

North Central Texas  
Council of Governments

## BICYCLE AND PEDESTRIAN ADVISORY COMMITTEE

North Central Texas Council of Governments  
616 Six Flags Dr. Arlington TX 76011  
February 19, 2025  
2:00-4:00 pm

2:00 – 2:05 (5 min)	<b>1. Welcome</b> Discussion of November 20, 2024, meeting summary	<b>Anthony White,</b> BPAC Chair, TxDOT Fort Worth District
2:05 – 2:20 (15 min)	<b>2. Highlights from the AASHTO Bike Guide 5<sup>th</sup> Edition (Dec 2024)</b>	<b>Jeremy Chrzan,</b> Toole Design
2:20 – 2:30 (10 min)	<del><b>3. Advancing Implementation of the Safe System Approach</b></del>	<b>Millie Hayes,</b> Federal Highway Administration
2:30 – 2:40 (10 min)	<b>4. Town of Prosper Crosswalk and School Zone Policy</b>	<b>Hulon Webb,</b> Town of Prosper and <b>Josh Smith,</b> Lee Engineering
2:40 – 2:55 (15 min)	<b>5. Local Community Updates</b> a) <b>Trinity Metro Bike Share Program Re-Launch</b> – Shawn Tubre, Trinity Metro b) <b>Upcoming Events &amp; Training</b> – Daniel Herrig, BPAC Vice-Chair, City of Richardson	<b>Various Community and BPAC Members</b>
2:55 – 3:25 (30 min)	<b>6. NCTCOG and TxDOT Updates</b> a) <b>Regional Bicycle Safety Action Plan</b> – Catherine Richardson b) <b>Potential Cooperative Purchasing Program for Bikeway Facilities</b> – Daniel Snyder c) <b>Public Comments About Pedestrian and Bicycle Facilities Received Through NCTCOG's Map Your Experience and TxDOT Public Hearing Comments</b> – Daniel Snyder d) <b>Update of Statewide District Public Hearing and 2025 Statewide TA Call for Projects</b> – Rachael Twiggs e) <b>Metropolitan Transportation Plan Outreach</b> – Gwen Dorko	<b>Various NCTCOG and TxDOT Staff</b>
3:25- 3:55 (30 min)	<b>7. BPAC Member Introductions</b>	<b>All BPAC Members</b>
3:55 – 4:00 (5 min)	<b>8. Other Business</b> This item provides committee members an opportunity to bring items of interest before the Committee or propose future agenda items.	<b>Anthony White,</b> BPAC Chair, TxDOT Fort Worth District

### Next BPAC Meeting

The next meeting of the Bicycle and Pedestrian Advisory Committee is scheduled for May 21, 2025, from 2:00-4:00pm at NCTCOG in the Transportation Council Room.

# 2024 AASHTO Bike Guide 5th Edition

Bicycle & Pedestrian Advisory Committee  
North Central Texas Council of Governments  
February 19, 2025

Jeremy Chrzan, PE, PTOE  
Multimodal Design Practice Lead

**TOOLE**  
DESIGN

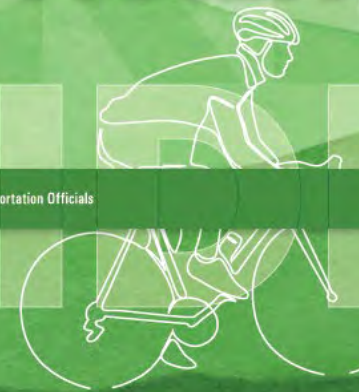


Guide for the Development of  
**BICYCLE FACILITIES**  
Fifth Edition

AASHTO

American Association of State Highway and Transportation Officials

2024



# 2012 Guide compared to 2024 Guide



2012 Guide	2024 Guide	Notable Changes of 2024 compared to 2012
Chapter 1. Introduction	1. Introduction	<b>REWRITE</b> with new discussion of design range concept
Chapter 3. Bicycle Operation and Safety	2. Bicycle Operation & Safety	<b>REWRITE</b> of former Chapter 3
Chapter 2. Bicycle Planning	3. Bicycle Planning	<b>REWRITE</b> and <b>NEW CONTENT</b> added to former Chapter 2
	4. <b>Facility Selection</b>	<b>NEW CHAPTER</b> with a few items carried from Chapter 2
	5. <b>Elements of Design</b>	<b>NEW CHAPTER</b> with some content pulled from Chapters 4 and 5
Chapter 5. Design of Shared Use Paths	6. Shared Use Paths	<b>REVISION</b> of Chapter 5
	7. <b>Separated Bike Lanes</b>	<b>NEW CHAPTER</b> with new content
	8. <b>Bicycle Boulevards</b>	<b>NEW CHAPTER</b> with new content
Chapter 4. Design of On-Road Facilities	9. Bike Lanes & Shared Lanes	<b>REVISION</b> of Chapter 4
	10. <b>Traffic Signals and Active Warning Devices</b>	<b>NEW CHAPTER</b> with new content
	11. <b>Roundabouts, Interchanges, and Alternative Intersections</b>	<b>NEW CHAPTER</b> with new content
	12. <b>Rural Area Bikeways</b>	<b>NEW CHAPTER</b> with some content pulled from Chapter 4
	13. <b>Structures</b>	<b>NEW CHAPTER</b> with some content pulled from Chapter 5
	14. <b>Wayfinding</b>	<b>NEW CHAPTER</b> with some content pulled from Chapter 4
Chapter 7. Maintenance and Operations	15. Maintenance & Operations	<b>REVISION</b> of chapter 7
Chapter 6. Bicycle Parking Facilities	16. Parking, Bike Share, & End of Trip Facilities	<b>REVISION</b> of chapter 6

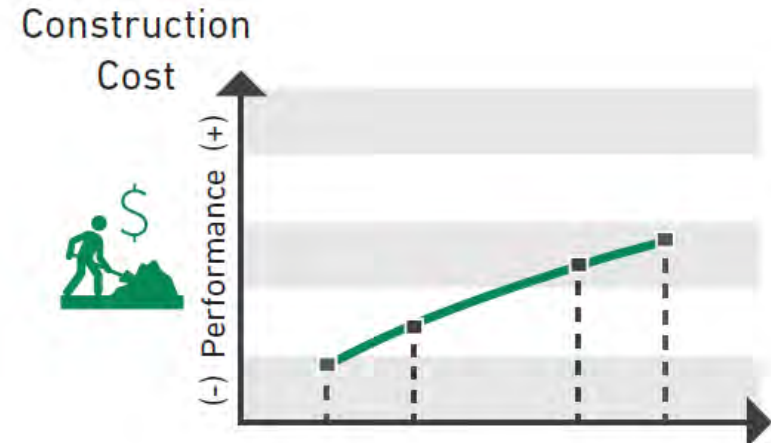
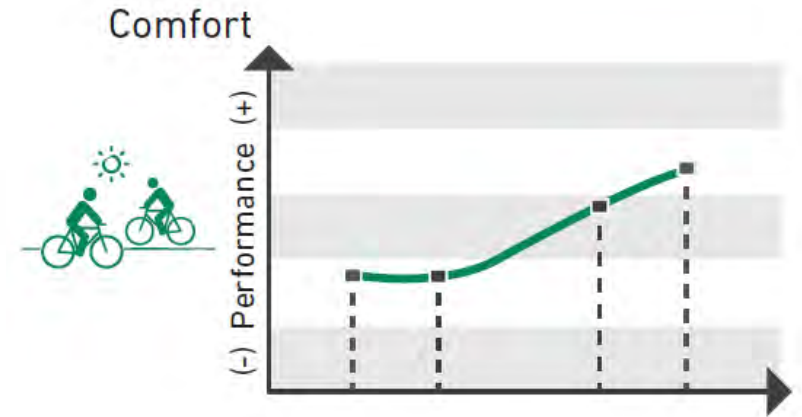
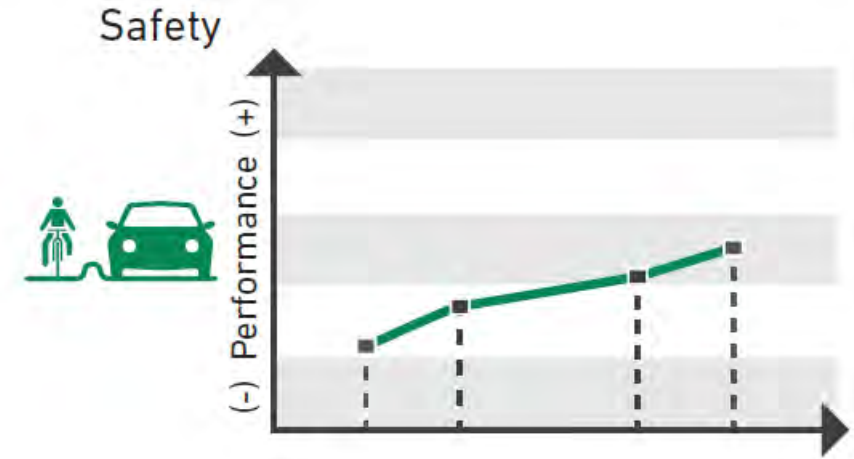
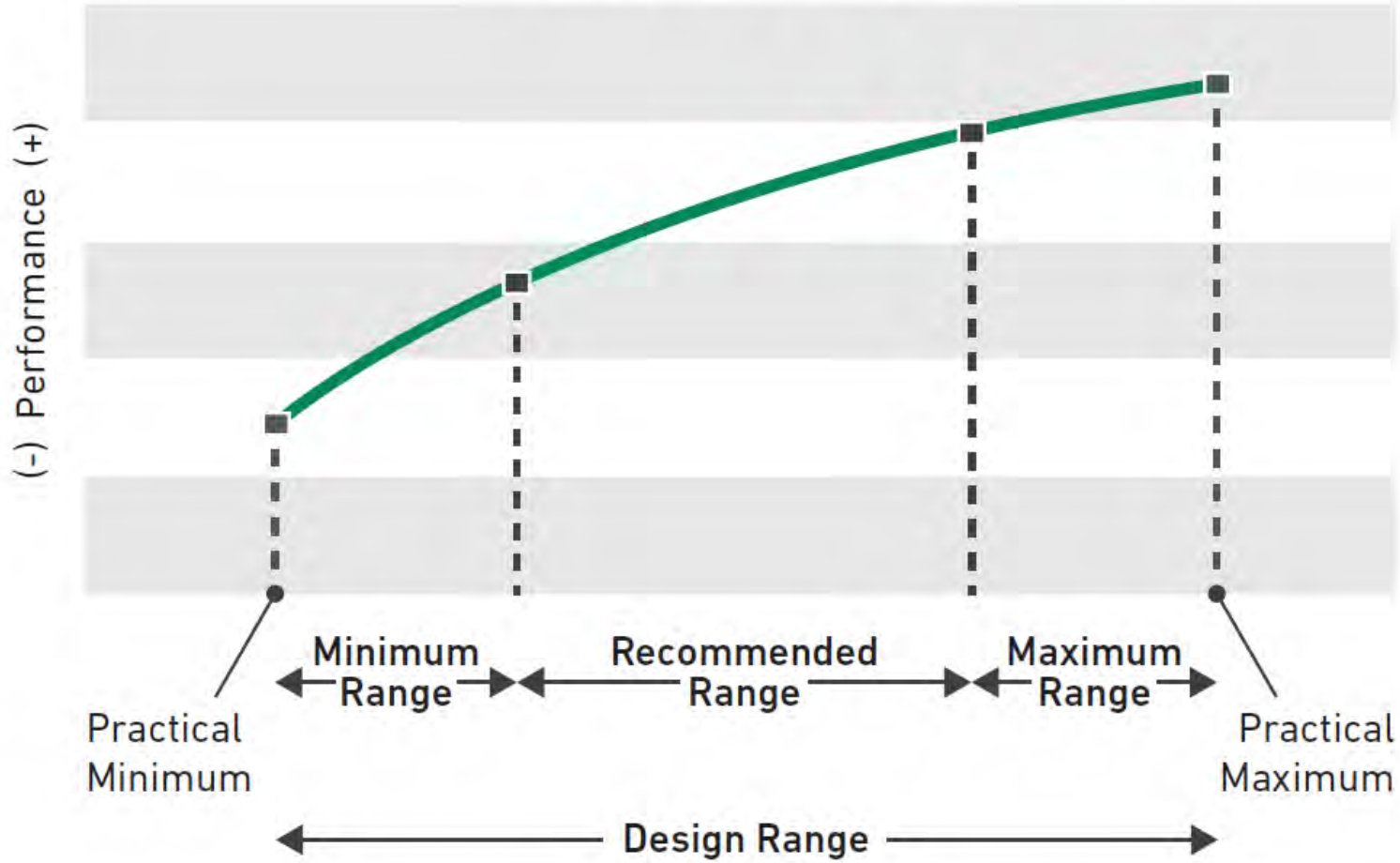
# Chapter 1 – Introduction

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- 1.1 Design Imperative for Bicycle Facilities
- 1.2 Purpose
- 1.3 Design Flexibility
- 1.4 Use of Values in the Guide
- 1.5 Scope
- 1.6 Relationship to other Design Guides and Manuals
- 1.7 Structure of this Guide
- 1.8 Definitions



Figure 1-1: Design Range



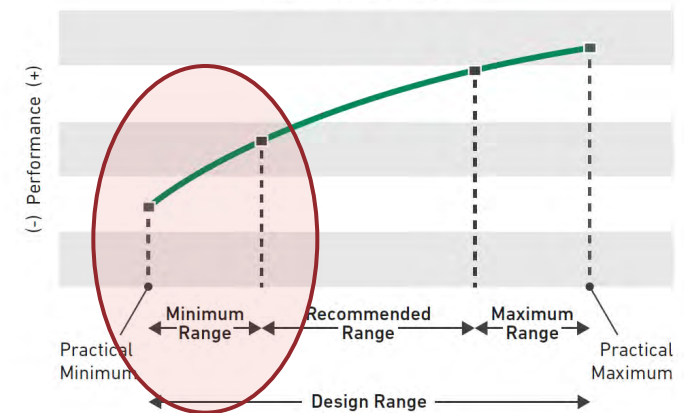
# Section 1.4 – Use of Values in the Guide



## 1.4.1. Minimum Range

The use of **values within the minimum range** should be minimized because they are likely to diminish mobility, safety, and comfort

Figure 1-1: Design Range



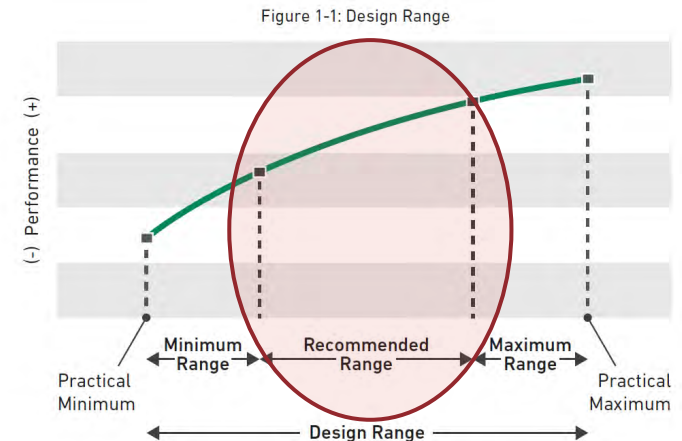
# Section 1.4 – Use of Values in the Guide



## 1.4.2. Recommended Values Range

The use of **values within the recommended range should be chosen** to maximize mobility, safety and comfort benefits for bicyclists as well as other users.

These values were determined by research or established best practice.





# Experimental

## 9.8. Advisory Bicycle Lanes (Experimental)

Advisory bicycle lanes are continuously-dotted bicycle lanes which permit motorists to temporarily enter the bicycle lane, allowing opposing motor vehicle traffic sufficient space to pass (see [Figures 9-15](#) and [9-16](#)). They are an experimental design treatment for streets with lower traffic speeds and volumes where it is not feasible to provide standard-width travel lanes and bicycle lanes. They are designed to improve bicyclist comfort while also providing a traffic calming benefit. This is the same procedure for motorists operating on yield streets where motorists must move to the right side of the road, into unoccupied parking spaces or driveways, to permit oncoming traffic to pass (see [Section 8.4.1](#)).



Figure 9-15: Example of an Advisory Bicycle Lane in Alexandria, VA

Where advisory bicycle lanes are installed, they should include bicycle lane signs (R3-17) and bicycle lane symbol pavement markings. The placement of the signs and bicycle lane symbols should follow guidance for bicycle lanes. Experimental approval from FHWA is required to use this traffic control treatment. See [Section 1.6.1](#) for guidance on requests to experiment.

Advisory shoulders are a similar treatment used in locations where sidewalks are not provided. Bicycle symbols are omitted to allow pedestrians to share the shoulder space with bicyclists. [Chapter 12](#) provides design guidance for advisory shoulders.

# Chapter 2 - Bicycle Operation and Safety

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2.1. Introduction

2.2 Safety of Bikeways and Shared Lanes

2.3. Bicyclist Design User Profiles

2.4. Bicyclist Safety and Performance Characteristics

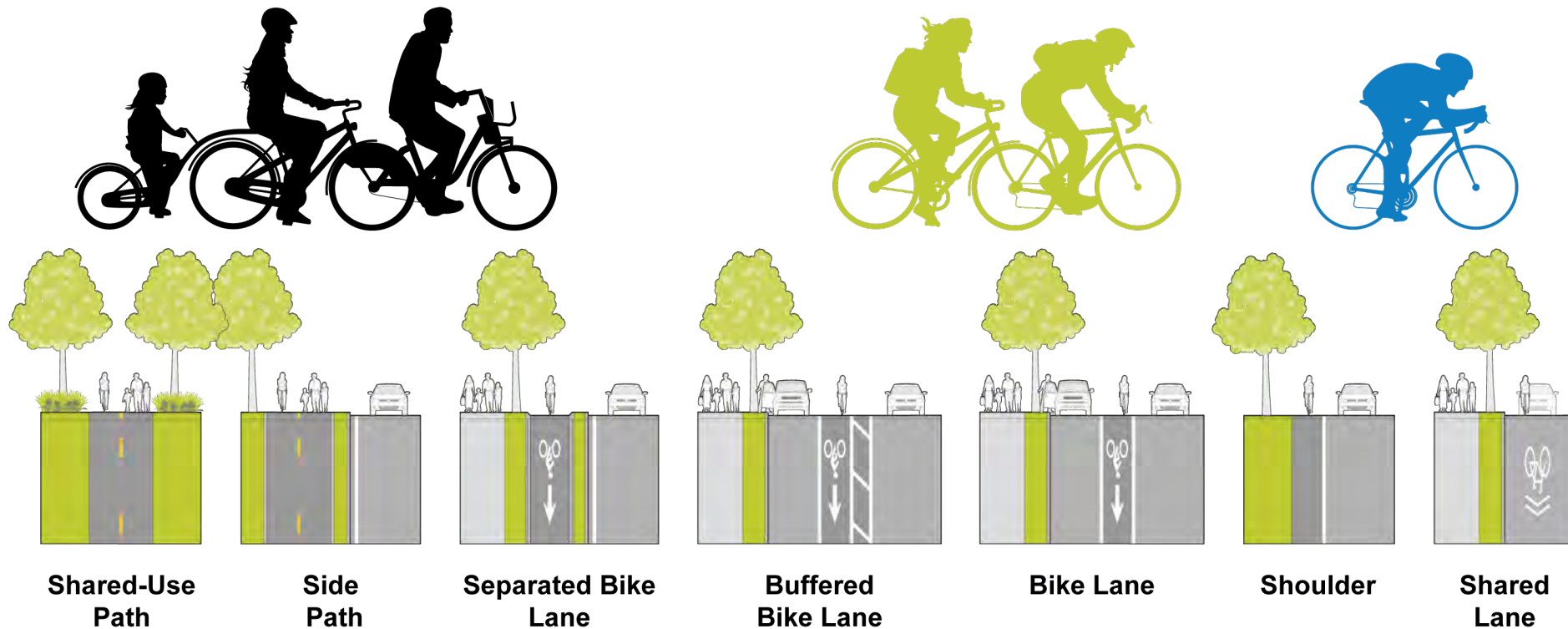
2.5. Design Vehicle and Bicyclist Operating Criteria

2.6. Operating Principles for Bicyclists

2.7. Guiding Principles for Bicyclist Safety



# Comfort Increases with Separation



SEPARATION FROM TRAFFIC



# 2.3. Bicyclist Design User Profiles

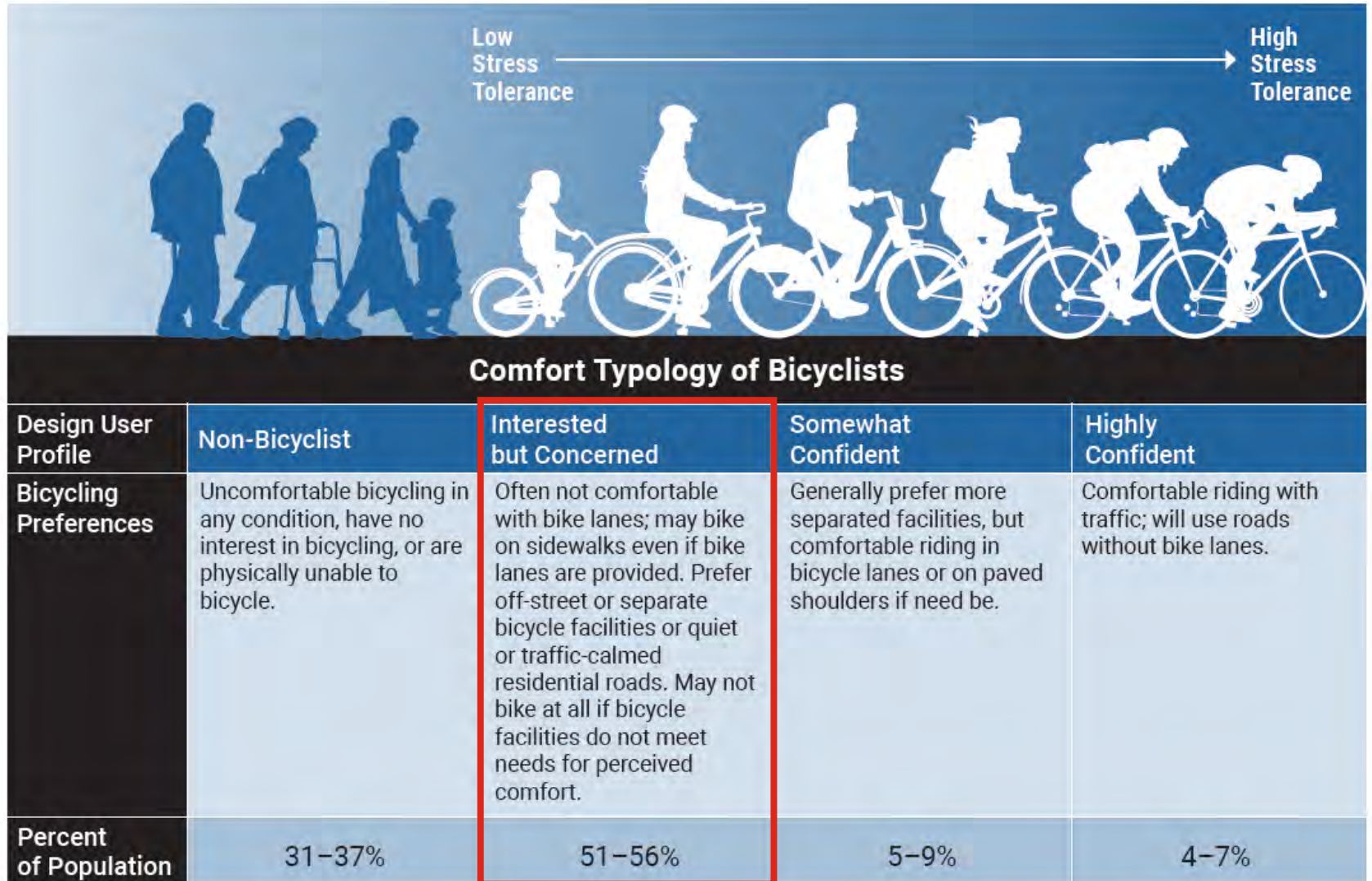


Figure 2-2: Comfort Typology of Bicyclists (See Chapter 2 References: Dill and McNeill, 2016)

## 2.7. Guiding Principles for Bicyclist Safety

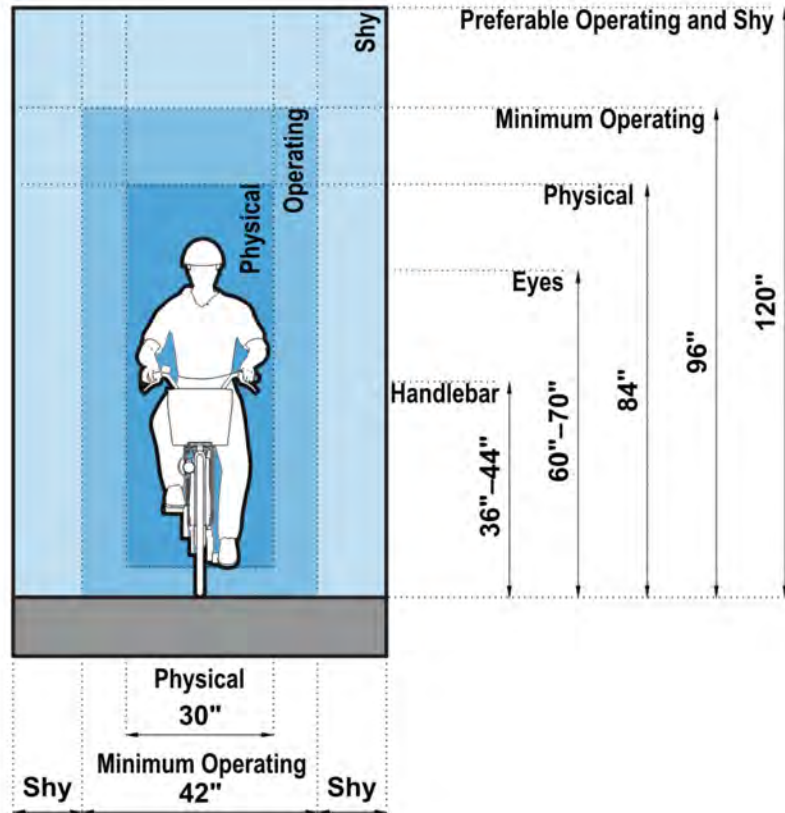


Figure 2-5: Typical Adult Bicyclist Operating Space

- Reduced injury risk compared to standard bike lanes and shared lanes (Lusk et al., 2013; Lusk et al., 2011; NYCDOT, 2014; Winters et al., 2013)
- SBL preferred over striped or shared lanes by both cyclists and motorists (Monsere et al., 2014; Monsere et al., 2012; Sanders, 2014)
- One-way generally safer than two-way (Schepers et al., 2011; Thomas & DeRobertis, 2013)
- Two-way SBLs on one-way roads, preferable on right side (Schepers et al., 2011; Zangenehpour et al., 2015)

# Chapter 4 - Guidance for Choosing a Bikeway Type

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4.1 Introduction

4.2 Project Performance Goals and Objectives

4.3 Selecting the Preferred Bikeway Type

4.4 Strategies to Achieve the Preferred (or Next Best) Design

4.5 Evaluating Design Alternatives and Trade-offs to Select a Bikeway



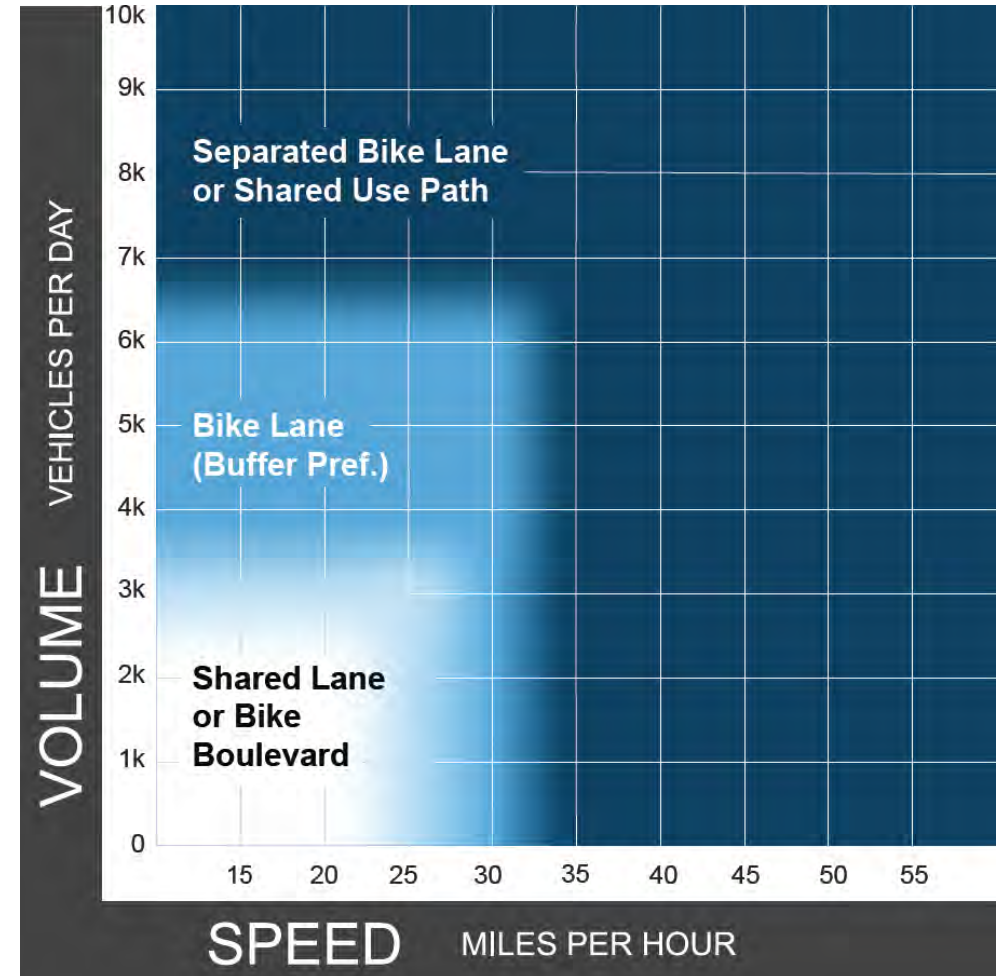
# Section 4.3.1 – Streets in Urban, Suburban and Rural Town Contexts



Identifies the **preferred** bikeway type assuming:

**Design User** = Interested but Concerned bicyclist

**Analysis** = Level of Traffic Stress





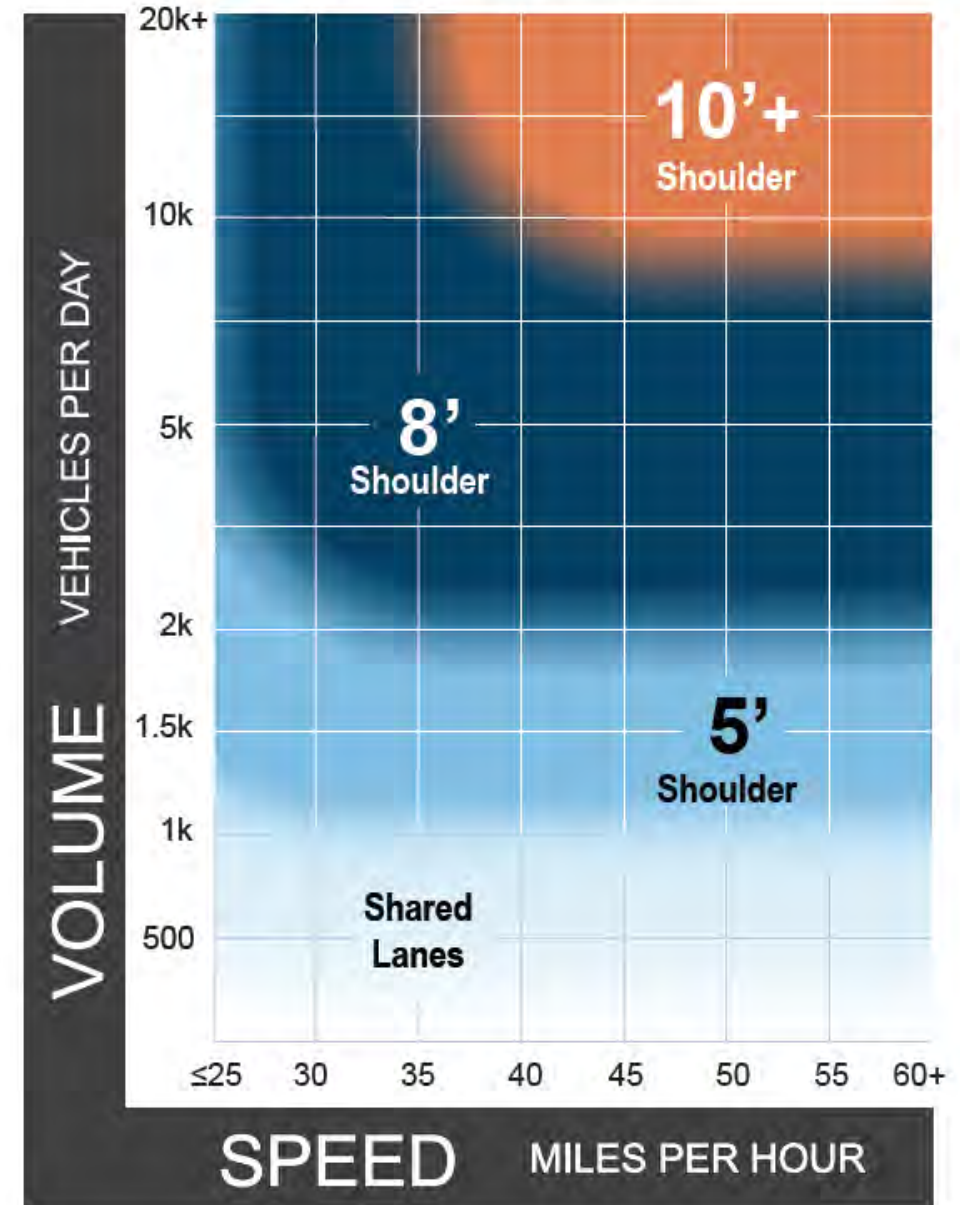
## Section 4.3.2 – Rural Roadways

Identifies the **preferred** shoulder width assuming:

Design User = Confident bicyclist

Analysis = Bicycle LOS

Figure 4-2: Preferred Paved Shoulder Widths for Rural Roadways to Accommodate Highly Confident or Somewhat Confident Bicyclists



# 4.4.2. Example Strategies for Constrained Rights-of-Way

- 4.4.2.1 Traffic Analysis Approach
  - 4.4.2.2 Narrowing Travel Lanes
  - 4.4.2.3 Removing Travel Lanes
  - 4.4.2.4 Reorganizing Street Space
  - 4.4.2.5 Making Changes to On-Street Parking
  - 4.4.2.6 Reducing Bikeway Widths
  - 4.4.2.7 Reducing Motor Vehicle Traffic Volumes and Speeds
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- 4.5.2. Example of Trade-off Considerations Between Common Bikeway Types

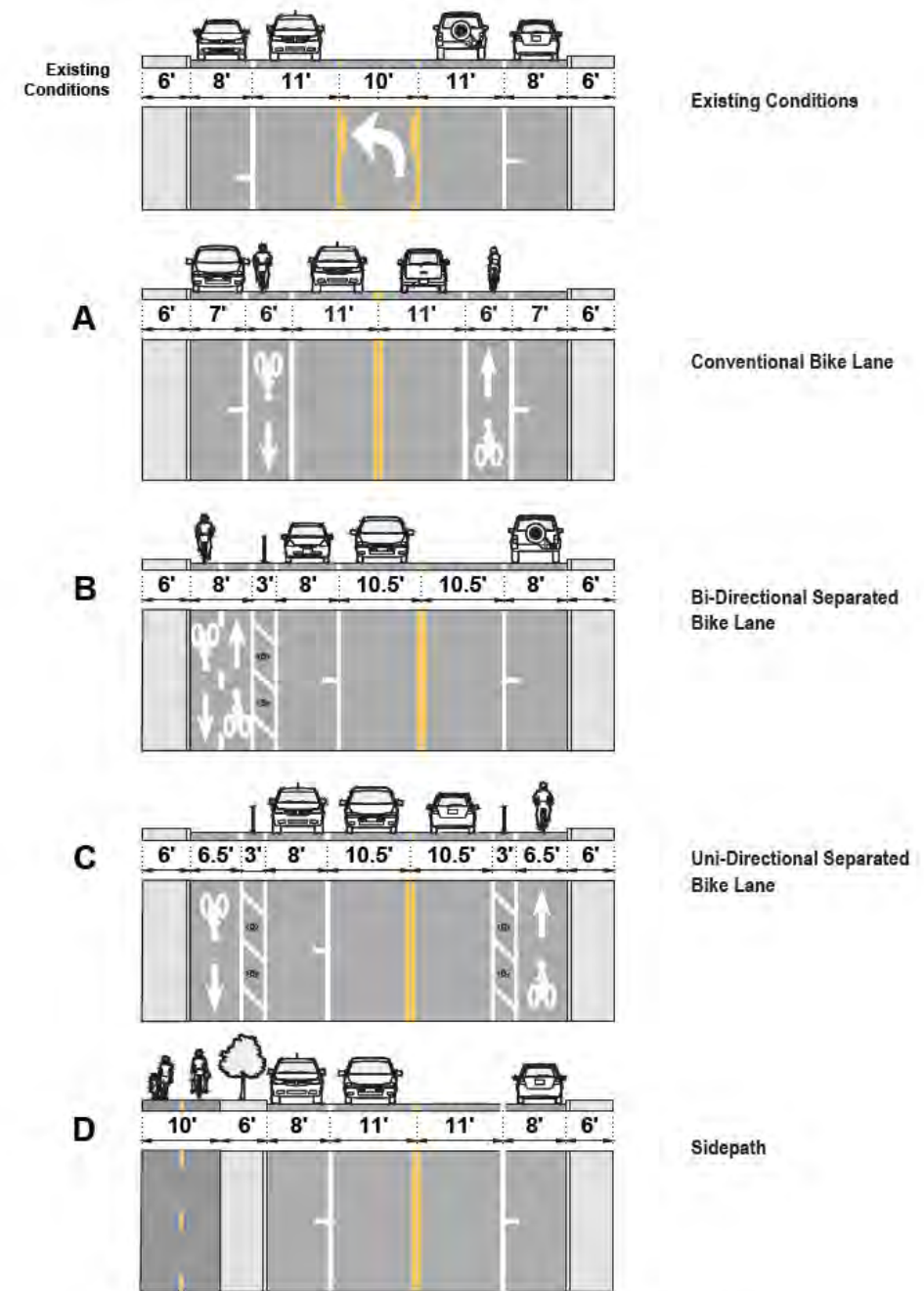


Figure 4-3: Common Bikeway Options within a 48-ft Cross Section

# 4.5.3. Selecting the Next Best Facility When the Preferred Bikeway Is Not Feasible

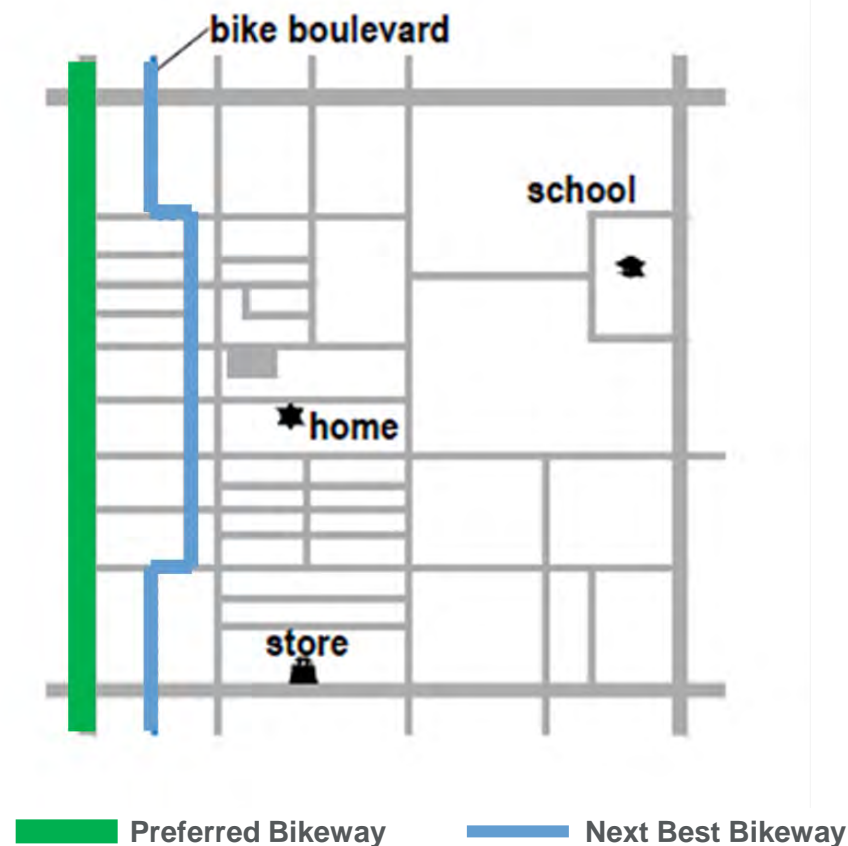


## Alternative Route

If no other design improvements are feasible, it is necessary to consider alternative parallel routes.

