

Oconee County

Mixed Waste Materials Recovery Evaluation

Oconee County Board of Commissioners

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Presenter:

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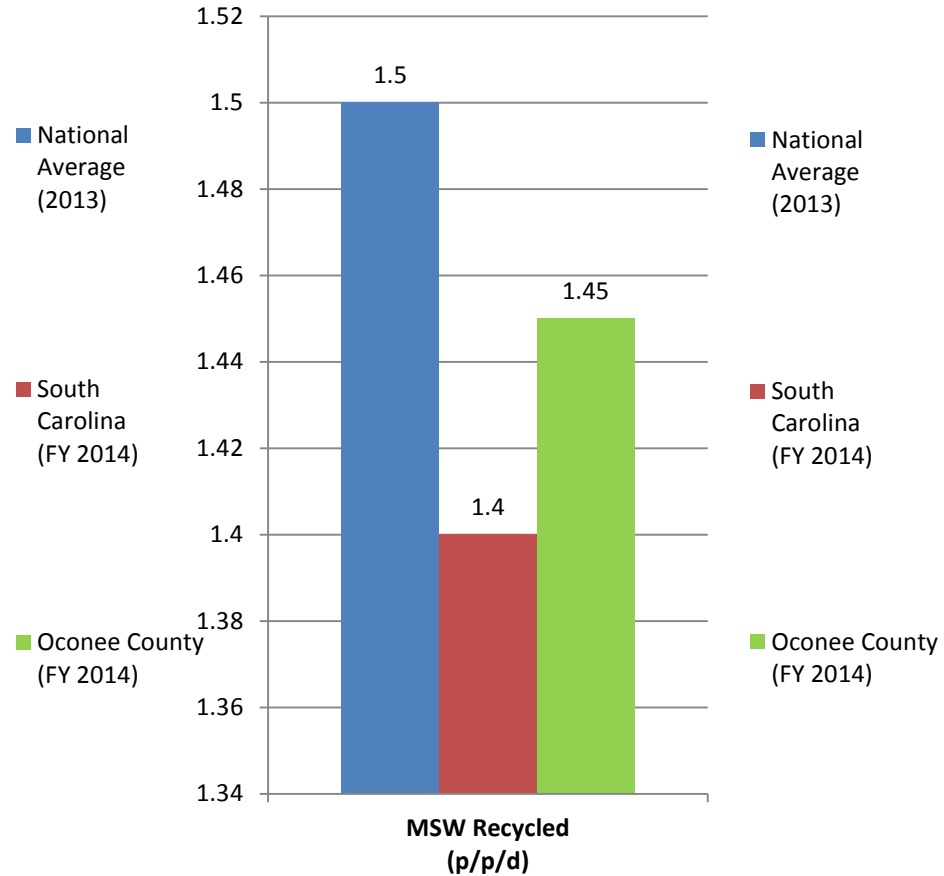
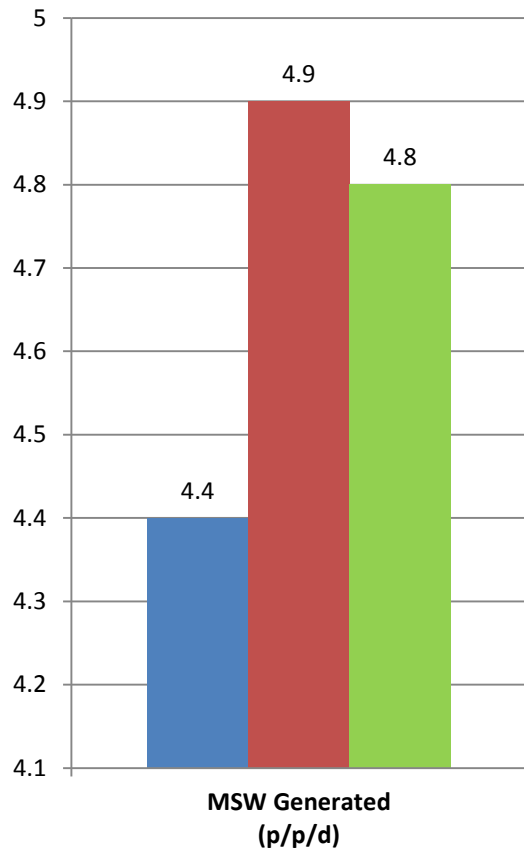
Project Scope and Purpose

