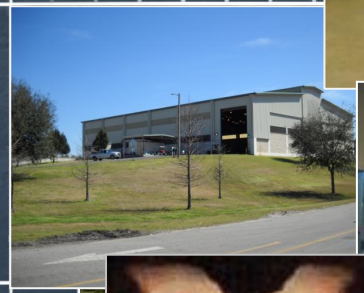
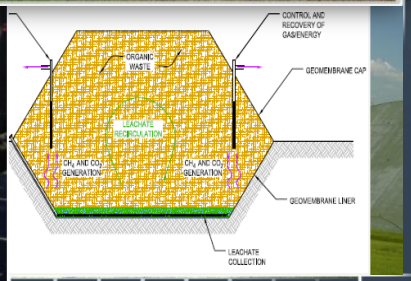




ACHIEVING 75% RECYCLING

Building a Sustainable Solid Waste Program

UF Bioenergy Summer Internship Program

Gainesville, Florida

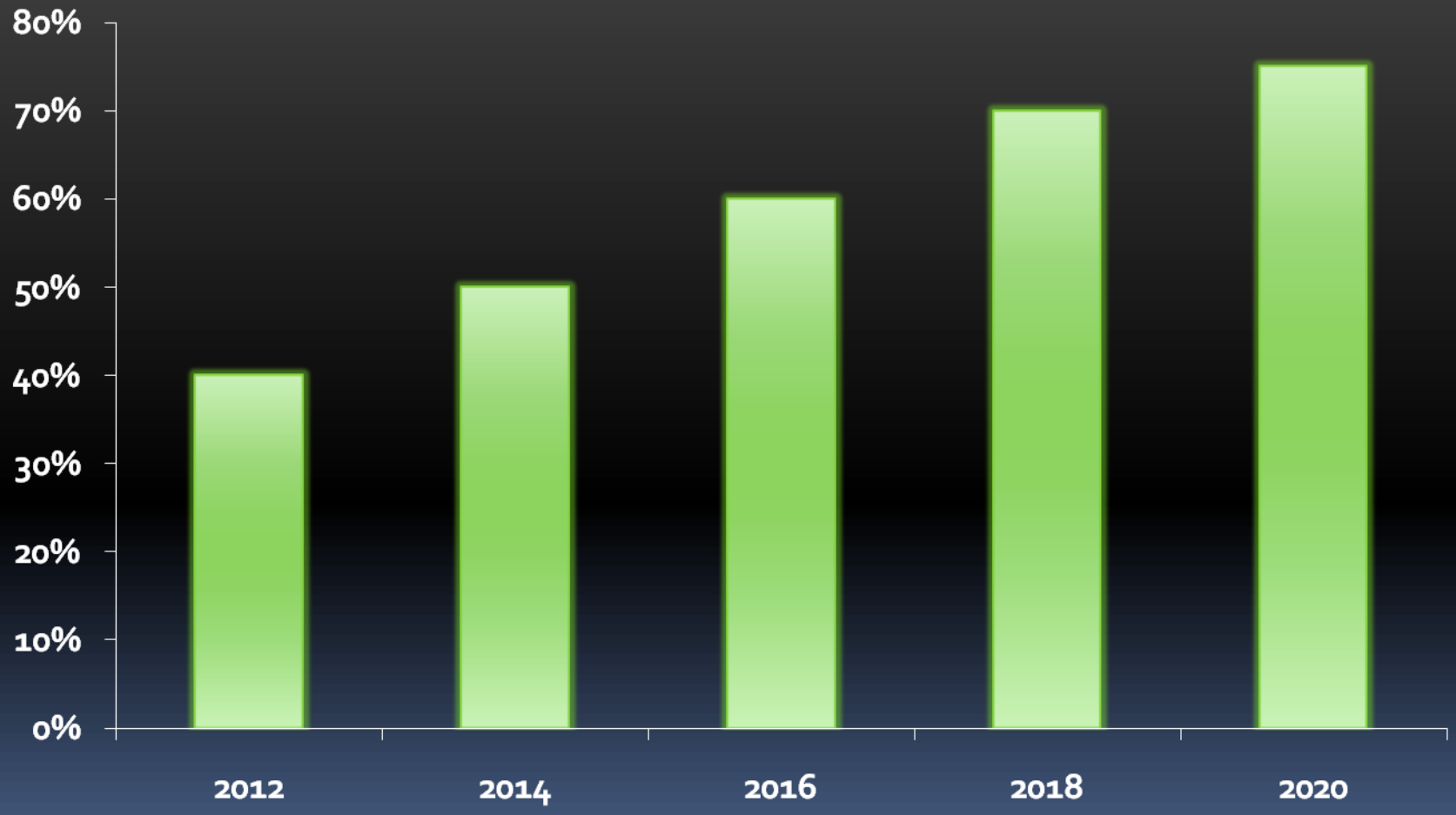
July 12, 2012

Benefits of a Sustainable Solid Waste Management Program

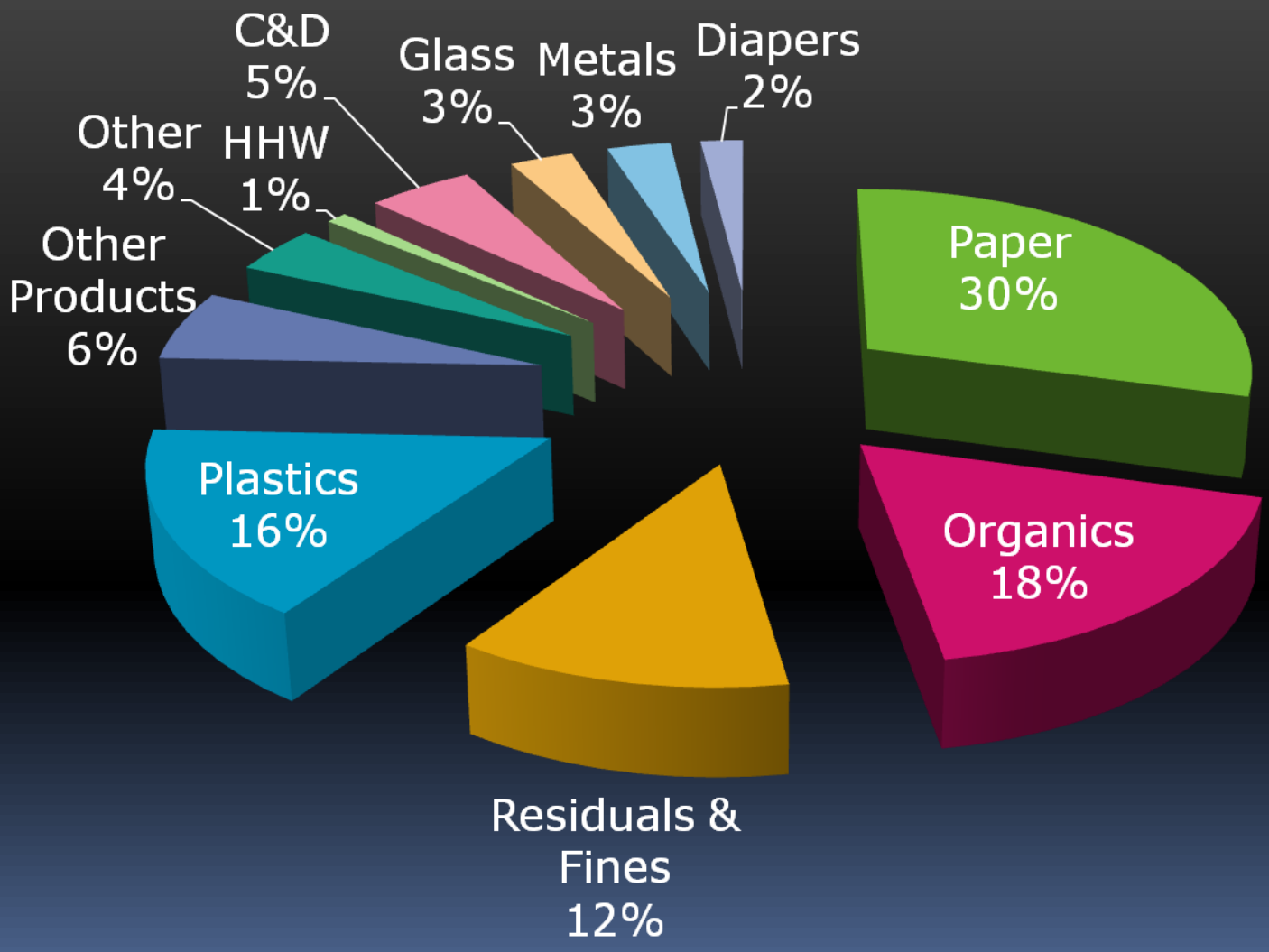
- Reduce solid waste system costs
- Create green jobs
- Promote economic development
- Increase recycling
- Generate renewable energy
- Increase landfill diversion
- Maximize beneficial reuse of valuable commodities
- Provide redevelopment opportunities for brownfield sites
- Decrease carbon footprint
- Reduce potential contributors to pollution

