### Smart Growth Self-Assessment for Rural Communities*Section V: Protect Natural Habitats and Ecosystems*

### *This tool is part of the Smart Growth Self-Assessment for Rural Communities, developed by the U.S. Environmental Protection Agency. EPA suggests that communities using this tool complete Section I: “Revitalize Village and Town Centers,” before filling out other sections. For more information and the tool’s other sections, see* [*https://www.epa.gov/smartgrowth/smart-growth-self-assessment-rural-communities*](https://www.epa.gov/smartgrowth/smart-growth-self-assessment-rural-communities)*.*

Directing development away from critical natural habitats and ecosystems and minimizing impacts from new development, such as increased stormwater runoff, help rural communities protect the waterways, forests, mountains, view sheds, and farmlands that are critical to their economic health, especially in places valued for their scenic or recreational assets. Providing incentives to use green infrastructure and preserve open space, along with programs to educate residents on the importance of land conservation, helps communities maintain their valuable natural resources.

| Goal: Protect Natural Habitats and Ecosystems | Adopted? | Add or Improve? | Context[[1]](#footnote-1) |
| --- | --- | --- | --- |
| *Using Water More Efficiently* |  |  |  |
| Do codes require water efficiency and stormwater runoff reduction in new development and redevelopment? |  |  |  |
| Strategy 1: Codes require new homes to meet at least the minimum requirements of a program designed to use water more efficiently and improve water quality.[[2]](#footnote-2) *[Enter optional notes in gray boxes for all strategies]* |[ ] [ ]  1,2,3 |
| Strategy 2: Codes encourage re-use of gray water where some or all water used in a building is captured, treated, and used or reused on site.[[3]](#footnote-3)  |[ ] [ ]  1,2,3 |
| Strategy 3: Codes include incentives or requirements for green infrastructure including permeable pavement, vegetated swales near roadways, green roofs, and rain gardens.[[4]](#footnote-4),[[5]](#footnote-5),[[6]](#footnote-6),[[7]](#footnote-7),[[8]](#footnote-8),[[9]](#footnote-9)  |[ ] [ ]  1,2,3 |
| Strategy 4: The code includes guidelines for stormwater runoff reduction strategies, such as green infrastructure and building standards.[[10]](#footnote-10), 5,9,6,4,11  |[ ] [ ]  1,2,3 |
| Strategy 5: In mitigating site stormwater loads, stormwater runoff reduction strategies can be used to calculate offsets to stormwater requirements using conventional strategies such as retention ponds.[[11]](#footnote-11)  |[ ] [ ]  1,2,3 |
| **Do codes promote reduced water use in landscaping?** |  |  |  |
| Strategy 6: Codes provide incentives for rain barrels and cisterns.[[12]](#footnote-12)  |[ ] [ ]  1,2,3 |
| Strategy 7: Climate-appropriate and native plants that use less water are encouraged or required.[[13]](#footnote-13),[[14]](#footnote-14)  |[ ] [ ]  1,2,3 |
| Strategy 8: Guidelines exist for climate-appropriate and native landscape design.[[15]](#footnote-15)  |[ ] [ ]  1,2,3 |
| *Regulating Development Near Water Resources* |  |  |  |
| Do codes limit new development or redevelopment on wetlands or in flood plains? |  |  |  |
| Strategy 9: Local land use regulations require riparian and wetland buffer areas.[[16]](#footnote-16),[[17]](#footnote-17), [[18]](#footnote-18)  |[ ] [ ]  1,2,3 |
| Strategy 10: New development is prohibited in flood plains unless it is a use that can be flooded without threatening property or human life.[[19]](#footnote-19),[[20]](#footnote-20)  |[ ] [ ]  1,2,3 |
| Strategy 11: Local governments evaluate development proposals near rivers for upstream and downstream impacts.  |[ ] [ ]  1,2,3 |
