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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	Roadside Safety Hardware [3]	Signing	Delineation	Illumination	Intelligent Transportation System (ITS)	Signal Hardware
I-1 Mobility	[1] Section 1510.03	[1] Chapter 1600	[1] Chapter 1600, Chapter 1610 and Chapter 1620	[1] Chapter 1020	[1] Chapter 1030	[1] Chapter 1040	[1] Chapter 1050	[3] Chapter 1330
I-2 Safety	[1] Section 1510.03	[2] Chapter 1600	[2] Chapter 1600, Chapter 1610 and Chapter 1620	[2] Chapter 1020	[3] Chapter 1030	[3] Chapter 1040	[2] Chapter 1050	[3] Chapter 1330
I-3 Economic Initiative - Trunk System	[1] Section 1510.03	[1] Chapter 1600	[1] Chapter 1600, Chapter 1610 and Chapter 1620	[1] Chapter 1020	[1] Chapter 1030	[1] Chapter 1040	[1] Chapter 1050	[3] Chapter 1330
I-3 All Other	[1] Section 1510.03	[2] Chapter 1600	[2] Chapter 1600, Chapter 1620 and Chapter 1620	[2] Chapter 1020	[3] Chapter 1030	[3] Chapter 1040	[2] Chapter 1050	[3] Chapter 1330
I-4 Environmental Retrofit	[1] Section 1510.03	[2] Chapter 1600	[2] Chapter 1600, Chapter 1610 and Chapter 1620	[2] Chapter 1020	[3] Chapter 1030	[3] Chapter 1040	[2] Chapter 1050	[3] Chapter 1330
I-6 Sound Transit	[1] Section 1510.03	[1] Chapter 1600	[1] Chapter 1600, Chapter 1610 and Chapter 1620	[1] Chapter 1620	[1] Chapter 1030	[1] Chapter 1040	[1] Chapter 1050	[3] Chapter 1330
P-1 Roadway Preservation See Section 1120.02	[1] Section 1120.02(2)	[4] Chapter 1600	[1] Sections 1120.02(7), 1120.02(8), & 1120.02(9)	[2] Chapter 1020	[3] Sections 1120.02(6) & 1231.08	[3] Chapter 1040	[2] Chapter 1050	[3] Chapter 1330
P-2 Structures Preservation	[4] Section 1510.03(2)	[4] Chapter 1600	[4] Chapter 1600, Chapter 1610 and Chapter 1620	[4] Chapter 1020	[4] Chapter 1030	[4] Chapter 1040	[4] Chapter 1050	[4] Chapter 1330
P-3 Other Facilities Preservation	[4] Section 1510.03(2)	[4] Chapter 1600	[4] Chapter 1600, Chapter 1610 and Chapter 1620	[4] Chapter 1020	[4] Chapter 1030	[4] Chapter 1040	[4] Chapter 1050	[4] Chapter 1330

Exhibit 1105-1 Notes:

- [1] Include the element in the project and apply policy and guidance provided in the Design Manual chapter(s) or section(s) listed in the cell.
- [2] Include the element in the project and apply the policy and guidance provided in the Design Manual chapter(s) or section(s) listed in the cell only when the element is changed as described in Section [1105.02](#).
- [3] Consult the Assistant State Design Engineer (ASDE), evaluate the site specific need to determine whether to apply the policy and guidance provided in the Design Manual chapter(s) or section(s) listed in the cell*.
- [4] Include the element in the project when it is changed as described in Section [1105.02](#). If the element is to be included, apply the policy and guidance provided in [Chapter 1120](#), as well as that provided in the Design Manual chapter(s) or section(s) listed in the cell.

* The ASDE is responsible for bringing in other expertise as needed from appropriate HQ units such as Traffic, Programming, Planning, etc. to collaborate in the decision to include the element in the project.

1105.03 Related Elements

Design elements can be interrelated. Even if a specific design element has not changed in accordance with the definition in Section [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 Section [1100.05\(1\)](#) 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: <https://wsdot.wa.gov/engineering-standards/design-topics/design-tools-and-support#Tools>

1105.05 References

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

[WSDOT Guidance Documents \(wa.gov\)](#)