Research indicates that for an alternative low-stress route to be viable, **the increase in trip length should be less than 30 percent.**

Broach, J., Dill, J., and J., Gliebe. Where Do Cyclists Ride? A Route Choice Model Developed with Revealed Preference GPS Data



# Chapter 5 – Elements of Design

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5.1 Introduction

5.2 Design User

5.3 Design Speed

5.4 Understanding Assignment of Right of Way

5.5 Sight Distance

5.6 Surface and Geometric Design Elements

5.7 Characteristics of Intersections

5.8 Intersection Design Objectives

5.9 Evaluating Bicycle and Pedestrian Roadway Crossings

5.10 Geometric Design Treatments to Improve Intersection Safety

5.11 Warning and Regulatory Traffic Control Devices

5.12 Pavement Markings

5.13 Bicycle Travel Near Rail Lines

5.14 Other Design Features

## 5.8. Intersection Design Objectives

- 5.8.1. Minimize Exposure to Conflicts
- 5.8.2. Reduce Speeds at Conflict Points
- 5.8.3. Communicate Right-of-Way Priority
- 5.8.4. Providing Adequate Sight Distance
- 5.8.5. Transitions to Other Facilities
- 5.8.6. Accommodating Persons with Disabilities

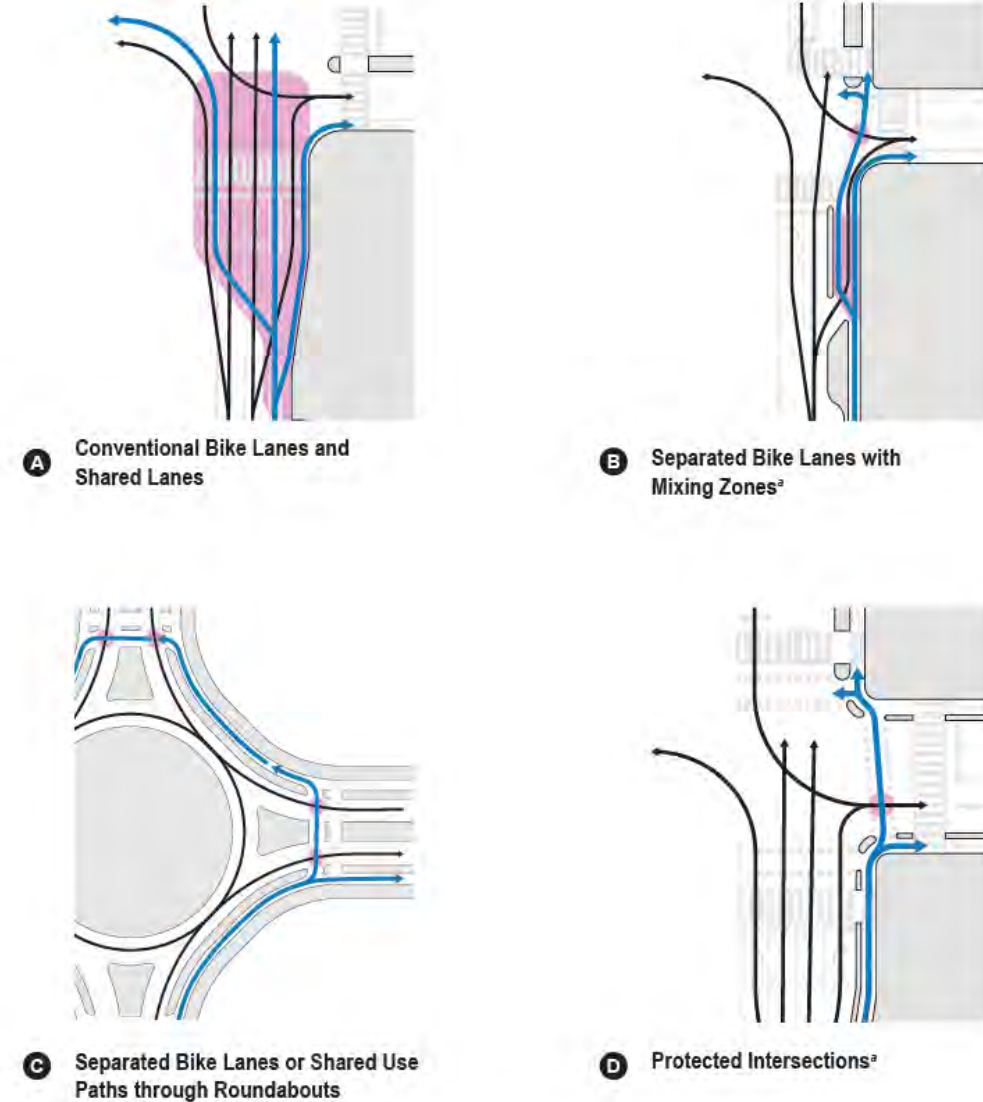


Figure 5-13: Comparison of Bicyclist Exposure to Motor Vehicles at Intersections



# 5.9.2.3 Apply Countermeasures to Improve Yielding



Tier 1: Signing & Markings

Tier 2: RRFB & Geometric Improvements

Tier 3: PHB, Signal, or Grade Separation

Table 5-15: Uncontrolled Crossing Evaluation

Uncontrolled Crossing Countermeasure Evaluation Table												
Roadway Type	Vehicle ADT < 9,000			Vehicle ADT 9,000 - 12,000			Vehicle ADT 12,000 - 15,000			Vehicle ADT > 15,000		
Number of Travel Lanes and Median Type	Speed Limit (mph)											
	≤30	35	40≥ <sup>a</sup>	≤30	35	40≥ <sup>a</sup>	≤30	35	40≥	≤30	35	40≥
2 Lanes <sup>b</sup>	1	1	2	1	1	2	1	1	3	1	2	3
3 Lanes with Raised Median <sup>b</sup>	1	1	2	1	1	2	1	2	3	2	2	3
3 Lanes without Raised Median <sup>b,c</sup>	1	1	2	1	2	2	2	3	3	2	3	3
4 Lanes with Raised Median <sup>c,d</sup>	1	1	2	1	2	2	2	3	3	3	3	3
4+ Lanes without Raised Median	1	2	3	2	2	2	3	3	3	3	3	3

Notes:

<sup>a</sup> Where the speed limit exceeds 40 mph, Tier 3 should be considered.

<sup>b</sup> 1 lane in each direction.

<sup>c</sup> Raised medians must be at least 6 ft wide to serve pedestrians. See Figure 2-4 for different bicycle lengths to serve bicyclists. Where median width is less than these values, review category of 4+ lanes without raised median.

<sup>d</sup> 2 lanes in each direction.

# Chapter 6 – Shared Use Paths

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- 6.1 Introduction
- 6.2 Shared Use Path Users
- 6.3 Side Path Considerations
- 6.4 Path Width Considerations
- 6.5 Design Speed
- 6.6 General Design Considerations
- 6.7 Shared Use Path Intersections and Transitions
- 6.8 Design Considerations to Promote Personal Security
- 6.9 Shared Use Path Entrance and Wayside Amenities

# Chapter 6

## SUP Width (Two-way)

### 6.4.3. Recommended Shared Use Path Widths

Table 6-3: Recommended Shared Use Path Widths\* to Achieve SUP LOS "C"

Shared Use Path Operating Widths and Operational Lanes*					
SUPLOS "C" Peak Hour Volumes	Recommended Operational Lanes	Practical Minimum	Recommended Lower Limit	Recommended Upper Limit	Practical Maximum
150 to 300	2	8 ft	10 ft	12 ft	13 ft
300 to 500	3	11 ft	12 ft	15 ft	16 ft
500 to >600	4	15 ft	16 ft	20 ft	None

\*Typical Mode Split is 55% adult bicyclists, 20% pedestrians, 10% runners, 10% in-line skaters, and 5% child bicyclists



**11' wide provides three (3) operational lanes**



## 6.4.2. Shared Use Path Level of Service

Table 6-1: Shared Use Path Operating Conditions Based on Level of Service Criteria

Shared Use Path Level of Service (SUPLOS) and Operating Conditions	
SUPLOS	Peak Operating Conditions
A. Excellent	A significant ability to absorb more users across all modes is available.
B. Good	A moderate ability to absorb more users across all modes is available.
C. Fair	Path is close to functional capacity with minimal ability to absorb more users.
D. Poor	Path is at its functional capacity. Additional users will create operational and safety problems.
E. Very Poor	Path operating beyond its functional capacity resulting in conflicts and people avoiding the path.
F. Failing	Path operating beyond functional capacity resulting in significant conflicts and people avoiding the path.

Table 6-2: Shared Use Path Level of Service Look-Up Table, Typical Mode Split

Shared Use Path Level of Service Look-Up Table, Typical Mode Split*										
Shared Use Path Peak Hour Volume	Shared Use Path Width (ft)									
	8	10	11	12	14	15	16	18	20	≤ 25
50	B	B	B	B	B	A	A	A	A	A
100	D	C	B	B	B	A	A	A	A	A
150	D	C	B	B	B	A	B	A	A	A
200	D	D	C	B	B	A	B	A	A	A
300	E	D	C	C	C	B	B	B	B	A
400	F	E	D	D	C	C	C	B	B	A
500	F	F	D	D	D	C	C	C	C	A
600	F	F	E	E	E	D	D	C	C	A
800	F	F	F	F	F	E	E	E	E	A
1,000	F	F	F	F	F	E	F	F	F	A
≥ 1,200	F	F	F	F	F	F	F	F	F	A

\*Assumptions:

1. Mode split is 55 percent adult bicyclists, 20 percent pedestrians, 10 percent runners, 10 percent in-line skaters, and 5 percent child bicyclists.
2. An equal number of trail users travel in each direction (the model uses a 50 percent–50 percent directional split).
3. Trail volume represents the actual number of users counted in the field (the model adjusts this volume based on a peak hour factor of 0.85).
4. Trail has a centerline.

## 6.4.4. Separation of Pedestrians and Bicyclists

### 6.4.4.1 Land Use Considerations Where Separation is Desirable

### 6.4.4.2 Volume Thresholds Where Separation is Desirable

Should be considered when:

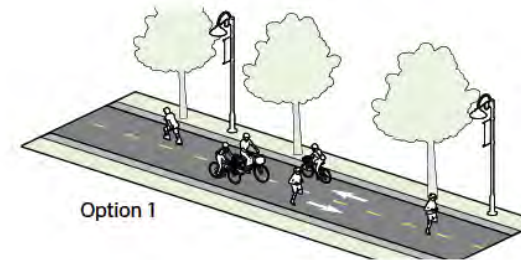
- Level of Service is projected to be at or below level “C.”
- Pedestrians can reasonably be anticipated to be 30% or more of the volume

### 6.4.4.3 Separation Strategies

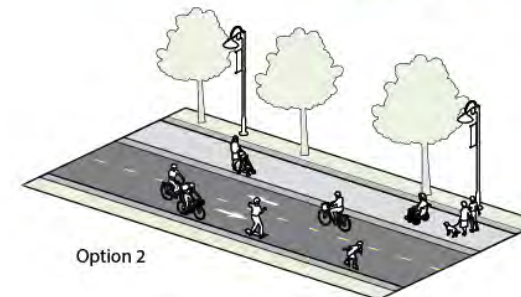
### 6.4.4.4 Accessibility Considerations



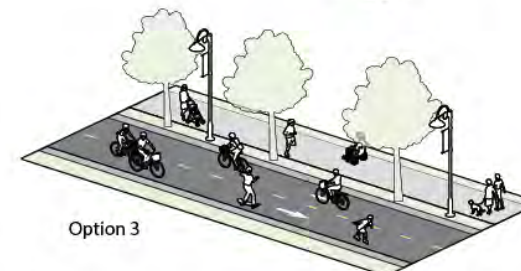
Figure 6-3: Burke-Gilman Shared Use Path (2008) and Separated Paths (2021), Seattle, WA



Option 1



Option 2



Option 3

Figure 6-4: Options for Separating Bicyclists and Other Wheeled Users from Pedestrians



# 6.6. General Design Considerations

## 6.6.1. Shy Distance, Clearances, and Shoulders

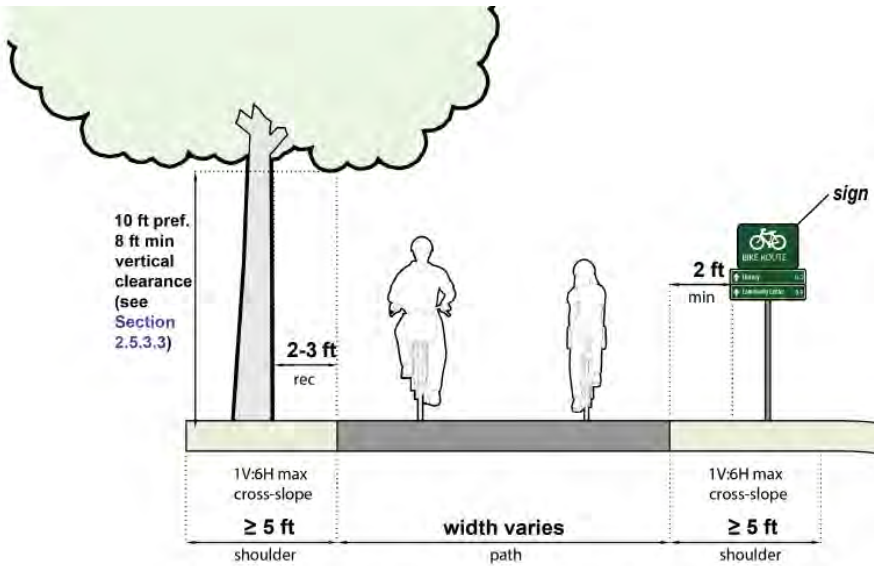


Figure 6-5: Shoulders and Shy Distance on Shared Use Paths

## 6.6.3. Horizontal Alignment

Table 6-5: Minimum Radii for Horizontal Curves at 20-Degree Lean Angles

Design Speed (mph)	Minimum Radii (ft) for Horizontal Curves at 20-Degree Lean Angles
8	12
10	18
12	27
14	36
16	47
18	60
20	74
25	115
30	166

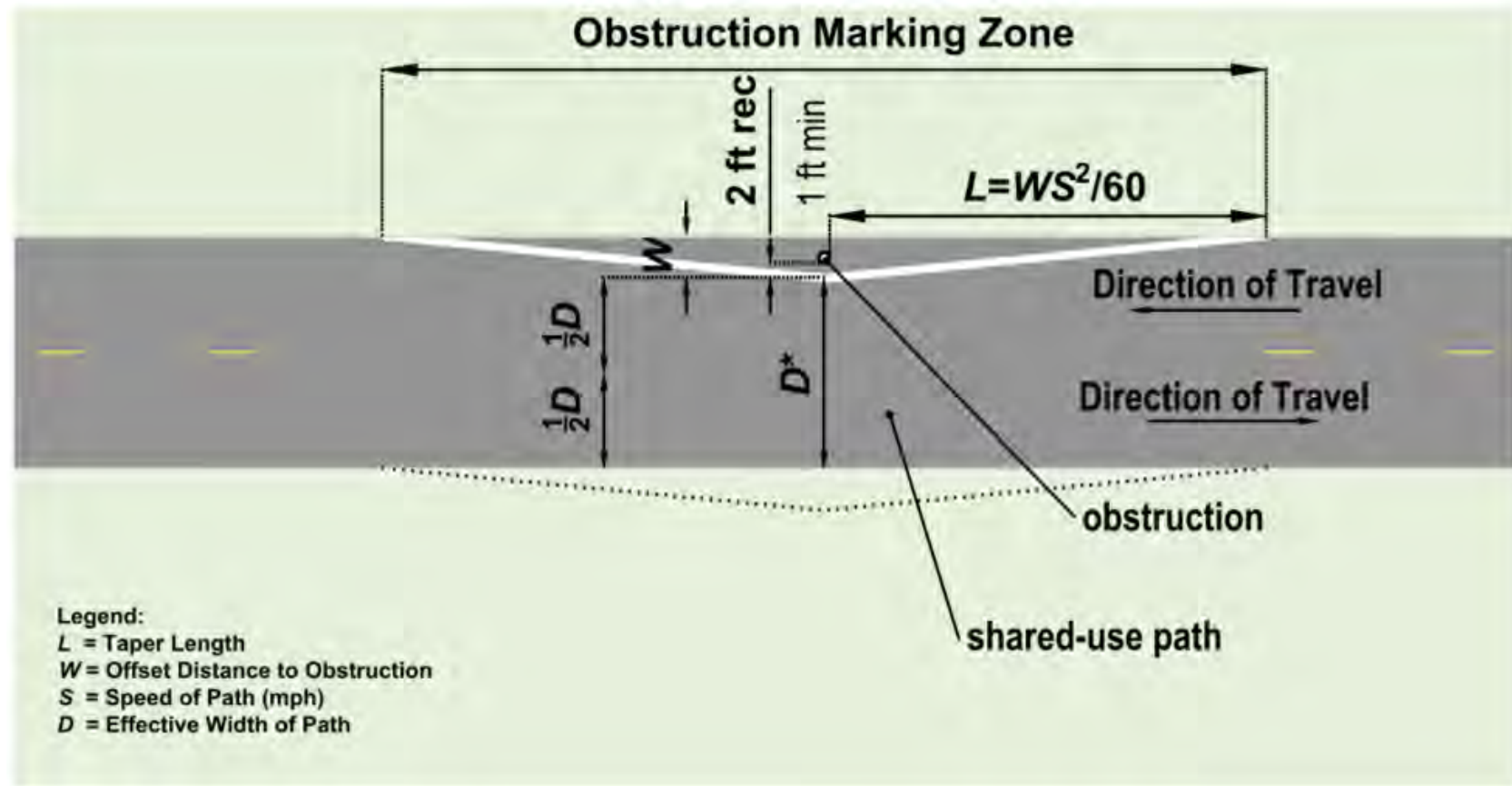
## 6.6.4. Vertical Alignment

Table 6-8: Minimum Length of Crest Vertical Curve Based on Stopping Sight Distance

Minimum Length of Crest Vertical Curve (ft) Based on Stopping Sight Distance														
A	S = Stopping Sight Distance for flat grade (ft)*													
(%)	40	60	80	100	120	140	160	180	200	220	240	260	280	300
2									17	57	97	137	177	217
3						25	65	105	145	185	225	265	307	352
4				9	49	89	129	169	209	253	301	353	409	470
5			7	47	87	127	167	211	261	316	376	441	512	587
6			32	72	112	154	201	254	313	379	451	530	614	705
7		11	51	91	132	179	234	296	366	442	526	618	716	822
8		24	64	104	150	205	267	338	418	505	602	706	819	940
9		35	75	117	168	230	301	381	470	569	677	794	921	1057
10	3	43	84	131	186	250	334	423	522	632	752	883	1023	1175
11	10	50	92	144	207	281	368	465	574	695	827	971	1128	1292
12	16	56	100	157	225	307	401	508	627	756	902	1059	1228	1410
13	21	61	108	170	244	333	434	550	679	821	978	1147	1331	1527
14	25	66	117	183	263	358	468	592	731	885	1053	1236	1433	1645
15	29	70	125	196	282	384	501	634	783	946	1128	1324	1535	1762
16	32	75	134	209	301	409	535	677	836	1011	1203	1412	1638	1880
17	35	80	142	222	320	435	568	719	888	1074	1278	1500	1740	1997
18	37	85	150	235	338	461	602	761	940	1137	1354	1589	1842	2115
19	40	89	159	248	357	486	635	804	992	1201	1429	1677	1945	2232
20	42	94	167	261	376	512	668	846	1044	1264	1504	1765	2047	2350

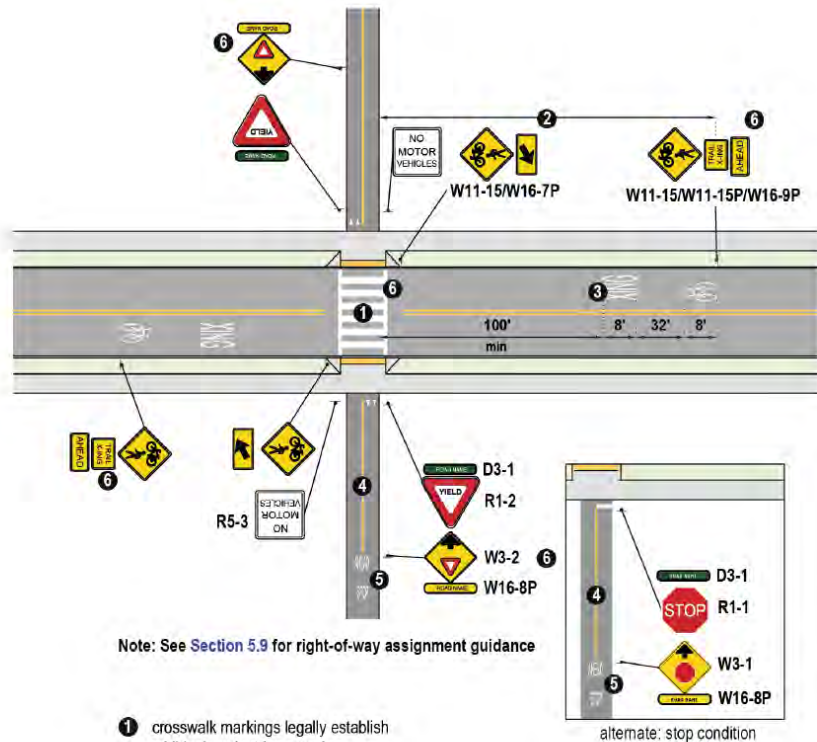
Shaded area represents S = L. Minimum length of vertical curve = 5 ft

# 6.6.9.3 Obstruction Markings



Note: Where  $D \leq 8$  ft, path widening should be considered. Where the path cannot be widened, the center line should not be marked within the limits,  $L$ .

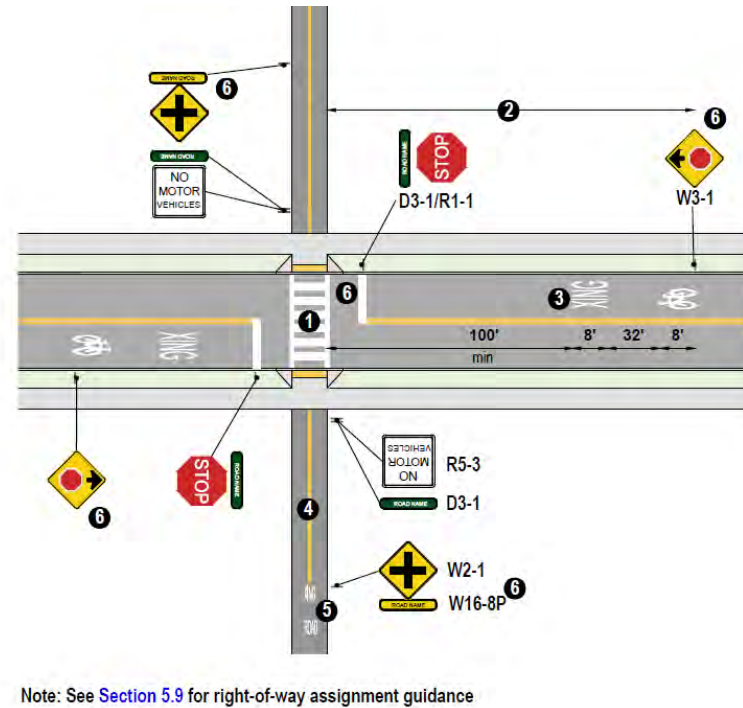
# 6.7. Shared Use Path Intersections and Transitions



Note: See Section 5.9 for right-of-way assignment guidance

- 1 crosswalk markings legally establish midblock pedestrian crossing
- 2 length varies: see MUTCD Table 2C-4
- 3 optional roadway markings
- 4 shared-use path centerline as needed
- 5 optional pathway markings and advance warning signage
- 6 optional advance warning signs; these signs are recommended where visibility to crossing is limited

Figure 6-13: Shared Use Path Stops or Yields



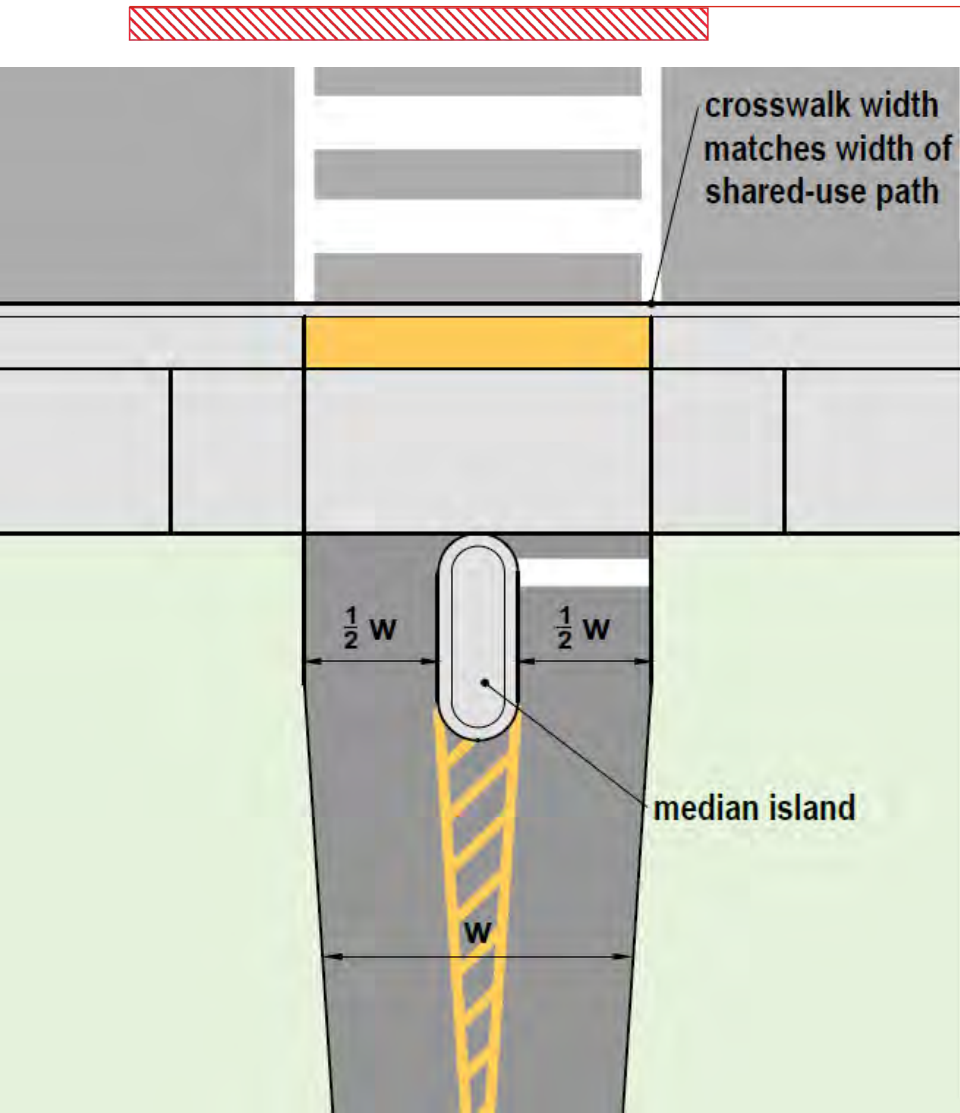
Note: See Section 5.9 for right-of-way assignment guidance

- 1 crosswalk markings legally establish midblock pedestrian crossing
- 2 length varies: see MUTCD Table 2C-3
- 3 optional roadway markings
- 4 shared-use path centerline as needed
- 5 optional pathway markings and signage
- 6 optional advance warning signs; these signs are recommended where visibility to crossing is limited

Figure 6-14: Road Stops



## 6.7.8 – Restricting Motor Vehicles



Bollards are a last resort

- Post No Motor Vehicle signs
- Use different materials
- **Use a center island at approaches**
- Use targeted enforcement
- Consider flex posts before bollards
  
- Bollards must be retroreflective
- Must include markings to guide users around bollards

# Chapter 7 – Separated Bike Lanes and Side Paths

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7.1 Introduction

7.2 General Design Considerations

7.3 Bike Lane Zone

7.4 Street Buffer Zone

7.5 Sidewalk Buffer Zone

7.6 Consideration for Zone Widths in Constrained Locations

7.7 Utility Considerations

7.8 Landscaping Considerations

7.9 Separated Bikeway and Side Path Intersection Design

7.10 Transitions Between Facilities

7.11 Raised Bike Lanes



# 7.2. General Design Considerations

The cross section of a separated bike lane comprises three distinct zones (see [Figure 7-1](#)):

- 1 **Bike lane**—The bike lane is the space in which the bicyclist operates. It is located between the street buffer and the sidewalk buffer.
- 2 **Street buffer**—The street buffer separates the bike lane or side path from motor vehicle traffic.
- 3 **Sidewalk buffer**—The sidewalk buffer separates the bike lane from the sidewalk.

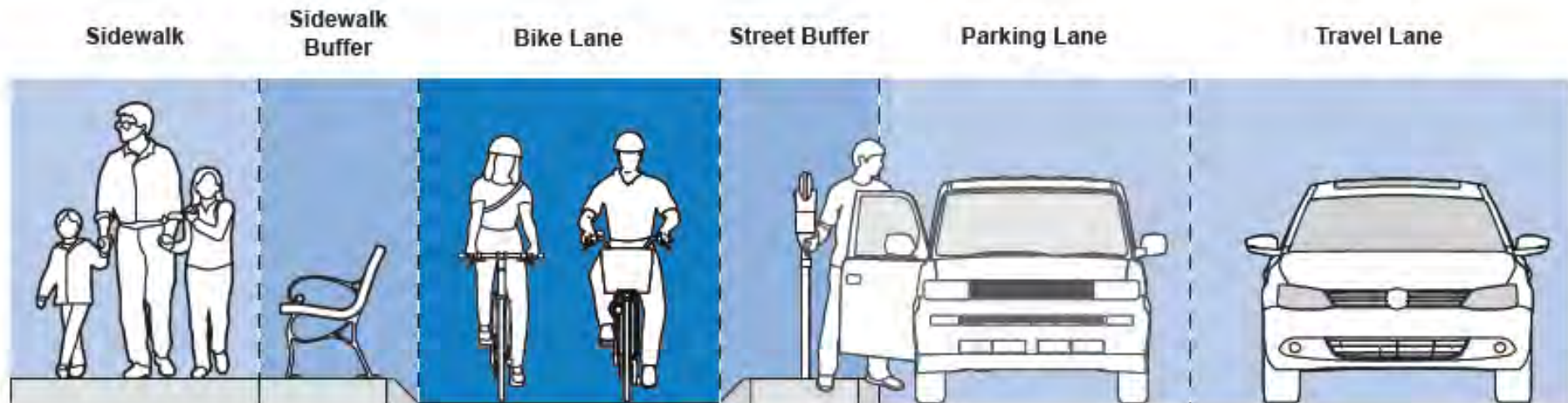


Figure 7-1: Separated Bike Lane Zones

# 7.2.2.3 Intermediate-Level Separated Bike Lanes

curb reveal of 2-3 in. below sidewalk elevation is recommended to”

- provide vertical separation to the adjacent sidewalk, and
- provide a detectable edge for pedestrians with vision disabilities

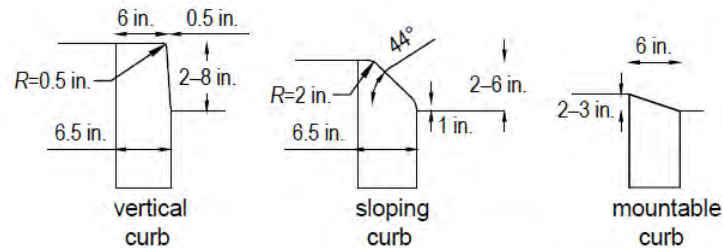


Figure 7-5: Curb Types for Separated Bike Lanes

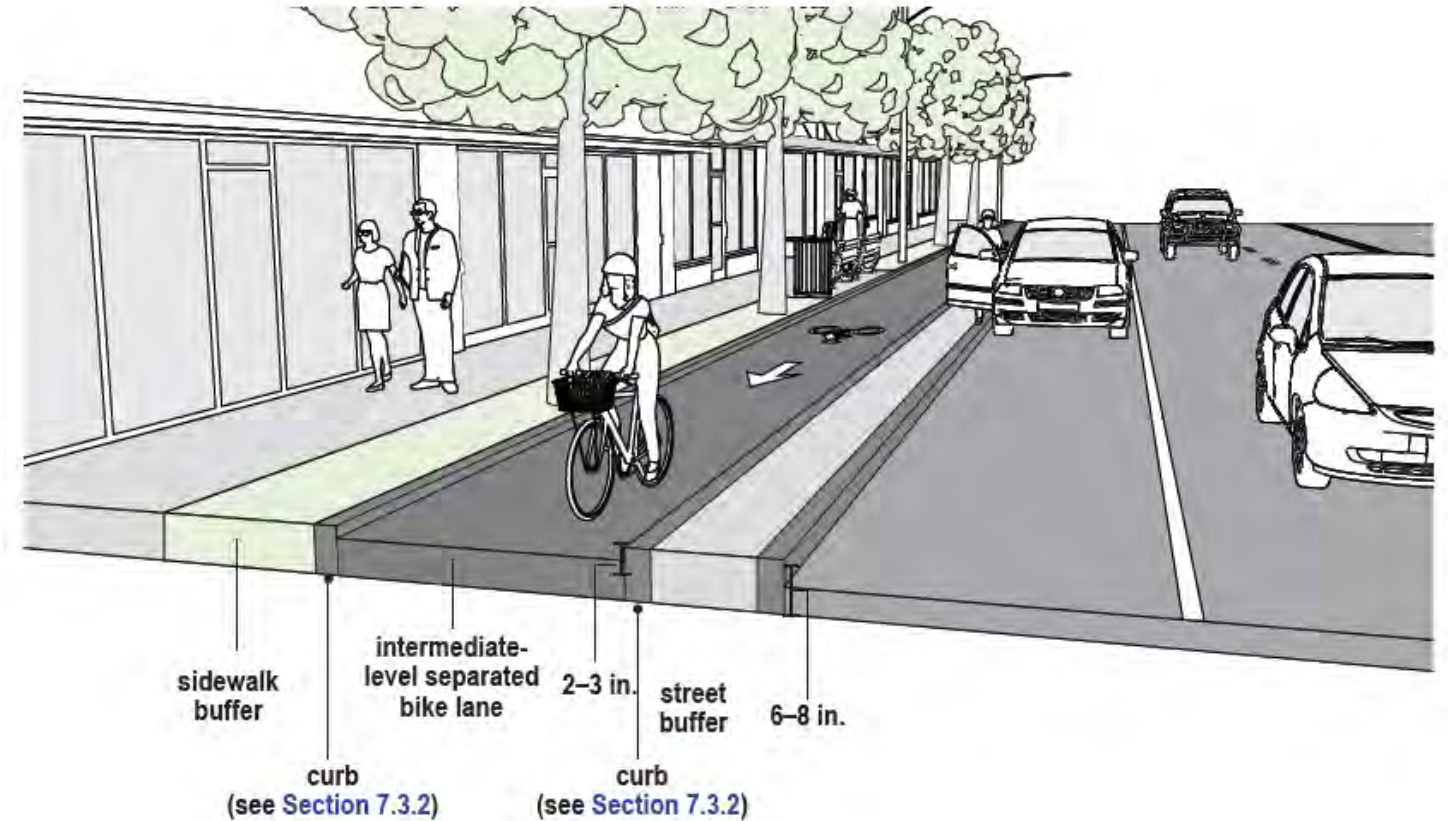


Figure 7-4: Intermediate-Level Separated Bike Lane

# Section 7.3.4 – SBL Width (One-way)

Table 7-3: One-Way Separated Bike Lane Widths Based on Existing or Anticipated Volumes

Peak Hour Directional Bicyclist Volume	One-Way Separated Bike Lane Width (ft) Recommended Values		
	Between Vertical Curbs without Gutter	Adjacent to One Vertical Curb	Between Sloped Curb, at Sidewalk Level, or Adjacent to Curb with Gutter
<150	6.5–8.5	6–8	5.5–7.5
150–750	8.5–10	8–9.5	7.5–9
>750	≥10	≥9.5	≥9
<b>Practical Minimum*</b>	4.5	4	4

