ARDOT TRC TRANSPORTATION RESEARCH COMMITTEE

PROBLEM STATEMENT
No. 26

RESEARCH PROBLEM STATEMENT

DATE: 09/25/2020	**PROJECT AREA:** Planning

TITLE: Economic Impacts of Operational Improvements

PROBLEM STATEMENT:

In recent years, ARDOT has increasingly implemented non-capacity expansion projects that are categorized as Transportation Systems Management and Operation (TSM&O) and Intelligent Transportation Systems (ITS) solutions. Applications of TSMO and ITS include traffic incident management, service patrols, access management, road diets, work zone management, etc.. Such projects improve traffic flow and safety and reduce congestion and delay and are advantageous due to their low capital, operations, and maintenance costs. Quantification of TSM&O and ITS derived benefits is critical due to increasingly challenging fiscal constraints. To fully and fairly identify and prioritize TSM&O and ITS strategies, accurate cost-benefit analyses are needed. Therefore, this is project aims to develop a framework and tool to evaluate the economic impacts of TSM&O and ITS and their varied applications. The proposed methodology and tool will allow ARDOT to assess the benefits of non-capacity expansion projects at the early and middle stage planning processes (e.g., sketch-planning) and, therefore, contribute to performance-based planning requirements.

OBJECTIVES:

The objectives of this project are to: i) develop a framework to measure the impacts of operational improvements on facility performance, ii) estimate a set of economic indicators, and iii) develop a sketch-planning tool to operationalize the proposed framework. Proposed tasks include: a) review of the available tools and methods to measure the economic impacts of operational improvement projects, b) development of a framework and tool to measure economic impacts of a set of operational improvement strategies suggested by ARDOT, and c) application and validation of the tool using two case studies.

FORM OF RESEARCH IMPLEMENTATION AND RETURN ON INVESTMENT:

For implementation, this project will develop economic impact analysis tool for operational improvement projects applicable at the initial stages of the project development process, where various project alternatives or configurations can be examined with a low level of detail required for inputs and outputs. This tool can be used for project selection, project prioritization, or multi-criteria analysis. Intermediate outputs of the tool, such as user benefits (e.g., travel time savings), can be used in benefit-cost analysis.

Estimated Project Duration: 24 **Months**

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Standing Subcommittee Ranking	Advisory Council Ranking	Statement Combined with Statement Number(s)
5/7	27	