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City of Ann Arbor Single Stream Recycling Upgrade Business Case



October 12, 2009

**Overview for
CITY COUNCIL WORKSESSION**



Single Stream Recycling

Separating all recyclables from trash at the source (home or business) into one "single stream" of commingled recyclables (paper and containers) that are collected in one truck compartment and processed at the MRF for deliver to recycling markets



Single Stream Recycling Summary



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- Overview
 - Single Stream MRF Upgrade
 - Single Stream for Businesses and Residences
 - Automated Recycling Collection
 - Incentive System for Residential Recycling
 - Driven by Commercial Recycling Roll-out
- Key Variables
 - City's Capital Investment in MRF/Carts
 - Financial Agreements with RAA and FCR
 - Market Conditions



Major Single Stream Recycling Benefits



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- Adding more materials to recycle
 - More plastics
- Rewarding households for recycling
 - RecycleBank rewards up to \$540/yr/household
- Diverting more of our waste stream
 - Reach 70% by 2012
- Reducing program costs
 - Save \$500,000 to \$750,000 per year



Upcoming Council Actions



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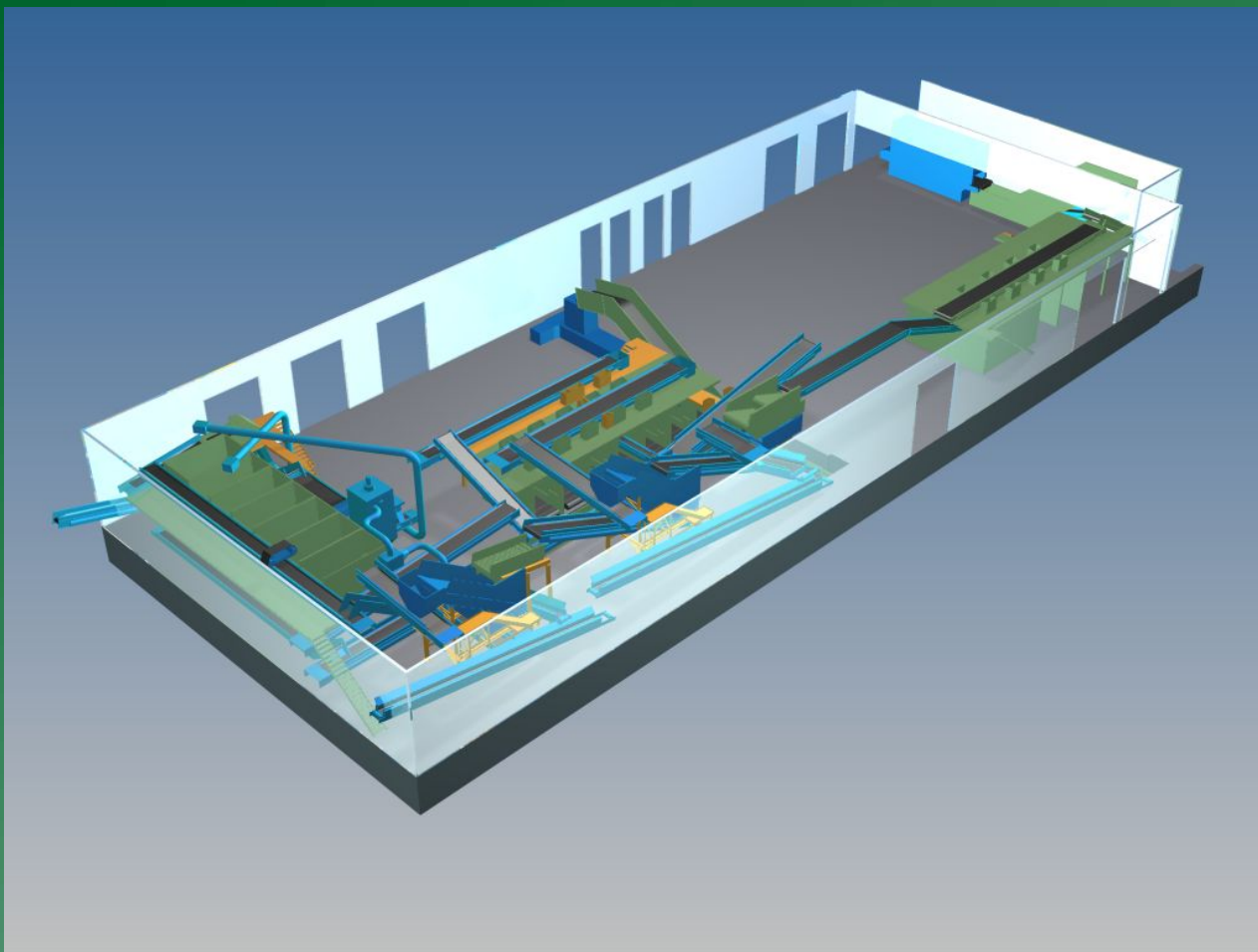
- November 5, 2009
 - FCR Contract Amendment (MRF upgrades)
 - RRSI Consulting Contract
- December 2009
 - RAA Contract Amendment
 - RecycleBank Contract
 - Automated Recycle Truck Purchases
 - Recycle Cart Purchases



