Montgomery County

Complete Streets Design Guidelines

and Roadway Functional Classification Study

Overview of Draft Guidelines

May 2020

TOOLE DESIGN

Agenda

- Background
- Process for Developing the Guide
- Overview of the Draft Guide
- Next Steps

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Purpose

To develop a comprehensive guide to street design in Montgomery County, with an emphasis on Complete Streets.

Joint Project

MCDOT
Montgomery County Department of Transportation

Lead:

- Dan Sheridan
- Andrew Bossi

Montgomery Planning
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

Lead:

- Stephen Aldrich
- Dave Anspacher

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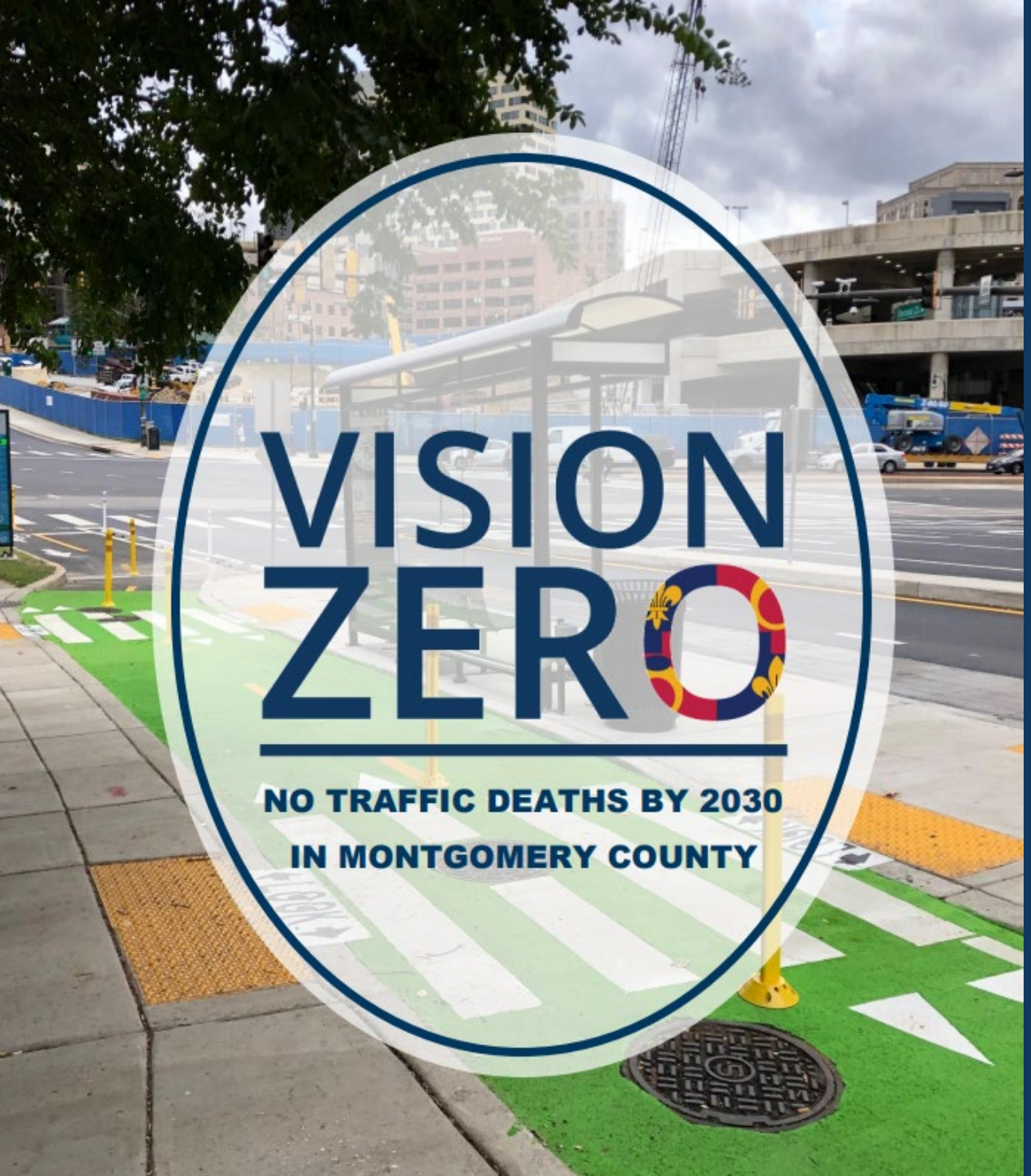

The guide is a critical component of implementing the County's Vision Zero goal of eliminating traffic deaths by 2030

Context

- **Supplements** the Countywide Functional Master Plan, County Design Standards, Area Plans, and Bikeway Master Plan
- Primary emphasis is on **County roads**, though intended as advisory for state-owned roadways
- **Some changes** to Design Standards and County Code will be required, for consistency with this new guidance
- **Primary Audience**: County staff, Developer/Design Consultants
- **Secondary Audience**: General public, to set clear expectations about roadway design

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Process

- Background Research / Precedents
- Annotated Outline
- Guiding Principles
- Technical Work Sessions on Key Topics:
  - Street Types
  - Design Speed
  - Corner Radius, Lane Encroachment, Design Vehicle
  - Lane Widths, EMS Access
- Text Draft 1, Text Draft 2
- Layout Draft 1, Layout Draft 2
- Public Review / Engagement
- Final Guidelines

TOOLE DESIGN

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- **Layout Draft 1**, Layout Draft 2 ← We are here
- Public Review / Engagement
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Extensive Staff Engagement

To date:

- 4 design workshops with M-NCPPC and MCDOT/DPS leadership
- Developer Open House (May 2019)
- 15+ review meetings with staff design working group
- 3 rounds of review of draft content
- Draft sent to SHA for review/comment

Next steps:

- Developer/Public Open House
- Pedestrian, Bicycle, and Traffic Safety Advisory Committee, Coalition for Smarter Growth, Disabilities Commission, Commission on Aging, Bicycle Action Group, Pedestrian Master Plan Technical Advisory Group, Action Committee for Transit, Road Code Committee
- Public Hearing, Planning Board Worksessions, T&E Review, Council Hearing

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Design Working Group

MCDOT

- John B. Thomas
- Christopher Conklin
- Andrew Bossi
- Tim Cupples
- Atiq Panjshiri
- Michael L. Paylor
- Sogand Seirafi
- Daniel Sheridan
- Deepak Somarajan
- Mark Terry
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- Stephen Aldrich
- Carrie Sanders
- Jason Sartori

