

DESIGN MEMO 4.04

To: Designers, Contractors, and City Departments
Date: January 1, 2025
Subject: ODOT Location and Design Manual References (Volume 1, Sections 200 & 300)
Category: Horizontal and Vertical Design

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1 Purpose

This design memo has been established to document sections of the Ohio Department of Transportation’s Location and Design Manual Volume 1, (Sections 200 and 300) where the listed design resources is used by the City of Columbus without modification for horizontal and vertical design.

2 Applicability

Until further notice, design guidance listed herein shall be used for scoping, design and review for all projects including both capital improvement and private development projects.

3 Definitions

Authorities Having Jurisdiction (AHJ): Governmental entities responsible for enforcing standards and regulations in a given jurisdiction.

4 Design Guidance

4.1 Ohio Department of Transportation Location and Design Manual

The City of Columbus uses the following sections of the Ohio Department of Transportation’s Location and Design Manual, Vol 1. (L&Dv1) without modification. The list below is only applicable to L&Dv1, Sections 200 and 300.

4.1.1 L&D Section 201 Sight Distance

L&D Sections 201 Sight Distance	Governing Standard	
	Speeds <50 MPH	Speeds ≥50 MPH
Horizontal Sight Distance	L&D 201.2.1	L&D 201.2.1
Vertical Stopping Sight Distance	L&D 201.2.2	L&D 201.2.2
Sight Triangles	COC DM 4.11	L&D 201.3.1
Intersection Control	COC DM 4.11	L&D 201.3.2
Vertical ISD	COC DM 4.11	L&D 201.3.3
Available Passing Sight Distance	L&D 201.4.1	L&D 201.4.1
Decision Sight Distance (DSD)	L&D 201.5	L&D 201.5



4.1.2 L&D Section 202 Horizontal Alignment

L&D Section 202 Horizontal Alignment	Governing Standard	
	Speeds <50 MPH	Speeds ≥50 MPH
Horizontal Alignment General	L&D 202.1	L&D 202.1
Maximum Centerline Deflection without Horizontal Curve	L&D 202.2*	L&D 202.2
Degree of Curve (Curve Radius)	L&D 202.3*	L&D 202.3
Superelevation Rate	L&D 202.4.1	L&D 202.4.1
Effect of Grades on Superelevation	L&D 202.4.2	L&D 202.4.2
Maximum Curvature Without Superelevation	L&D 202.4.3*	L&D 202.4.3
Superelevation Methods	L&D 202.4.4	L&D 202.4.4
Superelevation Transition	L&D 202.4.5	L&D 202.4.5
Superelevation Position	L&D 202.4.6	L&D 202.4.6
Profiles and Elevations	L&D 202.4.7	L&D 202.4.7
Superelevation Between Reverse Horizontal Curves	L&D 202.4.8	L&D 202.4.8
Spirals	L&D 202.5	L&D 202.5

* For subdivision applications, the City of Columbus, Street Construction (E-Plan) Requirements, (Subdivision) shall take precedence.

4.1.3 L&D Section 203 Vertical Alignment

L&D Section 203 Vertical Alignment	Governing Standard	
	Speeds <50 MPH	Speeds ≥50 MPH
Vertical Alignment General	L&D 203.1	L&D 203.1
Maximum Grades	L&D 203.2.1*	L&D 203.2.1
Minimum Grades	L&D 203.2.2*	L&D 203.2.2
Critical Lengths of Grades	L&D 203.2.3*	L&D 203.2.3
Vertical Curves General	L&D 203.3.1	L&D 203.3.1
Grade Breaks	L&D 203.3.2*	L&D 203.3.2
Crest Vertical Curves	L&D 203.3.3	L&D 203.3.3
Sag Vertical Curves	L&D 203.3.4	L&D 203.3.4
Tangent Offsets for Vertical Curves	L&D 203.3.5	L&D 203.3.5

* For subdivision applications, the City of Columbus, Street Construction (E-Plan) Requirements, (Subdivision) shall take precedence.

