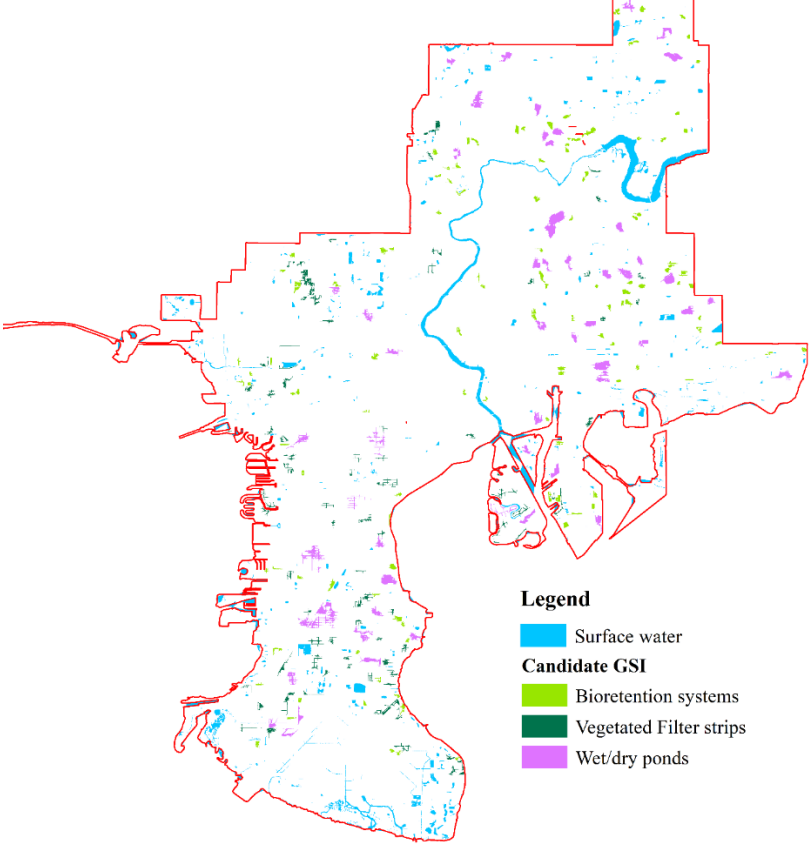


Grant Deliverables and Reporting Requirements for UTC Grants

UTC Project Information	
Project Title	Spatial Sustainability Assessment of Green Stormwater Infrastructure for Surface Transportation Planning, Phase III
University	University of South Florida
Principal Investigator	Qiong Zhang
PI Contact Information	qiongzhang@usf.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT: \$46,000 USF: \$23,000
Total Project Cost	\$69,000
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	<div style="display: flex; flex-direction: column; gap: 5px;"> <div> Start date: 10/1/2019</div> <div> End date: 03/31/2021</div> </div>
Brief Description of Research Project	<p>Stormwater runoff can cause both flooding and the spread of pollutants, so it is important that it be managed effectively. This project investigates the watershed scale implementation of green stormwater infrastructure. The aim of the project is to create a modeling framework to be used in transportation planning. It will model the effect of green stormwater infrastructure on flooding and water quality, and assess their life cycle costs and environmental and health impacts.</p> <p>National Pollutant Discharge Elimination System (NPDES) regulates that transportation authorities are responsible for managing the stormwater runoff that carries pollutants from the land adjacent to road transportation systems. Green stormwater infrastructure (GSI) is a stormwater management approach with many economic and human health benefits. However, implementation and analysis of GSI at system level or urban watershed scale is generally lacking. As Roy et al. (2008) pointed out that “sustainable urban stormwater management must be planned and implemented at the watershed scale,” a</p>

	<p>framework is needed to design and evaluate the integration of GSI in transportations planning at system level.</p> <p>The overall goal of the proposed project is to develop a modeling framework integrating hydrologic simulation, water quality modeling, life cycle assessment (LCA) and cost analysis (LCCA) that can be used for design and planning for surface transportation with the spatial implementation of GSI. The objectives of the project include (1) developing a method for constructing an inventory of the implemented GSI using Tampa as a case study area; (2) integrating hydrologic modeling with water quality modeling for scenario analysis of GSI implementation at watershed scale; and (3) developing a spatial optimization model for GSI implementation based on the integrated LCA-LCCA-optimization framework. Corresponding to the set of objectives, the project is conducted in phases. Based on the completed Phases I and II, Phase III research will work on the development of a spatial optimization model. Furthermore, the trade-off between environmental, human health, and economic impacts will be investigated for the optimal and other scenarios of GSI implementation.</p>
<p>Describe Implementation of Research Outcomes (or why not implemented)</p> <p>Place Any Photos Here</p>	<p>A spatial optimization model has been developed and the figure below is the optimal green stormwater infrastructure (GSI) allocation in one solution set.</p>

	 <p>The research results have been shared with the City of Tampa Transportation and Stormwater Services. This research has been included in a PhD dissertation and a manuscript is in preparation.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>N/A</p>
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project website 	<p>http://ctech.cee.cornell.edu/final-project-reports/</p>