

**DIVISION OF DESIGN
SERVICES**

**BUREAU OF CIVIL
ENGINEERING**

OFFICE OF ACCESS DESIGN

Access Design Training

***** AGENDA *****

Introduction to Access Management - Arthur Eisdorfer, Manager, Bur Civil Engineering

Process Activities - John Jones, Project Manager, Office of Access Design

**Definitions of Revocations, Modifications, Adjustments and Changes
Specifics of Revocations - Lorinda Lasus, DAG**

Alternative Access Signing - Arthur Eisdorfer

**Definitions of Revocations, Modifications, Adjustments and Changes
Specifics of Modifications, Adjustments and Changes - Lorinda Lasus, DAG**

Common Problems - Arthur Eisdorfer

Access Cutouts - John Jones

Sufficiency of Access - Arthur Eisdorfer

Questions and Answers

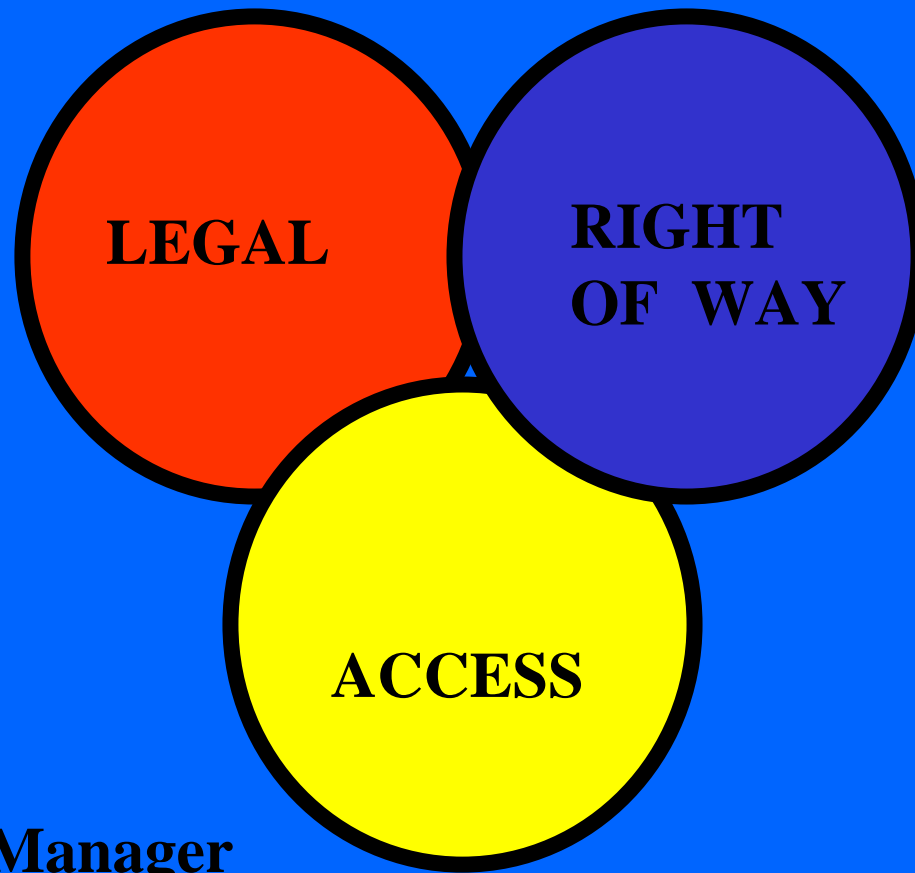
INTRODUCTION TO ACCESS MANAGEMENT

Arthur Eisdorfer

IMPACTS ON PROPERTY

- PROJECT
- ACCESS
- RIGHT OF WAY

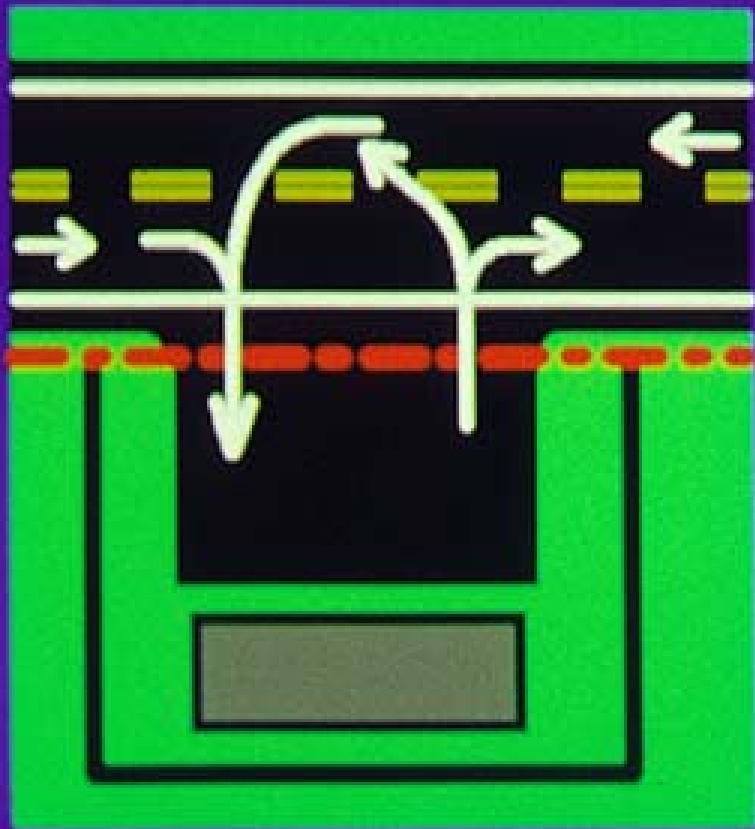
PROJECT DECISIONS



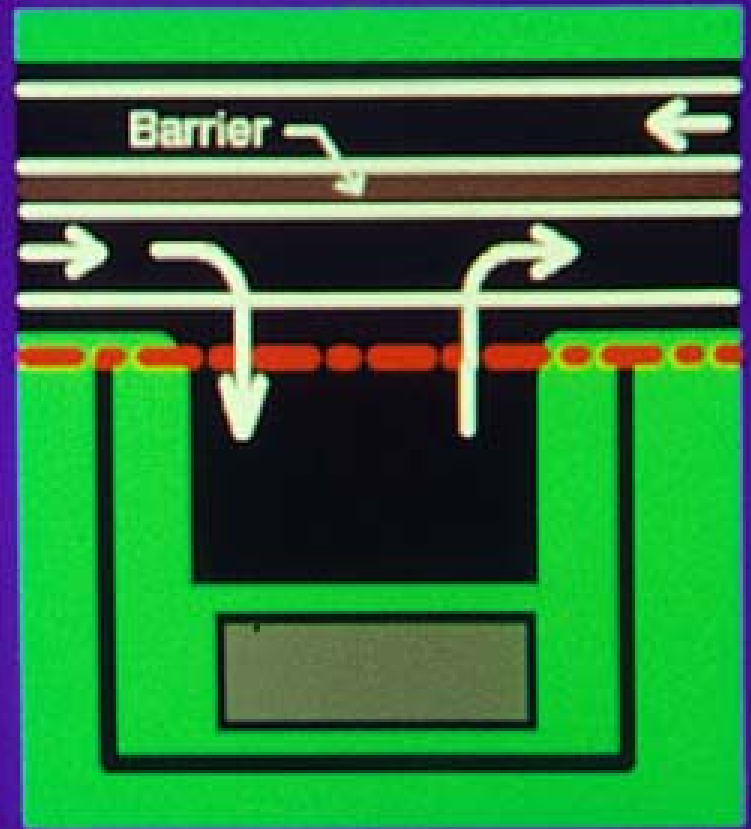
Project Manager

Project

Impact



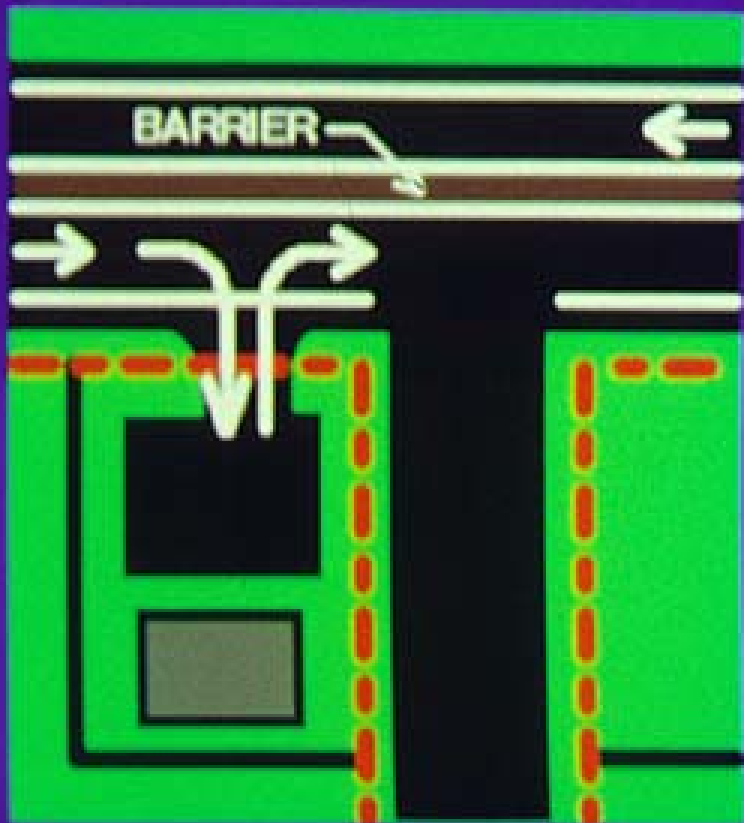
Before



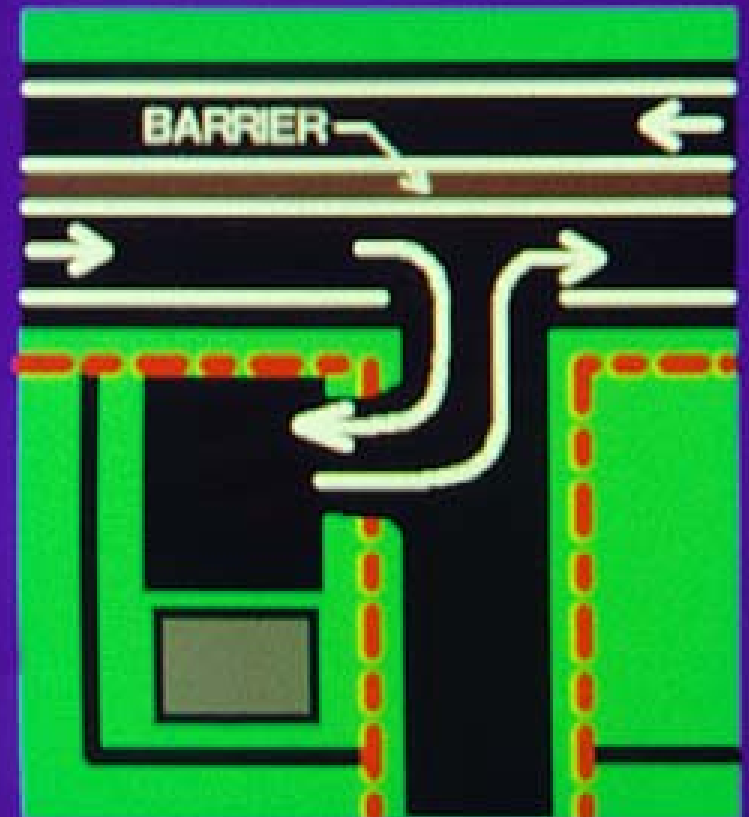
After

Access

Impact

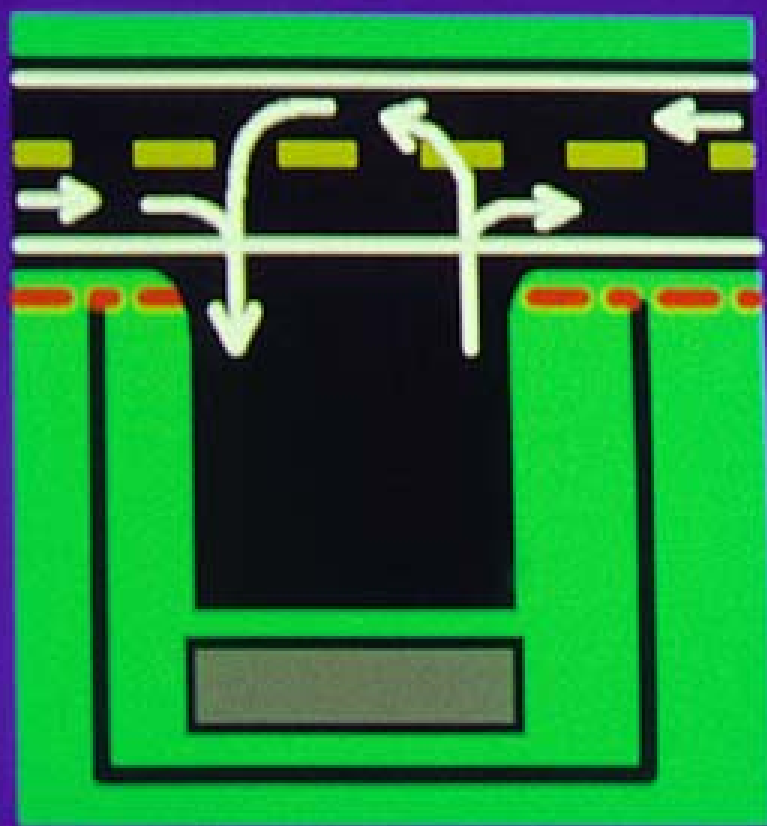


Before

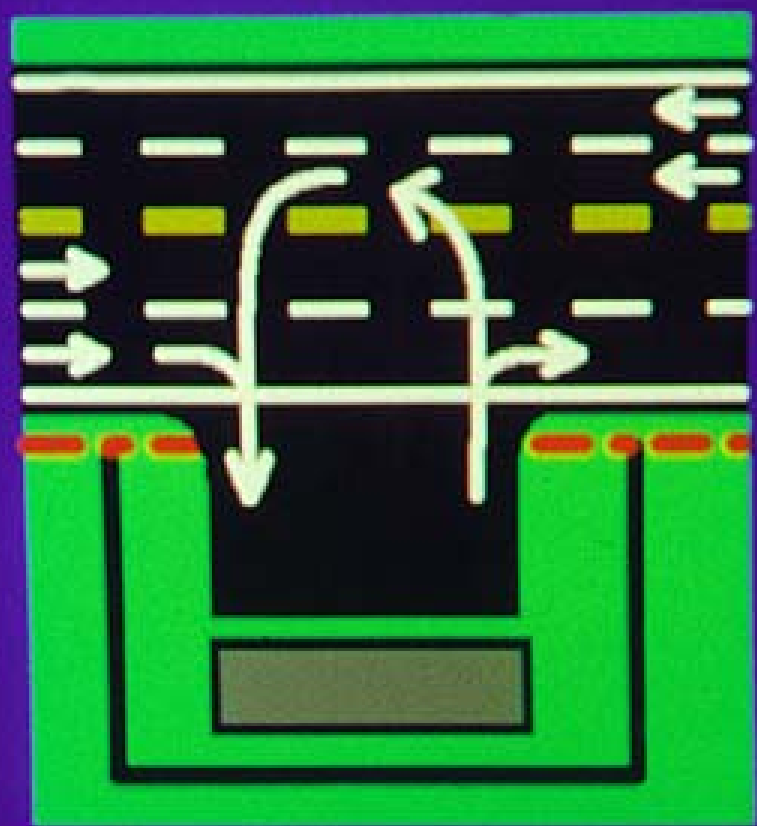


After

Right of Way Impact

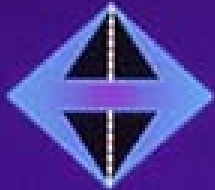


Before



After

WHAT IS ACCESS MANAGEMENT?



The Control and Regulation
of the Spacing and Design of:



DRIVEWAYS



MEDIANS



MEDIAN OPENINGS



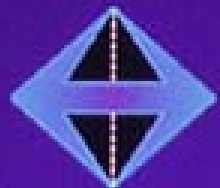
TRAFFIC SIGNALS



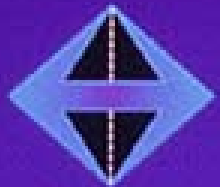
FREEWAY INTERCHANGES

**WHAT ARE THE
GOALS OF**

Access Management?



Limit the number of conflict points

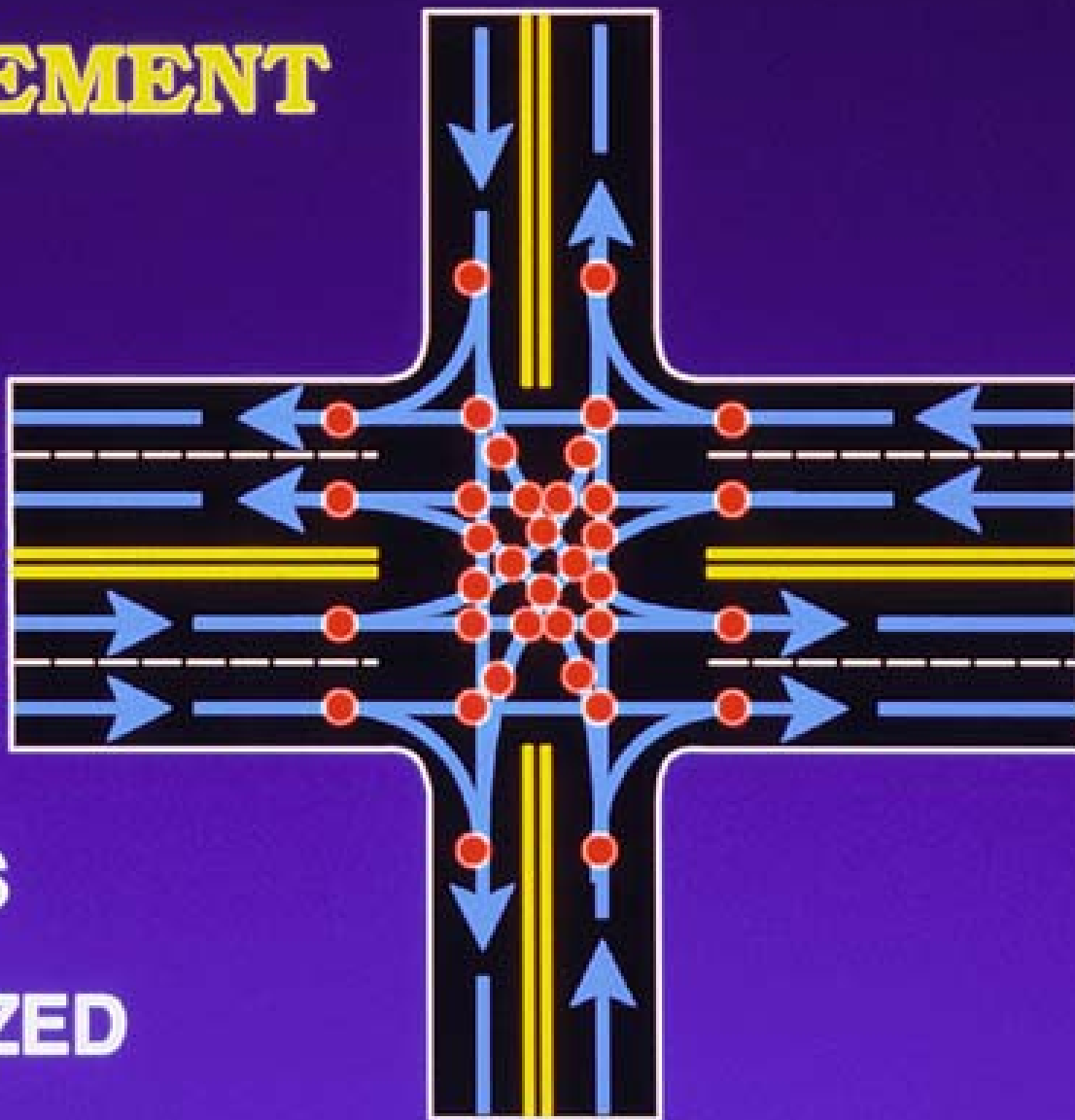


Separate the conflict points



**Remove turning volumes and
queues from through movements**

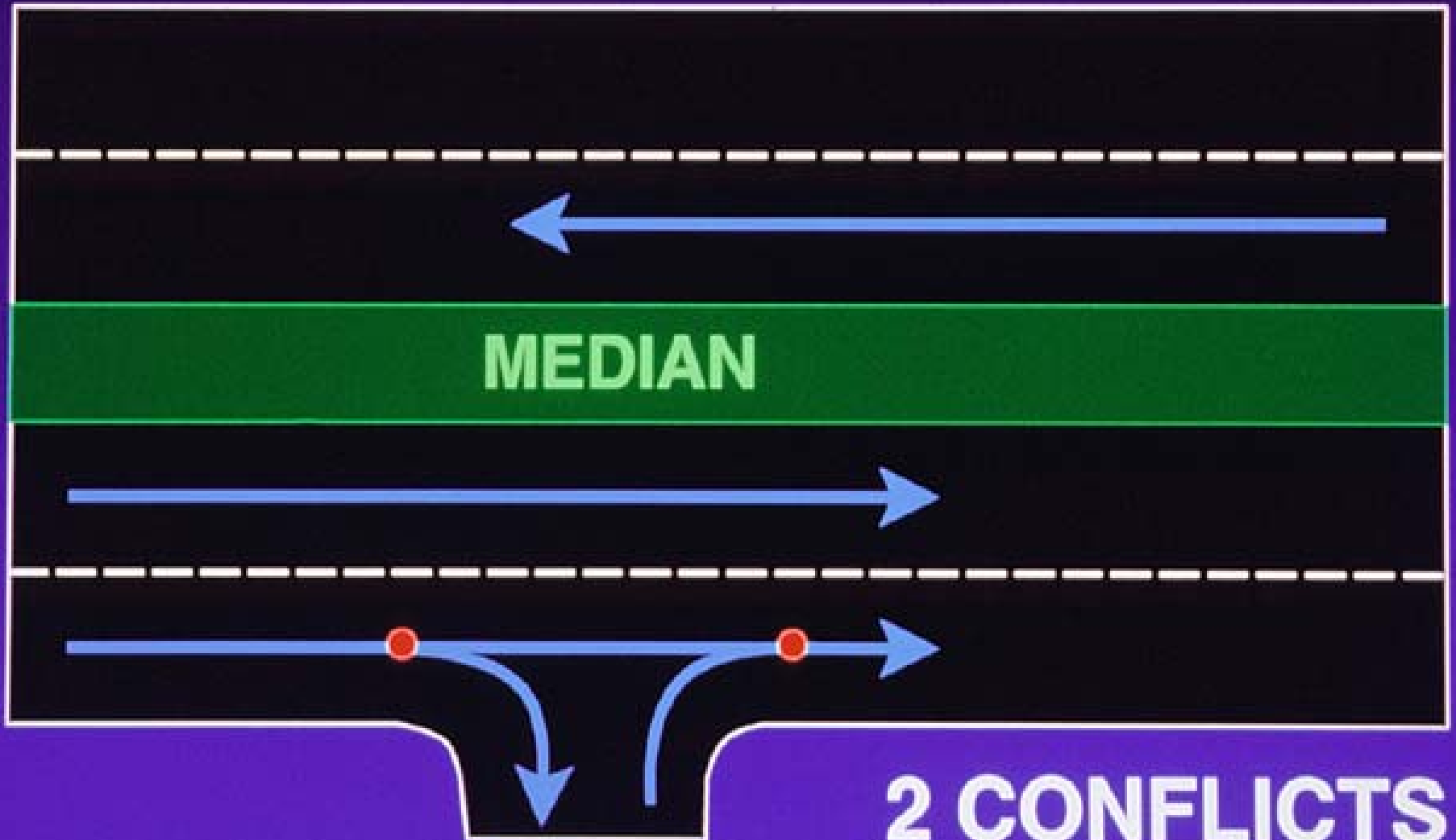
FULL MOVEMENT



36 CONFLICTS

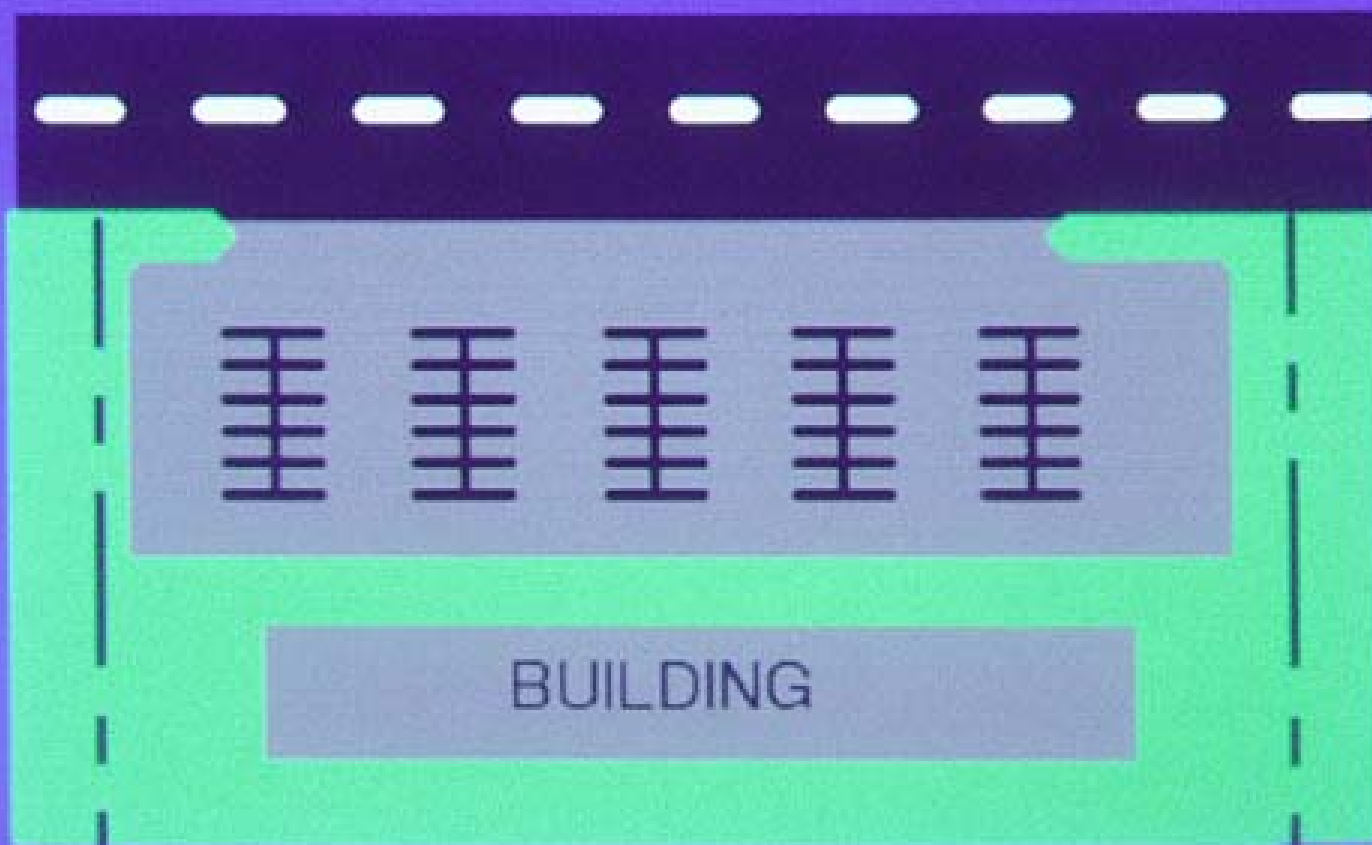
22 IF SIGNALIZED

RIGHT-IN/RIGHT-OUT

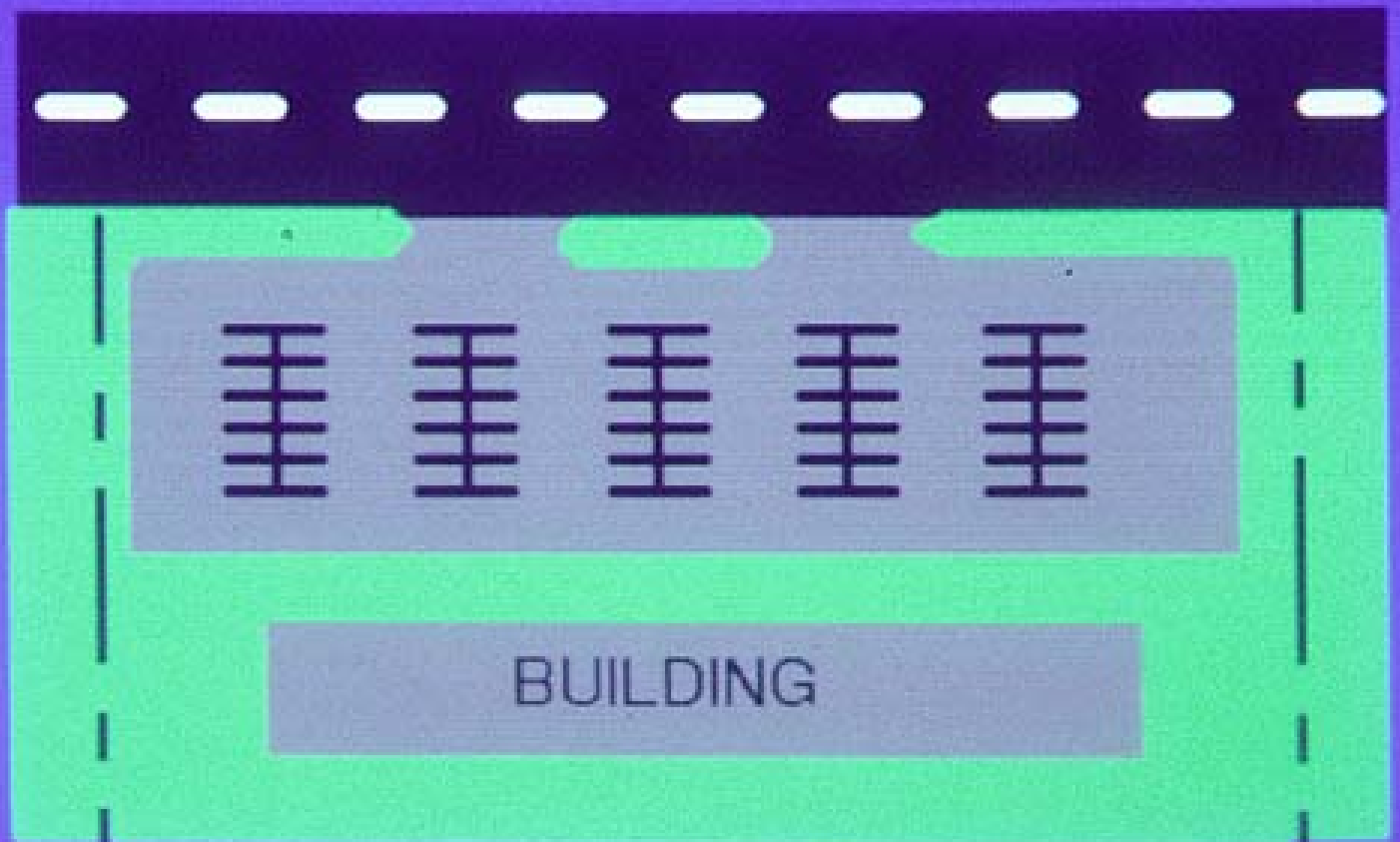


2 CONFLICTS

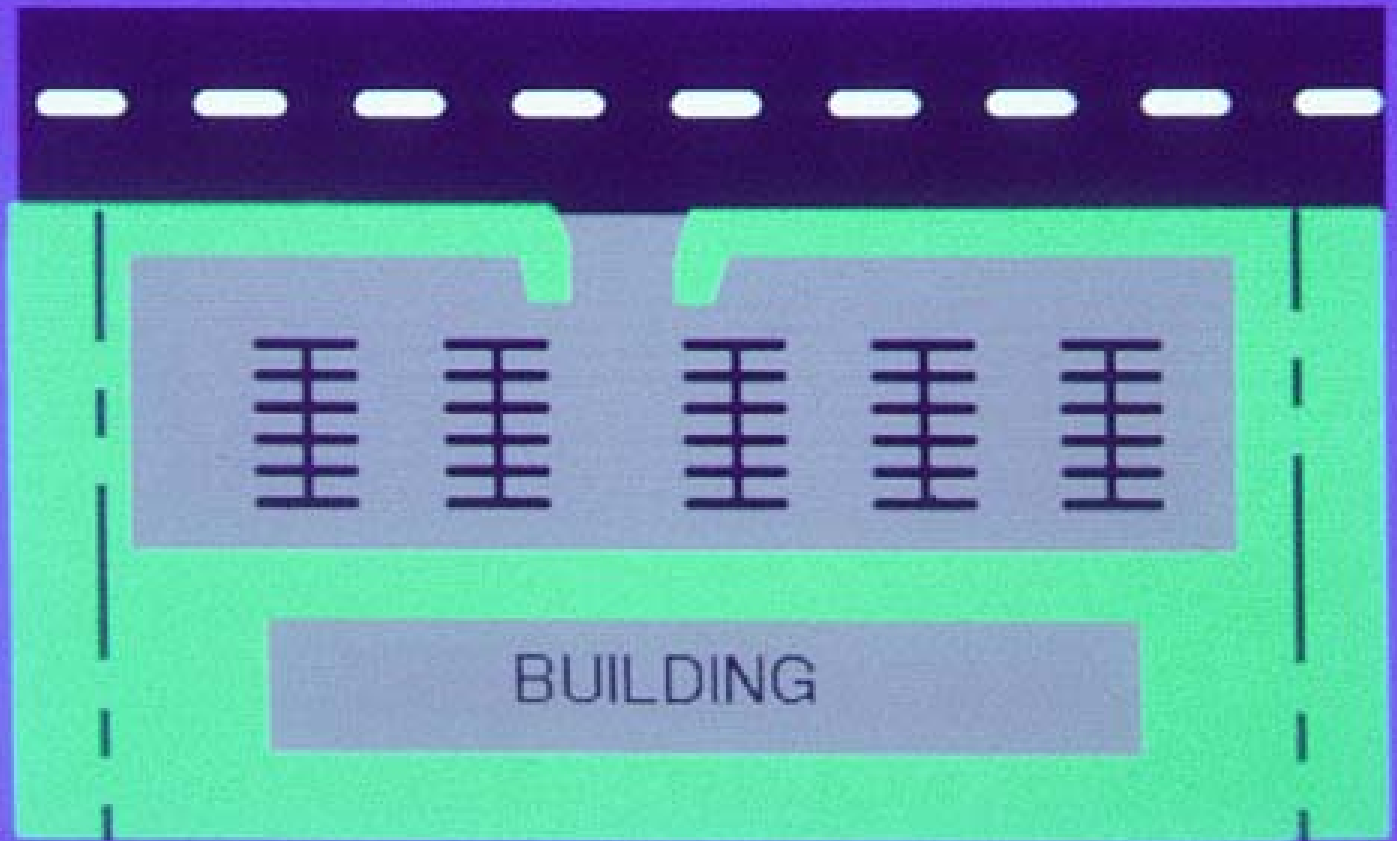
MINIMIZE NUMBER OF ACCESS POINTS



MINIMIZE NUMBER OF ACCESS POINTS

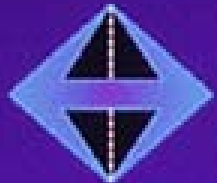


MINIMIZE NUMBER OF ACCESS POINTS

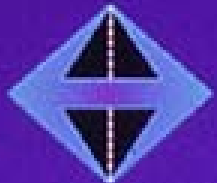


**WHAT ARE THE
GOALS OF**

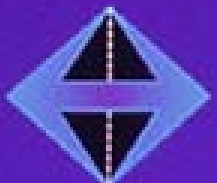
Access Management?