| Strategy 12: Prohibit development on previously undeveloped land where the elevation is lower than the elevation of the 100-year flood as defined by FEMA.  |[ ] [ ]  1,2,3 |
| Strategy 13: Regulations require restoration of degraded riparian or wetland areas of a development site.[[21]](#footnote-21)  |[ ] [ ]  1,2,3 |
| **Do codes regulate uses to protect source water for wellheads or sensitive aquifers?** |  |  |  |
| Strategy 14: The community has wellhead and/or aquifer protection regulations or zones to prevent incompatible development and uses.[[22]](#footnote-22),[[23]](#footnote-23)  |[ ] [ ]  1,2,3 |
| **Do codes require stormwater management and monitoring on site in new developments or redevelopments?** |  |  |  |
| Strategy 15: Codes include provisions exist to minimize or reduce the amount of impervious surface.[[24]](#footnote-24)  |[ ] [ ]  1,2,3 |
| Strategy 16: Stormwater quality and quantity performance standards exist for development sites.[[25]](#footnote-25),[[26]](#footnote-26)  |[ ] [ ]  1,2,3 |
| Strategy 17: Measures are required to limit waste during construction from flowing into water bodies and the stormwater system to protect water quality.[[27]](#footnote-27)  |[ ] [ ]  1,2,3 |
| Strategy 18: Pollution monitoring and mitigation strategies reduce harm to natural resources during construction.[[28]](#footnote-28)  |[ ] [ ]  1,2,3 |
| ***Protecting Open Spaces for Agriculture, Recreation, and Wildlife*** |  |  |  |
| **Do codes require land use regulations to protect open spaces or natural resources?** |  |  |  |
| Strategy 19: Critical water resource areas cannot be counted in calculating allowable density on a site.[[29]](#footnote-29)  |[ ] [ ]  1,2 |
| Strategy 20: Prohibit development on previously undeveloped land within a setback to any endangered or protected fish and wildlife habitat or wetland conservation area.[[30]](#footnote-30)  |[ ] [ ]  1,2,3 |
| Strategy 21: Land development regulations protect steep slopes, hillsides, and other sensitive areas.[[31]](#footnote-31),[[32]](#footnote-32)  |[ ] [ ]  1,2,3 |
| Strategy 22: Street lights and commercial lighting directs light to the streets to preserve dark skies.[[33]](#footnote-33)  |[ ] [ ]  1,2,3 |
| **Are there open space creation or preservation requirements?** |  |  |  |
| Strategy 23: The local government uses open space or recreation impact fees to preserve open space.[[34]](#footnote-34)  |[ ] [ ]  1,2,3 |
| Strategy 24: Open space dedication and/or set-aside requirements exist and are based on the demand generated by new development.[[35]](#footnote-35),[[36]](#footnote-36)  |[ ] [ ]  1,2 |
| **Do codes support appropriate development in agricultural areas?** |  |  |  |
| Strategy 25: There are agricultural, ranching, or forestry zoning districts that allow large minimum lot size.[[37]](#footnote-37),[[38]](#footnote-38)  |[ ] [ ]  1,2,3 |
| ***Protecting the Tree Canopy*** |  |  |  |
| **Do codes require tree protection strategies during construction?** |  |  |  |
| Strategy 26: Public trees removed or damaged during construction of private development are required to be replaced on- or off-site with an equivalent amount of tree caliper.[[39]](#footnote-39),[[40]](#footnote-40)  |[ ] [ ]  1,2 |
| Strategy 27: Construction protection rules exist, covering all public trees.[[41]](#footnote-41),[[42]](#footnote-42)  |[ ] [ ]  1,2,3 |
| *Protecting Natural Habitats and Ecosystems Through Comprehensive Plans and Local Government Policies* |  |  |  |
| Does the local government provide incentives to landowners to conserve land? |  |  |  |
