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PRACTICE SUSTAINABLE ZONING



Putting Sustainable Zoning Into Practice

By Elizabeth Garvin, AICP

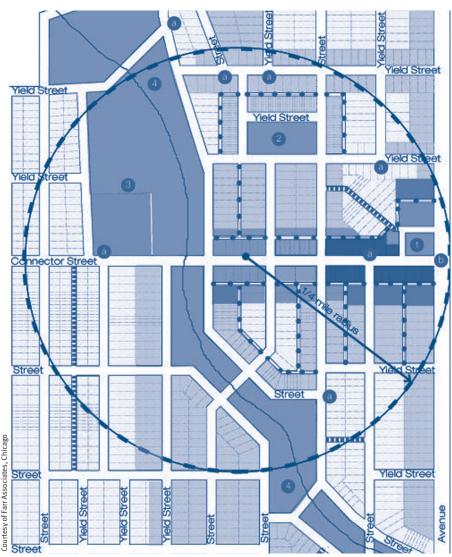
This trend is partially attributable to recession-related federal budget reductions, but it's also related to increasing citizen pressure to "act locally." Furthermore, topics historically viewed as best handled by the private sector or left to market-based decisions—such as housing mix or new business development—are more frequently the subject of public meetings and local policy.

Often, the drive to resolve these issues locally is pushed by residents and businesses who want more sustainable communities; that is, communities that are more resilient in the face of anticipated (and unanticipated) future change. With local budgets and funding sources at a historic low, though, cities and counties are necessarily focused on cost-saving opportunities to make the most of existing facilities and services without committing to expensive new solutions or programs. To meet these demands, many communities are making changes to their local land development regulations so that sustainability is both figuratively and literally built-into the process and outcome. To help communities determine where to add sustainable provisions to their regulations, this article provides a survey of current and emerging sustainable zoning provisions available at the local level, with an overview of the purpose and general approach for each category of regulation.

GETTING STARTED

Because there is currently no clear definition or consensus about what constitutes a sustainable approach to zoning, it is important to develop a local definition of sustainability and a policy framework of local preferences that can be used to help guide drafting decisions. In some communities, this is done through a comprehensive sustainability planning process, such as the Miami-Dade County, Florida, GreenPrint or the Fort Collins, Colorado, Action

Significant environmental, economic, and social challenges that are regional, national, or global in cause are increasingly the subject of local responsibility and action.



Form-based codes, corresponding to neighborhood or communitywide regulating plans, are one method for promoting compact, mixed use development patterns through zoning.

Plan for Sustainability. In others, it may involve compiling information from a range of existing sources, including regional, comprehensive, climate adaptation, hazard mitigation, and capital improvements plans. Where planning does not precede the creation of new or up-

dated regulations, it is important to establish a sustainability definition and framework through community outreach and the creation of a policy or regulatory framework report. For example, St. Louis County, Missouri, provides an excellent example of blending existing

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About the Author

Elizabeth Garvin, AICP, is an attorney with Spencer Fane & Grimshaw LLP in Denver. Garvin has more than 15 years of public- and private-sector experience in land development regulations, urban planning, and economic development. She has prepared code update/revision projects for cities and counties across the country; drafted topic-specific code provisions covering topics such as TOD, sustainability, and signs; created plans for redevelopment projects; prepared regional design standards; organized and undertaken public participation processes; and assisted private clients in obtaining development approvals.

planning with new sustainability policy and outreach in its Green and Growing project.

In the absence of a sustainability plan, an effective method to develop a local definition and framework might include working from a series of policy concepts or discussion prompts. Identifying local sustainability preferences from a cohesive list of issues will help to outline the community's preferred approach to sustainable regulations. For example, the American Planning Association's Policy Guide for Planning for Sustainability lists a number of specific policy positions that can serve as the starting point for conversations to establish local priorities, such as whether the community wants to encourage any of the following ideas: (1) alternatives to gas-powered vehicles; (2) alternative renewable energy sources and meaningful energy conservation measures; (3) compact and mixed use development that minimizes the need to drive, reuses existing infill and brownfields sites, and avoids the extension of sprawl; or (4) conservation of undeveloped land, open space, and agricultural land. The U.S. Environmental Protection Agency (EPA) report Planning for a Sustainable Future and ICLEI-Local Governments for Sustainability USA's Sustainability Planning Toolkit provide similar guidance.