Limit the number of conflict points



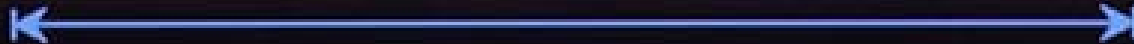
Separate the conflict points



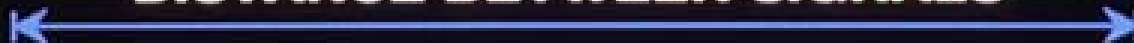
**Remove turning volumes and
queues from through-movements**

**TO MEASURE DISTANCE
BETWEEN MEDIAN OPENINGS & SIGNALS**

DISTANCE BETWEEN MEDIAN OPENINGS



DISTANCE BETWEEN SIGNALS



**TO MEASURE DISTANCE
BETWEEN DRIVEWAY CONNECTIONS
AND CORNER CLEARANCE**

STREET

**CORNER
CLEARANCE
DISTANCE**

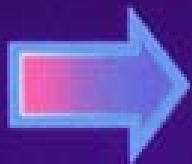
DRIVEWAY A

**DISTANCE
BETWEEN
DRIVEWAY
CONNECTIONS**

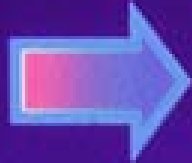
DRIVEWAY B



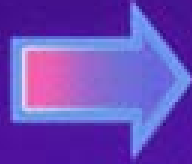
TECHNIQUES TO SEPARATE CONFLICT POINTS



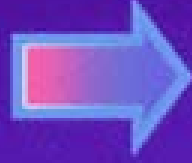
Driveway Separation Standards



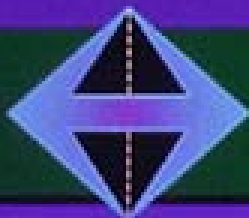
Corner Clearance Standards



Median Opening Standards



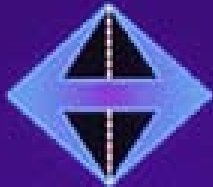
Signal Spacing Standards



**Florida has addressed all of these standards
in regulations (Rule 14-97)**

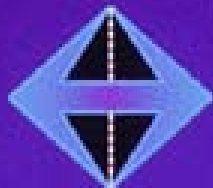
WHY SEPARATE CONFLICTS?

PRINCIPLE # 1



A driver can only "handle" one conflict at a time

PRINCIPLE # 2



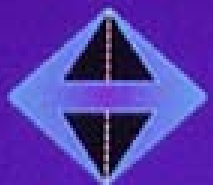
Provide enough time and space to react to the unexpected

**WHAT ARE THE
GOALS OF**

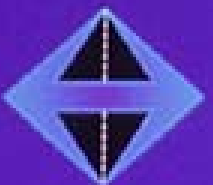
Access Management?



Limit the number of conflict points

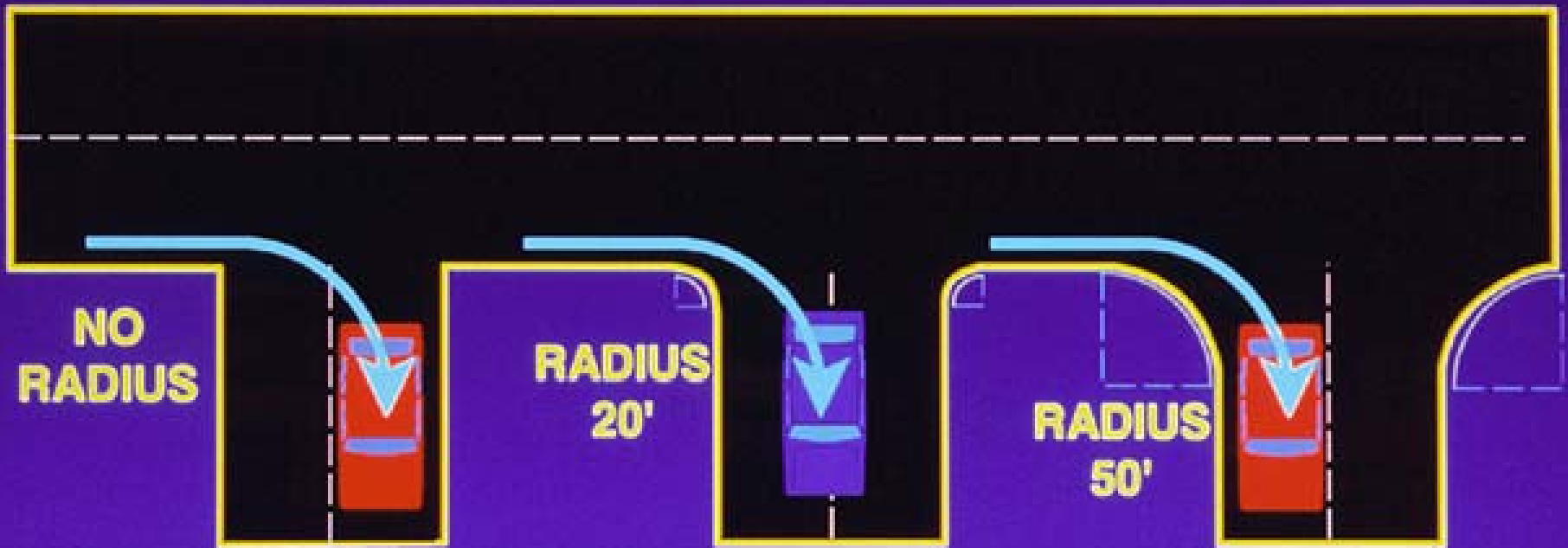


Separate the conflict points



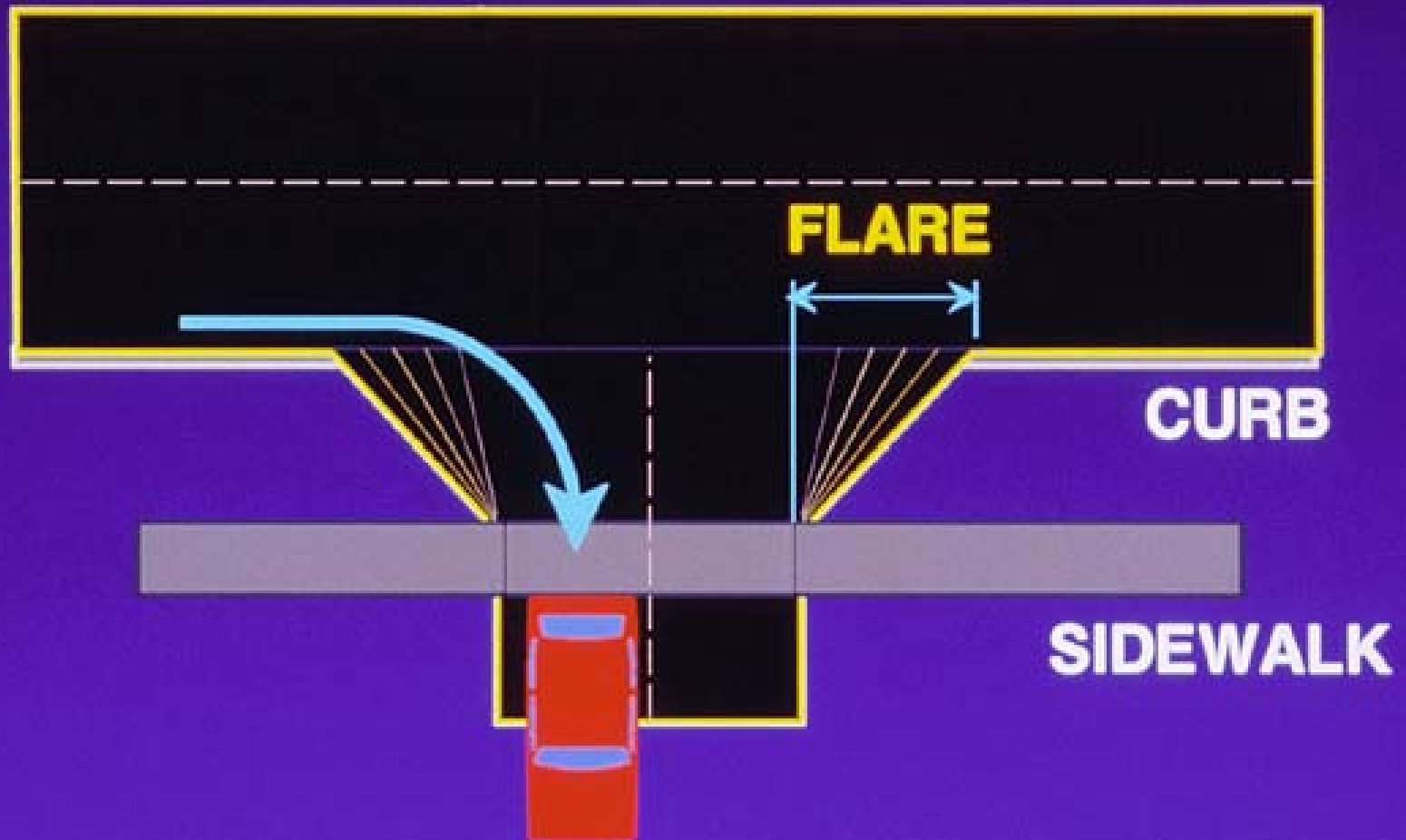
**Remove turning volumes and
queues from through-movements**

TURN RADII



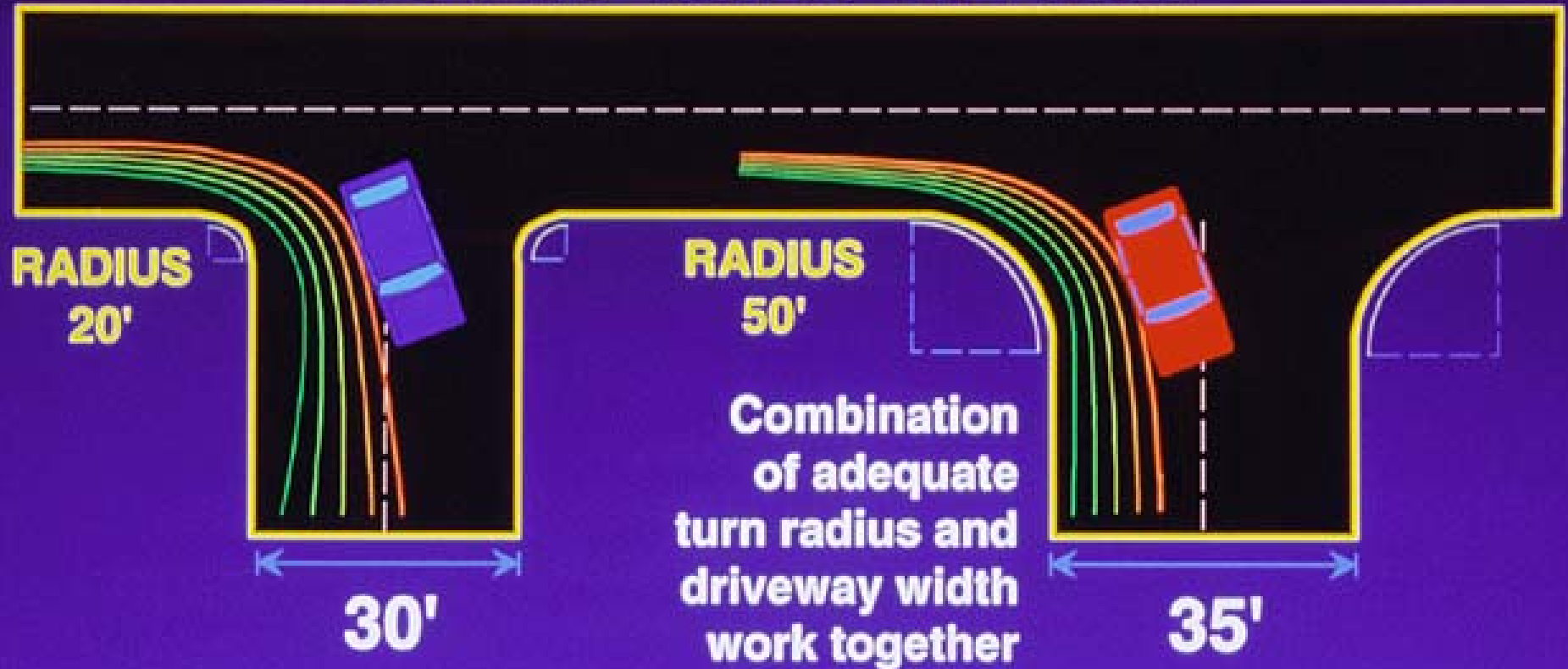
The bigger the radius, the faster the turning vehicle can get off the road and the less through-movement vehicles need to slow down

DRIVEWAY FLARE



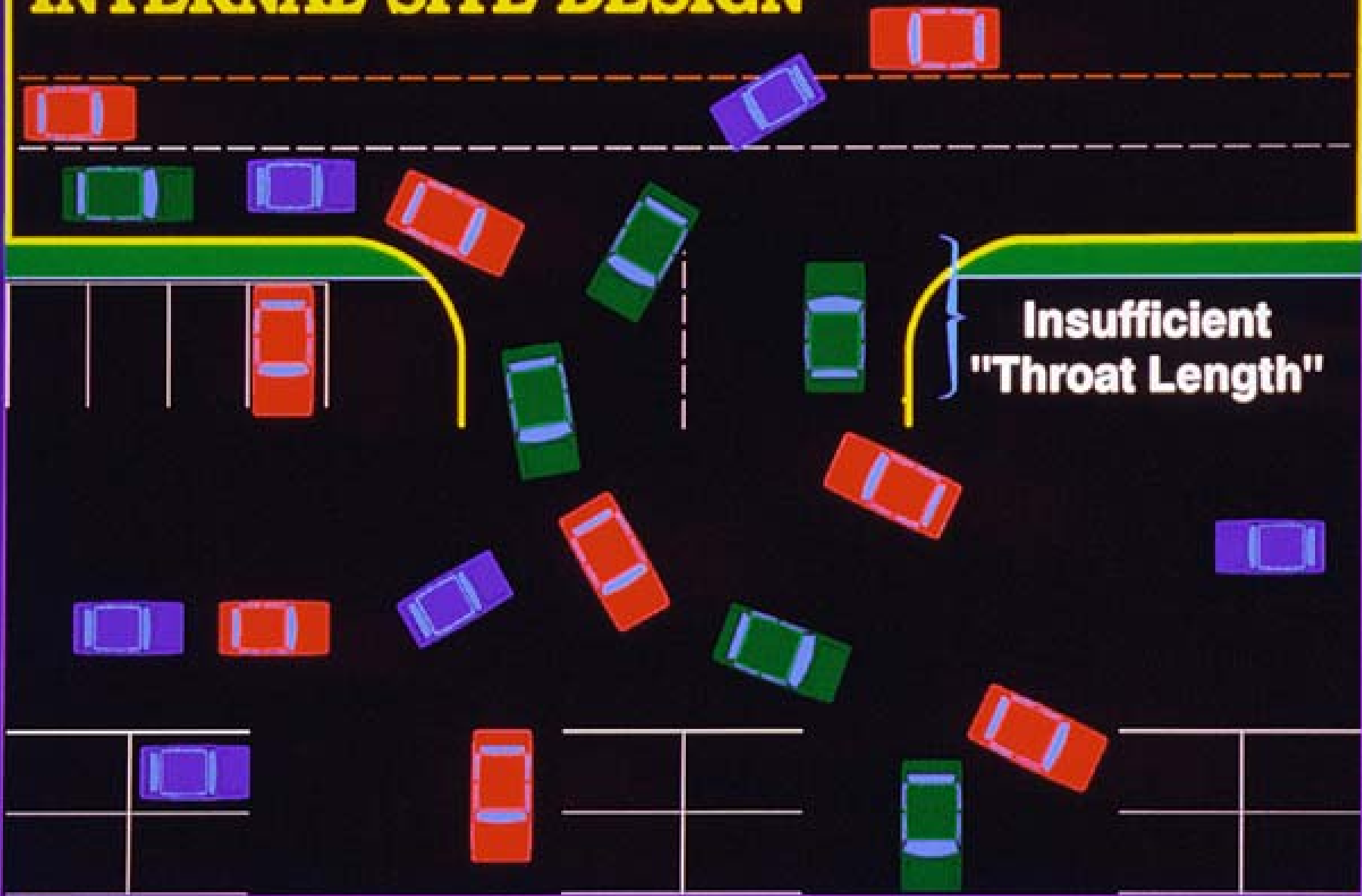
Driveway flare is used to replicate turn radius in areas with curb and gutter construction

DRIVEWAY WIDTH

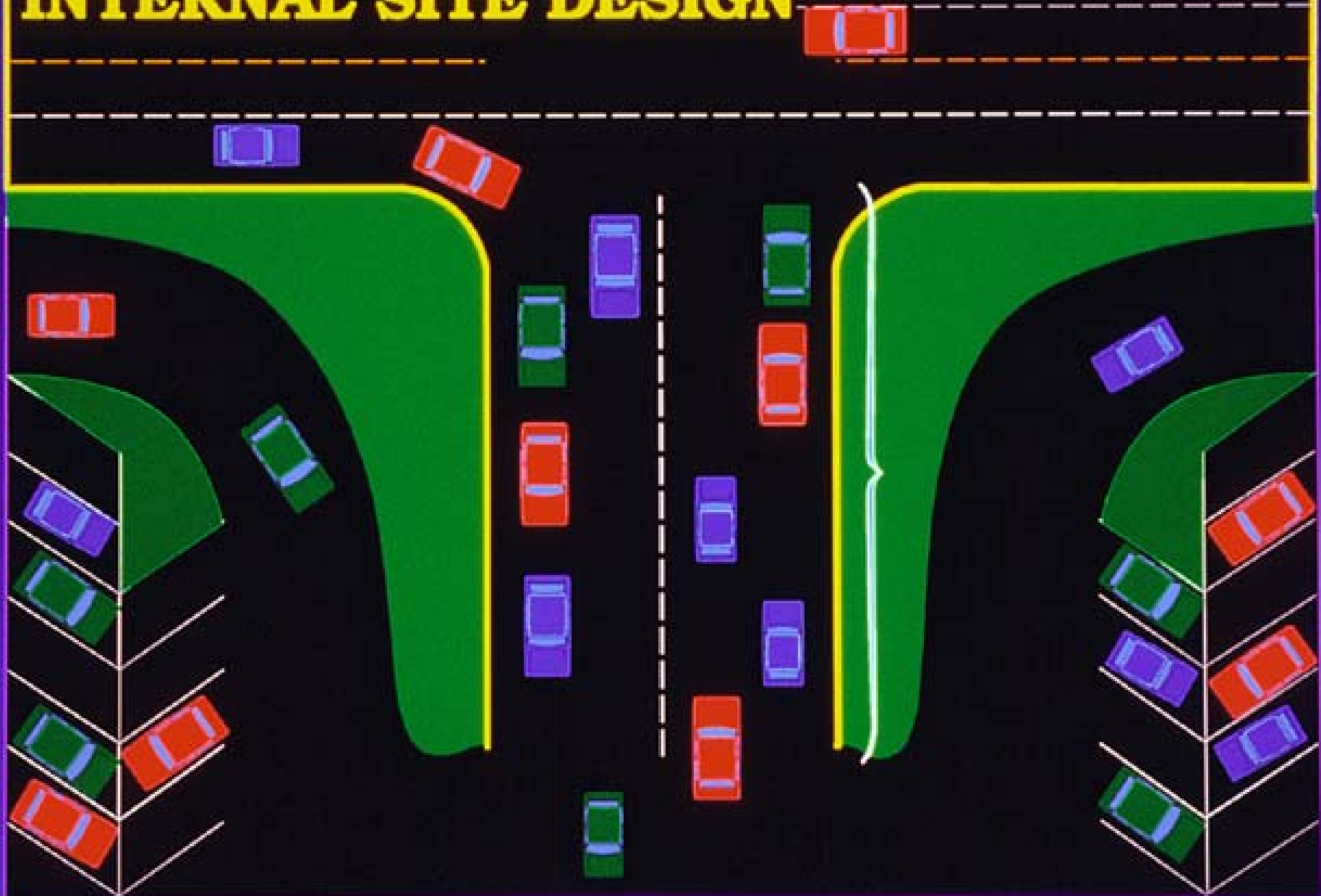


Adequate Driveway Width can also help to get turning vehicles off the road at greater speed and with less encroachment into the oncoming driveway traffic

INTERNAL SITE DESIGN



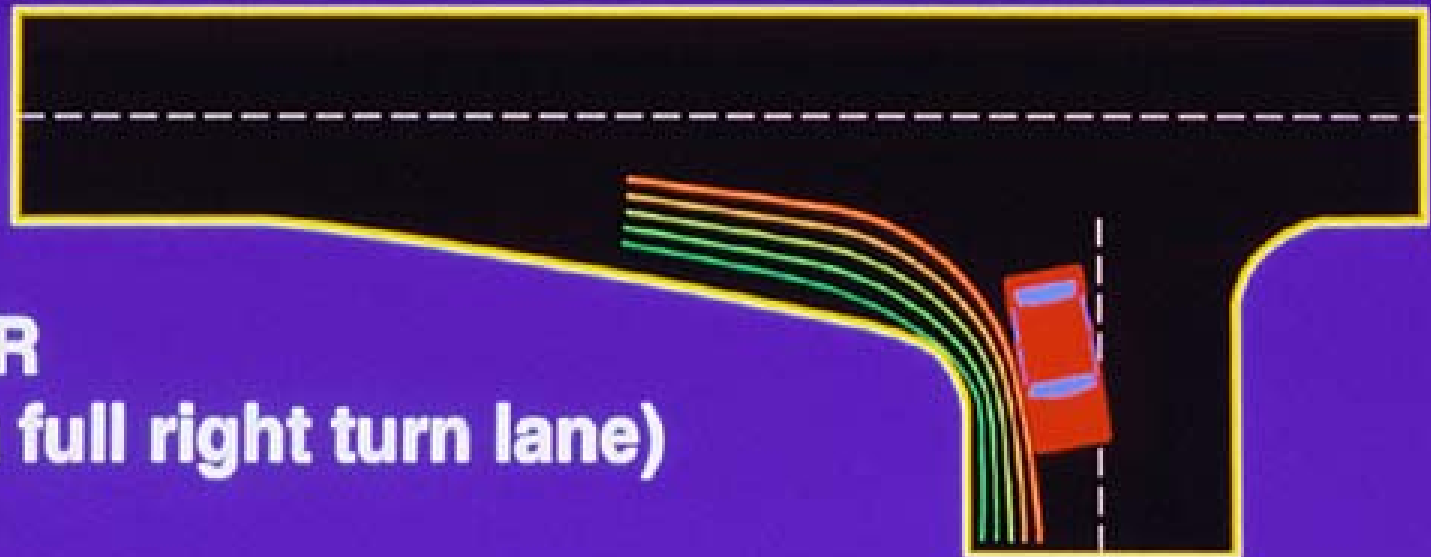
INTERNAL SITE DESIGN



TURN LANES

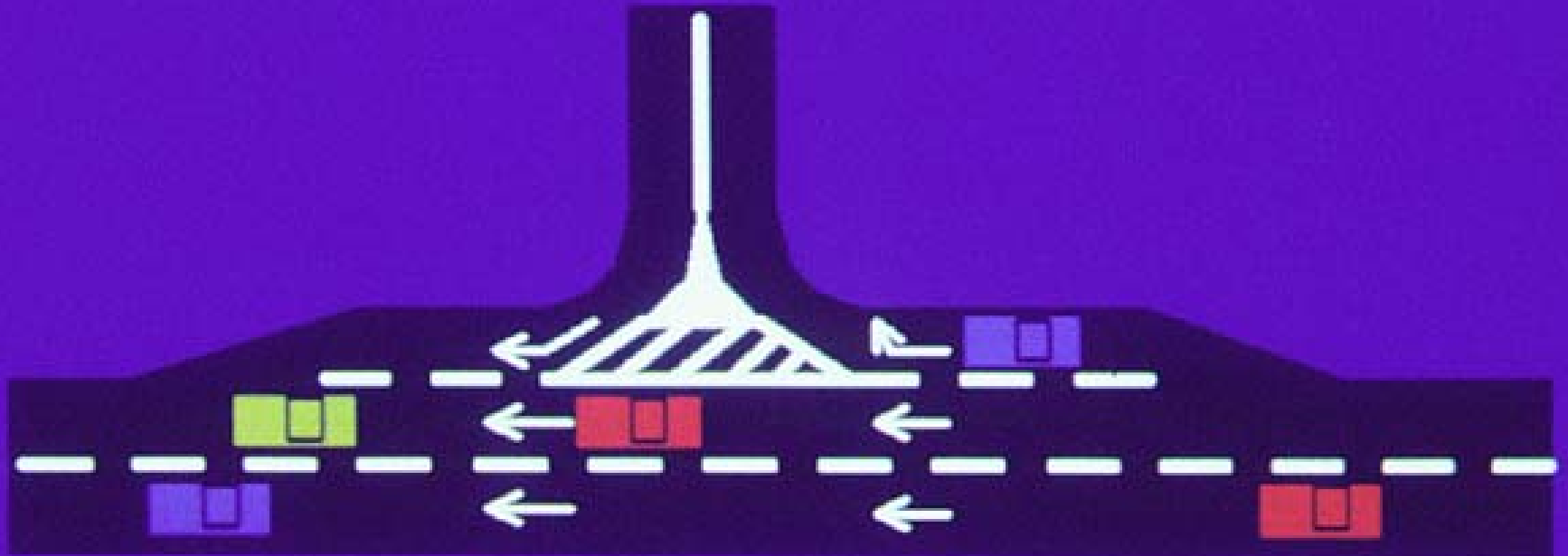


FULL RIGHT TURN LANE

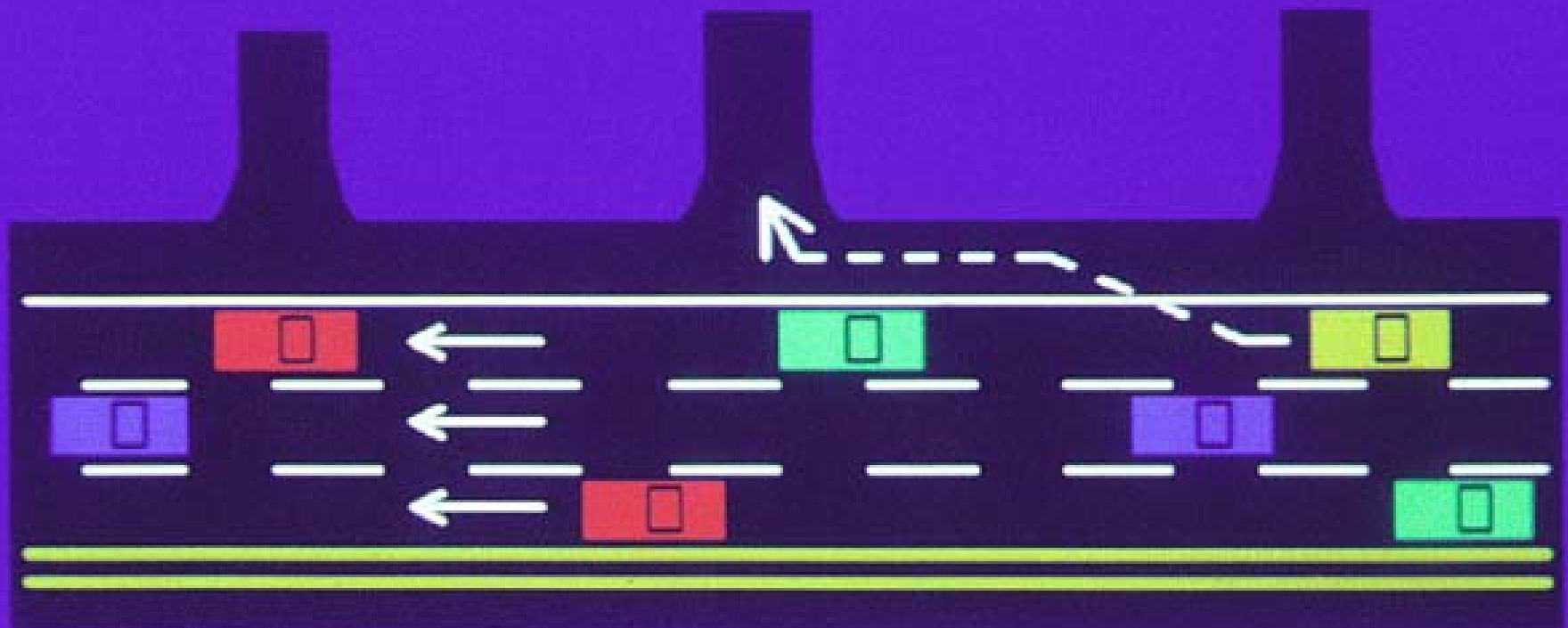


TAPER
(Not a full right turn lane)

