SUSTAINABLE URBAN DEVELOPMENT IN THE US

A report prepared for the Government of Sweden's Mistra Foundation for Strategic Environmental Research by Dr. Marc A. Weiss, Chairman and CEO, Global Urban Development, December 21, 2007

The Mayors Movement

The most significant trend in sustainable urban development in the United States at this time is the movement of local elected officials, particularly the elected executives generally called Mayors, to promote environmental sustainability in the context of reducing greenhouse gas emissions and encouraging energy conservation in accordance with 1992 UN Framework Convention on Climate Change, and especially the 1997 Kyoto Protocol. Even though the US federal government did not officially approve the Kyoto Protocol, citizens in metropolitan areas (who constitute more than 80 percent of the entire US population) are sufficiently concerned about the potential harmful impacts of climate change that they are supporting actions by their local governments to address the growing crisis of global warming.

This movement is related to international trends, of course, in that it directly emerged from the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, which among other things launched Local Agenda 21, focused on municipalities and other local authorities. A decade later, the 2002 UN World Summit on Sustainable Development in Johannesburg with its week-long Local Government Session organized by the International Coalition for Sustainable Urbanization and attended by more than 1,000 local elected officials from throughout the world, served to reinforce the US movement, since numerous American mayors participated in the meetings.

The first organization to provide leadership in the US for mayors and other local government officials was the International Council on Local Environmental Initiatives (now called ICLEI—Local Governments for Sustainability). ICLEI, an international NGO headquartered in Toronto, began organizing in 1993 the Cities for Climate Protection Campaign in the US to encourage, support, and provide technical assistance to local governments committing their communities to take concrete actions to reduce greenhouse gas emissions and improve energy efficiency and environmental sustainability. Currently, ICLEI has worked with more than 170 local governments in the US on planning and implementing measures to mitigate climate change. In addition, ICLEI has received a federal government grant from the US Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), to create the Climate Resilient Communities Program, advising local governments on climate change adaptation such as preparing for floods and other environmental and economic damages that result from global warming.

During the past few years this movement has greatly accelerated in momentum and scope through the active intervention of the US Conference of Mayors (USCM).

Under the leadership of Mayor Greg Nickels of Seattle, the USCM in 2005 began asking its members to sign the Mayors Climate Protection Agreement. Currently 740 US mayors have signed the agreement, committing their cities to work on reducing greenhouse gas emissions according to the Kyoto Protocol and initiating new policies and programs to improve overall urban sustainability. The Sundance Summit: A Mayor's Gathering on Climate Protection was held in July 2005, headed by Salt Lake City Mayor Rocky Anderson, Seattle Mayor Nickels, Chicago Mayor Richard Daley, and numerous others. The USCM created a Mayors for Climate Protection internet website (www.CoolMayors.org) describing what the various cities are doing to implement the Mayors Climate Protection Agreement. USCM has also published a 2007 *Energy and Environment Best Practices Guide* and more recently a 2007 *Climate Protection Strategies and Best Practices Guide*, both books describing innovative actions by dozens of urban governments addressing climate change in a variety of ways, such as enhancing the energy efficiency of municipal buildings and motor vehicles, expanding public transportation, increasing sources of renewable energy, and improving air quality. Many cities are now utilizing the concept of reducing their "ecological footprint" or "carbon footprint" as a way of educating the general public about the need for environmental sustainability and climate action, not only for their community but also for the metropolitan region and indeed for the entire world.

This year the USCM created the Mayors Climate Protection Center (MCPC), headed by Kevin McCarty. The MCPC organized a Mayors Climate Protection Summit held in Seattle during November 1-2, 2007, with former President Bill Clinton and New York City Mayor Michael Bloomberg as the keynote speakers. Most importantly, the USCM has effectively lobbied the US Congress in 2007, particularly now that the Democratic Party holds the majority in both the House of Representatives and the Senate, to pass legislation establishing an Energy Efficiency and Conservation Block Grant that will provide up to two billion dollars annually to American cities for a wide range of activities supporting energy conservation and renewable energy production. The proposed grant program was included as a provision of the Energy Independence and Security Act of 2007 approved by the US Congress, which was signed into law by President Bush on December 19, 2007. Among its many provisions, this new legislation includes the Green Jobs Act of 2007, amending the Workforce Investment Act to provide federal funding through the US Department of Labor for an Energy Efficiency and Renewable Energy Worker Training Program, and the law also includes an amendment to the Small Business Act creating Express Loans for Renewable Energy and Energy Efficiency to be provided to private entrepreneurs by the US Small Business Administration.

