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Planning for City Sustainability: GreenWorks Orlando Case Study

Christopher V. Hawkins

Background

Cities are increasingly tackling climate change and broader urban sustainability issues. Recent studies indicate, for example, that approximately 60 percent of US cities with populations over 50,000 now have explicit sustainability efforts or initiatives (Krause et al. 2016). The notable uptick in commitment to and investments in environmental sustainability has shifted the focus of research and practice toward long-term planning for sustainability, organizational and administrative structures, and the implementation and management of local initiatives (Wang et al. 2012; Hawkins et al. 2016; Wang et al. 2017).

Research on local sustainability initiatives is quite varied. For example, studies have used the number and diversity of policy initiatives as indicators of cities "taking sustainability seriously" (Portney 2013). Other studies examine the human capital, financial resources, and organizational structures that are necessary for the successful design and implementation of these initiatives (Krause et al. 2016; Hawkins et al. 2016). Another stream of research, from which this case study draws from, emphasizes the role of city plans and policy documents (Conroy 2006).

Planning occurs primarily at the local level. Cities hold extensive authority to determine and regulate land uses and apply enforcement mechanisms to ensure compliance. In many cities, the plans in which sustainability-relevant

C. V. Hawkins (✉)
School of Public Administration, University of Central Florida, Orlando, FL, USA

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goals and objectives are embedded, especially land use plans, are legally binding. And because they are typically approved by elected officials, planning goals and policies reflect a degree of political commitment. Moreover, long-range land use, transportation, housing, and economic development policies can have significant implications for the timing, location, and characteristics of future growth. The commitment to sustainability through plans aimed at guiding city growth patterns, energy consumption and production, and the allocation of public resources for economic, environmental, and social objectives thus can have substantial impacts on sustainability.

Although the specific context of planning documents varies considerably from city to city, there are general features that plans, particularly plans that present long-term sustainability objectives, have in common. Typically, city plans identify issues and needs, establish goals and objectives for addressing the issues, and set forth policies that provide direction for decision-making. Through plans cities can express their explicit commitment to sustainability by outlining how particular policy actions will address environmental, economic, and social issues in the community at large.

Plans are clearly important for shaping future development and resource allocation, but there is extensive variation in the geographic and policy scope the plan covers. For example, neighborhood plans tend to be geographically focused on specific areas within a city or are targeted to localized issues. In larger communities, sector, district, or master plans for residential, commercial, or mixed-use development may be focused on areas that are less that city wide in scope but are large enough to warrant a comprehensive and integrated approach to land use, transportation, housing, and other substantive planning and policy foci.

In comparison, a city sustainability plan, comprehensive, or master plan provides a long-range community-wide vision. They typically are organized around functional topics or planning subfields, such as energy, transportation and mobility, infrastructure, and environmental protection. They set forth goals and objectives for public decisions related to these subfields and identify mechanisms to implement policies related to a wide range of sustainability-related community issues. For instance, policies in a city-wide plan may seek to reduce auto-produced GHG emissions by enhancing pedestrian infrastructure, include objectives related to property reuse and reinvestment in urban neighborhoods through brownfield redevelopment in order reduce sprawl, and protect the environment by enhancing ecosystems through wetland restoration. Overarching city-wide plans likely take a more integrated approach to decision-making and can have positive impacts on the environment, economy, and equity that are associated with principles of sustainability.

Because city-wide plans impact a variety of stakeholders, the processes employed in their development are critical to their success in addressing community sustainability issues. Private businesses, land developers, homeowners, and a wide range of organized interest groups may be affected by planning policies. Scholarship suggests the methods employed by city staff to engage community stakeholders and solicit their input on community sustainability issues and solutions are essential for the integrity of the planning process (Hawkins and Wang 2012). Planning documents should represent the culmination of a process of community dialogue and reflect some degree of "consensus" on goals, objectives, and implementation action steps.

