MAKING THE CASE FOR RECYCLING

Georgia Recycling Coalition Annual Conference

St. Simons Island, GA

Abbey Patterson
EPA REGION 4 ISWM TOOLKIT

- **ISWM** = Integrated Solid Waste Management
  - Funding and Accounting Handbook
  - Directional Tool - ISWM MODEL

- Webinar #1 – Last Week (available on SERDC Website)
- Webinar #2 – Sept. 26 – 2 pm
  - Please attend, and promote

- Train the Trainer at SERDC Conference in Charleston, SC November 12 - 1 pm – 5 pm
ISWM TRAINING COMPONENTS

- Costs, Benefits & Impacts
- Funding Mechanisms
- Policy Supports
- Political Engagement
• Provides ready-to-use spreadsheets to identify the costs of ISWM services.
• Creates a planning tool for budget preparation and for determining the future of ISWM services.
• Exposes hidden costs allowing a more accurate comparison of various ISWM services.
• Identifies various sources and methods of department funding.
• Helps explain ISWM costs to the public.
## EPA REGION 4 ISWM MODEL - INPUTS

<table>
<thead>
<tr>
<th>INPUTS (You must answer all eleven questions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enter community name.</td>
</tr>
<tr>
<td>2. Choose your state from this drop-down list.</td>
</tr>
<tr>
<td>3. Enter the number of households in your community served by your solid waste program. (See &quot;Instruction Page&quot; for more information.)</td>
</tr>
<tr>
<td>4. Estimate the level of participation in your recycling program. (See &quot;Instruction Page&quot; for more information.)</td>
</tr>
<tr>
<td>5. Select your community type. (See &quot;Instruction Page&quot; for more information.)</td>
</tr>
<tr>
<td>6. Will glass be included in single-stream recycling?</td>
</tr>
<tr>
<td>7. How &quot;much&quot; do you think people will recycle in your community? (See &quot;Instruction Page&quot; for more information.)</td>
</tr>
<tr>
<td>8. Do you know your landfill tip fee per ton?</td>
</tr>
<tr>
<td>9. Do you know your recycling processor gate fee or revenue per ton?</td>
</tr>
<tr>
<td>10. How far is it from your municipality to the Transfer Station, MRF, or other end destination for a direct haul by your curbside recycling collection trucks?</td>
</tr>
<tr>
<td>11. Do you know the distance to the Materials Recovery Facility you use or would use to process recyclable materials if you built a Transfer Station?</td>
</tr>
</tbody>
</table>

*If "Yes" enter your landfill tip fee per ton here → ___

*If "Yes", enter Recycling processor fee (negative) or revenue per ton (positive) here → ___

*If "Yes" enter the one-way distance in the MRF here → ___

A value of 15 miles will be used as the default.
EPA REGION 4 ISWM MODEL

**COMPARES** differences in the amounts recycled and costs of 7 different recycling program scenarios:

1. Comprehensive Drop-off
2. Dual Stream with Bins, Every Other Week Collection
3. Dual Stream with Bins, Weekly Collection
4. Dual Stream with Carts, Every Other Week Collection
5. Dual Stream with Carts, Weekly Collection
6. Single Stream with Carts, Every Other Week Collection
7. Single Stream with Carts, Weekly Collection
EPA REGION 4 ISWM MODEL

HUB AND SPOKE RECYCLING ANALYSIS

Compare the impacts and costs of:

- direct haul
- transfer
- building a transfer station and transferring to a MRF, versus building a regional MRF
INSTRUCTIONS FOR EPA REGION 4 ISWM MODEL

The following instructions will guide the user through the EPA Region 4 ISWM 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 model will provide an output with directional insights for comparing costs and impacts of various programs. 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 eleven questions.
3. You must fill in responses for Questions 1 through 3.
4. If you do not know the answer to Questions 4 through 11, choose the "Default" setting for each.
5. Open the ‘Results - Collection’ page to see the model results for collection, and ‘Results - Transfer & Processing’ to see the hub & spoke 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, you must choose an option.