While many cities such as Denver, San Francisco, Chicago, Boston, Seattle, and Austin have made progress in reducing greenhouse gas emissions and promoting "green" buildings, and Portland, Oregon has even substantially reduced Vehicles Miles Traveled (VMT) per capita and increased population density, the city that is getting the most attention at the moment is New York. On Earth Day, April 22, 2007, Mayor Bloomberg announced PlaNYC, a very ambitious plan to achieve a 30 percent reduction in greenhouse gas emissions by 2030. PlaNYC focuses on five key elements: Land, Water,

Transportation, Energy, and Air Quality, for America's largest city, with a current population of 8.2 million people. It includes an attempt to introduce the first congestion charge system in the US, similar to London, Stockholm, and Singapore. The US Department of Transportation will be providing nearly a half billion dollars in grant funds to New York City to help fund the necessary infrastructure, electronic equipment, and other expenses related to establishing a congestion charge for motor vehicles operating in Manhattan.

President Clinton served as a keynote speaker at the Mayors Climate Protection Summit in Seattle because of his leadership of the Clinton Climate Initiative. The first Large Cities Climate Summit was organized by London Mayor Ken Livingstone and Deputy Mayor Nicky Gavron and held in London during October 2005. This group, now called the C40, then reached out to the Clinton Foundation for financial and technical support, and in August 2006 President Clinton announced the Clinton Climate Initiative, in which the Clinton Foundation agreed to serve as an operational arm for the C40's activities and provide managerial assistance through Ira Magaziner in the US and Goran Carstedt (former head of IKEA) in Sweden. The C40 is managed in London by a Secretariat and a Steering Committee. The second Large Cities Climate Summit took place in New York City during May 2007, hosted by Mayor Bloomberg. C40 US and Canadian cities include: Chicago, Houston, Los Angeles, New York, Philadelphia, and Toronto. In addition, C40 "Affiliate Cities" from the US are: Austin, New Orleans, Portland, Salt Lake City, San Francisco, and Seattle (there are no Canadian affiliates). According to Sir Nicholas Stern, author of the landmark report, *The Economics of Climate Change*, "The C40 Cities Climate Leadership Group is a tremendous idea and a fine example of the different dimensions of international collaboration." In a joint communiqué, the C40 stated "Cities account for 75% of global carbon emissions, the fight against climate change will therefore be won or lost in cities, and governments should engage more closely with city leaders supporting them in initiatives to cut greenhouse gases…"

At the C40 Summit in New York, President Clinton announced the global Energy Efficiency Building Retrofit Program. This program involves 15 of the world's largest cities—Bangkok, Berlin, Chicago, Houston, Johannesburg, Karachi, London, Melbourne, Mexico City, New York, Rome, Sao Paulo, Seoul, Tokyo, and Toronto--working to improve the energy efficiency of existing municipal buildings by installing new insulation, heating and cooling systems and control devices, and other "green" retrofits. Four of the world's largest energy service companies, Honeywell, Johnson Controls, Siemens, and Trane will conduct energy audits, perform building retrofits, and guarantee the energy savings of retrofit projects. Five of the world's largest banks, ABN Amro, Citibank, Deutsche Bank, JPMorgan Chase Bank, and UBS, have each committed one billion dollars to finance these urban building retrofits at no net cost to the city governments and other building owners, who will repay the loans plus interest with the energy savings generated by the reduced energy costs resulting from the building retrofits. The private firm of Hannon Armstrong, an energy efficiency finance specialist, will assist in coordinating the financing. Finally, the US Green Building Council and the American Society of Heating, Refrigerating, and Air Conditioning Engineers will help

train local workers in the 15 cities on the installation and maintenance of energy saving and clean energy products. In early November at the Mayors Climate Protection Summit, Clinton Climate Initiative (CCI) Chairman Ira Magaziner and US Conference of Mayors Executive Director Tom Cochran signed a USCM/CCI Partnership Agreement in which all 1,100 cities that are members of the USCM will now be eligible to participate in the CCI's Energy Efficiency Building Retrofit Program, in addition to the C40 cities.