\*Peak Hour Directional Bicyclist Volume not applicable

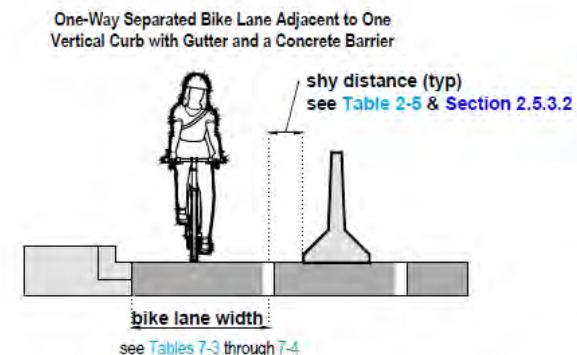
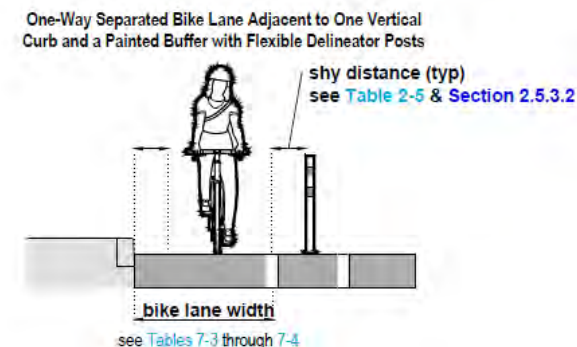
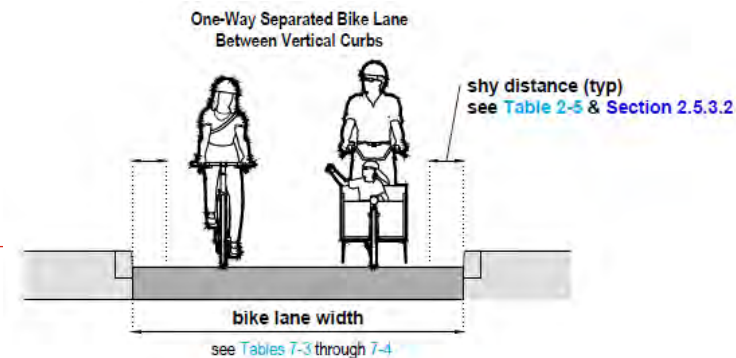


Figure 7-7: Separated Bike Lane Width



# 7.7.1. Drainage and Stormwater Management

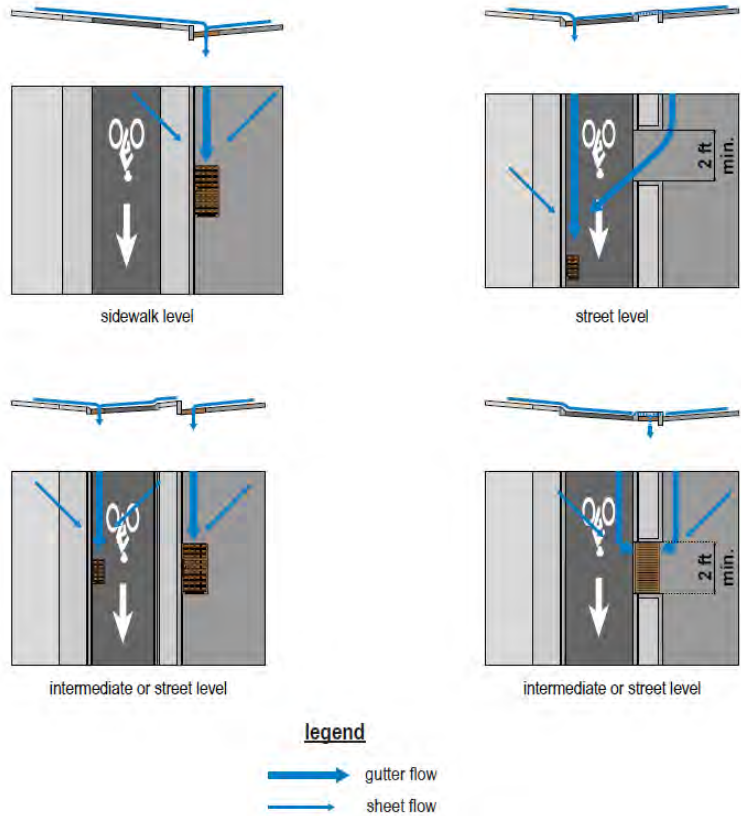


Figure 7-11: Examples of Separated Bike Lane Drainage Options

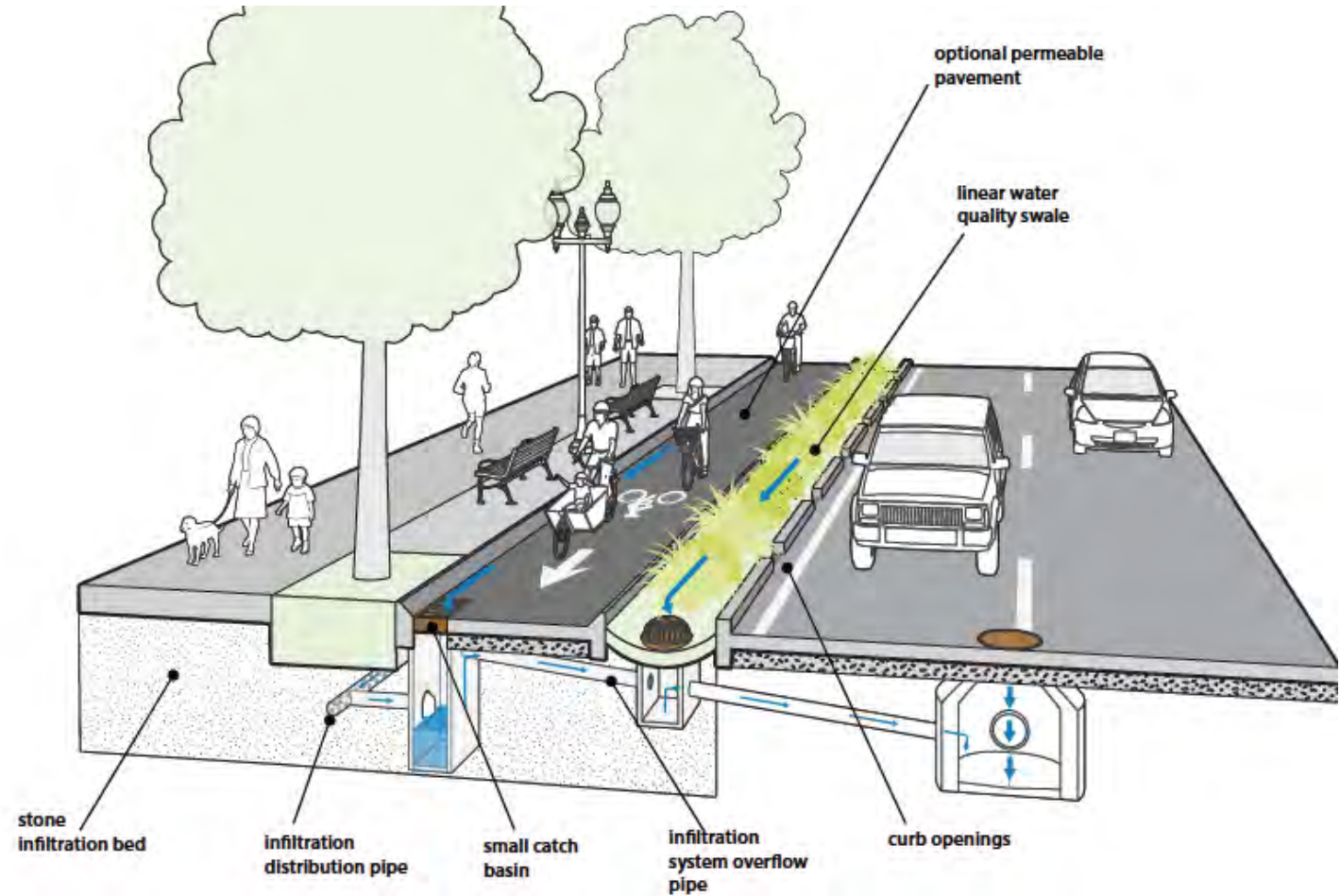
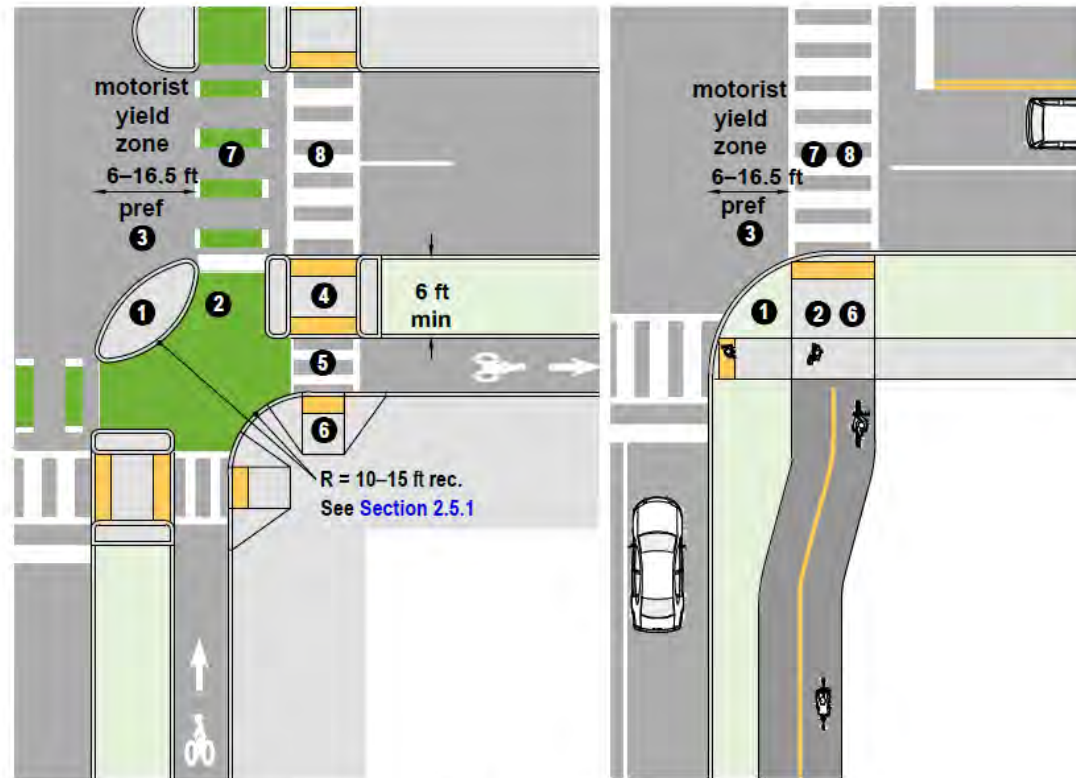


Figure 7-10: Green Stormwater Infrastructure in an Urban Street Context

# 7.9. Separated Bike Lane and Side Path Intersection Design



- 7.9.1. Minimizing Exposure to Conflicts
- 7.9.2. Reducing Speeds at Conflict Points
- 7.9.3. Transitions between Elevations
- 7.9.4. Right-of-Way Priority
- 7.9.5. Sight Distance
- 7.9.6. Restricting Motor Vehicles



- |                                |  |
|--------------------------------|--|
| 1 corner island                | 5 pedestrian crossing of the separated bike lane |
| 2 forward bicycle queuing area | 6 pedestrian curb ramp                           |
| 3 motorist yield zone          | 7 bicycle crossing of travel lanes               |
| 4 pedestrian refuge island     | 8 pedestrian crossing of travel lanes            |

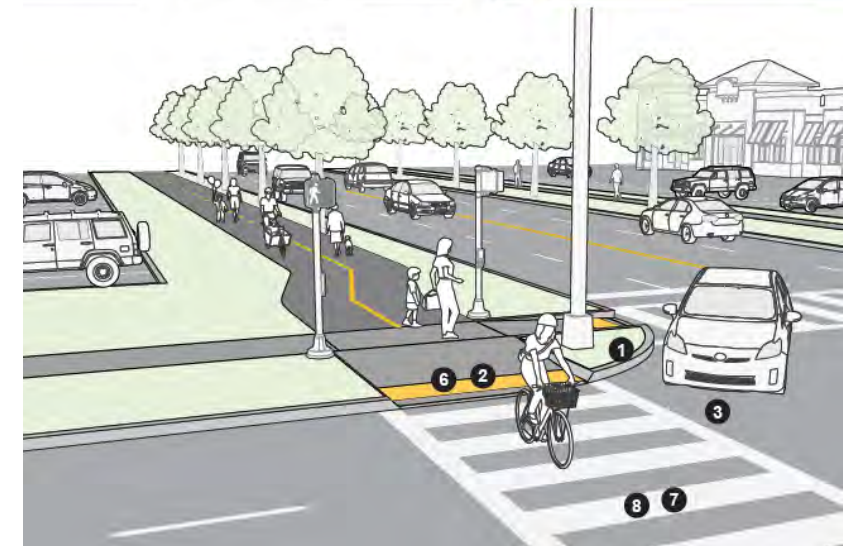
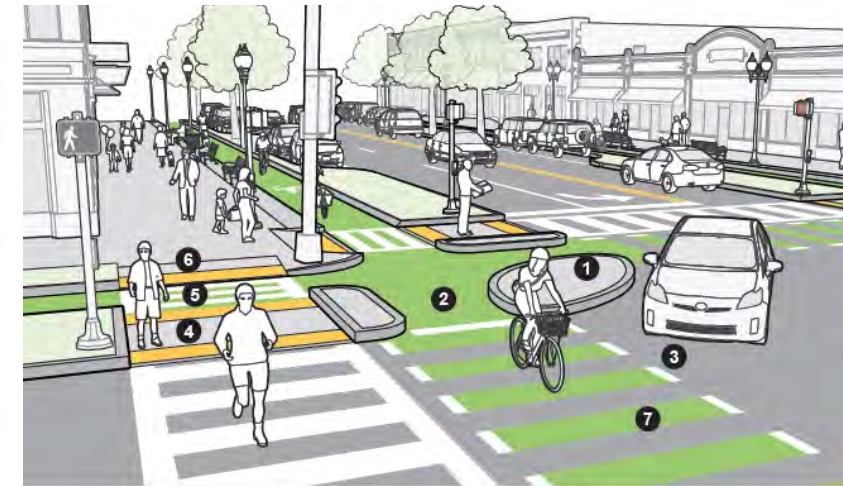


Figure 7-13: Protected Intersection Design for Separated Bike Lanes and Side Paths



# 7.9.7.1 Corner Island

## Benefits:

- forward bicycle queuing area
- space for turning vehicles to wait
- reduces crossing distances
- reduces motorist turning speeds
- can reduce bicyclist speeds by adding deflection to the bike lane or side path



Figure 7-15: Corner Island with Flexible Delineator Posts (Source: Carl Sundstrom, PE, Office of Bicycle and Pedestrian Programs, New York City Department of Transportation)

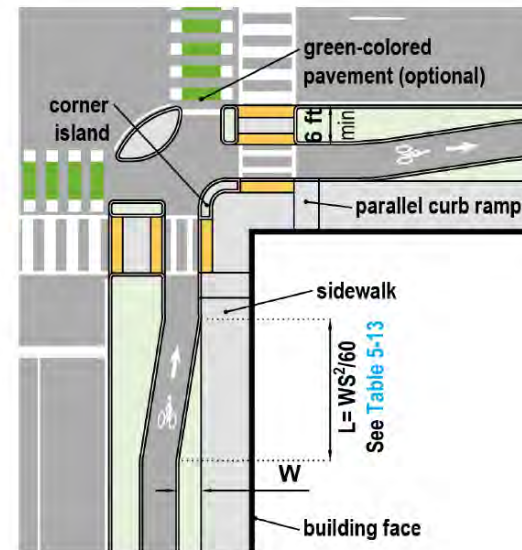


Figure 7-18: Bend-Out Example

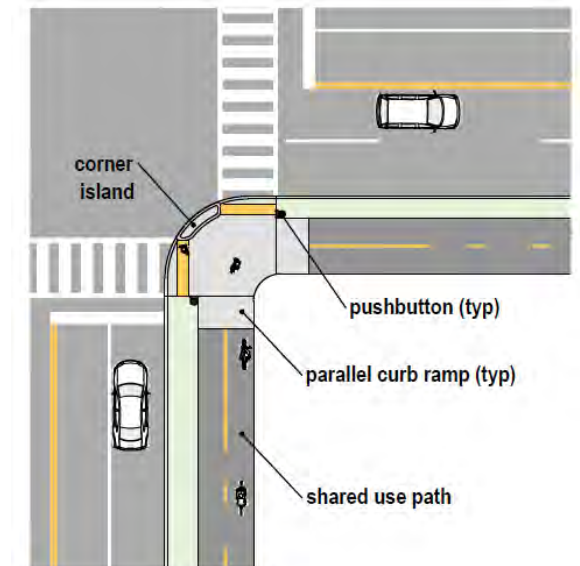


Figure 7-17: Side Path Curb Ramps at Constrained Intersection

# 7.9.9. Intersection Design with Mixing Zones

## NOTE: see NCHRP 15-73 for selection process

Reduce speeds of motor vehicles entering the merge point to 20 mph or less:

- Minimize the length of the merge area
- Locate the merge point as close as practical to the intersection.
- Minimize the length of the storage portion of the turn lane.
- Provide a buffer and physical separation (e.g., flexible delineator posts) from the adjacent through lane after the merge area, if feasible.
- Highlight the conflict area with a green-colored pavement and dotted bike lane markings (see Figure 7-20), as necessary, or shared lane markings (see Figure 7-21).
- Raise the elevation of the turn lane at the start of the mixing zone.

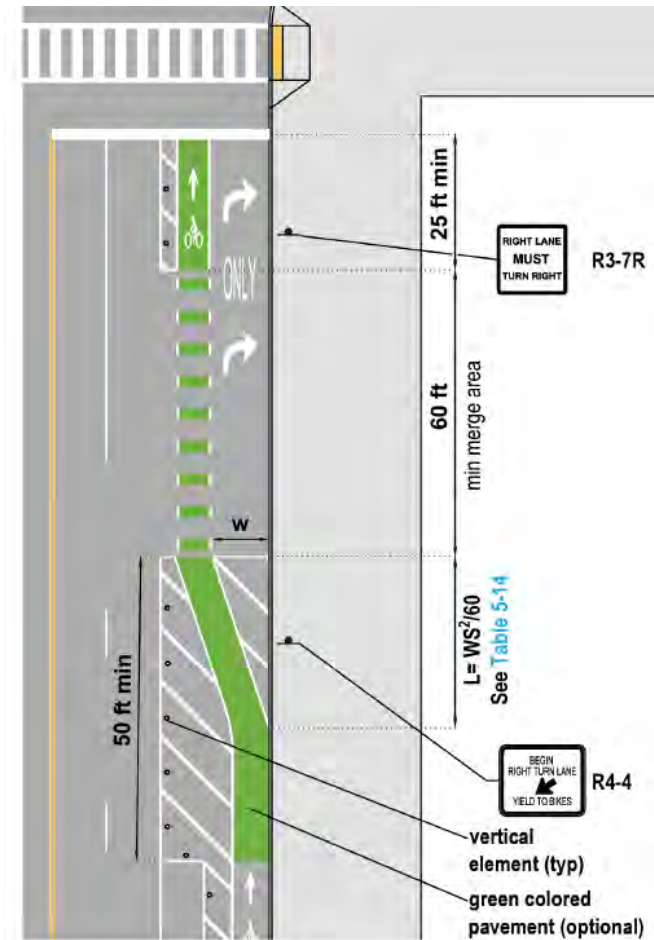


Figure 7-20: Angled Crossing Mixing Zone with Bike Lane

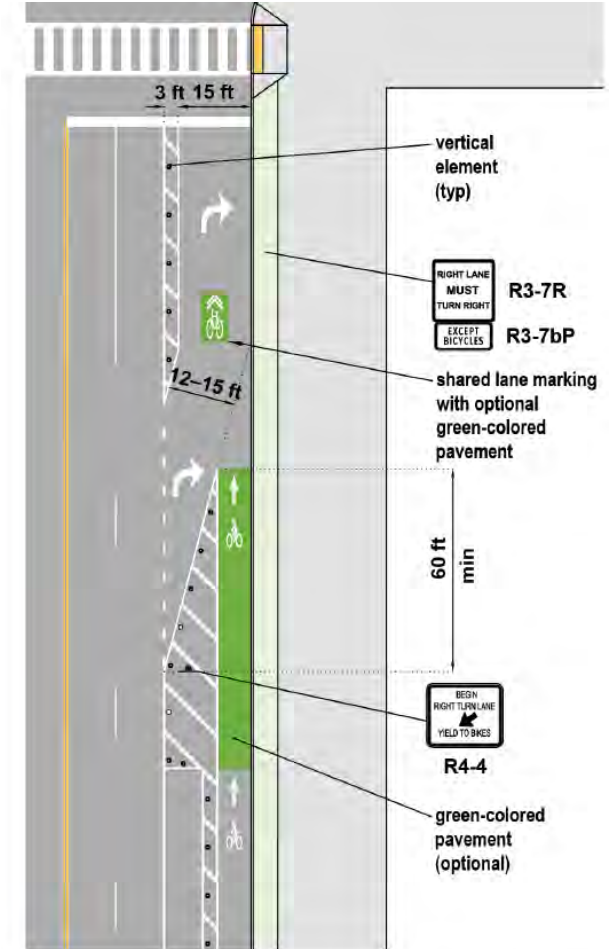


Figure 7-21: Angled Crossing Mixing Zone with Shared Lane



# 7.9.14. Transit Stops

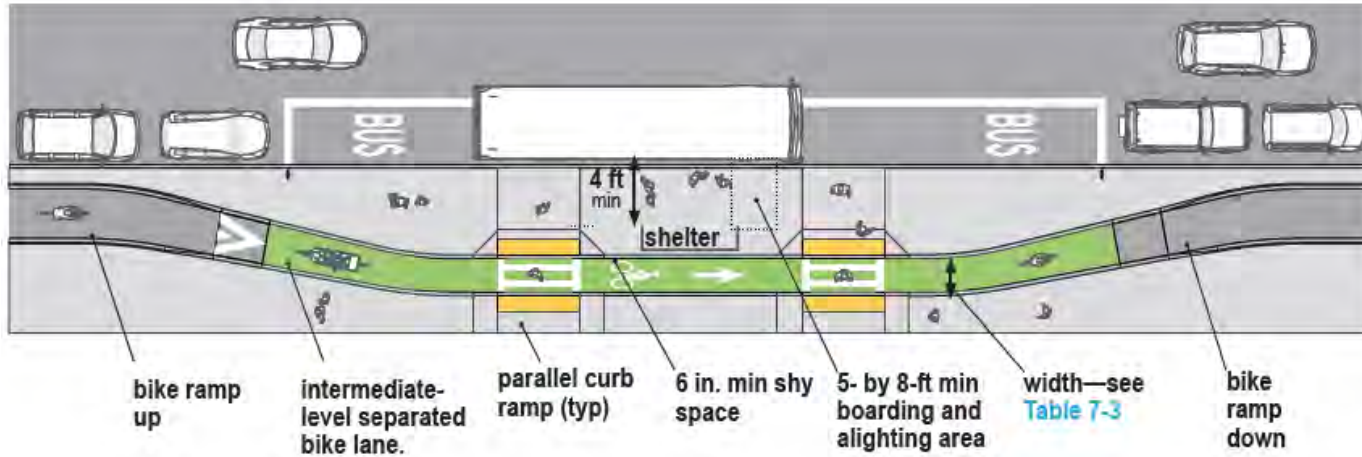
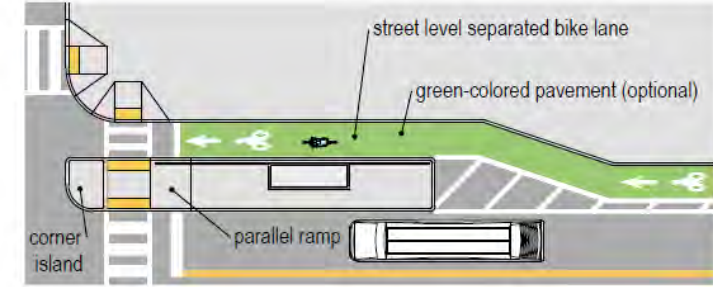
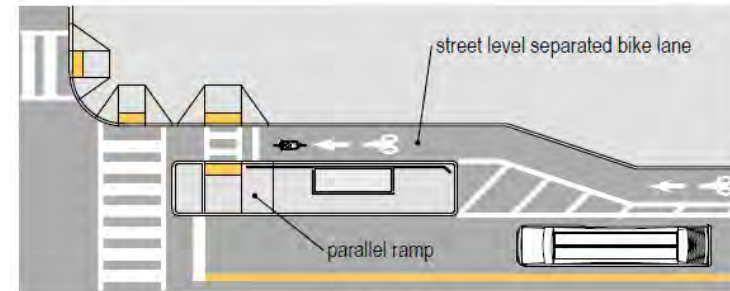


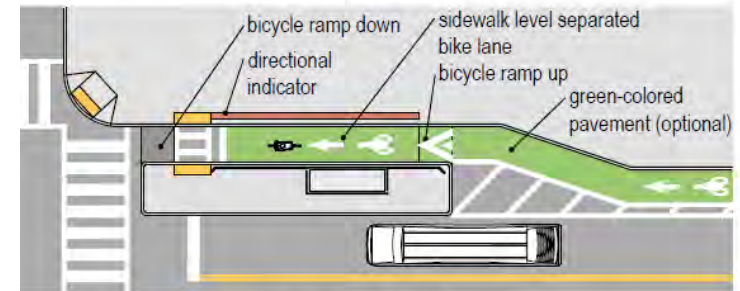
Figure 7-26: Example Configuration: Floating Transit Stop (Mid-Block)



ALTERNATIVE 1



ALTERNATIVE 2



ALTERNATIVE 3

Figure 7-31: Example Configurations: Floating Transit Stop (Near-Side)

Note: Directional indicators are an emerging treatment. See Section 5.10.8 for recommendations for implementation.

# Chapter 8 – Bicycle Boulevard Planning and Design

---

8.1 Introduction

8.2 Bicycle Boulevard Principles

8.3 Bicycle Boulevard Minimum Design Elements

8.4 Traffic Calming Strategies (Speed Management)

8.5 Traffic Diversion Strategies (Volume Management)

8.6 Traffic Control for Minor Street Crossings

8.7 Traffic Control for Major Street Crossings



# Section 8.2 – Bicycle Boulevard Principles

Bicycle Boulevards are not just signed bike routes.

Principles that set them apart from local streets include:

- 8.2.1. Manage motorized through traffic volumes and speeds
- 8.2.2. Prioritize right-of-way at local street crossings
- 8.2.3. Provide safe and convenient crossings at major streets

Minimize Motorized Through Traffic Volumes and Speed Differential			
	Hourly Traffic Volume	Daily Traffic Volume	Speed
<b>Preferred</b>	50 vehicles/hr	1,000 ADT	15 mph
<b>Acceptable</b>	75 vehicles/hr	2,000 ADT	20 mph
<b>Maximum</b>	100 vehicles/hr	3,000 ADT	25 mph

Major Street Crossings (opportunities per hour)	
<b>Preferred</b>	120
<b>Minimum</b>	60

# Chapter 9 – Shared Lanes and Bicycle Lanes

---

9.1 Introduction

9.2 Design User Profile Considerations

9.3 Shared Lanes and Shared Roadways

9.4 Bicycle Lane Considerations

9.5 Buffered Bicycle Lanes

9.6 Bicycle Lane Considerations Adjacent To Parking and Loading

- 9.7 Bicycle Lane Considerations at Bus Stops
- 9.8 Advisory Bicycle Lanes (Experimental)
- 9.9 Bicycle Lanes on One-Way Streets
- 9.10 Bicycle Lanes on One Side of Two-Way Streets
- 9.11 Counterflow Bicycle Lanes
- 9.12 Bicycle Lanes at Intersections, Driveways, and Alleys

## 9.3.2. Limited Effectiveness of Wide Outside Lanes

Figure 9-1: Shared Lane Conditions (Rural Context, Suburban Context, Urban Context)

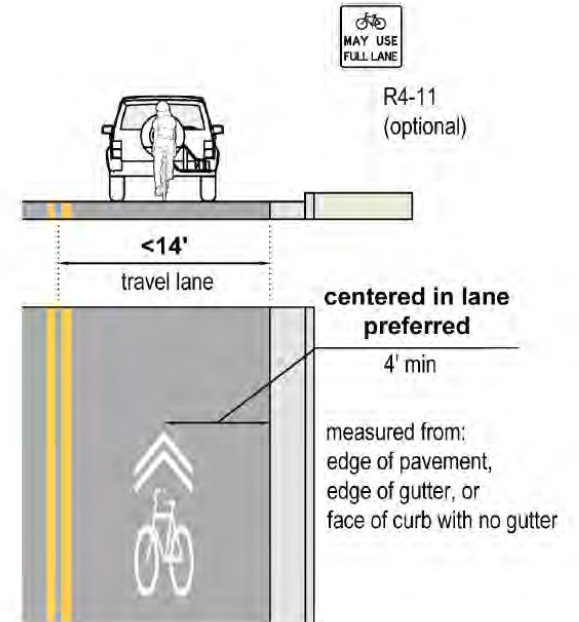


Rural Roadway



Suburban Arterial

Figure 9-3: Shared Lane Marking Lateral Placement in Travel Lanes < 14 Feet Without Parking



# 9.4.1. Bicycle Lane Widths

Table 9-1: One-Way Standard Bicycle Lane Widths

One-Way Standard Bike Lane Widths				
Bike Lane Context	Practical Minimum (ft)	Recommended Lower Limit (ft)	Recommended Upper Limit (ft)	Practical Maximum (ft)
Adjacent to edge of Pavement	4 <sup>1</sup>	5	7	8 <sup>3</sup>
Adjacent to curb (exclusive of gutter)	5 <sup>1</sup>	6	7	8 <sup>3</sup>
Between through lanes and turn lanes <sup>2</sup>	5 <sup>1</sup>	6	7	8 <sup>3</sup>
Between buffers	4	5	7	8 <sup>3</sup>
Adjacent to parking	5	6	7	8 <sup>3</sup>
To allow occasional passing or side-by-side bicycling <sup>4</sup>	6.5	8 <sup>3</sup>	10 <sup>3</sup>	11 <sup>3</sup>

**Notes**

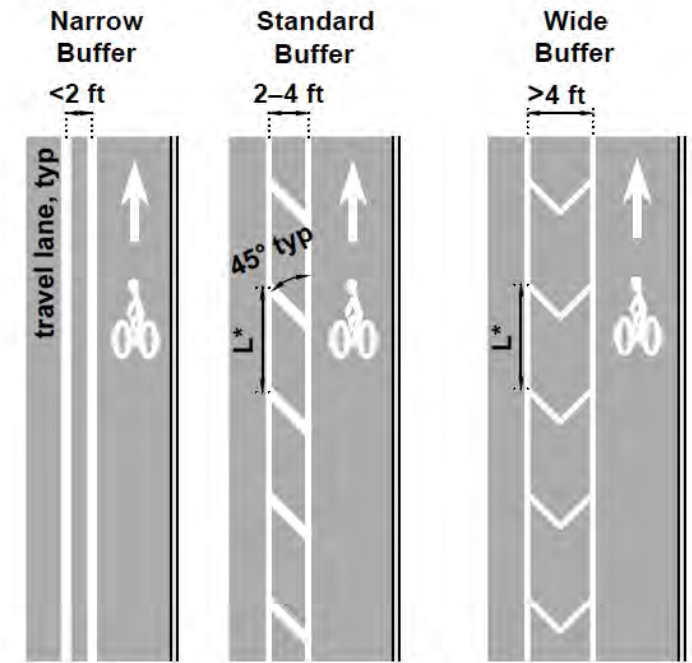
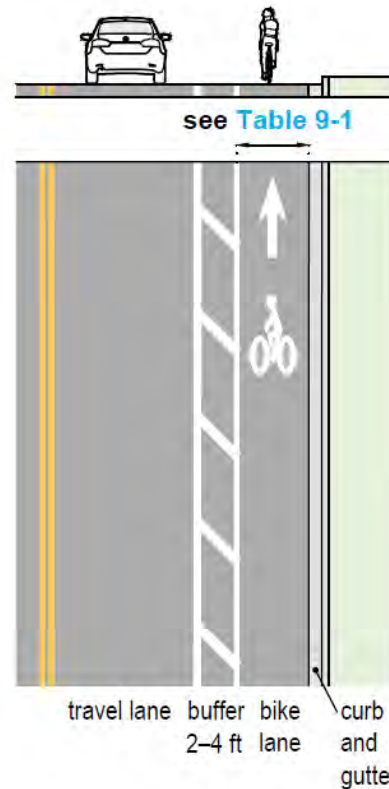
<sup>1</sup>Shoulders should be provided in lieu of narrow bicycle lanes to avoid confusion below the practical minimum width.

<sup>2</sup>Buffers are desirable where bicycle lanes are located between through lanes and turn lanes, especially as motorist speeds exceed 30 mph.

<sup>3</sup>Buffered bike lanes or separated bike lanes should be considered in lieu of wider bicycle lanes to avoid confusion with a parking or travel lane.

<sup>4</sup>A minimum of 6.5 ft is necessary for occasional passing and 8 ft or more for comfortable side-by-side bicycling.

## 9.5. Buffered Bicycle Lanes



L = 20 ft (typical); L = posted speed limit (max)  
 \*spacing may be reduced where engineering judgement determines more frequent spacing  
 \*Wider buffers recommended for higher speed and/or higher volume roadways

Figure 9-9: Buffer Design Options



# 9.6.4. Bicycle Lanes Adjacent to Parallel Parking and Loading

## 9.6.4.1 Minimum Width Bike Lane Considerations

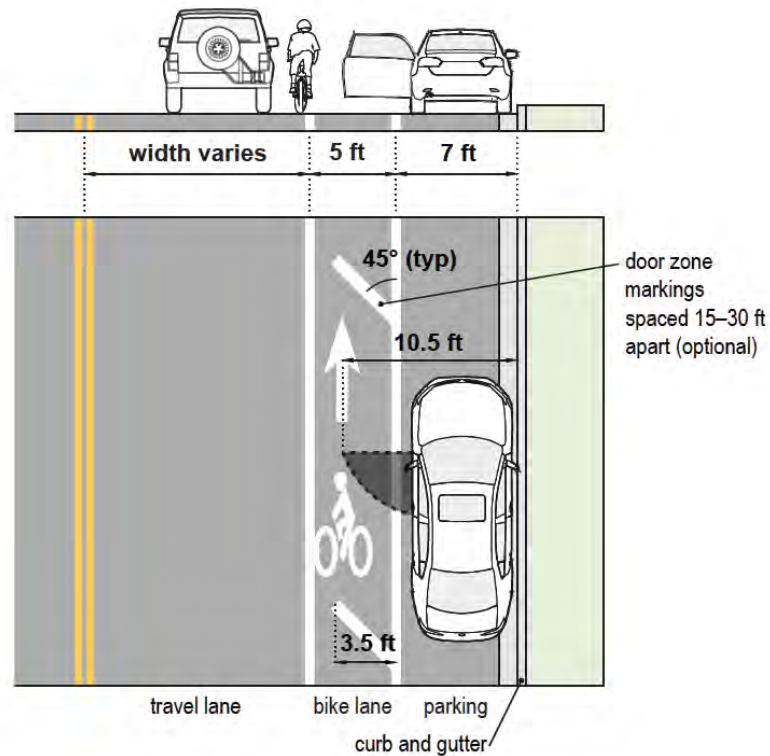
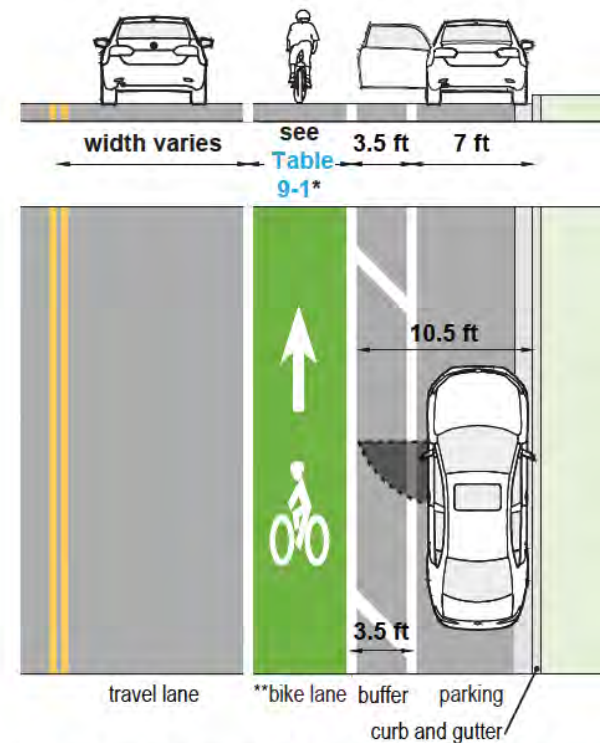


Figure 9-10: Constrained Bike Lane Adjacent to Parking Example



\*bike lane may be a minimum of 4 ft if located adjacent to a buffer  
 \*\*optional green-colored pavement

Figure 9-11: Bike Lane with a Door Zone Buffer adjacent to Parking

## 9.8. Advisory Bicycle Lanes (Experimental)

Advisory bicycle lanes are continuously-dotted bicycle lanes which permit motorists to temporarily enter the bicycle lane, allowing opposing motor vehicle traffic sufficient space to pass (see [Figures 9-15](#) and [9-16](#)). They are an experimental design treatment for streets with lower traffic speeds and volumes where it is not feasible to provide standard-width travel lanes and bicycle lanes. They are designed to improve bicyclist comfort while also providing a traffic calming benefit. This is the same procedure for motorists operating on yield streets where motorists must move to the right side of the road, into unoccupied parking spaces or driveways, to permit oncoming traffic to pass (see [Section 8.4.1](#)).



