DESIGN CRITERIA

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 = $7.5 \sqrt{f_{p,c}}$
     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 $f_{c,c}$ 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 W58G**  
**HS 25-44**

**GIRDER SPACING**

**SIMPLE SPAN (ft.)**

**MEMBER SECTION PROPERTIES:**
- Member depth (in): 58.00
- Member area (in²): 604
- Member moment of inertia (in⁴): 265,373
- Bottom distance to C.G. (in): 27.96
- Top distance to C.G. (in): 30.04
- Bottom section modulus (in³): 9492
- Top section modulus (in³): 8833
- Weight per foot (k/lf): 0.67