

Indiana Statewide Access Management Implementation

Training Sessions:

June 15, 2009 – Greenfield

July 7, 2009 – Vincennes

July 8, 2009 – Fort Wayne



Study Team

- INDOT: Steve Smith & Bill Flora
- Implementation Advisory Group
- Consultant Team:
 - AECOM (Urbitran)
 - Bernardin Lochmueller
 - Special Advisors: Bud Koepke and Herb Levinson
 - Engaging Solutions



Training Areas

- TECHNICAL PRESENTATION (9:30 am)
 - Overview of access management
 - Legal authority
 - How can you institute access management?
 - **Break**
 - FHWA Video: "Safe Access is Good For Business"
 - Elements of INDOT's access management program
 - Resources available
- **LUNCH (12:00 to 1:00 pm)**
- WORKSHOP (1:00 pm)
- WRAP-UP (2:50 pm)



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INDOT Mission Statement:

INDOT will build, maintain and operate a superior transportation system enhancing safety, mobility and economic growth.



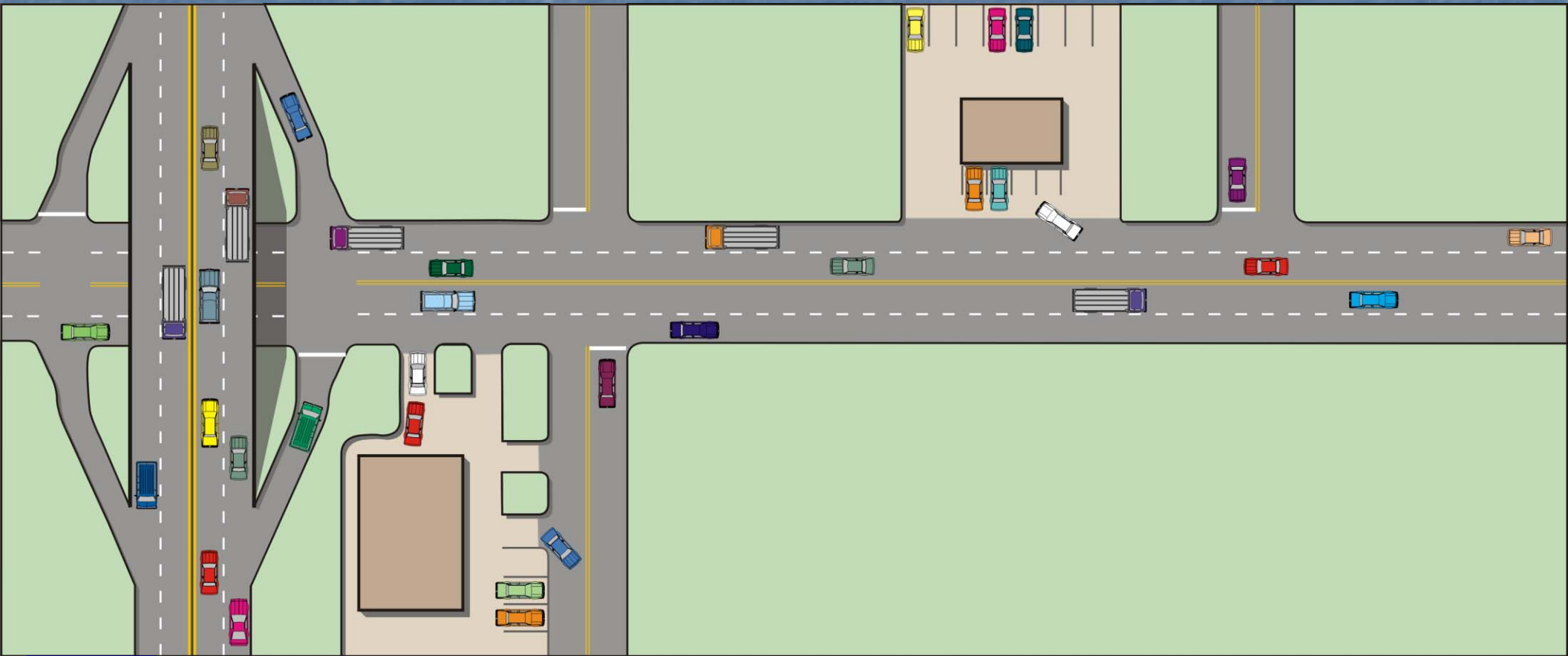
Overview of Highway Access Management

- What is access management?
- What are the benefits?
- What are the principles of access management?



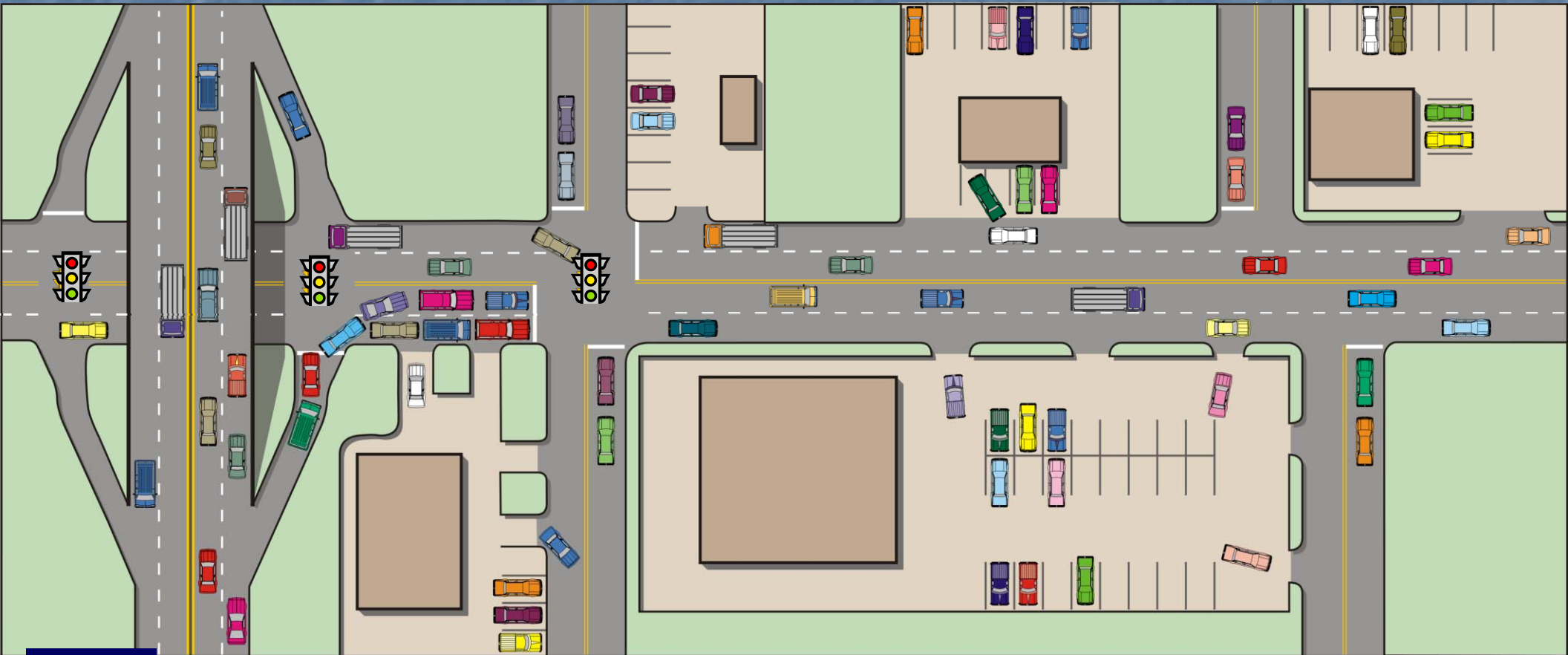
What happens if you don't manage access?

...in the beginning...



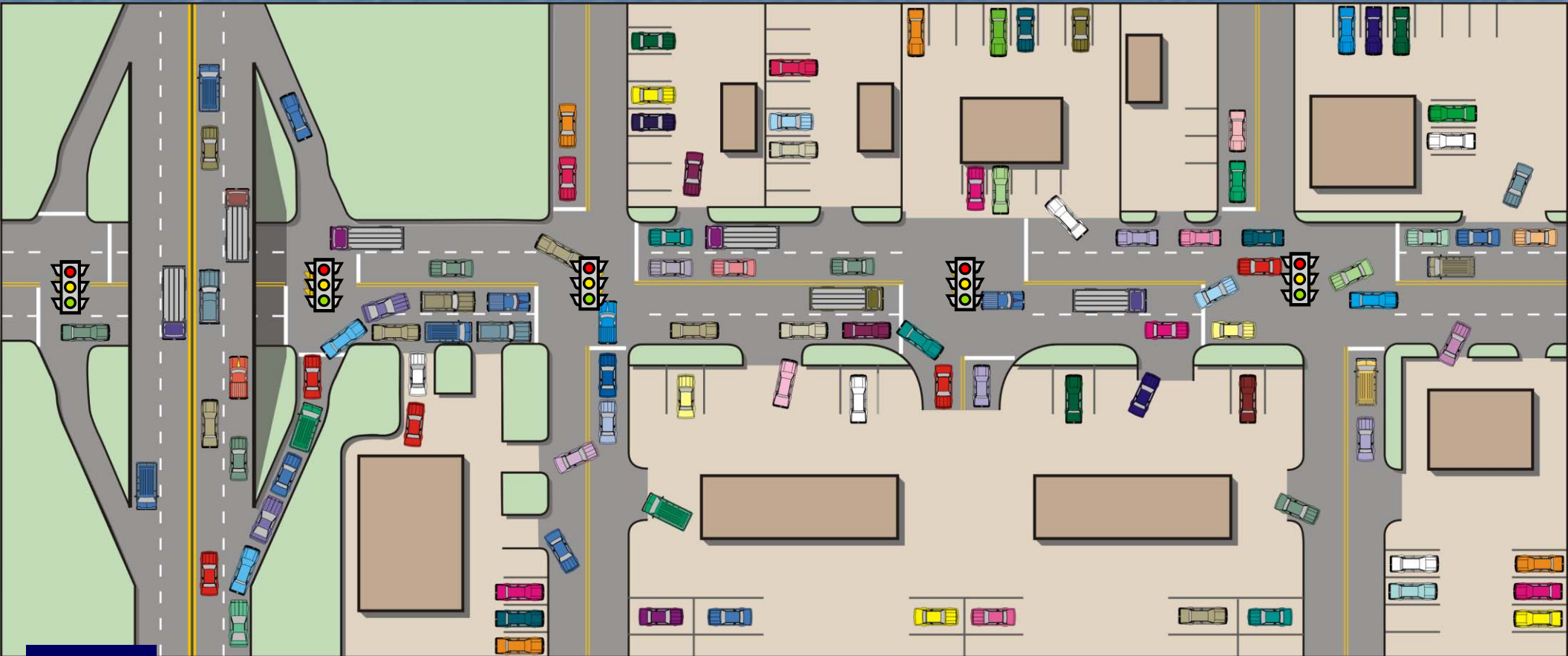
What happens if you don't manage access?

...as time progresses...



What happens if you don't manage access?

...the result...



Need for Local Coordination



Graphic prepared by: John Warbach, Planning and Zoning Center, Inc



BUSINESS GROWTH AND ROADWAY IMPROVEMENT CYCLE



Source: Michigan DOT.

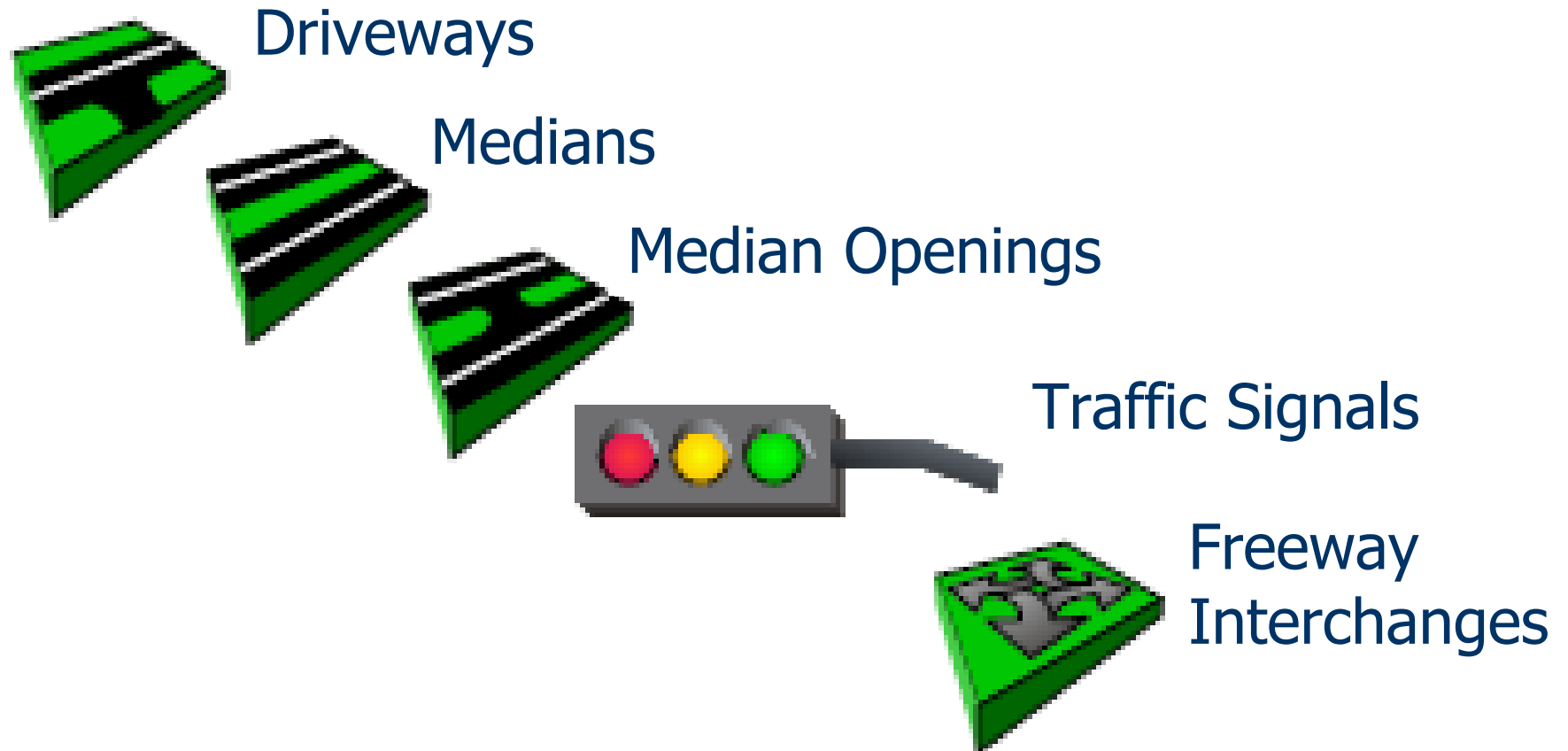


What is Access Management?



Access Management is...

- The control and regulation of the spacing and design of:



Source: *Median Handbook – Interim Version*, Florida Department of Transportation, 2006.

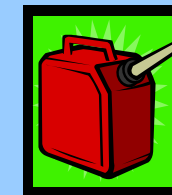
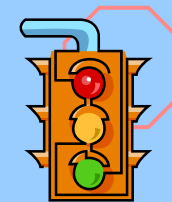
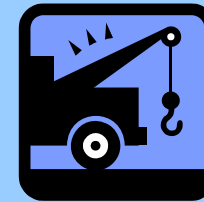
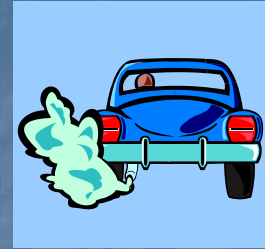


What are the benefits of Access Management?



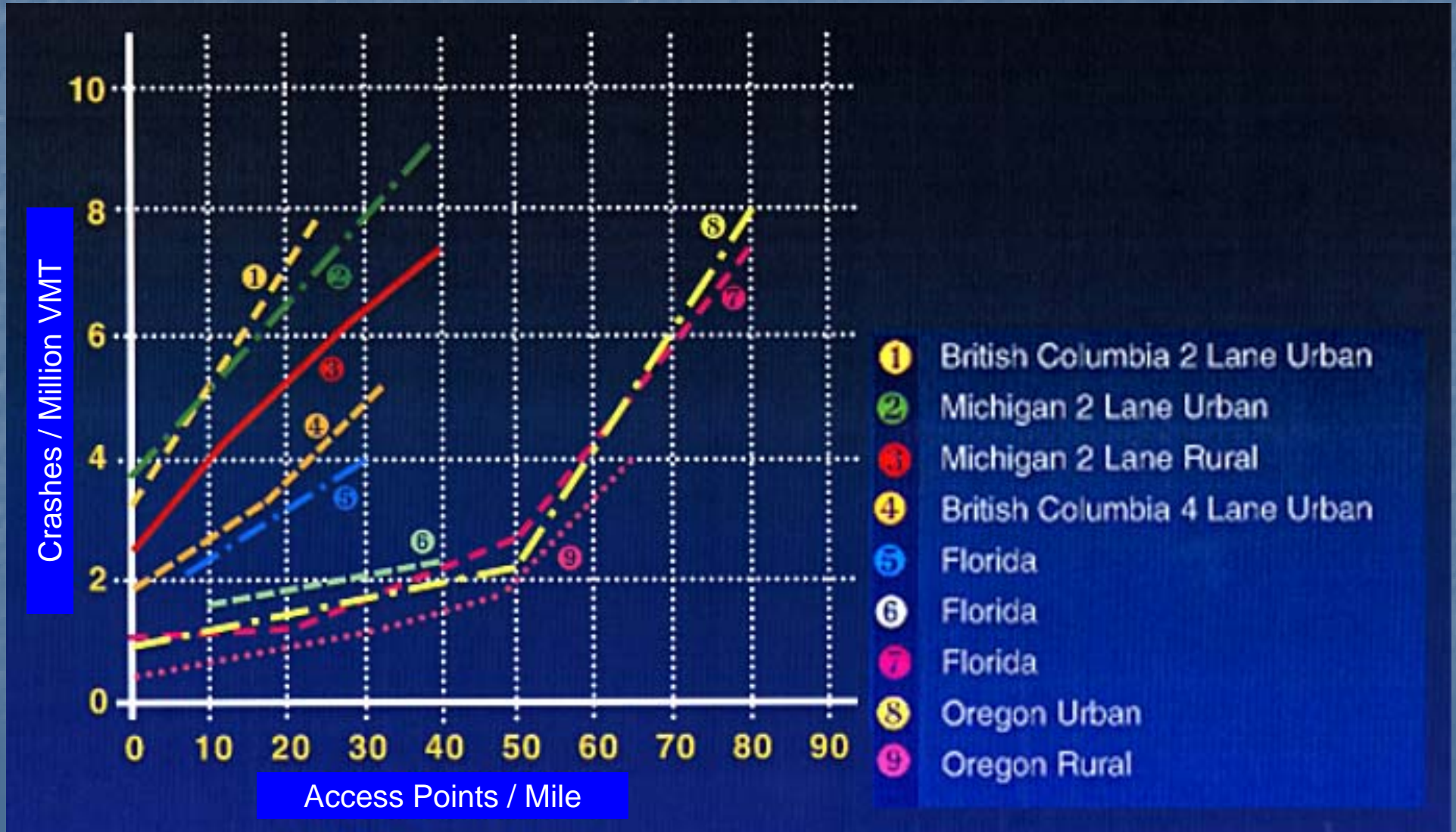
Benefits of Access Management

- Roadway safety
- Traffic operations
- System preservation
- Economic
- Environmental
- Aesthetic

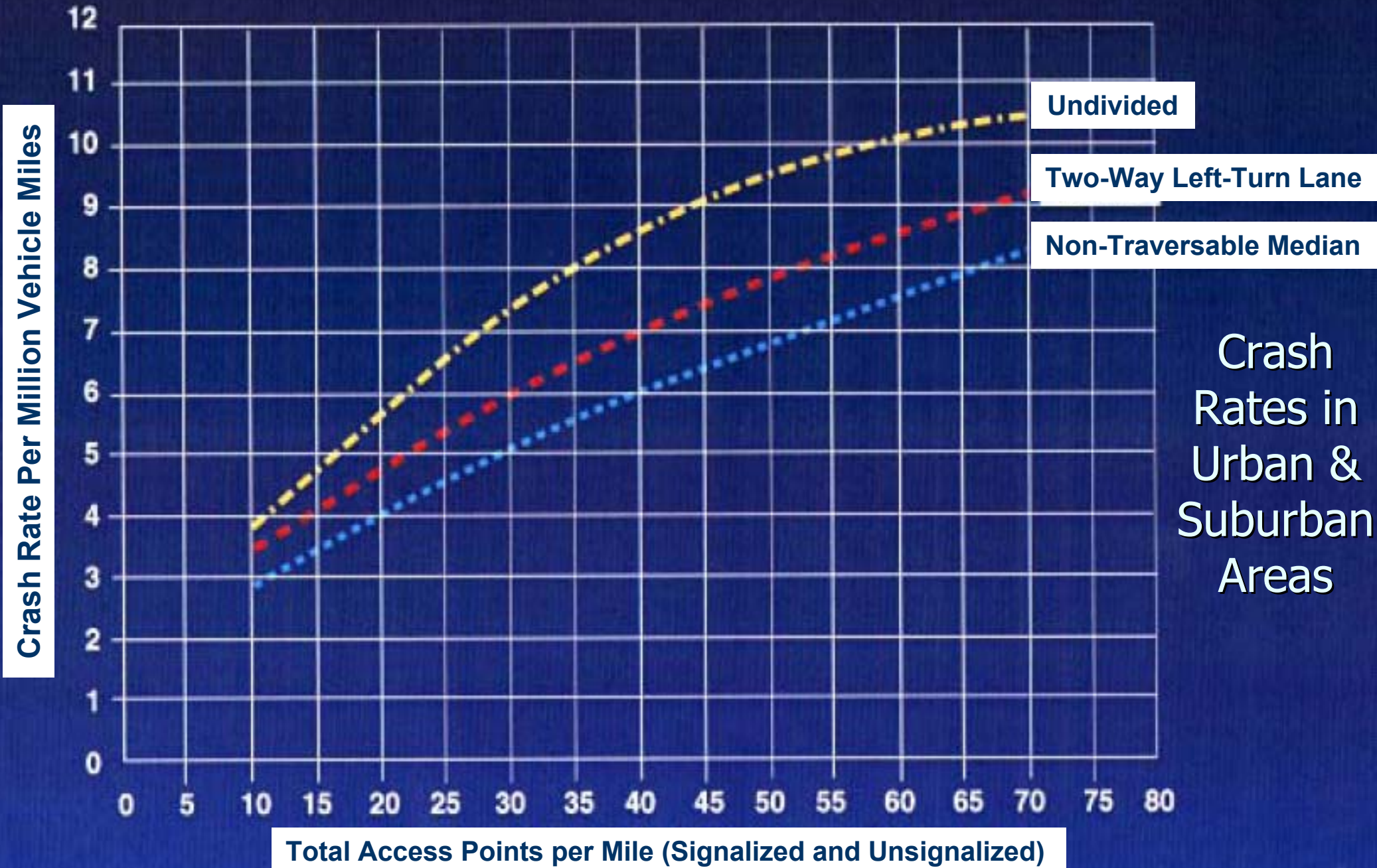


Safety Benefits

Effect of Access Spacing on Crash Rates (Composite)

