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TRB TRANSPORTATION RESEARCH BOARD

TRB Webinar: Context-Based Classification in Roadway Planning and Design

September 7, 2023

2:00 – 3:30 PM

PDH Certification Information

1.5 Professional Development Hours (PDH) – see follow-up email

You must attend the entire webinar.

Questions? Contact Andie Pitchford at TRBwebinar@nas.edu

The Transportation Research Board has met the standards and requirements of the Registered Continuing Education Program. Credit earned on completion of this program will be reported to RCEP at RCEP.net. A certificate of completion will be issued to each participant. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the RCEP.

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AICP Credit Information

1.5 American Institute of Certified Planners Certification Maintenance Credits

You must attend the entire webinar

Log into the American Planning Association website to claim your credits

Contact AICP, not TRB, with questions

Purpose Statement

This webinar will describe the experiences and lessons learned by various state transportation agencies that may be valuable to others who are seeking to implement context-based classification.

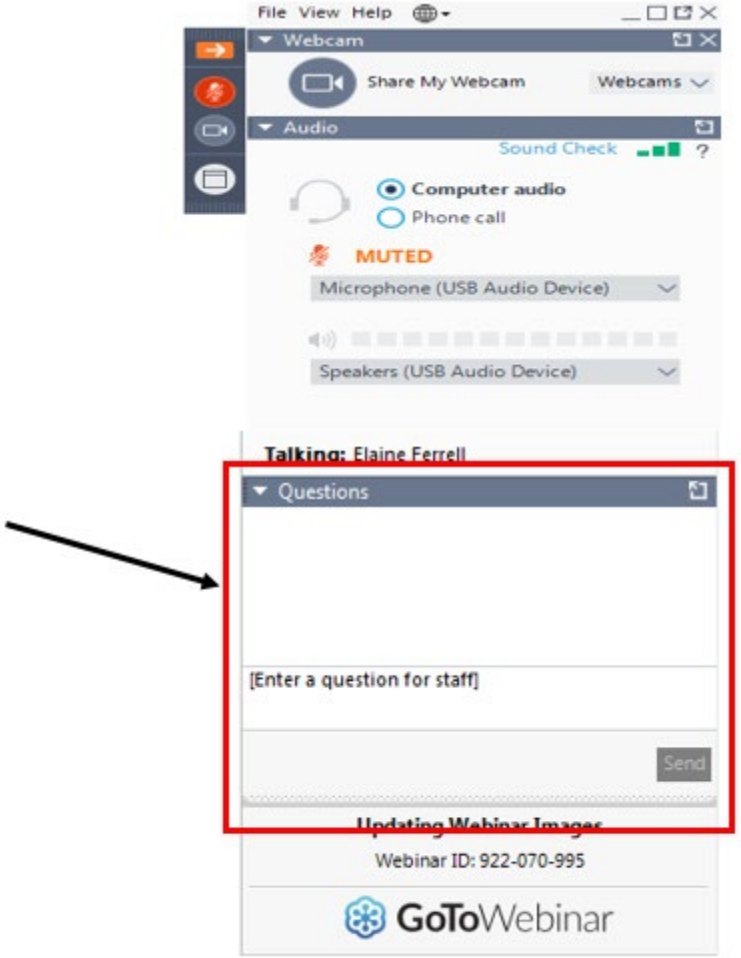
Learning Objectives

At the end of this webinar, you will be able to:

- Identify best practices for context-based classification of roadways
- Implement context-based classification within their own state

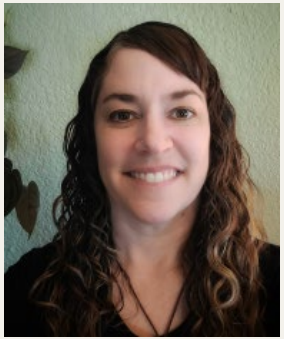
Questions and Answers

- Please type your questions into your webinar control panel
- We will read your questions out loud, and answer as many as time allows



Today's presenters

Ali Hangul
Ali.Hangul@tn.gov
Tennessee DOT



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NCHRP 20-68
"US Domestic Scan Program"

Domestic Scan 21-02

"Leading Approaches to Implementing Context-Based Classification of Roadways in Planning and Design"

Findings, Conclusions and Recommendations

Domestic Scan 21-02
Leading Approaches to Implementing Context-Based Classification of Roadways in Planning and Design

- This scan is being conducted as a part of NCHRP Project 20-68, the "U.S. Domestic Scan Program"

- The program was requested by the American Association of State Highway and Transportation Officials (AASHTO) Committee on Construction (SOC), with funding provided through the National Cooperative Highway Research Program (NCHRP)

NCHRP 20-68
U. S. Domestic Scan Program

- The Program is a multi year project conducting 3-4 scans per year.
- Each scan is selected by AASHTO and the NCHRP 20-68 Project Panel
- Each scan addresses a single technical topic of broad interest to many state departments of transportation and other agencies
- The purpose of each scan and of Project 20-68 as a whole is to accelerate beneficial innovation by:
  - facilitating information sharing and technology exchange among the states and other transportation agencies
  - identifying actionable items of common interest

NCHRP Panel's General Guidance to the Scan Team

Problem Statement

The AASHTO Green Book, Version 8 outlined context-based classifications, introducing a new set of land-use context classifications (i.e., rural, rural town, suburban, urban, and urban core). This creates a change in guidance for state transportation officials.

While it is necessary, this is a paradigm shift and is challenging for many agencies across the country and they would like more understanding regarding how to implement.

NCHRP Panel's General Guidance to the Scan Team

Scan Key Objectives

- Describe the experiences gained from leading states implementing context-based classification.
- Identify lessons learned that may be valuable to others who have not yet implemented context-based classification.

NCHRP Panel's General Guidance to the Scan Team

Additional Objectives

- Encourage a more uniform implementation of guidance across the country,
- Allow for a common language to develop nationwide,
- Promoting greater cooperation and sharing among practitioners,
- Provide information for the AASHTO Committee on Design to consider in the development of the next version of the Green Book.

Scan Team

Vaughn Nelson ---- Chair
Statewide Design Engineer
Utah Department of Transportation

Angelo Papastamos
Transportation Planning Manager
Utah Department of Transportation

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Program Manager, Highway Program
Maine Department of Transportation

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Assistant Director
Roadway Design Division
Tennessee DOT

Ali Hangul
Assistant Director
Roadway Design Division
Tennessee DOT

David L. Holstein
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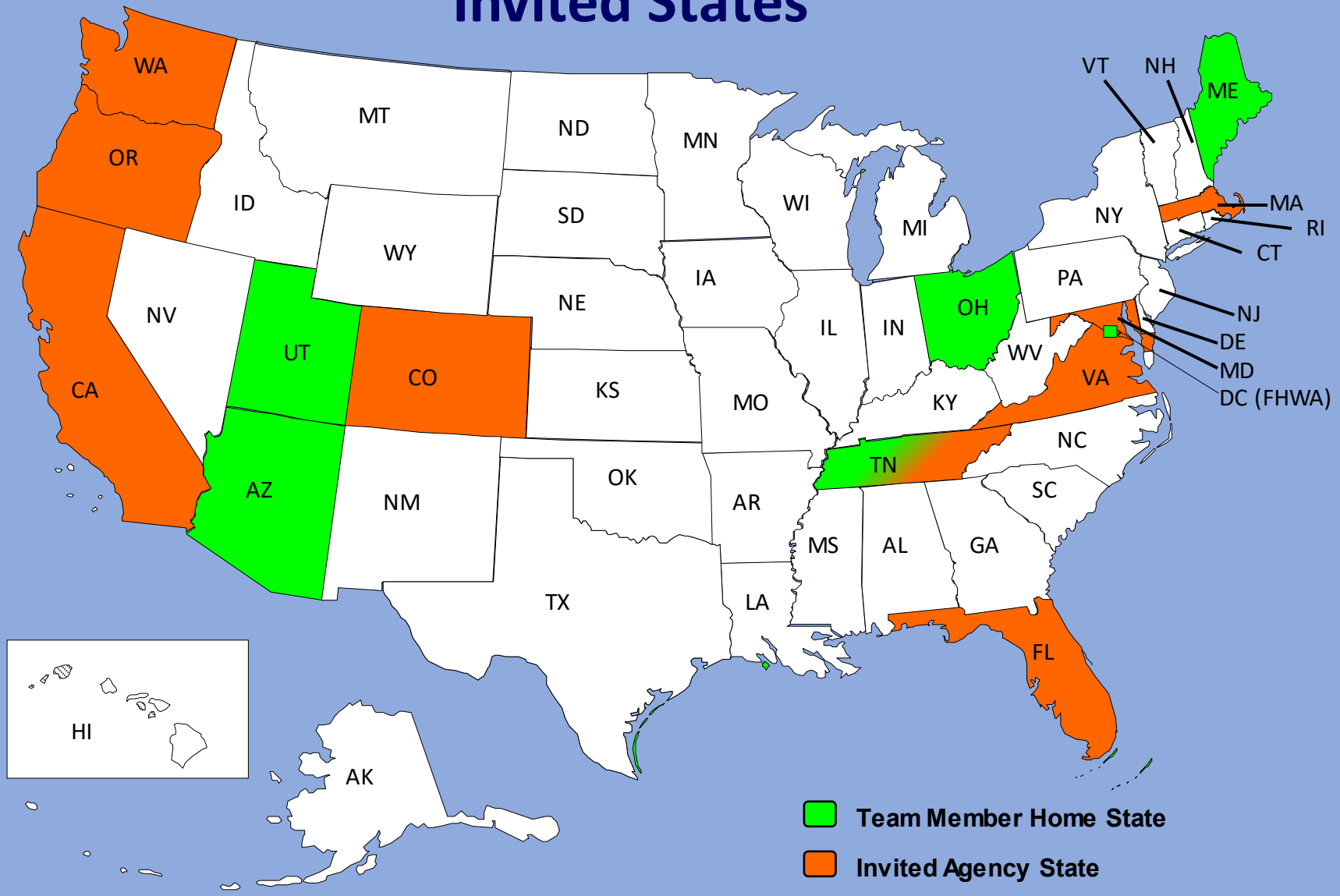
Ohio Department of Transportation

Michael J. DenBleyker, P.E.
Assistant State Engineer
Roadway Engineering Group
Arizona Department of Transportation

Elizabeth Hilton
Geometric Design Program Manager
Office of Infrastructure
Federal Highway Administration

Kim Clark – Subject Matter Expert
VIA Consulting

Domestic scan 21-02 Team Members' Home States and Invited States



Summary of Initial Findings

- Determining Context
  - Strong leadership and direction set the tone for the success
  - Multi-disciplined teams are necessary to ensure goals and outcomes are met.
  - Inclusive collaboration assists in defining policies and projects that meet the needs of all users.
  - AASHTO Green Book provides a starting point for classifying contexts

Summary of Initial Findings

- Developing a Context Framework
  - Context Classifications is a paradigm shift requiring effort and direction
  - Context classifications are best incorporated with an easily communicated process
  - Setting flexible design criteria for all users assists in the achieving desired outcomes
  - Flexibility needs to be encouraged for design and definition of standards

Summary of Initial Findings

- Implementing Context Classifications
  - Developing a consistent planning/design documentation process is better than set standards
  - Training and easy to use tools are needed to address major change and improve implementation

Recommendations

- Define Context Classifications
  - Work with leadership to gain high level support
  - Gather data that assists with defining the context
  - Collaborate with internal and external stakeholders
  - Define context classifications to meet state context and easily connect to AASHTO and meet the needs of the area.

Conclusions

- A "one size fits all" is difficult to define for implementation of context classification. Many agencies apply similar foundational philosophies.
- The findings of this domestic scan provide a wide range of actions that are working for those states that have implemented context classifications
- Very specific standards and actions have not been defined
- Most efforts are focused on taking a foundational approach and designing a process that works for the organizational context.

Recommendations

- Develop a Framework
  - Develop a process in a few different ways
    - Change current processes to make change easier
    - Create a bridging document
    - Develop a new process with a multi-discipled team
  - Support viewing standards in a flexible way

Recommendations

- Implement Process for Context Classifications
  - Focus on documenting decisions
  - Develop training programs that will
    - Outline the contexts
    - Support engineering judgement,
    - Set expectations
    - Encourage collaboration.
  - Create tools to support change

Recommendations

- Additional National Studies and Recommendations
  - Need recommendations for defining and implementing design speed, posted speed, and target speed
    - Approach to slowing cars down
  - Recommend widths for lower speed including lane width and shoulder width

Further information on this scan and the NCHRP 20-68 "U.S. Domestic Scan Program" is available at:

https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=1570

Or

http://www.domesticscan.org/

Questions?

Context-Based Classification in Roadway Planning and Design

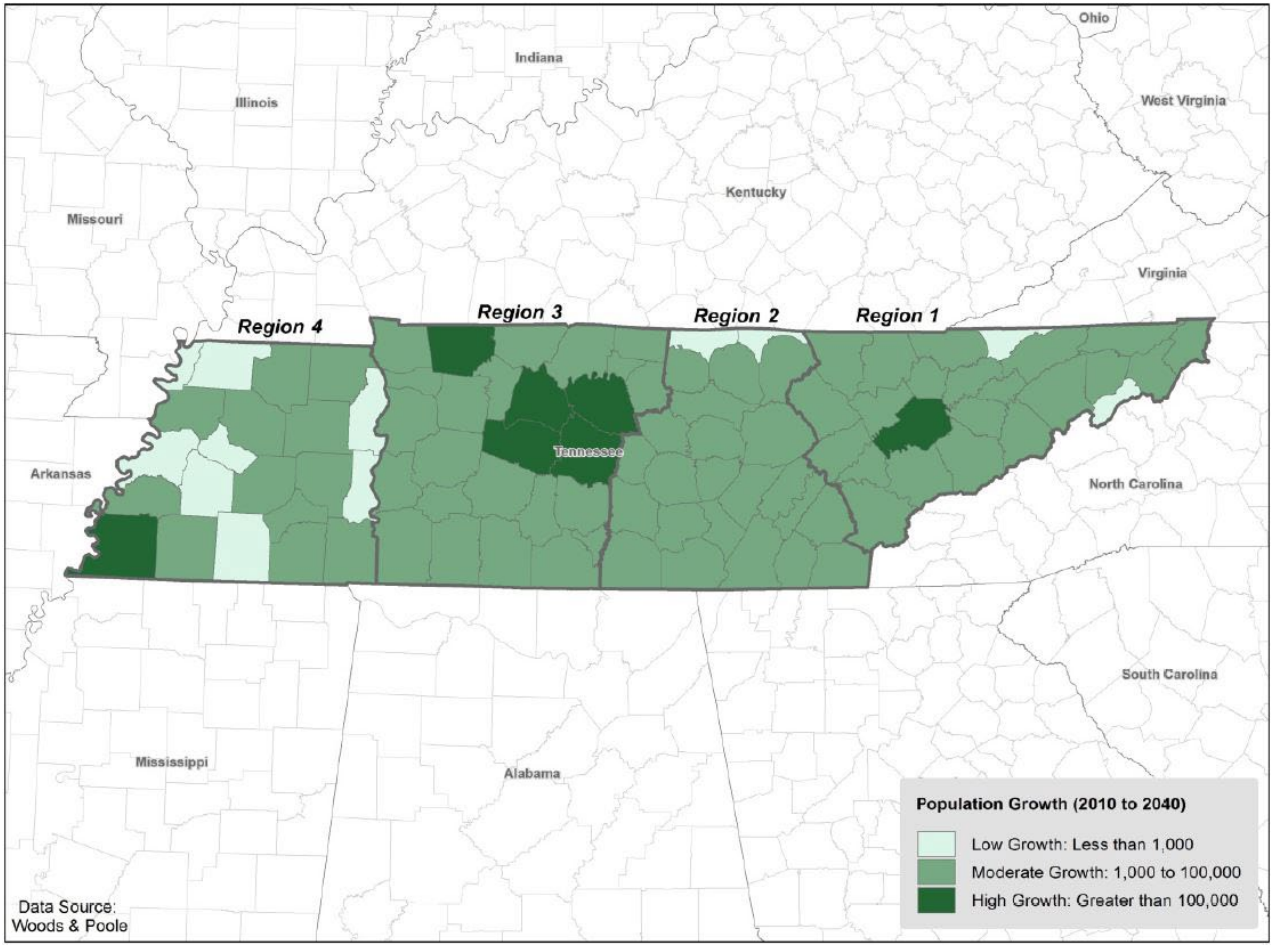
Using the scan findings as a guide to implementation in Tennessee

September 2023

Using the scan findings as a guide to implementation in Tennessee

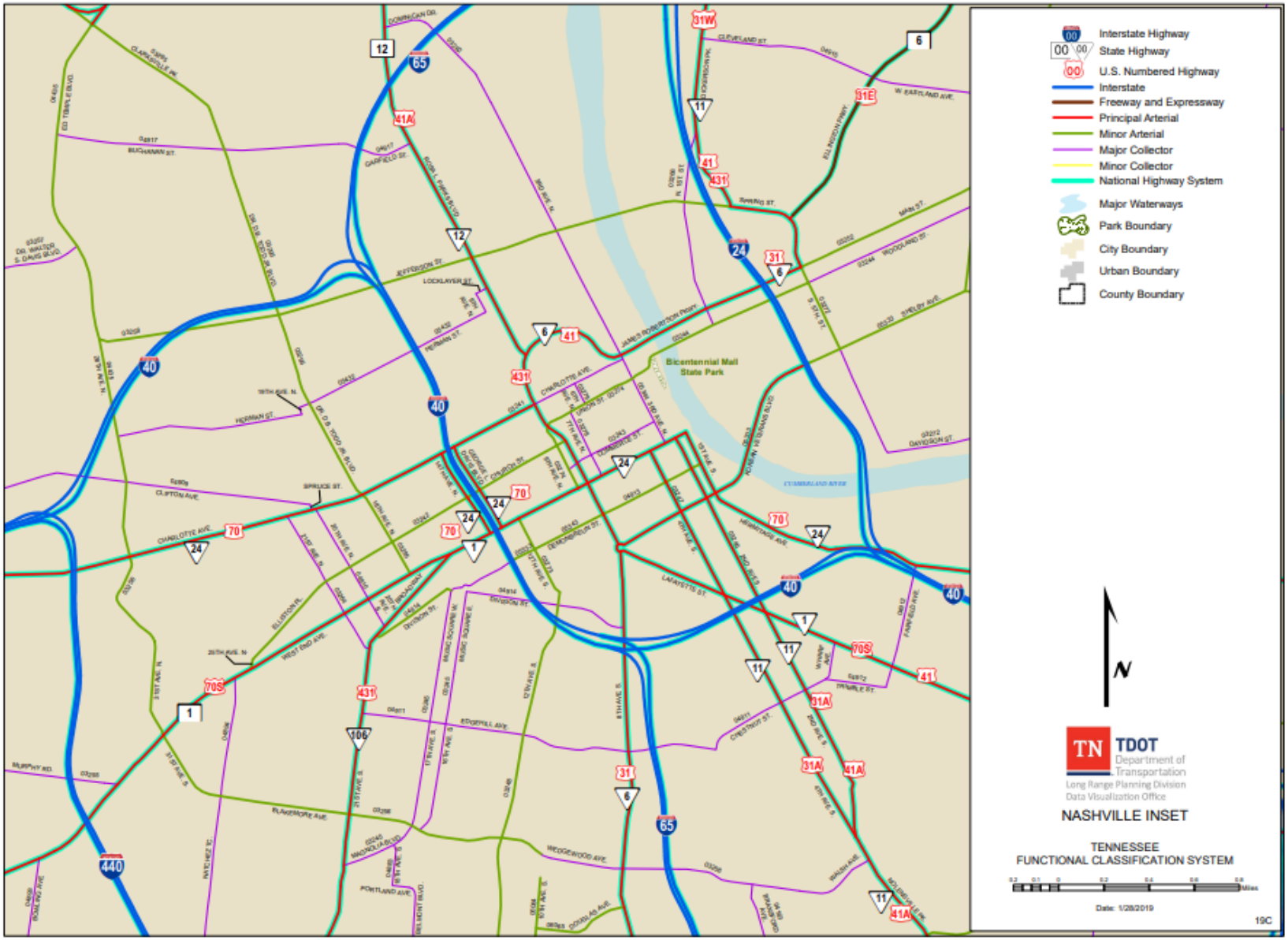
- WHY: Changing demographics, Safety, User Needs
- TDOT implementation time line: Pass, Present, Future
- Critical Elements of Implementation

WHY- Changing Demographics

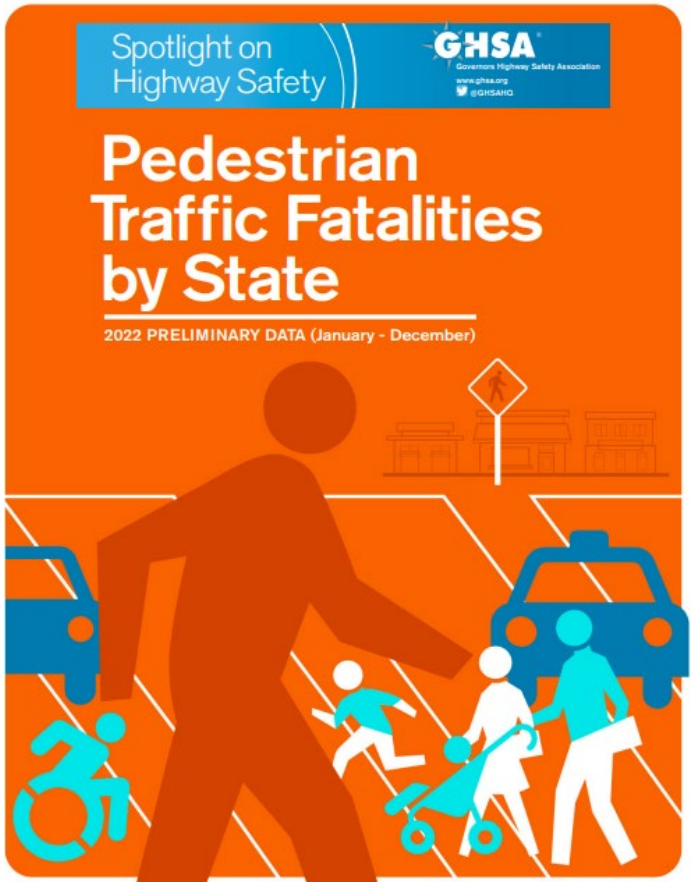


By 2040, TN population expected to add over 2.1 million people. Over 70% of growth will occur in existing urban counties.

Functional Classification

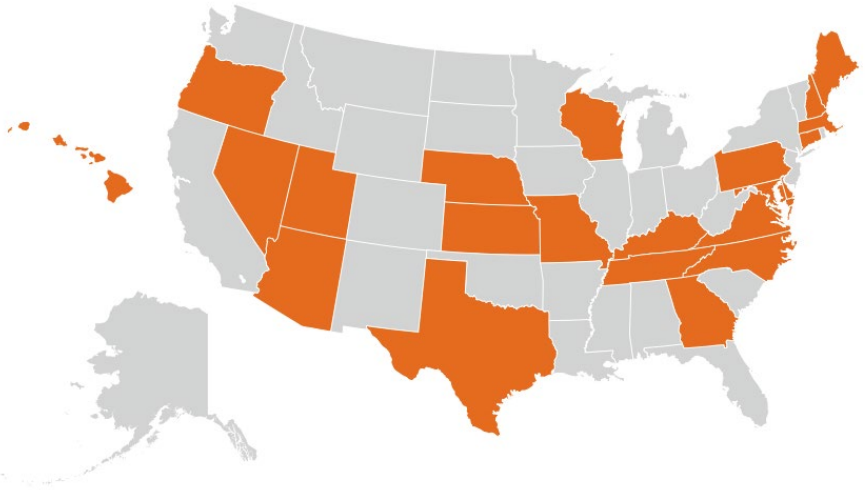


WHY-SAFETY



GHSA projects 7,508 pedestrians were killed in traffic crashes in 2022, the highest number of pedestrian deaths since 1981.

