



Systemic Installations of High Friction Surface Treatments on Small Curves in Kentucky



➤ What was the safety issue, problem, or gap?

When typical low-cost safety improvements, such as signing and delineation, do not reduce crashes, the Kentucky Transportation Cabinet's (KYTC) options are limited. Narrow, winding roads are prevalent in Kentucky and lane widths less than 9 feet are not uncommon. In many instances roads have very little right-of-way, making more substantial treatments like shoulder installation very costly. While striping is a viable solution in some circumstances, the Manual on Uniform Traffic Control Devices (MUTCD) does not recommend installing center or edge line pavement markings for pavement widths under 20 feet.

These challenges directed KYTC to look for alternative countermeasures to keep vehicles on the road coupled with an ability to be installed within a constrained right-of-way. High friction surface treatments (HFST) emerged as a potential alternative to address Kentucky's issues.

➤ What were the key challenges that needed to be addressed before the new practice could be implemented?

KYTC had vast experience identifying, selecting, and installing HFST on long and large radii curves. The agency had yet to install small HFST applications and wanted to test its viability to be introduced at curves on the minor road system. Since small applications could likely lead to increased installations costs associated with small quantities and equipment mobilization, KYTC needed to identify a means to successfully and efficiently address the dozens of sites.

*KYTC installs small HFSTs
(less than 800 square yards)*



► Describe the new practice:

From 2009 through 2012, KYTC installed 15 small – less than 800 square yards – HFST applications on State routes to test the feasibility of small installations on minor routes by bundling several small installations into a single contract.

► Key accomplishments, including roadway safety improvements:

The small applications at various sites around the State led KYTC to realize that, not only can HFST have a role in reducing crashes on the minor road system, but it is even feasible to systemically implement the treatment using an identification and selection process similar to the one used on major roads. This process involves quantifying crash history as the initial determining factor, then ensuring that pavement quality is sufficient to accept the treatment and provide durability over the HFST's life span.

► What technical and/or institutional changes resulted from the new practice?

KYTC recognized that the same benefits HFST afforded at long or large radii curves could be extended to the minor system on smaller curves. The agency bundled small installations in regional proximity into a single project for the bidding process, maximizing benefits while minimizing costs.

► What benefits were realized as a result of the practice?

At the 15 sites where small HFST applications were installed, KYTC noted a greater than 70 percent crash reduction overall. At several sites, the HFST application attributed to zero crashes in the five year after period.

FOR MORE INFORMATION

Joseph Cheung
FHWA Office of Safety
joseph.cheung@dot.gov

Tracy Lovell
Kentucky Transportation Cabinet
tracy.lovell@ky.gov