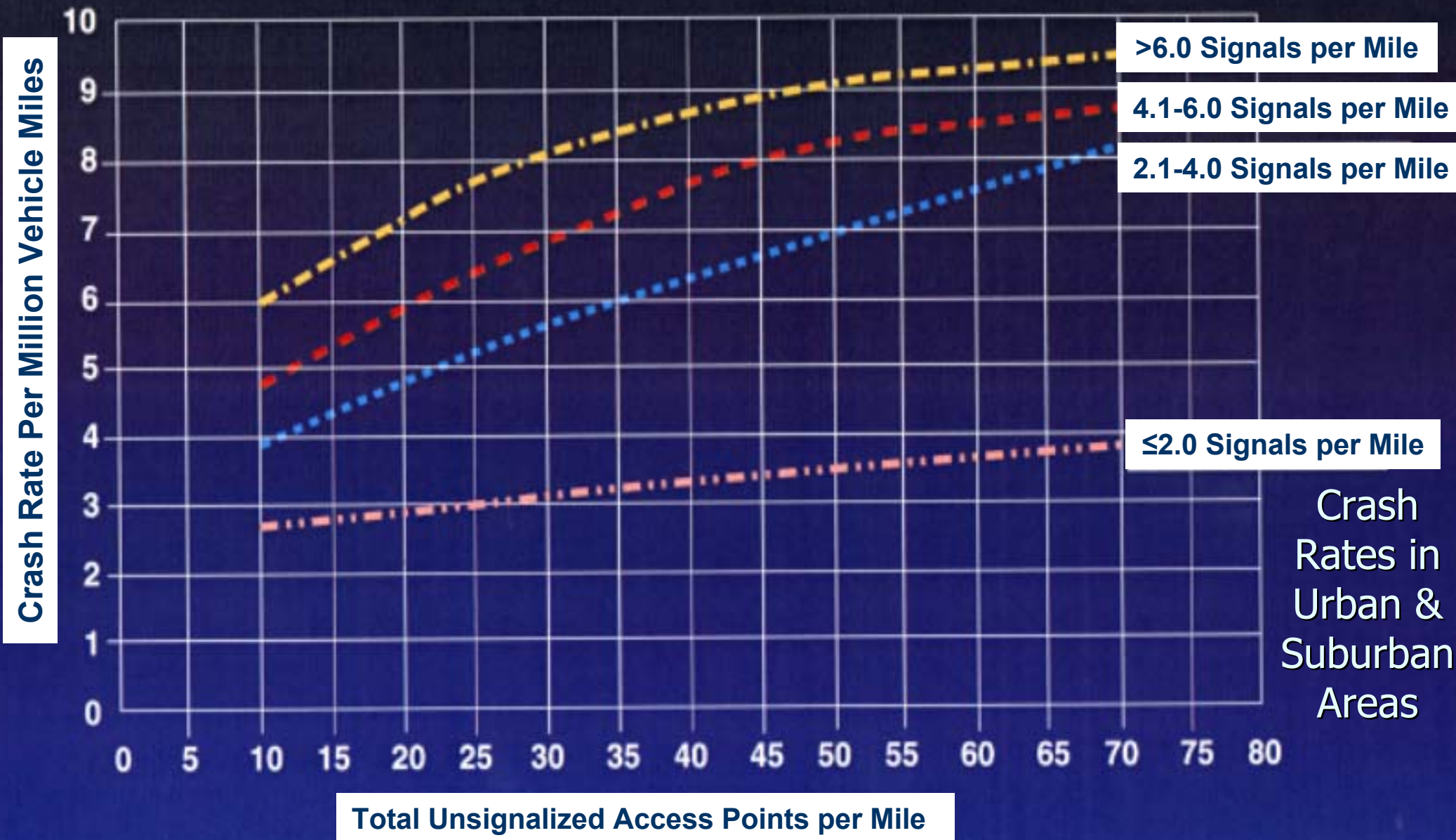


Safety Benefits

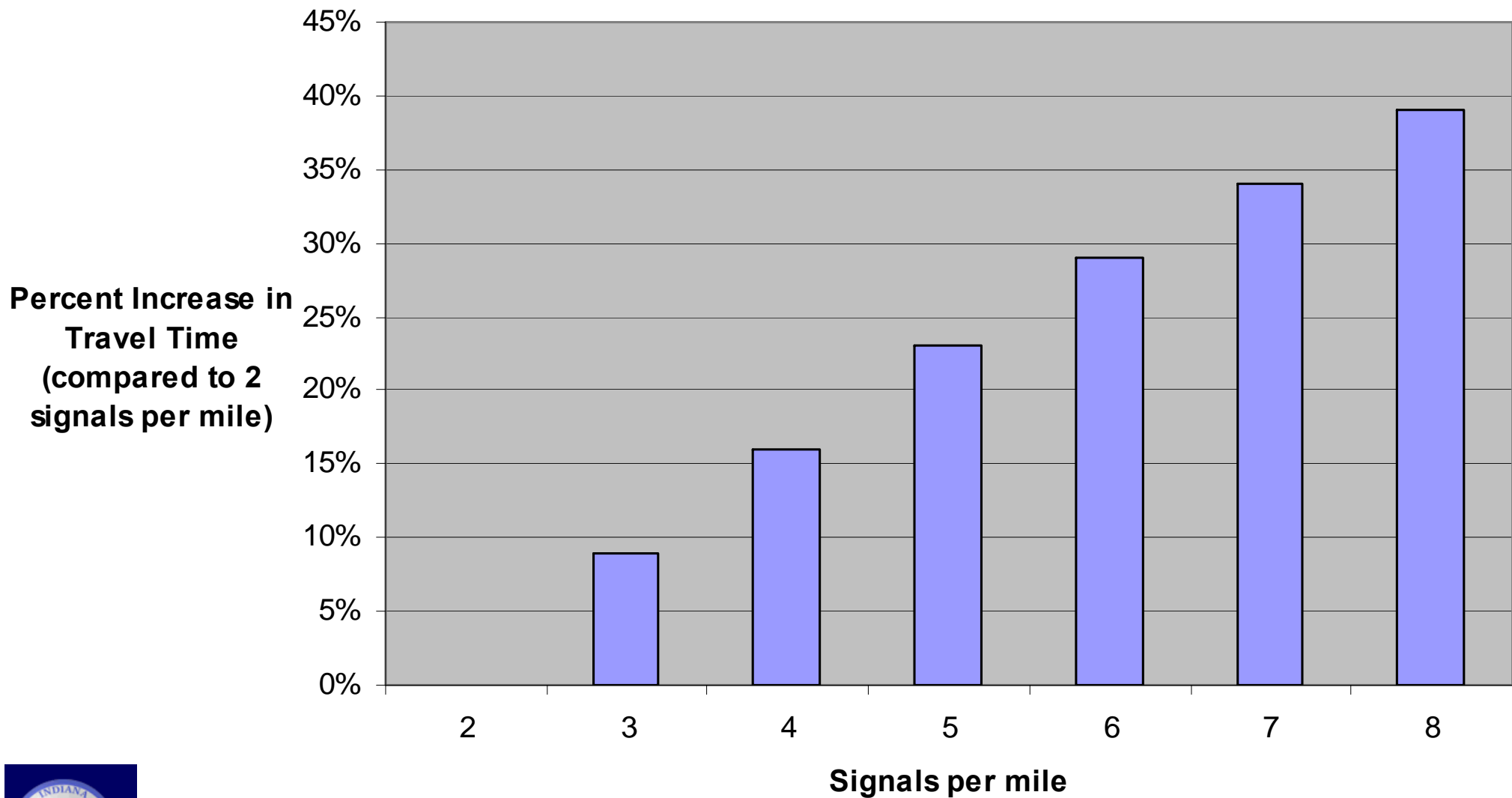


Crash Rates in Urban & Suburban Areas

Safety Benefits



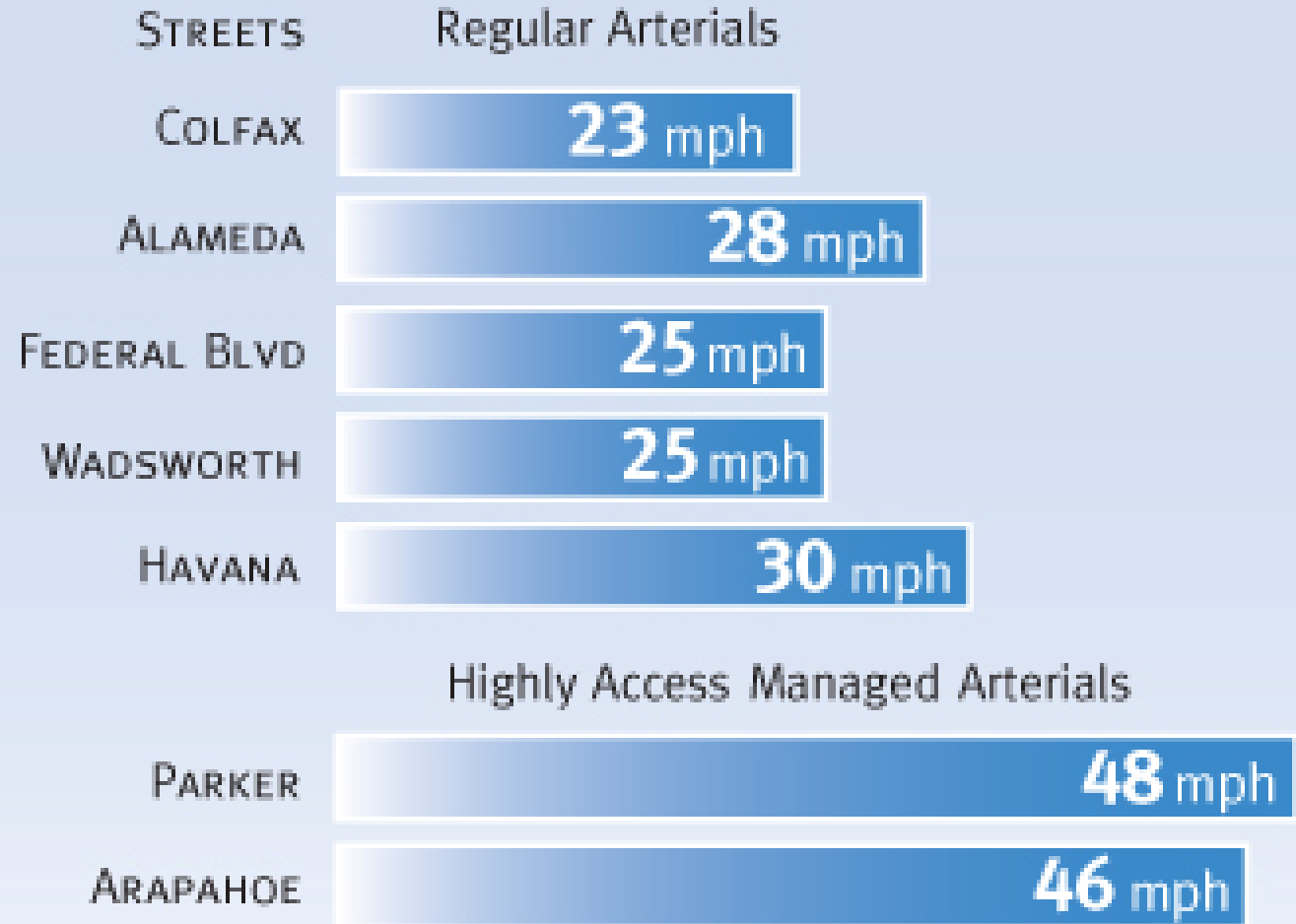
Traffic Operations Benefits: Decreased Travel Time



Source: *NCHRP 420: Impacts of Access Management Techniques*, Transportation Research Board, National Research Council, Washington D.C., 1999.

Traffic Operations Benefits: Reduced Delay

Good access management allows traffic to move closer to posted speed limits, thereby reducing delay.

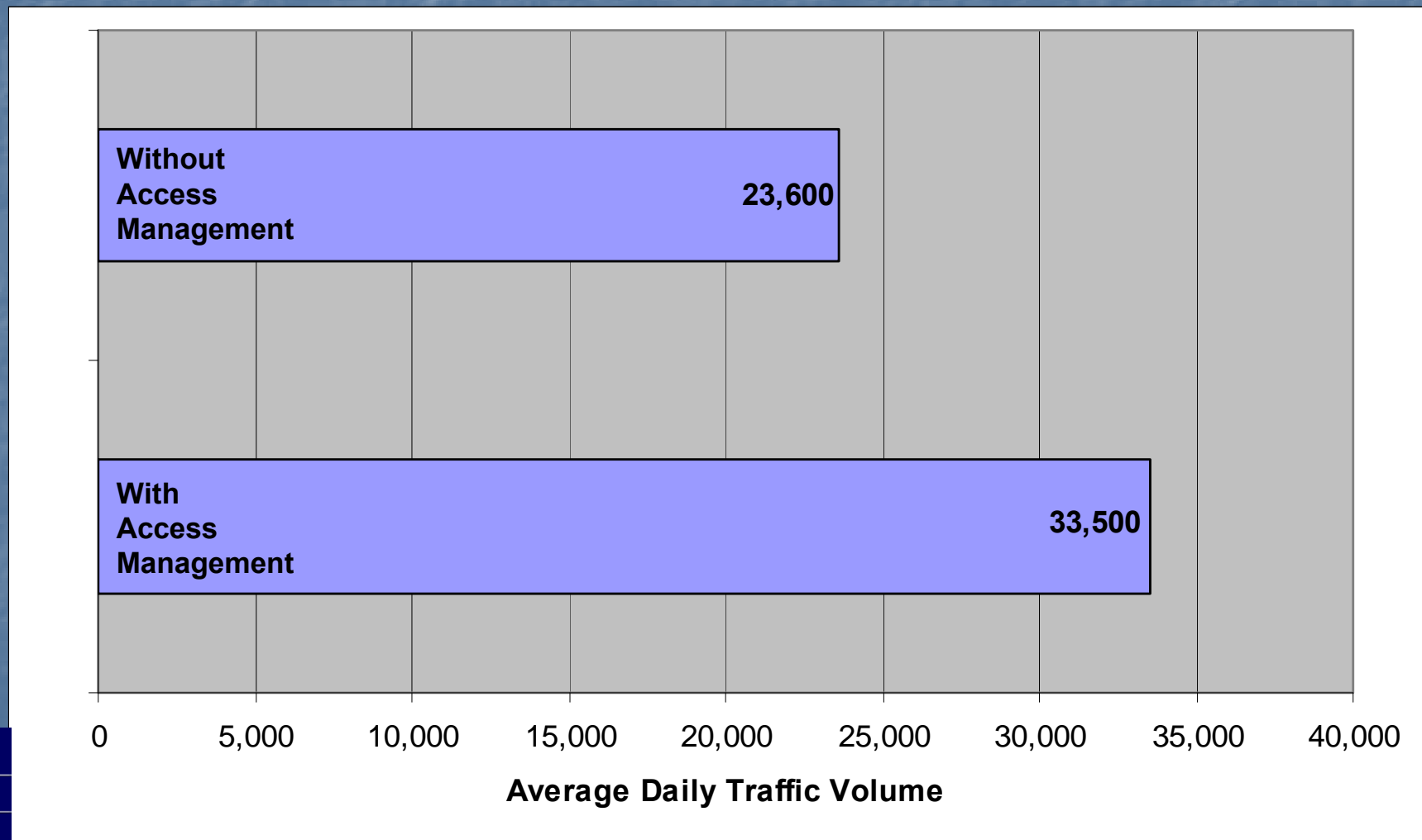


Source: Colorado Access Control Demonstration Project, 1985.



Traffic Operations Benefits: Increased Capacity

A typical four-lane arterial road with good access management can handle nearly 10,000 more vehicles per day.



Source: Florida Department of Transportation.

System Preservation Benefits

- Building a Bypass in Marshalltown, Iowa
- Problem: Traffic Congestion on US Highway 30
- Solution: Build Bypass



Source: Iowa Access Management Handbook



System Preservation Benefits

- Problem: Poor Access Control on Bypass Leads to Traffic Congestion
- Solution: Build Bypass of the Bypass

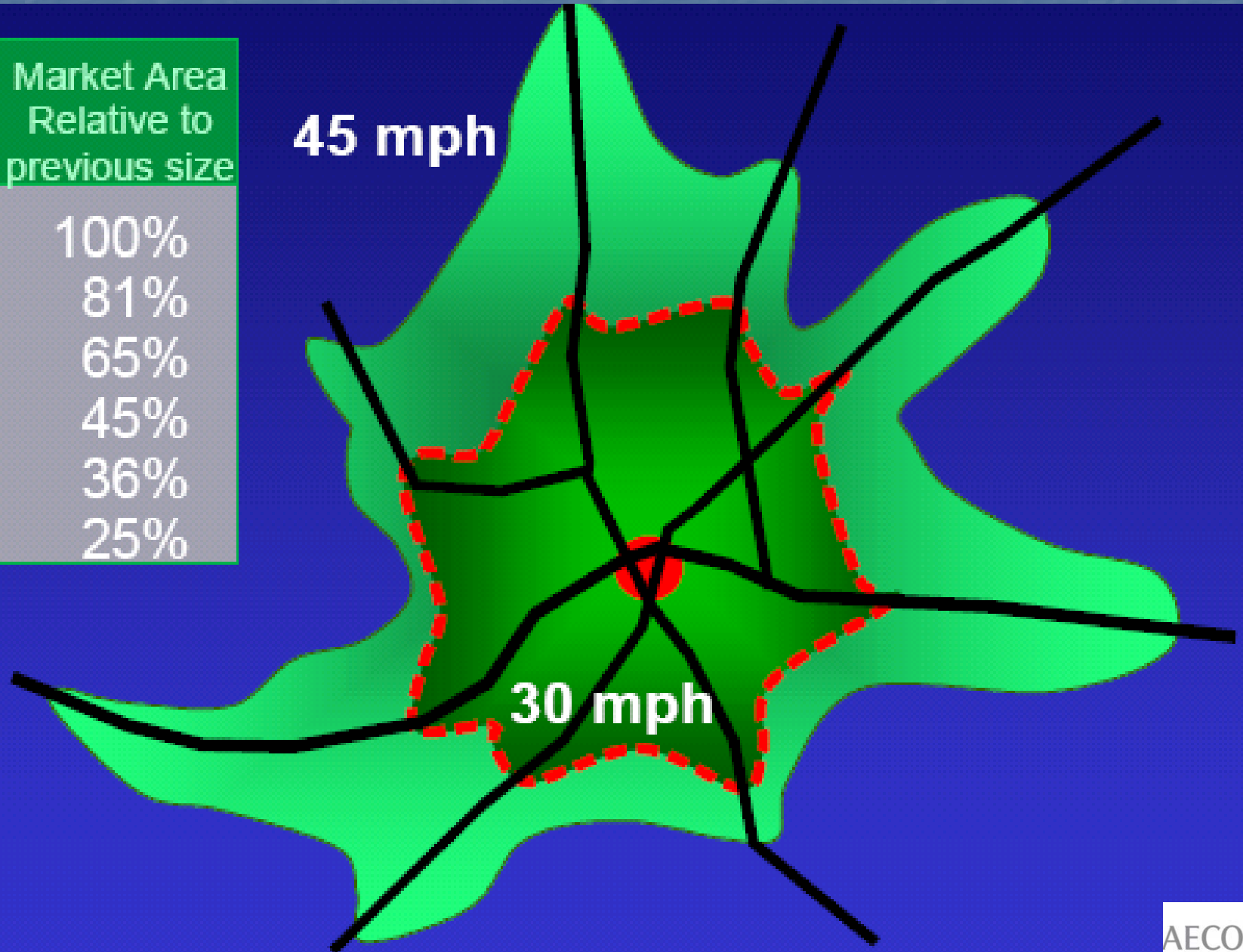


Source: Iowa Access Management Handbook



Economic Benefits

Reduction in Avg. System Speed	Market Area Relative to previous size
0%	100%
10%	81%
20%	65%
30%	45%
40%	36%
50%	25%





October 19, 2007

Business

UPS Takes Left Turns Out of Deliveries

by Rachael Myrow

January 24, 2007 – In order to shave money off its annual \$200 million fuel bill, UPS has developed software that maps out driver routes with no left turns.





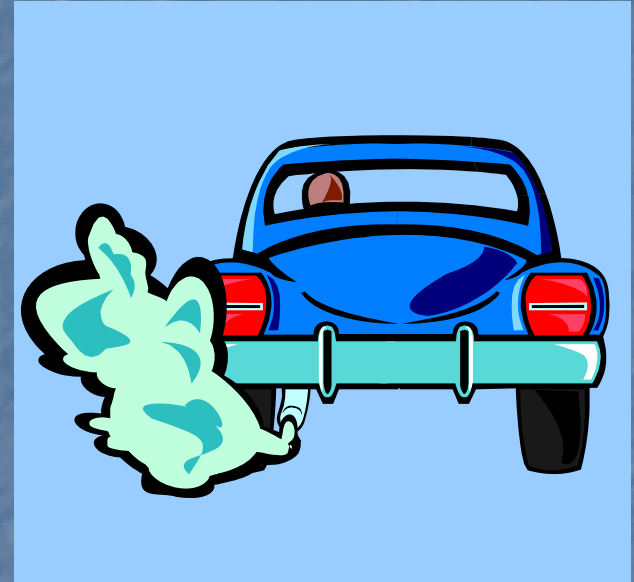
UPS Experts Offer Tips for Better Gas Mileage

- **Avoid left turns.** UPS routes are designed to avoid left turns. We have learned that idling waiting to turn left wastes gas. Not to mention the cars idling behind you waiting for you to turn. It is also safer to avoid left turns since you reduce the number of times you turn across oncoming traffic.



Environmental Benefits

- Reduced pollution
- Less fuel consumption



Aesthetic Benefits



Who Benefits?

- **Motorists**

- Fewer conflict and decision points
- Driving task safer and more simplified

- **Cyclists and Pedestrians**

- Fewer conflicts with vehicles
- Median refuge

- **Transit riders**

- Reduced delays and travel times



Who Benefits?

- **Business persons**
 - Broader market area and more stable property values
- **Freight delivery carriers**
 - Shorter transport times and lower delivery costs
- **Government agencies**
 - Lower cost to deliver safe & efficient transportation system
- **Communities**
 - Safer and more attractive driving environment



What are the Principles of Access Management?