Figure 9-15: Example of an Advisory Bicycle Lane in Alexandria, VA

Groundbreaking to include experimental treatments to guide practitioners on emerging concepts



### 9.12.3. Right Turn Lane Considerations

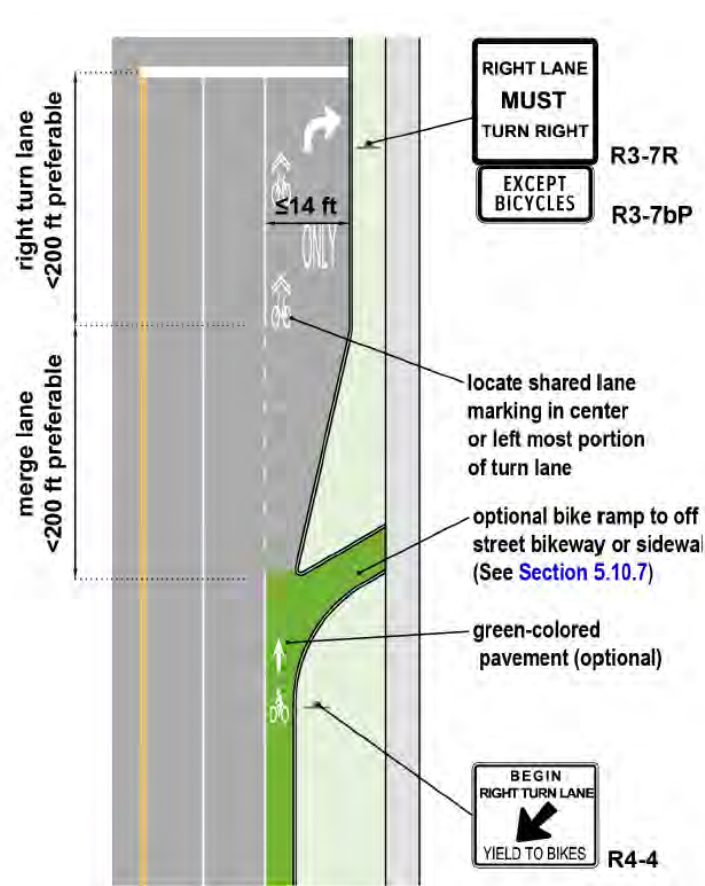


Figure 9-22: Example Right-Turn Only Lane with Shared Lane Markings

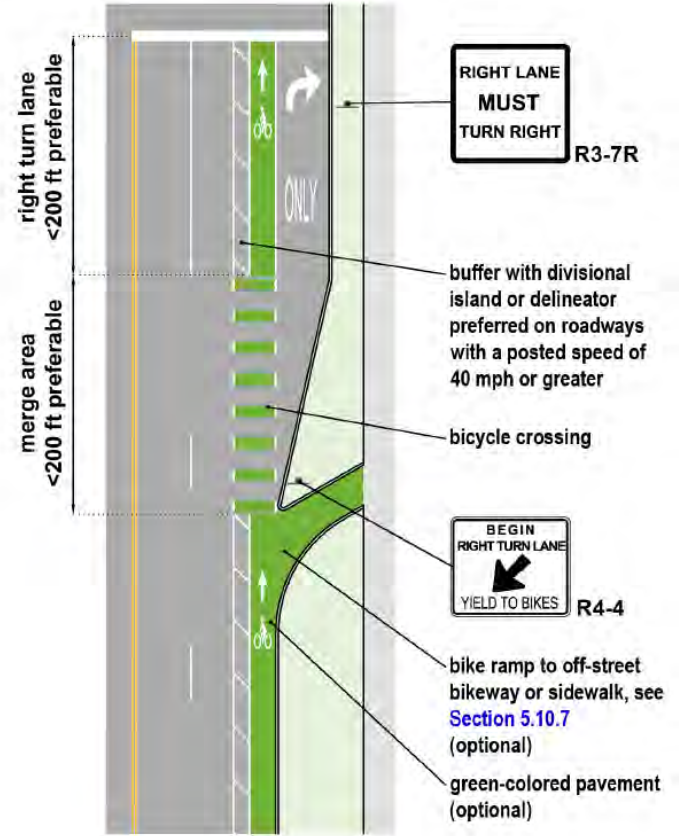


Figure 9-24: Example Bike Lanes on Streets >40 mph or Right-Turn Lanes >200 ft

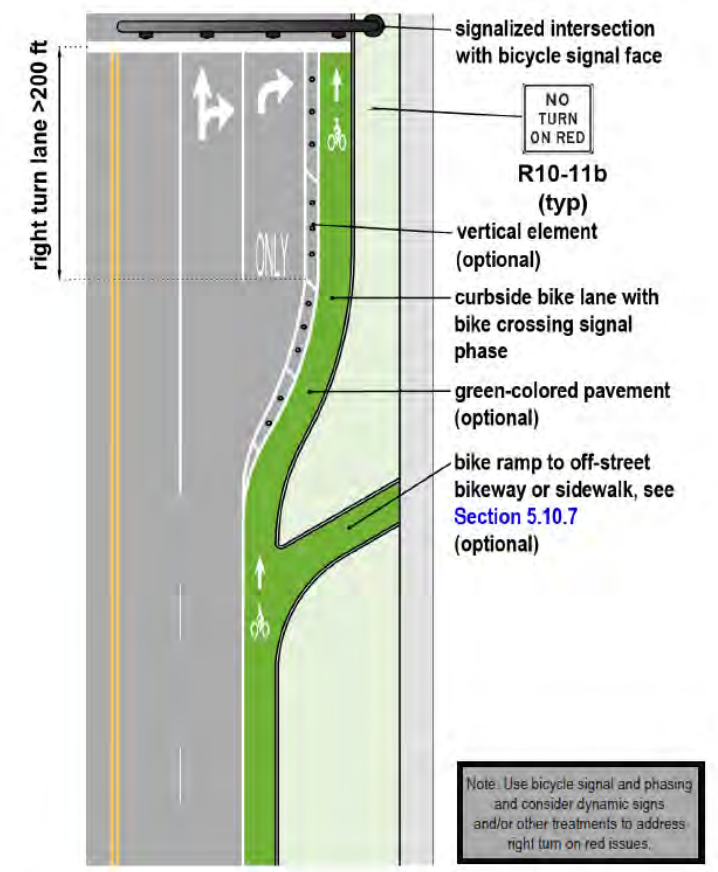


Figure 9-26: Example Bike Lane Approach to a Through-Right and a Right-Turn Only Lane

# Thank you! Questions?

---

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Multimodal Design Practice Lead  
[jchrzan@tooledesign.com](mailto:jchrzan@tooledesign.com)



# Crossing Prosper



The Town of Prosper's New Crosswalk & School Zone Policy

North Central Texas Council of Governments

Bicycle & Pedestrian Advisory Committee Meeting

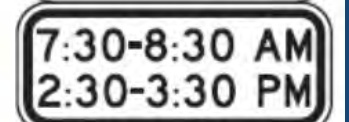
February 19  
2025

Hulon Webb  
Town of Prosper

Josh Smith  
Lee Engineering

# Problem

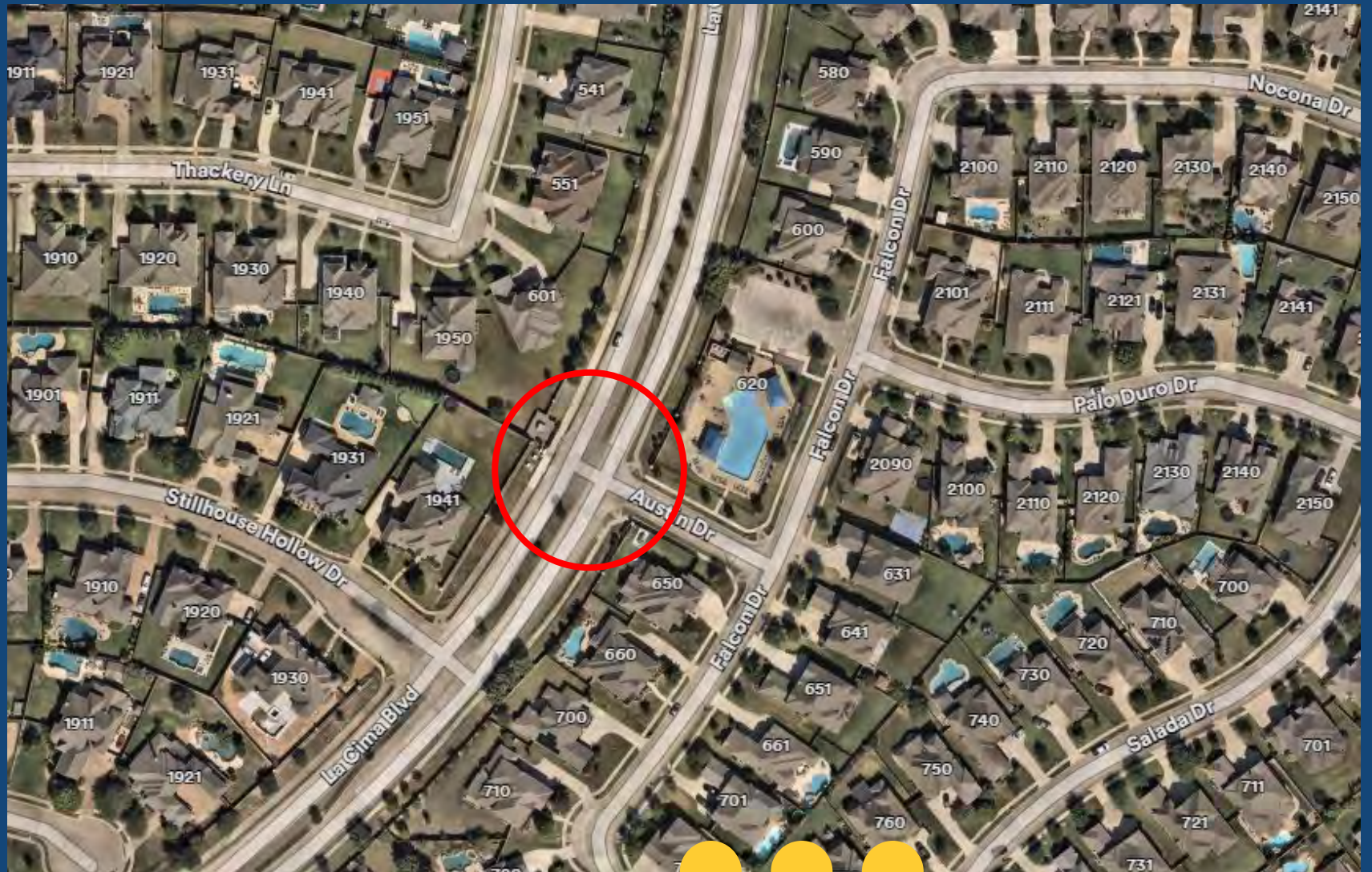
- Town of Prosper starting to get many requests for **mid-block crosswalks**
- Needed a **standard** way to **evaluate & implement**
- Integrate with **pre-existing 2014 policy** on **school zone** treatments, but also for **non-school** locations





# Case Study

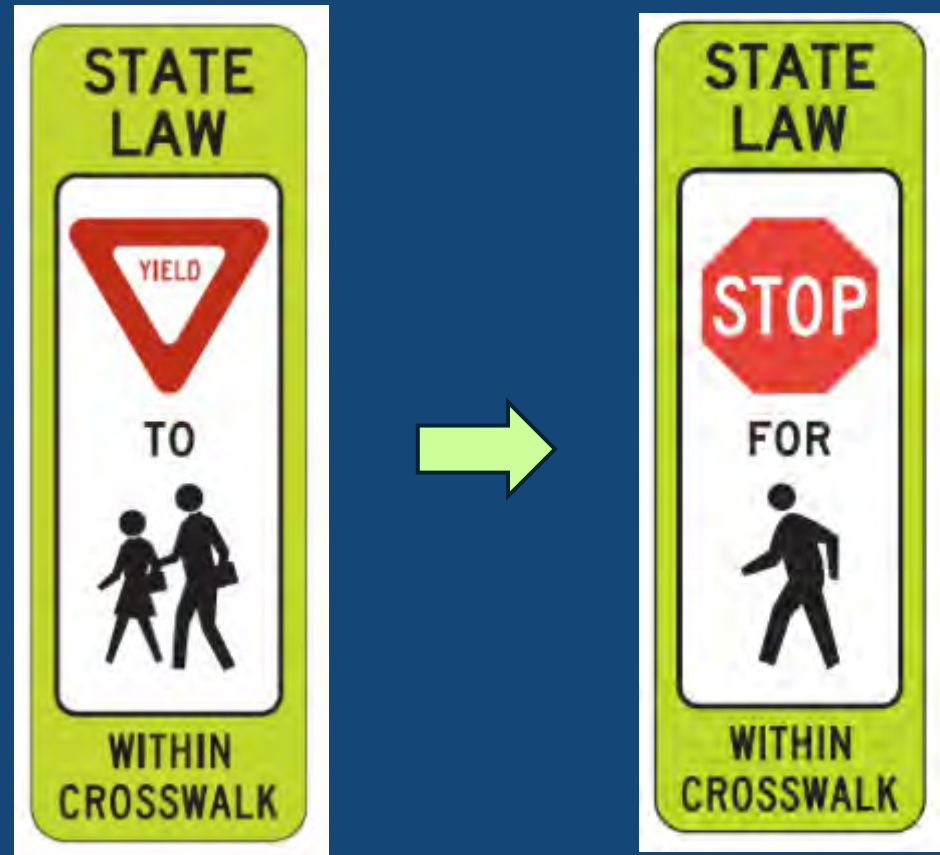
La Cima @ Austin



# Process

## Review:

- Current **Texas state law**
- **MUTCD** (2011 & 2023)
- **PROWAG** Final Rule
- **TxDOT** guidance
- National Best Practices
- **Peer City** Policies
- Adapt for **Prosper's needs**





# Updated Policy

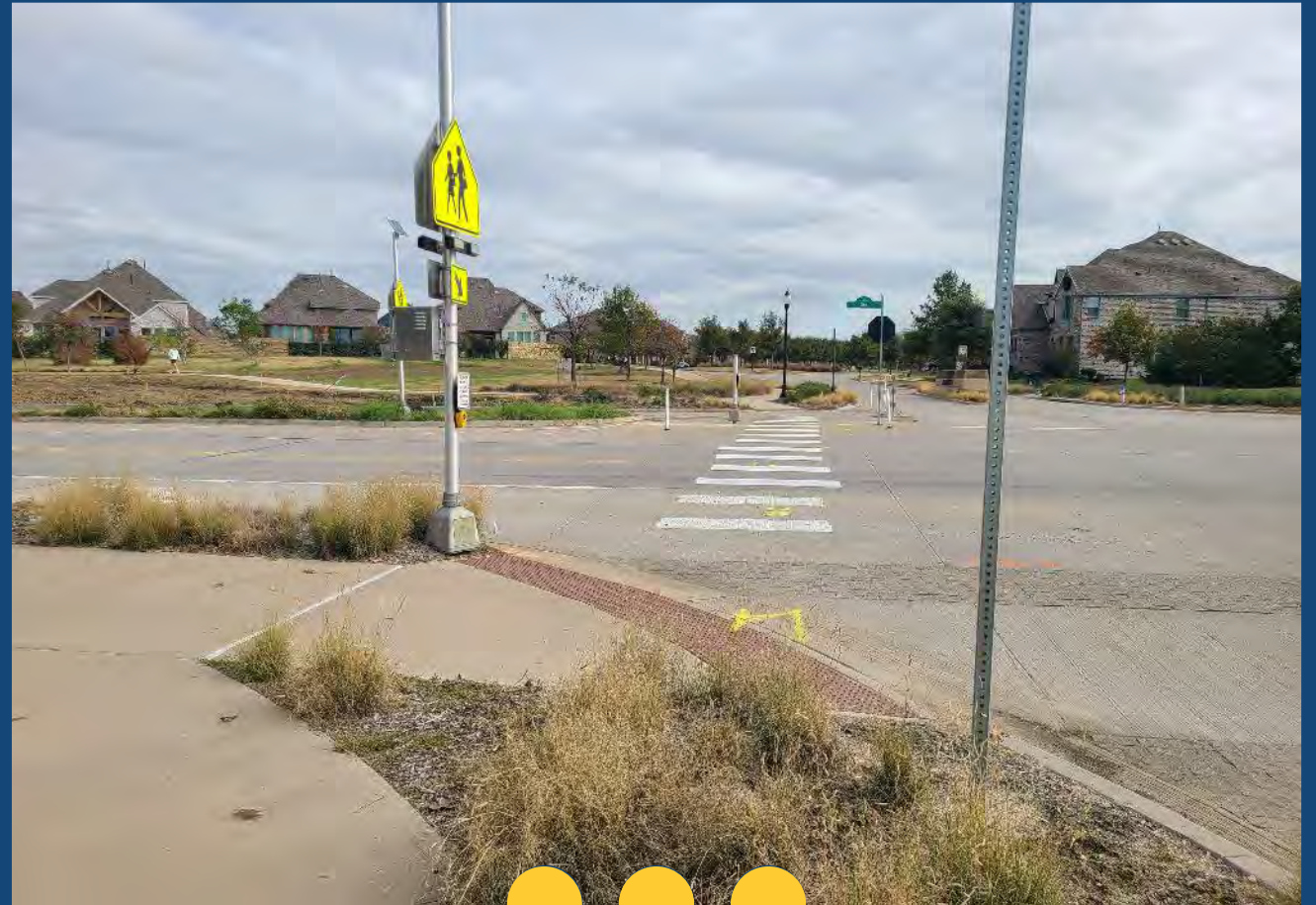
Part 1 – Laws & Standards related to crosswalks

Part 2 – Deciding *Whether* to Mark Crosswalks

Part 3 – Recommended Crosswalk Design Features

Part 4 – Reduced Speed School Zones

Part 5 – Development Review












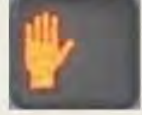


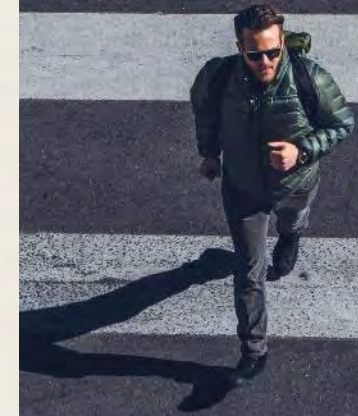


# Crossing Categories

Controlled – traffic signal, pedestrian hybrid beacon or stop sign controls the street being crossed

Uncontrolled – traffic across crosswalk is free flowing

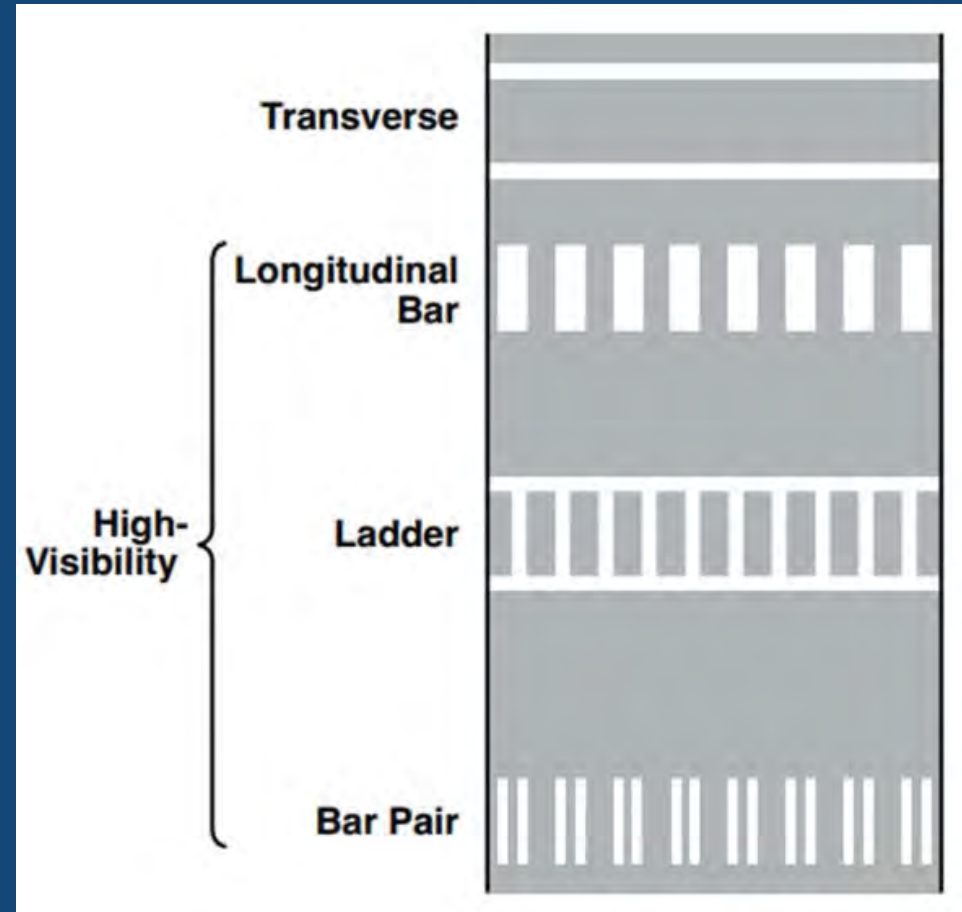
Signal Interval	Vehicle Signal	Pedestrian Signal	Signal Interval	Vehicle Signal	Pedestrian Signal
1	 Blank for Drivers	 Steady Hand	4	 Steady Red	 Steady "Walk"
2	 Flashing Yellow	 Steady Hand	5	 Wig-Wag	 Flashing Hand and Countdown
3	 Steady Yellow	 Steady Hand	6	 Return to Blank	 Steady Hand



# Laws & Standards

New MUTCD crosswalk type definitions:

- **Transverse**
- **High-Visibility:**
  - Longitudinal Bar
  - Ladder
  - Bar Pair
- Texas law says markings **not** required for a crosswalk



# Deciding Whether to Mark Crosswalks

For **stop-controlled**, mark if one or more apply:

- Part of **walk route** within 1/4 mile of **major ped generator**
- Involves **multi-use path**
- In **Old Town District** or other **ped-oriented** development
- Sidewalk or ped generators on **both sides** at **all-way stop**
- **Wide Crossing** (> 36')



Photo by david hou:  
<https://www.pexels.com/photo/sign-27853258/>



# Deciding Whether to Mark Crosswalks

For **stop-controlled**, mark if one or more apply:

- **Stopped queues** often block crosswalk
- **Two-way vehicle traffic > 1,500 ADT** or **150 vehicles/peak hr** and ped thresholds met:
  - $\geq 20$  peds/hr in **one** hour
  - $\geq 18$  peds/hr in **two** hours
  - $\geq 15$  peds/hr in **three** hours

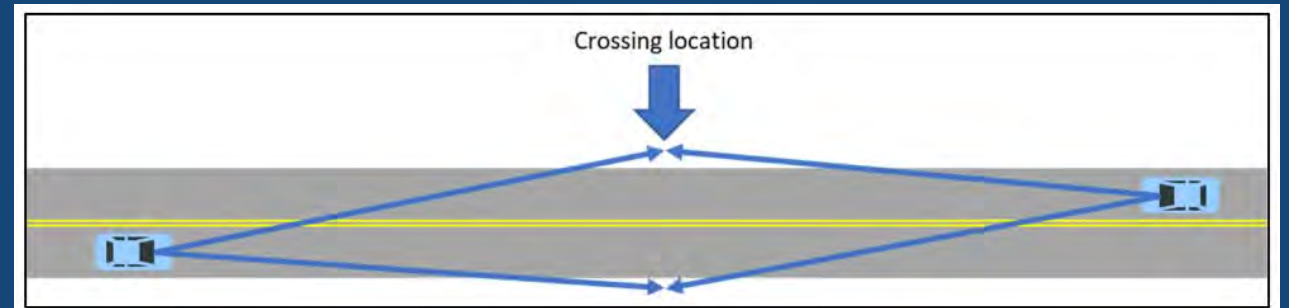


Photo by david hou:  
<https://www.pexels.com/photo/sign-27853258/>

# Deciding Whether to Mark Crosswalks

For Uncontrolled, consider:

- School related?
- Crossing guard?
- No. of students crossing
- Stopping Sight Distance
- Crossing Sight Distance
- Designated Trail?
- Distance from controlled crossing or other marked crosswalk



$$CSD = 1.47 * S * (2.5 + \frac{CL}{3.5})$$

Speed Limit (S) in mph	Minimum Crossing Sight Distance (CSD), in feet									
	Crossing Length (CL) in feet									
	10	12	20	24	30	36	40	48	50	60
25 or less	200	220	305	345	410	470	515	600	620	725
30	240	265	365	415	490	565	615	720	745	870
35	280	310	425	485	570	660	720	835	865	1015
40	315	350	485	555	655	755	820	955	990	1155
45	355	395	545	620	735	850	925	1075	1115	1300
50	395	440	605	690	815	940	1025	1195	1235	1445
55	435	480	665	760	900	1035	1130	1315	1360	1590







# Deciding Whether to Mark Crosswalks

As directed by uncontrolled flowchart, consider:

1. Nearby **ped generators** (0-6 pts)
2. **Crash history** (6+ pts/crash)
3. **Speed limit** (0-6 pts)
4. **Traffic volume** (0-6 pts)
5. **Dist. to nearest crossing** (0-9 pts)
6. **No. of thru lanes** crossed (0-10 pts)

## Step 2: Uncontrolled Marked Crosswalk Evaluation Worksheet

Note: This worksheet should only be used if directed by the Step 1A flowchart on page 12

<b>1. Pedestrian Generators.</b> Add 2 points for each pedestrian generator within 300 feet of the crossing, to a maximum of 6 points. Pedestrian generators include parks, swimming pools, grocery stores, convenience stores, apartment complexes, community centers, bus stops, etc.		Points: _____
<b>2. Crash History.</b> Add 6 points for each pedestrian or bicyclist crash within 300 feet of the crossing in the past 60 months. <sup>20</sup>		Points: _____
Add 5 additional points for any crashes counted above that resulted in fatal or serious injury. <sup>21</sup>		Points: _____
<b>3. Speed Limit</b>	25 mph or below	0 points
	30 mph	2 points
	35 mph	4 points
	40 mph or above	6 points
		Points: _____
<b>4. Daily Traffic Volume</b>		
	3,000 vehicles per day (vpd) or less	0 points
	3,001 to 9,000 vpd	2 points
	9,001 to 15,000 vpd	4 points
	15,001 vpd or more	6 points
		Points: _____
<b>5. Proximity to Nearest Controlled or Grade-Separated Crossing</b>		
	300 to 500 feet	3 points
	500 to 750 feet	5 points
	751 to 1000 feet	7 points
	1001 feet or more	9 points
		Points: _____
<b>6. Number of Through Lanes Crossed</b>	2 lanes or fewer	0 points
	3 lanes	3 points
	4 lanes	5 points
	5 lanes	7 points
	6 lanes or more	10 points
		Points: _____
<b>Step 2, Parts 1-6 Subtotal</b>		Points: _____

# Deciding Whether to Mark Crosswalks

Also consider:

## 7. Ped/bike crossing volume within 300 feet (0-15 pts)

- Sliding scale for **peak hour** vs. **12-hour** total
- **Do not install** if **<10** users/hr & **<50** users / 12 hrs)

Else, if **≥ 25 points** then **eligible** for marked crosswalk

- If the subtotal for Step 2, Parts 1-6 is 25 points or greater, the crossing is considered eligible for a marked crosswalk. Designers should refer to Step 3, the *Uncontrolled Crossing Tier Matrix*, to determine appropriate traffic control devices.
- If the subtotal for Step 2, Parts 1-6 is less than 10 points, the crossing is not considered eligible for a marked crosswalk.
- If the subtotal for Step 2, Parts 1-6 is between 10 and 24 points, a pedestrian count should be conducted to determine additional points, as follows in Step 2, Part 7:

7. Pedestrian & bicyclist crossing volume within 300 feet of crossing. <sup>22</sup>			
Peak Hour		12-Hour Total	
< 10 crossings	Do Not Install	< 50 crossings	Do Not Install
10 to 19 crossings	5 points	50 to 79 crossings	5 points
20 to 29 crossings	10 points	80 to 109 crossings	10 points
≥ 30 crossings	15 points	≥ 110 crossings	15 points
			Points: _____

Crossing counts should be collected during peak pedestrian and bicyclist crossing times for a minimum of two hours. Peak pedestrian and bicyclist crossing hours may not coincide with peak motor vehicle traffic hours. If the peak crossing hours are unknown, it is desirable to conduct a 12-hour count of crossing activity to determine the peak times. The peak crossing hours for some locations (such as parks or athletic fields) may occur on the weekend.

<b>Step 2, Parts 1-7 Total</b>	<b>Points: _____</b>
--------------------------------	----------------------

- If the total is 25 points or greater, the crossing is considered eligible for a marked crosswalk. Designers should refer to Step 3, the *Uncontrolled Crossing Tier Matrix*, to determine appropriate traffic control devices.
- If the total is less than 25 points, the crossing is not eligible for a marked crosswalk (except if otherwise indicated on the Step 1 flowchart).



# Deciding Whether to Mark Crosswalks

For uncontrolled, determine what “Tier” of traffic control devices apply given:

- No. of **Thru Lanes** Crossed
- Type of **Median**
- Average Daily Traffic (**ADT**)
- **Speed Limit**

**Step 3A: Determine the Tier Number**

Street Functional Classification	Total Number of Through Lanes Crossed in Both Directions	Type of Median	Vehicle ADT < 9,000		Vehicle ADT 9,000 to < 12,000			Vehicle ADT 12,000 to < 15,000			Vehicle ADT ≥ 15,000			
			Speed limit (mph)											
			≤ 30	35	≥ 40	≤ 30	35	≥ 40	≤ 30	35	≥ 40	≤ 30	35	≥ 40
Local	1 or 2	Any	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Collector or Arterial	1 or 2	No median or raised median	5	5	3*	5	4	3*	5	4	3*	4	4	3*
	1 or 2	TWLTL or left-turn lane	5	5	3*	5	4	3	4	4	2	4	4	2
	3 or 4	Raised	5	4	3*	4	3*	2	4	3*	2	3	2	1
	3 or 4	Not raised or no median	3	2	1	3	2	1	3	2	1	2	1	1
	≥ 5	Any	3	2	1	2	2	1	2	1	1	1	1	1

\* Consider Tier 2, especially when ≥ 40 mph or ≥ 15,000 ADT

Only use this table if prompted by earlier flowcharts, other conditions apply





# Deciding Whether to Mark Crosswalks

## Tier

- 1 Ped. Hybrid Beacon or Signal
- 2 RRFB\*, Ped. Hybrid Beacon or Signal
- 3 RRFB\*
- 4 Warning Signs in Advance & at Crossing
- 5 Warning Signs at Crossing
- 6 Warning Signs at Crossing (transverse mkgs)

\*RRFB = Rectangular Rapid-Flashing Beacon



# Deciding Whether to Mark Crosswalks

## Step 3B: Determine the Devices to Use Based on the Tier Number

Tier	Crosswalk markings	W11-2 (or W11-15 or S1-1) and W16-7P warning signs at crossing <sup>2</sup>	W11-2 (or W11-15 or S1-1) and W16-9P advance warning signs <sup>2</sup>	Stop lines and STOP HERE FOR PEDESTRIANS signs	R1-6a In-Street Pedestrian Crossing Signs	PED XING or SCHOOL pavement word markings	Raised median or crossing island	Rectangular Rapid-Flashing Beacon (RRFB)	Pedestrian Hybrid Beacon (PHB)	Traffic Signal
Tier 1	High-Visibility	Yes	Optional <sup>3</sup>	Yes	No	Optional <sup>3</sup>	Optional	No	Optional in lieu of Traffic Signal <sup>5</sup>	Yes, if warranted <sup>6</sup>
Tier 2	High-Visibility	Yes	Yes for RRFB, optional for PHB <sup>3</sup>	On multilane approaches	No	Optional <sup>3</sup>	Recommended if RRFB is used <sup>4</sup>	Optional in lieu of PHB	Yes <sup>5</sup>	Optional in lieu of PHB if warranted <sup>6</sup>
Tier 3	High-Visibility	Yes	Yes	On multilane approaches	No	Optional <sup>3</sup>	Recommended if practicable <sup>4</sup>	Yes	No	No
Tier 4	High-Visibility	Yes	Yes	On multilane approaches	Optional for 2-lane & ≤ 30 mph in school zones. No for all other crossings	No <sup>3</sup>	Optional	No <sup>3</sup>	No	No
Tier 5	High-Visibility	Yes	No <sup>***</sup>	No		No <sup>3</sup>	No	No <sup>3</sup>	No	No
Tier 6	Transverse <sup>1</sup>	Yes if midblock, Optional otherwise	No <sup>***</sup>	No		No <sup>3</sup>	No	No <sup>3</sup>	No	No

<sup>1</sup> At intersection locations only. High-Visibility markings should be provided at non-intersection locations.

<sup>2</sup> For school zone crossings, use S1-1 signs instead of W11-2 signs. For crossings of trails with shared bicycle and pedestrian traffic, use W11-15 signs instead of W11-2.

<sup>3</sup> Recommended if the stopping sight distance (SSD) is provided but not the crossing sight distance (CSD).

<sup>4</sup> Consider a raised median **before** evaluating other devices. In some cases, it may be possible to retrofit a raised median on the roadway without affecting needed left-turn access. If a raised median is feasible, re-evaluate the crossing according to its tier number with a raised median.

<sup>5</sup> If MUTCD guidelines in Figures 4J-1 or 4J-2 (see Appendix) are met for the appropriate speed.

<sup>6</sup> See Chapter 4C of MUTCD for traffic signal warrant study requirements.



# Deciding How to Mark Crosswalks

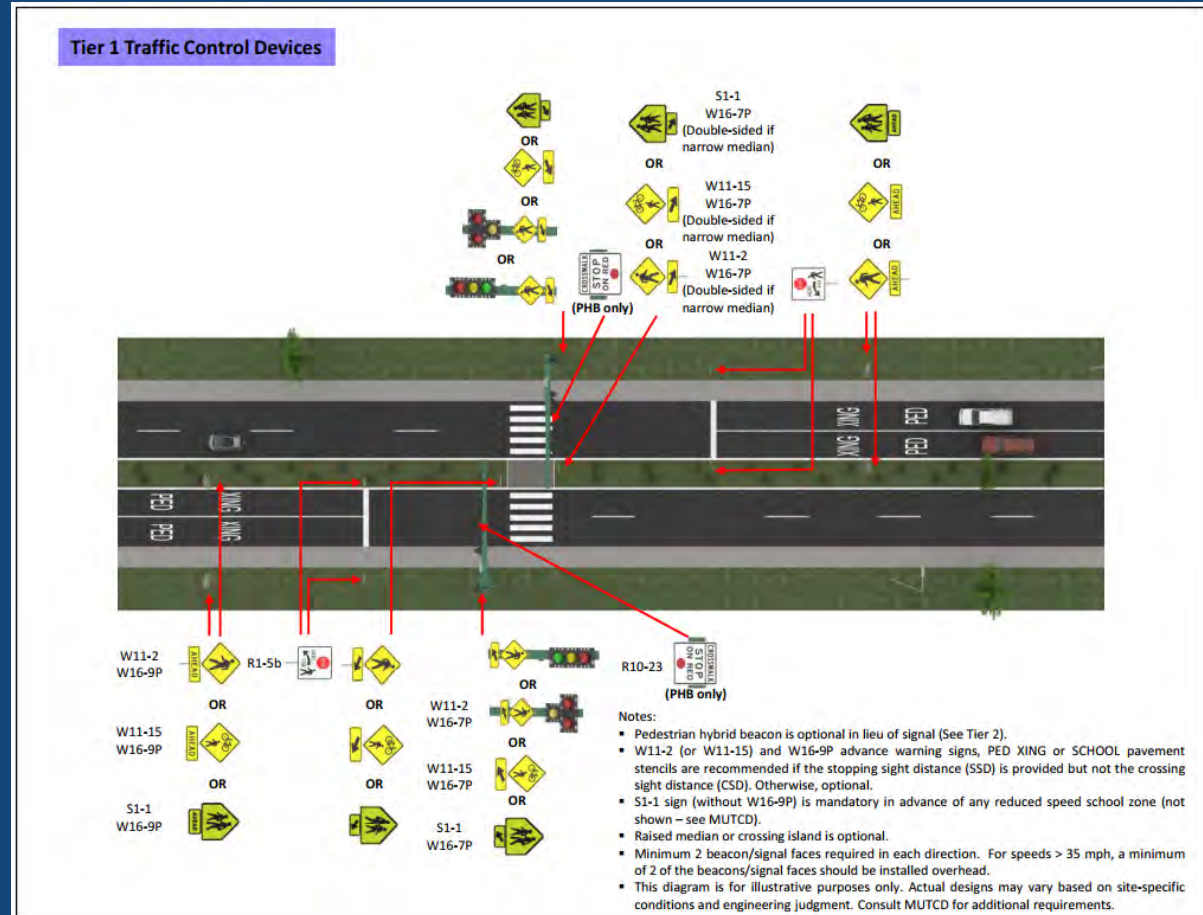
## Tier 1: Traffic Signal Rendering





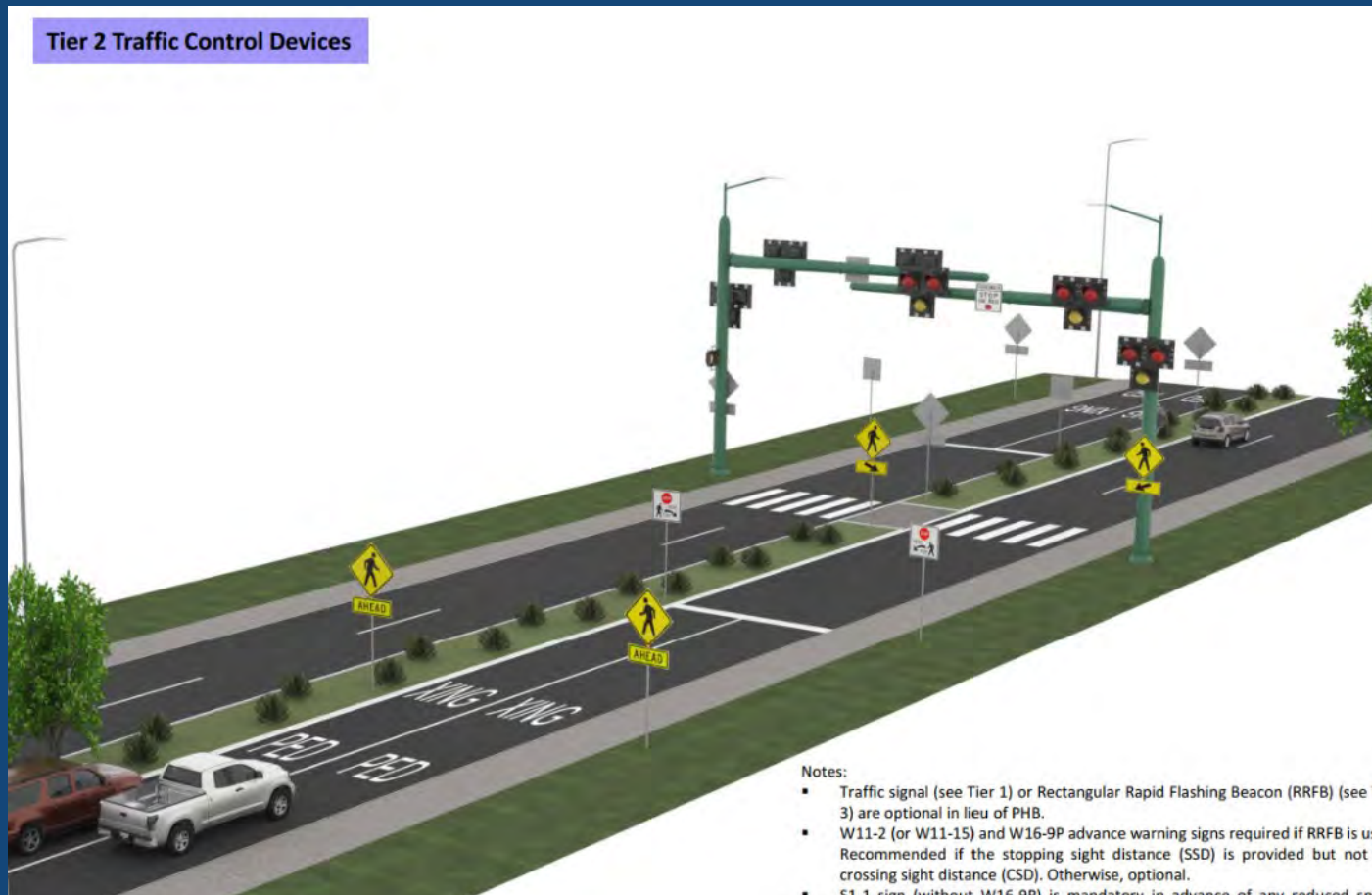
# Deciding How to Mark Crosswalks

Tier 1: Traffic Signal Plan View **Layout** with Notes



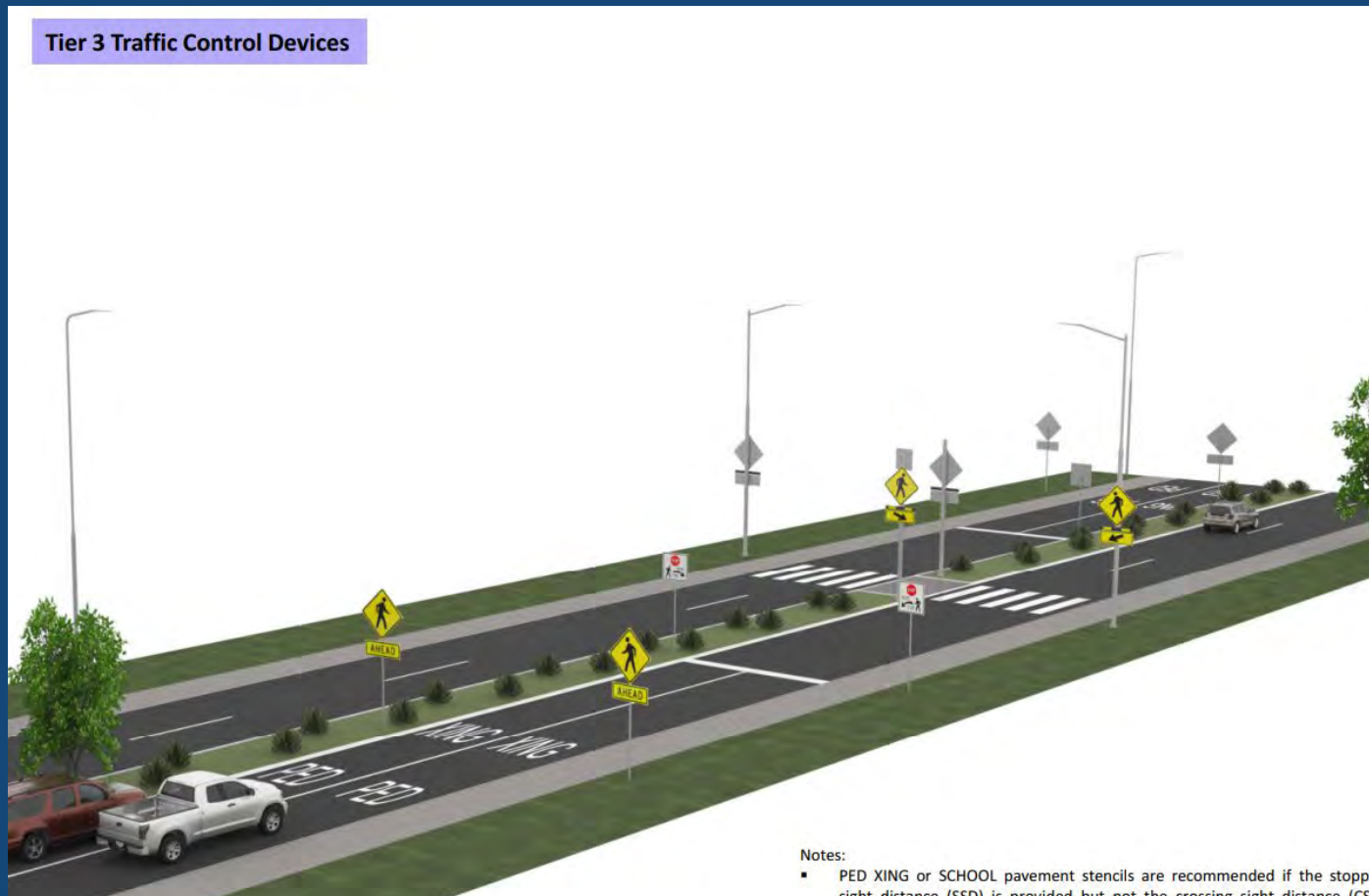
# Deciding How to Mark Crosswalks

## Tier 2: Pedestrian Hybrid Beacon Rendering



# Deciding How to Mark Crosswalks

Tier 3: Rectangular  
Rapid-Flashing  
Beacon (RRFB)  
Rendering



Notes:

- PED XING or SCHOOL pavement stencils are recommended if the stopping sight distance (SSD) is provided but not the crossing sight distance (CSD)



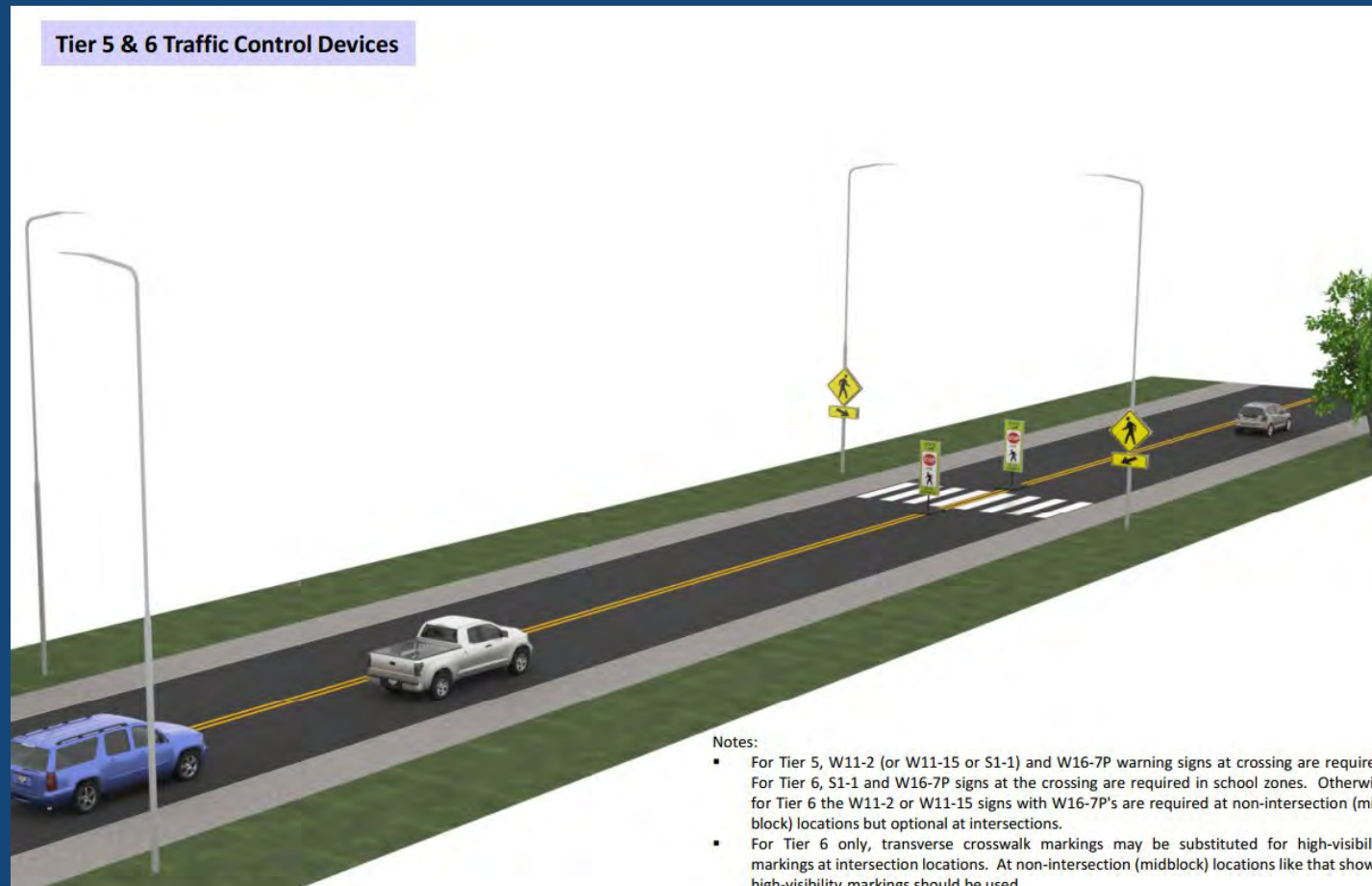
# Deciding How to Mark Crosswalks

Tier 4: Warning Signs  
in Advance & at  
Crossing



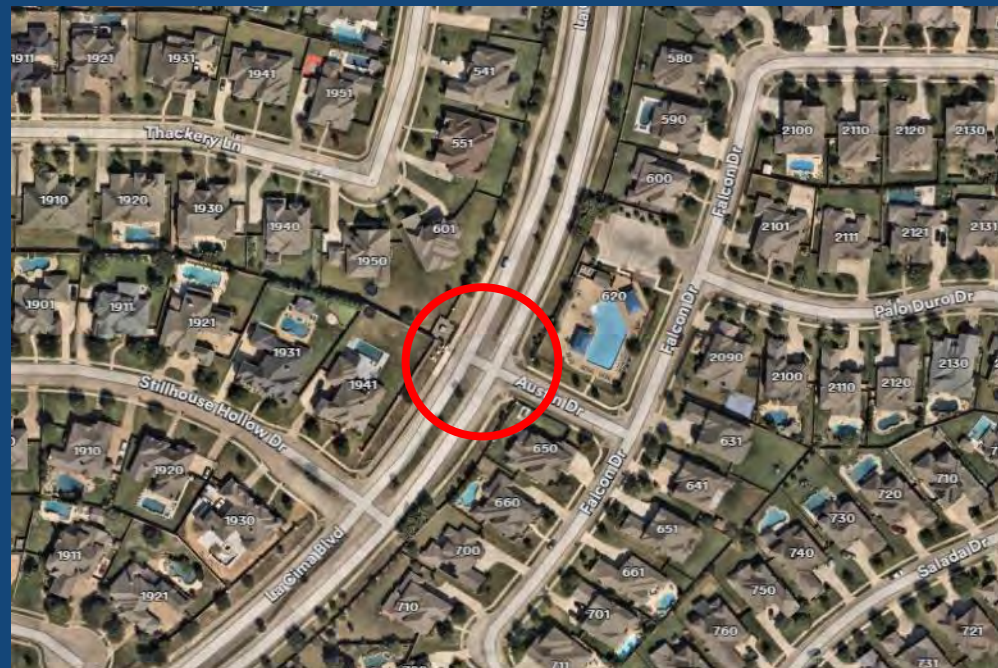
# Deciding How to Mark Crosswalks

Tiers 5 & 6: Warning Signs at Crossing Only



# Case Study

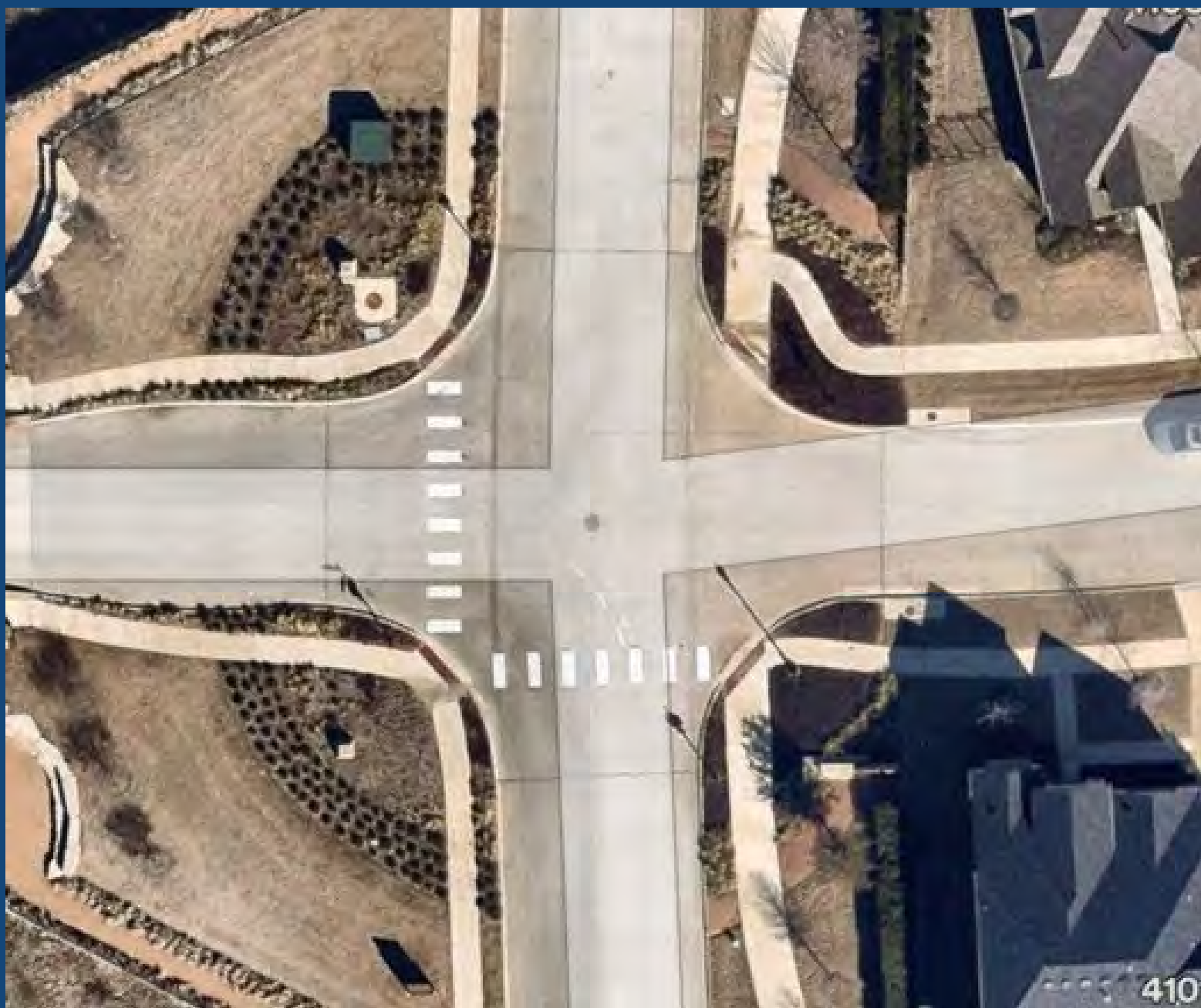
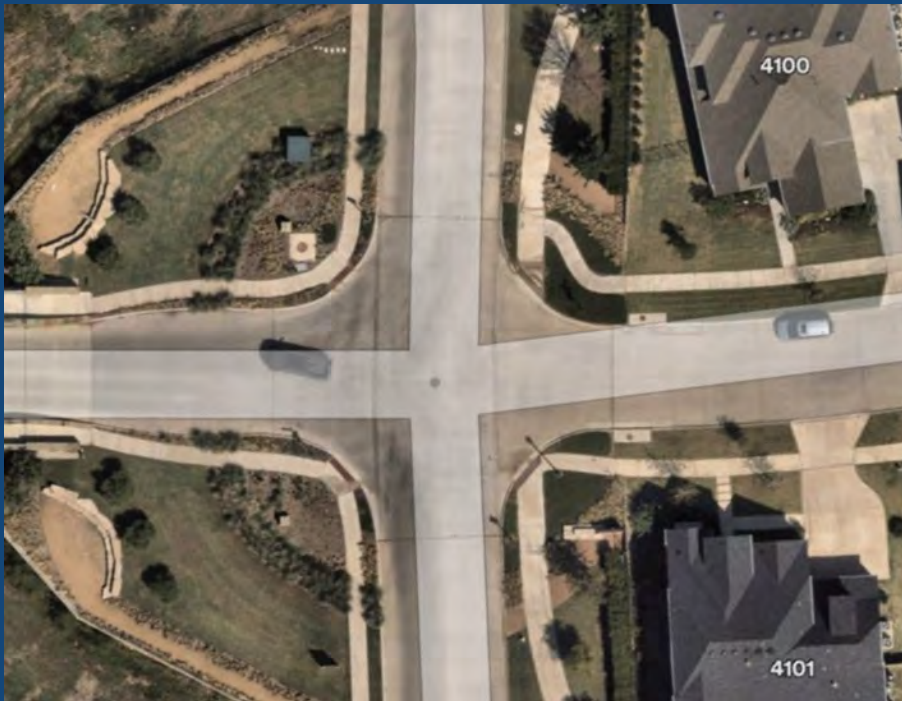
## La Cima @ Austin





# Case Study

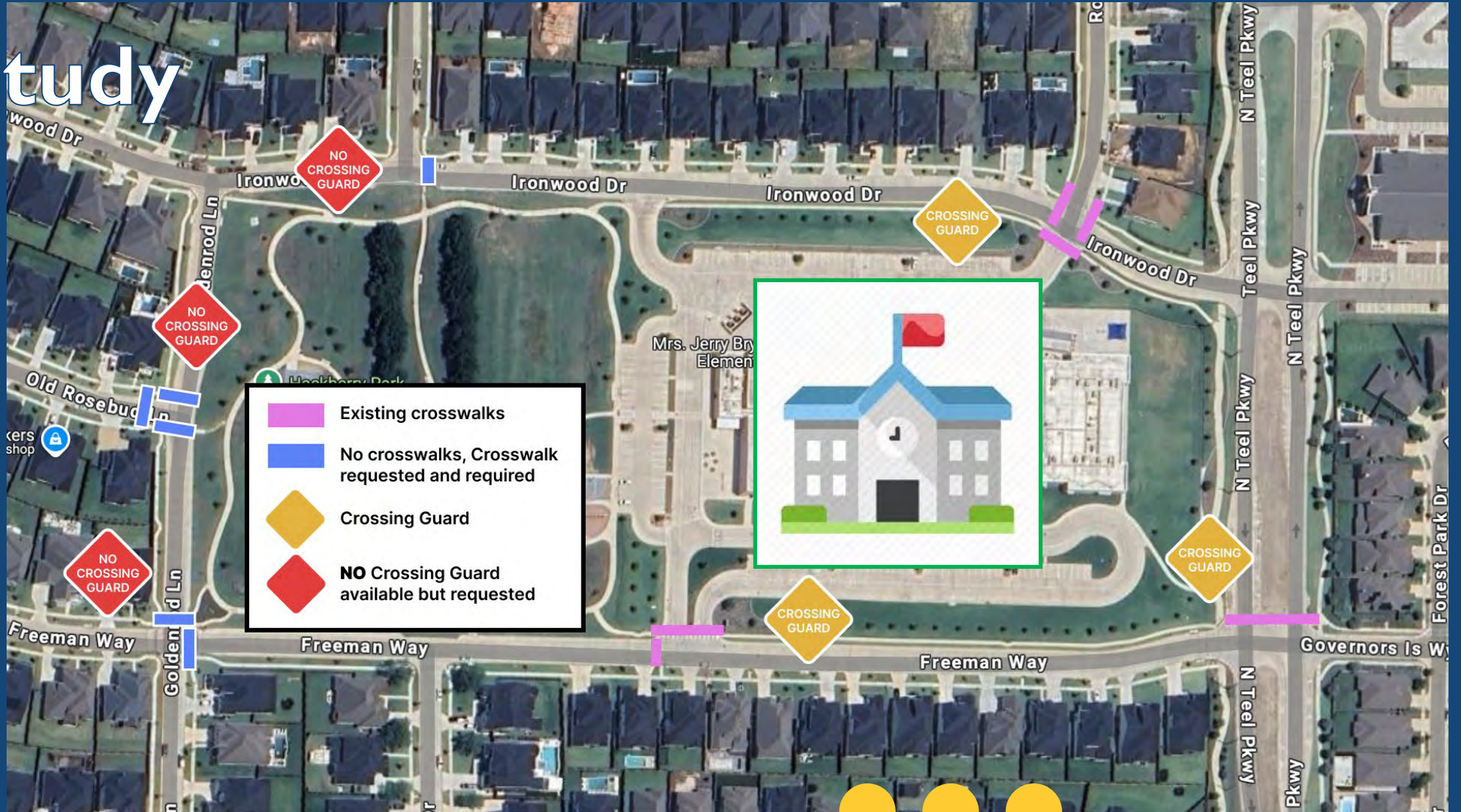
## Old Rosebud / Windsong





# Case Study

Bryant Elementary/  
Windsong Ranch HOA





# Case Study

ISD added a school crossing guard

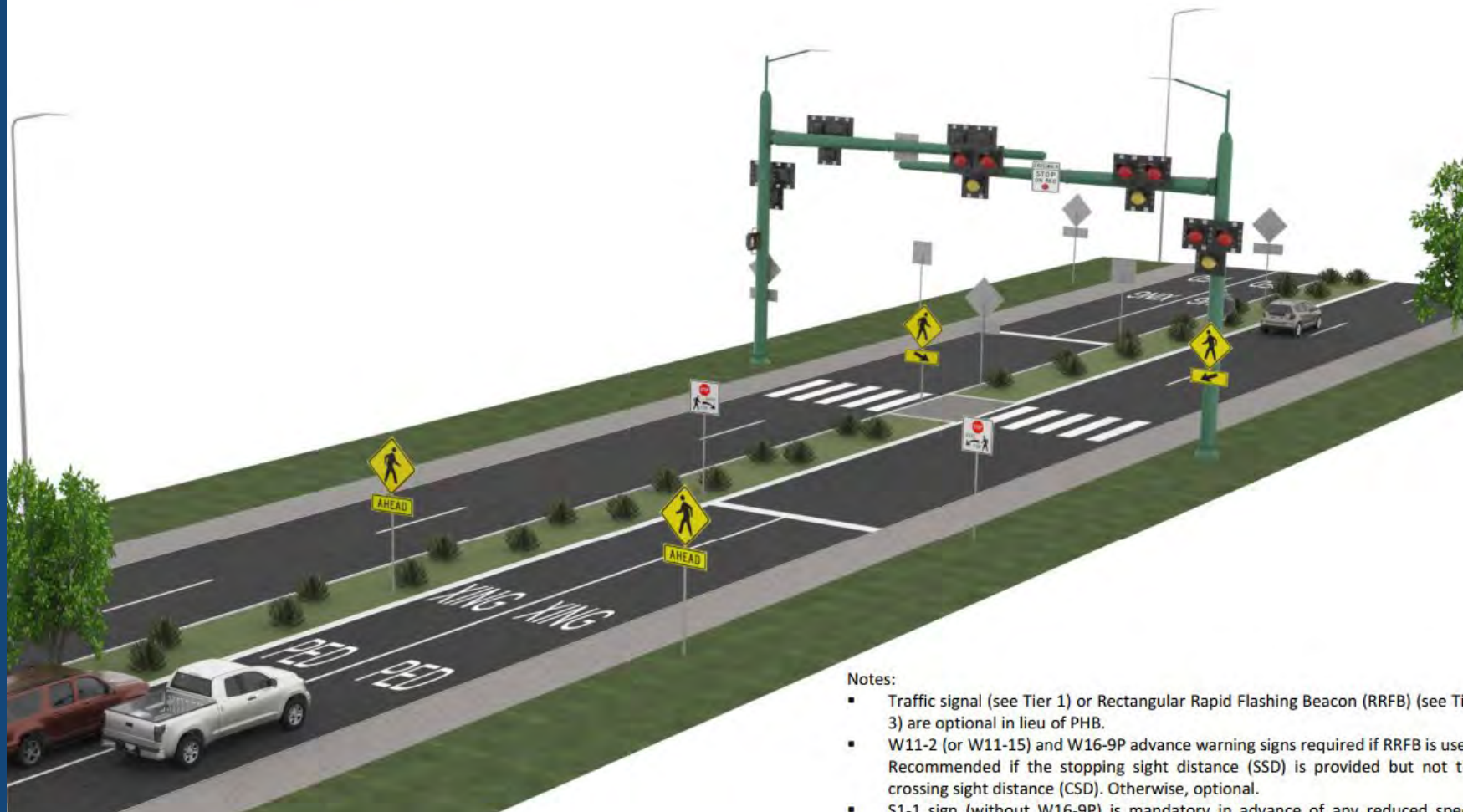




# Case Study

## Pedestrian Hybrid Beacon

### Tier 2 Traffic Control Devices



#### Notes:

- Traffic signal (see Tier 1) or Rectangular Rapid Flashing Beacon (RRFB) (see Tier 3) are optional in lieu of PHB.
- W11-2 (or W11-15) and W16-9P advance warning signs required if RRFB is used. Recommended if the stopping sight distance (SSD) is provided but not the crossing sight distance (CSD). Otherwise, optional.
- S1-1 sign (without W16-9P) is mandatory in advance of any reduced speed zone.





# Case Study



# Questions?



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HWebb@prospertx.gov



Full policy  
available online:

[https://www.prospertx.gov/  
347/Engineering-Resources](https://www.prospertx.gov/347/Engineering-Resources)



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# Trinity Metro Bikes

Shawn Tubré – Director, Trinity Metro Bikes



# TRINITY METRO BIKES





# Changing the world

————— one city at a time



**lyft** urban solutions

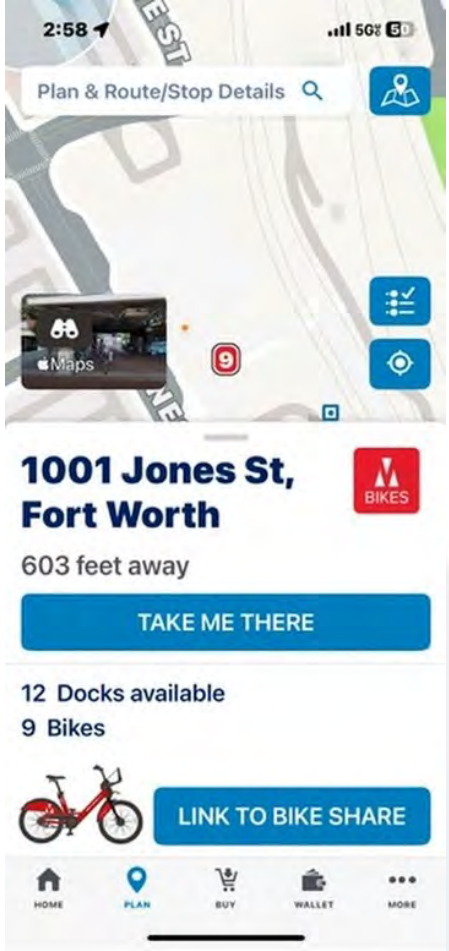
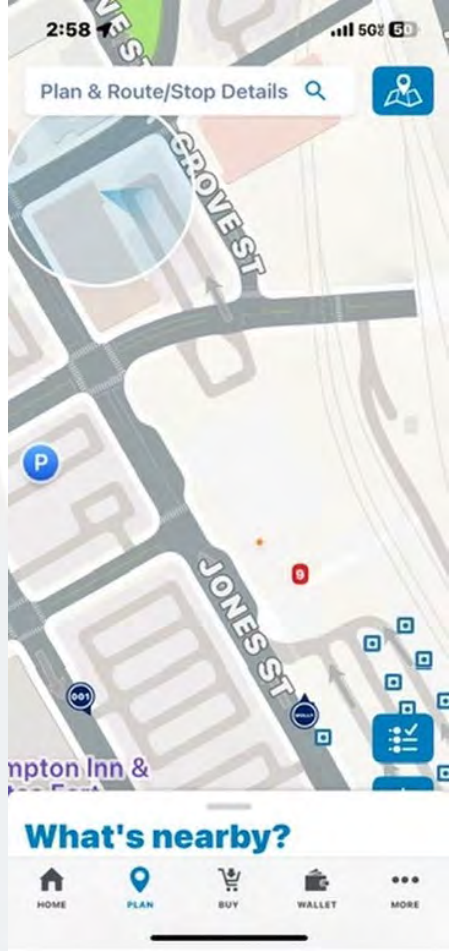
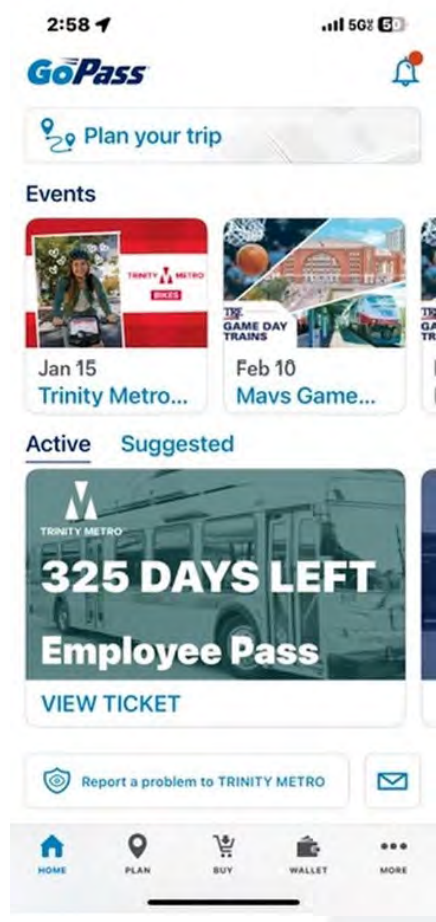
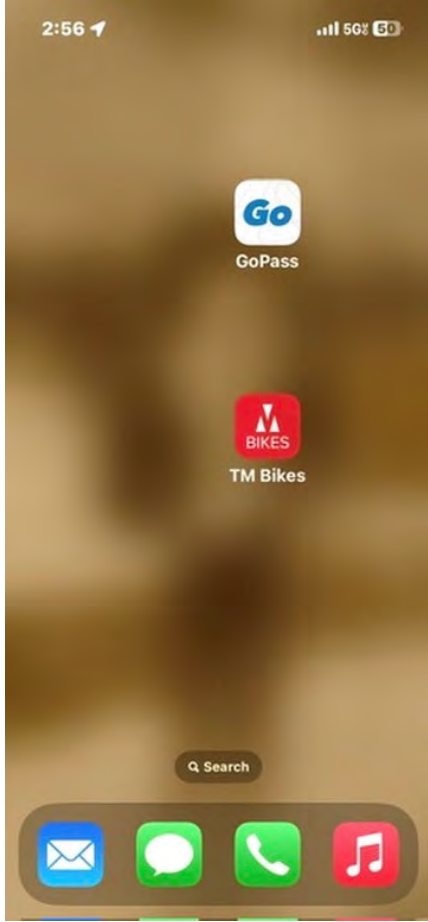


# E-Station ⚡

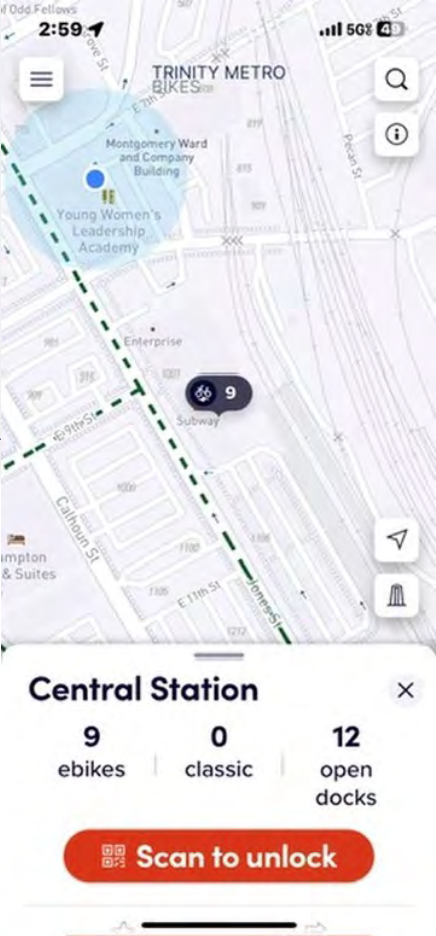
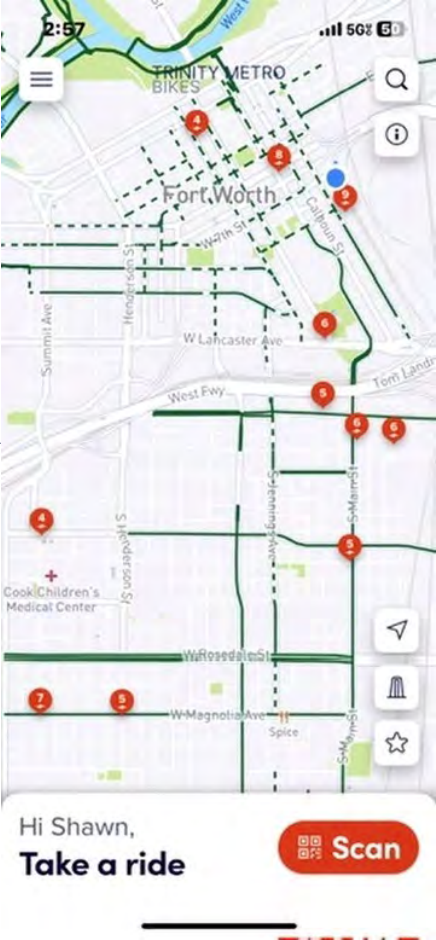
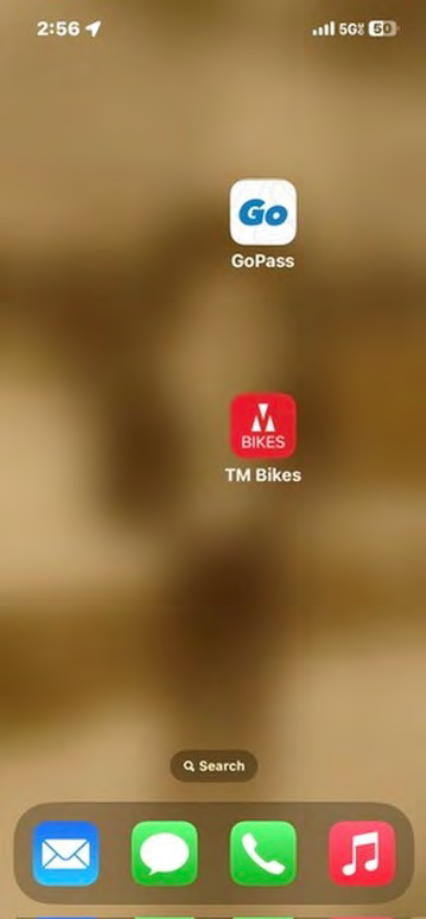
- 1 Smart selective charging prioritizes bikes & e-scooters with lower battery levels.
- 2 Connected station with real-time communication (Optional payment interface).
- 3 Grid powered, just one connection point for the entire Smart Station.
- 4 Certified to meet the highest quality standards.



# GoPass App



# Trinity Metro Bikes App





# New Pricing Structure

## TRINITY METRO

### BIKES



**\$125**/year

#### Annual Membership

12 months of unlimited 1 hour rentals

A yearly membership for those who ride with us regularly.

**\$10**/year

#### EBT Annual Membership

12 months of unlimited 1 hour rentals

A yearly membership for those of reduced income.

**\$25**/200 minutes

#### Flex Pass

200 minutes of ride time, expires one year after purchase. This flexible pass is excellent for a single rider who doesn't want to stress about time limits.

**\$2**/30 minutes

#### PAY AS YOU GO

Great for commuters and short trip riders.

# Central Station





# Dream Park Station





# Stats:

- > 24 stations in operation. 62 planned by end of April
- > 400 total bikes: 340 electric & 60 standard
- > Over 1000 new customers in first three weeks
- > Over 2000 rides since launch



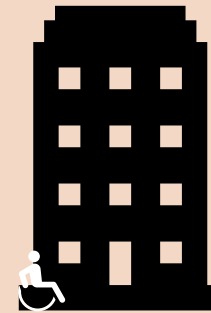
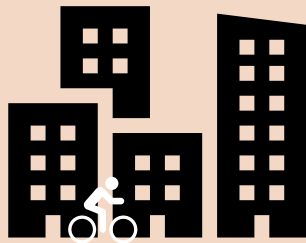
TRINITY METRO



# UPCOMING EVENTS AND TRAINING

Bicycle and Pedestrian Advisory Committee  
February 19, 2025

Daniel Herrig, Committee Vice Chair







- One of the largest gathering of highway safety professionals in the United States. Learn from subject matter experts about the latest highway safety research, best practices, and cutting-edge initiatives. As well as explore innovative technology and strategies used to combat risky driving behaviors and save lives.
- For more information, visit: [lifesaversconference.org](https://lifesaversconference.org)
- Registration is open now!

# National Bike Summit

**March 11-13, 2025**

**Washington, DC**



- The National Bike Summit will feature plenary speakers, mobile workshops, breakout sessions, an award reception, and a Lobby Day to meet with members of Congress.
- For more information, visit: [National Bike Summit | League of American Bicyclists \(bikeleague.org\)](https://www.bikeleague.org/national-bike-summit)



# 2025 National Planning Conference

**March 29-April 1**  
**Denver, CO**

**April 23-25**  
**Online**

- 2025 core content areas will include sessions on Transportation and Infrastructure, Climate Change, Energy, and the Environment, Inclusive Planning for Social Change, and more!
- For more information, visit: [National Planning Conference \(planning.org/conference\)](https://planning.org/conference)

# American Planning Association





# DESIGNING CITIES 2025

May 28-May 31, 2025  
Washington, D.C.

- The NACTO Designing Cities Conference brings together over 1,000 officials, planners, and practitioners to advance the state of transportation in North American cities.
- Early bird registration is currently open.
- For more information, visit: <https://nacto.org/conference/designing-cities-2025-washington-d-c/>

# Understanding ADA Requirements and Transition Plan Development for Title II Entities

**Thursday, June 5, 2025 (Online)**

## Objectives:

- Technical requirements under the ADA
- Interactions between federal, state, and construction laws
- Funding, planning, and prioritizing your project
- Policy development and implementation, and more!

Register at [www.nctcog.org/Training-Development-Institute/Planning-Development-Academy/Understanding-ADA-Requirements-and-Transition-1](http://www.nctcog.org/Training-Development-Institute/Planning-Development-Academy/Understanding-ADA-Requirements-and-Transition-1)

# Understanding ADA Compliance for Parks & Recreation

**Thursday, Sept 11, 2025 (Online)**

Focus on accessibility in the following Parks & Recreation amenities:

- Sports venues
- Playgrounds
- Parks
- Hike and bike trails, and more!

Register at <https://form.jotform.com/242116216163143>



**CNU 33** New England  
*at Providence*

*June 11-14, 2025*

- This event is geared toward planning professionals and local government staff. The conference will address challenges such as sustainable housing, equitable growth, and community resilience.
- Registration will open in late February 2025.
- For more information, visit: <https://www.cnu.org/cnu33>

**Congress for the New Urbanism**





# ITE Annual Meeting and Exhibition

August 10-13, 2025

Orlando, FL

- The 2025 Annual Meeting and Exhibition will explore both practical solutions and cutting-edge strategies designed to revolutionize safety and mobility in the coming years.
- For more information, visit: <https://www.iteannualmeeting.org/about-iteorlando2025>



# TrailNation Summit

## October 27-29, 2025

### Cleveland, OH

- RTC will gather 500 trail network visionaries, innovators, and practitioners from across the country for two days of dynamic mobile workshops, immersive peer-learning sessions, networking and relationship building to unlock the power of trail networks for communities nationwide.
- Dates to remember:
  - Early-bird registration is open now!
  - May 31: Regular registration opens
- Visit [railstotrails.org/trailnation/summit2025/](https://railstotrails.org/trailnation/summit2025/) for more information



# APATX25 Chapter Conference

October 22-24

## Bryan-College Station

- Save the date!
- Call for sponsors: Coming soon
- Call for award nominations: Coming soon
- Visit <https://texas.planning.org/conferences-and-events/past-conferences/> for more information



# Apply to be a Bicycle Friendly Community



The Bicycle Friendly Community (BFC) program provides a roadmap to improve conditions for bicycling and the guidance to make your distinct vision for a better, bikeable community a reality.

