

## **A** Context

### 1. Environmental Leadership

The unprecedented devastation caused by Hurricane Katrina in New Orleans has resulted in an equally unprecedented swell of activities aimed at rebuilding New Orleans in more environmentally sustainable and healthy ways by utilizing the most innovative and cutting-edge practices in “green” enterprise, planning, and design. “Green” redevelopment practices have been employed in New Orleans by public, private and nonprofit sectors, by individual residents and grassroots organizations as well as national and international corporations and charitable foundations, and are evident in every aspect of redevelopment activities citywide. Growing awareness of the causes and impending effects of climate change for coastal cities like New Orleans have prompted experts to posit ways in which the city can set an example for the nation and the world in planning for the rapidly-changing environment of the 21st century. In addition, post-Hurricane Katrina plans for New Orleans—from individual neighborhood and District plans to citywide planning initiatives—have underscored residents’ desires for a city built on “smart growth” principles such as walkability, accessibility, a range of transportation options, and protection of critical wetlands<sup>1</sup> and open space.

This chapter discusses some of the ways in which sustainable redevelopment practices have been employed in New Orleans to date, and puts forth strategies that will continue to foster improvements to the quality of the built and natural environment of the city for generations to come. As the nation’s attention turns increasingly to the economic, ecological, and health benefits of cleaner, more sustainable and more energy-efficient development and lifestyles, New Orleans is poised to become a national leader in these trends.

#### GREENOLA PLAN

The GreenOLA plan,<sup>2</sup> sponsored by the Office of Recovery and Development Administration (ORDA), was adopted in 2008 as the city’s plan for sustainable rebuilding—but without a dedicated source of funding. It is a comprehensive plan to rebuild the city’s physical and administrative infrastructure according to best practices in green building and smart growth. It primarily addresses the following areas:

- Green building and energy efficiency
- Alternative and renewable energy
- Waste reduction, reuse, and recycling
- Transportation and clean fuels
- Environmental outreach and justice
- Flood risk reduction.

Many of the recommendations in this chapter reflect and build upon the GreenOLA plan and are designed to promote and facilitate the GreenOLA plan’s full implementation, including securing funding sources.

### 2. Climate Change

1 The issue of protecting and restoring wetlands—a critically important environmental issue for New Orleans that is not discussed in this chapter—is discussed in detail in Chapter 12—Resilience.

2 Available at: <http://www.louisianahelp.org/documents/greenolawithldrcoverpage.pdf>

Studies published by the Intergovernmental Panel on Climate Change (IPCC)<sup>3</sup> report that unless dramatic action is taken globally to reduce greenhouse gas emissions, global temperatures can be expected to rise by 1.6–6.3 degrees Fahrenheit over the next 100 years, resulting in a 7–15 inch rise in sea levels.<sup>4</sup> As a city that is both surrounded by and dependent upon water, New Orleans is extraordinarily susceptible to the negative implications of climate change,<sup>5</sup> which include loss of wetlands, higher susceptibility to flooding, increased frequency and intensity of hurricanes, higher prices and shortages of basic goods such as food and energy, and higher rates of infectious diseases and heat-related illnesses and deaths.<sup>6</sup> These changes will impact every aspect of life in New Orleans, from the design of its buildings to its primary economic drivers (particularly shipping and fishing) to the way its residents obtain water and food.

Precisely because of its vulnerability, however, New Orleans is poised to lead the country and the world in innovative sustainable development practices for the changing environment of the 21st century. The creativity, industry, and adaptability of New Orleans residents are the city's greatest assets in meeting these challenges with exemplary ingenuity and grace. The policies and actions of New Orleans residents in the 21st century must address the effects of global warming and also help to curb the greenhouse gas emissions that cause it, without placing untenable restrictions on the industries that help sustain its economy. Such far-reaching challenges will require collaboration across many different areas expertise and across public, private, nonprofit and institutional stakeholders.

## CITIES FOR CLIMATE PROTECTION CAMPAIGN

In 1999, the City of New Orleans signed onto the International Council for Local Environmental Initiatives (ICLEI)'s Cities for Climate Protection (CCP) Campaign with a resolution by then-Mayor Marc Morial, which has since been supported and reiterated by Mayor Ray Nagin. By way of the Mayor's Resolution, the City agreed to develop and implement a Climate Action Plan to reduce energy consumption and associated greenhouse gas (GHG) emissions. In return for the City's efforts, ICLEI provides a wide range of materials and technical support including specialized software for analyzing emissions and annual workshops with other participating municipalities.<sup>7</sup> ICLEI's Climate Resilient Communities™ Program assists local governments in enhancing community resiliency to the impacts and costs associated with projected climate change.

The Climate Protection Agreement states the city's commitment to:

- Strive to meet or beat the Kyoto Protocol targets (7 percent reduction from 1990 levels by 2012) in their own communities, through actions ranging from anti-sprawl land-use policies to urban forest restoration projects to public information campaigns;
- Urge the state and federal governments to enact policies and programs to meet or beat the Kyoto Protocol targets; and
- Urge the U.S. Congress to pass the bipartisan greenhouse gas reduction legislation, which would establish a national emission trading system.<sup>8</sup>

On March 15, 2001, the New Orleans City Council adopted a resolution to decrease municipal greenhouse gas emissions by 10 percent by the year 2015—a target which the City expects to meet and surpass.

3 The IPCC is the leading body for the assessment of climate change, established by the United Nations Environment Programme and the World Meteorological Organization to provide a clear scientific view on the current state of climate change and its potential consequences. The Panel was joint recipient of the 2007 Nobel Peace Prize.

4 Bindoff, N.L., et al. [http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1\\_Print\\_Ch05.pdf](http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1_Print_Ch05.pdf); City of New Orleans Carbon Footprint Report. July, 2009.

5 "Coastal Zones and Sea Level Rise." <http://www.epa.gov/climatechange/effects/coastal/index.html>; City of New Orleans Carbon Footprint Report. July, 2009

6 City of New Orleans Carbon Footprint Report. July, 2009.

7 *Ibid.*

8 US Mayors' Climate Protection Center: <http://www.usmayors.org/climateprotection/agreement.htm>. Retrieved March, 2009.

In October 2001, a Baseline Greenhouse Gas Emissions Profile was completed for both municipal and community-wide emissions.<sup>9</sup> In 2009, the CCP published an updated Carbon Footprint Report which analyses the city’s overall carbon emissions for the year of 2007.<sup>10</sup> Table 13.1 summarizes the report’s findings on the sources of carbon emissions in New Orleans.

As of 2009, the City’s Office of Coastal and Environmental Affairs is working with the Chief Administrative Office and City Purchasing to develop an environmentally-friendly procurement policy, which will indicate that, when possible and feasible, City departments and agencies buy items such as recycled paper and plastics, remanufactured antifreeze and toner cartridges, and energy efficient office machines. The policy will be part of City’s Climate Action Plan. Guidance is available from the State and other municipalities that have already implemented similar policies.<sup>11</sup>

**TABLE 13.1: SOURCES OF CARBON EMISSIONS IN NEW ORLEANS, 2007**

SOURCE	% OF TOTAL EMISSIONS
<b>COMMUNITY</b>	
Motor Vehicles and Transportation	40.3
Commerce	24.96
Buildings	19.2
Industry	9.6
Solid Waste	1.92
<b>Total Community Emissions</b>	<b>96.0</b>
<b>GOVERNMENT</b>	
Water and Sewage	2.56
Streetlights	0.6
Buildings	0.52
Motor Vehicles and Transportation	0.32
Solid Waste	(not measured)
<b>Total Government Emissions</b>	<b>4.0</b>

SOURCE: CITY OF NEW ORLEANS CARBON FOOTPRINT REPORT, JULY 2009

### 3. Sustainable Development Patterns

“Smart growth” is a term used to describe policies and planning that coordinate development, transportation, and the preservation of natural and open spaces. As defined by Smart Growth America, the six goals of smart growth are: revitalization of existing neighborhoods and increased neighborhood livability; better access to jobs, services and amenities and less traffic; thriving cities, suburbs and towns; shared prosperity for all residents; lower costs and taxes; and preserved open space.<sup>12</sup> Development that is based on smart growth principles is not only resource efficient but is also generally healthier for residents because of decreased pollution from cars and increased opportunities for walking and other physical activity.

Many parts of New Orleans already illustrate the building blocks of smart growth, such as a mix of land uses, a well-integrated street network, an abundance of parks and open space, and a variety of transportation options. However, other areas of the city lack some or all of these elements. As the Unified New Orleans Plan (UNOP) and Neighborhood Rebuilding (Lambert) Plans emphasized, walkability—though a high priority for most neighborhoods—is compromised in several areas due to the need for infrastructural repairs such as sidewalks and street lights or due to a lack of services and amenities within walking distance. Many areas of the city are not well-served by public transit and remain primarily dependent on automobiles (*see Chapter 11 – Transportation*).

Many cities have adopted Smart Growth policies which provide direction for the city’s growth. Instituting smart growth principles in New Orleans can increase the quality of life for all residents by improving their health, decreasing the cost of living, and creating less negative impact on the natural environment.

