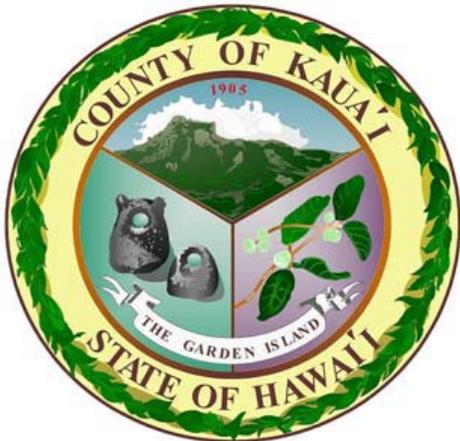


Kaua'i Resource Recovery Park

Draft Feasibility Study

Public Meeting
January 28-29, 2013



MEETING OUTLINE

- 1) Background and Purpose
- 2) RRP Feasibility Study (FS)
- 3) Kaua'i Waste Quantities and Existing Programs
- 4) Potential Components
- 5) Impacts
- 6) Recommendations
- 7) Next Steps
- 8) Public Comments



BACKGROUND AND PURPOSE

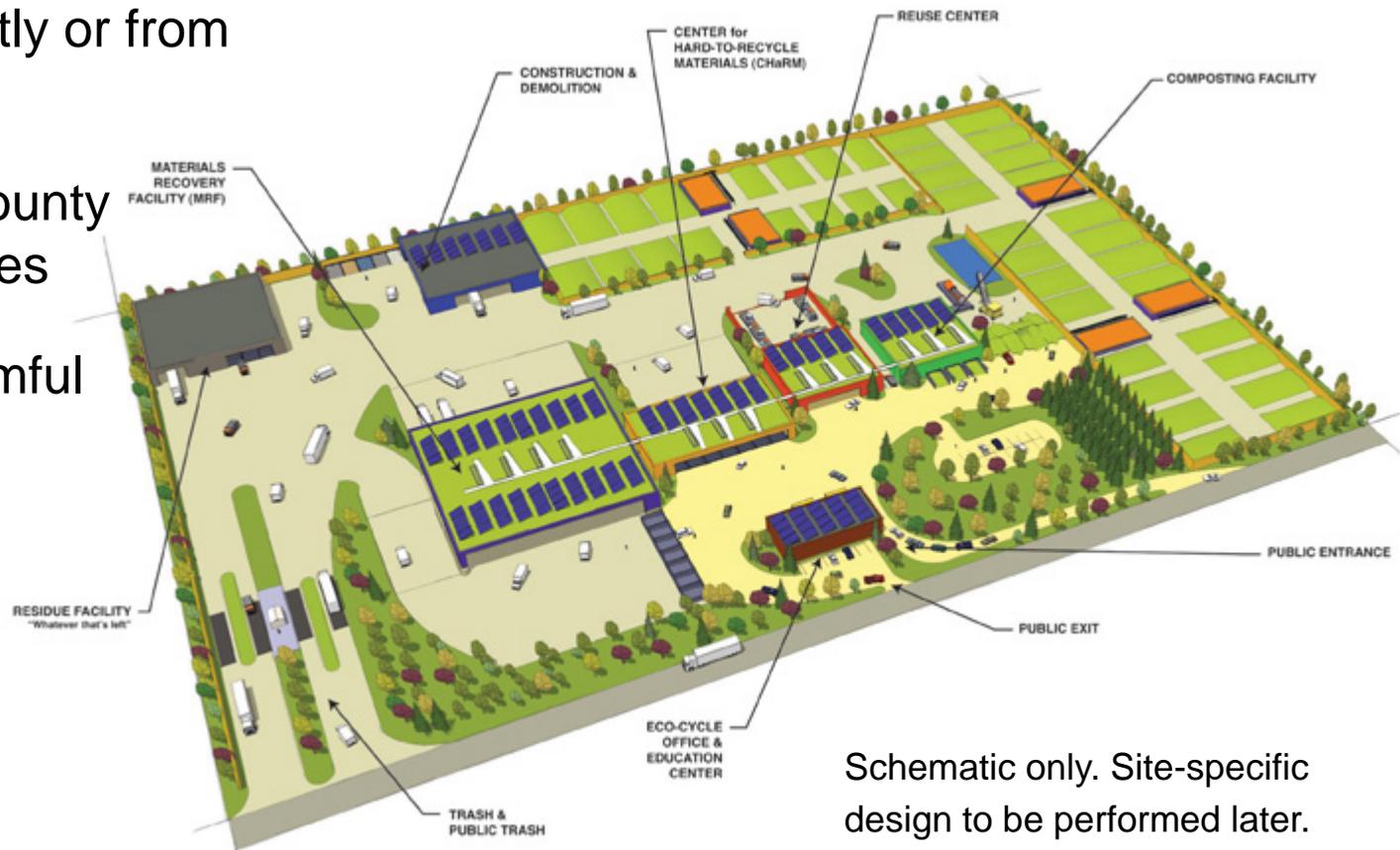
- County waste diversion goals
- Purpose of the RRP FS:
 1. Analyze potential RRP components
 2. Quantify costs and benefits; make recommendations
 3. Develop conceptual facility design
- Purpose of these meetings:
 1. Present preliminary recommendations
 2. Solicit public feedback



