

1. SUMMARY

As individuals, many Orange County residents help fulfill the mandate to be environmentally conscious by recycling plastic bottles and aluminum cans, employing strategies to reduce domestic water consumption, and making personal transportation more fuel-efficient.

In the Orange County governmental structure, similar and often little known practices are being followed by departments and agencies that are adopting procedures to protect the local environment.

The ecologically-aware programs of five county agencies provide examples of programs designed to protect natural resources and reduce wasteful practices. They are not the only environmentally conscious county entities, but the constraints of time and personnel limited the Grand Jury to spotlighting only those five.

At the Frank R. Bowerman Landfill in Central Orange County, for example, innovative members of the OC Waste & Recycling department have found a way to turn a byproduct of the landfill operation into a marketable product that generates income for the county.

The Orange County Grand Jury findings include:

OC Waste & Recycling is one of the most cost-conscious agencies in the county – and one of the most respected in the nation.

2. REASON FOR STUDY

Much of the work done by Orange County departments and agencies to protect and enhance the environment is not generally known and its significance is unappreciated. With this report, the Orange County Grand Jury will focus on the initiative and innovation being shown by some portions

of county government with the intent to encourage other agencies to adopt similar practices.

3. METHOD OF STUDY

The Orange County Grand Jury visited the Frank R. Bowerman Landfill located amid the hills and canyons of central Orange County to observe the operations and inspected several projects at that facility.

Jury members also inspected the Material Recycling Facilities (MRF) in Irvine and the Household Hazardous Waste Collection Centers in Irvine and Huntington Beach.

Site visits were made by the Grand Jury to the Orange County Water District headquarters in Fountain Valley, the Orange County Transportation Authority and John Wayne Airport. The operations of the Orange County Sanitation District were also studied.

On all visits/inspections, interviews were conducted with senior staff; daily operations were observed and reviewed. Copies of official documents were obtained.

4. BACKGROUND AND FACTS

From the northernmost reaches of Orange County to the southern and eastern regions that abut neighboring counties, a number of governmental agencies are devising ways to protect natural resources, finding cleaner ways of doing their jobs and creating groundbreaking strategies to accommodate a growing population.

4.1 Water and Sanitation Districts

During the Middle Ages, alchemists sought the magic formula that would turn a base metal such as lead into gold. They failed, of course. But in a 21st

Orange County Goes Green

Century version of alchemy, engineers and scientists at the Orange County Water District (OCWD) and their partners at the Orange County Sanitation District (OCSD) are turning filth-laden liquid sewage into drinkable (potable) water.

Much of the reconverted water is pumped into the ground along a 60-inch diameter pipe to strengthen the natural barrier against intrusion by sea water into the precious lake of clean water that lies beneath parts of northern and central Orange County. That underwater basin has been the historic source of water that played a key role in Orange County's dynamic growth in the last century.

Use of the purified water from the water district's Fountain Valley plant as a barrier against sea water intrusion means that the huge groundwater basin will continue its role of providing drinkable water to much of Orange County.

The Groundwater Replenishment (GWR) system created by OCWD and its Sanitation District partner is the largest water-purification project of its kind in the world. It takes highly treated sewer (waste) water from the OCSD – instead of discharging it into the ocean – and purifies it to nearly the quality of distilled water. Some of the GWR reclaimed water also is sent through the water district's pipelines to percolation ponds where it blends with natural groundwater supplies and replenishes the underground supply.

OCWD officials say that the district is committed to decreasing Orange County's dependence on imported water from the Colorado River and Northern California. The GWR system reduces the county's reliance on uncertain and more expensive imported water supplies.

With its labyrinth of pipes and tanks, the water purification facility in Fountain Valley provides a drought-proof, locally controlled reliable water supply serving more than 500,000 Orange County residents per year.

More than 100 species of wildlife are found on OCWD lands, and the district cooperates with environmental organizations to preserve the animals' natural habitat. In addition, there are recreational opportunities such as river trails for horseback rid-



*OCWD Groundwater Replenishment System
Located in Fountain Valley*

ing, bicycling, jogging and hiking, and several of the recharge basins are stocked for sport fishing.

