



County of Maui Integrated Solid Waste Management Plan

Briefing for the
County of Maui Council Members
February 24, 2009
Afternoon

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Some Terms To Remember

- ❖ C&D = construction and demolition materials
- ❖ CML = Central Maui Landfill
- ❖ Commingled = mixed containers (plastics & metals)
- ❖ E-waste = electronics, TVs, computers, cell phones, etc.
- ❖ FOG=Fats, oils, and greases
- ❖ GF = County General Fund
- ❖ HI-5 = State of Hawaii 5 cent deposit on certain beverage containers
- ❖ HHW = Household hazardous waste
- ❖ M = Million
- ❖ MECO = Maui Electric Company
- ❖ MRF = materials recovery facility
- ❖ MSW = Municipal solid waste
- ❖ Single-stream = combined mixed paper and commingled containers for recycling collection and processing
- ❖ SWRAC = Solid Waste Resource Advisory Committee
- ❖ WasteTEC = Waste to energy conversion technologies



Presentation Outline

1. Impact of recent changes in the economy
2. Review of the current and recommended systems
3. Assumptions in the economic analysis
4. Incremental costs for adding to the current system
5. Changes needed in County organization and administration
6. Implementation schedule
7. Benefits of the Plan projects
8. Questions and discussion



1. IMPACT OF RECENT CHANGES IN THE ECONOMY

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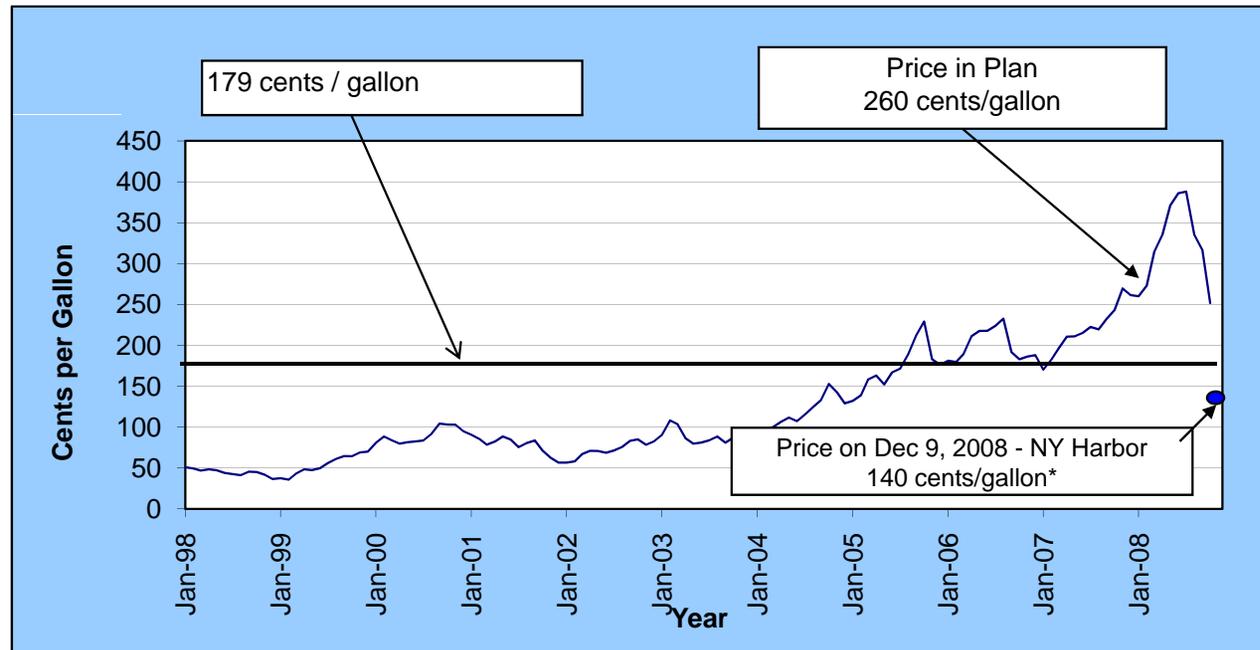
General Economy and Financial Markets

- Stock market drop in Fall 2008
- CPI -U (All Urban Consumers) decreased 0.1 percent during period Dec '07 - Dec '08
- “The municipal market was still crippled by the inconsistent liquidity....”
 - Source: [Muni Outlook November 2008](#); © 2005-2010 The Securities Industry and Financial Markets Association
- Recent construction bidding reported to be lower than estimates
- New U.S. President and Administration
- Federal stimulus package





Volatility of Energy Cost No. 2 Distillate Wholesale/Retail Price (1983-2008)



