Extreme Heat

Participant Workbook

Name: **Table #:**

Notes

Stakeholders

Low-Income Resident

- Concerned about costs of keeping her house cool
- Lives in a neighborhood that lacks shade
- Worries about her neighbors who lack air conditioning

Homeless Shelter Coordinator

- Concerned about budget and resources to keep the shelter open
- Worries about those who need a cool place to go but can’t get there

High-Income Resident

- Concerned about keeping his family safe and comfortable
- Thinks the city should focus on preventing blackouts during heat waves

Stakeholders

Café Owner

- Interested in the area's economic success
- The air conditioning at her café attracts guests on hot days
- Concerned about safety of others during heat waves but wants her business to thrive

Public Health Official

- Concerned about heat-related illness during heat waves
- Thinks the city's resilience plan should focus on safety

Electricity Grid Operator

- Knows high electricity demand stresses the grid
- Concerned about older parts of the grid that could fail during a heat wave

Resilience

COOL THE CITY

Cool the City involves various actions to reduce outdoor temperatures or create shade, such as planting trees and other vegetation to provide shade and cooling, changing hard surfaces to be more reflective, and building shade structures.

ECONOMIC ★★★

Trees cost money to plant, maintain, and water but provide other economic benefits, like increasing real estate values. Strategies to modify roofs and other hard surfaces range from inexpensive coatings to green roofs that require substantial construction and expense. Shade structures also vary in cost depending on size and materials used.

PROTECT INFRASTRUCTURE

Protect Infrastructure involves solutions that limit the impact of extreme heat on roads, electricity grids, and buildings. These solutions include replacing transformers and power lines; building power plants and more energy efficient buildings; repairing bridges, roads, and runways; and protecting infrastructure from heat-related threats like wildfires.

ECONOMIC ★★★★

More resilient electricity and transportation infrastructure is critical to economic activity. However, protecting and upgrading electricity grids, roads, and other infrastructure involves expensive construction that can be very disruptive to residents. Building energy efficient buildings can require extensive construction but saves money in the long run.

ENSURE SAFETY

Ensure Safety involves solutions that protect people's health and well-being during heat waves by keeping them cool and prepared. These solutions include cooling centers, heat warning systems, community wellness check programs, limits on outdoor activities, and increasing access to air conditioning.

ECONOMIC ★★★

Running cooling centers and wellness check programs requires substantial resources and many people, though volunteers and donations can reduce costs. Reducing heat-related illness can prevent expensive hospital visits. Air conditioning and utility assistance programs can be quite expensive depending on their size. Outdoor work day limits could impact construction, landscaping, and other outdoor businesses.

Strategies

ENVIRONMENTAL ★★★★★

A cooler landscape benefits plant and animal communities. Some trees and vegetation improve air quality, provide habitat for animals, clean stormwater, and provide a buffer against urban flooding. Replacing roofs and other heat-absorbing surfaces with vegetation can provide similar environmental benefits.

SOCIAL ★★★

Cooling outdoor landscapes allows people to be outside on more days and reduces the risk of heat-related illness. Trees and greenspace are associated with psychological well-being. Some urban greening programs have been linked to the displacement of poor residents. Construction to build shade structures and replace hard surfaces can be disruptive to residents and businesses.

ENVIRONMENTAL ★★

Upgrades to electricity grids, roads, and other infrastructure have some environmental impacts, such as the removal of trees or dust problems associated with construction. Building new power plants can be environmentally damaging depending on the type of power plant. Weatherization efforts that reduce electricity demand can reduce pollution from coal, gas, and oil-fired power plants.

SOCIAL ★★★★

Protecting electricity grids ensures that residents have access to key services, like air conditioning and refrigeration. Safeguarding transportation systems keeps people connected to one another, stores, and key services. Preventing the loss of structures reduces the social toll of wildfires.

ENVIRONMENTAL ★★

Heat warning systems, wellness check programs, and cooling centers have little environmental impact. Air conditioning and utility assistance programs could increase electricity use and the environmental impacts of electricity use.

SOCIAL ★★★★★

Heat warning systems and wellness check programs help people stay safe during dangerous heat. Cooling centers and air conditioning assistance programs help people stay cool, reducing the risk of heat-related illness. Outdoor work limits reduce heat exposure for workers.

Resilience Plans

COOL THE CITY

Plan A

- To reduce temperatures across the city, the city will plant tens of thousands of trees and build shade structures along busy pedestrian and transit corridors.
- The city will provide incentives for cool and green roofs that use reflective materials or plants to reduce outdoor temperatures.
- The city will replace asphalt and concrete on city property with lighter-colored and cooler materials.

Plan B

- The city will build shades over bus stops to provide relief for commuters.
- The city will fund a shade tree program to encourage homeowners and businesses to create shade in their neighborhoods.
- A small grant program will encourage the use of cool roofing materials.

