### Smart Growth Self-Assessment for Rural Communities

### *Section X: Invest in Efficient Public Infrastructure Systems and Operations*

### *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>.*

Compact development allows existing infrastructure to serve more people and uses public funds more efficiently. Encouraging growth in village and town centers can help reduce the need for costly infrastructure extensions into undeveloped areas and can reduce maintenance and repair costs. Many communities also use green infrastructure to reduce stormwater runoff, which brings environmental benefits and can lower costs of treating wastewater.

| Goal: Invest in Efficient Public Infrastructure Systems and Operations | Adopted? | Add or Improve? | Context [[1]](#footnote-1) |
| --- | --- | --- | --- |
| *Encouraging Cluster Development* |  |  |  |
| Do codes provide incentives to developers that promote cluster development?[[2]](#footnote-2)  |  |  |  |
| Strategy 1: Developers receive density bonuses in exchange for clustering new development.[[3]](#footnote-3),[[4]](#footnote-4) *[Enter optional notes in gray boxes for all strategies]* |[ ] [ ]  1,2 |
| Strategy 2: Subdivision ordinance promotes cluster subdivisions.[[5]](#footnote-5),[[6]](#footnote-6)  |[ ] [ ]  1,2,3 |
| **Do codes encourage efficiency in water and sewer infrastructure?** |  |  |  |
| Strategy 3: Allow shared or clustered septic systems.[[7]](#footnote-7)  |[ ] [ ]  3 |
| Encouraging Growth in and Next to Existing Development |  |  |  |
| Do codes encourage development in or next to village or town centers? |  |  |  |
| Strategy 4: Codes provide incentives for developers to develop within or next to existing village or town centers.[[8]](#footnote-8),[[9]](#footnote-9)       |[ ] [ ]  1,2 |
| *Reducing Stormwater Runoff*[[10]](#footnote-10) |  |  |  |
| Do codes require or allow pervious surfaces in appropriate locations? |  |  |  |
| Strategy 5: The subdivision ordinance requires strategies that reduce impervious surface cover.[[11]](#footnote-11)  |[ ] [ ]  1,2,3 |
| Strategy 6: Street design guidelines require permeable paving for sidewalks and other appropriate surfaces such as bike lanes and parking lanes.[[12]](#footnote-12),[[13]](#footnote-13)  |[ ] [ ]  1,2 |
| Strategy 7: A portion of parking lots, alleys, and roads in a new development are constructed with pervious material that is based on a prescribed proportion of the square footage.  |[ ] [ ]  1,2,3 |
| **Do codes encourage reducing impervious surfaces?** |  |  |  |
| Strategy 8: Require green infrastructure elements (such as trees, vegetated islands, swales, and rain gardens) to manage stormwater runoff from parking lots.[[14]](#footnote-14),[[15]](#footnote-15)  |[ ] [ ]  1,2,3 |
| Strategy 9: Allow two-track driveways.[[16]](#footnote-16)  |[ ] [ ]  3 |
| Strategy 10: Permit shared driveways or require for single-family residential developments.[[17]](#footnote-17)  |[ ] [ ]  1,2,3 |
| Strategy 11: Permit shared parking lots for a mix of commercial, office, and institutional uses.[[18]](#footnote-18),[[19]](#footnote-19)  |[ ] [ ]  1,2 |
| Strategy 12: Codes encourage driveway width requirements (for example, minimum driveway width is no more than 9 feet).[[20]](#footnote-20)  |[ ] [ ]  1,2,3 |
| **Do codes encourage green infrastructure to reduce stormwater runoff?**  |  |  |  |
| Strategy 13: Specify the types of trees and shrubs to use in landscaped areas based on which will best reduce stormwater runoff.[[21]](#footnote-21)  |[ ] [ ]  1,2,3 |
| Strategy 14: The code requires a minimum percentage of parking lots to be landscaped (for example 10 percent).[[22]](#footnote-22)  |[ ] [ ]  1,2,3 |
| Strategy 15: Permit infiltration approaches that use soil and plants, such as rain gardens, planter gardens, and permeable and porous pavements.[[23]](#footnote-23),500  |[ ] [ ]  1,2,3 |
| **Do codes encourage stormwater management infrastructure as part of buildings?** |  |  |  |
| Strategy 16: Permit green roofs.[[24]](#footnote-24),[[25]](#footnote-25)  |[ ] [ ]  1,2,3 |