Source: U.S. Department of Energy, Energy Information Agency;

<http://tonto.eia.doe.gov/dnav/pet/hist/d200700002m.htm>

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“Back at Junk Value, Recyclables Are Piling Up”
By [MATT RICHTEL](#) and [KATE GALBRAITH](#)
New York Times; Published: December 7, 2008

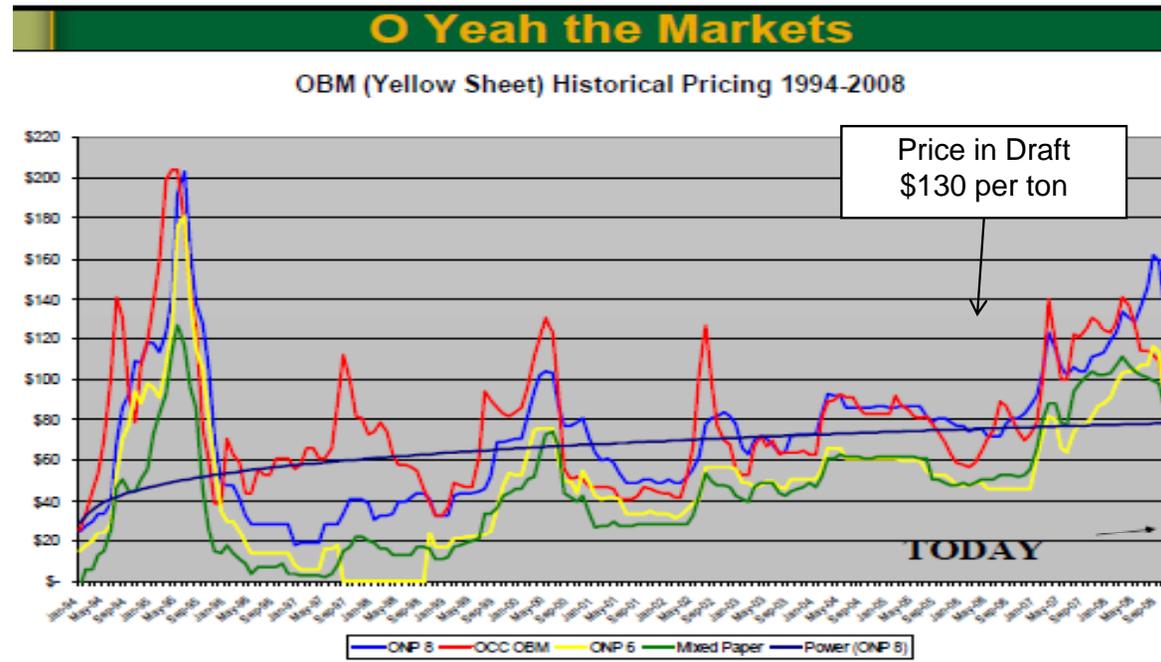
Trash has crashed.

The economic downturn has decimated the market for recycled materials like cardboard, plastic, newspaper and metals. Across the country, this junk is accumulating by the ton in the yards and warehouses of recycling contractors, which are unable to find buyers or are unwilling to sell at rock-bottom prices.....

Source: http://www.nytimes.com/2008/12/08/business/08recycle.html?_r=1



Recycling Revenue Decline



Source Waste Management, Inc. Mike Timpane; November 20, 2008.

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2. REVIEW OF THE CURRENT AND RECOMMENDED SYSTEM

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COMPARISON	Current	Recommended
Diversion Rate	30%	60%
Curbside Customers	27,000	44,000
Curbside Recycling	No	Yes
Curbside Bulk Item	No	Yes
Curbside White Good	Partial	All
Household Hazardous Waste Facility	No	Yes
Materials Recovery Facility (MRF)	No	Yes
Construction and Demolition MRF	No	Yes
Active Landfills	4	3
Curbside Pilot Yard Waste	No	Yes
Generating Electricity from Garbage	No	Yes
Central Maui Landfill Phase VI Capacity Used Up	2024	2042
Education	Not separate budget item	\$2/HH implementation \$1/HH sustained
Average Annual Division Budget 2006 – 2042	\$50 million	\$107 million
Cumulative Capital Needed	\$76 million	\$200 million
General Fund Contribution	\$19/ton	\$0/ton

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3. ASSUMPTIONS IN THE ECONOMIC ANALYSIS

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Assumptions

- Base year is 2006
- Projections are for a planning period out through 2042
- 1 ½ % growth rates applied to:
 - Population; from Maui County's 2030 Plan
 - Home accounts by the County
 - Tonnages collected by Non-County sources
- Escalation factor developed by averaging 2002-2006 CPI; 3 % per year
- Bond interest rate – 5%



