

# Local Leaders in Sustainability

*Green Building Policy  
in a Changing Economic Environment*



THE AMERICAN INSTITUTE  
OF ARCHITECTS

*Local Leaders in Sustainability—Green Building Policy in a Changing Economic Environment* is the fourth in a series of reports focusing on green building at the local level.

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# Executive Summary

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American cities are continuing to go green during the economic downturn, and local leaders are charging ahead with innovative sustainability policies. Buildings currently account for approximately 40 percent of all greenhouse gas emissions. At the American Institute of Architects (AIA), we approach sustainability and green building with a solutions-based approach that seeks to reduce the impact of our built environment on the natural world.

The AIA has sought to develop resources and tools through our *Local Leaders in Sustainability* study for cities across the country that are developing or expanding green building programs. *Green Building Policy in a Changing Economic Environment* is the fourth report in this series. By updating and adding to our original report on green cities, we hope to provide policymakers and implementers with the tools to navigate a changed economic landscape and keep a strong emphasis on making their communities more sustainable.

Taking advantage of research compiled by the AIA over the past three years, this edition of *Local Leaders in Sustainability* has found:

- 138 cities with green building programs, or more than 1 in 5 cities surveyed. This is a further 46 cities, or a 50 percent increase, in green building programs since 2007;
- More than 53 million Americans live in cities with green building programs; and
- 24 of the 25 most populated metropolitan regions in the United States are built around cities with a green building policy.

Close to 21 percent of surveyed communities have green building programs, rising from 14 percent of cities in 2007. However, the true number continues to

be greater, because our data has been limited to cities with populations greater than 50,000, thereby leaving out many smaller communities' impressive sustainability efforts.

The regional distribution of green building programs continues to help illustrate the growth of sustainable development throughout the country.

- The western region still leads the way on green building programs, with 56 cities in just six states, or 41 percent of all green building programs;
- The mountain region is still second in the percentage of cities with green building programs, with 24 percent of residents living in these cities;
- The eastern region has made impressive gains, now boasting 49 cities with policies in place, rising 75 percent since 2007, and although third in the percentage of cities with programs, moving ever upward;
- While the central region still trails the rest of the country, with 21 green building programs, there are innovative, successful policies found here as well.

In addition to identifying new programs that have been developed in the past two years, the report sought to ask cities whether they have altered their original green

building policy guidelines in light of the economic downturn. These cities responded with a resounding “no” from coast to coast. Furthermore, our report finds that cities are integrating green building policies into wider economic development goals.

While we know that the design and construction industry is experiencing tremendous pain during this economic recession, it is heartening to see community leaders and policy implementers pushing ahead with sustainable design efforts. The downturn has had a devastating effect on construction generally, but sustainable building design continues to maintain and improve its market share.

Questions also were posed to communities regarding Energy Efficiency and Conservation Block Grant Funding provided through the American Recovery and Reinvestment Act of 2009. This funding stream of \$3.2 billion flows through the U.S. Department of Energy, with the majority of it going directly to localities, is providing an unprecedented opportunity for the advancement of green building and sustainability efforts in our nation’s cities. Many are targeting use of these funds to advance green building in their communities.

As green building programs become the standard in communities across America, important trends are materializing ranging from regional differences to the extent of programs in certain areas versus others in relation to the public and private sectors. These trends and many others are explored in the case study component of the report. The programs that were chosen as case studies in this report provide an excellent cross-section of American green building policy with a particular focus on newer or strengthened programs with green economic development policies in place. The following cities are featured: Los Angeles; Boston; Grand Rapids, Mich.; Philadelphia; and Nashville.

At its core, *Local Leaders in Sustainability* is an inventory of policies and best practices. It is a helpful tool for policymakers and green teams attempting to advance a more sustainable legislative agenda for growth and development. One of the most important observations to be gained from this research is that an effective policy is one that encourages private devel-

opers to consider sustainable features and explore the cost-effectiveness of efficient design as a matter of course. Such policies also can encourage sustainable development practices to become integrated into the entire streetscape, leading to more vibrant and livable communities. The section on Livable Communities and Sustainable Design Assessment Teams examines these efforts and reinforces the AIA’s Livability Principles.

Finally, *Green Building Policy in a Changing Economic Environment* seeks to follow up on the important recommendations offered in *A Study of Green Building Programs in Our Nation’s Communities*. These recommendations have now been augmented with a further four recommendations garnered from the latest research. The following 10 recommendations can help local communities as they begin or enhance their green building programs.

- Be inclusive;
- Architects are here to help;
- Hire a director of sustainability;
- Train and accredit municipal employees;
- Keep it simple;
- Implement additional sustainability initiatives;
- Pursue green economic development;
- Make it regional;
- Remove legal barriers; and
- Green buildings need green communities.

Green building policies continue to flourish and proliferate, even during this prolonged economic downturn, and the future looks bright for sustainable design. The ultimate goal is for the concept of “building green” to no longer exist, and instead have green design integrated into all buildings. This day is soon approaching, and the AIA is advocating for policies to make this green future a reality.

# Introduction

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Originally conceived in 2007, *Local Leaders in Sustainability* is an AIA research effort that examines green building policy in American communities. Beginning with a *Study of Green Building Programs in Our Nation's Communities*, the AIA has sought to develop resources and tools for cities across the country that are developing or expanding green building programs. The Local Leaders series quickly followed up with an examination of incentive options that cities, counties, and states had developed to encourage high-performance design. Most recently, *Local Leaders in Sustainability: Green Counties* examined similar efforts in 200 of the nation's largest counties.

*Green Building Policy in a Changing Economic Environment* is the fourth report in this series. By updating and adding to our original report on green cities we hope to provide policy makers and implementers with the tools to navigate a changed economic landscape and keep a strong emphasis on making their communities more sustainable.

Since 2007, it has become more widely known that the building sector contributes the largest single source of emissions to our environment. Approximately 40 percent of all carbon emissions come from buildings, and these are the places where you live, work, and play. At the AIA, we approach sustainability and green building with a solutions-based approach and seek to reduce the impact of the built environment on the natural world.

The great recession has fundamentally altered the American landscape on multiple fronts. The rapid deterioration in the credit markets led to an unprecedented falloff in the design/building industry, and this has been reflected in the AIA Architectural Billings Index. As a leading economic indicator of construction activity, the ABI reflects the approximate 9- to 12- month lag time between architecture billings and construction spending. For more than a year the ABI has been below 50, which indicates a consistent contraction. As we come

out of this recession, it will be imperative for communities to continue their focus on developing green buildings and sustainability planning measures to ensure long-term municipal success. This report offers examples of best practices for communities as they design and strengthen their own green building policies.

Green buildings have revolutionized the design and construction industry. Sustainable design is beginning to transform the built environment from its energy intensive past toward an energy-efficient, green future. Ultimately, policies that promote this kind of development are good for architects and the communities in which they live. Buildings are lasting features of the physical environment and they should be designed to meet human needs. The technology now exists to make green buildings that are modern and attractive, as well as financially viable. A confluence of factors, from high energy costs to climate change to a reduction in the cost of green buildings, has created an environment in which political leaders have an opportunity to lead America toward an energy-efficient, sustainable future.

And this is what political leaders are doing all across America. Local elected officials have been working with planning departments and other dedicated civil servants to craft green building and sustainability leg-

isolation in response to the groundswell of support from citizens who have pushed for laws that tackle climate change and promote healthier living. Over the past several years, the economic development potential of green buildings and sustainable neighborhood design has become increasingly apparent in cities across America. Green industries and jobs are being promoted through municipal efforts and also now through federal economic recovery funding. Communities are also emphasizing sustainability policies more when promoting economic development plans, and businesses are increasingly incorporating sustainability metrics into decision-making processes.

Although no municipal green building program is perfect, the leadership exhibited by local officials has been impressive over the years. The local level has been the laboratory of democracy on sustainability issues for quite some time, with ongoing policy experimentation that has led to notable successes. This is where the largest changes have taken place on a wide array of issues, from green buildings to other sustainability initiatives. All levels of government can learn from these exciting policies to better understand the current and future state of green building in America.

The AIA is focusing its energy as an organization on promoting sustainable design in our nation's communities by advocating for positive change at the local, state, and federal level. The Institute is currently undertaking the following green building and sustainability initiatives:

**AIA 2030 Goals:** This advocacy effort advances the goal of carbon neutral buildings by 2030. This goal will be reached by immediately cutting carbon output of buildings by 50 percent, then subsequently raising this number to reach carbon neutrality in 2030. <http://www.aia.org/sustainability>

**International Green Construction Code:** The AIA signed an agreement with the International Code Council (ICC) and ASTM International to co-author the creation of the International Green Construction Code (IGCC), which is targeted at the commercial market. The objective of this new project is to develop a green building code for traditional and high-perfor-

mance buildings that is consistent and coordinated with the ICC family of codes and standards. The code will provide a new regulatory framework built with leading recognized rating systems in mind and provide criteria to drive green building into everyday practice. The IGCC code will likely address energy efficiency (including solar and other advanced technologies), water-use efficiency, materials- and resource-use conservation, indoor environmental quality, and overall building impact on the environment. The council's government consensus process will develop the code and seek the collaboration of key partners, along with input from its members and stakeholders. This coordinated approach will ensure that code officials, design professionals, and other industry experts will have a prominent and appropriate role in the development process. <http://www.iccsafe.org/igcc>

**Sustainable Design Assessment Teams (SDAT):** This toolkit provides a myriad of resources on green building in the areas of advocacy, design, and community. This CD toolkit was originally distributed in conjunction with the U.S. Conference of Mayors in 2006, but has been updated and is now available online. <http://info.aia.org/toolkit2030/>

**50to50:** 50to50 has been developed as a resource for architects and the construction industry, and represents readily available and effective tools and techniques that will have an immediate impact on architects' ability to achieve significant carbon reductions. This resource provides 50 technical recommendations on what architects can do to reduce energy use in buildings by 50 percent. <http://www.aia.org/fiftytofifty>

**Sustainable Design Assessment Teams (SDAT):** A community assistance program that focuses on the principles of sustainability, SDATs bring teams of volunteer professionals (such as architects, urban designers, planners, hydrologists, economists, attorneys, and others) to work with community decision-makers and stakeholders to help them develop a vision and framework for a sustainable future. [http://www.aia.org/liv\\_sdat](http://www.aia.org/liv_sdat)

**AIA Committee on the Environment (COTE):** As part of its effort to celebrate current best practices, COTE runs its flagship program, the Top Ten Green

Projects awards, on an annual basis. Started in 1997 by Gail Lindsey, this is now recognized as one of the most holistic design awards programs in the United States, and many of these projects have been featured in this report. COTE also runs programs to “green” the AIA Honors and Awards, the AIA convention, and other aspects of AIA operations. It advocates for broad collaboration with allied organizations and for architects as leaders in the context of the sustainability imperative. COTE runs a robust communications program, which enables interaction among many of the 8,000 COTE members and people from allied organizations. The COTE Network consists of 60 local and state chapters and their members. COTE is pushing for progress in architecture education. Its 2006 report, *Ecology & Design*, advocates for several specific changes, including some of those that are part of the 2010 Imperative, which COTE is working on with the Society of Building Science Educators (SBSE) and Architecture 2030. <http://www.aia.org/cote>

The AIA is continually working with the U.S. Conference of Mayors and the National Association of Counties to spread the sustainability message. Both organizations have adopted resolutions supporting the 2030 Challenge, with the mayors passing a resolution in the summer of 2006, and the counties in summer 2007. The AIA also released a joint report with the National Association of Counties in summer 2008, *Local Leaders in Sustainability: Green Counties*.

These organizations, as well as other important local government associations such as the National League of Cities, are helping to lead the charge on sustainability. They represent the local elected officials across the country that have been making a difference. The AIA once again spoke with these officials and the valuable staff who work for them in order to complete this report. The purpose of the ongoing Local Leaders in Sustainability green building study and report series is to provide a resource for local officials, architects, and others who want to understand the current landscape of green building laws throughout the country. This includes analysis of current trends, the best practices, and where communities are going next. Green build-

ing is the future of building, and architects are helping make this possible by creating exceptionally designed, energy-efficient, water-conserving, green buildings.

## Methodology

*Local Leaders in Sustainability: Green Building Policy in a Changing Economic Environment* is a follow-up examination of green building laws in the United States. The 2007 report, *Local Leaders in Sustainability: A Study of Green Building Programs in Our Nation's Communities*, identified cities with green building programs, provided an overview of laws and ordinances, and offered pertinent information on these programs. This updated report serves to inform the reader about the current state of green building in our nation's cities as of 2009 in light of the current economic climate.

The 2007 report established the survey group as all American cities with populations greater than 50,000, or 661 cities and towns<sup>1</sup>. This represents a total population of 107,918,963 Americans, or a little more than a third of the country. We then formulated multiple survey instruments in order to measure the current number of green building programs and ascertain the current level of green building in cities that have instituted green building laws. Out of the sample of 661 the AIA was able to speak with representatives from 606 communities in 2007, for a response rate of 92 percent. The non-responding communities tended to be smaller cities and towns, leading to a total responding population of 102,178,010. The survey found that 92 cities, or 14 percent, had established green building programs, while a further 36 were in the process of creating a policy.

Now, in 2009, the AIA is updating this study by following up with the communities that we spoke to in 2007 in order to present a clearer picture of the current state of municipal green building. The general focus of this follow-up survey is to ascertain whether cities have altered or strengthened policies in light of the economic downturn, whether they have changed incentive packages offered, and whether communities are planning on using economic stimulus money for

<sup>1</sup>U.S. Census Population Estimates for all Places—2005. [<http://www.census.gov/popest/cities/SUB-EST2005-4.html>].

green building programs. The AIA research team contacted the 92 cities identified as having green building programs, and through a short phone survey asked the following series of questions:

- Have you altered your original green building policy guidelines in light of the economic downturn?
- If yes, how have you specifically done this, particularly have you curtailed or revoked incentive packages that you provided in return for meeting green building criteria?
- Is your green building policy tied into your broader economic development goals?
- Is there still development going on in your community? If so, are there significant green projects currently happening?
- Will you be using Energy Efficiency and Conservation Block Grant funding to encourage more green building in your community?
- Has your community instituted a green schools policy and, if so, do you use a particular rating system when designing schools, i.e., CHPS or LEED for Schools, or have you created a local standard?<sup>2</sup>

The AIA also spoke to the 36 communities that were in the process of developing green building programs when we spoke to them in 2007. And to establish methodological viability consistent with the first report, we posed the same series of questions regarding whether the city has a green building program; how long the green building program has existed; whether it applies to government, commercial, or residential buildings; whether it employs a rating system; and whether the program provides incentives to build green. Of these 36 communities we identified 25 that had developed green building programs over the past two years.

Finally, we realized that since 2007, there would have been additional cities that have started and completed

the process of developing green building programs. To complete the data collection and examine the full spectrum of cities with a population more than 50,000, we used the U.S. Green Building Council's Public Policy Database. This database allowed us to reliably augment our data without contacting all of the original 661 cities again. Through this database we identified a further 21 cities with green building programs.

As of 2009, we have identified 138 cities with green building programs, or more than 20 percent of cities surveyed. The amalgamation of this information, and the earlier research that we have conducted, creates a clearer picture of the current state of green building throughout the country.

## Definitions

The following definitions are used throughout the report and have therefore been defined below to further the reader's understanding:

### Green Building Program

A green building program is a law or regulation that mandates or incentivizes the construction of green buildings within a community. It can focus on public, residential, and/or commercial buildings.

### Sustainability

The concept of meeting present needs without compromising the ability of future generations to meet their own needs.

### Sustainable Design

Design that seeks to avoid depletion of energy, water, and raw material resources; prevent environmental degradation caused by facility and infrastructure development over their life cycle; and create environments that are livable, comfortable, and safe and that promote productivity.

### Green

A sub-set of sustainability, the focus of which is life-cycle environmental impacts of materials. "Reduce, Recycle, Reuse."

<sup>2</sup>As we spoke primarily to representatives of city planning and building departments, this question is meant to be more informational than definitive.

**Life Cycle Analysis**

Examines total environmental impact and business cost/benefit assessment through each stage of a product's existence, from raw materials acquisition through manufacturing, packaging, shipping, installation, IAQ, and performance, as well as end-of-use resource recovery.

**LEED®**

The Leadership in Energy and Environmental Design (LEED) rating system, created by the U.S. Green Building Council (USGBC), is a third-party certification program for the design, construction, and operation of high-performance green buildings.

# Study Findings

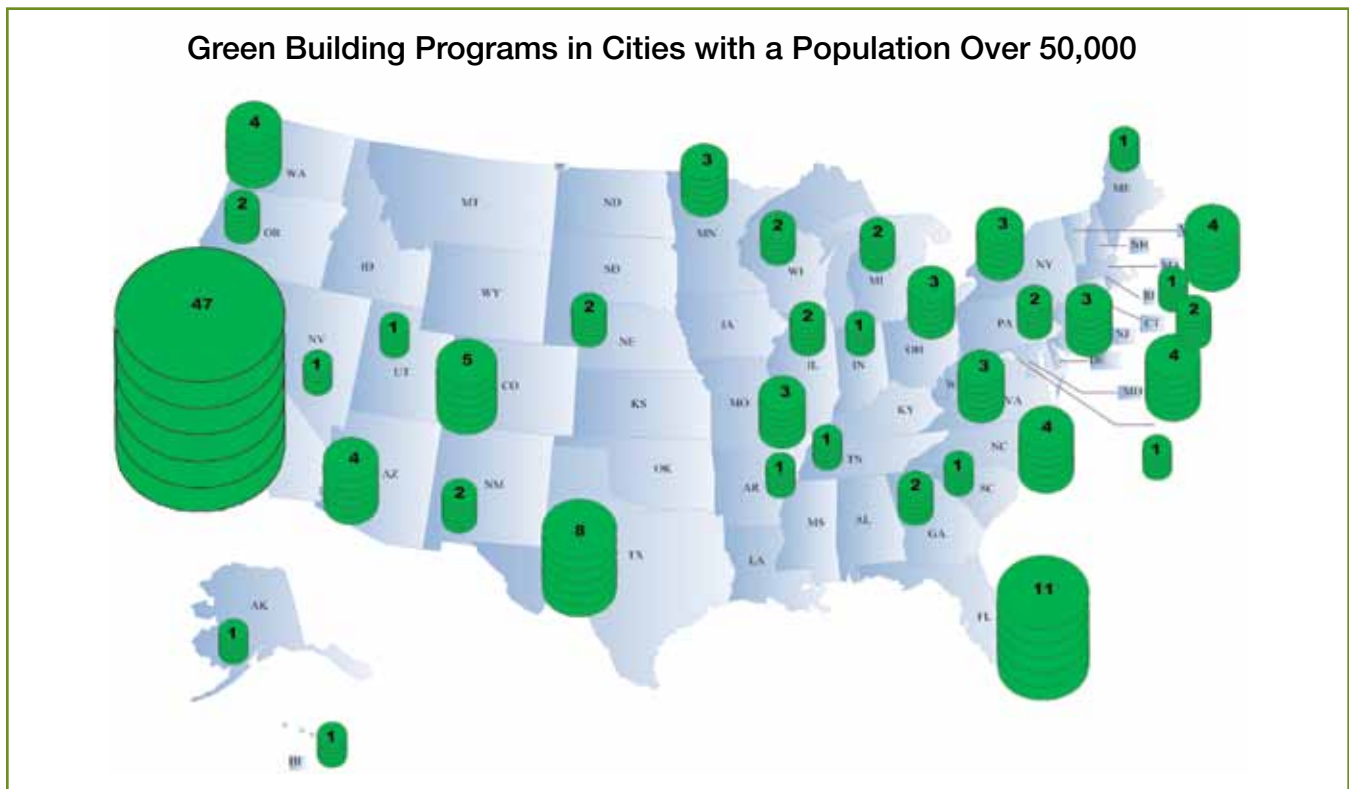
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## Green Building Nationwide

With the difficulties seen in the design and construction industry since the beginning of the Great Recession, it would be easy to assume that green building policy growth has contracted and existing programs have been curtailed. However, while all development has declined, there is a continued yearning for green buildings from public and private sector clients. As owners and developers increasingly understand the value of green building, they will continue to demand a further increase in the number of green buildings being designed and constructed compared to non-green buildings. This continued growth will lead toward the day when green buildings are no longer a type of building, but instead the way all buildings are designed and built.



*The Terry Thomas, AIA COTE 2009 Top Ten Green Projects award recipient, Seattle; architect: Weber Thompson; photo by Lara Swimmer*



The outlook for the future of green building remains bright. In the AIA's follow-up study to the 2007 *Local Leaders in Sustainability: A Study of Green Building in Our Nation's Communities*, we have identified numerous instances of advancements in policy nationwide. We also have found a substantial number of programs that have been created and developed since the AIA first surveyed cities in 2007.

In this analysis, the AIA is not comparing the sheer number of green buildings being designed and constructed in a given city with those constructed two years ago. Instead, we are analyzing and discussing the changes being implemented in green building policies at the community level. This type of analysis allows us to understand how cities evaluate green building policy and sustainability measures in light of the current economic downturn. This report explains the state of green building, while explaining how communities have continued with sustainable development initiatives during the recession.

Many localities are not viewing alterations to their green building policy as an option, even in these uncertain economic times. In fact, a significant number of

cities are considering changing these policies to provide increased financial incentives to further stimulate green building. This point is important, because more city leaders are beginning to integrate or already have integrated their sustainability policy with economic development policies, as they realize that these initiatives are and should be seen as complementary.

After contacting 661 cities in early 2007 and speaking to representatives from 606 (92 percent), the AIA concluded that green building programs were booming. Immense enthusiasm exists for sustainability and green building on the local level, and while all regions were not adopting programs at the same rate, the overall pattern was one of continued implementation of green building ordinances.

The AIA identified a total of 92 cities in 2007 with green building ordinances. Using our original data set, we had identified a further 36 cities in the process of developing green building policy at that time. In this survey, we followed up with these 36 cities with the original survey questions in order to find out how many had followed through in developing green building programs. Of those 36 cities, the AIA research

team identified 25 cities that had implemented green building policies.

