Design Guidelines Informational Session

February 27th (9 am to 12 pm)

Agenda (9 am to Noon)

- Module 1: Intro to MOVEBR
- Module 2: Design Guidelines Introduction
- Module 3: Typical Sections
- Module 4: Pedestrian Facilities
- Module 5: Bicyclist Facilities
- Module 6: ADA Requirements
- Module 7: Transit Considerations
- Quiz!

Today's Team

Jason Crain, PE, ENV SP
Vice President & Sr. Project Manager

SIGMA CONSULTING GROUP, INC.
ENGINEERING & SURVEYING

April Renard, PE, PTOE, RSP2
Complete Streets Lead

CSRS | BUILDING STRONGER, SMARTER COMMUNITIES TOGETHER.

Nick Perez-Alvarez, AICP
Planner

MANNING ARCHITECTS
ARCHITECTURE | INTERIORS | PLANNING

Lynn Maloney-Mujica, AICP
Senior Environmental Planner

HNTB

Doing Business with MOVEBR

SBO Overview

- Outreach to targeted businesses
- Assistance registering in VSS
- Coaching provided

MOVEBR
Small Business Outreach

Contact Information

Small Business Outreach
Tyra Banks
(225) 663-2198
Tyra@MetroMorphosis.net

For more information visit

www.movebr.brla.gov

@movebrla

Module 1: Intro to MOVEBR

Program Structure, Vision Statement, Applicable Policies & Best Practices

REVENUE

- ½ cent sales tax
- Commenced April 1, 2019 thru March 31, 2049
- Sunsets in 30 years – or as soon as the bonds are paid off
- Food and Drugs are exempt
- Applies to all sales in the parish regardless of where people reside

REVENUE

- Expected to generate approximately $46M per year
- Bond Sales will be utilized to expedite construction
- Proceeds of the tax CAN ONLY BE SPENT on the approved list of projects
- Construction of some projects can be expected within 1-2 years of tax collection

PROGRAM COST: NEW CAPACITY IMPROVEMENTS

Number of Projects:

40

$805.5 Million

District	Proposed Project Description	a.) Congestion Relief	b.) Mobility/ Safety Enhancements	c.) Corridor Revitalization	Estimated Cost ($M)	Proposition Funding ($M)	Proposed Scope of Work
	a) New Capacity Improvements						
1	City of Zachary CEA DTD December 12 2013	•			$6.0	$6.0	Capacity Improvements Mount Pleasant Road
1	McHugh Rd (Groom - Lower Zachary)		-		$8.0	$8.0	Paving and Drainage Improvements
1	Port Hudson - Pride Road (LA 964 - LA 19)		•		$18.0	$18.0	Turning Movements, Shoulders, Drainage
1	Rollins Rd (LA 964 - LA19)		•		$18.0	$18.0	Turning Movements, Shoulders, Drainage
2	Harding at I-110	•			$5.0	$5.0	Intersection Improvements
2	Thomas Rd (Hwy 19 - Plank)		-	-	$28.6	$28.6	Turning movements, Shoulders, Drainage
3	Ben Hur Realignment/Nicholson intersection		-		$2.5	$2.5	Intersection improvements
3	Highland @ Siegen	•			$3.0	$3.0	Additional Turn Lane Capacity
3	Nicholson Segment 2 (Bluebonnet - Ben Hur)	•			$42.0	$42.0	4-Lane Capacity
3	Nicholson Segment 3 (Parish Line - Bluebonnet)	•			$19.0	$19.0	4-Lane Capacity
3	Staring Lane Extn (Nicholson - Burbank)	•			$14.0	$2.0	4-Lane Capacity
4	Flannery (Old Hammond Hwy - Florida)	•	-		$17.0	$17.0	Safety Mobility, Turning Lane, and Drainage
4	Hooper Rd (Blackwater - Sullivan)	•			$50.0	$38.0	4-Lane Capacity
4	Sherwood Forest Extn (Greenwell Spr - Joor)	•			$30.0	$30.0	New Roadway
4	South Choctaw (Flannery - Central Thrwy)	•			$12.0	$12.0	Additional Lane Capacity
4	Wax Rd/Magnolia Bridge (Sullivan Rd - Greenwell Springs)	•			$38.0	$38.0	4-Lane Capacity
5	Greenwell St@Airline	•			$2.0	$2.0	Intersection Improvement
5	Mickens Rd (Hooper Rd - Joor Rd)	•	-		$25.0	$25.0	Turning Lane, Mobility, Drainage
6	Ardenwood - Lobdell Connector (BRCC)	-			$3.0	$3.0	New Roadway
9	Antioch (Jefferson to Tiger Bend)		•		$9.0	$9.0	Safety Mobility, Turning Lane, Drainage
9	Hoo Shoo Too Rd (Jefferson to Tiger Bend)		-		$12.0	$12.0	Safety, Mobility, Turning Movements, Drainage
9	Jones Creek Rd (Tiger Bend to Airline)	-			$19.0	$19.0	New 4-lane Roadway
9	Tiger Bend Rd (Jones Creek to Antioch)	•			$16.0	$16.0	4-Lane Bird Capacity
11	Bluebonnet (Perkins to Picardy)	•			$19.0	$19.0	Additional Lane Capacity
11	Dijon Ave Phase II (Midway - Bluebonnet)	•			$8.0	$8.0	4-Lane Blvd; Curb and Gutter
11	Jefferson @ Bluebonnet Intersection	•			$2.0	$2.0	Turning Lane Extension
11	Jefferson @ Corporate Intersection	-			$2.0	$2.0	Turning Lane Extension
11	Midway (Dijon - Picardy)	-			$6.5	$6.5	New 2-lane Roadway
11	Picardy-Perkins Connector	•			$40.0	$11.4	4-Lane Capacity
12	Hennessy - Perkins Connector		•		$30.0	$30.0	R/R Underpass
12	Lee Dr (Highland-Perkins)	•			$35.0	$35.0	Capacity and Turning Movements
12	Nicholson Dr (Brightside - Gourrier)	-			$21.0	$8.3	4-Lane Capacity
39	Perkins Rd (Pecue - Siegen)	-			$26.2	$26.2	4-Lane Capacity
48	Old Hammond Hwy (Blvd de Province - Millerville)	•			$30.0	$26.0	4-Lane Capacity
48	Old Hammond Hwy (Millerville - O'Neal)	•			$18.9	$18.9	4-Lane Capacity
49	Old Hammond Segment 3	•			$12.0	$12.0	Additional Lane Capacity
5,8,7,10	Airline Hwy North (Florida - I-110)	•			$44.0	$22.0	Additional Lane Capacity
8,9,11	Airline Hwy South (Parish Line - Bluebonnet)	•			$51.0	$25.0	Additional Lane Capacity
9,11	Pecue Lane (Perkins Rd - Airline Hwy)	-			$52.0	$2.0	4-Lane Blvd; I-10 Interchange
39	Highland Rd (Perkins to Old Perkins)	-			$10.8	$10.8	Intersection/Interchange Improvements
	a) Subtotal	32	10	1	$805.5	$636.2	

PROGRAM COST

Improving Existing Corridors

Number of Projects: 12

$204 Million

Community Enhancement Road Projects

Number of Projects: 10

$68.6 Million

District	Proposed Project Description	a.) Congestion Relief	b.) Mobility/ Safety Enhancements	c.) Corridor Revitalization	Estimated Cost ($M)	Proposition Funding ($M)	Proposed Scope of Work
b) Improving Existing Corridors w/ Increased Mobility including Signal Synchronization, Sidewalks, and Cycling Paths							
1	McHost (LA 64 to Pride Port Hudson)		•		$10.0	$10.0	Safety Improvements
2	Scenic (Harding to Swan)	•		•	$7.0	$7.0	Intersection Improvements
10	Terrace Ave (Highland Rd - Perkins Rd)		•	•	$10.0	$10.0	Access Management; Signalization; Turning Movements
11	Claycut (S. Foster Dr - Jefferson Hwy)		•		$3.0	$3.0	Access Management; Intersection Improvements
11	Druella (Jefferson - Old Hammond Hwy)		•		$7.0	$7.0	New Turning Lane and Sidewalks
12	College Dr Corridor Enhancement (Perkins - I-10)	•	•		$50.0	$40.0	Access Management; Signalization; Capacity Improvements
1,2	Groom Rd (LA 19 - Plank Rd)		•		$25.0	$25.0	Safety Mobility, Turning Movement Improvements
2,10	Plank Rd Corridor Enhancement (N. 22nd - Harding St)		•	•	$15.0	$15.0	Access Management; Signalization; Turning Movement Improvements
3,9	Highland at Pecus		•		$3.0	$3.0	Roundabout
6,11	Sharp (Old Hammond Hwy - Florida)		•		$11.0	$11.0	Mobility, Turning Lane, Drainage
6,7	North Blvd Corridor Enhancement (I-110 - Foster/Florida)		•	•	$15.0	$15.0	Access Management; Signalization; Turning Movement Improvements
6,7,10	Florida Blvd Corridor Enhancement (I-110 - Airline)		•	•	$48.0	$24.0	Access Management; Signalization; Mobility Improvements
	b) Subtotal	2	11	5	$204.0	$170.0	
c) Constructing Community Enhancement Road Projects, including road repair, ditches or drainage, lights, curbs, landscaping, sidewalks							
Parish	Future Community Enhancement Call for Projects			•	$49.0	$49.0	Future sidewalks, multi-use paths, lighting, drainage, landscaping
Parish	ADA Compliance Projects			•	$10.0	$10.0	ADA Compliance improvements
2	Elm Grove Garden Sidewalks Ph 1&2 (Blount Rd. to Rosenwald Rd)			•	$3.7	$2.0	Sidewalks and Subsurface Drainage
3	Mullen Drive Sidewalks (Honey Dr. to Perkins Rd.)			•	$0.2	$0.2	Sidewalks and Subsurface Drainage
8	Sherwood Forest Blvd. Multi-Use Path (I-12 to Old Hammond Hwy.)			•	$0.6	$0.4	Sidewalks and Subsurface Drainage
8	Sherwood Forest Blvd. Sidewalks (Coursey Blvd to I-12 west side)			•	$1.0	$0.6	Sidewalks and Subsurface Drainage
9	Centurion Ave. Sidewalks (O'Neal Ln to Crossbow Dr.)			•	$0.2	$0.2	Sidewalks and Subsurface Drainage
9	S. Harrell's Ferry Rd. Multi-Use Path (O'Neal Ln to Woodlake Dr.)			•	$1.4	$1.4	Sidewalks and Subsurface Drainage
10	72nd Street Sidewalks (I-110 to Plank Rd.)			•	$0.6	$0.4	Sidewalks and Subsurface Drainage
10	72nd Street Sidewalks (Scenic Hwy to Plank Rd.)			•	$0.7	$0.4	Sidewalks and Subsurface Drainage
11	Bluebonnet Blvd (N Mall Road to Bluebonnet Centre Blvd)			•	$1.0	$1.0	Sidewalks and Subsurface Drainage
12	Hidden Bike Path (College Dr to Country Club Dr.)			•	$0.2	$0.2	Sidewalks and Subsurface Drainage
	c) Subtotal	0	0	12	$68.6	$65.8	
d) Parishwide Signalization/Synchronization							
Parish	Advanced Traffic Management				$5.0	$5.0	Software and Equipment Upgrades
Parish	Synchronization & Communication				$35.0	$35.0	Signal Upgrades; Fiber Connections
	d) Subtotal	0	0	0	$40.0	$40.0	
				TOTAL	$1,118.1	$912.0	

PARISHWIDE PROJECTS

PROJECT TYPE	ESTIMATED COST
Community Enhancement Call for Projects	$49 M
ADA Compliance	$10M
Advanced Traffic Mgt.	$5M
Synchronization/Communication	$35 M

MOVEBR Vision Statement

MOVEBR will be the industry standard of excellence in delivering transportation solutions that will move our region in a safe, sustainable manner and further enhance strong neighborhoods, communities, and economic vitality for **all residents** of East Baton Rouge.

Complete Streets Policy

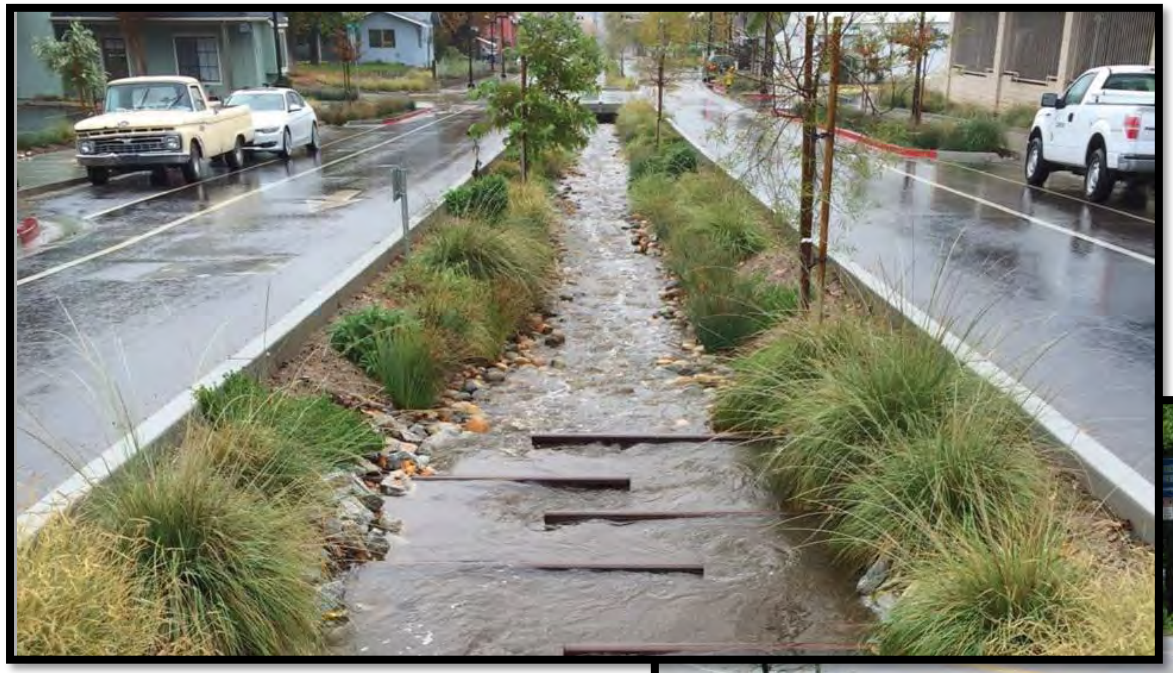
The City of Baton Rouge and the Parish of East Baton Rouge recognize that the **full integration of all modes** of travel in the design of streets and highways will help increase the capacity and efficiency of the road network, reduce traffic congestion by improving mobility options, reduce greenhouse gas emissions, and improve the general quality of life of all citizens by providing them with additional choices of transportation modes. Therefore, the City of Baton Rouge and the Parish of East Baton Rouge will plan for, design, construct, operate, and maintain appropriate transportation facilities and amenities that are safe, convenient and fully integrated into a network for all user -- **automobile motorists, pedestrians of any age or ability, bicyclists, transit vehicles and riders, freight providers, emergency responders, children and the elderly** -- in a balanced, responsible and equitable manner consistent with and supportive of the surrounding community.

MOVEBR

Green Infrastructure

- More than landscaping!
- Urban stormwater detention, retention, filtration
- Removes hydrocarbons from runoff
- Allows slow absorption into the ground water table
- Standards and specifications TBD
- **Resource: NACTO's Urban Street Stormwater Guide**

Green Infrastructure Options



Source: NACTO Street Stormwater Guide

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Green Infrastructure Options

Source: NACTO Street Stormwater Guide

Module 2: Design Guidelines Introduction

Design Process, Project Milestones & Deliveries, Exceptions, and Required Documentation

Design Guidelines Overview

Program will deliver transportation solutions beyond traffic mitigation

- Safety
- Multi-mobility accommodation
- Sustainability and resiliency
- ADA accommodations
- Complete Streets
- Green Infrastructure
- Economic vitality

A workgroup was convened to develop these guidelines

Design Guidelines Overview

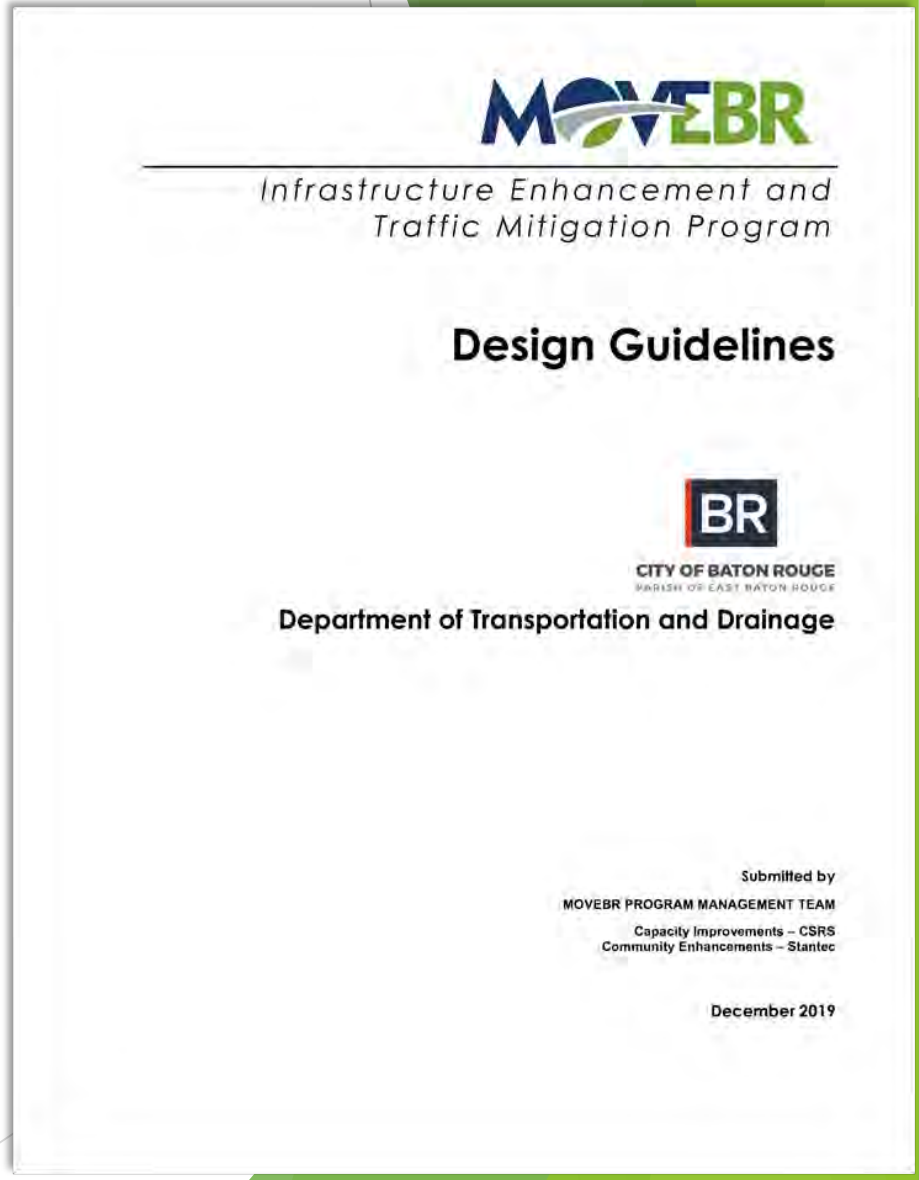
Intended to:

- Provide guidance and direction
- Ensure consistency to design approach
- Uniformity in design process

Not intended to:

- Stifle design innovation and ingenuity
- Absolve professional responsibility of design

Governs all MOVEBR Projects except some State Routes will require compliance with LADOTD design guidelines



Design Guidelines Overview

Contents:

- Introduction
- Corridor Survey
- Utility Coordination and Relocations
- Environmental Assessments
- Geotechnical Engineering
- Traffic Operations and Design
- Road Design and Complete Streets
- Hydrology and Hydraulics
- Construction Maintenance of Traffic
- Structural Design
- Green Infrastructure
- Street Lighting
- ROW Surveying and Mapping

Design Guidelines Overview

Where can I find resources?

- Website: https://movebr.brla.gov/
  - MOVEBR Design Guidelines
  - MOVEBR Consultant Services Manual – *COMING SOON*

- Website: http://brprojects.com/
  - East Baton Rouge DPW Standard Plans
  - East Baton Rouge Standard Specifications for Public Works
  - RFQ Manager

Design Process

Typical Design Milestones

- Preliminary Engineering
  - Design Study
  - Environmental Studies
  - Traffic Study
  - Geotechnical Investigations
  - Control & Topographic Surveys

- Final Design
  - 30% Final Design (Geometric Submittal)
  - Property Survey & ROW Mapping
  - 50% Final Design (Hydraulic Submittal)
  - 60% Final Design (PIH Submittal)
  - 90% Final Design (ACP Submittal)
  - 100% Final Design

Design Process

Review Process

- DTD & PMT will provide technical reviews of design deliverables
- High-level conformance and are not meant to be comprehensive
- Review Goal of 2-week timeframe
- Comments will be provided in a formal, consistent format
  - Quality Review Form
  - Supplemented with plan redline comments
- LADOTD may also provide reviews
- Consultant is fully responsible for their designs and work

Project Design Report

Required Documentation

- Design criteria and guidelines established on programmatic level
  - Best practices
  - Ideal conditions
  - Do not account for specific project constraints
- Project Design Report
  - Consistent documentation of selected design values and design element implementation decisions
  - Similar to LADOTD Minimum Guidelines Design Report
  - Projects on state routes, remaining state routes will utilize the LADOTD Design Report.

Project Design Report

MOVEBR Project Design Report

Page 1 of 2

Date: 12/12/19

Project Information:

Project Name:	College Dr. Enhancement Project
Project No.:	
Intersecting Routes	Check all that apply: ☐ State/Federal ☐ Other MOVEBR
Program Work Type:	Check all that apply: ☐ Capacity ☐ Corridor Enhancement ☐ Sidewalk ☐ ADA Compliance
Funding Sources:	Check all that apply: ☐ MOVEBR ☐ State ☐ Federal

Status

☐ Preliminary
☐ Final

Description of Project Improvements to be made:

Provide attachments if necessary

Design Variance Request Summary (see page 2):

Provide attachments if necessary

Summary of Challenge(s) to be Addressed:

Provide attachments if necessary

Complete Streets Accommodations:

Check all that apply:
☐ Pedestrians ☐ Bicyclists ☐ Transit Riders ☐ On-Street Parking
Explanation if any will not be accommodated:

Traffic and Safety:

Current Roadway ADT (Year)	
Design Roadway ADT (Year)	
K	
T	
TDDHV	
Total Average Calculated Delay/Day without Project?	
Pedestrian Activity (Low, Medium, High)	
Bicycle Activity (Low, Medium, High)	
History of Abnormal High Crash Sections/Intersections?	
History of crashes with Pedestrians/Bicycles?	

Green Infrastructure Needs and Opportunities:

(Low, Medium, High) Summary Explanation:

Traffic Control/Constructability Considerations:

Summary Explanation (Provide attachments if necessary):

Recommended by:

Engineer of Record:	Company:
Signature:	Date:
MOVEBR Program Project Manager:	Company:
Signature:	Date:
MOVEBR Technical Committee Facilitator:	Company:
Signature:	Date:

Approved by:

DTD Design and Construction Chief Engineer:	
Signature:	Date:
DTD Chief Traffic Engineer:	
Signature:	Date:

Project: College Dr. Enhancement Project

Date: 12/12/19

MOVEBR Project Design Report Page 2 of 2

Proposed Design Criteria Values/Classification:

Typical Section to be Used:	☐ Urban / Walkable 4-Lane	☐ Urban / Walkable 2-Lane	☐ Suburban 4-Lane	☐ Suburban 3-Lane	☐ Suburban 2-Lane	☐ Rural 2-Lane

Item	Preferred Value	Proposed Value	Variance Need?	Justification (Provide attachments if necessary)
Mobility (Low, Medium, High)				
Access (Low, Medium, High)				
Design Speed (MPH)				
Design Vehicle (Type)				
Width of Travel Lanes (ft.)				
Width of Shoulders (ft.) (edge of travel lane to FOC)				
Inside				
Outside				
Lateral Offset (ft.)				
Non-Tangent Sections (ft.)				
Tangent Sections (ft.)				
Clear Zone (Ref. Chapters 3 & 10 of AASHTO Roadside Design Guide)				
Width of Median (ft.)				
Raised (ft.) - w/ Approval				
Depressed (ft.) - "Green" Preferred				
TWLTL (ft.)				
Pavement Cross Slope (%)				
Foreslope (max.)				
Backslope (max)				
Pedestrian Facility (ft.)				
Furniture Zone (ft.) (from FOC)				
Sidewalk (ft.)				
Bike Facility (ft.)				
Bike Lanes (ft.)				
Buffered Bike Lanes (ft.)				
Cycle Tracks - raised (ft.)				
Stoping Sight Distance (ft.)				
Maximum Superelevation (%)				
Minimum Radius (ft.)				
with normal crown (ft.)				
with reverse crown (ft.)				
with full superelevation				
Maximum Longitudinal Grade (%)				
Minimum Vertical Clearance				
Roadway				
Pedestrian Bridge				
Trails/Bikeway				
Railroad Crossing Impact? (Yes/No) (Refer to LADOTD Bridge Design and Evaluation Manual as well as railroad owner design guidance)	If yes, explain location, operational impact to be exposed, and anticipated improvement:			

Project Design Report

Required Documentation

- Guideline Deviations
  - Engineer may request deviation from Program Guidelines for specific reasons
    - Project conflicts
    - More cost-effective design concept
    - Development of new design process or material
- State Routes
  - Projects along state routes, remaining state routes must follow LADOTD design waiver and exception process

Project Design Report

MOVEBR

Deviation from Program Design Standards

Request No.:

Date:

Project Name/No.:

Engineer:

Affected Documents:

[Please provide full description of the Program Design Criteria and/or required element from which deviation or change is requested. Include affected guideline or specification section and/or subsection, drawing number, etc., to enable the City-Parish and Program Manager to fully and easily understand the element from which deviation is proposed.]

Proposed Change:

[Please provide a detailed description of proposed change. Attach sketches, specification or other applicable material which fully describes the scope of your proposal.]

Reason for Request:

[Please provide complete documentation and justification for this Request. Include description of project impact, cost-effectiveness analysis if applicable, and any other supporting data and analysis that will facilitate evaluation.]

Date by Which Approval is Requested: [Please explain why]

Impact of Proposal On:

a: Design Schedule & Cost

[Please explain as necessary]

b: Construction Schedule & Cost

[Please explain as necessary]

c: Public and/or Business Impacts

[Please explain as necessary]

Remarks:

[Please include any other information and/or concerns not covered above.]

