

**V. Planning Period Projections and Strategies  
[ORC Section 3734.53(A)(5)-(6)]**

The Tables referenced throughout Section V of this *Plan Update* are included as attachments at the end of the section.

**A. Planning Period**

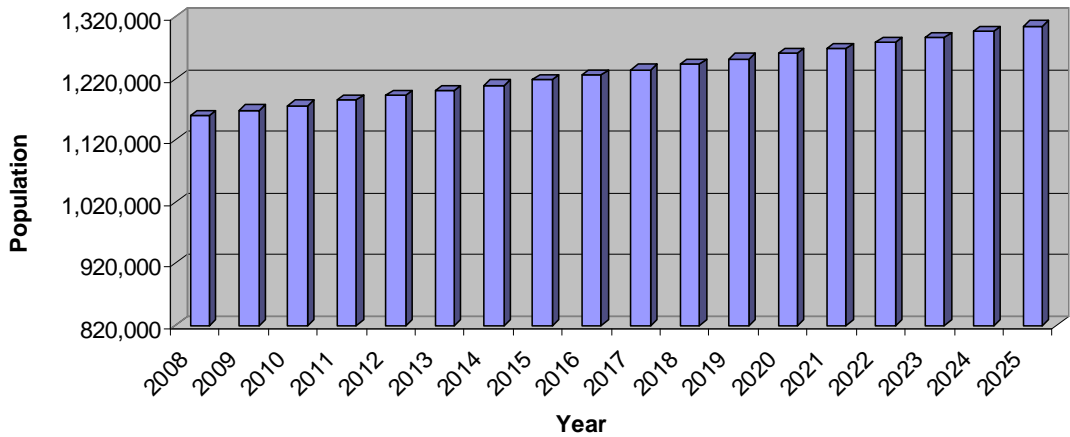
The planning period for the *Plan Update* is January 1, 2011 - December 31, 2025.

**B. Population Projections**

The population projections for SWACO are presented in Table V-1. The population estimate from Section IV for the 2008 reference year is 1,160,301. This estimate includes a population estimate of 1,129,067 for Franklin County plus approximately 31,200 for political subdivisions with more than 50 percent of their residents residing in Franklin County which comprise the Franklin County Solid Waste Management District (“District”).

The population projections were made using the annual growth rate from 2005 – 2025 based on the growth rate of the county that each political subdivision or portion of a political subdivision is located. SWACO projects the population will continue to grow slowly over the fifteen-year planning period. Total population within SWACO is projected to reach almost 1,305,000 by 2025. This is a population increase of approximately nine percent for the planning period (2011-2025). Figure V-1 depicts SWACO’s estimated total population throughout the planning period.

**Figure V-1 – SWACO Population Estimate (2008 – 2025)**



The northern portion of the District extends into Delaware County. Specifically, this includes portions of the City of Columbus, City of Dublin and City of Westerville. In the early 2000’s, Delaware County was one of the fastest growing counties in the United States.

Presently, it is still experiencing population growth and that growth is expected to continue to increase significantly throughout the planning period according to projections by the Ohio Department of Development, Office of Strategic Research.

## **C. Waste Generation Projections**

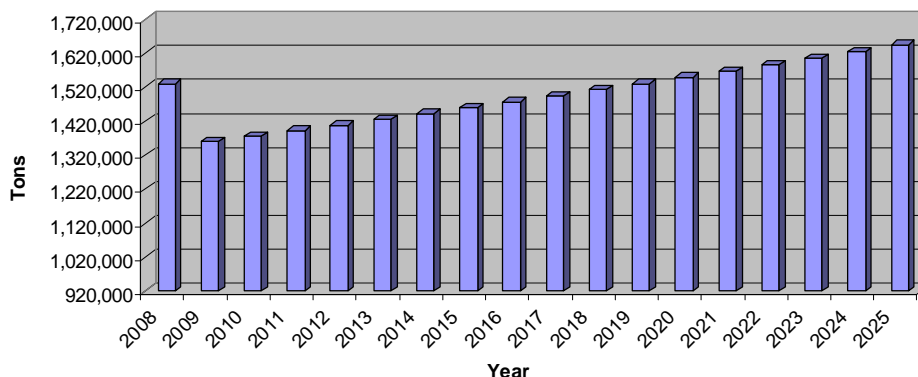
### **1. Residential/Commercial Sector**

The Residential/Commercial Sector waste generation projections are presented in Table V-2. Waste generation is presented for the 2008 reference year and each subsequent year through 2025. The per capita generation rate for 2008 is from Table IV-8. The per capita generation rate for 2009 is calculated from 2010 Annual District Report data. The per capital generation rates for 2010 -2025 are calculated by adjusting the rate according to Ohio EPA's "Estimating Per Capita Residential/Commercial Waste Generation," guidance document published September 4, 2002. For the planning period 2011-2025, the rate increases at one-half percent (0.005).

The total Residential/Commercial Sector waste generation estimate for 2008 is approximately 1,529,000 tons. Residential/Commercial Sector waste generation is projected to increase throughout the planning period consistent with the rate of population increase and projected changes in generation rates. In 2011, the first year of the planning period, Residential/Commercial Sector waste generation is projected to be 1,392,000 tons. Residential/Commercial Sector waste generation is projected to increase to 1,644,000 tons in 2025, an 18 percent increase during the planning period.

Figure V-2 depicts the estimated Residential/Commercial Sector waste generation throughout the planning period.

**Figure V-2 – SWACO Residential/Commercial Waste Generation (2008 – 2025)**



## 2. Industrial Sector

SWACO's Industrial Sector waste generation projections are presented in Table V-3. Industrial Sector waste generation is presented by Standard Industrial Classification (SIC) code for the 2008 reference year and each year of the planning period through 2025. A description of each SIC code and the expected employment change throughout the planning period is presented in Table V-3A.

The results from the Industrial Sector waste generation survey are presented in Table IV-2. The adjusted Industrial Sector waste generation number presented in Table IV-8 is the basis for future projections. For 2008, the Industrial Sector waste generated for each SIC code is calculated based on the survey results and the total Industrial Sector waste generation.

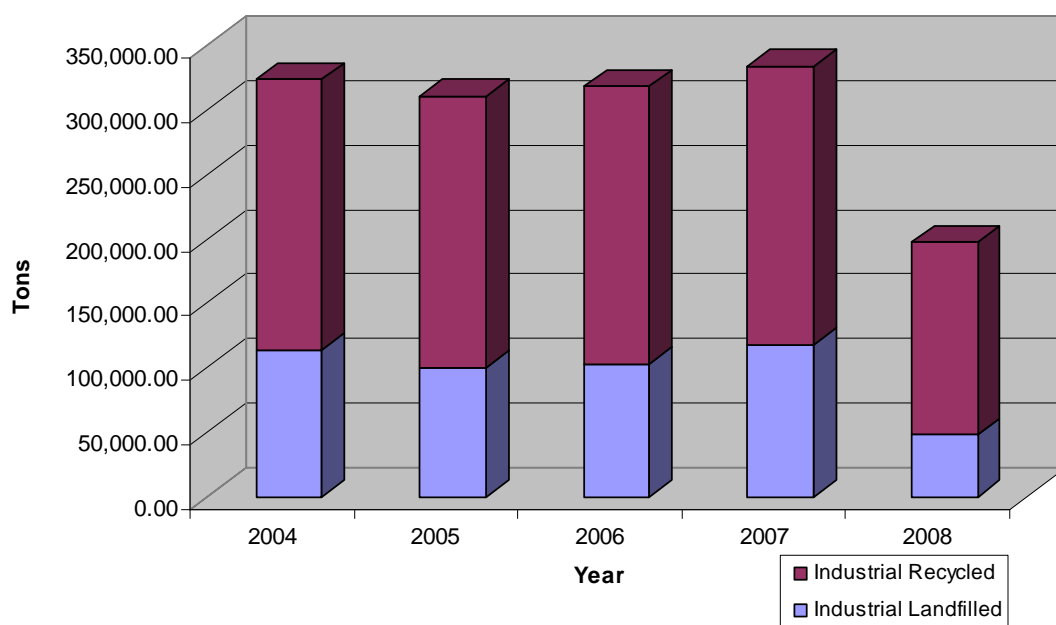
Industrial Sector waste generation is projected for SIC codes 20 and 22-39 (Table V-3A). Table V-3 presents the Industrial Sector waste generation projections from the reference year through the end of the planning period.

Changes in employment by individual SIC code is no longer available. The Ohio Department of Job and Family Services no longer tracks data by SIC code. The new North American Industry Classification System (NAICS) code is the current source of this information. The Ohio Department of Job and Family Services provide employment projections in its document, Outlook for the Industrial Employment Projections Report for the Period 2006-2016. Employment in the manufacturing sector (the current reference that includes the Industrial Sector data) is projected to decrease 17.6 percent over the 10 year period. Employment statistics from 2006 were used to project employment. These projections do not include

the employment changes resulting from the recession which began in December 2007.

Using historical data, industrial generation has fluctuated from a high of 333,712 in 2007 to a low of approximately 197,467 in 2008. The average generation rate from 2004-2008 was about 297,000 tons. In 2008, the percentage of Industrial Sector waste landfilled was lower than in previous years and the percentage of Industrial Sector waste that was recycled was higher than in previous years. This trend may be observed in Figure V-3.

**Figure V-3 – SWACO Historical Industrial Generation**



SWACO redesigned its data collection efforts in 2008 through multiple contacts via email, U.S. Postal Service, phone calls and in-person interviews. Extensive promotion of the new SWACO E-TRAC data management system is expected to result in improved participation by the Industrial Sector in SWACO’s annual surveying efforts.

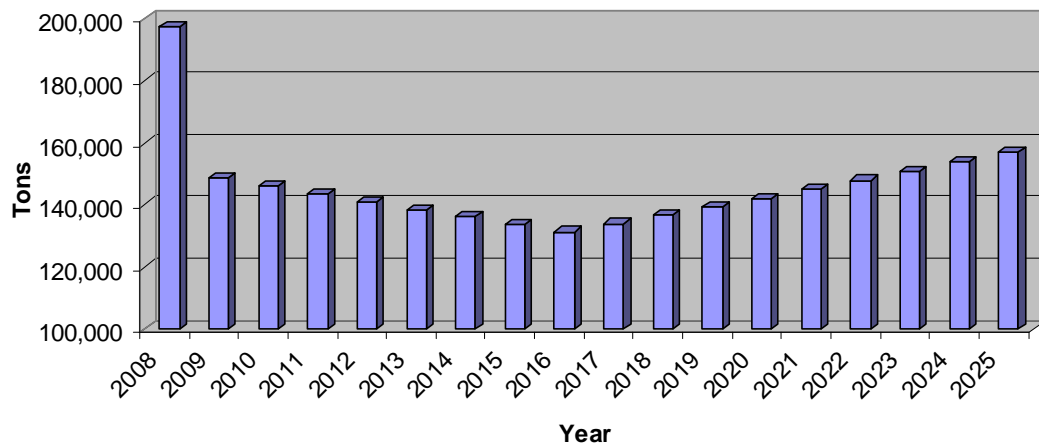
Increases in data gathering capabilities, and a trend of increasing Industrial Sector waste generation within the District occasionally results in data that conflicts with the expected results from the recession.

SWACO projects Industrial Sector waste generation will decrease 1.76% annually during 2009 – 2016. This is the annual average rate of decrease in manufacturing employment according to the Ohio Department of Job and Family Services for the period beginning in 2006 and ending in 2016. The decrease in Industrial Sector waste generation until 2016 is

recession related and predicts a slow recovery. SWACO's Industrial Sector waste generation will reach a low of 131,354 tons in 2016, which is approximately 165,600 tons less than the average rate of Industrial Sector waste generation from 2004 – 2008. The State of Ohio's manufacturing employment projections end at 2016. SWACO has projected a conservative two percent increase for the remaining years of the planning period. It is unlikely that negative manufacturing employment growth would continue throughout the planning period. By 2017, Industrial Sector waste generation rates will increase by two percent per year until 2025, the final year of the planning period. In 2025, Industrial Sector waste generation is projected to be 156,980 tons, which is more than a 40,000 ton decrease from the reference year in 2008, to the end of the planning period in 2025.

Figure V-4 depicts the estimated Industrial Sector waste generation throughout the planning period.