To expedite the survey results and release the report in 2009 rather than following up with all of the cities that had a population greater than 50,000, we augmented our survey group with information on cities with LEED policies, publicly available at the U.S. Green Building Council's Web site. This information provided us with an additional 21 cities that had green building programs, some of which were implemented as recently as April and May 2009.

All in all, the AIA identified a further 46 cities that have established green building programs in the past two years, bringing the total number of communities building green to 138. This represents almost 21 percent of all communities, increasing over 2007 by exactly 50 percent. These communities represent a population of approximately 53,427,648 Americans. This is an extraordinary number, as the total contacted population for all 661 cities with a population more than 50,000 is 107,918,963. Today, approximately 50 percent of these citizens live in communities with green building programs.<sup>3</sup>

## Regional Distribution of Green Building Programs

The regional distribution of programs helps illustrate the growth of green building throughout the country. Many of the older programs are chiefly located in the West, where the largest concentration of programs are found. The mountain region is well represented in relation to the population of these states. Although



the central area of the country has a fewer total green building programs, it has innovative and well-established policies in places such as Grand Rapids, Mich., Chicago, and Austin, Texas. The East Coast is catching up to its West Coast counterpart in the total number of programs, with many existing, impressive policies. There are also far-reaching programs in the larger cities on the East Coast, such as Boston, New York, and Washington, D.C., that were just beginning in our first report, but are now showing promising results. On the whole, the regional breakdown is as expected, but the breadth and dedication of these programs throughout the entire country is something that should make our local leaders proud.

## Pacific (Western) Region

The Pacific region historically has moved forward on green building and sustainability at a faster rate than any other region of the country. This is probably due

Region	Population Under Green Program (cities, 2008 populations)	Population Surveyed (cities, 2005 populations <sup>4</sup> )	Total Sample Population (cities, 2005 populations <sup>4</sup> )
Western	16,038,675 (56)	26,406,923 (163)	28,985,380 (191)
Mountain	4,602,146 (12)	8,472,470 (49)	8,662,820 (52)
Middle	13,008,294 (21)	27,017,313 (163)	28,031,288 (173)
Eastern	19,778,533 (49)	40,751,992 (231)	42,239,475 (245)
Total	53,427,648 (138)	102,659,730 (606)	107,918,963 (661)

<sup>3</sup>The 2005 population total is retained for the 661 cities in the initial 2007 LLIS study to ensure the accuracy of our initial data sample

<sup>4</sup>[http://www.census.gov/popest/archives/2000s/vintage\\_2005/](http://www.census.gov/popest/archives/2000s/vintage_2005/)

## Green Building Programs in California

Alameda	Anaheim
Berkeley	Burbank
Carlsbad	Cathedral City
Chula Vista	Corona
Costa Mesa	Cupertino
Davis	Fremont
Fresno	Glendale
Irvine	La Mesa
Livermore	Long Beach
Los Angeles	Mission Viejo
Napa	Novato
Oakland	Palo Alto
Pasadena	Petaluma
Pleasanton	Redding
Richmond	Riverside
Sacramento	San Buenaventura
San Francisco	San Jose
San Leandro	San Rafael
Santa Barbara	Santa Clara
Santa Clarita	Santa Cruz
Santa Monica	Santa Rosa
Stockton	Sunnyvale
Temecula	Walnut Creek

to a number of issues, ranging from public support for climate change initiatives, to a culture of conservation, and rising energy costs. The six states that are identified as the pacific region in this study are the following: California, Oregon, Washington, Nevada, Hawaii, and Alaska. These states consist of 51,670,608 citizens or 17 percent of the population. They have 56 active green building programs or 40.6 percent of all green building programs. At least 31 percent of the western population, or 16,038,675 Americans, live in cities with active green building programs.

Among the states, California is clearly the leader in the number and breadth of green building programs with 47 or 34.1 percent. For a state that represents 12.1 percent of America's population, this is an extraordinary accomplishment and, as in many policy areas, a good leading indicator for where the rest of the country is headed.

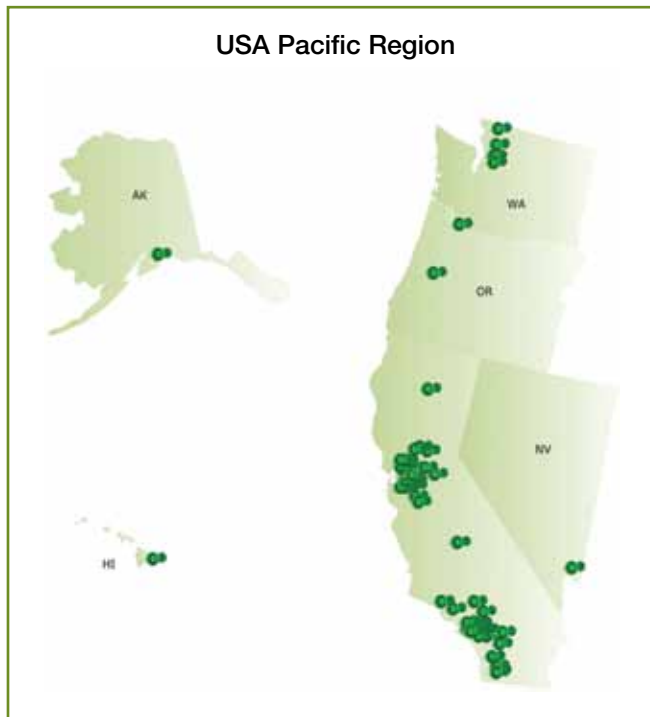
Green building programs are found near large population centers along the coast of the state, including the San Diego, Los Angeles, and San Francisco Bay Area. There also are a number of programs that exist between these metro areas. Programs are not as widely found in the interior of the state or in the far north.

The pacific region has also developed new and creative green building guidelines. Alameda County (California) developed the now widely used Build it Green rating system, which drew on the momentum created by LEED. This local program, now run independently of the county as a nonprofit, is used by cities within the Bay Area and throughout California.

Oregon currently has two active green building programs, in Portland and Eugene. Portland is widely known as one of the leaders in sustainability, with a green building program that has served as a model for many throughout the country, and which was featured in the case study section of the first *Local Leaders in Sustainability* report.

Washington has four programs, in Seattle, Bellingham, Everett, and Shoreline, with Seattle's program being the most developed. The county that Seattle is in, King County, was featured in the *Local Leaders in Sustainability: Green Counties* report.

USA Pacific Region



Seattle has been one of the most influential leaders of the green building movement in the region. The city provides incentives for virtually every type of development, ranging from certification rebates and density bonuses to best practice forums and free trees for neighborhoods.

Nevada, Alaska, and Hawaii each have one green building program, in Las Vegas, Anchorage, and Honolulu, respectively.

## Mountain Region

At first glance, the mountain region may not appear as impressive as other regions, but looks can be deceiving. Although there are only 12 programs, this represents 23.1 percent of the cities in the region and is slightly above the national average, especially when the population of this region is taken into account. These states make up 6.3 percent of the total U.S. population, with 19,184,640 residents. But, 4,602,146, or 24 percent of all citizens, live in cities with green building programs here.

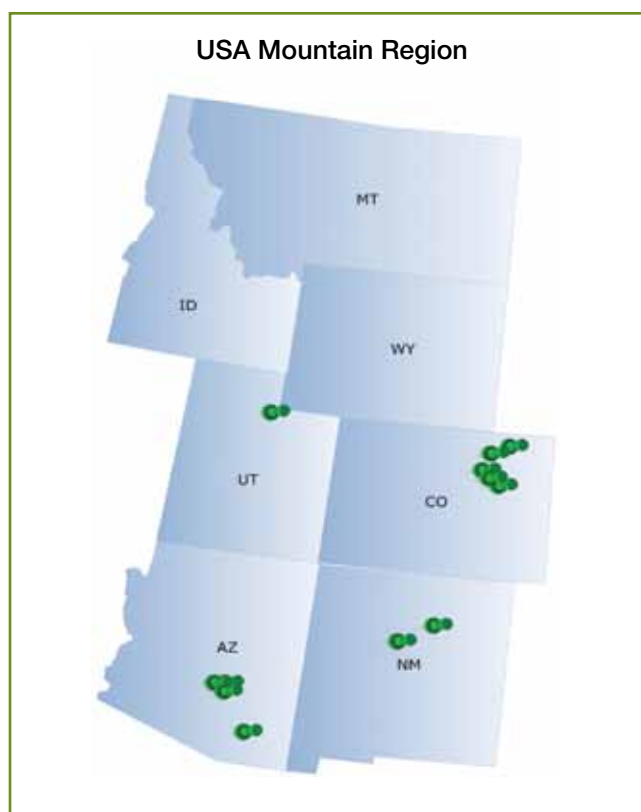
Like many of California's policies, a vast majority of these programs were driven by concerns over future energy and water supply. Many cities in the dry, southern states of this region may not have specific policies, but the water management and energy-efficiency standards that they have enacted over the years are undoubtedly leading to the construction of better buildings.

Arizona has four green building programs, in Phoenix, Scottsdale, Tucson, and Chandler. In addition to LEED, both Tucson and Phoenix have a particular focus on energy and water efficiency.

Colorado's policies are found in Denver, Boulder, Aurora, Longmont, and Fort Collins. New Mexico has two programs, in Albuquerque and Santa Fe, while Utah has one, in Salt Lake City.

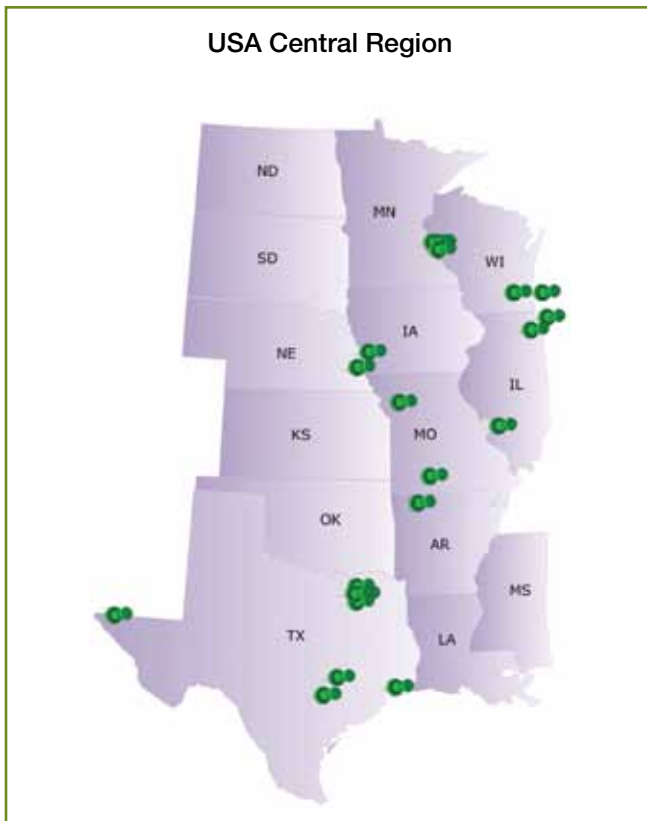
## Central Region

The central region represents 25.3 percent of the American population, or 76,869,463 citizens. On the whole, these states have not adopted green building policies at



the same rate as other regions of the country. Just 21, or 12.1 percent, of the 173 central region cities have such programs. This, however, represents a significant portion of the urban centers, and 13,008,294 citizens of the central region live in cities with green building programs. Although they have the fewest total number of programs for their region in relation to the number of communities, the population of some of the larger cities such as Chicago, with nearly three million people, increases the total number of citizens living under green building programs to 16.9 percent. The larger urban centers have begun the move toward green buildings, but the suburbs around cities, such as Chicago and St. Louis, have not quite seen the same level of reciprocal activity as California's suburban areas.

Although the central region does not have a large number of programs, they are some of the best in the country. Chicago and Austin are deservedly considered to be leaders, but there is much more to the programs in this portion of the country. Many cities, such as Minneapolis, St. Paul, Madison, and Houston, have impressive programs that extend beyond municipal buildings to affect the private sector.



Texas has green building programs in Austin, Dallas, El Paso, Flower Mound, Frisco, Houston, Plano, and San Antonio. Missouri has programs in Kansas City, Springfield, and St. Louis. Illinois' largest program is in Chicago, joined by the smaller city of Aurora. Wisconsin has two programs, one in Madison, begun in 1999, and the other in Milwaukee. Minnesota has programs in Bloomington, Minneapolis, and St. Paul. Nebraska has taken a significant step forward in the past two years with established programs in Lincoln and Omaha. Arkansas recently began a green building program in Fayetteville.

## Eastern Region

The eastern region has exhibited tremendous growth in green building policy in recent years. It includes programs, not only in its large population centers like Washington, D.C., and New York, but also in places like Chesapeake, Va., Deltona, Fla., and Wilmington, N.C. Forty-nine cities, or 20 percent of cities with a population greater than 50,000, had green policies. In this region 19,778,533, or 12.7 percent, of the regional population live in cities with green building programs,

and while this total seems small comparatively, it is the fastest growing regional rate. The region has the second largest number of programs in the country after the Pacific region, and saw the greatest overall growth in number of green building programs over the past two years. Nevertheless, the population of the eastern region is much larger than the West, with 156,335,313 citizens, or 51.4 percent of America's total population.

Florida has seen a great deal of growth in the state's green building programs, rising from three policies in 2007 to 11 in 2009. *Local Leaders in Sustainability: Green Counties* also highlighted the impressive number of county policies in the Florida Counties Pushing Ahead section.

Georgia has programs in Atlanta and Athens. North Carolina has four green building programs, with policies in Asheville, Raleigh, Wilmington, and Winston-Salem. States with single programs include Rhode Island in Providence and South Carolina in Charleston. Tennessee has a single program in Nashville, a consummate leader on sustainable building in the southeast, featured in the case study section of this report. Indiana has one program in Bloomington and Maine's first green building program has been established in Portland.

Virginia's programs are in Arlington, Alexandria, and Chesapeake. Maryland has programs in Baltimore, Rockville, Bowie and Gaithersburg. New Jersey has three programs, with policies in place in Elizabeth, New Brunswick, and Trenton. New York City has an innovative plan to expand their program, which became effective this year, while Syracuse has plans to expand its program in 2010. Brookhaven, N.Y., has also recently established a program.

Massachusetts has programs in Boston, Cambridge, Medford, and Quincy. The policy in Boston has established itself as an East Coast benchmark, and is featured in this report as one of our case studies due to its wide-ranging program. It includes a variety of energy initiatives, while requiring LEED Certification for commercial buildings through its zoning code, and also setting a fine example in city-owned construction. Washington, D.C., became the first major city to call



## Green Building Programs in Florida

Coral Springs	Deltona
Miami	North Miami
Miami Beach	Tampa
West Palm Beach	Gainesville
Lauderhill	Jacksonville
St. Petersburg	

City leaders are working to advance municipal green building programs in multiple ways. The policy choices that communities make are often dependent on the length of time a green building program has been in place. Those communities that have passed ordinances in the last few years are still broadly working on implementing the policies and educating the general public and the building industry. Many cities with established green building programs, on the other hand, are now focusing on creating mandatory programs for commercial and residential projects. These cities are also continuing to educate builders and the public on the economic, social, and environmental benefits of these policies.

for all buildings to be green in 2006, and is exhibiting great success with this program.

Michigan has two programs in Grand Rapids and Novi. Pennsylvania has green building programs in Philadelphia and Pittsburgh. Philadelphia's impressive program is featured as a case study in this report. Ohio has policies in Cincinnati, Cuyahoga Falls, and Hamilton. Connecticut's programs are in Stamford and Greenwich.

The eastern region increased by 21 green building programs in the past two years. This equates to an increase of 75 percent, the highest rate of regional growth recorded between 2007 and 2009.

### Trends

Green building has continued to accelerate over the past two years, as we have seen a significant increase in the number of cities actively implementing sustainability ordinances. Having grown in number from 92 cities in mid 2007 to 138 just two years later, the amount of data on green buildings to explore is extremely promising.

Sacramento, Calif., is an example of a city that is now expanding its program. The city government feels strongly that it should move the green building program beyond the current voluntary policy. The state-wide mandate passed in 2004 by California Governor Arnold Schwarzenegger has resulted in the construction of more than 4.3 million square feet of LEED Silver state buildings in Sacramento. In looking to exceed the state requirements, Sacramento will spend federal economic recovery funds on developing its own mandatory program, while adding a few incentives to the current voluntary system as well.

Frisco, Tex., has also instituted mandatory green building for the private sector, and has seen a positive response from the community. Municipal buildings are built to the LEED Certified standard, and commercial/residential to Energy Star and other green standards for water conservation, heat, insulation, and air quality.

Additional cities looking to expand their programs to include mandatory green building for the private

## Green Building Ordinances (2007–2009)

Alameda, Calif.	Alexandria, Va.
Anchorage, Alaska	Aurora, Colo
Aurora, Ill.	Baltimore, Md.
Brookhaven, N.Y.	Cambridge, Mass
Cathedral City, Calif.	Chandler, Ariz
Charleston, S.C.	Coral Springs, Fla
Corona, Calif.	Costa Mesa, Calif.
Cupertino, Calif.	Davis, Calif.
Deltona, Fla.	El Paso, Tex.
Everett, Wash.	Fayetteville, Ark.
Fresno, Calif.	Greenwich, Conn.
Jacksonville, Fla.	Lincoln, Nebr.
Longmont, Colo.	Miami, Fla.
Miami Beach, Fla.	Napa, Calif.
Novi, Mich.	North Miami, Fla.
Omaha, Nebr.	Pittsburgh, Pa.
Portland, Maine	Providence, R.I.
Raleigh, N.C.	Rockville, Md.
Santa Clara, Calif.	Santa Fe, N.Mex
Springfield, Mo.	St. Louis, Mo.
Stockton, Calif.	Syracuse, N.Y.
Tampa, Fla.	Temecula, Calif
Walnut Creek, Calif.	West Palm Beach, Fla.

sector in the near future include Scottsdale, Ariz., and Oakland, Calif.

Santa Rosa, Calif., has taken an approach rarely seen in other communities, as they have offered no incentives for the private sector to build green. In 2007, the city mandated that all new construction and major renovation projects be built to green standards, with the goal of seeing a marked reduction in city greenhouse gas emissions. San Francisco has instituted a green building policy with some of the toughest standards in the country, requiring commercial construction over 25,000 square foot to be built to LEED Gold certification.

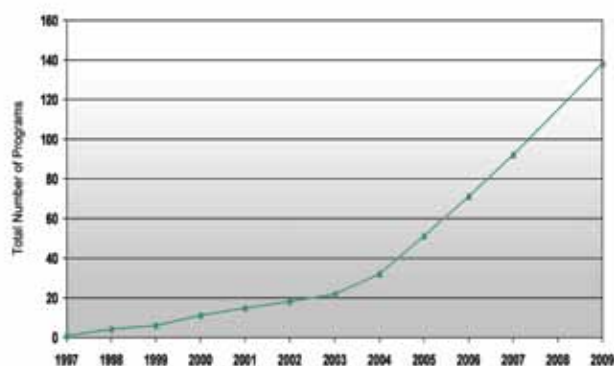
Cities new to green building are understandably further from creating mandatory programs focused on commercial and residential building. The majority of these programs are voluntary, beyond requirements for public buildings. These cities are working hard to implement their policies and many are achieving impressive early results.

Even the skeptics of green building are beginning to realize the transformational dynamics of green building, and point to the quickly moving state and federal policies being enacted. Important policies have been developed in states, such as California and Florida, which provide localities with frameworks for sustainability initiatives. The federal government has also been stepping up to the plate with funding mechanisms in the American Recovery and Reinvestment Act. This funding stream will encourage sustainable design and there are further legislative vehicles that should positively affect green building as well. Clearly, there is great momentum behind green building, and in these tough economic times, the fact that a growing number of communities are still focused on sustainable building policy speaks volumes.

## Survey Responses

In researching the current state of green building in the United States, no fewer than 138 cities were examined. Of the cities identified in the 2007 report, we were able to achieve a response rate of over 95 percent in our follow-up surveys, and we are confident that these cities have helped to inform the overall study and accu-

### Green Building Policies by Year



rately illustrate trends within sustainable communities. The geographical diversity of these cities reinforces the reliability of the data.

## Green Building Policy in an Economic Downturn

One of the first questions that we chose to query communities on is whether current economic conditions have affected the growth and breadth of green building policy. The outcome of this question directly affects the general public, as well as the design and construction industry in the choices that they make if programs have been curtailed, sidelined, or cancelled as a reaction to these tough economic times. In order to find out the current status of these programs, the AIA posed the following question:

*Have you altered your original green building policy guidelines in light of the economic downturn?*

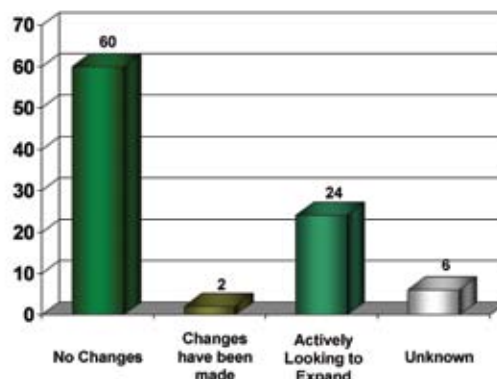
It quickly became apparent during the research phase of this publication that a vast majority of cities with established green building programs were not looking into downsizing their programs. In regard to continued municipal green building, many communities cited the long term cost savings associated with green building as a reason to move forward with green projects already in the pipeline.

Even more heartening are the numerous communities that have chosen to continue investing in green building, by advancing these policies. By offering increased incentive packages for commercial and residential builders, communities are showing real dedication to programs that are shaping the way cities will be built for years to come. There are also collaborative efforts of note, where communities are attempting to create similar standards for cities and counties in a local region. San Rafael, Calif., and Grand Rapids, Mich., are two good examples of cities reaching out to suburban communities to achieve regional sustainability goals.

