

# Climate Change Adaptation Certification Tool: Moving communities from planning to implementation



**IDENTIFY**

**EVALUATE**

**DETERMINE**

  
**EcoAdapt™**  
*Meeting the challenges of climate change*

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**MARYLAND VERSION 2022**

# Climate Change Adaptation Certification Tool

Climate change has implications for both the effectiveness and hazard potential of many of the projects undertaken by local and regional governments. Failing to properly evaluate the potential vulnerability of a project prior to approval can lead to missed opportunities to improve design, optimize siting or avoid risk.

The **Climate Change Adaptation Certification (CCAC) Tool** is for use during regulatory or procedural review processes being carried out as a matter of regular, ongoing community business. It is recommended that the CCAC become embedded as a regulatory requirement; alternatively, the CCAC could be a discretionary review tool used to evaluate an idea and inform all parties of expected impacts from a changing climate on a project during its lifecycle. Potential liabilities associated with a course of action could be identified prior to permitting or funding, which should enable decision makers to drive climate savvy and sustainable choices.

*Using the CCAC enables community services, infrastructure, ecosystems, and local economies to better anticipate and respond to climate change impacts by prudently using public funds and reducing community exposure to risk from climate change.*

## What “project” should apply the CCAC?

The CCAC should be applied to any decision that uses public funds, has a life cycle of greater than five years, and can impact public good. This includes, but is not limited to: • Fiscal Expenditures • Capital Planning • Permitting • Infrastructure Design and Siting

The objective of applying the CCAC to these decisions is to:

- Explicitly evaluate the implication of future conditions on project function and longevity
- Understand the long-term sustainability of a project at the funding or permitting phase
- Reduce community risk from decisions today that become a liability under future conditions
- Ensure actions taken do not transfer or increase climate risk to more vulnerable members of our community

## Who should apply the CCAC?

The CCAC can be used by local government, elected officials, businesses and individuals to enable climate savvy decision making. The CCAC informs any proponent of a publicly funded capital project, fiscal decision or privately-funded development of the climate change risks faced by the project, and to guide them toward reducing that risk.

## The CCAC process includes the following:

### STEP 1: Identification of Climate Change Risk Factors

Identify if climate change impacts could affect a project over its lifetime. Step 1 provides a series of impact indicators that steer a proponent to think about how eight anticipated change factors have the potential to affect a project area. If any indicator is marked as present, then the change factors could be relevant to a project’s long-term success. Therefore, a “Yes” for that factor, requiring Step 2.