**Figure V-4 – SWACO Industrial Waste Generation (2008 – 2025)**



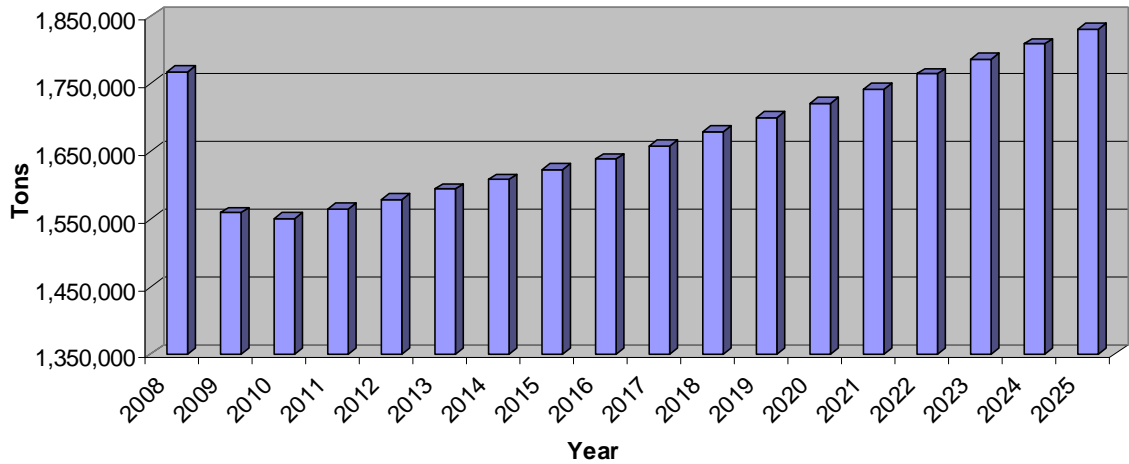
**3. Total Waste Generation**

The total Industrial Sector waste generation projections for SWACO during the planning period are presented in Table V-4. The total waste generation estimate for the 2008 reference year is 1,767,553 tons. This includes Residential/Commercial Sector waste (1,529,419 tons), Industrial Sector waste (197,467 tons) and exempt waste (40,666 tons).

Exempt waste is projected to remain constant throughout the remainder of the planning period. The generation rate in pounds per person per day in the reference year was 8.35 pounds and is projected to decrease to 7.69 pounds in 2025, the final year of the planning period. Total waste generation is

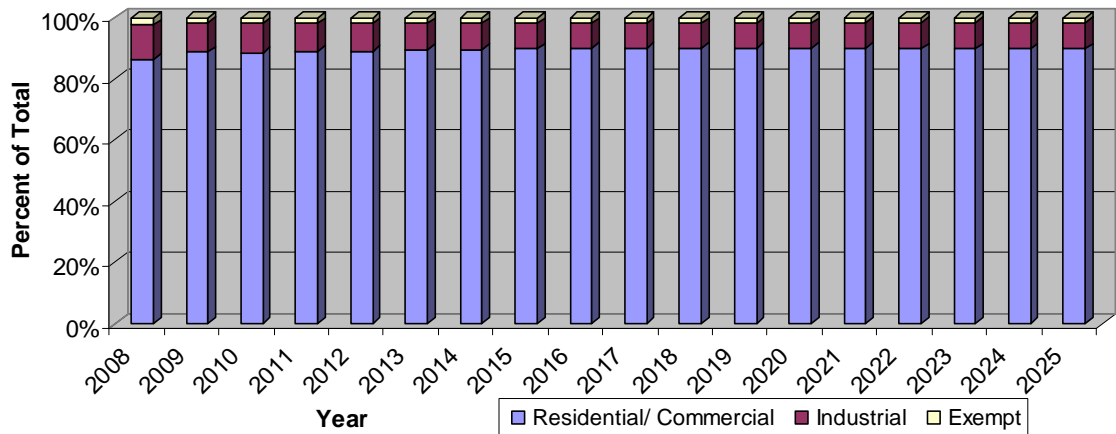
projected to increase over 265,000 tons over the 15 year planning period (2011 – 2025) from approximately 1,565,365 to approximately 1,831,006 tons in 2025, which is nearly a 17 percent increase. Figure V-5 depicts the District’s projected total waste generation from 2008 – 2025.

**Figure V-5 – SWACO Total Waste Generation (2008 – 2025)**



The waste generation by sector as a percentage of the total waste generation is illustrated in Figure V-6.

**Figure V-6 – SWACO Total Waste Generation by Sector (2008 – 2025)**



**D. Projections for Waste Stream Composition**

SWACO does not anticipate any major changes in the composition of the waste stream during the planning period. SWACO will monitor landfill and transfer station reports annually to identify significant shifts in waste stream composition. Current projections indicate that

SWACO's Residential/Commercial Sector and Industrial Sector solid waste streams will remain stable over the 15-year planning period.

**E. Waste Reduction and Recycling Strategies through the Planning Period**

SWACO must continue to develop recycling and waste reduction strategies to meet the goals established in the *1995 State Plan*. The goals include:

**Goal # 1 Access to Alternate Waste Management Opportunities**

The District shall provide access to recycling and waste minimization opportunities for municipal solid waste to its residents and businesses. At a minimum the District must provide access to recycling opportunities to 90 percent of its residential population.

**Goal # 2 Waste Reduction and Recycling Rates**

The District shall reduce and/or recycle at least 25% of the solid waste generated in the Residential/Commercial Sector and at least 50 percent of the solid waste generated in the Industrial Sector.

**Goal # 3 Source Reduction**

Provide informational and technical assistance on source reduction.

**Goal # 4 Technical and Informational Assistance**

Provide informational and technical assistance on recycling, reuse and composting opportunities.

**Goal # 5 Restricted Wastes and Household Hazardous Waste**

Develop strategies for managing scrap tires, yard waste, lead acid batteries and household hazardous waste (HHW).

**Goal # 6 Annual Reporting of Plan Implementation**

**Goal # 7 Market Development Strategy (Optional)**

The following table summarizes all of the District strategies for meeting the *1995 State Plan* Goals:

## District Strategies by 1995 State Plan Goal

Program	Program #	1995 State Plan Goals						
		#1	#2	#3	#4	#5	#6	#7
Non-Subscription Curbside Recycling	SWACO-RP-1	✓						
Subscription Curbside Recycling	SWACO-RP-2	✓						
Drop-Off Recycling	SWACO-RP-3	✓						
Yard Waste Management	SWACO-RP-4					✓		
HHW Collection and Processing	SWACO-RP-5					✓		
Facility Solid Waste Management Planning	SWACO-RP-6			✓	✓			
Electronics Recycling	SWACO-RP-7					✓		
Tire Recycling	SWACO-RP-8					✓		
City of Columbus Recycling Programs	SWACO-RP-9				✓			
Organics Collection and Processing System	SWACO-RP-10	✓				✓		
Smart Communities	SWACO-EA-1				✓			
School District Recycling	SWACO-EA-2				✓			
Teacher Technical Assistance	SWACO-EA-3			✓	✓			
Teacher Workshops	SWACO-EA-4			✓	✓			
Classroom Presentations	SWACO-EA-5			✓	✓			
News From SWACO	SWACO-EA-6			✓	✓			
Landfill Tours	SWACO-EA-7			✓	✓			
Special Events	SWACO-EA-8			✓	✓			
Central Ohio Emeralds Awards	SWACO-EA-9			✓	✓			
SWACO Website	SWACO-EA-10			✓	✓			
Environmental Steward Office - City of Columbus Partnership	SWACO-EA-11			✓	✓			
Social Media	SWACO-EA-12			✓	✓			
Communications Plan	SWACO-EA-13			✓	✓			
Solid Waste Assessments	SWACO-IP-1			✓	✓			
OMEX and Local Recyclers	SWACO-IP-2			✓	✓			
Business Round Table	SWACO-IP-3			✓	✓			
Business Outreach	SWACO-IP-4			✓	✓			
Anti-Litter and Illegal Dumping Programs	SWACO-LID-1							
Franklin County Emergency Management Agency Debris Management Plan	SWACO-LID-2							
Health Department Support	SWACO-LID-3							
Strategic Planning and Program Development	SWACO-OP-1	✓		✓	✓	✓	✓	✓
Solid Waste Plan Update	SWACO-OP-2	✓		✓	✓	✓	✓	✓
Market Development	SWACO-OP-3							✓
SWACO General Grants Program	SWACO-OP-4			✓	✓			
Surveys - SWACO E-TRAC and Re-TRAC Systems	SWACO-OP-5						✓	
SWACO Waste Consortiums	SWACO-OP-6	✓			✓			
Programs and Facilities Advisory Committee (PFAC)	SWACO-OP-7							
Wasteshed Planning	SWACO-OP-8							
Infrastructure	SWACO-FAC-1 A.-H.							
<b>Number of Strategies Per Goal</b>		<b>12</b>	<b>0</b>	<b>18</b>	<b>22</b>	<b>7</b>	<b>3</b>	<b>3</b>

Recycling and waste reduction programs are important elements for this *Plan Update*. The life of the Franklin County Sanitary Landfill is not infinite. Opportunities to protect and extend the useful life of the landfill will benefit all SWACO residents. Many of the programs presented in this section will assist in extending the useful life of the landfill which is a primary component of SWACO's Mission.

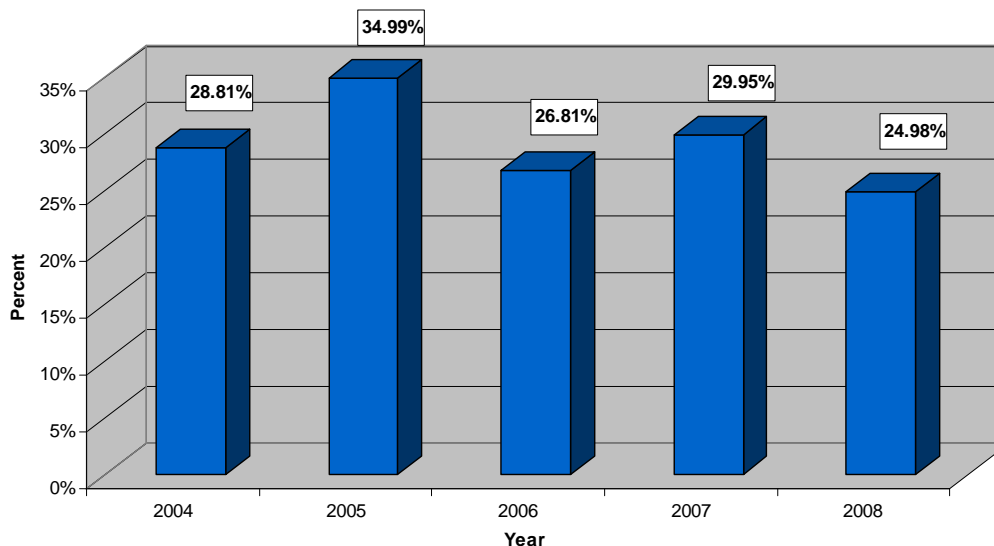
SWACO has developed several programs to provide technical support to political subdivisions, businesses and industries to help accomplish the goal of extending the life of the Franklin County Sanitary Landfill through recycling and waste reduction. Many of the programs described in Section IV and continued here in Section V are designed to help increase waste reduction and recycling and achieve the 1995 *State Plan* Goals. SWACO encourages and strongly urges political subdivisions, businesses and industries to work with SWACO and take advantage of these program opportunities to accomplish the State Plan Goals.

**1. Residential/Commercial Sector Waste Reduction/Recycling and Education Strategies**

The Residential/Commercial Sector waste reduction strategies are presented in Tables V-5A and V-5B. Table V-5A includes program and projection scenarios based on the information available during the development of this *Plan Update*. Table V-5B provides program and projection scenarios based on the assumption that the City of Columbus will implement a non-subscription curbside recycling program beginning in 2012. Both projection scenarios are based on the estimated future Residential/Commercial Sector waste reductions which include the following considerations:

- Average annual rate of District population change over the planning period (0.62 percent);
- Recycling potential of each individual recycling and source reduction program; and
- Length of time the program has been in existence.

The historic diversion rate for the Residential/Commercial Sector fluctuated over the previous five years from a high of 35 percent in 2005 to just under 25 percent in 2008. The average diversion rate during this five year period was approximately 29 percent. Figure V-7 depicts the diversion rate from 2004 to 2008 for the Residential/Commercial Sector.

**Figure V-7 – Historical Residential/Commercial Waste Reduction Rate**

Fluctuations in waste reduction rates over the previous five years make it difficult to identify a trend in waste reduction. Historical data was not used to project the quantity of materials recycled for the Residential/Commercial Sector.

