PREFACE

This report was prepared in accordance with the State Land Use Commission's (LUC) Findings of Fact, Conclusions of Law, and Decision and Order Adopting With Modifications, the City And County of Honolulu Planning Commission's Recommendation to Approve Amendment to Special Use Permit, dated March 14, 2008. Pursuant to an additional condition imposed by the Decision and Order, the Applicant (City) is required to report to the LUC every six months on the actions taken to alleviate the further use of the Waimanalo Gulch Sanitary Landfill. The City and County of Honolulu (City) is therefore submitting this 6-month report.

It is noted that Condition 14 of the LUC's Decision and Order Approving Amendment to Special Use Permit, filed June 9, 2003, required that the City provide annual reports in connection with the status of the landfill and the City's progress on the 19 conditions imposed by the LUC. Given the March 14, 2008, order that requires the City to provide a similar report every six months, a separate annual report will not be submitted.

The report is structured to provide the reader with an understanding of the status of landfill operations, initiatives to offset landfill impacts, and actions to reduce waste volumes disposed at the landfill. A progress report that summarizes compliance with the 19 conditions imposed in the June 9, 2003, Decision and Order is also included. Updates to the contents of this report will be made commensurate with each 6-month reporting period.

STATUS OF LANDFILL OPERATIONS

6. Introduction

The Waimanalo Gulch Sanitary Landfill (WGSL) is an active municipal solid waste (MSW) landfill, which began operations in 1989. The facility is owned by the City and operated by Waste Management of Hawaii, Inc. (WMH). The landfill property is located in the Ewa District near the community of Kapolei and encompasses an area of 198.6 acres (See Figure 1).

The WGSL consists of two disposal areas: an ash monofill area and an MSW area. The current special use permit area is 107.5 acres, of which approximately 58.9 acres are designated for MSW disposal and 20 acres for ash from H-POWER.

7. Tonnage

Over the six month period beginning February 1, 2008 through July 31, 2008, the landfill received the following amounts of material:

H-POWER Ash ..... 45,535 tons
H-POWER Residue ..... 55,444 tons
Municipal Solid Waste..... 161,385 tons

Tonnage reports for the February 2008-July 2008 period, as submitted to the State Department of Health (DOH), are included in Appendix A.

8. Landfill Operations

WMH is contracted by the City to operate and maintain the WGSL. Operations are planned and conducted to accommodate the expected volume of incoming waste while minimizing environmental impacts. The active or working face is sized to process enough trucks at a time to minimize waiting time.

Working Face

The entire working face is covered with a minimum of 6 inches of dirt by the end of each day to control vectors, odors and litter.

Daily Drop Area After Cover

Areas that have been filled to grade or are to be continued to be filled beyond a period of 30 days are covered with an intermediate soil cover of 12 inches. Portable litter control fences are erected downwind of active landfilling areas to capture wind blown litter.

Intermediate Soil Cover and Portable Litter Fencing

Full time, and when necessary, temporary contract employees are assigned to clean litter fencing and surrounding slopes to keep the area free from wind blown litter. An onsite computerized weather station provides real time weather information that is used to plan daily operations in a manner that reduces windblown litter and odors.

4. Environmental Monitoring

b. Landfill Gas

A Gas Collection and Control System (GCCS) was installed at the landfill in 2005. The system currently consists of 43 gas collection wells and associated gas collection lines located throughout the facility, and an enclosed flare.

The operation of the GCCS is regulated by the Hawaii, Department of Health, Clean Air Branch (DOH, CAB). The GCCS functions to control air emissions, mitigate odors and prevent off-site landfill gas (LFG) migration. The installation of all LFG wells, collection lines, and flare control equipment was done in accordance with applicable regulations.

Gas Recovery Well Installation

Gas Recovery Well

Gas Destruction Flare

The GCCS is described in detail in a separate report that was prepared for the CAB and USEPA entitled, *Waimanalo Gulch Sanitary Landfill Gas Collection and Control System Design Plan* (See Appendix B).

Earth Tech (ET), an environmental subcontractor to WMH, operates and maintains the landfill GCCS. Duties performed by ET include, but are not limited to; adjusting, monitoring, reporting, and record keeping as defined by the operations manual, regulations, and WMH procedures. In addition they perform routine inspection of all site LFG systems, monthly visible emissions of the flare stack monitoring and monthly surface emissions monitoring. In addition ET completes quarterly carbon monoxide (CO) readings at each of the 43 gas wells. Records of these activities are kept at the facility and reviewed by Department of Health inspectors.

Required reports covered under the Covered Source Permit (Title V permit) issued by the DOH, CAB in 2005 include semiannual monitoring reports, annual compliance certifications and flare performance tests. These reports are prepared by Environmental Information Logistics, LLC.

6. Perimeter Gas and Structure Monitoring

Pursuant to RCRA Subtitle D regulations 40 CFR §258.23, and HAR Title 11, Chapter 58.1-15(d), municipal solid waste (MSW) landfills must monitor methane gas in facility structures and around the landfill perimeter. Owners or operators of all MSW landfills must ensure that:

- §258.23 (a)(1) & §11-58.1-15(d)(1)(A) -- "The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit (LEL) for methane in facility structures (excluding gas control or recovery system components)" and,

- §258.23 (a)(2) & §11-58.1-15(d)(1)(B) -- "The concentration of methane gas does not exceed the lower explosive limit for methane at the facility property boundary."