Access Management Principles

- Limit the number of conflict points
- Separate the conflict points
- Remove turning vehicles and queues from through movements
- Maintain progression speeds along arterials
- Encourage access to streets with the lowest functional classification, where this option exists



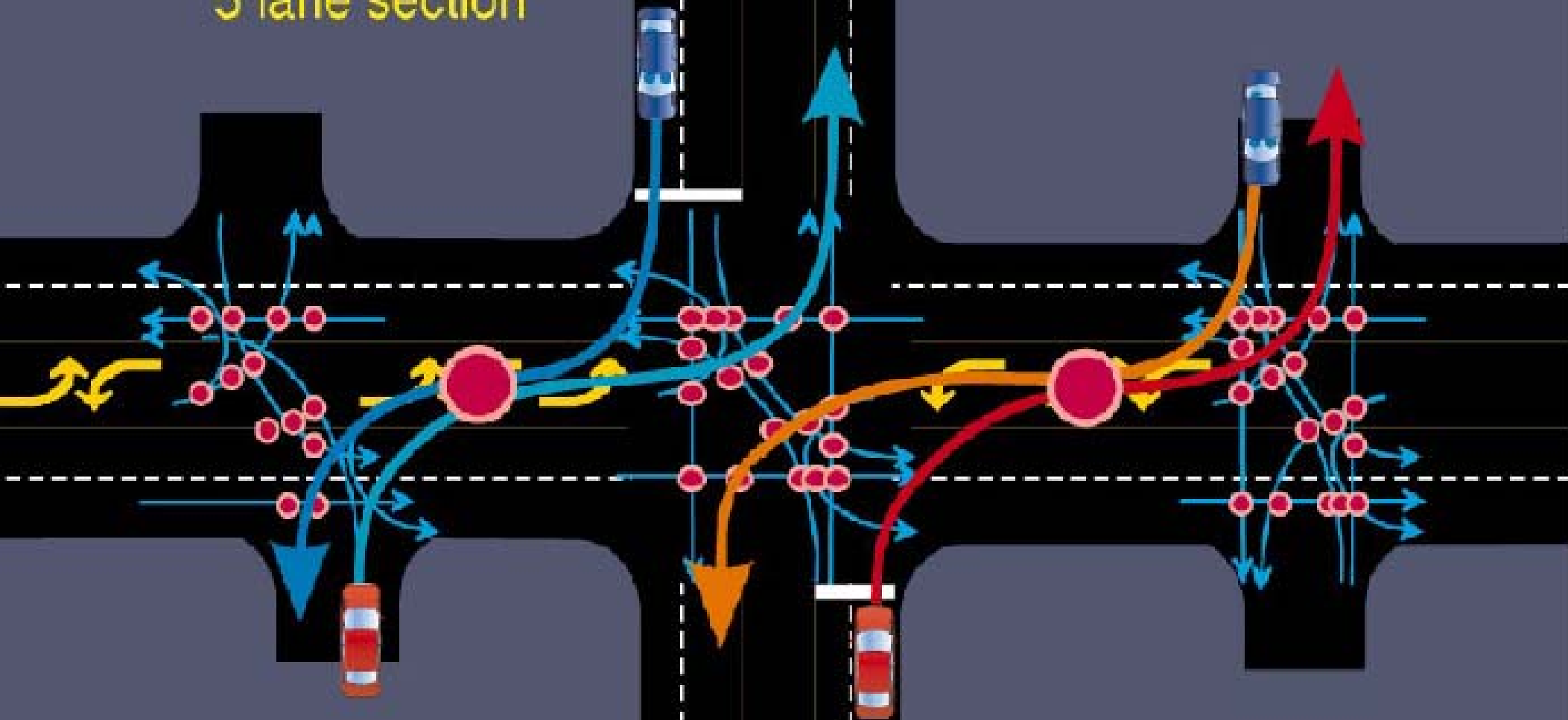
Access Management Principles

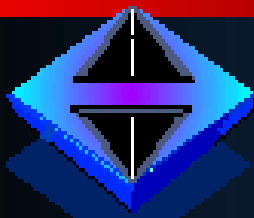
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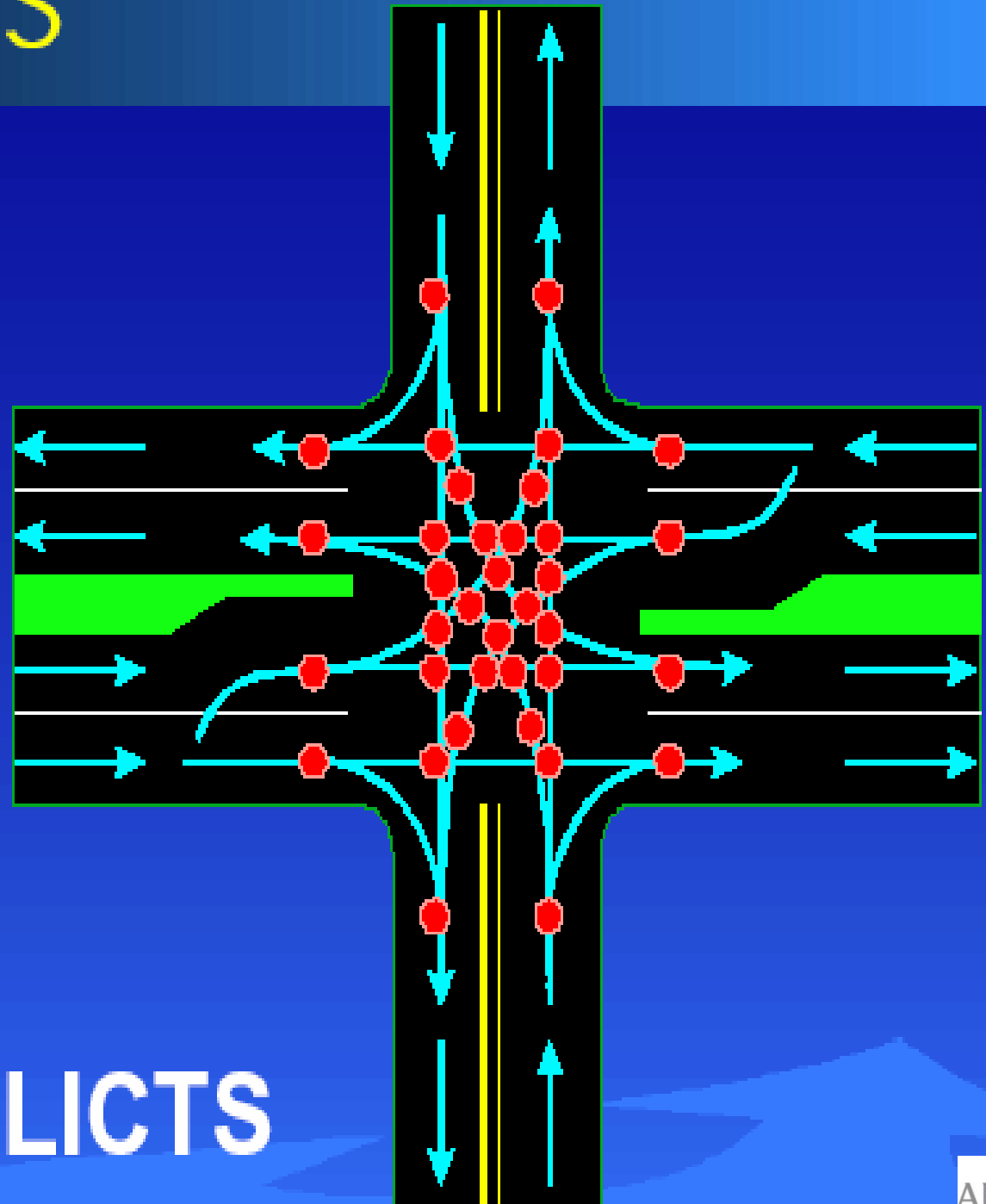
Conflicts

5 lane section





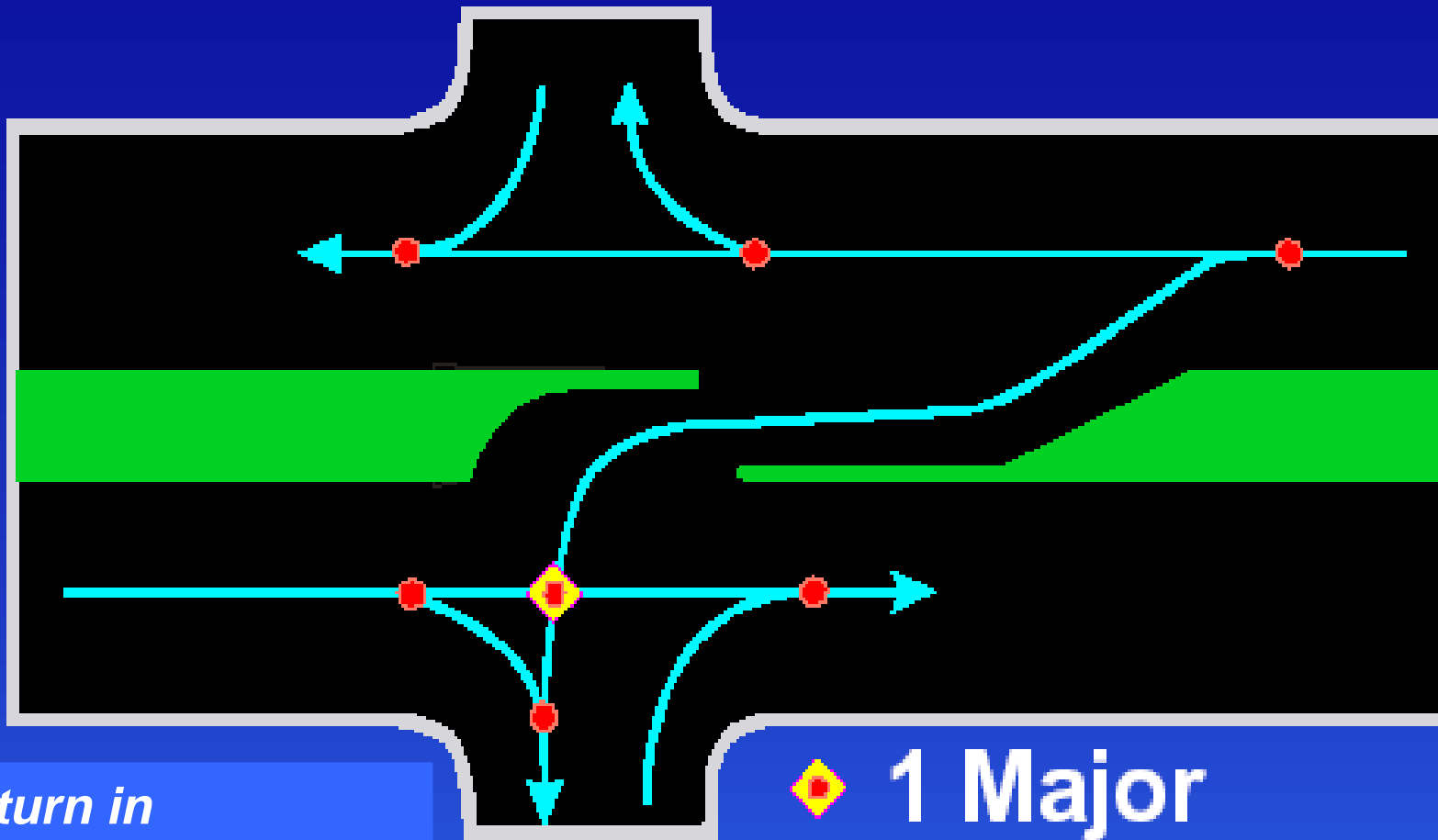
CONFLICTS



36 CONFLICTS



Conflicts

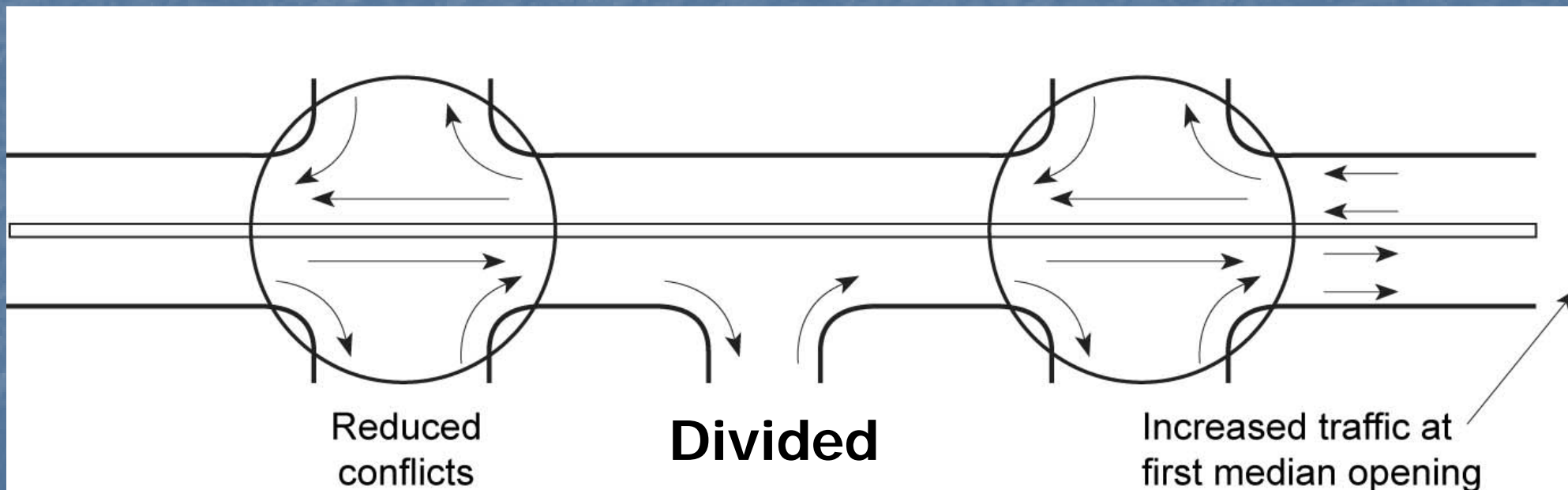
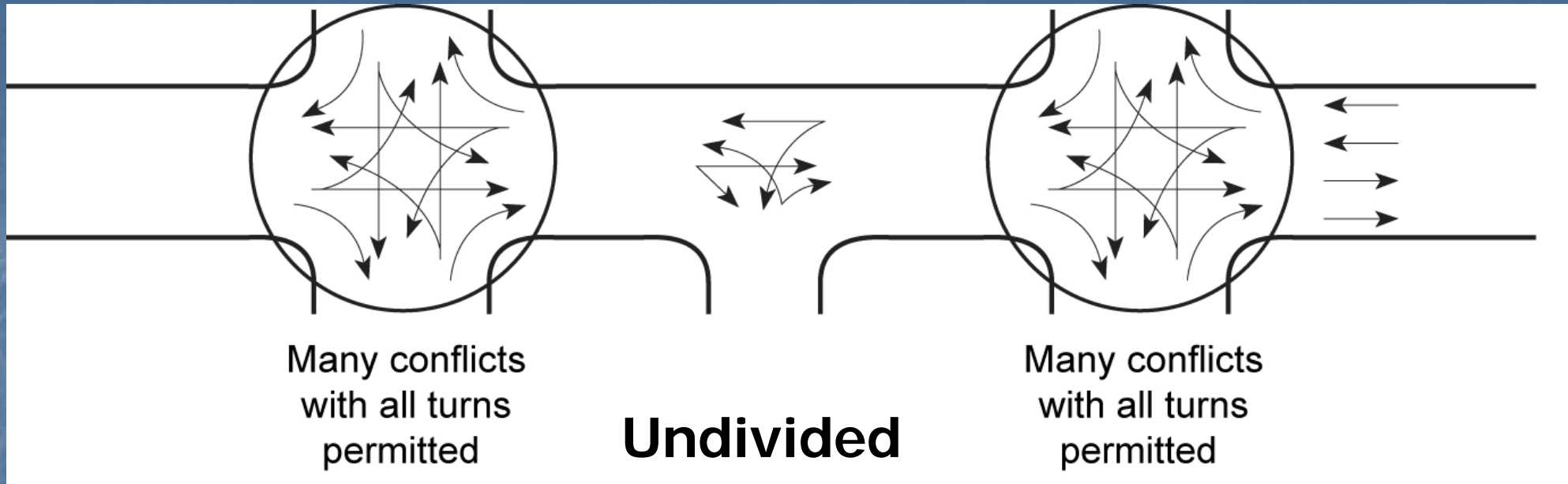


*Right-turn in
Right-turn out
Left-turn in (1 direction)*

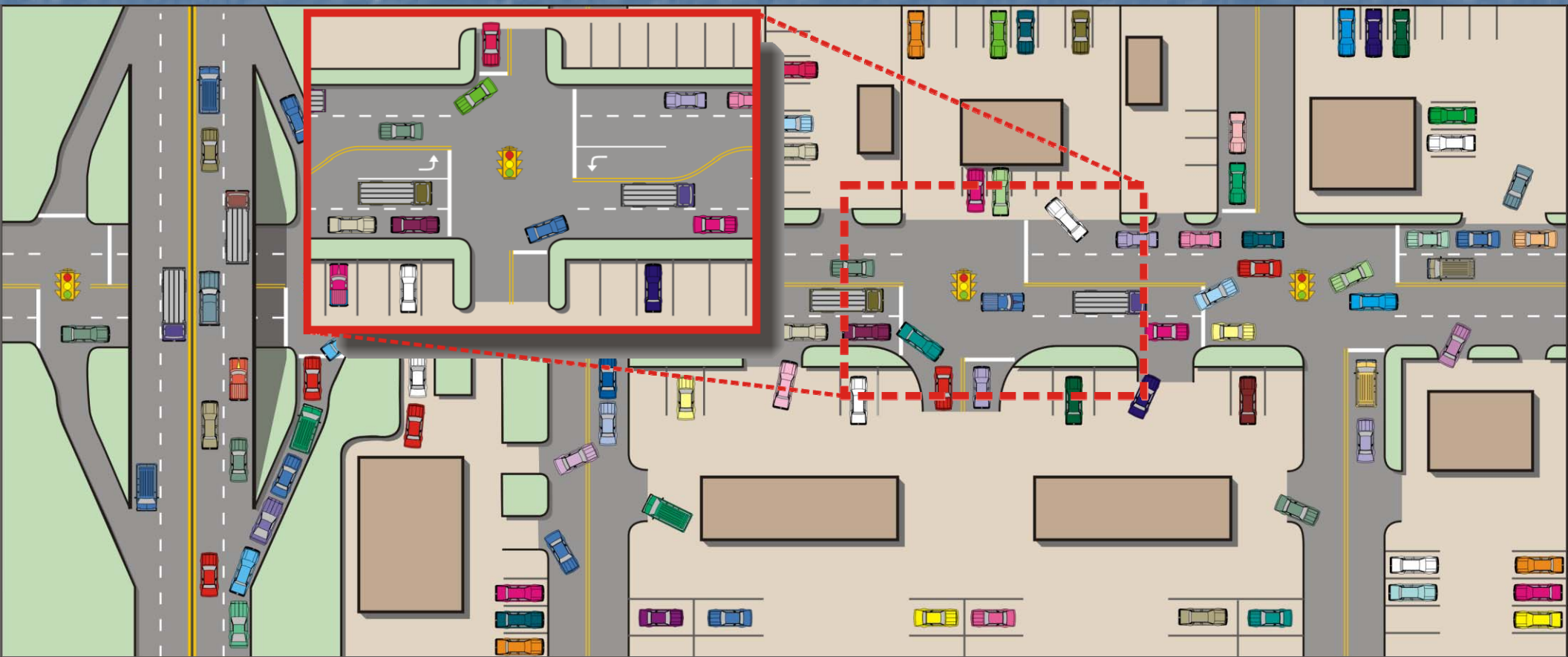
◆ 1 Major
● 6 Minor

7 CONFLICTS





Limit the number of conflict points...



Access Management Principles

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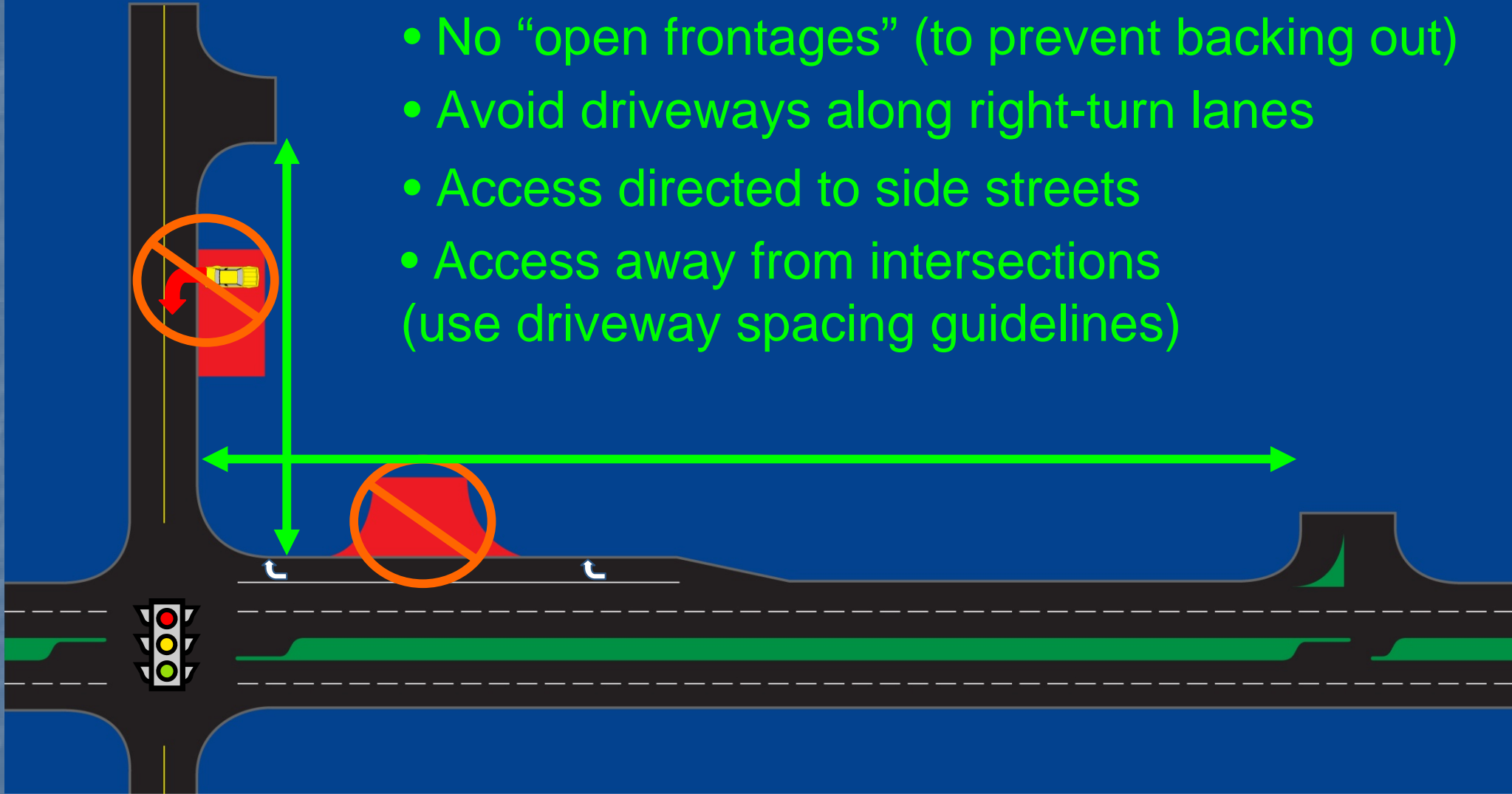
Techniques to Separate Conflict Points

- Provide adequate spacing between:
 - Median openings
 - Traffic signals
 - Intersections
 - Driveways



Driveway Separation Principles

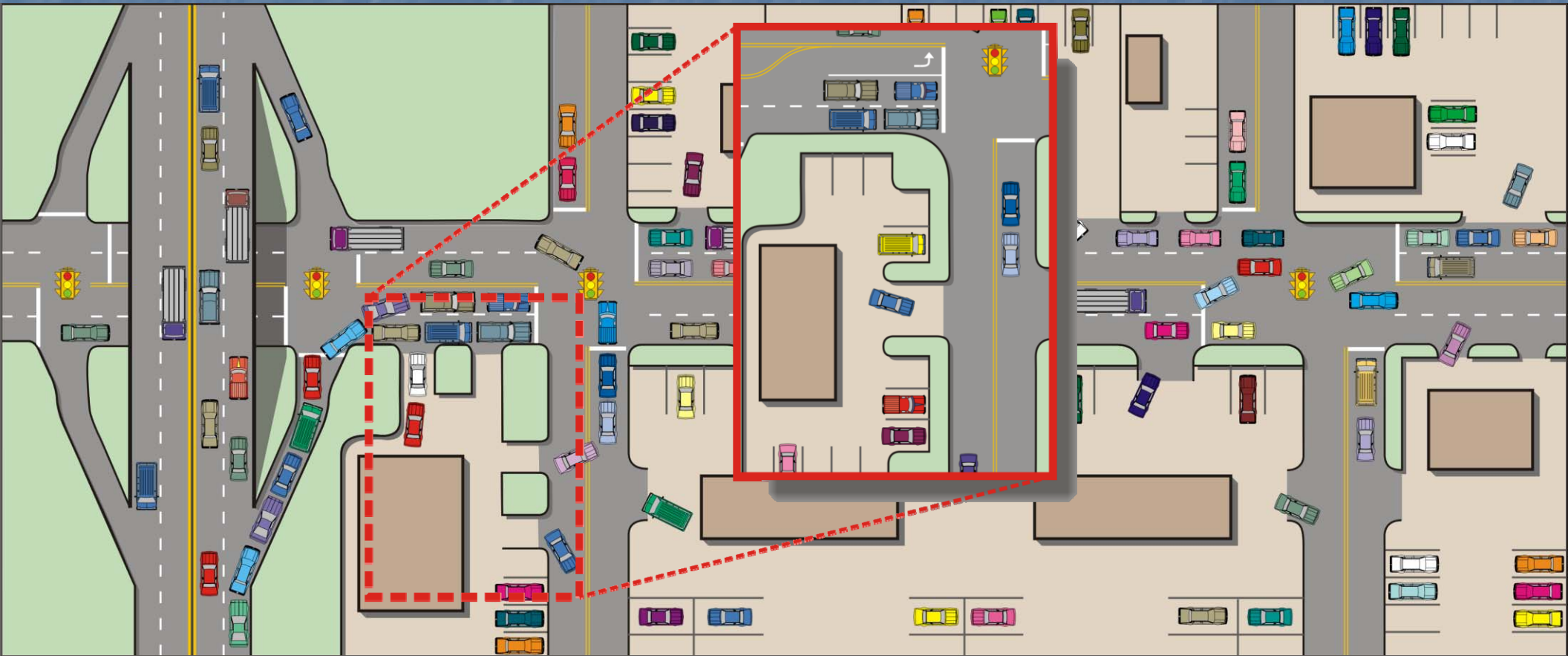
- No “open frontages” (to prevent backing out)
- Avoid driveways along right-turn lanes
- Access directed to side streets
- Access away from intersections (use driveway spacing guidelines)