SWACO began using the online data management system Re-TRAC in 2004 and trained communities to enter data into the Re-TRAC system. Not all communities report their recycling tonnages to SWACO, but participation has improved steadily over the previous five years and participation is expected to continue to improve.

SWACO developed an online survey in 2005 to collect information from the Residential/Commercial including institutional generators. Since then, SWACO has encouraged businesses to access the online survey through SWACO's website. In 2008, SWACO began providing SWACO E-TRAC to businesses to use year-round. It is offered at no cost to the businesses and provides them with the ability to generate reports and maintain their data from year to year. Businesses can use SWACO E-TRAC to track recycling and disposal quantities as well as collection and disposal costs. Businesses can calculate their environmental impact by running an environmental report that uses the USEPA WARM Model. SWACO promotes these program features as an incentive to increase participation in SWACO's annual surveying efforts.

In 2008, SWACO had a less than five percent response rate from the businesses and institutions that comprise Residential/Commercial Sector and relied partially on broker data for providing recycling tonnages for the businesses and

institutions within the Residential/Commercial Sector (see explanation in Section IV). Therefore, until data collection from individual businesses and institutions improve historic trends in the Residential/Commercial Sector may continue to fluctuate during the planning period.

Projected increases in recycling rates are kept in line with increases in generation rates. Increases in the Residential/Commercial Sector generation rates are based on an average population increase of 0.62 percent throughout the 2008 – 2025 planning period. This increase of 0.62 percent annually is applied to the entire Residential/Commercial Sector for recycling programs except for the Yard Waste Management Program, HHW Collection, Electronics Collection, and the Anaerobic Digester Infrastructure Program. The projected recycling rates for these programs are explained under the descriptions for the Yard Waste Management Program (SWACO-RP-4), HHW Collection and Processing (SWACO-RP-5), Electronics Collection (RP-7), and the Infrastructure Program (SWACO-FAC-1).

An annual increase of 0.62 percent, to keep in line with generation rate increases, is a conservative approach to projecting rates of recycling throughout the planning period. This conservative approach does not project that the average diversion rate from 2004 – 2008, which was nearly 30 percent, will continue throughout the planning period.

Through these strategies and SWACO’s existing programs, SWACO projects an increase in the Residential/Commercial Sector recycling from 382,079 tons in 2008 to 393,085 tons at the end of the planning period. The greenhouse gas savings from recycling 382,079 tons in 2008 is equal to a reduction of almost 1,097,000 metric tons of carbon dioxide. In 2025, SWACO projects that the Residential/Commercial Sector greenhouse gas savings from recycling 393,085 tons will be 1,128,154 metric tons. Figure V-8 depicts carbon equivalent factors for emissions, energy or resources saved through SWACO’s Residential/Commercial Sector recycling programs.

**Figure V-8 – Equivalent Factors for Emissions Saved 2008 and 2025**

<b>Equivalent Factors for Emissions saved (based on CO2 emissions per unit)</b>	<b>2008</b>	<b>2025</b>
Gallons of Gasoline	124,468,414	128,053,797
Barrels of Oil	2,550,155	2,623,614

Equivalent Factors for Emissions saved (based on CO2 emissions per unit)	2008	2025
Acres of Standing Forest	7,649	7,869
Propane Cylinders used for Home Barbeques	45,690,280	47,006,415
Total Greenhouse Gas Reduction (metric ton carbon dioxide equivalent)	1,096,567	1,128,154

In the 2009 State Solid Waste Management Plan, Districts will be required to measure reduction in greenhouse gas emissions. Many recycling strategies described in this *Plan Update* contribute to reductions in greenhouse gas emissions. These strategies, as demonstrated below, will also address many of the challenges that SWACO identified with its current solid waste management programs.

**A. RESIDENTIAL/COMMERCIAL RECYCLING AND WASTE REDUCTION PROGRAMS**

In the 2008 reference year, SWACO recycled or reduced approximately 25 percent of the solid waste generated by the Residential/Commercial Sector. SWACO is evaluating several new programs and collection systems to assist in SWACO's efforts to divert solid waste from landfill disposal. Curbside recycling and yard waste collection is being evaluated by the City of Columbus and Mayor Coleman has announced his goal to implement non-subscription residential curbside recycling in 2012.

The programs in this section are designed to meet the 1995 State Plan Goals #2, #4 and #5.

**1. SWACO-RP-1 – Non-Subscription Recycling Programs**  
(1995 State Plan Goal #1)

This program will continue (see description in Section IV). The following narrative addresses the challenges identified in Section IV:

The non-subscription curbside recycling programs described in Section IV are projected to continue throughout the planning period. SWACO's strategy for the planning period is to maintain existing non-subscription curbside programs by working with communities to continually seek

program improvement. See SWACO-EA-1 – Smart Communities to see how SWACO is educating communities about recycling and waste reduction.

During the planning period, SWACO will monitor and evaluate existing curbside programs, including program operations, promotions, contracts and program successes and challenges. SWACO will continue to work with communities to ensure that they enter their non-subscription curbside recycling data on the Re-TRAC system.

SWACO projects that recyclable materials collected from existing non-subscription curbside recycling programs will increase by 0.62 percent annually based on population growth.

**2. SWACO-RP-2 – Subscription Curbside Recycling**  
(1995 State Plan Goal #1)

This program will continue (see description in Section IV). The following narrative addresses the challenges identified in Section IV:

In 2008, the City of Columbus and Clinton Township were the only political subdivisions that offered subscription-recycling services. Approximately 19,562 tons of recyclable materials were collected in 2008. The City of Columbus is continuing this service while it plans to implement non-subscription residential curbside recyclables collection in 2012. The alternatives are discussed in the City of Columbus Recycling Programs (SWACO-RP-10).

**3. SWACO-RP-3 – Drop-off Recycling (3-O-620)**  
(1995 State Plan Goal #1)

This program will continue (see description in Section IV). The following narrative addresses the challenges identified in Section IV:

Toward the end of 2002, SWACO took over the drop-off programs operating in the City of Columbus. By 2008, SWACO was operating one of the largest and most comprehensive drop-off

recycling programs in the nation. In 2008, there were 203 total drop-off locations located throughout the District. Some locations even hosted multiple containers for collecting materials. The drop-offs serve not only Columbus residents, but also serve residents of the District.

The drop-off recycling program is expected to continue. If a non-subscription curbside program is implemented by the City of Columbus, SWACO may adjust the drop-off locations depending on volumes and usage to provide a greater number of multi-family residences access to and an opportunity to recycle. SWACO is committed to ensuring multi-family housing units have recycling opportunities. The drop-off program is projected to increase 0.62 percent annually consistent with existing non-subscription curbside and subscription recycling programs and forecasted population growth. SWACO will continue to reserve the right to eliminate and/or relocate drop-offs if any of the following occurs:

- There is a significant reduction in the quantity of recyclables delivered to an individual drop-off;
- The service at an individual drop-off is determined to be cost prohibitive;
- Contamination at an individual drop-off is high which reduces the quality of the recyclables and increases costs to an unacceptable level; and
- The location business/residences request the drop-off be removed.

**4. SWACO-RP-4 – Yard Waste Management (3-O-600)**  
(1995 State Plan Goal #5)

This program will continue (see description in Section IV). The following narrative addresses the challenges identified in Section IV:

SWACO will continue to contract with Kurtz Brothers and Ohio Mulch to manage yard waste. Copies of the agreements by and between SWACO and Kurtz Brothers and Ohio Mulch are attached as Appendix H. In January of 2009, the

City of Columbus discontinued its curbside non-subscription yard waste collection services to reduce costs. During the summer of 2009, an agreement was reached with Rumpke to offer subscription curbside yard waste collection to City of Columbus residents for a fee of \$49.50. During the fall of 2009, SWACO made yard waste collection locations available for City of Columbus and Franklin County residents to use free of charge during the fall of 2009.

In 2008, the quantity of yard waste collected from SWACO included materials generated from a windstorm that struck Franklin County during the summer of 2008. This is an event that does not happen annually and the storm debris likely caused a spike in the quantity of yard waste collected in 2008. From 2008 to 2009, there was a decrease of 12,829 tons of yard waste collected from the District.

Further decreases are projected to occur in 2009 and 2010 due to the discontinuation of the City of Columbus non-subscription yard waste collection program in February 2009. The City of Columbus reinstated the curbside yard waste program in the spring of 2010.

Historical data was used to determine an appropriate quantity of yard waste generated during years that did not have significant storm events. The quantity of 165,500 tons reflects SWACO's six-year average yard waste tonnage from 2004 – 2010. The District used this figure to project the amount of yard waste in 2010. The projection for 2010 yard waste collection is expected to remain at 2010 levels for the remainder of the planning period.

**X. Just In Time Recycling (JITRS) (3-O-630)**

Effective March 1, 2010, the JITRS program ceased operation as a SWACO program due to budget constraints. SWACO identified a private sector provider to succeed the JITRS program without SWACO financial support. SWACO selected a provider willing to continue this service and granted it approximately 1,800 carts to

continue the program for three years at a reasonable cost to JITRS customers.

**5. SWACO-RP-5 – HHW Collection and Processing (3-O-610)**  
(1995 State Plan Goal #5)

This program will continue (see description in Section IV). The following narrative addresses the challenges identified in Section IV:

One of the challenges identified in the HHW collection program is the high cost to administer and operate the program. The recession and decreased revenue forced SWACO to find ways to minimize the cost of the HHW program. SWACO's goal is to decrease HHW program costs by half during 2010 and 2011. In 2008, the total cost to maintain the permanent collection facility, hold mobile collection events and contract to collect and properly dispose of HHW waste was \$551,902. SWACO pays a per pound fee on top of a base fee for all of the materials collected through the program. To help reduce program costs, SWACO will decrease the number of mobile collection events held annually. In 2010, SWACO will decrease the number of events from thirteen events to four. To help offset reduced collection events, SWACO's permanent HHW facility will expand its operation an additional day starting in 2010.

SWACO also stopped accepting latex paint in 2010. Non-hazardous latex paint was the largest component of the HHW collected at the facility and through mobile collection events. SWACO has increased its education efforts to inform residents on how to properly dispose of latex paint at home. Since SWACO will not be accepting latex paint, SWACO projects that HHW tonnages will drop to 213 tons in 2010 and 163 tons in 2011. The projection for HHW is projected to remain at 2011 levels throughout the planning period.

6. **SWACO-RP-6 – Facility Solid Waste Management Planning (Budget # - See General Education and Awareness & Other Program Expenditures)**  
(1995 State Plan Goals #1, #3 and #4)

This program will continue (see description in Section IV). SWACO will continue to establish partnerships with large institutional facilities in Franklin County to develop solid waste reduction and recycling programs. SWACO prepares plans for large institutions like Columbus Public Schools, Nationwide Arena and Capital University.

7. **SWACO-RP-7 – Electronics Recycling**  
(1995 State Plan Goals #1 and #5)

This program will continue (see description in Section IV). SWACO is projecting the tonnage for electronics recycling will remain flat at 2008 levels throughout the planning period.

8. **SWACO-RP-8 – Tire Recycling**  
(1995 State Plan Goals #1 and #5)

This program will continue (see description in Section IV). SWACO is projecting scrap tires to increase slowly by 0.62 percent throughout the planning period based on the increase in population.

9. **SWACO-RP-9 – City of Columbus Recycling Programs (3-O-620)**  
(1995 State Plan Goal #1 and #4)

This program will continue (see description in Section IV). The following narrative addresses the challenges identified in Section IV:

SWACO's 2009 Strategic Plan includes a Goal to Develop Effective Recycling Systems for Columbus and Neighboring Communities. Until a substitute non-subscription residential recycling service begins, SWACO will continue its existing drop-box recycling program for the City of Columbus.

SWACO's City of Columbus drop box program is the largest of its kind in the United States. This program has been successful and provides both single family and multi-family households with access to recycling.

In 2008, the City of Columbus conducted a Bicentennial Commission citizen survey and found that a recycling program was identified as the No. 1 priority for Columbus in 2012. During 2009/2010, SWACO and the City of Columbus evaluated future opportunities to enhance the recycling services offered to Columbus residents. Enhancements include: comprehensive residential curbside services, additional materials to be recycled and other methods of collection and providing recycling services.