The Puget Sound area of the Pacific Northwest is one of the first areas of the US to clearly experience early negative impacts directly attributable to climate change. These included increased flood damage both to agriculture and to the drinking water supply, and lack of snow that significantly hurt business at ski resorts, and most importantly, threatened loss of property insurance, especially for coastal land and buildings. Property and casualty insurance companies, along with reinsurance companies such as Swiss Re, Munich Re, and General Re, have voiced deep concern about the consequences of climate change, and in some cases, have either substantially raised insurance premiums or have refused to grant insurance coverage at any prices. Lloyd's of London has published a report, *Adapt or Bust*, stating the vital necessity "to consider the impact that an unstable climate could have on global asset value" asserting that "industry needs to take a new approach to underwriting, by looking ahead and not just basing decisions on historical patterns." As a result of the mounting environmental and economic problems, the City of Seattle launched the Seattle Climate Partnership in February 2005, with the slogan "Meeting the Kyoto Challenge." This partnership, which involves public institutions such as the Port of Seattle and the University of Washington, and private corporations like Starbucks Coffee Company and Recreational Equipment Incorporated (REI), has been relatively successful in making genuine progress towards greater urban sustainability. Indeed, one recent study of 47 US urban sustainability initiatives by Professor Kent Portney of Tufts University ranked Seattle as the best in terms of the comprehensiveness of its overall approach.

Concern about climate change extends beyond the city's boundaries, however. King County, which includes and surrounds the City of Seattle, is now a national leader among urban counties in addressing climate change, led by its dynamic County Executive, Ron Sims. The 2007 King County Climate Plan, officially adopted in February 2007, sets a high standard for America's 3,400 county governments. Ron Sims has provided national leadership in organizing the Cool Counties Climate Stabilization Declaration pledging an 80 percent reduction in greenhouse gas emission by 2050 and calling for average national fuel economy standards to be increased to 35 miles per gallon within a decade. The "Cool Counties" initiative was announced in July 2007 by 12 large urban counties from across the country, in cooperation with the Sierra Club and the National Association of Counties.

Also, during November 2006 the State of Washington became the first US state to issue a major report analyzing the economic dimension of global warming. This report, entitled *Impacts of Climate Change on Washington's Economy: A Preliminary Assessment of Risks and Opportunities*, is a model for other state and local governments to study and emulate.

Numerous other US states also face escalating problems with the threatened loss of insurance coverage by private insurance companies. Certainly the aftermath of Hurricane Katrina since the fall of 2005 has created great concern in Florida, Mississippi, Louisiana, and Texas. Rising difficulties with coastal property insurance has induced several states to begin taking more aggressive action for climate protection, most notably California under the leadership of Governor Arnold Schwarzenegger and Florida in 2007 led by its newly elected Governor Charlie Crist. Indeed, California, with its bipartisan Global Warming Solutions Act along with many related legislative and regulatory initiatives, is now leading the nation in terms of serious efforts to reduce greenhouse gas emissions. The Delaware Public Service Commission and three other state agencies are currently considering the granting of regulatory approval for the construction of America's largest offshore wind energy project, in the Atlantic Ocean nearly12 miles off the coast of Rehoboth Beach, generating 13 percent of the state's electricity needs. Ten Northeastern and Mid-Atlantic states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont) are now cooperating through the Regional Greenhouse Gas Initiative, nine Midwestern states (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Ohio, South Dakota) and the Canadian Province of Manitoba have recently signed the Midwestern Regional Greenhouse Gas Reduction Accord, and a similar Western Climate Initiative is being organized by seven Western states (Arizona, California, New Mexico, Oregon, Utah, and Washington). In addition, ten states (Arizona, California, Maine, Maryland, Massachusetts, New Jersey, New Mexico, New York, Oregon, and Washington) are planning to establish statewide cap and trade systems as a method of reducing greenhouse gas emissions recently joined the International Carbon Action Partnership, whose members include the European Commission and numerous national governments.

