RRS

ISWM SESSION

Jon Johnston, EPA
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INTRODUCTIONS

Jon Johnston, EPA

2030 VISION FOR INTEGRATED SOLID WASTE MANAGEMENT IN EPA REGION 4

Adam Saslow, CSRA

RECYCLING BUSINESS CASE/ ENTERPRISE FUND ACCOUNTING

Marty Seaman, RRS

A TRAINING ON FUNDING AND ACCOUNTING FOR ISWM

- Currently under development
- Facilitate the transformation of the current disposal centric system
- Delivered in person, by webinar, and for use by local programs
- Making the Business Case

A TRAINING ON FUNDING AND ACCOUNTING FOR ISWM

- Ways to Fund Solid Waste Management
- Full Cost Accounting Explained
- Accounting Terminology
- GASB and GAAP
- Collecting and Compiling Your Data

A TRAINING ON FUNDING AND ACCOUNTING FOR ISWM

- Framing the question of how to improve, transform and over time achieve:

  Sustainable Materials Management

- Making transparent costs, benefits and implications of program investment choices

OPERATIONS & MAINTENANCE EXPENSES

Year:

	Description of Expenditure	Total Annual Cost	Allocation of Annual Wages and Benefits Expenses by Program Area							
			Collection		Disposal		Recycling		Composting	
			%	$	%	$	%	$	%	$
1				$0.00		$0.00		$0.00		$0.00
2				$0.00		$0.00		$0.00		$0.00
3				$0.00		$0.00		$0.00		$0.00
4				$0.00		$0.00		$0.00		$0.00
5				$0.00		$0.00		$0.00		$0.00
6				$0.00		$0.00		$0.00		$0.00
7				$0.00		$0.00		$0.00		$0.00
8				$0.00		$0.00		$0.00		$0.00
9				$0.00		$0.00		$0.00		$0.00
10				$0.00		$0.00		$0.00		$0.00
11				$0.00		$0.00		$0.00		$0.00
12				$0.00		$0.00		$0.00		$0.00
13				$0.00		$0.00		$0.00		$0.00
14				$0.00		$0.00		$0.00		$0.00
15				$0.00		$0.00		$0.00		$0.00
16				$0.00		$0.00		$0.00		$0.00
17				$0.00		$0.00		$0.00		$0.00
18				$0.00		$0.00		$0.00		$0.00
19				$0.00		$0.00		$0.00		$0.00
20				$0.00		$0.00		$0.00		$0.00
21				$0.00		$0.00		$0.00		$0.00
22				$0.00		$0.00		$0.00		$0.00
23				$0.00		$0.00		$0.00		$0.00
24				$0.00		$0.00		$0.00		$0.00
25				$0.00		$0.00		$0.00		$0.00
26				$0.00		$0.00		$0.00		$0.00
27				$0.00		$0.00		$0.00		$0.00
28				$0.00		$0.00		$0.00		$0.00
29				$0.00		$0.00		$0.00		$0.00
30				$0.00		$0.00		$0.00		$0.00
31				$0.00		$0.00		$0.00		$0.00
32				$0.00		$0.00		$0.00		$0.00
33				$0.00		$0.00		$0.00		$0.00
34				$0.00		$0.00		$0.00		$0.00
35				$0.00		$0.00		$0.00		$0.00
36				$0.00		$0.00		$0.00		$0.00
37				$0.00		$0.00		$0.00		$0.00
38				$0.00		$0.00		$0.00		$0.00
39				$0.00		$0.00		$0.00		$0.00
40				$0.00		$0.00		$0.00		$0.00
	Total	**$0.00**		**$0.00**		**$0.00**		**$0.00**		**$0.00**

INDIRECT COSTS

Year:

Ratio of ISWM Employees to Total Local Government Employees	
Total Number of ISWM Employees	
Total Number of Local Government Employees	
Ratio of ISWM Employees to Total Local Government Employees	#DIV/0!

Support Service	Total Budget for Support Service ($)	Total Indirect Cost to ISWM ($)
Accounting		#DIV/0!
Management		#DIV/0!
Budget Office		#DIV/0!
Building Operations		#DIV/0!
Administrative		#DIV/0!
Clerk's Office		#DIV/0!
Communications		#DIV/0!
Contracts		#DIV/0!
Information Technology		#DIV/0!
Insurance		#DIV/0!
Attorney's Office		#DIV/0!
Payroll		#DIV/0!
Human Resources		#DIV/0!
Purchasing		#DIV/0!
Other		#DIV/0!
Total Indirect Costs	$0.00	#DIV/0!

