

# AGENDA

## Commission for the Environment

June 10, 2013

7:30 p.m.

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Southern Human Services Center  
2501 Homestead Road, Chapel Hill

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- | <b><u>Time</u></b> | <b><u>Item</u></b> | <b><u>Title</u></b>   |
|--------------------|--------------------|---|
| <b>7:30</b>        | <b>I.</b>          | <b>Call to Order</b>  |
| <b>7:32</b>        | <b>II.</b>         | <b>Additions or Changes to Agenda</b>   |
| <b>7:35</b>        | <b>III.</b>        | <b>Introduction of New CFE Members</b><br>On May 21 the BOCC appointed four new members to the Commission: Susie Enoch, Donna Lee Jones, Steven Niezgoda and Jeanette O'Connor. New members will be asked to introduce themselves and any particular interests in serving on this advisory board. (Attachment 1)  |
| <b>7:50</b>        | <b>IV.</b>         | <b>Approval of Minutes – April 8</b> (Attachment 2)   |
| <b>8:00</b>        | <b>V.</b>          | <b>OWASA Forest Management</b><br>CFE members who attended the May 2 tour of OWASA's Mitigation Tract will share their observations and, perhaps, recommend follow-up action. (Attachments 3-5)   |
| <b>8:30</b>        | <b>VI.</b>         | <b>State of the Environment 2013</b><br>Staff will provide an overview and timetable for developing a 2014 State of the Environment report. DEAPR Intern (Malcolm Munkittrick) will identify potential new environmental indicators and format changes for CFE consideration and feedback. (Attachments 6-7)  |
| <b>9:00</b>        | <b>VII.</b>        | <b>CFE Liaison to the OUTBoard</b><br>The CFE has been asked for a representative to serve as a liaison to the Orange Unified Transportation Board (OUTBoard). (Attachment 8)   |
| <b>9:10</b>        | <b>VIII.</b>       | <b>Updates and Information Items</b><br>Staff and/or CFE members will provide updates on the following items: <ul style="list-style-type: none"><li>➤ Proposed screening of film about industrial hemp (Attachment 9)</li><li>➤ Community solid waste forum – May 30 (Attachment 10)</li><li>➤ "The Nature of Orange" photography contest (Attachment 11)</li><li>➤ Revised Orange Co. energy, water &amp; fuel conservation policies (Att 12)</li><li>➤ Energy, water &amp; fuel performance report for 2012 (Attachment 13)</li><li>➤ UNC Sustainability newsletter (Attachment 14)</li></ul> |
| <b>9:30</b>        | <b>IX.</b>         | <b>Adjournment</b>  |

***Next meeting:*** August 12 (Hillsborough)

## CFE Meeting Ground Rules

1. Keep to agenda topic under discussion
2. Share relevant information
3. One person speaks at a time after recognition by the Chair
4. Everyone is invited to participate in discussions / no one person should dominate discussions
5. Strive to reach consensus first before voting

**Orange County**  
**COMMISSION FOR THE ENVIRONMENT**  
(updated May 28, 2013)

NAME OF MEMBER HOME ADDRESS/TELEPHONE	POS #	DATE OF APPOINTMENT COMMITTEE (Representation)	TERM ENDS	BUSINESS TELEPHONE E-MAIL	TOWNSHIP OF RESIDENCE
Lucy Adams 5128 Green Meadow Rd. Hillsborough, NC 27278 919-942-8925	#2	3/21/06 Air & Energy (Air Quality)	12/31/13	919-316-3916 lhadams1@mindspring.com	Chapel Hill
May Becker 511 Cotton Street Chapel Hill, NC 27516 919-969-7439	#1	9/21/10 Air & Energy (At Large)	12/31/14	919-969-7439 tomatocutter@yahoo.com	Chapel Hill
Terri Buckner 306 Yorktown Drive Chapel Hill, NC 27516 919-942-9055	#6	11/8/12 Air & Energy (At Large)	12/31/13	919-672-8271 tbuckner@ibiblio.org	Chapel Hill
Peter Cada 420 Coach House Lane Hillsborough, NC 27278 919-599-9866	#10	9/21/10 Water & Biological (At Large)	12/31/14	919-485-8278 peter.cada@tetrattech.com	Hillsborough
<b>Susie Enoch</b> 4002 McGowan Creek Road Efland, NC 27243 336-260-7694	#8	5/21/13 TBA (At Large)	12/31/13	336-260-7694 enochts@aol.com	Cheeks
Loren Hintz 804 Kings Mill Rd. Chapel Hill, NC 27517 919-993-8987	#4	1/27/09 Water & Biological (Biological Resources)	12/31/13	919-929-2106 x41157 ldhintz@bellsouth.net	Chapel Hill
<b>Donna Lee Jones</b> 3035 Carriage Trail Hillsborough, NC 27278 919-732-4672	#5	5/21/13 TBA (Water Resources)	12/31/15	919-541-5251 donnaleejones13@hotmail.com	Eno
David Neal (Chair) 323 West Queen Street Hillsborough, NC 27278 919-824-1814	#13	9/21/10 Air & Energy (At Large)	12/31/15	919-732-2156 David.L.Neal@gmail.com	Hillsborough
<b>Steven Niezgoda</b> 524 Patriot's Pointe Dr. Hillsborough, NC 27278 716-998-1490	#14	5/21/13 TBA (At Large)	12/31/15	716-998-1490 steve.niezgoda@gmail.com	Hillsborough
<b>Jeanette O'Connor</b> 117 S Peak Dr. Carrboro, NC 27510 703-678-6893	#12	5/21/13 TBA (At Large)	12/31/14	703-678-6893 jeanette.oconnor@gmail.com	Chapel Hill
Tom O'Dwyer 105 Boulder Lane Chapel Hill, NC 27514	#15	8/28/06 Air & Energy (At Large)	<b>12/31/12</b>	919-906-0581 greenbuilder4us@aol.com	Chapel Hill
Jan Sassaman (Vice Chair) 201 Bolinwood Drive Chapel Hill, NC 27514	#7	12/13/11 Air & Energy (At Large)	12/31/13	919-933-1609 jan.sassaman@gmail.com	Chapel Hill
Gary Saunders 103 Woodshire Lane Chapel Hill, NC 27514 919-942-0045	#9	1/27/09 Air & Energy (Engineer)	12/31/15	919-707-8413 gary.saunders@ncdenr.gov	Chapel Hill
David Welch 20 East Drive Chapel Hill, NC 27516 919-929-8391	#11	9/21/10 Water & Biological (At Large)	12/31/14	919-406-2101 davwelch@hotmail.com	Chapel Hill
Samuel Yellen 121 Hanna Street Carrboro, NC 27510 919-368-1611	#3	11/8/12 Water & Biological (Land Resources)	12/31/14	919-843-2025 samuel.yellen@gmail.com	Chapel Hill
David Stancil Rich Shaw Tom Davis	245-2522 245-2514 245-2513 245-2510	Director, Dept. of Environment, Agriculture, Parks & Rec. Land Conservation Manager Water Resources Coordinator Administrative Assistant		dstancil@co.orange.nc.us rshaw@co.orange.nc.us tdavis@co.orange.nc.us	

**Orange County  
Commission for the Environment**

**DRAFT Meeting Summary**

**April 8, 2013**

**Southern Human Services Center, Chapel Hill**

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MEMBERS PRESENT: David Neal (Chair), Jan Sassaman (Vice Chair), Lucy Adams, May Becker, Terri Buckner, Peter Cada, Loren Hintz, Bill Kaiser, Tom O'Dwyer, Gary Saunders, David Welch

MEMBERS ABSENT: Sam Yellen

STAFF: Rich Shaw, Tom Davis

GUESTS: Gayle Wilson, Cody Marshall, Kellem Agnew Emanuele, Jeanette O'Connor

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- I. **Call to Order** – Neal called the meeting to order at 7:32 pm.
- II. **Additions or Changes to Agenda** – None
- III. **Approval of Minutes** – Sassaman motioned to approve the March 11 meeting summary as written; seconded by Kaiser. Motion approved unanimously.
- IV. **Food Waste Collection and Composting** – Gayle Wilson (Director, Orange Co. Solid Waste Management) thanked the CFE for the invitation to discuss this matter and introduced Cody Marshall (OC Recycling Programs Manager).

Marshall provided an overview of County's food waste collection and recycling program. He described his department's efforts to collect food waste and other compostable organic material from local restaurants, grocery stores, and food service establishments for composting. Marshall said the program has helped divert nearly 2,000 tons from landfill disposal each year.

Marshall described the process of gathering food waste and other organics from about 30 locations using a private contractor (Brooks, Goldston, NC). He said the suppliers need to average more than 4,000 lbs. per visit to make it worthwhile for collection.

Marshall described two new efforts to increase the recycling of food waste and organics in Orange County. The first is the upcoming re-opening of the solid waste convenience center in northern Orange County (Walnut Grove Church Rd.). The state-of-the-art facility will include an area to accept residential food waste—the first in North Carolina. The second new effort is an ongoing pilot project to collect food waste at three schools in the Chapel Hill-Carrboro district. The success of this program will require more support (or "buy in") from the students and faculty for a reduced level of waste contamination.

Marshall and Wilson answered questions from CFE members about the cost of the program, the source of funding, contractor selection, selling compost to county residents, the potential inclusion of UNC campus/hospital [*they operate own separate program*], methane recovery by Brooks Contracting [*not at this time*], the potential future installation of an aerobic digester for converting waste to energy.

Becker asked about the potential for expanding the program, such as reducing the individual volume requirements, residential pick up, and accepting farm organics. Marshall discussed the difficulties with residential pick up, exemplified by the fact that there are less than five programs that have attempted this in the US and Canada. He said the County's organic area at new solid waste convenience center will be a good initial effort to test this approach. Marshall said the County picks up organic materials from two breweries, and some of that goes to an area farm.

Neal thanked Wilson and Marshall and asked if there is anything the CFE could do to support this program. Wilson said the recycling of organic food waste is just one part of the current integrated system and it will continue to work only if there remains to be economies of scale throughout the system to fund the different program components.

- V. **Orange County Curbside Recycling Program** – Neal reviewed the discussion from the March meeting about the County considering to eliminate its curbside recycling for residents in unincorporated sections of the county and the potential privatization of rural curbside collections through a franchise contract. He referenced background materials in the CFE meeting packet and handed out a resolution approved by the Solid Waste Advisory Board (SWAB). He asked Sassaman to provide an overview of the resolution.

Neal handed out a draft position statement that he prepared for CFE consideration. He provided an overview of the statement and answered questions from the members. CFE members discussed the proposed statement and whether there was urgency in submitting this information prior to tomorrow night's board of county commissioners meeting (April 9). Members discussed the idea of creating a single solid waste collection and disposal tax district, as was suggested in the SWAB resolution.

CFE members discussed interest in maintaining some form of the current integrated system for recycling waste from county and municipal residents. They asked Wilson how the County intends to fund the current recycling program. Wilson said the County plans to stop charging the 3R fee in July 2013 and use \$1.7 million from its solid waste landfill funds to fund the recycling program in 2013-14.

CFE members restructured the position statement and agreed to include a suggestion that the County and its partners consider the single solid waste tax district approach. The CFE agreed to have Neal to make the final edits and work with staff to submit the document as a CFE memo to the BOCC Clerk prior to the April 8 BOCC meeting. The CFE asked staff to provide copies to towns of Chapel Hill, Carrboro and Hillsborough.

- VI. **Committee Meetings** – The committees did not meet due to the late hour.
- VII. **Updates and Information Items** – There was no discussion of the update and information items provided earlier: a) CFE recruitment efforts, b) the Orange County legislative agenda package 2013, c) the potential repeal of the state solar tax credit, and d) the levels of NC conservation trust funds in the Governor McCrory budget.

Buckner reported that the OWASA staff is willing to provide CFE members with a tour of the OWASA Mitigation Tract to see the forest management activities on that site. Shaw said he would work with the OWASA staff to arrange the tour.

- VIII. **Adjournment** – Neal adjourned the meeting at 9:40 pm.

**ORANGE COUNTY  
COMMISSION FOR THE ENVIRONMENT**

**MEMORANDUM**

To: Ed Kerwin, Executive Director  
Orange Water and Sewer Authority

From: David Neal, Chair  
Orange County Commission for the Environment

Date: May 15, 2013

Re: Forestry Tour of the OWASA Cane Creek Mitigation Tract

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On behalf of the Orange County Commission for the Environment (CFE) I thank you and your staff for arranging the recent tour of OWASA's Cane Creek Mitigation Tract.

I was unable to attend the May 2, 2013 tour, but I understand from other CFE members and staff that it was an excellent presentation of the forest management activities on the 490-acre property. Please extend our thanks and appreciation to OWASA's forestry consultant, David Halley, and his colleagues who each had a role in educating our members about the responsible forest management practices employed at this site. Our members were impressed with the efforts being taken to protect one of the streams using a temporary bridge that will be constructed for trucks and equipment to access the southern portions of the property.

I understand CFE members had many questions that were answered during the tour. Our members will share what they learned with other members of the CFE who could not attend, and if there are any further questions or comments we will pass them along to Ruth Rouse.

Again, thank you for arranging the tour and assembling a team of experts to answer our questions. Attached are photos taken during the tour by Tom Davis of the DEAPR staff.