Municipal and strategic plans represent another planning mechanism that can impact city sustainability. Compared to a community-wide perspective, municipal operation plans are focused inward to city service delivery and the day-to-day activities of departments, units, and agencies within the city government. They emphasize the practices and operations of government units and are designed to influence how units minimize their impacts on the environment through, for example, direct delivery of services to residents and businesses, financial and human resources management, and procedures and processes for purchasing. Although they may not directly link to the substantive policy areas that are covered in city-wide plans, they are nonetheless critical to advancing sustainability principles. For instance, municipal operations plans may provide policies on how cities can reduce carbon footprints and reduce ecological and environmental impacts by constructing energy-efficient buildings or retrofitting existing municipal structures, incorporating best practices for storm water runoff into the management of municipal properties and infrastructure and implementing purchasing practices that reduce waste.

In the following section, we examine how the City of Orlando approaches planning and organizing for sustainability. The case study of the city's initiatives describes the use of two mechanisms described above—a city-wide sustainability plan and a municipal operations plan—and their development under the mayor's signature sustainability initiative called GreenWorks Orlando.

Case Study

The City of Orlando, Florida, is located in Central Florida and is the principal city of the Orlando-Kissimmee-Sanford Metropolitan Statistical Area. Over the last half century, Orlando's population and economy—and carbon footprint—have grown significantly. Between 2000 and 2015, the city

population grew from 194,723 to more than 277,173, representing a 42 percent increase that has been driven in large part by the tourism industry. Population estimates indicate that approximately 67,800 more people will be residing in Orlando by 2040—a 20 percent increase in population from 2015 levels. Similar to many large and growing cities across the county, Orlando's population growth reflects the increasing diversity of the American population. Nearly 18 percent of the city's residents are Hispanic, which has led city officials to reflect on how best to ensure equitable access to city amenities and employment opportunities for these residents—a core dimension of the sustainability concept. The city's economic profile has undoubtedly benefited from population expansion. During the last twenty years, the city has experienced significant employment increases in the technology, health care, and life science industries, and signature public-private development projects, including a performing arts center and soccer stadium, have led to housing and commercial investments throughout the city's downtown neighborhoods.

This economic growth has increased the city's financial resources, provided employment opportunities for residents, and generated positive economic spillovers and benefits to the region as a whole. However, the city faces significant environmental challenges. The Orlando Metropolitan Statistical Area (MSA) has among the most congested roads in America, leading to impaired air quality and urban runoff problems across Orlando. Buildings in Orlando account for more than 75 percent of greenhouse gas (GHG) emissions, and although the city's climate and geographic location provide great potential for solar energy production, less than 2 percent of Orlando's energy comes from renewable sources, and less than 1 percent is generated from solar. To fully offset Orlando's GHG emissions, it is estimated the city would have to plant 1000 trees per resident—approximately 250 million trees city wide. An expansion of the city's infrastructure footprint has also meant an increase in service delivery costs and concerns over the maintenance of public facilities. For example, the city maintains a fleet of approximately 2100 vehicles, with an average fuel economy of 17.6 miles per gallon of fuel. The costs of fueling this municipal fleet exceeds $5.3 million per year, and these vehicles are significant contributors to harmful emissions.

The city's initiatives to address these and other energy, climate, and urban sustainability issues had historically originated from different city departments and units. The lack of an overall policy framework limited the ability of local officials to focus the initiatives they had established by linking them to overarching city goals and aligning the fragmented and sometimes competing departmental initiatives with an agreed upon set of city sustainability

objectives. Moreover, the absence of a long-range energy- and sustainability-focused plan made it difficult to link specific policies and action steps to a specific sustainability issue and, perhaps more importantly, dedicate resources and establish a timeline and responsible department or unit for implementation. It also hampered the ability of staff and the general public to gauge the impact of city initiatives on meeting explicit sustainability objectives over time.

The City of Orlando established GreenWorks Orlando in 2007 as a mechanism to overcome these limitations and to implement the mayor's vision to "transform Orlando into one of the most environmentally-friendly, economically and social vibrant communities in the nation." The program was spearheaded by the mayor and was designed to promote sustainability based on five pillars: (1) conserve natural resource and protect the environment, (2) invest in green buildings, vehicles, and materials, (3) foster alternative transportation options, (4) increase the amount of green spaces and tree coverage in the city, and (5) work together as a community to combat the urgent threat of global climate change.