9 <http://cityofno.com/portal.aspx?portal=47&tabid=5>

10 City of New Orleans Carbon Footprint Report. July, 2009.

11 <http://cityofno.com/portal.aspx?portal=47&tabid=8>

12 Smart Growth America: [www.smartgrowthamerica.org](http://www.smartgrowthamerica.org). It is important to note that although smart growth principles often coalesce around higher residential densities, density can be an average across an entire area and does not necessarily mean “high rises” in traditionally low-rise neighborhoods or other types of intensified land use that is not compatible with existing neighborhood character. See also: Chapter 5: Neighborhoods and Housing for a more in-depth discussion of preserving neighborhood character in New Orleans.

## TEN TOOLS FOR ACHIEVING SMART GROWTH<sup>13</sup>

Smart Growth America outlines ten tools to achieve smart growth:

1. **Mix Land Uses.** New, clustered development works best if it includes a mix of stores, jobs and homes. Single-use districts make life less convenient and require more driving.
2. **Take Advantage of Existing Community Assets.** From local parks to neighborhood schools to transit systems, public investments should focus on getting the most out of what we've already built.
3. **Create a Range of Housing Opportunities and Choices.** Not everyone wants the same thing. Communities should offer a range of options: houses, condominiums, affordable homes for low income families, and "granny flats" for empty nesters.
4. **Foster "Walkable," Close-Knit Neighborhoods.** These places offer not just the opportunity to walk—sidewalks are a necessity—but something to walk to, whether it's the corner store, the transit stop or a school. A compact, walkable neighborhood contributes to peoples' sense of community because neighbors get to know each other, not just each other's cars.
5. **Promote Distinctive, Attractive Communities with a Strong Sense of Place, Including the Rehabilitation and Use of Historic Buildings.** In every community, there are things that make each place special, from train stations to local businesses. These should be protected and celebrated.
6. **Preserve Open Space, Farmland, Natural Beauty, and Critical Environmental Areas.** People want to stay connected to nature and are willing to take action to protect farms, waterways, ecosystems and wildlife.
7. **Strengthen and Encourage Growth in Existing Communities.** Before we plow up more forests and farms, we should look for opportunities to grow in already built-up areas.
8. **Provide a Variety of Transportation Choices.** People can't get out of their cars unless we provide them with another way to get where they're going. More communities need safe and reliable public transportation, sidewalks and bike paths.
9. **Make Development Decisions Predictable, Fair, and Cost-Effective.** Builders wishing to implement smart growth should face no more obstacles than those contributing to sprawl. In fact, communities may choose to provide incentives for smarter development.
10. **Encourage Citizen and Stakeholder Participation in Development Decisions.** Plans developed without strong citizen involvement don't have staying power. When people feel left out of important decisions, they won't be there to help out when tough choices have to be made.

## 4. Energy Efficiency and Renewable Energy

### ENERGY EFFICIENCY

Energy efficiency is the degree to which a building or product's overall energy consumption is reduced due to its design features and technologies. Energy efficient buildings are generally seen as a "win-win" for individuals and municipalities: the more energy efficient a building, the less it will cost its inhabitants to operate. Likewise, the less energy required by a municipality, the less stress is put on its limited resources—both natural and financial. Residents and owners of existing buildings can cut energy use by up to 30 percent by utilizing energy savings strategies, which can result in energy cost savings of around 50 cents per square foot per year.<sup>13</sup> Because energy-producing plants are often major sources of pollution, energy efficient buildings also reduce pollution in the region from which they draw power by demanding less production of power in the first place.

Increased energy efficiency may be achieved in numerous ways, many of which impose minimal up-front costs. In older buildings, including much of the traditional building stock of New Orleans, low-cost strategies such as filling gaps in doors and windows to make them more air-tight can dramatically increase a building's energy efficiency. Installing compact fluorescent (CFL) light bulbs—which use about 75 percent less energy than standard light bulbs<sup>14</sup>—and replacing appliances with more energy-efficient models are

<sup>13</sup> U.S. Environmental Protection Agency

<sup>14</sup> Energy Star website: [www.energystar.gov](http://www.energystar.gov). Retrieved March, 2009.

other low-cost, noninvasive ways of making a building more energy-efficient. Other methods of increasing energy-efficiency include upgrading a building's heating and/or cooling system and installing newer, higher-quality insulation in the walls and roof.

New buildings may achieve energy efficiency through any of the above techniques, as well as in strategic choices in a building's siting and layout. For instance, siting a building to reduce the amount of heat from the sun, or "solar gain," that enters a building or to allow for cross-breezes and maximum daylight can reduce the need for air conditioning and artificial lighting and thus reduce a building's net energy without increasing up-front costs.

The City of New Orleans has several initiatives already underway to increase energy efficiency in municipal operations. They include:

- Plans to retrofit 200 City Buildings, which is projected to increase energy efficiency by 20 percent and save \$1.8 million in energy costs per year.
- Replacing street lights and traffic signals with more energy-efficient technologies.
- Computerization of lights on playgrounds to save energy use when playgrounds are not in use.<sup>15</sup>

## RENEWABLE ENERGY

Electricity generation is the leading cause of industrial air pollution in the U.S.<sup>16</sup> Renewable sources of energy offer alternatives to traditional and nonrenewable sources (*e.g.*, oil, coal, natural gas, nuclear) that are cleaner, regenerative, rapidly replenished, or for all practical purposes cannot be depleted. Renewable energy sources include sunlight, wind, rain, the flow of tides and rivers, and geothermal heat. Renewable energy is generally regarded as healthier for humans as well as for the natural environment because it emits less environmental pollution and waste. Studies also indicate that considerable economic benefits flow from increased use of renewable energy sources, including lower fuel, utility and health care costs and significant potential for creating jobs.<sup>17</sup>

Renewable energy sources that offer potential for widespread adoption in New Orleans' geography and climate include biomass from landfill gas, municipal solid waste gasification, and wood-waste; geothermal power generation; hydrokinetic power from water flows; wind power generation at small scales; photovoltaic (solar electric) power generation and solar thermal energy (solar hot water). Renewable energy can be made available in two ways: property owners can install energy generating devices on their properties, and the local utility company can produce energy from renewable sources and make that available to consumers.<sup>18</sup> Some of the energy sources mentioned above are more appropriate for small-scale (*e.g.*, residential) installations, while others are typically undertaken only by municipalities (*e.g.*, biomass from landfills).

Investment in renewable technologies in New Orleans has been very limited relative to other cities of comparable size, which leaves the city vulnerable due to its dependence on finite fuel sources with high risk of future price increases. Entergy—the sole electric utility provider in New Orleans—does provide energy consumers with the choice to purchase energy from renewable sources through its Geaux Green program which offers consumers the option of purchasing renewable energy for an additional price.<sup>19</sup> Several private enterprises are currently investigating commercial production of energy from renewable

15 City of New Orleans: <http://cityofno.com/portal.aspx?portal=47&tabid=4>

16 Green-e: <http://www.green-e.org/whyre.shtml>.

17 *Ibid.*

18 Alternatives to fossil fuels for vehicles are also part of the movement towards renewable energy but are not discussed here. For more information on renewable vehicle fuels, visit the U.S. Department of Energy's Alternative Fuels and Advanced Vehicles Data Center: <http://www.afdc.energy.gov/afdc/>.

19 <http://www.energy-louisiana.com/geauxgreen/>

sources in New Orleans. For instance, at least four companies hold preliminary permits to install hydrokinetic turbines in the Mississippi River as part of a nationwide pilot project overseen by the Federal Energy Regulatory Commission to push the frontier of hydropower.<sup>20</sup>

## FINANCIAL AND TECHNICAL ASSISTANCE

There are several programs to assist New Orleans property owners with designing and upgrading buildings for greater energy-efficiency. Additionally, several organizations are working to increase the availability and use of renewable energy in New Orleans through financial and technical assistance. They include:

### Financial Assistance and Incentives

- **Energy Smart:** In June, 2008, the New Orleans City Council passed a resolution to adopt the Energy Smart New Orleans Efficiency Program.<sup>21</sup> This program calls for making 2,500 homes and small businesses per year more energy efficient, “weatherizing” the homes of 300 low-income and elderly customers a year at no cost to the residents, installing solar energy systems in 500 homes per year and other energy-efficient initiatives over 10 to 15 years.<sup>22</sup> The program will be given nearly \$11 million between 2009 and 2012.<sup>23</sup>
- **Weatherization Grants:** The US Department of Energy offers weatherization grants to homeowners.<sup>24</sup>
- **The Home Energy Rebate Option (HERO)**—a component of the Home Energy Loan Program of the Louisiana Department of Natural Resources—offers a cash rebate payment to Louisiana residents who make an energy efficiency improvement of 30 percent or more to existing homes.<sup>25</sup>
- **Green Mortgages:** Several New Orleans banks have offered “green mortgages,” which allow a home owner to use mortgage financing for energy efficiency improvements or gives the mortgagee a discount in closing costs for having energy efficient appliances or other upgrades on the property.<sup>26</sup>
- **The Global Green Schools Initiative** seeks to create healthier, more energy-efficient K–12 schools by offering grant funding for the greening of New Orleans schools. An initial five schools will receive up to \$75,000 in grant funds toward energy audits, technical assistance, and improvements to increase energy efficiency, indoor air quality, and if feasible, create on-site renewable energy generation. As of 2009, two of the five schools have been completed, one is in progress, and two have yet to be determined.
- **One Block off the Grid (1BOG)** announced in May, 2009 that it has teamed with installer South Coast Solar to offer community solar purchasing and installation. Community purchasing allows owners to pay less for solar installation by organizing large groups of consumers and providing purchasing and installation at a reduced cost.<sup>27</sup>
- **Federal Tax Credits:** The Federal Department of Energy offers a 30 percent tax credit towards the cost of purchasing and installing solar generation devices, including solar water heaters.<sup>28</sup>
- **State Tax Credits:** Louisiana’s “solar tax credit bill” (Act 371) was passed in 2007 and offers an additional 50 percent tax credit for each renewable energy system installed—up to \$25,000—which makes it the largest solar tax credit in the country.<sup>29</sup> This means that a resident of Louisiana can receive

20 Mowbray, Rebecca. “Energy upstarts dive in to generate renewable power from Louisiana waterways.” *The Times-Picayune*. May 10, 2009.

