

# Municipal Consulting for Nature-Based Climate Solutions

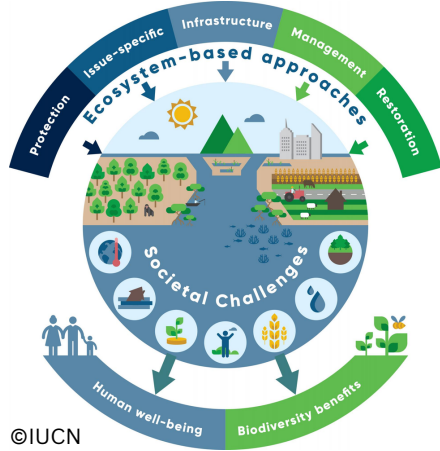
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**NATURE-BASED  
CLIMATE SOLUTIONS**



Masters of the Environment  
UNIVERSITY OF COLORADO BOULDER

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## BACKGROUND

Unsustainable land use by humans has degraded our natural world, leading to biodiversity loss, desertification, and pollution. This has left us and our environment vulnerable to the inevitable impacts of climate change. Nature-based Solutions (NbS) are a set of practices that aim to restore the healthy functioning and resilience of natural ecosystems through improved management of urban and rural landscapes. As a part of climate action taking place around the country, municipalities are looking into NbS to help mitigate climate change, build resilience and adaptation, and improve equity.

## PURPOSE

For this project, three students partnered with Nature-Based Climate Solutions (NCS), an organization that supports municipalities with the development and implementation of NbS, with the goal of adding capacity for local governments working to implement NbS in their communities. Each student collaborated with a different region to understand their climate goals and provide support on NbS projects designed around local environmental and social conditions. The student team also collaborated as a group to identify overlapping synergies and insights from their work. Below is a summary of each project's goals followed by a deeper look into the methods and outcomes from each student's efforts.



PENNSYLVANIA



MISSOURI



CALIFORNIA

### LOWER MERION TOWNSHIP

The objective of this project was to analyze existing practices and data in the field of urban forestry and to provide content recommendations to assist township planners in their development of a Tree Canopy Management Plan.

### KANSAS CITY

This project focused on assisting Heartland Conservation Alliance and other municipal and not-for-profit partners in their efforts to craft a comprehensive vision for The Blue River Greenway, a 43-mile riparian greenway that would run from Johnson County, Kansas, through urban Kansas City, Missouri, to the confluence with the Missouri River.

### SONOMA COUNTY

This project supported the Carbon Sequestration and Ecosystem Services initiative of the Sonoma County Regional Climate Protection Authority's (RCPA) 2030 Sonoma Climate Mobilization Strategy by protecting and increasing natural carbon sinks.

# METHODS & OUTCOMES

## LOWER MERION TOWNSHIP, PA

The final deliverable for Lower Merion Township was a report that summarized key findings from the graduate student's summer work. This work included a review of existing township plans, an analysis of urban forestry plans from other cities, and a compilation of available data and tools. This work focused on the use of trees for climate mitigation, adaptation, and equity. Key findings in the report will aid township staff in writing a request for proposal for a full-time consultant, who will support the development of a tree canopy management plan. The report also provides content recommendations that will assist township planners when writing the plan. Lessons learned from the partnership with Lower Merion Township and key findings in the report will be shared with NCS to improve future consultant work with municipal partners.



## KANSAS CITY, MO

The final deliverable for Kansas City was an ArcGIS StoryMap that presented a vision for the Blue River Greenway and outlined the sequestration, resilience, and equity benefits of restoration, such as cooling the urban heat island, providing equitable access to outdoor recreation, and promoting economic development. The StoryMap will be used as a tool in stakeholder engagement sessions to solicit ideas and feedback from partners and stakeholders in order to build a collective vision. It will then be shared with funders and the public in order to demonstrate the value of the Blue River Greenway, build support for the project, and ultimately raise funding to turn the project into reality.



## SONOMA COUNTY, CA

Outcomes included a comparative matrix cataloging the status of current tree protection ordinances, a recommendation report with suggested updates and management practices for jurisdictional staff to use in the face of climate change, and the connection of jurisdictional staff with community members involved in urban forestry for potential long-term partnerships. This collaborative process helped determine the unique urban forestry concerns and needs of each jurisdiction. These efforts will help improve air quality, mitigate flooding, minimize drought impacts, and reduce the urban heat island effect. The matrix assessment and recommendation report will be shared with planners and staff of the nine incorporated jurisdictions and the unincorporated County of Sonoma for future tree canopy conservation.





# PROJECT INSIGHTS

**In addition to our individual projects, our team collaborated as a group to uncover synergies and identify key takeaways from our work consulting with municipalities to implement NbS:**

- Those working to implement NbS for municipalities should begin by engaging stakeholders, community partners, and municipal staff. Gathering data and input upfront is critical for developing policies and plans that address local needs, build community support, and are resilient to political and social changes.
- Regional partnerships and collective engagement around NbS are crucial in order to build holistic and sustainable NbS solutions. Climate impacts like wildfires and droughts have no political or geographical boundaries.
- Municipal plans should proactively assess long-term community needs and evaluate the potential consequences of implementing NbS (e.g. planting trees in low-income neighborhoods could lead to the displacement of those communities). By evaluating long-term maintenance needs, equity implications, and future climate impacts, planners can ensure NbS are employed in a way that provides long-term benefits for people and ecosystems.
- Qualitative and quantitative data are important to provide when building the case for the benefits of implementing NbS. However, more research and funding in this area are required to further develop these data and modeling tools.
- Since private property often accounts for the majority of land within municipal jurisdictions, providing incentives, regulations, and engaging with private landowners is necessary for successfully implementing NbS.

## Collaborators

These projects were made possible by thoughtful collaborations and guidance from our capstone partners, city champions, and capstone advisor.

### Local City Champions



### Project Team

