

Sustainability and Green Space in Chicago

By Emily Heald

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Despite Chicago's efforts to develop greening initiatives, its programs are significantly behind those of the greenest cities in the world. Though they cover many areas, the city's three main plans remain in early development. This lack of progress could be due in part to Chicago's history as an industrial city. Steel production defined the southeast side of the city until the industry closed in 1992. The city's reliance on industry could have prevented the creation of strong sustainability initiatives, because those initiatives may have opposed the interests of Chicago industry.

In recent years, Chicago has placed more emphasis on sustainability. While the previous mayor, Richard M. Daley was in office, he made green initiatives a priority. In fact, he announced that he wished to turn Chicago into one of the greenest cities in the world. As a result, Chicago has developed several comprehensive sustainability plans. The city has received much attention for its innovative ideas for increasing the amount of green space. Chicago has a well-developed park system and has created countless rooftop gardens on city buildings. Thus, though Chicago's efforts to be sustainable seem to be significantly behind the

greenest cities of the world, Chicago does have unique green-space initiatives that some of the most innovative sustainable cities lack.

In the following pages, I will first describe the basic goals of Chicago's three plans, and then I will note their strengths and weakness. I will then layout Chicago's green-space and green rooftop initiatives, which I believe to be Chicago's best practice. In conclusion, I will look at what lies ahead for Chicago; are the city's ideas portable and realistic to implement in other cities?

Assessment of Plans

Chicago has several sustainability plans that cover many important areas. One plan, "Eat Local, Live Healthy," centers on promoting local agriculture. Another, focusing on urban design, is titled, "Adding Green to Urban Design." The third is Chicago's general plan, titled "Chicago Climate Action Plan." The "Eat Local, Live Healthy" plan outlines the city's problems relating to agriculture, and it mentions possible methods of fixing those problems. However, it lacks an in-depth explanation on how exactly the mentioned problems will be solved. In comparison, the Climate Action Plan is comprehensive, covering many areas including energy, transportation, and waste. It also contains useful statistics, but, like the local food plan, it lacks specific methods of carrying out initiatives and metrics. Thus, the urban design plan seems to be Chicago's most developed plan. The "Adding Green to Urban Design" plan explains why a plan is necessary, what the exact urban design goals are, and how the goals will be carried out. It lists specific actions the city plans to take as well as the estimated dates of completion. Therefore, though Chicago's

three sustainability plans are comprehensive, “Adding Green to Urban Design” is the most specific and the only well-developed plan.

Chicago encourages local agriculture in the “Eat Local, Live Healthy” plan. The plan aims to increase the supply of locally grown food; increase both food production and composting in city neighborhoods; make Chicago the home of local, all-natural, organic processing; and make local food more accessible. Though the plan explains ways in which these goals could be achieved, it does not lay out the specific measures Chicago is taking to carry out the outlined goals. For example, the plan mentions that one of Chicago’s goals is to increase the supply of locally grown produce. To achieve this goal, the plan explains that Illinois farmland must be preserved. It suggests that “area governments and officials must assess their commitment to farmland preservation [...] the assessment should include the potential for farmers to replace a portion of corn and soybean production with fruits, vegetables, livestock and poultry” (City of Chicago, 2007). The plan gives no further description of the assessments; it neither requires them, nor does it provide dates of completion. If this plan were to contain metrics and more detail, it could be of better use to the city.

In comparison, Chicago’s Climate Action Plan is comprehensive, but it tends to be vague. The *Chicago Reader* calls it an “ambitious-if-toothless” plan (“Mayor Daley Continues,” 2011). It provides the foundation for a good plan, yet it needs more to be more specific. The plan contains sections on green buildings, clean and renewable energy, transportation, and waste. While not given a section, green jobs are briefly addressed throughout the plan (City of Chicago, 2009)

In the building section, the plan suggests that Chicago try to retrofit 400,000 buildings by 2020 in order to make the city's buildings more sustainable. This is a commendable goal, but the plan does not offer any detail about how the city will go about retrofitting so many buildings. The plan does offer good statistics; for example, it explains, "Reducing energy consumption and emissions by an average of 30 percent in 9,200 buildings by 2020 could produce reductions of 1.3 MMTCO₂e" (City of Chicago, 2009). However, it does not mention how to go about reducing consumption other than through retrofitting. Thus, though on the right track, the proposed solutions suggested by the plan should contain more substance.

The Climate Action Plan's section on greening Chicago's energy also needs to be more specific. The city's goal is to "use large-scale renewable sources to reduce electricity emissions by 20 percent, enough to replace four coal-fired power plants" (City of Chicago, 2009). It does not further describe how the city is going to achieve this goal. The city has begun to install solar panels on many public buildings, though, and more than twenty percent of the electricity used in city buildings and thirty percent used in Chicago Park District facilities was purchased from green power in 2007 (City of Chicago, 2009). Thus, the city has made improvements, yet the energy initiatives in the Climate Action Plan are not as innovative as those of other cities.

