



ACCESS MANAGEMENT M A N U A L



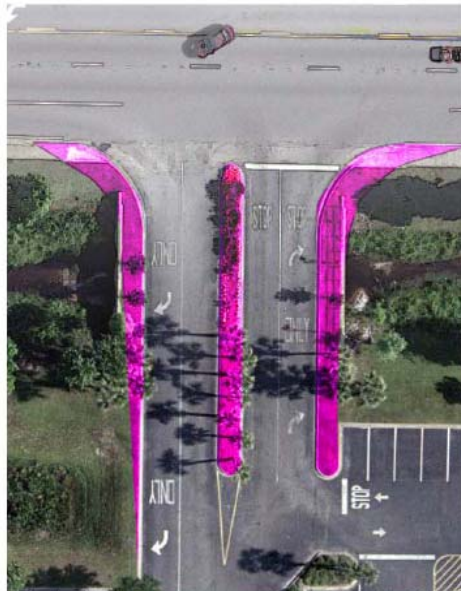
How Florida DOT Has Used The Concepts In The Manual

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850.414.4912





DRIVEWAY HANDBOOK

The purpose of this document is to guide the professional through the existing rules, standards and procedures, as well as to provide current national guidance on the best ways to plan driveways. Unless stated otherwise or specifically referenced, this is not a set of standards or a Departmental Procedure but is a comprehensive guide to allow the professional to make the best decisions on driveway planning.



Systems Planning Office
State of Florida
Department of Transportation
605 Suwannee St. - Station 19
Tallahassee, Florida 32399
850-414-4900

www.dot.state.fl.us/planning

Median Handbook Interim Version



The purpose of this document is to guide the professional through the existing rules, standards and procedures, as well as to provide current national guidance on the best ways to plan for medians and median openings.

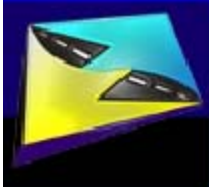
Unless stated otherwise or specifically referenced, this is not a set of standards or a Departmental Procedure but is a comprehensive guide to allow the professional to make the best decisions on median planning.

The primary thrust of this handbook is the unsignalized median opening. Even though much of this material can be used with signalized intersection planning, issues of signalized queues and signal timing are not covered in detail.

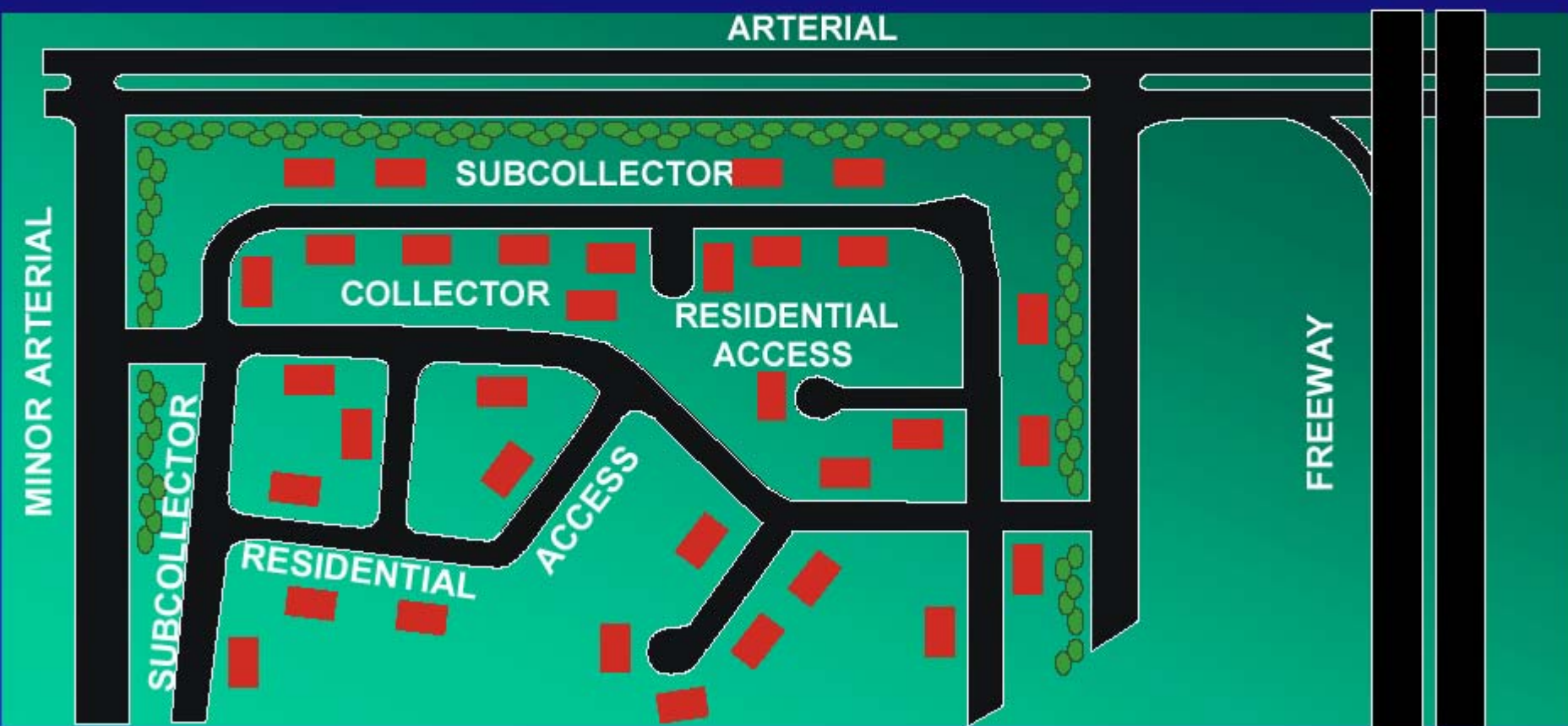
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Access Location



Roadway Classification



Listokin, D. and Walker, C. The Subdivision and Site Plan Handbook,
New Jersey: The State University of New Jersey, 1989