SIGNED:

_____

[Project Manager]

[Name of Engineering Firm]

RECOMMENDED:

_____

[Program Project Manager]

☐ **APPROVED:**

☐ **CONDITIONALLY APPROVED:**
(SEE ATTACHED FOR CONDITIONS)

_____

[C-P DTD Chief Engineer]

_____

[C-P TED Chief Engineer]

☐ **DENIED:**

_____

[C-P DTD Chief Engineer]

_____

[C-P TED Chief Engineer]

Additional Information/Explanation from MOVEBR Technical Committee:

Project Design Report

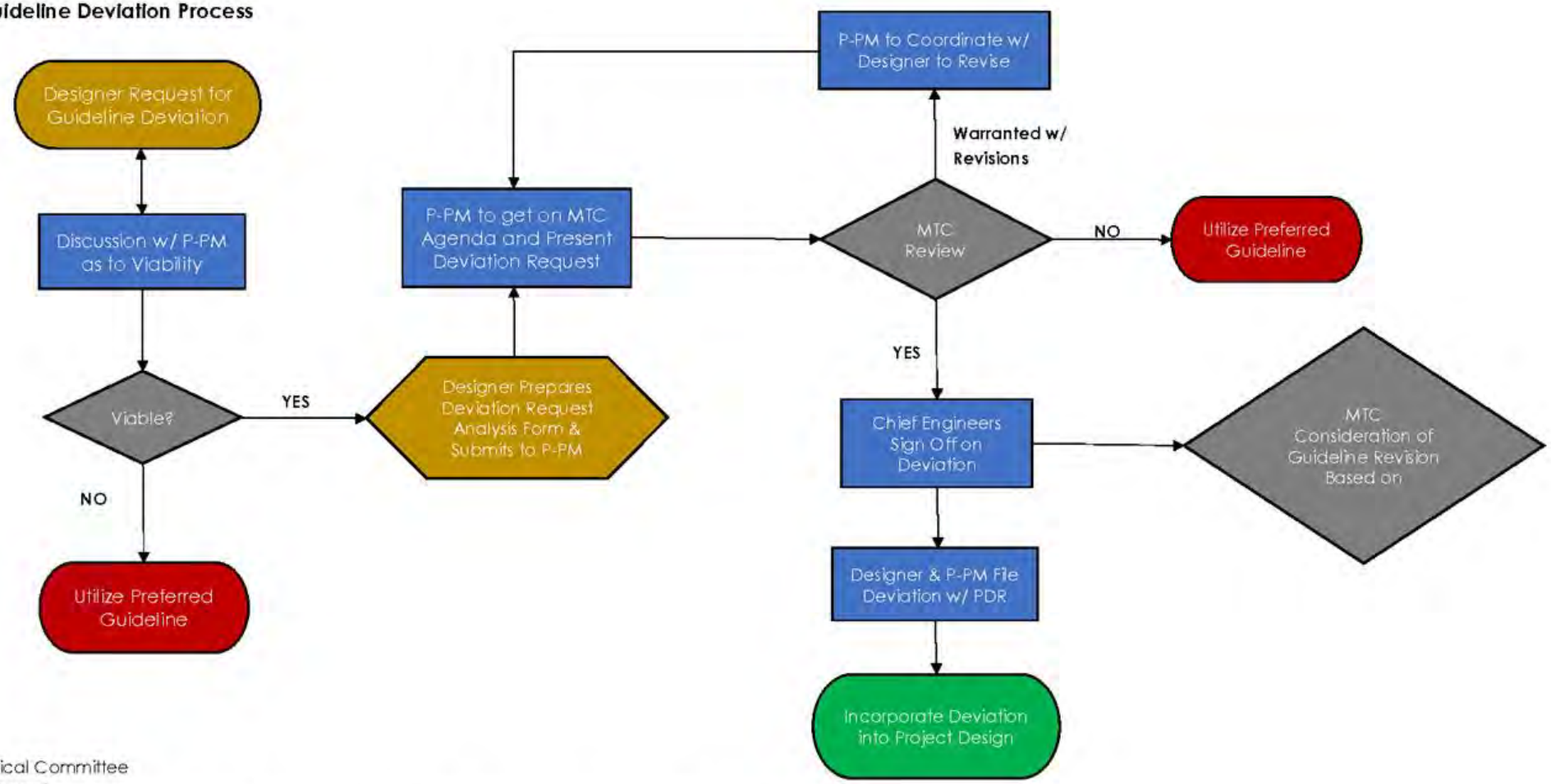
MOVEBR Technical Committee (MTC)

- MTC is comprised of members from:
  - Capacity Project PMT
  - Community Enhancement Project PMT
  - DTD Chief Design and Construction Engineer
  - DTD Chief Traffic Engineer

- MTC will provide
  - Oversite for design decisions
  - Address ongoing Program technical issues
  - Facilitate updates or revisions to the MOVEBR Design Guidelines
  - Review and adjudicate all guideline deviation requests
  - Approve design milestone stage gate reviews

Project Design Report

MOVEBR PDR & Guideline Deviation Process



NOTES:

MTC - MOVEBR Technical Committee

PDR - Project Design Report

PDR would follow similar process at Design Study (30% intermediate) Submittal, Design Study Final Submittal, and any Revisions

Example Deviations:

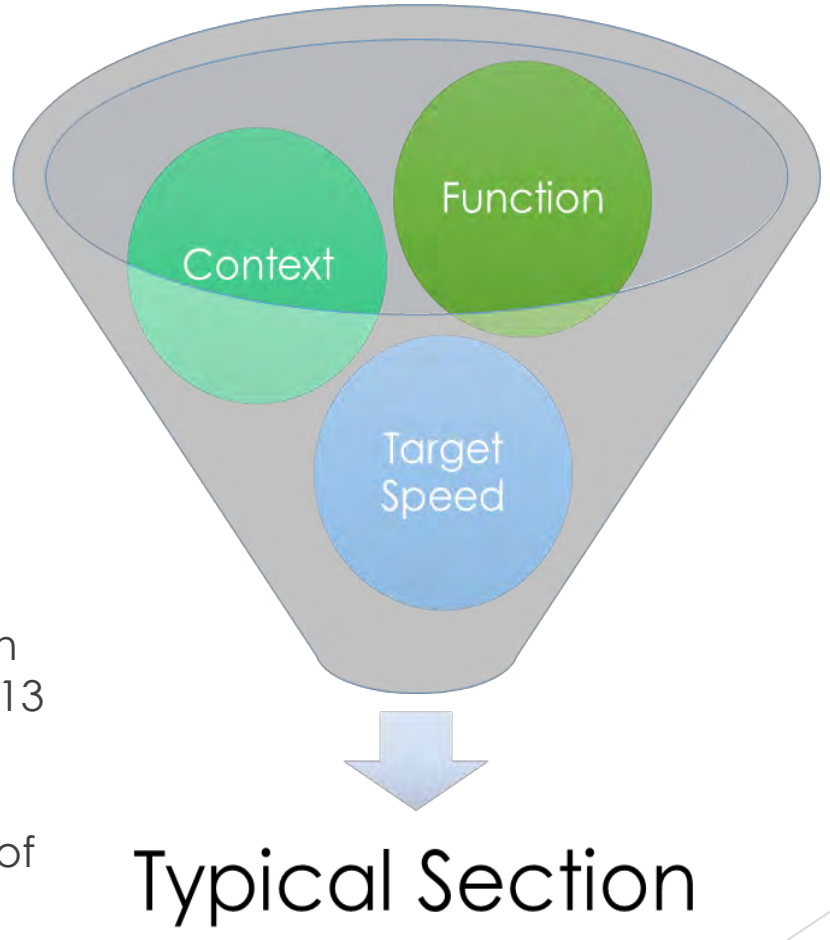
- Steeper foreslope
- Narrower sidewalk
- Elimination of a pedestrian or Bicycle Facility
- Different Design Storm
- Less than minimum vertical clearance

Module 3: Typical Sections

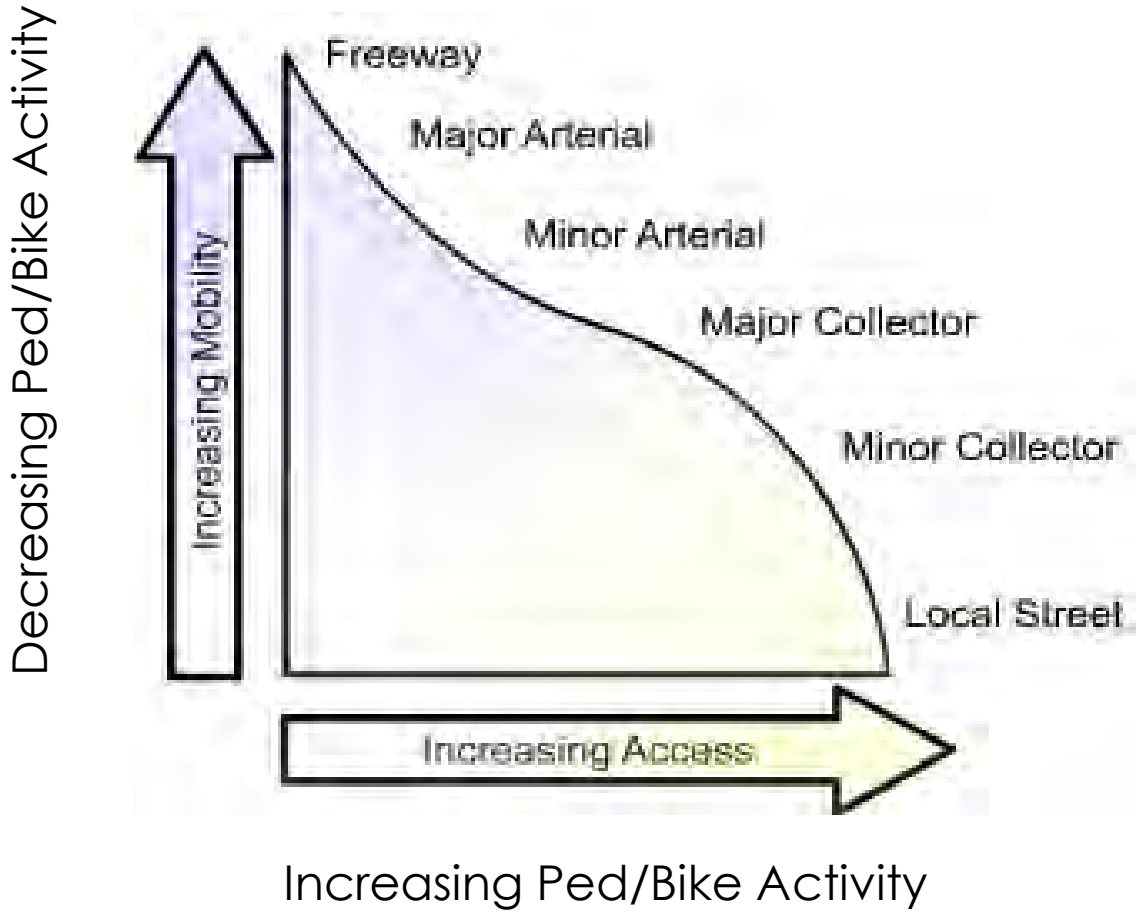
Design Criteria, Minimum Requirements, Integration of Complete Streets, Green Infrastructure, ADA, and Mobility Considerations

Typical Section Framework

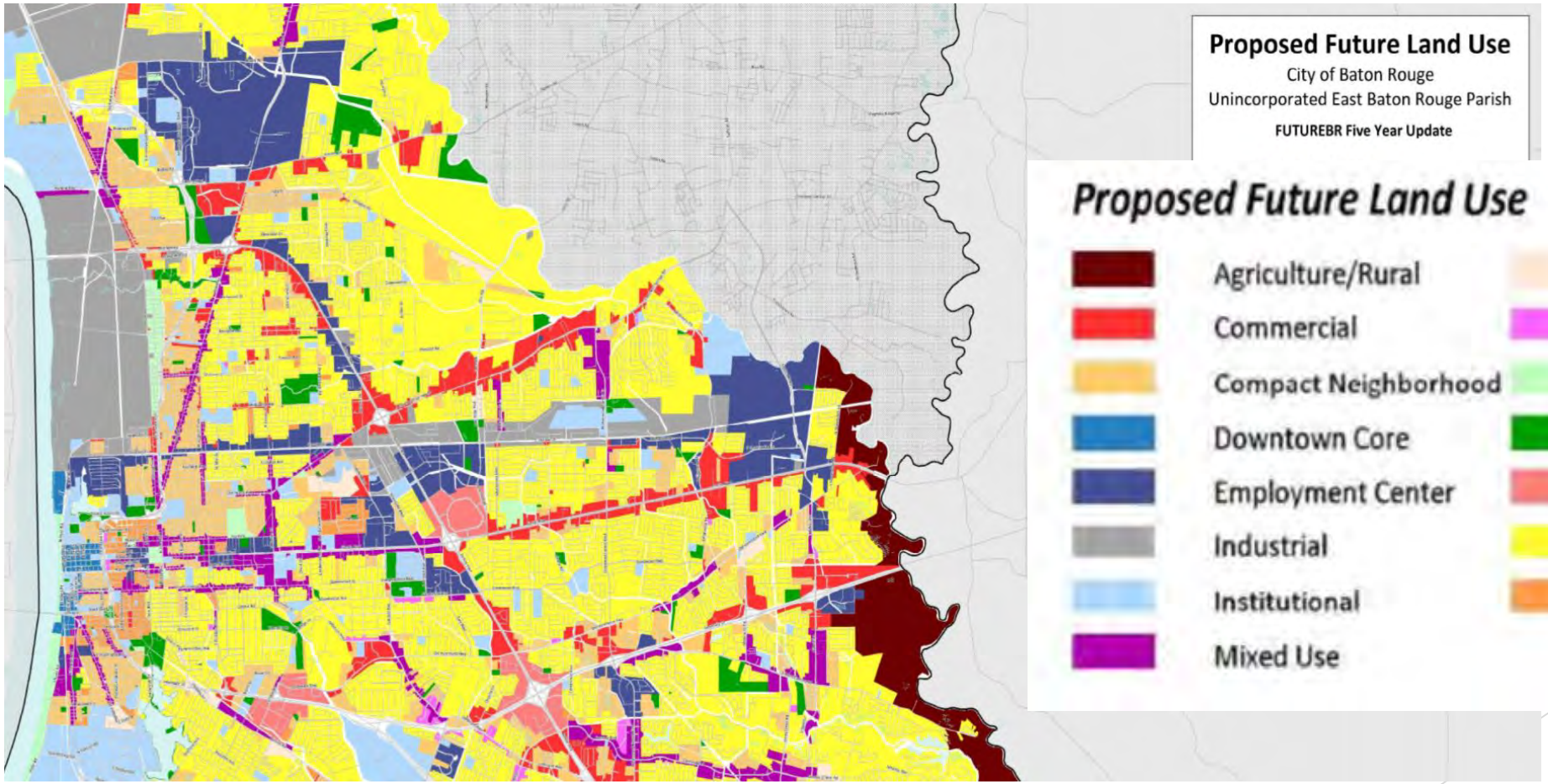
- Functional Classification
- Intended function
- Land Use & Character Area
- AASHTO Contextual Classifications
- Sources:
  - FHWA Highway Functional Classification Concepts, Criteria, and Procedures, 2013
  - FutureBR, 2018
  - AASHTO's Policy on Geometric Design of Highways and Streets, 7th Edition, 2018



Functional Classification



Land Use & Character Area



MOVEBR

AASHTO Contextual Classifications

- Rural (No MOVEBR projects)
- Rural Town

- Suburban

- Urban

- Urban Core

MOVEBR

Mobility, Safety, & Access

Higher Target Speeds

Mobility, Safety, & Access

Lower Target Speeds

Mobility, Safety, & Access

"STROAD"

MOVEBR

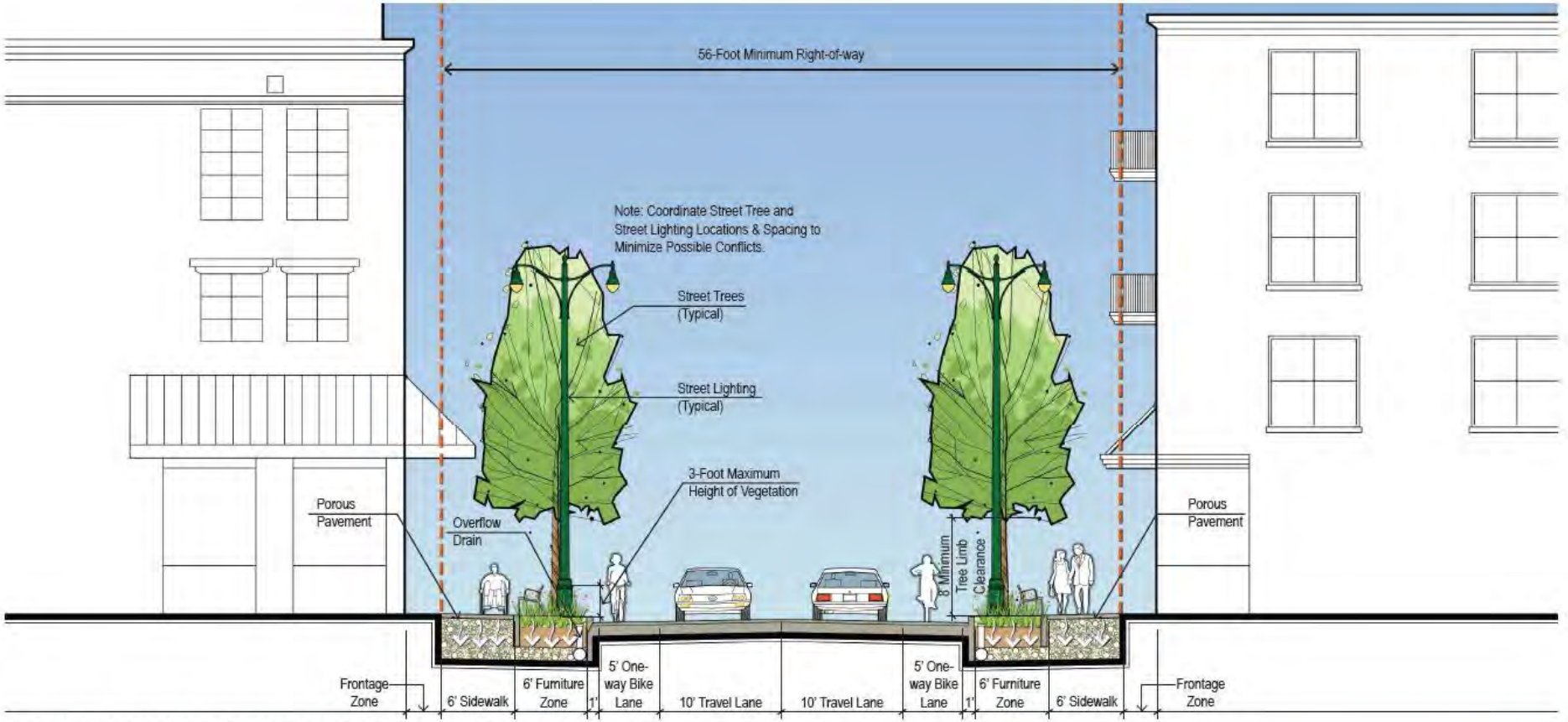
Mobility, Safety, & Access

"STROAD"

MOVEBR

Context Sensitive Multimodal Corridor

Urban/Walkable 2-lane (Opt 1)

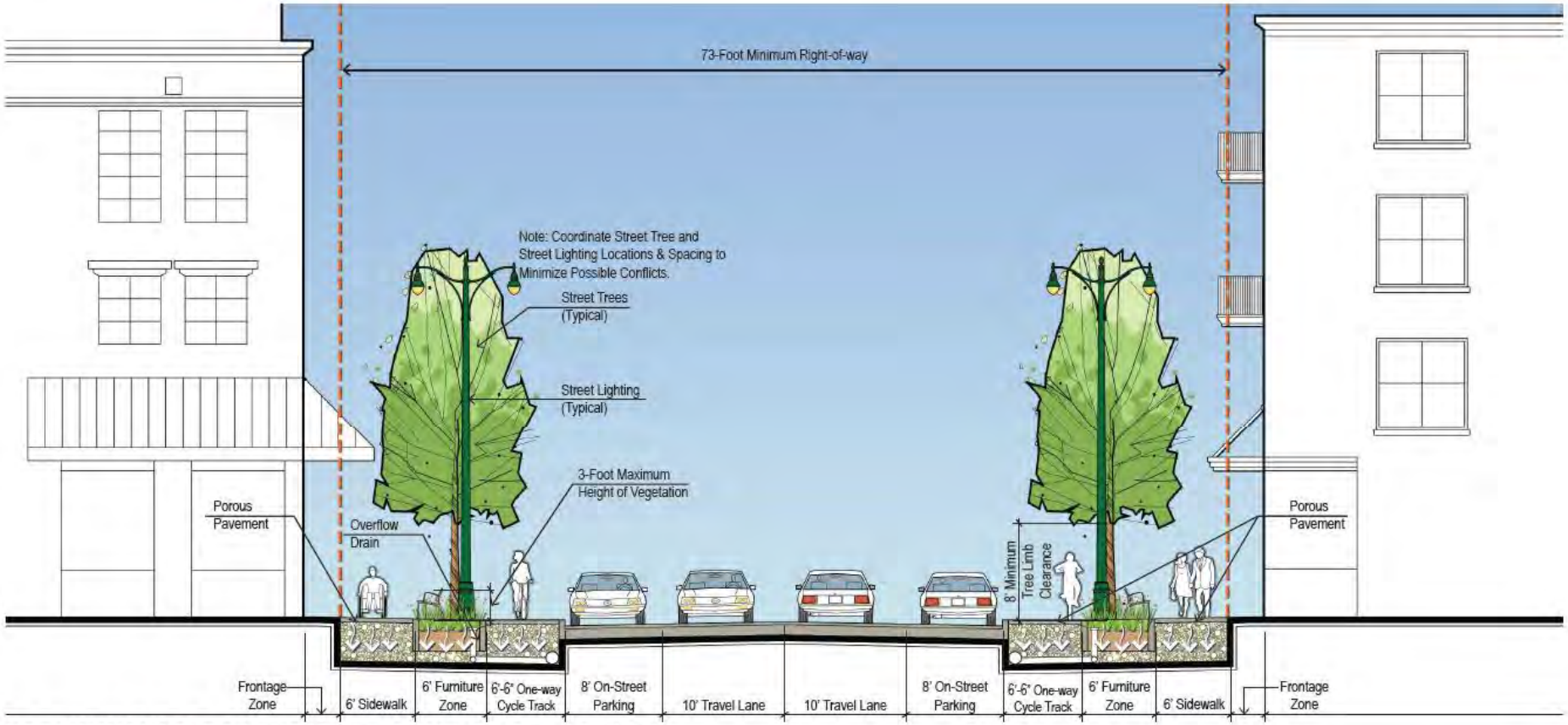


URBAN/WALKABLE 2-LANE (Option 1: No On-Street Parking)

SCALE: 1/8" = 1'-0"

MOBILITY	ACCESS	DESIGN VEHICLE	DESIGN SPEED	LANE WIDTH	SHOULDERS	FURNITURE ZONE	BIKE FACILITY	PEDESTRIAN	CROSS SLOPE	MEDIAN WIDTH	MEDIAN OPENING SPACING
Low	High	SU	25-MPH	10-Feet	1-Foot (Edge of Travel Lane to BOC; Curb and Gutter)	6-Foot; Rain Gardens Preferred; 1.5-Foot Minimum Lateral Offset for Fixed Objects	5-Foot Wide On-Street Bike Lanes with Bike Boxes at Intersections	12-Foot (6-Foot Furniture Zone; 6-Foot side-walk to allow Side-By-Side Walking or Passing)	2.0%	NA	NA

Urban/Walkable 2-lane (Opt 2)

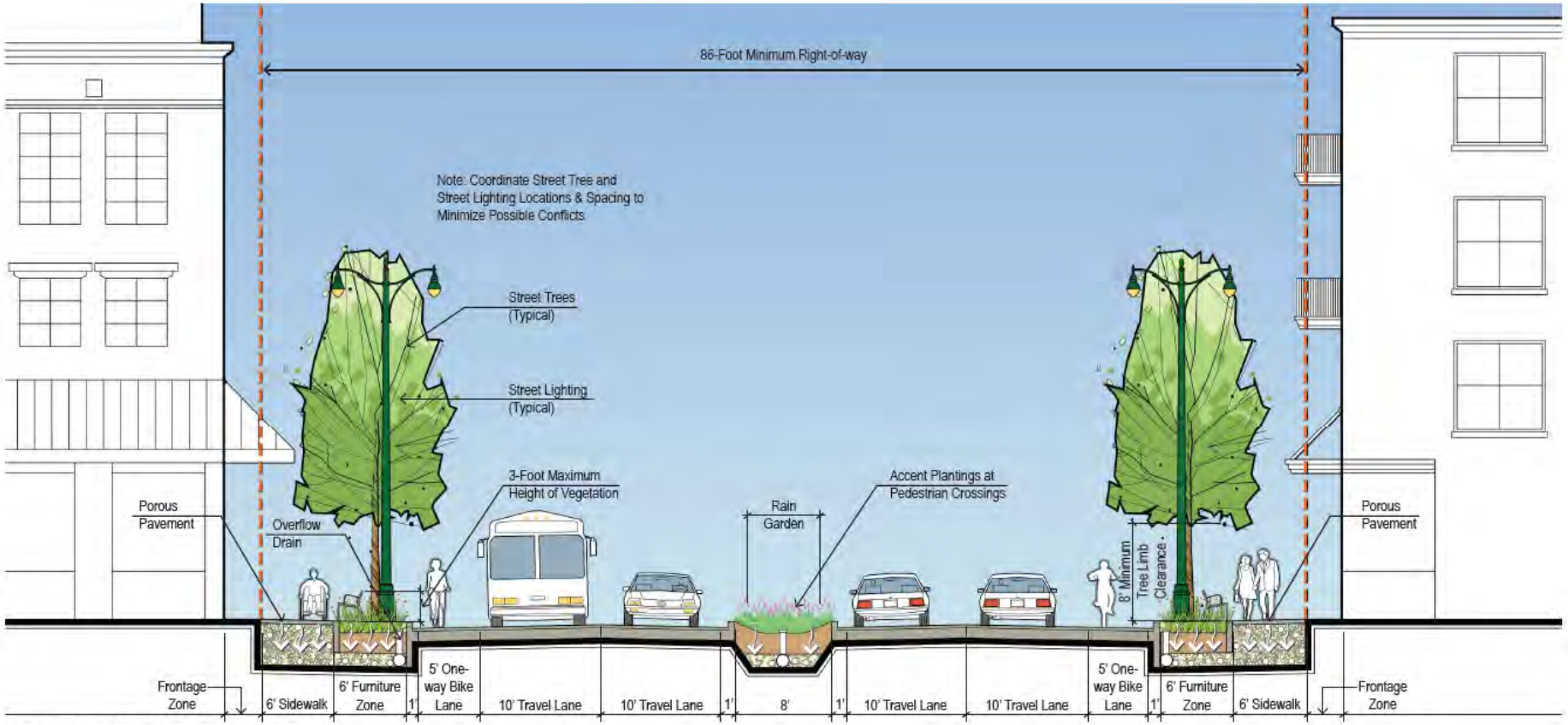


URBAN/WALKABLE 2-LANE (Option 2: With On-Street Parking)

SCALE: 1/8" = 1'-0"

MOBILITY	ACCESS	DESIGN VEHICLE	DESIGN SPEED	LANE WIDTH	SHOULDERS	FURNITURE ZONE	BIKE FACILITY	PEDESTRIAN	CROSS SLOPE	MEDIAN WIDTH	MEDIAN OPENING SPACING
Low	High	SU	25-MPH	10-Feet	8-Foot On-Street Parking Areas	6-Foot; Rain Gardens Preferred; 1.5-Foot Minimum Lateral Offset for Fixed Objects	6-Foot 6-Inches Wide Protected with Bike Boxes at Intersections	12-Foot (6-Foot Furniture Zone; 6-Foot side-walk to allow Side-By-Side Walking or Passing)	2.0%	NA	NA

Urban/Walkable 4-lane

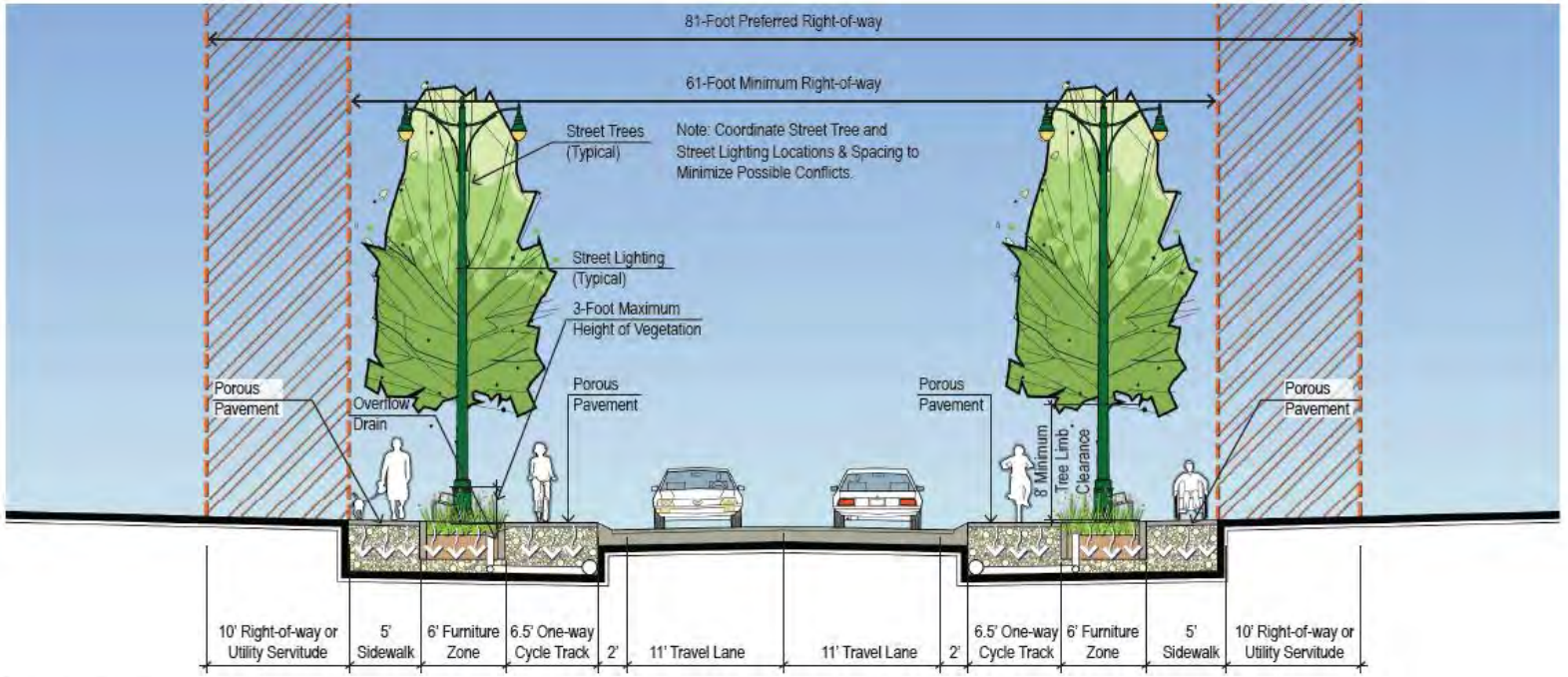


URBAN/WALKABLE 4-LANE

SCALE: 1/8" = 1'-0"

