



Project #1: Climate Vulnerability and Local Emergency Management Plans

Community Partner: Andrew L'Roe, Emergency Management Planner, Addison County Regional Planning Commission

Background / Context

The Addison County Regional Planning Commission (ACRPC) supports emergency planning initiatives throughout the region for all phases of emergency management which include preparedness, response, recovery, and mitigation phases. There are a suite of planning documents that guide this work including [Local Emergency Management Plans](#) (LEMPs; updated annually), the [Vermont School Crisis Guide](#), the [Addison County Regional Plan](#), [Local Hazard Mitigation Plans](#) (LHMPs; updated every 5 years), and the [State Hazard Mitigation Plan](#).

All of these management plans incorporate, to varying degrees, climate vulnerability and health disparity issues. For example, the state's 2018 Hazard Mitigation Plan's [Extreme Heat section](#) identified Addison County as an area of high vulnerability to heat emergencies with the need to increase and upgrading available municipal cooling shelters. Due to weather extremes there is a need for not only cooling shelters in the summer but also warming shelters in the winter.

These plans also give attention to specific vulnerable populations and how best to reach and plan for their health and safety. These include:

- childcare and eldercare centers (especially for evacuation)
- migrant workers (e.g., communication with and planning for dairy workers, apple pickers)
- people with disabilities (e.g., for sheltering and evacuation)
- people working outside in agriculture/logging/construction, etc. (vulnerable to both [Extreme Heat](#) and [vector-borne illness](#))

Further, the annual Local Emergency Management Plans (LEMPs) have the sections on vulnerable populations and municipal shelter facilities ([see pages 4 & 5 of this blank LEMP template](#)). All 21 towns in ACRPC's region have LEMPs, with the town of Middlebury's likely being the most robust.

Research Description

This team of students will assist the ACRPC and town Emergency Managers with the annual updating of the Local Emergency Management Plans (LEMPs) for a suite of 4-6 municipalities within Addison County and provide a template of updating resources / processes that can be provided to other municipalities.

The updating process should include:

- Climate vulnerability work
 - Identify existing heating AND cooling shelters and mapping geographic distribution to identify gaps in terms of reasonable / accessible spatial distributions.
 - Identify what additional municipal or other buildings might be able to serve a shelter purpose Stay in touch here with VT Department of Health who is putting together a cooling center map and a survey for libraries (working towards a spring launch).
 - Determining accessibility of these shelters (i.e., where are the most likely affected groups / populations relative to where shelters are located + what forms of transportation are available)
 - childcare and eldercare centers (especially for evacuation)
 - migrant workers (e.g. communication with and planning for dairy workers, apple pickers)
 - people with disabilities- (e.g. for sheltering and evacuation)
 - people working outside in agriculture/logging/construction, etc.
 - Where / how could ARPA funds be used to establish new shelters / make existing spaces ready to serve a shelter function
- Updating key contact information for a range of emergencies in LEMPs
 - Ensuring continuity of services needs to be part of plan
 - Part of this could include locations of and regular maintenance needs for AEDs (automated external defibrillators)
 - Research utilization of "CARE" (Citizens Assistance Registry for Emergencies; <https://e911.vermont.gov/care>)
- Developing a check-list / protocol for LEMP content updates and an update schedule



Project #2 – Emergency Planning and Infrastructure Needs for Mobile Home Communities

Community Partner: Andrew L'Roe, Emergency Management Planner, Addison County Regional Planning Commission

Background / Context

There are 15 registered mobile home parks in Addison County (nine of which are owned and operated by the Addison County Community trust; see Project #3) and over 250 statewide. The registry of all mobile home parks in the state can be found [here](#) and the most recent 2019 map of park locations can be viewed at the end of this project description and is also available in our class google drive.

While all towns in the state are required to do emergency management plans (see Project #1), it has been suggested that it could be beneficial if mobile home park communities also had basic emergency management plans specific to their situations and needs. Key questions your partners have include 1) Do mobile home parks have emergency management plans? 2) If yes, how can they be strengthened? and 3) If no, what should a protocol for development look like?

The key considerations / risks that mobile home parks are particularly vulnerable to are: 1) failing sewer & water infrastructure; 2) flood risk, and 3) the need for access to heating and cooling shelters. Flood risks and access to heating and cooling shelters have been touched on in earlier project descriptions. In terms of sewer and water infrastructure, the majority of mobile home parks in Vermont were built 50 years ago or more and must overcome significant infrastructure challenges in order to sustain them as viable affordable housing options. ACCT has received some funding from the Vermont Housing and Conservation Board to address their infrastructure needs and the state is also poised to [disburse significant ARPA funding to address statewide water infrastructure needs](#).