DPS

- Mark Etheridge
- Marie LaBaw

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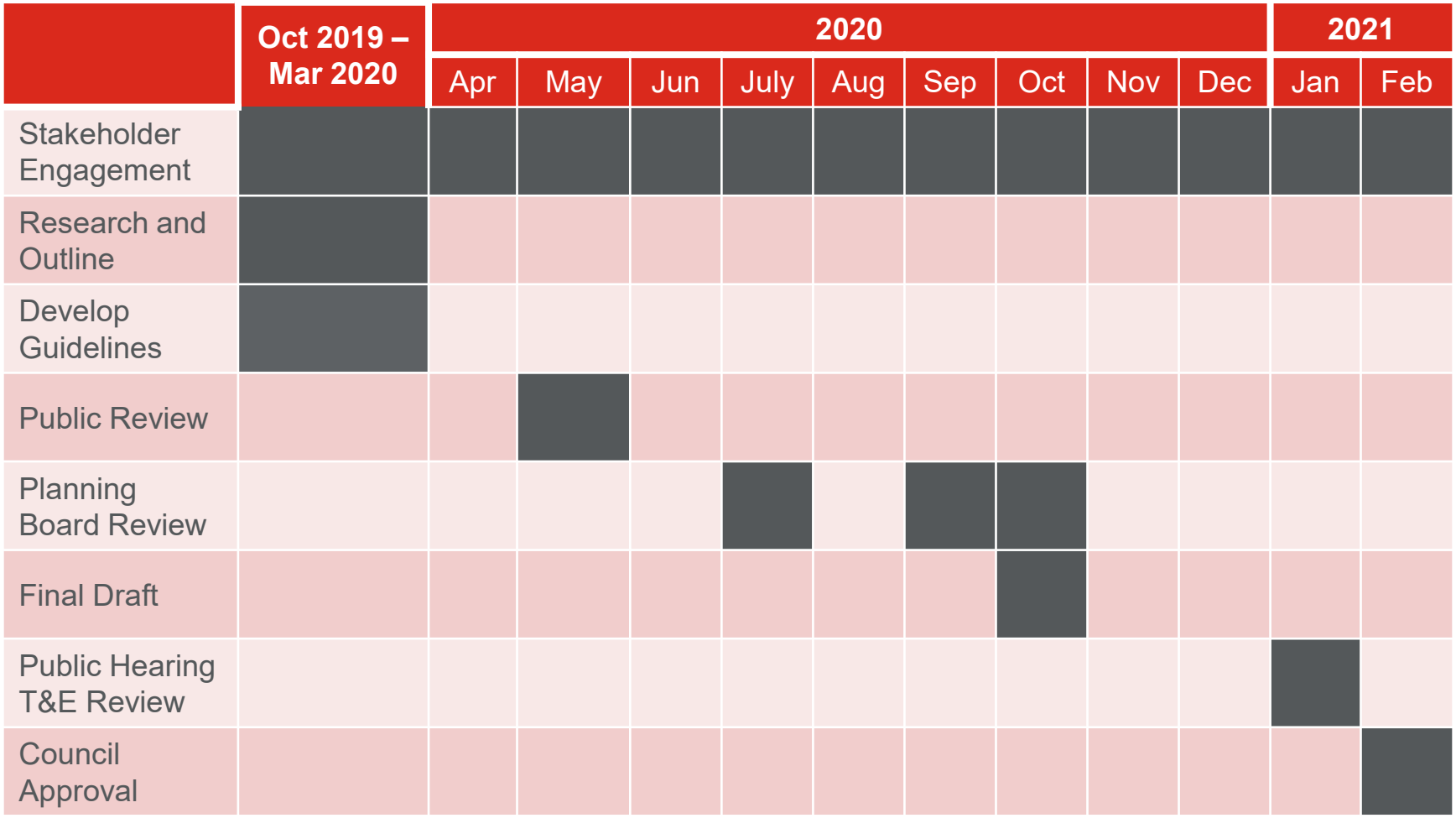
Schedule



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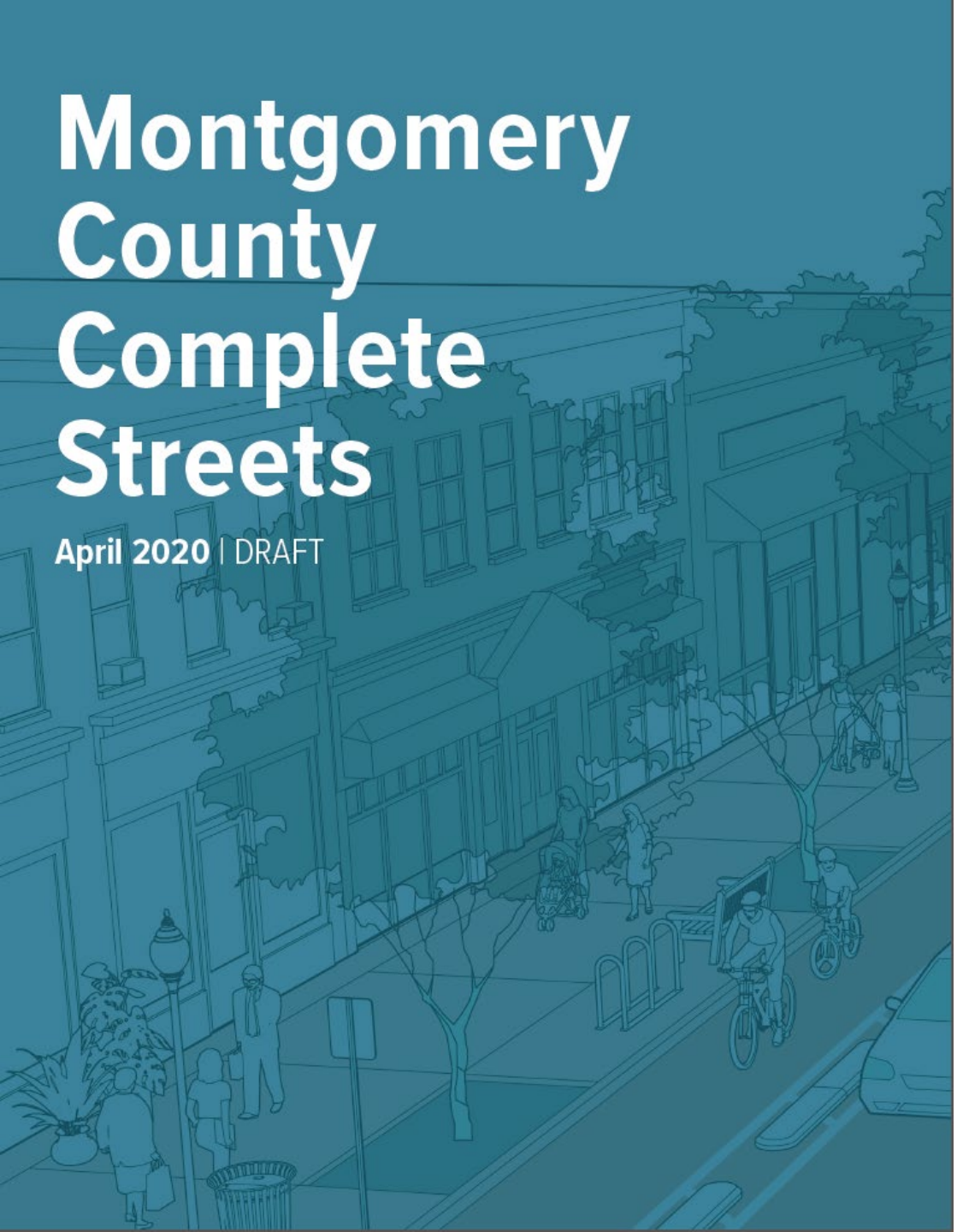
Montgomery County Complete Streets

April 2020 | DRAFT



Chapter 1

Vision

Streets are vital to the quality of life for Montgomery County's residents, workers, businesses, and visitors. Montgomery County's Complete Streets Design Guide aims to create great places that are supported by safe and efficient transportation systems, which are equitably shared among diverse communities. The efficiency of these transportation systems will be enhanced by new guidance for designing new streets and reconstructing or retrofitting existing streets following the principles of **Safety**, **Sustainability**, and **Vitality**.

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Chapter 2

Street Types

Each new street type prioritizes users and various design elements based on the context and character of the street.

- Based on roadway function *and* built environment
- Changes along segments of a roadway
- Focus is on new roads and reconstruction

In Montgomery County, the Federal functional classification will still be used; however, the context-based street types presented in this guide will serve as an overlay and supplement to the Federal functional classifications.

