Joint Transportation Research Program

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SPR-3534 2012

Level of Service Program for INDOT Operations

Introduction

In 2008 the JTRP study SPR-3130, Performance Based Contracting for Roadway Maintenance Operations, revealed the state agencies that have developed a Level of Service (LOS) program benefit. A LOS program can evaluate and determine maintenance performance values for the components of the Indiana Department of Transportation's road network. In other words, it can be the report card for calculating performance. Additionally, once a LOS has been defined, budget numbers can be developed and associated with a particular LOS for each element. This is very helpful in determining budget impacts on maintenance operations. When budgets are changed, the impact on operations can be quantified and described. If INDOT looks at using more private contractors to assist in maintenance, a LOS program is essential in determining cost estimates, their performance and corresponding levels of compensation.

Findings

INDOT developed Maintenance Quality Survey (MQS), an inspection or survey program. MQS was used to rate the condition of INDOT's assets in nine roadway services categories and three traffic categories. The inspections created various reports used to direct and guide the work program. MQS is a visual inspection of all six districts' assets and was performed from a moving vehicle using two teams of two inspectors. It took on average 18 months to inspect the complete network. All roads in the state were on a 2-year cycle for MQS inspections.

The MQS approach provides a complete evaluation in these asset areas requiring 2 years of resources. A survey of other state agencies reveals that most other states are using a random sampling approach to collect the same information. Of the nineteen agencies that responded to the study information request, eighteen use the random segment approach. This approach inspects randomly selected segments that represent the overall population at a certain level of confidence. Most of these inspection programs are attempting to achieve 90%–95% confidence in the results. If properly performed, this approach can deliver similar inspection results as the MQS program at lower costs.

Implementation

At the time this draft report was submitted, INDOT had implemented the LOS field inspection program. INDOT has plans to utilize the data created through this project in the Work Management System (WMS) LOS module.

The LOS inspection program is operational with the two inspection teams and requires 160 segments per sub-district. With 36 sub-districts, the total number of inspection segments at INDOT will be 5,760. Based on daily productivity results (80 inspections for both teams), the estimated time to complete the inspections is 15 weeks, which is approximately 4 months. The previous MQS inspection program took approximately 18 months to complete. Therefore, the LOS inspection program is potentially saving 14 months of time.

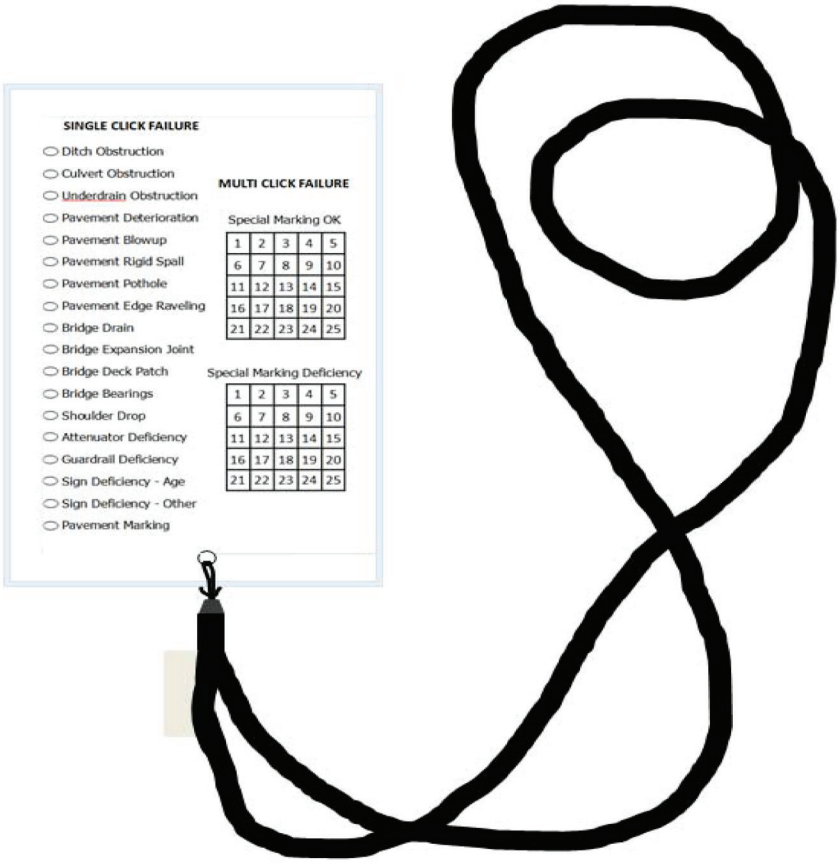
Assuming a 14-month time savings for the inspection teams, a cost saving can be calculated. INDOT's finance section estimates the hourly rate for a highway technician to be $31/hour. Each team is comprised of two technicians, so the total time saved is 4 technicians × 37.5 hours/week × 14 months × 4 weeks/month = 8400 hours. The potential cost savings is 8400 hours × $31/hour = $260,400. Travel and per diem costs will be less as well, and could be calculated after a complete inspection cycle has been performed. When the WMS functions are utilized, INDOT will have in place a complete LOS program that utilizes a random sampling approach and computer capabilities that provide the necessary reports and data to operate a comprehensive LOS program for INDOT operations.

Recommended Citation

McCullough, B. *Level of Service Program for INDOT Operations*. Publication FHWA/IN/JTRP-2012/16. Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana, 2012. doi: 10.5703/1288284314978.

View the full text of this technical report here: http://dx.doi.org/10.5703/1288284314978

Published reports of the Joint Transportation Research Program are available at: http://docs.lib.purdue.edu/jtrp/



Field inspection card.

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