## Modifications to Green Building Policy

While there have been very few cities that have curtailed their green building policies, it is important to

Changes to Green Building Policies Due to the Economic Downturn\*



\*Data reflects responses from initial 92 established programs

discover the reasons behind these changes. And, because there were only two cities identified in our survey results as curtailing their green building policy, asking the second question in our survey was rarely required:

*If yes, how have you specifically done this, particularly have you curtailed or revoked incentive packages that you provided in return for meeting green building criteria?*

In Santa Barbara, Calif., and Eugene, Ore., two established green building programs have been curtailed, as a measure of cost saving for the local government. Santa Barbara is considering loosening regulations on new home building, due to the cost increases associated with Built Green, and has decided to switch to the Energy Star program in an effort to save the city and builders money. Eugene decided to join its green building program with its solid waste program to save the city government money by splitting human and monetary resources on two connected but different initiatives.

## Economic Development Through Green Building

As green building policies become more ingrained in communities, a number of cities have begun to develop overall green economic development goals. These efforts, including green jobs programs, green business incentives, green retrofit initiatives, and additional

sustainability measures are meant to improve cities' competitive economic development advantages. In order to measure the level at which cities are integrating green building and broader sustainability policies into economic development goals, the AIA posed the following question:

*Is your green building policy tied into your broader economic development goals?*

The following cities exemplify the value of tying sustainability measures into economic development goals:

Phoenix Mayor Phil Gordon sees green building as a way to make his city more competitive in attracting business. Additionally, by pushing to increase financial incentives like permit rebates, the city hopes to stimulate the local construction industry.

La Mesa, Calif., Mayor Art Madrid and the city council have a proactive outlook on sustainability, and incorporate it into their economic plan/considerations. An Environmental Sustainability Committee reports to the city council as a full council advisory committee. Additionally, a LEED Silver mixed-use transit center is under construction that will feature affordable housing and retail locations to stimulate business growth.

San Jose, Calif., Mayor Chuck Reed has a Green Vision to 2022, with 10 ambitious goals:

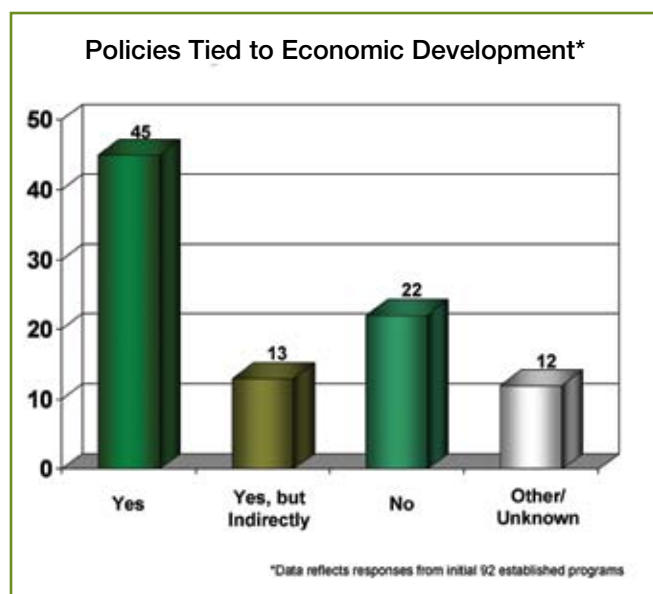
1. 25,000 new jobs in green sectors
2. Reduce energy use by 50 percent
3. 100 percent electrical power from clean renewable sources
4. 50 million square feet of LEED certified buildings
5. Divert 100 percent of city waste from landfills to waste conversion center for energy production
6. Recycle 100 percent of wastewater
7. Adopt a general plan with measurable standards for sustainable development
8. 100 percent of public fleet vehicles using alternative energy
9. Plant 100,000 new trees, 100 percent zero emission street lighting
10. Create 100 miles of interconnected bicycle and walking trails

Seattle Mayor Greg Nickels sees green jobs as being instrumental to the growth of the city during these tough economic times.

Los Angeles Mayor Antonio Villaraigosa wants L.A. to be the largest green city in the United States. He played a significant role in the school system's adoption of CHPS (Collaborative for High-Performance Schools), and planning office employees have been attending school district building meetings for years. More than 50 green building projects have reached or applied for LEED Certification. The city currently boasts 1.5 million square feet of green building space, totaling more than \$1 billion.

Many communities that tie green building and sustainability policies to economic development goals are instituting and exploring policies promoting green building job creation and establishing their communities as ideal locations for businesses to grow and flourish. Cities are often providing tax abatements and permit reimbursements to entice companies to go green. Examples of this can be seen in:

Redding, Calif., has the Earth Advantage program, a partnership with Portland Power. A 25 percent reduc-



tion from existing state of California requirements for home energy usage has already been implemented in 50 percent of homes in the city. The city has made steps toward its 4-pronged goal of recycling, harvesting, watching energy use, and expelling pollution.

Washington, D.C., decided in 2006 that since green building increased the monetary returns to building owners/leases and increased worker productivity as well, it would become an integral but small part of the overall economic plan for the city. In the fiercely competitive DC/MD/VA region, it also made the district more competitive when attracting businesses, especially trade associations and nonprofit organizations.

Dallas, Tex., has an established building task force that has tied green building to all economic development in the city. The goal is to increase economic vitality through offering a better quality of life to the community. Local procurement of green materials is emphasized since it provides a direct boost to the local building economy.

These examples highlight the growing trend of green economic development policy. The integration of sustainability into long-term economic development goals is only natural, and the future of sustainable, livable communities is enhanced by these moves by local governments.

## Current Development Trends

It is clear that the design and construction industry is experiencing significant pain in the midst of this deep economic recession. It is rare to find a community that has not been affected, as we have seen in the AIA's Work on the Boards Survey and other indicators, which have shown a dramatic slowing in new construction nationwide. Few communities that the AIA contacted, however, were seeing zero green building projects moving forward. While building projects in the commercial and residential sectors had slowed most significantly, there were still municipal construction projects moving forward, as well as planning and permitting for structures of all types. To learn what type of green building was underway, we asked our respondents:

*Is there still development going on in your community? If so, are there significant green projects currently happening?*

The reductions in green building growth are primarily occurring in the private sector, as municipal projects did not experience the same types of funding strains that the commercial and residential markets experienced. In some instances, local governments in cities, such as Denver, have found that construction dollars are going further because of the lower cost of labor and materials due to the economic downturn.

Santa Monica, Calif., has taken a close look at the development costs associated with green building and has kept these costs in mind while creating its program. Mandatory requirements are in place for participating structures, such as solar water heating and thermal insulation for water pipes, but there also is a list of approved building materials from which a builder must select five for use throughout the structure. By providing this flexibility, architects and builders can select the green materials that best fit their project, from an aesthetic and sustainability standpoint, as well as a cost viewpoint.

A number of communities highlighted their increasing interest in retrofitting existing buildings. From a sustainability perspective, the reuse of structures is preferential to demolition, as the waste products generated by destroying a usable building are immense, if not properly recycled. In addition, many dense, urban cities are already built out, meaning that a building often must come down for a new one to go up. By placing an emphasis on major renovations and retrofits, green building efforts are more easily carried out in these communities. These types of green initiatives are moving forward in most major municipal renovations conducted by cities with green building programs. These cities are including a variety of green aspects in projects, such as water cisterns, daylighting measures, solar panels, and green roofs.

## Energy Efficiency and Conservation Block Grant Funding

The American Recovery and Reinvestment Act of 2009 (ARRA) has prompted a gigantic increase in federal

green spending. These funds are providing new money to all levels of government, aimed at stimulating the economy, promoting job growth, and lowering energy costs. The Energy Efficiency and Conservation Block Grant (EECBG) program was funded for the first time through ARRA. EECBG funds total \$3.2 billion, composed of \$2.8 billion as authorized in the Energy Independence and Security Act of 2007 and \$400 million in competitive grants, not yet released. Of the \$2.8 billion, 28 percent of the funding has been allocated directly to states with 60 percent of that funding intended for dispersal to local governments. Sixty-eight percent of the total funding is apportioned directly to local governments, 2 percent to Indian tribes, and 2 percent in competitive grants.

The U.S. Conference of Mayors, National Association of Counties, and National League of Cities have been seeking funding for this block grant program for a number of years now. Local governments were familiar with the concept of the program before it was implemented even if they were unsure of how the money would be spent. The distribution of EECBG funds is determined by population size, with general guidelines stating that a city must have a population greater than 35,000, while a county must exceed 200,000. Calculations accounting for daytime populations and other variables have been incorporated into the formula, and other exceptions have been made to include cities and counties that are among the 10 most populated within their state.

It is important to note that while late applications for EECBG funds were accepted by the Department of Energy until August 10, 2009, all but one of the communities contacted during our research had begun the process of applying for the funds.

## Findings

The EECBG funds provide an unprecedented opportunity for advancing green building and sustainability efforts in our nation's communities. The findings of this study conclude that while there is a reasonable amount of uncertainty regarding where the funds will be specifically spent, the majority of established cities with green building programs are aiming to utilize these funds to advance green building in their communities.

## Green Building

With interest in green building growing across the country, it is no surprise that a significant portion of energy-efficiency stimulus funds will find their way into built infrastructure projects. Different communities are accomplishing this by paying particular attention to projects that could benefit from city grants during these tough economic times. Some are looking to streamline planning and permitting processes, to better serve the building community and get ground broken on more green projects, in an efficient and expedited manner. Others are using these funds to finance building energy audits and retrofits, improve programs for energy-efficient buildings, use renewable energy technologies on government buildings, and strengthen building codes.

San Diego Mayor Jerry Sanders announced on May 7, 2009 that \$5 million of the city's EECBG funds will be put toward the greening of Balboa Park, a complex that houses many museums and learning facilities. The intent of the project is to expand energy efficiency and implement a renewable solar energy project through the city's partnership with major California solar energy provider Sun Edison.

Atlanta is aiming to use EECBG funds to complete energy-efficiency retrofits to existing structures, and training around LEED standards. Municipal buildings must meet LEED Silver standards.

Honolulu is putting funds toward "brick and mortar" projects. They are in the process of updating almost all city building codes, and will be allowing greywater use for the first time.

Minneapolis has outlined recommended uses, awaiting approval that includes the following:

- Revolving loan fund (RLF) for non-residential, \$780,000 (20 percent)
- Nonprofit partnerships for residents action \$780,000 (20 percent)
- Energy efficiency and conservation at local government facilities, \$1.95 million (50 percent)
- Program administration \$390,000 (up to 10 percent)

While many of the municipalities in this study described the greening of existing buildings as a goal of their EECBG expenditures, new projects also appear to be benefiting. In Glendale, Calif., 25 percent of funds will go toward green building projects, with an emphasis on a citywide SmartGrid as an overall goal. A further example of this can be seen in the various types of funding made available because of this grant.

## Revolving Loan Funds

Some cities are considering large RLFs, citing an interest in making the recovery funds work for a longer period of time. Las Vegas; Arlington, Va.; Minneapolis; St. Paul; and Cuyahoga Falls, Ohio, have all been exploring RLFs of different sizes, generally commensurate with the size of their communities.

These loans are available to businesses and homeowners who may not be able to get a traditional bank loan, due to a low-credit rating or an unestablished line of credit. As the local government administers these funds, in this case, flexible low interest rates will ensure businesses and homeowners do not become overwhelmed with their loan payments, thereby increasing business profitability and the overall economic well-being of the city. The payments will then come back to the city government, and the money is available for lending again, having increased in size due to interest.

The benefit to the building community that comes from the availability of these low interest loans is significant. With loans becoming more difficult to obtain during the economic downturn, the influx of cash for new building (as well as refurbishment projects) will put a greater number of small practitioner architectural and contracting firms to work.

## Training

Green building is becoming more commonplace across the country, and there is a growing need for the education and training of city employees, as well as the general public. With new building codes and permitting procedures, municipal employees need to pursue continuous learning opportunities to coincide with the ordinances passed by the city council. Fort Collins,

Colo., is an example of a city pushing to use a portion of its funds to run sustainability-training sessions for city employees and constituents.

## Spending Transparency

The city of New York has received \$80,802,900 in EECBG funds through the U.S. Department of Energy's direct grant formula. While spending this amount on energy-efficiency projects in a city the size of New York should not be a problem, it is important that these funds make their way to the desired projects efficiently and transparently. New York City's Stimulus Tracker is a tool for constituents to see exactly how stimulus funds are being spent, as projects move forward.

Other cities have established Web sites dedicated to tracking their stimulus expenditures. Grand Rapids, Mich.; San Diego; and Pittsburgh are just a few of the cities involved in this green building study that have launched online efforts to exhibit spending transparency with their economic recovery dollars.

## Additional Resources

EECBG Fund Allocations by State and Local Jurisdiction

<http://www.eecbg.energy.gov/grantalloc.html>

EECBG Fact Sheet

[http://www.eecbg.energy.gov/downloads/WIP\\_EECBG\\_Fact\\_Sheet\\_FINAL\\_Print.pdf](http://www.eecbg.energy.gov/downloads/WIP_EECBG_Fact_Sheet_FINAL_Print.pdf)

NYC Stat, Stimulus Tracker

<http://www.nyc.gov/html/ops/nycstim/html/home/home.shtml>

AIA EECBG Issue Brief

<http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aiab046310.pdf>

## Green Schools

Cities across America are increasing their focus on green schools. This is a positive change as studies show the value of greening classrooms for America's students. While it is true that most of the city planning,



*Francis Parker School, San Antonio, Tex.; architect: Lake|Flato Architects; photo by Hester + Hardaway Photography*

building, sustainability, and zoning offices we communicated with in this study do not have jurisdiction over public schools, it is important to find out as much information on this topic as possible, considering the circumstances. In addition, a common theme of success in city government green building programs is increased coordination among city government agencies, so we posited many of these officials would actually have a general understanding or perhaps even a working knowledge of the community's green schools policies.

The planning, zoning, sustainability, and building departments that the AIA has contacted have had general knowledge of what, if any, green standards their local school system is using. In some cases, LEED certification levels are pursued for new construction and major renovation projects. More often, single green elements such as green roofs, water collection units, and supplemental solar power arrays are being added to existing structures. These green elements may fall short of classifying the school as 'green' by any of the prevalent rating systems, but are a very positive step for what are often cash-strapped public school systems.

California uses the Collaborative for High Performance Schools, or CHPS, standard. California is dealing with the stringent demands of student population growth. This translates into increased state funding for school districts in need of new school structures and major renovations to existing facilities. In California alone, there are currently fifteen school districts in the CHPS program. More than 100 projects are underway, or have already completed construction. CHPS has now expanded into New York, Washington, Maryland, Rhode Island, New Hampshire, Maine, and Connecticut.

At the local level, the best green school programs incorporate the high-performance construction aspects of their projects into the lesson plans of students, at a variety of educational levels. In Washington, D.C., coordination is taking place between the Planning Department, the OPSM (Office of Public School Modernization), and D.C. Public Schools. LEED certification is being pursued for all new structures and major remodeling, and green guidelines are in place for all future upgrades. Curriculum programs are in place to educate students about green living and sustainable

structures. These include an 'Energy Patrol' that monitors energy use throughout the children's own schools and school gardens to increase hands-on learning about plant life and natural sciences.

San José, Calif., has taken a very simple and comprehensive approach to greening public schools, through the Go Green Initiative, by instilling a culture of conservation in the student body. From recycling, to lunch food compost piles, school gardens, and green buildings, students are aware of the green efforts around them from an early age. The immediate benefits of lower electric and water utility costs, enhanced health and productivity, and lower carbon emissions are helpful steps toward achieving a 'Zero Waste' city by 2022. The children in San José schools today will play an instrumental role in the success of this strategic plan, reinforcing the importance of green education within this public school system.

In working with city officials and mayor's offices, school districts have taken remarkable steps toward greener building. Furthering this cooperation, in conjunction with increased green education efforts for school children, will assist in constructing excellent green schools that improve student education, health, and interest in sustainability. As these policies continue to be implemented and improved throughout the country, the integration of sustainable practices into lesson plans will make the next generation more aware and willing to work together to reduce carbon emissions toward zero.

## Additional Resources

Collaborative for High Performance Schools  
<http://www.chps.net>

San José Go Green Schools Program  
<http://www.sjrecycles.org/gogreen/default.asp>

Washington, D.C. "Green DC Agenda"  
<http://green.dc.gov/green/cwp/view,a,1248,q,462444.asp>

AIA Green Schools Issue Brief  
<http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aiab080518.pdf>

## 10 Largest Metropolitan Regions

New York–Northern New Jersey–Long Island  
 Los Angeles–Long Beach–Santa Ana–Riverside  
 Chicago–Naperville–Joliet  
 Dallas–Fort Worth–Arlington  
 Philadelphia–Camden–Wilmington  
 Houston–Sugar Land–Baytown  
 Miami–Fort Lauderdale–Pompano Beach  
 Atlanta–Sandy Springs–Marietta  
 Washington–Arlington–Alexandria  
 Boston–Cambridge–Quincy

## Next Step: Green Metropolitan Areas

As we have noted, an amazing 53,427,648 Americans now live in cities with green building programs. Many of these cities often serve as economic and social centers for expansive suburbs. The benefits of cleaner, greener economic and social centers travel beyond city limits, affecting people who commute to the city on a daily basis or who otherwise depend on the economic energy of the city.

To get an idea of how many people green building affects in this manner, we only have to look at the ten largest metropolitan areas in the United States. Each of these metropolitan centers is built around cities that have established green building programs, along with a variety of other sustainability-focused initiatives aimed at increasing the health and well-being of citizens, commuters, and visitors.

The scope of these ten metropolitan areas is vast. As Americans move in greater numbers to urban areas, the population of 84,103,766 people who live within these ten metropolitan regions should grow significantly in the next decade. Expanding further, the top 24 out of 25 regions also have cities with green building policies at their center.

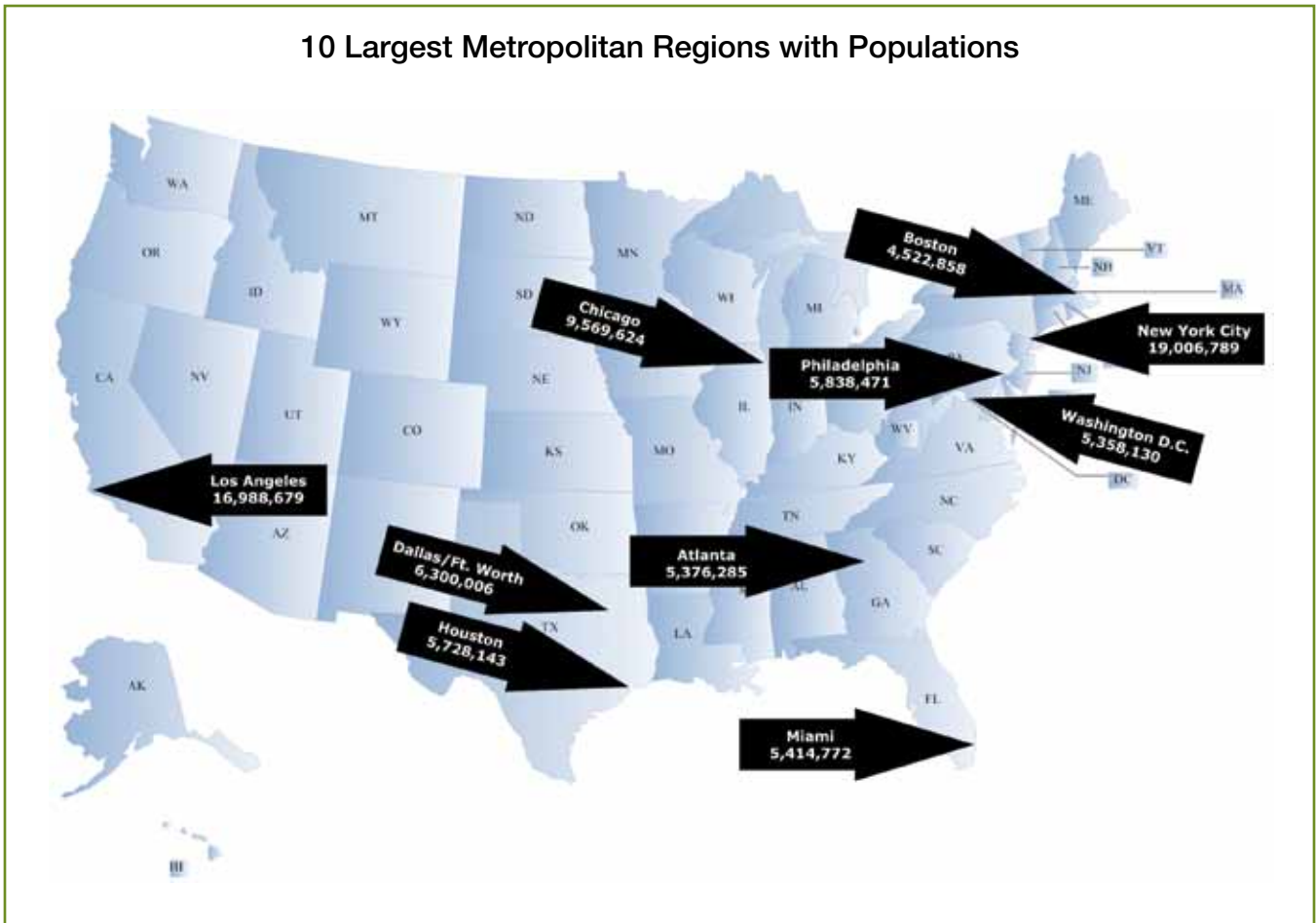
The smaller cities and counties that comprise these metropolitan areas are increasingly creating green building ordinances of their own, as can be seen in the regional geographical maps in our findings section.

However, the importance of supporting regional green building ‘coordination’ has been understated. The difficulty of addressing the varied concerns of a region is understandably more of an undertaking.