Program Area	Number of ISWM Employees by Program Area	Ratio of Employees in Program Area to Total ISWM Employees	Total Indirect Costs ($)	Indirect Cost by Program Area ($)
Collection		#DIV/0!	#DIV/0!	#DIV/0!
Disposal		#DIV/0!	#DIV/0!	#DIV/0!
Recycling		#DIV/0!	#DIV/0!	#DIV/0!
Composting		#DIV/0!	#DIV/0!	#DIV/0!
Total		#DIV/0!	#DIV/0!	#DIV/0!

COST SUMMARY

Year:

Costs					
Category	Total Annual Cost to ISWM Program ($)	Allocation of Costs by Program Area ($)			
		Collection	Disposal	Recycling	Composting
B. Wages and Benefits	$0.00	$0.00	$0.00	$0.00	$0.00
C. Operations & Maintenance	$0.00	$0.00	$0.00	$0.00	$0.00
D. Capital Outlays	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
E. Future Outlays	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
F. Indirect Costs	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
G. Other Costs					
TOTAL COSTS	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Non-Fee Based Revenues					
Category	Total Annual Revenues to ISWM Program ($)	Allocation of Revenues by Program Area ($)			
		Collection	Disposal	Recycling	Composting
Interest Income					
Sale of Recyclables					
Salvage of Equipment					
Micellaneous Revenues					
TOTAL REVENUES					

Total Cost					
TOTAL NET COST	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

A TRAINING ON FUNDING AND ACCOUNTING FOR ISWM

- Organize and utilize the tools available to help make the business case
- Need to continue to develop robust financial understanding of the system
- Need to continue to understand established and emerging models that succeed.
- Create the conditions for making investments in achieving SMM-

BENCHMARKING ANALYTICS

Juri Freeman, RRS

INSTRUCTIONS FOR EPA REGION 4 ISWM DRAFT MODEL

The following instructions will guide the user through the use of this spreadsheet. This spreadsheet is designed to be used by local governments as a decision making tool. By entering data about your community, including location, community description, number of households and other information, the spreadsheet model will provide an output with directional insights for comparing costs and impacts. The outputs are designed to help local governments compare the costs and impacts of one ISWM program choice versus another.

GENERAL INSTRUCTIONS

1. Open the 'Inputs' worksheet.
2. Complete all nine questions.
3. You must fill in responses for Questions 1 through 3.
4. If you do not know the answer to Questions 4 through 9, choose the "Default" setting.
5. Open the 'Outputs' page to see the model results.
6. Once you have completed a single model run, consider changing some of the inputs to understand what impacts the choices you make will have on the overall costs and impacts of your program.

DETAILED INSTRUCTIONS

Q1. Enter your community name: Type the name of your community in the cell. The community name will appear in the model's printable output.

Q2. Choose your state from the drop down list: Each state has individual attributes that will impact the model outputs.

Q3. Enter the number of households in your community: Enter the number of single-family households and the number of multi-family units served by your residential solid waste program. The model is designed to estimate the costs and impacts of residential programs only, it is not designed to estimate the impacts on large multi-family which are generally handled as commercial accounts (i.e. dumpster service). Be sure to enter the number of households, not the total population.

Q4. Estimate the level of participation in your recycling program: Recycling participation in the model is defined as the percentage of households in your community that set out a recycling container for collection on a typical collection day. This is an estimate. Participation will depend on how your program is set up (*i.e. Do residents have to pay extra for recycling or is recycling service included in the trash bill?*) as well as the outreach, education, and other programs adopted in your community. The default setting is 'Medium participation'.

Q5. Select your community type – Choose the community type (Rural to Urban) that best describes your community. The community type impacts the route density and the number of households collected per route. The default setting is 'Suburban'.

Q6. Will glass be included in single stream recycling? – The default is to include glass in the stream.

Q7. How 'much' do you think people will recycle in your community? The amount of material (measured in pounds per week, month or year) recycled per household varies significantly across the U.S. The model allows the user to choose an option based on their community and program design. If your community has adopted more aggressive solid waste programs such as embedded rates, a pay-as-you-throw rate structure, disposal bans, or other programs, the amount recycled will be on the upper end of the spectrum and you should choose "High." Choosing "High" means that most residents are fill ingthier containers to between 75% and 100% of capacity. Conversely, if recycling is new to your community, most likely the amount recycled will be relatively low, thus you should choose "Low." The default setting is "Medium low." The default assumes that containers are about 50% full, on average.

Q8. Do you know your landfill tip fee? If you answer 'Yes,' you will be prompted to enter your landfill tip fee into the spreadsheet. If you are unaware of the tip fee for your community, the model will use the state average in the calculations.

