



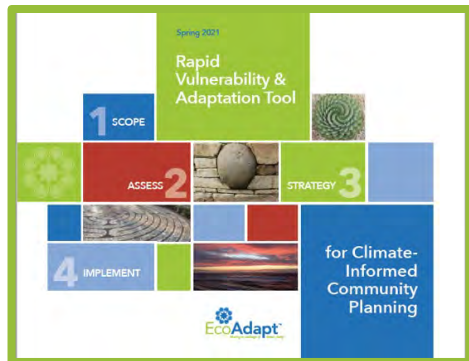
Including Climate Change in Planning & Beyond

Lara J. Hansen





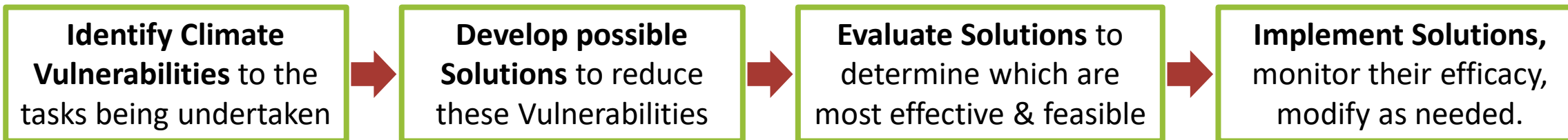
How to use the tools presented in the workshop



Use the Rapid Vulnerability & Adaptation Tool (RVAT) to:

Evaluate overall vulnerability and develop adaptation options for:

- County Operations
- Topics
- Agencies

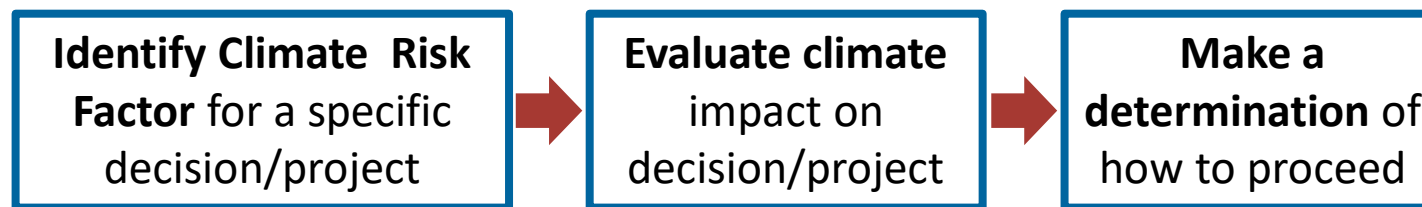


Make the RVAT part of episodic planning & process updates to create climate-informed guiding documents

Use the Climate Change Adaptation Certification (CCAC) to:

Evaluate an individual decision or compare decisions such as:

- Permits
- Capital Expenditures
- Policy change

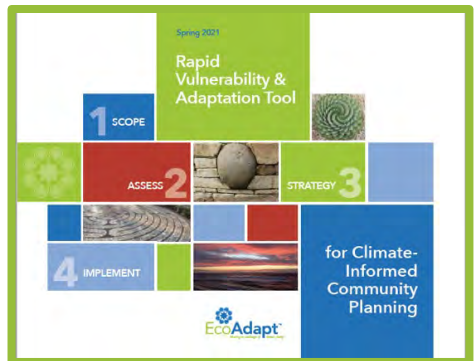


Make the CCAC part of daily planning processes to mainstream a climate lens in decision making





How to use the tools presented in the workshop



Use the Rapid Vulnerability & Adaptation Tool (RVAT) to:

Evaluate overall vulnerability and develop adaptation options for:

- County Operations
- Topics
- Agencies

Identify Climate Vulnerabilities to the tasks being undertaken

Develop possible Solutions to reduce these Vulnerabilities

Evaluate Solutions for their effectiveness & feasibility

Implement Solutions, monitor their efficacy, modify as needed.

