86-4B illustrates a typical at-grade ramp connection for an undivided facility in a rural or an urban area.

c. Case III. Figure 86-4C illustrates an outer-ramp connection with a divided facility where the divided facility is transitioned from a two-lane facility in a rural area.

d. Case IV. Figure 86-4D illustrates an at-grade ramp connection with a divided facility where the divided facility is transitioned from a two-lane facility in a rural area.

e. Case V. Figure 86-4E illustrates an outer-ramp connection with a divided facility where the divided facility is transitioned from a two-lane facility in an urban area.

f. Case VI. Figure 86-4F illustrates an at-grade ramp connection with a divided facility where the divided facility is transitioned from a two-lane facility in an urban area.

2. Limited Access Control. Figures 86-4G through 86-4 O illustrate typical examples for access control for a facility crossing a freeway. The following examples are provided.

a. Figure 86-4G illustrates where the access control is carried along the crossroad over the freeway.

b. Figure 86-4H illustrates where a fenced and a non-fenced crossroad passes under the freeway.

c. Figure 86-4 I illustrates where a fenced and a non-fenced railroad passes under the freeway.

d. Figure 86-4J illustrates where a crossroad is closed and where a railroad is abandoned.

e. Figure 86-4K illustrates where the freeway passes under a crossroad left at its original grade.

f. Figure 86-4L illustrates where the freeway passes under a crossroad and the crossroad has been elevated.

g. Figure 86-4M illustrates where the freeway passes over a navigable river, stream, or lake.

h. Figure 86-4N illustrates where the freeway passes over a non-navigable river, stream, or lake.

i. Figure 86-4 O illustrates where the crossroad passes under a freeway with a wide median.

j. Figure 86-4P illustrates where the freeway passes under a relocated crossroad.

State Review By _____

ROUTE: _____ PROJECT: _____	AREA LANDLOCKED: _____ ac
COUNTY: _____	FROM STA. _____ TO STA. _____,
PARCEL NO.: _____	_____ ft LT. _____ ft RT.
OWNER: _____	ACCESS ROAD NO. _____

A. WITH ACCESS PROVIDED

VALUE OF RESIDUE AFTER TAKE:

LAND $_____

IMPROVEMENTS $_____

"A" TOTAL VALUE $_____

B. LANDLOCKED

VALUE OF RESIDUE AFTER TAKE:

LAND $_____

IMPROVEMENTS $_____

"B" TOTAL VALUE $_____

C. R/W COST OF LOCAL SERVICE ROAD

AREA REQUIRED FOR LOCAL SERVICE ROAD

_____ ac @ $_____ / ac = $_____

IMPROVEMENTS VALUE $_____

DAMAGES DUE TO LOC. SVC. ROAD $_____

"C" TOTAL COST OF R/W $_____

D. SPECIFICATIONS AND COSTS OF LOCAL SERVICE ROAD

LENGTH: _____ ft WIDTH: _____ ft

TYPE OF SURFACE: _____

COST PER RUNNING METER: $_____

OTHER COSTS: $_____

"D" TOTAL CONSTRUCTION COST: $_____

ADDITIONAL COST LANDLOCKED RESIDUE "A" MINUS "B" $_____

LESS TOTAL COST LOCAL SERVICE ROAD "C" PLUS "D" $_____

DIFFERENCE, plus or minus $_____

OTHER REASONS WHY LOCAL SERVICE ROAD SHOULD BE PROVIDED:

PROVIDE LOC. SVC. RD.: ☐ YES ☐ NO SIGNED _____

LAND VALUE BY: _____ TITLE: _____ DATE: _____

Company Name if other than INDOT personnel: _____

ROAD COST BY : _____ TITLE: _____ DATE: _____

Company Name if other than INDOT personnel: _____

Note: Worksheets should be placed in Right-of-Way File.

COMPARATIVE COST STUDY FOR LOCAL SERVICE ROAD
(Form R/W-16)

Click When Done

Clear Data

LOCAL SERVICE ROAD (LSR) STUDY, MULTIPLE PROPERTIES

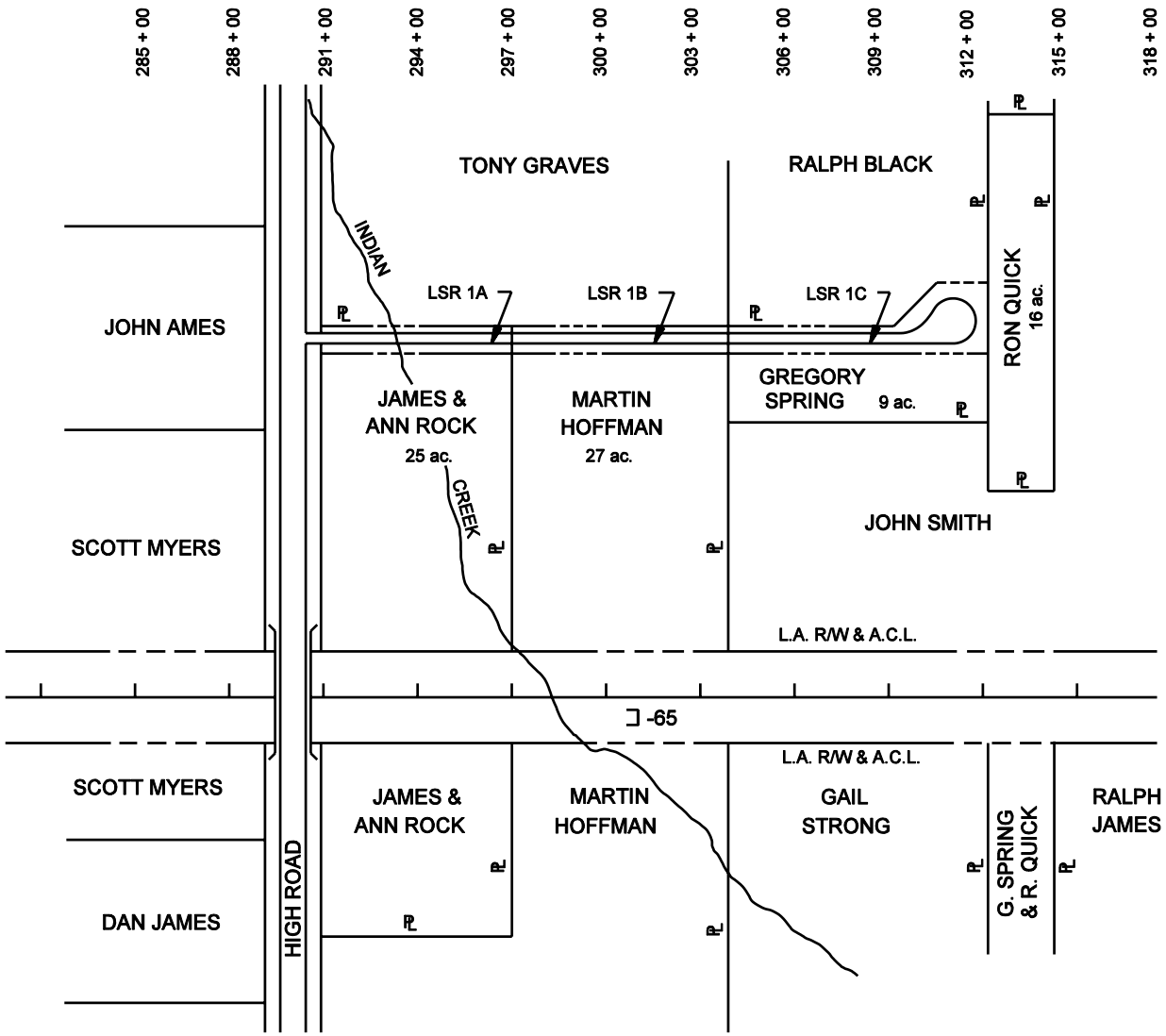
Route: _____ County: _____ Sec. ___ T-____ R-____

LSR No.	From Sta.	To Sta.	Across Property Owner	To Property Owner	Acres Req'd.	(1) Value of Residue (& Size) with LSR	(2) Value of Improvements Added	(3) Value of Residue Without LSR	(4) R/W Cost for LSR	(5) Constr. Cost for LSR	(6) Net Gain or Loss for Parcel	Cumulative total Gain or Loss
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$
						$ (ac)	$	$	$	$	$	$

Note: $(6) = [(1) - (3)] - [(4) + (5)]$

Click When Done

Clear Data



EXAMPLE ACCESS STUDY

Figure 86-1C

State Review By _____

AREA LANDLOCKED 26.7 ac	PROJECT I-65-3( )
FROM STATION 873 + 01 TO STATION	COUNTY Marion
880 + 35 LEFT X RIGHT _____	PARCEL NO. 21
ACCESS ROAD NO. 1A	OWNER John White

WITH ACCESS PROVIDED		R/W COST OF LOCAL SERVICE ROAD	
VALUE OF RESIDUE AFTER TAKE		AREA REQUIRED FOR ACCESS ROAD	
LAND 26.7 ac @ $2,524	$ 67,392	1.14 ACRES @ $ 2,623 =	$ 2,990
IMPROVEMENTS	$ 60,000	IMPROVEMENTS VALUE	$ 1,500
"A" TOTAL VALUE	$ 127,392	DAMAGES DUE TO ACCESS ROAD	$ 500
LANDLOCKED		"C" TOTAL COST OF R/W	$ 4,990
VALUE OF RESIDUE AFTER TAKE		SPECIFICATIONS AND COSTS OF LOCAL SERVICE ROAD	
LAND 26.7 ac @ $981	$ 26,190	LENGTH 820 ft WIDTH 22'-0"	
IMPROVEMENTS	$ 20,800	TYPE OF SURFACE Asphalt	
"B" TOTAL VALUE	$ 46,990	COST PER LIN.FT. $ 51.50 x 820 ft = 42,250	
		OTHER COST $ 60-in. pipe-200 lft @ 60 = 12,000	
		"D" TOTAL CONST. COST $	54,250

ADDITIONAL COST LANDLOCKED RESIDUE "A" MINUS "B" ..... $ 80,402
LESS, TOTAL COST ACCESS ROAD "C" PLUS "D" ..... $ 59,240
DIFFERENCE, plus or minus ..... $ + 21,162

STATE ANY OTHER REASON ACCESS ROAD SHOULD BE PROVIDED.

PROVIDE ACCESS - YES 3 NO _____ SIGNED Howard Jones

LAND VALUE BY H. Jones TITLE Appraiser II DATE 9-12-95

ROAD COST BY N. Adams TITLE HE II DATE 9-7-95

If values and road cost are provided by other than Department personnel, give name, company and title. Work sheets should be placed in Right-of-Way File.