In the 2010 State of the City address, the Mayor of the City of Columbus proposed a comprehensive recycling program for every single-family household in Columbus by 2012. One of the ideas the City of Columbus is considering is combining curbside recycling collection with curbside yard waste removal on a rotating collection schedule. One week the City may provide curbside recycling collection service and the next week the City will provide curbside yard waste collection service. This would reduce the number of trips to provide these services. This idea, as well as other options, will continue to be explored by the City and SWACO. The City will consider implementing the program described in the Mayor's State of the City address during 2012.

SWACO will support the City of Columbus when it establishes a curbside recycling program by providing technical support including:

- Education and Awareness Assistance,
- Assistance with Contracting,
- Greenhouse Gas reporting through Re-TRAC, and
- Program Evaluation.

The City of Columbus will be responsible for all costs of the residential curbside recycling program. This includes hauler contracts,

collection equipment, fuel and processing of recyclables. SWACO is committed to ensuring the residents of Columbus have access to recycling services throughout the planning period. At this time, SWACO intends to maintain the drop-box program to provide service to multi-family households and single-family households if the curbside recyclable material collection is implemented in phases. SWACO also reserves the right to eliminate and/or relocate drop-offs as referenced in section RP-3.

This *Plan Update* provides a program and projection estimates based on the assumption that the City of Columbus will implement a non-subscription curbside recycling program beginning in 2012. This is illustrated in Table V-5B. The program will consist of alternate weeks of recycling and yard waste beginning in the spring and early summer of 2012. The City will be divided into quadrants, so that by the end of 2012 all residents in the City of Columbus will have curbside recycling and yard waste collected without a fee. The Phase-in process will have the entire city in the program by the end of 2012. SWACO anticipates that tonnages will increase throughout the year as households receive the equipment to participate.

According to a Curbside Recycling Program Feasibility Study conducted for the City of Canton in 2006, participation in a subscription curbside recycling program is estimated to be between seven and ten percent of a City's population. The study collected data from four Ohio cities that manage residential solid waste internally through their sanitation departments and collect trash and recyclables using city crews. The four cities studied were Dayton, Elyria, Cuyahoga Falls and Lakewood. Data was also collected from several other cities in the State of Ohio to determine the estimated pounds of recycling per person per year. The method of collection varied in each of the cities where containers, carts or bags were used to collect recyclable materials. The average pounds per person per year was calculated to be 132 pounds per person per year. Using this average and the 2012 City of Columbus projected

population, it is estimated that over 50,000 tons of recyclables could be collected from the City of Columbus in 2012. The City's goal is 35 percent diversion of both yard waste and recyclables. The amount of recyclables collected at SWACO drop-offs located within the City of Columbus is projected to decrease by one-half when the City of Columbus non-subscription curbside program starts. The other half of the tonnage will be diverted to the City of Columbus non-subscription curbside program. The drop-offs will still be available for use by residents of multi-family units and businesses. The City of Columbus has estimated that the new recycling curbside program could collect as much as 100,000 tons annually. SWACO has provided Table V-5-B for informational purposes using the more conservative tonnage estimate.

Table V-5B uses an annual increase of 0.62 percent for waste reduction and recycling programs from 2012 to the end of the planning period in 2025 based on population changes. This results in a diversion rate of 26 percent by the end of the planning period. This is a conservative approach to projecting rates of recycling throughout the planning period when taking into account that the average diversion rate from 2004 – 2008 was nearly 27 percent. The total tons recycled at the end of the planning period in V-5B would be 425,938 tons which is a 32,853 ton increase over the 393,085 tons projected in Table V-5A.

**10. SWACO-RP-10 – Organics Collection and Processing System (new)**  
(1995 State Plan Goals #1 and #5)

Since SWACO's inception, recycling of organic materials has been a significant recycling strategy. Traditionally, organic material recycling includes yard waste composed of leaves, grass and brush. According to the USEPA, yard waste accounts for up to 13 percent of the total waste stream in the United States in 2008. Yard waste is easily separated from other portions of solid waste. Collection programs have been developed in many of SWACO's political subdivisions to collect,

transport and process this recyclable organic material. These programs are described in other sections of this *Plan Update*.

Food waste is another significant segment of the solid waste stream. USEPA estimates food waste and similar organic material accounts for approximately 20 percent of solid waste generated. There are several reasons why food waste has been difficult to recycle:

- Lack of collection and processing infrastructure;
- Costly to collect at the source of generation;
- Contamination; and
- Storage odors.

During the next five years, SWACO will continue to evaluate proposals to develop programs to recycle organic materials, including food waste. The proposed Kurtz Brothers Inc. Anaerobic Digester will be constructed and become operational at the end of 2010. SWACO is financially supporting the development of the anaerobic digestion facility via the current contract with Kurtz Brothers Inc. to process yard waste. The Anaerobic Digester is presented under SWACO infrastructure later in this section (Program # SWACO-FAC-1). Also, important in the development of organic material programs is the availability of funding. SWACO anticipates many proposals for the management of organic materials, including food waste.

The market potential for organic materials recycling is significant within the District. The quantity of available organic material other than yard waste is estimated at more than 200,000 tons annually. The collection market for organic material covers a variety of generators including:

- Single and multi-family households
- Restaurants
- Hospitals
- Grocery Stores
- Convenience Stores
- Gas Stations
- Schools

- Universities
- Shopping Centers
- Hotels
- Catering Businesses
- Arenas, Stadiums
- Industrial Food Manufacturers
- Industrial Pet Food Suppliers
- Large Box Stores (example Walmart, Sam's Club, COSTCO, Whole Foods, Target, CVS, Walgreens)

The list of generators of organic materials is comprehensive. This list encompasses a wide variety of different types of generators and different ways organic materials are generated. The list also highlights a need for a consistent and organized method to collect and manage organic materials, including food waste.

A successful organic materials program would include:

- Development of cost effective equipment and routes to easily collect additional organic materials;
- Storage of the organic materials between collections in a manner to prevent odor;
- Reduction of contamination of the organic materials at the point of generation; and
- Verification that realistic sources exist to finance the implementation of additional facilities, and/or verification that the cost to implement a new organic materials program is reasonable.

SWACO is concerned that as interest in organic materials recycling grows that proposals for inefficient technologies for collection and processing will emerge.

A plan for managing organics diversion projects may also include the 2011 Source Separation Rule. The specific details about this proposed rule are included in Section VI.

## **B. EDUCATION AND COMMUNITY AWARENESS PROGRAMS**

The programs in this section are designed to meet State Plan Goals #3 and #4. These programs meet or exceed the requirements established in the State Solid Waste Management Plan. The 2009 State Solid Waste Management Plan will require the following programs as a minimum for Outreach and Education:

- A website;
- A comprehensive resource guide;
- An inventory of available infrastructure; and
- A speaker or presenter.

SWACO already has a website and uses it to direct Franklin County residents and businesses to information about recycling, reuse and source reduction. The website also serves as the portal for communities and businesses to access the SWACO E-TRAC and Re-TRAC data management systems. SWACO has a comprehensive resource guide on its website to inform SWACO's residents and businesses how to recycle a variety of unwanted items. The resource guide may be accessed through SWACO's home page using a handy drop-down menu with the heading "How do I get rid of?" SWACO also has a search function on their home page for residents and businesses to search for recycling drop-off locations by zip code. SWACO routinely updates its lists and map of the nearly 200 publically available recycling drop-offs located in the District. SWACO also has an Environmental Education Manager that coordinates speaking engagements, makes presentations, and conducts landfill tours. Throughout the planning period, SWACO will continue to use the SWACO website and other outlets to conduct outreach and provide a variety of educational opportunities to residents and businesses within the District. The following programs enable SWACO to provide information and technical assistance while focusing on outreach and education.

### **1. SWACO-EA-1 – Smart Communities (3-D-312)** (1995 State Plan Goal #4)

This program will continue (see description in Section IV).

**X. Center of Science and Industry (COSI)  
(3-D-305)**

Beginning in 2009, SWACO, for budgeting reasons, ended funding for the maintenance of this exhibit.

**X. Columbus Zoo My House/Education Grant  
(3-D-609)**

SWACO has sponsored the “My House” exhibit/education center at the Columbus Zoo and Aquarium since 2000. SWACO has provided funding to the Columbus Zoo and Aquarium for a staff position to educate visitors about “My House”. For budgetary reasons, this program will be discontinued and funding will not be provided to the Columbus Zoo and Aquarium to fund the staff position.

**2. SWACO-EA-2 – School District Recycling (3-D-602)**

*(1995 State Plan Goals #1 and #4)*

This program will continue (see description in Section IV).

**3. SWACO-EA-3 – Teacher Technical Assistance (3-D-603)**

*(1995 State Plan Goals #3 and #4)*

This program will continue (see description in Section IV).

**4. SWACO-EA-4 – Teacher Workshops (3-D-605)**

*(1995 State Plan Goals #3 and #4)*

This program will continue (see description in Section IV).

**X. Resource Library (3-D-606)**

The library now resides in a metro park. To address the challenges identified in Section IV, SWACO donated all of the materials from the Resource Library to the newly constructed Grange Insurance Audubon Center Library. The Audubon Center will maintain the library.

**5. SWACO-EA-5 – Classroom Presentations**

*(1995 State Plan Goals #3 and #4)*

This program will continue (see description in Section IV). SWACO will make classroom presentations as they are requested by school administrators or teachers.

**6. SWACO-EA-6 – News from SWACO (Budget # - See General Education and Awareness)**

*(1995 State Plan Goals #3 and #4)*

This program will continue (see description in Section IV).

**7. SWACO-EA-7 – Landfill Tours (3-D-604)**

*(1995 State Plan Goals #3 and #4)*

This program will continue (see description in Section IV).

**8. SWACO-EA-8 – Special Events (Budget # - See General Education and Awareness)**

*(1995 State Plan Goals #3 and #4)*

This program will continue (see description in Section IV).

**9. SWACO-EA-9 – Central Ohio Emeralds (3-D-330)**

*(1995 State Plan Goals #3 and #4)*

This program will continue (see description in Section IV). The continuation of this program will be evaluated on an annual basis.

**10. SWACO-EA-10 – SWACO Website (Budget # - See Other Program Expenditures)**

*(1995 State Plan Goals #3 and #4)*

This program will continue (see description in Section IV). A plan to revise the website will be included in the SWACO communications plan to be developed as SWACO-EA-13.

**11. SWACO-EA-11 – Environmental Steward Office – City of Columbus Partnership (3-D-102)**  
(1995 State Plan Goals #3 and #4)

This program will be evaluated on an annual basis and continue as approved by the Board of Trustees. The City of Columbus Office of Environmental Steward was created as part of the City's Get Green Initiative. SWACO, in cooperation with the City of Columbus, provides grant funding to assist with the funding of an Environmental Steward position.

One of the basic foundations of the City's Green Initiative is that the City does not have to make a choice between economic prosperity and environmental protection. The City of Columbus is reaching out to the business community to encourage green businesses.

Specifically, the City is developing the following:

- Tax incentives to encourage green businesses. In 2006, tax incentives to three businesses focused on recycling and resulted in almost 100 jobs and \$20 million dollars in investment.
- The Mayor's Green Team including the Environmental Steward established a Get Green Business Conference.
- Working with the Environmental Steward the City of Columbus intends to explore whether its business and/or zoning codes include any impediments to green buildings.
- The City was a recent partner with the Capital Crossroads Special Improvement District to develop recycling programs in the downtown district.
- Expanding the GreenSpot Program for businesses, communities, residents and local organizations. With over 1,900 current locations, new members are constantly being recruited and therefore educated through community events such as Neighborhood Pride where residents receive information on the program and when supplies are available, rain barrels, CFL light bulbs and low flow faucets. City employees receive similar information during their orientation training.

In 2010, the Environmental Steward will assist SWACO in the development of the annual and long range Strategic Plan.

**12. SWACO-EA-12 – Social Media (new)**  
(1995 State Plan Goals #3 and #4)

This is a new program. The use of social media outlets and social networking sites has expanded beyond private use by individuals to now include businesses and institutions. This new Social Media program was initiated to provide SWACO with an opportunity to use online social networking applications to reach audiences in new and exciting ways. There are now multiple YouTube videos accessible from SWACO's website that enable viewers to explore the landfill and Green Energy Center. SWACO has also created Facebook and Twitter accounts which attract fan bases that follow SWACO's daily activities, developments and news releases. For the duration of the planning period SWACO will monitor emerging technological advances in communication to keep up with future capabilities of social media and networking sites.