Montgomery County Street Types

- Downtown Boulevard
- Downtown Street
- Boulevard
- Town Center Boulevard
- Town Center Street
- Neighborhood Connector
- Neighborhood Street
- Neighborhood Yield Street
- Industrial Street
- Country Connector
- Country Road
- Major Highway

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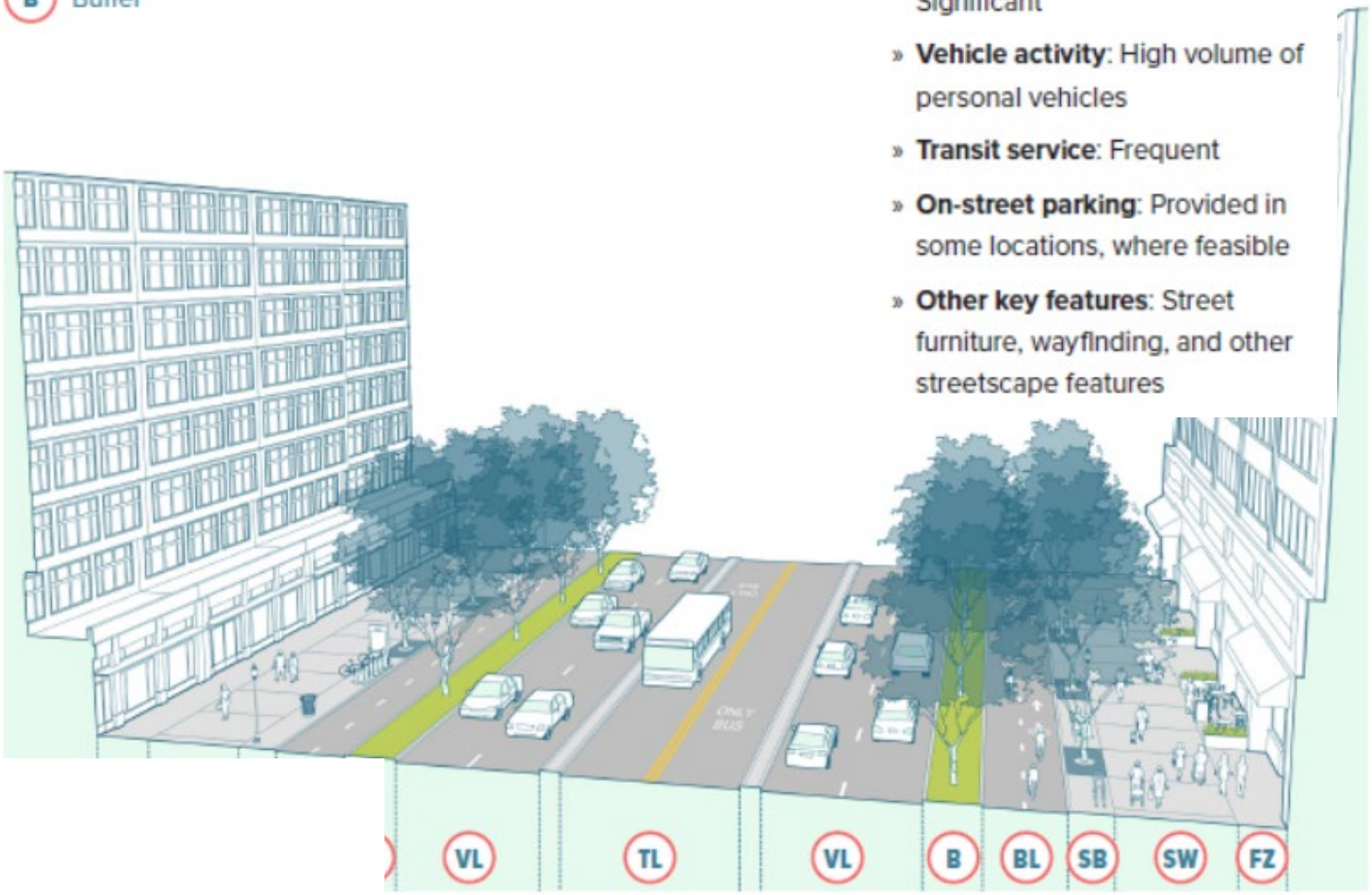
Example: Downtown Boulevard

- VL Vehicle Lane
- TL Transit Lane
- BL Bike Lane
- B Buffer
- SB Street Buffer
- SW Sidewalk
- FZ Frontage Zone

Key Features:

- **Development intensity**: High-intensity, mixed-use development
- **Pedestrian and bicycle activity**: Significant
- **Vehicle activity**: High volume of personal vehicles
- **Transit service**: Frequent
- **On-street parking**: Provided in some locations, where feasible
- **Other key features**: Street furniture, wayfinding, and other streetscape features



Special Streets

- Alleys
- Residential Shared Streets
- Commercial Shared Streets
- Rustic Roads / Exceptional Rustic Roads

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Street Types linked to guidance on:

- Target speed
- # of vehicle lanes
- Protected crossing spacing
- Signalized intersection spacing
- Vehicle lane widths
- Median
- Bikeway width / type
- Street buffer width
- Ped Clear Zone width
- Frontage Zone width
- Maintenance Zone
- Priority features in constrained ROWs
- Other street design elements (e.g., bike parking, crossing islands, raised intersections, carshare parking, etc.)

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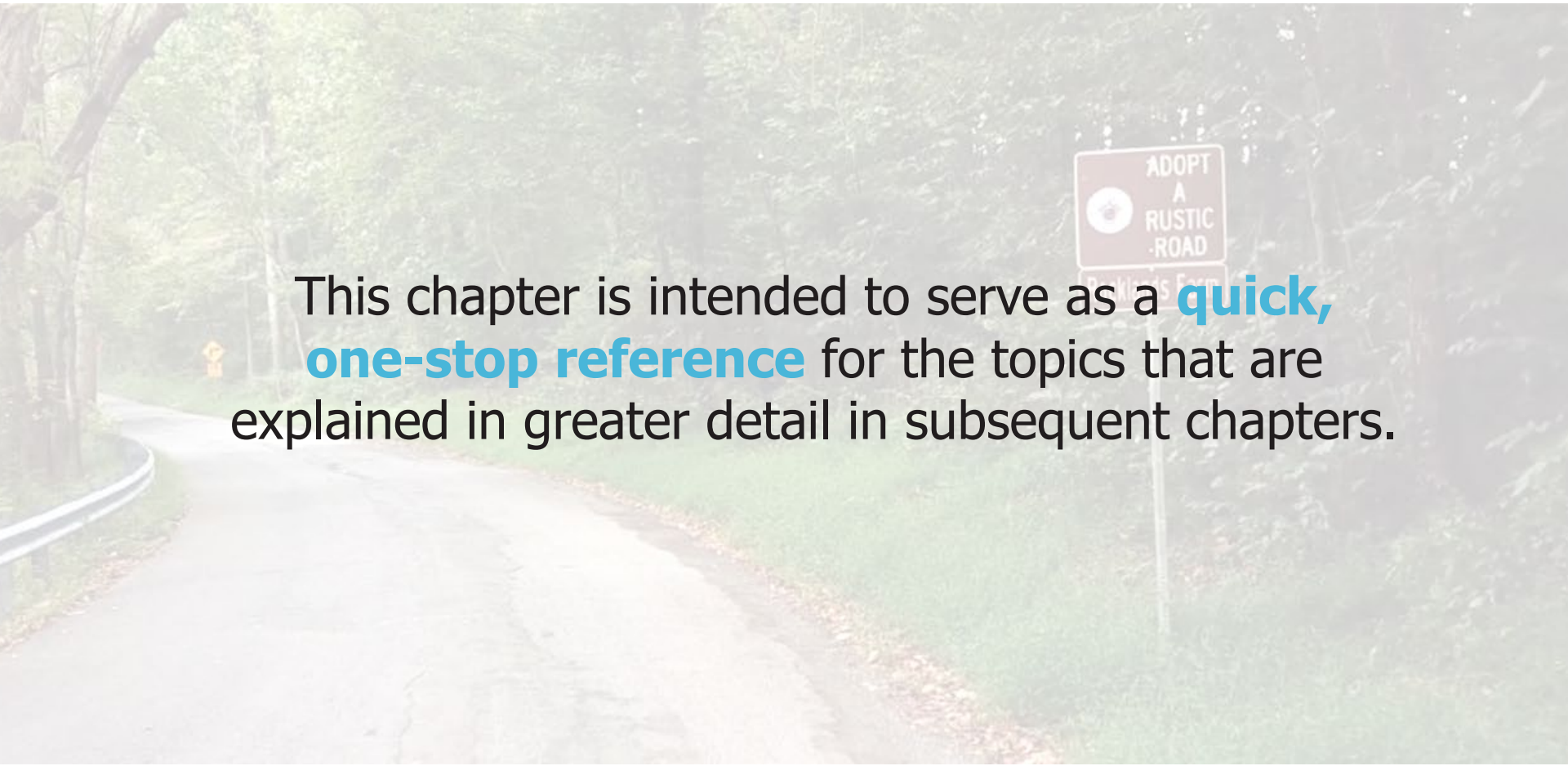
Chapter 3