Not just for the County! Anyone, any organization or any coalition can use these to support climate savvy decision making

Make the RVAT part of daily planning processes to create climate-informed guiding documents

Use the Climate Change Adaptation Certification (CCAC) to:

Evaluate an individual decision or compare decisions such as:

- Permits
- Capital Expenditures
- Policy change

Identify Climate Risk Factor for a specific decision/project

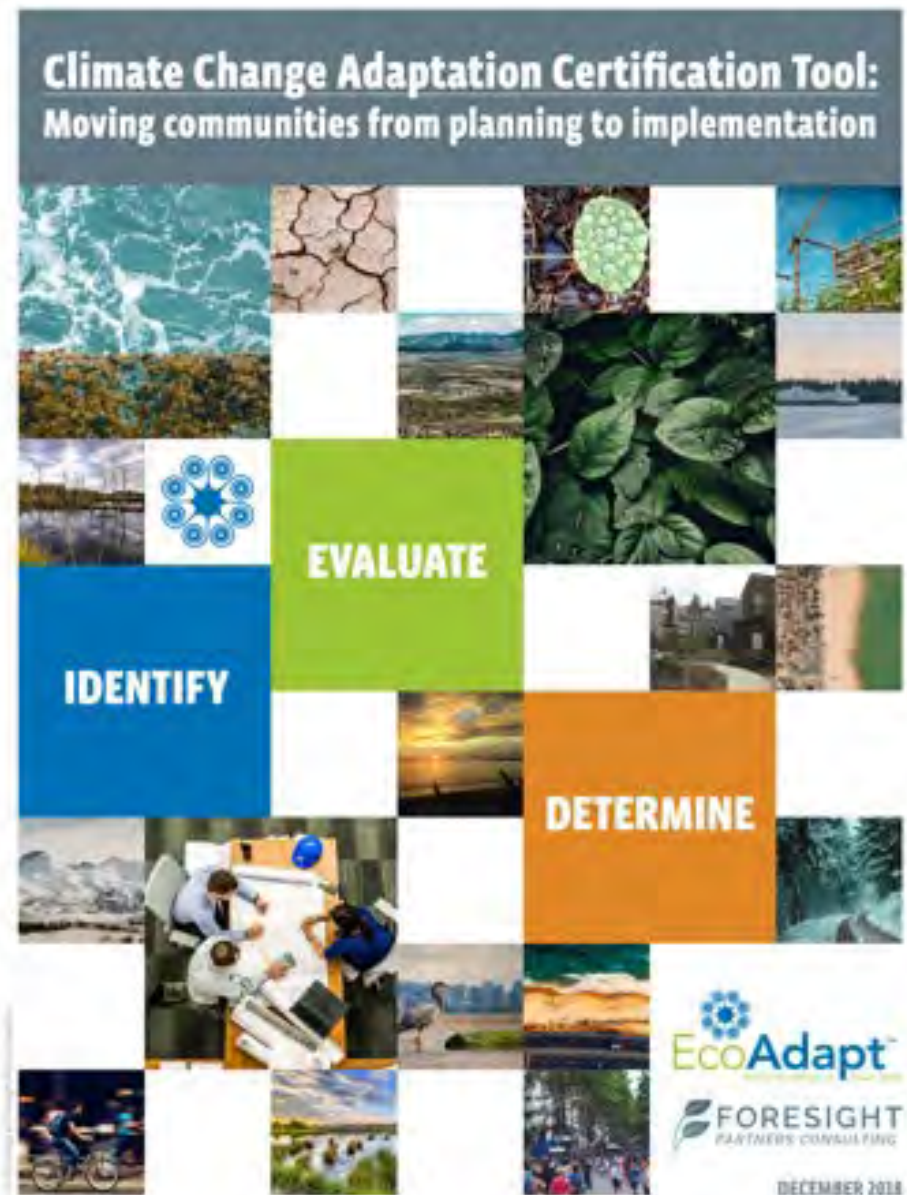
Evaluate climate impact on decision/project

Make a determination of how to proceed

Make the CCAC part of daily planning processes to mainstream a climate lens in decision making



Homework



A sampling of CCAC homework



Large-scale energy efficiency and energy conservation, funding, education and action program for homes, farms and businesses in the unincorporated area of Johnson County

Construction of a new County facility in a non-county jurisdiction

Reduction of the amount of contaminants from runoff on a specific private water system

updated shower house/restroom for the campground

Trail development connecting urban and rural communities

Emergency shelter upgrade

A sampling of CCAC homework



Large-scale energy efficiency, conservation, funding, education and action program for homes, farms and businesses in the unincorporated area of Johnson County

- What will energy demand be in the future? What will the energy mix look like? How do we plan for energy use to match future needs (e.g., more cooling, less stable grid, changing outage cycle)?