Research Description

To help inform and improve emergency planning and infrastructure needs for mobile home parks in the county, this team of students will

- 1) **Develop a resource focused on septic system interventions**: What your partners most need for this topic are models of community septic from elsewhere, tools for approaching neighboring landowners re. purchasing land that might be appropriate for installing community systems, researching nearby town systems that may have extra capacity for folks to hook up to, identifying funding sources, etc. This could be paired with some broader statewide GIS mapping to contextualize the issue and possible solutions and/or do some deep-dive case studies for parks your partners prioritize.
- 2) **Conduct updated mapping for improved risk assessment**: working with the registered mobile home park data and ACRPC building point data, classified parcel data (e.g., categorized as residential, seasonal, mobile homes, etc.) and land and house value data produced updated maps so that flood risk, proximity to town sewer and water infrastructure and access to heating and cooling shelters can most accurately be assessed.

- 3) Research best practices and models from elsewhere: Conducting case study research into model emergency management planning for mobile home communities will allow your partners to include these ideas and strategies for addressing specific mobile home park needs above and beyond what might be found in municipal plans.

For this project there is the opportunity to develop some models / templates that could be use more broadly / statewide and to think about how ARPA funds could be leveraged to address identified issues / needs.





Project #3: Perceptions of Flood Risk for Mobile Home Park Residents

Community Partner: Christine Ouellette, Property Manager, Addison County Community Trust

Background / Context

The mission of the Addison County Community Trust (ACCT) is to “strive to enrich the lives of low- and moderate-income people of Addison County by ensuring the development, management and maintenance of safe, quality, affordable homes and related supports for families, seniors and individuals.” As part of this mission, ACCT currently owns and operates 340 home sites in nine mobile home parks, with the majority of mobile homes being owner-occupied. Three of the parks are in Starksboro, three are in Bristol, and the other three are found in Middlebury, Vergennes, and Monkton.

As per their annual reports, the parks make up the largest share of ACCT’s housing portfolio and represent a significant portion of the affordable housing stock in the county. Due to where many of these mobile home parks are located however, one of the primary environmental health & climate vulnerability risks for these mobile home parks is flooding. See the Vermont Department of Environmental Conservation’s River Corridor and Floodplain maps [here](#). As noted by the US Army Corps of Engineers, we need to be attentive to “What happens when environmental justice, social vulnerability, and flooding intersect? Who is affected differently and why? What barriers or external factors contribute to the vulnerability of certain groups? Most importantly, what actions can the flood risk management community take to advance equity and resilience for all?”¹

[Previous research by ENVS0401 students](#) in the wake of devastating flooding from Tropical Storm Irene in 2011 explored what motivated homeowners as they made decisions regarding whether or not to remain in their current residences despite risks of future flood damage. Some research they drew upon, conducted by the Boulder Institute of Behavioral Science, noted five key factors influencing residents’ hazard mitigation actions that you may also want to consider:

1. The residents’ previous experience of a hazard
2. How long the residents have lived in their homes
3. The age of residents
4. The residents’ distance from flood-prone bodies of water
5. Whether residents have received easily digestible materials about flood dangers

While this 2011 research focused on homeowners in Plymouth, Hancock and Rochester, your charge is to be in dialog with the residents of ACCT’s mobile home parks that lie in flood hazard zones.

¹ <https://www.iwr.usace.army.mil/Missions/Flood-Risk-Management/Flood-Risk-Management-Program/News-and-Events/Bridging-the-Equity-Gap/>

Research Description

This team of students will conduct an interview storytelling project with mobile home park residents, drawing on best practices for ethical storytelling. Your partners are committed to producing resilient outcomes beneficial to these communities and individuals and acknowledge that this work must start with listening to landowner or resident concerns. Your partners are excited to have you help them engage in some of this work as well as to have you develop a process that can be helpful for completing similar work in other parts of the state. Key interview themes that your partners are interested in having you explore include:

1. Connection to place
2. Sense of community within park and in relation to the towns that parks reside in
3. Homeowner opinion regarding perception / assessment of flood risks, the opportunities for relocation that residents perceive, and barriers to achieving these opportunities and goals
4. Providing a snapshot assessment of the percentage of folks that will stay put no matter what, the percentage that are buyout / relocation “curious”, and the percentage that are actively looking for something new to buy / looking for a new location.