The need for metropolitan area energy-use reform has been highlighted by the Brookings Institute’s Metropolitan Policy Program. It has recognized that the need for nationwide action in curbing carbon emissions leaves a significant amount of work to be done in areas with suburban sprawl. Brookings research suggests that much of the work for metropolitan governments to achieve this is centered in the building and transportation sectors.

The nation’s metropolitan areas account for the majority of our economic assets, as well as our transportation assets. While the largest 100 metro areas only cover 12 percent of our land area, 65 percent of the United States population resides here. Seventy-five percent of residential real estate value is also within these metro areas. At the same time, 78 percent of interstate miles are traveled in these regions, and considering the increased use of public transportation and walking, 60 percent of all vehicle miles are traveled in metro areas. As these numbers swell, and urban congestion and sprawl worsen, the need for broad sustainability initiatives will become more immediate. Fortunately, it appears that of the largest 100 metropolitan areas

**10 Largest Metropolitan Regions with Populations**



highlighted by the Brookings study, 47 incorporate cities the AIA has identified as having a green building ordinance.<sup>5</sup>

In Santa Rosa, Calif., discussions are underway to establish a regional standard for green building. Grand Rapids, Mich., one of the case studies in the report, is quickly becoming the standard bearer for all of western Michigan, with its focus on green regional cooperation. The desire exhibited by many local government officials is to have a single code. This common green building regulation will alleviate confusion for design-

ers and builders who have to adhere to different codes in different jurisdictions. Building codes, such as the forthcoming International Green Construction Code, should help to improve regional coordination and increase the number of green buildings designed and constructed across the country.

It is clear that the greening of our cities and metropolitan areas is underway, and has made a formidable advancement over the past two years. However, there remains much work to be done in bringing differing policies within close proximities under the auspices of a unified metro-wide plan.

<sup>5</sup>*Blueprint for American Prosperity, Unleashing the Potential of a Metropolitan Nation.* Metropolitan Policy Program at BROOKINGS. © 2008.



*The Terry Thomas, AIA COTE 2009 Top Ten Green Projects award recipient, Seattle; architect: Weber Thompson; photo by Gabe Hanson*

# Case Studies

Green building programs are becoming standard practice in communities across America and important trends are materializing. These trends and many others are explored in the case study component of this publication. The case studies are meant to provide those in the public sector with actionable data, because one of the ultimate purposes in collecting this information is to create quantifiable best practices that communities can use as they begin or strengthen their own green building programs.

The programs that were chosen for the case studies in this report provide an excellent cross-section of American green building policy. A particular focus has been placed on newer or strengthened green building programs with green economic development efforts. The current state of green building laws is not consistent, but instead is a good representation of the American federal system of government. Local communities have the authority to choose their own laws and, while they have taken many ideas from others, on the whole they have been quite inventive at creating unique aspects in many of their green building programs.

## 2 0 0 9 Case Studies

Los Angeles

Boston

Grand Rapids

Philadelphia

Nashville

In the first report, a *Study of Green Building Programs in Our Nation's Communities*, the AIA highlighted green building programs in Austin, Tex.; Scottsdale, Ariz.; San Francisco; Portland, Ore.; Atlanta; and Chicago. Many of these cities are often thought of as the pioneers in municipal green building.

In *Green Building Policy in a Changing Economic Environment*, the following communities have been chosen, because they have either strengthened existing green building policies or developed innovative policies that were in their infancy when first contacted in 2007. These five cities exemplify best practices in municipal green building.

Also, these communities are tying sustainability into broader economic goals, thereby creating practices that

will work toward creating a more environmentally sound and economically advantageous future. While this list of case studies could easily be expanded, we feel that the diversity in policy exhibited by these communities provides a good overview of the best practices of green building on the local level.

**Los Angeles**, as the second-largest city in our country, makes a big difference through the choices it makes, and it has chosen to be a leader on sustainability. With the medley of issues that confront big cities on a daily basis, it is heartening to see that the city's efforts to build a healthier, more energy-efficient future are a core focus of L.A.'s leadership. Los Angeles has long been a trailblazer on environmental issues, and was identified as one of the original 17 cities to have a green building program in place pre-2003. The city reinforced its reputation as an environmentally progressive city on Earth Day 2008, by passing a mandatory green building policy, matched by few other large cities, which strengthened its long-term sustainability goals.



*Rampart Community Police Station, Los Angeles; architect: Nick Seierup/Perkins + Will; photo by Michael Urbanek/ArchitecturalShots.com*

## GREEN LA

Mayor Antonio Villaraigosa has been an effective advocate for sustainability measures during his tenure as mayor. He launched GREEN LA in May 2007 in partnership with the Los Angeles City Council and community environmental leaders to reduce greenhouse gas emission levels to 35 percent below 1990 levels by 2030 and increase the city's use of renewable energy to 35 percent by 2020. The overall goal of GREEN LA is to make Los Angeles the biggest, greenest U.S. city. Through these core measures and more than 50 other initiatives included in this program, the city is on its way toward achieving these goals.

Los Angeles city government owns the largest municipal utility in the country, which provides it with a unique opportunity to more directly affect the makeup of electricity production, a major source of greenhouse gases. However, investing in municipal energy efficiency and renewable power production is only one part of the solution. Key focus areas of the plan include the promotion of green energy in the private sector, water conservation, increased open space and park land, and an innovative, far-reaching green building program that began in 2002 and was strengthened in 2008.

### Green Building Requirements

The original focus of Los Angeles' green building program was municipal construction. This focus changed on Earth Day of 2008 as the program was expanded when Mayor Villaraigosa signed the Los Angeles Green Building Ordinance. The new ordinance applies green building requirements to the commercial and multifamily sectors, mandating that new commercial buildings more than 50,000 square feet and multifamily development with 50 residential units or more meet a minimum of LEED Certification.

The ordinance covers a number of important areas that have been instrumental in developing successful green building programs in cities across the country. Projects receive expedited permitting, through all departments, if they meet at least LEED Silver designation. City codes are being reviewed continually to make sure that environmentally sound and technologically superior

processes and materials are integrated into the code. A cross-departmental sustainability team has been created to review and update green building policy, and also provide the development community with ongoing communication channels to city staff.

A key finding in the first *Local Leaders in Sustainability* report showed that the formation of cross-departmental "green teams" helps to break down institutional barriers, or the "siloeing" effect that often occurs in municipal governments. By taking these steps, communities are able to successfully implement long-lasting green building programs. In Los Angeles, municipal employees and department heads also are trained in green building methods and policies, with ongoing annual budget outlays for these training programs. Additional financial incentives and awards are offered as well to encourage green building within the city.

### Sustainable Design Implementation Program

GREEN LA built on the work of city leaders stretching back to 1995, when the Los Angeles City Council funded the Sustainable Design Task Force. This group is headed by the City Architect and made up of a voluntary group of city employees and local design, engineering, waste management, and construction experts, laid the foundation for the city's green building program. The task force set out to identify and counter barriers to sustainable growth. At the time, barriers were found in four key areas: lack of information, institutional resistance, regulatory obstacles, and financial impediments.

The Sustainable Design Implementation Program first convened, again under the direction of the City Architect in July 2000. Within three years, the program already had dispersed upward of \$4 million in grant money, furthering green building training seminars and incorporating green techniques in an increasing number of city projects. This came to a head in June 2003 with the publication of the *Sustainable Building Initiative*, a 5-year plan requiring municipal structures to build to the certified level of LEED in new construction projects and major renovations. This \$1 billion expenditure aimed to secure a foothold for green building in

the community by mandating city projects over 7,500 square feet build to the LEED Certified standard. As the green building program had been passed in 2002, the implementation of the *Sustainable Building Initiative* helped fulfill the mission of community leaders, architects, and civically engaged community members involved in the process.

## Green Economic Development

Green building and sustainability initiatives create incredible economic development opportunities, and Los Angeles has been quick to capitalize on its leadership in this area. Through EnvironmentLA, the city's Environmental Affairs department, a number of economic development efforts have been established, including the proposed Certified Green Business program,



*Rampart Community Police Station, Los Angeles; architect: Nick Seierup/Perkins + Will; photo by Michael Urbanek/ArchitecturalShots.com*

Department of Water and Power economic development, the Go Green program, and the Mayor's Business Team.

The Certified Green Business program has been proposed by Los Angeles Councilmember Richard Alarcón, and is modeled on the successful Bay Area Green Business program. The purpose of this program will be to promote and recognize businesses, as well as government agencies that operate in a more sustainable fashion by becoming a certified green business. To become certified, a participant will have to comply with regulations and standards on conservation, pollution prevention, and waste mitigation. Through this program citizens will have the opportunity to evaluate businesses based on whether they are green, thereby encouraging further businesses to participate in order to maintain competitiveness. The planned rollout of the program initially concentrates on the hospitality industry through the certified green hotel program and then will move to the restaurant and auto repair industries before it is broadly adopted by additional industrial and commercial sectors.

The Go Green program is an incentive-based program to help businesses become greener. The program provides a free energy-efficient lighting assessment, rebates for refrigeration equipment, free shade trees, incentive payments for solar power, cash rebates for purchasing a wide range of water-efficient appliances, as well as many other effective incentives to encourage sustainability and green building in the city. The Certified Green Business and Go Green programs are examples of the efforts being expended by Los Angeles government to push the city in a sustainable, economically competitive direction.

A recently passed law, the "Green Building Retrofit Ordinance," will help green existing city buildings while increasing the number of green jobs in Los Angeles. This ordinance requires that all city-owned structures larger than 7,500 square feet or built before 1978 will be retrofitted with a target of reaching LEED Silver. This ordinance is specifically targeted first at retrofitting buildings in low-income communities and buildings that directly benefit communities, such as recreation centers and libraries. The ordinance also seeks to create



*Rampart Community Police Station, Los Angeles; architect: Nick Seierup/Perkins + Will; photo by Michael Urbanek/ArchitecturalShots.com*

a pathway for economically disadvantaged workers to become green collar workers, foster inner city economic development, and use local green manufacturers.

There are additional initiatives, in conjunction with the city, that are positioning Los Angeles for green economic growth. CleanTech Los Angeles is a collaboration between the Community Redevelopment Agency, Caltech, the Department of Water and Power, NASA's Jet Propulsion Laboratory, the Mayor's Office, Port UCLA, and USC, meant to place L.A. at the forefront of research, commercialization, and deployment of clean technologies. This program has created a series of three primary goals: create jobs, stimulate demand, and facilitate environmental solutions. These efforts combined with L.A.'s natural position as a leader in California will continue to position it strongly for green economic development in years to come.

### Small-Scale Green Building

Stuart Magruder, AIA, LEED AP, Studio Nova A Architects, Inc., and AIA|LA Treasurer commented on

some of the difficulties and solutions that small-scale practitioners find when designing sustainable projects.

*As the work of my studio has been focused on small-scale residential and commercial projects, I am starting to see what I call the Home Depot effect. For projects that have low square footage budgets, if a material is not available at Home Depot, it is very difficult to use the material. Three factors seem to drive this effect. The first is low expectations coupled with little to no understanding of the value of sustainable materials for most clients in this end of the market. Second is the limited local availability and long lead time to receive an item – if it is not stocked by Home Depot. And third is a resistance to new materials from most contractors.*

*The one advantage I do see to the Home Depot effect is that it encourages simple solutions. High-tech sustainable strategies are appropriate for projects that will be well-maintained once the owner takes the building over. Large institutional projects and office buildings with dedicated maintenance*

*staff can handle the demands of a mechanically operated louver system or a complex boiler and chiller plant. But as the project gets smaller, the simpler the solution, the longer that solution will actually work.*

## Green Schools

Green schools promote energy savings, effect positive environmental change, improve health and educational achievement, and provide hands-on learning experiences to students and faculty. The Los Angeles Unified School District (LAUSD) was the first school system in California to adopt the California High Performance School Standards (CHPS) and also has created a goal of 10 percent reduction in energy and water consumption by 2012. Currently the city is in the process of designing and constructing 132 new schools by 2013, with 76 completed to date meeting CHPS criteria. This program not only benefits the school system through water and energy cost savings, but also creates a more knowledgeable student body as pupils have lessons on sustainability integrated into their curriculum.

## California Statewide Initiatives

California has proven itself as the leader on environmental sustainability in the United States. In the green building sector, California is looking to the future with a set of realistic goals, and a strategy to achieve their desired results. Governor Schwarzenegger signed Executive Order S-20-04 (Title 24) in December 2004, which established the goal of reducing energy use in California's multitude of state-owned buildings by 20 percent before the year 2015 and encourages the private commercial sector to set the same goal.

These efforts were reinforced and expanded in 2008, increasing the energy-efficiency requirements in new construction 15 percent to 20 percent over current Title 24 requirements, thereby instituting requirements more than 20 percent over national Department of Energy standards.

This goal combined with other important statewide green building efforts has created an environment in Los Angeles for green building and other sustainability initiatives to thrive for years to come. With concerted

action from those in the design community, residents, and consummate political leadership on these issues, Los Angeles has positioned itself as a forward-thinking big city leader on green building, and we should expect to see continued environmental innovation .

## AIA/COTE Involvement

When asked about AIA COTE's involvement, Los Angeles COTE Co-chair Christine SE Magar, RA, AIA, LEED AP, noted:

*For years, the Los Angeles COTE chapter held monthly education programs on green building. With the success of the USGBC and the USGBC-LA chapter's education program, COTE-LA decided to make its impact in a different way: In 2006, we focused on greening the AIA National Convention held in L.A. that year with several initiatives. We offered attendees the opportunity to offset their carbon emissions from the conference by handing out Carbon Offset Cards and we published the L.A. Metro Green Map. It illustrates the downtown area pointing to various green highlights in the city and at the major metro stations. It is meant to show both L.A. residents and visitors the green opportunities already available in the city. In 2010, COTE will be partnering with the local utilities and visitor organizations to update, print and distribute the map.*

*In 2007, we decided to have an impact on the municipal level and conducted monthly meetings at L.A. City Hall on the subject of a green building program. Representatives from city departments, the city utility, the mayor's office and council-person offices participated. Subjects discussed included watershed, rainwater management, greywater cycling, building code obstacles to green building, energy and water conservation incentives, etc. These became the seeds to the L.A. Green Building Program and Ordinance, which later began a more formal process of development, being adopted on Earth Day, April 22, 2008.*

*In 2008, we focused on helping a Business Improvement District (BID) meet its "Cool District" goals to reduce their carbon emissions 80 percent by*

2050, 2 percent every year for 40 years. We held and documented two eco-charrettes. The first one was conducted with local green experts and the community to do out-of-the-box envisioning. The second one was conducted with city departments and the utilities focusing on case study segments of the vision. This year we have continued our support of the BID by conducting monthly panel discussions focusing on various topics that address carbon reduction relevant to the L.A. community in general and the BID in particular.

### Additional Resources

GreenLA

[http://www.lacity.org/mayor/villaraigosaplan/EnergyandEnvironment/LACITY\\_004467.htm](http://www.lacity.org/mayor/villaraigosaplan/EnergyandEnvironment/LACITY_004467.htm)

L.A. Green Business Programs and Services

<http://www.lacity.org/ead/environmentla/programs/businessprograms.htm>

L.A. Green Business Certification Program

<http://environmentla.org/cgbp/learn.html>

CleanTech Los Angeles

[http://cleantechlosangeles.org/about\\_us/](http://cleantechlosangeles.org/about_us/)

California Executive Order S-20-04

<http://www.energy.ca.gov/greenbuilding/>

California Green Building

<http://www.ciwmb.ca.gov/greenbuilding/>

L.A. Green Building Ordinance

[http://mayor.lacity.org/stellent/groups/elected\\_officials/@myr\\_ch\\_contributor/documents/contributor\\_web\\_content/lacity\\_004865.pdf](http://mayor.lacity.org/stellent/groups/elected_officials/@myr_ch_contributor/documents/contributor_web_content/lacity_004865.pdf)

L.A. Green Tech Corridor

<http://blogdowntown.com/2009/04/4226-mayor-touts-green-corridor-but-can-downtown>

L.A. Metro Green Map

<http://www.greenmap.org/greenhouse/en/user/328>

AIA LA COTE

<http://www.aialosangeles.org/committees/cote.html>

**Boston** is a big city leader on green building, and the first major U.S. city to implement its green building program by amending the zoning code. The urban fabric of the city has evolved through successive generations of development over almost 400 years of the city's existence, leading to a historically pleasing dense, walkable, vibrant environment. The city's green building leadership developed after quickly implementing many of the Mayor's Green Building Task Force recommendations on a comprehensive green building plan. The outcome has been impressive, with green building now ingrained into the development DNA of the city of Boston.



*Macallen Building Condominiums, Boston; architect: Burt Hill, Office dA; photo by John Horner Photography 2008*

“High-performance green building is good for your wallet. It is good for the environment and it is good for people.”

—Boston Mayor Thomas J. Menino

## Mayor's Green Building Task Force

In 2003, Mayor Thomas M. Menino and the Boston Redevelopment Authority formed a Green Building Task Force to study how green building practices could be encouraged in Boston. After a 12-month study, the Task Force recommended a set of initiatives, implemented in January 2007 as an amendment to the Boston Zoning Code Article 80 (Development Review and Approval).

The task force was composed of public and private experts in the field, including Mike Davis, AIA, LEED AP, vice president, Bergmeyer Associates, and chair, Boston Society of Architects Legislative Affairs Committee, in order to recommend a comprehensive green

building plan for the city. The change to the zoning code was one of the major recommendations offered by the task force.

*Zoning is an instrument of public policy. When the relationship between building energy use and climate change is made clear, a municipality will want to do something to drive greater efficiency. The tool for a municipality is its zoning ordinance, Davis said. When a governing body says that we need to do something about climate change, then you need to look for people with specialized expertise, and in this case it was people who knew about green building and policy.*

In the end, the change to the zoning code was one of the major recommendations offered by the task force. Another significant recommendation from the Mayor's task force was for the city to become more involved in state policy, which it has done in a number of areas in recent years.

## Green Building Zoning Code

“Article 37” requires all major new and rehabilitation construction projects exceeding 50,000 square feet to earn 26 LEED-New Construction (NC) points. In addition, a further four points reflecting city priorities, including transportation, energy, historic preservation, and groundwater recharge were added to the checklist. The city does not require third-party certification; rather Boston officials review and confirm developers' certifications.

The zoning code was viewed as an effective tool for public policy in Boston. This green building provision also bolsters other sustainability efforts in the city, including minimum LEED Silver certification of government buildings and city-supported projects. Furthermore, the city sees the business case for green



*Macallen Building Condominiums, Boston; architect: Burt Hill, Office dA; photo by John Horner Photography 2008*

buildings to be compelling and views the ancillary green collar jobs created as a further strong incentive for the program.

“We are very excited to be at the forefront of green building practice. The business case for Boston, which has guided this initiative, is very compelling for the city, and especially for the architectural community,” says John Dalzell, senior architect, Boston Redevelopment Authority.

This measure provides a concrete example of how a large American city can move its zoning code into the 21st century. The inclusion of green building standards directly into the code dramatically increases the number of green buildings constructed, with Dalzell reporting that since the program has been instituted in 2007, there are now 33 LEED Certified projects, or 7 million square feet of space. These buildings include 1 LEED Platinum, 8 Gold, 13 Silver, and 11 certified projects. There also are about 140 projects registered that are not yet certified.

### Green Affordable Housing

As part of the city’s green building amendment to the zoning code, Boston is working to develop green affordable housing. There are three primary focal points to Boston’s green affordable housing program. Green homes should use green building materials and technologies to reduce maintenance and energy costs for homeowners and renters. Green affordable housing should advance resident health and well-being. Finally, these homes will minimize environmental impacts through water conservation and greenhouse gas emission reduction.

The program requires that all affordable housing projects meet the LEED Silver Standard, with projects either meeting the LEED for Homes or LEED NC standard depending on the size of the building. Projects that are three stories or below must also meet the Energy Star for Qualified Homes standard, or its equivalent, while those buildings four stories or larger must exceed the ASHRAE 90.1 (2004) standard by a minimum of 20 percent.



*Macallen Building Condominiums, Boston; architect: Burt Hill, Office dA; photo by John Horner Photography 2008*

### Economic Sustainability

The Boston Redevelopment Authority guides economic development in the city to create a strong economy. Officials have been able to attract clean tech investment dollars into Boston by having the same government agency focused on economic development and green building. In fact, *Boston Business Journal* reported that the Boston area received a total of \$387.17 million in clean tech investment in 2008, a 6 percent gain over 2007 in this sector. With a total of \$4.69 billion invested in this sector nationally, Boston attracted nearly a tenth of all such investment in the country, clearly positioning it as a sustainability leader.

Boston’s Green Tech Initiative is a reflection of the strong commitment exerted by the city’s leadership on matters of sustainability. This initiative, started in 2008, attracts green businesses to the city through assistance measures, and works with existing small to mid-size businesses to green their operations. As the



*Macallen Building Condominiums, Boston; architect: Burt Hill, Office dA; photo by John Horner Photography 2008*

program continues to develop, the ultimate plan is to offer a one-stop shop on sustainability for businesses.

The Sustainable Business Leader program is another initiative within the Redevelopment Authority that assists local businesses in their pursuit of sustainability measures through technical assistance and resources. This effort, launched in 2008, is currently helping 27 small- to mid-sized companies reduce energy use, water use, and waste. The Sustainable Business Leader program also has developed an innovative best practices resource that focuses on measures that businesses can undertake in areas ranging from energy to pollution prevention.

### **Additional Sustainability Initiatives**

Boston has developed additional important sustainability initiatives that have helped improve the city. One such example is the innovative Kill-A-Watt program, where the city provides residents with an energy reduc-

tion device that measures the amount of energy different household appliances consume. The Kill-A-Watt program is offered as a free rental from the city's libraries. Boston residents can connect household appliances to the Kill-A-Watt and then track those appliances' electricity usage and make changes accordingly. As the U.S. Department of Energy has estimated that approximately 10 percent of electricity used in the home is from idle devices utilizing electricity, known as 'phantom' electricity usage, this program creates the opportunity to reduce energy usage and save residents money.