Decision-Making Framework



This chapter is intended to serve as a **quick, one-stop reference** for the topics that are explained in greater detail in subsequent chapters.

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Figure 3.1 (excerpt)

		Page Reference	Downtown Boulevard	Downtown Street	Boulevard	Town Center Boulevard	Town Center Street	Neighborhood Connector	Neighborhood Street
Target Speed	Figures are miles per hour (mph). The Target Speed is the desired operating speed for a roadway facility. These speeds are based on safe operations on the relevant roadway sections; they are tailored to the functionality and context of the roadway in a Complete Streets system. Presence, proximity, and volume of pedestrians, bicyclists, passenger vehicles, transit vehicles, and commercial vehicles are considered when determining an appropriate target speed. Current state law requires a minimum posted speed of 25 mph. While that law exists, streets with lower target speeds will be posted at 25 mph.	206	25	20	35	30	25	25	20
Max # of Vehicle Through Lanes	See Countywide Master Plan of Highways and Transitways for number of travel lanes on specific streets, which supersedes the guidance in this document.	107	6	4	6	6	2	2	2
Max Spacing for Protected Crossings	On streets with operating speeds of 30 mph or more, "protected" crossings include: Full Signal, HAWK, All-way stop control, or grade-separated crossing. These targets are intended to ensure pedestrian crossings are located at reasonable intervals. These general values are appropriate for the Complete Streets classification and context; however, site-specific needs and conditions will dictate actual implementation. Where ranges are provided, the lower end of the range is recommended in commercial areas, on BRT corridors, in BiPPAs, and near schools (or similar destinations).	148	400′	400′	800′-1600′	600′	400′	600′-1200′	N/A
Generally Accepted Min Spacing for Signalized Intersections	Refers to a full signalized intersection or roundabout. These targets are intended to maintain operations at a level that promotes safe movement by all travel modes. Site-specific needs and conditions, as determined through the regulatory approval process or capital project review, will dictate actual implementation.	148	400′	400′	1320′	600′	400′	1320′	N/A
Center Median	May be replaced or widened to include a left turn lane at intersections, if needed. Medians may be wider than dimensions provided in some circumstances – consult MCDOT. If the guidance is "optional," the dimensions shown apply if a median is provided.	109	Required 6′-16′	Optional 6′-10′	Required 6′-16′	Required 6′-16′	Optional 6′-10′	Optional 6′-16′	Optional 6′-10′

LEGEND

H = highest priority

M = medium priority

L = lowest priority

	Downtown Boulevard	Downtown Street	Boulevard	Town Center Boulevard	Town Center Street	Neighborhood Connector	Neighborhood Street	Neighborhood Yield Street	Industrial Street	Country Connector	Country Road	Major Highway
Median	M	L	M	M	L	L	L	N/A	L	L	L	H
Travel Lane Width	M	M	M	L	M	L	L	N/A	H	H	H	H
On-Street Parking	L	M	L	M	L	L	L	H	M	N/A	N/A	N/A
Dedicated Transitway+	H	H	H	H	N/A	N/A	N/A	N/A	H	N/A	N/A	H
Shoulder	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	M*	H*	H
Street Buffer	H	H	H	H	H	H	M	M	M	H	M	H
Bikeway	M	M	M	M	M	M	H	N/A	M	M*	M*	M*
Pedestrian Clear Zone	H	H	H	H	H	H	H	H	H	H*	H*	M*
Frontage Zone	M	M	L	M	M	N/A	N/A	N/A	L	N/A	N/A	N/A
Maintenance Buffer	N/A	N/A	L	L	L	L	L	L	L	L	L	N/A

Figure 3.2

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+Priorities apply only to streets where Dedicated Transitways are identified in a Master Plan.

* Because a sidepath is the default bicycle/pedestrian facility, the Bikeway and Pedestrian Clear Zone are consolidated on these street types.

Figure 3.3 (excerpt)

LEGEND

- ■ Required
- ▲ Recommended (Context-Sensitive)
- O Optional (Context-Sensitive)
- X Not Permitted or N/A
- * Unless determined otherwise by Planning Board

		Downtown Boulevard	Downtown Street	Boulevard	Town Center Boulevard	Town Center Street
SIDEWALK ZONE	Trees/Landscaping in buffer	■	■	■	■	■
	Green Infrastructure/Rain Gardens	■	■	■	■	■
	Seating	■	■	O	■	■
	Bicycle Parking	■	■	O	■	■
	Recycling/Garbage Cans	▲	▲	O	▲	▲
	Plazas/Parklets	▲	▲	O	O	▲
	Bikeshare Stations/Dockless Parking Hubs (if in bikeshare/dockless service area)	■	■	O	▲	■
	Pedestrian-Scale Lighting	■	■	■	■	■
	Pedestrian/Bicycle Wayfinding	▲	▲	▲	▲	▲
	Sidewalk-Level Driveways	■	■	■	■	■
INTERSECTIONS	Roundabouts (Modern or Mini)				O (Engineering judg	
	Crossing Islands	▲	▲	▲	▲	▲
	Pedestrian Signals (when traffic signals are present)	■	■	■	■	■
	Pedestrian Recall on Signals, No Turn on Red restrictions	▲	▲	▲	▲	O
	Pedestrian Lighting (unless pedestrians are prohibited, e.g., some Major Highways)	■	■	■	■	■
	Protected Intersections, Bike Boxes, Two-Stage Queue Boxes	O (Required at all intersections with existing or planned s				
	Bicycle markings/facilities (when bikeways are present)	■	■	■	■	■

Chapter 4
Sidewalk Zone

- Street Buffer Zone
- Pedestrian Clear Zone
- Frontage Zone
- Signage
- Transit Stops
- Open Section Roadways
- Driveways
- Street Lighting
- Maintenance Responsibilities

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Figure 4.2 (excerpt)

Street Type	Maintenance Buffer	Frontage Zone	Pedestrian Clear Zone	Street Buffer
Downtown Boulevard	0'	0	Default: 15'	8'
Downtown Street	0'	0	Default: 10'	6' default; 3' min; 11' if this space is shared

Chapter 5

Street Zone

- Curbside Zone
- Travelway Zone
- Median Zone
- Utilities
- Network Connectivity

