**PROJECT DESIGN CRITERIA**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Project Name: | |  | | | | | | | | | | |
| State Project No.: | |  | | | Federal Project No.: | | | |  | | | |
| Functional Classification: | | |  | | | | Terrain: | | Choose an item. | | | |
| *Segment (Example: Palmer-Wasilla Hwy to Bogard Rd ADT)* | | | | | | | | | | | | |
| Present ADT (     ): | | |  | Mid-Design ADT (     ): | | |  | | Design ADT (     ): | | |  |
| DHV (%): |  | | Trucks (%): | | | |  | | Directional Split (%/%): | | |  |
| Pavement Design Year: | | |  | Pavement Design ESAL: | | | | |  | | | |
| Design Turning Vehicle: | | |  |  | | | | |  | | | |
| Project Type: | | Choose an item. | | | |  | | NHS: |  | Non-NHS: |  | |
|  | |  | | | | | |  |  |  |  | |

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| **FHWA 10 Controlling**  **Design Criteria** | | **Source** | **Standard** | **As proposed** | **Exception1** |
| Design Speed1 | |  | mph | mph | Choose an item. |
| Lane Width | Travel |  | ft | ft | Choose an item. |
| Auxiliary |  | ft | ft | Choose an item. |
| Shoulder Width | Outside |  | ft | ft | Choose an item. |
| Inside |  | ft | ft | Choose an item. |
| Auxiliary |  | ft | ft | Choose an item. |
| Horizontal Curve Radius, min | |  | ft | ft | Choose an item. |
| Superelevation Rate, e, max | |  | % | % | Choose an item. |
| Stopping Sight Distance (SDD), min | |  | ft | ft | Choose an item. |
| Grade | Min.2 |  | % | % | Choose an item. |
| Max. |  | % | % | Choose an item. |
| Cross Slope | |  | % | % | Choose an item. |
| Vertical Clearance, \_\_\_\_\_\_\_\_\_\_\_\_\_ | |  | ft | ft | Choose an item. |
| Design Loading Structural Capacity1 | |  |  |  | Choose an item. |

*1 On low speed roadways (<50 mph) on the NHS, only Design Speed and Design Loading Structural Capacity require a Design Exception; all other criteria require a Design Waiver. For projects off the NHS, all criteria require a Design Waiver.*

*2 Minimum grade is not one of the FHWA 10 Controlling Design Criteria and will require a Design Waiver for any variance.*

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| **Other**  **Design Criteria** | | **source** | **Standard** | **As Designed** | **Waiver** |
| Superelevation Transition, Δ | |  | % | % | Choose an item. |
| Bridge Clear-Roadway Width | |  | ft | ft | Choose an item. |
| Vertical Curvature (min) | K (crest) |  |  |  | Choose an item. |
| K (sag) |  |  |  | Choose an item. |
| Lateral Offset to Obstruction | |  | ft | ft | Choose an item. |
| Surfacing Material | |  |  |  | Choose an item. |
| Clear Zone | Slope (fill) |  |  |  | Choose an item. |
| Width (fill) | ft | ft | Choose an item. |
| Slope (cut) |  |  | Choose an item. |
| Width (cut) | ft | ft | Choose an item. |
| Bicycle Lane Width | |  | ft | ft | Choose an item. |
| Sidewalk/Pathway Width | |  | ft | ft | Choose an item. |
| Intersection Sight Distance\*,  Choose an item. | Left Turn  (GB Case B1) |  | ft | ft | Choose an item. |
| Right Turn  (GB Case B2) |  | ft | ft | Choose an item. |
| Crossing  (GB Case B3) |  | ft | ft | Choose an item. |
| Passing Sight Distance | |  | ft | ft | Choose an item. |
| Degree of Access Control | |  |  | | Choose an item. |
| Median | Treatment |  |  | | Choose an item. |
| Width | ft | ft | Choose an item. |
| Illumination | |  |  | | Choose an item. |
| Curb Type | |  |  | | Choose an item. |

\* Attach calculations

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Notes:

Proposed by: Date:

Designer (Consultant or Staff)

Recommended by: Date:

Engineering Manager

Accepted by: Date:

Regional Preconstruction Engineer

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# Example Calculations for Intersection Sight Distance

**Calculation Sheet for Cases B1, B2, and B3 (Intersection Sight Distance, Passenger Car)**

EQUATIONS:

1. ***tg******= tg + (n – 1) \* ( 0.5 ), if n > 2***

*tg =* time gap for minor road vehicle to enter the major road (s)

*tg* = time gap at design speed of major road (s)

*n* = number of lanes to cross

1. ***ISD =* 1.47 *\* Vmajor \* tg*** *(from Green Book, pg. 9-45, Equation 9-1)*

*ISD =* Intersection Sight Distance (length of the leg of sight triangle along the major road) (ft)

*Vmajor =* design speed of the major road (mph)

CASE B1: Left Turn from the Minor Road *(Green Book, pg. 9-43)*

*Given: n* = 4.2 lanes, *Vmajor* = 60 mph, *tg* = 7.5 s *(from Green Book, pg. 9-44, Table 9-6);*

*tg* = 7.5 + (4.2) \* (0.5) = 9.6 s

*ISD* = 1.47 \* 60 \* 9.6 = 846.7 ft = > **use 850 ft**

CASE B2: Right Turn from the Minor Road *(Green Book, pg. 9-47)*

*Given: n* = 0 lanes, *Vmajor* = 60 mph, *tg* = 6.5 s *(from Green Book, pg. 9-47, Table 9-8);*

*tg* = *tg* = 6.5 = 6.5 s

*ISD* = 1.47 \* 60 \* 6.5 = 573.3 ft => **use** **575 ft**

CASE B3: Crossing Maneuver from the Minor Road *(Green Book, pg. 9-48)*

*Given: n* = 5.2 lanes, *Vmajor* = 60 mph, *tg* = 6.5 s *(from Green Book, pg. 9-49, Table 9-10);*

*tg* =6.5 + (5.2) \* (0.5) = 9.1 s

*ISD* = 1.47 \* 60 \* 9.1 = 802.6 ft = > **use 805 ft**