Single Stream MRF Upgrade Phase I Equipment Upgrade



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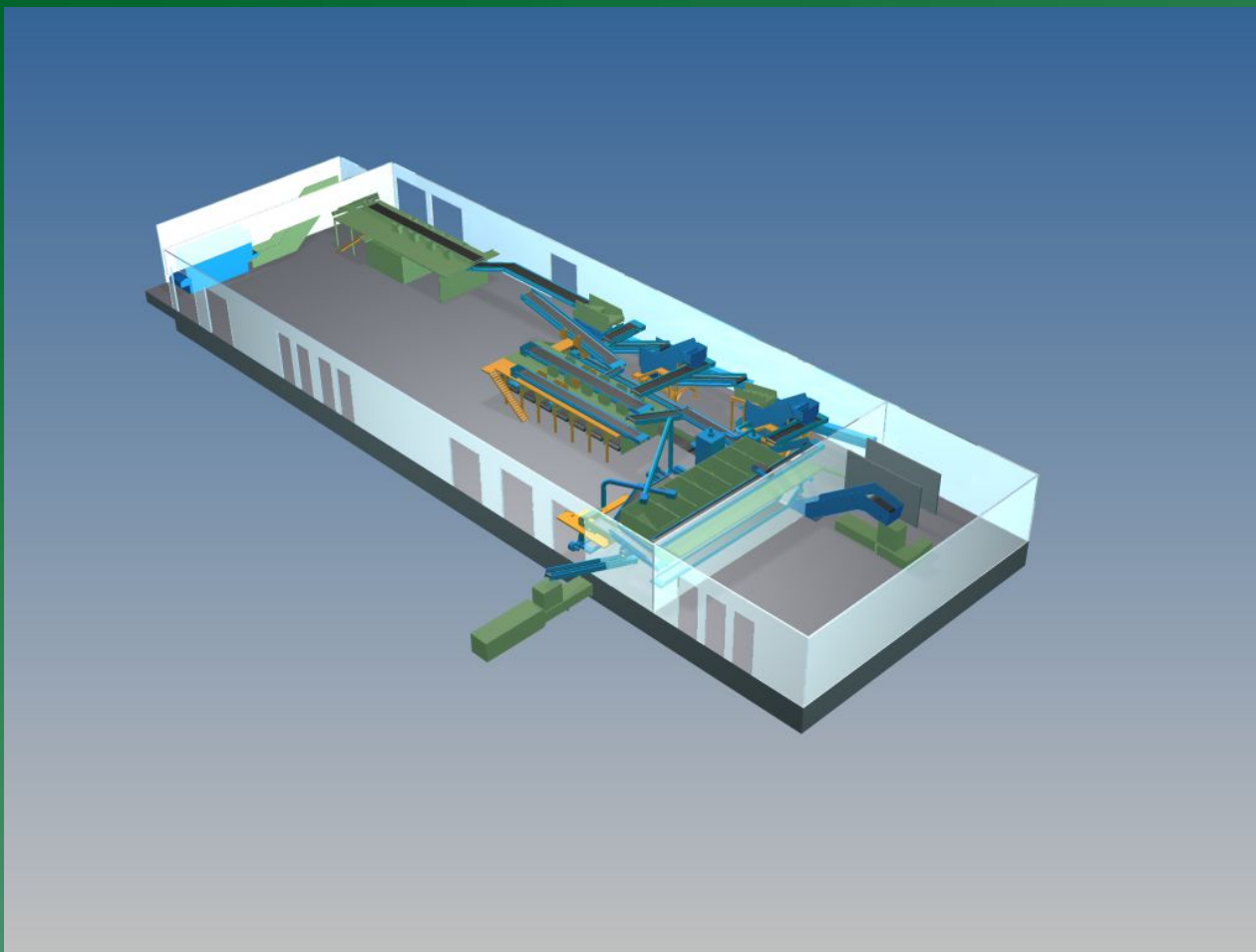




