

# Multi-Sensory UAV Approach to Stream Assessments

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## Justification for Research

A visual stream assessment (VSA) is part of a Municipal Separate Storm Sewer System (MS4) permit conducted every 5 years collecting information regarding the stream and riparian zone's overall health as well as documenting individual impairments including outfalls, erosion, exposed pipes, trash, fish barriers, etc. Traditional VSA surveys include sending teams into the stream to document impairments using paper forms and digital photographs which must be transcribed and entered into a database at a later time. In 2013, the Center for Applied Earth Science and Engineering Research (CAESER) conducted a 160 mile VSA for Shelby County Public Works. The project employed 15 students to assess streams and collect data digitally on a tablet-based custom application and synced to a geodatabase. The effort took four months to complete over the winter months. If funded, the proposed project will examine the applications of commercially available multi-sensory unmanned aerial vehicle (UAV) to navigate streams, create photogrammetric maps, and identify impairments to reduce costs associated with the VSA effort and other stream monitoring programs.