

UTC Project Information	
Project Title	Performance Measures to Assess Efficiency and Resilience of Transit Systems
University	Rutgers University Mineta National Transit Research Consortium
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Funding Source(s) and Amounts Provided (by each agency or organization)	Research and Innovative Technology Administration University Transportation Centers Program (\$173,700)
Total Project Cost	\$173,700
Agency ID or Contract Number	DTRT12-G-UTC21
Start and End Dates	December 2013 – December 2016
Brief Description of Research Project	<p>Transit agencies are interested in assessing the short-, mid-, and long-term performance of infrastructure with the objective of enhancing resiliency and efficiency. This report addresses three distinct aspects of New Jersey's Transit System: 1) resiliency of bridge infrastructure, 2) resiliency of public transit systems, and 3) efficiency of transit systems with an emphasis on paratransit service.</p> <p>This project proposed a conceptual framework to assess the performance and resiliency for bridge structures in a transit network before and after disasters utilizing structural health monitoring (SHM), finite element (FE) modeling and remote sensing using Interferometric Synthetic Aperture Radar (InSAR). The public transit systems in NY/NJ were analyzed based on their vulnerability, resiliency, and efficiency in recovery following a major natural disaster.</p>

<p>Describe Implementation of Research Outcomes (or why not implemented)</p>	<p>Several data sources are identified for measuring various transit resilience measures. NJ state-wide planning model and Google transit data provide the basic infrastructure data. ETC, INRIX and NJDOT traffic count data provide the traffic and travel time data. TRANSCOM's data during hurricanes Irene and Sandy provide various event data.</p> <p>Various resilience measures are identified as a result of extensive literature search. The team has classified and is in the process of estimating these measures on a link-level, route-level and network-level measures. Estimating resilience measures at these different levels will help agencies identify vulnerable individual links, links within routes and vulnerable routes in the public transit network.</p> <p>The team has classified and is in the process of estimating these measures on a link-level, route-level and network-level. Estimating measure of these different levels is expected to help agencies identify potentially vulnerable individual links, links within routes and vulnerable routes in the public transit overall network. We will use GIS maps to visually depict these links in a spatial manner. Moreover, we will publish and present these results in conferences and scientific journals.</p> <p>Deka, D., and Gonzales, E. J. (2014). The Generators of Paratransit Trips by Persons with Disabilities. <i>Transportation Research Part A</i>, Vol. 70, pp. 181-193.</p> <p>Deka, D. (2014). An Exploration of the Environmental and Rider Characteristics Associated with Disability Paratransit Trip Delay. <i>Journal of Transport Geography</i>, Vol. 38, pp. 75-87.</p> <p>Deka, D., and Gonzales, E. J. "The Generators of Paratransit Trips by Persons with Disability." Paper presented at the 93rd Annual Meeting of the Transportation Research Board, January 2014.</p> <p>Deka, D. "Factors Associated with Travel Time Reliability of Disability Paratransit Trips." Paper presented at the 94th Annual Meeting of the Transportation Research Board, January 2015.</p> <p>Devajyoti, D. (2015). "Factors Associated with Disability Paratransit's Travel Time Reliability." <i>Journal of Transport Geography</i>, 48, 96-104.</p>
<p>Place Any Photos Here</p>	

<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	
<p>Web Links</p> <ul style="list-style-type: none">• Reports• Project Website	<p>Final report (MNTRC Website): http://transweb.sjsu.edu/project/1242.html</p>