DRAFTING SUSTAINABLE REGULATIONS

With a local sustainability framework in place, it is time for the community to determine how best to implement sustainable priorities and start drafting. The various types of zoning tools and approaches included in sustainable zoning codes, drawn from both new and more familiar approaches, can be categorized into a number of general topics as described below. For reference purposes, in this article I'll refer to zoning, subdivision, and land development

regulations, ordinances, and bylaws as the local "zoning code" or "code." As necessary, I'll distinguish a separate "building code" from these other development regulations.

COMPACT, MIXED USE DEVELOPMENT PATTERN

Many communities have decided that a good place to start implementing sustainability is by encouraging residents and visitors to get out of their cars and walk. According to the Urban Land Institute (ULI), "the transportation sector is key in climate change" (2010). Transportation, the fastest growing source of emissions, collectively generates approximately one-third of the greenhouse gas emissions in the United States (ULI 2010). Moving to a more compact, mixed use development pattern that brings people and destinations (e.g., workplaces, shops, schools, and places of worship) together to reduce the number of vehicle miles traveled (VMT) is an important step toward slowing the growth of the transportation sector. Recent studies indicate that over time compact development may be able to reduce VMT for both suburban and urban development while maximizing local infrastructure investment by making the most use of infrastructure that is already paid for and in place (ULI 2010).

Communities can adapt existing zoning codes to encourage compact development in a variety of ways, primarily through changes to the zoning districts, development standards (i.e., those standards typically applicable across multiple districts, such as parking or landscaping), and administrative approval processes.

Mixed Use Zoning Districts and Uses

Older, more traditional zoning codes may first need the addition of a new mixed use district (or series of mixed use districts with differing densities and use mixes) that permit both residential and nonresidential uses in the same structure or in closer horizontal proximity than current regulations would allow. If a community is considering incorporating form-based controls, the new district(s) could also be form-based in nature. While many communities have adopted transit-oriented development or downtown districts that encourage compact, mixed use development, mixed use can be more broadly applied than in these limited settings, and some communities have replaced some or all of their traditional zoning districts with mixed use districts.

In traditionally suburban communities, where the zoning standards reflect large-lot residential development, revisions may also need to be made to the dimensional standards (e.g., lot size, yard setbacks, and impervious coverage) in the existing zoning districts to accommodate development on smaller lots. Updates to dimensional standards should be designed to reduce the required spacing between buildings. Specific revisions may include: (1) increasing permitted residential density or nonresidential floor-area ratio or square footage, (2) reducing or eliminating minimum lot sizes, (3) establishing build-to lines at or near the right-of-way or property line or reducing minimum building setbacks, and (4) allowing increased lot coverage. Revisions may also need to be made to the permitted use table to allow residences above the ground floor in commercial districts, prohibit big-box structures in compact development areas, and restrict auto-oriented and drive-through uses to limit the potential for conflict between cars and pedestrians.

Infill Development Standards

Adding new zoning districts should not be the only change a community makes to encourage compact development. Many zoning codes inhibit the creation of compact development through regulatory provisions that inadvertently limit or restrict small-lot or infill development. This may occur because of existing suburban lot-size or dimension requirements in the zoning districts, but it is reinforced by additional regulations applied to the lot, such as design or development standards. Inflexible minimum landscaping or screening buffers, mandatory onsite open space dedications, building frontage or orientation standards, excessive minimum parking requirements, and prohibitions on narrow streets or driveways can all contribute to the prevention of infill development. Communities that want to encourage compact, mixed use development should identify those development standards that make smaller lot, more compact, or infill development more difficult to design or approve and consider replacing those standards with updated standards designed for compact development. Alternatively, communities can establish a review and approval method that permits the easy substitution of appropriate design for small lots.

Administrative Approvals

Developers want predictability in the development process and a product that does well in the local market. According to the National Association of Home Builders, "if each developer must go through a complex and costly process of obtaining special waivers and approvals, special use permits, or planned unit development approval to achieve compact development, the developer will probably find it makes more business sense to keep building conventional large-lot subdivisions" (2012).

