Quarterly Progress Report:
Project Number and Title: Safety Assessment of New England Roadways during the COVID-19 Pandemic
Research Area: Thrust Area 4
PI: Ali Shirazi, Ph.D., Assistant Professor, University of Maine
Reporting Period: 1/1/2021 to 3/31/2021
Submission Date: 3/31/2021

Overview: (Please answer each question individually)

Provide BRIEF overview and summary of activities performed during the reporting period.

During the reporting period, the research team completed reviewing the studies related to the impact of COVID-19 stay-at-home order (i.e.: reduction of traffic volume) in New England states. The research team also reviewed studies related to speed distribution, speed models and the relationship between crash frequency and severity and traffic speed. Critical data variables needed for the research were identified and the project team worked with Maine DOT to access the data. In addition, the research team investigated two sources of traffic speed data for analysis. (1) Speed data from permanent count stations in Maine, and (2) data from Streetlight company. Both datasets were investigated in detail and advantages and limitations of each data were explored. The research team conducted different preliminary analysis to underhand the change in speed in April 2020 compared to February 2020. The initial analysis indicates a significant increase in traffic speed in different locations in Maine during the stay-at-home order due to Covid-19. The research team started modeling traffic speed.

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

Reviewing the existing studies in literature was critical to understand the problem, identify the data needs, and plan an appropriate strategy to accomplish the research. Data provide necessary information for the analysis. Traffic speed is an important data in this study. We obtained speed from two sources of data (1) permanent count stations and (2) data from Streetlight company. Investigating speed or developing speed models are crucial to analyze frequency and severity of crashes.

Describe any accomplishments achieved under the project goals…

The research team reviewed studies related to traffic flow, speed and highway safety during the COVID-19 stay-at-home order. We also reviewed papers related to distribution of speed, speed models and relationship between traffic safety and speed. Reviewing these studies were important to plan for a reliable methodology to analyze data. We also obtained/collected a major portion of data we need for the analysis. Our preliminary analysis indicated increase in traffic speed in Maine during the COVID-19 stay-at-home order, which justifies future project tasks.

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	Nov 1, 2020	Jan 30, 2021	85%
Task 2	Nov 1, 2020	Feb 28, 2021	70%
Task 3	Mar 1, 2021	June 15, 2021	15%

Task 4	June 16, 2021	July 31, 2021	Not Started
Task 5	Aug 1, 2021	Sep 15, 2021	Not Started
Task 6	Sep 16, 2021	Oct 31, 2021	Not Started
Overall Project:	Nov 1, 2020	Oct 31, 2021	10%

Table 2: Budget Progress		
Project Budget	**Spend – Project to Date**	**% Project to Date***
$70,000		

***Include the date the budget is current to: March 31, 2021**

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

During this period, Mr. Amirhossein Shahlaeegilan was added to the team as a graduate research assistant. Amirhossein's responsibility will be literature review, data collection, writing statistical and machine learning codes, analyzing data, assisting in interpreting the results and assisting in preparation of the final report.

Previously, an undergrad student was hired in November 2020 to assist in literature review, data collection, and data analysis.

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)**
N/A				

Table 4: Publications and Submitted Papers and Reports				
Type	**Title**	**Citation**	**Date**	**Status**
N/A				

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**
Dr. Ali Shirazi	shirazi@maine.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**
Ennis Marshall		Undergrad Student	Civil Engineering	Student worker
Amirhossein Shahlaeegilan		Grad Student	Civil Engineering	Graduate Assistant Research

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						
		Contribution to the Project				
Organization	**Location**	**Financial Support**	**In-Kind Support**	**Facilities**	**Collaborative Research**	**Personnel Exchanges**
Maine Department of Transportation (Maine DOT)	Augusta, ME					
University of Connecticut*	Storrs, CT					

*University of Connecticut will assist the research team with collecting data in Connecticut.

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.

N/A

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.)

No new collaborators have been added

Who is the Technical Champion for this project?

Name: Mr. Dennis Emidy
Title: State Safety Engineer
Organization: Maine Department of Transportation
Mailing Address: 16 State House Station, Augusta, Maine 04333

Phone number: (207) 624-3309
Email Address: dennis.emidy@maine.gov

Changes:

N/A

Planned Activities:

The research team plans to complete traffic speed models in the next reporting period and start crash data modeling. Machine Learning and statistical tools will be considered in exploring traffic speed during the pandemic, and developing speed models.