

STOPPING LOW-DENSITY RURAL RESIDENTIAL SPRAWL

By Robert Liberty

Introduction	124
I. America's Rural Resources Lands are Being Profoundly Damaged by Very Low-Density Rural Residential Sprawl.....	125
II. Public Acquisition of Property, Conservation Easements, and Development Rights	129
III. Transferable Development Rights: Appealing in Theory, but Limited in Application	132
IV. Rural Resource Conservation through Land Use Regulations.....	138
A. Clustering of Rural Residential Development.....	138
B. Rural Conservation Zoning and Limits on Urbanization.....	139
V. A Refined Hybrid Approach could Combine Effectiveness and Geographic Breadth with Political Feasibility	148
Conclusion	150

INTRODUCTION

Over the last fifty years, millions of acres of rural land in America have been overtaken by low-density residential development (homes on 2 to 160 acre parcels). This exurban development is profoundly damaging to natural resources and systems and removes most of these lands from the land base needed to grow crops, livestock, and commercial wood fiber. Over the last five decades, states and local governments have adopted different methods for protecting rural lands from low-density residential development. Politically acceptable programs of public acquisition, conservation easements, transferable development rights, and residential clustering regulations have been essential to protecting rural lands in many states and regions. But the cost of these systems means they can preserve only small percentages of rural lands. Rural zoning programs have protected millions of acres of land, but are politically contentious and therefore unattractive to many elected officials in other states and governments. They are also at risk of legislative weakening or repeal. The author believes a blending of

regulatory and non-regulatory approaches might make it possible to protect millions more acres from exurban residential sprawl.

I. AMERICA'S RURAL RESOURCES LANDS ARE BEING PROFOUNDLY DAMAGED BY VERY LOW-DENSITY RURAL RESIDENTIAL SPRAWL

The march of urban development (residential subdivisions, office and industrial parks, shopping malls, etc.) across farmland, forestland, rangeland, deserts, and natural areas is well known and dramatic. It may not be a perennial concern, but it is certainly a periodic concern for the public and policy makers.

But a far bigger area of America's precious rural resource lands—the rural lands used for producing food and fiber and the natural areas that are our reservoirs of biodiversity—has been, and continues to be profoundly affected by very low-density residential development and the associated growth in the network of rural roads.

This scattering of new homes on 5-, 10-, 40-, or 160-acre parcels and the roads serving them is sometimes referred to as “exurban sprawl.”¹ Because this scattered home-site development can blend into the landscape, it can pass almost unnoticed. However, its scale and the impacts caused by this change in the ownership and use of the land are profound.

The share of growth that has occurred at very low densities around metropolitan areas is substantial. Dr. Arthur C. Nelson and Dr. Thomas Sanchez studied urban, suburban, and exurban residential growth patterns in thirty-five metropolitan areas between 1990 and 2000. They found that the expansion of exurban development far exceeded the rate of urban and suburban development and indeed found that in the 1990s “exurbia now dominates American growth.”²

For example, between 1990 and 2000, the population of the Charlotte, North Carolina metropolitan region increased by twenty-nine percent.³

1. DAVID M. THEOBALD, *DEFINING AND MAPPING RURAL SPRAWL: EXAMPLES FROM THE NORTHWEST US I, 2* (2003) available at http://warnercnr.colostate.edu/~davct/Theobald_rural_sprawl-v1.pdf.

2. See Arthur C. Nelson & Thomas W. Sanchez, *The Effectiveness of Urban Containment Regimes in Reducing Exurban Sprawl*, 160 *DISP.* 42, 42–43 (2005) (defining “exurban” residential density as Census tracts with 300 to 999 people per square mile; higher densities were “suburban” and “urban” and tracts with lower densities were classified as “rural.” An “exurban” density of 999 people per square mile translates into about 400 homes per square mile or about 1.6 acres per homesite assuming 2.5 persons per household and at 300 people per square mile translates into 120 homes or about 5.3 acres per homesite. *But cf.* THEOBALD, *supra* note 1, at 2.

3. U.S. CENSUS BUREAU, *CENSUS 2000 PHC-T-3 RANKING TABLES FOR METROPOLITAN AREAS: 1990 AND 2000* (2000), available at <http://www.census.gov/population/www/cen2000/briefs/phc-t3/tables/tab03.txt>.

Nelson and Sanchez found that one-half of that growth occurred at suburban densities, but fully forty-five percent occurred at exurban densities.⁴ The amount of land in exurban densities increased by 265.7 square miles, far eclipsing the 101.2 square miles of expansion in urban and suburban densities.⁵ For example, in greater metropolitan Columbus, Ohio between 1990 and 2000, twenty-five percent of the growth occurred at exurban densities, and used 58.5 square miles.⁶ Whereas, seventy-five percent of the growth occurred at urban and suburban densities using only 65.7 square miles.⁷

In 2000, there were 48,544 square miles in urban and suburban residential densities (0 to 1.7 acres per housing unit) in the coterminous forty-eight states.⁸ This is an area the size of North Carolina.⁹ By comparison, there were 354,090 square miles in residential densities of one house for every 1.7 to 41.5 acres.¹⁰ That is an area as large as Texas, New York, and Pennsylvania combined.¹¹

Based on model forecasts developed by Dr. Dave Theobald at Colorado State University, areas of urban and suburban “housing densities will expand to 2.2% [of the land area of the 48 coterminous states] by 2020, whereas exurban [development] will expand to [cover] 14.3%.”¹²

Exurban sprawl has different forms and different causes. Its primary form is rural home site development created for people whose work and social relationships are in a nearby city or town. Rather than a half-acre or one-acre lot in a suburban subdivision, a person or family buys a ten, twenty, or forty-acre “rural estate,” “hobby farm,” or “ranchette.”¹³ While

4. Arthur C. Nelson & Thomas W. Sanchez, *Periodic Atlas: Lassoing Urban Sprawl*, Winter 2003, METROSCAPE 13, 18 (2003).

5. *Id.*

6. *Id.* at 15.

7. *Id.*

8. David M. Theobald, *Landscape Patterns of Exurban Growth in the USA from 1980 to 2020*, 10 ECOLOGY AND SOC'Y 1, 1 (2005), available at <http://www.ecologyandsociety.org/vol10/iss1/art32> (last visited Nov. 12, 2013).

9. See U.S. DEP'T OF COMMERCE, *State and County Quickfacts*, U.S. Bureau of the Census (June 27, 2013, 1:52 pm), <http://quickfacts.census.gov/qfd/index.html> (click on North Carolina) (stating North Carolina comprises 48,617 square miles in 2010) [hereinafter *State and County Quickfacts*].

10. Theobald, *supra* note 8.

11. See *State and County Quickfacts supra* note 9 (click on the respective states) (Texas is 261,231.71 square miles, New York is 47,126.40 square miles, and Pennsylvania is 44,742.7 square miles; combined it is 353,100.81 square miles).

12. Theobald, *supra* note 8; NATURAL RES. CONSERVATION SERV., USDA, SUMMARY REPORT: 2007 NATIONAL RESOURCES INVENTORY 14 (Dec. 2009), available at http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1041379.pdf.

13. See *Hobby Farms for Sale*, HOBBYFARMS.ORG, (2013) <http://www.hobbyfarms.org/>; see also *E. Mont. Land & Home, LLC.*, MTLANDHOME.COM, <http://www.mlandhome.com/properties/pr66.html> (last visited Sep. 23, 2013).

the owners of these lands may describe themselves as “farmers” or “woodlot owners” or “ranchers,” the production of agricultural or forestry products is in most cases only a hobby; the primary use of their property is as their home.¹⁴

Their use of land is very distinct from their neighbors who are involved in commercial farming, forestry, or ranching. Many of those neighbors may have someone in the household who also works in town, and some rural landowners are in a transition from a hobby to a rural commercial activity. Nonetheless, there is a fundamental difference between the use of land by people who own it to produce income as an essential part of their livelihood and those whose use of their land is primarily residential.¹⁵ Out of the 2,204,792 “farms” identified by the 2007 Census of Agriculture, 31.2% grossed less than \$1,000 during the survey year and 49.9% grossed less than \$5,000 and had an average annual net loss of between \$4,000 and \$5,200 per year.¹⁶ These “farms” occupied 139 million acres (217,188 square miles).¹⁷

Another form of rural sprawl is second-home development. The owners of these large lots have a primary residence elsewhere and buy or develop acreage home sites primarily for seasonal recreational purposes.¹⁸ They are often located in high amenity areas, such as adjoining lakes and rivers, near national parks, and in areas of special scenic beauty.¹⁹

This form of rural sprawl can occur in locations very far from a city or town of any size, and can be found from Florida’s Gulf Coast²⁰ to the southern slopes of the Alaska Range.²¹

14. See Toby Beavers, *Charlotte Horse Farms*, VA. HORSE FARMS, <http://virginia-horse-farms.net/Charlottesville-Horse-Farms.html> (last visited Nov. 12, 2013) (advertising a “[c]harming and restored Virginia farm house, very spacious with over 5,500 sq. ft. including 5BR/4.5BA.” Privately situated on 24 lovely pastoral acres off of Garth Rd. and only minutes from Charlottesville. Surrounded by large properties with protected views. 24.2 acres Located in Albemarle County Offered at: \$2,495,000); see also *E. Mont. Land & Home*, *supra* note 13 (listing a ranchette, for example the “Bergerson Ranchette” of 210 acres in Custer County, Montana, features a house with Family Room with bar/fireplace, sun room, kitchen with stainless steel appliances, granite countertops, central vacuum, and whole house fan).