While establishing compact, mixed use zoning districts and updating development standards will eliminate some administrative obstacles, communities can further encourage desirable development by establishing an expedited review process for site plans that meet the new standards. If the community engages the public in the process of creating or updating the zoning districts or development standards, the new districts and standards can be adopted as optionally applicable in designated areas of the community, and development applications that conform to the zoning requirements can be reviewed through an expedited administrative process. Some communities take this even further

and offer an expedited building permit approval process for infill or sustainable development.

RENEWABLE ENERGY AND ENERGY EFFICIENCY

The modern concept of energy efficiency in the United States can be traced the "energy crisis" of 1973. This was triggered by an Organization of the Petroleum Exporting Countries oil embargo that caused fuel shortages and a steep increase in petroleum-based fuel prices and led to a growing realization that available energy sources might not always outpace demand. Over the years, communities and citizens alike have looked for ways to control energy use and encourage renewable energy creation to reduce reliance on the use of fossil fuels. While energy efficiency and production may initially seem better addressed by the purchase of alternative fuel municipal vehicles or construction of commercial wind or

ing use standards, while others define the wind and solar regulations as development standards. Either way, the goal is to adopt a uniform set of regulations and avoid negotiating approvals on a case-by-case basis.

Energy Conservation and Production Development Standards

Most zoning code changes necessary to encourage site and structure energy conservation take place in the development standards. Site design standards can be updated to encourage the use of passive solar energy through better building placement in relationship to the sun (solar orientation) as well as passive cooling through building placement in relationship to the wind along with the preservation or placement of trees and landscaping to enhance shade. Unlike some of the sustainability approaches that work practically



The LEED Platinum Burnside Rocket building in the Lower Burnside neighborhood of Portland, Oregon, is an example of context-sensitive, small-lot commercial infill.

solar farms, there are actually multiple changes that can be made to zoning codes that will encourage energy efficiency as well as remove barriers to renewable energy production.

Use Definitions and Standards

To encourage the use of renewable energy sources such as wind and solar power generation, these uses should be defined in the code and added to the table of uses in appropriate zoning districts either as primary or accessory uses, as determined by the community. Some communities identify all of the regulations associated with wind and solar power as use regulations and include those with the exist-

everywhere, such as reduced parking requirements, the effectiveness of these approaches will range depending on the availability of the natural resource in the area. For example, solar orientation will probably be more efficient in southern Nevada than in northern Michigan. Before investing in the drafting and public education and outreach required for energy-based regulations, the community should determine which approaches work best locally. The National Renewable Energy Lab (NREL) is an excellent resource for solar and wind energy mapping.

Currently, the most commonly requested small-scale forms of renewable energy production are wind power, solar power, and

geothermal pumps. Updating the code to allow geothermal pumps may be easiest. The type of system permitted in the community should be specified (i.e., open or closed loop); location and setback requirements for above-ground and below-ground components should be identified. Screening requirements should also be established. For a more in-depth discussion of issues related to regulating geothermal pumps, see the May 2010 issue of *Zoning Practice*.

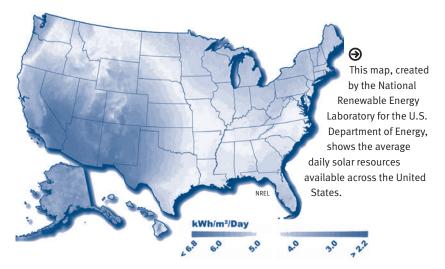
The adoption of wind and solar power regulations draws more attention in some communities when neighboring property owners worry that wind turbines and solar arrays will have an impact on their properties. There are multiple sources of model wind and solar regulations available to local planners, and the big issues to consider for a zoning update include: (1) changing maximum height limits both to allow solar panels on rooftops and to permit wind turbines obstacle-free access to the wind, (2) determining whether wind turbine(s) and solar panels or arrays are a primary or accessory use and whether permitting will be required, and (3) addressing the use of wind and solar systems in conjunction with nonconforming uses. For additional information about regulating wind and solar energy systems, see the July 2008 and November 2010 issues of Zoning Practice.

