From Empty Shells to Healthy Homes: Ecologically Re-envisioning American Cities

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INTRODUCTION

Americans have pursued land use planning, especially zoning, in a consumptive, damaging way. Thus, critics assert that zoning is an inherently poor way to plan cities.[1] Although most cities employ the Euclidean zoning that caused great damage, many other types of zoning have evolved as useful planning tools. Smart Growth, new urbanist techniques, and performance zoning pose solutions to some of the damage to cities, and may be used differently by various cities to rectify Euclidean zoning's failures.[2] However, these techniques fall short of changing Americans' relationship to cities and land: new techniques may emphasize transit, human-scale development, or 24-hour use of a city.[3] But the alternative techniques still fail to address all of the city's problems, which appear unrelated but are in fact intertwined with our most essential problem. That problem is citizens' views and treatment of cities as mere tools for human use and production rather than living systems.

The lands cities inhabit are part of nested and overlapping ecological and biological systems that all have their own carrying capacities.[4] Restorative planning must use new zoning tools and attitudes such as smart growth, performance zoning, and new urbanism to reorient the practice and make the neighborhood cities' basic unit of planning.[5] However, this paper goes further than commonly proposed alternative techniques to assert that regional cooperation and

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[1] Robert W. Burchell, Naveed A. Shad, *The Evolution of the Sprawl Debate in the United States*, 5 HASTINGS W.-N.Q. J. ENVTL. L. & POL'Y 137, 138-39 (1999) (explaining Delafons' criticism American zoning practices as static in his comparison of American and British land use control; Craig Anthony Arnold, *The Structure of the Land Use Regulatory System in the United States*, 22 J. LAND USE & ENVTL. L. 441, 454 (2007).

[2] Craig Anthony Arnold, *Fourth-generation Environmental Law: Integrationist and Multimodal*, 35 WM. & MARY ENVTL. L. & POL'Y REV. 771, 790-801 (2011).

[3] *See, e.g.,* Craig Anthony Arnold, *Fourth-generation Environmental Law: Integrationist and Multimodal*, 35 WM. & MARY ENVTL. L. & POL'Y REV. 771, 788 (2011); Robert W. Burchell, Naveed A. Shad, *The Evolution of the Sprawl Debate in the United States*, 5 HASTINGS W.-N.Q. J. ENVTL. L. & POL'Y 137, 152 (1999); Patricia E. Salkin, *Squaring the Circle on Sprawl: What More Can We Do? Progress Toward Sustainable Land Use in the States*, 16 WIDENER L.J 787, 831-32 (2007).

[4] TIMOTHY BEATLEY & KRISTY MANNING, THE ECOLOGY OF PLACE: PLANNING FOR ENVIRONMENT, ECONOMY, AND COMMUNITY, 2-3 (1997).

[5] Patricia E. Salkin, *Squaring the Circle on Sprawl: What More Can We Do? Progress Toward Sustainable Land Use in the States*, 16 WIDENER L.J 787, 831-32 (2007).

planning are essential. Most importantly, land use decisions and zoning codes must only allow the intensity of use each parcel or section of land can bear, to reflect land's capacity in concentric, sometimes overlapping circles that operate much like the ecosystems supporting human land use. We must understand cities as living systems within living systems, rather than as successions of objects humans interact with. Cities sustain the lives and economies within and around them; their structures impact the function of all these lives and activities. The city must be acknowledged as the heart of regions. Rochester, NY, a typical mid-sized American city, is a revealing example of how cities devolved from living, breathing communities with diverse interactions and compositions into empty highways with business districts but few inhabitants. The same city offers an example of how we might re-envision these cities to address the problems and revolutionize American land use patterns.

I. EUCLIDEAN ZONING'S LEGACY

Zoning grew out of the perception that cities were dirty, dangerous, and overcrowded, with substandard living conditions.[6] The tool sought to keep nuisances separate from residential areas.[7] However, traditional cities also offered positive aspects, including community open spaces and opportunities to encounter diverse lifestyles, habits, stories, and cultures.[8] Furthermore, traditional cities offered efficient transportation, self-reliant food systems, and personal automotive use was not as integral to travel as it is today.[9] The traditional structure favored pe-

[6] Virginia M. Harding, *Burnham, Water, and the Plan of Chicago: A Historical Explanation of why Water was Ignored and the Consequences of Ignoring Water*, 43 J. Marshall L. Rev. 413, 424-5 (2010); Faith R. Rivers, *Bridging the Black-green-white Divide: The Impact of Diversity in Environmental Nonprofit Organizations.* 33 Wm. & Mary Envtl. L. & Pol'y Rev. 449, 455 (2009).
[7] Faith R. Rivers, *Bridging the Black-green-white Divide: The Impact of Diversity in Environmental Nonprofit Organizations.* 33 Wm. & Mary Envtl. L. & Pol'y Rev. 449, 455 (2009).
[8] Christian Iaione, *The Tragedy of Urban Roads: Saving Cities from Choking, Calling on Citizens to Combat Climate Change*, 37 FORDHAM URB. L.J. 889, 153 (2010).
[9] *E.g., Id.*

destrian circulation, mixed uses, grid street patterns, and neighborhood-based design.[10] Euclide-an zoning's focus on separating "incompatible uses" necessarily removed mixed uses from neighborhoods and required an ever-growing land base to create distance between residents and other uses; this in turn disfavored pedestrian circulation and favored expansion into sensitive lands over compact neighborhoods. However, traditional city concepts lurk beneath the Euclide-an-zoned city and may be restored and enhanced.

a. <u>The sprawling city: Rochester, NY</u>

Rochester, New York's traditional city structure reveals itself as the city's foundation up-on examination of some city streets' grid patterns and in its business district. However, what remains of the overall city is so altered that blight and sprawl's activities, habits, and usages have replaced traditional function. Historically, the city itself was densely populated, with tree-lined streets, and alive with activity.[11] Center city contained a transportation hub offering accessible, efficient public transportation within the city.[12] Even at the time, Rochester was known as a "20 minute city" that offered convenient mobility.[13] However, the "Inner Loop"—a twelve-lane highway offering enhanced automobile circulation within the city replaced that hub.[14] But more importantly, the Inner loop provided immediate access to suburbs by connecting a growing net-work of highways.[15] Rochester remains a "20 minute city" because the dominant mode and scale of movement have transitioned from public and internal to private and distant. However, as both industry and residents moved to suburban locations, sprawl eventually caused disuse of the Inner Loop. Whereas residents once relied on the Inner Loop heavily to travel between suburbs and