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 of large multi-family or commercial programs 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
1. Enter community name.
Chatham County

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.)
27,000

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.)
Rural

6. Will glass be included in single stream recycling?
No

7. How "much" do you think people will recycle in your community? (See "Instruction Page" for more information)
Medium low (Containers about half full, Default setting)

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

9. Do you know your recycling processor gate fee or revenue per ton?
No (model will use default)

10. How far is it from your municipality to the Transfer Station, MRF, or other end destination for a direct haul by your curbside recycling collection trucks?
31 to 45 miles (one way)

11. Do you know the distance to the Materials Recovery Facility you use or would use to process recyclable materials if you built a Transfer Station?
Yes

A value of 75 miles will be used as the default.
### ISWM Collection Output for: Chatham County

<table>
<thead>
<tr>
<th>IMPACTS</th>
<th>Recycling Drop-Off Program</th>
<th>Implementing a Dual Stream Program Using Bins</th>
<th>Implementing a Dual Stream Program Using Carts</th>
<th>Implementing a Single Stream Residential Curbside Program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dual Stream, Bins, Every Other Week Collection</td>
<td>Dual Stream, Bins, Weekly Collection</td>
<td>Dual Stream, Carts, Every Other Week Collection</td>
<td>Dual Stream, Carts, Weekly Collection</td>
</tr>
<tr>
<td>1. Tons of Recycling per Year</td>
<td>1,760</td>
<td>2,020</td>
<td>3,220</td>
<td>3,390</td>
</tr>
<tr>
<td>2. Pounds of Recycling per Household per Year</td>
<td>130</td>
<td>150</td>
<td>239</td>
<td>251</td>
</tr>
<tr>
<td>TOTAL COLLECTION COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Annual Net Cost (Total)</td>
<td>$ (242,000)</td>
<td>$ (1,564,000)</td>
<td>$ (3,125,000)</td>
<td>$ (1,784,000)</td>
</tr>
<tr>
<td>4. Annual Net Cost (O&amp;M Only)</td>
<td>$ (261,000)</td>
<td>$ (1,368,300)</td>
<td>$ (2,842,300)</td>
<td>$ (1,103,100)</td>
</tr>
<tr>
<td>5. Cost per Household per Year</td>
<td>$ (9)</td>
<td>$ (58)</td>
<td>$ (115)</td>
<td>$ (66)</td>
</tr>
<tr>
<td>6. Cost per Ton Recycled</td>
<td>$ (138)</td>
<td>$ (774)</td>
<td>$ (970)</td>
<td>$ (526)</td>
</tr>
<tr>
<td>7. Capital Cost (Total)</td>
<td>$ (1,207,000)</td>
<td>$ (3,045,000)</td>
<td>$ (6,607,000)</td>
<td>$ (7,230,000)</td>
</tr>
</tbody>
</table>

| DETAILS | | | | | | | |
|---------| | | | | | | |
| 8. Total Number of Vehicles (Including back-up and support) | 3 | 9 | 19 | 12 | 25 | 7 | 15 |
| 9. Total Number of Staff | 3 | 17 | 34 | 12 | 24 | 8 | 15 |
| 10. Total Number of Drop-Offs | 6 | - | - | - | - | - | - |
| 11. Capital Cost Vehicles (Including back-up and support) | $ (539,300) | $ (2,089,800) | $ (4,651,500) | $ (4,044,800) | $ (8,392,900) | $ (2,572,900) | $ (4,797,500) |
| 12. Capital Cost Containers | Included below | $ (955,600) | $ (955,600) | $ (3,185,200) | $ (3,185,200) | $ (1,592,600) | $ (1,592,600) |
| 14. Annual Cost for Drop-Off Sites (Total) | $ (91,600) | - | - | - | - | - | - |
Scenario: Single Stream, Carts, Every Other Week Collection

