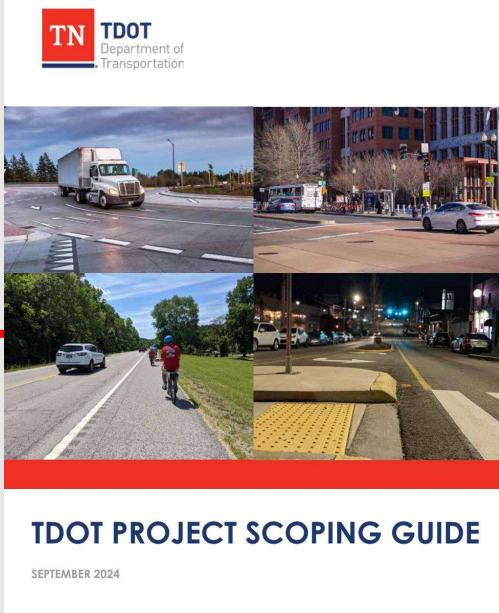


Tennessee Department of Transportation
**Project Scoping Guide
(PSG)**

Group Exercise: PSG Application



TDOT PROJECT SCOPING GUIDE
SEPTEMBER 2024

**KITTELSON
& ASSOCIATES**



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Outline

- Introduction and group assignments
- Group Exercise #1
- Group Exercise #2





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Introduction and Group Assignments

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Introduction and Group Assignments

- Two exercises
- Follow steps used by the case studies in Chapter 7 of the PSG
- Use other chapters of the PSG as a resource
- Work in teams and report back to the group

4

Group Exercise #1



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Group Exercise #1

- Given project background and roadway & surrounding land use characteristics, use the steps and guidance in the PSG to select a design concept
- Make assumptions as needed



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Group Exercise #1

Project Background

- Five lane arterial
- Primarily commercial land uses, with residential and institutional uses nearby
- AADT on corridor varies from 25,000-35,000 vehicles per day
- 4-5% heavy vehicles
- High frequency transit service



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Group Exercise #1

Project Background (continued)

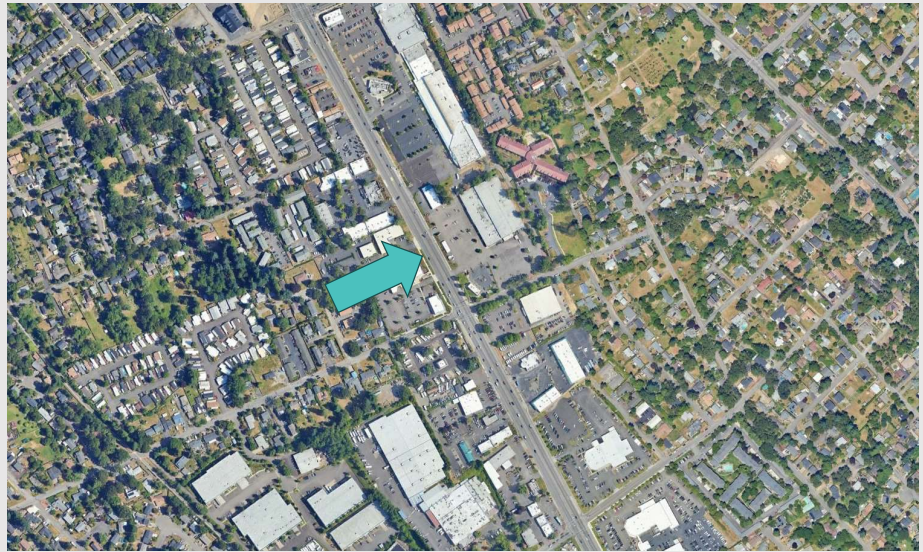
- Project purpose is to develop an investment strategy that supports improved transit service, safety improvements, and mobility for all users



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Group Exercise #1

Project Background (continued)