Q9. Do you know your recycling processor gate fee or revenue? If you answer 'Yes,' you will be prompted to enter your processor gate fee or revenue into the spreadsheet. If you are unaware of the revenue or fee for your community, the model will use the state average in the calculations. Important: If you pay a fee per ton be sure to enter a minus symbol in front of the number you enter.

EPA REGION 4 ISWM DRAFT MODEL - INPUTS

INPUTS

1. Enter community name.
Asheville

2. Choose your state from this drop down list.
North Carolina

3. Enter the number of households in your community served by your solid waste program. *(See "Instruction Page" for more information.)*
10,000

4. Estimate the level of participation in your recycling program. (*See "Instruction Page" for more information.***)**
High participation

5. Select your community type. *(See "Instruction Page" for more information.)*
Urban

6. Will glass be included in single stream recycling?
Yes (Default)

7. How "much" do you think people will recycle in your community? *(See "Instruction Page" for more information)*
High (Containers are always full, only choose if you have PAYT, embedded recycling fees, or other similar advanced programs)

8. Do you know your landfill tip fee per ton?
Yes

Enter your Landfill tip fee, per ton: 0

9. Do you know your recycling processor gate fee or revenue per ton?
Yes

Enter your Recycling processor fee / revenue, per ton: 0.00

10. Is the Material Recovery Facility you use to process recyclable more than 25 miles from your municipality?
Yes

11. Do you know the distance to the Materials Recovery Facility you use or would use to process recycable materials?
Yes

Enter the distance to the MRF: 25 25

A value of 75 miles will be used as the default.

INTERPRETING YOUR RESULTS

The Collection Model results below allow the user to compare the impacts and costs of seven different recycling program options. By reading across the seven options you can see the differences in amount recycled and cost of each one. The following notes help define these outputs.

OUTPUT DEFINITIONS

Tons of Recycling per Year: The total number of tons recycled in the community per year. This does not include commercial or industrial sectors.

Pounds of Recycling per Household per Year: The total number of pounds recycled in the community per year, divided by the total number of households.

Annual Net Cost (Total): The total annual cost to run the program. This includes the cost of container purchase, assembly, delivery, inventory, change outs, maintenance, and replacement for carts or bins, the cost of vehicle purchase, operations, insurance and fees, fuel, maintenance, and mileage (collection, support, and back-up vehicles), the cost of collection staff, the cost of a minimal level of outreach, a contingency amount for capital and operations expenses, and the cost of servicing loans (all loans are assumed to use a seven-year payback period at 3.00% interest). It also includes the cost savings at the landfill achieved from not landfilling recyclables. This cost does not include administrative or support staff, billing costs, recyclable material processing cost/revenue, or fleet replacement costs. The costs/revenues of the recyclables collected are included in the Transfer & Processing model.

Annual Net Cost (Operations & Maintenance only): Removes the purchase and loan servicing cost of all capital equipment (vehicles and containers) from the Annual Net Cost (Total).

Cost per Household per Year: The Annual Net Cost (Total) divided by the total number of households in the community. *Note: This is not the same as the fee that would be charged to households for a program.*

Cost per Ton Recycled: The Annual Net Cost (Total) divided by the total number of tons recycled per year. Allows the user to easily compare the cost per ton for each program option.

Annual Net Cost (Total): The total annual cost to run the program. This includes the cost buildings, rolling stock and equipment (Compactors), operations, insurance and fees, fuel, maintenance, the cost of staff, a contingency for capital and operations, and the cost of servicing debt(all loans are assumed to use a 7-year payback period at 3.00% interest. It does not include administrative or support staff, billing costs, recyclable material processing cost / revenue, or facility replacement costs. The costs / revenues of the recyclables collected are included in the Hub and Spoke model and are assumed in the recycling tip fee paid at an exisitng facility. A material Recovery Facility is not considered