Assumptions (Continued)

- County labor fringe benefits rate at 63%
- Mainland capital and operating costs adjusted higher for Maui
- Future costs and revenues escalated at 3% per year
- Revenues assumed:
 - County household collection services: \$138 per year (2006)
 - CML Tipping Fees from non-County delivered sources: \$51 (47 + 4 for recycling fee) per ton (FY2006)
 - General Fund Revenue: \$3,992,385, (FY2006)
 - Includes \$1,172,927 for abandoned vehicle revenues



Assumptions (Continued)

- Central Maui Landfill
 - In place density at 1,240 pounds per cubic yard
 - Starting in 2013, 50,000 tons per year C&D into CML at gate tipping fee
 - Landfill capacity available at CML required through a new Phase VII
 - Current plans through Phase VI



Population, Waste and Recycling Projections

Year	2005	2010	2015	2020	2025	2030
Population	140,050	151,301	162,599	174,450	186,850	199,548
	Tons					
MSW Generated	246,970	268,999	341,170	363,602	387,039	410,753
C&D Generated	51,162	52,664	53,153	53,168	53,168	53,153
Total Generated	298,132	321,663	394,324	416,770	440,208	463,907
Recycled, County	70,625	76,788	203,724	218,699	234,345	250,176
Recycled, Commercial			32,870	35,286	37,811	40,365
WasteTEC			131,426	131,426	131,426	131,426
Total Disposed	227,507	244,876	87,872	95,038	102,510	110,055





4. INCREMENTAL COSTS FOR ADDING TO THE CURRENT SYSTEM

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Current System Costs for Selected Years

	2010	2020	2030	2040
Expense	(\$24.5 million)	(\$38.2 million)	(\$55.7 million)	(\$79.1 million)
Revenue	\$15.7 million	\$30.1 million	\$46.3 million	\$71.1 million
Excess/ (Shortage)	(\$8.8 million)	(\$8.0 million)	(\$9.4 million)	(\$8.0 million)
Number of Employees	91	104	119	136
Number of Collection Accounts	25,769	29,552	33,805	38,527
Number of Tons	321,663	416,770	463,907	516,249
Expense per Ton	(\$76)	(\$92)	(\$120)	(\$153)
Excess/ (Shortage) per Ton	(\$27)	(\$19)	(\$20)	(\$16)

Escalation: \$ @ 3% per year; waste/accounts @ 1 ½% per year.



MRF Costs (2007\$)

Capital Investment	\$18 Million
Annualized Capital Cost	(\$1 Million)
Annual Operating Costs	(\$3 Million)
Capital and Operating Cost	(\$75) per Ton
Transportation Cost	(\$74) per Ton
HI-5 Redemption Revenue	\$20 per Ton
Net Revenue @ \$130* per Ton Recycling Revenue	\$1 per Ton
Net Cost @ \$65 per Ton Recycling Revenue	(\$64) per Ton
Net Cost @ \$0 per Ton Recycling Revenue	(\$129) per Ton

*Recycling Revenue used in Plan



Universal and Bulky Waste Collection and Call Center Costs (2007\$)

Capital Investment	\$8 Million
Annualized Capital Cost	(\$1 Million)
Annual Operating Costs	(\$5 Million)
Capital and Operating Cost	(\$62) per Ton



C&D MRF Costs (2007\$)

Capital Investment	\$9 Million
Annualized Capital Cost	(\$700,000)
Annual Operating Costs	(\$3 Million)
Capital and Operating Cost	(\$67) per Ton
Transportation Cost	(\$2) per Ton
Net Cost @ \$40* per Ton Recycling Revenue	(\$29) per Ton
Net Cost @ \$20 per Ton Recycling Revenue	(\$49) per Ton
Net Cost @ \$0 per Ton Recycling Revenue	(\$69) per Ton



*Recycling Revenue used in Plan



Additional Facility Costs (2007\$)

- Central Maui Solid Waste Campus
 - Included within other new facilities costs
- Fleet Maintenance Facility
 - Capital investment - \$3.2 million
 - Annual operations cost – (\$0.7 million)
- Household Hazardous Waste Facility
 - Capital investment - \$0.9 million
 - Annual operations cost – (\$0.3 million)
 - (\$1,200) per ton



Additional Facility Costs (2007\$) (Continued)

- Olowalu Transfer Station
 - Capital investment - \$7.1 million
 - Annual operations cost – (\$1.1 million)
 - (\$56) per ton
 - Note: provides 'system' savings
 - Potential revenue from private haulers



Additional Facility Costs (2007\$) (Continued)