4.1.4 L&D Section 204 Horizontal and Vertical Considerations

L&D Section 204 Horizontal/Vertical Considerations	Governing Standard	
	Speeds <50 MPH	Speeds ≥50 MPH
Horizontal and Vertical Alignment Considerations General	L&D 204.1	L&D 204.1
Horizontal Considerations	L&D 204.2	L&D 204.2
Vertical Considerations	L&D 204.3	L&D 204.3
Coordination of Horizontal and Vertical Alignments	L&D 204.4	L&D 204.4



4.1.5 L&D Section 301 Roadway Criteria

L&D Section 301 Roadway Criteria	Governing Standard	
	Speeds <50 MPH	Speeds ≥50 MPH
Pavement	L&D 301.1	L&D 301.1
Lane Width (AHJ Routes Only)	DM 5.02 / L&D 301.1.2	L&D 301.1.2
Traveled Way Widening on Highway Curves	L&D 301.1.3	L&D 301.1.3
Pavement Transition/Taper Rates	L&D 301.1.4	L&D 301.1.4
Pavement Cross Slope	COC DM 4.13	L&D 301.1.5
Shoulders General	L&D 301.2.1	L&D 301.2.1
Shoulder Type	L&D 301.2.2*	L&D 301.2.2
Shoulder Width	COC STD 2130, 2135	L&D 301.2.3
Shoulder Cross Slope	COC STD 2130, 2135 DM 4.13	L&D 301.2.4
Lateral Clearance	L&D 301.2.5	L&D 301.2.5

* Exception of Figure 301-4, STD 2130 and 2135 to be applied

4.1.6 L&D Section 302 Bridge Criteria

L&D Section 302 Bridge Criteria	Governing Standard	
	Speeds <50 MPH	Speeds ≥50 MPH
Bridge Criteria General *	L&D 302.1	L&D 302.1

*New pedestrian bridges in downtown area are required to have a vertical clearance of 17' or greater.

4.1.7 L&D Section 303 Interchange Elements

L&D Section 303 Interchange Elements	Governing Standard	
	Speeds <50 MPH	Speeds ≥50 MPH
Interchange Elements General	L&D 303.1	L&D 303.1

4.1.8 L&D Section 304 Medians

L&D Section 304 Medians	Governing Standard	
	Speeds <50 MPH	Speeds ≥50 MPH
Width Rural	DM 5.02 / 2331	L&D 304.2.1
Width Urban	DM 5.02 / 2331	L&D 304.2.2
Types Rural	DM 5.02 / 2331	L&D 304.3.1
Types Urban	DM 5.02 / 2331	L&D 304.3.2
U-turn Median Openings	DM 5.02 / 2331	L&D 304.4



4.1.9 L&D Section 305 Curbs

L&D Section 305 Curbs	Governing Standard	
	Speeds <50 MPH	Speeds ≥50 MPH
Curbs General	COC STD Various	L&D 305.1
Types and Uses	DM 5.02 / COC STD Various	COC STD Various / L&D 305.2
Position of Curb - Urban Areas	DM 5.02	L&D 305.3.1
Position of Curb - Urban and Rural High Speed Areas	N/A	L&D 305.3.2
Curb/Guardrail Relationship	L&D 305.3.3	L&D 305.3.3
Curb Vertical Height Tapers	L&D 305.4.1	L&D 305.4.1
Curbed to Uncurbed Transitions	L&D 305.4.2	L&D 305.4.2
Curbed Approach to Uncurbed Mainline	L&D 305.4.3	L&D 305.4.3

4.1.10 L&D Section 307 Grading and Side-slopes

L&D Section 307 Grading and Side-slopes	Governing Standard	
	Speeds <50 MPH	Speeds ≥50 MPH
Grading and Slopes General	L&D 305.1	L&D 305.1
Slopes - Roadside Grading	DM 5.02	L&D 307.2.1
Slope Transitions	DM 5.02	L&D 307.2.2
Rounding of Slopes	L&D 307.2.3	L&D 307.2.3
Slopes - Special Median Grading	L&D 307.2.4	L&D 307.2.4
Rock Slopes	L&D 307.2.5	L&D 307.2.5
Slopes - Curbed Streets	DM 5.02	L&D 307.2.6
Slopes - Driveways and Cross Roads	*	L&D 307.2.7
Ditches	DM 5.02	L&D 307.3
Parallel Channels	L&D 307.4	L&D 307.4
Interchanges Grading - Crossroads	L&D 307.5.1	L&D 307.5.1
Interchange Grading - Ramps	L&D 307.5.2	L&D 307.5.2
Interchange Grading - Gore Area	L&D 307.5.3	L&D 307.5.3
Interchange Grading - Trumpet Interiors	L&D 307.5.4	L&D 307.5.4
Interchange Grading - Loop Interiors	L&D 307.5.5	L&D 307.5.5
Interchange Grading - Diamond	L&D 307.5.6	L&D 307.5.6

* COC std dwgs 2201, 2202, *2211- *2213. *Notes cross slopes in median areas for ADA

