ZONING'S CENTENNIAL

John R. Nolon[1]

I. The Need for Public Regulation of Land Use – The First Comprehensive Zoning Law[2]

Zoning, narrowly defined, is the division of a community into districts in which the uses of land and the size and location of buildings are prescribed. Understood more broadly, zoning includes any local regulations that achieve the most appropriate use of the land. In practice, zoning controls the quantity and quality of what is built on the American landscape and what is preserved.

2016 is the 100th anniversary of the adoption of the first citywide comprehensive zoning law. Its original purpose was to create districts that separated incompatible land uses and building types in order to protect property values and promote the health, safety, and welfare of the community. 100 years later, zoning is used to achieve an impressive number of public objectives such as permitting transit oriented development, creating green infrastructure, preserving habitat, species, and wetlands, promoting renewable energy facilities, reducing vehicle miles traveled, and preserving the sequestering landscape.

Zoning's progress has been a long and dramatic journey. What was considered the appropriate use of the land in 1916 when the nation's population was 102 million[3] differs greatly from today's notions—with over 300 million people,[4] many of whom are abandoning rural communities and remote suburbs and moving into denser urban areas seeking livable, transit-oriented neighborhoods and settling in close proximity on land whose natural resources must be preserved for their health and enjoyment.[5] One hundred years ago, the challenge concerned civil engineering and city building in urban areas; today it focuses on all aspects of land development and natural resource conservation in rural, suburban, and urban settings: all challenged by global warming.

Zoning grew abruptly out of the recognized power of local governments to protect residents from nuisance-like land uses and to achieve an appropriate scale of development in selected neighborhoods. Local officials understood that the ponderous process of civil law nuisance suits between individual property owners was not sufficient

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[1] Distinguished Professor of Law, Counsel, Land Use Law Center, Elisabeth Haub School of Law. The author acknowledges the significant work of his research assistants, Allison Sloto, Kara Paulsen, and Ollia Pappas.

[2] *See* John R. Nolon, *Historical Overview of the American Land Use System: A Diagnostic Approach to Evaluating Governmental Land Use Control*, 23 PACE ENVTL. L. REV. 821 (2006) [hereinafter *Historical Overview*].

[3] *Historical National Population Estimates: July 1, 1900 to July 1, 1999*, U.S. Census Bureau, https://www.census.gov/popest/data/national/totals/pre-1980/tables/popclockest.txt (last updated June 28, 2000).

[4] *U.S. and World Population Clock*, U.S. Census Bureau, http://www.census.gov/popclock/ (last visited Mar. 16, 2016)

[5] *See Growth in Urban Population Outpaces Rest of Nation*, U.S. Census Bureau, Mar. 26, 2012, https://www.census.gov/newsroom/releases/archives/2010_census/cb12-50.html.

to protect larger areas within their jurisdictions. Locally legislated height restrictions, for example, were validated in 1909 by the U.S. Supreme Court.[6] In 1915, the Court upheld use restrictions that prohibited downtown riding stables[7] and brick manufacturing in Los Angeles.[8]

These early precedents, however, fell far short of creating comprehensive standards for city building designed to protect property owners and neighborhoods from incompatible land uses. This changed when the first comprehensive zoning law was adopted by New York City. A new subway system, the construction of new high rise buildings, the rapid expansion of the garment district, and increasing congestion in the streets struck fear into the hearts of building owners and businesses on Wall Street and in the posh Fifth Avenue retail neighborhood. They called for reform, a study was done, a commission established, hearings held, and on July 25, 1916 the City was ready with an ordinance, which was adopted by the Board of Estimate and Apportionment by a vote of 15 to one.[9] This was the first zoning ordinance of its kind in the U.S., regulating land uses and building types in all neighborhoods of the City.

II. The delegation of legal authority to adopt zoning[10]

Cities are not sovereign entities; they get their legal authority from the state. New York City's zoning law, for example, was enabled by a 1913 act of the state legislature, which amended the City's Charter to authorize it to control land use.[11] Following New York City's action, zoning spread quickly. Twenty state legislatures, plus the District of Columbia, followed suit by adopting some form of zoning enabling act by 1921. In other states, many localities rushed to adopt zoning laws in the absence of state authority, risking invalidation due to their lack of legal authority. The need for enabling acts in all states and for a uniform and effective method of delegating control of land use to municipalities led to the promulgation of a model zoning enabling act by a national commission in 1921.[12] By the mid- 1920s, over 500 local governments had adopted comprehensive zoning laws.[13] Their authority to do so was granted by enabling acts originally drafted by the federal government and then adopted by their state legislatures.

Although the federal government has limited power to regulate local land uses, it has an important role to play in enabling, guiding, and assisting local governments to exercise their delegated power wisely. Zoning's story illustrates the powerful influence that the federal government can wield if it plays this facilitative role strategically. In the case of zoning's adoption, the story involves the federal Department of Commerce.

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[6] Welch v. Swasey, 214 U.S. 91 (1909).
[7] Reinman v. City of Little Rock, 237 U.S. 171 (1915).
[8] Hadacheck v. Sebastian, 239 U.S. 394 (1915).
[9] N.Y.C., N.Y. Building Zone Resolution (July 25, 1916).
[10] *Historical Overview*, *supra* note 2.
[11] N.Y. Gen. City Law §§ 19-20 (McKinney 1913) (amended 2003).
[12] *See* U.S. Dep't of Commerce, A Standard State Zoning Enabling Act (1922).
[13] *Historical Overview*, *supra* note 2.

As Secretary of Commerce under presidents Harding and Coolidge in the 1920s, Herbert Hoover paved the way for the rapid adoption of zoning. Hoover noted "Our cities [do] not produce their full contribution to the sinews of American life and national character" and these "moral and social issues can only be solved by a new conception of city building."[14] His response was to appoint two advisory committees: one to write a standard building code and another to draft model zoning and planning statutes to be adopted by the states, in their discretion.

The latter committee was called the Advisory Committee on City Planning and Zoning; it appointed a subcommittee on laws and ordinances, which produced a final draft of a 17-page enabling statute called Standard State Zoning Enabling Act Under Which Municipalities Can Adopt Zoning Regulations.[15] The draft was released by the Commerce Department on September 15th, 1922.[16] It contained nine sections, including the grant of zoning power to local governments; a provision that the local legislature could divide the city into districts, or zones; a statement of zoning's purposes; the creation of a zoning board of appeals, and procedures for establishing, waiving, and amending those regulations.[17] By the end of 1927, over half of the states had adopted some form of the Standard Zoning Enabling Act.

The success of the Standard Zoning Enabling Act, which requires that zoning conform to a comprehensive plan, paved the way for another act, A Standard City Planning Enabling Act, intended as a companion to the Standard Zoning Enabling Act.[18] The Standard City Planning Enabling Act was to provide for the creation of such plans and to effect the coordinated and harmonious development of cities. It covered several major topics:[19]

- the adoption of and recommended content of a "master" plan;
- the creation and operation of a planning commission;
- the adoption of a street plan, or official map;
- involvement of the planning commission in approving public improvements;
- planning for the subdivision of land into marketable parcels; and
- the voluntary creation of a regional planning commission and a regional plan.

After its publication in 1928, the Standard City Planning Enabling Act was not as widely implemented by state legislatures as was the Standard Zoning Enabling Act. Some felt that a city-wide zoning ordinance embodied a sufficient comprehensive plan and that a separate plan was not needed and then, of course, land development and land use

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[14] Regional Plan of New York and its Environs*, Plan of New York and its Environs; the Meeting of May 10, 1922*, 15, https://babel.hath itrust.org/cgi/pt?id=hvd.li5jlc;view=1up;seq=3.
[15] *See* U.S. Dep't of Commerce, *supra* note 12.
[16] *Id.*
[17] *Id.*
[18] U.S. Dep't of Commerce, A Standard City Planning Enabling Act (1928).
[19] *Id.*

planning significantly ceased from the stock market crash in 1929 to the end of World War II in the mid-1940s.[20]

All 50 states have adopted some form of the Standard Zoning Enabling Act and most have adopted a version of the Standard City Planning Enabling Act. In many of these states, the initial enabling acts were virtual verbatim versions of the Commerce Department's drafts and a surprising number of them retain a significant amount of that original content today. The standard acts recognized the political nature of controlling private land use and the great diversity among municipalities in every state; as a result, their provisions are largely voluntary. Under their terms, zoning and comprehensive plans may be adopted. The American land use system today largely retains this opt-in feature with notable exceptions.

The original approach to zoning and planning raises many questions:

- How can a system of law that relies on localities with limited geographical jurisdictions properly serve the needs of larger regions;
- Was it wise to separate land uses into prescribed districts, within which standards must be uniform;
- Did such uniformity unduly constrain the organic process of growth and produce an artificial settlement pattern;
- How can the flexibility needed to respond to unique market and geographical conditions be realized under such a rigid sys- tem of law;
- Did zoning protect the urban poor and public health by preventing congestion, overcrowding, and blight, or is it overly protective of property investment and values;
- Was is it prudent to empower locally- elected legislators to adopt land use regulations without mandating the adoption of a comprehensive plan prepared by a less political body; and, of course,
- Was the separation of land uses into districts constitutional: did it violate land-owners' due process or equal protection rights or was it a taking of property without just compensation?

III. Zoning was contagious, but was it constitutional?[21]

There was much to be worked out as zoning entered its second decade in 1926, when the question of zoning's constitutionality reached the U.S. Supreme Court. By the mid-1920s, zoning had been challenged in several state courts with split results. A majority of the courts that considered early zoning laws agreed with *State ex rel. Carter v. Harper*, which upheld "so-called zoning" against takings, equal protection, and due process claims.[22] Several quotes from the case explain this result: In *Harper*, the court established

[20] F. John Devaney, Tracking the American Dream 50 Years of Housing History from the Census Bureau: 1940 to 1990, 54 (1994).
[21] *See* John R. Nolon, *Comprehensive Land Use Planning: Learning How and Where to Grow*, 13 Pace L. Rev. 351 (1993) [hereinafter *Comprehensive Land Use Planning*].
[22] State ex rel. Carter v. Harper, 196 N.W. 451 (Wis. 1923).

that ".the rights preserved to the individual by these constitutional provisions are held in subordination to the rights of society."[23] Further, the case held that "[t]he purpose of the law is to bring about an orderly development of our cities. . ..Everyone who has observed the haphazard development of cities. . .has appreciated the desirability of regulating the growth and development of our urban communities."[24] Ultimately, the court raised a critical question: "When we reflect that one has always been required to use his property so as not to injure his neighbors. . .can it be said that an effort to preserve various sections of a city [from harmful intrusions] is unreasonable?"[25]

Other courts agreed with Judge Offutt, who wrote in *Goldman v. Crowther*: "This ordinance at a stroke arrests that process of natural evolution and growth, and substitutes for it an artificial and arbitrary plan of segregation."[26] He further noted ". . .it has never been supposed in this state that the police power is a universal solvent by which all constitutional guarantees and limitations can be loosed and set aside, regardless of their clear and plain meaning. . .. [T]hose limits . . . must bear some substantial relation to the public health, morals, safety, comfort or welfare."[27] Thus, "so much of the ordinance as attempts to regulate and restrict the use of property in Baltimore City is void."[28] The court found that the ordinance itself did not contain adequate provisions demonstrating that it was bottomed on legitimate public interests.[29] On its face, the separation of land uses into zones was void in Maryland.

