Bridge Flooding Vulnerability

The flooding vulnerability tool uses NBI data to develop flood and scour risk indicators. The tool uses three parameters to identify relative risks between different structures.

- Structural Condition—Evaluates the overall structural integrity based on NBI data.
- Geomorphic Sensitivity—Evaluates channel condition, scour potential, and observed scour.
- Criticality—Evaluates how integral an asset is to the transportation network.

These three factors are quantified, weighted, and combined to provide an overall value from 1-3, with 3 representing the highest sensitivity to flooding or scour. This Bridge Prioritization Index is considered in project prioritization. Figure 5-2 shows the results of an analysis to identify hot spots for structures with high sensitivity to scour and flooding. A hot spot indicates an area where several sensitive structures are close together.

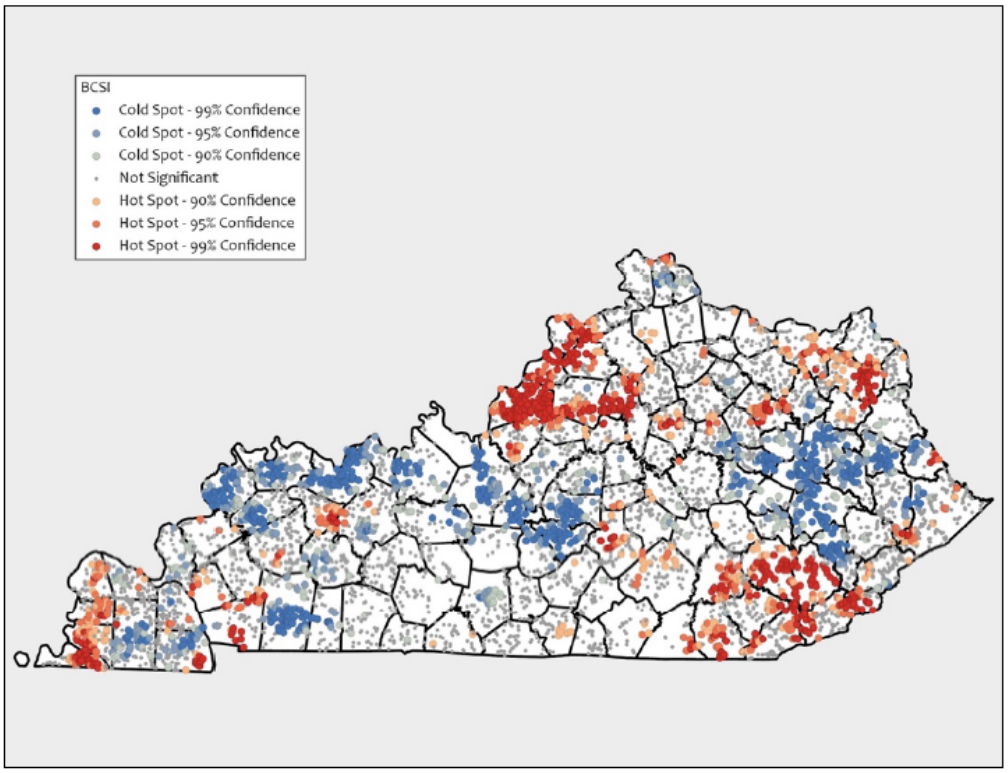

Figure 5-2. Bridge Scour Criticality Index hot spots (Blandford, et. al. 2019)

Pavement Performance Under Increased Heat and Precipitation

The study used the software application that KYTC uses to design pavement thicknesses to evaluate the performance of KYTC's standard pavement designs under future scenarios with increased temperature and precipitation over 20- and 40-year periods. While the simulations indicated increased levels of distress, compared to current temperatures and precipitation, the