ISWM OUTPUT FOR: *Asheville*

IMPACTS	Recycling Drop-Off Program	Implementing a Dual Stream Program Using Bins		Implementing a Dual Stream Program Using Carts		Implementing a Single Stream Residential Curbside Program	
		Dual Stream, Bins, Every Other Week Collection	Dual Stream, Bins, Weekly Collection	Dual Stream, Carts, Every Other Week Collection	Dual Stream, Carts, Weekly Collection	Single Stream, Carts, Every Other Week Collection	Single Stream, Carts, Weekly Collection
1. Tons of Recycling per Year	1,820.0	1,269.5	2,264.6	2,210.0	3,744.0	3,412.5	4,690.4
2. Pounds of Recycling per Household per Year	364	254	453	442	749	683	938
TOTAL COLLECTION COST							
Annual Net Cost (Total)	$ (190,000)	$ (406,000)	$ (771,000)	$ (428,000)	$ (820,000)	$ (171,000)	$ (247,000)
Annual Net Cost (O&M Only)	$ (194,600)	$ (335,400)	$ (683,700)	$ (196,000)	$ (344,900)	$ (44,000)	$ (98,500)
Cost per Household per Year	$ (1.90)	$ (4.60)	$ (7.70)	$ (4.30)	$ (8.20)	$ (1.70)	$ (2.50)
Cost per Ton Recycled	$ (104)	$ (320)	$ (340)	$ (194)	$ (166)	$ (50)	$ (53)
Capital Cost (Total)	$ (386,000)	$ (916,000)	$ (1,511,000)	$ (2,256,000)	$ (2,977,000)	$ (1,309,000)	$ (1,666,000)
DETAILS							
Total Number of Vehicles (including back-up and support)	2	2	5	3	5	2	3
Total Number of Staff	2	4	9	3	5	2	3
Total Number of Drop-Offs	$ 4	N/A	N/A	N/A	N/A	N/A	N/A
Capital Cost Vehicles (including back-up and support)	$ (359,500)	$ (561,800)	$ (1,157,300)	$ (1,076,600)	$ (1,797,700)	$ (719,100)	$ (1,076,600)
Capital Cost Containers	$ (27,000)	$ (353,900)	$ (353,900)	$ (1,179,700)	$ (1,179,700)	$ (589,900)	$ (589,900)

ISWM OUTPUT FOR: *Asheville*

IMPACTS	Recycling Drop-Off Program	Implementing a Dual Stream Program Using Bins		Implementing a Dual Stream Program Using Carts		Implementing a Single Stream Residential Curbside Program	
		Dual Stream, Bins, Every Other Week Collection	Dual Stream, Bins, Weekly Collection	Dual Stream, Carts, Every Other Week Collection	Dual Stream, Carts, Weekly Collection	Single Stream, Carts, Every Other Week Collection	Single Stream, Carts, Weekly Collection
1. Tons of Recycling per Year	1,820.0	1,269.5	2,264.6	2,210.0	3,744.0	3,412.5	4,690.4
2. Pounds of Recycling per Household per Year	364	254	453	442	749	683	938
TOTAL COLLECTION COST							
Annual Net Cost (Total)	$ (190,000)	$ (406,000)	$ (771,000)	$ (428,000)	$ (620,000)	$ (171,000)	$ (247,000)
Annual Net Cost (O&M Only)	$ (194,600)	$ (335,400)	$ (683,700)	$ (196,000)	$ (344,900)	$ (44,000)	$ (98,500)
Cost per Household per Year	$ (19.00)	$ (40.60)	$ (77.10)	$ (42.80)	$ (62.00)	$ (17.10)	$ (24.70)
Cost per Ton Recycled	$ (104)	$ (320)	$ (340)	$ (194)	$ (166)	$ (50)	$ (53)
Capital Cost (Total)	$ (386,000)	$ (916,000)	$ (1,511,000)	$ (2,258,000)	$ (2,977,000)	$ (1,309,000)	$ (1,668,000)

DETAILS							
Total Number of Vehicles (Including back-up and support)	2	2	5	3	5	2	3
Total Number of Staff	2	4	9	3	5	2	3
Total Number of Drop-Offs	$ 4	N/A	N/A	N/A	N/A	N/A	N/A
Capital Cost Vehicles (Including back-up and support)	$ (359,500)	$ (561,800)	$ (1,157,300)	$ (1,078,600)	$ (1,797,700)	$ (719,100)	$ (1,078,600)
Capital Cost Containers	$ (27,000)	$ (353,900)	$ (353,900)	$ (1,179,700)	$ (1,179,700)	$ (589,900)	$ (589,900)

INTERPRETING YOUR RESULTS

The Transfer & Processing Model results below allow the user to compare the impacts and costs of building a transfer station versus a regional MRF. By reading across the two options you can see the differences in amount recycled and cost of each one. The following notes help define these outputs.

DETAILED DESCRIPTIONS OF PROGRAMS

Recyclables Transfer Station and MRF Costs
The transfer station costs are the cost of buildings, equipment, rolling stock and land improvements. This also includes the following operational costs: employee costs, fringe benefits, administration, other non-staff operations and maintenance charges and insurance. The costs / revenues of the recyclables collected are included in the Hub and Spoke model and are assumed in the recycling tip fee paid at an existing facility. A Material Recovery Facility is not considered unless the total tonnage exceeds 10,000 tons per year. The costs of a MRF are scaled based on the total tonnage and based on 11 types of facilities with differeing throughputs including dual-stream and single-stream facilities.

