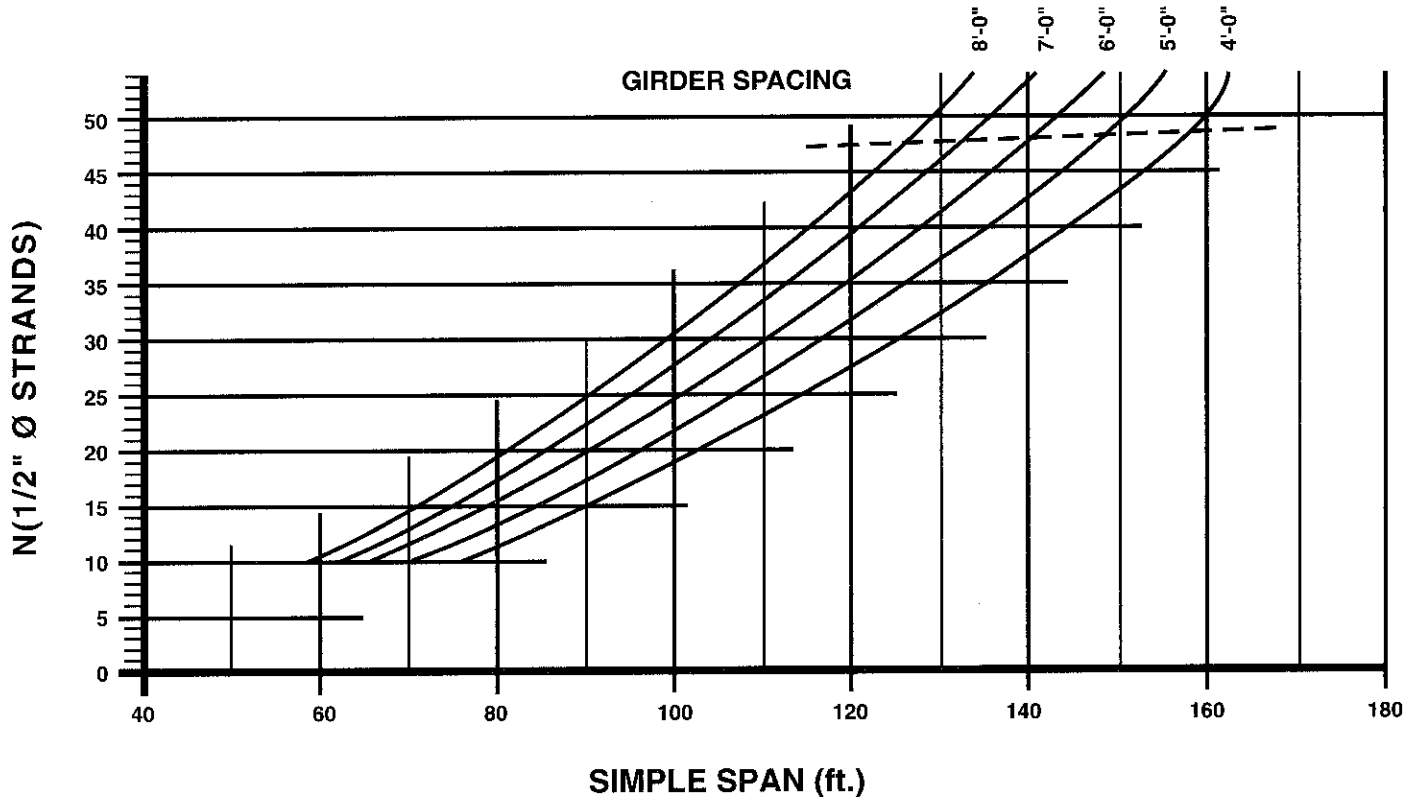




## WSDOT W74G HS 20-44



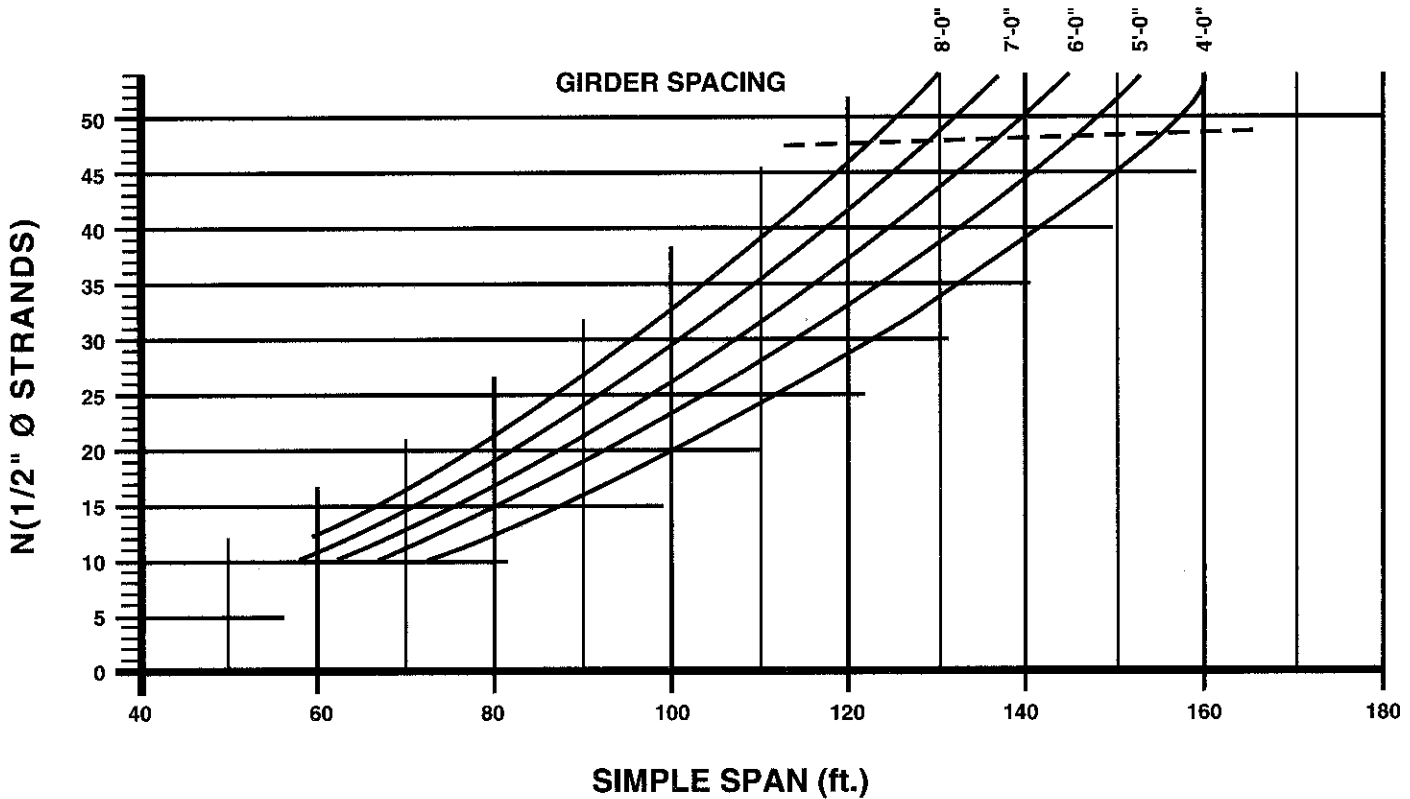
### DESIGN CRITERIA

1. Charts are based on AASHTO 1992 and the WSDOT Bridge Design Manual.
2. Dead Load: Girder + Deck + 50 psf + WSDOT standard diaphragms.
3. Live Load: AASHTO Truck, Lane or Alternate Military Loading as applicable, including impact.
4. Loading Combinations: AASHTO Group I.
5. Live Load Distribution: Two or more traffic lanes, S/5.5.
6. Concrete: Girder  $f'_c = 7000$  psi,  $w_c = 156$  pcf.  
Deck  $f'_c = 5000$  psi,  $w_c = 155$  pcf.  
 $w_c = 160$  pcf used in weight calculations (including reinforcement).
7. Deck Thickness: 7.5", unshored, including .5" wearing surface.
8. Prestressing:  $f_{pi} = 202.5$  ksi ( $0.75 f_{pu}$ ),  $f_{pe} = 154.5$  ksi.
9. Allowable Stresses:
  - @ Service - Tension (Girder) =  $3 \sqrt{f'_c} = 251$  psi  
Compression (Girder) =  $0.4 (f'_c) = 2800$  psi  
Compression (Deck) =  $0.4 (f'_c) = 2000$  psi
  - @ Release - Tension =  $7.5 \sqrt{f'_{ci}}$   
Compression =  $0.6 (f'_{ci})$
10. Allowing  $6 \sqrt{f'_c}$  tension stress at service will generally increase the allowable span length.
11. Designs above the dashed line in the chart require  $f'_{ci}$  in excess of 6000 psi or post-tensioning.
12. Girders are assumed to be shipped between one month and one year after casting.
13. A sharp up-turn of a curve in the chart generally indicates the transition from a tension controlled design to a compression controlled design.

NOTE: These charts are intended to be used as aids to preliminary sizing and must be interpreted on the basis of sound engineering judgement.



## WSDOT W74G HS 25-44



### MEMBER SECTION PROPERTIES:

Member depth (in): 73.50  
 Member area (in<sup>2</sup>): 747  
 Member moment of inertia (in<sup>4</sup>): 547,533  
 Bottom distance to C.G. (in): 38.03  
 Top distance to C.G. (in): 35.47  
 Bottom section modulus (in<sup>3</sup>): 14,398  
 Top section modulus (in<sup>3</sup>): 15,435  
 Weight per foot (k/lf): 0.83

