



# Statewide Access Management

WEBINAR SERIES

# Webinar Staff



Gina Bonyani



Mark Doctor



Chris Ibarra



Maria Overton



Kaitlin Davidson



Karla Matos

# Agenda

Learning Curve

Lane Elimination Review Process

Lane Repurposing | “Road Diets”

Questions

# Implementing Learning Curve

FDOT's Systems Implementation Office is utilizing the [Learning Curve](#) system for participant communications and management of the Statewide Access Management Quarterly Webinar.



# Implementing Learning Curve

- Pre and Post Webinar Communications
- Professional Training Tool
- Continuing Education Credits (PDH/AICP)
- Webinar Materials

LearningCurve

**IDEA**

**OCTOBER IS...**  
National Cyber Security Awareness Month  
CLICK HERE TO ACCESS

Please Visit FDOT NCSAM each day this month for great resources.

- Trainings
- Video shorts
- Resources

Available in LearningCurve

The Florida Department of Transportation

**FDOT Training**

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LearningCurve

CATALOG

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Show Categories

Course Type:

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- Instructor Led Course
- Curriculum
- Course Bundle

Course Name:

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Advanced Filtering:

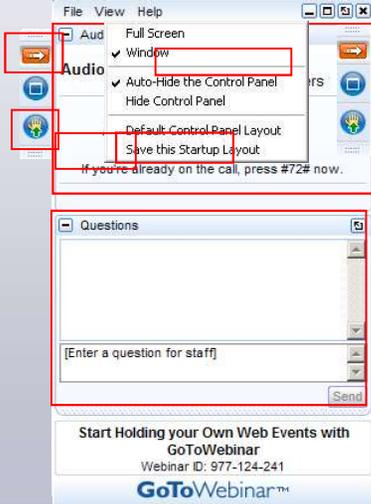
Select Filter

Course Name	Type	Rating
2016-2017 15-hour National USPAP Course	Instructor Led Course	Enroll
2018 GEOTECHNICAL RESEARCH IN PROGRESS (GRIP)	Curriculum	Enroll
2018 GRIP Meeting AM Section 1-3 hours at SMD	Instructor Led Course	Enroll
2018 GRIP Meeting AM Section 3-4 Hours at SMD	Instructor Led Course	Enroll
2018 GRIP Meeting PM Section 2-4 Hours at SMD	Instructor Led Course	Enroll
20415 Administering Windows Server 2012	Instructor Led Course	Enroll
20437 Enabling and Managing Office 365	Instructor Led Course	Enroll
20749 Upgrading Your Skills to Windows Server 2016 MCSA	Instructor Led Course	Enroll
20744 Securing Windows Server 2016	Instructor Led Course	Enroll
2-Minute Tips for Marketing	Online Course	Enroll
3D LASER SCANNING/LIDAR SURVEY APPLICATIONS	Instructor Led Course	Enroll
3-D LASER SCANNING/LIDAR SURVEY APPLICATIONS-VC	Instructor Led Course	Enroll
50255 Managing Windows Environments with Group Policy	Instructor Led Course	Enroll

Questions? [Kaitlin.Davidson@dot.state.fl.us](mailto:Kaitlin.Davidson@dot.state.fl.us)



# How to Participate Today



The screenshot shows the GoToWebinar control panel interface. A red box highlights the 'Audio' menu, which includes options for 'Full Screen', 'Window', 'Auto-Hide the Control Panel', 'Hide Control Panel', 'Default Control Panel Layout', and 'Save this Startup Layout'. Another red box highlights the 'Questions' section, which contains a text input field with the placeholder '[Enter a question for staff]' and a 'Send' button. A third red box highlights the 'Send' button. The interface also displays the text 'Start Holding your Own Web Events with GoToWebinar' and 'Webinar ID: 977-124-241'.

- Open and close your Panel
- View, Select, and Test your audio
- Submit text questions
- Raise your hand
- Q&A addressed throughout the webinar

# Statewide Access Management Webinar Series

**NEXT!**

Webinar Dates:

Tuesday from 2:00PM - 3:30PM

May 21, 2019 (EDT)



# Webinar Material

- Webinar materials will be sent via the [Learning Curve System](#).
- Recorded webinars and presentation material will be posted on the Systems Implementation Office website:
  - [Training & Webinars](#)
    - Access Management

The screenshot shows the FDOT Systems Implementation Office website. At the top, there is the FDOT logo and the text "Florida Department of TRANSPORTATION". To the right, there are links for "E-Updates | FL511 | Mobile | Site Map" and a search bar labeled "Search FDOT...". Below this is a navigation menu with links for "Home", "About FDOT", "Contact Us", "Maps & Data", "Offices", "Performance", and "Projects". The main heading is "Systems Implementation Office". On the left, there is a blue sidebar with the following text: "Office Manager Huiwei Shen", "605 Suwannee Street Tallahassee, FL 32399", "Tel: 850-414-4900", "Fax: 850-414-4876", "E-Mail Us", "Additional Contacts", and "Staff Directory". To the right of the sidebar is a large image of a road with palm trees. Below the image, there are two sections: "Office Resources" with links for "About us", "Divisions", "Document Repository", "Programs & Services", "Trainings & Webinars", and "More ..."; and "Welcome" with a paragraph of text: "The Systems Implementation Office is responsible for the Strategic Intermodal System (SIS) through the development and implementation of the SIS Policy Plan and the SIS Funding Strategy. The Systems Implementation Office also develops policies, procedures, tools, training and technical assistance for planning level traffic studies including access management, level of service standards, roadway designations and interchange access requests. The Shared Use Non-motorized (SUN) Trail program is also developed and maintained by this office." Below the "Welcome" section is a "What's Happening" section with a paragraph: "The public comment period for the SIS Policy Plan Designation Criteria update is now open. To submit a public comment before the deadline of August 30, 2018, click [HERE](#)."



# Statewide Access Management

— W E B I N A R —

## Today's Webinar

Road Diets | Lane Elimination

February 12, 2019

2:00PM – 3:30 PM, EDT

Speaker:

Chris Ibarra, *Transportation Planner* | FDOT

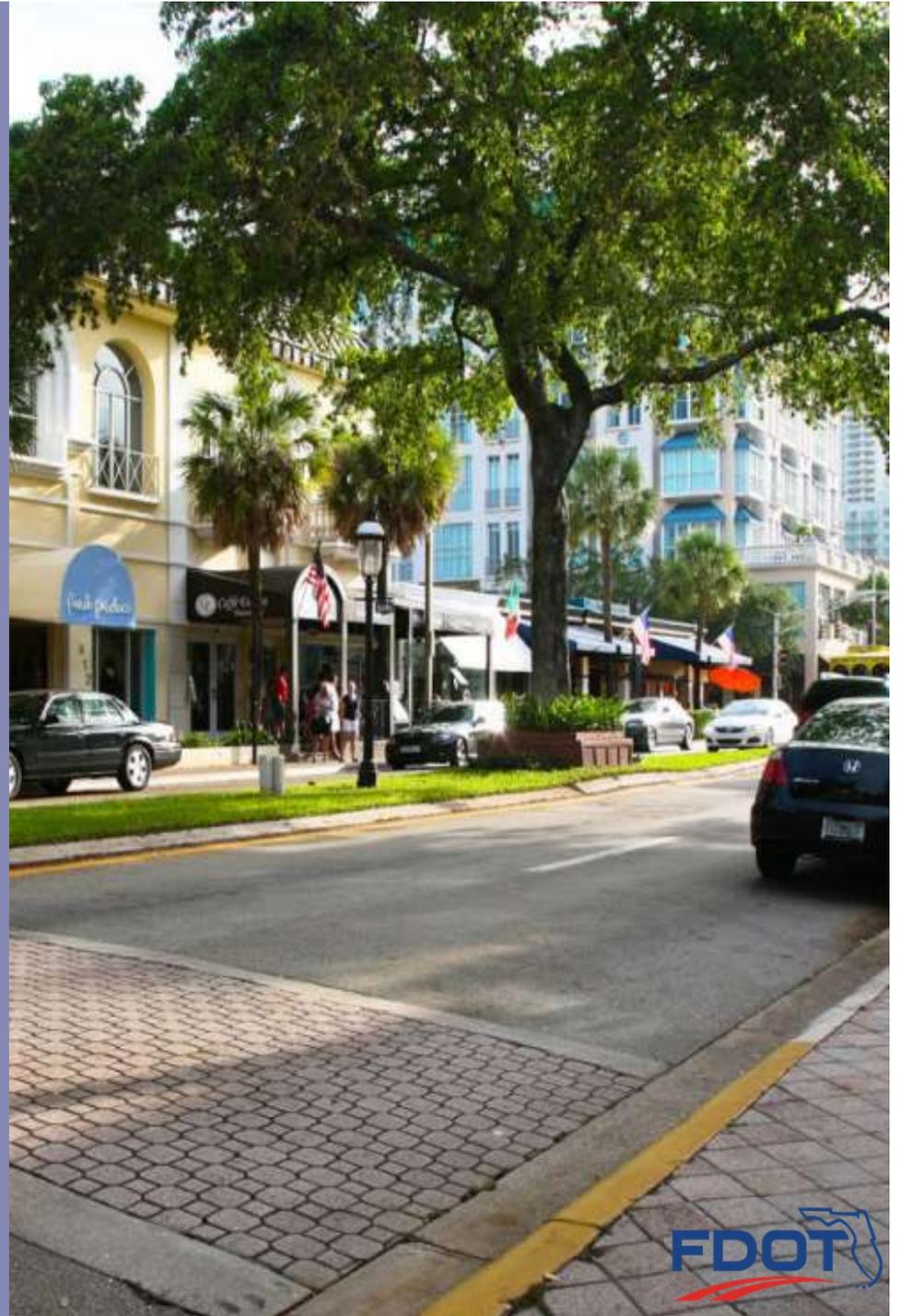
Mark Doctor, *Design Engineer* | FHWA



# Lane Elimination Review Process



Chris Ibarra  
*Transportation Planner* | FDOT



# Lane Elimination Projects



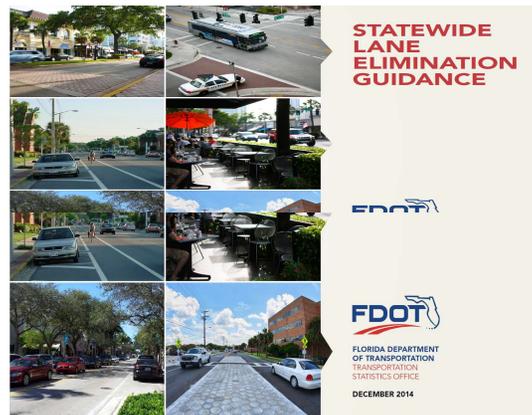
Lane elimination projects (a.k.a., “road diets” or “lane reductions”) are intended to reduce the number of travel lanes and effective width of the road to achieve systemic improvements.

PHASE 1: RESOURCE DOCUMENT  
**STATEWIDE LANE ELIMINATION GUIDANCE**



Phase 1: FDOT's compilation of lane elimination examples and sample analysis processes

[www.fdot.gov/planning/systems/programs/SM/laneelimination/default.htm](http://www.fdot.gov/planning/systems/programs/SM/laneelimination/default.htm)



Phase 2: FDOT's internal guidance for implementing lane elimination projects on the State System

[www.fdot.gov/roadway/fdm/default.shtm](http://www.fdot.gov/roadway/fdm/default.shtm)

**126 Lane Elimination Projects**

Modification for Non-Conventional Projects:

Delete **FDM 126**

**126.1 General**

Lane elimination projects (a.k.a., "road diets" or "lane reductions") are intended to reduce the number of travel lanes and effective width of the road to achieve systemic improvements. Generally, the purpose of these projects is to reconfigure the existing cross section to allow other uses and travel modes. Lane elimination projects typically provide more livable environments, and contribute to economic development and vitality to a community. The recovered travel way can be used to accommodate other purposes, such as bicycle lanes, wider sidewalks, landscaping, on-street parking, bulb-outs, traffic calming, and refuge islands.

A local government entity (e.g., municipality, county, MPO, TPO) or the Department can submit a request for the elimination of travel lanes on the State Highway System (SHS). A private entity may only submit a request through a local government entity.

If the project has a PD&E phase, the requirements of this chapter are followed during the PD&E study prior to the selection of a preferred alternative. See **Part 1, Chapter 2** of the [PD&E Manual](#) for additional information.

**126.2 Requirements**

Four-lane undivided roadways with AADT  $\leq$  20,000 are typically good candidates for a lane reduction (e.g., converting to a two-lane, two-way road with a center-left-turn-lane). However, projects are evaluated for lane elimination feasibility on a case-by-case basis.

Lane elimination projects must comply with AASHTO and Department design criteria. A Design Exception or Design Variation is required when a proposed design element is below the governing criteria. See **FDM 122** for information on Design Exceptions and Design Variations.

Lane elimination projects should be consistent with the Long Range Transportation Plans (LRTP), Transportation Improvement Program (TIP), and Transit Development Plan (TDP).

126 Lane Elimination Projects

FDOT Design Manual  
Chapter 126: Lane Elimination  
Chapter 103 Standard Forms

# Resources

# FDM 126-Lane Elimination

- FDM provide guidance for Lane Elimination projects submittal and review process.
  - Purpose
  - Requirements
  - Application/Review Process
  - Required Forms

# Requirements

- Lane elimination projects must comply with AASHTO and Department design criteria.
- Must follow the National Environmental Policy Act (NEPA) for lane elimination projects that use federal funding.
- If the project has a PD&E phase, the requirements of this chapter are followed during the PD&E study prior to the selection of a preferred alternative.
- A Design Exception or Design Variation is required when a proposed design element is below the governing criteria.

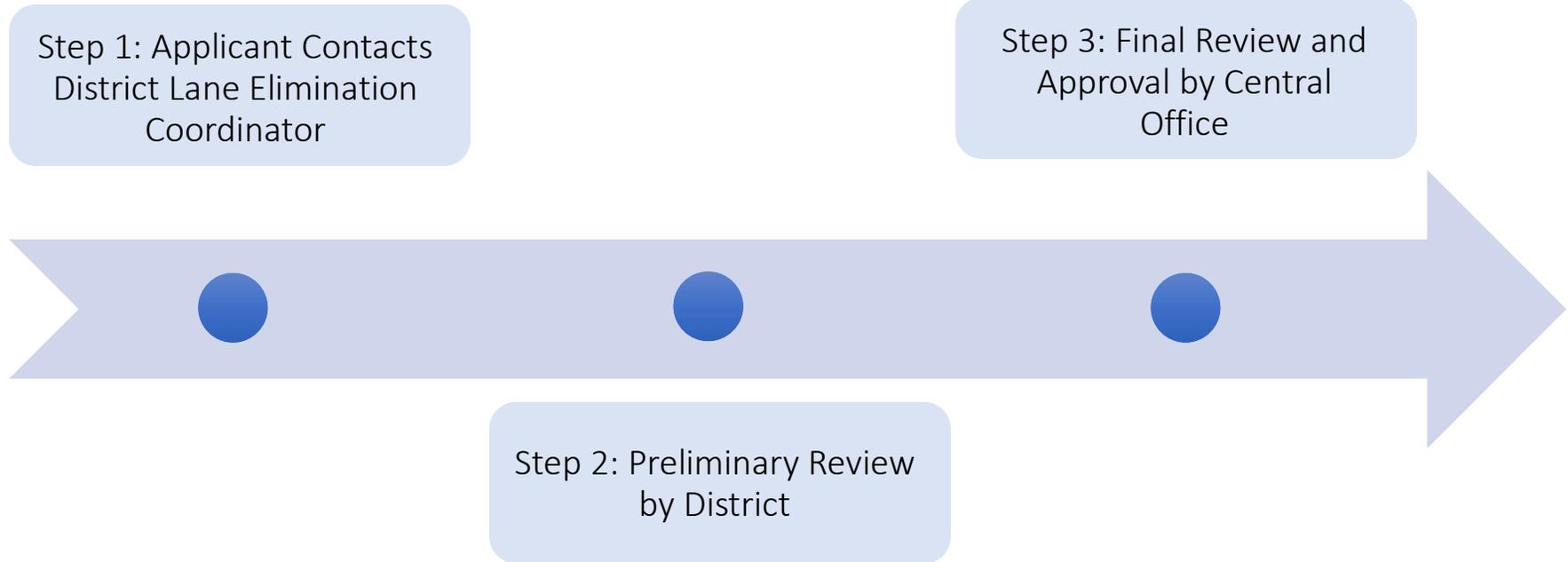
# Requirements

- Lane elimination projects should be consistent with the Long Range Transportation Plans (LRTP), Transportation Improvement Program (TIP), and Transit Development Plan (TDP)
- Analyze the impacts that a lane elimination project may have in different areas.
- Conduct public involvement activities in accordance with the *Public Involvement Handbook*.

# Applicant

- A local government entity (e.g., municipality, county, MPO, TPO) or the Department.
- Private entity may only submit a request through a local government entity.

# Application Process



# Required Forms

- FDM- Chapter 103: Standard Forms
- Documents to support the Lane Elimination Review Process and the initial meetings.
- Forms:
  - Form 126-A Initial Meeting Checklist
  - Form 126-B Methodology Checklist
  - Form 126 C- Lane Elimination Initial Notice to Central Office
  - Form 126-D Lane Elimination Final Approval Notice to Central Office

# Required Forms

## Form 126-A Initial Meeting Checklist

### INITIAL MEETING CHECKLIST

#### Basic information about the project

- |   |  |
|---|--|
| <input type="checkbox"/> Project Location | <input type="checkbox"/> Jurisdiction(s) in which the Project is Located |
| <input type="checkbox"/> Project Limits   | <input type="checkbox"/> Proposed Change in Lane Configuration           |
| <input type="checkbox"/> Project Length   | <input type="checkbox"/> Project Schedule                                |
| <input type="checkbox"/> Project Purpose  | <input type="checkbox"/> Context Classification                          |

#### This is a list of items that the Applicant should be prepared to discuss at the Initial Meeting:

- |   |   |
|---|---|
| <input type="checkbox"/> Conceptual plan (including transitions to and from the lane elimination section)   | <input type="checkbox"/> Anticipated changes (if any) in functional classification and access management classification |
| <input type="checkbox"/> Existing and long-range future AADT (the latter based on historical growth and the regional travel demand model, if applicable)  | <input type="checkbox"/> Anticipated changes (if any) in posted speed limits  |
| <input type="checkbox"/> Consistency of the proposed project with the applicable Long-Range Transportation Plan (LRTP), Transportation Improvement Program (TIP), Transit Development Plan (TDP), comprehensive plan, master plans, visions, and Complete Streets initiatives | <input type="checkbox"/> Need for design variations or design exceptions to support the lane elimination project        |
| <input type="checkbox"/> Status of the roadway as an Evacuation Route, freight route, and part of the Strategic Intermodal System (SIS)   | <input type="checkbox"/> Plan for obtaining input and review from businesses, residents, and other stakeholders         |
| <input type="checkbox"/> Status of the roadway as a major transit corridor per the LRTP or TDP  | <input type="checkbox"/> Plan for receiving endorsement from elected officials  |
| <input type="checkbox"/> Proposed use(s) for the right-of-way after lanes are eliminated (e.g., widened sidewalks, bicycle lanes, landscaping, on-street parking, transit lanes)  | <input type="checkbox"/> Funding source   |
| <input type="checkbox"/> Existing right-of-way width and any proposed changes to the right-of-way width   | <input type="checkbox"/> Potential implementation strategy and partner commitments                                      |
| <input type="checkbox"/> Anticipated changes (if any) in jurisdictional responsibility for ownership or maintenance of the roadway  |   |

# Required Forms

## Form 126-B Methodology Checklist

### Methodology Checklist

This is an illustrative list of items that the District Review Team may require the Applicant to address in a Concept Report, as needed:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li><input type="checkbox"/> Conceptual design plans (including proposed typical sections) that meet FDOT design standards for all transportation modes</li> <li><input type="checkbox"/> Need for any design variations or exceptions</li> <li><input type="checkbox"/> Size of impact area</li> <li><input type="checkbox"/> Near- and long-range traffic forecasts with and without the proposed (with changes in travel patterns clearly shown)</li> <li><input type="checkbox"/> Near- and long-range level of service (LOS) and queuing analysis for intersections and segments in the impact area under the build and no-build scenarios             <ul style="list-style-type: none"> <li>• LOS analyses may be daily or peak hour analyses at the District Review Team's discretion.</li> <li>• The District Review Team and the Applicant should agree on an analysis methodology.</li> </ul> </li> <li><input type="checkbox"/> Mitigation to address significant and adverse LOS impacts on State roads and the regional transportation system resulting from the lane elimination</li> <li><input type="checkbox"/> Impact on pedestrian and bicycle infrastructure (e.g., sidewalks, bicycle lanes, and multi-use paths) and connectivity</li> <li><input type="checkbox"/> Impact on transit routes and transit stops locations (including appropriateness of turn radii and lane widths)</li> <li><input type="checkbox"/> Impact on parking supply</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Crash data summary and analysis, which may include identification of high-crash locations (by crash type) and locations on FDOT's 5% lists (i.e., the lists of the 5% of segments and intersections with the highest number of crashes) and estimation of the potential increase or decrease in crashes using Crash Modification Factors (CMFs) from the Highway Safety Manual, CMFs from the FHWA CMF Clearinghouse website, or other appropriate methodologies</li> <li><input type="checkbox"/> Impact on trucks and designated truck routes (including appropriateness of turn radii and lane widths and possible relocation of designated truck routes)</li> <li><input type="checkbox"/> Impact on evacuations routes and emergency response</li> <li><input type="checkbox"/> Conceptual funding plan (includes cost estimates and funding sources)</li> <li><input type="checkbox"/> Conceptual implementation plan (including an implementation schedule and a list of the commitments that the applicant will make in support of the lane elimination project)</li> <li><input type="checkbox"/> Existing posted speed and desired posted speed after the lane elimination</li> <li><input type="checkbox"/> The need to add, remove, or modify traffic signals</li> <li><input type="checkbox"/> Impacts on school crossing locations and/or midblock pedestrian crossing locations</li> <li><input type="checkbox"/> Case-specific special considerations to be determined (e.g., railroad crossing improvements)</li> </ul> |
|--|--|

# Required Forms

## Form 126-C Lane Elimination Initial Notice to Central Office

Form 126-C

### Lane Elimination Initial Notice to Central Office

To: \_\_\_\_\_ From: \_\_\_\_\_ Date: \_\_\_\_\_  
Systems Management Administrator District Lane Elimination Coordinator

The intent of this message is to inform Central Office that District \_\_\_\_\_ has received a request for lane elimination on a State Highway.

#### PROJECT INFORMATION

State Road: \_\_\_\_\_

Project Location: \_\_\_\_\_

Roadway ID: \_\_\_\_\_

Context Classification: \_\_\_\_\_

Project Limits (MP): From \_\_\_\_\_ to \_\_\_\_\_

Applicant: \_\_\_\_\_

Project Description: \_\_\_\_\_

Proposed Change in Cross Section: From \_\_\_\_\_ lanes to \_\_\_\_\_ lanes

SIS  NHS

#### ACTIONS AND OUTCOMES TO DATE

District staff participated in a meeting with \_\_\_\_\_ on \_\_\_\_\_ to formally commence the lane elimination review process. At that meeting, District staff provided an overview of the lane elimination review process and the Applicant shared initial information about the lane elimination project. The District determined the specific review process and analysis methodology for the lane elimination request.

#### NEXT STEPS

The Applicant will submit a Draft Concept Report (containing a proposed typical section) as the lane elimination review process proceeds. If the District reviewers find the Draft Concept Report acceptable, the District will recommend that the Applicant submit a formal Application Package (including the Final Concept Report). If the Application Package is complete and acceptable, the District will approve the lane elimination request with the concurrence of Central Office.