- Deadline to apply is June 25, 2025
- For more information, visit: [bikeleague.org/bfa/community/](https://bikeleague.org/bfa/community/)

# Bicycle Friendly Community (BFC) 2025 Awards

- Dallas (New) – Bronze
- Frisco (Renewal) – Bronze
- Richardson (Renewal) – Bronze

## Honorable Mention

- Lewisville – First-time applicant

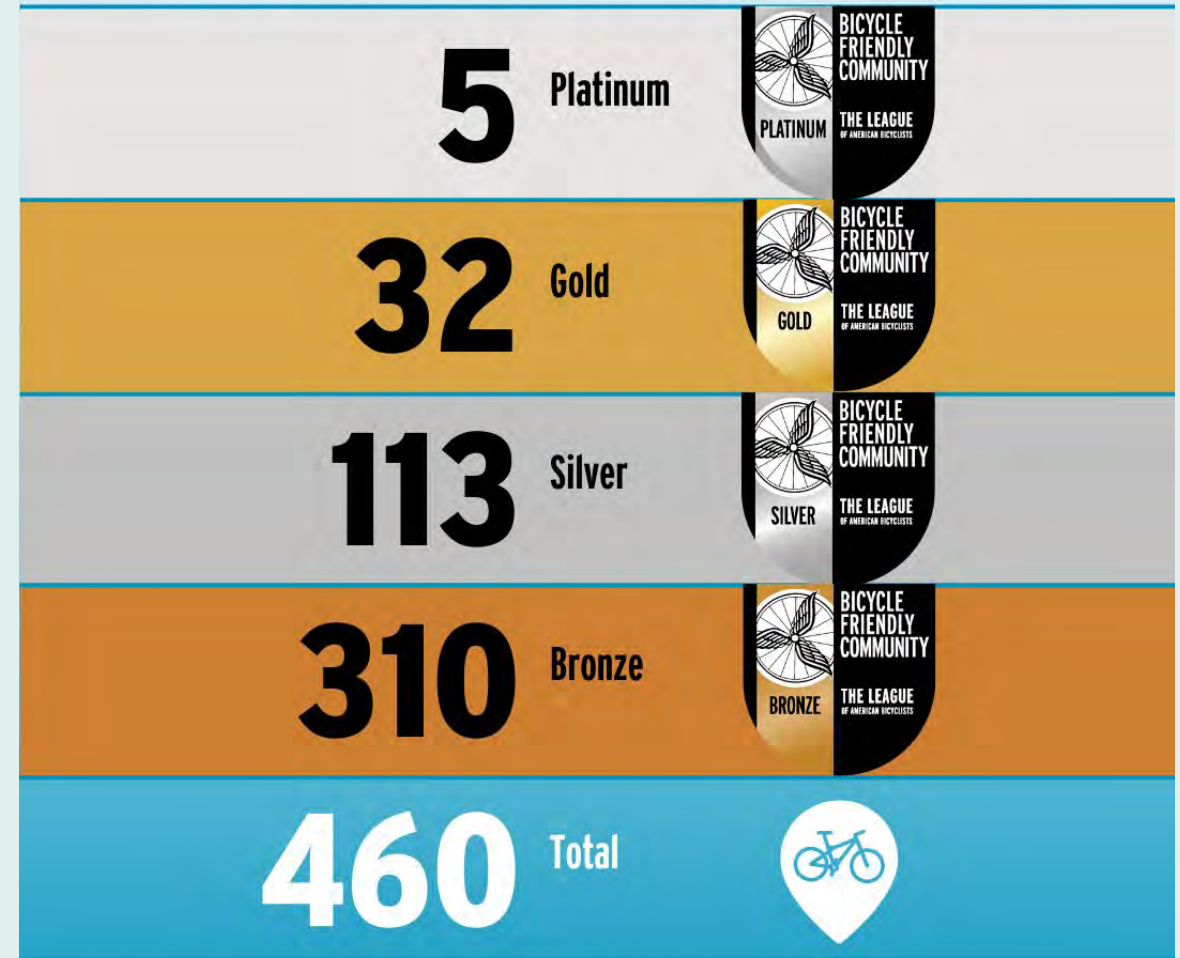
## Existing Designations

- Fort Worth (2016-2025) – Bronze
- Plano (2015-2027) – Bronze

The next BFC deadline is **June 25, 2025**



# BICYCLE FRIENDLY COMMUNITIES



See the full list as of Jan. 2025 at [bikeleague.org/community](https://bikeleague.org/community)

# Master Plans Under Development

- City of Colleyville Active Transportation Plan
  - Collin County Trail Master Plan
  - City of Dallas Bikeways Master Plan
  - City of Farmers Branch Trail Plan Update
  - City of Farmersville Parks Master Plan Update
  - City of Grand Prairie Master Bicycle Plan
  - City of Greenville Citywide Trails and Bikeways Master Plan
  - City of Keller Active Transportation Plan
  - City of Weatherford Active Transportation Plan
- ★ Please forward a copy of adopted plans and GIS files to NCTCOG staff once complete to integrate into the regional database





# APBP North Texas February Gathering

**February 19, 2025 (After BPAC!)**

**Boston's Restaurant & Sports Bar  
2501 E Lamar Blvd, Arlington, TX**

- For more information about APBP, visit: [North Texas Chapter - Association of Pedestrian and Bicycle Professionals \(apbp.org\)](https://www.apbp.org)

# Other Events or Training?

For any suggestions/topics for future training opportunities that NCTCOG can help coordinate or promote, please contact:

**Catherine  
Richardson**

**[crichardson@nctcog.org](mailto:crichardson@nctcog.org)**



**Daniel  
Snyder**

**[dsnyder@nctcog.org](mailto:dsnyder@nctcog.org)**



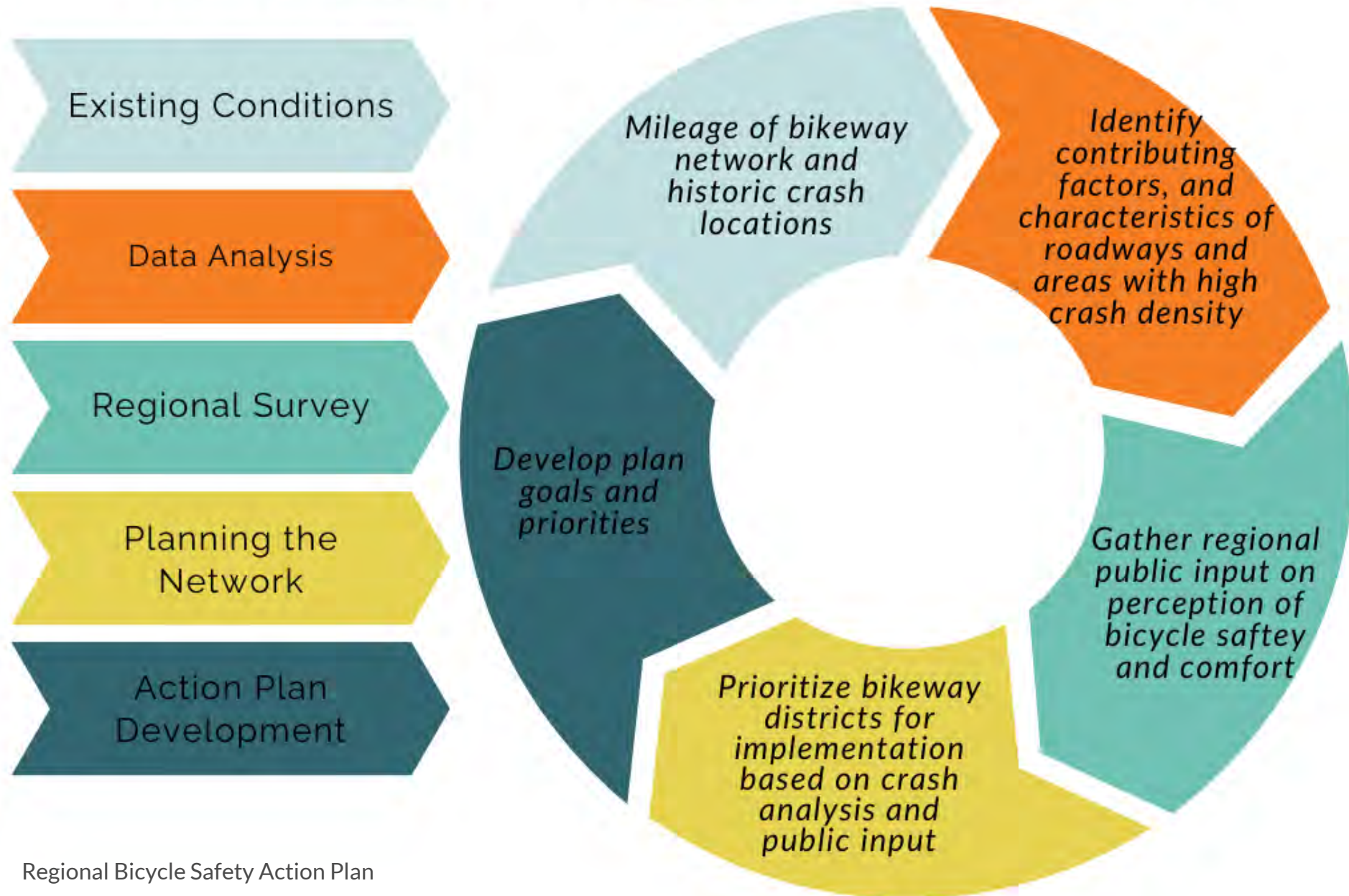
# REGIONAL BICYCLE SAFETY ACTION PLAN

## Bicycle Crash Analysis

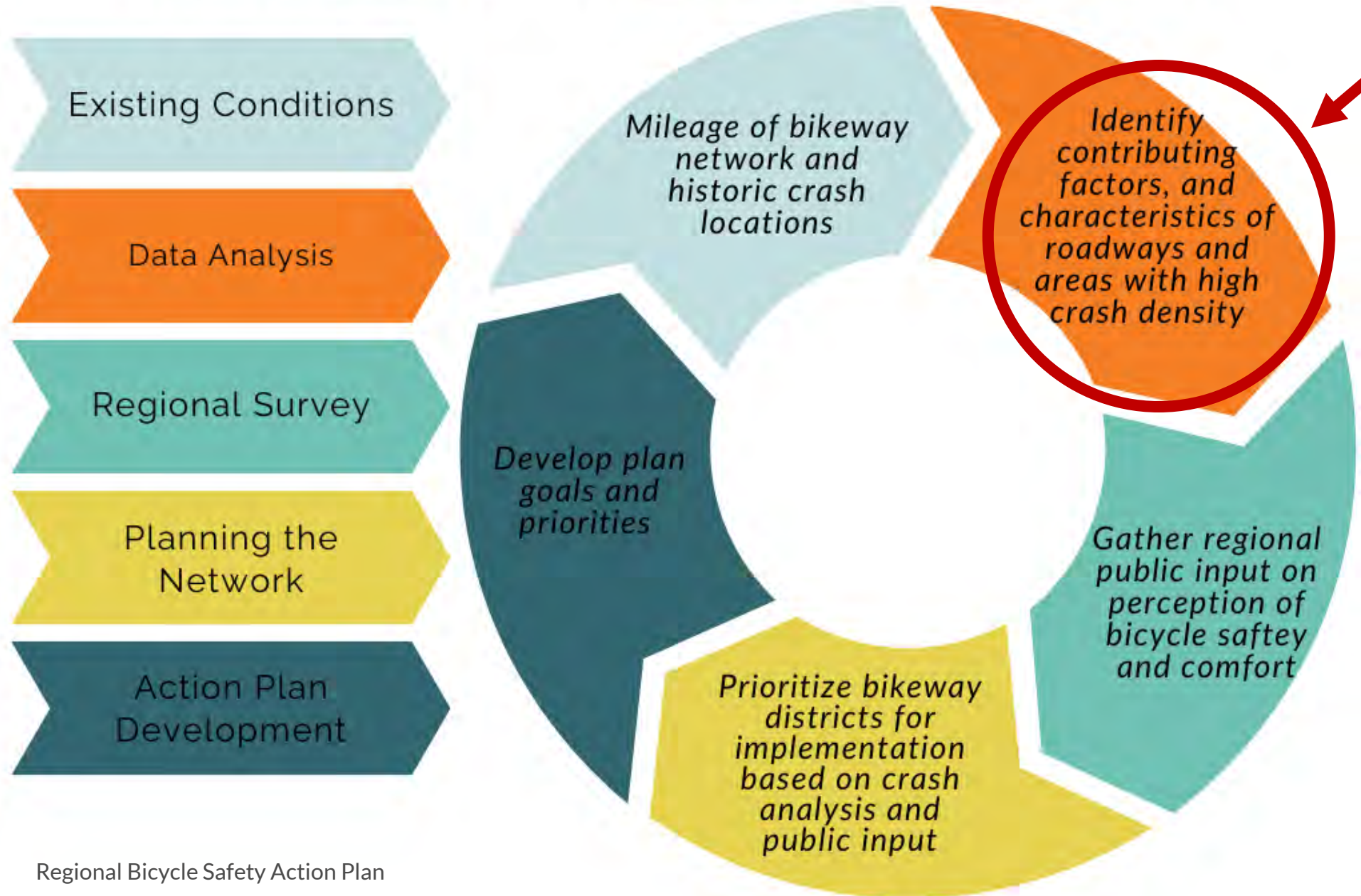
Bicycle and Pedestrian Advisory Committee | Catherine  
Richardson | 02.19.2025



# PLAN DEVELOPMENT PROCESS



# PLAN DEVELOPMENT PROCESS



# TxDOT CRASH DISCLAIMER

Source: TxDOT's Crash Records Information System (CRIS) 2019 - 2023 data current as of 4/3/2024 - all TxDOT disclaimers apply to this information

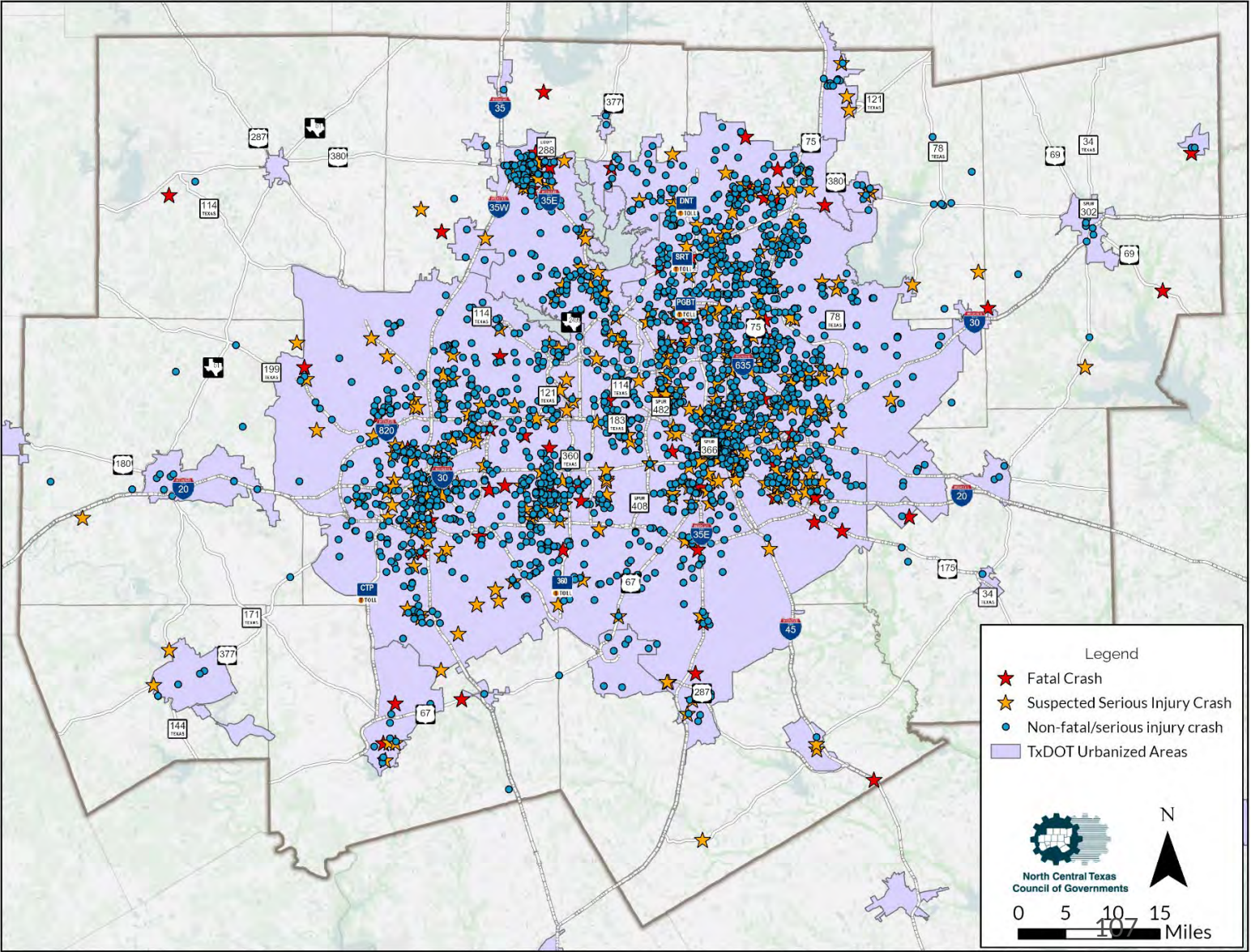
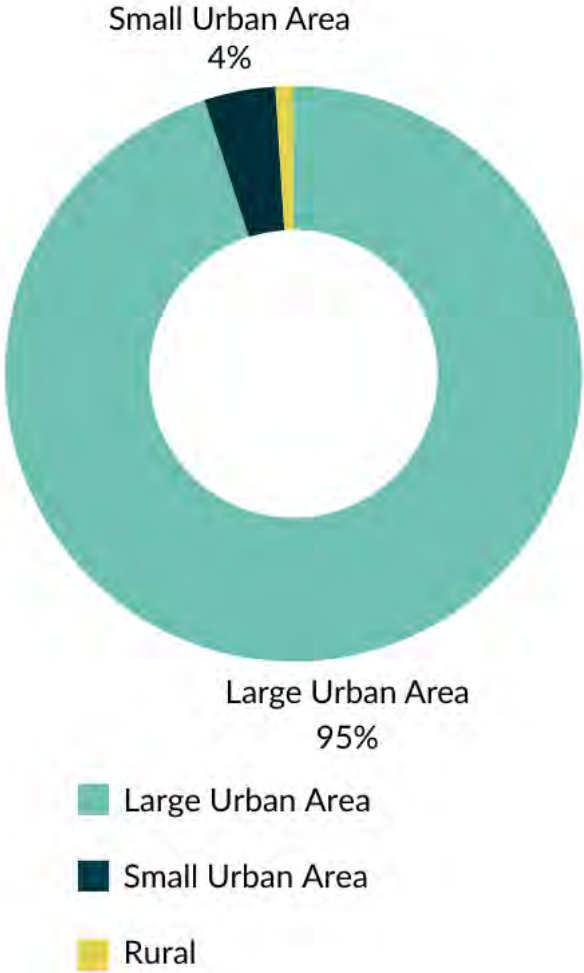
This data is composed of TxDOT "Reportable Crashes" only

- A "Reportable Motor Vehicle Traffic Crash" is defined by TxDOT as: any crash involving motor vehicle in transport that occurs or originates on a traffic way, results in injury to or death of any person, or damage to the property of any one person to the apparent extent of \$1,000





# 2019-2023 BICYCLE CRASHES IN THE MPA



# 2019-2023 BICYCLE CRASHES IN THE MPA



**2,471**  
crashes



**74** fatal  
**(3%)** injury



**355** suspected  
**(14 %)** serious injury



**1,182** suspected  
**(48%)** minor injury





# 2019-2023 BICYCLE CRASHES





# 2019-2023 BICYCLE CRASHES

Individuals under the  
age of 24 are  
disproportionately  
represented

An illustration featuring two cyclists. On the left, a young girl with dark hair in a ponytail, wearing a red jacket and white pants, is riding a purple bicycle. On the right, a man wearing a blue helmet, a blue t-shirt, and black shorts is riding an orange bicycle. The background is plain white.

# 2019-2023 BICYCLE CRASHES



**Black** populations are  
disproportionately  
represented



# 2019-2023 BICYCLE CRASHES



66%

of bicyclists were  
not wearing a helmet



81%

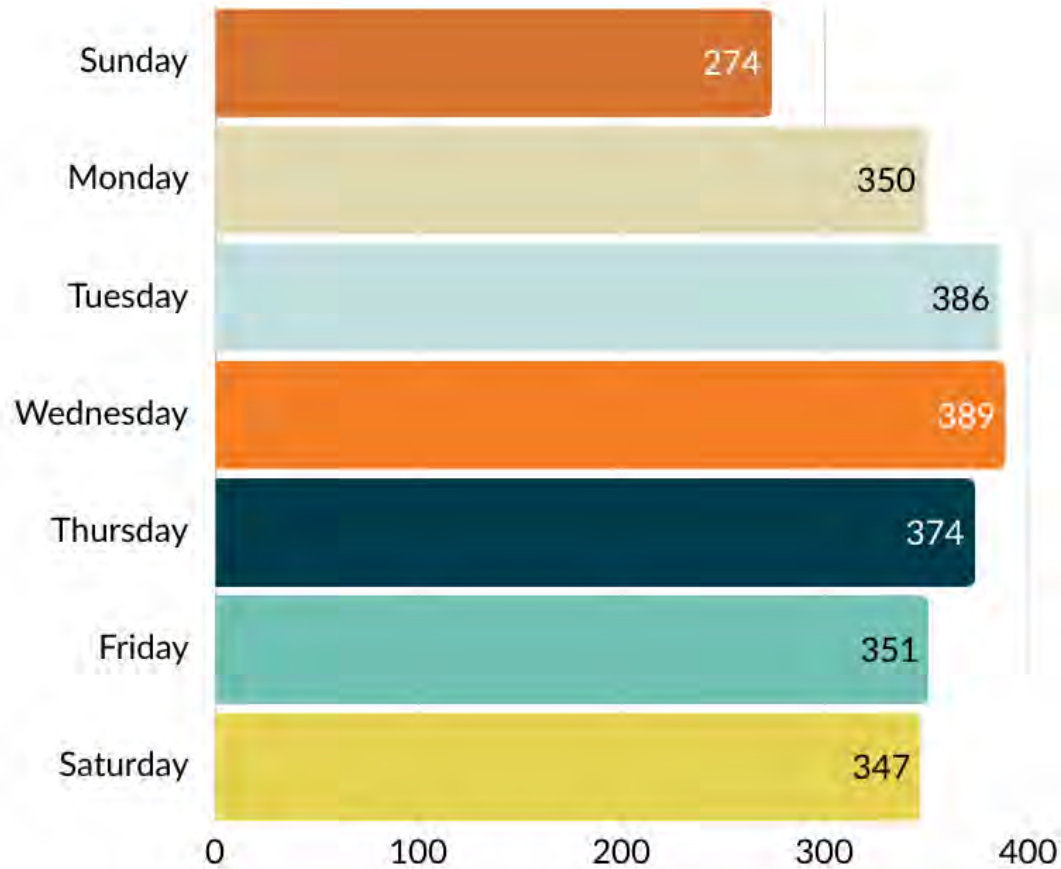
of fatalities  
involved bicyclists  
did not wear a  
helmet



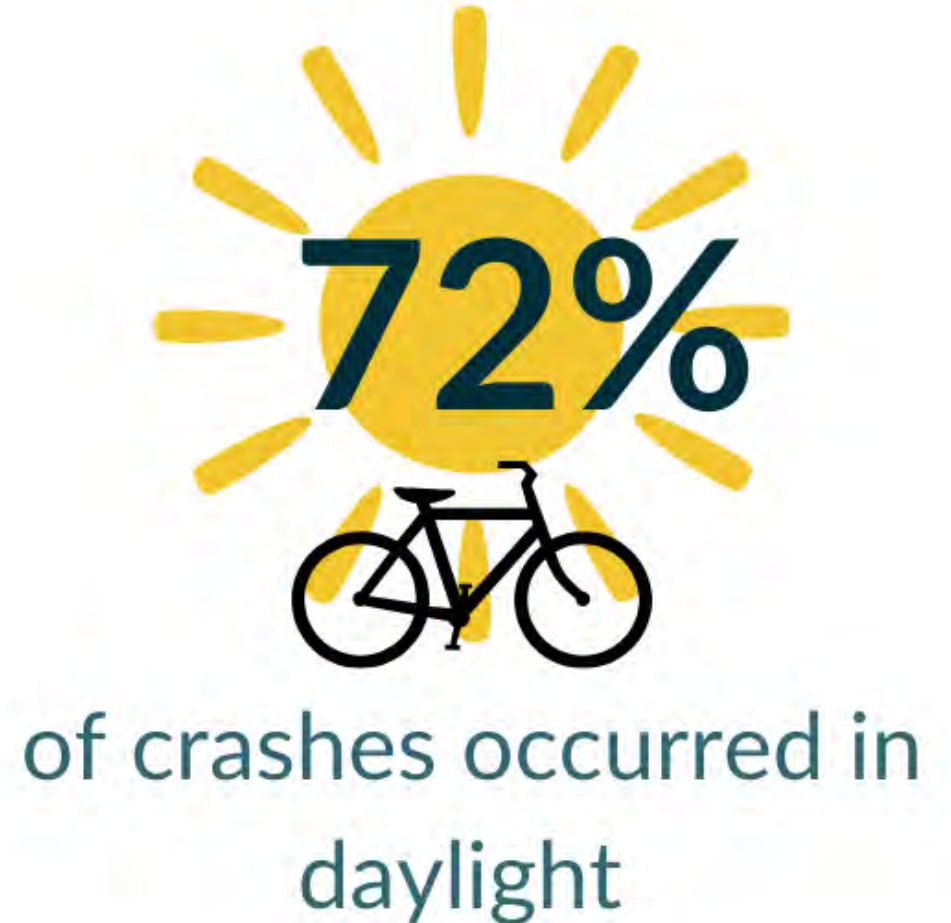


# 2019-2023 BICYCLE CRASHES

Day of Week



Hour of Day



# 2019-2023 BICYCLE CRASHES



Fall: 29%



Summer: 26%



Spring: 26%



Winter: 19%



# 2019-2023 BICYCLE CRASHES

74%

crashes occurred at  
an intersection





# TOP BICYCLE MOVEMENTS INVOLVED WITH CRASHES \*

**Top 5** most common crash groups at or nearby intersections (73%):

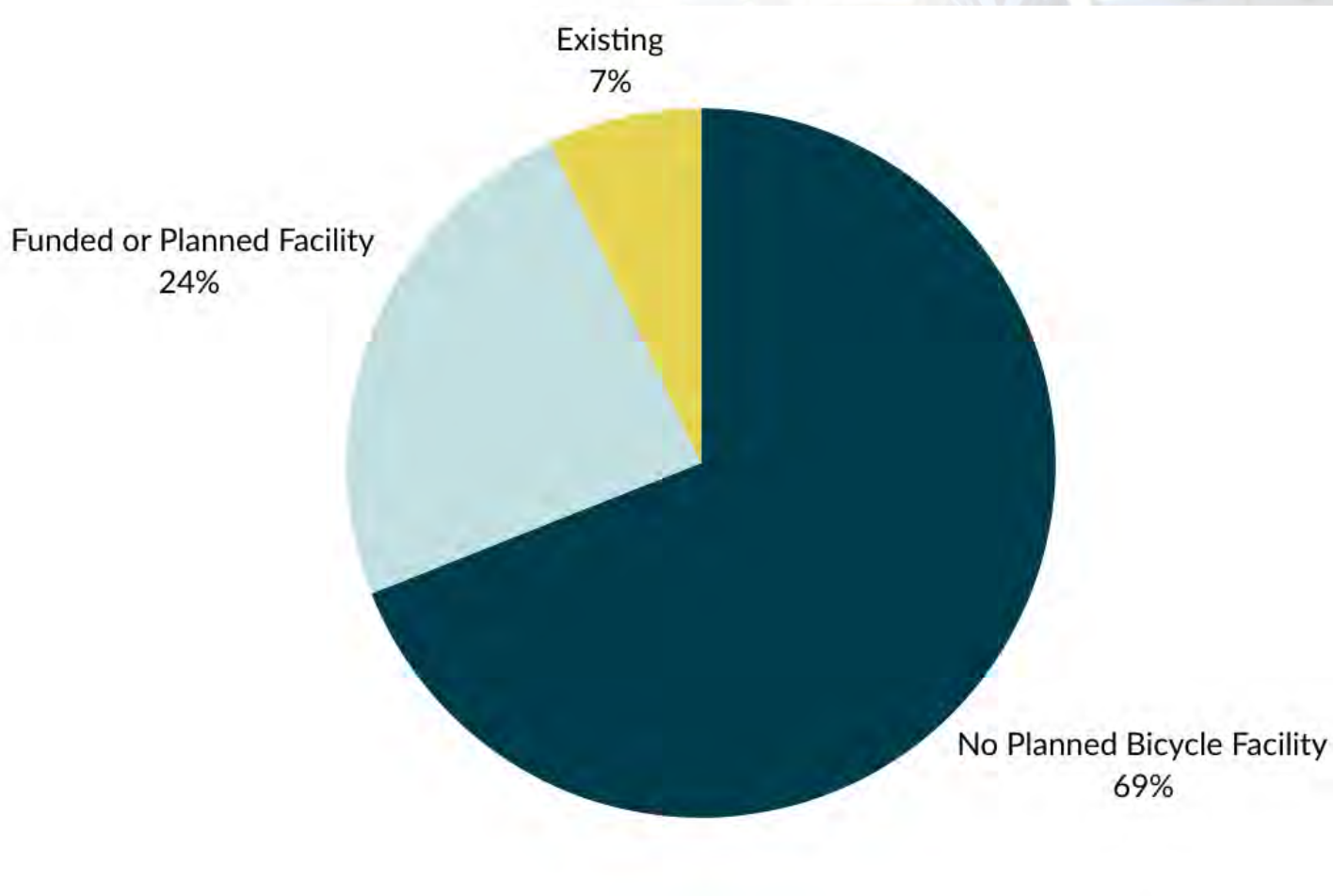
- Motorist failed to yield – sign-controlled intersection
- Bicyclist failed to yield - signalized intersection
- Bicyclist failed to yield – sign-controlled intersection
- Motorist left-turn/merge
- Motorist failed to yield – signalized intersection

**Top 5** most common crash groups at non-intersection locations (79%):

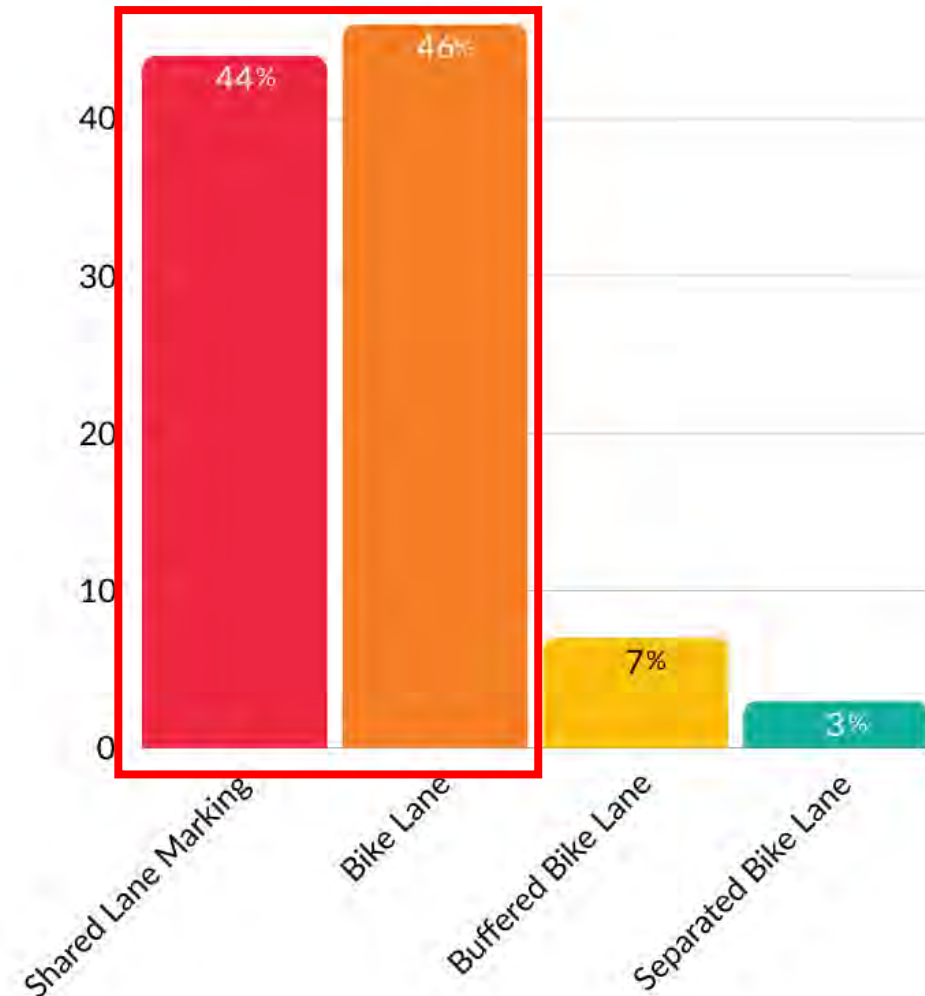
- Motorist overtaking bicyclist
- Bicyclist failed to yield – midblock
- Motorist failed to yield – midblock
- Motorist left turn/merge
- Head-on



# PERCENT OF BICYCLE CRASHES BY BIKEWAY STATUS

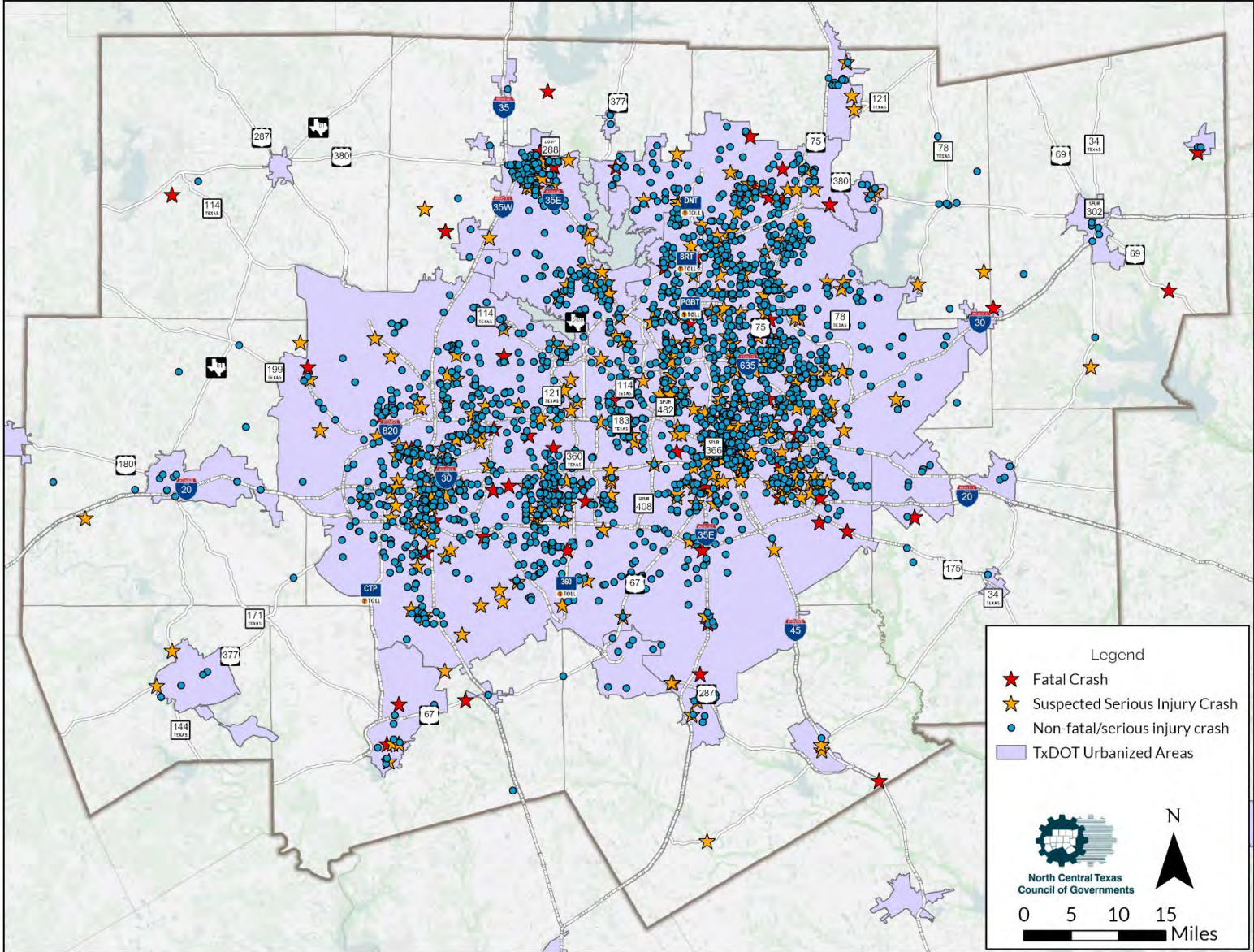


# PERCENT OF BICYCLE CRASHES ON EXISTING FACILITIES (BY FACILITY TYPE)





# 2019-2023 BICYCLE CRASHES IN THE MPA

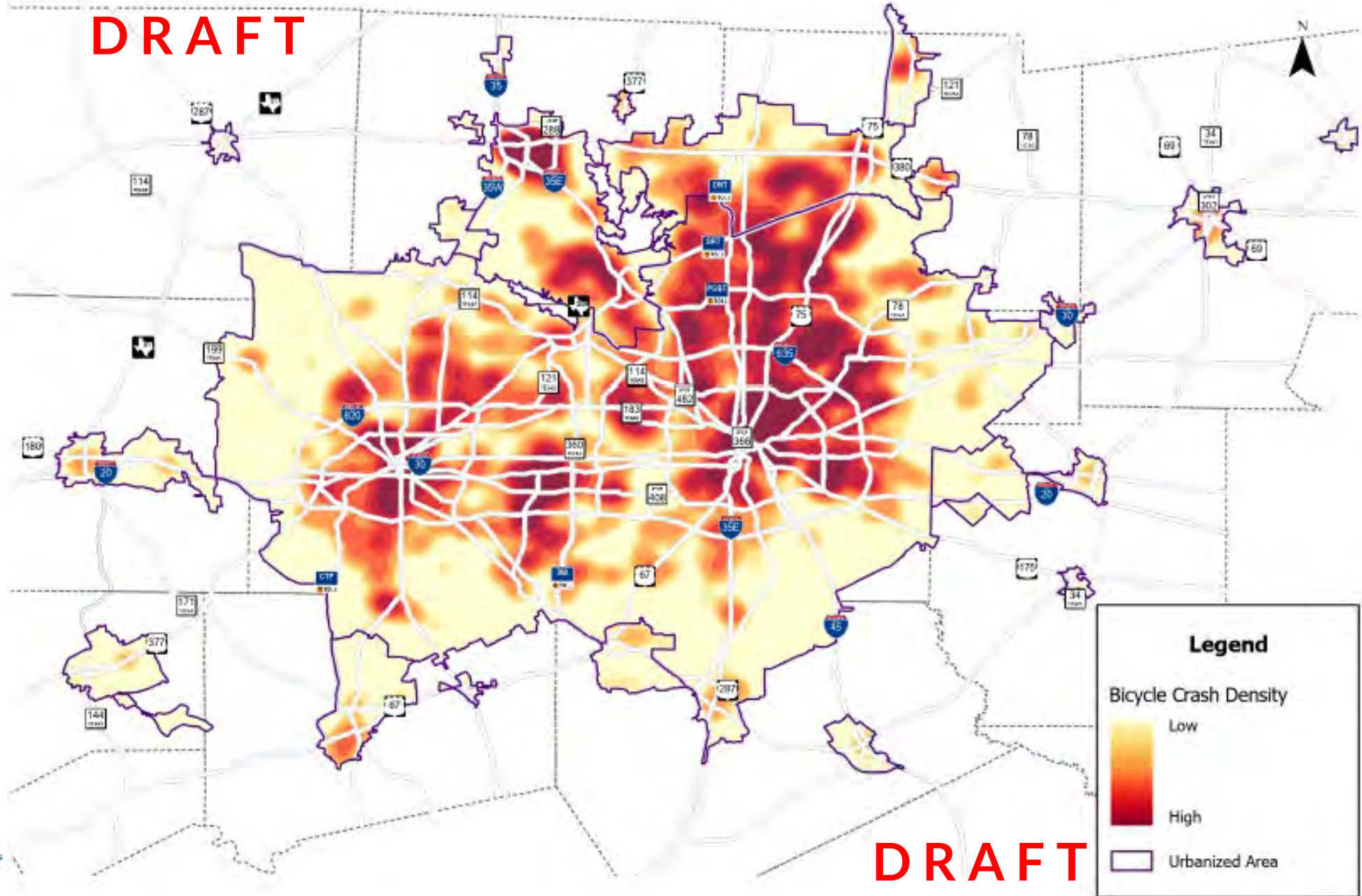




# Bicycle Crashes in North Central Texas Density Map

Data is symbolized by Quantiles

**DRAFT**



**DRAFT**

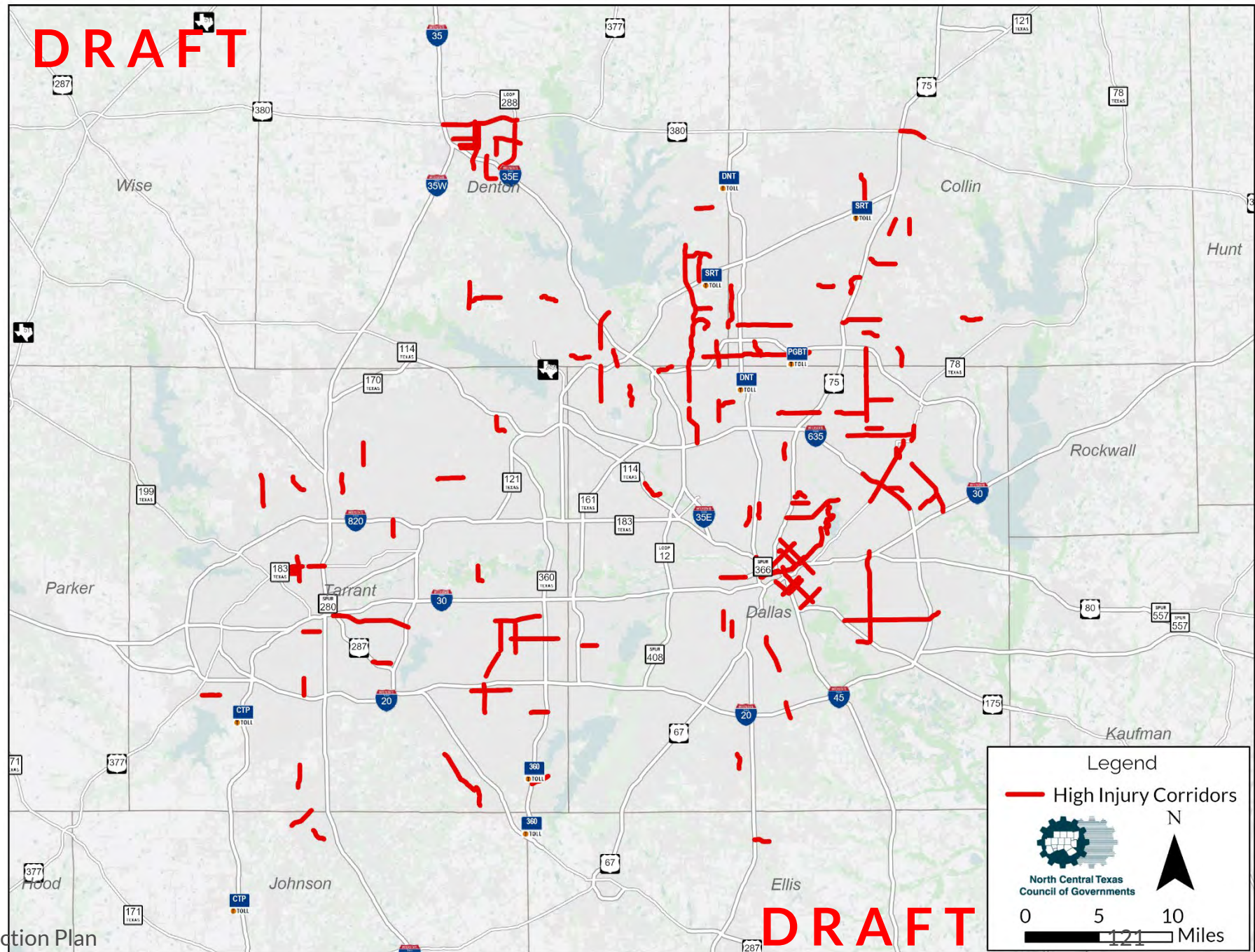


# HIGH INJURY CORRIDORS (132)

- Roadway over (1) mile in length
- Crash severity weight per mile above the regional average

