GREEN PRACTICES IN ORANGE COUNTIES:
A SURVEY OF SUSTAINABLE POLICIES AT THE LOCAL LEVEL

By

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Executive Summary
With elected officials making public commitments to sustainability efforts, local government managers need to know what sustainable tools are out there and how their community is doing compared with other communities. This paper explores the extent to which local governments in Orange County, California and Orange County, North Carolina are implementing sustainable policies and programs. The findings provide local managers with a toolbox of sustainable practices reflecting variation among diverse cities and counties.
Introduction
The earth’s climate has changed on global and regional scales since pre-industrial times. Sustainability is becoming a hot topic at all levels of government. ICMA’s Public Management Magazine calls sustainability “the issue of our age and a concern for local government.” Along with state and federal agencies, local governments are beginning to recognize the importance of creating sustainable communities. Nationwide, cities are leading the way in advancing new strategies to reduce climate change. As of 2008, more than 900 mayors have signed the U.S. Mayors Climate Protection Agreement. The question this paper seeks to answer is: To what extent is the growing awareness and concern backed by concrete policies and programs?

This paper documents sustainable practices that some local governments have adopted, identifies popular tools, and explores some factors that correspond with adoption rates. Local government managers can use this paper as a starting point for building and improving sustainability efforts in their own communities.

Methodology
A Sustainable Practices Survey was created based on literature review and conversations with local government managers. (See Appendix A for a copy of the survey.) The survey is a 75-item checklist of various sustainable practices divided into six general action areas:

1. City Buildings and Facilities
2. Traffic, Transportation, and Public Works
3. Community Planning, Green Building Standards, and LEED Certification
4. City Purchasing Policies, Recycling, and Employee Programs
5. Community Waste Reduction and Recycling Programs
6. Public Education and Other Community Programs

Local governments in Orange County, California and Orange County, North Carolina were selected to be surveyed. These two counties were chosen because they were expected to report a wide range of sustainable practices given their significant diversity in population size, household income, educational attainment, political climate, and other community factors. Also expected to influence adoption rates is California’s reputation of innovation and environmentalism.

However, it is important to note that as one of the most politically conservative areas in California, Orange County may lag behind the rest of the state in terms of sustainable practices. Conversely, the towns of Carrboro and Chapel Hill have the reputation as two of the most liberal communities in a conservative state. With Orange County, California being a conservative area in a liberal state and with two of four municipalities in Orange County, North Carolina being liberal communities in a conservative state, it will be interesting to compare the sustainable practices each region is implementing and to find any commonalities.

The survey was sent to 34 jurisdictions in Orange County, California and to five jurisdictions in Orange County, North Carolina. Twenty-one completed surveys were received (16 from California and five from North Carolina).

Limitations
Given the small sample size, this paper is not meant to provide a comprehensive list of sustainable practices at the local level. Rather, the goal of this paper is to give local managers a sense of what types of sustainability tools are being used and to give them ideas for developing sustainable policies and programs for their own communities.
Next, the survey does not address the cost or effectiveness of sustainable practices. The survey is meant simply to gauge local governments’ participation in sustainability efforts.

Lastly, a variety of factors not explored in this paper may influence a jurisdiction’s adoption of sustainable practices. These factors include resources available, priorities of the local governing board, support from the community, ease of implementation, and cost savings associated with each practice. Furthermore, overarching state and federal policies define the context for local action by setting sustainability standards that must be met or exceeded.

**Findings**

Overall, there appears to be considerable activity in implementing sustainable practices at the local level. The responses suggest a strong level of local government involvement across the 21 responding jurisdictions. See Appendix B for a summary of survey results.

**Most Popular Tools**

Eight tools are used by 75 percent or more of responding jurisdictions (See Tables 1 and 2 on the next page for most adopted tools by state):

- Replacement of incandescent lighting with fluorescent lighting (90%)
- Waste reduction and recycling program in government offices and facilities (90%)
- Lighting fixture upgrades and retrofits (86%)
- Use of recycled paper products (86%)
- Single-family residential recycling program (81%)
- Community e-waste disposal program (76%)
- Installation of new lighting control switches or occupancy sensors (76%)
- Provision of energy, recycling, and water conservation educational programs and materials to residents (76%)

There are two major observations regarding the implementation of specific policies and programs. First, local governments appear much more focused on their own facilities and operations than on the community at large. This makes sense since it is easier and more logical to tackle internal operations before launching community-wide programs. Setting policies for the community is more challenging, particularly because other entities – such as regional transportation authorities and utility companies – may also have influence over the policy area. Also, addressing government facilities and internal operations first may be a strategy of leading by example. After all, it would be difficult to ask the community to make changes if government has not first made an effort.

Second, local governments appear most likely to adopt practices that are relatively easy to implement, that have low cost, and that generate rapid cost savings. Costs vary greatly among surveyed practices. Some practices, such as switching to fluorescent lighting, are easy to implement and result in quick cost savings while other practices, like tree planting projects, require more time and are quite costly.