The city also has encouraged increased solar electricity production through the Solar Boston program. The primary goal of this policy is to increase solar energy use in Boston to 25 megawatts (MW) by 2015. Boston was one of the original 13 cities to sign on under the Solar America Initiative run by the U.S. Department of Energy. The program encourages solar adoption widely throughout the city, such as by mapping locations for solar installations and preparing and planning,

by working with local organizations to maximize the city's usage of state incentives, and by creating a non-profit to implement long-term goals. Solar Boston also has worked with the Boston Redevelopment Authority to create an interactive map, which shows active solar installations in the city and calculates building rooftop solar potential. The city has done an excellent job of incorporating a number of initiatives into its overall plan for a greener future, ensuring future gains for sustainability in Boston and the state of Massachusetts.

## Statewide Initiatives

Massachusetts is a sustainability leader in the Northeast on many issues ranging from green building to renewable energy standards. In March 2009, Governor Patrick's Zero Net Energy Buildings (ZNEB) Task Force released a set of recommendations, which will help Massachusetts commercial and residential sectors move toward zero net energy construction by 2030.

A LEED Plus green building standard has been adopted in the state, which means that in addition to meeting the criteria in the LEED rating system, all buildings must perform 20 percent better than the Massachusetts Energy Code, reduce outdoor water consumption by 50 percent and indoor water consumption by 20 percent, while promoting smart growth principles. Massachusetts also has adopted a significant renewable energy goal, calling for 250 MW of solar capacity by 2017 and 2,000 MW of wind power capacity by 2020.

Mike Davis also commented on the importance of cooperation between localities and states when developing "sustainable" green policies.

*The City of Boston and Massachusetts have increased collaboration on a number of sustainability issues as a result of the 2004 Mayor's Task Force recommendations. Specifically on distributed generation, whereby the city has joined the Distributed Generation Collaborative, an industry group looking at energy use and regulatory reform, and out of that group's work came some very important sections of Massachusetts' 2008 Green Communities Act that significantly loosened the regulation of distributed generation.*

*Second, the Governor's Zero Net Energy Building Task Force completed its work earlier this year, and we have already seen the first recommendation implemented: The governing body of our State's building codes, the Board of Building Regulations and Standards (BBRS), has voted to approve a 'stretch code' amendment that would allow municipalities to adopt building energy use requirements that are more stringent than the underlying building code. The Board of Scientific Affairs (BSA) Legislative Affairs Committee and COTE were very active in advocating for the stretch code.*

*The significant take-away from all of this is: Zoning change is good, but building code change is better. And unilateral municipal action is good, but the influence that our cities have in state government should not be underestimated!*

## Additional Resources

Boston Redevelopment Authority  
<http://www.bostonredevelopmentauthority.org>

Zoning Code  
<http://www.bostonredevelopmentauthority.org/pdf/ZoningCode/Article37.pdf>

Boston Green Affordable Housing  
[www.cityofboston.gov/dnd/D\\_green\\_housing.asp](http://www.cityofboston.gov/dnd/D_green_housing.asp)

GreenTech Boston  
<http://140.241.251.212/econdev/greeningboston.asp>

Sustainable Business Leader  
<http://www.sustainablebusinessleader.org/>

Zero Net Energy Buildings (ZNEB) Task Force Report:  
[http://www.mass.gov/Eoeea/docs/eea/press/publications/zneb\\_taskforce\\_report.pdf](http://www.mass.gov/Eoeea/docs/eea/press/publications/zneb_taskforce_report.pdf)

Kill-A-Watt Program  
<http://www.cityofboston.gov/environmentalandenergy/kill-a-watt.asp>

Solar Boston Map  
<http://gis.cityofboston.gov/solarboston/>

**Grand Rapids, Mich.**, is a leader on sustainability and green building in Michigan. The city is pursuing an aggressive initiative focused on becoming one of the greenest cities in the country. The entrepreneurial culture of the city's business community and forward-looking local architects have led to impressive and sustainable results for the community. Long-term planning and thinking, exemplified by revisions made to the city's master plan have reinforced and laid the groundwork for what has become a model greening initiative in western Michigan and the United States.



*Grand Rapids Art Museum, Grand Rapids, Mich.; architect: wHY Architecture; photo by Steve Hall@Hedrich Blessing*

“We are so proud of our deep history with green building.”

—Grand Rapids Mayor George Heartwell

## Mayor's Initiatives

With the election of current Mayor George Heartwell in 2004, Grand Rapids found itself an executive firmly focused on sustainability and greening the city. The mayor's initiatives center on green building and green power, while educating the community on what city sustainability truly means for the environment, economy, and social benefit of Grand Rapids.

Sustainable built infrastructure has been focused on for several years, culminating in the current mandate that all new municipal construction and major renovation (over 10,000 square feet and \$1,000,000) meet LEED Certified standards. In leading by example and offering incentives and education to private commercial projects, Grand Rapids has seen an explosion in green building. Mayor Heartwell added, “Grand Rapids today has more LEED Certified buildings per capita than any other city in the country.”

## Grand Rapids Architectural and Business Community

Bob Daverman, AIA, LEED AP, senior architect, Progressive AE, poses the following question to explain the importance of the city's architectural and business community to its resounding success:

*Why has Grand Rapids' infrastructure become green so quick?*

*The entrepreneurial culture of the city's business leaders has been fundamental to the answer. Private, family-run manufacturers, in particular the office furniture industry, saw the benefit that sustainability in general and LEED goals in particular could deliver, and set the parameters for achievement. In the late 90s, Herman Miller included William McDonough on their manufacturing facility project team.*

*Peter Wege's Foundation (founding family to Steelcase) funded major civic projects, requiring all to be LEED Certified—The LEED Gold Grand Rapids Art Museum, for example. Their influence extended reach such that all local architects benefited early from our clients, who understood and paid for the first versions of LEED buildings. Our newspapers and business journals have kept green design in the forefront for the past decade.*



**Grand Rapids Art Museum, Grand Rapids, Mich.;**  
**architect: wHY Architecture; photo by Scott McDonald**  
**@Hedrich Blessing**



*Grand Rapids Art Museum, Grand Rapids, Mich.; architect: wHY Architecture; photo by Steve Hall@Hedrich Blessing*

When Daverman is asked if the economic downturn changed Grand Rapids' position on sustainability, his response is: "Resoundingly no!"

*Progressive has been the most active and supportive architecture firm for AIA in West Michigan for decades, much more so than firms twice its size. We have also trained many of the contractors in LEED.*

Daverman adds that architecture firms and the private sector have been making the case for many years now that holistic sustainable design is needed for the community. Mayor Heartwell has carried the torch on sustainability by offering increased incentives, and "he has done a superb job at this."

Not-for-profit groups, like Grand Action, also have worked with community stakeholders in order to identify and revitalize downtown projects. The group can count a number of important successes in its almost two decade history, in which they have galvanized the public on the importance of historic preservation and

good design. Organizations like this help involve the community and reinforce the value and importance of design and sustainability.

### Triple Bottom Line

The city of Grand Rapids is focusing on the "triple bottom line" when looking at sustainability policy. This is thinking that is beyond just the usual economic focus and instead takes into account social equity and environmental protection, all the while still fostering economic advancement. The city leaders know that the same business practices that make a city good to live and work in also work toward economic prosperity.

The triple bottom line dictates that the concept of environmental protection and economic profitability are not mutually exclusive. In fostering this environment, worker attraction and retention have been increased in Grand Rapids, saving both businesses and the government money. Mayor Heartwell has stated:

*Any city in the nation can move quickly and distinguish itself as a center for green technology and green innovation. The challenge is trying to balance the triple bottom line and that is what we have taken on as our challenge.*

In furthering sustainability efforts across Grand Rapids, the mayor has established the goal of attaining 100 percent renewable energy use for municipal structures by 2020. While setting this ambitious goal, city structures have reduced their energy consumption by 10 percent to date, setting an example for commercial and residential projects. By 2007, city structures were already using 20 percent renewable energy, a year sooner than projected, receiving significant community praise.

### **Community Sustainability Partnership**

In August 2005, the Community Sustainability Partnership (CSP) was founded by the City of Grand Rapids, in cooperation with four local higher learning institutions. In less than four years, the CSP has grown to incorporate 175 local businesses, organizations, and individuals who have embraced local sustainability in their business models, planning, and operations.

With annual meetings to train and educate individuals on sustainable practices, and triple bottom line thinking, the CSP has strived to extend its reach and impact within Grand Rapids. The CSP has even influenced other regional cities, such as Kalamazoo, Muskegon, and Holland/Zeeland, to create their own partnerships. These examples of regional knowledge sharing lead to increased levels of green building and the furtherance of sustainable practices in communities that may not have been as easily reached had it not been for leaders like Grand Rapids. This city has proven itself to be the sustainability leader in the region over the years and is continuing to blaze new trails on green building.

### **Regional Center of Expertise**

Grand Rapids has taken steps to secure its economic and environmental sustainability. This foundation is being augmented and sustained through its schools and higher learning institutions, which are laying the groundwork for long-term leadership. The city is

the first in the United States to be recognized by the United Nations University as a Regional Centre of Expertise (RCE) in the area of sustainability in built infrastructure. Sustainable infrastructure and urban growth are the main objectives of the RCE, along with environmental protection, transportation infrastructure renovation, and the creation of green jobs in and around Grand Rapids.

With a healthy mix of urban, suburban, and rural communities, the lessons learned in Grand Rapids can be implemented in other parts of the Great Lakes region, and the entire country. The regional lessons are extremely important as green building differs widely throughout the country depending on climate variations. Innovative ideas created by cities such as Grand Rapids, Minneapolis, and Chicago can greatly help the entire region as the Great Lakes region becomes greener. And, by partnering with higher learning institutions, the city of Grand Rapids is guaranteeing that future graduates will have the training and experience necessary to further sustainable design efforts within the region. Long-term objectives for the RCE include measurable improvements in the triple bottom line achievements of a healthy economy, environment, and social capital; institutionalized sustainable development education programs at K-12 and higher learning levels; and increased public understanding of the RCE's efforts within the community.

### **Green Schools**

In May 2009, the Grand Rapids Public School District (GRPS) received its third LEED certification for a school structure. The Gerald R. Ford Middle School attains this classification through a number of green design features, such as low emitting paints, carpet and wood; large daylight windows to reduce the need for artificial light sources; occupancy sensors designed to turn off lights in unoccupied rooms; and a state of the art cooling and heating system designed for maximum efficiency.

Other green schools in the community feature many innovative green features. West Catholic High School features a 40,000 square foot LEED Certified gymnasium. At Burton Elementary and Middle School they

have created a Roof Rain Garden. All of these projects have the aim of reducing energy and water use, providing improved air quality for students, and helping to lower overall operating costs.

### Statewide Initiatives

The state of Michigan has had building sustainability on its agenda since 2002. It consistently performs energy audits on its existing state buildings, and creates new buildings to green design specifications. On Earth Day 2005, Governor Granholm signed an executive directive to target reductions in the state's energy costs, concentrating on built infrastructure energy use by requiring that LEED standards be met by most state and publicly funded structures. As of September 2008, the state of Michigan had completed 272 LEED registered projects, of which 79 gained certification.

Grand Rapids, through partnerships with the architectural and business community, has emerged as a leader in American green building. With strong leadership from the city's mayor and innovative, long-term thinking ingrained in the community, the future of sustainability in western Michigan looks promising.

### Additional Resources

Grand Rapids Sustainability Official Page  
<http://www.sustainablegr.com/>

Community Sustainability Partnership  
<http://www.grpartners.org/index.php>

Wege Foundation  
<http://wegefoundation.com/index.html>

Grand Action  
<http://www.grandaction.org>

LEED Certified projects in greater Grand Rapids  
<http://www.usgbcwm.org/leed/area-leed-project-showcase>

Green Building in Michigan  
[http://www.michigan.gov/deq/0,1607,7-135-3585\\_4127\\_24843-125051--,00.html](http://www.michigan.gov/deq/0,1607,7-135-3585_4127_24843-125051--,00.html)

**Philadelphia** is the sixth-largest city in the United States and a consummate leader on green building in the state of Pennsylvania. As the cradle of American democracy, the city’s history and well-defined walkable, urban neighborhoods prepare it to be a 21st century leader on sustainability. Philadelphia Mayor Michael Nutter has challenged the city to become the “greenest city in America” and is moving forward on a number of fronts, with notable successes, including Philadelphia having the tallest green office building in the nation and the second-highest level of green roof space in the country.



*Philadelphia Forensic Science Center, Philadelphia; architect: Croxton Collaborative Architects PC; photo by Halkin Photography LLC*



*Philadelphia Forensic Science Center, Philadelphia; architect: Croxton Collaborative Architects PC; photo by Halkin Photography LLC*

## Mayor's Office of Sustainability

Mayor Nutter's sustainability plan includes multiple facets, with green building being one of the primary components. The four key areas within the Office of Sustainability are Energy Conservation Initiatives, the Solar City Partnership, Green Buildings, and Partnerships with External Organizations.

The Office of Sustainability seeks to work with city agencies, a sustainability advisory board, and external organizations to create long-term sustainable achievements in Philadelphia. At the same time, this office works to improve municipal energy efficiency and reduce operational costs. City governments must lead by example in order to enact positive change in communities, and Philadelphia is doing this through the mayor's Office of Sustainability.

## Green Building Requirements

*A High Performance Building Renovation Guide* was completed in 2004, which city staff uses to guide

municipal renovation projects. The primary goal with renovation projects is to achieve design improvements that address energy conservation, storm-water management, recycling, waste reduction, and indoor air quality. The guide also assists in the city's focus on alternative energy sources, climate protection, and advanced building systems and controls.

There is currently discussion in the city about whether the 10-year tax abatement offered for all new development should be focused specifically on green building. The Planning Commission is considering promoting this tax abatement more toward green projects. Philadelphia's green building plan incorporates a focus on attracting new business and keeping current business and residents in the city proper. While there is ongoing debate over the future of incentives and green building standards in the city, Philadelphia is pushing ahead with important green building projects, including a Youth Detention/Study Facility, Water Department buildings, and a new Airport Terminal project. The greening of affordable housing is also being explored as a significant focus of the overall green building plan.

The city plans to use money from the Energy Efficiency and Conservation Block Grant funding to bolster green building and green jobs. When the AIA contacted the city, it was in the process of hiring consultants and internal teams were deciding how exactly to spend the money, but officials reported that the two primary focus areas are to support green building and fund public housing projects that will meet Energy Star standards.

## Greenworks Philadelphia

The mayor has set the goal of becoming the “greenest city in America.” The question is: “How does the city of Philadelphia achieve this goal?” The Greenworks Philadelphia plan is the answer. This plan builds on the Local Action Plan for Climate Change that was developed by the Sustainability Working Group in 2007, which set a goal of a 10 percent greenhouse gas reduction by 2010. Now with the new Greenworks plan, the goals and aspirations have been broadened and made more all-encompassing by examining sustainability through five lenses: energy, environment, equity, economy, and engagement. Measurable goals have been set for each area with targets to be reached by 2015.

Fifteen targets have been developed in order to implement the goals in each of the five lenses. The goal’s identified in the energy section make Philadelphia reduce its vulnerability to rising energy prices:

1. Lower city government energy consumption by 30 percent
2. Reduce citywide building energy consumption by 10 percent
3. Retrofit 15 percent of housing stock with insulation, air sealing, and cool roofs
4. Purchase and generate 20 percent of electricity used in Philadelphia from alternative energy sources

The environment section’s goals are to reduce the city’s environmental footprint:

5. Reduce greenhouse gas emissions by 20 percent
6. Improve air quality toward attainment of federal standards
7. Divert 70 percent of solid waste from landfills

The goals of the equity section is for Philadelphia to deliver more equitable access to healthy neighborhoods:

8. Manage stormwater to meet federal standards
9. Provide parks and recreation resources within 10 minutes of 75 percent of residents
10. Bring local food within 10 minutes of 75 percent of residents
11. Increase tree coverage toward 30 percent in all neighborhoods in 2025

The economy section has as its goal for Philadelphia to create a competitive advantage from sustainability, and there are three targets identified:

12. Reduce vehicle miles traveled by 10 percent
13. Increase the state of good repair in resilient infrastructure
14. Double the number of low- and high-skill green jobs

Finally, the engagement section has one goal, tying together the preceding 14 goals, which is for Philadelphians to unite and build a sustainable future with the target of making Philadelphia the greenest city in America.

*Director of Sustainability Katherine Gajewski is excited with the progress the city has made with the program, and its prospects for the future. With Greenworks Philadelphia, the city has a full menu of initiatives that build on the sustainability experience, resources, and commitments we already have, and point us toward where we as a city government and community need to be.*

*Greenworks Philadelphia has been timely. It has given us a ready source of ‘shovel ready’ projects for a number of recovery programs, including the EECSBG, as well as progressive programs launched by the Commonwealth of Pennsylvania.*

*We know and welcome the fact that more aggressive ‘green’ building codes are coming, and we’re getting ready.*

*Philadelphia is gearing up to adopt the latest ICC codes and promote high rates of compliance. At the same time, we are developing 'above code guidelines' to make green building easier and promote integrated design and high-performance structures.*

## Green Jobs

The integration of sustainability into economic development goals is an important aspect of the Philadelphia Greenworks plan. Green jobs, in particular, are focused on with a target of creating more than 10,000 new green collar jobs in the city by 2015. With federal Recovery Act dollars flowing into communities throughout the country, Mayor Nutter's administration sees key areas for job creation in weatherization, lowering greenhouse gas emissions, increasing rates of recycling, and increased production of local food. These goals, as part of the wider Greenworks Philadelphia plan, will improve progress toward the economic development goals of the city and create jobs.

Public-private partnerships work exceptionally well to promote green jobs in communities. One such successful program is the Pennsylvania Horticultural Society's "City Harvest." This program has been funded through a grant from the Albert M. Greenfield Foundation, and developed with the Philadelphia Prison System; SHARE, a food distribution network; and the Health Promotion Council of Southeastern Pennsylvania. The purpose of the "City Harvest" program is to raise and distribute local, naturally grown vegetables to those residents who otherwise would be unable to purchase or find fresh produce. In the program, Philadelphia inmates grow seeds into saplings and then a combination of prisoners and volunteer gardeners grow these saplings and harvest and distribute the resulting vegetables. This type of program is doubly important for the skills and value it provides to the prisoners, as well as the benefit it provides to Philadelphia residents.

## Statewide Initiatives

The Governor's Green Government Council was created in 1998 to assist the state government in establishing environmentally sustainable policies. The council works with state agencies on a variety of sustainability

policies in planning, policymaking, and regulatory operations. Every year on September 1 the council presents a report to the governor on the year's green activities. High-performance, green building has been a long-standing priority for the group, and Maureen Guttman, AIA, as executive director has been a tireless advocate of the benefits of green building for the state.

The state is also providing money to localities for green building and two separate House bills have passed that will fund alternative energy and energy-efficiency programs. Pennsylvania is going to meet the 2009 standards of the International Code Council, and Recovery Act funds are going to be used to educate and train the public on the standards that are put in place in the state.

## Additional Sustainability Initiatives

SustainLane ranked Philadelphia as the eighth most environmentally friendly city in 2008. The city has focused on multiple fronts beyond green buildings to create a holistic, sustainable community. Programs, including innovative alternative energy generation projects for public agencies, hybrid/clean diesel buses, and the solar city partnership, are helping the city move toward its goal of becoming the greenest city in America.

Alternative energy generation projects, such as a solar water heating system that was installed in the Riverside Correctional Facility, illustrate how the city's Office of Sustainability works with individual agencies and across agencies to implement projects that examine life cycle costs, as well as up-front costs. Philadelphia is replacing buses in the city with hybrid/clean diesel buses, and will have 60 percent of the system replaced by 2011. The hybrid/clean diesel buses are nearly one-third more fuel-efficient than standard diesel buses, and the city is taking additional steps to make the existing non-hybrid buses more environmentally friendly, by retrofitting the entire bus fleet to operate on cleaner fuel.

Green roofs are also being installed throughout the city, with notable examples such as the PECO Energy Company headquarters and the Central Branch of the Philadelphia Free Library. PECO has installed a 45,000 square foot living roof on its headquarters building, which will absorb 60 percent to 70 percent

of the rain water annually, with runoff reduction rates ranging from 50 percent to 85 percent depending on the time of year. Finally, the Central Branch of the Philadelphia Free Library is an exemplar of municipal design, standing as the largest public building in Pennsylvania with green roof technology.

These additional initiatives coupled with the city's focus on green building make it well-prepared to be a leader on sustainability for years to come. Long-term planning and thinking are two values that create well-run, resilient sustainability programs, and Philadelphia leaders, architects, and citizens are working together to reach the goal of creating the greenest city in America.

## AIA Involvement

A. Stevens Krug, AIA, PE, CEM, LEED AP, president/COO Spiezle Architectural Group, and AIA Pennsylvania President Elect commented on the green building efforts in Philadelphia:

*Philadelphia's Mayor, Michael Nutter, initiated a broad and systemic plan to make Philadelphia America's Number One Green City—"Greenworks Philadelphia." This plan has the support of the local architectural and building community. An architect and former AIA Philadelphia President, Alan Greenberger, now serves as the acting Deputy Mayor for Planning and Economic Development and Commerce Director. AIA members have recently completed a Philadelphia Rowhouse Manual, available in the AIA Bookstore, that shares important sustainability lessons for all Philadelphians. And, currently the planning and zoning codes are undergoing a broad overhaul, to which the local AIA chapter has contributed. These will make our building regulations sustainable and make our vision of the future a green one.*

## Additional Resources

Mayor's Office of Sustainability

<http://www.phila.gov/green/mos.html>

Greenworks Plan

<http://www.phila.gov/green/greenworks/index.html>



**Philadelphia Forensic Science Center, Philadelphia,;**  
**architect: Croxton Collaborative Architects PC;**  
**photo by Halkin Photography LLC**

Philadelphia High Performance Building Renovation Guide

<http://www.phila.gov/pdfs/PhiladelphiaGreenGuidelines.pdf>

Jobs@the Heart of Nutter Plan

[http://www.philly.com/philly/news/homepage/20090429\\_Jobs\\_are\\_the\\_heart\\_of\\_Nutter\\_s\\_sustainability\\_plan.html](http://www.philly.com/philly/news/homepage/20090429_Jobs_are_the_heart_of_Nutter_s_sustainability_plan.html)

Philadelphia's Green City Harvest Program

<http://www.pennsylvaniahorticulturalsociety.org/phl-green/city-harvest.html>

Governor's Green Government Council

<http://www.gggc.state.pa.us/gggc/cwp/view.asp?a=515&q=156866>

**Nashville** has long been known as the country music capital of the world, and is now also being acknowledged for its' innovative community planning and sustainability efforts. In the last few years the city has begun to assert itself as a green building leader in the southeast by passing a green building law, working jointly with the state on sustainability efforts, and helping to revitalize an aging neighborhood into a green community. The city's sustainability efforts provide a model of leadership for Tennessee and the wider southeast, and Mayor Dean is seeking to make Nashville the "greenest city" in the south.