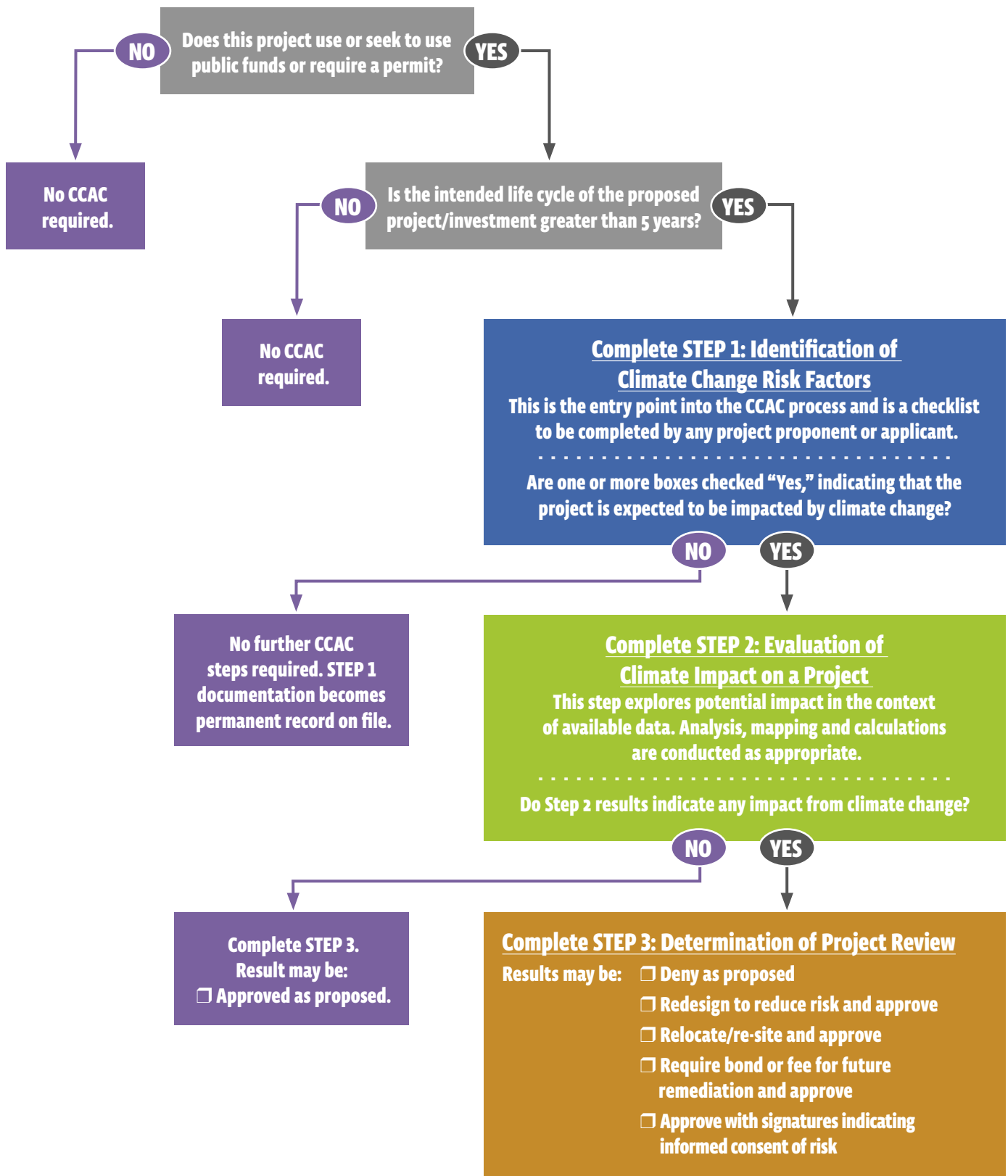
### STEP 2: Evaluation of Climate Impact on a Project

If Step 1 detects likely impacts from climate change risks to a project area, then Step 2 asks a project proponent to dive deeper into existing climate data. Narratives, mapping and calculations will be sought to evaluate the project relative to future conditions and assess whether, as proposed, the project will involve (and should therefore avoid) future risk. Results of Step 2 are used by decision makers in Step 3 to inform a determination for the project.

### STEP 3: Determination of Project Review

The CCAC review steps should allow a project to move forward only when it is expected to function sustainably over time; in other words, if it has avoided, minimized or mitigated future negative performance. A project should only proceed when awareness and accountability of risk is accepted. Thereby, a community will not be blindly on the hook for the costs to replace, retrofit, decommission or litigate responsibility for future damage, harm or poor project performance. Step 3 provides evidence that responsible parties are aware of climate change impacts and implication to the project they are either allowing or undertaking.

# Climate Change Adaptation Certification (CCAC) Pathway to Climate Savvy Planning



# STEP 1: Identification of Climate Change Risk Factors

STEP 1 will determine applicability of further CCAC review of a project. It should be completed by a project proponent with review by the appropriate project review authority.