Florida House Bill 7242 and Alachua County Comprehensive Plan

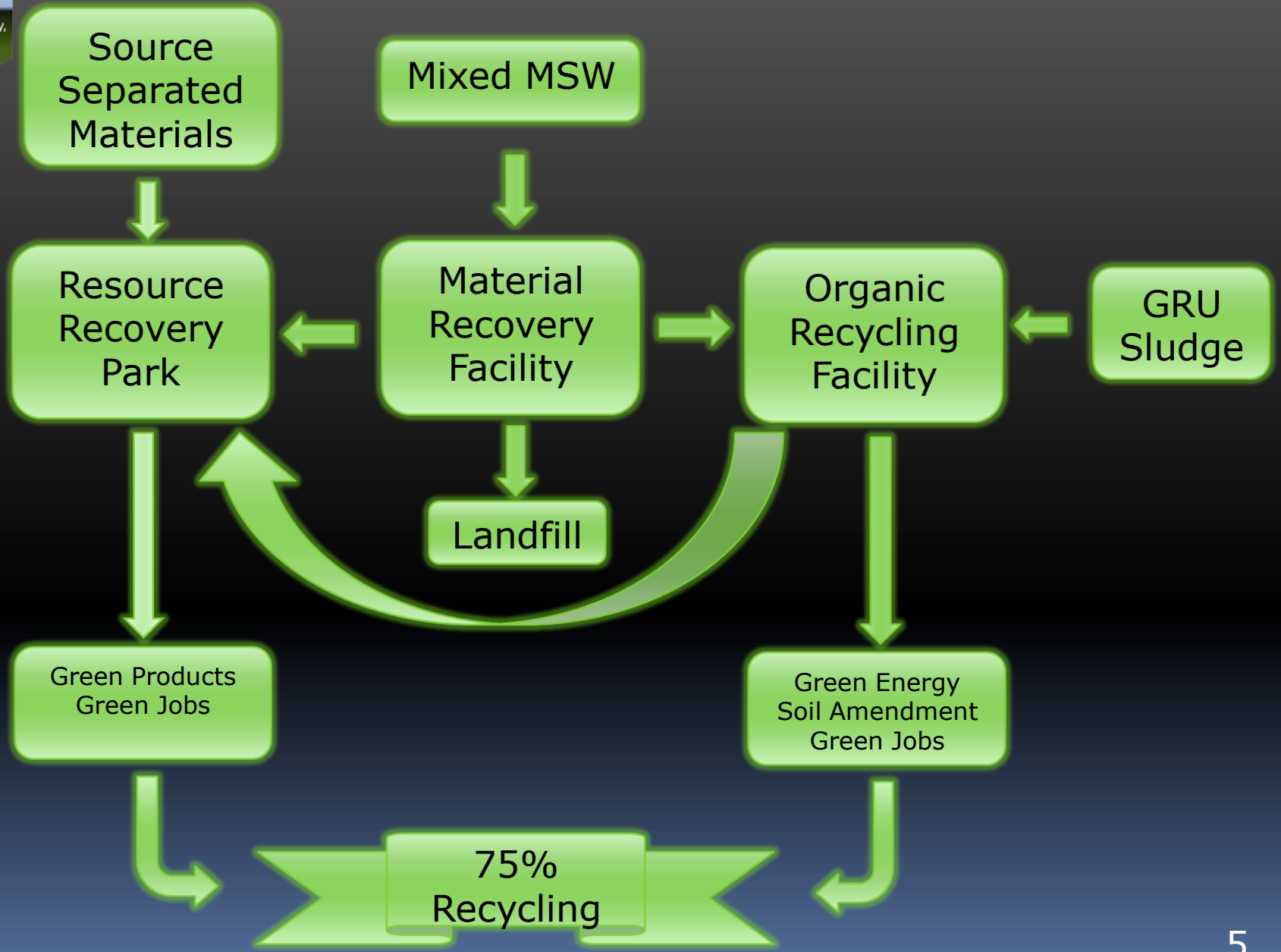
Established 75% Recycling Goal by 2020



Waste Composition



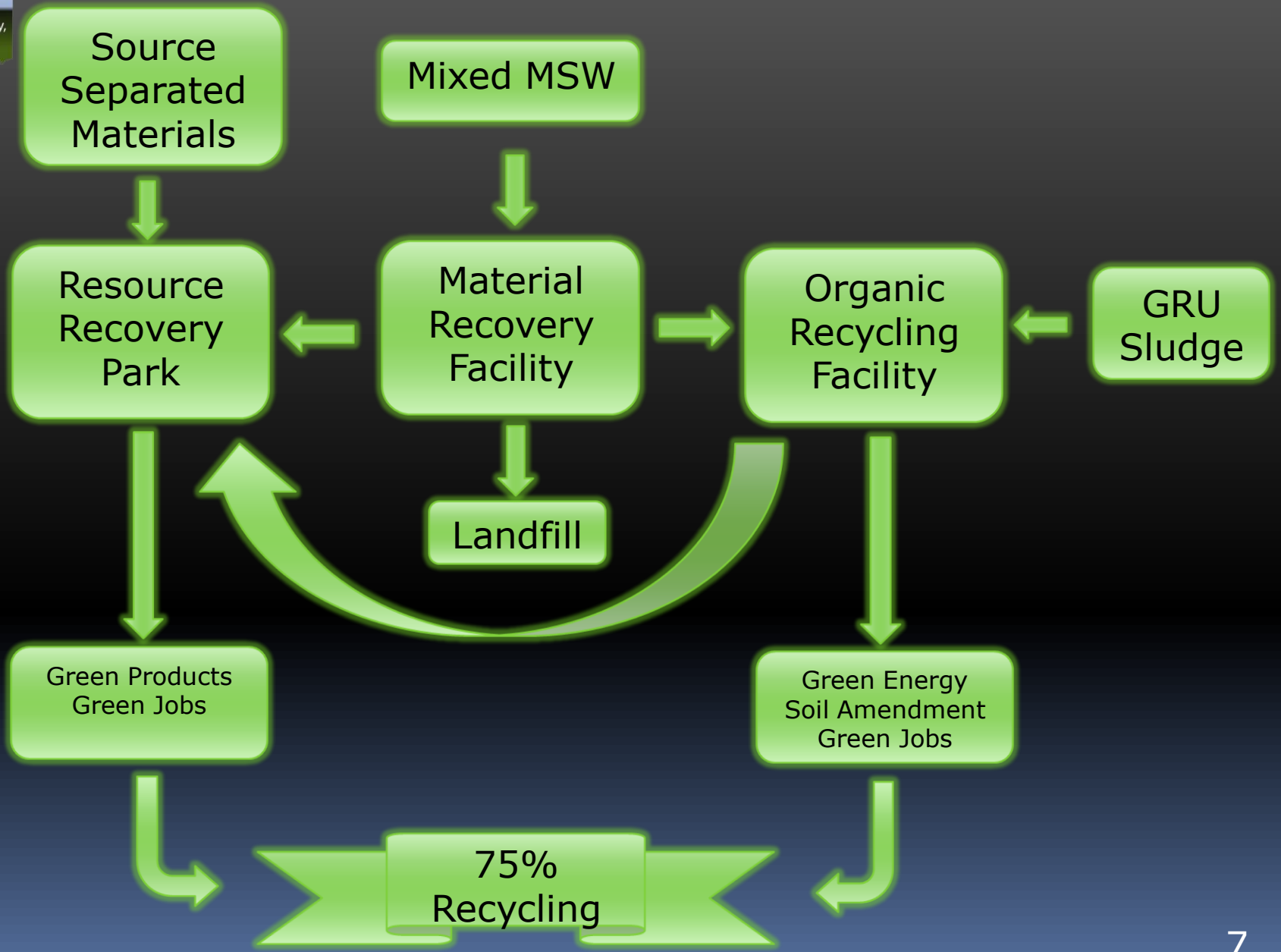
Sustainable Program Flowchart



Mixed Waste Materials Recovery Facility Feasibility Study

- Evaluated 3 conceptual approaches (lowest to highest level of mechanization)
- Processes all solid waste received – important for flow control
- Compared recycling rates, capital costs, operating costs
- FDEP permit discussions (Nov. 4, 2010): all three options would meet MRF permitting criteria
- Current RFP