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Chapter 5
Street Zone

Street Zone

- On-Street Parking
- Carshare Parking
- E/V Charging
- Mobile Food Vending
- Parklets
- In-Street Bike Corrals
- Commercial and Passenger Loading Zones
- Travel Lane Width

Median

- Dimensions

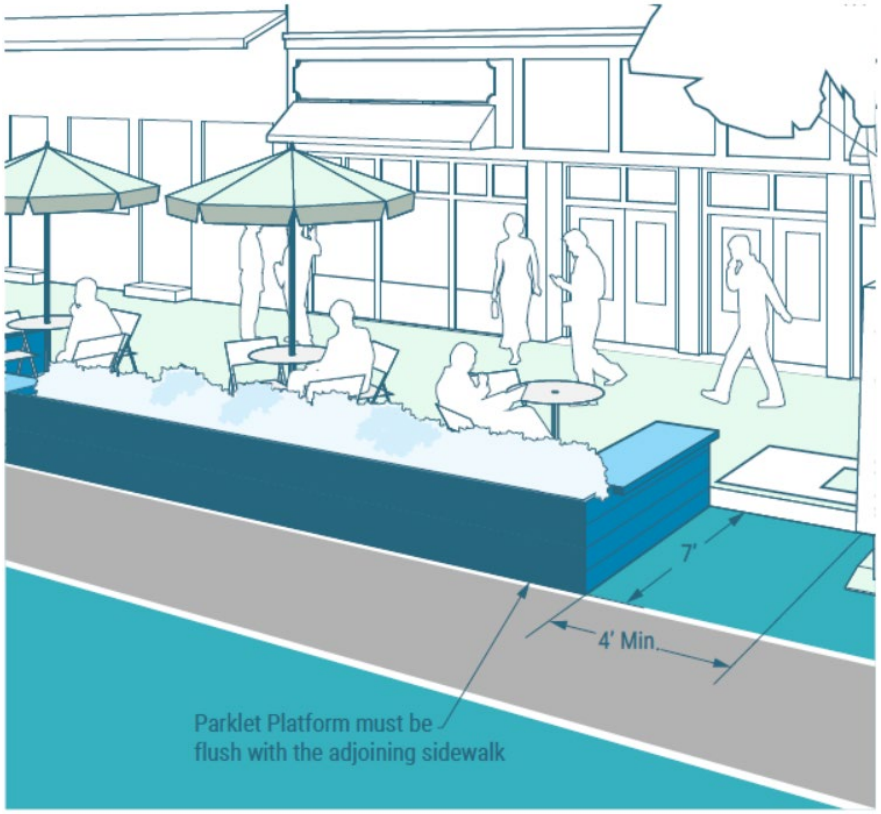

Figure 5-13. Illustration of Parklet Dimensions

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Chapter 5
Street Zone

Utilities

- Water and Sewer
- Gas
- Dry Utilities
- Utility Clearance
- Utility Appurtenances

Network Connectivity

- Bike/ped and street connections between existing and new development

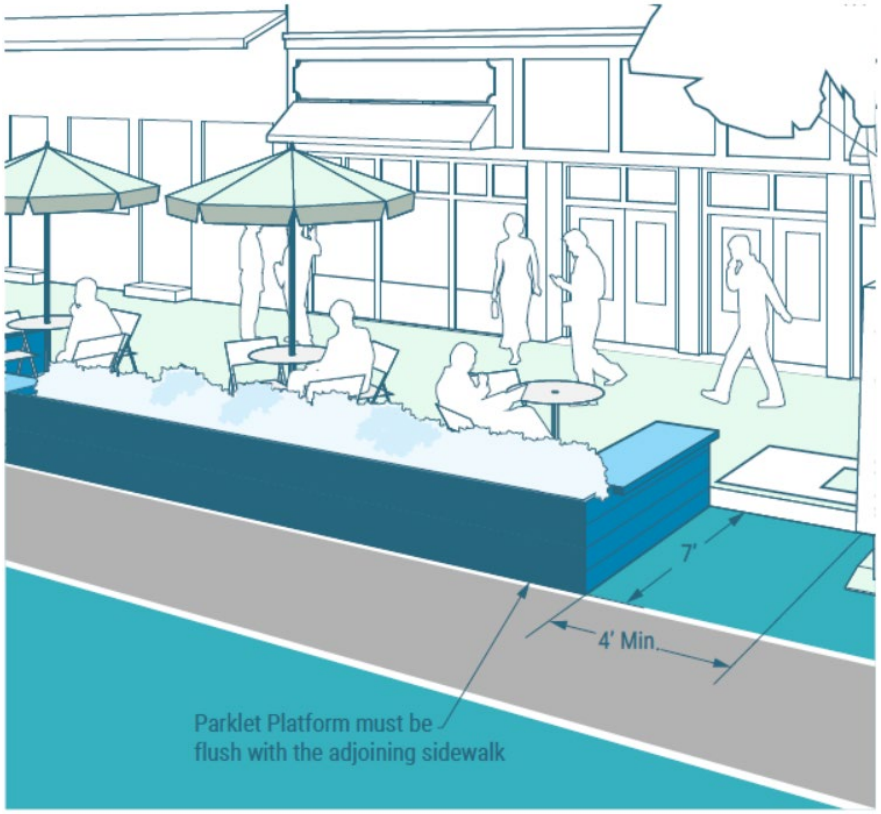

Figure 5-13. Illustration of Parklet Dimensions

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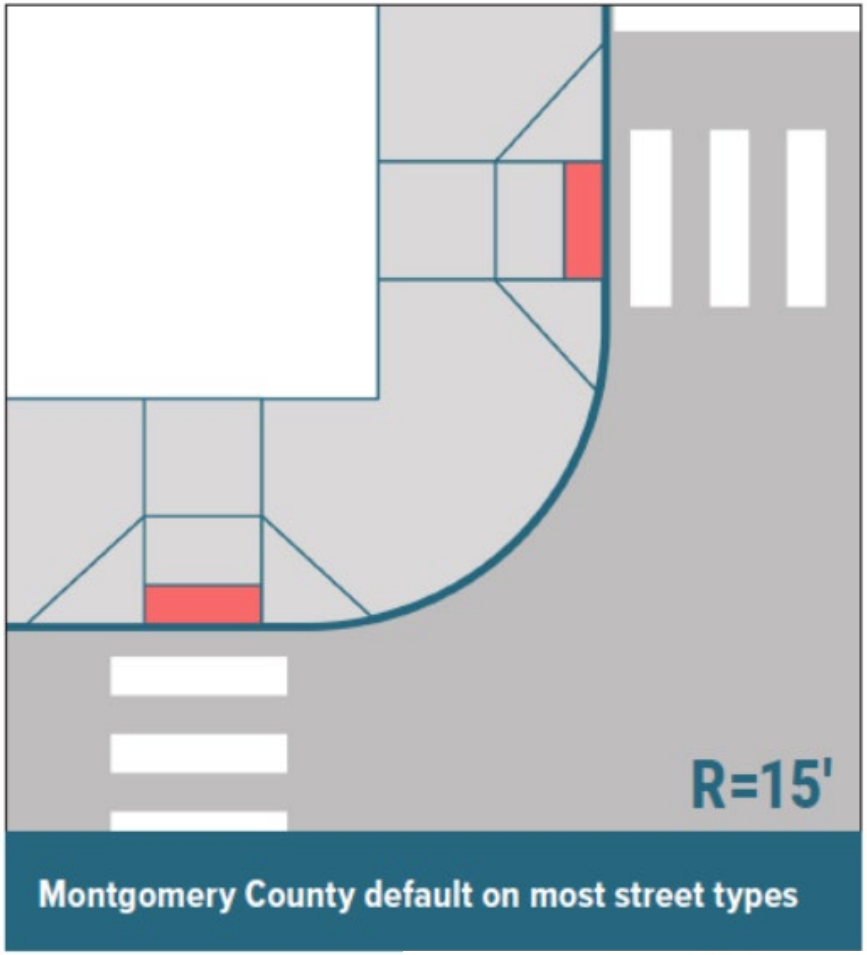
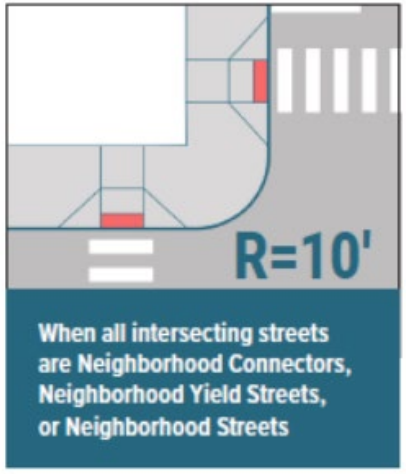
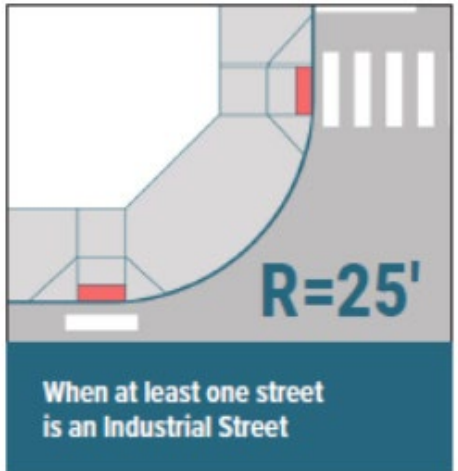
Chapter 6
Intersections

