

Project Title: Planning for Sustainable and Resilient Rail and Freight: Developing a Novel Tool for Analysis of Climate Adaptation and Resilience Strategies in State and Regional Rail and Freight Plans

PI Name: Serena Alexander, PhD (Northeastern University)

PI Email: se.alexander@northeastern.edu

Overall Project Goal:

The project has two main goals: 1) to conduct an analysis of current practices and challenges of freight and rail planning to address climate change, and 2) to develop a novel public-facing and browsable database of relevant sub-national climate planning efforts—enabling transportation professionals, scholars, and citizen scientists to explore and comprehensively assess best practices and innovative ways to adapt to climate change.

Key Project Tasks/Approach/Objectives:

The project involves two main phases. In Phase I, the research team will examine current practices and challenges of freight and rail planning to address climate change impacts at a sub-national level. Specifically, Phase I includes a content analysis of state and regional freight and rail plans to identify and analyze climate adaptation and resilience strategies and practices, and a survey of freight and rail professionals to gain more detailed information about adaptation planning efforts across the nation. Phase II involves assembling a database of state and regional freight and rail plans and creating “The Sustainable and Resilient Rail and Freight Portal Map”—to aggregate best practices and innovative planning ideas for tackling climate impacts on rail infrastructure and freight.

Project Outcomes/Benefits:

This project helps address an important gap in the knowledge and practice of adaptation and resilience planning for freight and rail. The content analysis of state and regional freight and rail plans will allow exploring common and broad trends across freight and rail plans to understand the trajectory of the adaptation and resilience strategies. The survey of freight and rail professionals will help identify areas of sub-national leadership as well as challenges experienced by transportation professionals to integrate climate adaptation and resilience into freight and rail planning. Ultimately, the “Sustainable and Resilient Rail and Freight Portal Map” will help recognize actions states and regional entities are undertaking across the United States and identify potential gaps in practice in various places. In the future, the portal can be further developed to serve as a platform to exchange information about climate adaptation and resilience for freight and rail and to support the development and implementation of such measures across the nation.