Resilience Plans

PROTECT INFRASTRUCTURE

Plan A

- Incentives for homeowners of up to $4,000 will encourage weatherization efforts and reduce demand for electricity on hot days.
- The city will replace aging transformers and cables to reduce the risk of blackouts.
- New power sources will help the electricity grid keep up with demand.
- Upgrades to roads, bridges, and runways will protect transportation networks during heat waves.
- Wildfire management efforts will protect power lines and roads from damage.

Plan B

- The city will replace the oldest cables and transformers to reduce the risk of blackouts.
- To protect key services like hospitals and shelters, the city will provide up to $25,000 for back-up generators.
- A public information campaign will encourage residents to clear grass and trees away from houses to limit damage from potential wildfires.

Resilience Plans

ENSURE SAFETY

Plan A

- An air conditioning assistance program will help low-income residents afford air conditioning installation, maintenance, and utility bills.
- The city will greatly expand its cooling center program to open more centers and keep centers open at night.
- The city will start a door-to-door check-in program that trains volunteers to check on neighbors during heat waves.
- Businesses will be encouraged to limit outdoor work hours on hot days.

Plan B

- A community heat hotline will provide residents with a direct connection to heat relief services.
- The city will use libraries and community centers as cooling centers but they will not stay open at night.
- Free transportation services will help residents get to cooling centers.
- A heat warning system will use text messages to provide residents with information on approaching heat waves and information to stay safe.

My Resilience Plan 1

COOL THE CITY	PROTECT INFRASTRUCTURE	ENSURE SAFETY
Plan A	Plan A	Plan A
$ $	$ $	$ $
Plan B	Plan B	Plan B
$	$	$

What resilience plan would you make for Heattown? Why did you choose this plan?

Mark the empty coin spaces to choose a plan. Remember you only have three coins and can't use all three on one strategy!

My Resilience Plan 2

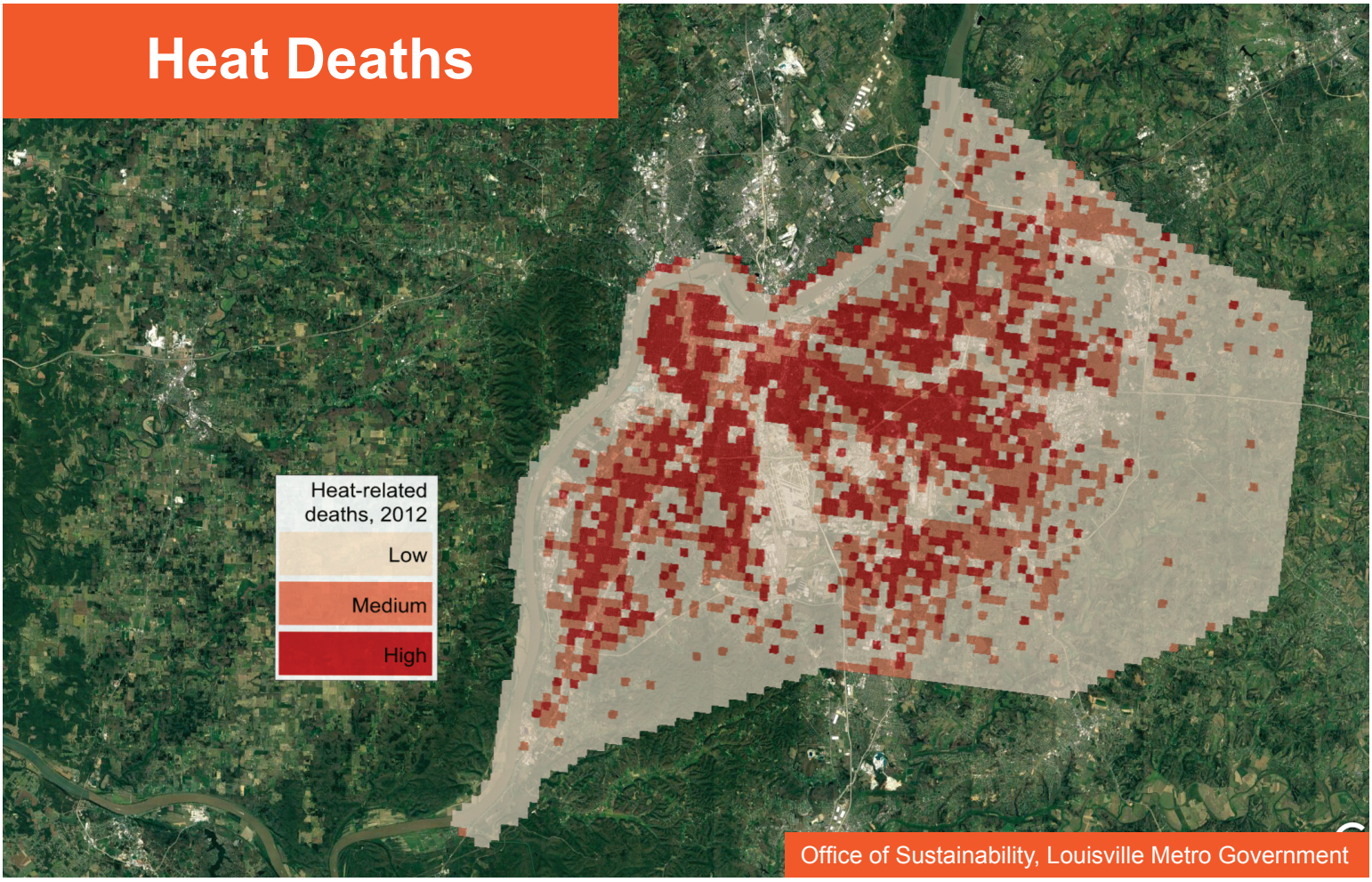
COOL THE CITY	PROTECT INFRASTRUCTURE	ENSURE SAFETY
Plan A	Plan A	Plan A
$ $	$ $	$ $
Plan B	Plan B	Plan B
$	$	$

