CLIMATE BENEFITS GUIDE

2024 Climate Bond

IMPORTANT NOTE ABOUT THIS GUIDE

THIS GUIDE HAS BEEN PREPARED AS A RESOURCE FOR STATE DEPARTMENT STAFF WHEN IMPLEMENTING CLIMATE BOND PROGRAMS. IT CONTAINS GENERAL INFORMATION AND IS NOT A CLIMATE BOND PROGRAM GUIDELINE OR REGULATION THAT ESTABLISHES SELECTION CRITERIA FOR HOW FUNDS ARE DISBURSED. THIS RESOURCE SHOULD BE CONSIDERED EVERGREEN AND MAY BE UPDATED PERIODICALLY.

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This document is intended to provide resources for the implementation of 2024 Climate Bond (Climate Bond) programs on the climate change-related requirements and recommendations included in the document "*Delivering a Successful Climate Bond - Requirements and Best Practices to Implement Proposition 4*." California Natural Resources Agency (CNRA) staff will also support programs implementing these requirements and recommendations through:

- Virtual training sessions on the Climate Reporting Requirements
- 1:1 technical assistance to programs as requested

REQUIREMENTS

I. Reporting

All CNRA departments are required to report Climate Bond funded project information to the Resources Agency Project Tracking and Reporting (RAPTR) system. This includes projects funded through local assistance grant programs, as well as State administered projects, such as work on State lands or other capital improvement projects. RAPTR will be used to report on the individual and collective outcomes of funded projects, as well as track progress toward meeting various statutory requirements and State priorities.

RAPTR is set up to ensure the required climate benefit reporting information is collected. Please use the guidance related to RAPTR in the document "*Delivering a Successful Climate Bond - Requirements and Best Practices to Implement Proposition 4*."

Required variables in RAPTR will be used to answer the following questions about the climate benefits of projects:

- Will the project protect people and/or nature from climate impacts, such as extreme heat, wildfire, flooding, drought, and/or sea level rise? If so, how?
- Did or will the project reduce and/or remove greenhouse gas emissions? If so, how?
- Was the project designed to be resilient to climate impacts, such as extreme heat, wildfire, flooding, drought, and/or sea level rise? If so, how?
- Did the project support planning, capacity building, workforce training, or monitoring activities that will protect people and/or nature from climate change impacts or reduce/remove greenhouse gas emissions? If so, how?

CNRA is required by statute (*AB 1757, C. Garcia, 2022*) to track and report on progress toward California's *Nature-Based Solutions Climate Targets*. In addition to the attributes required in Proposition 4, programs are required to report on a few unique project attributes, listed below, at project completion via RAPTR. *Similar to above, RAPTR is set up to ensure the required information is collected*.

- Nature-based solutions target(s) the project is implementing (options listed in Table 2 below)
- Acres of each nature-based solution implemented (options listed in Table 2 below)
- Number of trees plants for urban and community greening and forestry projects
- Implementation year(s)

RECOMMENDATIONS

I. New Program and Grant Guideline Development

The Climate Bond allocates funds for many purposes that are administered in a variety of ways, such as through competitive or directed local assistance grant programs, as capital outlay projects, or as funding for State staff doing work on State lands. Most of the recommendations and best practices in this guide are primarily focused on programs that administer local assistance grants, since most of the allocations are focused that way. For departments administering projects or activities that are not local assistance grants, there is no expectation to build in additional processes or tasks that do not make sense and can use discretion to determine the recommendations or best practices that are relevant. For example, bond funds used for deferred maintenance projects on State lands would not need to develop grant guidelines or run a grant solicitation process. However, the selection and design of projects could still incorporate climate benefits or help to advance State policy objectives. All Climate Bond funding, regardless of administration method, is still required to meet reporting requirements as described above and, in the document, "*Delivering a Successful Climate Bond - Requirements and Best Practices to Implement Proposition 4.*"

