**PROJECT DESIGN CRITERIA**

|  |
| --- |
| Page       of       |
| 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: |[ ]
|  |  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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.*

Page       of

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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

Page       of

Notes:

Proposed by: Date:

 Designer (Consultant or Staff)

Recommended by: Date:

 Engineering Manager

Accepted by: Date:

 Regional Preconstruction Engineer

Page       of

# 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**