| Strategy 17: Water-harvesting devices, such as rain barrels and cisterns, are permitted.[[26]](#footnote-26)  |[ ] [ ]  1,2,3 |
| *Expanding the Tree Canopy* |  |  |  |
| Do codes require tree plantings as part of new developments and street retrofits? |  |  |  |
| Strategy 18: Private and public developments are required to include street trees.[[27]](#footnote-27)  |[ ] [ ]  1,2 |
| Strategy 19: Street designs require the necessary surface area and volume of soil for the tree species selected.[[28]](#footnote-28),[[29]](#footnote-29)  |[ ] [ ]  1,2 |
| ***Encouraging Green Infrastructure*** |  |  |  |
| **Do codes require the construction and expansion of green infrastructure?** |  |  |  |
| Strategy 20: A minimum amount of a local road project cost goes towards green infrastructure elements.[[30]](#footnote-30),[[31]](#footnote-31)  |[ ] [ ]  1,2,3 |
| Strategy 21: Codes set green infrastructure retrofit standards for street rehabilitation, streetscaping, and road widening projects.[[32]](#footnote-32),[[33]](#footnote-33)  |[ ] [ ]  1,2,3 |
| *Studying Fiscal Impacts of Development and Expediting Projects With Less Impact* |  |  |  |
| **Do codes provide incentives for lower impact development?** |  |  |  |
| Strategy 22: Require a fiscal impact analysis for major development projects.[[34]](#footnote-34)  |[ ] [ ]  1,2,3 |
| Strategy 23: Up-to-date information about the cost of government services, such as roads, water, and sewer, is available for fiscal impact analyses.[[35]](#footnote-35)  |[ ] [ ]  1,2,3 |
| Strategy 24: Require new developments in undeveloped areas to pay the full cost of required new offsite water, sewer, and stormwater infrastructure.[[36]](#footnote-36),[[37]](#footnote-37)  |[ ] [ ]  3 |
| Strategy 25: Projects that include green infrastructure elements can go through an expedited review process (“green tape”).[[38]](#footnote-38)  |[ ] [ ]  1,2,3 |
| *Investing in Efficient Public Infrastructure Through Comprehensive Plans and Local Government Policies* |  |  |  |
| Do policies direct development to areas with existing infrastructure and away from environmentally sensitive areas? |  |  |  |
| Strategy 26: Identify and prioritize areas with existing development for infrastructure investment.[[39]](#footnote-39)  |[ ] [ ]  1,2,3 |
| Strategy 27: Identify highly efficient locations.[[40]](#footnote-40)  |[ ] [ ]  1,2 |
| Strategy 28: Identify priority areas for conservation or land preservation.[[41]](#footnote-41)  |[ ] [ ]  1,2,3 |
| Strategy 29: Establish a service fee to pay for inspection and maintenance of decentralized wastewater treatment systems.[[42]](#footnote-42)  |[ ] [ ]  3 |
| ***Investing in Efficient Public Infrastructure Through Programs and Services*** |  |  |  |
| **Are waste and wastewater management services or programs in place?** |  |  |  |
| Strategy 30: Establish a program to manage decentralized wastewater treatment systems.[[43]](#footnote-43)  |[ ] [ ]  3 |
| Strategy 31: The local government supports and promotes composting.[[44]](#footnote-44)  |[ ] [ ]  1,2,3 |
| Strategy 32: The local government establishes a recycling program.[[45]](#footnote-45)  |[ ] [ ]  1,2,3 |
| Strategy 33: The local government offers household hazardous waste collection for items such as electronics, batteries, and light bulbs.[[46]](#footnote-46)  |[ ] [ ]  1,2,3 |
| Strategy 34: A “pay-as-you-throw” waste management program encourages recycling and composting.[[47]](#footnote-47)  |[ ] [ ]  1,2,3 |
| Strategy 35: Materials generated during construction, renovation, and demolition activities are salvaged, reused, and recycled.[[48]](#footnote-48)  |[ ] [ ]  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. Cluster development creates efficiencies in the initial capital cost of infrastructure and the long-term maintenance costs as well. [↑](#footnote-ref-2)
3. Elmore County, Idaho: Zoning and Development Ordinance: Cluster Subdivision Requirements and Regulations ([http://www.elmorecounty.org/Land%20Use/Z&DOrdinance.html](http://www.elmorecounty.org/Land%20Use/Z%26DOrdinance.html)). [↑](#footnote-ref-3)