15. See Timothy Egan, *Anger Grows in West Over City-Slicker Neighbors*, N.Y. TIMES (Dec. 22, 1991), available at <http://www.nytimes.com/1991/12/22/us/anger-grows-in-west-over-city-slicker-neighbors.html?pagewanted=all&src=pm>.

16. NAT’L AGRIC. STAT. SERV., USDA, 2007 CENSUS OF AGRIC. 95 Table 59 (2009), available at http://www.agcensus.usda.gov/Publications/2007/Full_Report/usv1.pdf.

17. *Id.*

18. See Dallen J. Timothy, *Chapter 9*, in *TOURISM, MOBILITY AND SCENIC HOMES: BETWEEN ELITE LANDSCAPE AND COMMON GROUND* 134 (C. Michael Hall & Dieter K. Muller eds., 2004) (describing the evolution of recreational purpose second-homes in the United States and data about their current characteristics).

19. *Id.* at 18.

20. Roberts Bros. Eastern Shore, *County Road 6 Gulf Shores, AL 36542*, TRULIA.COM (NOV. 11, 2013), <http://www.trulia.com/property/3081119279--County-Road-6-Gulf-Shores-AL-36542>

The dispersal of homes across the rural landscape is visually far less dramatic than the conversion of these same landscapes to more intensive, suburban and urban residential (and other) uses.²² But the environmental damage is real and significant.

Glennon and Kretser's research on low-density residential development in New England found evident and compelling environmental damage. "Exurban development represents a potential threat to wildlife communities and ecological integrity in rural landscapes worldwide and recent work has suggested that its ecological impacts can be similar to those associated with more characteristically urban development patterns."²³ Exurban sprawl harms wildlife through habitat destruction and fragmentation, introduction of non-native species, changing nutrient cycles, patterns of fire, and other means.²⁴ Exurban sprawl has been identified as one of the main factors damaging ecosystems and threatening biodiversity worldwide.²⁵

In addition, there are many important non-environmental impacts, including reduction of the land base for farming, ranching, and forestry; introduction of conflicts between rural residential uses and agriculture and forestry; and the costly extension and maintenance of roads, rural school transportation, and rural emergency services to cover wide areas with low populations.²⁶

(advertising lot/land for sale in Gulf Shores, AL for \$390,000) ("Lot/land for sale in Gulf Shores, AL 390,000 USD County Road 6 12 acres located on County Road 6. Land is undeveloped. Great [sic] location and great investment potential.").

21. 133 N Parks Hwy, Trapper Creek, AK 99683, REALTOR.COM (March 7, 2013), http://www.realtor.com/realstateandhomes-detail/133-N-Parks-Hwy_Trapper-Creek_AK_99683_M79186-22393?source=web (describing a home for sale located on 5 acres of land in Alaska: "Live the Real Alaskan Dream in this beautiful log home. Access to the Chulitna River is right across the Hwy and there is a creek on the property that runs into your very own pond. On the edge of Denali National Park, there is endless fishing, hunting and or exploring nature. Landing strip and airplane hangar for those who would rather fly than drive. This is a quality built log home.").

22. See Lynn Richards, *Alternatives to Subsidizing Edge Development: Strategies for Preserving Rural Landscapes*, TERRAIN.ORG (2013), <http://www.terrain.org/articles/10/richards.htm> (describing the abrupt visual transition from rural to urban and suburban environments).

23. Michael J. Glennon & Heidi E. Kretzer, *Size of the Ecological Effect Zone Associated with Exurban Development in the Adirondack Park*, NY, 112 LANDSCAPE AND URBAN PLAN. 10, 10 (2013).

24. Andrew J. Hansen et al., *Effects of Exurban Development on Biodiversity: Patterns, Mechanisms, and Research Needs*, 15 ECOLOGICAL APPLICATIONS 1893, 1901-03 (2005).

25. See James R. Miller & Richard J. Hobbs, *Conservation Where People Live and Work*, 16 CONSERVATION BIOLOGY 330 (2002) (describing urbanization occurring in many biodiversity hotspots worldwide and its affect on threatened and endangered species); See also Andrew J. Hansen et al., *supra* note 24, at 1901 (concluding that exurban sprawl has a large potential to alter biodiversity).

26. See Robert Liberty, *Planned Growth: The Oregon Model*, 13 NAT. RESOURCES & ENV'T 315 (1998) [hereinafter *The Oregon Model*] (describing the objective, administrative structure, performance, and politics of Oregon's program for planned growth); Robert Liberty, *Oregon's Comprehensive Growth Management Program: An Implementation Review and Lessons for Other*

In the United States there are several different strategies for curbing exurban sprawl. The most widespread forms are: public acquisition, conservation easements, the purchase of transfer development rights, cluster zoning, and land regulation (e.g. rural land zoning).²⁷

In practice, many efforts to curb exurban sprawl incorporate elements from one or more of these approaches along with supplementary programs, such as current use property tax assessment.²⁸ Each of these conservation and protection mechanisms has strengths and weaknesses, which are discussed in turn below.

II. PUBLIC ACQUISITION OF PROPERTY, CONSERVATION EASEMENTS, AND DEVELOPMENT RIGHTS

The simplest and most direct way of protecting rural lands from exurban sprawl is to purchase them and to place these lands in public ownership. Many states have rural land acquisition programs, as do some local governments. The purposes of state rural land acquisition programs include: protecting wildlife habitat and areas of special ecological significance; maintaining biodiversity; protecting places for outdoor recreation; access to and protection of coastal resources; protecting ground water recharge areas; preserving working landscapes (farmlands, rangelands, and historic properties and places); and stopping sprawl.²⁹ These programs maintain or enhance tourism, economic vitality, and the quality of life.³⁰ The acquired lands may become parks, access routes, remain as undeveloped natural areas, or working farms and forests; however, low-density exurban rural residential development is not permitted.³¹

States, 22 ENVTL. L. REP. 10,367, 10,380–386 (1992) [hereinafter *Oregon's Growth Management Program*] (discussing Oregon's preservation of agricultural land and conservation of forest land).

27. David N. Bengston et al., *Public Policies for Managing Urban Growth and Protecting Open Space: Policy Instruments and Lessons Learned in the United States*, 69 LANDSCAPE AND URBAN PLANNING 271, 274–75, 278–79, 281 (2004).

28. *E.g.*, Williams Act, CAL. GOV'T CODE § 51200 (West 2012); Californian Timberland Productivity Act of 1982, CAL. GOV'T CODE § 51100 (West 2012). This regulation assesses property taxes based on current farm and forest use, instead of highest and best development values, for lands enrolled in conservation programs.

29. *E.g.*, CAL. PUB. RES. CODE § 31050–31054 (West 2007) (legislative findings for the California Coastal Conservancy); FLA. STAT. § 259.105(2)(a) (2012) (legislative findings describing the purposes of the Florida Forever Act of 2001); MD. CODE ANN., NAT. RES. § 5-9A-01(a) (West 2013) (stating purposes of Maryland Rural Legacy Program); VT. STAT. ANN. tit. 15, § 302(a) (West 1987).

30. *Id.*

31. FLA. STAT. § 259.032(4) (2012).

Rural lands can be protected from exurban development by programs that stop short of acquiring title to property.³² Public agencies alone or in partnership with nonprofit organizations can acquire conservation easements or purchase the development rights on particular properties.³³

Conservation easements and purchase of development rights draw on the same sources of funding as land acquisitions.³⁴ Federal and state governments provide tax incentives for landowners to impose conservation easements on their land or to donate development rights; such donations can entitle the owner to a charitable tax deduction, a tax credit, a reduction in property taxes, or a combination of these incentives.³⁵ For example, Colorado created stronger incentives for these donations by granting a tax credit (instead of a deduction) equal to fifty percent of the easement's fair market value and by making the tax credit transferable to third parties.³⁶ This is important because many rural land owners may have significant wealth tied up in land but do not generate enough taxable income to take advantage of a tax credit; creating a market for that tax credit means the tax credits are more valuable and more rural landowners will be interested in taking advantage of them.

Land acquisition, conservation easements, and purchase of development right programs have some important advantages as strategies to stop exurban sprawl. First, these programs avoid the political challenges of rural land regulation because landowner participation is voluntary.³⁷ Second, conservation easements can provide long-term protection for the lands generally beyond the reach of legislator's changing policy preferences,

32. *Id.* at § 260.015(1).

33. *See* UNIF. CONSERVATION EASEMENT ACT § 1, 12 U.L.A. 163 (1981), which many states have adopted and defines a conservation easement as a "non-possessory interest of a holder in real property imposing limitations or affirmative obligations the purposes of which include retaining for agricultural, forest, recreational, or open-space use, protecting natural resources, maintaining or enhancing air or water quality, or preserving the historical, architectural, archaeological, or cultural aspects of real property." *See also* UNIF. CONSERVATION EASEMENT ACT § 1-2, 12 U.L.A. 163 (1981) (purchasing development rights can be considered a subset of conservation easements because the phrase "purchase of development rights" describes programs in which conservation easements are purchased, rather than donated; the act restricts the passive obligation not to develop the property, rather than on both passive obligations and affirmative conservation duties (for example, to restore riparian vegetation)).