WHAT IS A RESOURCE RECOVERY PARK (RRP)?

“One-stop service center”

- Received directly or from curbside
- Supplement County diversion policies
- Can target harmful material
- Modular
- Flexibility
- Cost Savings



Schematic only. Site-specific design to be performed later.

RRP FS AND EIS GOALS

- ❑ Provide County with flexibility to respond to changing conditions
 - Supplement existing decentralized facilities
 - » Existing facilities need not close
 - » But if they do, County has options
 - All facilities need not be implemented at once
 - » Facilities may change with economic conditions

- ❑ Design and EIS process allow implementation if:
 - Existing facilities close or change
 - Technologies change
 - Economic conditions change, e.g., recycling revenues



OVERVIEW OF THE RRP PROCESS

1. Draft RRP FS

- Assess each potential facility
- Make recommendations
- Obtain public feedback

Download the Draft RRP FS at:
www.kauai.gov/NewLandfillSite

2. Final RRP FS

3. Conceptual Design

4. EIS

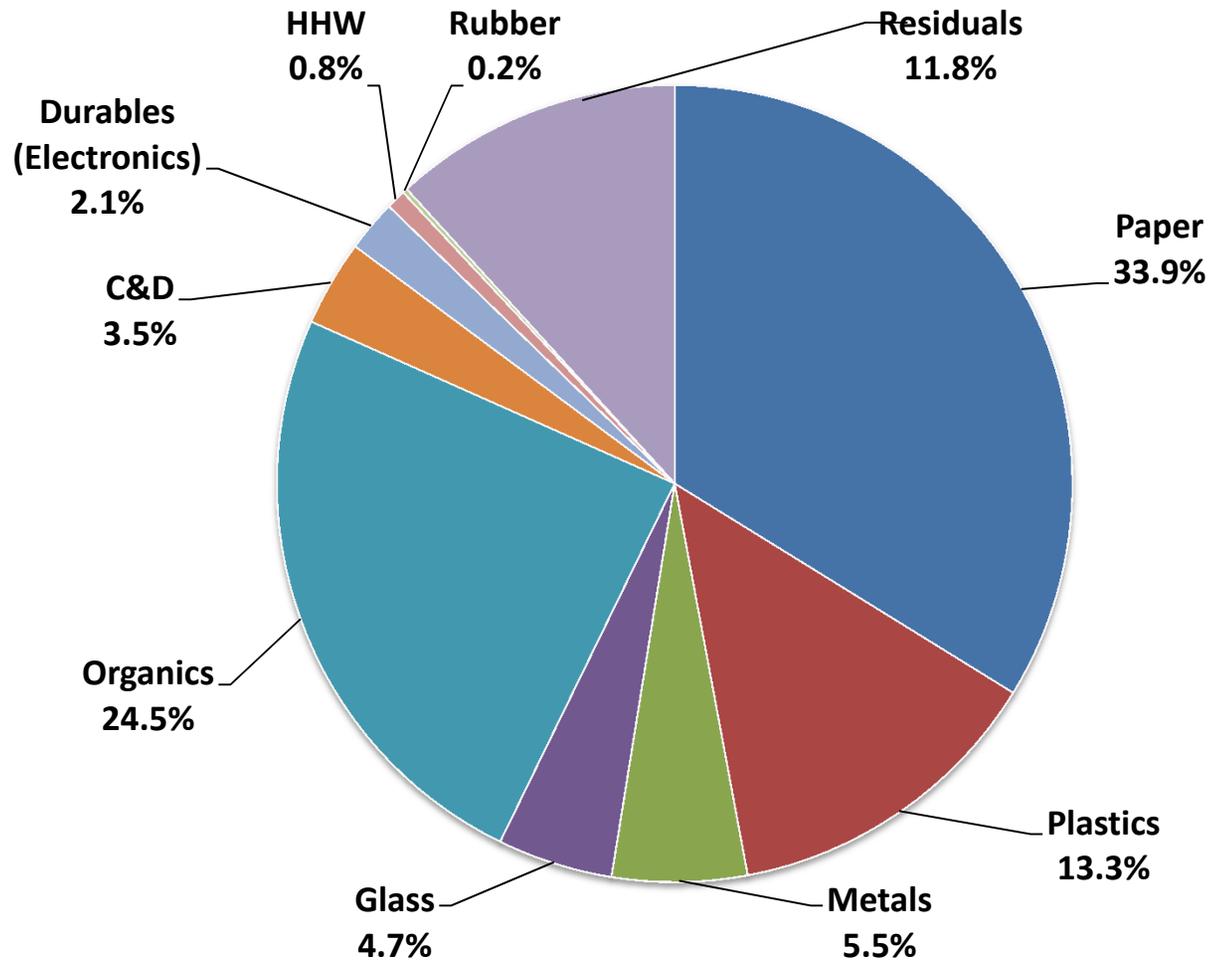


POTENTIAL RRP FACILITIES

1. Integrated Public Drop-off and Reuse Facility
2. Recyclables and Waste Drop-off
3. Household Hazardous Waste Depot
4. Electronic Waste Depot
5. Metals Recycling Facility
6. C&D Material Processing and Recycling Facility
7. Used Tire Processing Facility
8. Center for Hard-to-Recycle Materials
9. Reuse Center
10. Educational Center
11. Materials Recovery Facility
12. Composting Facility
13. Anaerobic Digestion of Biomass
14. Biorefinery
15. Landfill Gas to Energy Facility
16. Waste to Energy
17. Waste to Fuel



WASTE QUANTITIES & COMPOSITION



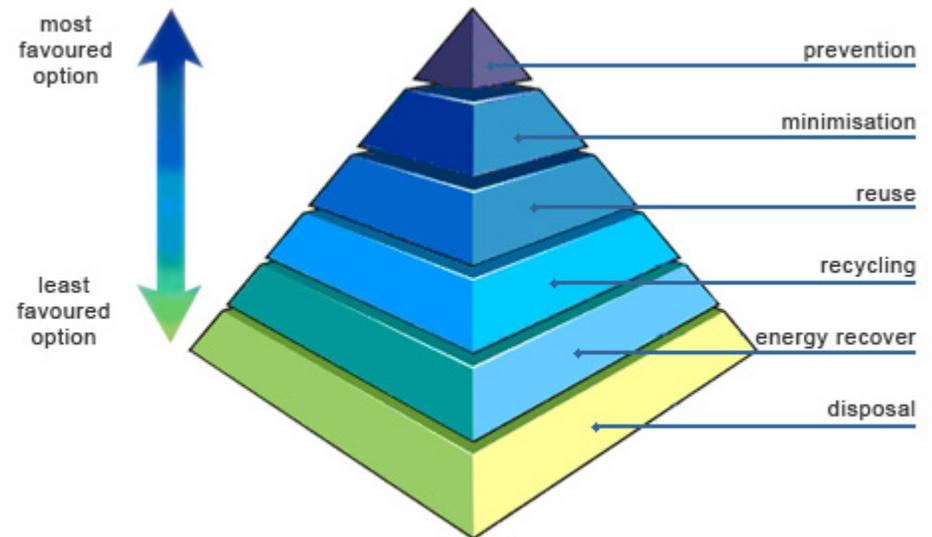
Source: Waste Composition Study, RW Beck, 2007