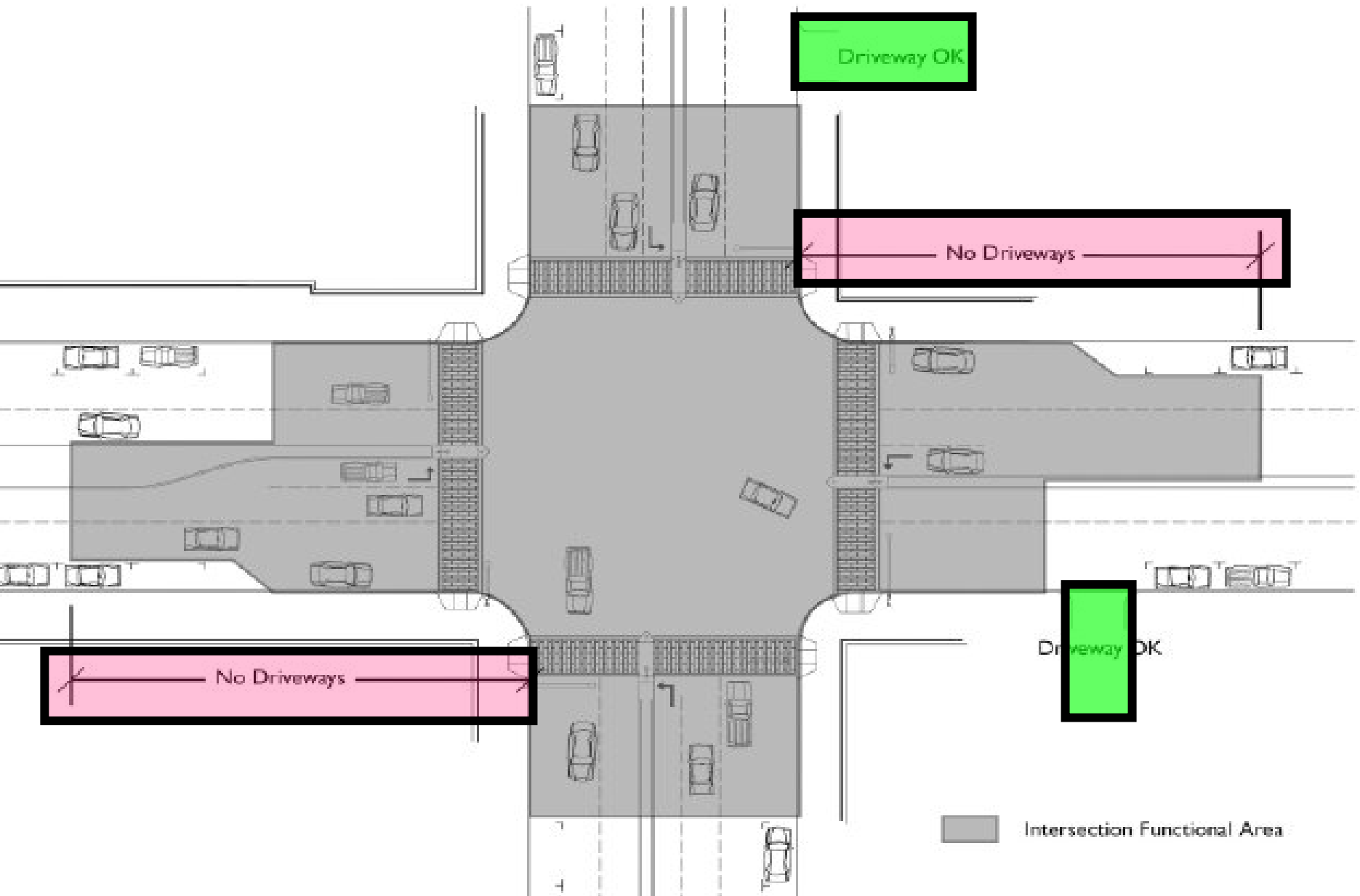


Access Relationship Between Functional Classes



Source: Virgil Stover

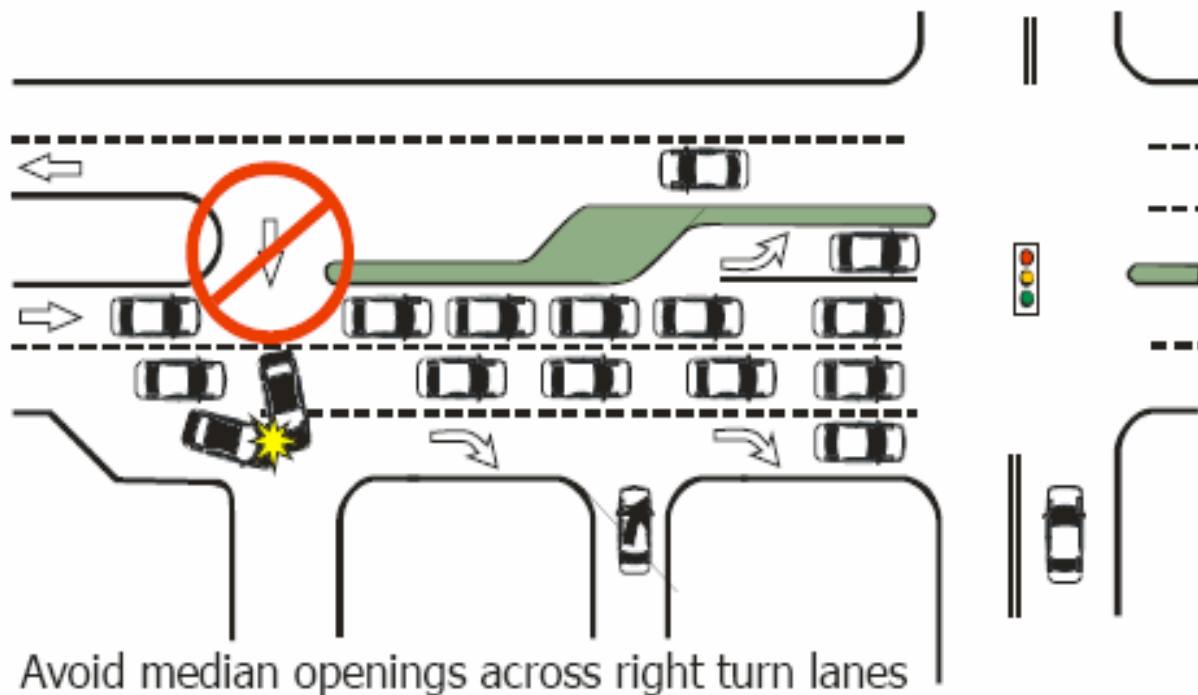
Functional Area of Intersection



Source: Reid Ewing

Exhibit 60

AVOID MEDIAN OPENINGS ACROSS RIGHT TURN LANES



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Avoid Median Openings Across Right Turn Lanes

From Page 27

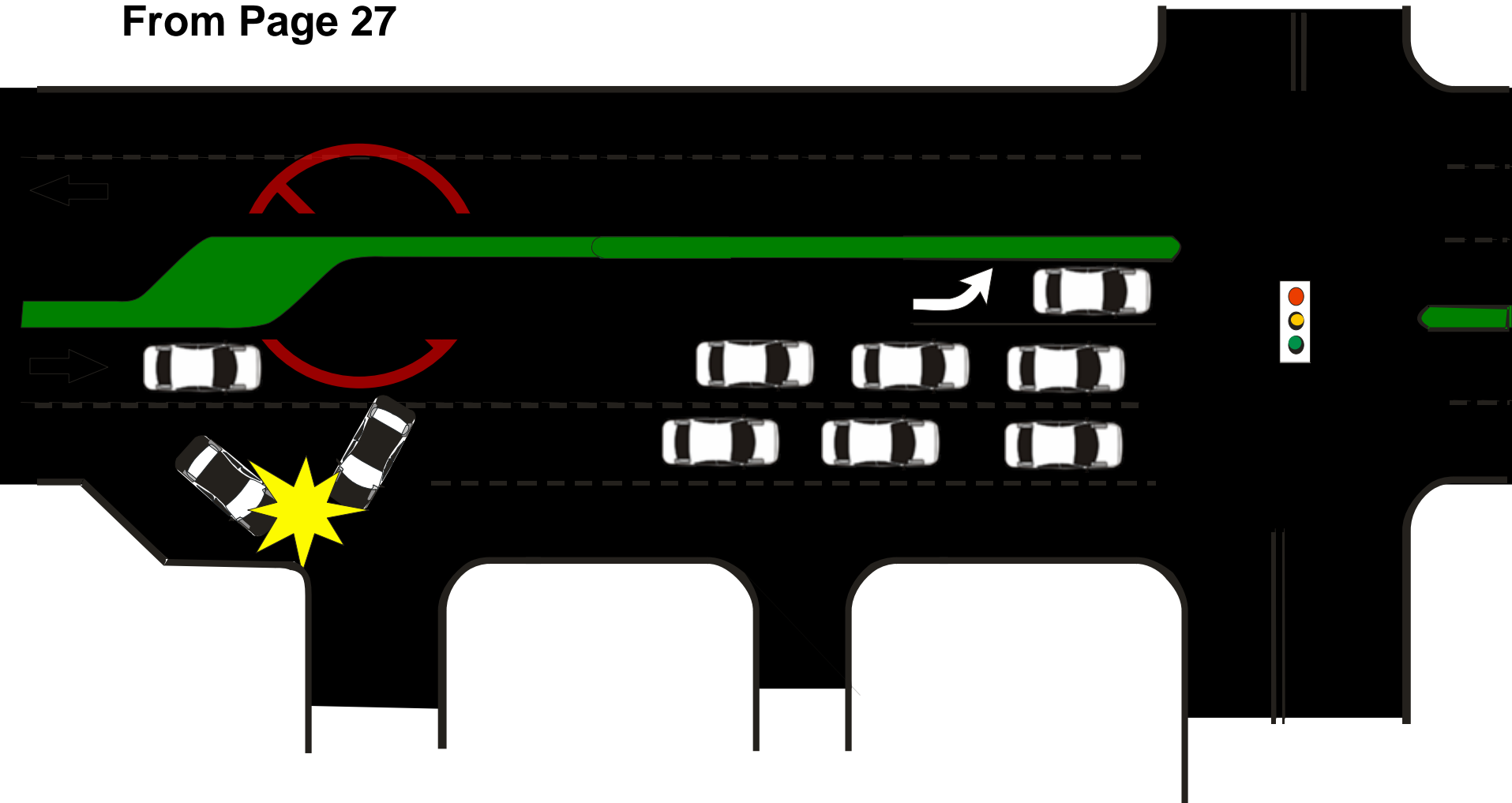
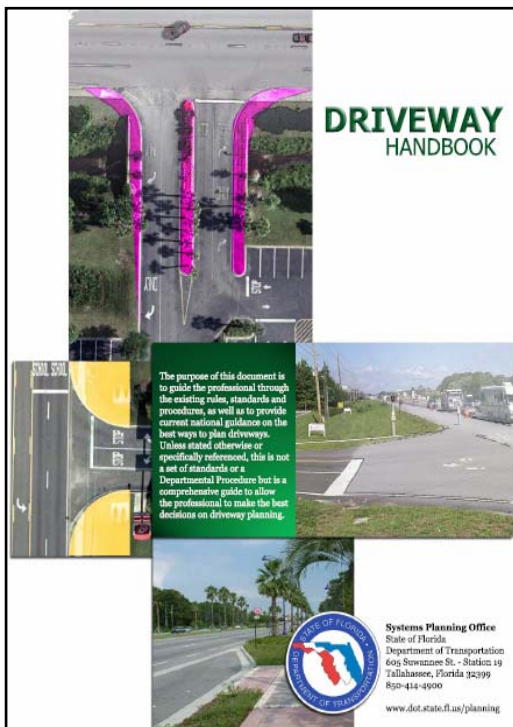
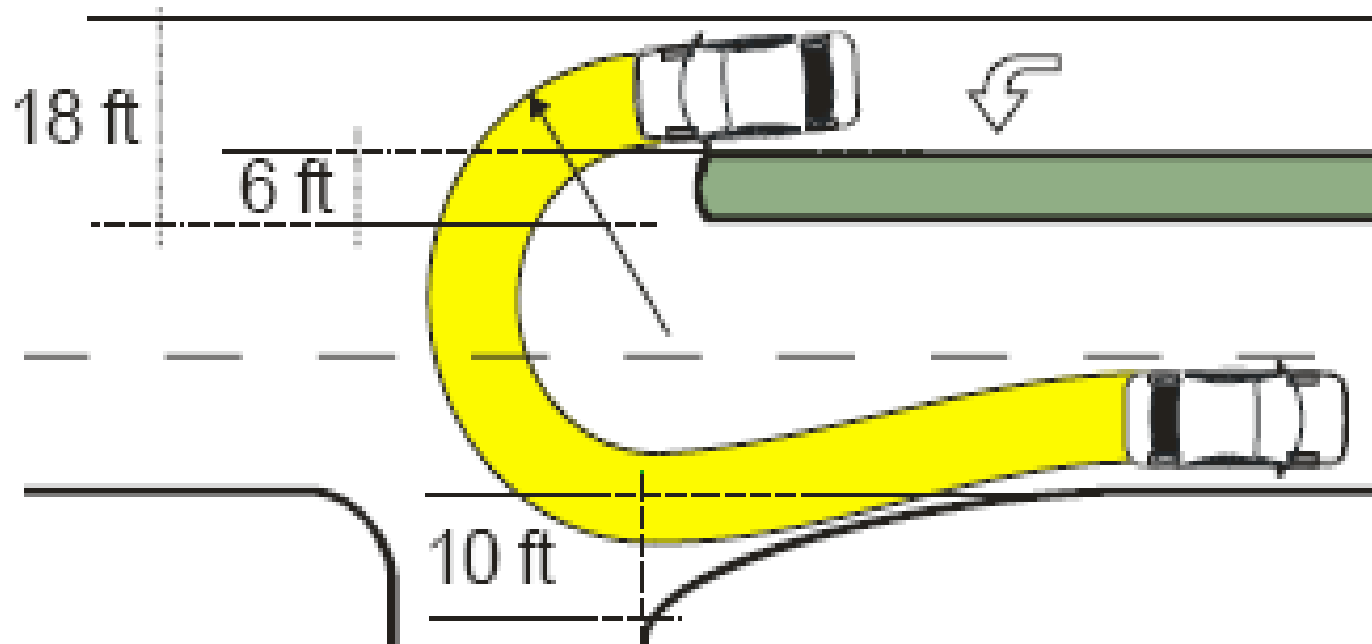