4.2 Disposing of Trash

In 1946 Orange County's government assumed responsibility for establishing and maintaining waste

Orange County Goes Green

disposal sites under a new department later named Integrated Waste Management Department. The agency was renamed OC Waste and Recycling in March 2008 and is responsible for managing Orange County's solid waste disposal system. OCW&R is organized as a self-sustaining agency supported solely

fill byproduct into a marketable product it sells to the Orange County Transportation Authority. The methane gas/carbon dioxide is collected, flared or converted to Liquid Natural Gas (LNG) by a sub-contractor (Prometheus) and sold to OCTA for use in that agency's LNG powered buses.



Methane gas conversion to LNG plant located at Frank R. Bowerman Landfill.

by revenues from fees paid by those who dispose of trash at county landfills. These revenues cannot be used in the County General Fund and no tax revenues or public funds are used by the Department. OCW&R manages one of the nation's premier solid waste disposal systems, with a network of three active landfills and four household hazardous waste collection centers.

OCW&R generates income for the county by capturing methane gas and turning this land-

An integral part of any landfill's mission is to safeguard the environment, ensuring that daily landfill operations don't negatively impact nature within the landfill's borders or anything beyond as well. A visitor, at day's end, to the Frank R. Bowerman Landfill, off Bee Canyon Road in Irvine, would not be able to recognize it as a landfill because waste deposited there during the day is quickly compacted and covered with dirt.

Under California law, landfills must address changes in the use of adjacent land and encroaching residential development. Newly installed gas monitoring probes are routinely monitored for methane gas concentrations to make sure they do not exceed the threshold of 5% as mandated by the California Integrated Waste Management Board, now renamed CalRecycle.

The Bowerman landfill installs and maintains environmental protection technology to protect the water, air, and habitat from the effects of landfill waste disposal through these programs:

- Composite liner system to protect groundwater.
- Landfill gas monitoring, recovery, and control systems with over 120 wells.
- Groundwater monitoring wells and collection system.
- Load check inspectors to collect and dispose of any hazardous waste.
- Erosion, fire, dust, insect, rodent, bird, noise, and litter control systems.

At the four Orange County Material Recycling Facilities (MRFs), formerly called Transfer Stations, residential waste is collected from households, sorted and transported to one of the three county landfills. Recycled material is sorted, batched and sold to processors. For example, concrete waste is taken to one of three concrete companies for crushing and reuse. Green waste is transported to the Orange County Great Park where Terra Verde (a lessee) turns it into mulch for resale.

In addition, Orange County Waste & Recycling manages Household Hazardous Waste Collection Centers in Anaheim, Huntington Beach, Irvine and San Juan Capistrano. More information about household hazardous waste disposal is available at www.oclandfills.com.

California Assembly Bill 939 requires cities and counties to divert at least 50% of the waste and recyclable material from landfills and directs counties to demonstrate that they are educating the public to recycle. Self-haulers are actually paying for that outreach through a \$19-per-ton fee for non-contract

customers. The fee's purpose is to encourage county residents to use county dumps to recycle more of their trash; meanwhile, the county can use the revenue for recycling outreach.

Is it working? In 2008, 4,010,675 tons were dumped at county landfills. In 2009, that number shrank to 3,623,722 tons, indicating that the plan to encourage recycling is working.

One of the County's key strategic initiatives is sustainability: to meet the environmental needs of the present without compromising the ability of future generations to meet their needs. In keeping with the county "going green", the Board of Supervisors adopted an Environmentally Preferable Purchasing Policy. Under this policy county agencies and departments seek to buy only goods and services that have a reduced impact on human health and the environment when compared with competing goods or services. The policy inspired a one-day Green Fair to raise public awareness about the importance of environmental stewardship.

