

# Doherty Memorial High School, Worcester

## Massachusetts Envirothon 2023 Community Engagement Award Research & Action Checklist

The Community Engagement Award recognizes your team's research and action related to the [Envirothon Current Issue](#). To meet the standard for the award, your team must show that you have been creative and resourceful in using a range of research strategies. Your team must also show that you have taken new ideas and connections based on your research and put them to work to benefit your community.

**There are three parts to this checklist:**

- 1) RESEARCH.** Your team must complete a list of recommended community research tasks. You may decide to pursue your own tasks that take you deeper, or in different directions. If your team departs from this checklist, be ready to explain why you believe you still qualify for the award.
- 2) ACTION.** Your team must provide a description of the action project you are undertaking, and some form of evidence of your work (for example, a letter from a community partner)
- 3) REFLECTION.** These items -- accompanying each research and action item -- are your team's opportunity to show the ideas, local savvy, and informed opinions you gained from your research and action experiences. Consider all the items throughout the checklist and **respond briefly to at least five** that resonate most with your experience. You can also devise your own. Be ready to talk to your Envirothon reviewers about any of the items listed.

Name of your School/Organization/Team

Doherty Memorial High School

### RESEARCH

**1. COMMUNITY:** This is how we are defining the geographic area of our "community" for this year's Envirothon Current Issue (Use a map or verbal description. What areas of which municipalities are your focus?):

Our geographic area is defined by the borders of the City of Worcester. (See map on poster.)

REFLECTION: We found that placing these boundaries on our "community" were (or were not) helpful in considering solutions to climate issues. For example:

Setting the boundaries at all is challenging in the sense that climate change is EVERYWHERE. However our "local community" also has clear problems and potential solutions.

REFLECTION: We discovered the following Environmental Justice issues represented within our community: From our maps, we see that the areas of Worcester that are most impacted by extreme heat and flooding are the same areas that are occupied by our Environmental Justice populations.

**2. STATE PROGRAMS ASSISTING LOCAL COMMUNITIES:** we became familiar with how our community has taken climate action through the [Massachusetts Municipal Vulnerability Preparedness Program](#) and the [Massachusetts Green Communities Program](#). (Talking with local people who have been involved with these programs, and reviewing reports and plans online, will put you on the fast track to understanding much about your community's climate priorities, goals, and accomplishments so far). This is the program that was most useful for our research interests:

MA Municipal Vulnerability Preparedness Program

]

This community person was especially helpful to us as we explored the work of these programs:

Name

Luba Zhaurova

Organization

City of Worcester Department of Sustainability & Resilience

REFLECTION: We believe that community planning and participation in these programs could be expanded and improved in these ways:

**3. PEOPLE** (firsthand connections): We interviewed (at least) THREE people concerned with climate change in our community. (More people = more complete perspective on the issue. ONE of these people may be listed in (2) above, ONE may be listed in (4) below, and ONE may be listed in (7) below. Interviews may be in person or via video link. Collect the following information about each person):

Name #1

Rob Antonelli and Brian Breveleri

Organization (if any)

City of Worcester DPW & Parks

Concern/expertise related to climate

Manage city's parks and urban forest, aim to mitigate climate change through the use of urban forestry practices.

Name #2

Eric Brown

Organization (if any)

City of Worcester Reservoir Division, DPW&P

Concern/expertise related to climate

Manages forested areas around our DRINKING WATER and plans for future changes in order to ensure quantity and quality of water.

Name #3

Patrick Boyle

Organization (if any)

The Green Engineer

Concern/expertise related to climate

Expert in LEED certification; talked about how the new Doherty incorporates environmentally sensitive and sustainable practices (parking, lighting, heating)

Name #4 (This is beyond the requirement. Bravo!)

Paul Popinchalk

Organization (if any)

Concern/expertise related to climate

Knowledgable citizen/activist that has participated in heat island effect data collection with WPI and works to educate others (like us!) about climate change.

REFLECTION: We think this group is especially effective (e.g. influencing decisions and/or taking action) around climate issues in our community, and this is why:

REFLECTION: We think this person (or group) has power to make change (or to block change) around climate issues in our community, and this is why:

Worcester City Council has power to support the Urban Forest Master Plan in policy and funding to make the recommendations reality.

REFLECTION: We think this group is especially effective at mobilizing missing voices around climate issues in our community, and this is why:

REFLECTION: We were inspired by this example of HUMAN RESILIENCE in our community:

REFLECTION: We encountered this genuine, honest difference of opinion on climate action needed in our community:

**4. PLACES** (firsthand experiences): We visited (at least) THREE different places with significance for climate change in our community (Use a mapping app on a cell phone to get latitude/longitude information. If you had someone to guide you on your visit, include that person's name and contact information):

Place name #1

Broad Meadow Brook Conservation Center & Wildlife Sanctuary

Latitude:

42.23787 degrees N

Longitude:

71.768 degrees W

Significance for climate change:

Broad Meadow Brook is a MA Audubon sanctuary that preserves 400 acres of land as wildlife habitat, which also provides ecosystem services to mitigate the effects of climate change (wetlands prevent flooding, wooded areas provide shade and cooler temperatures). They also have incorporated many aspects of sustainability into their land and buildings, including solar panels, food waste composting, rain garden, and a new education building with lots of insulation, motion-detector lighting, ventilation regulated by CO2 sensors.

