**Project Quest**

**Program Development for Community Building, Active Engagement, and Equitable Outdoor Access**

***Community Partners:*** *Renee Ursitti, Adult Services Librarian and Katherine Laliberte, Tween and Teen Librarian, Ilsley Public Library*

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## Introduction

Vital Communities is an organization in the Upper Connecticut River Valley of Vermont and New Hampshire committed to convening area towns, cities, and organizations in the region to build strong, vital, and resilient communities. Vital Communities' areas of focus include business vitality, food and farming, energy, transportation, climate change, leadership, housing, and outdoor learning. Long a model for other regional organizations in Vermont, a range of Addison County partners would like to translate and adapt one of Vital Communities' longstanding and successful programs to our part of the state for community-building around a similar range of focal areas.[1]

The program, known as Valley Quests, models place-based education and exploration by leading participants through self-guided outdoors treasure hunts, as a fun way to foster engagement and connection to diverse natural and cultural resources.[2] Much like 'letterboxing' in the UK, quests often use riddles and clues to guide participants to locate a series of hidden treasure boxes along a route. Participants benefit from quests via strengthened social connections and support networks, access to the outdoors, and improved physical and mental health. Quests can be a wholesome alternative to substance abuse and other destructive youth behaviors/activities prevalent in this community.[3] While youth and families are particularly drawn to the fun of 'questing', quests can be designed to target specific demographics or be designed to be enjoyed for people of all ages.

## Project Need

With your cohort of interested regional partners, along with your own creative ideas, this project team will translate the Valley Quest Program to Addison County and develop a range of "starter Quests" to advance your partner's mission to raise awareness and foster community conversation around themes of energy, transportation, climate change, housing, outdoor learning, food & farming, and/or history & culture. Not all Quests need to (or even should!) incorporate all themes. Rather, consider your goal as creating an inclusive portfolio of quests that allow people can find/access the program in multiple ways and offer opportunities to the community without regard to age, ability, mobility, and access to gear. Accessibility and equity should guide the project. All quests must be free and open to the public. There is particular interest in connecting local quests to Tri-Valley Transit public bus routes to broaden the reach of who can access this activity, and to build awareness of public transportation options.

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[1] https://www.edutopia.org/article/place-based-learning-climate-change/

[2] https://vitalcommunities.org/place-based-education/?doing_wp_cron=1693864216.5413661003112792968750

[3] https://healthvermont.gov/stats/surveys/youth-risk-behavior-survey-yrbs

Considerations and opportunities to be attentive to include but are not limited to:

- Ensuring long-term sustainability of the translated Quest Project after your involvement has ended – i.e., researching any needed funding support, developing assessment plans, what community entity / entities should serve as the host web site, and identifying potential sources of volunteers for both maintaining quests that you develop and establishing new quests for sustained community engagement over time.
- Webpage/platform design to integrate into the library website
- Understanding your group's approach for designing multiple quests representing a variety of themes, but which meet program goals, follow best-practices, parameters, and limitations.
- The possibility of community surveys to inform areas of interest/focus for—and elements of—any given quest.
    - Understanding your audience/s. Are there priority audiences to make sure you reach?
- To what extent can quests be designed to encourage participants to utilize Tri-Valley Transit—our regions public transportation service provider—or to complete quests via walking or biking portions of the route. This can illustrate both opportunities and access needs.
    - Understand ridership demographics, routes, geographies, proximities and TVT's goals for increasing ridership.
- Quests will require spatial thinking in terms of geographic distribution of possible quests to benefit a wide range of Addison County residents and thoughtful mapping of routes.
- For any quests with an educational focus, considering all aspects of inclusive curriculum design

**Project Bike/Ped**
**Linking Equity, Mobility, & Health:**
**Identifying Critical Gaps in Bicycle and Pedestrian Infrastructure**

*Community Partner: Maddison Shropshire, Energy Planner, Addison County Regional Planning Commission*

**Introduction**

The federal Department of Transportation defines transportation equity to mean, "seeking fairness in mobility and accessibility to meet the needs of all community members. A central goal is to facilitate social and economic opportunities by providing equitable levels of access to affordable and reliable transportation options based on the needs of the populations being served, particularly populations that are traditionally underserved." They go on to say that an "equitable transportation plan considers the circumstances impacting a community's mobility and connectivity needs. Considering equity early and often through methods such as public participation and data collection and analysis improves the planning process' ability to adequately respond to the needs of the community it serves."
Building on these federal principles, in January of 2022, the Vermont Agency of Transportation (VTrans) launched a two-year process to develop a Transportation Equity Framework for the state.

Transportation issues in Addison County that emerged from listening sessions being conducted as part of this process included transportation barriers facing migrant workers, young people in school, and older residents in need of transport to appointments and to access food.

