Quarterly Progress Report:
Project Number and Title: 4-2 Future-Proof Transportation Infrastructure Through Proactive, Intelligent, and Public-involved Planning and Management
Research Area: Thrust 4 Connectivity for enhanced asset and performance management
PI: *Jin Zhu, Ph.D. Assistant Professor, University of Connecticut*
Reporting Period: *October-December, 2020*
Submission Date: *December 31, 2020*

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** ….

During the past three months, we focused on the following activities:
1. Interpret the implications of the findings regarding factors and their association relationships identified for future-proofed transportation infrastructure;
2. Preparing a conference paper regarding the association rule mining for transportation infrastructure planning;
3. Revising a journal article draft and preparing for submission;
4. Continuing developing conceptual model for Task 2 focusing on the impacts of coastal hazards on transportation infrastructure and corresponding strategies.

Provide context as to how these activities are helping achieve the overarching goal(s) of the project…
1. Activity helps to link the findings to decision making in real-world context in Task 3;
2. Activity 2&3 helps to disseminate the findings from this research project and make broader impacts;
3. Activity 4 is the key for developing quantitative models that can realize predictive assessment and proactive management of transportation infrastructure under different uncertainties;

Describe any accomplishments achieved under the project goals…
1. A journal article draft on identifying key factors and their interdependencies for future-proofing transportation infrastructure planning and management is developed and under internal review and preparation for submission;
2. A conference paper abstract is developed and ready for submission;

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)…

Table 1: Task Progress			
Task Number	**Start Date**	**End Date**	**% Complete**
Task 1: Identify future risks and opportunities in transportation infrastructure durability planning and management.	October 1, 2018	September 30, 2019	100%
Task 2: Model the effects of future-proofing transportation durability planning and management strategies.	October 1, 2019	September 30, 2020	60%
Task 3: Develop a decision-support system for durability planning and management.	October 1, 2020	September 30, 2021	5%
Overall Project: 4-2 Future-Proof Transportation Infrastructure Through Proactive, Intelligent, and Public-involved Planning and Management	*October 1, 2018*	*September 30, 2021*	55%

Table 2: Budget Progress		
Project Budget	**Spend – Project to Date**	**% Project to Date***
$252,300	the information will be provided by the Institutional Lead	the information will be provided by the Institutional Lead

*Include the date the budget is current to.

Describe any opportunities for training/professional development that have been provided...
1. The project has provided research training opportunity for 1 PhD student in the past reporting period

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)**
An Integrated Framework for Data-driven Transportation Infrastructure Planning	TIDC Student Poster Competition	Poster Competition	Online	Oct 21, 2020
Civil Infrastructure and Human Well-being	UConn ENGR 1000	Orientation to Engineering	Online	Oct 2020

Table 4: Publications and Submitted Papers and Reports				
Type	**Title**	**Citation**	**Date**	**Status**
Peer-reviewed Journal	Defining Future-proofing Transportation Infrastructure Planning: A Topic Modeling Approach	TBD	TBD	Under preparation
Peer-reviewed conference paper	The Usage of Association Rule Mining towards Development of Integrated Transportation Infrastructure Planning	TBD	TBD	Ready for abstract submission

Encouraged to add figures that may be useful (especially for the website)...

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**
Jin Zhu	jzhu@uconn.edu	Civil and Environmental Engineering	PI

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**
Sudipta Chowdhury		PhD	Transportation 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**

Who is the Technical Champion for this project?
Name: Karen Riemer
Title: Principal Engineer
Organization: CT DOT
Location (City & State): Newington, CT
Email Address: Karen.Riemer@ct.gov

Changes:

Discuss any actual or anticipated problems or delays and actions or plans to resolve them…

Discuss any changes in approach and the reasons for the change…

Due to a series of disruptions caused by COVID-19, the project went slow in the last several reporting periods. Also, new graduate student recruitment plan was difficult since international students cannot travel. The PI has decided to ask for a non-cost extension on this project and will work on submitting a formal application.

Planned Activities:

Description of future activities over the coming months.

1. Submit the journal article
2. Submit the conference paper
3. Continue developing computational model
4. Establish more collaboration with industry and relevant stakeholders to get input and feedback
5. Apply for a non-cost one-year extension for this project