4. Newton, New Hampshire: Zoning Ordinance: Residential Open Space – Cluster Development (<http://www.newton-nh.gov/Pages/NewtonNH_Planning/zoning/Archives/2011ZoningOrdinance/index>). [↑](#footnote-ref-4)
5. Southeastern Wisconsin Regional Planning Commission. Model Zoning Ordinance for Rural Cluster Development (<http://www.sewrpc.org/SEWRPC/communityassistance/ModelOrdinancesGuides.htm>). [↑](#footnote-ref-5)
6. Conservation Subdivision Design Handbook (<http://conservationtools.org/libraries/1/library_items/349-Conservation-Subdivision-Design-Handbook>). [↑](#footnote-ref-6)
7. EPA has case studies about how some communities in the United States are managing wastewater, including clustered wastewater treatment units (<http://water.epa.gov/infrastructure/septic/demos.cfm>). [↑](#footnote-ref-7)
8. California Resources for Sustainability. Truckee Meadows Regional Planning Agency: Infill Development - Barriers and Incentives (<http://cares.ucdavis.edu/resource/truckee-meadows-regional-planning-agency-infill-development-barriers-and-incentives>). [↑](#footnote-ref-8)
9. Tulsa Development Authority. Examples of Infill Development Incentives and Projects (<http://www.tulsadevelopmentauthority.org/plans_brady_infill.html>). [↑](#footnote-ref-9)
10. EPA’s “Water Quality Scorecard” is a good resource for policy options for protecting and improving water quality. [↑](#footnote-ref-10)
11. Nashua, Massachusetts: Maximum Impervious Surface Zoning (<http://www.nashuariverwatershed.org/what-we-do/protect-communities/lid-and-stormwater.html>). [↑](#footnote-ref-11)
12. Olympia, Washington has used pervious pavement in several municipal projects. Cost/benefits associated with using pervious pavement can be found at: (<http://olympiawa.gov/city-utilities/storm-and-surface-water/science-and-innovations/science-and-innovations-porous-pavement>). [↑](#footnote-ref-12)
13. Burlington, Vermont: Low Impact Development (LID) Amendment to CDO provides incentives for pervious paving (<http://www.burlingtonvt.gov/PZ/CDO>). [↑](#footnote-ref-13)
14. EPA case studies on green infrastructure has been planning, design, and construction (<http://water.epa.gov/infrastructure/greeninfrastructure/>). [↑](#footnote-ref-14)
15. EPA. Managing Wet Weather with Green Infrastructure: Municipal Handbook and Incentive Mechanisms (<http://water.epa.gov/infrastructure/greeninfrastructure/index.cfm#tabs-3>). [↑](#footnote-ref-15)
16. Minneapolis, Minnesota: Code of Ordinances: Off-Street Parking and Loading (<http://www.ci.minneapolis.mn.us/cped/projects/cped_parking>). [↑](#footnote-ref-16)
17. Bolton, Massachusetts: Rules and Regulations for Single and Shared Driveways (<http://www.townofbolton.com/pages/BoltonMA_Planning/Rules%20and%20Regulations?textPage=1>). [↑](#footnote-ref-17)
18. City of Madison, Mississippi: Shared Parking Ordinance (<http://www.madisonthecity.com/communitydevelopment/planninganddevelopment.html>). [↑](#footnote-ref-18)
19. Metropolitan Area Planning Council. Shared Parking (<http://www.mapc.org/resources/parking-toolkit/strategies-topic/shared-parking>). [↑](#footnote-ref-19)
20. Evanston, Illinois: Driveway Policies (<http://cityofevanston.org/public-works/transportation-engineering/policies/>). [↑](#footnote-ref-20)
21. Virginia Tech’s Tree Ordinance Database includes sample code language from cities and towns around Virginia, including language on desirable species: (<http://www.web2.cnre.vt.edu/vtod/>). [↑](#footnote-ref-21)
22. Glenview, Illionis: Parking Lot Landscaping Ordinance & Design Guidelines (<http://glenview.il.us/government/Pages/OrdinancesCodes.aspx>). [↑](#footnote-ref-22)
23. Virginia Department of Forestry: Rain Gardens overview (<http://www.dof.virginia.gov/manage/riparian/rain-gardens.htm>). [↑](#footnote-ref-23)
24. Plant Connection, Inc. Green Roof Legislation, Policies, and Tax Incentives (<http://www.myplantconnection.com/green-roofs-legislation.php>). [↑](#footnote-ref-24)
25. Portland, Oregon: Ecoroof Incentive Program (<http://www.portlandoregon.gov/bes/48724>). [↑](#footnote-ref-25)