➤ County's diversion goals are achievable with the proper policies and facilities



EXISTING KAUA‘I WASTE DIVERSION ACTIVITIES

- Wide range of County programs, including:
 - Drop bins
 - State HI5 recycling
 - Metals recycling
 - Special events (HHW, Electronics)
 - Future curbside collection
- Some private programs (e.g., C&D)



RRP SERVICE AREAS

Three RRP service areas:

1. Integrated Public Drop-off and Reuse Facility
2. Curbside & commercial drop off areas
3. Processing, storage and bulky item management areas



1. INTEGRATED PUBLIC DROP-OFF AND REUSE FACILITY

Drop-off for:

- Concrete
- Rubble
- Clean soil
- Asphalt

Drop-off for:

- Dry wall
- Ferrous & non-ferrous metals
- Tires
- Non treated wood
- Treated wood

Schematic only. Site-specific design to be performed later.

Residential Waste Drop-off Area

Recyclables drop-off-area

HHW/e-Waste drop-off

White goods drop-off

- **Benefits:**
 - Up to 19,000 TPY (13% of total)
 - Convenient & Year-round
- **Costs: \$9M (Capital) \$1.4M (O&M)**
- ✓ **Recommended**

Typical Re-use Center



1. INTEGRATED PUBLIC DROP-OFF AND REUSE FACILITY

Integrated Facility Cost Includes:

- Recyclables and Waste Drop-off
- Household Hazardous Waste Depot
- Electronic Waste Depot
- Metals Recycling Receiving Facility
- C&D Material Processing and Recycling Facility
- Used Tire Processing Facility
- Center for Hard-to-Recycle Materials
- Reuse Center
- Educational Center



2. RECYCLABLES AND WASTE DROP-OFF

- Recyclables Drop-off
- HI-5 Redemption Center
- Residential Waste Drop-off
- **Benefits:**
 - Convenience = increased diversion
- **Cost:** (included)*
- ✓ Recommended



* Costs included in the Integrated Facility costs

3. HOUSEHOLD HAZARDOUS WASTE DEPOT

Aerosols, batteries, oil, paint, cleaning products, pesticides, etc.

- **Benefits:**

- Remove harmful materials, improve landfill leachate quality
- Reuse opportunities
- Estimated 370 TPY
- Year-round collection

- **Cost:** (included)*

✓ Recommended



* Costs included in the Integrated Facility costs



4. ELECTRONIC WASTE DEPOT

- **Benefits:**
 - Remove harmful materials, improve landfill leachate quality
 - Reuse opportunities
 - Up to 300 TPY (<0.1%) diversion
 - Year-round collection
- **Cost:** (included)*
- ✓ Recommended



* Costs included in the Integrated Facility costs

5. METALS RECYCLING FACILITY

Scrap metal, propane tanks, appliances, vehicles, etc.

- **Benefits:**
 - Approx. 4,700 TPY (3%) diversion
 - Recovery of valuable metals
- **Cost:** Up to \$2 million (Capital); \$560,000 (O&M)
- ✓ Recommended



6. CONSTRUCTION & DEMOLITION (C&D) MATERIAL PROCESSING AND RECYCLING FACILITY

Concrete, brick, block, asphalt, lumber, plaster board, drywall, cabinets, doors, windows, roofing, etc.

- **Benefits:**
 - Potentially 16,000 TPY (11%) diversion
 - Phased implementation
 - Material re-use
- **Cost:** Up to \$1.4 million (Capital); \$870,000 (O&M)
- ✓ Recommended



7. USED TIRE PROCESSING FACILITY

- **Benefits:**
 - Potentially 80,000 tires (1%) diverted
- **Cost:** \$250,000 (Capital); \$165,000 (O&M)
- ✓ Recommended



8. CENTER FOR HARD-TO-RECYCLE MATERIALS

Variety of materials (small quantities & limited markets/uses), including:

- Some plastics (e.g., large durables, polystyrene, foam blocks)
- Household items (e.g., textiles, hard cover books, mattresses)

- **Benefits:**

- <1% of the total waste stream may be diverted
- Flexibility to respond to changes
- Reuse opportunities

- **Cost:** (included)*

✓ Recommended



* Other costs included in the Integrated Facility costs

9. REUSE CENTER

Clothing, furniture, computers, sporting equipment, housewares, building materials, etc.

