DESIGN CRITERIA

2. Dead Load: Girder + Deck + 50 psf + WSDOT standard ciaphrags.
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, $w_c = 155$ 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: $f_{p1} = 202.5$ 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 ($f_{cl} = 2800$ psi)
     Compression (Deck) = 0.4 ($f_{c} = 2000$ psi)
   - @ Release - Tension = $7.5 \sqrt{f_{cl}}$
     Compression = 0.6 ($f_{c}$)
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 $f_{cl}$ 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 W50G
HS 25-44

GIRDER SPACING

N(1/2" Ø STRANDS)

SIMPLE SPAN (ft.)

MEMBER SECTION PROPERTIES:
Member depth (in): 50.00
Member area (in²): 526
Member moment of inertia (in⁴): 165,461
Bottom distance to C.G. (in): 22.77
Top distance to C.G. (in): 27.23
Bottom section modulus (in³): 7267
Top section modulus (in³): 6075
Weight per foot (lb/ft): 0.59

MIDSPAN SECTION