It is recommended that projects selected for funding implement California's climate change goals, which are laid out in *California's Climate Adaptation Strategy* and California's *Scoping Plan for Achieving Carbon Neutrality*. There are also many climate-related actions called for in relevant State strategies. These include, but are not limited to:

- *Climate Smart Lands Strategy*
- *Nature-Based Solutions Climate Targets*
- *Water Resilience Portfolio*
- *Water Supply Strategy Adapting to a Hotter, Drier Future*
- *Central Valley Flood Protection Plan*
- *Sustainable Groundwater Management Act*
- *Pathways to 30x30: Accelerating Conservation of California's Nature*
- *Salmon Strategy for a Hotter, Drier Future*
- *Wildfire and Forest Resilience Action Plan*
- *Extreme Heat Action Plan*
- *Strategic Plan to Protect California's Coast and Ocean*
- *Salton Sea Management Program*
- *San Francisco Bay Regional Shoreline Adaptation Plan*
- *Delta Adapts: Adaptation Plan*
- *California Water Plan*
- *State Parks Sea Level Rise Strategy*
- *State Lands Commission's Strategic Plan*
- *Outdoors for All Strategy*

To do this, programs should determine which of the State's strategies with climate-related actions are the most applicable to their allocated program funds and develop their program's eligibility and scoring criteria (if competitive) in a manner that aligns with the applicable State strategies.

Programs Implementing Nature-Based Solutions

Up to 80% of the Climate Bond could advance implementation of California's *Nature-Based Solutions Climate Targets*.

These targets call for scaling land management activities that increase the health and resilience of natural systems, unlocking nature's ability to durably store carbon. Examples of these practices include but are not limited to wetland restoration, urban greening, cultural and prescribed burning, prescribed grazing, healthy soils practices, and land conservation.

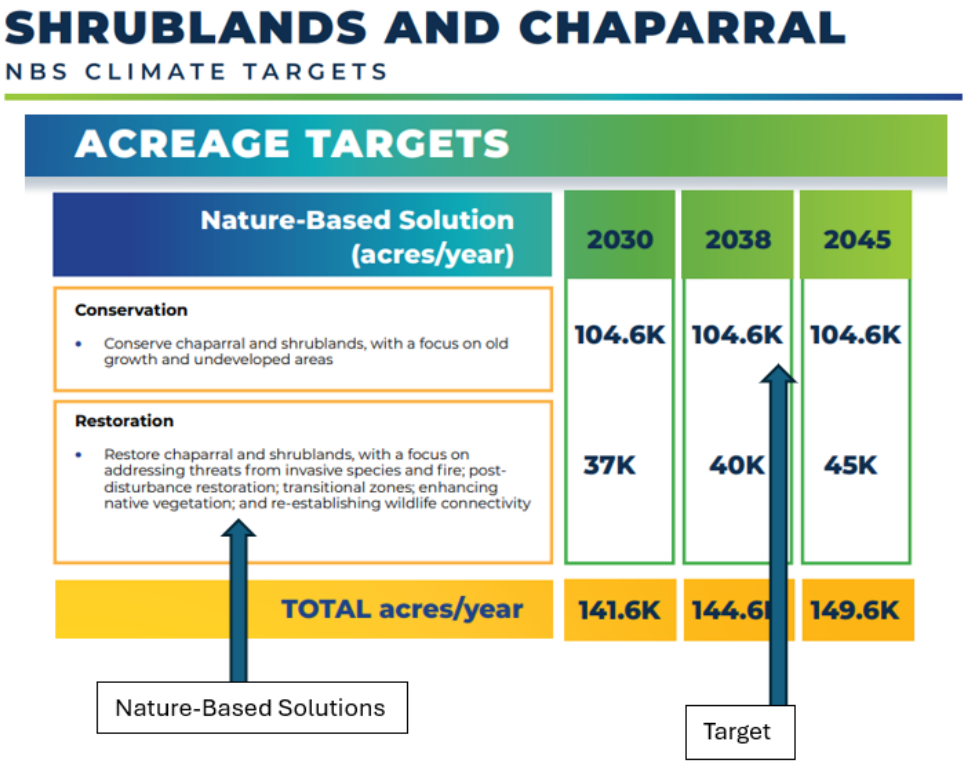
These targets will support California's goal of achieving carbon neutrality and building resilience to climate impacts, such as drought, flooding, wildfire, extreme heat, and sea level rise. Delivering on these targets can also create jobs and economic benefits, improve air and water quality, create/improve outdoor recreation opportunities, advance community and tribal-led nature-based solution efforts, and protect biodiversity.