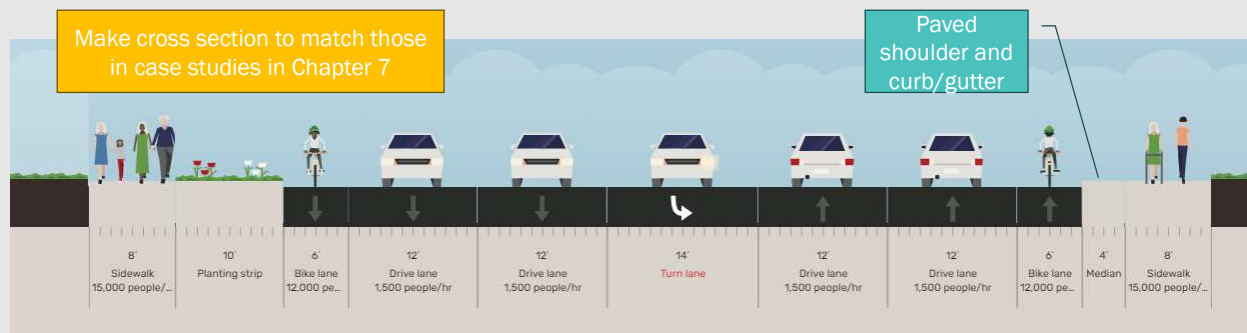
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Group Exercise #1

Roadway & Surrounding Land use Characteristics

- Paved width 104'
- Existing ROW 120'

Make cross section to match those
in case studies in Chapter 7



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Group Exercise #1

Roadway & Surrounding Land use Characteristics

- **Density:** medium to high
- **Users:** through vehicles, moderate truck traffic, variety of users visiting commercial development, heavy transit use
- **Land Use:** mix of commercial
- **Speed:** posted speed 40 mph, observed 85th percentile speed 44 mph

Future Context:
?

Target Speed:
? mph



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Group Exercise #1

Design Year Context

- Chapter 3 of the PSG provides guidance on determining context

Discuss within your team – what context fits this roadway?



Table 3-1: Potential Existing and Future Characteristics of Contexts for TDOT Roadways

Context Classification	Land Use ¹	Density of Structures ¹	Building Setback ¹	Block Size ²
Rural	Agricultural, natural resource preservation, and outdoor recreation uses with some isolated residential and commercial	Lowest (few houses or structures)	Usually large setbacks	Undefined blocks
Rural Town	Primarily commercial uses along a main street, with some mixed residential neighborhood and commercial clusters	Low to medium (single-family houses and other single-purpose structures)	On-street parking and sidewalks with predominately small setbacks	Small to medium blocks
Suburban	Mixed residential neighborhood and commercial clusters (includes town centers, commercial corridors, big box commercial, and light industrial)	Low to medium (single- and multifamily structures and multistory commercial)	Varied setbacks with some sidewalks and mostly off-street parking	Medium to large blocks, not well defined



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Group Exercise #1

Target Speed

- Chapter 6 of the PSG provides guidance on determining target speed

Discuss within your team – what target speed would you select for this roadway?



Table 6-1: Target and Design Speeds (mph)

Context	Local	Collector	Arterial
Rural	20–45	20–55	≥40
Rural Town	20–25	20–35	25–35
Suburban	20–30	25–35	30–45 ¹
Urban	20–30	25–35	25–40
Urban Core	20–25	20–25	25–30

¹ In commercial areas where walking, biking, and transit are more common, start at the low end of the target speed range.



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Group Exercise #1

Step 1: Establish Project Goals and Performance Measures (PDN Stage 0)

- Chapter 2 of the PSG provides guidance on developing goals and performance measures

Develop 1 goal and 2-3 supporting performance measures within your team



Table 2-2: Examples of Performance Categories and Measures

Performance Category	Example Performance Measure
Safety	• Conflict point analysis
	• Pedestrian and bicycle intersection evaluation (TDOT 20-Flag Intersection Evaluation Guide)
	• Vehicle speeds
	• Crossing distances
	• Crash history (severity and type of crash)
Mobility/Traffic Operations	• Calibrated safety performance functions (Highway Safety Manual)
	• Crash reduction factors
	• Average Daily Traffic (ADT) threshold values
	• Capacity Analysis for Planning of Junctions (CAP-X)
	• Volume-to-capacity (v/c) ratio
	• Travel delay
	• Corridor travel time
	• Travel time reliability (review of available existing data and estimated microsimulation data)
	• Level of service (LOS)
	• Queue lengths (50th or 95th percentile)
	• Design vehicle

