

Application Story

## ACRYLITE® Soundstop

### TxDOT Implements Transparent Noise Barrier To Reduce Persistent Highway Noise



#### Market segment

Noise Barrier and Specialty Glazing

#### Location

Dallas, Texas

#### Product

ACRYLITE® Soundstop

In 2003, soon after construction along Interstate 30 near downtown Dallas had been completed, the Texas Department of Transportation (TxDOT) began receiving complaints from residents in the surrounding neighborhoods about loud traffic noise.

Over the next decade, TxDOT received numerous complaints and struggled to find a way to minimize the traffic noise. Despite many initiatives to reduce the noise levels, community discontent grew until Armtac Infrastructures Inc. presented TxDOT with a solution – clear, acrylic noise barriers created by Evonik called ACRYLITE® Soundstop.



The primary challenge for TxDOT was to find a way to reduce the high noise level for nearby homeowners while staying within budget and not blocking the view of nearby Stevens Park. At the heart of the problem was the existing eight-foot-high noise barrier, which was too short to provide sufficient noise reduction on I-30. The only solution was to increase the height of the barrier to 18 feet.

A thorough analysis of the existing noise barrier revealed that the wall could not be raised using the same concrete construction materials because the weight of the additional concrete would be too much for the foundation to support. It would also be too costly to tear down the existing wall in order to rebuild a taller one. In addition, residents of the local community opposed an 18-foot opaque wall as they did not want to lose sight of Stevens Park or as they put it, live next to the “Berlin Wall.”

Due to these constraints, TxDOT tried a variety of solutions including quiet pavements asphalt mix and attaching noise absorbing panels to the walls

on the opposite side of the highway – all without adequate success. Not until Mark McIlheran P.E., consulting engineer for Armtec Infrastructures Inc. mentioned ACRYLITE® Soundstop as a potential solution to George Reeves, traffic noise analysis and abatement coordinator for TxDOT, did the possibility to extend the height of the noise barriers without negative impacts on the community become a real option.

“We needed to find a noise-mitigating solution because we were receiving complaints from our residents due to traffic noise on Interstate-30,” Reeves said. “After experimenting with various applications, we found that ACRYLITE® Soundstop was the best option. Not only were the barriers successful in reducing noise, the transparency of the material didn’t block the view of Stevens Park, which was very important to residents. The combination of these benefits led us to use the barriers on an experimental basis, something we would not have been comfortable doing without adequate documentation concerning long-term weather stability and the ability to talk with other states that have used these barriers previously.”

Noise measurements conducted by the Center for Transportation Research (CTR) at the University of Texas in the neighborhood directly behind where the ACRYLITE® Soundstop noise barriers were installed indicated significant noise reduction. “It’s definitely quieter,” said Manuel Trevino of CTR, who has been directly engaged in the noise performance studies. “I set up recording equipment near I-30 to collect noise data and the people I have spoken with are happy with the new walls. They like that they can see through them and really like that the noise has been reduced.”

“ACRYLITE® Soundstop is a clear noise barrier material that preserves the aesthetics of a nearby community, which is something very important to residents,” said Nate Binette, noise barriers segment manager at Evonik Corporation.

“Designers seek to preserve views while structural engineers strive to keep the noise barriers within a particular weight limit to ensure safety. What really made this project a success was that we were able to work with Armtec and create a customized barrier attached to the existing wall, which was very cost-effective for TxDOT.”