#### Concurrences:

\_\_\_\_\_  
District Planning and Environmental Administrator Date: \_\_\_\_\_

\_\_\_\_\_  
District Design Engineer Date: \_\_\_\_\_

\_\_\_\_\_  
District Traffic Operations Engineer Date: \_\_\_\_\_



Lane Elimination  
Final Review and Approval  
Notice to Central Office

The intent of this message is to inform Central Office that District \_\_\_\_\_ has received a request for lane elimination on a State Highway.

PROJECT INFORMATION

State Road: \_\_\_\_\_

Project Location: \_\_\_\_\_

Roadway ID: \_\_\_\_\_

Context Classification: \_\_\_\_\_

Project Limits (MP): From \_\_\_\_\_ to \_\_\_\_\_

Applicant: \_\_\_\_\_

Project Description: \_\_\_\_\_

\_\_\_\_\_

Proposed Change in Cross Section: From \_\_\_\_\_ lanes to \_\_\_\_\_ lanes

SIS       NHS

District Concurrences:

\_\_\_\_\_  
*District Planning and Environmental Administrator*      Date: \_\_\_\_\_

\_\_\_\_\_  
*District Design Engineer*      Date: \_\_\_\_\_

\_\_\_\_\_  
*District Traffic Operations Engineer*      Date: \_\_\_\_\_

Central Office Concurrence:

\_\_\_\_\_  
*Chief Planner*      Date: \_\_\_\_\_

Final Approval:

\_\_\_\_\_  
*Chief Engineer*      Date: \_\_\_\_\_



# Required Forms

Form 126-D Lane Elimination Final Review and Approval Notice to Central Office

Note: Resubmittals must include an updated and signed Form 126-D



# Chris Ibarra

Transportation Planner

Systems Implementation Office

[Christopher.Ibarra@dot.state.fl.us](mailto:Christopher.Ibarra@dot.state.fl.us)

850-414-5345



# LANE REPURPOSING / “Road Diets”



Florida Statewide Access Management Webinar Series

*February 12, 2019*

# Webinar Presenter

## Mark Doctor, PE

Senior Safety & Design Engineer  
Federal Highway Administration  
Atlanta, GA

(404) 562-3732

[mark.doctor@dot.gov](mailto:mark.doctor@dot.gov)



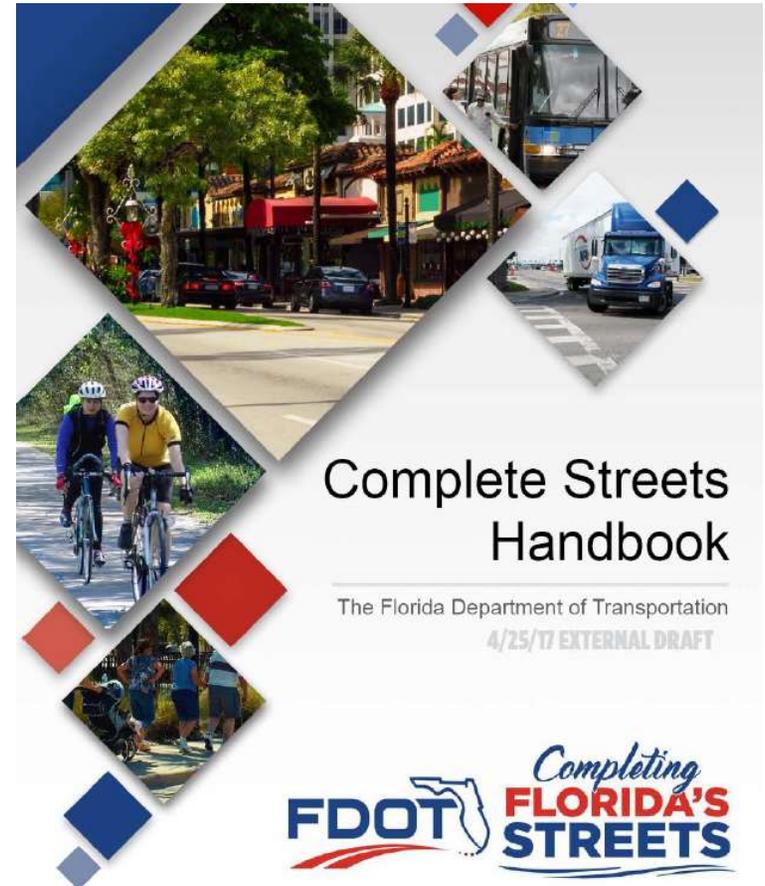
# What we'll talk about ...

- What is Lane Repurposing? / Why consider it? / What are the benefits?
- Examples and case studies from around Florida
- Feasibility Considerations: Under what conditions is Lane Repurposing applicable, and when not?
- Strategies for communicating and messaging Lane Repurposing to the public, business owners and elected officials
- Q&A

# Complete Streets

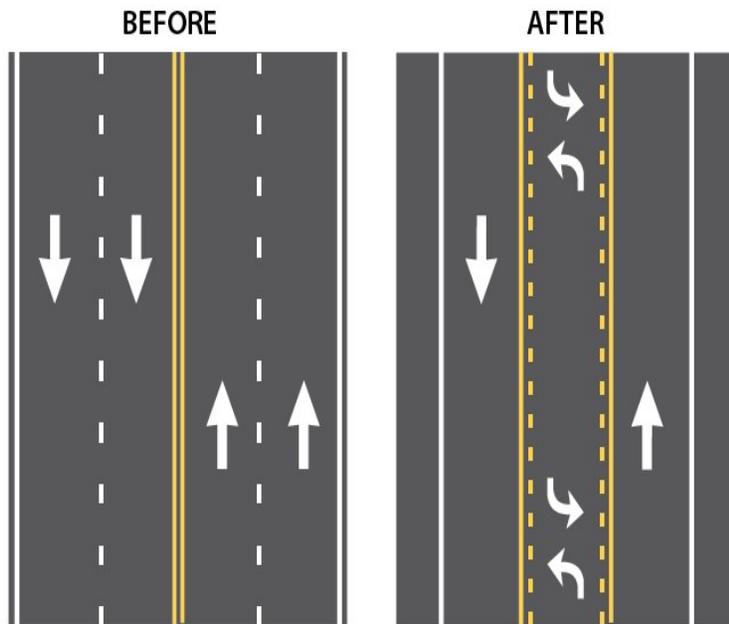
***“Complete streets are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and transit riders of all ages and abilities must be able to safely move along and across a complete street.”***

Defined by the National Complete Streets Coalition



# What is “Lane Repurposing”?

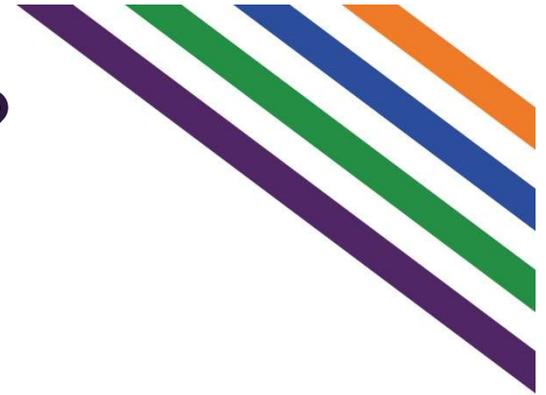
Example Shown: Typical “Road Diet”



Reconfiguring the use of road space by reducing the number (or width) of travel lanes to provide space for other purposes such as:

- Center Turn Lane (TWLTL)
- Median Islands
- Bicycle Lanes
- On-street Parking
- Bus Pull-outs
- Delivery Zones
- Wider sidewalks

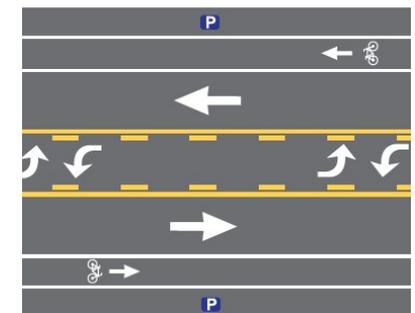
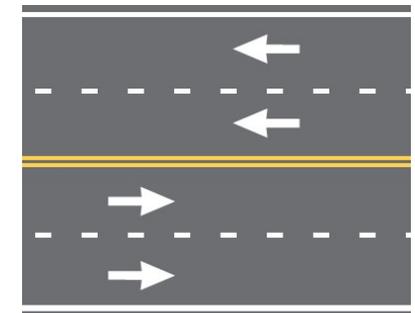
# What is “Lane Repurposing”?



Think about it like this:

- Lane reallocation
- Roadway reconfiguration
- Roadway user quality of service rebalancing
- Roadway “Right Sizing”
- “Road Diet”
- Restriping for Safety

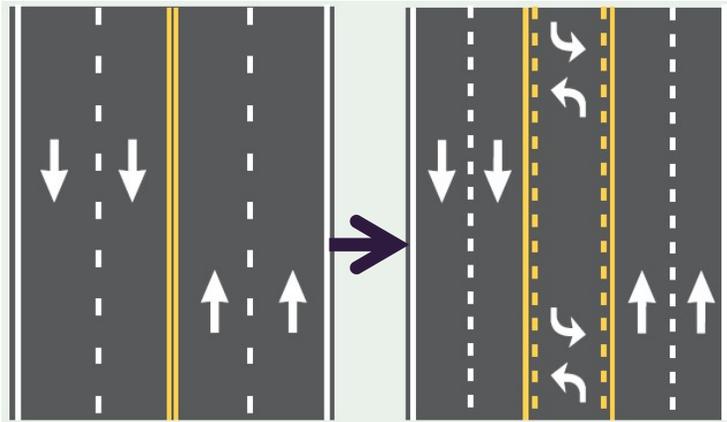
Lane repurposing typically doesn't shrink the overall “footprint” of the corridor



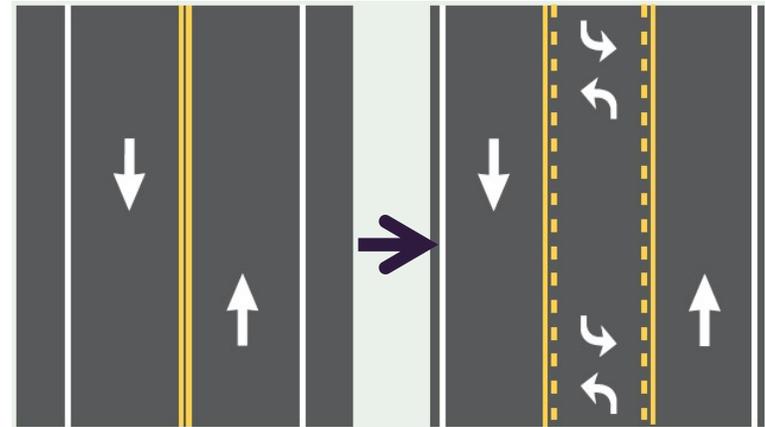
# Many Possible Reconfigurations



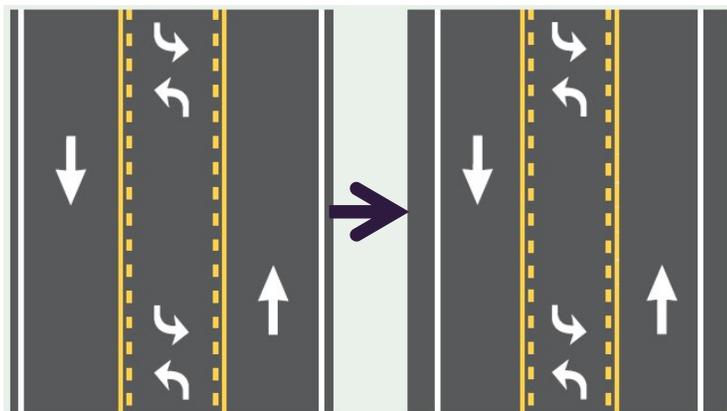
4-Lane to 5-Lane



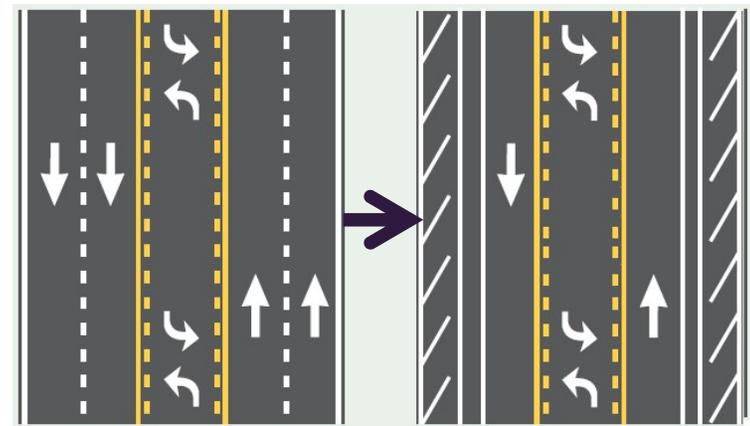
2-Lane to 3-Lane



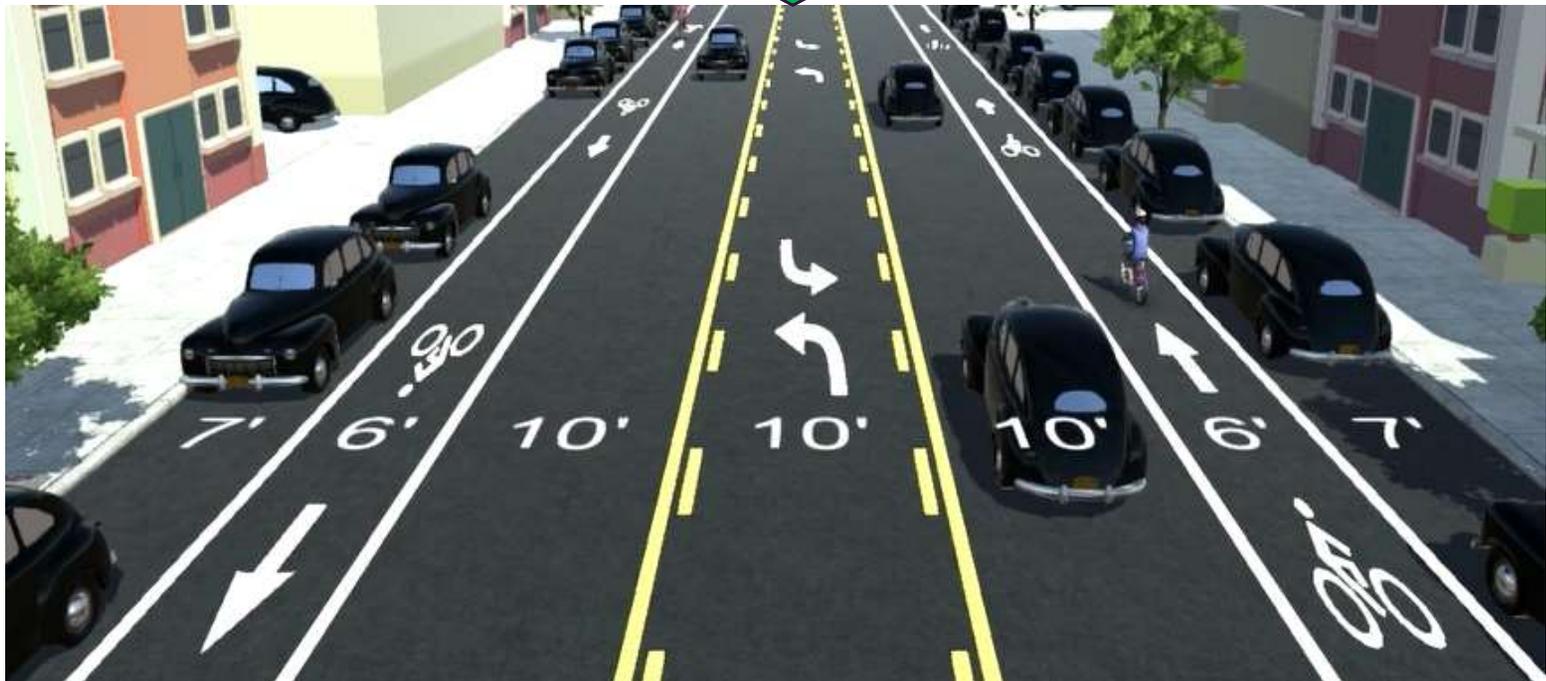
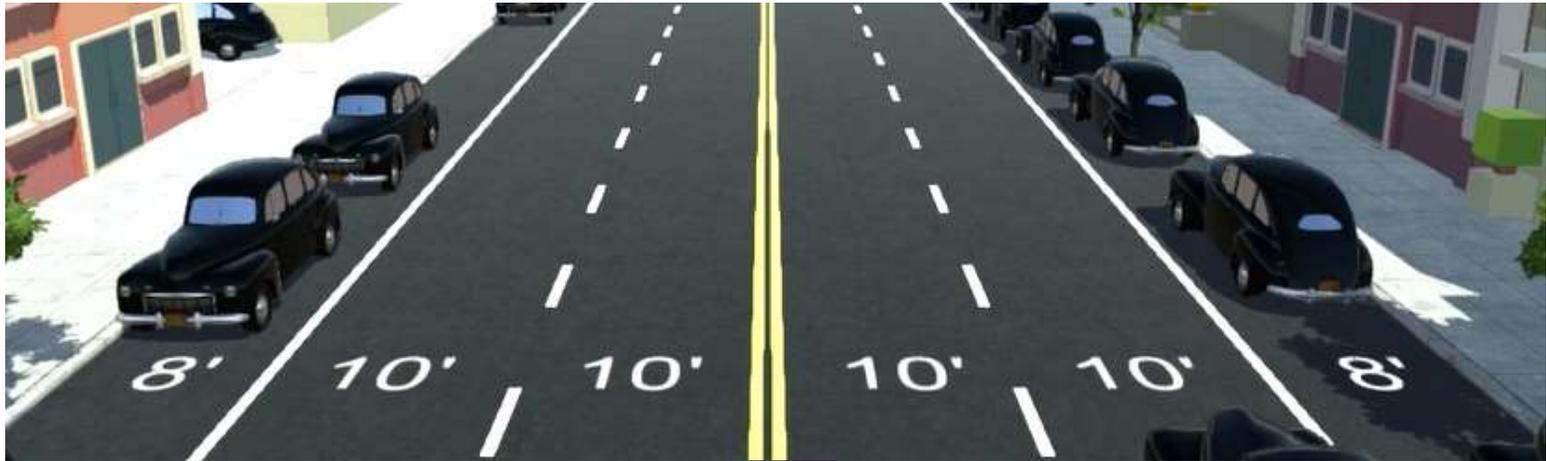
3-Lane to 3-Lane



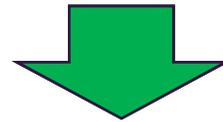
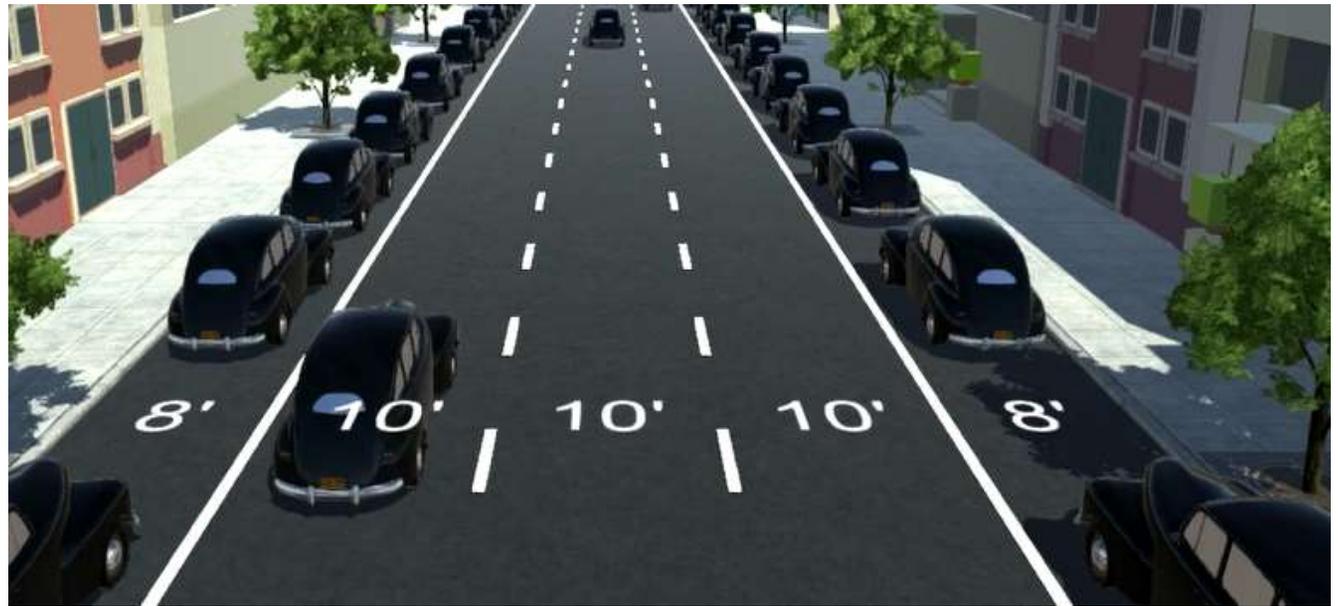
5-Lane to 3-Lane



# Lane Repurposing – Classic “Road Diet”



# One-Way Street Example



# Bicycle Tracks



# Why Repurpose?



Many agencies implement to:

- Reduce crashes
- Rebalance the service among travel modes
- Support economic enhancement goals
- Support community goals to improve quality and health



# Why Repurpose?

- SAFETY!!!
  - Separate, Simplify and Slow



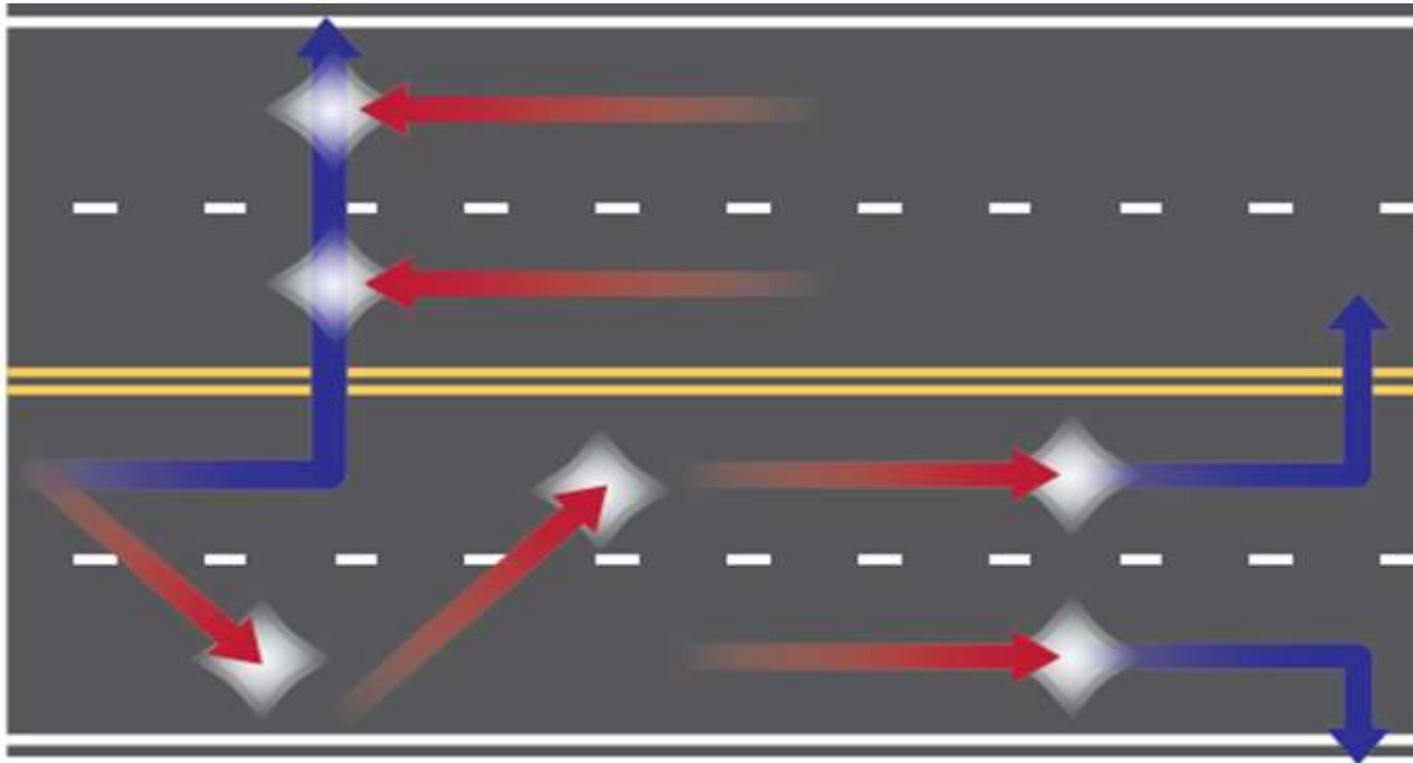
In addition to making East Boulevard in Charlotte, N.C., more attractive, a road diet reduced travel speeds, bicycle and pedestrian injury rates and the number of rear-end and left-turn collisions. Photo courtesy city of Charlotte