- Hana Convenience Center
 - Capital investment - \$0.4 million
 - Annual operations cost – (\$0.3 million)
 - (\$900) per ton
- Lanai Convenience Center
 - Capital investment - \$1.8 million
 - Annual operations cost – (\$0.8 million)
 - (\$110) per ton
- Molokai Convenience Center
 - Capital investment - \$1.9 million
 - Annual operations cost – (\$1.1 million)
 - (\$95) per ton



WasteTEC Costs (2007\$)

Capital Investment	\$86 Million
Annualized Capital Cost	(\$7 Million)
Annual Operating Costs	(\$11 Million)
Capital and Operating Cost	(\$134) per Ton
Net Cost (Electricity revenue @ \$0.15* per KWHr)	(\$80) per Ton
Net Cost (Electricity revenue @ \$0.08 per KWHr)	(\$107) per Ton
Net Cost (Electricity revenue @ \$0.20 per KWHr)	(\$62) per Ton
Benefits from New State and Federal policies	To Be Determined

*Electricity revenue used in Plan





Effects on CML (2007\$)

	Curbside Recycling and MRF	C&D MRF	WasteTEC
Tons Recycled/Diverted from Disposal	58,000 tons per year	32,000 tons per year	99,000 tons per year
Amount of Landfill Capacity Saved	3 months of capacity per year	1.6 months of capacity per year	6 months of capacity per year
Landfill Development/Closure Costs Delayed	\$800,000 per year	\$400,000 per year	\$1.6 Million per year
Landfill Purchase Costs Avoided @ \$150,000 per Acre	\$3.3 Million	\$1.8 Million	\$6.2 Million





Plan Projects Capital Requirements (2007\$; M=Million)

Plan Project	Total
Central Maui Solid Waste Campus	- Included Below -
Call Center*	\$100,000
Bulky Waste Collection	\$800,000
MRF*	\$18M
Universal Collection	\$7M
Fleet Maintenance*	\$3M
Hana Convenience Center	\$400,000
Construction & Demolition MRF*	\$9M
Household Hazardous Waste*	\$900,000
Olowalu Transfer Station	\$7M
Lanai Convenience Center	\$2M
Molokai Convenience Center	\$2M
WasteTEC*	\$86M
Total	\$137M

*Projects potentially located at the Central Maui Solid Waste Campus.





Central Maui Landfill Capital Costs (2007\$)

Scenario	Year Phase VI Used Up	Total CML Capital Costs through 2042	Additional Acreage through 2042
With Current System	2024	\$84 Million (Requires Phase VII)	8 acres
With Plan Projects	2042	\$63 Million (Through Phase VI)	- None -



Recommended Ordinances (In Place By 2013)

- Establish universal collection including recycling requirements for residential generators collected by the County
- Establish recycling requirements for residential generators not collected by the County
- Establish commercial bans and recycling requirements
- Establishing C&D recycling requirement for all commercial and residential projects at 50%
- Ordinances include enforcement mechanisms



Recommended System Costs for Selected Years

	2010	2020	2030	2040
Expense	(\$26.2 million)	(\$89.6 million)	(\$126.0 million)	(\$177.5 million)
Revenue	\$15.6 million	\$48.4 million	\$75.5 million	\$121.8 million
Excess/ (Shortage)	(\$10.6 million)	(\$41.2 million)	(\$50.5 million)	(\$55.7 million)
No. Employees	94	226	239	272
No. Collection Accounts	25,769	47,671	54,532	62,148
Number of Tons	321,663	416,770	463,907	516,249
Expense per Ton	\$82	\$215	\$272	\$344
Excess/(Shortage) per Ton	(\$33)	(\$99)	(\$109)	(\$108)





Current and Recommended Systems Cost Comparison

	Current 2010	Rec'd 2010	Current 2042	Rec'd 2042
Expense	(\$24.4 million)	(\$26.2 million)	(\$86.2 million)	(\$197.4 million)
Revenue	\$15.7 million	\$15.6 million	\$77.5 million	\$133 million
Excess/ (Shortage)	(\$8.8 million)	(\$10.6 million)	(\$8.7 million)	(\$64.4 million)
Number of Employees	91	94	139	279
No. Collection Accounts	25,769	25,769	39,770	63,795
No. of Tons	321,663	321,663	527,564	527,564
Expense per Ton	(\$76)	(\$82)	(\$163)	(\$374)
Excess/(Shortage) per Ton	(\$27)	(\$33)	(\$17)	(\$122)