AND

- Number of crashes per mile above the regional average





# NEXT STEPS (TENTATIVE SCHEDULE)

## Stakeholder engagement (Feb – August 2025)

- Workgroup
- Regional Public Opinion Survey

## Action Plan Development (April – November 2025)

- Goals and Policies
- Risk Factors
- Recommended Countermeasures
- Priority Districts
- Priority On-Street and Off-Street Network
- Action Plan
- Performance Measures
- Draft Plan



# INITIAL WORKGROUP MEMBER CITIES

- Dallas
- Fort Worth
- Grand Prairie
- Irving
- Plano
- Others



# CONTACT US



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Transportation Planner

[jkrauter@nctcog.org](mailto:jkrauter@nctcog.org) | (817) 704-5649







# Potential Cooperative Purchasing Program for Bikeway Facilities

Daniel Snyder, AICP

Bicycle and Pedestrian Advisory Committee

02.19.20250

# Background

Cities are searching for strategies to reduce costs for:

- pre-cast vertical barrier materials used with separated bike lanes
- services associated with installing vertical barriers

NCTCOG and local government stakeholders are exploring a possible regional procurement

May use a standard material and design (e.g., standard mold) that could be manufactured locally and used consistently by cities across the region.



Source: City of Richardson





# Next Steps

- Group to discuss preferred structure for a regional procurement.
- Other scope of work possibilities include a matrix identifying recommended vertical barrier type(s) based on roadway characteristics and a regional procurement for count equipment.

★ **Next coordination meeting is via Teams on Thursday, March 13, 2025**

- ***Let us know if you or your agency staff is interested in participating.***





# Contact Us



Daniel Snyder, AICP

Senior Transportation Planner

[dsnyder@nctcog.org](mailto:dsnyder@nctcog.org) | (817) 608-2394

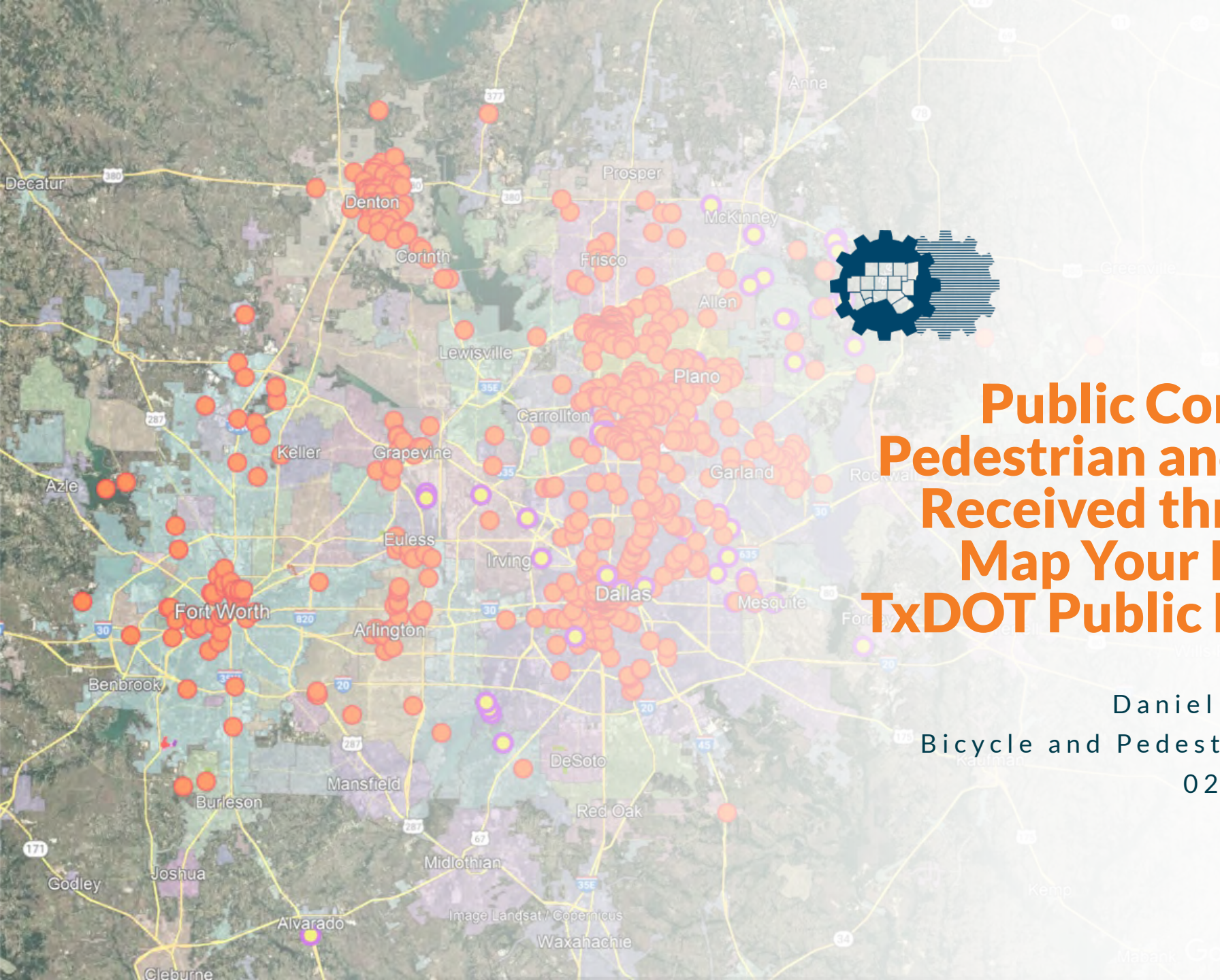


Kevin Kokes, AICP

Program Manager

[kkokes@nctcog.org](mailto:kkokes@nctcog.org) | (817) 695-9275





# Public Comments about Pedestrian and Bicycle Facilities Received through NCTCOG's Map Your Experience and TxDOT Public Hearing Comments

Daniel Snyder, AICP

Bicycle and Pedestrian Advisory Committee

02.19.2025

# Overview

Public input on issues related to walking and bicycling was collected via two separate regional forums:

- 2024 Virtual Public Hearing for Bicycle Use on the State Highway System conducted by the TxDOT Dallas District and Fort Worth District offices
- 2020-2024 NCTCOG's Map Your Experience public input tool

The type of comments range from areas of concern for safety, roadway hazards or barriers, or where bicycle or pedestrian facilities are missing and requested.

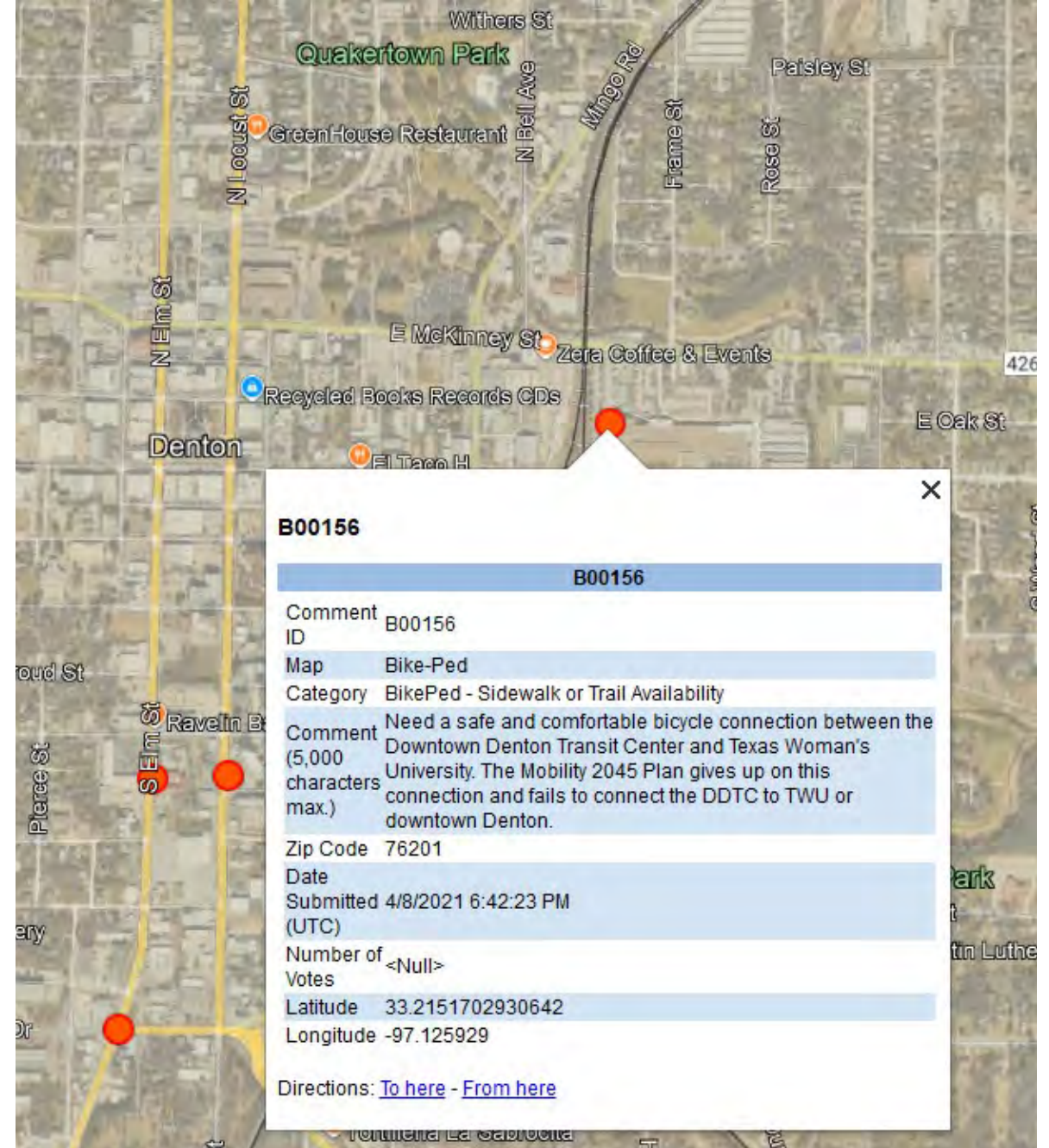




# Distribution

KMZ files were emailed to communities only if public input data was received for that community.

Comments received are viewable via Google Earth and GIS software.



# Contact Us

## NCTCOG's Map Your Experience



Amy Johnson

Principal Transportation Planner

[ajohnson@nctcog.org](mailto:ajohnson@nctcog.org) | 817-704-5608

## TxDOT's 2024 Bicycle Hearing Input



Rachael Twiggs, P.E.

Local Government Projects Coordinator

[Rachael.Twiggs@txdot.gov](mailto:Rachael.Twiggs@txdot.gov) | 214-320-6669







# TxDOT Bike Hearing Update

Subtitle



February 25, 2025



## 2024 TxDOT Bike Hearing

November 7, 2024 at 5pm through November 25, 2024 at 11:59 p.m.

### **Total Number of Attendees (approx.)**

Keep It Moving Dallas (KIMD) Page:

Total views from November 7, 2024 through November 25, 2024: 352

TxDOT.gov Page:

Total views from November 7, 2024 through November 25, 2024: 29

TxDOT Dallas YouTube Video Presentation:

Total views from November 7, 2024 through November 25, 2024: 50

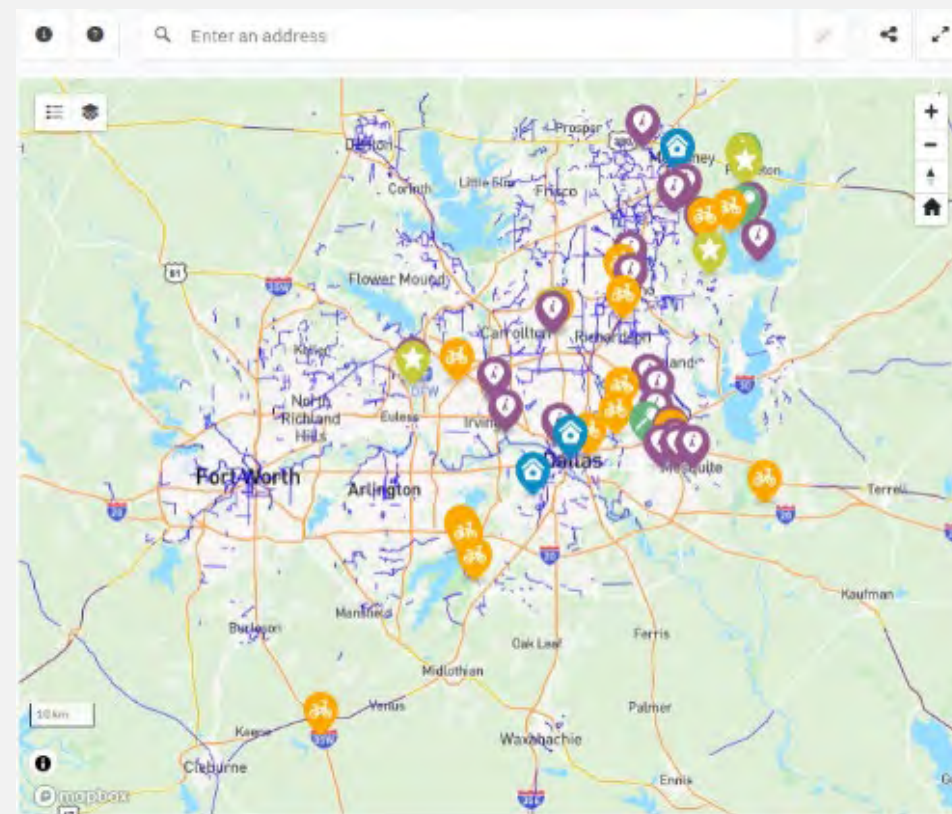
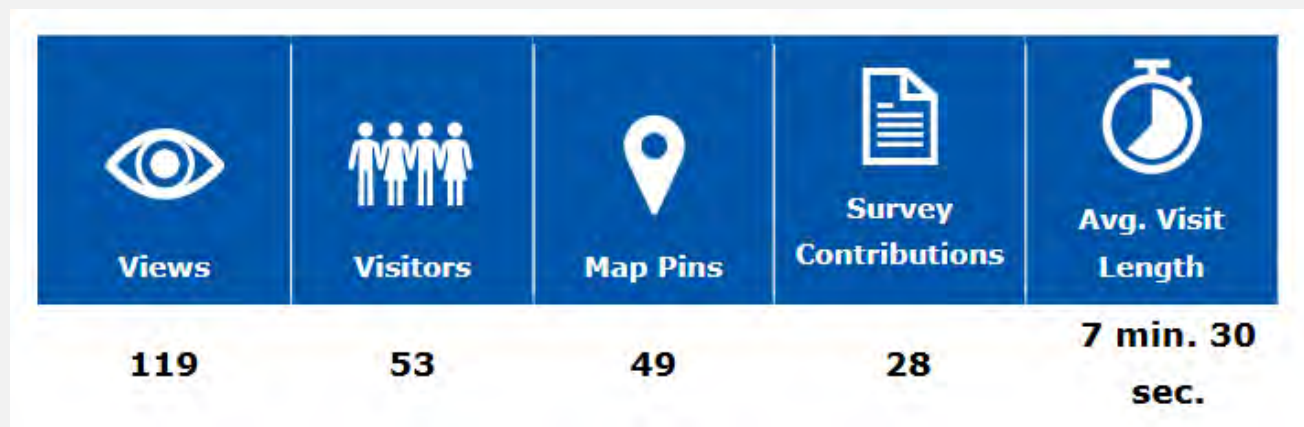
NCTCOG YouTube Video Presentation:

Total views from November 7, 2024 through November 25, 2024: 36

### **Total Number of Commenters**

0

# 2024 TxDOT Bike Hearing Survey Contributions and Social Pinpoint Interactive Map



## 2024 TxDOT Bike Hearing Survey Contributions

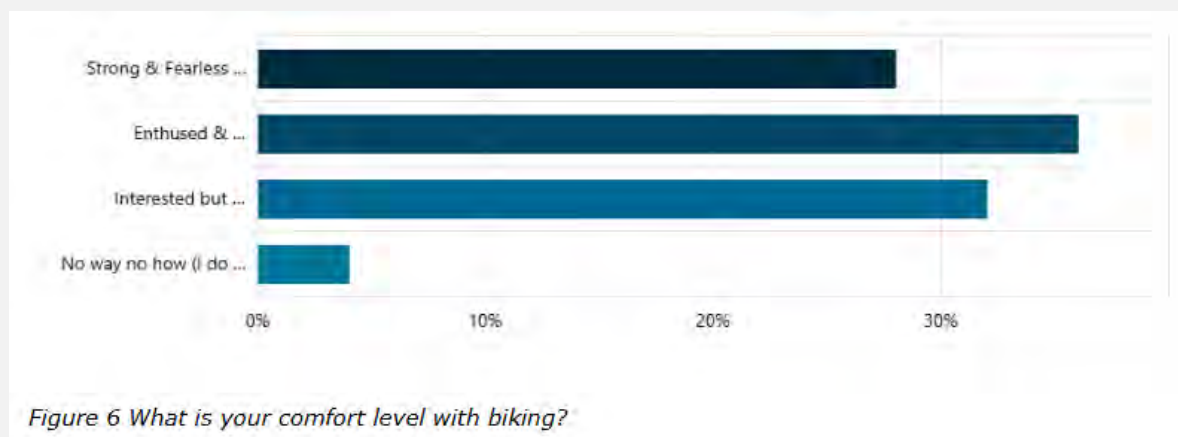


Figure 6 What is your comfort level with biking?

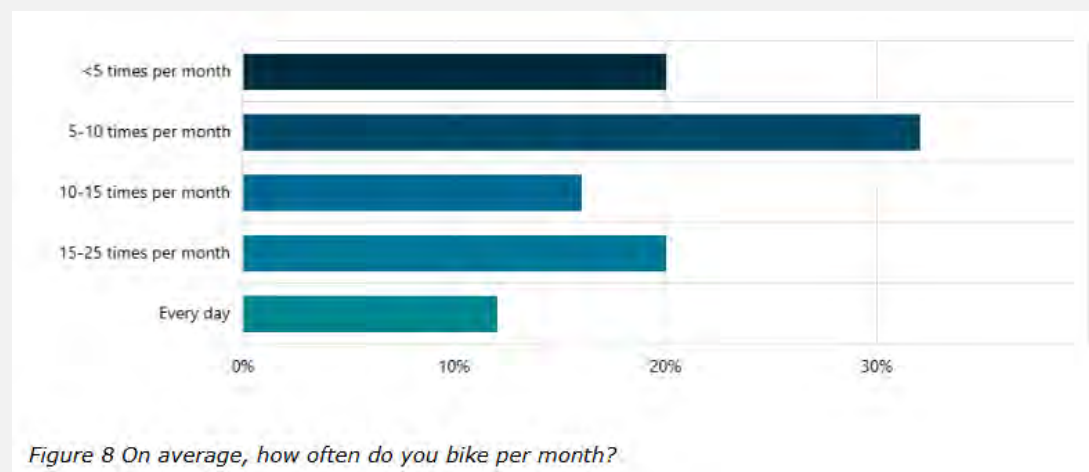
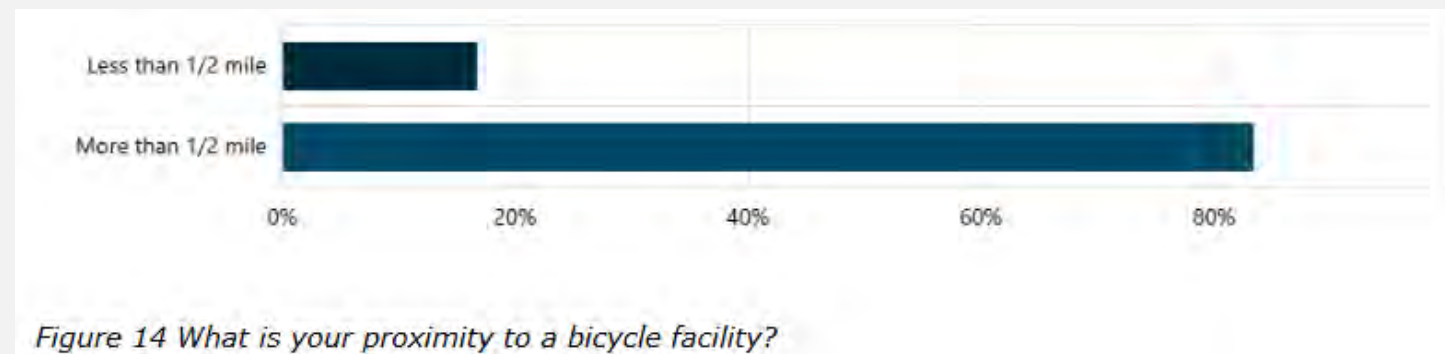
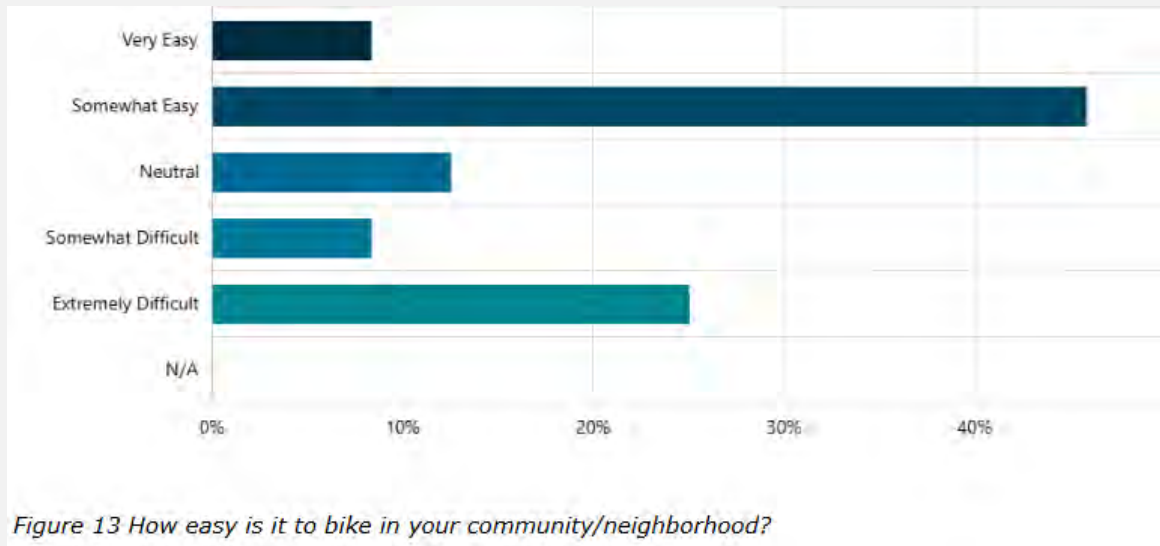


Figure 8 On average, how often do you bike per month?



## 2024 TxDOT Bike Hearing Survey Contributions



## 2024 TxDOT Bike Hearing Survey Contributions

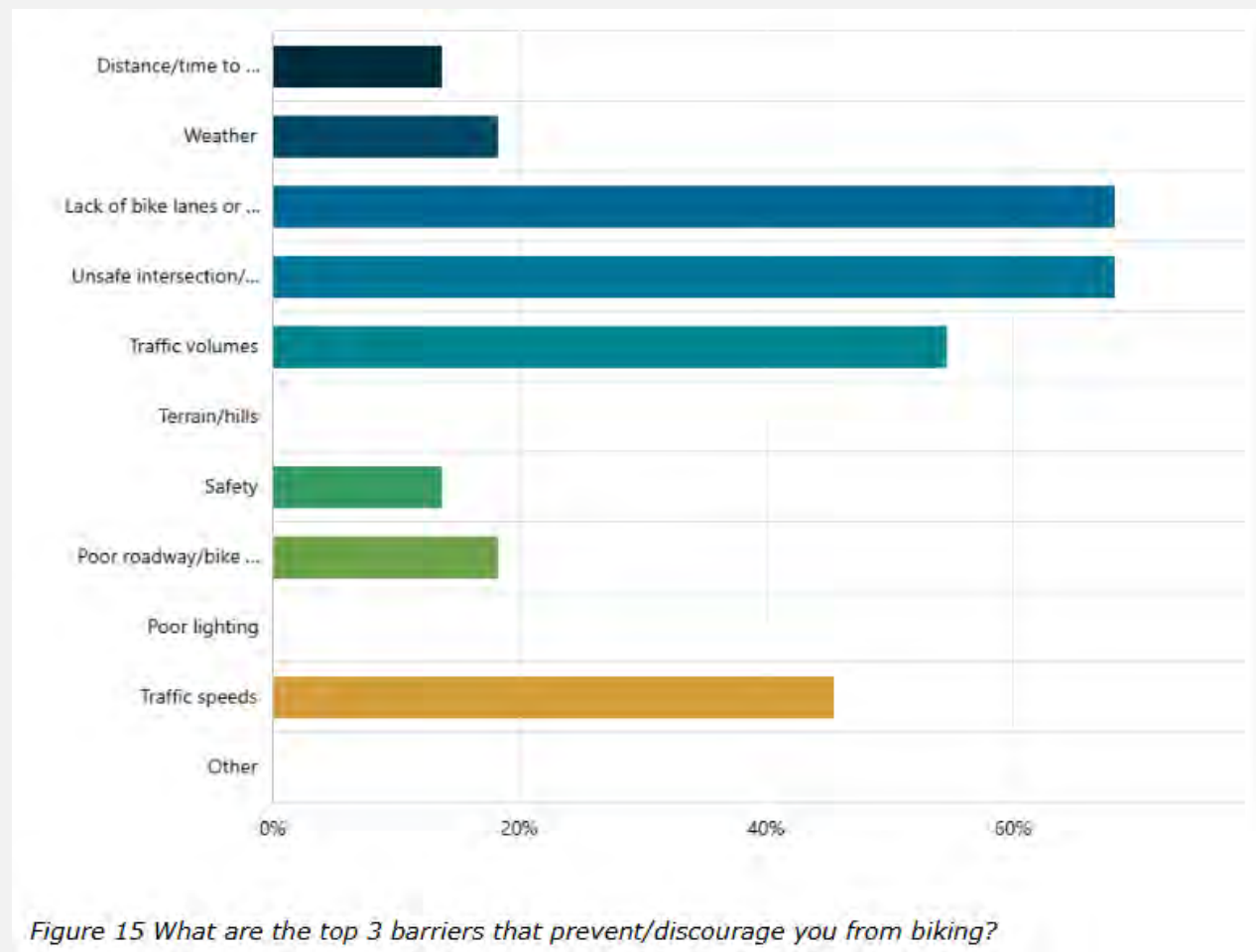


Figure 15 What are the top 3 barriers that prevent/discourage you from biking?

## 2024 TxDOT Bike Hearing Survey Contributions

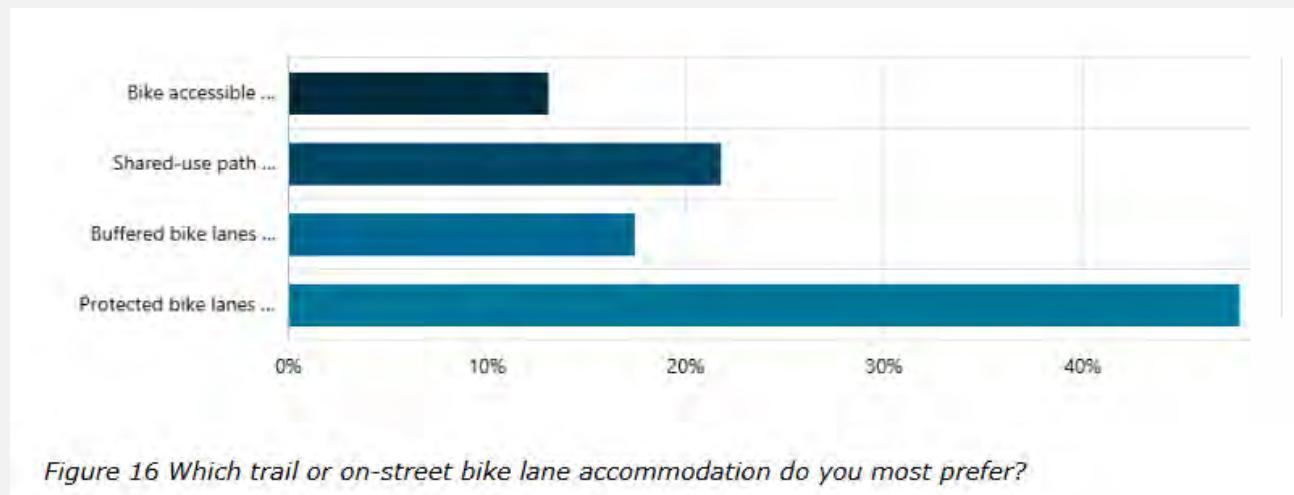


Figure 16 Which trail or on-street bike lane accommodation do you most prefer?

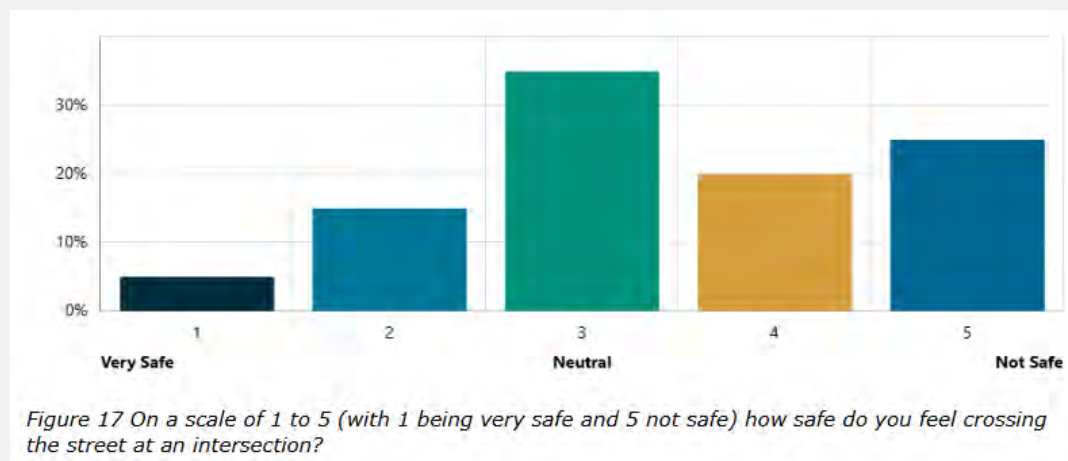
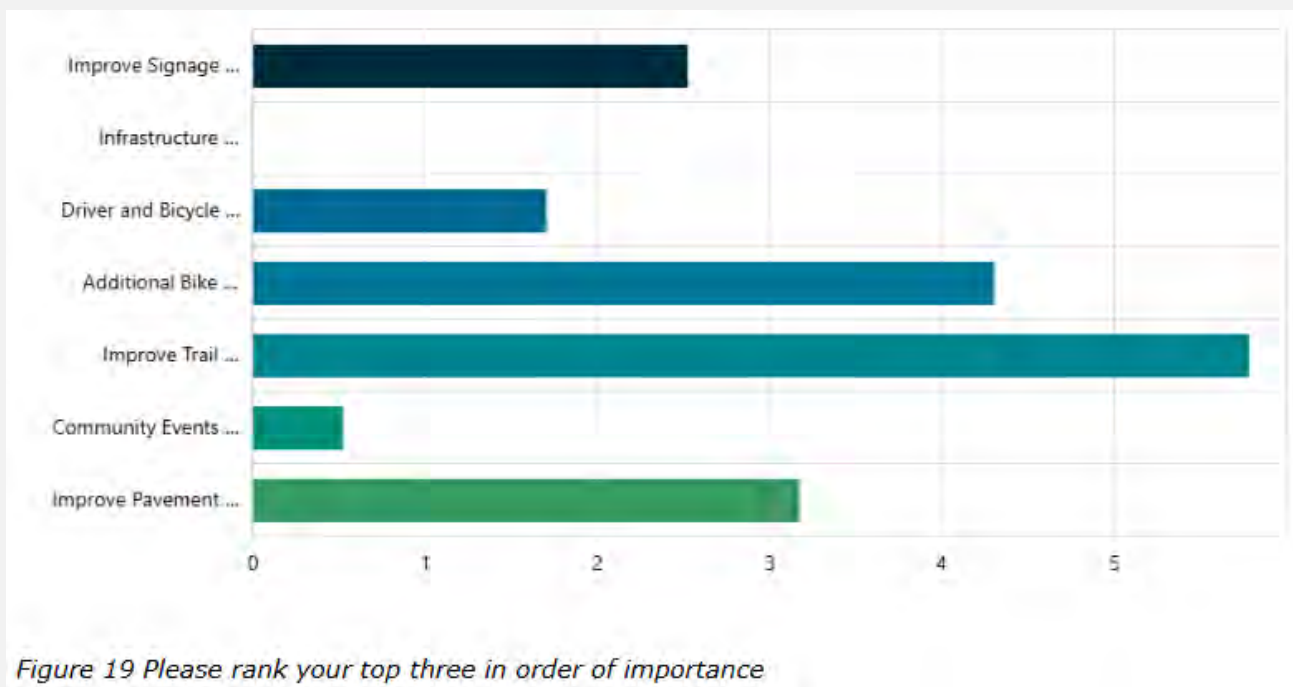


Figure 17 On a scale of 1 to 5 (with 1 being very safe and 5 not safe) how safe do you feel crossing the street at an intersection?