Single Stream MRF Upgrade Phase II Building Expansion



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Single Stream MRF Upgrade Capital Costs and Roles



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- FCR has vendor proposals from BHS and CP
 - Equipment pricing @ \$3.2 to \$3.3 million
 - Building expansion pricing @ \$500,000 to \$600,000
 - City proposed to fund equipment (7/10)
 - \$3.5 million budgeted (in CIP)
 - Includes engineering and contingency
 - 8 week downtime for conversion (transfer required)
 - FCR to fund building expansion later (by 12/11)
 - More bale storage area and improved material flow
 - Flexibility in receiving materials
 - Allows FCR to handle more merchant tons
 - Requires 5 year contract extension



Single Stream Conversion “Nuts and Bolts” Benefits



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- Enables Addition of More Types of Recyclables
- Enables use of RecycleBank Rewards System
- Increases City's overall Diversion Rate
- Lowers Costs:
 - Residential Recycling Collection
 - Commercial Recycling Collection
 - Expanded Flexibility of Deployed Recycling Dumpsters
 - Reduces Number of MF and Commercial Carts
 - Enables Residential Refuse Route Reduction
 - Lowers Overall Annual Operating Costs
- Increases Long Term Enterprise Fund Balance



New Materials for Recycling

- All plastic bottles
- Household plastic containers #1, #2, and #4-7, excluding Styrofoam and #3
- Bulky HDPE such as buckets, crates, toys, trays, and furniture
- Plastic grocery and shopping bags, stuffed together (Pending)