The following recommended steps can set programs up to support implementation of these targets. Please reach out to the CNRA staff at climatebond2024@resources.ca.gov for support if needed.

STEP 1: Identify whether the program's allocated program funds can support implementation of the nature-based solutions climate targets. List 1 identifies connectivity between individual allocated program funds, by Public Resource Code section, and the targets. *Note: Not all allocated program funds overlap with the nature-based solutions climate targets and thus, are not included in List 1 below.*

How to Read the Nature-Based Solutions Climate Targets --

Example: Shrublands and chaparral nature-based solutions targets



List 1. Allocated program funds, by* Public Resources Code Section, *and what nature-based solutions climate target(s) they can support:

- **91011**: Wetland restoration
- **91012**: Wetland restoration, urban and community greening and forestry
- **91013**: Wetland restoration
- **91019**: Urban and community greening and forestry
- **91021**: Wetland restoration
- **91023**: Urban and community greening and forestry
- **91031**: Wetland restoration, wildfire risk reduction, forest conservation, forest restoration, forest working forest conservation
- **91032**: Wetland restoration, forest restoration, urban and community greening and forestry

- **91033**: Wetland restoration
- **91040**: Wetland restoration
- **91045**: Conservation across all land types
- **91510(a)**: Wildfire risk reduction, reducing community wildfire risk
- **91520(a)**: Wildfire risk reduction, forest restoration, shrubland and chaparral restoration
- **91520(b)**: Wildfire risk reduction, forest restoration, reducing community wildfire risk
- **91520(c)**: Wildfire risk reduction, forest restoration, wetland restoration, shrubland and chaparral restoration
- **91520(d)**: Wildfire risk reduction, reducing community wildfire risk
- **91520(f)**: Wildfire risk reduction, forest restoration, wetland restoration, shrubland and chaparral restoration
- **91520(g)**: Reducing community wildfire risk, wildfire risk reduction, forest restoration, shrubland and chaparral restoration, forest conservation, working forest conservation, shrubland and chaparral conservation, grassland conservation
- **91520(h)**: Wildfire risk reduction, forest restoration, wetland restoration, shrubland and chaparral restoration
- **91520(i)**: Wildfire risk reduction, forest restoration, wetland restoration, shrubland and chaparral restoration
- **91520(j)**: Wildfire risk reduction, forest restoration, shrubland and chaparral restoration, wetland restoration
- **91520(k)**: Wildfire risk reduction, forest restoration, shrubland and chaparral restoration, wetland restoration
- **91520(l)**: Wildfire risk reduction, forest restoration, shrubland and chaparral restoration, wetland restoration
- **91520(m)**: Wildfire risk reduction, forest restoration, shrubland and chaparral restoration, wetland restoration
- **91520(o)**: Wildfire risk reduction
- **91530**: Reducing community wildfire risk
- **91540**: Reducing community wildfire risk
- **91545(a)**: Reducing community wildfire risk, wildfire risk reduction, potentially others
- **92010**: Wetland conservation, wetland restoration, sea level rise protection of ecosystems, sparsely vegetated lands conservation, sparsely vegetated lands restoration, forest conservation, forest restoration, forest working forest conservation, forest afforestation
- **92015**: Wetland conservation, wetland restoration, sea level rise protection of ecosystems, sparsely vegetated lands conservation, sparsely vegetated lands restoration
- **92020**: Wetland conservation, wetland restoration, sea level rise protection of ecosystems
- **92030**: Wetland conservation, wetland restoration, sea level rise protection of ecosystems, sparsely vegetated lands conservation, sparsely vegetated lands restoration
- **92040**: Wetland conservation, wetland restoration, sea level rise protection of ecosystems, sparsely vegetated lands conservation, sparsely vegetated lands restoration