- Access Management
- Geometric Design Guidance
- Design Vehicles vs Control Vehicles
- Encroachment
- Mitigating Conflicts
- Intersection Features
- Roundabouts and Mini Roundabouts
- Curb Ramps
- Bikeways at Intersections
- Transit at Intersections
- Pedestrian Design Elements
- Channelized Right Turn Lanes







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Chapter 7

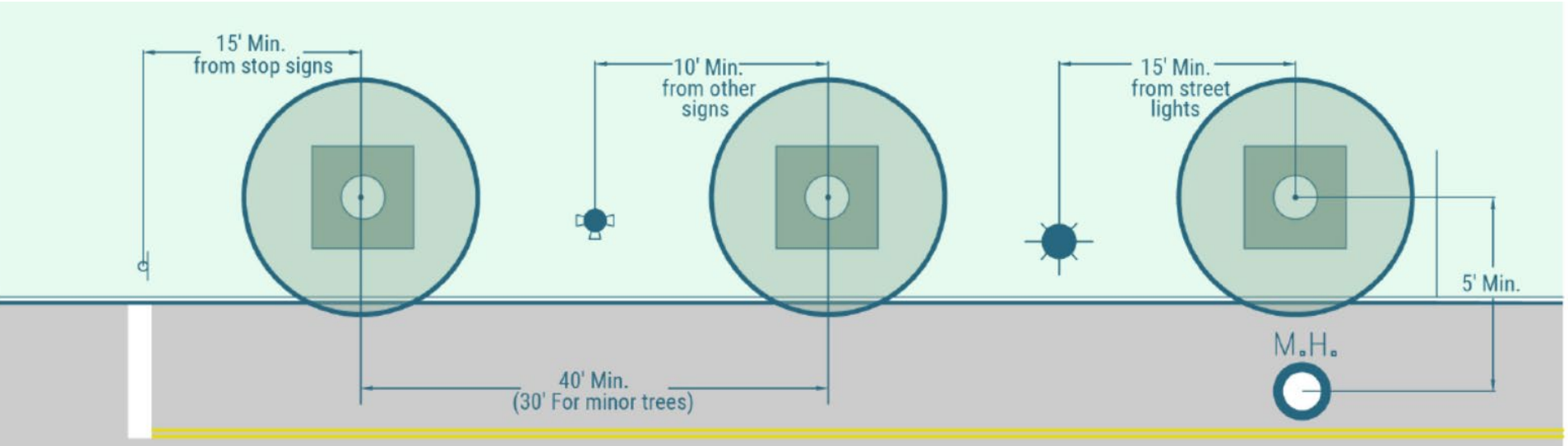
Green Streets

Urban Forestry

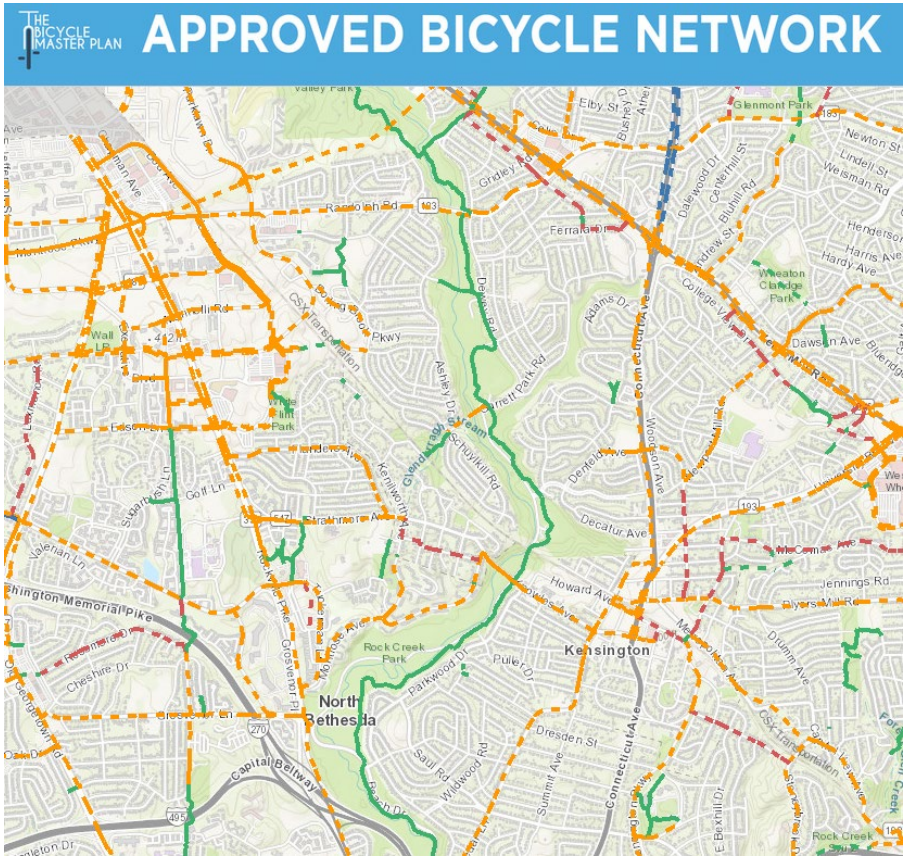
- Tree/Plant Selection
- Tree Spacing and Clearances
- Street Trees and Landscaping
- Soil Panels and Structural Soil
- Tree and Landscape Maintenance

Stormwater Management

- Opportunities and Constraints
- Incorporating BMPs into Street Design
- Maintenance



Chapter 8
Bikeways



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Chapter 8
Bikeways

Design Guidance

- Trails
- Separated Bikeways
- Striped Bikeways
- Bikeable Shoulders
- Shared Roads
- Breezeway Network