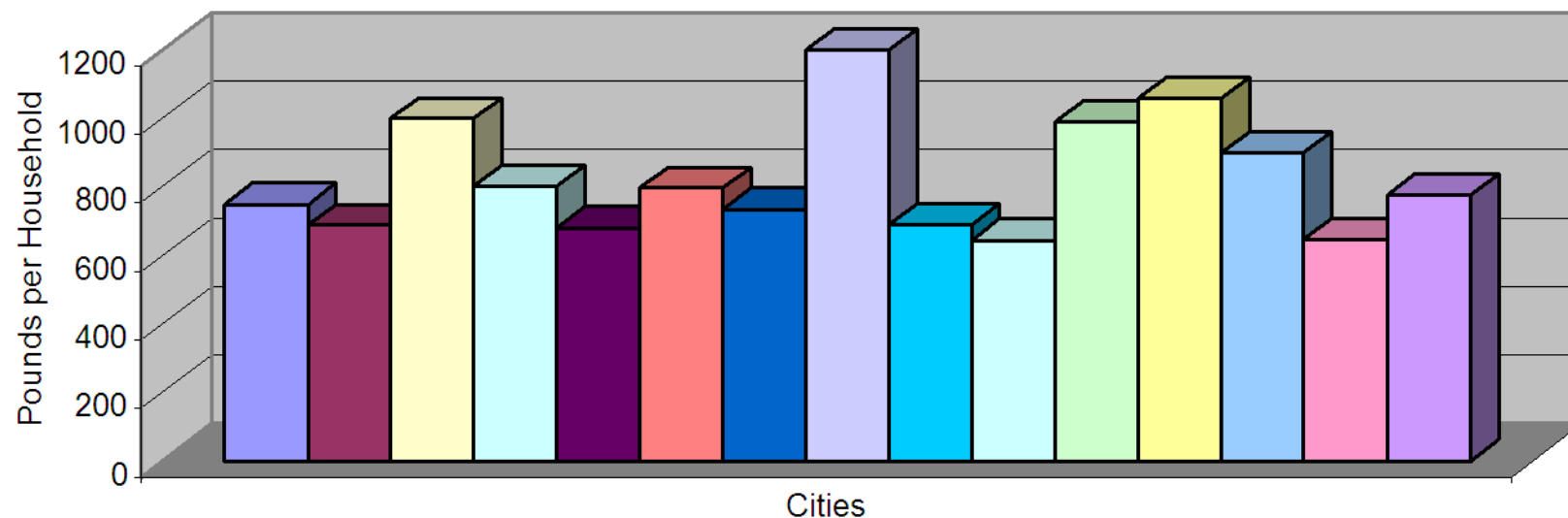
RecycleBank Rewards

- Recycling Reward program - incentive for households to recycle
 - RFID tags in carts used to monitor participation
 - Truck records cart lift and route weight in database
 - Data transferred to Recyclebank.com web server
 - Households receive rewards for setout
 - Maximum reward value is \$550, average @ \$250
 - Can opt to transfer reward to non-profit/schools
 - A multi-million \$ economic stimulus for Ann Arbor
 - Proven to dramatically increase recycling



Rewards Performance

Annual Recycling Diversion



- | | | | |
|---------------------|-----------------------|------------------|--------------------|
| Ann Arbor, MI | Carrollton, TX | Cherry Hill, NJ | East Greenwich, NJ |
| Knoxville, TN | Lower Gwynedd Twp, PA | Maple Grove, MN | Montgomery, OH |
| Rochester Hills, MI | Sioux Falls, SD | Upper Dublin, PA | Whitemarsh Twp, PA |
| Wichita, KS | Wilmington, DE | Woolwich, NJ | |