Attachments

cc: Frank Clifton, Jr., County Manager  
David Stancil, DEAPR Director  
Rich Shaw, Land Conservation Manager  
Tom Davis, Water Resources Coordinator  
CFE Members

**Orange County Commission for the Environment**  
**Tour of OWASA Mitigation Tract – Forest Management Activities**  
**May 2, 2013**

CFE present: May Becker, Peter Cada, Bill Kaiser, Tom O'Dwyer, Gary Saunders, David Welch

OWASA staff present: Ed Kerwin, Mason Crum, Ruth Rouse, Pat Davis, Johnny Riley

OWASA forestry advisors present: David Halley (True North), Tom Craven (True North), Kelly Douglass (NC Wildlife Resources Commission), John Howard (NC Forest Service) and David Jones (NC Forest Service), Dr. James Vose (USDA Forest Service)

DEAPR staff present: Rich Shaw, Tom Davis

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Ruth Rouse provided a brief introduction and overview of OWASA's acquisition of this property to help mitigate the loss of wildlife habitat caused by the creation of the Cane Creek Reservoir.

Kelly Douglass described the wildlife management objectives for the property, including providing habitat for a variety of songbirds, mammals, and amphibians. One goal is to keep common species common. WRC has observed an overall increase with forest management.

David Halley provided an overview of the forest management plan for this property and the activities that have occurred thus far. He noted he has also helped manage forestland for Eno River Association, Triangle Land Conservancy, and the Land Trust for Central North Carolina.

Halley said he would like this 490-acre property to be considered a model demonstration site for forest management in Orange County. The forest management plan will improve forest health by improving and maintaining species diversity and improving wildlife habitat. It will preserve 151 acres of stream buffer. They will harvest trees in selected areas ("group openings") of the hardwood forest to allow partial sunlight to reach the forest floor. These early successional habitats will allow the regeneration of young hardwoods. They will not convert the hardwood areas to pine stands. In some places they will replace shortleaf pine with loblolly pine.

Site 1 (24 acres) - Hardwood Improvement area ("impact cut")

Halley explained this area was managed to promote the growth of oaks and hickories, which are longer lived and are considered to have better wildlife value. Maple and poplar were among the species that were removed, thereby selecting for higher-value trees and allowing filtered light to reach the forest floor. The canopy was reduced by about 30 percent. This will help undue the many years of "high-grading" that occurred on this property (removing the high-value trees and leaving the rest behind). They hope to conduct a controlled burn throughout this area, which will serve as a "natural herbicide." The harvested trees were sold for saw timber, wood chips, and pulp wood.

### Site 2 (26 acres) – Pine Clear-cut area

Halley explained this area consisted primarily of Virginia pine prior to Nov 2010 clear cut. It was replanted with loblolly pine in Jan 2011. The plan calls for a pre-commercial thinning in 6 years. Hardwood sprouts are spot treated with herbicide by certified crews (only one treatment in 45 years). The clearing of this site will allow a new pine forest to grow and enable a wide diversity of plants to re-establish from seeds that existed in the soil but received no sunlight to allow plant growth. There are few if any non-native species in this area. Halley discussed the advantages of loblolly pine over Virginia pine (e.g., reduced likelihood of a wildfire). Halley said after 40 – 45 years of growth this pine forest could be allowed to convert to a hardwood forest.

### Site 3 – Stream Crossing through Forest Buffer

Halley provided overview of the planned construction of a temporary bridge that will enable trucks and other equipment to cross the stream and access the southern parts of the property. The roadway will be 16 – 18 feet wide, and will cross the stream perpendicularly through the wide riparian forest buffer located on both sides of stream. David Jones explained water quality monitoring that the NC Forest Service will conduct before and after the bridge construction. They will measure suspended sediment upstream and downstream of the crossing. John Howard showed how the width of the forest buffer for this site compares with the 50-foot minimum required by the Jordan Lake nutrient management rules. He noted that the Jordan Lake rules would require 44 acres of protected stream buffer versus the 151 acres planned for this site. James Vose explained the benefits of stream buffers. He also explained how forests change over time naturally and that proper forest management helps to control the change in beneficial ways by enhancing the ecosystem services provided by the future forest habitat.

Summary by Rich Shaw, DEAPR staff



David Halley (Forestry Consultant) explains benefits of 2010 selective harvest in 24-acre section of hardwood forest.



David Halley leads group to 26-acre section of property where Virginia pine was clear cut and replanted in Loblolly pine.



David Halley describes Nov 2010 clear-cutting of Virginia pine and Jan 2011 re-planting of Loblolly pine, which should require pre-commercial thinning in about 6 years. After 40-45 years this area may evolve to a hardwood forest.



Halley and colleagues describe plans for temporary bridge to be constructed over perennial stream to enable trucks and equipment to access the southern portions of the property. Measures are being planned to protect the stream.



The NC Forest Service plans to monitor water quality (total suspended sediment) before and after bridge construction. A V-notch weir (or flume) was installed to allow measurement of stream flow. Automated water sampling equipment has also been installed above and below this future bridge location.



John Howard (NC Forest Service) describes the riparian buffers to be preserved along all streams on the property. The forested buffers will be much wider than the 50-foot buffers required by the Jordan Lake nutrient management rules.

ORANGE COUNTY



Department of Environment,  
Agriculture, Parks & Recreation

**MEMORANDUM**

**To:** Commission for the Environment  
**From:** Rich Shaw and Malcolm Munkittrick  
**Date:** June 4, 2013  
**Subject:** State of the Environment 2014

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In February the CFE reviewed the contents of the 2009 State of the Environment report and provided some initial feedback and thoughts for the 2014 edition.

We are pleased to report DEAPR has hired a Research Associate—Malcolm Munkittrick—to work on this project. Malcolm is a graduate student at UNC Chapel Hill, and will work with us full-time until late-August. He will collect the data, investigate potential new sources of data, and identify potential improvements to the form and content of the 2009 report.

Malcolm will share his findings with CFE members who will serve as a steering committee for the 2014 report. Some of his initial ideas for consideration are provided on Page 2 of this memo.

**Possible Schedule – State of the Environment 2014**

May 2013	Hire new graduate Research Associate (Malcolm M.)
May-June 2013	Research Associate begins process of verifying data sources, investigating new potential data sources, discussing with staff and CFE
June-July 2013	Research Associate collects data, reports to staff & CFE committees. CFE appoints committee to review form/style, make minor changes to format
August 2013	Staff/Research Associate and CFE committee reports to full CFE to discuss report format and substance to date. CFE approves format
Sept-October 2013	Staff creates draft State of the Environment 2014
November 2013	CFE reviews draft, makes changes. Staff incorporates changes into draft
December 2013	Staff creates final draft; shared with stakeholders and interested parties
February 2014	Final touches. Document is made “camera-ready.” SOE printed
March 2014	CFE hosts Environmental Summit, SOE presented

(See over)

The following are some initial thoughts for CFE consideration and feedback:

1. Water Resources
  - a. Potential new “emerging issue” Topic: **Fracking**
    - i. Introduce the citizens to the topic and identify the locations for potential drilling (which are all outside of Orange County)
    - ii. Explore reverberations of drilling in, say, Lee County on Orange County’s natural environment (e.g., water resources drawn from watershed for fracking process, use of Orange Co. roads for transportation needs, etc.)
  - b. Methods for augmenting stream ratings?
2. Land Resources
  - a. Update “emerging issue” topic: **Land Application of Biosolids**
    - i. New application sites
    - ii. Summarize latest research on health impacts
  - b. Potential new environmental indicator: **Agricultural Assets**
    - i. Voluntary Agricultural Districts
3. Air Resources
  - a. Potential new “emerging issue” or environmental indicator: Plug-in Electric Vehicles (PEVs)
    - i. The number of electric vehicles in the Triangle Region is expected to increase from 291 to 158,000 by 2030, which could have a significant effect on CO2 air emissions
    - ii. The 291 PEVs registered in the Triangle (Aug 2012) already account for 40% of the 719 PEVs registered in North Carolina, and the 288 existing public and private non-residential charging stations account for 54% of the 531 charging stations in the entire state
  - b. How is the County (and towns?) working to make use of the Green House Gas Emissions Inventory from 2005?
5. Include new section on Energy Resources?
4. Include new section on Solid Waste?
  - a. How close is the County to reaching its 61% reduction goal?
  - b. Potential effects on Orange County environment from transporting its waste to Durham County
6. General
  - a. Track progress in achieving SOE 2009 goals
  - b. Explicit connections between 2030 Comprehensive Plan and 2014 SOE
  - c. Emphasize citizen participation

# State of the Environment

2009



Orange County  
Commission for the Environment

# Acknowledgements

## **Prior and Current Members of the Orange County Commission for the Environment who worked to prepare this report:**

Chris Adams	William R. Kaiser	Bernadette Pelissier
Lucy Adams	Michelle Kempinski	Renee Price
Floyd Bridgwater	Hervey McIver	Johnny Randall
David Brower	Mike Nelson	Kirk Ross
Michelle Drostin	Tom O'Dwyer	Dawn Santoianni
Alice Gordon	Matthew O'Brien	Gary Saunders
Loren Hintz		Bryn Smith

## **Orange County Environment & Resource Conservation Department**

The Board of Commissioners established the Environment & Resource Conservation Department on June 22, 1998 and authorized the Lands Legacy Program on April 4, 2000.

### **Staff Members**

David Stancil, Director

Emily Ander, Research Associate

Tom Davis, Water Resources Coordinator

Margaret Jones, GIS Project Coordinator I

Carol Melton, Administrative Assistant II

Rich Shaw, Land Conservation Manager

Beth Young, GIS Project Coordinator II

*Special thanks to the many government staff and other experts who contributed their time.*

Printed copies of the 2009 SOE can be viewed at public libraries within the County or at the ERCD office.

For further information about the report please contact the ERCD at (919) 245-2590.

Cover photos by Rich Shaw. From left to right: Pickards Mountain, Eno River, Lewis' Heartleaf, Stone Currie Farmland on Old 86, Bolin Creek at Adams Preserve



## Orange County Environment & Resource Conservation

306-A Revere Road / P.O. Box 8181  
Hillsborough, NC 27278  
Phone: (919) 245-2590 Fax: (919) 644-3351

*Splendid Clubtail (Gomphus lineatifrons)*

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August 2009

### **What is the state of our environment?**

Addressing this question from the global perspective, the Global Footprint Network (GFN) and the World Wildlife Fund report that *humanity uses the equivalent of 1.3 planets to provide the resources we use and to absorb our waste.*

Stepping down to the national level, we learn from the GFN that *if everyone lived the lifestyle of the average American we would need five planets.*

The *Ecological Footprint* was developed in 1990 by Mathis Wackernagel and William Rees at the University of British Columbia as a measure of humanity's demand on the planet's natural resources. It translates how much land area and water volume a human population requires to produce the resources it consumes and to absorb its wastes. The *Footprint* puts into simple terms the number of planets needed to support our activities and lifestyles.

For Orange County, this edition of the *State of the Environment Report (SOE)* provides a more detailed look at a variety of environmental indicators that are grouped into three key categories: Air Resources, Biological Resources and Water Resources. The indicators were selected to monitor and evaluate the progress the County and its citizens are making to protect, preserve, conserve and manage our environmental resources.

Both the *Ecological Footprint* and the SOE environmental indicators share the fundamental intent to assess our demands and impacts on environmental resources, inspire and inform public policy and practices to manage our ecological assets more efficiently and provide recommendations for personal and organizational actions that will lead toward a more robust environment.

This edition of the State of the Environment report continues the goals and format of the 2002 and 2004 documents, but with one key difference: this 2009 report is primarily a digital publication, accessible through the Orange County Website at [http://www.co.orange.nc.us/ercd/2009\\_SOE\\_index.asp](http://www.co.orange.nc.us/ercd/2009_SOE_index.asp).

We encourage you to contribute to our local effort to conserve the Earth's resources by reading this report online. If you are interested in evaluating and decreasing the size of your own *Personal Ecological Footprint*, there is an interactive and informative quiz available at the Global Footprint Network website at <http://www.footprintnetwork.org>. You can find many other ideas on the final pages of this report.

Sincerely,

Michelle Kempinski and Johnny Randall, Co-Chairs  
Commission for the Environment

# PURPOSE

*The Orange County  
Commission for the Environment  
presents the  
2009 State of the Environment to:*

- Describe the current status of Orange County's natural environment
- Provide measures to monitor and evaluate progress toward a cleaner, healthier environment
- Highlight the major environmental challenges facing the County
- Recommend actions to confront these challenges

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**ORANGE COUNTY  
DEPARTMENT OF ENVIRONMENT, AGRICULTURE,  
PARKS AND RECREATION**

**MEMORANDUM**

**To:** Commission for the Environment  
**From:** Rich Shaw  
**Date:** May 30, 2013  
**Subject:** Orange Unified Transportation Board (OUTBoard)

---

The CFE has been asked to appoint one of its members as a liaison to the Orange Unified Transportation Board (OUTBoard). The previous CFE representative to the OUTBoard was Renee Price until she left the CFE to become a county commissioner in December 2012.

The advisory board meets the third Wednesday of each month at the West Campus Office Building in Hillsborough. Abigail Pittman is the lead staff person.