- §258.23 (b)(1) & §11-58.1-15 (d)(2)(A) -- "The type and frequency of monitoring must be determined based on the following factors:

  (i) Soil conditions;

  (ii) The hydrogeologic conditions surrounding the facility;

  (iii) The hydraulic conditions surrounding the facility; and

  (iv) The location of facility structures and property boundaries."

Currently, 9 monitoring probes comprise a sufficient monitoring network for detecting gas migration from the WGSL. The average spacing between the 8 probes along the compliance boundary established by this proposed network is approximately 978 linear feet (an average of one probe for every 978 linear feet of the WGSL property line).

Gas Monitoring Probe

The permanent probes were installed near the eastern, western and southern property lines of the WGSL and will establish a new gas monitoring network and compliance boundary in accordance with applicable regulations.

- The permanent gas probes are monitored as required by RCRA Subtitle D regulations, HAR, the WGSL Solid Waste Permit and the Settlement Agreement that resolved the NOV in Docket No. 05-SHW-SWS-004.

- On a monthly basis, a qualified gas technician monitors the probes using a portable gas-monitoring instrument, calibrated to detect methane at a level of 5 percent volume or less and capable of detecting levels of oxygen and carbon dioxide, and a handheld hydrogen analyzer, designed to detect hydrogen concentrations between 0 and 10 percent by volume.

- Building structure monitoring at the WGSL includes monthly manual sweeps of the administration office, scale house, and temporary structures. A portable gas-monitoring instrument, calibrated to detect methane at a level of 1.25 percent volume or less, is used to monitor for methane. These results, and oxygen, carbon dioxide, ambient temperature and barometric pressure readings, are recorded electronically directly into the memory of the portable gas-monitoring instrument or transcribed on to a Perimeter Gas Monitoring Field Report Form, which is retained on-site in the WGSL Operating Files.

- In addition, building structures also are continuously monitored using combustible gas monitors. The Sierra Model 2001 Combustible Gas Monitor is calibrated to sound an alarm when combustible gas concentrations reach or exceed 1.25 percent methane by volume. The monitors are installed where combustible gas is most likely to accumulate within a structure (e.g., corners, baseboards, crawlspaces, or any location where air movement is restricted and in areas of potential leaks).

- Results of perimeter gas and structure monitoring are submitted to the DOH, Solid Waste Section.

7. Groundwater and Leachate

The groundwater monitoring network includes five monitoring wells around the base of the landfill (02M, 03M, 07, MW-10, and MW-11), and one well located approximately one half mile up canyon on the eastern margin of the landfill (MW-12). MW-12 is located hydraulically upgradient of site operations and is ideally located to monitor background water quality in the vicinity of the WGSL.

Groundwater Monitoring Well

Leachate monitoring has been performed on a routine basis in accordance with the landfill's operating permit and with previous site monitoring programs. Currently, monitoring is conducted pursuant to the Monitoring Plan, the *Groundwater, Surface Water, and Leachate Sampling Guide* (WMI 2004) and the DOH letter request (DOH 2005). Monitoring is conducted quarterly and reported along with groundwater monitoring results (A sample Quarterly Monitoring Report for January-March, 2008, is provided in Appendix C).

Leachate is currently collected at the following locations:

- Ash monofill sump in Cell 8 (ASHMH)
- MSW Leachate Sump #1, located in Cell E1 (MSW-LSE1)
- MSW Leachate Sump #2, located in Cell 4B (MSW-LS2)

Leachate Sump

Samples from groundwater monitoring wells and leachate sumps are collected by ET and analyzed by Test America laboratory on a quarterly basis as described in *Groundwater and Leachate Monitoring Plan*, Geosyntec, August 2007. Results of this monitoring effort are reported to the DOH in the form of Quarterly Groundwater Reports that are prepared by ET.

d. Stormwater

A Storm Water Pollution Control Plan (SWPCP) was prepared in accordance with the *National Pollutant Discharge Elimination System General Permit Authorizing Discharges of Storm Water Associated with Industrial Activities* (Hawaii Administrative Rules Title 11 Chapter 55, Appendix B). In addition, the *Guidance Manual for Developing the SWPCP for Industrial Facilities* (DOH 1994) also was used in preparing this SWPCP. The City and County of Honolulu was issued a Notice of General Permit Coverage under the National Pollutant Discharge Elimination System (NPDES), on March 2, 2005, which was assigned File No. HI R50A533 and is referred to as the General Permit. Under the General Permit, the WGSL is authorized to discharge only storm water run-off associated with industrial activity from its facility, to the receiving State water named the Pacific Ocean, a Class A, Marine Water at coordinates 21°00'04"N and 158°07'35"W.

