

Climate Health Adaptation Initiative (CHAI) and Climate Resilience Hubs

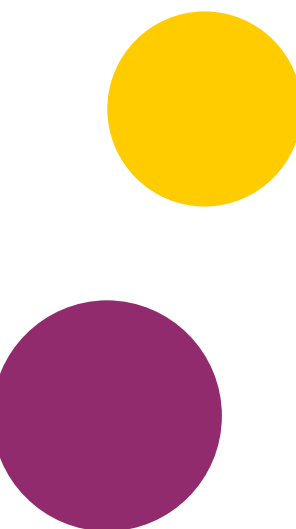
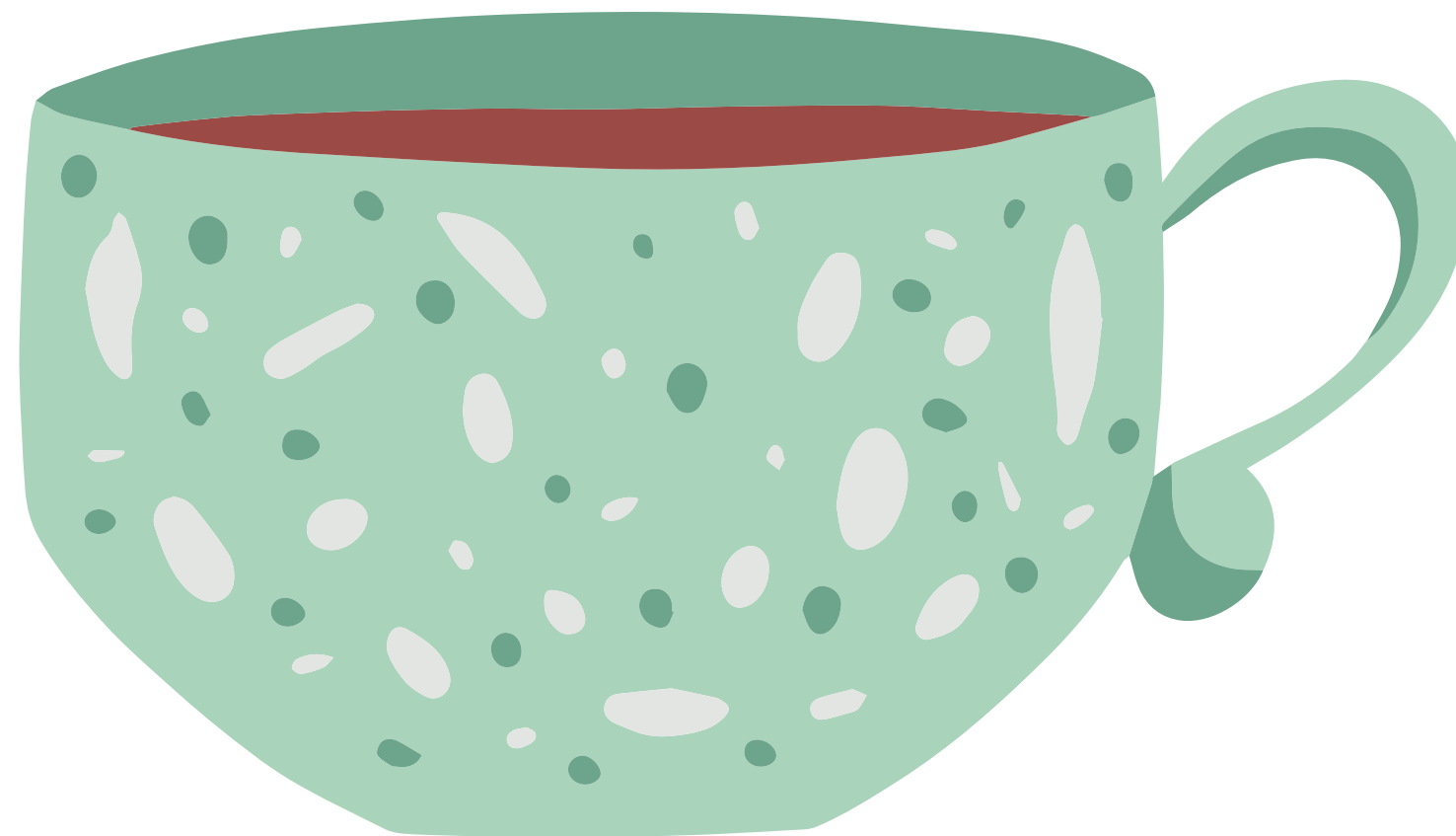
Corrina Farho | AmeriCorps CivicSpark Fellow

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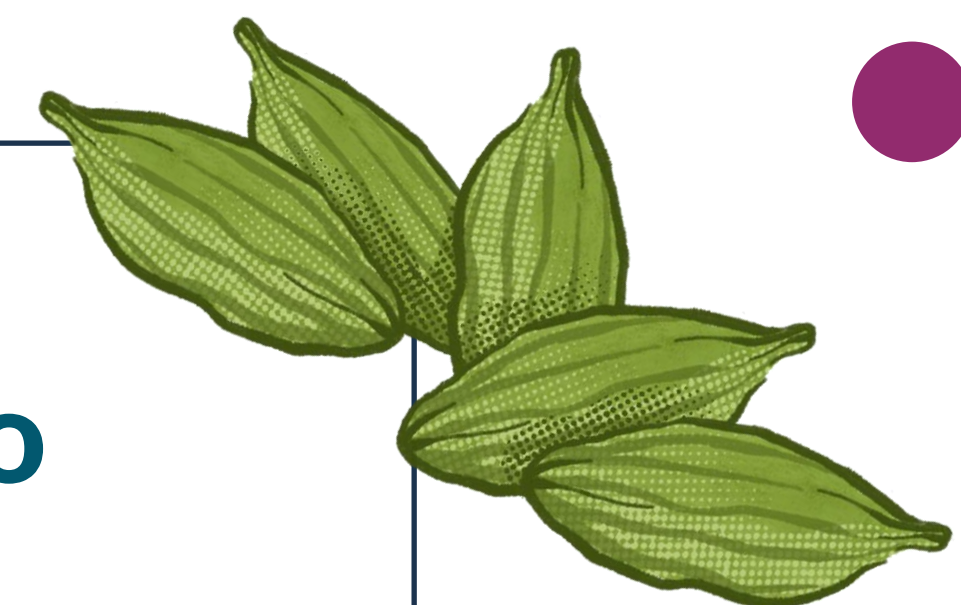
What is CHAI?