21 <http://www.energy-neworleans.com/IRP/>; <http://tinyurl.com/lmmlkh>

22 Egger, Bruce. “New Orleans City Council Approves Financing for Energy Efficiency Program.” *The Times-Picayune*. November 6, 2008. [http://www.nola.com/news/index.ssf/2008/11/financing\\_for\\_no\\_energy\\_conser.html](http://www.nola.com/news/index.ssf/2008/11/financing_for_no_energy_conser.html) Retrieved March, 2009.

23 Alliance for Energy: <http://www.all4energy.org/news/energy-smart-update>

24 [www.energy.gov](http://www.energy.gov)

25 <http://dnr.louisiana.gov/sec/execdiv/tehasmt/programs/residential/hero/>

26 GreeNOLA plan

27 <http://1bog.org/about-us/>

28 <http://www.energy.gov/taxbreaks.htm>

29 City of New Orleans Carbon Footprint Report. July, 2009.

up to 80 percent of the cost of solar devices in tax credits. In addition, Senate Bill 91, which was passed in 2009, creates a tax credit of up to 25 percent of the costs for anyone, corporate or individual, who owns a qualified energy resource—including wind, solar, and other sources—up to \$3,750,000. The tax credit can be transferred or traded, and can be used up to five years after it is first issued. Senate Bill 92 is similar, but reenacts an old bill that gives tax credit for wind and solar energy installation, and specifies that the credit cannot be used twice. House Bill 858 allows third party installers and owners to receive the 50 percent state tax credit on solar installations, which will lead to the creation of more green jobs and help the growing solar power market. Finally, House Bill 733 gives tax credits to employers for creating jobs in the green industry, involved in fields such as energy efficiency, energy audits, renewable energy, and building deconstruction.<sup>30/31</sup>

- **Senate Bill 224** (2009) creates “sustainable energy financing districts” within the state, which can provide local homeowners and commercial taxpayers with tax-exempt bonds to improve energy efficiency or install renewable energy devices. The goal of the bill is to encourage and permit the growth of energy efficiency, and allows local governments to give out loans beyond their budgetary capacity.

### Technical Assistance and Low-Cost Energy Efficiency Upgrade Services

- **The Alliance for Affordable Energy (AAE):** Founded in 1985, the AAE “conducts community education campaigns on energy issues, helps citizens and businesses become more energy efficient, and promotes sustainable energy policy solutions.”<sup>32</sup> AAE’s BuildSmart Weatherization Program offers technical assistance in weatherization.
- **NOLA 100**, a collaboration of nonprofit rebuilding organizations, has helped to weatherize 44 homes and has incorporated energy efficiency strategies into homes produced by its partners.<sup>33</sup>
- **Entergy New Orleans**—the sole electric utility company for the city—has launched a \$2 million energy efficiency program that will weatherize more than 1,400 homes and businesses and offer property owners financial incentives to insulate their homes.<sup>34</sup>
- **Total Community Action** provides assistance with the weatherization of homes.
- **Green Light New Orleans** donates and installs energy-efficient CFL light bulbs in the homes of low-income residents.<sup>35</sup>
- **Solar America Cities Program:** In 2007 the City of New Orleans was named one of 25 Solar America Cities by the U.S. Department of Energy. This award includes a two-year grant to accelerate the adoption of solar technology. The funding will be used to complete a comprehensive city plan for the expansion of solar technology; explore and evaluate ways in which the City can support or encourage adoption of solar technology; reduce or eliminate obstacles to solar adoption; stimulate the supply side of the solar marketplace; continue the process of recruiting private sector businesses to operate here to be involved in the supply of solar technology; and begin to train developers, builders and craftspeople about the technology, and educate the public on the benefits and affordability of solar power technology for their homes and businesses.<sup>36/37</sup>
- **Department of Energy Office of Energy Efficiency and Renewable Energy:** Executives from the Office of Energy Efficiency and Renewable Energy and the National Renewable Energy Lab (NREL) have

30 City of New Orleans Carbon Footprint Report. July, 2009.

31 “VICTORY! - Energy efficiency, renewable energy, solar tax credit and green jobs bills pass.” <http://all4energy.org/news/victory-energy-efficiency-renewable-energy-solar-tax-credit-and-green-jobs-bills-pass>

32 [www.all4energy.org](http://www.all4energy.org).

33 [www.nola100.org](http://www.nola100.org)

34 Mowbray, Rebecca. “Entergy rolls out energy efficiency program that will work to weatherize homes, businesses.” *Times-Picayune*, January 25, 2009.

35 [www.greenlightneworleans.org](http://www.greenlightneworleans.org).

36 [http://solarpowernola.com/solar\\_in\\_nola.htm](http://solarpowernola.com/solar_in_nola.htm)

37 City of New Orleans Carbon Footprint Report. July, 2009.

established an office in New Orleans to promote energy conservation and the use of renewable energy systems in the city's rebuilding plans. The office offers technical assistance to municipalities, designers, developers, and private contractors.<sup>38</sup>

- The **Center for Bioenvironmental Research** at Tulane University and **Global Green**, a national environmental organization, are currently conducting a study to determine the viability of river power for the Holy Cross neighborhood and for Tulane University's planned Riversphere research center and museum.<sup>39</sup>

In 2009, a federal Climate Change bill was introduced to limit carbon emissions nation-wide, and includes a mandate for all utilities to secure 15 percent of their electricity from renewable sources by 2020. At the time of this writing, the Climate Change bill has passed the House and is awaiting introduction in the Senate.

### Workforce Development

- **The Energy Smart** program (*see above*) will provide education to contractors about energy efficient building techniques.
- **Entergy's** energy efficiency program (*see above*) will also invest in workforce development in home energy analysis, conservation recommendations and insulation installation.
- **LA Green Corps:** A collaboration of a network of organizations providing workforce development in energy efficiency industries.
- **The Alliance for Affordable Energy's Workforce Development Division** trains young adults in building weatherization and making energy efficiency improvements.<sup>40</sup>

**(See also: Chapter 9: Sustaining and Expanding New Orleans' Economic Base.)**

In addition to the above programs, the Louisiana Department of Natural Resources was approved in July, 2009 for the first half of \$71 million in federal stimulus funding for the state's energy program to support energy efficiency and renewable energy projects.<sup>41</sup>

## 5. Green Building

**What is green building?** "Green" or "sustainable" building uses building design and construction techniques that have a minimal impact on the natural environment and that result in buildings that are healthier for their inhabitants, produce less waste, and use fewer resources over the course of their lifetimes. Energy efficiency, as described above, is one aspect of green buildings.

Sustainable design often starts with the building site itself: A site that is in an existing neighborhood and already connected to public services and infrastructure such as sewage, water and electricity is considered more "green" because it requires fewer resources to develop. Absorbing rainwater and minimizing water runoff through grading and landscaping techniques helps reduce a building's impact on drainage infrastructure, and preserving a portion of the building site as open or natural space helps to reduce a building's impact on the surrounding environment. Furthermore, siting a building where it will receive the most sunlight in winter and/or shade in summer also reduces its environmental impact by ensuring that it will require less energy to heat and cool.

The choice of building materials is also important: everything from the frame to the finishes of a building may be derived from renewable and/or local sources that don't require extensive transport or

38 Burger, Andrew. "New Orleans Gets Smart on Energy as it Rebuilds." Global Warming Is Real blog post, March 6, 2009. [www.globalwarmingisreal.com](http://www.globalwarmingisreal.com). Retrieved March, 2009.

39 <http://www.tulaneccycenter.org/programs/projects/mapping-new-orleans-historic-and-cultural-places>. Retrieved March, 2009.