The SWPCP addresses the following issues, as required by the General Permit:

- Storm water outfalls and monitoring points

- Pollutants potentially present in storm water
- Pollutant sources
- Pollution control procedures
- Monitoring procedures
- Spill prevention and response procedures

Storm water is managed by controlled grading on the surface of the landfill and by maintaining an engineered system of drainage swales, rock rip-rap lined channels, risers, pipes, and a detention basin. A concrete-lined drainage channel runs along the western property boundary and diverts surface waters to the detention basin located in the southwest corner of the site.

Monitoring and reporting are conducted in accordance with the Storm Water Monitoring and Reporting Program Plan.

Concrete Swale

Detention Basin

The detention basin is the only discharge location associated with the WGSL and includes two actual outfalls of the detention pond (WGSL-DB01W and WGSL-DB01E, where W denotes the western outfall and E the eastern outfall). The outfall pipes are 42-inch diameter corrugated metal pipe (CMP) connected to two vertical, perforated inlet CMPs located in the basin.

Storm water samples are collected from the discharge point at least once per year when a qualifying storm and discharge from the pond occur at the WGSL. Annual reports are submitted to the DOH, Clean Water Branch.

In addition to the SWPCP, a Surface Water Management Plan (SWMP) is required per HAR 11-58.1-15(g), which provides requirements to ensure adequate control of storm water events at landfills.

The purpose of the SWMP is to describe and ensure the implementation of surface water management practices to prevent run-on and control run-off from a 25-year, 24-hour storm event. As part of the SWMP evaluation, an annual site inspection is conducted by ET to evaluate the condition of the drainage conveyance and erosion/sediment controls.

The solid waste permit for the site specifies the following requirements:

- Prevention of run-on and collection and control of run-off from a 25-year, 24-hour storm.
- Prevention of soil erosion and exposure of waste due to soil erosion.
- Prevention of a discharge of pollutants into waters of the U.S., or violation of any requirement of the Clean Water Act or state-wide water quality management plan.

The SWMP discusses specific measures that WMH proposes to manage storm water, specifically that it will be managed by controlled grading on the surface of the landfill and by maintaining an engineered system of drainage ditches, channels, risers, pipes, and basins. Drainage improvements will help to:

- Prevent run-on of surface water to the active disposal face or uncovered refuse.
- Minimize erosion in all areas of the site.
- Maintain roads and other ancillary facilities in useable condition under all weather conditions.

The SWMP is updated annually and is submitted to the DOH, Clean Water Branch by September 1 of each year.

e. Spill Prevention Control and Countermeasures Plan

A Spill Prevention, Control, and Countermeasures (SPCC) Plan was developed for the WGSL and is included in the Site Operations Manual that was previously submitted to DOH. The SPCC Plan complies with Title 40 Code of Federal Regulations Part 112 and addresses measures for prevention and control of fuel and oil related spills.

Inspection results are maintained onsite as part of the WGSL Operating record.

5. Landscaping

Thirty (30) monkey pod and Norfolk pines were planted during the fall of 2007 to further shield the view of landfill operations from Farrington Highway.

Monkey Pod and Pine Trees

The east, west and south slopes of the landfill were hydro-seeded with limited success due to persistent dry conditions. Re-vegetation activities along completed slopes is planned to continue over the next six (6) months.

Revegetation Project

WMH continues to evaluate other areas where landscaping may further conceal and blend operations with the surrounding terrain.

6. Complaints

All complaints are immediately investigated and responded to by WMH personnel. A complaint log is maintained at the facility detailing the nature of the complaint and actions taken in response. The facility received seven (7) complaints during 2006, four (4) during 2007, and one (1) to date in 2008. The most recent complaint dealt with odors and windblown debris. WMH immediately responded and reported to the location of the complaint but was unable to detect odors. Trash was found along the beach area of Ko Olina; however, the source of the litter was several overturned trash receptacles. The litter was cleared by WMH personnel.

7. Off Site Monitoring and Maintenance

WMH provides monitoring and maintenance along Farrington Highway on a regular basis to minimize the impact of litter, dust and mud. Kleen Sweep, Inc. is subcontracted by WMH to regularly sweep within the lower portion of the landfill property and along Farrington Highway approaching the landfill. Incoming trucks are monitored for compliance with the State Truck Cover Law to minimize littering.

Collectively, all efforts to monitor, detect and resolve impacts are being made to ensure that operations are not impacting the surrounding community.

MAYOR'S COMMITTEES TO OFFSET THE IMPACT OF THE LANDFILL

1. Introduction

Notwithstanding ongoing actions to reduce the need for landfill disposal, two initiatives have been taken by the Mayor to offset the impact of the landfill on the surrounding communities. An Oversight Advisory Committee formed of concerned citizens, WMH representatives and members of the Department of Environmental Services, convenes quarterly to address complaints and operational concerns about the landfill. A Community Benefits Advisory Committee was also formed of local residents to allocate monies for various park projects and for programs and services to benefit neighboring communities.

2. Oversight Advisory Committee

The purpose of the Oversight Advisory Committee is to raise community concerns and to work with the Department of Environmental Services and WMH to resolve such concerns. Committee members act as the "eyes and ears" of the community and as a group, make recommendations to be followed-up by the City and/or WMH.

