


## Grant Deliverables and Reporting Requirements for UTC Grants

<b>UTC Project Information</b>	
Project Title	Analysis of Free-Floating Bike Sharing and Insights on System Operations
University	University of South Florida
Principal Investigator	Yu Zhang
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT: \$44,542 USF: \$35,333
Total Project Cost	\$79,875
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	Free-floating bike sharing (FFBS) is an innovative bike sharing model. FFBS saves on start-up cost, in comparison to station-based bike sharing (SBBS), by avoiding construction of expensive docking stations and kiosk machines. FFBS prevents bike theft and offers significant opportunities for smart management by tracking bikes in real-time with built-in GPS. USF, collaborated with Social Bicycles, launched a free-floating bike sharing program in 2015, named Share-A-Bull. This study analyzes historical biking trajectory data of bike sharing users for understanding their mobility patterns and the correlation with environment variables and the interactions of those variables. The outcomes provide insights on system design and operations. In addition, we extract and identify users who are deliberately mishandling or damaging bikes in a free-floating bike sharing system based on its historical data. A four step method is developed to solve this problem and illustrated with

	the case study of Share-A-Bull bike sharing program.
Describe Implementation of Research Outcomes (or why not implemented)  Place Any Photos Here	The research team met with Cyclehop, the bike sharing consulting company operating and managing Share-A-Bull bike sharing at USF, as well as two other bike sharing programs in the Tampa Bay Area. During the meeting, the research team presented the research outcomes of this study and explained the operational recommendations that we obtained from the analysis. The regional director of Cycleshop appreciated our research efforts and us sharing the outcomes with them and they agreed to apply some of the recommendations into their daily operations, e.g., applying rebalancing at needed days instead of everyday to save the cost, identifying additional hub locations for rebalancing purposes. Cycleshop also agreed to work together to disseminate a survey designed by our research team for a further student on bike sharing.
Impacts/Benefits of Implementation (actual, not anticipated)	Given the short time period since the meeting with Cycleshop, the impacts and benefits have not yet been analyzed. In our further study supported by the survey, we will look into impacts and benefits such as mode shift triggered by bike sharing and usage of bike sharing system.
Web Links   • Reports  • Project website	<a href="http://ctech.cce.cornell.edu/final-project-reports/">http://ctech.cce.cornell.edu/final-project-reports/</a>