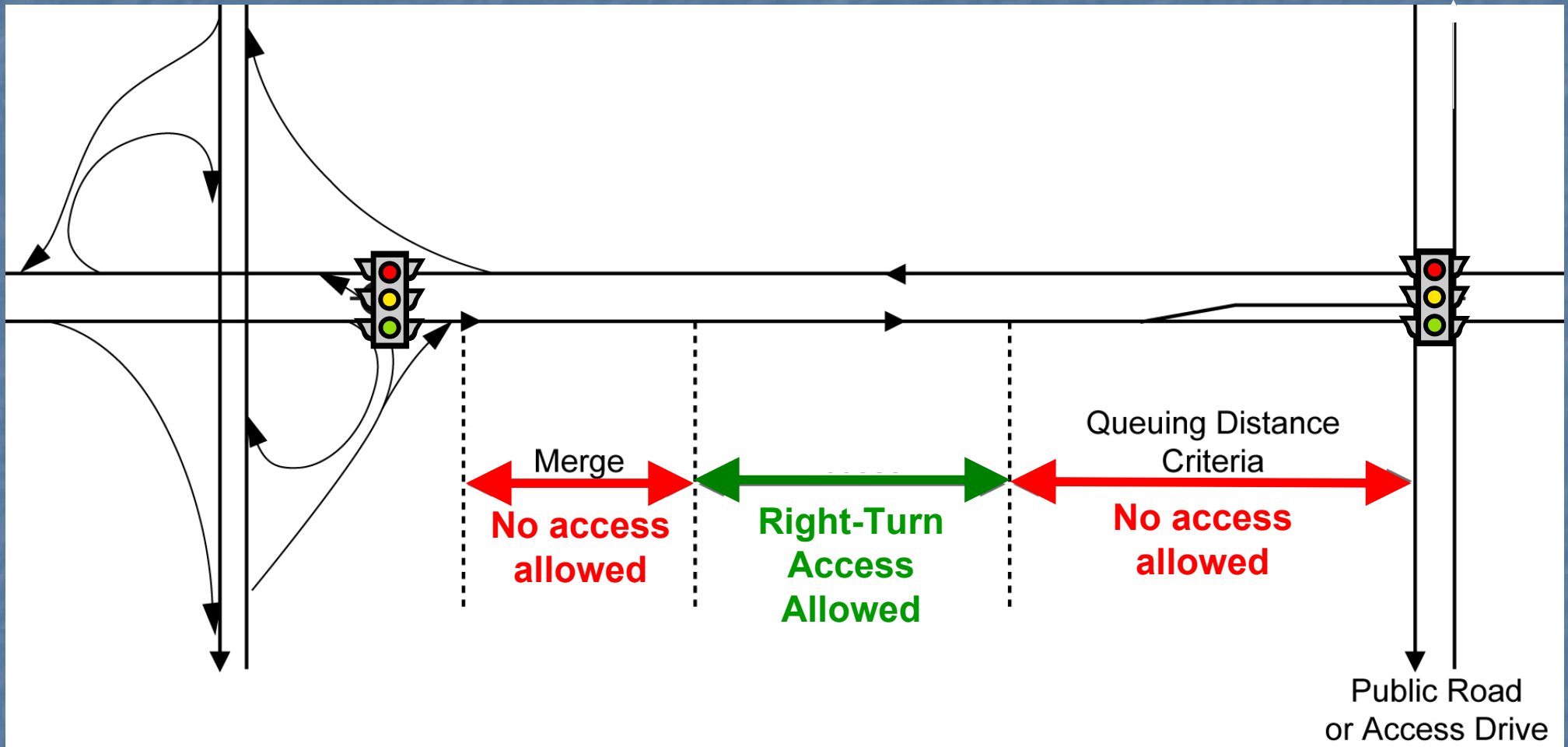
An Open Frontage



Separating Conflict Points



Managing Access to Cross Streets near Interchanges



Access Management Principles

- Limit the number of conflict points
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Techniques to Remove Turns and Queues from Through Lanes

- Provide exclusive turn lanes and tapers
- Apply good internal site design techniques
- Provide adequate driveway width & radius



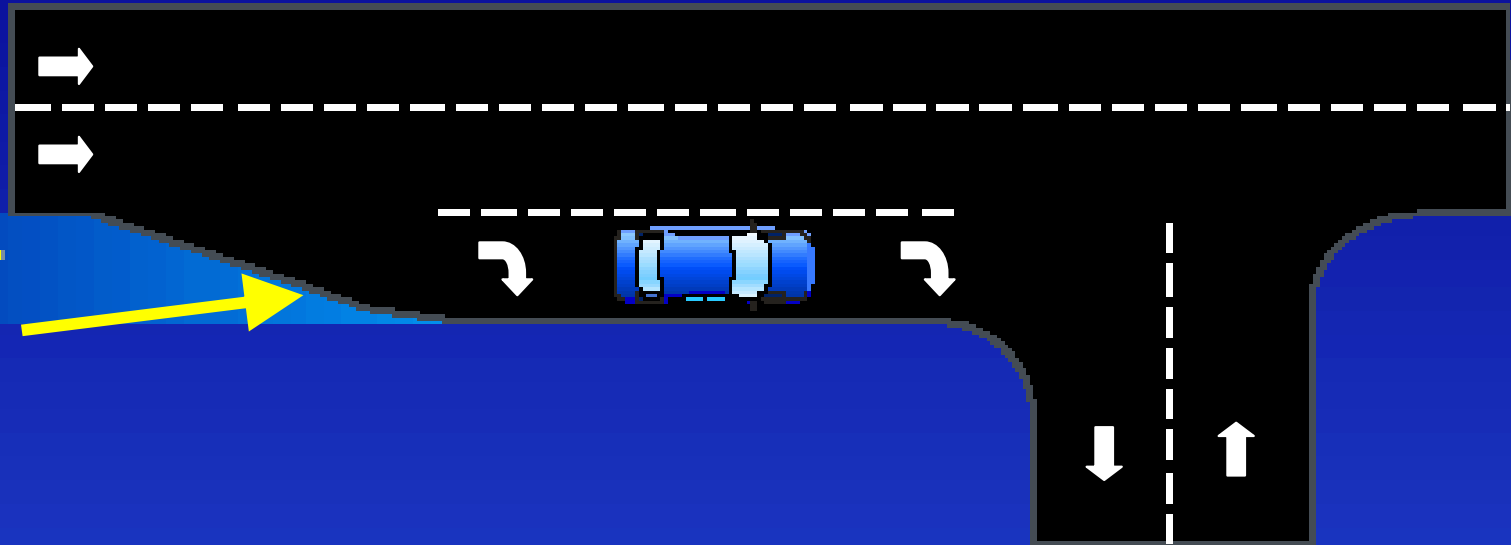
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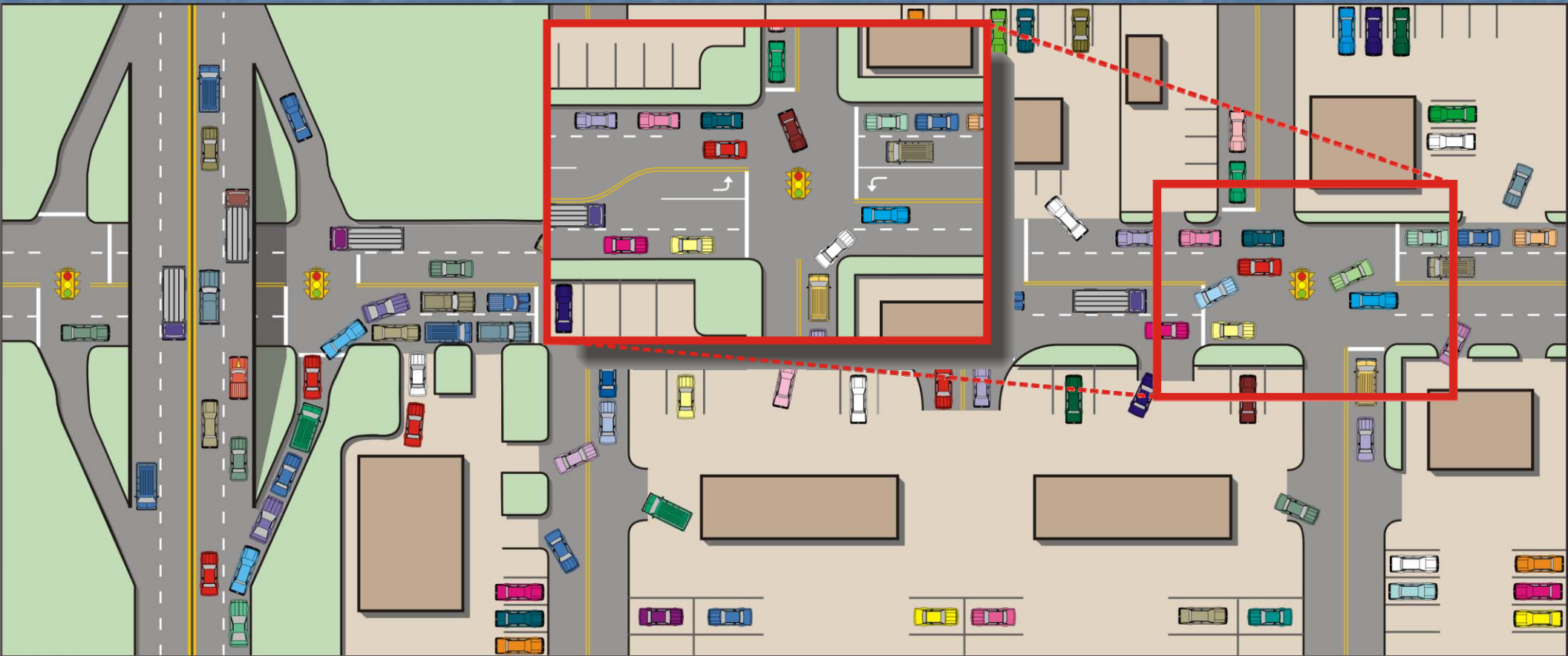


Provide Exclusive Right-Turn Lane

**FULL RIGHT
TURN LANE**



Provide Exclusive Left-Turn Lane



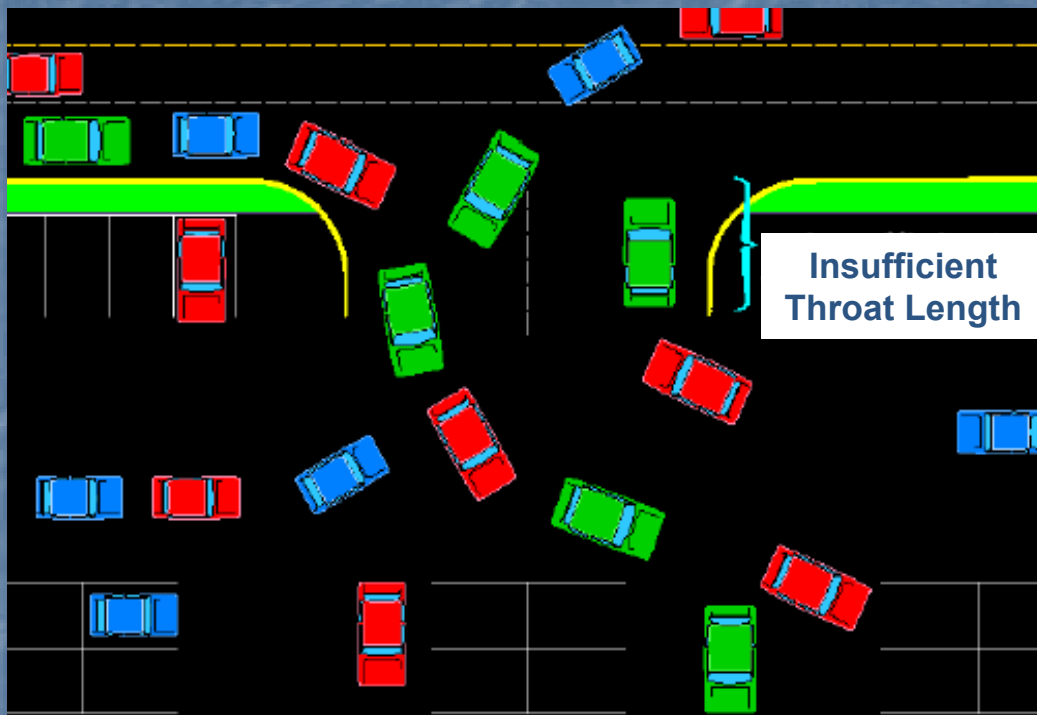
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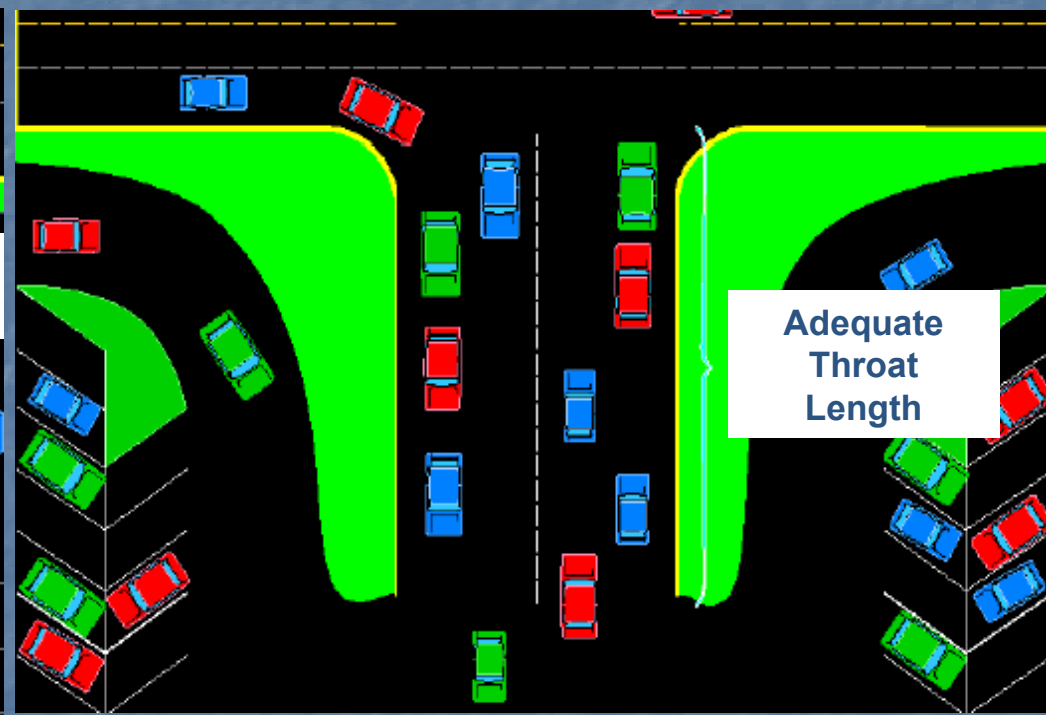


Provide Adequate Driveway Throat Length

Insufficient



Adequate

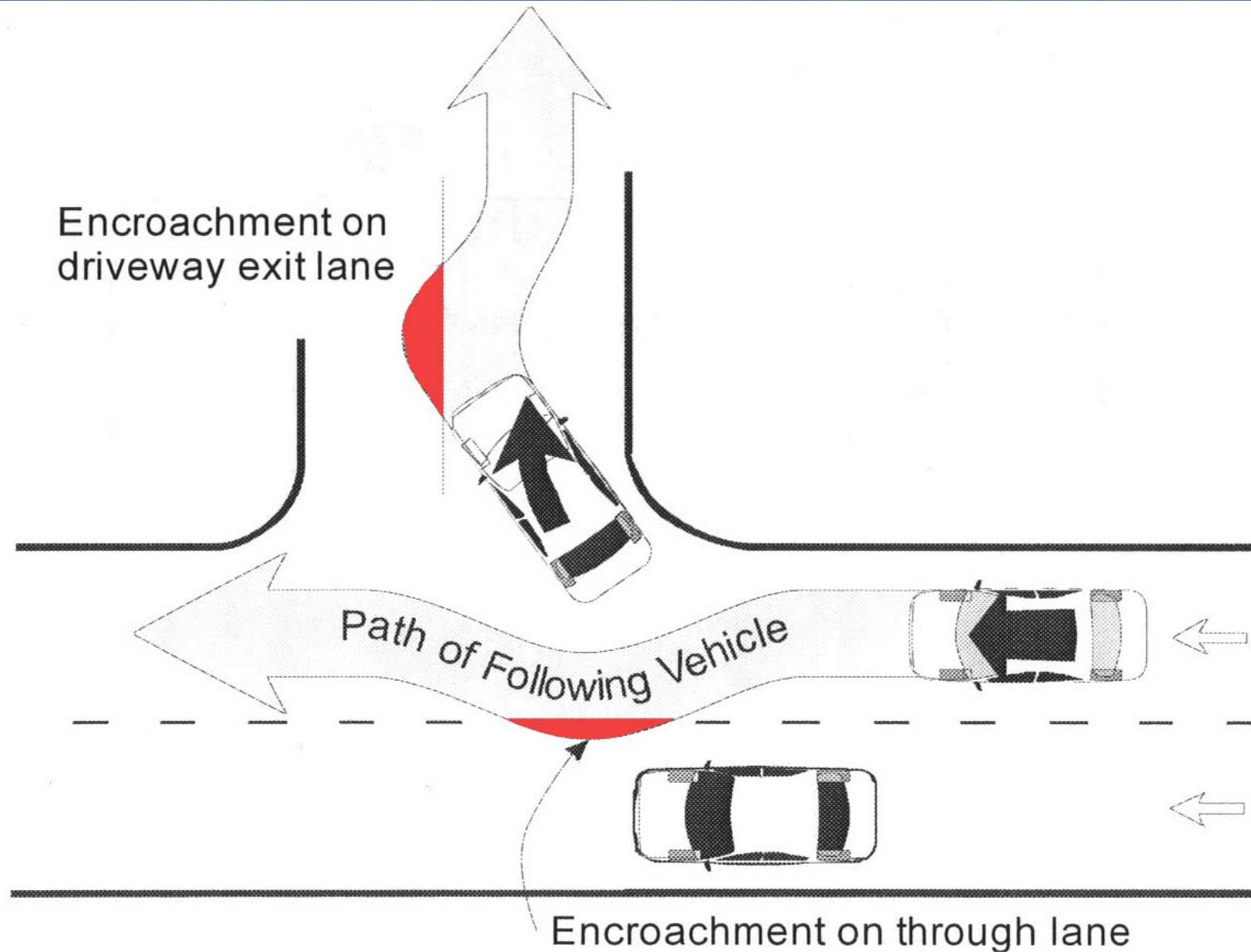


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Provide Adequate Driveway Width and Radius



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Legal Authority for Access Management in Indiana



Legal Authority in Indiana: Conclusions

- INDOT could use its existing statutory authority to:
 - Designate additional limited access facilities
 - Implement an access classification system
 - Apply access management techniques



Legal Authority in Indiana: Conclusions, cont'd.

- Common access management techniques that could be applied:
 - Purchase of access rights
 - Introduction of a median
 - Closing of a median opening
 - Eliminating left-turn access
 - Limiting or reducing the number of driveways
 - Replacing direct access with service road access



Legal Authority in Indiana: Conclusions, cont'd.

- Compensation may be required for:
 - Changes that would result in the creation of zoning violations
 - Alternative access that would substantially or materially interfere with ingress and egress



Kimco Case

- Plaza East shopping center on NE quadrant of Route 66/Green River Road in Evansville
- 3 issues:
 - Median installation
 - Reconfigured entrances
 - White edge line on the pavement





Green River Road

New median

North driveway

Plaza East shopping center

South driveway

Route 66 (Lloyd Expressway)

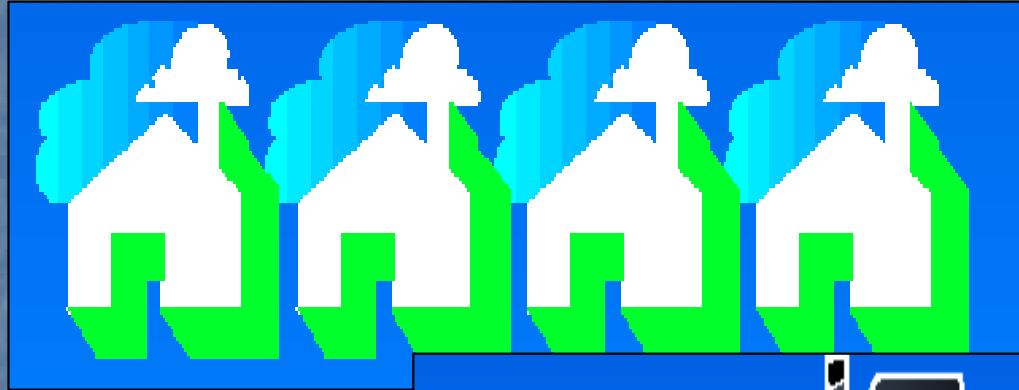
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Opportunities to Institute Access Management

- Permitting



- Road improvements



- State and local government cooperation



Opportunities to Institute Access Management, cont'd.

- Permitting
 - New developments
 - Expanded developments



INDOT Driveway Permit Process Elements

- Permit Application
- Other documentation (if necessary)
 - Permit Bond
 - Traffic Impact Analysis
 - Agreement to Execute Access Control Document
 - Future Traffic Signal Commitment
 - Covenant Limiting Land Uses



Provisions in *Driveway Permit Manual*: Number of Driveways

- Number of driveways should be a minimum to adequately serve the needs of the abutting property
- Access should be limited to a single driveway per property unless frontage exceeds 400 feet
- Commercial developments on the corner of a State arterial and State collector should be restricted to access on the collector only



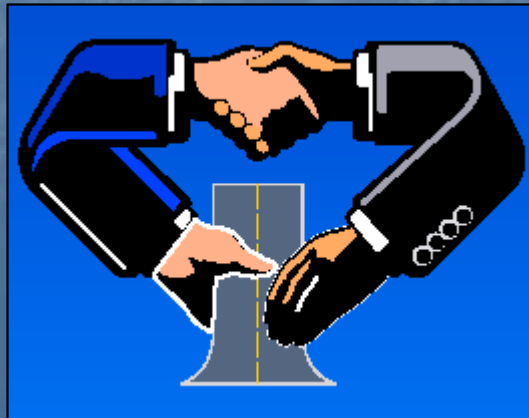
Opportunities to Institute Access Management, cont'd.

- Road improvements
 - Widening
 - Intersection upgrades
 - Installing new raised medians
 - New roads



Opportunities to Institute Access Management, cont'd.

