

Type of Beams Required for Various Bridge Spans

Span Length	Size of A36 Beams	Width of Beam (in)	26' Roadway		32' Roadway	
			# Beams Necessary ( $f_y = 36\text{ksi}$ )	Spacing (c/c, ft)	# Beams Necessary ( $f_y = 36\text{ksi}$ )	Spacing (c/c, ft)
20'	W 16 x 40	7	8	43	9	47
	W 18 x 35	6	8	43	9	47
	W 21 x 44	6.5	8	43	8	49
25'	W 18 x 40	6	10	34	11	37
	W 21 x 44	6.5	8	43	9	47
	W 24 x 55	7	8	43	8	49
30'	W 21 x 50	6.5	10	33	11	37
	W 24 x 55	7	8	43	9	47
	W 27 x 84	10	8	43	8	49
35'	W 21 x 68	8.25	9	37	10	41
	W 24 x 68	9	8	43	9	46
	W 27 x 84	10	8	43	8	49
40'	W 21 x 68	8.25	12	27	13	31
	W 24 x 84	9	8	43	9	46
	W 27 x 84	10	8	43	9	46
45'	W 24 x 94	9.125	9	37	10	41
	W 27 x 94	10	8	43	9	46
	W 30 x 99	10.5	8	43	9	46
50'	W 27 x 94	10	10	33	11	37
	W 30 x 108	10.5	8	43	9	46
	W 33 x 118	11.5	8	42	8	49
55'	W 30 x 116	10.5	9	37	10	41
	W 33 x 118	11.5	8	42	9	46
	W 36 x 135	12	8	42	8	49
60'	W 30 x 116	10.5	10	33	11	37
	W 33 x 130	11.5	8	42	9	46
	W 36 x 135	12	8	42	9	46

Notes:

1. All bridges are different and require engineering considerations, please consult an engineer.
2. Assumes single span I-beam bridge constructed of new 36K steel beams. Used beams will require special calculations.
3. Maximum allowable spacing for 26' Roadway is 46 inches and for 32' Roadway is 49 inches.
4. Concrete deck shall be 8 inches thick with 2 layers of reinforcing.
  - a. Top of concrete deck - #4 rebars @ 12" longitudinal and #5 rebars @ 9" laterally
  - b. Bottom of concrete deck - #4 rebar @ 9" longitudinal, #5 rebar @ 9" laterally
5. Concrete deck shall be constructed of Class 'AA' concrete with maximum aggregate size of 1 inch.
6. For 24ft clear roadway projects under force account rules use the 26ft criteria above.