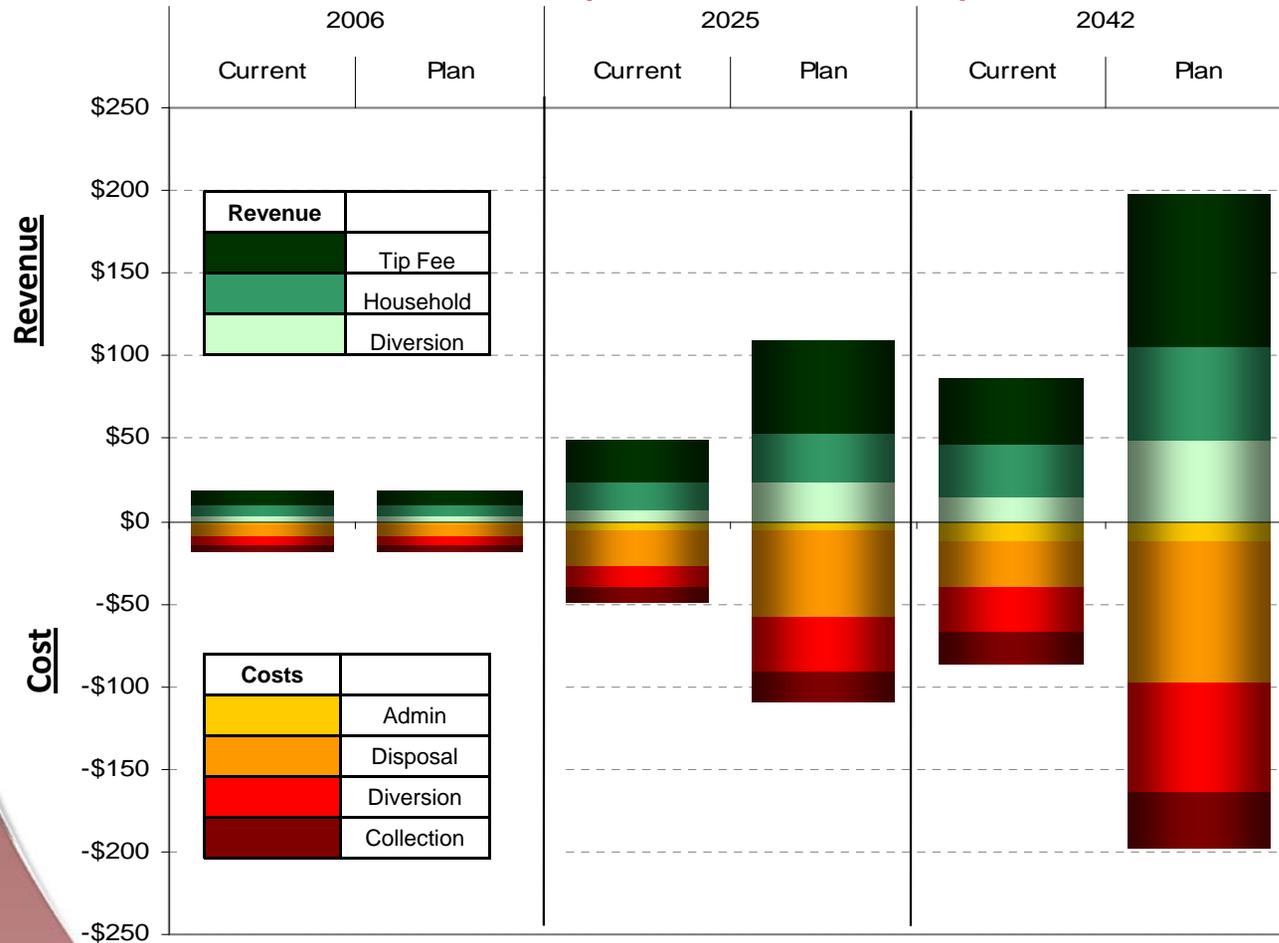
Rates without General Fund

	Past Pricing	Current Pricing	Current w/o GF	Current w/o GF	Plan w/o GF	Plan w/o GF
	2006	2008	2025	2042	2025	2042
Monthly Residential Collection	\$12	\$14	\$43	\$68	\$50	\$75
Recycling Surcharge per Ton	\$4	\$10	\$19	\$34	\$40	\$53
Disposal per Ton	\$47	\$53	\$78	\$86	\$207	\$275

Note: Landfill Tipping Fee = Recycling Surcharge + Disposal Fee



Current vs Plan Without General Fund (In Millions)



