RUTGERS

Center for Advanced Infrastructure and Transportation

Project Overview Report

1. UTC Identifying Number
   DTRT13-G-UTC28
2. Center Identifying Number
   CAIT-UTC-NC6
3. Project Title
   Using information at different spatial scales to estimate demand to support asset management decision making.
4. Principal Investigator & Contact Information
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7. Project Description
   This project builds on two ongoing CAIT projects: the UD project "Understanding the Relationships between Household Decisions and Infrastructure Investment in Disaster Recovery: Cases from Superstorm Sandy" and the collaborative project (involving UD, Rutgers and Utah) "Big Data: Opportunities and Challenges in Asset Management." These projects have identified some important large data sources, including survey and sensor data, that are relevant to forecasting demand and understand the needs of communities. In addition other parallel efforts provide map based data on infrastructure vulnerability (for example, "Climate Change Vulnerability and Risk Assessment of NJ's Transportation Infrastructure"). Furthermore, the project is consistent with the MAP-21 requirement for states to develop risk-based asset management programs. The research will begin with a literature review to build on relevant new research and initiate an inventory of relevant data and methods. The research team will then develop a framework for integrating the data to support asset management functions. This is more comprehensive in terms of the types of data than the research currently being conducted as part of the UD project and more focused on demand estimation than the exploratory research that is part of the "big data" collaborative project. Using the framework, a case study focused on Sea Bright, NJ will be developed. Our clients are the mayor of Sea Bright, and chair of the Sea Bright 2020 Steering Committee but we expect to engage other participants. We will draw on input from the community in the form of the survey we are about to launch, reports from community meetings, past plans and studies (for example a Smart Growth plan and a study by Bloustein School of Planning and Public Policy students), and plans, GIS and transportation data from Monmouth County, North Jersey Transportation Planning Authority, and New Jersey DOT. The case study will be presented at a workshop and the framework updated to reflect comments and other inputs.
8. Implementation of Research Outcomes (or why not implemented)
   We expect the product /outcome of this research to be deployed at two different levels. The first is the more traditional technology transfer where we will conduct a workshop to share our concepts, ideas and outcomes with local, regional and state agencies. The second is the deployment in Sea Bright. The Sea Bright 2020 Steering Committee has been working hard to rebuild the community. While the long term implications for infrastructure are recognized, they have not been the focus of the recovery effort. We will work with the town to put these issues in an asset management context.

9. Impacts/Benefits of Implementation (actual, not anticipated)
   TBD
10. Dates and Budget
    Start Date: 9/1/2014
    End Date: 8/31/2015
    UTC (CAIT) Dollars: $ 50,000
    Cost Sharing: $ 50,470
    Total Dollars: $ 100,470
11. Keywords
    Asset Management, Data Integration, Demand, Disasters
12. Web Links (Reports and Project Website)
    https://cait.rutgers.edu/cait/research/using-information-different-spatial-scales-estimate-demand-support-asset-management-de