**13. SWACO-EA-13 – Communications Plan (new)**  
(1995 State Plan Goals #3 and #4)

This is a new program. SWACO continues to grow its outreach to residents, communities and businesses in Central Ohio. This includes ongoing contact with local media and reporters. SWACO also provides information and articles to businesses and community groups that do not have the time or expertise on topics related to waste diversion, recycling and litter control. SWACO also has multiple "social media" accounts which enable it to reach out on a one-to-one basis to constituents. SWACO intends to develop a communications strategy as part of the organization's 2010 Strategic Plan. SWACO staff will inventory communications activities both internal and external to determine the strengths and opportunities for improvement in communications. Part of the new Communications Plan is the complete reworking of the website [www.swaco.org](http://www.swaco.org) to feature additional

interactive features as well as more instructional videos that lead people through the processes of waste diversion and waste reduction.

## 2. Industrial Waste Reduction Strategies

The industrial waste reduction strategies are presented in Table V-6. SWACO must include strategies designed to reduce/recycle at least 50 percent of the industrial waste generation. In 2008, SWACO exceeds the goal to reduce/recycle at least 50 percent of the industrial waste generated through waste reduction and recycling programs implemented by industry.

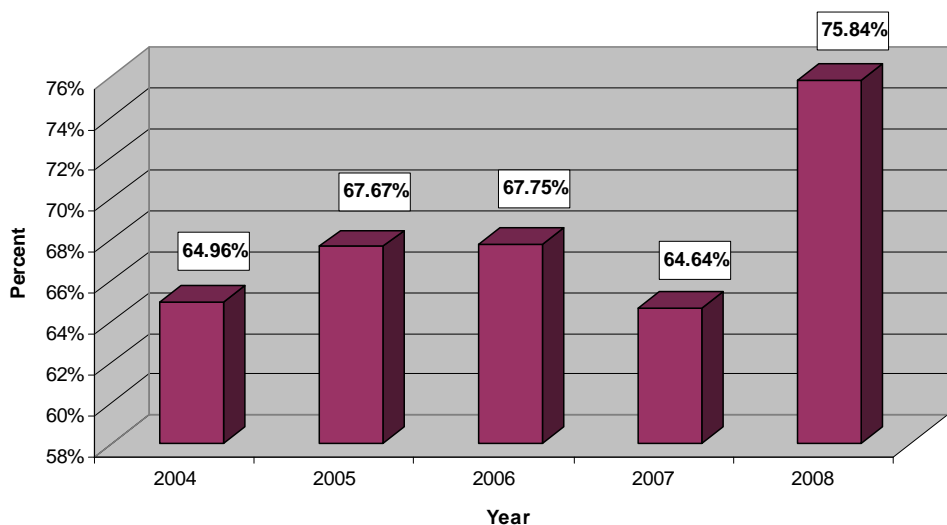
Total industrial waste recycled 149,760 tons (Table IV-6)

Total adjusted industrial waste generation 197,467 tons (Table IV-8)

Percentage of waste reduced and or recycled is  
 $149,760/197,467 = 75.8$  percent.

The historic diversion rate for the Industrial Sector fluctuated over the previous five years from a high of almost 76 percent in 2008 to a low of 64.64 percent in 2007. Figure V-9 depicts the diversion rate from 2004 to 2008 for the Industrial Sector. The average waste reduction rate during the five year period was over 68 percent.

**Figure V-9 – Historical Industrial Waste Reduction Rate**



SWACO developed an online survey in 2005 to collect information from industrial businesses. SWACO encourages businesses to access the online survey through SWACO's website. In 2008, SWACO began providing SWACO E-TRAC to businesses to use year-round. Businesses can use SWACO E-TRAC to track recycling and disposal quantities as well as

collection and disposal costs. Businesses can calculate their environmental impact by running an environmental report that uses the USEPA WARM Model. SWACO promotes these program features as an incentive to increase participation in SWACO's annual surveying efforts.

In 2008, SWACO had a four percent survey response rate from the Industrial Sector and relied partially on broker data for providing recycling tonnages for this Sector (see explanation in Section IV). Until data collection from individual industrial businesses improves, historical trends in industrial diversion may continue to fluctuate during the planning period.

SWACO projects in Table V-6 that the amount of Industrial Sector recycling will stay constant throughout the planning period. Industrial Sector recycling is held constant relative to the projected Industrial Sector waste generation. Since Industrial Sector generation is projected to decrease and then increase, the Industrial Sector recycling tonnages are projected to decrease and increase as well. The relative rate of recycling (percentage) is held at a near constant rate of approximately 84 percent, which is the projected rate of recycling in the first year of the planning period.

Although SWACO plans to continue using these strategies in addition to the District's other existing programs, SWACO projects a decrease in industrial recycling from 149,760 tons in 2008 to a low of 111,648 tons in 2016. From 2016 to the end of the planning period, SWACO projects a two percent annual increase in recycling, finishing the planning period with 131,478 tons by 2025. Fluctuations in industrial recycling rates are due to decreases in manufacturing employment brought on by changing economic conditions. The greenhouse gas savings from recycling 149,760 tons in 2008 is equal to a reduction of 429,811 metric tons of carbon dioxide. In 2025, SWACO projects that the Industrial Sector greenhouse gas savings from recycling 131,478 tons will be equal to a reduction of 377,342 metric tons of carbon dioxide. This is a decrease in greenhouse gas savings of approximately 52,500 metric tons from 2008 to 2025. The decrease is a result of a decrease in mixed recyclables. Figure V-10 depicts carbon equivalent factors for emissions, energy or resources saved through SWACO's industrial recycling programs.

**Figure V-10 – Equivalent Factors for Emissions  
Saved 2008 and 2025**

<b>Equivalent Factors for Emissions saved (based of CO2 emissions per unit)</b>	<b>2008</b>	<b>2025</b>
Gallons of Gasoline	48,786,742	42,831,085
Barrels of Oil	999,561	877,539
Acres of Standing Forest	2,998	2,632
Propane Cylinders used for Home Barbeques	17,908,800	15,722,578
Total Greenhouse Gas Reduction (metric ton carbon dioxide equivalent)	429,811	377,342

In the 2009 State Solid Waste Management Plan, Districts will be required to measure reduction in greenhouse gas emissions. Many recycling strategies laid out in this *Plan Update* contribute to reductions in greenhouse gas emissions. SWACO has several existing programs that provide information and technical assistance to industrial facilities on recycling, source reduction, reuse and composting. These programs will continue throughout the planning period.

**A. INDUSTRIAL RECYCLING AND WASTE REDUCTION PROGRAMS**

The programs in this section are designed to meet 1995 State Plan Goals #2, #3, and #4.

The following are programs to assist industrial facilities throughout the planning period:

- 1. SWACO-IP-1 – Solid Waste Assessments (3-D-615)**  
(1995 State Plan Goals #3 and #4)

This program will continue (see description in Section IV).

- 2. SWACO-IP-2 – OMEX and Local Recyclers**  
(1995 State Plan Goals #3 and #4)

SWACO will continue to present this program option for businesses on the website (see description in Section IV).

**3. SWACO-IP-3 – Business Round Table  
(Budget # - See Other Program Expenditures)  
(1995 State Plan Goals #3 and #4)**

This program will continue (see description in Section IV).

**4. SWACO-IP-4 – Business Outreach (new)  
(1995 State Plan Goals #3 and #4)**

This is a new program. SWACO has reached out to businesses through the Business Round Table. SWACO encourages, company waste assessments and assists with the development of company programs and participation to increase recycling waste reduction efforts. This outreach effort will have a stronger focus in the planning period with the year-round effort to develop more business involvement through in-person contacts, press releases, news articles, business seminars and specific program promotions.

**3. Other Programs**

**A. LITTER AND ILLEGAL DUMPING PROGRAMS**

The programs in this section are designed to meet State Plan Goals #5.

**1. SWACO-LID-1 – Anti-Litter and Illegal Dumping Programs (3-D-702, 3-D-700, 3-D-705, 3-D-800)**

Adopt-A-Roadway

This program will continue (see description in Section IV).

Environmental Crimes Task Force of Central Ohio (ECTF) (Formerly: Nail-a Dumper: Illegal Dumping Prevention)

This program will continue (see description in Section IV).

Litter Marshall

This program will continue (see description in Section IV).

Litter Management

This program will continue (see description in Section IV).

**2. SWACO-LID-2 – Franklin County Emergency Management Agency (FCEMA) Debris Management Plan (Budget # - See Other Program Expenditures)**

This program will continue (see description in Section IV). The following narrative addresses the challenges identified in Section IV:

SWACO will review the Debris Management Plan to ensure the availability of resources to collect the debris and to verify the existence of facilities to accept the debris. In the case of a natural or manmade disaster, agreements will already be in place to streamline the debris clean-up process. SWACO will review the Disaster Debris Plan in 2010 to assure that the Debris Management Plan includes the necessary criteria for receiving reimbursement from FEMA for clean-up funding commitments by SWACO. This review will include evaluating contracts, record-keeping methodology, responsibilities of and coordination with local EMAs and SWMDs, and the role of SWACO in debris clean-up.

If a natural or manmade debris generating disaster occurs, SWACO may choose to waive all or a portion of its tipping fees. Clean-ups on public property performed by non-profit organizations using volunteers may have tipping and generation fees waived. The Executive Director may waive SWACO tipping fees in excess of fifty percent of the direct disposal costs for townships, villages, and municipal corporations that conduct residential bulk clean-up projects.

SWACO reserves the right to update the Debris Management plan on an as needed basis.

**3. SWACO-LID-3 – Health Department Support (3-D-801)**

This program will continue (see description in Section IV).

**B. OTHER PROGRAMS**

**1. SWACO-OP-1 – Strategic Planning and Program Development (Budget # - See Other Program Expenditures)**

*Strategic Planning Process*  
(1995 State Plan Goals #1, #2, #3, #4, #5, #6 and #7)

This program will continue (See description in Section IV).

*Project Development*  
(1995 State Plan Goals #1, #2, #3, #4, #5, #6 and #7)

This program will continue (See description in Section IV).

**2. SWACO-OP-2 – Solid Waste Plan Update (3-D-105)**

(1995 State Plan Goals #1, #2, #3, #4, #5, #6 and #7)

This program will continue (See description in Section IV). SWACO began their Solid Waste Plan Update in the spring of 2009. A draft of the Solid Waste Plan is to be turned into the Ohio EPA on or before July 18, 2010. The final plan must be submitted to Ohio EPA on or before October 20, 2011 for approval by the Director of the Ohio EPA by January 18, 2012.

**3. SWACO-OP-3 – Market Development (3-D-106, 3-O-670)**

(1995 State Plan Goal #7)

This program will continue (See description in Section IV).

4. **SWACO-OP-4 – SWACO General Grants Program (3-D-315, 3-D-398)**  
(1995 State Plan Goals #3 and #4)

This program will continue (See description in Section IV).

5. **SWACO-OP-5 – Surveys SWACO E-TRAC and Re-TRAC Systems (3-D-105)**  
(1995 State Plan Goal #6)

This program will continue (See description in Section IV). The following narrative addresses the challenges identified in Section IV:

SWACO will continue to use SWACO E-TRAC and the Re-TRAC one-time survey to gather recycling data from the Residential/Commercial Sector and the Industrial Sector. Over the course of the planning period more businesses will become familiar with SWACO E-TRAC and realize the benefits of using this innovative tool to manage their waste streams. Consistent annual surveying and promotion of and participation in SWACO E-TRAC will provide SWACO with more data on commercial/institutional recycling.

As SWACO continues to educate businesses about source reduction and the financial benefits of reducing the quantity of waste generated, there could be reductions in the amount of material generated, and therefore recycled. For programs pertaining to commercial and institutional entities, SWACO has also considered whether the targeted waste streams are likely to increase, resulting in an overall increase in generation. The projected increase in generation for the Residential/Commercial Sector, coupled with the continuation of existing programs could result in an over-all increase in the quantity of materials recycled. This can occur with well established waste reduction and recycling programs. Annual surveying and increased participation in annual surveying efforts by SWACO can also yield an increase in available data on materials recycled by the Residential/Commercial and Industrial Sectors.

For commercial and institutional programs it is projected that recycling rates will continue to increase at a rate consistent to the rate of population growth (0.62 percent annually). This rate of growth is also the rate of growth for total generation for the Residential/Commercial Sector. The methodology behind this estimate is based on the assumption that potential decreases in generation as a result of source reduction will be off-set by improvements in data collection. Therefore, increases in recycling may be attributed to the increase in overall generation, which is linked to population growth over the course of the planning period.

