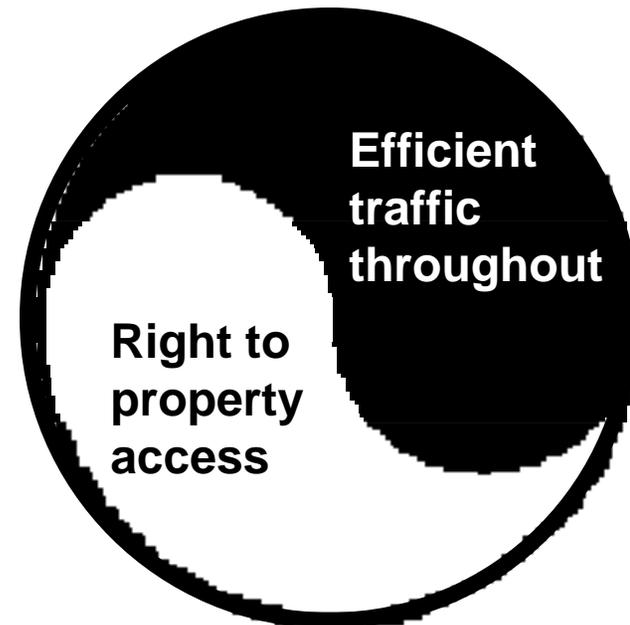


# Access Management Principles



# What is “Managing Access”?

Managing and Planning the Spacing and Design of:

Driveways



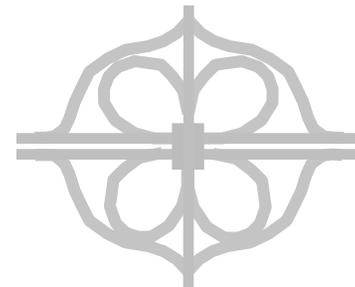
Median Openings



Traffic Signals



Interchanges

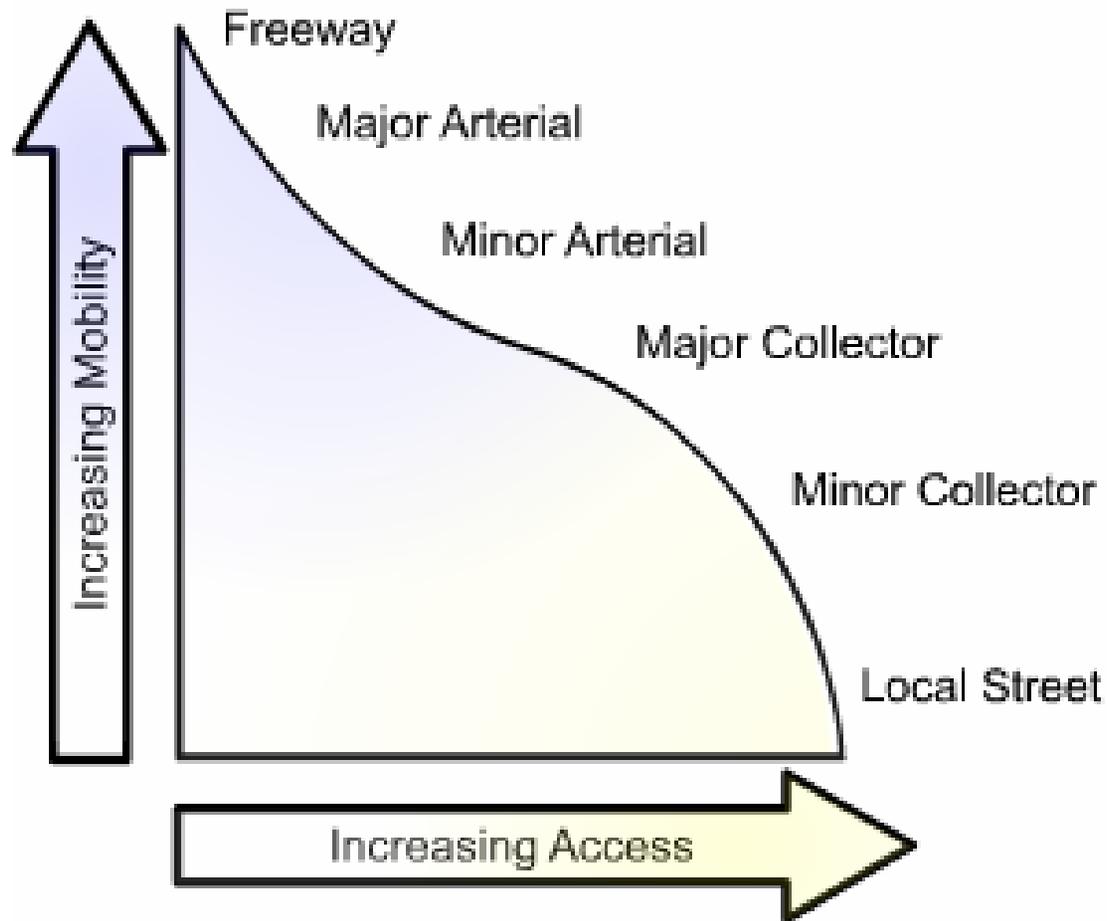


# Definition of Access Management

Access management is the programmatic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway.