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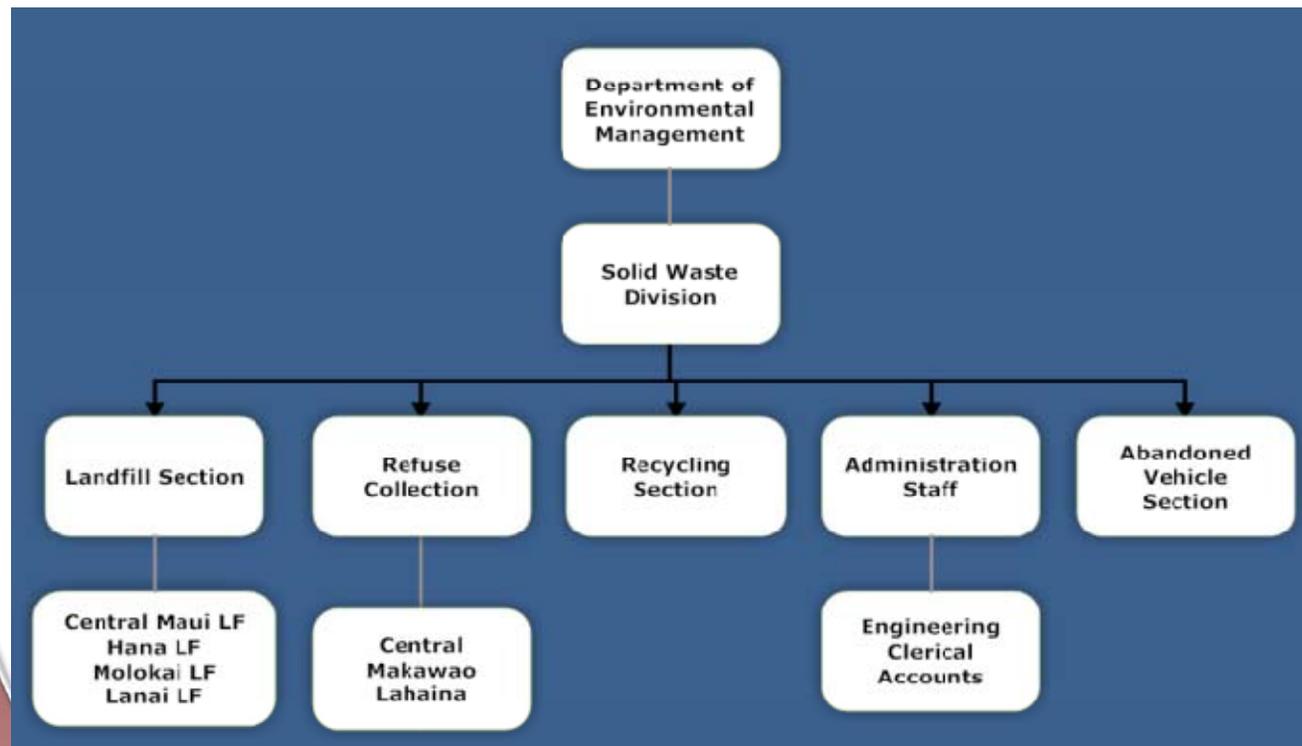


5. CHANGES NEEDED IN COUNTY ORGANIZATION AND ADMINISTRATION

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Current Organization DEM and Solid Waste Division



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Current Organizational Structure

- New Department of Environmental Management (DEM) began in July 2007
 - Includes Solid Waste and Wastewater Divisions
- DEM Administration – 6 FTEs
- SWD - 101 FTEs in five functional groups:
 - Landfill Disposal – 37 FTEs
 - Refuse Collection – 46 FTEs
 - Highway Division does SWD work in Molokai & Hana
 - Recycling – 4 FTEs
 - Administration – 11 FTEs
 - Abandoned Vehicle – 3 FTEs
 - Added during Plan preparation



Recommended System Will Require:

- More human resources to plan, procure, implement and monitor new operations
- Collection equipment, software and services for efficiency improvements and expanded services
- Training to manage and oversee these activities
- Land for the Central Campus of added facilities
- Capital for Central Landfill expansion
- Capital for improvements at collection yards, transfer station, and convenience centers
- Contractors to Design/Build/Operate new facilities/services (MRF, C&D MRF, and WasteTEC)
- Capital for Design/Build of the new facilities
- Increased revenue to pay for the added debt service on capital, service fees and operating costs



Capital Financing Alternatives

- Pay-As-You-Go
 - Increases annual demand on General Fund
 - Does not spread the cost over useful life
- General Obligation Financing
 - Debt affordability impacts
 - Lack of accountability
 - Growing reliance and impact on the General Fund of the County
- Private Financing by selected contractor
 - Generally more expensive, especially if under short-term contracts
 - Ownership at end of contract term not with the County
- System revenue bonds
 - Revenues from service recipients and products sales key
 - Ultimate financial backstop requirement to keep off County balance sheet
 - Potential to eliminate reliance on General Fund and be self-supporting