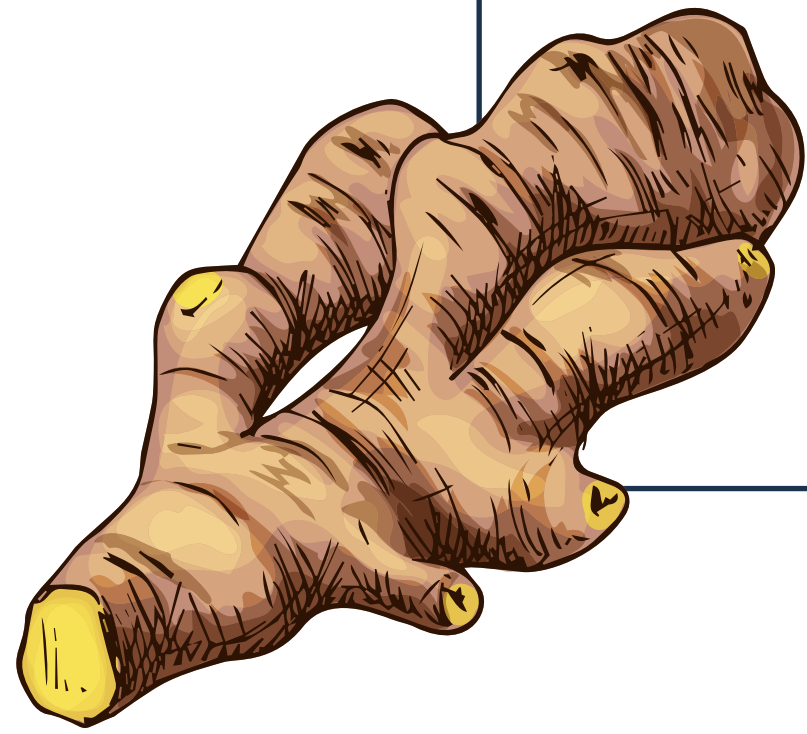
**Yes, kind of like
the tea**



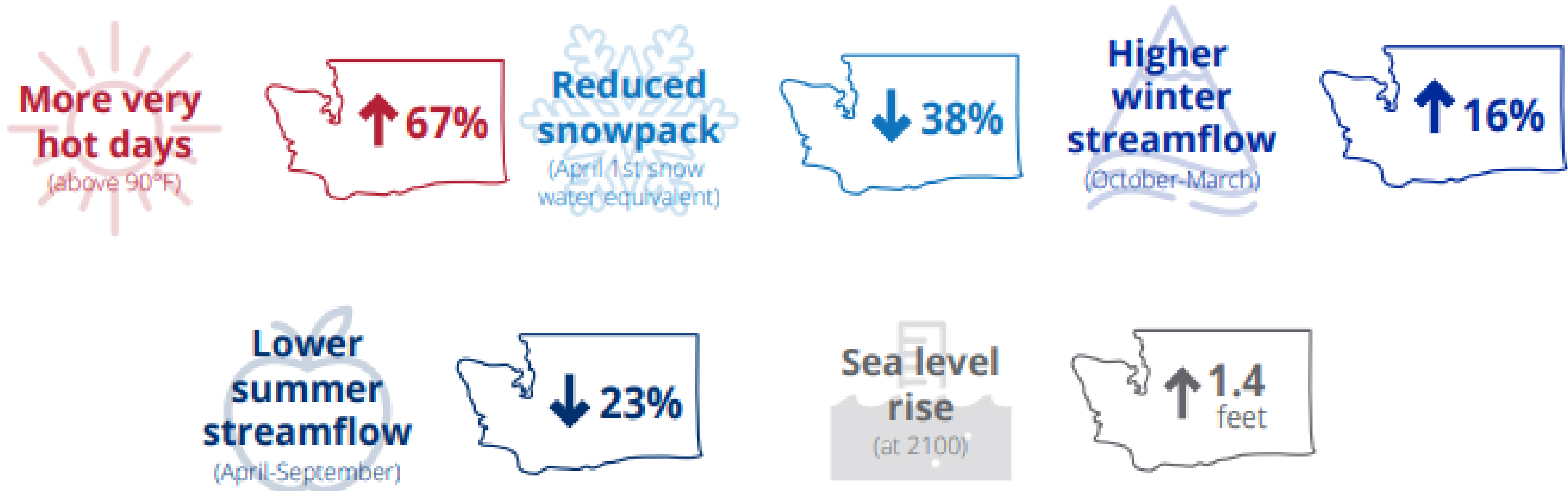
What is CHAI?



