**Advanced Analytics Project – Phase II**

**The Impacts of the FHWA-sponsored projects on the transportation industry, the traveling public, and any other beneficiaries**

By

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1.INTRODUCTION

This study aims to assess the impact of completed Federal Highway Administration (FHWA)-sponsored projects on the transportation industry, the traveling public, and other relevant stakeholders. By analyzing a variety of impact measures, the research seeks to provide a comprehensive evaluation of how these projects have influenced key areas such as safety, efficiency, resilience, and environmental sustainability. Specifically, the study will examine the number and significance of pending and awarded patents resulting from these projects, as well as the extent to which products developed through these efforts have been implemented by state Departments of Transportation (DOTs) and other transportation agencies.

1.1. General Overview of the contents

1.2. Motivation

Initial motivation was focused in assessing the impacts of the completed FHWA-sponsored projects on the transportation industry, the traveling public, and any other beneficiaries as determined by an analysis.

1.3. Goals

The goals of the investigation have shifted quite a few times. The initial request from the client was built on a number of informational gaps. The client’s initial requests are defined by their “impact”. The requested list of objectives are as follows:

-pending and awarded patents;

-products implemented by state DOTs and other transportation agencies;

-reported (qualitative or quantitative) SBIR product influences on transportation system safety, efficiency, and resilience;

-product impacts on the natural environment;

- and other metrics.

The research group offered a rebuttal plan in which we focused on exploring the following objectives:

-Operational status: Operational, Closed, Merged

-Business demographic

-Website /Media Achievement

-NAICS (North American Industry Classification System) Code

-Award data:

-Highest total in one year

-Lowest total in one year

-Multi-time awardees

-Average total award

-Overall totals - yearly, by phase, etc.

-Phase data

-Project success rate

1.4. Company Background

The need for the Federal Highway Administration (FHWA) to sponsor projects highlights just how rapidly our nation is growing in the areas of transportation and efficiency. The U.S Department of Transportation (DOT) was established in October of 1966 and was the essentially a much larger version of its predecessor – the Office of Public Roads which was under the U.S Department of Agriculture. The DOT was established alongside the large boom in the use of the automobile; better roads were needed. The FHWA spearheaded the drive to improve roadways’ drivability and overall safety. The sponsoring of programs through the FHWA came about with a focus on federal lands and national highways; infrastructure was key to these building blocks. Over the years the sponsorship award recipients have varied but the theme has continued to focus on connecting the nation, safely, and providing innovative ways to provide safety and effectiveness. The DOT oversees all aspects of transportation including air, maritime, rail, and probably our least favorite, highways. Today, the DOT continues to focus on equity across communities, innovation in problem-solving, protecting the environment through sustainability efforts, modernization to increase longevity, and the number one goal is safety.

2.PROBLEM DEFINITION

There is limited understanding of the long-term economic and social impacts of FHWA-sponsored transportation infrastructure projects on local communities, the transportation industry, and the traveling public. While many projects have been completed and are considered successful in terms of traffic flow or road safety, there’s a lack of detailed data on how they affect the local economy, job creation, and quality of life for residents. Moreover, the impacts on the environment and public health have not been adequately assessed.

3.LITERATURE REVIEW

The Federal Highway Administration (FHWA) plays a critical role in funding and overseeing transportation infrastructure projects across the United States. According to several studies, FHWA projects aim to improve road safety, reduce congestion, enhance mobility, and support economic growth through investment in highways and other transportation networks (FHWA, 2021). A variety of projects, such as road repairs, upgrades, expansions, and new construction, are funded under the FHWA’s purview, and the outcomes of these initiatives can significantly affect local economies and transportation systems.

We have collected individual information on the companies given to show, when, where, and why they were given a sponsorship. We can see the impacts on the transportation industry, impacts on the traveling public, economic and social impacts on local communities, environmental impacts, as well as the gaps in literature and future research.

The literature provides a robust foundation for understanding the diverse impacts of FHWA-sponsored transportation infrastructure projects. The existing studies show that these projects can lead to improved safety, economic development, and reduced congestion, but also raise concerns regarding environmental and social equity impacts. This review highlights the need for a more comprehensive analysis of the long-term effects of these projects, particularly with a focus on environmental sustainability and social inclusiveness. The methodology outlined in this project will aim to address some of these gaps, using both quantitative and qualitative approaches to provide a more holistic view of FHWA project impacts.

4.APPROACH / METHODOLOGY

This project will employ a mixed-methods approach, combining quantitative analysis (for measurable data such as revenue and award amount) and qualitative analysis (such as pending and awarded patents, products implemented by state DOTs and other transportation agencies, SBIR product influences on transportation system safety, efficiency, and resilience, and product impacts on the natural environment) The study will focus on FHWA-sponsored projects completed from 1983-2024.

Our primary data used in the excel provided from the company with pre-filled in information. Our secondary data source are the websites provided down below to find missing information like NAICS codes. We will create a dashboard showing the effects of FHWA grants in the short and long term. Showing information through award amount, award year, HUBZone owned, socially disadvantaged, woman owned, number of employees, business address, etc. We will use SAS software to complete our dashboard, with the use of pivot tables, graphs, bubble charts, maps, etc.

5.DATA COLLECTION

Sources

<https://go-gale-com.uncfsu.idm.oclc.org/ps/companyBrowse>?

<https://highways.dot.gov/turner-fairbank-highway-research-center>

<https://www-nclive-org.uncfsu.idm.oclc.org/browse>?

<https://www.referenceusa.com/Home/Home>

<https://www.transportation.gov/>

<https://www.volpe.dot.gov/work-with-us/small-business-innovation-research>