34. USDA FOREST SERV., FOREST LEGACY PROGRAM IMPLEMENTATION GUIDELINES at 17 (Dec. 21, 2011), available at http://www.fs.fed.us/spf/coop/library/flp_guidelines.pdf.

35. *See* 26 U.S.C. § 170(c) (2006) (adopting a conservation easement or donating development rights to a qualified nonprofit organization entitles a donor to a federal income or capital gains tax charitable deduction).

36. COLO. REV. STAT. § 39-22-522(7) (West 2013).

37. USDA, *supra* note 34, at 17-18, 21.

depending on how the conservation easements are held and administered.³⁸ Third, land acquisition programs are usually less complicated and expensive to administer than transferable development right programs or local and state land use regulations.³⁹

Despite these advantages, the success should be weighed against one major disadvantage: funds are so limited that only relatively small areas of land can be protected from exurban development.⁴⁰

Consider Florida, Vermont, and Colorado, states with very robust programs to conserve lands through acquisition of title or conservation easements.⁴¹ The Florida Department of Environmental Protection (DEP), which administers the Florida Forever program, reports: “since its inception in July 2001 to the present the Florida Forever program has acquired more than 683,000 acres of land with 2.87 billion dollars.”⁴² At that rate it will take 463 years to protect the remainder of Florida’s private rural lands.⁴³

After almost twenty-five years the Vermont Housing and Conservation Trust Fund program reports conserving “143,000 acres of agricultural land.”⁴⁴ Additionally the program conserved 252,700 acres of natural areas, recreational land, and historic properties.⁴⁵ That is about eight percent of the

38. See generally *id.* at 2 (The protection supplied by these mechanisms depends on how the conservation easements are held and administered).

39. NORTH LOGAN - CACHIE CNTY., GUIDEBOOK: TRANSFER DEVELOPMENT RIGHTS 1, 12 (Oct. 2003) available at <http://www.planning.utah.gov/Planninggrants/deliverables/2001/Final-TDR%20Guidebook-LR.pdf> (describing that this is particularly true when responsibility for administration of the easements is borne partly or entirely by nongovernmental organizations).

40. Bengston et al., *supra* note 27, at 279.

41. See FLA. STAT. § 259.105(2)(a) (2012); VT. STAT. ANN. tit. 15, § 302(a) (1987); COLO. REV. STAT. § 33-60-107(3) (2013) (providing very generous tax incentive programs).

42. *Florida Forever*, FLA. DEP’T OF ENVTL. PROT., http://www.dep.state.fl.us/lands/fl_forever.htm (last updated Mar. 5, 2013).

43. This calculation is made by calculating an annual land conservation figure of about 59,000 acres conserved by year, by dividing 683,000 acres conserved over 139 months (July 1, 2001 to January 31, 2013). According to the 2007 Federal Natural Resources Inventory, Florida’s total surface area was 37,533,700 acres. NATURAL RES. CONSERVATION SERV., *supra* note 12, at 14. According to a February 2013 report by the Florida Department of Environmental Protection, there was a total of 10,202,865 acres of land conserved in federal, state, and local fee ownership, and public and private conservation easements plus mitigation banks. FLA. NATURAL AREAS INVENTORY, FLA. DEP’T OF ENVTL. PROT., SUMMARY OF FLORIDA CONSERVATION LANDS: INCLUDING LESS-THAN-FEE CONSERVATION LANDS I (Feb. 2013), available at http://www.fnai.org/PDF/Maacres_201302_FCL_plus_LTF.pdf.

44. NATURAL RES. CONSERVATION SERV., *supra* note 12, at 3.

45. *Conservation Programs*, VT. HOUSING & CONSERVATION BD., <http://www.vhcb.org/conservation.html> (last visited Nov. 12, 2013) (describing program accomplishments from inception in 1987); See also Spatial Analysis Lab., *Vermont Conserved Lands Database*, UNIV. OF VT., <http://www.uvm.edu/rsnr/sal/vtcons.html> (last visited Nov. 12, 2013) (estimating about twenty percent of the state had been conserved as of 2000, including federal lands. The Spatial Analysis Lab is a cooperative organization comprised of stakeholders at every level, and is indicative of Vermont’s commitment to land conservation).

state's non-Federal, rural land area as of 2007.⁴⁶ At that pace, it would take about 300 years to conserve the rest of rural Vermont.

The Colorado conservation easement tax credit program may be the most successful state program of its type in the nation, as measured by the amount of land conserved. Between 1999 and 2010, Colorado conserved an average of 100,000 acres per year.⁴⁷ But even if 100,000 acres were protected every year for the next 100 years, the end result would be the protection of about fifteen percent of the land area of Colorado.⁴⁸ In addition, the properties that are conserved by easement are widely scattered and many appear to be in areas not threatened by development.⁴⁹

III. TRANSFERABLE DEVELOPMENT RIGHTS: APPEALING IN THEORY, BUT LIMITED IN APPLICATION

Transferable development rights (TDR) programs protect rural land from exurban sprawl. TDR programs quantify and transfer an entitlement (a "right") to develop land from conserved land (the "sending" property).⁵⁰ This right of the sending property is transferred to lands where development is desired (the "receiving" or "landing" property).⁵¹ In order for the receiving owner to use additional development rights on his or her property, the owner must buy them from the owner of the sending property.⁵² An easement protects the sending property from development. Typically these development rights are expressed in units of residential development.⁵³

46. NATURAL RES. CONSERVATION SERV., *supra* note 12, at 29, tbl.1.

47. COLO. LEGISLATIVE AUDIT COMM., OFFICE OF THE STATE AUDITOR, CONSERVATION EASEMENT TAX CREDIT: PERFORMANCE AUDIT 85 (2012).

48. *See* State and County Quickfacts, *supra* note 9 (100,000 acres for 100 years would be 10 million acres, which is 15,625 square miles; Colorado is 103,641 square miles).

49. *But see* Laura Snider, *Boulder's Blue Line Turns 50*, COLO. DAILY (Jul. 21, 2009), http://www.coloradodaily.com/ci_12964275?IADID=Search-www.coloradodaily.com. Boulder County, Colorado is an important exception to this statement and a good example of larger scale, concentrated conservation by use of conservation easement. Boulder Colorado adopted a "blue line" limiting development to the west (along the foothills of the mountains) in 1959, and the boundary around the eastern part of the city was added shortly thereafter. Several years later the residents voted to enact a sales tax to buy open space around the city. Today there are 40,000 acres of protected lands around the city.

50. Rick Pruetz & Noah Standridge, *What Makes Transfer of Rights Work?: Success Factors from Research and Practice*, 75 J. AM. PLAN. ASS'N. (JAPA), 78, 78 (Winter 2009) available at http://www.ecy.wa.gov/climatechange/2010TAGdocs/japatdr_winter2009.pdf.

51. *Id.*

52. *Id.*

53. ABELES PHILLIPS PREISS & SHAPIRO, INC., CAPITOL REGION COUNCIL OF GOV'T, TRANSP. AND CMTY. AND SYS. PRES. PROGRAM, ch. 3, at 1-2 (2002) available at http://www.crcog.org/publications/CommDevDoes/TCSP/Ch03_Technical_TDR.pdf. *See also* *Transfer of Development Rights*, King County, <http://www.kingcounty.gov/environment/stewardship/sustainable->

State and local governments create TDR programs to achieve both development and conservation objectives;⁵⁴ intensifying residential development in an urban or suburban receiving area and eliminating or limiting residential development in the sending area.⁵⁵

TDR programs can be voluntary or mandatory. Voluntary TDR programs authorize the transfer of rights.⁵⁶ By contrast, mandatory programs limit or replace an owner's entitlement to develop the property with the right to sell the development right.⁵⁷

A central concept in TDR programs is the creation of a free (unregulated) market in TDRs.⁵⁸ However, experience has demonstrated the value of creating institutions to facilitate these transactions, such as TDR banks.⁵⁹ TDR banks often incorporate governments and nonprofit conservation organization TDR purchases.⁶⁰

Determining how many "rights" to award to the owners of the sending property is one of the thorniest problems in establishing a TDR program. It requires a blending of administrative, political, and constitutional considerations.⁶¹ Because they offer compensation to landowners, TDR programs occupy a middle ground between voluntary, taxpayer, and charitable giving financed conservation programs and involuntary regulatory programs that prevent exurban sprawl without providing payments to landowners. Like conservation easement programs, TDR

building/transfer-development-rights/overview.aspx (last visited Nov. 12, 2013) (describing King County, WA's TDR program's private and public development).

54. Pruetz & Standridge, *supra* note 50, at 78.

55. *Id.*

56. *FAQ*, STATE OF N. J. DEP'T OF AGRIC.: STATE AGRIC. DEV. COMM. (2006), available at <http://www.state.nj.us/agriculture/sadc/tdr/faqs>.

57. *Id.*

58. Pruetz & Standridge, *supra* note 50, at 85.

59. *Id.*

60. *What is a Transfer of Development Rights (TDR) Program?*, RUTGERS NEW JERSEY AGRICULTURAL EXPERIMENT STATION (2013), available at <http://njaes.rutgers.edu/highlands/tdr.asp>.