- Cooperation with local governments
 - Site plan review
 - Improved subdivision regulations
 - Larger minimum frontage
 - No more "flag" lots
 - Joint access / cross access
 - Access management plans



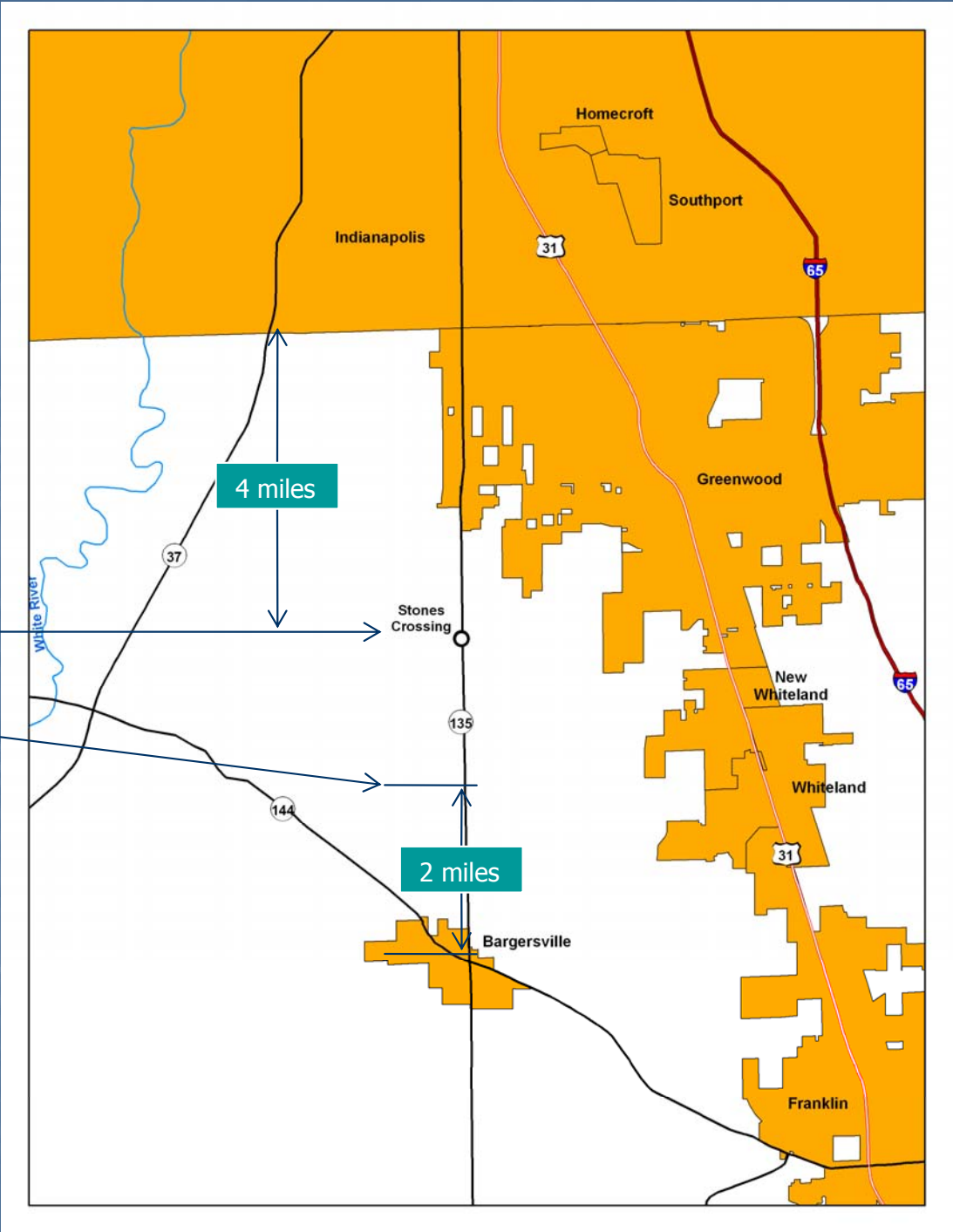
INDOT Access Management Plans

- Prepared an Access Management Plan (AMP) for US 31 in northern Hamilton County and Tipton County (SR 38 to SR 26)
- Currently preparing two AMPs for the following study corridors:
 - SR 135, from CR 500N to CR 700N, in Johnson County
 - SR 1 in Fort Wayne, from I-469 to Wabash River in Bluffton



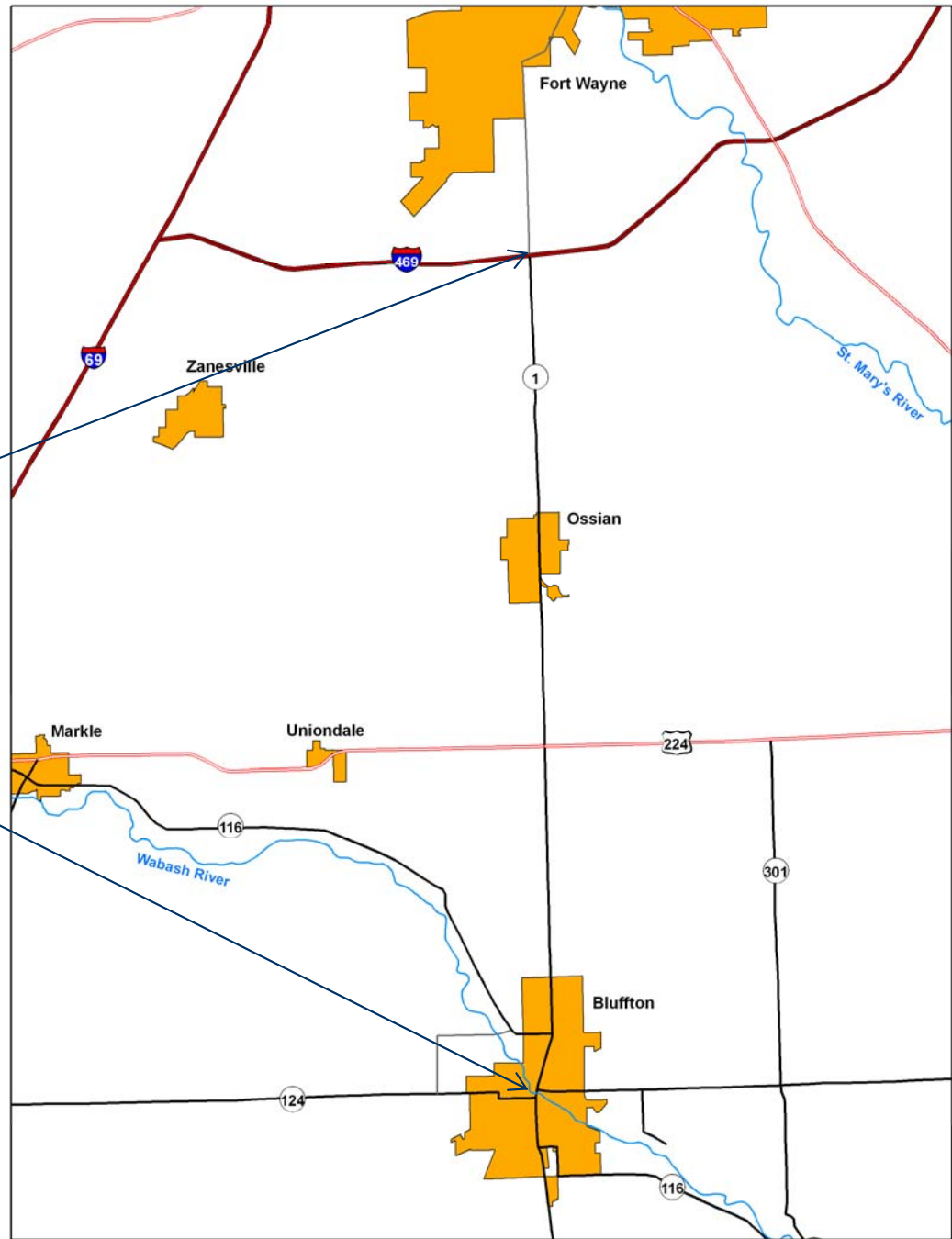
SR 135 Access Management Plan

2.0 miles



SR 1 Access Management Plan

14.5 miles



Access Management Plans: Conclusions and Lessons Learned

- Intergovernmental cooperation and foresight remain the key to effective access management
- For Tier 1 limited-access highways in rural areas, INDOT may desire more stringent guidelines
- Of the Tier 1, 2 and 3 segments examined, it was expected that few driveways would meet minimum stopping sight distances and many driveways would fall within the functional area of intersections



Access Management Plans: Conclusions and Lessons Learned, cont'd.

- In retrofit, application of guidelines involves good engineering judgment in balancing tradeoffs between improved access control and safety
- Most local jurisdictions need to adopt basic access management guidelines as a benchmark for effective development review
- Local jurisdictions must determine the driveway treatment for the functional area of intersections of arterials and collectors not on the State system



Opportunities to Institute Access Management, cont'd.

- Improving access management in Indiana involves:
 - Education of stakeholders
 - Training of technical staff
 - Institutional changes
 - Expanded local legal authority
 - Resources



Break
(5 minutes)



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Elements of INDOT Access Management Program

- Access Classification System
- Access spacing and related criteria
- Enhanced local coordination
- Training and education
- Applying retrofit techniques
- Other actions



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What is an Access Classification System?

A hierarchy of access categories that provides the framework for implementation of access management

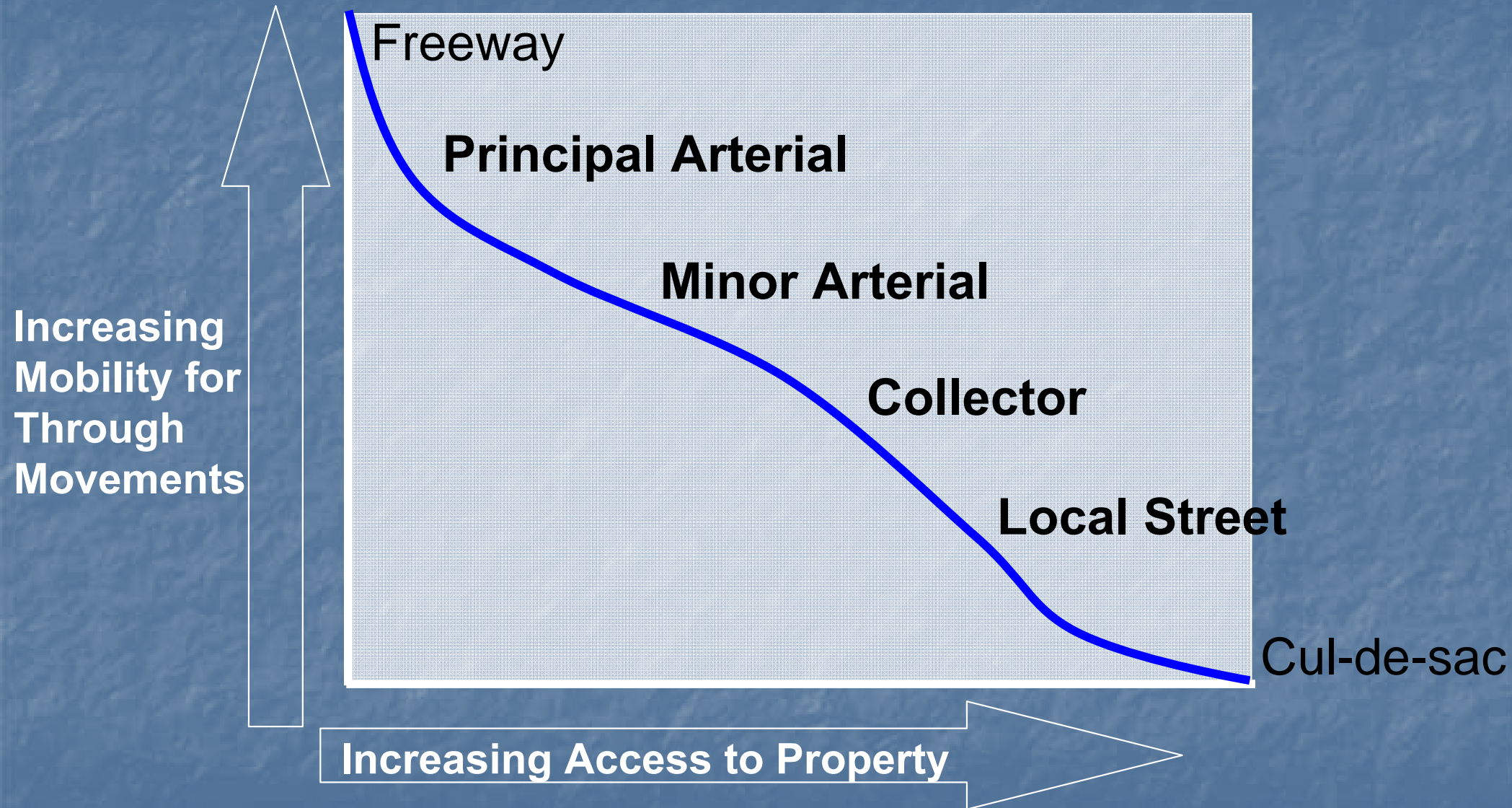


Steps in Developing an Access Management Program

- **Step 1** – Define an access classification system consisting of various access categories
- **Step 2** – Establish access management criteria for each access category
- **Step 3** – Assign an access category to all roadways and/or segments of roadways



Movement / Access Balance



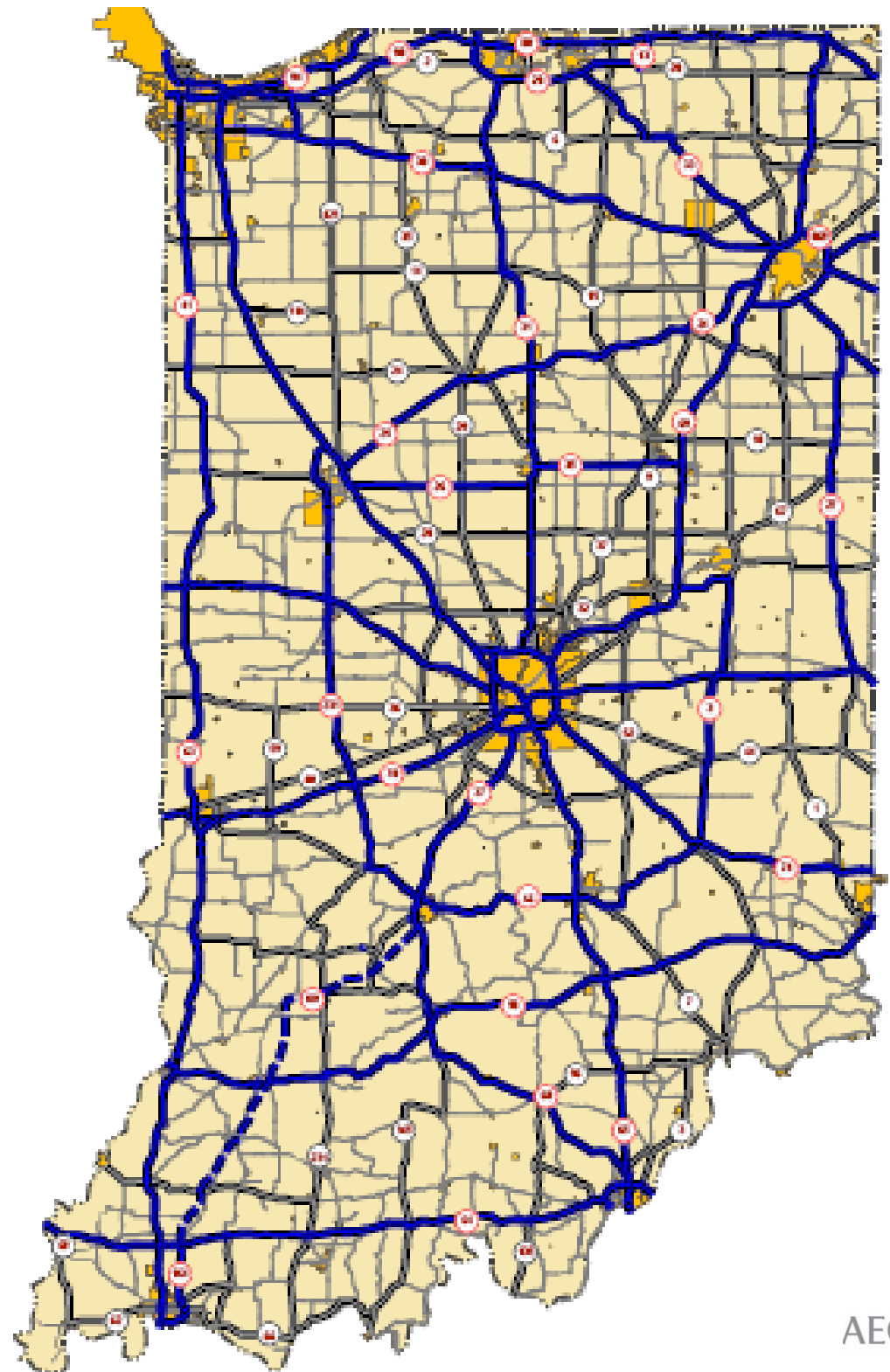
Access Classification System for INDOT

- Access Classification System incorporates features from:
 - INDOT 25-Year Plan – Mobility Corridor Concept
 - INDOT Roadway Design Manual – Area Types
 - INDOT Driveway Permit Manual – Driveway Types



INDOT Mobility Corridor Hierarchy

- Statewide Mobility Corridors
- Regional Corridors
- Sub-Regional Corridors



Refinement of the INDOT Access Classification System

- Initial classification performed: all State roadways assigned an access category and associated spacing guidelines
- INDOT's District System Assessment Engineers reviewed access categories and guidelines versus real-world conditions
- ACS was refined based on feedback received
- Districts reviewing access classifications for State highways



Overview of INDOT Access Classification System

Access Category	Type	Cross-Section	At-grade intersections	Commercial Major Driveways	Other Driveways
Interstate Highways and Freeways					
Tier 1: Statewide Mobility Corridors	A	Multi-Lane			
	B	2-lane			
Tier 2: Regional Corridors	A	Multi-lane			
	B	2-lane			
Tier 3: Sub-Regional Corridors	A	Multi-lane			
	B	2-lane			



Tier 3: Sub-Regional Corridors

Type A: Multi-Lane Roadways

		At-Grade Public Street Intersections	Access Driveways ^{1,2}	
			Commercial Major	All other driveways
Permitted?		Yes	Restricted	Restricted
Traffic movements allowed		Full movements ³	Full movements ³	RIRO ⁴
Traffic control devices		Traffic signal ⁵	Traffic signal ⁵	STOP ⁶
Spacing criteria	Urban areas	<u>Unsignalized</u> spacing per <i>Driveway Permit Manual</i> ⁷	<u>Unsignalized</u> spacing per <i>Driveway Permit Manual</i>	Spacing per <i>Driveway Permit Manual</i>
		Ideal <u>signalized</u> spacing = 1/2 mile ^{8,9}	Ideal <u>signalized</u> spacing = 1/2 mile ^{8,9}	
	Rural areas	<u>Unsignalized</u> spacing per <i>Driveway Permit Manual</i> ⁷	<u>Unsignalized</u> spacing per <i>Driveway Permit Manual</i>	Spacing per <i>Driveway Permit Manual</i>
		Ideal <u>signalized</u> spacing = 1/2 mile ¹⁰	Ideal <u>signalized</u> spacing = 1/2 mile ¹⁰	

Footnotes provide additional details.



Selected ACS Footnotes

- Driveways are to be avoided in functional area of an intersection.
- Driveways on Tier 1 highways are allowed only if no alternative access is available.
- Signal spacing is limited to 1/2 mile. 1/4 mile spacing is acceptable for highways where speed is ≤ 40 mph in built-up urban areas.
- Where existing signal spacing is less than or equal to the minimum guidelines, no additional signals are allowed without a waiver.



Elements of INDOT Access Management Program

- Access Classification System
- Access spacing and related criteria
- Enhanced local coordination
- Training and education
- Applying retrofit techniques
- Other actions



Access Spacing and Related Criteria: General Notes

- Spacing for all unsignalized intersections per AASHTO stopping sight distances (based on speed)
- Signalization allowed only at State highway intersections with:
 - Public streets
 - “Commercial Major” driveways
 - Note: All signals must meet MUTCD warrant criteria
- Cross-road access management guidelines based on intersection functional area



Unsignalized Access Spacing

Highway Speed (mph)	Minimum Spacing (feet)*
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

*Based on AASHTO Stopping Sight Distance (2004)



Traffic Signal Spacing

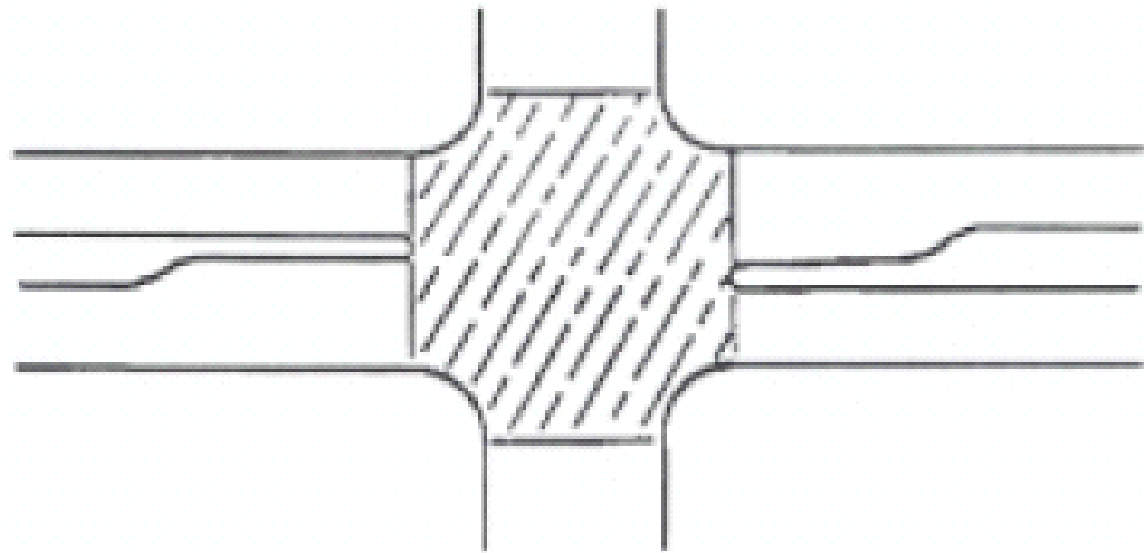
Tier	Ideal Signalized Intersection Spacing Guideline*	Minimum Acceptable Bandwidth for Deviation from Ideal Signalized Intersection Spacing	
		Urban	Rural
1A and 1B	1/2 mile	45%	50%
2A and 2B	1/2 mile	40%	45%
3A and 3B	1/2 mile	35%	40%

* A 1/4-mile spacing guideline applies to State highways with speeds \leq 40 mph located within a built-up urban area, regardless of tier.

