Overview of Existing Conditions

Capital Region Solid Waste Management Plan Steering Committee
### Existing Waste Generation

<table>
<thead>
<tr>
<th>Type</th>
<th>Generation Rate (lb/person/day)</th>
<th>2008 Tonnage (TPY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential MSW</td>
<td>3.6</td>
<td>143,704</td>
</tr>
<tr>
<td>Commercial MSW</td>
<td>1.8</td>
<td>71,852</td>
</tr>
<tr>
<td>C&amp;D Debris</td>
<td>4</td>
<td>159,671</td>
</tr>
<tr>
<td>Non-Hazardous Industrial</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9.4</strong></td>
<td><strong>375,227</strong></td>
</tr>
</tbody>
</table>
Future Waste Generation

- 2010 – 380,800 Tons
- 2020 – 388,600 Tons
- 2030 – 395,600 Tons

- Assumes no increase in generation rates
- May increase when non-haz Industrial Waste is included
### Recycling Summary 2007

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Reported Recycling</td>
<td>118,466 Tons</td>
</tr>
<tr>
<td>Disposal from Planning Unit</td>
<td>238,104 Tons</td>
</tr>
<tr>
<td>Total Recycling Plus Disposal</td>
<td>356,570 Tons</td>
</tr>
<tr>
<td>Overall Diversion Rate</td>
<td>33.2%</td>
</tr>
</tbody>
</table>

**Note:** The recycling and disposal figures are in tons.
Other Existing Facilities used by the Planning Unit

- County Waste & Recycling Services Recycling Facility
- Jackson Demolition Service
- Santoro C&D
- Accurate Disposal
- King Road Materials, Inc.
- Watervliet HMA (Callahan Industries)
- Troy Transfer LLC
- Callahan - Ravena Facility
- Schenectady Transfer Station
- Colonie Landfill
- BFI Runway Ave Waste T.S.
Waste Received From Albany County 2006

NYSDEC 2006 Disposal Summary
Proven Alternative Technologies

- Dual Stream Recyclables
- Single Stream Recyclables
- Mixed MSW Composting
- SSOW Composting
- Waste-to-Energy Facilities
Dual Stream Recyclables Collection and MRF

- Residents separate all recyclable paper into one container and all recyclable metal, glass, and plastic (MGP) bottles and cans into another container.

- Trucks used for collection have compartments to prevent the mixing of paper and MGP recyclables.

- Material recovery facilities (MRF) process and sort each stream of recyclables independently.
Advantages

- Established in Albany area
- Participants are accustomed to dual stream separation
- Collection facilities, equipment, and programs are in place
Disadvantages

- Additional sorting required by residents
- Specialized trucks are required, and provide little fleet flexibility
- Collection is less efficient than single stream
Local Dual Stream Recycling Facilities

- Sierra Fibers, Albany, NY
- Metro Waste Paper Recovery, Albany, NY
Single Stream Recyclables Collection and MRF

- Residents place all paper and metal, glass, and plastic (MGP) recyclables into a single container, usually a larger, wheeled container rather than bins.

- Standard rear- or side-loading trucks can be used for collection.

- Material recovery facilities sort recyclable papers from MGP using a single process.
Advantages

• Requires less sorting by participants, thereby encouraging higher participation and diversion rates

• Collection efficiency and fleet flexibility

• May allow recycling of additional materials
Disadvantages

- *Initial capital costs:* Carts for residents, collection vehicles, updated recycling facility, educational programs
- Paper quality may decline as paper is commingled with other materials
- Possible increase in residual rates after processing
Case Study:
Waste Management Facility in Syracuse Suburb of Clay, NY
• 94,000 square-foot single-stream facility is the largest in NYS
• Can process up to 20 tons of recyclables per hour
• Re-opened in 2006 following a fire at the existing WM facility
• Cost $11 million to build new facility
Mixed Municipal Solid Waste (MSW) Composting

- Biodegradable components of MSW are processed in a bioreactor drum and allowed to mature in a storage area.

- Some facilities integrate biosolids processing.

- Requires pre- and post-processing to remove inert materials.