Figure 2 States with an Increase in Pedestrian Traffic Fatalities in 2022



SAFETY- INCREASE IN PEDESTRIAN FATALITIES

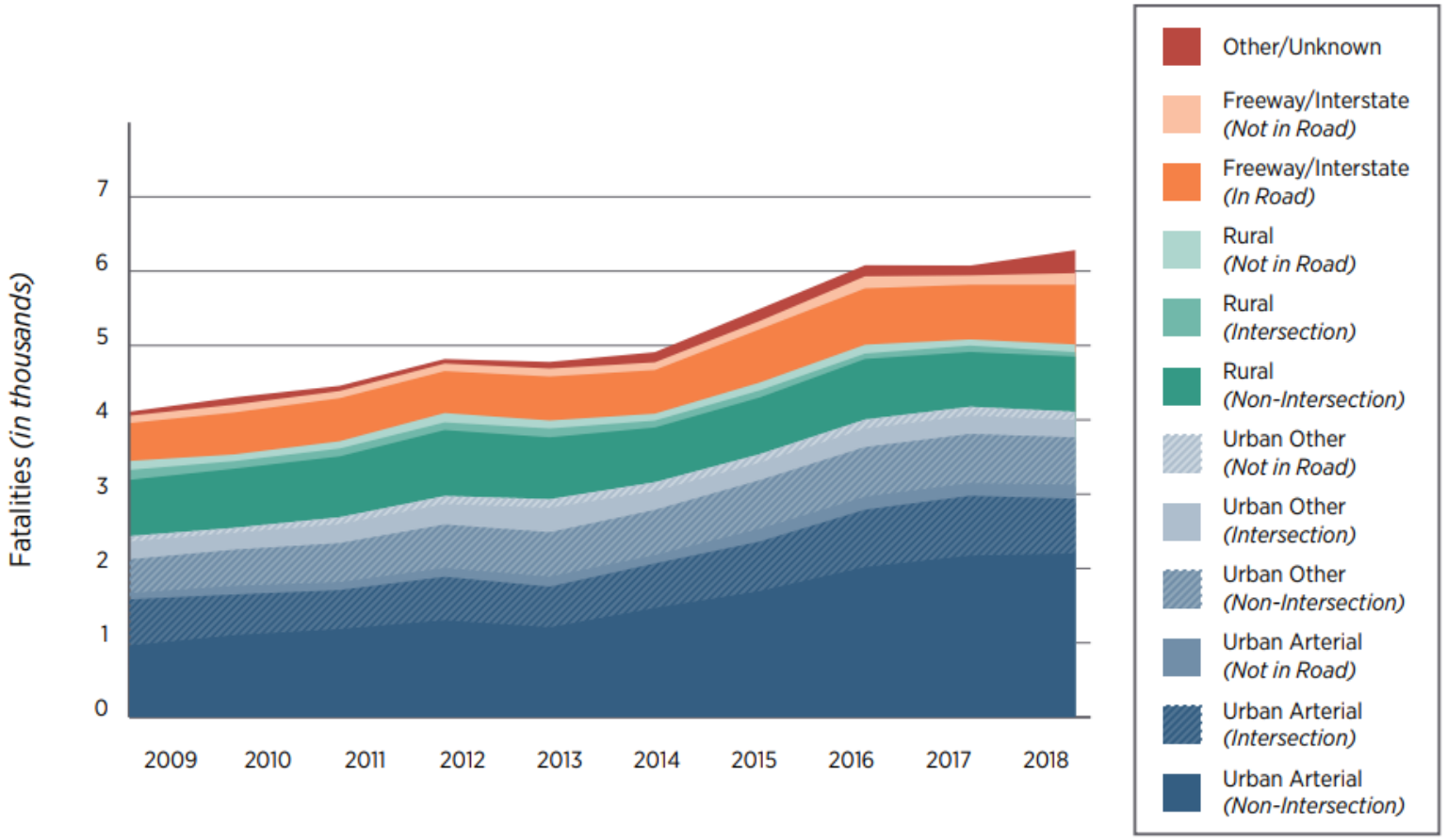
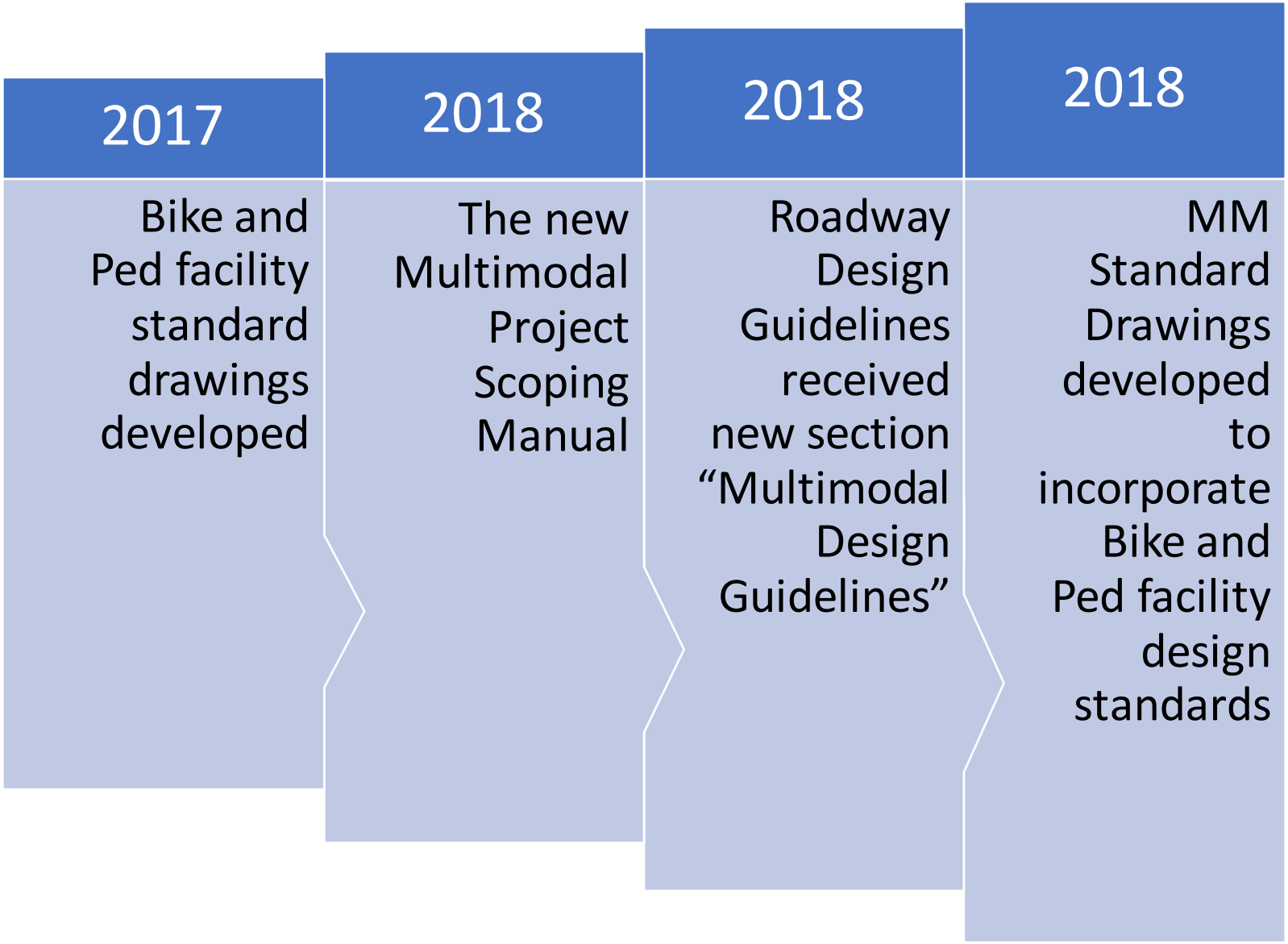


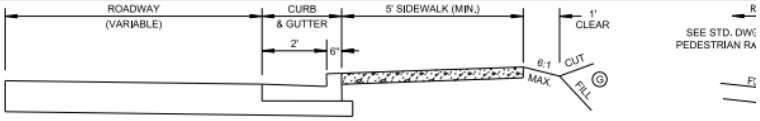
Figure 3. Pedestrian Pre-Crash Location on Roadway and Roadway Function Class, Fatally Injured Pedestrians, United States, 2009-2018.

Other=collectors & local streets. Rural=all rural roads except Interstate highways.
Crosswalks at non-intersection locations are grouped with intersections.

BEFORE Domestic Scan 21-02

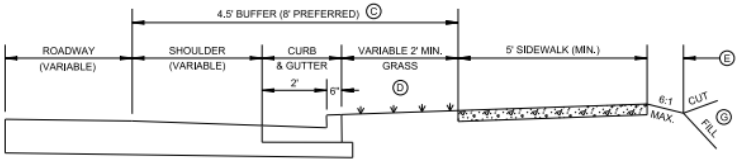


SIDEWALK AND SHARED USE PATH BUFFER REQUIREMENTS



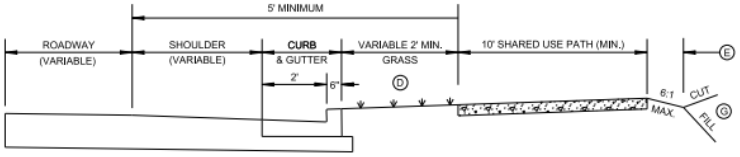
SIDEWALK ADJACENT TO CURB & GUTTER

POSTED SPEEDS ≤ 35 MPH (H)



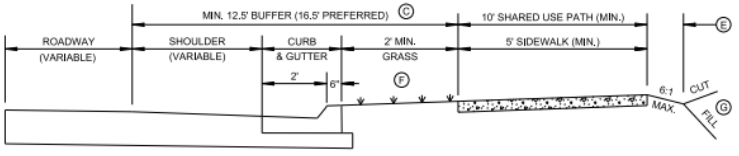
SIDEWALK W/ GRASS STRIP BEHIND CURB & GUTTER

POSTED SPEED = 40 MPH (H)



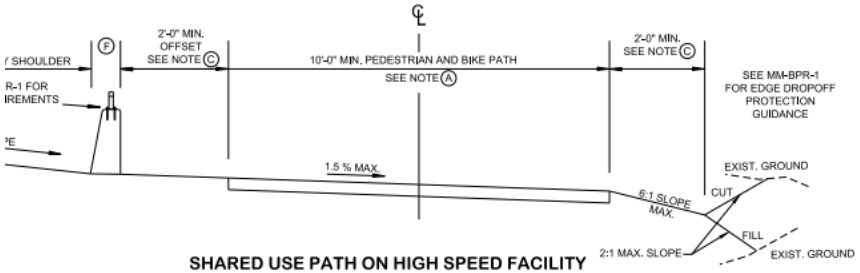
SHARED USE PATH W/ GRASS STRIP BEHIND CURB & GUTTER

POSTED SPEEDS ≤ 40 MPH (H)

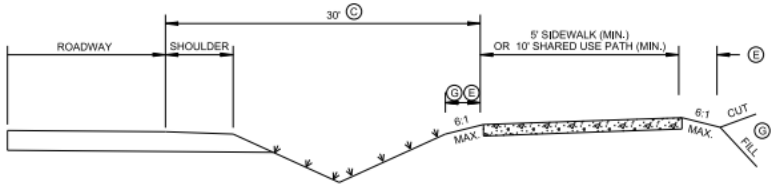


SIDEWALK OR SHARED USE PATH W/ GRASS STRIP BEHIND CURB & GUTTER

POSTED SPEEDS 45 TO 55 MPH (H)

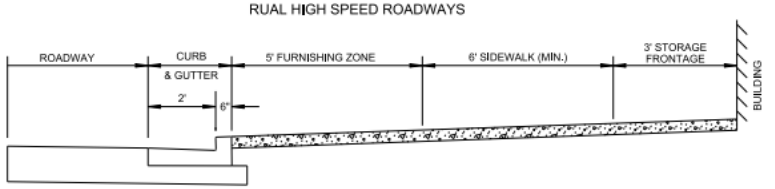


SHARED USE PATH ON HIGH SPEED FACILITY
WHEN MINIMUM BUFFER (12.5 FT) COULD NOT BE MAINTAINED
USE POSITIVE PROTECTION (K)



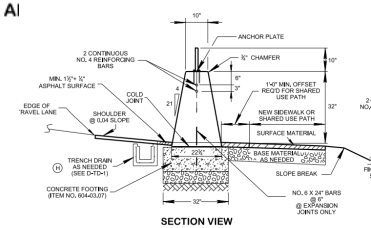
SIDEWALK OR SHARED USE PATH ON HIGH-SPEED FACILITY

RUAL HIGH SPEED ROADWAYS



SIDEWALK IN CENTRAL BUSINESS DISTRICT/COMMERCIAL AI

POSTED SPEEDS ≤ 35 MPH (DESIGN SPEEDS ≤ 40 MPH)

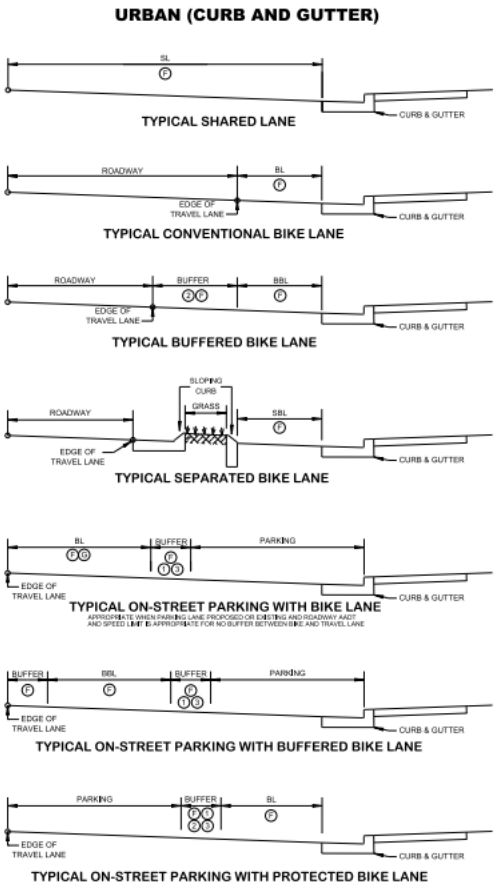


SECTION VIEW

TYPICAL CROSS-SECTION (E)
HIGH SPEED TRAVEL LANE (SPEED > 45 MPH)

BARRIER PLACEMENT TO PROTECT
NON-MOTORIZED USERS

BIKE ACCOMMODATION DESIGN AND BIKE LANE BUFFER REQUIREMENTS (URBAN)



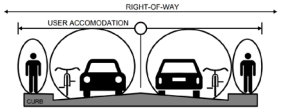


Figure 3-3 : Shared Bicycle/Motor Vehicle Accommodation

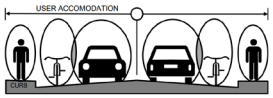


Figure 3-2: Partial Sharing for Bicycles and Motor Vehicles

TABLE 1 (C)

MINIMUM BICYCLE FACILITY GUIDANCE FOR URBAN (CURB AND GUTTER) CROSS SECTIONS

ADT		< 2000	2,000 - 20,000	> 20,000
POSTED SPEED LIMITS (D)	≤ 35 MPH	SL	BL (4FT)	BL (4FT)
	40 MPH	BL (5 FT)	BL (5 FT) or BBL (4 FT)	BBL (4 FT) or SBL (5 FT)
	45 -55 MPH	BBL (4 FT) or SBL (4 FT)	BBL (4 FT) or SBL (4 FT)	BBL (4 FT) or SBL (4 FT)
	> 55 MPH	SBL	SBL	SBL

SL = SHARED LANE BBL = BUFFERED BIKE LANE
SBL = SEPARATED BIKE LANE BL = CONVENTIONAL BIKE LANE

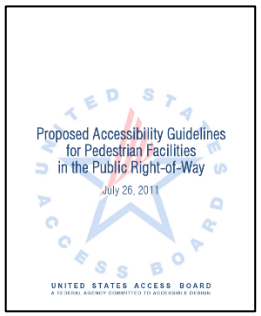
TABLE 3 (C)

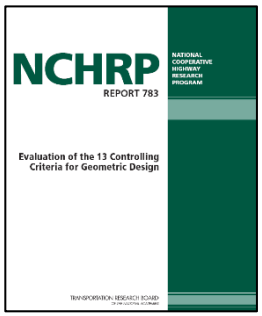
MINIMUM BIKE LANE BUFFER REQUIREMENTS

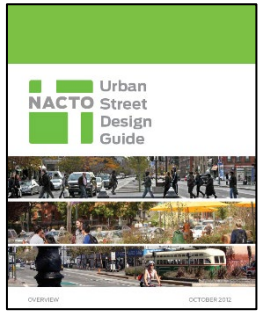
ADT		< 2000	2,000 - 20,000	> 20,000
POSTED SPEED LIMITS (D)	40 MPH	2 FT	2 FT	3 FT
	45 -55 MPH	3 FT	3 FT	3 FT
	> 55 MPH	SEPERATED BIKE LANE REQUIRED		

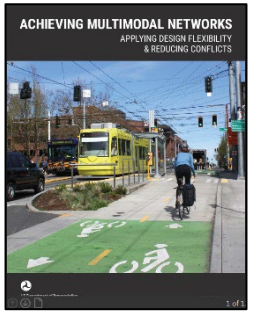
Multimodal Project Scoping Manual

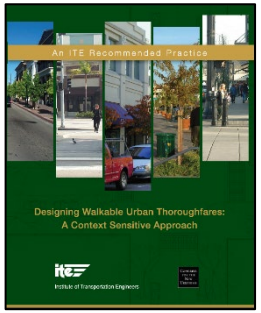
- 160 Pages of national best practices
- Over 40 source documents
- Guidance from US Access Board, FHWA, AASHTO, NACTO, NCHRP, ITE, US EPA, internal TDOT sources, and other state and city DOTs
- Target audience is those involved in project initiation and scoping











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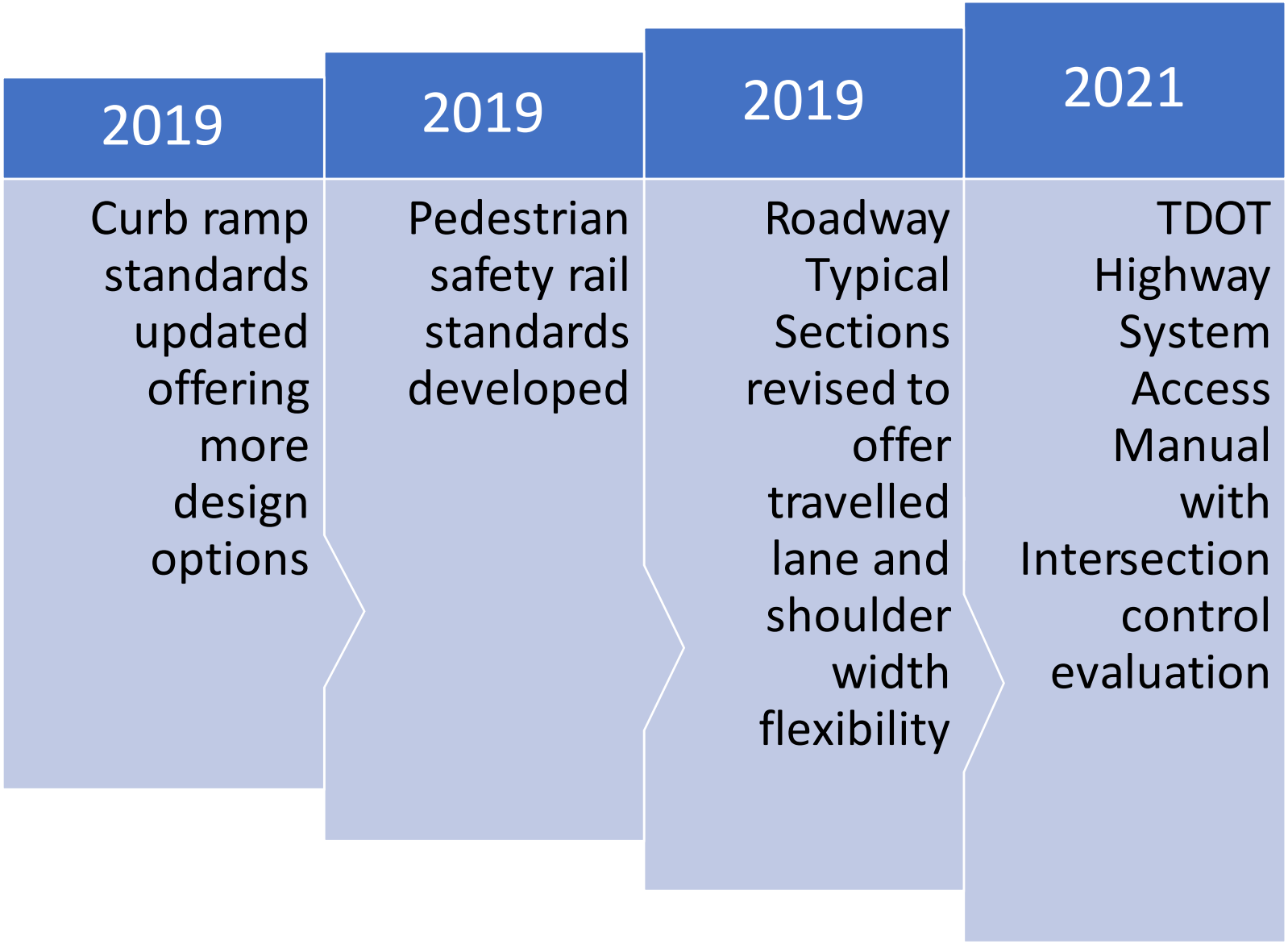


URBAN COLLECTOR

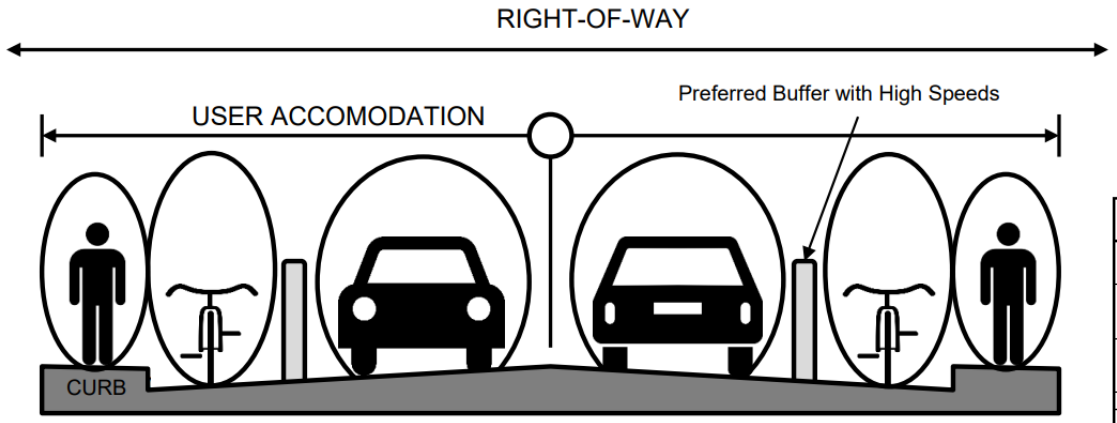
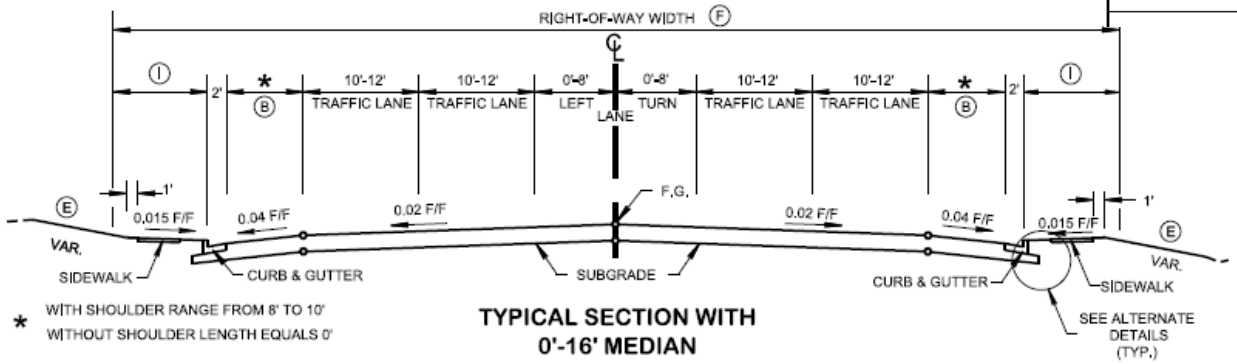


Figure 3-1: Separate Accommodation for All Users

TABLE II COLLECTOR URBAN STREETS - DESIGN STANDARDS (K)

DESIGN STANDARDS (FOR GIVEN DESIGN SPEED)		DESIGN SPEEDS (MPH)							
		20	25	30	35	40	45	50	
MINIMUM WIDTH OF TRAVELED WAY IN (FT.) (SEE PAGE 6-16) (G)(M)(N)(O)		22	22	24	24	24	24	24	SE
MAXIMUM GRADES % FOR URBAN AND URBAN CORE	LEVEL TERRAIN	9	9	9	9	9	6	6	
	ROLLING TERRAIN	12	10	9	9	8	8	7	SE
	MOUNTAINOUS TERRAIN	14	11	10	10	10	10	9	
MINIMUM STOPPING SIGHT DISTANCE (FT.)		115	155	200	250	305	360	425	
MINIMUM "K" VALUE	CREST VERTICAL CURVE	7	12	19	29	44	61	84	SEE P.
	SAG VERTICAL CURVE	17	26	37	49	64	79	96	
DESIGN PASSING SIGHT DISTANCE (FT.)		400	450	500	550	600	700	800	
MINIMUM "K" VALUE	PASSING SIGHT DISTANCE FOR CREST VERTICAL CURVE	57	72	89	108	129	175	229	SEE P.