The Committee meets quarterly at 10:00 a.m. on the second Monday of the month. Copies of the meeting minutes are included in Appendix D, together with a listing of Committee members as of May 2008.

3. Community Benefits Advisory Committee

The Community Benefits Advisory Committee was appointed to solicit, review and select projects that seek funding for necessary community-based programs and services. Under the Leeward Coast Community Benefits Program, which was established to offset the impact of the landfill, $2.0 million was allotted in fiscal year 2007 for the following communities: Kalaeloa, Kapolei, Honokai Hale/Nanakai Gardens, Makakilo, Ko Olina, Nanakuli, Maili, Waianae, Makaha and Keaau.

Of the $2.0 million, $1.0 million is administered by the Department of Parks and Recreation for parks improvements in the target communities. The remaining $1.0 million is administered, through a formal Request for Proposal (RFP) process, by the Department of Community Services for grants to private and/or community-based non-profit organizations (CBOs) for programs and services that address problems or concerns in the following communities: Kalaeloa, Kapolei, Honokai Hale/Nanakai Gardens, Makakilo, Ko Olina, Nanakuli, Maili, Waianae, Makaha and Keaau.

With respect to funds administered through the Department of Community Services, a formal Request for Proposal (RFP) was issued for the selection of community-based projects. Twenty-one (21) projects were funded in FY 2006-2007 and another twenty-five (25) projects were funded in FY 2007-2008. To date, service providers have estimated that approximately 1,000 families and 3,000 individuals have been assisted through projects funded through the Leeward Coast Community Benefits program. These projects provide housing, food, mental health and other essential services to some of our most needy citizens on the Leeward Coast, which include children, single parents, families experiencing homelessness, victims of domestic violence, at-risk youth, recovering substance abusers, and displaced veterans among others.

The Leeward Coast Community Benefits program has allowed many grassroots organizations that do not have the level of administrative infrastructure to compete for larger public or private grant programs, an opportunity to advance their programs for their communities.

Lists of FY2007 Leeward Coast Community Benefits projects are included in Appendix E. Also included is a list of committee members.

ACTIONS TO REDUCE WASTE VOLUMES DISPOSED AT THE LANDFILL

1. Introduction

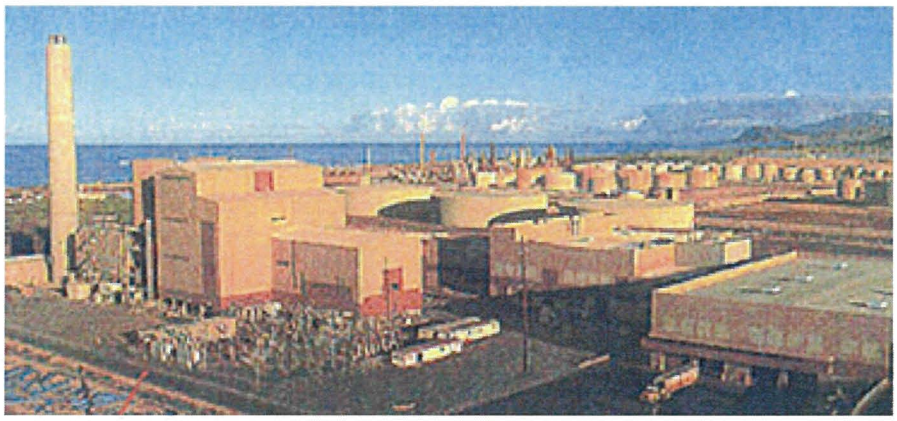
The City is continuing its effort to alleviate solid waste disposal at the landfill by implementing available waste disposal technologies, developing alternative disposal options (e.g., transshipment), and expanding recycling programs. Collectively, these actions have proven to effectively divert waste away from the landfill.

The City's Integrated Solid Waste Management Plan provides a 25-year implementation plan for improving the City's solid waste management system. The recently updated plan (currently under review) addresses all aspects of the present system, including landfill disposal (See Part 6 of this Section).

2. H-POWER

a. Existing Facility

H-POWER began operations in 1990 and successfully diverts approximately 600,000 tons per year (TPY) of waste from Waimanalo Gulch Sanitary Landfill. The facility converts more than 2,000 tons of waste per day into electricity sufficient to power more than 60,000 homes. On an islandwide basis, H-POWER produces 7% of Oahu's electricity and significantly reduces the volume of refuse going to the landfill.



In addition to reducing the volume of waste entering the plant by through incineration, H-POWER is actively engaged in recycling. Virtually 100% of the ferrous and nonferrous metal is recovered for recycling, and a program for recycling the ash is currently being finalized.