# Purpose: Balance Mobility vs. Access

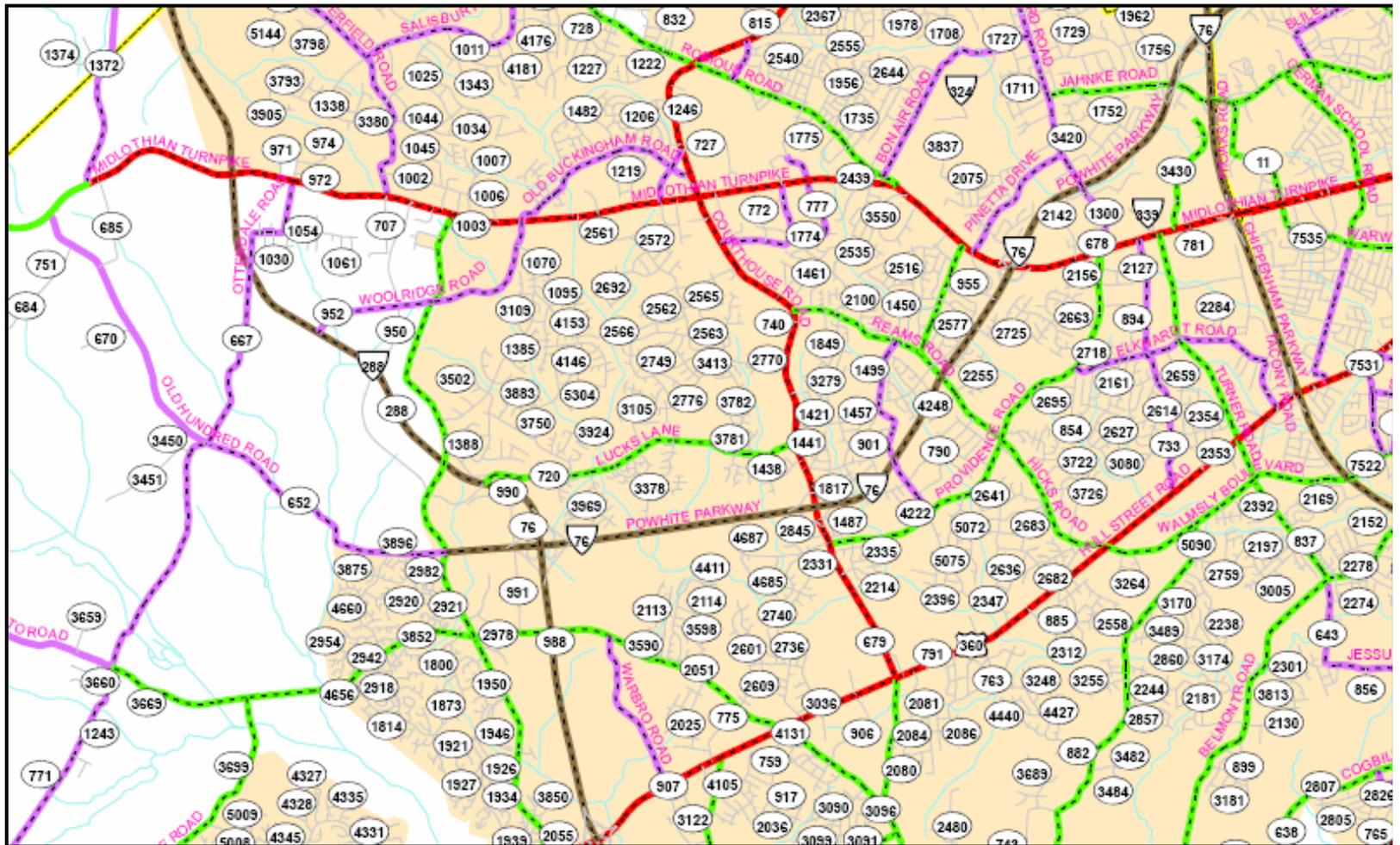
The federal functional classification of highways



## Legend

- Not Classified; Urban Local; Rural Local
- Urban Interstate
- Urban Freeway and Expressway Connecting Links of Rural Principal Arterial
- Urban Other Principal Arterial Connecting Links of Other Rural Principal Arterial
- Urban Minor Arterial
- Urban Collector
- Rural Interstate
- Rural Other Principal Arterial
- Rural Minor Arterial
- Rural Major Collector
- Rural Minor Collector

# Examples of Highway Functional Classifications



# A Brief History of Access Management

National standards for individual driveway design were developed in 1960 – AASHO “An Informational Guide for Preparing Private Driveway Regulations for Major Highways”

NCHRP Report 121 (1971) “Protection of Highway Utility” stands as one of the earliest, most recognized discussions of access control

Beginning of Modern Access Management – credited to Colorado, 1979, the 1<sup>st</sup> state to adopt comprehensive access management regulations and standards

## Colorado, 1979

“The lack of adequate access management on the highway system and the *proliferation of driveways* and other access approaches is a major contributor to highway accidents and the greatest single factor behind the functional deterioration of highways in this state. As new accesses are constructed and signals erected, the speeds and capacity of the roadways decrease, and congestion challenges to the motorist increase.”

-- *Colorado State Highway Access Code*

## National Perspective

- “The lack of access control along arterial highways has been the largest single factor contributing to the obsolescence of highway facilities”

*NCHRP Report 121 Protection of Highway Utility*

- “Every study since the 1940’s has indicated a direct and significant link between access frequency and accidents”

*International R/W Assoc. conference paper, 1999*

# Virginia Localities Using Access Management

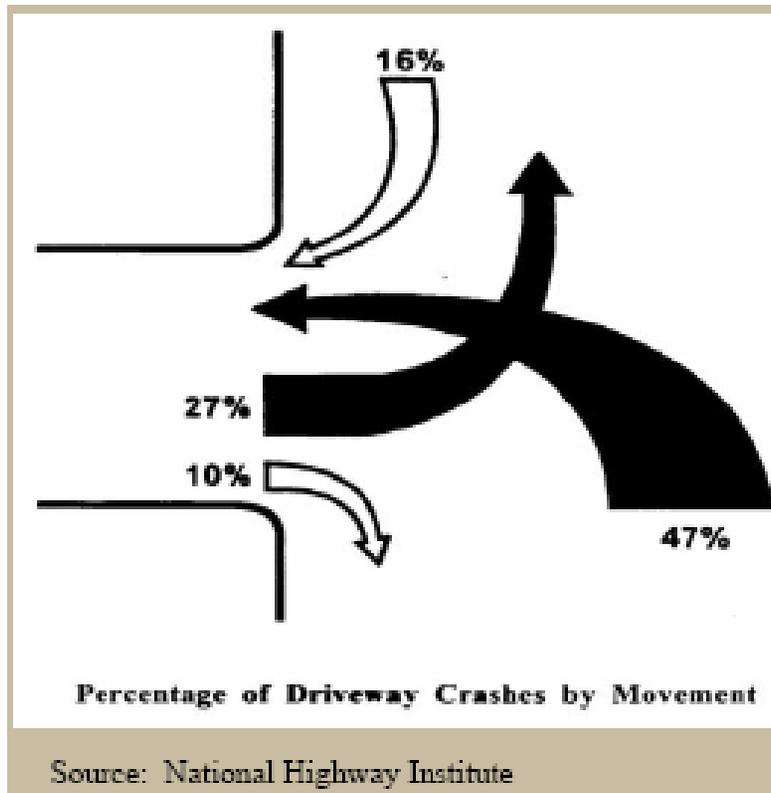
- Amherst County (Rt. 29)
- Eastern Shore (Rt. 13)
- Campbell County (Rt. 29)
- Fauquier County (Countywide)
- Powhatan County (Countywide)
- Goochland County (Countywide)
- New Kent County (Countywide)
- Warren County Rt. 522 Corridor Overlay
- City of Winchester (Citywide)
- Gloucester County Rt. 17 Corridor Overlay

# **Benefits and Consequences**

# Benefits of AM

- Preserve integrity of the roadway system
- **Improve safety** and capacity
- Preserve public investment in infrastructure
- Preserve private investment in properties
- Provide a **more efficient** (and predictable) motorist experience
- Improve “thru” times through a corridor

# % of Driveway Crashes by Movement



The majority of access-related crashes involve **Left Turns** (74%)