Name of guide who accompanied you, if any:

Sarah Bertrand, Education Coordinator

Place name #2

New Doherty High School

Latitude:

42.270 degrees N

Longitude:

071.817 degrees W

Significance for climate change:

Construction of the new school includes many features of sustainability including tree cover (more trees will be planted than were removed for construction), motion-sensor lighting, passive solar heating/lighting through windows, electric vehicle charging stations, "solar ready" roof for addition of solar panels, mostly electric heating system; water retention system to prevent excessive runoff during intensive storm events.

Name of guide who accompanied you, if any:

Christina Bazelmans, Matt Wilder

Place name #3

Newton Hill park

Latitude:

42.267 degrees N

Longitude:

71.820 degrees W

Significance for climate change:

Monoculture planting of ash trees that are in poor health and likely to die soon due to invasive insect pest, the Emerald Ash-borer Beetle. Invasive pests and diseases are likely to get worse with climate change.

Name of guide who accompanied you, if any:

Guide contact phone or email:

Place name #4 (This is beyond the requirement. Bravo!)

Latitude:

Longitude:

Significance for climate change:

Name of guide who accompanied you, if any:

Guide contact phone or email:

REFLECTION: We found the best example of natural resources (soil, water, forest, wildlife) affected by climate change here:

REFLECTION: We were inspired by this example of NATURAL RESILIENCE in our community:

REFLECTION: This is the best example we found in our community of a NATURE BASED SOLUTION that is ALREADY WORKING WELL (natural or human-made):

REFLECTION: This is the best idea we heard about for a NATURE BASED SOLUTION that should be CONSTRUCTED OR DEVELOPED in our community:

At Broad Meadow Brook, they are working on a project to "daylight" a portion of the brook which is currently covered or buried, in order to restore the natural flow and to promote reduced flooding in the surrounding neighborhood.

REFLECTION: This is a place that we really want to PROTECT in our community, and this is why:

We really want the protection for Broad Meadow Brook to continue since it provides free recreation opportunities for people in our community, it is a big expanse of open space, it provides habitat for native species, and it is one of the largest chunks of protected land in our very developed city.

## 5. MEDIA & WEB RESOURCES (These are secondary sources; use them to broaden your understanding.

Please save versions of these pieces - e.g. paper copies, permanent links, or pdfs - to share, and be ready to explain their importance):

We found these **THREE websites** to offer especially good resources for well-presented, accurate information relevant to climate change. We have evaluated these using [C.A.R.S criteria](#) and recommend them as background for people planning to take climate action in our community (Provide urls to take the reader to the particular page you most recommend as a resource):

Website/page #1 URL:

[Green Worcester Plan](#)

Lays out Worcester's goals to bring sustainability values to all aspects of city life.

Website/page #2 URL:

[When The World Gets 1°C Hotter | Climate Change: The Facts | BBC Earth](#)

Short video (7 minutes) that lays out causes and current/future impacts of climate change.

Website/page #3 URL:

[Learn About Heat Islands | US EPA](#)

Ten words on how it is valuable/useful:

Useful information on heat islands for preparing poster on impacts of climate change on cities for Climate Fair.

We found this **recent NEWS STORY about our community** that relates to the climate topics we investigated:

Headline or Title:

"Going for the green: More trees in city's 'heat islands' eyed"

News Source and URL:

Telegram & Gazette <https://www.telegram.com/story/news/local/leominster/2023/05/01/worcester-combats-urban-heat-islands-with-master-plan-draft/70154196007/>

Date:

Monday, May 1, 2023

This **FEATURE ARTICLE or BOOK** really helped us understand climate issues:

Headline or Title:

"Earth is nearing the tipping point for a hot future"

News Source and URL:

New York Times <https://www.nytimes.com/2023/03/20/climate/global-warming-ipcc-earth.html>

Date:

3/21/2023

REFLECTION: We found this **OPINION PIECE** related to climate issues to be particularly persuasive:

Headline or Title:

News Source and URL:

Date:

REFLECTION: We had concerns about the facts and/or arguments presented in this media item and believe that it qualifies as **CLIMATE MISINFORMATION**:

Headline or Title:

News Source and URL:

Date:

**6. LEGISLATION.** We learned about this proposed new law (a bill that has been introduced into the Massachusetts legislature) and believe that it would help address the climate issues our community faces (Contacting your state representative or senator, and advocacy groups, plus the [Legiscan](#) and the [Mass Legislature](#) searchable databases, can help you):

Bill number and name:

Bill S.2809. An Act Promoting Solar Canopies on Large Parking Lots

A URL that provides more information:

<https://malegislature.gov/Bills/193/S2089>

Briefly describe how this proposed law would help to address the climate crisis (Describe the intended effect of the law. Would it change everyday life in some way? Would it make it easier for people to do the right thing for the climate? Who would be affected most?)