What resilience plan would you make for Heattown? Why did you choose this plan?

Mark the empty coin spaces to choose a plan. Remember you only have three coins and can't use all three on one strategy!

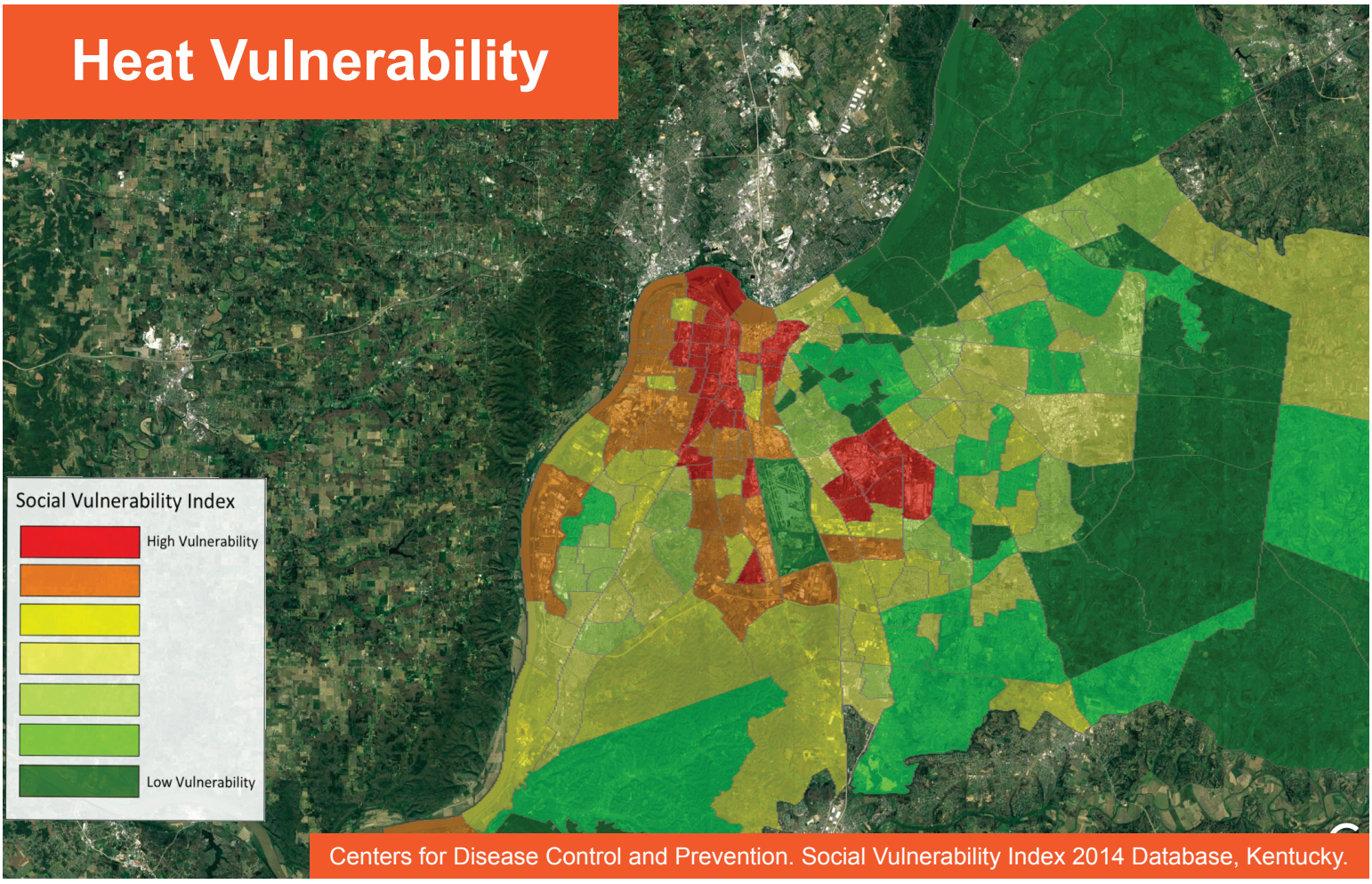
What would you change about this plan? Are there specific resilience actions you would like to add or remove?