Recommended Funding and Organizational Changes

- Change SWD to be financially self-supported
 - Revenues equal to or greater than expenses
- Revenue bonds recommended for major capital investments including land purchases
- Revenue sources could include:
 - County residential service charges
 - Tipping fees at County at convenience centers, transfer stations, and landfills
 - Revenues/revenue sharing from the sale of products
 - Solid Waste System Benefit Fee on properties
- Utilize full service contractors for major infrastructure improvements requiring sale of products
 - Note: if there is an existing private facility, County should allow for it to compete under long-term offering
- Converts General Fund backed SWD to be self-supporting



Recommended Funding and Organizational Changes (Continued)

- Prepare the County SWD for a significant expansion of the current organization that could include:
 - Additional staff for expanded and efficient organization
 - Software improvements for equipment maintenance, customer service, work order tracking, activity based cost management, and computerized collection path routing
 - Increased public education and information to accomplish the level needed for reaching the 60% recycling goal



6. IMPLEMENTATION SCHEDULE

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Implementation Requirements

- Budgets and funding**
- Human resources**
- Project kick-off and planning
- Site selection and zoning**
- Procurement/negotiation
- Financing and capital**
- Permitting
- Design/construction/supply of equipment/facilities
- Start-up of equipment/facilities
- Long-term operations, contract administration, and monitoring



Development Time and Capital (Does Not Include Timeline for Siting)

Project	Development Time (Months)	Capital Requirement (2007\$)
Central Maui Campus	Included in Below	- Included Below -
Call Center*	15	\$100,000
Bulky Waste Collection	13	\$800,000
MRF*	42	\$18M
Universal Collection	14	\$7M
Fleet Maintenance*	33	\$3M
Hana Convenience Center	20	\$400,000
Construction & Demolition MRF*	42	\$9M
Household Hazardous Waste*	24	\$900,000
Olowalu Transfer Station	32	\$7M
Lanai Convenience Center	22	\$2M
Molokai Convenience Center	22	\$2M
WasteTEC*	57	\$86M

*Projects potentially located at the Central Maui Solid Waste Campus.



Land Requirements Central Maui Solid Waste Campus

Facility	Land Area (Acres)	Office Space
MRF	7.0	6,000
C&D MRF	3.0	0
Fleet Maintenance	1.5	1,500
HHW Facility	0.5	100
Base Yard	2.5	0
WasteTEC	7.0	3,000
Total	21.5	10,600