**Briefly describe your proposed project:**

Climate Change Risk Factors	<ul style="list-style-type: none"> <li>Identify if the following issues could affect the project over its lifetime.</li> <li>Check all that apply.</li> <li>If one or more of these boxes is checked, check YES in Column 3.</li> </ul>	Climate Change Risk Identified For
<p><b>PRECIPITATION</b> Changing patterns will result in different and greater extremes, duration, and intensity.</p>	<p><b>The project or access to it:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> involves proper <b>sizing of stormwater infrastructure</b> to treat and accommodate run-off.</li> <li><input type="checkbox"/> involves <b>diversion or impoundment</b> of surface water.</li> <li><input type="checkbox"/> involves <b>culverts, bridges, retaining walls or other structures</b> within a riparian area to convey water or prevent flooding.</li> <li><input type="checkbox"/> relies on a <b>predictable and reliable water supply</b>.</li> <li><input type="checkbox"/> is within or near a mapped <b>flood zone</b>.</li> <li><input type="checkbox"/> is affected by <b>nuisance, localized or chronic flooding</b> that is known generally to occur, though not mapped.</li> <li><input type="checkbox"/> may be vulnerable to <b>erosion or landslides</b>.</li> <li><input type="checkbox"/> relies on a predictable, reliable, and affordable <b>power supply and other utilities</b>.</li> <li><input type="checkbox"/> is located within a <b>Wildland-Urban Interface</b> boundary or may be vulnerable to <b>wildfire</b>.</li> <li><input type="checkbox"/> relies on <b>sanitary sewers or community/private septic systems</b>.</li> <li><input type="checkbox"/> intersects with the <b>multimodal transportation</b> system.</li> <li><input type="checkbox"/> other possible effects of precipitation changes (attach information and explanation).</li> </ul>	<p><b>PRECIPITATION</b> <input type="checkbox"/> YES <input type="checkbox"/> NO</p>
<p><b>TEMPERATURE</b> Changes will include more extremes and prolonged highs or lows.</p>	<p><b>The project or access to it:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> relies on a <b>predictable and reliable water supply</b>.</li> <li><input type="checkbox"/> is located within a <b>Wildland-Urban Interface</b> boundary or may be vulnerable to <b>wildfire</b>.</li> <li><input type="checkbox"/> uses <b>energy</b> generated by fossil fuel combustion (on site or from a power utility).</li> <li><input type="checkbox"/> will have a <b>maintenance budgets for repairs and replacements</b>.</li> <li><input type="checkbox"/> relies on <b>good air quality</b>.</li> <li><input type="checkbox"/> intersects with the <b>multimodal transportation</b> system.</li> <li><input type="checkbox"/> involves <b>habitat creation, restoration, or enhancement</b> that relies on current temperature levels for successful implementation.</li> <li><input type="checkbox"/> other possible effects of temperature changes (attach information and explanation).</li> </ul>	<p><b>TEMPERATURE</b> <input type="checkbox"/> YES <input type="checkbox"/> NO</p>
<p><b>SEA LEVEL RISE</b> Relative sea level changes will result in intermittent or permanent inundation.</p>	<p><b>The project or access to it:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> is located within the <b>coastal zone</b>.</li> <li><input type="checkbox"/> relies on a <b>stable shoreline</b>.</li> <li><input type="checkbox"/> is within or adjacent to a mapped <b>flood zone</b> in or connected to a coastal zone.</li> <li><input type="checkbox"/> is within or may be affected by an area <b>known to be vulnerable to flooding</b>.</li> <li><input type="checkbox"/> involves <b>dock or harbor infrastructure</b>.</li> <li><input type="checkbox"/> relies on <b>groundwater</b> that may suffer from saltwater intrusion over time.</li> <li><input type="checkbox"/> requires healthy and properly functioning <b>tidal marsh, estuaries, or other tidal ecosystems</b>.</li> <li><input type="checkbox"/> relies on a properly functioning <b>sanitary sewer or septic system</b> that is within or near the coastal zone.</li> <li><input type="checkbox"/> intends to enhance <b>tidal ecosystems</b>.</li> <li><input type="checkbox"/> other possible effects of sea level rise (attach information and explanation).</li> </ul>	<p><b>SEA LEVEL RISE</b> <input type="checkbox"/> YES <input type="checkbox"/> NO</p>

