

**SWMP Steering Committee**  
**For Discussion at Meeting of October 20, 2009**  
**Analysis of Alternative Scenarios**  
**Summary Table**

<b>Criteria</b>	<b>Alternative Scenario #1</b>	<b>Alternative Scenario #2</b>	<b>Alternative Scenario #3</b>
Cost (2009\$/ton)	\$ 81	\$ 82	\$ 67
Time to Implement	Q1-2015	Q1-2015	Q3-2018
Facility Land Area (acres)	5	20	65
Land Area/ton (s.f./ton)	1.02	4.68	4.77
Annual LF space (CY/person)	1.25	0.86	0.18
GHG Emissions (MTCE/ton)	(0.07)	(0.08)	(0.026)

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**Cost Analysis Summary**

Program Element	Alternative Implementation Scenario		
	#1	#2	#3
Local Solid Waste Management Authority <sup>1</sup>	NA \$	875,000	NA
Regional Solid Waste Management Authority <sup>2</sup>	NA	NA \$	1,370,000
SSOW Facility <sup>3</sup>	NA \$	1,433,000 \$	4,299,000
Solid Waste Treatment Facility <sup>4</sup>	NA	NA \$	34,005,700
Landfill Disposal including transfer and transport <sup>5</sup>	\$	17,281,400 \$	12,920,600
Total Cost of Program Elements (2009\$)	\$	17,281,400 \$	15,228,600 \$
Total Waste Generation in 2015 <sup>6</sup>	417,400	417,400	1,355,000
Maximum Recycling Achievement	49%	65.00%	65.00%
Maximum Waste Recycled or Composted -TPY 2015	204,500	271,300	880,800
Minimum Waste remaining for treatment or Disposal - TPY 2015	212,900	146,100	474,200
SSOW Processed - TPY 2015	0	40,000	120,000
Total Tonnage for Average Cost <sup>7</sup>	212,900	186,100	594,200
<b>Average Cost of Program Elements (\$2009 per ton)</b>	<b>\$ 81 \$</b>	<b>\$ 82 \$</b>	<b>\$ 67</b>

**Notes:**

1. Total Finance and Administration Cost in 2009\$
2. Total Finance and Administration Cost in 2009\$
3. For Alternative 2, Net SSOW Facility Expenses in 2009\$ for a 40,000 TPY Facility . For Alternative 3 cost for facility capacity of 120,000 TPY facility is assumed at the same unit cost.
4. Net Facility Cost in 2009\$
5. Total Facility , Transport & Disposal Cost in 2009\$. Disposal included in solid waste treatment facility cost for Alternative 3.
6. Alternatives 1 and 2 for Planning Unit only. Alternative 3 assumes expanded planning Unit population of 700,000.
7. Total tonnage for average fee includes waste remaining for treatment and disposal and SSOW processed.

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Time Frames to Implement**

<b>Element and Activity</b>	<b>Estimated Completion date</b>
<b>Local or Regional SWMA</b>	
Complete feasibility study & consensus building	Q1-2011
Enact enabling legislation	Q3-2011
Establish Authority and appoint directors	Q1-2012
Hire staff and commence operations	Q3-2012
<b>SSOW Facility</b>	
Complete facility procurement	Q2 - 2013
Permits issued	Q2 - 2014
Construction completed	Q4 - 2014
Full-scale operations	Q1-2015
<b>SW Treatment Facility</b>	
Complete facility procurement	Q2 - 2013
Permits issued	Q1 - 2016
Construction completed	Q1 - 2018
Full-scale operations	Q3 - 2018

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**Land Resource Impacts**

Alternative and Program Element	Waste Managed TPY	Facility Land Area (acres)	Land Area per ton managed (s.f./ton)	Annual Landfill Space <sup>1</sup> (CY/yr)	Landfill Space per ton managed (CY/ton)	Annual Landfill Space per person <sup>2</sup> (CY/person)
<b>Alternative Scenario #1</b>						
Landfill Disposal	212,900	NA		283,867		
Transfer Station	212,900	5				
<b>Subtotal</b>	<b>212,900</b>	<b>5</b>	<b>1.02</b>	<b>283,867</b>	<b>1.33</b>	<b>1.25</b>
<b>Alternative Scenario #2</b>						
Landfill Disposal	146,100	NA		194,800		
Transfer Station	146,100	5				
SSOW Facility	40,000	15				
<b>Subtotal</b>	<b>186,100</b>	<b>20</b>	<b>4.68</b>	<b>194,800</b>	<b>1.05</b>	<b>0.86</b>
<b>Alternative Scenario #3</b>						
Landfill Disposal of Residue Bypass, etc.	173,600	NA		126,255		
Transfer Station	NA	5				
SSOW Facility	120,000	45				
Solid Waste Treatment Facility	474,200	15				
<b>Subtotal<sup>3</sup></b>	<b>594,200</b>	<b>65</b>	<b>4.77</b>	<b>126,255</b>	<b>0.21</b>	<b>0.18</b>