- **92050(a)**: Restoration on all land types (with invasive species removal)
- **92060**: Wetland restoration
- **92510**: Urban and community greening and forestry
- **92520**: Urban and community greening and forestry
- **92530**: Urban and community greening and forestry
- **92540**: Urban and community greening and forestry
- **92550**: Urban and community greening and forestry
- **93010**: Multiple nature-based solutions targets
- **93020**: Multiple nature-based solutions targets
- **93030**: Multiple nature-based solutions targets
- **93040**: Multiple nature-based solutions targets
- **93050**: Wetland restoration, potentially others
- **93510**: Healthy soils practices, organic transition
- **93520**: Restoration on all land types with invasive species removal
- **93530**: Cropland conservation, wetland restoration, grassland restoration, grassland conservation
- **93540(c)**: Urban and community greening and forestry
- **93540(e)**: Cropland conservation, healthy soils practices, organic transition
- **93550**: Cropland conservation, grassland conservation
- **94010**: Urban and community greening and forestry
- **94020**: Urban and community greening and forestry, potentially others
- **94030**: Multiple nature-based solutions targets
- **94040**: Multiple nature-based solutions targets
- **94050**: Conservation on all land types

STEP 2: If the program can support implementation of the targets (as indicated in List 1), identify the most relevant nature-based solutions and encourage applicants to incorporate them in project proposals by making them eligible project types. Where possible, prioritize them in project scoring (if the program is competitive). List 2 was developed to support this step.

List 2. Nature-based solutions climate targets and nature-based solutions activities eligible to be counted towards the nature-based solutions climate targets

- **Beneficial fire**: Prescribed fire, cultural fire
- **Other fuels reduction**: Hand thinning, invasive species removal, prescribed herbivory (grazing), mechanical thinning, mastication, uneven-aged timber harvest
- **Oak woodland afforestation**: Oak woodland re-establishment in areas where they historically were found
- **Forest conservation**: Conservation of old growth forests; conservation of conifer, riparian, and oak woodland forests
- **Forest restoration**: Post high-severity wildfire reforestation and restoration, oak woodland restoration, riparian forest restoration

- **Working forest conservation**: Extended harvest rotation lengths, shift (increase or decrease) intensity of harvests, restore/conserve wildfire habitat on timberlands
- **Shrubland and chaparral conservation**: Shrubland and chaparral conservation with a focus on old growth and undeveloped areas
- **Shrubland and chaparral restoration**: Invasive species removal, post-disturbance (e.g., wildfire) restoration, transition zones, enhancing native vegetation, re-establishing wildlife connectivity
- **Grasslands conservation**: Grasslands conservation with a focus on remaining native grasslands, oak trees, and foothill pines
- **Grasslands restoration**: Plant native species and diverse, perennial, deep-rooted grasses; application of soil amendments (e.g., compost); prescribed grazing; riparian corridor restoration; establishment of sustainable fire regimes
- **Healthy soils practices**: Implement healthy soils practices on annual and perennial croplands, such as compost application, cover cropping, hedgerows/windbreaks, no and reduced till, riparian buffers, whole orchard recycling, etc.
- **Croplands conservation**: Conserve annual and perennial croplands
- **Organic agriculture**: Convert conventional to organic systems in annual and perennial croplands
- **Afforestation between community and croplands**: Establish tree line buffers between croplands and communities to reduce chemical exposure and enhance access to green space
- **Urban forest conservation**: Protect existing urban tree cover
- **Urban and community greening and forestry**: Increase tree canopy cover - new trees and maintaining existing canopies (in cities, communities, school yards, roadsides, etc.); grass lawn removal and establishment of climate-ready vegetation; increase green space in developed areas (e.g., parks, gardens, greenways/greenbelts); green roofs; rain gardens and bioswales; etc.
- **Reducing community wildfire risk**: Defensible space in the WUI; treat priority roads that function as priority evacuation routes
- **Wetland conservation**: Conserve coastal wetlands, seagrass beds, Delta wetlands, and mountain meadow wetlands
- **Wetlands restoration**: Restore and/or re-establish coastal wetlands, including through beneficial reuse of sediment; restore and/or re-establish seagrass beds, with a focus on eelgrass meadows; restore Delta wetlands, including through re-establishing brackish and freshwater tidal wetlands on previously drained or seasonal wetlands, and rewetting deeply subsided areas through the creation of non-tidal managed wetlands or rice cultivation; restore and/or rewet previously drained San Francisco Bay wetlands; restore mountain meadow wetlands through restoring proper hydrologic flow, removing conifer encroachment, and/or beaver reintroduction