Each of us **thrive** in a unique climate, so **we work together** to support equitable adaptation strategies so we can become **more resilient** across the region










● Expected change in Washington with just 1.5°C of warming










Snover, A.K., C.L. Raymond, H.A. Roop, H. Morgan, 2019. No Time to Waste. The Intergovernmental Panel on Climate Change's Special Report on Global Warming of 1.5°C and Implications for Washington State. Briefing paper prepared by the Climate Impacts Group, University of Washington, Seattle. Updated 02/2019.

Climate Sensitive Health Risks

Climate change affects health by **altering when, where and how often** we are exposed to environmental health risks such as:

 Extreme Heat	 Outdoor Air Quality	 Flooding	 Food-Related Infection (<i>Salmonella</i>)
 Vector-Borne Infection (Lyme Disease)	 Water-Related Infection (<i>Vibrio vulnificus</i>)	 Mental Health and Well-Being	

	Climate Driver	Exposure	Health Outcome	Impact
 Extreme Heat	More frequent, severe, prolonged heat events	Elevated temperatures	Heat-related death and illness	Rising temperatures will lead to an increase in heat-related deaths and illnesses.
 Outdoor Air Quality	Increasing temperatures and changing precipitation patterns	Worsened air quality (ozone, particulate matter, and higher pollen counts)	Premature death, acute and chronic cardiovascular and respiratory illnesses	Rising temperatures and wildfires and decreasing precipitation will lead to increases in ozone and particulate matter, elevating the risks of cardiovascular and respiratory illnesses and death.
 Flooding	Rising sea level and more frequent or intense extreme precipitation, hurricanes, and storm surge events	Contaminated water, debris, and disruptions to essential infrastructure	Drowning, injuries, mental health consequences, gastrointestinal and other illness	Increased coastal and inland flooding exposes populations to a range of negative health impacts before, during, and after events.
 Vector-Borne Infection (Lyme Disease)	Changes in temperature extremes and seasonal weather patterns	Earlier and geographically expanded tick activity	Lyme disease	Ticks will show earlier seasonal activity and a generally northward range expansion, increasing risk of human exposure to Lyme disease-causing bacteria.
 Water-Related Infection (<i>Vibrio vulnificus</i>)	Rising sea surface temperature, changes in precipitation and runoff affecting coastal salinity	Recreational water or shellfish contaminated with <i>Vibrio vulnificus</i>	<i>Vibrio vulnificus</i> induced diarrhea & intestinal illness, wound and bloodstream infections, death	Increases in water temperatures will alter timing and location of <i>Vibrio vulnificus</i> growth, increasing exposure and risk of water-borne illness.
 Food-Related Infection (<i>Salmonella</i>)	Increases in temperature, humidity, and season length	Increased growth of pathogens, seasonal shifts in incidence of <i>Salmonella</i> exposure	<i>Salmonella</i> infection, gastrointestinal outbreaks	Rising temperatures increase <i>Salmonella</i> prevalence in food; longer seasons and warming winters increase risk of exposure and infection.
 Mental Health and Well-Being	Climate change impacts, especially extreme weather	Level of exposure to traumatic events, like disasters	Distress, grief, behavioral health disorders, social impacts, resilience	Changes in exposure to climate- or weather-related disasters cause or exacerbate stress and mental health consequences, with greater risk for certain populations.

Climate Sensitive Health Risks

Climate change affects health by **altering when, where and how often we are exposed to environmental conditions**

Drivers, Exposures, and Outcomes are unevenly felt & worsening health inequities

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 Mental Health and Well-Being				



Extreme Heat



Vector-Borne Infection (Lyme Disease)



Water-Related Infection (*Vibrio vulnificus*)



Mental Health and Well-Being



Food-Related Infection (*Salmonella*)



Mental Health and Well-Being

Health Risks Vary and Are Not Equal

COMMUNITIES OF COLOR

Some communities of color living in risk-prone areas face cumulative exposure to multiple pollutants.

Adaptation plans that consider these communities and improve access to healthcare help address social inequities.

OLDER ADULTS

Older adults are vulnerable to extreme events that cause power outages or require evacuation.

Checking on elderly neighbors and proper emergency communication can save lives.

CHILDREN

Children have higher risk of heat stroke and illness than adults.

Adults can lessen risk by monitoring exertion and hydration.

LOW INCOME COMMUNITIES

Low income families are at risk of physical and mental illnesses during flooding and in crowded shelter conditions.

Comprehensive disaster management can improve resiliency for people with limited resources.

Source: EPA



Climate Healthy Adaptation Initiative

CHAI Mission

Assist and resource communities working to protect and promote the health of people experiencing climate change impacts first and worst.

CHAI Planning Partners

State and federal agencies (WA DOH, Ecology, Federal Reserve Bank of San Francisco, Reg. 10 EPA & HHS), academia (UW, Gonzaga), and local leaders in each CHAI region