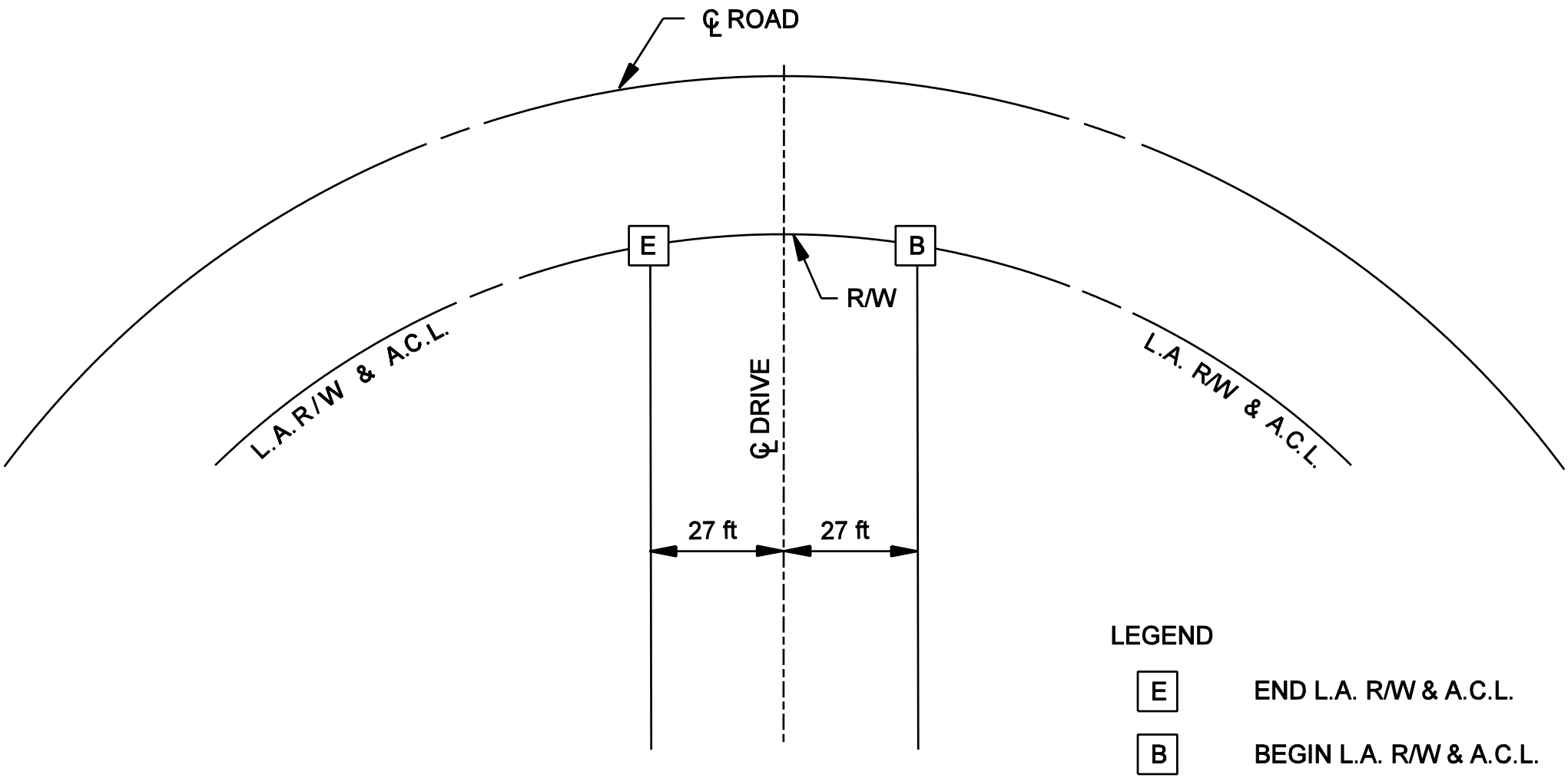
EXAMPLE FORM R/W-16
Figure 86-1D

Marion	I-65-3	( )
County	Route	Section

Local Service Road No.	Stations From To	Across Parcel Owner	To Parcel Owner	Number of Acres Required	(1) (-) Value & Size of Residue with Service Road	(2) Value of Improve-ments Affected	(3) (-) Value of Residue W/O Service Road	(4) (-) R/W Cost for Service Road	(5) (-) Construction Cost for Service Road	(6) ℜ Net Gain for Parcel	Cumulative Total (+Gain) (-Loss)
ℵ 1A	873+01 - 880+35	James & Ann Buck		1.14				4990	54 250		
ℑ			Martin Hoffman		127 392 (29.5 ac)	(60 000)	46 990			+21 162	+21 162
1B	880+85 889+34	M. Hoffman		1.11				2900	42 000		
			G. Spring		21 100 (8.6 ac)	(7900)	9700			-33 500	-12 338
1C	889+34 - 891+54	G. Spring		1.11				1000	12 600		
			R. Quick		46 800 (16.1 ac)	-	16 000			+17 200	+4862

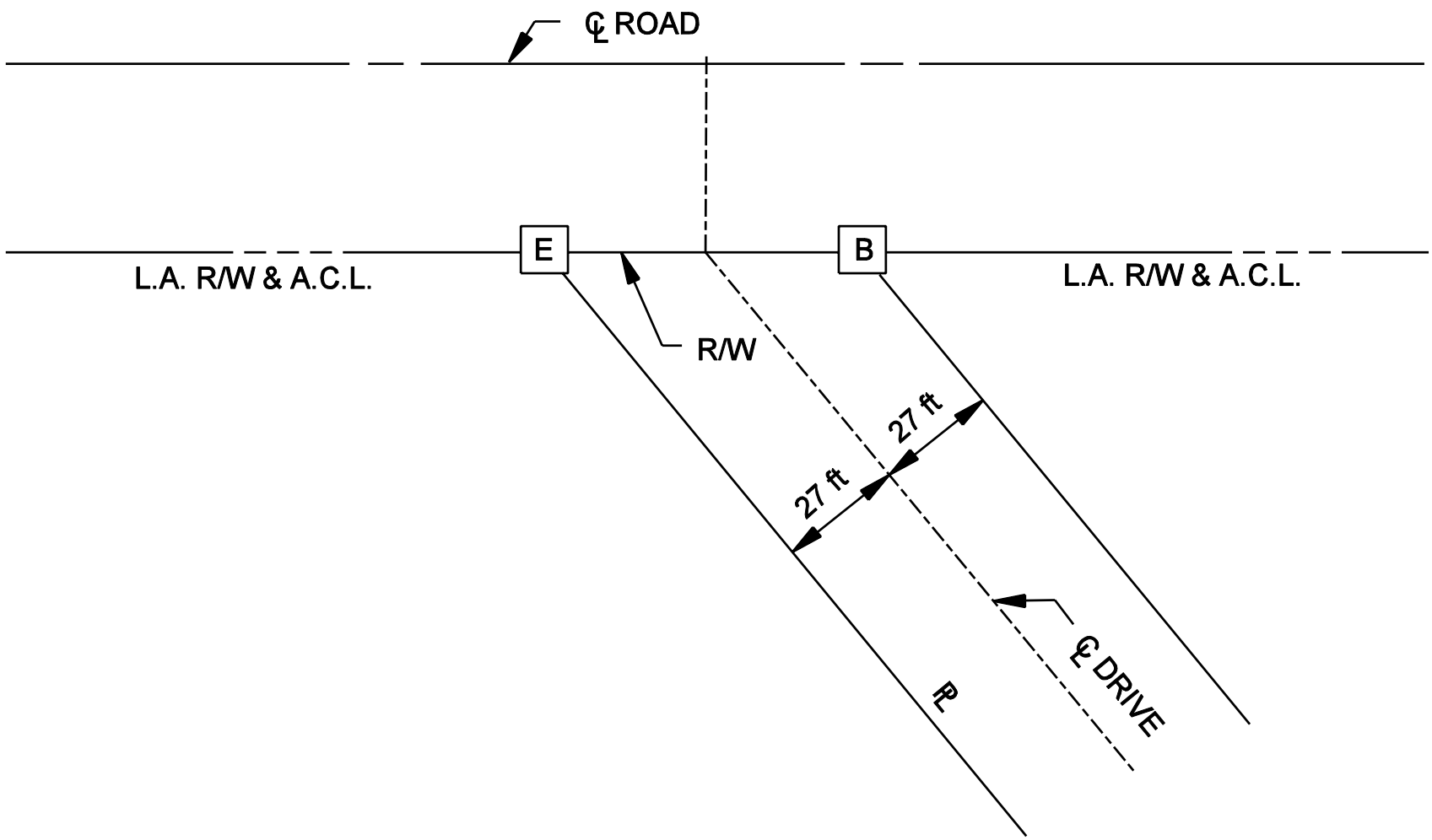
ℵ First line for items relating to local road.
ℑ Second line for items relating to property served by local service road.
ℜ Difference of values in columns (1) and (3) minus sum of columns (4) and (5).

EXAMPLE ACCESS STUDY FORM
Figure 86-1E



L.A. R/W OPENINGS
(Horizontal curves)

Figure 86-2A



L.A. R/W OPENINGS
(Angled Approaches)

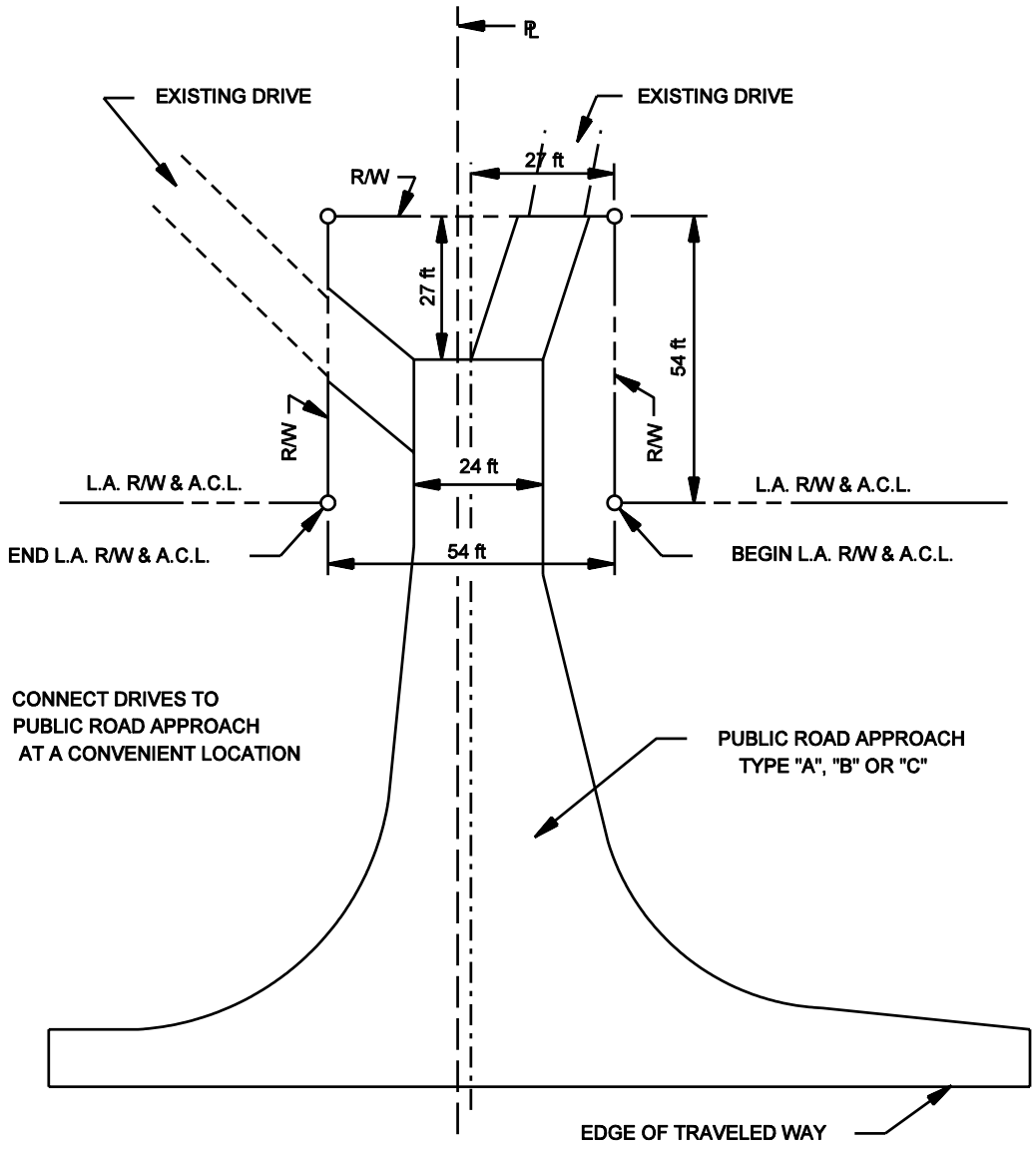
Figure 86-2B

C/L Access Opening *	Approach Type or Class	C/L of Approach
Sta. 100 + 51 “A” Lt.	Class II	Sta. 100 + 62 Lt.
Sta. 100 + 61 “A” Rt. & Lt.	Public-Road Approach, Type B	Sta. 100 + 72 Rt. & Lt.