This proposed law would benefit Worcester because we have a lot of parking lot space, which is impervious surface that also contributes to the heat island effect. Large solar canopies would not only provide shade but would also generate electricity from the sun. Using this electricity in nearby homes or stores would reduce our reliance on electricity generated by burning fossil fuels.

REFLECTION: We found the following group(s) advocating for (or against) this change, and these are the main reasons they give for their position(s):

REFLECTION: We found another proposed new law that we think will make the climate crisis worse, and this is why (include bill number and URL):

**7. BUDGETS AND TIMEFRAMES.** As we developed our recommendations, we found this resource (perhaps a conversation with a person, or a website, or a document) to be especially helpful in explaining the planning, time, and funding considerations that would be important to make our recommendations a reality (Provide enough information on the resource so someone else could find it):

~~Telegram & Gazette article, May 1, 2023 reports that Worcester's 2022 forestry budget was \$1.6 million and that the draft master plan requests an additional \$500,000 per year. It also suggested that tree planting could extend through 2027, with trees continuing to grow to mature size for the next 20 years. Link to article <https://www.telegram.com/story/news/local/leominster/2023/05/01/worcester-combats-urban-heat-islands-with-master-plan-draft/70154196007/>~~

REFLECTION: We were surprised to learn about this obstacle to making the changes we recommend:

**8. SUMMARY OF OUR RESEARCH AND RECOMMENDATIONS (OUR ENVIROTHON PRESENTATION).** Below is a summary of the main point(s) of our Mass Envirothon 2023 Current Issue presentation in 3-4 sentences:

~~Worcester is a city that includes a diverse community including large numbers of environmental justice~~ populations, such as low-income, minority, and English as a second language populations. Worcester is plagued by heat-island effect and flooding from extreme precipitation events, which disproportionately affect these residents. With the information we gathered from interviews and site visits, we gained information that can help us (the city and its residents) to mitigate and adapt to the changing climate crisis. Our main recommendation is that the City adopt and fully fund the Urban Forest Master Plan, recently released in draft form.

REFLECTION: AUDIENCE: These are the specific interests and groups - who have the power to make the changes we recommend - that we are addressing in our presentation:

REFLECTION: AN UNEXPECTED FIND! We were surprised at how important and valuable this person, place, or other resource is for our community's response to climate change:

REFLECTION: UNEXPECTED HOPE! Of all the people, places, and online research we did, this is the thing we found that gave us the most hope (Tell us why!):

REFLECTION: OTHER QUESTIONS we would like to answer about our research:

## ACTION!

### **9. THIS IS HOW WE ARE SHARING AND/OR TAKING ACTION BASED ON WHAT WE HAVE LEARNED:**

- Best approach: Write and attach a brief news release about your project and/or provide a link to photos and other documents about the work.
- At least: Write a paragraph below presenting the basic facts of your project: who, what, when, where, how, and why.

20!) helped to create different “stands” that presented different topics regarding climate and climate change. There was one talking about climate from a more political stance but there was also climate trivia and a fun game of pinning leaves on a tree. This Fair allowed people outside of our club to be introduced to climate issues in an interactive way that made it more interesting than reading articles focusing on the doom of climate change. We also offered refreshments and prizes. Over 50 students, teachers, and community members attended! It was held on a Wednesday afternoon after the SAT’s, allowing for a fun way to decompress from the stressful exam and learn something new that is actively happening to the world around us.

Link to photos:

[https://docs.google.com/presentation/d/1\\_OxIFJPjodXkMEaF69E2UsmYqa7Az7ADIXUc9FycP9I/edit#slide=id.g22e00d42830\\_0\\_25Par](https://docs.google.com/presentation/d/1_OxIFJPjodXkMEaF69E2UsmYqa7Az7ADIXUc9FycP9I/edit#slide=id.g22e00d42830_0_25Par)

REFLECTION: OUTCOMES. We see these results (planned and unplanned, in ourselves and in the community) from our research and action:

~~We've seen things such as increased interest in areas of climate awareness in the student body or Donerty.~~

Overall, we had an impressive amount of attendance that allowed us to inform the people about what is going on in the climate and what we could do about it. Our research led us to a deeper understanding of the climate as well.

REFLECTION: TEAMWORK. These are the ways we worked best as a team, and these are the ways we could improve:

The teamwork within the group was flawless; we all found ways to cooperate with each other and understand how we could contribute to the Climate Fair.

REFLECTION: OTHER QUESTIONS we would like to answer about our action:

#### **10. EVIDENCE OF OUR COMMUNITY ENGAGEMENT.**

- EITHER (best approach): Provide a copy of a letter or email from a community partner outside our school about the action we have chosen to take ([Here are some tips for how to ask for a letter](#))

Letter writer's name:

Sarah Bertrand

Position/Organization:

Education Coordinator/Broad Meadow Brook Conservation Center & Wildlife Sanctuary

- OR: Provide a different form of evidence (Please describe):

REFLECTION: SECOND CHANCES. If we were going to do this community action over again, this is what we would do the same, and this is what we would change:

REFLECTION: WHAT'S NEXT? Based on our experience, this is the next step we recommend for ourselves or other young people in this community: