

Washington County Structural Health Number

The Structural Health Number (SHN) provides an easy way to rank bridges according to their overall structural condition. This method requires only 4 data points which are readily available on all bridges. Once bridges are scored, other factors can be used to prioritize replacement such as functional class, known maintenance issues, truck usage and availability of detours. Below describes how the bridge structural health number is calculated:

Factors need to calculate SHN:

1. Bridge Deck Condition (1-9)
2. Superstructure Condition (1-9)
3. Substructure Condition (1-9)
4. Type 3 truck rating factor (0 to no upper limit)

Type 3 Truck rating factor is converted to a Rating factor Score by the following:

- Rating factor less than 1 provides a Rating Factor Score of 0
- Rating factors between 1.0 and 1.9 provide a rating factor score equivalent to 10 times the decimal portion of the number (i.e. 1.7 = 7, 1.3 = 3)
- Rating factor greater than 1.9 provides a Rating Factor Score of 9

Equation used to calculate SHN:

$$(\text{Deck Condition} + \text{Superstructure Condition} + \text{Substructure Condition} + \text{Rating Factor Score}) \div 36 \times 10$$

(The 36 converts it to a percent of the total possible and the 10 just makes it a number greater than 1)

Example calculation:

Bridge 00459 (B street)

Deck Rating = 7

Superstructure Rating = 6

Substructure Rating = 6

Type 3 Rating Factor = 1.12

Rating factor Score = 1.2

$$\text{SHN} = (7+6+6+1.2) \div 36 \times 10 = 5.61$$