The following is a description of the board from the Orange County website:

The Orange Unified Transportation Board advises the Board of County Commissioners (BOCC) and provides information and comments on major transportation issues; and provides the BOCC with recommendations regarding the overall planning and programming of transportation improvements in the county, including the following:

- Identify and prioritize the County's roadway and transit needs along with associated costs and specific sources of funding;
- Assist in development and review of the transportation component of the Comprehensive Plan;
- Provide recommendations to the Board regarding Federal and State legislation affecting transportation in Orange County; and
- Explore and make recommendations on Innovative techniques and methods to improve the efficiency and capacity of existing and future transportation systems



Film description: A father's search to find the healthiest building materials leads him to the completion of the nation's first hemp house. Hemp with lime is a non-toxic, energy efficient, mildew, fire and pest resistant building material. The drawback — industrial hemp is currently illegal to farm in the U.S.A. Industrial hemp is a non-psychoactive plant, grown in 31 other countries that makes 1,000's of sustainable products and offers solutions for global warming, nutrition, poverty and deforestation. Here in the U.S., hemp could be a money-making crop for farmers and create jobs. But why can't we grow it here? Now raising production funds, BRINGING IT HOME tells the story of hemp: past, present and future and a global industry that includes textiles, building materials, food products, bio-plastics, auto parts and more.

## **Big Fun and Crowd for Bringing It Home's NC Premiere May 17th**



Thanks to all who attended Bringing It Home's Green Carpet Premiere with The Abundance Foundation on May 17th at Piedmont Biofuels in Pittsboro, NC. It was a beautiful, festive evening and in addition to the outdoor screening of the documentary, guests sampled products at the hemp information tent, dined on hemp appetizers, and enjoyed live music from Circle City. Guests arrived in pedicabs, biodiesel car, bicycles and a tractor! We thank all the chef/restaurant and food donors, the incredible team of volunteers and the following hemp companies and

groups for providing handouts and hemp samples: Hemp History Week; Vote Hemp; Nutiva, Dr. Bronner's Magic Soaps, GOOD Oil, Nature's Path, Manitoba Harvest, Hemp Naturals, prAna and Ziggy Marley Organics. Lots of letters were signed for NC Senators to sponsor the Industrial Hemp Farming Act.

## **Bringing It Home Premieres with Hemp History Week June 3rd-9th**

Launch cities will include New York City, Los Angeles, San Francisco, Escondido; Portland, Boulder, CO, Bellingham WA, and Petaluma CA

<http://www.bringingithomemovie.com/>

**Community Solid Waste Forum**  
**May 30, 2013 6 – 8 PM**  
**Chapel Hill Public Library**

The public is invited to the Community Solid Waste Forum to be held from 6 to 8:30 p.m. Thursday, May 30, at the Chapel Hill Public Library, 100 Library Drive.

Organized by the Town of Chapel Hill Sustainability Committee and Orange County's Commission for the Environment, the forum is open to all interested Orange County and Durham County residents and businesses.

The evening will begin with presentations by a panel of six local experts, followed by a question and answer period and group discussions. Rob Taylor of the NC Department of Environment and Natural Resources will be the forum's moderator.

Learn more about current waste management practices and join in a discussion about long-term waste management goals for the region. The purpose of the event is to inform the public, gather feedback from the community and foster regional collaboration.

**Sustainability Committee Community Solid Waste Forum**

The Sustainability Committee's goal for the Community Solid Waste Forum is to educate the public on regional solid waste management issues, and to identify goals and objectives that are shared broadly amongst local constituencies. These goals for short and long-term planning for solid waste management will be presented by the Sustainability Committee to local government decision-makers.

**Event Schedule:**

1. Introductions
2. First panel presentation
3. Panelist question and answer
4. 2nd panel presentation
5. Panelist question and answer
6. Breakout discussions
7. Reconvene and discuss breakout ideas
8. Summary

**Panelists & Presentation Topics:**

**Gayle Wilson** (Orange County) - Region's History of Solid Waste Management Efforts

**Jan Sassaman** (Orange County Solid Waste Advisory Board) - The Region's Planning Process

**Wendy Simmons** (Town of Chapel Hill) - The Town's Plans Moving Forward

**BJ Tipton** (UNC-Chapel Hill) - The University's Solid Waste Approach with Focus on Recycling

**Jorge Montezuma** (Smith Gardner, Inc. & NC Composting Council) - Commercial/Regional Scale Composting

**Blair Pollock** (Orange County) - What a "Zero Waste" Management Plan Looks Like

## Contest Rules:



Photo by Richard Robinson, 2012

- 1) Photographs should feature Orange County wildlife, natural resources, landscapes, or people enjoying the parks and other outdoor environments.
- 2) All photos must be taken in a natural setting (no staged photos).
- 3) Photos must be taken in Orange County, NC.
- 4) Orange County employees are eligible with the exception of DEAPR staff. Contest judges are ineligible.
- 5) Entries per person: Maximum of five (5) total photos.
- 6) Complete and submit a Contest Entry Form for each photo entered, form found under "Breaking News" at: <http://orangecountync.gov/deapr/> Complete the Orange County Photo Release for any third party appearing in your photos.
- 7) Photos must be high resolution .gif or .jpg files. Please email photos and forms to [bshuford@orangecountync.gov](mailto:bshuford@orangecountync.gov). Photos may also be submitted on a DVD or CD, in the proper format, and mailed or emailed to: Orange County DEAPR, 306-A Revere Rd., PO Box 8181, Hillsborough, NC 27278; email - [bshuford@orangecountync.gov](mailto:bshuford@orangecountync.gov)
- 8) **DEADLINE TO ENTER: May 17, 2013.** Orange County DEAPR, 306-A Revere Rd., PO Box 8181, Hillsborough, NC 27278.

### The Department of Environment, Agriculture, Parks & Recreation

(DEAPR) works to conserve and manage the natural and cultural resources of Orange County. Included within this "green infrastructure" are natural areas and nature preserves, open spaces, parks and recreation facilities, water resources, and agricultural and cultural resource lands. Consistent with the strong environmental ethic of the community, DEAPR also strives to bring environmental education, recreation, athletics and other programs to residents of the County - with a goal of promoting cultural, physical and natural stewardship and well being.

#### ORANGE COUNTY



### Department of Environment, Agriculture, Parks & Recreation

Orange County DEAPR  
306-A Revere Rd.  
PO Box 8181  
Hillsborough, NC 27278

Phone: 919-245-2510  
Fax: 919-644-3351  
<http://orangecountync.gov/deapr>  
E-mail: [bshuford@orangecountync.gov](mailto:bshuford@orangecountync.gov)

### DEPARTMENT OF ENVIRONMENT, AGRICULTURE, PARKS & RECREATION

## "The Nature of Orange" Photography Contest

*All Meetings begin at 7:30 p.m.*



Photo by Kirby Lau, 2012

919-245-2510  
<http://orangecountync.gov/deapr/>

## "The Nature of Orange" Photography Contest

The Department of Environment, Agriculture, Parks and Recreation (DEAPR) is proud to present its 2nd Annual Nature Photography Contest. The goal is to inspire exploration, celebration and appreciation of Orange County's diverse landscapes and outdoor experiences. Through photography we want you to document the beauty of our wildlife, waterways, natural resources, and people connecting with their environment.

**Deadline: All entries must be received by May 17, 2013**

### Age Divisions:

- Youth (age 18 and younger)
- Adult



Photo by Ed Coleman, 2012

### Photographs should feature:

Orange County wildlife, natural resources, landscapes, or people enjoying the parks and outdoor environments.

### How to Submit Your Photo:

See the Contest Rules on the reverse page.

**Prizes:** \$100 First, \$75 Second, and \$50 Third Place cash prizes will be awarded for photos in both divisions; divisions will be judged separately. In addition, participants will receive a certificate and winning photographs will be displayed in prominent, public locations.

**For more information** about parks and natural settings in Orange County visit:  
[www.co.orange.nc.us/deapr/related\\_links.asp](http://www.co.orange.nc.us/deapr/related_links.asp)



Photo by Ed Coleman, 2012

### Owner/Use Rights:

Contestants retain the copyright to their photographs, and all rights thereto, except as follows. Orange County and DEAPR shall have the right to use the likeness, name, and/or images photographed by contestants in any and all publications, including web site entries without compensation in perpetuity.

Photos will be credited to the contestant named in the entry form. Descriptions or titles, if any, used with the photos are in DEAPR's sole discretion (see Photo Release and Agreement on the required Entry Form under "Breaking News" at <http://www.co.orange.nc.us/deapr/>)

### Judging Criteria:

*Relevancy to Featured Topics* - Is the photo an obvious illustration of the focus of the contest?

*Composition / Arrangement* - Are the objects in the photo arranged in a meaningful, pleasing manner or are they "haphazard"? Did the photographer use the best angle or otherwise interesting perspective?

*Focus / Sharpness* - Is the object of the photo in focus? If not in sharp focus, does it appear to be an intentional effect to enhance the image in some "artistic" way?

*Lighting* - Did the photographer use proper lighting of the subject matter? Do any extremes of darkness or brightness lend to or detract from the image content?

*Creativity* - Does the photographer show some creative thought or original idea in the making of this image?

## Sponsors

- Orange County Department of Environment, Agriculture, Parks and Recreation
- Orange County Commission for the Environment
- Orange County Parks and Recreation Council

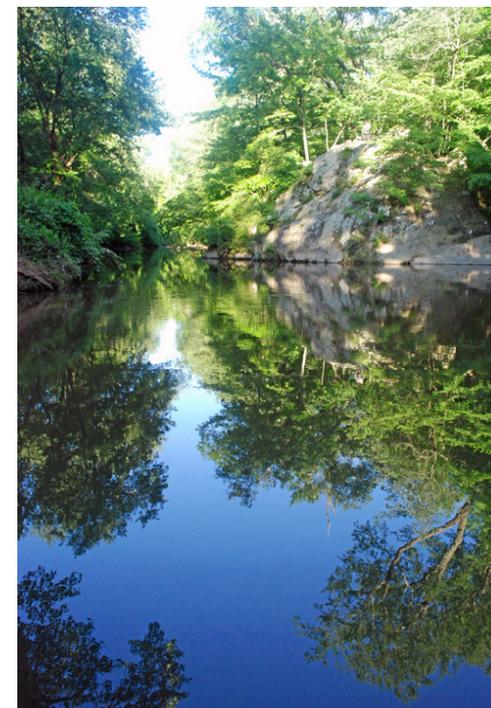


Photo by Sandy Straw, 2012

### DEPARTMENT OF ENVIRONMENT, AGRICULTURE, PARKS & RECREATION

Orange County DEAPR  
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E-mail: [bshuford@orangecountync.gov](mailto:bshuford@orangecountync.gov)

**ORANGE COUNTY  
BOARD OF COMMISSIONERS**

**AGENDA ITEM ABSTRACT**  
**Meeting Date: May 21, 2013**

**Action Agenda  
Item No. 5-e**

**SUBJECT:** Revisions to the December 2005 Adopted Orange County Energy, Water and Fuel Conservation Policies

---

**DEPARTMENT:** Asset Management Services  
(AMS)

**PUBLIC HEARING: (Y/N)**

No
----

**ATTACHMENT(S):**

- 1) 2005 Energy, Water, and Fuel Conservation Policies-Redlined
- 2) Proposed 2013 Utility and Fuel Conservation Policies
- 3) "Environmental Responsibility in County Government" Goal
- 4) Presentation from Board's November 13, 2012 Work Session

**INFORMATION CONTACT:**

Wayne Fenton, (919) 245-2628  
Alan Dorman, (919) 245-2627  
Jeff Thompson, (919) 245-2658

**PURPOSE:** To consider adoption of improved revisions to the 2005 Energy, Water and Fuel Conservation Policies as presented at the Board's November 13, 2012 work session.

**BACKGROUND:** The BOCC adopted Energy, Water and Fuel Conservation Policies in December 2005 in support of the "Environmental Responsibility in County Government" goal, which was also adopted at the December 5, 2005 BOCC meeting. At the November 13, 2012 work session, the BOCC reviewed and provided comment on proposed revisions to these policies to address organizational and other changes (see Attachment 4 – Presentation from Board's November 13, 2012 Work Session). The comments and requests received at the November 13 work session included:

1. That standard operating procedures be developed related to indoor and outdoor lighting as part of the annual "Energy and Water Conservation Action Plan";
  2. That the use of metered faucets be examined for use at the Central Orange Senior Center, and other locations, as part of the annual "Energy and Water Conservation Action Plan";
  3. That the annual "Energy, Water And Fuel Performance Report" be presented during the annual budget process; and
  4. That the wording of Section E, 6. "Employees" of the "Vehicle Fuel Conservation Policy" be revised to include a general reference to the process by which drivers acquire fuel rather than specific identification of a "card system".
- Items 1 and 2 are currently being addressed by AMS staff working with relevant vendors, service providers and affected departments.

- Item 3 has been addressed through presentation elsewhere on agenda of the May 21, 2013 BOCC meeting of the Energy, Water and Fuel conservation scorecard results, which were originally presented at the October 16, 2012 BOCC Work Session.
- Item 4 has been addressed in the revised policy updates included with this agenda item.
- The effective date for the revised policies has been changed from January 1, 2013, as identified in the November 13, 2012 presentation, to July 1, 2013.

**FINANCIAL IMPACT:** There are no financial impacts directly associated with the revisions to the Energy, Water and Fuel policies. Sustainable environmental practices and reduced energy, water and fuel use results in avoided costs for utilities and fuels, as well as the less obvious benefits of resource conservation, higher air and water quality, and less greenhouse gas emissions.

**RECOMMENDATION(S):** The Manager recommends that the Board approve and adopt the revisions to the 2005 Energy, Water and Fuel Conservation Policies as presented at the November 13, 2012 Board Work Session, with the minor revision identified in #4 above, and with an effective date of July 1, 2013.