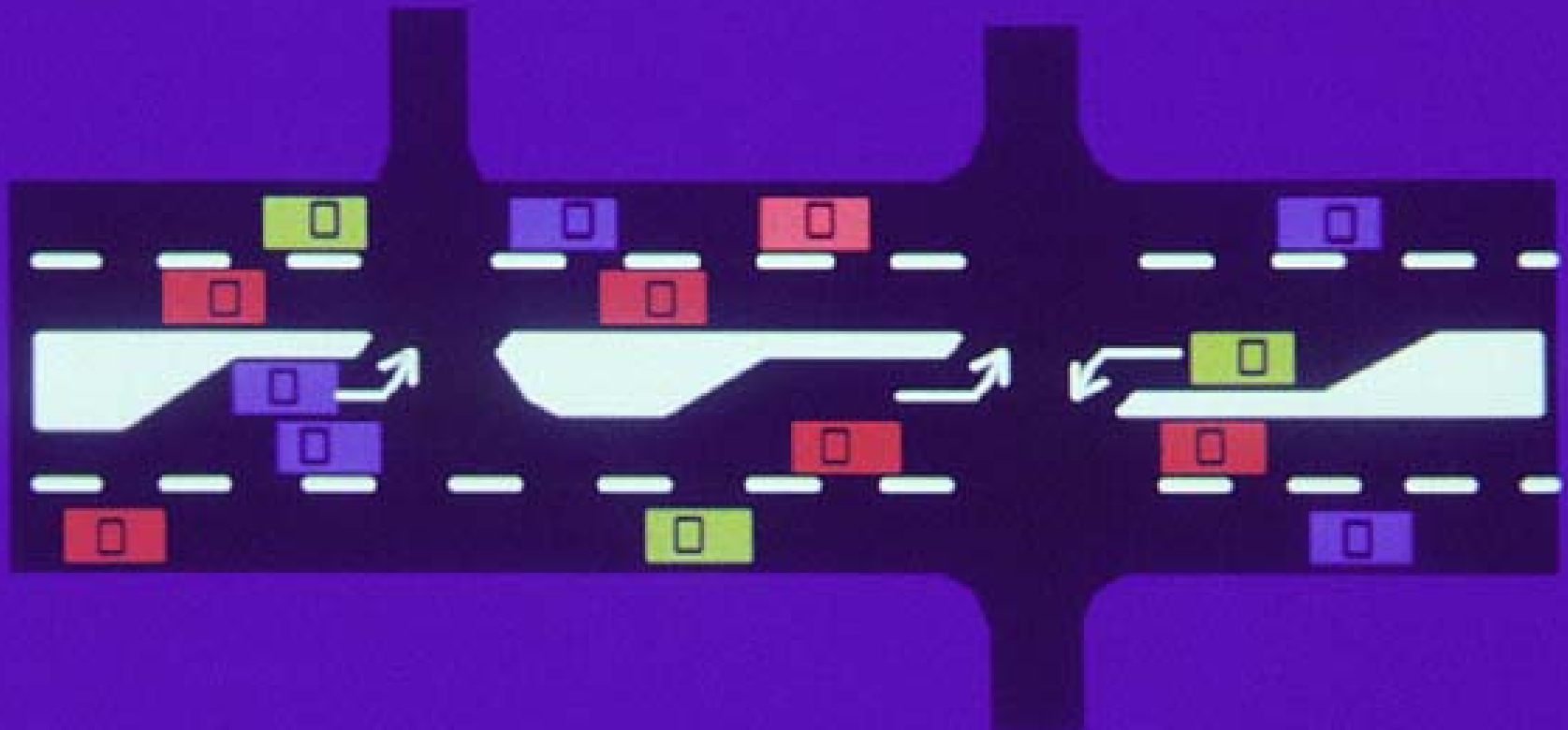
ACCELERATION AND DECELERATION LANES



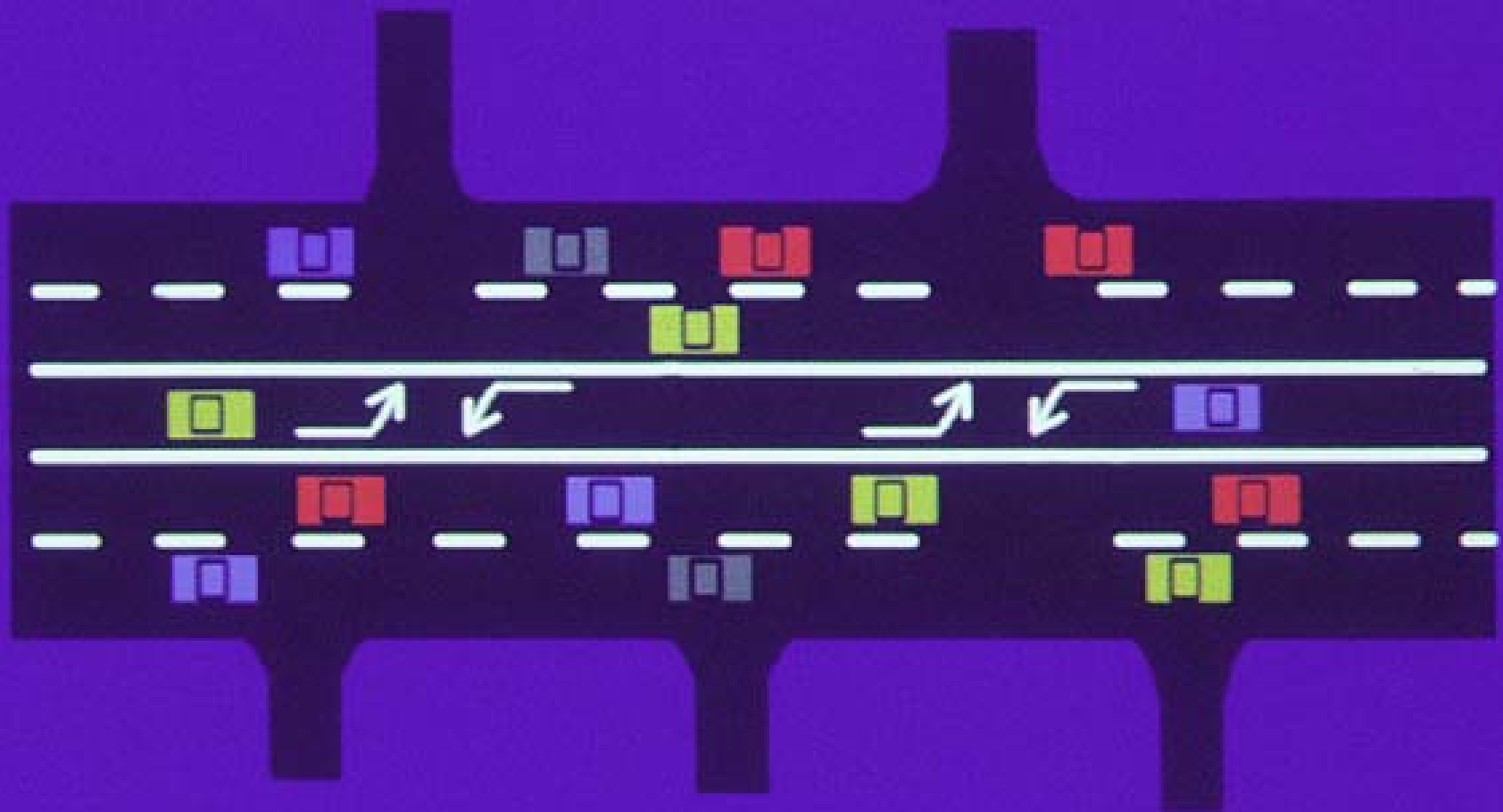
SHOULDER



LEFT-TURN LANES



TWO-WAY LEFT-TURN LANES



Concrete Median



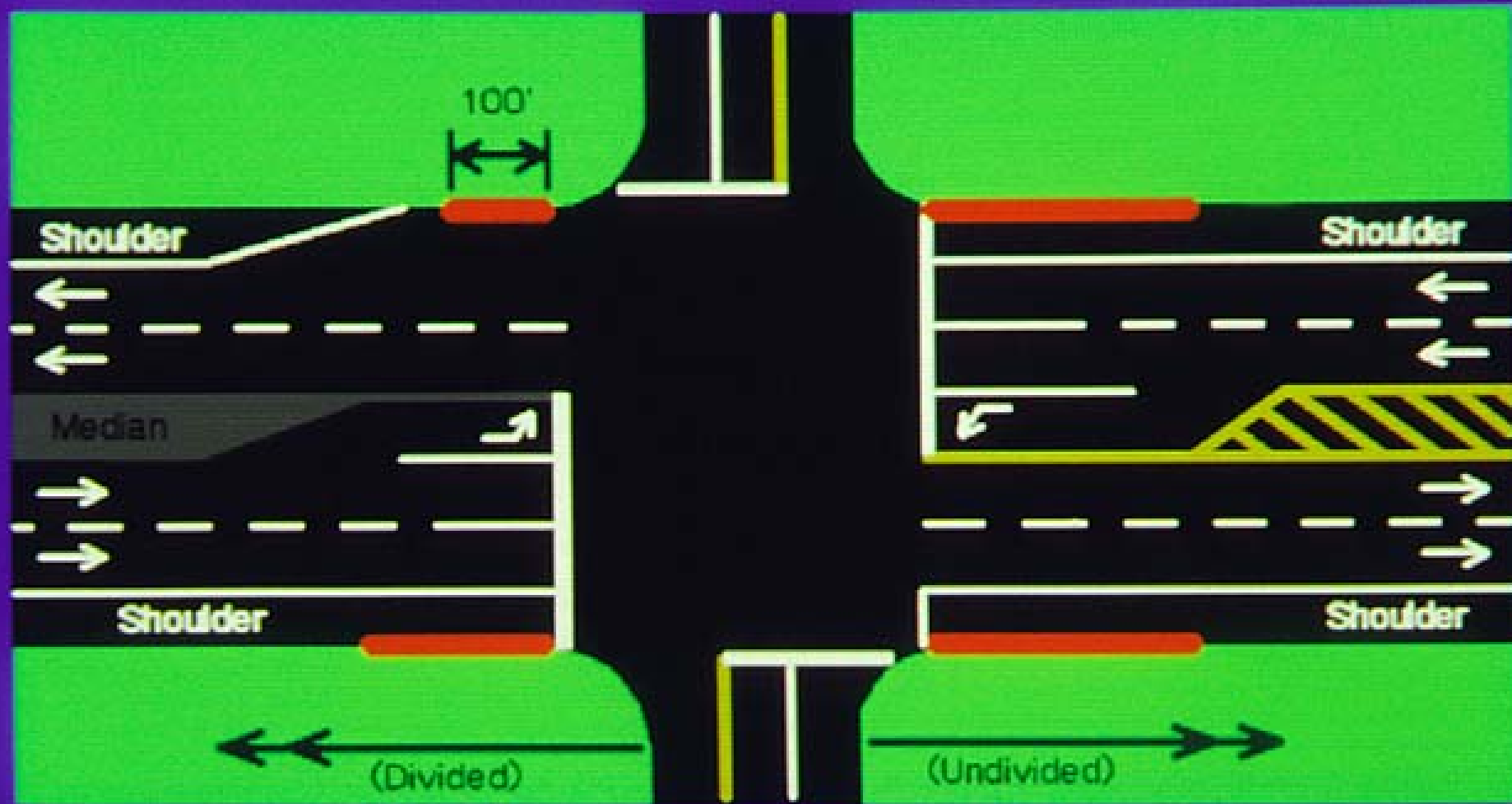
HOW CAN WE INSTITUTE ACCESS MANAGEMENT?

ROAD IMPROVEMENTS

- ◆ WIDENINGS
- ◆ INTERSECTION UPGRADES
- ◆ INSTALLING NEW RESTRICTIVE MEDIANS
- ◆ NEW ROADS



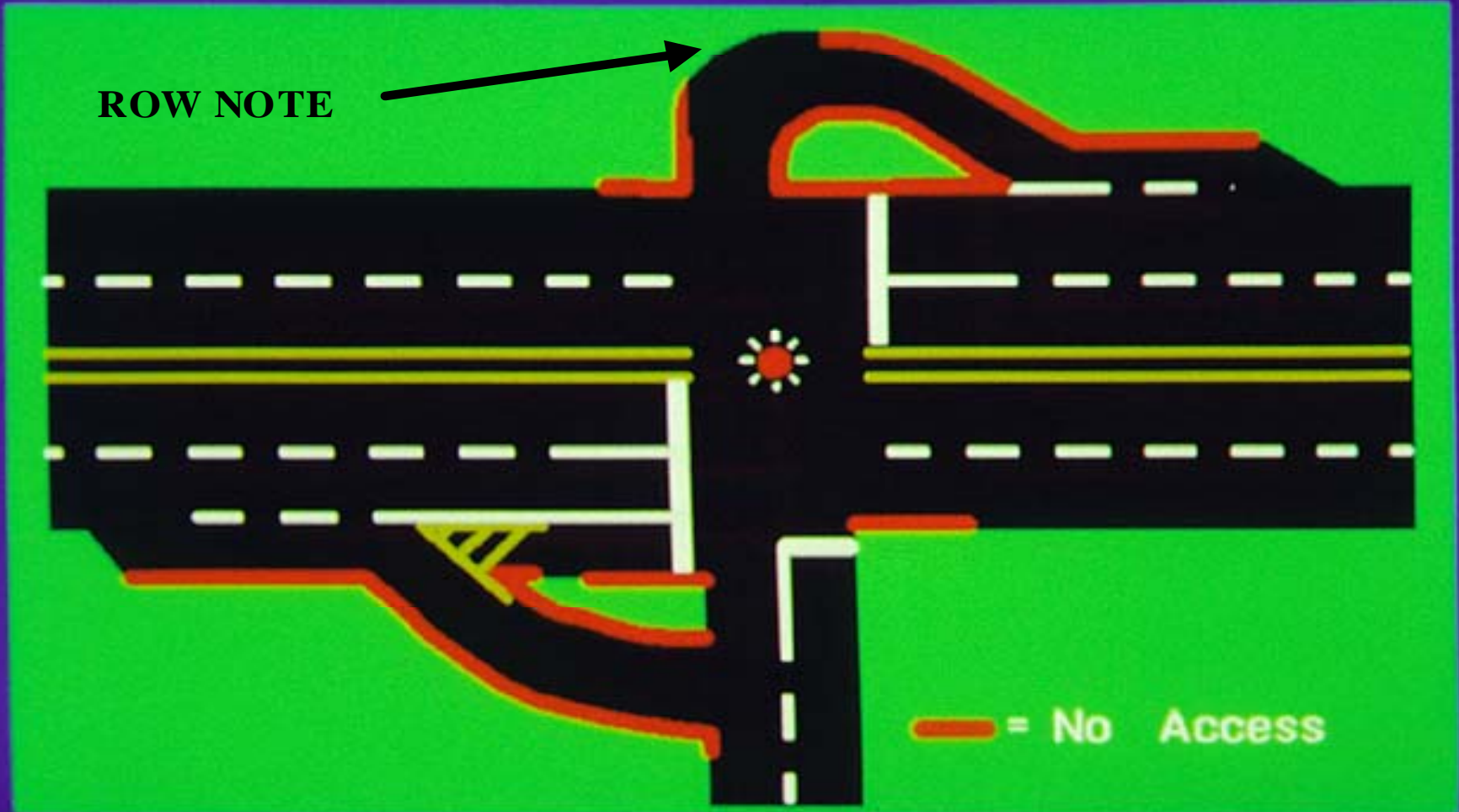
Access Restrictions at Left-Turn Lanes



 = No Access Permitted

Access Restrictions at Forward Jughandles

ROW NOTE



 = No Access

ROW NOTE for Jughandle

**“HOWEVER, FUTURE ACCESS
SHALL BE PERMITTED
CONSISTENT WITH THE DESIGN
OF A TYPE ‘A’ JUGHANDLE
(ILLUSTRATED IN FIGURE 6-U
FROM THE NJDOT DESIGN
MANUAL).”**

National Cooperative Highway Research Program

NCHRP Report 420

Impacts of Access Management Techniques

Transportation Research Board

National Research Council

TABLE 4 Accident rate indexes

Total Access Points Per Mile (Both Directions)	Accident Rate Index
10	1.0
20	1.4
30	1.8
40	2.1
50	2.5
60	3.0
70	3.5

Process Activities

John Jones

Activities

- **1150 - Initiate Access Impacts**

The initial review of access for every property within the project limits, conducted during scoping

- **2080 - Prepare Access Cut-outs**

Using “input” criteria, Consultant or OAD staff develops the detailed access cutouts for property owner notification

- **2090 - Review Access Cut-outs**

Review proposed access for each property for conformance with the Access Code

- **2100 - Administer Access Revocations and Modification**

(also includes Adjustments & Changes)

OAD notifies owners and establishes the access for each property

2100: Administer Access Revocations and Modifications

ACTIVITIES:

- **Prepare property owner notification letter, attach cutouts and send by certified mail**
- **If property owner appeals, schedule informal meeting (Manager Civil Engineering, Office of Access Design Case Manager, DAG, Owner and Owner Representatives)**
- **Hold informal meeting and address owner concerns**
- **Prepare response to owner based on informal meeting**
- **Address any subsequent appeal**

Timeframes

Modification Appeal Process

	<u>STEP</u>	<u>DAYS</u>
• Owner requests informal meeting with Manager Civil Eng'g		30
• Informal meeting scheduled		5
• Informal meeting held		30
• Manager Civil Engineering responds to owner		30
• Owner accepts or appeals decision to Director Design Services		40
• Director schedules hearing		5
• Director holds hearing		30
• Director makes Final Agency Determination		30
	<u>Total</u>	<u>200</u>

Timeframes Revocation Appeal Process

	<u>STEP</u> <u>DAYS</u>
• Owner requests informal meeting with Manager Civil Eng'g	30
• Informal meeting scheduled	5
• Informal meeting held	30
• Manager Civil Engineering responds to owner	30
• Owner accepts or appeals decision to OAL	40
• Manager Civil Engineering requests OAL hearing	15
• OAL holds hearing	120
• OAL Judge makes recommendation to Commissioner	75
• Commissioner makes Final Agency Determination	45

Definitions of
→ Revocations
Modifications
Adjustments
Changes

Lorinda Lasus

- **Revocation of Access**

N.J.A.C. 16:47-4.33 (d)

- **Modification of Access**

N.J.A.C. 16:47-4.33 (c)

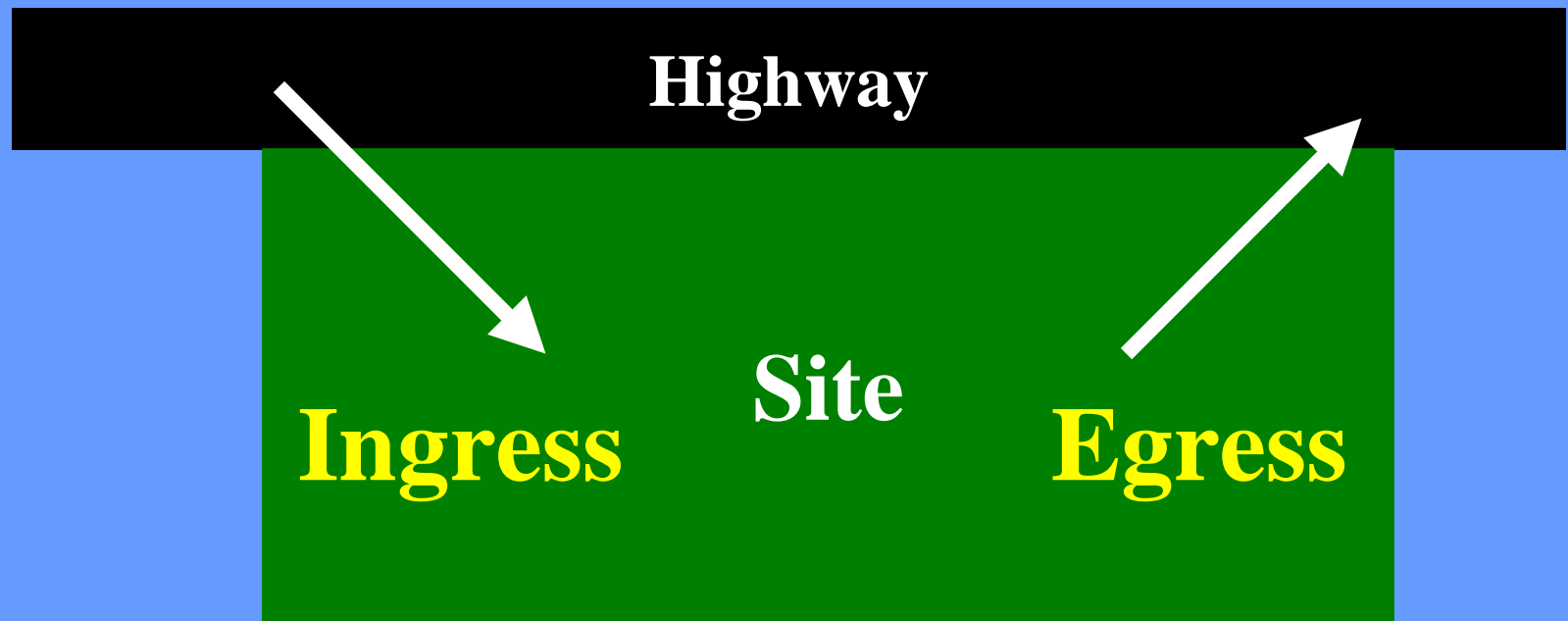
- **Adjustment of Access**

N.J.A.C. 16:47-4.33 (b)

- **Change of Access**

(Not in Regulations)

$$\text{Access} = \text{Ingress} + \text{Egress}$$



Revocation of Access

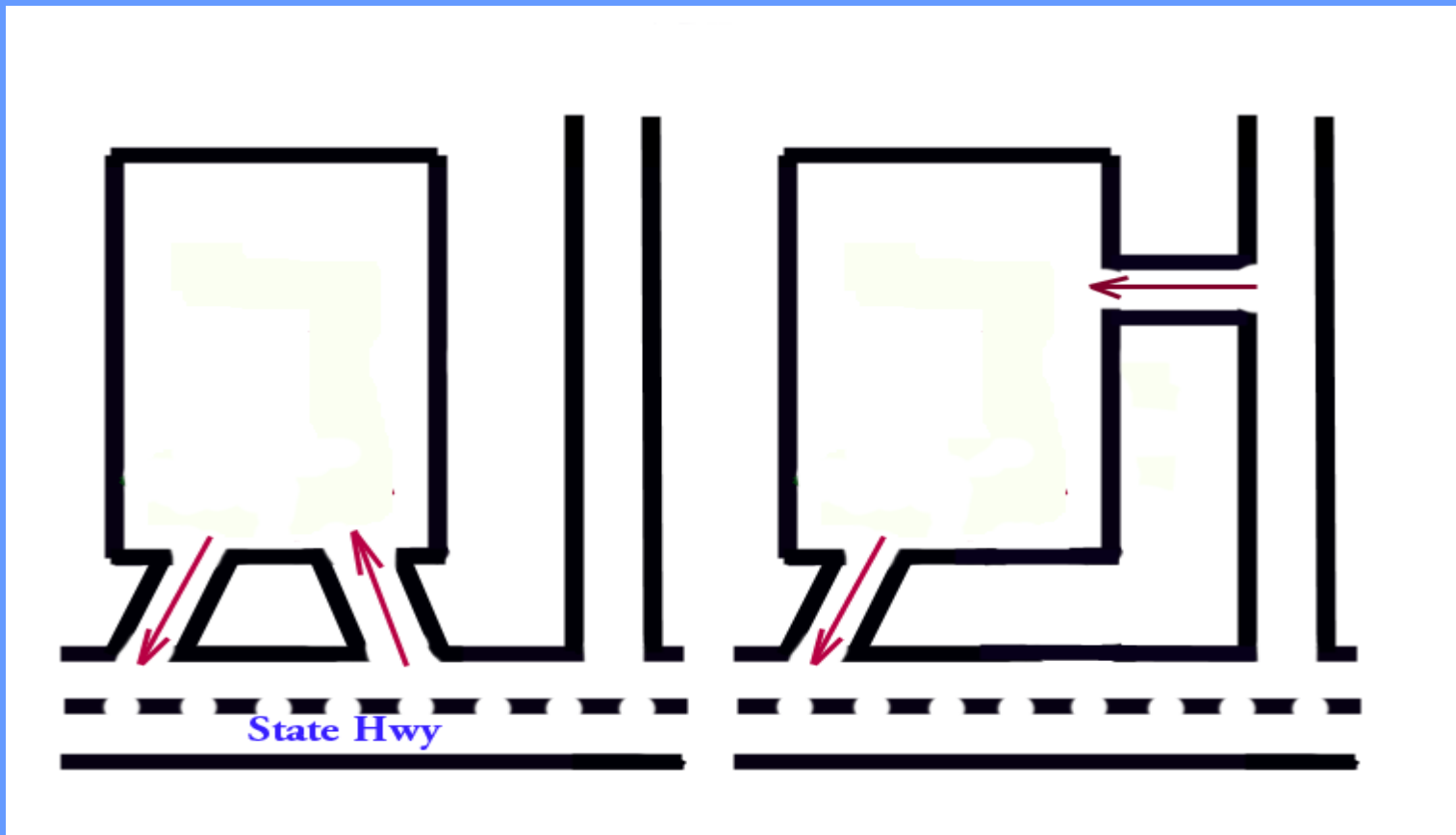
1. Eliminating DIRECT INGRESS
2. Eliminating DIRECT EGRESS
3. Eliminating DIRECT INGRESS and EGRESS

AND

Providing alternative access to a street, highway, easement, service road or common driveway other than the subject State highway

Revocation of Access

Example 1: Eliminating direct ingress

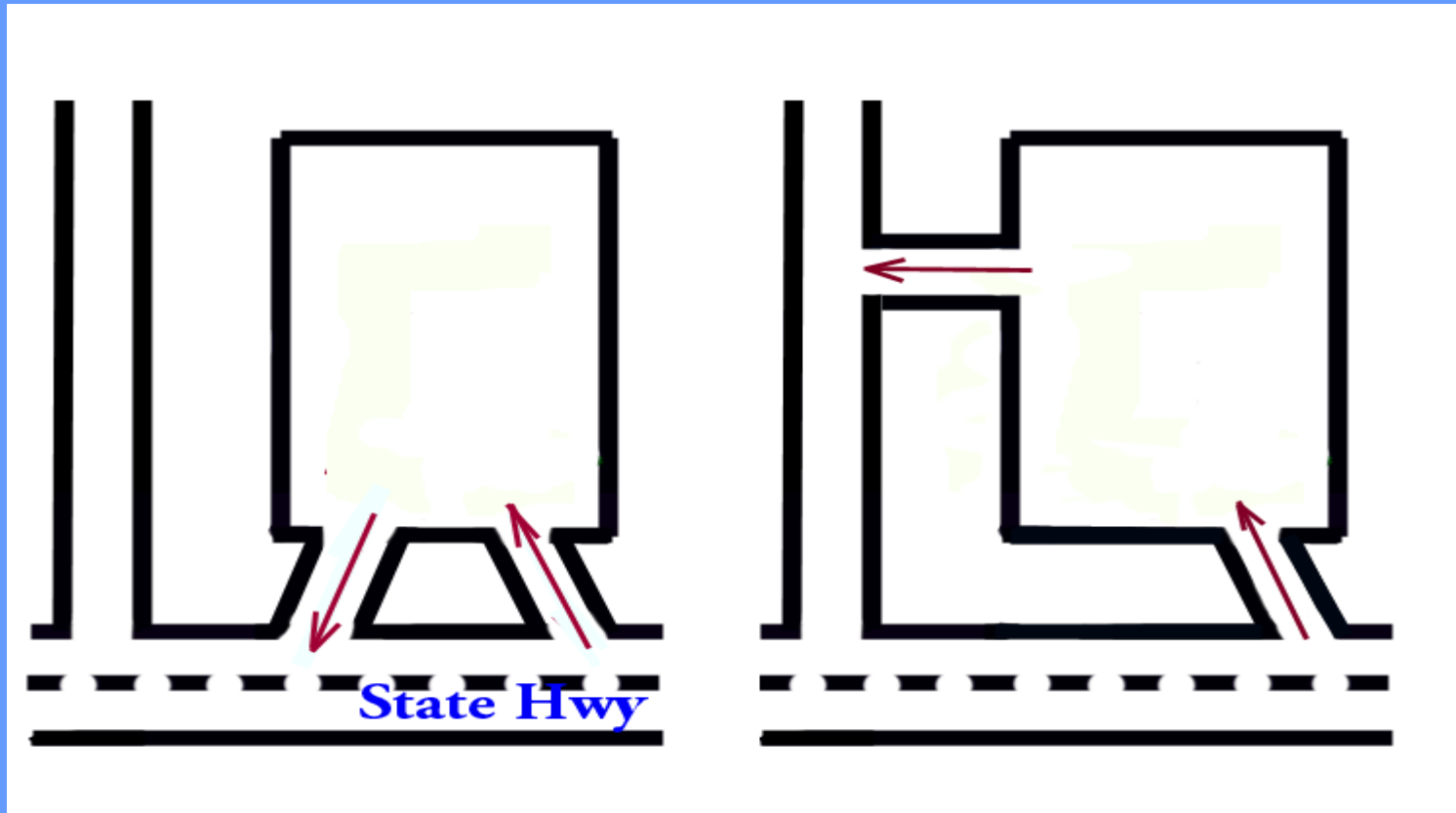


Before

After

Revocation of Access

Example 2: Eliminating direct egress

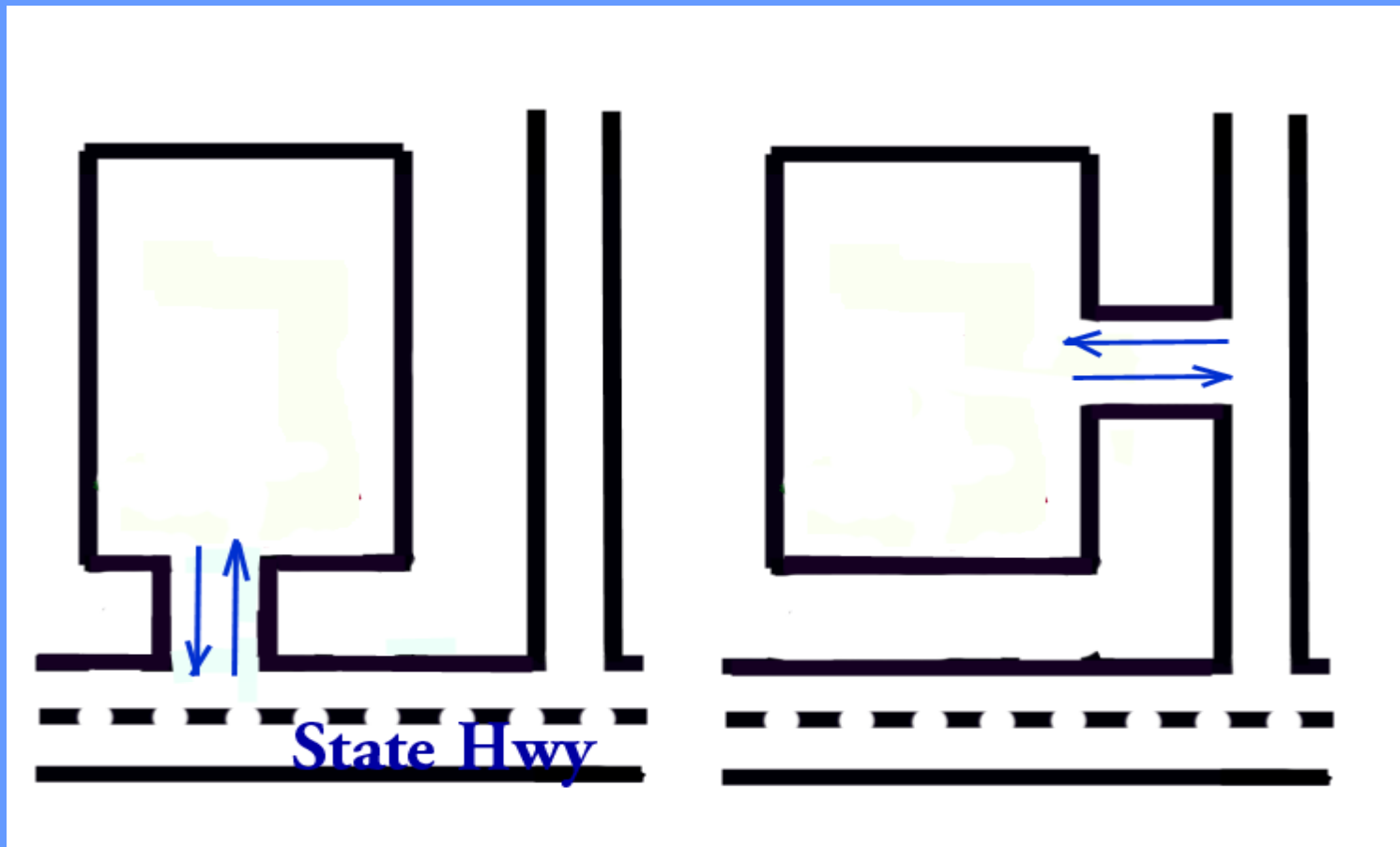


Before

After

Revocation of Access

Example 3: Eliminating direct ingress and egress



Before

After

REVOCACTION OF ACCESS

**What is Reasonable
Alternative Access?**

Revocation of Access

Reasonable Alternative Access

- Commercial Property

Access onto any parallel or perpendicular **roadway*** which is of sufficient design to support commercial traffic and is convenient, direct and well marked

- Industrial Property

Access onto any improved **roadway*** which is of sufficient design to support necessary truck/employee access as required by the industry

- Residential/Agricultural Property

Access onto any improved public street or highway

* **street-highway-easement-service road-common driveway**

Revocation of Commercial Access

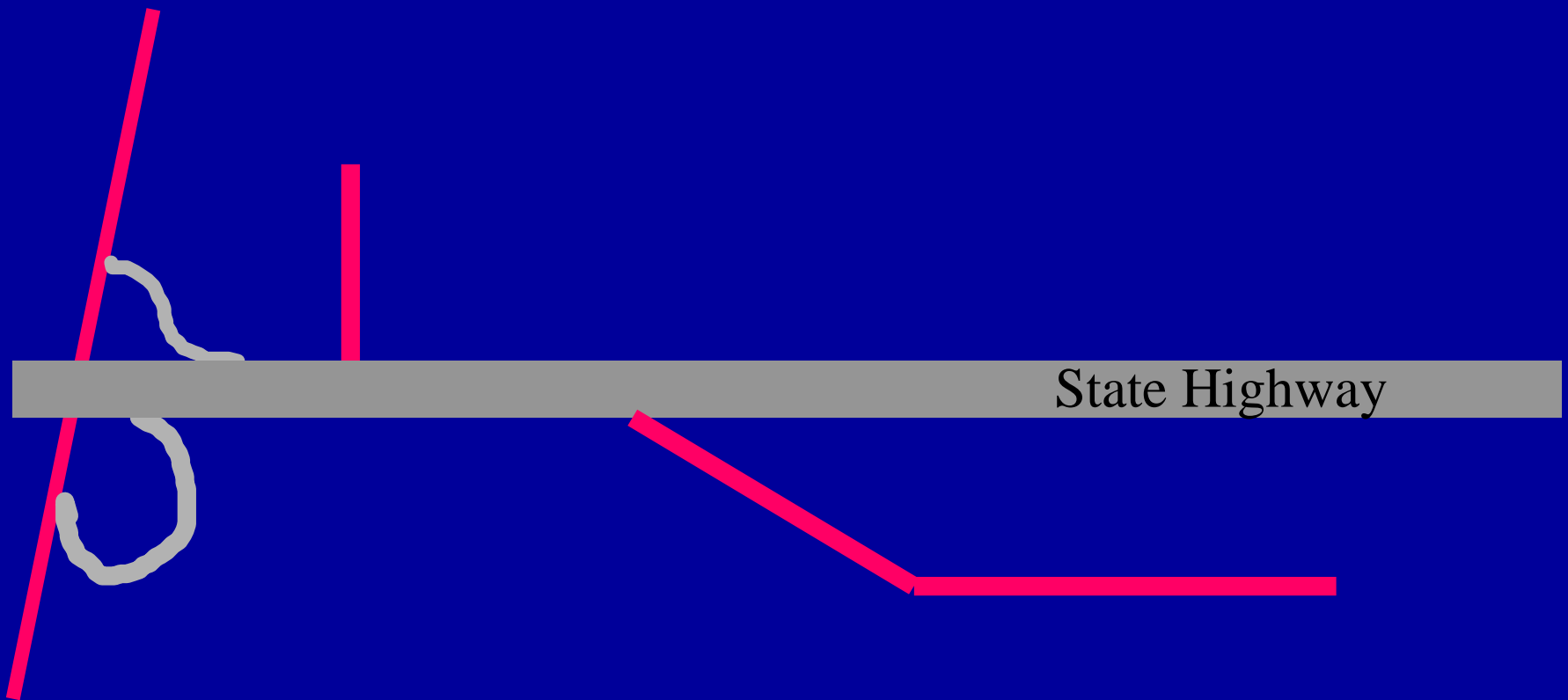
Reasonable Alternative Access Five Tests

1. Alternative access is provided via a parallel or perpendicular street, highway, easement, service road or common driveway
2. Of sufficient design to support commercial traffic to and from the business or use
3. Convenient
4. Direct
5. Well-marked means of reaching the site and returning to the State highway

Revocation of Commercial Access Test 1A

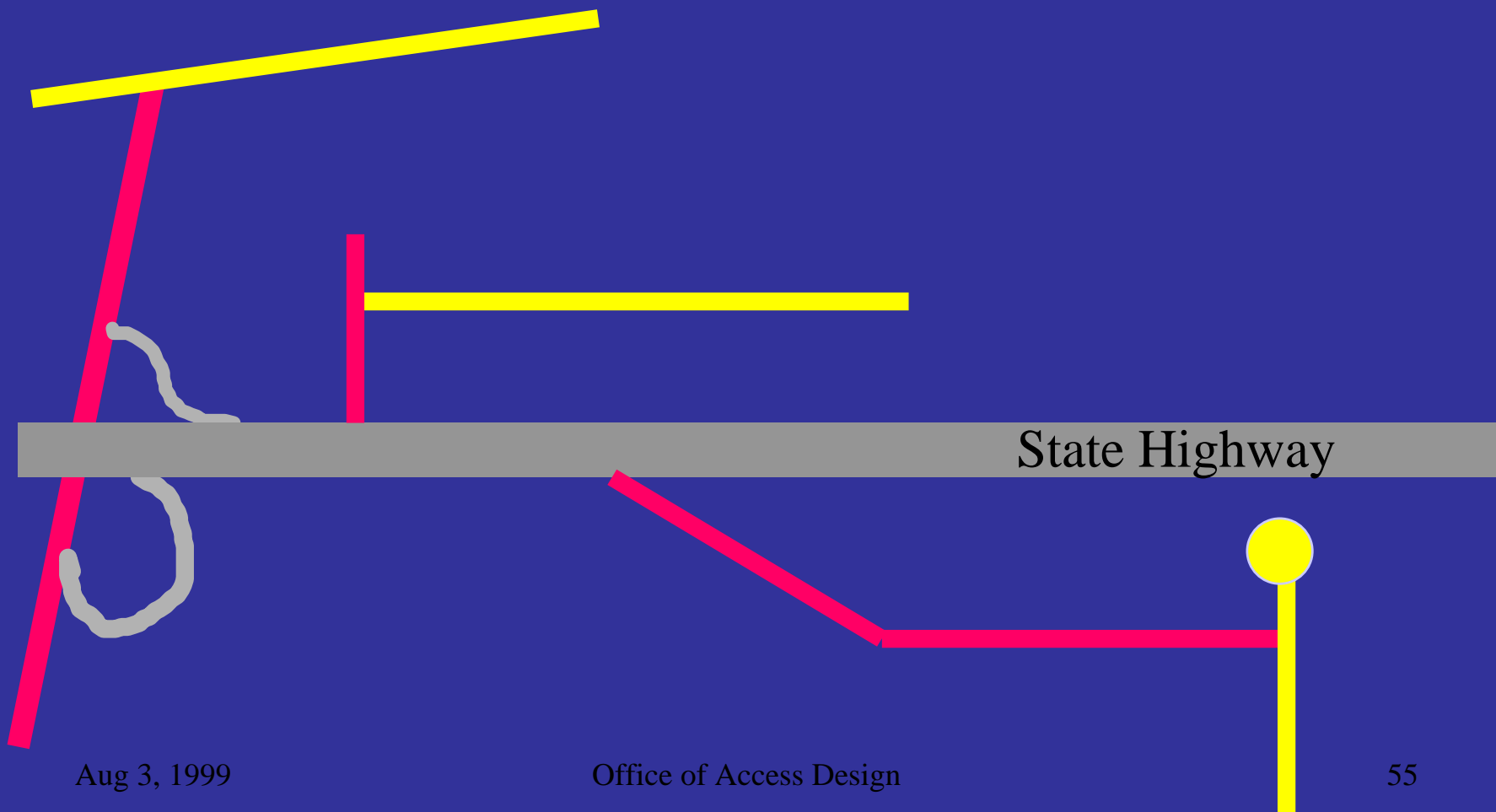
Perpendicular Streets

(Any street that intersects a highway)



Revocation of Commercial Access Test 1B Parallel Streets

(Any street that intersects a perpendicular street)



Revocation of Commercial Access Test 2

Sufficiency of Design

- The path can carry the size and type of traffic for the commercial use
- Capacity to handle the anticipated volume of traffic, as of the date of the notice to the owner
- Pavement strength to handle the weight of the anticipated traffic
- Driveways must handle anticipated volume, size and type of vehicles

Revocation of Commercial Access Test 3

Convenient

Do the alternative ingress and egress:

- Fit with the site?
- Line up with traffic circulation aisles?
- Serve loading areas, drive-up windows, etc.?