[10] *Id.*
[11] http://heckeranddecker.wordpress.com/2010/02/25/the-price/.
[12] http://heckeranddecker.wordpress.com/2011/10/25/the-streetcar-city/.
[13] *Id*. Pointing out that the ease of transportation lent to a twenty-minute commute within the city.
[14] *Id.*
[15] *Id.*

the city, the highway is now underutilized and decaying.[16] Sprawl's effects on Rochester are astoundingly obvious in aerial photographs that witness the city's emptying.[17]

Furthermore, food purchasing habits changed: residents once procured food from local farmers at two large, accessible public markets that offered interaction and connection.[18] Now, many buy packaged goods at grocery or big box stores, from national and international companies instead of from local markets and growers. Although the city has retained one of the markets, its location is much less accessible than the traditional markets, and the food offered is less likely to have been grown locally.[19] However, recently, changes in zoning techniques have begun to offer solutions to the problems Euclidean zoning created.

b. Rochester's Renaissance

In response to its urban problems, Rochester adopted a new comprehensive plan in 1999, after extensive collaboration with community members, and became one of the first municipalities in the nation to adopt design and performance standards, lessening the focus on use restrictions.[20] The code loosens previous restrictions to create pedestrian-friendly, mixed-use neighborhoods and urban villages.[21] Furthermore, it creates special districts that highlight the city's unique features like the Public Market.[22]

The city's later evaluation of the new code's implementation clearly shuns Euclidean zoning, asserting that it "is not only obsolete, but in many instances has been detrimental to the attainment of quality urban development, economic development and the goals of sustainabil-

[16] https://www.dot.ny.gov/recovery/sponsors/tiger/repository/74CDA1D23A0D90B2E0430A3DFC0390B2?nd=nysdot.
[17] http://heckeranddecker.wordpress.com/2010/02/25/the-price/.
[18] http://heckeranddecker.wordpress.com/2010/12/15/winter-and-what-to-eat-in-the-city/.
[19] *Id.*
[20] General Code Publishers, City of Rochester, NY Zoning Revision Project, http://www.generalcode.com/newsroom/decoder/rochesterzoningcodificationproject.html (last accessed Dec. 10, 2011).
[21] *Id.*
[22] *Id.* For the code's full text, see http://www.ecode360.com/8679518.

ity."[23] Rochester's new zoning code and planning focus on responding to market conditions, "preservation and sharing of urban resources, quality physical design and place making, the ability to embrace new technologies, public participation, and the balancing of concerns and divergent interests."[24] Stakeholder and city evaluation yielded suggestions for further amendments and addressed issues such as local food security and pedestrian-friendly development in addition to actual buildings.[25] Furthermore, the city has adopted an extensive forestry master plan, bicycle enhancement program, and complete streets ordinance.[26] The City's new master plan appears much more flexible and restores or maintains its historically attractive features; it extensively considers residents' relationship with the city and local government and keeps an eye on the future with ongoing re-evaluation. Rochester serves as an excellent example of how zoning and comprehensive codes may be adjusted to be responsive and truly serve the land and residents.

c. <u>Zoning is not inherently racist, anti-environmental, or destructive; it needs modification</u>

Land use regulation takes blame for inherently causing sprawl, environmental injustice, segregation, degraded water quality and watersheds, loss of natural habitats and biodiversity, inadequate affordable housing, and compromised air quality by its very existence.[27] However, adaptations to the same regulatory system have achieved some ecosystem protection recently.[28]

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[23] Arthur Ientucci, City of Rochester Zoning Code Evaluation Report February 2010, 5, http://www.cityofrochester.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=8589942743 (last accessed Dec. 10, 2011).
[24] *Id.*
[25] *See generally, id.*
[26] City in a Forest: An Urban Forest Master Plan for the City of Rochester, http://www.cityofrochester.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=8589938772 (last accessed Dec. 10, 2011); http://cityofrochester.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=8589951195 (last accessed Dec. 10, 2011); Rochester, NY City Ordinance 2011-356 http://cityofrochester.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=8589951103, last accessed Dec. 10, 2011.
[27] Craig Anthony Arnold, *The Structure of the Land Use Regulatory System in the United States*, 22 J. LAND USE & ENVTL. L. 441, 443 (2007).
[28] *Id.* at 445-6.

Because the land use regulation system mediates between natural communities and social environments, it also mediates between power and community.[29] As a mediating system, it implements people's understandings about relationships with natural and social environments; no single, unifying land use ethic guides the system.[30] In fact, the American land use regulatory system expresses citizens' understandings about these relationships instead of leaving development to pure market forces.[31] Although some critics claim zoning produces inferior economic welfare imposes high transaction costs, is too fragmented, or is anti-environmental, these features are not inherent to the system; they point out opportunities to enhance implementation.[32]

Because the system mediates between natural and social meanings of land, it is a uniquely well-suited and flexible means of determining land uses.[33] Despite the displaced feel Euclidean zoning imposed on many contemporary American cities, "characteristics of 'good places' are varied and numerous but tend to stand in contradiction to the sprawling, monotonous, and alienating outskirts of many contemporary urban areas."[34] Good planning creates and protects a "sense of place."[35] Alternatively, poorly planned places act as alienating influences.[36]

II. TRADITIONAL ZONING HAS CAUSED OR CONTRIBUTED TO A HOST OF NEGATIVE ENVIRONMENTAL, ECONOMIC, AND SOCIAL PROBLEMS IN AMERICA

A perception of limitless land shaped land use patterns in the United States—encouraging rapid, unplanned growth.[37] Euclidean zoning, automobile reliance, and extensive highway development enabled this sprawling, outward growth, causing pressing social, economic, and envi-