61. R.S. Radford provides a useful review of the very limited Supreme Court case law on TDRs, from the perspective of a critic of government regulation of land. Based on the Supreme Court's decision on the Tahoe Regional Planning Agency's TDR program, he reasons that "[i]f land in a 'sending' district is downzoned so severely as to constitute a taking under Lucas and the TDR program is viewed as compensation, the TDRs must meet the rigorous standard of providing a "full and perfect equivalent for the property taken." On the other hand, if the availability of TDRs is counted as an economically viable use of the regulated property, then the government may avoid liability for a taking altogether. At least, a regulating agency employing TDRs would never be liable for a categorical taking under Lucas." R.S. Radford, *Takings and Transferable Development Rights in the Supreme Court: The Constitutional Status of TDRs in the Aftermath of Suitum*, 28 STETSON L. REV. 685, 688, 691-92 (1999) (reviewing Scalia's dicta regarding whether development is an "inherent right" of property and therefore any substitution of a TDR for that right would require compensation. This is a very different line of analysis than allowing the owner an economically beneficial use of property given that economic benefits not only take many forms but also change over time).

programs also contain an element of free market exchange in the buying and selling of the development rights.

TDR programs can also incorporate other elements that appeal to concerns about fairness. The most important is that TDR systems provide some offsetting development opportunities to replace those lost in order to conserve the land in the sending zones. At the other end of a TDR transaction there can be another element of fairness. Outside of the context of TDR programs, public investments in roads, parks, and schools increase the value of nearby property, creating a “windfall” that disproportionately benefits some landowners, relative to the large number of taxpayers whose tax money financed the improvements. Those public investments can be used to enhance the attractiveness of the “landing zones” whose primary beneficiaries are the owners of the sending areas. In other words, it is possible to partly balance the wipe-outs with the increased value created by the windfall.

This combination of elements of fairness and the free market make TDR programs attractive in theory; yet, they remain relatively rare in practice.

As of the date of a 2009 article, at least 191 TDR programs had been established in the United States.⁶² The twenty largest of these programs conserved 350,000 acres, combined.⁶³ New Jersey’s TDR program for the Pinelands and King County, Washington’s program illustrate two successful TDR programs.⁶⁴

The New Jersey Pinelands Commission was formed in 1979, following passage of New Jersey’s Pinelands Protection Act. The Commission found

The current pace of random and uncoordinated development and construction in the pinelands area poses an immediate threat to the resources thereof, especially to the survival of rare, threatened and endangered plant and animal species and the habitat thereof, and to the maintenance of the existing high quality of surface and ground waters; that such development and construction increase the risk and extent of destruction of life and property.⁶⁵

62. Pruetz & Standridge, *supra* note 50 at 80. The programs that have protected the most lands are in King County, Washington (91,500 acres), the New Jersey Pinelands (55,905), and programs in Calvert, and Montgomery Counties, Maryland, that have conserved a combined total of about 76,000 acres.

63. *Id.*

64. *Id.*

65. Pinelands Protection Act, N.J. STAT. ANN. § 13:18A-1 (West 2013).

According to the Pinelands Commission, this protected area contains 1.1 million acres, which is twenty-two percent of New Jersey.⁶⁶ “It is the largest area of open space on the Mid-Atlantic seaboard between Richmond and Boston, and is underlain by aquifers containing seventeen trillion gallons of some of the purest water in the land.”⁶⁷

In 1981, the Pinelands Commission created a TDR program using Pinelands Development Credits (PDCs) as part of the strategy for the implementation of the Pinelands’ Comprehensive Management Plan.⁶⁸ “PDCs are allocated to landowners in these districts based upon the land type and number of acres of a given parcel.”⁶⁹ The TDR market did not take off until the mid-1980s, when the state created the Pinelands Development Credit Bank.⁷⁰ The Credit Bank purchases TDRs from a seller if no other buyer can be found, and can then sell the right to a developer at a future date.⁷¹

The Pineland Development Credit Bank’s 2011 annual report stated that since inception in 1981, 10,865 development rights had been allocated to landowners, 7,060 of those development rights had been purchased (“severed” from the land).⁷² Of those 7,060 development rights, 4,550 had been used to authorize an additional 4,550 homes in forty-two different

66. N.J. PINELANDS COMM’N, *The Pinelands National Reserve: Our country’s first National Reserve*, STATE.NJ.US <http://www.state.nj.us/pinelands/reserve/> (last visited Nov. 12, 2013).

67. *Id.*

68. For example, within the Preservation Area District, PDCs are allocated at one PDC per 39 acres of upland and two-tenths a PDC for 39 acres of wetlands. . . . No PDCs are allocated to a parcel if it is 10 acres or less and is already developed for a commercial, industrial, or other such use. For parcels less than 39 acres, the property owner receives fractional PDCs at the same ratio established for the management area in which the parcel is located. The number of PDCs is also reduced by one quarter PDC for each single family dwelling existing on a parcel. Each PDC allocated to a parcel equals four transferable development rights. . . . Under the PDC Program, Regional Growth Areas established by the CMP serve as receiving zones. Within these areas, purchasers of PDCs may use the development rights to build at densities above the base density. . . . Once the Pinelands Commission identified and designated the Regional Growth Areas, municipalities where these areas are located had to amend their municipal master plans and local development regulations to accommodate them.” N.J. HIGHLANDS WATER PROT. AND PLAN. COUNCIL, ESTABLISHED TDR PROGRAMS IN NEW JERSEY: NEW JERSEY PINELANDS DEVELOPMENT CREDIT PROGRAM (2007), *available at* <http://www.nj.gov/agriculture/sadc/tdr/casestudy/tdrexamplesnj.pdf>.

69. *Id.*

70. N.J. PINELANDS COMM’N, *Pinelands Development Credit Bank*, STATE.NJ.US <http://www.state.nj.us/pinelands/pdcbank/> (last visited Nov. 12, 2013).

71. *Id.*

72. N.J. PINELANDS COMM’N, PINELANDS DEV. CREDITS SUMMARY REP. THROUGH DEC. 31, 2010 1, 2–3, 6, 12–13 (April 2011), *available at* http://www.nj.gov/pinelands/landuse/perm/pdc/2010_PDC_Summary_Report.pdf (Average prices on the open market began at a low of \$2,006 per right in 1986 (\$8,024 per PDC), peaked at \$30,413 per right (\$121,652 per PDC) in 2005 and in 2010 the mean sale price was \$15,789 per right (\$63,156 per PDC)).

municipalities.⁷³ The remaining 3,805 development rights had been purchased and extinguished as part of purchased and donated conservation easements.⁷⁴ This resulted in the conservation of 58,633 acres (about ninety-two square miles) of land in the Pinelands.⁷⁵ While the total acreage of the Pinelands TDR program is comparatively modest, the land that is conserved is concentrated in one region, resulting in more complete realization of the conservation objectives within that area. The program is often cited as one of the most successful TDR programs in the nation.⁷⁶

King County, Washington initiated its program in 1988, and included both rural and urban sending and receiving areas.⁷⁷ Like New Jersey, there were almost no transactions until the 1990s and 2000s when a TDR bank was established and the value of development rights in the rural sending areas was increased.⁷⁸ Both governments and private parties buy development rights, which range in price from \$4,000 to \$30,000 per TDR.⁷⁹

As of early 2013, King County's program had resulted in conservation easements on 141,500 acres.⁸⁰ The county purchased easements on another 43,000 acres in April 2013 for approximately \$11 million.⁸¹ This purchase brought the total area protected by the TDR program to approximately 185,000 acres (289 square miles.) If the land planned for urban development inside the regional Urban Growth Area and public lands are excluded, this means that in less than two decades since the TDR program began,

73. *Id.* at 12.

74. *Id.*

75. *Id.* at 1, 3.

76. James T.B. Tripp & Daniel J. Dudck, *Institutional Guidelines for Designing Successful Transferable Rights Programs*, 6 YALE J. ON REG. 369, 378 (1989); *But see* N.J. PINELANDS COMM'N, PINELANDS DEV. CREDITS SUMMARY REP. THROUGH DEC. 31, 2010 1, 2-3, 6, 12-13 (2011); *supra* note 72 (58,633 acres conserved); *but cf.* FLA. NATURAL AREAS INVENTORY, *supra* note 43 (a total of 10,202,865 acres conserved).

77. *King County TDR Program History*, KING COUNTY.GOV, <http://www.kingcounty.gov/environment/stewardship/sustainable-building/transfer-development-rights/history.aspx> (last updated March 4, 2013).

78. *Id.*

79. *TDR Bank*, KING COUNTY.GOV, <http://www.kingcounty.gov/environment/stewardship/sustainable-building/transfer-development-rights/bank.aspx> (last updated July 18, 2013) (explaining how King County created a TDR bank to facilitate transactions and also provided it with \$1.5 million to buy rights); *See TDR market information*, KING COUNTY.GOV, <http://www.kingcounty.gov/environment/stewardship/sustainable-building/transfer-development-rights/market-info.aspx> (last updated Feb. 15, 2012).

80. *Transfer of Development Rights (TDR) Program*, KING COUNTY.GOV, <http://www.kingcounty.gov/environment/stewardship/sustainable-building/transfer-development-rights.aspx> (last updated Oct. 30, 2013) (stating a single sale of 990 rights from the Snoqualmie Tree Farm conserved almost 89,500 acres).