The facility's pre-processing system uses magnets to pull metals from the waste stream and eddy current separators extract non-ferrous metals from the ash, diverting approximately 18,000 tons of ferrous metals (e.g., tin cans) and 2,500 tons of non-ferrous metals (e.g., aluminum cans) to recycling annually. Moreover, H-POWER reduces our dependence on imported oil. One ton of trash produces saleable energy equivalent to 60 gallons of oil.

b. Facility Expansion

Each of the last three years of waste receipts at H-POWER has indicated a need to increase waste-to-energy ("WTE") capacity, as approximately 100,000 to 150,000 TPY of combustible waste were landfill disposed due to WTE capacity limitations. Initially, the City sought to procure the development of a facility that would provide an alternative WTE technology to the Refuse Derived Fuel (RDF) technology used at H-POWER, on a site adjacent to H-POWER. In December 2006, the City issued a Request for Proposals (RFP) for the financing, design, construction and operation (for a 20-year period) of an Alternative Energy Facility using one of the following technologies:

- Combustion
- Gasification
- Vitrification

The proposed facility was to be located at the City's Alternative Technology Park, Campbell Industrial Park, Kapolei, Hawaii.

However, after considering the time and cost requirements of the qualified proposals received in response to the RFP, the City opted to increase H-POWER's capacity by purchasing a mass burn combustion system that is capable of processing at least 300,000 tons of waste annually. Negotiations with the H-POWER operator are currently underway, and the expected operational start date for this project is December 2011.

The additional 300,000 TPY of processing capacity at H-POWER and implementation of the residential curbside recycling program and other recycling programs will significantly reduce the quantity of MSW that requires landfill disposal.

3. Offsite Shipping of Waste

In January 2008, the City issued a Request for Bids (RFB) for the interim baling, shipping, off-loading, transporting and disposing (transshipment) of City-provided MSW to a mainland landfill for a term of at least 36 months. For this procurement, the City has the option to extend the agreement an additional 36 months. In addition to MSW, bidders may request to provide transshipment for other non-MSW material. The intention of the procurement is to provide a waste disposal alternative until increased WTE capacity comes on line.

Three bids were received and opened on June 16, 2008. Three procurement protests have been filed by the two highest bidders, and are currently pending. The City plans to award a contract to a service provider after the resolution of the bid protests, most likely in late 2008. Pursuant to the terms of the RFB, the process of annually transshipping 100,000 tons of MSW will begin in July 2009. However, transshipment could occur earlier if the City and the service provider mutually agree to an earlier date.

4. Materials Recycling

As of 2006, the City landfill diversion rate through material and energy recycling programs was 57%, compared to the national average of 44-46%. The material recycling programs account for a 35% landfill diversion rate, which means that approximately 600,000 tons per year is recycled out of the total waste stream of 1.79 million tons per year.

a. Bulky Item Pickup Program and Self Haul Disposal Sites.

The City's bulky item collection service is designed to provide residents with once-a-month pickup service of old appliances, furniture, etc. Recyclable items are segregated and delivered to the respective recycling facilities, thereby diverting as much items to recyclers as possible instead of to landfill disposal. Additional pickup service is provided in high-density areas such as Salt Lake, Makiki, etc.

Residents may also self haul their bulky items to City disposal sites, including three transfer stations (Kapaa, Kawailoa and Keehi) and six convenience centers (Ewa, Laie, Wahiawa, Waianae, Waimanalo and Waipahu). Recyclable materials are segregated in separate bins or storage areas for delivery to recycling facilities. Material that cannot be recycled is hauled to the landfill.

1. Appliances

Freon containing appliances such as refrigerators, air-conditioning units and heat pumps are delivered to a refrigerant recycler. After the freon is removed, the metals are transferred to the metal recycler. Non-freon containing appliances such as stoves, washing machines, dish washers, etc. are delivered directly to the metal recycler.

2. Miscellaneous Items (Tires, Batteries, Propane Tanks)

Tires are stored in rolloff containers and hauled to the tire recycler. Used auto batteries and propane tanks are removed and recycled by contractors hired by the City.

3. Non-recyclable Material

Non-recyclable material from households such as mattresses, old furniture, TVs, computers, carpeting and home (owner/builder) renovation material are hauled to the landfill. However, electronic waste (e-waste), such as TVs and computers, from commercial sources, and commercial construction and demolition (C&D) material, are diverted from landfill disposal. See discussion below.

b. Current Efforts and On-Going Projects

The City's current recycling efforts have resulted in the following quantities of material having been diverted from the landfill in 2006:

Paper (81,000 tons)

Glass (24,000 tons)

Plastic (4,000 tons)

Green Waste (78,000 tons)

Tires (10,000 tons)

Auto Batteries (6,000 tons)

Metals (145,000 tons)

Electronic Scrap (500 tons)

Wood Waste / Pallets
(9,000 tons)

Construction and Demolition
Debris (122,000 tons)

Food Waste (37,000 tons)

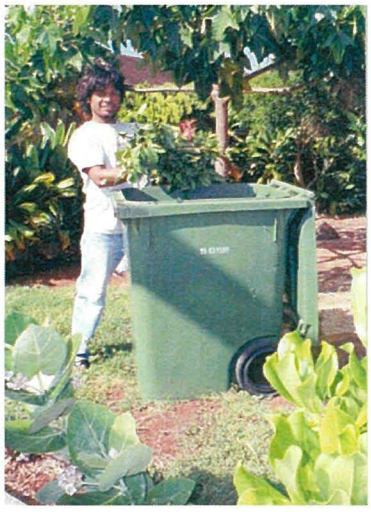
Sewage Sludge (6,000 tons)