Other Considerations

- Shy Zones
- Bicycle Ramps
- Green Paint

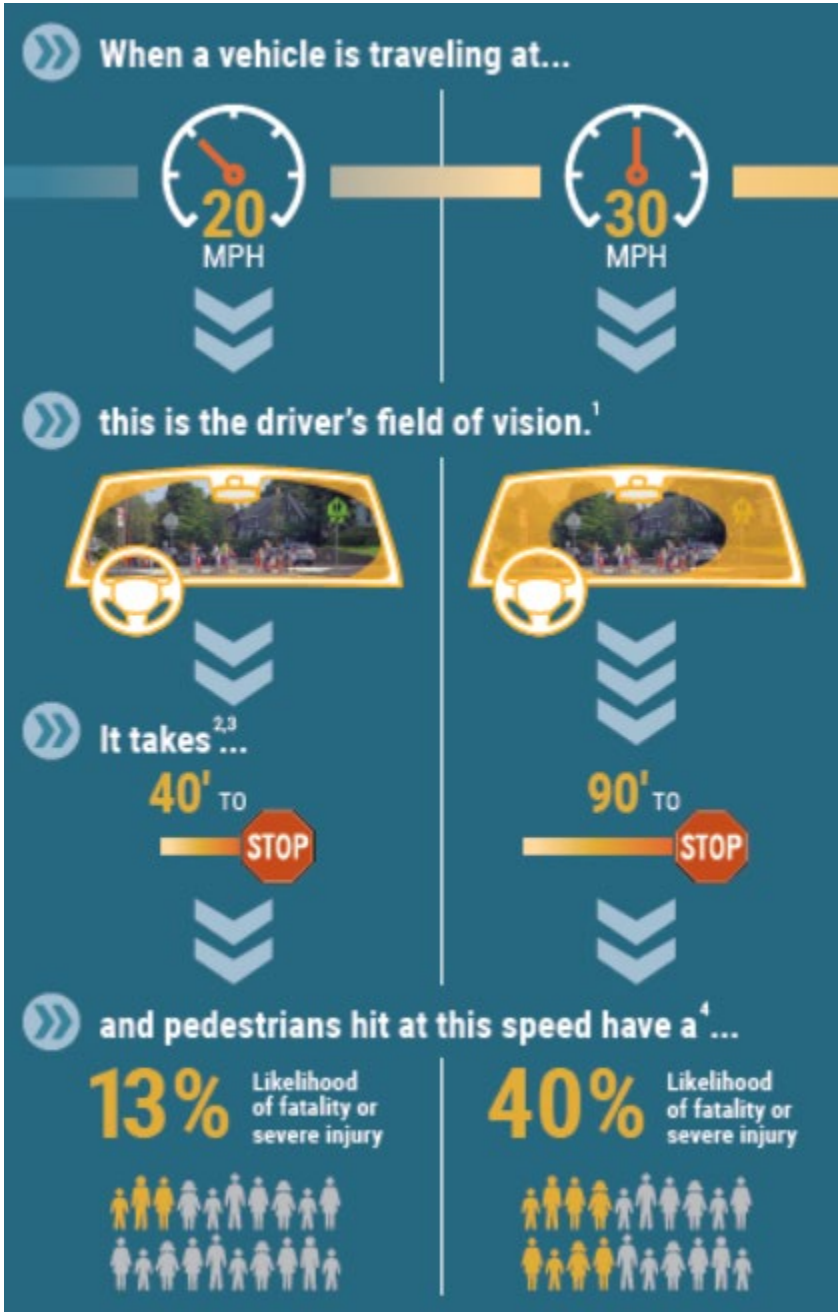
Figure 8.14 (excerpt)

Street Type	Street Buffer+	Default Bikeway Types and Widths*
Downtown Boulevard	8' default, 6' min	Two-Way SBL on both sides of street. Each SBL: 11' default; 8' min
Downtown Street	6' default; 3' min; 11' if this space is shared with on-street parking	One-way SBL: 6.5' default; 5' min
Boulevard	8' default, 6' min	Sidepaths on both sides of the street. Each sidepath: 11' default; 8' min
Town Center Boulevard	8' default, 6' min	Two-Way SBL on both sides of street. Each SBL: 11' default; 8' min
Town Center Street	6' default; 3' min	One-way SBL: 6.5' default; 5' min
Neighborhood Connector	6' default; 3' min	Sidepath on one side of the street: 10' default; 8' min, or Bike Lanes: 5'-6'

Chapter 9

Speed Management

- Design Speed, Target Speed, and Posted Speed
- Strategies for Achieving Target Speed
- Retrofitting Arterials for Lower Speed



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Focus on Target Speed

- **Posted Speed** – the maximum speed a car is legally allowed to travel in optimal conditions (aka the speed limit)
- **Design Speed** – the maximum speed for which the roadway is designed
- **Target Speed** – the desired operating speed for a roadway

Street Type	Target Speed
Downtown Boulevard	25
Downtown Street	20
Boulevard	35
Town Center Boulevard	30
Town Center Street	25
Neighborhood Connector	25
Neighborhood Street	20
Neighborhood Yield Street	20
Industrial Street	25
Country Connector	40
Country Road	35
Major Highway	45 - 55

Figure 9-2: Montgomery County Target Speeds

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Speed Management Techniques

- Road diet
- Lane diet
- Speed humps/cushions
- Speed tables/Raised crossings
- Raised intersections
- Curb extensions/Bulb outs
- Neckdowns/Chokers
- Crossing islands
- Traffic Diverters
- Chicanes/Roadway Curvature
- Textured Pavement
- Sense of Enclosure