Chicago recognizes that through greening its urban design, it can greatly reduce the amount of waste the city produces. The urban design plan is split in to three focused sections: improving water usage and conserving local bodies of water, improving air quality, and creating adequate green-space. The plan outlines the

basic changes to urban design that can help carry out these goals, lists specific initiatives, and finally lists estimated dates of completion for those initiatives.

Chicago plans to retrofit its urban design in order to better use water.

As a result of Chicago's location on Lake Michigan and the Chicago River, proper water usage is extremely important. The city has the additional responsibility of keeping these bodies of water clean. The steps the city has taken to reduce water consumption and prevent pollution have benefitted the Chicago River greatly already. For example, the plan describes the problems Chicago has with its sewage system. Too much water is being sent to the sewage system, thus during rainstorms it often floods, sending dirty water into local bodies of water. To solve this problem, the city has been building a Tunnel and Reservoir Program (TARP). TARP is a system of deep rock tunnels and surface reservoirs that store runoff and sewage temporarily during storms, thus prevents flooding. Chicago's urban design plan is much more developed, and as described, it offers specific solutions to identified problems (City of Chicago, 2008).

As most cities do, Chicago faces air-quality issues. Therefore, the plan aims to make the city even more pedestrian and bike friendly to reduce air pollution. It also wants to encourage taking public transportation instead of cars. The plan lists specific methods of encouraging pedestrians. For example, it will "improve pedestrian amenities," and to do so it will "coordinate with the Senior Services Area Agency on Aging to improve bench program; Improve pedestrian crossing design; expand countdown traffic lights" (City of Chicago, 2008). The plan explains that the Department of Transportation will be in charge of this initiative and it is to be

completed by August, 2010.

Finally, the urban design plan focuses extensively on green-space. It aims to increase the amount and improve the quality of green-space in Chicago. One specific initiative is to “update parking garage landscape requirements and develop special-use green design guidelines” (City of Chicago, 2008). This initiative was to be carried out by the Department of Zoning and Planning by December, 2009. This plan offers both specific actions that will be taken as well as metrics, which the other two plans do not provide

In conclusion, “Adding Green to Urban Design” is Chicago’s strongest sustainability plan. Both “Eat Local, Live Healthy” and the Chicago Climate Action Plan need specific, developed initiatives to be more useful. Altogether, Chicago’s plans are able to address local food issues, energy, buildings, transportation, urban design, waste, and green-space; the plans are fairly comprehensive. Even so, many of those areas need to be addressed in much more detail. Green jobs and local business are barely mentioned. Within the urban design plan, the green-space section seems to be the strongest. Thus, I have determined Chicago’s best practice to be its policies on green-space, and even more specifically, its focus on green rooftops.

Green Space

Since the construction of a roof-top garden on top of the city hall building in 2001, Chicago’s green-space initiatives have received attention. Richard M. Daley, mayor from 1989 until May 2011, made greening the city a priority. He placed a

huge amount of emphasis on green-space initiatives. The success of the city hall rooftop garden led to the Green Roof Grants Program. The government began to create incentives for those who retrofit or build buildings with green rooftops. Today, Chicago claims to have over 7 million square feet of green rooftops around the city; more than any other city combined (City of Chicago, 2010-11). However, many believe that Chicago's green-roof programs still contain room for growth. Thus, though the city's green-space initiatives are strong and developed, there is room for improvement.

The city's general green-space initiatives are impressive. Between 1989 and 2002, Mayor Daley planted 300,000 trees. As of 2002, Chicago spent ten million dollars a year on new trees, flowers, and shrubbery ("Green Machine," 2006). The mayor also expanded parkland by about 1,300 acres from 1998 to 2010. He created Millennium Park, a 24.5-acre park built on underground parking garages and commuter rail lines (City of Chicago, 2010-11). He also created the CityScape program, which converts unused open space or vacant lots to parkland and community gardens (Danish Architecture Centre, 2008) Despite these advances, Chicago still has many park deserts. According to the *Chicago Tribune*, "Chicago falls far short of providing the parks and natural areas to support its population of 2.7 million," and many people don't have access to nearby green space ("Mayor Daley Continues," 2011). Though many effective programs have been established, Chicago must continue to expand its green space.