The overall goals of your work are to:

- 1) to bring voices / opinions / goals of mobile home park residents to the fore in statewide conversations of flood risk mitigation
- 2) raise awareness of the role of mobile home park communities within towns for more inclusion in resiliency planning; and
- 3) set the stage for engagement strategies with legislators and funders / lenders for any needed structural, policy, and funding mechanism changes



Project #4: Educational Resources for Reducing Storm-Related Health and Safety Risks

Community Partner: Kyle Medash, Western Floodplain Manager, Vermont Agency of Natural Resources, Department of Environmental Conservation, Watershed Management Division, Rivers Program

Background / Context

The Rivers Program of the Vermont Department of Environmental Conservation (DEC) works closely with the Addison County Community Trust (ACCT), the Addison County Regional Planning Commission (ACRPC), and other community groups with a focus on flood hazard mitigation and resilience opportunities in underserved communities such as the mobile home parks. Organizing this work can be a real challenge, and it truly takes a team to produce resilient outcomes beneficial to these communities and individuals. In addition to the work of listening to landowner residents that Team #1 will be focused on, this work also needs to include developing and providing residents with information regarding the different options and solutions that can create a safe and resilient place to live. Your partners for this project are enlisting your help to develop materials needed to start these conversations around options and solutions and to allow mobile home park residents to make informed decisions. These resources should be grounded in the educational psychology literature and deal head-on with the myth that education will automatically lead to action and should also draw on keys for developing successful outreach materials—e.g., explain the desired response in addition to the risk, come from a reliable, trusted source, and be reinforced locally and socially.²

Research Description

This team of students will develop educational resources around what we are loosely calling “interventions” surrounding a suite of salient topics related to offering all Vermonters a safe and resilient place to live. You will—in part—need to draw on the work and research of the other project teams to inform your resources. These desired resources include:

- 1) **A resource regarding buyout programs:** There are a range of federal and state buyout programs for homeowners living in floodplains. Many are detailed on the state’s [Flood Ready Vermont: Find Funding](#) web site and the Vermont League of Cities and Town’s [Hazard Mitigation Funding Opportunities](#) web site and include FEMA’s Hazard Mitigation Assistance Program and new ARPA-funded Flood Resilient Communities Fund administered by [Vermont Emergency Management](#). For all funding options, there is the need to clearly share details of programs, funding, terms, etc. and these resources should be fine-tuned and tailored for mobile home parks residents as informed by what project team # 3 above is learning / hearing.
- 2) **A resource regarding alternative locations:** Buyout programs only make sense when residents have options for somewhere else to live. Key pieces of information to include in this resource are:

² Sims, John H., and Duane D. Baumann. “Educational Programs and Human Response to Natural Hazards.” *Environment and Behavior* 15:165. 1983

- a. Where folks who choose a buyout can look to for relocation options including spaces / open lots in other mobile home parks and details around other affordable housing / rental unit options (work here with a project team from ENV50401B that will be conducting a affordable housing mapping project);
 - b. How folks might move within a given mobile home park if some percentage choose to move out—i.e., a park may have some lots within a floodplain and some that are not. After some policy research, might it be possible for folks willing to move / interested in moving to qualify for a buyout offer even if outside of floodplain if the end result is that folks within a floodplain who will “stay no matter what” could move to a higher lot within the same park.
 - c. For those who truly won’t move, it is critical to provide details on sheltering locations in emergencies (see emergency planning work of project teams #1 & #2).
- 3) **A resource around FEMA flood mapping:**
FEMA Flood Insurance Rate Maps (FIRM) are often outdated and not always representative of actual flood risks in Vermont. Flood mapping is often overlooked or not disclosed at property sale or when executing rental agreements. Property location in a FEMA mapped floodplain could affect public safety, property value, future development potential, and result in costly flood insurance policies. How can you best convey flood risk information and the challenges/added costs of living or owning property in a flood zone.

The overall goals of your work are to 1) share materials that residents can consider as they make any decisions, 2) increase awareness of the different options/solutions that can help create safe and resilient places to live, and 3) serve as foundational talking points for further community engagement, and 4) to help establish connections between the various groups that could be helpful to carry out this work well into the future, especially in light of all the new funding programs that are becoming available.