In addition, the Commonwealth of Massachusetts successfully fought a vital legal battle all the way to the US Supreme Court, which ruled in May 2007 that the US Environmental Protection Agency must begin to regulate carbon dioxide and other greenhouse gas emissions under the federal Clean Air Act, and another 2007 federal court decision legally upheld the authority under federal law of state governments in California, New York, Vermont, and elsewhere restricting tailpipe emissions of carbon dioxide in order to reduce greenhouse gas emissions. Recently a US Appeals Court ruled in favor of a lawsuit brought by 13 state and cities and four environmental groups against the federal government, essentially mandating stronger US fuel economy standards for light trucks and sport utility vehicles in order to reduce greenhouse gas emissions. The State of Minnesota has also begun to address climate change. Minnesota's Governor, Tim Pawlenty, who is currently serving a one-year term as Chair of the National Governors Association (NGA), has convinced his colleagues among the state's governors to adopt the programmatic theme of "Securing a Clean Energy Future" consisting of four key points: 1) Use our energy resources better though efficiency and conservation; 2) Promote non-petroleum based fuels such as ethanol and biodiesel; 3) Take reasonable steps to reduce greenhouse gas emissions; and 4) Accelerate research and development of advanced, clean energy technologies. Finally, the State of New Mexico, headed by Governor Bill Richardson who previously served as the US Secretary of Energy during

the Clinton Administration, has taken substantial strides in reducing emissions in line with the Kyoto Protocol.

Sustainable Economic Strategy: Climate Prosperity and Quality of Life

Although the mayors movement in all its dimensions is currently the most visible sustainable urban development trend in the US, the most innovative movement is more embryonic, namely the movement for "sustainable economic strategy" to achieve "climate prosperity and quality of life." One of the greatest barriers to making the public and private investments and policy changes to mitigate climate change and enhance environmental sustainability is the fear that such actions will be too costly and disruptive to economic growth. Sir Nicholas Stern's report provided one important response--that failure to act will be far more costly and detrimental to the economy over the long term, and that the costs of acting soon are relatively manageable, especially compared to the costs of major adaptation once climate change becomes more severe in future decades.

Beyond the issue of the absolute necessity of climate protection, however, there still remains deep concern about the possible negative effects of climate action on economic growth and prosperity. Therefore, it is becoming increasingly urgent to directly address these concerns by demonstrating that protecting against climate change by improving urban sustainability can actually be good for the economy, and improve the prospects for prosperity, productivity, competitiveness, efficiency, and cost-effectiveness. Firstly, expanded production of "green" technologies will create many new business and job opportunities, thus increasing incomes for many people and institutions. Secondly, replacing fossil fuels with energy efficiency and renewable energy sources will greatly conserve natural resources and lead to substantial cost savings in the long run, particularly since fossil fuel production is peaking globally and the costs will continue to rise to astronomic heights as supplies dwindle and the demand keeps rising. Thirdly, strengthening "green" infrastructure will reduce vulnerability to harm from the natural environment due to changes in the weather and other related factors. For example, reducing traffic congestion through higher urban densities and better mass transportation saves time and money and lowers risks of "oil shocks" and climate disruptions.

Finally, a greener, cleaner, more conserving of existing land and buildings, and more pedestrian-friendly urban environment greatly strengthens quality of life, which is essential for attracting and retaining a highly skilled workforce. In the new economy of the 21st century, which is knowledge and information-based, technology and communication-intensive, and globally oriented, people are now the single most important economic asset in the world, more than geographic location, natural resources, or even financial capital. In order to attract and retain a highly skilled workforce, every urban area must have a good quality of life, including an attractive and sustainable physical and cultural environment. Thus for the first time since the Industrial Revolution began three centuries ago, economic growth is no longer the enemy of environmental protection. Increasingly, a good environment is essential for a good economy.

