

Maintenance and Restriping Strategies for Pavement Markings on Asphalt Pavements in Louisiana Dataset

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(This dataset supports report **Maintenance and Restriping Strategies for Pavement Markings on Asphalt Pavements in Louisiana**)

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The related final report **Maintenance and Restriping Strategies for Pavement Markings on Asphalt Pavements in Louisiana**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/61835>.

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Abstract: In Louisiana, most districts restripe their roadways using waterborne paints every other year; this strategy is questionable in terms of efficiency and economy. Meanwhile, previous studies showed substantial variability in the paint service life throughout the United States ranging between 0.25 and 6.2 years. Shortcomings in modeling the retro reflectivity of waterborne paints appear to significantly contribute to these variations as several studies predicted these values using degradation curves with a coefficient of determination (R^2) as low as 0.1. Therefore, the objective of this study was to (i) develop new cost-effective restriping strategies using 4-inch (15-mil thickness) and 6-inch (25-mil thickness) wide waterborne paints when applied on asphalt pavements in hot and humid climates, and (ii) employ an advanced machine learning algorithm to develop performance prediction models for waterborne paints considering the variables that are believed to affect their performance. To achieve these objectives, National Transportation Product Evaluation Program (NTPEP) data were collected and analyzed to evaluate the field performance of waterborne paints commonly used in Southern United States. Results indicated that 4-inch wide standard paints exhibited service life up to four years depending on the line color, traffic and initial retro reflectivity, while 4-inch wide high-build paints had a service life of at least three years. Based on a life-cycle cost analysis, it was concluded that LaDOTD could restripe their district roads every three years instead of the current two-year period using the same product (4-inch or 6-inch wide) saving about \$20 or \$2 million, respectively, every year when restriping a 5,000-mile network. Additionally two machine-learning models were developed with an acceptable level of accuracy, and that can predict the skip and wheel retro reflectivity of waterborne paints for up to three years using only the initial measured retro reflectivity and the anticipated project conditions over the intended prediction horizon, such as line color, traffic, air temperature, etc. These models could be used by

transportation agencies throughout the United States to (1) compare between different products and select the best product for a specific project, and (2) determine the expected service life of a specific product based on a specified threshold retro reflectivity to plan for future restriping activities.

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Dataset description:

This dataset contains 1 file described below.

Datasets.xlsx:

The .xlsx and .xls file types are Microsoft Excel files, which can be opened with Excel, and other free available software, such as OpenRefine.

National Transportation Library (NTL) Curation Note:

As this dataset is preserved in a repository outside U.S. DOT control, as allowed by the U.S. DOT's Public Access Plan (<https://ntl.bts.gov/public-access>) Section 7.4.2 Data, the NTL staff has performed *NO* additional curation actions on this dataset. NTL staff last accessed this dataset at https://digitalcommons.lsu.edu/transet_data/128 on 2022-05-25. If, in the future, you have trouble accessing this dataset at the host repository, please email NTLDataCurator@dot.gov describing your problem. NTL staff will do its best to assist you at that time.