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Group Exercise #1

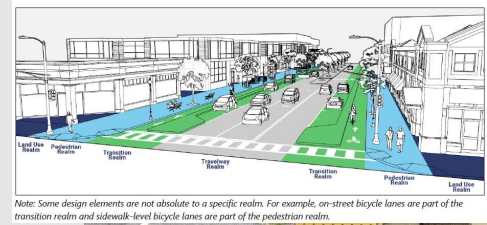
Step 2: Concept Development (PDN Stage 0)

- Chapter 6 of the PSG provides guidance on cross section design elements

Develop 2 cross section concepts as a team



Figure 6-2 Cross Section Realms



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Group Exercise #1

Step 3: Evaluation and Selection (PDN Stage 1)

- Chapter 2 of the PSG provides guidance evaluating performance measures

Evaluate the concepts using 1 performance measure



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Group Exercise #1

Step 4: Design Phase (PDN Stage 2)

- What new constraints might become apparent during the design phase?
- How would you approach changes to the project design?



Group Exercise #2

Group Exercise #2

Project Background

- Four-lane arterial
- Connects established neighborhoods to downtown
- AADT 22,900
- 11% heavy vehicles
- 4 transit routes with service every 30 minutes on average
- Posted speed 30 mph, 85th percentile speed 38 mph



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Group Exercise #2

Project Background (continued)

- Community concerned about vehicle speeds and pedestrian safety
- Planned repaving project, with limited funding available
- Interested in low-cost treatments that can be coordinated with repaving to address community concerns



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Group Exercise #2

Project Background (continued)

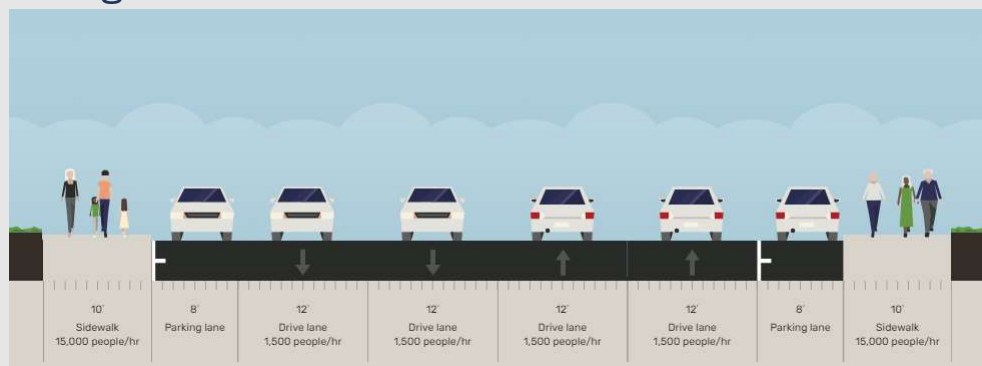


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Group Exercise #2

Roadway & Surrounding Land use Characteristics

- Paved width 64'
- Existing ROW 84'



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Group Exercise #2

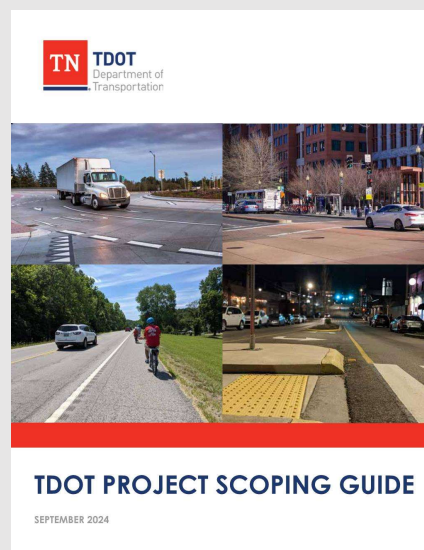
- What is the context?
- What is the target speed?
- How would you identify potential treatments?

*Discuss within
your group and
report back*



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Closing Remarks and Questions



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