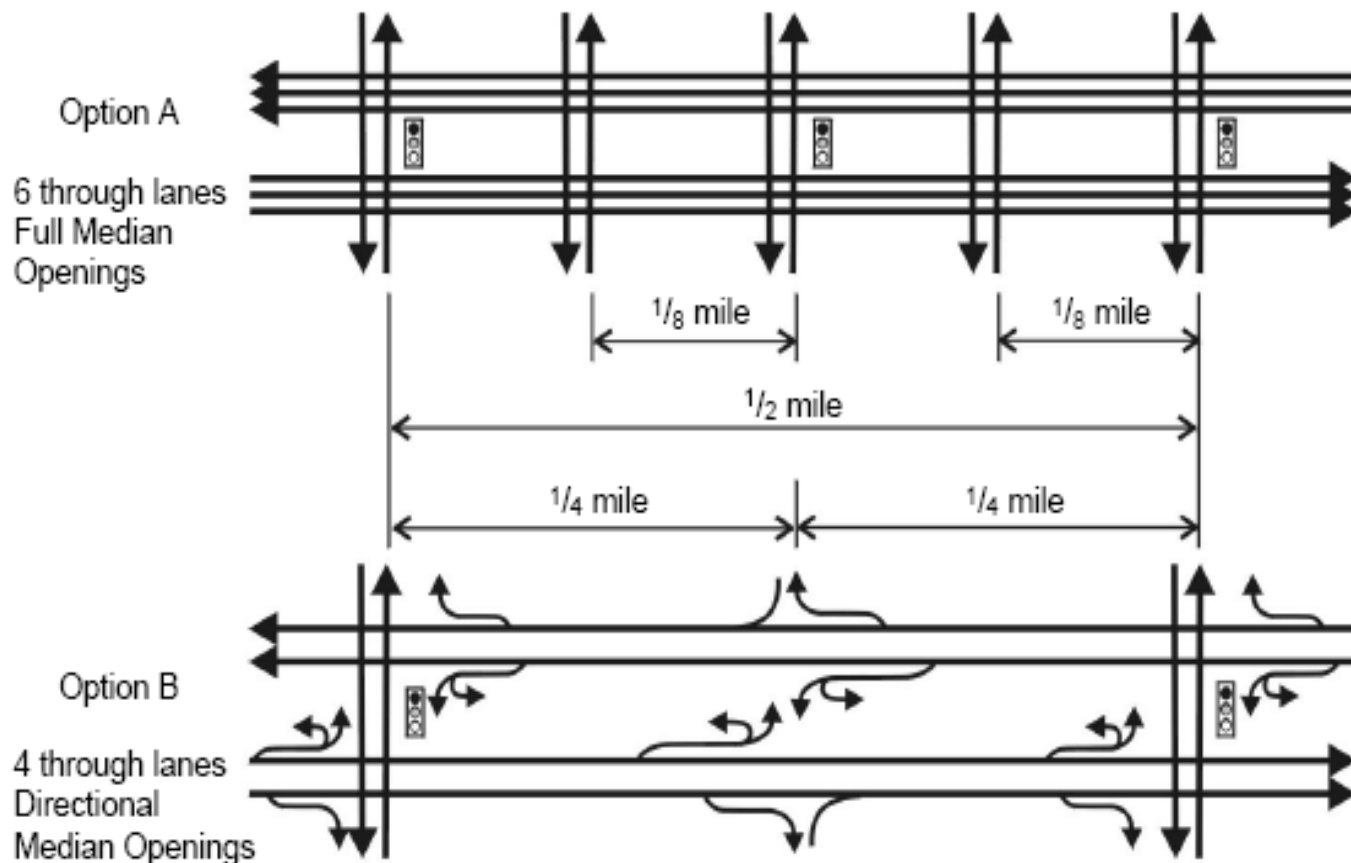
Exhibit 65 U-TURNS

Providing extra driveway
pavement across from
median openings can help
U-turn movements




FDOT Driveway Handbook



Access Spacing



Legend

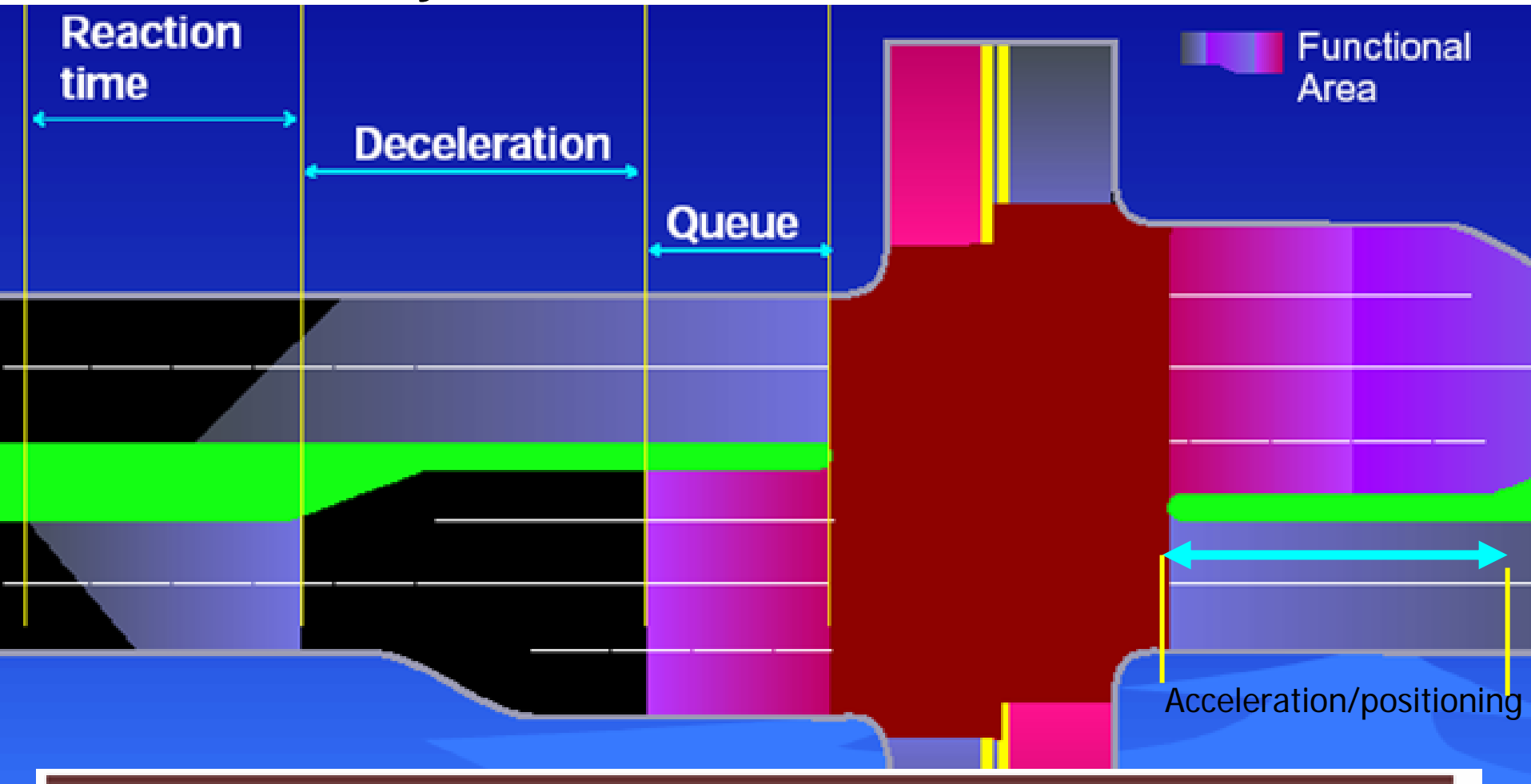
-  Signalized Intersection
-  Full Median Opening, Unsignalized
-  Directional Median Opening

Comparison

Option B has the same capacity at the same quality of flow as Option A.

FIGURE 9-2 Four-lane roadway with $\frac{1}{2}$ -mi signalized intersection spacing can carry the same volume as six lanes with $\frac{1}{4}$ -mi signal spacing (3, 4).

Driveways Should Not Be in 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 policy 1994, p. 841 and 1990, p. 841

Perception/Reaction Distance

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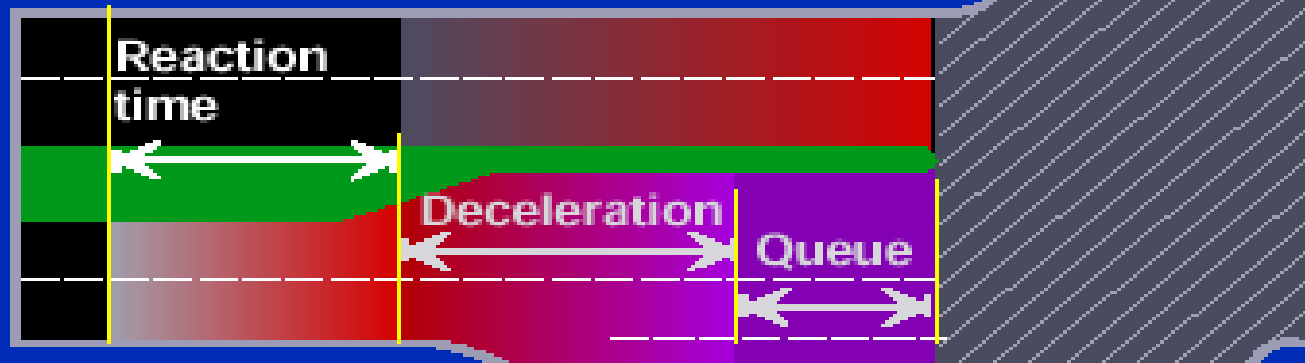


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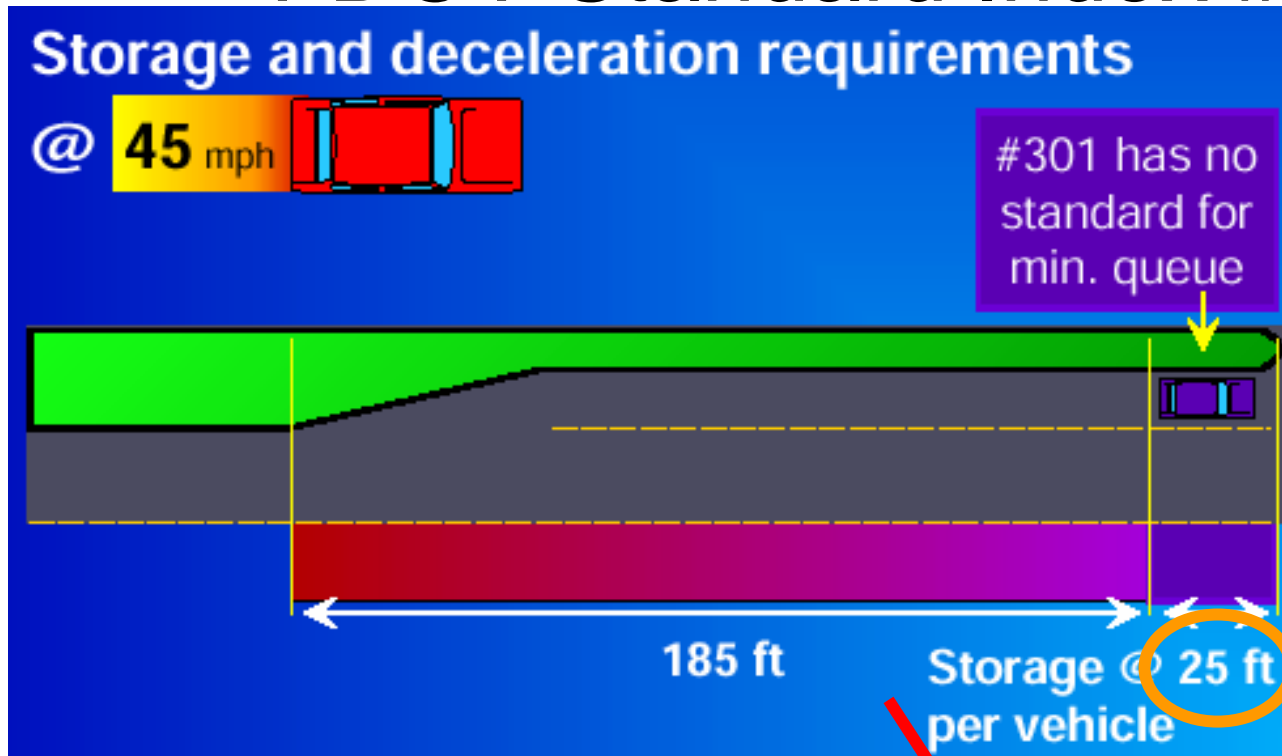
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State of Florida
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Areas	Sec.	35mph	45mph
Rural	2.5	130 ft	165 ft
Suburban	2	100 ft	130 ft
Urban	1.5	75 ft	100 ft

