

TO: All Design Section Staff

FROM: Bijan Khaleghi

DATE: September 5, 2008

SUBJECT: Maximum Superstructure Length

The following table provides guidance to preliminary design staff regarding maximum bridge superstructure length beyond which the use of either intermediate expansion joints or modular expansion joints at the ends is required.

Superstructure Type	Maximum Length (Western WA)		Maximum Length (Eastern WA)	
	Stub Abutment	L-Abutment	Stub Abutment	L-Abutment
Concrete Superstructure				
Prestressed Girders*	450'	900'	450'	900'
PT Spliced Girder **	400'	700' ***	400'	700' ***
CIP-PT Box Girders **	400'	700' ***	400'	700' ***
Steel Superstructure				
Steel Plate Girder	300'	1000'	300'	800'
Steel Box Girder				

- * Based upon 0.16" creep shortening per 100' of superstructure length, and 0.12" shrinkage shortening per 100' of superstructure length
- ** Based upon 0.31" creep shortening per 100' of superstructure length, and 0.19" shrinkage shortening per 100' of superstructure length
- *** Can be increased to 800' if the joint opening at 64F at time of construction is specified in the expansion joint table to be less than the minimum installation width of 1-1/2". This condition is acceptable if the gland is already installed when steel shapes are installed in the blockout. Otherwise (staged construction for example) the gland would need to be installed at temperatures less than 45F.

Background:

The above information is to provide guidance, at the preliminary plan stage, in determining abutment types, bridge length and need for intermediate expansion joints or modular joints at the bridge ends. Deviation from the above limits requires consultation with the Bridge and Structures Office Bearings and Expansion Joints Specialist, and approval of the Bridge Design Engineer.

If you have any questions regarding these issues, please contact Ralph Dornsife at 705-7199 or Bijan Khaleghi at 705-7181.

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