- Review of Oconee County's Current Recycling System
- ***Added Item*** – Review Qualities of High Diversion Communities in the Southeast
- Evaluate the Role of a MW MRF in Achieving 85% Diversion

Diversion vs. Reuse and Recycling

- **Diversion Rate**
 - Ratio of material disposed in subject year to material disposed in subject year
 - Includes...recycling, reduction, alternative uses at landfills and conversion
- **Recycling/Reuse Rate**
 - Ratio of material recycled to material recycled + disposed
 - Includes...creating new products from discarded materials to reduce raw material usage
- **Different States Report Rates Differently**

FY 2014 Per Capita Comparison



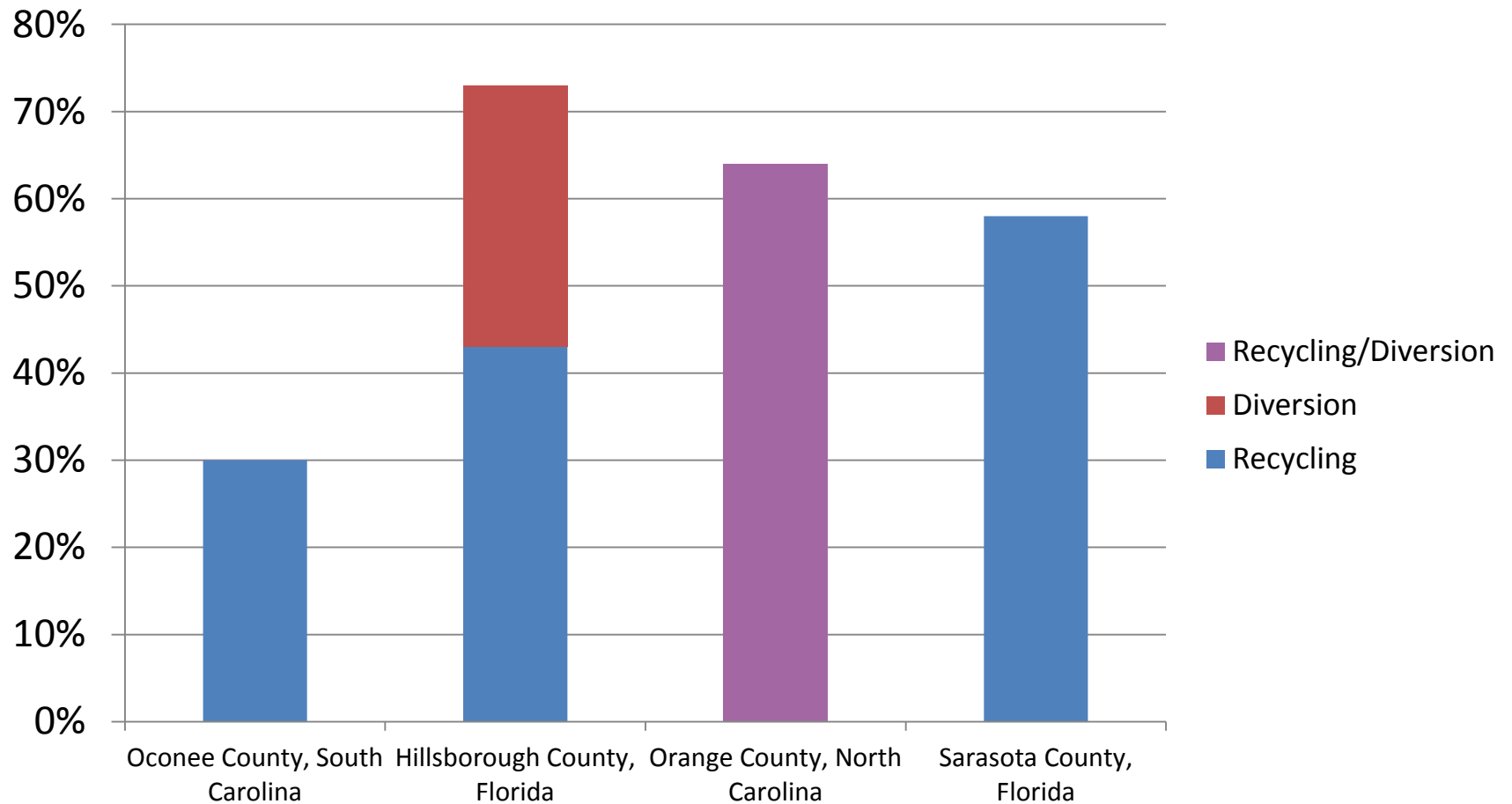
Examining 85% Diversion

- Several Communities have an 85% Diversion Goal
- Few Communities have Reported 85% Diversion (Most Notable is Germany)
- Several West Coast Communities are Reporting over 70% Diversion (Seattle, Washington)

High Diversion Communities...

- Control Waste
 - Self Perform or Contract Collection and Disposal
 - Legislate and Enforce Ordinance (i.e. Disposal Bans)
- Assess Taxes/Fees to Fund Programs
- Provide Conversion Technologies
 - Thermal Conversion (Waste-to-Energy)
 - Biological Conversion (A.D. of Organic Material)
- Higher Quality = Higher Value/More Options