I have made this same argument for the past dozen years, at the 2002 UN Earth Summit in South Africa and in many other venues. The framework that I have been using is called "Metropolitan Economic Strategy" in which sustainability and quality of life are part of the overall mix. This framework, outlined by former US Housing and Urban Development Secretary Henry Cisneros and myself in publications like *America's New Economy and the Challenge of the Cities: A HUD Report on Metropolitan Economic Strategy* (published in 1996), and by me in various documents such as Global Urban Development's 2002 report for the National Governors Association entitled *State Policy Approaches to Promote Metropolitan Economic Strategy*, has largely become part of mainstream economic development and public policy discourse during the past few years. Indeed, on November 6, 2007, the Brooking Institution issued a major report called *Blueprint for American Prosperity: Unleashing the Potential of a Metropolitan Nation*, in which metropolitan economic strategy is the central idea.

Given the huge and rapidly escalating challenges of climate change, though, it is now time to place environmental sustainability at the vital center of economic thinking and action. The global focus on promoting prosperity must become instead a total emphasis on generating and maintaining Sustainable Climate Prosperity and Quality of Life. Nothing short of this approach will enable human, animal, and plant life to continue thriving in the 21st century and beyond. The work that Global Urban Development is doing with the Rockefeller Brothers Fund in developing a three-year Climate Prosperity Project (CPP), starting with a national conference on The Economic Benefits of Climate Action" held at Pocantico Hills, New York during November 26-28, 2007, is one early example of much more that needs to occur in terms of economic research and urban policy innovation. Perhaps a sign of this new perspective is the movement in the US for "brownfields" restoration and redevelopment. The impetus for such public policy intervention also came from urban mayors, who faced the problem of environmentally polluted, damaged, and even in some cases highly toxic, abandoned industrial land and buildings. The cost of cleaning up the damage is very high, and thus much of this property has been allowed to sit idle and unused, a clear economic loss. Through brownfields initiatives and programs, the federal, state, and local governments, working with the private sector, have been able to restore these elements of the urban environment back to productive use, such that they can be redeveloped not only for manufacturing but as offices, hotels, stores, and housing. The formerly toxic and derelict American Can Company factory in Baltimore's Canton neighborhood is now called "The Can Company", a highly successful commercial and residential mixed-use development. And since the infrastructure and transportation services and urban population is already in place or nearby, cleaning up and redeveloping brownfields is far more conserving of land than abandoning such sites and building new facilities on "greenfield" land in the distant suburbs or exurbs. Clearly, brownfields restoration and redevelopment are one modest symbol of Sustainable Economic Strategy.

Probably the best example of Sustainable Economic Strategy is metropolitan Portland, Oregon, which since the 1970s has transformed its economy from forest products to high-technology production, while containing the spread of suburbanization through an urban growth boundary, building a popular light-rail transit system, increasing

urban densities and revitalizing neighborhoods, reducing greenhouse gas emissions and vehicle miles traveled, and most importantly, increasing jobs, raising incomes, boosting property values, and generating both a more attractive quality of life and a more dynamic economic future. Joseph Cortright's recent study, *Portland's Green Dividend*, demonstrates that metropolitan Portlanders save $1.1 billion annually on reduced transportation expenses, and with an additional savings of $1.5 billion per year on reduced commuting and travel time. Local residents reinvest most of this savings as increased disposable income spent within the metropolitan economy, further multiplying their substantial economic benefits from enhanced urban environmental sustainability. Other cities and metropolitan regions that have simultaneously improved both their environment and economies include Chattanooga, Tennessee, and Jacksonville, Florida.

Currently the need to reduce greenhouse gas emissions to prevent climate change is helping to encourage efforts to promote "green technologies" and "green jobs." The Apollo Alliance, a national policy organization supported by many labor unions, is taking this approach. In addition, a nationwide advocacy group called Step It Up organized a series of political rallies and demonstrations across the country on November 3rd in support of climate action, including the creation of five million "green jobs" through energy conservation and renewable energy production.

Chicago's Climate Action Plan is taking this approach, with similar active efforts in metropolitan Pittsburgh through the Green Building Alliance and the Pennsylvania Energy Development Authority, in the State of California through the "Green Wave" investment initiative in which the California Public Employees' Retirement System and the State Teachers' Retirement System have invested nearly one half billion dollars thus far in renewable energy and other environmental technology companies to create jobs and business opportunities within the state, primarily in urban areas, and in many other cities, regions, and states from Boston, to Austin, to the San Francisco Bay Area, including Oakland and Silicon Valley. Recently a statewide public policy organization, Next10, published the California Green Innovation Index to promote greater investment in sustainable technologies and products.