40 [www.all4energy.org](http://www.all4energy.org)

41 New Orleans City Business. "\$35.5M in Federal Stimulus Funds OK'd for Louisiana Projects." July 20, 2009. <http://www.neworleanscitybusiness.com/up-to-the-minute.cfm?recid=25840&userid=0&referer=dailyUpdate>



that are naturally-occurring and not environmentally harmful when disposed of. Sustainable design may also incorporate resource-efficient fixtures and technologies such as toilets that use less water (or even no water at all), motion-detecting lights that shut off when no one is in the room, and water heaters that conserve energy by heating water on demand rather than keeping a store of hot water continually hot when not in use. On-site power generation such as windmills, solar panels, and geothermal generators also lessens a building's environmental impact and energy costs by reducing the net energy demand of a building. Finally, green building even incorporates the construction process, such as how construction waste is removed from the building site and whether it is recycled or reused.

Green building principles can be applied to all types of buildings, from homes to schools to factories, and from new construction to renovations of existing buildings. In fact, the “greenest” building projects may be rehabilitation and reuse of existing structures, which is often more energy and cost efficient than new construction (and in New Orleans, may also contribute to goals of historic preservation—[See Chapter 6 for more details](#)).

**What are the benefits of green building?** Building tenants and users benefit from green buildings because they are healthier, use less toxic materials and therefore have better air quality, and allow for more daylight and fresh air. Building owners benefit from lower operating costs due to greater resource efficiency as well as higher asset values. Municipalities benefit from green buildings because they are less taxing on local resources and produce less pollution and solid waste. Green buildings also benefit the natural environment as a whole by consuming fewer natural resources and producing less pollution and waste.

**What is LEED?** The Leadership in Energy and Environmental Design (LEED) Green Building Rating System is a third-party certification program for green buildings. The LEED certification process involves measuring a building's sustainable features, including site development, water savings, energy efficiency, materials selection and indoor environmental quality. Buildings may be LEED certified at various levels, including silver, gold, and platinum levels of certification, which indicate successively higher levels of overall sustainable construction and design. Although LEED is currently the most common green building rating system, there are several other similar rating systems used in the U.S. and internationally.<sup>42</sup>

**Green Building in New Orleans.** In the extensive rebuilding since Hurricane Katrina, green building techniques have been used throughout New Orleans, and the city is fast becoming a hub for innovative and sustainable design and construction in the US. As of March, 2009, there were 36 LEED registered projects in New Orleans, including 10 single-family homes, 3 multi-family housing projects, 5 schools, and several community centers, federal government buildings, and commercial facilities.<sup>43</sup> Many more projects in New Orleans have utilized green building techniques but have not applied for LEED certification.

On October 4, 2007, the New Orleans City Council unanimously passed an ordinance mandating the establishment of a city-wide green building program. The Ordinance calls for the creation of voluntary New Orleans-specific green-building standards, a unified energy policy, and instructs the City to encourage LEED-compliant construction, the use of Energy Star appliances, park development following Green Communities Criteria, and the shift to renewable and alternative energy sources.<sup>44</sup> In 2008, the Council also adopted a resolution which requires all construction and renovation of public schools in the City to be LEED certified, and encourages schools to minimize costs by employing energy and water efficiency strategies. The resolution also allows the Council to establish incentives for green building in school construction in the future.<sup>45</sup> In addition, the Clinton Climate Initiative has begun introducing green standards to the New Orleans Redevelopment Authority (NORA)'s requests for proposals for adjudicated

<sup>42</sup> See: [www.breeam.org](http://www.breeam.org), [www.thegbi.org/green-globes-tools](http://www.thegbi.org/green-globes-tools), [www.nahbgreen.org](http://www.nahbgreen.org).

<sup>43</sup> US Green Building Council. [www.usgbc.org](http://www.usgbc.org)

<sup>44</sup> City of New Orleans Carbon Footprint Report. July, 2009.

<sup>45</sup> Resolution R-08-246." New Orleans City Council. May 15, 2008.

## A SAMPLING OF GREEN BUILDING PROJECTS IN NEW ORLEANS

- **Project Home Again** is a philanthropic collaboration of Green Coast Enterprises and Leonard and Louise Riggio Foundation to develop homes in the Gentilly neighborhood that are designed to reduce energy usage 30–40 percent and reduce utility bills by as much as \$1,000 per year. The energy efficient homes include passive heating and cooling, “daylighting” with “low-E” double-hung, double-glazed windows, whole house insulation using high-density spray foam, Energy Star appliances and lighting, and foundation piers to elevate houses above the flood plain.
  - **The American Beauty ArtEgg Building** was originally an egg and butter warehouse that was later transformed into a gallery and art center. The 50,000-square-foot building endured significant damage, including flooding and roof failure, from Hurricanes Hurricane Katrina and Rita. It was rebuilt as a showcase for green building materials and technologies and will house environmentally-minded businesses.<sup>42</sup>
  - **A.P. Tureaud Elementary School:** A project of Global Green’s Green Schools Initiative, the historic A.P. Tureaud Elementary School in New Orleans’ Seventh Ward, built in 1939, received energy efficiency upgrades that will result in estimated savings of \$26,588 in utility costs (paying off the full cost of upgrades in approximately 2.5 years) and reduce carbon emissions by approximately 220,216 lbs annually.
  - **Make It Right Homes:** In the Lower Ninth Ward, these new homes integrate many sustainable practices such as harvesting rainwater, rooftop solar thermal installation, energy efficient lighting, and even energy efficient appliances.
  - **Providence Community Housing’s** redevelopment of the former Lafitte public housing site in the Tremé neighborhood will use LEED certification standards as well as new benchmarks from the national Green Communities Initiative as a framework to inform planning and design.
- 42 <http://www.edcmag.com/Articles/Leed/908b4e8fece7c010VgnVCM100000f932a8c0>

property development.<sup>46</sup>

Programs that offer technical assistance with green building strategies include:

- **The Center for Sustainable Engagement and Development (CSED)**’s mission includes encouraging restorative rebuilding, sustaining natural systems, and preserving resources in New Orleans’ Lower Ninth Ward.
- **Tulane City Center GreenBuild:** Provides research and education on sustainable design prototypes for New Orleans.<sup>47/48</sup>
- **Build It Back Green:** A free program offered by the nonprofit Global Green that provides technical assistance with home rebuilding using principles of energy-efficient and healthy buildings, and works to increase awareness about low-cost, resource-efficient building techniques.<sup>49</sup>
- **The Green Project** operates a Warehouse Store selling salvaged building materials and provides workshops on green building.<sup>50</sup>
- **Alliance for Affordable Energy’s BuildSmart Learning Center** features a life-sized model New Orleans home that showcases techniques for energy efficiency, residential solar power and environmentally appropriate building practices. The center also offers demonstrations and building workshops, a reference library with practical how-to guides, books on green building techniques, contact information for local businesses and general construction texts.<sup>51</sup>

## 6. Urban Agriculture and Gardening

46 GreeNOLA Plan

47 [www.tulanegreenbuild.com](http://www.tulanegreenbuild.com)

48 <http://www.edcmag.com/Articles/Leed/908b4e8fece7c010VgnVCM100000f932a8c0>

49 <http://globalgreen.org/neworleans/>

50 [www.thegreenproject.org](http://www.thegreenproject.org)

51 <http://www.all4energy.org/sustainable-rebuild/buildsmart-learning-center>

The term “urban agriculture” refers to the growth or production of food for consumption or sale in and around a city or town. The term “community gardening” can include urban agriculture as well as recreational gardening in a community setting. Urban agriculture and community gardening were on the rise in New Orleans for several years before Hurricane Katrina, and has been regaining popularity since then. As of March, 2009, there were 36 community gardens or urban farms and 11 school gardens in New Orleans.

The benefits of urban agriculture and community gardening include:

- **Productive use of vacant land.** Urban agriculture should be seen as one of many tools available to eliminate blight, either temporarily or permanently. *(For additional blight remediation strategies, see Chapter 5—Housing and Neighborhoods.)*
- **Improved access to fresh food.** New Orleans and Louisiana have particularly high rates of chronic diseases that are affected by food choice. Access to a local garden or other local source that produces fresh food has been shown to improve the diet of local residents. *(See also: Chapter 5—Housing and Neighborhoods for a discussion on recruiting fresh food retailers and supermarkets in underserved areas.)*
- **Lower food costs and environmental impact.** Growing fruits and vegetables for consumption saves households money that they would otherwise spend at the supermarket. Even when purchased, food that is grown and produced locally is often less expensive than food that must be transported from far - and also has less environmental impact - due to decreased packaging, storing and shipping waste.
- **Business opportunities.** Urban agriculture can be very productive through greenhouses and other intensive techniques, producing significant harvests on relatively small plots of land. Programs in other parts of the country have created thriving businesses that supply restaurants with produce. One home gardener estimates that his garden yielded an 862 percent return on investment.<sup>52</sup> MacArthur Genius Grant Awardee and urban farmer Will Allen states that each square foot of produce he grows in an urban greenhouse in Wisconsin brings in \$30. Nonetheless, Allen’s renowned urban gardening project—Growing Power<sup>53</sup>—and many other community gardening



IMAGE: A.M. SIGNORELLI

#### Little Sparrow Farm in Mid-City

### “GENIUS” URBAN FARMER IS ADVISING NEW ORLEANS



## Growing Power, Inc.

- Home
- About Us
- Our Farms
- Grow
- Bloom
- Thrive

Our Vision: Inspiring communities to build sustainable food systems that are equitable and ecologically sound, creating a just world, one food-secure community at a time.