Building Code versus Zoning Code

Another approach to incorporating energy conservation and renewable energy production into the zoning code is to require the construction of solar-ready homes that can be fitted with solar energy generation technology. From a structural perspective, communities can also consider the use of individual building components such as green or cool roofs, shade structures, building insulation and green walls, or a green building rating system such as LEED or Energy Star. When adding these requirements to the zoning code, communities should also examine the potential overlap with existing or proposed building code standards to avoid conflicting regulations and confusion.

STORMWATER MANAGEMENT

In many communities, stormwater management and treatment is overseen by the public works department and is not considered a zoning issue except to the extent that stormwater management infrastructure is shown on final site plans for approval. This approach stems from the National Pollutant Discharge Elimination System permitting framework, established as part of the



1972 Clean Water Act, which identified polluted stormwater as an engineering "problem" best addressed by removing it from a site through a system of sewers and pipes, typically called gray infrastructure, that drained the stormwater to a detention basin or a wastewater treatment plant. As this approach has evolved, both public works and planning officials have moved to a site design model that incorporates green or wet infrastructure. The goal is to provide partial or complete on-site stormwater mitigation that both reduces stormwater runoff and improves the water's quality, while limiting the size, scope, and public investment in stormwater infrastructure. Incorporating stormwater management into site design also provides quality-of-life benefits such as public spaces and the enhanced aesthetic value of improved landscaping (EPA 2007).

Low Impact and Green Infrastructure Development Standards

The most inclusive approach to establishing onsite stormwater treatment standards is the adoption of low-impact development (LID) and green infrastructure standards. Putting these standards in place and moving to a less engineered stormwater management approach may require a new level of coordination between the local planning and public works departments. A recent trend in addressing this issue is to update the zoning code to incorporate a specific standard for onsite stormwater management, such as "no net increase in stormwater runoff volume, rate, or pollutant loads from new construction and redevelopment that adds more than x amount of impervious surfaces," and to provide a description of preferred low-impact and green approaches that can be used in the community. Communities then adopt engineering standards and specifications for the individual techniques and required maintenance as part of the overall local engineering design and review requirements. Given that the sample standard above is fairly strict, it's important to note that each community will need to determine to what degree it wants to, and is capable of, addressing stormwater on-site. For a more in-depth discussion of how to promote LID and green infrastructure through development regulations, see the September 2012 and 2010 issues of *Zoning Practice*.

Parking and Landscaping Standards

When considering zoning updates for stormwater management, two key related issues for communities to tackle are reducing and redesigning surface parking. This can be done either through specific updates to off-street parking provisions or as part of the overall adoption of LID and green infrastructure development standards. Anecdotally, we know that many parking standards are based on outdated studies, were copied from neighboring communities or older model regulations, or have just been carried forward as long as anybody can remember. This has resulted in the over construction of parking spaces in oversized parking lots. Specific updates should include (1) reductions to required parking ratios, (2) the establishment of a parking maximum (e.g., no more than 110 percent of the minimum requirement), (3) standards for shared parking and including available on-street parking in the total parking count, (4) incentives and requirements to reduce or eliminate impervious surfaces in parking lots, and (5) updated parking lot/landscaping requirements to incorporate green infrastructure that allows stormwater to infiltrate the soil rather than sheet flow across the parking lot. A number of cities,

including Minneapolis, St. Louis, and Washington, D.C., also charge stormwater fees based on how much a property contributes to stormwater runoff (typically through a measurement of impervious surface); the proceeds are generally used for water pollution control efforts.

Communities that want to start slow and build support for LID or green infrastructure may want to first update local landscaping standards. Regional and local sustainable landscaping standards are provided by many state universities across the country and include ideas such as (1) establishing standards that incorporate more native and drought-tolerant landscaping, including replacing all or part of turf grass lawns with groundcovers or low landscaping to reduce the need for fertilizer and pesticide applications that can be washed into waterways; (2) encouraging or requiring the creation of natu-

automobile transportation. Another method is to expand nonautomotive transportation options. In some communities this option is provided through public transit such as commuter rail, light rail, and trolley systems. Not all communities, though, have the funds or the ridership demand to provide a full range of public transit options. These communities still have viable options for multimodal transportation; in many cities and towns, careful site and infrastructure design can be used to move people effectively on foot, on bicycle, and by bus, while reducing greenhouse gas emissions.