"Smart Growth": Land-Use and Transportation

The issue of building or rebuilding in urban communities with existing infrastructure and services, as opposed to building on outlying non-urban land is the essence of what in America is called "Smart Growth." This particular term was popularized throughout the US by Maryland Governor Parris Glendening, who introduced an extensive statewide initiative in 1997 called Smart Growth and Neighborhood Conservation. Governor Glendening combined three distinct issues into one comprehensive legislative and policy package, thus uniting four separate political constituencies in support of his proposals. The three issues were: 1) revitalizing inner city neighborhoods; 2) revitalizing older inner suburban communities and small towns; 3) preserving agricultural land and open space from urbanization; and 4) stopping the endless growth of suburban "sprawl." Smart Growth addressed all of these, in a very innovative way. Before Smart Growth, most growth management or growth controls in

the US involved efforts to impose strict land-use regulations to inhibit and direct development patterns. The best know and most successful example was in the Portland metropolitan region, which imposed a strict Urban Growth Boundary (generally known in Europe as a "greenbelt") around the urban core, prohibiting any development inside the growth boundary and thus stopping the further growth of suburban sprawl and protecting economically valuable agricultural land. The Portland approach worked very well in terms of increasing residential densities, promoting public transportation, and improving the regional economy, but in most of the rest of America it was considered to be too regulatory and politically controversial. The American Planning Association, with its "Growing Smart" research and policy project funded by the US Department of Housing and Urban Development (HUD), has been a leading authority on urban, regional, and state land-use regulation and growth management.

Maryland, instead of regulating private development through land-use controls, used the state budget to help guide and shape development patterns. The state government created Priority Funding Areas (PFAs) where it would continue to invest in infrastructure and services, and then declined to spend such funds in areas outside the boundaries. This meant that while local governments and private developers were still permitted to build outside the PFAs, they could no longer count on the multi-billion dollar state budget to help pay for such suburban development. The net results were impressive: greater preservation of open space, and greater investment in cities and towns. From an environmental perspective, Smart Growth clearly supported urban sustainability better than any previous statewide initiative, as well as saving money for the state's taxpayers, because investing in suburban "sprawl" rather than reinvesting in existing built-up areas is clearly far more costly. In 2000, Maryland's Smart Growth program won the prestigious Innovations in American Government Award, and the US Environmental Protection Agency created a Smart Growth Network to promote this idea across the country. Other states and metropolitan regions followed suit, such as "Envision Utah" around Salt Lake City that was connected with the state and regional planning for the 2002 Winter Olympic Games.

Currently former Governor Glendening heads the Smart Growth Leadership Institute and the Governors' Institute on Community Design, both part of Smart Growth America and the Growth Management Leadership Alliance led by Don Chen. Closely related to the Smart Growth movement has been the increasing popularity of light-rail public transportation in the US. These newer systems are less costly to build and maintain than the heavy-rail underground subways, rail transportation systems built above ground on platforms. Portland has been a leader in the light-rail trend, but many other urban areas, from Los Angeles to Denver, are joining the club. The American Public Transit Association's annual Rail-Volution conferences have helped spread this idea, and a national coalition of NGOs called the Surface Transportation Policy Project (STPP) has successfully lobbied since the early 1990s for federal funding through the US Department of Transportation's Federal Transit Administration. One of the leaders in the US Congress supporting this trend is Representative Earl Blumenauer, who heads the both the Livable Communities Task Force and the Congressional Bicycle Caucus. With the help of Congressmen Blumenauer and Hank Dittmar (former leader of STPP), a new

national non-profit organization, Reconnecting America, headed by Shelley Poticha, was recently created specifically to promote light-rail urban transit systems.