CHAI Process

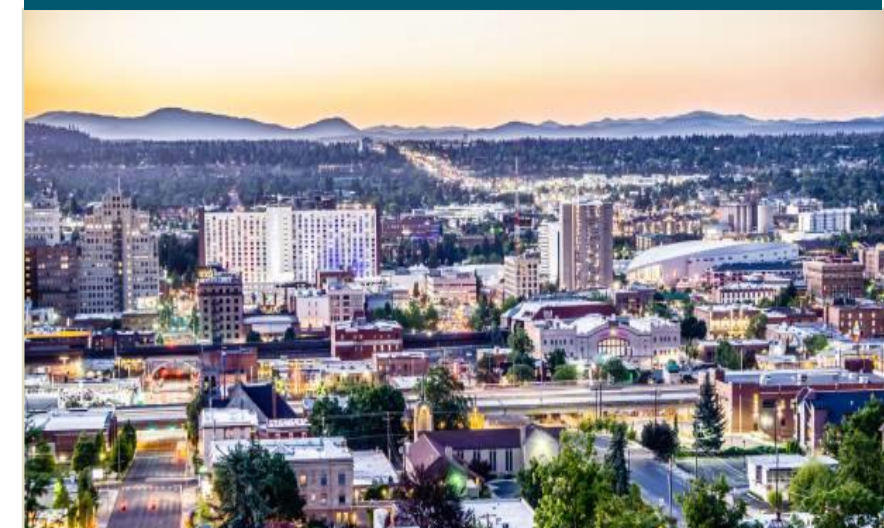
- **Bottom-up:** focus on community-identified priorities
- **Relationships first**
- Community-driven timeline