MOBILITY	ACCESS	DESIGN VEHICLE	DESIGN SPEED	LANE WIDTH	SHOULDERS	FURNITURE ZONE	BIKE FACILITY	PEDESTRIAN	CROSS SLOPE	MEDIAN WIDTH	MEDIAN OPENING SPACING
Medium	Medium	SU	30-MPH	10-Feet	1-Foot (Edge of Travel Lane to BOC; Curb and Gutter)	6-Foot; Rain Gardens Preferred; 1.5-Foot Minimum Lateral offset for Fixed Objects	5-Foot Wide On-Street Bike Lanes with Bike Boxes at Intersections; Buffer Preferred	12-Foot (6-Foot Furniture Zone; 6-Foot sidewalk to allow Side-By-Side Walking or Passing) Plus 3-Foot for Frontage Zone	2.0%	8-Foot Minimum	At Signalized Intersections (Urban Blocks)

Suburban 2-lane (Opt 1)

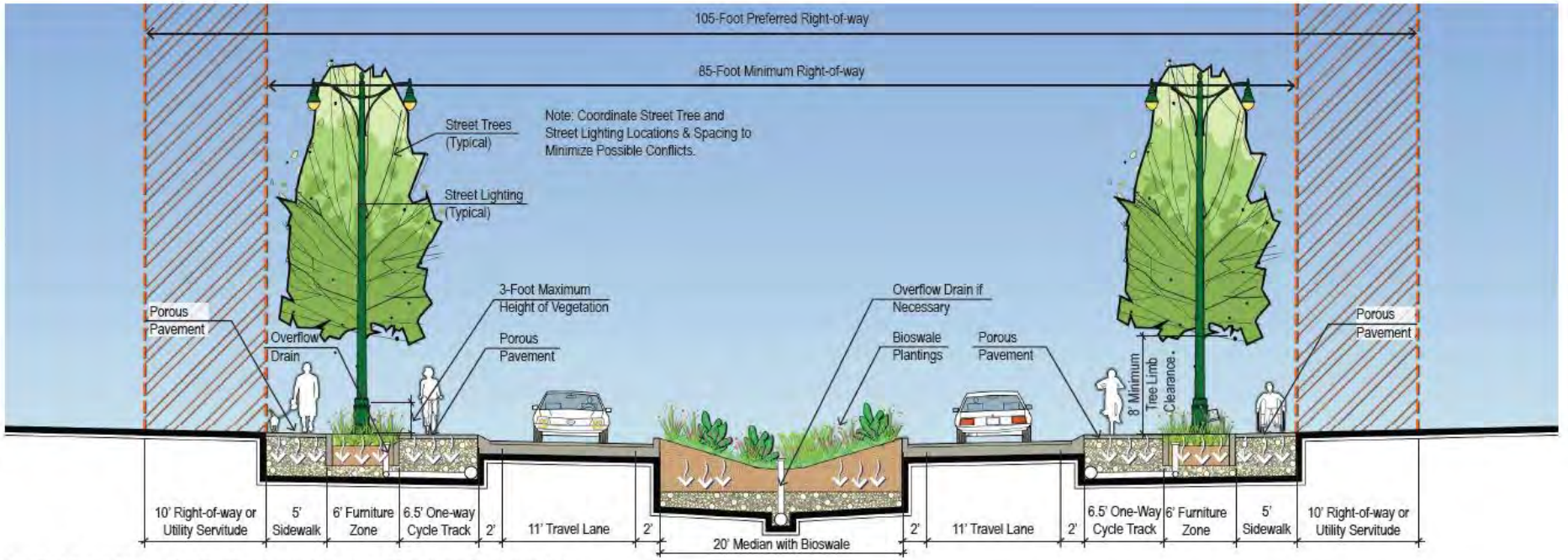


SUBURBAN 2-LANE

SCALE: 1/8" = 1'-0"

MOBILITY	ACCESS	DESIGN VEHICLE	DESIGN SPEED	LANE WIDTH	SHOULDERS	FURNITURE ZONE	BIKE FACILITY	PEDESTRIAN	CROSS SLOPE	MEDIAN WIDTH	MEDIAN OPENING SPACING
Medium	Medium	SU	30-MPH	11-Feet	2-Foot (Edge of Travel Lane to BOC; Curb and Gutter)	6-Foot Preferred; Rain Garden Preferred; 1.5-Foot Minimum Lateral offset for Fixed Objects	6-Foot 6-Inches One-way Cycle Track	5-Foot Wide Sidewalk	2.0%	N/A	N/A

Suburban 2-lane (Opt 2)

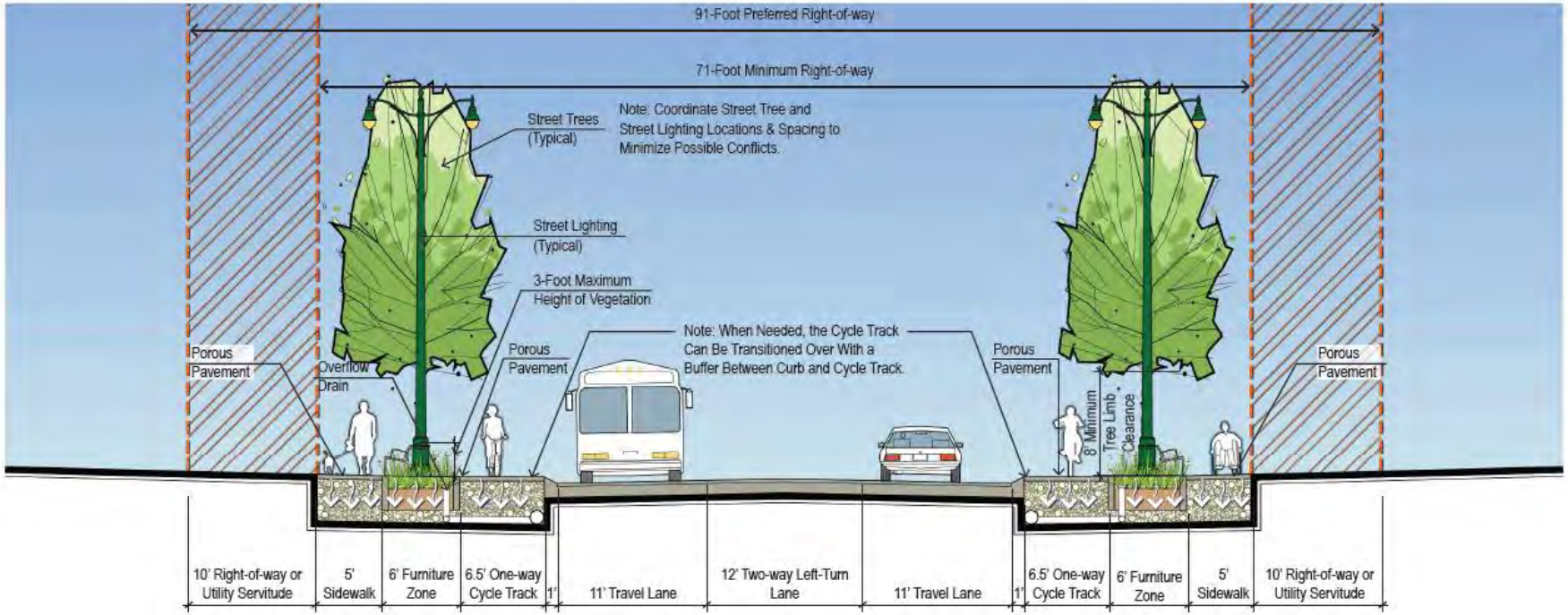


SUBURBAN 2-LANE (Option 2: With Median Bioswale)

SCALE: 1/8" = 1'-0"

MOBILITY	ACCESS	DESIGN VEHICLE	DESIGN SPEED	LANE WIDTH	SHOULDERS	FURNITURE ZONE	BIKE FACILITY	PEDESTRIAN	CROSS SLOPE	MEDIAN WIDTH	MEDIAN OPENING SPACING
Medium	Medium	SU	30-MPH	11-Feet	2-Foot (Edge of Travel Lane to BOC; Curb and Gutter)	6-Foot Preferred; Rain Garden Preferred; 1.5-Foot Minimum Lateral offset for Fixed Objects	6-Foot 6-Inches One-way Cycle Track	5-Foot Wide Sidewalk	2.0%	20-Foot Wide Preferred	0.5-Mile With Offset Lefts

Suburban 3-lane

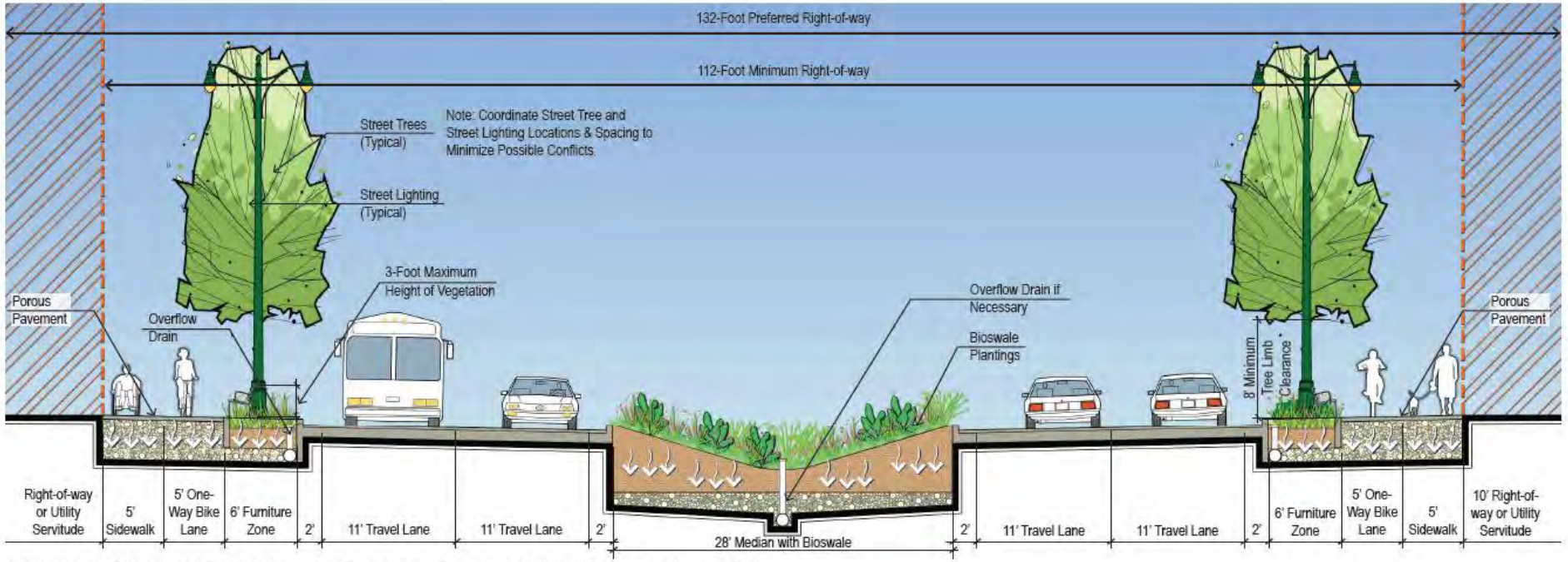


SUBURBAN 3-LANE

SCALE: 1/8" = 1'-0"

MOBILITY	ACCESS	DESIGN VEHICLE	DESIGN SPEED	LANE WIDTH	SHOULDERS	FURNITURE ZONE	BIKE FACILITY	PEDESTRIAN	CROSS SLOPE	TWO-WAY LEFT-TURN LANE WIDTH	MEDIAN OPENING SPACING
Medium	Medium	SU	35-MPH	11-Feet	1-Foot (Edge of Travel Lane to BOC; Curb and Gutter)	6-Foot Preferred; Rain Gardens Preferred; 1.5-Foot Minimum Lateral offset for Fixed Objects	6-Foot 6-Inches One-way Cycle Track	5-Foot Wide Sidewalk	2.0%	12-Foot	N/A

Suburban 4-lane (Opt 1)

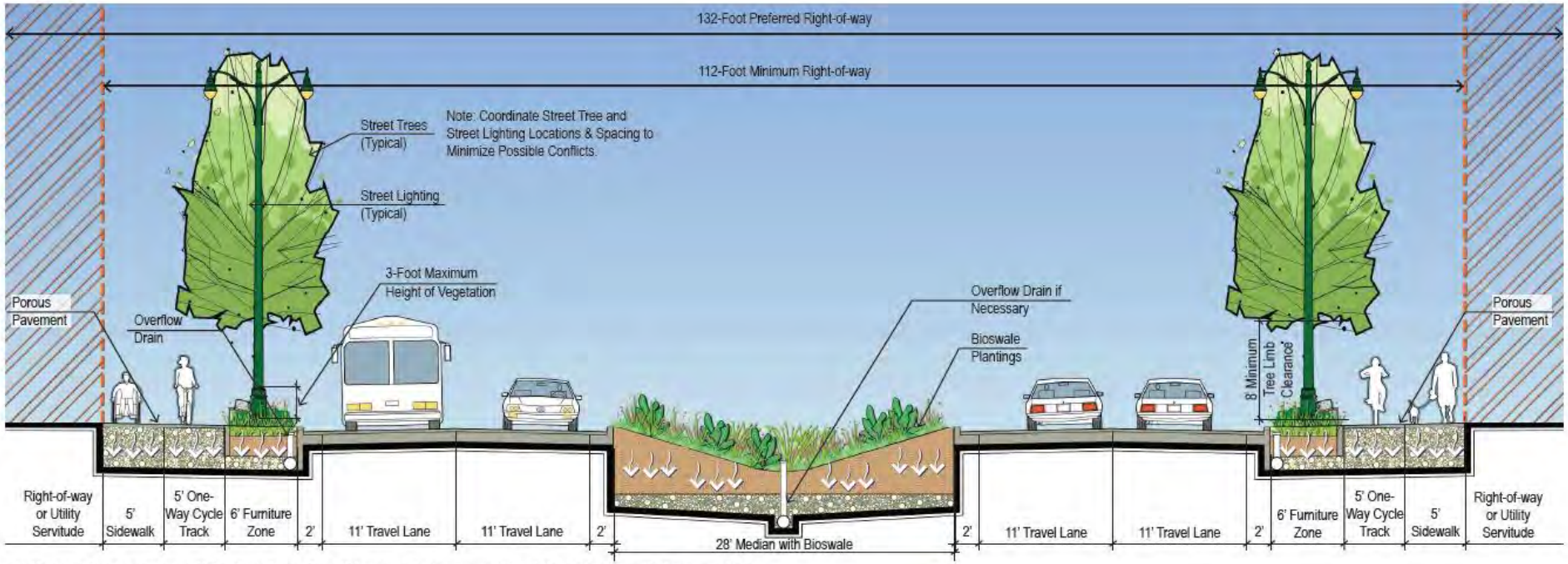


SUBURBAN 4-LANE (Option 1: "Reverse Crown" With Median Bioswale)

SCALE: 1/8" = 1'-0"

MOBILITY	ACCESS	DESIGN VEHICLE	DESIGN SPEED	LANE WIDTH	SHOULDERS	FURNITURE ZONE	BIKE FACILITY	PEDESTRIAN	CROSS SLOPE	MEDIAN WIDTH	MEDIAN OPENING SPACING
High	Low	WB-50	40-MPH	11-Feet	2-Foot (Edge of Travel Lane to BOC; Curb and Gutter)	6-Foot; Rain Gardens Preferred; 3-Foot Minimum Lateral Offset for Fixed Objects	One-way 5-Foot Bike Lane	5-Foot Sidewalk	2.5%	28-Foot Wide Preferred	0.5-Mile With Offset Lefts

Suburban 4-lane (Opt 2)

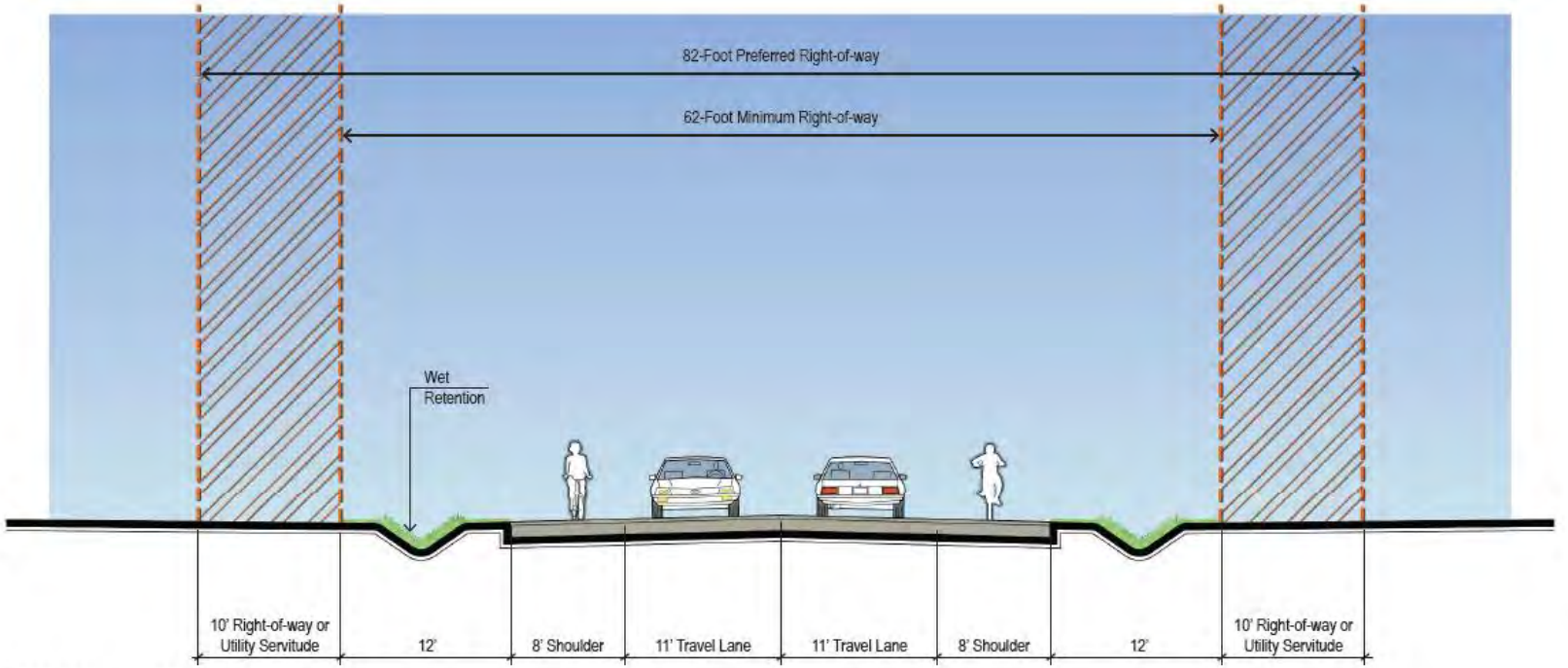


SUBURBAN 4-LANE (Option 2: "Normal Crown" With Median Bioswale)

SCALE: 1/8" = 1'-0"

MOBILITY	ACCESS	DESIGN VEHICLE	DESIGN SPEED	LANE WIDTH	SHOULDERS	FURNITURE ZONE	BIKE FACILITY	PEDESTRIAN	CROSS SLOPE	MEDIAN WIDTH	MEDIAN OPENING SPACING
High	Low	WB-50	40-MPH	11-Feet	2-Foot (Edge of Travel Lane to BOC; Curb and Gutter)	6-Foot; Rain Gardens Preferred; 3-Foot Minimum Lateral Offset for Fixed Objects	One-way 5-Foot Cycle Track	5-Foot Sidewalk	2.5%	28-Foot Wide Preferred	0.5-Mile With Offset Lefts

Rural 2-lane



RURAL 2-LANE

SCALE: 1/8" = 1'-0"

MOBILITY	ACCESS	DESIGN VEHICLE	DESIGN SPEED	LANE WIDTH	SHOULDERS	ROADSIDE BUFFER	BIKE FACILITY	PEDESTRIAN	CROSS SLOPE	MEDIAN WIDTH	MEDIAN OPENING SPACING
High	Low	SU	40-MPH	11-Feet	8-Foot Wide With Rumble Stripe - Note: Rumble Stripe Will Need To Be Intermittent To Allow Bikes To Move In & Out of Lanes (To Turn Left, Pass, Etc.)	Shoulder	Shoulder	N/A	2.5%	N/A	N/A

Module 4: Pedestrian Facilities

Sidewalks, Crosswalks, Medians, Signalization, Buffers and Landscaping

Why is it important to accommodate pedestrian safety and accessibility?

Because we are all pedestrians

MOVEBR

Why is it important to accommodate pedestrian safety and accessibility?

Because many people do not drive

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Why is it important to accommodate pedestrian safety and accessibility?

Because other modes depend on walking

MOVEBR

Why is it important to accommodate pedestrian safety and accessibility?

Because it's good for business – people walk into stores

MOVEBR

Why is it important to accommodate pedestrian safety and accessibility?

MOVEBR

Because pedestrians use and belong on streets and highways

Why is it important to accommodate pedestrian safety and accessibility?

MOVEBR

Because walking is healthy exercise

Louisiana Pedestrian Laws

- Vehicles must yield the right-of-way to pedestrians within a crosswalk that are in the same half of the roadway which the vehicle is traveling or turning onto.
- Pedestrians may not suddenly leave the curb and enter a crosswalk into the path of a moving vehicle that is so close the vehicle is unable to yield. Pedestrians must yield the right-of-way to vehicles when crossing outside of a marked crosswalk or an unmarked crosswalk at an intersection.
- Where traffic control devices are in operation, pedestrians may only cross between two adjacent intersections in a marked crosswalk.

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Louisiana Pedestrian Laws

§212. Pedestrians right-of-way in crosswalks

- A. When traffic-control signals are not in place or not in operation, the driver of a vehicle shall stop and yield the right-of-way, to a pedestrian crossing the roadway within a crosswalk when the pedestrian is upon the roadway upon which the vehicle is traveling or the roadway onto which the vehicle is turning.
- B. No pedestrian shall suddenly leave a curb or other place of safety and walk or run into the path of a vehicle which is so close that it is impossible for the driver to yield.
- C. Whenever any vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle.
- D. Subsection A of this Section shall not apply where the pedestrian is crossing a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing has been provided.
- Acts 1962, No. 310, §1; Acts 2011, No. 244, §1.

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Louisiana Pedestrian Laws

§213. Crossing at other than crosswalks

A. Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right-of-way to all vehicles upon the roadway.

B. Between adjacent intersections at which traffic-control signals are in operation pedestrians shall not cross at any place except in a marked crosswalk.

Acts 1962, No. 310, §1; Acts 2012, No. 811, §9, eff. July 1, 2012.

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Louisiana Pedestrian Laws

§214. Drivers to exercise due care

Notwithstanding the foregoing provisions of this Part, every driver of a vehicle shall exercise due care to avoid colliding with any pedestrian upon any roadway and shall give warning by sounding the horn when necessary and shall exercise proper precaution upon observing any child or any confused or incapacitated person upon a highway.

Acts 1962, No. 310, §1.