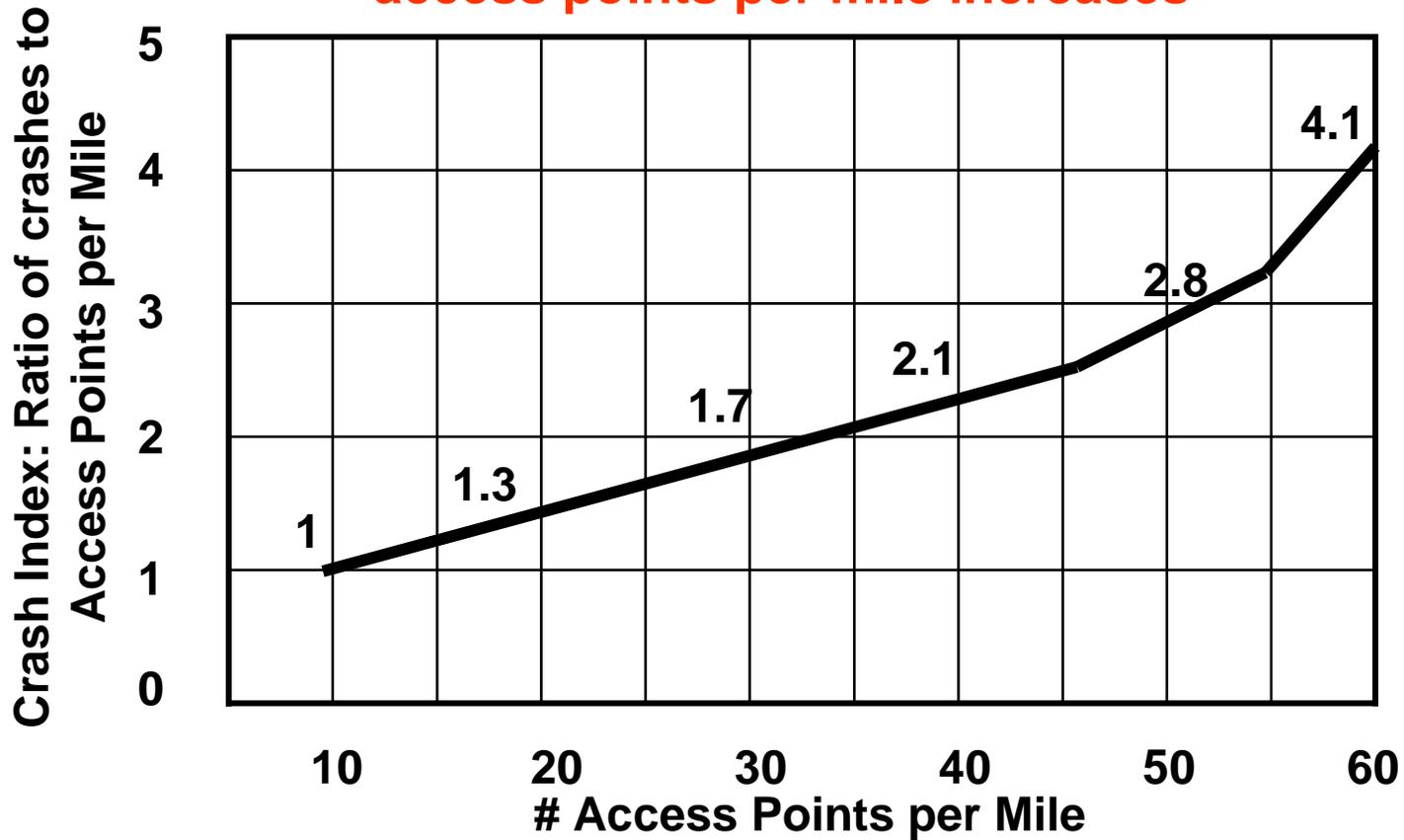


Entrances are inevitable and necessary but as their numbers go up, so too does the propensity for accidents in the corridor.

**Five entrances on highway: multiple points where right & left turning movements will overlap**

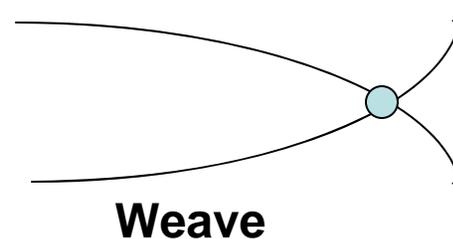
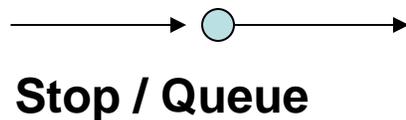
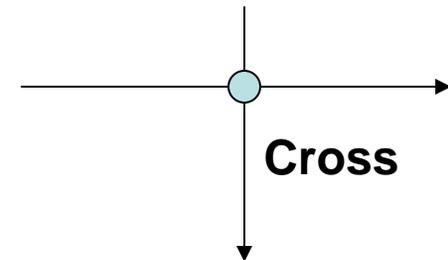
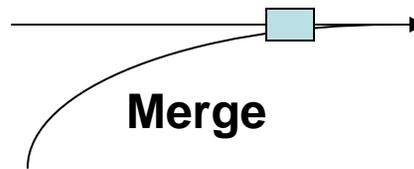
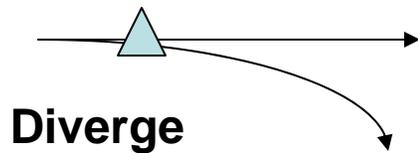
# Composite Crash Rate Indices

