

Land Use and Green Infrastructure Scorecard

Low Impact Development Strategies to Protect Water Resources



Acknowledgements

US Environmental Protection Agency

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Executive Summary

The Land Use and Green Infrastructure Scorecard guides municipalities through a review of local plans, policies, and municipal practices to illuminate opportunities to better protect water resources. The goal of the scorecard is to help municipalities protect water resources while maximizing the additional community benefits available through green infrastructure, including flood mitigation, public health, and climate resilience.

Natural resources and green infrastructure, such as natural or engineered wetlands, living shorelines, and urban forests, provide many community benefits, including clean drinking water, flood protection, food production, and recreation. Healthy watersheds foster vibrant economies, support healthy people and places, and buffer against the impacts of drought, flooding, and extreme weather events. The value of these ecosystem services is becoming more evident as communities face a range of climate change impacts.

Local government staff can use the Scorecard to improve their understanding of how local plans, policies, and practices impact water resources and ecosystem services. The Scorecard cuts across multiple departments and scales within a jurisdiction (municipal, neighborhood, and site), to ensure that these plans, policies, and practices work together to protect water resources.

This Scorecard is an update to the previously named Water Quality Scorecard, which was developed in 2009 to help local governments remove barriers and revise or create codes, ordinances, and incentives for better water quality protection. This updated Scorecard builds on the original tool by adding more information about community engagement and equity, climate change, and the broad benefits of green infrastructure.



Children learn about the importance of aquatic ecology during science class.

Background

Growth and development expand communities' opportunities by bringing in new residents, businesses, and investments. Growth can give a community the resources to revitalize a downtown, refurbish a main street, build new schools, and develop vibrant places to live, work, shop, and play. The environmental impacts of development can, however, make it more difficult for communities to protect their natural resources, if those impacts are not comprehensively studied and planned. The U.S. Census Bureau projects that the U.S. population will reach 400 million people by about 2040, which will add continued development pressure on growing communities and the surrounding environment. The IPCC (United Nations Intergovernmental Panel on Climate Change) predicts that climate migration will occur primarily within countries, rather than across borders, intensifying growth pressures on more climatically stable regions of the country. As socioeconomically advantaged areas are generally more resilient to the effects of climate change, internal climate migrants are

more likely to be former residents of areas subjected to historical disinvestment, and to have departed those regions due to catastrophic loss. Many communities are questioning where and how they can accommodate population growth while maintaining and improving their water resources.

Meaningful community engagement from the early stages of plan and policy development through implementation can make your community's water resource protection efforts stronger, more effective, and longer lasting. Partnerships across the community will prove vital to this effort. Best practices for building partnerships include:

- Embrace a collaborative and cooperative mindset
- Start small
- Take the long view
- Be authentic
- Make cross-cultural communication a critical tenet of community partnerships
- Budget for it!¹

Land development directly affects watershed functions. When development occurs in previously undeveloped areas, the resulting alterations to the land can dramatically change how water is transported and stored. Development creates impervious surfaces and compacted soils that filter less water, which increases surface runoff and decreases groundwater infiltration. These changes can increase the transport of pollutants, the volume and velocity of runoff, the frequency and severity of flooding, and peak storm flows. In areas with combined sewers, higher runoff rates and volumes can lead to an increase in the frequency and severity of combined sewer overflows and associated water quality and public health impacts.



Volunteers help plant dune grasses for a living shoreline restoration project.

Many communities are already struggling with degraded water bodies and failing infrastructure. For example, EPA's National Water Quality Inventory: 2017 Report to Congress² reported that in the U.S., 46% of total river and stream miles were in poor biological condition, and EPA's 2022 National Lakes Assessment found that nearly half of lakes were in poor condition.³

Climate Change Adaptation means taking action to prepare for and adjust to both the current and projected impacts of climate change. Green infrastructure can help communities to adapt and protect their water resources because it uses the flexible mechanisms of nature to respond to anticipated climate changes such as drought, intense precipitation, heat, and sea level rise.⁴

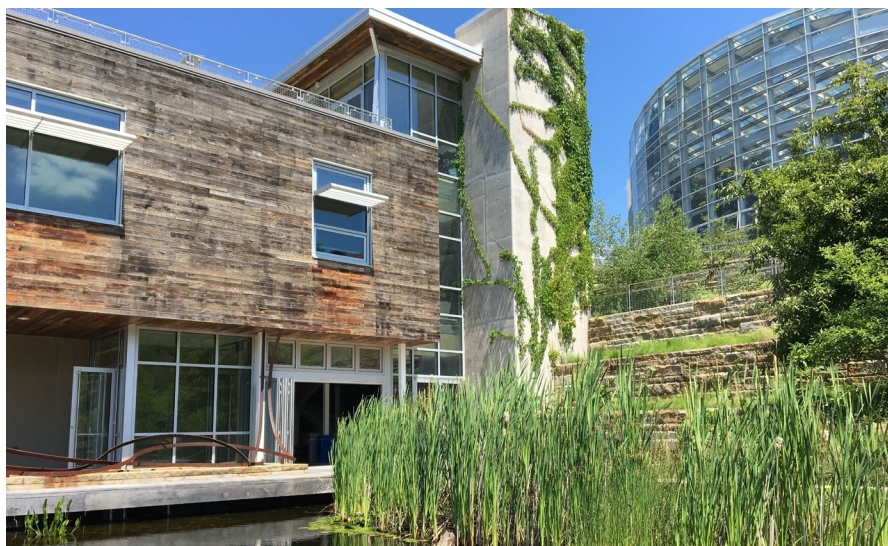
¹ <https://www.epa.gov/smartgrowth/regional-resilience-toolkit>

² U.S. EPA National Water Quality Inventory: 2017 Report to Congress. https://www.epa.gov/sites/default/files/2017-12/documents/305brtc_finalowow_08302017.pdf

³ U.S. EPA National Lakes Assessment: The Third Collaborative Survey of Lakes in the United States, 2022: <https://nationallakesassessment.epa.gov/webreport>

⁴ <https://www.epa.gov/climate-adaptation/climate-adaptation-and-epas-role>

These water quality impairments exist, in part, because stormwater management historically focused on moving stormwater quickly away from built up areas and into nearby waterways to prevent flooding. Pipes were often the preferred solution. Now, many communities recognize stormwater as a valuable resource and are focused on using green infrastructure methods that mimic nature by slowing, storing, infiltrating, and evapotranspiring stormwater flows.



This building—featuring a water-capture wetland—generates its own energy and treats all stormwater and sanitary water captured on-site.

Municipalities are incorporating green infrastructure as a solution to the many and increasing water-related challenges facing communities, including flooding, combined sewer overflows, stormwater pollution, Federal Clean Water Act and state regulatory

requirements, and basic asset management of publicly owned water, wastewater, and stormwater treatment systems. In essence, green infrastructure uses nature as a guide. As in natural systems, the ecosystem services that green infrastructure provides work at multiple scales: regional, municipal, neighborhood, and site.

What's in a name? Are they all the same?

The concept of using nature's systems in our land development patterns is often described using different terms, sometimes even by different agencies within the federal government.

Green infrastructure is the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface water.⁶

Green stormwater infrastructure is another term sometimes used for green infrastructure by the stormwater management design community.

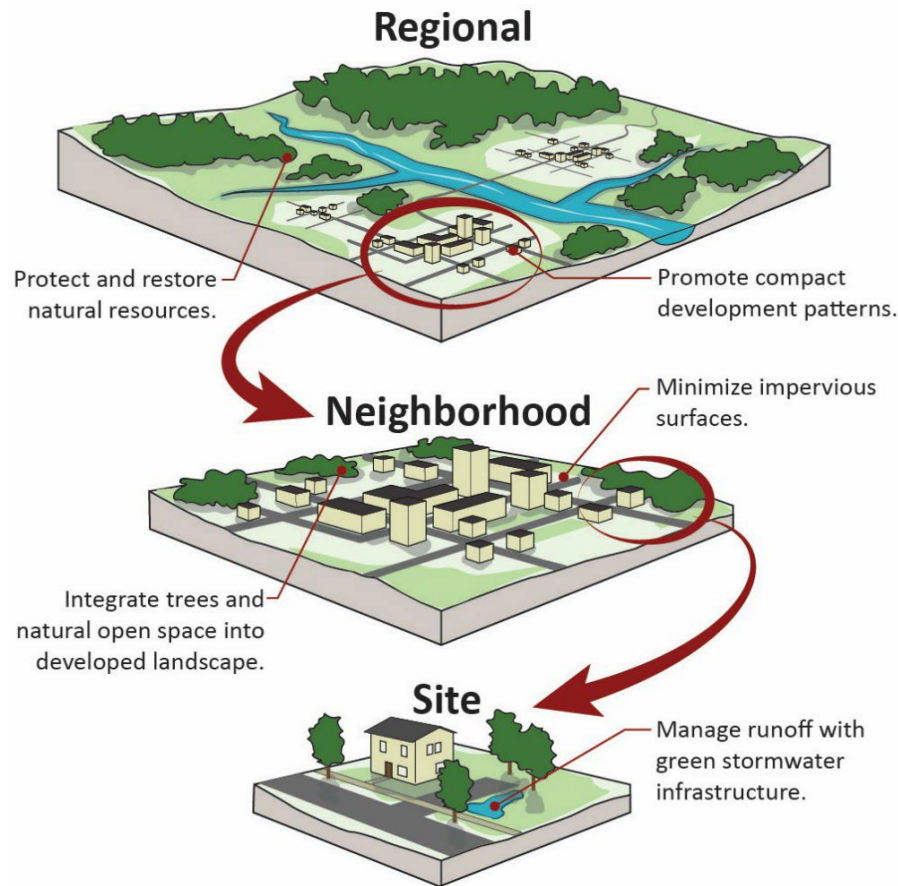
Low impact development is an approach to site design that strives to limit the amount of impervious area, preserve and create connected natural spaces, and use green infrastructure throughout to limit the overall functional impact to the natural landscape.⁶

Nature-based solutions are sustainable planning, design, environmental management and engineering practices that weave natural features or processes into the built environment to promote adaptation and resilience. These solutions use natural features and processes to combat climate change, reduce flood risk, improve water quality, protect coastal property, restore and protect wetlands, stabilize shorelines, reduce urban heat, add recreational space, and more.⁷

⁵ 33 U.S.C. § 1362(27)

⁶ <https://www.epa.gov/nps/urban-runoff-low-impact-development>

⁷ <https://www.fema.gov/emergency-managers/risk-management/nature-based-solutions>



Regional-scale green infrastructure practices focus on conservation and restoration of forests, floodplains, wetlands, shorelines, and other natural resources. Preserving and restoring natural landscape features (such as forests, floodplains, and wetlands) are critical components of green infrastructure. By choosing not to develop on and thereby protecting these ecologically sensitive areas, communities can improve water quality while providing wildlife habitat and opportunities for outdoor recreation. Preserving large-scale watershed functionality maintains floodplain capacity that can prevent untold flood damage to people and property.

At the municipal and neighborhood scales, green infrastructure incorporates land-use planning and design approaches such as compact, mixed-use development, right-sized streets, parking reductions strategies, interconnected open space, and urban tree canopy. These approaches aim to reduce impervious surfaces, better integrate the natural and built environment, and create walkable, attractive communities. Adding green infrastructure, especially trees⁸, in heat island areas can significantly lower temperatures, reduce energy use, and improve air quality.

At the site scale, green infrastructure practices protect and restore a site's natural features, hydrology, soil health, and native vegetation. Green infrastructure practices that mimic natural processes include rain gardens, porous pavements, green roofs, infiltration planters, trees and tree boxes, and rainwater harvesting. These practices can also help mitigate drought impacts through water conservation.

⁸ <https://www.epa.gov/heatislands/using-trees-and-vegetation-reduce-heat-islands>

The Land Use and Green Infrastructure Scorecard

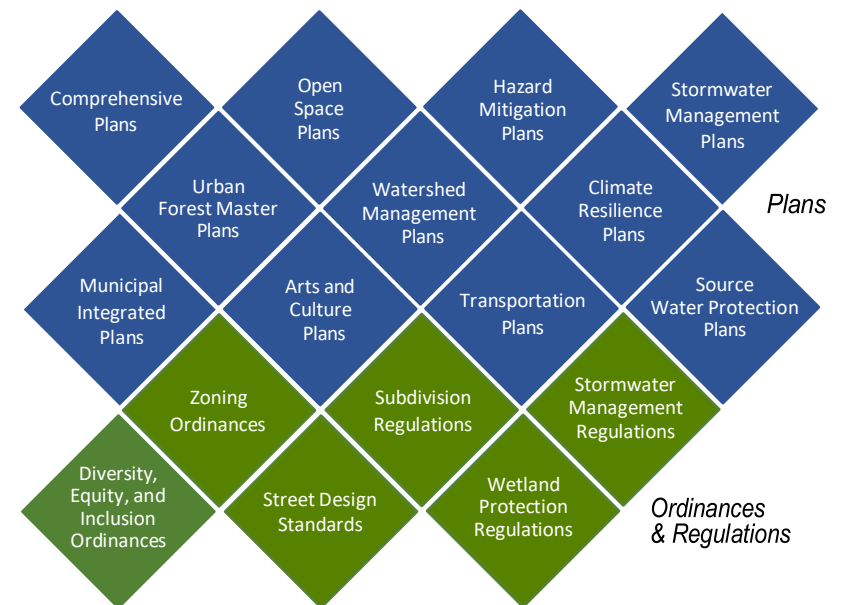
This scorecard is a self-assessment to guide municipalities toward effectively implementing and maintaining green infrastructure practices at the municipal, neighborhood, and site scales, on public and private property. It is intended for local governments of various sizes in rural, suburban, and urban settings, including those in both inland and coastal communities. The scorecard guides local government staff through a review of relevant local plans, ordinances, and regulations to identify barriers to or opportunities for promoting and implementing green infrastructure practices. The goal of the scorecard is to help municipalities use green infrastructure to protect water resources while also maximizing the additional community benefits available through green infrastructure, including flood mitigation, public health, and climate resilience. A fillable Excel version of the scorecard is available at: <https://www.epa.gov/green-infrastructure/land-use-and-green-infrastructure-scorecard>.

How to Use the Scorecard

The scorecard is crafted as a set of questions about how the municipality addresses various aspects of development review, municipal practices, planning, public engagement, and enforcement, all related to the protection of water resources and use of green infrastructure in the community. The set of questions is also, effectively, a set of recommendations or good practices to consider across the municipality and across the municipal government. An initial step in using this tool is to convene appropriate municipal staff who will review sections of the scorecard. While one department or agency could feasibly complete the tool on its own, it is more beneficial and effective if the scorecard responses are informed by an interagency approach. The green infrastructure and water resource protection approaches described in this scorecard fall under the purview of a variety of different local government agencies, and input from those agencies will be helpful. These include:

- Arts and Culture
- Building
- Environmental Protection
- Natural Resources Management
- Parks and Recreation
- Planning
- Public Works
- Transportation
- Utilities

Completing the scorecard requires different documents, plans, codes, and guidance manuals. While the planning and regulatory structure varies among municipalities, the following list contains the most common and relevant documents to complete this scorecard.



Plans:

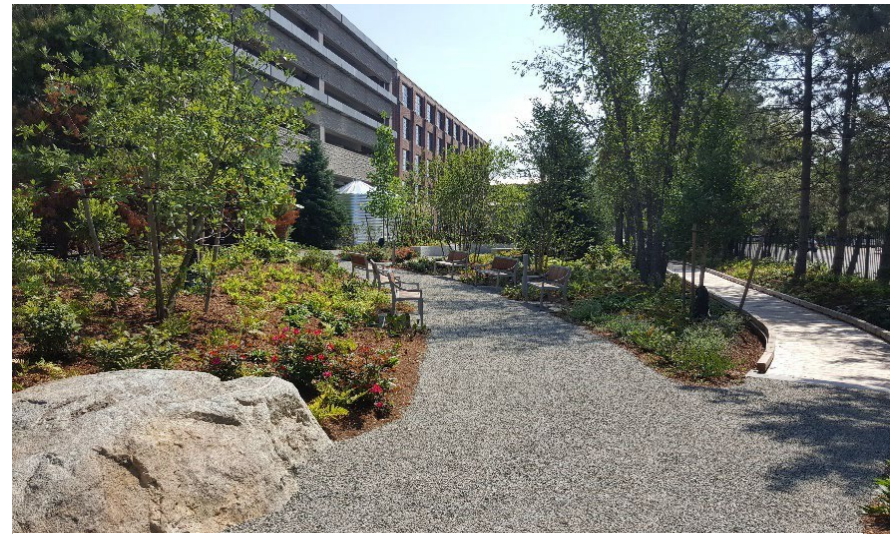
- *Arts and culture plans* sometimes include terminology such as “creative placemaking,” which describes projects in which culturally or regionally specific art plays an intentional and integrated role in place-based community planning and development and can include green infrastructure.
- *Climate resilience plans* and adaptation plans assess a community’s vulnerability to changing climate conditions and prioritize actions to reduce vulnerability and strengthen a community’s capacity to withstand climate-related impacts.
- *Comprehensive plans* or community master plans, which are often required by state law, typically include elements addressing land use, open space, natural resource protection, transportation, economic development, and housing.

- *Hazard mitigation plans* identify natural disaster risks and vulnerabilities and establish long-term strategies for protecting people and property.
- *Municipal integrated plans* are the result of a process that identifies efficiencies across wastewater and stormwater programs to best prioritize capital investments to achieve human health and water quality objectives.
- *Open space plans* or natural resource plans detail land parcels that are or will be set aside for recreation, habitat corridors, or preservation. These plans help communities prioritize their conservation, parks, and recreation goals.
- *Source water protection plans* identify the protection and mitigation measures to address water quality threats and increase water supply resilience within the source water protection area of a public drinking water supply.
- *Stormwater management plans* establish goals and actions to manage stormwater and meet regulatory requirements and community objectives.
- *Transportation plans* establish policies and priorities for traffic management, roadway improvements, bike and pedestrian accommodations, and other transportation modes to meet a community's future mobility and access needs.
- *Urban forest master plans* inventory existing street trees and forests within a community and guide actions and investments to maintain and expand tree canopy.
- *Watershed management plans* establish goals and actions to protect and restore water quality and overall watershed health for degraded and threatened waterbodies.

Ordinances and Regulations:

- *Diversity, equity and inclusion ordinances and policies* are being enacted by many cities and cut across multiple functions of local government including decisions on where and how green infrastructure is implemented.
- *Stormwater management regulations* and ordinances typically establish sediment, erosion control, and pollution prevention requirements for construction activities and performance standards for post-construction (permanent) stormwater management.

- *Street design standards* or road guidelines dictate road width, turning radius, street connectivity, and intersection design requirements.
- *Subdivision regulations* or ordinances specify development elements, including housing footprint, frontage, road widths and configuration, open space, and lot size.
- *Wetland protection regulations* or ordinances establish local standards and procedures for land disturbance and uses within wetland and coastal resource areas and adjacent land areas (floodplains, riparian and coastal buffers).
- *Zoning ordinances* typically include parking requirements, setbacks, height limitations, open space requirements, lot coverage limitations, and natural resource protections.



A pocket park features permeable paths, vegetated swales, and cisterns storing roof runoff from the adjacent parking garage.

Overview

The scorecard provides guidance for implementing a range of regulatory and non-regulatory approaches, including land use planning, land acquisition, and capital investment policies that can help municipal agencies integrate green infrastructure into their programs. Internal agency policies and practices, such as maintenance protocols or plan review processes, can provide incentives or pose as barriers. Each policy or approach is described in the context of its potential for providing multiple community benefits. This tool does not provide model ordinance language. It emphasizes best practices and helps municipalities understand the incremental steps for adopting and/or changing specific plans, policies, and internal agency practices.

The scorecard divides the tools and policies into four categories:

1. Plan and engage
2. Remove barriers
3. Adopt incentives
4. Enact regulations

These categories may help municipal staff prioritize which tools to work on based on local factors like resources, time, and political support. For example, an appropriate first step in the process of updating local regulations may be to remove a barrier rather than enacting a new regulation. Most policy options avoid specific performance guidance so that the tool is useful to a range of municipalities in different contexts. However, information, guidance, and examples of locally appropriate performance measures can be found in many of the resources provided.

To highlight the diversity of green infrastructure approaches, the scorecard is organized in the following five sections:



The Scorecard describes alternative policy or ordinance information that, when implemented, would support a comprehensive green infrastructure approach, and will allow the municipality to determine where, in the broad spectrum of policy implementation, their policies fall.

A Note About the Point System

The Scorecard includes a point system to make it easier to evaluate and improve local programs. Answering “Yes” on a Scorecard question earns a municipality the number of points indicated under the “Points Available” column.

The municipality can decide whether or not to use the point system. If the point system is used, municipalities can set locally appropriate thresholds and goals. Governments could choose to use the point system in many ways, including:

- State governments could require municipalities to complete the Land Use and Green Infrastructure Scorecard and establish measures for improvement over different permit cycles. For example, a municipality might have to improve its score by some number of points before the next permit cycle.
- Local governments could determine a score based on existing programs and policies and then set goals from this baseline. Local targets may include incremental yearly improvements or achieving additional points in a particular section, such as “Encourage Efficient Parking Supply” or “Protect Natural Resources and Open Space.”
- Stakeholders such as watershed groups or environmental organizations could complete the scorecard and then provide feedback, information, or assistance to the local government about sections that might be areas for improvement and collaboration.

- The total score or scores in certain sections could educate elected officials, decision makers, and others about the importance of these issues and the role of local policies in addressing them.
- A lack of points in one section may alert a municipality that a certain area, such as parking, lacks local ordinances that support green infrastructure and may be ripe for improvement.
- Variation in the number of points achieved across the five sections may help a municipality to better assess local sources of impervious cover and potential for the introduction of green infrastructure.

Because the scorecard is intended for use by a range of community types and sizes in locations across the country, including states, territories, and Tribal communities, please note that no single community will be able to receive every point. Some questions and points may only be available to urban municipalities while others may only be available to those in a suburban or rural setting.

Getting Started

Below are suggested steps to help complete the Scorecard:



Section 1: Protect and Restore Natural Resources and Open Space

1.A. UPLAND NATURAL RESOURCES

Goal: Protect upland natural resource areas (e.g., forests, hillsides, grasslands) and critical habitat (e.g., conservation corridors, wildlife preserves) from future development and restore natural resources that have been degraded by past development.

Reason: Significant tracts of natural lands and wildlife habitat protect and improve water quality, reduce stormwater runoff and flooding, prevent erosion, recharge groundwater systems, support wildlife, mitigate urban heat island effects, reduce risk to property and infrastructure, and provide other community benefits.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Does the comprehensive plan contain a natural resource protection element with goals calling for preservation and restoration of natural resource areas?	1		
Do the comprehensive plan and/or neighborhood plans establish areas that are preferred for development and areas that are a priority for agriculture and/or conservation?	1		
Do the following plans identify specific actions for conserving and restoring priority natural resource areas?			
Open space and recreation/parks plan	1		
Drinking water or groundwater protection plan	1		
Climate adaption/resilience plan	1		
Hazard mitigation plan	1		
Neighborhood and community master plans	1		
Does your community assist landowners in identifying sensitive natural areas and laying out developments to avoid impacting such areas?	1		
Does your community provide an online GIS map viewer and printable maps that identify natural resources and sensitive areas (e.g., steep slopes, forests, waterbodies, wetlands, drinking water sources, aquifer recharge zones, riparian buffers, flood-prone areas (current and projected future), coastal shoreline features) within your community?	1		
Does your community actively support volunteer natural-resource stewardship activities, such as trash cleanup, tree planting, and invasive species removal, equally across neighborhoods?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
Did your community consider equity and environmental justice ^{9, 10} as part of natural-resource protection and restoration planning?	2		
REMOVE BARRIERS			
Does the zoning ordinance allow for crediting of sensitive natural areas and wildlife habitat, beyond those areas in which development is prohibited, toward local open space dedication and set-aside requirements?	1		
Does your community provide financial support to and/or collaborate with land trusts and landowners on land acquisition and conservation easements?	1		
Has your community established a dedicated source of funding for open space acquisition and management (e.g., bond proceeds, sales tax), and a plan for socioeconomically disadvantaged neighborhoods less likely to raise sufficient revenue?	2		
ADOPT INCENTIVES			
Has your community adopted a transfer-of-development-rights program to provide an incentive for landowners to preserve sensitive natural lands and wildlife habitat?	1		
Do zoning ordinances or subdivision regulations allow or even require the creation of cluster and conservation subdivisions to encourage preservation of intact blocks of sensitive natural areas?	1		
Does the zoning ordinance or other land use regulation provide a density bonus for the protection of additional natural open space within a development?	1		
ENACT REGULATIONS			
Does the zoning ordinance require protection of steep slopes, hillsides, and other sensitive natural lands (e.g., by limiting development on slopes > 15% or requiring larger lot sizes in sensitive areas)?	2		
Does the zoning ordinance include wildlife habitat protection provisions aimed at preserving large contiguous blocks of habitat areas?	1		
Does the zoning ordinance include natural resource zoning districts (e.g., minimum lot size of 80 acres and larger) to preserve large natural areas and forests?	1		
1.A. Upland Natural Resources - Subtotal	23		

⁹ <https://www.epa.gov/environmentaljustice/equitable-development-and-environmental-justice>

¹⁰ <https://www.epa.gov/smartgrowth/smart-growth-and-equitable-development>



1.B. WATER RESOURCES AND RIPARIAN BUFFERS

Goal: Protect and restore aquifers, wetlands, floodplains, lakes, rivers, estuaries, and other water resources.

Reason: Water resources provide valuable community benefits, such as drinking and irrigation water supply, food production, natural habitat, and outdoor recreation. Protecting adjacent lands, including riparian and coastal buffers and floodplains, helps to sustain the quality of these water resources. Recharging groundwater, by infiltrating rain and snowmelt through soil, helps to maintain the quantity and quality of aquifers.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Does the comprehensive plan contain a water quality protection element with goals calling for protection of aquifers, wetlands, waterbodies, and other water resource areas?	1		
Does your community collaborate with other communities, regional governments, and other partner organizations on regional approaches to watershed protection and stormwater management, such as development of a watershed management plan?	2		
Does your community install notices (e.g., “Drains to River” stencils) on storm drains to raise public awareness?	1		
Does your community communicate to citizens and businesses about water resource protection in a variety of languages, as appropriate for your community, and through a variety of methods (e.g., social media, signage, art, etc.)?	1		
REMOVE BARRIERS			
Has your community established a dedicated funding source to purchase and protect existing and future drinking water source watersheds and aquifer recharge areas?	2		
ADOPT INCENTIVES			
Does the zoning ordinance allow for crediting of riparian and coastal buffer areas, beyond those areas for which development is prohibited, toward local open space dedication/set-aside requirements?	1		
Does the zoning ordinance allow for additional open space credit or density bonus as an incentive for restoration of degraded riparian or wetland areas, such as stream daylighting, bank stabilization, and invasive species management?	1		
Does your community incentivize partnerships between agencies or outside organizations to combine restoration or daylighting projects with cost stabilization efforts in surrounding housing, to mitigate effects of speculation-related displacement of residents as a result of beautification?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
Has your community established mechanisms for the transfer of density from protected riparian buffers to upland portions of development sites?	1		
Does the zoning ordinance allow for additional open space credit or density bonus as an incentive for protection of drinking water source areas?	1		
ENACT REGULATIONS			
Do local regulations require that riparian and coastal buffer areas be retained in natural, undisturbed conditions, with buffer widths established as: <ul style="list-style-type: none"> • Buffer is at least 50 feet? = 1 point • Buffer is at least 100 feet? = 2 points • Buffer is greater than 100 feet? = 3 points 	3		
Does the zoning ordinance prohibit water resource areas from being counted in calculating allowable density on a site (e.g., on a 200-acre site with 50 acres of wetlands, only 150 acres can be used to calculate density under zoning district regulations, and only those 150 acres may be developed)?	1		
Do local regulations for development and activities within well-head protection areas restrict activities that are incompatible with protecting groundwater quality?	1		
Do local regulations prohibit encroachment in floodplains or require applicants to demonstrate no adverse impacts upstream and downstream?	2		
Do local regulations require restoration of degraded riparian/wetland areas on a development site?	1		
Do local regulations require compensation for damage to riparian/wetland areas on a minimum 2:1 basis on-site or within the same subwatershed?	1		
1.B. Water Resources and Riparian Buffers - Subtotal	21		



1.C. MULTI-FUNCTIONAL OPEN SPACE

Goal: Create a network of open spaces that provides multiple functions, such as recreation, flood mitigation, cooling, habitat, and stormwater management.

Reason: In addition to providing community amenities, an open space network can provide land areas that soak up rain and snowmelt, hold flood waters, and cool ambient temperatures.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Has your community adopted a community-wide open space and recreation plan to guide investments in public parks, trails, and greenways?	1		
Does the comprehensive plan contain an open space/parks element that recognizes the role of open space in providing community benefits beyond recreation, such as stormwater management, climate resilience, public health, ecological services, and environmental justice?	1		
Does the comprehensive plan advance equitable green development by including policies that link green development with housing justice and/or anti-displacement policies?	1		
Were local community groups actively involved with the planning process for site location and amenities provided to local residents and businesses?	1		
REMOVE BARRIERS			
Does your community allow and encourage retrofits of abandoned or underutilized public lands to serve as permanent or temporary open space and green infrastructure sites, as prioritized in collaboration with neighborhood stakeholders?	1		
ADOPT INCENTIVES			
Does the zoning ordinance allow for additional open space credits for green stormwater management facilities that are designed for public recreational purposes?	1		
Does the zoning ordinance allow for density and/or building height bonuses for projects that provide more open space area than the minimum required?	1		
Has your community adopted an open space impact fee to create a funding source dedicated to land acquisition and creation and management of open space with nature-based recreation (e.g., walking trails)?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
ENACT REGULATIONS			
Does the zoning ordinance require open space dedication and/or set aside based on the demand generated by the development? As a baseline, use the average open space requirements adopted by the National Recreation and Park Assn. (e.g., 10 acres of community and neighborhood parks for every 1,000 persons in a development or fraction thereof).	1		
Does the zoning ordinance require creation of large contiguous areas of open space rather than small, isolated pockets of open space, where feasible?	1		
Does the zoning ordinance require a portion of open space to be preserved in or restored to a natural condition (e.g., forested rather than mowed lawn)?	1		
Does the zoning ordinance require property owners to provide long-term maintenance (e.g., trash pickup, trail maintenance, invasive species management) of open space on private property?	1		
Does the zoning ordinance require deed covenants or easements to restrict future development and incompatible uses of dedicated open space?	1		
1.C. Multi-Functional Open Space - Subtotal	13		

1.D. STREET TREES AND URBAN FOREST CANOPY

Goal: Plant, protect, and maintain trees on public and private property.

Reason: Mature trees provide multiple environmental, economic, and community benefits, including improved water and air quality, reduced heat island effects, lower energy costs, and improved community aesthetics.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Has your municipality completed an inventory of existing trees on public lands and street rights-of-way to inform public tree planting, adoption, and maintenance programs?	1		
Has your municipality published a list of preferred tree species for street trees, based on habitat value (e.g., native species), hardiness, resilience to a changing climate, and known performance for managing stormwater runoff?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
Does your municipality conduct education and outreach about tree protection, proper maintenance, and replanting opportunities through printed and online materials, workshops, events, and signage, all made available in languages fluently spoken in the community?	1		
Has your municipality adopted a policy to protect existing trees on developed municipal sites (e.g., municipal parking lots, municipal buildings)?	1		
Does your municipality have an active tree maintenance program for public trees, including pest control, pruning, watering, and similar measures?	1		
Has your municipality developed an urban forest resilience master plan to guide public investments in maintaining and growing the community's tree canopy coverage?	1		
Does your municipality conduct educational sessions for builders and developers regarding appropriate tree protection techniques and/or publish a technical tree protection manual?	1		
Do capital improvement plans include tree planting as part of project budgets?	1		
Does your municipality provide support (financial, technical, communications, etc.) to local non-profits that plant trees and provide educational services, and incentivize these non-profits to distribute efforts and resources equitably across the municipality?	1		
REMOVE BARRIERS			
Does your municipality coordinate with utility providers on locating public utilities to provide enough space for mature tree canopy and root development?	1		
Does your municipality provide free or reduced-price trees to homeowners, and if so, publicize this information in accessible language and formats?	1		
Has your municipality established a tree fund to receive in-lieu payments when trees must be removed from a development site to accommodate permitted projects?	1		
ADOPT INCENTIVES			
Do local stormwater management regulations allow trees of a specified minimum size to count toward a percentage of stormwater management requirements (e.g., partial credit given for each mature tree exceeding a specified height or canopy size)?	1		
Does the zoning ordinance allow trees over a specified minimum size (e.g., 3-inch caliper) protected during development to be credited towards landscaping requirements?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
Does the zoning ordinance offer incentives, such as reduced setbacks or increased building densities, in exchange for additional tree preservation beyond ordinance requirements?	1		
ENACT REGULATIONS			
Do local regulations require developers to replace public trees removed or damaged during construction with an equal or greater total diameter at breast height, or to pay a fee sufficient for replacing the tree?	1		
Do local regulations require construction protection for all public trees (e.g., fencing, no storage of hazardous materials, avoid cutting into root zones and compacting soil within canopy perimeter)?	1		
Do local regulations require permits before removing trees on proposed development sites, and establish enforcement actions for permit violations?	1		
Do local regulations set minimum tree preservation and planting standards for development projects?	1		
Do local regulations require site plans or stormwater plans to include tree preservation?	1		
Do local regulations require all planted trees to be selected from a list of approved tree species or to meet certain criteria for habitat value (e.g., native species), hardiness, resilience to a changing climate, and known performance for managing stormwater runoff?	1		
1.D. Street Trees and Urban Forest Canopy - Subtotal	21		



Section 2. Promote Efficient, Compact Development Patterns

2.A. INFILL AND REDEVELOPMENT

Goal: Minimize creation of impervious cover and impacts on natural resources by directing development to preferred infill and redevelopment areas.

Reason: Redeveloping and improving degraded developed sites, such as abandoned shopping centers and big box retail sites, underperforming town or village centers, or unnecessary and underutilized parking lots, before developing greenfield (previously undeveloped) sites can dramatically reduce total impervious area while allowing communities to experience the benefits and opportunities associated with growth.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Do the local comprehensive plan and/or neighborhood plans identify abandoned or underutilized properties as preferred sites for which the municipality will support redevelopment, in collaboration with neighborhood stakeholders?	1		
Do capital improvement plans include infrastructure improvements (water, sewer, road, sidewalk, etc.) for preferred redevelopment sites or areas?	1		
Do local plans recommend or establish urban growth areas and boundaries, within which development is encouraged?	1		
Has your municipality analyzed and identified areas that are appropriate for higher density development based on existing infrastructure capacity, cost of providing new services, climate resilience, and access?	1		
Do capital improvement plans for public infrastructure target funding inside the urban growth boundary, with prioritization of underserved areas?	1		
REMOVE BARRIERS			
Has your municipality established a brownfields program to remove uncertainty regarding site cleanup and liability issues?	1		
Are local development standards addressing landscaping, buffers, parking, and open space tailored for infill areas to avoid creating unnecessary hurdles?	1		
Does the zoning ordinance allow accessory dwelling units within targeted infill areas?	1		
Do stormwater management regulations allow for off-site stormwater management ¹¹ or payment-in-lieu for stormwater management requirements that cannot be met on preferred infill and redevelopment sites?	1		

¹¹ <https://www.epa.gov/npdes/alternative-site-stormwater-management>



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
Has your municipality established tax increment financing (TIF) districts to encourage redevelopment?	1		
Has your municipality adopted funding mechanisms for remediating/redeveloping contaminated sites?	1		
ADOPT INCENTIVES			
Does the zoning ordinance provide incentives such as increased density and increased allowable height for preferred infill and redevelopment sites?	1		
Does your municipality allow for accelerated/streamlined permitting procedures to facilitate infill and brownfield redevelopment plan review?	1		
Does your municipality reduce impact fees for infill development based on the lower demand for new infrastructure?	1		
ENACT REGULATIONS			
In local codes, ordinances, and policies, does your municipality differentiate between greenfield and infill development?	1		
Do local zoning and land development regulations restrict development outside the urban growth boundary?	1		
Does the zoning ordinance include large-lot/agricultural zoning (e.g., 1 unit/160 acres) on the urbanized-area fringe to restrict greenfield development?	1		
2.A. Infill and Redevelopment - Subtotal	17		

2.B. MIXED-USE DEVELOPMENT

Goal: Encourage mixed-use and transit-oriented development.

Reason: Mixed-use and transit-oriented development allow for the co-locating of different land uses and reduces reliance on personal vehicles, which decreases impervious surfaces associated with roads and parking.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Are local capital improvement plans and funding targeted to areas appropriate for mixed-use development and/or historically underinvested?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
Does the comprehensive plan identify appropriate areas for higher-density mixed-use developments (e.g., at transit stops) and recommend policies to encourage their development?	1		
REMOVE BARRIERS			
Does the zoning ordinance include mixed-use and transit-oriented development districts or overlays?	1		
ADOPT INCENTIVES			
Does the zoning ordinance institute maximum parking requirements or, at a minimum, allow for reduced minimum parking spaces within mixed-use and transit-oriented districts to reflect decreased automobile use?	1		
Does the zoning ordinance allow adjacent on-street parking to count toward local parking requirements within mixed-use and transit-oriented districts?	1		
Do local regulations encourage shared parking and alternative parking arrangements within mixed-use and transit-oriented districts?	1		
Does the zoning ordinance allow for increased densities and building height within mixed-use and transit-oriented districts?	1		
Does the zoning ordinance allow for accessory parking structures within mixed-use and transit-oriented districts to be excluded from maximum floor area ratio (FAR)?	1		
Are there incentives for city departments or park agencies to partner directly with a private or nonprofit developer to develop affordable housing integrated with green infrastructure or open space?	1		
ENACT REGULATIONS			
Does the zoning ordinance require a minimum mix of uses and minimum density in designated mixed-use and transit-oriented development areas?	1		
Does the zoning ordinance restrict or prohibit auto-oriented uses and drive-throughs in mixed-use and transit-oriented development areas?	1		
2.B. Mixed-Use Developments - Subtotal	11		



Section 3. Design Green Streets

3.A. STREET WIDTHS

Goal: Reduce impervious cover by limiting street width.

Reason: The width of travel lanes, parking lanes and sidewalks should be tailored to the existing and anticipated setting. Where appropriate, narrowing travel lane width to 10-11 feet, rather than the standard 12-13 feet, can significantly reduce the total amount of impervious surfaces. Such streets can also substantially improve conditions for walking, biking, and using transit, which reduces automobile use and overall demand for parking spaces.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Does the local transportation plan emphasize walking, biking, and transit to reduce vehicle miles traveled and width and prominence of roads/streets?	1		
Does the local transportation plan call for distributing traffic across several parallel streets, reducing the need for high-capacity streets with wide rights-of-way?	1		
In the process of developing the transportation plan, did your municipality engage with emergency response, other local government departments (e.g., public works, utilities), transit agencies, and community members representing a majority of neighborhoods, to discuss street design?	1		
Is your transportation plan equitable in considering streets in lower income areas as candidates for narrowing?	1		
REMOVE BARRIERS			
Does the comprehensive plan endorse street design with narrower streets in appropriate locations?	1		
Does your municipality have agreements with state and county transportation departments to allow different design standards for regional roads passing through downtowns or other key areas?	1		
ADOPT INCENTIVES			
Does the zoning ordinance allow developments with approved comprehensive mobility/transportation plans to build narrower, less costly streets and alleys?	1		
ENACT REGULATIONS			
Do local regulations allow or require street design with narrower travel lanes, without curb and gutter, etc., in appropriate circumstances?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
Does your local development review process involve emergency response (e.g., fire chief) early on to reach consensus on appropriate project street design and access?	1		
3.A. Street Widths - Subtotal	9		

3.B. GREEN STREETS STORMWATER MANAGEMENT

Goal: Integrate green infrastructure into standard roadway design, construction, reconstruction, and retrofit.

Reason: Green infrastructure is most effective when employed throughout a village, neighborhood, district, or community. Green infrastructure understanding, maintenance, and benefits are all enhanced by consistent implementation.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Does the local transportation plan promote green infrastructure practices in street design?	1		
Has your municipality adopted a policy to evaluate opportunities for green infrastructure retrofits on public roadway and streetscape improvement projects?	1		
Did your community consider equity and environmental justice ^{9, 10} as part of green infrastructure planning?	1		
REMOVE BARRIERS			
Do municipal street design standards allow integration of green infrastructure elements into street project construction?	1		
Do municipal street design standards allow street-side swales to replace conventional curb and gutter for managing stormwater and for separating sidewalks from street traffic in appropriate circumstances?	1		
Does your municipality pursue state and federal funds (e.g., transportation enhancements) to pay for green infrastructure elements?	1		
Do municipal street design standards allow pervious paving materials in appropriate circumstances?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
Does your municipality own equipment and/or have long-term contracts for maintenance of green infrastructure, such as vacuum sweepers for porous asphalt?	1		
Does your municipality participate in and/or support job training programs to train and employ personnel for green infrastructure installation and maintenance?	1		
ADOPT INCENTIVES			
Has your municipality established a formal program offering incentives (e.g., cost sharing, reduction in street widths/parking requirements, assistance with maintenance) to property owners who utilize pervious pavement elements?	1		
ENACT REGULATIONS			
Do municipal street design standards require a minimum surface area and volume of soil for healthy tree development?	1		
Do municipal street design standards encourage the choice of native or locally adapted tree species that are long-lived, resilient to extreme weather, and appropriately sized at maturity?	1		
Do municipal street design standards require permeable paving for sidewalks and other surfaces to reduce stormwater runoff and allow street trees to benefit from the available water?	1		
Has your municipality adopted green infrastructure retrofit standards for major street projects?	1		
Has your municipality adopted technical specifications and design templates for green infrastructure in private and public rights-of-way?	1		
3.B. Green Streets Stormwater Management - Subtotal	15		



Section 4. Encourage Efficient Parking

4.A. PARKING SPACE REQUIREMENTS

Goal: Match parking requirements to the level of demand and allow flexible arrangements to meet parking standards.

Reason: Inflexible parking requirements that do not allow for alternative approaches, as well as standards that require too much parking for specific uses, unnecessarily increase the amount of impervious surface in a development.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Does the comprehensive plan recognize the advantages to reduced parking requirements generally and specifically for mixed-use and transit-oriented developments?	1		
Does the comprehensive plan recommend alternative, flexible approaches to meeting parking demands (e.g., shared parking, counting on-street spaces towards site parking requirements)?	1		
Do the comprehensive/multi-modal transportation plans recommend provision of bicycle parking spaces/storage lockers and concomitant reduction in vehicle parking space requirements?	1		
REMOVE BARRIERS			
Does the zoning ordinance allow flexibility in meeting parking space requirements through shared parking, off-site parking, and similar approaches?	1		
Does the zoning ordinance allow businesses with different peak demand periods to share their required parking spaces?	1		
ADOPT INCENTIVES			
Does the zoning ordinance allow reduction in vehicle parking spaces through the provision of a minimum number of bicycle parking spaces?	1		
Does the zoning ordinance allow developers to undertake parking studies to establish that specific developments (e.g., senior housing, proximity to public transit) require fewer parking spaces than typical projects?	1		
Has your municipality established parking districts to finance/construct centralized parking lots/ structures as shared parking facilities to reduce on-site parking?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
ENACT REGULATIONS			
Does the zoning ordinance specify a maximum number of allowed parking spaces instead of a minimum?	1		
If the zoning ordinance establishes minimum required parking spaces, are those requirements based on analysis of local developments and actual parking demand/experience?	1		
Does your municipality impose an impact fee on developers for every space beyond parking minimums to offset environmental impacts?	1		
Does the zoning ordinance allow credit for adjacent on-street parking?	1		
Does the zoning ordinance specify a lower number of parking spaces in mixed-use, transit-oriented, and pedestrian-oriented districts?	1		
Does the zoning ordinance specify parking space dimensions based on analysis of average vehicle size within the jurisdiction?	1		
Does the zoning ordinance specify reduced drive aisle widths for multi-family developments (where drive aisles can be shared) and commercial developments (where typical drive aisles can be reduced 5–10%)?	1		
4.A. Parking Space Requirements - Subtotal	15		

4.B. DRIVEWAYS

Goal: Encourage alternative forms and decreased dimensions of residential driveways and parking areas to reduce impervious cover.

Reason: Off-street parking and driveways contribute significantly to the impervious areas on a residential lot. Reducing such dimensions can minimize the amount of stormwater runoff from a site.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
REMOVE BARRIERS			
Does the zoning ordinance allow shared driveways and rear-loaded garages to permit overnight parking in driveways and on-street?	1		
Does the zoning ordinance prohibit homeowner covenants forbidding overnight parking in driveways, on-street overnight parking, and shared driveways?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
ADOPT INCENTIVES			
Does the zoning ordinance allow developments with narrow driveways and rear-loaded garages to reduce number of parking spaces for guests?	1		
ENACT REGULATIONS			
Does the zoning ordinance allow and/or require shared driveways for single-family residential developments?	1		
Do local regulations establish a 9-foot minimum width for single-family driveways?	1		
Do local regulations allow two-track driveways?	1		
Does the zoning ordinance encourage or require single-family residential developments to be designed with a minimum percentage of alley-accessible, rear-loading garages?	1		
4.B. Driveways - Subtotal	7	0	

4.C. TRANSPORTATION DEMAND MANAGEMENT ALTERNATIVES

GOAL: Allow developers to use alternative measures such as transportation demand management or in-lieu payments to reduce required parking.

REASON: Incentives such as transit passes, vanpool arrangements, flexible work schedules, market-priced facilities, and separate leasing for spaces in apartments and condominiums have quantifiable impacts on parking demand. Incorporating them into parking requirements creates the opportunity to meet demand with less impervious cover.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Does the local transportation plan recognize transportation demand management as an approach to reducing vehicle miles traveled and parking requirements?	1		
REMOVE BARRIERS			
Does the zoning ordinance allow parking spaces with apartment buildings to be leased separately from the apartment lease?	1		
ADOPT INCENTIVES			
Does the zoning ordinance allow businesses that offer employee transit passes, provide vans for employee commuting, allow flexible working arrangements, or charge market rates for parking to 1) provide fewer parking spaces or 2) pay less into a parking district fund for required parking spaces?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
Does the zoning ordinance allow developers to make in-lieu fee payments for parking, to be utilized by local government/parking authority to provide off-site parking lots/structures?	1		
Does your municipality provide mechanisms for car sharing in transit-oriented development?	1		
ENACT REGULATIONS			
Does your municipality have a parking district and allow/require businesses to support public garages rather than provide their own on-site parking?	1		
Does your municipality require large developments to adopt transportation demand management techniques to lower personal vehicle use and parking demand?	1		
4.C. Transportation Demand Management Alternatives - Subtotal	7		

4.D. PARKING LOT LANDSCAPING

Goal: Require landscaping in parking lots to help reduce runoff and thermal water pollution.

Reason: Landscaping reduces the environmental impact of parking and can provide additional community benefits by providing shade and, if appropriately placed, creating natural barriers between pedestrians and cars.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
REMOVE BARRIERS			
Does the zoning ordinance allow landscaping that provides stormwater management functions (e.g., water quality swales, tree box infiltration systems) to count toward landscaping requirements?	1		
ADOPT INCENTIVES			
Does the zoning ordinance give additional landscaping credit for preservation of large, mature trees within parking lots?	1		
ENACT REGULATIONS			
Does the zoning ordinance require provision of trees, minimum percent of parking lot interior area to be landscaped (e.g., 10%), and minimum sized landscaping areas (e.g., minimum of 25 square feet for island planting areas)?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
Does the zoning ordinance specify the types and sizes of shrubs and trees most appropriate for controlling/reducing stormwater runoff?	1		
Does the zoning ordinance require a minimum area of the parking lot to drain into landscaped areas (i.e., impervious area disconnection)?	1		
4.D. Parking Lot Landscaping - Subtotal	5		



Section 5. Adopt Green Infrastructure Stormwater Management Provisions

5.A. GREEN INFRASTRUCTURE PRACTICES

Goal: Allow a wide variety of green infrastructure practices and approaches and remove impediments to using green infrastructure.

Reason: Green infrastructure approaches are more effective, cost efficient, and resilient/adaptable than conventional stormwater management practices (e.g., centralized detention basins) in many instances, and provide a wealth of additional community benefits not provided by conventional approaches.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Does your municipality share information with the public, such as through social media, billing inserts, or online and printed fact sheets, about ways to implement green infrastructure on their property?	1		
Does your municipality provide information available in languages fluently spoken in the community?	1		
Does your municipality provide and/or support volunteer stewardship opportunities to install and maintain green infrastructure, such as through rain garden workshops?	1		
Does your municipality target green infrastructure workforce development and job training programs toward residents of historically disinvested neighborhoods?	1		
Do your local stormwater management regulations and site plan review regulations encourage/require a pre-application meeting with developers to discuss stormwater management and green infrastructure approaches?	1		
REMOVE BARRIERS			
Do the zoning ordinance and stormwater management regulations encourage and allow property owners to implement green infrastructure practices, such as rain gardens, rain barrels, and permeable pavements?	1		
Has your municipality established a program to provide technical and/or financial assistance to property owners to assist with green infrastructure retrofits on private property?	1		
Does your municipality have mechanisms in place to incentivize landlords and rental agencies to install green infrastructure on rental properties?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
Does your municipality provide on-line and printable maps illustrating environmental conditions (e.g., hydrologic soil group, wetlands, topography, soil contamination) to assist property owners in identifying appropriate green infrastructure retrofits for their site conditions?	1		
Do local development, building, and plumbing codes allow reuse of stormwater for non-potable purposes inside the building?	1		
ADOPT INCENTIVES			
Does your municipality provide incentives for green roofs (e.g., increased floor area ratio bonus, additional building height) to reduce roof runoff?	1		
If your municipality has established a stormwater utility, does the utility provide fee credits to property owners who implement and maintain green infrastructure retrofits on their properties (e.g., installing a rain garden to infiltrate roof runoff)?	1		
ENACT REGULATIONS			
Do the zoning ordinance and subdivision regulations explicitly allow the following green infrastructure facilities?			
Green roofs	1		
Infiltration approaches, such as rain gardens, curb extensions, planter gardens, and other designs where the intent is to capture and manage stormwater using soils and plants	1		
Permeable and porous pavements	1		
Water harvesting devices, such as rain barrels and cisterns	1		
Downspout disconnection	1		
Do local regulations require new development and redevelopment projects to meet a performance standard for managing post-construction stormwater?	1		
Do stormwater management regulations require developers to use green infrastructure practices where site conditions allow, and require developers to provide documentation of site conditions that preclude green infrastructure, if applicable?	1		
Does your municipality protect against potential contamination of groundwater when installing green infrastructure by requiring modifications (e.g., impermeable liners) or avoiding sites that are downstream of areas with high concentrations of stormwater pollutants or on a brownfield site?	1		
5.A. Green Infrastructure Practices - Subtotal	20		



5.B. OFF-SITE STORMWATER MANAGEMENT AND FEE-IN-LIEU PROGRAMS

Goal: Where stormwater management on site is infeasible, allow developers to meet stormwater management requirements through off-site management¹¹ within the same subwatershed or payment of a fee in lieu.

Reason: In some cases, it is impracticable or infeasible to manage and treat stormwater runoff on site. In such instances, alternative means should be provided through financial or implementation contributions to off-site stormwater management facilities (preferably green infrastructure facilities).

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Has your municipality created a priority list of municipal stormwater and green infrastructure projects that could be implemented and/or funded through an off-site management and fee-in-lieu program?	1		
Has your municipality created publicly available GIS mapping of sewershed and subwatersheds, to assist developers in identifying potential locations for off-site projects?	1		
Is your municipality prioritizing neighborhoods and areas that have historically not seen investments in green infrastructure as potential locations for off-site management?	1		
ENACT REGULATIONS			
Do the stormwater management regulations and development codes allow off-site stormwater management within the same subwatershed, and specify the conditions under which projects are eligible to implement off-site management (e.g., preference to use on-site stormwater management as much as possible, documentation of site conditions that preclude on-site stormwater management)?	1		
Has your municipality established a system that allows/requires payment-in-lieu fees for the design, permitting, construction, and maintenance of off-site stormwater management facilities, with fees set sufficiently high as to cover the true cost of implementation and long-term maintenance?	1		
5.B. Off-Site Stormwater Management and Fee-In-Lieu Programs - Subtotal	5		



5.C. LONG-TERM OPERATION AND MAINTENANCE

Goal: Incorporate monitoring, tracking, and maintenance requirements for stormwater management practices into your municipal stormwater ordinance.

Reason: These measures will help ensure that green infrastructure practices remain in proper working condition to provide the performance required by the stormwater ordinance and to assist the municipality in meeting any applicable state and federal water stormwater management and quality regulatory reporting requirements.

Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
PLAN AND ENGAGE			
Has your municipality developed a system, such as GIS mapping and permit database, to monitor and track stormwater management practices deployed at public and private development sites?	1		
Does your municipality provide guidance to property owners on maintenance protocols, such as maintenance checklist and schedule templates?	1		
Has your municipality developed GIS mapping of municipal stormwater infrastructure, including treatment facilities, drainage structures, open conveyances (swales, ditches), pipes, and outfalls?	1		
Has your municipality established an asset management program for municipal stormwater infrastructure?	1		
REMOVE BARRIERS			
Do municipal departments responsible for enforcement of stormwater management regulations have adequate staffing and resources for enforcement of long-term inspection and maintenance requirements?	1		
Have municipal departments responsible for enforcement of stormwater management regulations established workforce development or job training plans targeted toward the local community?	1		
Has your municipality established a self-certification program that allows property owners to attest that they have completed inspection and maintenance of their stormwater management practices?	1		
Has your municipality established a stormwater utility to fund ongoing non-point source pollution control activities and maintenance of municipal stormwater infrastructure?	1		



Implementation Tools and Policies	Points Avail.	Points Earned	Notes and Local References
ENACT REGULATIONS			
Do the stormwater management ordinance/regulations require long-term maintenance of stormwater management practices and transfer of maintenance responsibility in lease and/or deed transfers.	1		
Does the municipality conduct inspections of private permitted stormwater facilities on a rotating 3- to 5-year schedule, inspecting at least 30% of approved facilities annually and prioritizing those properties that pose the highest risk to water quality?	1		
Do the stormwater management ordinance/regulations establish enforcement authority, procedures, and adequate penalties to ensure on-going compliance with stormwater management requirements, including post-construction verification (as-built plans) and long-term operation and maintenance?	1		
5.C. Long-Term Operation and Maintenance - Subtotal	11		