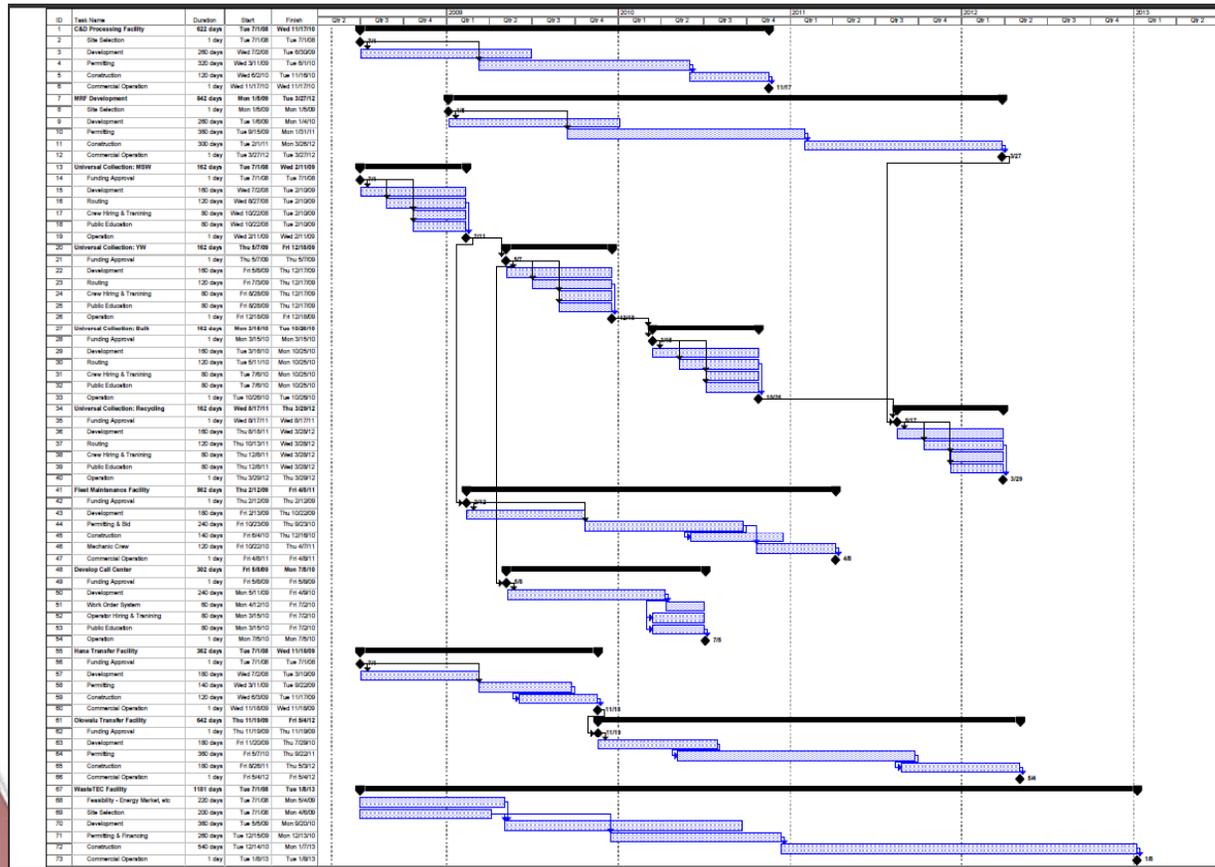
Sites for New Facilities

- New facilities require land area
- Central Maui Solid Waste Campus or separate sites decision for: MRF, C&D MRF, HHW, Fleet Maintenance, and/or WasteTEC
- Maui Electric has site set aside for WasteTEC type facility
- Site confirmation requires: selection, acquisition, zoning, permitting and funding
- Timeline for site confirmation could be 4 years
- Conclusion: focus on site decisions sooner rather than later



Plan Schedule – See Attachment

(Plan Schedule is dependent on factors including but not limited to funding, site selection, land use and required staffing for DEM/SWD to prioritize and sequence projects.)





7. BENEFITS OF THE PLAN PROJECTS

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Benefits of the Plan Projects

Project	Benefits
Central Campus	<ul style="list-style-type: none">✓ More efficient use of resources (labor, equipment, and supplies, e.g. fuel)✓ Improved communication among programs✓ Eliminates transportation among dispersed facilities✓ Lower vehicle emissions
Call Center	<ul style="list-style-type: none">✓ Better customer service with 1 vs. current 7 phone numbers✓ Better tracking of work performed by County
Bulky Waste	<ul style="list-style-type: none">✓ More customer friendly services to residents✓ More recycling of white goods and metals✓ Reduces illegal dumping✓ Potential reuse options for furniture
MRF	<ul style="list-style-type: none">✓ More recycling✓ Market revenue potential✓ saves landfill capacity✓ Allows for curbside recycling✓ Reduces green house gas emissions

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Benefits of the Plan Projects (cont'd)

Project	Benefits
Universal Collection	<ul style="list-style-type: none">✓ Curbside recycling✓ Curbside trash cart collection✓ Equal service for residences
Fleet Maintenance	<ul style="list-style-type: none">✓ Increases equipment reliability✓ Lowers cost of equipment maintenance
C&D Facility	<ul style="list-style-type: none">✓ More recycling✓ Prolongs life of landfill✓ market revenue potential
HHW	<ul style="list-style-type: none">✓ More service to residents✓ Increase in collection and proper management of toxics✓ More recycling and reuse✓ Reduces actual and potential harm to the environment
Olowalu Transfer station	<ul style="list-style-type: none">✓ More service to residents and commercial haulers✓ Lowers cost of transportation✓ Lower vehicle emissions



Benefits of the Plan Projects (cont'd)

Project	Benefits
Hana Convenience Center	<ul style="list-style-type: none"> ✓ More recycling ✓ More services to residents ✓ Reduces Illegal Dumping
Lanai Convenience Center	<ul style="list-style-type: none"> ✓ More service to residents ✓ More recycling ✓ Reduces illegal dumping
Molokai Convenience Center	<ul style="list-style-type: none"> ✓ More service to residents ✓ More recycling ✓ Reduces illegal dumping
WasteTEC	<ul style="list-style-type: none"> ✓ Generates base load electricity using renewable fuels ✓ Reduces oil import requirements ✓ Reduces dependence on landfills ✓ Reduces green house gas emissions
Restructuring Solid Waste Funding	<ul style="list-style-type: none"> ✓ Stabilizes revenues ✓ Collects revenues more reliably ✓ Takes financial pressure off of General Fund ✓ Creates a self-supporting financial system





8. QUESTIONS AND DISCUSSION

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