- Compost products can be used as agricultural fertilizer.
Advantages

- Beneficial use of compost products
- Limited separation required for generators
- Collection efficiency
- Reduced greenhouse gas emissions and visual impacts (no stacks)
Disadvantages

- Requires pre- and post-processing
- Residual plastics or glass can diminish quality of compost
- Marketability of compost products
Case Study:
Delaware County, NY
One of 13 MSW composting facilities in U.S. and the only facility in NYS

Initiated project in 1996; facility began operations in 2006

Cost $20 million ($833 per annual ton) to design and construct

- Does not include land acquisition
- County DPW did concrete construction work, non-process wiring, and installed all processing equipment except the bioreactor
- County highway department did site work including roads, septic and storm water systems, and building pad
Funding sources:

- $2 million recycling grant from NYSDEC
- $11.5 million bond from NYS Environmental Facilities Corporation
- $7.5 million from county solid waste funds

Annual operating cost is $1 million ($32 per ton); includes staff, electricity, maintenance & repair, compost testing, marketing and professional services.
Source Separated Organic Waste (SSOW) Composting

- Organic materials such as food waste are placed in a separate container (usually a “green bin”) for collection.
- Can be integrated with yard waste composting programs.
- Produces compost products that can be used as agricultural fertilizer.
Advantages

• Produces high-quality compost products

• Participation by all generators, or by only major generators such as restaurants, supermarkets, large institutions, etc.

• Can help increase diversion rates
Disadvantages

- May impose additional separation effort and cost demands on generators
- Storage at the source is potentially odorous and requires additional space
- May require additional collection costs
SSOW Composting in New York State

- No municipal programs in NYS

- Cayuga Compost is a small-scale private operation in Tompkins County that collects SSOW from major generators including Ithaca College dining facilities and the Ithaca Farmer’s Market

- Compost products are bagged for retail sale, or can be purchased in bulk
Case Study: Former Capital Compost Albany, NY
• Constructed in 1997

• Facility personnel separate organic material such as food waste from MSW on site for composting, and remaining MSW is transported for landfill disposal.

• 50 tpd capacity

• Facility was unable to remain cost-competitive, and was forced to cease operations.
Waste to Energy (WTE) Facility

- MSW is processed at high temperatures in an oxygen-rich environment, essentially incinerating the waste.

- Steam is produced and used to power turbines, which in turn can generate electricity.

- Emission control systems minimize air pollution and reduce greenhouse gas generation.

- Ash byproducts are non-hazardous, and can be used as an alternative daily cover at landfills.
Advantages

• Landfill disposal volume can be reduced by 80-90%

• Electricity is a useful product with a reliable market

• Greenhouse gas emissions are reduced relative to landfill disposal
Disadvantages

- High Capital Cost
- Public support can be limited by concerns regarding emissions, despite the fact that emissions are extremely low.
- Stacks can have negative visual impacts
WTE Facilities in New York State

- 10 active facilities in NYS as of July 2008

- 3.8 million tons of MSW processed to generate 2.2 million megawatt hours of electricity statewide in 2007

- Nearest WTE facilities are:
  - Wheelabrator Resource Recovery Facility, Hudson Falls, NY
  - Dutchess County Resource Recovery Facility, Poughkeepsie, NY
  - Onondaga County Resource Recovery Facility, Syracuse, NY
Case Study: Onondaga County Resource Recovery Facility, Syracuse, NY
• Processed 350,000 tons of MSW in 2007 and generated enough electricity to supply 25,000 homes.

• Tipping fee revenues were $20,280,730, electricity revenues were $12,535,017, and recovered materials revenues were $1,527,803.

• Facility operations cost $26,838,390 (78% of gross revenue). This value includes labor, materials, maintenance and other operating costs, disposal of ash byproducts and bypass materials, as well as debt service on the facility.

• Average cost of $76.68/ton to cover operating expenses.
Recent Feasibility Study by Oneida Herkimer Solid Waste Authority

- Potentially processible waste stream 233,599 TPY.
- Study assumed plant design capacity at 750 TPD.
- Project Development and Construction Costs estimated at $164 million
- Total costs per ton for this facility was estimated between $70 - $109.
- Would result in an increase in cost of between $38 to $61 per ton due to fixed costs for landfill operations and debt service.