Climate Change Risk Factors	<ul style="list-style-type: none"> <li>Identify if the following issues could affect the project over its lifetime.</li> <li>Check all that apply.</li> <li>If one or more of these boxes is checked, check YES in Column 3.</li> </ul>	Climate Change Risk Identified For
<p><b>VEGETATION CHANGES</b></p> <p>Long-term temperature and precipitation changes will cause shifts in regional vegetation.</p>	<p><b>The project or access to it:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> could be affected by changes in <b>vegetation</b>.</li> <li><input type="checkbox"/> could be affected by changes to transportation <b>corridor buffers</b> and impacts to roadways (brush fires, deadfall, water flow, etc.).</li> <li><input type="checkbox"/> could be affected by <b>increased fuel load and wildfire risk</b> (e.g., potential for dead-wood and detritus as die-off occurs increasing the fuel load and risk for wildfires).</li> <li><input type="checkbox"/> has energy demands for heating and cooling that could increase if the percentage of <b>tree-cover/canopy changes</b>.</li> <li><input type="checkbox"/> other possible effects of vegetation changes (attach information and explanation).</li> </ul>	<p><b>VEGETATION CHANGES</b></p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p>
<p><b>SLOPE STABILITY</b></p> <p>Sea level and precipitation changes compromise once stable slopes.</p>	<p><b>The project or access to it:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> relies on the <b>integrity</b> of nearby slopes.</li> <li><input type="checkbox"/> proposes <b>development or investment</b> on or near a slope.</li> <li><input type="checkbox"/> other possible effects of slope instability (attach information and explanation).</li> </ul>	<p><b>SLOPE STABILITY</b></p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p>
<p><b>OCEAN ACIDIFICATION</b></p> <p>Changes in ocean pH will have implications on permitted discharge and ocean health.</p>	<p><b>The project or access to it:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> relies on <b>sanitary sewer</b> that is subject to a NPDES permit.</li> <li><input type="checkbox"/> relies on or affects <b>shellfish</b> within our local water.</li> <li><input type="checkbox"/> other possible effects of ocean acidification (attach information and explanation).</li> </ul>	<p><b>OCEAN ACIDIFICATION</b></p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p>
<p><b>PEOPLE</b></p> <p>Inequalities, climate migration and regional population changes can all affect community efforts to increase climate resilience.</p>	<p><b>The project or access to it:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> relies on a <b>stable population</b>.</li> <li><input type="checkbox"/> is designed and built <b>to serve the current user population</b>.</li> <li><input type="checkbox"/> is designed to serve all community members.</li> <li><input type="checkbox"/> is designed to correct past inequalities.</li> <li><input type="checkbox"/> may preclude future use or access to the site.</li> <li><input type="checkbox"/> may affect individuals not benefiting from this project.</li> <li><input type="checkbox"/> could be adversely affected if population were to <b>increase or decrease in the region</b>.</li> <li><input type="checkbox"/> other possible effects of population changes (attach information and explanation).</li> </ul>	<p><b>POPULATION CHANGES</b></p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p>
<p><b>GREENHOUSE GAS EMISSIONS</b></p> <p>Mitigation of future greenhouse gas (GHG) emissions and fossil fuel dependence are driven in part by local/regional permitting decisions.</p>	<p><b>The project or access to it:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> does not <b>take cars off the road</b> or <b>decrease idling times</b>.</li> <li><input type="checkbox"/> neither improves nor increases <b>access to non-motorized transportation options</b>.</li> <li><input type="checkbox"/> is dependent on fossil fuel and does not use <b>renewable energy</b> sources sufficient to cover demand.</li> <li><input type="checkbox"/> other possible effects of GHG emissions (attach information and explanation).</li> </ul>	<p><b>GREENHOUSE GAS EMISSIONS</b></p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p>

**CHECK ALL YOUR "YES" FACTORS**

- |  |   |  |   |
|--|---|--|---|
| <input type="checkbox"/> PRECIPITATION | <input type="checkbox"/> SEA LEVEL RISE     | <input type="checkbox"/> SLOPE STABILITY     | <input type="checkbox"/> PEOPLE                   |
| <input type="checkbox"/> TEMPERATURE   | <input type="checkbox"/> VEGETATION CHANGES | <input type="checkbox"/> OCEAN ACIDIFICATION | <input type="checkbox"/> GREENHOUSE GAS EMISSIONS |

- For each Climate Change Risk Factor that indicated "YES" to climate risk, evaluation of the project is now required.
- Proceed to STEP 2 and complete each Evaluation marked as Required.
- If you did not check any "YES" factors, no further CCAC steps are required. STEP 1 documentation becomes permanent record on file.



## STEP 2: Evaluation of Climate Impact on a Project

STEP 1 concluded that the project is subject to impacts from at least one of eight Climate Change Risk Factors (evidenced by a “YES”).

Next, complete STEP 2 to evaluate any potential long-term climate change impact to the project’s success.