Orange County  
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## Energy Utility Reduction and Conservation Policy for County Facilities

### A. General

Orange County's "Environmental Responsibility in County Government" goal includes the objective: "Initiate policies and programs that conserve energy, reduce fuel/utility/resource consumption..." In support of this goal, the County has adopted this Energy Utility Reduction and Conservation Policy for County Facilities.

Utility Energy costs for electricity, natural gas, propane and fuel oil and water for County facilities is a significant County cost. Beyond this, energy and water consumption has significant environmental impacts, including direct local impacts. As a result, it is both necessary and beneficial for the County to adopt a policy of energy and water reduction, conservation and efficiency.

~~Water conservation and v~~ Vehicle fuel conservation ~~is will be~~ addressed in a separate policies.

### B. Purpose

The purpose of this policy is to reduce the County government's energy and water consumption, wherever possible, and improve energy efficiency for that energy and water that must be used throughout Orange County government buildings, consistent with the need for safe and secure County facilities.

### C. Policy Goals

The policy addresses both short and long term goals.

#### 1. Short Term (One to Two Years)

- Establish the policy foundation of responsibilities, planning, programs, standards, performance measures and the like to manage the County government's energy and water use and conserve energy and water.
- Manage energy and ~~water~~ water ~~utility~~ consumption to minimize use to the greatest extent possible while maintaining safe and acceptable work conditions.
- Achieve a reduction in average energy and water consumption per square foot annually.

#### 2. Long Term (Three Years or More)

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- Incorporate energy and water conservation and efficiency systems, techniques and design in all major renovations, system replacements and new construction.
- Support change to State utility budgeting and public utility commission policy that fosters monetary incentives to make energy and water conservation and efficiency efforts economically attractive and streamline program justification requirements so that projects can be executed within a timely interval and savings quickly realized.

#### D. Scope

##### 1. Facilities

This policy applies to County owned and leased buildings, whether occupied by the County, the courts or other agencies.

##### 2. Equipment

This policy applies to County owned or leased equipment, including computer equipment.

##### 3. Energy and Water Sources

This policy applies to use of electricity, natural gas, propane and fuel oil and to water from municipal sources and wells.

#### E. Responsibilities

##### 1. Energy, Water and Fuel ~~Conservation Task Group~~ Conservation Management Team

The ~~Manager appoints an~~ Energy, Water and Fuel Conservation Management Task Team ~~Group~~ that includes the:

- ~~County Manager~~
- ~~One County Commissioner~~
- ~~Assistant County Managers~~
- ~~Chief Information Officer~~
- ~~Cooperative Extension Director~~
- ~~County Engineer~~
- ~~Energy Conservation Manager~~
- ~~Environment and Resource Conservation Director~~
- ~~Personnel Director~~
- ~~Public Works Director~~
- ~~Purchasing and Central Services Director~~

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• Includes staff from:

1. Asset Management Services Department (AMS)
2. Department of Environment, Agriculture, Parks and Recreation (DEAPR)
- Others as appointed by the Manager.

~~The Task Group~~ provides direction, counsel and oversight as to implementation of the Energy and Water Conservation Policy. As necessary, the Task Conservation Management Team~~Group~~ addresses questions of policy interpretation and adherence.

2. ~~Energy Conservation Manager~~ Asset Management Services Department

— The ~~Manager appoints an Energy Conservation Manager, who~~ Asset Management Services Department provides leadership, analytical, monitoring, coordination and communication support to the energy conservation initiative. Among other things, the ~~Energy Conservation Manager~~ Asset Management Services Department:

- Coordinates development and implementation of the County's annual energy and water conservation action plan including associated costs for inclusion in the annual budget process.
- Tracks and assesses the County's energy conservation performance and progress, including building data collection and analytical tools.
- Working through the departments involved, identifies and appoints a volunteer "Building Energy and Water Representative" for each County facility.
- Conducts spot check energy audits after normal business hours to assess the County's adherence to policies and standards.

3. The Asset Management Services Department is responsible for:

- Up fitting as authorized and maintaining County facilities in accordance with the requirements of this policy, including installation of energy and water conserving equipment and verification of correct equipment settings and operation.
- Identifying situations above and beyond those envisioned in this policy that may require individual analysis and action to provide a comfortable, functional work environment.

~~3.4.~~ Building Energy and Water Representatives

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The appointed volunteer Building Energy and Water Representatives serve as:

- A resource to building occupants about policies and responsibilities.
- “Energy conservation champions” to support awareness of energy and water conservation and goal achievement.
- Field representatives to the ~~Energy Conservation Manager~~, Asset Management Services Department, observing and reporting to ~~AMS~~ the Conservation Manager on building conformity during normal business hours with energy and water conservation standards such as those for heating and air conditioning thermostat settings.

#### ~~4. Public Works Department~~

~~The Public Works Department is responsible for:~~

- ~~• Up fitting as authorized and maintaining County facilities in accordance with the requirements of this policy, including installation of energy conservation equipment and verification of correct equipment settings and operation.~~
- ~~• Identifying situations above and beyond those envisioned in this policy that may require individual analysis and action to provide a comfortable, functional work environment.~~

#### 5. Department Heads

Department heads are responsible for:

- Communicating the County’s energy and water conservation goals and policies to staff, providing guidance and promoting adherence.
- Working with the Asset Management Services ~~Public Works~~ Department ~~and Energy Conservation Manager~~ to identify energy and water reduction techniques or systems that can be implemented without affecting service delivery to the department’s customers as well as bringing to their attention any areas that require further action to address.

#### 6. Employees

County employees are responsible for:

- Becoming knowledgeable about the County’s energy and water conservation policies and initiatives and complying with these policies.

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- Advising their supervisor of any circumstance that prevents adherence to the County's policies.
- Bringing forward ideas and suggestions for energy and water conservation and efficiency that may not have been identified to them.

## F. Energy and Water Conservation Action Plan

1. The ~~Energy Conservation Manager, in conjunction with the Energy Task Conservation Management Team Group, Public Works Asset Management Services~~ Department and others involved, coordinates the development of an annual "Energy and Water Conservation Action Plan."
2. This annual plan identifies specific actions to be implemented, proposed or estimated time lines, and responsibilities for implementation.
3. The action plan is submitted to the Board of County Commissioners for review and approval, ~~in coordination with~~ as part of the annual budget process.
4. The action plan is reviewed and updated annually along with evaluation of the previous year's performance, during the annual "Update and Scorecard Results" ~~report. budget process.~~

## G. Reporting, Benchmarking and Performance Measurement

### Reporting

1. ~~In conjunction with t~~  
The ~~Public Works Asset Management Services d~~Department, ~~the Energy Conservation Manager:~~
  - ~~Obtains-Ensures~~ information for all billing periods for each energy and water utility (electricity, natural gas, fuel oil and propane gas) is accurately recorded each month to provide reports on a monthly/quarterly and annual basis and assesses ~~ing~~ progress, by building and/or department where feasible as well as for the County as a whole, in reducing energy and water demand. This includes analysis of the information and assessment of trends and identification of billing errors.
  - Presents reports to department heads and the County Manager to aid in determining if conservation efforts are meeting goals or additional efforts are required.
  - ~~Presents-Leads development and delivery of the annual~~ reports to the Board of County Commissioners to advise them of progress in conserving energy and water.

2. Benchmarking/Performance Measurement

The ~~Energy Conservation Manager~~Conservation Management Team uses reporting information to benchmark and measure performance:

- From year-to-year (aggregate and by individual building) adjusted for heat and cooling degree days, ~~humidity levels,~~ and ~~the like~~and any other significant factors, in keeping with accepted industry practices, and
- Compared to results for organizations located in similar geographic areas.

**H. Energy Use Standards**

1. General

The intent of the energy and water conservation policy and program is to achieve reductions in energy and water consumption while maintaining reasonable comfort levels for building occupants.

Initial temperature set points were based upon ASHRAE comfort chart for 50 percent relative humidity, and employees at light work.

2. Heating and Air Conditioning Standards

Except as otherwise noted, temperature set points are based on the standards (Attachment) of the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and are as follows:

<b>Cooling Season Set Points</b>	<b>75° F – 78° F</b>
<b>Heating Season Set Points</b>	<b>68° F – 72° F</b>

Occupied air conditioning temperature settings are not set below 75 degrees and heating settings are not set above 72 degrees, except for operations which require other settings based on function such as Health Department examination rooms, medical laboratories, computer equipment rooms, library stacks, recreation rooms, animal quarters or the like.

3. Use of Windows

Windows are to be kept closed, unless specifically authorized such as when the HVAC system is disengaged, because open windows throw the HVAC system off balance, and interfere with providing uniform heating or cooling in large buildings.

#### 4. Auxiliary Heating and Cooling Sources

Personal portable space heaters are not allowed because of their excessive energy consumption, fire code and safety issues. If a room is not consistently within the heating/air conditioning set-point range, Asset Management ~~Public Works~~ should be notified through the established work order system so that the problem can be addressed. If building conditions are such that acceptable temperatures cannot be achieved by the HVAC system, ~~Public works~~ Asset Management Services takes necessary measures to resolve/rectify. If auxiliary heating or fans are required, ~~Public Works~~ Asset Management Services will provide these.

#### 5. Night, Weekend and Holiday Temperature Set-backs

The heating temperatures are set to 60 degrees for all buildings for periods when buildings are not normally occupied. The air conditioning temperatures are set to 80 degrees when buildings are not normally occupied. Normal occupancy for most buildings is from 7:30 a.m. to 6:00 p.m. This means that from 7:30 a.m., until 6:00 p.m., the temperature will be within the set points defined in Item H2 above.

Note: Exceptions to the set backs are made for those functions that must remain operational during these periods such as for night meetings, Emergency Management ~~and-or~~ the Jail. Also some buildings have unique requirements for longer start up times to reach heating or cooling set points.

If a building has complete digital control, and individual zone or office temperature control, occupants will be able to override the schedule to provide heating/cooling for their office at any time, for a limited period (typically two hour intervals).

### I. Lighting Policy

1. Office and conference room lights are to be turned off whenever rooms are likely to be unoccupied for more than 15 minutes.
2. Each department or agency shall assign an employee to turn off common area lighting other than corridor lights at the end of the business day. Lights are to be turned off even if it is anticipated that cleaning custodial staff will soon be in the area.
3. Cleaning Custodial staff are responsible for turning on lights on an "as needed" basis while working; that is, turning on lights only while an office or room is being cleaned, and turning lights off as soon as cleaning has been completed. Cleaning Custodial staff turns off corridor and related lighting prior to leaving the building at the completion of cleaning.

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4. Parking lot lights and streetlights located near buildings are typically owned by power companies such as Duke ~~Energy Power~~ and are controlled by photocells or timers. Costs for this lighting are on a flat rate basis, and turning them off does not result in cost savings regardless of usage.
5. Athletic Field lights are to be operated only as needed. They should not be in operation during daylight hours. Lights generally will not be operated on weekends, except for special events.

## **J. Refrigerators, Microwaves, and Similar Devices**

As a longer-term goal, the County will assess the use of refrigerators, microwaves and similar devices and possible replacement of less energy efficient equipment with more energy efficient equipment and approaches.

## **K. Computer Equipment**

The Chief Information Officer assesses energy consumption of personal computers, printers and related devices and recommends to the County Manager guidelines for turning on or off and setting the “sleep” modes that reflect the technology in place. The County Manager issues guidelines for such equipment that apply to all County departments. ~~Later a~~As experience is gained this will be issued as policy.

## **L. Water Use Standards**

### General

The intent of the Energy and Water conservation policy and program is to achieve reductions in water consumption while maintaining reasonable comfort levels for building occupants.

1. Waterless or low-flow fixtures are used for any replacement fixtures, unless technically impractical.
2. The County gives preference to drought-tolerant plants when new or replacement plants and/or trees are required for landscaping. Large areas of grass are avoided in favor of alternative plantings and landscaping techniques, whenever possible.
3. Irrigation is limited to critical needs to support survival of plants, and if allowed by local watering restrictions. Permanently installed irrigation systems are preferred to provide most efficient distribution of water.
4. Vehicle washing is performed only as permitted by local watering restrictions. If performed, it is done only with water conserving spraying devices rather than an open garden hose. Rain collection for vehicle washing is pursued as feasible.

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## **M. Programs**

To support the Energy and Water Conservation Policy and initiative, the County implements a variety of programs including:

### 1. Employee Awareness

The County conducts communications programs to promote employee awareness of the need for energy and water conservation. This includes such activities as distribution of this Energy and Water Conservation Policy, reminders via pamphlets, e-mails, Orange Alive, coverage in new employee orientation, and opportunities at employee events to reinforce the conservation ethic.

### 2. Incentives

Incentive programs will be developed to improve compliance and acceptance by County employees, and other building occupants. These may include building-~~versus-~~building contests, department-~~versus-~~department contests, financial incentives, preferred parking and the like.

### 3. Preventive Maintenance

Preventive Maintenance procedures are used to obtain optimal Energy, and Water-efficient operation of equipment, systems and devices.

### 4. Repairs

Repairs/replacement of equipment take into consideration the most cost effective solution over the life of the repair/equipment. Considerations shall include future maintainability, improved operation, improvements to energy or water efficiency, requirement for additional or reduced Preventive Maintenance, and the like.

### 5. Energy Efficiency Retrofits

The County bases energy efficiency retrofitting project priorities upon the availability of capital improvements plan funds and maintenance needs such as the condition of existing~~the~~ equipment. The County develops and maintains a priority list of retrofit needs.