Sustainable Program Flowchart



Organics Recycling Facility Feasibility Study

- Reviewed current technologies & costs
- Prepared conceptual approach
- Prepared conceptual site plan
- Evaluated permitting mechanisms
- Identified benefits & issues
- Conclusions:
  - Technically feasible
  - Permittable
  - Reduces greenhouse gases
  - Generates renewable energy
  - Significantly increases recycling rates
  - Generates net positive revenue

Organics Recycling Technologies

Aerobic Composting Facilities

Advantages

- Greenhouse gas reduction
- Simple operations
- Beneficial reuse of materials
- Stabilized material output

Issues

- Odors
- Feedstock composition requirements
- Moisture control
- Limited markets for compost
- No renewable energy production

Organics Recycling Technologies

Conventional Anaerobic Digestion Facilities

Advantages

- Greenhouse gas reduction
- Renewable energy source
- Accelerated processing period
- Generates revenue

Issues

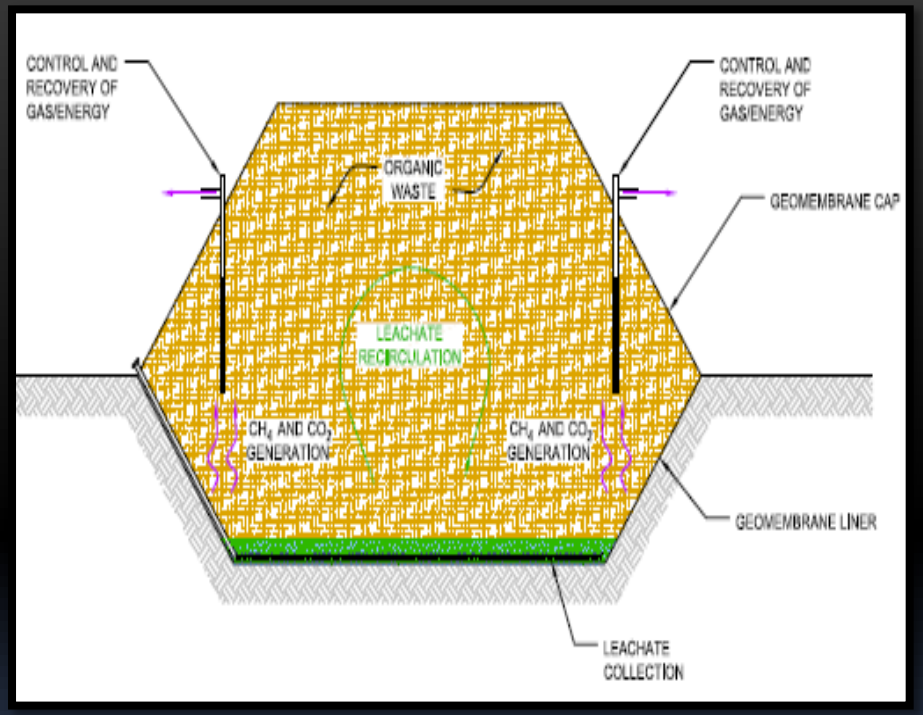
- Significant capital and operational costs
- Complicated operations and pre-processing requirements
- Inflexible to waste stream variations
- Bacteria are fluid and temperature dependent

Organics Recycling Facility Biomodule Concept

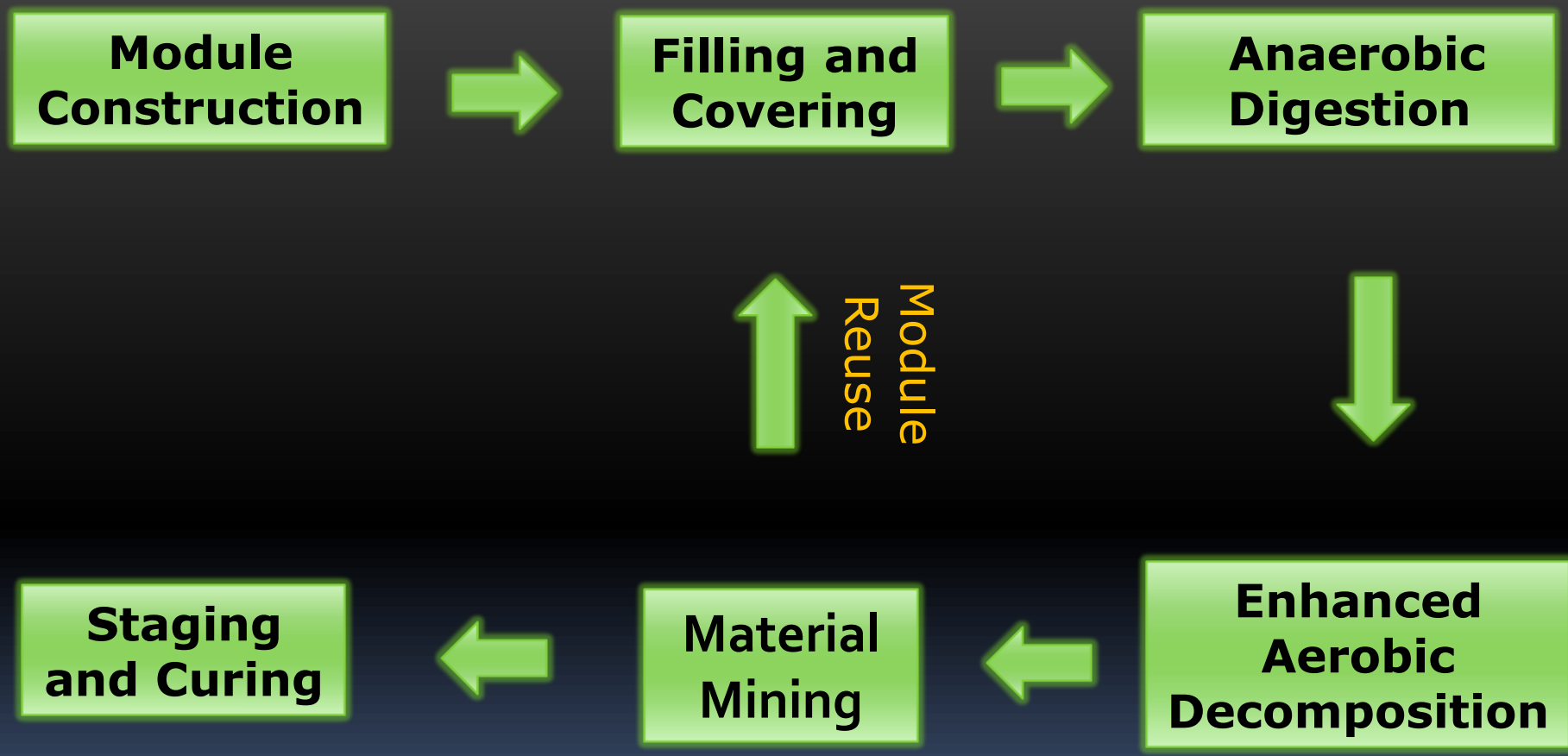
Organic Recycling Biomodule (ORB)