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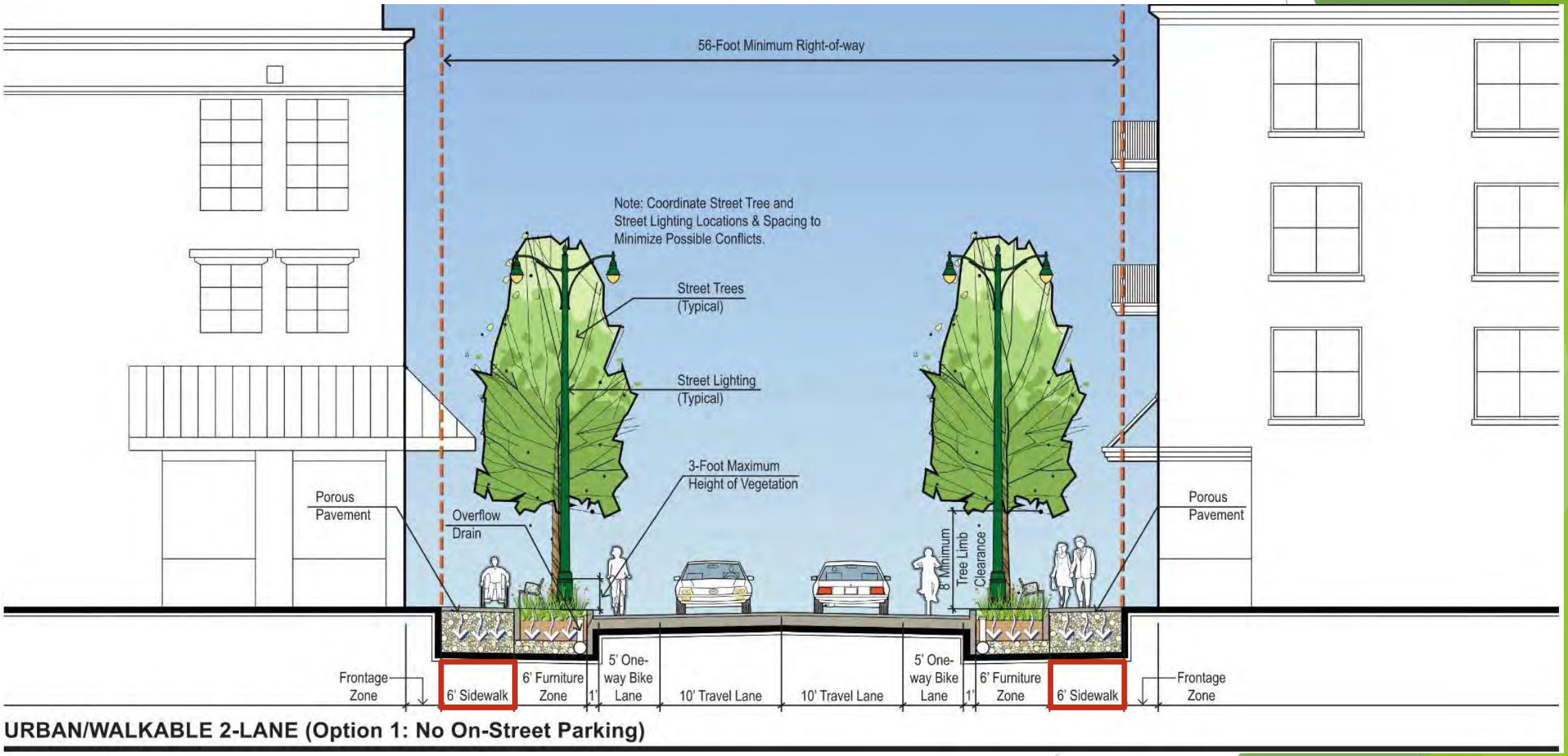
SIDEWALKS

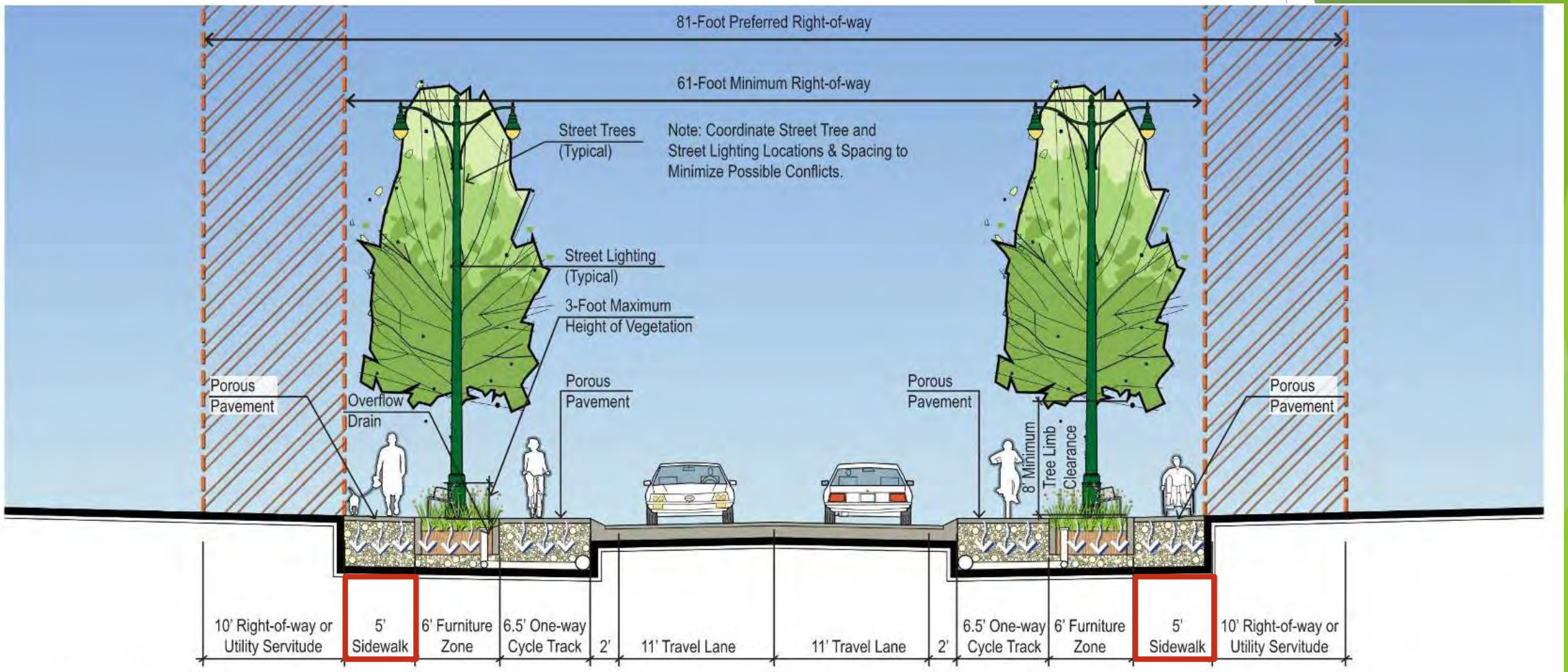
Source: NACTO Urban Street Design Guide

SIDEWALKS – URBAN/WALKABLE



URBAN/WALKABLE 2-LANE (Option 1: No On-Street Parking)

SIDEWALKS – SUBURBAN

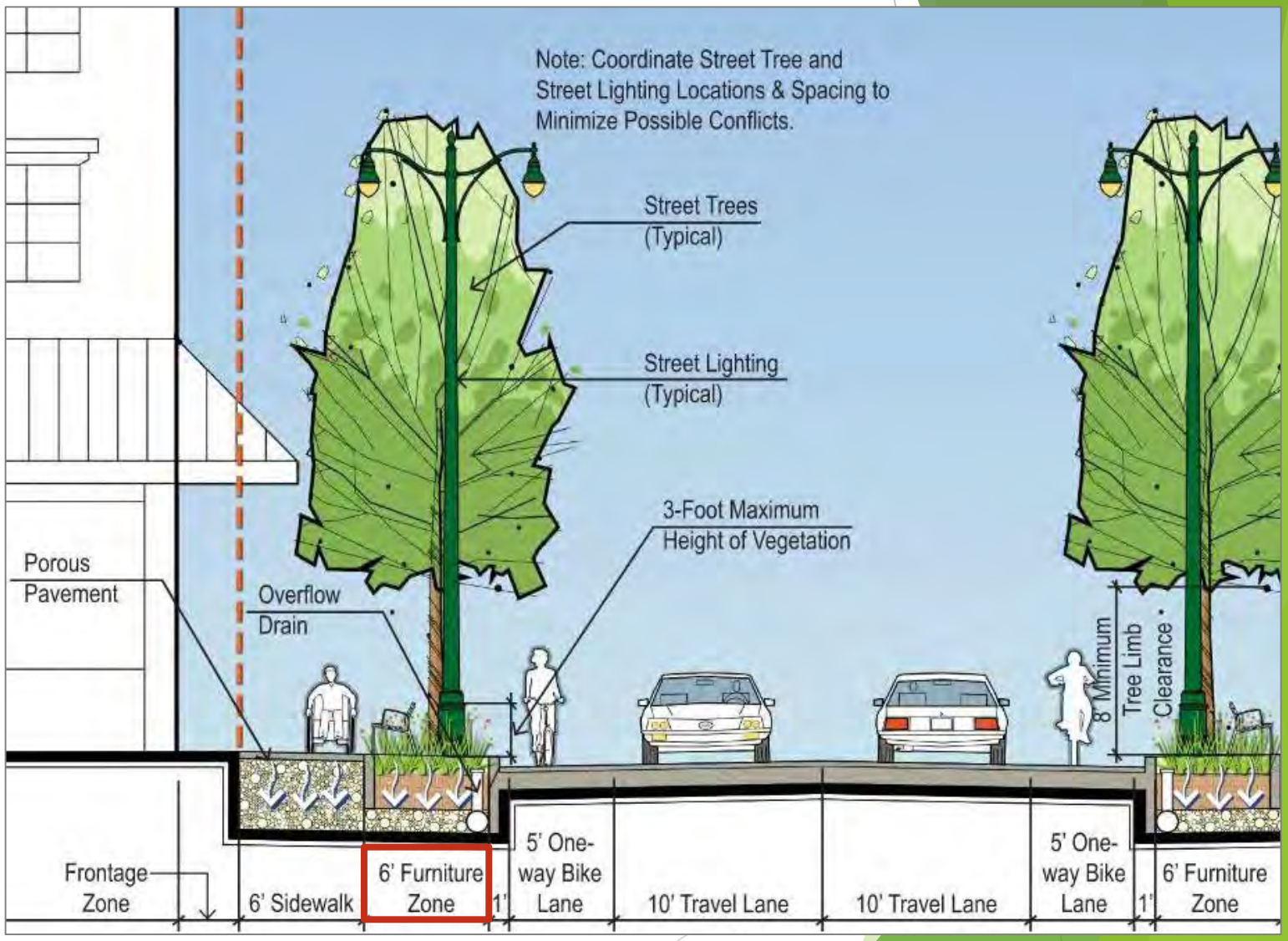


SUBURBAN 2-LANE

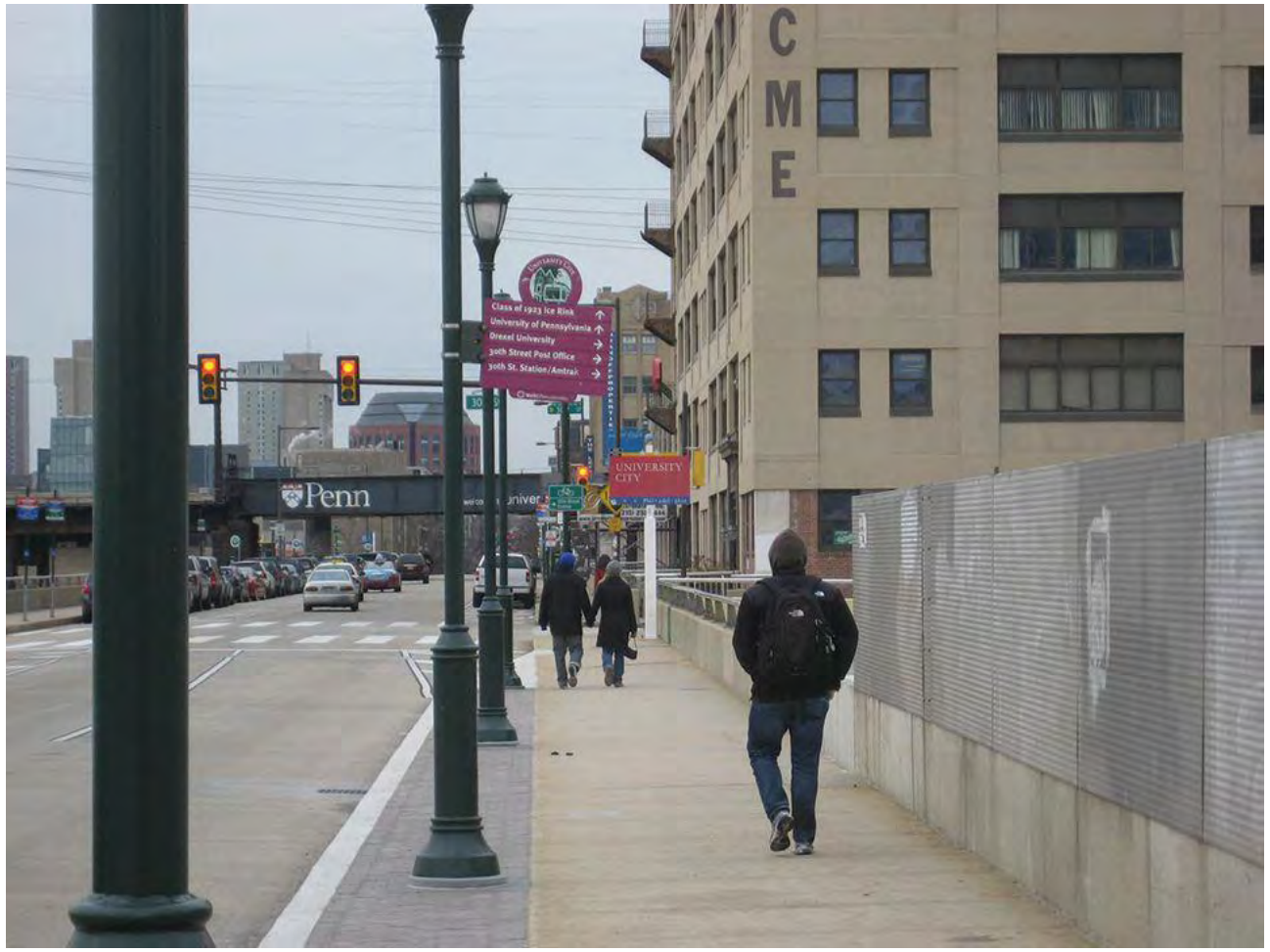
SCALE: 1/8" = 1'-0"

LANDSCAPING / BUFFERS

- STREET FURNITURE/CURB ZONE
- The street furniture zone is defined as the section of the sidewalk between the curb and the through zone in which street furniture and amenities, such as lighting, benches, newspaper kiosks, utility poles, tree pits, and bicycle parking are provided. The street furniture zone may also consist of green infrastructure elements, such as rain gardens or flow-through planters. (Source: NACTO Urban Street Design Guide)



LANDSCAPING / BUFFERS



Source: NACTO Urban Street Design Guide

- **LIGHTING**
- Scaled to the pedestrian realm in addition to overhead lighting for vehicles
- MOVEBR Design Guidelines Section 12 – Street Lighting

LANDSCAPING / BUFFERS

Source: NACTO Urban Street Design Guide

- **BENCHES**

LANDSCAPING / BUFFERS

Source: NACTO Urban Street Design Guide

- **STREET TREES**
- Street trees enhance city streets both functionally and aesthetically. Trees provide shade to homes, businesses, and pedestrians. Street trees also have the potential to slow traffic speeds, especially when placed on a curb extension in line with on-street parking, and may increase pavement life by avoiding extreme heat. Aesthetically, street trees frame the street and the sidewalk as discrete public realms, enriching each with a sense of rhythm and human scale. *(Source: NACTO Urban Street Design Guide)*

LANDSCAPING / BUFFERS

Source: NACTO Transit Street Design Guide

- **BICYCLE PARKING**

INTERSECTION TREATMENTS

- Signalization
- Crosswalks
- Curb Extensions
- Pedestrian Refuge Islands

Source: NACTO Urban Street Design Guide

Every Day Counts - STEP GUIDE

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	❶ 2 4 5 6	❶ 5 6 7 9	① 5 6 ❼ ❾	❶ 4 5 6	❶ 5 6 7 9	① 5 6 ❼ ❾	❶ 4 5 6 7 9	① 5 6 7 9	① 5 6 ❾
3 lanes with raised median (1 lane in each direction)	❶ 2 3 4 5	❶ ❸ 5 7 9	① ❸ 5 ❼ ❾	① 3 4 5 7 9	① ❸ 5 ❼ ❾	① ❸ 5 ❼ ❾	① ❸ 4 5 7 9	① ❸ 5 ❼ ❾	① ❸ 5 ❾
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	❶ 2 3 4 5 6 7 9	❶ ❸ 5 6 7 9	① ❸ 5 6 ❾	① 3 4 5 6 7 9	① ❸ 5 6 ❼ ❾	① ❸ 5 6 ❾	① ❸ 4 5 6 7 9	① ❸ 5 6 ❾	① ❸ 5 6 ❾
4+ lanes with raised median (2 or more lanes in each direction)	❶ ❸ 5 7 8 9	❶ ❸ 5 7 8 9	① ❸ 5 8 ❾	① ❸ 5 7 8 9	① ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	❶ ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	① ❸ 5 8 ❾
4+ lanes w/o raised median (2 or more lanes in each direction)	❶ ❸ 5 6 7 8 9	① ❸ 5 6 7 8 9	① ❸ 5 6 8 ❾	① ❸ 5 6 7 8 9	① ❸ 5 6 ❼ 8 ❾	① ❸ 5 6 8 ❾	❶ ❸ 5 6 ❼ 8 ❾	① ❸ 5 6 8 ❾	① ❸ 5 6 8 ❾

Given the set of conditions in a cell,

- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- ● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- ○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

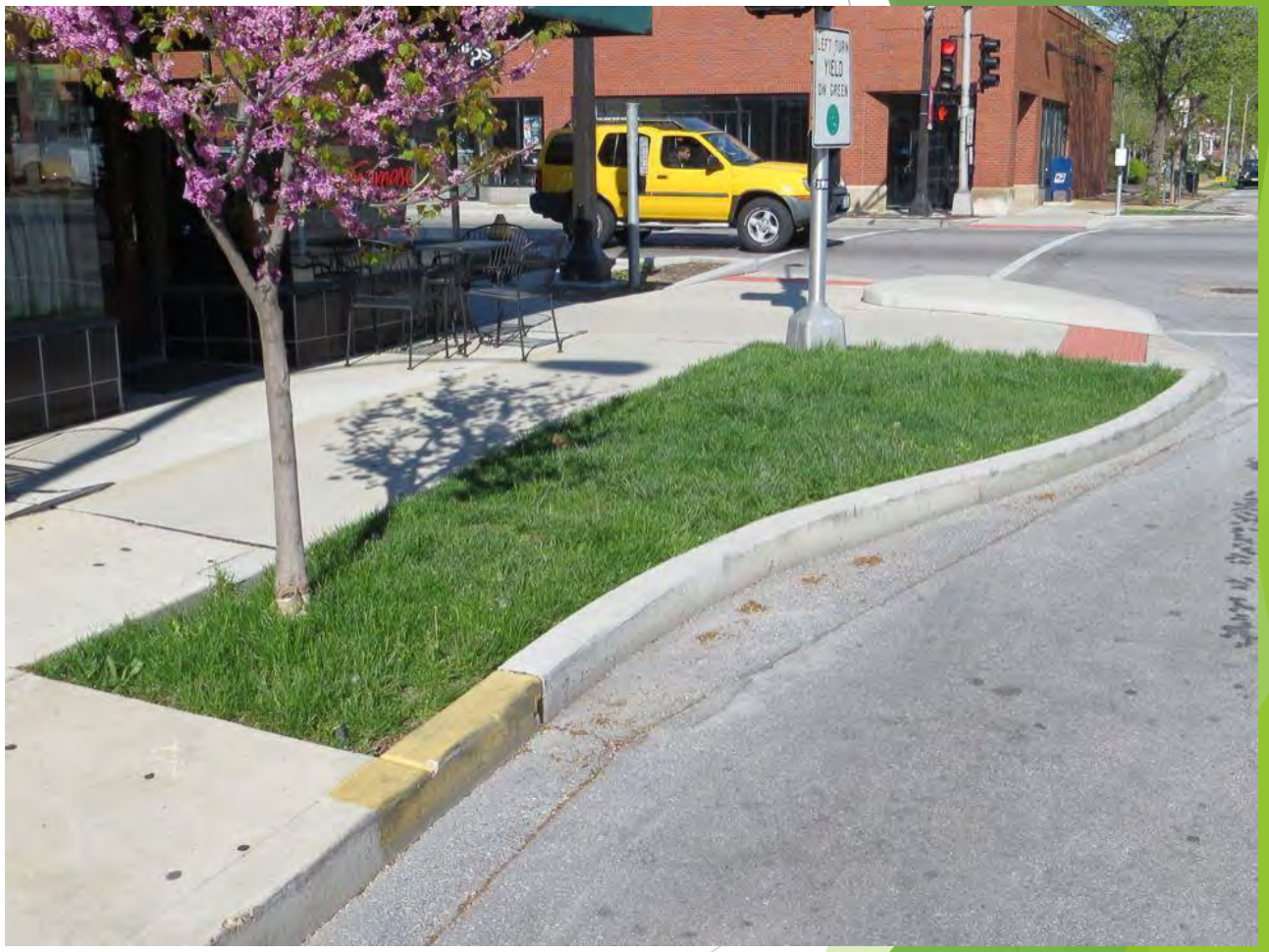
1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
2 Raised crosswalk
3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
4 In-Street Pedestrian Crossing sign
5 Curb extension
6 Pedestrian refuge island
7 Rectangular Rapid-Flashing Beacon (RRFB)**
8 Road Diet
9 Pedestrian Hybrid Beacon (PHB)**

Source: EDC Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations

- Refer to FHWA's *EDC Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* for design best practices

Curb Extensions

- Curb extensions visually and physically narrow the roadway, creating safer and shorter crossings for pedestrians while increasing the available space for street furniture, benches, plantings, and street trees. They may be implemented on downtown, neighborhood, and residential streets, large and small (*Source: NACTO Urban Street Design Guide*).



Source: NACTO Urban Street Design Guide

Crosswalks

- Crosswalks should be provided at regular intervals. Crosswalks designate space for pedestrians so motorists can anticipate crossing activity. All crosswalks installed must meet the requirements in the Manual on Uniform Traffic Control Devices (MUTCD).

Source: NACTO Urban Street Design Guide

HIGH VISIBILITY CROSSWALKS

Source: FHWA Handbook for Designing Roadways for the Aging Population

- **High Visibility Crosswalks** (aka ladder, zebra, and continental crosswalks) enhance safety for pedestrians crossing the roadway. These are more visible to approaching vehicles and have been shown to improve yielding behavior.
- Project-level decisions will be made for application on a case-by-case basis

MIDBLOCK CROSSWALKS

Source: NACTO Urban Street Design Guide

- Midblock crosswalks facilitate crossings to places that people want to go but that are not well served by the existing traffic network. These pedestrian crossings, which commonly occur at schools, parks, museums, waterfronts, and other destinations, have historically been overlooked or difficult to access, creating unsafe or unpredictable situations for both pedestrians and vehicles. (Source: NACTO Urban Street Design Guide)
- Midblock crossings may be considered on a project-by-project basis

Mid Block Pedestrian Crossing Options

Source: NACTO Transit Street Design Guide

- Full Signalized Mid-Block Crossing: pedestrian places a call but the signal remains in coordination with adjacent signals

PEDESTRIAN HYBRID BEACONS

Source: FHWA STEP Countermeasure Tech Sheets

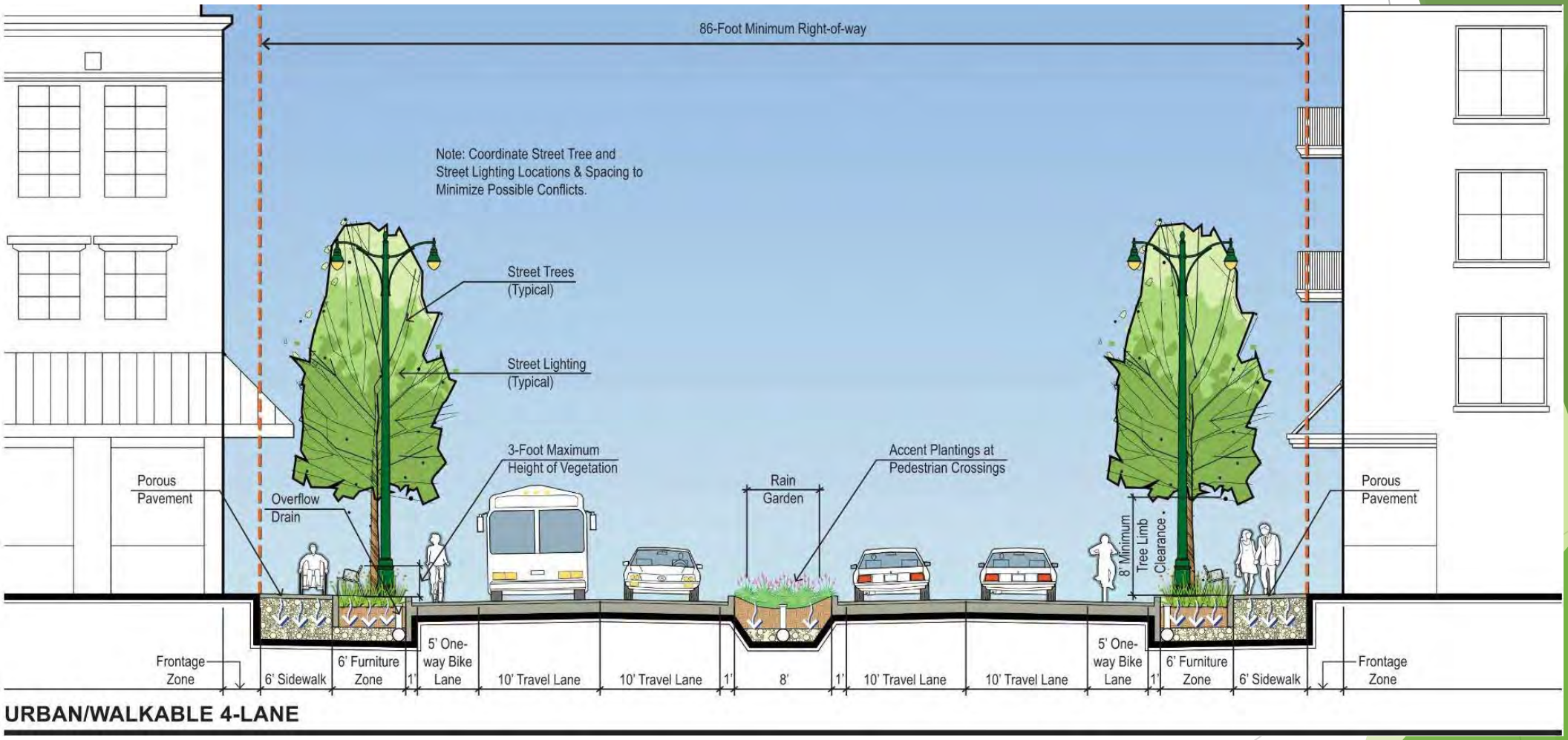
- Unlike a traffic signal, the Pedestrian Hybrid Beacon (aka HAWK) rests in dark until a pedestrian activates it via pushbutton or other form of detection, When activated, the beacon displays a sequence of flashing and solid lights that control vehicular traffic while the pedestrian signal heads indicate the pedestrian walk interval and a pedestrian clearance interval. (Source: EDC – STEP Guide)
- Should be considered for all midblock crossings where the roadway speed limits are equal to or greater than 40 mph.

MEDIANS

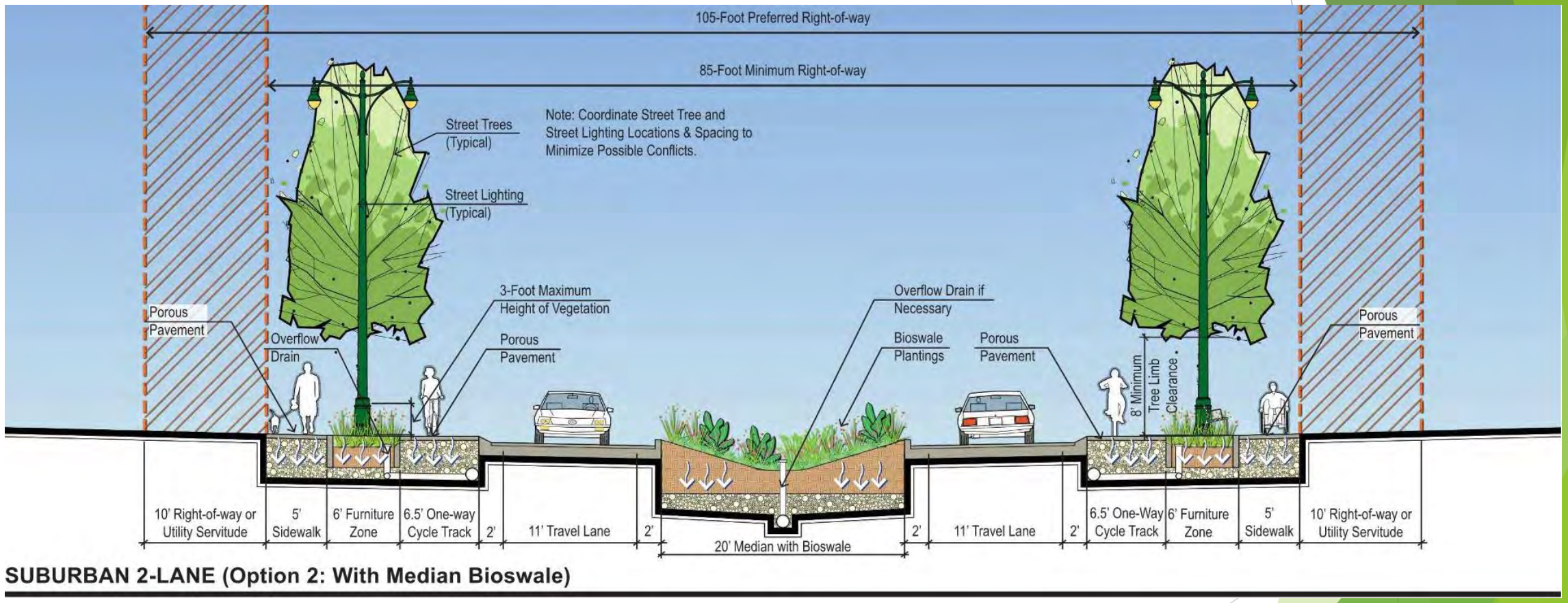
- A pedestrian safety island reduces the exposure time experienced by a pedestrian in the intersection. While safety islands may be used on both wide and narrow streets, they are generally applied at locations where speeds and volumes make crossings prohibitive, or where three or more lanes of traffic make pedestrians feel exposed or unsafe in the intersection. (*Source: NACTO Urban Street Design Guide*)

