Evaluation of Data Requirements for Computerized Constructability Analysis of Pavement Rehabilitation Projects

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Introduction

With the impending end of the serviceable life of the National Highway System, many transportation agencies have increased their focus on preservation, rehabilitation, and maintenance projects. The Construction Analysis for Pavement Rehabilitation Strategies (CA4PRS) software has been a useful decision making tool for various Departments of Transportation (DOTs) in the United States.

CA4PRS:
- Estimates the maximum probable length of highway pavement that can be rehabilitated given the various project constraints.
- Evaluates the impact of rapid construction strategies and the effect of alternative construction windows among others.

Overall Procedures of CA4PRS

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Application of the CA4PRS

- Increasing productivity construction
- Decreasing workzone traffic impact
- Analyzing life-cycle cost
- Optimizing staging configuration
- Analyzing total cost

Methodology

Tools Used During the Data Collection Phase

- Schematic presentation of the DeKalb county project (as a case study); from Peachtree Dunwoody Rd to Henderson Mill Rd
- Atlanta Traffic Cameras application
- On-site activities of the DeKalb county project

CA4PRS Data Need Analysis

Variables | Units | Source
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Mobilization time | 1.0 hr | On-site
Activity constraints | - | On-site
Log time between Milling and Paving | 24 hr | On-site

Results & Future Research

- Data requirements of CA4PRS
- Reduces the amount of construction knowledge necessary for estimates, but is not a replacement for experience.
- GDOT personnel could benefit from the use of IT tools that would facilitate their data collection and analysis process.
- Defines the manner in which the missing 15% of data will be obtained.
- CA4PRS program continues to be developed and, in the future, will also allow other analyses such as widening, interchange rehabilitation, and bridge structure replacement, which could be beneficial to all DOTs, including GDOT.