Combination of anaerobic & aerobic composting in innovative module:

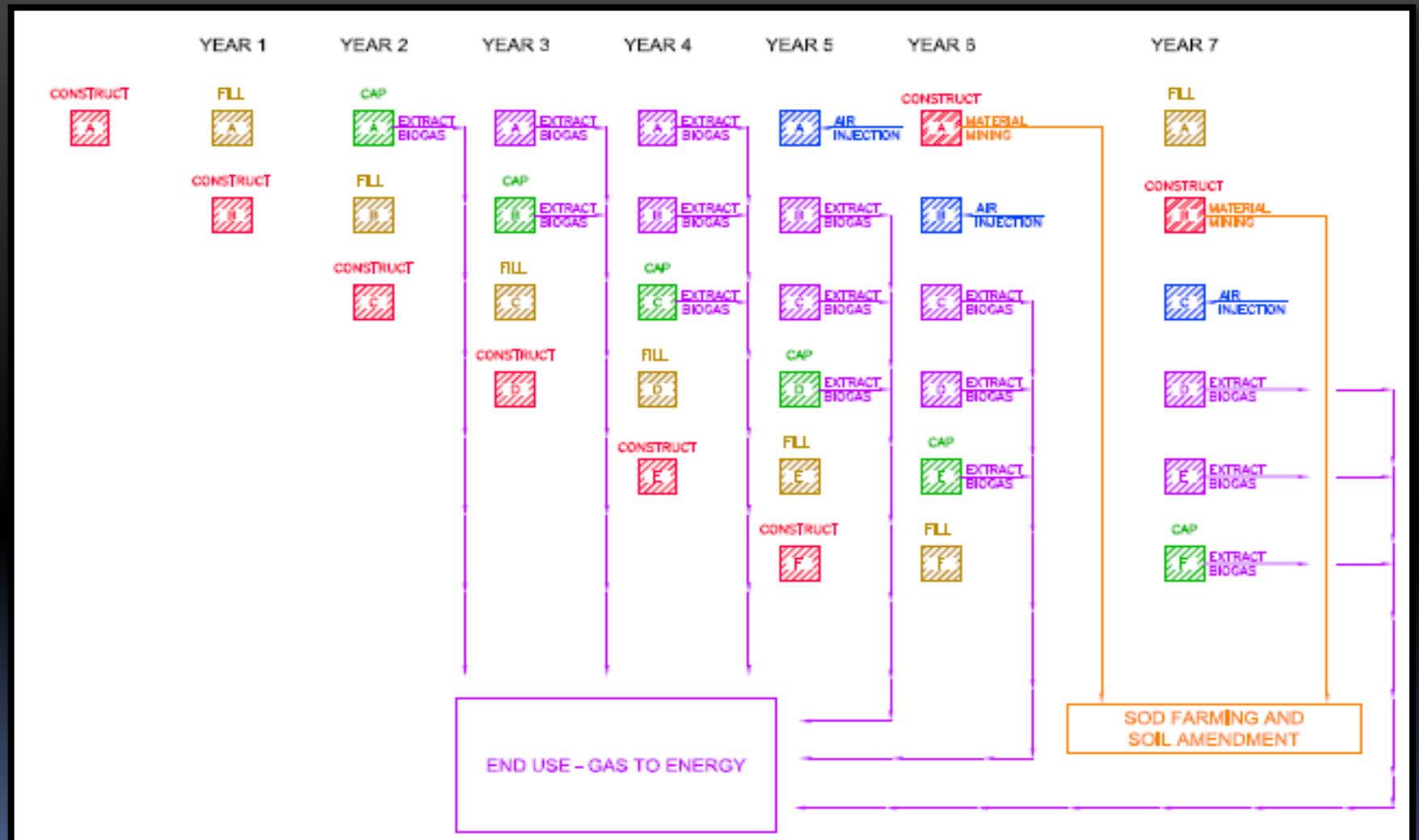
- Able to process wide variety of organics found in waste stream & sewage sludge
- Recirculation of liquids
- Geomembrane vessel
- Biogas collection piping
- Odor control
- Stormwater management control
- Low level of pre-processing