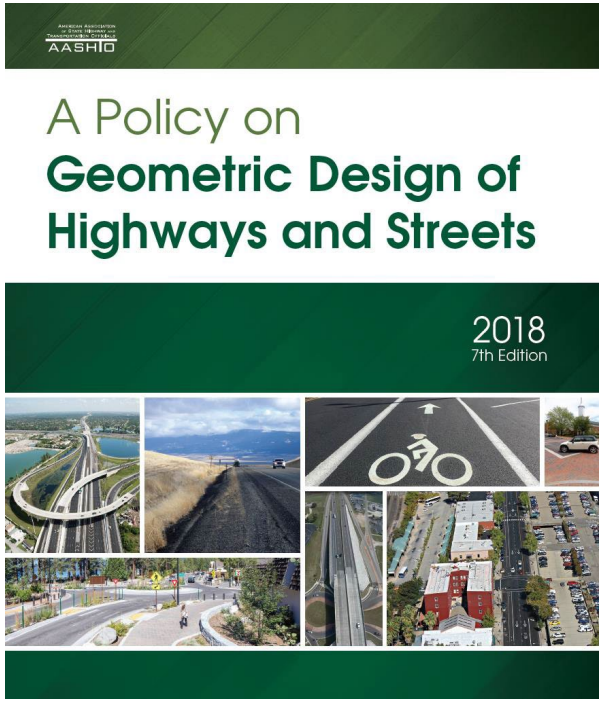
FOR SUPERELEVATION SEE STANDARD DRAWINGS RD11-SE SERIES

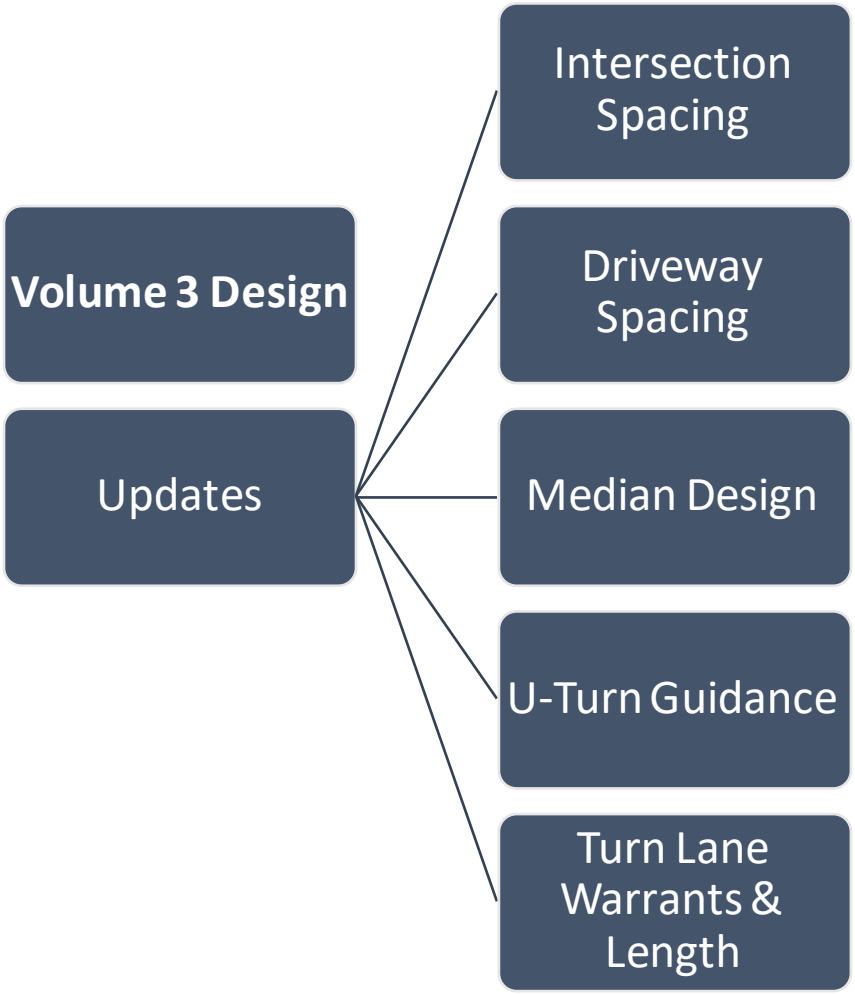


Access Management – Land Use Connection

HSAM Volume 3 Design

- Updates to TDOT's Design Criteria
- Coordination with new 2018 AASHTO "Greenbook"
- Implement some elements of TRB's Access Management Manual 2nd Edition





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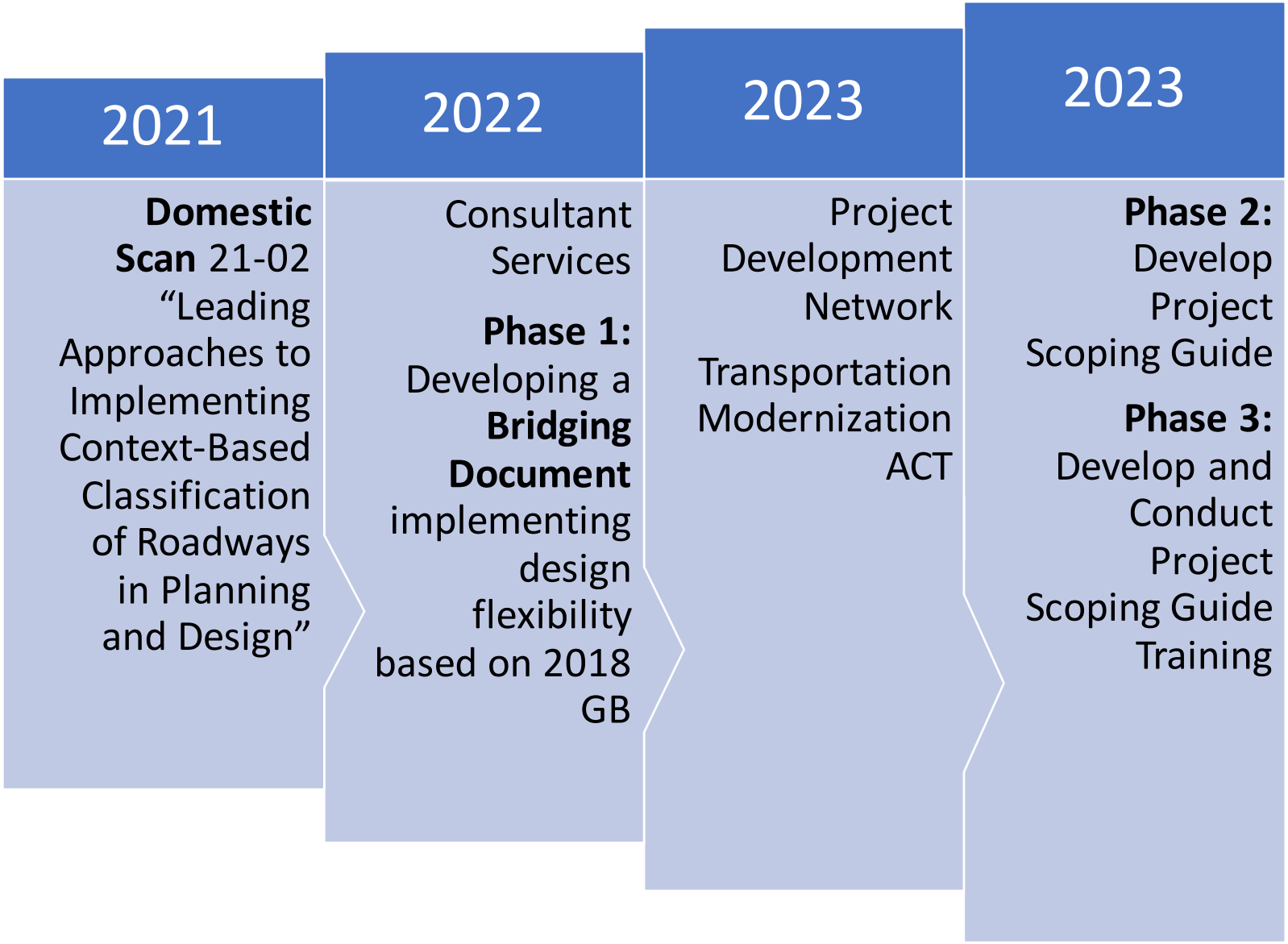
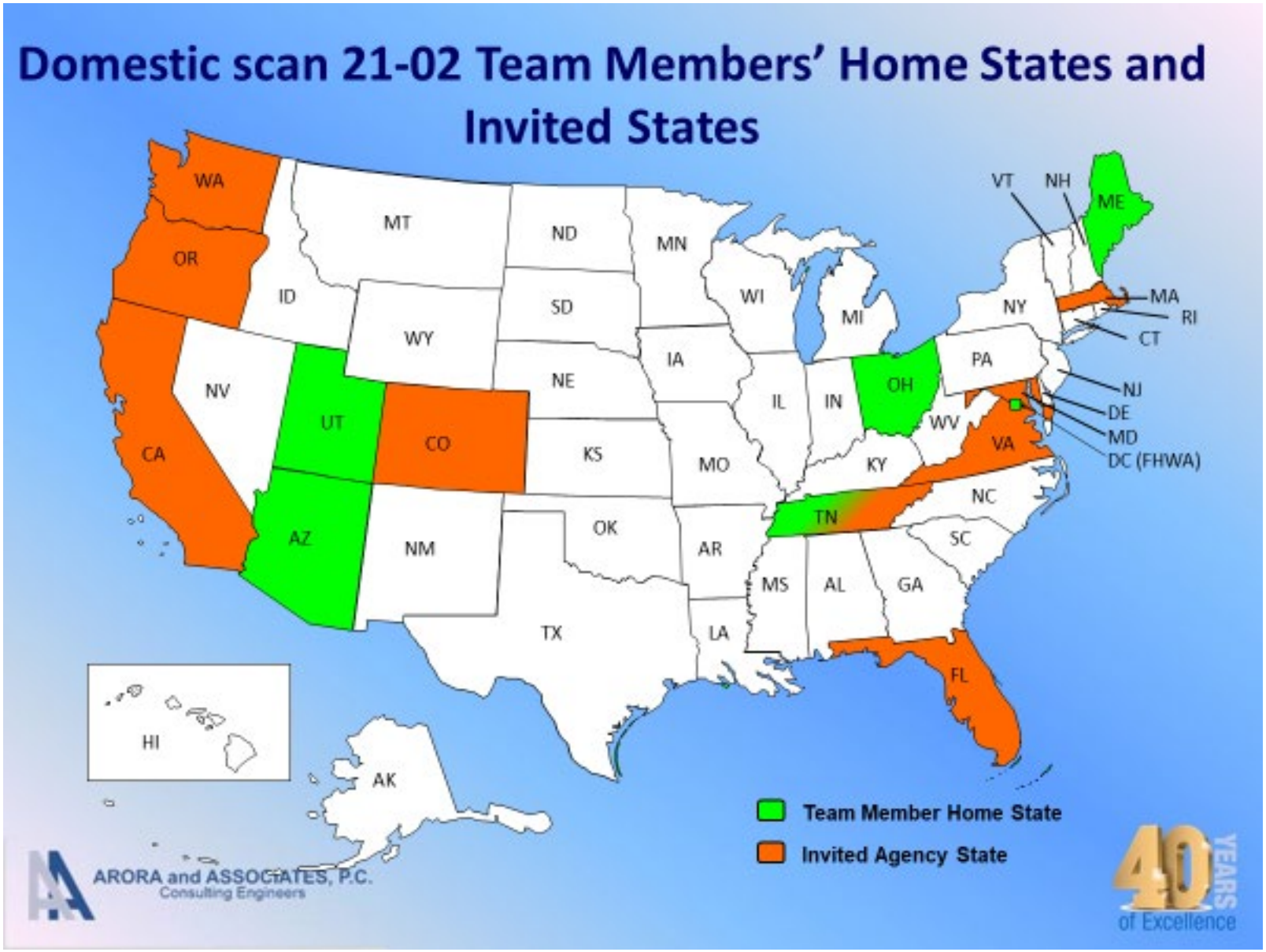


Domestic Scan 21-02



Domestic Scan 21-02 Findings

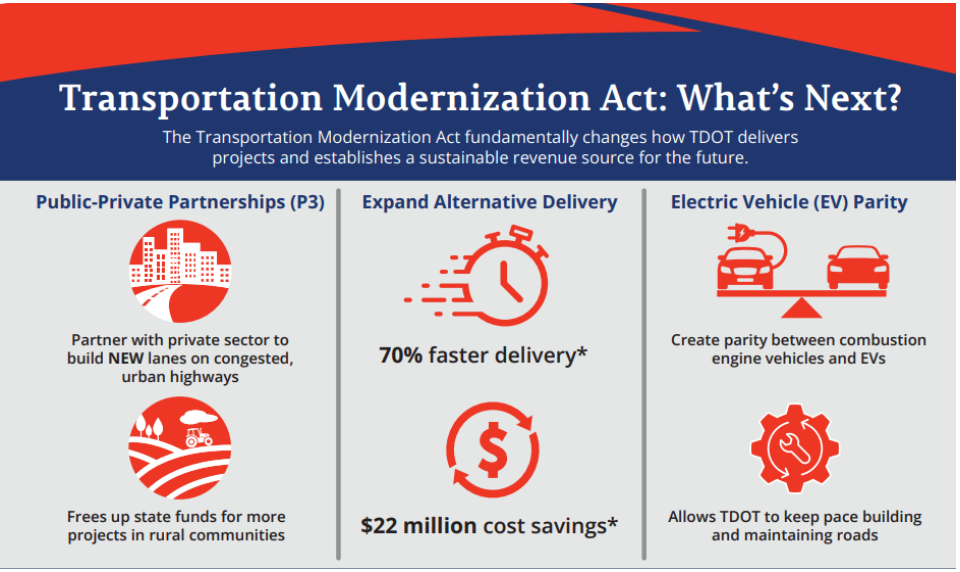
- **“Leading Approaches to Implementing Context-Based Classification of Roadways in Planning and Design”**

- Developing a consistent planning/design documentation process is better than set standards
- Multi-disciplined teams are necessary to ensure goals and outcomes are met.
- The findings of this domestic scan provide a wide range of actions that are working for those states that have implemented context classifications
- Context Classifications is a paradigm shift requiring effort and direction

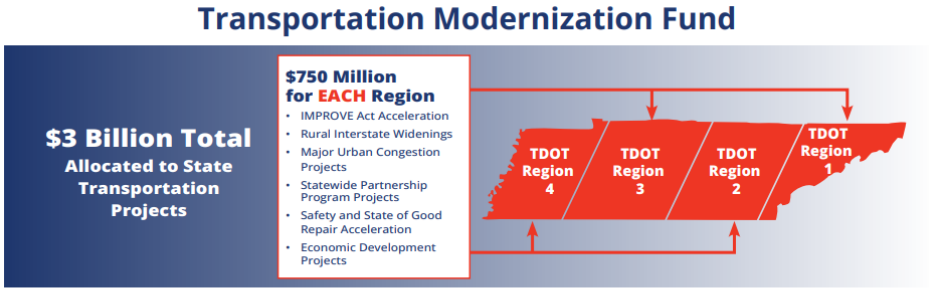
Domestic Scan 21-02 Recommendations

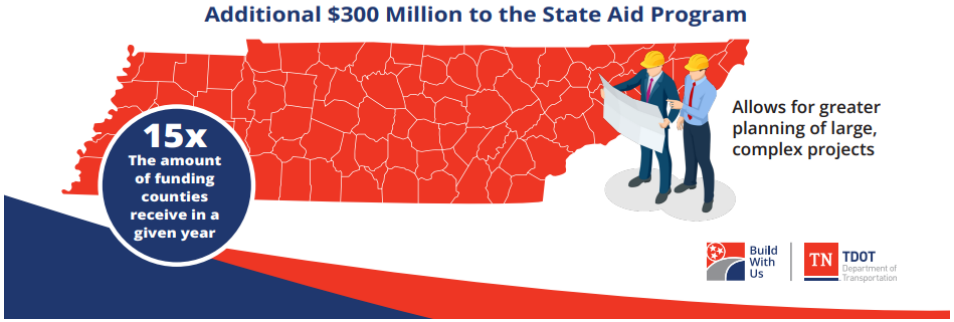
- Develop a new process with a multi-discipled team
- Create a **bridging document**
- Outline information to be documented in a consistent form
- Support viewing standards in a flexible way
- Create tools to support change

Transportation Modernization Act



*TDOT's current alternative delivery program results





Project Delivery Network (PDN)

Project Delivery Network (PDN)

Version 2.1 | May 2023

Integrated Program Delivery (IPD)

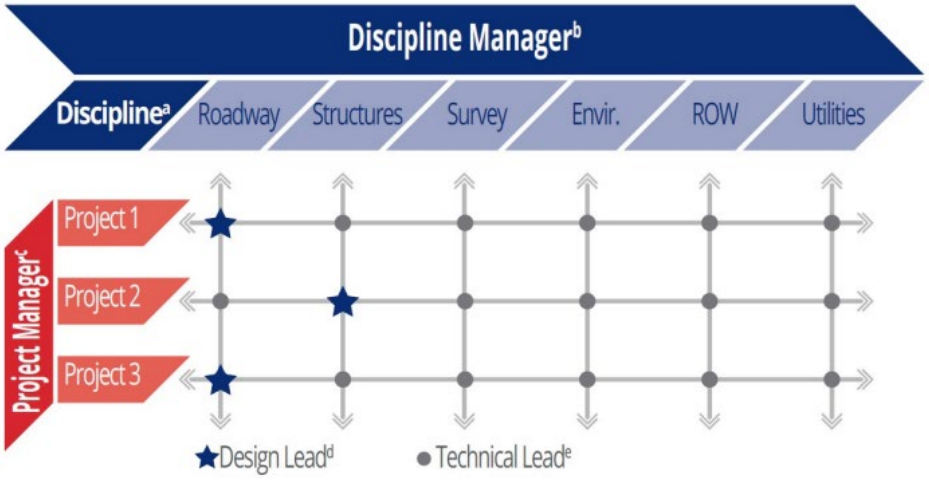
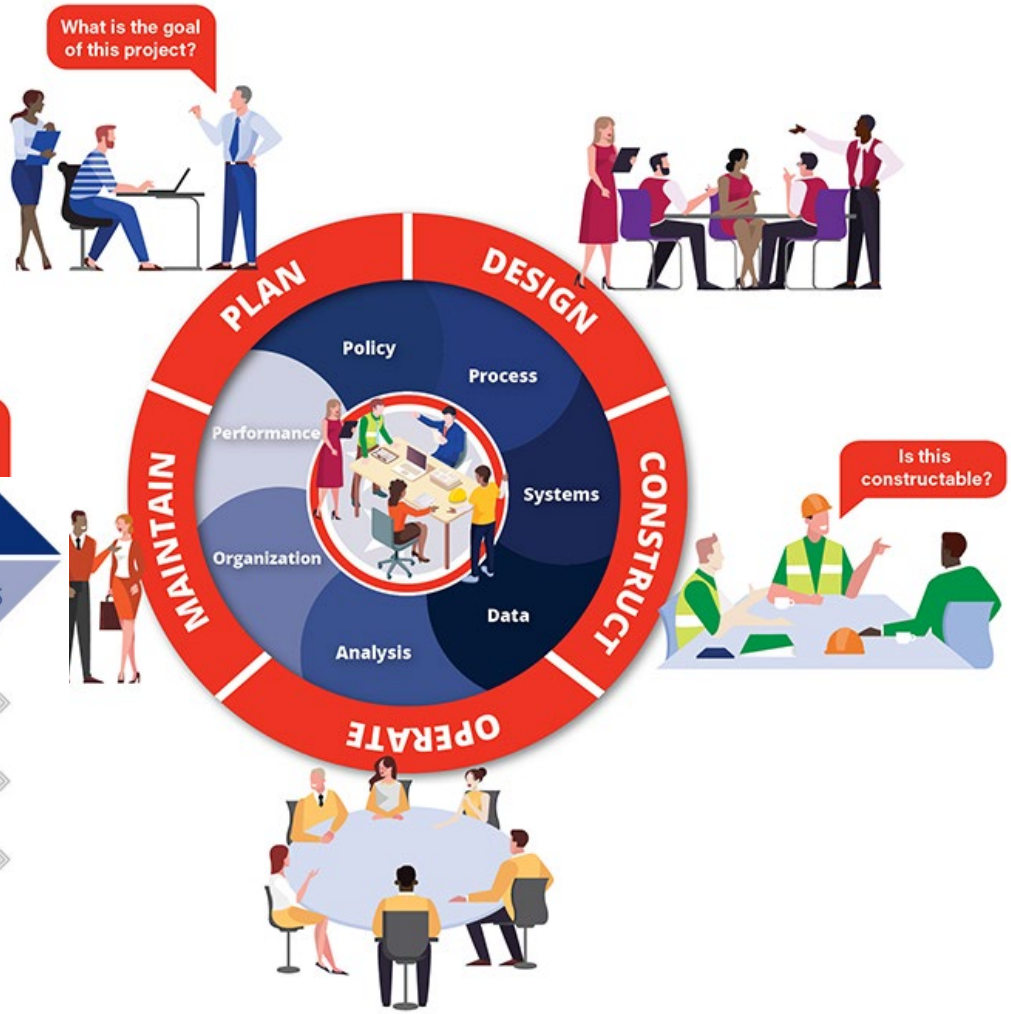
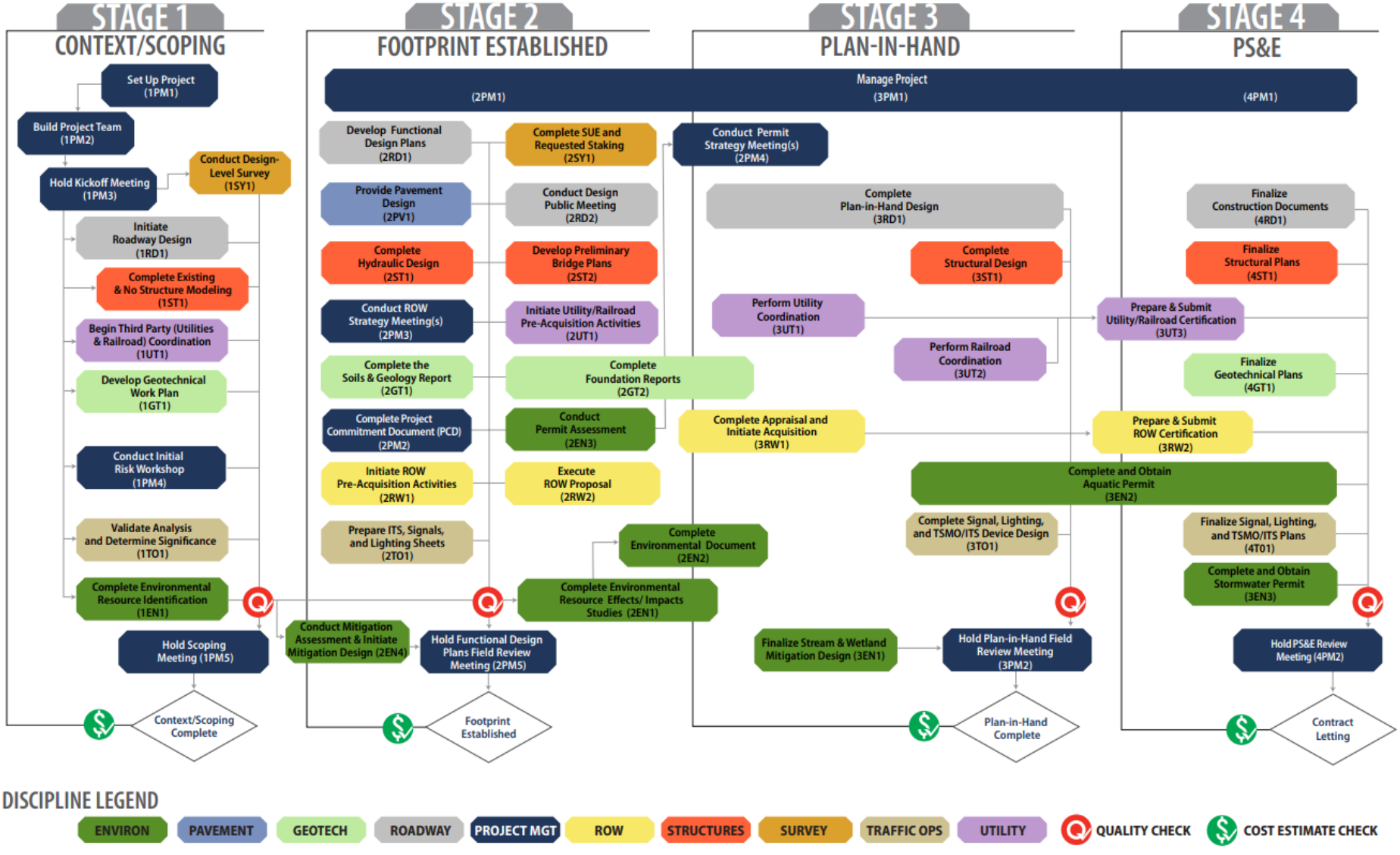


