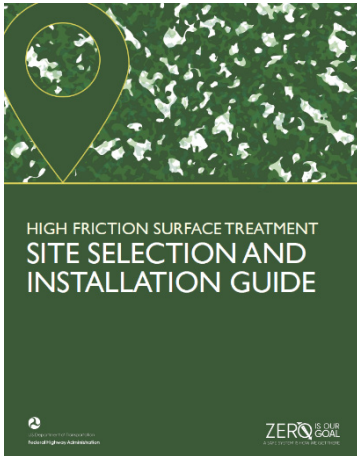


# High Friction Surface Treatment Resources



## Guide Highlights

The Guide outlines the step-by-step process for HFST implementation:

1. **Identify Candidate Locations for HFST** (Chapter 2)
2. **Field Verification and Design** (Chapter 3)
3. **Select HFST Materials** (Chapter 4)
4. **Develop Installation Specification** (Chapter 5)
5. **Estimate Costs and Identify Funding** (Chapter 8)
6. **HFST Installation** (Chapter 6)
7. **Performance Monitoring** (Chapter 7)



HFST installed on pavement.  
(Source: The Transtec Group, Inc.)

The Federal Highway Administration (FHWA) Office of Safety sponsored the development of the *HFST Site Selection and Installation Guide (the Guide)* to update and expand upon the information from the 2016 FHWA HFST Curve Selection and Installation Guide. Utilizing some of the materials gathered through the development of the Guide, two other resources were developed as well; The HFST Inspection and installation Pocket Guide and the updated HFST Frequently Asked Questions.

## Background

High friction surface treatment (HFST) is a proven safety countermeasure for reducing friction-related crashes at curves, ramps, intersections, and other locations with high friction demand. More than 44 States have deployed HFST for the first time over the past 15 years, with many States currently implementing HFST systemically on a large scale. With the increased interest and deployment of HFST has come the need for more recommendations for implementing this life-saving countermeasure. The state-of-the-practice for HFST site selection, materials, installation, and performance monitoring has changed significantly, and this Site Selection and Installation Guide reflects these changes. This Guide will assist agencies who are looking to implement HFST for the first time, who may be limited in their ability to expand and improve their program, and who may have mature programs and would like to refine their program.

## Key Practices

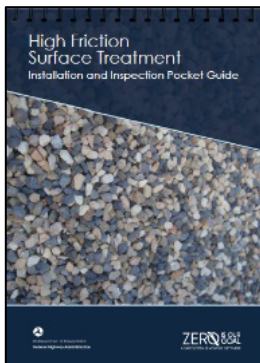
The Guide highlights key practices from agencies which have realized the greatest benefit from HFST deployment, including:

- Data-driven approaches for HFST site selection that utilize statistically-rigorous predictive methodologies (Safety Performance Functions and Empirical Bayes) to identify and prioritize treatment locations.
- Using friction testing and project-level reviews of candidate installation locations to ensure each location is suitable for installation.
- Reducing the unit cost of deployment through bundling multiple installations in a single contract and/or using on-call contracting.
- Requiring the use of advanced installation methods such as fully automated systems to ensure proper conditioning, proportioning, and blending of resin binder materials, uniform application of resin binder to the specified mil thickness, and timely and uniform application of aggregate to the binder.
- Continually monitoring the performance of existing installations to document both safety performance and functional performance for the purposes of improving deployment programs.
- Regularly reviewing and updating the benefit/cost ratio of existing HFST installations for the purpose of improving the efficiency of HFST deployment.
- Regularly reviewing and revising as needed the site selection practices as well as materials and installation specifications to continue to optimize deployment of HFST.
- Never compromising on HFST material quality or performance requirements for the sake of reducing cost

## Availability

Access the *HFST Site Selection and Installation Guide* now at:

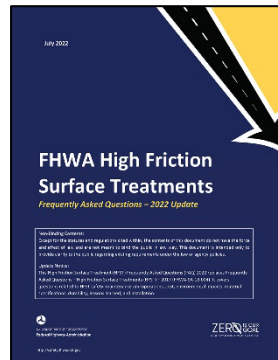
[https://safety.fhwa.dot.gov/roadway\\_dept/pavement\\_friction/high\\_friction/docs/HFST\\_Guide\\_HPA.pdf](https://safety.fhwa.dot.gov/roadway_dept/pavement_friction/high_friction/docs/HFST_Guide_HPA.pdf)



### Installation and Inspection Pocket Guide

The Installation and Inspection Pocket Guide summarizes Chapter 6 of the *HFST Site Selection and Installation Guide*. This Pocket Guide may be downloaded and printed, and is also formatted for viewing on mobile devices in the field. The Pocket Guide includes an inspection checklist that steps through pre-construction, materials, surface preparation, pre-application, resin binder application, aggregate application, aggregate removal, traffic and testing acceptance opening, and post-installation items.

- [Tablet Version](#)
- [Mobile Phone Version](#)
- [Instructions for downloading to your mobile phone](#)



### Updated FAQ

Frequently Asked Questions (FAQs) have also been updated (from the 2017 version) and provide concise answers to the more commonly asked questions related to HFST. This includes questions related to safety, maintenance and operations, cost, environmental impacts, material specifications/durability, lessons learned, and installation.

[FHWA High Friction Surface Treatments: FAQs 2022 Update \(dot.gov\)](#)



### Updated Training Materials

Updated training materials (available as a PPT presentation) are available with scripted speaker notes. The training materials feature two modules, designed for up to four hours of training:

#### Module 1 – HFST as a Safety Countermeasure

- Overview of HFST.
- Site Selection.
- Field Verification and Design.
- Cost Estimation and Funding.
- Case Studies.
- Keys to Successful Deployment.

#### Module 2 – HFST Materials and Performance

- Materials and Properties.
- Specifications.
- Installation.
- Inspection.
- Early-Age Monitoring.

**To schedule the delivery of this training module, please contact the FHWA Resource Center listed below for more information.**

### Advantages of HFST:



- Low-cost.
- Durable.
- Minimal traffic impact.
- Quick implementation.
- Negligible environmental impacts.
- Superficial treatment.
- Tremendous crash reduction capability.

**Joe Cheung**  
[Joseph.Cheung@dot.gov](mailto:Joseph.Cheung@dot.gov)  
202-366-6994

**Victoria (Tori) Brinkly**  
[victoria.brinkly@dot.gov](mailto:victoria.brinkly@dot.gov)  
360-833-3795