### 6. Renovations

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Renovations to County facilities, whether major or minor, are to meet standards for energy, and water-efficient equipment and design.

#### 7. New Construction

New construction is required to follow energy and water efficient standards as set forth by the Guidelines for Sustainable Public Facility Design and Development. Life-cycle cost analyses are required, and energy and water efficient designs, including Passive and Active Solar systems, natural lighting, cogeneration and thermal storage, among others are considered ~~as feasible~~and evaluated.

#### 8. Equipment Selection

The selection of all equipment procured for Orange County, to include computer equipment, printers, copy machines, equipment, refrigerators, and so forth is to consider carefully the anticipated energy use and available energy saving devices.

#### 9. Automation

With the direction and leadership of the Energy Management Team Task Group, each County department pursues automation solutions, as feasible, to replace travel-intensive, paper-intensive or other energy consuming activities.

## From American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standards

1. Thermal comfort is that condition of mind that expresses satisfaction with the thermal environment. There are large variations, both physiologically and psychologically, from person to person, which makes it difficult to satisfy everybody in a space. The environmental conditions required for comfort are not the same for everyone. However, extensive laboratory and field data have been collected that provide the necessary statistical data to define conditions that a specified percentage of occupants will find thermally comfortable.  
<http://industries.bnet.com/whitepaper.aspx?scname=Plumbing+and+HVAC+Equipment&docid=114190>
2. This standard specifies the combinations of indoor space environment and personal factors that will produce thermal environmental conditions acceptable to 80% or more of the occupants within a space. The environmental factors addressed are temperature, thermal radiation, humidity, and air speed; the personal factors are those of activity and clothing.  
<http://www.constructionbook.com/xq/ASP/ProductID.3695/id.402/subID.636/qx/default2.htm>
3. ASHRAE Standard 55-1992 Thermal Environmental Conditions for Human Occupancy, recommends the following acceptable temperature ranges at relative humidity (RH) of 50% and air speed less than 0.15 m/sec. (30 fpm).

<b>Acceptable Temperatures</b>		
<b>Season</b>	<b>Clothing</b>	<b>Temperature</b>
Winter	Heavy slacks, long sleeve shirt and/or sweater	20-23.5°C (68-75°F)
Summer	Light slacks and short sleeve shirt	23-26°C (73-79°F)

[http://www.ccohs.ca/oshanswers/phys\\_agents/hot\\_cold.html](http://www.ccohs.ca/oshanswers/phys_agents/hot_cold.html)

## Vehicle Fuel Conservation Policy

### A. General

Orange County's "Environmental Responsibility in County Government" goal includes the objective: "Initiate policies and programs that conserve energy, reduce fuel/utility/resource consumption..." In support of this goal, the County has adopted this Vehicle Fuel Conservation Policy.

Costs for gasoline and diesel fuel for County vehicles and motorized equipment are significant. Beyond this, fuel consumption for vehicles and motorized equipment has significant environmental impacts. As a result, it is both necessary and beneficial for the County to adopt a policy of fuel conservation and efficiency.

~~Water conservation and e~~Energy and water conservation for County buildings are addressed in a separate policies.

### B. Purpose

The purpose of this policy is to reduce the County government's vehicle fuel consumption, wherever possible; improve fuel efficiency; and maximize the use of alternative fuels for that fuel that must be used to operate Orange County vehicles and motorized equipment, consistent with the need for safe, and reliable County vehicles and motorized equipment.

### C. Policy Goals

1. Establish the policy foundation of responsibilities, planning, programs, standards, performance measures and the like to manage the County government's vehicle fuel use and conserve fuel.
2. Manage vehicle and motorized equipment fuel consumption to minimize use to the greatest extent possible while maintaining safe and reliable vehicles and motorized equipment.
3. Provide for the use of alternative fuel (which may include compressed natural gas, bio-diesel, hybrid gas/electric, or the like) vehicles and motorized equipment, unless service needs cannot be met with an alternative fuel vehicle or motorized equipment – as determined by the County Manager.
4. Purchase vehicles and motorized equipment that meet service delivery needs with the greatest fuel efficiency possible whether alternative or traditional fuel.
5. Achieve a reduction in average fuel consumption per mile annually for vehicles and per hour of operation for motorized equipment.

6. Support change to State agency policies that fosters monetary incentives to make fuel efficiency and alternative fuel efforts economically attractive and to streamline program justification requirements so that projects can be executed within a timely interval, and savings quickly realized.

#### D. Scope

This policy applies to all County owned and leased vehicles and motorized equipment and the operators of these vehicles and equipment.

#### E. Responsibilities

1. Energy ~~Water and Fuel~~ Conservation ~~Management Team Task Group~~

~~As provided in the County's Energy Conservation Policy, the Manager appoints an The Energy, Water and Fuel Conservation Management Team ("Management Team") Task Group. The Task Group provides direction, counsel and oversight as to implementation of the Vehicle Fuel Conservation Policy. As necessary, the Management Team Task Group addresses questions of policy interpretation and adherence.~~

2. ~~Finance and Administrative Purchasing and Central~~ Services Director

The ~~Purchasing and Central~~Finance and Administrative Services Director manages the vehicle acquisition or replacement process as provided in this policy.

3. County Manager

The County Manager's advance approval is required for purchase of any new or replacement vehicle or motorized equipment.

4. ~~Public Works~~Asset Management Services Department

The ~~Public Works~~Asset Management Services Department is responsible for:

- Performing preventive and corrective maintenance for County vehicles and motorized equipment to ensure maximum fuel efficiency is achieved.
- Preparing the annual vehicle replacement report as part of the annual budget process.

5. Department Heads

Department Heads are responsible for:

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- Communicating the County's fuel conservation goals and policies to staff, providing guidance and promoting adherence.
- The assignment of departmental vehicles to departmental staff.
- For vehicles not assigned to a single individual, designating one operator and one backup operator to monitor use and schedule preventive maintenance service as needed.
- Communicating and justifying any request for new and replacement vehicles and motorized equipment as part of the annual budget process.
- Monitoring employee conformance with requirements for vehicle and motorized equipment maintenance, including scheduling of preventive maintenance service.

## 6. Employees

Employees who operate County vehicles and motorized equipment are responsible for ensuring that:

- Tire and fluid inspections for vehicles are performed (by self, or by Motor Pool staff) according to published directions from the Asset Management Services ~~Public Works~~ Department.
- The assigned vehicle is scheduled and delivered to Public WorksAsset Management Services for preventive maintenance service within time and/or mileage intervals identified by Asset Management Services~~Public Works~~.
- Corrective maintenance is scheduled with Public WorksAsset Management Services as soon as possible when a problem with the vehicle is encountered or identified.
- Vehicles are operated according to all applicable laws and rules of the road. This increases fuel conservation and safety.
- Fuel for County vehicles and equipment is acquired through the a-card system operated by the Asset Management Services Department, according to identified standard operating procedures. Information about fuel transactions other than those through the automated fuel system are reported to Public Works as is provided by operators of County vehicles according to Asset Management Services Department ~~Public Works~~ identified procedures.

## F. Vehicle Operation

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1. Vehicles are to be operated in keeping with manufacturers' recommendations and specifications, and applicable County policy.
2. To maximize fuel efficiency, vehicles are to be serviced at intervals identified by the ~~Public Works~~ Asset Management Services Department.
3. To meet department specific service levels while achieving the highest fuel economy, departments, where applicable, use geographic information systems (GIS), global positioning systems (GPS) or other industry tools and standards to design and implement efficient vehicular routes/schedules and deployment strategies/schedules.

#### G. Fuel Conservation Action Plan

1. ~~Asset Management Services~~ Public Works, in consultation with the Energy, Water and Fuel Conservation Management Team Task Group and others involved, coordinates the development of an annual "Vehicle Fuel Conservation Action Plan." The annual action plan includes recommended charge back rates to departments for vehicle operation costs and recommendations for the annual "Vehicle Replacement Report."
2. The annual plan identifies specific actions to be implemented, proposed and estimated time lines and responsibilities for implementation.
3. The action plan is submitted to the Board of Commissioners ~~for review and approval, in coordination with~~ as part of the annual budget process.
4. The action plan is reviewed and updated annually along with evaluation of the previous year's performance during the annual update and scorecard report. ~~budget process.~~

#### H. Charge Back Rates

As part of the annual budget process, vehicle cost charge back rates to departments are set each year. Among other things, these take account of fuel and repair costs and are designed to promote the use of alternatively fueled and fuel efficient vehicles.

#### I. Vehicle Acquisition

1. The ~~Purchasing and Central~~ Asset Management Services Department Director develops, communicates and maintains a written process for the systematic consideration of vehicle acquisition needs (whether additional new or replacement vehicles) and the decision-making as to the type of vehicle to be purchased, including whether it is an alternative fuel vehicle (which may include compressed natural gas, bio-diesel, hybrid gas/electric, etc.). Among other things, this process

provides for the following:

- Determination as to whether the vehicle needs to be acquired or replaced.
  - Determination as to whether an alternative fuel vehicle will meet the service needs.
  - Whether an alternative fuel vehicle that will meet the needs is available on State contract; or if not available on State contract otherwise available; or whether a retrofit of a standard fuel vehicle is an option.
  - Analysis of the purchase and operating costs of the alternative vehicle versus standard fuel vehicle.
  - Report and recommendation to the County Manager on vehicle acquisition and replacement.
  - County Manager decision as to the specific vehicle to be acquired.
2. As part of the Item 1 process, ~~Public Works~~ Asset Management Services prepares an annual "Vehicle Replacement Report" which includes recommended priorities for vehicle replacement. This report considers the following factors in prioritizing vehicle replacements:
- Miles driven to date (odometer reading).
  - Mileage (miles per gallon) compared to baseline/industry standards for comparable vehicle.
  - Repair and maintenance cost per mile for most recent 12 months, compared to baseline/industry standards for comparable vehicles.
  - Vehicle use (front-line emergency response vehicle versus passenger transportation ~~Motor Pool fleet~~ vehicle).
  - Overall mechanical assessment by Asset Management Services ~~Public Works~~ staff.
3. Vehicles identified for replacement are removed from service within one month of the replacement vehicle being placed in service, except with the written approval of the County Manager for the vehicle to continue in service.

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## J. Monitoring and Reporting

1. The ~~Public Works~~ Asset Management Services Department ~~automated~~ fuel management system provides records of ~~most all~~ fuel transactions, whether at the County's fuel station or retail outlets. ~~Public Works obtains information regarding fuel received at other locations (UNC Chapel Hill, Town of Chapel Hill, etc.) and adjusts the transactions database accordingly.~~ These data are used to create performance reports.
2. Information is used to benchmark performance:
  - From year-to-year for total miles driven and average miles per gallon.
  - Compare to results for similar vehicles/vehicle use in other local governments.

In addition to actual vehicle fuel performance, the County reviews other benchmarks such as reducing reliance on fossil fuel vehicles.

## K. Programs

To support the vehicle fuel conservation policy, the County implements a variety of programs including:

### 1. Employee Awareness

The County conducts communications programs to promote employee awareness of the need for fuel conservation. This includes activities such as distribution of the Vehicle Fuel Conservation Policy, reminders via pamphlets, e-mails, Orange Alive, coverage in new employee orientation, and opportunities at employee events to reinforce the conservation ethic.

### 2. Incentives

Incentive programs will be developed to improve compliance and acceptance by employees who operate County vehicles. These may include department versus department contests, financial incentives, preferred parking and the like.

### 3. Preventive Maintenance

Preventive Maintenance procedures are used to obtain optimal ~~—~~ fuel-efficient operation of all equipment.

### 4. Repairs

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Repairs/replacement of all vehicles and motorized equipment take into consideration the most cost-effective solution over the life of the repair/equipment. This includes future maintainability, improved operation, improvements ~~in~~ to fuel efficiency, requirement for additional or reduced preventive maintenance, and the like.

#### ~~5.~~ Innovative Strategies

The County considers and pursues innovative strategies that may reduce the need for gasoline consumption such as video conferencing, “smart travel” with other departments and County car pooling, including educating employees about these.

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## **Utility Reduction and Conservation Policy for County Facilities**

### **A. General**

Orange County's "Environmental Responsibility in County Government" goal includes the objective: "Initiate policies and programs that conserve energy, reduce fuel/utility/resource consumption..." In support of this goal, the County has adopted this Utility Reduction and Conservation Policy for County Facilities.

Utility costs for electricity, natural gas, propane and fuel oil and water for County facilities is a significant County cost. Beyond this, energy and water consumption has significant environmental impacts, including direct local impacts. As a result, it is both necessary and beneficial for the County to adopt a policy of energy and water reduction, conservation and efficiency.

Vehicle fuel conservation is addressed in a separate policy

### **B. Purpose**

The purpose of this policy is to reduce the County government's energy and water consumption, wherever possible, and improve efficiency for that energy and water that must be used throughout Orange County government buildings, consistent with the need for safe and secure County facilities.

### **C. Policy Goals**

The policy addresses both short and long term goals.

#### **1. Short Term (One to Two Years)**

- Establish the policy foundation of responsibilities, planning, programs, standards, performance measures and the like to manage the County government's energy and water use and conserve energy and water.
- Manage energy and water consumption to minimize use to the greatest extent possible while maintaining safe and acceptable work conditions.
- Achieve a reduction in average energy and water consumption per square foot annually.