The amount of monies being dedicated by the City to promote recycling and thereby reduce landfill disposal is shown in the following table:

Program	FY 2007 (Spent)	(Dollars)FY 2008 (Budget)	FY 2009 (Proposed)
Curbside Recycling	No Program	2,780,000 (Pilot Program)	11,000,000 (Estimate)
Community Recycling Bin	2,100,000	3,000,000	3,500,000
Used Tires	148,000	150,000	170,000
Propane Tanks	27,000	30,000	30,000
Used Batteries	60,000	65,000	70,000
Green Waste	1,500,000	2,600,000	4,950,000
White Goods or large appliances	486,000	500,000	525,000

c. Green Waste Recycling (Greencycling) Program

Objective: Expand automated green waste collection as part of the new island-wide comprehensive curbside recycling program.



The City is planning to expand the automated curbside collection of green waste to all areas of the island to increase the amount of greencycling. In this program households will be issued green carts to store their green waste until their specified pickup dates. The City believes that the ease of use of the automated collection will encourage more participation.

Currently, green waste recycling is occurring through curbside pickup and drop-off operations. The City collects green waste at the curb from all households currently serviced with automated refuse collection system.

Some communities use bins for their green waste, while others are placing green waste at the curb in bags. The City uses automated collection to service the bins and a manual collection system to pick up the bags. Residents may also self-haul green waste to City convenience centers or directly to the composting facility. All of the green waste is delivered to a private vendor that is contracted by the City to produce mulch and other products from the waste. From a self-sustainability standpoint, green waste and sludge are the only recyclable materials that are grown or generated, processed and reused all here on this island. All other materials' recycling is processed off-island. These other recyclables are shipped either to the mainland or to Asia depending on market conditions.

d. Curbside Recycling for Residential Mixed Recyclables and Green Waste

Objective: Begin islandwide expansion of curbside recycling November 2008.

The City launched a pilot program for curbside recycling of mixed recyclables in November 2007. Each household was issued two bins--a green bin for green waste and a blue bin for mixed recyclables, including paper, plastics, glass, and aluminum. The gray bin continued to be used for non-recyclable trash. A critical part of the pilot program was to determine the acceptance of once a week pickup of trash instead of the established twice a week schedule. The once a week pickup schedule should provide households with an incentive to sort and recycle their trash.

Following a City Charter Amendment vote in November 2006 in favor of adding curbside recycling to the responsibilities of the Department of Environmental Services (ENV). ENV developed a proposal for a new collection system. Mayor Mufi Hannemann held a series of community meetings around the island in April and May 2007 to gather resident input on the proposed curbside recycling system. A recap of the meetings is posted online at www.opala.org. Planning for the pilot program began immediately. Recycling bins were delivered to Mililani and Hawaii Kai households beginning mid-September 2007 and the new three-bin collection system began the week of October 29.

The data and input from the two pilot communities has been essential in determining the final structure of the proposed program expansion. Early, positive results from the pilot have enabled ENV to begin preparing for the islandwide expansion scheduled to take place this fall. Much of the necessary groundwork is already in place, including budget approvals; coordination for bin purchasing, processing contracts, collection routes, rollout schedules, and educational materials.

The City will expand the curbside recycling program islandwide in phases, beginning November 2008. Households will utilize a set of three color coded bins--gray for refuse, green for green waste and blue for mixed recyclables. Collection will continue twice-per-week with one day for refuse in the gray bin and the other day dedicated to recycling, alternating weekly between the blue and green bins.

November 2008 (39,000)	Kuliouou to Manoa, Kapahulu; Kailua, Lanikai; Mokuleia to Sunset
May 2009 (40,300)	Waipio Gentry to Halawa; Wahiawa, Whitmore, Waipio Estates, Laulani Valley; Kaneohe; Waimanalo
November 2009 (22,400)	Foster Village to Makiki; Kahuku to Kahaluu
May 2010 (36,000)	Makakilo to Waikele, Waipahu; Ewa Beach to West Loch; Honokai Hale to Makua

For the November 2008 start,

- recycling bins will be delivered to households in September/October (instructional brochures attached).
- first recycling pickups will begin in November.
- a two-month transition period with continued twice weekly refuse pickup will give households time to get accustomed to sorting into the blue and green bins.
- full implementation of once-per-week refuse and once-per-week recycling will begin just past the New Year holiday.

The rollout schedule will incorporate about 40,000 homes into the new system every six months. Once the program is fully implemented, the City estimates it will divert approximately 28,000 tons of mixed recyclables and 46,000 tons of green waste, a net gain of 53,000 tons over existing recycling activity.

These projections may be conservative, not accounting for increases in participation and recovery as the program matures. Recovery and setout rates from the pilot program are presented below.