Whether the rail transportation is light or heavy, a related sustainability movement is known as Transit-Oriented Development, or TOD. This concept is designed to encourage higher density mixed-use development close to transit stations, so that people can walk to work, home, stores, services, and recreation without using a private automobile. In other words, what is pedestrian-friendly and transit-oriented certainly is also very good for the urban environment, in cost savings, congestion alleviation, greenhouse gas reduction, and many other ways. Reconnecting America's Center for Transit-Oriented Development has been working with the Center for Neighborhood Technology and Strategic Economics to document the substantial cost and energy savings and economic benefit from building public transit and locating higher density housing and commercial buildings close to transit lines and stations.

TODs can be good economic generators, as in the NoMa (North of Massachusetts Avenue) initiative in Washington, DC, which involved a public-private financing partnership to build a new transit station (the New York Avenue Metro Station on the Red Line), in the process taking an abandoned industrial and warehouse area and turning it into a thriving mixed commercial and residential neighborhood that generated thousands of new jobs and apartments and more than one billion dollars of new investment and development opportunities. In 2002 NoMa was designated by the United Nations Human Settlements Program (UN-Habitat) as one of the top 40 worldwide Best Practices to Improve the Living Environment, and NoMa also won the 2003 Smart Growth Award from the American Association of Highway and Transit Officials, along with the 2006 Infrastructure Award from the National Council for Public-Private Partnerships.

One of the organizations that helped develop the idea of transit-oriented development is the Congress for the New Urbanism (CNU), currently headed by former Milwaukee Mayor John Norquist. CNU is an organization of architects and urban planners, the two best-known being Peter Calthorpe and Andres Duany. CNU supports better community planning and design to create more environmentally sustainable urban and suburban neighborhoods and metropolitan regions. It promotes mixed-use, mixed density, and mixed-income communities that are attractive, walkable, and transit accessible. Biking and hiking trails are part of the overall mix in terms of open space and recreational amenities, and the main organization behind many of these initiatives is the Rails-to-Trails Conservancy, headed by Keith Laughlin, who was Executive Director of the President's Council on Sustainable Development and Deputy Director of the White House Council on Environmental Quality in the Clinton-Gore Administration. Part of the idea is to convert unused railroad right-of-way to biking and hiking trails, both in urban and rural areas. Another key element of quality of life in this new urbanism approach is preserving urban culture through conservation of historic structures and communities. Spearheading these efforts is the National Trust for Historic Preservation, headed by Richard Moe. Heritage tourism as economic development is also an important

inducement for governments and private donors to support both heritage trails and historic landmarks.

Green Buildings and Communities

Another interesting trend in sustainable urban development is the growth of "green" building, both new buildings and retrofits. These buildings are exemplary for their energy efficiency in heating and cooling and lighting, for water conservation, and for many other environmentally friendly features. Some buildings also include solar panels for renewable energy, and a few even have small wind turbines. The US Green Building Council was organized in 1993, and is currently headed by its founder, S. Richard Fedrizzi. It has thousands of affiliate organizations, and provides education and training to encourage green buildings. Its signature program is called Leadership in Energy and Environmental Design, or LEED. LEED certifies different categories of green buildings, and it has become a badge of pride for governments and private owners to have a green building designation, which is relatively difficult to obtain, as there are only several hundred LEED-certified green buildings in the US. Many city governments such as Chicago and San Francisco are now encouraging public and private investment in green buildings, as are state governments like California.

One of the "greenest" buildings in America is the Natural Resources Defense Council (NRDC) headquarters in Santa Monica, California, designed by New Urbanist architects, Elizabeth Moule and Stefanos Polyzoides. Recently the NRDC and the Congress for the New Urbanism have teamed up with the US Green Building Council to create LEED certification for neighborhood development, called LEED-ND. There are now several hundred LEED-ND certified community development projects in US cities.

The Natural Resources Defense Council and the US Green Building Council are both working with Enterprise Community Partners on the "Green Communities" initiative. Enterprise traditionally supports affordable low- and moderate-income housing and urban neighborhood regeneration. Through the Green Communities program, Enterprise will be investing $555 million in financial and technical assistance to develop 8,500 affordable and environmentally sustainable homes in 139 mixed-use communities nationwide such as Denny Park in Seattle. Each one of these Green Communities are well-located in terms of public transportation and access to employment, with LEED-certified buildings, environmental land conservation, recycling of waste materials, and numerous other aspects of sustainable urban development. One of the Green Communities is in New Orleans, part of the post-Hurricane Katrina rebuilding efforts. In addition to Enterprise Community Partners, Habitat for Humanity International, Global Green USA, and several other organizations also are involved in green community development activities in New Orleans.