81. METRO, KING CNTY. COUNCIL, *County Council acts to keep largest piece of unprotected forestland remaining in King County from development*, KING COUNTY.GOV, <http://www.kingcounty.gov/council/news/2013/April/whiteriver.aspx> (last updated Apr. 8, 2013).

conservation easements have been applied to more than two-fifths of the county's private rural land.⁸²

The map of sending and receiving areas illustrates that the protected areas are large blocks of forestland in the foothills of the Cascade Mountains several miles from the edge of the urban growth area.⁸³ The protected areas are also several miles from lower elevation lands, closer to the urban growth area, where some agriculture may be practiced.⁸⁴ The locations do not have conserved extensive road networks.⁸⁵

The New Jersey Pinelands and King County programs exemplify the advantages of a TDR program. TDRs can reduce or avoid the heavy tax burden of purchase programs that require significant taxes to fund conservation easements or the purchase of development rights.⁸⁶ Also, they can address or mitigate the concerns about the fairness of regulatory programs that reduce or eliminate previously authorized development entitlements without compensation.⁸⁷

There are disadvantages to a TDR program as well. They are complex to establish, complicated to explain to those who must enact them, and difficult to administer.⁸⁸ The amount of land that can be conserved is limited

82. Dow Constantine, *Statistical Profile on King County*, 2010 CENSUS, <http://www.google.com> (search for "King County Washington Statistical Profile 2011"; then follow "King County QuickLinks" PDF hyperlink). The Urban Growth Area, designated for urbanization under the state's Growth Management Act, is 461 square miles. *Id.* Federal, state, and local governments own 979 square miles. TRUST FOR PUBLIC LAND, GREENPRINT FOR KING COUNTY, app. at 9 (August 2004) (King County Washington Land Conservation Financing Study), available at <http://your.kingcounty.gov/dnrp/library/2005/KCR1856/AppendixA-Conservation-Finance-Study.pdf> (converting acres to square miles).

83. *TDR property map viewer*, KINGCOUNTY.GOV, <http://www.kingcounty.gov/environment/stewardship/sustainable-building/transfer-development-rights/tdr-map-viewer.aspx> (last visited Nov 12, 2013). This conclusion is based on a comparison of the County's map of TDR sending areas.

84. *Id.*

85. *Id.*

86. Sustainable building, *Transfer of Development Rights Program overview*, KINGCOUNTY.GOV, <http://www.kingcounty.gov/environment/stewardship/sustainable-building/transfer-development-rights/overview.aspx> (last updated Feb. 14 2012). King County has a somewhat longer list of public benefits of its TDR program:

(1) Land that is important to the health of the local environment and the well-being of County citizens is protected at no public expense The County—and its taxpayers—do not pay the high price to buy land outright, nor do they incur long term management costs of the land if it were put into public ownership; Land is permanently preserved and remains in private ownership and is managed by private landowners; (2) Development growth is focused into urban areas and away from critical rural and resource areas This creates more efficient development patterns and makes use of urban infrastructure to reduce the amount of development in the County's rural and resource lands; TDR acts to reduce and minimize the significant costs to the County of providing services to rural development located far from urban services.

87. *Id.*

88. See PINELANDS COMPREHENSIVE MANAGEMENT PLAN (Jan. 14, 1981), available at <http://www.state.nj.us/pinelands/cmp/CMP.pdf> (outlining a sixteen page procedural guideline for

by the demand for the development rights.⁸⁹ Another disadvantage stems from requiring development rights as a condition for more intense development in urban areas, which can frustrate, rather than promote, higher density development and redevelopment, which is a key element in compact growth efforts.⁹⁰

IV. RURAL RESOURCE CONSERVATION THROUGH LAND USE REGULATIONS

A. *Clustering of Rural Residential Development*

Clustering of rural residential development is accomplished through land use regulations. These regulations concentrate authorized residential development into a smaller portion of a parcel (or contiguous parcels in the same ownership) and conserve the remaining area as open space through regulations or conservation easements.⁹¹

Rural cluster residential development is distinct from typical residential land division standards that set minimum lot sizes, resulting in uniform lot size.⁹²

The result is a different development pattern, with clusters of homes scattered across a landscape interspersed with blocks of conserved land. Clustering can be mandatory or voluntary. Voluntary programs utilize incentives to spur implementation. These incentives may include authorization of additional dwellings if development is clustered or property tax benefits for conserved lands.⁹³ Clustering provisions may be used alone or combined with other conservation programs.⁹⁴

applying and reviewing TDR requests); *see also* *Transfer of Development Rights: Program overview*, KINGCOUNTY.GOV, <http://www.kingcounty.gov/environment/stewardship/sustainable-building/transfer-development-rights/overview.aspx> (last updated Feb. 14, 2013) (outlining an extensive process just to enroll property in the TDR program).

89. Both New Jersey and King County programs apply to areas where there is substantial population growth, high land values in the receiving areas that are subject to land use regulation that enhance the demand for TDRs.

90. *See* Patricia Machemer & Michael D. Kaplowitz, *Transferable Development Rights: A Market-Based Land Use Control*, in PROPERTY RIGHTS, ECONOMICS, AND THE ENVIRONMENT: THE ECONOMICS OF LEGAL RELATIONSHIPS 125, 135 (Michael D. Kaplowitz ed., 2005) (citing the disadvantages of a TDR program).

91. *See* Gary Pivo, Robert Small & Charles Wolfe, Commentary, *Rural Cluster Zoning: Survey and Guidelines*, 42 LAND USE LAW & ZONING DIGEST 1, 4 (1990), available at <http://www.u.arizona.edu/~gpivo/Rural%20Cluster%20Guidelines.pdf> (defining cluster zoning, outlining the purposes for cluster zoning, and how cluster zoning is achieved).

92. *See id.* at 5 (describing the various types of rural cluster zoning and discussing their legal bases).

93. *See id.* at 4 (“[d]ensity bonus provisions. . . can often provide an extra incentive for a developer to use cluster development.”).

94. *See id.* at 8 (“[a] successful cluster development must feature a regime of conservation easements, restrictive covenants and an established method of open space administration.”).

Clustering programs have several advantages. They interfere less with landowner's development expectations than both land use regulatory systems and mandatory transferable development rights.⁹⁵ The costs are far less than programs acquiring fee title, conservation easements, or development rights.⁹⁶ Furthermore, such programs are as easy to administer as most other zoning provisions.⁹⁷ However, the effectiveness of clustering ordinances to curtail exurban sprawl depends entirely on the content of the ordinance and the patterns of ownership in the area to which the ordinance applies.⁹⁸

B. Rural Conservation Zoning and Limits on Urbanization

Some states and many smaller units of government have adopted rural conservation zoning and limits on urbanization that go far beyond clustering requirements to limit or prohibit rural residential development and set boundaries for urban development. The legal tools used are the same kind of land use regulations used by cities and towns to manage urban development. Entities can apply these regulatory systems in ways that preserve large, contiguous blocks of rural land at both the state and local level.

Minnehaha County, South Dakota; Baltimore County, Maryland; and Oregon provide good examples of these rural zoning programs. Each of these units of government encompasses one or more growing metropolitan areas that exert significant development pressures on nearby rural lands.

The purposes for these regulatory conservation efforts are similar but not identical to the purposes stated for other rural land conservation programs.⁹⁹

95. See *id.* at 6–7 (“[p]ermitting procedures for rural cluster projects should be no more difficult for cluster developments than for traditional subdivisions. . .”).

96. *Id.*

97. *Id.*

98. If the predominant ownership pattern is forty acre parcels, and the ordinance creates one right for every ten acres and allows the lots to be as big as five acres, then the conserved landscaped will consist of twenty-acre parcels intermixed with an equal amount of large-lot residential lands. Those scattered twenty acre homesites will probably be too small and fragmented to provide wildlife habitat and too small to cost-effectively use for farming, ranching, or forestry. On the other hand, assume the dominant parcelization pattern is 160-acre parcels, and the clustering ordinance creates an entitlement to one residential lot for every twenty acres, and the maximum residential lot size is one-half acre. Once fully developed, the landscape will consist of large areas of rural lands with a scattering of small eight-unit subdivisions, occupying only four or five acres. Some habitat and other natural resource values will be somewhat compromised but not destroyed and farming, ranching, and forestry will remain viable.

99. To the extent there is a difference, the more emphasis is given to the protection of these lands for their private economic value as lands that produce crops, livestock, and forest products and to the need to avoid the cost-ineffective extension of public facilities and services to dispersed rural development. Less emphasis is given to the protection of environmental resources of general public benefit. That difference in emphasis is natural given the historical origins of the regulations in urban

The contents and procedures of the rural conservation zoning programs differ significantly from each other, as is the case with urban zoning regulations. However, these regulatory systems intended to protect rural lands all contain the same essential aspects: limits on the division of land into smaller units of ownership (parcelization), limits on the construction of new houses, and more general limitations on all other non-rural uses, such as commercial development.¹⁰⁰

In 2012, Minnehaha County, South Dakota, had a land area of 807 square miles and a population of 175,037, including the city of Sioux Falls.¹⁰¹ It grew by eighteen percent between 2000 and 2012.¹⁰²

Together Sioux Falls and Minnehaha County adopted land use plans and implementing regulations that established a system that created a clear separation between urban development and the agricultural land surrounding the urban area.¹⁰³ Urban development is to move outward gradually, in stages, to ensure that it is contiguous and compact.¹⁰⁴ This approach protects farmland from scattered urbanization, but to curb exurban residential sprawl required separate regulation by Minnehaha County, which administers the land around Sioux Falls.