Source: NACTO Urban Street Design Guide

MEDIANS: URBAN 4-LANE

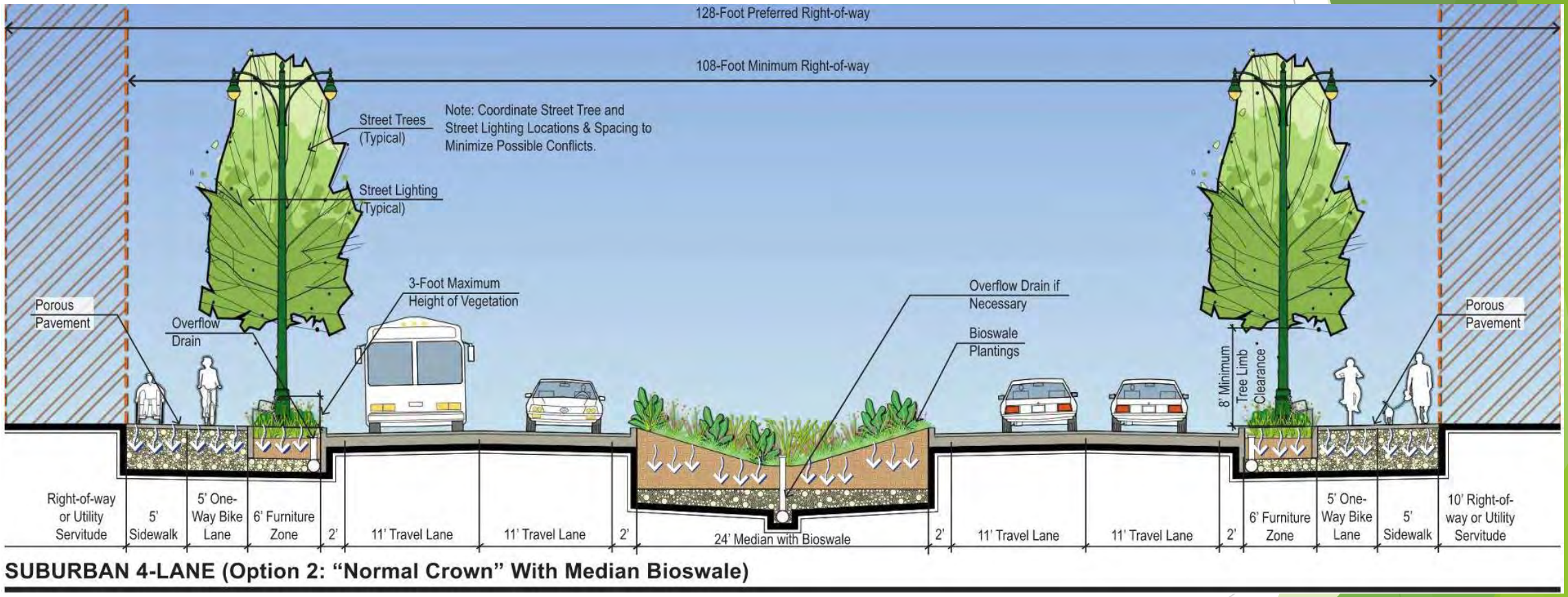


MEDIANS: SUBURBAN 2-LANE



SUBURBAN 2-LANE (Option 2: With Median Bioswale)

MEDIANS: SUBURBAN 4-LANE

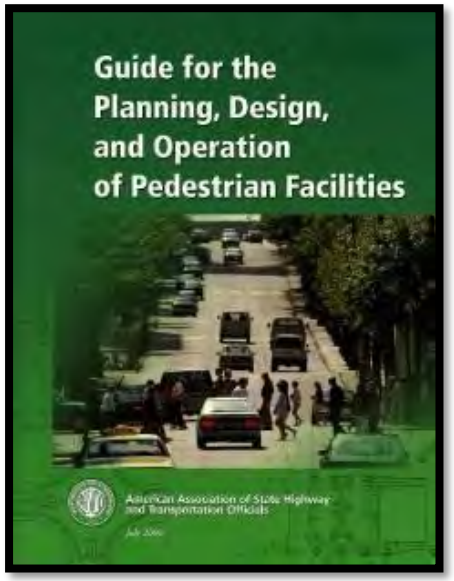


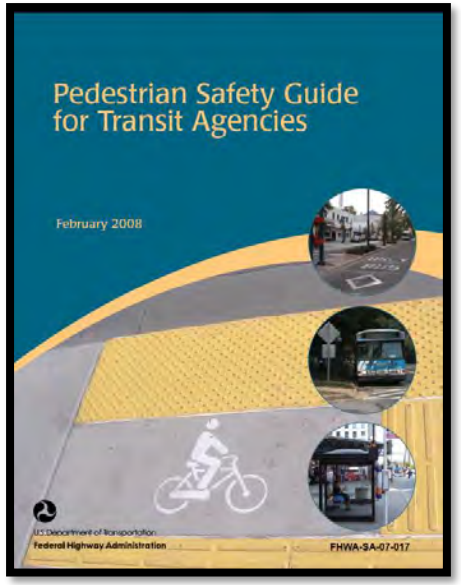
SUBURBAN 4-LANE (Option 2: "Normal Crown" With Median Bioswale)

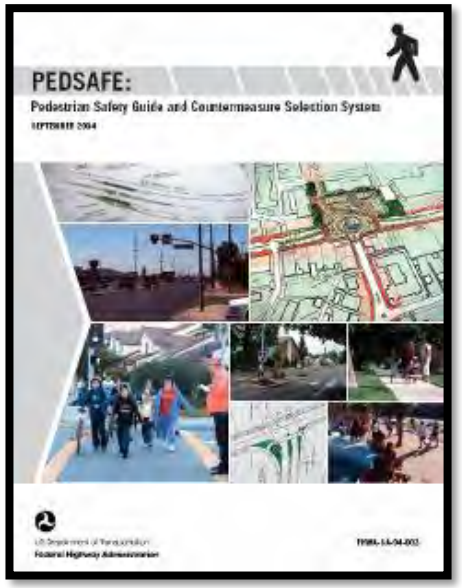
REFERENCE DOCUMENTS

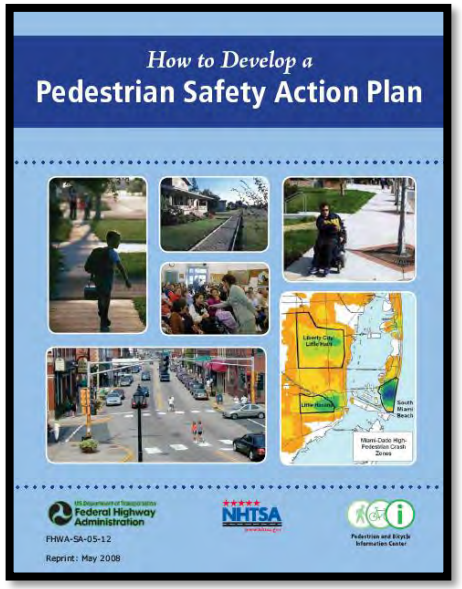
- MOVEBR Infrastructure Enhancement and Traffic Mitigation Program Design Guidelines
- US Access Board Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)
- Manual on Uniform Traffic Control Devices (MUTCD)
- EDC Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations
- Baton Rouge DPW Standard Plans

Additional Resources









PBIC: www.walkinginfo.org

FHWA: safety.fhwa.dot.gov

NHTSA: nhtsa.dot.gov

ITE: www.ite.org

AASHTO/NCHRP: safety.transportation.org

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Module 5: Bicycle Facilities

Bike Lanes, Cycle Tracks, Shared Use Paths, Bike Boxes, Bike Signals

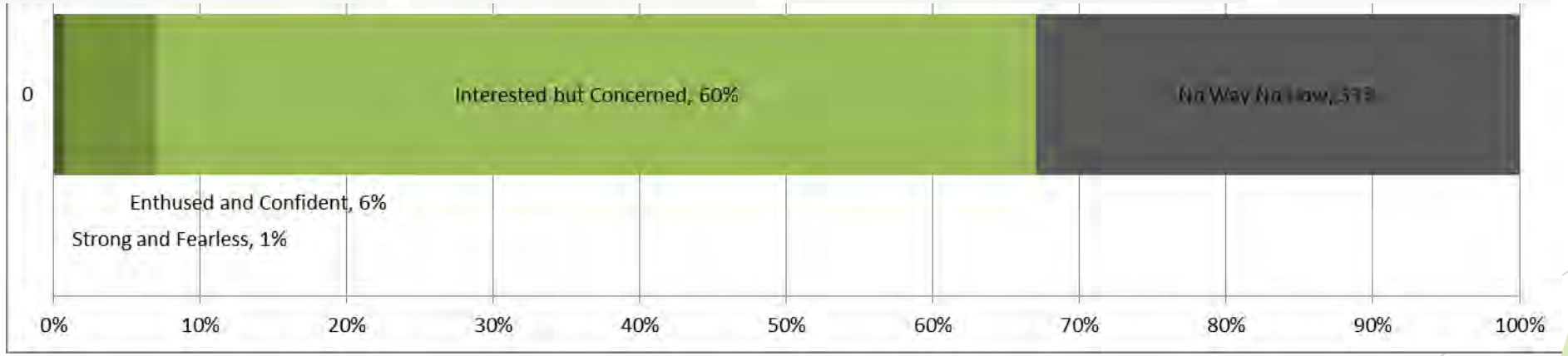
Types of Bicyclists

Strong & Fearless

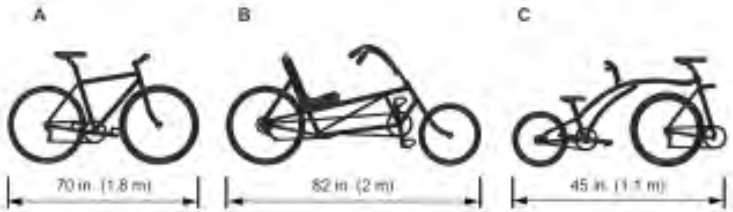
Enthused & Confident

Interested, but Concerned

Not Interested



Types of Bicycles



A. Adult Typical Bicycle
B. Adult Single Recumbent Bicycle
C. Additional Length for Trailer Bike
D. Additional Length for Child Trailer
E. Width for Child Trailer
F. Adult Tandem Bicycle

Figure 3-2. Typical Bicyle Dimensions

Table 3-1. Key Dimensions

User Type	Feature	Dimension	
		U.S. Customary	Metric
Typical upright adult bicyclist	Physical width (95th percentile)	30 in.	0.75 m
	Physical length	70 in.	1.8 m
	Physical height of handlebars (typical dimension)	44 in.	1.1 m
	Eye height	60 in.	1.5 m
	Center of gravity (approximate)	33–44 in.	0.8–1.0 m
	Operating width (minimum)	48 in.	1.2 m
	Operating width (preferred)	60 in.	1.5 m
	Operating height (minimum)	100 in.	2.5 m
	Operating height (preferred)	120 in.	3.0 m

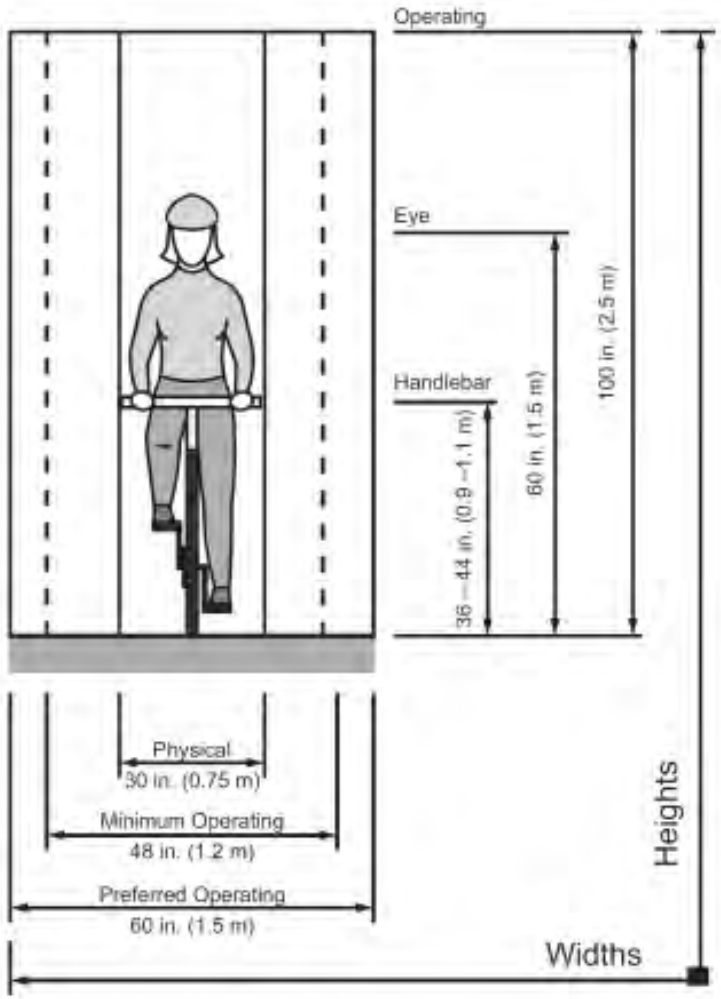


Figure 3-1. Bicyclist Operating Space

Types of Trips

- Utilitarian/ Nondiscretionary
  - Everyday trips; work, school, etc.
- Recreation/ Discretionary
  - Wide range of trips and riders

Bicycle Operations

Traffic Principles for Bicyclists

- Generally keep right
- Changing lanes
- Intersection approach
- Left turns

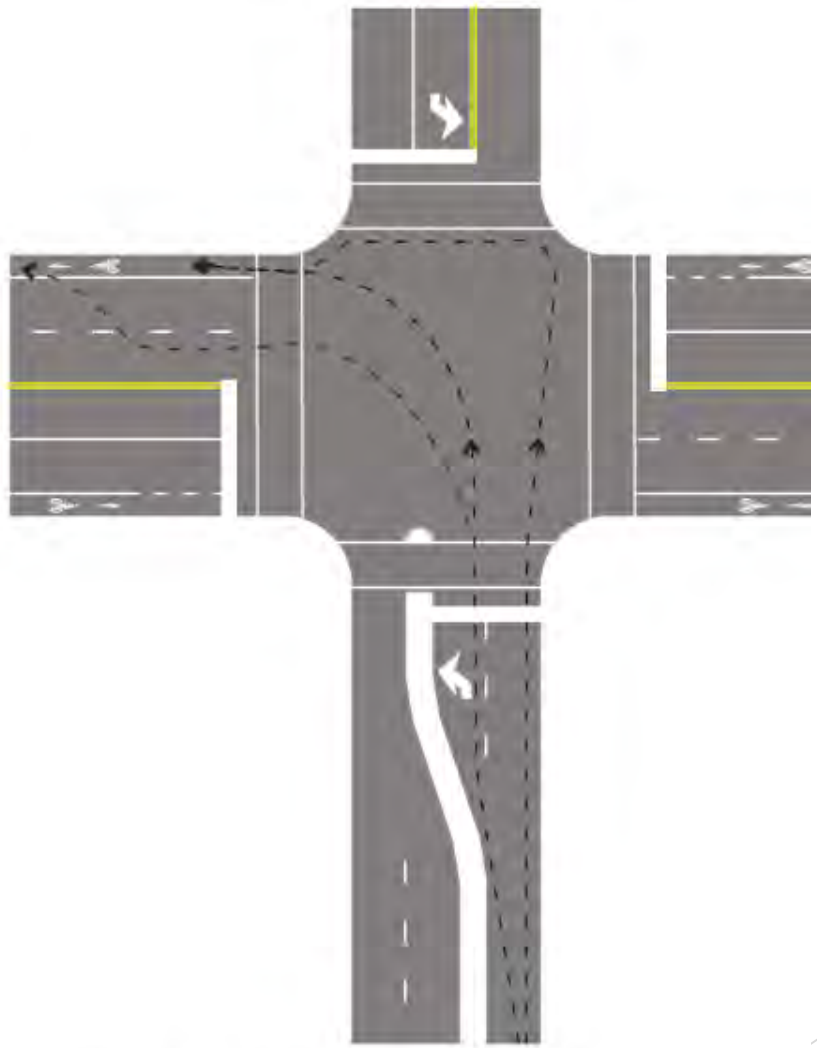
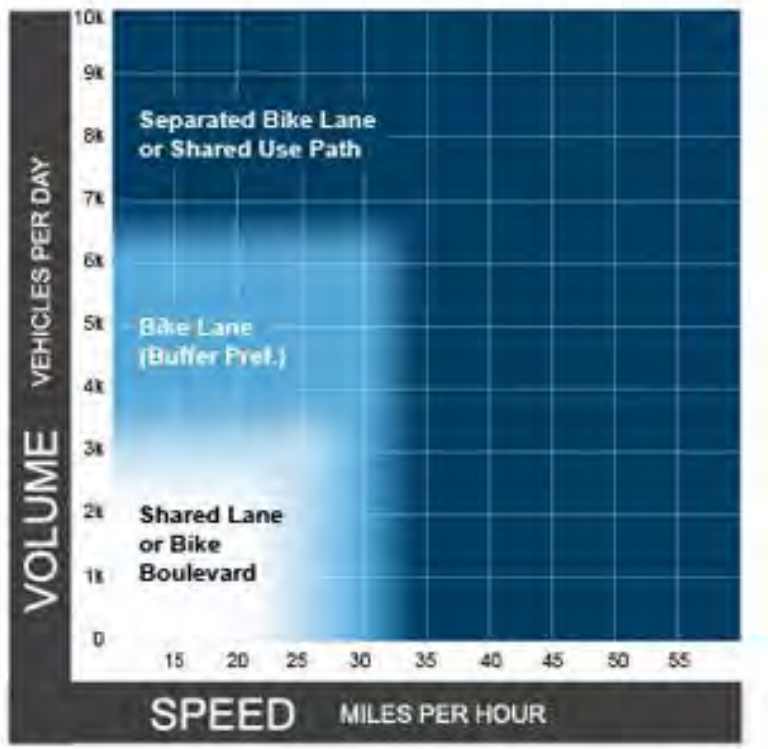


Figure 3-3. Common Maneuvers for Bicyclists Turning Left at an Intersection

Types of Bicycle Facilities

- Shared Lanes, Advisory Bike Lanes & Bike Boulevards
- Bike Lanes
- Buffered Bike Lanes
- Separated Bike Lanes & Cycle Tracks
- Shared Use Paths



Notes

1 *Chart assumes operating speeds are similar to posted speeds. If they differ, use operating speed rather than posted speed.*

2 *Advisory bike lanes may be an option where traffic volume is <3K ADT.*

3 *See Section 4.4 for a discussion of alternatives if the preferred bikeway type is not feasible.*

Shared Lanes, Advisory Bike Lanes & Bike Boulevards (< 25 mph & < 3k vpd)

MOVEBR

Bike Lanes (< 30 mph & < 6k vpd)

MOVEBR

Buffered Bike Lanes (< 35 mph)

Separated Bike Lanes & One-Way Raised Cycle Tracks (35 mph or greater)

MOVEBR

Shared Use Paths (aka Trails)

- Shared with bicyclists and pedestrians
- Completely separated from vehicles

MOVEBR

Bicycle lane Width

- No gutter, curb, or parking
  - 4’ minimum
- No gutter with curb, no parking
  - 5 foot typical, 4 foot allowed
  - Constrained, low speed roads
  - All other lanes narrowed first

Bicycle lane Width

- With gutter and curb
  - 5 foot minimum with 12-inch gutter
  - 6 foot minimum with 24-inch gutter
  - Additional width improves comfort and safety

- With gutter and curb, with parking
  - 5 foot minimum
  - 6 or 7 foot width adjacent to high turnover parking
  - Wider lanes where parking in high demand may encourage double parking
  - Parking lane width = 8 foot desirable, 7 foot minimum

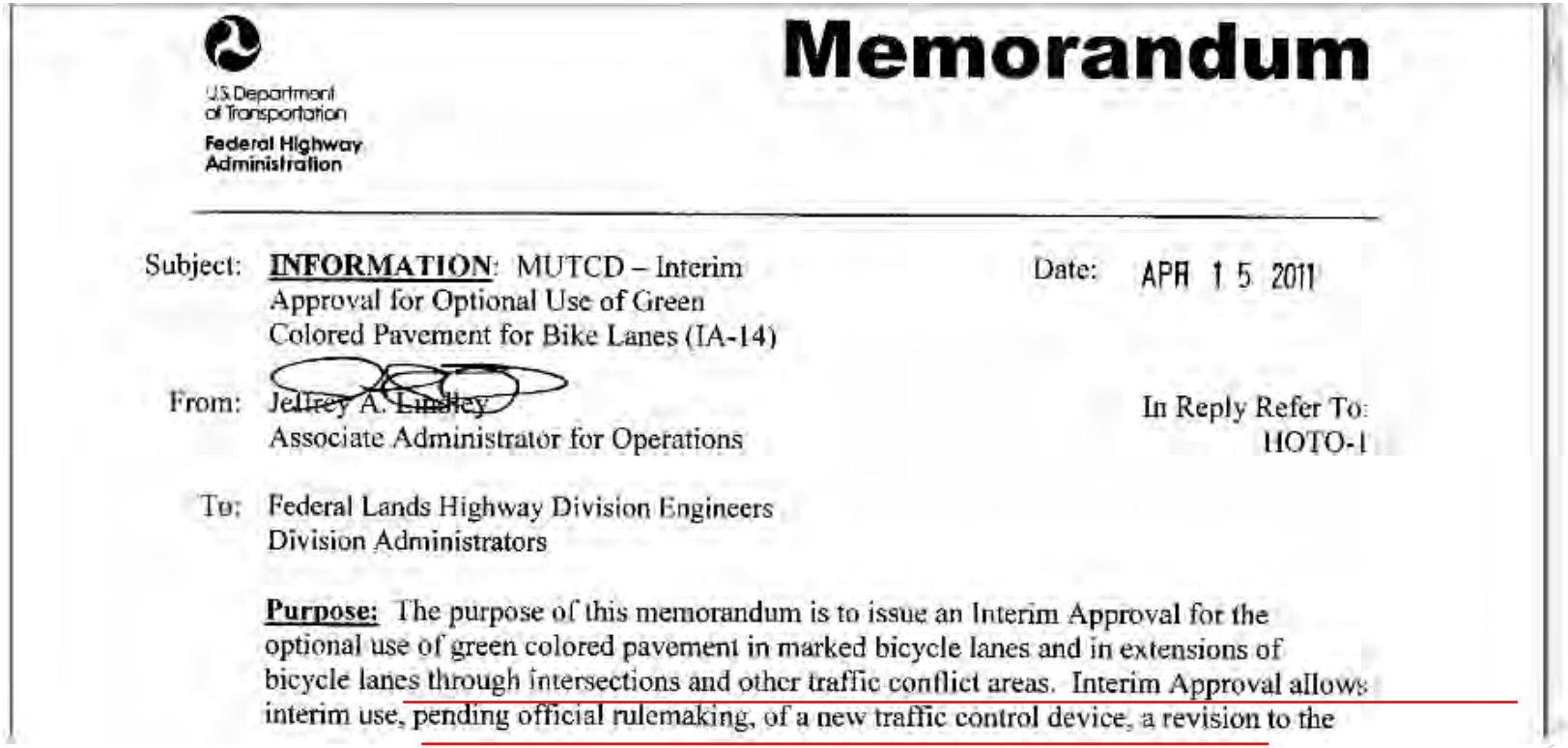
Drainage Considerations

- Useable width of 4 feet is recommended
- Drainage grates
  - Reduce effective width of bike lane
  - Use bicycle compatible grates
- Widen bike lane or relocate grate if the clear bike lane operating space falls below 4 feet

MOVEBR

Green Colored Bicycle Lanes

- Guide incorporates Green Lane FHWA interim approval
  - http://mutcd.fhwa.dot.gov/resources/interim_approval/ia14/ia14grnpmbiketlanes.pdf



U.S. Department of Transportation
Federal Highway Administration

Memorandum

Subject: **INFORMATION**: MUTCD – Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14)

Date: APR 15 2011

From: Jeffrey A. Lindley
Associate Administrator for Operations

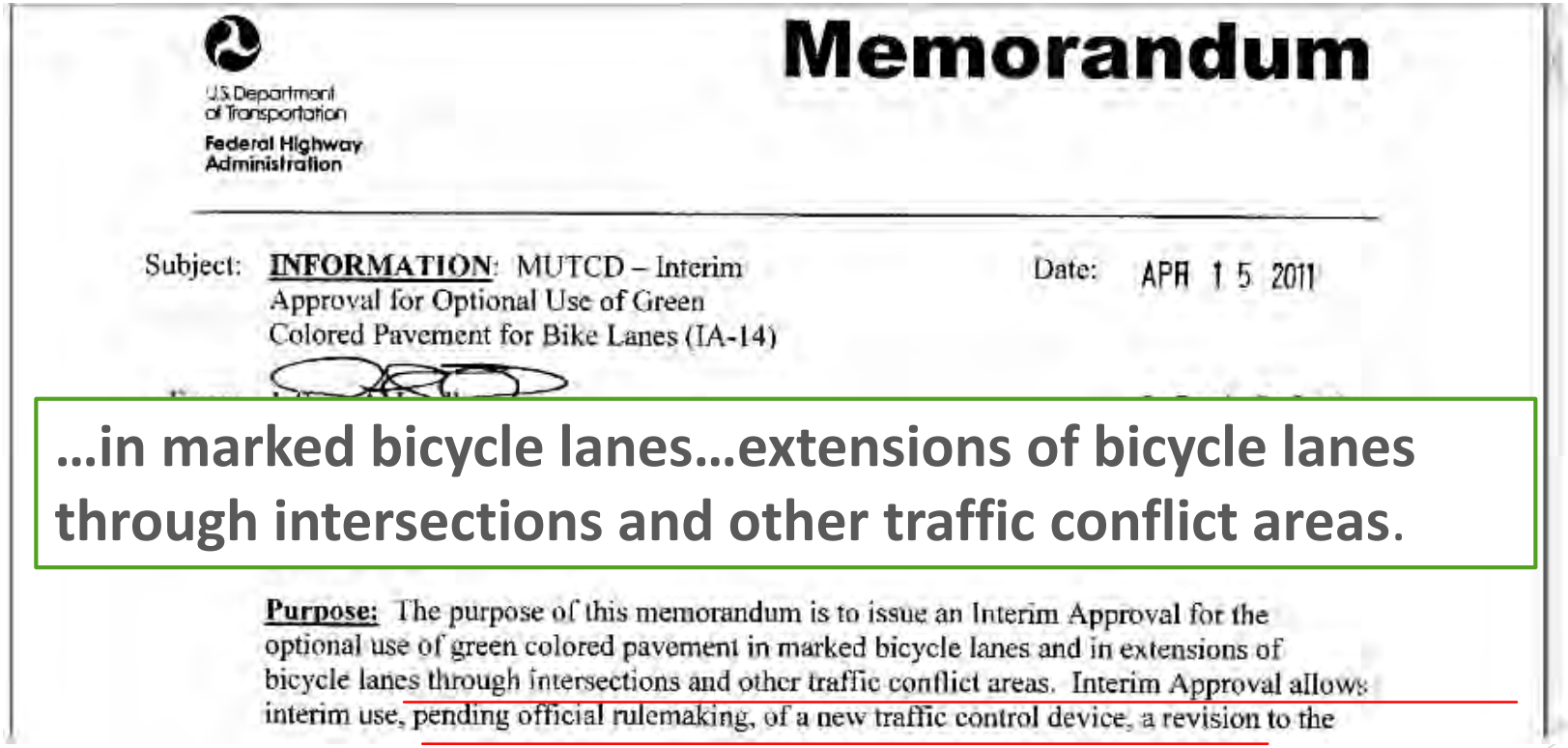
In Reply Refer To: HOTO-1

To: Federal Lands Highway Division Engineers
Division Administrators

Purpose: The purpose of this memorandum is to issue an Interim Approval for the optional use of green colored pavement in marked bicycle lanes and in extensions of bicycle lanes through intersections and other traffic conflict areas. Interim Approval allows interim use, pending official rulemaking, of a new traffic control device, a revision to the

Green Colored Bicycle Lanes

- Guide incorporates Green Lane FHWA interim approval
  - http://mutcd.fhwa.dot.gov/resources/interim_approval/ia14/ia14grnpmbiketlanes.pdf



U.S. Department of Transportation
Federal Highway Administration

Memorandum

Subject: **INFORMATION**: MUTCD – Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14)

Date: APR 15 2011

…in marked bicycle lanes…extensions of bicycle lanes through intersections and other traffic conflict areas.

