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1105.01 General

Design elements are specific components associated with roadway design, such as lane widths, shoulder widths, alignments, clear zone, etc. Design controls (see [Chapter 1103](#)) are carefully chosen and used to determine the dimensions of design elements. The relative effect that a given design element will have on performance will depend on the selected design controls and context identification. For more information, see the guidance document section titled [The Research Summary of Different Design Elements on Performance](#).

1105.02 Selecting Design Elements

Design elements that are included in a project are documented in the [Basis of Design](#). Include the design elements that are changed by the project. (See [Chapter 1100](#) for more information about Basis of Design.)

An element is **changed** if one of the following applies:

- A new element is added
- An existing element is removed or relocated
- A dimension - such as a width - is modified

A design element that is **not changed** is not documented in the Basis of Design.

The next step after selecting design elements is to choose the appropriate dimension for each element. (See [Chapter 1106](#) for information on selecting design element dimensions.)

1105.02(1) *Required Design Elements and Criteria*

There are also additional legal and policy-based considerations that require a decision of whether or not to include certain design elements in a project; this depends on the program or sub-program. See Exhibit 1105-1 for additional information regarding whether or not to include these design elements in a project.

Exhibit 1105-1 Required Design Elements

| Program or Sub-Program | Design Elements | | | | | | |
|---|--|---|--|--|---|---|-----------------|
| | ADA | Clear Zone [1] | Roadside Safety Hardware [3] | Signing & Delineation [4] | Illumination [7] | ITS [8] | Signal Hardware |
| I-1 Mobility I-3 Economic Initiative - Trunk System I-6 Sound Transit | Apply the content in Chapter 1510 (1510.05) | Apply the content in Chapter 1600 | Apply the content in Chapters 1600 , 1610 and 1620 | Apply the content in Chapter 1020 for signing and Chapter 1030 for delineation | Apply the content in Chapter 1040 | Apply the content in Chapter 1050 | [5] |
| All Preservation (P-1, P-2, P-3) | Apply the content in Chapter 1120 (1120.03(2)) | [2] | Apply the content in Chapter 1120 (1120.03(7)) | [2] [6] | [2] | [2] | [5] |
| I-2 Safety I-4 Environmental Retrofit I-3 All Other | Apply the content in Chapter 1510 (1510.05) | [2] | [2] | [2] [6] | [2] | [2] | [5] |

Notes:

- [1] See [Chapter 1600](#)
- [2] Only include when changed as described in 1105.02.
- [3] Includes all roadside safety design elements in Chapters [1600](#), [1610](#), and [1620](#).
- [4] See [Chapter 1020](#) for signing and [Chapter 1030](#) for delineation
- [5] Consult the Assistant State Design Engineer (ASDE), HQ Traffic Office, and Capital Program Development and Management Office (CPDM) to determine policy requirements.
- [6] Consult the ASDE for policy requirements if the roadway channelization is changed.
- [7] See [Chapter 1040](#)
- [8] See [Chapter 1050](#)

1105.03 Related Elements

Design elements can be interrelated. Even if a specific design element has not changed in accordance with the definition in 1105.02, consider whether or not the preferred alternative has changed the conditions in a way that may affect the performance of an unchanged element, considering all modes.

Example: A project team proposes to provide a left-turn lane along a portion of their project in order to address a baseline need related to safety for turning traffic, by reducing the width of each highway shoulder. By reducing the shoulder width, the traveled way will be closer to the roadside than in the existing condition. The project team determines whether the project would adversely affect safety performance due to roadside conditions such as steep slopes or objects in the clear zone along with considering impacts to bike and pedestrian use.

1105.04 Documentation

Document design elements that are changed in Section 5 of the [Basis of Design](#) (BOD) form unless the exemptions listed in [1100.10\(1\)](#) apply.

As a design alternative matures over time, it is likely that design elements may be added or dropped through the iterative process inherent with design. It is important to update the Basis of Design documentation with these changes at the various documentation and approval milestones.

The Basis of Design is available to download here:

www.wsdot.wa.gov/Design/Support.htm

1105.05 References

The Research Summary of Different Design Elements on Performance, WSDOT Guidance Document:

www.wsdot.wa.gov/Design/Support.htm