Construction of a new County facility in a non-county jurisdiction

- Is the site low vulnerability (flood, landslide, fire, extreme storm events)

Reduce amount of contaminants from runoff on a specific private water system

- How will changing precipitation pattern change contaminant run-off? How will changing climate affect contaminant presence? Nature-based solutions?

Updated shower house/restroom for the campground

- Will demand change, should it be a different size? Can we benefit from greywater re-use? Can we use onsite power generation to offset cost? Can we design it for future conditions (passive heating & cooling, different design)?

Trail development connecting urban and rural communities

- Will trail be in flood zone? Will use increase & require more maintenance?

Emergency shelter upgrade Can you design for future conditions & demand?

A sampling of CCAC homework



Trail development

Step 1: Climate change risk factors

Precipitation, temperature, vegetation changes, slope stability, [population changes](#), [greenhouse gas emissions](#)

Step 2: Evaluation of Climate Impacts

Flood: Trails often travel through flood prone areas, especially underpasses.

Stormwater: Trails may be impacted by stormwater—could have wetlands or wet meadows to ameliorate

Landslide: Trails might traverse instable areas—could be rerouted or use stabilizing tools (geopiers, walls, soil)

Transportation: [Trails benefit non-motorized transit by creating connectivity](#) → [reduced GHG emissions](#)

Population change: May increase demand & maintenance costs. [May need to design for different amount of use and new needed locations.](#)

Step 3: Determination:

Proponent assessment: Proponents recommend rerouting trail to reduce potential future impacts from flooding.

Staff assessment: Flash flooding and heavy precipitation events will increase flooding in areas adjacent to stream corridors.

Trails need to be built outside of stream corridors to reduce flood impacts where it is feasible.

Determination: Project redesigned to reduce risk and approve:

- Route will be modified to reduce flood impacts.
- Culverts and bridges will be sized to allow for expected higher occurrences of flash flooding and seasonal fluctuation of river and stream corridors.
- If necessary additional wetland development can occur in locations where site conditions allow.
- [Additional attention to planning for and including trail connections in new development for connectivity](#)

A sampling of CCAC homework



Large-scale energy efficiency, conservation, funding, education and action program for homes, farms and businesses in the unincorporated area of Johnson County

Step 1: Climate change risk factors

Precipitation, temperature, vegetation changes, population changes, greenhouse gas emissions

Step 2: Evaluation of Climate Impacts

Flood: Countywide=flooding potential. Create criteria for different action eligibility based on flood risk making it possible to minimize risk to investments.

Stormwater: Some properties may have improperly sized infrastructure → **criteria can deprioritize risky sites**

Landslide: Some properties may be vulnerable to slope instability → **criteria can deprioritize risky sites**

Basic utilities: Some properties may be vulnerable to water/sewer failure → **criteria can deprioritize risky sites**

Reliable power sources: While project aims to reduce amount of energy required, it could be paired with non-energy delivery solutions (e.g., tree planting for shade and windbreak, shade structures, increased insulation)

Transportation: Tree planting could also benefit non-motorized transit by enhancing cooling and wind protection.

Wildfire: UWI might increase risk of some structures → recommend **Woodland Management Plan** in criteria

Population change: May increase demand for program which will increase cost. **May also increase overall demand for energy (more people → more households → more energy needed) which may reduce reliability or require greater efficiency and conservation to have grid meet needs.**

Step 3: Determination: **Project approved as proposed:** Program can be designed to reduce risk by focusing on structures that are less vulnerable to the risks indicated above. Investments would also make housing and other structural stock more resilient and functional during extreme events and/or new chronic challenges.

A sampling of CCAC homework



Updated showerhouse/restroom for the campground

Step 1: Climate change risk factors

Precipitation, temperature, vegetation changes, slope stability, population changes, greenhouse gas emissions

Step 2 Evaluation of Climate Impacts:

Flood: Project not in a flood zone. *Might access to the site be affected by flooding?*

Stormwater: Risk could be minimized by: *Design for future levels of run-off*

Landslide: Risk could be minimized by: *On hillside, design for possible slope stability issues with increased precip*

Basic utilities: Risk could be minimized by: *incorporating water efficiency and greenwater reuse*

Reliable power sources: Risk could be minimized by: *incorporate energy efficiency & generation options (e.g., solar)*

Wildfire: Risk could be minimized by: *having a Woodland Management Plan and allow space around structure*

Transportation: Multimodal transit could be accommodated by: *connecting to regional non-motorized trail system*

Population change: Risk could be minimized by: *plan for changing use numbers (include potential for expansion or metering of use)*

Step 3 Determination

Proponent assessment: Because this project is located at the top of a hill, it will have a low flood risk. However wildlife risk is an issues, and increasing utility costs may make continued use of the facility unsustainable.

