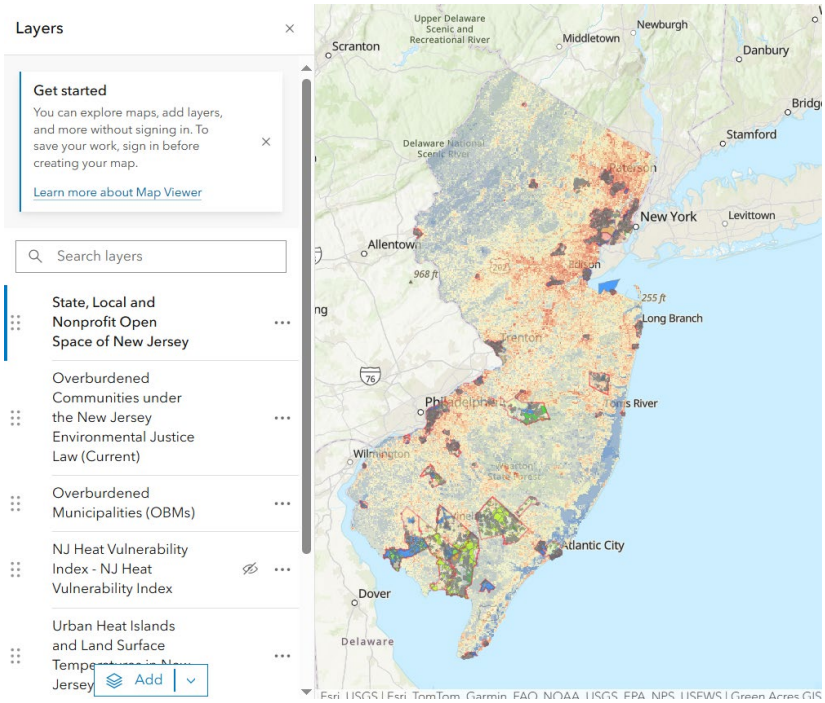
Contents

Guidance on Project Planning Tools:

To help identify which communities are most at risk from extreme heat, within overburdened municipalities (OBMs), the mapping tool, NJ UHI Mitigation and Resilience Planning, includes several key data layers that support project planning and project preparedness:



OBM Status: Based on the NJ Board of Public Utilities (BPU) designation. This layer identifies municipalities eligible for funding through the BPU's UHI Program.

Land Surface Temperature (LST): Identifies urban heat hot spots.

Overburdened Communities (OBCs): Current OBCs under NJ's Environmental Justice Law. This information can support project planning that directly benefits OBCs, which proposals will be partly evaluated on.

Tree Canopy (+) / Impervious Surface (–) Ratio: Provided through the *Heat Island and Overburdened Community Analysis*, this data helps in determining areas with low tree cover and high impervious surfaces, which can inform project design.

NJ Heat Vulnerability Index (HVI): Includes indicators on the natural and built environment, summer temperature records, census-based sociodemographic data, and community health data. This information is not needed for evaluation, but useful for identifying high-risk areas.

Open Spaces in OBMs: Useful for planning green infrastructure projects.

Statewide Transportation Layers: Supports strategizing for placing cooling infrastructure projects near transit hubs.

As a recap, the municipal-level and community-level evaluation criterion under the *Evaluation Criteria* section in the UHI Program Board Order weighs the following: "(i) municipal revitalization index (MRI) distress score, (ii) OBC status and/or reported tree equity score based on census block group data, and (iii) reported energy burden based on census tract for low-income communities." For more detailed information on the evaluation criteria, please refer to the UHI Program board order.