Crash rate indices increase as # of access points per mile increases

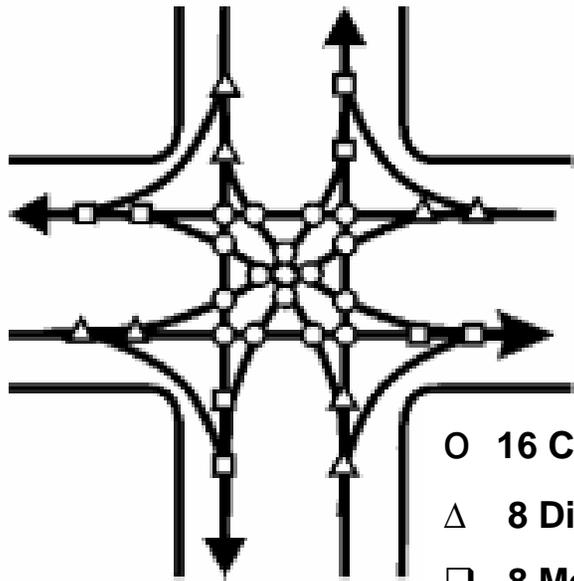


# Conflict Points: Where Traffic Crashes Occur

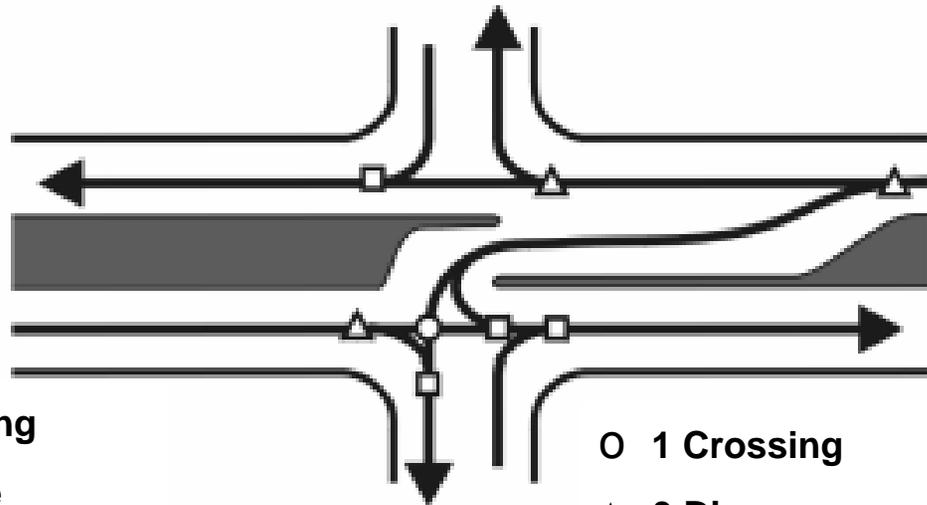
Each access point creates potential conflicts between through traffic and turning traffic.



# Conflicts



○ 16 Crossing  
△ 8 Diverge  
□ 8 Merge  
**32 TOTAL**



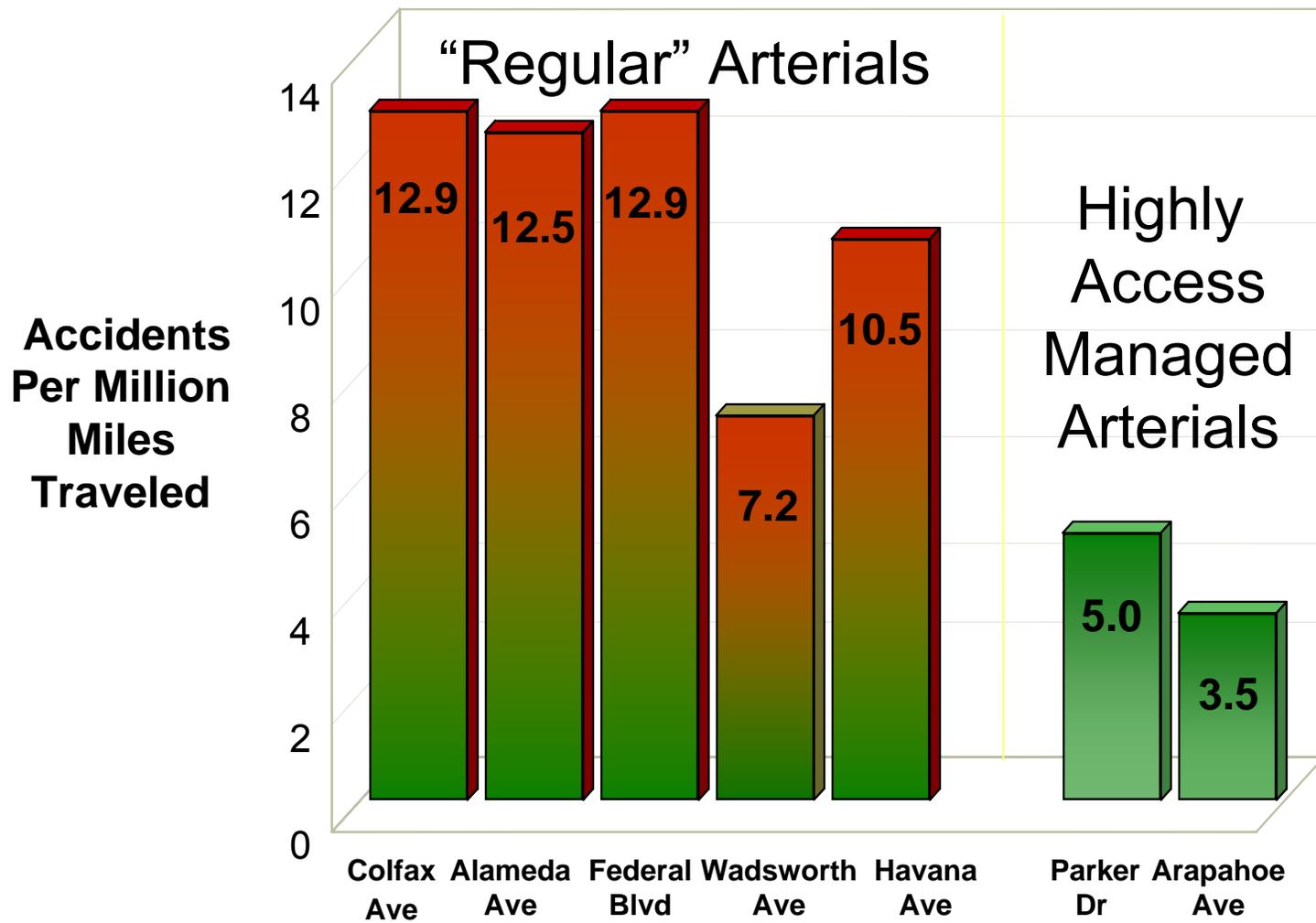
○ 1 Crossing  
△ 3 Diverge  
□ 4 Merge  
**8 TOTAL**

# Consequences of Poor Access Management

- Increase in crashes and crash rates
- Poor capacity throughout
- Increased delays
- Reduced roadway efficiency