[29] *Id.* at 446.
[30] *Id.* at 467.
[31] *Id.* at 447-48.
[32] *Id.* at 455-57.
[33] *Id.* at 460, 462.
[34] *Id.* at 465.
[35] *Id.*
[36] *Id.* at 466.
[37] Robert H. Freilich, Stephen P. Chinn, *Transportation Corridors: Shaping and Financing Urbanization Through Integration of Eminent Domain, Zoning and Growth Management Techniques*, 55 UMKC L. REV. 153, 156-7 (1987).

ronmental problems.[38] These include: "inadequate public facilities and overburdened transportation in new growth areas; deteriorating infrastructure and a backlog of maintenance and repair work in the established central core and existing areas; lack of affordable housing; diminishing open space and agricultural lands and environmental damage."[39]

a. Euclidean zoning reflects attitudes Americans have outgrown

Since the end of World War II, most US population growth occurs on the "urban rural fringe of major metropolitan centers."[40] Middle-class whites fled to the suburbs, leaving inner cities poor; as center cities worsened, the federal government encouraged movement to the suburbs with housing, highway, and tax policies that incentivized low-density development.[41] Interstate highways increased access to suburbs—encouraging automobile reliance, and causing the deterioration of highways, roads, and facilities.[42] Urban form impacts transport, and vice versa; these systems have encouraged urban sprawl, which requires automobile reliance.[43]

Traditional zoning techniques contributed to a land-hungry system of consumptive use patterns. Land use pattern analyses attest to Americans' use of Euclidean zoning to satiate this land hunger and exurban flight. Between 1970 and 1990, Chicago's metropolitan population only grew 4%, but land use for housing increased 46%: in Los Angeles, land consumption increased 300% to accommodate a 45% population increase.[44] Whereas half of the world's population resides in urban areas, American cities with populations of 100,000 have lost at least 10%

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[39] *Id.* at 156-57.
[40] *Id.* at 157-58.
[41] *Id.*
[42] *Id.* at 158.
[43] Robert W. Burchell, Naveed A. Shad, *The Evolution of the Sprawl Debate in the United States*, 5 HASTINGS W.-N.Q. J. ENVTL. L. & POL'Y 137, 14 (1999).
[44] TIMOTHY BEATLEY & KRISTY MANNING, THE ECOLOGY OF PLACE: PLANNING FOR ENVIRONMENT, ECONOMY, AND COMMUNITY, 6 (1997).

of inhabitants since 1950.[45] Infrastructure in inner cities left behind by sprawl deteriorates, residents are unable to travel to suburban jobs, and tax bases shrink.[46]

These consumptive land use patterns also harm the land itself. Natural habitats, including wetlands and riparian areas are degraded and disappear in small increments with small decisions to accommodate growth into sensitive lands.[47] Planned development consumes only 40% the amount of land sprawl patterns do, and requires less expensive roads, utilities, school, and doesn't increase housing costs.[48] Further, sprawl increases the speed and quantity of runoff by replacing pervious lands with impervious ones, degrading water quality, increasing flooding, harming fish and wildlife habitats, and causing devegetation.[49] Traditional zoning methods have also resulted in unequal environmental conditions based on race and class, forest loss, consumptive energy use and pollution, underuse of brownfields, and watershed degradation by basing land use on consumptive, selfish interests.[50]

However, as a system that incorporates policy choices to reflect a community's character, zoning can remedy past ills by reflecting our evolving values.[51] Sprawl and segregation are not inevitable results of land use and zoning but reflect society's previous values and prejudices.[52] Recently, planning has become more concerned with protecting trees, riparian lands, hillsides, and organizing urban villages rather than separating work from home.[53] Planning increasingly calls for land use regulations that protect ecosystems—which provide $33 million in services

[45] ANDRES DUANY, JEFF SPECK, & MIKE LYDON, THE SMART GROWTH MANUAL, 1.15 (2010).
[46] TIMOTHY BEATLEY & KRISTY MANNING, THE ECOLOGY OF PLACE: PLANNING FOR ENVIRONMENT, ECONOMY, AND COMMUNITY, 6 (1997).
[47] *Id.* at 7.
[48] *Id.* at 11.
[49] Craig Anthony Arnold, *The Structure of the Land Use Regulatory System in the United States*, 22 J. LAND USE & ENVTL. L. 441, 479 (2007).
[50] *Id.* at 522.
[51] *Id.* at 473.
[52] *Id.* at 482.
[53] *Id.* at 468.

globally.[54] However, zoning is not primarily concerned with ecosystem protection, which can only be part of land use considerations.[55] Land use regulation currently operates on a different scale than natural systems, but presents opportunities to instill a sense of place and protect ecosystem services.[56] We are "likely to find good means of addressing problems if we turn from blaming the land use regulatory system itself for imagined inherent defects and instead turn to studying how the functions, components, scale, processes, and values of this adaptive system can be used to achieve better land use practices, including practices that value and conserve nature's services."[57]

By rethinking approaches to managing, planning, and designing places, citizens and governments can create places that support ecological sustainability instead of working against it.[58] Biological and ecological concepts like carrying capacity ground this sustainability.[59] In natural settings, ecosystems support certain population sizes, but collapse when overpopulation occurs.[60] Exceeding ecological limits causes realigns populations.[61] However, human-managed environments have not followed this ecological model. Instead of displaying natural communities' resilience, cities are blighted, sprawling, and environmentally degradaded. "Urban areas are fundamentally embedded in an ecological landscape, and the production and consumption activities that occur in human settlements have tremendous environmental and resource impacts."[62] In order to live within ecological limits, Beatley argues cities must achieve both vertical and spatial

[54] *Id.* at 511.
[55] *Id.* at 513.
[56] *Id.* at 514, 518-9, 521.
[57] *Id.* at 523.
[58] TIMOTHY BEATLEY & KRISTY MANNING, THE ECOLOGY OF PLACE: PLANNING FOR ENVIRONMENT, ECONOMY, AND COMMUNITY, 2-3 (1997).
[59] *Id.* at 3.
[60] *Id.*
[61] *Id.*
[62] *Id.* at 25.

sustainability, requiring a fundamentally new management approach that uses a nested scale.[63] He suggests that cities must begin their planning efforts by identifying and protecting distinctive qualities.[64] Euclidean zoning, on the other hand, fails to protect people, environments, and distinctive qualities but segregates instead.

b. Euclidean zoning's separation of uses causes certain areas and persons to bear heightened environmental burdens