Figure 1: Matrix Organization for Projects



TDOT Project Delivery Network



TDOT Implementation PHASE 1

- Scope of Work for Developing a Bridging Document implementing design flexibility based on 2018 GB
- Establish Technical Working Group
- Review of Existing TDOT Documentation and Identify internal and external stakeholders conduct surveys.
- Identify White Paper Topics that support the development of the Bridging Document
- Bridging Document Annotated Outline

TDOT Implementation PHASE 1 (Completed)

- Developed Annotated Outline for "Project Scoping Guide" and five White Papers.

White Paper Topics:

- Identifying Context Classification
- Design Criteria for Each Context Classification
- Target Speed
- Performance-Based Design and Example Scenario
- Review of Roadway Standard Drawings

TDOT Implementation- PHASE 2-Current

Bridging Document ➡ **Project Scoping Guide**

TDOT Implementation- PHASE 2-Current

- Project Scoping Guide Outline

TDOT Implementation- PHASE 2-Next Year

- Phase 2: Complete
- Phase 3: Develop and Conduct Project Scoping Guide Training

Questions?

ALI R. HANGUL, MSCE, P.E. | Assistant Director
Headquarters Roadway Design and Office of Aerial Surveys
James K. Polk Bldg., 12th Floor
505 Deaderick St., Nashville, TN 37243
Phone No. 615-741-0840
Ali.Hangul@tn.gov
tn.gov/tdot

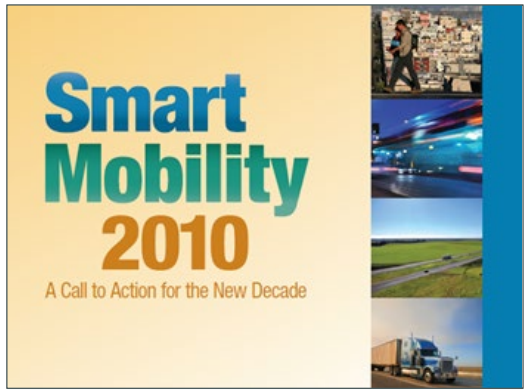
How Place Type Informs

Strategies & Standards

CALTRANS | DIVISION OF DESIGN | OFFICE OF COMPLETE STREETS

Place Type in the Planning Process

Caltrans' Smart Mobility Framework (SMF)



2010

Smart Mobility
2010

2020

Smart Mobility
Framework (SMF)
Guide

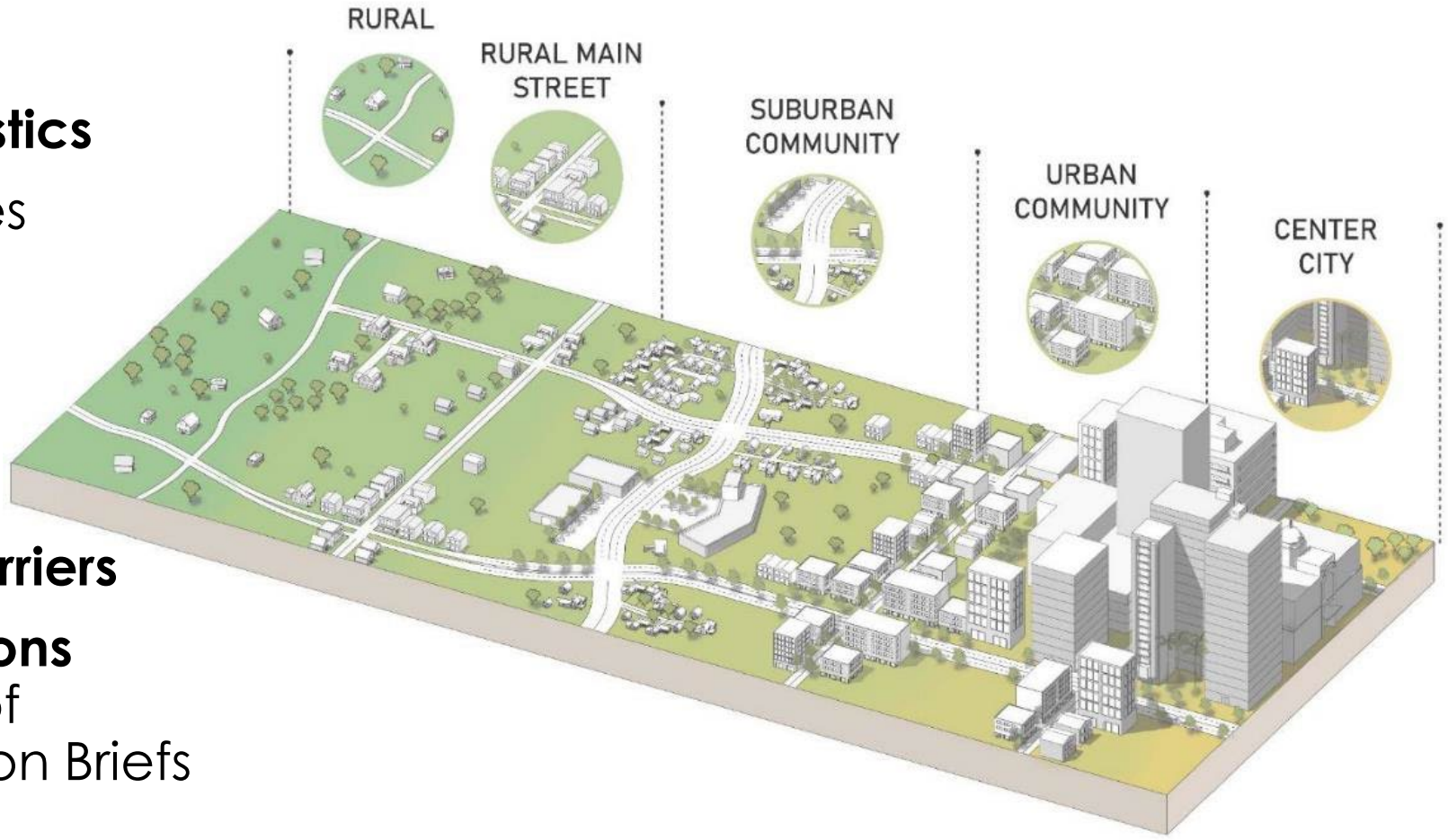
2022

Smart Mobility
Framework (SMF)
Implementation Guide
& Mapping Application

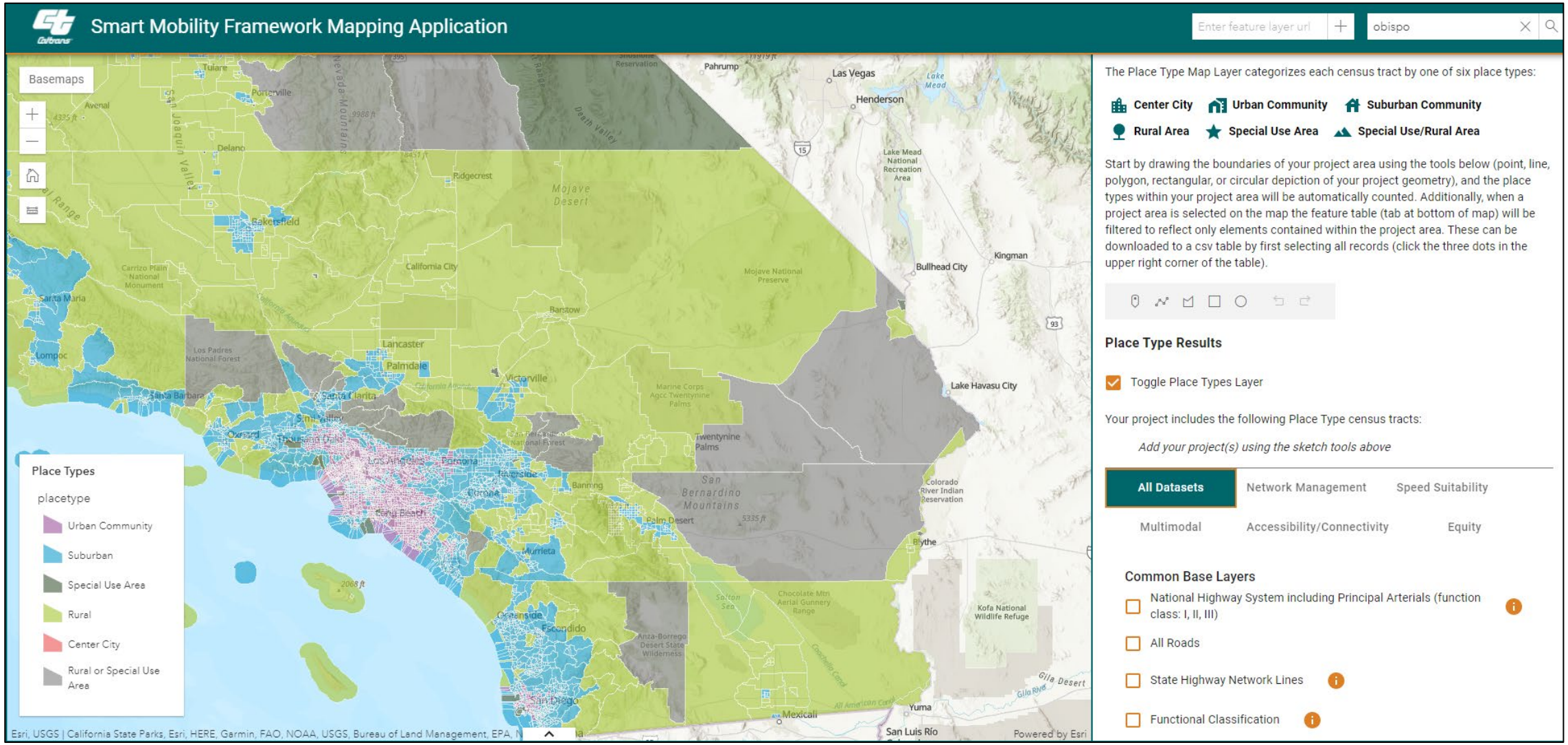
Place Types for Project Planning

Smart Mobility Guides Explain

- Place Type **Characteristics**
- **Evolution** of Place Types
- Mobility **Issues and Opportunities**
- Smart Mobility **Vision** for Place Type
- Typical Operational **Barriers**
- Links to Potential **Solutions** to barriers in the form of Strategy Implementation Briefs



SMF 2022 Mapping Application [link]



Barriers + Strategies: City Centers/Urban Communities

Multimodal	
Barrier to Smart Mobility Vision	**Strategy Implementation Briefs**
Limited ROW for bike and pedestrian facilities.	• Reconfigure Roadway Cross Section • Reduce Lane Width • Widen Roadway Cross Section
Skewed on/off ramps create operational concerns for bicyclists and pedestrians.	• Strategies to Accommodate Bicycle and Pedestrian Crossings at Highway Ramps
Broken or disconnected sidewalks present barriers to pedestrians and people with mobility challenges.	• Add or Reconstruct Sidewalks • Improve Pedestrian Zone • Add Curb Extensions
Obstructions, such as poles or utility boxes can restrict movement on sidewalks, especially for people with mobility challenges.	• Add or Widen Sidewalks • Improve Pedestrian Zone • Relocate Obstruction

Strategy Implementation Briefs

4-page briefs with guidance on each strategy

- Place type applicability
- Facility context
- Caltrans planning process
- Staff tips
- Data and metrics
- Annotated resources
- Examples

IMPROVE THE PEDESTRIAN ZONE

Safe, comfortable, and convenient facilities for pedestrians can encourage walking and improve safety for pedestrians.

PLACE TYPE APPLICABILITY

Considerations for Specific Place Types: In Center Cities and Urban Communities or other Place Types with retail and commercial or mixed-use buildings benefit from wider sidewalks and amenities to accommodate high volumes of pedestrians, pedestrian zones should include shade trees and street furniture such as lighting, benches, trash cans, and bus shelters. Remove obstructions to provide a clear path of travel (48" minimum, 60" – preferred), with curb bulb-outs to shorten crossing distances. Bioswales and site-appropriate paved materials (e.g., permeable pavements and warm mix asphalt) provide safety and aesthetic benefits in pedestrian zones and stormwater treatment. Pedestrian-scale lighting, signage, and high visibility crosswalks can improve pedestrian comfort and safety.

Alternatives: If right of way is limited, prioritize ADA compliance.

FACILITY CONTEXT

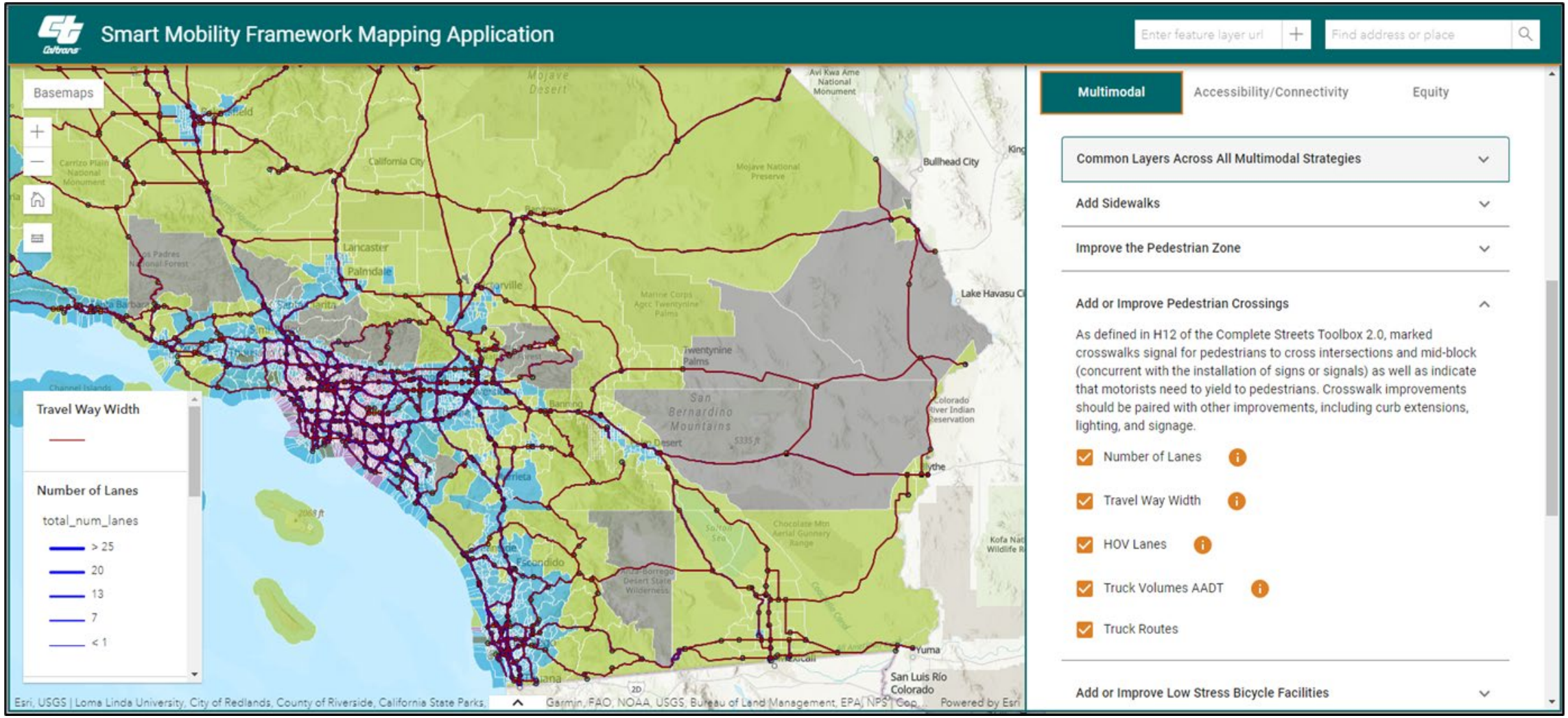
Pedestrian zone improvements should be prioritized in these locations: School zones; Transit stops; Park and ride facilities; Roadways with a mix of land uses or are evolving into mixed-use neighborhoods; Roadways with destinations that attract pedestrians and bicyclists (e.g., parks, retail, employments centers, etc.); Roadways that connect two or more locations with destinations attractive to pedestrians within a one-mile walkshed. Roads without separate facilities for bicycles and other PMDs should consider adding facilities for these modes to avoid conflicts.

EXAMPLES

Photo simulations for presentation purposes only - actual field conditions may vary.

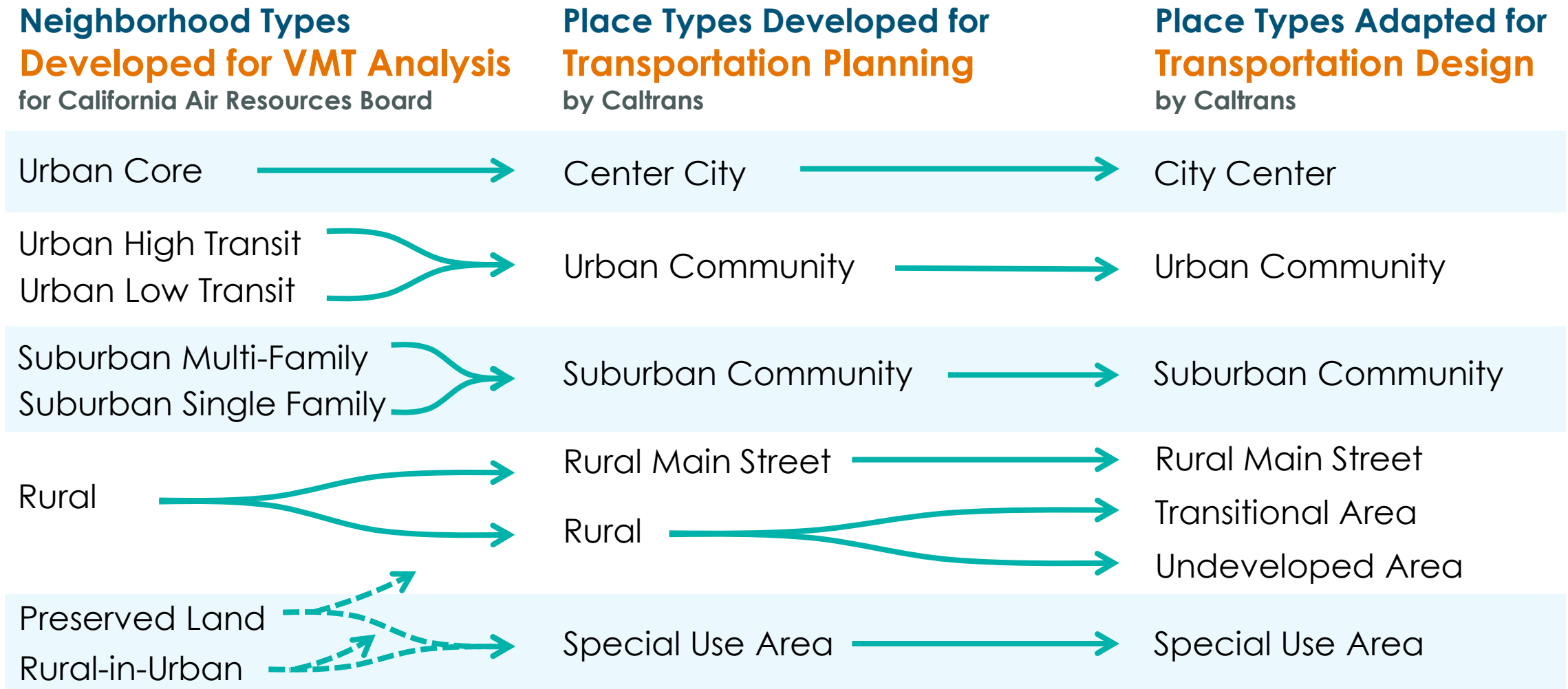
SR 99 / Live Oak Boulevard Improvements. Upgrade bicycle and pedestrian facilities, including completing gaps, enhancing wayfinding, and landscaping.

