



Research Problem Statement

ODOT Research Section
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I. TITLE

17-037 DEVELOPING GUIDELINES FOR A STATEWIDE SYSTEM TO MONITOR BICYCLE TRAVEL

II. PROBLEM

Properly measuring and monitoring *usage and activity* levels are indispensable to promote an effective usage of resources and investments. Since 1965 federal and state departments of transportations have been supporting the Highway Performance Monitoring System (HPMS); HPMS provides data not only about the state of the roadway systems (infrastructure) but also about its *utilization* in terms of vehicle flows and classification (1). Even highway cost allocation studies are emphasizing procedures that incorporate both *usage intensity* or axle loads and overall *utilization* or mileage (2). Unfortunately, HPMS data and methodologies apply only to motorized traffic.

Unlike motorized traffic monitoring, non-motorized data collection is not yet systematic or comprehensive. Although there is growing interest in formalized programs to count bicycle and pedestrian activity, today there are no Federal or State requirements for non-motorized traffic monitoring. No statewide comprehensive bicycle and pedestrian data collection system has been fully implemented. A few states, including Colorado and Minnesota, are in the process of developing bicycle and pedestrian data collection guidelines. However, development efforts have focused mainly on evaluating and testing data collection equipment. The latest Traffic Monitoring Guide (TMG) has a new chapter dedicated to active transportation. This chapter includes general concepts related to active transportation travel and recommendation regarding data collection equipment. However, there is scant or no guidance regarding the practical implementation of a statewide system for active transportation.

One of the challenges of developing a statewide system to monitor bicycle travel is that there are no examples or guidelines to set up a statewide bicycle data collection system. A recent research report, ODOT SPR 13-073 (3), provides useful guidelines to implement a statewide non-motorized data collection system in Oregon. However, the specific detailing of counting stations characteristics and potential locations is not included.

III. PROPOSED RESEARCH, DEVELOPMENT, OR TECHNICAL TRANSFER ACTIVITY

Performance metrics are essential for policy makers, transportation professionals, and the public interested in providing adequate facilities for bicycle travel around the state. When locations with high bicycle volumes are identified, priorities for funding improvements are easier to identify, justify, and fund.

The main outcomes of this project include:

- i. Recommended criteria for continuous bicycle counter placement and list of potential location types for permanent and short-term stations for bicycle counting.
- ii. Recommendations for data collection equipment and staff needs for permanent and short-term counting efforts.
- iii. Estimation of the tradeoffs between budget levels, coverage, and data quality.

The ultimate goals that guide the development of an active transportation statewide monitoring system include:

- Development of performance measures and methodologies to estimate pedestrian miles traveled (PMT) and bicycle miles traveled (BMT)
- Development of tools to estimate pedestrian and bicycle exposure that can be applied in safety studies and to estimate bicycle and pedestrian crash rates.

IV. POTENTIAL BENEFITS

Accurate measures of bicycling and walking throughout the state are critically needed in order to plan and design for those who bicycle. Such information is also fundamental to understanding safety and crash rates. The lack of accurate estimates of non-motorized traffic on individual facilities is a main reason why robust studies of the safety of different road and intersection designs for cyclists and pedestrians are rare.

It is expected that the systematic recording and comparison of estimated and realized changes in bicycle trips will result in overall data collection savings and higher return for each dollar invested in bicycle facilities. In addition, tracking active transportation levels will be useful to estimate economic benefits of bicycling and walking in terms of congestion, fuel costs, emissions, noise, vehicle crashes, and highway usage and maintenance.

V. IMPLEMENTATION

This research idea is timely because the developed methodology and research results could also be used to inform the development and/or implementation of ODOT's bicycle and pedestrian plan. ODOT's staff from Traffic Monitoring Systems and Bicycle and Pedestrian unit have reviewed and supported this submission.

The results of this research can be immediately implemented by ODOT's traffic monitoring staff and directly incorporated into the bicycle/pedestrian data collection program because this research will utilize existing data sources and the insights gained from recent research efforts.

VI. LIST OF REFERENCES

1. <http://www.fhwa.dot.gov/policyinformation/hpms.cfm>
2. Oregon Highway Cost Allocation Study, 2011-2013 biennium, ECONorthwest
3. Figliozzi, M., Monsere C., Nordback, K., and Johnson, P., ODOT SPR 13-073, "Design and Implementation of Pedestrian and Bicycle-Specific Data Collection Methods in Oregon."

VII. CONTACT INFORMATION

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