Heat Deaths



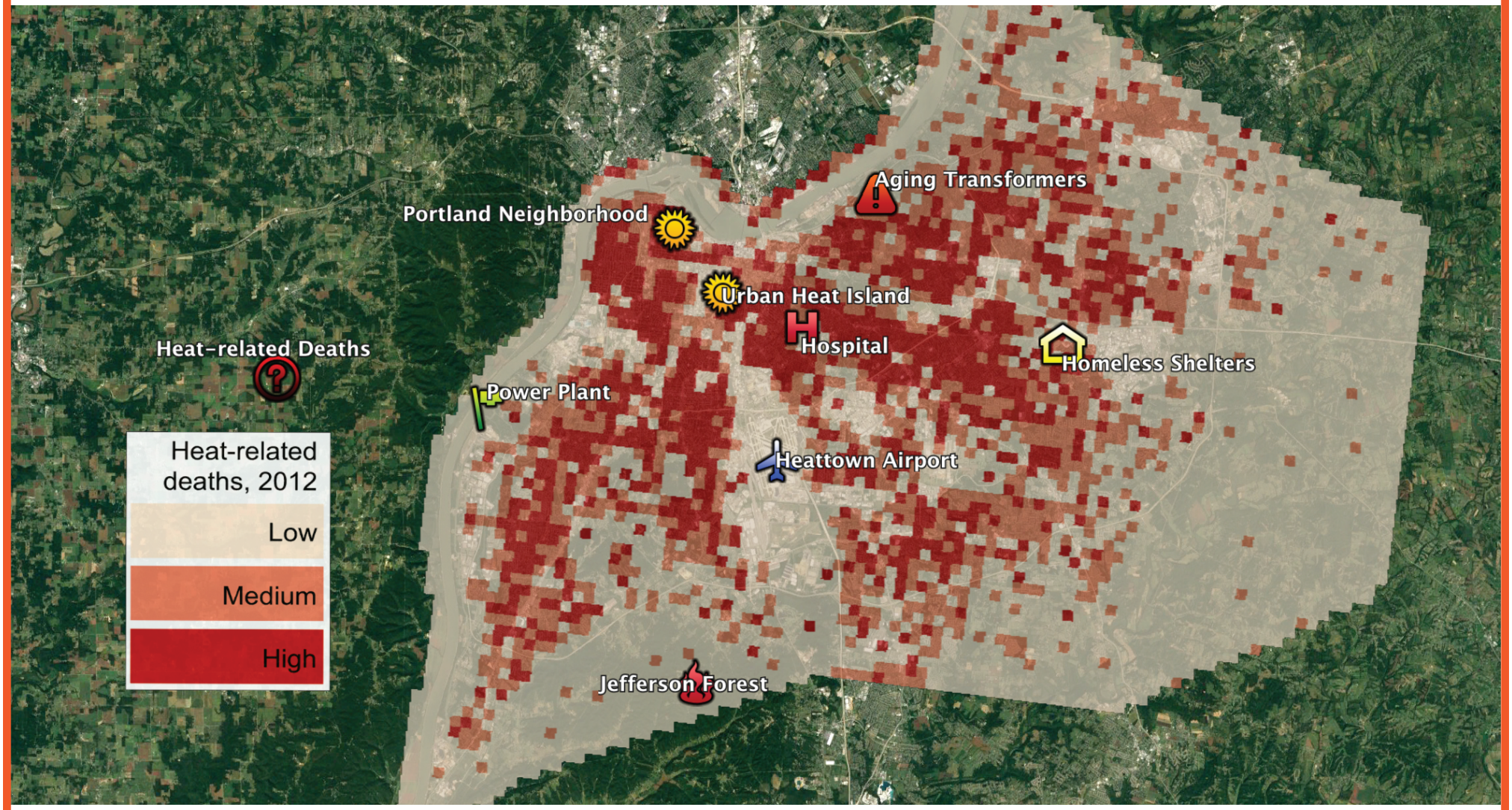
Office of Sustainability, Louisville Metro Government

Heat Vulnerability



Centers for Disease Control and Prevention. Social Vulnerability Index 2014 Database, Kentucky.

Heattown



Museum of Science

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