OKLAHOMA DEPARTMENT OF TRANSPORTATION

RESEARCH IDEA/PROBLEM STATEMENT

http://www.okladot.state.ok.us Planning & Research Division

RESEARCH CATEGORY (CHECK ONE)

☐ : Administration	☐ : Aviation	☐ : Bridges	☐ : Design	☐ : Energy & Envi.	☐ : Freight
☐ : Legal	☐ : Maintenance	☐ : Mat. & Const.	☐ : Marine	☐ : Pavement	☐ : Planning
☐ : Rail	☐ : Safety	☐ : Traffic	☐ : Transit	☑ : Other	Asset Management

PROJECT INFORMATION

(ONLY A BREIF DESCRIPTION IS NECESSARY. THOSE THAT SUBMIT THIS FORM MAY BE CONTACTED BY ODOT PERSONNEL FOR FURTHER CLARIFICATION)

Develop Social Return on Investment (SROI) Calculation Methodology for Facilitating Asset Management Decision Making.

PROJECT TITLE

PROBLEM STATEMENT

The State of Oklahoma has made transportation investment and asset management a priority in recent years in an effort to address deteriorating infrastructure issues while enhancing the State's economy and growth. DOTs are also trying to meet MAP-21 mandates and determine how to integrate various transportation asset management (TAM) practices into transportation investment strategies to the benefit of the agency and its network. Sustainability is a concept commonly tied to asset management. When making decisions about where to allocate resources for transportation asset maintenance and construction projects, engineers gather a number of performance indicators like the pavement serviceability index (PSI) and the international roughness index (IRI), which measure the physical condition of each asset. Other common measures are focused on capacity such as average daily traffic (ADT), accident rates, speed, visibility, and life cycle cost, among others. While the condition of assets are very important, using only condition and traffic-based key performance indicators (KPI) results in an asset management program that prioritizes projects by “worst first” and “most traffic”. The U.S. economy depends, either directly or indirectly, on the haul movement of commodities, (such as agricultural and oil/gas commodities), yet transportation decisions do not consider the potential positive impact of investing in transportation infrastructure that facilitates the more efficient movement of these commodities. This system unintentionally ignores the sizeable contribution that rural, low-volume roads make to the economy of agricultural/oil & gas states like Oklahoma.

Social return on investment (SROI) is an emerging concept that has been implemented by some transportation agencies and is being investigated by others as a means to enhance transportation asset management. The World Bank uses SROI, a type of cost-benefit framework, to quantify each potential development project's impact on economic, social and safety requirements. Specifically, it uses SROI as an analytical tool to assess the social impact

in financial terms and to quantify the broad economic effect of projects. The algorithms are designed to integrate the social value of improved infrastructure to economic growth and social equity in developing countries with agricultural economies.

Private and public entities have realized that they need to be able to value social outcomes in monetary terms. Hence, organizations like SROI Network have developed methodologies to satisfy the need measure the social impact. SROI Network was formed in 2008 in UK with the mission of promoting the use and development of the Social Return on Investment (SROI) methodology internationally. SROI is a framework based on “social generally accepted accounting principles” (SGAAP) that can be used to quantify and understand the social, economic and environmental outcomes. This methodology has been used by both governmental and nongovernmental organizations to forecast the value created if the development projects attain their intended outcome. The output is a metric that can be used to compare different prospective projects and make the resource allocation decision.

In transportation, SROI is integrated with other metrics for use in making infrastructure capital allocation decisions. Although not quantified, ODOT acknowledges the importance of consideration of social and economic impacts, as evidenced by its latest *Update on Oklahoma Bridges and Highways* Report that states: “Crumbling transportation infrastructure and deficient bridges have a detrimental impact on Oklahoma commerce, job creation and economic growth and can even endanger our citizens”. SROI looks at the outcome produced by projects and requires the input of the stakeholders to ensure their needs are being met, aligning with the ultimate goal of the TAM which is to move from a project orientation of “worst first” to “most productive first”.

PROJECT SCOPE

This project will explore the utility of the cost-benefit framework, known as Social Return on Investment (SROI), as a comprehensive way to measure the impact of the asset condition on the community. It will produce an SROI calculation methodology for inclusion in decision making. The intent is not to replace the current condition and traffic based metrics but rather to add SROI as a third component of the resource allocation decision-making process. The primary deliverables will be a primer and guidebook that provide specific guidance about SROI calculation and implementation to enhance the ODOT decision making process.

PROJECT TASKS (PLEASE USE A NUMBERED LIST FORMAT)

1. Conduct Literature Review: Conduct comprehensive literature review regarding transportation asset management and transportation SROI evaluation to include quantification in economic and social terms used by other transportation agencies.
2. Develop SROI Calculation Methodology: develop calculation methodology based upon SROI Network protocol and literature review results; the methodology will include input considerations such as asset performance period (deterioration rate), life cycle costs and impact factor evaluation to determine overall project benefit to cost ratio that can be incorporated into asset decision making procedures; adapt to current ODOT procedures and protocol.
3. Validate SROI Calculation Methodology: The methodology will be demonstrated and validated using case study data. For example, an urban vs. rural bridge project scenario could be used to demonstrate the consideration of social

and economic impacts.
4. Develop Primer: Develop primer to illustrate business case for implementing SROI into allocation decision making.
5. Develop Guidebook and other Deliverables: Prepare guidebook detailing SROI calculation methodology and implementation steps. The guidebook will also contain specific examples of SROI implementation and protocols as used by other transportation agencies. Other deliverables will include annual and final research reports documenting the project's protocols, methodology, and results.

EXPECTED BENEFITS

The major benefits of the proposed research will be: (i) an SROI calculation methodology for consideration of social and economic factors in transportation infrastructure decision making; (ii) primer for the business case for implementing SROI; and (iii) a guidebook for SROI implementation.

EXPECTED IMPLEMENTATION

The calculation methodology can be implemented locally and furnished to other AASHTO members for consideration in their transportation asset management protocols.

ESTIMATED TIME TO COMPLETE

24 months

ADDITIONAL COMMENTS

FORM SUBMISSION

Please submit your Problem Statement form to:

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