Because Euclidean zoning-based land use distinguishes which types of uses are allowed in each sector of a municipality and aims to keep locally undesirable land uses (LULUs) out of residential neighborhoods, it necessarily segregates and intensifies clusters of use-types.[65] Thus, industrial-zoned areas are intensely industrial, causing dense pollution in these zones. Most Euclidean zoning laws require a buffer zone between industrial zones and single-family residential zones.[66] As a result, apartment buildings and multi-unit housing, which are affordable options for underserved populations, are often the closest to intensive industrial zones.[67] Euclidean zoning's separation of uses and segregation intensifies areas of both environmental burdens and poverty, causing excessive damage to both the land and nearby impoverished populations.[68]

1. Intensified use patterns cause excessive damage to certain lands

Segregating and concentrating undesirable use types causes tangible damage to land. For example, watershed systems reflect contamination and the impact of land use practices and zon-

[63] *Id.* at 25, 27, 113.
[64] *Id.* at 175.
[65] Faith R. Rivers, *Bridging the Black-green-white Divide: The Impact of Diversity in Environmental Nonprofit Organizations.* 33 Wm. & Mary Envtl. L. & Pol'y Rev. 449, 455 (2009).
[66] Craig Anthony (Tony) Arnold, *Planning Milagros: Environmental Justice and Land Use Regulation*, 76 DENV. U. L. REV. 119 (1998).
[67] *Id.*
[68] *Id.*

ing in water, hillsides, and biological systems.[69] Urban runoff damages watersheds and causes most beach closures nationwide.[70] Because land use regulation does not operate on a watershed's scale, the problem is often regarded as one of mismatched ecological and human scales.[71] This mismatch causes numerous problems. Extensive replacement of natural cover with impervious impacts water; erosion from development causes sedimentation that harms aquatic species; and coastal lands, hillsides, and wetlands (often the most sensitive and ecologically valuable) are often the most attractive for development.[72] Euclidean zoning encourages sprawl, which requires roads and parking lots, as well as highways, and all of these factors increase impervious cover.[73] Roads, highways, and parking lots also require consumption of more sensitive lands and introduce petroleum products into waterbodies.[74] Although there are numerous ecological effects of Euclidean zoning, the practice also affects people negatively.

2. Impoverished peoples and minorities are concentrated in burdened communities

"Zoning promotes economic segregation through increased housing costs and disproportionately affects economically disadvantaged classes, which as a matter of American history have tended to be disproportionately African-American."[75] Euclidean zoning contributes heavily to America's dearth of affordable housing.[76] By emphasizing single-family homes as the most important land use, which encourages larger lot sizes and precludes smaller, denser development,

[69] Craig Anthony Arnold, Eastern Water Law Symposium: Integrating Land Use Law and Water Law: The Obstacles and Opportunities*, Clean-water Land Use: Connecting Scale and Function*, 23 PACE ENVTL. L. REV. 291, 294-99 (2006).
[70] *Id.* at 292.
[71] *Id.*
[72] *Id.* at 294, 297-99.
[73] *Id.* at 300.
[74] *Id.*
[75] Janai S. Nelson, *Residential Zoning Regulations and the Perpetuation of Apartheid*, 43 UCLA L. REV. 1689, 1704 (1996).
[76] Frederick W. Acker, *Performance Zoning*, 67 NOTRE DAME L. REV. 363, 363 (1991).

Euclidean zoning raises housing prices beyond most citizens' reaches.[77] Further, it is inflexible, limits creativity, and its segregation by use type limits the amount of land available, further increasing housing costs.[78] The costs of complying with Euclidean zoning specifications and obtaining variances and special use permits drive out small and mid-sized business.[79] Zoning may also exclude the poor, handicapped, and minorities from single-family neighborhoods. [80] In fact, many ordinances once made such segregation an explicit goal.[81] Although courts struck many of these ordinances down, one may safely assume that cities still pursued exclusionary goals quietly, using Euclidean zoning to achieve them. In fact, evidence suggests municipalities used Euclidean zoning to do just that; the tool's persistence in codes likely continues to segregate even where the intent to do so faded.

Facially neutral zoning enforces segregation by requiring minimum lot sizes and numbers of bedrooms in multi-family housing in single family ordinances that make housing too expensive for low-income families.[82] Other ordinances specifically identify apartment buildings as commercial uses.[83] Segregation causes urban poverty: concentrating a weak tax base in a specific area exacerbates social ills, and creates substandard schools that in turn shape unemployable adults.[84] Essentially, Euclidean zoning degrades its citizens in a way that mirrors its degradation of land. Suburbanites on the other hand, benefit by living in a more desirable area, with better schools and greater employment opportunities.[85] Evidence suggests that market forces are not to blame for this phenomenon, as often suggested.

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[77] *Id.*
[78] *Id.* at 364, 366.
[79] *Id.* at 367-8.
[80] *Id.*
[81] *Id.*
[82] Janai S. Nelson, *Residential Zoning Regulations and the Perpetuation of Apartheid*, 43 UCLA L. REV. 1689, 1699 (1996).
[83] *Id.* at 1702.
[84] *Id.* at 1705.
[85] *Id.* at 1705-56.

A study of thirty-one census tracts in seven cities revealed that municipalities site a greater percentage of industrial and other intensive uses in low-income, high-minority areas than in high-income, low-minority areas.[86] Traditional zoning sites buffer zones, where multi-family housing is available for low-income and minority populations, next to industrial zones; this causes the same incompatibility zoning claims to prevent.[87] These buffer zones burden minority communities and residents' health in order to protect wealthier white residents. [88]

A. Concentrated poverty affects the community's tax base, infrastructure, and education, increasing the gap between urban and non-urban lifestyles

Market forces are not the primary cause of environmental injustice.[89] Racism's role in creating current city conditions by using Euclidean zoning becomes clearer when studying cities as systems.[90] Disamenities are chiefly regulated and permitted by zoning ordinances—not by the market itself.[91] Baltimore, Maryland provides in-depth insight into the development of environmental injustices in cities. Whereas after the Civil War African Americans were scattered throughout city's wards, segregation had created ghettos by the early 20th century.[92] It is possible to "isolate the placement of environmental disamenities to a specific time and demographic context, and thus to identify whether there is a correlation between race and the location of disamenities at the time of siting and also to analyze the correlation between income and the location of disamenities."[93] Analysis of data for each decade from 1940 to 2000 shows correlation between race and distance to disamenities: communities with a higher percentage of African

[86] Craig Anthony (Tony) Arnold, *Planning Milagros: Environmental Justice and Land Use Regulation*, 76 DENV. U. L. REV. 1, 9, 77 (1998).
[87] *Id.* at 119.
[88] *Id.* at 119.
[89] Charles Lord, Keaton Norquist, *Cities as Emergent Systems: Race as a Rule in Organized Complexity*, 40 ENVTL. L. 551, 560 (2010).
[90] *Id.* at 565.
[91] *Id.* at 566.
[92] *Id.* at 579.
[93] *Id.* at 573.