- **Benefits:**

- <1% diversion
- High value diversion
- Highly visible diversion
- Potential value added (repairing or refurbishing)

- **Cost:** (included)*

✓ Recommended

* Costs included in the Integrated Facility costs



10. EDUCATIONAL CENTER

- Meeting facilities & staging area
- MRF viewing gallery
- **Benefits:**
 - Education of keiki critical to promote reduction, reuse & recycling
 - Training/research opportunities
- **Cost:** (included)*
- ✓ Recommended



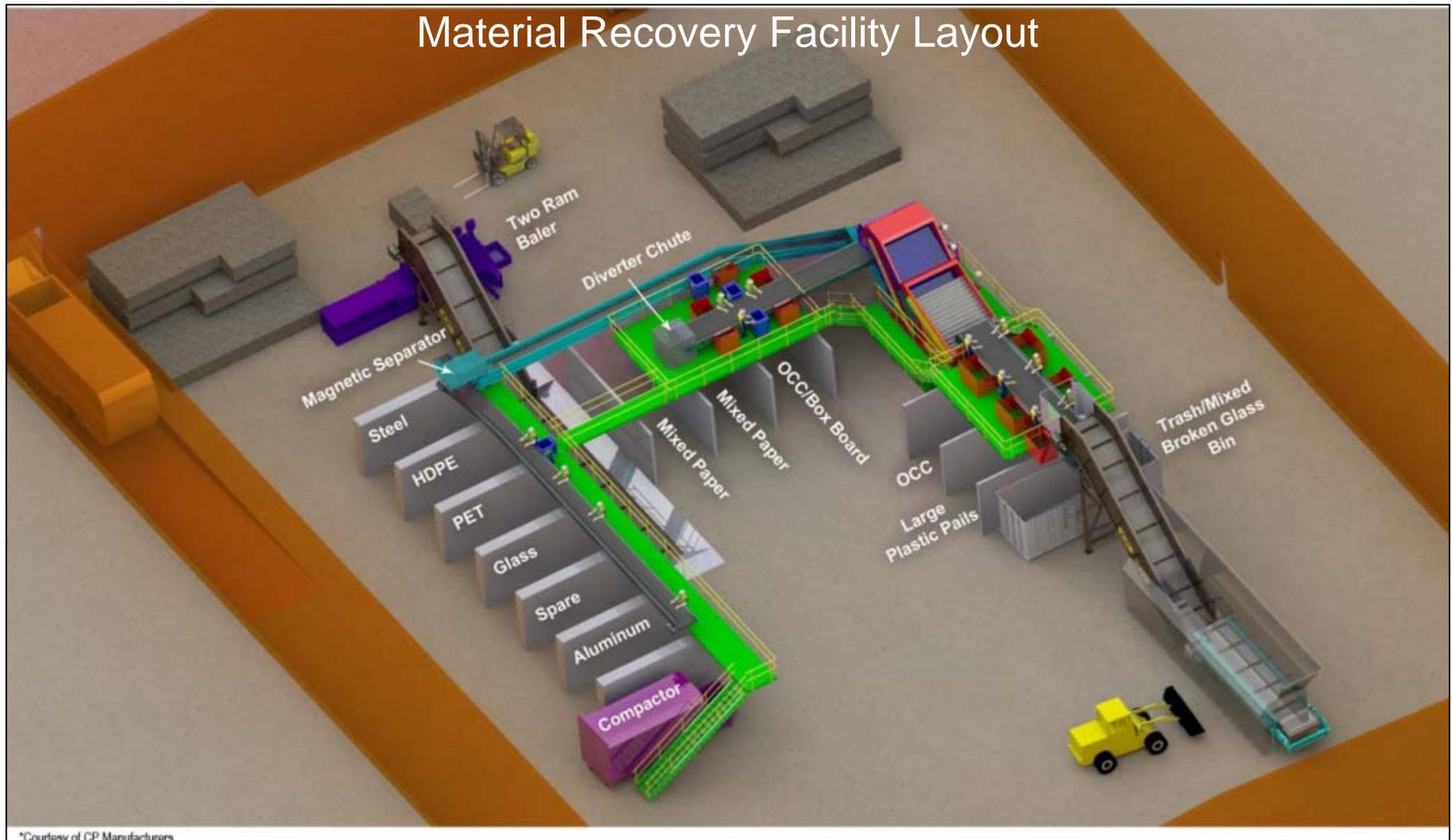
* Costs included in the Integrated Facility costs

