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*When choosing any geometric cross section dimension, including lane or shoulder width, read the guidance that is specific to the facility type. Also, read the general guidance related to common elements such as lanes, shoulders, side slopes, etc.*

See [Chapter 1106](#) for the general dimensioning guidance.

This chapter also contains guidance related to jurisdiction.

## 1230.01 General

The geometric cross section is composed of multiple lateral design elements such as lanes, shoulders, medians, bike facilities, and sidewalks. The designer's task is to select, size, and document these elements appropriately. There is flexibility in the selection of design element dimensioning.

All WSDOT routes, regardless of context, are referred to in the *Design Manual* as "highways." Under this definition, freeways are a subset of highways while Interstate freeways are one specific type of freeway.

Refer to the Design Manual [Glossary of Terms](#) for many of the terms used in this chapter. See [Chapter 300](#) for design documentation requirements.

## 1230.02 Guidance for Specific Facility Types

Guidance regarding geometric cross sections is located in various *Design Manual* chapters. The chapter depends on the facility type. Examples of specific facility types include:

- Highways (general)
- Freeways
- Ramps
- Auxiliary lanes
- Collector-Distributor lanes
- Service lanes
- Frontage roads
- HOV facilities
- Median U-turns and crossovers
- Transit facilities including bus pull-outs
- Enforcement areas
- Slow vehicle turn-outs
- Truck weighing facilities
- Shared use paths
- Sidewalks
- Bicycle Facilities

[Exhibit 1230-1](#) shows some common facility types along with the corresponding chapter that geometric cross section guidance can be found in.

## Exhibit 1230-1 Geometric Cross Section - Guide to Chapters

Facility Type	Lane width	Turning roadway width	Shoulder width	Median width	Lateral clearance to curb or barrier	Side slope	Cross slope
Highways (General)	<a href="#">Chapter 1231</a>	<a href="#">Chapter 1240</a>	<a href="#">Chapter 1231</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1250</a>
Freeways	<a href="#">Chapter 1232</a>	<a href="#">Chapter 1240</a>	<a href="#">Chapter 1232</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1250</a>
Ramps	<a href="#">Chapter 1360</a>	<a href="#">Chapter 1240</a>	<a href="#">Chapter 1360</a>	<a href="#">Chapter 1360</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1360</a> & <a href="#">Chapter 1250</a>
Auxiliary lanes	<a href="#">Chapter 1270</a> or <a href="#">Chapter 1360</a> <sup>[1]</sup>	<a href="#">Chapter 1240</a>	<a href="#">Chapter 1270</a> or <a href="#">Chapter 1360</a> <sup>[1]</sup>	N/A	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1270</a>
C-D roadways	<a href="#">Chapter 1360</a>	<a href="#">Chapter 1240</a>	<a href="#">Chapter 1360</a>	N/A	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1360</a>
HOV lanes, ramp bypass lanes, etc.	<a href="#">Chapter 1410</a>	<a href="#">Chapter 1410</a>	<a href="#">Chapter 1410</a>	N/A	<a href="#">Chapter 1410</a> & <a href="#">Chapter 1239</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1410</a>
Left-side direct HOV access (DHOV) facilities	<a href="#">Chapter 1420</a>	<a href="#">Chapter 1420</a>	<a href="#">Chapter 1420</a>	<a href="#">Chapter 1420</a> (for DHOV)	<a href="#">Chapter 1420</a> & <a href="#">Chapter 1239</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1250</a>
Part-time shoulders	<a href="#">Chapter 1430</a>	<a href="#">Chapter 1240</a>	<a href="#">Chapter 1430</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1430</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1250</a> & <a href="#">Chapter 1430</a>
Metered shoulders	<a href="#">Chapter 1440</a>	<a href="#">Chapter 1240</a> & <a href="#">Chapter 1440</a>	<a href="#">Chapter 1440</a>	<a href="#">Chapter 1360</a>	<a href="#">Chapter 1440</a>	<a href="#">Chapter 1239</a>	<a href="#">Chapter 1360</a> & <a href="#">Chapter 1250</a>
Shared use path	<a href="#">Chapter 1515</a>	<a href="#">Chapter 1515</a>	<a href="#">Chapter 1515</a>	N/A	<a href="#">Chapter 1515</a>	<a href="#">Chapter 1515</a>	<a href="#">Chapter 1515</a>
Other	Geometric cross section guidance for other special purpose facilities is in various chapters. Examples include special use lanes, bridges, transit facilities, bus pull outs, median U-turns and crossovers, enforcement areas, truck weighing facilities, pedestrian bridges and tunnels, sidewalks & bicycle facilities						

## Notes:

General guidance for curb design is in [Chapter 1239](#). Guidance for curb is also found for numerous types of facilities ([Chapter 1310](#) and others.)

[1] Passing and climbing lanes, see [Chapter 1270](#); Auxiliary lanes between interchanges see [Chapter 1360](#).

[Exhibit 1230-1](#) is not a comprehensive list of guidance associated with either a facility or a design element. It is intended to be a quick reference to the chapter containing the primary guidance related to the specific element and facility type.

For guidance related to intersections see [Chapter 1310](#). For guidance related to sidewalks see [Chapter 1510](#). For guidance related to bicycle facilities see [Chapter 1520](#). For guidance related to bridges see [Chapter 720](#).

### 1230.03 Common Elements

In addition to the guidance specific to the facility type, also see the general guidance related to cross-sectional elements that are common to various facility types:

- Lanes [Chapter 1231](#)
- Shoulders, side slopes, medians & curbs [Chapter 1239](#)
- Lateral clearance to curb and barrier [Chapter 1239](#)
- Parking & streetside (behind the curb) elements [Chapter 1238](#)
- Cross slope and superelevation [Chapter 1250](#)

### 1230.04 References

#### 1230.04(1) Design Guidance

*Highway Runoff Manual*, M 31-16, WSDOT

*Local Agency Guidelines* (LAG), M 36-63, WSDOT

*Plans Preparation Manual*, M 22-31, WSDOT

*Standard Plans for Road, Bridge, and Municipal Construction*, M 21-01, WSDOT

*Standard Specifications for Road, Bridge, and Municipal Construction*, M 41-10, WSDOT

#### 1230.04(2) Supporting Information

*Understanding Flexibility in Transportation Design – Washington*, WA-RD 638.1, Washington State Department of Transportation, 2005

[www.wsdot.wa.gov/research/reports/fullreports/638.1.pdf](http://www.wsdot.wa.gov/research/reports/fullreports/638.1.pdf)

*Urban Street Design Guide*, National Association of City Transportation Officials, New York, NY, 2013

[www.nacto.org](http://www.nacto.org)

*A Policy on Geometric Design of Highways and Streets* (Green Book), AASHTO, current edition

Available from the [WSDOT Library](#).