SMF 2022 Mapping Application [link]



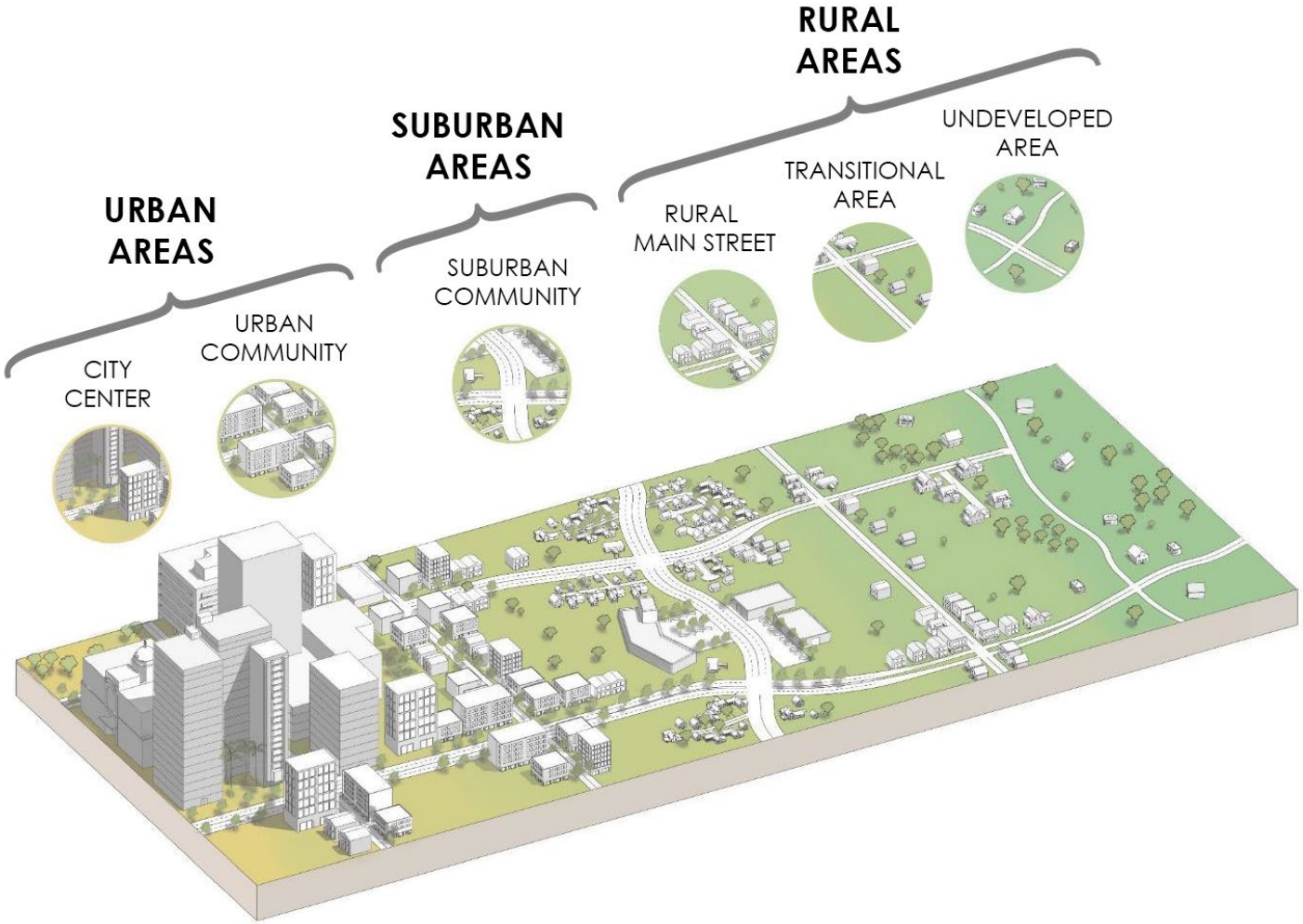
Translating Place Type to Design

Evolution of Place Type Classifications



Place Types in the Highway Design Manual Update

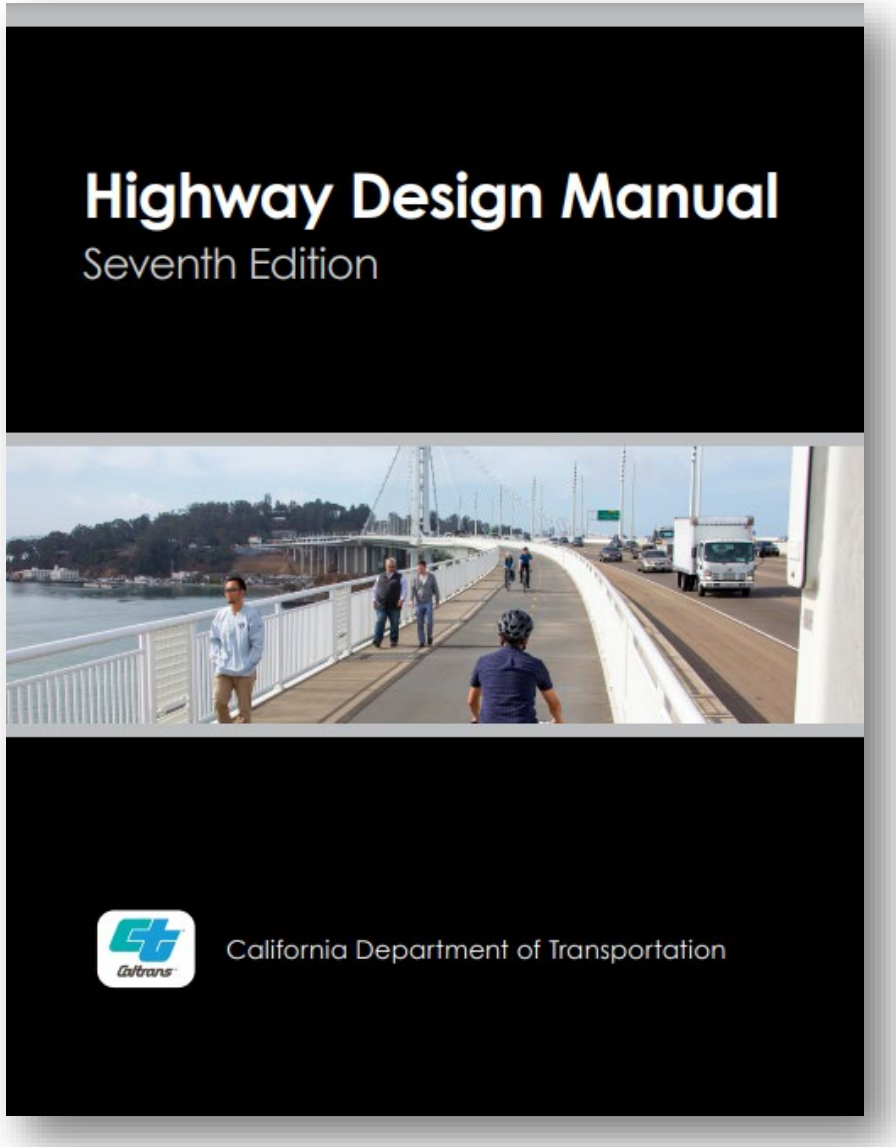
- **Urban Areas** frequently combined
- **Suburban Areas** maintained
- **Rural Areas** broken out to include Transitional Areas
- **Special Use Areas** maintained (not pictured)



Context in the HDM

2012 update

- Discussion of **Highway Context** to support context-sensitive design
- Complete Streets Updates to topics throughout the manual including
  - 11-foot lanes
  - Bulbouts
  - Pedestrian Refuge
  - Bike at Intersections and interchanges
  - Place Types



Defining Highway Context

Per California's Highway Design Manual Topic 81

Context includes:

Place Type

Urban, Suburban, Rural, Rural Main Street…

Facility Type

Functional Classification, Interstate, State Route

Access Control

Controlled Access, Conventional

Context can also include:

- Posted speed
- Operating (observed) speed
- ADT
- Truck ADT
- Oversize vehicles
- Number of lanes
- Climate
- Terrain
- Community values
- Multimodal network access

Example Design Standards Based on Context

Lane Width

- **Place Type**, Access Control, Posted Speed, Truck ADT

Shoulder Width

- Access Control, Presence of Parking/Bike Lane, Drainage

Sidewalk Width

- Facility Type, Multimodal Network Access, Adjacent Construction

Design Speed

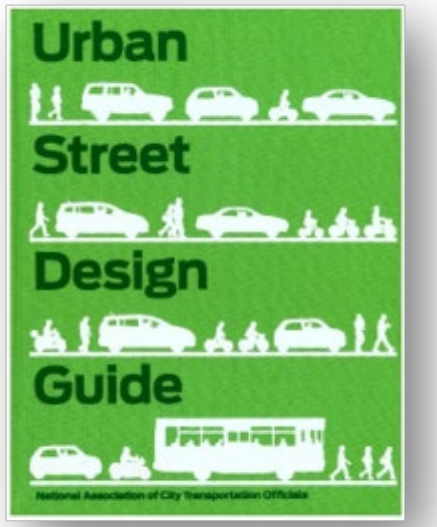
- **Place Type**, Type of Highway, Access Control, Operating Speed, ADT, Terrain, Collision History, Multimodal Users

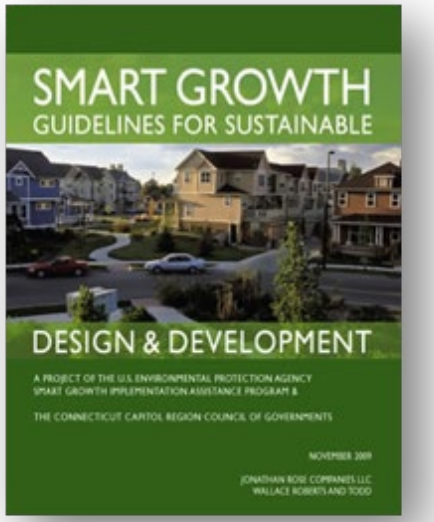
Horizontal Curve/Superelevation

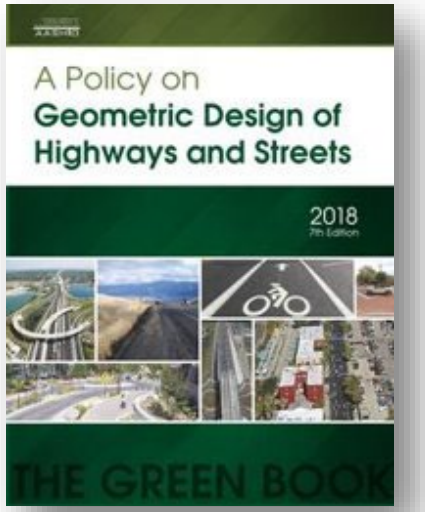
- **Place Type**, Facility Type, Climate, Design Speed

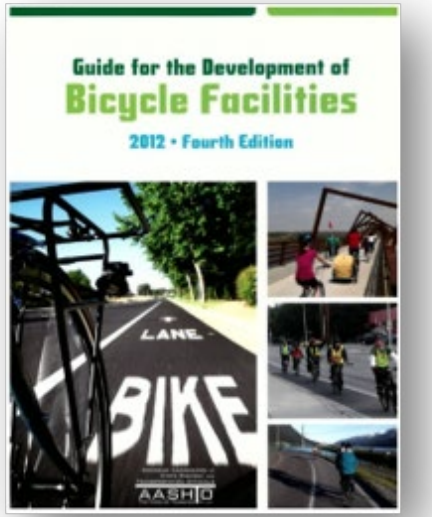
Pedestrian Refuge Islands

- **Place Type**, Posted Speed, Number of Lanes







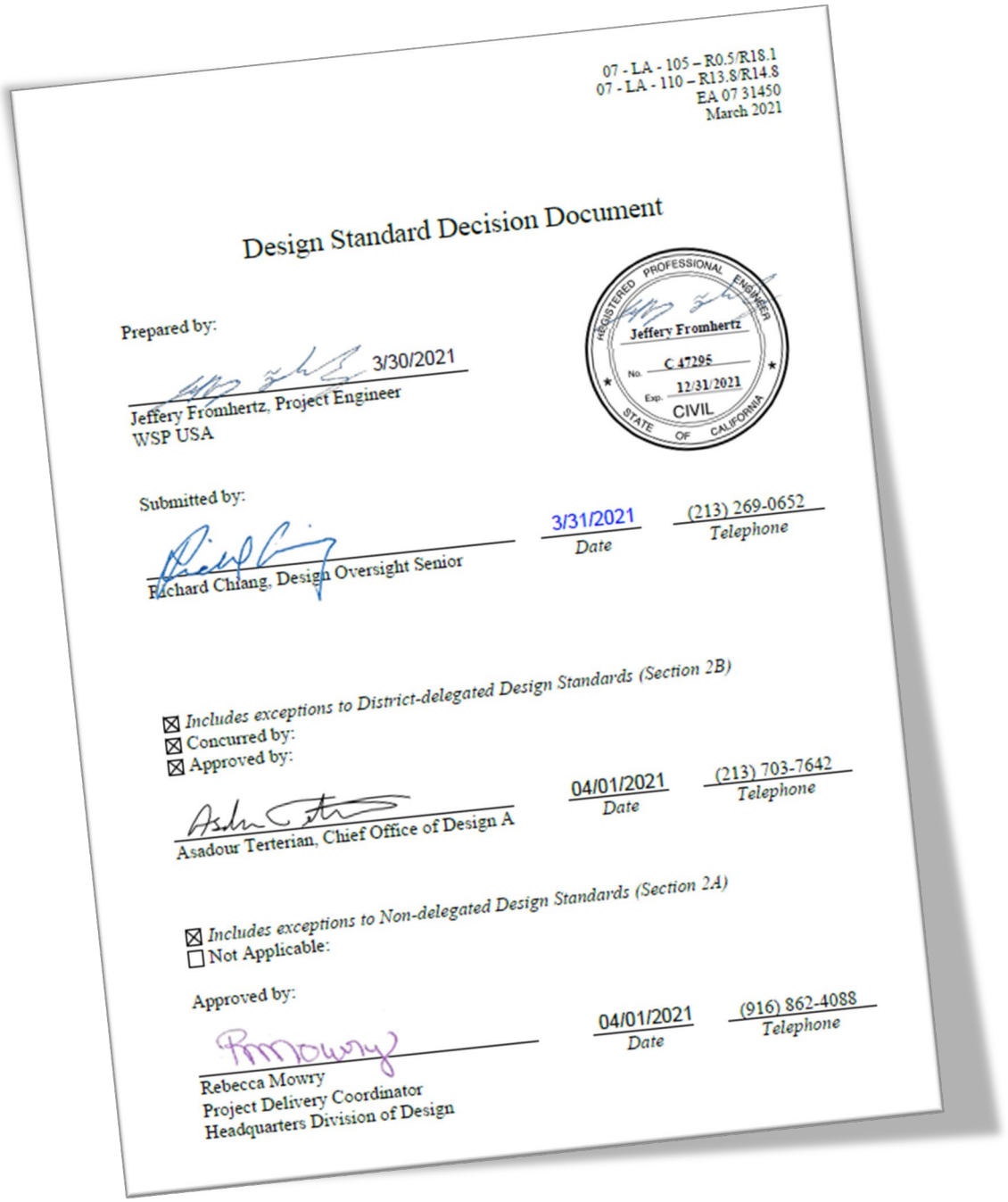


Design Flexibility

- encourages **design flexibility** for multimodal design
- supports early **collaboration** with local partners
- endorses use of **supplemental guidance**, such as those above

Design Standard Decision Document

- Documents design decisions that deviate from the standards in the Highway Design Manual
- Requires clear, compelling, objective justification with support or calculations
- Also required for projects by locals in State right-of-way



07 - LA - 105 – R0.5/R18.1
07 - LA - 110 – R13.8/R14.8
EA 07 31450
March 2021

Design Standard Decision Document

Prepared by:

3/30/2021

Jeffery Fromhertz, Project Engineer
WSP USA

REGISTERED PROFESSIONAL ENGINEER
Jeffery Fromhertz
No. C 47295
Exp. 12/31/2021
CIVIL
STATE OF CALIFORNIA

Submitted by:

3/31/2021 Date

(213) 269-0652 Telephone

Richard Chiang, Design Oversight Senior

☒ Includes exceptions to District-delegated Design Standards (Section 2B)
☒ Concurred by:
☒ Approved by:

04/01/2021 Date

(213) 703-7642 Telephone

Asadour Terterian, Chief Office of Design A

☒ Includes exceptions to Non-delegated Design Standards (Section 2A)
☐ Not Applicable:

Approved by:

04/01/2021 Date

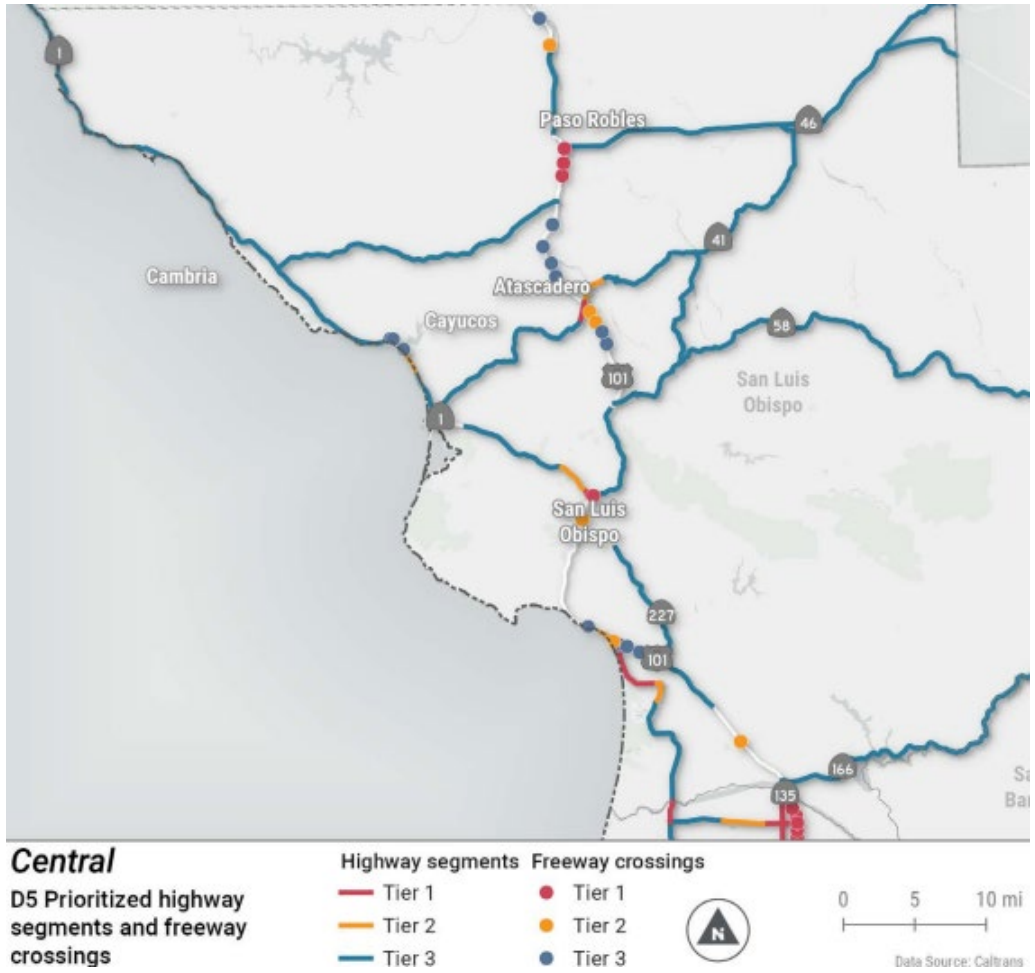
(916) 862-4088 Telephone

Rebecca Mowry
Project Delivery Coordinator
Headquarters Division of Design

Director's Policy 37: Complete Streets

"…in locations with current and/or future pedestrian, bicycle, or transit needs, **all transportation projects funded or overseen by Caltrans will provide comfortable, convenient, and connected complete streets facilities for people walking, biking, and taking transit or passenger rail unless an exception is documented and approved."**

Complete Streets Decision Document

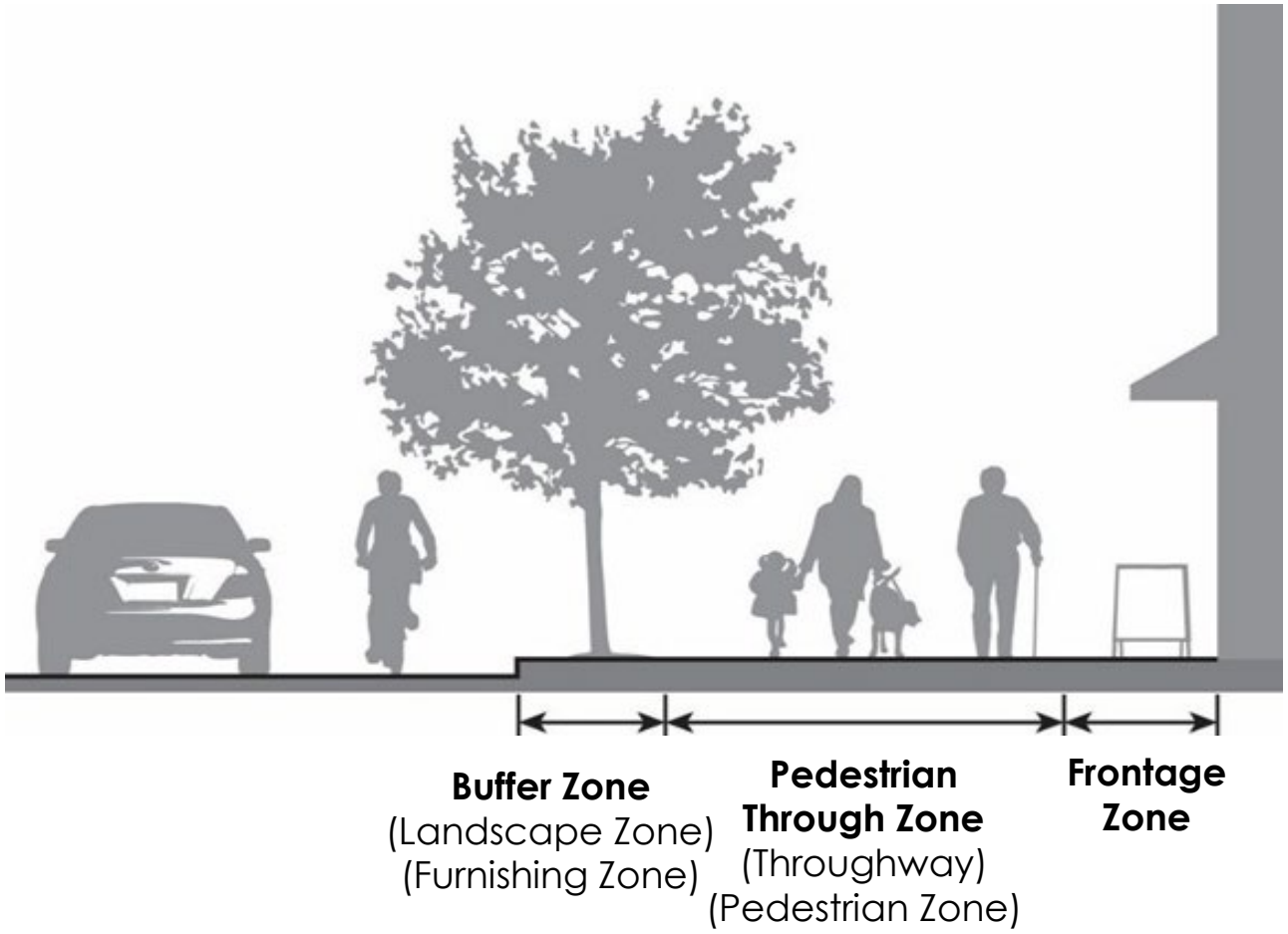


- Identify Complete Streets **needs** in the project corridor
- Document Complete Streets **scope** included in project
- Provide **justification** for any remaining unmet need
- Obtain Planning, Design, and **Director Approval**
- Scope **revisions** also require Director approval