Such was the legal background when, in my imagination, the CEO of Ambler Realty Co. awoke one morning in the early 1920s to learn from the local newspaper that its 68-acre property in the Village of Euclid, Ohio was been divided into three separate zoning districts under the zoning ordinance adopted by the Village Board of Trustees the previous evening.[30] Outraged by this unprecedented interference with his industrial development plans and the resulting substantial diminution of the value of his property, he brought suit claiming that zoning, on its face, was a deprivation of private property without due process.[31] The affected parcel had been listed and sold for industrial development.[32] It was situated next to a rail- road and in the "path of progressive industrial development."[33] Yet, the new zoning law limited its use, in substantial part, to residential and retail purposes at significantly lower market values. The question, wrote the U.S. Supreme Court, was whether "the ordinance [is] invalid, in that it violates the constitutional

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[23] *Id.* at 453.
[24] *Id.* at 454-55.
[25] *Id.* at 455.
[26] Goldman v. Crowther, 128 A. 50, 53 (Md. 1925).
[27] *Id.* at 55.
[28] *Id.* at 60.
[29] *Id.*
[30] Village of Euclid v. Ambler Realty Co., 272 U.S. 365, 380-83 (1926).
[31] *Id.* at 384.
[32] *Id.*
[33] *Id.* at 383.

protection ‘to the right of property in [Ambler Realty] by attempted regulations under the guise of the police power, which are unreasonable and confiscatory.’ ”[34]

The Court noted “while the meaning of constitutional guarantees never varies, the scope of their application must expand or contract to meet the new and different conditions which are constantly coming within the field of their operations.”[35] Invoking the law of nuisance and the “painstaking considerations” found in the reports of various planning and land use commissions and experts, which concur in the view that the segregation of different land uses serve many public interests, the Court found zoning constitutional.[36] And, it did so by firmly establishing the standard still used today in determining whether a zoning regulation is valid exercise of local police power: “The reasons . . . [supporting the separation of land uses could not be said to be] clearly arbitrary and unreasonable, having no substantial relation to the public health, safety, morals or general welfare.”[37]

In this way, the judicial attitude toward zoning was fixed: courts would presume the constitutional validity of zoning, defer to the findings of local legislatures, and impose on the challenger a heavy burden of proving that zoning was unreasonable and arbitrary. However, when a property owner challenges zoning not on its face, as in these cases, but rather as applied to a particular parcel, it is somewhat easier to carry this burden of proof. In *Nectow v. City of Cambridge*, the Supreme Court invalidated a zoning ordinance that subjected the petitioner’s property to use restrictions that were unreasonable.[38] The petitioner’s burden of proof was carried when it demonstrated to the satisfaction of the Court that “’no practical use can be made of the land in question,’ ” and that the use permitted “’would not promote the health, safety, convenience, and general welfare of the inhabitants of that part of the defendant city.’ ”[39]

These bookend principles raised countless questions, the answer to which would have to wait more than two decades while land use law essentially slumbered during the Great Depression and World War II. After a decade of post-war development, the consequences of what became known as Euclidian Zoning could be assessed. Was the rigid separation of land uses into discrete zones effective or, in Judge Offutt’s terms, did it arrest “that process of natural evolution and growth” to the detriment of society?[40]

IV. The unintended consequences of Euclidian Zoning[41]

Following the decision in *Euclid v. Ambler Realty Co.* in 1926,[42] land use lawyers and planners celebrated the advent of a new, comprehensive method of shaping human settlements and protecting investments in the built environment. However, their

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[34] *Id.* at 386.
[35] *Id.* at 387.
[36] *Id.* at 394.
[37] *Id.* at 395.
[38] Nectow v. City of Cambridge, 277 U.S. 183 (1928).
[39] *Id.* at 187.
[40] Goldman v. Crowther, 128 A. 50, 53 (Md. 1925).
[41] *Comprehensive Land Use Planning*, *supra* note 21.
[42] Village of Euclid v. Ambler Realty Co., 272 U.S. 365 (1926).

excitement was short-lived. In 1929, the stock market crashed and land development moved at a snail's pace until the end of World War II.[43] The growth rate in housing units increased by 40% in the 1950s over the 1940s, putting much more pressure on the land use regulatory system at mid-century.[44] We had to wait until this growth was absorbed to see what zoning had wrought.

The Standard Zoning Enabling Act, as ad- opted by most state legislatures, seemed simple enough.[45] It permitted local governments to separate land uses into use districts or zones within which they may regulate the construction and the use of buildings or land.[46] The Act stipulated, "regulations shall be uniform for each class or kind of buildings throughout [each] district."[47] Existing patterns of land use in 1926 were disorganized and chaotic in urban areas, a consequence of the unplanned results of countless unguided private sector land use decisions.

What would neighborhoods look like after being filtered through a zoning ordinance that channeled like-kind land uses into geometric- shaped districts, governed by bulk and area standards, limited lot sizes and coverage, and building heights and set-backs: standards that must apply uniformly to all parcels within the district? Much of what concerned zoning in its inception had to do with civil engineering, traffic concerns, such as ensuring fire truck access to buildings during fires; designing streets and driveways to reduce accidents; and limiting house heights to 35 feet, so that they were tucked under the tree canopy of the neighbor- hood to preserve community character.

Euclidian zoning seemed well named, as lawyers and planners first drew the shapes this law seemed to dictate. The geometry was not flexible, due in part to the adherence of judges to Dillon's Rule, under which courts were obliged to read literally the laws that delegate power to local governments.[48] How much uniformity was optimal; what would the legacy of uniformly regulated neighborhoods be?

After World War II, growth pressures in sub- urban communities intensified due to the return of the soldiers, affordable federal mort- gages, and the 1956 Federal Highway Act that allowed city dwellers to abandon cities in record numbers. This migration rapidly revealed the designs that zoning created. Much of the land in developing communities was zoned for single-family housing on relatively large lots, large enough to permit builders to use septic systems and individual wells, thereby reducing the capital infrastructure costs to the municipality. These homes were uniformly sized and their shape was dictated by zoning's area and bulk requirements.

There was a certain sameness to many of these emerging neighborhoods. As they expanded outward, commutes lengthened, in- creasing vehicle miles travelled and CO_2

[43] F. John Devaney, *supra* note 20, at 8.
[44] *Id.*
[45] U.S. Dep't of Commerce, *supra* note 12.
[46] *Id.*
[47] *Id.*
[48] 1 J. Dillon, Commentaries on the Law of Municipal Corporations § 237 (5th ed. 1911).

emissions; impermeable lot coverage intensified stormwater runoff and flooding; open space shrunk and, with it, wetlands and habitats; housing became less affordable, creating racially imbalanced neighborhoods; the lack of workers repelled employers, reducing jobs and property tax revenues; municipal services became more expensive; and the character of communities changed, not always to the liking of those who lived there. In response, land use lawyers and planners began to tweak the legal framework to achieve more flexibility in per- mitted development.

As the century progressed, zoning's weaker sibling—land use planning—became a larger factor in land use law. The adverse effects of promulgating the Standard City Planning Enabling Act after, instead of before, the Standard Zoning Enabling Act were better understood. Day-to-day zoning decisions needed to be guided by a vision for the city or town's future; adopting a comprehensive land use plan gave citizens and local officials a method of accomplishing that in addition to mitigating the unintended consequences of Euclidian zoning. Some states stipulated that the local planning commission or a special advisory committee should formulate and adopt the comprehensive plan, insulating the planning process somewhat from electoral politics and tying zoning's conformance to an apolitical document. Communities that took planning seriously and conformed their zoning to their plan learned that they had protected zoning from a variety of challenges, including due process and *ultra vires* claims. If a zoning provision furthers a comprehensive plan objective, it is less likely to be invalidated for failing to further a legitimate public objective or failing to be within the legal power of the locality to enact.

That zoning was to reach beyond civil engineering and fire safety was embedded in the Standard City Planning Enabling Act. As a predicate for zoning, it provided that plans will, "in accordance with present and future needs, best promote health, safety, order, morals, convenience, prosperity, and general welfare as well as efficiency and economy in the process of development. . .."[49] The purposes of planning were broad. Zoning had to conform. The stage was set for the adoption of flexible zoning and land use strategies that moved beyond the rigid contours of Euclidian zoning.

The Neo-Euclidian era began as zoning turned 40, roughly a decade after the post-war experiments with the original model. Its failures led to a variety of legal remedies—all experiments in search of proper development patterns. Courts slowly moved past Dillon's Rule and some state legislatures changed the law, calling for a liberal interpretation of the strict language of the enabling act, and others delegated new powers to localities to mitigate the cookie-cutter results of the Euclidian era.

V. The most appropriate use of the land[50]

Immediately after WWII, Euclidian Zoning was not working for the Village of Tarrytown, New York. The Village needed workers to at- tract employers to build its tax base. For political and economic reasons, it decided not to zone large areas for multi-family housing.

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[49] U.S. Dep't of Commerce, A Standard City Planning Enabling Act (1928).

[50] *See* John R. Nolon, *The Law of Sustainable Development: Keeping Pace*, 30 Pace L. Rev. 1246 (2010) [hereinafter *Keeping Pace*].

Instead, in 1947, the Village board of trustees created a floating garden apartment zone, which allowed landowners who owned ten acres of land or more to apply for the floating zone to alight on their property; a unique two- step process that was clearly not within the specific delegated power of the Village under the state zoning enabling act.[51] The foundation for this creative zoning technique was laid in the Village's comprehensive plan, which identified the need for affordable housing and an effective means to provide it. The Village knew that a straightforward rezoning of land to multi-family use would greatly increase its value and adversely affect the desired affordability. Following this enactment, the owner of an eligible parcel successfully applied for rezoning.

In *Rodgers v. Tarrytown*, the plaintiff, who owned six acres nearby, pointed out that nothing in New York's zoning enabling act expressly authorized the Village to first create a multi- family zoning district and then, later, apply it to a parcel in a single-family district after consideration of an application made by the parcel's owner.[52] In the view of the Euclidians, zoning districts were to be changed by amendments to the zoning map, adopted at the same time as the provisions regulating land uses were changed.

The state's highest court disagreed with the plaintiff, and broadly interpreted the creative authority of local governments. The court noted that "zoning is by no means static. . ..[c]hanged or changing conditions call for changed plans."[53] And, further, "The village's zoning aim being clear, the choice of methods to accomplish it lay with the board."[54] With these words, the Neo-Euclidian period began.

The dissent in *Rodgers* spoke for the conservative interpretation of the enabling act. It argued "the device. . .most assuredly is not 'zoning.' "[55] It feared that upholding floating zoning could "well prove to be the opening wedge in the destruction of effective and efficient zoning in this State."[56] The dissent called this an *ultra vires* act, one that created a nonconforming use in an established zone for the benefit of the owner of a single parcel (also known as "spot" zoning), or gave the legislature the power to grant variances, a power reserved to the zoning board of appeals.[57] For all these reasons, the dissent believed that the creation of a floating zone was not within the delegated authority of the board of trustees.

The rationale of the majority in *Rodgers* was on sound footing. The Standard Zoning Enabling Act, which was adopted nearly in its entirety by the New York legislature, contains this provision: "Such [zoning] regulations shall be made. . .with a view to conserving the value of buildings and encouraging the most appropriate use of land

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[51] Rodgers v. Village of Tarrytown, 96 N.E.2d 731, 732-33 (N.Y. 1951).
[52] *Id.* at 733.
[53] *Id.*
[54] *Id.* at 733-34.
[55] *Id.* at 736.
[56] *Id.*
[57] *Id.* at 736-39.

throughout the community."[58] This language was included in most of the zoning enabling acts adopted by state legislatures throughout the country.

If floating zoning was not zoning, in the dissent's view, what was it? Perhaps this 1951 case sufficiently broadened the term zoning so that, over time, it became land use law. Today, we use land use law, including floating zones and its many siblings, to create sustainable neighborhoods, permit community solar facilities, and promote mixed-use developments oriented to transit. Beyond this first flexible tool, the courts and legislatures have added many more to the land use toolbox: special use permits, overlay zoning, planned unit development districts, receiving and sending zones for the transfer of development rights, growth control ordinances, density bonuses in ex- change for affordable housing, and a host of additional Neo-Euclidian devices.

As this century progresses, land use law is becoming an essential strategy for mitigating and adapting to climate change. By properly shaping settlement patterns, it can greatly decrease per capita carbon emissions, water use, energy consumption, and impervious coverage, which causes flooding. Today, lawyers practice land use law—not zoning—thanks, in part, to the *Rodgers* holding and similar decisions in other states. Law and planning stu- dents go far beyond memorizing and applying the holding in *Euclid* and now study dozens of land use techniques. The practice of land use law today focuses on shaping settlement pat- terns to achieve "the most appropriate use of the land" in an era fraught with frightful challenges.

PART II

I. The surprising origins of smart growth[59]

The idea that local land use law can intelligently shape settlement patterns was not a familiar concept in the late 1960s when the Town of Ramapo, New York adopted an ordinance that delayed development permits until the Town could provide needed infrastructure.[60] Ramapo was experiencing unprecedented growth as one of the closest northern suburbs of New York City. Developers, who in some cases had to wait years for services to their land, sued; they argued that these phased development controls were intended to prohibit subdivisions and restrict population growth, which is not authorized under the state's zoning enabling legislation.[61]

New York's highest court disagreed, holding that "phased growth is well within the ambit of existing enabling legislation."[62] The court found that Ramapo was not acting to close its borders to growth, but was trying to prevent the negative effects of uncontrolled

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[58] U.S. Dep't of Commerce, *supra* note 12.
[59] *See* John R. Nolon, *Golden and Its Emanations: The Surprising Origins of Smart Growth*, THE URB. LAW., Winter 2003 at 15.
[60] *Golden v. Planning Bd. of Town of Ramapo*, 285 N.E.2d 291, 293-96 (N.Y. 1972).
[61] *Id.*
[62] *Id.* at 300.

growth.[63] It found that Ramapo's zoning was not in violation of the Federal or New York State Constitutions because a rational basis for phased growth exists where "the existing physical and financial resources of the community are inadequate to furnish the essential services and facilities which a substantial increase in population requires."[64]

Another form of growth control, a strategy that became known as smart growth, was created 25 years later in Maryland, under Governor Parris Glendenning (now President of the Smart Growth Leadership Institute).[65] He radically changed state budget priorities by investing state infrastructure funds in priority growth areas to foster new development and by acquiring open space in conservation areas to pre- serve natural resources. This approach con- trolled growth in order to reign in the ill effects of sprawling land use patterns. Such patterns evolve gradually, as the land use blueprint contained in the municipal zoning ordinance is built out, one project at a time.

