

EXPERIMENTAL PROJECTS WORK PLAN

EVALUATION OF URBAN TRAFFIC COUNTING DEVICES

Location: Lewis and Clark County, Great Falls District: Helena - Henderson Street (U-5810/ C005810N)

Project Name: Henderson Street Counter Test Site

Project Number: N/A

Experimental Project No.: MT-16-01

Type of Project: Automated Traffic Counter Evaluation

Principal Investigator: Craig Abernathy: Experimental Project Manager (ExPM)

Technical Contact: Peder Jerstad; Transportation Division

Description

The Traffic Data Collection and Analysis Section (TDCA) have initiated this project to evaluate vehicle classification and axle adjustment factors in urban areas. Equipment currently used by the Montana Department of Transportation (MDT) for vehicle detection is designed for free-flowing traffic with little or no congestions or peak hour stops and starts. TDCA equipment currently in urban areas is less sophisticated; it simply notes presence and is unable to provide classification data or axle data to create adjustment factors.

TDCA is able to accurately detect vehicles as they enter an urban area, but has a difficult time monitoring which routes vehicles choose inside the urban area. MDT engineers and decision makers desire better urban traffic information in order to effectively design and rebuild routes, monitor traffic trends, and drive decisions. Improving the quality of the data improves the accuracy of outputs such as Vehicle Miles of Travel (VMT) which is used in safety calculations and is a contributing factor in the allocation of the Highway Trust Fund. To collect better and more comprehensive data, TDCA intends to expand the number of permanent Automatic Traffic Recorders (ATR) in urban areas.

TDCA proposes to evaluate several types of permanent Automatic Traffic Recorders (ATR) that advertise the ability to determine vehicle classification or axle counts in urban areas, and assess what equipment type(s) will meet MDT needs based on

varying roadway, traffic, and roadside characteristics.

Experimental Design

Experimental counter equipment and sensors will be placed in the roadway and/or the right of way, depending on function. Along with the experimental equipment, TDCA will add a conventional single loop or loop and piezo site to act as a control to compare new counts. TDCA also has video equipment it intends to use to verify each product's ability to detect and classify vehicles as described by the manufacturer.

The products chosen at this time are the:

1. Sensys FlexMag Counters:

<http://sensysnetworks.com/products/flexmag>

And;

2. Wavetronix SmartSensor HD Counter:

<http://www.wavetronix.com/en/products/smartsensor/hd>

The equipment is intended to collect both directions of traffic. To collect two directions of length-based traffic data, 4-6 Sensys sensors would be required. One Wavetronix SmartSensor would count both directions of traffic. Cost for 4-6 Sensys sensors is roughly equal to one SmartSensor. Like all of TDCAs permanent count sites, data will be collected on a daily basis via a remote connection.

Evaluation Procedures

Research and TDCA staff will document the installation processes for best practice along with equipment information germane to the performance of the ATRs.

Additional site inspections may supplement the semi-annual visits based on need. Monitor and report on long-term performance.

Construction Documentation: Will include information specific to the installation events of the ATC Units.

Post Documentation: Will entail semi-annual inspections of the ATR efficacy as well as report on detection accuracy and data comparisons of the units involved.

Evaluation Schedule

Research will monitor performance for a minimum period of five years annually, with reporting requirements every year up to ten years (informally if project requires additional quantitative data).

Delivery of a construction/installation report, interim, annual or semi-annual reports is required as well as a final project report (responsibility of Research). A web page will be dedicated to display all reporting from the project.

The following schedule is standard reporting practice for most projects. Due to the nature of the experimental features, confirmation of ATR performance may be concluded at an earlier time frame to be determined by the TDCA.

2016:	Installation/Construction Report
2017-2020:	Semi-Annual Inspections/ Annual Evaluation Reports
2021:	Final Evaluation/Final Report

Project Location

Lewis & Clark County – Helena; Great Falls District: Henderson Street (U-5810/ C005810N) – Between West Custer Ave. and Brady St.