- **Sea level rise protection of ecosystems**: Restore coastal wetlands in a manner that enables them to keep pace with sea level rise, including conserving upland space needed for wetland migration
- **Sparsely vegetated lands conservation**: Conserve sparsely vegetated lands (desert areas with less than 10% vegetation cover, beaches and dunes, rocky areas, etc.) to prevent conversion and/or disturbance
- **Sparsely vegetated lands restoration**: Restore native vegetation on previously disturbed areas (or on those otherwise dominated by invasive species) including through invasive species removal and restoration of riparian zones

II. Pre-Application

If a program does not already do so, it is recommended that the program's technical assistance/concept review or pre-proposal process identify whether a proposed project will deliver a climate benefit.

If a program does not include a technical assistance/concept review or pre-proposal process, we recommend building these questions into the application stage of the program. See Section III on Application for more details.

Note: The Climate Bond funds a wide range of programs, from very broad to very specific in scope. The proposed questions are intentionally broader than the scope of many individual programs to give program administrators a sense of the many ways projects can deliver climate benefits. If the program is narrower than these questions, programs may refine and narrow their scope. CNRA staff can support developing (pre-) application question(s), please reach out to climatebond2024@resources.ca.gov.

Sample Pre-Application Question: *Please indicate whether the proposed project will deliver a climate benefit by checking "yes" to one or more of the boxes below:*

- ☐ Will the project protect people and/or nature from climate impacts, including extreme heat, wildfire, flood, drought, and/or sea level rise?
- ☐ Will the project reduce greenhouse gas emissions and/or remove greenhouse gas emissions?
- ☐ Is the project designed to be resilient to climate impacts, including extreme heat, wildfire, flood, drought, and/or sea level rise?
- ☐ Does the project support planning, capacity building, workforce training, or monitoring activities that will protect people and/or nature from climate change impacts or reduce/remove greenhouse gas emissions?

III. Application

It is recommended that programs ask the following questions to help identify whether and how projects provide climate benefits:

1. Will the project protect people and/or nature from climate impacts, including extreme heat, wildfire, flood, drought, and/or sea level rise? If so, how?
2. Will the project reduce greenhouse gas emissions and/or remove greenhouse gas emissions? If so, how?
3. Is the project designed to be resilient to climate impacts, including extreme heat, wildfire, flood, drought, and/or sea level rise? If so, how?
4. Does the project support planning, capacity building, workforce training, or monitoring activities that will protect people and/or nature from climate change impacts or reduce/remove greenhouse gas emissions? If so, how?

Although these questions are similar to the recommended pre-application question, these differ by asking "how" the climate benefits will accrue.