American residents were closer to disamenities, and white neighborhoods were further.[94] Although there is some correlation to income, it is weaker than the correlation to race.[95] By studying individual siting decisions for variances granted for unwanted uses, it becomes clear that African Americans have not moved toward danger, and post market forces did not create the injustice. *Id.* at 577-78. Instead, "race operated as a rule in the zoning process and thus in the emergence of land-use patterns in Baltimore."[96] However, new zoning techniques offer solutions to the problems Euclidean zoning encouraged.

c. <u>Sprawl can be cured</u>

Transportation patterns are intimately tied to planning and can be adjusted to discourage sprawl and its problems. Automobiles and personal transportation patterns have eroded cities' great assets and diverted their energy to low-density suburban areas.[97] In addition to believing in a nearly unlimited land base availability, Americans appear to believe in an unlimited right to use personal automobiles.[98] Automobiles have taken over public spaces, which are deteriorating environmentally and socially.[99] Public space disappearance depletes urban life's opportunities for cultural developments such as social encounters, cohabitation, and confrontation of diverse habits, stories, cultures, and lifestyles.[100] Tying transportation options into planning provides solutions to automobile reliance from sprawl. Transportation corridors are regional by nature and provide a broader concept than personal automobile-oriented highway systems.[101] They may be

[94] *Id.* at 576.
[95] *Id.* at 576-77.
[96] *Id.* at 578.
[97] Robert H. Freilich, Stephen P. Chinn, *Transportation Corridors: Shaping and Financing Urbanization Through Integration of Eminent Domain, Zoning and Growth Management Techniques*, 55 UMKC L. REV. 153, 158 (1987).
[98] Christian Iaione, *The Tragedy of Urban Roads: Saving Cities from Choking, Calling on Citizens to Combat Climate Change*, 37 FORDHAM URB. L.J. 889, 890-91 (2010).
[99] *Id.* at 891.
[100] *Id.*
[101] Robert H. Freilich, Stephen P. Chinn, *Transportation Corridors: Shaping and Financing Urbanization Through Integration of Eminent Domain, Zoning and Growth Management Techniques*, 55 UMKC L. REV. 153, 167 (1987).

the centerpiece of regional growth management and should be based on sound planning with support for multimodal transportation options.[102]

1. Smart growth curbs sprawl

The American Planning Association (APA) advocates the use of smart growth to resolve urban problems. The technique uses comprehensive planning to guide, revitalize, develop, and build communities that: have a unique sense of community and place; equitably distribute development's costs and benefits; responsibly expand transportation, housing, and employment choices; enhance cultural and natural resources; promote healthy communities; and value long- term, regional sustainability over short term gains.[103] Furthermore, smart growth abides by core principles: recognizing all levels of government and private sector involvement in supporting smart growth; promoting policies that enhance urban investment; land conservation, and compact development; planning at multiple levels; increasing citizen participation; offering balanced, multimodal transportation that increases choice; viewing community regionally; tailoring plans to location; using a wide variety of approaches; encouraging efficient land use; providing central city viability; creating vital small towns and rural areas; mixing uses and housing choices in human-scale neighborhoods and communities with transportation-accessible mixed-use centers; enhancing cultural and environmental resources; and creating a "sense of place".[104]

All smart growth plans aim to increase economic progress, improve residents' quality of life, and protect the environment instead of trying to ensure planning's "rationality", by creating accessible, compact, pedestrian-oriented urban areas within existing infrastructure.[105] Top-down

[102] *Id.* at 166.
[103] Craig Anthony Arnold, *Fourth-generation Environmental Law: Integrationist and Multimodal*, 35 WM. & MARY ENVTL. L. & POL'Y REV. 771, 788 (2011).
[104] *Id.* at 788-90.
[105] John R. Annand, *A Coordinated Approach to Growth Control in Northern Virginia*, 52 WM. & MARY L. REV. 1679, 1690 (2011).

and bottom-up controls such as infill, mixed-use development, transit-oriented development, brownfield redevelopment, and mixed-use development can harmonize new goals with established Euclidean zoning.[106] A study of land use options in San Francisco found that pursuing a "compact cities" option that implemented smart growth would save 46,000 acres of land, including 28,000 acres of prime agricultural land.[107]

The APA emphasizes that one model will not suit all municipalities or states. Advocates and lawmakers must tailor each model to reflect and accommodate people's relationships to land and diversity in local government structures and the natural features that make the location a unique place.[108] Advocates and lawmakers must tailor each model to reflect and accommodate people's relationships to land and diversity in local government structures and the natural features that make the location a unique place. Smart growth is being promoted on the state level across the country.[109]

A. Examples of smart growth in action

States approach smart growth differently to suit their needs. For example, Arizona's growth plans add open space and growth areas while reducing development costs.[110] Colorado emphasizes intermunicipal planning and created a dispute resolution program to resolve land use conflicts between neighboring jurisdictions.[111] The Livable Delaware program aims to reduce sprawl and traffic congestion, while protecting infrastructure and channeling growth into desig-