Maryland did what the *Ramapo* court suggested that the New York State legislature should do. "Of course," the court wrote, "these problems cannot be solved by Ramapo or any single municipality, but depend upon the accommodation of widely disparate interests for their ultimate resolution. To that end, State- wide or regional control of planning would insure that interests broader than that of the municipality underlie various land use policies."[66]

Glendenning's strategy called for local action. If local governments are to revise their basic blueprint and accomplish smarter growth, how should they proceed? State law provides numerous planning tools for municipalities to use to accomplish growth and conservation objectives. Principal among these, of course, is the comprehensive plan, the ideal document to account for the rational allocation of land use.

Local plans properly drafted to accomplish smart growth call for the use of a host of land use techniques that are capable of creating smarter, less wasteful, and more economically- efficient development patterns. These include, among others, cluster zoning, performance zoning, overlay zoning, floating zones, transit oriented development, traditional neighbor- hood zoning, planned unit development zoning, the purchase of development rights, the imposition of conservation easements, and the transfer of development rights. In addition, comprehensive plans can guide the creation of capital budgets and the funding of water, sewer, roads, lighting, sidewalks, parks, and education infrastructure in areas where denser development is needed.

Today, priority growth areas are found in cities and urban villages, which are out-competing suburbs for growth and its benefits. Urban neighborhoods are fueling the economy by spiking construction and retail jobs, increasing real estate sales, brokerage commissions, financing, and title insurance as well as providing urban amenities to newly

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[63] *Id.* at 304-05.
[64] *Id.*
[65] *Leadership Institute*, Smart Growth America, http://www.smartgrowthamerica.org/leadership-institute/about (last visited Jul. 8, 2016).
[66] *Golden*, 285 N.E.2d at 300.

formed house- holds looking for lively places to work and live. These efforts in the cities and villages that host our colleges, hospitals, affordable housing, restaurants, and entertainment venues make both themselves and development in adjacent communities more viable. Workers and residents, for example, are attracted to a transformed mixed-use office park when they can access the shopping, night life, and services available in a nearby, rejuvenating city or village.

Smart Growth is a popular label for a growth strategy that addresses current concerns about traffic congestion, disappearing open space, non-point source pollution, the high cost of housing, increasing local property taxes, longer commutes, excessive fossil fuel and energy consumption, and the diminishing quality of community life. What was barely perceptible in the real estate market 15 years ago is rapidly becoming a booming business. Developers make it clear that they will invest in this new market, but only where local mayors and councils are champions of sustainable development, where a clear local vision and conforming zoning are in place, and where the local land use approval process works efficiently.

States are following Maryland's example, learning how to shape spending policies to influence local action. They are adopting smart-growth infrastructure plans, new energy plans, complete street infrastructure policies, main street programs, climate-smart communities initiatives, brownfield spending budgets, and transit-oriented development policies and programs. Together, these state efforts create a clear target for local governments and developers to address.

What is smart about these policies and the projects they spawn, in addition to being sensitive to powerful new market trends and utilizing existing infrastructure, is that they also greatly reduce, on a per household basis, water consumption, energy use, building materials used, and the impervious coverage that causes storm water runoff and flooding. These developments can also be more affordable, particularly where localities offer bonus densities to developers in exchange for workforce housing, bringing office, research, retail, and service workers closer to where they work.

II. The advent of local environmental law [67]

As American development progressed into the 1980s, the landscape changed due to the prevalence of sprawl. People became perturbed at the local level, where environmental degradation is painfully obvious. Natural resources were threatened. Open space, wetlands, and habitats—and their obvious local benefits— diminished. Many of these problems were be- yond the reach and competence of federal environmental law, with its primary focus on point source pollution of the air and navigable waters.[68] As these worries deepened, local leaders and their lawyers gradually learned to rely on "local

[67] *See* John R. Nolon, *In Praise of Parochialism: The Advent of Local Environmental Law*, 26 HARVARD ENVTL. L. REV. 365 (2002).
[68] *See* Clean Air Act §§ 101-618, 42 U.S.C. §§ 7401-8018 (2012); Clean Water Act §§ 101- 607, 33 U.S.C. § 1251-1857 (2012).

environmental law" as an antidote and, in doing so, greatly widened the net of land use law.

As land use regulation matured during the 1950s and 1960s, the line between physical, or infrastructure, planning and natural resource protection blurred. In 1955, for example, rezoning that increased lot sizes in single-family zones to protect drinking water from pollution was upheld in *De Mars v. Zoning Commission of Town of Bolton*.[69] The Connecticut Supreme Court rested its decision, in part, on the fact that one of the purposes of the state zoning enabling act was to promote "the most appropriate use of the land."[70] The National Flood Insurance Program, created in 1968, exerted an early and strong influence on the initiation of local environmental legislation.[71] It required localities to adopt and enforce floodplain zoning restrictions so that local property owners would be eligible for flood disaster insurance and payments.[72] Although originally focused on minimizing property loss and personal injury, flood insurance regulation gradually recognized and, in some cases, protected the ecological services provided by floodplains. This concern for nature gradually grew as local environmental law progressed into the 1990s.

Local land use law, we now understand, dictates how much of the land is covered with impervious surfaces, causing flooding; how many miles of roads are built, fragmenting habitats and watersheds; how many septic systems, sewer plants, and water systems are created, diminishing ground and surface water quantity and quality; and where buildings and improvements are located, increasing vehicle miles traveled and air pollution, aggravating climate change. Quite obviously, regulating land development and environmental considerations are intimately linked.

As local environmental perturbations in- creased, more localities adopted laws that protect natural resources and lessen environ- mental pollution. These local environmental laws take a number of forms and accomplish an array of objectives. They include local comprehensive plans expressing environmental values, zoning districts created to protect critical environmental areas, environmental standards contained in subdivision and site plan regulations, and stand-alone environmental laws adopted to protect particular natural features such as ridgelines, wetlands, flood- plains, stream banks, existing vegetative cover, and forests. Local governments have creatively used a variety of traditional and modern powers that their state legislatures have delegated to them to address locally occurring environ- mental problems.

Much progress has been made under the authority to encourage the appropriate use of the land through zoning. In some states, however state legislatures are more explicit. They authorize local governments, for example, to protect the physical and aesthetic environment, control development in floodplains, prevent soil erosion, or require local

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[69] *De Mars v. Zoning Comm'n of Town of Bolton*, 115 A.2d 653 (Conn. 1955).
[70] *Id.* at 654.
[71] 42 U.S.C. §§ 4001-4128 (2012).
[72] 42 U.S.C. § 4102 (2012).

governments to conduct environmental impact re- views before approving development proposals.

The evolution of this authority is seen in South Carolina. The state constitution authorizes the legislature to provide for "the structure and organization, powers, duties, functions and responsibilities of the municipalities."[73] The state constitution says that "[t]he provisions of [the] Constitution and all laws concerning local government shall be liberally construed in their favor," and that any powers granted local governments by the constitution and laws "shall include those fairly implied and not prohibited by [the] Constitution."[74]

The South Carolina Legislature through the South Carolina Local Government Planning Enabling Act, which requires local plans to include natural resource components, statutorily implemented this broad grant of local authority.[75] State law requires that all zoning and land use regulations must be in accordance with the comprehensive plan.[76] The Act also authorizes a variety of Neo-Euclidian techniques to be used, and makes it clear that "any other planning and zoning techniques may be used."[77] Municipalities are authorized by this state law to consider "the protection of . . . ecologically sensitive areas" in adopting their zoning laws.[78]

We learn two key lessons from this continuing progress toward a robust system of local environmental law. The first is that local legislators, driven by residents animated by environmental degradation, have surprisingly broad powers to protect the environment in many states. This springs from the parochial nature of local land use law, where citizens within constrained borders call for their natural resources to be protected. The second is that environmental resources often transcend those borders and require intermunicipal or regional arrangements to be effectively protected.

III. Regionalism and "Wistful Hoping" [79]

We praise the parochial nature of American land use law because it gives power to local people to cure local problems and take advantage of local opportunities that deeply affect them. However, in the seminal *Euclid* case, the owners of the property regulated by the Village and an entire regional industry were upset by zoning's interruption of the natural evolution of land development.[80] The U.S. Supreme Court wrote, "It is said that the village of Euclid is a mere suburb of the city of Cleveland; that the industrial development of that city has now reached and in some degree extended into the village, and in the obvious course of things will soon absorb the entire area for industrial enterprises. . .. But the

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[73] S.C. Const. art. VIII, § 9.
[74] S.C. Const. art. VIII, § 17.
[75] S.C. Code Ann. § 6-29-510(D)(3).
[76] S.C. Code Ann. § 6-29-720(B).
[77] S.C. Code Ann. § 6-29-720(C).
[78] S.C. Code Ann. § 6-29-510(D)(4).
[79] *See* John R. Nolon, *Grassroots Regional- ism Through Intermunicipal Land Use Com- pacts*, 73 ST. JOHN'S L. REV. 1011 (1999).
[80] *Village of Euclid v. Ambler Realty Co.*, 272 U.S. 365 (1926).

village, though physically a suburb of Cleve- land, is politically a separate municipality, with powers of its own and authority to govern itself as it sees fit. . .."[81]

The flip side of parochial power is that natural resources, nonpoint source pollution, and economic and housing markets transcend local boundaries. They are intermunicipal, regional, and, in some cases, interstate in nature. Critics including industry, environmental, and fair housing advocates have bemoaned local control and called for its preemption by state or federal regulation, where their particular interests are thwarted.

The case that first validated local control of regional growth recognized the irony of its position. New York's highest court, in *Golden v. Planning Board of Town of Ramapo*, wrote that "Statewide or regional control of planning would insure that interests broader than that of the municipality underlie various land use policies."[82] The court further noted, however, that local control should not be struck down "in the wistful hope that the efforts of [regional planning] will soon bear fruit."[83]

The dissonance between the regional nature of land use problems and local control is best explained by former House Speaker, Thomas P. O'Neill Jr., who quipped that "all politics is local."[84] State and Congressional lawmakers stand for election in essentially local districts where control by remote governmental agencies is anathema.

The quandary can be resolved by searching for regional processes that respect the critical role that local governments play in land use decision-making. To be politically palpable, these initiatives must not be perceived as methods of imposing a state or regional body's will on local governments. Rather, they should be viewed as means of communicating effectively about regional and local needs, balancing those interests, and arriving at mutually beneficial decisions over time.

From its inception, the U.S. land use system has encouraged voluntary, grassroots approaches to intermunicipal and regional planning. The Standard City Planning Enabling Act (SCPEA) provided for regional planning by authorizing local planning commissions to petition the governor to establish a regional planning commission and to prepare a master plan for the region's physical development.[85] Provisions were included in the Act for communication between the regional and municipal planning commissions, with the objective of achieving a certain degree of consistency between local and regional plans.[86] Regional consciousness has been with us since the early days of American zoning.

Many localities have adopted sustainable development strategies because of encouragement, information, or funding provided by the state or federal government. This

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[81] *Id.* at 389.
[82] *Golden v. Planning Bd. of Town of Ramapo*, 285 N.E.2d 291, 300 (N.Y. 1972).
[83] *Id.*
[84] *See* Thomas O. Sargentich, *The Future of the Item Veto*, 83 IOWA L. REV. 79, 135 n.245 (1997) (quoting Thomas P. O'Neill Jr., Man of the House 26 (1987)).
[85] U.S. Dep't. of Commerce, A Standard City Planning Enabling Act (1928).
[86] *Id.*

observation aligns with research results published in Urban Affairs Review, where the authors demonstrate that "more policy making occurs in states with a multilevel governance framework supportive of local sustainability action."[87]

Localities will align their land use plans with common sense state policies if they receive information and support via state assistance offered in the right way, without a heavy top-down emphasis or requirements that seem like mandates. Correcting the deficiencies in the hundred-year old zoning system is not about taking away local power, but rather should focus on working with localities to build a better system. This suggests that we need to discover and implement methods of using federal and state policies and resources to sup- port, guide, and sustain local initiatives to co- ordinate land use policy across municipal and state borders.