# - Separate



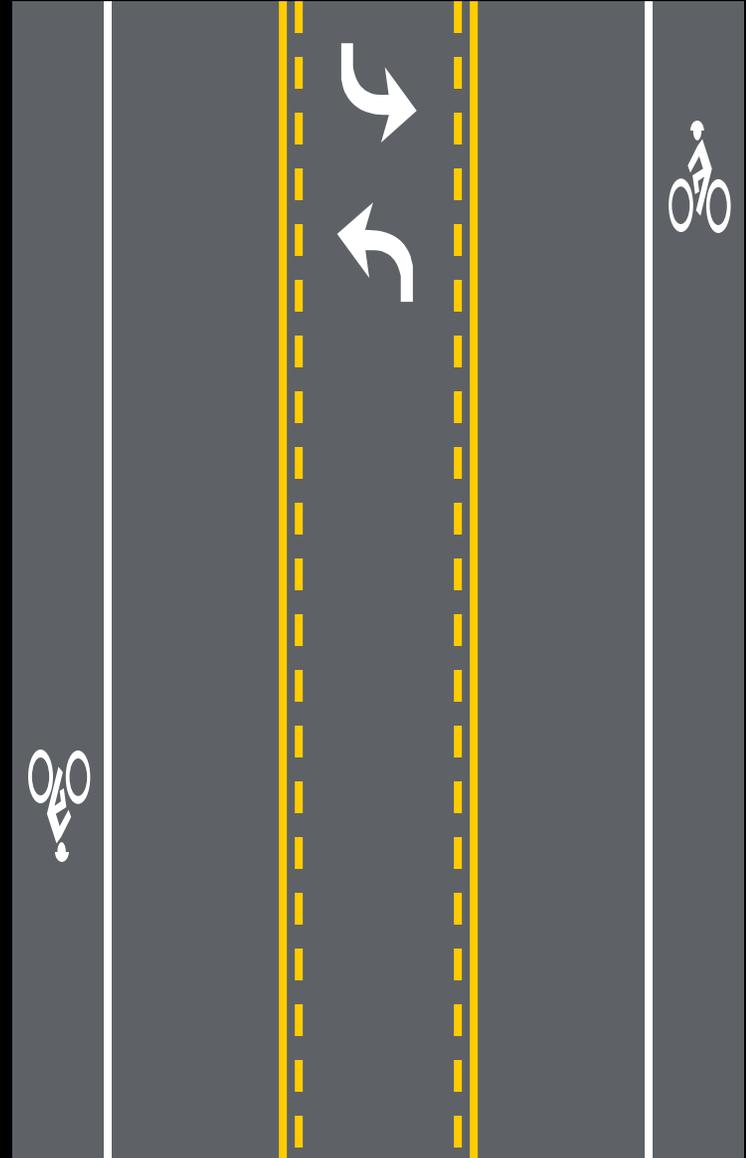
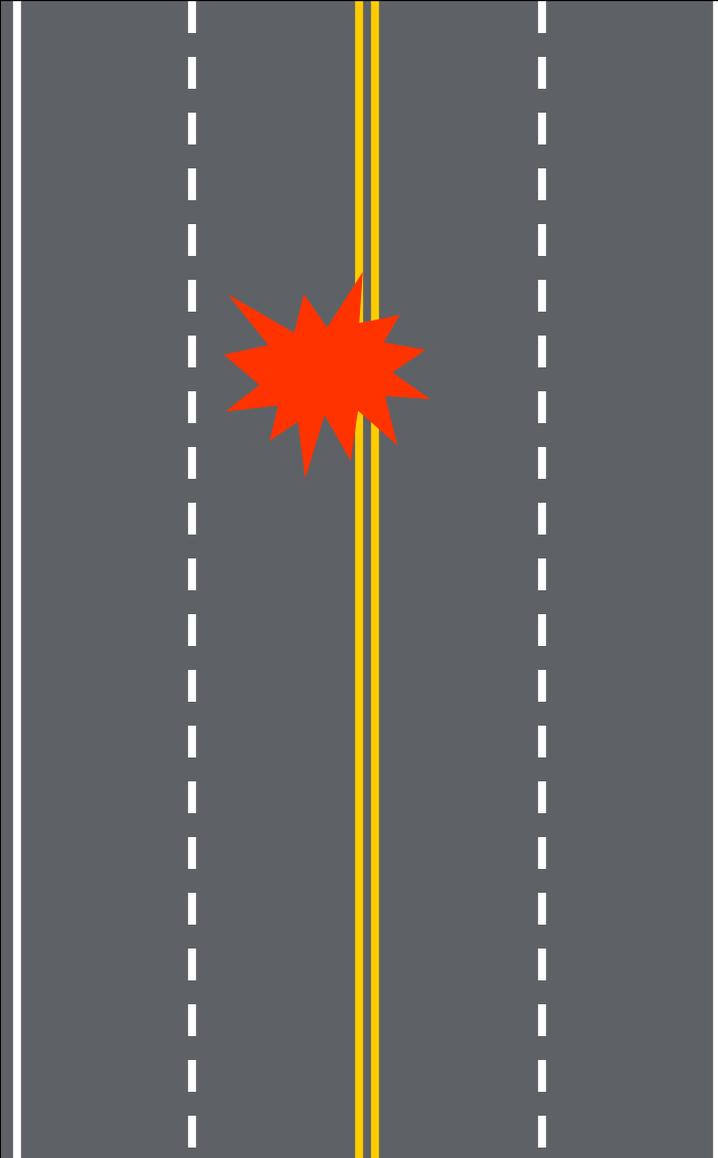
Reconfiguration of the roadway to “create” space for new bicycle lanes relocates bicyclists from the travel lane

# - Separate

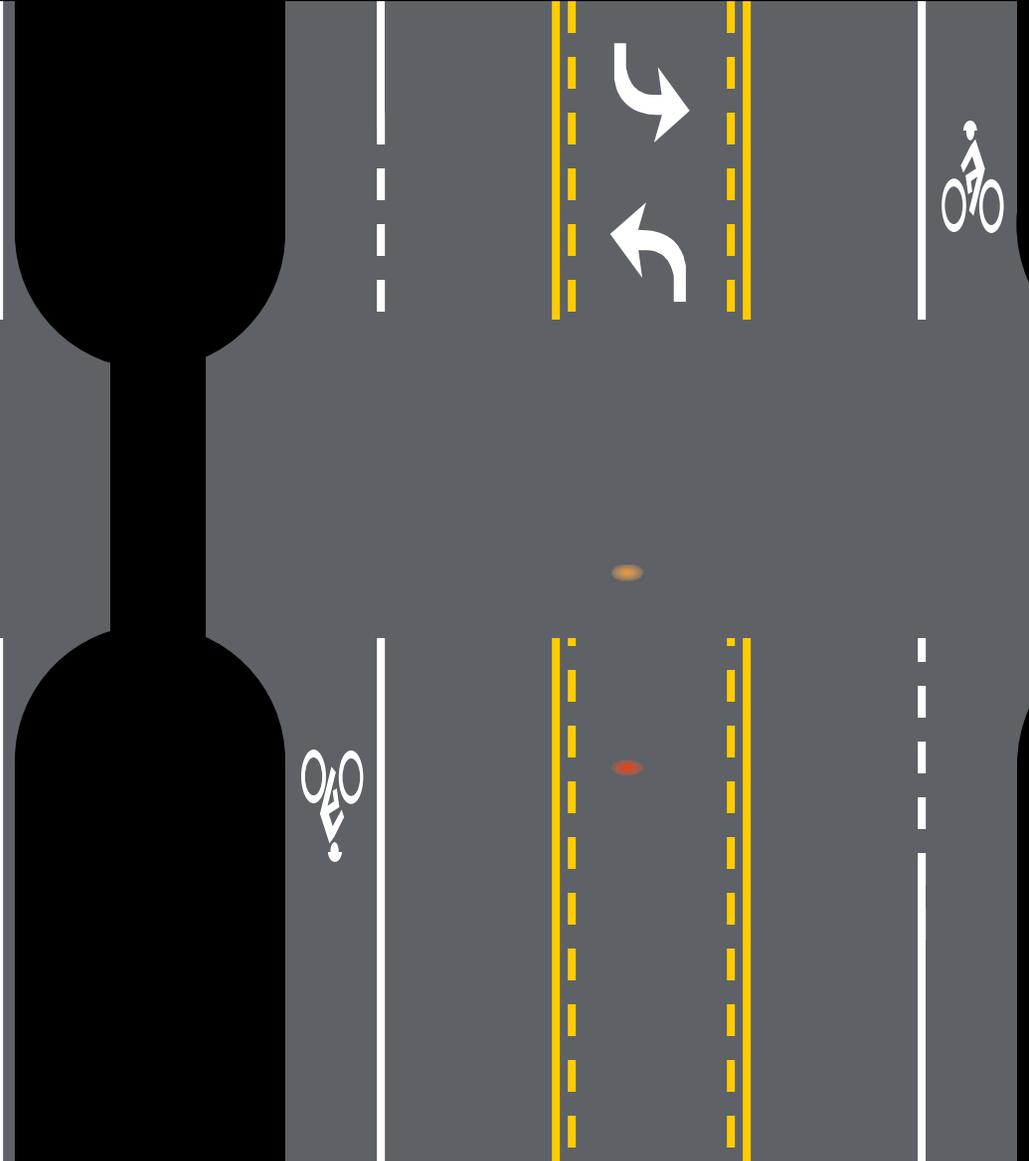
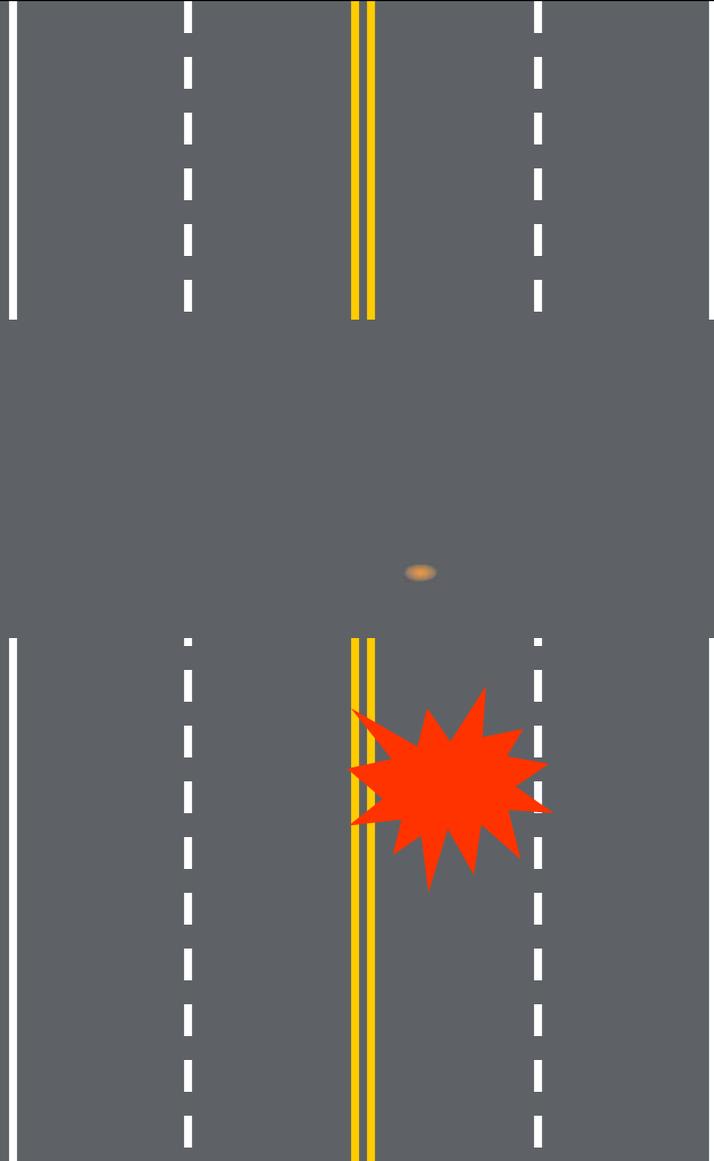


*Four-lane undivided highways have comparatively high crash rates due to the numerous potential conflicts between higher speed through traffic and turning vehicles.*

# Increased Separation



# Dedicated Left Turn Lane

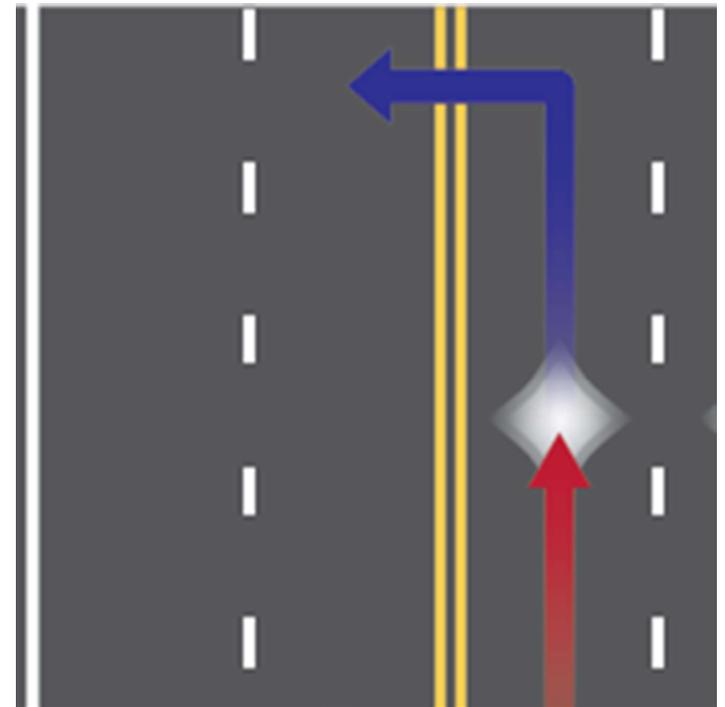




# 4-Lane Undivided Highways



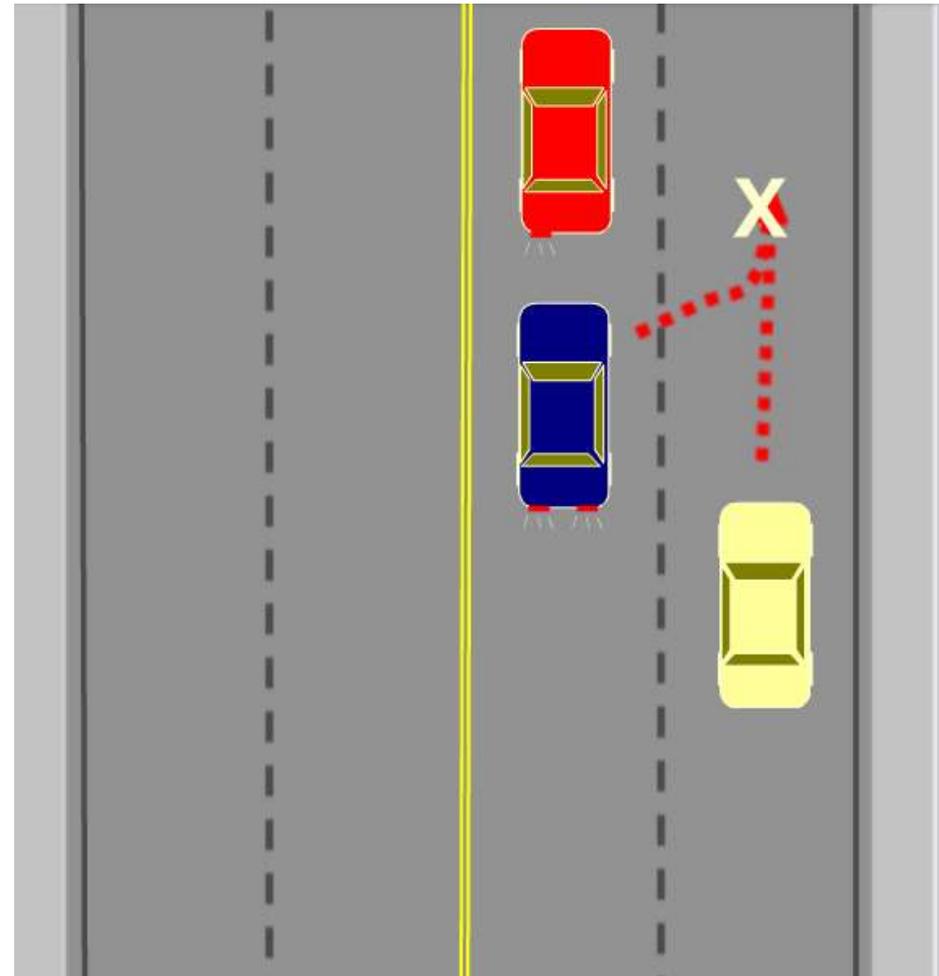
Left-turning vehicles stopped in the inside travel lane are at risk for rear-end collisions



# 4-lane Undivided Highways



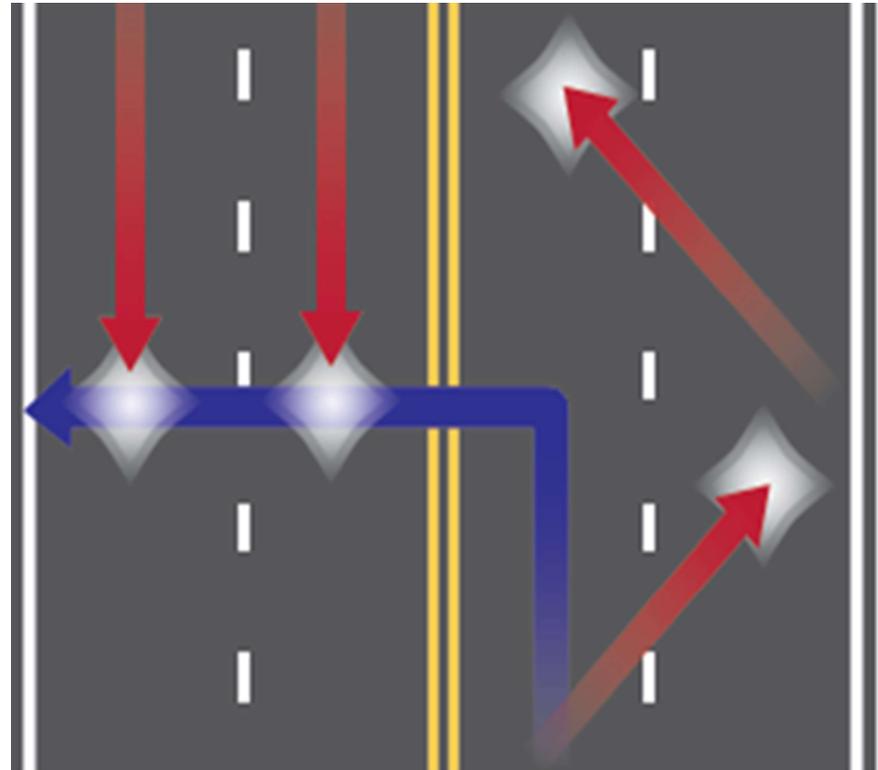
Frequent and sudden lane changing between the two through lanes contributes to sideswipe and rear-end collisions



# 4-lane Undivided Highways

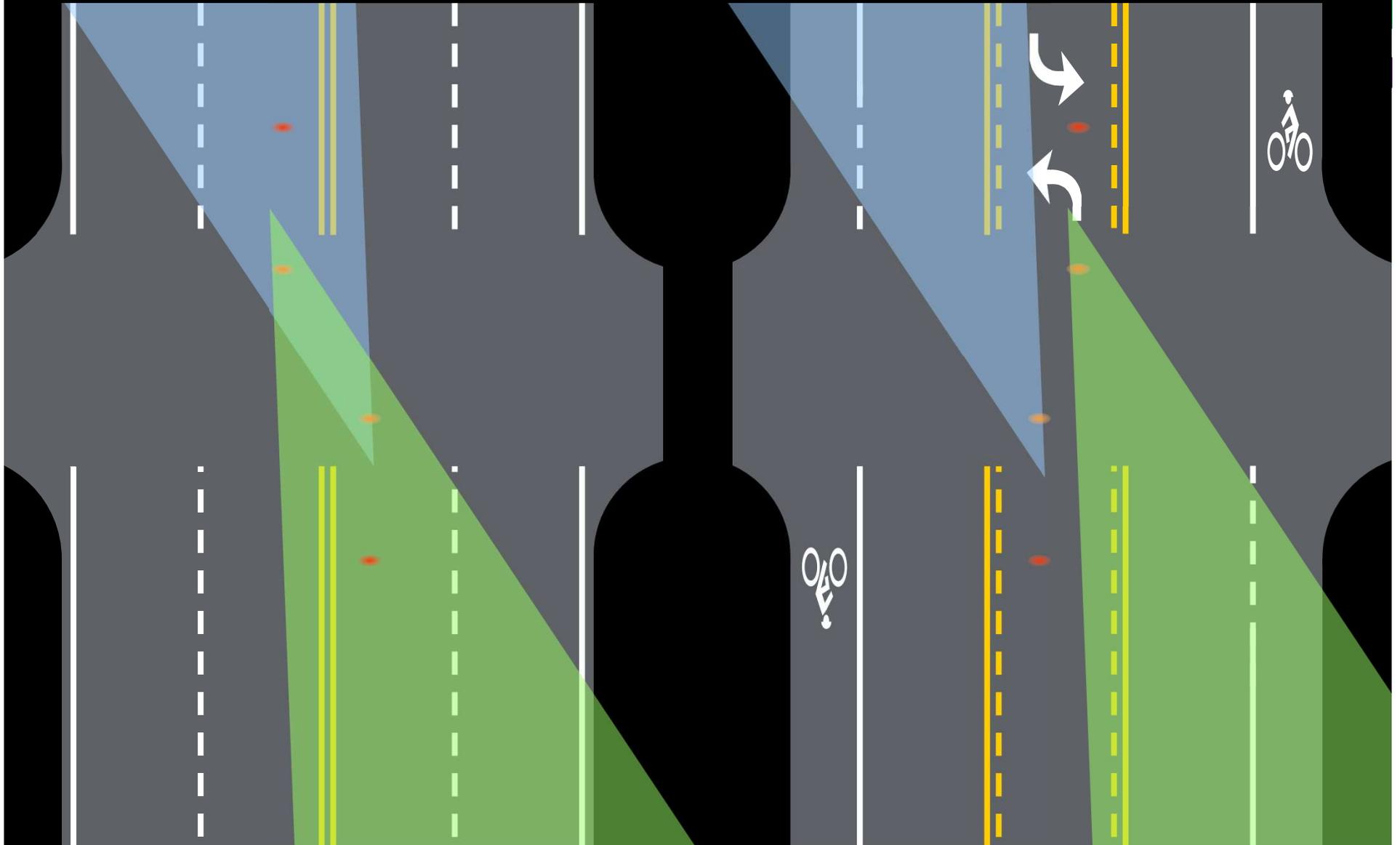


Left-turning drivers may make poor judgements in gaps or feel pressure to vacate the lane contributing to angle collisions