Deceleration

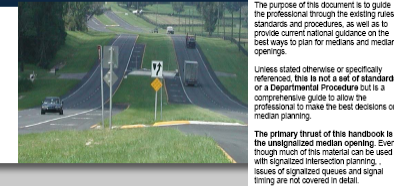
FDOT Standard Index # 301



Deceleration Distances from the Design Standards
Index #301

Design Speed (MPH)	Entry Speed (MPH)	Total Deceleration (ft)
35	25	45
45	35	185
50 Urban	40	240
50 Rural	44	320
55 Rural	48	385

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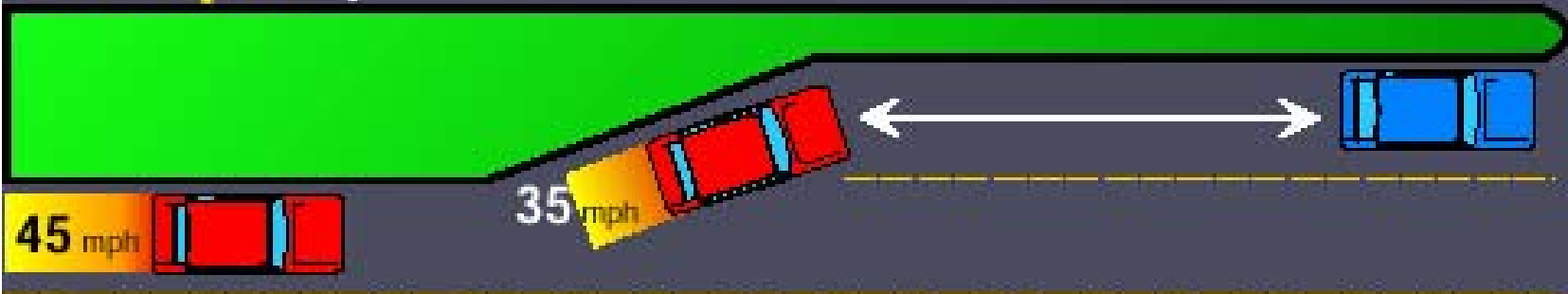


Speed Differential

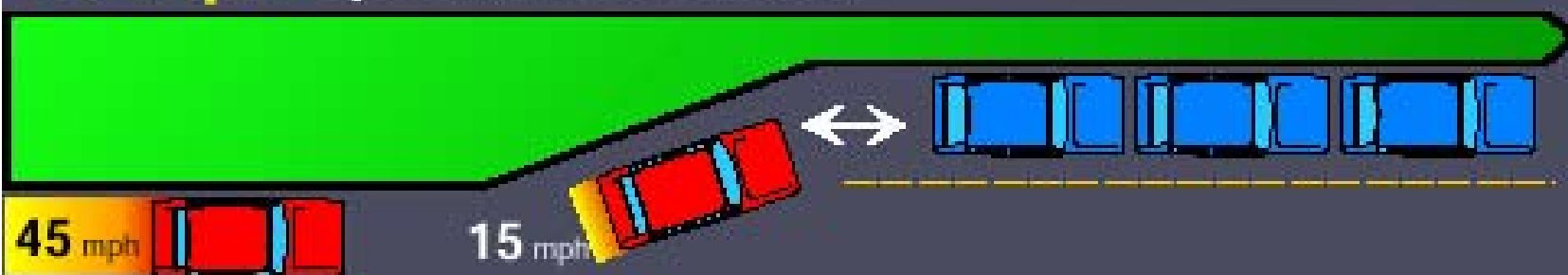


Excessive Deceleration

10 mph speed differential



30 mph speed differential





Recommended Queues

As measured or projected by traffic study



4 cars urban
minimum



2 cars rural
or small town



unless it serves a major generator
(large discount store, shopping center, etc.)

25 Feet per Passenger Car

Recommended Queue Storage

Recommended Queue Storage for Unsaturated Traffic Median Openings



Design queues are usually 1.5 to 2 times the average.

Rule of Thumb:

Lefts per Hour	Recommended Queue (SIS/FIHS)
30	3 (only in small towns or rural areas)
35	4
40	4
45	4
50	5
55	5
60	6
65	6



One Very Tight Possible Scenario

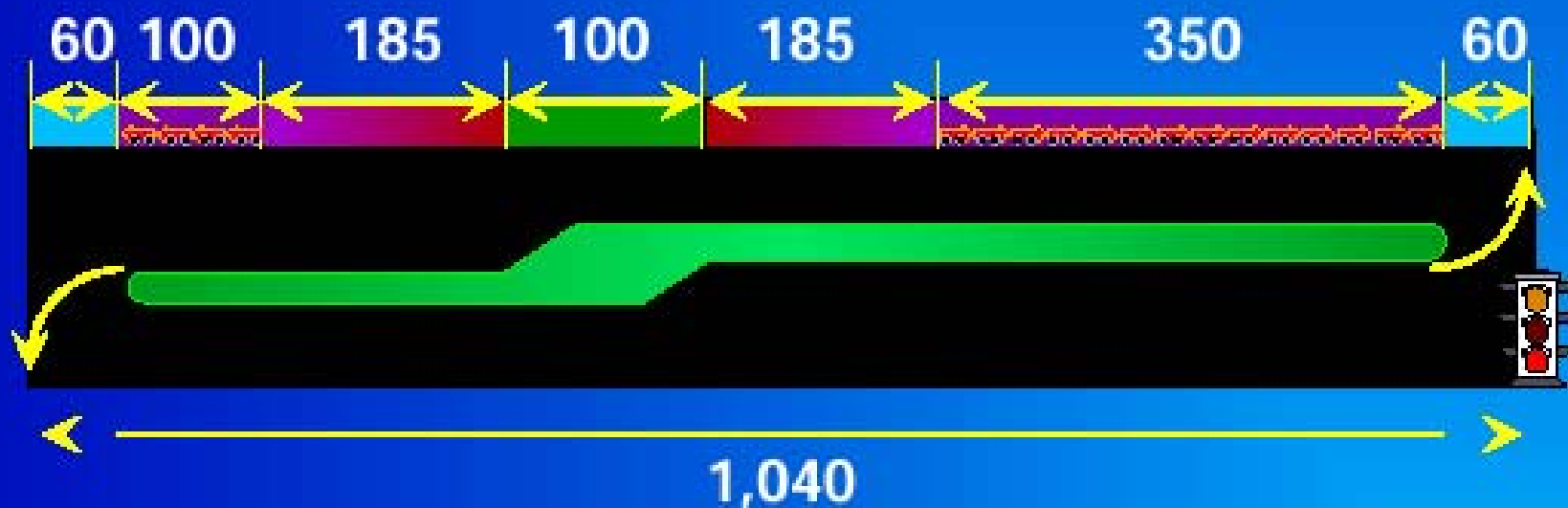
Urban conditions @ 45 mph design





More realistic minimum scenario

Urban conditions @ 45 mph design





Since queues are so unpredictable, this is an option for projections.





Planning for More U-Turns



US 27 Marion County

Isolated Bulb-Out — US 27 Marion Co.