Revocation of Commercial Access Test 4

Direct

- Relatively straight
- There are limited choices along the path

Revocation of Commercial Access Test 5

Well-marked

- Signs are provided to direct motorists from the existing ingress to the alternative ingress and from the existing egress back to the highway
- A sign will be provided at each place where a motorist will have to make a decision
- Signs:
 - 8 square feet
 - White message on blue or green background
 - Maintained for at least one year

Alternative Access Signing

Arthur Eisdorfer

Revocation of Commercial Access

Recommended Sign Placements

- Site is upstream or downstream of Alternative Access
- Highway is undivided or divided

Revocation of Commercial Access

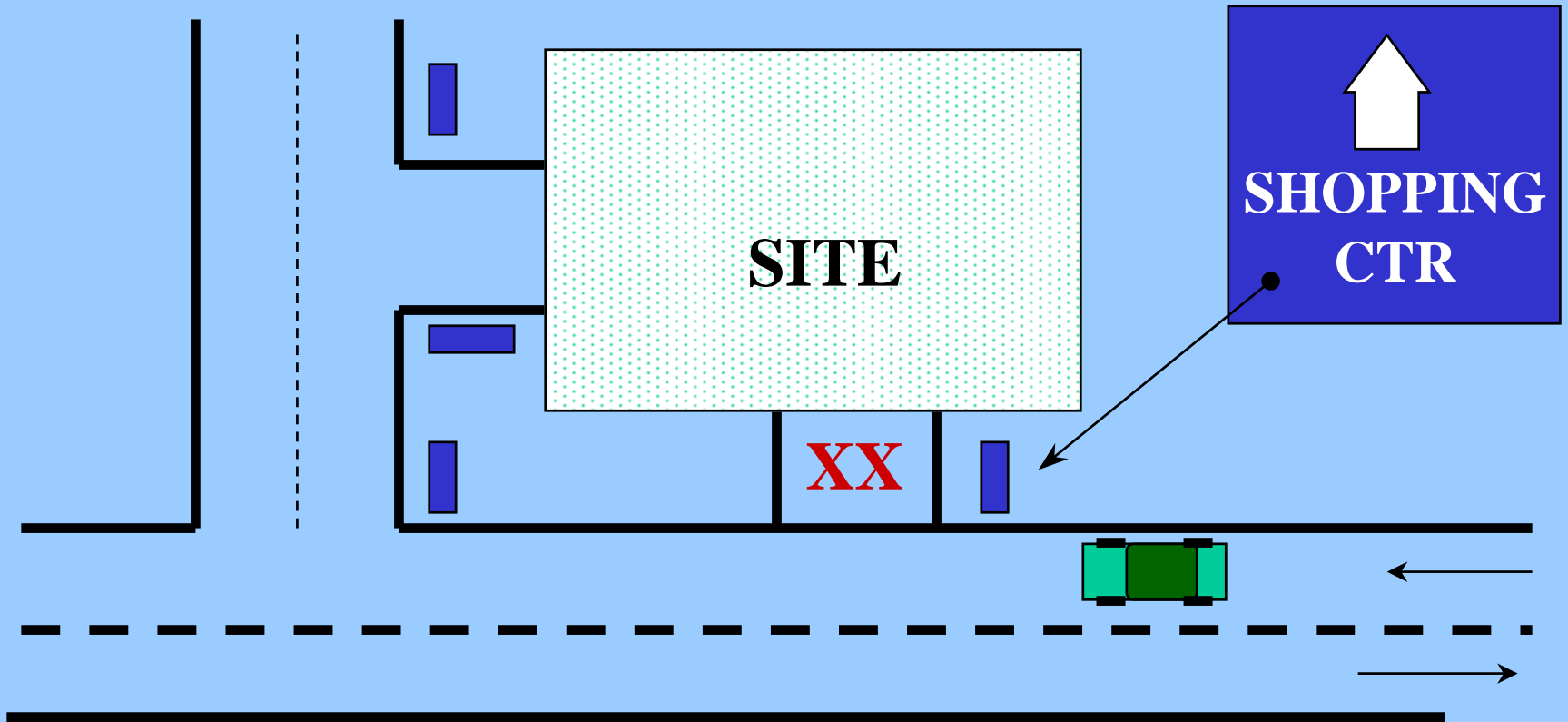
Recommended Sign Placements

- Site is upstream of Alternative Access
- Highway is undivided

Revocation of Commercial Access Test 5

Recommended Sign Placement

(Site is UPSTREAM of Alternative Access)



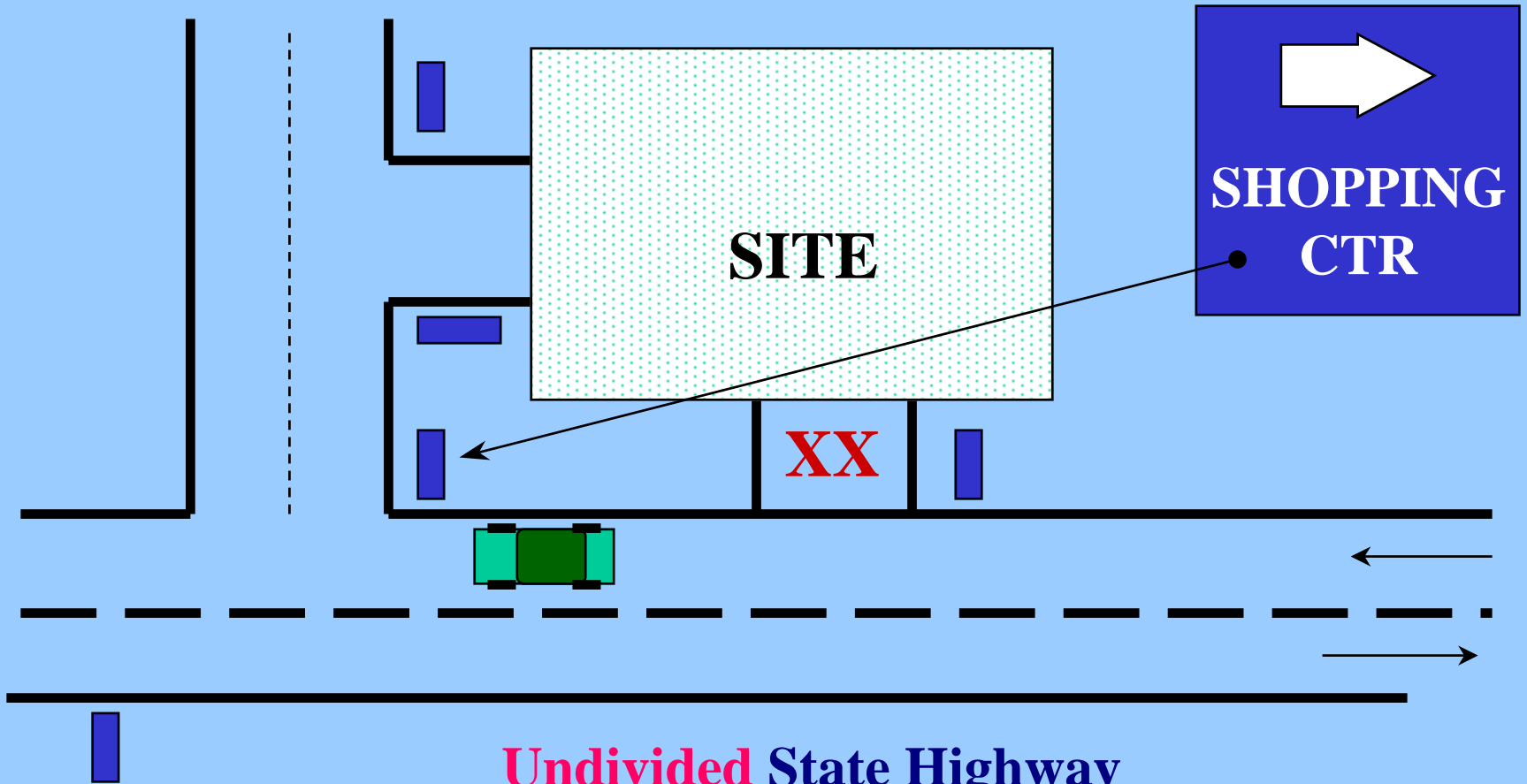
Undivided State Highway

Office of Access Design

Revocation of Commercial Access Test 5

Recommended Sign Placement

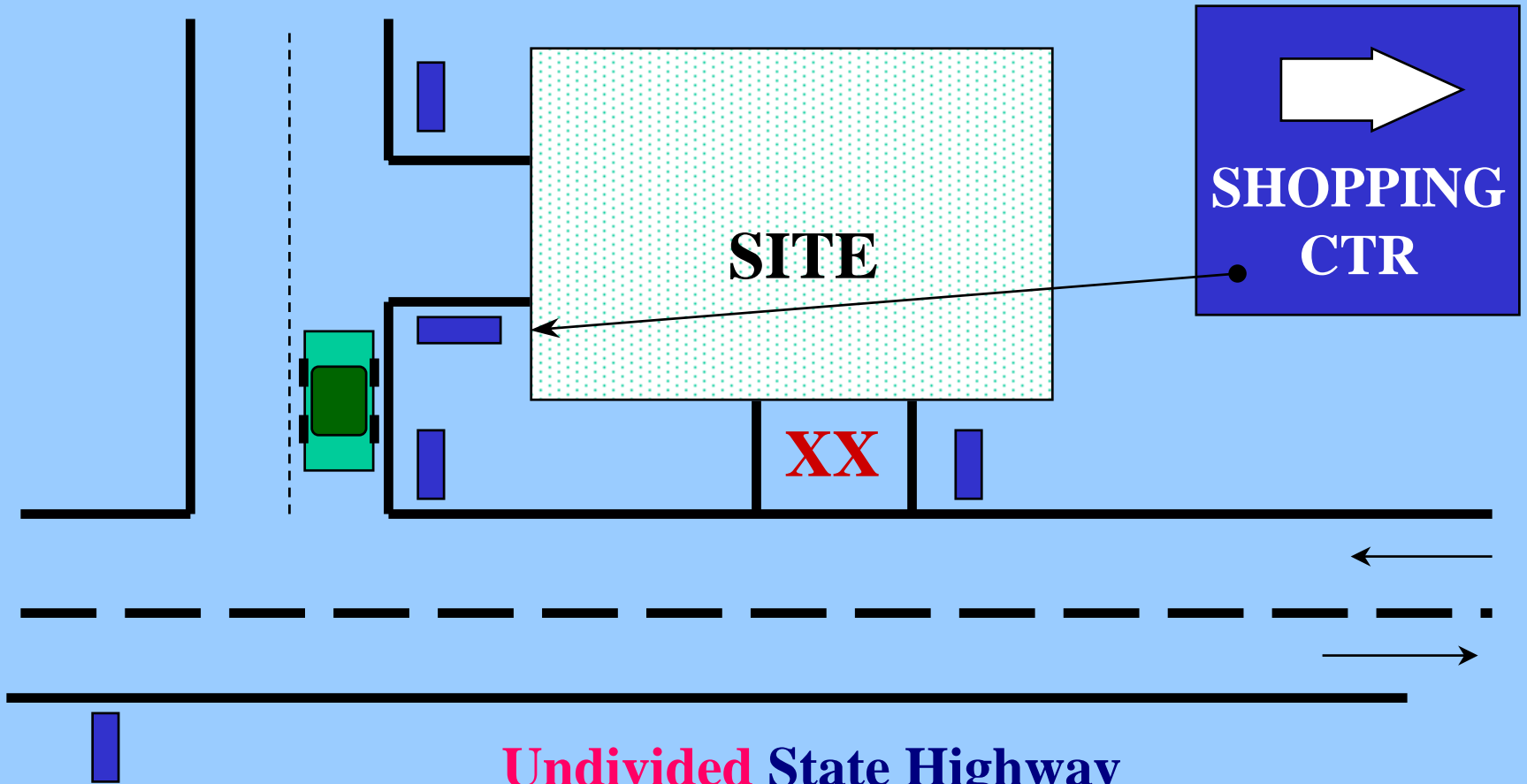
(Site is UPSTREAM of Alternative Access)



Revocation of Commercial Access Test 5

Recommended Sign Placement

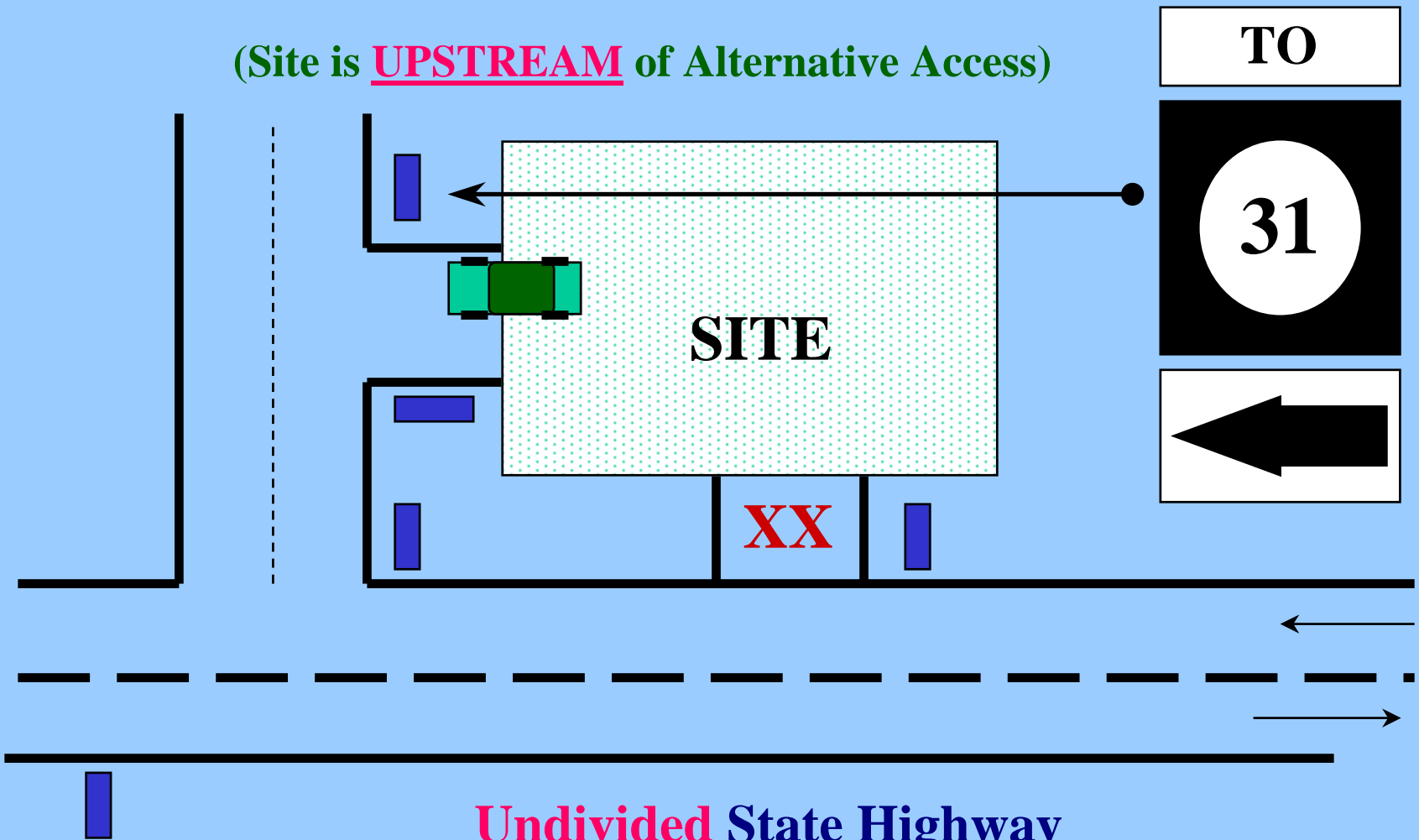
(Site is UPSTREAM of Alternative Access)



Revocation of Commercial Access Test 5

Recommended Sign Placement

(Site is UPSTREAM of Alternative Access)



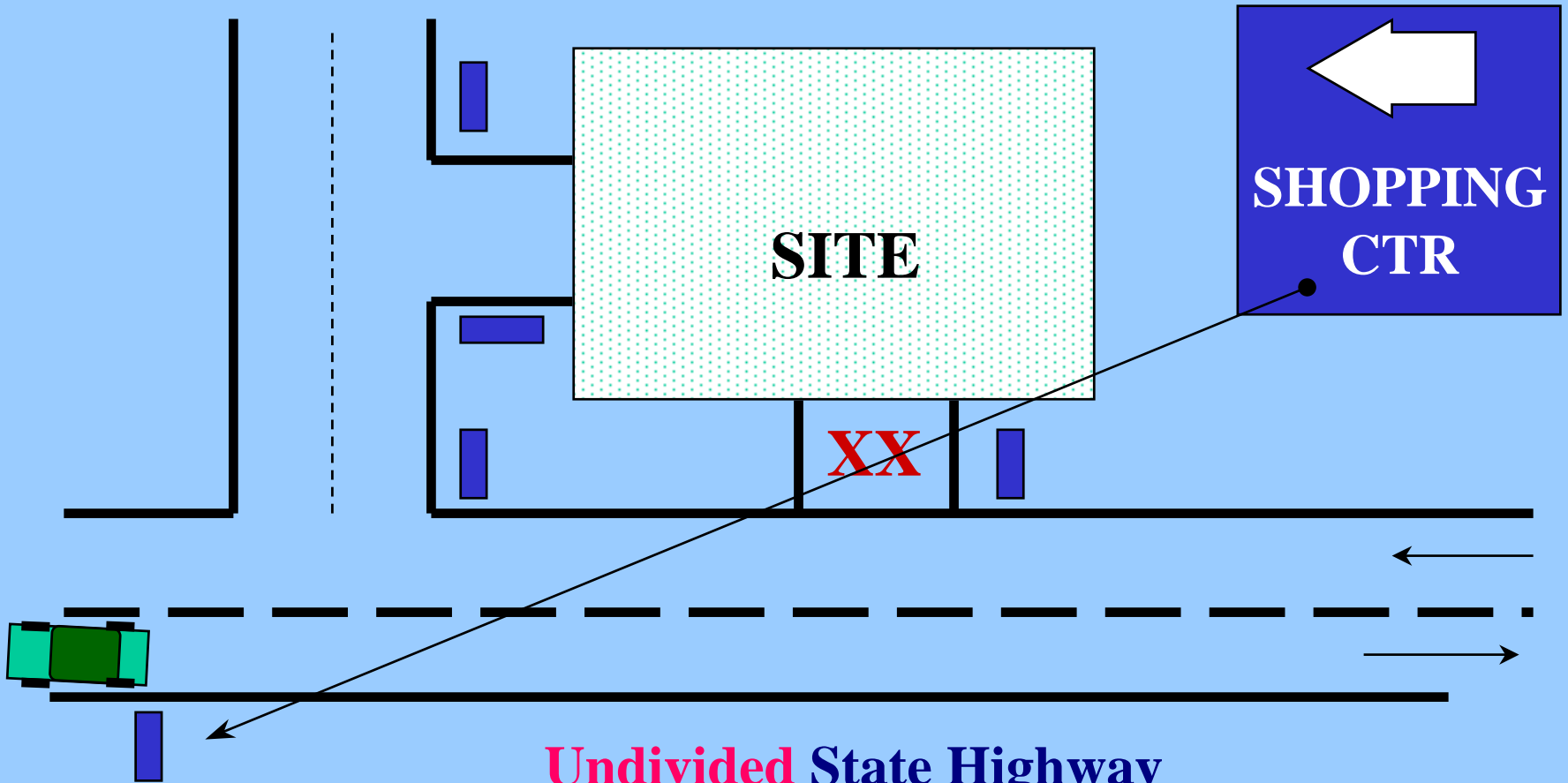
Undivided State Highway

Office of Access Design

Revocation of Commercial Access Test 5

Recommended Sign Placement

(Site is UPSTREAM of Alternative Access)



Aug 3, 1999

Undivided State Highway
Office of Access Design

Revocation of Commercial Access

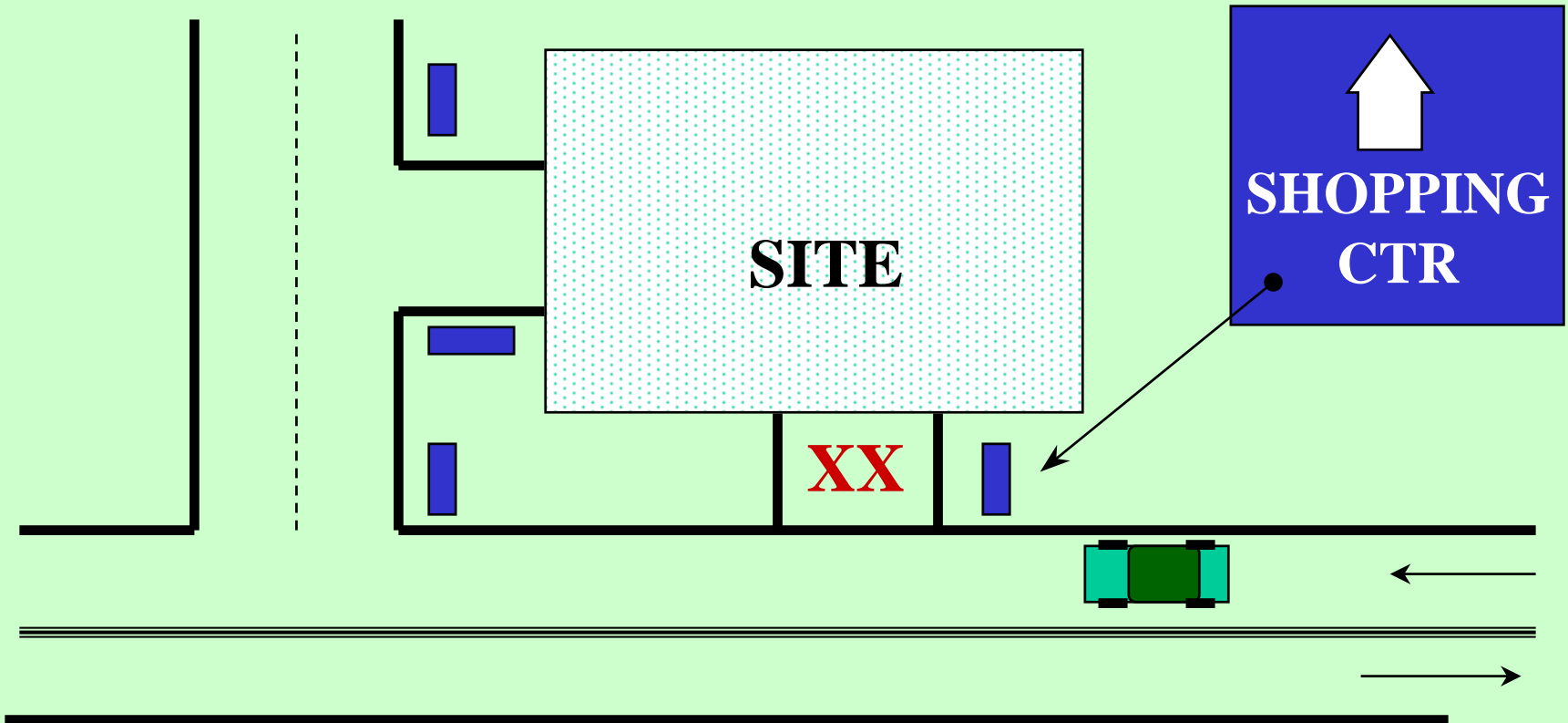
Recommended Sign Placements

- Site is upstream of Alternative Access
- Highway is divided

Revocation of Commercial Access Test 5

Recommended Sign Placement

(Site is UPSTREAM of Alternative Access)

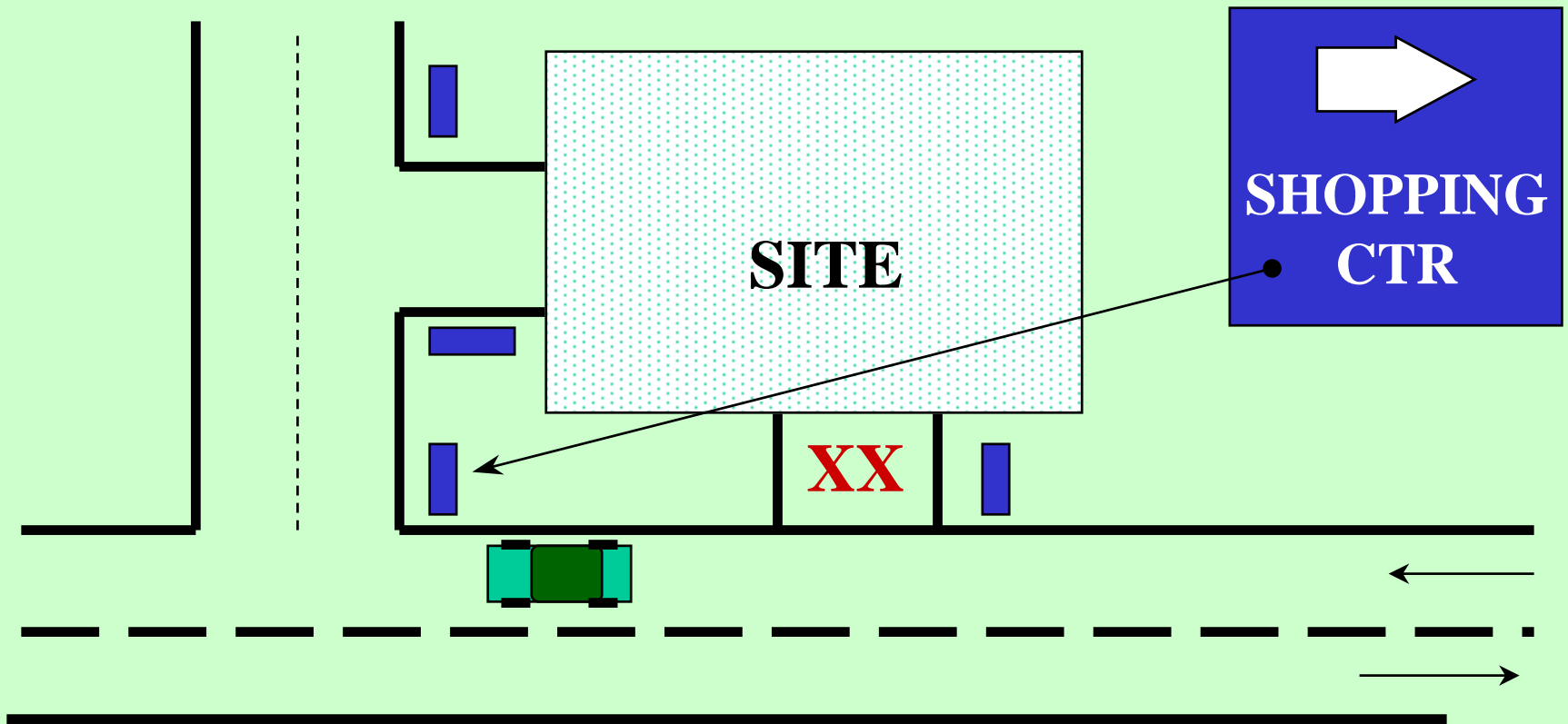


Divided State Highway
Office of Access Design

Revocation of Commercial Access Test 5

Recommended Sign Placement

(Site is UPSTREAM of Alternative Access)

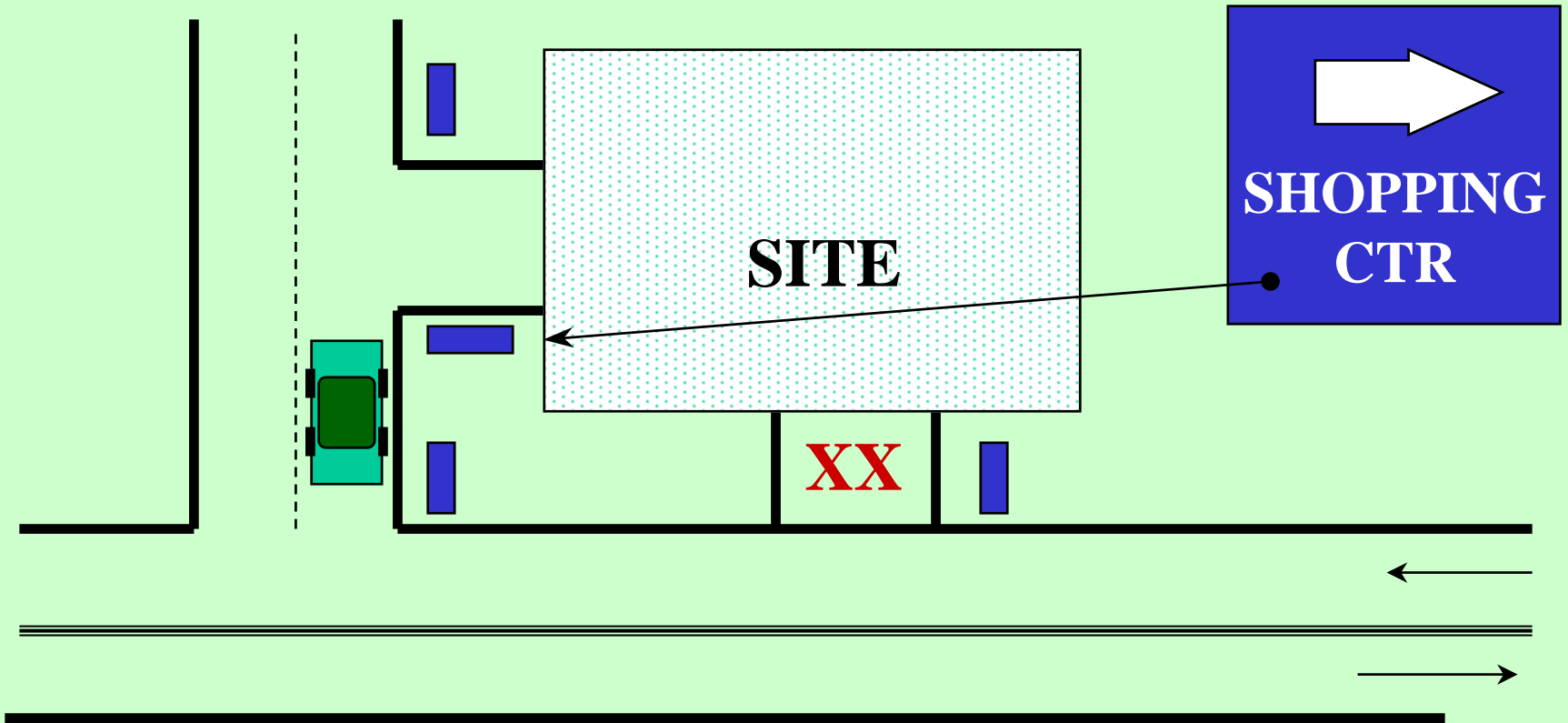


Divided State Highway
Office of Access Design

Revocation of Commercial Access Test 5

Recommended Sign Placement

(Site is UPSTREAM of Alternative Access)

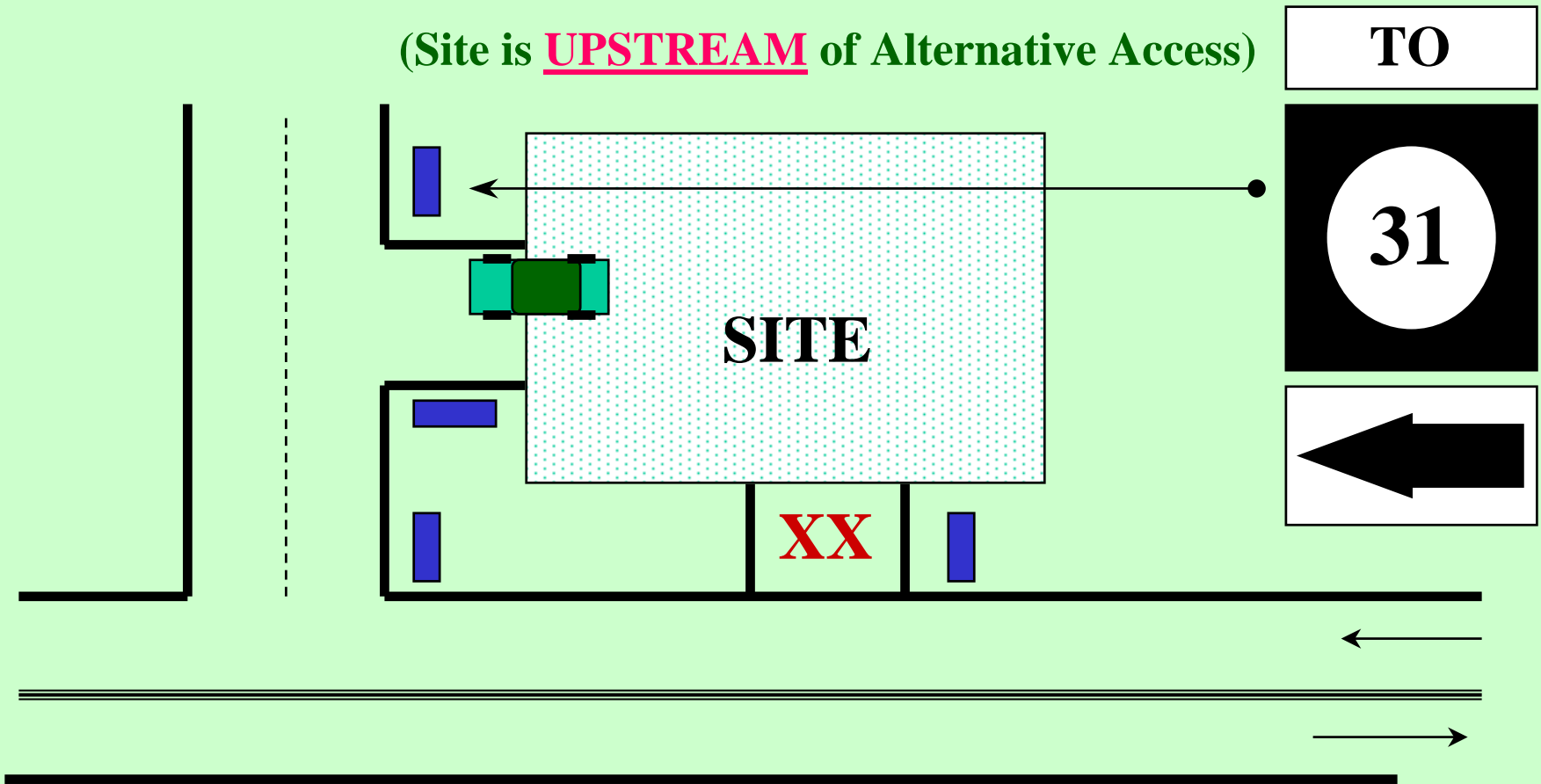


Divided State Highway
Office of Access Design

Revocation of Commercial Access Test 5

Recommended Sign Placement

(Site is UPSTREAM of Alternative Access)