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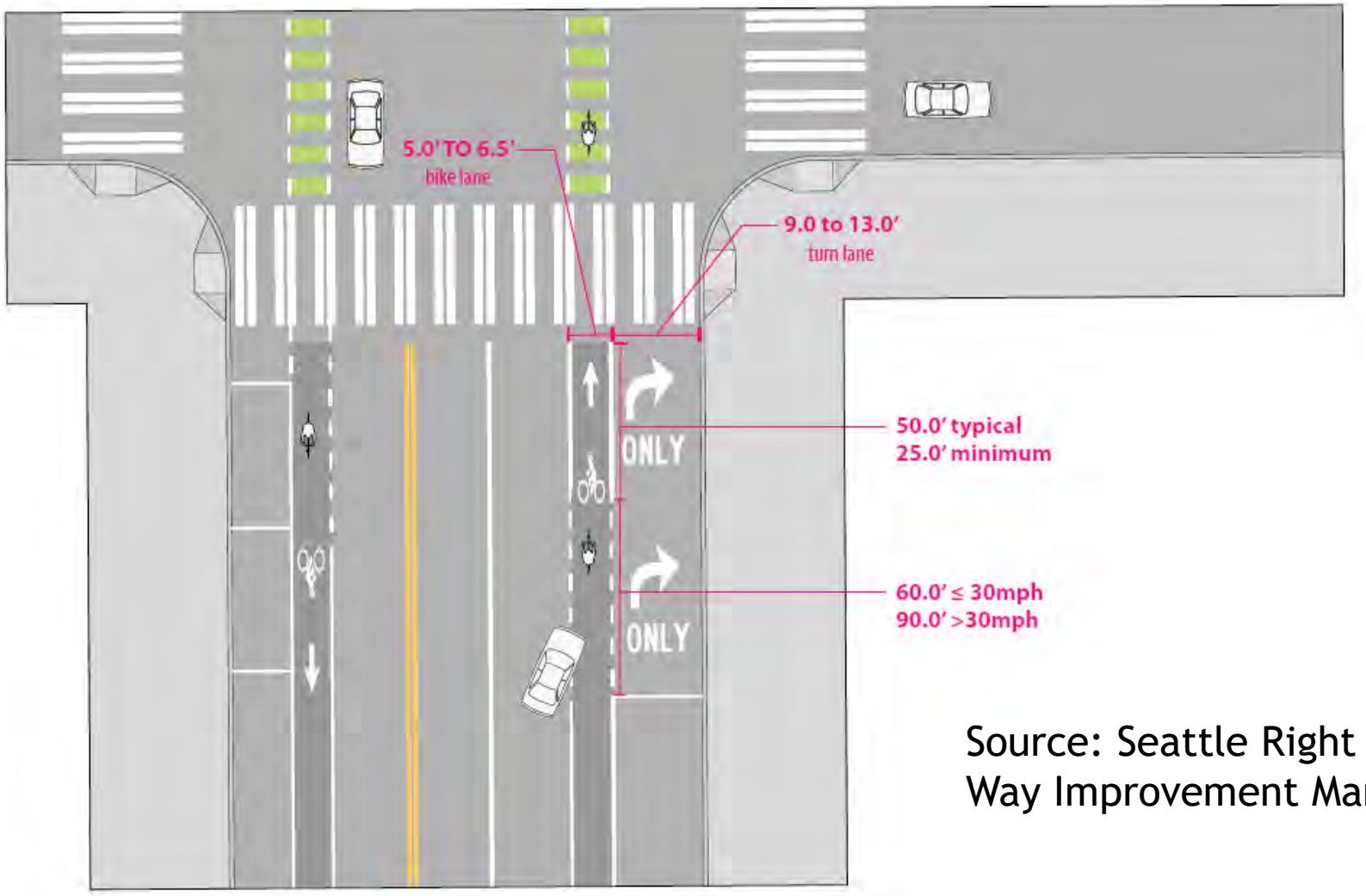
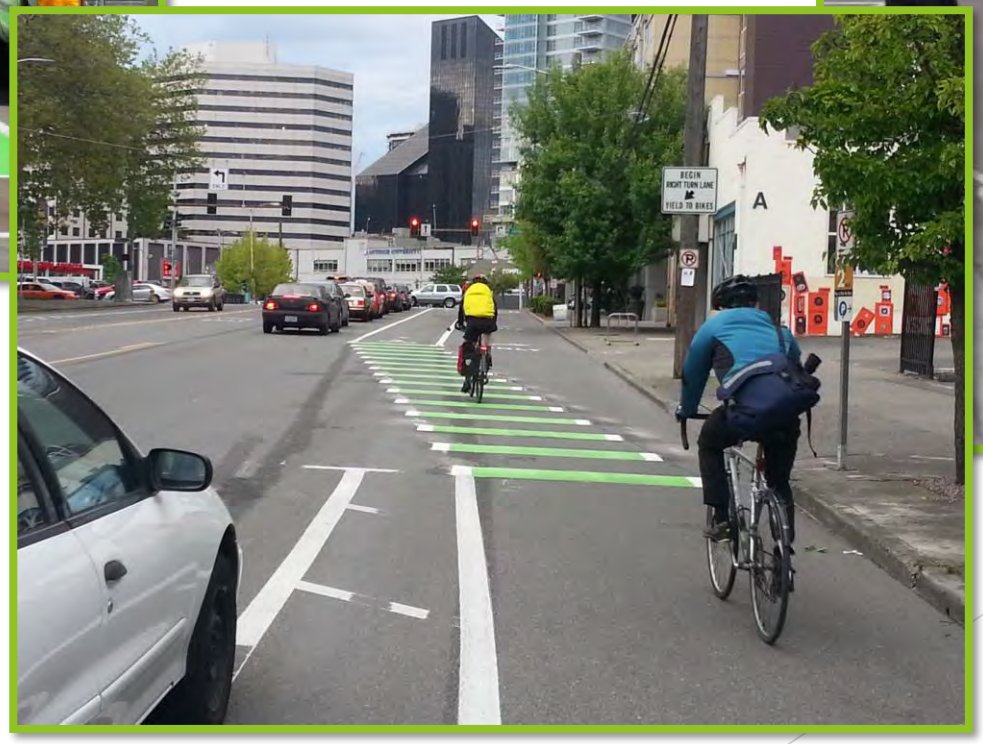
Intersection Striping Options



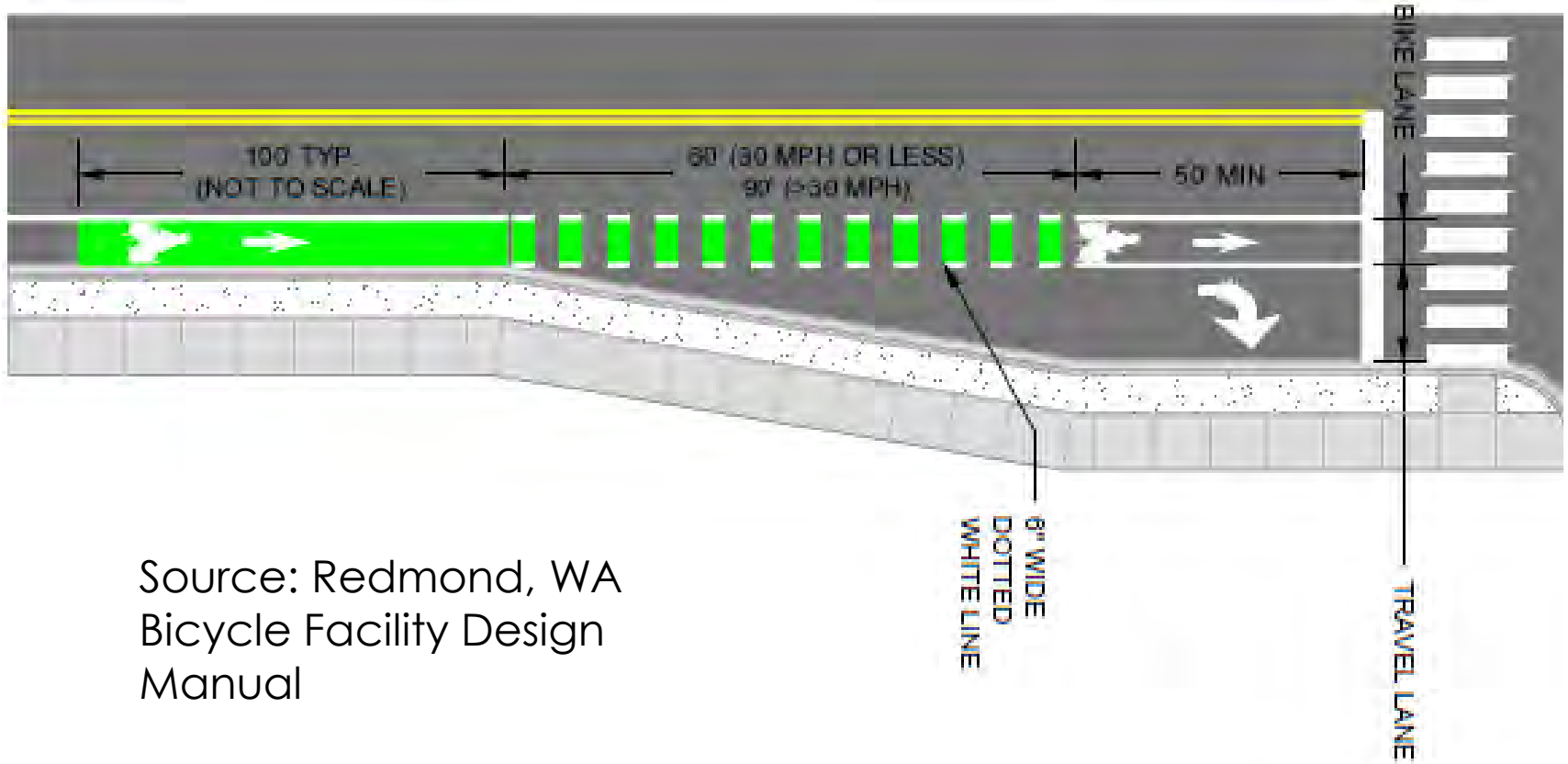
Source: Seattle Right of Way Improvement Manual

Intersection Striping Options



MOVEBR

Intersection Striping Options



Source: Redmond, WA Bicycle Facility Design Manual

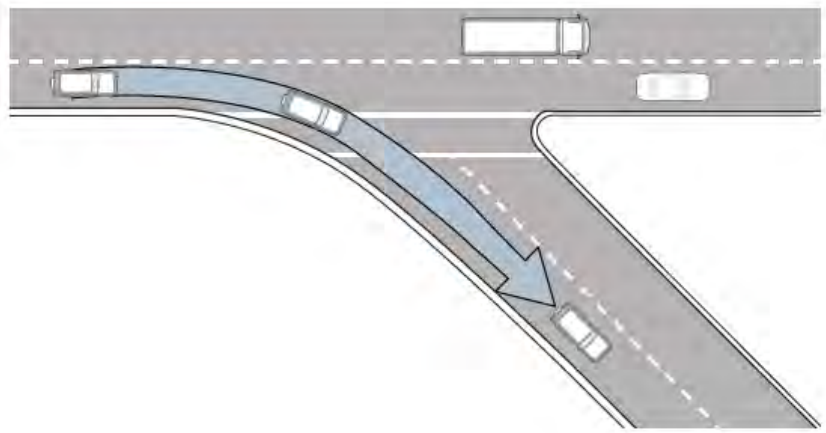
Striping at Driveways

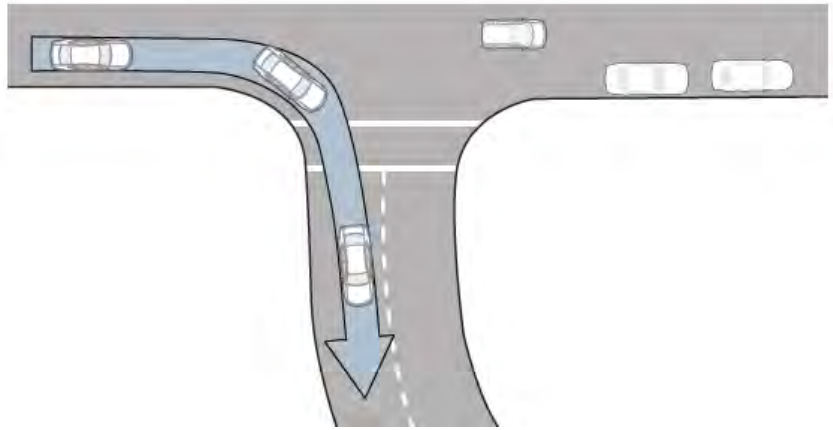
MOVEBR

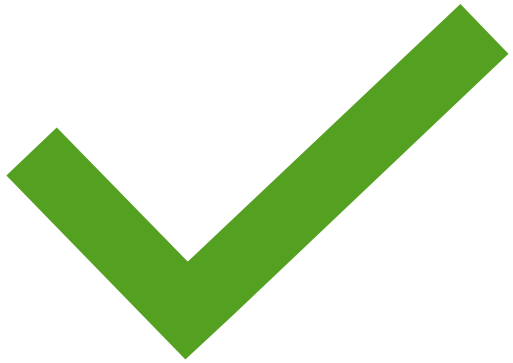
Curb Extension - Before

Curb Extension - After

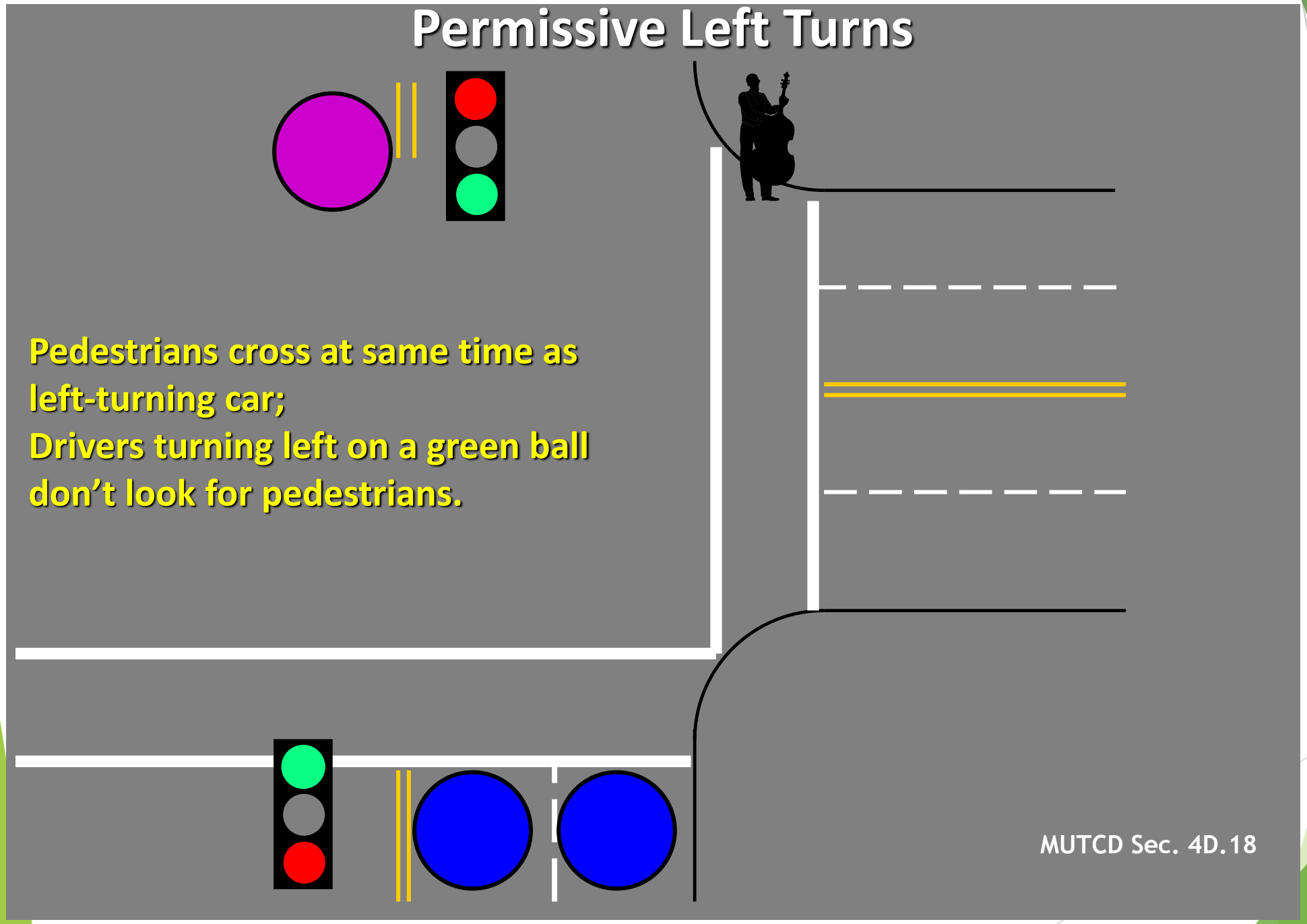
Avoid Skewed Intersections







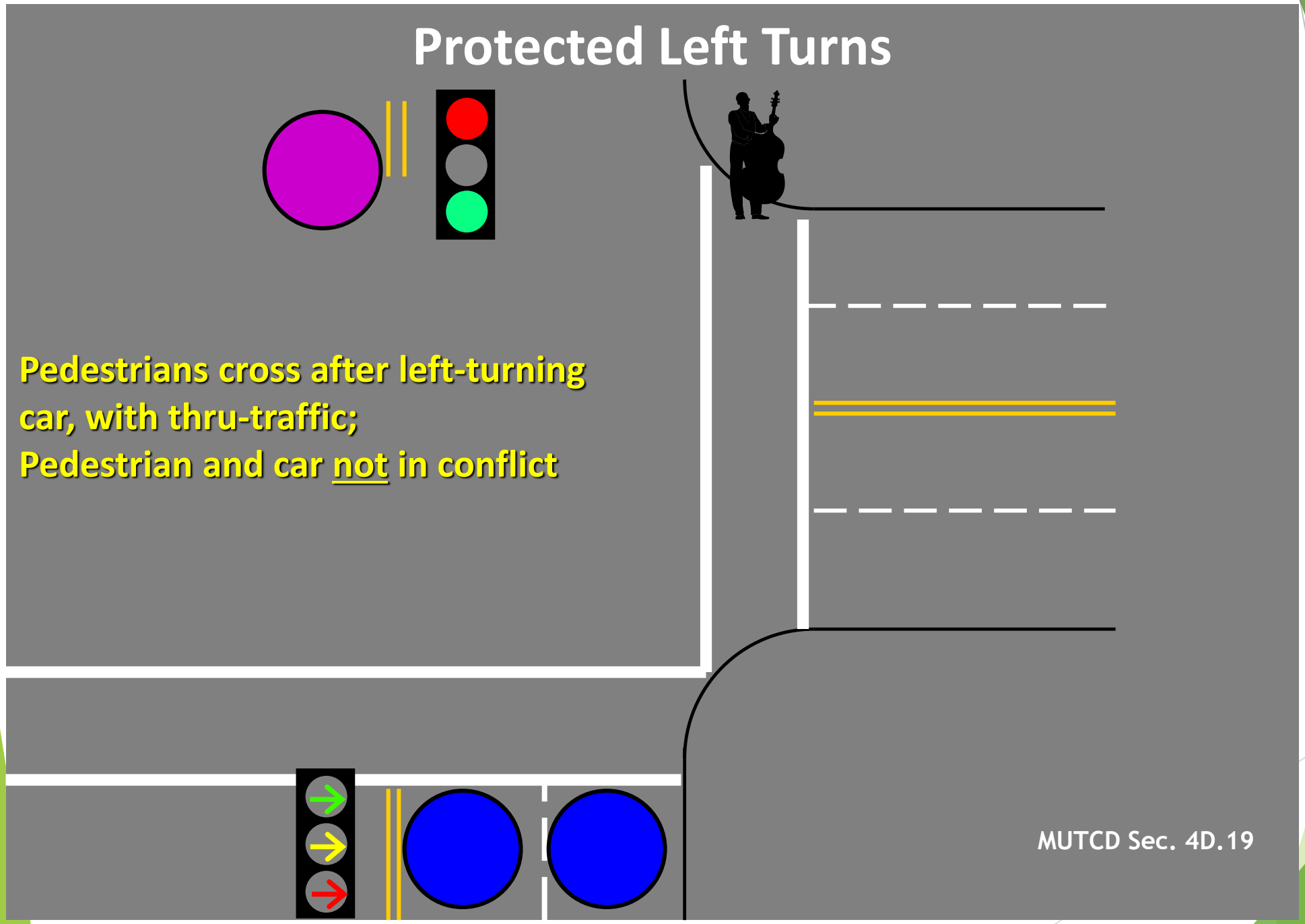
Permissive Left Turns



Pedestrians cross at same time as left-turning car;
Drivers turning left on a green ball don’t look for pedestrians.

MUTCD Sec. 4D.18

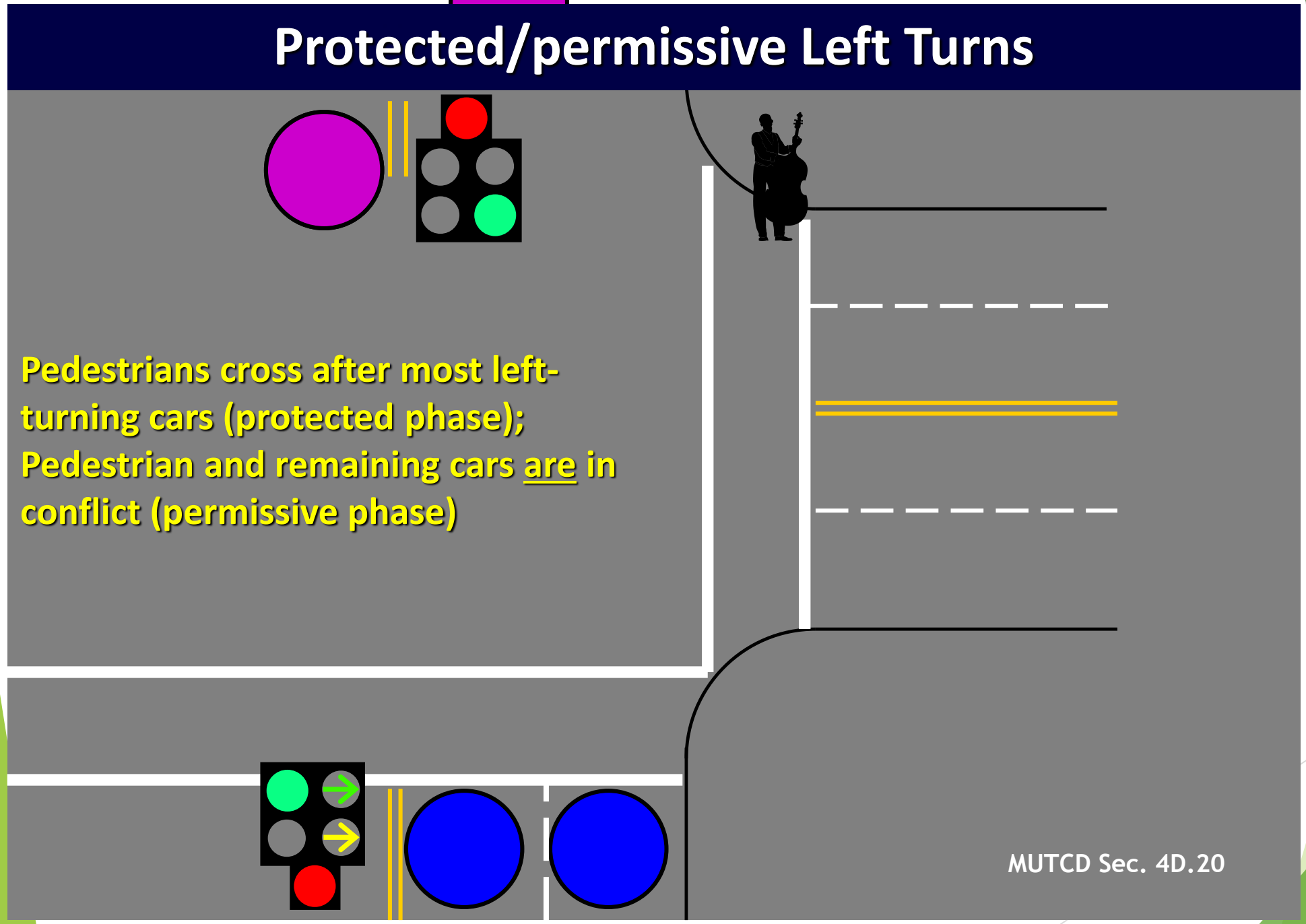
Protected Left Turns



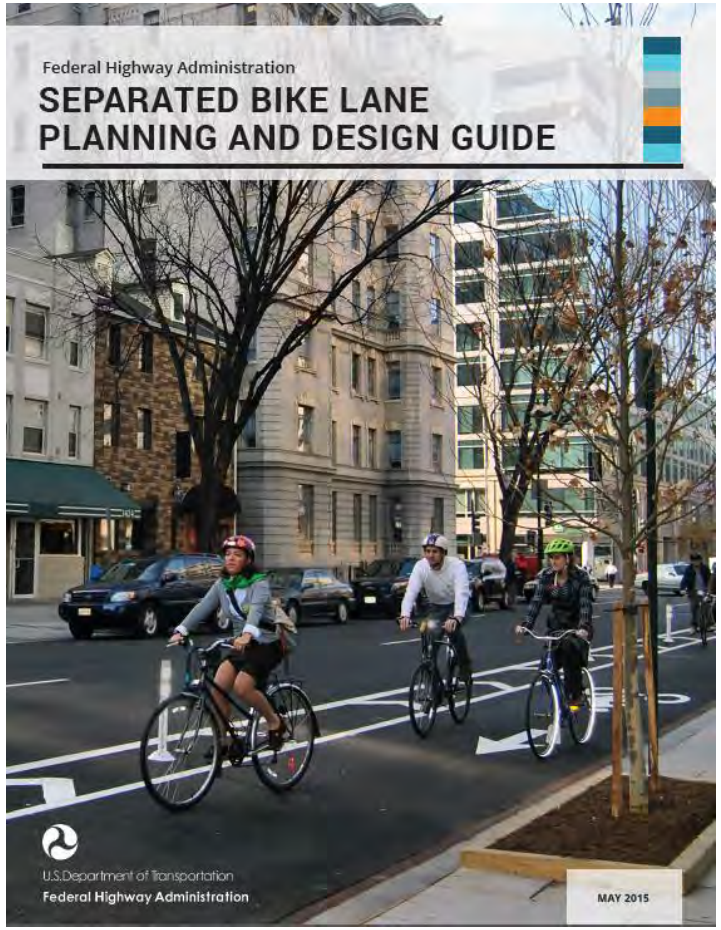
Pedestrians cross after left-turning car, with thru-traffic;
Pedestrian and car not in conflict