Regionalism is not at odds with our land use planning tradition. It need not be "wistful hoping" if approached in the right way. We have not, however, developed a consensus on the proper strategy of weaving local control into the broader fabric of society. It takes a clear understanding by federal and state lawmakers and agencies that parochialism has its place. We are still waiting for this insight to seriously shape their efforts to solve regional land use problems.

IV. Mixed signals: exclusionary zoning and fairness[88]

After encountering significant NIMBY op- position to the expansion of the Lucas film facilities on his land in Marin County, California, George Lucas abandoned his plans and proposed to sell his land to affordable housing developers.[89] The backstory involves the Fair Housing Act, various federal grant-in-aid programs, and a Voluntary Cooperation Agreement entered into between Marin County and the U.S. Department of Housing and Urban Development.[90] After an investigation, HUD required the County to take steps to affirmatively further fair housing opportunities for people of color and other groups that face barriers to housing in the region.[91]

Marin County's minority population is much lower than that of other communities in the Bay Area. As a recipient of federal funding, it has an obligation to Affirmatively Further Fair Housing (AFFH), which includes eliminating impediments to fair housing, such as

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[87] George C. Homsy & Mildred E. Warner, *Cities and Sustainability Polycentric Action and Multilevel Governance*, Urban Affairs Review, Jan. 2015.

[88] *See* John R. Nolon & Tiffany Zezula, *Affirmatively Furthering Fair Housing: The Search for Solutions that are Just Right*, ZONING & PLAN. L. REP., July 2012, at 1; John R. Nolon & Jessica Bacher, *Affordable Housing in the New York Courts: A Case for Legislative Action*, N.Y. PLAN. & PRAC. REP., Nov./Dec. 2008 at 1.

[89] Norimitsu Onishi, *Lucas and Rich Neighbors Agree to Disagree: Part II*, N.Y. TIMES, May 22, 2012, at A13.

[90] Nolon & Bacher, *supra* note 88.

[91] *Id.*

zoning restrictions that cause segregation.[92] The neighbors of Lucas's property are now contemplating a different change in the neighborhood than the one they initially opposed.

Under the Tenth Amendment, the matter of land use control is left to the states, which have delegated that power to local governments.[93] Exclusionary zoning is, in the first instance, a matter of state law. It is based on the Euclidian notion that zoning's purpose is to segregate different land uses into various districts. Zoning is inherently exclusionary. Yet, since land use authority is delegated to localities by the state, there are constitutional limits to excluding growth and affordable housing.

State courts, however, are relatively shy about intruding into the local legislative realm and mandating solutions to affordable and fair housing. State legislatures, because all politics is local, have been equally reticent. Courts in New Jersey and the state legislatures in California and Connecticut, which have aggressively and clearly defined the obligations of local government regarding housing, are outliers.

New York courts are more engaged in the topic than most state court systems, but their holdings fall far short of providing effective guidance to localities regarding their responsibilities to provide affordable housing. In the seminal case *Berenson v. New Castle,* the state's highest court noted: "[T]he primary goal of a zoning ordinance must be to provide for the development of a balanced, cohesive com- munity which will make efficient use of the town's land. . .. [I]n enacting a zoning ordinance, consideration must be given to regional [housing] needs and requirements. . .. There must be a balancing of the local desire to maintain the status quo within the community and the greater public interest that regional needs be met."[94] The state court held that New Castle's failure to zone land for multifamily housing was exclusionary.[95] Mr. Berenson's land was then rezoned for condominiums that sold for today's equivalent of $500,000.

These abstract judicial utterances, in the few jurisdictions where state courts have entered the fray—coupled with the absence of state legislative guidance—leave localities wondering what their obligations are under state law. Meanwhile, if they receive federal funding or fail to rezone land proposed for multifamily housing, like Marin County, they may be liable for their failure to AFFH. The Fair Housing Act aims to fight racial segregation and thus implicates the very nature of zoning.[96] How can segregation be eliminated if most land in communities is zoned for single-family housing, the ubiquitous result of Euclidian zoning? But what exactly does this mean? What does federal law require?

What we know is that communities that receive federal housing and community development funding must certify that they have analyzed the impediments to AFFH and

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[92] *Id.*
[93] U.S. Const. amend. X.
[94] *Berenson v. Town of New Castle*, 341 N.E.2d 236, 241 (N.Y. 1975).
[95] *Id.* at 236-43.
[96] 42 U.S.C. § 3601.

acted in good faith to eliminate them.[97] They may be liable if they have not, which implicates the zoning that creates a segregative settlement pattern.[98] We also know that the refusal to rezone specific parcels for multi-family housing may result in municipal liability for dis- crimination, if such failure results in disparate impacts or disparate treatment. *Huntington Branch, NAACP v. Town of Huntington* held: ". . .[W]e find that the disproportionate harm to blacks and the segregative impact on the entire community resulting from the refusal to rezone create a strong prima facie showing of discriminatory effect."[99]

In *Texas Department of Housing and Com- munity Affairs v. The Inclusive Communities Project, Inc*. (2015), the U.S. Supreme Court held that "recognition of disparate-impact claims is consistent with the FHA's central purpose."[100] The Court pointed to "zoning laws and other housing restrictions" that it viewed as "unfairly. . .excluding minorities from certain neighborhoods without any sufficient justification."[101] It went on to say that "[g]overnmental or private policies are not contrary to the disparate-impact requirement unless they are "artificial, arbitrary, and unnecessary barriers. Courts should avoid interpreting disparate impact liability to be so expansive as to inject racial considerations into every housing decision."[102]

Municipalities and their attorneys are get- ting unclear signals in this area of land use law. They may create zoning districts and specify whatever uses they wish. But they must not craft these districts and uses in a way that excludes households in the state in search of housing. Yet, nowhere is the extent of this responsibility defined. There is no guidance on what constitutes "the region" or "regional needs"; localities' "fair share" or their "duty" to actually make housing for such households affordable; or what combination of zoning techniques and housing subsidies (over which there is no local control) municipalities must use. When precisely, under federal law, are localities responsible to affirmatively further fair housing? Is that liability limited to communities that get federal funding and those that deny housing developers multifamily zoning? Or, does it extend to the entire pat- tern of development created by local zoning if its districts are not integrated racially? Wouldn't that be injecting racial considerations into every land use decision that affects housing?

Perhaps nowhere in the story of Zoning's Centennial is the legal system more confused than in this area of fair and affordable housing. It is an interjurisdictional mess, begging for sensible reform. But, where should this reform begin? State governments are often the appropriate intermediary between federal and local interests. State constitutions give the police power to their legislatures. They have, in turn, delegated it to localities regarding land use without clear guidance as to these critical fairness issues. The resolution of these

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[97] 42 U.S.C. § 3608. *See also* Affirmatively Furthering Fair Housing, 24 C.F.R. §§ 5, 91, 92 (2015).
[98] § 3608.
[99] *Huntington Branch, NAACP v. Town of Huntington*, 844 F.2d 926, 938 (2d Cir. 1988).
[100] *Texas Dep't of Housing and Community Affairs v. Inclusive Communities Project, Inc.*, 135 S.Ct. 2507, 2511 (2015).
[101] *Id.*
[102] *Id.* at 2524.

questions should be a matter of state concern and become state priority, given the importance of these unresolved issues.

V. The emergence of the law of sustainable development[103]

When we created and named the Land Use Law Center for Sustainable Development in 1993, we had a foggy vision of the contours of Sustainable Development Law. We knew that the advent of local environmental law, the origins of smart growth, and zoning for afford- able housing traced the outlines of this field of law and practice. These movements in land use law focused on promoting and regulating economic development to meet present needs, providing for equitable community development, and preserving natural resources to meet the needs of future generations: the essential elements of sustainable development as defined in the Rio Accords of 1992.[104]

We did not know then, however, that land use law would progress rapidly over the next quarter century to include topics as diverse as green infrastructure and biological sequestration; adaptation to sea level rise and storm surges; siting and promoting wind and solar facilities; preserving agricultural land through urban food sheds; creating livable neighbor- hoods through design controls; and regulating hydrofracking to protect the health of local residents.

In 1993, the technology was either nascent or did not exist for achieving high levels of on-site stormwater infiltration; constructing zero net energy buildings; measuring increases in sequestering vegetation and urban tree canopies; expanding domestic gas and oil exploration through fracking; creating clean energy facilities such as geothermal, combined heat and power, and micro-grids; developing rating systems for sustainable buildings and neighborhoods; identifying neighborhoods where high energy waste occurs; understanding ecosystem services and their values; creating metrics that identify base lines for carbon emission and measure its increases and de- creases; and designing models that project the extent of sea level rise in coastal areas.

Over the past 25 years as these technologies developed, the law adapted to put them to effective use in promoting sustainability in all of its dimensions. We now know, through examining advances in technology and local law, how to achieve development that uses less material, avoids destroying wetlands or eroding watersheds, consumes less energy, eliminates or shortens vehicle trips, emits less carbon dioxide, lessens stormwater runoff, reduces ground and surface water pollution, and creates healthier places for living, working, and recreating.

This body of law is being created mainly by municipalities, which have the principal legal authority to regulate building construction, land use, and the conservation of natural re-

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[103] *See* John R. Nolon, *Shifting Paradigms Transform Environmental and Land Use Law: The Emergence of the Law of Sustainable Development*, 24 FORDHAM ENVTL. L. REV. 242 (2013); *Keeping Pace*, *supra* note 50.

[104] U.N. Conference on Environment & Development, *Agenda 21*, § 5.3 (June 3-14, 1992).

sources at the local level. Increasingly, how- ever, positive federal and state influences are speeding local adoption of sustainable law techniques.

This is evident in federal and state tax credit, spending programs, and technical assistance that promote solar and other clean energy facilities.[105] Similarly, the Sustainable Communities Initiative—a partnership be- tween HUD, the Department of Transportation, and EPA—has aided local efforts to achieve transit oriented development and reduce vehicle miles travelled.[106] HUD's recent efforts to affirmatively further fair housing guide localities in identifying the impediments to fair and affordable housing.[107] With coastal protection and disaster planning, federal and state efforts are helping localities, as first responders, deal with climate-induced hazards.[108] Federal and state transportation spending is directed by federally-required Metropolitan Planning Organizations, creating one model of regional planning that involves local elected officials.[109] In the environmental field, EPA's stormwater management program and aligned state efforts have greatly assisted localities to reduce stormwater runoff.[110] EPA has experimented with efforts to cooperate with local land use authorities to reduce nonpoint source pollution to achieve its Total Maximum Daily Load objectives for federally- impaired waters.[111] These initiatives that exhibit a clear-eyed view of the importance of local land use provide a basis for a fuller integration of local, state, and federal efforts to create rational land use, transportation, and environmental patterns.

The challenge ahead is to scale up the most exemplary of these integration efforts. The pat- terns of a more coherent framework of sustain- able development law can be observed in the operations of each level of government and the close connections between economic development, environmental protection, and the pro- motion of equitable development.

As these patterns become better understood, the prospect brightens for a robust and integrated system of federal, state, and local laws dedicated to sustainable development and climate change management. The law has always evolved in this way to serve the needs of society. Expect as much progress in law and technology over the next quarter century as we have witnessed in the last.

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[105] *See, e.g.*, 26 C.F.R. § 1.23-1 (1987).
[106] *Sustainable Communities Initiative*, HUD, http://portal.hud.gov/hudportal/HUD?sr c=/hudprograms/sci (last visited Mar. 16, 2016).
[107] *See* Affirmatively Furthering Fair Housing Assessment Tool for States and Insular Areas, 81 Fed. Reg. 12,921 (proposed Mar. 11, 2016).
[108] *See e.g.*, Coastal Zone Management Act §§ 302-319, 16 U.S.C. §§ 1451-1465 (2012).
[109] 23 U.S.C. § 134 (2012).
[110] Stormwater Management, EPA, https://www.epa.gov/greeningepa/stormwater-management (last updated Feb. 29, 2016).
[111] *See* Chesapeake Bay Total Maximum Daily Load (TMDL), EPA, https://www.epa.gov/chesapeake-bay-tmdl (last updated Mar. 2, 2016).

PART III

I. Designing density[112]

In land use, there are two things that Americans dislike: one is sprawl, the other is density. This catch-22 can be resolved by mitigating those aspects of urban living associated with density: congestion, bulky buildings, sameness, design incongruities, unsafe streets, inefficiency, and the sense that neighborhoods are not livable and pleasant. These characteristics of density cut against sustainability. They define places that people want to leave as soon as they can. To reduce vehicle miles travelled and carbon emissions, as well as to prevent sprawl, we must create places of enduring value, located next to transit in walkable and sustainable neighborhoods.