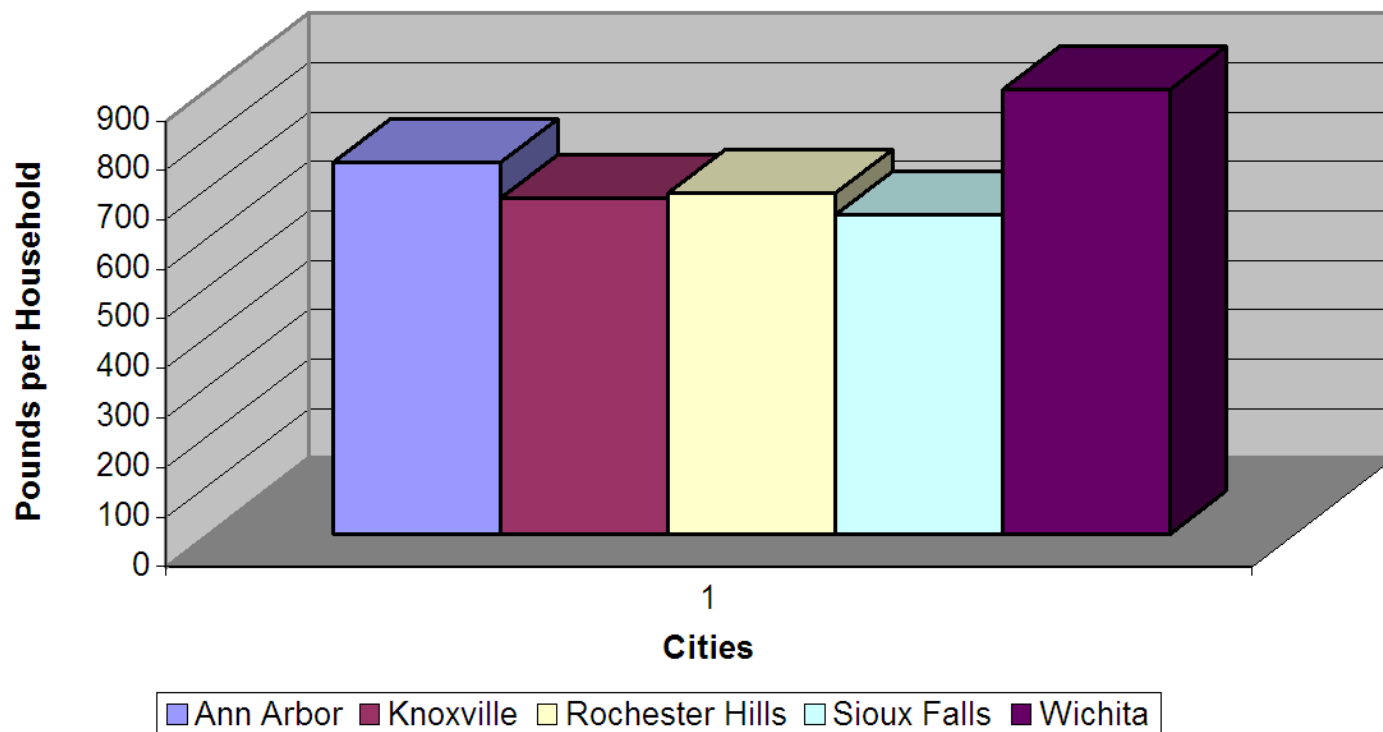


Communities with Colleges or Universities



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Annual Recycling Diversion





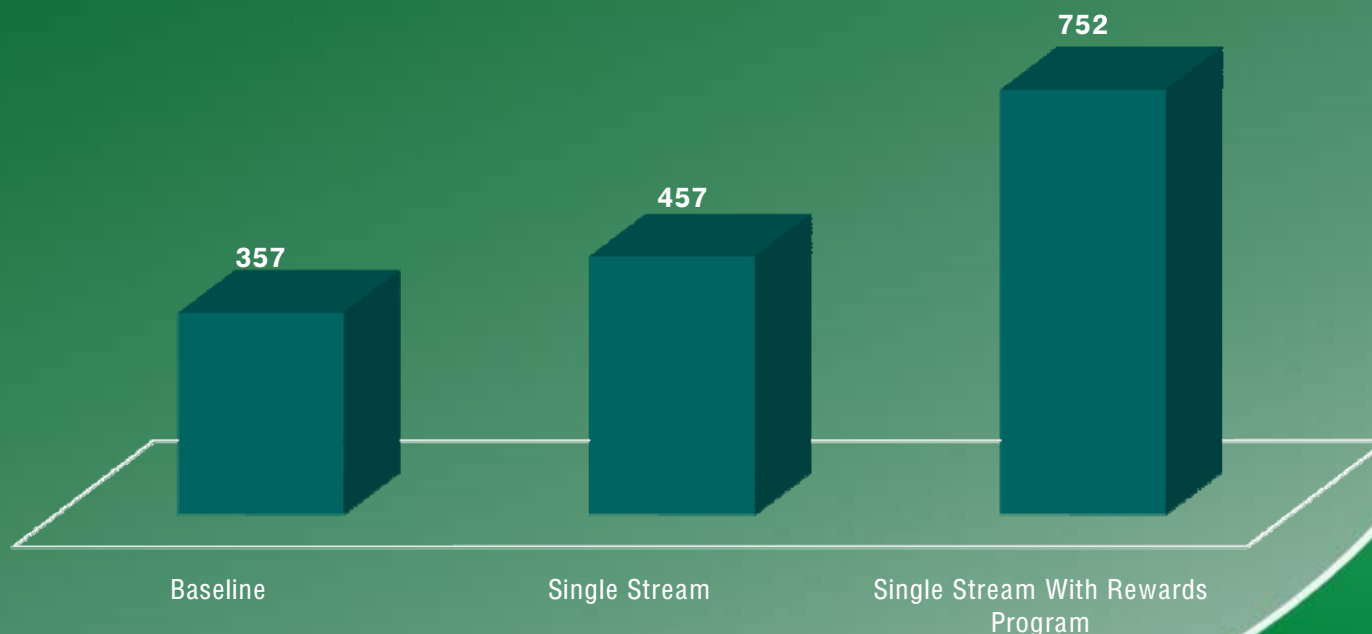
Single Stream Recycling Volume Projections



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Estimated Material from Single Stream Residential Programs (Adjusted for Drop in Newspaper)