What's Growing On:

- Will Allen awarded MacArthur Fellowship
- Workshops
- Commercial Urban Agriculture Training
- Market Baskets

Donate

Growing Power is a national nonprofit organization and land trust supporting people from diverse backgrounds, and the environments in which they live, by helping to provide equal access to healthy, high-quality, safe and affordable food for people in all communities. Growing Power implements this mission by providing hands-on training, on-the-ground demonstration, outreach and technical assistance through the development of Community Food Systems that help people grow, process, market and distribute food in a sustainable manner.

Donate Today!

During the month of March, a portion of all donations will be matched by the Feinstein Foundation.

Growing Power, Inc. is led by Will Allen, winner of a MacArthur “genius” award for his work promoting sustainable urban food systems and training urban youth. A national nonprofit and land trust, Growing Power has urban farms in Milwaukee and Chicago. In November 2008, Allen visited New Orleans to assist the New Orleans Food and Farm Network.

52 [http://www.kitchengardeners.org/2009/03/whats\\_a\\_home\\_garden\\_worth.html#more](http://www.kitchengardeners.org/2009/03/whats_a_home_garden_worth.html#more); <http://my.kitchengardeners.org/forum/topics/economics-of-home-gardening>.

53 <http://www.growingpower.org/>

programs rely on foundation grants for survival.<sup>54</sup>

- **Community building and social capital.** A community garden is not only a source of food and flowers but also a place that builds community. Several programs across the country use community gardens to provide job training and entrepreneurial experience for at-risk youth.<sup>55</sup> Schoolyard gardens have also become popular educational tools.<sup>56</sup>

**Community gardens.** Many cities utilize public land as community gardens that lease small garden plots to residents at a low cost on a first-come, first-served basis. Typically, residents must agree to keep the plot in acceptable condition, but may grow whatever they choose. There are several community gardens throughout New Orleans.

**Private gardens and food production.** As of July, 2009, the New Orleans Zoning Ordinance does not specify whether gardening is allowed on private property, but the new zoning ordinance being developed in concert with this master plan presents an opportunity to explicitly allow private gardens.

Numerous U.S. cities have also adopted zoning clauses that allow small animals such as hens to be raised on private property as a source of fresh eggs or simply as pets. Chicken-keeping ordinances vary



widely but generally include bans against roosters (due to noise) and slaughtering. Most regulate the number of hens allowed, placement and upkeep of coops, cleanliness and health concerns. In cities such as Boston and New York, a license is required for keeping chickens within the city limit, and usually costs a small fee (around \$25). As of July, 2009, chicken coops in New Orleans could be found at the Viet Village Urban Farm in New Orleans East, Bienville Garden in Central City, and God’s Vineyard in the Lower Garden District. Several initiatives are under way to increase access to urban agriculture:

- **The Viet Village Urban Farm** in New Orleans East sits on

### U.S. CITIES WITH CHICKEN-KEEPING ZONING CLAUSES:\*

- |                   |                   |                  |                      |
|-------------------|-------------------|------------------|----------------------|
| • Ann Arbor, MI   | • Ft. Collins, CO | • Madison, WI    | • San Antonio, TX    |
| • Baltimore, MD   | • Houston, TX     | • Miami, FL      | • San Francisco, CA  |
| • Bloomington, IN | • Key West, FL    | • New York, NY   | • Seattle, WA        |
| • Brainerd, MN    | • Longmont, CO    | • Pittsburgh, PA | • South Portland, ME |
| • Chicago, IL     | • Los Angeles, CA | • Portland, OR   | • St. Louis, MO      |
- \*As of July, 2009.

20 acres in the heart of a residential community, and will have 30 to 40 community garden plots, five 1-acre commercial growing plots, a poultry and livestock area for free-range chickens and goats, areas for recycling of organic wastes, and three market pavilions where growers can sell fresh-grown delicacies.<sup>57/58</sup>

- **The Hollygrove Market and Farm**, founded by the **Carrollton-Hollygrove Community Development Corporation** and the **New Orleans Food and Farm Network**, grows and sells fresh and affordable produce.

54 Roythe, Elizabeth. “Street Farmer.” *The New York Times*: July 5, 2009.

55 See: [www.growingpower.org](http://www.growingpower.org) and [www.added-value.org](http://www.added-value.org).

56 See: [www.edibleschoolyard.org](http://www.edibleschoolyard.org).

57 Tulane City Center: <http://www.tulanacitycenter.org/news/37>; <http://www.gourmet.com/food/2009/05/gardening-101-new-orleans-east>

58 <http://vietvillage-urban-ag.org/default.aspx>

- **The New Orleans Food and Farm Network** works to ensure equal access to fresh foods for all New Orleanians and provides training, seeds, and technical assistance to growers of all levels.<sup>59</sup>
- **Parkway Partners** offers technical assistance to residents to develop vacant land into community gardens, including legal assistance and gardening education.
- **Edible School Yard:** The Samuel J. Green Charter School's Edible School Yard helps integrate organic gardening and fresh seasonal cooking into the school's curriculum. Students are involved in all steps of the process, from planting seeds to cooking.
- **Food Policy Advisory Council:** Established by the New Orleans City Council, the Council advises the city on way to increase access to healthy food and healthy eating choices for all residents.
- **The Lower Ninth Ward Farming Coalition** is a partnership of local groups working to establish a sustainable food system in the Lower Ninth Ward.<sup>60</sup>

According to urban agriculturists, challenges to expanding urban agriculture in New Orleans include:

- Finding dedicated gardeners to self manage and maintain the garden.
- Ensuring that available land is suitable for growing food. Soil testing is relatively inexpensive and should be required of any food that is grown for commercial sales.
- Ensuring proper maintenance and avoiding attracting pests.
- Legal control and liability.
- Training and technical assistance in gardening techniques.
- Securing startup operating funds.



IMAGE: [HTTP://WWW.TULANE-CITY-CENTER.ORG/PROGRAMS/PROJECTS/IMAGES/HOLLYGROVE-MARKET.JPG](http://www.tulane-city-center.org/programs/projects/images/hollygrove-market.jpg)

## 7. Solid Waste

The City of New Orleans Carbon Footprint Report, published in July, 2009 as part of the Cities for Climate Protection Campaign (*see above*), found that in 2007, the solid waste produced in New Orleans was composed of:

- 26.2 percent paper waste
- 16.4 percent food waste
- 7.6 percent plant debris
- 13.5 percent wood or textiles
- 36.3 percent from other sources.<sup>61</sup>

### RESIDENTIAL AND COMMERCIAL SOLID WASTE SERVICE

The City of New Orleans Department of Sanitation enforces the sanitation code, provides public education on littering and waste reduction programs, oversees the Louisiana Department of Environmental Quality (LDEQ) compliance order relative to the closed Recovery 1 municipal landfill, and oversees contracts

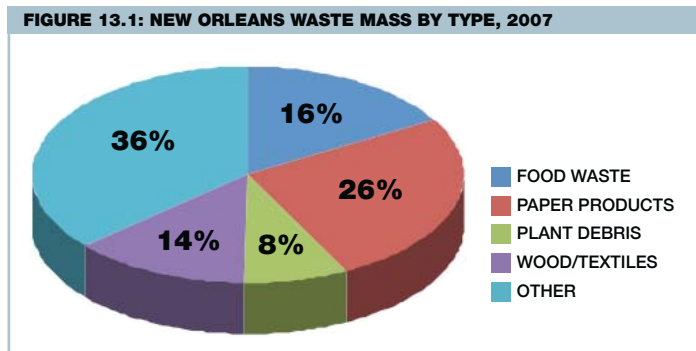


IMAGE: CITY OF NEW ORLEANS CARBON FOOTPRINT REPORT. JULY, 2009.

59 New Orleans Food and Farm Network: [www.noffn.org](http://www.noffn.org).

60 <http://www.lowernineurbanfarming.org/>

61 City of New Orleans Carbon Footprint Report. July, 2009.

with three businesses to pick up trash and garbage from residential and commercial addresses in three zones: north of I-10; south of I-10; and the French Quarter and Downtown Development District (DDD). Customers are billed for these services on their water and sewer bill. The contracts were executed in 2006 and cover 7 years. The French Quarter and Downtown Development District receive daily service, while the rest of the city receives twice-weekly trash pickup. Some businesses and large multi-family developments are required to pay for the service. This residential and commercial waste goes to the city's Florida Transfer Station on Elysian Fields and the Riverbirch Landfill in Gretna, a Type I and II landfill authorized to receive industrial, residential or commercial solid waste. This landfill is expected to continue to have sufficient capacity for these categories of waste from the City until at least 2043.

The 2009 budget for the Sanitation Department is \$43 million and it has 31 full time employees. Funding comes primarily from the General Fund, with smaller amounts from the Downtown Development District and federal grants. Unfunded priorities for 2009 included additional funds for special events clean up, street cleaning, the hauling and waste disposal contract, temporary laborers, recycling and municipal dumpsters.