** Each access opening in a rural area should be 50 ft or wider unless otherwise shown.*

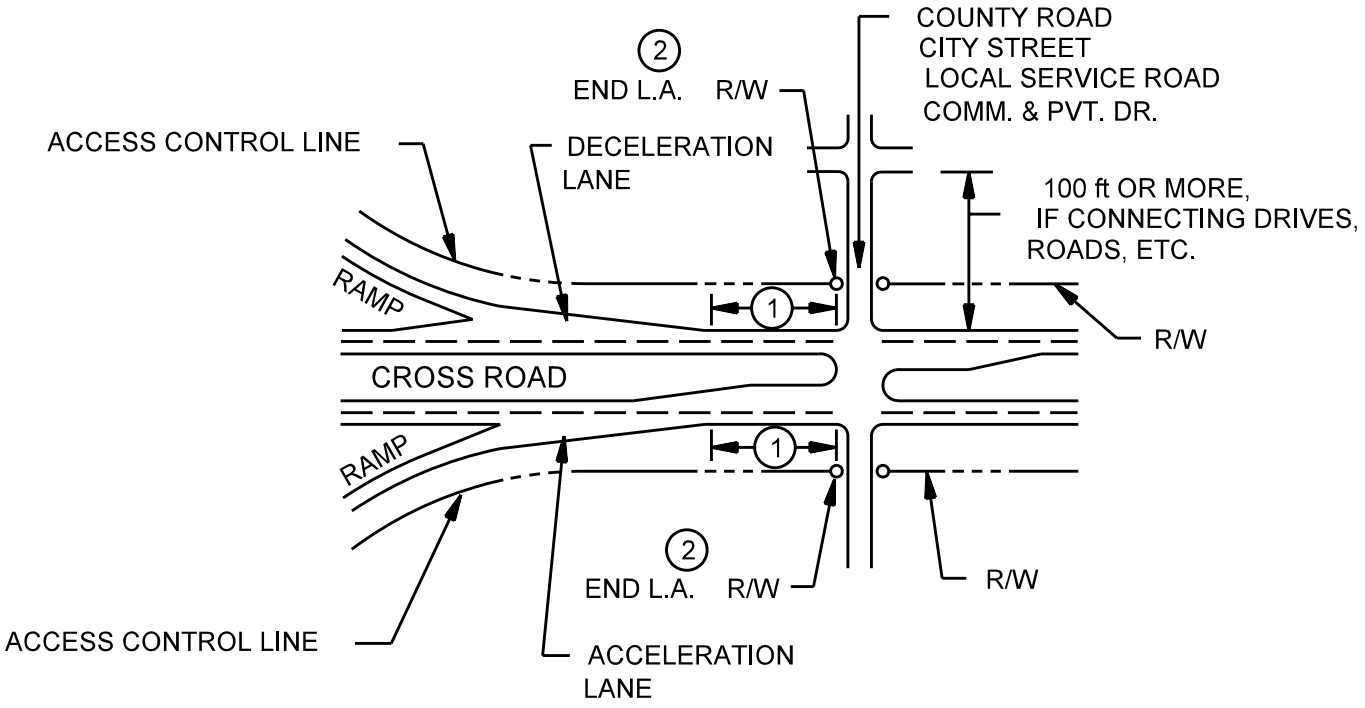
ACCESS-OPENINGS TABULATION EXAMPLE

Figure 86-2B(1)



ACCESS OPENINGS FOR ADJACENT DRIVES

Figure 86-2C



(1) FULL ACCESS CONTROL LINE SHOULD EXTEND ALONG THE CROSS ROAD BEYOND THE RAMP TERMINAL TAPER EXTREMITY (BOTH SIDES OF ROAD) 100 ft MINIMUM TO 200 ft DESIRABLE IN URBAN AREAS AND 300 ft MINIMUM TO 500 ft DESIRABLE IN RURAL AREAS. THE AUXILIARY LANE TERMINATING THE GREATER DISTANCE FROM THE INTERCHANGE AREA SHOULD GOVERN.

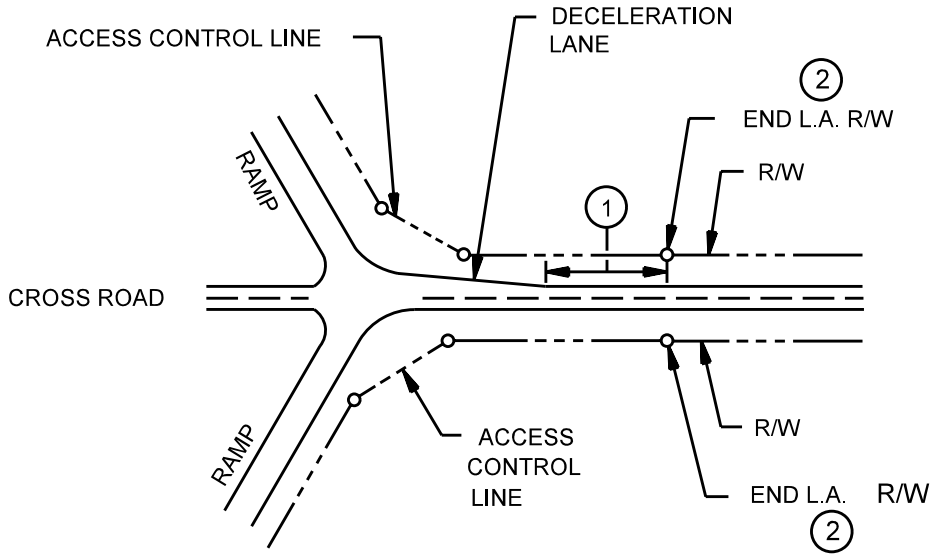
(2) THE END OF ACCESS CONTROL SHALL BE AT OPPOSITE POINTS, WHERE FEASIBLE.

Notes:

1. *This figure illustrates a typical outer connection for divided facilities in rural and urban areas.*
2. *Where high-traffic crossroads, streets, commercial drives or signalized intersections are located or may be potentially constructed just beyond the interchange outer connectors, extension of the limited access right-of-way beyond the limits shown should be consider enhance operational safety and efficiency and to minimize congestion. Where a signalized intersection is anticipated, the distances should be increased to 600 ft minimum, 800 ft desirable, where feasible in urban areas.*

L.A. R/W AT INTERCHANGES (CASE I)

Figure 86-4A



1 FULL-ACCESS CONTROL LINE SHOULD EXTEND ALONG THE CROSS ROAD BEYOND THE RAMP TERMINAL TAPER EXTREMITY (BOTH SIDES OF ROAD) 100 ft MINIMUM TO 200 ft DESIRABLE IN URBAN AREAS AND 300 ft MINIMUM TO 500 ft DESIRABLE IN RURAL AREAS. THE AUXILIARY LANE TERMINATING THE GREATER DISTANCE FROM THE INTERCHANGE AREA SHOULD GOVERN.

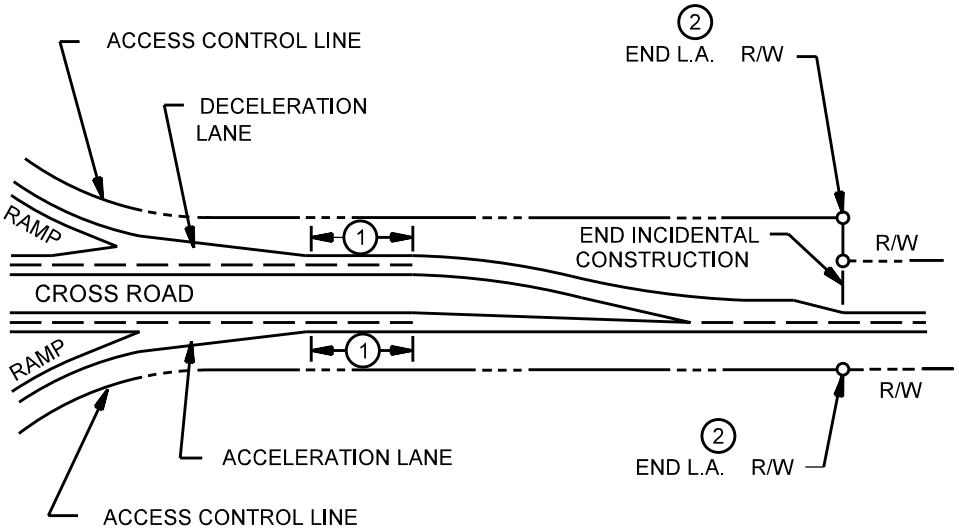
2 THE END OF ACCESS CONTROL SHOULD BE AT OPPOSITE POINTS, WHERE FEASIBLE.

Notes:

1. *This figure illustrates an at-grade ramp intersection with an individual facility in rural and urban areas.*
2. *If there is no acceleration or decleration lane, a point 400 ft or more from the intersecting ramp ℄ with the cross road should be used to establish the end of L.A. R/W or closest point of access*
3. *Where high-traffic crossroads, streets, commercial drives or signalized intersections are located or may be potentially constructed just beyond the ramp intersections, extension of the limited right-of-way beyond the limits shown should be considered operational safety and efficiency and to minimize congestion. Where a signalized intersection is anticipated, distances should be increased to 600 ft minimum, 800 ft desirable, where feasible in urban areas.*

L.A. R/W AT INTERCHANGES
(Case II)

Figure 86-4B



(1) A DISTANCE OF 300 ft MINIMUM TO 500 ft DESIRABLE SHOULD BE PROVIDED BETWEEN THE RAMP TERMINAL TAPER EXTREMITIES AND THE LANE TRANSITION. THE AUXILIARY LANE TERMINATING THE GREATER DISTANCE FROM THE INTERCHANGE AREA SHOULD GOVERN.

(2) THE END OF THE FULL CONTROL ACCESS LINE SHOULD BE AT OPPOSITE POINTS WHERE FEASIBLE.

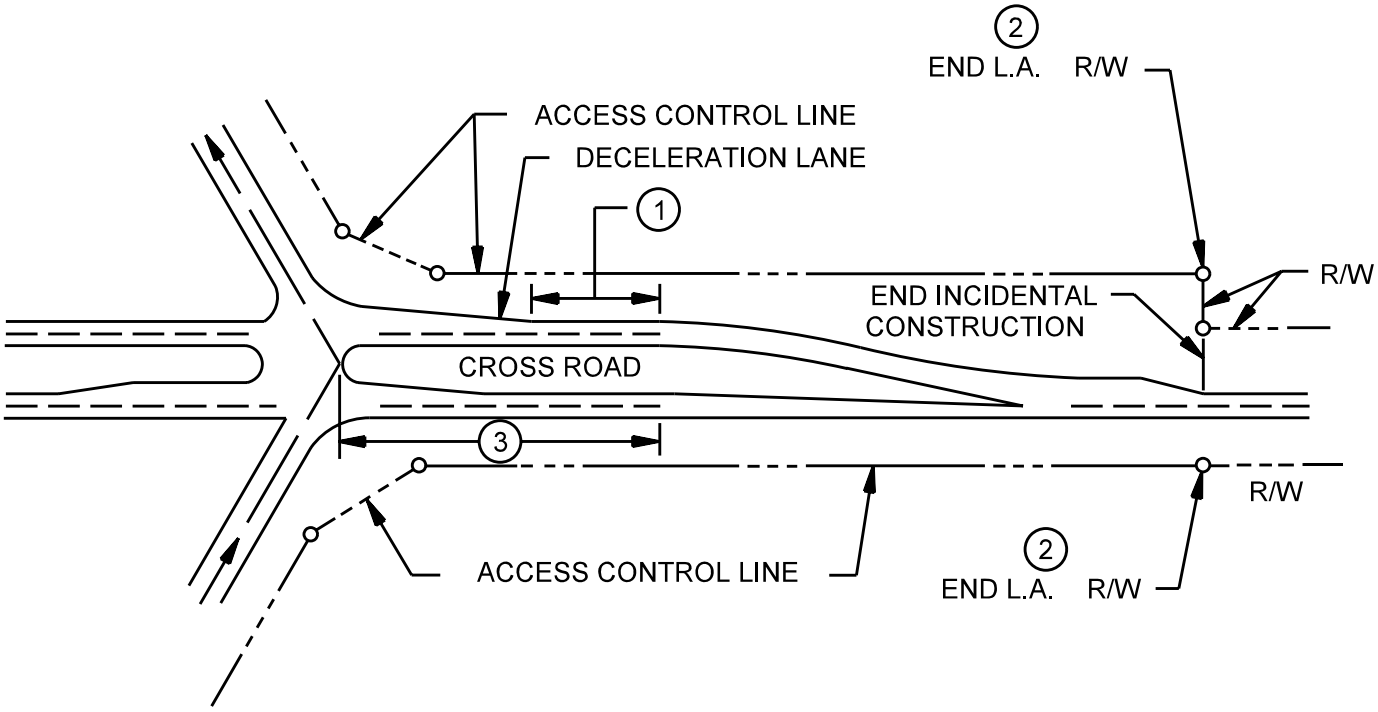
Notes:

1. *This figure illustrates a typical outer connection on a rural divided facility which transitions to an undivided facility.*

2. *Where high-traffic crossroads, streets, commercial drives or signalized intersections are located or may be potentially constructed just beyond the interchange outer connectors, extension of the limited access right-of-way beyond the limits shown should be considered to enhance operational safety and efficiency and to minimize congestion. Where a signalized intersection is anticipated, the distances should be increased to 600 ft minimum, 800 ft desirable.*

L.A. R/W AT INTERCHANGES
(Case II)

Figure 86-4C



(1) A DISTANCE OF 300 ft MINIMUM TO 500 ft DESIRABLE SHOULD BE PROVIDED BETWEEN THE RAMP TERMINAL TAPER EXTREMITIES AND THE LANE TRANSITION. THE AUXILIARY LANE TERMINATING THE GREATER DISTANCE FROM THE INTERCHANGE AREA SHOULD GOVERN.