Pierce County

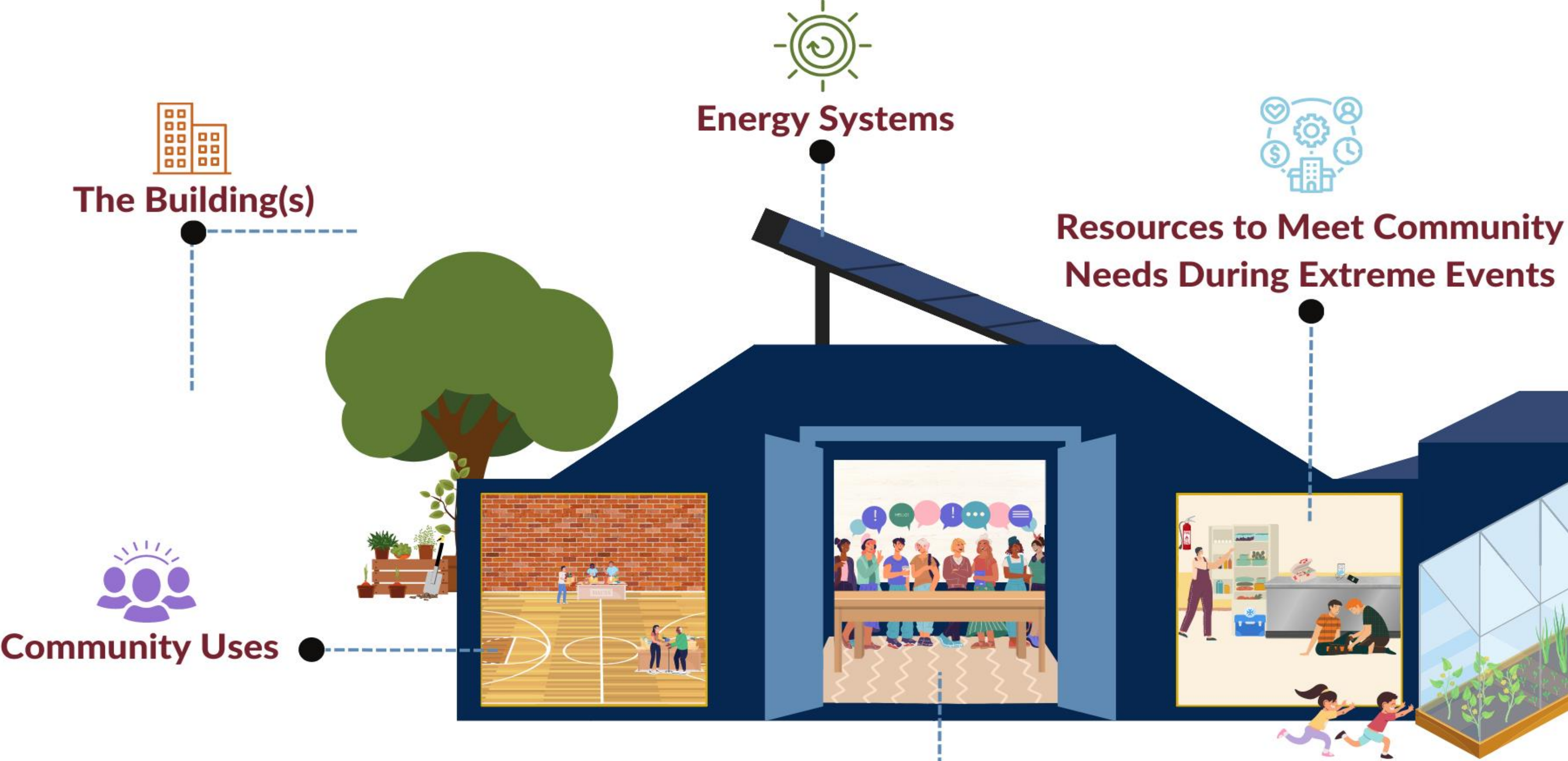


Clallam/Jefferson Counties

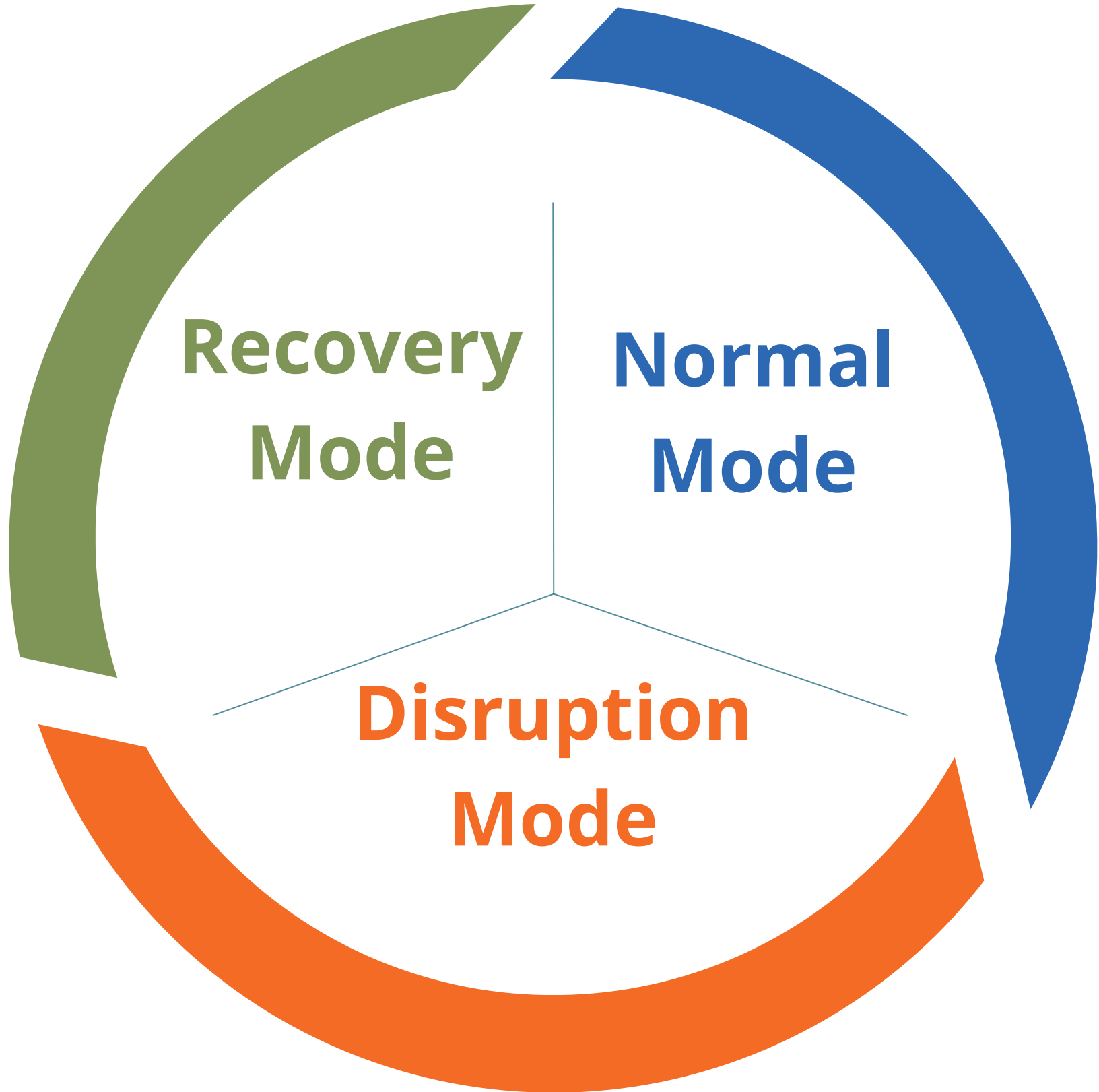


City of Spokane

What is a Resilience Hub?