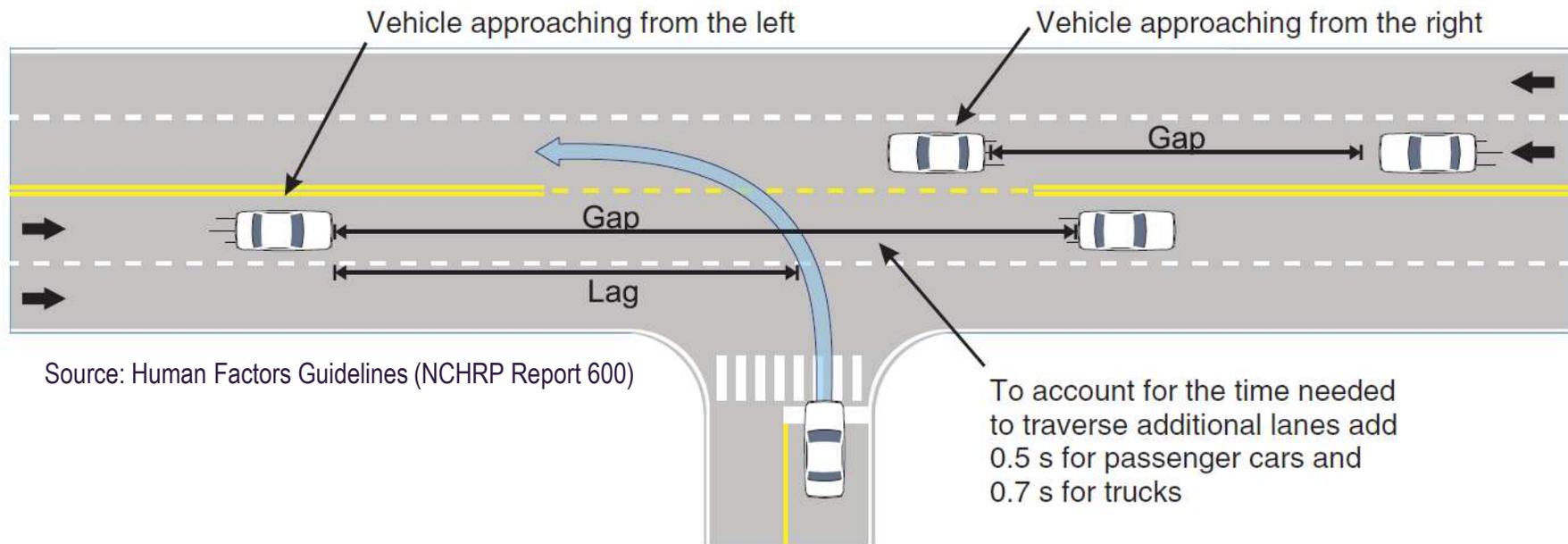
These safety problems become more evident as traffic volumes and turning movements increase

# Sight Lines – Major Road



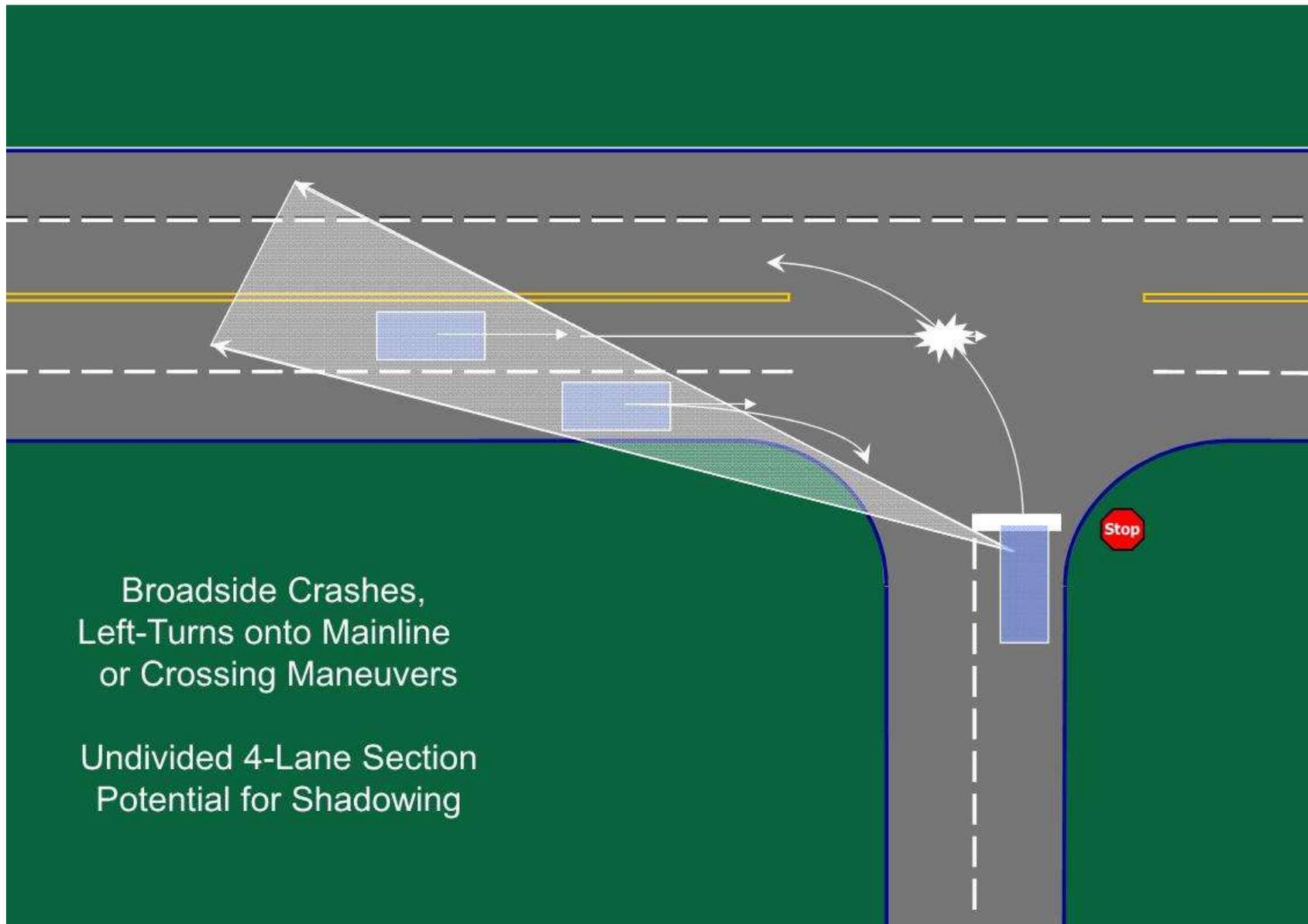
# - Simplify

Making judgments about vehicle speeds and arrival time (gaps) is challenging. Research indicates most drivers tend to underestimate gaps by 20% to 40%.

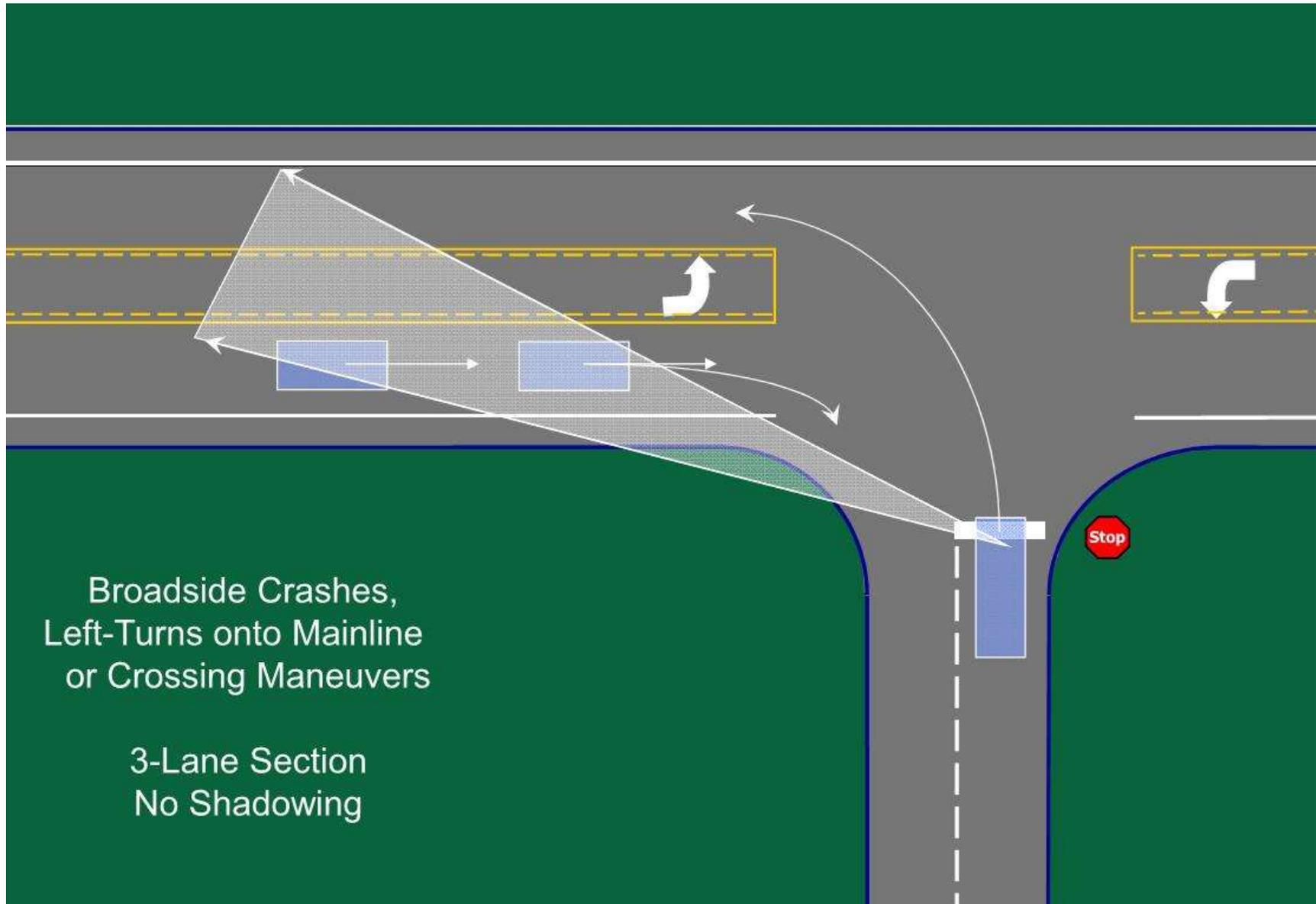


- Gaps are defined as the time interval between two successive vehicles (measured from the rear of a lead vehicle to the front of the following vehicle)
- Lags are defined as the time interval from the point of the observer to the arrival of the front of the next approaching vehicle

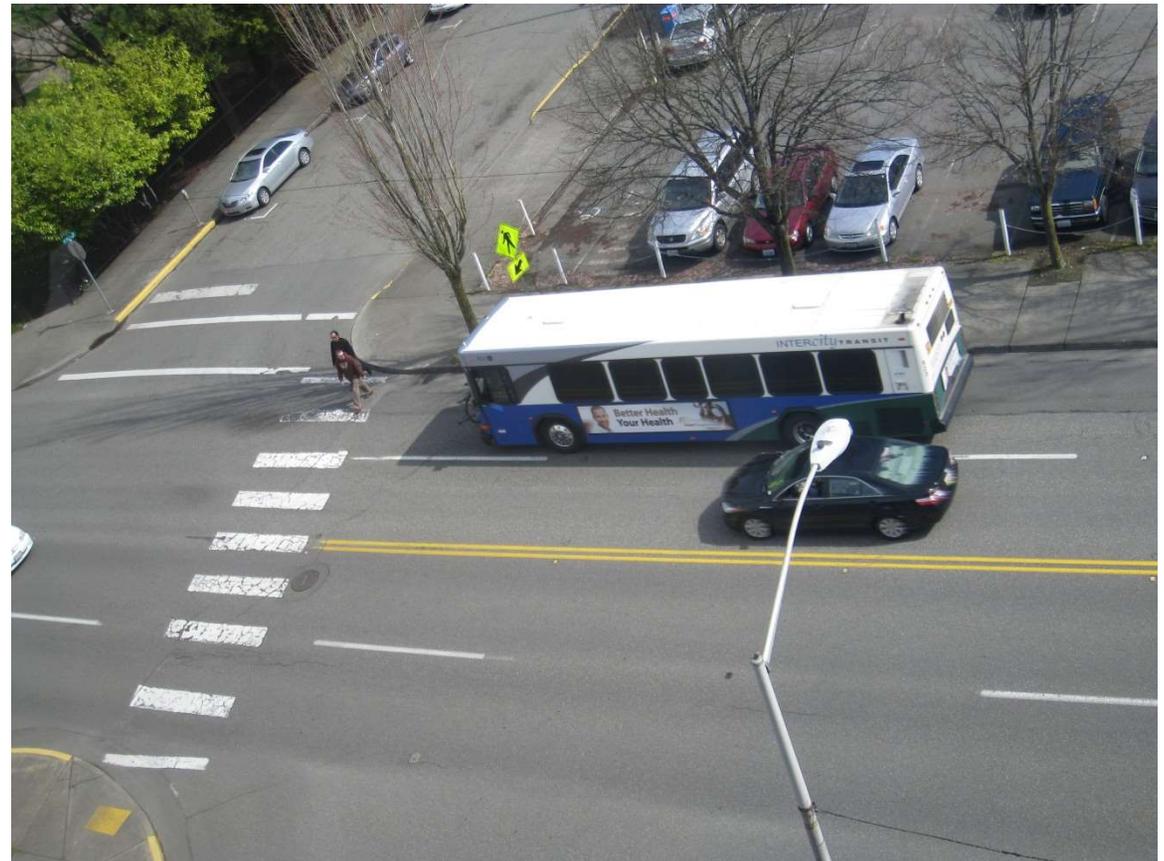
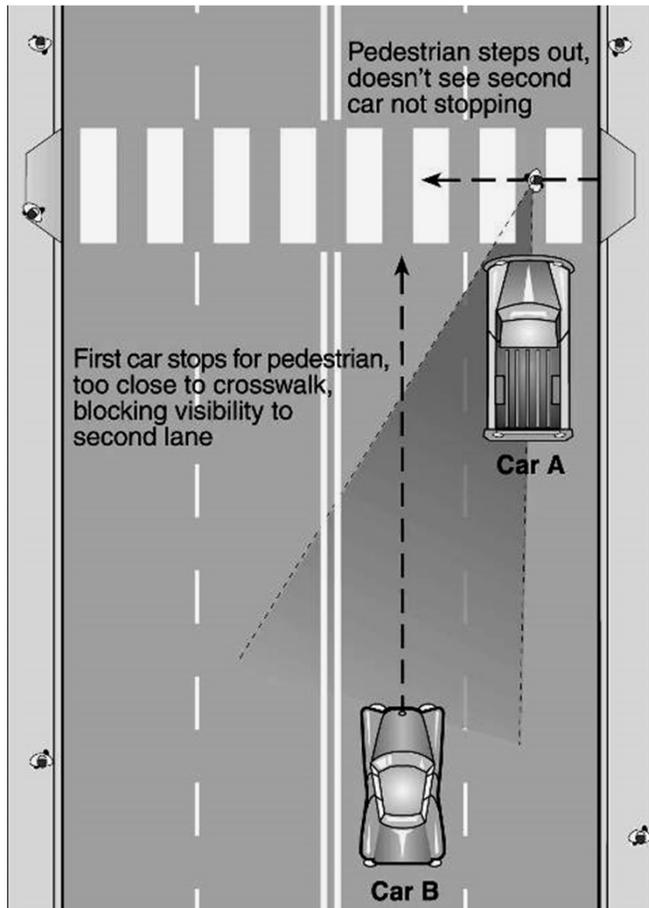
# Sight Line – Left Turn from Minor Street



# Sight Line – Left Turn from Minor Street



# Improved Sight Lines at Unsignalized Crosswalks



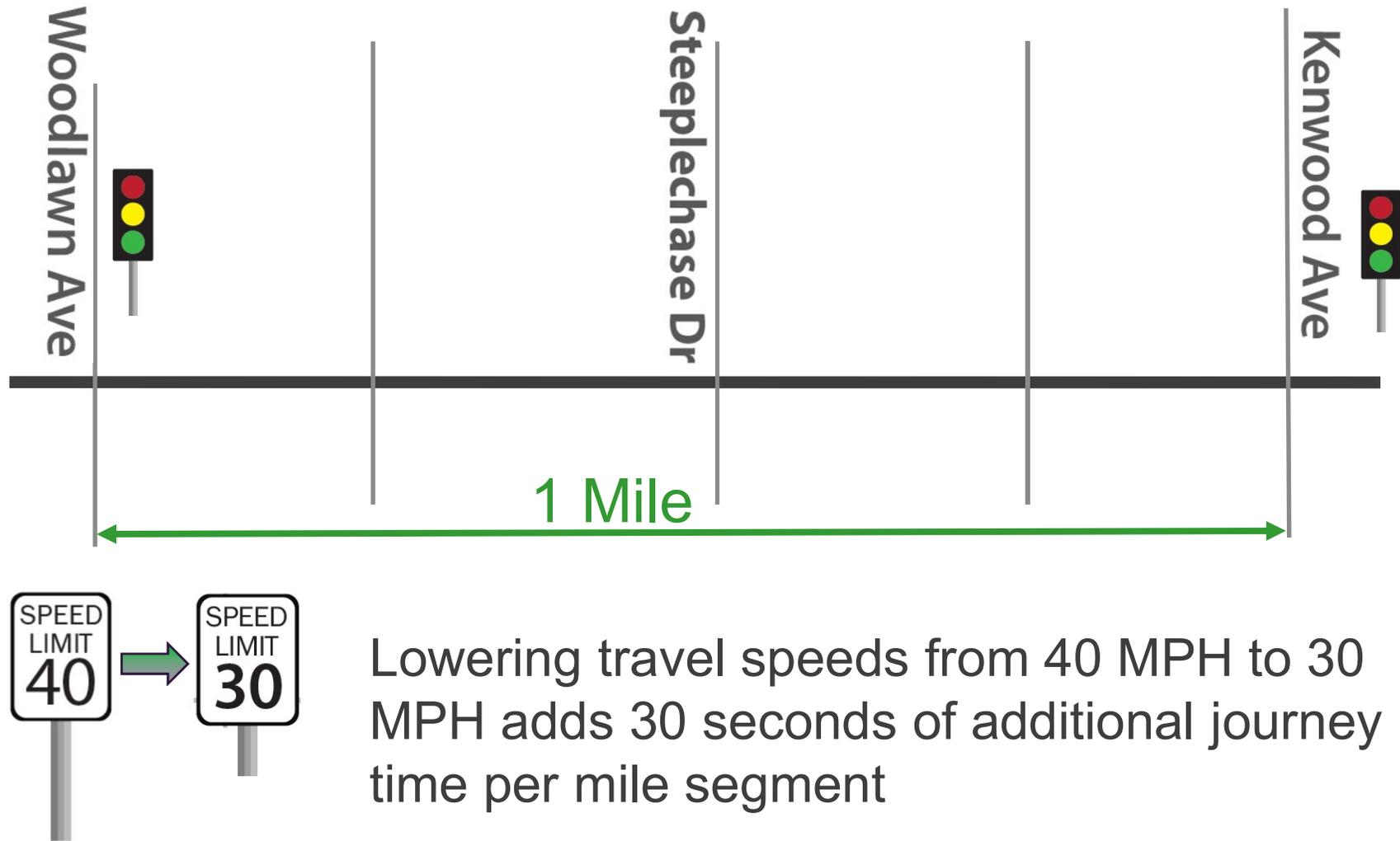
# Slowing



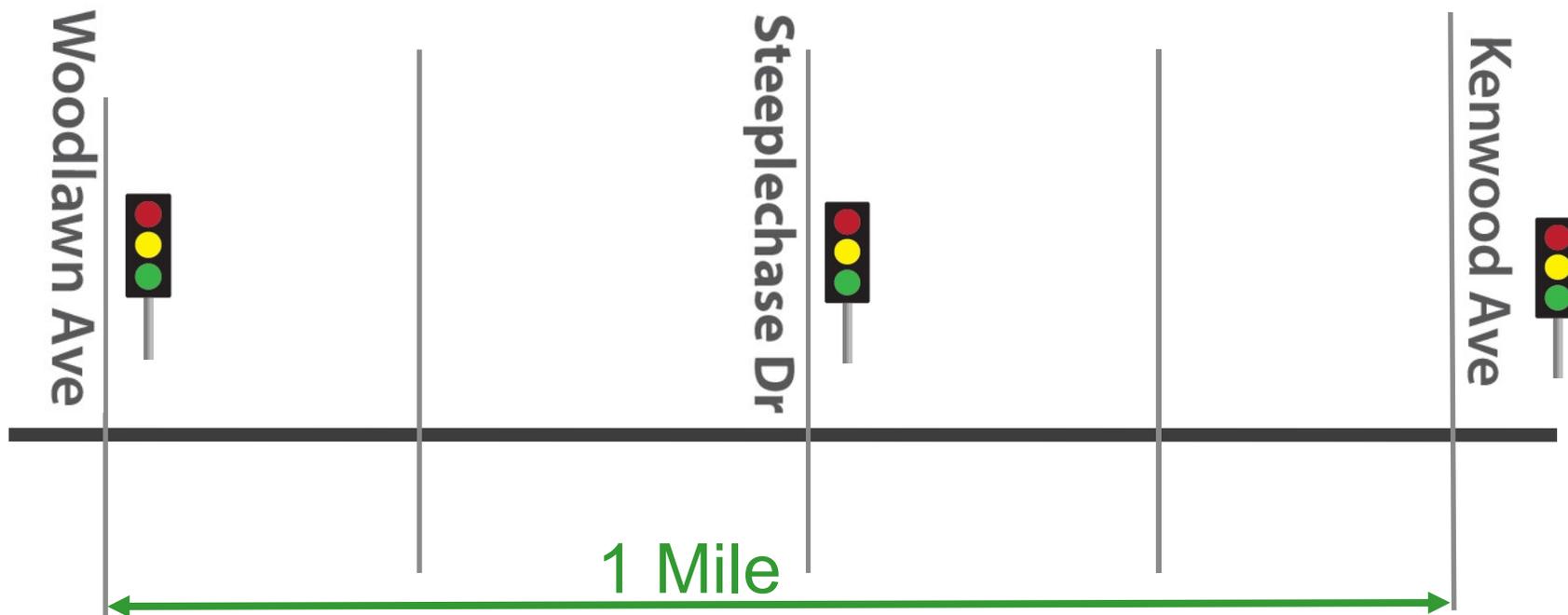
- Reduces high-end speeding
- Signal progression speeds become more effective

**Go slower to get there in less time**

# What are the effects of reducing speed?



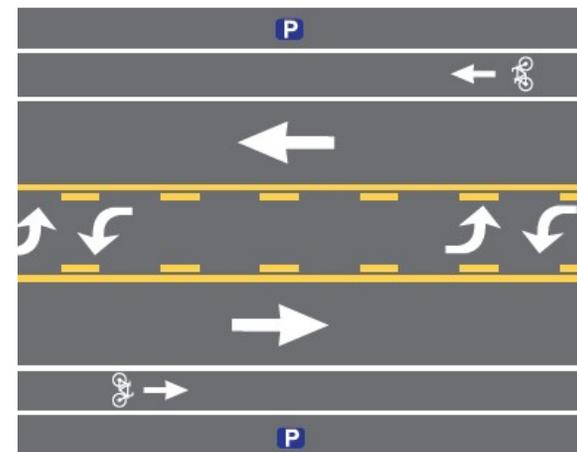
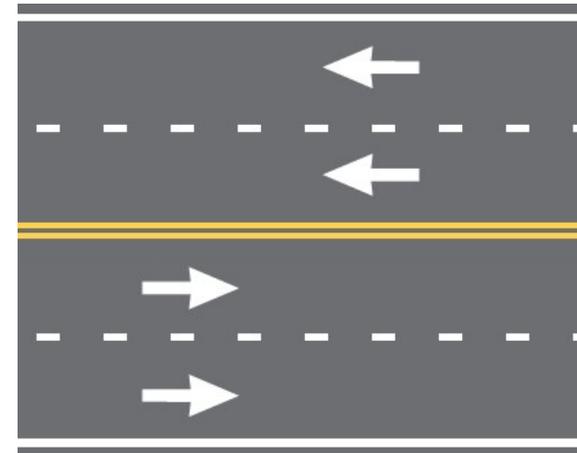
# What are the effects of reducing speed?