When zoning was first adopted a century ago, little attention was paid to design. The focus was on separating incompatible uses and rigidly defining building heights, setbacks, and lot coverage: the ingredients of sameness, often the antithesis of livability. Gradually, over the years, communities addressed this issue by creating Architectural Boards of Review, Landmarks Commissions, Historic District Commissions, and adopting design review standards for individual buildings, whether new, landmarked, or historic. Over time, these initiatives have been supplemented by adopting standards contained in the U.S. Green Building Council's LEED-Neighborhood Development rating system and by incorporating into zoning the Congress for the New Urbanism's form-based codes approach to urban design control.[113]

The law in many states expressly supplements traditional zoning by authorizing localities to create boards and commissions and design standards that are either advisory or regulatory. Such locally created commissions and boards can issue certificates of consistency to rehabilitate landmarks or build in historic neighborhoods. Similarly, these laws authorize the creation of Architectural Review Boards (ARBs), and the adoption of design guidelines for all buildings within the community, enforced either by the ARB or, with the ARB's advice, by the local Planning Commission. In the latter case, the Planning Commission is authorized to require design features in all development it approves through subdivision or site plan review or the issuance of special permits.

The idea is to ensure that individual buildings are consistent with the historic fabric of the locality or are architecturally compatible with the neighborhood. These techniques are not Euclidian Zoning, but rather constitute an attempt to mitigate the designs wrought by use separation and area and bulk requirements that are traditionally applied uniformly in zoning districts.

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[112] Pace Land Use Law Center, Technical Guidance Manual for Sustainable Neighborhoods (2013); *Form-Based Codes Defined*, Form Based Codes Institute http://formbasedcodes.org/definition (last visited Apr. 6, 2016).

[113] *Getting to know LEED: Neighborhood Development*, U.S. Green Building Council, http://www.usgbc.org/articles/getting-know-lee d-neighborhood-development (Jan. 1, 2014).

Two relatively recent land use innovations have evolved organically to breathe better design into zoning at the neighborhood scale: the voluntary LEED-Neighborhood Development rating system,[114] promulgated by the U.S. Green Building Council, and form-based codes, developed by the Congress for New Urbanism and the Form-Based Codes Institute.[115]

The LEED-ND rating system was developed by the USGBC in response to criticism of its New Construction rating system, which could result in Platinum or Gold rated buildings located in agricultural zones or environmentally sensitive areas.[116] These buildings, while internally sustainable, are decidedly not consistent with larger principles of sustainability that emphasize environmental conservation and the reduction of automobile use and vehicle miles travelled. Here, place matters, and LEED-ND contains prerequisites and criteria that require rated buildings to be sustain- ability located as well as built.[117]

Local governments have begun to incorporate LEED-ND standards in their zoning and land use regulations. See, for example, the Technical Guidance Manual for local governments developed by the Land Use Law Center for the USGBC.[118] This document includes a step-by-step process for incorporating sustain- able neighborhood standards into the local comprehensive plan, zoning, land use regulations, approval processes, and capital budgets.[119]

Finally, form-based codes are beginning to catch on, especially in urban neighborhoods. The unique aspect of such codes is that they deemphasize use, bulk, and area requirements, substituting for them actual physical designs, adopted as code, that govern development. Diagrams and illustrations become regulations and govern building styles, details, and materials that are permitted, as well as the ways in which they can be incorporated into specific building elements. These regulations reach into the public realm and present in graphic form the width and dimensions of streets, sidewalks, paths, street trees, furniture, and more.

To zoning's credit, design standards fit into the Standard Zoning Enabling Act (SZEA), its focus on the appropriate use of the land and the processes it uses to review and approve specific buildings.[120] We are unaware of any case that has successfully challenged as *ultra vires* the incorporation of LEED-ND standards or the precepts of form-based codes in to local law. And, since historic, landmark, and architectural guidelines are often

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[114] *LEED*, U.S. Green Building Council, http://www.usgbc.org/leed#rating (last visited Jul. 8, 2016).
[115] *Library of Codes*, Form-Based Codes Institute, http://formbasedcodes.org/codes/ (last visited Jul. 8, 2016).
[116] Land Use Law Center at Pace University, *Technical Guidance Manual for Sustainable Neighborhoods*, U.S. Green Building Council, http://www.usgbc.org/sites/default/files/Technic al%20Guid.%20Man.%20for%20Sust.%20Neig hborhoods_2012_Part%20A_1f_web.pdf (last visited Jul. 8, 2016).
[117] *Id.*
[118] *Id.*
[119] *Id.*
[120] *Id.*

authorized by discrete state laws, the power of local governments to design density is clear and is becoming an important aspect of sustainable development.

II. Green infrastructure[121]

Green infrastructure has also become a major component of sustainable development. At their inception, comprehensive planning and zoning focused intensely on capital infrastructure: streets and roads; water and sewer; and electric lines and other utilities. These served development parcels with their buildings, driveways, and other hardscapes. Streets and roads were classified by traffic load and function with local streets, secondary streets, collectors, and arterials governing the flow of traffic in the public interest. When viewed from 10,000 feet, this gray infrastructure is clearly visible: a thoughtful pattern of connectivity to serve the built environment. This result was one of the principal objectives of early zoning.

Over time, evolving concerns with flooding, public safety, wetland and watershed protection, the urban heat island effect, and the loss of open space and its ecological services gave rise to mapping and preserving the green infrastructure of a community. These plans connect the natural assets of the community in much the same way that planners design a locality's gray infrastructure. Planners concerned with green infrastructure calculate the current green space coverage and connectivity and then figure out methods of increasing it to a healthy amount of the surface area of the community. This process ensures that an adequate percentage of the land is sheltered and shaded, with its soils held intact and its ability to absorb and retain water preserved, if not enhanced. Water and wildlife, like vehicles and people, need to travel through connected paths and landscapes.

The broad view of green infrastructure envisions it as a strategy for adapting to climate change, bettering air quality, lowering heat stress, creating greater biodiversity, conserving energy, providing ecological services, sequestering carbon, preserving and expanding habitats, enhancing aesthetics, increasing property values, and improving the livability of neighborhoods.

The elements of green infrastructure include green roofs; planters; rainwater harvesting; street trees; preserved open space on building sites; natural vegetated corridors and swales; permeable paved areas accented with green features; xeriscaping; private gardens and public parks; detention basins; bio-retention ponds and rain gardens; green building facades; and greened medians and edges along streets, paths, and rail lines. Parking lots can be greened by adding trees and using permeable surfaces that allow infiltration and permit vegetative growth. When seen from the air, the community with robust green infrastructure appears more connected naturally; ideally, the green and the gray are complementary.

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[121] *See* JOHN R. NOLON, *Enhancing the Urban Environment Through Green Infrastructure, in* PROTECTING THE ENVIRONMENT THROUGH LAND USE LAW: STANDING GROUND (Environmental Law Institute ed., 2014).

All of these elements of green infrastructure can be built into local planning, zoning, and land use regulations. Cities can begin green infrastructure planning at the same time they create and implement their plans for building and development to accommodate anticipated increases in population. The local comprehensive plan can be supplemented by the addition of a green infrastructure component that grows out of this planning process. Then, zoning and land use regulations can be amended to implement the green infrastructure component's vision.

An adopted overlay zone can trace the con- tours of the green infrastructure plan and, within that zone, local review boards can condition approvals, or use zoning incentives, to implement it. Landscaping requirements, along with erosion and sediment controls, can be added to subdivision and site plan regulations. Developers can be required to include green features in, on, and around their buildings. They can also be required to pull development back from floodplains and wet- lands and to leave room on their sites for open space. They can pay impact fees where they cause the destruction of vegetated areas and the proceeds can be used to pay for the greening of nearby public spaces. Local and state capital budgets can support street trees, medians, parks, the greening of publicly-owned buildings and sites, and open space preservation.

What the architects of green infrastructure do is use these land use techniques in an integrated fashion; they plan the entire com- munity so that its natural functions are connected and create healthy and livable neighborhoods. In communities that have made green infrastructure a priority, zoning achieves objectives not understood when it was invented 100 years ago.

III. Land use and energy conservation[122]

The private sector is cooperating with land use regulators to dramatically reduce the energy use in buildings; a key, if not essential, strategy for reducing reliance on fossil fuels and mitigating climate change.

Approximately 40% of total U.S. energy consumption and 70% of all electricity consumed domestically are attributed to residential and commercial buildings.[123] Two-thirds of the energy used to produce electricity is wasted as heat escapes into the atmosphere during generation[124] and up to 15-20% of the net energy produced at these plants is lost in transmission.[125]

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[122] *See* John R. Nolon, *Land Use for Energy Conservation and Sustainable Development: A New Path Toward Climate Change Mitigation*, 27 J. LAND USE & ENVTL. L. 295 (2012) [hereinafter *Land Use for Energy Conservation*].

[123] *How Much Energy is Used in Buildings in the United States?*, U.S. Energy Info. Admin., http://www.eia.gov/tools/faqs/faq.cfm?id= 86&t=1 (last updated Apr. 6, 2016).

[124] E-mail from Thomas Bourgeois, Deputy Dir., Pace Energy & Climate Ctr., to author (June 30, 2011, 21:55 EST) (on file with author).

[125] E-mail from Thomas Bourgeois, Deputy Dir., Pace Energy & Climate Ctr., to author (June 30, 2011, 17:22 EST) (on file with author).

The following is laundry list of energy conservation and climate change mitigation techniques that rely on land use law, assembled from real projects on the ground:

- Because of the enormous waste of energy at the point of generation in remote locations, the lowest-hanging fruit in the orchard of energy-conserving land use techniques is to permit or require on-site generation, which is now technically and financially possible in many situations. The LEED-ND rating system gives developers credit for on-site generation and many are earning those points.[126] What LEED recognizes, local governments can make mandatory as part of zoning.
- The principal method of achieving energy efficiency in new building construction and the substantial renovation of buildings is the energy conservation code; promulgated by the International Codes Council, it has been adopted in most states, and is enforced by local governments.[127] This code contains mini- mum standards for the design, construction, and installation of the building shell or envelope, mechanical systems, and lighting.[128] By vigorously enforcing this code, dramatic progress can be made in energy conservation.
- Land use law in some states allows local governments to enhance the energy code by adopting additional standards aimed at achieving greater energy efficiency. A creative example is found in Marin County, California. The County requires large homes under 4,000 sq. ft. to exceed the energy conservation code requirements by 15%.[129] If the home is over 4,000 sq. ft., but less than 5,500 sq. ft., it must exceed the state code in efficiency by 20%.[130] For homes between 5,500 and 6,500 sq. ft., the requirement is 30%.[131] Homes over 7,000 sq. ft. must be "net zero energy" users; a goal that green builders can actually achieve.[132]
- In New York, the Town of Greenburgh amended its local code to require that all new homes comply with the Energy Star rating system,[133] promulgated by the Environmental Protection Agency and the U.S. Department of Energy.[134] Energy Star can achieve energy savings in excess of 30% greater than the base energy code. It governs appliances, heating and cooling systems, the thermal envelope, electrical, ventilation, and equipment efficiency.[135]
- E The Town of Blooming Grove, New York, uses a density bonus to encourage home developers to adopt Energy Star. The Town awards a 10% increase in the

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[126] *See Getting to Know LEED: Neighborhood Development*, U.S. GREEN BUILDING COUNCIL, http://www.usgbc.org/articles/getting-know- leed-neighborhood-development (Last updated Jan. 1, 2014).
[127] *Code Status: Commercial*, Building Codes Assistance Project, http://bcap-energy.org/code-status/commercial/ (last visited Apr. 11, 2016). *See also Code Status: Residential*, Building Codes Assistance Project, http://bcap-energy.or g/code-status/residential/ (last visited Apr. 11, 2016).
[128] *Id.*
[129] See Cnty. Of Marin, Cal., Ordinance § 19.04.100 (2011).
[130] *Id.*
[131] *Id.*
[132] *Id.*
[133] Town Of Greenburgh, NY, Code § 100-20 (2011), available at http://www.ecode360.com/?custId=GR0237.
[134] *History of ENERGY STAR*, Energy Star, http://www.energystar.gov/index.cfm?c=about.a b_history (last visited Apr. 13, 2016).
[135] *Id.*

number of homes that can be constructed under local zoning in exchange for making them all Energy Star compliant.[136]

- E Local subdivision and site plan regulations can be amended to govern building orientation, layout, or landscaping on sites, which can be used to reduce energy consumption in new buildings. Land use laws can require homes in subdivisions to be clustered and designed to conserve energy or equipped with solar panels (or at least to be wired and built to accommodate them).
- Solar and wind generation facilities can be either frustrated or facilitated by local land use law. Onsite solar arrays and rooftop wind turbines can be prohibited by use, setback, and height restrictions found in traditional zoning codes. Amendments to these provisions can designate renewable energy facilities as as-of-right uses, allow them by special permit, or permit them as accessory uses. Bonuses, like those found in Blooming Grove, can be used to incentivize renewables.
- Local land use boards can require developers and their design consultants to follow an integrated design process, where they collaborate during the early stages of the project review process to achieve the greatest possible energy conservation and cost reduction. It is at this stage that decisions can be made about building orientation, form, shading, energy-efficient exterior lighting, window size and location, rooflines and extensions, reflective roofing, height-to-floor ratios, and building features that relate to passive ventilation and cooling.
- Local land use laws can achieve extraordinary energy efficiency by permitting and encouraging the use of combined heat and power (CHP) systems in individual buildings and interconnected energy systems in certain mixed use districts. By employing CHP - a mechanical system that can be used to produce electricity, heating and cooling in higher-density, mixed-use neighborhoods, the potential for energy efficiency, and therefore energy conservation, is remarkably greater than if used on an individual parcel of land.
- To increase the use of district energy systems (DESs), the local land use regulatory system can be adjusted to allow, or even to incentivize, them. DESs must be made an allowable use under local zoning and site plan regulations, as well as local building and energy codes. They, too, may be encouraged through bonus zoning pro- visions that provide additional development densities for developers who adopt DES technologies.
- Finally, the number of localities that are adopting Transit-Oriented Development (TOD) zoning ordinances has been growing exponentially over the past ten years. There are hundreds of examples of new zoning districts that create livable, mixed-use neighborhoods where new buildings are connected to transit systems through design and infrastructure enhancements. In these neighborhoods, per capita CO2 emissions can be two-thirds less than those in typically-zoned neighborhoods in the suburbs.