For our region, the Addison County Regional Planning Commission (ACRPC) is taking the lead on developing projects and facilitating access to funding sources that address barriers and link transportation needs, equity, health, and transportation emissions reductions. Example programs that the ACRPC is working with include:

1. *VTrans Bike/ Ped Planning Grants*: VTrans continues to collect data on bike/ped needs from VT communities so they can be taken into consideration when larger infrastructure projects are being planned. These data also position towns to seek and hopefully acquire funds for planning work and allow the ACRPC to pursue equity goals including safe transportation for all, clean transportation options, etc. The state's Equity Impact Assessment Tool is integrated into VTrans' bike/ped programs and grants, and equity is one of the key considerations in the grant evaluation rubric.
2. *Regional Planning Commissions (RPCs) Health Equity Toolkit and Planning Grant*: This program funds RPCs to work with a few towns on planning projects specifically related to health equity. Bike/ped issues are a very visible and necessary example of the kinds of planning that the ACRPC is thinking about, but the relationship between bike/ped access and health is not always obvious to legislators or to the broader public.
3. *Energy Efficiency Community Block Grants*: This program represents $50,000 in grant funding and the development of active transportation infrastructure is an eligible category for funding. Your community partner has access to example list of priorities from Local Motion (a VT-based advocate for active transportation) that can serve as an example for possible projects in Addison County.

Within this framework linking equity, mobility, health, and emissions reductions there are several core project needs that will help your partners at the ACRPC and towns in our region advance the above-listed initiatives. This project will also build off the work of a team of students from the Spring 2023 ES

Community-Engaged Practicum. Their project, Health Equity and Pedestrian Infrastructure, was completed in collaboration with the ACRPC and the Town of Bristol, VT and included the development of 1) a resource that guides town planners and residents through the process of assessing community transportation needs and highlights resources to meet those needs and 2) an app-based methodology for conducting sidewalk inventories.

**Project Need**

Your partner has noted that the state is requiring RPCs to do even more bike and pedestrian inventory work this year, to ground-truth this work through well-designed community engagement processes, and to continue building a digitized map of identified needs.

The team of students that takes on this project will contribute to these efforts in the following ways:

- *Refinements to inventory app and testing additional tools*
  The app that the Spring 2023 students developed has garnered a lot of interest from other town planners in the region. Your partners are interested in 1) taking this app to the next level by allowing for the assessment of not only the condition of existing sidewalks but also of the presence and condition of *associated bike/ped amenities* such as benches, bike racks, shade trees, water fountains, etc.; 2) making the app transferrable and suitable for a range of town-specific contexts by considering what modifications might be needed based on geographies of scale; and 3) testing other digital assessment tools that give a bigger picture of community spaces.

- *Moving beyond inventorying existing infrastructure to identify gaps in infrastructure*
  A core aspect of transportation equity is that all members of a community are served that everyone's needs are reflected in infrastructure design. To this end, in addition work assisting towns with inventorying existing infrastructure, there are some simple remote spatial analyses that this team could conduct to assess gaps in connectivity between a range of housing spaces and key community amenities (e.g. grocery stores, medical offices, libraries and other community gathering spaces, etc.) that would be illustrative.

- *Critical thinking around best uses of funding*
  With a relative windfall of funding coming to the state of Vermont through a range of federal, state, and local sources, there is the need for the meaningful wrestling and critical thinking around the "best" and most impactful uses of this funding from a transportation equity perspective. What metrics should be used as we think about equity and impact? Who are projects for, and are priority populations being served? What will make the greatest contribution to reducing emissions in the transportation sector as the state strives to meet the requirements of the Global Warming Solutions Act? Where is there synergy and where is their opposition amongst this suite of goals?

**Project EV**

**Envisioning a Sustainable Landscape for Vehicle Electrification in Vermont**

*Community Partners:* Ari Lattanzi '13, Climate Programs Administrator, Vermont Agency of Transportation and Patrick Murphy, Sustainability and Innovations Project Manager, Vermont Agency of Transportation

**Introduction**

Vermont's 2020 Global Warming Solutions Act requires a 40% reduction in scope 1 and 2 greenhouse gas emissions below 1990 levels by 2030.[1] Transportation and mobile sources have consistently represented the largest share of Vermont's greenhouse gas emissions, only exceeded by residential, industrial and commercial fuel use during the pandemic-related reduction in vehicle miles traveled (VMT).[2] In light of this, the Vermont Agency of Transportation (VTrans) will continue its work to support fossil-fuel-free technology, such as electric vehicle charging stations; electric cars, trucks, and buses; and transportation alternatives like bike lanes, park-and-rides, public transit, passenger and freight rail, and pedestrian safety.[3] Recent modeling in the Vermont Pathways Analysis Report 2.0 projects a 31% decrease in transportation emissions by 2030 with 116,500 light duty EVs and 9,200 medium- and heavy-duty EVs which would account for 23% of vehicle miles traveled.[4] Currently there are about 10,000 EVs registered in VT.[5] Incentives intended to catalyze the uptake of EVs include 1) a wide array of federal, state, and utility financial incentives;[6] and 2) policy tools such as the recent adoption of the Advanced Clean Cars II (ACC II) Program which will require automakers to offer an increasing percentage of zero-emission vehicles over time with a goal of 100% EV sales by 2035.[7]