**Least Popular Tools**

Ten tools are used by 10 percent or less of responding jurisdictions:

- Installation of solar panels or solar heating for City buildings (10%)
- Installation of solar water heating for City swimming pools (10%)
- Photovoltaic or other system for on-site electricity generation (10%)
- Hyper-insulated roofs or walls (5%)
- Replacement of conventional roofs with green roofs (5%)
- Installation of solar-powered streetlights or park lights (5%)
- Mandatory LEED certification for new commercial development (0%)
Least popular tools tend require more money and effort to implement than the most popular tools. Note that none of the jurisdictions have implemented mandatory LEED requirements for new development or remodeling. In North Carolina, local mandatory LEED requirements cannot exist because local governments are not free to adopt building regulations different from state building codes. This is an example of overarching state policy defining the context for local action. In California, local governments have the freedom adopt building regulations different from state building codes, provided that they are more stringent that the state codes, but none of the responding jurisdictions have implemented mandatory LEED requirements.

Table 1: California Top Tools and Adoption Rates

<table>
<thead>
<tr>
<th>Category</th>
<th>Tool Description</th>
<th>Adoption Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. City Buildings &amp; Facilities</td>
<td>Replacement of incandescent lighting with fluorescent lighting</td>
<td>94%</td>
</tr>
<tr>
<td></td>
<td>Installation of new lighting control switches or occupancy sensor</td>
<td>81%</td>
</tr>
<tr>
<td></td>
<td>Lighting fixture upgrades/retrofits</td>
<td>88%</td>
</tr>
<tr>
<td>2. Traffic, Transportation &amp; Public Works</td>
<td>Installation of LED traffic signal light bulbs</td>
<td>81%</td>
</tr>
<tr>
<td></td>
<td>Implementation of weather-controlled irrigation systems for City parks, medians,</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>or other landscaped areas</td>
<td></td>
</tr>
<tr>
<td>3. Community Planning, Green Building Standards &amp; LEED Certification</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>4. City Purchasing Policies, Recycling &amp; Employee Programs</td>
<td>Use of recycled paper products</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Waste reduction and recycling program in City offices and facilities</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Purchasing Policy or Ordinance requiring or encouraging use of recycled products</td>
<td>75%</td>
</tr>
<tr>
<td>5. Community Waste Reduction and Recycling Programs</td>
<td>Single Family Residential Green Waste Recycling Program</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Community E-Waste Disposal Program</td>
<td>81%</td>
</tr>
<tr>
<td></td>
<td>Single Family Residential Recycling Program</td>
<td>81%</td>
</tr>
<tr>
<td>6. Public Education &amp; Other Community Programs</td>
<td>Provision of energy/recycling/water conservation educational programs and materials to residents</td>
<td>75%</td>
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</tbody>
</table>

Table 2: North Carolina Top Tools and Adoption Rates

<table>
<thead>
<tr>
<th>Category</th>
<th>Tool Description</th>
<th>Adoption Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. City Buildings &amp; Facilities</td>
<td>Replacement of incandescent lighting with fluorescent lighting</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>Lighting fixture upgrades/retrofits</td>
<td>86%</td>
</tr>
<tr>
<td></td>
<td>Installation of new lighting control switches or occupancy sensor</td>
<td>76%</td>
</tr>
<tr>
<td>2. Traffic, Transportation &amp; Public Works</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>3. Community Planning, Green Building Standards &amp; LEED Certification</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>4. City Purchasing Policies, Recycling &amp; Employee Programs</td>
<td>Waste reduction and recycling program in City offices and facilities</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>Use of recycled paper products</td>
<td>86%</td>
</tr>
<tr>
<td>5. Community Waste Reduction and Recycling Programs</td>
<td>Single Family Residential Recycling Program</td>
<td>81%</td>
</tr>
<tr>
<td></td>
<td>Community E-Waste Disposal Program</td>
<td>76%</td>
</tr>
<tr>
<td>6. Public Education &amp; Other Community Programs</td>
<td>Provision of energy/recycling/water conservation educational programs and materials to residents</td>
<td>70%</td>
</tr>
</tbody>
</table>
See Appendix C for a complete list of tools and their adoption rates by state.

Given state differences, it was surprising that California and North Carolina are similar in the number and types of policies implemented per jurisdiction. California jurisdictions report implementing an average of 33 surveyed policies and North Carolina jurisdictions report implementing an average of 34. However, a closer look reveals some major differences between California and North Carolina policy adoption patterns. Some policies are more likely to be implemented in California while others are more likely to be implemented in North Carolina.

California jurisdictions are much more likely to use rubberized asphalt and recycled aggregate for street construction and resurfacing, to install weather-controlled irrigation systems, and to have residential green waste recycling programs. California may be more likely to install weather-controlled irrigation systems since rain in California is a scarce resource. As for the use of rubberized asphalt and recycled aggregate, no climate-related barriers exist for North Carolina not to use rubberized asphalt and recycled aggregate. It appears that North Carolina simply has not adopted the practice.