Recovery and Setout Rates			
Recovery in tons Setout per 1000 home route	**Hawaii Kai (7,300 homes)**	**Mililani (11,200 homes)**	**Total**
November			
Recovery			
Green Waste	192.43	188.5	380.93
Mixed Recyclables	128.36	142.78	271.14
Average Bin Setout			
Green Bin	490	313	
Blue Bin	578	298	
December			
Recovery			
Green Waste	224.49	208.6	433.09
Mixed Recyclables	122.03	201.2	323.23
Average Bin Setout			
Green Bin	610	298	
Blue Bin	613	325	
January			
Recovery			
Green Waste	250.72	232.98	483.7
Mixed Recyclables	128.57	124.04	252.61
Average Bin Setout			
Green Bin	658	390	
Blue Bin	631	414	

Recovery in tons Setout per 1000 home route	Hawaii Kai (7,300 homes)	Mililani (11,200 homes)	Total
February			
Recovery			
Green Waste	215.7	221.33	437.03
Mixed Recyclables	114.34	115.18	229.52
Average Bin Setout			
Green Bin	607	356	
Blue Bin	538	400	
March			
Recovery			
Green Waste	228.03	249.24	477.27
Mixed Recyclables	180.34	108.25	288.59
Average Bin Setout			
Green Bin	637	401	
Blue Bin	682	406	
April			
Recovery			
Green Waste	223.61	192.74	416.35
Mixed Recyclables	114.32	112.53	226.85
Average Bin Setout			
Green Bin	699	372	
Blue Bin	701	424	
Overall average green bin setout	617	355	
Overall average blue bin setout	624	378	
Overall average monthly green waste recovery	223	216	439
Overall average monthly mixed recyclables recovery	132	134	266

e. Community Recycling Bin Program

Objective: Provide an additional 40-multi-material recycling bin locations into the program by 2009 and to increase recycling by an additional 8,000 tons.

The Community Recycling Bin Program began in 1990 and grew from an initial 20 participating schools to more than 90 locations as of April 2008. The recycling bins are placed at schools around the island and collect plastics, paper, aluminum, and glass from the surrounding communities and are also used by the schools for campus generated recyclable materials from classrooms, administrative offices, cafeteria and vending machines. Revenue from the recyclables goes to the schools, which encourages their participation in the program as well as support from the surrounding community.

Under a new service contract which began in March 2008, the City is expanding the program to a total of 120 sites. Additional HI-5 only bins are provided to support collection events and campaigns. The new contract provides additional financial incentives to the schools to encourage more schools to join and increase participation from the community.

f. Recycling for Multi-Family Facilities (Condo Recycling Program)

Objective: Increase condominium recycling activity by providing start-up cost reimbursement.

Most multi-family dwellings contract with private hauling companies to collect their refuse and would likewise need to establish their own recycling programs. Multi-family recycling is voluntary. The City provides technical assistance in conducting waste audits, designing recycling systems and identifying private recycling services. The City also provides recycling containers and educational materials. In September 2007, the City launched a new program to provide reimbursement for recycling program start-up costs up to $2000.

g. Commercial Recycling

Objective: Further expand commercial sector recycling activity by increasing compliance monitoring and program development assistance.

Commercial recycling is taking place at commercial businesses through private recyclers. City regulations and ordinances mandate recycling activity in the commercial sector.

The following table summarizes the City ordinances that support this recycling effort:

Summary of City Ordinances

- **Cardboard.** Commercial and government generators are partially banned from landfill disposal. Only 10% of a truckload can be composed of cardboard.
- **Green waste.** Commercial and government generators are partially banned from landfill disposal. Only 10% of a truckload can be composed of green waste.
- **Tires, auto batteries, white goods and scrap metals.** Banned from all disposal sites.
- **Glass containers.** Glass recycling is required for all bars and restaurants.
- **Paper Recycling.** All office buildings of a certain size must conduct recycling of paper goods.
- **Food Waste Recycling.** All hotels, restaurants, grocery stores, food courts, food manufacturer/ processors and hospitals meeting a certain size are required to recycle food waste.
- **City agencies.** Required to purchase recycled paper products. Also required to recycle newspaper, cardboard, office paper, aluminum, glass, and plastics.

h. Electronic Waste Recycling

Objective: Expand the City's recycling efforts to include electronics.

Electronics currently make up approximately 1% of the nation's municipal solid waste stream. The U.S. Environmental Protection Agency has stated that the e-waste stream is growing at three times the normal rate when compared to other municipal waste streams.

The City has recently changed contracts with vendors so the vendor is responsible for recycling the old monitors and computers.

The latest trend towards flat-panel televisions and computer monitors and the Federal mandate for digitally broadcast TV programming by February 2009 will inevitably increase the amount of televisions and computer monitors destined for the landfill. A goal for the City is the ability to recycle residential computer monitors and televisions by 2008 through our Bulky Item pickup program. The e-waste will be delivered to an authorized vendor who will ship to an e-waste recycler.

