

Taking part in the Climate Corps curriculum and working to complete my semester-long project while in my junior year has been an invaluable experience. I had the pleasure of working with Becky Bunnell, the Flood and Erosion Control Board Chair, and Emmeline Harrigan, the Assistant Planning Director for the town of Fairfield. The objective of this project was to identify the compliance of homes, businesses, and town infrastructure that is at risk of future flooding and coastal storm surge. I was tasked with producing updated Geospatial Information Systems (GIS) mapping to understand what areas in the town are the most susceptible to flooding and storm surges.

Due to its coastal geography, the town of Fairfield is experiencing increased heavy rain events and intense storms. Fairfield has prioritized efforts toward flood mitigation and storm surge protection after historic inland flooding events and Atlantic hurricanes. The aftermath of Superstorm Sandy in 2012 significantly damaged 600+ homes located in the coastal flood plain. With approximately 15% of all of Fairfield's residential area located within the coastal flood plain, the town needs to address its increased vulnerability to climate change-related disasters. Fortunately, after Sandy, some property owners were able to independently elevate their homes, but there is still a substantial number of homeowners who were unable to raise their homes. Climate-related disasters are only expected to increase, and the town of Fairfield needs to assess the level of compliance of properties to assist with future planning and preparedness before the next coastal disaster.

The compliance assessments were what I was tasked to complete, but before I could begin, I needed to understand what Fairfield is up against for myself. Growing up in a coastal community in Connecticut, I am no stranger to the destruction coastal storms and flooding can have on properties and human life, but the unique challenges Fairfield's faces are foreign to me. I began

by compiling geospatial data for Fairfield as well as local climate models and projections for sea level rise, hurricane surge, road flooding, and more. After overlaying, clipping, and joining layers together with GIS software then hunting for more layers, and then repeating that process over and over again, I quickly developed a strong understanding of Fairfield's risk from climate change. I also investigated FEMA National Flood Hazard Layers (NFHL) which is a digital database that compiles climate models to access the potential flood risk an area may face.

I later took part in a site visit with Becky and Emmeline down in Fairfield. When driving through the coastal residential area your attention is drawn to the elevated homes standing stilts, but from the lens I was looking through after starting this project, my attention needed to be placed on the homes the elevated ones are casting shadows on. Following my site visit I began my compliance assessments by investigation individual properties through online imagery data provided by the town. I took notes on what homes were raised on stilts, had elevated utilities, and breakaway walls. I then compiled a map to present to the town officials for what homes, businesses, and town infrastructure will be able to withstand the next storm, and which ones might not make it through it.

The nature of this project had me spending a lot of time looking at climate models and projections overlaid on top of a footprint of Fairfield on my computer screen. I started the semester eager to be working on a project that I knew had immense importance to human life but faced challenges staying motivated by only looking at charts and maps. To remind myself of the importance of this project for the residents of Fairfield, I decided to use an ArcGIS Story Map as my final deliverable. An ArcGIS Story Map is an interactive web-based format for presenting geospatial data in an approachable narrative format. My personal objective in creating the story map was to allow Fairfield residents to make their own informed decisions about their level of

preparedness for coastal hazards. After presenting my project findings and the story map I was ecstatic by the overwhelming positive reaction from the town officials by acknowledging the value of this resource. I hope this resource communicates the dangers of developing in flood plain zones for both the town and the residents they serve.

Reflecting on this project, I am extremely grateful for the opportunity to refine my skills using GIS software and my newly acquired ability to communicate geospatial data to a broader audience. I have a greater appreciation for the influence geospatial data can be utilized. While working on this project I have developed a strong understanding of both verbal and written communication to convey concepts relating to the environment and climate to facilitate meaningful conversation related to climate adaptation.

Completing the GIS Mapping Project for the town of Fairfield has allowed me to apply my skills through working with a local municipality. I look forward to continuing to work with the Fairfield Flood and Erosion Control Board beyond the semester to continue the work of this project to assist them investigate the riverine flooding areas that are also at great risk. I acknowledge that this project would not have been possible without the resources and mentorship from the UConn Extension and CLEAR faculty, Juliana Barrett, David Dickson, and Zbigniew Grabowski. The relevant experience I gained from working on this project will guide me in navigating my career in community planning and coastal resiliency in the future.