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DEVELOPMENT OF A SAMPLING PROTOCOL FOR CONDITION ASSESSMENT

Problem

SHA has established a Peer Review Measurement Program to evaluate the condition of SHA's highways and roadsides, as well as the level of service (LOS) provided to customers. The drawback of the current approach is that the sample size may not be representative (i.e., of sufficient size and diversity) to infer asset condition levels of the entire inventory.

Objectives

To develop a sampling protocol for condition assessment of selected assets (e.g., line stripping, drainage, signs) and provide recommendations for data collection as a function of the desired precision and level of confidence. The focus is on reliable estimates of the condition of assets at each maintenance shop. More specifically, the goal would be to obtain reliable information such that SHA shops can prioritize areas of need and determine levels of funding, personnel, and equipment.

Description

A sampling protocol is developed based on a stratified random sampling approach. The number and variety of required samples (i.e., number of ½ mile roadway sections) to obtain a desired precision and level of confidence in the estimate of the LOS of assets is calculated for each maintenance shop. The three basic parameters utilized to define strata for each shop are: functional classification of roadways, AADT range, and the assets in each category.

Results

The results suggest that for a given precision and confidence at the shop level, the sample size and distribution is significantly different from that utilized as part of the current Peer Review Measurement Program. A MS Excel spreadsheet to determine the size and diversity of samples based on the proposed sampling protocol is developed as part of this study. SHA will be able to utilize the spreadsheet to determine the size and diversity of samples based on updated information on the variability in estimates of LOS obtained from recent peer review data.

Report Information

A comprehensive report (MD-07-SP608B4H-Development of a Sample Protocol for Condition Assessment) has been prepared with information on data, methodology, and implementation of the proposed sampling protocol, as well as recommendations to conduct field surveys to generate LOS ratings.