OUTPUT DEFINITIONS
Tons of Recycling per Year: The total number of tons recycled in the community per year. This does not include commercial or industrial sectors.

Pounds of Recycling per Household per Year: The total number of pounds recycled in the community per year, divided by the total number of households.

Capital Cost (Total): The total cost for all capital equipment, buildings and site improvements.

Annual Net Cost (Total): The total annual cost to run the program. This includes the cost buildings, rolling stock and equipment (Sort lines, balers, Compactors), operations, insurance and fees, fuel, maintenance, the cost of staff, a contingency for capital and operations, and the cost of servicing debt(all loans are assumed to use a 7-year payback period at 3.00% interest. It does include administrative or support staf and costs. . The costs / revenues of the recyclables collected are included in the Hub and Spoke model and are assumed in the recycling tip fee paod at an exisitng facilty. A material Recovery Facility is not considered unless the total tonnag exceeds 10,000 tons per year.

Cost per Household per Year: The Annual Net Cost (Total) divided by the total number of households in the community.

ISWM OUTPUT FOR: *Asheville*

IMPACTS	Recycling Drop-Off Program	Implementing a Dual Stream Program Using Bins		Implementing a Dual Stream Program Using Carts		Implementing a Single Stream Residential Curbside Program	
		Dual Stream, Bins, Every Other Week Collection	Dual Stream, Bins, Weekly Collection	Dual Stream, Carts, Every Other Week Collection	Dual Stream, Carts, Weekly Collection	Single Stream, Carts, Every Other Week Collection	Single Stream, Carts, Weekly Collection
Tons of Recycling per Year	1,820	1,269	2,265	2,210	3,744	3,413	4,690
Pounds of Recycling per Household per Year	364	254	453	442	749	683	938
RECYCLABLES TRANSFER STATION COSTS							
Total Capital Cost	$ (375,000)	$ (375,000)	$ (375,000)	$ (375,000)	$ (375,000)	$ (375,000)	$ (375,000)
Total Annual Capital Cost	$ (52,311)	$ (36,859)	$ (36,859)	$ (36,859)	$ (36,859)	$ (36,859)	$ (36,859)
Cost per Household per Year	$ (52.01)	$ (10.91)	$ (11.54)	$ (11.61)	$ (15.68)	$ (15.32)	$ (16.72)
Cost per Ton	$ (285.79)	$ (85.92)	$ (50.97)	$ (52.07)	$ (41.98)	$ (44.89)	$ (35.64)
MRF COSTS							
Annual Cost (Total)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cost per Household per Year	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cost per Ton Recycled	$ -	$ -	$ -	$ -	$ -	$ -	$ -

ISWM OUTPUT FOR: *Asheville*

IMPACTS	Recycling Drop-Off Program	Implementing a Dual Stream Program Using Bins		Implementing a Dual Stream Program Using Carts		Implementing a Single Stream Residential Curbside Program	
		Dual Stream, Bins, Every Other Week Collection	Dual Stream, Bins, Weekly Collection	Dual Stream, Carts, Every Other Week Collection	Dual Stream, Carts, Weekly Collection	Single Stream, Carts, Every Other Week Collection	Single Stream, Carts, Weekly Collection
Tons of Recycling per Year	1,820	1,269	2,265	2,210	3,744	3,413	4,690
Pounds of Recycling per Household per Year	364	254	453	442	749	683	938
RECYCLABLES TRANSFER STATION COSTS							
Total Capital Cost	$ (375,000)	$ (375,000)	$ (375,000)	$ (375,000)	$ (375,000)	$ (375,000)	$ (375,000)
Total Annual Capital Cost	$ (52,311)	$ (36,859)	$ (36,859)	$ (36,859)	$ (36,859)	$ (36,859)	$ (36,859)
Cost per Household per Year	$ (52.01)	$ (10.91)	$ (11.54)	$ (11.51)	$ (15.68)	$ (15.32)	$ (16.72)
Cost per Ton	$ (285.79)	$ (85.92)	$ (50.97)	$ (52.07)	$ (41.88)	$ (44.89)	$ (35.64)
MRF COSTS							
Annual Cost (Total)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cost per Household per Year	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cost per Ton Recycled	$ -	$ -	$ -	$ -	$ -	$ -	$ -

NEXT STEPS

Jon Johnston, EPA

BREAK/GRAB YOUR BOX LUNCH

ROLLING YOUR SLEEVES UP . . . AND THEN DRILLING DOWN:

a detailed look at the spreadsheets

Juri Freeman, RRS