- Identify Alternative use for Undesirable Fraction

Examining 85% Diversion - Southeast



Options Summary

OPTIONS SUMMARY

Option 1 - Existing System Optimization/Education

Option 2 - MW MRF for Existing Waste Stream

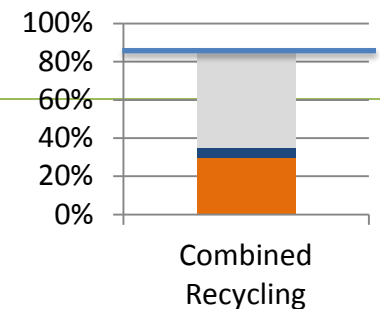
Option 3 - MW MRF with Organics Recovery

Option 4 - MW MRF with Wet-Dry Separation

Option 1 – System Optimization

Option 1 - Existing System Optimization

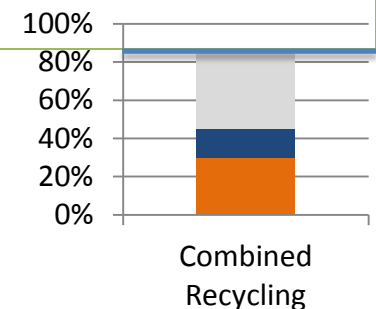
- Segregate dry commercial and industrial loads at the transfer station for hand sorting and processing
- Increase education at convenience centers
- Increase education and outreach to local businesses
- Increase regional advertising
- Add food waste containers at convenience centers to divert compostable materials
- **Potential Recycling Increase 2 to 5%**



Option 2 – MW MRF

Option 2 - MW MRF for Existing Waste Stream

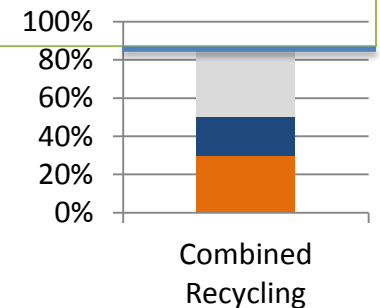
- System Optimization (as summarized in Option 1)
- Construct a Mixed Waste Materials Recovery Facility
- Provide enlarged tipping floor for manual separation of wet and dry loads to minimize contamination
- Process dry materials separately once sufficient materials have accumulated at the tipping floor
- **Potential Cumulative Recycling Increase – 7 to 15%**