Divided State Highway
Office of Access Design

Revocation of Commercial Access

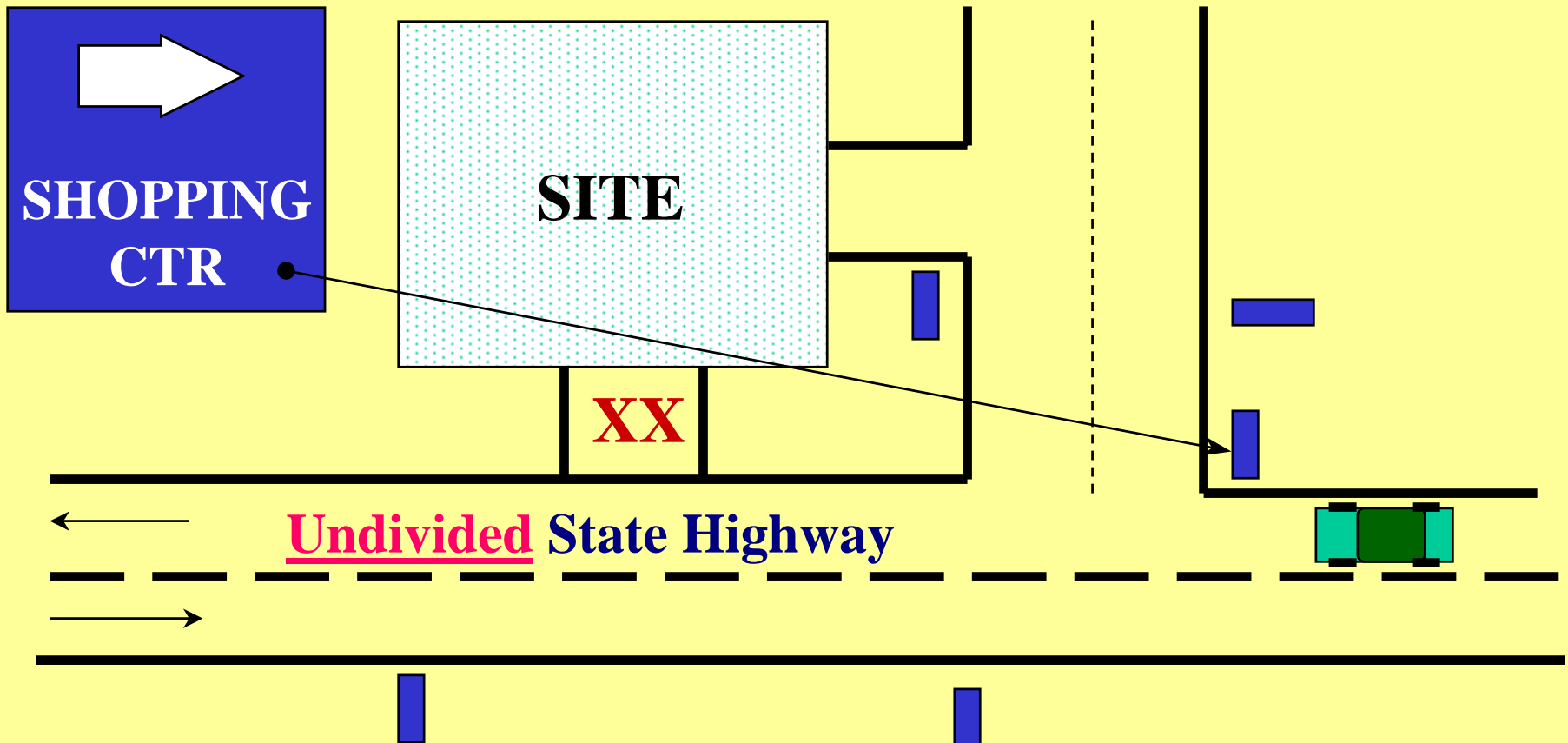
Recommended Sign Placements

- Site is downstream of Alternative Access
- Highway is undivided

Revocation of Commercial Access Test 5

Recommended Sign Placement

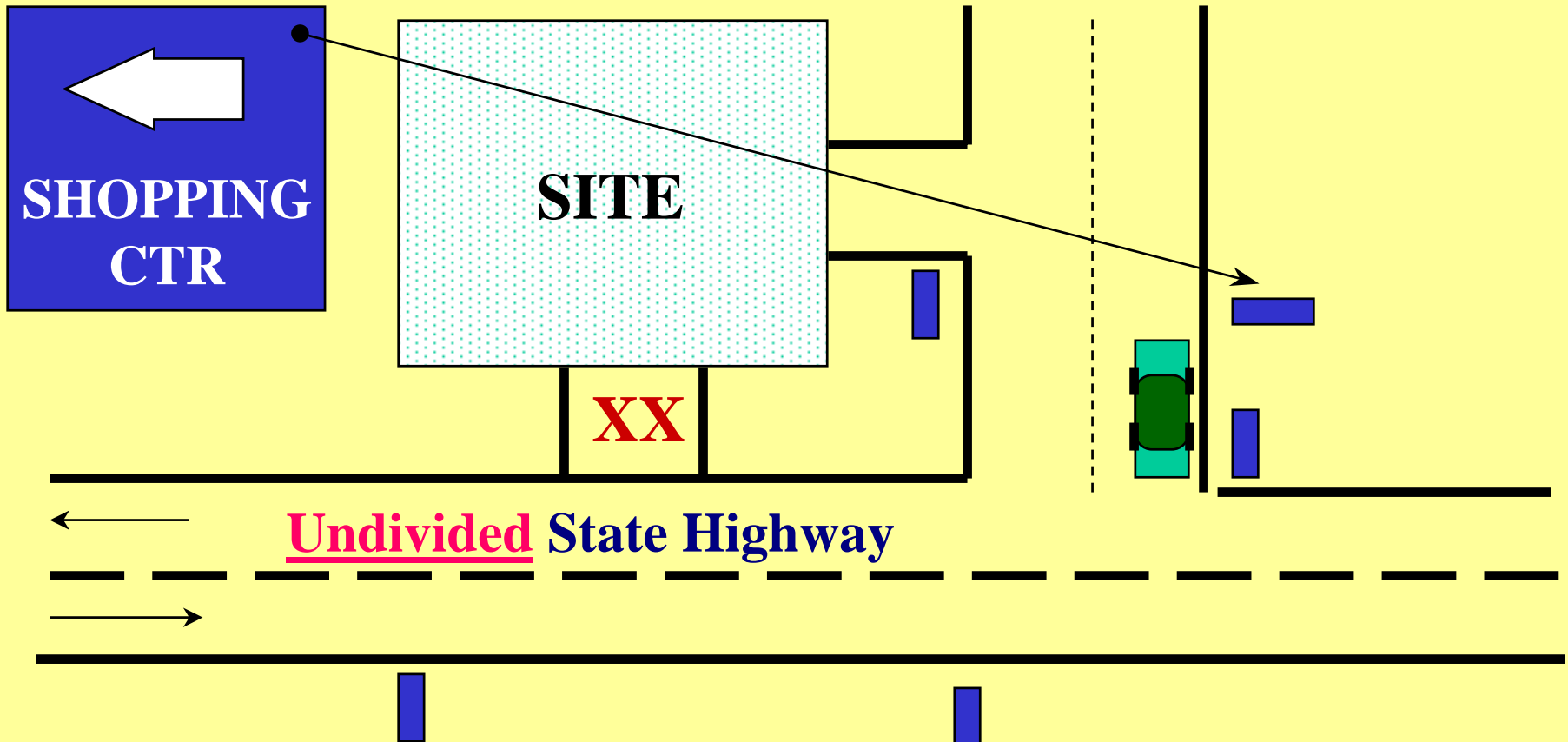
(Site is DOWNSTREAM of Alternative Access)



Revocation of Commercial Access Test 5

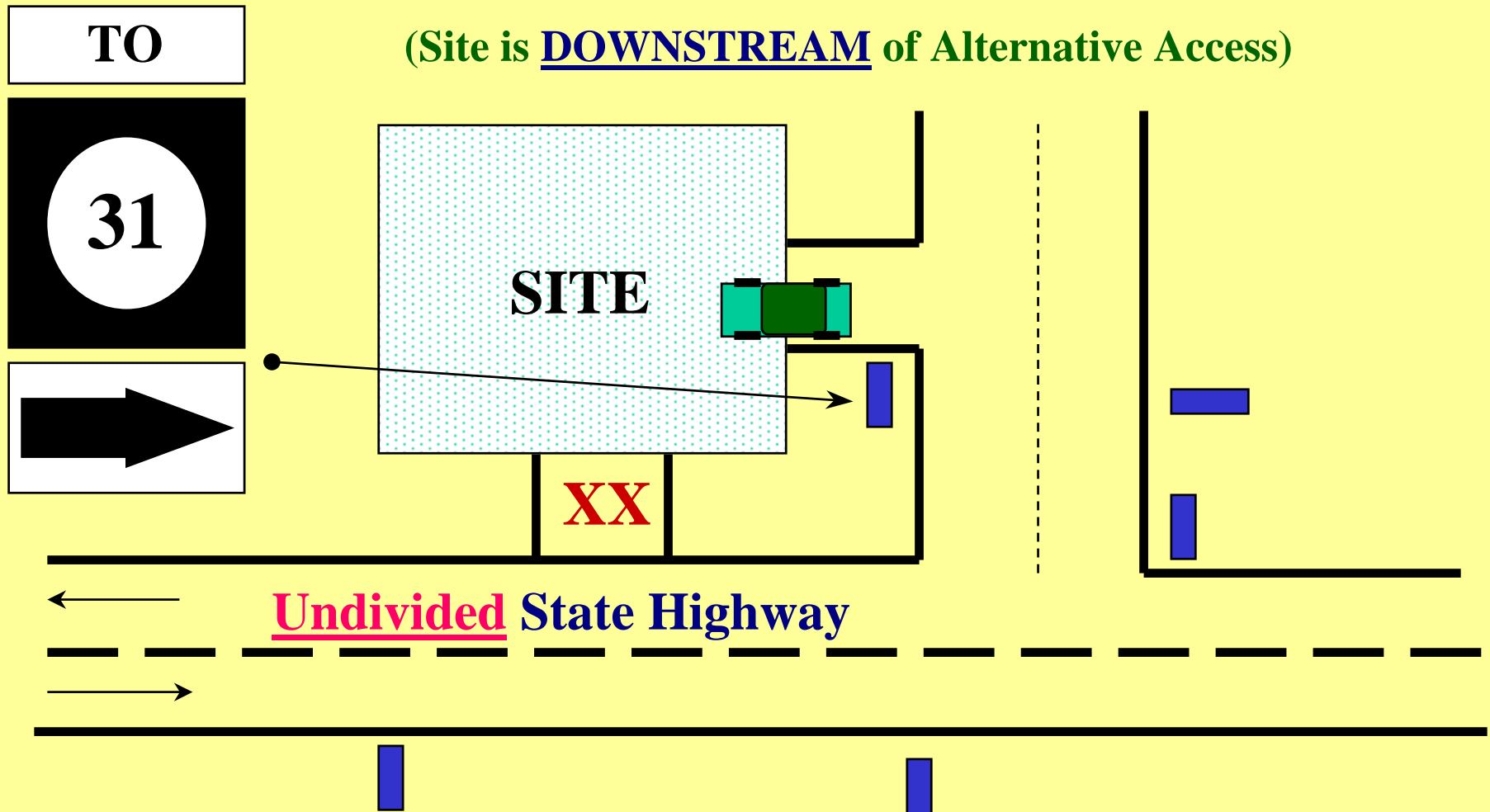
Recommended Sign Placement

(Site is DOWNSTREAM of Alternative Access)



Revocation of Commercial Access Test 5

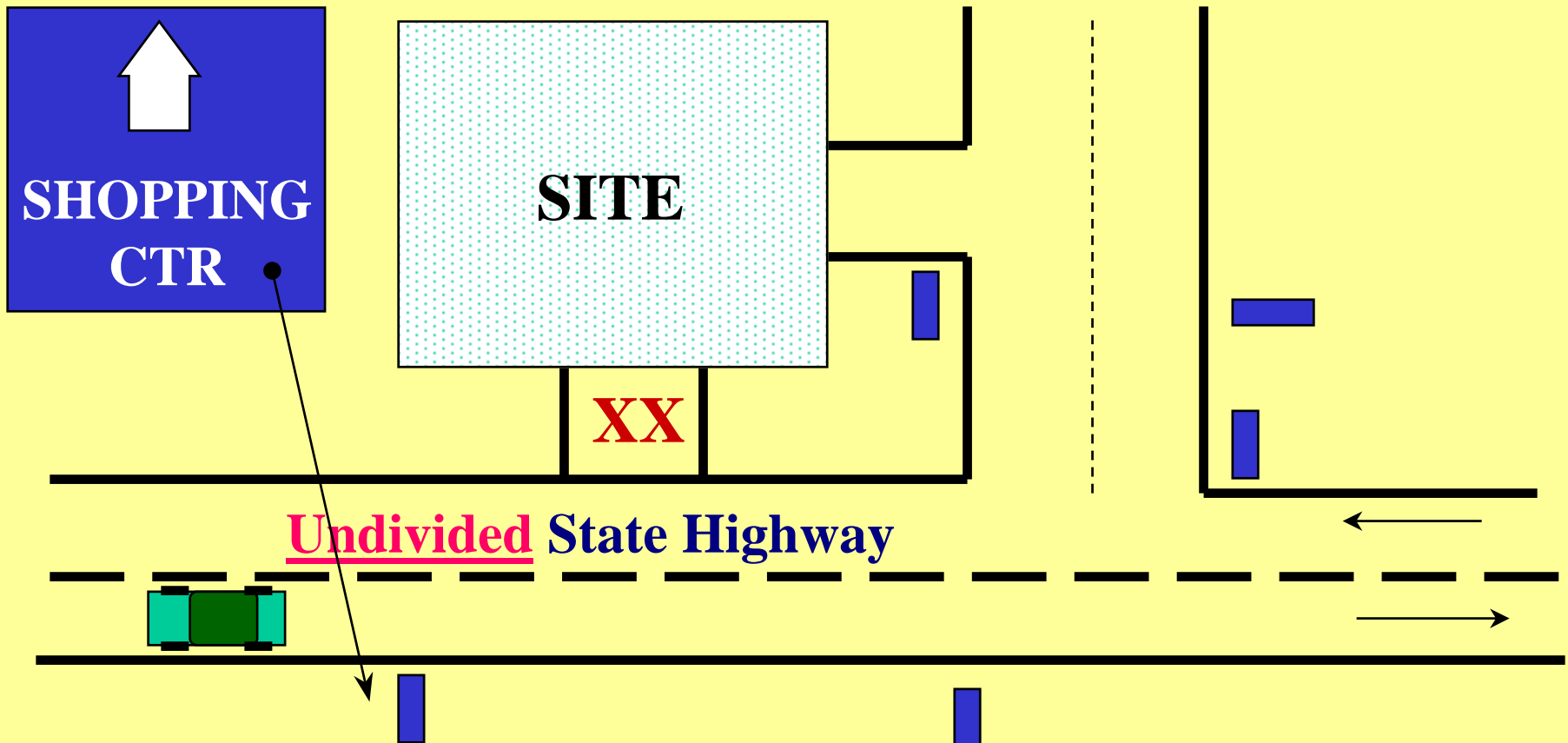
Recommended Sign Placement



Revocation of Commercial Access Test 5

Recommended Sign Placement

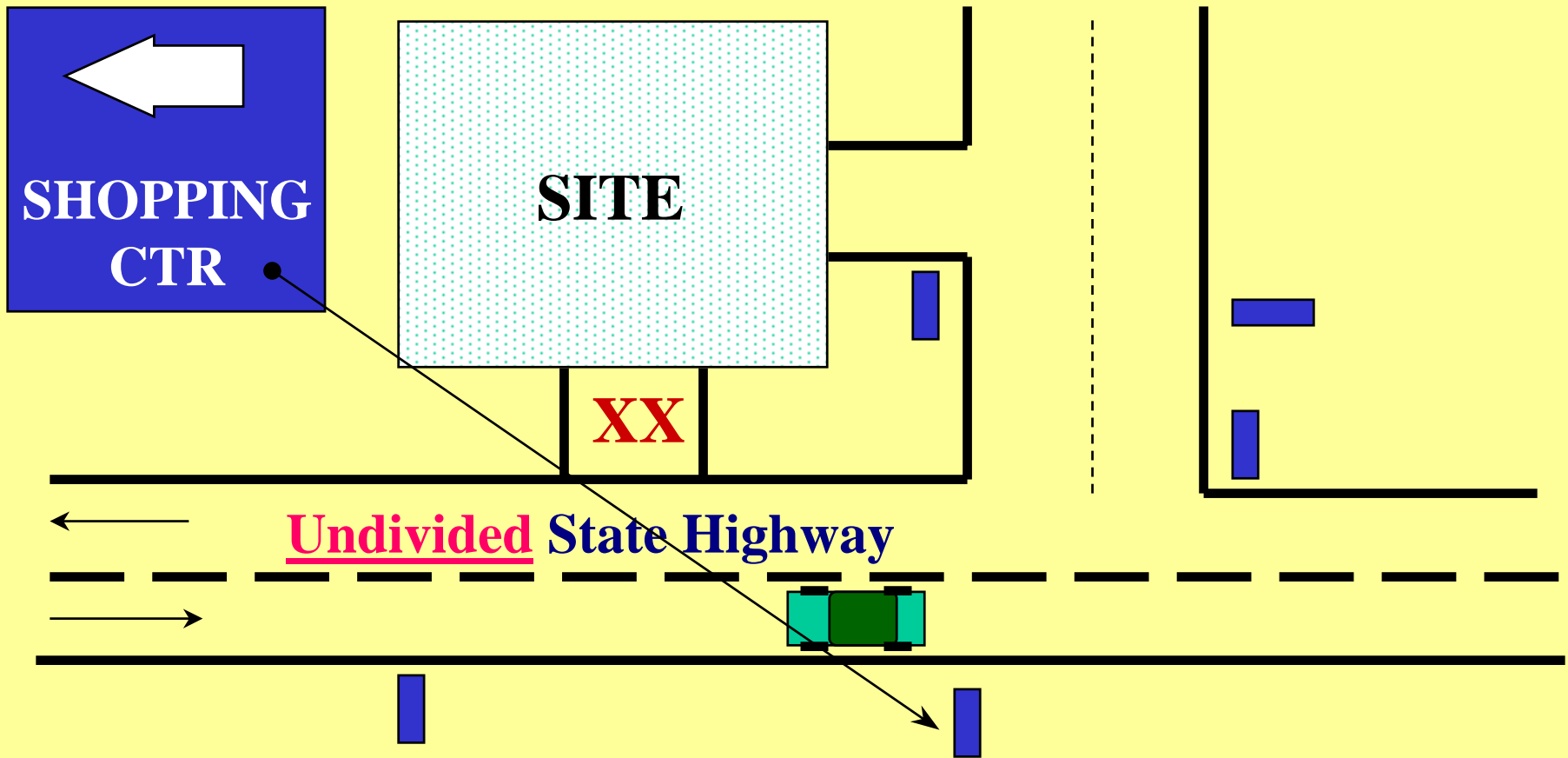
(Site is DOWNSTREAM of Alternative Access)



Revocation of Commercial Access Test 5

Recommended Sign Placement

(Site is DOWNSTREAM of Alternative Access)



Revocation of Commercial Access

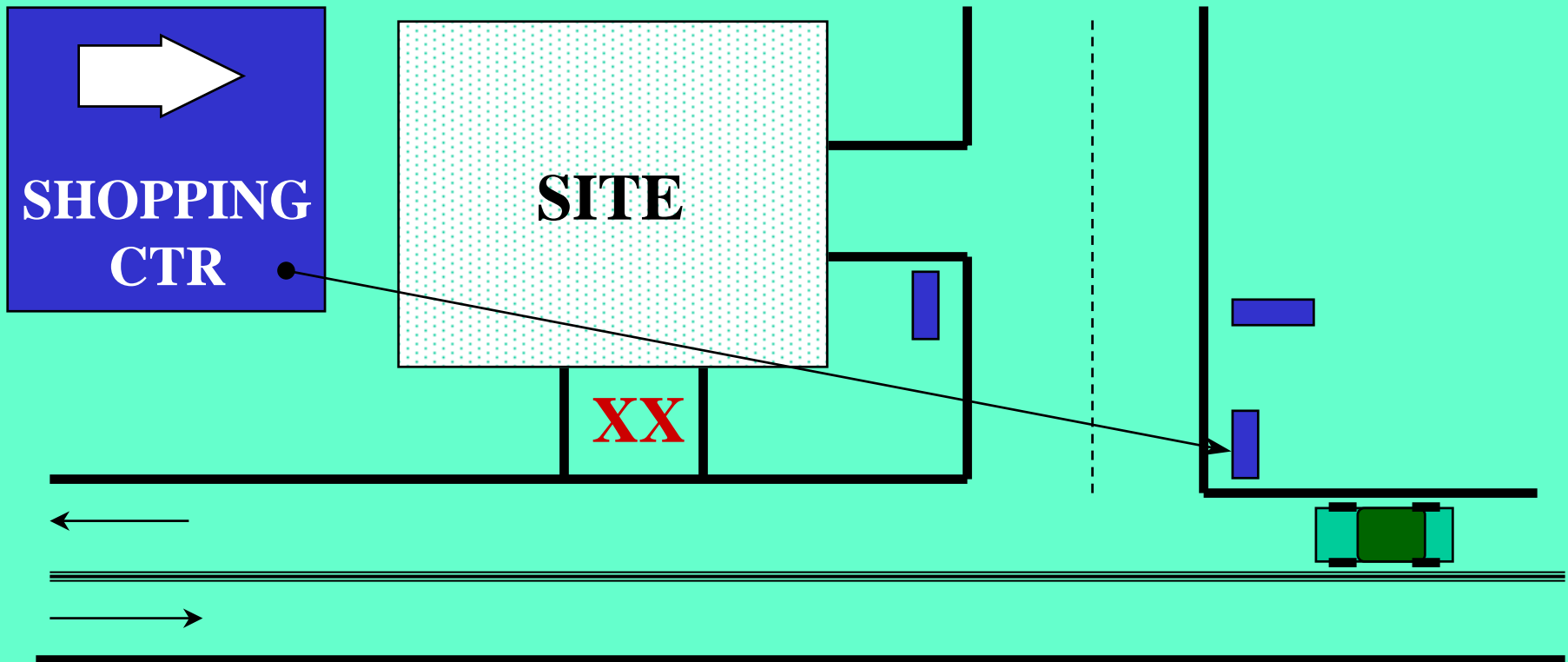
Recommended Sign Placements

- Site is downstream of Alternative Access
- Highway is divided

Revocation of Commercial Access Test 5

Recommended Sign Placement

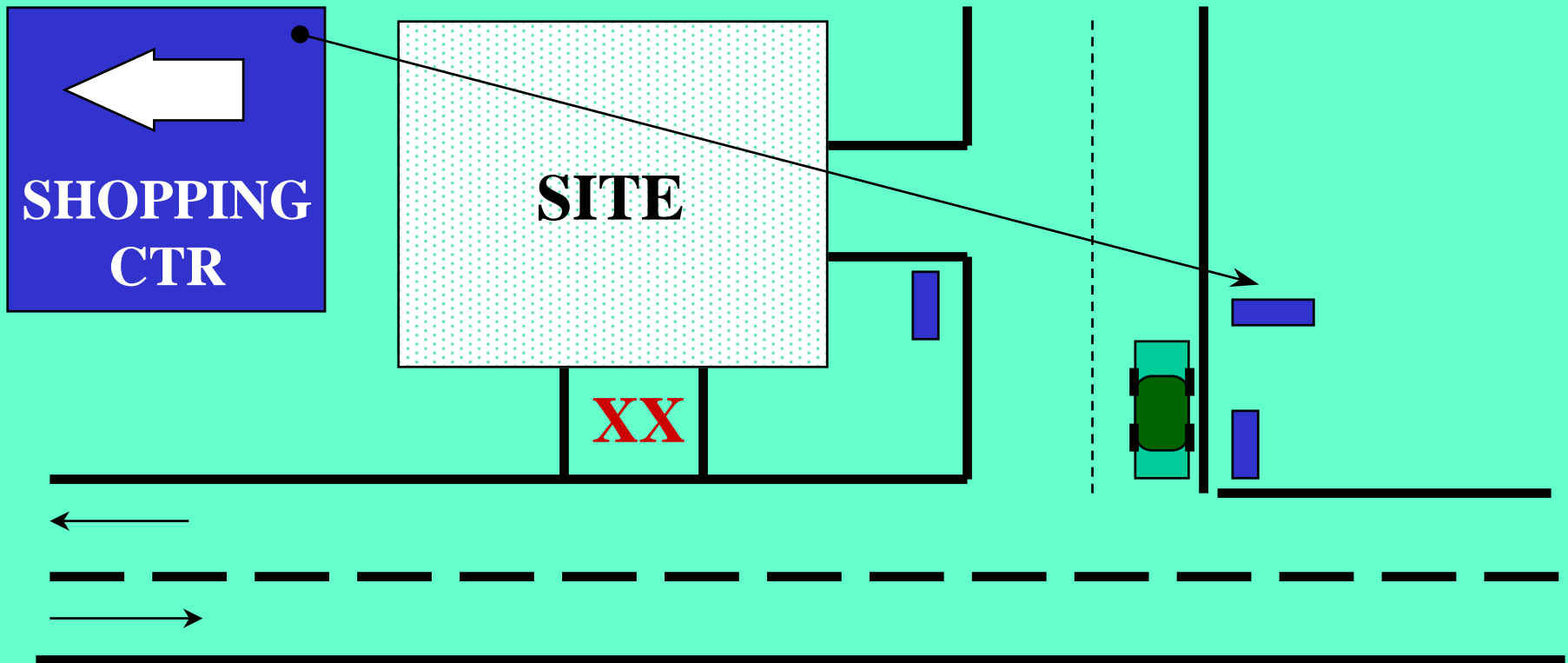
(Site is DOWNSTREAM of Alternative Access)



Revocation of Commercial Access Test 5

Recommended Sign Placement

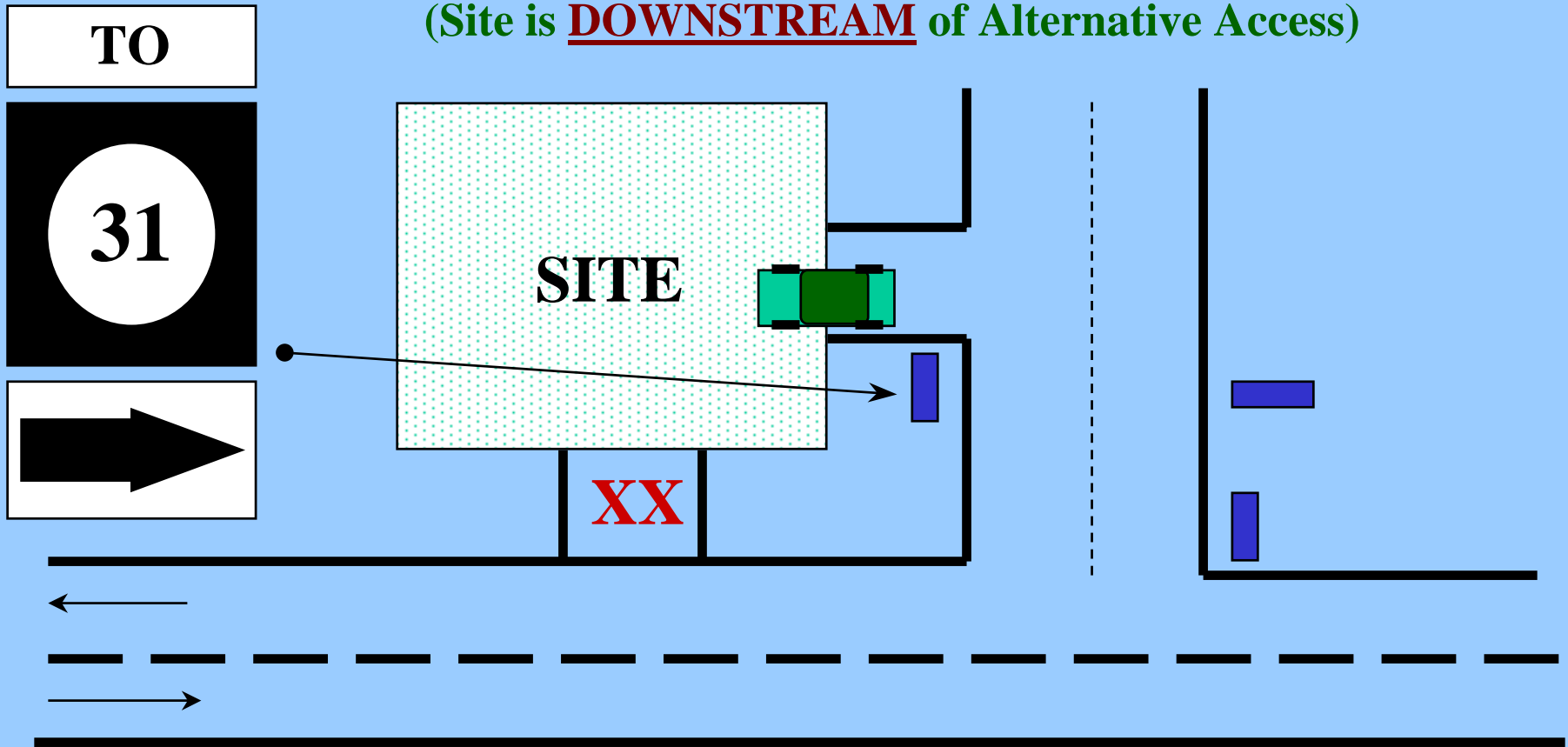
(Site is DOWNSTREAM of Alternative Access)



Revocation of Commercial Access Test 5

Recommended Sign Placement

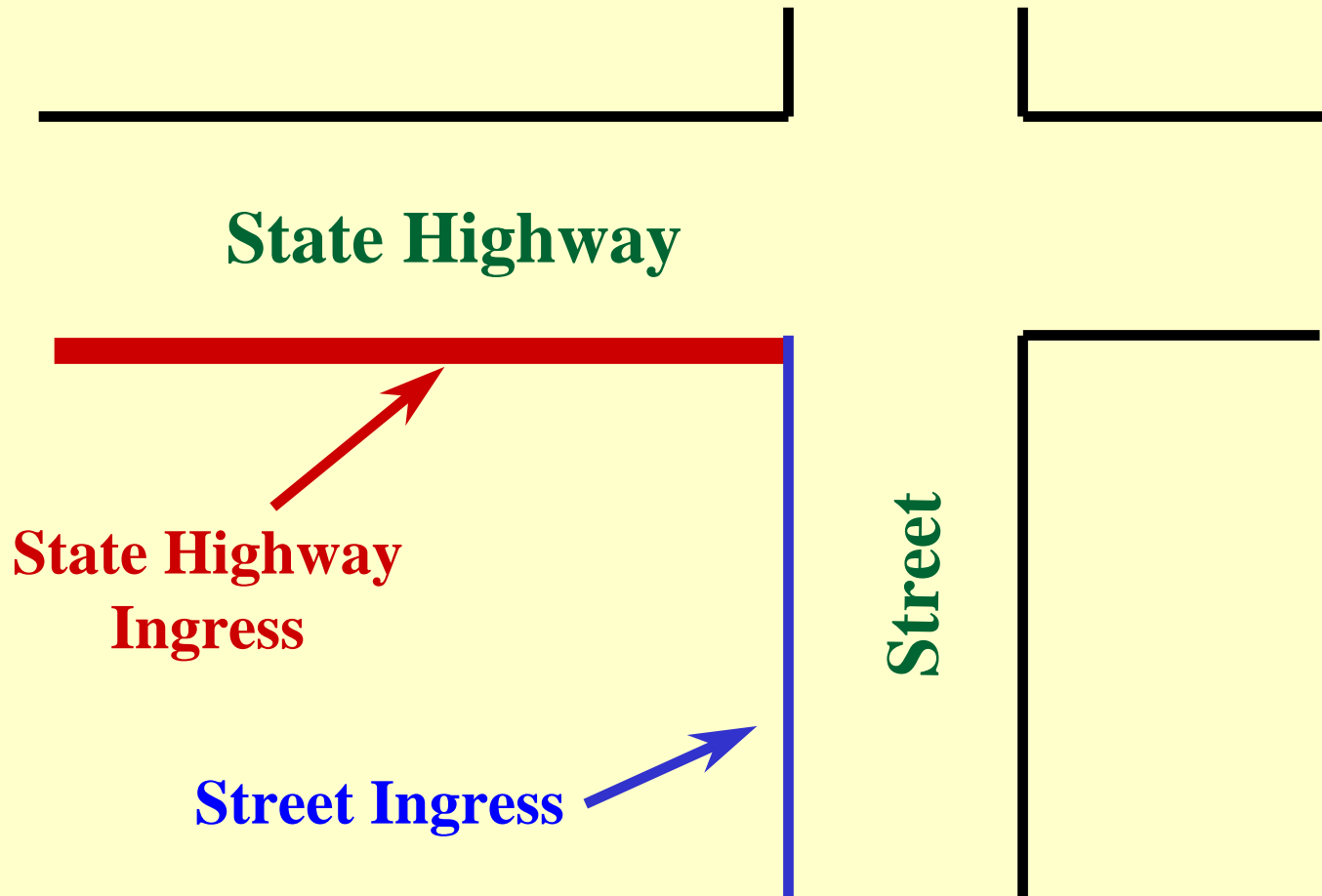
(Site is DOWNSTREAM of Alternative Access)



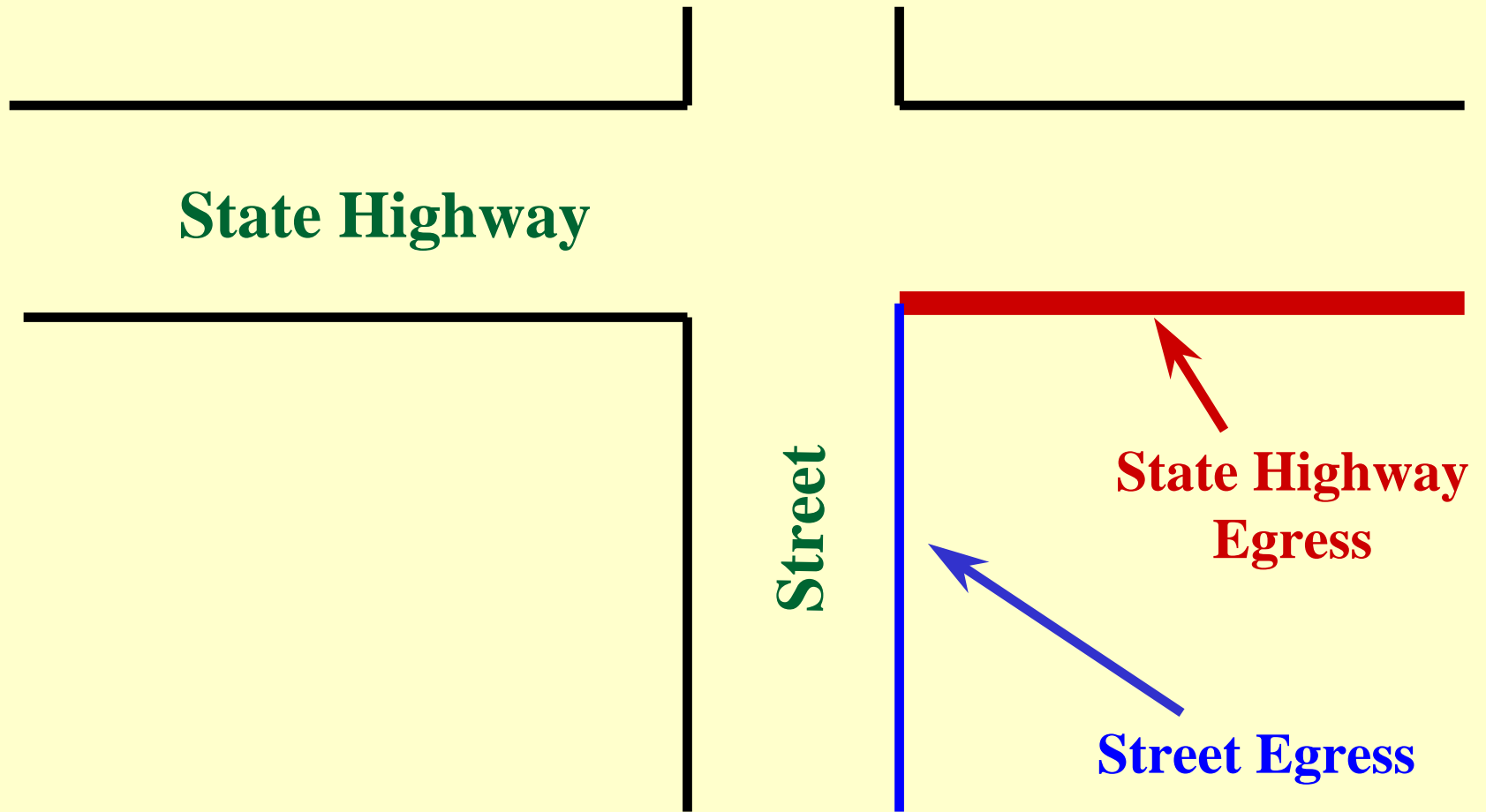
Where is Existing Access?

