202   DISTRIBUTION OF LOADS

Loads shall be distributed as specified in Section 3 of AASHTO except as clarified or modified in this manual.

202.01   SUPERIMPOSED DEADLOAD DISTRIBUTION (AASHTO 3.23.2.3.1.1)

The weight of curbs, barriers and sidewalks for an I-Girder bridge with composite concrete deck shall be distributed as follows:

i)   Equally over all girders
ii) Equally over all girders under the sidewalk
iii) If there is no sidewalk, curb and barrier shall be distributed 60% to the exterior girders and 40% to the interior girders.

Each girder shall be designed for the condition that causes highest stresses. Girders shall in no way be designed for loads less than that specified in AASHTO Section 3.

202.02   CONCRETE BOX GIRDERS (AASHTO 3.23.2.3.2.2)

In calculating the number of lanes of live load on the superstructure, the entire cross section of the superstructure shall be considered as one unit with the number of lanes of live load equal to the out-to-out width of the deck in meters divided by 4.27. Do not reduce this number for multiple lanes as specified in AASHTO 3.12.1 nor round to a whole number as specified in AASHTO 3.6.3.

202.03   PRESTRESSED VOIDED SLABS (AASHTO 3.23.4.3)

The equations for distribution of live load contained in the Fifteenth Edition (1992) including the 1993 and 1994 Interims shall not be used. The new distribution factors in the latest edition, initially changed in the Fourteenth Edition (1989), are based on tests on T-beams and are not deemed appropriate for voided slabs or box beams. Instead, the equations in the Thirteenth Edition (1983) as repeated below shall be used to distribute live loads:

In calculating bending moments in multi-beam precast concrete bridges, conventional or prestressed, no longitudinal distribution of wheel load shall be assumed.

The live load bending moment for each section shall be determined by applying to the beam the fraction of a wheel load (both front and rear) determined by the following relations:

$$\text{Load Fraction} = \frac{S}{D}$$

Where

$$S = \frac{12\ NL + 9}{Ng}$$

$$D = 5 + \frac{NL}{10} + \left(3 - \frac{2NL}{7}\right)\left(1 - \frac{C}{3}\right)^2 \text{ when } C \leq 3$$

$$D = 5 + \frac{NL}{10} \text{ when } C > 3$$

NL = total number of traffic lanes from AASHTO Article 3.6

Ng = number of longitudinal beams
C = K(W/L), a stiffness parameter

W = overall width of bridge in meters

L = span length in meters

Values of K To Be Used in C = K(W/L)

Bridge Type	Beam Type	K
Multi-Beam	Non-Voided Rect	0.7
	Rect. w/ Circular Voids	0.8
	Box Section	1.0
	Channel	2.2

202.04   PRESTRESSED BOX BEAMS (AASHTO 3.23.4.3)

The equations for distribution of live load contained in the Fifteenth Edition (1992) including the 1993 and 1994 Interims, shall not be used. Refer to Distribution of Loads in Section 202.02 of this manual for criteria on distribution of loads.