*The Gulch, Nashville; architect: Looney Ricks Kiss Architects, Inc.; photo by MarketStreet Enterprises*

## Green Building Requirements

Since 2007, Nashville has required LEED certification for city owned buildings, by designing all new and renovated structures to green standards. All municipal facilities that cost more than \$2 million or are larger than 5,000 square feet of occupied space must pursue LEED Silver certification. Originally, the Metro Public Schools, Metro Development and Housing Authority, and Metro Transit Authority were exempted from these green requirements, but all since have been amended back into the legislation.

## Mayor's Agenda

Nashville has a formidable track record of electing mayors who take city sustainability seriously. Beginning in 1991, Mayor (and now Governor) Phil Bredesen introduced the Greenways Commission, which is aimed at planning and developing green initiatives throughout Nashville and Davidson County. This program developed into Greenways for Nashville, a nonprofit, which continues to enhance environmental opportunities in the community.

In 2007, then Mayor Bill Purcell signed the Green Building Ordinance, which represented a significant step forward in the way Nashville approached sustainability. This has been carried forward by current Mayor Karl Dean, who on June 19, 2008, issued Executive Order No. 33. This order created a panel of regional experts called the Green Ribbon Committee. This committee is located in the Office of the Mayor and is tasked with identifying goals and developing the plan that will make Nashville the undisputed greenest city in the South.

## State Initiatives

Governor Bredesen created the State Energy Task Force in March 2008, with the goal of increasing energy-waste awareness statewide. Energy prices are relatively low in Tennessee, and the impact of energy waste is not felt as widely as in many other states. Therefore, energy use reductions in municipal buildings, as well as in commercial and residential buildings, have not always been prioritized.

In December 2008, Governor Bredesen signed Executive Order No. 59, which focuses on energy use in the state and requires the use of Energy Star qualified equipment in state government offices. The state is leading by example with this initiative, and local governments in the state have responded positively to this change.

## Urban Development

With its proximity to Nashville's downtown business district, The Gulch neighborhood's LEED Silver for Neighborhood Development (ND) status is a fitting honor for the city's expanding revitalization program. Ten years in the making, the project was the brainchild of MarketStreet Enterprises, who worked hand in hand with the city and county governments to create a dynamic downtown district worthy of international recognition. The Gulch was only the 13th neighborhood in the world to be recognized as LEED ND by the USGBC, joining prestigious projects such as the Beijing Olympic Village.

R. Hunter Gee, AIA, of Looney Ricks Kiss Architects, Inc., was part of the design team working on The Gulch.

*Conceived long before the LEED ND program was developed, LRK along with The Gulch developers envisioned a compact, walkable, mixed-use neighborhood that Nashville never had. In its 10 years of development, The Gulch has demonstrated a significant demand for urban living in the Nashville market and has led our downtown residential renaissance. Nashville's leadership over the past decade has recognized the importance of building more 'sustainably' and has supported projects such as The Gulch through policy and code adjustments and financial incentives that encourage the development community to go green.*

For The Gulch to evolve from a derelict neighborhood peppered with brownfield sites and old contaminated storage tanks to a thriving economically and environmentally sustainable community is impressive. The city invested \$7 million to upgrade water and sewage infrastructure, as well as the streetscape, helping to move this sustainable neighborhood forward. This city

and county investment literally paved the way for MarketStreet to commence building and bring corporate investment along with an increasing number of multi-family lofts. Growth continues today, with millions of dollars in building still scheduled for completion.

### Economic Sustainability

Another growing force in the shaping of downtown Nashville is found in the Nashville Downtown Partnership, a corporate nonprofit seeking “to make Downtown Nashville the compelling urban center in the Southeast in which to live, work, play and invest.” The group has been operating since 1994, and has hosted thousands of meetings for local developers, tenants, investors, and the press. NDP can now boast 50 contributing companies and foundations, dedicating their support for anywhere from a single donation to 3-year pledges. In working to make it easier for developers to build and residents to move to downtown Nashville, the NDP has facilitated significant urban core growth.

### Green Schools

Nashville’s universities have set the sustainability standard for educational institutions in the Southeast, pursuing large-scale green projects and teaching advanced sustainability practices. Vanderbilt University has designed their latest building project to LEED Gold standards, building seven individual buildings that make up “The Commons.” It is the largest collection of LEED certified buildings on one college campus. The Commons was designed and built by a collaboration of Nashville-based architects and construction companies, using 26.4 percent recycled materials, diverting more than 74 percent of demolition waste from landfills, and purchasing more than 50 percent of the building materials locally.

Lipscomb University has formed the Institute for Sustainable Practice, aiming to develop young minds into the sustainability practitioners of the future. The emerging sustainability industry is a major opportunity for cities and counties to create jobs, and Lipscomb in Nashville recognizes the importance of preparing students to meet the job requirements of the 21st century. Academic programs are available in undergraduate and

graduate degree tracks, and feature majors in Sustainability Practice, Environmental Science, and a sustainability concentration within the University’s MBA program.

### Other Initiatives

Nashville has been encouraging its citizens to go green in many ways, beyond its green building policy. The city has strong initiatives in place to improve the water infrastructure and encourage biking and walking in the revitalized urban core.

The Clean Water Infrastructure Program (CWIP) passed by the city council in 2009, updates and revitalizes Nashville’s water supply infrastructure since 60 percent is more than 40 years old. The strain on this system is immense, as Nashville continues to grow and the demand for water increases. Through a small rate increase for customers, amounting to around \$3.00 for the average consumer, \$500 million will be spent on improvements over the next five years, which will result in increased cleanliness, efficiency, and lowered overall rates in the future.

With the increased urban revitalization seen in downtown Nashville, the city is mounting a campaign to increase bicycle and pedestrian traffic to achieve some very specific, precise goals. By increasing the attractiveness of the city to bicyclists and pedestrians, the local economy, environment, and quality of life is set to improve significantly, as businesses increasingly flock to the city and the daily output of CO<sub>2</sub> steadily decreases. The creation of the Bicycle and Pedestrian Advisory Committee (BPAC) will better serve the interests of bicyclists and pedestrians in future downtown infrastructure and streetscape plans.

It is not only the government that is looking to lead by example in reducing the city’s carbon footprint. Nashville’s Thomas Nelson Publishers is one of the leading publishers of Bibles and other Christian books. Paper consumption is a major issue for the company, so an initiative has begun to reduce their paper consumption by 30 percent before 2012. The firm also is being more discriminating in the source of their paper, working to eliminate the use of trees that are endangered or part



*The Gulch, Nashville; architect: Looney Ricks Kiss Architects, Inc.; photo by MarketStreet Enterprises*

of “old growth” forest areas. Beyond the education of employees and customers on the importance of sustainability, Thomas Nelson Publishers also is working with its suppliers to create their own corporate “greening” plans.

### Future Goals

Mayor Dean has established that the goal of his Green Ribbon Committee is for the city to lead by example in Nashville. The committee has reinforced this notion by releasing its June 2009 report, outlining 16 goals and 71 recommendations for the future. These goals and recommendations are broken down into “Quick Wins,” “Mid-Range,” and “Long-Term” initiatives. This mix of initiatives suggests that the city is looking to ensure that the greening of Nashville is accomplished in an orderly, steady manner. The plan calls for an overarching focus on creating green jobs, offering sustainability education, establishing a government agency specifically focused on the environment and sustainability,

creating a green business roundtable, and instituting an environmentally friendly, preferred-purchasing program for all government institutions. These measures will continue to help Nashville realize its goal of being recognized as the greenest city in the Southeast.

### Additional Resources

June 2009 Green Ribbon Committee Report  
[http://www.nashville.gov/mayor/green\\_ribbon](http://www.nashville.gov/mayor/green_ribbon)

Greener Nashville, Sustainability Info for Middle Tennessee  
<http://www.greenernashville.org/>

Bicycle and Pedestrian Advisory Committee  
<http://www.nashville.gov/mayor/bpac/index.asp>

Clean Water Infrastructure Program  
<http://www.nashville.gov/water/cwip/>

# Livable Communities and Sustainable Design Assessment Teams

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At its core, Local Leaders in Sustainability is an inventory of policies and best practices. It is a helpful tool for policymakers and green teams attempting to advance a more sustainable legislative agenda for growth and development. Cities are always vying for the amorphous title of “greenest city” or attempting to find the “best” green building policy, but after investigating the differing results between cities, it is nearly impossible to directly connect the variety of policy options with the different outcomes and establish causal relationships. One of the most important observations to be gained from this research is that an effective policy is one that directs private developers to consider sustainable features and explore the cost-effectiveness of efficient design as a matter of course.



*High Point Community, Seattle; architect: Mithun; photo by Juan Hernandez*

This could not be further from the truth. On the contrary, the tools employed by proponents of sustainable development are zoning codes, building codes, building permits, and other regulations that have been part of planning and development for decades. Proponents of sustainable development are simply trying to recalibrate or rethink how they are applied.

What has changed is the scale of this planning. Increasingly, projects that are leading the way in sustainable planning make use of neighborhood and district master plans rather than a whole-city zoning plan and lot-by-lot development. The broad, citywide policies should merely represent a starting point for a dialogue between governments, who have several incentives or variances to offer, and developers, who should be induced to provide mixed-income housing and design within the context of the greater community. Rather than exerting rigid control, these policies offer flexibility and opportunity for negotiation.

This section details how two new developments have exhibited several of the best aspects of collaborative design to produce communities that people around the country are increasingly drawn to live. The current economic climate in which housing prices continue to fall and the comparative success of these neighborhoods should be instructive for policymakers and developers alike.

## Dubuque, Iowa

Articles and conversations concerning sustainable development often start with references to Seattle and San Francisco, but rarely do they end with glowing praise for Dubuque. However, Dubuque recently was recognized alongside these two urban centers as partners in the National Trust for Historical Preservation's (NTHP) "Green Lab" program. Green Lab is designed to track historic preservation and rehabilitation projects in each of these cities, which provide working laboratories that will share information and illuminate best practices in this field.

None of this has happened by accident and Dubuque certainly was not a token addition to the Green Lab. Instead, these accolades have come in recognition of



*West 11th Street Historic District; Dubuque, Iowa; photo by AIA's Center for Communities by Design*

years of work and planning by the city and regional developers to make Dubuque a more sustainable city. These efforts are coming to fruition in a number of ways, most visibly through the adoption of the Warehouse District Revitalization Strategy in August 2007 and the subsequent adoption of the Historic Millwork District Master Plan in February 2009 (the district was officially renamed during the planning process).

Dubuque was once the nation's largest millworking industry and the Historic Millwork District is characterized by large brick buildings, which tend to take up one-half to a full block. Many of these buildings took wood that was floated down the Mississippi from Wisconsin and Minnesota and used it to make window sashes and doors for an expanding country at the turn of the century. Over the intervening decades, several have become partially, if not completely, vacant and fallen into disrepair. It is a story line that reads much like many other Midwestern and "Rust Belt" cities, where dozens of once thriving businesses have relocated or significantly reduced their workforce.

But in 2006, the city made the decision to change course. Mayor Roy Buol signed the U.S. Conference



*Dubuque, Iowa, and the Mississippi River; photo by AIA's Center for Communities by Design*

of Mayors Climate Action Agreement, set a goal of becoming a sustainable city, and in 2007, they sought assistance in their mission by applying for a Sustainable Design Assessment Team (SDAT) visit from the AIA. The team, led by Peter Arsenault, AIA, NCARB LEED AP, 2008–2009 National vice president was commissioned to examine the city's patterns of neighborhood development, stormwater management, bluff preservation, and other issues to set short-, medium-, and long-term priorities for the city to address.

*The SDAT team realized quickly that we had been invited into Dubuque at a pivotal time. The city had focused a lot of efforts on trying to reinvent and reinvigorate itself. The SDAT team helped the city to focus on reinvesting in their existing strong assets, such as historic neighborhoods, bluff-land open space, transportation network, and riverfront resources. Clearly, they have achieved that in a very short period of time by earning the NTHP Green Lab designation.*

The team came shortly after the Warehouse District Revitalization Strategy was adopted and several excellent ideas already were being considered. However,

following the visit and the full SDAT report, the city had a heightened commitment to preserving the historic buildings in the Millwork District and turning it into something the city could take pride in once more.

As envisioned, the new Millwork District will attempt to recapture the vibrant, mixed-use atmosphere from a century ago and it will do so largely with the same buildings and infrastructure. Preservationists are quick to point out that this is a highly sustainable strategy. All of these buildings represent “embodied energy,” which is energy that already has been used in construction, as well as energy saved by not demolishing and rebuilding a new structure.

Plans also were made to realign roads to provide greater connectivity between the area and the surrounding neighborhoods. Redevelopment will take place in three phases and, once finished, will contain 732 units of mixed-income housing that will be intermingled with 350,000 square feet of office space in addition to the restaurants and public spaces.

In the Millwork District master plan there are also specific plans to incorporate district energy and utilize

vastly more efficient technology for heating and cooling. A regional parking strategy also is recommended (though not yet developed) that will limit blank surface lots and encourage more vibrant pedestrian activity.

Perhaps most importantly, the city has made great strides to foster economic sustainability for the Millwork District. In January 2009, the city secured a commitment from IBM to occupy the historic Roshek building. The 10-story structure is the tallest in Dubuque, and by the end of 2010, the office space will be renovated to become LEED certified and will employ more than 1,300 people. Again, this good fortune did not simply come to Dubuque by chance. Iowa has a very robust Historic Preservation Tax Credit program that will be worth several million dollars to IBM over the course of their 10-year lease.

Cities and states around the country engage in similar tax arrangements to entice large employers all the time, but frequently they get little return for their investment as isolated corporate campuses are constructed on cheap, suburban land and promote sprawl. On the other hand, Dubuque has leveraged this agreement to establish an anchor in a sustainable urban center and the effort will almost certainly have a ripple effect on the whole downtown economy. Evidence of this is already mounting. The master plan calls for the three phases of development to take place over 3-5 years, beginning in spring 2010. Even in light of the economic downturn the nation is experiencing, Assistance Economic Development Director Aaron DeJong is trying to find creative ways to speed this process up. He noted that IBM's decision to locate in the city was a mixed blessing. High-quality jobs are being added to the community during a national recession, but it is a challenge in that the influx of young workers is leading to far greater demand for urban style units. These downtown housing projects are much harder to finance.

“Currently, we project that we could fill double the number of units that were needed 6 months ago,” DeJong said, and construction hasn't even begun.

To date, Dubuque's Millwork District and anticipation surrounding its completion has been a testament

to collaborative design. The city began with an idea to sustainably modernize this district, brought in an SDAT team of experts to weigh the city's options and priorities, and has consistently solicited the opinions of the public and business leaders as they tackle the entire district plan head on. By continuing this process, the neighborhood will become a model for cities in the entire region as their strategies and practices are documented and shared by the AIA, the National Trust for Historic Preservation Green Lab program, and others.

### High Point Neighborhood, Seattle

The High Point neighborhood in west Seattle is one of the first projects in the nation that applied innova-



*High Point Neighborhood, Seattle; architect: Mithun; photo by Juan Hernandez*

tive sustainable design techniques on a neighborhood scale. With the cooperation of a number of city departments, nonprofit institutions, and a district master plan developed by Mithun Inc., an integrated design firm, it stands as a noteworthy example of the impact that can be made when a city demonstrates a commitment to sustainable and inclusive governance.

The site plan covers approximately 1,600 units to be built over 120 acres and housing over 4,000 residents. It is a complete redevelopment of a 1940s era public housing neighborhood, designed to be reconstructed in two phases. This was done to prevent unduly displacing the residents that remained in the neighborhood during construction. Developers were able to move residents to the Phase 2 site as the old houses in the Phase 1 area were demolished and reconstructed. Currently, most of these residents have been resettled to their new homes since the completion of Phase 1 in 2008. All income-qualified rental housing in Phase 2 is complete, but the rest of Phase 2 has been delayed slightly by the economic downturn and the market rate housing development is now scheduled for completion in 2012.

Seattle's green building policies have evolved quickly in the years since the nationwide, high-performance building trend began to take shape. Brian Sullivan, a former project manager for Mithun who now works with the Seattle Housing Authority, believes the High



*High Point Neighborhood, Seattle; architect: Mithun; photo by Juan Hernandez*

Point neighborhood is so exemplary because it was originally conceived to be a sustainable community as early as 2000. He says “even then the standards really weren’t difficult to reach but they were so uncommon at the time. Practicing sustainable architecture was presumed to be more expensive and ratings were all voluntary.”

The decision to build environmentally friendly units seems more audacious after considering the project dedicates significant portions of the neighborhood to below-market rate housing. With its decision to use Federal HOPE VI funding, the Seattle Housing Authority was required to provide a certain amount of housing for low and very low-income residents, as well as rental housing. Residents who had lived in High Point before the redevelopment were encouraged to occupy many of the new units so the neighborhood has not had the influx of higher income residents that is typically associated with renewal projects. When Phase 2 is complete, just 50 percent of the neighborhood will be priced at market rates.

The Seattle Housing Authority was not the only city department pushing for innovation within the development. The neighborhood was used as a laboratory for the Seattle Office of Sustainability, the Seattle and King County Department of Health, and Seattle Public Utilities. In the old neighborhood, there were many units that contained lead paint, asbestos carpeting, and other harmful materials that were causing high incidents of asthma among the youth. The new neighborhood contains a pilot program of Breathe Easy homes that are specifically designed to increase air quality, reduce the symptoms of children who have developed respiratory problems, and decrease the risk that other children will develop similar ailments.

This initiative has already generated demonstrable improvements in the quality of life among residents. Sullivan, the current project manager with Mithun, cautions that a long-term study is still ongoing with the direction of the King County Department of Public Health and the University of British Columbia, but the preliminary reports show that there has been a 40 percent drop in emergency room visits for the returning residents.



*High Point Neighborhood, Seattle; architect: Mithun; photo by Juan Hernandez*

But the attribute of the neighborhood that the Mithun architects were most eager to talk about was the Natural Drainage System. Project leaders were able to design this unique and functional streetscape for the neighborhood with the cooperation of Seattle Public Utilities and with essential contributions from their civil engineering partners, SvR Design Company. This innovative strategy also took several cues from SEA Streets, another stormwater program that had been piloted in 2001.

The Natural Drainage System is defined by features such as a cross-sloped road surface and narrower street widths to make room for detention swales. The roadways are impervious, but bank in one direction to channel water through notches in the curb and into the network of swales. The system slows and cleans stormwater before leading to a pond at the north end of the development, as well as the salmon bay. The entire water management system was designed to be integrated with and enhance the quality of the Longfellow Creek watershed and its recovering salmon run.

Its success is a direct result of the fact that the whole neighborhood was master planned rather than constructed in a piece-meal fashion. High Point was a pilot for this streetscape, but Sullivan regrets that, “even years later, there have only been rare opportunities to replicate the system because it is very difficult to scale down.”

The benefits of the city’s redevelopment project have not been confined to the High Point neighborhood. By reconnecting the street grid to other areas, Sullivan has noticed that during the completion of Phase 1, the area immediately to the East of High Point “seems to have almost completely changed hands.” He noted the area was never poverty-stricken, but it was very “blank.” Now High Point, as well as the areas around it, are much more engaging and “you can see the results in the people walking the streets.”

No one would describe the requests of the Seattle Housing Authority as those of a typical client. However, viewed a particular way, the case is not as

unusual as one might think and can be very instructive to designers and builders elsewhere. SHA wanted sustainable features and were willing to take some risks, but the budget was constrained by the need for low-income housing, strings were attached to federal funding, and there were multiple parties to consider so designers were kept firmly grounded and nothing came easily. In addition to SHA, Sullivan noted that the fire department needed to approve the narrowed streets and that there was even concern among designers that Seattle Public Utilities would be so singularly focused on water management that it would jeopardize other aspects of the streetscape.

It is also important to emphasize that this exemplary community was not done because of rigid mandates. The High Point project demonstrates what can happen when sound policy provides just enough of an incentive to spur interested clients to consider more ambitious and sustainable design. In this case, the first step is often the hardest.

### Livability

The neighborhoods profiled in this section, as well as the case studies of cities, are not simply utopian communities composed of people who are especially concerned for the environment. One of the most important developments in the movement toward sustainable building practice has been the marriage of the features that make for efficient and environmentally friendly design with principles of livability that many people find desirable on their own merits. Obviously,

some residents in these communities decide where to live, what to drive, and what to eat with environmental concerns in mind. But others simply have lifestyle preferences that are better met by a walkable, mixed-use neighborhood.

It is important for the AIA and the entire building industry to recognize these shifting preferences and the demographic changes that are reinforcing them. Recent high school and college graduates and young, working professionals are increasingly making up smaller households and staying single later in life. In many ways, their lifestyles are better served by developments such as these that adhere to principles of livability and sustainability than they are by suburbs. The growing population of senior citizens also indicates a greater need to create livable, walkable neighborhoods. As they age, many people have no use for larger, suburban homes and their needs are better served in communities that do not require driving long distances between destinations to socialize, shop, and eat.