#### **2. Long Term (Three Years or More)**

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- Incorporate energy and water conservation and efficiency systems, techniques and design in all major renovations, system replacements and new construction.
- Support change to State utility budgeting and public utility commission policy that fosters monetary incentives to make energy and water conservation and efficiency efforts economically attractive and streamline program justification requirements so that projects can be executed within a timely interval and savings quickly realized.

#### **D. Scope**

##### 1. Facilities

This policy applies to County owned and leased buildings, whether occupied by the County, the courts or other agencies.

##### 2. Equipment

This policy applies to County owned or leased equipment, including computer equipment.

##### 3. Energy and Water Sources

This policy applies to use of electricity, natural gas, propane and fuel oil and to water from municipal sources and wells.

#### **E. Responsibilities**

##### 1. Energy, Water and Fuel Conservation Management Team

The Energy, Water and Fuel Conservation Management Team

- Includes staff from:

1. Asset Management Services Department (AMS)
2. Department of Environment, Agriculture, Parks and Recreation (DEAPR)

Provides direction, counsel and oversight as to implementation of the Energy and Water Conservation Policy. As necessary, the Conservation Management Team addresses questions of policy interpretation and adherence.

##### 2. Asset Management Services Department

- The Asset Management Services Department provides leadership, analysis, monitoring, coordination and communication support to the energy conservation

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initiative. Among other things, the Asset Management Services Department: Coordinates development and implementation of the County's annual energy and water conservation action plan including associated costs for inclusion in the annual budget process.

- Tracks and assesses the County's energy conservation performance and progress, including building data collection and analytical tools.
- Working through the departments involved, identifies and appoints a volunteer "Building Energy and Water Representative" for each County facility.
- Conducts spot check energy audits after normal business hours to assess the County's adherence to policies and standards.

3. The Asset Management Services Department is responsible for:

- Up fitting as authorized and maintaining County facilities in accordance with the requirements of this policy, including installation of energy and water conserving equipment and verification of correct equipment settings and operation.
- Identifying situations above and beyond those envisioned in this policy that may require individual analysis and action to provide a comfortable, functional work environment.

4. Building Energy and Water Representatives

The appointed volunteer Building Energy and Water Representatives serve as:

- A resource to building occupants about policies and responsibilities.
- "Energy conservation champions" to support awareness of energy and water conservation and goal achievement.
- Field representatives to the , Asset Management Services Department, observing and reporting to AMS on building conformity during normal business hours with energy and water conservation standards such as those for heating and air conditioning thermostat settings.

5. Department Heads

Department heads are responsible for:

- Communicating the County's energy and water conservation goals and policies to staff, providing guidance and promoting adherence.

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- Working with the Asset Management Services Department to identify energy and water reduction techniques or systems that can be implemented without affecting service delivery to the department's customers as well as bringing to their attention any areas that require further action to address.

## 6. Employees

County employees are responsible for:

- Becoming knowledgeable about the County's energy and water conservation policies and initiatives and complying with these policies.
- Advising their supervisor of any circumstance that prevents adherence to the County's policies.
- Bringing forward ideas and suggestions for energy and water conservation and efficiency that may not have been identified to them.

## **F. Energy and Water Conservation Action Plan**

1. The Conservation Management Team, Asset Management Services Department and others involved, coordinates the development of an annual "Energy and Water Conservation Action Plan."
2. This annual plan identifies specific actions to be implemented, proposed or estimated time lines, and responsibilities for implementation.
3. The action plan is submitted to the Board of County Commissioners for review and approval, as part of the annual budget process.
4. The action plan is reviewed and updated annually along with evaluation of the previous year's performance, during the annual "Update and Scorecard Results" report.

## **G. Reporting, Benchmarking and Performance Measurement**

Reporting

1. The Asset Management Services Department:
  - Ensures information for all billing periods for each energy and water utility (electricity, natural gas, fuel oil and propane gas) is accurately recorded each month and assesses progress, by building and/or department where feasible as

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well as for the County as a whole, in reducing energy and water demand. This includes analysis of the information and assessment of trends and identification of billing errors.

- Presents reports to department heads and the County Manager to aid in determining if conservation efforts are meeting goals or additional efforts are required.
- Leads development and delivery of the annual reports to the Board of County Commissioners to advise them of progress in conserving energy and water.

## 2. Benchmarking/Performance Measurement

The Conservation Management Team uses reporting information to benchmark and measure performance:

- From year-to-year (aggregate and by individual building) adjusted for heat and cooling degree days, and any other significant factors, in keeping with accepted industry practices, and
- Compared to results for organizations located in similar geographic areas.

## H. Energy Use Standards

### 1. General

The intent of the energy and water conservation policy and program is to achieve reductions in energy and water consumption while maintaining reasonable comfort levels for building occupants.

Initial temperature set points were based upon ASHRAE comfort chart for 50 percent relative humidity, and employees at light work.

### 2. Heating and Air Conditioning Standards

Except as otherwise noted, temperature set points are based on the standards (Attachment) of the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and are as follows:

<b>Cooling Season Set Points</b>	<b>75° F – 78° F</b>
<b>Heating Season Set Points</b>	<b>68° F – 72° F</b>

Occupied air conditioning temperature settings are not set below 75 degrees and heating settings are not set above 72 degrees, except for operations which require other settings based on function such as Health Department examination rooms,

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medical laboratories, computer equipment rooms, library stacks, recreation rooms, animal quarters or the like.

### 3. Use of Windows

Windows are to be kept closed, unless specifically authorized such as when the HVAC system is disengaged, because open windows throw the HVAC system off balance, and interfere with providing uniform heating or cooling in large buildings.

### 4. Auxiliary Heating and Cooling Sources

Personal portable space heaters are not allowed because of their excessive energy consumption, fire code and safety issues. If a room is not consistently within the heating/air conditioning set-point range, Asset Management should be notified through the established work order system so that the problem can be addressed. If building conditions are such that acceptable temperatures cannot be achieved by the HVAC system, Asset Management Services takes necessary measures to resolve/rectify. If auxiliary heating or fans are required, Asset Management Services will provide these.

### 5. Night, Weekend and Holiday Temperature Set-backs

The heating temperatures are set to 60 degrees for all buildings for periods when buildings are not normally occupied. The air conditioning temperatures are set to 80 degrees when buildings are not normally occupied. Normal occupancy for most buildings is from 7:30 a.m. to 6:00 p.m. This means that from 7:30 a.m., until 6:00 p.m., the temperature will be within the set points defined in Item H2 above.

Note: Exceptions to the set backs are made for those functions that must remain operational during these periods such as for night meetings, Emergency Management and the Jail. Also some buildings have unique requirements for longer start up times to reach heating or cooling set points.

If a building has complete digital control, and individual zone or office temperature control, occupants will be able to override the schedule to provide heating/cooling for their office at any time, for a limited period (typically two hour intervals).

## **I. Lighting Policy**

1. Office and conference room lights are to be turned off whenever rooms are likely to be unoccupied for more than 15 minutes.

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2. Each department or agency shall assign an employee to turn off common area lighting other than corridor lights at the end of the business day. Lights are to be turned off even if it is anticipated that cleaning staff will soon be in the area.
3. Cleaning staff are responsible for turning on lights on an “as needed” basis while working; that is, turning on lights only while an office or room is being cleaned, and turning lights off as soon as cleaning has been completed. Cleaning staff turns off corridor and related lighting prior to leaving the building at the completion of cleaning.
4. Parking lot lights and streetlights located near buildings are typically owned by power companies such as Duke Energy and are controlled by photocells or timers. Costs for this lighting are on a flat rate basis, and turning them off does not result in cost savings regardless of usage.
5. Athletic Field lights are to be operated only as needed. They should not be in operation during daylight hours. Lights generally will not be operated on weekends, except for special events.

#### **J. Refrigerators, Microwaves, and Similar Devices**

As a longer-term goal, the County will assess the use of refrigerators, microwaves and similar devices and possible replacement of less energy efficient equipment with more energy efficient equipment and approaches.

#### **K. Computer Equipment**

The Chief Information Officer assesses energy consumption of personal computers, printers and related devices and recommends to the County Manager guidelines for turning on or off and setting the “sleep” modes that reflect the technology in place. The County Manager issues guidelines for such equipment that apply to all County departments. As experience is gained this will be issued as policy.

#### **L. Water Use Standards**

##### General

The intent of the Energy and Water conservation policy and program is to achieve reductions in water consumption while maintaining reasonable comfort levels for building occupants.

1. Waterless or low-flow fixtures are used for any replacement fixtures, unless technically impractical.

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2. The County gives preference to drought-tolerant plants when new or replacement plants and/or trees are required for landscaping. Large areas of grass are avoided in favor of alternative plantings and landscaping techniques, whenever possible.
3. Irrigation is limited to critical needs to support survival of plants, and if allowed by local watering restrictions. Permanently installed irrigation systems are preferred to provide most efficient distribution of water.
4. Vehicle washing is performed only as permitted by local watering restrictions. If performed, it is done only with water conserving spraying devices rather than an open garden hose. Rain collection for vehicle washing is pursued as feasible.

## **M. Programs**

To support the Energy and Water Conservation Policy and initiative, the County implements a variety of programs including:

### **1. Employee Awareness**

The County conducts communications programs to promote employee awareness of the need for energy and water conservation. This includes such activities as distribution of this Energy and Water Conservation Policy, reminders via pamphlets, e-mails, Orange Alive, coverage in new employee orientation, and opportunities at employee events to reinforce the conservation ethic.

### **2. Incentives**

Incentive programs will be developed to improve compliance and acceptance by County employees, and other building occupants. These may include building-versus-building contests, department-versus-department contests, financial incentives, preferred parking and the like.

### **3. Preventive Maintenance**

Preventive Maintenance procedures are used to obtain optimal Energy, and Water-efficient operation of equipment, systems and devices.

### **4. Repairs**

Repairs/replacement of equipment take into consideration the most cost effective solution over the life of the repair/equipment. Considerations shall include future maintainability, improved operation, improvements to energy or water

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efficiency, requirement for additional or reduced Preventive Maintenance, and the like.

5. Energy Efficiency Retrofits

The County bases energy efficiency retrofitting project priorities upon the availability of capital improvements plan funds and maintenance needs such as the condition of existing equipment. The County develops and maintains a priority list of retrofit needs.

6. Renovations

Renovations to County facilities, whether major or minor, are to meet standards for energy, and water-efficient equipment and design.

7. New Construction

New construction is required to follow energy and water efficient standards as set forth by the Guidelines for Sustainable Public Facility Design and Development. Life-cycle cost analyses are required, and energy and water efficient designs, including Passive and Active Solar systems, natural lighting, cogeneration and thermal storage, among others are considered and evaluated.

8. Equipment Selection

The selection of all equipment procured for Orange County, to include computer equipment, printers, copy machines, equipment, refrigerators, and so forth is to consider carefully the anticipated energy use and available energy saving devices.

9. Automation

With the direction and leadership of the Energy Management Team , each County department pursues automation solutions, as feasible, to replace travel-intensive, paper-intensive or other energy consuming activities.

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Attachment

### **From American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standards**

1. Thermal comfort is that condition of mind that expresses satisfaction with the thermal environment. There are large variations, both physiologically and psychologically, from person to person, which makes it difficult to satisfy everybody in a space. The environmental conditions required for comfort are not the same for everyone. However, extensive laboratory and field data have been collected that provide the necessary statistical data to define conditions that a specified percentage of occupants will find thermally comfortable.
2. This standard specifies the combinations of indoor space environment and personal factors that will produce thermal environmental conditions acceptable to 80% or more of the occupants within a space. The environmental factors addressed are temperature, thermal radiation, humidity, and air speed; the personal factors are those of activity and clothing.  
<http://www.constructionbook.com/xq/ASP/ProductID.3695/id.402/subID.636/qx/default2.htm>
3. ASHRAE Standard 55-1992 Thermal Environmental Conditions for Human Occupancy, recommends the following acceptable temperature ranges at relative humidity (RH) of 50% and air speed less than 0.15 m/sec. (30 fpm).

<b>Acceptable Temperatures</b>		
<b>Season</b>	<b>Clothing</b>	<b>Temperature</b>
Winter	Heavy slacks, long sleeve shirt and/or sweater	20-23.5°C (68-75°F)
Summer	Light slacks and short sleeve shirt	23-26°C (73-79°F)

[http://www.ccohs.ca/oshanswers/phys\\_agents/hot\\_cold.html](http://www.ccohs.ca/oshanswers/phys_agents/hot_cold.html)

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## **Vehicle Fuel Conservation Policy**

### **A. General**

Orange County's "Environmental Responsibility in County Government" goal includes the objective: "Initiate policies and programs that conserve energy, reduce fuel/utility/resource consumption..." In support of this goal, the County has adopted this Vehicle Fuel Conservation Policy.

Costs for gasoline and diesel fuel for County vehicles and motorized equipment are significant. Beyond this, fuel consumption for vehicles and motorized equipment has significant environmental impacts. As a result, it is both necessary and beneficial for the County to adopt a policy of fuel conservation and efficiency.

Energy and water conservation for County buildings are addressed in a separate policy.

### **B. Purpose**

The purpose of this policy is to reduce the County government's vehicle fuel consumption, wherever possible; improve fuel efficiency; and maximize the use of alternative fuels for that fuel that must be used to operate Orange County vehicles and motorized equipment, consistent with the need for safe, and reliable County vehicles and motorized equipment.