Research shows that most people will walk between one-quarter to one-half mile to reach a destination such as work, a park, or a transit stop (Donohue 2011). To encourage people to make this walk or bike ride, it is important to provide a transportation venue

implement a complete streets policy through infrastructure design standards for new development and redevelopment projects. For a more information about the role of the zoning code in promoting complete streets, see the February 2013 issue of *Zoning Practice*.

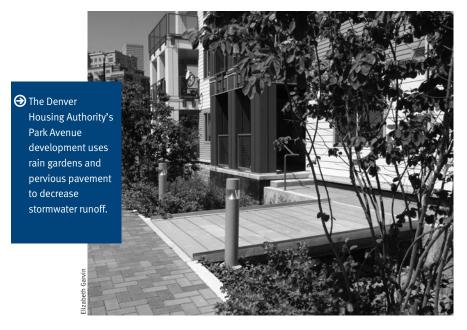
Local zoning codes can also be updated to include development standards that require fully connected sidewalks, bike paths, and trails as well as frontage development standards that require new development or redevelopment to ensure bicycle and pedestrian connections to surrounding properties. In communities with a more suburban layout, zoning codes can require mid-block connections downtown or along corridors with high pedestrian activity and pedestrian connectors from cul-de-sacs to external roads and sidewalks.

NATURAL RESOURCES AND OPEN SPACE

Many of the sustainable zoning tools described in this article are focused on creating sustainability in the built environment. Another important aspect of sustainable design is maintaining and enhancing the natural environment. Parks and open spaces have been shown to enhance surrounding property values, absorb and hold carbon emissions, and help anchor strong neighborhoods (Sherer 2006).

Communities can revise their zoning codes to preserve natural places and encourage the creation of open space in a variety of ways. The site plan review process provides an important avenue for identifying and preserving important local natural resources and environmentally sensitive areas. As part of the site design criteria, the community can identify local natural resource areas or sensitive lands to be protected and request or require that development be designed around that area to the extent possible. Incentives, such as increased density or reduced setbacks elsewhere on the property, can be provided to landowners to further encourage preservation. Many communities use this approach to protect ridgelines and hillsides, along with geologic hazard areas, ecological restoration areas, deserts, streams, and other environmentally sensitive areas.

Additionally, communities can establish standards for new development and redevelopment to provide open spaces, such as parks, trails, or recreation areas, either through private on-site set-asides or public dedication. Park and open space dedication requirements are typically guided by locally created parks master plans or national park level-of-service standards, such



ral landscape buffers along lakes and streams (riparian buffers) to filter pollutants before they enter the water and help keep the banks stable; (3) designing driveways, sidewalks, and gutters to drain into well-vegetated areas rather than to pavement; and (4) using improved irrigation systems, such as drip and microspray, combined with regulations that prevent street and sidewalk overspray.

TRANSPORTATION

Moving homes closer to activities through compact, mixed use development, as described above, is one important method of minimizing the quantity of greenhouse gases created by

that is safe and easily accessible. Many communities do this through the construction of complete streets—streets that are designed to provide safe access and use for pedestrians, bicyclists, motorists, and public transportation users of all ages. Some communities have approached streets this way for years, while others are new to this design trend that is nationwide and growing. According to the National Complete Streets Coalition, "In total, 466 regional and local jurisdictions, 27 states, the Commonwealth of Puerto Rico, and the District of Columbia have adopted [complete streets] policies or have made written commitment to do so" (2013). The zoning code can help

as those established by the National Recreation and Parks Association (Penbrooke 2007).