US 27 Marion County

Truck U-turn



US 27 Marion County

Truck U-turn



US 27 Marion County

Baymeadows Rd - Jacksonville



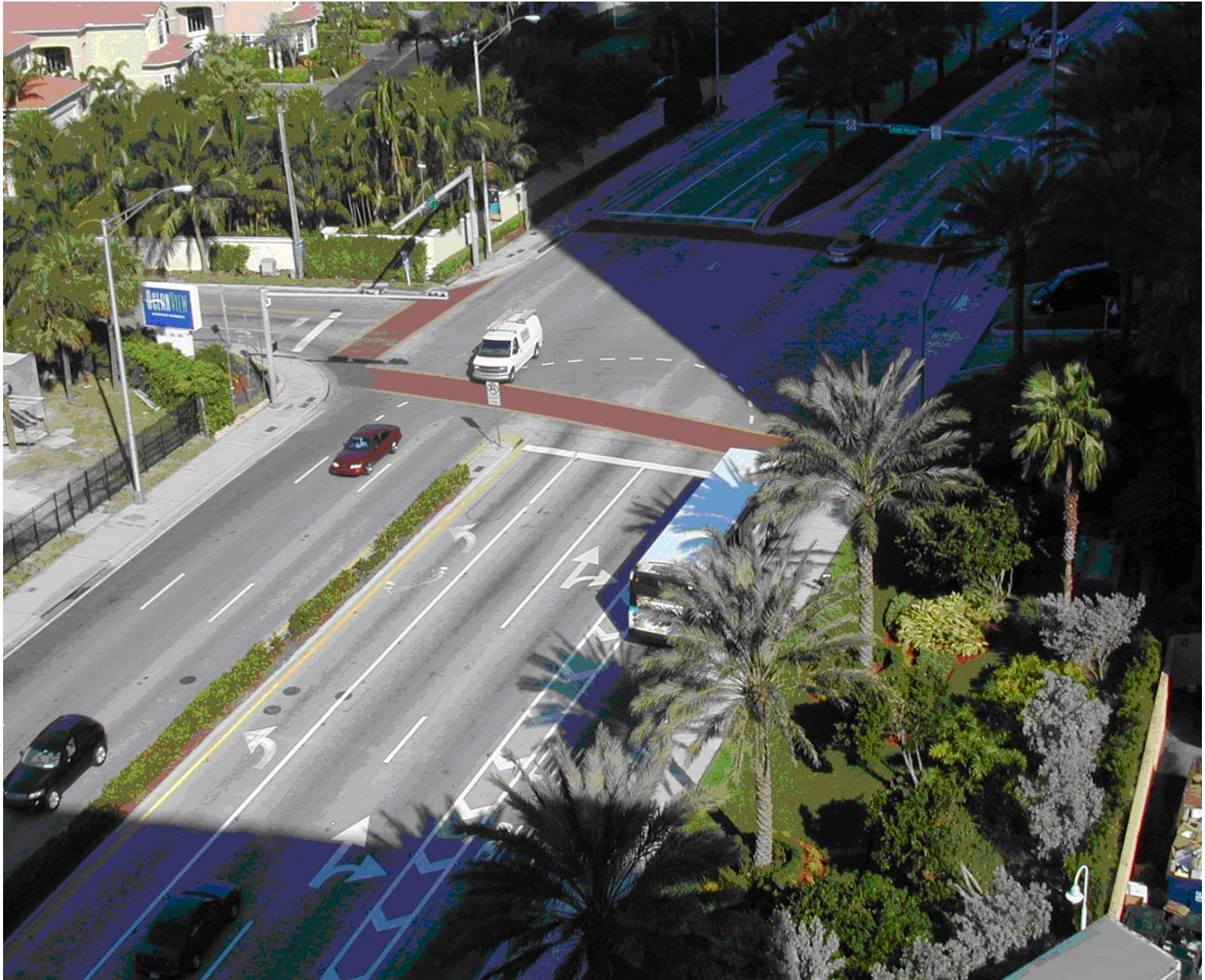
Before

Baymeadows Rd - Jacksonville

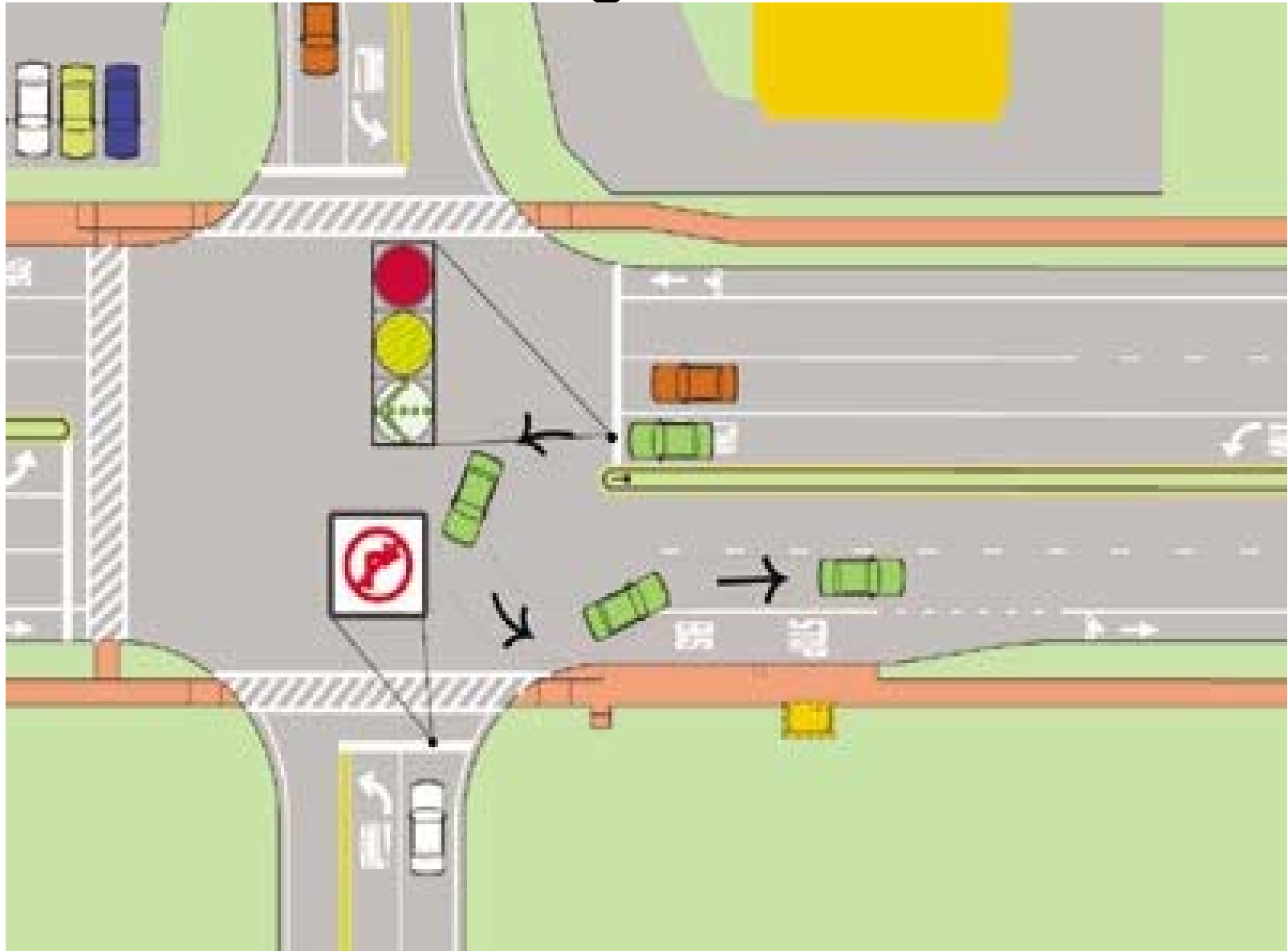


After – Median and “bulb-out” mid-block

Bus U turn - Miami



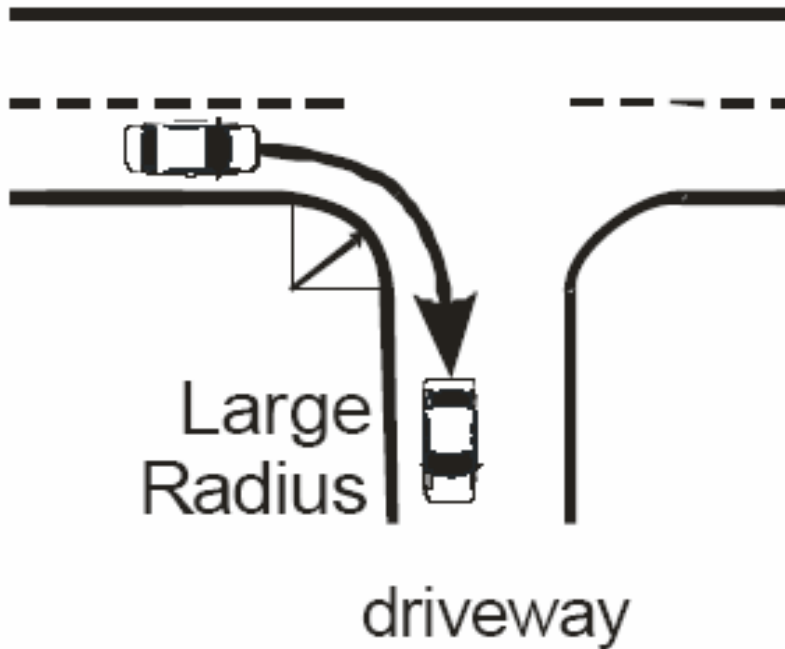
Correcting the U turn – Right Turn Conflict



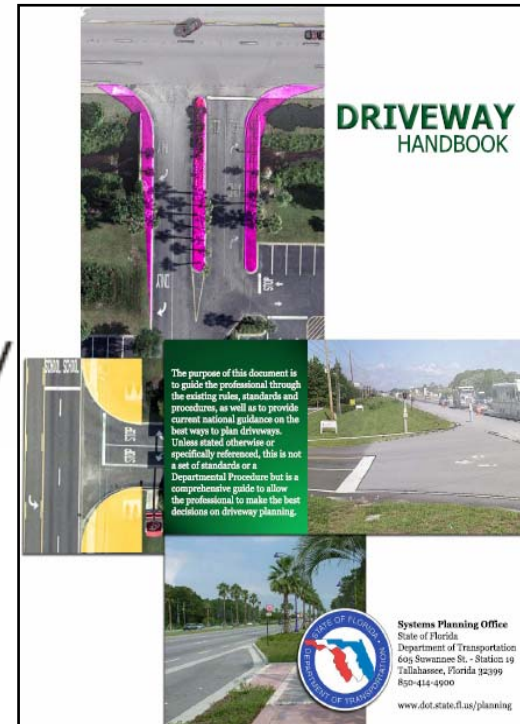
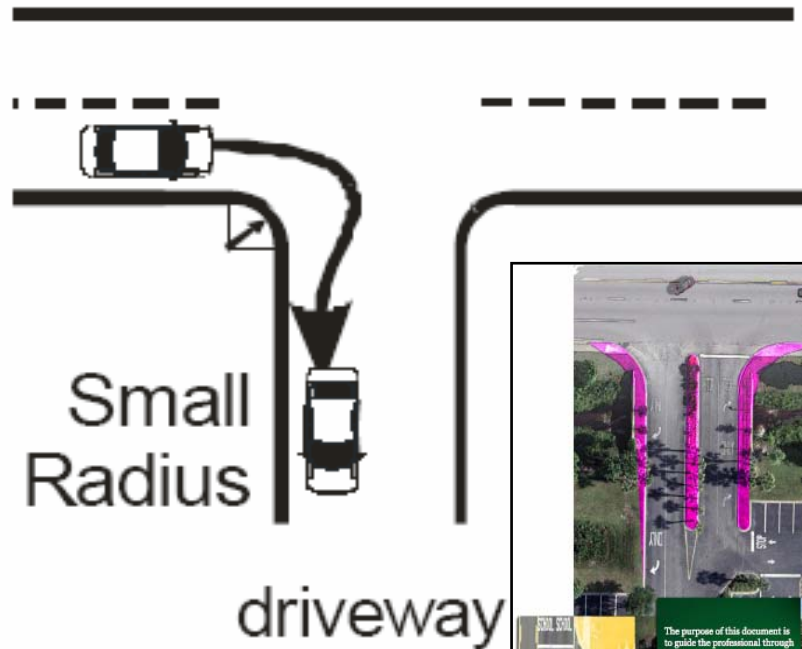
Access Design

Driveway Radius

Adequate



Too Small



Trucks

- Truck facilities
- Bus terminals – Including “Park and Ride” and other transit transfer stations
- Connections serving buses to shopping center transit transfer points
- Connections serving loading docks of shopping centers and malls
- Delivery and inter-modal facilities (ports, railroad yards, etc.)

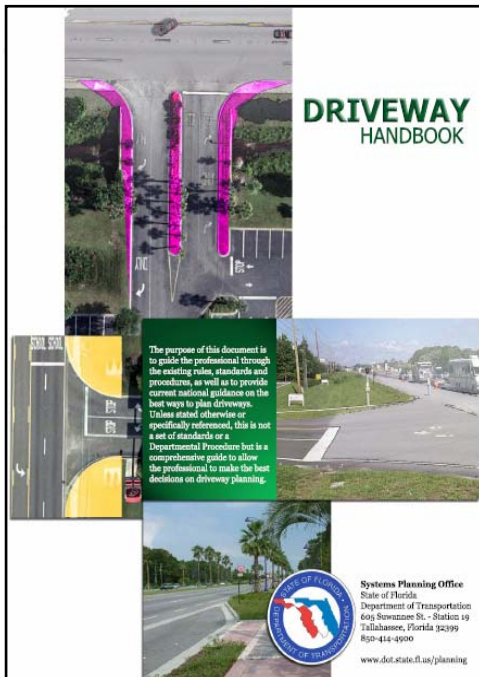
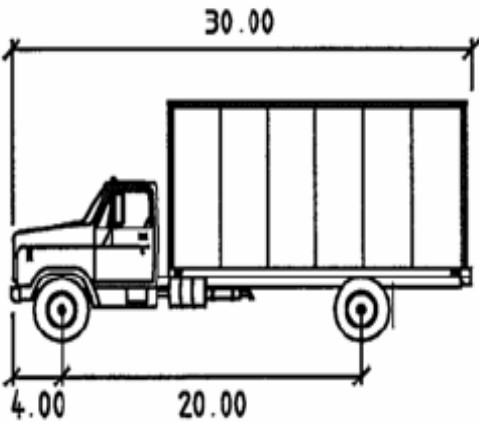


Exhibit 10 provides suggested design criteria for designing driveways for trucks, buses and large vehicles.