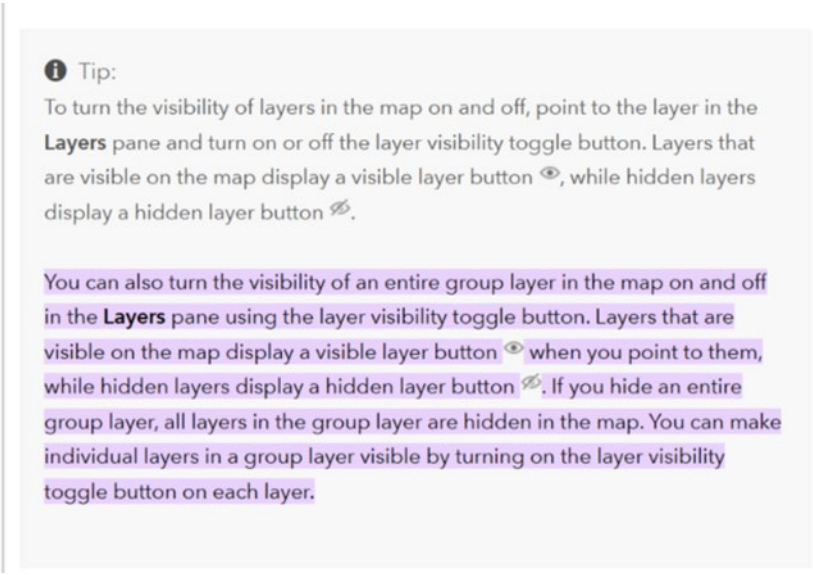
The MRI distress score for each OBM is included in the Appendix of the UHI Program board order.

The tree equity score can also be included in proposals where applicable and guide project design as this index accounts for tree canopy need, heat severity based on LST data, health impacts, as well as socioeconomic and demographic information. Tree equity scores can be located via the Tree Equity Score Map. Priority areas in need of tree canopy cover can be determined through the following tree equity score scoring system: Highest Priority (0-69), High Priority (70-79), Moderate Priority (80-89), Low Priority (90-99), and None (100).

The energy burden tool provides NJ energy burden data at the census-tract level for low-income communities [0-200% Federal Poverty Level (FPL)] and this information will be weighted as a part of the evaluation process.

Guidance on searching specific locations in ArcGIS Map Viewer: https://doc.arcgis.com/en/arcgis-online/get-started/search-locations-mv.htm

Guidance on toggling between layers (Organize layers (Map Viewer)):



Tip:

To turn the visibility of layers in the map on and off, point to the layer in the **Layers** pane and turn on or off the layer visibility toggle button. Layers that are visible on the map display a visible layer button, while hidden layers display a hidden layer button.

You can also turn the visibility of an entire group layer in the map on and off in the **Layers** pane using the layer visibility toggle button. Layers that are visible on the map display a visible layer button when you point to them, while hidden layers display a hidden layer button. If you hide an entire group layer, all layers in the group layer are hidden in the map. You can make individual layers in a group layer visible by turning on the layer visibility toggle button on each layer.

Guidance on viewing legends of various layers: https://doc.arcgis.com/en/arcgis-online/get-started/view-legend-mv.htm

Resources for each Grant Category:

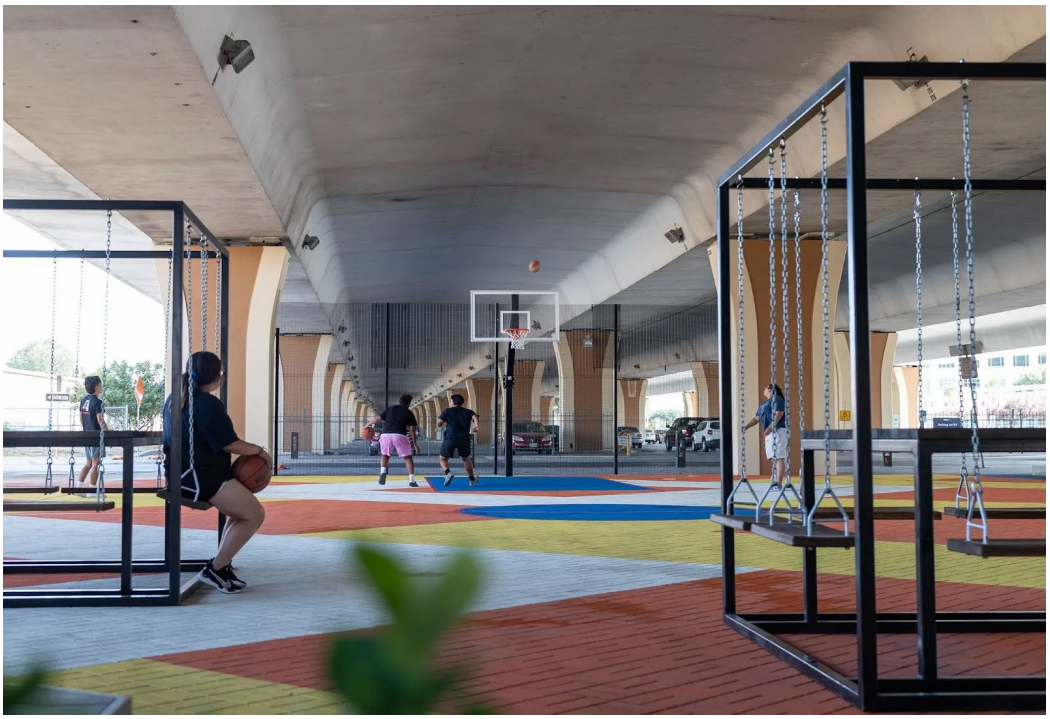
In addition to the case studies and information provided in the board order, resources, guidance documents, and example projects are outlined below.

Category 1-Comprehensive Public Space UHI Interventions:

The Hoboken Resilience Park Guide concentrates on flood mitigation; however, this initiative is multifunctional and also serves as a model for addressing the UHI effect. The Southwest Resiliency Park in Hoboken is a prime example of a public space that provides cooling relief and manages stormwater through green infrastructure such as rain gardens, permeable pavement systems, and a water cistern. The park is also a flexible pop-up space fostering community connection while promoting climate and energy resilience.

Southwest Resiliency Park in Hoboken, NJ Source: https://assemblagelandscape.com/work/southwest-park-hoboken

Another example of a multipurpose park in Rotterdam, Netherlands, is a public space designed to enhance urban resilience to extreme heat and flooding. It features green infrastructure and an innovative water retention system that doubles as a skate basin and a sunken basketball court, all surrounded by seating areas and shaded zones for thermal comfort and social resilience. San Antonio has also implemented creative strategies to address extreme heat by repurposing underpasses into parks, that provide shade over basketball courts (See https://www.pps.org/article/comfort-and-image-how-to-create-a-welcoming-place for Section 2: Set the Stage for Resilience).