Organics Recycling Facility
Sustainable Process Flow & Time



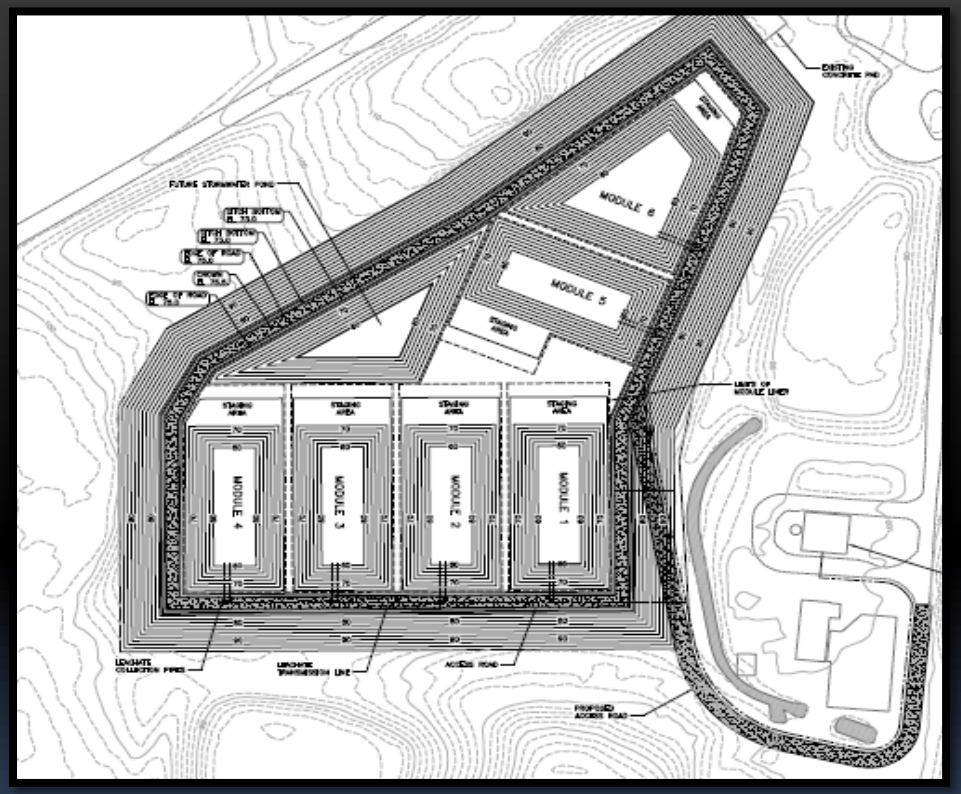
Organics Recycling Facility Biomodule Process Sequencing



Organics Recycling Facility Site Layout

Conceptual plan

- Feasibility study based on this location Southwest Landfill property
- Each biomodule approximately 1 acre (sized to accept one year's organics)
- Dedicated organics handling area for pre-processing
- Organics covered during filling stage
- Perimeter road & stormwater runoff

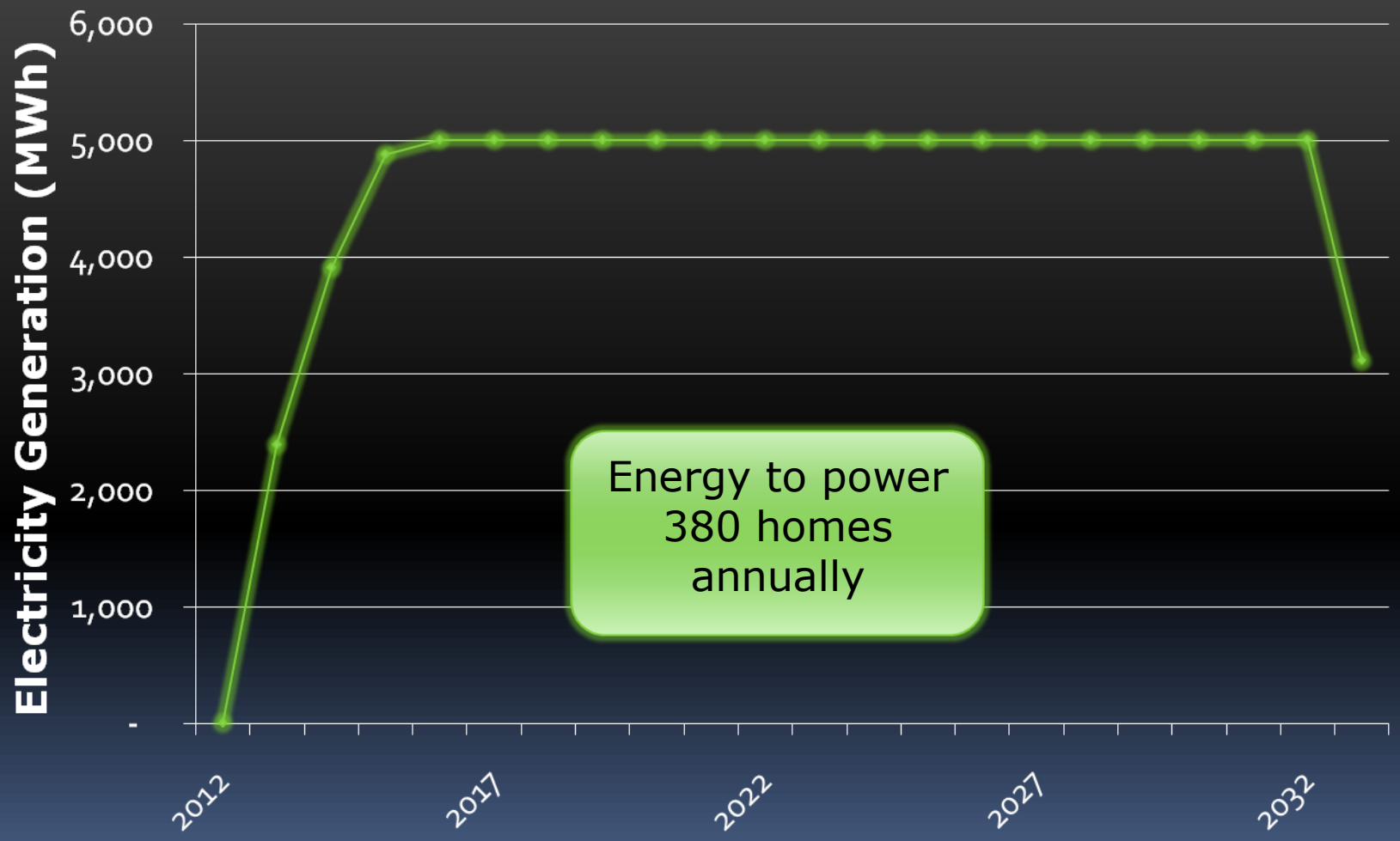


Biosolids Recycling

Biosolids Processing Advantages

- Renewable energy opportunities
  - Increases energy production
- Assists in creating nutrient-rich compost
- As solid waste it counts as recycling