The City has been working with State legislators to enact producer responsibility-based legislation to help provide electronic product recycling through manufacturer-financed opportunities. Legislation introduced in the 2007 session failed to make the list of bills for consideration, but was reintroduced as part of the House and Senate Majority packet in the 2008 session. Currently, only commercial e-waste is banned from the Waimanalo Gulch Landfill. The ultimate long-term goal is to ban all e-waste from landfills with legislation requiring manufacturers to be responsible for the collection, transportation, recycling and disposal of their products.

i. Food/Green Waste Composting

Objective: Expand recycling efforts to compost green waste with food waste by October 2010.

The City is in the process of procuring an in-vessel bio-solids composting facility to provide for the processing of 100,000 tons or more of green waste, food waste and sewage sludge. A Request for Proposals is to be issued in June 2008 and the operational start date for this project is November 2011.

j. Public Education and Outreach

Objective: Continue to educate the community that material and energy recycling promotes sustainability.

Reducing the use of landfills is a critical part of the City's recovery and recycling strategy. Implementing successful waste management and recycling initiatives depends on public awareness. Public education and outreach is essential in instructing the community on how to properly dispose of waste and how to participate in recycling programs. ENV coordinates numerous events year-round to educate the public about waste management and recycling.

5. Current and On-Going Public Education and Outreach Programs

a. The City's Opala Website

The City's www.opala.org (*opala* is the Hawaiian word for garbage) website is the cornerstone of ENV's public education program, which provides comprehensive and up-to-date information about refuse and recycling programs and services. The website provides information on recycling and disposing of all types of items, guidelines and resources for designing and setting up recycling programs, a directory of made-in-Hawaii recycled products, a directory of reuse organizations, waste composition and recycling data, educational resources, video shorts, photo gallery, graphics library and even a bit of music. There are links to local and national news stories organized by issue for those researching a topic.

b. Tour De Trash

The public has an opportunity to get an up-close look at waste processing and recycling operations and go behind the scenes at businesses that have instituted model recycling programs. Tour de Trash is a collaborative event, coordinated by the City and supported by island businesses engaged in recycling at many levels. This popular and award-winning program is in its 10th year. The City offers six scheduled full-day bus tours throughout the year, and arranges custom tours for school groups and organizations upon request.

c. Discover Recycling Fair

The Discover Recycling Fair is a three-day event held annually at the Neal Blaisdell Center Arena. Discover Recycling 2008 is scheduled for September and will be the fourth such event sponsored by the City. The fair provides teachers, administrators, and clubs with all the tools and resources needed to start recycling campaigns on school campuses, to coordinate recycling fundraisers, to teach recycling in the classroom, and to get involved with projects. The Discover Recycling Fair also offers technical assistance to commercial and residential property managers and provides a fun educational event for the family.

d. Recycled Products Store

The Recycled Products Store is a booth that is set-up at the annual Made in Hawaii Festival. The City coordinates with local companies and artists to create a display of recycled products and recycled art.

e. Recycling Teaching Partner (RTP) Program

The RTP program was created in September 2006 to provide teachers with assistance in educating students and implementing recycling projects. RTP's are professional and non-profit artists, performers, and environmental educators that are available to assist schools with educating, motivating or coordinating recycling activities. This program is sponsored by the City with additional support from developer Castle & Cooke Hawaii. More than 50 schools have submitted proposals for recycling projects and engaged the assistance of a RTP. The City will continue to expand the list of qualified teaching partners and to offer this educational resource to Oahu schools.

f. Other Media

The City will continue to employ other collateral materials to educate and to instruct the public about various programs and services, including brochures, guides, television and radio spots, videos, printed advertisements, newsletters, and tabloid inserts.

6. Integrated Solid Waste Management Plan

In accordance with Part III, Section 342G of the Hawaii Revised Statutes and Chapter 9, Section 9.1-13 of the Revised Ordinances of Honolulu, the City is in the process of updating its integrated solid waste management plan. The draft Executive Summary for the updated plan is provided in Appendix F.

As part of the process, a Solid Waste Advisory Committee (SWAC) was appointed by the mayor. In accordance with Part III, Section 342G-22, ". . . the committee shall review the plan during its preparation, make suggestions, and propose any changes it believes are appropriate." The minutes of the SWAC meetings are included in Appendix G. Also included is a list of members of the SWAC.

On June 30, 2008, the draft was submitted for initial review by the State Department of Health (DOH). After DOH comments are incorporated, the plan will be made available for public review and comment. A public hearing will be held, followed by finalization and final acceptance by the City and the DOH. The process is estimated to be completed by Spring 2009.

The draft plan underlines the need for continued landfill disposal of noncombustible, non-recyclable solid waste. The plan references previous efforts to identify a new landfill site by a special advisory committee (Landfill Siting Committee). The siting process resulted in a short list of four sites, which included Nanakuli B, Maile, Makaiwa and Ameron. Waimanalo Gulch, however, was deemed the best location for continued landfill disposal.

The Draft Environmental Impact Statement (DEIS) for the lateral expansion of the landfill was published by the State Office of Environmental Control (OEQC) in the May 23, 2008, issue of the Environmental Notice. A copy of the DEIS can be downloaded from the OEQC website (http://oeqc.doh.hawaii.gov)

The 45-day public comment period ended on July 7, 2008. The City plans to publish the Final Environmental Impact Statement in September 2008.