Policy-makers and government officials, especially those in suburban areas or smaller towns, need to be aware of the important junction between sustainability and livability. Enacting new, green building policies and utilizing old tools of urban planning in new ways can make a community more sustainable, but these subtle incentives or changes in zoning requirements inevitably lead to different patterns of development and have profound effects on the desirability of a neighborhood and how people will live in it.

# Conclusion

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American green building programs continue to flourish in cities across the country due to the leadership of local officials, architects, and community leaders. A successful, long-lasting green building program is not possible without community involvement. The purpose of the ongoing *Local Leaders in Sustainability* study is to offer an analysis on local green building policy in America. The AIA hopes that this report will provide local officials with some of the tools necessary to create and/or strengthen their own green building programs. We also have a number of further resources, expertise, and tools available to assist all levels of government as green building policy is developed. Over the past two years green building has continued to thrive, and we foresee that this effort will only continue to grow, particularly as communities integrate sustainable practices into economic development goals. Architects will influence the future built environment, and by pushing for green buildings, there is an opportunity to design healthy, environmentally sound buildings, which will better serve citizens of America and the world.

## 10 Recommendations for Continued Greening

In *A Study of Green Building Programs in Our Nation's Communities*, we offered six recommendations, which have been borne out over the last two years, and we believe are still valuable for communities to implement. These recommendations have now been augmented with a further four recommendations garnered from the latest research. The following 10 recommendations can help local communities as they begin or enhance their green building programs.

**Be inclusive:** When designing the green building program, be inclusive. Architects, builders, and others in the design and construction community must be involved in the process in order to create a truly effective program. Education sessions are important and can be offered by another city's sustainability direc-

tor, a LEED accredited professional, or professionals associated with other ratings systems being considered in communities. The goal is to make the features that constitute green buildings standard on all buildings, and that will only happen by working in a collaborative manner.

**Architects are here to help:** Architects would like to help communities develop green building programs and are available as a resource. Contact your local AIA and COTE chapters, state AIA chapters, and AIA National, and we will provide you with information and contacts for architects that can assist you in turning your community green.

**Hire a Director of Sustainability:** If your community has the funds available and the ability to hire an additional staff person, a director of sustainability is a wise choice. This official will be able to coordinate

the multiple departments that are generally involved in developing a well-rounded green building program. If your community would like to go further and develop a climate action plan and pursue additional sustainability efforts, the expertise of this individual should help move this process along. This individual is usually placed within the mayor's office or the permitting department.

**Train and accredit municipal employees:** Municipal employees should be trained in the rating systems that your community plans to use. By having expertise at every point of contact between the city and architects, contractors, and developers, a more congenial atmosphere is created and green projects achieve greater success. From the initial plan review process to the occupancy permit, the best programs work with developers to keep delays to a minimum.

**Keep it simple:** Consistency is the best policy. Planners and other city officials from across the country mentioned that one of the main concerns they had was that it can be difficult to navigate different requirements throughout a community. While downtown specific plans or other uneven ways of implementing green building policies may be desirable from a political standpoint, it sometimes creates difficulties for those who must implement programs.

**Implement additional sustainability initiatives:** Many communities have passed far-reaching sustainability initiatives. Green building programs are generally very popular, and communities should take the opportunity to pass other environmentally friendly policies alongside the green building ordinance. Examples include green purchasing programs, hybrid fleets, streamlining the solar permitting process, and many others. For the most innovative cities, the next frontier will be green zoning and the placement of green buildings in a more sustainable cityscape, which is happening more and more.

**Pursue green economic development:** When possible, cities should integrate sustainability policies, including green building programs, into their economic development plans. Green jobs, green business certification programs, and green buildings provide comparative advantages that cities can highlight and use

to draw businesses and the “creative class” into their communities. The future is green, and cities that are on the leading edge can capitalize on innovative policies and incubate new businesses in the clean technology industry. This has been seen in cities highlighted in the case study sections of the Local Leaders in Sustainability reports.

**Make it regional:** The 10 largest metropolitan regions in the country and all but one of the top 25 regions have a central city with a green building program. We have observed that healthy competition between municipalities in regions leads to the development of superior municipal green building programs. In other words, when one city chooses to push ahead and lead on green building locally, a cascading effect tends to happen where the other surrounding communities also want to achieve better results. This leads to a virtuous cycle of improving and strengthened green building standards. Ultimately, working through organizations, like councils of government, on unified green policies can channel this innovation toward a regional scale and benefit the design and construction industries, as well as the general public, as more green buildings are completed.

**Remove legal barriers:** Enacting new laws to promote green buildings and sustainable development is good and highly encouraged; however, removing old laws is also necessary. Many restrictive and outdated zoning laws and building codes prevent mixed-use development, greywater systems, and high or even moderate density construction. Sometimes cities “put the cart before the horse” and enact new policies without examining current barriers to sustainable, livable communities. These efforts should be examined holistically, with an eye toward creating the best policy for your city.

**Green buildings need green communities:** Green buildings do not exist in a vacuum. In order to truly curb carbon emissions and preserve open spaces and create livable communities, sustainability efforts must incorporate the whole built environment. Rating systems, like LEED for Neighborhood Development and Earthcraft Neighborhoods, are providing new templates for sustainable community planning. Ultimately, green building practices are a piece in the larger puzzle that is a green community.

## Final Analysis

City leaders view green building as an investment in a healthier, environmentally friendly future. They also see sustainable design as an opportunity to create green collar jobs in their communities, reduce energy and water costs, and create all-around superior buildings and livable communities. The time is now, the will is there, and the ability exists to place the entire country in a leadership role on this important effort.

As the cost of green building continues to fall toward parity with traditional building practices, the old excuse of high cost begins to fall by the wayside. This is a welcome development because the transformative nature of green building and sustainable planning efforts is that they allow people to imagine a different way to live. In large urban areas, green buildings reinforce existing higher density, energy-efficient housing, walkable neighborhoods, and transit choices. Sustainability efforts also force city planners and other officials to no longer see nature as something that must be overcome or banished to parks and suburbs, but instead as something to be integrated directly into the building.

Green buildings are healthy, energy-efficient buildings that increase natural light, incorporate high-performance systems, and improve air flow for occupants. Green, living roofs and many other features may be added to integrate the building directly into the environment. In suburban areas, green buildings are often included in overall transit-oriented or smart-growth plans, thereby creating healthy, energy-efficient buildings in walkable, mixed-use neighborhoods.

Communities should continue to move forward with green building programs. The cities that have already passed green building programs are testament to the importance of green design. Cities should also continue to strengthen existing green building programs over time and set targets for community-wide carbon reductions.

Green building rating systems and green neighborhood design efforts will be augmented and enhanced by upcoming developments. Efforts currently underway, such as the STAR Community Index, a consensus-

based measurement and rating instrument, will provide a needed tool for community-wide livability and sustainability efforts. The forthcoming International Green Construction Code will be the first of its kind, working to advance green building toward the day when all buildings will be carbon neutral. It will be a companion to the International Code Council's other model codes and create a regulatory framework for new and existing commercial buildings for state and local governments to adopt.

While there are multiple ways to move toward a sustainable future, the ultimate goal is to create the best possible program for your community. The case studies and the discussion of livable communities and sustainable design assessment teams provide concrete examples of diverse, holistic green community efforts. The case studies also demonstrate that green building is continuing during the economic downturn and innovative policy choices are still being pursued. Cities are adapting their sustainability policies to incorporate green economic development goals. Green jobs and green industry are receiving attention as cities shift their economies into a clean energy future.

City leaders clearly have the best interest of their citizens, their communities, and the future of America in mind. Green building and sustainability programs provide an exceptional platform for hope, not only hope for the future, but hope that America can lead the world in this important, burgeoning industry. Let's make green building, clean energy, and the overall green economy this generation's contribution to the future of our planet.

This all comes down to a question of transformation. It is larger than just one building, one city, or even one country, but rather climate change affects the entire world. Americans are taking on this global issue, and have the knowledge, resources, and ability to truly transform the world leading by example. The building sector is the greatest single contributor to carbon emissions in the United States but this only means that it has the greatest potential for carbon reductions. Our local communities are leaders in sustainability, and are demonstrating through their actions a way forward on creating a greener country.

# Green Building Program Quick Reference Matrix

City, State	Program Status*	Applies to: 1–Municipal 2–Commercial 3–Multifamily 4–Single-Family	Web Site	Notes
Anchorage, Alaska	New	1		In August 2008, the Anchorage Assembly voted unanimously in favor of the Sustainable Building Ordinance. LEED Silver standard for municipal buildings and retrofits, including school district buildings, and incentives were established for the private sector.
Chandler, Ariz.	New	1, 2, 3, 4	<a href="http://www.chandleraz.gov/default.aspx?pageid=873">http://www.chandleraz.gov/default.aspx?pageid=873</a>	Resolution No. 4199 adopted by the mayor and city council in 2008 declared that all new city buildings larger than 5,000 sq. ft. be designed and constructed to meet LEED Silver standards or better.
Phoenix, Ariz.	Original	1		Sustainability is a priority for the city and the mayor, and they are looking to push their current policy further. New municipal construction must be LEED Certified, and they are looking into expanding the voluntary private program to include permit discounts or rebates.
Scottsdale, Ariz.	Original	1	<a href="http://www.scottsdaleaz.gov/greenbuilding/">http://www.scottsdaleaz.gov/greenbuilding/</a>	While private green building is purely voluntary, they are looking to make private development regulations more stringent overall, going from a series of voluntary green aspects, to more mandatory codes.
Tucson, Ariz.	Original	1		Tucson is looking to expand their program in the near future to incorporate private commercial and residential projects.
Fayetteville, Ark.	New	1, 2, 3, 4	<a href="http://www.accessfayetteville.org/government/city_clerk/boards_and_commissions/planning_commission/index.cfm">http://www.accessfayetteville.org/government/city_clerk/boards_and_commissions/planning_commission/index.cfm</a>	All new city-owned buildings larger than 5,000 sq. ft. be designed and constructed to meet LEED Silver, and buildings smaller than 5,000 sq. ft. must meet LEED Silver principles for construction and design.
Alameda, Calif.	New	1	<a href="http://www.ci.alameda.ca.us/planning/">http://www.ci.alameda.ca.us/planning/</a>	Currently, only municipal projects in excess of \$100k must build green, to the LEED Gold standard.
Anaheim, Calif.	Original	1, 2, 3, 4	<a href="http://www.anaheim.net">www.anaheim.net</a> (Dept. of Public Utilities/ green connection)	Permit fees for private LEED buildings are being waived, while the city puts emphasis on advancing their Smart Grid initiative, as well as energy-efficiency retrofits and new green buildings.
Berkeley, Calif.	Original	1, 2, 3, 4	<a href="http://www.cityofberkeley.info/sustainable/">http://www.cityofberkeley.info/sustainable/</a>	The city is looking into pushing its energy requirements beyond California's Title 24.
Burbank, Calif.	Original	2, 3, 4	<a href="http://www.burbankca.org/building/bggreen.htm">http://www.burbankca.org/building/bggreen.htm</a>	It started as a voluntary program. The ratings are three-tiered and focus on getting developers to participate rather than worry about the level that is actually attained.

\*Original Programs are those highlighted in the first LLIS report that passed in or before 2007, while New Programs are those policies identified since 2007.

City, State	Program Status	Applies to: 1–Municipal 2–Commercial 3–Multifamily 4–Single-Family	Web Site	Notes
Carlsbad, Calif.	Original	1		Voluntary program, focusing on using EECBG funds on computer software to automate the building permit process.
Cathedral City, Calif.	New	3, 4	<a href="http://www.cathedralcity.gov/index.aspx?page=86">http://www.cathedralcity.gov/index.aspx?page=86</a>	Adopted in 2008, this program only applies to residential structures, and follows the Green Builder Program.
Chula Vista, Calif.	Original	4		Require 50 GreenPoints for residential buildings.
Corona, Calif.	New	1, 2, 3, 4	<a href="http://www.ci.corona.ca.us/?section=City%20Departments%20Development&amp;page=Community%20Development">http://www.ci.corona.ca.us/?section=City%20Departments the &amp;page=Community%20 Development</a>	Voluntary for all building. Commercial must build to 20pts of LEED checklist, Residential to California Green Builder Program. Expedited permitting available as an incentive.
Costa Mesa, Calif.	New	1, 2, 3, 4	<a href="http://www.ci.costa-mesa.ca.us/departments/green-building/green-bldg.htm">http://www.ci.costa-mesa.ca.us/departments/green-building/green-bldg.htm</a>	Waiving permit fees, and requiring municipal to build to LEED. Voluntary for commercial and residential.
Cupertino, Calif.	New	1	<a href="http://www.cupertino.org/index.aspx?page=237">http://www.cupertino.org/index.aspx?page=237</a>	
Davis, Calif.	New	1, 2, 3, 4	<a href="http://cityofdavis.org/cdd/green_building.cfm">http://cityofdavis.org/cdd/green_building.cfm</a>	Build it Green is the standard for residential, LEED for commercial/municipal. No certification requirement, though most new construction projects are going forward with certification. As a no-growth city, there is much interest in green renovations.
Fremont, Calif.	Original	1	<a href="http://www.fremont.gov/Environment/GreenBuilding/default.htm">http://www.fremont.gov/Environment/GreenBuilding/default.htm</a>	Applies to Municipal Buildings over 10,000 sq. ft. Alameda County also offers free consulting to developers aiming for certification.
Fresno, Calif.	New	1, 2, 3, 4	<a href="http://www.fresno.gov/Government/MayorsOffice/FresnoGreen/default.htm">http://www.fresno.gov/Government/MayorsOffice/FresnoGreen/default.htm</a>	Build it Green and LEED are pursued. City standard is called “Fresno Green,” and was built with consultation from LEED individuals. “Very competitive” with other communities’ plans.
Glendale, Calif.	Original	2	<a href="http://www.ci.glendale.ca.us">www.ci.glendale.ca.us</a>	LEED Silver, Gold, and Platinum buildings can earn density bonuses. Almost 1/4 of EECBG funds are going toward enhancing green building.
Irvine, Calif.	Original	1, 2, 3, 4		Irvine has its own 100 pt. rating system for commercial and residential recognition.
La Mesa, Calif.	Original	1		The mayor and the city council have a proactive outlook on sustainability, and have incorporated it into their economic plan/considerations. Downtown streetscape revitalization is acting to promote business growth.
Livermore, Calif.	Original	1, 2, 3, 4		The mandatory program requires LEED Silver for municipal projects, 20 LEED points for commercial, and 50 Build It Green Points for residential.
Long Beach, Calif.	Original	1, 2, 3, 4	<a href="http://www.longbeach.gov/plan/pb/apd/green/default.asp">http://www.longbeach.gov/plan/pb/apd/green/default.asp</a>	The city is looking to expand on its voluntary program to create more mandatory regulations for all types of building. Municipal LEED for existing buildings is a major focus of the city’s EECBG funds.

City, State	Program Status	Applies to: 1–Municipal 2–Commercial 3–Multifamily 4–Single-Family	Web Site	Notes
Los Angeles, Calif.	Original	1, 2, 3, 4	<a href="http://eng.lacity.org/projects/sdip/about_us.htm">http://eng.lacity.org/projects/sdip/about_us.htm</a>	The city has 50+ LEED Certified projects completed or under construction, and the mayor wants to see Los Angeles become the largest green city in the United States.
Mission Viejo, Calif.	Original	2, 3, 4	<a href="http://www.mvcity.org/DepartmentPage.aspx?id=1966">http://www.mvcity.org/DepartmentPage.aspx?id=1966</a>	The city has institutionalized its green building, best practices and monitors its performance.
Napa, Calif.	New	1, 2		Applies to construction and renovations of non-residential buildings over 30,000 sq. ft.
Novato, Calif.	Original	2, 3, 4	<a href="http://www.ci.novato.ca.us/cd/forms/CDP047.htm">http://www.ci.novato.ca.us/cd/forms/CDP047.htm</a>	The policy is mandatory for new construction and requires 50 GreenPoints.
Oakland, Calif.	Original	1, 2	<a href="http://www.sustainableoakland.com">www.sustainableoakland.com</a>	Voluntary for commercial projects. The city has had a Sustainable Community Development initiative since 1998.
Palo Alto, Calif.	Original	1, 2, 3, 4		All new buildings must meet LEED or Green Point Rated status, for homes/commercial. The larger the building, the higher the required rating system. Municipal buildings are built to same standards.
Pasadena, Calif.	Original	1, 2, 3	<a href="http://www.ci.pasadena.ca.us/permitcenter/greencity/building/gbprogram.asp">http://www.ci.pasadena.ca.us/permitcenter/greencity/building/gbprogram.asp</a>	Public buildings, 25,000+ sq. ft. commercial, and 4+ story residential projects are required to be LEED Certified. It is optional for other development.
Petaluma, Calif.	Original	2, 3, 4	<a href="http://www.cityofpetaluma.net/cdd/big/index.html">http://www.cityofpetaluma.net/cdd/big/index.html</a>	The program is optional for all and there is a \$500 per-unit rebate incentive.
Pleasanton, Calif.	Original	1, 2, 3, 4	<a href="http://www.ci.pleasanton.ca.us/business/planning/">http://www.ci.pleasanton.ca.us/business/planning/</a>	The mandatory portions of the program were passed in 2006, before this it only applied to municipal buildings.
Redding, Calif.	Original	4	<a href="http://www.reupower.com/energysvc/earth-adv.asp">http://www.reupower.com/energysvc/earth-adv.asp</a>	The Earth Advantage program used Portland as its model. The city owns the electric company so many initiatives concern home energy use.
Richmond, Calif.	Original	1		LEED Silver is required of municipal buildings. Any project receiving \$300,000+ from the city must also earn LEED Silver or 50 Build It Green points.
Riverside, Calif.	Original	4		Large Habitat for Humanity project building green.
Sacramento, Calif.	Original	1	<a href="http://www.cityofsacramento.org/generalservices/sustain/greengoals.html">http://www.cityofsacramento.org/generalservices/sustain/greengoals.html</a>	The city is on the list of U.S. Department of Energy Solar American Cities
San Buenaventura (Ventura), California	Original	1, 2, 3, 4	<a href="http://www.ci.ventura.ca.us/GreenVentura/">http://www.ci.ventura.ca.us/GreenVentura/</a>	Municipal buildings must be certifiable. Commercial projects must employ a LEED AP. Residential participation is voluntary. Voluntary projects are eligible for expedited permitting.
San Diego, Calif.	Original	1, 2, 3	<a href="http://www.sandiego.gov/environmental-services/sustainable/index.shtml">http://www.sandiego.gov/environmental-services/sustainable/index.shtml</a>	Current policy is aimed toward city owned buildings. 5,000+ sq. ft. must be LEED Silver. Looking to expand these requirements to commercial and residential by the end of the year.
San Francisco, Calif.	Original	1, 2, 3, 4	<a href="http://www.sfenvironment.org/our_programs/overview.html?ssi=8">http://www.sfenvironment.org/our_programs/overview.html?ssi=8</a>	The city is continuing to advance. Mandatory standards have been expanded to include commercial structures at LEED Certified. Currently more than 44 LEED projects completed or underway.

City, State	Program Status	Applies to: 1–Municipal 2–Commercial 3–Multifamily 4–Single-Family	Web Site	Notes
San Jose, Calif.	Original	1, 2, 3, 4	<a href="http://www.sanjoseca.gov/esd/natural-energy-resources/green-building.htm">http://www.sanjoseca.gov/esd/natural-energy-resources/green-building.htm</a>	The city currently has 27 completed LEED projects, with an additional 154 in the pipeline. An emphasis is being placed on LEED certified low-income housing units.
San Leandro, Calif.	Original	1, 2, 3		San Leandro builders receive incentives from Alameda county. Build It Green projects for multi-purpose structures underway, as well as a large LEED ND project.
San Rafael, Calif.	Original	1, 2, 3, 4		LEED for municipal/commercial, GreenPoint for residential. 80 percent of EECBG funds will go toward city building energy retrofits.
Santa Barbara, Calif.	Original	1	<a href="http://www.builtgreensb.org">www.builtgreensb.org</a>	LEED for municipal projects only, with an emphasis on existing building retrofits.
Santa Clara, Calif.	New			Santa Clara has been cooperating with Santa Clara county and the surrounding cities within the county to adhere to the same green building standards, for the sake of continuity. Using LEED and GreenPoint Rated as standards.
Santa Clarita, Calif.	Original	1		The city has a sustainable purchasing guide that covers almost all of the supplies the city buys.
Santa Cruz, Calif.	Original	1, 2, 3, 4	<a href="http://www.ci.santa-cruz.ca.us/pl/building/green.html">http://www.ci.santa-cruz.ca.us/pl/building/green.html</a>	Mandatory minimums for municipal, combined with incentives like expedited permitting for public structures. Local awards competition is in effect for green buildings.
Santa Monica, Calif.	Original	1, 2, 3, 4	<a href="http://greenbuildings.santa-monica.org/">http://greenbuildings.santa-monica.org/</a>	The city has expanded its program to include private commercial and residential projects. Large projects are underway. Solar Santa Monica initiative gaining strength.
Santa Rosa, Calif.	Original	1, 2, 3, 4		City has expanded to enforce mandatory green building for all building, with the goal of seeing an immediate and measurable reduction in local greenhouse gas emissions.
Stockton, Calif.	New	1, 2, 3	<a href="http://www.stocktongov.com/GoGreen/index.cfm">http://www.stocktongov.com/GoGreen/index.cfm</a>	City structures are built to LEED Certified, and the city has joined the Cities for Climate Protection campaign.
Sunnyvale, Calif.	Original	1, 2	<a href="http://sunnyvale.ca.gov/Departments/Community+Development/Planning+Division/Planning-Green+Buildings.htm">http://sunnyvale.ca.gov/Departments/Community+Development/Planning+Division/Planning-Green+Buildings.htm</a>	City buildings over 10,000 sq. ft. are covered. The city offers a 5 percent floor area bonus to commercial developers. Expanded regulations expected in 2010.
Temecula, Calif.	New	1	<a href="http://www.cityoftemecula.org/Temecula/Government/CommDev/Sustainability/Resources.htm">http://www.cityoftemecula.org/Temecula/Government/CommDev/Sustainability/Resources.htm</a>	The City of Temecula endorses the California Green Builder (CGB) program for residential structures, and builds city buildings to LEED Certified.
Walnut Creek, Calif.	New	1, 2, 3, 4	<a href="http://www.walnut-creek.org/about/qualitylife/sustainable_walnut_creek/green_buildings.asp">http://www.walnut-creek.org/about/qualitylife/sustainable_walnut_creek/green_buildings.asp</a>	Voluntary program is looking to become mandatory for 2010.
Aurora, Colo.	New	1		City and city-funded buildings must be built to LEED Gold.
Boulder, Colo.	Original	1, 2, 3, 4	<a href="http://www.bouldercolorado.gov/dex.php?option=com_content&amp;task=view&amp;id=208&amp;Itemid=489">http://www.bouldercolorado.gov/dex.php?option=com_content&amp;task=view&amp;id=208&amp;Itemid=489</a>	2009 updates to energy-efficiency requirements have seen reductions of 30 percent in commercial energy efficiency. Using the GreenPoints standard.