Option 3 – MW MRF + Organics

Option 3 - MW MRF with Organics Recovery

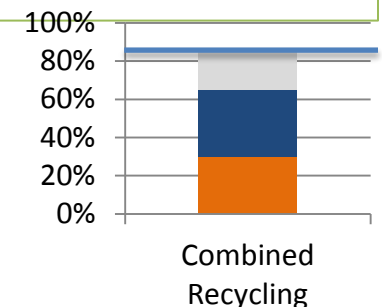
- System Optimization (as summarized in Option 1)
- Construct a Mixed Waste Materials Recovery Facility (as summarized in Option 2)
- Add secondary screening to enhance glass and food waste recovery
- Construct Type III Compost Facility for recovered organics and identify end use for composted material
- **Potential Cumulative Recycling Increase – 15 to 20%**



Option 4 - Wet – Dry Separation

Option 4 - MW MRF with Wet-Dry Separation

- System Optimization (as summarized in Option 1)
- Construct a Mixed Waste Materials Recovery Facility (as summarized in Option 2)
- Add Secondary Screening and Construct Type III Compost Facility (as summarized in Option 3)
- Food waste diversion would ideally begin with industrial/commercial sector and move toward residential
- **Potential Cumulative Recycling Increase – 25 to 35%**



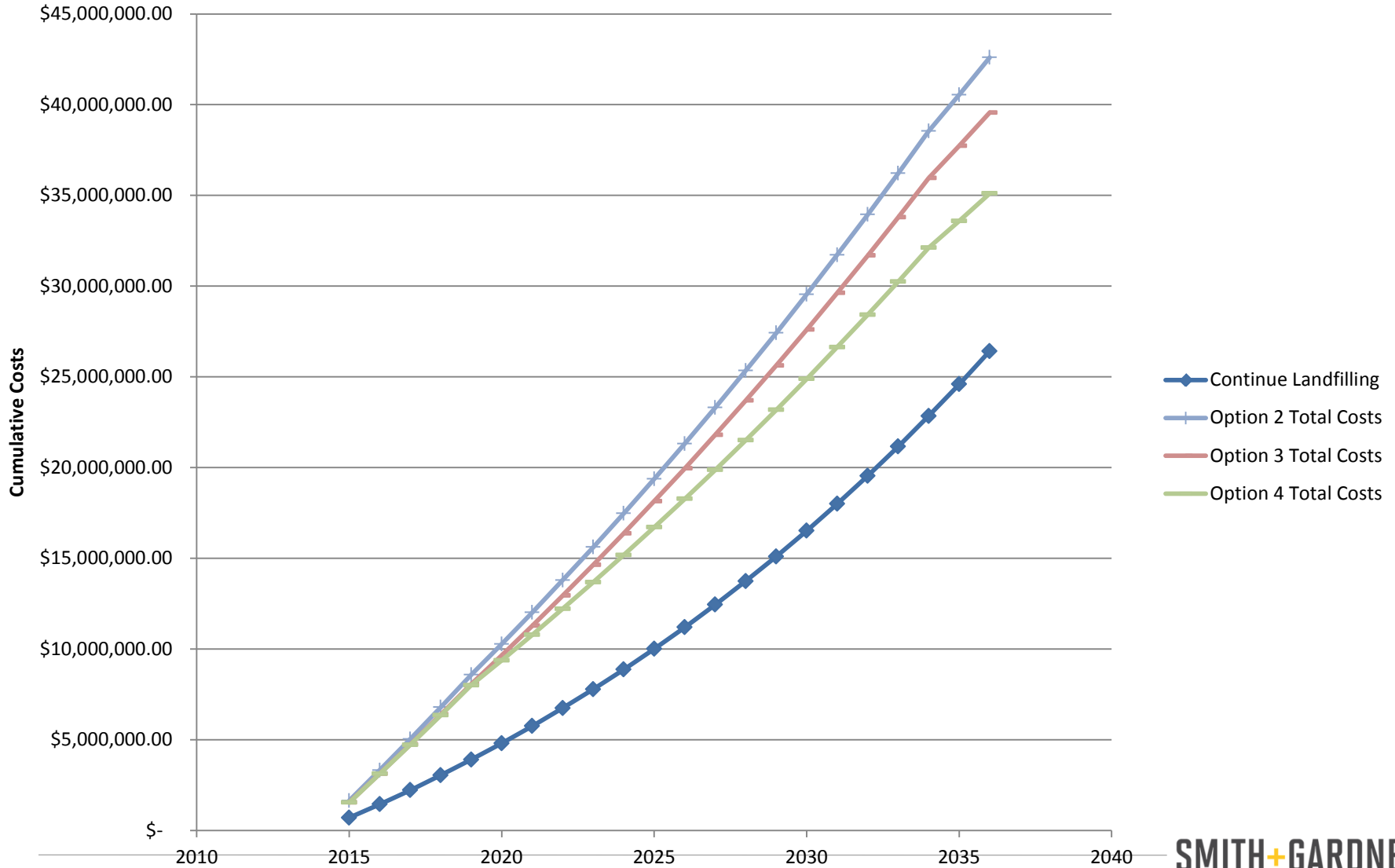
MW MRF Financial Evaluation

- Many Variables at Play
 - Annual escalators (i.e. fuel, labor)
 - Long-term landfill tipping fees (as tons landfilled decrease, tipping fees may increase)
 - Market volatility affects budgeted revenues
- Human Behavior Element is Unpredictable
 - Waste stream composition
 - System participation
 - Citizens may stop source separating (reducing potential revenues unaccounted for)

Cumulative Cost Assumptions

- Landfilling
 - Disposal cost increase based on CPI
 - Annual disposal assumed to increase 1% based on project population increase
 - Cumulative cost assumes no increase in recycling rate
- MW MRF
 - Disposal and operational costs increase based on CPI
 - Recycling rate increases proportional to disposal rate
 - Infrastructure and rolling stock interest rate is 5%
- Comparison
 - MW MRF Options are more expensive than landfilling
 - Option 4 is the least cost MW MRF Option

Cumulative Costs of Options



Oconee Compared to North Augusta

Oconee County

- 68,475 tons managed
- 19,845 tons recycled
- Limited Control of MSW

North Augusta

- 35,000 tons managed
- 8,000 tons recycled
- Control MSW within Town Limits

North Augusta MW MRF

- Operate 4 Streams
 - Commingled recycling
 - Blue bags from residential
 - SRS waste
 - Mixed waste
- Slow Process
 - Layout limits efficiency
 - Small tipping floor for process
 - System fit to existing building
- Significant Staff Turnover
 - Inmate Labor