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[106] *See id.* at 1690-91 (defining: infill as developing "vacant sites close to preexisting infrastructure that might not otherwise be used due to zoning restrictions"; mixed-use development as parcels that contain uses governments traditionally segregate due to zoning, such as commercial and zoning, brownfield sites as "lightly contaminated sites that are suitable for development"; and transit-oriented development as focusing on "parcels of land within walking distance of transit, such as buses and trains." Internal citations omitted.)
[107] Robert W. Burchell, Naveed A. Shad, *The Evolution of the Sprawl Debate in the United States*, 5 HASTINGS W.-N.Q. J. ENVTL. L. & POL'Y 137, 147 (1999).
[108] Craig Anthony Arnold, *Fourth-generation Environmental Law: Integrationist and Multimodal*, 35 WM. & MARY ENVTL. L. & POL'Y REV. 771, 790 (2011).
[109] *Id.* at 790-91.
[110] *Id.* at 792.
[111] *Id.* at 796.

nated zones.[112] There, the state amended its Land Use Planning Act to improve the decisionmaking process, and later listed its policies as providing affordable housing, encouraging infill and redevelopment, preserving farmland and open space, limiting sprawl, and encouraging sustainable development.[113] The state aims to grow in an orderly, planned manner by developing strategy maps to designate lands according to investment level that describes each in detail.[114] Delaware's housing authority also operates a Live Near Your Work program to help employees purchase homes within three miles of their work places to revitalize urban areas and decrease commutes.[115] Smart growth plans go beyond addressing problems on the city level.

B. Smart growth operates regionally and in neighborhoods

Smart growth also uses regional planning to address problems local efforts can't: whereas local action impacts an entire region by creating externalities, regional coordination mitigates those impacts.[116] Although regionalism cannot completely replace local governmental control, transportation systems are inherently regional and affect urban form and sprawl.[117] Thus, regionalism controls the transportation systems that interact with planning techniques. However, higher density development on the local level is also essential to counteract sprawl.[118] Combining local and regional focuses is indispensable to effective planning.[119] with regional planning.[120]

Smart growth aims to operate regionally, at the scale of Americans lives, while simulta-

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[112] *Id.* at 798.
[113] *Id.* at 799.
[114] *Id.* at 799-800.
[115] *Id.* at 800-01.
[116] John R. Annand, *A Coordinated Approach to Growth Control in Northern Virginia*, 52 WM. & MARY L. REV. 1679, 1692-93 (2011).
[117] *Id.* at 1693-94.
[118] *Id.* at 1712.
[119] *Id.* Stating that without regional coordination, otherwise effective techniques such as urban growth boundaries may encourage development outside of them instead.

neously organizing growth in neighborhood units that are diverse, connected, compact, walkable, no more than half a mile in radius, and integrated into transit, bike, and roadway networks.[121] Furthermore, smart growth plans must distribute affordable housing regionally, rather than segregating it.[122] Montgomery County, MD requires all large developments devote 10% of development to low income housing, creating 10,000 new units in 20 years.[123] LULUs, including halfway houses, industrial uses, power plants, landfills, and others must be dispersed throughout a region so they are not forced on disadvantaged residents.[124] States must also secure and enlarge farm belts to secure food systems regionally.[125] Transportation should offer variety based on appropriate scale: for instance, streetcars efficient in corridors.[126]

At the neighborhood level, smart growth plans highlight natural features and open space by using compact development wisely. Building new developments on the worst lands rather than the best allows smart growth plans to incorporate ponds, tree stands, streams, and marshes into urban landscapes.[127] Parks allow residents who lack transportation to access nature and attract young, creative residents.[128] Smart growth cities reduce automobile reliance and increase access to healthy foods by distributing retail throughout neighborhoods and requiring a local market in neighborhoods of 300 or more residents.[129] Additionally, setting aside open space for current or future farming allows food to be grown and sold at the neighborhood level, which alleviates food desert concerns and food transportation problems.[130] Smart growth advocates also

[121] ANDRES DUANY, JEFF SPECK, & MIKE LYDON, THE SMART GROWTH MANUAL, 1.2, 1.5 (2010).
[122] *Id.* at 1.7.
[123] *Id.* at 1.7.
[124] *Id.* at 1.8.
[125] *Id.* at 1.10.
[126] *Id.* at 3.4.
[127] *Id.* at 4.1.
[128] *Id.* at 4.10.
[129] *Id.* at 5.4
[130] *Id.* at 5.11.

promote including work spaces in single family homes like studio/loft combinations.[131] Subsidized housing should also be located near services and be distributed so that they are indistinguishable from other housing and be intermixed with market rate housing in a 1 to 5 maximum ratio.[132] Additionally, affordable housing must be walkable and transit-oriented to ensure true affordability.[133] Smart growth often utilizes new urbanist concepts to guide growth.

2. New urbanism combines smart growth and performance zoning to create human-scale environments

New urbanism is a design movement that focuses on restoring development's capacity for human interaction and curbing sprawl through reviving some of traditional cities' more attractive features. [134] New urbanism is neo-traditionalist, calling for neighborhoods like those of the past that include grid street patterns, mixed uses, and encourage pedestrian circulation.[135] New urbanism eschews segregated single-use districts and automobile domination by requiring higher density development.[136] New urbanists advocate using smart growth as a tool to revitalize cities by supporting mixed-use development, walkability, diversity, mixed housing options, transportation connectivity, traditional neighborhood structures, quality design, increased density, environmental sustainability, diverse transportation options, and increased quality of life.[137] These goals are often achieved with planned-unit developments, clustering, overlay zones, and providing guidance rather than prescriptions.[138]

Form-based zoning is one new urbanist technique aimed at achieving specific urban

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[131] *Id.* at 12.5.
[132] *Id.* at 14.8.
[133] *Id.*
[134] Robert W. Burchell, Naveed A. Shad, *The Evolution of the Sprawl Debate in the United States*, 5 HASTINGS W.-N.Q. J. ENVTL. L. & POL'Y 137, 153 (1999).
[135] *Id.*
[136] *Id.* at 153.
[137] Patricia E. Salkin, *Squaring the Circle on Sprawl: What More Can We Do? Progress Toward Sustainable Land Use in the States*, 16 WIDENER L.J 787, 831-32 (2007).
[138] *Id.* at 832.

form. [139] The technique focuses less on prescribing land uses and more on controlling the municipality's form, scale, and character.[140] Transect zoning categorizes elements of the human environment.[141] This new urbanist tool separates the environment into transects including: urban core, urban center, neighborhood general, neighborhood edge, rural reserve, and rural preserve areas.[142] Transects do not replace zoning districts with rigid use requirements, but instead aim to protect each transect's character.[143] Because of the scale of transects, the technique may serve as a useful tool for regional planning. Further, new urbanists suggest using state budgets to prioritize and promote smart growth, and using GIS data to better plan growth.[144]

Subsequently, The SmartCode is a planning guide based on smart growth and new urbanism principles, and requires land to be "mapped and divided into transects based on its character" (natural, rural, suburban, urban, urban center, or urban core).[145] Each transect includes specific acceptable building forms that shape development to preserve and enhance the transect's character.[146] The SmartCode offers flexibility and solutions.