### **C. Policy Goals**

1. Establish the policy foundation of responsibilities, planning, programs, standards, performance measures and the like to manage the County government's vehicle fuel use and conserve fuel.
2. Manage vehicle and motorized equipment fuel consumption to minimize use to the greatest extent possible while maintaining safe and reliable vehicles and motorized equipment.
3. Provide for the use of alternative fuel (which may include compressed natural gas, bio-diesel, hybrid gas/electric, or the like) vehicles and motorized equipment, unless service needs cannot be met with an alternative fuel vehicle or motorized equipment – as determined by the County Manager.
4. Purchase vehicles and motorized equipment that meet service delivery needs with the greatest fuel efficiency possible whether alternative or traditional fuel.
5. Achieve a reduction in average fuel consumption per mile annually for vehicles and per hour of operation for motorized equipment.

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6. Support change to State agency policies that fosters monetary incentives to make fuel efficiency and alternative fuel efforts economically attractive and to streamline program justification requirements so that projects can be executed within a timely interval, and savings quickly realized.

#### **D. Scope**

This policy applies to all County owned and leased vehicles and motorized equipment and the operators of these vehicles and equipment.

#### **E. Responsibilities**

1. Energy Water and Fuel Conservation Management Team

The Energy, Water and Fuel Conservation Management Team (“Management Team”) provides direction, counsel and oversight as to implementation of the Vehicle Fuel Conservation Policy. As necessary, the Management Team addresses questions of policy interpretation and adherence.

2. Finance and Administrative Services Director

The Finance and Administrative Services Director manages the vehicle acquisition or replacement process as provided in this policy.

3. County Manager

The County Manager’s advance approval is required for purchase of any new or replacement vehicle or motorized equipment.

4. Asset Management Services Department

The Asset Management Services Department is responsible for:

- Performing preventive and corrective maintenance for County vehicles and motorized equipment to ensure maximum fuel efficiency is achieved.
- Preparing the annual vehicle replacement report as part of the annual budget process.

5. Department Heads

Department Heads are responsible for:

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- Communicating the County's fuel conservation goals and policies to staff, providing guidance and promoting adherence.
- The assignment of departmental vehicles to departmental staff.
- For vehicles not assigned to a single individual, designating one operator and one backup operator to monitor use and schedule preventive maintenance service as needed.
- Communicating and justifying any request for new and replacement vehicles and motorized equipment as part of the annual budget process.
- Monitoring employee conformance with requirements for vehicle and motorized equipment maintenance, including scheduling of preventive maintenance service.

## 6. Employees

Employees who operate County vehicles and motorized equipment are responsible for ensuring that:

- Tire and fluid inspections for vehicles are performed (by self, or by Motor Pool staff) according to published directions from the Asset Management Services Department.
- The assigned vehicle is scheduled and delivered to Asset Management Services for preventive maintenance service within time and/or mileage intervals identified by Asset Management Services.
- Corrective maintenance is scheduled with Asset Management Services as soon as possible when a problem with the vehicle is encountered or identified.
- Vehicles are operated according to all applicable laws and rules of the road. This increases fuel conservation and safety.
- Fuel for County vehicles and equipment is acquired through a system operated by the Asset Management Services Department, according to identified standard operating procedures. Information about fuel transactions is provided by operators of County vehicles according to Asset Management Services Department identified procedures.

## F. Vehicle Operation

1. Vehicles are to be operated in keeping with manufacturers' recommendations and specifications, and applicable County policy.

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2. To maximize fuel efficiency, vehicles are to be serviced at intervals identified by the Asset Management Services Department.
3. To meet department specific service levels while achieving the highest fuel economy, departments, where applicable, use geographic information systems (GIS), global positioning systems (GPS) or other industry tools and standards to design and implement efficient vehicular routes/schedules and deployment strategies/schedules.

### **G. Fuel Conservation Action Plan**

1. Asset Management Services, in consultation with the Energy, Water and Fuel Conservation Management Team and others involved, coordinates the development of an annual "Vehicle Fuel Conservation Action Plan." The annual action plan includes recommended charge back rates to departments for vehicle operation costs and recommendations for the annual "Vehicle Replacement Report."
2. The annual plan identifies specific actions to be implemented, proposed and estimated time lines and responsibilities for implementation.
3. The action plan is submitted to the Board of Commissioners as part of the annual budget process.
4. The action plan is reviewed and updated annually along with evaluation of the previous year's performance during the annual update and scorecard report.

### **H. Charge Back Rates**

As part of the annual budget process, vehicle cost charge back rates to departments are set each year. Among other things, these take account of fuel and repair costs and are designed to promote the use of alternatively fueled and fuel efficient vehicles.

### **I. Vehicle Acquisition**

1. The Asset Management Services Department develops, communicates and maintains a written process for the systematic consideration of vehicle acquisition needs (whether additional or replacement vehicles) and the decision-making as to the type of vehicle to be purchased, including whether it is an alternative fuel vehicle (which may include compressed natural gas, bio-diesel, hybrid gas/electric, etc.). Among other things, this process provides for the following:
  - Determination as to whether the vehicle needs to be acquired or replaced.

## Orange County

Effective: January 1, 2013

- Determination as to whether an alternative fuel vehicle will meet the service needs.
  - Whether an alternative fuel vehicle that will meet the needs is available on State contract; or if not available on State contract otherwise available; or whether a retrofit of a standard fuel vehicle is an option.
  - Analysis of the purchase and operating costs of the alternative vehicle versus standard fuel vehicle.
  - Report and recommendation to the County Manager on vehicle acquisition and replacement.
  - County Manager decision as to the specific vehicle to be acquired.
2. As part of the Item I process, Asset Management Services prepares an annual "Vehicle Replacement Report" which includes recommended priorities for vehicle replacement. This report considers the following factors in prioritizing vehicle replacements:
- Miles driven to date (odometer reading).
  - Mileage (miles per gallon) compared to baseline/industry standards for comparable vehicle.
  - Repair and maintenance cost per mile for most recent 12 months, compared to baseline/industry standards for comparable vehicles.
  - Vehicle use (front-line emergency response vehicle versus passenger transportation vehicle).
  - Overall mechanical assessment by Asset Management Services staff.
3. Vehicles identified for replacement are removed from service within one month of the replacement vehicle being placed in service, except with the written approval of the County Manager for the vehicle to continue in service.

### **J. Monitoring and Reporting**

1. The Asset Management Services Department fuel management system provides records of all fuel transactions, whether at the County's fuel station or retail outlets. These data are used to create performance reports.
2. Information is used to benchmark performance:

Orange County

Effective: January 1, 2013

- From year-to-year for total miles driven and average miles per gallon.
- Compare to results for similar vehicles/vehicle use in other local governments.

In addition to actual vehicle fuel performance, the County reviews other benchmarks such as reducing reliance on fossil fuel vehicles.

## **K. Programs**

To support the vehicle fuel conservation policy, the County implements a variety of programs including:

### 1. Employee Awareness

The County conducts communications programs to promote employee awareness of the need for fuel conservation. This includes activities such as distribution of the Vehicle Fuel Conservation Policy, reminders via pamphlets, e-mails, Orange Alive, coverage in new employee orientation, and opportunities at employee events to reinforce the conservation ethic.

### 2. Incentives

Incentive programs will be developed to improve compliance and acceptance by employees who operate County vehicles. These may include department versus department contests, financial incentives, preferred parking and the like.

### 3. Preventive Maintenance

Preventive Maintenance procedures are used to obtain optimal fuel-efficient operation of all equipment.

### 4. Repairs

Repairs/replacement of all vehicles and motorized equipment take into consideration the most cost-effective solution over the life of the repair/equipment. This includes future maintainability, improved operation, improvement in fuel efficiency, requirement for additional or reduced preventive maintenance, and the like.

## Innovative Strategies

The County considers and pursues innovative strategies that may reduce the need for gasoline consumption such as video conferencing, "smart travel" with other departments and County car pooling, including educating employees about these.

# Environmental Responsibility in County Government

*Adopted as an Orange County Goal, 12/5/05*

## Goal Statement:

*Perform all County governmental functions, both internal and external, with a sensitivity and ethic that promotes environmental responsibility and leadership, and an understanding of the actions of government activities as they affect the natural and cultural resources of the County, region, state, nation and world.*

## Objectives (suggested departmental responsibility)

1. Develop a Countywide Environmental Leadership Policy, and institute a standing Orange County Environmental Action Committee as an internal mechanism to periodically monitor and assess the County's progress toward meeting the objectives of the environmental responsibility goal. (ERCD, with representatives from all departments);
2. Initiate policies and programs that conserve energy, reduce fuel/utility/resource consumption, increase the use of recycled products and renewable energy services, and minimize waste stream impacts on the environment. (Public Works, all departments);
3. Continue to aggressively pursue waste reduction/recycling efforts, including the reduction of paper. (Solid Waste, IT);
4. Continue, expand and formally adopt the use of green building standards; construct new facilities/deconstruct outdated facilities in a way that is eco-friendly, utilizes energy conserving measures, and minimizes impacts on the environment. (Purchasing, Public Works, Planning, Recreation and Parks, Solid Waste, ERCD, among others);
5. Implement programs that monitor and improve local and regional air quality by promoting public transportation options and incentives within the County that increase connectivity and decrease dependence on personal vehicles, and by selecting alternative fuel and low emission fuels/vehicles for the County's vehicle fleet. (Purchasing, Public Works, ERCD, Planning, Personnel, among others);
6. Conduct sustainable and eco-sensitive forestry practices on County-owned lands with a goal of no net loss of woodlands. Promote and encourage eco-sensitive forestry practices on privately held lands within the County. (ERCD, Soil & Water, R&P);

7. Promote the use of environmentally-sensitive chemical and materials, including a) the use of “Green Seal” chemicals and cleaning products in daily operation and maintenance of County facilities; b) utilize an IPM (Integrated Pest Management) Program for County facilities that minimizes use of chemical compounds; and c) require that County events and services (including those involving outside vendors) use eco-friendly and biodegradable materials wherever possible. (Purchasing, Public Works, R&P);
8. Consider innovative new technologies for conserving and protecting ground water, indoor air quality and wastewater, to lessen impacts on the natural environment, and promote water conservation, collection and reuse in both current and future County facilities. (Health, ERCD, Engineer);
9. Implement growth management policies and procedures within the County so that development is directed toward areas where it can be accommodated without compromising the County’s goals for protecting natural and cultural resources. (Planning, ERCD); and
10. Develop an Information Services policy that promotes energy conservation through the use of electronic and alternative media of communication. (IT).

### **Possible Action Strategies**

Each department, advisory board and/or organization should be asked to develop specific action strategies based on the 10 objectives listed above. The possible action strategies should be collated and compared for consistency and coordination, and then incorporated into the goal.

#### **Example of an Action Strategy**

**Objective 5** (Implement programs to monitor and improve local and regional air quality: by promoting public transportation options and incentives within the County that increase connectivity and decrease dependence on personal vehicles, and selecting alternative fuel and low emission fuels/vehicles for the County’s vehicle fleet)

#### **Action Strategy A:**

Acquire 3-5 alternative-fuel vehicles (AFV’s) per year, based on evaluation of proposed vehicle purchases and the “fit” with available AFV options, as funds permit.

**ORANGE COUNTY  
BOARD OF COMMISSIONERS**

**ACTION AGENDA ITEM ABSTRACT**

**Meeting Date:** May 21, 2013

**Action Agenda  
Item No.** 8-d

**SUBJECT:** Energy, Water And Fuel Performance Report for Fiscal Year 2012

**DEPARTMENT:** Asset Management Services  
(AMS)

**PUBLIC HEARING:** (Y/N)

No
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**ATTACHMENT(S):**

- 1) "Environmental Responsibility in County Government" Goal
- 2) Excerpt Slides from October 16, 2012 Report Regarding the "Environmental Responsibility in County Government" Goal

**INFORMATION CONTACT:**

Wayne Fenton, (919) 245-2628  
Alan Dorman, (919) 245-2627  
Jeff Thompson, (919) 245-2658

**PURPOSE:** To receive a report regarding reductions in use of energy, water and fuel in fiscal year 2011-12.

**BACKGROUND:** At the October 16, 2012 regular meeting, the Board of County Commissioners ("BOCC") received a report regarding the "Environmental Responsibility in County Government" Goal adopted by the BOCC in December 2005 (Attachment 1). Asset Management Services ("AMS") staff collaborated with Department of Environment, Agriculture, Parks and Recreation ("DEAPR") and the Orange County Solid Waste Department to develop a performance report against the established goals. Included in the report were targets and achievements for reduction in the use of energy, water and fuel use. The report established a baseline year (fiscal year 2009-10) and identified reduction goals each year through fiscal year 2017.

At its November 13, 2012 work session, the BOCC received a report regarding proposed revisions to the Energy, Water and Fuel Conservation Policies, which was originally adopted by the BOCC in December 2005 and became effective January 1, 2006. As part of the discussions at the November 13 meeting, it was requested by the BOCC that information regarding achievements in the reduction of energy, water and fuel use be reported to the BOCC as part of the annual budget development process. As such, AMS is presenting the attached excerpt from the original report presented October 16, 2012. AMS reported to the BOCC on progress toward these goals in June 2011 and October 2012 and will continue to report to the BOCC on progress towards the established goals each year during the budget process.

**Annual Scorecard Results**

The energy and water use reported here is for all facilities for which AMS manages the utility accounts. This includes accounts for all County buildings and facilities with the exception of some park properties managed by DEAPR (primarily outdoor sports field lighting) and Solid

Waste facilities, which operate as part of the Solid Waste Enterprise Fund. AMS is working with DEAPR and Solid Waste to ensure that future annual reports to the BOCC will include information for the accounts that these departments manage as well.