In 1998, the county adopted a comprehensive plan containing the purposes and policies for the protection of “Commercial Agricultural Areas” and the regulatory methods to be used. The following list details these purposes and policies as set forth by the county:

- Restrict the density of residential uses within commercial agricultural areas and direct higher developmental densities to the municipalities.

zoning that was designed to separate conflicting uses in order to protect the value of property for its primary use.

100. See *infra*, pp 18–24.

101. See State and County Quickfacts *supra* note 9 <http://quickfacts.census.gov/qfd/states/46/46099.html> (last updated June 27, 2013).

102. See *id.* (2012 population was 175,037) but cf. U.S. DEP’T OF COMMERCE, U.S. CENSUS BUREAU, *American FactFinder*, http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml (last visited Nov 12, 2013) (2000 population was 148,281).

103. CITY OF SIOUX FALLS SOUTH DAKOTA, *Shape Sioux Falls 2035*, 26–27, Map 3a (2009), available at <http://www.siouxfalls.org/planning-building/planning/shape.aspx>; For the complementary Minnehaha County plan elements see text at footnote 105.

104. SIOUX FALLS PLANNING & BUILDING SERVICES, SIOUX FALLS, SOUTH DAKOTA 2015 GROWTH MANAGEMENT PLAN 20 (Jan. 21, 2003), http://www.gocolumbiano.com/community_development/commission_archive/Documents/SiouxFallsSDGrowthManagementPlan2003.pdf. See Jeffrey SCHMITT, CITY OF SIOUX FALLS PLANNING OFFICE, *Sioux Falls, SD 2015: A Growth Management Plan* 11, paper presented at the APA National Conference April 16, 2002, available at <http://www.greaterlansingurbanservice.org/Articles/Sioux%20Falls%20ND.pdf>.

- Preserve and protect the agricultural productivity of rural land by restricting the development of nonfarm residential sites. Maintain a residential density of not more than one building site per quarter-quarter section [40 acres.]
- The premature development of agricultural land should be discouraged.
- Discourage development patterns that require public improvements financed in part by the farming community but which are not necessary to support agriculture.
- Limit rural densities so that current service levels are not exceeded, thereby avoiding the creation of special purpose districts (i.e. sanitary, water and road districts).
- Discourage the splitting of land parcels into fragmented units that are incapable of supporting farming activities.
- Protect the rural area from uses that interfere and are not compatible with general farming practices.
- Avoid regulations that have a negative impact on farming operations.
- Promote development patterns that will avoid producing inflated agricultural land values.
- Within the framework of density zoning, every effort should be made to cluster residential uses and limit driveway approaches onto arterial and collector roads.
- Construction of infrastructure improvements in the rural area should be directed at addressing existing service deficiencies and not to justify additional nonfarm development.¹⁰⁵

The A-1 Agricultural District in Minnehaha County imposes these limitations on home construction and land divisions.¹⁰⁶

The County Comprehensive plan does not identify the number of acres in the A-1 District. However, an on-line fact sheet states that the “vast majority” of the area outside incorporated cities is in the A-1 District.¹⁰⁷ Judging from the appearance of the zoning map, the share is probably more

105. MINNEHAHA CNTY., COMPREHENSIVE DEVELOPMENT PLAN 1-1, 5-4, 5-5 (1998), available at http://www.minnehahacounty.org/dept/pl/comprehensive_plan/comprehensive_plan.html.

106. MINNEHAHA CNTY., S.D., ORDINANCE MC16-90 §§ 3.02, 3.03, 3.04, 3.05, 3.08 (1990) (revised 2009), available at https://www.minnehahacounty.org/dept/pl/pl_ordinances/mc16-90/1990_revised_ordinance.pdf.

107. *Planning and Zoning Frequently Asked Questions*, MINNEHAHACOUNTY.ORG, <http://www.minnehahacounty.org/dept/pl/faqs/faqs.aspx> (last visited Nov. 12, 2013).

than eighty percent of the entire county.¹⁰⁸ Eighty percent of the county would translate into more than 400,000 acres. To put this in perspective relative to other efforts to protect rural lands from exurban sprawl, the amount of land protected by A-1 zoning in this one county in South Dakota is equal to or larger than the acreage protected by donated and purchased conservation easements in Vermont over the course of twenty-five years.¹⁰⁹ It is also the same size or larger than all the land protected by the twenty biggest transferable development rights programs in the U.S. up until 2009.¹¹⁰

Baltimore County's program, like Sioux Falls and Minnehaha County, combined limits on urban expansion with rural conservation zoning.

Baltimore County, which excludes the city of Baltimore, is 598 square miles in area.¹¹¹ Between 2000 and 2012, the county's population grew 8.4% to 817,455 people.¹¹² The effort to protect rural areas began in 1967, when

the county developed the concept of delineating two distinct land management areas—the urban area and the rural area—to maximize the efficiency of county revenues on infrastructure in urban areas and preserve important natural and agricultural resources in rural areas. An urban-rural demarcation line (URDL) was established reflecting development of this concept.¹¹³

This first step was followed by the adoption of urban and rural zoning in 1975 and by further refinements to implement the 1979, 1989, and 2010 Master Plans.¹¹⁴

Under the zoning rules adopted to implement the 2020 Master Plan, about one-half of Baltimore County (roughly 300 square miles or 192,000

108. Minnehaha County Zoning Map, MINNEHAHA CNTY., http://gis.minnehahacounty.org/dept/pl/map_gallery/map_gallery.aspx (last updated May 23, 2013).

109. *Conservation Programs*, VT. HOUSING & CONSERVATION BD., *supra* note 45.

110. Pruetz & Standridge, *supra* note 50, at 79–80.

111. State and County Quickfacts *supra* note 9.

112. U.S. CENSUS BUREAU, U.S. DEP'T OF COMMERCE, *Annual Estimates of the Resident Population*, CENSUS.GOV,

http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=PEP_2012_PEPANNRES, (last visited Nov. 12, 2013); *Maryland at a Glance*, MD. MANUAL ON-LINE (Feb. 19, 2013), <http://msa.maryland.gov/msa/mdmanual/01glance/html/pop.html>.

113. BALT. CNTY COUNCIL, MASTER PLAN 2010: BALTIMORE COUNTY, MARYLAND 1–3 (2000); *see also* DEP'T OF PLAN., *Master Planning History*, BALTIMORECOUNTYMD.GOV <http://www.baltimorecountymd.gov/Agencies/planning/masterplanning/historyofmasterplanning.html> (last updated Sept. 30, 2013).

114. *Id.*

acres) fell within one of the “Resource Conservation” zones.¹¹⁵ The Rural Conservation areas are made up of separate conservation zones (which include attendant regulations) for “Agriculture,” “Resource Preservation,” “Watershed Protection,” and the “Chesapeake Bay Critical Area.”¹¹⁶ The Rural Conservation areas also include zones where higher intensity rural residential development is allowed (“Rural Residential,” “Rural Conservation and Residential,” “Commercial,” and “Environmental Enhancement”).¹¹⁷ The majority of the rural area is classified as Agricultural or Resource Preservation.¹¹⁸

The 2010 Master Plan states that about 100,000 acres (about twenty-five percent of the county’s land area) is used for commercial agriculture.¹¹⁹ The Master Plan describes the need to maintain a minimum amount of contiguous land to sustain agriculture, prevent conflicting uses (including residential uses), and maintain parcels in sizes that are big enough for modern farming.¹²⁰ Each factor is meant to protect farmland.¹²¹

The Agriculture zone is the largest of the Rural Conservation zones.¹²² It allows a wide variety of non-agricultural uses like artist salons, dentist offices, and water bottling plants.¹²³ However, the zone sharply curbs the further division of parcels, generally creating a fifty-acre floor on parcels, and also limits houses to one per parcel.¹²⁴

How successful has Baltimore County’s effort to curb rural sprawl been? From 1990 until the adoption of the 2010 Master Plan, an average of 443 permits for residences have been granted for the rural part of the county each year.¹²⁵ This translates into 8,860 residential permits in the rural area. During the same period, Baltimore County grew by 112,895 people.¹²⁶ In

115. Donald C. Outen, *Pioneer on the Frontier of Smart Growth: The Baltimore County, MD Experience* 1, 22, 24 (National Center for Smart Growth, Research & Education, Resources for the Future, Conference Paper No. 18, 2007), available at http://www.rff.org/rff/events/upload/30224_1.pdf

116. BALT. MD., CNTY. CODE §§ 1A01.R.C.2, 1A03.R.C.4, 1A05.R.C.20, 1A08.R.C.7 (2008) available at <http://ccode360.com/BA1714> (last visited Nov 12, 2013).

117. BALT. CNTY. COUNCIL, MASTER PLAN 2010, *supra* note 113, at 243–44.

118. *Id.* at 233.

119. *Id.* at 221–23.

120. *Id.*

121. *Id.*

122. Outen, *supra* note 115, at 24.

123. BALT., MD., CNTY. CODE §§ 1A01.2, 1A01.3 (2008).

124. *Id.*

125. BALT. CNTY. COUNCIL, *supra* note 113 at 213.

126. See State and County Quickfacts, *supra* note 9 (stating the 2010 Baltimore population was 805,029) but cf. U.S. CENSUS BUREAU, U.S. DEP’T OF COMMERCE, *Historical Population Counts*, (Mar. 27, 1995) <http://www.census.gov/population/cccounts/md190090.txt> (stating the 1990 Baltimore population was 692,134).