- Access
 - Ingress
 - Egress
- Road
 - State highway
 - Non-State highway
- Intersection
 - Street
 - Jughandle (Forward and Reverse)
 - Interchange

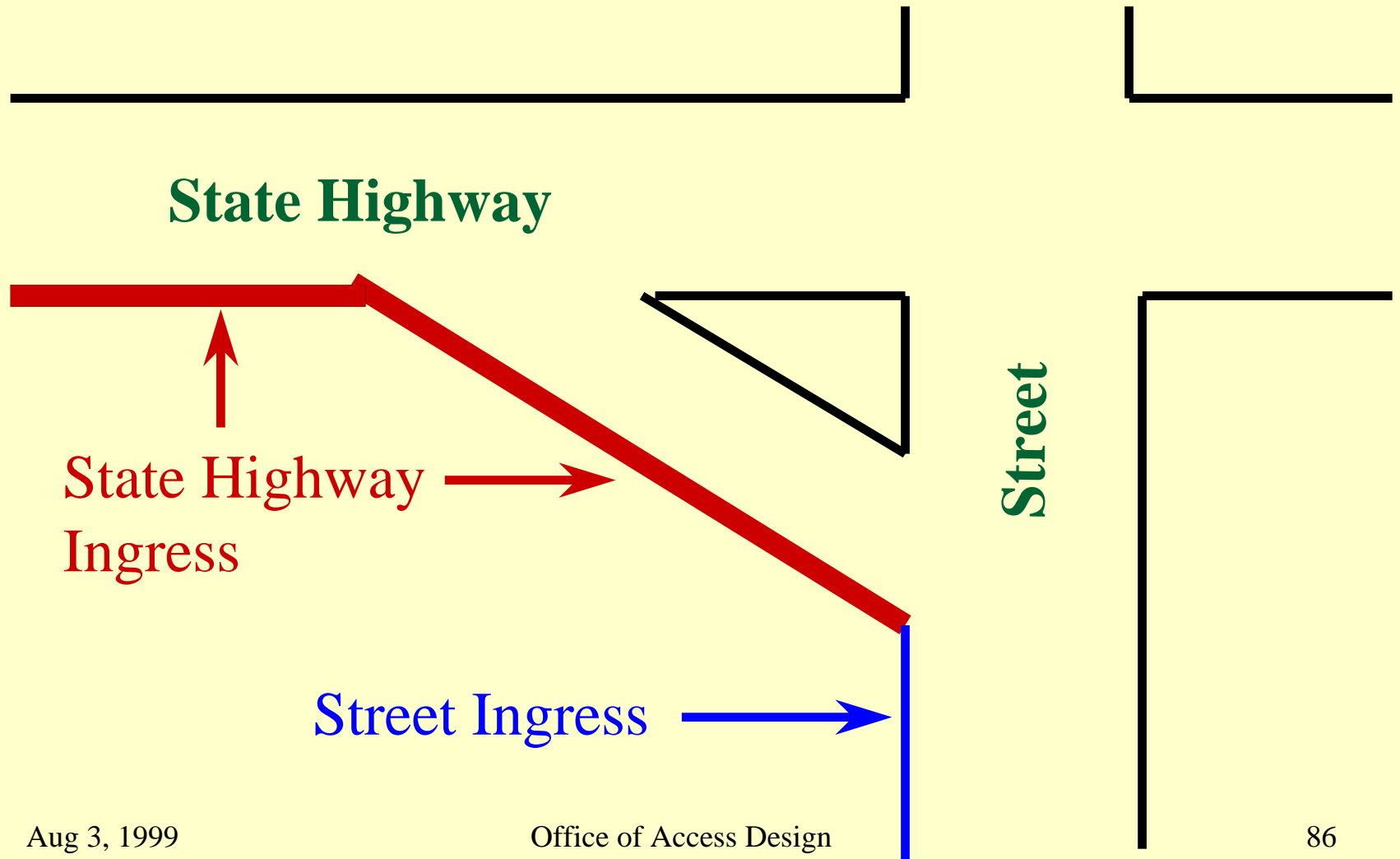
Street Intersection Ingress



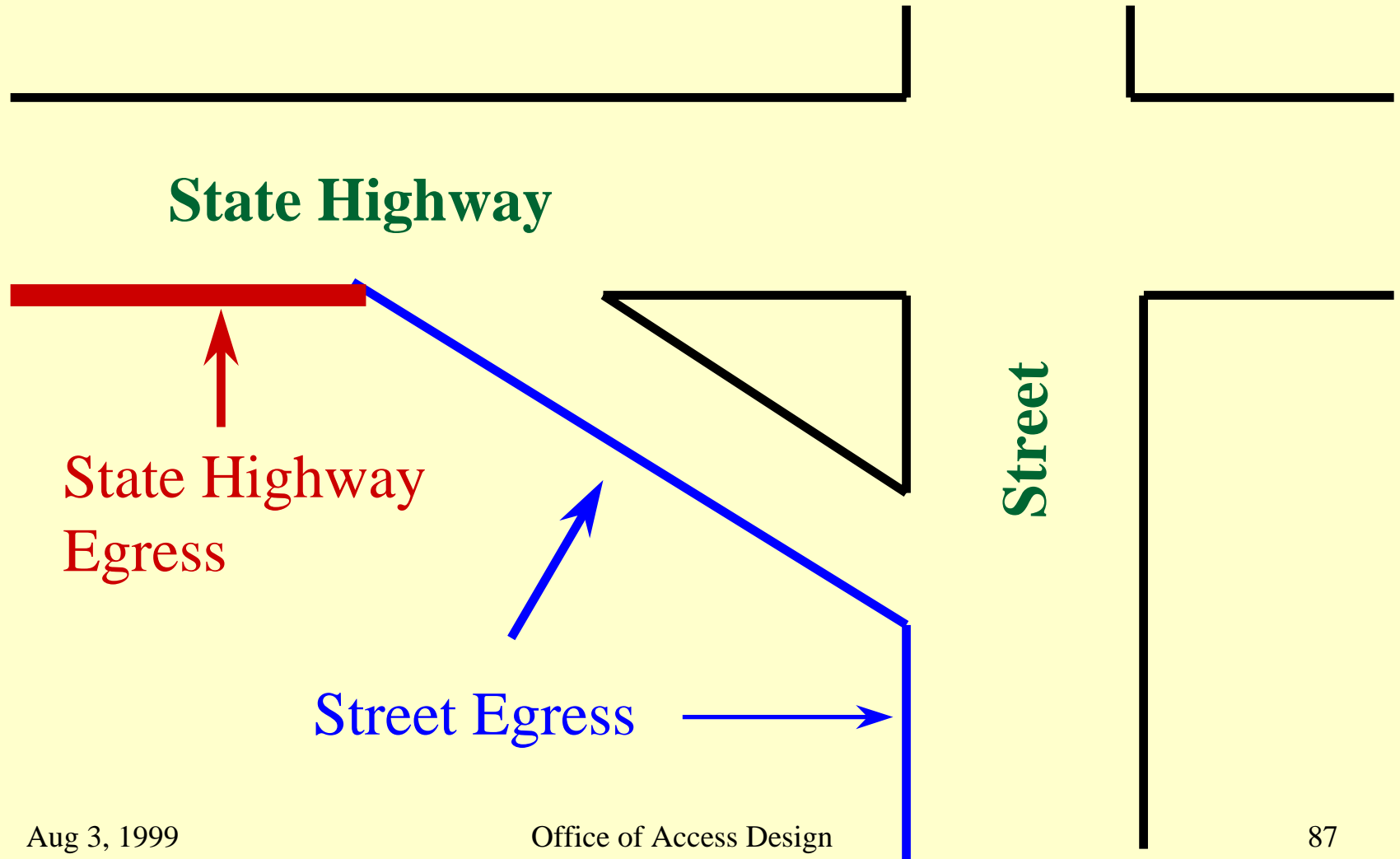
Street Intersection Egress



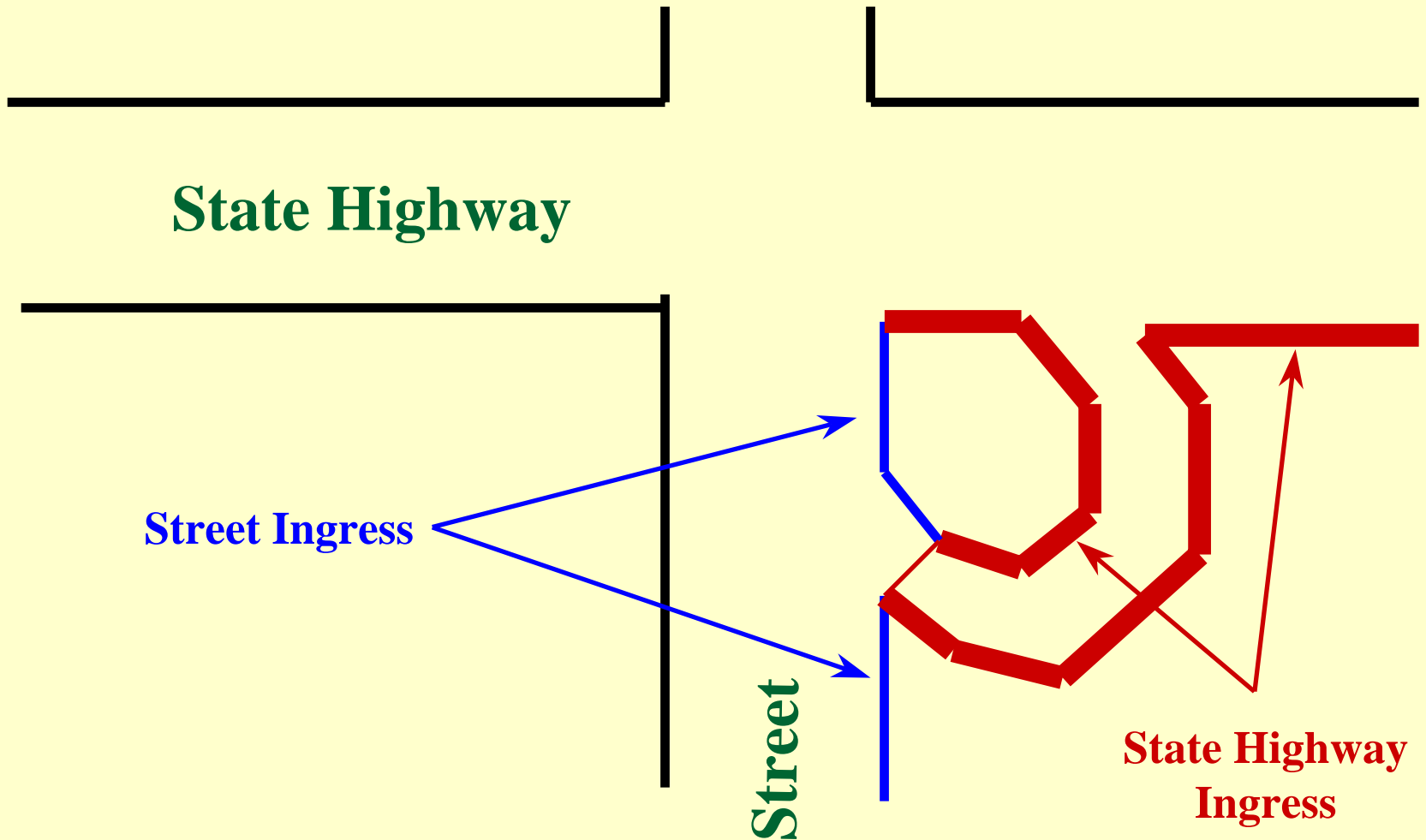
Forward Jughandle Ingress



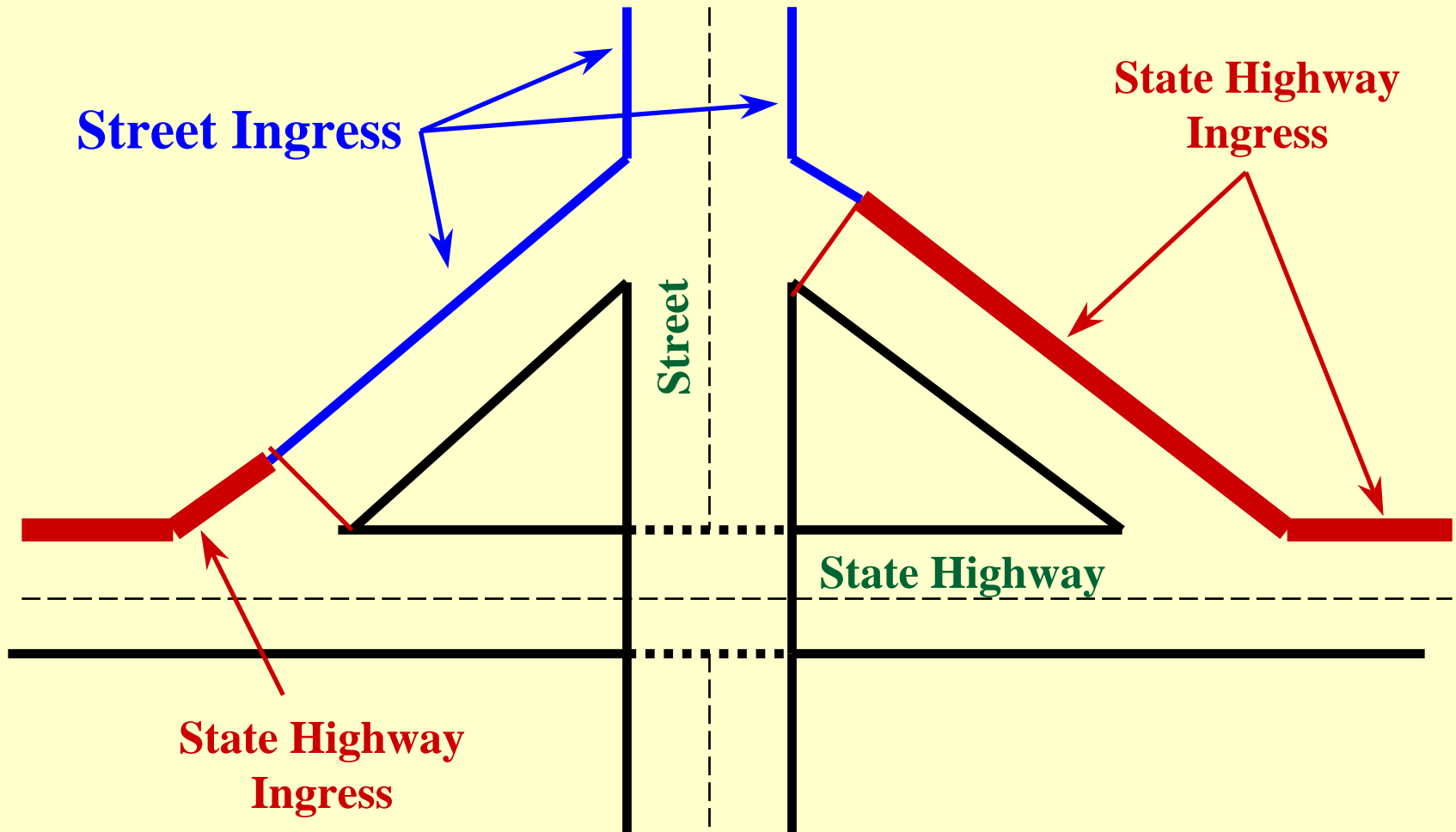
Forward Jughandle Egress



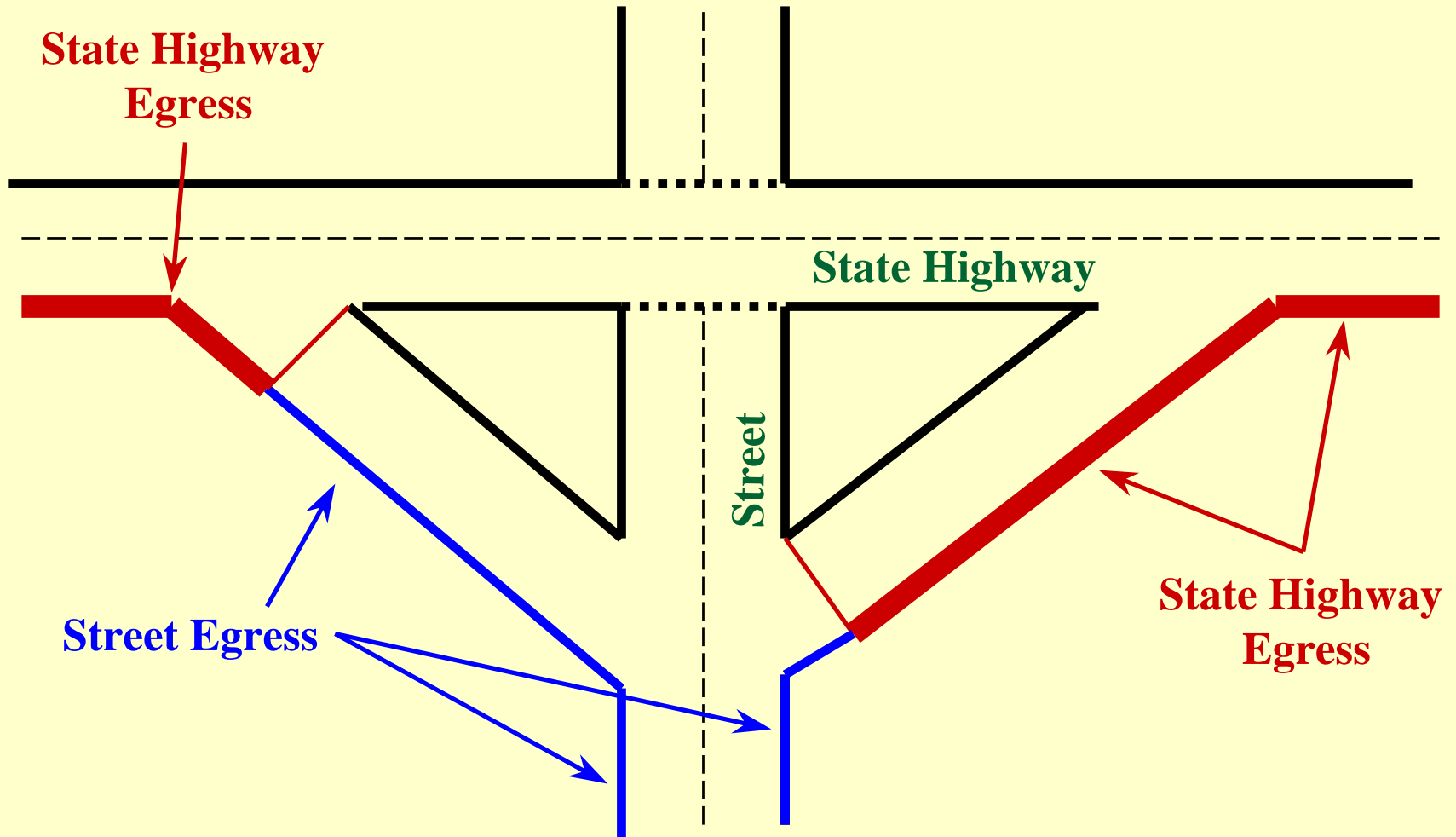
Reverse Jughandle Ingress



Interchange Ingress



Interchange Egress



Definitions of
Revocations
→ Modifications
Adjustments
Changes

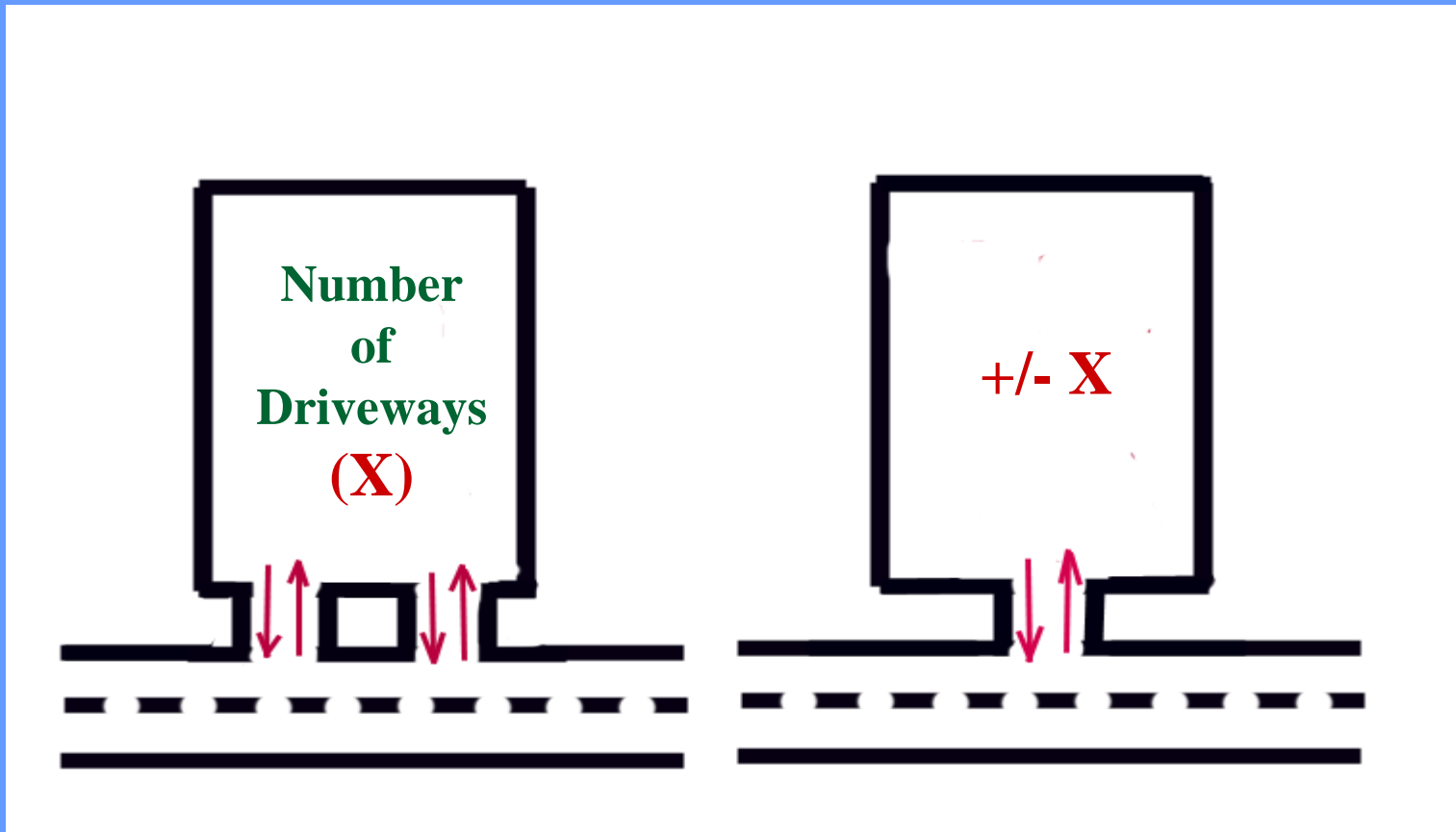
Lorinda Lasus

Modification of Access

1. Changing the NUMBER of access points
2. Changing the WIDTH of an access point by MORE than 5 feet (1.5 meters)
3. Changing the LOCATION of an access point by MORE than 10 feet (3 meters)

Modification of Access

Example 1: Changing number of driveways

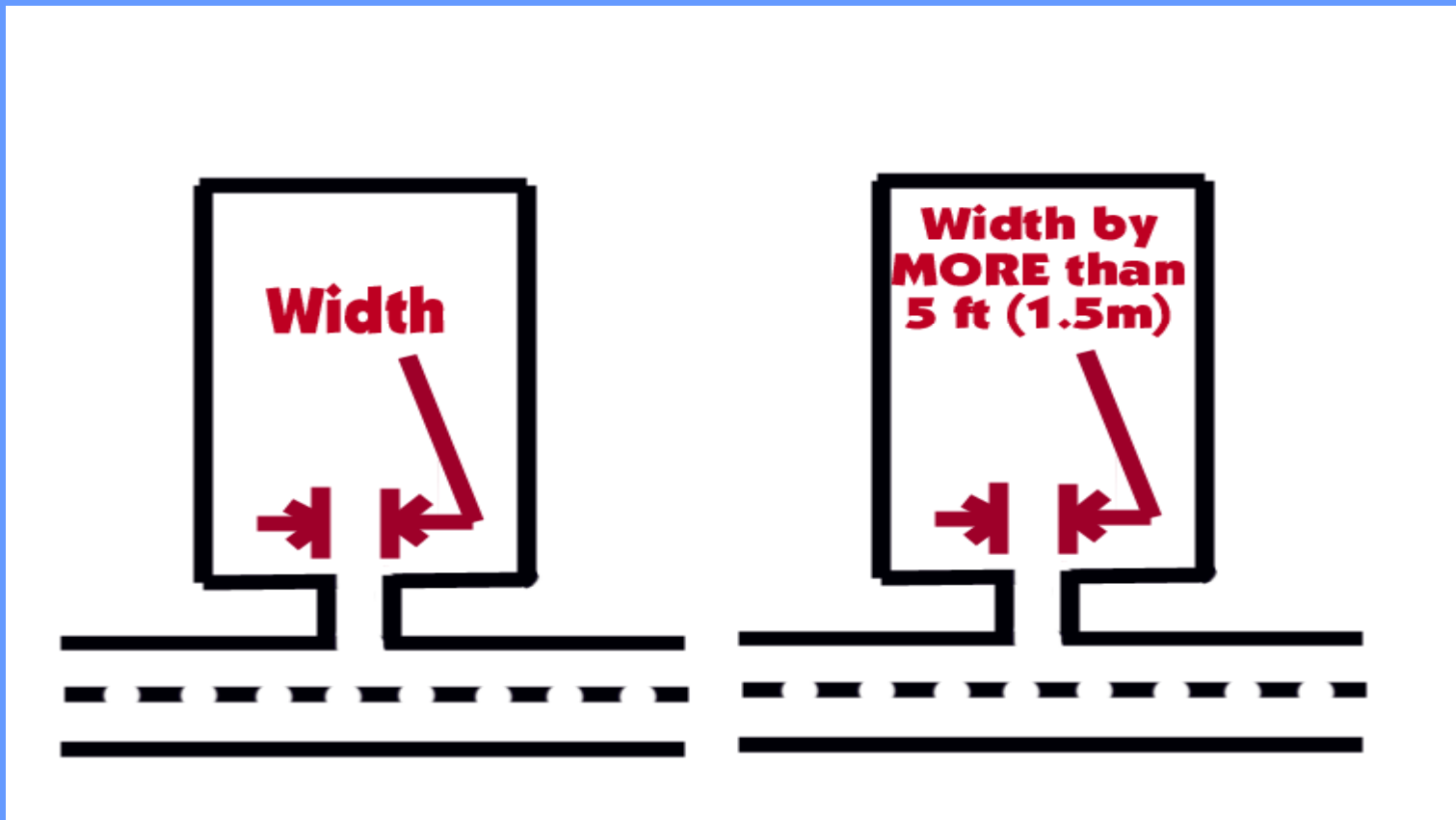


Before

After

Modification of Access

Example 2: Changing width by more than 5 feet

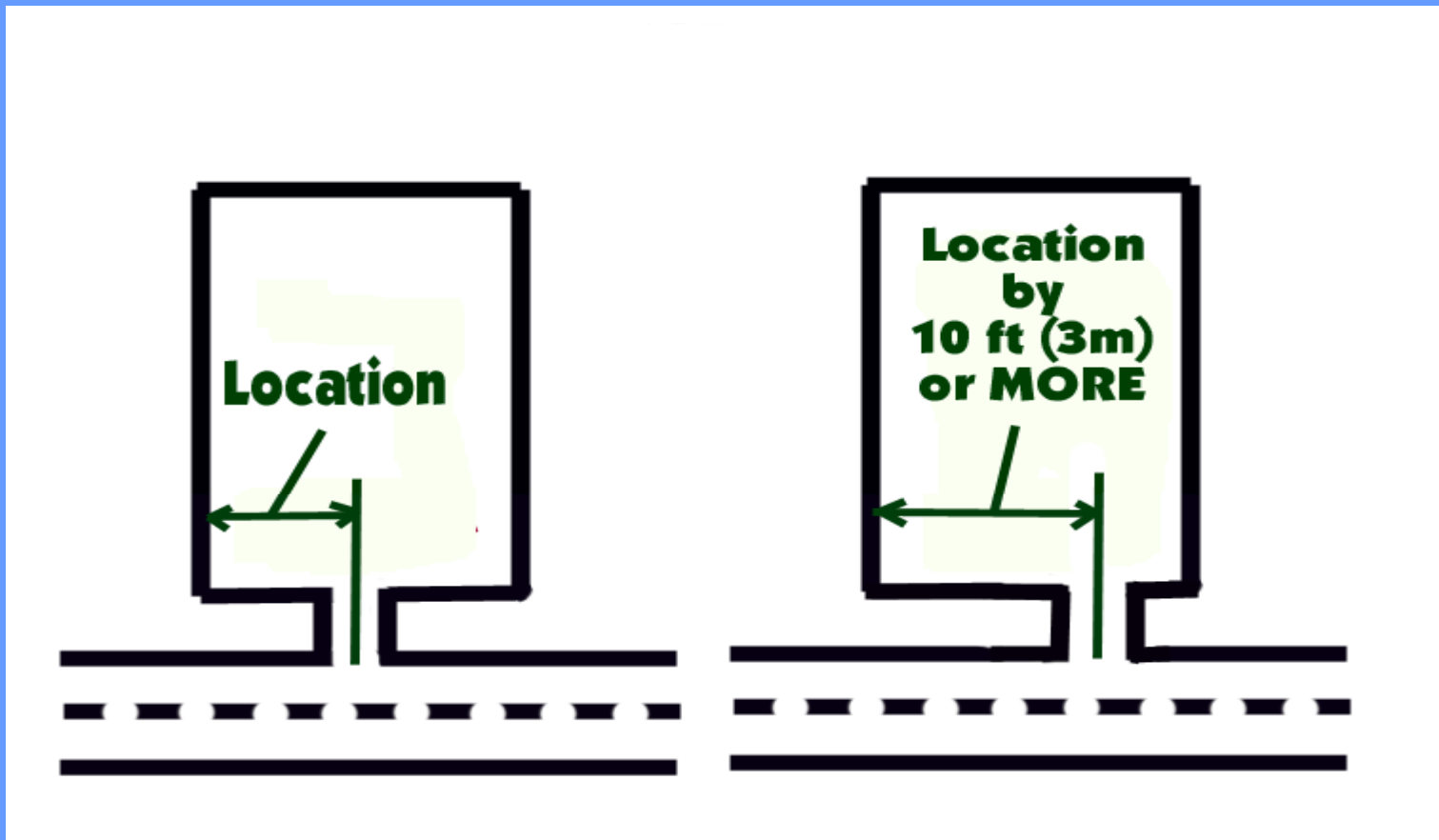


Before

After

Modification of Access

Example 3: Changing location by more than 10 feet



Before

After

Definitions of
Revocations
Modifications
→ Adjustments
Changes

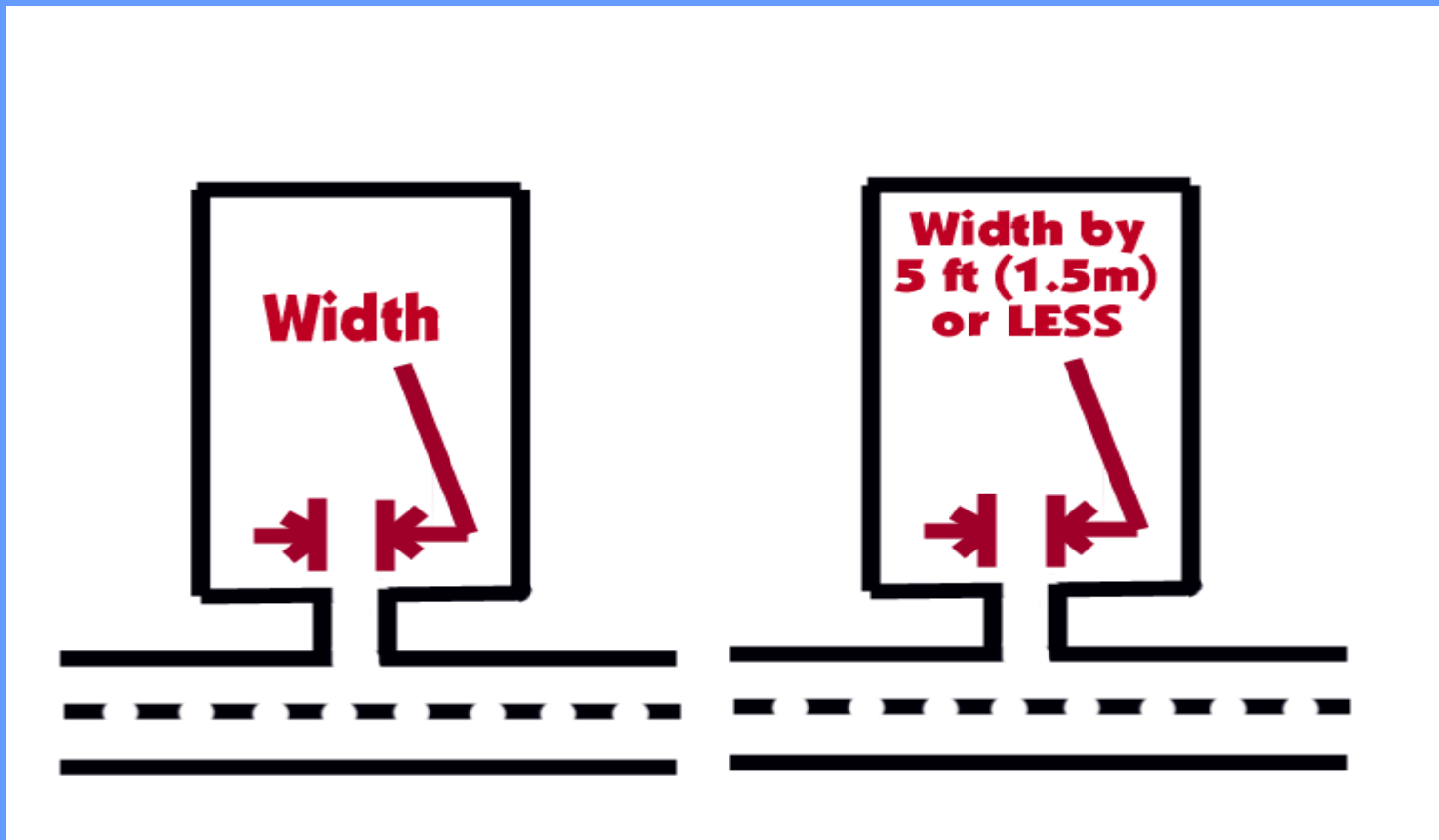
Lorinda Lasus

Adjustment of Access

1. Changing WIDTH of an access point by 5 feet (1.5 meters) or LESS
2. Changing the LOCATION of an access point by 10 feet (3 meters) or LESS
3. Moving an access point away from the centerline of the highway