Trucks

Commercial and office uses (shopping center, office complex, convenience store)

Number of Trucks or Buses Per Hour

≤ 2

≥ 3

Operation to Design for

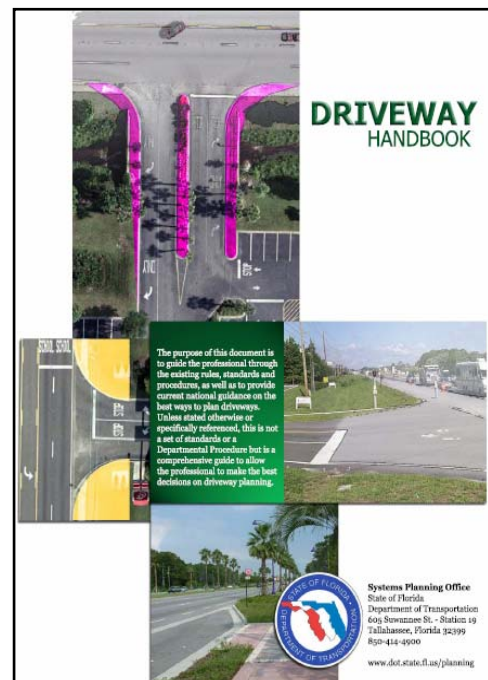
Simultaneous 2-way

Simultaneous 2-way²

Design Vehicle³

P¹
or a Standard Passenger Vehicle

Single Unit vehicle such as typical FedEx or UPS Truck



¹A standard passenger car (P vehicle) can enter while another standard passenger car (P vehicle) is waiting to exit.

²A standard delivery Single Unit truck (SU vehicle) can enter when a standard passenger car (P vehicle) is waiting to exit.

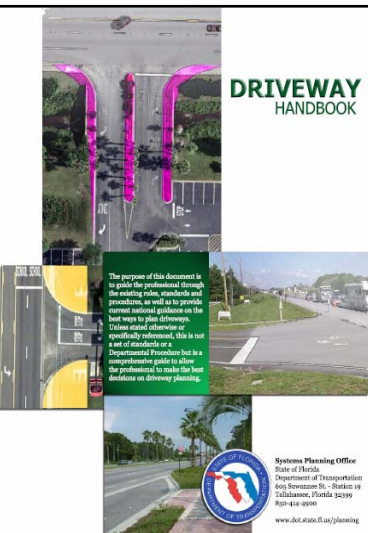
³Designed so that larger vehicles can off-track through the driveway.

⁴Interstate semi-trailer and turnpike double trailer will be the design vehicle in many states, especially in the vicinity of freeway interchanges.

Source: Adapted from Transportation and Land Development, 2002, Stover (pages 7-12).

Trucks

Number of Trucks or Buses Per Hour	Operation to Design for	Design Vehicle ³
Industrial Uses (distribution centers, warehousing)		
	Simultaneous 2-way	Typical multi-unit tractor trailer
Other Uses		
Truck stop	Simultaneous 2-way	Largest vehicle ⁴
Transit Center/ Bus Terminals	Simultaneous 2-way	Largest bus
Recreational with RVs and trailers	Simultaneous 2-way	Motor home with trailer



¹ A standard passenger car (P vehicle) can enter while another standard passenger car (P vehicle) is waiting to exit.

² A standard delivery Single Unit truck (SU vehicle) can enter when a standard passenger car (P vehicle) is waiting to exit.

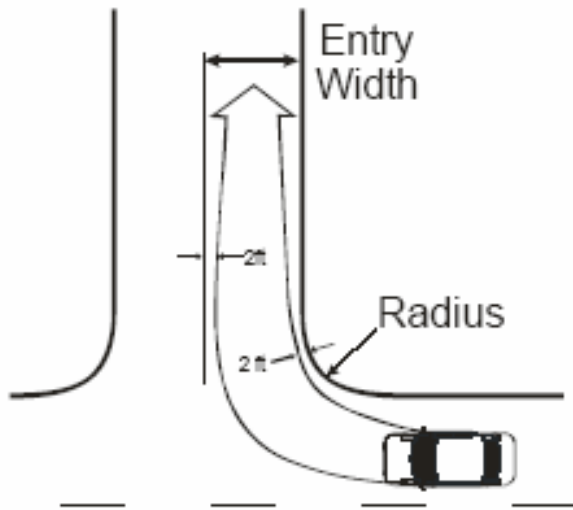
³ Designed so that larger vehicles can off-track through the driveway.

⁴ Interstate semi-trailer and turnpike double trailer will be the design vehicle in many states, especially in the vicinity of freeway interchanges.

Source: Adapted from Transportation and Land Development, 2002, Stover (pages 7-12).

Driveway Width

Exhibit 15



Radius or Flare (ft.)

**Single Lane Width for Entry
for Passenger Vehicles (ft.)**

Typical flared driveway

22 ft (Pavement striping should be used if entry is this wide)

10 ft Radius

19 ft

15 ft Radius

17 ft

20 ft Radius

14 ft

25 ft Radius

14 ft

Over 25 ft Radius

12-14 ft

Access Management for Streets and Highways, Flora and Keith, FHWA, 1982 p 63



Use

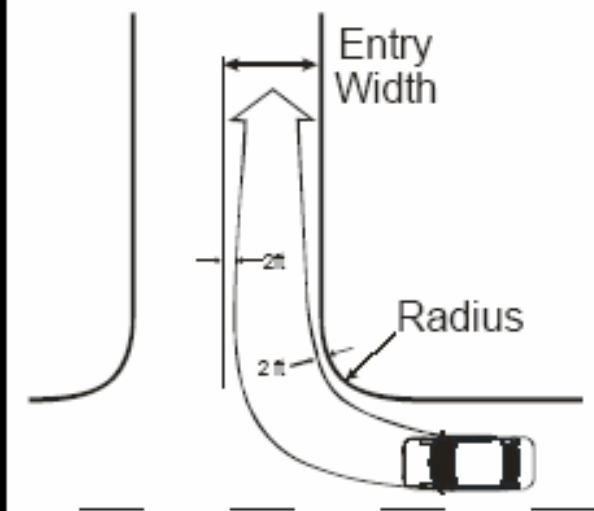
- A wider driveway is required if simultaneous two-way operation with a truck or bus is desired.
- A driveway with a radius of greater than 25 feet requires a 14 foot entry width and is not impacted by the presence or lack of a bike or parking lane.
- If you are using flare, radius or width measures outside of those in ***Standard Index 515***, you will need to document the need, and it should be approved by the Department.



more

Driveway Width

Exhibit 15



Radius or Flare (ft.)	Single Lane Width for Entry for Passenger Vehicles (ft.)
Typical flared driveway	22 ft (Pavement striping should be used if entry is this wide)
10 ft Radius	19 ft
15 ft Radius	17 ft
20 ft Radius	14 ft
25 ft Radius	14 ft
Over 25 ft Radius	12-14 ft

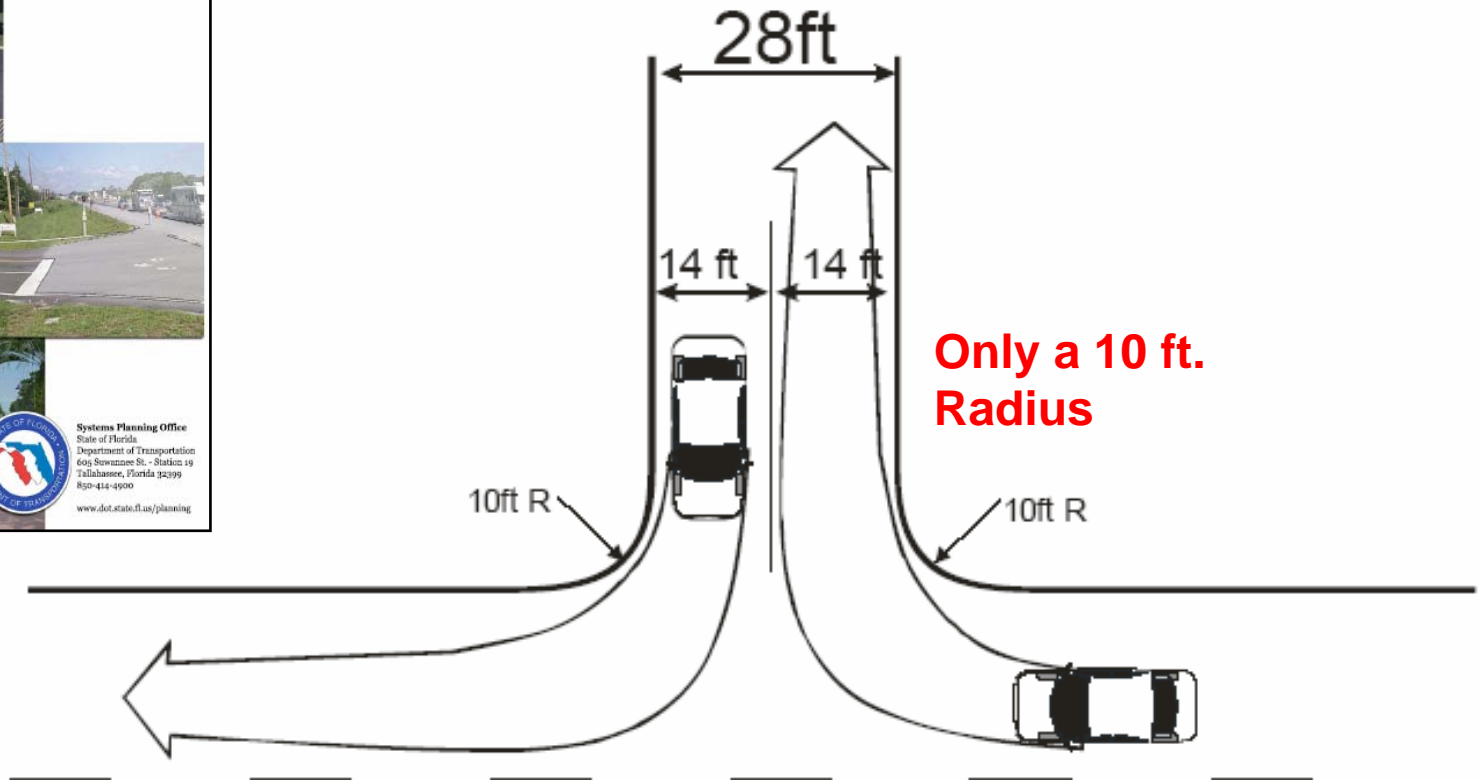
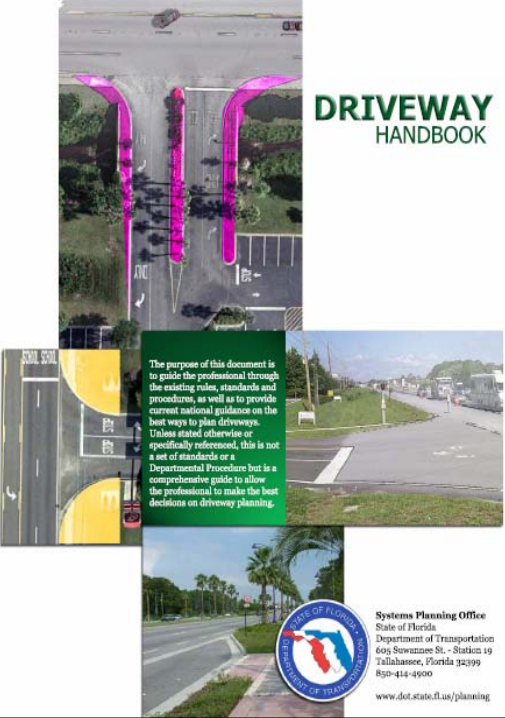
Source: adapted from *Access Management for Streets and Highways*, Flora and Keith, FHWA, 1982 p 63

Important Notes For Use of Exhibit 15

- A wider driveway is required if simultaneous two-way operation with a truck or bus is desired.
- A driveway with a radius of greater than 25 feet requires a 14 foot entry width and is not impacted by the presence or lack of a bike or parking lane.
- If you are using flare, radius or width measures outside of those in ***Standard Index 515***, you will need to document the need, and it should be approved by the Department.