During the formative years of GreenWorks Orlando, the program was principally focused on capacity building and needs assessment. Capacity building was centered on assigning staff to manage the day-to-day activities of the program and developing an organizational structure from which activities would originate from. An important characteristic of GreenWorks Orlando is its location within the mayor's office. This gave it a high-profile relative to other city departments and units. Being located in the mayor's office enabled GreenWorks staff more direct access to department managers, including those in the budget and finance offices, the chief operating officer, and legal counsel. This organizational structure was symbolic—it signified an explicit commitment, by the mayor, to advance sustainability initiatives in the city. Studies suggest that when the headquarters of sustainability initiatives are in the mayor's or manager's office, it leads to more policies and greater integration across departments in policy implementation (Feiock et al. 2017).

In addition to establishing a clear organizational structure, the formative years included data collection. Staff were principally focused on developing a baseline of data from which to identify city sustainability issues and evaluate needs. GreenWorks Orlando staff collected data on issues ranging from energy use and efficiency, food systems, "green" employment, and other policy areas to understand the challenges and opportunities for making the mayor's vision a reality. The identification of issues was driven by the local context, such as the city's history, geographic location, demographic and economic changes, and issue saliency. GreenWorks Orlando staff also engaged professional

associations, such as the Urban Sustainability Directors Network, to learn best practices, trends in energy and climate change initiatives, and the successes and failures of policies in other cities.

As the initiative matured, two significant organizing mechanisms were established: the adoption of the GreenWorks Community Action Plan and the Municipal Operations Sustainability Plan. These planning projects provided both a long-range community-wide focus on sustainability through the community action plan and in recognition of the impacts city operations can have on the environment, an inward-focused municipal operations plan. Together they reflected the city's attempts to translate the city's vision identified by the mayor into workable policy solutions and action items. The following sections of this chapter highlight how Orlando explicitly expressed a commitment to environmental sustainability through these plans, the processes through which the plans were developed, and the impacts to date these planning initiatives have had on advancing the city's sustainability goals.

Community Action Plan

The establishment of GreenWorks Orlando enabled the city to pursue sustainability in a variety of ways. Among the more important implications of establishing the GreenWorks Orlando initiative was the organizing structure it provided in terms of staff, location within the city hierarchy, and financial resources that provided a foundation from which ideas on how the city can plan for and make explicit in policy documents a more sustainable city.

The first planning initiative conducted under the GreenWorks Orlando umbrella was the creation of the GreenWorks Orlando Community Action Plan. This city-wide plan outlined how Orlando intends to be one of the most environmentally friendly cities in the Southeast. There are three important considerations in the development of the plan. First, related to process, the mayor appointed a 20-member task force comprised of city staff and residents to identify community-wide sustainability issues and to make recommendations on policy and action items. The task force considered inputs from 14 roundtable meetings with subject-matter experts on 7 topics related to sustainability. This was complemented with public input from community meetings and an interactive online forum.

With over 270,000 in population, and a growing and diverse economy, the city committed to implementing a robust and comprehensive strategy of community engagement and generally followed the two distinctive strategies described by Portney (2005): a bottom-up and stakeholder-centric approach

that focused on assembling community support and a top-down approach of acquiring and applying technical expertise from professionals and experts.

The top-down approach is based on the idea that many sustainability issues are technical in nature and, thus, the acquisition of technical support from experts and professionals is the most effective way to solve the problem. During the years preceding the formal launch of the planning process, city staff were engaged in baseline data collection. The collection of this data provided a foundation to begin discussions with city stakeholders. The inclusive and deliberative citizen engagement process conducted by the city was initiated to influence stakeholders' appraisal of the issue and raise awareness of the need for policy and funding to address the issues identified by the city staff. This bottom-up approach, it is argued, improves the success rate of implementation because there is likely greater stakeholder "buy in" of community issues and goals, which is needed to obtain support from elected officials to adopt and implement the plan (Portney and Berry 2010). A combination of community engagement and expert-influenced processes is found to be particularly important in developing commitment to sustainability from elected officials—particularly the provision of financial resources to implement the initiatives (Wang et al. 2014; Wang et al. 2017).