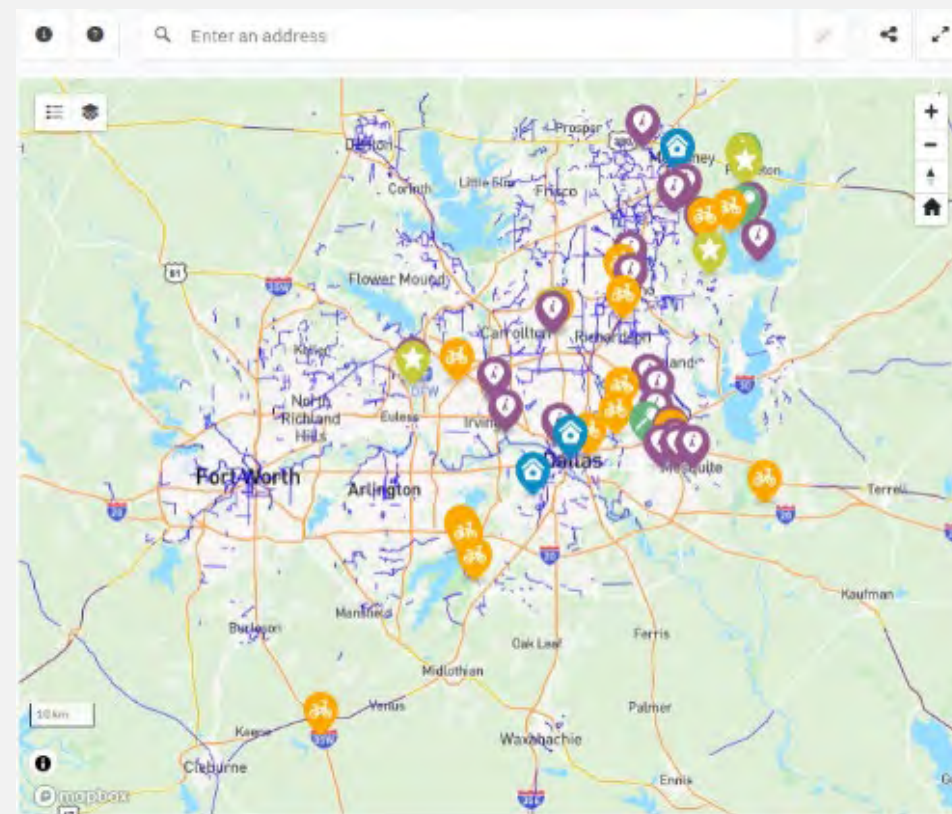
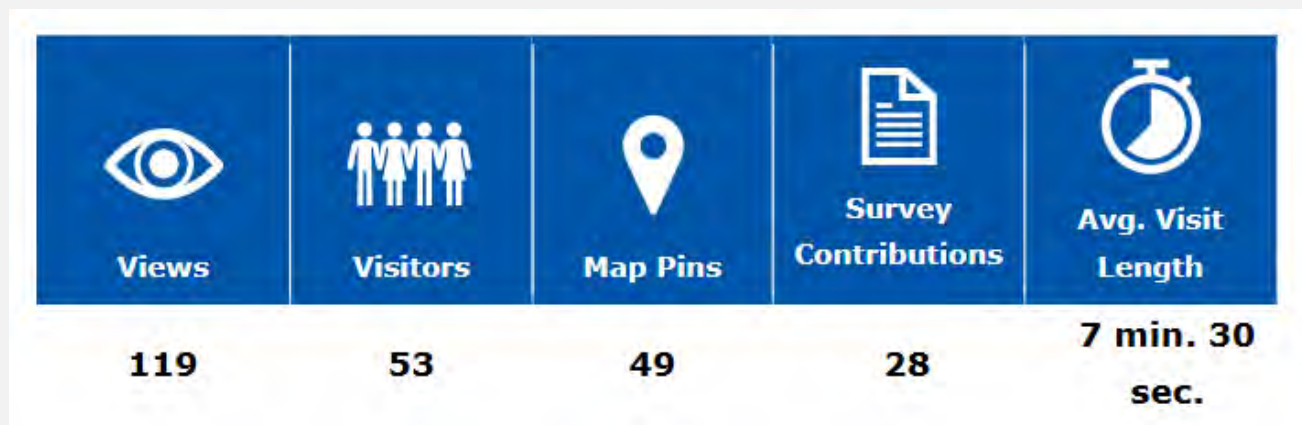


## 2024 TxDOT Bike Hearing Survey Contributions

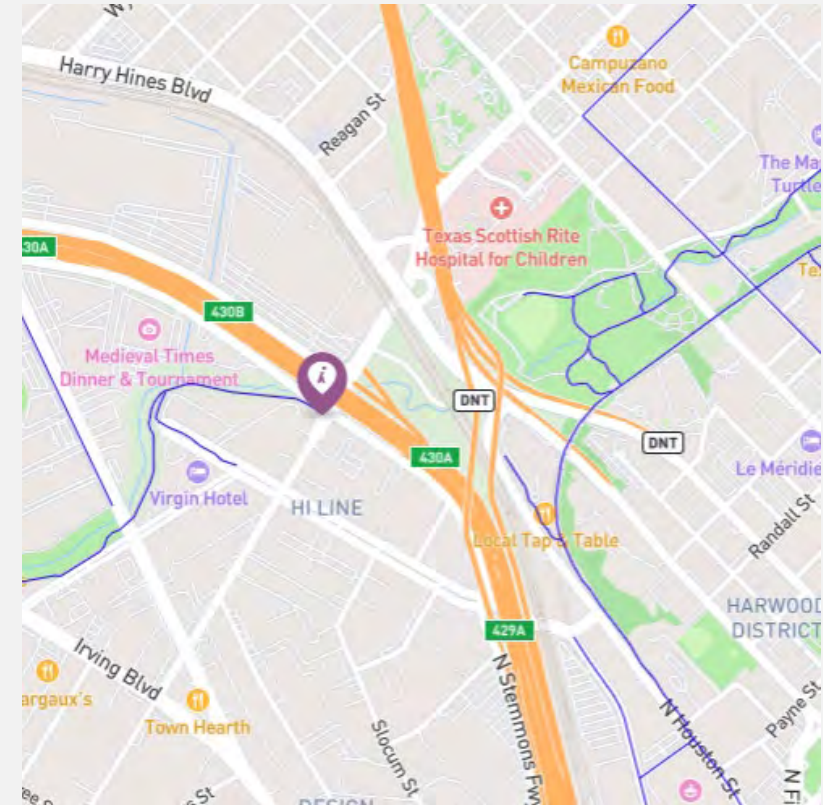
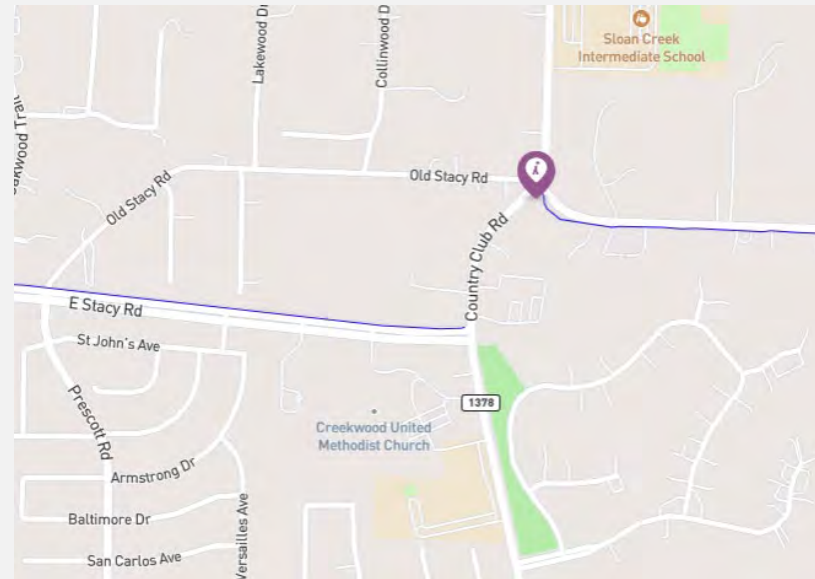
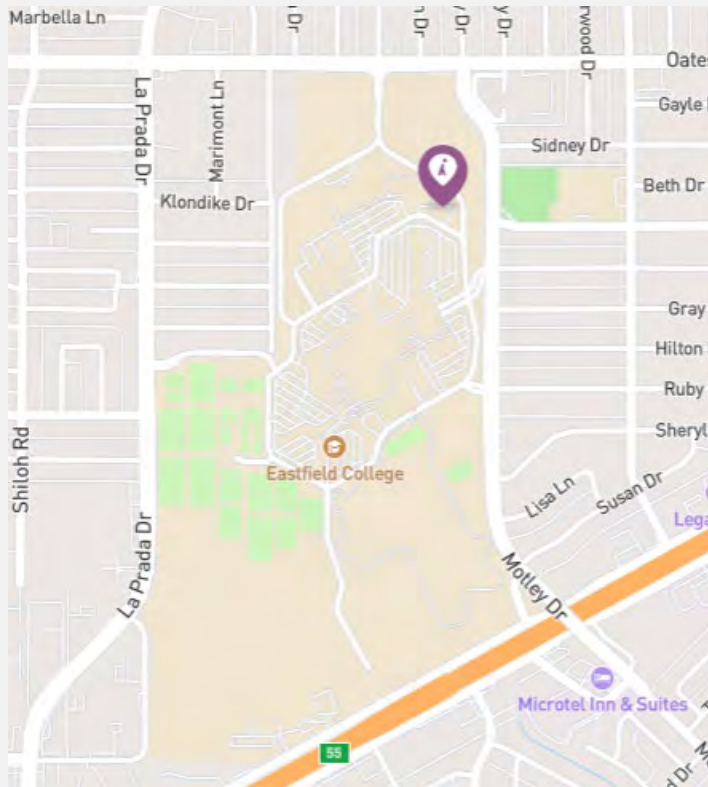


- Improve signage and mapping
- Infrastructure Improvements
- Driver and Bicycle Education
- Additional Bike Facilities/Amenities
- Improve Trail Connectivity
- Community Events and Initiatives
- Improve Pavement Conditions

# 2024 TxDOT Bike Hearing Public Comments

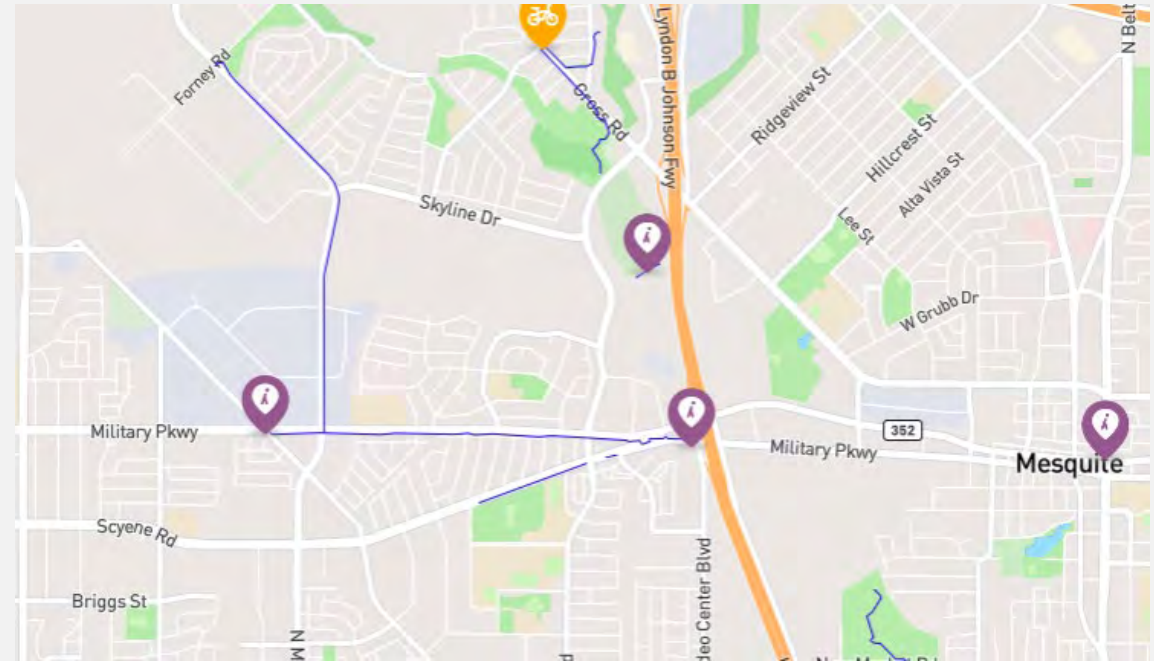
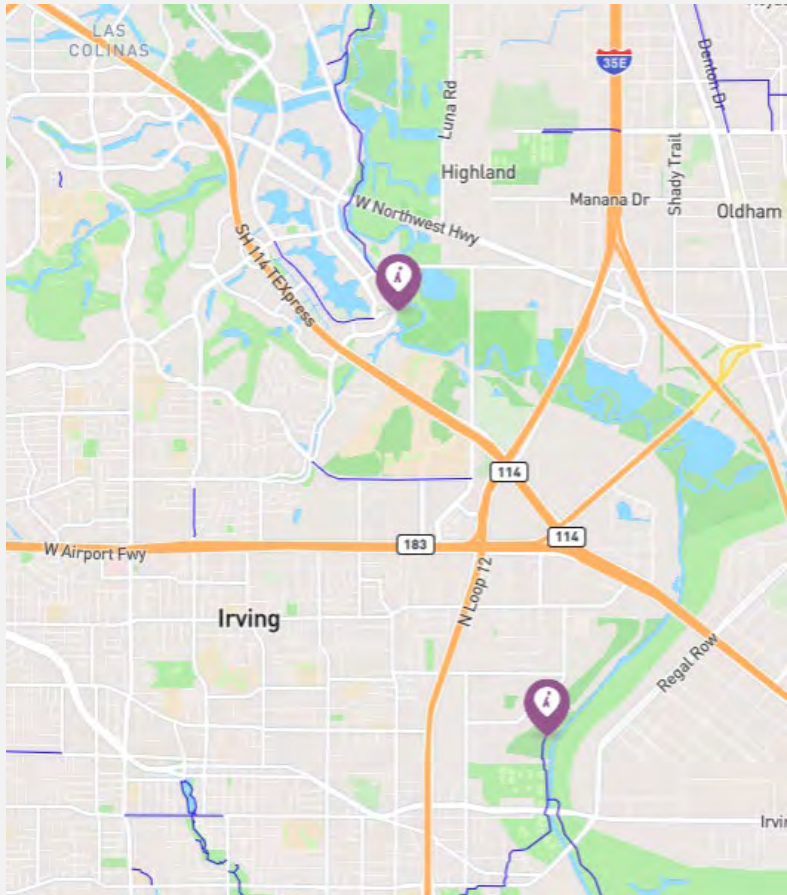


# 2024 TxDOT Bike Hearing Public Comments - Connectivity

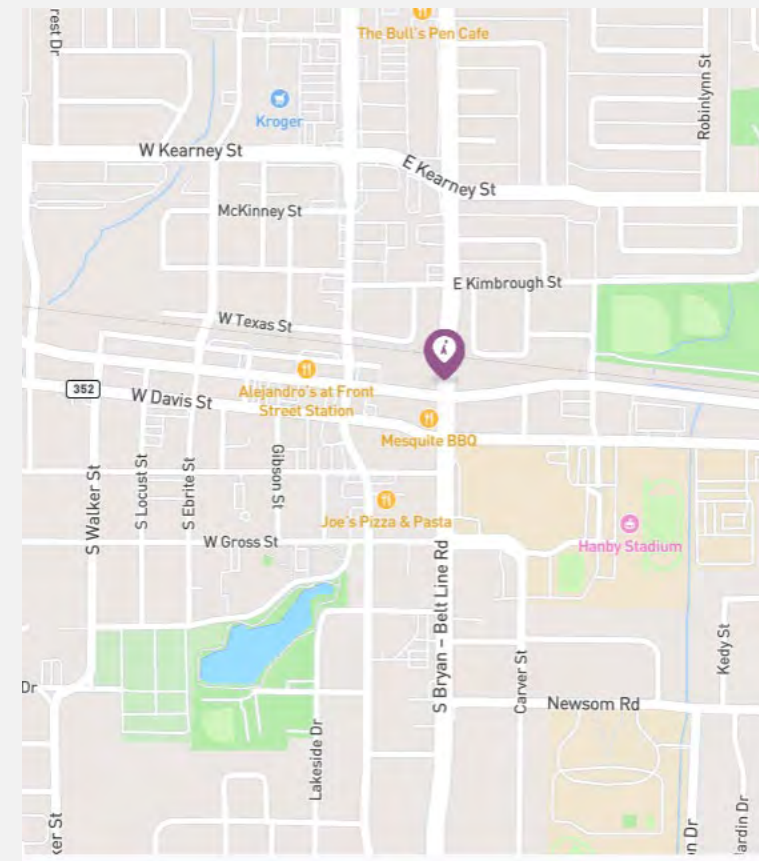
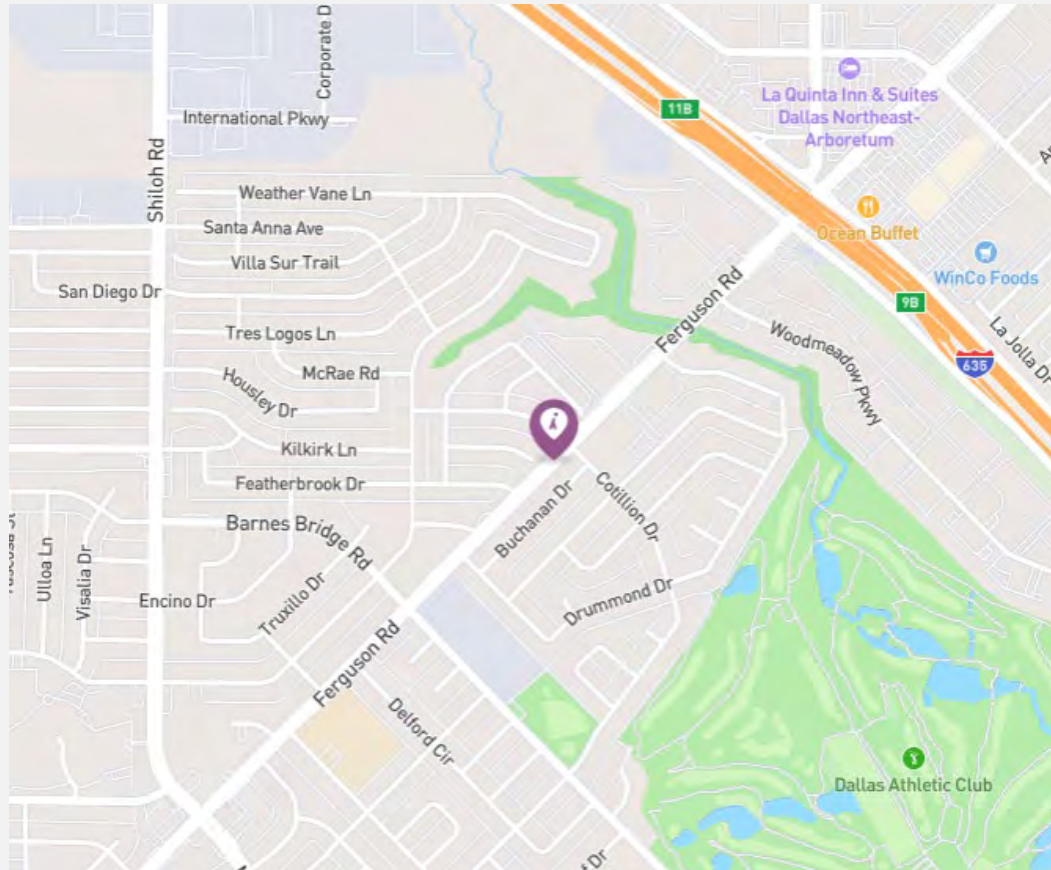




# 2024 TxDOT Bike Hearing Public Comments - New Trail Locations

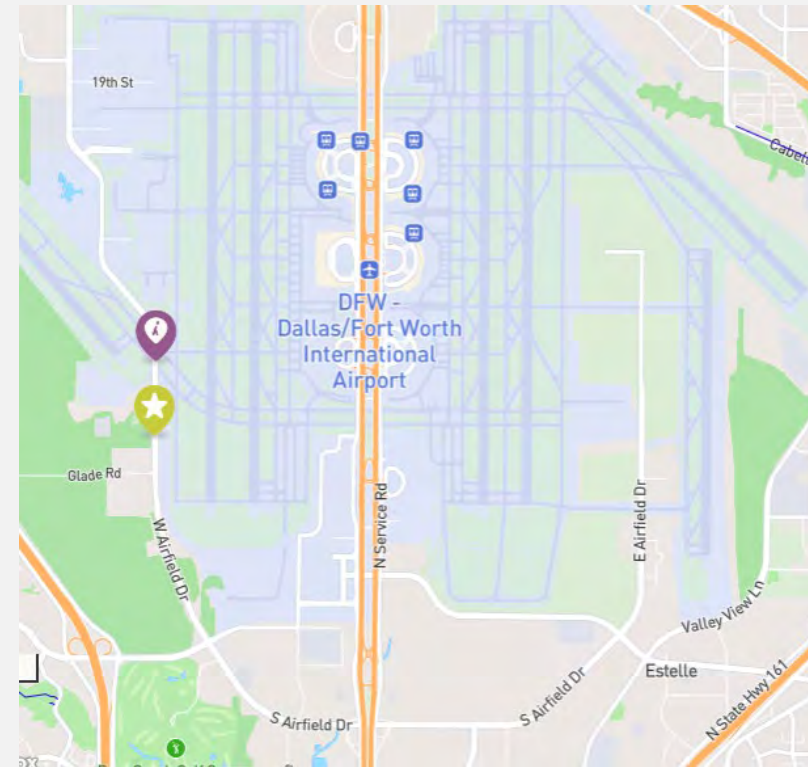
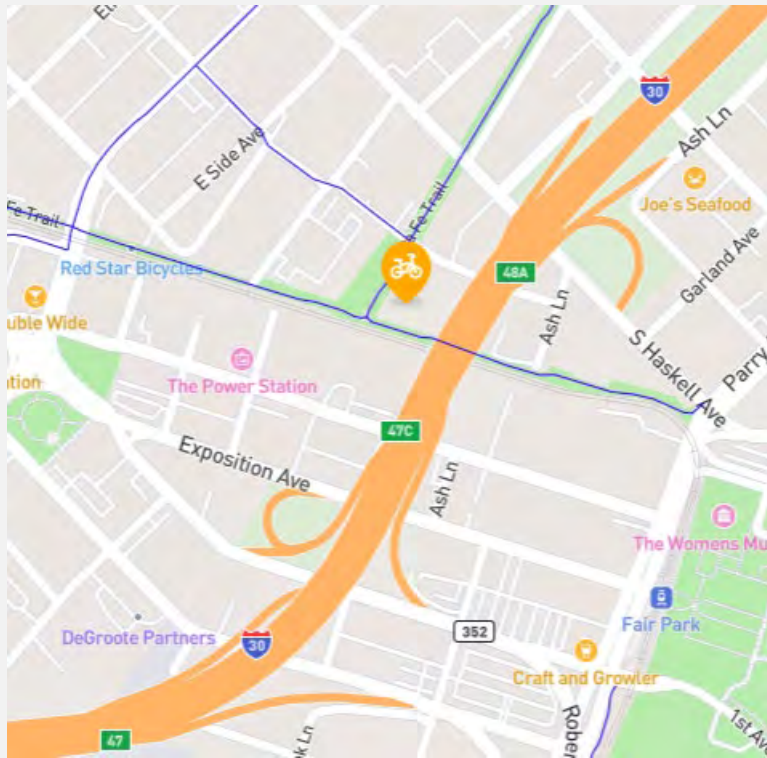


# 2024 TxDOT Bike Hearing Public Comments - On-Street Bike Facilities





# 2024 TxDOT Bike Hearing Public Comments - Signage





**Overall, great feedback was received!**



## 2025 Call for Projects Transportation Alternative Set-Aside Program

Milestones	Date
TxDOT's 2025 TA Call for Projects opens	January 3, 2025
Virtual and in-person workshops	January 6 – January 24, 2025
Responses to workshop questions posted	January 31, 2025*
Preliminary Application (PA) deadline	February 21, 2025
District coordination meeting	Before April 4, 2025*
TxDOT PA review complete	April 11, 2025
TxDOT notifies sponsors of eligibility and provides Detailed Application	April 16, 2025
Detailed Application (DA) deadline	June 20, 2025
TxDOT DA review complete	August 22, 2025*
Commission award	October 2025*

\*Target dates



# Mobility 2050

## *The Metropolitan Transportation Plan for North Central Texas*

Bicycle and Pedestrian Advisory Committee  
February 19, 2025

**#PlanInProgress**





# Long-Range Metropolitan Transportation Plan

NCTCOG is federally required to maintain a performance-based, multimodal transportation plan that guides the spending of federal investments and serves as a blueprint for the region's transportation network. The plan includes policies, programs, and projects that aim to **#ConnectNorthTexas**



Must adopt plan within 4 years



Must have a 20-year horizon (expires end of 2025)



Must include financial plan



Consistency with Transportation Improvement Program and other documents

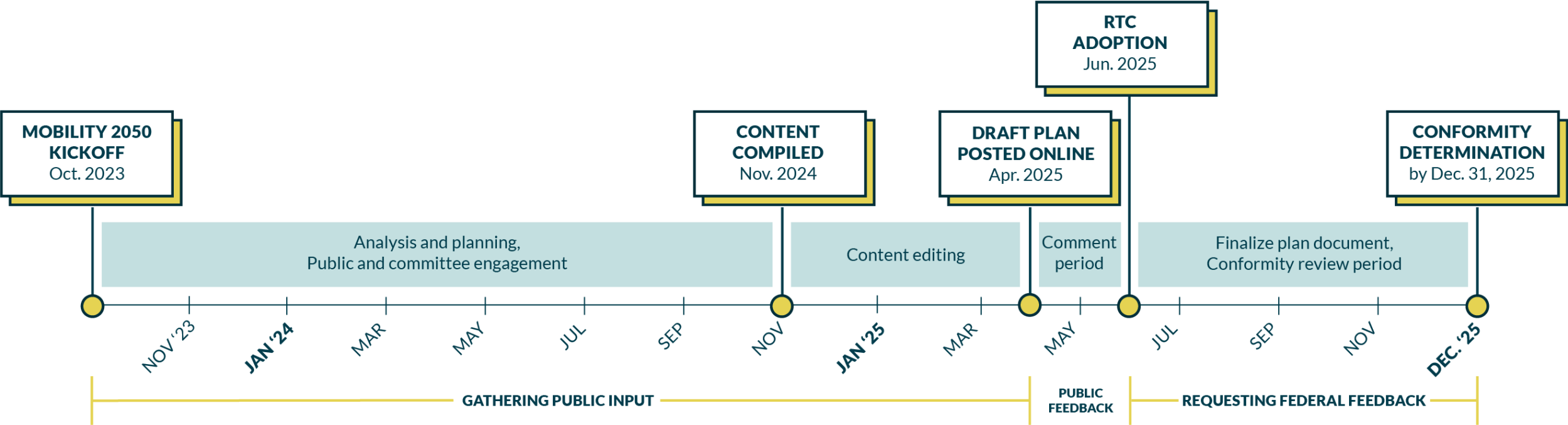


Public Involvement



Air Quality Conformity

# Plan Timeline

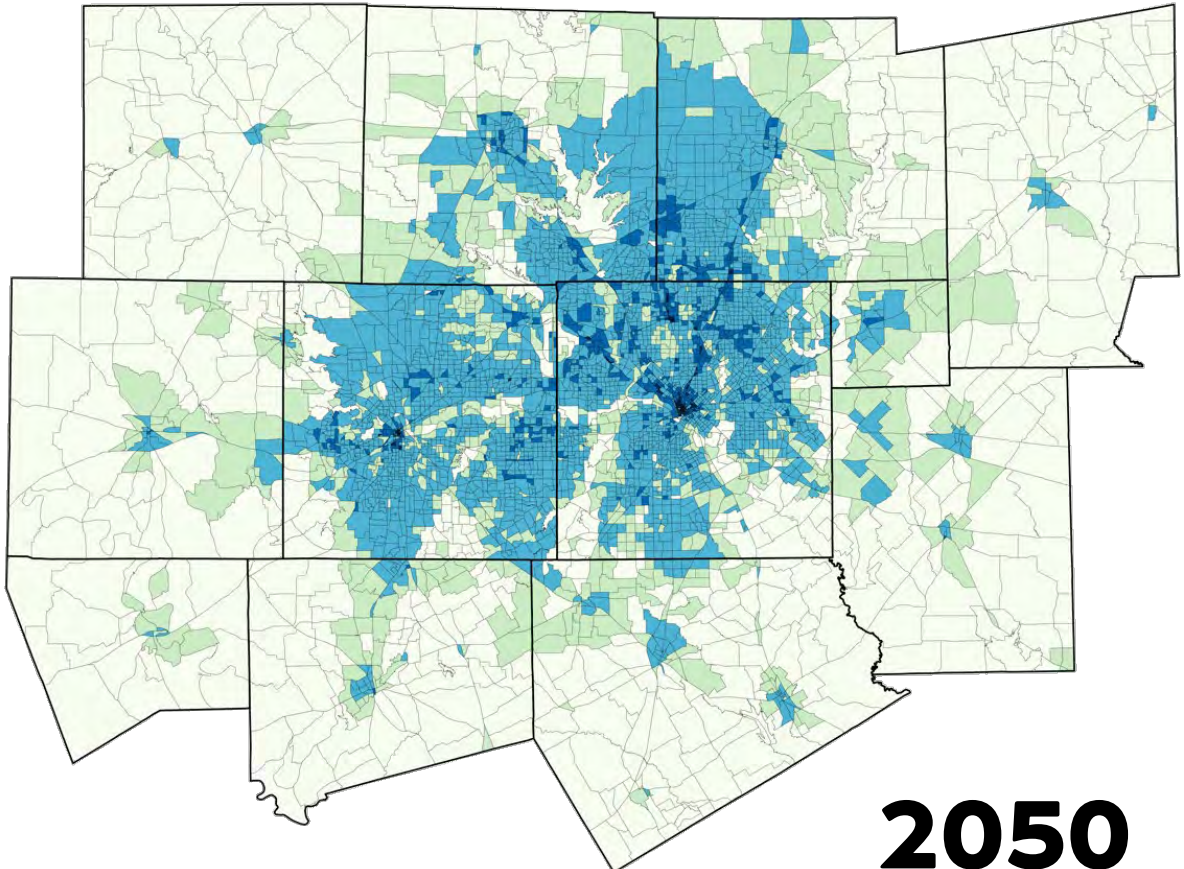
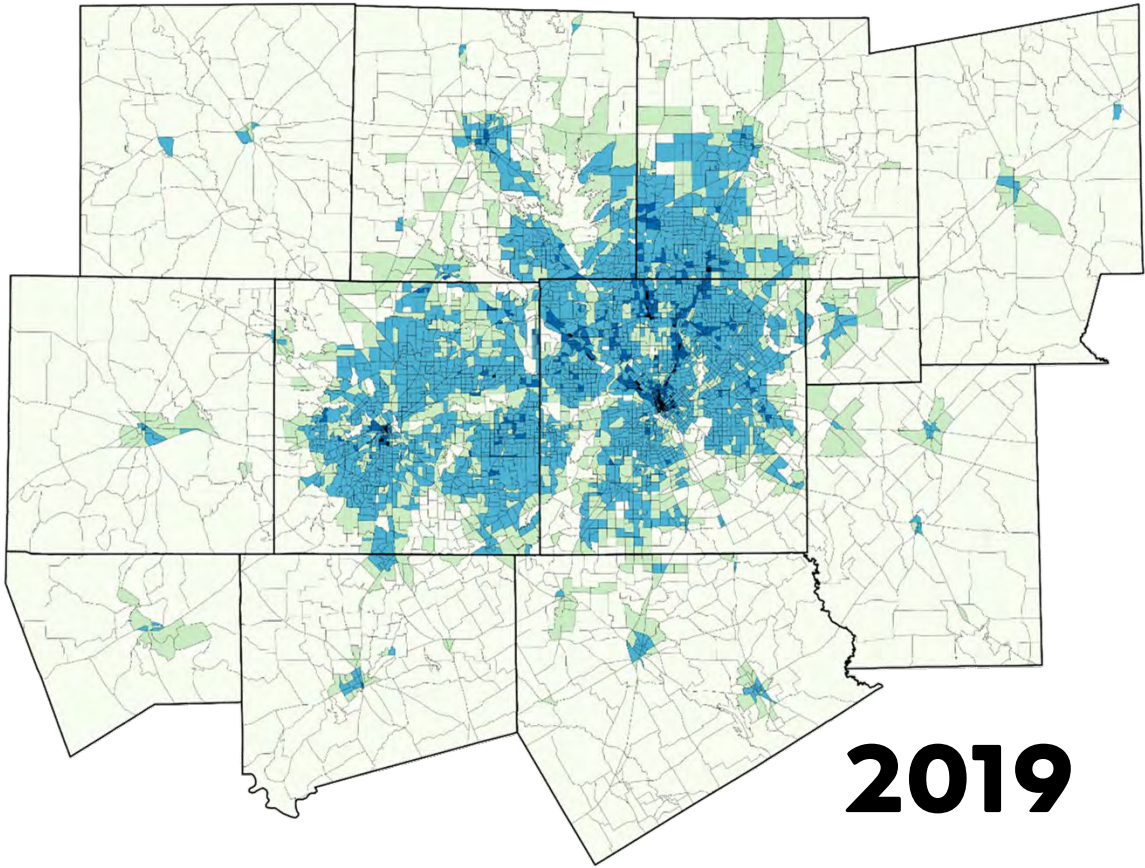


# What's in a Plan: Recommendation Types

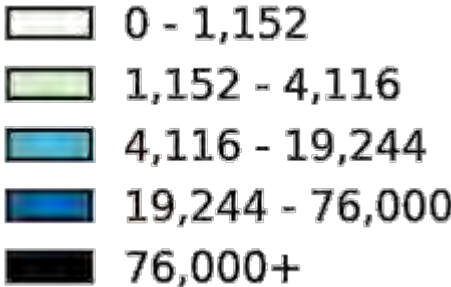




# Forecast 2050 Total Activity



Total Activity Per Square Mile

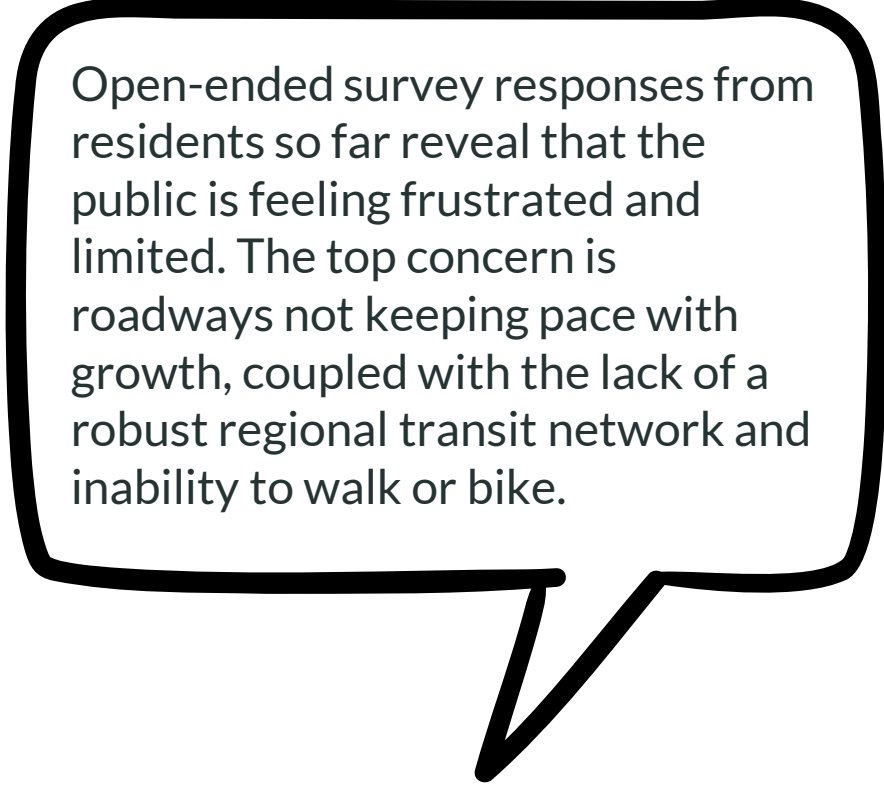


Public input reveals three main concerns: roadway congestion, unsafe active transportation facilities, and demand for expanded transit.

**4,882** + Survey responses through December 2024

**3,570** + Open-ended responses collected through December 2024

**515** + Map Your Experience comments through December 2024



Open-ended survey responses from residents so far reveal that the public is feeling frustrated and limited. The top concern is roadways not keeping pace with growth, coupled with the lack of a robust regional transit network and inability to walk or bike.

*What should we solve?*

# Public input on active transportation is mostly related to safety.

## Accessibility and Inclusive Design



### Pedestrian Infrastructure

Insufficient sidewalks and safe walking paths

### Multimodal Integration

Improved connectivity between transportation modes

### Comprehensive Bike Network

Extensive bike lanes and trail systems across the region

## Walking and Biking Safety



### Intersection Safety

Dangerous crosswalks with poor visibility and high traffic speeds

### Car Centric Region

Concerns about vehicular accidents and personal harm influence choice of travel modes and routes

### Share the Road

The public desires separated bicycle and pedestrian lanes and driver education/enforcement to share the road on non-separated paths

## Transit-Oriented Development (TOD)



### Dense Neighborhoods

Desire for compact, mixed-use neighborhoods around transit stations

### Walkable Communities:

Need for pedestrian-friendly areas that reduce car dependency

### Connectivity

Lack of integration between residential, commercial, and employment centers



# Integrating Public Input

## Mobility 2050 Policies

- BP3-001: Support the planning and design of a multimodal transportation network with seamless interconnected active transportation facilities that promotes walking and bicycling as equals with other modes.
- BP3-002: Implement pedestrian and bicycle facilities that meet accessibility requirements and provide safe, convenient, and interconnected transportation for people of all ages and abilities.
- BP3-003: Support programs and activities that promote pedestrian and bicycle safety, health, and education.

## Mobility 2050 Programs

- BP2-001: Active Transportation Planning and Design
- BP2-002: Active Transportation Network Implementation
- BP2-003: Active Transportation Education and Outreach

## Other

- *The Pedestrian Safety Action Plan* identifies priority corridors based on crash data and collaborates with regional, state, and federal partners to reduce pedestrian injuries and fatalities.
- *6,770 out of the 9,540* existing, funded and planned miles of the Regional Combined Active Transportation Network are off-street paths.



# Emerging Focus for Plan

- How does transportation respond to demographic growth trends?
  - Encourage infill development/density to reduce costs and support transit
  - Incorporate Transit 2.0 guidance for policies to support successful regional transit system
- Safety as a priority
- Funding and cost of implementing projects
- Maintaining and maximizing growing transportation assets

Provide your input at [www.nctcog.org/M50](http://www.nctcog.org/M50)

### Draft Plan Feedback Form Coming Soon



### Map Your Experience





# Stay Connected



## Website

[nctcog.org/planinprogress](https://nctcog.org/planinprogress)



## Social media

@nctcogtrans

#PlanInProgress



## Public Meetings

[nctcog.publicinput.com/#events](https://nctcog.publicinput.com/#events)



## Public Input Platform

[publicinput.com/mobility2050](https://publicinput.com/mobility2050)



## Email Us

[mobility2050@publicinput.com](mailto:mobility2050@publicinput.com)



## Take the Survey

[nctcog.org/mobility2050survey](https://nctcog.org/mobility2050survey)



# Contact Us



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Principal Transportation Planner

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Website

[www.nctcog.org/PlanInProgress](http://www.nctcog.org/PlanInProgress)