Determination: Project should incorporate energy efficiency and generation options, including solar.

See comments above for additional suggestions.

A sampling of CCAC homework



Emergency Shelter Upgrade

Step 1: Climate Risk Factors

Precipitation, Temperature, Population Changes, Greenhouse Gas, Emissions

Step 2: Evaluation of Climate Impacts

Flood: Assessment indicates climate change risk to project that cannot be avoided. Area located near 0.2% annual chance flood hazard. Structure is not in denoted flood area, but adjacent parcel is in flood zone. **Could first floor be elevated?**

Stormwater: Installation of permeable surfaces to replace existing nonpermeable surface to reduce runoff potential.

Landslide: Project unaffected by landslides

Basic utilities: Risk could be minimized by: Installation of permeable surfaces to replace existing nonpermeable surface should reduce total runoff potential.

Reliable power sources: Insulation improvements, and co-installation of solar PV system on the rooftop can partially offset potential increases in energy use. **Is energy efficiency of HVAC, water heating and other systems possible?**

Transportation: Sidewalk improvements & proximity to bike storage can maintain low motorized transit requirements.

Population change: Increases to population (and increases to service demand) will impact the success of this project. Space is contained, additional square footage & HVAC not feasible to incorporate in this project. **Could HVAC efficiency be increased?**

Could planning begin for future expansion or a network of sites?

Step 3 Determination: **Project approved as proposed:** Project redesigned to reduce risk and approve:

Risk reduced due to inclusion of PV installation and permeable surface site improvements.

Workshop Application

Spring 2021

1 SCOPE

Rapid Vulnerability & Adaptation Tool

ASSESS **2**

STRATEGY **3**

4 IMPLEMENT

for Climate-Informed Community Planning

EcoAdapt

How to use the results of this workshop



Update of Operations

Use the solutions developed in the RVAT to identify needed changes in operations. Examples by topic:

Health & Safety

Public Health:

To promote, protect, and improve the safety, health, and well-being of Johnson County

Emergency Management:

Support responders, citizens, visitors, businesses and municipalities, and to ensure that we all continuously work together to identify threats, build, sustain, and improve our local capabilities to prepare for, protect against, respond to and recover from any hazards that face our community and that through mitigation efforts we work to decrease the consequences of disasters that occur within or threaten our community.

How to use the results of this workshop



Update of Operations

Use the solutions developed in the RVAT to identify needed changes in operations. Examples by topic:

Health & Safety

Public Health:

To promote, protect, and improve the safety, health, and well-being of Johnson County **under current and changing future conditions.**

Emergency Management:

Support responders, citizens, visitors, businesses and municipalities, and to ensure that we all continuously work together to identify threats, build, sustain, and improve our local capabilities to prepare for, protect against, respond to and recover from any hazards that face our community and that through mitigation efforts we work to decrease the consequences of disasters **and long-term trends** that occur within or threaten our community.

How to use the results of this workshop



Update of Operations

Land Use:

- Promote and protect sustainable agricultural land uses in rural Johnson County
- Direct future residential development based on location and then site-specific criteria outlined in the Future Land Use Development Guidelines
- Direct future commercial and industrial development based on location and then site-specific criteria
- Coordinate land use planning with and between local governments to achieve mutually beneficial development policies
- Continue to protect and improve Johnson County's natural resources: land, water, and air

How to use the results of this workshop



Update of Operations

Land Use:

- Promote and protect sustainable agricultural land uses in rural Johnson County, **considering future precipitation patterns, temperatures and the effects they cause.**
- Direct future residential development based on location and then site-specific criteria outlined in the Future Land Use Development Guidelines, **considering the future conditions on those sites over the lifetime of the proposed development.**
- Direct future commercial and industrial development based on location and then site-specific criteria, **considering the future conditions on those sites over the lifetime of the proposed development.**
- Coordinate land use planning with and between local governments to achieve mutually beneficial development policies **that will continue to be durable under changing future conditions by applying a climate lens to protect community investments from adverse future conditions.**
- Continue to protect, improve **and adapt** Johnson County's natural resources: land, water, and air

How to use the results of this workshop



Update of Operations

Facilities:

The Physical Plant department is responsible for the care and maintenance of all county properties.