During the public comment period for the ACC II Program, concerns were raised around the environmental impacts and environmental justice implications of lithium and other rare-earth element mining that is needed to produce EV batteries. These comments prompted VTrans to explore how different levels of state policy could be leveraged to address these concerns via battery recycling programs, extended producer liability laws, or other policy tools.

An April 2023 research report by a team of Dartmouth undergraduate researchers[8] focused on many facets of vehicle electrification, including preliminary work on what regulating expired EV batteries could look like for Vermont. Students on this project team will further these efforts. Key finding from the Dartmouth team include:

- Given average VMT in VT and the mileage ratings for most lithium-ion batteries (LIBs), the battery is projected to last, potentially outlasting the vehicle itself. While EV battery waste is not an immediate issue, it will be a significant issue in the coming decades.
- Batteries can be reused, repurposed, or recycled. Battery recycling facilities currently exist in New York, Massachusetts, and Nevada; some automakers hope to develop their own. A

[1] Vermont Global Warming Solutions Act of 2020
[2] Vermont_Greenhouse_Gas_Emissions_Inventory_Update_1990-2020_Final.pdf
[3] https://vtrans.vermont.gov/planning/climate-change
[4] Pathways Analysis Report Version 2.0.pdf (vermont.gov)
[5] https://www.driveelectricvt.com/ & ANR AQ EV Quarterly Report
[6] https://www.driveelectricvt.com/incentives
[7] https://vermontbiz.com/news/2022/november/24/vermont-adopts-rules-cleaner-cars-and-trucks
[8] W~Daniel Schroeder~Responding to Increasing EV Use in Vermont~4-7-2023.pdf

promising re-purposing strategy is for batteries to serve as energy storage devices for solar energy.

- As of March 2023, no states had adopted laws governing EV battery disposal, though several had created task forces to begin research. The California Task Force has generated a range of possible policy pathways.
- At the federal level, both the Inflation Reduction Act and the Infrastructure Investment and Jobs Act include funding for EV battery recycling that Vermont could apply for.
- There is precedent in VT policy for extended producer liability laws in the 2014 "Primary Battery Stewardship Law" which applies to all single-use batteries of less than 2 kg.

**Project Need**

Students on this project will envision the necessary components of, approaches, opportunities, and needs associated with growing a sustainable electric vehicle landscape in Vermont. This team will integrate information from research and stakeholder interviews and present their vision in accessible formats that can be shared with State agencies, legislative committees, and the public. Formats might include videos, slide-decks, fact sheets. There may be an opportunity to present this information directly to the Legislature in the 2024 session.

The following list of considerations serves as a starting point for assisting VTrans in providing the foundation upon which to build EV battery policies, programs, and infrastructure. There is a need for Vermont-specific quantitative and qualitative data that can be effectively communicated to a range of audiences.

- How can the State of Vermont organize itself and plan for EV battery repurposing and recycling in Vermont? What possibilities exist for end-use and reuse options? How are other states addressing the issue of end-of-life electric vehicle batteries (e.g., Washington[9])? What is working, what is not? Which are most viable in Vermont?
- What benefits accrue to Vermont (e.g., job creation, energy storage, reduced transportation costs) for various end-use/reuse options? Who is impacted and how?
- What is needed to support an equitable and inclusive conversation and policy process regarding end-of-life EV batteries? What are key safety and environmental concerns? Which stakeholders need to be part of the conversation?
- What type of training and workforce development would be needed?
- How can extended producer liability precedents (in Vermont and other states) inform an approach to EV batteries?
- How might federal policy and funding opportunities (Department of Energy, Environmental Protection Agency) impact EV battery recycling in Vermont?
- What are the international implications of EV battery recycling? What is happening regarding EV battery recycling in other countries? How can Vermont encourage more rigor around how critical battery minerals are sourced domestically and abroad?
- In addition to battery recycling needs, what other side effects of electrification haven't yet been accounted for – e.g., increased tire and brake particle emissions from heavier EVs?

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[9] https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bills/Session%20Laws/Senate/5144-S2.SL.pdf?q=20230906085623

    - How long have the programs been running? How are they similar or different from the proposed Navigator project?
    - How is the program funded? How did these programs define and measure success? What best-practice models exist for non-profit pilot program launch and program longevity?
    - How would we adapt these templates to meet the needs of Addison County residents?