# **Access Management in Practice**

**Results—**  
**Fewer accidents on ‘Managed’ roads**

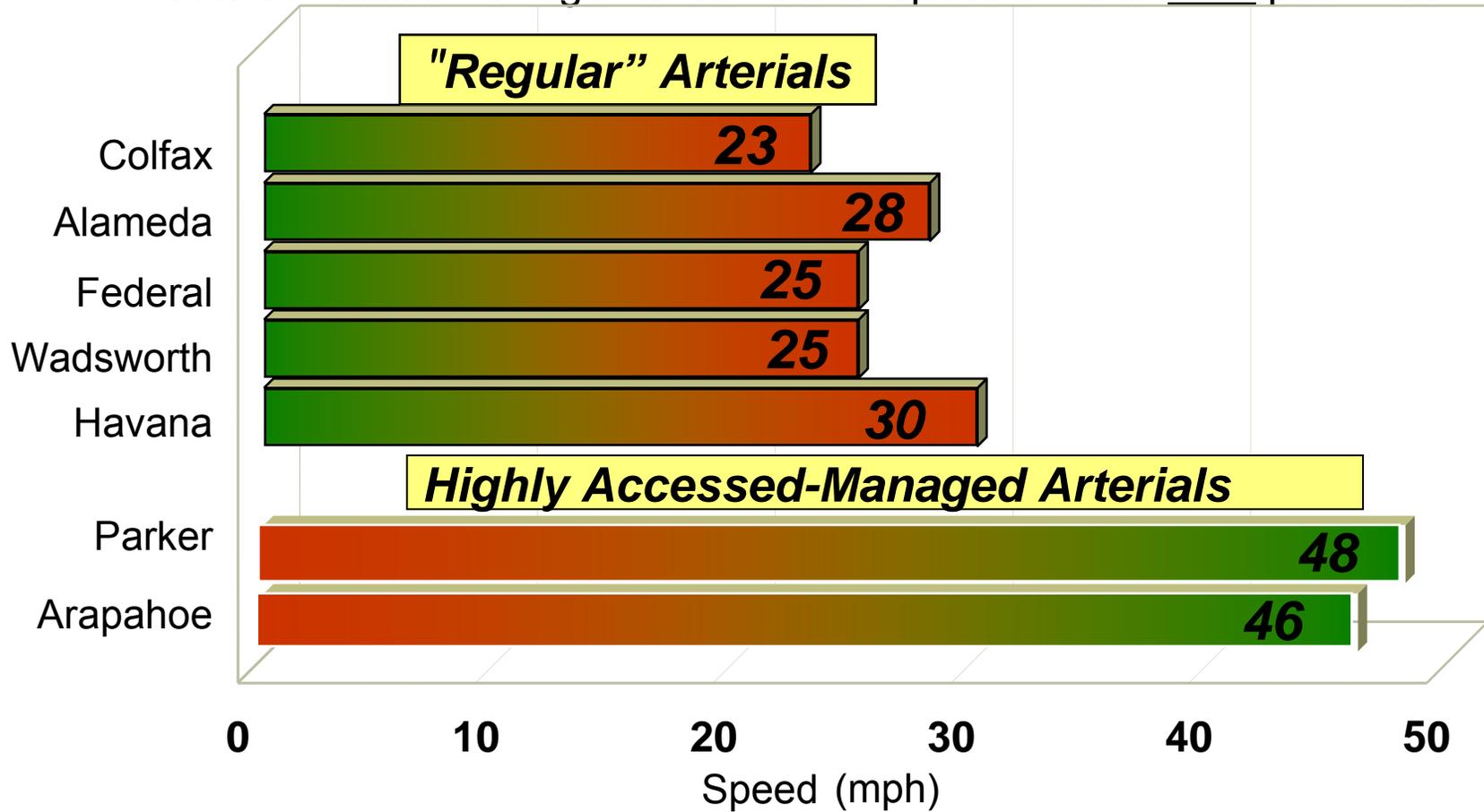


Source:  
"Colorado  
Access Control  
Demonstration  
Project" - 1985

## Results—

# *Higher 'thru' speeds on 'Managed' roads*

Effects of Access Management on travel speeds in the *P.M.* peak hour



# What methods are used?

- Medians
- Right and left turn lanes
- Signals and signal spacing
- Entrance location, spacing, and design
- Corner clearance
- Cross property access
- Shared use entrances
- Frontage roads and connectors



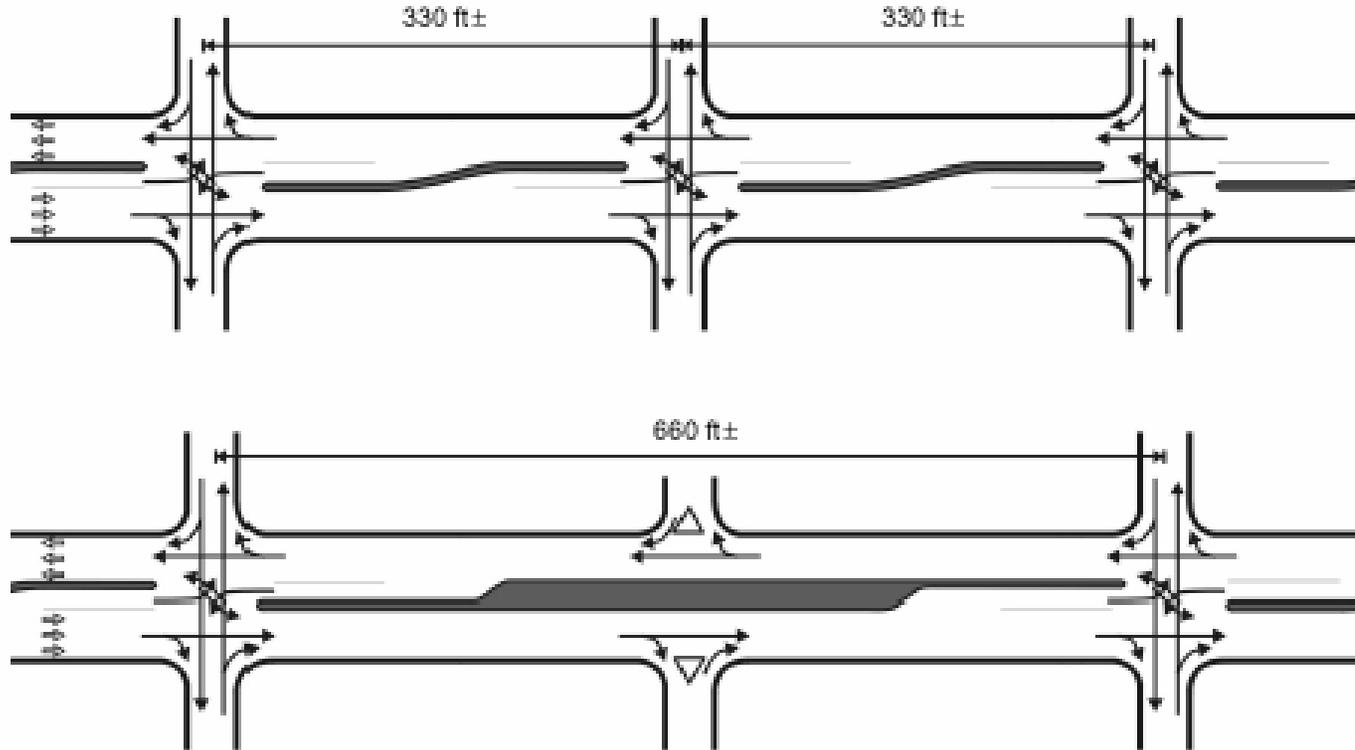
Use non-traversable medians to separate traffic and direct motorists where to access properties.