## CONSTRUCTION DEBRIS DISPOSAL

In addition to the Type I and II landfills, there are several landfills in the region that are open for disposal of construction debris (C/D): the Highway 90 Jefferson Parish landfill in Avondale; and the Gentilly Landfill at 10200 Almonaster Avenue, owned by the city and operated by AMID/Metro Partnership. A third landfill, Chef Menteur, at 16600 Chef Menteur Blvd, is closed. Several landfills are permitted to receive only "woody waste," including the Recovery I municipal landfill in New Orleans East (closed in the 1990s and permitted only to accept wood chips for erosion control), and Industrial Pipe in Belle Chasse. After Hurricane Katrina, disposal of construction debris from demolition and construction activities became a pressing issue.

### The Gentilly Landfill

The Gentilly Landfill (sometimes called "Old Gentilly") is built on top of a closed municipal landfill that operated from the 1960s to 1982. It is located within the regional business park. The city submitted a permit request to the Louisiana Department of Environmental Quality (LDEQ) in 2002 for a construction debris and wood waste (Type III) landfill and was issued a permit with a number of conditions. The conditions had not yet been met at the time Hurricane Katrina struck. The LDEQ issued an emergency permit in September 2005, which has since been extended many times. After the Louisiana Environmental Action Network sought judicial review of the order because of concerns about potential leaching of toxics and other issues, LDEQ settled in 2006 by agreeing to a series of actions and monitoring activities:

- The landfill is limited to receive no more than 50,000 cubic yards of debris a day, but was reported by the federal General Accounting Office to be receiving approximately 6,000 to 7,000 cubic yards a day in summer 2008.<sup>62</sup>
- Disposal must be sequenced on the site, so that when the debris reaches 25 feet, a new section must be opened up, and so on over the entire site.
- Ten inclinometers were installed on the southern slope of the landfill to monitor the integrity of the slope. It is the only landfill in Louisiana to have these installations and so far the landfill is stable.
- A groundwater monitoring plan was implemented with 11 groundwater wells around the perimeter and 3 surface water sampling ports. Quarterly tests for 62 chemicals in groundwater and 9 chemicals in surface water are taken. Reports indicate that the 8 chemicals found outside of normal ranges are present in surrounding soil sediment and not in water filtered of the soil sediment.

62 GAO-08-985R, *Hurricane Katrina: Continuing Debris Removal and Disposal Issues*, August 25, 2008.

The estimated remaining permitted capacity of the landfill is 11.4 million wet-weight tons, with an estimated facility life of 210 months (17.5 years).

A lawsuit was filed in late 2007 alleging that much of the property occupied by the landfill was sold as subdivision lots in the 1990s and also includes land owned by the school district. As of 2009, the suit had not yet been resolved.

### The Chef Menteur Landfill

Another landfill in New Orleans East briefly operated during four months in 2006 (following Hurricane Katrina). The 100-acre Chef Menteur Landfill was located in a borrow pit created during the building of levees and closed in the 1980s. It is not lined, nor does it have a leachate monitoring system, as modern sanitary landfills do. Reopened under emergency authority in April 2006, it immediately faced strong opposition from the nearby Vietnamese community, from the US Department of the Interior because of its proximity to Bayou Sauvage National Wildlife Refuge, and in the form of a lawsuit. Mayor Nagin decided to close the landfill in August 2006.

## RECYCLING

As of 2009, the City of New Orleans had not offered municipal recycling service since Hurricane Katrina, although more than one private company in the city offer curbside residential recycling pick-up for a fee,<sup>63</sup> and there are a number of recycling drop-off locations.<sup>64</sup> Recycling services was listed in the city's adopted budget as an unfunded priority for 2009, with an estimated cost of \$500,000 for "recycling collection" and \$7,500,000 for "enhance recycling collection." In 2009, the Office of Coastal and Environmental Affairs planned to develop a volunteer speaker's bureau to increase curbside recycling participation.<sup>65</sup>

## COMPOSTING

As of 2009, New Orleans did not offer municipal composting service. However, many U.S. cities offer curb-side pick-up of compostable waste in addition to pick-up of trash and recycling. Twenty-four percent of the New Orleans' solid waste is composed of food or plant debris (**see above**) and could therefore be used as compost if the city offered such a program. The City of San Francisco's compost pick-up program also accepts all types of paper; if New Orleans could also offer this service, more than half of the city's solid waste could be composted.

The **Second Line Project** is an initiative that works to reduce waste, and promote environmental awareness and sustainable design as part of Mardi Gras.<sup>66</sup>

***For more information on the city's waste management systems, see Chapter 10—Community Facilities, Services and Infrastructure.***

63 Phoenix Recycling ([www.phoenixrecyclingnola.com](http://www.phoenixrecyclingnola.com)) and Labrano Recycling offer residential curbside pick-up as of June 2009.

64 The Green Project—<http://www.thegreenproject.org/>—offers limited on-site recycling collection.

65 City of New Orleans: <http://cityofno.com/portal.aspx?portal=47&tabid=4>

66 [www.secondlineproject.com](http://www.secondlineproject.com)

## 8. Environmental Health

The City Department of Health is charged with enforcement, adjudication and correction activities to maintain environmental health standards. The Department's Environmental Enforcement program had a budget of \$346,860 in 2009, and planned to perform at least 3,500 environmental hazard inspections in that year.<sup>67</sup> **For more information on code enforcement, see Chapter 5—Neighborhoods and Housing.**

### AIR QUALITY

In 2007, the Louisiana Department of Environmental Quality measured five common urban air pollutants<sup>68</sup> and reported that pollutant levels were not high enough to pose a threat to the health of New Orleans residents.<sup>69</sup>

The Louisiana Bucket Brigade is a nonprofit environmental health and justice organization that provides technical assistance and resources, including EPA-approved “buckets” for obtaining and testing air samples for pollution. The City Department of Health administers the state-funded Asthma in Louisiana program, which provides asthma treatment and prevention; in 2009 the budget for this program was \$523,110.<sup>70</sup>

### LEAD CONTAMINATION

Lead poisoning has been shown to cause cognitive and nervous system disorders—including learning disabilities and behavioral problems—in children, and reproductive, nervous system, and blood pressure problems in adults. Recent studies have also shown strong links between lead exposure and delinquency/criminal behavior in teenagers.<sup>71</sup> Two main sources of environmental lead contamination are gasoline lead additives (which contaminate soils primarily through vehicle emissions) and lead-based paint. While leaded paint and gasoline are now rare due to federal legislation which limits their use (lead-based interior paint is now banned nationally), older parts of US cities typically exhibit high concentrations of lead due to years of accumulation.<sup>72</sup>

Since 1990, research teams led by Howard Mielke of the Tulane Center for Bioenvironmental Research has collected 10,000 soil samples from across New Orleans and developed the map above depicting lead concentrations in New Orleans. The study reveals some of the highest concentrations of lead contamination of soil in the nation in New Orleans—particularly among the city's oldest neighborhoods.<sup>73</sup> A 2006 Environmental Protection Agency (EPA) study also shows residential soils in New Orleans exceed the EPA and Louisiana Department of Environmental Quality standard for soil lead levels in more than one-third of 147 samples collected. (The soil in St. Roch, for instance, contains some of the highest concentrations of lead in residential soil in the nation.) The EPA says the primary source of lead in those samples is lead-based paint, which was widely used in homes before 1978.<sup>74</sup>

67 City of New Orleans adopted operating budget, 2009.

68 Pollutants measured included: Nitrous Oxide (NOx); Sulfuric Dioxide (SOx); Carbon Monoxide (CO); Volatile organic compounds (VOCs); and particulate matter (PM10), a unit of measurement for particles and particle density in the air. For more information, visit: [http://www.icleiusa.org/action-center/learn-from-others/2.1.Fact%20Sheet\\_Air%20Pollutants%20and%20Public%20Health\\_BD.pdf](http://www.icleiusa.org/action-center/learn-from-others/2.1.Fact%20Sheet_Air%20Pollutants%20and%20Public%20Health_BD.pdf).

69 City of New Orleans Carbon Footprint Report. July, 2009.

70 City of New Orleans adopted operating budget for 2009.

71 See studies by Herbert L. Needleman, including: Needleman, HL, C McFarland, RB Ness, SE Fienberg and MJ Tobin, “Bone lead levels in adjudicated delinquents. A case control study,” *Neurotoxicology and Teratology* Vol. 24 (2003), pgs. 711-717.