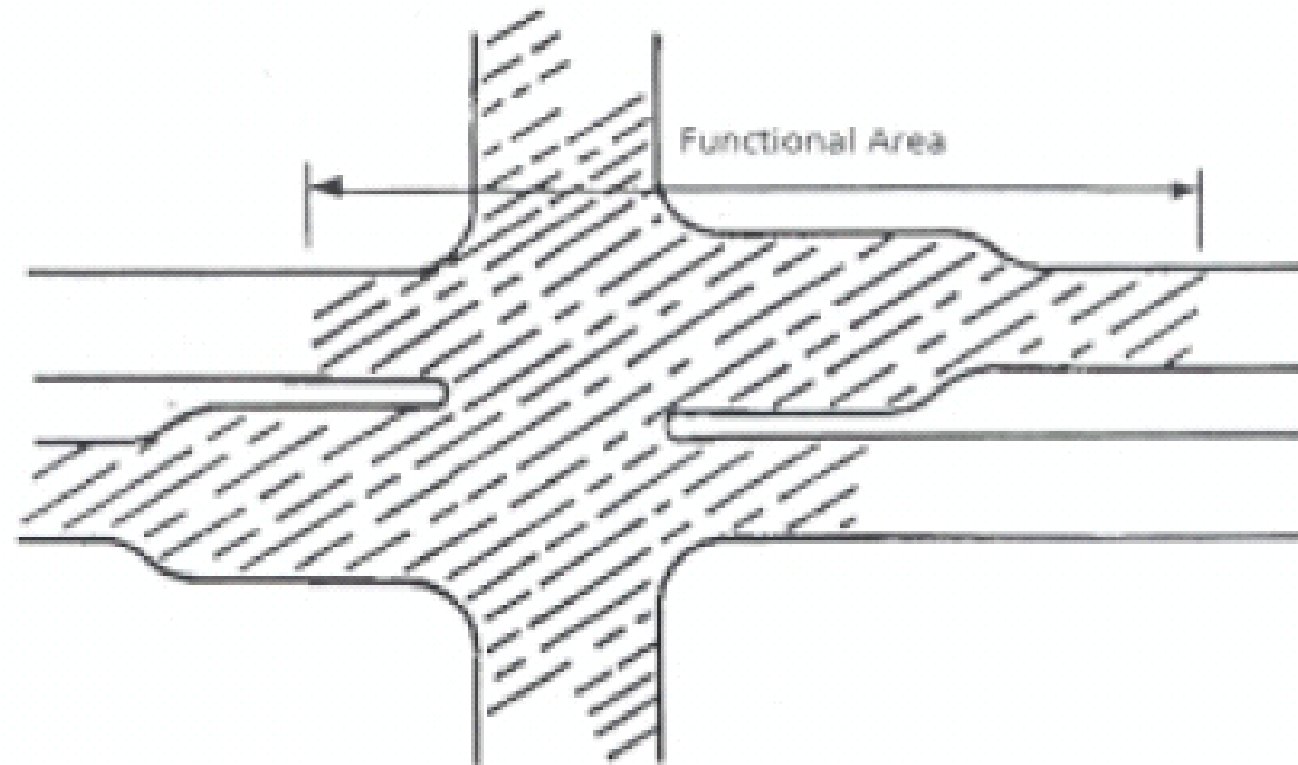


Cross-road Access Spacing:

Intersection Physical Area vs. Functional Area



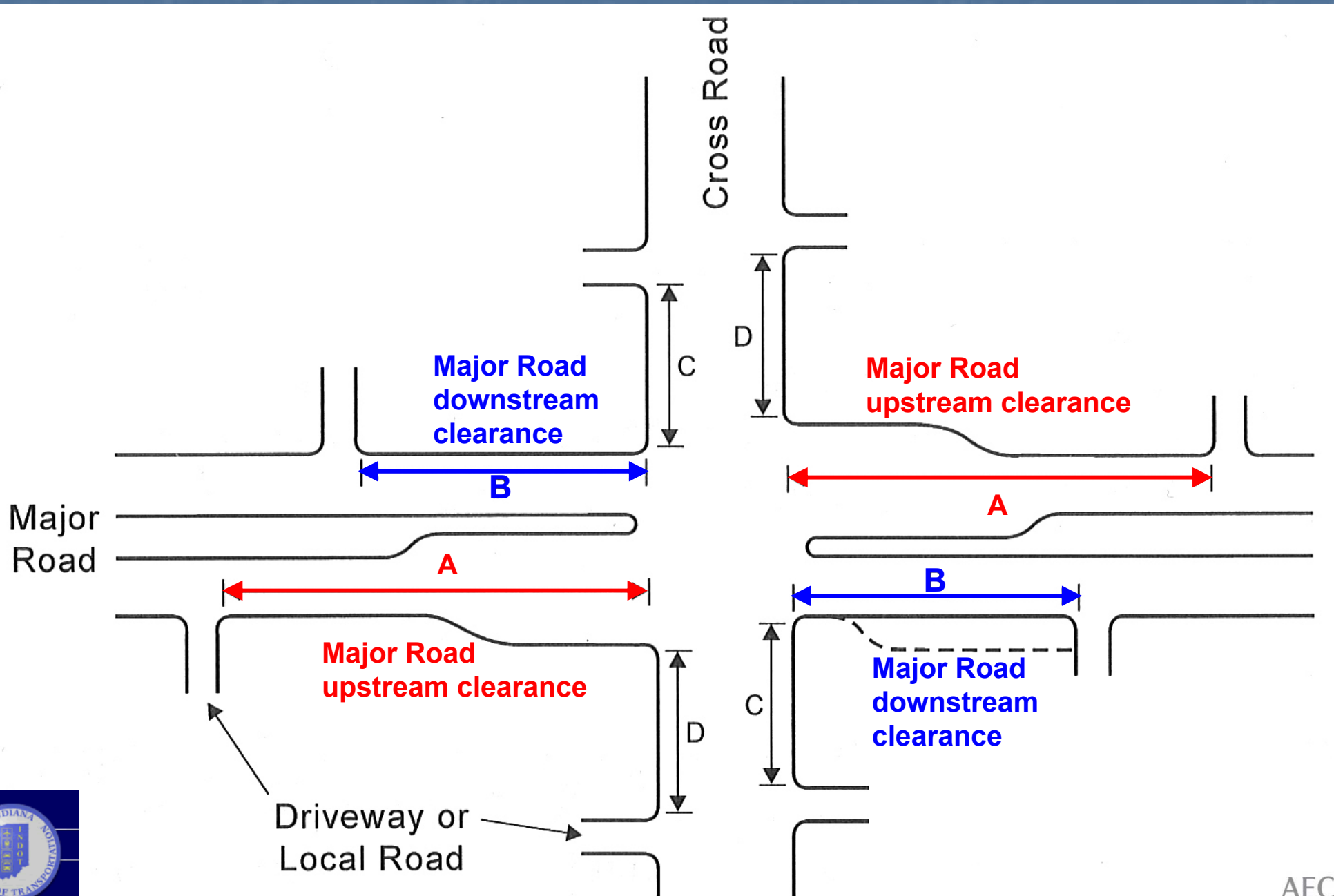
Defined by Physical Area



Defined by Functional Area



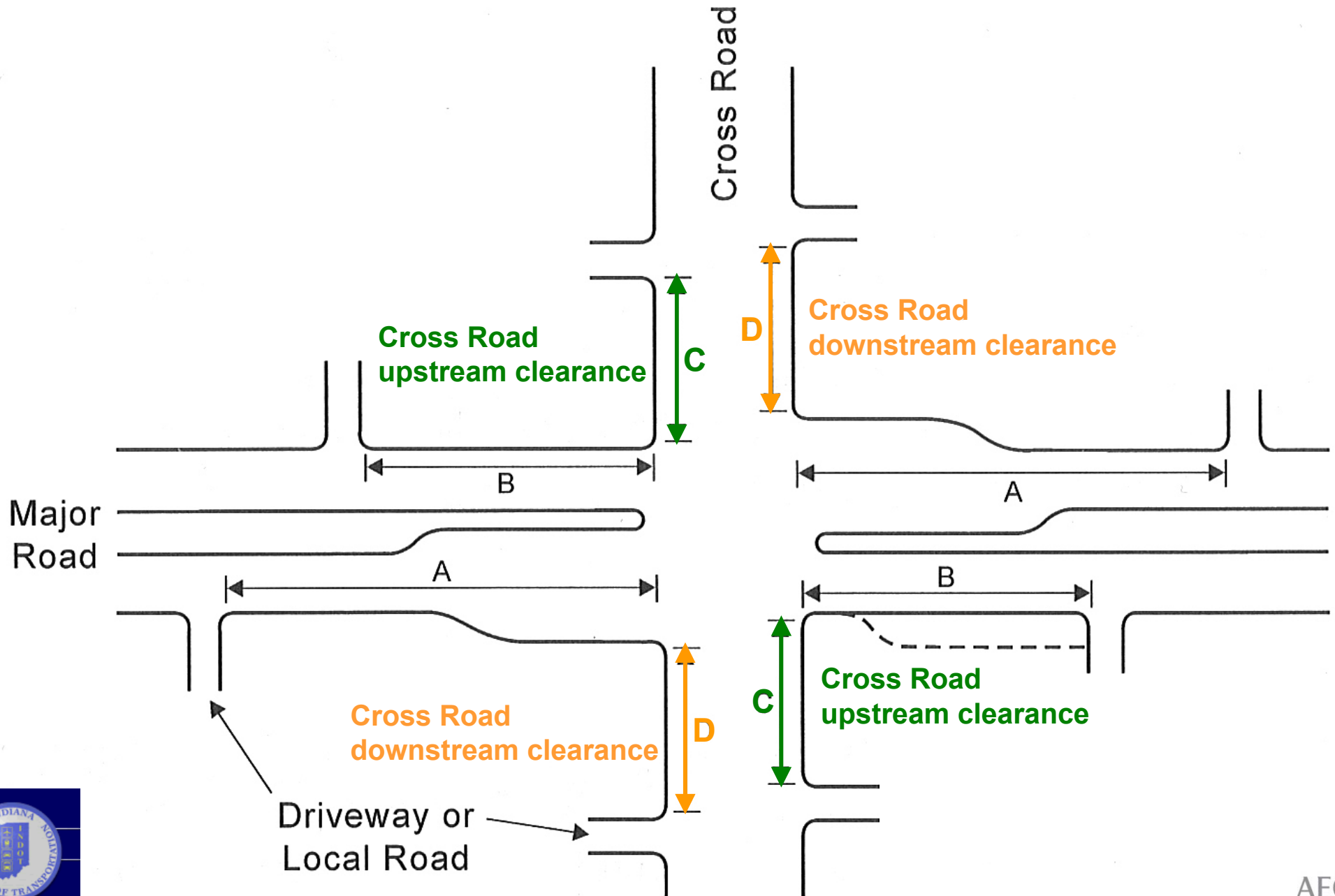
Cross-road Access Spacing



Source: Stover, V., and F. Koepke, Transportation and Land Development, 2nd Edition, 2002.



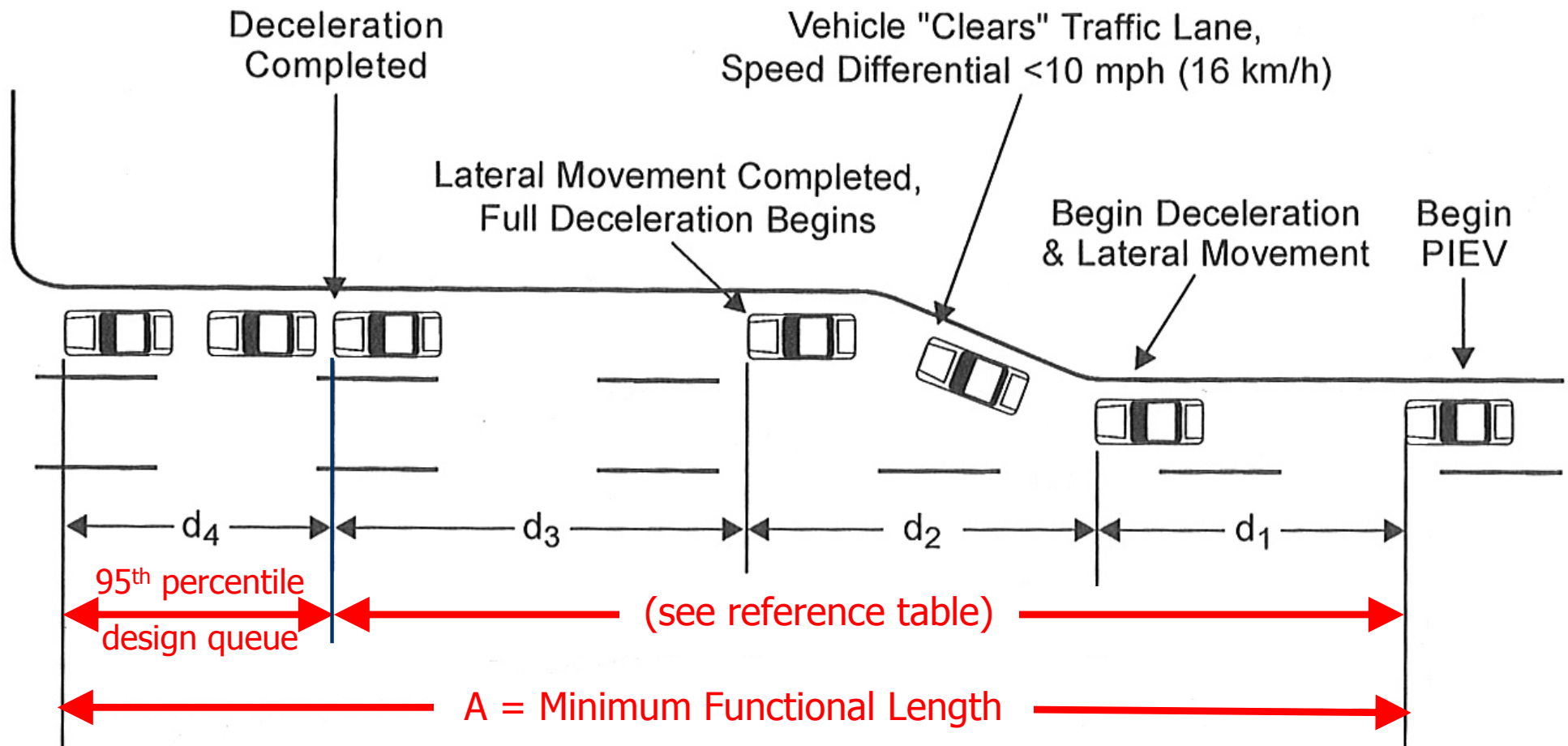
Cross-road Access Spacing



Source: Stover, V., and F. Koepke, Transportation and Land Development, 2nd Edition, 2002.



Major Road Upstream Clearance



d_1 = distance traveled during perception-reaction time

d_2 = distance traveled while driver decelerates and maneuvers laterally

d_3 = distance traveled during full deceleration and coming to a stop

d_4 = storage length

Major Road Upstream Clearance

Speed (mph)	Desirable Conditions		Limiting Conditions	
	Maneuver Distance ^{2,6} (ft.)	PIEV ^{3,4} Plus Maneuver Distance ^{5,6} (ft.)	Maneuver Distance ^{5,7} (ft.)	PIEV ⁶ Plus Maneuver Distance (ft.)
20	70	130	70	100
25	110	185	105	140
30	160	250	145	190
35	215	320	190	240
40	275	395	245	305
45	345	475	300	365
50	425	570	365	440
55	510	670	435	515
60	605	780	510	600
65	710	900	590	685
70	820	1,025	680	785

Source: Stover, V., and F. Koepke, *Transportation and Land Development, 2nd Edition*, 2002.



Example: Calculating Major Road Upstream Clearance

- Given:
 - Posted speed = 50 mph
 - 95th percentile queue length = 100 feet (determined through intersection capacity analysis)
 - Undeveloped area
- Calculate functional length



Example: Calculating Major Road Upstream Clearance

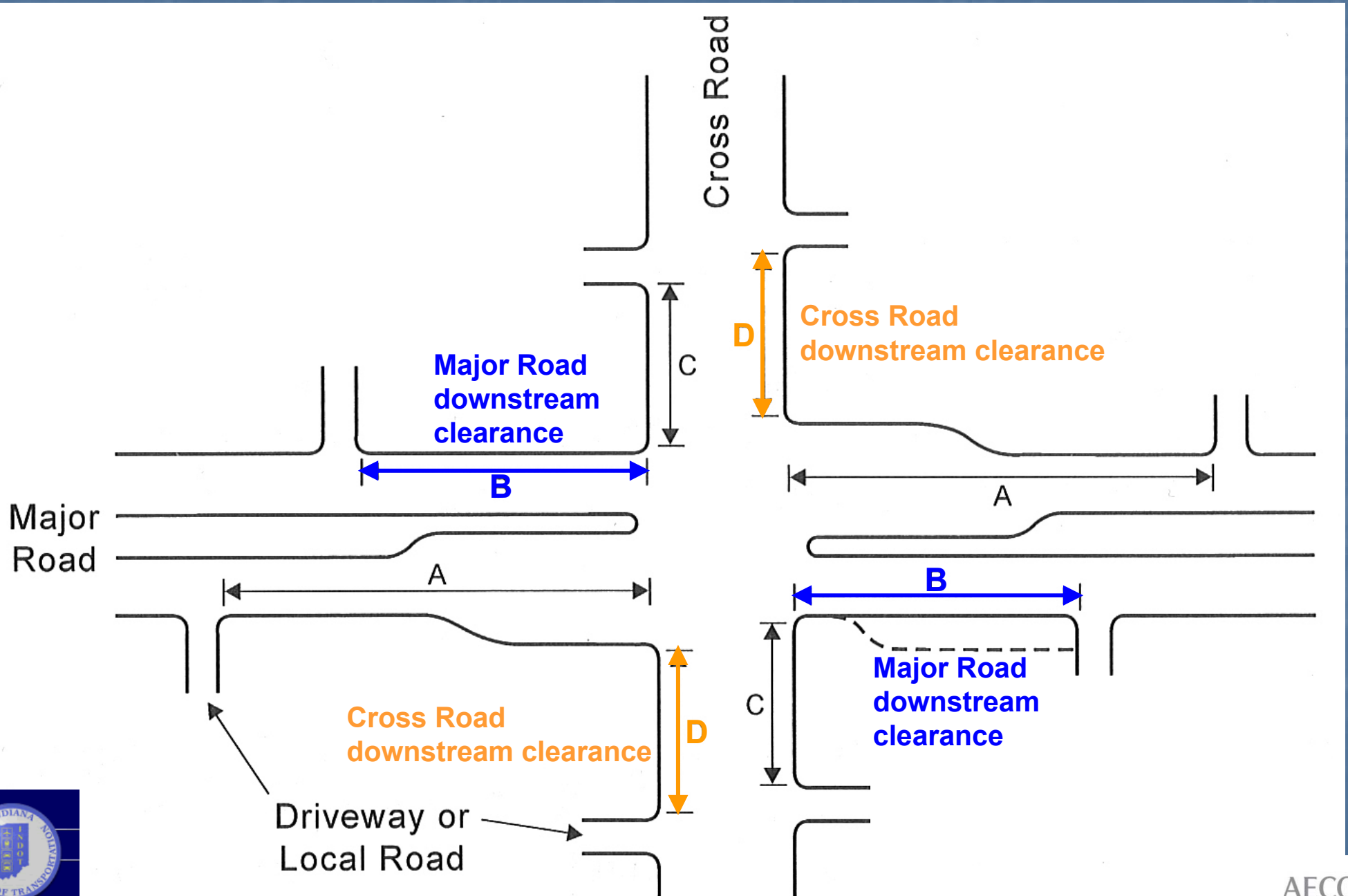
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70	820	1,025	680	785

Source: Stover, V., and F. Koepke, *Transportation and Land Development, 2nd Edition*, 2002.



$$\text{Functional Length} = 100' + 570' = 670'$$

Downstream Clearance Distances



Source: Stover, V., and F. Koepke, Transportation and Land Development, 2nd Edition, 2002.



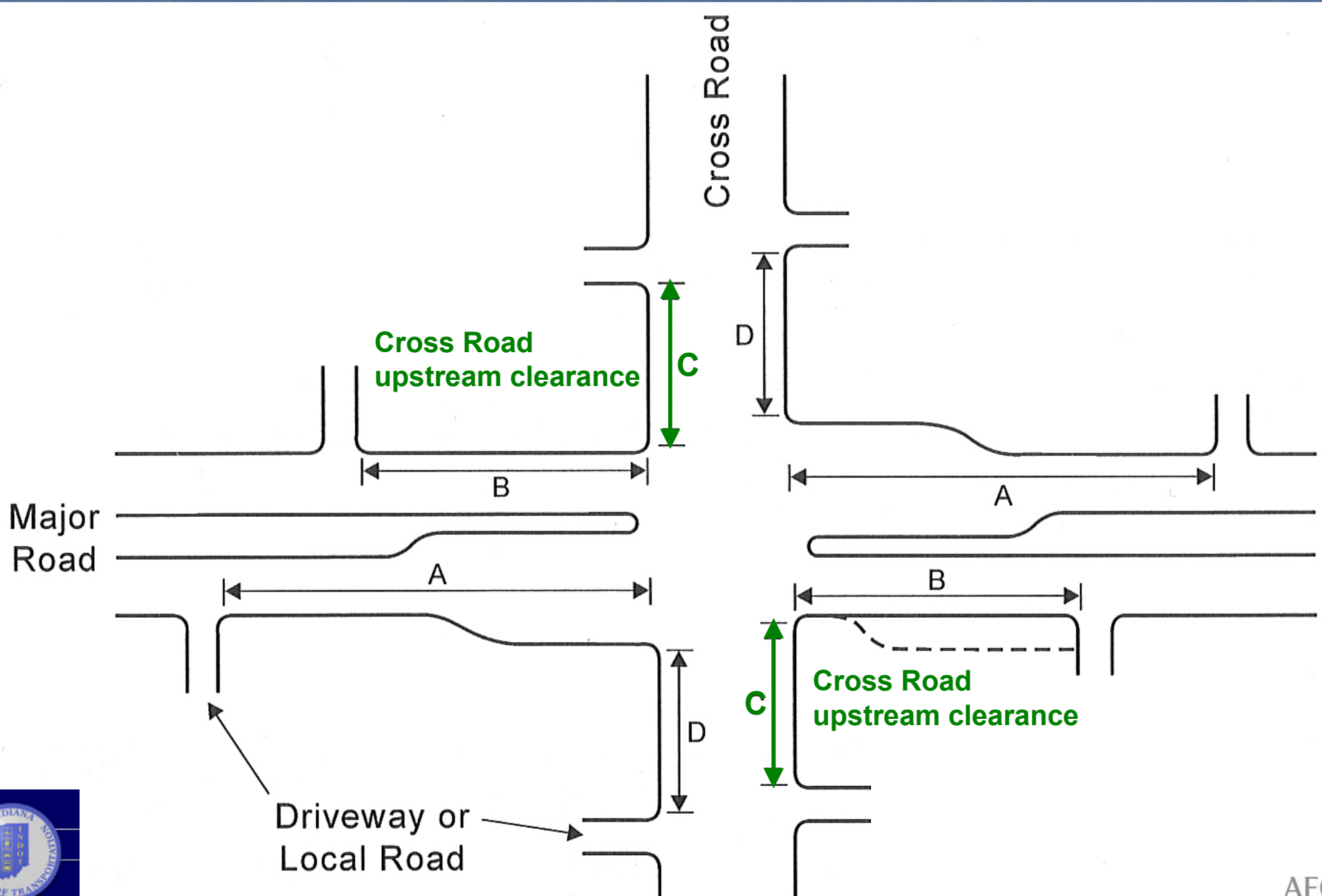
Downstream Clearance Distances

“B” and “D” based on speed and AASHTO stopping sight distance:

Roadway Speed (mph)	Minimum Spacing (feet)
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



Cross-road Upstream Clearance



Source: Stover, V., and F. Koepke, Transportation and Land Development, 2nd Edition, 2002.