**7. SWACO-OP-6 – SWACO Waste Consortia (Budget # - See Other Program Expenditures) (1995 State Plan Goals #1 and #4)**

This program shall continue (see Section IV). The original consortium initiated its second contract and added new members in 2009. The new additions to the original consortium are the City of Reynoldsburg and Blendon Township. SWACO supports the development of a second consortium for other communities not involved in the original consortium. In 2010, SWACO held initial meetings with eleven political subdivisions expressing interest in the second consortium. A second consortium will provide the opportunity to reduce trash, increase recycling and manage costs for participating political subdivisions. The second consortium may also assist with ensuring the marketplace has adequate opportunities for competitive proposals from service providers.

In 2008/2009 SWACO helped sponsor a third consortium designed for commercial and institutional facilities in the Capital Crossroads Special Improvement District (SID) in downtown Columbus. The project was sponsored by ODNR, SWACO and the City of Columbus. The project included 35 building waste assessments and a plan to develop recycling services for the SID. The program includes the development of a special Re-TRAC data collection system that will feed into the SWACO standard Re-TRAC system.

Throughout the planning period SWACO will evaluate how the consortium concept can be applied to businesses, schools, hospitals and other organizations to help reduce trash and recycling costs throughout the District.

**6. SWACO-OP-7 – Programs and Facilities Advisory Committee (PFAC) (new)**

SWACO recognizes that community input and involvement is vital to the successful management of material within the District including development of emerging waste reduction strategies, viable new facilities, and thriving District programs. Therefore, SWACO may establish a new “Programs and Facilities Advisory Committee” (“PFAC”) to assist SWACO in the evaluation of new programs and proposals to site, construct and operate a solid waste facility within the District.

The PFAC, if established, will consist of representatives from the solid waste hauling and disposal industries; the public health community; political subdivisions from within the District; environmental advocacy organizations; the private recycling industry; the organics recycling and processing industry; industrial generators of solid wastes; and other interested parties, citizens or entities that SWACO determines will add value to PFAC deliberations. The composition of the advisory committee will be approved by the SWACO Board of Trustees. Meetings will be chaired and scheduled by the Executive Director or designee.

**8. SWACO-OP-8– Wasteshed Planning (new)**

This is a new program. The development of solid waste management programs and facilities are often limited by political boundaries whether it is a city, township, village or county. SWACO, through the consortiums established for communities and commercial businesses, is learning that another important boundary for programs and facilities is the wasteshed. The wasteshed is similar to a system of rivers or a watershed. The wasteshed is the arterial system the trash, recyclables and

organics travel to a solid waste processing, transfer or final disposal facility. Often the watershed crosses political boundaries. SWACO will initiate contact with other solid waste districts to explore operationally efficient and cost effective solutions to solid waste programs on a regional basis. A goal will be to explore opportunities to work with other solid waste districts to develop watershed solutions (joint facilities such as organics, transfer, waste-to-energy etc.). Another goal would be to develop either new programs or shared facilities that benefit the generators of waste in the watershed with mutually beneficial outcomes for the participants.

### **C. SWACO INFRASTRUCTURE**

#### **1. SWACO-FAC-1– Infrastructure**

This program will continue (see Section IV). SWACO operates three transfer facilities and a landfill located in southern Franklin County. SWACO facilities are funded through tip fees and not solid waste generation fees. SWACO intends to upgrade facilities as necessary to ensure the infrastructure remains efficient. Additionally, during the planning period, SWACO may determine it is necessary to construct and operate new facilities to assist with the efficient operation of SWACO's solid waste management system. The upgrade, construction, and operation of SWACO's solid waste management system will not require a plan revision or amendment and is exempt from the siting strategy in Section VI.

The following facilities make up the infrastructure used to manage solid waste and recycling within the District.

#### **A. Franklin County Sanitary Landfill**

SWACO owns and operates the Franklin County Sanitary Landfill located just west of I-71 on London-Groveport Road in southern Franklin County. On December 31, 2008, the landfill had over 29 years of landfill capacity remaining based on current volumes received.

SWACO, throughout the planning period, will continue to evaluate landfill capacity and appropriate options for the future. This may include:

- Landfill expansion
- New landfill facility
- Purchase of land or contracting for additional capacity

The funding for the upgrade, construction, purchase, or contracting for landfill capacity is not funded with generation fees and therefore shall not require a Plan revision or amendment.

**B. SWACO Transfer Facilities**

The Morse Road Transfer Station is scheduled for a comprehensive facility upgrade. The facility upgrade will make the facility more efficient in the delivery and management of the solid waste delivered to this transfer station. SWACO will consider upgrades or the development of new facilities after the Morse Road facility project is underway.

SWACO operates three transfer facilities. The three facilities are located at Georgesville Road, Jackson Pike, and Morse Road in the City of Columbus. The waste received at these three transfer facilities is delivered to the Franklin County Sanitary Landfill.

**C. Green Energy Centre Landfill Gas Recovery**

SWACO's Green Energy Centre converts landfill gas into Compressed Natural Gas (CNG) for use in vehicles. In order to address the challenges established in Section IV, SWACO will be working to develop a CNG consortium to establish a marketplace for the CNG. The goals for the Green Energy Center project include:

- Plans for the next three years include converting 9 fleet vehicles.
- SWACO is working to develop a consortium of governments, school districts and businesses to use the CNG supply developed at the Green Energy Center.
- The Green Energy Center may produce 250,000 gas gallon equivalents of compressed natural gas annually.

USEPA stated the conversion of the landfill gas into a useable CNG product helps to improve the environment, produce domestic renewable fuels and generate economic growth.

**D. Central Ohio Transformation Center (formerly WTEF Multi-Plex Enterprise)**

The name of this site is now the Central Ohio Transformation Center (COTC). This site will be used for the Anaerobic Digester. Other programs/facilities may be researched and considered appropriate for this site in the future, but there are no other programs/facilities scheduled for development at the time of this *Plan Update*.

**X. Fiber Recovery Facility**

There are no plans to continue the Fiber Recovery Facility due to the fire that destroyed the facility.

**X. RASTRA**

This program will no longer continue. RASTRA ceased operations in 2009 as a result of unfavorable market conditions associated with the recession.

**E. Anaerobic Digester**

SWACO and the City of Columbus have negotiated a working agreement with Schmack BioEnergy now operating as

Quasar Energy Group to develop an organics waste project that includes an anaerobic digestion process to produce biogas and return processed organic liquids and solids as an end product to be used as fertilizer or soil amendments.

The Quasar facility opening is planned for the second half of 2010. It will be located at 2500 Jackson Pike. The facility will be designed to process multiple types of organic waste from Columbus and other political subdivisions within the District. In particular, the facility will be able to process off spec material from manufacturers of organic material products. The facility will manage fats, oil and grease (FOG) from the City of Columbus and other entities.

The Quasar facility will be designed to produce 750 kilowatts of electricity and process approximately 35,000 wet tons of organic waste annually. The facility's projected cost is \$7.3 million.

SWACO anticipates that the anaerobic digester will lead to a significant diversion of off-spec manufacturing organic materials from landfill disposal.

In 2011 the anaerobic digester will be operational and accepting materials for digestion. It is projected that there will be solid waste from the Residential/Commercial and Industrial Sectors diverted from landfill disposal and digested. SWACO projects about 1,000 tons will be diverted from the Residential/Commercial Sector and about 10,000 tons will be diverted from the Industrial Sector beginning in 2011. The amount diverted from each Sector annually will remain constant for the duration of the planning period at 1,000 tons and 10,000, respectively. These figures are conservative estimates based upon the projected quantity of materials that do not

include fats, oils or greases, which would otherwise be landfilled.

**F. Digital-On-Container Tracking System (DOTS)**

This is a new program. SWACO is currently researching a Digital-On-Container Tracking System (DOTS) for solid waste haulers and facilities. SWACO would like to procure a DOTS system that will allow for the monitoring of the location and generation of solid waste, yard waste and recyclables and their ultimate delivery to appropriate solid waste facilities. The intent for the DOTS system is to ensure that SWACO is appropriately paying for waste generated within the District.

One process to procure the technology might be:

Step 1 – Develop a procurement document for the DOTS program.

Step 2 – Release the procurement document to vendors for a proposal.

Step 3 – Conduct interviews and review the proposals.

Step 4 – If a vendor is found to be responsive and affordable, a pilot study may be conducted to test the technology and its effectiveness.

Step 5 – If the pilot study is successful, SWACO will consider a full-scale roll-out of the DOTS system for hauling companies operating within the District. The rollout could be completed in phases. SWACO will determine the schedule and methodology upon receiving the results from the pilot study.

SWACO will also communicate with adjacent solid waste districts to see if

DOTS makes sense to pursue on a regional basis.

To support the development of the SWACO pilot study, SWACO will be developing rules to implement this program.

SWACO reserves the right to reduce or eliminate this project based on the following:

- Management or Board of Trustees determination to reduce or eliminate the project for any reason.
- Cost of the system.
- The system does not provide the data and information as originally intended.

#### **G. SWACO Collection Operations**

SWACO currently operates a collection system for approximately 203 publicly available and 18 private use only recycling drop-off locations. The drop-off recycling operation requires collection seven days per week. During the planning period, SWACO may consider providing additional refuse or recycling collection services to the following:

- Political Subdivisions;
- Waste Consortiums;
- Private Commercial/Institutional Facilities.

The provision of these services could be at the request of a political subdivision, consortium or private facility or to ensure adequate competition in the marketplace.

#### **H. SWACO Waiver Program**

SWACO has waiver agreements with identified solid waste facilities. These agreements are included in Appendix N. Waiver agreements may be used as a management tool in the future for identified solid waste streams. Currently, SWACO

has one year waiver agreements for solid waste transfer/disposal, and food waste composting for 2010.

Table V-1  
District Population Projections

Year	County Populations Franklin County	Adjustments to Population										Total District Population		
		Columbus (Delaware)	Dublin (Delaware)	Westerville (Delaware)	Canal Winchester (Fairfield)	Columbus (Fairfield)	Reynoldsburg (Fairfield)	Lithopolis (Fairfield)	Pickerington (Fairfield)	New Albany (Licking)	Reynoldsburg (Licking)		Harrisburg (Pickaway)	Dublin (Union)
2008	1,129,067	3,347	5,174	6,877	695	8,174	316	(61)	(284)	209	6,418	6	363	1,160,301
2009	1,136,508	3,420	5,287	7,027	707	8,314	321	(62)	(289)	211	6,478	6	370	1,168,298
2010	1,143,997	3,495	5,403	7,181	719	8,456	327	(63)	(294)	213	6,539	6	377	1,176,355
2011	1,151,536	3,571	5,521	7,338	731	8,600	332	(64)	(299)	215	6,600	6	384	1,184,472
2012	1,159,125	3,649	5,641	7,498	744	8,747	338	(65)	(304)	217	6,662	6	392	1,192,650
2013	1,166,763	3,729	5,765	7,662	756	8,896	344	(66)	(309)	219	6,724	6	399	1,200,889
2014	1,174,452	3,810	5,890	7,829	769	9,048	350	(68)	(314)	221	6,787	6	407	1,209,190
2015	1,182,192	3,894	6,019	8,000	782	9,203	356	(69)	(320)	223	6,851	6	415	1,217,553
2016	1,189,983	3,979	6,151	8,175	796	9,360	362	(70)	(325)	225	6,915	6	423	1,225,979
2017	1,197,825	4,066	6,285	8,354	809	9,520	368	(71)	(331)	227	6,980	6	431	1,234,469
2018	1,205,718	4,155	6,422	8,536	823	9,683	374	(72)	(336)	229	7,045	6	439	1,243,023
2019	1,213,664	4,245	6,563	8,723	837	9,848	381	(73)	(342)	232	7,111	6	447	1,251,642
2020	1,221,662	4,338	6,706	8,913	852	10,016	387	(75)	(348)	234	7,178	6	456	1,260,326
2021	1,229,713	4,433	6,853	9,108	866	10,188	394	(76)	(354)	236	7,245	6	465	1,269,076
2022	1,237,817	4,530	7,002	9,307	881	10,362	401	(77)	(360)	238	7,313	6	474	1,277,893
2023	1,245,974	4,629	7,155	9,511	896	10,539	407	(79)	(366)	240	7,382	6	483	1,286,777
2024	1,254,185	4,730	7,312	9,718	911	10,719	414	(80)	(372)	243	7,451	6	492	1,295,728
2025	1,262,450	4,833	7,472	9,931	927	10,902	421	(81)	(379)	245	7,521	6	501	1,304,749

Source(s) of information: The 2008 population values are taken from Table IV-1

Projections are based on the annual percent change of each county from the Ohio Department of Development Office of Strategic Research Projected Percent Population Change 2005 to 2030. See Table Below.