Use turn lanes to queue separate movements and to “free up” through movements

# Median Redesign

Note:

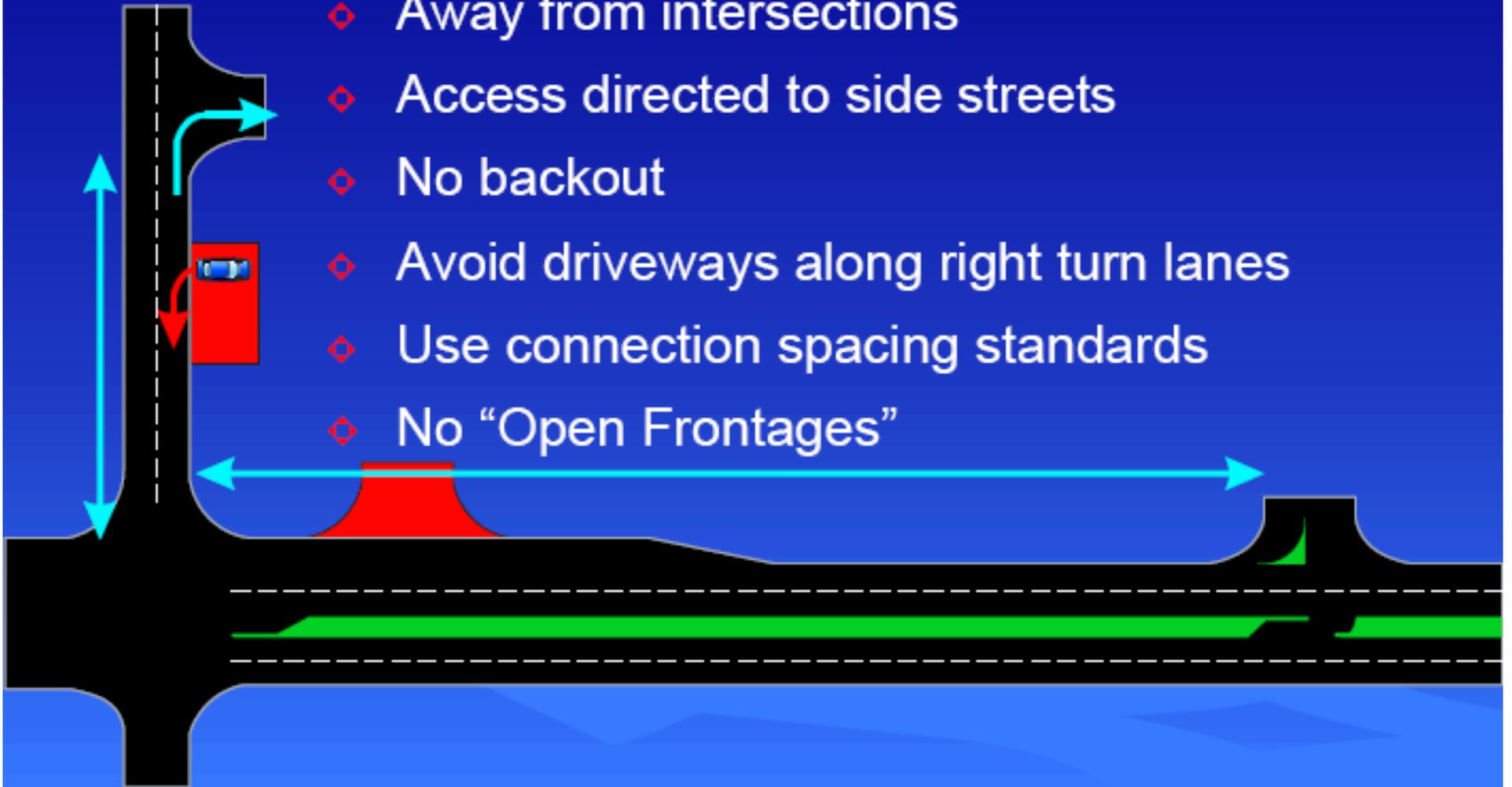
- 1) Increased separation between intersections
- 2) Introduction of U-turns to replace former movements





# Driveway Location Principles

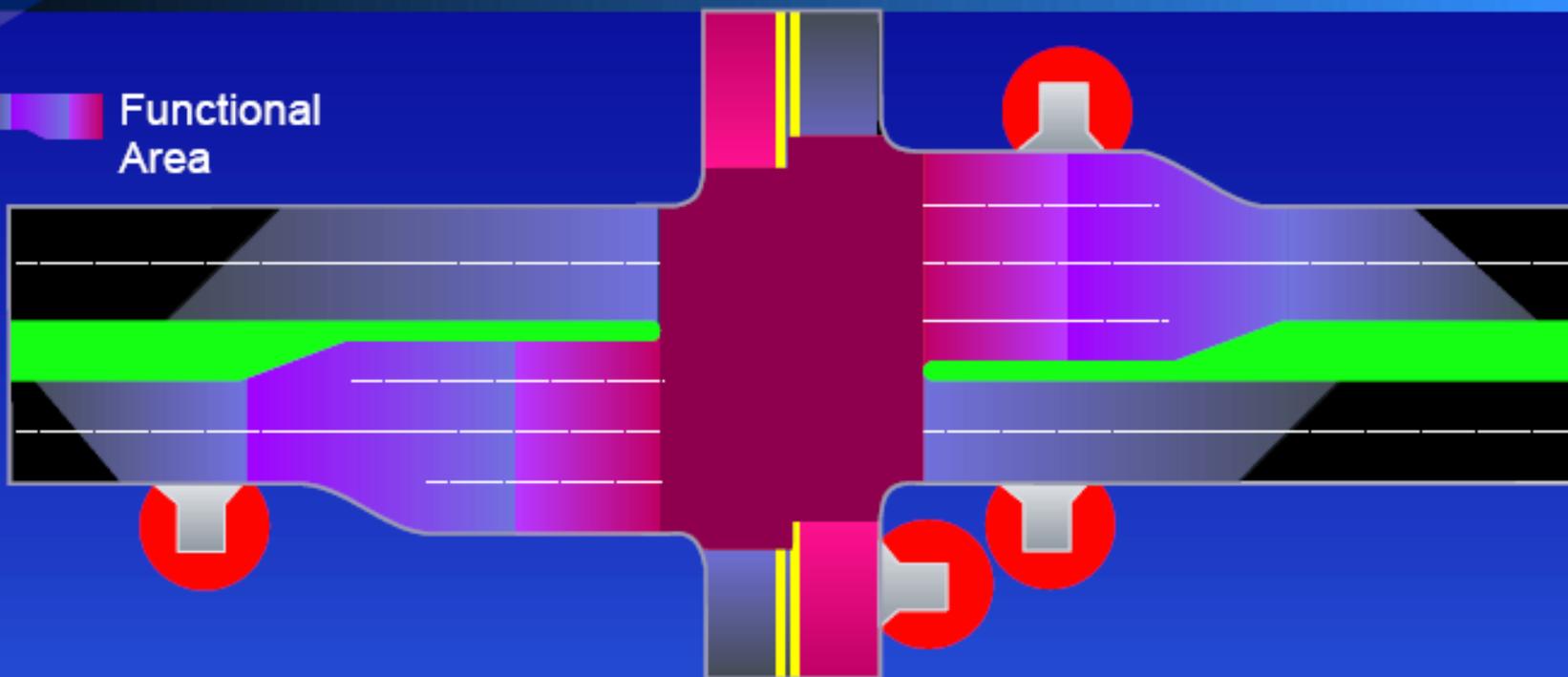
- ◇ Away from intersections
- ◇ Access directed to side streets
- ◇ No backout
- ◇ Avoid driveways along right turn lanes
- ◇ Use connection spacing standards
- ◇ No "Open Frontages"