Local Food and Urban Agriculture

Another interesting trend is the desire to reorient away from globalized food production and distribution with its intensive energy utilization, chemical fertilizers, and

pesticides. Many cities are now encouraging farmer's markets on vacant lots or in parking lots or small parks, with organic and locally grown food brought in for direct sale to urban residents. In addition, urban gardens, including rooftop gardens, both for food and for flowers and attractive vegetation, are also being supported by many city governments and non-profit community groups. These initiatives sometimes are supplemented by extensive tree planting to provide shade, beauty, and help keep the air cleaner. Finally, urban parks and open space, including pedestrian plazas and related cultural amenities, are becoming more important because of the vital importance of quality of life in attracting a good workforce as well as promoting tourism and attracting suburban visitors.

Air and Water

Cleaning up air and water pollution is the oldest and most established aspect of urban sustainability in the US, dating from the 1960s and 70s, when most environmental laws and agencies were first established, including the US EPA and both the Clean Air and Clean Water Acts. Since air quality is actually getting worse in most metropolitan regions due mainly to the incessant growth of motor vehicle utilization, land-use and transportation initiatives in the Smart Growth tradition are the most important recent trend in terms of air quality solutions. Cleaning up urban waterways—rivers, lakes, bays, estuaries, and seacoasts—is also of greater interest for commercial and recreational use, including boating, swimming, and fishing. Land-use also becomes a factor here, because many urban areas historically used their waterfronts for industry, railroads, ports, and warehouses, such that as these businesses have declined, opportunities have grown to redevelop waterfronts for upscale cultural and social attractions, such as hotels, restaurants, esplanades, museums, stores, and performing arts venues. The redevelopment of Baltimore's Inner Harbor is perhaps the most celebrated recent success along these lines. Regional land-use planning also is becoming more necessary to protect urban watersheds, prevent run-off and contamination, avoid and control flooding, and preserve health drinking water. Finally, water conservation is part of green building design, especially in the western US.

Energy Efficiency and Renewable Energy

Another key trend, given both the rapidly rising costs of fuel, the problems of US dependency of foreign oil and gas imports, and the growing climate crisis of carbon and other greenhouse gas emissions from burning fossil fuels, is an accelerating focus mainly on energy efficiency or conservation, and to a lesser extent, on renewable energy production. For example, many urban governments are redesigning new municipal buildings and facilities, often within the standards of LEED certification. They are installing new energy efficient lighting, including in street lights and traffic signals, along with heating and cooling, water and plumbing, and other mechanical systems, as well as recycling materials much more than before. In some cases they are also experimenting with different types of solar or photovoltaic panels on the roofs of buildings to generate renewable energy, and even a few small wind turbines.

Cutting energy costs saves money for the municipal budget at the same time that it reduces the city's "carbon footprint" to protect against global warming. Fortunately public opinion has now changed in the US to be much more supportive of such urban initiatives, so good energy and environmental policies are also finally becoming good politics at the same time.

Waste Management and Material Flows

One of the most visible recent trends is the rise in urban recycling, including curbside pick-up, of glass, metals, paper, and other materials. This helps conserve energy and other resources and reduce greenhouse gas emissions. In general, the urban sustainability movement has been raising the issue of the need to transform urban life, production, and consumption from "linear metabolism," in which materials currently are discarded as waste in landfills and sewers, polluting the land, air, and water, to "circular metabolism," whereby all materials and resources can be recycled back into productive use raw materials or finished products for other viable uses. Under this sustainable method, everything once again becomes part of the continuous cycle of birth, growth, death, and rebirth, the way nature actually operates. Herbert Girardet elaborates this idea in his 2004 book, *Cities People Planet: Liveable Cities for a Sustainable World*. A similar characterization, by architect William McDonough and scientist Michael Braungart, is termed "cradle to cradle" as opposed to the traditional "cradle to grave" idea. This certainly is one of the next frontiers of urban sustainability, both for the US, and for the entire world.