Baltimore County, a household averages 2.48 persons.¹²⁷ That means that about twenty percent of Baltimore County's residential development over twenty years took place in the rural parts of the County. However this includes those parts of the county designated for rural residential development. Given the scale of the land area and amount of growth, Baltimore County has certainly greatly curbed the amount of exurban development that would have occurred without its program, compared to rural residential development in other counties in Maryland.¹²⁸

The Oregon program, like the county programs in South Dakota and Maryland, combines limits on urban development and rural conservation zoning that limits, and in many cases prohibits, rural residential development. The difference is that it applies them with even greater rigor and over a far larger area.

Oregon is about 96,000 square miles in area and had a 2010 population of 3.9 million people,¹²⁹ a fourteen percent increase from 2000.¹³⁰

In 1973, Oregon enacted statewide growth management legislation that established state and regional planning goals, which local governments and state agencies were required to implement.¹³¹ Those goals included the preservation of agricultural land and the conservation of forestlands.¹³² Over the years since 1973, this original statewide growth management legislation was reinforced by what now constitutes an elaborate and lengthy statutory zoning code for farm and forestlands.¹³³

127. See State and County Quickfacts, *supra* note 9 (recording Maryland averaged 2.48 persons per household during 2007-2011).

128. The Maryland Task Force on the Future for Growth and Development in Maryland commissioned research on the effectiveness of the state's effort to focus residential growth into Priority Funding Areas ("PFAs"). The research found "that the annual percentage of parcels developed outside PFAs rises from approximately 24% in 1990 [prior to the implementation of the PFAs as part of the state's Smart Growth statutes and programs] to 26% in 2004. Figure 6 shows that the acres of land developed for residential use outside PFAs rose from approximately 75% in 1990 to 77% in 2004." Rebecca Lewis, et al., *Managing Growth With Priority Funding Areas: A Good Idea Whose Time Has Yet to Come*, J. AM. PLAN. ASS'N. (JAPA) 457, 467 (2009), available at http://www.washingtonpost.com/wp-srv/metro/pdf/smart_growth_study.pdf.

129. See State and County Quickfacts, *supra* note 9 (stating Oregon's 2010 land area was recorded at 95,988 square miles and its population recorded at 3,831,073).

130. Marc Perry & Paul Mackun, U.S. BUREAU OF THE CENSUS, POPULATION CHANGE AND DISTRIBUTION 1990-2000, 1, 2 (2001), available at <http://www.census.gov/prod/2001pubs/c2kbr01-2.pdf>.

131. *Oregon's Growth Management Program*, *supra* note 26, at 10368.

132. OR. DEP'T OF LAND CONSERVATION & DEV., OREGON'S STATEWIDE PLANNING GOALS & GUIDELINES, Goal 3 at 1, Goal 4 at 1 (Mar. 12, 2010), http://www.oregon.gov/LCD/docs/goals/compilation_of_statewide_planning_goals.pdf (citing OR. ADMIN. R. 660-15-0000(3), (4)).

133. OR. REV. STAT. § 215.203-215.327 (2011).

About 16.1 million acres of private land in Oregon are in the Exclusive Farm Use (EFU) zones.¹³⁴ 8.2 million acres are in forest zones, and 2.2 million acres are in mixed farm-forest zones.¹³⁵ Farm and forest zoning applies to more than ninety-five percent of Oregon's private lands.¹³⁶

Within the various regionalized types of EFU zoning, there is no general entitlement to build a house on any parcel, regardless of the parcel size. Instead, seven different categories of houses are allowed on EFU zoned land. One such category includes a primary residence for persons engaged in commercial agriculture, as measured by gross farm sales.¹³⁷ Another type of house allowed is an accessory dwelling for farm workers.¹³⁸ There can also be nonfarm dwellings on a parcel if it is found generally unsuitable for agriculture.¹³⁹ Finally, there can be a limited number of dwellings on certain lots of record created before 1985.¹⁴⁰

Land division standards differentiate between creating parcels for nonfarm dwellings, which need to be small, and creating parcels for other purposes, which require retaining land ownership in larger units (e.g. eighty acre parcel sizes for farming, and 160 acres for rangeland use).¹⁴¹

In the eleven years from 1997 to 2007, local governments approved 6,485 new homes on the 16.1 million acres in Exclusive Farm Use zones.¹⁴² This equals about one home for every 2,500 acres (4 square miles).¹⁴³

134. OR. DEP'T OF LAND CONSERVATION & DEV., *DLCD Farmland Protection Program*, OREGON.GOV, http://www.oregon.gov/LCD/pages/farmprotprog.aspx#Farmland_Protection_Program (last visited Nov. 12, 2013).

135. OR. DEP'T OF LAND CONSERVATION & DEV., *Forest Protection Program*, <http://www.oregon.gov/LCD/pages/forlandprot.aspx> (last visited Nov. 12, 2013).

136. See ROSS GORTE, ET AL., CONG. RESEARCH SERV., *Federal Land Ownership: Overview and Data* (2012) (finding fifty-three percent of Oregon's lands are in Federal ownership); *but cf.* U.S. BUREAU OF THE CENSUS, DEP'T OF COMMERCE, STATISTICAL ABSTRACT OF THE UNITED STATES: 1991, 201 (111th ed. 1991) (stating another 7.4% were in other public ownership as of 1991). The remaining 39.6% of the 96,000 square miles equals 24.3 million acres. This is less than the total amount of land identified in farm, forest and mixed farm forest zones. However, state owned forest and rangelands are included in those totals as well as other non-Federal publicly owned lands.

137. OR. REV. STAT. § 215.213(2)(a), (b) (2011) (noting primary farm dwellings in marginal lands counties); OR. REV. STAT. §§ 215.279, 215.283(1)(c) (2011) (recognizing primary farm dwellings); *see also* OR. ADMIN. R. 660-033-0135(4) (2013) (establishing gross annual agricultural sales income tests of \$80,000 for farm dwellings on high value farmland); OR. ADMIN. R. 660-033-0135(3) (2013) (establishing gross annual agricultural sales income tests of \$40,000 on other lands); OR. REV. STAT. § 215.213(1)(d) (2013); OR. REV. STAT. § 215.283(1)(d) (2011) (relating to dwellings for relatives of the residents of the primary farm dwelling).

138. OR. REV. STAT. §§ 215.277, 215.278 (2011).

139. *Id.* at § 215.213(3) (2011) (noting nonfarm dwellings in marginal lands counties); §§ 215.262, 215.284 (2011) (recognizing nonfarm dwellings in all other counties).

140. *Id.* at § 215.705(a) (2011).

141. *Id.* at §§ 215.263; 215.780(1)(a), (b) (2011).

142. OR. DEP'T OF LAND CONSERVATION & DEV., APPROVED 2006-07 FARM REPORT: JANUARY 1, 2006 THROUGH DECEMBER 31, 2007 (2007), *available at* <http://www.oregon.gov/LCD/docs/rural/farm2006-07.pdf>.

From the perspective of the amount of land being protected and the limited and slow rate of residential development, this is a very impressive performance. But it may not be adequately judged against the state's own goal of preserving farmland, particularly since the houses are not evenly distributed across Oregon's farmland. Over the course of a few decades the program is allowing the gradual conversion of its farm zones into very low-density rural residential areas.

Unlike EFU zoning, Oregon's forest conservation zoning allows houses outright at densities of 160 to 320 acres depending on productivity of the forested land,¹⁴⁴ as well as some dwellings on less productive lands, and lots of record created before 1985.¹⁴⁵ The minimum parcel size in forest zones is eighty acres.¹⁴⁶

These limitations on division and development forest zoning in Oregon withstood challenges under the state and Federal constitutional protections against regulatory takings because forestry is an economic use of the property and the purpose of protecting forestry from conflicting residential uses was a legally legitimate use of the State's police power.¹⁴⁷

In the eleven years from 1997 through 2007, 5,016 dwellings were approved in forest zones.¹⁴⁸ This equals about one home for every 1,600 acres (2.7 square miles).¹⁴⁹

As with Exclusive Farm Use zones, this performance looks very good by comparison with other states, even those with their own forest conservation efforts,¹⁵⁰ but this steady introduction of new houses into

143. *Id.*

144. OR. REV. STAT. § 215.740(1)(a), (b) (2011) (Dwellings are allowed in forest zones on 240-acre parcels in Eastern Oregon, on 160 acres parcels in Western Oregon, or 320 acres of noncontiguous forest lands in the same ownership).

145. *Id.* at § 215.705 (limited lot of record dwellings); § 215.720 (dwellings on low productivity forest lands); § 215.750 (dwellings in forest zones in areas already partly parcelized and developed).

146. *Id.* at § 215.780(1)(c).

147. See *Dodd v. Hood River Cnty.*, 136 F.3d 1219, 1229–30 (9th Cir. 1998) (upholding the constitutionality of forest land zoning limits on dwellings), *cert. denied*, 525 U.S. 923 (1998).