[136] Blooming Grove, N.Y., Town Code § 235-14.1(A)(3) (2011).

IV. Transit oriented development[137]

Transit Oriented Development, or TOD, is a modern zoning imperative with exceptional potential to reduce GHG emissions. According to the Presidential Climate Action Project, "[t]he greatest potential for reducing green- house gas emissions . . . is to reduce vehicle miles traveled (VMT)—the miles Americans drive each year."[138]

TOD land use plans and zoning encourage mixed use, compact development in transit neighborhoods. They locate housing and jobs near transit stops and significantly reduce the number and distance of vehicle trips. Encouraging land use patterns that house and employ more people in urban, transit-connected areas will cause a significant reduction in VMT, while placing households in smaller, more energy efficient homes and offices will further reduce fossil fuel consumption and CO2 emissions.

Transportation Efficient Development, or TED, is TOD's country cousin. TOD and TED have many relatives. They bracket a profusion of terms that describe the rapidly increasing focus on reducing VMT through zoning. The terminology used is varied. Some authors write about "transit supportive" or "transit ready" development, or "transportation efficient" land use patterns. Others refer to "transit friendly zoning," "station area planning," "transportation demand management," "traditional neighborhood development," "planned unit development," "development-oriented transit," "transit supportive urban design," "transit station com- munities," "transit focused development," and "transit villages."

These terms encompass many different geographical contexts, populations, densities, and transportation modalities. Any attempt to describe a single approach is subject to a host of exceptions, but some common principles can be articulated to highlight the legal underpinnings of this important subject and to explain why zoning matters.

When neighborhood density is increased for both residential and commercial uses, the distance between origin and destination is shorter and walking, bicycling, and mass transit services are more feasible. In order for increased densities to be tolerated, standards requiring attractive building, landscape, and streetscape design must be employed.

The successful development of transit stations and rail and bus lines is dependent upon land use densities and mixed uses. There must be a large enough number of commuters in a relevant area to provide a base level of ridership. In addition, ridership must be sufficiently diverse to ensure that people are traveling to work, to shop, to seek entertainment, and to go home at various times during the day, thereby increasing the cost efficiency of the transit system.

Local land use plans and zoning, which determine population density and building uses, control how much the population will increase over time in a certain area, and what

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[137] *See Land Use for Energy Conservation*, *supra* note 122.

[138] Presidential Climate Action Project, Presidential Climate Action Project Plan § 7:6 (2007), *available at* http://www.climateactionpr oject.com/docs/PCAP_12_4_2007.pdf.

transportation needs new people will have. This, in turn, dictates the demand for various types of transportation services. Locally, this planning is done at the neighborhood level and should be guided by objectives contained in the city's comprehensive plan. To make transit systems feasible, land use planning among localities in a transportation region must be coordinated with transportation planning and development, which occurs under federal programs in urban areas at the metropolitan- area scale.

Many state enabling statutes require or encourage local governments to include a transportation element in their comprehensive plans. Increasingly, these transportation elements have incorporated planning strategies intended to encourage people to drive less and to walk, bicycle, and use mass transportation more frequently.

Arizona's planning enabling statute, for example, requires cities with more than 50,000 people to prepare a bike transportation element as part of their comprehensive plan.[139] Nevada's enabling legislation supports planning for mass transit, bicycle, and pedestrian infrastructure. This statute encourages local planning to include a transit element that "[s]how[s] a proposed multimodal system of transit lines, including mass transit, streetcar, motor coach and trolley coach lines, paths for bicycles and pedestrians, satellite parking and related facilities."[140]

Even where communities are not currently served by transit systems, they can create compact, mixed use neighborhoods that reduce car trips and miles traveled. Zoning controls in TED zones can limit the size of housing units and combine retail, office, and residential land uses, putting services, shops, and jobs in closer proximity to homes. Zoning can also require new construction to meet energy standards and further reduce GHG emissions.

Communities not yet served by transit can design one or more priority growth districts and create overlay zones for them that allow greater densities and more land uses than permitted in the underlying zoning districts. By clustering development strategically, these growing localities position themselves for future service by commuter rail or bus rapid transit, thereby becoming "transit ready."

Suburban areas that adopt higher-density, mixed-use zoning will find it easier politically to adopt strong environmental protection ordinances applicable to the land outside high-density zones. Where state law permits, density bonuses may be provided in TED zones and cash contributions made by developers in exchange. This money can be used to purchase development rights from landowners in sensitive environmental areas outside the higher- density zone, areas that mitigate climate change through sequestration. This balance between development and conservation can be accomplished within TOD areas as well - highlighting again zoning's ability to create sustainable settlement patterns and to mitigate climate change.

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[139] Ariz. Rev. Stat. Ann. § 9- 4611.05(E)(9)(West 2011).
[140] Nev. Rev. Stat. Ann. § 278.160(1)(R)(West 2011).

V. Zoning in solar and clean energy[141]

As zoning turns 100, it is showing its age by its exclusion of modern clean energy systems in many communities. It is also demonstrating its historical resiliency, as more and more progressive communities act to reform zoning to permit, require, and incentivize renewable and clean energy facilities. These rapidly evolving systems include building integrated solar systems, ground- and roof-mounted solar arrays, large- and small-scale wind generation, multi-building combined heat and power facilities, microgrids, on-site electricity generation, and geothermal systems.

For clean energy systems to be constructed, they must be permitted by local zoning and not subject to expensive regulatory barriers that discourage their use and increase their cost. Promoting clean energy systems under local land use regulations is one of the latest efforts on the part of local governments to mitigate climate change, which, in the aggregate, are most impressive.

It is an uphill battle. By analyzing the comprehensive plans and zoning codes of most local governments, it is evident that regulatory barriers to clean energy systems are ubiquitous. These range from the simple failure to define and permit clean energy systems, to excessive height and setback restrictions, to additional or outdated permitting requirements, which greatly increase the costs of systems or discourage their use due to the unpredictability or length and costs of the approval process. The battle is being fought first on the solar front, given the popularity, improved technology, and reduced costs of solar energy systems.

Although both the federal and state levels of government have a strong interest in encouraging the deployment of renewable energy systems, the power to permit solar energy systems under land use law has been delegated by most states to local villages, towns, and cities. Most states are not willing to preempt local control of solar and other clean energy systems; as a result, it is state policy to defer to local discretion in these matters, allowing local policymakers to determine the types of solar and other clean energy systems that will be deployed in the state.

Local officials who want to encourage solar energy systems are adjusting the local land use system first by adding a solar energy component to the comprehensive plan or adopting a special solar energy policy or plan to guide the reform of land use regulations. These local governments are then amending zoning regulations to permit and encourage these systems.

The primary, and most common, barrier to solar energy system implementation occurs when solar energy systems are neither defined nor permitted in one or more zoning districts. Without explicit definitions of solar facilities, they cannot be permitted by reference in the district use provisions of local zoning. In addition, the lack of clear clean energy- or solar- related definitions misses the opportunity for municipalities to send a

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[141] *See* John R. Nolon, *Mitigating Climate Change by Zoning for Solar Energy Systems: Embracing Clean Energy Technology in Zoning's Centennial Year*, ZONING & PLAN. L. REP. (Dec. 2015).

signal to developers, property owners, and installers that they are “open for clean energy business.” Municipalities are beginning to fix this problem by amending their zoning code to include definitions of the different solar energy systems available, based on type, size, and/or energy capacity.

Since solar energy systems vary significantly by type, location, size, and energy capacity, zoning definitions generally are based on these factors. Where these characteristics align with the intensity of use or impact of a solar energy system, they justify different land use regulations for each type and guide local planners as to where to allow each type of system to be constructed.

Municipalities chose to permit solar energy systems by designating them as principal, accessory, secondary, or specially permitted uses. They are subjecting them to modified and expedited site plan review, waiving design standards enforced by local Architectural Review Boards, and providing exemptions from Historic District Review standards for conforming designs and proper locations.

Solar easements, not recognized by common law in most states, can be created by local government regulation to ensure access to sunlight over the life of the solar system. Typically, these regulations require written and re- corded solar easements that define easement dimensions, how the easement will terminate, and compensation for easement maintenance or interference, among other provisions.

Some localities are requiring developers to install solar energy systems or, short of that, make buildings solar ready. Other communities incentivize, rather that require, these solar facilities, typically by providing density bonuses for solar panels, solar readiness, and solar access easements.

The process for zoning to allow other forms of clean energy follows the pattern set by zoning for solar. First, local comprehensive plans should set forth as a goal furthering clean energy facilities; next, zoning should define each of these clean energy technologies; and finally, district use regulations should be amended to permit them in appropriate locations at appropriate scales. The processes used to regulate and approve such facilities should be streamlined as fully and prudently as possible.

There is a clear need for municipal attorneys, local land use leaders, and state agencies interested in reducing energy costs and harmful fossil fuel emissions to develop model laws and approval processes for all clean energy facilities, in order to further the important objectives that they accomplish. These will all aid zoning in its adaptation to meet yet another contemporary challenge.

PART IV

I. Fracking as an industrial use under zoning?[142]

Is there currently a more controversial land use, environmental, and economic issue in America than fracking? Just listen to the ongoing debates:

"Fracking is great!"

"No, it's terrible!"

"It will mitigate climate change."

"No, it won't."

"Fracking cannot be made safe, even through proper regulation."

"Yes, it can."

"Even if it can be done safely, don't go there, because it will take our focus away from promoting renewables."

To quote Kurt Vonnegut: "So it goes."[143]

Meanwhile, fracking is happening, and local governments are subjected to many of its associated risks. They either need to act or know—clearly and convincingly—why they should not. The federal government has stopped far short of comprehensive regulation of fracking; the states' regulations range from fair to poor, sometimes preempting local regulation but most often sharing regulatory authority over land use impacts.

The stakes couldn't be higher. "Think about it," as the fracking industry advertisement says; does the federal or state government, as part of their fracking regulations, control any of these local impacts?

- Pressures on housing supply and costs;
- Radical changes in community character; E Loss of habitat and species;
- Deterrent effects on local growth;

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[142] *See* John R. Nolon & Steven E. Gavin, *Hydrofracking: State Preemption, Local Power, and Cooperative Governance*, 63 CASE W. RES. L. REV. 995 (2013); John R. Nolon & Victoria Polidoro, *Hydrofracking: Disturbances Both Geological and Political: Who Decides?*, 44 URB. LAW. 507 (2012). John R. Nolon, *Pace/Yale Land Use Collaborative launches beta version of online fracking governance tool for local governments*, LAND USE PROF BLOG, http://lawprofes sors.typepad.com/landuse/2016/01/pace-yale-l and-use-collaborative-launches-beta-version-o f-online-fracking-governance-tool-for-local-. html (last updated Jan. 25, 2016).

[143] Kurt Vonnegut, Jr., Slaughterhouse-Five or The Children's Crusade: A Duty-Dance with Death (Delacorte Press, 6th ed. 1969).

- Impacts on recreational resources;
- Effects on agricultural land and operations;
- Causation of soil erosion and sedimentation;
- Creation of visual blight; or Increases in the cost of public health services.