On the other hand, North Carolina jurisdictions are much more likely to have anti-idling policies for government vehicles and to complete emissions inventories and carbon footprint studies. That California jurisdictions rarely report anti-idling policies or emissions inventories is a surprise, given the state legislature’s focus on reducing greenhouse gas emissions. In 2002, California adopted legislation to limit greenhouse gas emissions from new vehicles sold in the state. In 2006, the state passed the Global Warming Solutions Act with the goal of reducing emissions to 1990 levels by 2020. See Chart 1 for a comparison of adoption rates by state.

**Chart 1: Major Adoption Differences**

<table>
<thead>
<tr>
<th>Policy Type</th>
<th>California</th>
<th>North Carolina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family Residential Green Waste Recycling Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of rubberized asphalt for street construction/resurfacing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of recycled aggregate for street construction/resurfacing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weather-controlled irrigation systems for City parks, medians, or other landscaped areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-Family Residential Green Waste Recycling Program</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-idling Policy for City vehicles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completion of Greenhouse Gas Emissions Inventory or Carbon Footprint Study</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Factors Associated with Local Action**

This section examines possible relationships between adoption rate and population, income, education, and politics. It is useful to consider the high adopter and low adopter cities. In California, the high adopters are Anaheim (73 adopted tools), Irvine (54), and Costa Mesa (45) and the low adopters are Seal Beach (19), Brea (14), and Fountain Valley (1). In North Carolina, the high adopters are Carrboro (51) and Chapel Hill (51) and the low adopters are Hillsborough (16) and Mebane (5).

**Population Size**

As expected, it appears that larger population size is related to higher adoption rate. In California, the low adopters have populations under 100,000 and the high adopters have populations over 100,000. Similarly, in North Carolina, high adopters have larger populations than low adopters. It appears that larger jurisdictions are more likely to adopt climate-related policies. This may be because larger communities have an easier time mobilizing necessary information, resources, and support. Smaller
communities are likely to be at a disadvantage in terms of staff resources to address climate issues. See Appendix D for a comparison of adoption rates and population size. vi

**Household Income**
Surprisingly, household income does not appear related to the adoption of sustainable practices. One may expect higher income jurisdictions to be more active in implementing climate-related policies because they may have an easier time mobilizing resources, but this does not appear to be the case. Both in California and in North Carolina, the median household income is comparable between low adopters and high adopters. See Appendix D for a comparison of adoption rates and median household income. vi

**Educational Attainment**
As expected, higher educational attainment appears related to higher adoption rates in North Carolina. In North Carolina, the jurisdictions with higher educational attainment are the high adopters. However, in California, educational attainment does not appear to correlate with adoption rate. See Appendix D for a comparison of adoption rates and educational attainment, as measured by the percent of residents who have completed a bachelor’s degree or higher. vii

**Political Climate**
As expected, there appears to be a tie between political climate and adoption rate. It appears that communities with a higher Republican share are slightly less likely to adopt sustainable policies. Voters in low adopting jurisdictions in both California and North Carolina appear to have more conservative party affiliations, with the trend more pronounced in North Carolina. See Appendix D for a comparison of adoption rates and political climate, as measured by the percent of registered voters who are registered Republicans.

**Implications for Local Government Managers**
The results of this survey suggest that local government sustainability efforts are well underway in Orange County, California and Orange County, North Carolina. Activity is generally higher in communities with larger populations, higher educational attainment, and more liberal political leanings. Household income does not appear to be related to a jurisdiction’s likelihood of adopting sustainable practices.

With elected officials making public commitments to sustainability efforts, local government managers need to know what sustainable tools are out there and how their community is doing compared with other communities. The 75-item survey can be used as a tool for local managers to gauge their jurisdiction’s participation in sustainable practices.

In communities not already taking action to address sustainability, local government managers can review the list of most popular tools for ideas on how to get started. Many popular tools, such as replacing incandescent lighting with fluorescent lighting and using recycled paper products in government offices, are simple and can be implemented immediately. Most of these tools can be implemented as stand-alone practices or as part of a broad climate action plan.

In communities already taking steps to address sustainability, local government managers can use the survey to gauge how their policies and programs compare with those of other communities. Managers can check for new ideas not yet implemented but that might work in their communities.
Footnotes

i Watson, R.T. and the Core Writing Team (Eds.) *Third Assessment Report: Climate Change 2001*. The United Nations Intergovernmental Panel on Climate Change.


iv The Leadership in Energy and Environmental Design (LEED) Green Building Rating System, developed by the U.S. Green Building Council, is a third-party certification program and a nationally accepted benchmark for sustainable construction.

v 2007 US Census Bureau Estimate

vi 2007 US Census Bureau Estimate

vii 2000 US Census

Bibliography


Acknowledgements

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