- Use the chart below to determine which evaluation questions are required to be answered.
- In Column One check all Climate Change Risk Factors that had a “YES” result in STEP 1.
- Complete Evaluations A-L accordingly.

Check your “YES” factors from STEP 1	Climate Change Risk Factor	Complete the Evaluations for Each Checked Factor											
		A	B	C	D	E	F	G	H	I	J	K	L
<input type="checkbox"/>	<b>PRECIPITATION</b>	X		X	X	X	X	X	X	X	X		X
<input type="checkbox"/>	<b>TEMPERATURE</b>				X	X	X	X	X	X	X		X
<input type="checkbox"/>	<b>SEA LEVEL RISE</b>	X	X										X
<input type="checkbox"/>	<b>VEGETATION CHANGES</b>	X		X	X			X	X	X	X		X
<input type="checkbox"/>	<b>SLOPE STABILITY</b>			X									X
<input type="checkbox"/>	<b>OCEAN ACIDIFICATION</b>					X	X						X
<input type="checkbox"/>	<b>PEOPLE</b>							X	X	X	X	X	X
<input type="checkbox"/>	<b>GREENHOUSE GAS EMISSIONS</b>								X	X	X		X

Once submitted to the appropriate Project Review Authority (permitting agency, board or other personnel authorized to act on or allow the project to proceed), responses to STEP 2 Evaluation will provide the information necessary for them to make a climate savvy determination in STEP 3.























## STEP 2: Evaluation

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Evaluate the potential greenhouse gas emissions attributable to this project.

**1. Calculate project energy demand then estimate likely GHG emissions based on the energy source (including back-up generator systems) used to meet that demand.** To approximate greenhouse gas (GHG) emissions, use this equation:

*Annual GHG emissions = amount of energy used x CO<sub>2</sub>e emissions factor*

CO<sub>2</sub>e emissions factors for various fuels can be found here: [https://www.eia.gov/environment/emissions/co2\\_vol\\_mass.php](https://www.eia.gov/environment/emissions/co2_vol_mass.php)

For a quantitative GHG emissions analysis see the USEPA Inventory Guidance (<https://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidance>) or the ICLEI Community Protocol for Accounting and Reporting of GHG Emissions (<https://icleiusa.org/us-community-protocol/>). For a qualitative GHG emissions analysis, consider the amount of energy and the energy source (e.g. renewable, conventional utility power, diesel or gas generator, propane) the project will require.

**2. Provide a narrative review explaining:**

- Do insulation or design elements for conservation requirements need to change due to future winter low and summer high temperatures?
- Will additional energy demand due to climate change reduce the effectiveness of energy conservation measures or increase overall GHG emissions?
- Does the project use renewables or enable their use in the future? Are structures located/oriented on the site to maximize on-site renewable energy generation such as solar (passive or active) or geothermal?
- Will changes in vegetation due to climate change affect energy demand (e.g., increased heating or cooling as trees mature or die)?
- Is the energy required produced by the combustion of fossil fuels?
- Will the project decrease idling times, improve access or use of non-motorized transit, or otherwise improve the transit system for greater energy efficiency?
- Will the project affect (positive or negative) your existing greenhouse gas inventories?

**RESULT:**

- Project does not result in any increase or decrease in GHG emissions.
- Assessment indicates an emissions increase due to the project that cannot be avoided.
- Assessment indicates an emissions increase due to the project, but it could be prevented by (explain here or in attachment):





# STEP 3: Determination of Project Review

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STEP 2 results indicate climate change risk to the project during its expected life cycle. Complete STEP 3 to decide conditions of approval.

1. **Proponents assessment** of the proposed project under future conditions:
  
2. **Staff assessment** of the proposed project under future conditions (include reference to any existing local, regional, and state natural hazard vulnerability assessments, climate vulnerability assessments, and/or climate action plans):
  
3. **CCAC Determination:**
  - Project approved as proposed.** Low risk from future climate conditions.
  
  - Project denied.** High risk that cannot be minimized or avoided with project alterations.
  
  - Project redesigned to reduce risk and approved.**
    - Explain how risk was reduced due to the components of the redesign.
  