Also see Section 2.5 for more

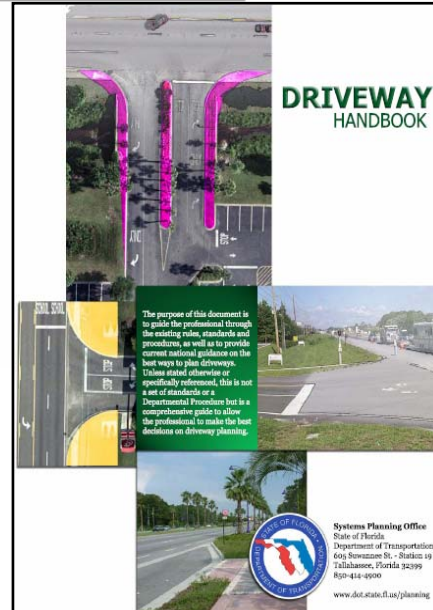
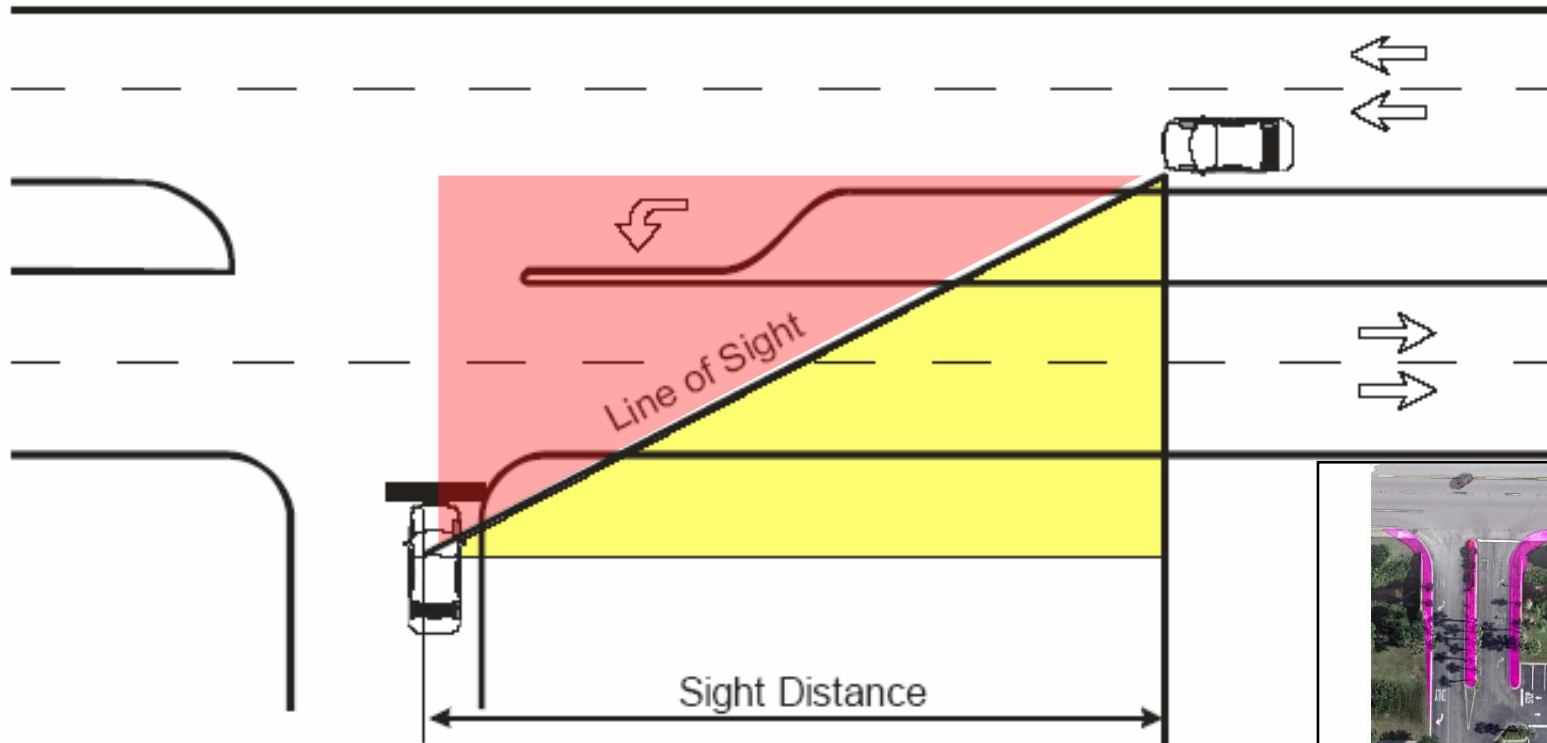
Driveway Width