■ Lb/HH/Year

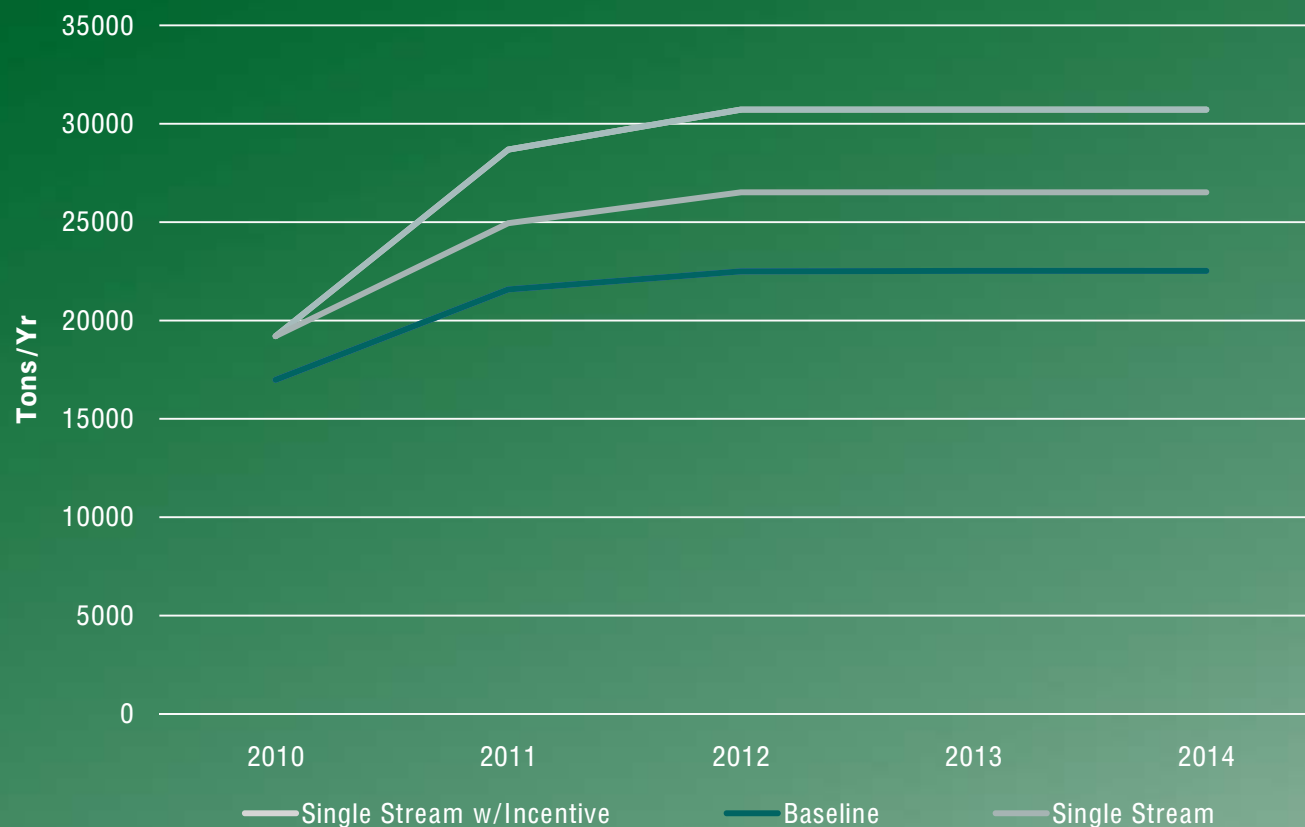


www.recycle.com



Single Stream Recycling Volume Projections (cont)

Total Single Stream Tonnage Projections





Single Stream Recycling RAA Contract Assumptions



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- RAA compensation structure modified to achieve targeted total compensation
 - Moderation in per ton incentive structure
 - Adjustment to monthly charge per service unit
- Total compensation targets existing level:
 - Reflects the increased efficiency
 - Enables route reduction
 - Requires at least 4 automated trucks in Year 1
 - Built into analysis
- Five year contract extension to 2018