| Strategy 28: A transfer of development rights program exists and enables transactions between well-defined sending and receiving areas.[[43]](#footnote-43)  |[ ] [ ]  1,2,3 |
| Strategy 29: Local tax credits are available for land conservation.[[44]](#footnote-44)  |[ ] [ ]  1,2,3 |
| **Are there policies to create designated growth areas and preserve rural areas?** |  |  |  |
| Strategy 30: Designated growth areas and preservation areas are defined by a municipal services area, municipal development area, or similar designation.[[45]](#footnote-45),[[46]](#footnote-46)  |[ ] [ ]  1,2,3 |
| Strategy 31: Urbanized, town center policies allow for more dense development in the core downtown area of the community.[[47]](#footnote-47)  |[ ] [ ]  1,2,3 |
| Strategy 32: Designate and protect critical natural lands outside of the town centers, identifying areas that have a strong rural legacy.[[48]](#footnote-48)  |[ ] [ ]  3 |
| **Are there cleanup or restoration requirements to preserve or restore biological diversity?** |  |  |  |
| Strategy 33: Brownfield and other contaminated sites have been successfully remediated.[[49]](#footnote-49)  |[ ] [ ]  1,2,3 |
| Strategy 34: Consider restoration and preservation of regional biodiversity in plans, with a focus on promoting native species and avoiding and eliminating invasive species.[[50]](#footnote-50)  |[ ] [ ]  1,2,3 |
| Strategy 35: Measures are in place to minimize the use of water pollutants, including pesticides, herbicides, and chemical fertilizers by both public and private entities.[[51]](#footnote-51),[[52]](#footnote-52)  |[ ] [ ]  1,2,3 |
| **Are there regional and local green infrastructure investments?** |  |  |  |
| Strategy 36: Inventory the community’s current tree cover, and complete plans to protect and expand the tree canopy.[[53]](#footnote-53)  |[ ] [ ]  1,2 |
| Strategy 37: A green infrastructure plan, developed with a range of public- and private-sector partners, connects habitats to protect habitat.[[54]](#footnote-54)  |[ ] [ ]  1,2,3 |
| Strategy 38: Encourage green infrastructure strategies to collect and treat stormwater runoff, such as rain gardens, vegetated swales, and permeable pavements, through incentives in new developments or redevelopments. |[ ] [ ]  1,2,3 |
| Strategy 39: Road construction or reconstruction projects implement green infrastructure strategies when possible.[[55]](#footnote-55)  |[ ] [ ]  1,2,3 |
| *Protecting Natural Habitats and Ecosystems Through Programs and Services* |  |  |  |
| Are there programs to allow community-managed land? |  |  |  |
| Strategy 40: Public programs exist to support fee simple acquisition of sensitive land.[[56]](#footnote-56)  |[ ] [ ]  1,2,3 |
| Strategy 41: The community has transfer of development rights or purchase of development rights programs for conservation easements.[[57]](#footnote-57)  |[ ] [ ]  1,2,3 |
| Strategy 42: A community land trust supports managed open space.[[58]](#footnote-58)  |[ ] [ ]  1,2,3 |
| Strategy 43: Prioritize community-owned lands, such as community gardens or community open space held in a land trust, to be protected from development.  |[ ] [ ]  1,2,3 |
| **Is there a water quality and preservation program?** |  |  |  |
| Strategy 44: The local government has a system for ongoing monitoring and reporting of water quality in the watershed.[[59]](#footnote-59)  |[ ] [ ]  1,2,3 |
| Strategy 45: The community has systems for reclaiming and reusing water.[[60]](#footnote-60)  |[ ] [ ]  1,2 |
| **Are there conservation education programs in place?** |  |  |  |
| Strategy 46: The school system teaches students about water quality and conservation.[[61]](#footnote-61)  |[ ] [ ]  1,2,3 |
| Strategy 47: The school system teaches students about the unique natural habitat in which they live.[[62]](#footnote-62)  |[ ] [ ]  1,2,3 |