Resilience Hubs - A Resiliency Solution



Community-Serving Facilities

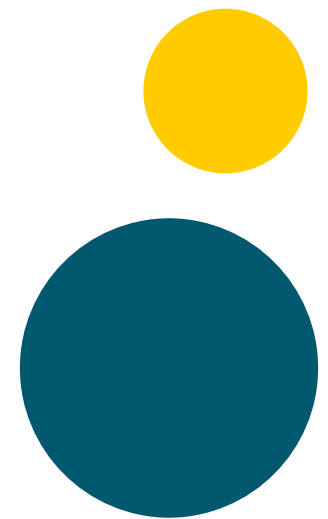
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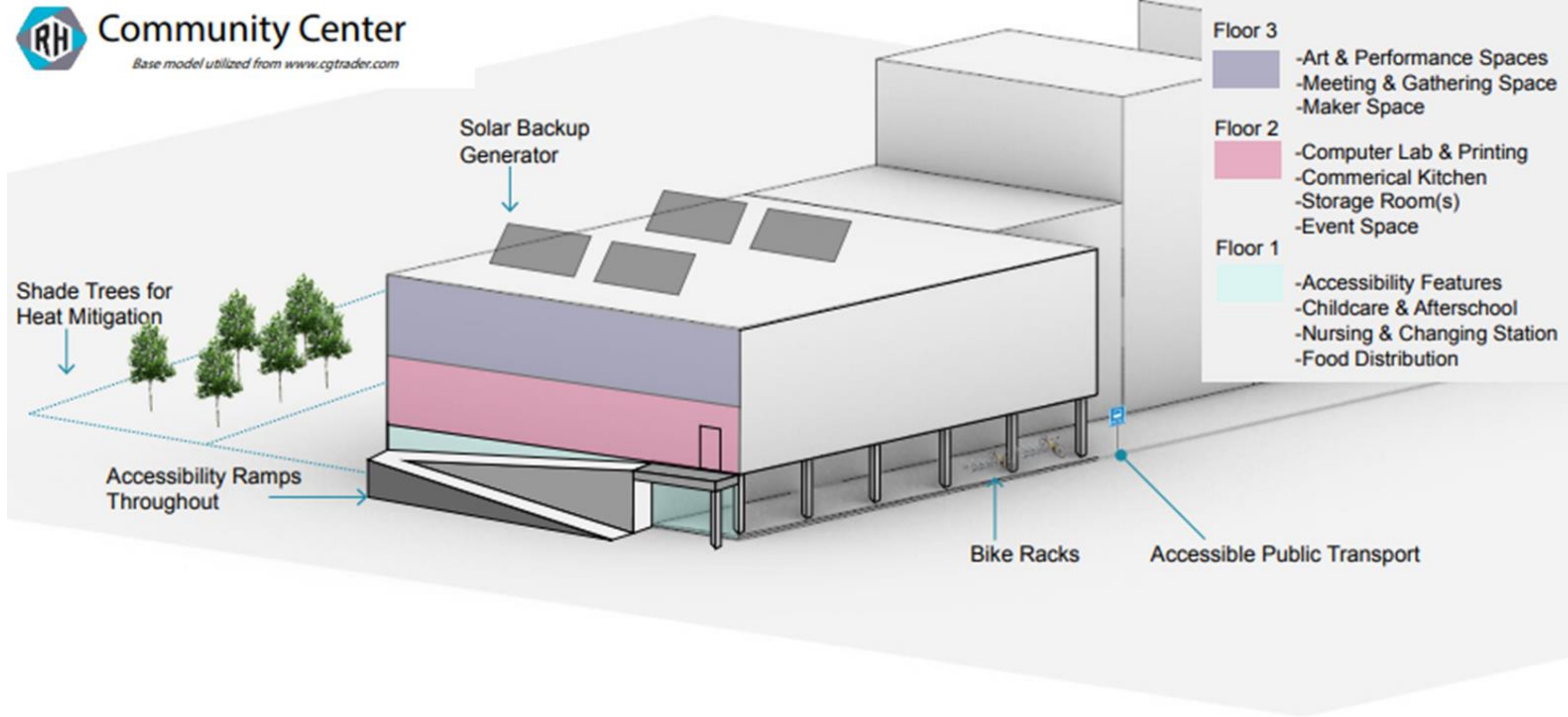
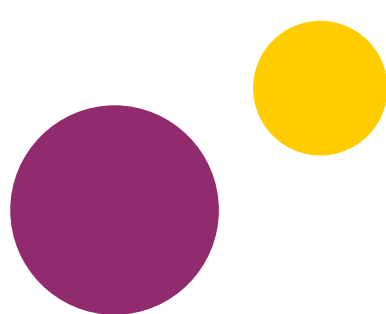
Support Residents

Distribute Resources

Coordinate Communication

Reduce Carbon Pollution &
Enhance Quality of Life





Services + Programming

- Childcare & Afterschool
- Commercial Kitchen
- Food Storage & Distribution
- Art Studio & Performance Space
- Event and Gathering Space
- Storage Space & Maker Space
- Health & Mental Health Spaces



Communications

- Computer Lab & Printing
- Walkie-Talkies for Site
- Emergency Comms Equipment
- CERT Training & CERT 11



Building + Landscape

- Changing & Nursing Room
- Gender Neutral
- Shade Trees for Heat Mitigation
- Bike Parking and Storage
- EV Charging Station
- Accessible Public Transit
- Gym & Playground
- Maker Spaces & Toolshare



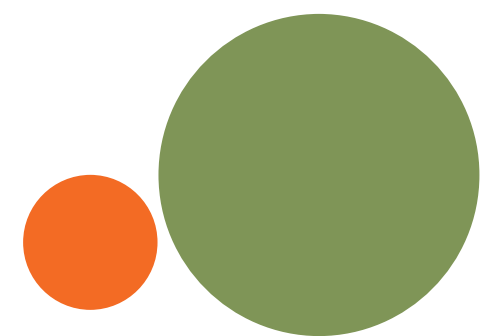
Power Systems

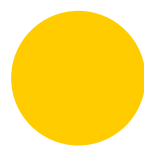
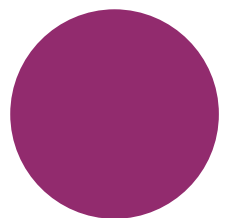
- Solar Power
- Battery Backup System
- Possible Generator