## Where driveways should not be

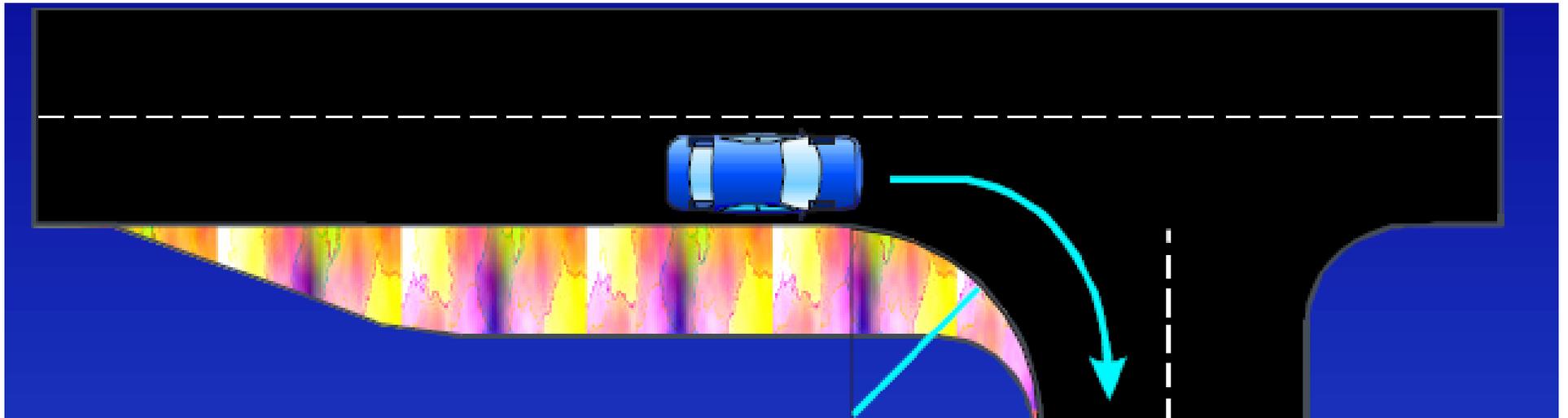
Functional Area



Driveways should not be situated within the functional boundary of at-grade intersections. This boundary would include the longitudinal limits of auxiliary lanes . . .