**Notes**

1. Landfill space for alternatives 1 and 2 determined with net airspace density factor of 1500 lb/CY. Landfill space for alternative 3 determined with net airspace density factor of 2750 lb/CY.
2. 2020 Population for Scenario #1 and #2 is 226,500. Scenario #3 Population is 700,000.
3. For Alternative 3, only includes SSOW and SW Treatment facility Tonnage, which includes residue tonnage.

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Greenhouse Gas Emissions**

	Alternative Scenario #1	Alternative Scenario #2	Alternative Scenario #3
<b>SSOW Facility</b>			
Annual Facility Throughput	-	40,000	120,000
Net Facility Emissions (MTCE) <sup>1</sup>	-	(1,900)	(5,700)
Facility Residue (TPY)	-	2,000	6,000
Avoided Landfill Disposal (TPY)	-	38,000	114,000
Avoided Landfill Emissions (MTCE) <sup>2</sup>	-	(1,900)	(5,700)
Avoided Transportation Emissions (MTCE) <sup>3</sup>	-	(247)	(741)
<b>SSOW Facility Emission Subtotal (MTCE)</b>	<b>-</b>	<b>(4,047)</b>	<b>(12,141)</b>
<b>Solid Waste Treatment Facility</b>			
Annual Facility Throughput	-	-	494,700
Net Facility Emissions (MTCE) <sup>4</sup>	-	-	(14,841)
Facility Residue (TPY)	-	-	173,604
Avoided Landfill Disposal (TPY)	-	-	321,096
Avoided Landfill Emissions (MTCE) <sup>5</sup>	-	-	25,688
Avoided Transportation Emissions (MTCE) <sup>3</sup>	-	-	(2,087)
<b>Solid Waste Treatment Facility Emission Subtotal (MTCE)</b>	<b>-</b>	<b>-</b>	<b>8,760</b>
<b>Transfer and Landfill Disposal</b>			
Annual Transfer and Disposal Tonnage	212,900	146,100	173,600
Landfill Emissions (MTCE) <sup>2</sup>	(17,032)	(11,688)	(13,888)
Transportation Emissions (MTCE) <sup>3</sup>	1,384	950	1,128
<b>Transfer and Landfill Disposal Emission Subtotal (MTCE)</b>	<b>(15,648)</b>	<b>(10,738)</b>	<b>(12,760)</b>
<b>Net GHG Emission by Alternative Scenario (MTCE)</b>	<b>(15,648)</b>	<b>(14,785)</b>	<b>(16,141)</b>
<b>Total waste processed and disposed (TPY) <sup>6</sup></b>	<b>212,900</b>	<b>186,100</b>	<b>614,700</b>
<b>Net GHG Emissions per ton (MTCE/ton)</b>	<b>(0.07)</b>	<b>(0.08)</b>	<b>(0.026)</b>

**Notes:**

1. Net GHG emissions from composting calculated as -0.05 MTCE per ton of SSOW as per Exhibit 4-6 in (USEPA, 2006)  
MTCE = Metric Tons of Carbon Equivalent. A metric ton = 1000 kilograms or approximately 2,200 pounds.
2. Net GHG emissions of Food Scraps from Landfill w/ LFG recovered for energy calculated as 0.05 MTCE per ton as per Exhibit 6-8 in (USEPA, 2006)
3. Net GHG from transportation calculated as 0.0065 MTCE per ton, calculated from Exhibit 2-1 in (USEPA, 2006)  
Calculation assumes 415 mile round trip to landfill site and 25 ton payload at 7 miles per gallon of diesel fuel.
4. Net GHG emissions from combustion at WTE facility calculated as -0.03 MTCE per ton combusted from Exhibit 5-6 in (USEPA, 2006)
5. Net GHG emissions from Landfill w/ LFG recovered for energy calculated as -0.08 MTCE per ton as per Exhibit 6-8 in (USEPA, 2006)  
Avoided Landfill emissions are shown as positive values because net GHG emissions factor is negative.
6. For Alternative 3, only includes SSOW and SW Treatment facility Tonnage, which includes residue tonnage.