


CLIENT	WSC	 STV Incorporated			
PROJECT	Longfellow Bridge	MADE	CHK.	REV.	4016034
SUBJECT	Diaphragm Replacement Report Summary	ARG			SHT #
		3/9/16			2/11

The original wind models are made of two models:

1-Using a percentage of the total wind which causes a 1/4" maximum deck deflection in the direction (z) of seismic bearings at the deck level-no supports at deck level

2-Using the rest of the wind load with having supports (fixing deck in z direction at the place of seismic bearings) at the deck level.

During temporary works, the addition of a chain link fence needs to be accounted for the loads placed on the model in STAAD.

Windward Load= 35 psf

Ref. AASHTO Temporary Works

Table 1. Bridge Dimensions for Wind Area determination:

	SPAN 6	SPAN 7	SPAN 8	SPAN 9	SPAN 10	SPAN 11
Above Column Height (ft)	13.55	13.55	13.55	13.55	13.55	12.89
At Pier Column Height (ft)	27.09	26.91	23.77	19.16	14.89	11.79
Middle - Column Height (ft)	0.74	0.79	0.78	0.98	1.97	1.97
Below Column Height (ft)	10.55	10.02	9.59	9.15	8.74	8.41

Table 2. Calculating total wind load on each span:

	SPAN 6	SPAN 7	SPAN 8	SPAN 9	SPAN 10	SPAN 11
Top-atPier h(ft)	27.09	27.00	25.43	23.13	20.99	18.78
Top-Middle h(ft)	13.92	13.94	13.94	14.04	14.53	13.87
Bottom-atPier h(ft)	24.09	23.48	21.48	18.73	16.18	14.31
Bottom-Middle h(ft)	10.92	10.41	9.98	9.63	9.73	9.39

Trapezoidal wind load to put on upstream fascia stringers and A-line arch rib (the leeward wind is not accounted in this part of the analysis)

Table 3. Total wind load on each span (k/ft):

		SPAN 6	SPAN 7	SPAN 8	SPAN 9	SPAN 10	SPAN 11
at pier	Winward-Fascia	0.95	0.95	0.89	0.81	0.73	0.66
in the middle	(k/ft)	0.49	0.49	0.49	0.49	0.51	0.49
at pier	Winward-Arch (k/ft)	0.84	0.82	0.75	0.66	0.57	0.50
in the middle		0.38	0.36	0.35	0.34	0.34	0.33

¹ Given the geometric characteristics of the chain fence, only 75% of its total height will be accounted.