If a new signal was installed how much additional journey time would that create?

# Why? – To Balance User Needs

- Reallocating street space to “balance” the quality of service among user groups
  - Median Refuges
  - Bicycle Lanes
  - On-street Parking
  - Bus pull-outs



# Pedestrian & Bicyclist Benefits



- Speed reductions = fewer & less severe crashes for all
- Three-lane x-sections are easier for pedestrians to cross
- Opportunity to provide bike lanes



With pedestrian refuge islands the crossing becomes less complicated (pedestrians only have to focus on one direction of travel at a time)

# Why? – Promote Economic Enhancement

- Inviting and walkable setting
- On-street parking
- Access for customers and deliveries



# On which of these “Main Streets” would you want to open a business?



Four-lane undivided:

- Higher travel speeds
- Erratic vehicle movements
- Bicycles mixed with vehicles and parking movements

# On which of these “Main Streets” would you want to open a business?



Three-lane w/ bike lanes:

- Lower travel speeds and less erratic movements
- Separate bicycle lanes
- Improved pedestrian crossings

# On which of these “Main Streets” would you want to open a business?



- Expanded Streetscaping:
- Expanded sidewalk area

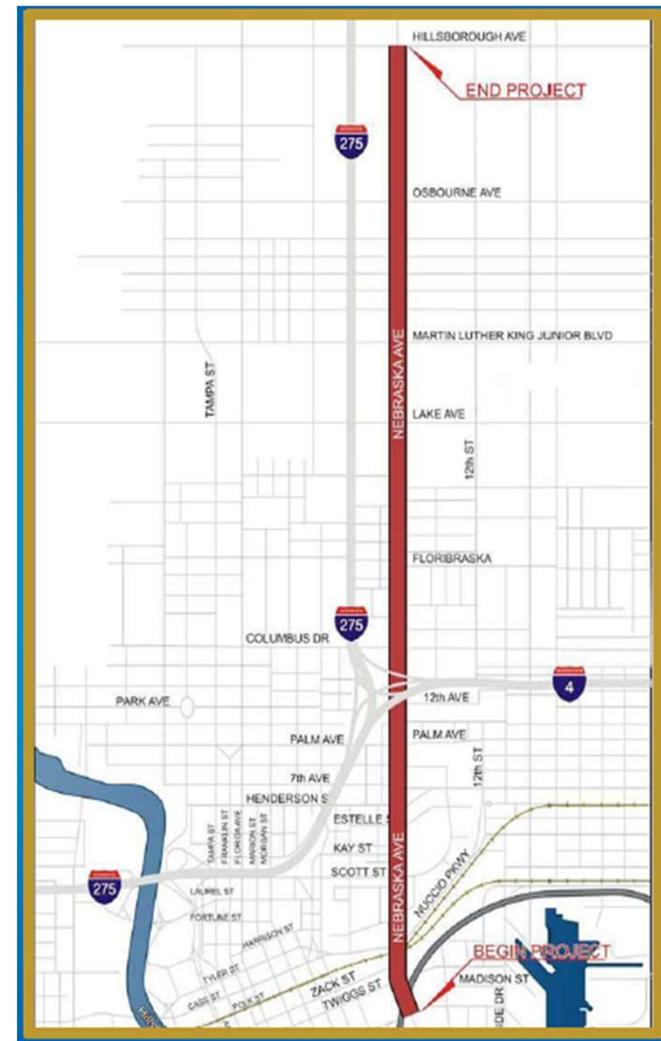
# Cervantes Street (US 90) - Pensacola



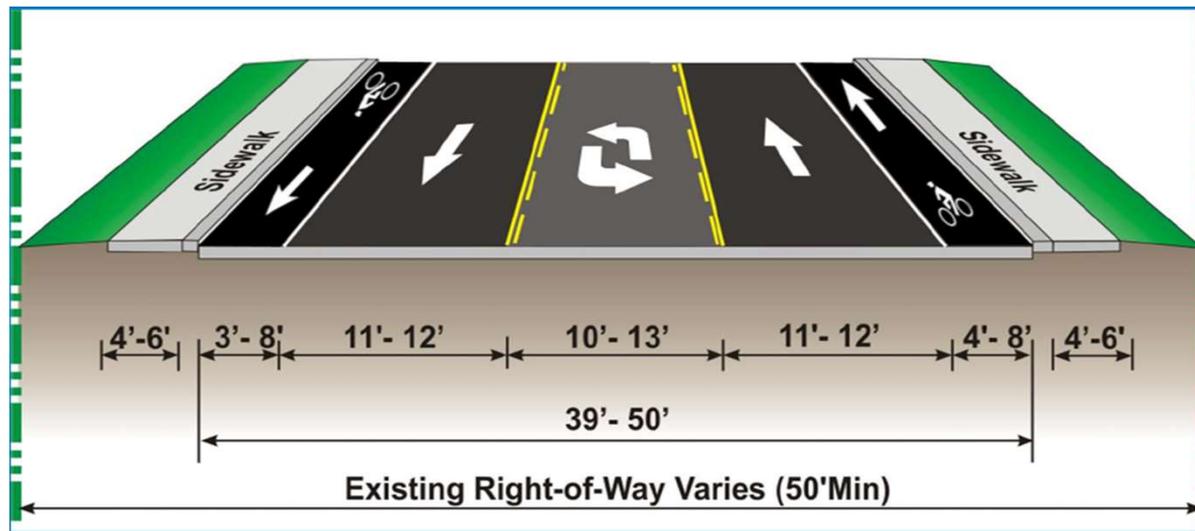
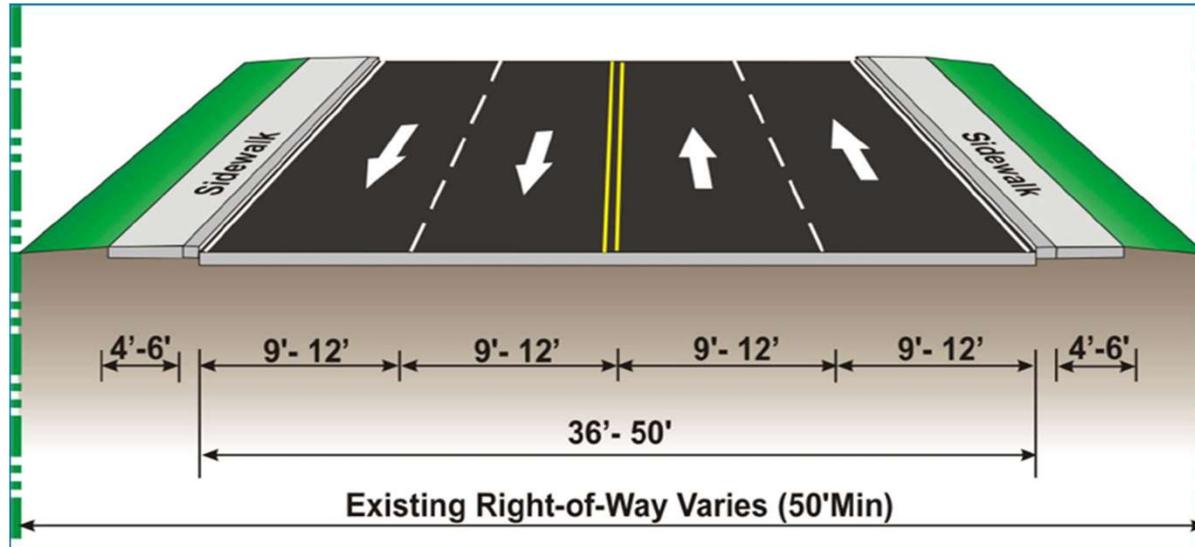


# Tampa - Nebraska Avenue

- 3.15 Miles
- Before: 4-lane undivided urban arterial
- After: 2-lane arterial with
  - Bike lanes
  - Combination of:
    - Two-way left turn lane
    - Painted/textured medians
    - Bus pull outs (Bus Bays)
- Construction 2007 -08
- \$11.1 million (initially 3R project)



# Nebraska Avenue



# Nebraska Avenue



Mid Block Crosswalks



Intersection Enhancements



Median Refuges



Sidewalk & ADA enhancements

# Nebraska Avenue – Before & After Data

---

	<b>Before</b>	<b>After</b>
	<b>2004-06</b>	<b>2009-13</b>
AADT	17,900	15,000
Crashes/Yr.	174	71
Severe Crashes/Yr.	13	6
Ped. Crashes/Yr.	7	<3

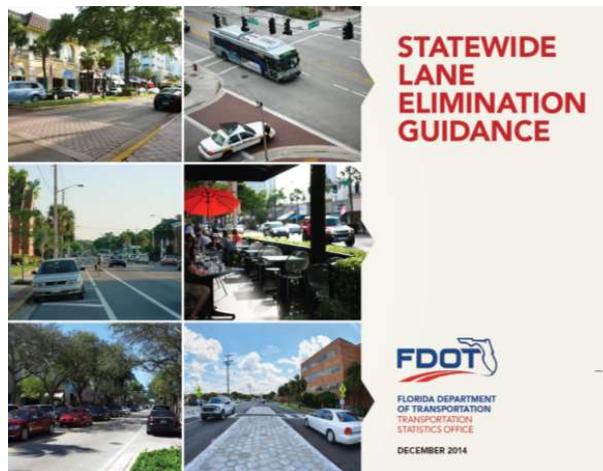
59% reduction in overall vehicle crashes.

57% reduction in pedestrian crashes.

# FDOT Lane Elimination Guide



- Develop a statewide lane elimination review process
- Balance state & local interests
  - **Multi-modal** needs – Vehicles, Pedestrians, Bicycles & Transit
  - **Economic development** – wider sidewalks, parking
  - **More livable environments** – landscaping, aesthetics
- Identify profiles of issues & concerns
- Provide guidelines for development of the Concept Report



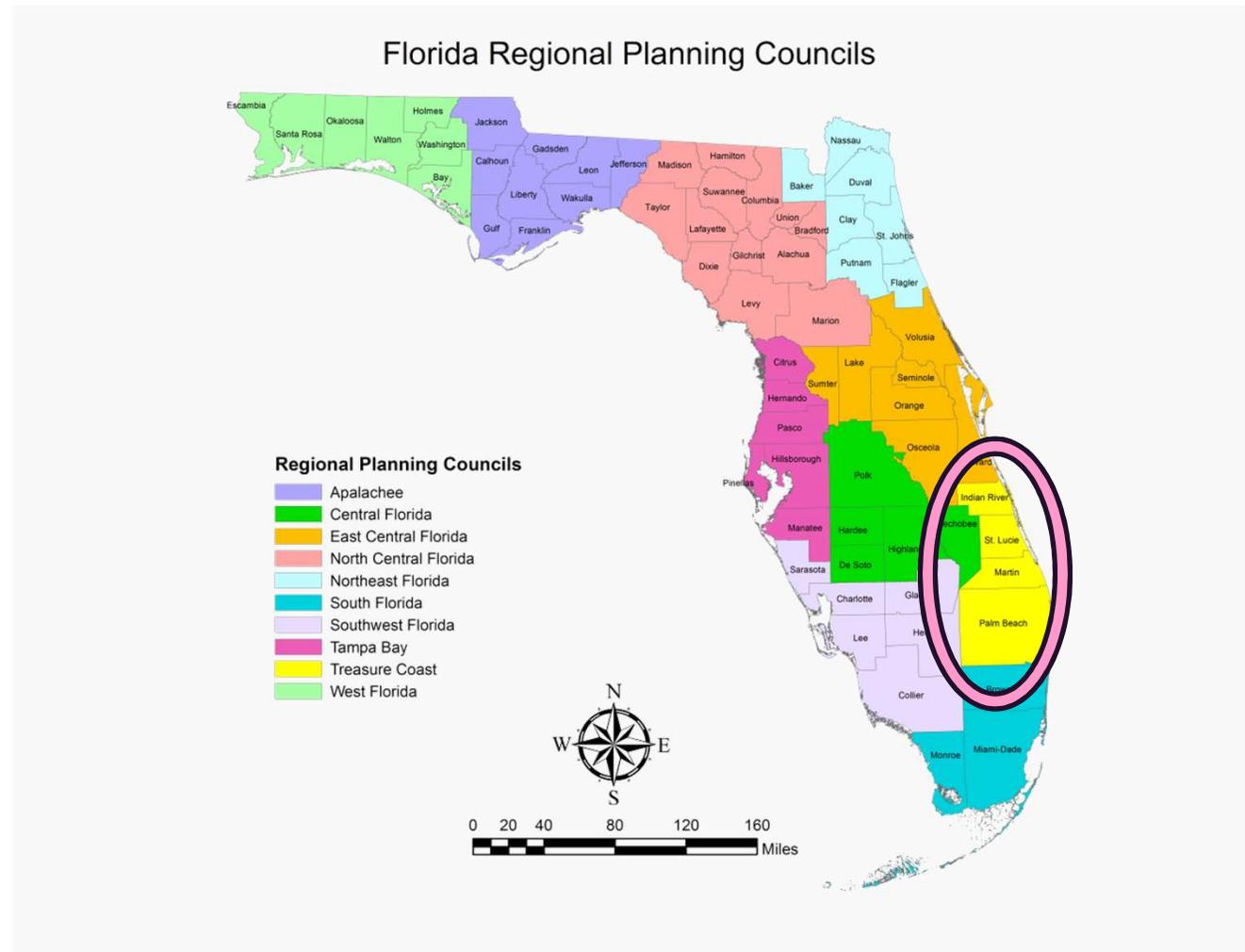
# FDOT Lane Elimination Concept Reports

---

## Sample of Current Lane Elimination Concept Reports

<u>Status</u>	<u>Location</u>	<u>Description</u>	<u>Features</u>
Approved	SR 5 / US Highway 1	From 6 to 4 lanes	Wider median, buffered bike lanes, landscape
Approved	SR 811 (Dixie Highway)	From 6 to 4 lanes	Buffered bike lanes, landscape
Approved	Hillsborough Boulevard	From 6 to 4 lanes	Buffered bike lanes, TWLT Median
Approved	SR 569/US Highway 41	From 6 to 4 lanes	Buffered bike lanes, intersection improvements
Under Review	SR 9(NW 27 Avenue)	From 6 to 4 lanes	Outside lane repurpose for Bus Rapid Transit
Under Review	SR 7/US Highway 441	From 6 to 4 lanes	On-street parking, bike lanes, landscape
Under Review	SR 804 (Boynton Beach Blvd)	From 4 to 2 lanes	TWLT Median, Bike Lanes
Under Review	SR 811 (Wilton Drive)	From 4 to 2 lanes	TWLT Median, Bike Lanes

# Southeast Florida Case Studies



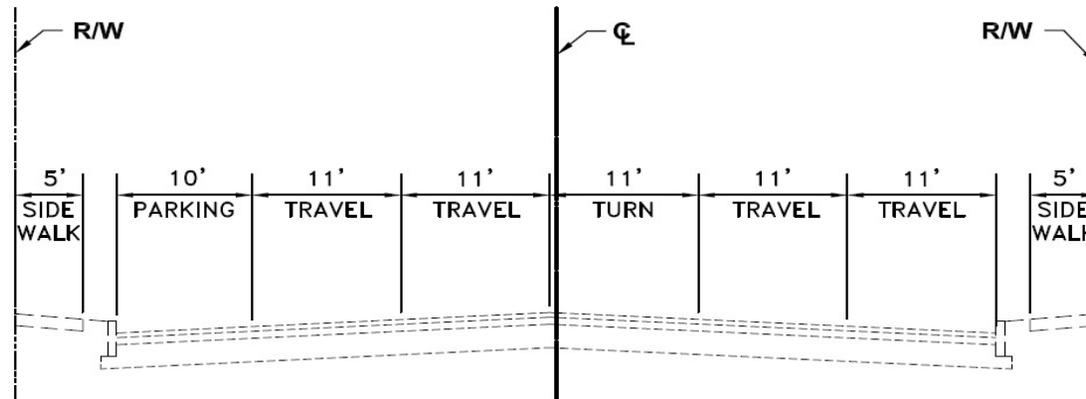
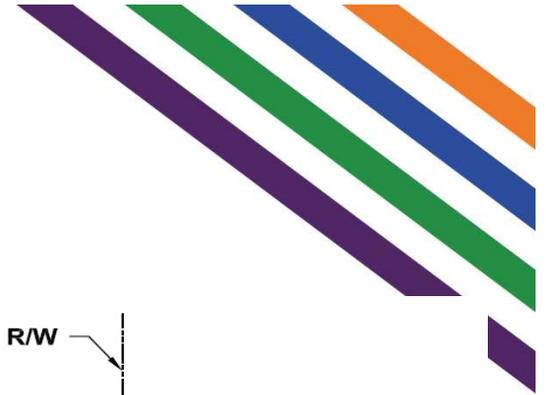
# Stuart, FL – Colorado Avenue



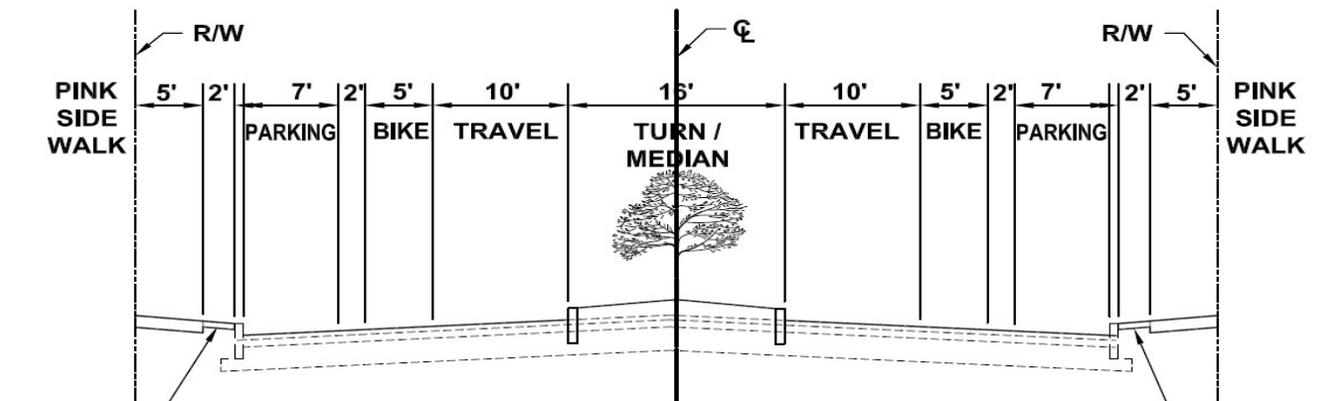
**BEFORE**



# Road "Makeover" Completed in 2013



**COLORADO AVENUE  
EXISTING TYPICAL SECTION**



**COLORADO AVENUE  
PROPOSED TYPICAL SECTION**

# Colorado Avenue in Stuart, FL - Before



# Colorado Avenue in Stuart, FL - Now



# Colorado Avenue in Stuart, FL - Before



# Colorado Avenue in Stuart, FL - Now



# Colorado Avenue in Stuart, FL

- More Pedestrians and Cyclists
- Traffic Counts  $\uparrow$  by 1,000 cars/day (about 13,000 ADT)
- Store Vacancies  $\downarrow$  from 14% to 3% (18 new businesses in 2 yrs)
- Commercial Market Values  $\uparrow$  25%
  - Police Calls  $\downarrow$  54%



# Welcome to Tequesta ... US 1 is the First Impression



# Original Condition



North End by St. Paul's Church

# Original Condition



US 1 & Tequesta Drive

# Original Condition



US 1 Near Beach Rd.

# Tequesta Drive/US1



*Original Condition*

# Tequesta Drive/US1



*Improved*

# Tequesta Drive/US1

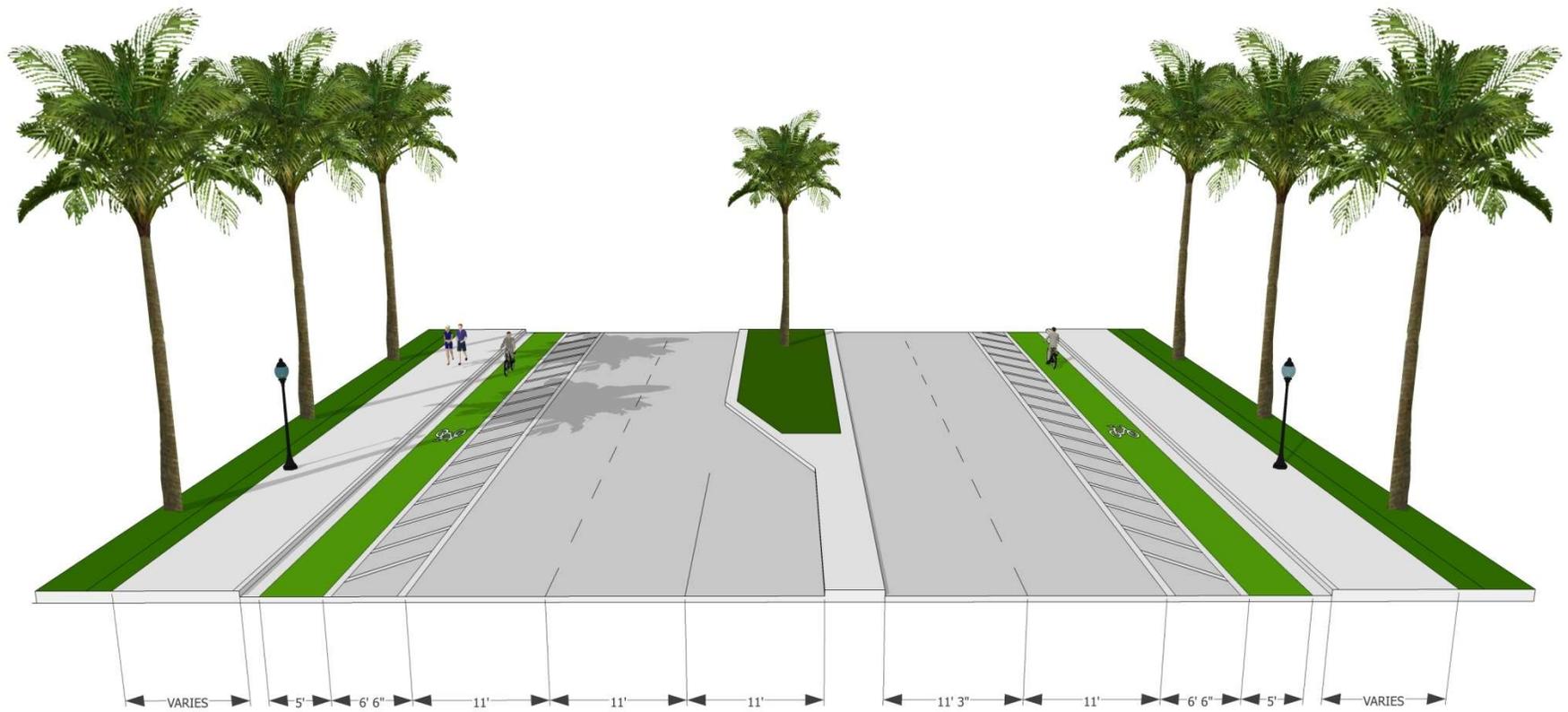


- Multi-Use Path to JILONA/Jupiter Lighthouse
- Crosswalks – Colored, Textured, Narrowed
- 4 Travel Lanes with Buffered Bike Lanes
- Cohesive Landscaping around Businesses
- Pedestrian-Scale Street Lights

# Original Condition (2017)



# Future Condition (Spring 2019)



# US1 / Delray Beach, FL



*BEFORE*

*AFTER*



# US 1 / Delray Beach



# US 1 ~ Delray Beach



# US 1 ~ Delray Beach





# Evaluative Factors



## Resources

Worksheet  
from FHWA  
Road Diet  
Workshop

**Road Diet Feasibility Assessment Worksheet**

This worksheet provides a list of evaluative questions for assessing a potential road diet project. It is intended as a tool for examining the issues often relevant to road diet feasibility. Additional issues or more information about specific proposals may be needed and adapting this worksheet to meet your agency or project development needs is encouraged. Exercising professional judgement is critical to any assessment and it is critical to consider the trade-offs associated with these interrelated factors and to the desired goals and objectives of the project.