Design Information Bulletin 94
Contextual Design Guidance for Complete Streets

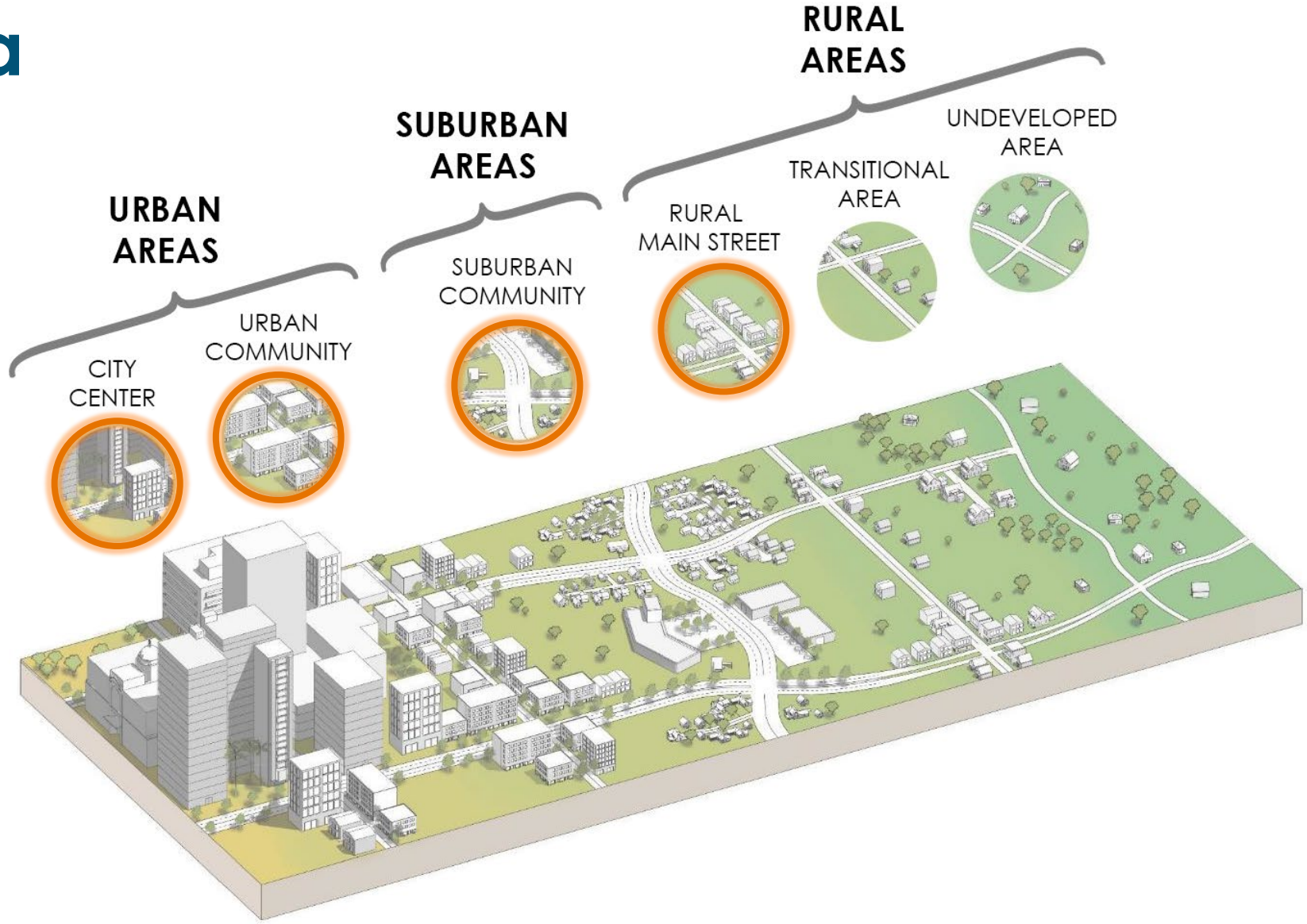
Goals:

- **Comfortable** facilities
- **Prioritize space-efficient modes**
- Recommendations **beyond minimum** facilities
- **Streamline design** development with standards separate from the HDM



DIB-94 Complete Streets Context Criteria

- ☑ **Urban Areas, Suburban Areas, and/or Rural Main Streets**
- ☑ **45 mph or less, posted speed**
- ☑ **Complete Streets facilities are being provided**



Contextual Criteria for Complete Streets Standards & Guidance

Speed

✓ **Guidance**

Proposed Operating Speed based on

Place Type

Sidewalks

✓ **Standards**

✓ **Guidance**

Sidewalk Zone Widths based on

Place Type

Amenities
(street furniture, street trees, bus shelters, etc.)

Bike Facilities

✓ **Standards**

✓ **Guidance**

Type based on

Place Type

Posted Speed

Traffic Volume

Width based on

Adjacent Features

Lane Width

✓ **Standards**

✓ **Guidance**

Width based on

Place Type

Proposed Operating Speed

Lane Type

Shoulder Width

✓ **Standards**

✓ **Guidance**

Width based on

Place Type

Adjacent Features

Drainage

Interchange

Evacuation

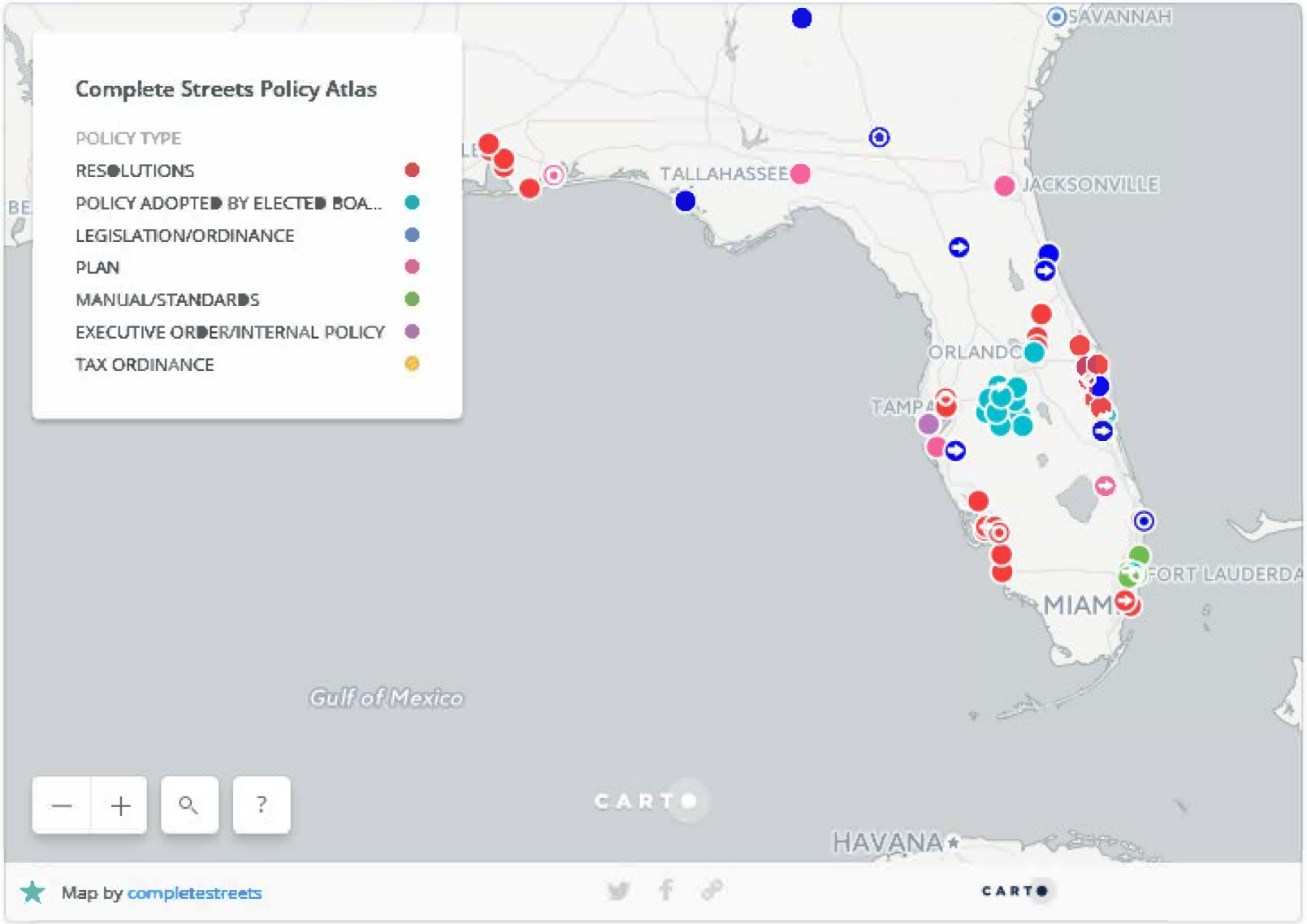
Lessons Learned

Using Place Type for Strategies and Standards
Lessons Learned

- **Context is more than Place Type**
- **Place Type is good for identifying typical barriers and solutions at the planning level and needed highway improvements**
- **You might not need to identify Place Types yourself**
  - Different Place Type categories serve different purposes
- **Design Standards need more context than Place Type**
  - (Speed is really important!)

FDOT Context Classification

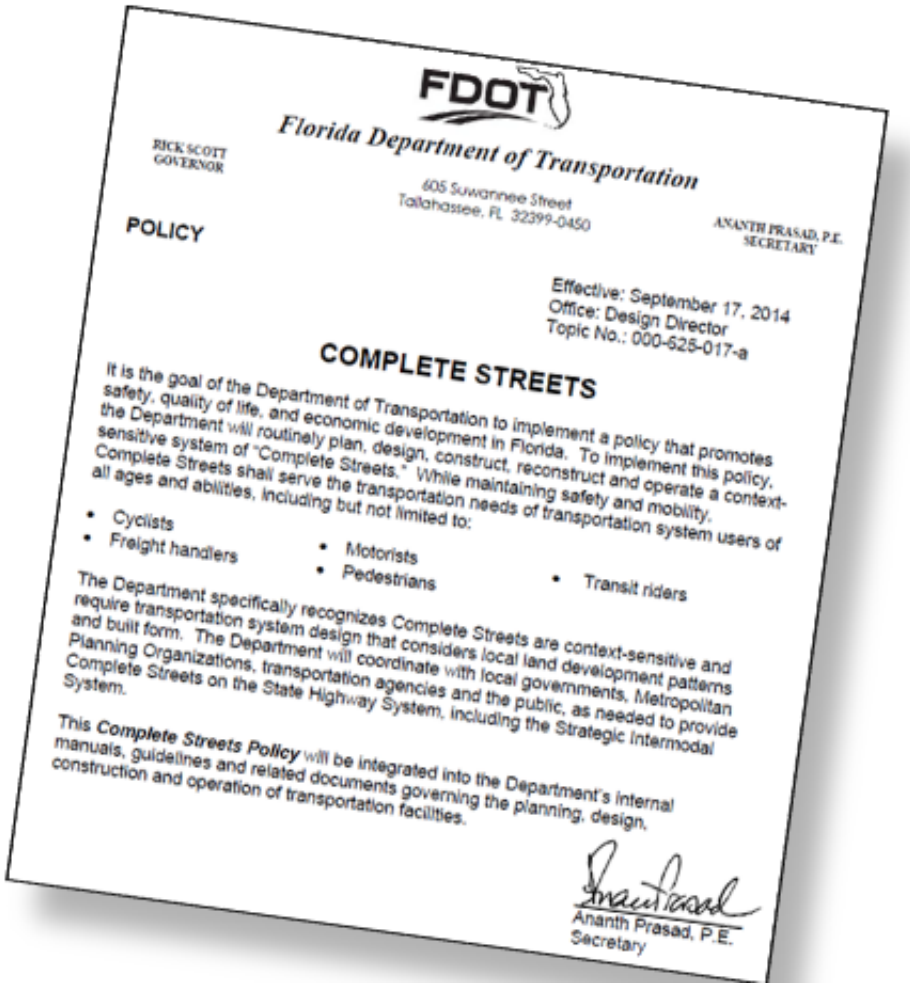
DeWayne Carver, AICP


Complete Streets Policy Atlas
POLICY TYPE
RESOLUTIONS
POLICY ADOPTED BY ELECTED BOA...
LEGISLATION/ORDINANCE
PLAN
MANUAL/STANDARDS
EXECUTIVE ORDER/INTERNAL POLICY
TAX ORDINANCE
SAVANNAH
TALLAHASSEE
JACKSONVILLE
ORLANDO
TAMPA
FORT LAUDERDA
MIAMI
Gulf of Mexico
HAVANA
CARTO
Map by completestreets
CARTO

FDOT Complete Streets Policy

- 100+ yrs. – select typical section elements based on needed capacity and urban/rural designation.
- 2018 – Provide a typical that serves all users and is in harmony with the context of adjacent properties.
- Safety, Quality of Life, Economic Development

Policy adopted in Sept 2014



FDOT

Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.
SECRETARY

POLICY

Effective: September 17, 2014
Office: Design Director
Topic No.: 000-625-017-a

COMPLETE STREETS

It is the goal of the Department of Transportation to implement a policy that promotes safety, quality of life, and economic development in Florida. To implement this policy, the Department will routinely plan, design, construct, reconstruct and operate a context-sensitive system of "Complete Streets." While maintaining safety and mobility, Complete Streets shall serve the transportation needs of transportation system users of all ages and abilities, including but not limited to:

- Cyclists
- Freight handlers
- Motorists
- Pedestrians
- Transit riders

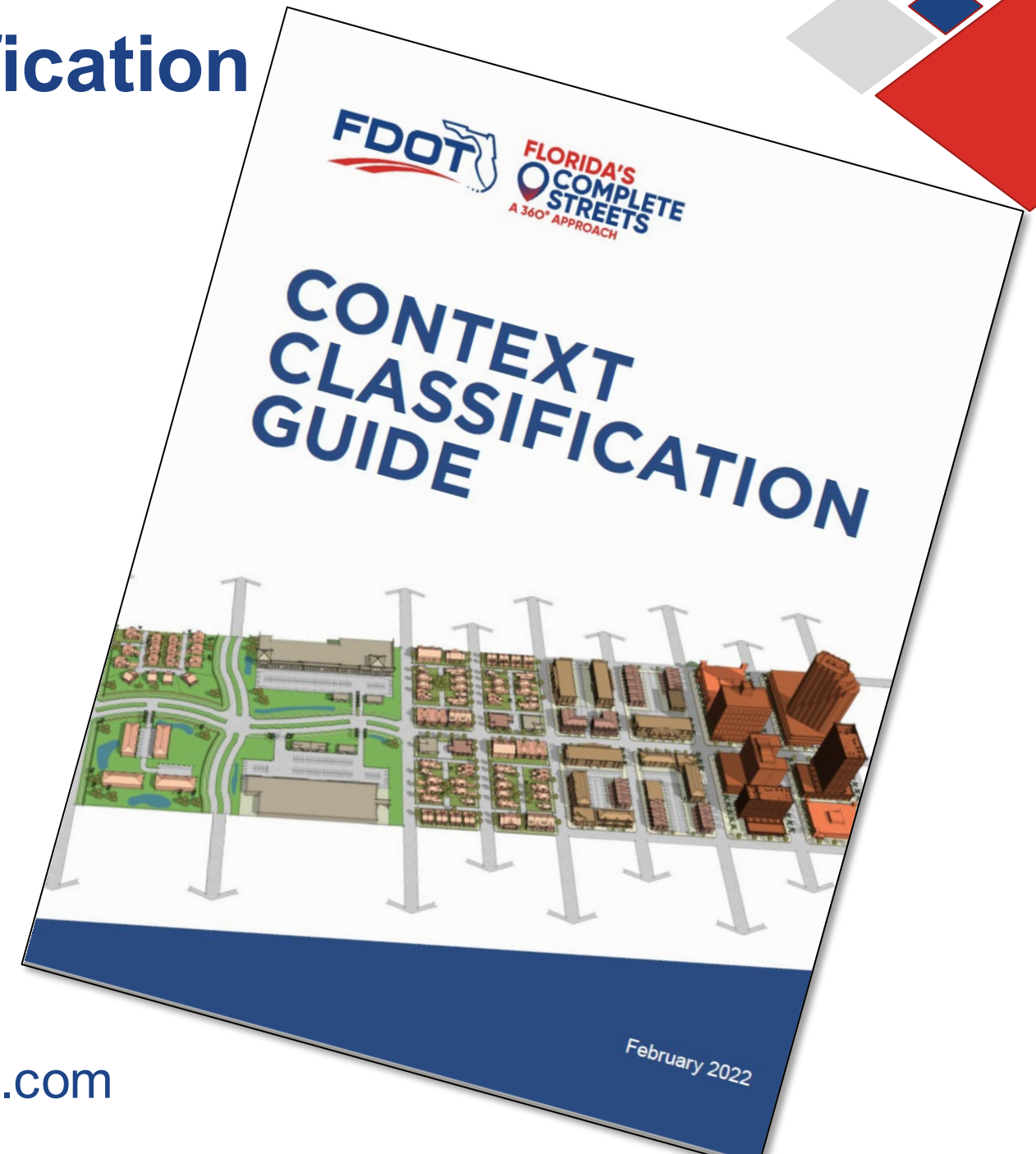
The Department specifically recognizes Complete Streets are context-sensitive and require transportation system design that considers local land development patterns and built form. The Department will coordinate with local governments, Metropolitan Planning Organizations, transportation agencies and the public, as needed to provide Complete Streets on the State Highway System, including the Strategic Intermodal System.

This ***Complete Streets Policy*** will be integrated into the Department's internal manuals, guidelines and related documents governing the planning, design, construction and operation of transportation facilities.

Ananth Prasad, P.E.
Secretary

FDOT Context Classification

- Defines Approach, Process, Expectations, Best Practices
- Complete description of context classifications
- Preliminary done by GIS
- Project Level now done by hand



www.FLcompletestreets.com

www.FLcompletestreets.com

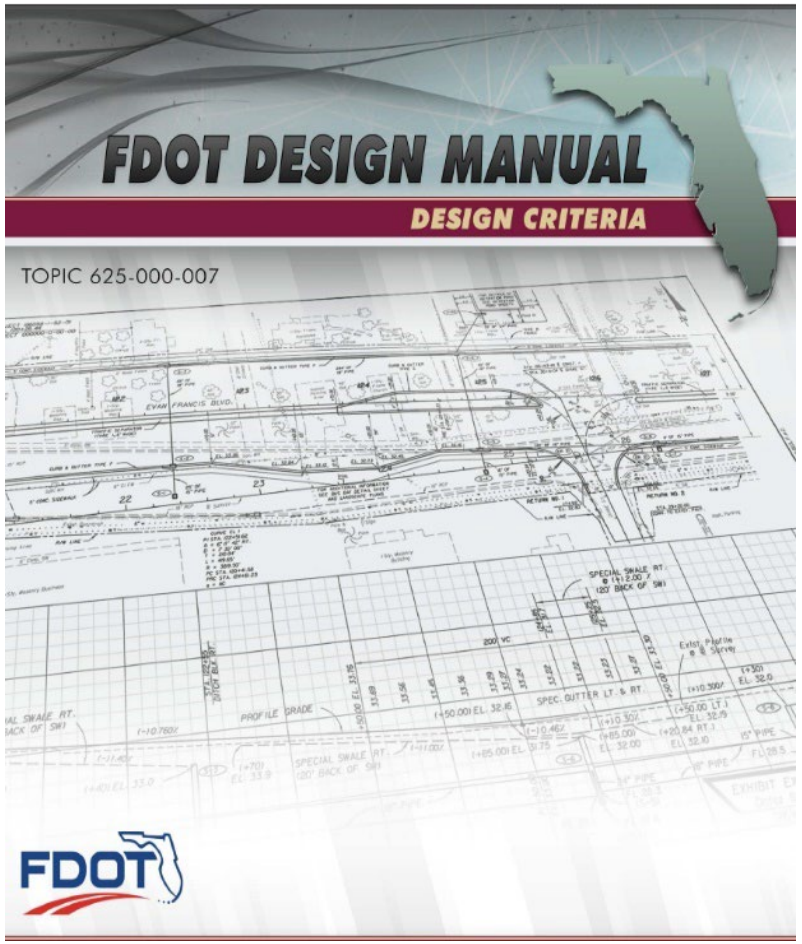
FDOT FLORIDA'S COMPLETE STREETS A 360° APPROACH

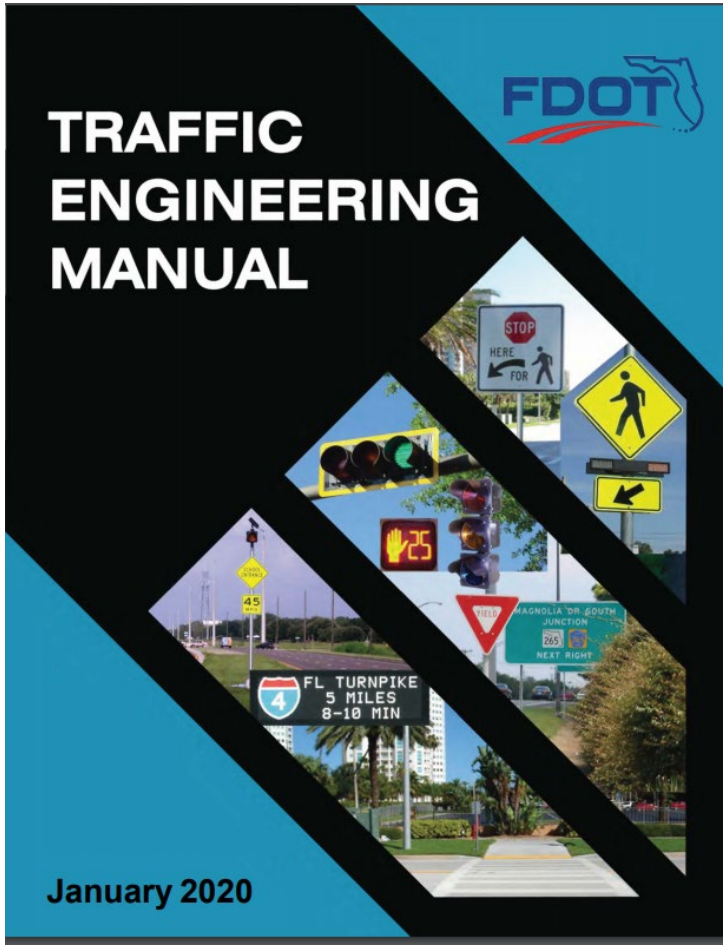
Home | History | The Why | A 360° Approach | Explorer Tool | Resources | Coordinators

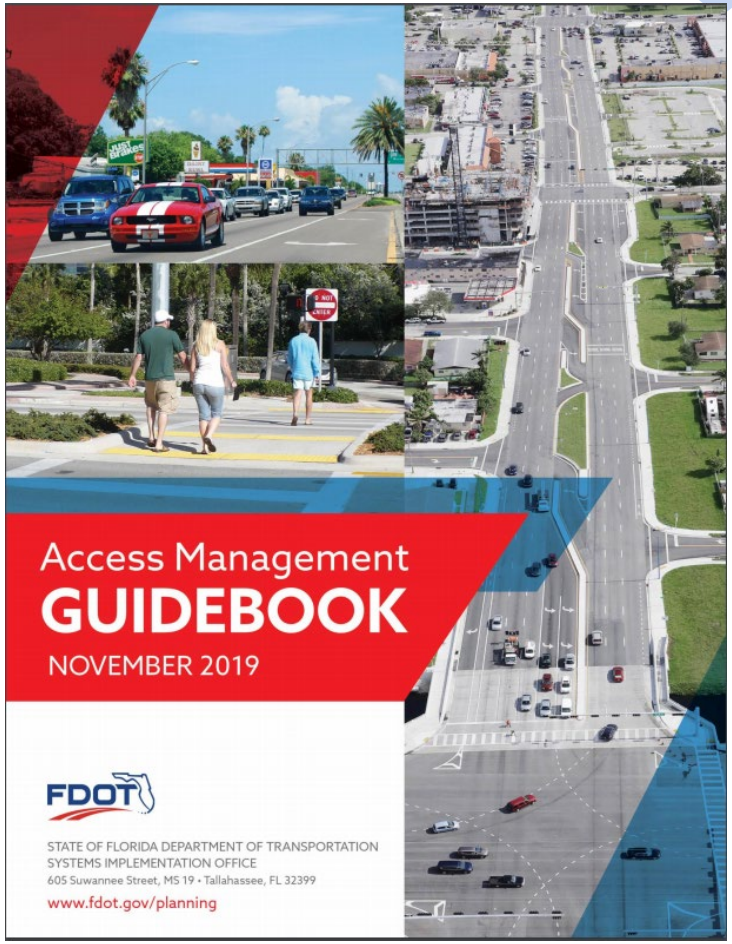
FDOT Design Manual (FDM)

- Implemented January 1, 2018.
- Replaced Plans Preparation Manual
- 2022 edition now operational

HOW WE SHOULD DESIGN AND OPERATE OUR ROADWAY







What are the FDOT Context Classifications?