Organics Recycling Facility Renewable Energy Generation



Organics Recycling Economics MSW Only

Assumptions

- 87 TPD
- 25 year project life
- $36 per ton tipping fee (including administrative fee)
- $.07 per Kwh buyback
- 15% total cost contingency

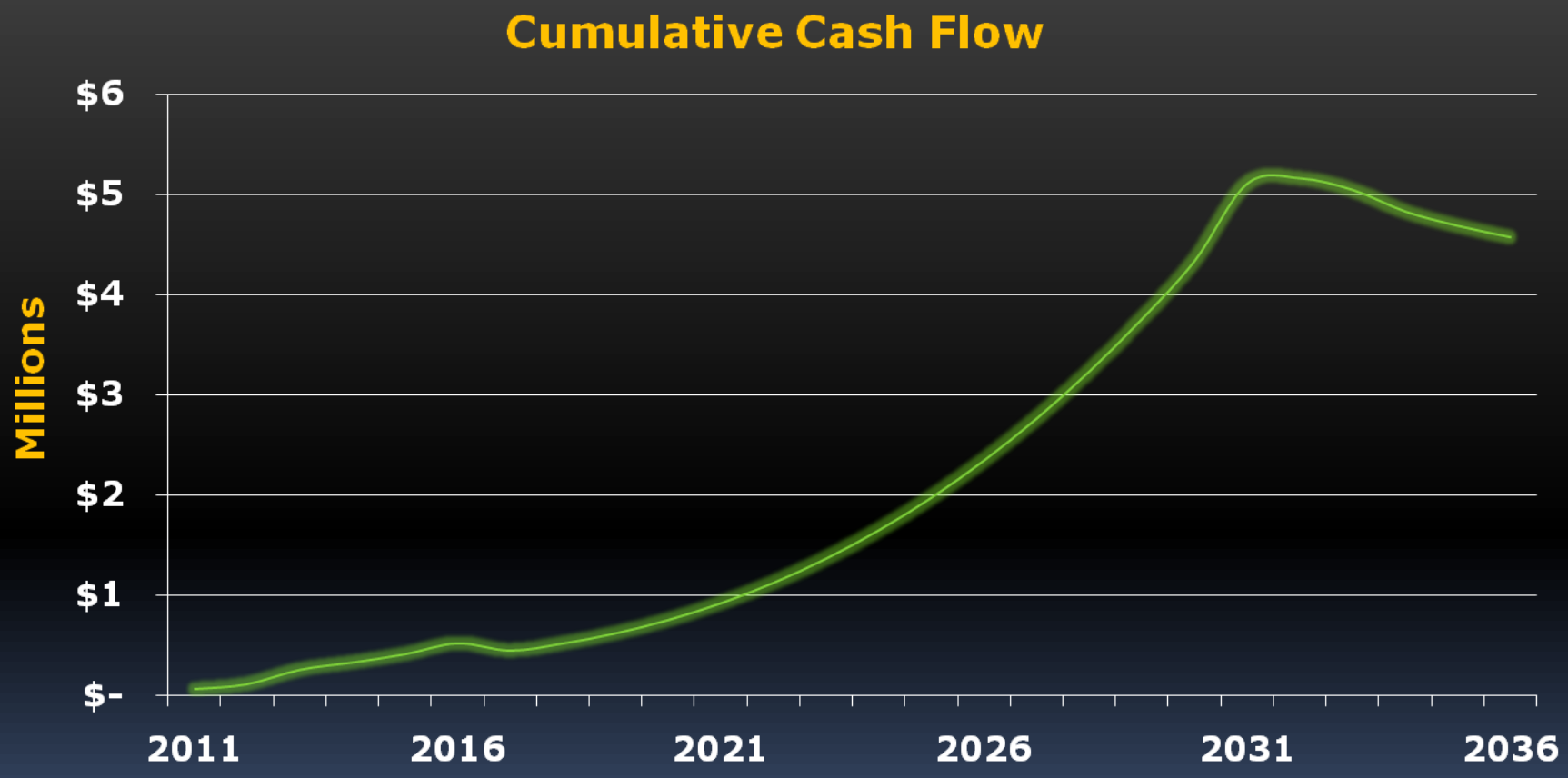
Total Capital Costs = $7 million

Net Project Revenues = $4.6 million Net Present Value

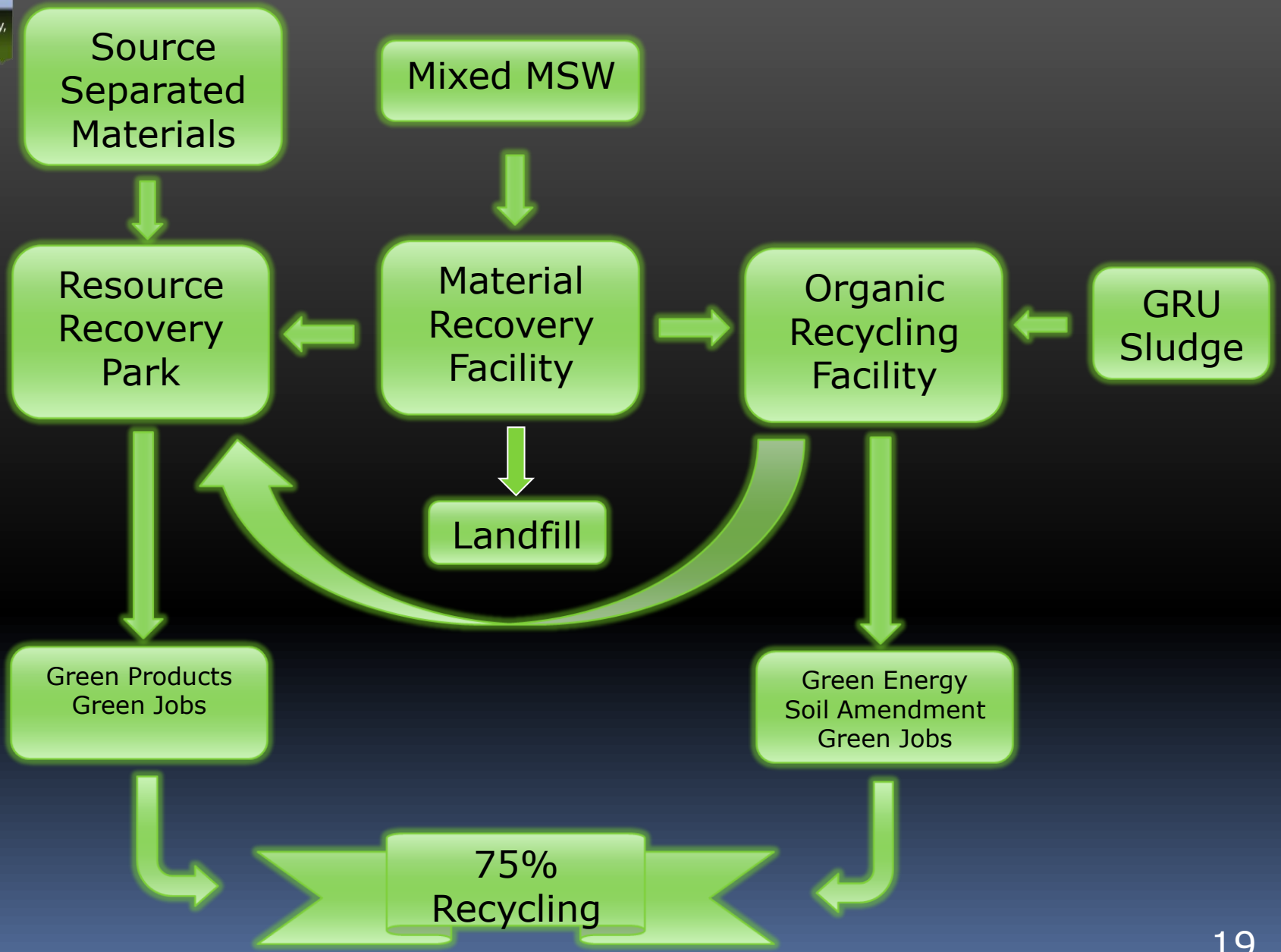
Return on Investment = 22%

Economics improve with inclusion of additional materials such as biosolids

Organics Recycling Economics MSW Only



Sustainable Program Flowchart



Alternative Technologies

- Request for Information RFI
  - Hinkley Center for Solid and Hazardous Waste
    - Independent technical review committee
      - Analyze and review proposals
  - Hinkley Center report to staff
  - Staff recommendation to BoCC

Resource Recovery Park

Resource Recovery Park elements

- Co-location of diversion, reuse and recycling facilities
- Processing, manufacturing and/or retail sales
- Shared equipment and services
- Lease space to small businesses and non-profits
- Research and development of demonstration projects
- Incubate innovations

Resource Recovery Park

Resource Recovery Park benefits

- Reduces flow of discarded waste to landfill, prolonging landfill life
- Promotes economic development by keeping dollars at home through local jobs & businesses
- Reduces greenhouse gases
- Reduces energy use
- Reduces water use
- Reduces resource use

Resource Recovery Park