| Strategy 48: The school system teaches students about waste reduction, recycling, and the effects of polluting.[[63]](#footnote-63)  |[ ] [ ]  1,2,3 |
| Strategy 49: The local government provides online information on green infrastructure, energy efficiency, and water conservation.[[64]](#footnote-64)  |[ ] [ ]  1,2,3 |

1. Self-assessment topics and recommendations apply to one or more of the following scales: 1 – large town/small city (population of approximately 10,000 or greater); 2 - village/small town (population typically under 10,000); 3 – rural (very low density places, working lands and natural areas outside of towns, villages and cities). [↑](#footnote-ref-1)
2. One example of a program is EPA’s WaterSense New Homes Specification (<http://www.epa.gov/watersense/new_homes/index.html>). [↑](#footnote-ref-2)
3. US EPA Region 9 Water Recycling and Reuse: The Environmental Benefits (<http://www.epa.gov/region9/water/recycling/>). [↑](#footnote-ref-3)
4. Greater Elkhart County Stormwater Partnership: Rain Garden and Rain Barrel Incentive Program (<http://www.stormwaterelkco.org/pages.php?section=homeowners&item=Rain_Garden_and_Rain_Barrel_Incentive_Program>). [↑](#footnote-ref-4)
5. Portland EcoRoof Incentive Program (<http://www.portlandoregon.gov/bes/48724>). [↑](#footnote-ref-5)
6. Plant Connection - Green Roof Legislation, Policies, and Tax Incentives (<http://www.myplantconnection.com/green-roofs-legislation.php>). [↑](#footnote-ref-6)
7. Ramsey-Washington Metro Watershed District: Stormwater BMP Incentive Program: Vegetated Swales (<http://www.rwmwd.org/index.asp?Type=B_BASIC&SEC=%7BAAF12B9B-AF31-48C8-B303-86C8ECA92851%7D>). [↑](#footnote-ref-7)
8. Burlington, Vermont pervious pavement incentive program (<http://www.burlingtonvt.gov/docs/4083.pdf>). [↑](#footnote-ref-8)
9. US EPA Green Infrastructure Library (<http://water.epa.gov/infrastructure/greeninfrastructure/index.cfm>). [↑](#footnote-ref-9)
10. Dakota County, Minnesota Low Impact Development Standards (<http://www.dakotaswcd.org/lowimpact.html>). [↑](#footnote-ref-10)
11. City of Sandy, Oregon Stormwater Management Incentive Program (<http://www.ci.sandy.or.us/Stormwater-Management-Incentive-Program/>). [↑](#footnote-ref-11)
12. Cisterns can be permanent structures underground or above ground or non-permanent manufactured vessels that are typically above ground. [↑](#footnote-ref-12)
13. Lake County, Florida Model Landscape Ordinance Requiring the Use and Preservation of Appropriate Native Vegetation. (<https://www.lakecountyfl.gov/departments/public_resources/agricultural_education/soil_and_water_conservation_district/model_landscape_ordinance.aspx>). [↑](#footnote-ref-13)
14. Austin, Texas WaterWise Landscape Rebate program (<http://www.austintexas.gov/department/waterwise-landscape-rebate>). [↑](#footnote-ref-14)
15. USDA Natural Resources Conservation Service. Living Landscapes in Minnesota: A Guide To Native Plantscaping (<http://www.nrcs.usda.gov/wps/portal/nrcs/publications/plantmaterials/pmc/central/ndpmc/pub/>). [↑](#footnote-ref-15)
16. An example of a buffer would be a 50-foot undisturbed buffer from the top of bank. [↑](#footnote-ref-16)
17. River Basin Center. Model Riparian Buffer Ordinance (<http://www.rivercenter.uga.edu/research/tools/buffers/model_buffer_ordinance.htm>). [↑](#footnote-ref-17)
18. Association of State Wetland Managers. Model Ordinances for Regulating Wetlands and Riparian Habitats/Stream Buffers (<http://www.aswm.org/watersheds/streams/897-publications>). [↑](#footnote-ref-18)
19. Knox County, Tennessee Floodplain Management Regulations (<http://www.knoxcounty.org/stormwater/volume2.php>). [↑](#footnote-ref-19)