Project Name/Location: \_\_\_\_\_

Project Limits/Length: \_\_\_\_\_

**Project Goals and Objectives**

*Intent: By first identifying the objective(s), this will help determine whether a road diet is an appropriate alternative for the corridor being evaluated.*

Since Road Diets are essentially about reallocating precious roadway space to improve safety and better meet the needs of the various users, it sometimes requires making "trade-offs" in terms of the expected gains and detriments of the roadway change. There may be some negative effects associated with a reconfiguration. When assessing the levels of benefit (and possible detriment), it is critical to first consider the results or outcomes that are trying to be achieved with the project.

Clearly identifying and understanding the project goals and objectives (or "purpose and need") should be the first step to help determine if a Road Diet is the appropriate solution. Crash data, observational studies, and community feedback are all helpful methods to understand user needs. Good safety data can help identify the types of crashes that are occurring. Observational field studies can offer valuable insights on driver behavior, traffic patterns, presence of speeding vehicles, and clues for needs with regard to better pedestrian, bicyclist, and transit facilities.

*Safety: If safety improvement is a major objective, determine if the identified crash patterns are those that could be addressed with a Road Diet.*

Is safety improvement specifically a goal of this project? \_\_\_\_\_

If yes, then what are the current safety issues/problems including any concerns related to pedestrians, bicyclists and transit users? \_\_\_\_\_

Will the types of crashes that are occurring likely be reduced with a Road Diet conversion? \_\_\_\_\_

Will a reduction in speed and/or speed variability likely improve safety on the road? \_\_\_\_\_

---

TRB 5th Urban Street Symposium - May 2017 Page 3

# Feasibility Worksheet Steps



**Step 1**  
**Identify Goals & Objectives**

**Step 2**  
**Consider Road Function & Context**

**Step 3**  
**Traffic Operations**

**Step 6**  
**Early Stakeholder Engagement**

**Step 5**  
**Design & Cost Considerations**

**Step 4**  
**Special Conditions**

# Feasibility Worksheet Steps

**Step 1**

**Identify Goals  
& Objectives**

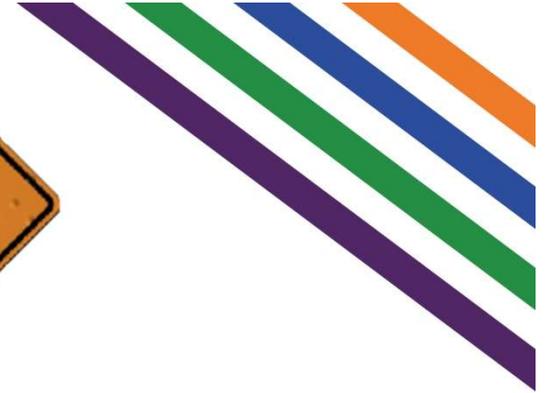


# Project Goals & Objectives

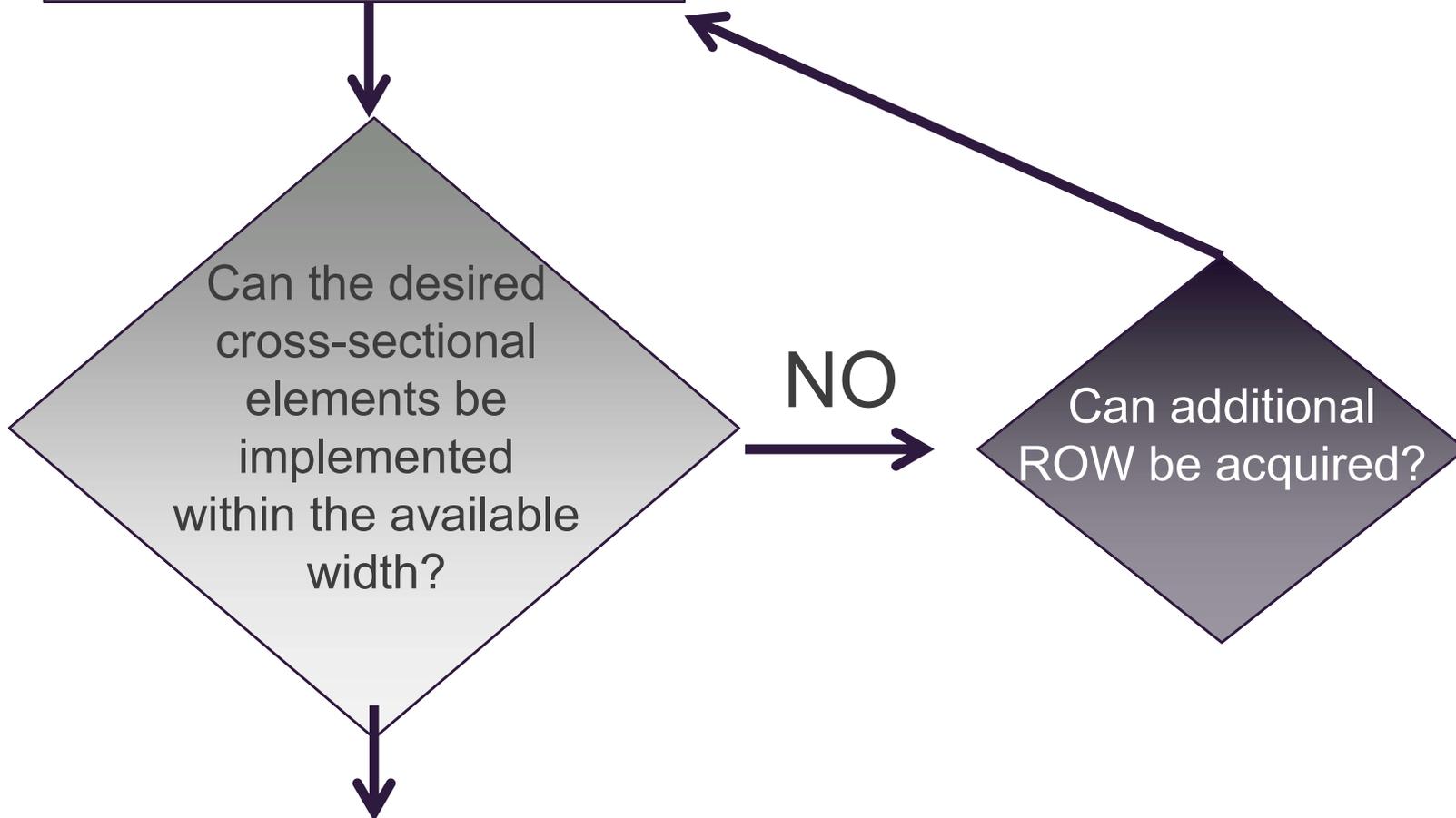
- Understanding the project goals and objectives (along with their relative importance) is critical for evaluating the trade-offs that are often inevitable when reallocating valuable road space



# Feasibility Assessment



Develop configuration alternatives that meet goals and objectives



# Feasibility Worksheet Steps

**Step 1**

**Identify Goals  
& Objectives**

**Step 2**

**Consider Road  
Function &  
Context**



# Functional Classification

- Functional classification historically emerged as the predominant method for grouping streets and highways by their “character of service” and has been an important planning tool

The functional classification category may not indicate the actual *context* of the roadway or match its *intended* or *designed* functions

“While the accommodation of bicyclists, pedestrians, and transit users is an important consideration in the planning and design of highways and streets, the functional classification of a highway or street is primarily based on motor vehicle travel characteristics and the degree of access provided to adjacent properties.”

**AASHTO 2011 Green Book p 1-1**

Functional classification categories are related to “hierarchies of travel movements”

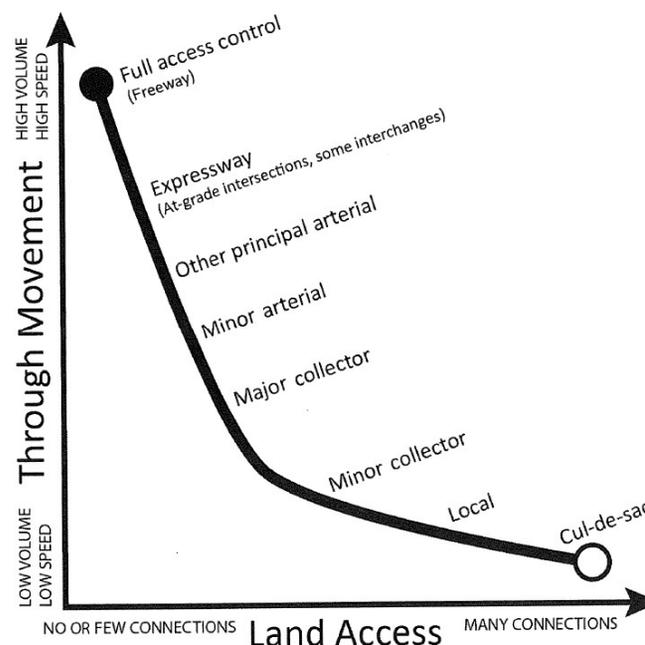
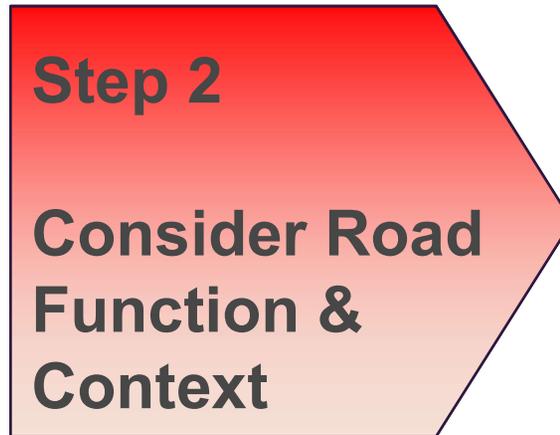


Figure Source: TRB Access Management Manual Second Edition

# Feasibility Worksheet Steps



# Operational Considerations



How many lanes are on the adjacent roadway segments?

Adding lanes onto road segments that don't have increased volumes and then reducing lanes downstream can create "bottlenecks" that lead to worse operations than having a consistent number of lanes.

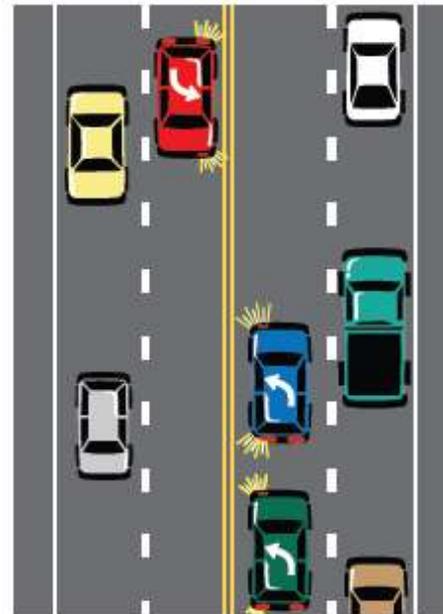


Plumbing Analogy: Where is the clog likely to occur?

# Operational Considerations

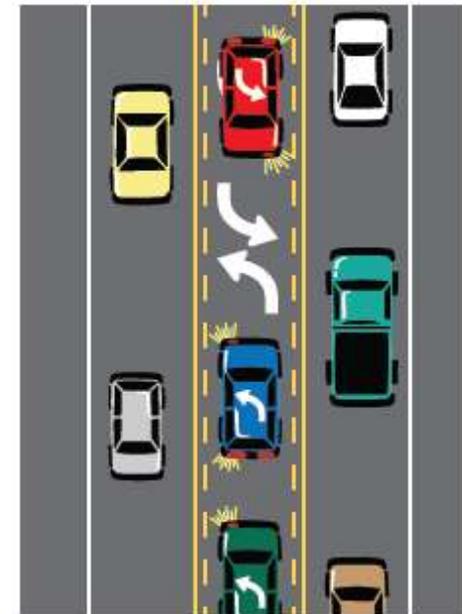
A four-lane roadway may already operate like a three-lane road.

Some four-lane undivided roads operate essentially like a three-lane road (de facto one lane in each direction)



**Before**

A four-lane undivided road operating as a de facto three-lane cross section.



**After**

A Road Diet providing a two-way left-turn lane.

When a corridor contains a large number of access points (driveways) the majority of through traffic will tend to utilize the outside lanes to avoid being delayed by left-turning vehicles slowing and stopping in the inside lanes.

# General Guidelines for 4-Lane



**LESS THAN  
10,000 ADT**

**Great candidate  
for Road Diet**

In most instances traffic will likely not be negatively affected.

**10,000 – 15,000  
ADT**

**Very good  
candidate for  
Road Diet**

Agencies should conduct intersection analysis to study potential traffic operational effects and consider signal retiming as needed.

**15,000 – 20,000  
ADT**

**Good candidate  
for Road Diet**

Agencies should conduct a corridor analysis since traffic operations may be affected at this volume depending on the “before” condition.

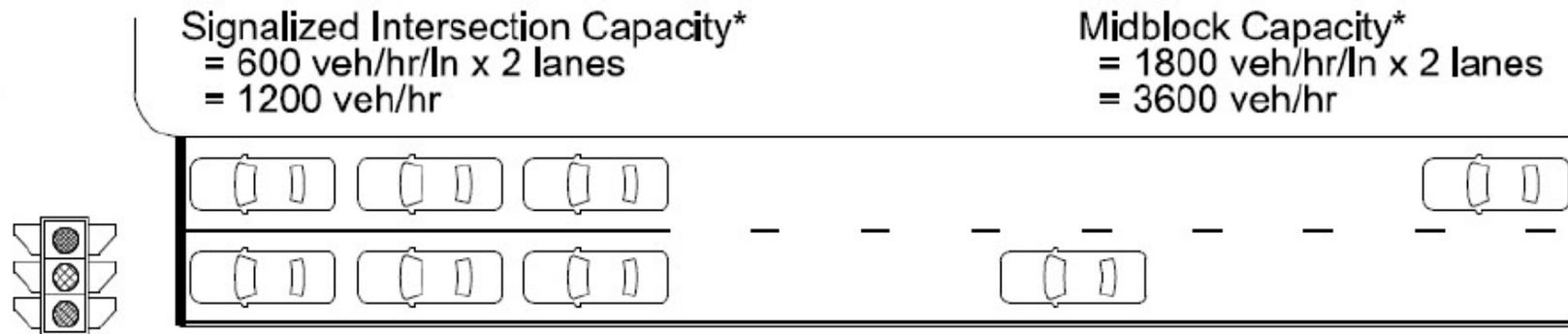
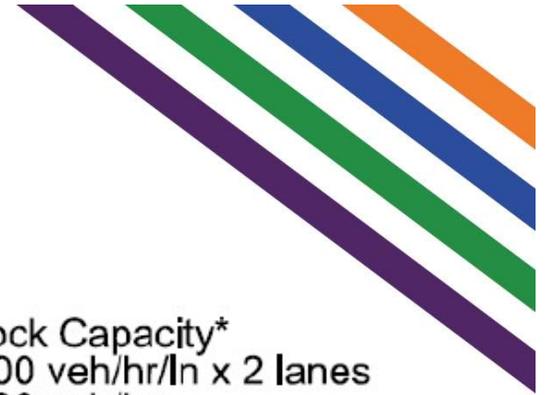
**GREATER THAN  
20,000 ADT**

**Potential  
candidate for  
Road Diet**

Agencies should complete a feasibility study to determine whether this is a good location for a Road Diet. Operations may be affected at this volume.

**There are examples across the country where Road Diets have been successful with ADTs as high as 26,000.**

# Intersection Operations



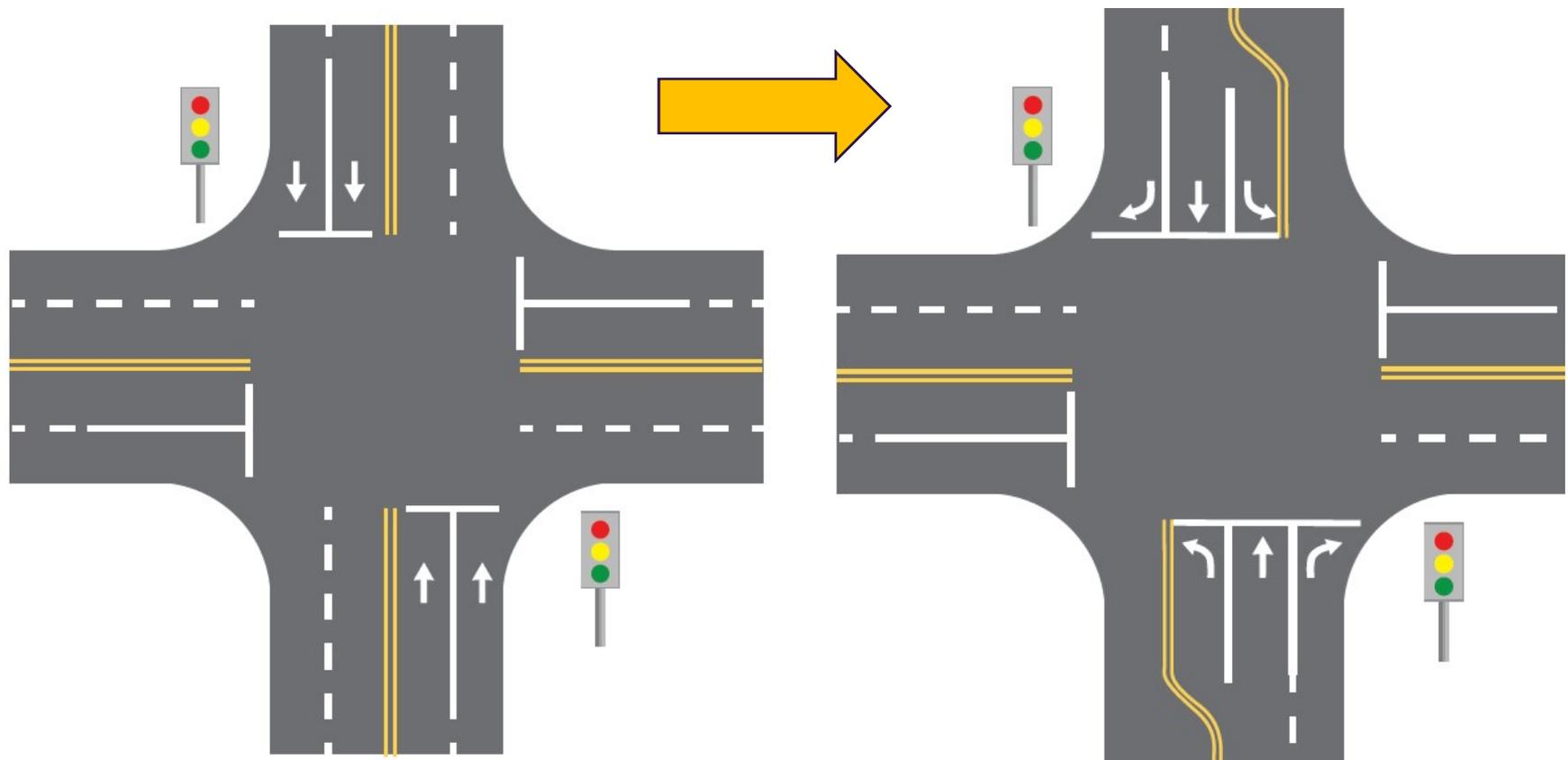
- The “capacity” of a street is determined by the operations at its signalized intersections (or stop-controlled).
- Capacity “rules of thumb”
  - single mid-block travel lane : 1,800 vehicles per hour
  - single travel lane through a signalized intersection: 600 vehicles per hour (dependent on the time allocated in the signal cycle)



**Unless the street has 3x as many lanes at the intersections as it has mid-block, the intersections will be the limiting factor in terms of capacity.**

# Turn Lane Reallocation

Lane reconfigurations may make it possible to install dedicated turn lanes at the intersections