  - Project relocated/sited in alternate location and approved.**
    - Explain how risk was reduced because of this move. Explanation should include a review of new site to ensure vulnerabilities do not exist at the new location.
  
  - Project approved with conditions.** Applicant required to assume responsibility for anticipated future remediation necessitated due to permitting/funding/approving this now despite the known vulnerabilities.
    - Bond required in the amount of \$\_\_\_\_\_.
    - Fee required in the amount of \$\_\_\_\_\_.
    - Explain and document the expected remediation.
  
  - Project approved with informed consent regarding the risk.**
    - Describe the risk.

Project Review Authority

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Project Proponent

Name: \_\_\_\_\_

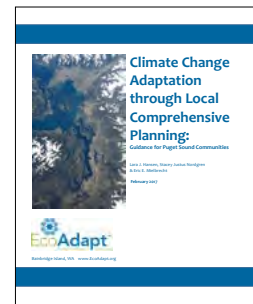
Date: \_\_\_\_\_

# Climate Change Adaptation Certification Resources and Acknowledgments

EcoAdapt and Foresight Partners Consulting developed the Climate Change Adaptation Certification project, process, and 3-Step Tool in order to advance nascent local conversations around climate change adaptation to tangible implementation actions. This work began in the Puget Sound region of Washington where they also developed guidance for anyone wanting to understand why and how to incorporate climate considerations into local Comprehensive Planning—addressing planning for both adaptation and mitigation. This guidance is also available:

Climate Change Adaptation through Local Comprehensive Planning: Guidance for Puget Sound Communities.  
Hansen, L.J., S.J. Nordgren and E.E. Mielbrecht. 2017. EcoAdapt. Bainbridge Island, WA.

[www.CAKEx.org/documents/climate-change-adaptation-through-local-comprehensive-planning-guidance-puget-sound-communities](http://www.CAKEx.org/documents/climate-change-adaptation-through-local-comprehensive-planning-guidance-puget-sound-communities)



The Climate Change Adaptation Certification Tool was developed to support communities beyond planning—helping them implement their updated Comprehensive Plan. Using this 3-Step CCAC Tool for rapid implementation of climate savvy planning goals and policies will enable community services, infrastructure, ecosystems, and economies to better anticipate and respond to the effects of climate change.

**We would like to thank** Jennifer Sutton (City of Bainbridge Island), James Rufo Hill (Seattle Public Utilities) and James B. Hansen (California Fish and Wildlife) for their time and insight as reviewers of this tool and its applicability to planning processes across a variety of circumstance.

In order to make this product useful and used, the authors surveyed community adaptation efforts and interviewed local, regional, and state employees around the Puget Sound to identify regulatory or discretionary processes already in place where one could integrate climate change adaptation into permitting—something beyond planning goals and policies. We would also like to thank (in alphabetical order) all those who took the time to inform us through interviews, including Mike Burnham (Thurston Regional Planning Council), Eileen Canola (Snohomish County), Christy Carr (City of Bainbridge Island), Ryan Dicks (Pierce County), Lisa Dulude (Snohomish County), Gary Idleburg (Washington State Department of Commerce), Jennifer Lee (Puget Sound Partnership), Kelly McGourty (Puget Sound Regional Council), Tracy Morgenstern (City of Seattle), Phillip North (Tulalip Tribes), Allison Osterberg (Thurston County), Joyce Phillips (City of Olympia), Jennifer Pouliotte (Puget Sound Partnership), Carol Lee Roalkvam (Washington State Department of Transportation), Dara Salmon (Snohomish County), Joseph Tovar (Tovar Planning), Lara Whitely-Binder (King County), and Manuela Winter (Snohomish County).



To find examples of how other communities have integrated climate change planning into local knowledge and action, visit [www.cakex.org](http://www.cakex.org).

This project was made possible by generous support from:



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EcoAdapt provides support, training, and assistance to make planning and management less vulnerable and more Climate Savvy. EcoAdapt, founded by a team of some of the earliest adaptation thinkers and practitioners in the field, has one goal—creating a robust future in the face of climate change. We bring together diverse players to reshape planning and management in response to rapid climate change. [www.EcoAdapt.org](http://www.EcoAdapt.org)



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