20. US EPA. Planning for Flood Recovery and Long-Term Resilience in Vermont: Smart Growth Approaches for Disaster-Resilient Communities (<http://www.epa.gov/smartgrowth/disaster-recovery-resilience.htm>). [↑](#footnote-ref-20)
21. Pima County, Arizona Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines (<http://webcms.pima.gov/government/flood_control/rules_and_procedures/>). [↑](#footnote-ref-21)
22. Norway, Maine Wellhead Protection Ordinance for Norway Maine (<http://norwaymaine.com/n/?page_id=301>). [↑](#footnote-ref-22)
23. Town of Canton, Connecticut Aquifer Protection Regulations (<http://www.townofcantonct.org/content/19174/120/17179/3546/default.aspx>). [↑](#footnote-ref-23)
24. Town of Washington, Connecticut Zoning Regulations, Maximum Lot Coverage (<http://www.riversalliance.org/ModelOrdinances/Town_of_Washington_Zoning_Reg_Impervious_Surface.htm>). [↑](#footnote-ref-24)
25. An example would be the restriction on sedimentation levels. [↑](#footnote-ref-25)
26. Metropolitan North Georgia Water Planning District. Model Ordinance for Post-Development Stormwater Management for New Development and Redevelopment. (<http://www.northgeorgiawater.org/stormwater/model-ordinances>). [↑](#footnote-ref-26)
27. Wisconsin Construction Site Storm Water Permits (<http://dnr.wi.gov/topic/stormwater/construction/>). [↑](#footnote-ref-27)
28. City of Gilroy, California Storm Water & Urban Runoff Management (<http://www.cityofgilroy.org/cityofgilroy/city_hall/community_development/engineering/storm_water/default.aspx>). [↑](#footnote-ref-28)
29. EPA Water Quality Scorecard: Incorporating Green Infrastructure Practices at the Municipal, Neighborhood, and Site Scale (<http://www.epa.gov/smartgrowth/water_scorecard.htm>). [↑](#footnote-ref-29)
30. Clallam County, Washington Critical Areas Code (<http://www.clallam.net/Permits/criticalarea.html>). [↑](#footnote-ref-30)
31. For example, by limiting development on slopes greater than 30 percent or requiring large lot sizes in sensitive areas. [↑](#footnote-ref-31)
32. Town of Boone, North Carolina Steep Slope Regulations Brochure. (<http://www.townofboone.net/index.php?option=com_content&view=article&id=94:planning-a-inspections&catid=82:important-links&Itemid=463>). [↑](#footnote-ref-32)
33. The Maricopa County, Arizona Dark Sky Ordinance is a zoning ordinance controlling use of outdoor artificial illuminating devices (<http://www.maricopa.gov/planning/Resources/Ordinances/DarkSkyOrdinance.aspx>). [↑](#footnote-ref-33)
34. Town of Cumberland, Maine Recreational Facilities and Open Space Impact Fee Ordinance (<http://cumberlandmaine.com/wp-content/uploads/2010/08/Impact_Fee_2nd_Amendments_current_adopted_7_23_12_fillable_application1.pdf>). [↑](#footnote-ref-34)
35. For example, the National Parks and Recreation Association recommends 10 acres of community and neighborhood parks for every 1,000 persons in a development. [↑](#footnote-ref-35)
36. Creating Open Space in Clifton Park (<http://www.cliftonpark.org/townhall/open-space-trails-and-riverfront-advisory-committee/>). [↑](#footnote-ref-36)
37. Ranges for minimum lot sizes could vary from 5 to 80 acres depending on the context and the purpose behind establishing the particular development pattern. [↑](#footnote-ref-37)
38. Farmland Information Center. Agricultural Protection Zoning (<http://www.farmlandinfo.org/agricultural-protection-zoning>). [↑](#footnote-ref-38)
39. For example, if a developer removes a 24-inch diameter tree, he would replace it with six 4-inch diameter trees. [↑](#footnote-ref-39)
40. Round Rock, Texas Tree Ordinance (<http://www.roundrocktexas.gov/departments/parks-and-recreation/forestry/tree-ordinance/>). [↑](#footnote-ref-40)