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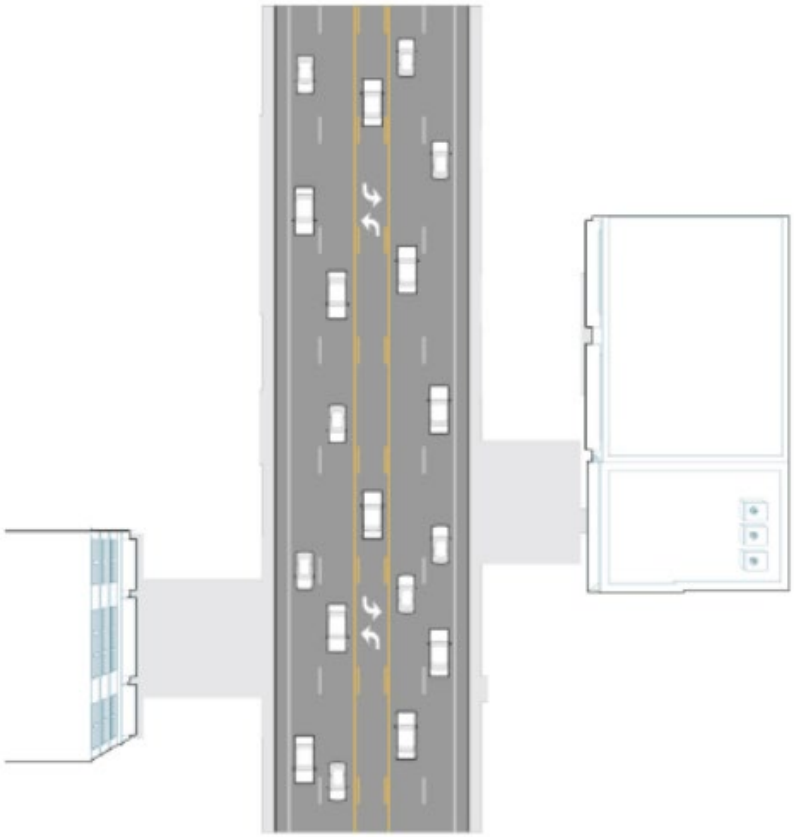
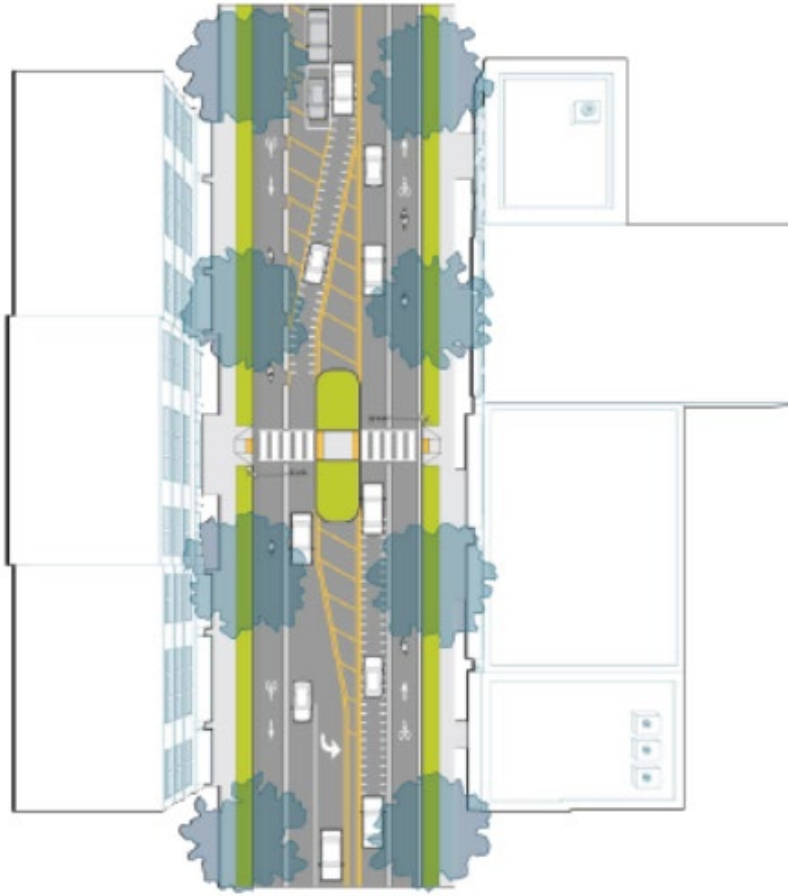
Retrofitting Arterials for Lower Speeds

- Three hypothetical scenarios



Existing



Proposed

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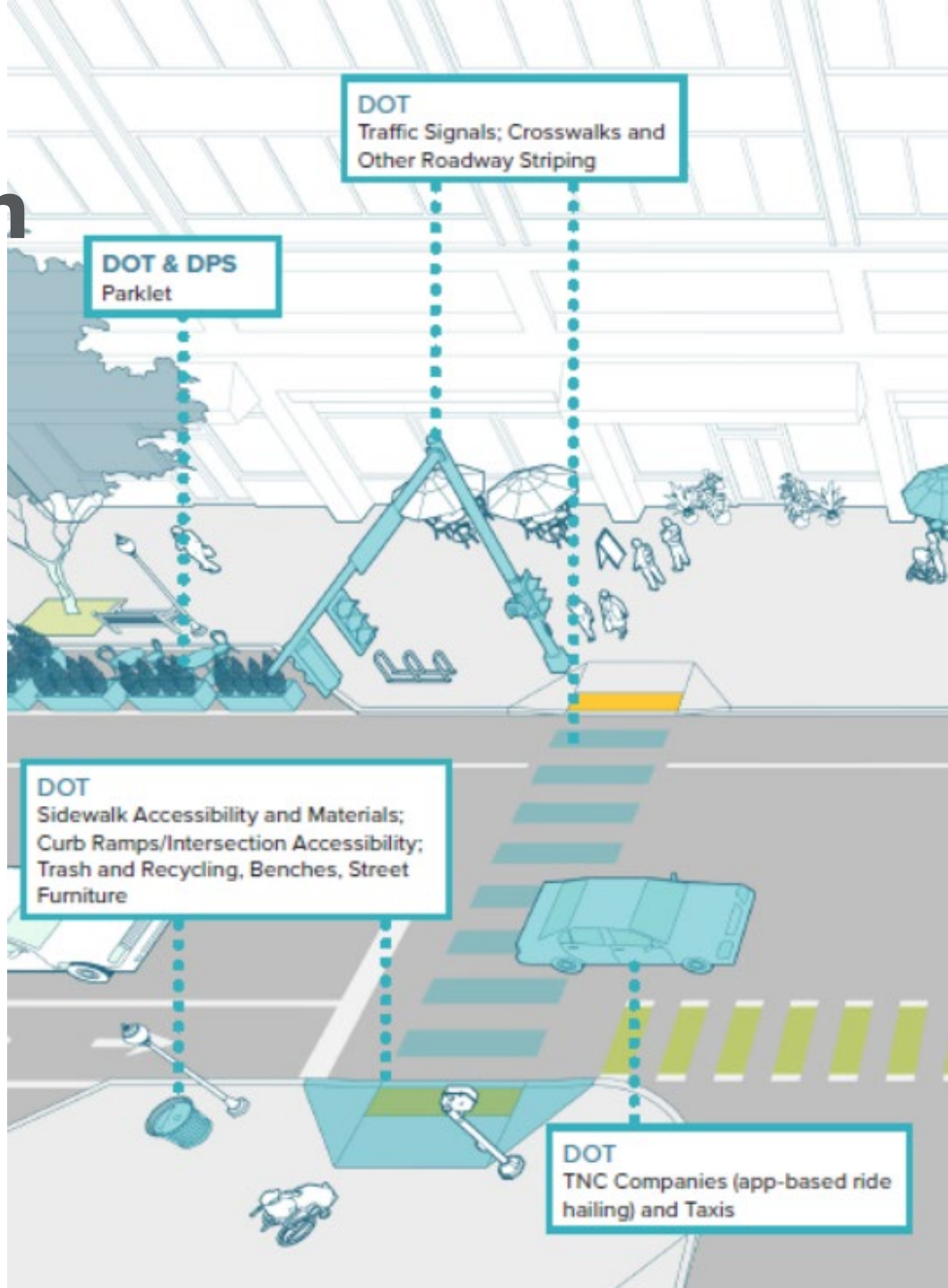
Chapter 10
Implementation

- Agency Responsibilities on Streets
- Project Development Process
- Permits and Approvals
- Design Exceptions



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PUBLIC SECTOR ROAD PROJECTS

Master Plan of Highways and Transitways

- Classifies each street based on traffic volume and function
- Establishes minimum master-planned right-of-way
- Identifies transit priority streets
- Identifies-planned Bus Rapid Transit (BRT) station locations
- Recommends number of lanes and target speed

Master Plans and Sector Plans

- Defines land use and urban form
- May include local streetscape guidelines

Bicycle Master Plan

- Recommends bikeways for specific roads

Briefing with the Montgomery County Planning Board

Review from the Montgomery County Council Transportation, Infrastructure, Energy and Environment (T&E) Committee

Project Planning / Facility Planning at DOT

- Collects background traffic and environmental data
- Public outreach, in the form of community meetings and written feedback
- Develops concept plans
- DOT selects a preferred option to move forward

Next Steps

Current project:

- Revisions based on public/stakeholder, Planning Board and County Council reviews
- Regulatory review and approval process, Adoption

Future effort:

- Changes to County Code and Executive Regulations
- Designation of streets by new street types
- Update to Functional Master Plan of Highways and Transitways
- Ongoing coordination with Area Plans
- Trainings for staff and developer consultants on new guidance
- Ongoing updates – **this is a living document**

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Questions?

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