Appendix A: Distribution of Live Loads per Lane for Moment in Interior Beams (AASHTO Table 4.6.2.2.2b-1)

Distribution of Live Loads per Lane for Moment in Interior Beams

Type of Superstructure	Applicable Cross Section from Table 4.6.2.1-1	Distribution Factors	Range of Applicability
Wood Deck on Wood or Steel Beams	a, 1	See **Table 4.6.2.2a-1**	
Concrete Deck on Wood Beams	1	One Design Lane Loaded: $S/12.0$ Two or More Design Lanes Loaded: $S/10.0$	$S \leq 6.0$
Concrete Deck, Filled Grid, Partially Filled Grid, or Unfilled Grid Deck Composite with Reinforced Concrete Slab on Steel or Concrete Beams; Concrete T-Beams, T- and Double T-Sections	a, e, k, and also i, j if sufficiently connected to act as a unit	One Design Lane Loaded: $$0.06 + \left(\frac{S}{14}\right)^{0.4}\left(\frac{S}{L}\right)^{0.3}\left(\frac{K_g}{12.0\,Lt_s^3}\right)^{0.1}$$ Two or More Design Lanes Loaded: $$0.075 + \left(\frac{S}{9.5}\right)^{0.6}\left(\frac{S}{L}\right)^{0.2}\left(\frac{K_g}{12.0\,Lt_s^3}\right)^{0.1}$$ Use lesser of the values obtained from the equation above with $N_b = 3$ or the lever rule	$3.5 \leq S \leq 16.0$ $4.5 \leq t_s \leq 12.0$ $20 \leq L \leq 240$ $N_b \geq 4$ $10{,}000 \leq K_g \leq 7{,}000{,}000$ $N_b = 3$
Cast-in-Place Concrete Multicell Box	d	One Design Lane Loaded: $$\left(1.75 + \frac{S}{3.6}\right)\left(\frac{1}{L}\right)^{0.35}\left(\frac{1}{N_c}\right)^{0.45}$$ Two or More Design Lanes Loaded: $$\left(\frac{13}{N_c}\right)^{0.3}\left(\frac{S}{5.8}\right)\left(\frac{1}{L}\right)^{0.25}$$	$7.0 \leq S \leq 13.0$ $60 \leq L \leq 240$ $N_c \geq 3$ If $N_c > 8$ use $N_c = 8$

Type of Superstructure	Applicable Cross-Section	Distribution Factors	Range of Applicability
Concrete Deck on Concrete Spread Box Beams	b, c	One Design Lane Loaded: $$\left(\frac{S}{3.0}\right)^{0.35}\left(\frac{Sd}{12.0L^2}\right)^{0.25}$$ Two or More Design Lanes Loaded: $$\left(\frac{S}{6.3}\right)^{0.6}\left(\frac{Sd}{12.0L^2}\right)^{0.125}$$	$6.0 \le S \le 18.0$ $20 \le L \le 140$ $18 \le d \le 65$ $N_b \ge 3$
		Use Lever Rule	$S > 18.0$
Concrete Beams used in Multibeam Decks	f	One Design Lane Loaded: $$k\left(\frac{b}{33.3L}\right)^{0.5}\left(\frac{I}{J}\right)^{0.25}$$ where: $k = 2.5(N_b)^{-0.2} \ge 1.5$ Two or More Design Lanes Loaded: $$k\left(\frac{b}{305}\right)^{0.6}\left(\frac{b}{12.0L}\right)^{0.2}\left(\frac{I}{J}\right)^{0.06}$$	$35 \le b \le 60$ $20 \le L \le 120$ $5 \le N_b \le 20$
	g if sufficiently connected to act as a unit		

Source: **AASHTO Table 4.6.2.2b-1.**