The Land Use Law Center and our partners at the Yale School of Forestry and Environmental Studies have examined dozens of local fracking regulations and identified three dozen local impacts and risks found in the purposes section of their laws. With respect to a few of these impacts, federal or state regulations may require some level of mitigation, but these fall far short of controlling highly specific impacts felt in existing neighborhoods and on local environmental assets. Federal and state regulations are indifferent, as well, to the land use objectives of the comprehensive plan in any given community.

This indifference and the preemption of local control of fracking in some states are hard to understand. Why should this be more complicated than regulating any other intense industrial use? (Cement manufacturing comes to mind.) Why don't we allow it in industrial zones and subject it to a number of conditions as a specially permitted use? If imposing conditions can't fully protect local interests, why can't the fracking application be denied? Why should this one impactful land use be treated differently?

Consider that zoning is one of several responsibilities that local governments are delegated by their state legislatures. Think of these responsibilities as a three-legged stool. First, zoning determines how property is used and developed, and therefore dictates how valuable it will be. Second, localities have the power to impose property taxes on the assessed value of the land that they regulate. Third, municipalities are expected to use property tax revenues to fund municipal operations, provide capital infrastructure, and carry on the business of local government.

Given the complexity, comprehensiveness, and utility of these linked powers and duties, the judiciary is rightfully cautious about implying that state statutes that regulate fracking are intended by the legislature to inhibit local prerogatives. The importance of local land use regulation and the intertwined functions of local governments raise a *presumption against preemption*, in my view, that must be overcome to convince most state judges that their legislatures intended to preempt local zoning. Judges are inclined to say that if the state legislature passed statutes integrating zoning, taxation, and expenditure, why would they, in the case of fracking, remove one leg of the stool?

What has happened in Pennsylvania is instructive. Under previous state oil and gas law, the state courts had determined that local governments could regulate but not prevent fracking under local zoning. Following these judicial decisions, the state legislature adopted Act 13, which preempted local control.[144] The Act required local governments to include fracking as a permitted use in all zoning districts.[145] This Act was invalidated by

[144] *See* 58 Pa. Cons. Stat. Ann. § 3303 (West Supp. 2013).
[145] *Id.*

Robison v. Commonwealth, which held that it failed to protect neighboring property owners from harm and created irrational land use classifications.[146] The power of municipalities to adopt comprehensive plans, to separate land uses through zoning, and the derivative rights of land owners, in the *Robinson* court's view, trumped state oil and gas legislation that, on its face, preempted local regulation.[147]

The court explained that zoning power was but "an extension of the concept of public nuisance which protects owners from activities that interfere with use and enjoyment of their property," citing the seminal *Village of Euclid v. Ambler Realty* case.[148] Essentially, the Act required municipalities to create zoning incompatible with their comprehensive plans; if mining and gas operations were to be included in all zones, as the Act required, zoning ordinances would inherently not comport with their comprehensive plans.[149] Thus, the court found, the state's interest in regulating fracking processes sits in direct conflict with local zoning interests.[150]

II. Water scarcity and land use planning[151]

Another major zoning issue that has come up recently is water scarcity and how to deal with it in land use planning. When zoning was created, the availability of cheap and plentiful water was an unquestioned assumption. In zoning's blueprint, there are few designs for water supply planning. This is the case even though land use planning determines water demand; the number and type of buildings al- lowed under zoning determine the per capita water use in a given community. Water supply planning was traditionally the province of the municipal water district, a separate water and sanitation district, or similar entity. Most of these were organized under state statutes that were originally—and remain today—legally disconnected from the zoning and land use planning enabling acts. Water demand and water supply planning have never been connected legally or institutionally.

This separation is a serious flaw in the legal system, particularly in those states with drought, limited snow melt, and declining surface and ground water supplies. Recent U.S. Drought Monitor reports state that 38 out of 50 states are abnormally dry.[152] Sixteen of them are in a moderate drought, nine are in a severe drought, two are in extreme drought, and California is in an exceptional drought.[153]

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[146] Robinson Twp. v. Commonwealth, 52 A.3d 463, 484-85 (Pa. Commw. Ct. 2012).
[147] *Id.* at 480-94.
[148] *Id.* at 481.
[149] *Id.* at 480-94.
[150] *Id.*
[151] *See* Elisabeth Haub School of Law at Pace University Land Use Law Center, Integrating Water Efficiency into Land Use Planning in the Interior West: A Guidebook for Municipal Planners (Western Resources Advocates) (forthcoming).
[152] *U.S. Drought Monitor Map Archive April 26, 2016*, U.S. Drought Monitor, http://droughtmonitor.unl.edu/MapsAndDataMapArchive.aspx (last visited May 1, 2016)
[153] *Id.*

According to EPA, relief is not on the horizon: "Scientists project that climate change will make some of these extreme weather events more likely to occur and/or more likely to be severe."[154] Relatedly, according to NASA, "continued increases in human-produced greenhouse gas emissions drive up the risk of severe droughts in these regions."[155]

These predictions highlight the importance of connecting water supply and land use planning. Not only can land use planning reduce emissions, but, as the Land Use Law Center's recent experience in the Interior West demonstrates, land use planning can also reduce per capita water use by up to 140 gallons per day.[156] With the populations of these states projected to increase—by as much as 100% in Colorado—reducing per capita consumption is the logical point at which to begin a comprehensive plan to balance supply and demand.[157]

Zoning that permits large lots, low-density, and dispersed development increases water use per household. Compact, mixed-use development requires less water per household than single-family housing. The infrastructure requirements of both types of development are quite different.

In Utah, planners have determined that water demand drops from approximately 220 gallons per capita per day at a density of two units per acre, to about 110 gallons per acre at a density of five units per acre.[158] More modestly, increasing residential density by 20% can yield a 10% per capita water savings.[159] A study of household water use in Sacramento, CA showed 20-30% less water use in a new urban development than in the suburbs.[160] Because of these significant effects, the link between land use patterns created by local zoning and water conservation needs to be clearly understood. Very few other water planning strategies can have a greater effect on limiting consumption.

Communities should begin by integrating water-efficient land use patterns and strategies into their comprehensive plans. Once this initial step is completed, this vision can be implemented through changes to the zoning code that permit water-efficient land uses in areas targeted for development, discourage development in areas targeted for conservation, and foster building types and landscapes that minimize the use of water.

Similarly, communities with limited room to grow can modify systems to accommodate higher densities and infill development. New forms of zoning, rather than those found in traditional residential zoning district provisions, can be adopted; ones that use new and varied ratios regarding setbacks, lot coverage, open space, livability space, and parking.

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[154] *Understanding the Link Between Climate Change and Extreme Weather*, EPA, https://www3.epa.gov/climatechange/science/extreme-weather.html#ref1 (last updated Feb. 23, 2016).
[155] *Megadroughts in U.S. West Projected to be Worst of the Millennium*, NAT'L AERONAUTICS & SPACE ADMIN., http://svs.gsfc.nasa.gov/cgi-bin/details.cgi?aid=4270 (last updated Fed. 12, 2015).
[156] Integrating Water Efficiency into Land Use Planning, *supra* note 151.
[157] *Id.*
[158] *Id.*
[159] *Id.*
[160] *Id.*

Building and land use regulations can reduce water use in several other ways; for example, by mandating water-efficient interior and exterior fixtures and by requiring exterior landscaping practices and plants that reduce water use.

The Land Use Law Center's *Integrating Water Efficiency into Land Use Planning in the Interior West: A Guidebook for Municipal Planners* discusses and illustrates several options for communities to consider in their efforts to foster water-conserving land use patterns, such as:[161]

- Incorporate water-conserving land uses into as-of-right permitted uses;
- Foster water-efficient densities by permit- ting accessory dwelling units;
- Incorporate water-conserving land uses into conditionally permitted uses;
- Conditionally permit water-intensive uses upon water-conservation measures;
- Condition rezoning on water-conserving practices;
- Incentivize water conservation through bonus density zoning;
- Use planned unit development regulations to foster water conservation;
- Create a water conservation floating zone;
- Use overlay zoning to designate areas appropriate for conservation and those prioritized for growth; and
- Establish a transfer of development rights program with sending districts to preserve green infrastructure and receiving districts to channel economic development.

Which of these options to choose depends on a number of factors, including the current land use configuration and types of buildings in the community. The pattern of development fostered and types of buildings allowed by zoning must respect the current architecture and land development of the community and build gradually from that base. The biggest factors to consider are density, the utilization of pre- sent infrastructure, and the cost of needed additional infrastructure.

III. Shaping and attracting economic development[162]

Zoning historically assumed that the private market would inform developers what to build for maximum profit. Its job was to shape individual developments into appropriate human development patterns. The essential land use question, of course, is what type of a community is desirable and feasible to create. Changing demographics, financial markets, and environmental conditions require constant rethinking and restocking zoning's toolkit.

Today's ascendant demographic groups, such as millennials, immigrants, and senior house- holds, prefer "walkups," that is, walkable urban places.[163] They have driven the real estate market toward urban centers and challenged urban planners to shape livable,

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[161] *Id.*

[162] *See* John R. Nolon & Jessica A. Bacher, *The Role of Lawyers in Resolving Environmental Interest Disputes*, REAL EST. L.J. (Winter 2008).

[163] Christopher B. Leinberger, *DC: The WalkUP Wake-Up Call*, SMART GROWTH AMERICA, http://www.smartgrowthamerica.org/documents/Walkup-report.pdf (last visited Jul. 8, 2016).

sustainable, and lively neighborhoods. Fortunately, climate change mitigation also requires walkups, where buildings use less energy, water, and materials, and fewer vehicle trips are taken, resulting in fewer vehicle miles travelled. Zoning occupies a central position in creating the strategies needed to respond to these new market signals.

The Land Use Law Center's field laboratory is the Hudson Valley Region in New York. Ten years ago, our attention was captured by the changing demographics in the region and its apparent effect on the region's cities. To focus our energies, we organized a Mayors' Redevelopment Roundtable, a network of mayors, corporation counsels, and development com- missioners representing the region's 12 largest urban communities. Our strategy was to work with the planning, legal, and development staff of the member communities on urban revitalization to identify common issues; conduct research; identify best land use practices; and provide assistance in implementation. In these places, zoning needs to attract economic development, rather than to simply shape it.

This is a report from the field; a quick summary of some of the issues selected for implementation and a few illustrations of best practices implemented. The highest priorities among the mayors were, not surprisingly, to increase tax ratables, keep expenditures in check, and improve their communities' aging infrastructure. These, they intended to accomplish through five strategies: job development, sustainable development, infill development, scattered site projects, and distressed property remediation. We found that zoning, land use regulations, and their associated strategies were effective tools to accomplish these objectives.

Job Development: In this context, job development comprises new employment opportunities for millennials, immigrants, and low- income residents. New development brings with it several opportunities to generate new employment prospects. Building and infra- structure development, including renewable energy projects, create construction jobs and jobs for those who serve construction projects. Many of these jobs require skilled, union labor, but a percentage of them can be filled by less skilled workers, including the young women and men who live in distressed neighborhoods. The City of Newburgh led the way among Roundtable communities, insisting, during the land use review process, that all new and re- habilitation projects and municipal capital projects include local workers and provide them with the necessary training. This objective can be furthered by bonus density zoning to provide the funds developers need for training and supervision.