C1-NATURAL

Lands preserved in a **natural or wilderness condition**, including lands unsuitable for settlement due to natural conditions. **Not intended for future development.**

C2-RURAL

Sparsely settled lands; may include **agricultural** land, grassland, woodland, and wetlands. Lands that **could be developed in the future.**

C2T-RURAL TOWN

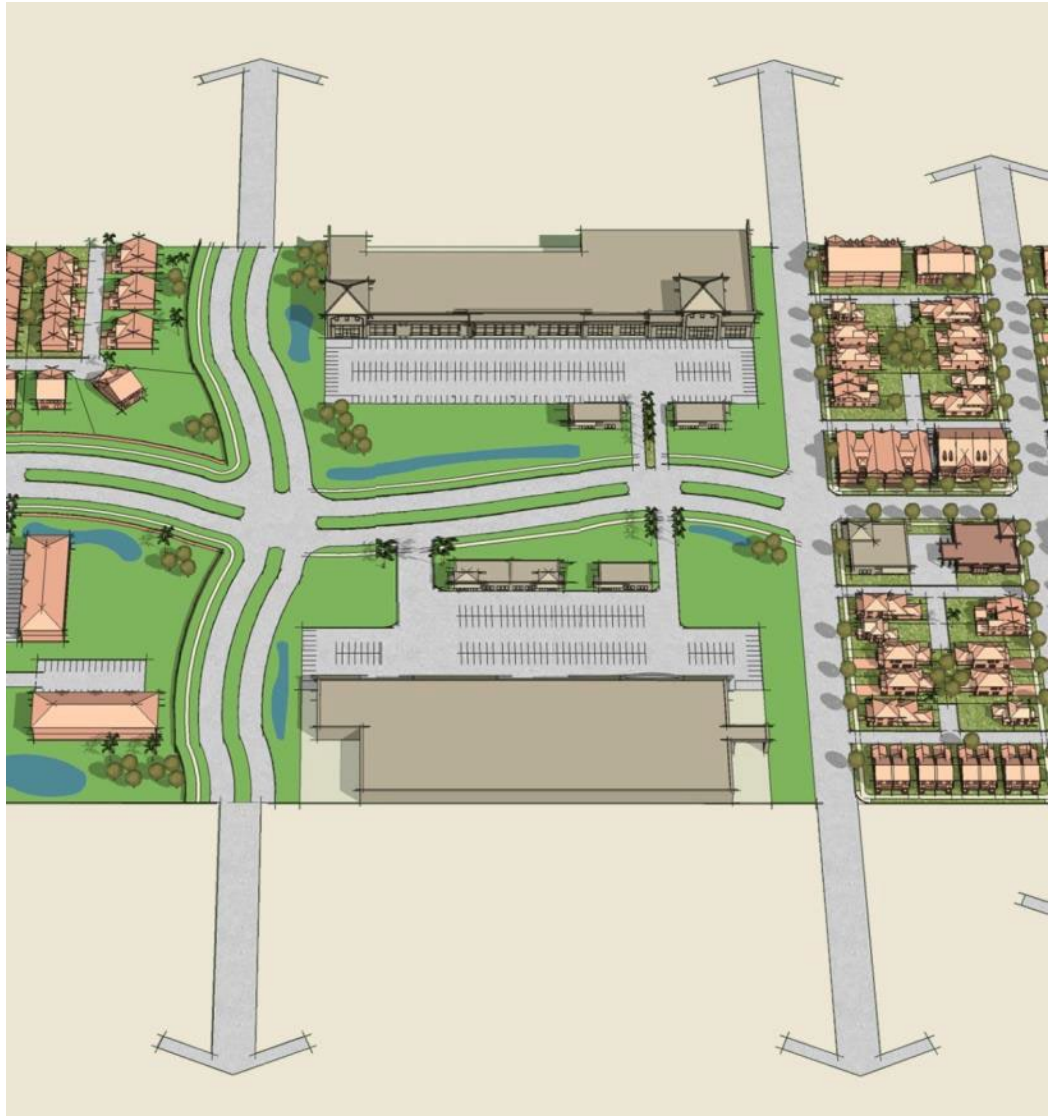
Small concentrations of **town area** immediately **surrounded by rural and natural areas**; includes many historic towns.

C3R-SUBURBAN RESIDENTIAL

Mostly **residential** uses within large blocks and a disconnected or **sparse roadway network**.

C3C-SUBURBAN COMMERCIAL

Mostly **non-residential** uses with **large building footprints** and **large parking lots** within large blocks and a disconnected or **sparse roadway network**.

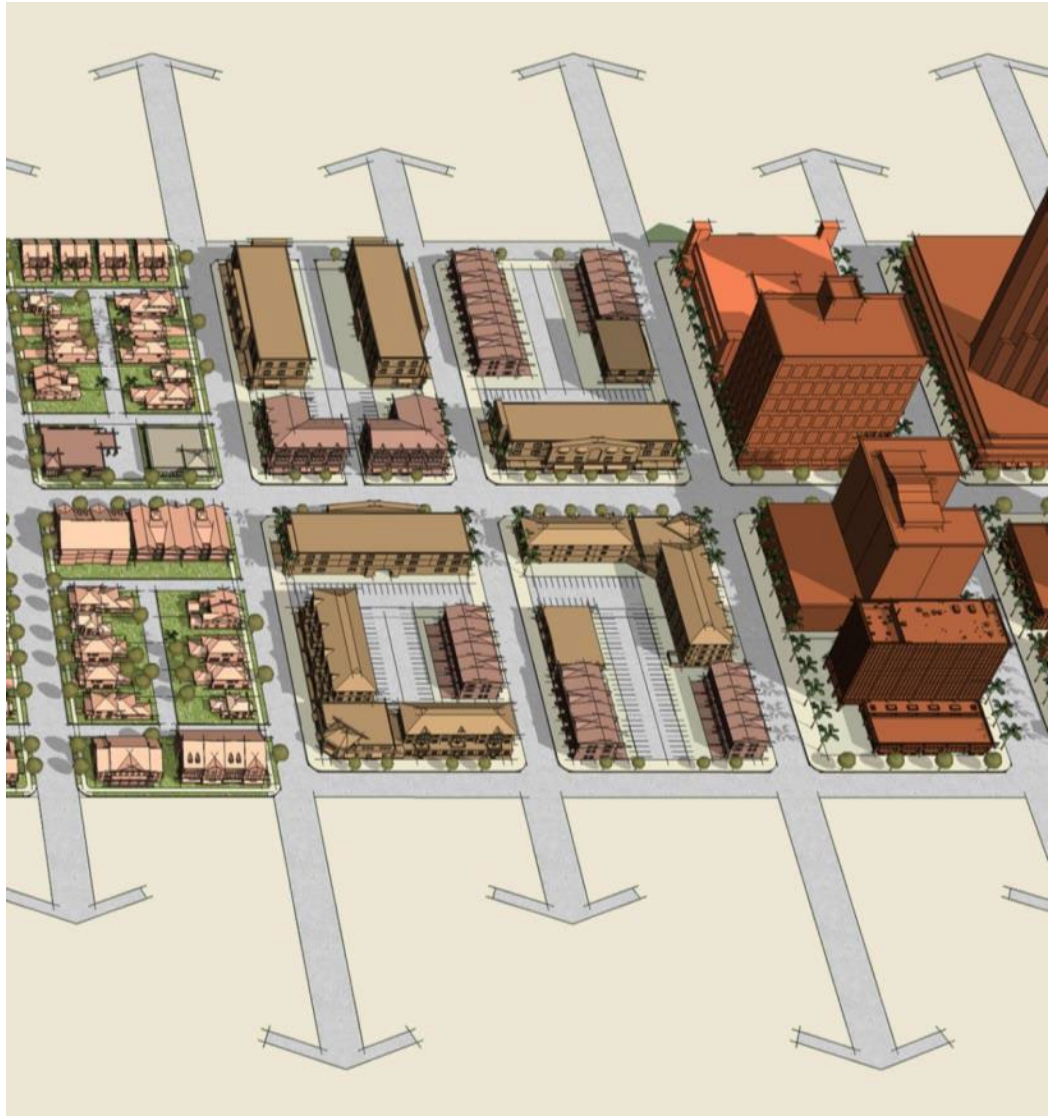


C4-URBAN GENERAL

Mix of uses set within small blocks with a **well-connected roadway network**. The roadway network usually **connects to residential neighborhoods** immediately along the corridor or on the back side of blocks fronting the roadway.

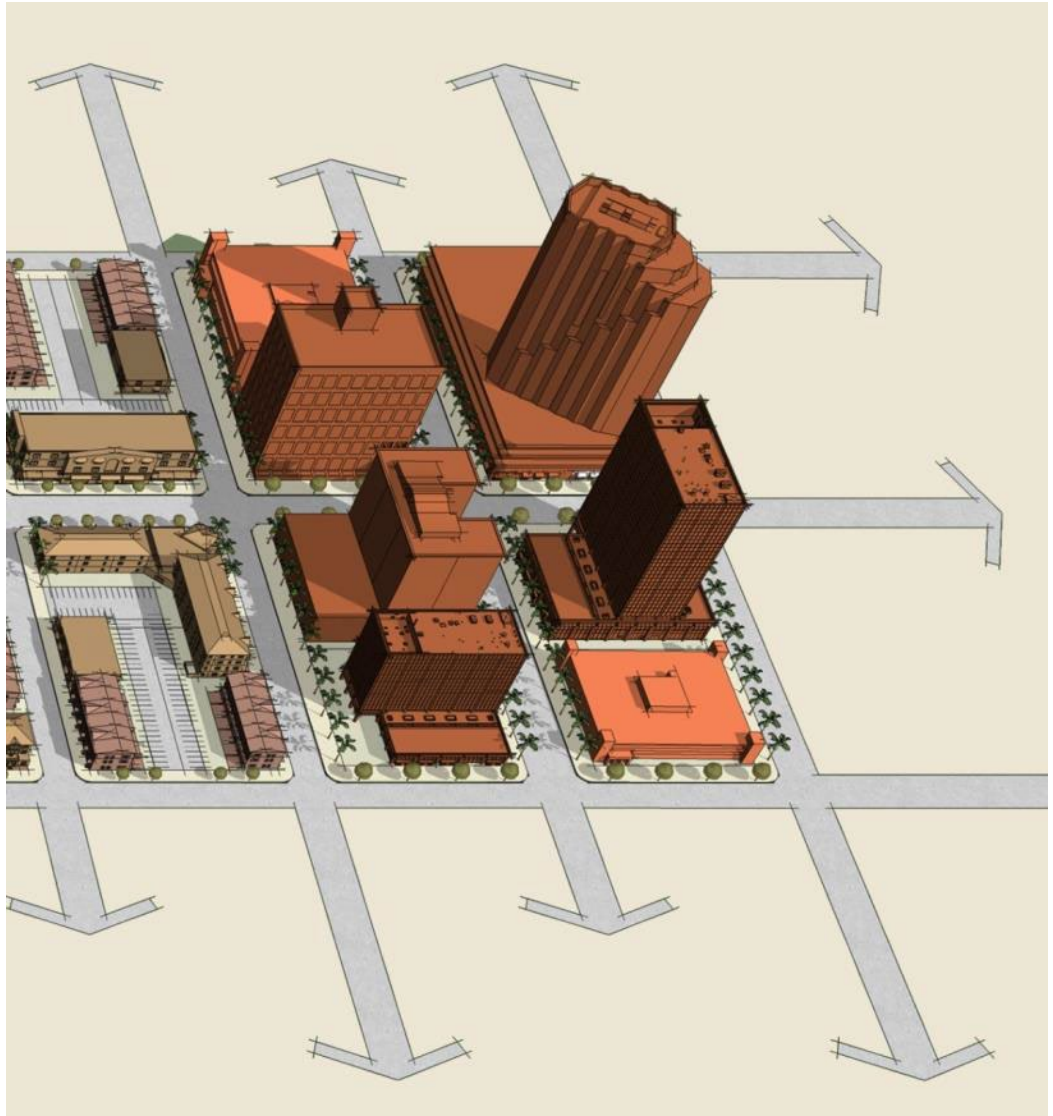
C5-URBAN CENTER

Mix of uses set within small blocks with a **well-connected roadway network**. Typically **concentrated around a few blocks** and identified as part of a **civic or economic center** of a community, town, or city.



C6-URBAN CORE

Areas with the **highest densities and building heights**, and within FDOT classified **Large Urbanized Areas** (population >1,000,000). Many are regional centers and destinations. Buildings have **mixed uses**, are **built up to the roadway**, and are within a **well-connected roadway network**.



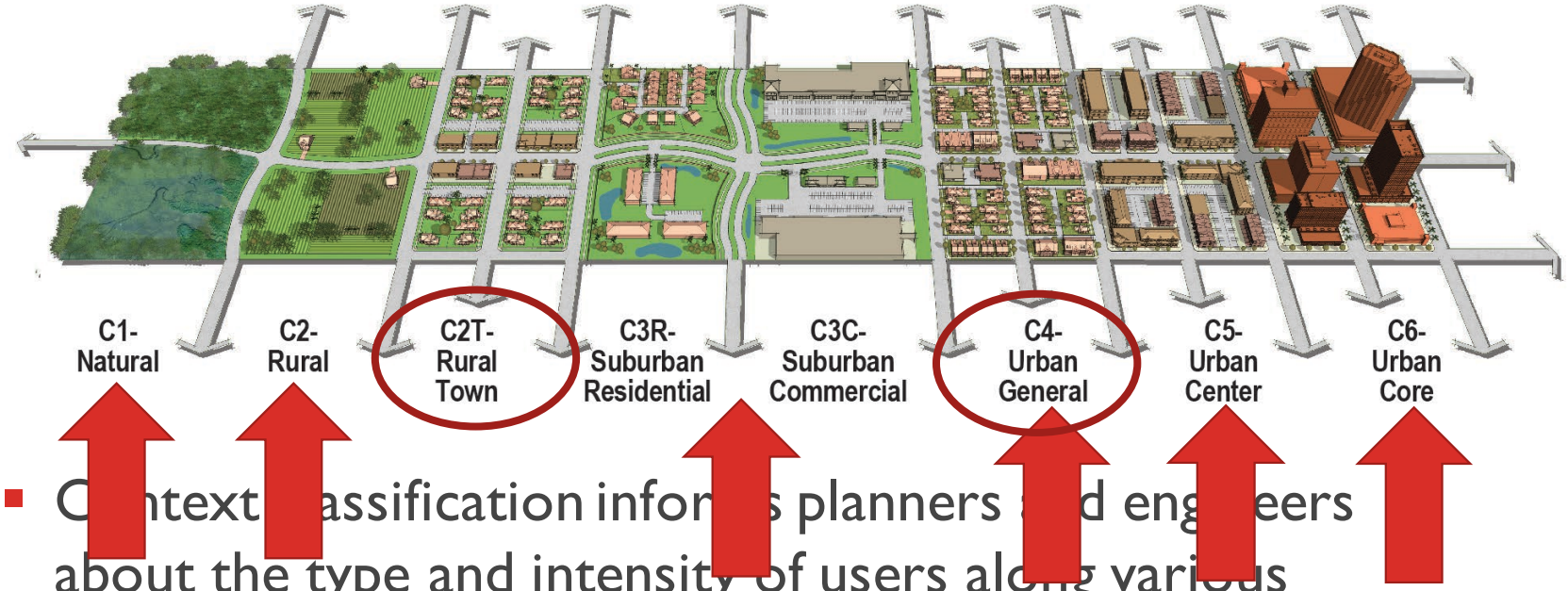
SPECIAL DISTRICTS

- Areas that do not adhere to context classification measures
- Have a mix of users that can create unique travel patterns
- Examples:
  - University campuses
  - Airports
  - Rail yards
  - Ship yards
  - Freight distribution enters
  - Refineries
  - Sports complexes

University of Florida, Gainesville, FL

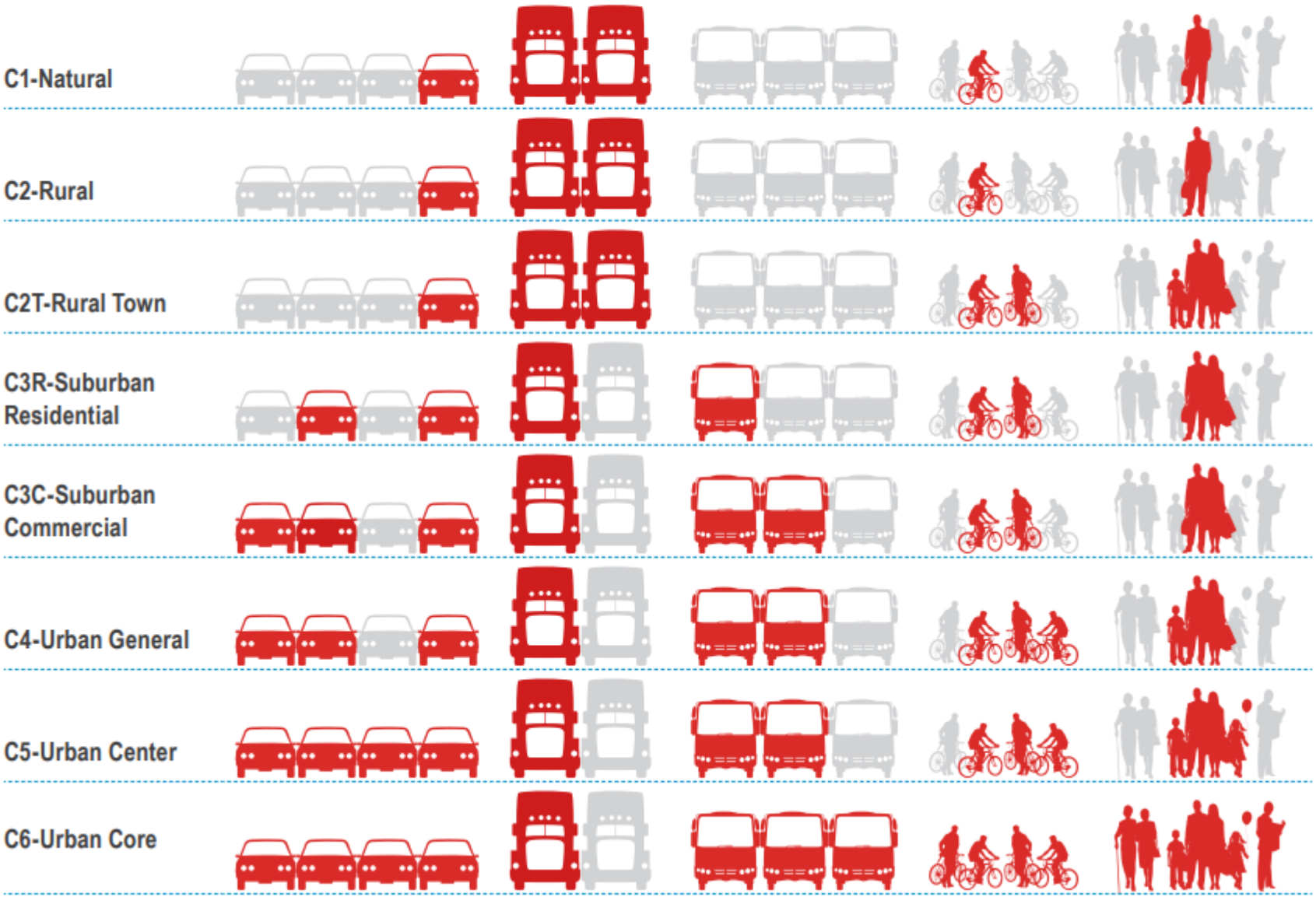
Port of Miami, Miami, FL

WHAT DOES CONTEXT CLASSIFICATION TELL YOU ABOUT ROADWAY USERS?



- Context classification informs planners and engineers about the type and intensity of users along various roadway segments.
  - For example, C4, C5, and C6 context classification will have higher number of pedestrians, bicyclists, and transit users than in a C1, C2, or C3 context classification. C2T will be similar to C4.

FIGURE 15 EXPECTED USER TYPES IN DIFFERENT CONTEXT CLASSIFICATIONS



CONTEXT CLASSIFICATION + TRANSPORTATION CHARACTERISTICS

RELATIONSHIP TO FDOT DESIGN MANUAL

Creating Sense of Place and Quality of Life

- On-street parking – may be acceptable in C2T, C4, C5, and C6 if supported by codes and regulations
- Bulb-outs – not required, but may be applied in appropriate contexts
- Street Trees – not required, but lower speeds permit closer placement to face of curb. Clear sight triangles still apply.
- Sidewalks – 6' standard width, but wider in C5 and C6 where possible
- Application of FDM criteria also influenced by plans, codes, and regulations

FDOT Design Manual (FDM)

- Sets Design Controls and Criteria
- New Construction and RRR
- “Should” v. “Must” v. Imperative Voice
- Limited “storytelling” so requires thought
- It’s a box of crayons, not a coloring book

FDOT Design Manual (FDM)

210.1.1 Criteria for RRR Projects

Criteria for RRR projects provided in this chapter are the minimum values allowed for roadway and structure elements to remain on the State Highway System without obtaining a Design Exception or Design Variation (see ***FDM 122***). Existing project features are to meet new construction criteria when RRR criteria are not provided.

210.2 Lanes

Design criteria for lane widths and pavement slopes are given by lane type, design speed and context classification. Minimum travel, auxiliary, and two-way left-turn lane widths are provided in ***Table 210.2.1***. Refer to ***FDM 211*** for ramp lane widths.

Two-way left turn lane widths (flush median) may be used on 3-lane and 5-lane typical sections with design speeds ≤ 40 mph. On new construction projects, flush medians are to include sections of raised or restrictive median and islands to enhance vehicular, bicycle, and pedestrian safety, improve traffic efficiency, and attain the standards of the Access Management Classification of that highway system. Sections of raised or restrictive median and islands are recommended on RRR projects.

