

**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:** 04.01.2020 to 06.31.2020

**Submission Date:**

**Overview: (Please answer each question individually)**

Provide **BRIEF** overview and summary of activities performed during the reporting period. This summary should be written in lay terms for a general audience to understand. This should not be an extensive write up of findings (those are to be included in the final report), but a **high-level overview of the activities conducted during the last three months no more than 3 bullet points no more than 1 sentence each** ....

- Additional adjustments have been made to the 2D HEC-RAS model for the Mad River to better reflect flow around bridges and other structures.
- Currently, the model is being fine-tuned and calibrated.

Provide context as to how these activities are helping achieve the overarching goal(s) of the project...

- These adjustments will provide more reliable results that can be used for further calibration.
- The adjustments will give more detail to flow around bridges allowing for a more reliable sensitivity analysis.

Complete the following tables to document the work toward each task and budget (add rows/remove rows as needed, make sure you complete the Overall Project progress row and include all tasks even if they have ended or have not been started)...

<b>Table 1: Task Progress</b>			
<b>Task Number</b>	<b>Start Date</b>	<b>End Date</b>	<b>% Complete</b>
Task 1: Data Collection	07/01/2018	09/30/2019	60%
Task 2: Sensitivity Analysis	06/01/2019	03/31/2020	40%
Task 3: Probabilistic Network Model Development	01/01/2020	06/30/2020	0%
Task 4: Transferability	03/01/2020	06/30/2020	0%
Overall Project:	07/01/2018	05/01/2021	55%

<b>Table 2: Budget Progress</b>		
<b>Project Budget</b>	<b>Spend – Project to Date</b>	<b>% Project to Date*</b>
\$374,716	\$201,617	53.8%

*\*Include the date the budget is current to.*

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

Describe any activities involving the dissemination of research results (be sure to include outputs, outcomes, and the ways in which the outcomes/outputs have had an impact during the reporting period. Please use the tables below for any Publications and Presentations in addition to the description of any other technology transfer efforts that took place during the reporting period. )... Use the tables below to complete information about conferences, workshops, publications, etc. **List all other outputs, outcomes, and impacts after the tables** (i.e. patent applications, technologies, techniques, licenses issued, and/or website addresses used to disseminate research findings).

Table 3: Presentations at Conferences, Workshops, Seminars, and Other Events				
Title	Event	Type	Location	Date(s)
4.4 Bridge-Stream Network Assessments to Identify Sensitive Structural, Hydraulic, and Landscape Parameters for Planning Flood Mitigation	UVM Civil and Environmental Engineering Graduate Student Seminar	Microsoft Team Presentation	Online	04/18/2020

Table 4: Publications and Submitted Papers and Reports				
Type	Title	Citation	Date	Status
No new publications.				

**Participants and Collaborators:**

Use the table below to list all individuals who have worked on the project.

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 during the reporting. (This includes all paid, unpaid, intern, independent study, or any other student that participated in this project.)

Table 6: Student Participants during the reporting period				
Student Name	Email Address	Class	Major	Role in research
Rachel Seigel		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

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

List all other outputs, outcomes, and impacts here (i.e. patent applications, technologies, techniques, licenses issued, and/or website addresses used to disseminate research findings). Please be sure to provide detailed information about each item as with the tables above.

Have other collaborators or contacts been involved? If so, who and how? (This would include collaborations with others within the lead or partner universities; especially interdepartmental or interdisciplinary collaborations.)

Table 9: Other Collaborators			
Collaborator Name and Title	Contact Information	Organization and Department	Contribution to Research
			(i.e. Technical Champion)

Who is the Technical Champion for this project?

Name: Cassidy Cote (He left the agency, we are working with VTrans to identify a substitute)

Title: Hydraulics and Structures Engineer

Organization: Vermont Agency of Transportation

Location (City & State): Montpelier, Vermont

Email Address: Cassidy.Cote@vermont.gov

**Changes:**

None to Report

**Planned Activities:**

In the next few months, the 2D HEC-RAS model for the Mad River will run different scenarios to represent a variety of changes to bridge structures along the river. These scenarios will reflect a Q25, Q50, Q100 and Q500 storm. An automated wrapper will be designed to perform a detailed sensitivity analysis.