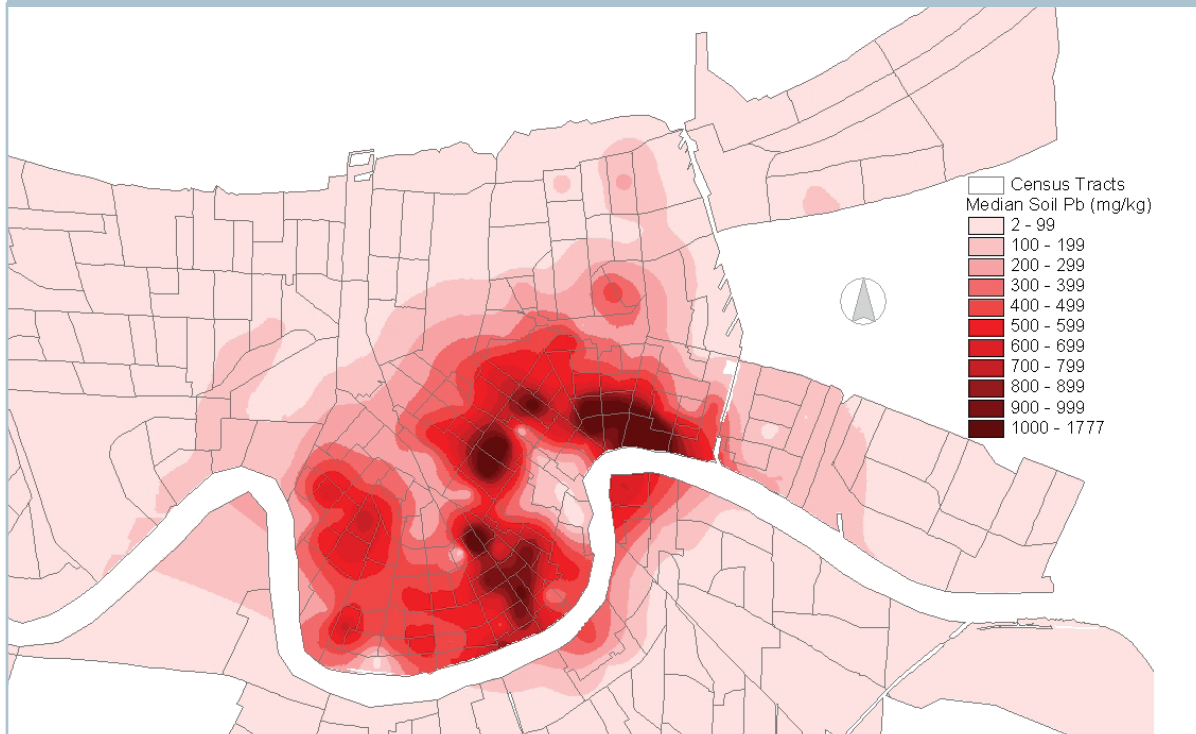
72 US Environmental Protection Agency. [www.epa.gov](http://www.epa.gov).

73 *Ibid.*

74 *Ibid.*



MAP 13.1: LEAD CONTAMINATION OF SOIL



*The US EPA states that a soil-lead hazard exists at 400 ppm (mg/kg) in bare soil for play areas for children. This limit is higher than most other western countries, e.g. Norway's quality criterion for lead content in soil from day care centers is 100 mg/kg. Several areas of New Orleans indicate much higher levels—more than double the EPA's acceptable amount.*

According to the study led by Mielke, 14 percent of all children and 25 percent of inner-city children in New Orleans are affected by lead poisoning.<sup>75</sup> A study by the Centers for Disease Control in 2005 found that 42 percent of children under 6 years old and living in poverty in New Orleans had elevated lead levels in their blood.<sup>76</sup>

An estimated 86,000 properties in the City of New Orleans exceed the EPA threshold for lead in soil. Mielke estimates that the cost of remediating all 86,000 properties is around \$300 million.

Several initiatives in New Orleans are working to remediate lead contamination. They include:

- **The Tulane/Xavier Center for Bioenvironmental Research:** Researchers led by Dr. Howard Mielke have found that soils near the Bonnet Carré Spillway in Louisiana contain low levels of lead, and may present one local solution to the issue of soil remediation. Experimental programs have already been conducted using the alluvium sediments (silt deposited by the river) to remediate properties in New Orleans. The Center also performs research and advocacy around lead contamination issues.<sup>77</sup>
- **Operation Paydirt:** A team of scientists organized by Operation Paydirt, an initiative led by artist Mel Chin (known for his land art involving plan remediation of toxic soils) is investigating a range of methods to address the problem of lead contamination in-situ. **(See next page.)**

75 GreeNOLA Plan

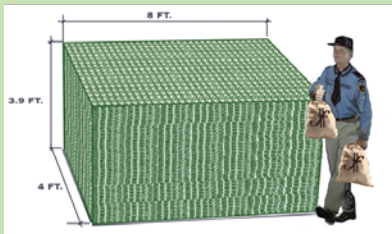
76 Day, Mollie. "Heavy Metal." *The Times-Picayune*. January 5, 2009. <http://bestofneworleans.com/gyrobase/Content?oid=oid%3A48817>

77 Mielke, Howard. [http://www.geotimes.org/may05/feature\\_leadlegacy.html](http://www.geotimes.org/may05/feature_leadlegacy.html). Retrieved July, 2009.

## OPERATION PAYDIRT: Providing a solution

OPERATION PAYDIRT is focused on providing a solution to lead-contaminated soils in order to create an environmentally sound foundation for future city development. A diverse team is working with city, state, and federal leaders to develop the OPERATION PAYDIRT citywide implementation plan that considers best scientific methods, practical engineering, landscape design and community development. This plan will detail strategy and workforce development for the implementation phase of creating a lead-safe city.

In addition to providing physical logistics, OPERATION PAYDIRT is committed to seeking consultation and support from the Environmental Protection Agency, Army Corps of Engineers, and members of Congress to mobilize the funds and resources needed for this undertaking. Existing funds for lead abatement will be identified as well as the long-term benefits of preventative strategies of offsetting lead-related costs on the local and federal levels for crime, health, and education.



### FUNDRED DOLLAR BILL PROJECT: \$300 MILLION ART CASH FOR NOLA

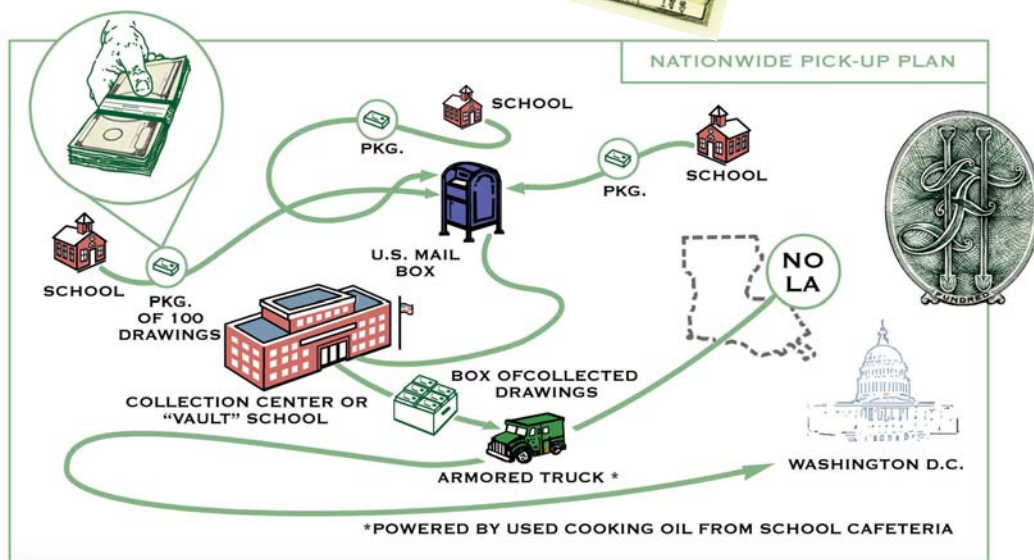


THE FUNDRED DOLLAR BILL PROJECT is a creative collective action involving 3,000,000 students and educators across the country to raise awareness and support for a lead-safe New Orleans through the production of "FUNDRED DOLLAR BILLS"—original interpretations of U.S. one-hundred-dollar bills.

\$300,000,000 in expressive cash will be collected by armored truck and delivered to Washington, D.C., where an even exchange of the value of their art currency for actual funds will be requested to implement

OPERATION PAYDIRT's citywide solution.

PROJECT LOCATION: Schools and museums throughout the UNITED STATES



## OPERATION PAYDIRT

### THE SAFEHOUSE OF ST. ROCH



SAFEHOUSE protects what is truly valuable: the creative expressions of the children of New Orleans. This house turned into a bank vault displays thousands of locally created “bills.” OPERATION PAYDIRT team members and neighbors are on site to share information about the project with visitors and school groups.

PROJECT LOCATION: K.K. Projects  
 Art is Life Foundation  
 2461 North Villere

OPERATION PAYDIRT recognizes that any citywide solution to lead-polluted soil must be minimally invasive and cost effective. For this reason, *in situ* strategies are the preferred choice.