This process resulted in the identification of goals and actionable strategies in seven distinct focus areas:

- Energy/green buildings
- Food systems
- Green economy
- Livability
- Solid waste
- Transportation
- Water

A second important consideration in developing the GreenWorks Community Action Plan was the direction given to the task force by the mayor's office. After staff and stakeholders identified sustainability issues by asking "why is the topic important to sustainability in Orlando and where is the City at today," the planning process emphasized two primary questions that would guide debate and dialogue among members of the task force as they honed the plan's goals and policies—(1) what are the environmental impacts? and (2) what is the potential for creating jobs that positively impact Orlando's economy? These questions reflect the city's attempt to reconcile two

priority areas that are often perceived to pull in opposite directions—economic growth and environmental protection.

In posing these questions, the city was asking participants of the planning process to explore the potential "co-benefits" that come from environmental-focused policy. The co-occurrence of local benefits—for example, the positive economic impacts from reduced traffic congestion, investments in green industries, and positive health benefits from reduced air and water pollution—is often advanced as an explanation for the pursuit of local sustainability efforts (Krause 2012). Highlighting the potential co-benefits, especially economic benefits that align with the goals of business elites and land developers, is particularly important when local officials must convince skeptics of the advantages of pursuing environmental objectives of sustainability (Bulkeley and Betsill 2003).

A third consideration in the development of the GreenWorks Community Action Plan is that it provided an umbrella mechanism from which other city plans would be related. The most significant of these plans was the comprehensive community plan. The city's comprehensive plan establishes goals and objectives for future land use, transportation systems, and parks and recreation, among other planning focus areas. The GreenWorks Orlando Community Action Plan and the Orlando Comprehensive Community Plan become self-reinforcing. For example, the future land use element includes goals and policy statements related to the use and management of land, zoning, and enforcement mechanisms that have long-term implications for city energy systems, including where solar panels can be constructed, design considerations, and the impact solar installation may have on abutting properties and municipal infrastructure. The GreenWorks Community Action Plan provided a policy reference for city staff who are developing new long-range growth management policies and updating municipal land use codes.

Municipal Operations Sustainability Plan

The second major planning effort to originate under the banner of GreenWorks Orlando was the Municipal Operations Sustainability Plan. This plan followed in the footsteps of the community action plan with the goal of the city becoming fully sustainable by the year 2030.

Through the development of this plan the city examined their ongoing operations, areas of improvement, and set forth aggressive goals that were intended to enhance economic opportunity for residents and businesses through environmental investments. The Municipal Operations Sustainability

Plan focuses on "transforming the City's governmental operations into one the most environmental sustainable governments in the United States."

The municipal operations plan is organized around nine substantive areas:

- Greenhouse gas emissions
- Green buildings
- Electricity
- Water
- Transportation/fleet
- Transportation/employee commuting
- Materials management and purchasing
- Urban forest
- Education

An important component of the municipal operations plan is the inclusion of benchmarks. Benchmarks include the baseline conditions and the future targets from which progress in achieving the short-term objectives is measured against. For example, in the municipal operations plan, a 15 percent reduction in GHG emissions (in tons of CO_2) from existing emissions is an objective used to evaluate progress in meeting the larger goal of becoming greenhouse gas neutral for municipal operations by 2030. The plan also includes action items that, when implemented, will lead to goal achievement.

A second important aspect of this planning approach is the annual progress reports produced by GreenWorks Orlando staff. The progress reports provide a reporting system whereby staff update elected officials on the actions item that have been implemented over the course of a year. The annual progress report also identifies the extent to which the goals have been achieved.

The establishment of this organizational structure enables the city embed commitments in planning documents. The first mechanisms are through its long-range comprehensive plan. The GreenWorks staff collaborated with the planning staff to identify sustainability issues and to create solutions.

Implications for Local Activities

What are the broader implications for advancing Orlando's sustainability efforts as a result of adopting the GreenWorks Orlando Community Action Plan and the Municipal Operations Sustainability Plan? Generally, the community action plan and municipal operations plan provided a coalescing

point of departure for the city's initiatives. They provided an explicit commitment to sustainability and focused the fragmented and sometimes competing departmental approaches to reducing harmful GHG emissions and promoting sustainable energy consumption.