Adjustment of Access

Example 1: Changing width by 5 feet or Less

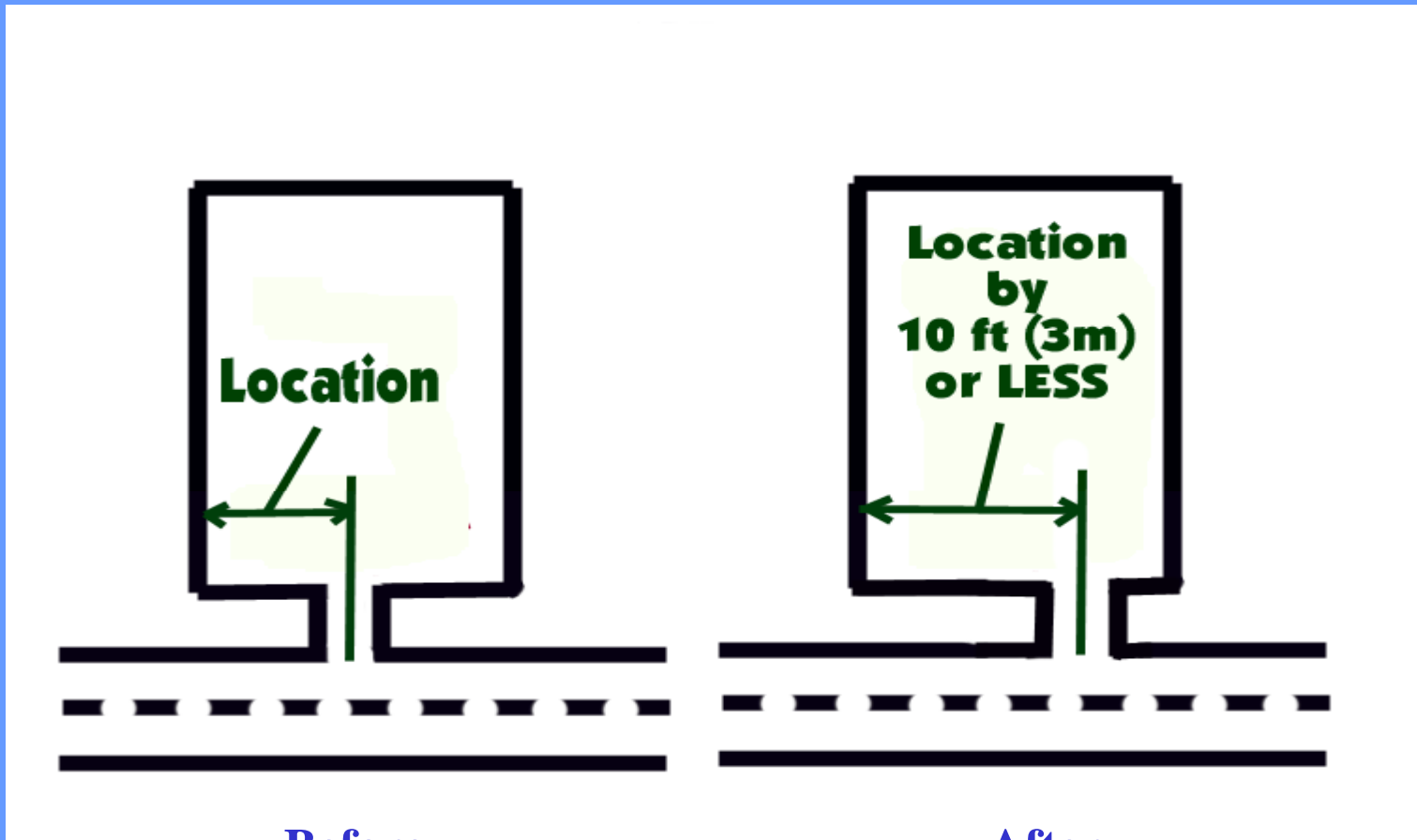


Before

After

Adjustment of Access

Example 2: Changing location by 10 feet or Less

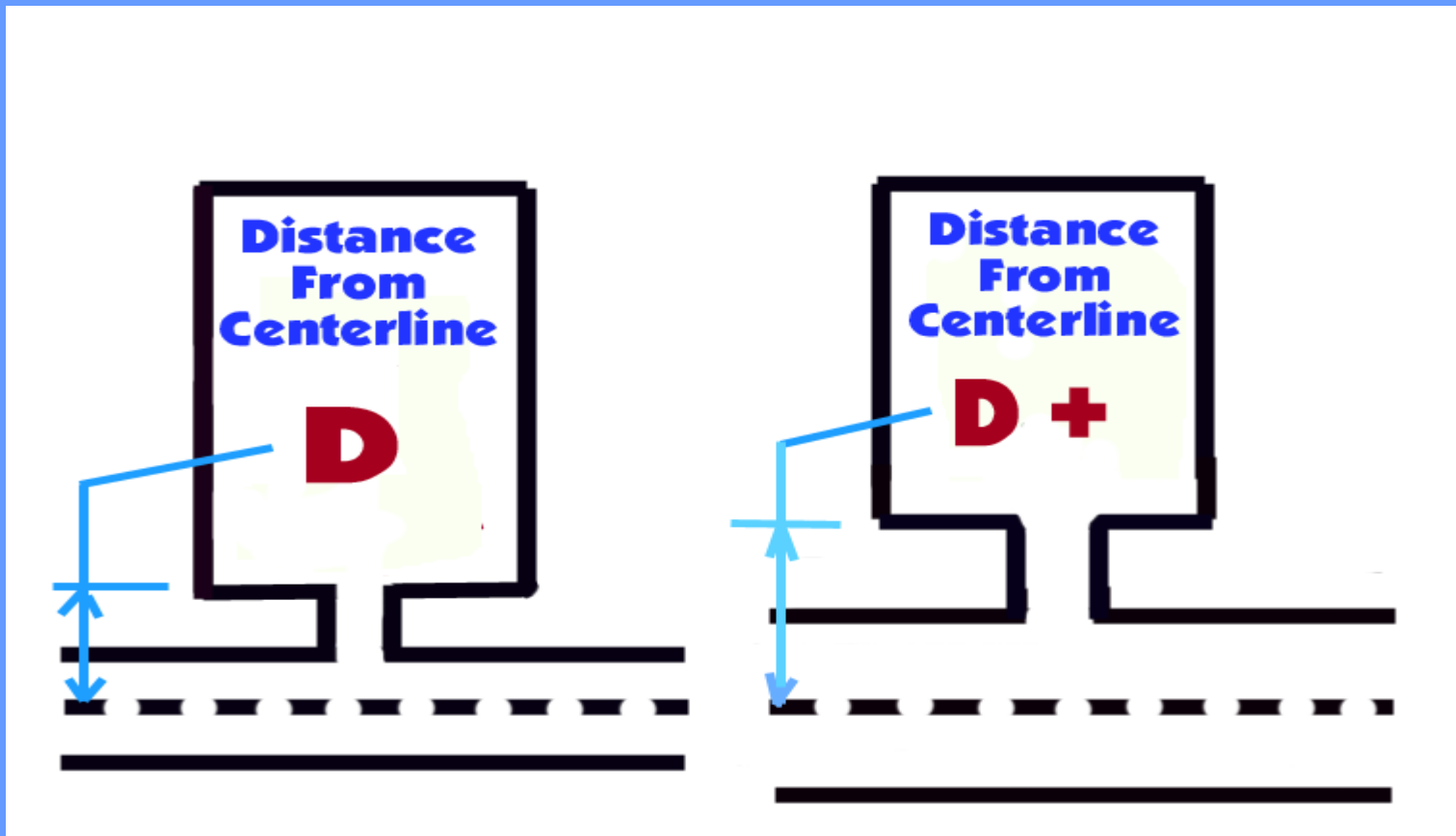


Before

After

Adjustment of Access

Example 3: Moving away from the Centerline



Before

After

Definitions of
Revocations
Modifications
Adjustments
→ Changes

Lorinda Lasus

Change of Access

- **Change of Access is the Non-State highway equivalent of a State highway Access Revocation, Modification or Adjustment**
- **Notifications are like those for Modifications or Adjustments**
- **Any appeals are administered like those for Modifications of Access**

COMMON DRIVEWAY PROBLEMS

Arthur Eisdorfer

What are the most common problems?

- **Too many existing driveways**
- **Driveways too close to intersections**
- **Owner has invaded the right of way**
- **Owner wants betterments**

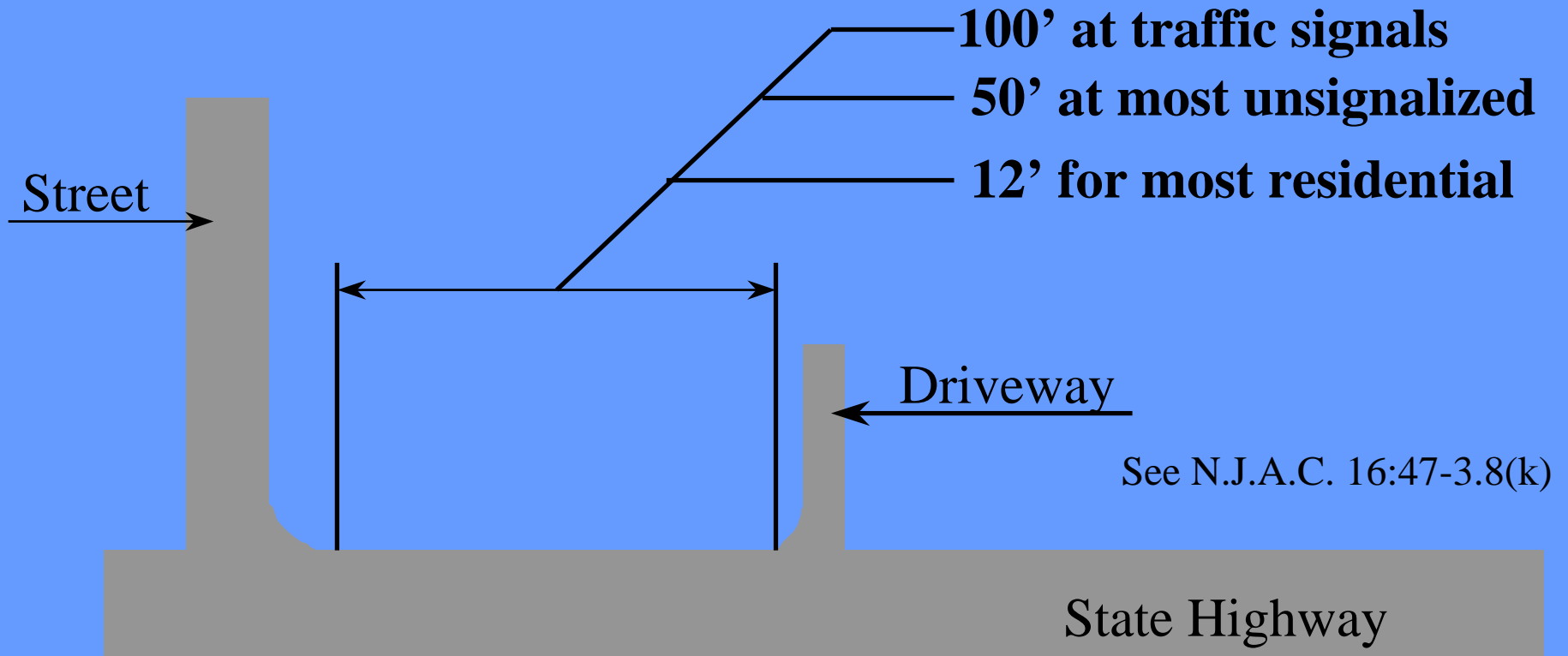
What are the most common problems?

- **Too many existing driveways**

Refer to Modification of Access

What are the most common problems?

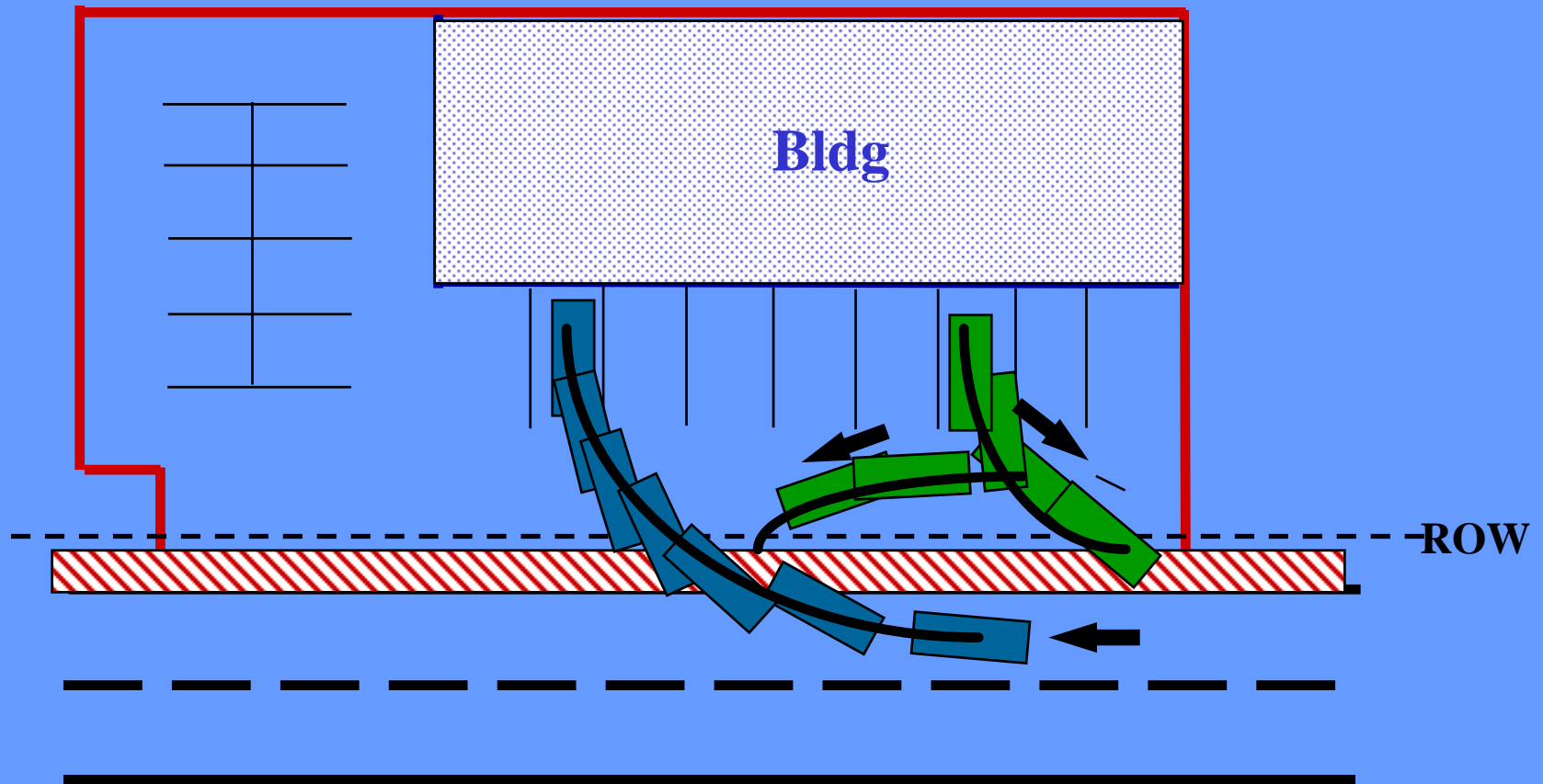
- **Driveways too close to intersections**



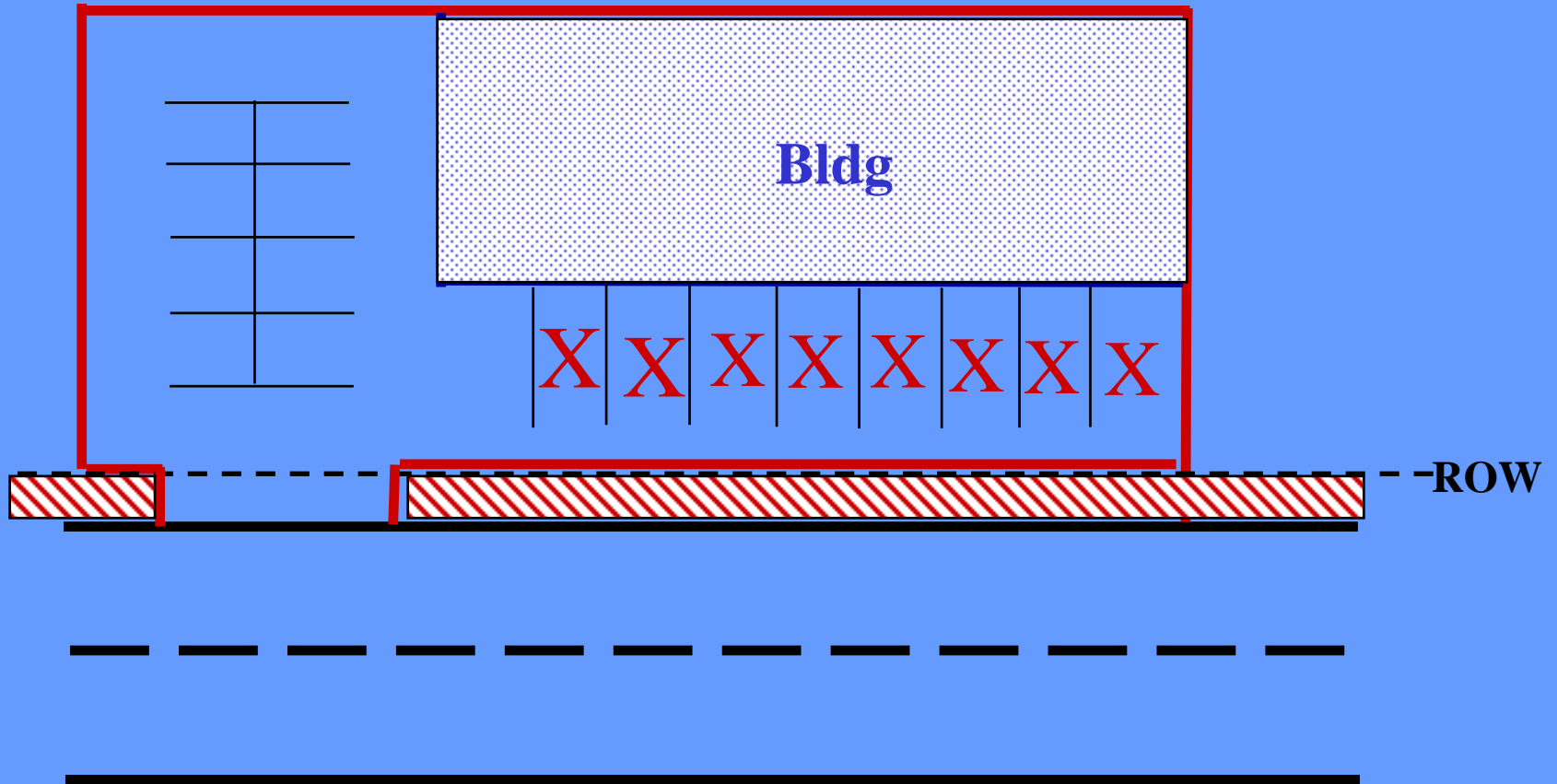
What are the most common problems?

- **Owner has invaded the right of way**

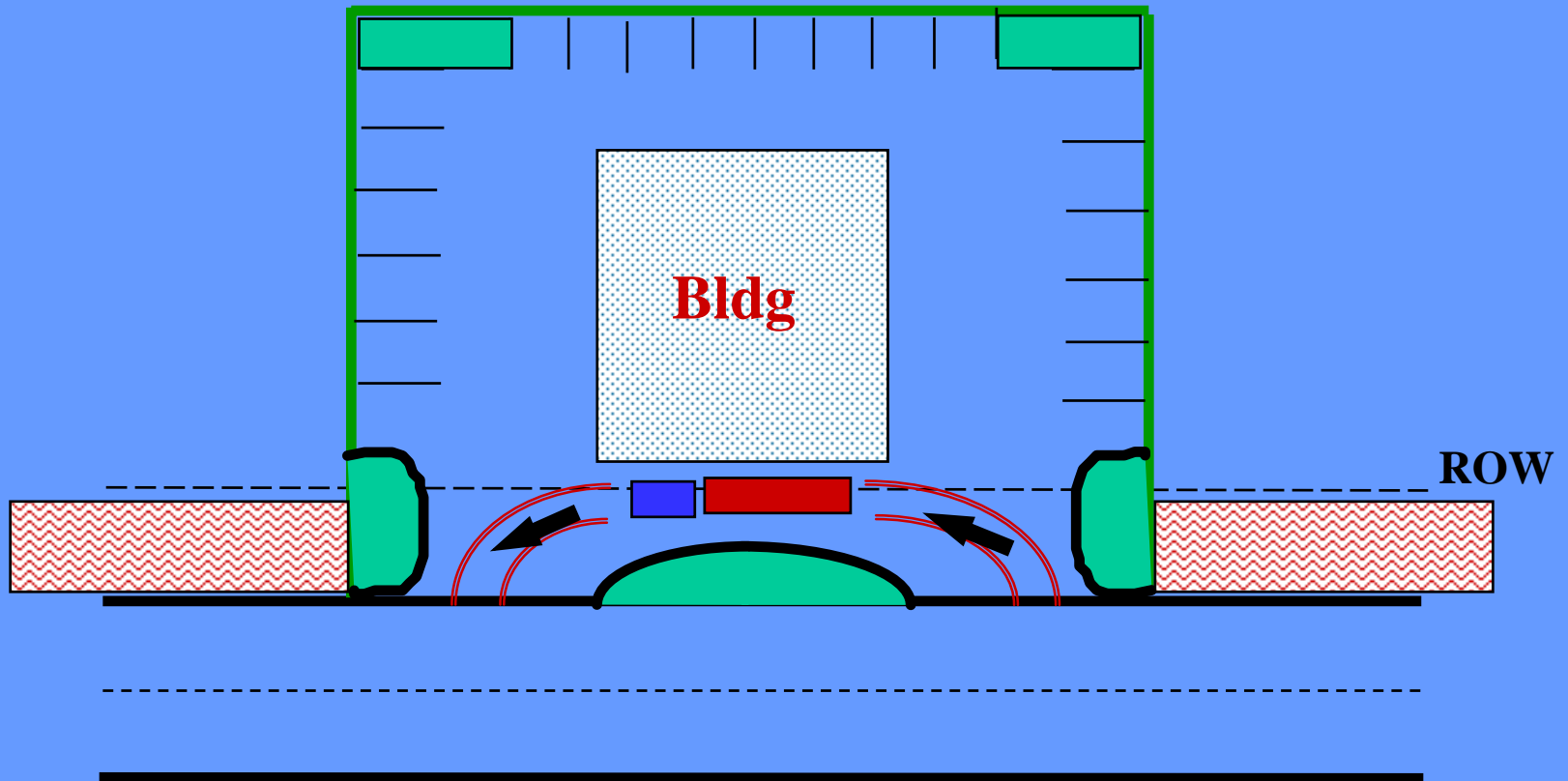
Reclaiming ROW



Reclaiming ROW

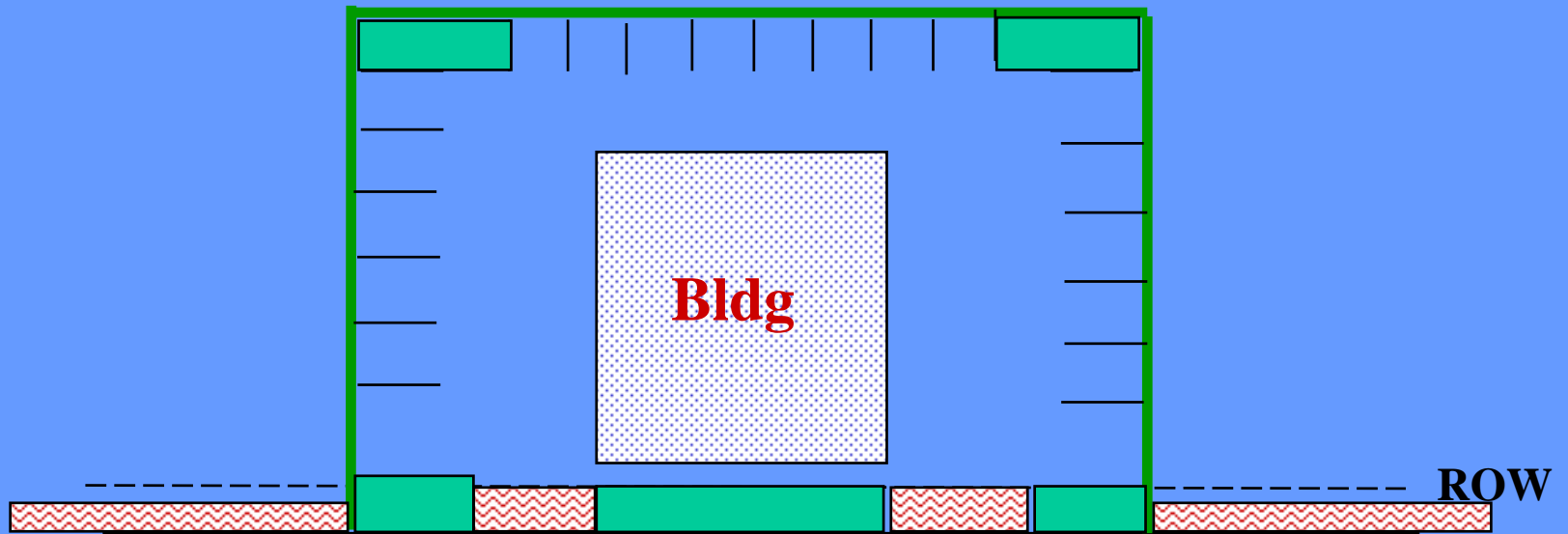


Reclaiming ROW



Before

Reclaiming ROW



After

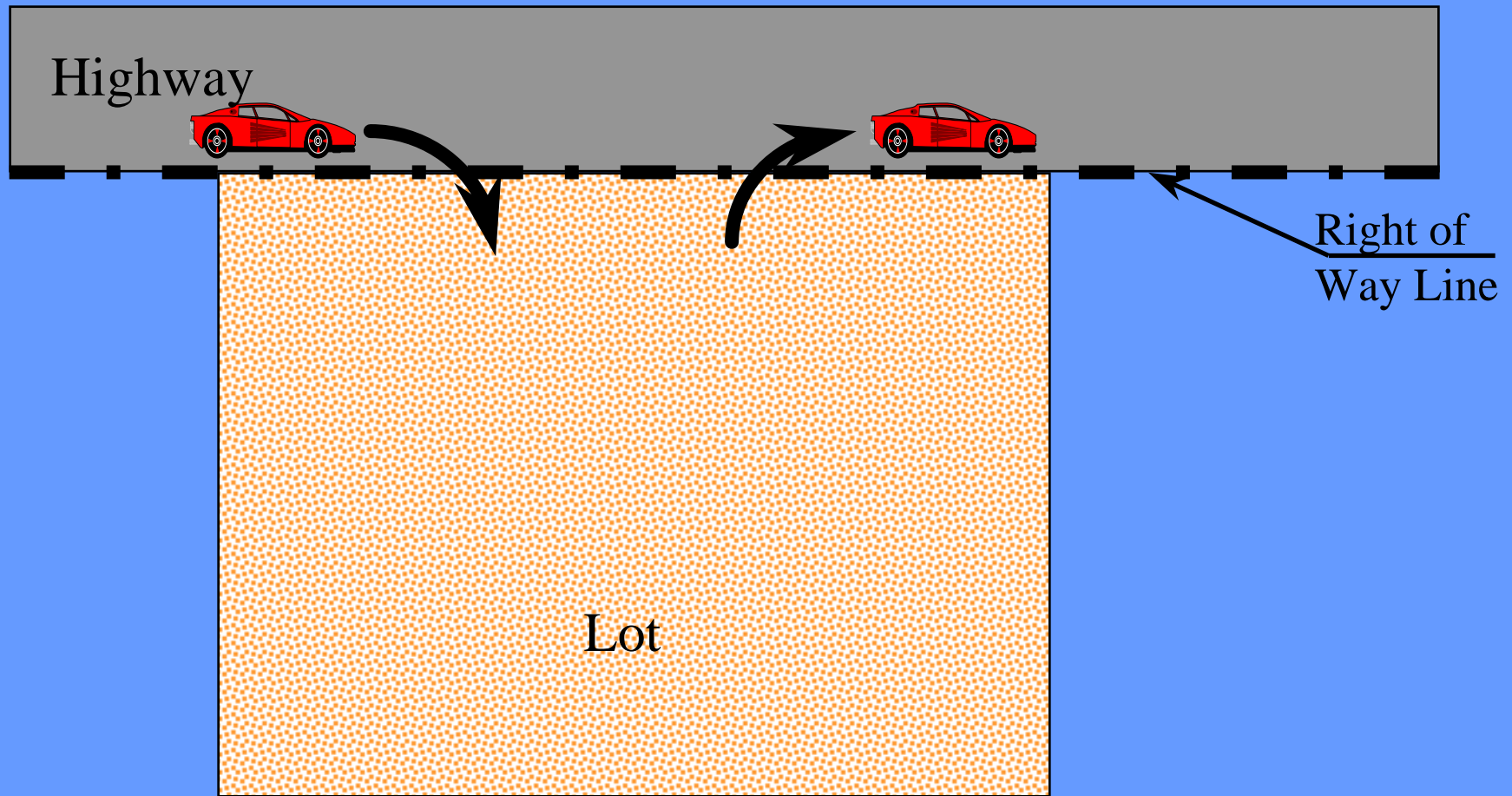
What are the most common problems?