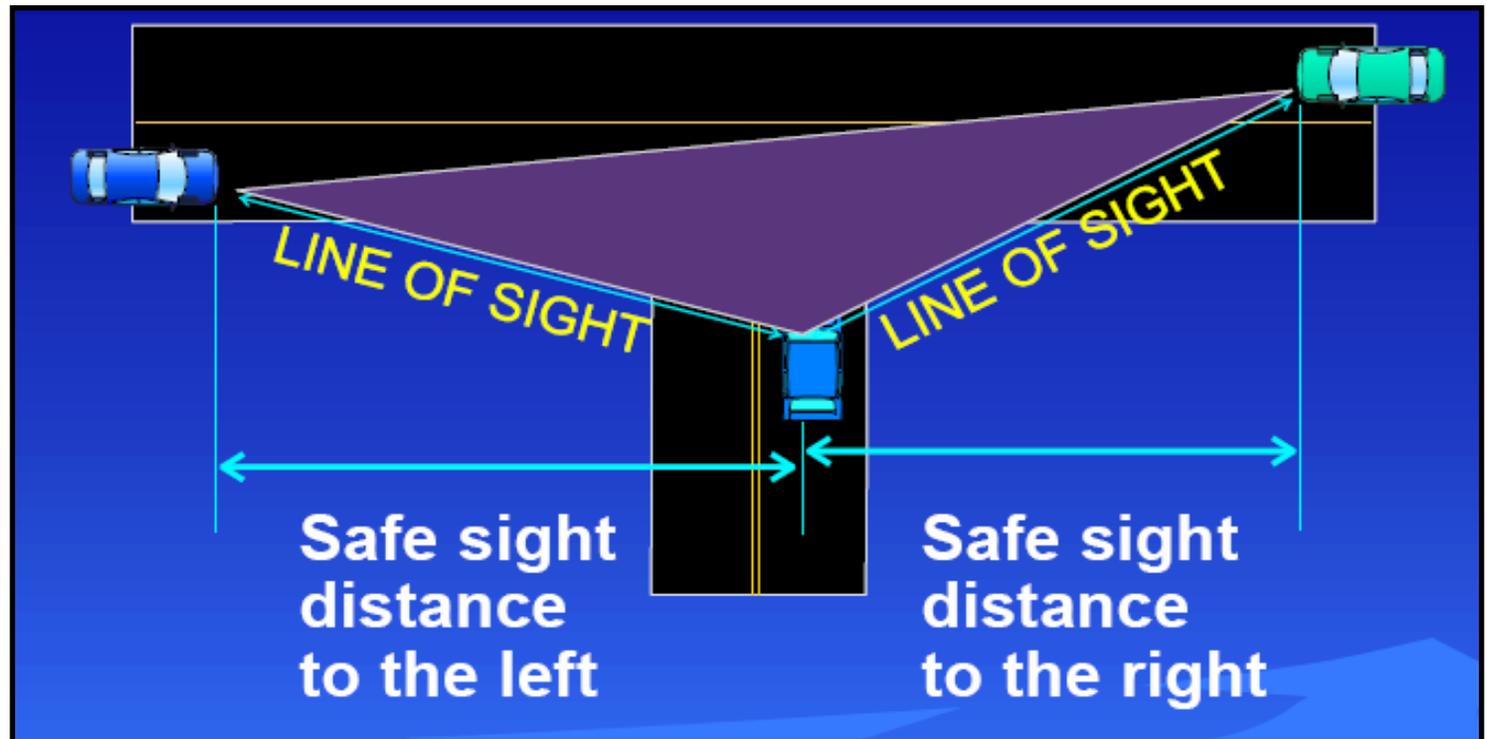
*AASHTO Greenbook*

**Entrance should not be allowed in the functional area of adjacent entrances**



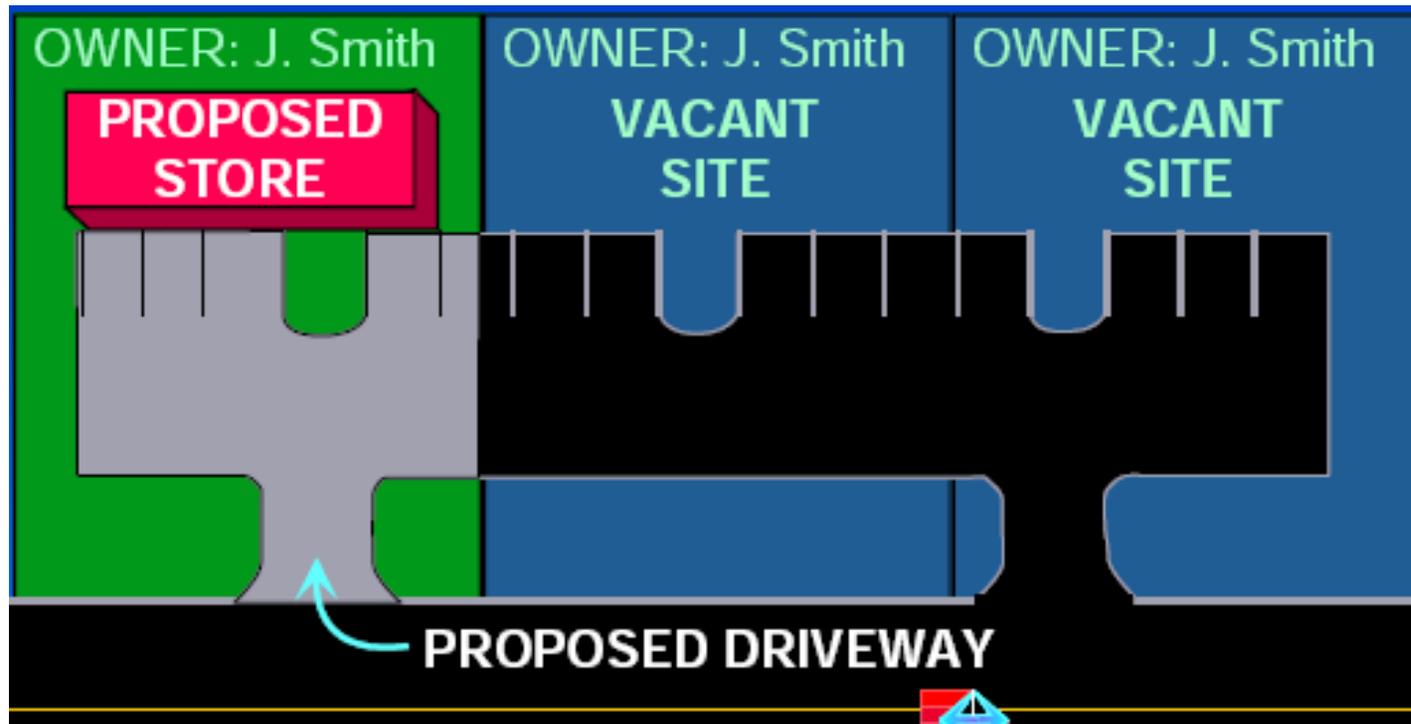


## Sufficient Sight Distance at Entrance Reduces Crashes

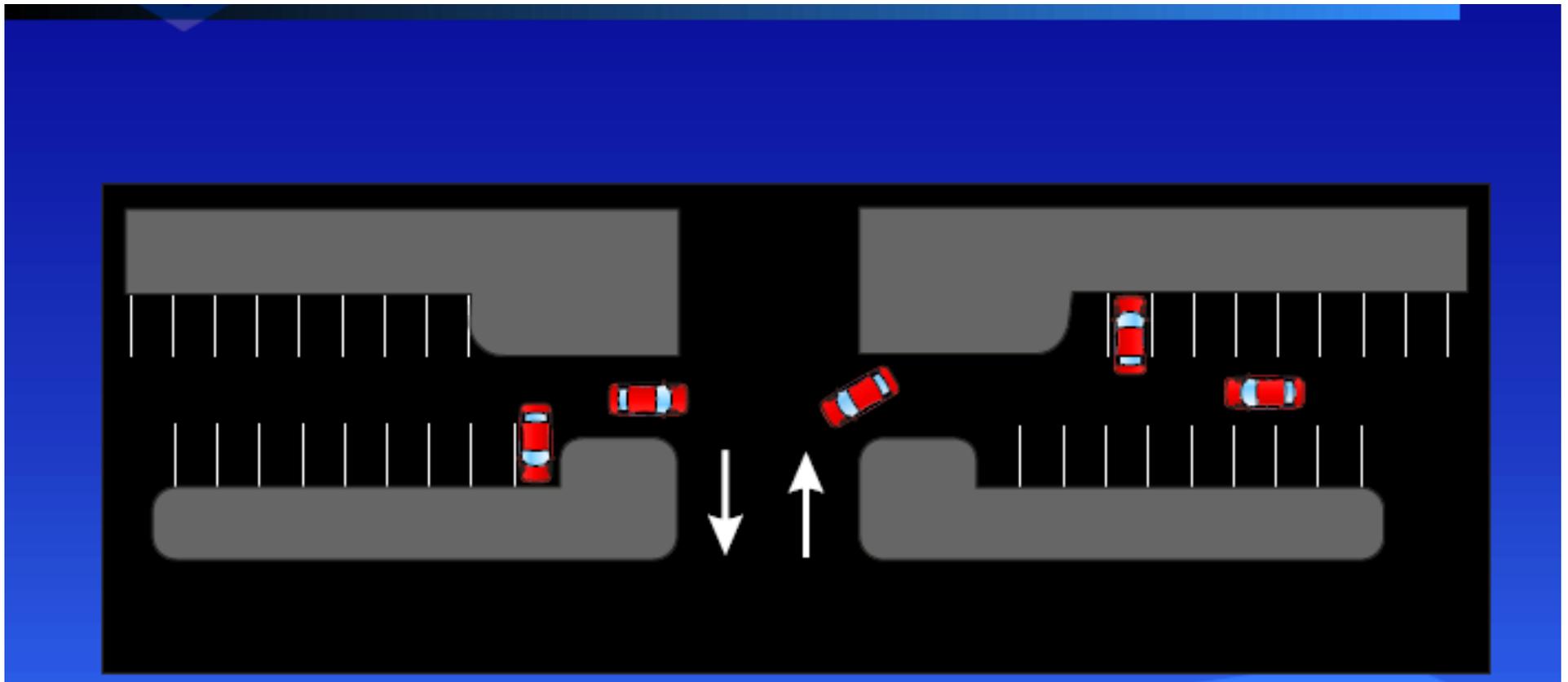


# Vehicular/pedestrian circulation between adjacent properties

- Reduce number of entrances
- Reduce use of the arterial highway to get to adj. business



**“Provide for joint use of the desired entrance with adjacent property owners or provide evidence of such efforts” § 33.1-198 of the Code of Virginia**



# Access Management Goal

Property owners have a right to reasonable access to the highways. In conjunction, roadway users have the right to freedom of movement, safety, and efficient expenditure of public funds.

Balancing these interests is the goal of access management.