THE ADOPTION PROCESS

Once the community has decided which topics or categories of sustainable regulations to consider for inclusion in the zoning code, the project team will need to determine how to organize the regulatory drafting, public review, and adoption. While there are a few ways to organize the drafting and public review process, factoring in the time needed for good public understanding of the draft regulations may be the best way to guide the process. Where the public is already included in the sustainability discussion and is ready for the code changes—typically following the creation of a sustainable plan just prior to

the code update—the updates can be drafted and discussed simultaneously in a single package. This allows a concentrated focus on the current code, minimal redundant research by staff for editing purposes, and a single public review and adoption process. Where, however, a thorough public outreach and educational process might be helpful with both the adoption process and long-term implementation of the changes, it is probably beneficial to take the code edits forward individually by topic and spend the necessary time helping the community understand the importance of each change. Communities may choose to organize individual edits to move into public discussion and adoption as fast as the community deems appropriate. This might range from one proposed topic of revisions at

a time in a rolling process, where review may overlap depending on the length of the public conversation, to one proposed topic of revisions following the adoption of each previous topic.

AND EVERYTHING ELSE

The techniques listed above are not the exclusive means to incorporating sustainable regulations in the local zoning code. Other examples of sustainable regulations from communities across the country include diverse and affordable housing, local food and agriculture, waste reduction and recycling, climate adaption, and green construction standards. Because sustainable zoning is still relatively new, there will be more concepts added in the future as well as refinements to the approaches already in use.

REFERENCES AND RESOURCES

- American Planning Association. APA Policy Guides available at www .planning.org/policy/guides.
- Fort Collins (Colorado), City of. 2004. Action Plan for Sustainability. Available at www.fcgov.com/sustainability/pdf/sustainability-plan.pdf.
- Donohue, Ryan. 2011. "Pedestrians and Park Planning: How Far Will People Walk?" The Trust for Public Land, Center for City Park Excellence, City Parks Blog, May 13. Available at http://cityparksblog.org/2011/05/13/pedestrians-and-park-planning-how-far-will-people-walk.
- Heller, Erica. 2010. "Planning and Zoning for Geothermal Energy."
 Zoning Practice, May. Available at www.planning.org/zoning practice.
- Heller, Erica. 2008. "Urban Wind Turbines." Zoning Practice, July.
 Available at www.planning.org/zoningpractice.
- ICLEI-Local Governments for Sustainability USA. 2013. Sustainability Planning Toolkit. Available at www.icleiusa.org/action-center/planning/sustainability-planning-toolkit.
- Miami-Dade (Florida), County of. 2010. GreenPrint: Our Design for a Sustainable Future. Available at www.miamidade.gov/greenprint.
- National Association of Home Builders (NAHB). 2012. An Introduction to Compact Development. Available at www.nahb.org/generic .aspx?genericContentID=17373.
- National Complete Streets Coalition. 2013. Policy Atlas. Available at www.smartgrowthamerica.org/complete-streets/changing-policy /complete-streets-atlas.

- National Renewable Energy Laboratory. 2013. Interactive Mapping Tools. Available at http://maps.nrel.gov.
- Penbrooke, Teresa. 2007. "Replacing Conventional Park Level of Service (LOS) Analysis with the 'Composite Values' Approach." Practicing Planner 5(3). Available at www.planning.org/practicingplanner.
- Ross, Brian, and Suzanne Sutro Rhees. 2010. "Solar Energy and Land-Use Regulation." Zoning Practice, November. Available at www .planning.org/zoningpractice.
- Sherer, Paul M. 2006. "The Benefits of Parks: Why America Needs More City Parks and Open Space. San Francisco: The Trust for Public Land." Available at www.eastshorepark.org/benefits_of_parks %20tpl.pdf.
- St. Louis (Missouri), County of. 2009. Green and Growing website is at http://green.stlouisco.com.
- Urban Land Institute (ULI). 2010. "Land Use and Driving." Available at www.uli.org/infrastructure-initiative/land-use-and-driving.
- U.S. Environmental Protection Agency (EPA). 2007. Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices. Available at http://water.epa.gov/polwaste/green/costso7_index.cfm.
- U.S. Environmental Protection Agency (EPA). 2012. Planning for a Sustainable Future. Available at www.epa.gov/region2 /sustainability/greencommunities/Planning_for_a_Sustainable _Future.pdf.

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205 N. Michigan Ave. Suite 1200

1030 15th Street, NW Suite 750 West Washington, DC 20005–1503 Chicago, IL 60601–5927

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