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Collection Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose Your Program Type (From Collection Model)</td>
<td>Single Stream, Carts, Every Other Week Collection 3,720</td>
</tr>
<tr>
<td>Tons Diverted per Year (from Model)</td>
<td></td>
</tr>
</tbody>
</table>

**Impacts**

1. Cost per Ton including Revenue
2. Cost per Household per Year
3. Annual Cost (Capital + Operating) without Revenue
4. Additional Tons to Make Next Level Efficient

<table>
<thead>
<tr>
<th>Details</th>
<th>Additional Curbside Collection Cost for Direct Haul</th>
<th>Build Transfer Station (Spoke)</th>
<th>Build Dual Stream MRF (Hub)</th>
<th>Build Single Stream MRF (Hub)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>(377)</td>
<td>(49)</td>
<td>N/A</td>
<td>NOT FEASIBLE</td>
</tr>
<tr>
<td>(52)</td>
<td></td>
<td>(7)</td>
<td>N/A</td>
<td>NOT FEASIBLE</td>
</tr>
<tr>
<td>(1,401,000)</td>
<td></td>
<td>(179,000)</td>
<td>N/A</td>
<td>NOT FEASIBLE</td>
</tr>
</tbody>
</table>

- To build a transfer station (spoke), would need **6,300** more tons of recycled material.
- To build a MRF, would need **18,800** more tons of recycled material.
Another scenario: Single Stream, Carts, Weekly Collection

### ISWM HUB & SPOKE OUTPUT FOR: Chatham County

#### INPUTS

<table>
<thead>
<tr>
<th>Choose Your Program Type (From Collection Model)</th>
<th>Single Stream, Carts, Weekly Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tons Diverted per Year (from Model)</td>
<td>4,770</td>
</tr>
</tbody>
</table>

#### IMPACTS

<table>
<thead>
<tr>
<th>Details</th>
<th>Additional Curbside Collection Cost for Direct Haul</th>
<th>Build Transfer Station (Spoke)</th>
<th>Build Dual Stream MRF (Hub)</th>
<th>Build Single Stream MRF (Hub)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cost per Ton including Revenue</td>
<td>$ (292)</td>
<td>$ (42)</td>
<td>N/A</td>
<td>NOT FEASIBLE</td>
</tr>
<tr>
<td>2. Cost per Household per Year</td>
<td>$ (52)</td>
<td>$ (7)</td>
<td>N/A</td>
<td>NOT FEASIBLE</td>
</tr>
<tr>
<td>3. Annual Cost (Capital + Operating) without Revenue</td>
<td>$ (1,391,000)</td>
<td>$ (187,000)</td>
<td>N/A</td>
<td>NOT FEASIBLE</td>
</tr>
<tr>
<td>DETAILS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Additional Tons to Make Next Level Efficient</td>
<td>NA</td>
<td>5,200</td>
<td>N/A</td>
<td>17,700</td>
</tr>
</tbody>
</table>

- To build a transfer station (spoke), would need **5,200** more tons of recycled material.
- To build a MRF, would need **17,700** more tons of recycled material.
After answering 11 community-based questions, 7 recycling scenarios are modeled, and 13 output results are displayed for comparison between scenarios.
NEXT STEPS:

• Attend Webinar #2 – Sept. 26
• Attend “Train the Trainer” – Nov. 12
• Host a web-based or in-person training
• Download tools at www.serdc.org/iswm
• Make the case for expanded recycling!
QUESTIONS:

• Do you find these ISWM tools useful?
• Would use these tools?
• Will you attend the webinars in the webinar next week?
• Would you promote the tools?
• Would you consider hosting an event?
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Managing change
in a resource-constrained world.

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HTTPS://WWW.YOUTUBE.COM/WATCH?v=VC0GYBTNCTU
DETAILED DESCRIPTIONS OF PROGRAMS

DROP-OFF
Comprehensive Drop-Off – A comprehensive drop-off is a facility for the collection of single-stream or dual-stream materials at a developed site that is paved, has a minimum of three roll-off recycling containers, and is serviced on a regular schedule with the material then taken to a transfer station of an existing regional MRF that is within 15 miles of the location.