26. Crystal Lake, Illinois: ordinances include rain barrels. The small city also has a rain barrel incentive program that provides a water/sewer utility credit for residents who purchase rain barrels (<http://www.crystallake.org/departments/engineering/green-initiatives>). [↑](#footnote-ref-26)
27. City of Orange, California: Master Street Tree Plan (<http://www.cityoforange.org/civicax/filebank/blobdload.aspx?blobid=3500>). [↑](#footnote-ref-27)
28. Seattle, Washington: Street Trees and Landscape Architectural Standards (<http://www.seattle.gov/transportation/rowmanual/manual/4_14.asp>). [↑](#footnote-ref-28)
29. Burlington, Vermont: Street Design Guidelines (<http://www.burlingtonvt.gov/DPW/Transportation-Plan>). [↑](#footnote-ref-29)
30. EPA. Green Infrastructure Case Studies: Municipal Policies for Managing Stormwater with Green Infrastructure (<http://water.epa.gov/infrastructure/greeninfrastructure/index.cfm>). [↑](#footnote-ref-30)
31. Portland, Oregon: Green Streets (<http://www.portlandoregon.gov/BES/44407>). [↑](#footnote-ref-31)
32. Seattle Department of Transportation. Green Stormwater Infrastructure (<http://www.seattle.gov/transportation/rowmanual/manual/6_4.asp>). [↑](#footnote-ref-32)
33. Center for Neighborhood Techonology. Upgrade Your Infrastructure: A Guide to the Green Infrastructure Portfolio Standard and Building Stormwater Retrofits (<http://www.cnt.org/publications/upgrade-your-infrastructure-a-guide-to-the-green-infrastructure-portfolio-standard-and>). [↑](#footnote-ref-33)
34. The International City/County Management Association has a primer on fiscal impact analysis (<http://icma.org/en/icma/knowledge_network/documents/kn/Document/301983/Fiscal_Impact_Analysis_How_Todays_Decisions_Affect_Tomorrows_Budget>). [↑](#footnote-ref-34)
35. Hooksett, New Hampshire: Cost of Community Services Study (<http://www.snhpc.org/index.php?page=eco_dev>). [↑](#footnote-ref-35)
36. Montana Department of Transportation. Development Exactions and Incentives (<http://www.mdt.mt.gov/research/toolkit/m1/ftools/dei.shtml>). [↑](#footnote-ref-36)
37. PolicyLink. Developer Exactions (<http://policylink.info/EDTK/Exactions/>). [↑](#footnote-ref-37)
38. Chicago, Illinois: Overview of the Green Permit Program (<http://www.cityofchicago.org/city/en/depts/bldgs/provdrs/green_permit.html>). [↑](#footnote-ref-38)
39. Mississippi Department of Marine Resources. Community Character: Fixing it First (<http://smartgrowth.dmr.ms.gov/community-character>). [↑](#footnote-ref-39)
40. An efficient location would be well-connected to existing development and within walking distance of activities, shopping, and services. [↑](#footnote-ref-40)
41. Carroll County, Maryland: priority preservation areas that identify agricultural and forestry resource land for preservation (<http://ccgovernment.carr.org/ccg/compplan/PPA/>). [↑](#footnote-ref-41)
42. University of Tennessee Institute of Agriculture. Center for Decentralized Wastewater Management (<http://onsite.tennessee.edu/>). [↑](#footnote-ref-42)
43. EPA. Handbook for Managing Onsite and Clustered (Decentralized) Wastewater Treatment Systems (<http://water.epa.gov/infrastructure/septic/manuals.cfm>). [↑](#footnote-ref-43)
44. Sonoma County Waste Management Agency. Municipal composting program operations (<http://www.recyclenow.org/disposal/municipal_composting.asp>). [↑](#footnote-ref-44)
45. United States Department of Agriculture, Rural Information Center, provides information on the alternatives to waste disposal in rural areas (<http://www.nal.usda.gov/ric/ricpubs/waste.html>). [↑](#footnote-ref-45)
46. Hanover, New Hampshire Household Hazardous Waste & Unwanted Medicine Collection (<http://www.hanovernh.org/Pages/HanoverNH_PublicWorks/Recycle/2014haz>). [↑](#footnote-ref-46)
47. EPA provides information on “pay as you throw” programs across the United States (<http://www.epa.gov/epawaste/conserve/tools/payt/index.htm>). [↑](#footnote-ref-47)
48. San Mateo County Salvage & Reuse of Construction Materials (<http://www.recycleworks.org/con_dem/salvage.html>). [↑](#footnote-ref-48)