North Augusta MW MRF

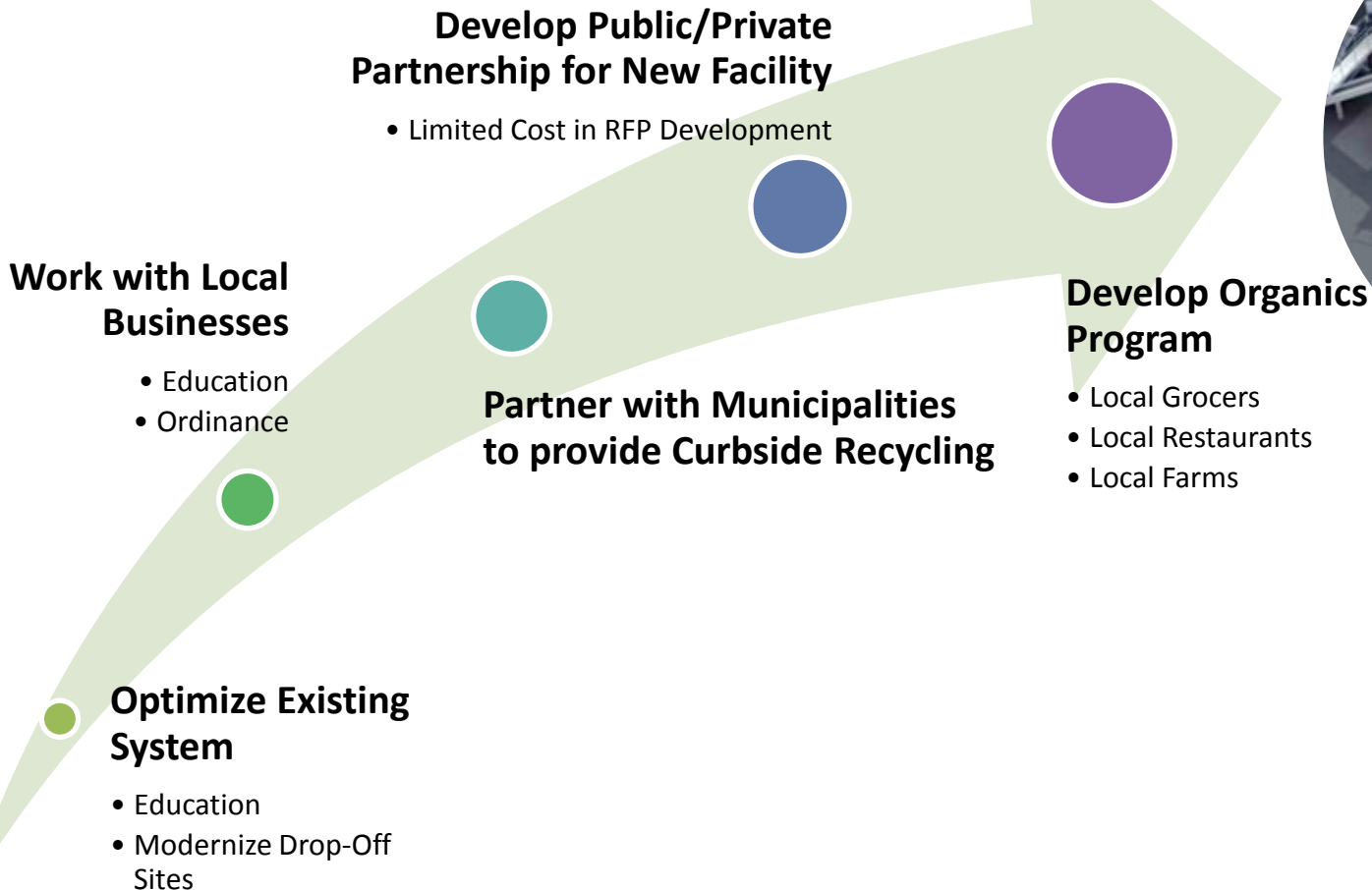
- Unusable Organics
 - Contains broken glass and other debris
 - Paper in MSW stream is virtually unrecyclable
- 8-10% Mixed Waste Recovery
 - Plastic and Metal
 - Minimal Paper



Conclusions...

- 85% Diversion is a Laudable Goal
- High Recycling Communities are Learning how to Achieve this Goal
- Communities within 20% of this Goal
 - Provide convenient recycling options
 - Control flow of waste
 - Have access to processes that divert less desirable materials
 - Sustain programs through user fees