Cross-road Upstream Clearance

- “C” = greater of:
 - Distances based on speed and AASHTO stopping sight distance (table) →

OR

- 95th percentile design queue length

Roadway Speed (mph)	Minimum Spacing (feet)
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

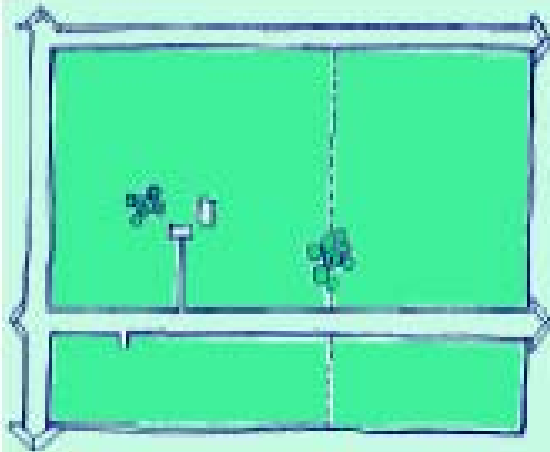


Elements of INDOT Access Management Program

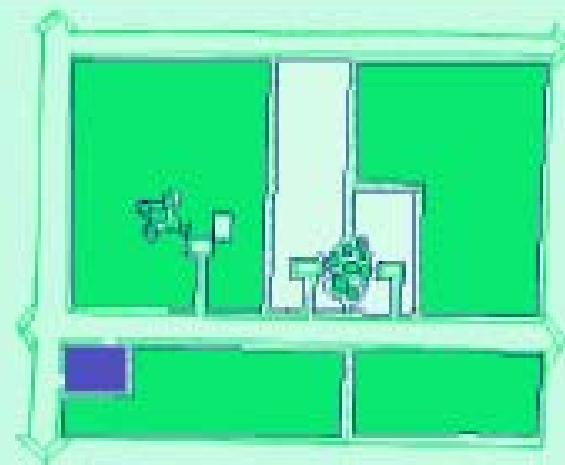
- Access Classification System
- Access spacing and related criteria
- **Enhanced local coordination**
- Training and education
- Applying retrofit techniques
- Other actions



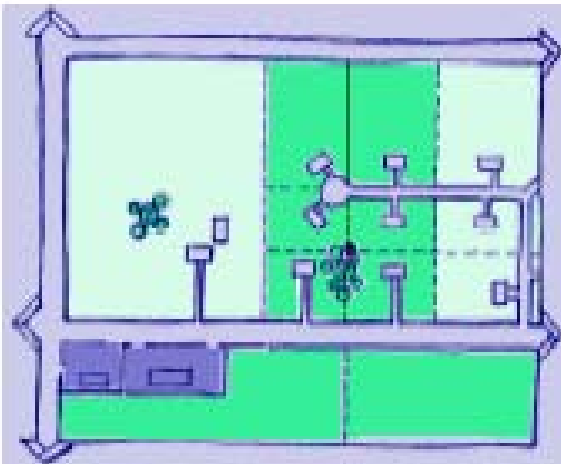
Need for Local Coordination



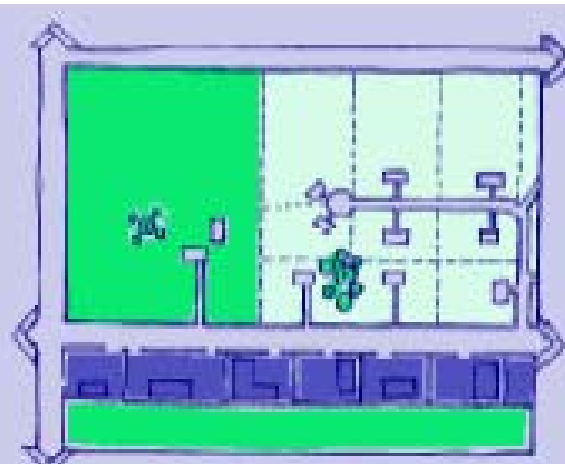
*Small,
uncoordinated land
use decisions...*



*create problems
over time.*



*When problems
become apparent...*



*the best solutions
are no longer
available.*

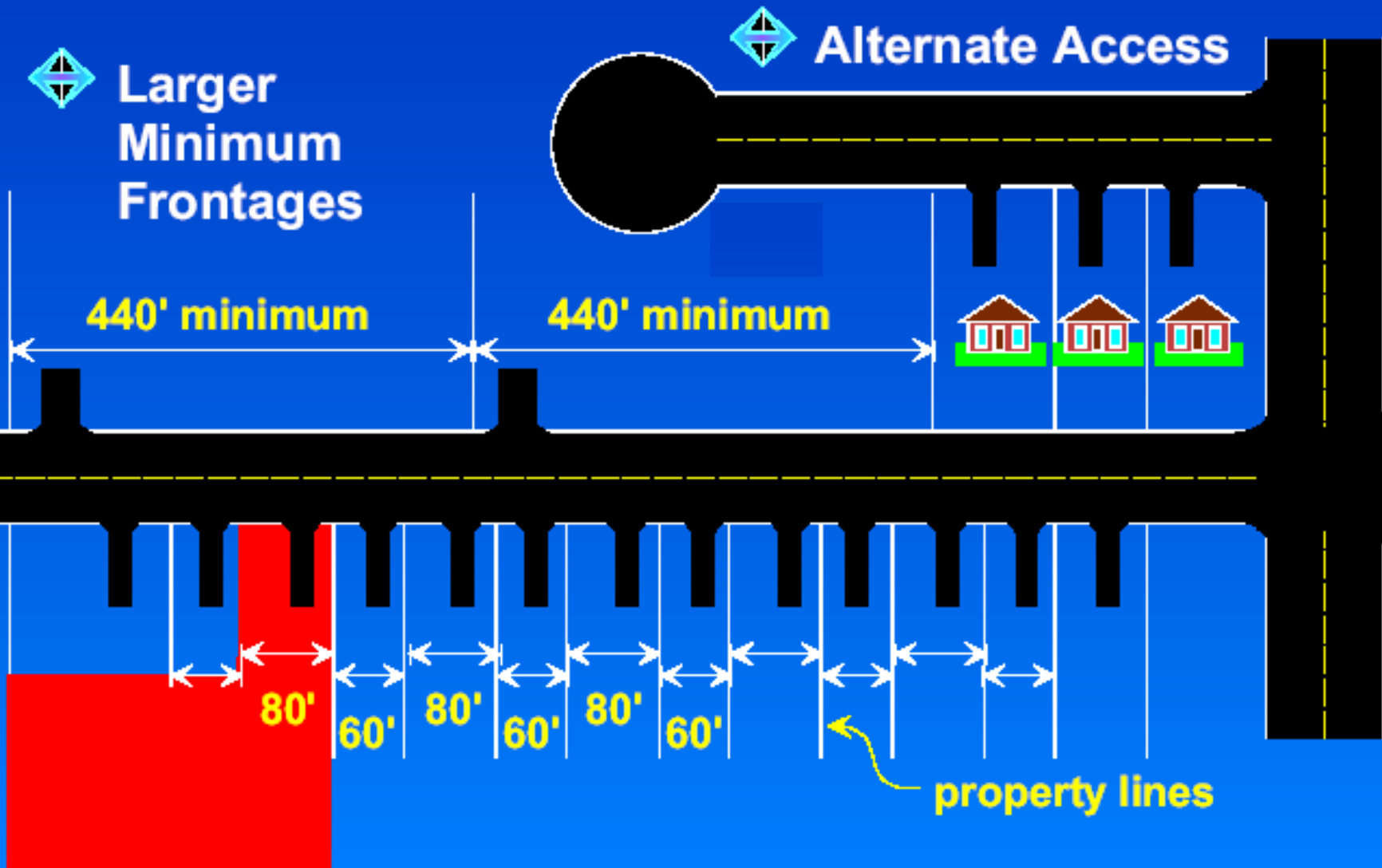


Enhanced Local Coordination

- Rezoning actions and land use approvals
- Residential subdivisions
- Commercial developments
- Site plan review
- Other intergovernmental coordination



Improved Subdivision Regulations



Elements of INDOT Access Management Program

- Access Classification System
- Access spacing and related criteria
- Enhanced local coordination
- **Training and education**
- Applying retrofit techniques
- Other actions



Training and Education

- Technical workshops and short-courses for technical staff
- “Executive overview” training for non-technical staff
- Educational efforts for other stakeholders



2009 Training Dates and Locations

- Monday, June 15: Greenfield

- 9:30 am to 3:00 pm
- INDOT Greenfield District office

- Tuesday, July 7: Vincennes

- 9:30 am to 3:00 pm
- Vincennes University – 1500 Chestnut Street, Room 142

- Wednesday, July 8: Fort Wayne

- 9:30 am to 3:00 pm
- INDOT Warsaw Unit, US 30 at Fox Farm Road, Warsaw, Indiana



Elements of INDOT Access Management Program

- Access Classification System
- Access spacing and related criteria
- Enhanced local coordination
- Training and education
- **Applying retrofit techniques**
- Other actions



Potential for Retrofit?



Consider Retrofit Techniques

- Apply general principles of access management:
 - Limit the number of conflict points
 - Separate the conflict points
 - Remove turning vehicles and queues from through movements
 - Maintain progression speeds along arterials
 - Encourage access to streets with the lowest functional classification, where this option exists

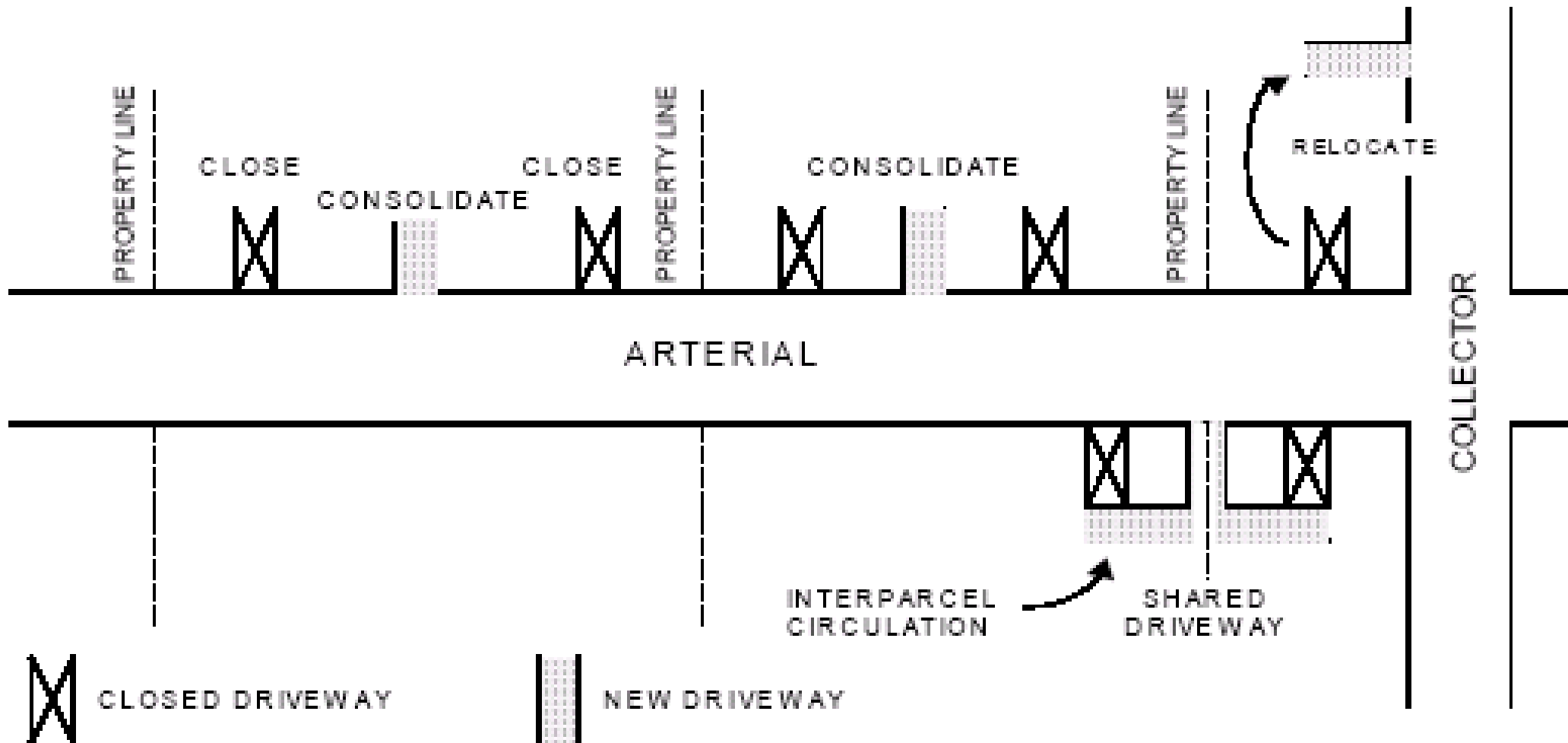


Retrofit Techniques for Driveway Location and Operations

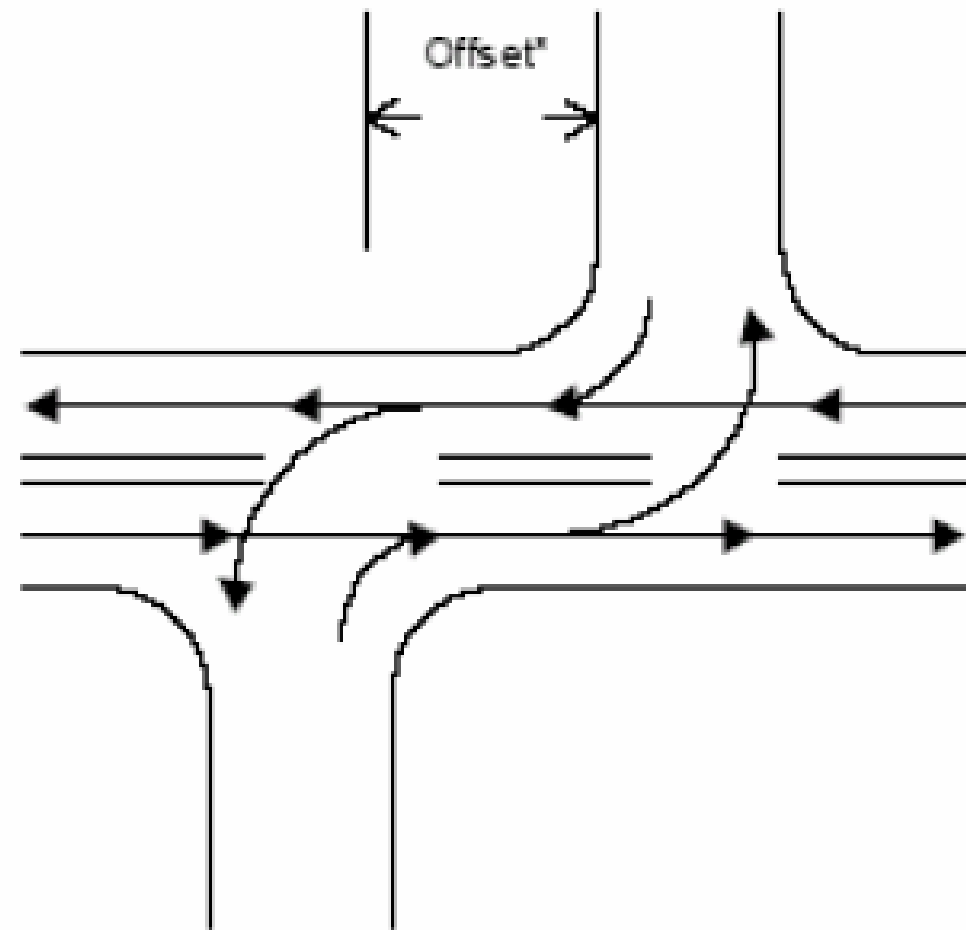
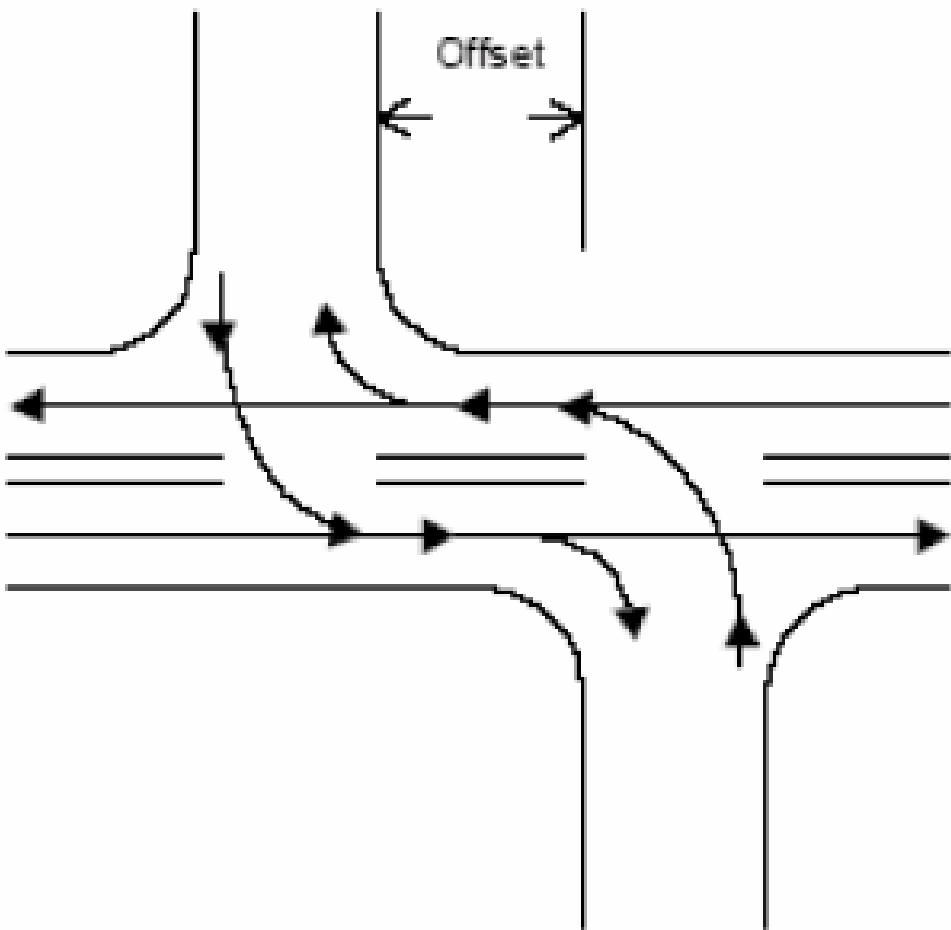
- Consolidate driveways/create shared access
- Coordinate driveway locations on opposite sides of roadways
- Maximize corner clearance
- Provide left-turn lanes and auxiliary lanes
- Install median barriers
- Install channelizing islands



Retrofit Techniques: Driveway Consolidation and Relocation



Retrofit Techniques: Driveway Location Coordination

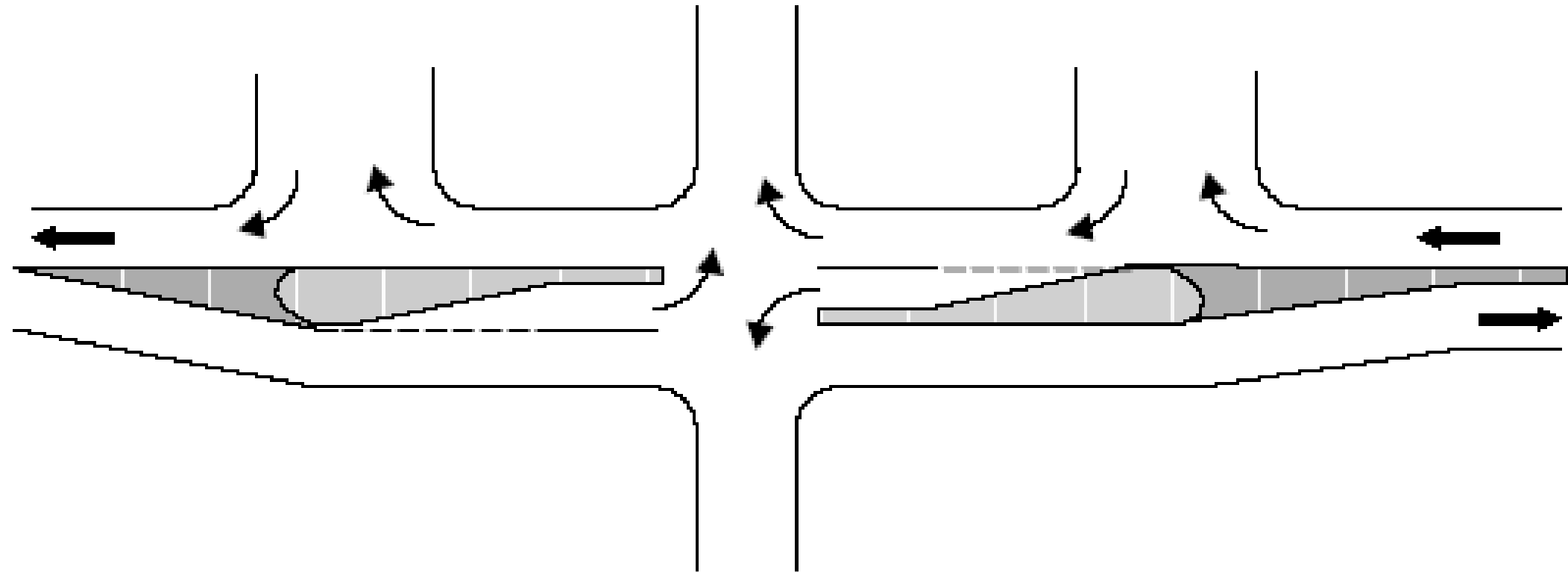


Retrofit Techniques for Roadway Design

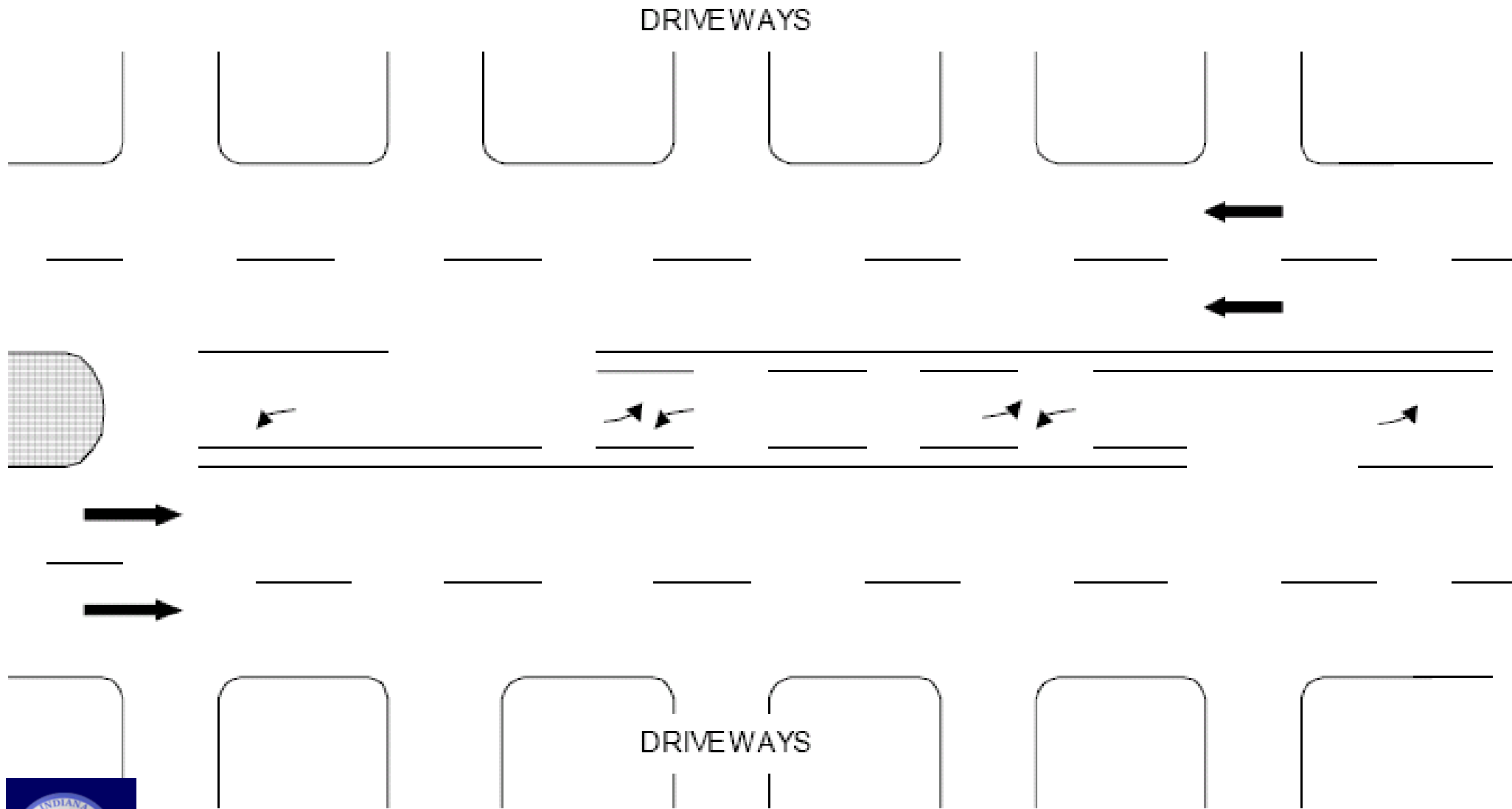
- Construct/modify median to allow only left-turns
- Install two-way left-turn lane (TWLTL)
- Provide left-turn deceleration lane
- Provide right-turn deceleration lane
- Install right-turn deceleration lane to serve several driveways
- Install non-traversable median with left-turn deceleration lane