Sustainable Development: This topic aggregates transit-oriented development, promoting renewables, energy conservation in new and renovated buildings, affordable housing and balanced gentrification, designing for density, and green infrastructure, among others. The City of New Rochelle, through fast tracking the planning and rezoning of its downtown, offering density bonuses, and creating traffic improvements, stimulated a transit- oriented development project around its central transit station that is leveraging redevelopment of adjacent sites.[164] Yonkers created its own list of criteria for sustainable,

[164] *Downtown's New Direction Will Smart Growth Get Us There?*, WESTFAR COMMUNICATIONS AND THE LAND USE LAW CENTER AT PACE LAW SCHOOL, Mar.21, 2016.

or green, projects and requires compliance through its power pursuant to the State Environmental Quality Review Act to mitigate adverse environmental impacts by imposing mitigation conditions. Green buildings, for example, mitigate climate change (an adverse environmental impact). Peekskill is increasing zoning density and expanding land uses per- mitted in its waterfront transit neighborhood, as well as developing its parking lots there to create a sustainable neighborhood that will prime the pump for further downtown redevelopment.[165]

Infill Development: Cities can accomplish many goals through infill development, which emphasizes the development of vacant lots, reuse of abandoned and underutilized buildings, and creative development of open spaces adjacent to corporate, medical, educational, and non-profit buildings. The City of Mount Vernon adopted numerous criteria from the USGBC's LEED-ND program to guide its rezoning of a transit station area in a developed neighborhood to shape the redevelopment of its remaining infill lots.[166] White Plains is planning a significant Transit Oriented Development program concentrated on the coordinated development of infill sites in proximity to its commuter rail station.[167] This plan begins with two projects comprising 561 rental apartments, retail space, and parking within a short walk of the city's Transit Center.[168]

Scattered Site Projects: In some communities, development opportunities are scattered throughout their downtowns and adjacent urban neighborhoods. Prioritizing the development of a few such sites in order to leverage development nearby is a strategy of interest to the Roundtable communities. The Village of Brewster adopted an urban renewal plan that shaped its rezoning to encourage development of scattered sites throughout the neighbor- hoods within walking distance of its train station.[169] The Village of Port Chester selected five market-ready "hot spots" for redevelopment as the first step in warming up the market in adjacent neighborhoods.[170]

Distressed Property Remediation: In order to revitalize downtowns, other neighborhoods, and infill sites, areas of concentrated distressed properties need to be addressed. Buildings and properties there provide an opportunity for affordable housing for existing residents, work- force housing for needed new employees, and sites for job development itself. The City of Poughkeepsie is planning a large-scale downtown-focused project that will use flexible zoning, coordinated transit, pedestrian and bike ways, development on underused parking lots, and a variety of funding sources to initiate pump-priming projects in the area.[171] New- burgh created the first city-wide land bank in the State of New York, which is acquiring vacant lots and buildings, selectively demolishing some of them,

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[165] *Id.*
[166] *Id.*
[167] *Id.*
[168] *Id.*
[169] *Id.*
[170] *Id.*
[171] *Id.*

promoting community gardening and security devices, and preparing sites for private market development, stimulated by new zoning techniques it recently adopted.[172]

All of these projects and strategies create tensions among local interest groups and require the cooperation of multiple stakeholders, such as property owners, developers, equity advocates, city departments, taxpayers, and local resident leaders. They call for new approaches to project development and approval, including the use of consensus building techniques for community decision-making. Lawyers who are trained in conflict resolution and settlement are particularly needed to advise their clients and local officials how to achieve economic development through strategies like those implemented through the Mayors' Redevelopment Roundtable. In these stories can be glimpsed the collaborative and creative work that needs to be done in zoning's second century.

IV. Open space zoning turns to sequestration[173]

When the Land Use Law Center was asked in 1994 to report to President Clinton's Council on Sustainable Development, we concluded that under present zoning, the amount of open space in the Hudson Valley Region would decline from 70% then to 30% by 2050. This estimate was calculated based on the rate at which large tracts of land were being subdivided into smaller, mostly residential parcels. At work were the mechanics of sprawl. Zoning maps adopted by the 256 municipalities in the region created a blueprint for future development, most of which would be residential subdivisions. Once zoned for single-family housing, local planning commissions approve subdivisions, applying standards in subdivision regulations that are adopted by local legislatures.

This erosion of open space, here and through- out the nation, gave rise to a movement. Land trusts came of age as open space concerns stimulated donations of land, development rights, or funds that could be used to acquire such land. Local voters began to approve bond resolutions or support real property tax increments to secure funds to purchase and set aside open space. State support for open space preservation manifested itself in a number of ways that involved direct appropriations, taxes, state bonds, tax exemptions, and local financing schemes. These land purchase and donation initiatives signaled a commitment to mitigate sprawl and its ill effects on the quality of life in developing communities, one parcel at a time.

In the aggregate, these funds allow the purchase of a small percentage of the land that needs to be preserved in order to change the ratio of open space to developed land that we projected in our report. This realization—here and elsewhere—led to an effort to prioritize purchases based on lands that matter most. In the eyes of some communities, this meant the purchase of lands that created a historic viewshed; for others, it meant acquiring land that provided needed ecosystem services. In still others, it meant creating

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[172] *Id.*

[173] *See* John R. Nolon, *Managing Climate Change through Biological Sequestration: Open Space Law Redux*, 31 STAN ENVTL. L.J. 196 (2012).

a connected land- scape that provided for the movement of critters, water, and people through unfragmented natural areas.

A parallel—but too often disconnected— movement sprung up at the local level through changes in land use regulations and procedures. Some communities began to inventory their undeveloped parcels, prioritize their contributions to residents' quality of life and the environment, add open space components to their comprehensive plans, and adopt zoning and subdivision regulations that preserved the natural resources associated with open space. Localities began to create a new blue- print, one that balanced open space preservation and development, through use of land exactions, mandatory clustering of development, deductions of constrained land from counting in developable lot calculations, and overlay zoning that added strict standards to development located in critical environmental areas. These efforts, when coordinated by a comprehensive plan, can achieve open space preservation—one community at a time.

Today, a quarter of a century into this movement, attention is slowly focusing on sequestering lands: those that mitigate climate change by absorbing nearly a fifth of the carbon dioxide emitted by vehicles, buildings, and enterprise. Biological sequestration of CO_2 emissions occurs within the vegetated environment: places like forests, pastures, meadows, and croplands. These landscapes naturally absorb and store carbon.

The local and state initiatives that have evolved to preserve and enhance open space provide a basis for a broader sequestration policy, one that builds on available legal technology and existing norms to respond to the looming global perturbation of climate change. The need, however, is to bring these local efforts to scale, particularly when the objective is to achieve a goal as ambitious as climate change mitigation.

With federal and state involvement, the efforts of land trusts and localities can transcend their one parcel and one community at-a-time impacts. Consider two recent examples.

In New Zealand, in heavily forested zones, the federal government identifies carbon accounting areas, uses geospatial mapping systems, establishes metrics, and measures increases in sequestration.[174] The owners of forested land are given accounts and issued certificates of tons sequestered; these credits are tradable, depending on the viability of carbon markets (a story for another day).[175] Land trusts and local governments would benefit from such a scheme, especially from the monies it could bring to their preservation efforts while increasing the amount of CO_2 sequestered nationally.

A new law in California opened up opportunities to receive compensation for the carbon value of forests and a land trust in eastern Maine is leading the way. The California law requires polluters to reduce their carbon emissions over time, but allows them to use approved "offset" projects to meet up to 8% of their emissions cap.[176] The first group of offset projects announced by the California Air Resources Board listed the Maine-based

[174] N.Z. Ministry of Agric. and Forestry, Introduction to Forestry in the Emissions Trading System (2011).
[175] *Id.*
[176] 17 Cal. Code of Regs. § 95854.

Downeast Lakes Land Trust preservation project as one of two forest offset projects selected.[177] Proceeds from the sale will allow the land trust to acquire and preserve an additional 55,000 acres of sequestering land.[178]

V. Land use law and climate change management[179]

The most salient zoning issue, as we celebrate the end of its first century, is how land use law can be used to mitigate climate change. When a New York City commission[180] (1916) and the Hoover Commission[181] (1922) created zoning, and SCOTUS validated it,[182] (1926), they had no idea that they were arming local governments to battle climate change. When the floating zone was first created in 1950, the Village legislators in Tarrytown could not have known that this and other Neo-Euclidian techniques could possibly evolve to address such an unfathomable menace.[183]

One hundred years have passed, and we are now at work in coastal communities on Long Island helping local leaders adapt to sea level rise and storm surges. They are digging through our database of strategies and thinking of creating a wholly new zone: an "expanding zone," one that grows as new data about climate change is received. They are trying to get ready to use the "R" word, "retreat," to explain the inevitable to their residents and business owners. They ask us whether they should create a retreat zone, an adaptation zone, and a safe zone to guide future development. They are utterly preoccupied by this ill-defined space between the mean high tide line and an elevation safe (at least for now) from inundation. They are handling and reshaping the tools that New York City, Hoover, the Supreme Court, and a century of local in- novation gave them.

Can they adapt floating zoning, overlay zoning, transfer of development rights zoning, density bonus zoning, conservation easements, wetlands laws, and the land use system's other inventions to properly control development in these new zones? If they don't do something of that kind, will they eventually be held liable, legally or politically, for their failure after the next catastrophe occurs or gradual inundation destroys their sole-source drinking water aquifers? How do they account to their children and children's children for their time at zoning's helm?

Other local leaders are focused on mitigating climate change. Of course this phenomenon is global, but urban communities are the principal sources of carbon emissions, which are the primary cause of climate change. The Land Use Law Center has created a Mayor's Redevelopment Roundtable and, through it, currently serves the largest cities and urban

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[177] Downeast Lakes Land Trust, https://www.downeastlakes.org/conservation/your-community-forests/forest-carbon-credits/ (last visited May 16, 2016).
[178] *Id.*
[179] John R. Nolon, *Climate Change and Sustainable Development: The Quest for Green Communities, Part I*, PLANNING & ENVTL. L., Oct. 2009, at 3; John R. Nolon, *Climate Change and Sustainable Development: The Quest for Green Communities, Part II*, PLANNING & ENVTL. L., Nov. 2009, at 3.
[180] N.Y.C., N.Y. Building Zone Resolution (July 25, 1916).
[181] U.S. Dep't of Commerce, A Standard State Zoning Enabling Act (1922).
[182] Village of Euclid v. Ambler Realty Co., 272 U.S. 365 (1926).
[183] *See* Rodgers v. Village of Tarrytown, 96 N.E.2d 731 (N.Y. 1951).

villages in our region. These mayors want to know whether they can use zoning's inventions as well. The Presidential Climate Action Project says that "the greatest potential for reducing greenhouse gas emissions . . . is to reduce vehicle miles travelled—the miles Americans drive each year."[184] Hundreds of local governments, including some in the Roundtable, have adopted Transit Oriented Development (TOD) zones and are rezoning for compact, mixed-use development to create "WalkUPs" (walkable urban places). The new demographics—seniors emerging rapidly from their single-family cocoons, mobile millennials looking for lively urban neighborhoods, and immigrants seeking employment—are tipping the urban-suburban balance, and they are being zoned in through TOD and other zoning strategies. Our mayors are interested as well in other tools including energy code enhancements, design controls, green infrastructure, and other techniques to make their neighborhoods safe, lively, and liv- able places.

Zoning is adaptable to new challenges as it responds to changing conditions. We defenders of zoning are reminded, however, that zoning is parochial, extending only to municipal boundaries—far, far short of the reach it needs to effectively manage global climate change. We are also told that localities have limited assets and staff capacity to handle sophisticated problems. We point out that land use law is essential to mitigation. It regulates buildings, which consume 40% of the energy produced in the U.S.[185] It is responsible for vehicle miles travelled, which contribute 26% of CO_2 as personal vehicles motor from origin to destination over a landscape created by zoning.[186] Further, the natural landscape, which sequesters 18% of CO_2, can be diminished or enhanced by zoning.

We are advised to pay attention to top-down, mostly federal solutions as our preferred path to a new era of effective climate control. This endless debate was sharpened in Paris at the Conference of the Parties in 2015.[187] Building on an insight of the UN Climate Change Conference in Warsaw in 2013, the Paris COP memorialized the NDC: Nationally Determined Contributions.[188] The Paris agreement turns climate policy upside down, changing the focus

from nation-state dominated action to include on-the-ground solutions, guided, bolstered, and supported by state and national governments.[189] This new approach operates from the bottom up, engaging "sub-national" entities, cities, states, corporations, NGOs, etc., to demonstrate how they can contribute to climate change mitigation.[190]

This debate will continue. In March 2016, the U.S. submitted its NDC to the UN, relying primarily on stricter emissions standards for coal-fired energy generation plants and

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[184] President Climate Action Project, http://p cap2016.org/ (last visited May 20, 2016).
[185] U.S. Energy Info. Admin., *supra* note 123.
[186] *Sources of Greenhouse Gas Emissions*, EPA, https://www3.epa.gov/climatechange/ghgemissions/sources.html (last updated Apr. 15, 2016).
[187] Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015.
[188] *Id.*
[189] *Id.*
[190] *Id.*

similar top-down contributions.[191] China, the world's leading emitter, took a different approach; its NDC include emission reductions that rely on the construction of green buildings, renewable energy in buildings, low-carbon community operations, low-carbon transportation systems, and promoting pedestrian- and bicycle-oriented neighborhoods.[192] By 2020, China says, 30% of travel will be by transit and 50% of new buildings will be green.[193]

China will have to allocate resources to the municipal level to implement its NDCs. The US can follow suit. Funding, data, and technical assistance—conditioned on intermunicipal or regional cooperation—can remove the barriers to zoning's larger success. Such a program, funding actors in a system where all politics is local, can truly be a bipartisan effort, one that is much more likely to pass our curious Congress than most top-down solutions. This may be the path to Zoning's New Century.

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[191] *The Key Players in Climate Change*, N.Y. TIMES, Apr. 21, 2016, http://www.nytimes.com/interactive/2016/04/21/science/paris-agreement-carbon-dioxide-global-warming.html?_r=0.

[192] *Id.*

[193] *Id.*