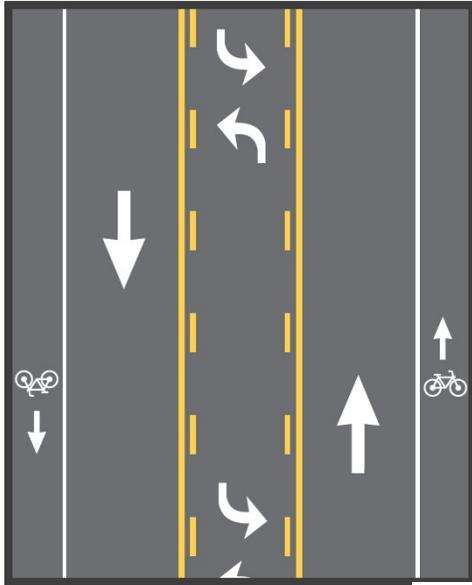
# Traffic Signalization



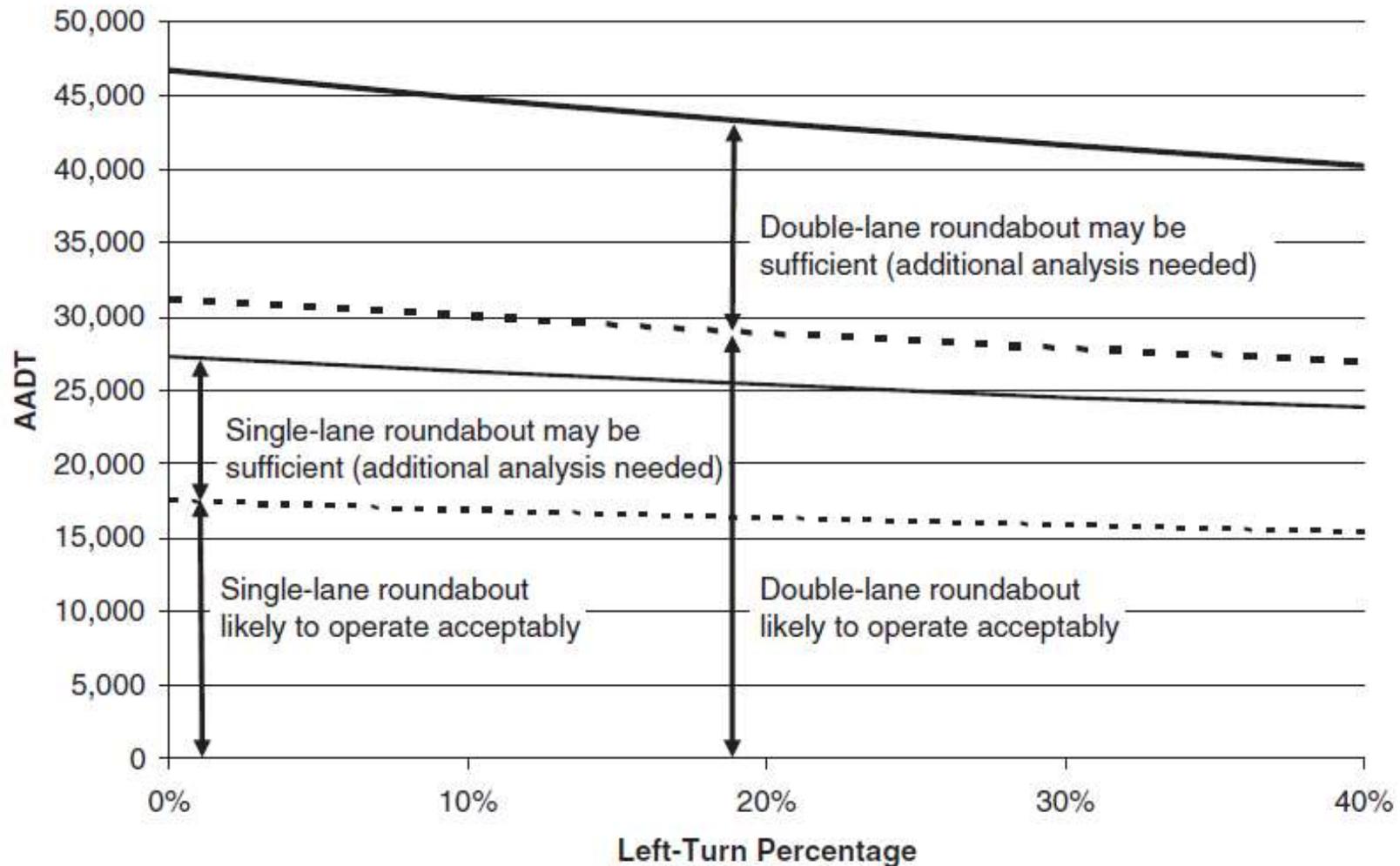
## Re-evaluate:

- Traffic signal phasing and timing
    - Mainline traffic may need additional green time
  - Type and number of lanes on intersection approaches
    - Turn lane needs
  - Signal head positioning
- 
- Quantify and compare additional delays and queues

# Road Diets and Roundabouts



# Planning Level Volume Threshold for Single Lane Roundabouts



Source: NCHRP Report 672 Exhibit 3-12

# La Jolla Blvd – Bird Rock Community (San Diego, CA)



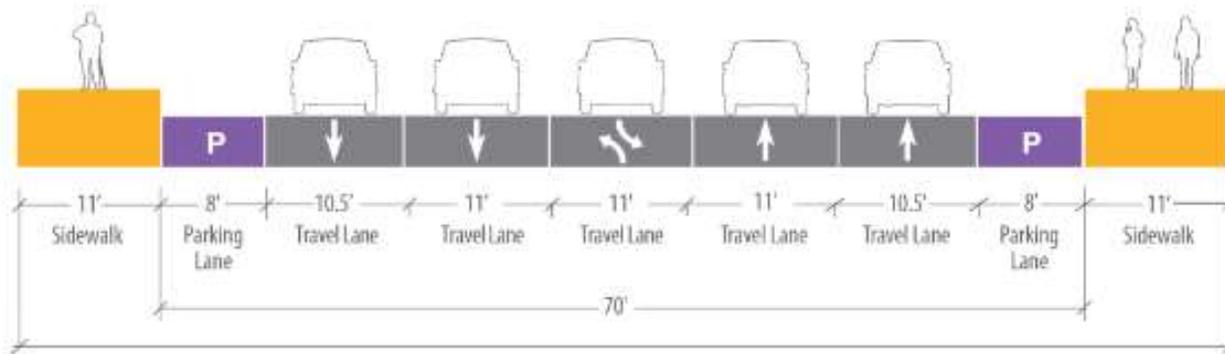
- Prior to 2003, La Jolla Boulevard was a four-lane boulevard moving 20,000 cars per day with average speeds of 38-42 mph.
- The roadway configuration and speed of traffic created a setting uninviting for pedestrians and unable to stimulate growth among local businesses.
- In response to numerous community members demanding a safer walking environment, the City of San Diego, in partnership with the community, embarked upon a project to improve safety along the boulevard.

# La Jolla Blvd – San Diego, CA

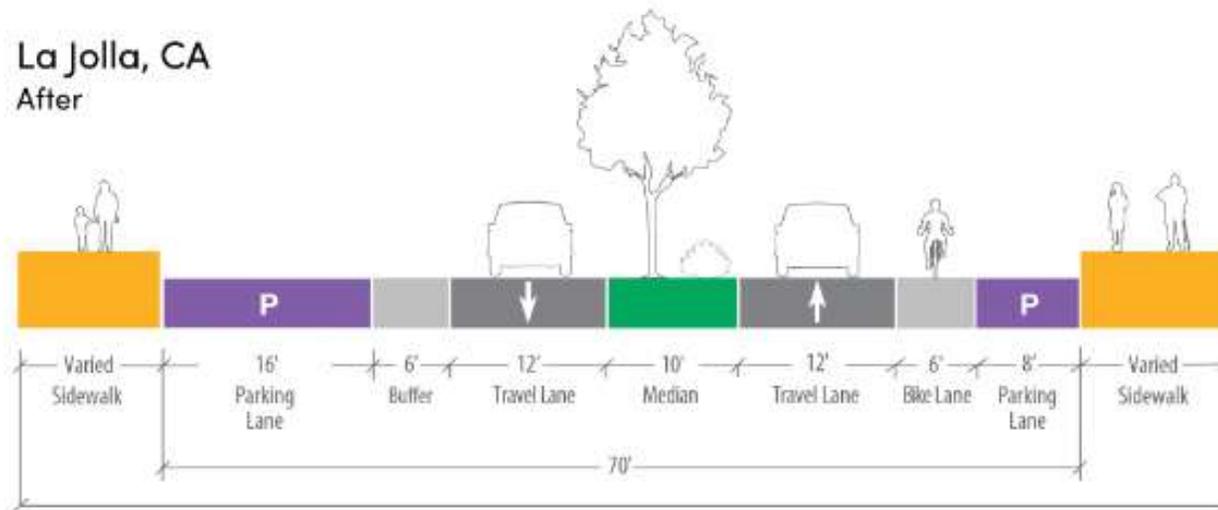


# La Jolla Boulevard Cross Section Before & After

La Jolla, CA  
Before

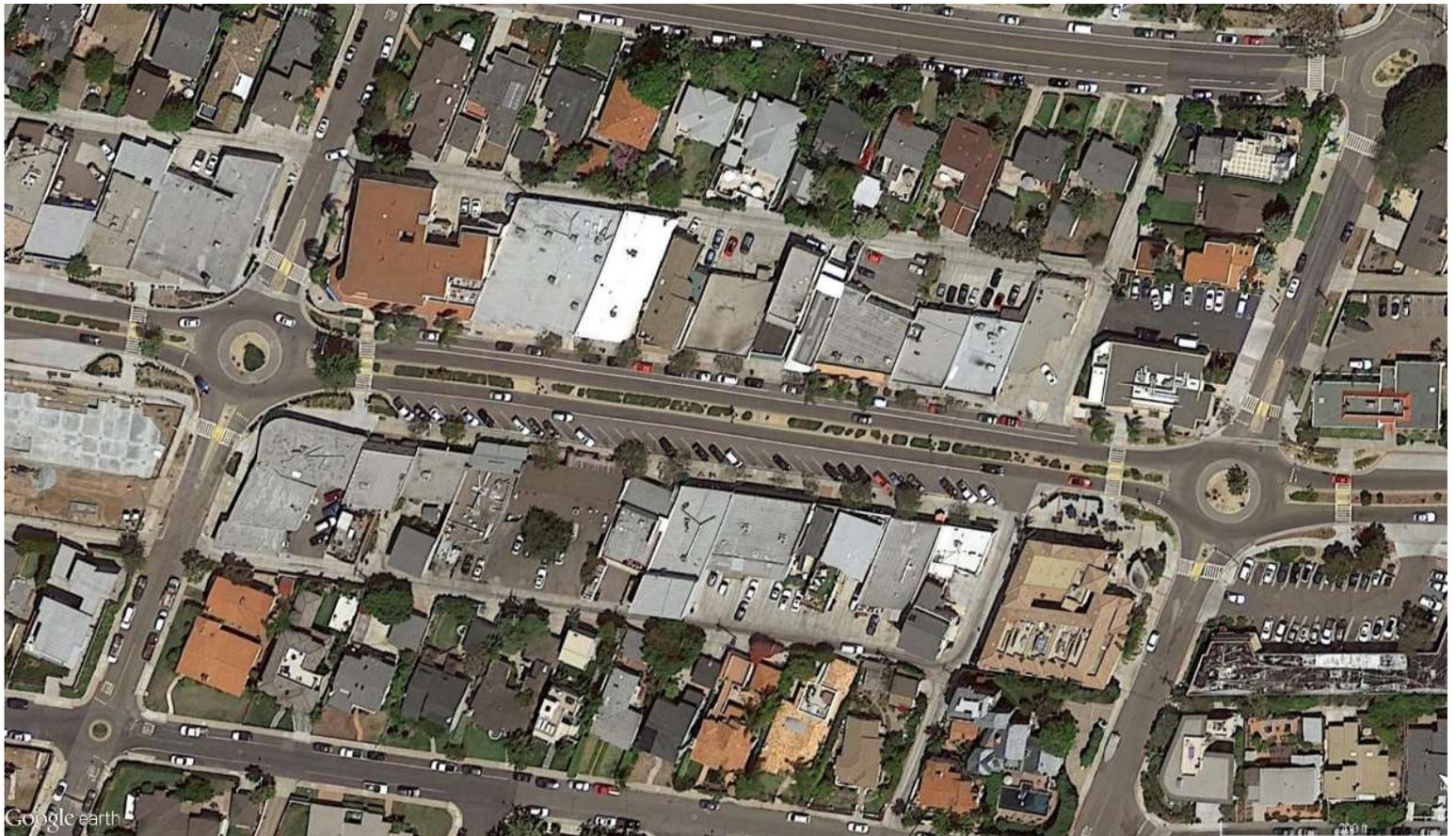


La Jolla, CA  
After

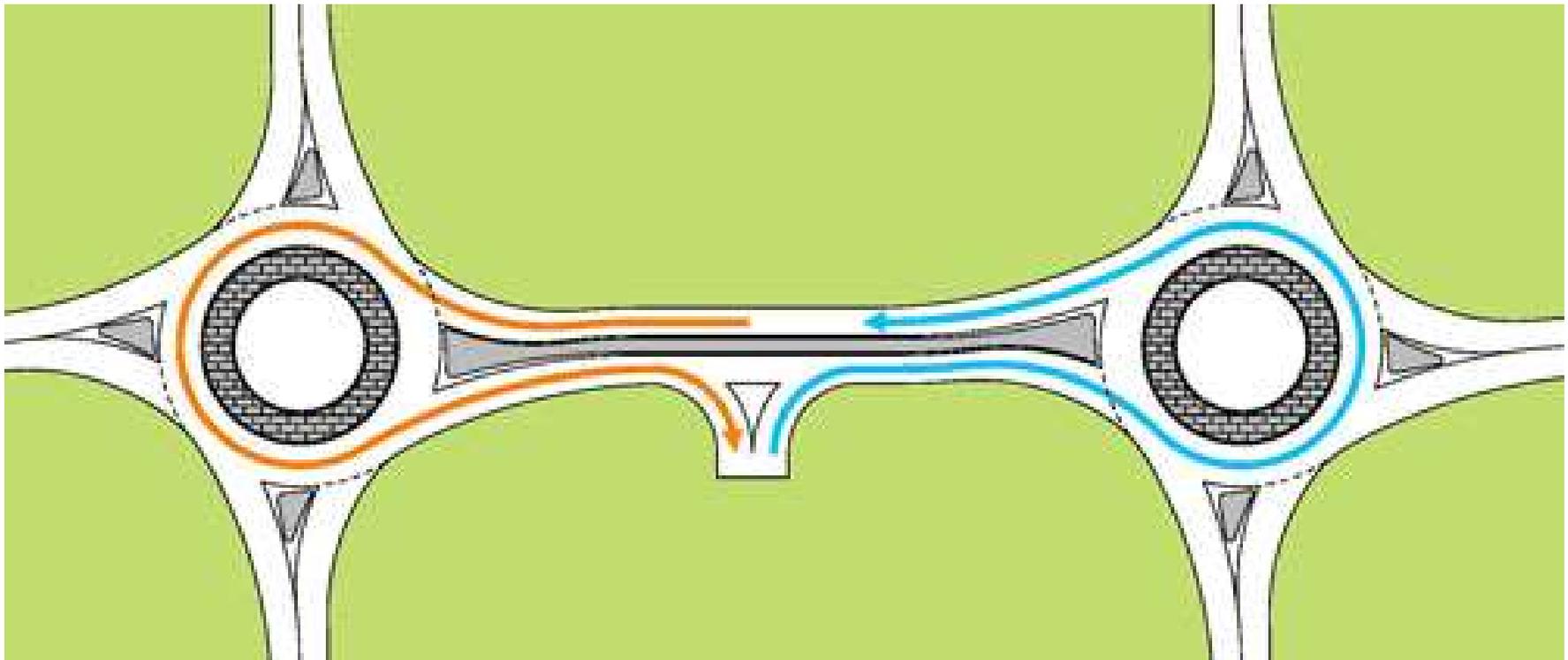


# La Jolla Blvd – Bird Rock Community (San Diego, CA)

- Narrower travel lanes, five roundabouts, landscaped medians and angled parking have slowed traffic speeds, improved pedestrian safety, and also revitalized the businesses!!!



# Roundabouts and Access Management





Ashville, NC - College Street  
“Before” as 5 lane



Ashville, NC - College Street – Current 2 lane



Overland Park, KS – “Before”



# Transit Considerations

- By going to a single-lane in each direction, frequent transit stops may cause additional delay
- Reassess bus stop location and spacing
- Consider bus pullouts



Photo Resource: Mark Doctor

# On-street Parking

Consider:

- Impact on parking maneuvers
- Parking spot design (parallel vs diagonal)
- Interactions between bicyclist and parking vehicles



# Delivery Zones



Consider the current and future needs for delivery zones and loading areas. Removal or relocation of delivery zones may impact truck access to businesses. Where there is only one through lane per direction, trucks that stop for deliveries are likely to block auto traffic.



Photo Resource: Mark Doctor

# Feasibility Worksheet Steps



**Step 1**  
**Identify Goals & Objectives**

**Step 2**  
**Consider Road Function & Context**

**Step 3**  
**Traffic Operations**

**Step 4**  
**Special Conditions**

# Parallel Roadways

- Potential diversion of traffic to parallel routes. Considerations include:
  - Distance to parallel route
  - Amount of increased delay from Lane Reduction
- Can apply traffic calming on parallel routes to offset impact



Photo Resource: Jennifer Atkinson

# At-Grade Railroad Crossings

- May double the queue length at railroad crossings impacting other intersections
- May cause turning lane backup at parallel railroad crossings



# Feasibility Worksheet Steps



**Step 1**  
**Identify Goals & Objectives**

**Step 2**  
**Consider Road Function & Context**

**Step 3**  
**Traffic Operations**

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**Step 4**  
**Special Conditions**

# Important Design Resources



E-Updates | FL511 | Site Map

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Home About FDOT Contact Us Maps & Data Offices Performance Projects

## Roadway Design

Roadway Design / Roadway Criteria / FDOT Design Manual

### FDOT Design Manual

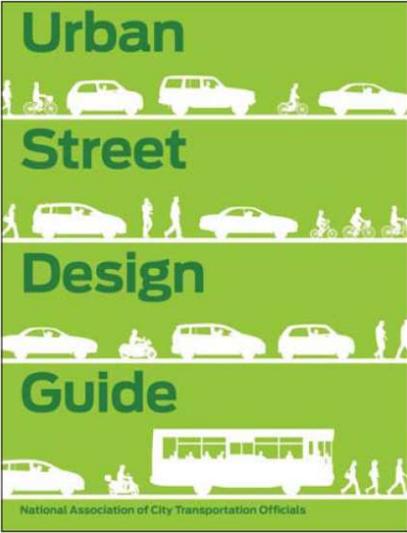
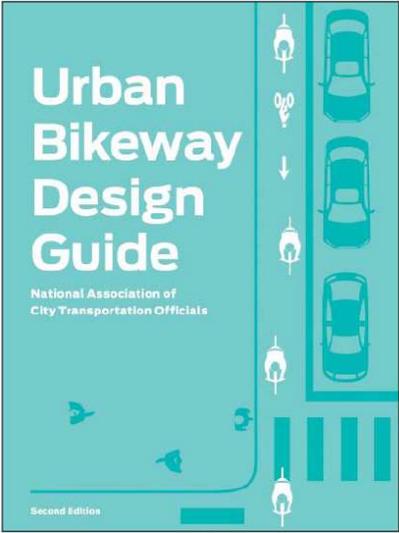
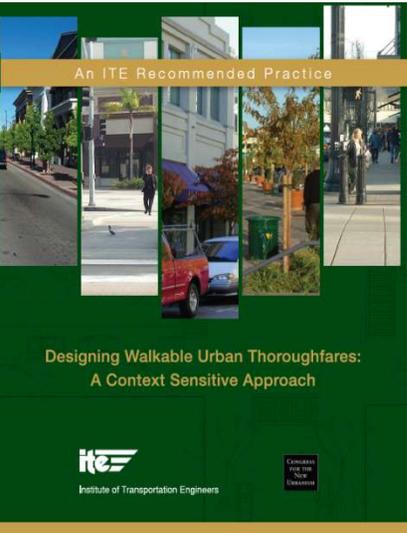


Subscribe to our FDOT Contact Management Subscription Service to receive the most current notices, bulletins, memoranda, and other important information. Submit FDOT Design Manual (FDM) questions, comments, or suggestions by email to: [Mary Jane Hayden, P.E.](mailto:Mary.Jane.Hayden@fdot.com)

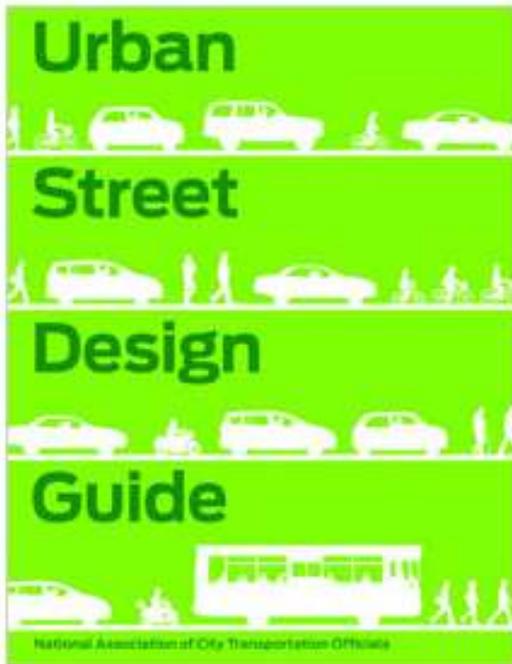
2018 FDOT Design Manual  
Plans Preparation Manual (PPM)

### 2019 FDOT Design Manual

<https://www.fdot.gov/roadway/fdm/default.shtm>



# Lane Widths

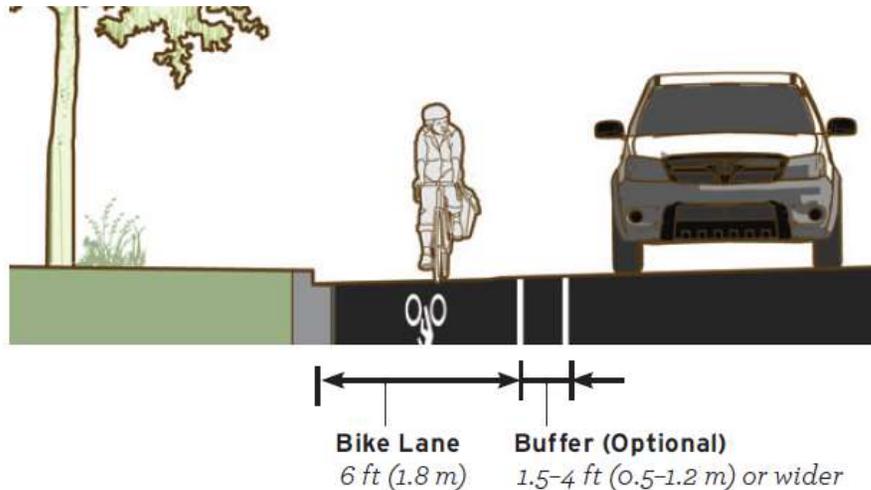
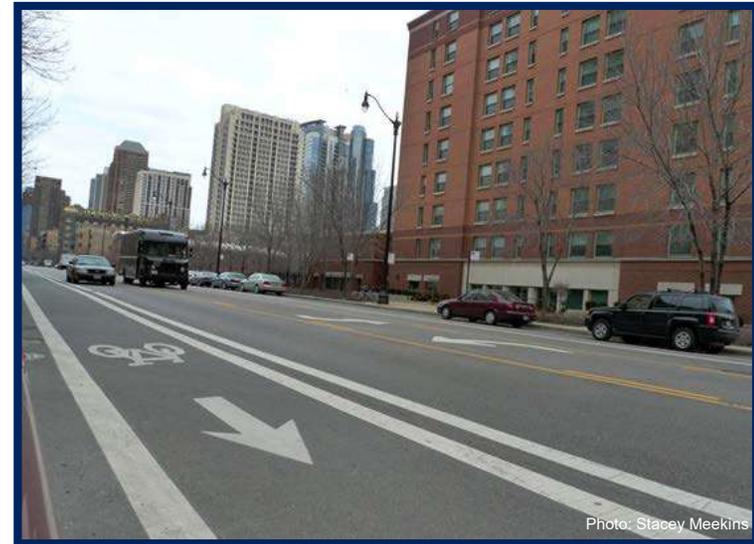


*“Lane width should be considered within the overall assemblage of the street. Travel lane widths of 10 feet generally provide adequate safety in urban settings while discouraging speeding. Cities may choose to use 11-foot lanes on designated truck and bus routes (one 11-foot lane per direction) or adjacent to lanes in the opposing direction.”*