Table 201.5.1 Design Speed

Limited Access Facilities (Interstates, Freeways, and Expressways)		
Area	**Allowable Range (mph)**	**SIS Minimum (mph)**
Rural and Urban	70	70
Urbanized	50-70	60
Arterials and Collectors		
Context Classification	**Allowable Range (mph)**	**SIS Minimum (mph)**
C1 Natural	55-70	65
C2 Rural	55-70	65
C2T Rural Town	25-45	40
C3 Suburban	35-55	50
C4 Urban General	25-45	45
C5 Urban Center	25-35	35
C6 Urban Core	25-30	30

Notes:

(1) SIS Minimum Design Speed may be reduced to 35 mph for C2T Context Classification when appropriate design elements are included to support the 35-mph speed, such as on-street parking.

(2) SIS Minimum Design Speed may be reduced to 45 mph for curbed roadways within C3 Context Classification.

(3) For SIS facilities on the State Highway System, a selected Design Speed less than the SIS Minimum Design Speed requires a Design Variation as outlined in ***SIS Procedure (Topic No. 525-030-260)***.

(4) For SIS facilities not on the State Highway System, a selected Design Speed less than the SIS Minimum Design Speed may be approved by the District Design Engineer following a review by the District Planning (Intermodal Systems Development) Manager.

Table 210.2.1 – Minimum Travel and Auxiliary Lane Widths

Context Classification		Travel (feet)			Auxiliary (feet)			Two-Way Left Turn (feet)	
		Design Speed (mph)			Design Speed (mph)			Design Speed (mph)	
		25-35	40-45	≥ 50	25-35	40-45	≥ 50	25-35	40
C1	Natural	11	11	12	11	11	12	N/A	
C2	Rural	11	11	12	11	11	12		
C2T	Rural Town	11	11	12	11	11	12	12	12
C3	Suburban	10	11	12	10	11	12	11	12
C4	Urban General	10	11	12	10	11	12	11	12
C5	Urban Center	10	11	12	10	11	12	11	12
C6	Urban Core	10	11	12	10	11	12	11	12

Travel Lanes:

(1) Minimum 11-foot travel lanes on designated freight corridors, SIS facilities, or when truck volume exceeds 10% with design speed 25-35 mph (regardless of context).

(2) Minimum 12-foot travel lanes on all undivided 2-lane, 2-way roadways (for all context classifications and design speeds). However, 11-foot lanes may be used on 2-lane, 2-way curbed roadways that have adjacent buffered bicycle lanes.

(3) 10-foot travel lanes are typically provided on very low speed roadways, but should consider wider lanes when transit is present or truck volume exceeds 10%.

(4) Travel lanes should not exceed 14 feet in width.

Auxiliary Lanes:

(1) Auxiliary lanes are typically the same width as the adjacent travel lane.

(2) Table values for right turn lanes may be reduced by 1 foot when a bicycle keyhole is present.

(3) Median turn lanes should not exceed 15 feet in width.

(4) For RRR Projects, 9-foot right turn lanes on very low speed roadways are allowed.

Two-way Left Turn Lanes:

(1) Two-way left turn lanes are typically one foot wider than the adjacent travel lanes.

(2) For RRR Projects, the values in the table may be reduced by 1-foot.

Table 222.1.1 Standard Sidewalk Widths

Context Classification		Sidewalk Width (feet)
C1	Natural	5
C2	Rural	5
C2T	Rural Town	6
C3	Suburban	6
C4	Urban General	6
C5	Urban Center	10
C6	Urban Core	12

Notes:

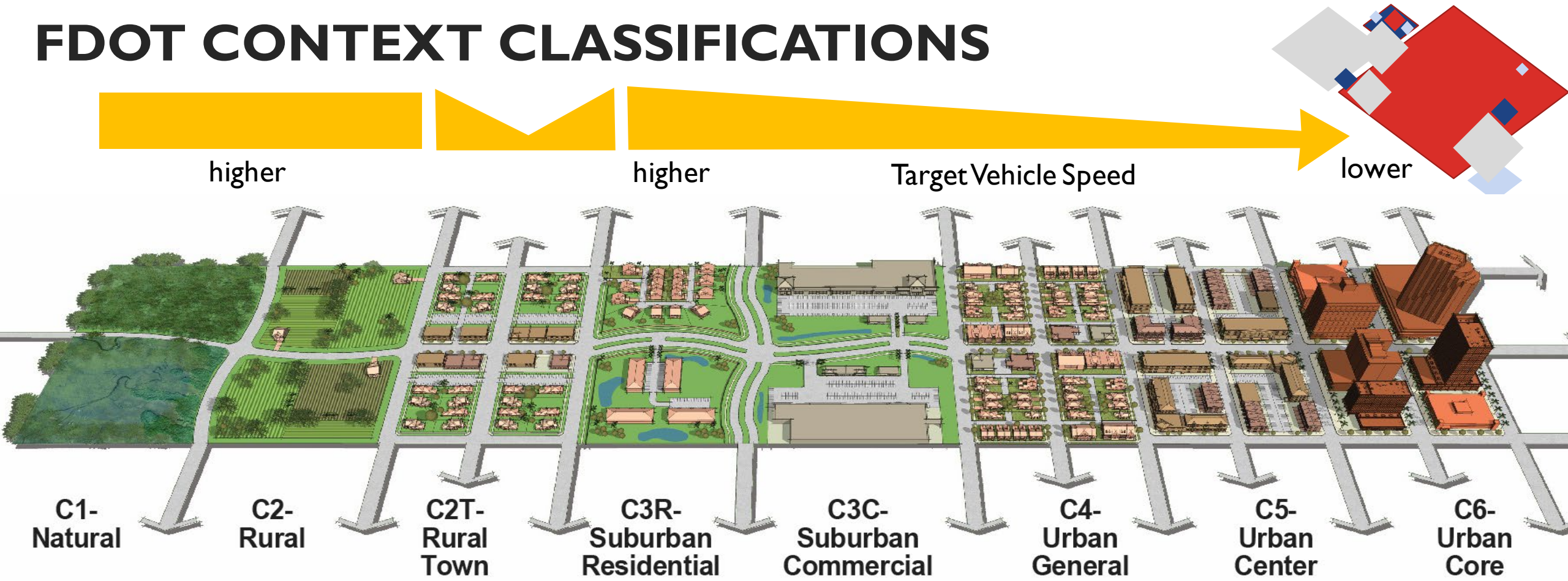
(1) For C2T, C3 and C4, sidewalk width may be increased up to 8 feet when the demand is demonstrated.

(2) For C5 and C6, when standard sidewalk width cannot be attained, provide the greatest attainable width possible, but not less than 6 feet.

(3) For RRR projects, unaltered sidewalk with width 4 feet or greater may be retained within any context classification.

(4) See ***FDM 260.2.2*** for sidewalk width requirements on bridges.

FDOT CONTEXT CLASSIFICATIONS

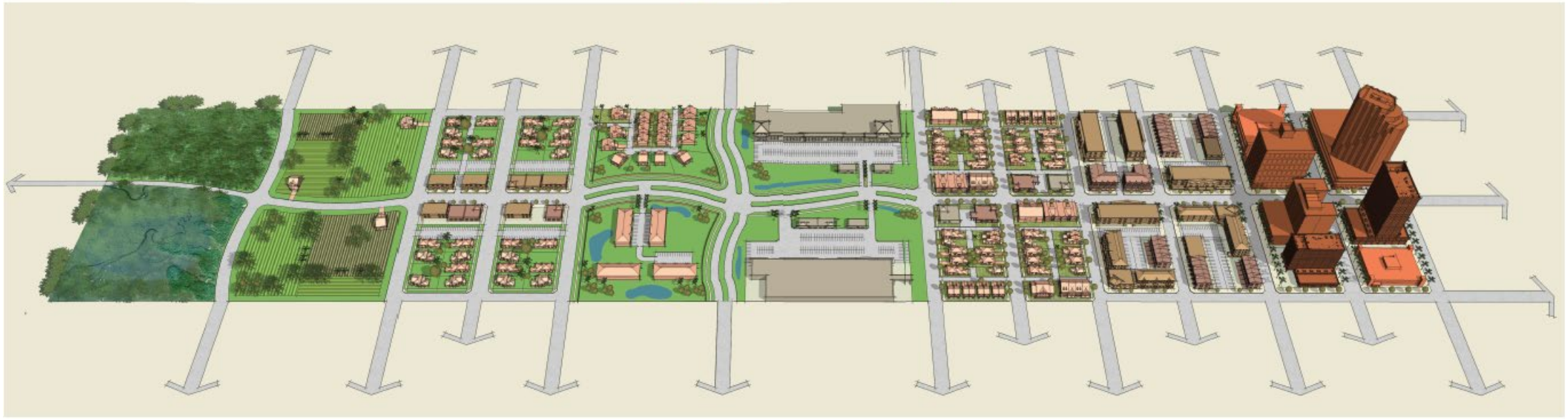


- Context classification
- Transportation characteristics

- Roadway users
- Regional and local travel demand
- Challenges and opportunities of each roadway user

CONTEXT CLASSIFICATION & DESIGN SPEED

FDOT Context Classifications
& Design Speed Range



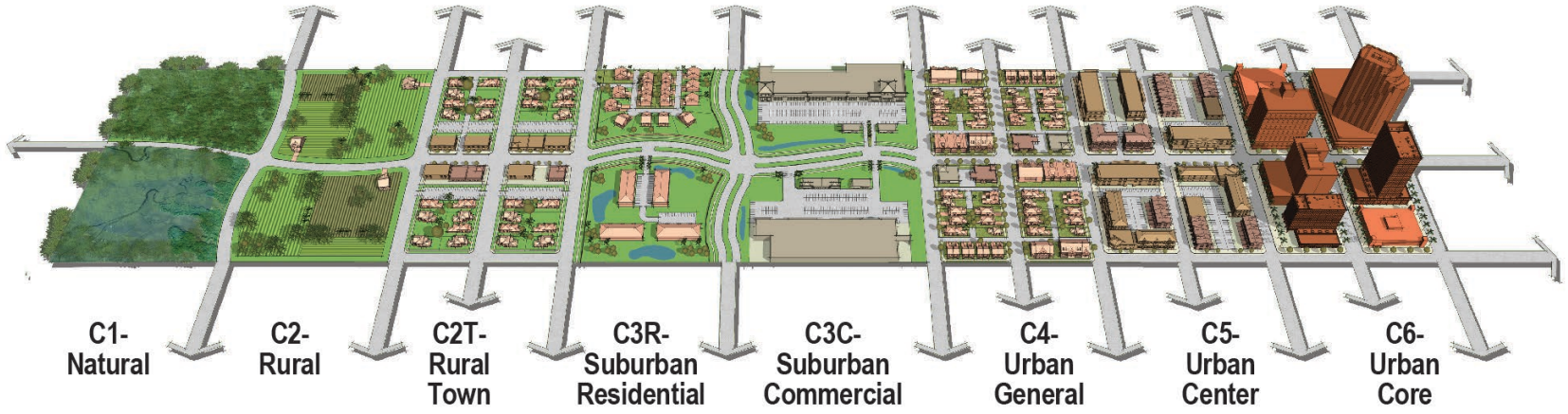
C1-Natural	C2-Rural	C2T-Rural Town	C3R-Suburban Residential	C3C-Suburban Commercial	C4-Urban General	C5-Urban Center	C6-Urban Core
55-70 mph	**55-70 mph**	**25-45 mph**	**35-55 mph**	**35-55 mph**	**30-45 mph**	**25-35 mph**	**25-30 mph**
Lands preserved in a natural or wilderness condition, including lands unsuitable for settlement due to natural conditions.	Sparsely settled lands; may include agricultural land, grassland, woodland, and wetlands.	Small concentrations of developed areas immediately surrounded by rural and natural areas; includes many historic towns.	Mostly residential uses within large blocks and a disconnected or sparse roadway network.	Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network.	Mix of uses set within small blocks with a well-connected roadway network. May extend long distances. The roadway network usually connects to residential neighborhoods immediately along the corridor or behind the uses fronting the roadway.	Mix of uses set within small blocks with a well-connected roadway network. Typically concentrated around a few blocks and identified as part of a civic or economic center of a community, town, or city.	Areas with the highest densities and building heights, and within FDOT classified Large Urbanized Areas (population >1,000,000). Many are regional centers and destinations. Buildings have mixed uses, are built up to the roadway, and are within a well-connected roadway network.

OTHER USERS OF CONTEXT CLASSIFICATION

- How might context classification affect your job?
  - Landscaping
  - Operations
  - Design
  - Planning
  - Permitting
  - PD&E

WHAT DOES CONTEXT CLASSIFICATION NOT TELL YOU?

- Access Management Class
- Equity/Safety Issues
- Existing Safety Problems
- Local Plans and Visions
- Whether a lane repurposing is needed



WHO DETERMINES CONTEXT CLASSIFICATION?

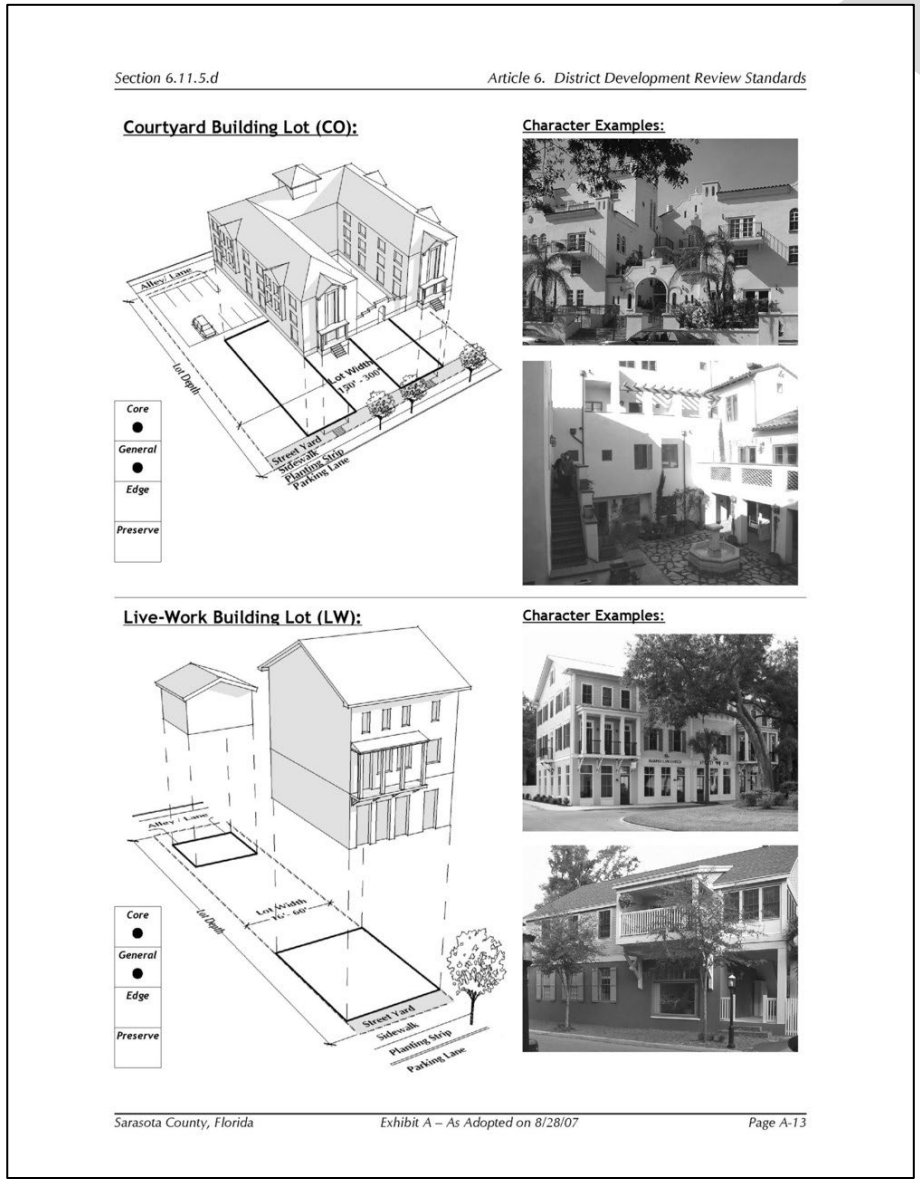
- District Staff
  - District can assign staff to oversee context classification evaluation
  - On projects where FDOT currently coordinates with local governments, FDOT should continue to coordinate with local governments to calibrate context classification on each project
  - Local form-based codes and zoning can be used to inform FDOT's context classification determination

- Final determination is made by FDOT

WHERE DOES FDOT LOOK TO UNDERSTAND COMMUNITY VISION?

ZONING

- Single-use zoning codes can lead to a separation of land uses, creating long travel distances between uses
- Form-based codes that regulate physical form, rather than separating land uses, can support multimodal travel
- Introducing more mixed use, higher intensity and density activity centers can reduce the demand for vehicular trips overall



Example of codes that regulate form instead of uses.

Source: Sarasota County, Florida

SITE DESIGN & BUILDING PLACEMENT

- Large building setbacks increase walking distances and create isolating, unwelcoming environments.
- Consider building scale, placement, and building design that supports pedestrian activity.
- Form-based codes can be used to address site design and building placement requirements.

ACCESS MANAGEMENT

- Helps accommodate improved traffic flow along roadways
- Reduces curb-cuts, improving walking and bicycling conditions
- Connected street network allows for internal site circulation by multiple modes
- Policies can allow/require cross access easement and shared driveways

PARKING STANDARDS

- Large surface parking lots create longer distances between destinations
- Establishing parking maximums combined with allowing for shared parking across properties
- Support a "park-once environment" to encourage multimodal travel

Questions

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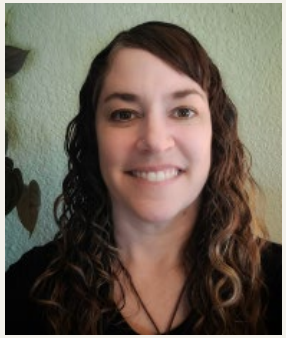

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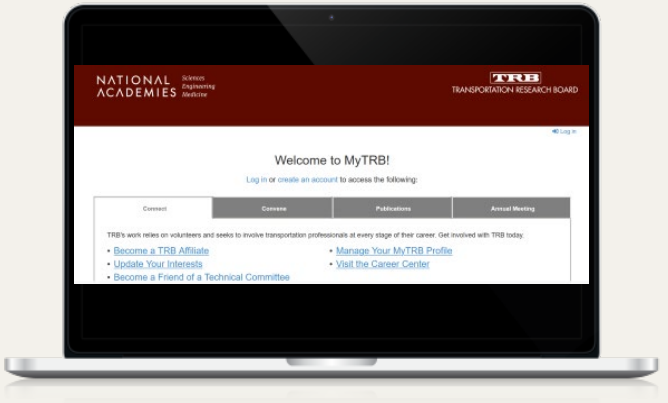

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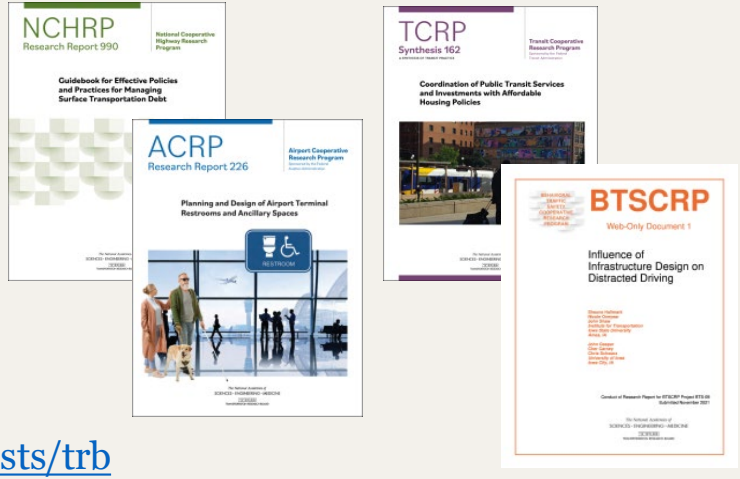

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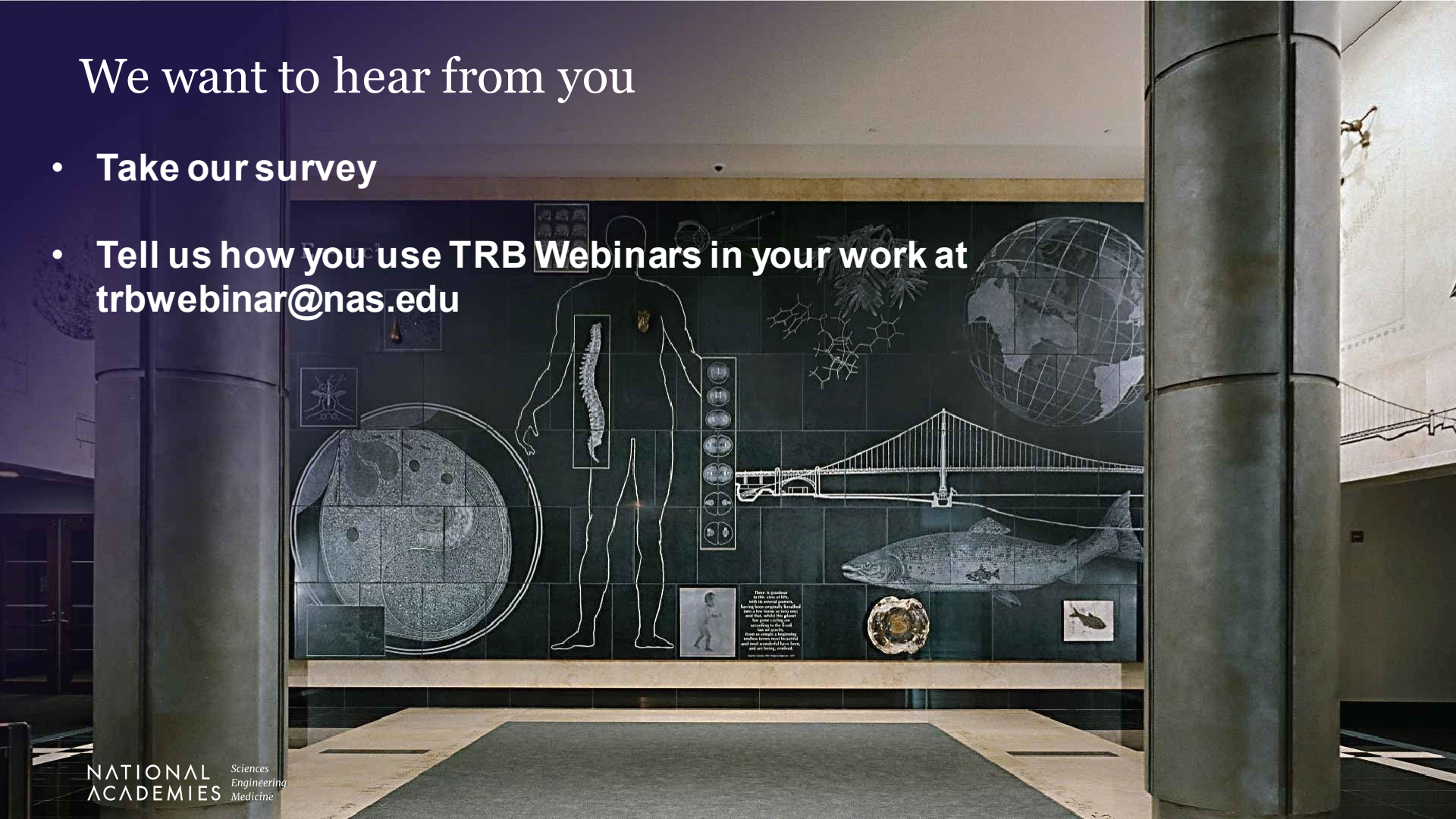

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