



GOAL AREA: Natural Systems

Protect and restore the natural resources upon which life depends

Introduction

The 6 objectives in the Natural Systems Goal Area help communities protect and restore the places that provide resources to support life. The NS Goal Area takes an ecosystem services approach and recognizes the wide range of benefits natural systems provide, such as food, water, and natural regulating processes affecting climate and floods. Ecosystem services also extend to cultural benefits like aesthetic value and recreation.

NS-5: Water in the Environment and NS-4: Outdoor Air Quality bring attention to the reality that clean water and air are vital for humans and other species to thrive. NS-2: Biodiversity & Invasive Species recognizes that achieving biodiversity requires a two-prong approach of protecting habitats and controlling the spread of destructive non-native species.

With an emphasis on connectivity and collaboration, NS-3: Natural Resource Protection focuses on issues at a broad ecosystem and ecoregional scale. This objective is complemented by NS-1: Green Infrastructure, which aims to integrate natural design with the built environment and emphasizes benefits that extend beyond stormwater harvesting to include localized cooling and air quality. NS-6: Working Lands recognizes the environmental and economic contributions of land management to the Natural Systems Goal Area.

Objective Number	Objective Title and Purpose	Available Points
NS-1	Green Infrastructure: <i>Design and maintain a network of green infrastructure features that integrate with the built environment to conserve ecosystem functions and provide associated benefits to human populations</i>	20
NS-2	Biodiversity & Invasive Species: <i>Maintain the urban ecosystem habitat at levels that promote biodiversity and manage or prevent invasive species</i>	10
NS-3	Natural Resource Protection: <i>Protect, enhance, and restore natural ecosystems and cultural landscapes to confer resilience and support clean water and air, food supply, and public safety</i>	20
NS-4	Outdoor Air Quality: <i>Ensure that outdoor air quality is healthy for all segments of the human population and protects the welfare of the community</i>	15
NS-5	Water in the Environment: <i>Protect and restore the biological, chemical, and hydrological integrity of water in the natural environment</i>	20
NS-6	Working Lands: <i>Conserve and sustainably manage lands that provide ecosystem services and raw materials</i>	15
Total Points Available:		100



PURPOSE

Design and maintain a network of green infrastructure features that integrate with the built environment to conserve ecosystem functions and provide associated benefits to human populations

EVALUATION MEASURES

Community Level Outcomes

70% of points available through Outcomes

Outcome 1: Green Stormwater Infrastructure

8.4 Points

Option A: Demonstrate that 35% of the jurisdiction's land area has designated green stormwater infrastructure providing bioretention and infiltration services

--OR--

Option B: Demonstrate that no more than 65% of the jurisdiction's land area contains impervious surfaces

Outcome 2: Green Infrastructure Distribution

5.6 Points

Demonstrate that 85% of the population lives within a 1/3-mile distance from green infrastructure features that provide localized cooling through tree canopy cover or vegetative surfaces

Local Actions

70% of points available through Actions

Action 1:

Inventory, Assessment or Survey

Assess the state of the jurisdiction's urban forest

Action 2:

Plan Development

Create a communitywide green infrastructure plan that is integrated with other relevant local plans



Action 3:

Policy and Code Adjustment

Adopt local design criteria and associated codes that require proactive green infrastructure practices for new developments

Action 4:

Policy and Code Adjustment

Include evaluation of green infrastructure potential during early site reviews of proposed developments and subdivisions

Action 5:

Partnerships and Collaboration

Partner with key community groups and other stakeholders to ensure that green infrastructure practices are used in appropriate settings

Action 6:

Enforcement and Incentives

Create incentive programs to encourage landowners to adopt green infrastructure practices that link to broader green infrastructure systems

Action 7:

Practice Improvements

Establish a green infrastructure monitoring program and regularly report on status of desired outcomes

Action 8:

Facility and Infrastructure Improvements

Dedicate a percentage of funding invested in green infrastructure

Action 9:

Facility and Infrastructure Improvements

Upgrade public spaces and public buildings based upon locally adopted or recognized best practices in green infrastructure; where possible, create demonstration projects to enhance public support



NATURAL SYSTEMS

NS-2: Biodiversity & Invasive Species

10 available points

PURPOSE

Maintain the urban ecosystem habitat at levels that promote biodiversity and manage or prevent invasive species

EVALUATION MEASURES

Community Level Outcomes

70% of points available through Outcomes

Preliminary Step:

Identify up to 3 threatened species and up to 3 invasive species within the jurisdiction

The Preliminary Step is required if the community is applying for any credit in this objective.

Outcome 1: Threatened Species

3 Points

Option A: Show that the population of at least 1 threatened species has reached optimal population size

--OR--

Option B: Show that the population of at least 1 threatened species achieved their rate of recovery goal within the past 5 years [Partial credit applies]

Outcome 2: Habitat Conservation and Connectivity

2 Points

Option A: Achieve no net loss of habitat areas for threatened species

--OR--

Option B: Increase the connectivity between habitats needed for threatened species [Partial credit available]

Outcome 3: Invasive Species Management

2 Points

Show that existing invasive species have been eradicated or contained so as to prevent their population growth and expansion [Partial credit available]



Local Actions

70% of points available through Actions

Action 1:

Plan Development

Create a plan for management of local species that minimizes damage from invasive species and enhances biodiversity and ecosystem services

Action 2:

Policy and Code Adjustment

Adopt or enforce an ordinance requiring control of listed priority invasive species or enact a preferred plant ordinance for private and public landscaping

Action 3:

Partnerships and Collaboration

Partner with state or federal agencies to monitor, manage, and report on status of threatened and invasive species

Action 4:

Partnerships and Collaboration

Partner with local volunteer groups or neighborhood associations to restore priority natural systems areas by planting native plants or improving local wildlife habitat

Action 5:

Partnerships and Collaboration

Partner with local volunteer groups to monitor areas at greatest risk of invasion and remove invasive species

Action 6:

Education and Outreach

Inform residents and/or plant or animal sellers about the benefits of native species and the hazards of invasive species

Action 7:

Enforcement and Incentives

Use incentive programs to encourage local businesses and private owners to grow and sell native plants and animals and not sell invasive species



Action 8:

Enforcement and Incentives

Enforce regulations to control the use and sale of invasive species

Action 9:

Facility and Infrastructure Improvements

Ensure that all local government-owned buildings use native and/or sustainable, site-appropriate species in landscaping

Action 10:

Programs and Services

Take actions to prevent the spread of invasive species, especially in priority natural systems areas, such as monitoring, eradication, or other control programs



NATURAL SYSTEMS

NS-3: Natural Resource Protection

20 available points

PURPOSE

Protect, enhance and restore natural ecosystems and cultural landscapes to confer resilience and support clean water and air, food supply, and public safety

EVALUATION MEASURES

Community Level Outcomes

70% of points available through Outcomes

Preliminary Step:

Identify all natural parkland and other natural resource areas, for evaluation in this objective

The Preliminary Step is only required if the community is applying for credit in the Community Level Outcomes. If the community is applying for credit through Local Actions only, the Preliminary Step need not be completed.

Outcome 1: Natural Resource Areas

3.5 Points

Option A: Maintain natural resource acreage at 20 acres per 1,000 residents or greater

--OR--

Option B: Maintain natural resource acreage at 11.5% or more of total jurisdictional land area

Outcome 2: Wetlands, Streams, and Shoreline Buffers

3.5 Points

Achieve no net loss of wetlands, streams, and shoreline buffers

Outcome 3: Connectivity

3.5 Points

Increase the amount of natural or restored areas directly connected to regional natural systems in order to improve ecosystem services

Outcome 4: Restoration

3.5 Points

Option A: Reduce the difference between the actual acreage restored and targeted acreage established in the natural systems plan or land conservation plan

--OR--

Option B: Restore degraded natural resource areas at a ratio greater than 1% of developed land area in the jurisdiction



Local Actions

70% of points available through Actions

Action 1:

Plan Development

Develop a plan to protect and restore natural resources through land conservation, corridor connectivity, and restoration of biological integrity and function

Action 2:

Policy and Code Adjustment

Adopt land use regulations that establish appropriate wetland, stream, and shoreline buffer widths and adjacent land uses

Action 3:

Partnerships and Collaboration

Create an advisory board to inform land conservation and restoration activities

Action 4:

Partnerships and Collaboration

Partner with adjacent jurisdictions, state and federal agencies, and local or regional nonprofit organizations to advance land conservation and restoration efforts

Action 5:

Education and Outreach

Sponsor activities to increase ecological literacy and knowledge about natural resource protection

Action 6:

Enforcement and Incentives

Adopt land use strategies to incentivize permanent land conservation

Action 7:

Enforcement and Incentives

Implement local and market-based financing strategies to acquire land or development easements, or fund restoration and maintenance activities



Action 8:

Facility and Infrastructure Improvements

Restore, maintain, and monitor conserved natural lands to increase natural resource resilience, adaptability, and biological integrity



NATURAL SYSTEMS

NS-4: Outdoor Air Quality

15 available points

PURPOSE

Ensure that outdoor air quality is healthy for all segments of the human population and protects the welfare of the community

EVALUATION MEASURES

Community Level Outcomes

70% of points available through Outcomes

Outcome 1: Concentration and Emissions of Criteria Air Pollutants

10 Points

Option A: Achieve attainment or maintenance status for all measured criteria pollutants

--OR--

Option B:

Part 1: Demonstrate a decrease in the annual concentration of the non-attainment criteria pollutant(s) that have the greatest impacts on public health over the past 5 years, specifically PM 2.5, PM10, and ozone

--AND--

Part 2: Demonstrate a decrease trend in the annual number of days in which the Air Quality Index (AQI) exceeds 100 over the past 5 years

[Partial credit applies]

Outcome 2: Risk from Hazardous Air Pollutants

5 Points

Option A: Demonstrate the community's total cancer risk from hazardous air pollutants is less than 50 per million

--OR--

Option B: Demonstrate a reduction in the total cancer risk from hazardous air pollutants in the community over time [Partial credit applies]