The most successful aspect of Chicago's green-space programs is the effort to encourage green rooftops. Germany's advanced rooftop garden programs first

inspired Mayor Daley to create a garden on top of city hall. The city hall rooftop garden was completed in 2001. It is 20,300 square feet in size, and the garden contains 20,000 plants. This rooftop was very successful; “compared to an adjacent normal roof, City Hall’s green roof was nearly 100 degrees lower, and contributed to \$5,000 in annual energy cost reduction, in addition to improving air quality and reducing storm water runoff” (City of Chicago, 2010-11). The garden absorbs about seventy-five percent of the rainwater that falls on it, which reduces the amount of water sent to the sewage system. Thus, the risk for flooding has decreased. It also acts as an insulator, so it reduces the energy needed for air conditioning by about thirty percent (World Clean Energy Awards).

As a result of the success of the city hall green roof, the Green Roof Grant Program was introduced. The program uses “vast awareness and education campaigns to show that green roofs have a number of benefits, both for individual building owners and the surrounding Chicago community” (World Clean Energy Awards). The program is causing rooftop gardens to become mainstream. The program emphasizes that though they may be more expensive, green roofs last significantly longer than normal ones, and that they will lead to huge energy savings (Paulson, 2006).

The project will give up to \$100,000 in matching funds to developers who seek to retrofit buildings with rooftop gardens. It also provides \$5,000 grants to smaller, residential projects. Furthermore, the city expedites requests for permits through a green permitting process. Finally, the project requires green rooftops on new, city-financed buildings. Though the greening process began with city buildings,

it has successfully spread throughout the city. The Apple store, Target, Wal-Mart, and even a McDonalds have green roofs (Paulson, 2006).

Many critics of Chicago's efforts exist, however. They are quick to point out that though the statistics sound impressive, Chicago's 500 green roofs make up less than one-tenth of a percent of the city's half-million buildings. Many cities, especially in Europe, are way ahead. For example, in Germany, fifteen to twenty percent of roofs are green. In addition, not all of these roofs live up to certain standards. Most gardens are not as large or effective as the one on city hall. A rooftop does not have to be beautiful or large to comply with city standards (Kamin, 2010).

The types of buildings the gardens are constructed on create further inequalities among gardens. For example, as said in the *Chicago Reader*, "Putting a green roof atop McDonald's," an "emblem of the energy-wasting car culture, [is] like sticking a piece of lettuce atop a bacon double cheeseburger and calling it healthy" (Kamin, 2010). In contrast, a restaurant called Uncommon Ground has a rooftop garden that grows a variety of vegetables that are used in the food they serve. However, this type of garden, which promotes local agriculture and organic food, is less prevalent. Many of the rooftops are not part of daily life. They do not receive visitors, nor are local crops grown on them. To further advance their rooftop garden programs, Chicago could tie more of the gardens to local agriculture. Thus, though the city's programs are already progressive, the quality of rooftop gardens could be improved (Kamin, 2010).

Despite all criticisms, however, Chicago's green rooftop initiatives are very

strong. They are practical, easy to implement, and very successful. Among many other benefits, the rooftops reduce the urban heat island effect, decrease the amount of water sent to the sewage system, and significantly reduce energy costs. The government incentives have successfully promoted green rooftops. The strategies used to promote green rooftops are simple. The Green Roof Grant Program incentives encourage retrofitting buildings to include gardens as much as they encourage constructing gardens on new buildings. Retrofitting incentives have allowed the program to become much more effective. Other cities can easily follow in Chicago's footsteps and create successful green roof initiatives.

Conclusion

Overall, Chicago's sustainability initiatives are well behind that of most cities. The three plans are comprehensive, yet the "Adding Green to Urban Design" plan is the only one that goes into detail. The "Eat Local, Live Healthy" and the "Chicago Climate Action Plan" outline what Chicago should do, rather than really explain what the city will do.

If these plans were further developed, they could become useful for the future. Both the local food plan and the general plan address important issues, yet they fail to develop concrete solutions. If specific initiatives and dates of completion were added to these plans, they could be comprehensive and useful. They could help Chicago make significant advances towards becoming more sustainable.

Chicago has been successful with its green-space initiatives. The actions Mayor Daley took to carry out green-space initiatives were both simple and practical. He made expanding Chicago's park system a priority. He also encouraged

rooftop gardens. Green rooftops are easy to implement, save money, and yield significant results. By offering the proper initiatives, any city could easily create a program like that of Chicago. Furthermore, rooftop gardens are practical for individuals to implement. For example, as covered on NBC Nightly News, one Virginia couple was inspired enough by Chicago's success to create a rooftop garden on their home. In the first month with their new roof, they saved twenty-five dollars on their air conditioning bill. That adds up to about three hundred dollars saved per year (Tibbles, 2006). Chicago's ideas are portable, and many cities and individuals are following its lead. Ultimately, if Chicago begins to place as much emphasis on other areas of sustainability as it does on green space, for example on creating green jobs, and using cleaner, renewable energy sources, the city could in fact become very sustainable.

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