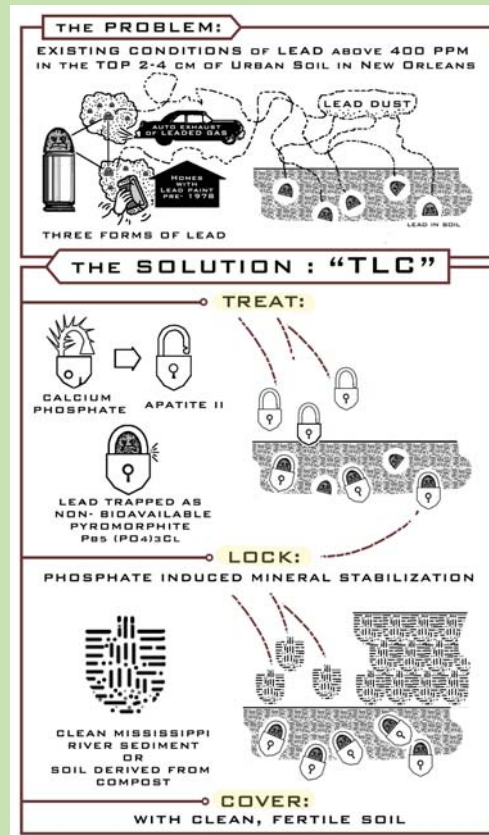
OPERATION PAYDIRT is currently exploring whether the lead in urban residential soils in New Orleans can be effectively stabilized using Apatite II, a form of calcium phosphate engineered specifically for a high-capacity to bond with and stabilize dangerous heavy metals, and for a low incidence of the phosphate leaching commonly associated with environmental degradation.

The PROJECT will deliver the VOICE of our country’s youth who have decided to donate their creativity to assist New Orleans, a PROTOCOL that is defensible, scientific, and pragmatic to transform polluted conditions, and the PROGRAM to accomplish this task on a citywide scale.

It will also present a SUSTAINABLE soil-creation plan, capable of generating revenue, as New Orleans becomes the model of rescue from lead that affects so many American Cities.

Project descriptions and graphics provided by OPERATION PAYDIRT

### “TLC” PROCESS THAT CREATES A LEAD-SAFE ENVIRONMENT FOR ALL



The Treat Lock and Cover (TLC) method expands upon a previous successful strategy where lead-contaminated soil was covered with a layer of clean soil, thereby reducing pediatric exposure. TLC takes this method one step further by transforming all toxic forms of lead into safer inert forms through mineral stabilization. By treating lead-contaminated soil with



phosphate amendments similar to garden fertilizer, dangerous soluble forms of lead are locked into highly stable mineral formations, rendering the lead contaminants essentially inert (*i.e.*, nontoxic or non-bioaccessible) and immobile on extremely long time scales.

PROJECT LOCATION: All PARTS of the  
 CITY of NEW ORLEANS  
 with elevated LEAD  
 POLLUTION in the soil

- **The New Orleans Department of Health** provides education to families, construction workers and property owners about risks of lead poisoning, and also offers lead screenings, which it aims to increase by 50 percent in 2009.<sup>78</sup>
- **The New Orleans LEAD Program (NO LEAD)**, run by the city's Neighborhood 1 office, has received a Lead Hazard Control Grant from HUD to fund a lead-based paint remediation program. Neighborhood 1 has also received funding to repair its Lead Safehouse for families relocated during remediation of their homes.

## ILLEGAL DUMPING

Illegal dumping in portions of New Orleans East corridor, a serious problem before Hurricane Katrina, accelerated after the storm. Landowners were operating unpermitted dumps and individuals dropped trash and debris by the side of the road. In some cases, debris was pushed into wetlands and petroleum and heavy metals leached from car junkyards into the water.

In March and April of 2007, LDEQ, along with federal and local authorities, implemented "Operation Cleansweep" to find illegal dumps and enforce the law. They went door to door in the corridor, inspecting 178 sites and referring 147 for enforcement. The 82 percent of sites referred indicates how widespread the problem was. Violations included the unauthorized disposal of solid waste, transporting solid waste to an unauthorized location, and open burning of debris. Twenty potential wetland sites were also examined for potential violations and five property owners were cited.

City government does not have adequate resources for regular enforcement of dumping. The City should ask LDEQ and federal authorities to assist the city and repeat the 2007 sweeps every two years. However, in 2008 Councilmember Willard-Lewis established an Illegal Dumping Task Force made up of relevant city departments, to focus on strengthening code enforcement of illegal dumping in the city's industrial areas, particularly in New Orleans East.

## OTHER ENVIRONMENTAL HEALTH HAZARDS

**Blight and Vacancy.** Vacant properties pose health hazards in the form of physically unstable structural elements, mold and mildew, insects and vermin, as well as transient "squatters" who may present the additional risks of fire and crime. Unoccupied residential addresses in New Orleans are estimated to number as many as 71,000 as of January, 2009. This situation is further complicated by severely understaffed and underfunded code enforcement capacity in the City. **For more information on code enforcement, see Chapter 5—Neighborhoods and Housing.**

**Effects of Flood Waters.** In August, 2006, the US Environmental Protection Agency (EPA) released the results of a study indicating that, in general, the sediments left behind by the flooding from the hurricanes are not expected to cause adverse health impacts to residents. The study involved analysis of approximately 1,800 sediment and soil samples in the greater New Orleans region.<sup>79</sup>

**Brownfields.** Brownfields are industrial and commercial sites that are abandoned or underused because of real or perceived contamination. There are 15 identified brownfields in New Orleans. The largest deterrent to brownfield redevelopment is the cost—again, either real or perceived—of remediating or removing hazardous materials from these sites. Benefits of redeveloped brownfield sites include increased quality of life for nearby residents, elimination of contamination, and increased municipal

<sup>78</sup> City of New Orleans adopted budget, 2009.

<sup>79</sup> US EPA: [http://www.epa.gov/Hurricane Katrina/testresults/sediments/summary.html](http://www.epa.gov/Hurricane%20Katrina/testresults/sediments/summary.html)

tax revenues from redevelopment activities and from a renewed productivity of formerly inactive land.<sup>80</sup> Federal tax incentives allow taxpayers to receive a federal income tax deduction for certain qualifying remediation costs.


The Mayor’s Office of Coastal and Environmental Affairs maintains a database of potential brownfield sites, and is able to provide assistance in the redevelopment of those properties. The New Orleans’ Brownfields Cleanup Revolving Loan Fund, managed by BankOne Louisiana, provides low interest loans to clean up contaminated property.<sup>81</sup>


**Superfund Site.** The Environmental Protection Agency (EPA) since 1980 has identified sites contaminated with hazardous materials that meet criteria as among the most dangerous to human health and the environment—popularly called superfund sites.<sup>82</sup> The only superfund site in New Orleans is the Agriculture Street Landfill. The site served as a municipal landfill from 1909 to 1960 and then was briefly reopened to accept debris from Hurricane Betsy. Closed again in 1966, part of the site was redeveloped starting in 1976 with housing, businesses, and an elementary school. Resident advocacy resulted in placement of the site on the National Priorities List (the Superfund List) in 1994 and EPA supervised site remediation was completed in 2002 (soil removal, placement of plastic barrier, placement of clean soil).

Site inspections of the Agriculture Street Landfill were conducted after Hurricanes Hurricane Katrina, Gustav and Ike by the EPA and the Louisiana Department of Environmental Quality. No damage was found. After two 5-Year Reviews by the EPA, the agency has found that the remedy is successful and the procedure is underway to remove the site from the National Priorities List. However, there are currently no plans for redevelopment of the site.<sup>83</sup>

**NEW ORLEANS WETLANDS, BAYOU BIENVENUE: A LOWER NINTH WARD INITIATIVE PROJECT (NOWBB)**

NOWBB was established to bring local and national awareness to Bayou Bienvenue and the Lower Ninth Ward and to spur community-based economic development through environmental education and green technology. NOWBB’s goals include: tourist attractions along the





Bayou, environmental educational programs and an environmental learning center, an environmentally-friendly park, community gardens, and various green microenterprises.

80 International City/County Management Association. *Brownfields Redevelopment: A Guidebook for Local Governments and Communities—Second Edition*. A publication of the Superfund/Brownfield Research Institute. <http://www.smartgrowthamerica.org/resources.html>.

81 City of New Orleans Office of Coastal and Environmental Affairs

82 US EPA: [http://epa.custhelp.com/cgi-bin/epa.cfg/php/enduser/std\\_adp.php?p\\_faqid=172](http://epa.custhelp.com/cgi-bin/epa.cfg/php/enduser/std_adp.php?p_faqid=172).

83 [http://www.dhh.louisiana.gov/offices/publications/pubs-205/AgricultureStLandfill-NewOrleansHC082906\\_1.pdf](http://www.dhh.louisiana.gov/offices/publications/pubs-205/AgricultureStLandfill-NewOrleansHC082906_1.pdf)

## **B** What The Public Said

Previous plans for New Orleans emphasized the need to keep residents safe from environmental hazards like lead, improve air and water quality, and improve qualities of everyday life that embody the principles of Smart Growth. The GreenOLA plan spells out a path to sustainable recovery that includes both infrastructural and administrative means to implementation.

During the Master Plan process, public attention focused particularly on the following environmental quality concerns:

- Increase use of renewable energy.
- Provide incentives for on-site solar energy production.
- Increase energy efficiency in homes and businesses.
- Establish workforce development programs in renewable energy and related technologies.
- Re-establish citywide recycling service.
- Embrace green building technologies in public and private development.
- Encourage deconstruction, salvaging and reuse of building materials during construction demolition.
- Promote the image of New Orleans as a “green” and sustainable city.
- Examine the city’s building code for ways to incorporate green building standards.
- Encourage the use of pervious surfaces and less reliance on concrete.
- Provide supermarkets within easy access of all residents.
- Support and encourage urban agriculture.