



Project Proposal

As the Environmental Science teacher at Boston Green Academy, I strive to empower students to see their city in new and meaningful ways. My fellowship focuses on studying urban heat islands (UHIs) and sustainable urban planning in Singapore, Thailand, and Vietnam. Urban heat islands—areas in cities that experience significantly higher temperatures due to dense infrastructure, human activity, and limited vegetation—are increasingly relevant as climate change intensifies. By seeing how cities in Southeast Asia tackle UHIs, I want to spark ideas in my students about creative and local solutions for Boston.

The funding from this fellowship will be used to travel to these three cities over three weeks during the summer. My journey will begin in Singapore, where I will explore its reputation as the "most sustainable city in the world." Through visits to rooftop urban gardens, vertical greenery systems, and discussions with sustainability experts, I will investigate how Singapore balances urban density and environmental responsibility. In Thailand, I will focus on how Bangkok mitigates UHIs amidst rapid urbanization and unique climate challenges, such as flooding. Lastly, in Vietnam, I will explore urban heat dynamics in cities like Ho Chi Minh City, where traditional practices intersect with modern urban growth. These diverse perspectives will provide the foundation for designing an innovative environmental science "Introductory Unit" for my curriculum.

My interest in environmental sustainability stems from a lifelong passion for the natural world and the interconnectedness of human systems. Teaching in Boston has deepened this passion as I witness students' curiosity about how their city can adapt to climate challenges. This project came from my goal to connect global ideas about sustainability with what we can do locally. I realized that looking at the creative and effective urban planning in Southeast Asia could help students think about ways to rethink Boston's city design from a perspective they are not always shown.

The focus on urban heat islands emerged as a natural entry point to these discussions. UHIs connect critical topics like energy consumption, equity, and green infrastructure, making them ideal for interdisciplinary teaching. This fellowship will allow me to gather firsthand insights and tangible examples to illustrate these concepts in the classroom.

The measurable goals I have for this project are as following:

- **Goal 1:** Create a dynamic introductory unit for Environmental Science, using urban heat islands as a case study to connect climate change, equity, and sustainability. This unit will include lesson plans, student-driven data analysis activities, and real-world case studies from Southeast Asia.
- **Goal 2:** Develop a comparative resource highlighting green versus gray space in urban environments. This resource will use data and visuals from my fellowship to show how sustainable urban planning improves quality of life and mitigates heat. This data can then be used for future class discussions and activities.



Boston, like many cities, grapples with its own urban heat island challenges, often in the neighborhoods in which my students reside. My goal is to help students see their city in a new light—one where they recognize both the problems and the potential solutions. By bringing real-world examples from Southeast Asia into the classroom, I can provide students with a global perspective on sustainability while encouraging them to think critically about local issues.

This project aligns directly with our school's environmentally focused mission, and my class topics, by fostering place-based learning and empowering students to take actionable steps toward sustainability. For example, students could compare Boston's UHI data to the solutions I document during my fellowship, then design their own community projects such as advocating for green roofs, planting urban trees, or engaging in public policy discussions.

An approximate timeline:

- Week 1: Singapore (Start Date: July 7th)
 - Visit sustainable urban landmarks, including rooftop urban gardens, the Marina Barrage, and vertical greenery systems.
 - Meet with urban planners or sustainability experts to discuss strategies that have made Singapore a global leader in green infrastructure.
 - Document findings with photos, interviews, and field notes to inform teaching materials.

- Week 2: Thailand
 - Explore Bangkok's strategies for addressing UHIs amidst challenges like air pollution and flooding.
 - Visit green spaces such as Lumpini Park and community-driven urban sustainability projects.
 - Investigate traditional architectural methods that mitigate heat.

- Week 3: Vietnam
 - Examine the impact of UHIs in Ho Chi Minh City and Hoi An, focusing on the interplay of rapid urbanization and traditional practices.
 - Connect with local environmental organizations or projects addressing urban heat challenges.
 - Collect comparative data on temperature variations across green and gray spaces.

By immersing myself in Southeast Asian cities, I will bring back rich, firsthand examples of sustainable practices to inspire my students. This project will empower them to connect global solutions to local action, fostering a sense of agency and responsibility for Boston's future.