Scoring Summary

Section	Points Available	Points Earned
Section 1: Protect and Resource Natural Resources and Open Space		
1.A. Upland Natural Resources	23	
1.B. Water Resources and Riparian Buffers	21	
1.C. Multi-Functional Open Space	13	
1.D. Street Trees and Urban Forest Canopy	21	
Subtotal	78	
Section 2: Promote Efficient, Compact Development Patterns		
2.A. Infill and Redevelopment	17	
2.B. Mixed-Use Developments	11	
Subtotal	28	
Section 3: Design Green Streets		
3.A. Street Widths	9	
3.B. Green Streets Stormwater Management	15	
Subtotal	24	
Section 4: Encourage Efficient Parking		
4.A. Parking Space Requirements	15	
4.B. Driveways	7	
4.C. Transportation Demand Management Alternatives	7	
4.D. Parking Lot Landscaping	5	
Subtotal	34	
Section 5: Adopt Green Infrastructure Stormwater Management Provisions		
5.A. Green Infrastructure Practices	20	
5.B. Off-Site Stormwater Management and Fee-In-Lieu Programs	5	
5.C. Long-Term Operation and Maintenance	11	
Subtotal	36	
Total Score	200	

Resources

General

- EPA Green Infrastructure: <https://www.epa.gov/green-infrastructure>
- EPA Soak Up the Rain: <https://www.epa.gov/soakuptherain>
- The Code and Ordinance Worksheet 2017 Update, Center for Watershed Protection: <https://www.cwp.org/updated-code-ordinance-worksheet-improving-local-development-regulations/>
- Tools, Strategies, and Lessons Learned from EPA's Green Infrastructure Technical Assistance: https://www.epa.gov/sites/default/files/2016-01/documents/gi_tech_asst_summary_508final010515_3.pdf
- USACE Engineering with Nature: <https://ewn.erdcdren.mil/>

Natural Resources and Open Space

- Advancing Watershed Protection Through Land Conservation: A Guide for Land Trusts, EPA: https://www.epa.gov/system/files/documents/2022-07/Advancing_Watershed_Protection_Through_Land_Conservation_EPA_July_2022.pdf
- Riparian Buffer Protection via Local Government Regulation, We Conserve PA: <https://conservationtools.org/guides/119-riparian-buffer-protection-via-local-government-regulation>
- Urban Forest Systems and Green infrastructure, USDA: https://www.srs.fs.usda.gov/pubs/FS/fs_1146.pdf
- Regional Green Infrastructure at the Landscape Scale, American Planning Association: <https://planning-org-uploaded-media.s3.amazonaws.com/document/Regional-Green-Infrastructure-Landscape-Scale.pdf>
- Resource Guide for Planning, Designing and Implementing Green Infrastructure in Parks, National Recreation and Park Association: <https://www.nrpa.org/siteassets/gupc-resource-guide.pdf>
- Urban Watershed Forestry Manual. Part 3: Urban Tree Planting Guide, Center for Watershed Protection: <https://owl.cwp.org/mdocs-posts/urban-watershed-forestry-manual-part-3/>
- USDA Forest Service Urban and Community Forestry Program: <https://www.fs.usda.gov/managing-land/urban-forests/ucf>
- USDA Forest Service Urban Forests: <https://www.fs.usda.gov/managing-land/urban-forests>

Smart Growth

- EPA Smart Growth: <https://www.epa.gov/smartgrowth>
- Smart Growth America research library: <https://smartgrowthamerica.org/resources/>
- Smart Growth Fixes for Climate Adaptation and Resilience, EPA: https://www.epa.gov/sites/default/files/2017-01/documents/smart_growth_fixes_climate_adaptation_resilience.pdf

Green Streets

- Urban Street Stormwater Guide, National Association of City Transportation Officials: <https://nacto.org/publication/urban-street-stormwater-guide/>
- Green Streets Handbook, EPA: https://www.epa.gov/sites/default/files/2021-04/documents/green_streets_design_manual_feb_2021_web_res_small_508.pdf
- Complete Streets, Federal Highway Administration (FHWA): <https://highways.dot.gov/complete-streets>
- University of California, Davis Road Ecology Center: <https://roadecology.ucdavis.edu/>
- Project for Public Spaces transportation research: <https://www.pps.org/category/streets-transportation>

Parking

- Shared Parking, Third Edition, Urban Land Institute: <https://uli.bookstore.ipgbook.com/shared-parking-products-9780874204278.php>
- Parking Generation Manual, 5th Edition, Institute of Transportation Engineers (2019) <https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>

Green Infrastructure

- Enhancing Sustainable Communities With Green Infrastructure: A Guide to Help Communities Better Manage Stormwater While Achieving Other Environmental, Public Health, Social, and Economic Benefits, EPA: <https://www.epa.gov/smartgrowth/enhancing-sustainable-communities-green-infrastructure>
- EPA's Compendium of MS4 Green Infrastructure Approaches: <https://www.epa.gov/system/files/documents/2022-06/Green%20Infrastructure%20MS4%20Compendium%202022.pdf>
- EPA's National Menu of Best Management Practices for Stormwater-Post-Construction: <https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater-post-construction>
- EPA's Off-site Stormwater Management: <https://www.epa.gov/npdes/alternative-site-stormwater-management>
- Overcoming Barriers to Green Infrastructure, EPA: <https://www.epa.gov/green-infrastructure/overcoming-barriers-green-infrastructure>
- Operation and Maintenance of Green Infrastructure Receiving Runoff from Roads and Parking Lots, EPA: https://www.epa.gov/sites/production/files/2016-11/documents/final_gi_maintenance_508.pdf

Hazard Mitigation and Climate Adaptation

- Manage Flood Risks with Green Infrastructure, EPA: <https://www.epa.gov/green-infrastructure/manage-flood-risk>
- Heat Island Compendium, EPA: <https://www.epa.gov/heatislands/heat-island-compendium>
- Building Community Resilience with Nature-Based Solutions: A Guide for Local Communities, FEMA: https://www.fema.gov/sites/default/files/documents/fema_riskmap-nature-based-solutions-guide_2021.pdf
- Using Nature to Address Flooding, Naturally Resilient Communities: <https://nrcsolutions.org/>
- Storm Smart Cities: Integrating Green Infrastructure into Local Hazard Mitigation Plans, EPA: https://www.epa.gov/sites/default/files/2018-04/documents/storm_smart_cities_508_final_document_3_26_18.pdf

- Get Flood Insurance Discounts with Low Impact Development, Open Space Protection Plans, and Stormwater Management Regulations, EPA: https://www.epa.gov/sites/default/files/2016-04/documents/epa-lid-gi_and_crs_final.pdf
- Promoting Nature-Based Hazard Mitigation through FEMA Mitigation Grants, The Nature Conservancy: <https://www.nature.org/content/dam/tnc/nature/en/documents/Promoting-Nature-Based-Hazard-Mitigation-Through-FEMA-Mitigation-Grants-05-10-2021-LR.pdf>
- Risk Factor Tool, First Street Foundation: <https://riskfactor.com/>
- Climate Change Adaptation Resource Center, ARC-X, EPA: <https://www.epa.gov/arc-x>
- Tree Equity Score, American Forests: <https://treeequityscore.org/>

Equity and Environmental Justice

- EPA Environmental Justice: <https://www.epa.gov/environmentaljustice>
- EPA EJScreen: <https://www.epa.gov/ejscreen>
- EPA Smart Growth and Equitable Development: <https://www.epa.gov/smartgrowth/smart-growth-and-equitable-development>
- Equitable Development and Anti-Displacement Collaborative, Urban Waters Learning Network: <https://urbanwaterslearningnetwork.org/equitable-development-and-anti-displacement-collaborative/>
- Greening in Place: Protecting Communities from Displacement: <https://www.greeninginplace.com/>
- State of Equity Practice in Public Sector GSI: <https://giexchange.org/wp-content/uploads/2022/01/State-of-Equity-in-Public-Sector-GSI-Baseline-Report-FINAL.pdf>
- Green Infrastructure Asset Management Resources Toolkit: <https://giexchange.org/wp-content/uploads/2021/12/GSI-AM-Resources-Toolkit-Final-Dec-17.pdf>
- Greening without Gentrification: Learning from Parks-Related Anti-Displacement Strategies Nationwide: <https://www.ioes.ucla.edu/wp-content/uploads/Parks-Related-Anti-Displacement-Strategies-report-with-appendix.pdf>



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