11. MATERIALS RECOVERY FACILITY (MRF)

- Sort recyclables
- Support curbside collection of single-stream recyclables
- **Benefits:**
 - 25,000 TPY (17%) diversion
 - Single stream enhances participation
 - Modular
- **Cost:** \$8.7 million (Capital); \$950,000 (O&M); less revenue
- ✓ Recommended



11. MATERIALS RECOVERY FACILITY



Schematic only. Site-specific design to be performed later.

12. COMPOSTING FACILITY

Technology can evolve, over time:

1. Windrow composting (greenwaste)
2. Aerated static pile (add food, etc.)
3. Advanced technology

- **Benefits:**

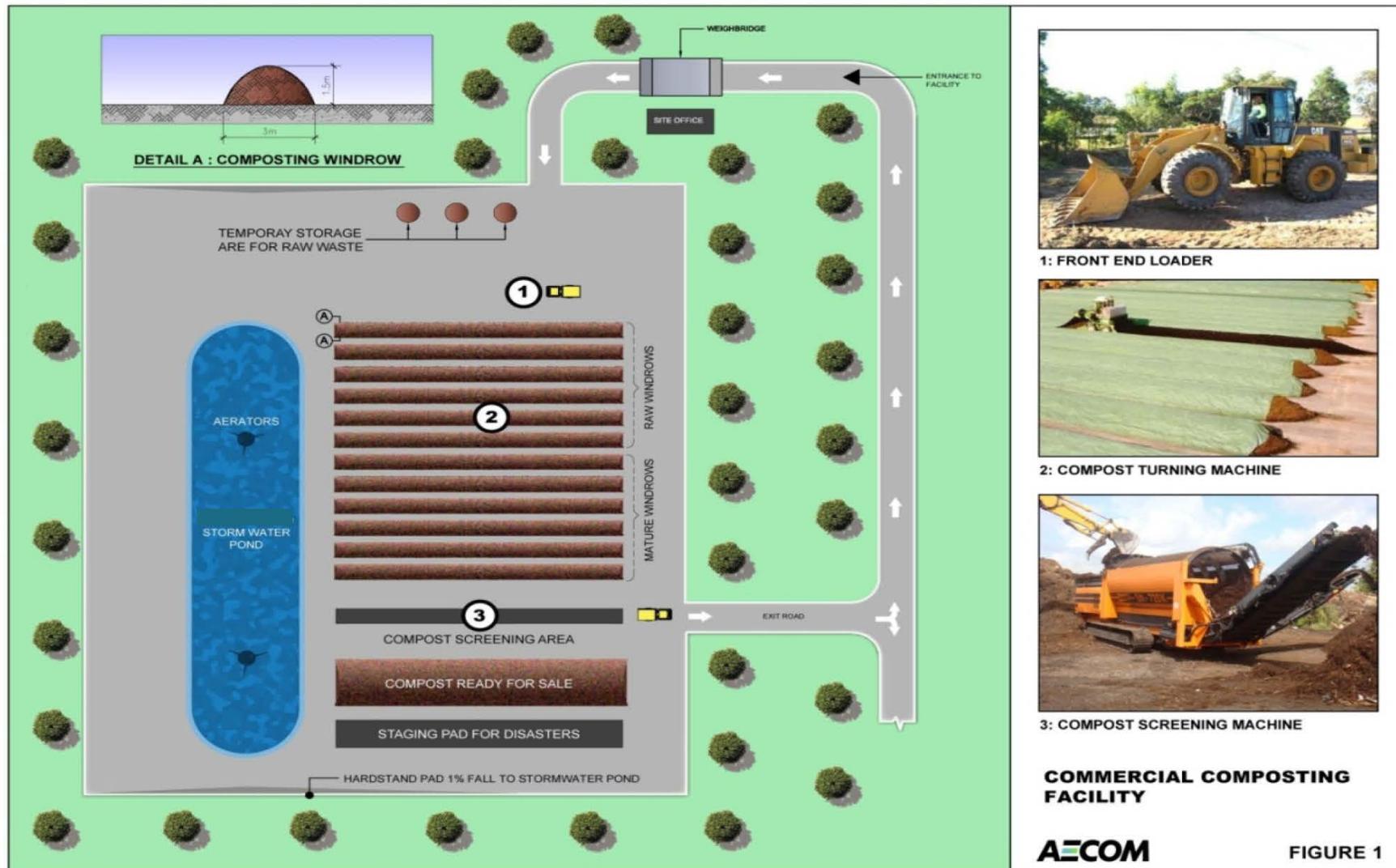
- 34,000 TPY (23%) diversion
- Usable, beneficial end product
- Phased development