Single Stream Recycling FCR Contract Assumptions



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- FCR compensation - changes:
 - Per ton tip fee: inflated by cost of operation (\$54)
 - Recycling revenue changes: City Tons
 - Tier 1 - 80% to City when value above \$54
 - Tier 2 - 90% to City when value above \$70
 - Current is 70% above \$42
 - Recycling Revenue Changes: All Other Tons
 - 30% to City when value above \$54
 - Merchant tons projected to reach 32,000 tpy
 - Represents small percentage of what will be available in market area



Single Stream Recycling Financial Assumptions



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| | |
|------------------------------|---------------|
| Inflation | 3.0% per year |
| Interest paid by City | 4.5% APR |
| Interest on City investments | 3.5% APY |

* Interest rate used is same assumption as in commercial projections



Budget Impact: Waste Collection Savings

- Cost Savings on Trash Collection
 - Higher residential recycling rates create
 - less trash on refuse routes
 - lower trash set-out rates on refuse routes
 - greater efficiencies in collection
 - One waste collection route can be eliminated
 - Enabled by greater efficiencies
 - Estimated savings at \$150,000 per year
 - Phased in during 2011



Budget Impact: Avoided Disposal Costs



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- Cost savings for trash due to increased recycling compared to baseline projections
- Baseline projections include expanded commercial recycling program
- Based on current tip fee with inflation
- Projected annual savings:
 - \$49K in FY 10/11 - \$206K at peak



Single Stream Recycling Enterprise Fund Budget



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- City Dumpster Recycling Service
 - Under single stream system, commercial establishments with city front load recycle dumpsters can use one dumpster for all materials
 - Eliminates need for curb cart service at these locations
 - Five year net return to fund balance: \$124,672

| Dumpster Commercial Recycling | FY 10/11 | FY 11/12 | FY 12/13 | FY 13/14 | FY 14/15 |
|--------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Return to Fund Balance | \$ 6,924 | \$ 24,181 | \$ 30,567 | \$ 31,500 | \$ 31,500 |
| Deduct Capital Utilization | \$ - | \$ - | \$ - | \$ - | \$ - |
| Net Return to Fund Balance | \$ 6,924 | \$ 31,106 | \$ 61,672 | \$ 93,172 | \$ 124,672 |



Single Stream Recycling Enterprise Fund Budget



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- Curb Cart Commercial Recycling Service
 - Commercial curb cart service no longer needed at some locations, as dumpsters converted to single stream
 - Results in delay in cart roll-out and fewer carts being purchased
 - Five year net return to fund balance: \$325,387

| Commercial Curb-Cart Recycling | FY 10/11 | FY 11/12 | FY 12/13 | FY 13/14 | FY 14/15 |
|---------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Return to Fund Balance | \$ 44,080 | \$ 65,334 | \$ 65,446 | \$ 72,792 | \$ 72,792 |
| Deduct Capital Utilization | \$ (20,394) | \$ 19,313 | \$ (3,863) | \$ - | \$ - |
| Net Return to Fund Balance | \$ 64,474 | \$ 110,496 | \$ 179,804 | \$ 252,596 | \$ 325,387 |



Single Stream Recycling Enterprise Fund Budget



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- Curb-Cart Recycling Program
 - Switch to automated collection
 - Payment to RAA renegotiated
- Five year net return to fund balance: \$1,461,041

| Curb-Cart Recycling | FY 10/11 | FY 11/12 | FY 12/13 | FY 13/14 | FY 14/15 |
|----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Return to Fund Balance | \$ (246,540) | \$ 409,549 | \$ 456,147 | \$ 513,298 | \$ 271,999 |
| Deduct Capital Utilization | \$ (20,394) | \$ 19,313 | \$ (3,863) | \$ - | \$ - |
| Net Return to Fund Balance | \$ (226,146) | \$ 164,091 | \$ 624,100 | \$ 1,137,398 | \$ 1,409,397 |



Single Stream Recycling Enterprise Fund Budget



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- Capital Budget
 - Includes MRF upgrade and cart purchase
 - MRF upgrade @ \$3,500,000
 - Cart purchases @ \$1,281,600
 - From current \$9,000,000 fund balance
 - Increased revenue from non-City tons
- Five year net cost to fund balance: -\$2,923,809

| Infrastructure Capital Recovery | FY 10/11 | FY 11/12 | FY 12/13 | FY 13/14 | FY 14/15 |
|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| Return to Fund Balance | \$ 182,967 | \$ 191,613 | \$ 489,386 | \$ 501,069 | \$ 492,756 |
| Deduct Capital Utilization | \$ 4,781,600 | \$ - | \$ - | \$ - | \$ - |
| Net Return to Fund Balance | \$ (4,598,633) | \$ (4,407,020) | \$ (3,917,634) | \$ (3,416,565) | \$ (2,923,809) |