For programs that have the potential to contribute to California's nature-based solutions climate targets, please see **Appendix A** for optional resources to support development of application questions and scoring criteria.

Note: Some Climate Bond funding will invest in important nature-based solutions that do not currently have an associated climate target, but deliver climate benefits. These include, for example:

- Kelp conservation and restoration
- Floodplain restoration
- Managed aquifer recharge
- Temporary/ephemeral wetland restoration (e.g., vernal pools)
- Arid-environment wetland restoration (e.g., alkali marshes and sinks)
- Constructed wetlands
- Cropland water and nutrient efficiency
- Culturally important cropping
- Subsistence/culturally important aquaculture
- Stream flow
- Dam or barrier removal
- Setback levees

APPENDIX A – Application Resources

The nature-based solutions climate targets were quantified by estimating the statewide level of action needed to build the health and resilience of ecosystems and communities.

To ensure consistency with the approach used to set the nature-based solutions climate targets, it is recommended that programs prioritize nature-based solutions projects that promote the health and resilience of ecosystems and/or communities.

The following definitions and concepts can help guide administration of allocated program funds. Programs can tailor these concepts to their specific foci and authorities.

- **Ecosystem Health**: The state or condition of an ecosystem. Healthy ecosystems can maintain their ecosystem functions and structure over time and provide a myriad of ecosystem services, including those related to climate, public health, equity, recreation, and economic development.

  Examples: Wetland restoration reintroduces the natural hydrologic patterns to an ecosystem, enabling wetland soils to accumulate carbon over time and enabling these ecosystems to mitigate flood risk of nearby and downstream communities. Conserving grazed grasslands that are at risk of development enables these grassland ecosystems to continue functioning as ecosystems—photosynthesizing, supporting vegetation, insect, and wildlife communities—while providing economic benefits to ranchers and aesthetic benefits to nearby communities.

- **Ecosystem Resilience**: The ability of an ecosystem to withstand and recover from disturbances, such as climate impacts (e.g., extreme heat, wildfire, flooding, sea level rise, drought), in a manner that maintains the ecosystem's structure and functions, and capacity to provide ecosystem services.

  Examples: Beneficial fire aims to restore healthy species and age diversity of forests, thereby restoring more natural fire regimes and reducing the risk of high severity, catastrophic wildfire. Conserving open space upland of coastal wetlands provides space for these wetlands to migrate up and keep pace with sea level rise, ensuring they can continue to buffer communities from the impacts of coastal flooding.

- **Community Health**: The health status of a defined group of people. Nature-based solutions support community health by supporting the provision of ecosystem services.

  Examples: Healthy soils practices on farmland, such as cover cropping or installing riparian buffer strips, can reduce nitrate leaching and improve ground- and surface-water quality. Conservation of desert shrublands protects these fragile habitats and soils from disturbance, avoiding air quality impacts from dust. Conservation of green space near communities provides access to nature, recreational opportunities, and aesthetic benefits with many positive impacts to communities' physical and mental wellbeing. Restoration of wetlands and riparian corridors helps to capture sediment and filter nutrients and other pollutants, improving water quality.

- **Community Resilience**: The ability of a community to prepare for, cope with, adapt to, or recover from climate impacts. Nature-based solutions build community resilience by supporting resilient ecosystems with the capacity to provide ecosystem services.

  Examples: Urban trees provide shade and cooling benefits, reducing temperatures and heat exposure on hot days. Forest management in the wildland-urban interface helps maintain forest health while ensuring defensible space, protecting communities and local economies from the spread and destruction of wildfire. Workforce development and training can build local capacity for nature-based solutions planning, implementation, and management.

The following concepts underpin the above prioritization criteria:

- Ecosystem Structure: the organization and composition of the living and non-living elements of an ecosystem, including species and genetic diversity, diversity of interactions between species and their environment, and complexity of habitats and landscapes.
- Ecosystem Functions: the processes and structures that enable an ecosystem to sustain life, for example productivity and photosynthesis, nutrient and water cycling, energy flow between species.
- Ecosystem Services: the direct and indirect benefits that ecosystems provide humans (e.g., food and fiber, fresh water, carbon sequestration and storage, temperature regulation, etc.)