148. OR. DEP'T OF LAND CONSERVATION & DEV., APPROVED 2006–07 FOREST REPORT: JANUARY 1, 2006 THROUGH DECEMBER 31, 2007 (2007) *available at* <http://www.oregon.gov/LCD/docs/rural/forest2006-07.pdf>.

149. Compare OR. DEP'T OF LAND CONSERVATION & DEV. *supra* note 147 with *Id.* (dividing 8.2 million acres by 5,016 approved dwellings).

150. Jeffrey D. Kline and Ralph J. Alig, *A Spatial Model of Land Use Change for Western Oregon and Western Washington*, Pacific Northwest Research Station, Forest Service, USDA, Research Paper PNW-RP-528 (September 2001), *available at* <http://www.fs.fed.us/pnw/pubs/rp528.pdf>. For more research results on the performance of the Oregon effort to protect private forests from development, see GARY J. LETTMAN ET AL., FOREST, FARMS & PEOPLE: LAND USE CHANGE ON NON-FEDERAL LAND IN WESTERN OREGON 1973-2000 (May 2002), *available at* http://www.oregon.gov/odf/state_forests/frp/docs/forestfarmspcople.pdf; GARY J. LETTMAN ET AL.,

forests, if continued over several decades, will change the use and character of these lands, compromising both their capacity to produce timber and their role as sources of water and wildlife habitat.

The data allow us to compare Oregon's largest metropolitan area, the three counties containing the Oregon portion of the Portland metropolitan area, with Baltimore County, which contains the largest share of Maryland's largest urban area.

In the three counties that comprise the Portland Metropolitan Statistical Area within the State of Oregon, almost exactly 100,000 permits for residential structures (single and multifamily) were approved between 1998 and 2008.¹⁵¹ About two percent of those were approved for sites in Exclusive Farm Use or Forest zones and another two percent were approved in rural residential zones outside urban growth boundaries.¹⁵² This compares with the twenty percent share of residential development outside of the Urban-Rural Dividing Line between 1990 and 2010.¹⁵³

As illustrated by these three examples, the use of rural conservation zoning (combined with limits on urban development) has many strengths, such as (1) large areas of land can be protected, (2) taxes and tax benefits are not required to achieve the conservation objectives, and (3) the regulatory system of zoning is familiar. There are also serious disadvantages, including high levels of initial and continuing political opposition.¹⁵⁴ Compared to conservation easements and acquisition of fee title, there is less certainty about the possibility of actual conservation since regulatory programs are subject to political change and pressure.¹⁵⁵ As a

FOREST, FARMS & PEOPLE: LAND USE CHANGE ON NON-FEDERAL LAND IN EASTERN OREGON 1975-2001 (Aug. 2004), available at http://www.oregon.gov/odf/state_forests/frp/docs/cordz.pdf.

151. E-mail from Zach Christensen, Metro Research Center, containing "UGB capture rate for dwelling units; preliminary research results" table (Nov. 28, 2008) (on file with author). Some of these research results and the map that displayed the location of residential permits were published by Metro as part of its regular urban growth report in 2010. However, that report presented only the data on the distribution of permits inside the Portland regional urban growth boundary and not information on the permits for residential development outside the regional UGB. METRO, URBAN GROWTH REPORT: EMPLOYMENT AND RESIDENTIAL 2009-2030 (January 2010), <http://library.oregonmetro.gov/files/ugr.pdf>.

152. *Id.*

153. See *supra* texts accompanying notes 134 and 135.

154. In Oregon this has taken the form of ballot measures to repeal the land use laws defeated in 1976, 1978, and 1982, the passage of two "property rights" measures that effectively abolished farm and forest zoning and most urban zoning in 2000 and 2004 and the passage of a replacement measure referred by the Legislature in 2007. OR. DEP'T OF LAND CONSERVATION & DEV., *History of Oregon's Land Use Planning*, OREGON.GOV, <http://www.oregon.gov/LCD/Pages/history.aspx> (last visited Nov. 12, 2013); Edward J. Sullivan & Jennifer M. Bragar, *The Augean Stables: Measure 49 and the Herculean Task of Correcting an Improvident Initiative Measure in Oregon*, 46 WILLAMETTE L. REV. 577, 578 (2010).

155. See Alison Knezevich, *Northern Baltimore County Zoning Issues Split Residents: County Council Vote on Dozens of Rezoning Requests Set for Aug. 28*, BALT. SUN (Aug. 26, 2012),

consequence, the programs, initially or over time, allow for a continuing trickle of rural residential development with long-term consequences.¹⁵⁶

V. A REFINED HYBRID APPROACH COULD COMBINE EFFECTIVENESS AND GEOGRAPHIC BREADTH WITH POLITICAL FEASIBILITY

As noted previously, many of the rural land conservation programs combine several elements, such as transferable development rights and purchase of development rights. There is now enough time and experience in administering these conservation programs to create an even more effective hybrid approach that would allow state and local governments to conserve far more of America's rural resource lands. The new hybrid approach should be implemented incrementally, as political and fiscal opportunities present themselves. The following paragraphs describe the key elements of the program framework and administration:

In the first stage, local governments can adopt or clarify their rural land conservation policies, identifying the lands and resources to be conserved, with specific measurable goals or outcomes tied to performance dates. The program preferably should be statewide, but it could be adopted at a multi-county regional level, or even within a single county.

Only large areas of rural lands retaining substantial natural resource or commodity production value should be included in the program. Lands containing high proportions of exurban development combined with high levels of development entitlement would be excluded (except perhaps as landing zones for TDRs). Different conservation plans should have different sets of objectives, such as farmland preservation, protection of wildlife, or protecting lives and property from natural hazards.

In the second stage of implementing the hybrid-approach, existing rural development entitlements within the conservation plan area must be defined, capped, and stabilized. This may be the most politically difficult step, but also the most essential, as it is critical for the program to work.¹⁵⁷

http://articles.baltimoresun.com/2012-08-26/news/bs-md-co-north-county-zoning-20120826_1_requests-limit-development-natural-beauty (illustrating the pressures in Baltimore County).

156. MINNEHABA CNTY., *supra* note 105, at 9-5 (the Minnehaha County land use plan is unusually frank in recognizing the long-term consequences of its policies of allowing this level of rural residential development, stating, "The current density zoning standard allows up to 16 residences on each square mile of land. This density may be contrary to long-term farming interests who must endure more nonfarm population while attempting to sustain a profitable business without causing conflicts with neighbors.").

157. Rural land owners assume that their property can and will be developed for significant residential use at the maximum level of current entitlements whether or not the market and other circumstances would actually result in that development. Rural development market analyses could be useful in establishing objective information about actual size of the rural development market and

The program must be able to define, limit, and then reduce the total amount of residential development.

In the third stage of implementation, residential development rights, each associated with contiguous ownership, would be reviewed and certified to the property. This would often be a laborious exercise. Residential development opportunities are limited by the contingent nature of entitlements under many zoning systems, unknowns about the feasibility of water supplies, sewage disposal, and the location of natural hazard zones and already protected natural resources.

In addition to the steps outlined above, mandatory or voluntary cluster zoning would be implemented for larger lots. The implementing government would create a land conservation fund with staff and capitalize a TDR bank.

Landowners could make use of their development rights in a multitude of ways. These include selling or donating the development right to the government or a nonprofit organization, selling or transferring it for use through a TDR system to a landing zone, or by on-site development under the cluster zoning ordinance.

When the development right is used, the land from which it was derived would lose all future residential development rights through the adoption of a conservation easement, publicly held by a state agency or the local government. Another arrangement that might protect the public interest in easements would be for easements to be held jointly between the county government and a nonprofit, with each party having veto rights. These easements would be subject to very strict tests in order to be broken. State statutes would be adopted to allow third-party enforcement of the conservation easements, and allow for the award of attorney fees. All of these arrangements would be necessary to provide the highest possible level of certainty that the development restriction would be permanent.

In order to increase the acreage in conservation easements, the state should adopt generous income tax credits and make these tax credits transferable to third parties. Only the lands identified in the conservation area plans would qualify for these tax credits. A local government could authorize credits against one or more of its local taxes for conservation easements (assuming these local credits do not contravene state

therefore a more realistic evaluation of potential value. Rural residential development opportunities and speculative land values are dependent on the provision of government facilities and services in rural areas, like road construction and maintenance or fire protection. The withdrawal of government support for those facilities and services as part of the conservation effort can significantly shrink the projected rural residential market.

constitutional provisions or state laws that define tax fairness). Current use property tax assessment would be mandatory for conserved lands (that is, not taxed on a hypothetical highest and best use not permitted under the program.)

An appropriate funding source for administration of the program and for various incentives would be a modest tax on government created "givings" (land value windfalls to property owners resulting from rezoning and publicly financed infrastructure).

In addition to providing conservation incentives, disincentives for rural residential development should be created by limiting the availability of rural services, capital improvements, and maintenance programs. The level and cost of rural services (school bus transportation, fire protection, road maintenance) should be consistent with the rural development pattern to be achieved.

CONCLUSION

Exurban residential sprawl is a serious environmental, fiscal, and economic problem for the United States. Over the past forty years, state and local governments have experimented with different approaches to curbing exurban residential sprawl. These programs have demonstrated that these different approaches are effective in different degrees in curbing rural residential sprawl but separately are either too weak or too politically challenging and unstable to protect large areas of rural America. State and local governments can now benefit from this experience to craft and implement hybrid programs that combine the strengths of these different approaches.