The Green Fair featured displays of "green" products and services from more than 50 vendors, as well as exhibits showcasing the efforts of County departments. The County Purchasing Department is developing a user guide for bid specifications and packages that encourages agencies and departments to consider green alternatives when economically feasible. More information about the Green Fair is available at www.ocgreenfair.com.

The website www.wastefreeoc.com provides tips and resources about how residents can "Save Room for Tomorrow" through diversion of waste from landfills. Waste Free OC is a regional outreach program of Orange County under the leadership of the Board of Supervisors and OC Waste & Recycling.

4.3 Orange County Transportation Authority

On November 7, 2006, Orange County voters approved the renewal of Measure M from 2011 to 2041. The Orange County Transportation Authority (OCTA) will receive the revenue from this half-cent

sales tax (M2), which is projected to raise \$11.8 billion to improve Orange County's freeways, streets, and roads; Metrolink Commuter rail; and other local transit programs.

M2 includes two new environmental programs. The Mitigation and Resource Protection program is designed to mitigate environmental impacts of freeway improvements. The other program, the Environmental Cleanup Program, will provide \$237.2 million for a competitive grant process to help local agencies clean up highway and street runoff and meet Clean Water Act standards.

Both programs began in the fall of 2008 with the creation of two oversight committees that will make recommendations to the OCTA Board of Directors. The Environmental Oversight Committee's (EOC) responsibility will allocate environmental mitigation funds and monitor the master agreement among OCTA and federal and state agencies. The Environmental Cleanup Allocation Committee will make recommendations to the OCTA Board on water quality improvement fund allocation.

The Mitigation and Resource Protection Program will mitigate the environmental impacts of 13 freeway improvements. The master agreement between the federal and state resource agencies and OCTA provides for habitat protection, resource preservation and wildlife corridors in exchange for faster freeway project approvals. Freeway projects will be planned, designed and constructed with an aesthetic approach that considers historic impacts on nearby properties, native landscaping, parkway-style designs and sound reduction.

In March 2009, the Board and EOC approved the draft Master Agreement and the draft Planning Agreement that establishes OCTA's commitments for the preparation of the Natural Community Conservation Plan/Habitat Conservation Plan. The NCCP/HCP process identifies conservation and mitigation strategies to protect habitat resources and species over a broad geographic area. This process will take 18-24 months to complete.

Two percent of M2 Investment Plan monies are allocated to protect Orange County beaches and

ocean water quality from urban runoff. Measure M environmental funds will be used to meet the federal Clean Water Act requirements for controlling water pollution using best practices. These include:

- Catch basin filters, inserts and screens.
- Continuous deflective separation units.
- Maintenance of catch basins and bioswales.
- Other best practices for capturing and treating urban runoff.

This program augments existing transportation water quality expenditures.

OCTA buses and vehicles are low polluters. Of the large buses, 98% are powered by natural gas, and the small buses are considered ultra low emissions vehicles. OCTA recycles used oil, lubricants, oil filters, aluminum tire rims, windshields, brass, copper and plastic. In addition, bus drivers follow idling policies that reduce emissions. OCTA has installed 1,500 solar panels at bus stops to improve safety and enhance lighting. All chemicals and paints used for bus system maintenance and repair have been converted to eco-friendly, non-toxic materials to reduce air pollutant emissions and to keep hazardous waste from landfills. Water run-off from operations and maintenance activities is recycled and reused for bus washing.

For more information, visit the OCTA website at www.octa.net/environmental.

4.4 John Wayne Airport

John Wayne Airport (JWA), in a statement of Environmental Policy and Practice, declares that it is committed to "upholding best practices in environmental responsibility." The airport's management says that JWA has been a leader among airports in implementing many "green" policies over the years in such areas as water conservation, pollution prevention, energy efficiency, air quality, noise abatement and recycling.

To reduce water usage, the airport uses only a pint to wash each general aviation aircraft. During testing of JWA fire engines, water is sprayed onto grassy areas to increase groundwater percolation into

the county's aquifer. The irrigation system is monitored to assure efficient watering of landscaping, and the airport uses low-flow or waterless facilities in its restrooms.

