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 I
University	University of South Florida
Principal Investigator	Qiong Zhang, Qing Lu, Changhyun Kwon
PI Contact Information	qiongzhang@usf.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT: $50,892 USF: $25,500
Total Project Cost	$76,393
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	Start date: 11/30/2016 End date: 11/29/2017
Brief Description of Research Project	National Pollutant Discharge Elimination System (NPDES) regulates that transportation authorities are responsible for managing the stormwater runoff that carries pollutants from the transportation-adjacent land and vehicles. The proper stormwater management can help control flooding and the runoff pollutants that may impair water environment and threaten the ecosystem and human health. Green infrastructure is a stormwater management approach with many economic and human health benefits including: flood mitigation, erosion control, improved water quality, groundwater recharge, reduced energy demand during construction, enhanced aesthetics and access to green space, and preferred aquatic (fish) habitat. Unlike grey stormwater infrastructure systems that are often large and centralized, green stormwater infrastructure can be applied at different spatial scales and decentralized arrangements. Green infrastructures like permeable pavements, bioswales, bioretention, and constructed wetlands have been adopted and implemented in the transportation infrastructure design. However, such implementation is project-based without analysis at system level or sewer scale. A framework is needed to design and evaluate the integration of green stormwater infrastructure in transportations planning at systems level. The overall goal of the proposed project is to develop a modeling framework integrating hydrological simulation, water quality modeling, life cycle assessment (LCA) and cost analysis (LCCA) that can be used for

	design and planning for surface transportation with spatial implementation of green infrastructures. The project will be conducted in phases and the major task in Year 1 is to collect information on existing green infrastructure in Tampa from various sources (e.g., EPA, City of Tampa transportation and stormwater services, the Peninsular Florida Landscape Conservation Cooperative) and create a GIS layer of green infrastructure that can be overlaid with transportation and grey stormwater infrastructure network.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	The green infrastructure mapping was implemented in the Middle Hillsborough River-Spillway 20 subwatershed area (HUC12 code: 031002050503). The inventory of green infrastructure was created for this study area as a representative of Tampa City and Hillsborough County. The figure below shows the green infrastructure map. The black lines display as major roads and green polygons as green infrastructure.
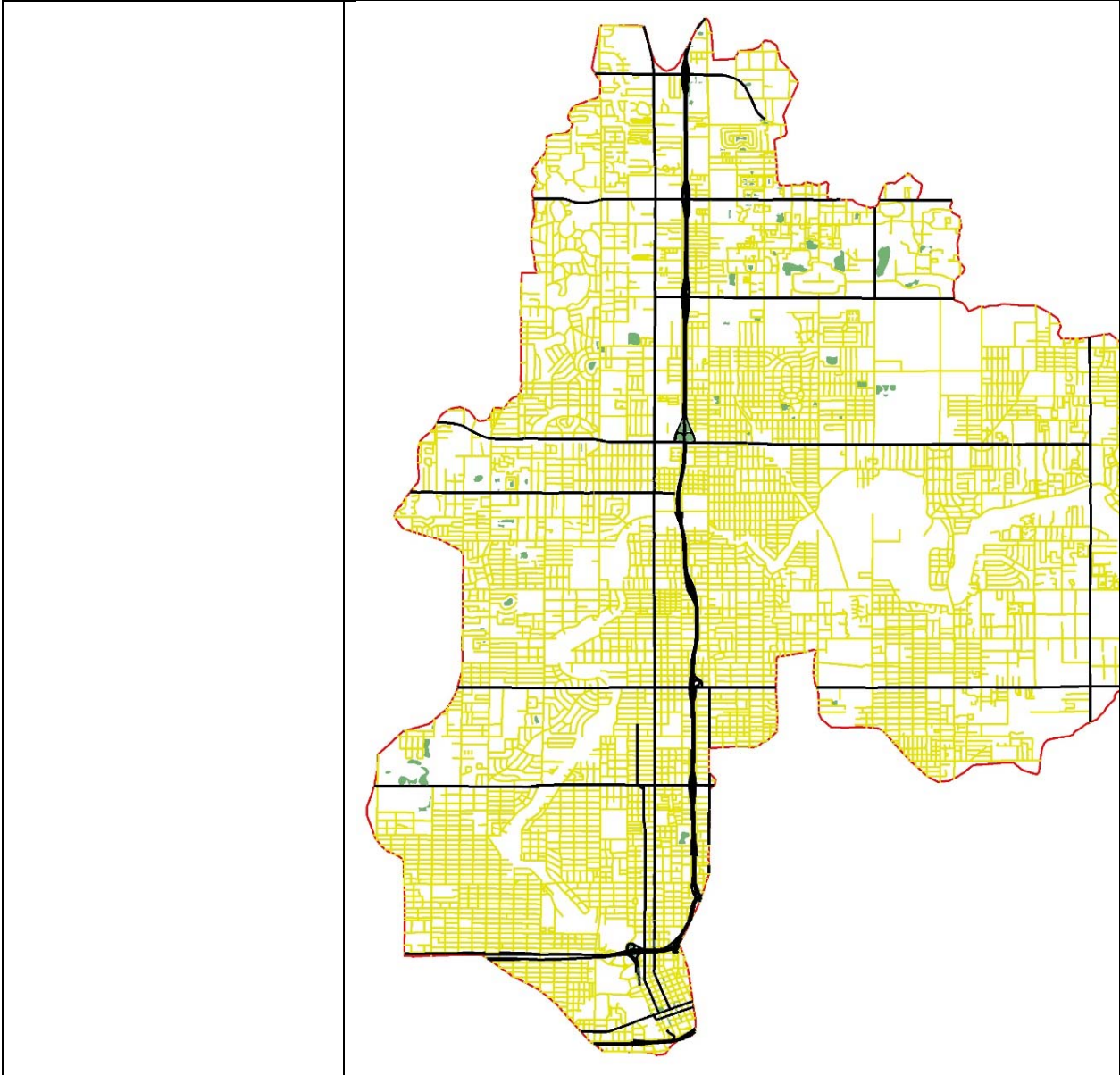
Impacts/Benefits of Implementation (actual, not anticipated)	The implementation of the green infrastructure mapping method developed in Phase I of the project saved the time to create the green infrastructure inventory and established the basis for Phase II project to understand the potential environmental impacts of deployment of green infrastructure at watershed level.
Web Links[SEP] • Reports • Project website	http://ctech.cee.cornell.edu/final-project-reports/