Operations

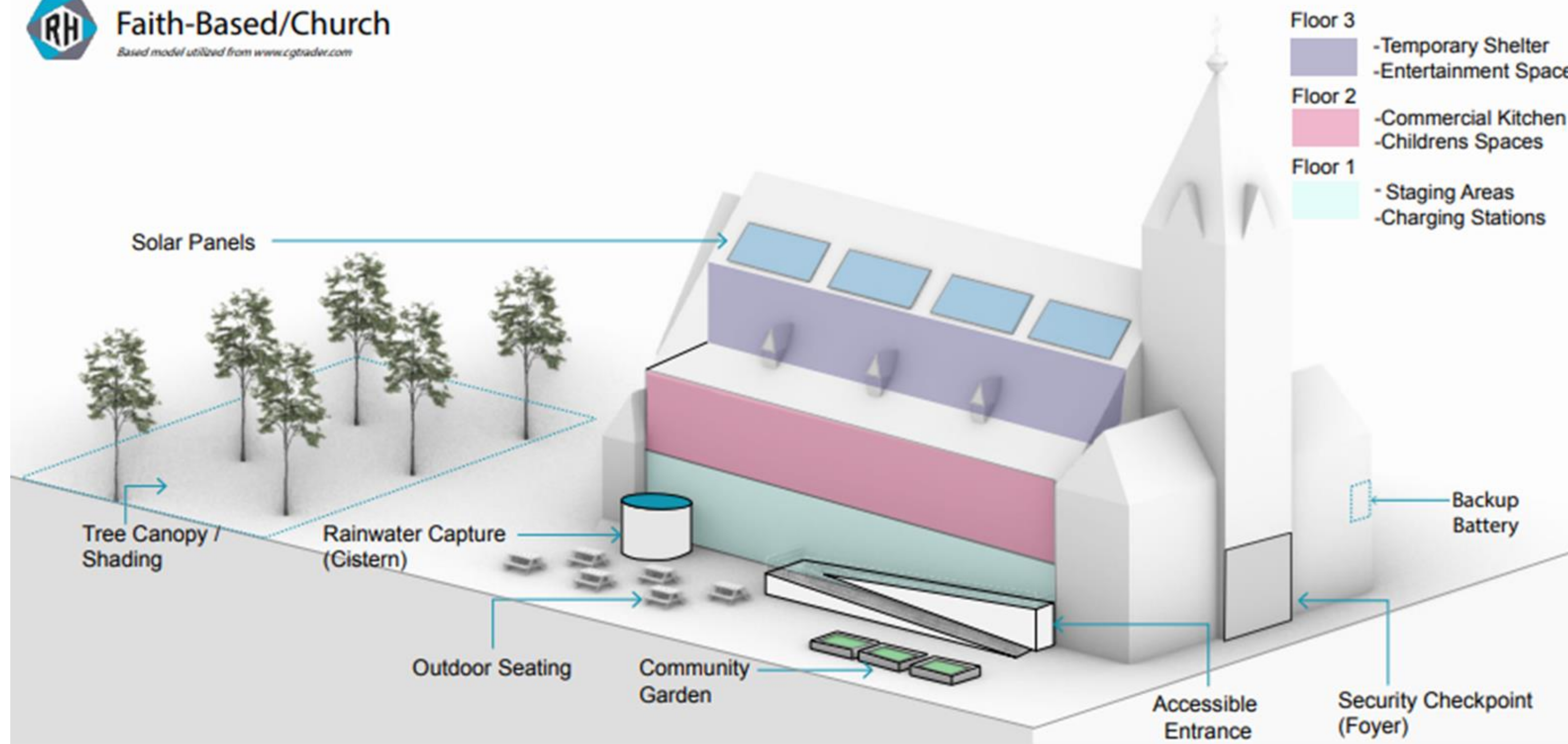
- Accessibility Ramps Throughout
- Accessible Restrooms
- Hearing & Visual Support
- Shower & Bathroom Facilities
- Maintenance Training Space
- Local Job Training & Support





Faith-Based/Church

Based model utilized from www.cjtrader.com



Services + Programming

- Commercial Kitchen
- Food Storage & Distribution
- Showering Facilities
- Temporary Shelter Space
- Non-Denominational Spaces
- Health and Mental Health
- Service Spaces



Communications

- Charging Stations
- Emergency Radios
- Site Walkie-Talkies
- Connection to Local EOC
- Entertainment Spaces
- CERT Storage & Training



Building + Landscape

- Outdoor Gathering Space
- Community Garden
- Tree Canopy & Shading
- Inclusive Playground
- Rainwater Capture System
- Water Filtration
- Weatherization



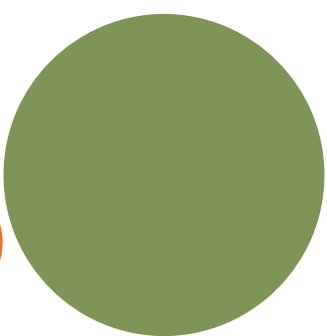
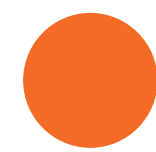
Power Systems