The report presented in October 2012 and excerpted here indicated the following for the facilities managed by AMS:

1. Energy use decreased by approximately 12 percent between FY 2009-10 (baseline year) and FY 2011-12;
2. Water use decreased by approximately 4.6 percent between FY 2009-10 (baseline year) and FY 2011-12;
3. Fuel use increased by approximately 4.9 percent and fuel efficiency of vehicles driven decreased by approximately 5.3 percent between FY 2009-10 (baseline year) and FY 2011-12. Increased fuel use was directly related to increased miles driven by a fleet primarily comprised of law enforcement and emergency response vehicles. The reduction in fuel efficiency for the overall fleet was due to older, less fuel efficient vehicles remaining in the fleet at that time. Most vehicles purchased since FY 2012 have been smaller and more fuel efficient.

Data for fiscal year 2012-13 will be available late August/early September and will be presented to the BOCC during budget season in the Spring of 2014.

**FINANCIAL IMPACT:** Sustainable environmental practices and reduced energy, water and fuel use results in avoided costs for utilities and fuels, as well as the less obvious benefits of resource conservation, higher air and water quality, and less greenhouse gas emissions.

**RECOMMENDATION(S):** The Manager recommends that the Board receive the attached information regarding reductions in energy, water and fuel use in fiscal year 2011-12 for information purposes.

# Environmental Responsibility in County Government

*Adopted as an Orange County Goal, 12/5/05*

## Goal Statement:

*Perform all County governmental functions, both internal and external, with a sensitivity and ethic that promotes environmental responsibility and leadership, and an understanding of the actions of government activities as they affect the natural and cultural resources of the County, region, state, nation and world.*

## Objectives (suggested departmental responsibility)

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10. Develop an Information Services policy that promotes energy conservation through the use of electronic and alternative media of communication. (IT).

### **Possible Action Strategies**

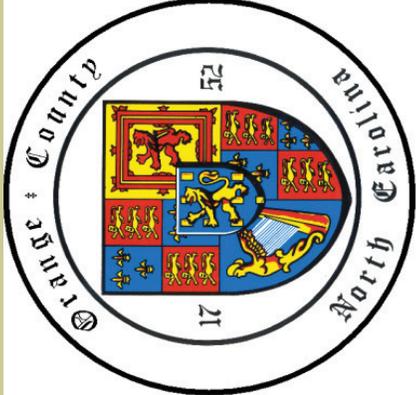
Each department, advisory board and/or organization should be asked to develop specific action strategies based on the 10 objectives listed above. The possible action strategies should be collated and compared for consistency and coordination, and then incorporated into the goal.

#### **Example of an Action Strategy**

**Objective 5** (Implement programs to monitor and improve local and regional air quality: by promoting public transportation options and incentives within the County that increase connectivity and decrease dependence on personal vehicles, and selecting alternative fuel and low emission fuels/vehicles for the County’s vehicle fleet)

#### **Action Strategy A:**

Acquire 3-5 alternative-fuel vehicles (AFV’s) per year, based on evaluation of proposed vehicle purchases and the “fit” with available AFV options, as funds permit.



# Energy, Water and Fuel Conservation in Orange County Government

Board of County Commissioners  
May 21, 2013



# Asset Management Services



# Energy Scorecard

Energy Use (MMBTU/ 1,000 Sq. FT of Occupied Space)				
	Goals		Actuals	
	MMBTU/ 1,000 Sq. Ft.	% Change from Baseline	MMBTU/ 1,000 Sq. Ft.	% Change from Baseline
FY 10 (Baseline)	96.2		96.2	
FY 11	92.4	4%	91.4	5.0%
FY 12	88.5	8%	83.5	13.2%
FY 13	84.7	12%		
FY 14	80.8	16%		
FY 15	77.0	20%		
FY 16	72.2	25%		
FY 17	67.3	30%		

Energy reduction goal:  
**20% cumulative through FY15; additional 10% cumulative through FY17**



# Water Scorecard

Water Consumption (Total Gallons)				
	Goals		Actuals	
	Gallons/ Sq. FT.	% Change From Baseline	Gallons/ Sq. FT.	% Change From Baseline
FY 10 (Baseline)	15.93		15.93	
FY 11	15.82	0.7%	13.03	18.2%
FY 12	15.71	1.4%	15.19	4.6%
FY 13	15.59	2.1%		
FY 14	15.48	2.9%		
FY 15	15.36	3.8%		
FY 16	15.25	4.3%		
FY 17	15.13	5.0%		

Water reduction goal:  
*5% cumulative through FY17*



# Fuel Scorecard

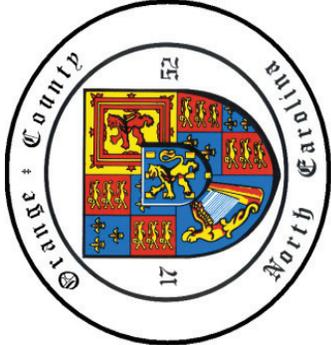
	Fuel Consumption (Total Gallons)			Fuel Efficiency (MPG)		
	Goals		Actuals	Goals		Actuals
	Gallons	% Change From Baseline	Gallons	% Change From Baseline	MPG	% Change From Baseline
FY 10 (Baseline)	240,813		240,813		12.82	
FY 11	235,997	2%	251,382	-4.4%	13.07	2%
FY 12	231,180	4%	252,708	-4.9%	13.33	4%
FY 13	226,364	6%			13.59	6%
FY 14	221,548	8%			13.84	8%
FY 15	216,732	10%			14.10	10%
FY 16	210,711	12%			14.42	12%
FY 17	204,691	15%			14.74	15%

- Increased fuel use: attributed to increased law enforcement miles
- Slightly less efficient MPG: Aging fleet
- **Solution: Active vehicle replacement program; higher fuel efficiency standards**  
 Fuel reduction goal:  
**10% cumulative through FY15; additional 5% cumulative through FY17**



# Reporting Initiatives

- AMS will report on utility, fuel (“Scorecard”) and other operating cost information related to facilities and vehicles as practicable after the end of each fiscal year, to be ready by late August/early September each year
- These data will also be reported as part of the annual budget development process



# For More Information:

## **Orange County Utility and Fuel Use and Conservation Initiatives –Annual Report**

located at:

[http://orangecountync.gov/AssetMgmt/documents/AttachmentA-Conservation\\_Report-final.pdf](http://orangecountync.gov/AssetMgmt/documents/AttachmentA-Conservation_Report-final.pdf)

**Rich Shaw**

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**From:** Blank-White, Kristin <kblank@email.unc.edu>  
**Sent:** Wednesday, May 29, 2013 2:23 PM  
**To:** The Sustainability mailing list  
**Subject:** [sustainability] UNC Sustainability—New University Generator Converts Methane into Electricity; Orange County Solid Waste Forum

Email not displaying correctly? [Click here to view it in your browser.](#)



# Sustainability Update



## Tip of the Week:

How does your garden grow? It's not too late to plant seed for the summer. Visit this [regional gardening guide](#) to learn when to plant and harvest a variety of vegetables. Or, consider volunteering at one of the local community gardens, such as the [Carolina Campus Community Garden](#), [HOPE Gardens](#), or the [Carrboro Community Garden](#) to learn new skills and make new friends.

## Jobs, Internships, etc.:

**NC State – Center for Environmental Farming Systems and Firsthand Foods – Farmer Project Associate – NC**  
[Read more »](#)

**NC State – Center for Environmental Farming Systems – Sustainable**

## Carolina North Generator Produces Electricity from Landfill Methane Gas

A new 1,000 kilowatt generator at Carolina North converts methane gas from the Orange County landfill into electricity for the grid. The University and Orange County started the Landfill Gas Recovery Agreement in 2009 as a way to reduce carbon emissions, provide a revenue stream to Orange County, and advance UNC's carbon-neutrality goals. The University currently sells the electricity generated to the Duke Energy power grid, but plans to eventually use it to power buildings at Carolina North. Methane is a greenhouse gas with 25 times the global warming potential of carbon dioxide. By keeping methane out of the atmosphere, the University will receive carbon credits and move towards its goal of being carbon-neutral by 2050. The total emissions reduction as a result of the project is equivalent to the annual greenhouse gas emissions from 8,000 passenger vehicles. [Read more »](#)

## Community Solid Waste Forum

Chapel Hill's Sustainability Committee and Orange County's Commission for the Environment will host a Community Solid Waste Forum on Thursday, May 30, from 6-8:30 pm at the Chapel Hill Public Library. Orange County residents interested in waste management practices are invited to attend and learn more about long-term regional goals. Please RSVP. [Read more »](#)

## New Interactive Map of Raleigh Charging Stations

**Agriculture Internship Program Assistant – NC**  
[Read more »](#)

**UNC Charlotte – Sustainability Officer – NC**  
Position # 010087 [Read more »](#)

**University of Maryland – Assistant Director, Center for Social Value Creation – MD**  
[Read more »](#)

**George Washington University – Executive Director for Sustainability – DC**  
[Read more »](#)

**Oberlin College – Executive Director of the Oberlin Project – OH**  
[Read more »](#)

**Rural Action AmeriCorps Watersheds Program – Zero Waste Initiative Organizer – OH**  
[Read more »](#)

**National Center for Science Education – Environmental Science Education Resource Development Internship – CA**  
Contact [berbeco@berkeley.edu](mailto:berbeco@berkeley.edu) if interested.

**Peralta Community College – BEST Program (Building Efficiency for a Sustainable Tomorrow) Positions – CA**  
[Read more »](#)

**REU - Bermuda Institute of Ocean Sciences (BIOS) - eight internships for undergraduate student research, fall 2013 – Bermuda**  
[Read more »](#)

Find more job and internship opportunities in the [AASHE Bulletin](#) and [UNC's Institute for the Environment blog!](#)

The City of Raleigh presents Periscope, a web-based dashboard system that allows the community to monitor and view electric vehicle charging stations in real time. The dashboard displays charging station availability and station usage figures. The dashboard will help inform future planning and placement of charging stations. [Read more »](#)

## **CO2 Concentrations Surpass 400 PPM Milestone**

Atmospheric concentrations of carbon dioxide (CO2) recently surpassed a notable milestone, reaching above 400 parts per million (ppm) for the first time in human history. The new measurement came from analyzers atop Mauna Loa, the volcano on the big island of Hawaii that has long been ground zero for monitoring the worldwide trend on CO2. Carbon dioxide pumped into the atmosphere by fossil fuel burning and other human activities is the most significant greenhouse gas contributing to climate change. Its concentration has increased every year since scientists started making measurements on the slopes of the Mauna Loa volcano more than five decades ago. The rate of increase has accelerated since the measurements started, from about 0.7 ppm per year in the late 1950s to 2.1 ppm per year during the last 10 years. [Read more »](#)

## **Abstracts, Awards, Scholarships, and Conferences:**

### **NC Bike Summit Call for Proposals**

The North Carolina Bike Summit fosters collaboration between state bicycle initiatives, efforts, and endeavors; educates local government, bicycle advocates, and policy leaders; promotes cycling as a form of transportation; and highlights North Carolina's dedication toward becoming a bicycle friendly state. The call for workshop and presentation ideas is now open for the Second Annual NC Bike Summit, to be held in Carrboro, North Carolina, October 18-20. Submit proposals by June 21. [Read more »](#)

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## **Carolina in the News**

Check out the recent media mentions of sustainability-related programs, practices, and people at UNC:

### **N.C. coast ideal for wind farms, but logistics complicated**

*The Star News (Wilmington)*

For years, chatter about the possibility of offshore wind power in North Carolina has hummed among state environmental groups. In the past year, that conversation intensified as concrete plans to develop the state's offshore resource moved forward through federal channels. ... The turbines could provide habitat for several threatened species, boosting their fledgling population numbers and allowing charter companies to ferry higher numbers of tourists on offshore excursions...."The base of the wind turbine that goes into the sea floor has, placed around it, something that engineers call a scour apron," said Pete Peterson, professor of marine sciences, biology and ecology at the University of North Carolina-Chapel Hill. "It's a huge pile of

very large rocks that stands up to 6 feet tall off the bottom, and extends out a substantial distance around the entire pile. That is exactly what you would build if you wanted to do a restoration of the rocky habitat for fish, including the snapper-grouper complex." [Read more »](#)

**Launch ready to give businesses a leg up**

*The News and Observer (Raleigh)*

The Launch business incubator is one piece of an economic plan, but it shows what the town, county and university can do together, officials said at an open house Wednesday. ...Chancellor Holden Thorp said the venture has been a hugely successful partnership and reflects a lot of the town's pent-up enthusiasm. He was especially proud to see a former student, Betty Cogdell, making a go of her dream to sell gluten- and dairy-free baked goods. Thorp's advice to potential entrepreneurs: "It's a lot harder to do than you think it's going to be, and a lot of people who quit don't realize how close they might be to the goal line. If you can find a way to keep going, it's always worth it." [Read more »](#)

Thanks to UNC News Services for finding these great stories AND compiling the summaries! You can find more UNC media coverage and stories online at <http://uncnews.unc.edu>.

You are currently subscribed to sustainability as: rshaw@orangecountync.gov. To unsubscribe click here: <http://lists.unc.edu/u?id=60979676.4109e352523837b13e344b0bcbdd441e&n=T&l=sustainability&o=33159495> or send a blank email to leave-33159495-60979676.4109e352523837b13e344b0bcbdd441e@listserv.unc.edu