(2) THE END OF THE FULL CONTROL ACCESS LINE SHOULD BE AT OPPOSITE POINTS WHERE FEASIBLE.

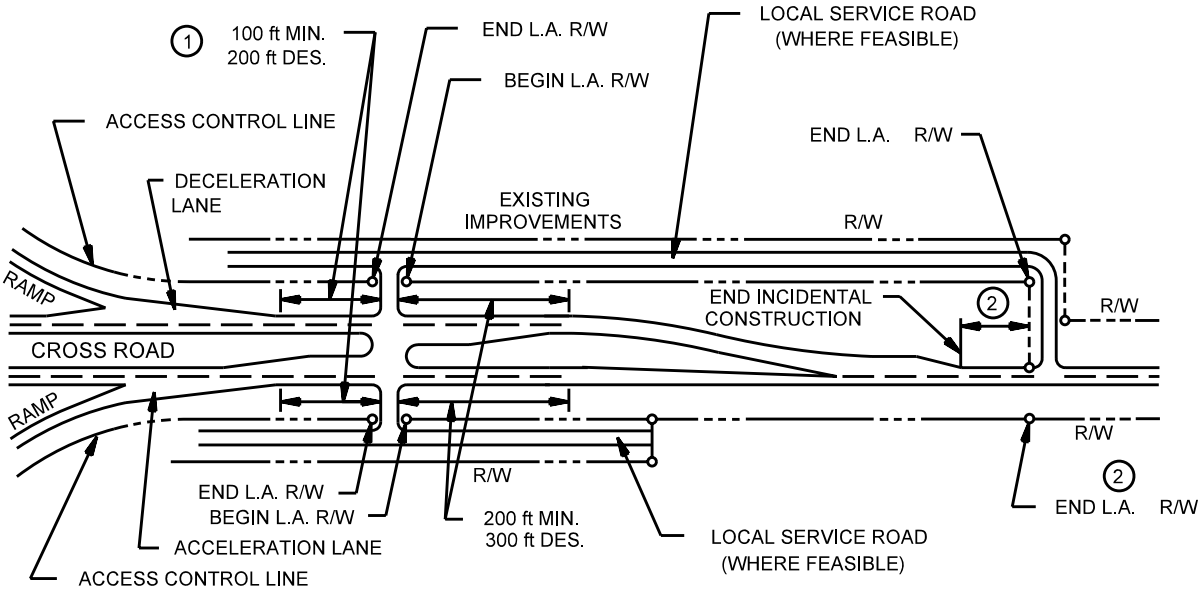
(3) IF THERE IS NO ACCELERATION OR DECELERATION LANE, A DISTANCE OF 400 ft OR MORE SHOULD BE PROVIDED BETWEEN THE INTERSECTION OF THE RAMP ℄ WITH THE CROSS ROAD AND THE LANE TRANSITION.

Notes:

1. *This figure illustrates a typical ramp intersection with a rural divided facility which transitions to an undivided facility*
2. *Where high-traffic crossroads, streets, commercial drives or signalized intersections are located or may be potentially constructed just beyond the ramp intersections, extension of the limited access right-of-way beyond the limits shown should be considered to enhance operational safety and efficiency and to minimize congestion. Where a signalized intersection is anticipated, the distances should be increased to 600 ft minimum, 800 ft desirable.*

L.A. R/W AT INTERCHANGES
(Case IV)

Figure 86-4D



1 THE AUXILIARY LANE TERMINATING THE GREATER DISTANCE FROM THE INTERCHANGE AREA SHOULD GOVERN.

2 THE END OF ACCESS CONTROL SHALL BE AT OPPOSITE POINTS WHERE FEASIBLE, 100 ft MINIMUM TO 200 ft DESIRABLE BEYOND THE LANE TRANSITION AREA.

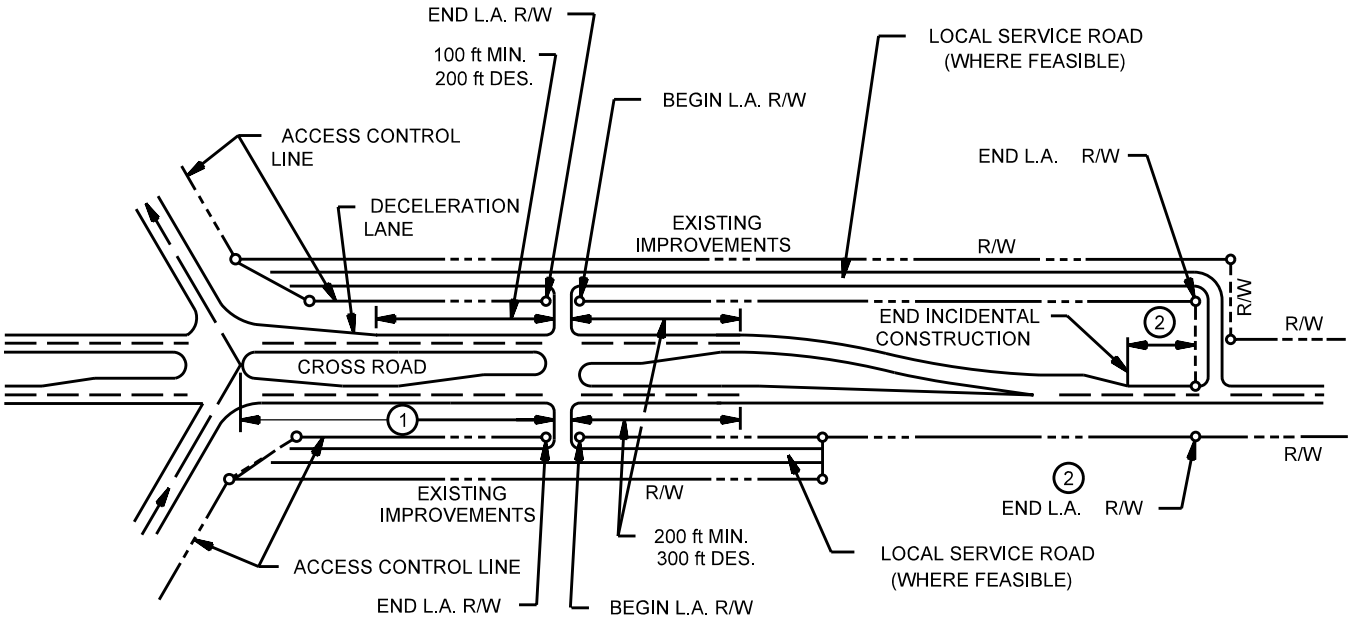
Notes:

1. *This figure illustrates a typical outer connection on an urban divided facility which transitions to an undivided facility*

2. *Where high-traffic crossroads, streets, commercial drives or signalized intersections are located or may be potentially constructed just beyond the interchange outer connectors, extension of the limited access right-of-way beyond the limits shown should be considered to enhance operational safety and efficiency and to minimize congestion. Where a signalized intersection is anticipated, the distances should be increased to 600 ft minimum, 800 ft desirable, where feasible.*

L.A. R/W AT INTERCHANGES
(Case V)

Figure 86-4E



1 IF THERE IS NO ACCELERATION OR DECELERATION LANE, A POINT 400 ft OR MORE FROM THE INTERSECTION OF THE RAMP ℄ WITH THE CROSS ROAD SHOULD BE USED TO ESTABLISHED THE END OF L.A. R/W ON CLOSEST POINT OF ACCESS.

2 THE END OF ACCESS CONTROL SHOULD BE AT OPPOSITE POINTS WHERE FEASIBLE, 100 ft MINIMUM TO 200 ft DESIRABLE BEYOND THE LANE TRANSITION AREA.

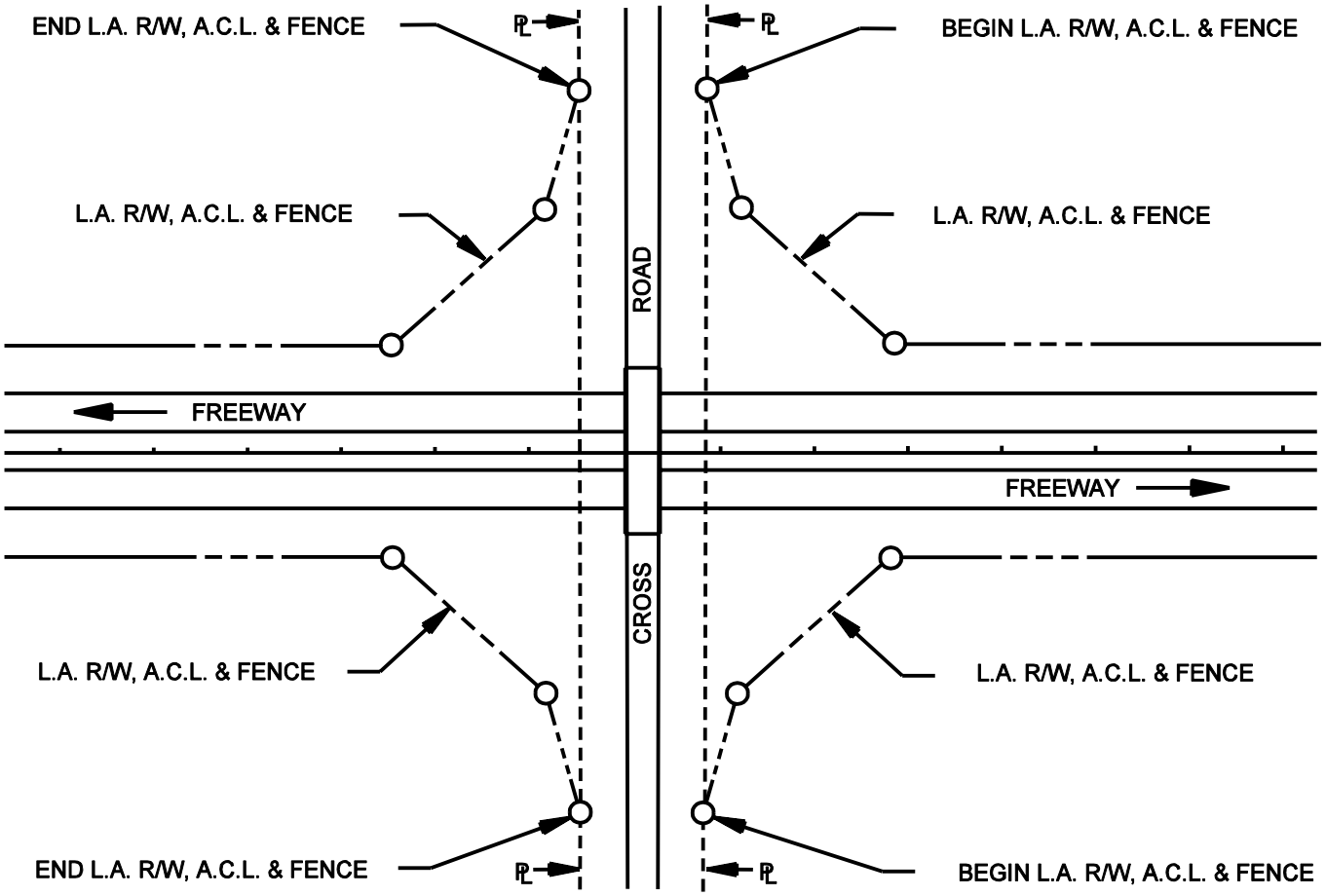
Notes:

1. *This figure illustrates a typical ramp intersection with an urban divided facility which transitions to an undivided facility.*

2. *Where high-traffic crossroads, streets, commercial drives or signalized intersections are located or may be potentially constructed just beyond the ramp intersections, extension of the limited access right-of-way beyond the limits shown should be considered to enhance operational safety and efficiency and to minimize congestion. Where a signalized intersection is anticipated, distances should be increased to 600 ft minimum, 800 ft desirable, where feasible.*

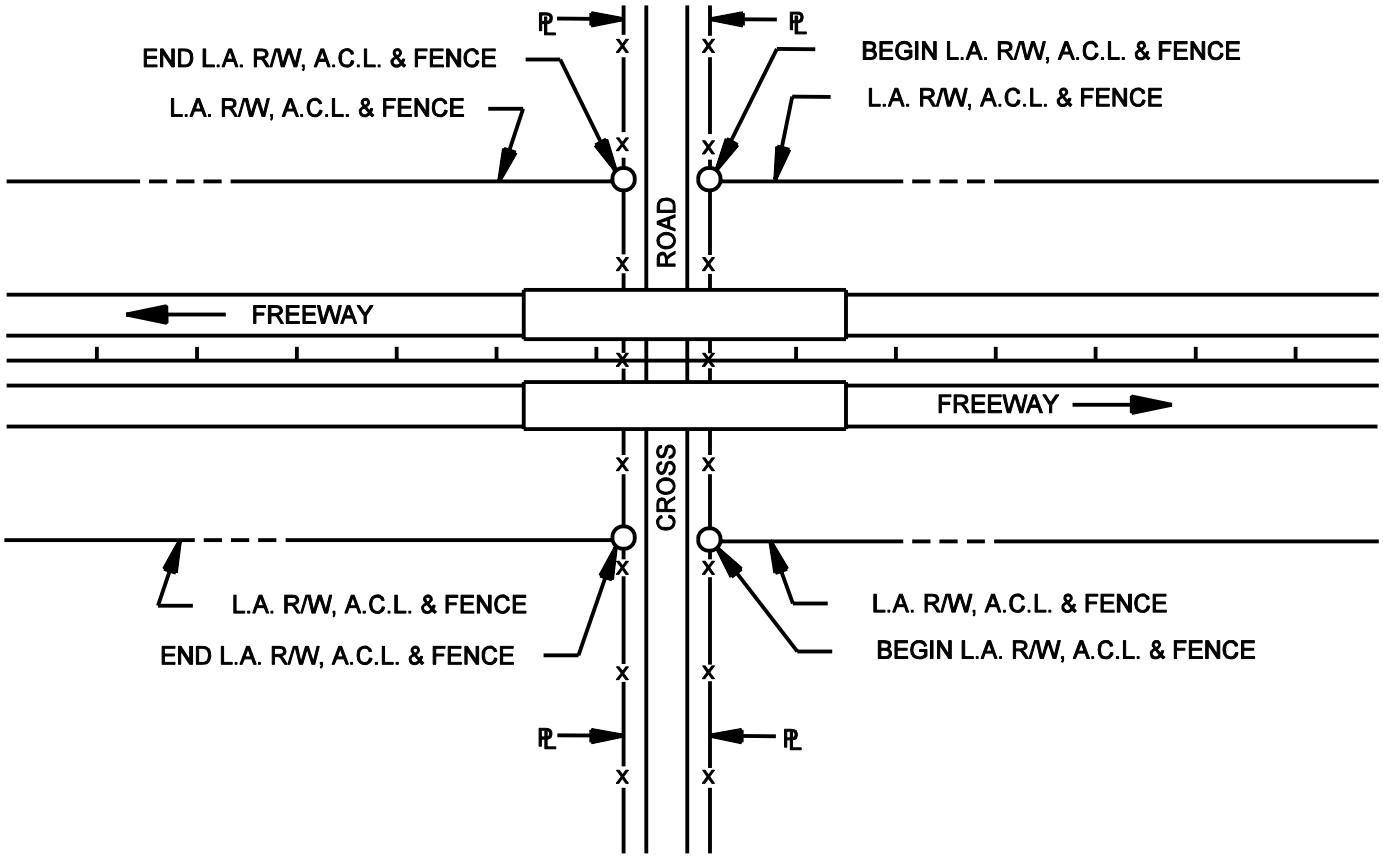
L.A. R/W AT INTERCHANGES
(Case VI)

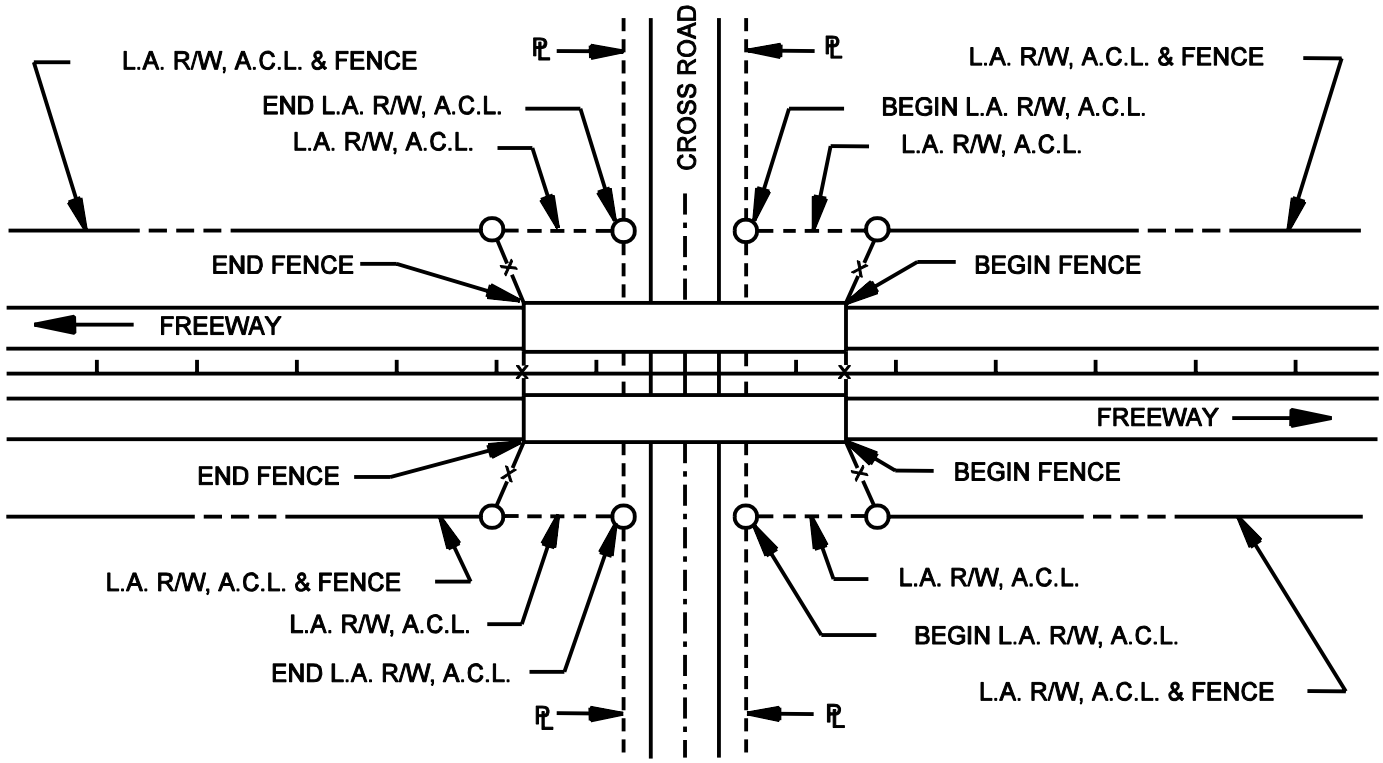
Figure 86-4F



CROSSROADS OVER FREEWAY

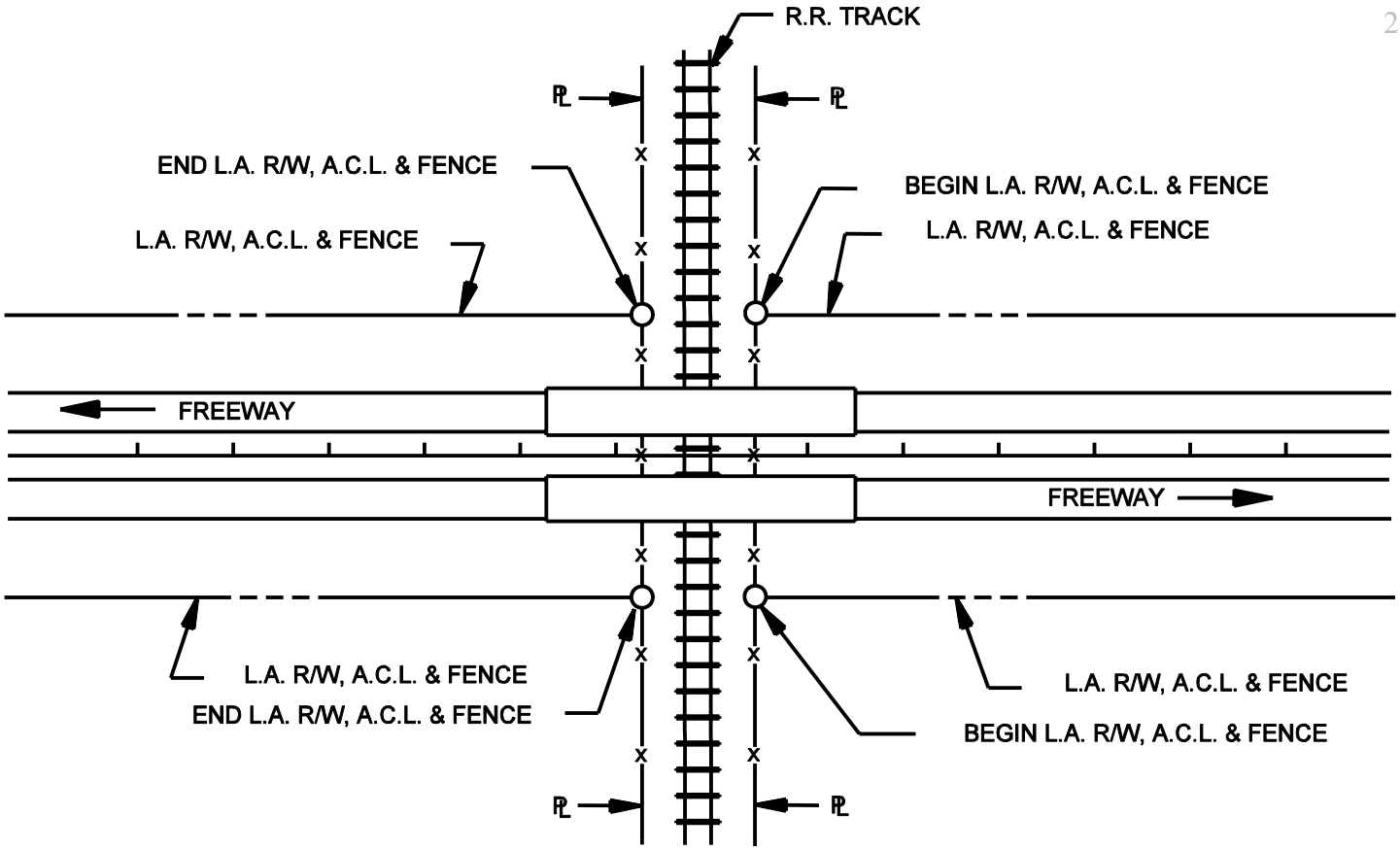
Figure 86-4G

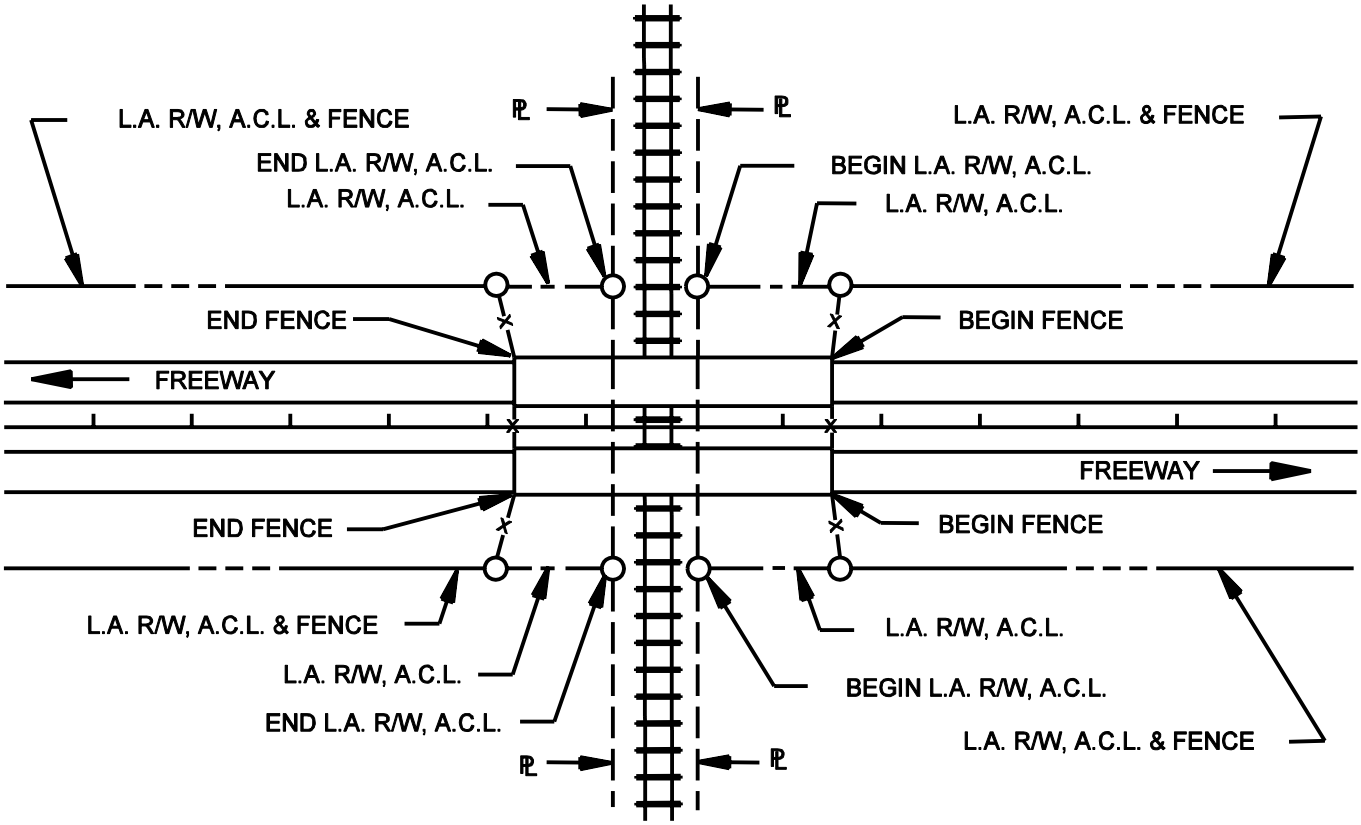




CROSSROADS UNDER FREEWAY

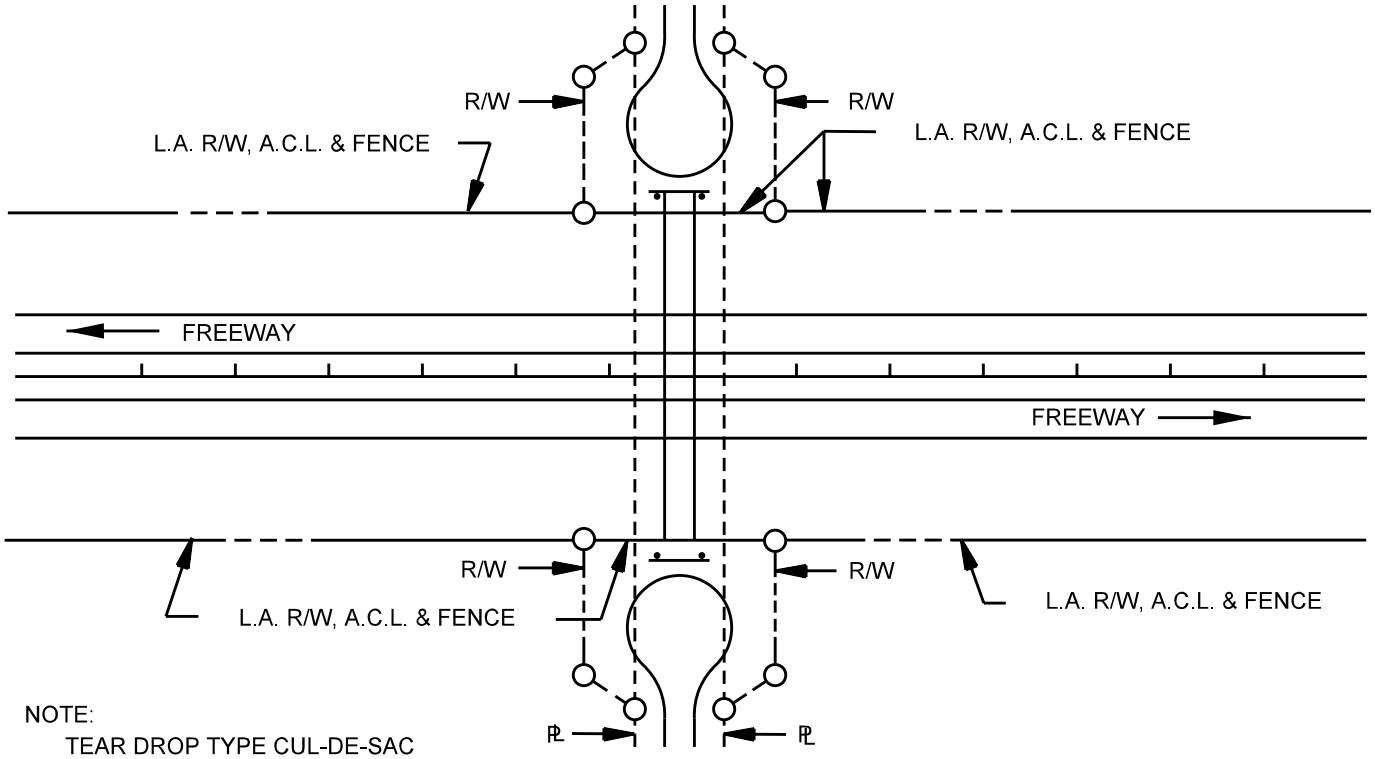
Figure 86-4H





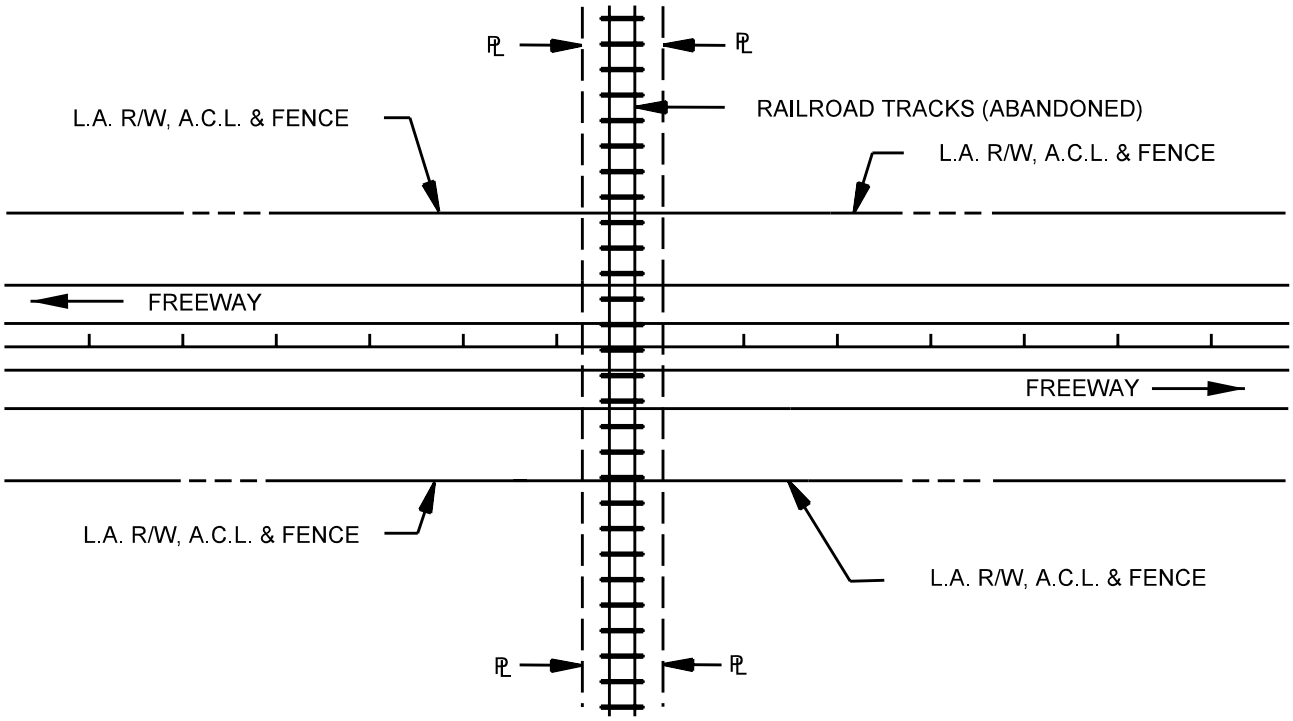
RAILROAD UNDER FREEWAY

Figure 86-4I



NOTE:
TEAR DROP TYPE CUL-DE-SAC IS PREFERED TO MINIMIZE THE NUMBER OF PROPERTIES AFFECTED UNLESS IMPROVEMENTS, ETC. REQUIRE RIGHT-OF-WAY TAKING FROM BOTH SIDES.

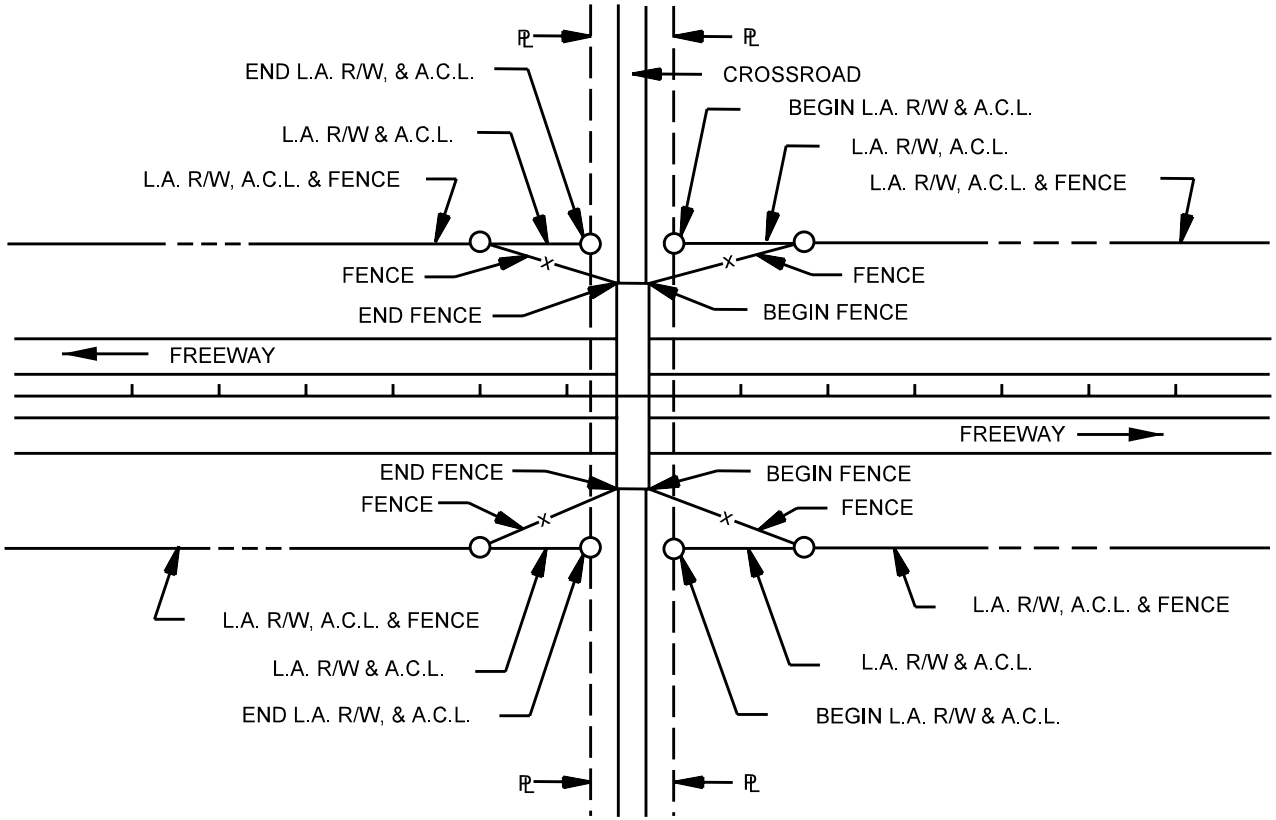
CROSS ROAD



RAILROAD

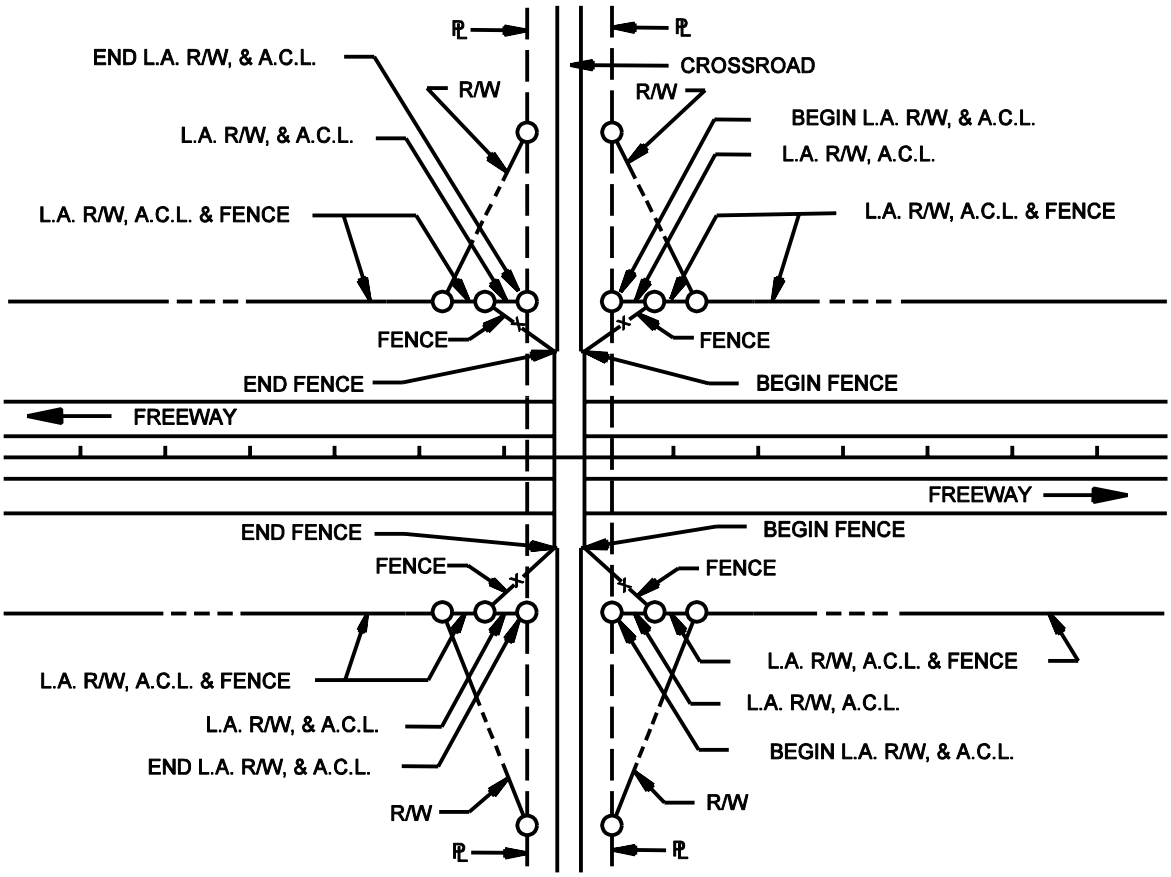
CLOSED FACILITIES

Figure 86-4J

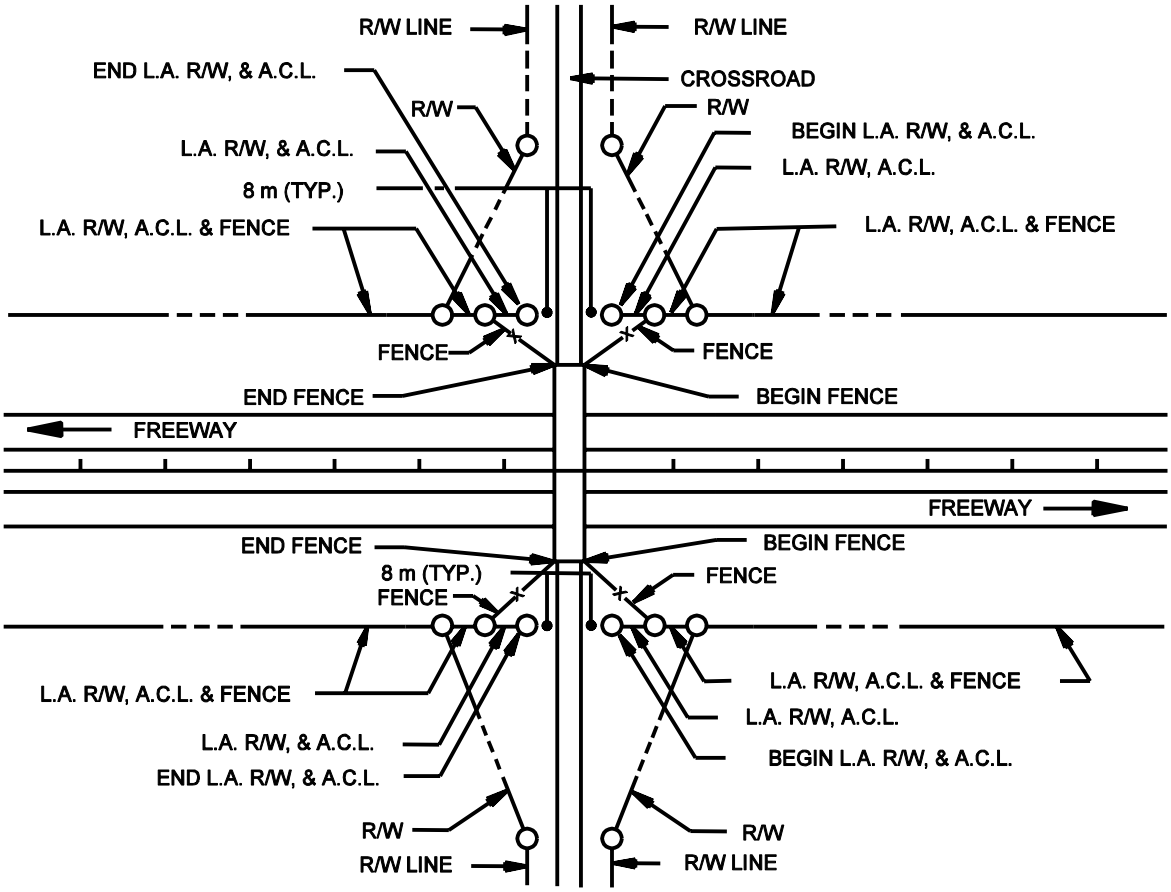


FREEWAY UNDER CROSSROAD AT ORIGINAL GRADE

Figure 86-4K



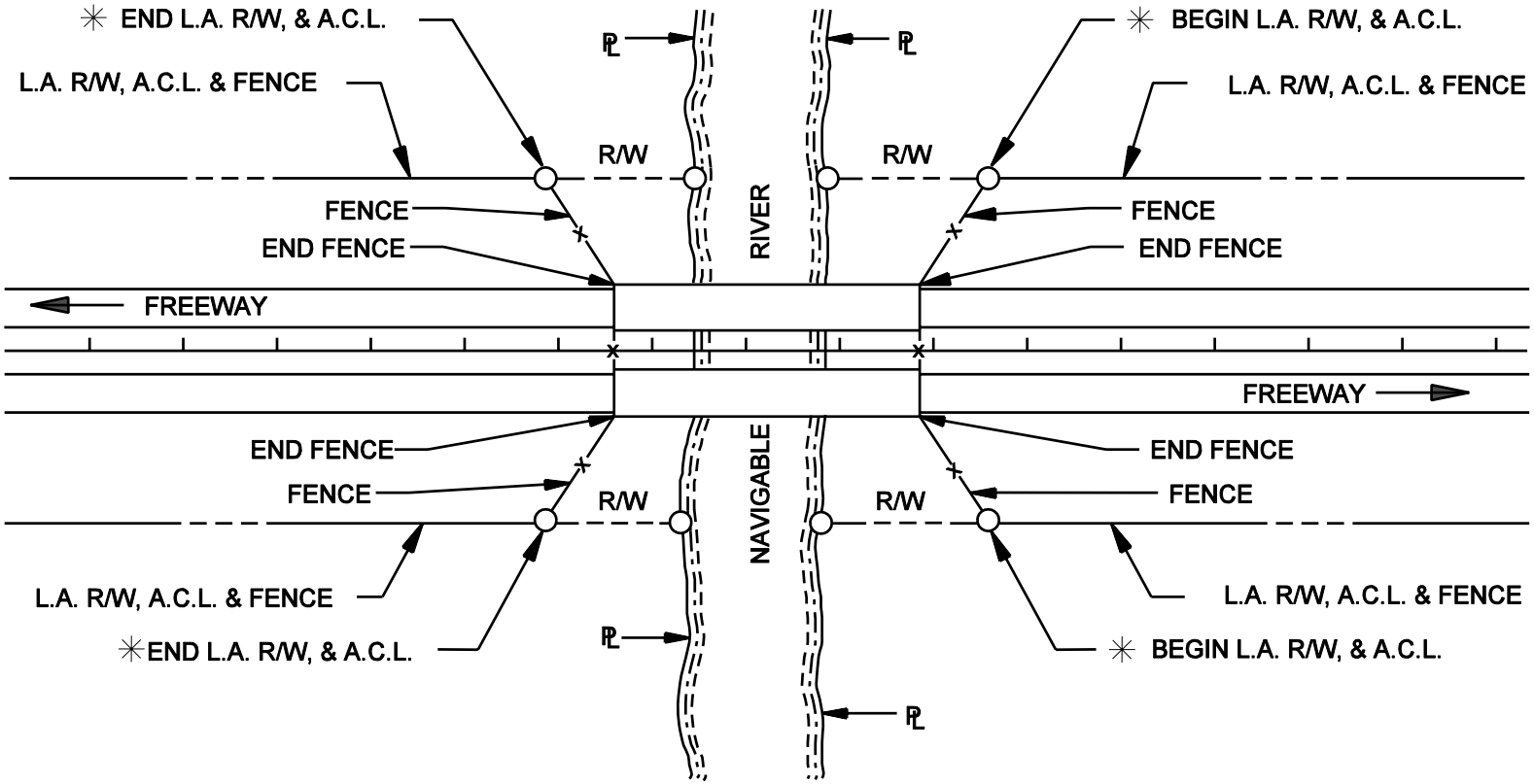
ORIGINAL LOCATION



NEW LOCATION

FREEWAY UNDER ELEVATED CROSSROAD

Figure 86-4L

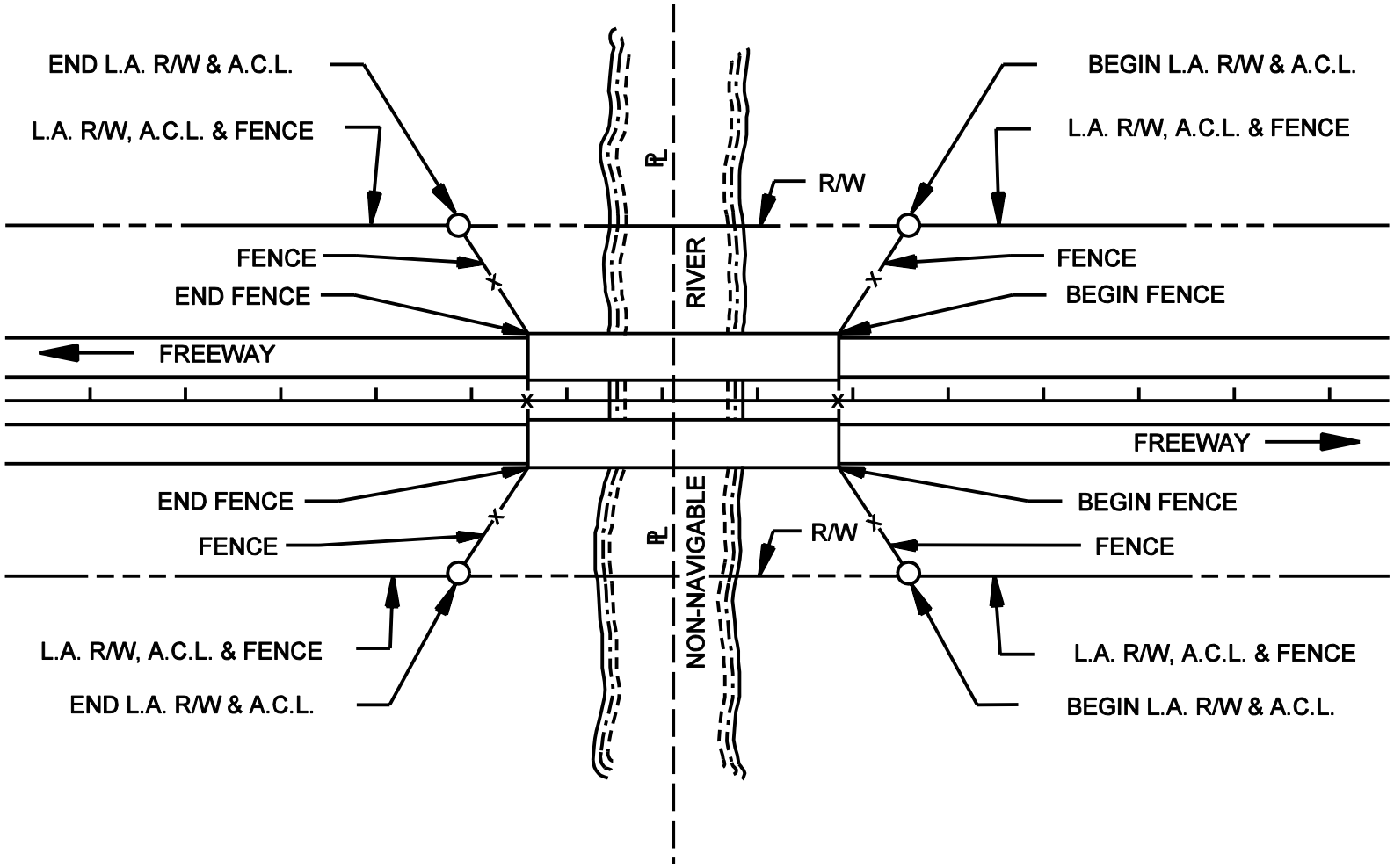


✳ POINT OF BEGINNING AND END OF L.A. R/W & A.C.L. SHOULD BE EXTENDED TO THE APPROX.
℄ IF THE OWNERSHIP OF THE PROPERTY ON EACH SIDE OF THE ROADWAY CENTERLINE IS DIFFERENT.

Note: This figure applies to any lake in Indiana except Lake Michigan.

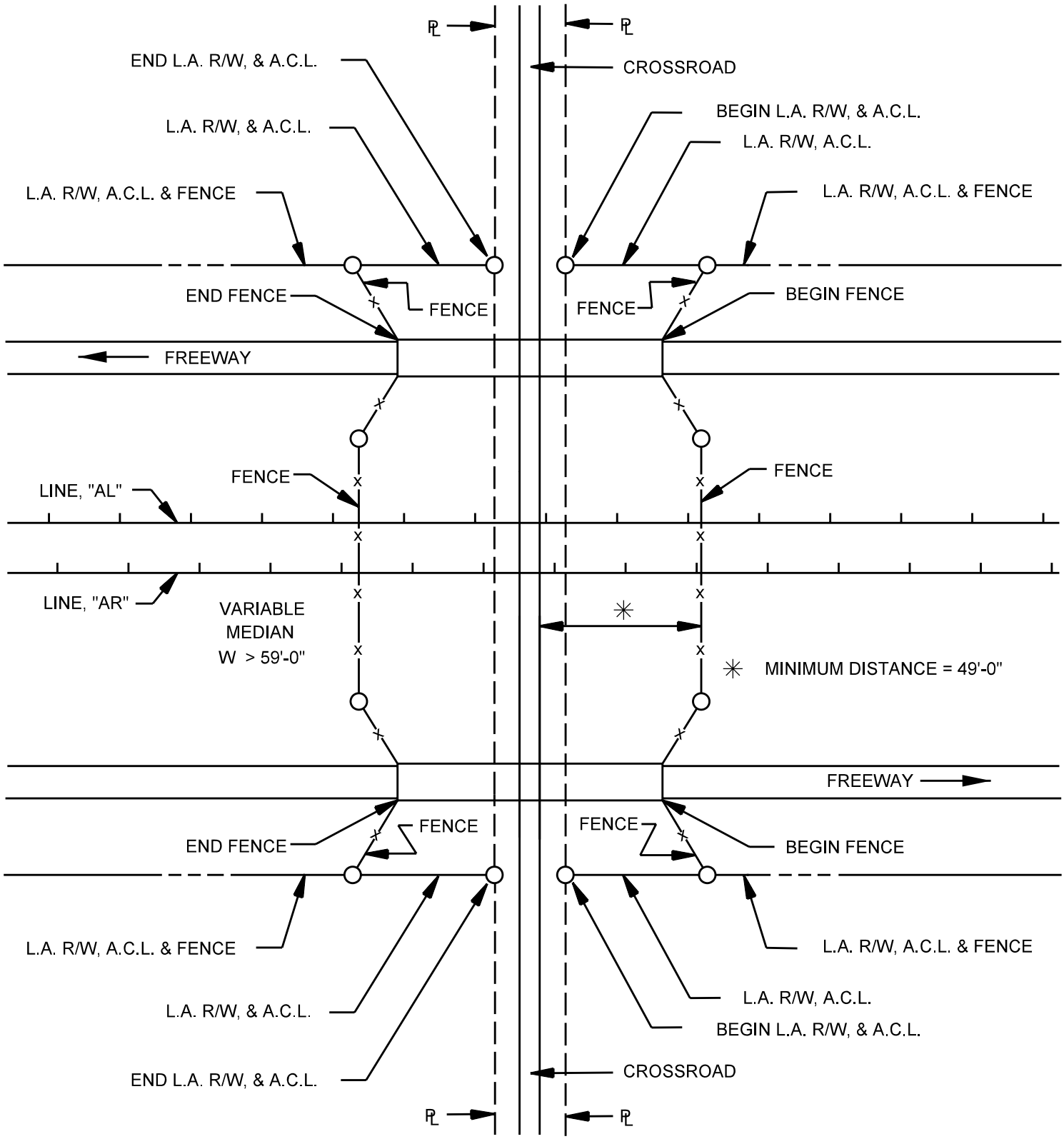
FREEWAY OVER NAVIGABLE RIVER, STREAM OR LAKE

Figure 86-4M



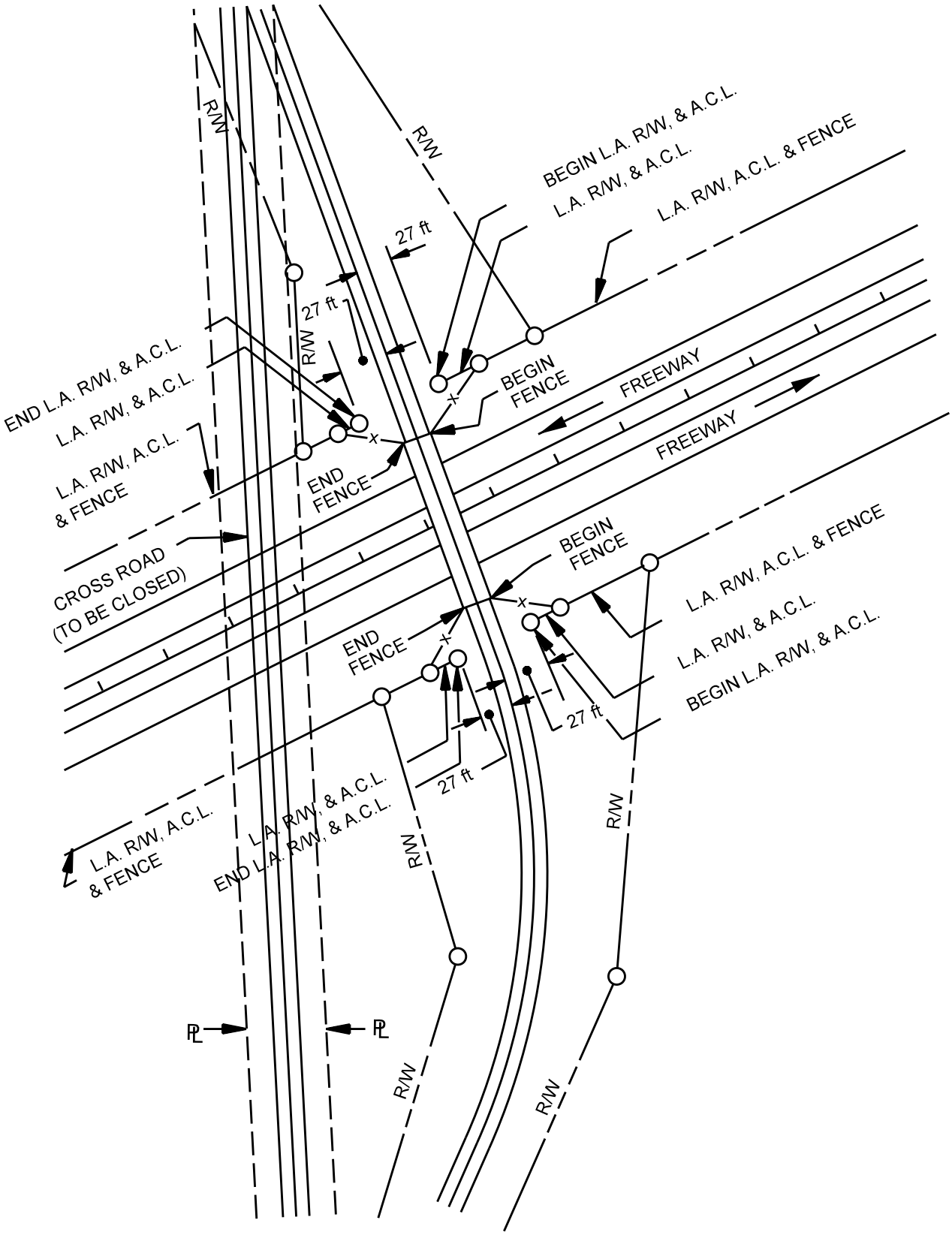
FREEWAY OVER NON-NAVIGABLE RIVER, STREAM OR LAKE

Figure 86-4N



CROSSROAD UNDER FREEWAY
(Wide Median)

Figure 86-4O



FREEWAY UNDER RELOCATED CROSSROAD

Figure 86-4P