Retrofit Technique: Installation of Non-Traversable Median



Retrofit Technique: Install Two-Way Left-Turn Lane



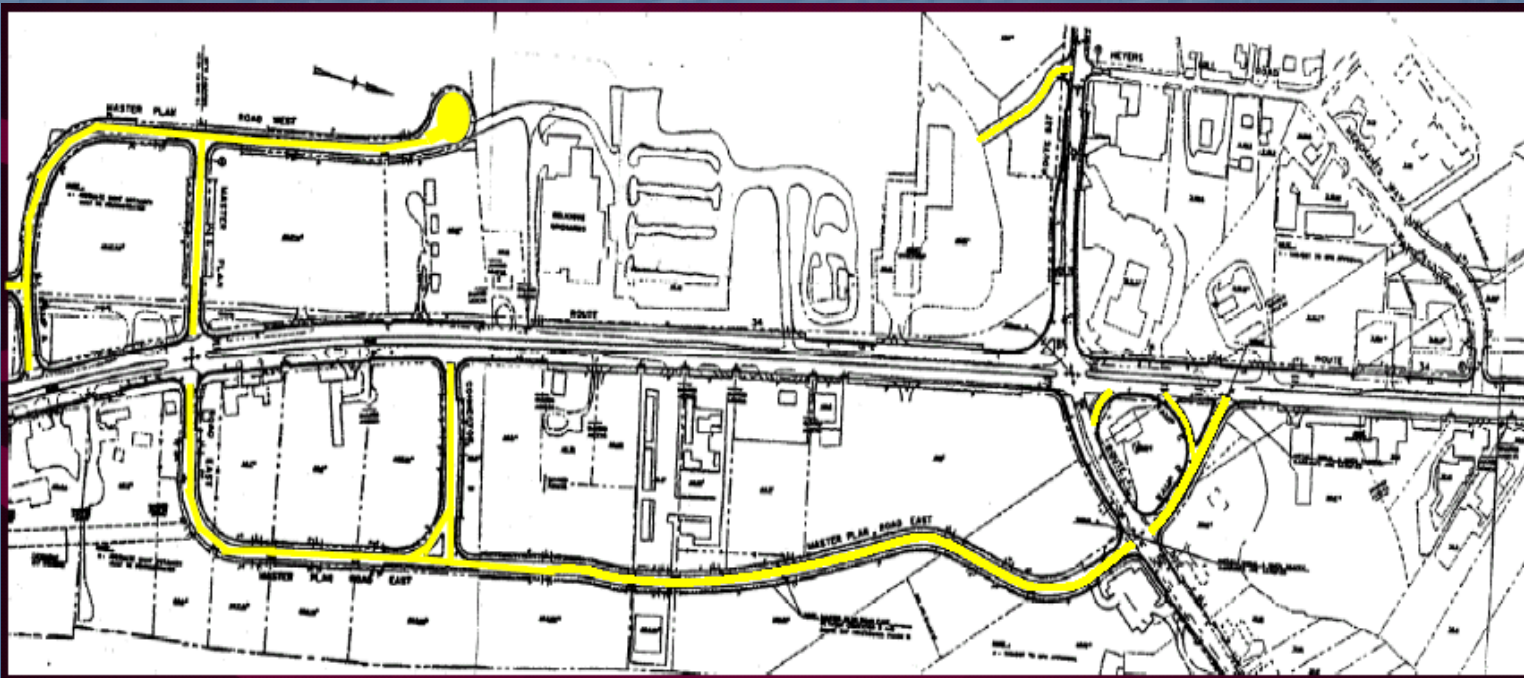
Elements of INDOT Access Management Program

- Access Classification System
- Access spacing and related criteria
- Enhanced local coordination
- Training and education
- Applying retrofit techniques
- **Other actions**



Prepare Access Management Plans

- Corridor-specific plans focused on high-priority problem areas (existing or potential future)
- Could be prepared for both developing areas and retrofit situations, although expected outcomes would be different
- Partnership between INDOT and locals



Purchase Access Rights

- The purchase of access rights helps INDOT manage access
- Focus on high-priority corridors
- INDOT has had projects to purchase rights in the past
- INDOT has exchanged access rights for driveway permit



Training Areas

- TECHNICAL PRESENTATION (9:30 am)
 - Overview of access management
 - Legal authority
 - How can you institute access management?
 - **Break**
 - FHWA Video: "Safe Access is Good For Business"
 - Elements of INDOT's access management program
 - **Resources available**
- **LUNCH (12:00 to 1:00 pm)**
- WORKSHOP (1:00 pm)
- WRAP-UP (2:50 pm)



General Resources Available

- TRB Access Management Manual (2003)
- Transportation and Land Development, 2nd Edition, V. Stover and F. Koepke (2002)
- Research reports (NCHRP and others)*
- Access Management Conference proceedings*
- Guides and handbooks*
- Outreach materials*

*www.accessmanagement.info



INDOT Resources Available

- *INDOT Access Management Guide (2006)*
- Educational brochure
- Pamphlets
 - *Do You Need Access to a State Highway?*
 - *INDOT and You: Partners in Access Management*
- Model ordinances
- All available at:
<http://www.in.gov/indot/3273.htm>



INDOT Access Management Guide

- Intended as a day-to-day reference manual for INDOT staff
- Intended for use in conjunction with existing documents:
 - *Driveway Permit Manual*
 - *Applicant's Guide to Traffic Impact Studies*
 - *Roadway Design Manual*



Indiana Department of Transportation

Access Management Guide

Prepared by:
Urbitran Associates, Inc.

In association with:
Bernardin Lochmueller and Associates, Inc.
Dye Management Group

August 2006



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INDOT Access Management Guide: Table of Contents

1) Introduction

- Benefits, Principles

2) INDOT Driveway Permit Program

- Process, forms and documentation

3) INDOT Access Class. System & Design Criteria

4) Access Management Techniques

- Retrofit techniques, Access Management Plans

5) Inter-Governmental Coordination

- Opportunities for coordination, elements of decision-making



Brochure:

Improving Access Management in Indiana

- What is Access Management?
- Benefits
- Principles
- Information on INDOT Driveway Permit program



INDIANA DEPARTMENT OF TRANSPORTATION
Driving Indiana's Economic Growth

Pamphlet #1: *Do You Need Access to a State Highway?*

- For distribution to permit applicants
- Contains general information:
 - Why a permit is needed
 - Permit process and fees
 - Web-links to forms & documents
 - Contact information for INDOT District Offices



Pamphlet #2: *INDOT and You: Partners in Access Management*

- For distribution to local governments
- Contains general information:
 - What is Access Management?
 - Why do it? Benefits?
 - “10 Ways to Manage Access”
 - Web-links
 - Contact information for INDOT District Offices



Model Ordinances

- Land use actions generally beyond the direct control of INDOT
- Ordinance provides guidance to local governments
- Tool to help implement access management on the local level



Access Management Workshop Preview



Workshop Overview

- **State Trunk Highway (STH) 50 in SE Wisconsin:**
 - Major east-west arterial in growing corridor
 - Connects I-94 to the west with established city (Kenosha, WI) to the east
 - WisDOT is studying a 5-mile section
 - High volumes and high crash rates
 - Frequent operational problems



Workshop Overview, cont'd.

- **Study section:**
 - Most critical segment within corridor
 - Approximately 4,000 feet long
 - Between Union Pacific Railroad and 57th Avenue
 - Land use includes retail and residential
 - Roadway has a 4-lane divided cross-section
 - Right-of-way width averages 200 feet
 - Large (50 acres±) undeveloped parcel



Access Management Workshop



Workshop Overview, cont'd.

- **Condition map (4 panels, scale 1"=200')**:
 - Panel 1 (top) – Existing Corridor Conditions (aerial)
 - Street names and land uses
 - Driveway locations
 - Lane configurations and type of traffic control at street intersections
 - Panel 2 – Existing Traffic Conditions
 - AM and PM peak hour turning movement volumes at key intersections
 - AADT volumes
 - Speed limit (40 mph)



Workshop Overview, cont'd.

- **Condition map (4 panels, scale 1"=200')**:
 - **Panel 3 – Crash Analysis**
 - Bubbles indicate 2-year summary of crashes
 - Accident types also shown
 - **Panel 4 (bottom) – Base Map**
 - Existing median breaks



Workshop Overview, cont'd.

- **Aerial photos:**

- Initial aerial photo (1"=200' scale)

- Extends east and west of study area

- Extends approximately 1,600 feet north and south of STH 50

- Recent aerial photo (1"=400' scale)

- Includes Route 31 intersection

- Identifies 50 acre parcel



Workshop Overview, cont'd.

■ Assignment:

- How could access management be implemented in areas that are already developed?
- How can access management be incorporated into future developments?
- Can a continuous secondary street system be developed north and/or south of STH 50?
- Where should access be provided to the 50 acre parcel?
What changes are needed to the local street system?
How should the internal circulation system be configured?





Union

Tires Plus

Mobil

72nd Avenue

IHOP

Bank

74th Street

Target

Apple Bee's

Fazioli's

Water retention basin

Route 31

Gas station & Deli

Am Food

Gold's Gym

STH 50



Burger King

Bank

Walgreens

DC Tile

STH 50

70th Avenue

69th Avenue

76th Street

64th Avenue

Union Pacific Railroad Tracks

50-acre parcel

78th Street

Route 31

78th Place

69th Avenue

79th Street

Access Management Workshop



Suggested Options

- How could access management be implemented in areas that are already developed?
 - Develop secondary road system.
 - Remove or consolidate driveways.
 - Close median openings near intersections.



Suggested Options, cont'd.

- How can access management be incorporated into future developments?
 - Establish coordination between transportation and land use agencies.
 - Expand secondary road system.
 - Provide for interconnections between parcels.
 - Implement shared access.
 - Provide for alternative access.

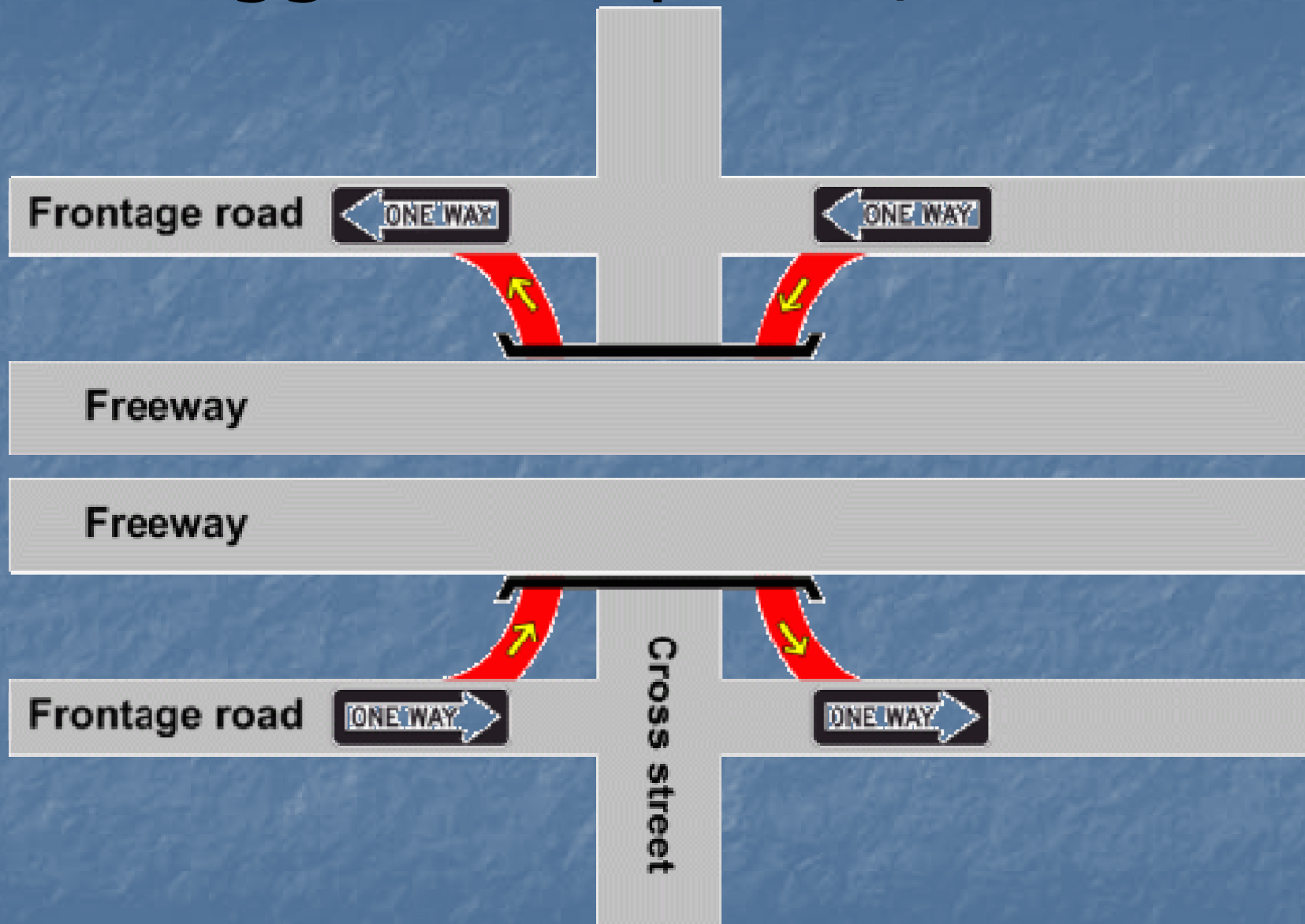


Suggested Options, cont'd.

- Access to 50 acre parcel:
 - Develop access management plan.
 - Emphasize access management in site plan review.
 - Extend 71st Avenue south to STH 50, and relocate traffic signal.
 - Provide access to STH 31:
 - Extension of 78th Street.
 - Extension of 79th Street.
 - Extend new street to southern boundary of 50 acre parcel.



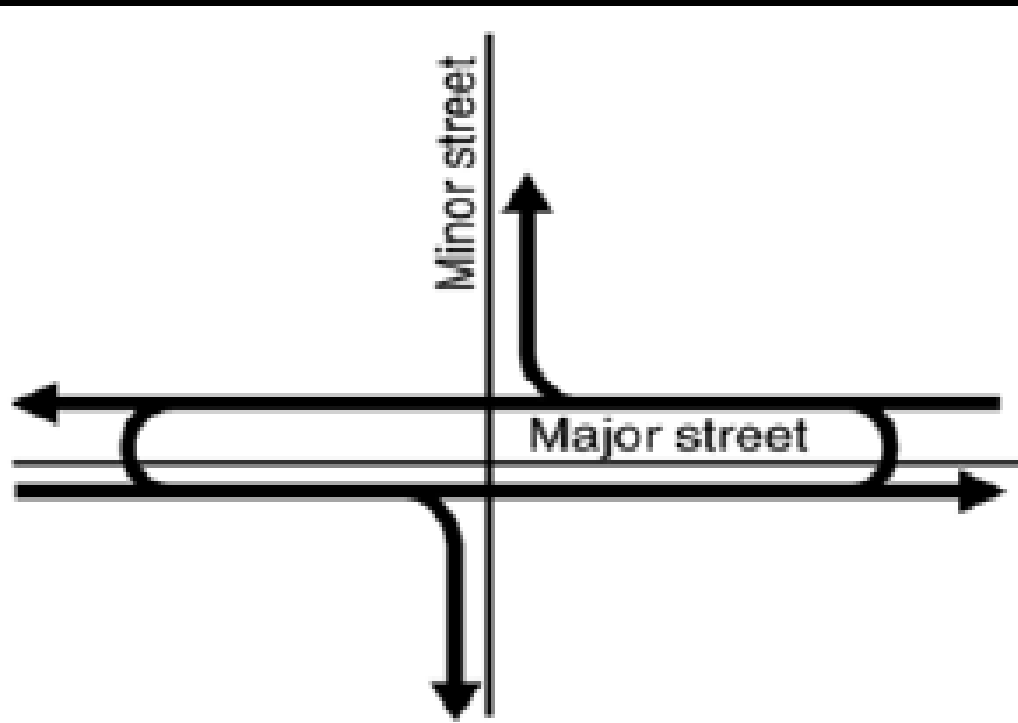
Suggested Options, cont'd.



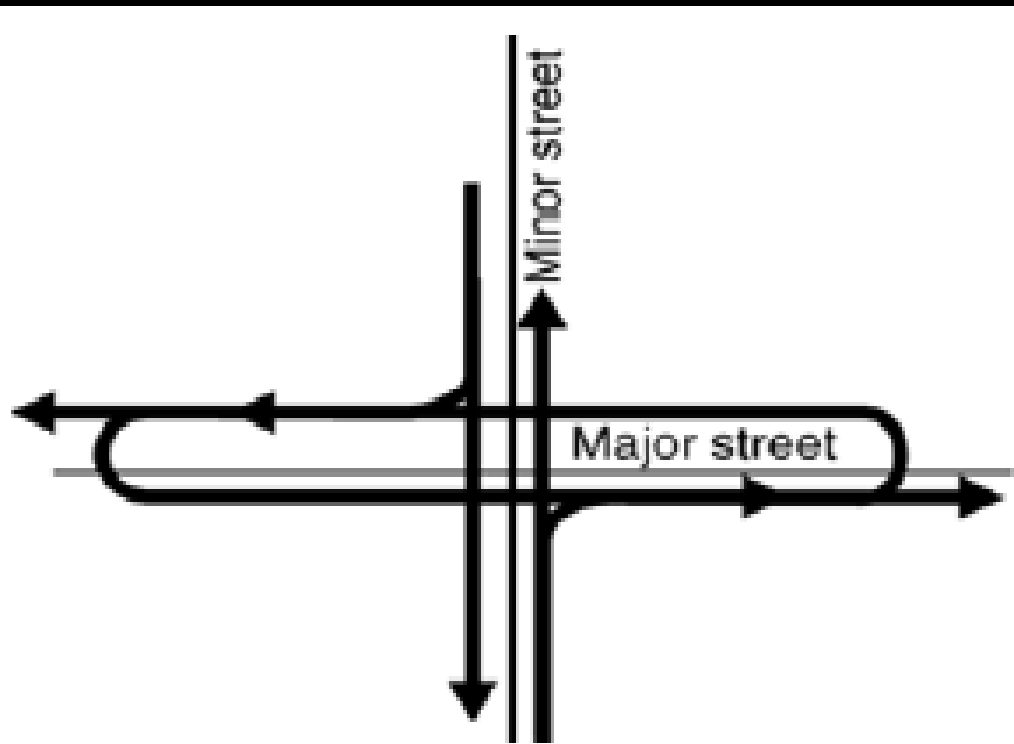
Texas U-Turn



Suggested Options, cont'd.

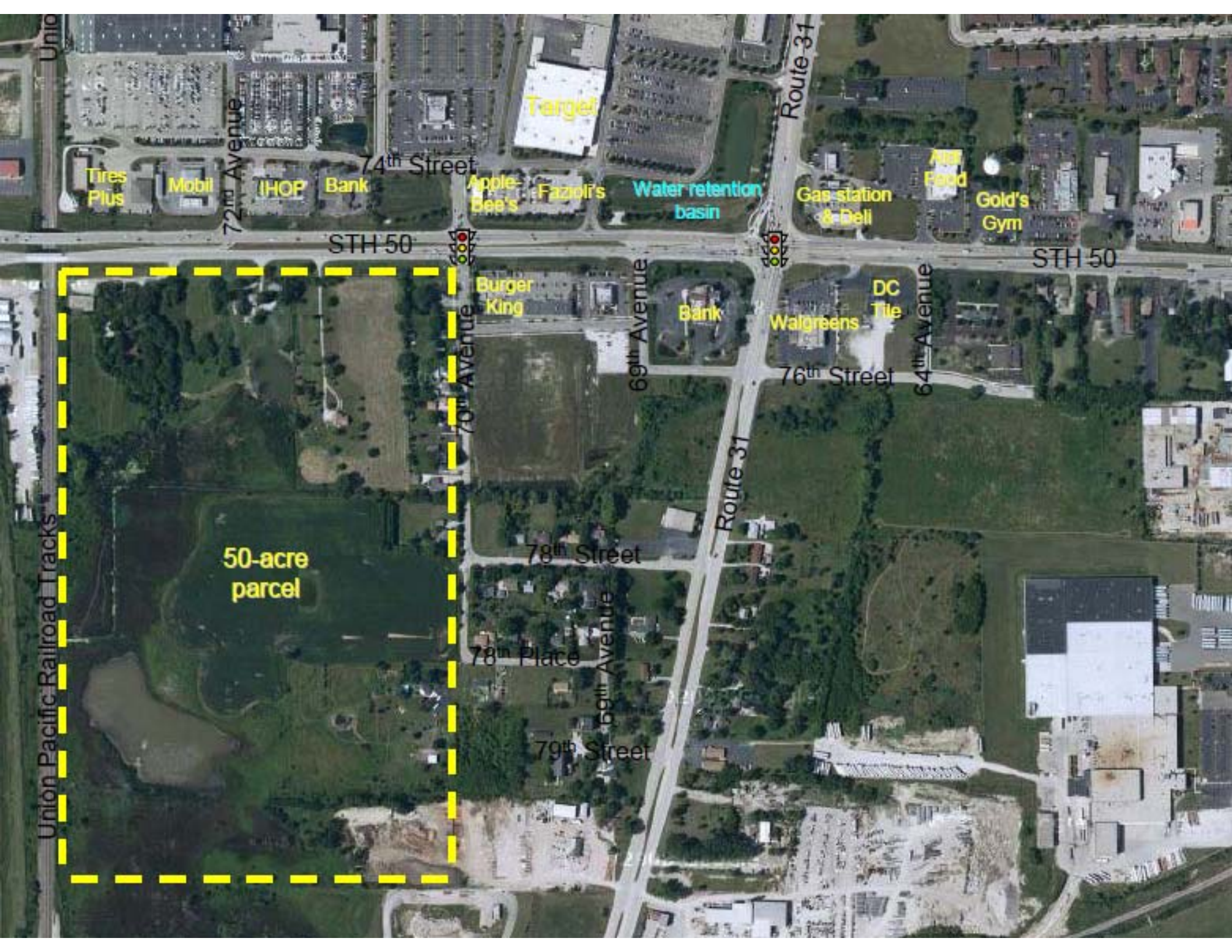


Major street movements



Minor street movements

Michigan U-Turn



Union

Tires Plus

Mobil

72nd Avenue

IHOP

Bank

74th Street

STH 50

70th Avenue

Burger King

Target

Apple Bee's

Fazioli's

Water retention basin

69th Avenue

Bank

Route 31

Gas station & Deli

Agri Food

Gold's Gym

STH 50

Walgreens

DC Tile

76th Street

64th Avenue

Route 31

78th Street

50-acre parcel

78th Place

69th Avenue

79th Street

Union Pacific Railroad Tracks

Wrap Up



For more information...

TRB Access Management website:

<http://www.accessmanagement.info/>

Indiana Access Management Study:

<http://www.in.gov/indot/3273.htm>



Questions