County	County % Change 2005-2025	County Annual % Change
Franklin	13.2%	0.659%
Delaware	43.7%	2.185%
Fairfield	34.2%	1.708%
Licking	18.7%	0.937%
Pickaway	8.1%	0.407%
Union	38.3%	1.917%

Period	Period Average	Annual Average
2008-2025	11.07%	0.62%
2011-2025	9.22%	0.61%

Sample Calculation:

Population in previous year + (population in previous year x growth rate) = Population in current year

Example Franklin County:

$$1,129,067 + (1,129,067 \times 0.659\%) = 1,136,508$$

**Table V-2  
District Residential/Commercial Waste Generation (TPY)**

Year	District Population	Per Capita Generation Rate	Total Residential/Commercial Waste Generation (TPY)
2008	1,160,301	7.22	1,529,419
2009	1,168,298	6.37	1,359,185
2010	1,176,355	6.41	1,375,401
2011	1,184,472	6.44	1,391,816
2012	1,192,650	6.47	1,408,432
2013	1,200,889	6.50	1,425,253
2014	1,209,190	6.54	1,442,280
2015	1,217,553	6.57	1,459,517
2016	1,225,979	6.60	1,476,966
2017	1,234,469	6.63	1,494,630
2018	1,243,023	6.67	1,512,512
2019	1,251,642	6.70	1,530,614
2020	1,260,326	6.73	1,548,940
2021	1,269,076	6.77	1,567,492
2022	1,277,893	6.80	1,586,274
2023	1,286,777	6.84	1,605,288
2024	1,295,728	6.87	1,624,538
2025	1,304,749	6.90	1,644,026

**Source(s) of information:**

District Population-Table V-1

Per Capita Generation Rate: Calculated using incremental increases recommended by Ohio EPA in a document titled "Estimating Per Capita Residential/Commercial Waste Generation." According to this document, the recommended per capita annual rate of increase is 0.50%.

2009 Residential/Commercial Waste Generation Tonnage is taken from 2009 draft Facility Data Report and Table V-5A

**Sample Calculation:**

District population x per capita Generation Rate (lb/person/day) x 365 days/year x 1 ton/2,000 lbs = Total Residential/Commercial Generation (tons)

2008 Total Residential/Commercial Waste Generation =  
1,160,301 x 7.22 x 365 x 1/2,000 = 1,529,419

Table V-3  
Projected Industrial Waste Generation

SIC Category	Year																	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
20	40,566	30,555	30,018	29,489	28,970	28,460	27,960	27,468	26,984	27,524	28,074	28,636	29,208	29,793	30,388	30,996	31,616	32,248
22	1,029	775	762	748	735	722	710	697	685	689	712	727	741	756	771	787	802	818
23	503	379	372	366	359	353	347	341	335	341	348	355	362	370	377	384	392	400
24	7,609	5,731	5,630	5,531	5,434	5,338	5,244	5,152	5,061	5,163	5,266	5,371	5,479	5,588	5,700	5,814	5,930	6,049
25	371	279	274	270	265	260	256	251	247	252	257	262	267	272	278	283	289	295
26	5,316	4,004	3,934	3,865	3,797	3,730	3,664	3,600	3,536	3,607	3,679	3,753	3,828	3,904	3,982	4,062	4,143	4,226
27	16,986	12,794	12,569	12,348	12,131	11,917	11,707	11,501	11,299	11,525	11,755	11,990	12,230	12,475	12,724	12,979	13,238	13,503
28	19,782	14,901	14,638	14,381	14,128	13,879	13,635	13,395	13,159	13,422	13,691	13,964	14,244	14,529	14,819	15,115	15,418	15,726
29	476	359	352	346	340	334	328	322	317	323	329	336	343	350	357	364	371	378
30	4,531	3,473	3,353	3,294	3,236	3,179	3,123	3,068	3,014	3,074	3,136	3,198	3,262	3,328	3,394	3,462	3,531	3,602
31	34	26	25	25	24	24	23	23	23	23	24	24	25	25	26	26	27	27
32	7,143	5,381	5,286	5,193	5,101	5,012	4,923	4,837	4,752	4,847	4,944	5,042	5,143	5,246	5,351	5,458	5,567	5,679
33	30,640	23,079	22,673	22,274	21,882	21,497	21,118	20,747	20,381	20,789	21,205	21,629	22,062	22,503	22,953	23,412	23,880	24,358
34	14,081	10,606	10,419	10,236	10,056	9,879	9,705	9,534	9,366	9,554	9,745	9,940	10,138	10,341	10,548	10,759	10,974	11,194
35	6,916	5,209	5,117	5,027	4,939	4,852	4,767	4,683	4,600	4,692	4,786	4,882	4,979	5,079	5,181	5,284	5,390	5,498
36	2,285	1,721	1,691	1,661	1,632	1,603	1,575	1,547	1,520	1,551	1,582	1,613	1,646	1,678	1,712	1,746	1,781	1,817
37	3,188	2,401	2,359	2,317	2,277	2,237	2,197	2,159	2,121	2,163	2,206	2,250	2,295	2,341	2,388	2,436	2,485	2,534
38	525	395	388	382	375	368	362	355	349	356	363	371	378	386	393	401	409	417
39	35,486	26,729	26,259	25,797	25,343	24,897	24,458	24,028	23,605	24,077	24,559	25,050	25,551	26,062	26,583	27,115	27,657	28,210
<b>Totals</b>	<b>197,467</b>	<b>148,739</b>	<b>146,121</b>	<b>143,549</b>	<b>141,023</b>	<b>138,541</b>	<b>136,102</b>	<b>133,707</b>	<b>131,354</b>	<b>133,981</b>	<b>136,660</b>	<b>139,393</b>	<b>142,181</b>	<b>145,025</b>	<b>147,925</b>	<b>150,884</b>	<b>153,902</b>	<b>156,980</b>

Projected Employment Growth For Manufacturing Industries	
NAICS Industry Category	Annual Percent Change *
Manufacturing	-17.60%
<b>Average</b>	<b>-1.76%</b>

**Source(s) of information:**

Industrial Generation by SIC Code for 2008 from Table IV-2 adjusted to correspond to total industrial waste on Table IV-8  
 Change in industrial generation in years 2009 - 2016 is calculated based on the annual average change in employment for the manufacturing industries for the period 2006 - 2016.  
 Source Document: The Ohio Department of Job and Family Services (ODJFS), Job Outlook to 2016 for Central Ohio, Economic Development Region 1, 2006 - 2016

**Notes:**

2009 values are derived from actual figures. SIC totals were calculated using the percentage of the total each SIC code represented in 2008.  
 Industrial ferrous metals were down significantly in 2009 as compared to 2008. The markets for ferrous metals deteriorated at the end of 2008 and continued into early 2009. These markets are beginning to recover but not enough to offset a 48,600 ton decrease.  
 In the planning years following 2016, the downward trend is projected to end and is projected to increase slightly as the economy continues to recover from the economic recession  
 \* The percent annual change for SIC Code 20, 22-39 is calculated using the average annual change in employment for the broad category of manufacturing industries. Changes in employment by SIC code are no longer available as ODJFS no longer tracks data by SIC code, only the new NAICS system is now used.

**Sample Calculation:**

(Waste generated in previous year) + (waste generated in previous year x assumed growth rate) = waste generated in estimated year

2010 SIC Code 20 ( 30,018 ) + ( 30,018 x -1.76% ) = 29,489 2011 SIC Code 20

**Table V-3A**  
**Standard Industrial Classifications**

SIC	Description
20	Food and Kindred Products
22	Textile Mill Products
23	Apparel and Other Finished Products Made from Fabric
24	Lumber and Wood Products, Except Furniture
25	Furniture and Fixtures
26	Paper and Allied Industries
27	Printing, Publishing, and Allied Products
28	Chemicals and Allied Products
29	Petroleum Refining and Related Industries
30	Rubber and Miscellaneous Plastic Products
31	Leather and Leather Products
32	Stone, Clay, Glass and Concrete Products
33	Primary Metal Industries
34	Fabricated Metal Products, Except Machinery and Transportation
35	Industrial and Commercial Machinery and Computer Equipment
36	Electronic and Other Electrical Equipment and Components
37	Transportation Equipment
38	Measuring, Analyzing and Controlling Instruments
39	Miscellaneous Manufacturing Industries

**Table V-4  
Total Waste Generation for the District During the Planning Period (in TPY)**

Year	Residential/ Commercial	Industrial	Exempt	Total Waste	Generation Rate (lbs/person/day)
2008	1,529,419	197,467	40,666	1,767,553	8.35
2009	1,383,704	148,739	26,176	1,558,619	7.31
2010	1,375,401	146,121	30,000	1,551,522	7.23
2011	1,391,816	143,549	30,000	1,565,365	7.24
2012	1,408,432	141,023	30,000	1,579,455	7.26
2013	1,425,253	138,541	30,000	1,593,793	7.27
2014	1,442,280	136,102	30,000	1,608,382	7.29
2015	1,459,517	133,707	30,000	1,623,224	7.31
2016	1,476,966	131,354	30,000	1,638,320	7.32
2017	1,494,630	133,981	30,000	1,658,611	7.36
2018	1,512,512	136,660	30,000	1,679,172	7.40
2019	1,530,614	139,393	30,000	1,700,008	7.44
2020	1,548,940	142,181	30,000	1,721,121	7.48
2021	1,567,492	145,025	30,000	1,742,517	7.52
2022	1,586,274	147,925	30,000	1,764,200	7.56
2023	1,605,288	150,884	30,000	1,786,172	7.61
2024	1,624,538	153,902	30,000	1,808,440	7.65
2025	1,644,026	156,980	30,000	1,831,006	7.69

**Source(s) of information:**

Residential/Commercial Table V-2

Industrial Table V-3

Exempt Waste is projected to remain at a constant rate from 2010 to the end of the planning period.

**Note:** Automotive Shredder Residue is subtracted from industrial totals in 2009 and added to residential/commercial.

**Sample Calculation:**

Total Waste = Residential/Commercial + Industrial + Exempt

$$1,767,553 = 1,529,419 + 197,467 + 40,666$$

$$\text{Generation Rate (lb/person/day)} = \frac{\text{Total Waste Generated (tons)} \times 2,000 \text{ pounds/ton}}{\text{Population} \times 365 \text{ days/year}}$$