The following questions can help understand whether and how a nature-based solutions project will promote the health and resilience of ecosystems and/or communities:

- **How does the proposed project increase or maintain *ecosystem health*? Factors to consider:**
  - Does the project restore or protect ecosystem structure, including conserving habitat corridors, removing invasive species, and conserving and/or restoring diverse and complex landscapes?
  - Does the project restore degraded or protect important ecosystem functions and services? These include:
    - Photosynthesis and ecosystem productivity
    - Nutrient cycling and retention in soils
    - Carbon sequestration and storage
    - Reduction or avoidance of greenhouse gas emissions
    - Natural water cycling and retention
    - Natural fire regimes
  - Does the project promote a diversity of species and species interactions? These include:
    - Increasing diversity of plants and cover crops grown to support crop and soil health
    - Facilitating the return or persistence of keystone species (species that define an entire ecosystem and are vital to its health and stability, for example sea otters, desert tortoises, oak trees, and willows)
    - Restoration to enhance native species diversity
    - Protection of communities of diverse native species

- **How does the proposed project increase *ecosystem resilience*, including to climate change impacts. Factors to consider:**
  - Does the project design explicitly consider climate impacts over time and space? For example:
    - Did coastal wetland restoration projects consider sea level rise?
    - Did urban greening and forestry tree and shrub selection consider rising temperatures and precipitation extremes (drought and deluge)?

        - Did conservation projects consider species migration as temperatures rise, for example by enhancing landscape connectivity (the degree to which a landscape facilitates the movement of plants and animals)?
        - Did agricultural projects consider changing seasonal temperature and precipitation patterns, and seek to improve water use efficiency?
    - Does the project protect known climate refugia (places that are relatively buffered from climate change and likely to continue supporting species persistence in the future)?
    - Does the project support diverse and complex ecosystem structure? For example, by:
        - Creating a complex and diverse landscape to provide various opportunities for species to persist.
        - Creating redundancy (multiple species with similar or overlapping roles of functions) within the landscape in case of species die-off or ecosystem function failure due to disturbance or stress.
        - Restoring, where appropriate for the ecosystem, diverse classes of species (for example, hedgerows and row plantings on annual cropland, perennial grasses and forbs on annual grasslands, or oaks on grasslands that were historically oak savannah).
    - Does the project contribute over time to a capacity for adaptive management (a process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood)? For example:
        - Does the project equip land managers and technical assistance providers to learn from the project implementation and inform future management and implementation?
        - Does the project include outreach or partnerships aimed at sharing lessons learned and improving future implementation of similar projects?

- **How does the proposed project promote *community health* through the use of nature-based solutions? Factors to consider:**
    - Does the project aim to protect or restore ecosystems' capacity to provide ecosystem services related to community health, such as those that improve water and air quality?
    - Does the project enhance community wellbeing by increasing access to nature or proximity to urban green spaces?
    - Does the project reduce nitrate leaching and improve water quality?
    - Does the project increase access to reliable, clean drinking water?
    - Does the project increase access to healthy, local, and nutritious foods?

- **How does the proposed project increase *community resilience* through the use of nature-based solutions, including to climate change impacts? Factors to consider:**

- Does the project aim to protect a community from climate impacts? Examples include:
  - Wetlands restored to provide flood protection and/or build resilience to sea level rise
  - Urban greening to mitigate extreme heat and manage stormwater
  - Fuels management to reduce risk of high severity wildfire
  - Reduced irrigation use through healthy soils practices
  - Economic resilience built through the implementation of nature-based solutions, such as tourism, job creation, saved water/energy costs, and market creation
- Does the proposed project engage the local community in aspects of project design, implementation, and monitoring?