INDOT Research

# TECHNICAL *Summary*

Technology Transfer and Project Implementation Information

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# *Weigh-In-Motion Data Checking and Imputation*

## Introduction

WIM systems are usually used to detect illegally overweight vehicles and to collect traffic data for highway planning and management purposes. The purpose of this study is to identify missing or erroneous data and to develop a data imputation method to update these data. WIM data from the year of 1997 to 2001 for sites 4260 and 4270 are used in the analysis.

## Findings

WIM data checking should be conducted on both a monthly basis and a daily basis. The three methods using unclassified vehicle rate, front axle distribution and Class 9 vehicle GVW are widely accepted. The WDDC (Weigh-In-Motion Daily Data Checking) program is developed for INDOT to facilitate the daily checking process.

In the experiment of imputing 7-day data, the MAPE for the factor method and regression methods are within the range of 15-20 percent.

## Implementation

Throughout the data analysis for this project, we realize how much important information the Weigh-In-Motion system can provide. However, the data quality often suffers from equipment problems. In addition, this project has been hampered by the lack of historical data. As more historical data can be retrieved, the ability to impute data can be more comprehensively assessed.

In the meantime, the data checking procedures developed in this project should facilitate the prompt detection of apparent data anomalies and the application of appropriate connective action. In the process, the amount of poor data can be reduced, with a corresponding reduction in the need for data imputation.

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