Sustainable Solid Waste Program Partnering Opportunities

Potential Partners

- City of Gainesville
- University of Florida
- Gainesville Regional Utilities
- Alachua County Municiaplities
- Alachua County Public Schools
- Non-profit organizations
- Private industry
- Gainesville Regional Airport Authority
- Institutions

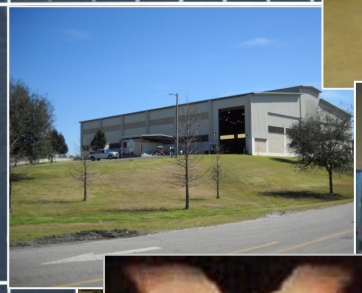
Benefits of a Sustainable Solid Waste Management Program

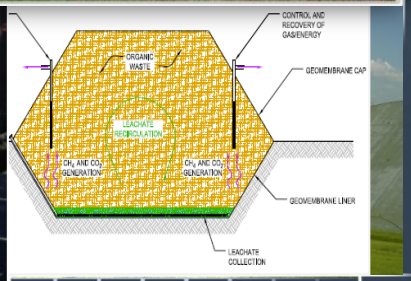
- Complies with requirements of both State legislation & County Comprehensive Plan
- Reduces solid waste system costs
- Enhances economic development
- Potential to create 100+ green jobs
- Generates renewable, sustainable energy
- Reduces greenhouse gases
- Creates beneficial secondary uses for materials that would otherwise be landfilled

Benefits of a Sustainable Solid Waste Management Program

Next Steps

- On November 8th, 2011 Waste Management went to the board with the recommendation of awarding only the material recovery facility (MRF's) portion of the scope of services, approve the Finance Report to rank and award RFP 11-456; Architectural and Engineering Services for Solid Waste and Resource Recovery Capital Improvement Projects and authorize staff to negotiate an agreement with the top ranked firm, and then the next, until an agreement is reached.
- The board rejected this recommendation and stated to start a new RFP for just the MRF. We are currently in the process of working on Three new RFP's.





Questions?

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