Local Actions

70% of points available through Actions

Action 1:

Inventory, Assessment, or Survey

Conduct a study to evaluate the geographic areas and subpopulations with the highest exposure to outdoor air pollutants, particularly in consideration of environmental justice and equity impacts



Action 2:

Partnerships and Collaboration

Collaborate with local industrial operations to reduce and minimize the release of criteria and hazardous air pollutants in the community

Action 3:

Partnerships and Collaboration

Collaborate with local industrial operations to reduce and minimize the release of noxious odors in the community

Action 4:

Education and Outreach

Educate the public about the impacts of poor air quality on human health and the natural environment and the efforts they can take to reduce air pollution emissions and exposure

Action 5:

Enforcement and Incentives

Enforce anti-idling regulations or burning restrictions to prevent the emission of excess pollution, particularly on Air Quality Action Days

Action 6:

Facility and Infrastructure Improvements

Improve traffic signal timing or upgrade intersections to relieve auto congestion

Action 7:

Programs and Services

Implement targeted programs to encourage residents to transition to cleaner products

Action 8:

Programs and Services

Create or enhance forestry programs aimed at increasing the jurisdiction's tree canopy through active planting, care, and management



NATURAL SYSTEMS

NS-5: Water in the Environment

20 available points

PURPOSE

Protect and restore the biological, chemical, and hydrological integrity of water in the natural environment

EVALUATION MEASURES

Community Level Outcomes

100% of points available through Outcomes

Outcome 1: Watershed Health Index

10 Points

Option A: Demonstrate a local Watershed Health Index of greater than or equal to 70

--OR--

Option B: Demonstrate that the amount of water withdrawn from the system for human uses does not exceed the amount of freshwater entering the system through precipitation, river flow, and other sources

Outcome 2: Watershed Vulnerability Index

5 Points

Demonstrate a local Watershed Vulnerability Index of less than 70

Outcome 3: Watershed Usability

5 Points

Option A: Demonstrate that all non-industrial water bodies are swimmable and fishable during 90% of days in the past year

--OR--

Option B: Demonstrate a steady reduction in water closures of at least 2% annually towards achieving 90% of days being swimmable and fishable [Partial credit applies]

Local Actions

70% of points available through Actions

Action 1:

Inventory, Assessment or Survey

Conduct a watershed health and vulnerability assessment of local waterways



Action 2:

Plan Development

Adopt a watershed management plan that integrates natural water bodies with human water use and addresses inputs and outputs of the water systems

Action 3:

Policy and Code Adjustment

Adopt community regulations that protect water quality OR participate in a regional pollutant trading program that reduces watershed pollution levels

Action 4:

Partnerships and Collaboration

Create partnerships to address sources of ambient water pollution not covered by local authority or control

Action 5:

Education and Outreach

Create an education campaign about ambient water quality, pollution prevention, mitigation, and restoration techniques

Action 6:

Enforcement and Incentives

Provide incentives to residents and developers to protect and restore critical watershed protection areas

Action 7:

Facility and Infrastructure Improvements

Engage in restoring and maintaining critical water bodies and the buffer zones that protect those water bodies

Action 8:

Programs and Services

Routinely inventory and monitor natural water bodies for biological, chemical, and hydrological integrity



NATURAL SYSTEMS

NS-6: Working Lands

15 available points

PURPOSE

Conserve and sustainably manage lands that provide ecosystem services and raw materials

EVALUATION MEASURES

Community Level Outcomes

70% of points available through Outcomes

Outcome 1: Protection

4.1 Points

Option A: Demonstrate an increase in the acreage of working lands in the jurisdiction

--OR--

Option B: Demonstrate no net loss of working lands within 5 miles of the jurisdictional boundaries

Outcome 2: Production

3.2 Points

Option A: Demonstrate an increase over the past 3 years in the production of goods from local working lands

--OR--

Option B: Demonstrate an increase over the past 3 years in sales from goods produced on local working lands

Outcome 3: Certified Management Practices

3.2 Points

Increase the percentage of working lands that use certified management practices for a locally selected industry over time

Local Actions

70% of points available through Actions

Action 1:

Inventory, Assessment, or Survey

Conduct an assessment or inventory of the community's working lands



Action 2:

Plan Development

Include considerations for working lands in the community's land conservation or natural resource plan

Action 3:

Policy and Code Adjustment

Adopt zoning and development regulations that allow for the production and sale of urban agriculture goods

Action 4:

Policy and Code Adjustment

Adopt land use strategies or development regulations that protect or expand local working lands

Action 5:

Education and Outreach

Educate future and current owners and operators of working lands about working lands preservation efforts, certification programs, and best management practices

Action 6:

Education and Outreach

Promote the value of products produced on local working lands to the public

Action 7:

Enforcement and Incentives

Implement financing strategies to conserve working lands and support ongoing conservation efforts

Action 8:

Programs and Services

Provide conservation programs and services tailored to the needs of the working lands community

Action 9:

Programs and Services

Provide support services or programs for future operators and owners of working lands



Action 10:

Programs and Services

Encourage owners of working lands to conserve their properties in perpetuity