Our goal is to provide the public and county employees with an inviting, clean, safe place to visit and work.

How to use the results of this workshop



Update of Operations

Facilities:

The Physical Plant department is responsible for the care and maintenance of all county properties **over their anticipated lifetime.**

Our goal is to provide the public and county employees with an inviting, clean, safe place to visit and work, **and making climate-informed decision to ensure this can continue to occur despite changes conditions, needs and the related changes costs.**

How to use the results of this workshop



Update of Operations

Transit:

The Secondary Roads Department maintains over 900 miles of paved, gravel, and dirt roads in the county. Year-round maintenance includes plowing snow, laying gravel, grading, and mowing road shoulders along with maintaining all the culverts and bridges and overseeing their replacement when necessary.

How to use the results of this workshop



Update of Operations

Transit:

The Secondary Roads Department maintains over 900 miles of paved, gravel, and dirt roads in the county, which encourage multi-modal connected transit, and are durable to a changing climate.

Year-round maintenance includes plowing snow, laying gravel, grading, and mowing road shoulders. Maintenance of all culverts and bridges, and overseeing and assessing the most appropriate form of replacement when necessary—considering both current and future conditions that will be experienced over the lifetime of the installation.

How to use the results of this workshop



Update of Operations

Conservation

- **Protect:** Acquire more land for trails & connectivity
- **Restore:** Restore ecosystems to their natural state
- **Connect:** Expand education and outreach opportunities for people who are not currently connected to nature
- **Water Quality:** Leader in water quality by using sound water management practices on our current and future holdings
- **Partnership:** w/other gov't, NGO, businesses and residents when planning and managing natural and cultural resource projects.
- **Sustainability:** Use public funds in a wise and fiscally prudent manner

How to use the results of this workshop



Update of Operations Conservation

- Protect: Acquire more land for trails & connectivity **out of the way of flooding and to reduce motorized transit and GHG emissions.**
- Restore: *Restore* ecosystems to their natural **function as appropriate for changing climate conditions**
- Connect: Expand education and outreach opportunities for people who are not currently connected to nature, **including how nature-based solutions can reduce climate risks**
- Water Quality: Leader in water quality by using **climate savvy** sound water management practices on our current and future holdings
- Partnership: w/other gov't, NGO, businesses and residents when planning and managing natural and cultural resource projects **for current and future conditions.**
- Sustainability: Use public funds in a wise and fiscally prudent manner including **applying a climate lens to protect community investments from adverse future impacts.**

How to use the results of this workshop



Update of Operations

Open Space:

Maximize the benefits of open space.

How to use the results of this workshop



Update of Operations

Open Space:

Maximize the benefits of open space, and its ability to provide those benefits by planning for future environmental conditions in its designation and management.

How to use the results of this workshop



Update of Operations

Economic Vitality:

Maintain a positive business climate in the community.

How to use the results of this workshop



Update of Operations

Economic Vitality:

Endeavor to sustain existing businesses while planning for emerging businesses as conditions in our region change.

How to use the results of this workshop



Update of Operations

Environmental Justice:

Access to high-quality and well-maintained public (e.g., schools, parks, libraries, transit) and private (e.g., grocery stores, housing, entertainment) needs and services by all community members.

How to use the results of this workshop



Update of Operations

Environmental Justice:

Ensured long-term access to high-quality and well-maintained public (e.g., parks, libraries, transit) and private (e.g., grocery stores, housing, entertainment) needs and services by all community members **under current and projected future conditions.**



Update of Operations

Create a Climate Guiding Principle

Reduce greenhouse gas emissions and increase county climate resilience

- **Mitigation:** Participate with state, regional and local partners to reduce greenhouse gas emissions consistent with the 1990 benchmark and identified future year targets, educate the public about climate change and incentivize local activities including land use patterns and building practices that reduce greenhouse gas emissions.
- **Adaptation:** Minimize or ameliorate the impacts of climate change on our county and associated ecosystems through climate-informed policies, programs and development regulations.
- **Evaluate** the climate vulnerabilities and implications of County actions and **identify** policies that alleviate those vulnerabilities. Consider the effects of shifting conditions (e.g., changing rainfall patterns, increasing temperatures, more extreme weather events) and the effects they cause (flooding, altered vegetation, property damage, changing water demands, economic and population shifts).

Other Local Actions



Collaborate with neighboring jurisdictions in plan implementation

Ask Linn County to share survey results

Linn County seeks out public opinion on climate action plan