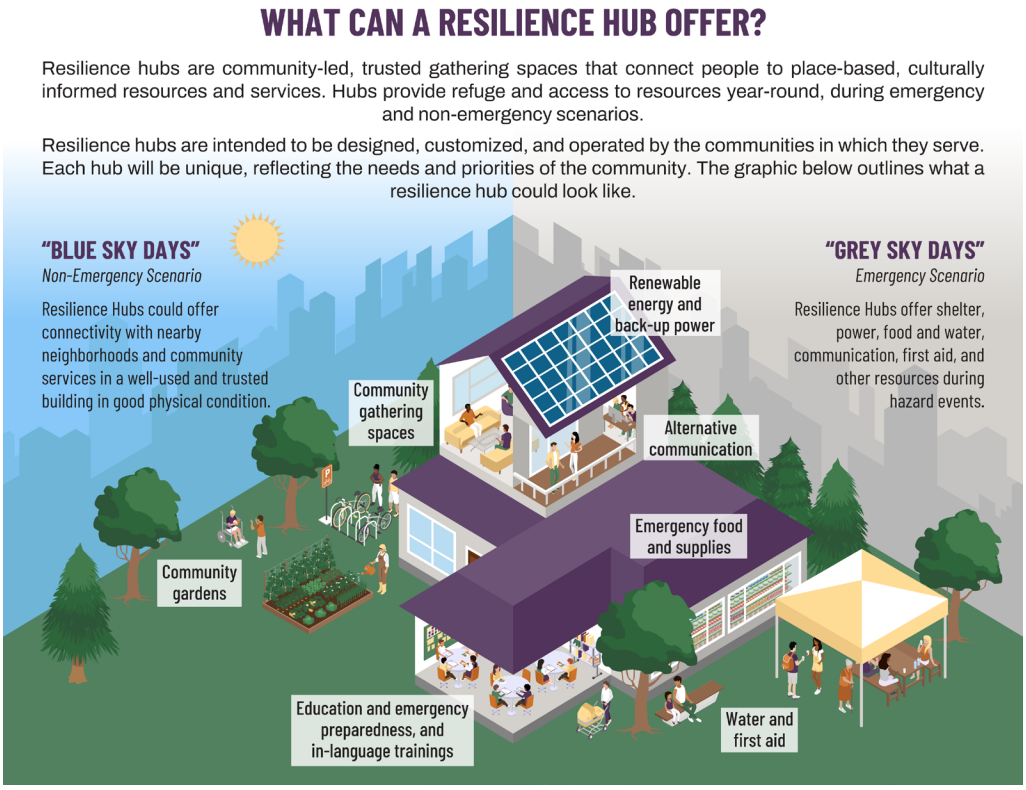


Project for Public Spaces designed the park by repurposing an underpass to provide shading, as well as a basketball court and swings for youth. Photo Credit: Bria Woods for the San Antonio Report (https://www.pps.org/article/access-linkages-how-to-connect-people-to-places).

Additional information on building climate resilience through public space adaptation provided by a report on Waterplein Bethemplein in Rotterdam: https://www.idos-research.de/fileadmin/migratedNewsAssets/Files/DP__1.2021.pdf

Category 2- Cooling the Built Environment:

Resilience Hubs (RHs) within the context of the UHI Program serve as publicly accessible spaces that provide refuge and reliable indoor cooling during extreme heat events. Beyond the function of a cooling center, RHs are designed to provide year-round support by serving communities before, during, and after extreme weather events and other emergency scenarios. These hubs are most effective when activated in trusted community facilities that residents already know and rely on. To ensure their long-term success and relevance, RHs should not follow a one-size-fits-all model. Instead, their design and development must be guided by a bottom-up approach that centers community voices, addresses local needs, and fosters ownership or community buy-in (further explained in Community-Driven Resilience Planning and AN INTRODUCTION TO COMMUNITY RESILIENCE HUBS).



Source: Puget Sound Resilience Hubs, Seattle Office of Emergency Management, What is a Resilience Hub, https://experience.arcgis.com/experience/f71d4e26a1854667aef12114e28de5b1/page/Home?views=What-is-a%2CWhat-is-a-Resilience-Hub%3F

Additional resources on the planning and design of RHs and knowledge sharing on tangible examples can be found at the following:

RESILIENCE HUB PLANNING AND DESIGN COMPENDIUM 2025

USDN Resilience Hub Design Guide

https://co2foundation.org/sharing-the-stories-of-maui-and-hawaii-resilience-hubs/

Resilience Hub Siting and Preparedness Assessment- https://www.austintexas.gov/sites/default/files/files/Resilience/ResilienceHubToolkit_Final.pdf

Enhancing the passive resilience or survivability of a building through energy efficiency upgrades—such as improvements to the building envelope or insulation, high-efficiency windows, and cool roofs or green roofs—is a foundational step in enabling resilience hub activation. (sources: RESILIENCE HUB PLANNING AND DESIGN COMPENDIUM 2025 and Weathering Climate Disasters with Resilience Hubs)

Some lower cost decarbonization options for HVAC and heat pump improvements can be found at the following: https://www.aceee.org/press-release/2025/07/study-new-heat-pump-type-lowest-cost-decarbonization-option-big-apartment

Sizing of HVAC systems and energy efficiency considerations for HVAC optimization: https://greenmanual.rutgers.edu/nc-properly-sized-hvac-equipment/

Information on Back-Up Power Systems, Battery Storage, and Critical Load Planning: https://greenmanual.rutgers.edu/nc-energy-storage-and-back-up-power-generation/

https://www.psehealthyenergy.org/designing-solar-and-storage-for-community-resilience-hubs/

Category 3-Urban Microclimate Interventions:

Examples of smaller scale or community-scale projects can include placemaking pop-up spots that provide cooling and outdoor enhancements such as shade structures (e.g., shade sails and awnings) and community gardens.