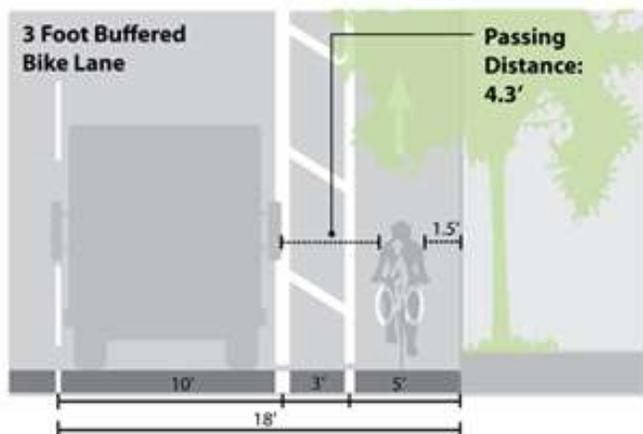
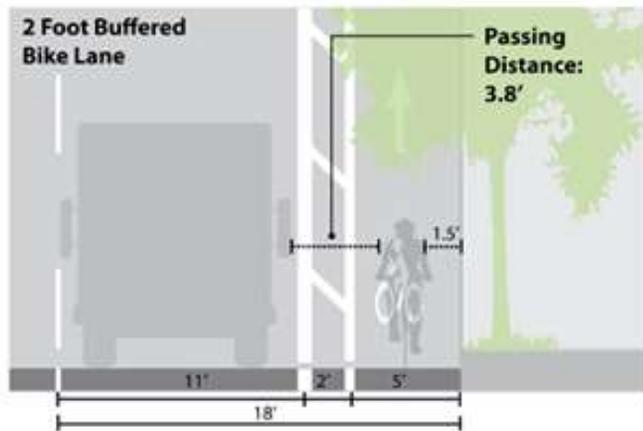
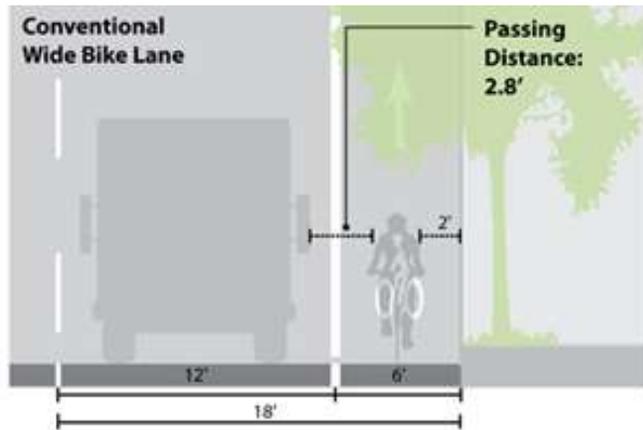


# Bicycle Lane Widths

- Typical bike lane: 5-6 ft.
  - Min. width: 4 ft.
- If space is  $\geq 7$ ft. consider adding buffer or protected bike facility



# Buffered Bike Lanes



- Provides greater shy distance between motor vehicles and bicyclists
- Provides more space for bicycling without making the bike lane appear so wide that it is mistaken for a travel lane or a parking lane
- Encourages bicyclists to ride outside of the door zone when buffer is between parked cars and bike lane

# Painted Buffer Zones Adjacent to Bike Lane

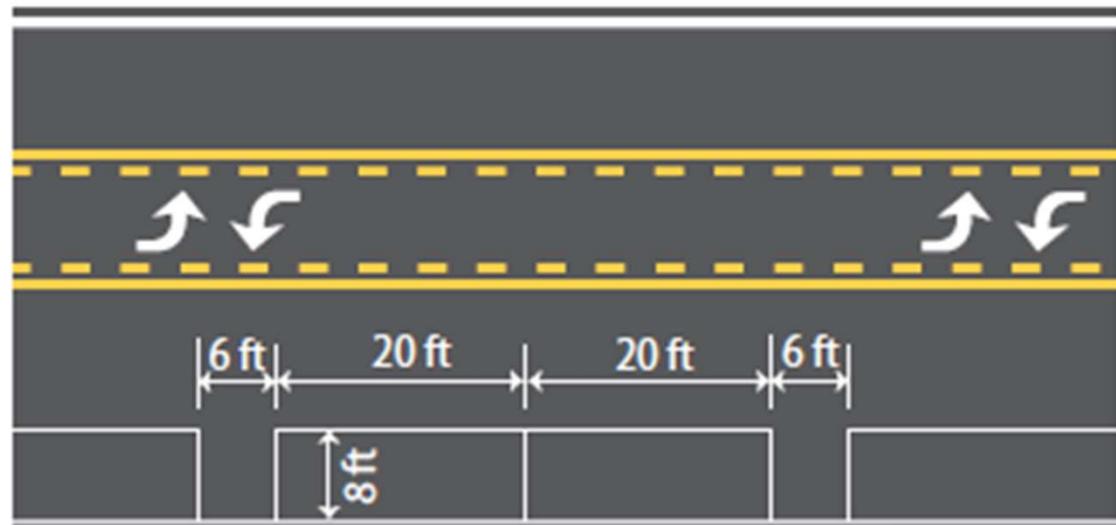


# On-Street Parking

- Minimum width: 7-8 ft
- Desirable width: 10-12 ft
- Shared bicycle and parking = **13ft.**
- Solid white line between bikes and parking

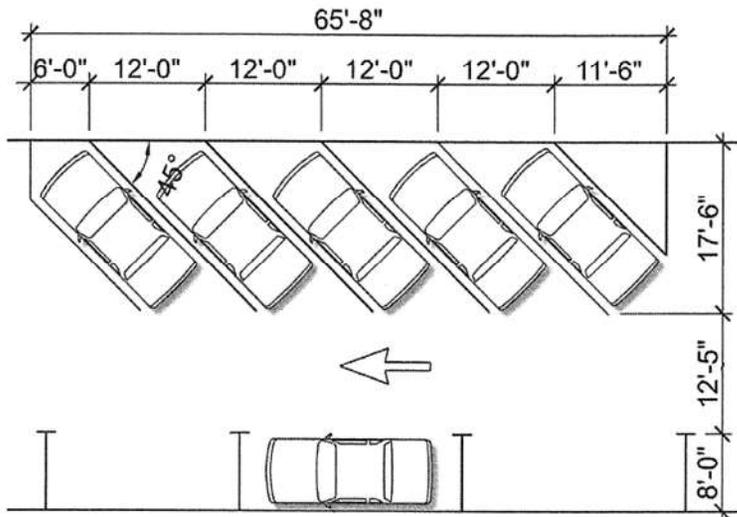


Figure showing  
“Paired” Parallel  
Parking



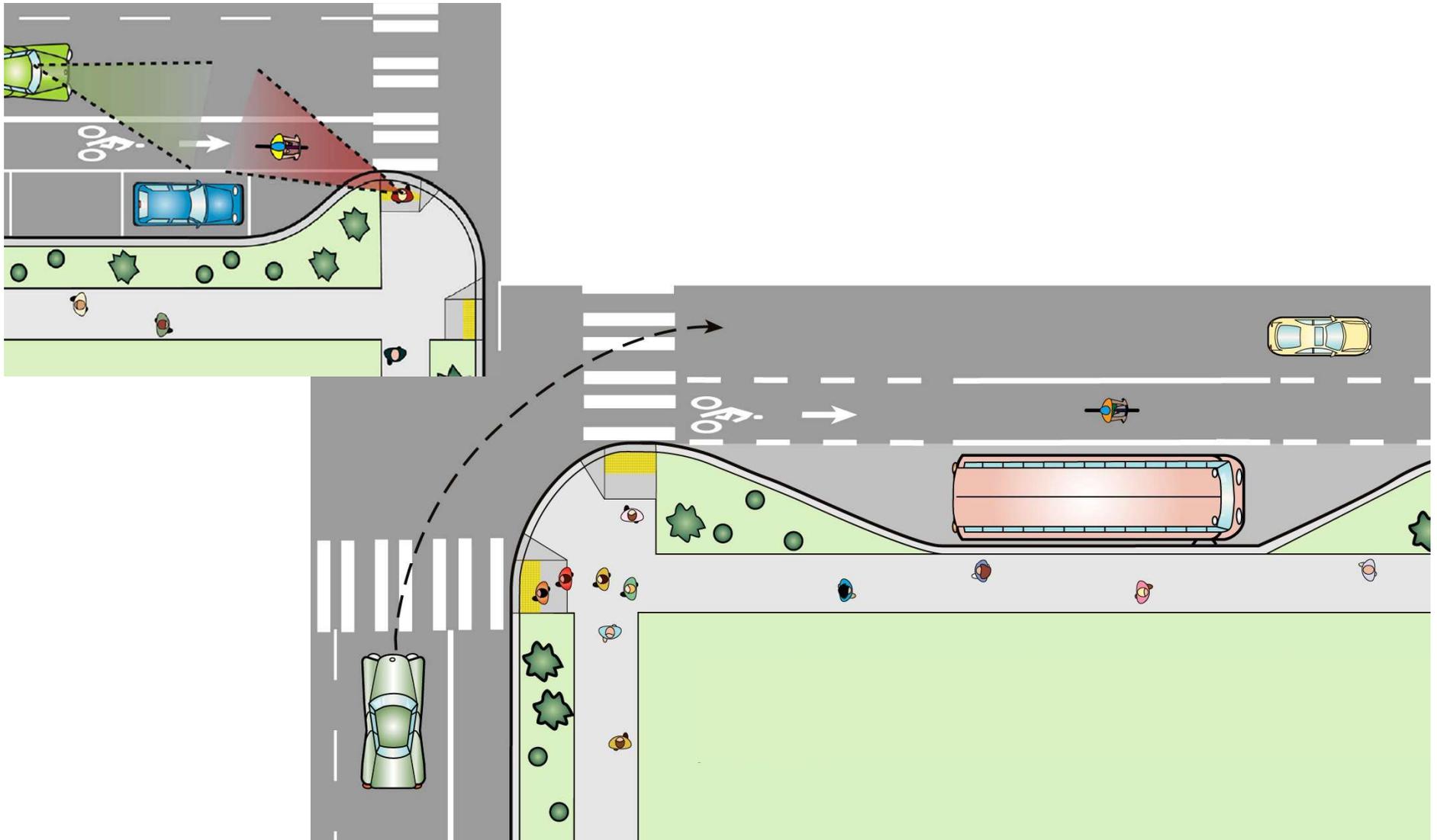
# Angled Parking

- Provides 60-75% more spaces than parallel parking
- Angled parking depth (measured perpendicular to the street) is dependent on the stall angle (17.5 feet for 45°, 19.0 feet for 60°, 19.5 feet for 75°)
- “Back-in” has advantages over “Head-in”



Source: ITE Traffic Engineering Handbook

Curb extensions can help pedestrians, bicyclists and facilitate bus pullouts



# Mid-Block Bus Turnouts

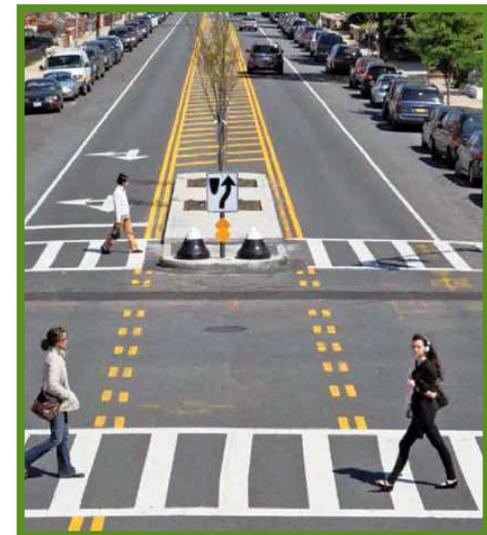
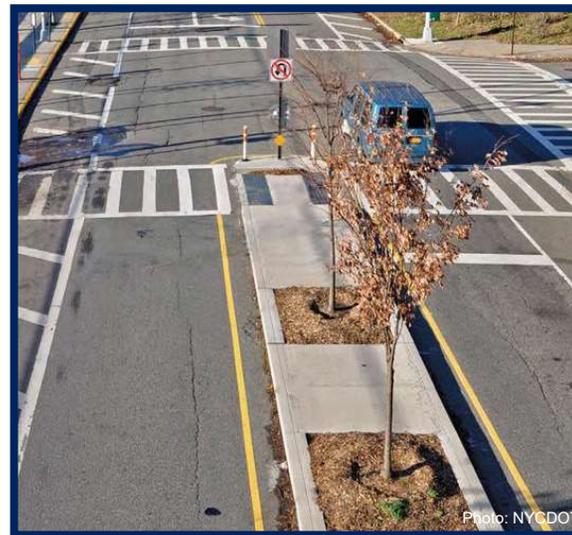


Desirable to provide turnouts about 50 feet in length for each bus with deceleration and entry tapers of about 5:1



# Median

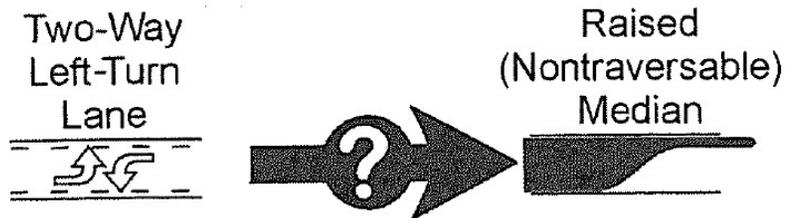
- The area between opposing travel lanes
- Can be a TWLTL
- If a flush median is used, expect crossing and turning movements around the median



# Medians & TWLTLs

TWLTLs may be appropriate for:

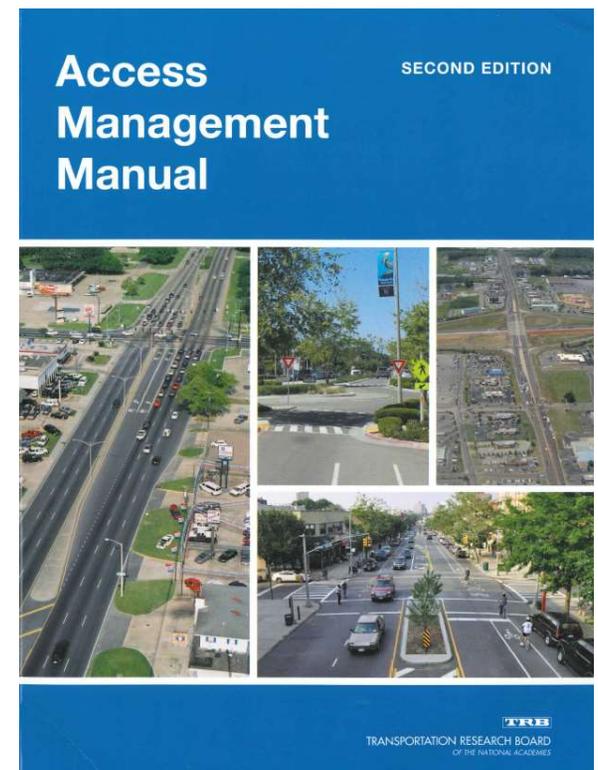
- ADT < 24,000 vpd
- Direct access to small abutting properties with ingress volumes < 100 vph



A non-traversable median is desirable for:

- Multilane roadways with ADT > 24,000 vpd
- Areas desirable to limit left turns to improve safety

TRB Access Management Manual



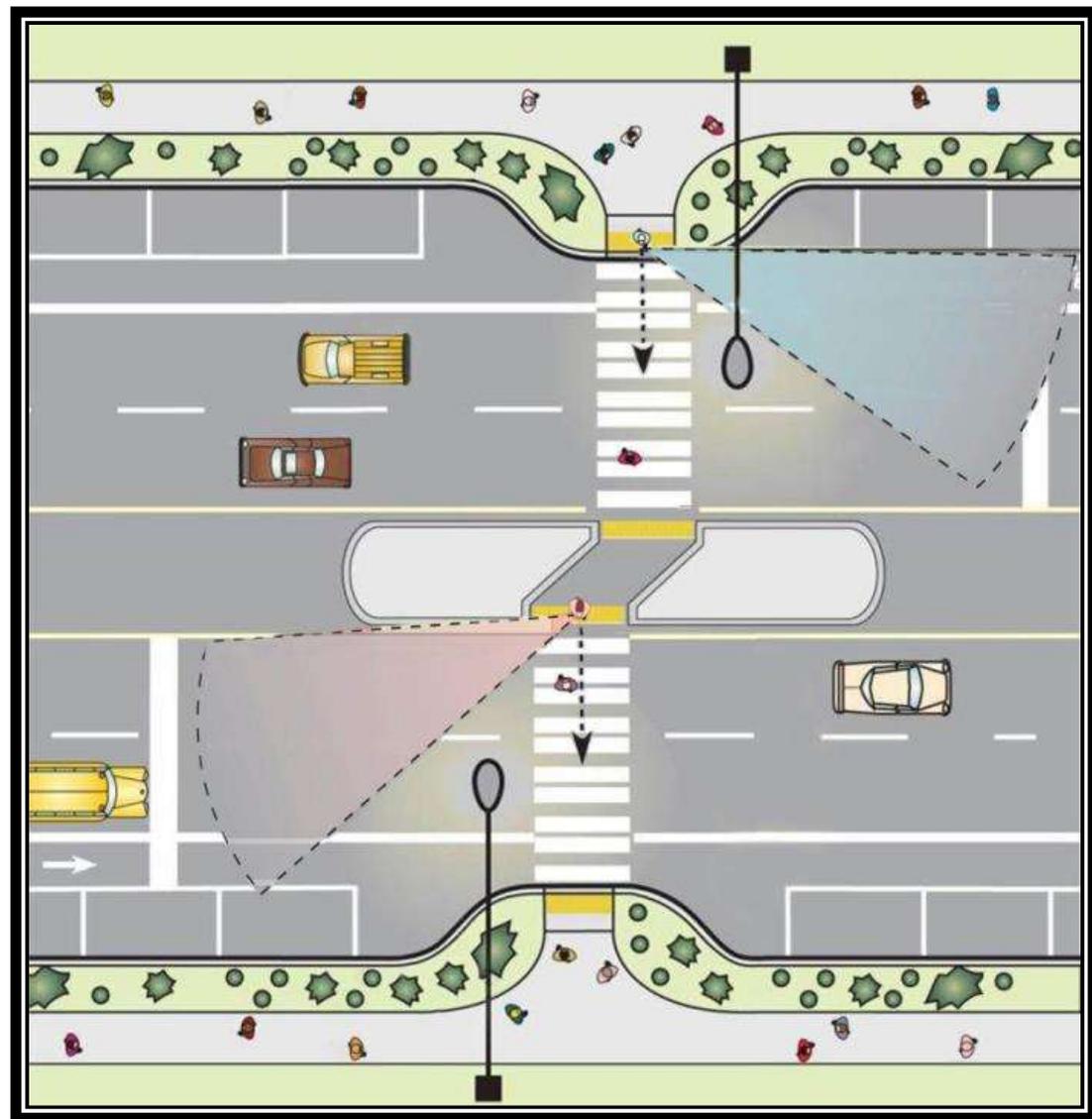
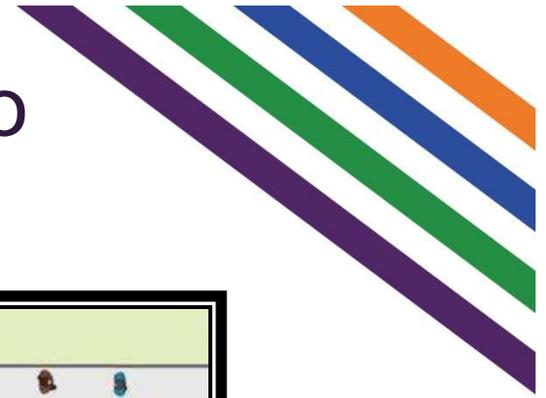
# Pedestrian Refuge Islands



- Minimum 6 ft. wide / Preferred 8 – 10 ft. wide
- Include detectable warning tiles
- Can use the TWLTL space where turns are prohibited or at mid-block locations



Divides a complex crossing into two simpler crossings



# Feasibility Worksheet Steps



**Step 1**  
**Identify Goals & Objectives**

**Step 2**  
**Consider Road Function & Context**

**Step 3**  
**Traffic Operations**

**Step 6**  
**Early Stakeholder Engagement**

**Step 5**  
**Design & Cost Considerations**

**Step 4**  
**Special Conditions**

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# Public Outreach

- Expect to encounter initial public opposition if Lane Eliminations are new and unfamiliar to your area

## Common concerns:

- More congestion
- More crashes
- Bad for emergency response
- “Bicycles vs. Automobiles”
- Bad for business



**Community fears need to be addressed!**

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## Media Tools



- Create a project web page
- Interactive blogs for public comments
- Social media to keep the community up-to-date on the project
- Webinars
- Education videos
- Visualizations



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# Public Workshops



Workshops offer a more engaged form of public participation and educational outreach.

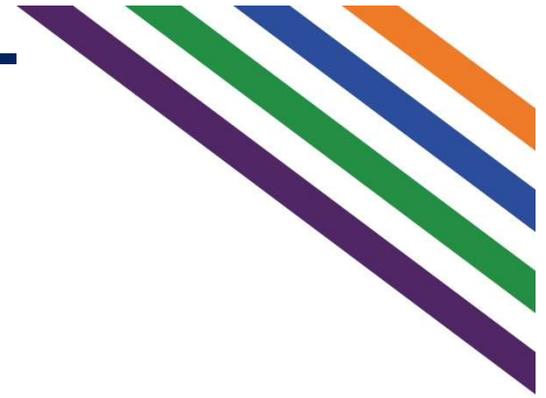


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## Trial Period

- Powerful tool to “disarm” public concerns
  - Opportunity to “validate” studies and analyses
  - Can uncover unidentified issues and provide an opportunity to address them before final roll-out
  - An effective means of monitoring should be developed
-

# Evaluate Results



## Example Evaluation Metrics

Operational	Safety	Livability/Economic Development
Daily traffic counts Peak hour traffic counts Turning movement traffic counts Intersection queue lengths (main street and side street) Travel times (vehicles) Travel time (transit) Adjacent street traffic counts and speeds Bicycle counts Pedestrian counts	Travel speeds Percent of drivers over the speed limit Percent of top-end speeders (Greater than 10 mph over speed limit) Crash frequency, type, severity, and rate Perceived level of safety	Transit ridership Availability of on-street parking Overall public satisfaction Property values Resident/public feedback Business feedback/sales records Number of new businesses/residences



U.S. Department of Transportation  
Federal Highway Administration

*On-Ramp to  
Innovation*  
every day counts

**ROADDIET**



**PEER EXCHANGE**

*2017 and 2018  
Pensacola, Gainesville, and  
Tequesta FL*

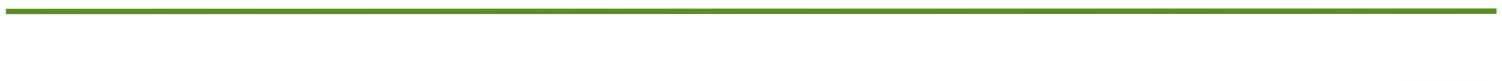
Attendee Perspectives

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## Lessons Learned from FL Peer Exchanges

- Lane elimination projects have evolved beyond just 4-lane to 3-lane conversions
  - Think creatively



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## Lessons Learned from FL Peer Exchanges

- Try to educate others in your agency about the benefits of Lane Eliminations
  - Having an agency “Champion” is important, but you can’t do it all alone



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## Lessons Learned from FL Peer Exchanges

- Try to proactively review upcoming resurfacing projects for potential Lane Elimination candidates
  - Resurfacing projects are great opportunities



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## Lessons Learned from FL Peer Exchanges

- When presenting a Lane Elimination proposal to the public, focus on the goals and desired outcomes for the community.
  - *“Are you willing to accept another minute of travel time in return for these benefits?”*



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# Webinar Details

- Click [Here](#) or scan the QR Code
- FDOT FBPE Provider Number: 0003533
- FBPE Course Number: 0010223
- APA Course Web Page: <https://www.planning.org/events/eventsingle/9169460/>
- APA Course Number: 9169460
- APA Provider ID: 222916
- AICP/PDH Credits Provided: 1.50

Survey - QR CODE



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- [Karla.Matos@dot.state.fl.us](mailto:Karla.Matos@dot.state.fl.us)