



# Development of a Sign Sheeting Sampling Protocol for the Determination of Service Life of Traffic Signs

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## Current Situation

Traffic signs provide important information to road users and must be visible both day and night. Regular inspections ensure that signs are not obscured by vegetation, vandalism, or other damage. At night, when visibility is even more important, a special retroreflective coating goes to work. "Retroreflective" means that the sign scatters light from a car's headlights in many directions, including back toward the driver, making the sign more luminous, more visible, and easier to read at night. National standards set how much light a retroreflective sign must return to the driver, but over time, retroreflective coatings degrade and must be refurbished or replaced. With many thousands of signs on Florida's highways, estimating the service life of signs is important in maintaining safety and planning maintenance activities and budgets.

## Research Objectives

University of Central Florida researchers examined a possible improvement on current methods used by the Florida Department of Transportation (FDOT) for determining the service life of traffic signs and selecting signs most likely to require maintenance.

## Project Activities

Data from FDOT districts 1, 2, 4, and 7 were used as the basis for this project. These four districts maintain information on signs that is readily available in database format. Generally, information about signs in the databases included facility, installation date, identifying codes, sign type, size, location, direction, materials, colors, etc. Because districts maintained different numbers of sign descriptors and categorized similar descriptors in different ways, the researchers created separate GIS files for each district.

Statistical analyses were conducted on sign data from each district. One FDOT district maintained more detailed records about signs than the other three which allowed for increased analysis. These more detailed statistical tests were a useful guide for analyzing the other districts. A simpler set of descriptors, selected for the three districts with less detailed data sets, were used in models in efforts to predict changes in the retroreflectivity and chromaticity (color fading) over time.

The project successfully demonstrated methods for acquiring, merging, and modeling sign data from various sources, thus developing more detailed insight into typical sign service life. However, both the traditional and more advanced statistical procedures returned similar predictions for service life of traffic signs. More complete data sets and more long-term data will be needed to fully utilize the advanced statistical methods developed by the researchers.

## Project Benefits

Projects like this one help FDOT understand the data needs of modern predictive methods and develop systems to collect these data. In turn, better predictive methods lead to more cost-efficient maintenance of the many traffic signs that guide drivers every day.

*For more information, please see [www.fdot.gov/research/](http://www.fdot.gov/research/).*



*The humble road sign plays a critical role in safely guiding drivers, especially at night.*