The noise abatement program at JWA is called "one of the most stringent" in the world by airport officials. The noise monitoring system enables airport managers to track each of the 200,000-plus annual takeoffs and landings by commercial carriers and general aviation craft.

Energy efficiency goals are being met at the airport by use of LED lighting on the airfield that meets all FAA safety standards and reduces maintenance and energy costs. Inside the terminal buildings, lighting is being converted to LED. The terminals themselves, opened in 1990, were designed to increase the use of natural lighting and reduce maintenance and energy costs.

In its environmental policy statement, John Wayne Airport cites "rigorous" testing of on-site fuel tanks to prevent leaks and notes that airport employees and tenants undergo regular training in containment, cleanup and pollution prevention techniques. To prevent or reduce pollution, the airport diverts storm water runoff through oil-water separators before the runoff leaves JWA. The airport uses site-specific structural and non-structural "best management practices" to reduce the potential for pollutants to contaminate storm water discharges.

The airport has achieved major reductions in emissions from aircraft and vehicles that use JWA. Ten times less fuel is burned by making airliners replace jet-fueled onboard auxiliary power units (APUs) with ground-based electrical power and electric preconditioned air units. Substantial reductions in carbon emissions and lower fuel costs have resulted. On the commercial aircraft ramp, the use of low-emission electric vehicles and support equipment also has cut emissions.

Airport policy now requires all fleet vehicles, such as taxi cabs and parking shuttles, to use compressed natural gas (CNG) or other clean burning

fuels. The airport's taxi service provider, Orange County Yellow Cab, uses only 100% CNG vehicles.

Nearly half of the trash from aircraft using JWA is recycled, as is refuse from the main terminal and supporting facilities, the airport says. All used fuels, oil and solvents are recycled.

5. FINDINGS

In accordance with California Penal Code sections 933 and 933.05, each finding will be responded to by the government entity to which it is addressed. The responses are to be submitted to the Presiding Judge of the Superior Court. The 2009-2010 Orange County Grand Jury has arrived at the following findings:

- F.1 The five agencies cited or studied provide examples of environmentally-conscious practices that are economically sound.
- F.2 OC Waste & Recycling is one of the most cost-conscious agencies in the county and one of the most respected in the nation.

Responses to F.1, F.2 are required from the Board of Supervisors.

Response to F.2 is required from OC Waste & Recycling

6. RECOMMENDATIONS

In accordance with California Penal Code Sections 933 and 933.05, each recommendation will be responded to by the government entity to which it is addressed. The responses are to be submitted to the Presiding Judge of the Superior Court. Based on the findings, the 2009-2010 Orange County Grand Jury makes the following recommendations:

- R.1 The sound environmental practices of the five agencies studied by the Grand Jury should be emulated by other Orange County government entities.

Response to Recommendation R.1 is required from the Board of Supervisors.

7. REQUIRED RESPONSES

The California Penal Code specifies the required permissible responses to the findings and recommendations contained in this report. The specific sections are quoted below:

§933.05

(a) For purposes of Subdivision (b) of Section 933, as to each grand jury finding the responding person or entity shall indicate one of the following:

- (1) The respondent agrees with the finding.
- (2) The respondent disagrees wholly or partially with the finding, in which case the response shall specify the portion of the finding that is disputed and shall include an explanation of the reasons therefore.

(b) For purposes of subdivision (b) of Section 933, as to each grand jury recommendation, the responding person or entity shall report one of the following actions:

- (1) The recommendation has been implemented, with a summary regarding the implemented action.
- (2) The recommendation has not yet been implemented, but will be implemented in the future, with a timeframe for implementation.
- (3) The recommendation requires further analysis, with an explanation and the scope and parameters of an analysis or study, and a timeframe for the matter to be prepared for discussion by the officer or head of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable. This timeframe shall not exceed six months from the date of publication of the grand jury report.
- (4) The recommendation will not be implemented because it is not warranted or is not reasonable, with an explanation therefore.