$$8.35 = \frac{1,767,553 \times 2,000}{1,160,301 \times 365}$$

Table V-5A  
Residential/Commercial Waste Reduction Strategies

Strategy	Program #	Type of Material Reduced and/or Recycled	Tons of Waste Reduction																	
			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Source Reduction Strategies	SWACO-EA-3	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Special Events	SWACO-PP-1	AC, GL, PL, ONP, OCC, SC	29,629	29,813	29,998	30,184	30,371	30,559	30,749	30,940	31,131	31,324	31,519	31,714	31,911	32,109	32,308	32,508	32,709	32,912
Non-Subscription Curbside Recycling	SWACO-PP-2	AC, GL, PL, ONP, OCC, SC	19,562	19,683	19,806	19,928	20,052	20,176	20,301	20,427	20,554	20,681	20,809	20,938	21,068	21,199	21,330	21,463	21,596	21,730
Subscription Curbside Recycling	SWACO-PP-3	AC, GL, PL, ONP, OCC, SC	12,989	13,079	13,169	13,242	13,324	13,407	13,490	13,574	13,658	13,742	13,828	13,913	14,000	14,086	14,174	14,262	14,350	14,439
Drop-Off Recycling	SWACO-PP-4	YW	177,896	184,787	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500	185,500
Yard Waste Management	SWACO-PP-5	oil, oil filters, paint, antifreeze, flammables, pesticides, bases/acids, Aerosols, batteries, household cleaners, propane cylinders and scrap tires	641	641	213	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163
HHW Collection and Processing	SWACO-PP-6	AC, GL, PL, ONP, OCC, SC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Facility Solid Waste Management Planning	SWACO-PP-7	EW	9,679	9,739	9,799	9,860	9,921	9,983	10,045	10,107	10,170	10,233	10,296	10,360	10,424	10,489	10,554	10,619	10,685	10,751
Electronics Recycling	SWACO-PP-8	ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tire Recycling	SWACO-PP-9	AC, GL, PL, ONP, OCC, SC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Columbus Recycling	SWACO-PP-10	PL, MRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
City of Columbus Recycling	SWACO-PP-10	YW, FW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waste Collection and Processing System	Subtotal		250,133	237,750	238,502	238,904	239,357	239,814	240,274	240,736	241,202	241,670	242,141	242,615	243,092	243,572	244,054	244,540	245,029	245,521
Residential - Commercial Education and Awareness Programs	SWACO-EA-1	AC, GL, PL, ONP, OCC, SC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Smart Communities	SWACO-EA-2	AC, GL, PL, ONP, OCC, SC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
School District Recycling	SWACO-EA-3	PL, MRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teacher Technical Assistance	SWACO-EA-4	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teacher Workshops	SWACO-EA-5	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Classroom Presentations	SWACO-EA-6	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
News From SWACO	SWACO-EA-7	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landfill Tours	SWACO-EA-8	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Special Events	SWACO-EA-9	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Ohio Emeralds Awards	SWACO-EA-10	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SWACO Website	SWACO-EA-11	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environmental Steward Office - City of Columbus Partnership	SWACO-EA-12	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Social Media	SWACO-EA-13	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Communications Plan	Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Programs	SWACO-LID-1	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anti-Litter and Illegal Dumping	SWACO-LID-2	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Franklin County Emergency Management Agency Debris Management Plan	SWACO-LID-3	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health Department Support	SWACO-OP-1	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Design Planning and Program Development	SWACO-OP-2	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solid Waste Plan Update	SWACO-OP-3	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Market Development	SWACO-OP-4	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SWACO General Grants	SWACO-OP-5	n/a	131,946	132,764	133,587	134,415	135,248	136,087	136,931	137,780	138,634	139,493	140,358	141,228	142,104	142,985	143,872	144,764	145,661	146,564
SWACO E-TRAC and Re-TRAC Systems	SWACO-OP-6	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SWACO Waste Consortia Programs and Facilities Advisory Committee (PFAC)	SWACO-OP-7	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waste Planning	SWACO-OP-8	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infrastructure	SWACO-OP-9	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal			131,946	132,764	133,587	134,415	135,248	136,087	136,931	137,780	138,634	139,493	140,358	141,228	142,104	142,985	143,872	144,764	145,661	146,564
Grand Total			382,079	370,513	372,089	374,319	375,606	376,901	378,204	379,516	380,835	382,163	383,499	384,843	386,196	387,557	388,926	390,304	391,690	393,085

AC=Aluminum Containers, GL=Glass Containers, PL=Plastic Containers, OCC=Corrugated Cardboard, SC=Steel Containers, ONP=Old Newspaper, MRP=Mixed Paper, S=Scrap Tires, AP=Appliances, O=Used Oil, HH=Household Batteries, YW=Yard Waste, EW=Electronic Waste, OH=Other, FW=Food Waste, n/a=not applicable

Source(s) of Information:  
2008 Recycling Data is from Table IV-5  
Projected value for each residential/commercial recycling program (except Yard Waste, Infrastructure, and HHW Collection programs) is calculated at the same rate as the average annual population change (from Table V-1).  
Projected value for the Yard Waste Program is calculated using the same rate as the average annual population change (from Table V-1), except for the year 2011.  
Projected value for the Infrastructure Program is calculated using a constant rate of 1,000 tons annually beginning in 2011. This is the estimated total tons projected to be diverted from the Residential/Commercial sector waste stream to be processed by the anaerobic digester.  
Projected value for the HHW Collection and Processing Program is calculated to reflect the gradual discontinuation of latex paint collection by 2011.

Sample Calculation  
2008 Collection Programs = 2008 Programs x 0.02%  
29,813 = 29,629 \* 1.002%

Non-Subscription Curbside Recycling  
29,813 = 29,629 \* 1.002%

Table V-5B  
Residential/Commercial Waste Reduction Strategies

Strategy	Program #	Type of Material Recycled or Reused	Tons of Waste Reduction																	
			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Source Reduction Strategies			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Special Events	SWACO-EA-8	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Residential Recycling Programs			28,629	29,813	29,998	30,184	87,401	88,488	90,703	90,703	89,589	89,037	90,144	91,832	92,401	92,874	93,550	94,130	94,714	
Subscription Outside Recycling	SWACO-RP-1	AC, GL, PL, ONP, OCC, SC, Pkg, M&P	19,562	19,683	19,806	19,928	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drop-Off Recycling	SWACO-RP-2	AC, GL, PL, ONP, OCC, SC, Pkg, M&P	12,969	13,079	13,160	13,242	6,662	6,745	6,914	6,914	6,829	6,787	6,871	7,000	7,043	7,087	7,131	7,175	7,219	
Yard Waste Management	SWACO-RP-3	AC, GL, PL, ONP, OCC, SC, Pkg, M&P	177,596	164,767	165,500	165,500	165,500	165,500	165,500	165,500	165,500	165,500	165,500	165,500	165,500	165,500	165,500	165,500	165,500	
HHW Collection and Processing	SWACO-RP-4	oil, oil filters, paint, antifreeze, flammables, pesticides, herbicides, aerosols, batteries, mercury, dioxins, household cleaners, propane tanks and scrap tires	641	641	213	163	163	163	163	163	163	163	163	163	163	163	163	163	163	
Facility Solid Waste Management Planning	SWACO-RP-5	AC, GL, PL, ONP, OCC, SC, Pkg, M&P	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
The Recycling City of Columbus Recycling Programs	SWACO-RP-6	AC, GL, PL, ONP, OCC, SC, Pkg, M&P	9,679	9,729	9,798	9,866	9,934	10,045	10,233	10,233	10,107	10,170	10,233	10,236	10,469	10,554	10,619	10,686	10,751	
Organics Collection and Processing System	SWACO-RP-7	YV, FW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Subtotal			250,133	237,750	238,502	238,904	268,674	270,318	270,967	271,620	272,276	272,937	273,602	274,271	274,945	275,622	276,304	276,989	277,679	
Residential/Commercial Education and Awareness Programs			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Smart Communities	SWACO-EA-1	AC, GL, PL, ONP, OCC, SC, Pkg, M&P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
School District Recycling	SWACO-EA-2	AC, GL, PL, ONP, OCC, SC, Pkg, M&P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Teacher Technical Assistance	SWACO-EA-3	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Business Workshops	SWACO-EA-4	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Business Presentations	SWACO-EA-5	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
News From SWACO	SWACO-EA-6	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Landfill Tours	SWACO-EA-7	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Special Events	SWACO-EA-8	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Central Ohio Emeralds Awards	SWACO-EA-9	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SWACO Website	SWACO-EA-10	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Environmental Steward Office - City of Columbus Partnership	SWACO-EA-11	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Social Media	SWACO-EA-12	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Communications Plan	SWACO-EA-13	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other Programs			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Anti-Litter and Illegal Dumping Program	SWACO-LID-1	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
County Emergency Management Agency Debris Management Plan	SWACO-LID-2	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Health Department Support	SWACO-LID-3	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Strategic Planning and Program	SWACO-OP-1	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Solid Waste Plan Update	SWACO-OP-2	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Market Development	SWACO-OP-3	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SWACO General Grants	SWACO-OP-4	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SWACO E-TRAC and Re-TRAC Systems	SWACO-OP-5	n/a	131,946	132,764	133,587	134,415	135,248	136,087	136,931	137,790	138,634	139,483	140,358	141,228	142,104	142,985	143,872	144,764	145,661	
SWACO Waste Consultants	SWACO-OP-6	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Programs and Facilities Advisory Committee (PFAC)	SWACO-OP-7	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SWACO OP-8	SWACO-OP-8	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Infrastructure	SWACO-FAC-1 A-H	n/a	352,079	370,813	372,089	374,319	405,922	407,405	408,898	410,399	411,910	413,431	414,960	416,500	418,049	419,607	421,175	422,753	424,341	
Grand Total			131,946	132,764	133,587	135,415	136,248	137,087	137,931	138,790	139,634	140,483	141,358	142,228	143,104	143,985	144,872	145,764	146,661	

Source(s) of Information: 2008 Recycling Data is from Table V-5. Residential/Commercial recycling program (except Yard Waste, Infrastructure, and HHW Collection programs) is calculated at the same rate as the average annual population change from Table V-1. In 2012 a curbside recycling program for the City of Columbus could potentially begin. To reflect this tonnage from the Subscription Recycling Program (which is all from the City of Columbus) is moved into the Non-Subscription Recycling Program beginning in 2012. The drop-off recycling program tonnage is expected to decrease by one-half and the other half of the tonnage is diverted to a potential City of Columbus non-subscription outside recycling program. Projected value for the Yard Waste Program is calculated using the same rate as the average annual population change from Table V-1, except for in the year 2011. Projected value for the Infrastructure Program is calculated using a constant rate of 1,000 tons annually beginning in 2011. This is the estimated total tons projected to be diverted from the Residential/Commercial sector waste stream to be processed by the anaerobic digester. Projected value for the HHW Collection and Processing Program is calculated to reflect the gradual discontinuation of latex paint collection by 2011.

Sample Calculation: 2008 Collection Programs = 2008 Programs x 0.052% = 28,613 + 28,629 = 1,0062

Table V-6  
Industrial Waste Reduction Strategies

Strategy	Program #	Type of Material Reduced and/or Recycled	Tons of Source Reduction/Recycling																	
			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Industrial Sector Technical Assistance and Education Programs: Source Reduction																				
Solid Waste Assessments	SWACO-IP-1	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Industrial Sector Technical Assistance and Education Programs: Recycling																				
Industrial Recycling Programs	n/a	AL, FM, NF, P, OCC, W, OP, OIR	149,760	115,101	113,075	111,085	109,130	107,209	105,322	103,469	101,648	103,681	105,754	107,869	110,027	112,227	114,472	116,761	119,096	121,478
Solid Waste Assessments	SWACO-IP-1	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ONE and Local Recyclers	SWACO-IP-2	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business Round Table	SWACO-IP-3	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business Outreach	SWACO-IP-4	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Infrastructure	SWACO-FAC-1 A	Organics	0	0	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Subtotal			149,760	115,101	113,075	121,085	119,130	117,209	115,322	113,469	111,648	113,681	115,754	117,869	120,027	122,227	124,472	126,761	129,096	131,478
Other Waste Reduction Strategies																				
Subtotal			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Totals			149,760	115,101	113,075	121,085	119,130	117,209	115,322	113,469	111,648	113,681	115,754	117,869	120,027	122,227	124,472	126,761	129,096	131,478
Industrial Recycling			149,760	115,101	113,075	121,085	119,130	117,209	115,322	113,469	111,648	113,681	115,754	117,869	120,027	122,227	124,472	126,761	129,096	131,478
Waste Generation			148,739	146,121	146,121	143,549	141,023	138,541	136,102	133,707	131,354	133,981	136,600	139,393	142,181	145,025	147,925	150,884	153,902	156,980
Waste Reduction %			75.8%	77.4%	77.4%	84.4%	84.5%	84.6%	84.7%	84.9%	85.0%	84.8%	84.7%	84.6%	84.4%	84.3%	84.1%	84.0%	83.9%	83.8%

AL=Aluminum; FM=Ferrous Metals; NF=Non-Ferrous Metals; P=Plastic; OCC=Corrugated Cardboard; OP=Office Paper; W=Wood

Source(s) of Information:

- 2008 Recycling Data is from Table V-6
- 2008 Generation Data is from Table V-3
- 2009 Recycling Data is from 2009 ADR

Note:

Industrial recycling projections are based on the Industrial Recycling Rates and Industrial Waste Generation Rates decreasing at a rate of 2% 2010 - 2016 and increasing at a rate of 2% from 2017 - 2025. Projected waste generation is from Table V-3. Projected recycling tonnage is from Table V-3. Projected value for the Infrastructure Program is calculated using a constant rate of 10,000 tons annually beginning in 2011. This is the estimated total tons projected to be diverted from the industrial sector waste stream to be processed by the anaerobic digester.

Sample Calculation:

Projected waste generation 2010 x -2% = Projected waste generation in 2011  
 146,121 x 0.9824 = 143,549

2011 Waste reduction percentage = Industrial recycling / Waste generation  
 77.4 % = 113,075 / 146,121

(2010 Industrial recycling programs tonnage x -2% ) + 10,000 pounds for Infrastructure program = 2011 Industrial recycling programs tonnage  
 ( 113,075 x 0.9824 ) + 10,000 = 121,085