- **Cost:** \$3 million (Capital); \$350,000 (O&M)

✓ Recommended



12. COMPOSTING FACILITY SCHEMATIC



Schematic only. Site-specific design to be performed later.



13. ANAEROBIC DIGESTION (AD) of BIOMASS

Alternative to composting

- **Concerns:**
 - Not effective for greenwaste
 - Very few AD facilities for MSW (unproven/risky)
 - Composting more cost effective
- **Costs:** >\$10M (Capital); over \$500 per ton processed (O&M)
- ❖ Not currently recommended



14. BIOREFINERY FACILITY

Produce fuel from biomass

- **Concerns:**

- County waste may not meet quantity and quality requirements
- A private company has initiated a biomass-to-fuel project on Kaua'i
- Not proven for MSW
- Paper waste better managed via MRF

❖ Not currently recommended



15. LANDFILL GAS to ENERGY FACILITY

- Landfill gas generated through decomposition of organic material
- Use LFG to generate electricity
- **Benefits:**
 - Beneficial use of LFG
 - Reduce greenhouse emissions
 - Up to 3.7 MW potential
 - Potential revenue up to \$1.7 M annually
- **Cost:** \$2.3 million (initial Capital); \$133,000 (initial O&M)
- ✓ Recommended



16. WASTE to ENERGY FACILITY

- Direct incineration of waste generates electricity
- Residuals and ash are landfilled
- Requires guaranteed feedstock
 - Financial risk to County
- **Benefits:**
 - Process 96,000 TPY (65%)
 - Divert 72,000 TPY (49 %)
 - Reliable technologies, e.g., mass burn (H-POWER)
 - Compatible with recycling and composting
- **Cost:** \$150M (Capital); \$120 per ton (O&M)
- ❖ Not recommended for immediate implementation
 - Area set aside for future



17. WASTE to FUEL FACILITY

Process MSW to produce solid or gaseous fuel:

1. Refuse-derived fuel (RDF) used for remote markets
 2. Gasification of MSW still being demonstrated
- Potential for 41% diversion
 - Concerns:
 - Lack of market for RDF on Kauai.
 - Energy better recaptured directly
 - Paper better managed via MRF
 - ❖ Not currently recommended



RECOMMENDED RRP FACILITIES

1. Integrated Public Drop-off and Reuse Facility
 2. Recyclables & Waste Drop-off
 3. Household Hazardous Waste Depot
 4. Electronic Waste Depot
 5. Metals Recycling Facility
 6. C&D Material Processing and Recycling Facility
 7. Used Tire Processing Facility
 8. Center for Hard-to-Recycle Materials
 9. Reuse Center
 10. Educational Center
 11. Materials Recovery Facility
 12. Composting Facility
 13. Landfill Gas to Energy Facility
 14. Future Option: Waste to Energy Facility
- Diversion goal of 70% can be met



POTENTIAL ENVIRONMENTAL AND CULTURAL IMPACTS

Potential impacts and mitigation measures to be analyzed in the EIS:

- Surface Water
- Groundwater
- Air emissions
- Nuisances
- Cultural & Socio-economic



NEXT STEPS

1. Draft Feasibility Study:

- www.kauai.gov/NewLandfillSite
- Comments due by Tuesday, February 12, 2013

2. Final RRP FS

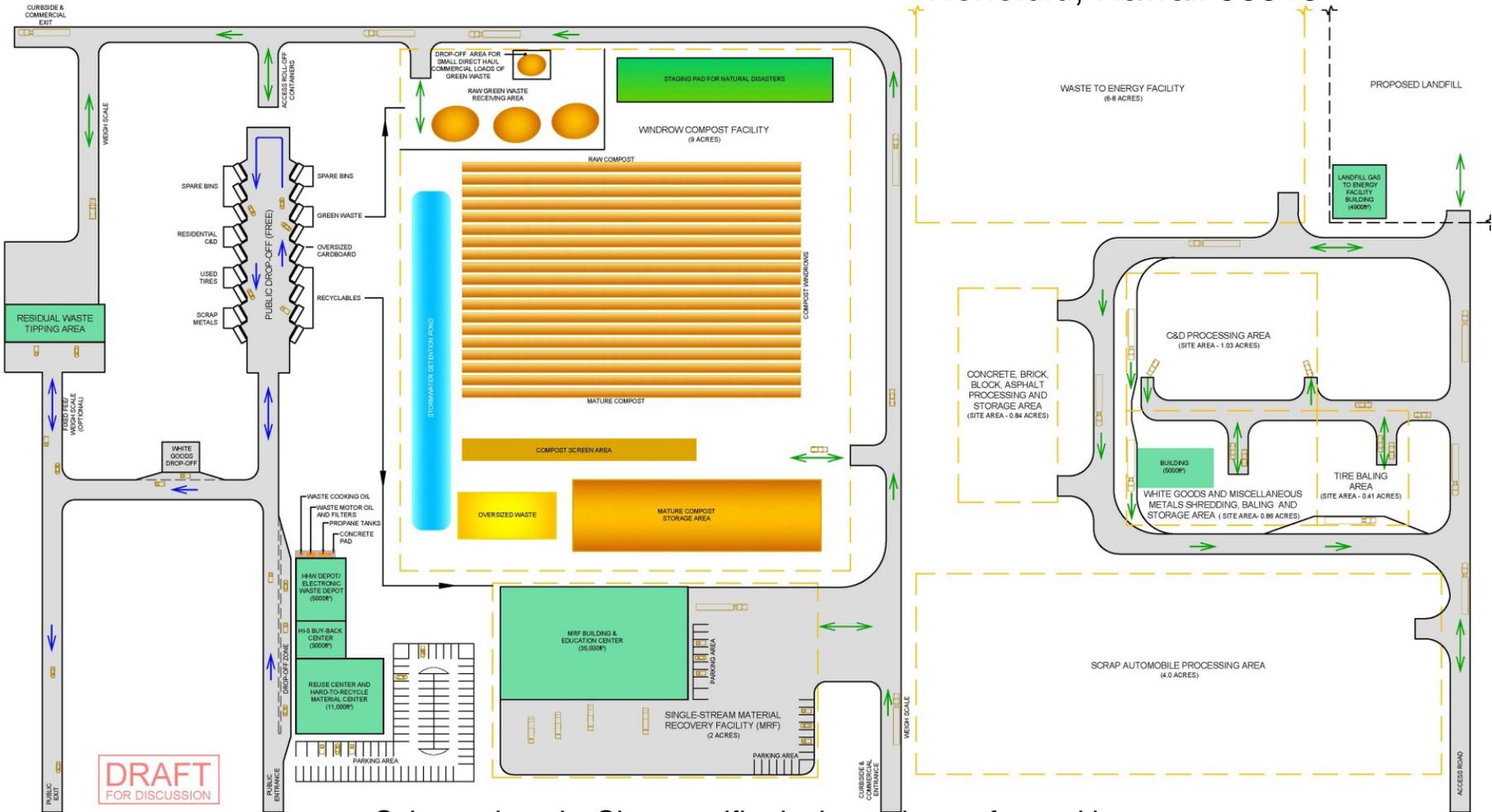
3. RRP Conceptual Design

4. EIS



COMMENTS? CONCERNS?

AECOM
Re: Kauai RRP
1001 Bishop St. #1600
Honolulu, Hawaii 96813



Schematic only. Site-specific design to be performed later.