MUTCD Sec. 4D.19

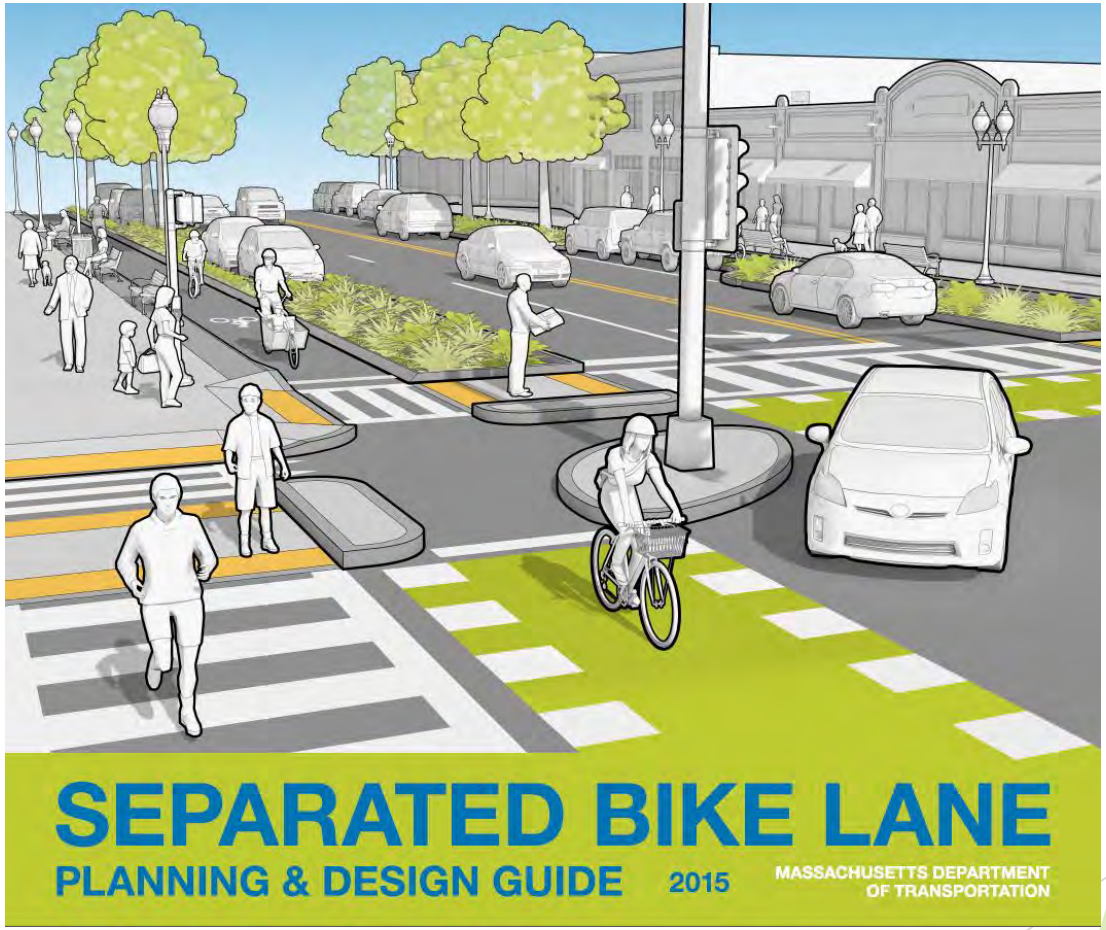
Protected/permissive Left Turns



Additional Resources

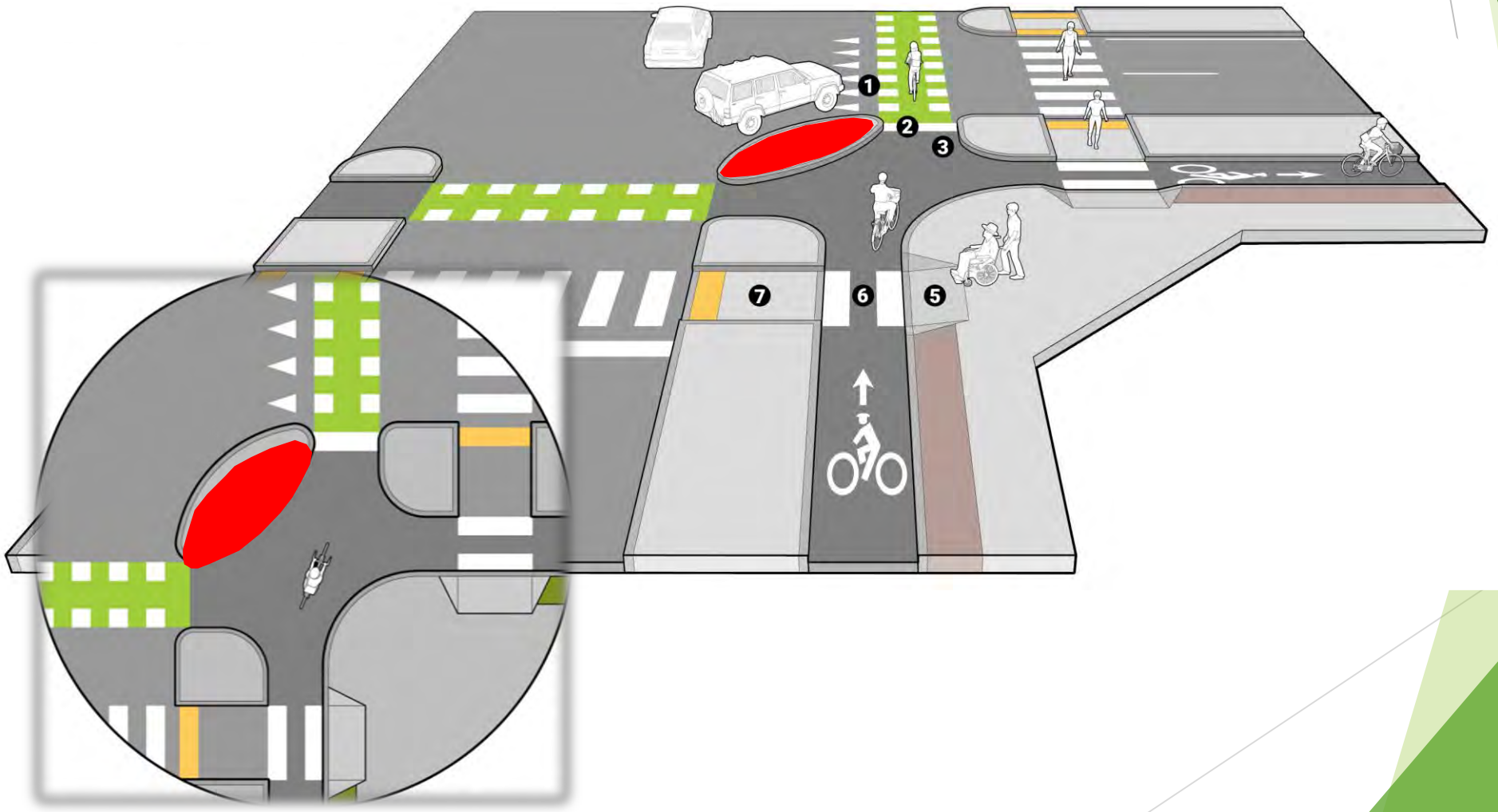


FHWA Separated Bike Lane Guide
May 2015



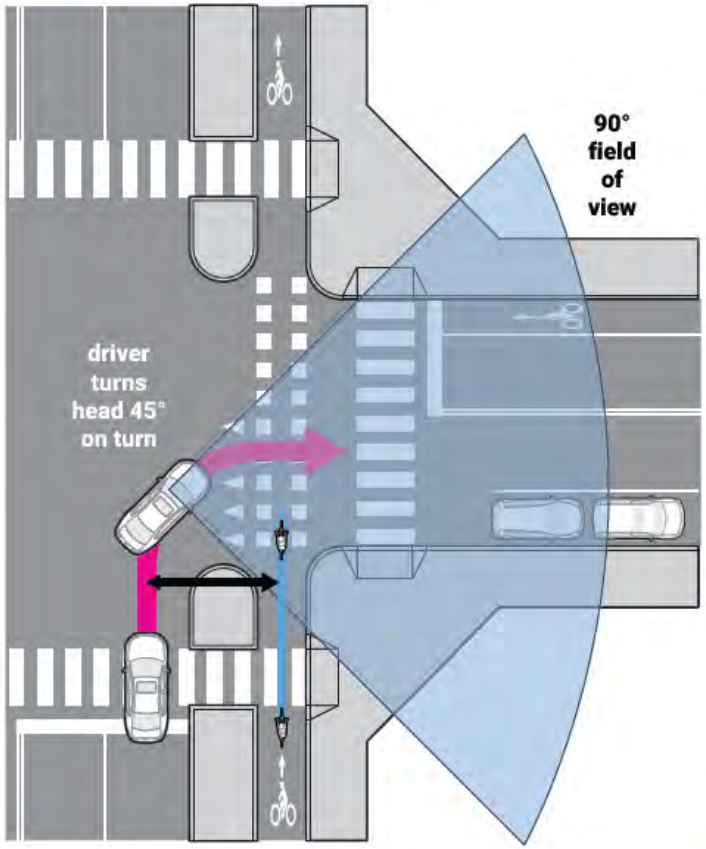
MassDOT Separated Bike Lane Guide
November 2015

Corner Deflection Island & Recessed Crossings

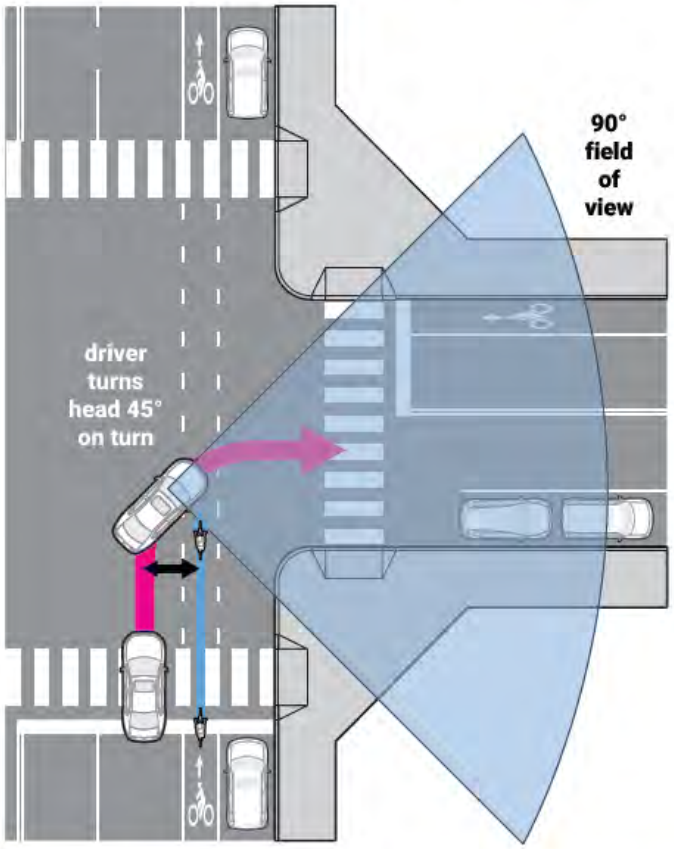


Horizontal Separation Comparison
Right Turn Visibility

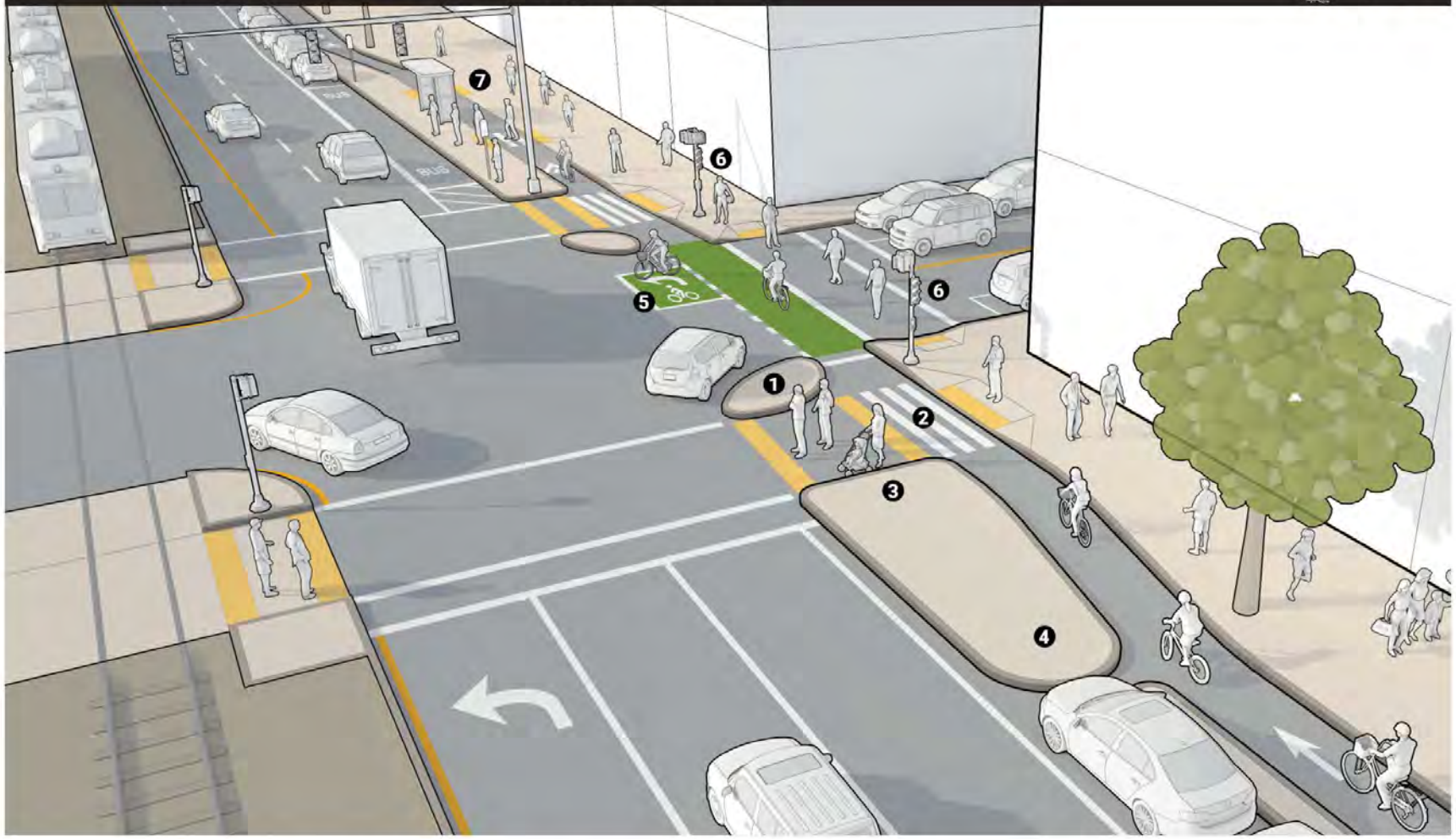
Separated Bike Lane



Conventional Bike Lane

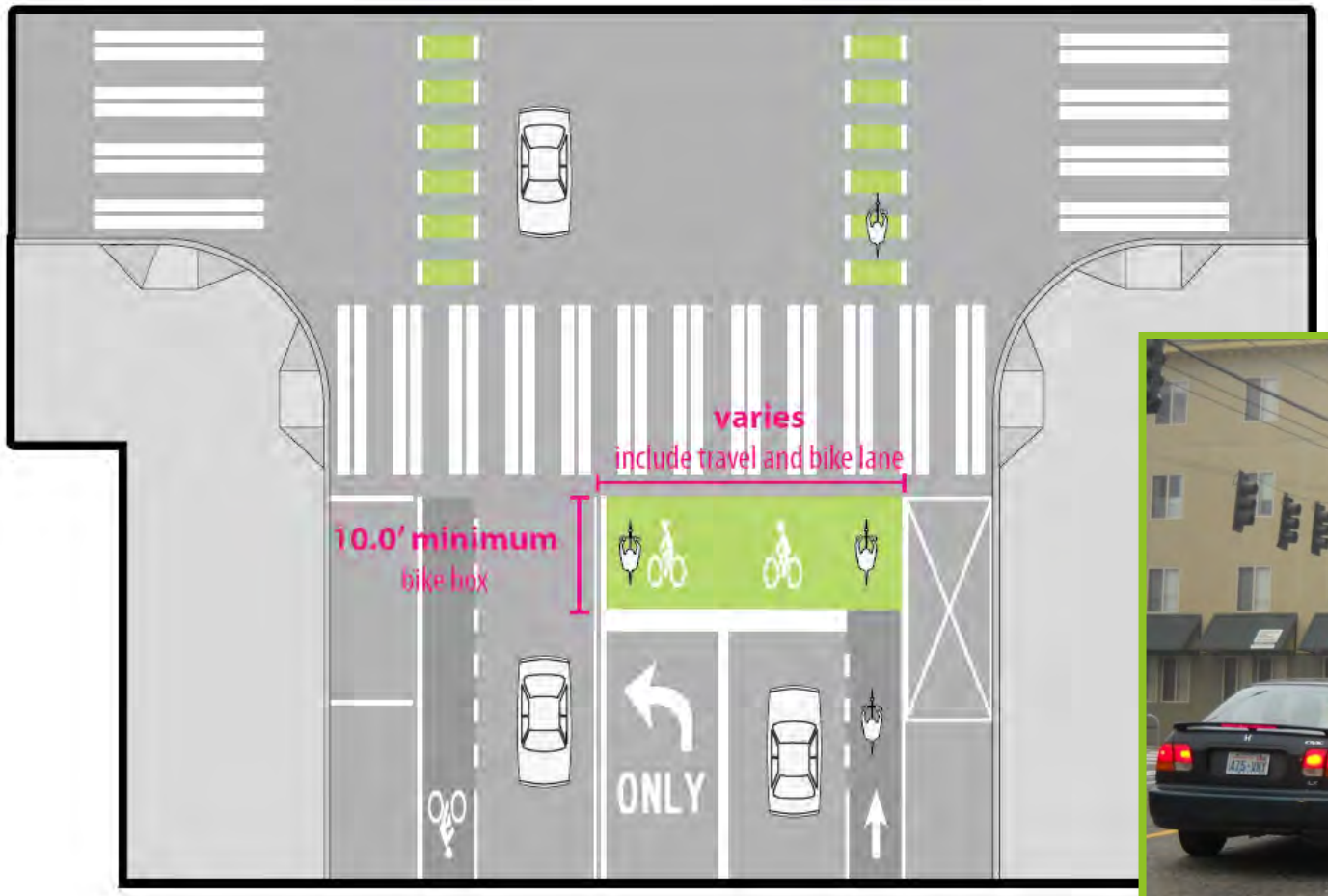


Commonwealth Avenue Design Features



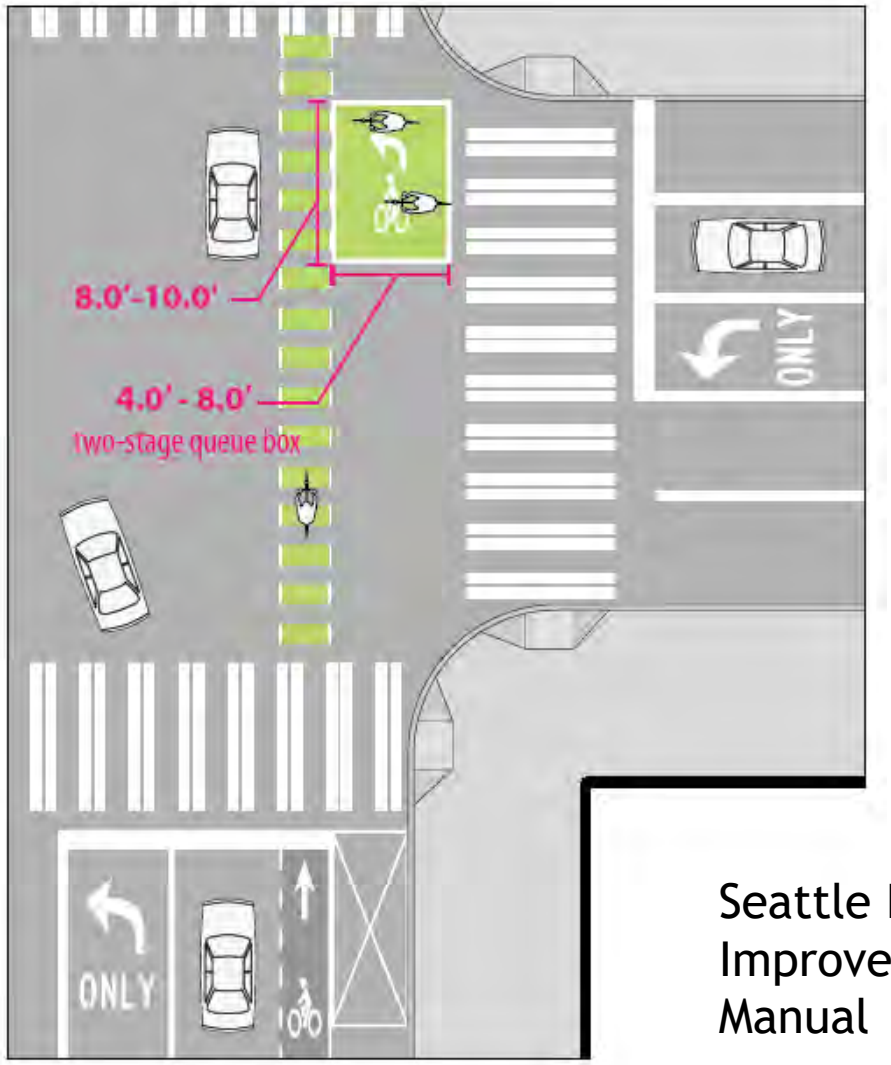
1. The deflection island reduces motorist turning speeds and improves visibility between drivers, bicyclists, and pedestrians.
2. Bicyclists yield to pedestrians crossing the bike lane.
3. Islands reduce the overall crossing distance for pedestrians and create additional space for people to wait before crossing the street.
4. Parking is restricted at the intersection to increase visibility between all users.
5. Bicyclists wait at a queue box to make left turns.
6. Bicycle traffic signals tell bicyclists when it is safe to proceed through the intersection
7. Bicyclists are routed behind the bus stop, and yield to bus passengers accessing the stop.

Bike Box


varies
include travel and bike lane
10.0' minimum
bike box
ONLY

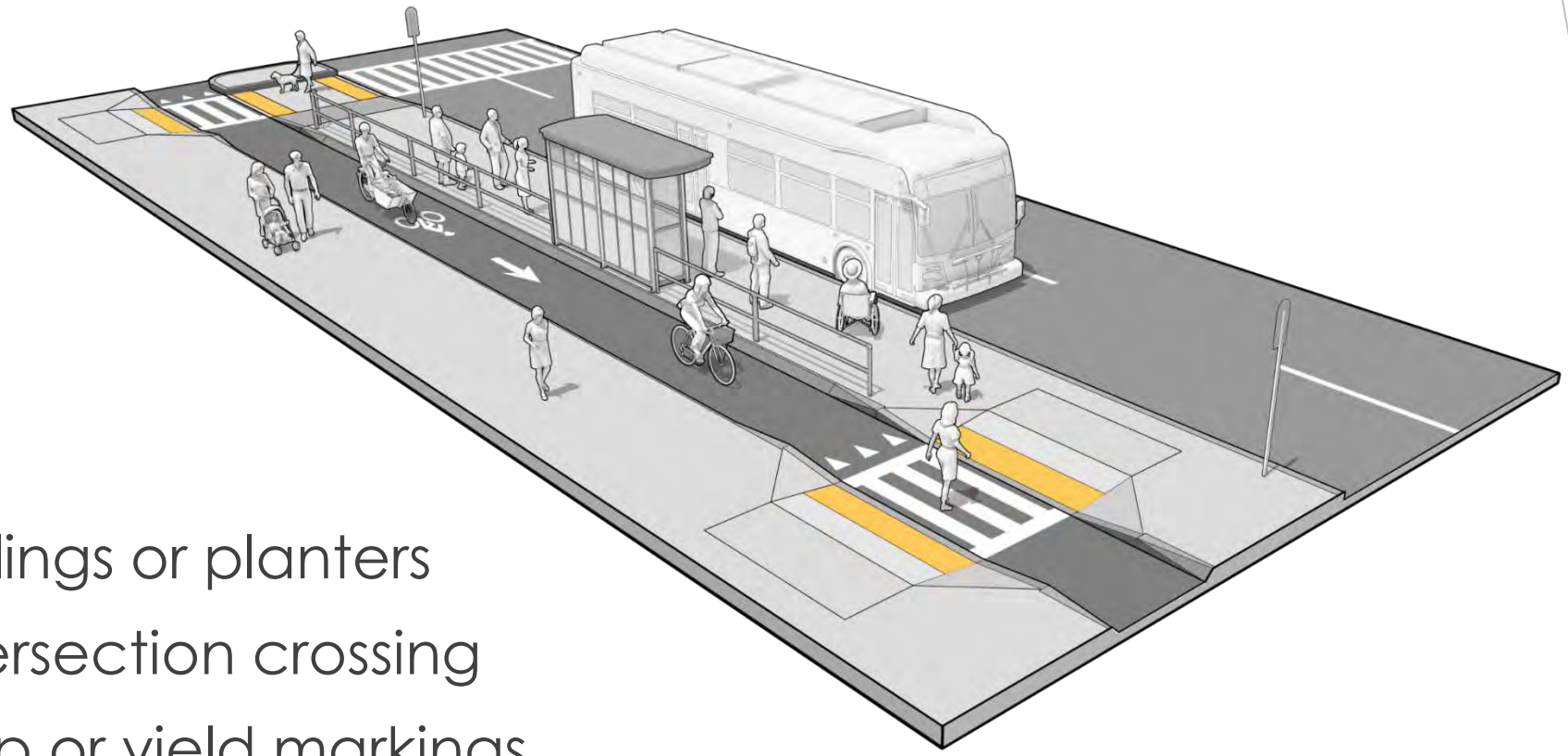

09.29.2010 08:28

Two-Stage Left Turn Queue Box



Seattle Right of Way Improvement Manual

Transit Stop Considerations



- Railings or planters
- Intersection crossing
- Stop or yield markings

Module 6: ADA Requirements

Federal Laws, ADA Goals, Minimums, Curb Ramps, APS

ADA Guiding Principles, Laws, Goals

- City-Parish aims to fully integrate individuals with disabilities into all aspects of the community life.
- 1973 – law that protects people with disabilities from discrimination from federal government
- Access Board – issues minimum guidelines and requirements for standards
- 1990 – law extends to state and local governments; effective 1992
- 1999 –first set of standards

ADA Guiding Principles, Laws, Goals

- Required public entities that employ 50+ persons to prepare a Transition Plan
- 2010 ADA Standards for Accessible Design (ADAAG) updated
- **2011 Public Rights-of-Way Accessibility Guidelines (PROWAG)** proposed
- C-P Transition Plan – June 2019
- MOVEBR ADA Compliance Program - $10 million
- **All MOVEBR Projects** will require ADA compliant designs

MOVEBR

ADA Requirements & Goals

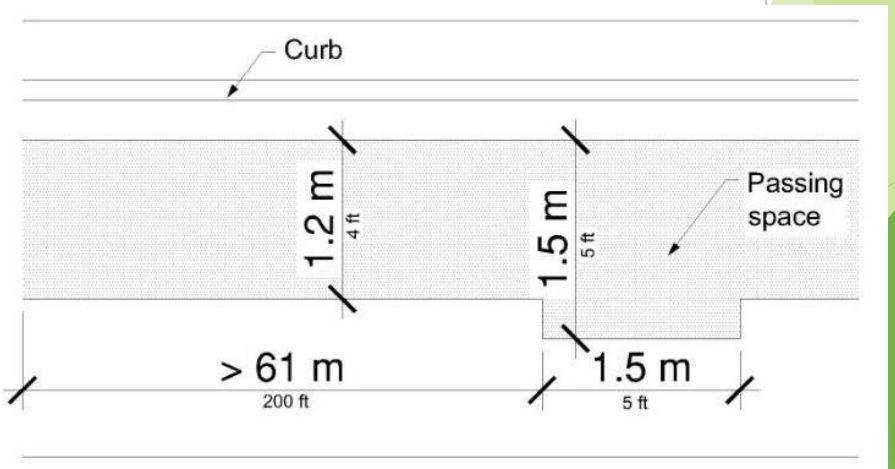
- It is envisioned that within the limits of all MOVEBR projects, any existing deficiencies are addressed and include ADA accommodations to the fullest extent possible, including but not limited to the following strategies:
  - Connectivity improvements between segments
  - Accessible Pedestrian Signals that include audible cues
  - No right turns on red
  - Curb cuts that align with the marked crosswalk (as opposed to those directed towards the middle of the intersection)
  - Truncated domes or other tactile warning devices
  - Proper drainage design
  - High visibility crosswalk markings
  - Bus stop landings that are accessible and connected to the sidewalk

Source: NYC DOT Ped Ramp Program

Minimum Widths

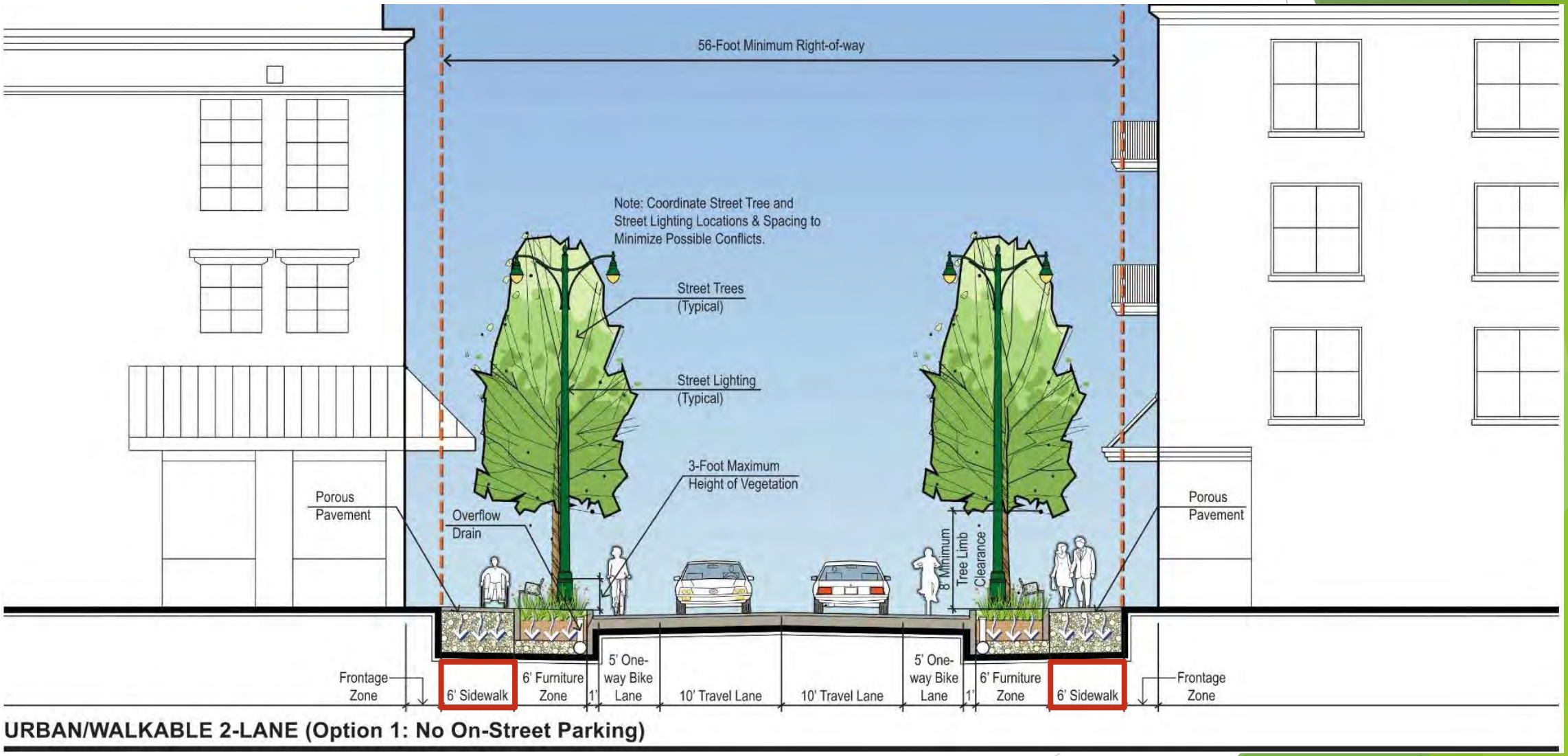
- Pedestrian Access Route (PAR) Minimums
  - Continuous Width: 4’
  - Medians / Pedestrian Refuge Islands: 5’
  - Passing Spaces: 5’ x 5’ (min. 200’ intervals)
  - Turning Spaces: 4’ x 4’
- **The dimensions above are minimum required by Federal law. Corridors should accommodate the wider dimensions indicated in the MOVEBR Design Guidelines to the greatest extent possible.**

