

Grant Deliverables and Reporting Requirements for UTC Grants

<b>UTC Project Information</b>	
Project Title	Tracking Shoreline Conditions to Protect Infrastructure
University	University of California Davis
Principal Investigator	Fraser Shilling
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT: \$59,705 UCD: \$30,272
Total Project Cost	\$89,977
Agency ID or Contract Number	Sponsor Source: Federal Government CFDA #: 20.701 Agreement ID: 69A3551747119
Start and End Dates	Start date: 1/1/2018 End date: 12/31/2018
Brief Description of Research Project	Recognizing the massive values at stake along US shorelines from sea level rise, we are developing new approaches for tracking shoreline changes. We adapted newly emerging UAV-based elevation mapping to use on shorelines, in order to conduct high spatial and temporal resolution tracking of infrastructure and shoreline conditions. We combined this approach with RTK-GPS (real-time kinematic geo-positioning systems) field measurements to create a multi-scale picture of shoreline change due to sea level rise. Research products included: 1) a demonstration of high-resolution terrain-mapping methods for quantifying shoreline flooding event impacts on coastal infrastructure and adjacent ecosystems, and 2) description of how this information could be used to validate sea level rise models and inform coastal hazard-adaptation planning for shoreline infrastructure.
Describe Implementation of Research Outcomes (or why not implemented)  Place Any Photos Here	The research outcomes included high-resolution maps of tidal marsh plains on the outboard (toward ocean) side of infrastructure. Local agencies were very interested in the elevation and change in elevation we estimated over a 10-year period. They are currently using RTK-GPS to measure levee and

	<p>infrastructure elevations on the shoreline inboard of our study.</p>  <p>This picture shows one area that flooded during the study period and where high-resolution measurements were taken. Because of flood risk, this highway is scheduled for elevation within the next 10 years.</p>
<p>Impacts/Benefits of Implementation (actual, not anticipated)</p>	<p>There is very little current understanding of whether and how fast shoreline morphologies are changing in developed areas due to natural, climate change, and land-use drivers. The actual benefits from this research are primarily in improving flood models and predictions in the area where the study took place.</p>
<p>Web Links</p> <ul style="list-style-type: none"> <li>• Reports</li> <li>• Project website</li> </ul>	<p><a href="http://ctech.cee.cornell.edu/final-project-reports/">http://ctech.cee.cornell.edu/final-project-reports/</a></p>