Quarterly Progress Report:
Project Number and Title: 4.4 Bridge-Stream Network Assessments to Identify Sensitive Structural, Hydraulic, and Landscape Parameters for Planning Flood Mitigation
Research Area: Thrust 4 Connectivity for Enhanced Asset and Performance Management
PI: *Mandar Dewoolkar, University of Vermont*
Co-PI(s): *Donna Rizzo and Arne Bomblies, University of Vermont*
Reporting Period: *10.01.2019 to 12.31.2019*
Submission Date: *12.18.2019*

Overview: (Please answer each question individually)

Two pressure transducers were placed in the Mad River in Warren Falls at the beginning of October. One transducer captured total pressure and temperature every 15 minutes in the river and the second captured pressure and temperature information in the air. Transducer data were downloaded every two weeks, or just after a storm event. River velocity measurements were taken manually using a Pygmy Meter approximately every two weeks. These data were used to create hydrographs for the HEC-RAS models being developed. The transducers were removed in December as the river started to freeze. A 2D HEC-RAS model of the Mad River was built and is in the calibration process.

Table 1: Task Progress

Task Number	Start Date	End Date	Percent Complete
Task 1: Data Collection	07/01/2018	09/30/2019	60%
Task 2: Sensitivity Analysis	06/01/2019	03/31/2020	35%
Task 3: Probabilistic Network Model Development	01/01/2020	06/30/2020	0%
Task 4: Transferability	03/01/2020	06/30/2020	0%

Table 2: Budget Progress

Entire Project Budget	Spend Amount	Spend Percentage to Date
$346,593		

Describe any opportunities for training/professional development that have been provided…

Table 3: Presentations at Conferences, Workshops, Seminars, and Other Events

Title	Event	Type	Location	Date(s)
Identifying Sensitive Structural and Hydraulic Parameters in a Bridge-Stream Network for Flood Mitigation Planning	STEM Complex Celebration	Symposium	University of Vermont	10/04/2019

Table 4: Publications and Submitted Papers and Reports				
Type	**Title**	**Citation**	**Date**	**Status**
No new publication. A TRB paper was reported in the previous report. It has been selected for oral presentation in January 2020 Annual TRB Meeting.				

Participants and Collaborators:

Table 5: Active Principal Investigators, faculty, administrators, and Management Team Members			
Individual Name	**Email Address**	**Department**	**Role in Research**
Mandar Dewoolkar	Mandar.Dewoolkar@uvm.edu	Civil and Environmental Engineering	Primary Investigator
Donna Rizzo	Donna.Rizzo@uvm.edu	Civil and Environmental Engineering	Co-Primary Investigator
Arne Bomblies	Arne.Bomblies@uvm.edu	Civil and Environmental Engineering	Co-Primary Investigator

Use the table below to list all students who have participated in the project.

Table 6: Student Participants during the reporting period				
Student Name	**Email Address**	**Class**	**Major**	**Role in research**
Rachel Seigel	Rachel.Seigel@uvm.edu	Master's	Environmental Engineering	Graduate Research Assistant

Use the table below to list any students who worked on this project and graduated during this reporting period.

Table 7: Student Graduates			
Student Name	**Role in Research**	**Degree**	**Graduation Date**
N/A			

Use the table below to list organizations have been involved as partners on this project and their contribution to the project.

Table 8: Research Project Collaborators during the reporting period						
Organization	**Location**	**Contribution to the Project**				
		Financial Support	**In-Kind Support**	**Facilities**	**Collaborative Research**	**Personnel Exchanges**
N/A						

Changes:

None to report.

Planned Activities:

In the next few months the 2D HEC-RAS model for the Mad River will be calibrated. Once calibrated, different models will be made to represent different changes in bridge and dam structures along the river. The transducers will be placed back in the field. A high-gradient river corridor will be chosen as another study location. The previous steps will be repeated to create a 2D HEC-RAS model for the high-gradient river.