A Path to High Diversion



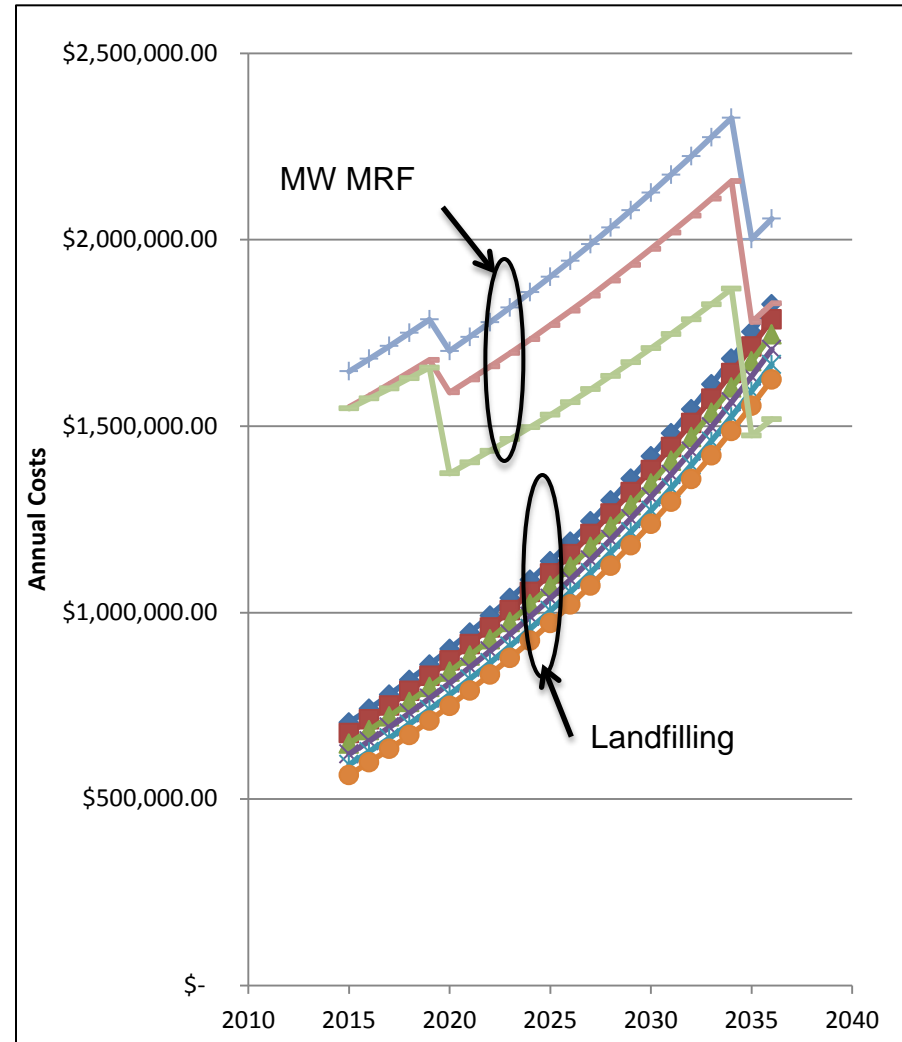
Questions

MW MRF Capital Expenses

OPTION	BUDGETARY COST
Option 1 – System Optimization	\$50,000 to \$200,000
Option 2 – MW MRF (No Organics Separation)	\$7,200,000 to \$7,800,000
<i>Site Development and Building</i>	<i>\$3,200,000</i>
<i>MW MRF + Rolling Stock</i>	<i>\$4,000,000 to \$4,600,000</i>
Option 3 – MW MRF + Organics Separation	\$7,850,000 to \$8,750,000
<i>Site Development and Building</i>	<i>\$3,200,000</i>
<i>MW MRF + Rolling Stock</i>	<i>\$4,150,000 to \$4,800,000</i>
<i>Compost Facility</i>	<i>\$500,000 to \$750,000</i>
Option 4 – MW MRF + Wet – Dry Separation	\$8,600,000 to \$9,700,000
<i>Site Development and Building</i>	<i>\$3,200,000</i>
<i>MW MRF + Rolling Stock</i>	<i>\$4,150,000 to \$4,800,000</i>
<i>Compost Facility + Rolling Stock</i>	<i>\$1,200,000 to \$1,500,000</i>
<i>Education and Outreach</i>	<i>\$50,000 to \$200,000</i>

Annual Costs of Options

- Landfilling
 - Annual increase based on CPI
 - Varied based on recycling increase
- MW MRF
 - Annual increase based on CPI
 - Least cost is Option 4
 - Large cost decreases at 5 and 20-years when rolling stock and facility costs are paid back
 - Landfilling costs exceed Option 4 costs only at end of 20-years



Financial Analysis Summary

- No options generate a profit.
- Even under optimal conditions, the reviewed Options (2 through 4) will require additional funding (user base fees or general fund allocations).
- Assuming 20 years of debt service, equipment will be paid off, but will likely need to be replaced shortly thereafter.

North Augusta MW MRF