Single Stream Recycling Enterprise Fund Budget



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- Five year net cost to fund balance:
 - -\$1,389,740

| | FY 10/11 | FY 11/12 | FY 12/13 | FY 13/14 | FY 14/15 | 5 year NPV |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|-------------------------|
| RETURN TO FUND BALANCE | | | | | | |
| Dumpster Commercial Recycling | \$ 6,924 | \$ 24,181 | \$ 30,567 | \$ 31,500 | \$ 31,500 | \$107,246.82 |
| Curb-Cart Recycling | \$ (246,540) | \$ 409,549 | \$ 456,147 | \$ 513,298 | \$ 271,999 | \$1,187,530.96 |
| Infrastructure Capital Recovery | \$ 182,967 | \$ 191,613 | \$ 489,386 | \$ 501,069 | \$ 492,756 | \$1,594,990.73 |
| TOTAL RETURN | \$ (56,648) | \$ 625,344 | \$ 976,099 | \$ 1,045,867 | \$ 796,254 | \$2,889,768.51 |
| DEDUCT CAPITAL UTILIZATION | \$ 4,761,206 | \$ 19,313 | \$ (3,863) | \$ - | \$ - | \$4,570,478.33 |
| NET RETURN TO FUND BALANCE | \$ (4,817,854) | \$ (4,211,823) | \$ (3,231,861) | \$ (2,185,994) | \$ (1,389,740) | (\$1,680,709.82) |

- Pays back investment in 6.75 years



Single Stream Recycling Recycling Market Scenarios



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- Market Sensitivity Analysis
- Standard market projection
 - Based on historical cycle of price swings in recycling market from unprecedented low
- Higher range market projection
 - 125% of standard projection, tops out at \$140/ton
 - Peak is lower than peak 2008 prices
- Lower range market projection
 - 90% of standard projection



Single Stream Recycling Recycling Market Scenarios



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- Average, High and Low Markets

| | Net Return To Fund Balance | | | | |
|-----------------|----------------------------|-----------------|-----------------|-----------------|-----------------|
| | FY 10/11 | FY 11/12 | FY 12/13 | FY 13/14 | FY 14/15 |
| Average Markets | \$ (4,817,854) | \$ (4,211,823) | \$ (3,231,861) | \$ (2,185,994) | \$ (1,389,740) |
| High Markets | \$ (4,532,339) | \$ (3,475,704) | \$ (2,069,517) | \$ (404,608) | \$ 1,005,399 |
| Low Markets | \$ (4,932,060) | \$ (4,506,271) | \$ (3,776,891) | \$ (2,981,444) | \$ (2,213,030) |

- Average markets used throughout analysis, except in comparison tables as noted



Single Stream Recycling Payback Period



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| | Market Scenario Comparison |
|----------------|-------------------------------|
| | Payback Period |
| Average Market | 6.75 years |
| High Market | 4.30 years |
| Low Market | 7.80 years |



Total Diversion Rate

- System Performance

| | FY 10/11 | FY 11/12 | FY 12/13 | FY 13/14 | FY 14/15 |
|-----------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Diversion Rate | 51.85% | 68.73% | 71.94% | 71.94% | 71.94% |

- Assumptions:

- Includes yard waste – yard waste volume stays the same
- Increased recycling volume is diverted from trash



Single Stream Upgrade Proposed Timeline Details



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- Preparing for Council Consideration
 - Administrative review concluded
 - Consideration by Council in October/November
 - Funds transfer
 - FCR Contract Amendments
 - RRS Support Engineering Contract
 - Later Action on RAA Contract, Trucks, Carts & Rewards
- Single Stream Upgrade Timeline
 - MRF Equipment Upgrade by July, 2010
 - Single Stream Collection July, 2010
 - MRF Addition by December, 2011