States tailor the SmartCode differently according to their specific needs, and with varying success. For example, the State of Oregon uses the SmartCode to require local governments to establish urban growth boundaries, which establish city boundaries to separate rural and urbanizable land.[147] However, the state's implementation of urban growth boundaries combined with a lack of coordinated regional planning has been criticized for causing gentrification.[148] Alterna-

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[139] *Id.* at 833.
[140] *Id.*
[141] DOUGLAS W. KMIEC, ZONING AND PLAN. DESKBOOK § 2:13 Nonzoning in America: proposals for change- Redrafting the enabling act- Performance zoning (2010).
[142] *Id.*
[143] *Id.*
[144] *Id.* at 836.
[145] *Id.* 809-10.
[146] *Id.* at 809-10.
[147] *Id.* at 814.
[148] *Id.* at 814-15.

tively, Pennsylvania attempts to attain traditional neighborhood development and foster community character with: walkable communities with open public spaces, minimizing automobile reliance, walking distance shopping and entertainment, and a variety of housing options.[149] To achieve these aims, the state encourages neighboring municipalities to coordinate and combine resources.[150] Planners may combine smart growth with performance zoning to tailor a code to offer protective and flexible land use patterns.

3. Performance zoning offers flexibility that works with other zoning approaches

Performance standards began as industrial standards in 1951, and planners took note of the idea's practicality for broader land uses.[151] Performance standards prohibit certain impacts without regard for the method involved to achieve desired protection while remaining flexible and inclusive.[152] Lane Kendig first incorporated performance standards into zoning in 1980, with a code that applied performance standards to a Euclidean zoning code. Kendig's code established eight broad use districts, four performance standards, and used a variety of specialized tools, including density bonuses.[153] Kendig's use districts permitted widespread mixing of uses by being primary without excluding other uses.[154] These districts included heavy industrial, rural, estate, development, urban core, agricultural, neighborhood conservation, and holding.[155] Performance standards included open space ratios which preserve open areas like village commons in each neighborhood or community.[156] Additionally, performance standards included

[149] *Id.* at 817.
[150] *Id.*
[151] Frederick W. Acker, *Performance Zoning*, 67 NOTRE DAME L. REV. 363, 370-71 (1991).
[152] *Id.* at 371.
[153] *Id.* at 372 [FN45] (defining density bonuses as incentives offered to developers who build low or moderate income housing; in return, the developer is able to exceed zoning density limits on another property).
[154] *Id.*
[155] *Id.*
[156] *Id.* at 372-73 (defining open space ratio as a measurement of the amount of open land on a site relative to the site itself, ascertained by dividing the amount of open space by the site's total area.)

density prescriptions, maximum impervious surface ratios, and floor area ratios.[157] Kendig's code also separated conflicting uses with bufferyards of forested or landscaped strips.[158] Density bonuses loosen density requirements for some sites as a reward for building low- and moderate-income housing.[159] This system is flexible enough that use variances are less common than conventionally-zoned areas.[160]

Alternatively, Fort Collins, CO implemented the Land Development Guidance System (LDGS) in 1981, which is America's closest attempt at pure performance zoning.[161] LDGS abandons use districts to rely only on performance standards.[162] However, LDGS only applies to Planned Unit Developments and is an alternative to, rather than a replacement for, conventional zoning.[163] Developers choose whether they prefer the municipality to approve developments according to conventional or performance zoning standards.[164] The performance zoning alternative uses a point system to evaluate projects on 44 performance criteria.[165] LDGS reduced permit approval time requirements radically, produced a balanced ratio of housing to jobs, and encouraged more efficient use of infrastructure.[166] LDGS also encourages mixed uses, allowing residential uses coexist with industrial and business uses with few problems.[167]

Performance zoning offers a less expensive, more flexible alternative to Euclidean zoning

[157] *Id.* at 372-73 (defining impervious surface ratio as a measurement of the "non-water absorbing surfaces on a site, such as asphalt parking lots," calculated with the same method as open space ratio; and floor are as an analogous measurement to the previous two, but measuring the amount of floor area within a building.)
[158] *Id.*
[159] *Id.* at 374.
[160] *Id.*
[161] *Id.* at 381.
[162] *Id.*
[163] *Id.*
[164] *Id.*
[165] *Id.* at 383.
[166] *Id.* at 381, 383-84.
[167] *Id.* at 385.

that may be tailored to various forms, locations, and settings.[168] Although there is great variation in performance zoning codes, all provide increased latitude when considering which land uses are appropriate and focus on how developments perform in regard to standards like noise and light generation.[169] Fort Collins' LDGS approves or denies projects upon evaluation of minimum acceptable scores for environmental standards and site design.[170] Final approval of projects usually takes seven to fifteen weeks from the time of proposal to the final revision.[171] Buckingham Township, PA applies performance standards to its traditional zoning code by encouraging cluster development and protecting open space.[172]

Performance standards allow owners to purse a wider range of uses, which raises properties' potential values. Performance standards also expand a municipality's tax base and encourage owners to make the most efficient use of land.[173] Mixed use districts also reduce road requirements and usage.[174] By offering bonus points for development projects that offer public benefit, a municipality may also create additional public amenities such as low income housing or public spaces.[175] The economic integration achieved with performance zoning's elasticity results in racial integration as well.[176] Alternative zoning techniques' lack of use districts ensures that LULUs do not become concentrated in underprivileged areas and provide a basis for requiring developers to provide affordable housing.[177] Performance zoning also provides environmental benefits.