See the following links for examples of heat resilience strategies in Boston: CITYWIDE HEAT RESILIENCE STRATEGIES IN BOSTON (Section 2: COOLING DURING HEAT WAVES- Pop-up Heat Relief) and https://www.sasaki.com/projects/heat-resilience-strategies-for-the-city-of-boston/

Photos of Pop-up Cool Spots outside of libraries in Boston. Source: https://www.sasaki.com/projects/heat-resilience-strategies-for-the-city-of-boston/

Other examples of pop-up oases can be found in the following report: https://plazapops.ca/wp-content/uploads/2023/10/Paradise-in-a-Parking-Lot-compressed.pdf

Photos of pop-up oases that provide thermal comfort and community connection in Canada. Source: https://plazapops.ca/

Additional Resources and Guidance:

Guidance on Community Gardens:

The underutilized role of community gardens in improving cities' adaptation to climate change: A review document emphasizes the following: (i) community gardens are a critical yet underutilized form of green infrastructure that provide environmental (e.g., reduce heat islands, manage stormwater, and offer ecosystem services) and social (promote community resilience, improve food security, and serve as educational spaces for environmental stewardship) benefits; (ii) community gardens bolster climate resilience planning and adaptation; and (iii) the longevity of community gardens is contingent on land protections, as well as long-term planning and investment.

Community Gardens Guide

Fountain Park Community Garden in Secaucus, NJ Source: https://green.secaucusnj.gov/food/gardens

Best Practices:

Green Infrastructure Design and Smart Growth Strategies

New Jersey Nature-Based Solutions: Planning, Implementation, and Monitoring Reference Guide

Green Infrastructure education module NYC

Green Infrastructure Guidance Manual for NJ

Smart Surfaces (e.g., cool roofs, cool pavements, trees, and urban meadows) best practices-https://smartsurfacespolicy.org/best-practices/

Synthetic turf should be avoided or removed as it exacerbates the UHI effect and can have other adverse environmental impacts such as biodiversity loss. - Artificial Turf in a Warming Climate, Fake grass makes hot environments hotter

Strategic Landscaping with Native Plants

https://npsnj.org/wp-content/uploads/2024/01/Going-Native-Northern.pdf

https://njtrees.org/wp-content/uploads/2024/11/Utility-Friendly-Trees.pdf

https://www.sugiproject.com/blog/miyawaki-method-for-creating-forests

https://nj.pseg.com/safetyandreliability/reliability/treetrimming/righttreerightplace

Community Engagement and Codesign Resources

The following guide offers a detailed overview of community engagement, collaborating with communities to identify project opportunities, establishing clear goals and metrics for projects, financial planning, and evaluation and monitoring that prioritize community input: GrowGreen nature-based solutions codesign guide

Resilience Hub Outreach Guide on equitable and accessible engagement

Key Steps Involved in Engaging Your Community

Best Practices for Meaningful Community Engagement: Tips for Engaging Historically Underrepresented Populations in Visioning and Planning

Reports and Further Readings:

EPA Guide to Reducing Heat Islands: https://www.epa.gov/heatislands/guide-reducing-heat-islands

Cool Policies for Cool Cities: Best Practices for Mitigating Urban Heat Islands in North American Cities

The following report provides information on battery storage and microgrid development, along with case studies that highlight the successes and challenges of smaller-scale community energy-resilience projects; notable examples include a resilience hub developed by the United Parents Against Lead (UPAL) in Petersburg, VA (pg. 12) and the California Indian Museum & Cultural Center (CIMCC) which serves as a hub for 24 Tribal Nations (pg. 32).: https://www.cleanegroup.org/wp-content/uploads/CEG-Equitable-Resilience-Report.pdf