- **Owner wants betterments**
 - One driveway before - Two driveways after
 - Ingress only before - Ingress and egress after

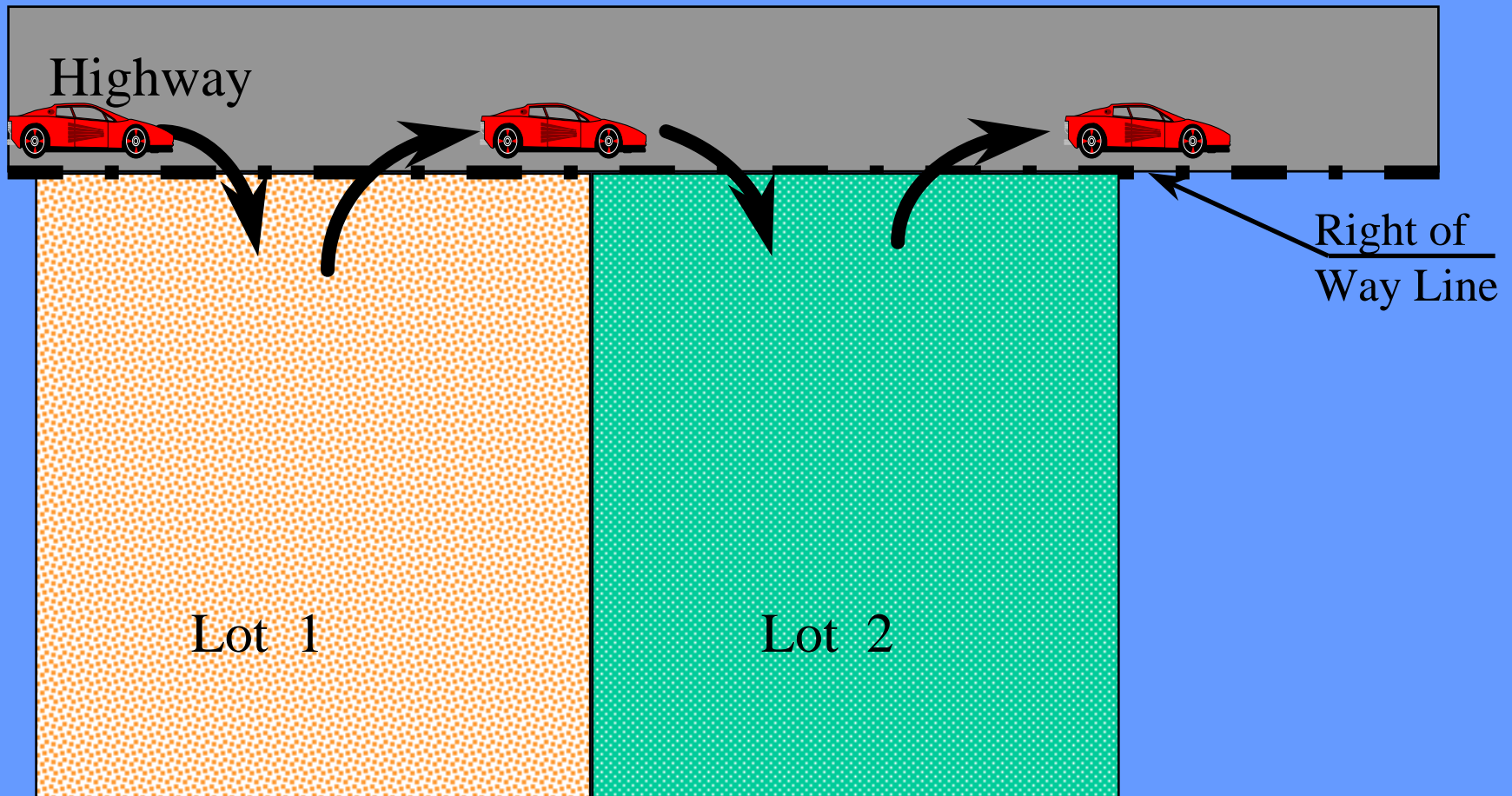
Access - Dependent Parcels

(Lots that share access)

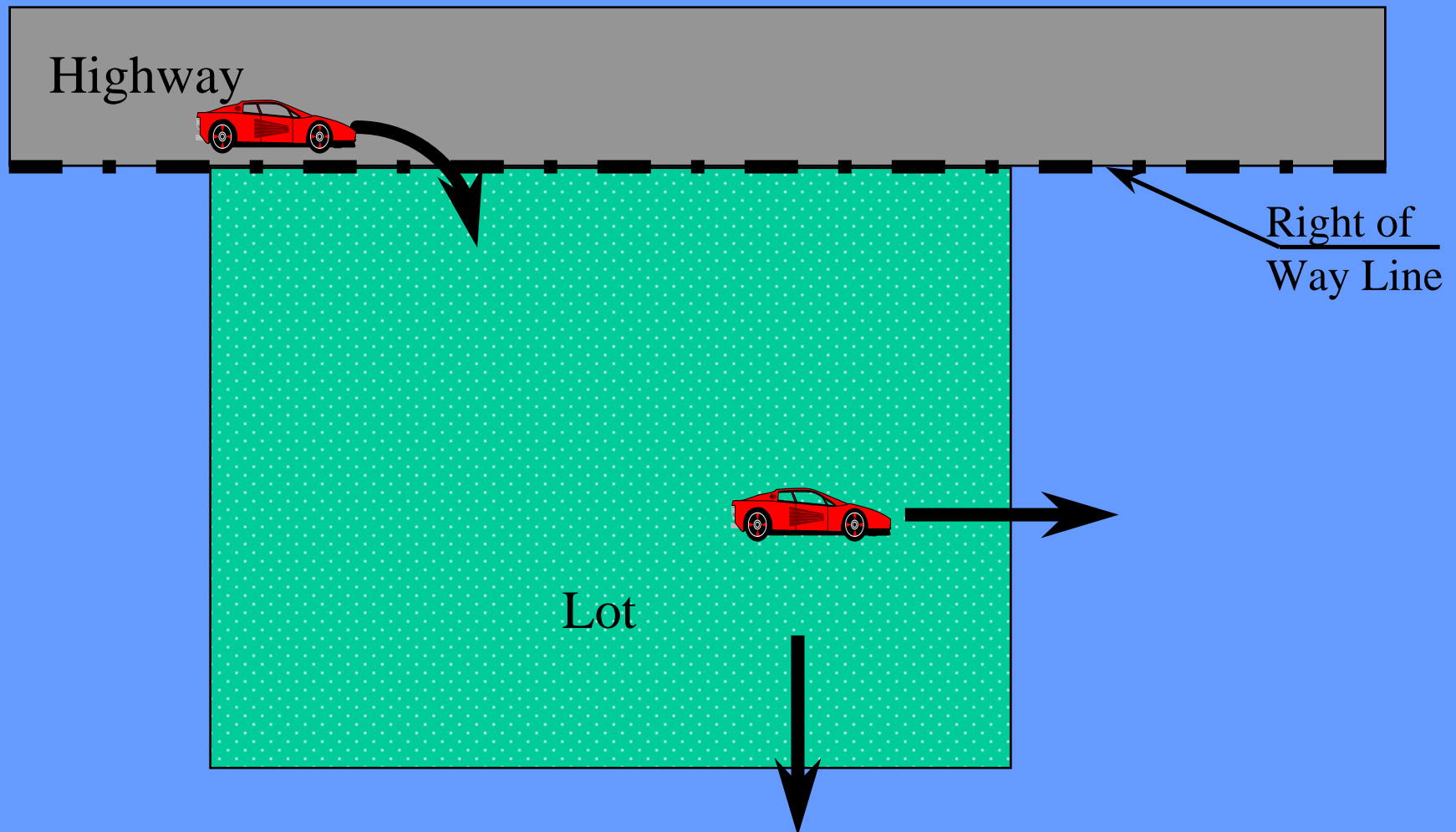
Access Independent Lot



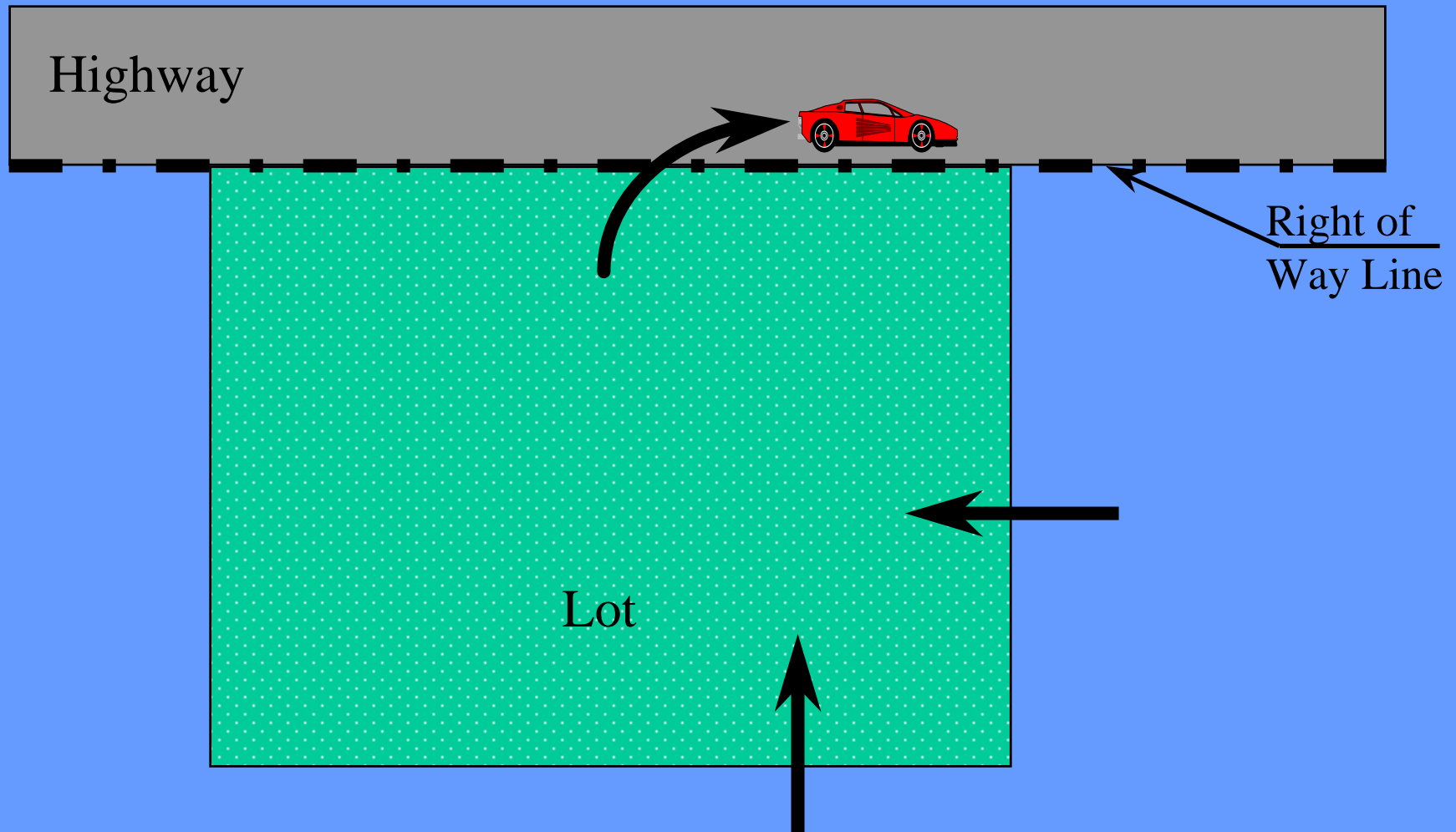
2 Access Independent Lots



Egress Dependent Lot

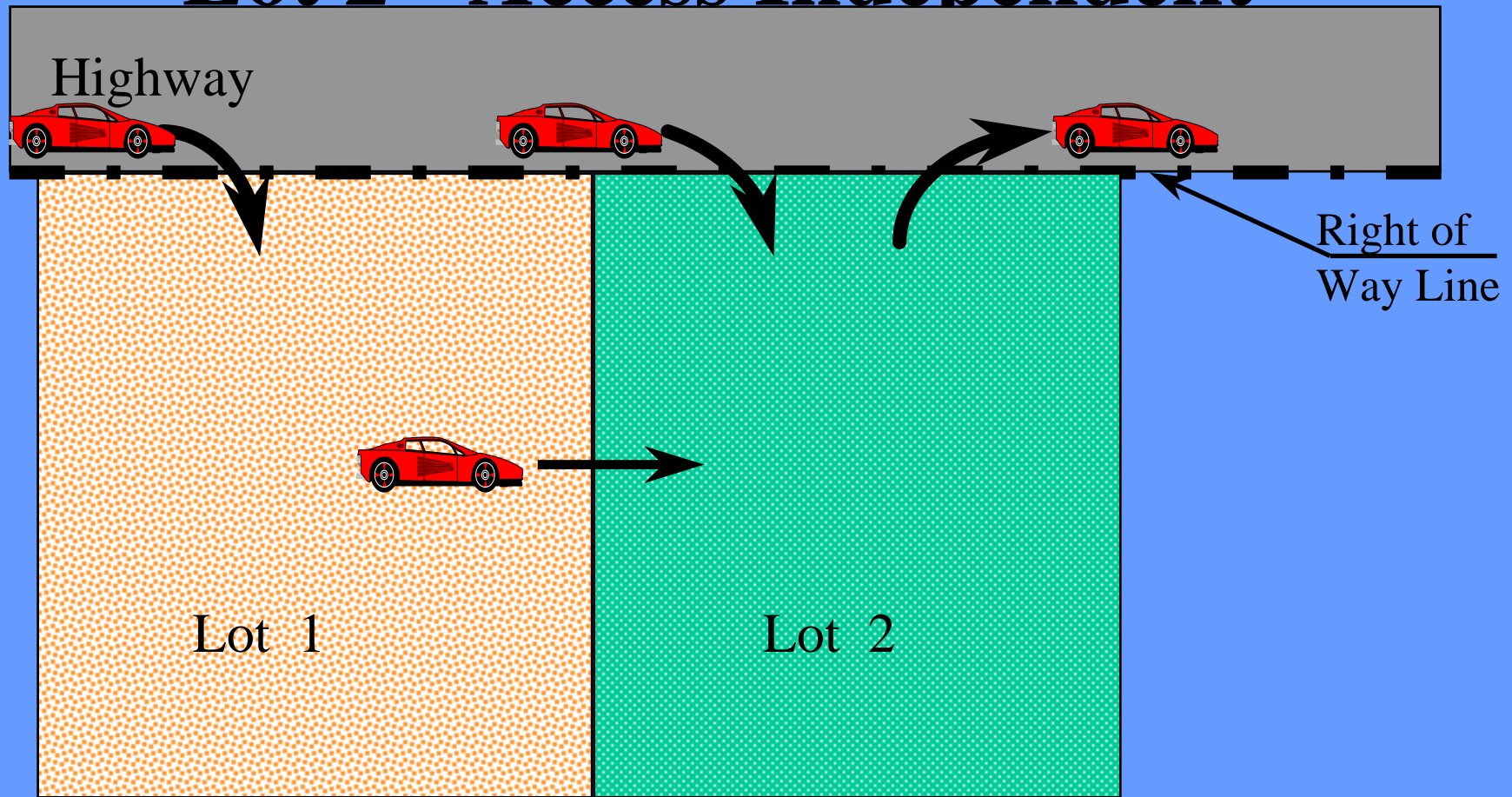


Ingress Dependent Lot



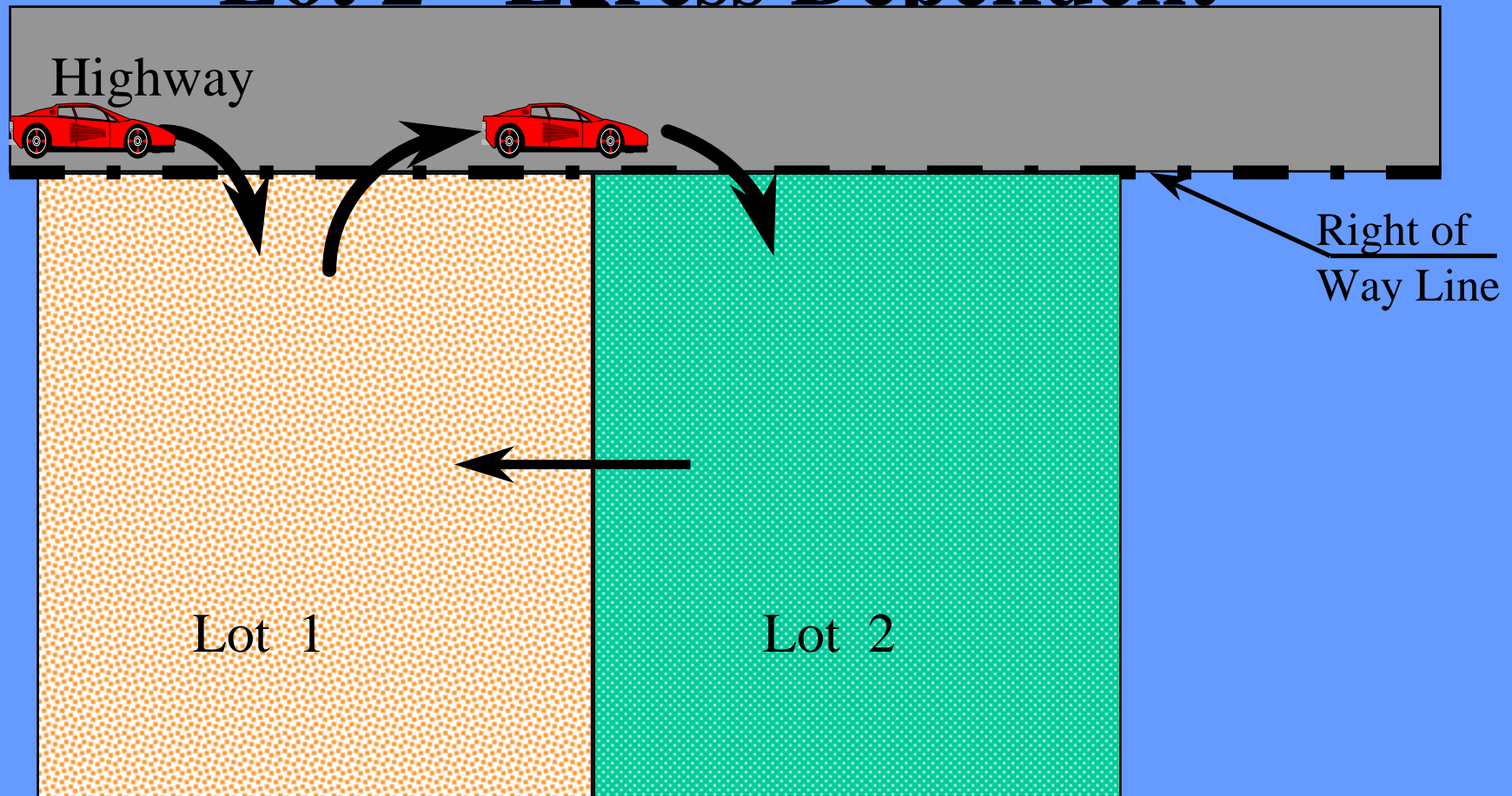
Lot 1 - Egress Dependent

Lot 2 - Access Independent



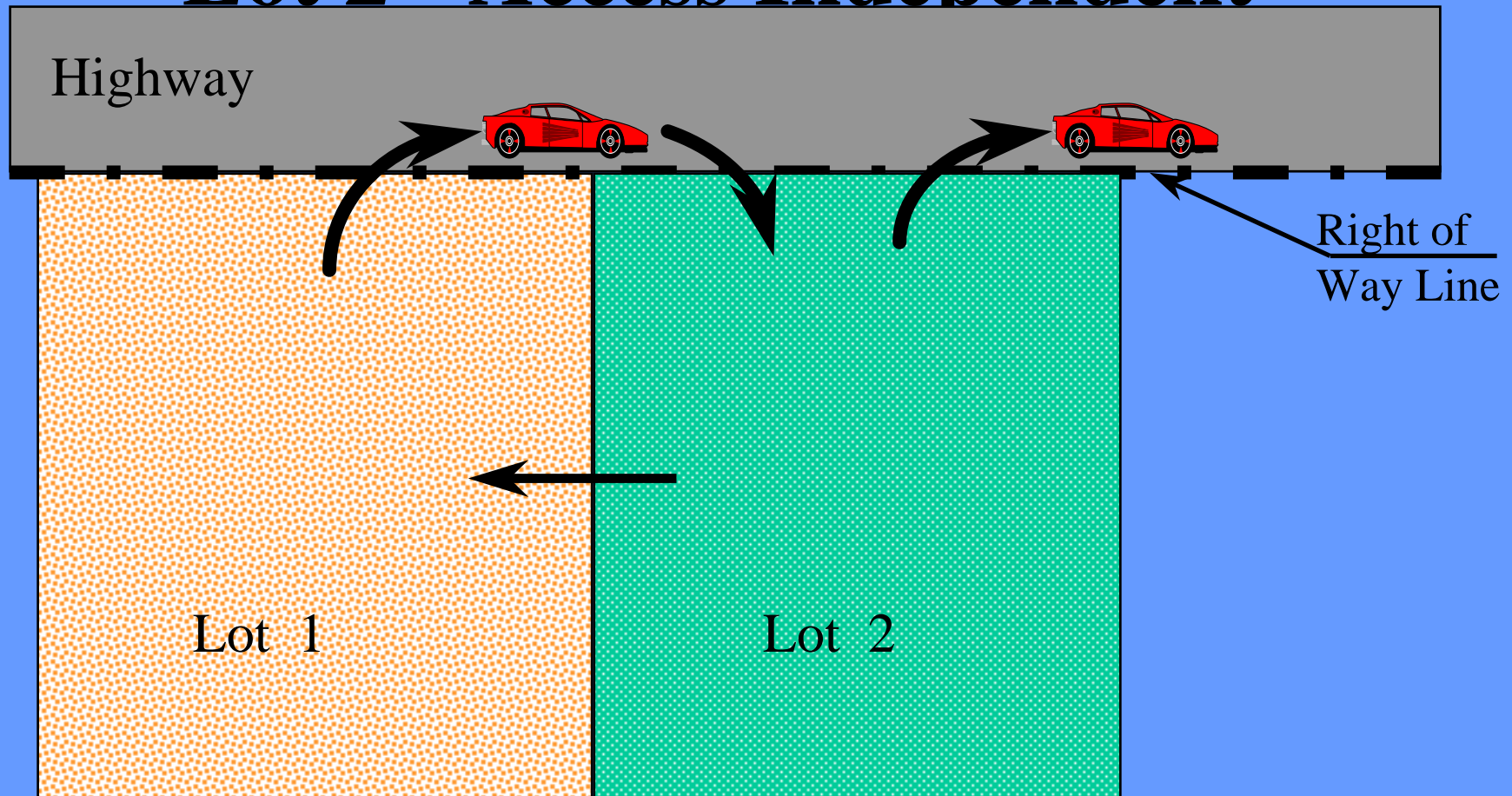
Lot 1 - Access Independent

Lot 2 - Egress Dependent



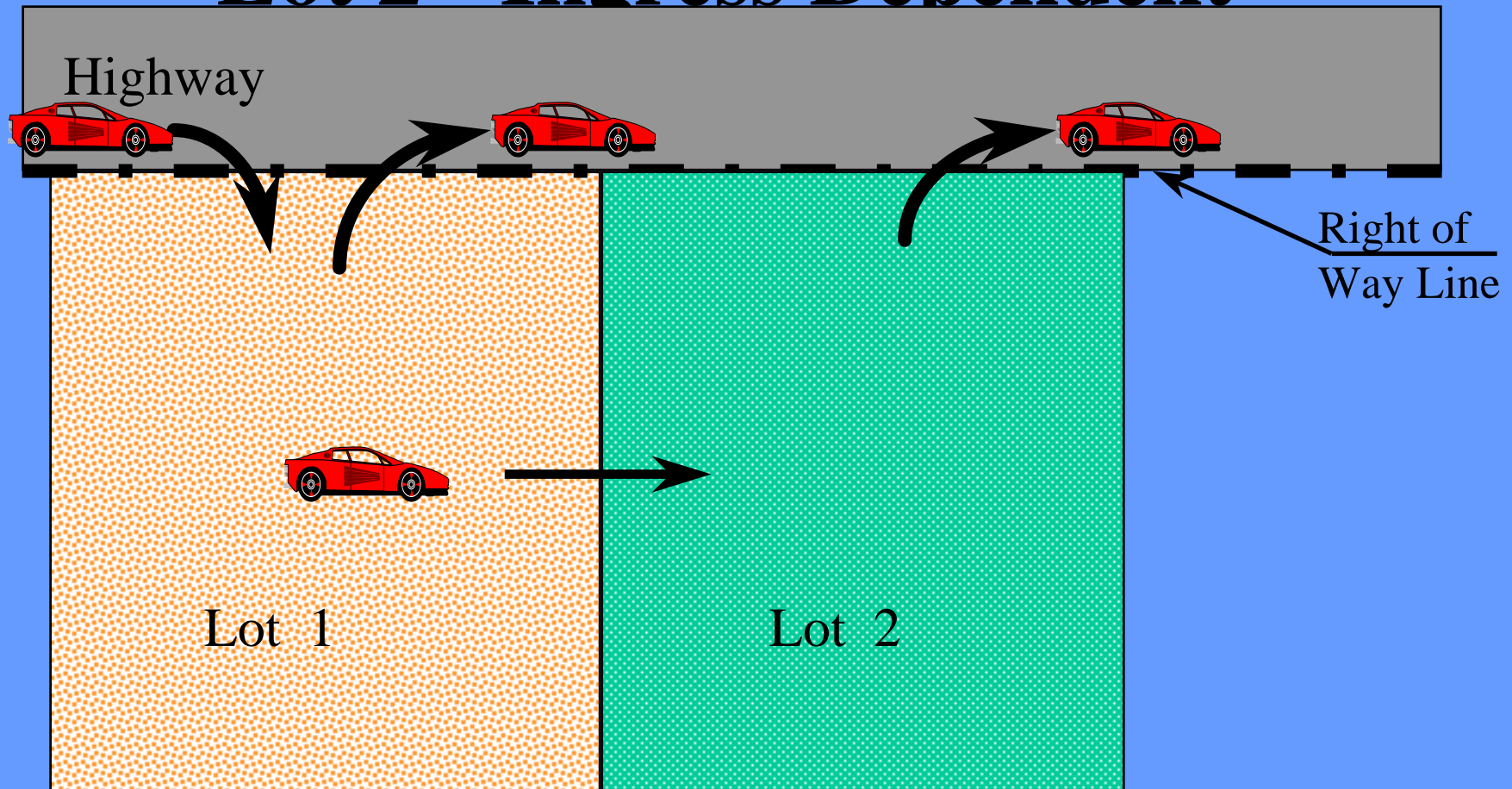
Lot 1 - Ingress Dependent

Lot 2 - Access Independent



Lot 1 - Access Independent

Lot 2 - Ingress Dependent



Access Cutouts

John Jones

Preparation of Access Cutouts

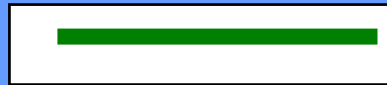
Following the establishment of the project's geometry the designer will prepare detailed access cutouts that will be used for property owner notification, based on:

- ROW Lines (Existing & Proposed)
- Property Lines (Existing & Proposed)
- Slope Lines (Existing & Proposed)
- Denial of Access Lines (Existing & Proposed)
- Traffic Striping (Existing & Proposed)
- Driveways(Existing & Proposed with limits of paving)
- Drainage & Sign Structures (Existing & Proposed)
- Guiderail (Existing & Proposed)
- Block #, Lot #, Zoning & Existing Land Use
- Existing Topography
- Existing On-Site Parking, circulation & Loading Areas

Cutout Content Requirements

- Size (sufficient to show entire property)
- Owner's Name & Address

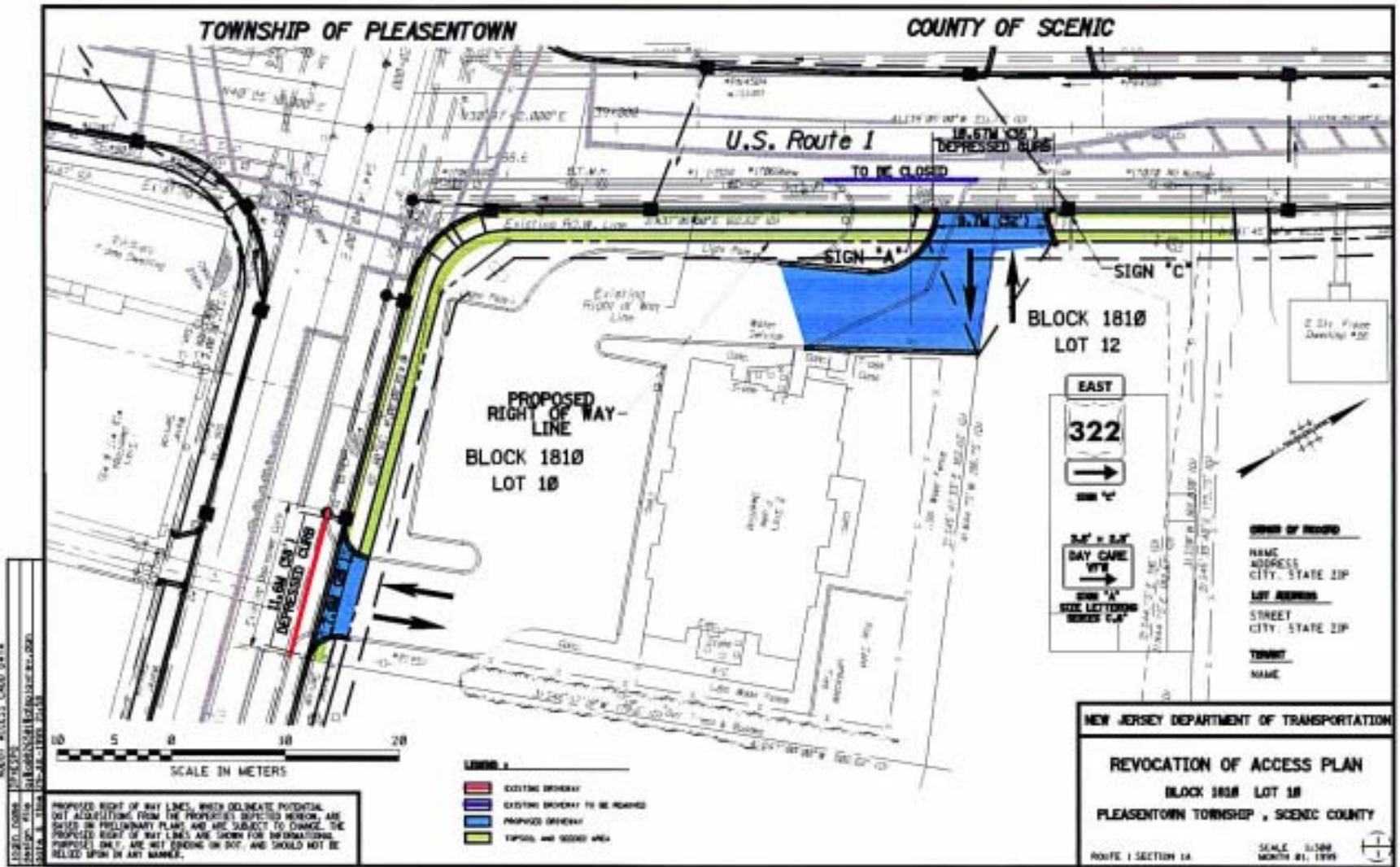
• Legend:



- Scale of Plan
- Title Block

- Proposed ROW Line Block
- No Abbreviations
- Alternative access route & signing plan (revs only)
- Existing Driveway (**RED**)
- Existing Driveway To Be Removed (**Purple**)
- Proposed Driveway (**Blue**)
- Topsoil and Seeded Area (**Green**)
- Date of Plan (mm/dd/yy)
- 12 Copies (minimum)

Sample Cutout



Preparation of Access Cutouts

- Consultant
 - Prepare markups on the base plan
 - Submit markups to OAD for review
 - Prepare individual cutouts (Revocations, Modifications, Adjustments, Changes showing entire property)
 - Revs require a plan showing alternative access route and signing plan
- Office of Access Design
 - Review submitted markups
 - Arrange meeting with Project Manager and Consultant to discuss alternatives for lots with unique or difficult access
 - Review submitted cutouts for conformity with Access Code and content requirements

Sufficiency of Access

Arthur Eisdorfer

Design Vehicles

- **Passenger cars**
- **Single unit trucks (UPS, Fedex, etc.)**
- **Fuel delivery vehicles - WB 15 (Gas Stations)**
- **Tractor trailers**
 - **WB 15**
 - **WB 19**

Things to Consider

- **Identify the vehicles that use the site**
- **Establish the *before* travel paths**
 - **Getting to and from the site**
 - **Circulating on the site**
- **Establish the *after* travel paths**
 - **Analyze getting to and from the site**
 - **Analyze circulating on the site**

Sufficiency of Driveway Design

Date of road traffic volumes = Date of initial access notice

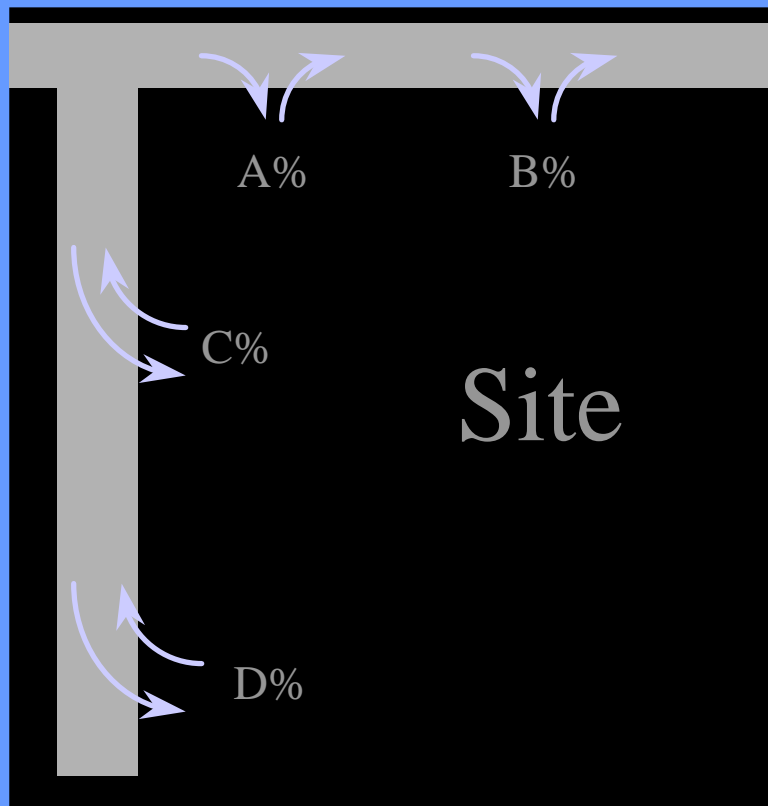
Site trip generation = ITE rates for size and type of land use

Site trip distribution = Based on traffic counts or assumptions

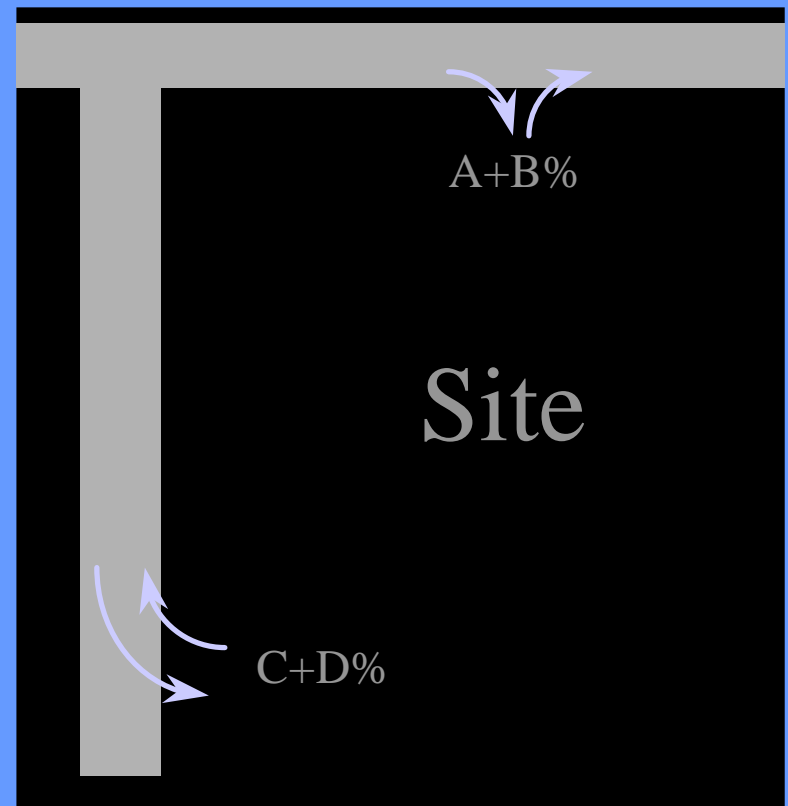
Hours to analyze = PM and Saturday for shopping, AM and PM for most other land uses

Driveway LOS standard = A-E >> 45 seconds Urban, 30 seconds Rural

F >> no worse than no-build



Before



After

Sufficiency of Design Traffic Engineering Issues (Revocations)

- **Ability of alternative access roadways to handle traffic**
- **Ability of alternative access driveways to handle traffic**

Sufficiency of Design

Analysis Before Submitting Revocation Plan

- Project traffic conditions to date of revocation notice
- Traffic for existing roads
 - DOT may have counts
 - Designer may have counts
- Site traffic
 - Use ITE trip generation rates; or
 - Use trip generation from Appendix E1

Sufficiency of Design

Analysis Before Submitting Revocation Plan

- Traffic counts may be needed to establish distribution for sites with multiple driveways
- Use Highway Capacity Manual analyses for
 - Signalized and unsignalized intersections
 - Merges and diverges, etc.
- Present results in tables

QUESTIONS
&
ANSWERS