Curb Return Radius

Source: Adapted from Transportation and Land Development, Vergil Stover 2002

Sight Distance

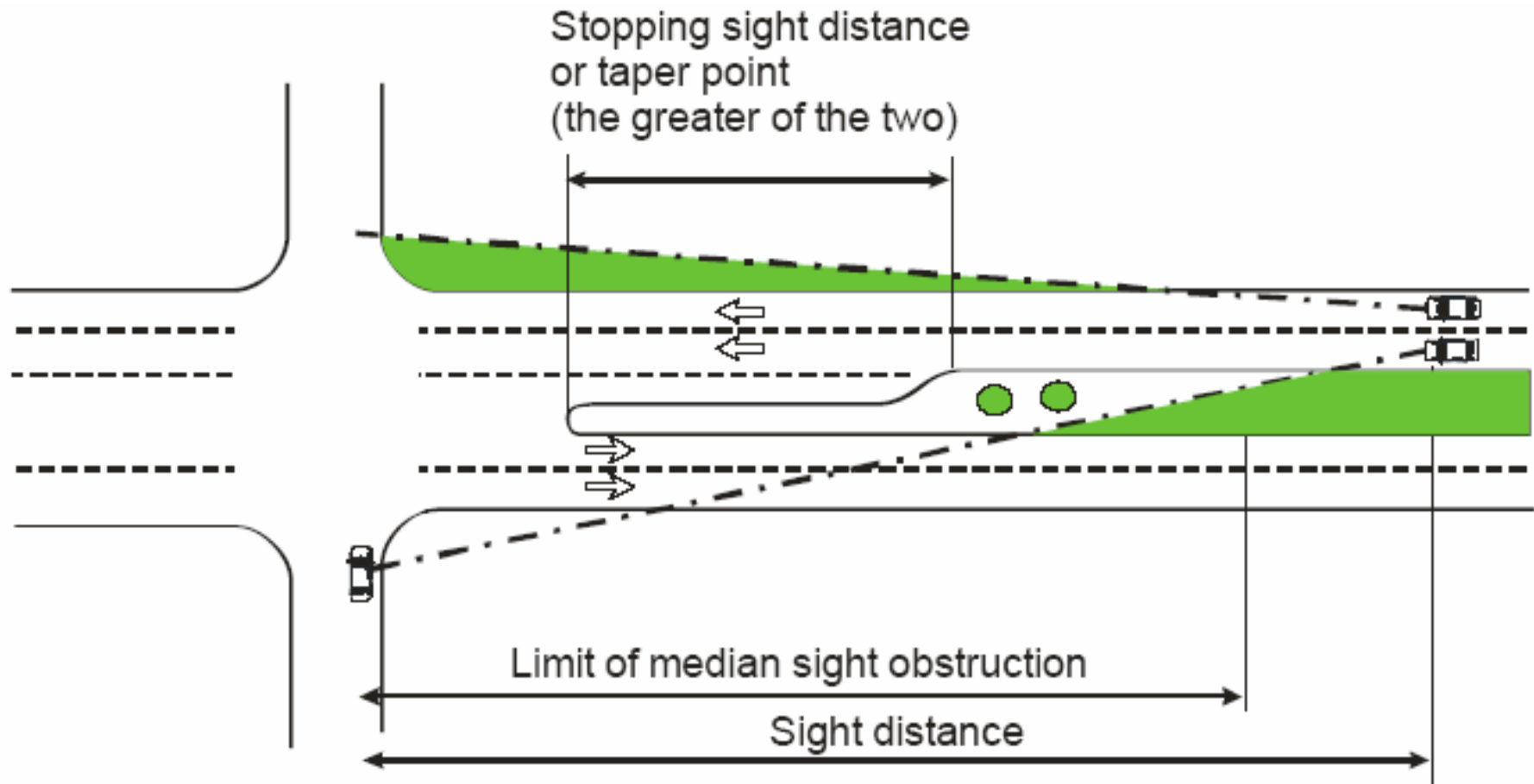


Driveway Sight Distance



Source: Dan Burden

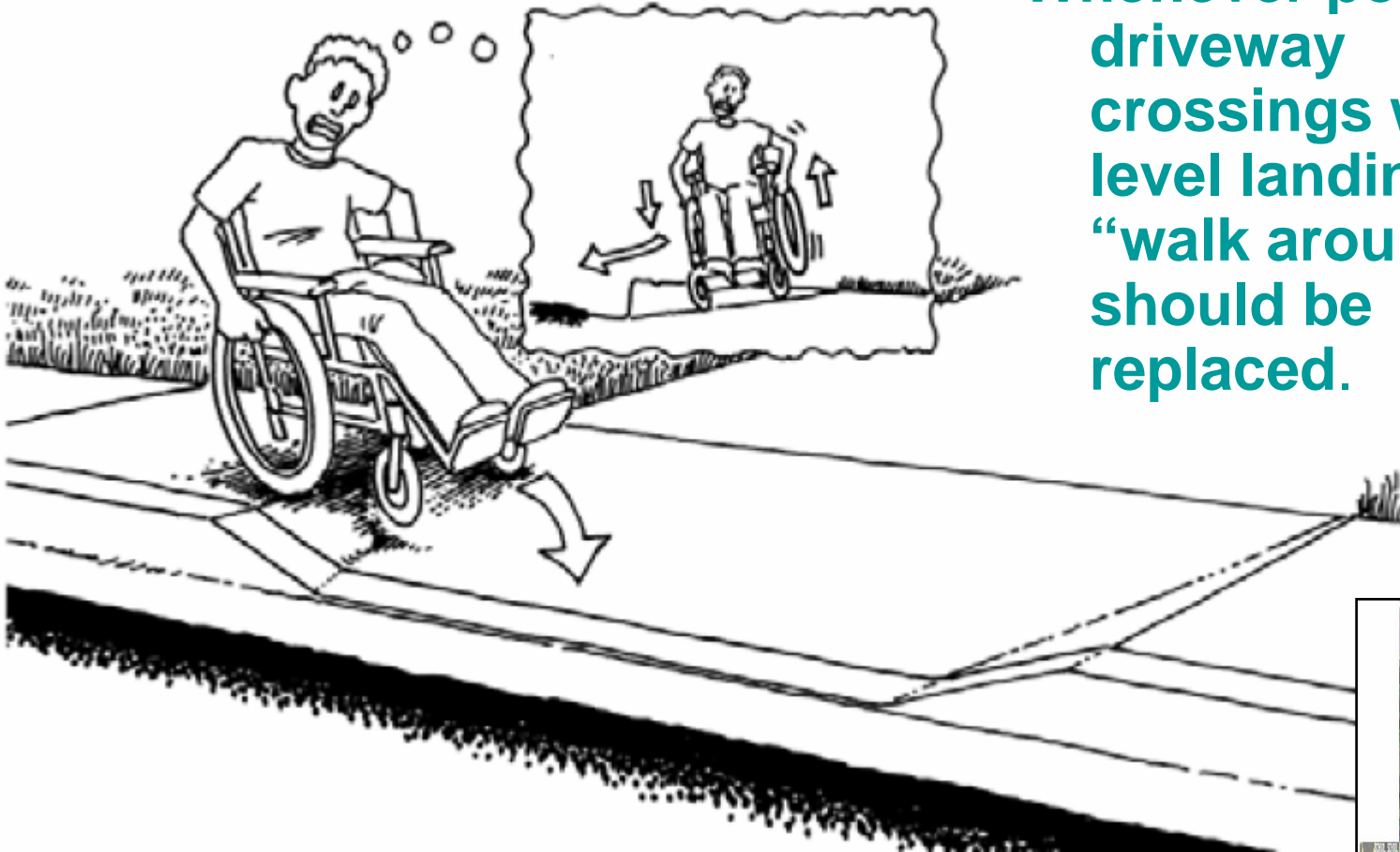
Sight Distance – Landscaping



Source: Adapted from Standard Index 546 (Sight Distance at Intersections)

The Wheelchair User

Whenever possible, driveway crossings without level landings (or “walk arounds”) should be replaced.



Utility Strips

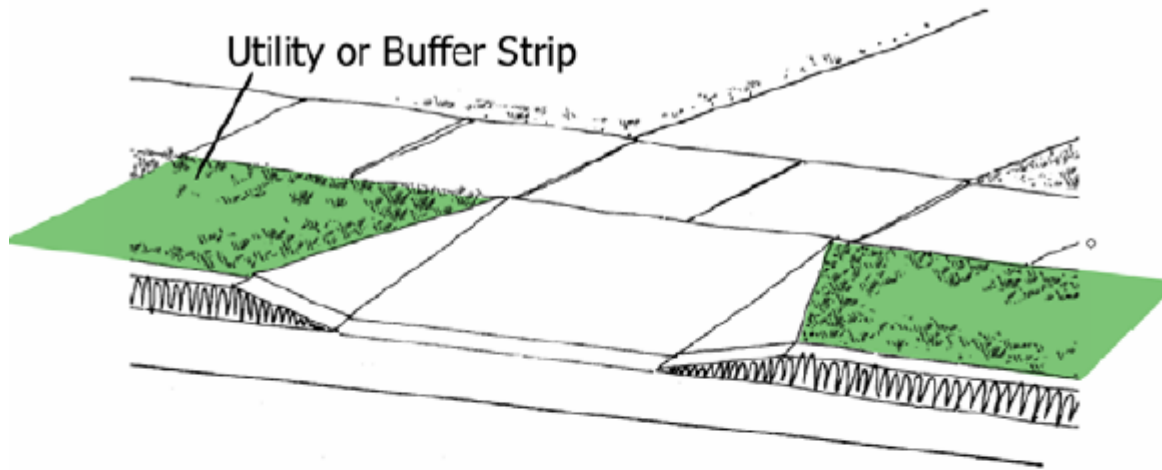
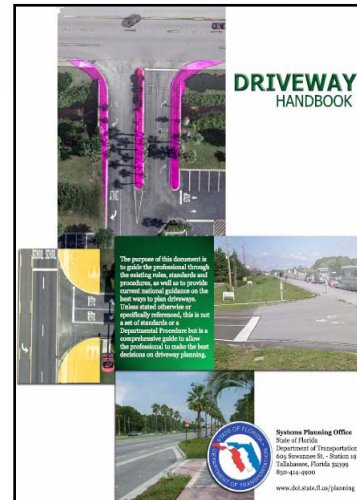
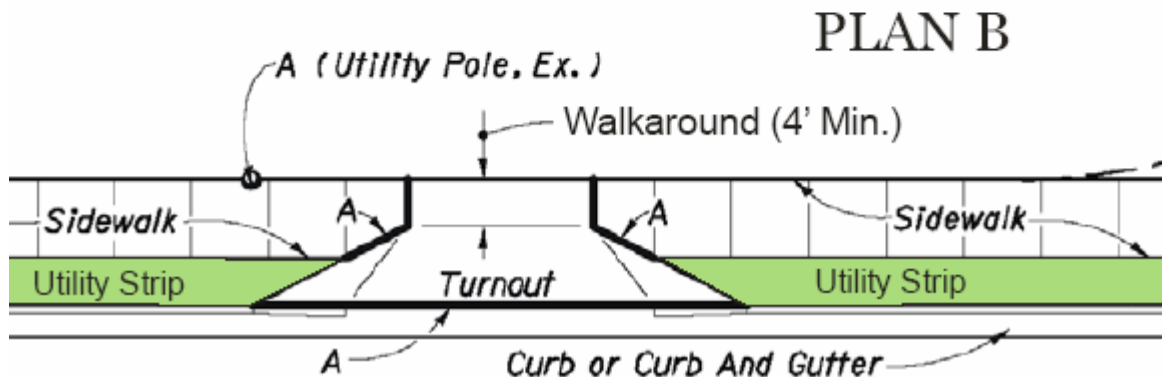


Exhibit 78 UTILITY OR BUFFER STRIP

When sidewalks have a planter strip, the ramp of the driveway does not interfere with a pedestrian's path of travel.



Limiting Turns with Driveway Design Alone

Pork Chop





**roadway and driveway designs are
most critical message to the driver**

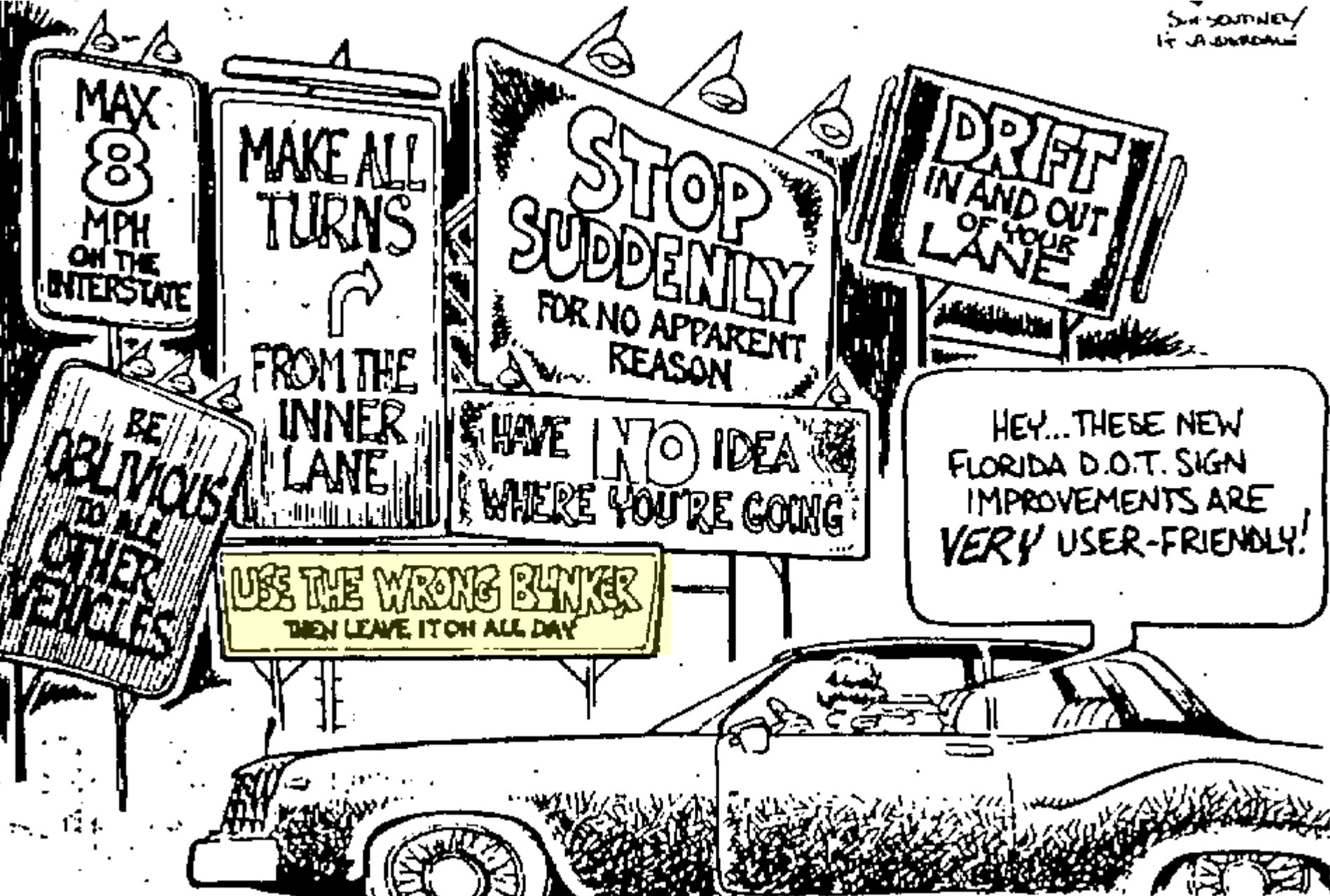


Chanelizing islands need to be larger than this



Special Signs For Us Older Drivers

SAFETY
IT'S A GOOD THING



Use Wrong Blinker

Leave it on All Day

Be Oblivious to
All Other
Vehicles