- Exploring what a successful user experience would look like both via a website and with a coach.
    - What would the process be like of 'moving through' the program?
    - Who is the audience/s? Who are the different users?
    - What do you need to know about them? How could you find out? Who might know?
    - How would you respond to their different needs?

- Investigating Navigation/ coaching programs
    - What support structures are needed to sustain coaching programs?
    - What can we find out about different models for these programs (all paid staff, all volunteer, some mixture of paid and volunteer).
    - How these programs overlap/compete/complement existing programs run by Heat Squad, Efficiency Vermont, and others might be useful for us

- Designing an engagement, outreach, and/or marketing/communications strategy for the program
    - How, when, and where might you best reach the intended audience(s), including potential participants and potential program funding sources
    - What outreach materials might be needed and best engage your audience?
    - What outreach materials might be useful for soliciting Navigator funding?

**Project Navigator**

**Facilitating residential energy efficiency and reduced carbon emissions in Addison County**

*Community Partners: Jean Terwilliger, Steven Maier, and Mike Roy at the Climate Economy Action Center of Addison County (CEAC)*

**Background/Context**

Vermont's leading greenhouse gas emissions come from transportation and residential, commercial, and industrial (RCI) fuel use.[1] For most Vermont residents seeking to cut their contribution to these emissions, there are numerous educational resources and cost-cutting incentive programs available.[2] These programs assist Vermonters to weatherize their homes to be more energy efficient, access federal or state rebates for installing photovoltaic solar capacity or purchasing an electric car, for example. However, data show that we need to increase participation for Vermont to comply with the State's Global Warming Solution Act[3] and to respond effectively to the climate crisis. A recent report by Efficiency Vermont also shows that energy saving programs fail to reach those who need them most, including low-income Vermonters and renters.[4]

Founded in 2019, the Climate Economy Action Center is a small non-profit based in Middlebury, Vermont with a mission *to achieve deep reductions in local greenhouse gas emissions as a result of community awareness and actions.* To better connect people with one-on-one, end-to-end support to reduce their home's GHG emissions, CEAC is adapting an existing successful program from Massachusetts, MassEnergize, for use in Addison County. The Energy Navigator Project is envisioned as a free personal coaching program for renters and homeowners in Addison County who wish to reduce their carbon footprint and/or lower their utility bills but need assistance in reaching this goal.

**Project Need**

CEAC envisions the Navigator Project as a coaching program with a web-based support component. The web component will offer general education for Addison County residents about energy efficiency and electrification possibilities. The core of the Navigator project, however, will be one-on-one session(s) with a personal navigation coach to inform and guide residents in making home energy decision, as well as the steps needed for implementing the project. The Navigator project team will work with CEAC to define and create the essential components for the success of this pilot program and identify challenges and opportunities for the long-term efficacy of the program. Areas of focus could include:

- Understanding the barriers Addison County residents face to participating in carbon-reduction programs.
    - What does CEAC already know, what information is missing relevant to understanding barriers/access?
    - What Vermont-specific data is out there about this?
    - How can the Navigator Program reduce or eliminate those barriers?

[1] Latest GHG Emissions Inventory | Department of Environmental Conservation (vermont.gov)

[2] https://www.efficiencyvermont.com/rebates

[3] Officials nudge Vermonters to weatherize, using state and federal incentives - VTDigger

[4] 2023 Vermont Energy Burden Report | Efficiency Vermont

- Understanding and appropriately adapting best practices from the MassEnergize project, and perhaps other related programs.[5]
    - How long have the programs been running? How are they similar or different from the proposed Navigator project?
    - How would we adapt these templates to meet the needs of Addison County residents?
    - What information needs to change, relative to MassEnergize, for our Addison County website?

- Designing an engagement, outreach, and/or marketing/communications strategy for the program
    - How, when, and where might you best reach the intended audience(s), including potential participants and potential program funding sources
    - What outreach materials might be needed and best engage your audience?
    - What outreach materials might be useful for soliciting Navigator funding?

- Exploring what a successful user experience would look like through to successful recruitment for the Navigator coaching and implementation of energy/carbon-savings
    - What would the process be like of 'moving through' the program?
    - Who is the audience/s? Who are the different users?
    - What do you need to know about them? How could you find out? Who might know?
    - How would you respond to their different needs?

- Investigating Navigation/ coaching programs
    - What support structures are needed to sustain coaching programs?
    - What can we find out about different models for these programs (all paid staff, all volunteer, some mixture of paid and volunteer).
    - How these programs overlap/compete/complement existing programs run by Heat Squad, Efficiency Vermont, and others might be useful for us

[5] Circuit Riders Program | Clean Energy NH; Get Your Green Back Tompkins, which has been largely absorbed by Smart Energy Choices: Regional Clean Energy Hub