Source: pedbikeimages.com / Dan Burden

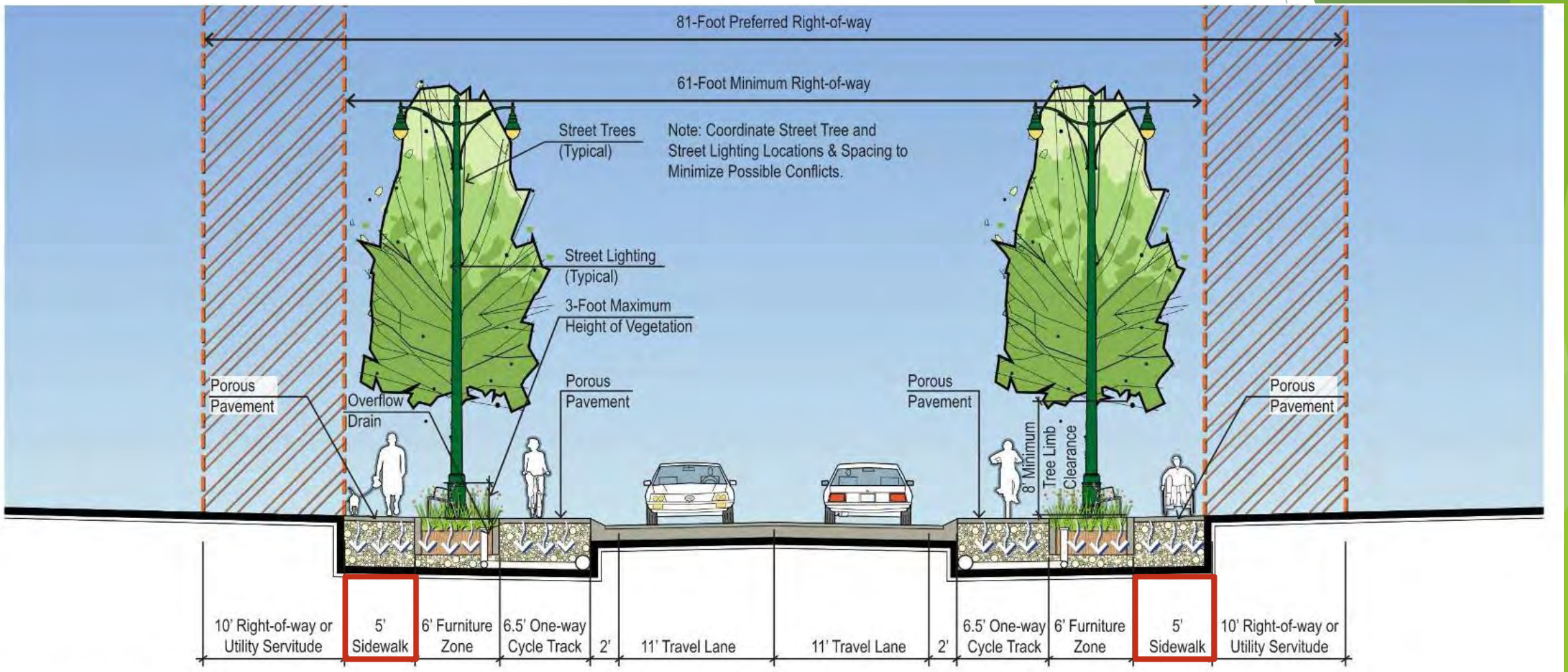


Source: PROWAG

Minimum Widths



Minimum Widths



SUBURBAN 2-LANE

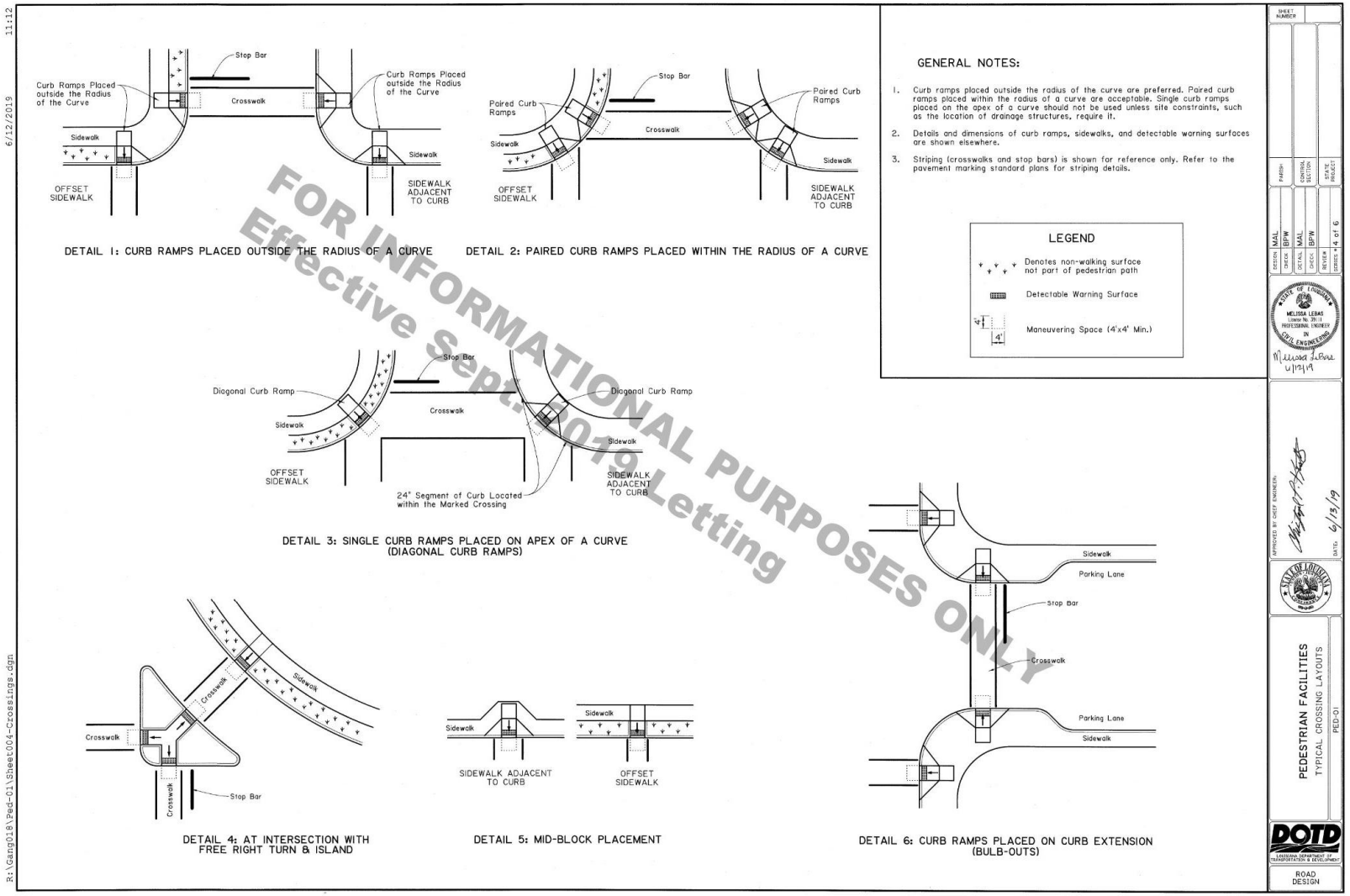
SCALE: 1/8" = 1'-0"

Curb Ramps - Alignment

- Curb ramps should be aligned with the marked crosswalk, as opposed to those directed towards the middle of the crosswalk, to the greatest extent possible
- Where perpendicular curb ramp alignment is not feasible, consider Audible Pedestrian Signalization (APS) to guide visually impaired.

Source: pedbikeimages.com / Shane Sawyer

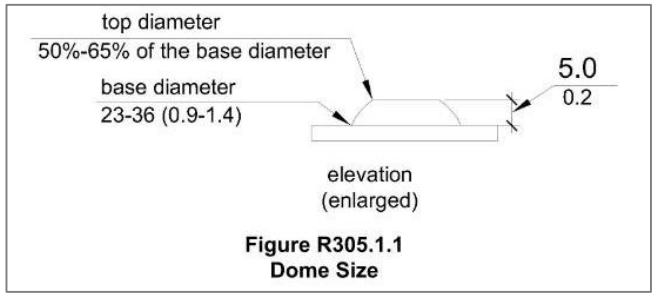
Curb Ramps - Alignment

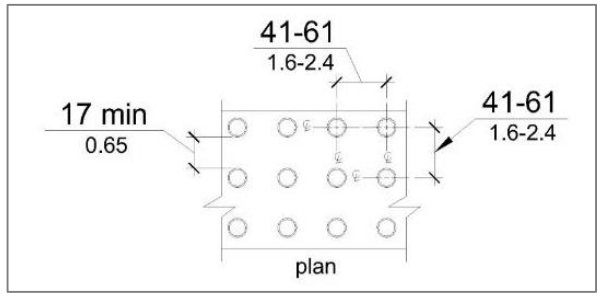


Curb Ramps – Tactile Cues

- Tactile Cues - Detectable warning strips must be at least 24 inches deep, and must be applied at all curb ramps for their entire width, or at any location where pedestrians cross into another modal zone (i.e. bike lanes or vehicle lanes) along a flush transition. (Source: NACTO Transit Street Design Guide)

Source: Texas DOT





Source: PROWAG

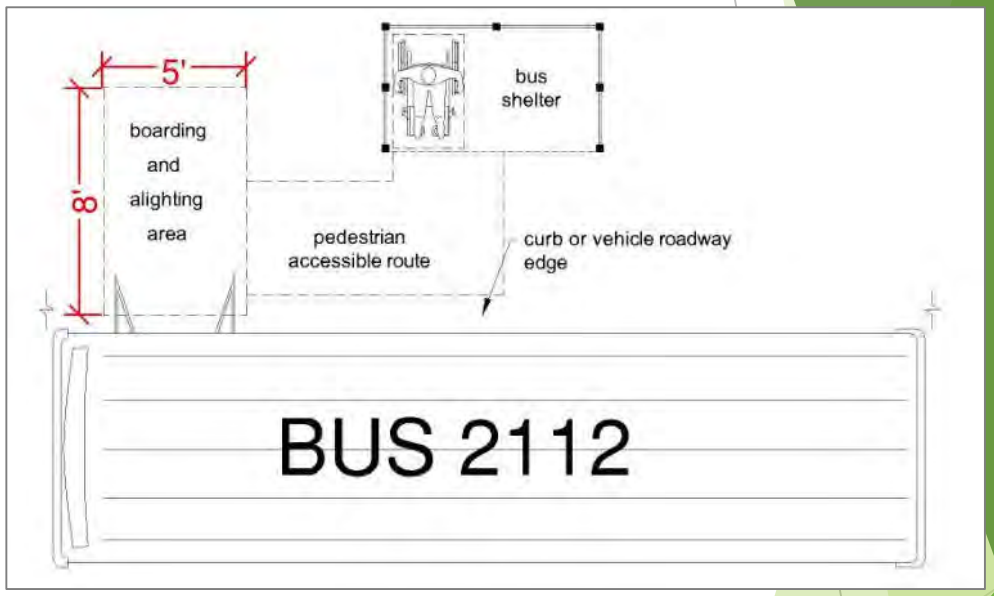
Audible Pedestrian Signals

- Signalized crossings may include accessible pedestrian signals (APS), which utilize audible cues to inform pedestrians of signal phases, including announcements or rapid percussive tones. If audible cues rely upon push-button activation, the button should be located near the curb ramp for each crossing direction, and far enough apart to distinguish from other ramps. (Source: NACTO Transit Street Design Guide)
- Video: https://www.youtube.com/watch?v=S2lsh1CGdQk

Source: pedbikeimages.com / Dan Burden

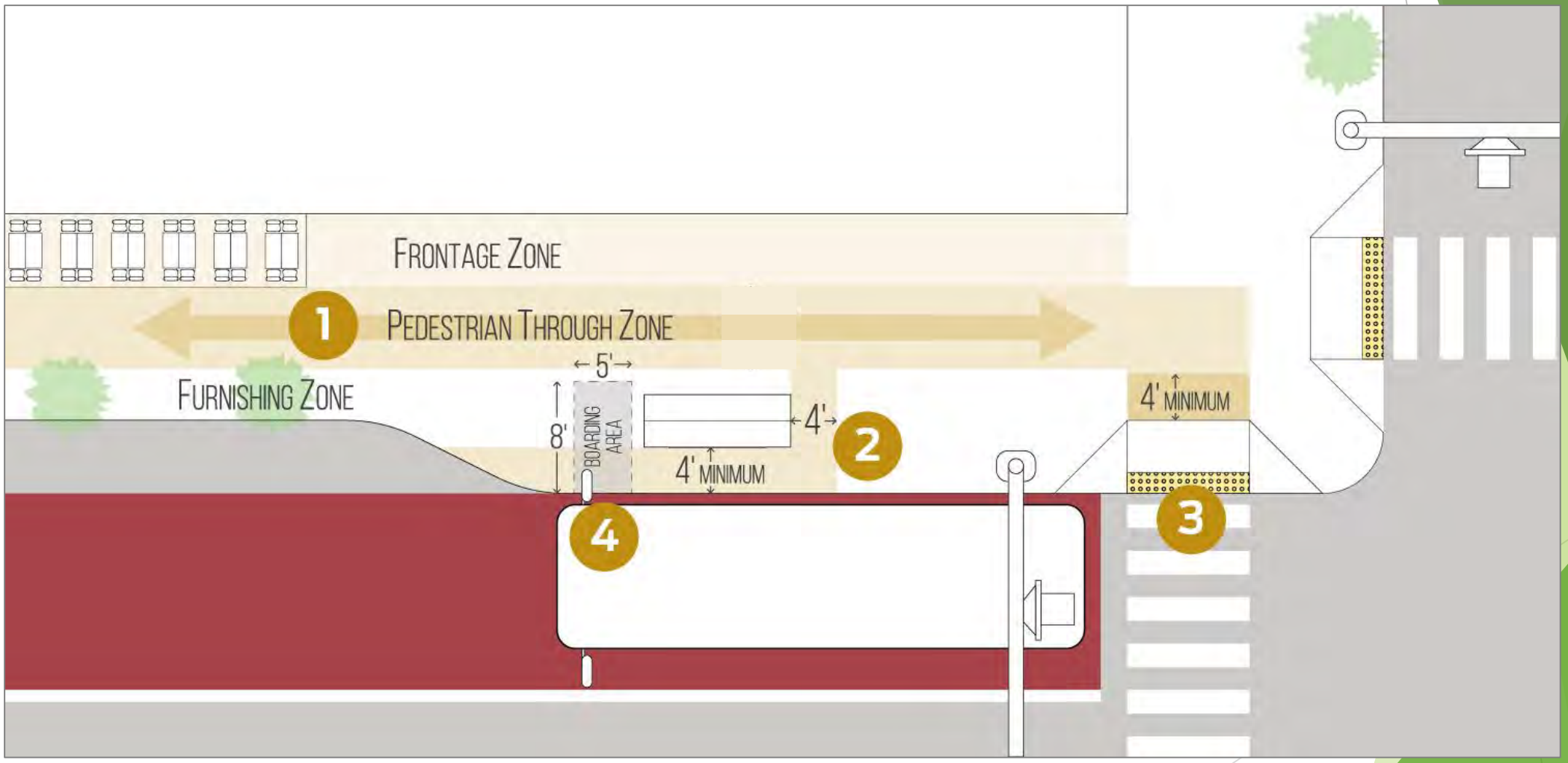
Transit Stops

- An accessible boarding area must be provided, typically measuring 5 feet long (parallel to the curb) by 8 feet wide (perpendicular to the curb). This includes 5 feet of width for a wheelchair waiting area, plus additional width to deploy a wheelchair ramp to serve the waiting area (typically 3 feet). Longer ramps may require additional length. (Source: NACTO Transit Street Design Guide)



Source: PROWAG

Transit Stops



Source: NACTO Transit Street Design Guide

LIGHTHOUSE LA INTERACTIVE LECTURE

- Think the American Disabilities Act (ADA) has you covered? Come see for yourself under a blindfold.
- The MOVEBR Program Management Team on behalf of Lighthouse Louisiana invites all engineers, designers, project managers, involved with the MOVEBR Program to experience what it feels like for a visually impaired pedestrian to travel down the street . Learn about what you can do to go beyond basic ADA requirements to create spaces that are truly accessible to pedestrians who cannot rely on sight to travel safely and independently.
- **What to expect:** This will be a 30-minute interactive lecture, followed by a 45-minute immersive white-cane walk. While blindfolded, you will get the opportunity to take in information from your other senses in order to navigate to the nearest bus stop. This training will help build awareness and understanding of what you can do to make your projects more user-friendly for the visually impaired.
- This training is led by experts from Lighthouse Louisiana who have knowledge of best-practices and first-hand experience navigating the world without sight.
- Lighthouse Louisiana's mission is to empower people with disabilities through services, employment, and advocacy.
- **When:** Wednesday, March 4th, 2020 10am-11:15am
- **Where:** Baton Rouge Community College
- Dumas Conference Room (located inside the Magnolia Building)
- 201 Community College Drive
- Baton Rouge, LA 70806
- For more information contact Jenice Heck at (504) 899-4501 x 230 or jheck@lighthouselouisiana.org.

REFERENCE DOCUMENTS

- MOVEBR Infrastructure Enhancement and Traffic Mitigation Program Design Guidelines
- US Access Board Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)
- US Access Board ADA Accessibility Guidelines (ADAAG)
- LADOTD Standard Plans
- LADOTD ADA Transition Plan
  - Cynthia Douglas
  - DOTD ADA/Title VI Compliance Program Manager
  - (225)379-1923
  - Cynthia.douglas@la.gov
- EBR ADA Transition Plan

Module 8: Transit Considerations

Transit Stop Placement, Design, and Signalization

Street Designs for Transit

Aids to movement of buses through traffic

Accessible bus stops

CPF
cycling promotion fund

Aids to Movement of Buses through Traffic

Priority signalization

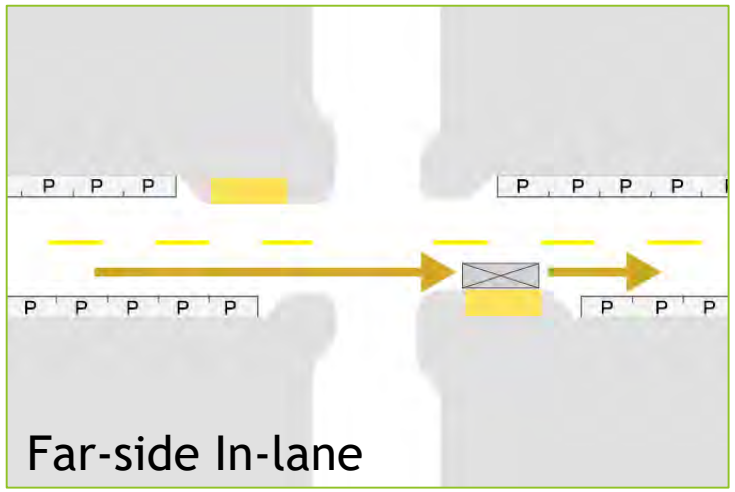
Level or near-level boarding

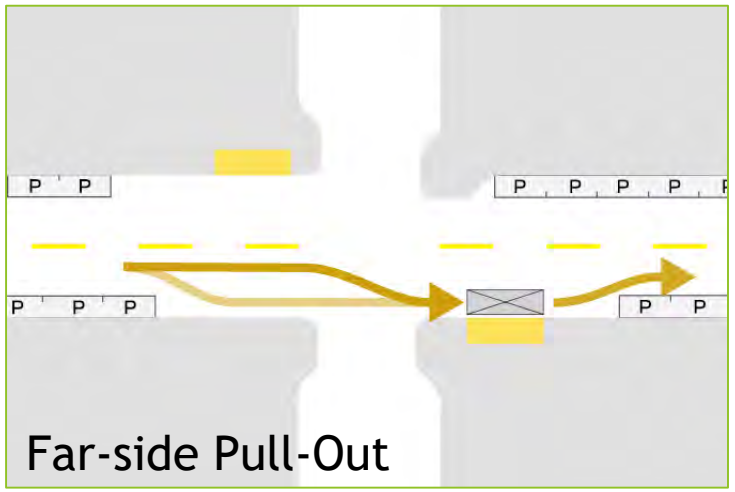
Multi-door boarding

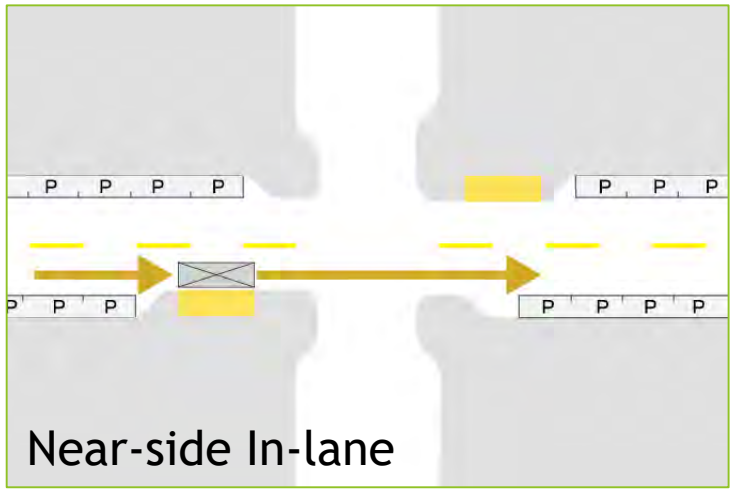
Advanced payment options

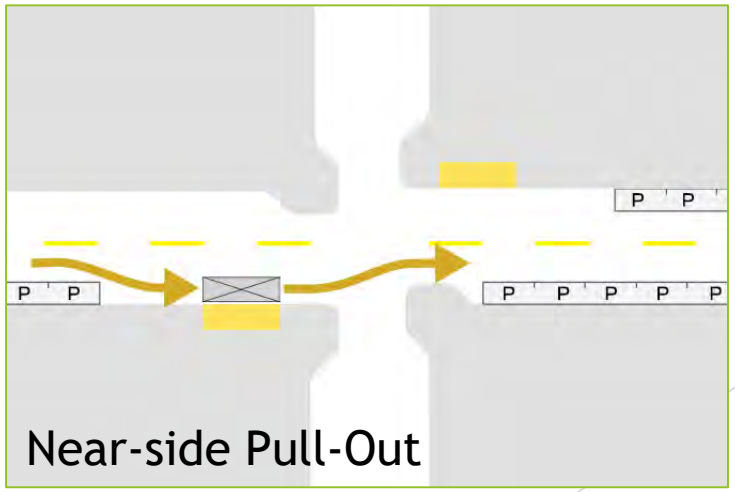

RED LINE 2 MIN
RED LINE 12 MIN
ED LINE
WOODLAWN AVE

Placement and Intersection Configuration









https://nacto.org/publication/transit-street-design-guide/stations-stops/stop-design-factors/stop-placement-intersection-configuration/

Safe Transit Stop Access and Design

Dedicated waiting and boarding areas

Safe crossings

Sidewalk network

Bicycle Network

Boarding Bulb Stop

Curb extensions

Bus stops in lane

Platform aligns with parking lane

Bike lanes, if any, or shared bike/ped facilities outside of stop

Side Boarding Island Stop

Floating bus platform

Bus stops in lane

Separated from sidewalk by bike channel

Aligns with parking lanes

Shared Cycle Track Stop

Retrofit for constrained streets

Bus stops in lane

Bicyclists must yield the space to boarding and alighting passengers when bus stops

Curbside Pull-Out Stop

Option in locations where in-lane stops are a problem

Low-cost

Sidewalks must be wide

Buses may use the curbside lane to progress through congested intersections

In-Lane Sidewalk Stop

Buses run adjacent to the curb

Passengers board and alight directly from the sidewalk

Stop zone must be 10 feet clear of the crosswalk or curb return whether near- or far-side

Shelter / stop amenities do not block pedestrian facilities

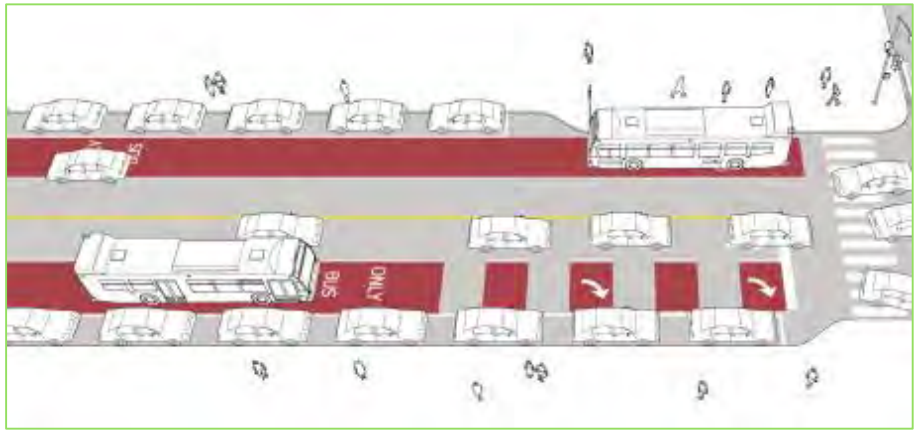
Signals and Operations

TRANSIT SIGNAL PROGRESSION

ACTIVE TRANSIT SIGNAL PRIORITY

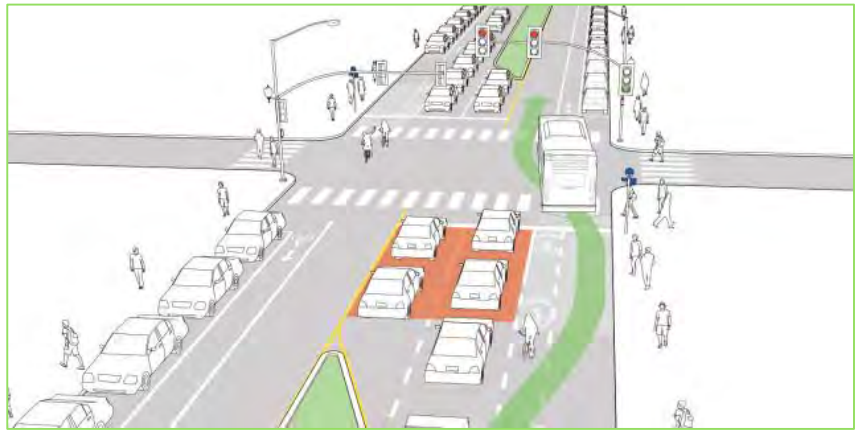
SHORTEN SIGNAL CYCLES

TURN RESTRICTIONS



Shared Transit/Right-Turn

Right-Turn Pocket



Queue Jump Lanes

Transit-Only Turns

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