The plans also established clear benchmarks the city established for itself but also the mechanisms and action steps the city would implement to achieve the goals. For example, among the city's sustainability goals expressed in the Community Action Plan are to ensure 100 percent of new and existing buildings meet green building standards by 2040, reduce GHG emissions by 90 percent from the 2010 levels by 2040, and reduce total electricity consumption by 20 percent from the 2010 levels by 2040.

Perhaps more important is the plan's outlined potential action steps and strategic partnerships that could be established to achieve these and other goals. One strategic initiative identified in the community action plan was to pursue a partnership with the City Energy Project. The City Energy Project is a national initiative to create healthier and more prosperous American cities by promoting energy-efficient buildings. The City of Orlando joined this project, and through this collaborative effort, the city is demonstrating its commitment to developing innovative, practical solutions that cut energy waste, boost local economies, and reduce harmful pollution—achieving the co-benefits of environmental protection. Collaborating with the City Energy Project has led to improved staff capacity in terms of technical expertise that enables the city to more effectively target proposed energy efficiency improvements of commercial buildings across the city. Engaging the City Energy Project, which is supported by the community action plan, provided a clear direction for staff via supporting owners and operators of buildings to reduce energy consumption and their carbon pollution, while expanding Orlando's energy services economy and encouraging the growth of clean energy jobs. Research suggests that a city's organizational design and resource commitments, through, for example, policy and planning documents, signal to prospective partners such as the City Energy Project that they will are willing and able to fulfil collaborative obligations (Hawkins et al. 2017).

Another initiative supported by the community action plan is the development of "Orlando Runs on Sun." This initiative is led by the City of Orlando, in collaboration with the Green Future Alliance, whose members have worked together to develop a strategic framework that identifies appropriate methods of integrating solar and other sustainable development practices into all major sectors of Central Florida. Participation in the City Energy Project and Orlando Runs on Sun is expected to promote two key aspects of the community action plan: promote environmental conservation and reducing harmful GHG pollutants and promoting green development and growth.

Lessons Learned

The case of Orlando's sustainability planning framework provides important lessons for local governments that are both actively engaged in promoting sustainability and that are developing a path toward success.

- The placement of GreenWorks Orlando in the mayor's office signaled its importance to the larger community and to city staff—environmental sustainability is a priority for the city.
- GreenWorks Orlando, as the city's overarching sustainability initiative, provided an explicit point person for policy implementation and from which collaborative activities originated from.
- The process of developing the Community Action Plan was inclusive and deliberative—a bottom-up approach to issue identification that was completed by a staff-driven technical perspective led to a plan that was accepted by a wide range of stakeholders.
- The Community Action Plan and the Municipal Operations Sustainability Plan included baseline data that was used to determine the extent to which the city is "moving the needle" and achieving its sustainability objectives.
- The planning documents outlined specific action steps for implementation, and the annual progress reports required staff to demonstrate whether the activities were completed and to document the outcomes.
- The Community Action Plan and the Municipal Operations Sustainability Plan articulated city goals and established policy direction and served as mechanisms through which the city has leveraged meaningful collaborative partnerships that have resulted in demonstrable progress in meeting the city's sustainability needs.

Challenges and Barriers

Although Orlando has made strides in achieving its goal of becoming the greenest city in America, there are a number of challenges it must overcome. One significant barrier is the propensity of surrounding communities to freely ride on the city's efforts. The city's investments in energy efficiency and using alternative energy sources to power its municipal buildings and fleet can have a positive impact on the goal of curbing GHG emissions. However, at a regional level, the city's actions may not have a significant impact if surrounding cities do not make similar investments. For some activities, a localized approach can certainly achieve environmental goals and produce economic

co-benefits, but a regionally integrated approach is necessary to meet sustainability goals that are very difficult to achieve if a city acts alone.

A second significant challenge for implementation is whether GreenWorks Orlando will continue under future city administrations. Although the initiative is promoted by the mayor, thus making it visible and a high priority, it has not been institutionalized via a city ordinance. Its future thus depends in part on whether future mayors see the value in the initiative and whether the Community Action Plan or the Municipal Operations Sustainability Plan aligns with his or her political incentives.

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