City, State	Program Status	Applies to: 1–Municipal 2–Commercial 3–Multifamily 4–Single-Family	Web Site	Notes
Denver, Colo.	Original	1	<a href="http://www.greenprintdenver.org">www.greenprintdenver.org</a>	The program has moved forward over the past two years, and the economic recession is showing the city that their building dollars can go further, considering the competitive lower prices of materials. Building and planning continues on LEED Silver municipal structures.
Fort Collins, Colo.	Original	1, 2	<a href="http://www.fcgov.com/opserv/pdf/green-bldg.pdf">http://www.fcgov.com/opserv/pdf/green-bldg.pdf</a>	In December 2008, the city council adopted a Climate Plan, and in January 2009, adopted a new Energy Policy, placing green building high in importance at the policy level.
Longmont, Colo.	New	2, 3, 4	<a href="http://www.ci.longmont.co.us/bldginsp/adopted/">http://www.ci.longmont.co.us/bldginsp/adopted/</a>	GreenPoints are required as new construction and remodeling jobs, increasing point levels are required for larger structures.
Greenwich Village, Conn.	New	1		
Stamford, Conn.	Original	1, 2, 3, 4		The Sustainable Stamford program encourages private sustainable development. Many municipal and private projects are underway to LEED standards.
Washington, D.C.	Original	1, 2, 3		D.C. has more than 40 LEED Certified buildings, government and commercial in nature.
Coral Springs, Fla.	New	1, 2		Submission of a LEED checklist is required for all buildings in the program. Incentives revolve mostly around zoning, allowing for different building uses when developers incorporate different levels of green building.
Deltona, Fla.	New	2, 3	<a href="http://www.deltonafl.gov/go/deltona-sections/departments/planning-and-development-services">http://www.deltonafl.gov/go/deltona-sections/departments/planning-and-development-services</a>	
Gainesville, Fla.	Original	1, 2, 3, 4		Florida cities are not allowed to amend the state building code at all due to weather in the state. Therefore, the city is working with the state to further coordinate their policy.
Jacksonville, Fla.	New	1, 2, 3, 4		
Lauderhill, Fla.	Original	1, 2, 3, 4		Compliance is voluntary, but all applicable buildings must submit a statement identifying any green design components. The mayor is very interested in green building, and several municipal and private projects are moving forward.
Miami Beach, Fla.	New	1, 2, 3, 4	<a href="http://web.miamibeachfl.gov/planning/Default.aspx">http://web.miamibeachfl.gov/planning/Default.aspx</a>	
Miami, Fla.	New	1, 2	<a href="http://www.ci.miami.fl.us/cms/mayor/4060.asp">http://www.ci.miami.fl.us/cms/mayor/4060.asp</a>	The city has extended expedited permitting review and approval for buildings going green.
North Miami, Fla.	New	1, 2, 3, 4		LEED for all municipal structures, voluntary for all commercial/residential.
St. Petersburg, Fla.	Original	2, 3, 4	<a href="http://www.stpete.org/development/development%20review.htm">http://www.stpete.org/development/development review.htm</a>	Sarasota county is very active in promoting green building. The city program is very informal but there is a very good relationship between developers, planners, and normal citizens.
Tampa, Fla.	New	1, 2, 3, 4	<a href="http://www.tampagov.net/dept_green_tampa/news_and_events/">http://www.tampagov.net/dept_green_tampa/news_and_events/</a>	Mandatory green building for municipal, voluntary with incentives for commercial and residential. LEED projects are going forward at the city level.

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West Palm Beach, Fla.	New	2, 3, 4		A Sustainability Office has been created, and a downtown master plan is in effect that incorporates some of the LEED requirements. Applies only to commercial and residential structures, as the scope of the downtown is rather limited in West Palm Beach.
Athens-Clarke County, Ga.	Original	1	<a href="http://www.accplanning.com">www.accplanning.com</a>	While there are no current incentives to build green, they are leading by example by mandating LEED certification for all new municipal buildings. Four are currently certified and another 12 are in various stages of planning/completion.
Atlanta, Ga.	Original	1	<a href="http://www.atlantaga.gov/client_resources/mayorsoffice/green%20initiative/green%20initiatives.pdf">http://www.atlantaga.gov/client_resources/mayorsoffice/green%20initiative/green%20initiatives.pdf</a>	The EarthCraft Homes program has also been in existence since 2003. Currently the policy is only relevant to municipal building, but they are hoping to pass legislation this summer that would oversee commercial and residential structures over three stories.
Honolulu, Hawaii	Original	1, 2		Commercial, industrial, and hotel development can get a one-year exemption on real property taxes. City and state require LEED Silver for municipal structures.
Aurora, Ill.	New	1, 2, 3, 4		Voluntary program, using LEED as a standard. Currently building a \$70M LEED Gold Police Station, and mandatory regulations for all municipal structures are not far off.
Chicago, Ill.	Original	1, 3, 4	<a href="http://www.cityofchicago.org/CityDepartments,DepartmentofEnvironment">www.cityofchicago.org City Departments, Department of Environment</a>	The success of separate programs is unique to the political culture of the city and the major.
Bloomington, Ind.	Original	1, 2, 3, 4	<a href="http://www.bloomington.in.gov/planning">www.bloomington.in.gov \planning</a>	The city offers bonus density to qualified projects and also has a Green Acres neighborhood program.
Portland, Maine	New	1	<a href="http://www.portlandmaine.gov/planning/default.asp">http://www.portlandmaine.gov/ planning/default.asp</a>	As Maine's largest economic center, and largest residential community, the city takes its sustainability efforts very seriously, as it looks to grow its green building program further.
Baltimore, Md.	New	1, 2, 3, 4	<a href="http://www.ci.baltimore.md.us/government/planning/sustainability/">http://www.ci.baltimore. md.us/government/planning/ sustainability/</a>	As of July 1, 2009, all new residential and commercial construction of a certain size must be LEED "or comparable." This has been required since July 2008 for all municipal or city sold sites.
Bowie, Md.	Original	1	<a href="http://www.cityofbowie.org/green/green.htm">http://www.cityofbowie.org/ green/green.htm</a>	The program is intentionally vague and does not specify LEED or another guideline. The goal is to promote flexible implementation and avoid focusing solely on points in the rating system.
Gaithersburg, Md.	Original	1, 2	<a href="http://www.gaithersburgmd.gov/poi/default.asp?POI_ID=793&amp;TOC=107;81;388;585;793;">http://www.gaithersburgmd.gov/ poi/default.asp?POI_ID=793&amp; TOC=107;81;388;585;793;</a>	The LEED checklist must be filled out by all applicable development. Incentives to be certified include reduced permit fees and city rebates for LEED fees.
Rockville, Md.	New	1, 2, 3, 4	<a href="http://www.rockvillemd.gov/environment/built/">http://www.rockvillemd.gov/ environment/built/</a>	Has established a regional standard "Rockville Certified," applicable to all new construction. All types of buildings over 7,000 sq. ft. must meet LEED standards.

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Boston, Mass.	Original	1, 2, 3, 4	<a href="http://www.bostongreenbuilding.org">www.bostongreenbuilding.org</a>	The program is written into the municipal code as Article 80. The mayor believes green building to be his #1 infrastructure priority, in this slow economy.
Cambridge, Mass.	New	1, 2	<a href="http://www.cambridgema.gov/cdd/et/greenblgs/index.html">http://www.cambridgema.gov/cdd/et/greenblgs/index.html</a>	Mandatory LEED for municipal structures, private over 50,000 sq. ft. must complete the LEED checklist, as part of a Project Review Special Permit.
Medford, Mass.	Original	1	<a href="http://www.medford.org/Pages/MedfordMA_Energy/FINAL_LAP.pdf">http://www.medford.org/Pages/MedfordMA_Energy/FINAL_LAP.pdf</a>	EECBG funds will be spent on green upgrades to existing city buildings. The city is also pursuing a wind power project.
Quincy, Mass.	Original	1		The city is working on updating older municipal buildings as well as greening new construction. There is a de facto commercial policy but the city didn't want to constrict it with a specific guideline. Developers present their project and itemize green features, then work with planners to improve.
Grand Rapids, Mich.	Original	1, 2		The city is promoting itself as the green epicenter of western Michigan. Municipal structures over \$1 million must be LEED Silver, and height bonuses are available to private projects for pursuing LEED.
Novi, Mich.	New	1, 2, 3, 4	<a href="http://www.cityofnovi.org/services/CommDev/CodesOrdinancesAndMasterPlan.asp">http://www.cityofnovi.org/services/CommDev/CodesOrdinancesAndMasterPlan.asp</a>	Voluntary program for public and private development to build to LEED's checklist.
Bloomington, Minn.	Original	2, 3	<a href="http://www.ci.bloomington.mn.us/code/Code19_9.html#b19_29">http://www.ci.bloomington.mn.us/code/Code19_9.html#b19_29</a> (See Section 19.29 (g) (4) (F))	Section G-4-F in the code offers a floor area bonus for a specific zoning district. The city tried to promote mixed use development for more walkability.
Minneapolis, Minn.	Original	1, 2		In addition to LEED, green development must be 35 percent above minimum state energy standards. They are looking to increase incentives for the private sector, and the city is involved in several LEED projects currently going up.
St. Paul, Minn.	Original	1, 2, 3, 4		New commercial ordinance mandates new projects over \$200,000 are required to build to LEED Silver, or an equivalent level with another standard, such as Green Globes or Build it Green. Flexible program. Very broad, hoping for maximum comfort with builders and building owners.
Kansas City, Mo.	Original	1	<a href="http://www.kc.mo.org/manager/OEQ/cpp-progress.pdf">http://www.kc.mo.org/manager/OEQ/cpp-progress.pdf</a>	The city has altered its approach to green building, concentrating on refurbishments over new construction. Focus on Energy Star regulations is heavy.
Springfield, Mo.	New	1, 2	<a href="http://www.springfieldmo.gov/planning/green.html">http://www.springfieldmo.gov/planning/green.html</a>	LEED Silver for municipal, voluntary participation for public structures.
St. Louis, Mo.	New	1		In 2007, Mayor Slay signed into Ordinance Board Bill #323 directing the Board of Public Service to adopt LEED for all newly constructed city-owned facilities greater than 5,000 sq. ft.
Lincoln, Nebr.	New	1		Currently only affecting municipal structures, the mayor's Environmental Task Force is looking for ways to expand the program.

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Omaha, Nebr.	New	1		
Las Vegas, Nev.	Original	1, 4	<a href="http://www.sustainlasvegas.com">www.sustainlasvegas.com</a>	Las Vegas has established a green building fund to raise money from utility fees and provide grants to cover LEED costs.
Elizabeth, N.J.	Original	3, 4		The city has a great Urban Enterprise Zone complete with mass transit. There is also an excellent grant program for low income housing. Over the past 15 years, the downtown area has been completely revitalized. Subsidies increased this year for developers building green.
Jersey City, N.J.	Original	1, 2, 3, 4		Ordinance was passed by city council to (a) compel city to build municipal green buildings, LEED Silver, (b) compel city to buy green products, automobiles, cleaning products, etc., (c) encourage LEED certification for private projects through tax abatements and permit fee vouchers.
Trenton, N.J.	Original	1, 2		Forty current redevelopment plans. The city is working green building aspects into each of these. State and Federal incentives being pushed at the local level, to entice builders. Sustainable design being implemented in Housing Program. Mayor has a green initiative, and dedicated staff for this.
Albuquerque, N.Mex.	Original	1, 2		The city has a strategic plan to meet the 2030 Challenge with goals for each department. The city has expedited permitting and permit reimbursements for green projects, and the mayor has proposed a new 100 percent waiver of impact fees for green buildings following the GreenPath Criteria.
Santa Fe, N.Mex.	New	1, 2, 3, 4	<a href="http://www.santafenm.gov/index.aspx?nid=645">http://www.santafenm.gov/index.aspx?nid=645</a>	Santa Fe has taken an aggressive approach to sustainability, creating a task force that has designed their own Residential Green Building Code, and is constantly looking to expand on the types of green building tactics available to homeowners.
Brookhaven, N.Y.	New		<a href="http://www.brookhaven.org/PlanningEnvironmentLandManagement/PlanningEnvironmentLandManagement/tabid/193/Default.aspx">http://www.brookhaven.org/PlanningEnvironmentLandManagement/PlanningEnvironmentLandManagement/tabid/193/Default.aspx</a>	Require LEED Silver for all municipal buildings, and incentives are in place for private projects achieving LEED, or implementing solar arrays or green roofs. Tax abatements are made available as well.
New York, N.Y.	Original	1, 2, 3, 4	<a href="http://www.nyc.gov/planyc">www.nyc.gov/planyc</a>	Require LEED Silver for all municipal buildings. Incentives in place for private LEED projects.
Syracuse, N.Y.	New	1		
Asheville, N.C.	Original	1		The solar industry is taking off, and the affordable housing development community has embraced the NC Healthy Build Homes standard, above Energy Star but below LEED requirements. Looking to meet the “Triple Bottom Line” of making projects economically viable, environmentally friendly, and socially responsible.

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Raleigh, N.C.	New	1		The city has created zone ordinances that require LEED Silver for city structures over 10,000 sq. ft. Buildings smaller than 10,000 sq. ft. do not have to become certified, but must have energy saving measures in place that would allow it to become certified. Planning Department is currently revising its comprehensive plan, to make environmental protection a priority.
Wilmington, N.C.	Original	2, 3, 4	<a href="http://www.stewardshipdev.com">www.stewardshipdev.com</a>	Voluntary program, with green renovations for city hall, and LED light retrofits planned for EECBG funds.
Winston-Salem, N.C.	Original	2, 3	<a href="http://www.cityofws.org/Home/Departments/Planning/Legacy/Articles/LegacyToolkit">http://www.cityofws.org/Home/Departments/Planning/Legacy/Articles/LegacyToolkit</a>	Winston-Salem is a Sierra Club “Cool City.” They are currently focused on mixed-use planning and walkability.
Cincinnati, Ohio	Original	2, 3, 4	<a href="http://www.cincinnati-oh.gov/cdap/pages/-16936/">http://www.cincinnati-oh.gov/cdap/pages/-16936/</a>	Cincinnati provides a 15-year property tax abatement for private developers.
Cuyahoga Falls, Ohio	Original	2, 3, 4		The city provides a density bonus for green development.
Hamilton, Ohio	Original	2, 3		For LEED projects the city amended the code to allow a density bonus, permit reimbursements, and reduced landscaping requirements.
Eugene, Ore.	Original	1		The city is looking to shift funds toward solid waste management/recycling, combining the green building program with the solid waste program
Portland, Ore.	Original	1, 2, 3, 4	<a href="http://www.portlandonline.com/osd">http://www.portlandonline.com/osd</a>	One of the few cities in the country to require new municipal buildings to be LEED Gold rated. Numerous green building initiatives.
Philadelphia, Pa.	Original	1	<a href="http://www.phila.gov/green/index.html">http://www.phila.gov/green/index.html</a>	The city has maintained a sustainability commission which has recently recommended more transit-oriented development. LEED Silver has been the standard for two years now, for all new municipal structures.
Pittsburgh, Pa.	New	2		The current program applies to new construction and renovation in non-residential and mixed-use zoning districts. There is pending legislation that would apply to government buildings and developments receiving Tax Increment Financing.
Providence, R.I.	New	1	<a href="http://www.providenceplanning.org/">http://www.providenceplanning.org/</a>	Executive Order from the mayor has established a level of LEED Silver for all NC and EB projects put forth by the city, as well as CHPS as the standard for all new and major renovations in the school system.
Charleston, S.C.	New	1	<a href="http://www.charlestoncity.info/dept/?nid=18">http://www.charlestoncity.info/dept/?nid=18</a>	Placing emphasis on greening the city while keeping the its historical context alive. There are over 3,000 historic homes and buildings still standing in the city today. Retrofitting buildings like these is of high interest.
Nashville-Davidson County, Tenn.	Original	1, 2, 3		Municipal buildings over 2,000 square feet and \$2 million must be LEED Certified. Other projects are offered density bonuses to meet the same standard.

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Austin, Tex.	Original	1, 2, 3, 4	<a href="http://www.ci.austin.tx.us/citymgr/default.htm">http://www.ci.austin.tx.us/citymgr/default.htm</a>  greenhouse gasses by 2020.	Green buildings are part of Austin's overall Climate Protection Plan, and the city has set the goal of becoming America's greenest city. Aiming for a 30 percent reduction in building
Dallas, Tex.	Original	1		Dallas has a pilot program that has partnered with Habitat for Humanity to develop green low-income housing.
El Paso, Tex.	New	1, 2	<a href="http://www.elpasotexas.gov/econdev/green_building_grants.asp">http://www.elpasotexas.gov/econdev/green_building_grants.asp</a>	El Paso has a grant program in place that makes money available for environmentally sustainable projects.
Flower Mound, Tex.	Original	2, 3, 4	<a href="http://www.flower-mound.com/env_resources/envresources_greenbuilding.php">http://www.flower-mound.com/env_resources/envresources_greenbuilding.php</a>	The program is purely voluntary and offers recognition to applicable buildings
Frisco, Tex.	Original	1, 2, 3, 4	<a href="http://www.friscotexas.gov/Projects_Programs/Green_Building/?id=155">http://www.friscotexas.gov/Projects_Programs/Green_Building/?id=155</a>	All new construction is mandatory green building. Residential construction must meet Energy Star standards. Municipal construction must be LEED Silver and commercial or multi-family buildings have a Frisco specific standard based on LEED.
Houston, Tex.	Original	1, 2, 4	<a href="http://www.houstonpowertopeople.com">www.houstonpowertopeople.com</a>	The city places an emphasis on cooperation between developers and planners. The Quick Start program is designed to provide consultation and the Houston Hope program targets low-income housing.
Plano, Tex.	Original	1		In addition to the municipal LEED requirements, the city has an interdepartmental group to provide education and consultation for private construction.
San Antonio, Tex.	Original	4	<a href="http://www.buildsagreen.org/BuildSAGreen/">http://www.buildsagreen.org/BuildSAGreen/</a>	The city works with Build San Antonio Green, a residential building guideline, however, the level of greening for compliance has dropped, to lower costs. The city pursues LEED Silver for all municipal structures.
Salt Lake City, Utah	Original	1, 2	<a href="http://slcgreen.com/pages/hpb.htm">http://slcgreen.com/pages/hpb.htm</a>	Municipal buildings must be LEED Silver and buildings over 10,000 sq. ft. receiving city funds must also be LEED Certified.
Alexandria, Va.	New	1, 2, 3, 4	<a href="http://alexandriava.gov/GreenBuilding">http://alexandriava.gov/GreenBuilding</a>	The policy is not mandatory, but considered a strong statement of expectation from the city. All non-residential buildings complying with the ordinance are to build to LEED Silver.
Arlington, Va.	Original	1, 2, 3	<a href="http://www.arlingtonva.us/Departments/Environmental_Services/epo/Environmental_ServicesEpoGreenBuildings.aspx#ACinc">http://www.arlingtonva.us/Departments/Environmental_Services/epo/Environmental_ServicesEpoGreenBuildings.aspx#ACinc</a>	All site-plan projects must submit a LEED Scorecard and employ a LEED accredited professional. Aggressively pursuing green building to set itself apart in the D.C. Metro area, to attract homeowners and businesses.
Chesapeake, Va.	Original	1		The program continues to grow and building is slowly but surely progressing.
Bellingham, Wa.	Original	1		LEED Silver requirement for municipal buildings. Incentives are in place, and the county has an established green building program. Pursuing the "5/12 Initiative," build five green projects in 12 months.
Everett, Wa.	New	1, 2, 3	<a href="http://www.everettwa.org/default.aspx?ID=52">http://www.everettwa.org/default.aspx?ID=52</a>	

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Seattle, Wa.	Original	1, 2, 3, 4	<a href="http://www.seattle.gov/environment/">http://www.seattle.gov/environment/</a>	In addition to the requirements for city development, Seattle has a dizzying array of incentives for all kinds of sustainable features.
Shoreline, Wa.	Original	1	<a href="http://www.cityofshoreline.com/cityhall/departments/planning/sustainable/index.cfm">http://www.cityofshoreline.com/cityhall/departments/planning/sustainable/index.cfm</a>	Progress within the city has been somewhat hampered by concerns that municipal government may not be the best place for such action. They like to take cues from the state but recently they have considered incentives as an appropriate action.
Madison, Wis.	Original	1, 4	<a href="http://www.cityofmadison.com/Environment/default.htm">http://www.cityofmadison.com/Environment/default.htm</a>	The driving principle behind the sustainable development is to earn payback on the investments within 10 years. LEED Silver for municipal structures.
Milwaukee, Wis.	Original	1		The city leads by example, encouraging the private sector to build to LEED Gold.