41. Construction protection rules might include fencing around trees and avoiding cutting into root zones. [↑](#footnote-ref-41)
42. Norfolk, Virginia Zoning Ordinance, Trees and Other Vegetation (<https://www.municode.com/library/va/norfolk/codes/code_of_ordinances?nodeId=COCI_CH45TROTVE>). [↑](#footnote-ref-42)
43. King County, Washington Transfer of Development Rights Program (<http://www.kingcounty.gov/environment/stewardship/sustainable-building/transfer-development-rights/overview.aspx>). [↑](#footnote-ref-43)
44. Land Trust Alliance. Tax Incentives (<http://www.landtrustalliance.org/policy/tax-matters/campaigns/state-tax-incentives>). [↑](#footnote-ref-44)
45. Albemarle County, Virginia Urban/Development Area (<http://www.albemarle.org/department.asp?department=cdd&relpage=3214>). [↑](#footnote-ref-45)
46. Montgomery County, Virginia Urban Development Areas (<http://www.montgomerycountyva.gov/content/15989/16031/16767/default.aspx>). [↑](#footnote-ref-46)
47. Dennis Township Master Plan – Land Use Plan (<http://www.dennistwp.org/pdfdoc2012/DTMasterPlanRevisedFinal2012-12-12.pdf>). [↑](#footnote-ref-47)
48. Albemarle County, Virginia Rural Areas Plan (<http://www.albemarle.org/department.asp?department=cdd&relpage=3213>). [↑](#footnote-ref-48)
49. Missouri Department of Natural Resources Brownfields/Voluntary Cleanup Program (<http://www.dnr.mo.gov/env/hwp/bvcp/hwpvcp.htm>). [↑](#footnote-ref-49)
50. Honeoye, New York Lake Watershed Management Plan (<http://www.co.ontario.ny.us/DocumentCenter/View/1276>). [↑](#footnote-ref-50)
51. Oceanside, California Pesticides and Fertilizers effects on water quality (<http://www.ci.oceanside.ca.us/gov/water/services_programs/clean/residential/pesticides.asp>). [↑](#footnote-ref-51)
52. Connecticut General Assembly. State Laws Banning Phosphorous Fertilizer Use (<http://www.cga.ct.gov/2012/rpt/2012-R-0076.htm>). [↑](#footnote-ref-52)
53. Austin, Texas Urban Forestry Program (<http://austintexas.gov/department/urban-forestry>). [↑](#footnote-ref-53)
54. Kansas City, Missouri/Kansas MetroGreen Regional Greenway System (<http://www.terrain.org/unsprawl/26/>). [↑](#footnote-ref-54)
55. Chicago Metropolitan Agency for Planning. Green Infrastructure (<http://www.cmap.illinois.gov/green-infrastructure>). [↑](#footnote-ref-55)
56. San Antonio Water System. Sensitive Land Acquisition Program (<http://www.saws.org/environment/ResourceProtComp/aquifer_protection/acquisition.cfm>). [↑](#footnote-ref-56)
57. Northhampton County, Virginia Purchase of Development Rights Program (<http://www.co.northampton.va.us/departments/Purchase_of_Development_Rights.html>). [↑](#footnote-ref-57)
58. Upper Valley Land Trust (New Hampshire) community based land conservancy (<http://www.uvlt.org/>). [↑](#footnote-ref-58)
59. Tomales Bay (California) Water Quality Monitoring Plan (<http://www.tomalesbaywatershed.org/library.html>). [↑](#footnote-ref-59)
60. Manatee County, Florida Reclaimed Water Program (<https://www.mymanatee.org/home/government/departments/utilities/wastewater-system/reclaimed-water.html>). [↑](#footnote-ref-60)
61. Redwood City, California Water Conservation Education for Schools (<http://www.redwoodcity.org/publicworks/water/conserve%20water%20education.html>). [↑](#footnote-ref-61)
62. US Fish and Wildlife Service Pacific Southwest Region. Schoolyard Habitat Program (<http://www.fws.gov/cno/conservation/schoolyard.cfm>). [↑](#footnote-ref-62)
63. Boulder/Broomfield County, Colorado School Recycling and Environmental Education Program (<http://www.ecocycle.org/schools/overview>). [↑](#footnote-ref-63)
64. US EPA. Why Green Infrastructure? (<http://water.epa.gov/infrastructure/greeninfrastructure/gi_why.cfm>). [↑](#footnote-ref-64)