- Back-up Battery
- Solar Panels
- Backup Generator
- Energy Efficiency Upgrades



Operations

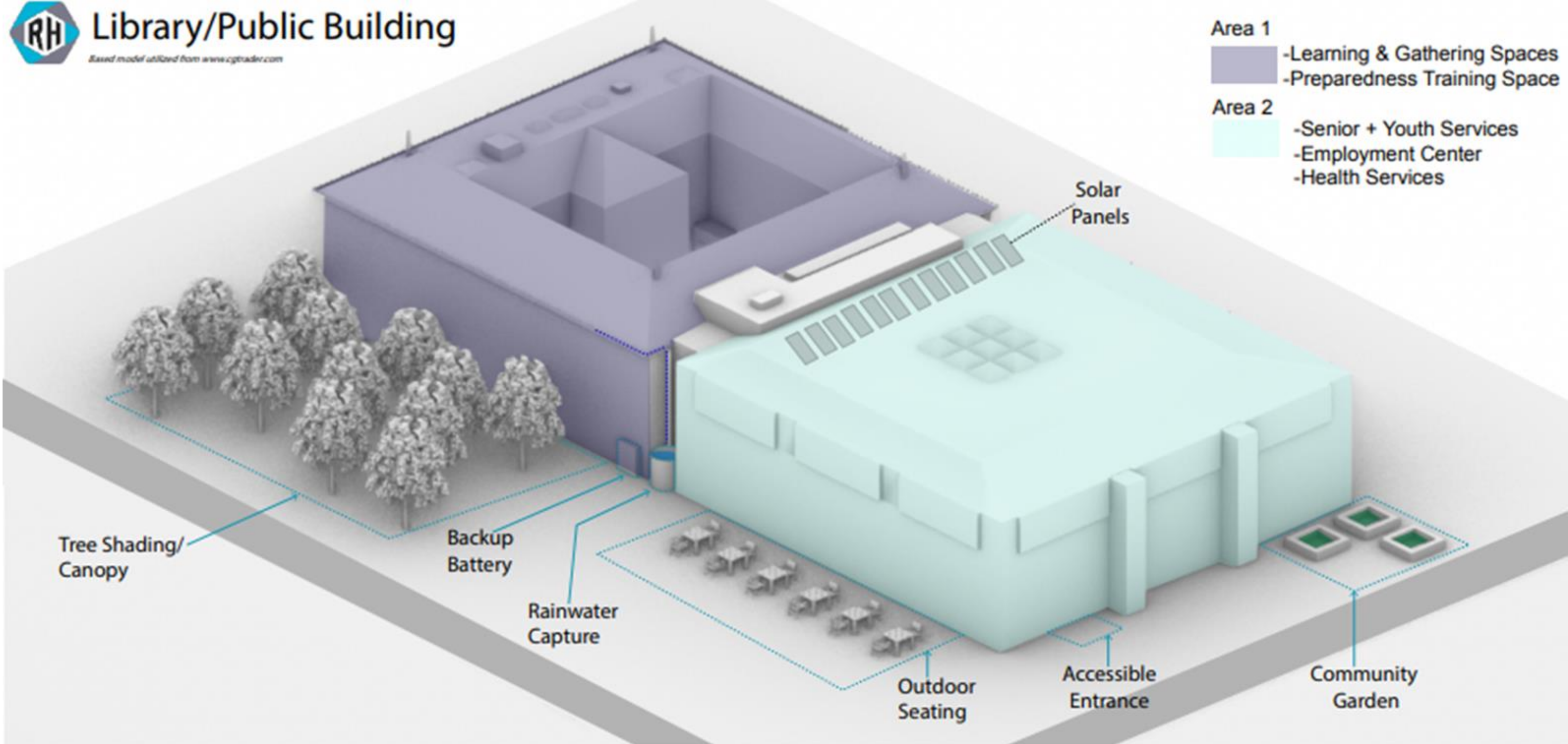
- Security Checkpoints
- Accessible Entrance/Exit
- Staging Area for Supplies
- Maintenance Training Space
- Separate Spaces for Children



3

RH Library/Public Building
Based model utilized from www.cgtrader.com

- Area 1**
- Learning & Gathering Spaces
 - Preparedness Training Space
- Area 2**
- Senior + Youth Services
 - Employment Center
 - Health Services



Services + Programming

- Learning Spaces
- Gathering Spaces
- Senior Programming Space
- Youth Gathering Spaces
- Employment Center
- Health Services & Mental Health

Communications

- Computer Access
- Wi-Fi Access
- Emergency Radio System
- Preparedness Training Space

Building + Landscape

- Rainwater Capture Tank
- Water Filtration
- EV Charging Stations
- Community Garden
- Accessible Sidewalks
- Storage Spaces
- Tree Canopy/Shading

Power Systems

- Battery Back-up System
- Solar Panels or Geothermal Power
- Electrical System Upgrades

Operations

- Accessible Spaces Throughout Building
- Maintenance Training Spaces
- Outdoor Spaces & Seating



Climate Resilience Hub Resources

Urban Sustainability Director's Network:

[Resilience Hubs \(resilience-hub.org\)](https://resilience-hub.org)

[USDN Resilience Hub Guidance Document](#)

White paper: [usdn_resiliencehubs_2018.pdf](#)

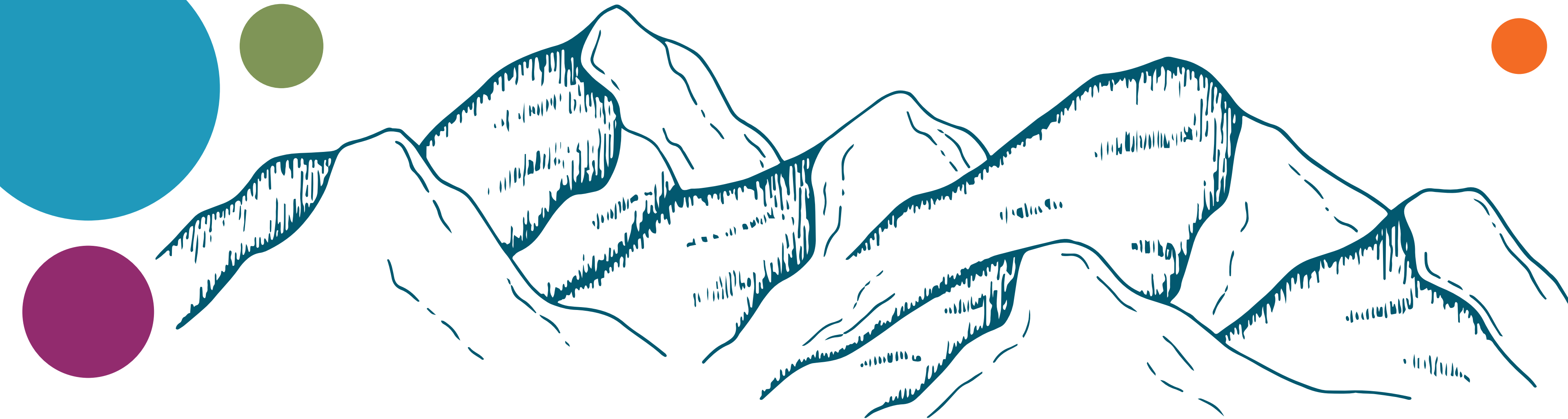
Crosscut article about development of Resilience Hubs in Seattle:

[A resilience hub might be coming to your Seattle neighborhood |](#)

[Crosscut](#)

See also: [FEMA Resources for Climate Resilience](#)





Questions?

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