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[168] DOUGLAS W. KMIEC, ZONING AND PLAN. DESKBOOK § 2:13 Nonzoning in America: proposals for change- Redrafting the enabling act- Performance zoning (2010).
[169] *Id.*
[170] *Id.*
[171] *Id.*
[172] *Id.*
[173] *Id.*
[174] *Id.*
[175] *Id.*
[176] Janai S. Nelson, *Residential Zoning Regulations and the Perpetuation of Apartheid*, 43 UCLA L. REV. 1689, 1717 (1996).
[177] *Id.* at 1719.

A. Performance zoning is optimal for protecting Environmentally Sensitive Areas

Performance zoning protects natural systems more effectively than other land use tools because it uses overlay zones. Euclidean zoning is an ineffective method for protecting sensitive land because it does not consider natural resources and is too inflexible to reflect the boundaries of environmentally sensitive areas (ESAs).[178] Overlay zones allow municipalities to impose ecologically-based requirements on areas that are currently controlled by Euclidean zoning.[179] Precision performance standards contain scientifically-developed means of measuring threats and performance levels.[180] Courts uphold this approach as a valid exercise of municipalities' police powers.[181] Such regulations 'substantially advance' the government's interest and provide an adequate nexus between regional and state land use objectives, in accordance with *Nollan v. California Coastal Commission*'s requirements.[182]

Euclidean zoning fails to protect ESAs as a matter of the values it reflects. The technique focuses heavily on economic and social values within the specific community it regulates.[183] As such, Euclidean zoning fails to offer developers any incentive to protect land or the environment; instead, it rewards development of parcels to the utmost extent.[184]

Other methods of land regulation also fail to offer adequate environmental protection. A government may purchase lands in or adjacent to ESAs when available, or condemn them if necessary, and citizens may donate such property.[185] However, land purchases are costly, and gov-

[178] Robert J. Blackwell, *Overlay Zoning, Performance Standards, and Environmental Protection After Nollan*, 16 B.C. ENVTL. AFF. L. REV. 615, 615 (1989).
[179] *Id.* at 616.
[180] *Id.*
[181] *Id.*
[182] *Id.* at 617.
[183] *Id.* at 619-20.
[184] *Id.* at 621.
[185] *Id.* at 624-5.

ernments cannot rely on residents to make land donations.[186] A municipality may attempt to enjoin environmentally offensive uses, but zoning virtually preempts such land-based nuisance claims, and there may be problems of proof.[187]

Thus, overlay zones are more environmentally-sensitive and feasible than other land use controls.[188] Overlay zones impose additional regulations on underlying zones, subjecting certain parcels to both zoning codes.[189] Municipalities can tailor overlay zones to protect specific districts based on objective environmental impacts without writing entirely new codes.[190] Performance standards regulating odor, toxic matter, fire, glare and heat, noise, smoke, stormwater runoff, vegetative protection, and erosion may serve as the basis of an overlay zone.[191] Performance standards also allow any use within a zone as long as its standards are met; they may be extremely precise because scientific information on performance criteria develops continuously.[192] These standards are more specifically tailored to protect overall welfare than Euclidean zoning.[193] Blackwell argues that combining overlay zones and performance zoning is the ideal combination for preserving ESAs.[194] However, each of the mentioned alternatives fails to place ecological protection at the forefront. New vision is needed.

III. THE ECOLOGICALLY-ENVISIONED CITY

The ecologically-envisioned city rises as a more intelligent and enlightened incarnation of the traditional city. It acknowledges that its existence is only possible by virtue of the ecosystems and lands it occupies. By making the life our cities provide and rely on for sustenance cen-

[186] *Id.* at 625.
[187] *Id.* at 628-9.
[188] *Id.* at 629.
[189] *Id.* at 629-30.
[190] *Id.* at 631, 635.
[191] *Id.* 636.
[192] *Id.* at 637, 643.
[193] *Id.* at 657.
[194] *Id.* at 658.

tral to planning techniques and requiring development to follow by imbuing zoning codes with this central value and using new planning techniques, America can correct the injustices and slow damage done by previous approaches to regulation.

This city uses new urbanism's neighborhood-based concept to create walkable, livable communities in urban village forms that support an array of uses and interactions. However, by treating cities as living systems within biospheres, ecological concerns and scientific research will limit impact on the neighborhood level by not forcing the land to bear more than it is capable. Implementing this strategy through performance zoning adds flexibility to codes, allowing mixed-use development that provides jobs and proximate access to residents' needs and reduces automobile reliance.

Providing green space and preserving open space is central to the ecologically-envisioned city. Providing residents in all neighborhoods with local food access fosters connections, increases food justice, and benefits the residents' psyches. Dense development makes this green space more available for residents and completes the neighborhood. It also allows communities to highlight and enjoy natural features that fulfill human desires for natural interactions while obtaining the benefits of the features' services.

As part of a comprehensive regional plan, the ecologically-envisioned city is populated and ceases to be abused by blight, shrinking tax bases, decay, and suburban parasitism. Loosening siting restrictions with performance standards that do not segregate uses allows LULUs to be distributed throughout the region, rather than concentrated. By siting LULUs only in areas that have the carrying capacity to bear them and doing so regionally, certain neighborhoods' lands are not degraded by the use that comes with a lack of relationship. This also reduces environmental injustices by not forcing underserved populations into the closest proximity to concentra-

tions of degraded land and heavy pollution.

Multiple methods of transport connect neighborhoods to create community with varied senses of place. Increased public transportation options allow scale-appropriate opportunities to access compact suburbs without requiring vehicle ownership. Additionally, expensive infrastructure investments are protected from overuse, and roads consume fewer sensitive lands. In fact, some roads or portions of them may be allowed to revert to their natural state and provide ecological services rather than harms.

CONCLUSION

Despite the difficulties imposed by Euclidean zoning, multiple new zoning techniques present hope for fixing American cities' woes. By radically re-envisioning cities as living systems within living systems, citizens and governments can address these interwoven problems as one. Ecologically-envisioned cities care for humans by placing the ecology we need to sustain life at the center of decisionmaking. Common spaces feed interpersonal interactions and a sense of community. Protected green spaces in every district provide opportunities to relax within the city or meet others and exchange ideas. The ecologically-envisioned city is engaged, connected, protective of resources, vibrant, occupied with residents, provides increased employment opportunities, and enhances access to humans' physical, emotional, social, and psychological needs.