RUTGERS
Center for Advanced Infrastructure and Transportation

PROJECT OVERVIEW REPORT

1. UTC Identifying Number
   69A3551847102

2. Center Identifying Number
   CAIT-UTC-REG 15

3. Project Title
   Flood Vulnerability Assessment and Data Visualization for Lifeline Transportation Network

4. Principal Investigator & Contact Information
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5. Rutgers/CAIT Project Manager
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6. Customer Principal
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7. Project Description
   The objective of this project is to develop a 2D hydrodynamic model to assess the extent of flooding due to extreme weather events like Hurricane Sandy and to evaluate the efficiency of existing transportation infrastructure. A network representation of the transportation systems, generation of flood event scenarios, a method to estimate transportation link vulnerability will be incorporated. The transportation link vulnerability can be evaluated in terms of its service disruption related to the number of interrupted vehicles and the durations of interruption. To generate the flood scenarios, a frequency analysis of annual peak flow data collected at a stream gage can provide an estimation of the flood magnitude and frequency. A mobile data visualization user-friendly application on Android will be developed to provide flood data and information for New Jersey coastal communities. Furthermore, this evaluation can be used to develop a decision-support framework for extreme evacuation planning to prepare the communities living in critical regions.

8. Implementation of Research Outcomes (or why not implemented)

   The intended outcome of the project is to guide the path toward resiliency of state roadways and help to revise the evacuation plans during natural disasters. In addition, capital improvement projects can use this project outcome to optimize their solutions and plan ahead for high risk areas.

9. Impacts/Benefits of Implementation (actual, not anticipated)

   To Be Determined

10. Dates and Budget

    Start date: 9/1/2018
    End date: 9/30/2019
    UTC (CAIT) Dollars: $95,000
    Cost Sharing: $95,000
    Total Dollars: $190,000

11. Keywords

    Flood Vulnerability Assessment, Resiliency, Data visualization

12. Web Links (Reports and Project Website)

    https://cait.rutgers.edu/research/flood-vulnerability-assessment-and-data-visualization-for-lifeline-transportation-network/