DUAL STREAM WITH BINS
Dual Stream Program with Bins, Every Other Week Collection: Recyclables are collected manually in two 18-gallon open-topped containers. Collection occurs at the curb or in the alley and containers are emptied into split-bodied manual rear load trucks. Each truck requires two staff members, one to drive and one to empty containers. Each household in the community is provided with two containers, one container is used to collect fibers (paper, cardboard, paperboard, newspapers and magazines) and the second container is used to collect containers (aluminum, tin and steel cans, plastic jugs and tubs, and glass bottles). Collection occurs on an every-other-week basis, meaning that on Week 1, half of the community is provided service and on Week 2, the other half of the community is provided service.

Dual Stream Program with Bins, Weekly Collection: Same as program above except collection occurs for the entire community on a weekly basis.

DUAL STREAM WITH CARTS
Dual Stream Program with Carts, Every Other Week Collection: Recyclables are collected in two 65-gallon lidded and wheeled carts. Collection occurs at the curb or in the alley and containers are emptied using fully automated side loading trucks. Each truck is staffed by one employee. Each household in the community is provided with two containers: one container is used to collect fibers (paper, cardboard, paperboard, newspapers and magazines) and the second container is used to collect containers (aluminum, tin and steel cans, plastic jugs and tubs, and glass bottles). Collection occurs on an every-other-week alternating basis, meaning that on Week 1 the entire community receives collection of their fibers cart, and on Week 2, the entire community receives collection of their containers cart.

Dual Stream Program with Carts, Weekly Collection: Same as program above except collection occurs for both carts (fibers and containers) for the entire community on a weekly basis.

SINGLE STREAM WITH CARTS
Single Stream Program with Carts, Every Other Week Collection: Recyclables are collected in a single 95-gallon lidded and wheeled cart. Collection occurs at the curb or in the alley and the container is emptied using fully automated side loading trucks. Each truck is staffed by one employee. Each household in the community is provided with one container and all recyclables (paper, cardboard, paperboard, newspapers, magazines, aluminum, tin, and steel cans, plastic jugs and tubs, glass bottles) are collected together. Collection occurs on an every-other-week basis meaning that on Week 1, half of the community is provided service and on Week 2, the other half of the community is provided service.

Single Stream Program with Carts, Weekly Collection: Same as program above except collection occurs for the entire community on a weekly basis.
RECYCLING PROGRAM
SCENARIO DETAILS

DETAILED DESCRIPTIONS OF PROGRAMS

DROP-OFF
Comprehensive Drop-Off – A comprehensive drop-off is a facility for the collection of single-stream or dual-stream materials at a developed site that is paved, has a minimum of three roll-off recycling containers, and is serviced on a regular schedule with the material then taken to a transfer station of an existing regional MRF that is within 15 miles of the location.

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Dual Steam Program with Bins, Weekly Collection: Same as program above except collection occurs for the entire community on a weekly basis.

DUAL STREAM WITH CARTS
Dual Stream Program with Carts, Every Other Week Collection: Recyclables are collected in two 65-gallon lidded and wheeled carts. Collection occurs at the curb or in the alley and containers are emptied using fully automated side loading trucks. Each truck is staffed by one employee. Each household in the community is provided with two containers: one container is used to collect fibers (paper, cardboard, paperboard, newspapers and magazines) and the second container is used to collect containers (aluminum, tin and steel cans, plastic jugs and tubs, and glass bottles). Collection occurs on an every-other-week alternating basis, meaning that on Week 1 the entire community receives collection of their fibers cart, and on Week 2, the entire community receives collection of their containers cart.

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Single Stream Program with Carts, Weekly Collection: Same as program above except collection occurs for the entire community on a weekly basis.