

VII. Measurement of Progress Toward Waste Reduction Goals [ORC Section 3734.53(A)]

A. District will comply with Goal(s) Identified

This section of the Erie County Solid Waste Management Plan demonstrates that the Erie County SWMD did comply with Goal #1 and Goal #2 of the *2009 State Solid Waste Management Plan* in the reference year 2013.

Goal #1 - Ensure 90% availability of reduction, recycling and other waste reduction methods that are alternatives to landfilling for residential/commercial solid waste through the planning period. Goal # 1 can be demonstrated during the planning period.

Goal #2 - To reduce or recycle 50% of industrial solid waste generation, the requirement to reduce or recycle 25% of the municipal waste stream cannot be met with the current structure of municipal waste collection within the District through the planning period.

B. Demonstration of Compliance with Goal #1 and Goal #2

To comply with Goal #1, SWMD's must demonstrate that the waste reduction, recycling, or minimization programs or activities in existence or scheduled to be implemented will be available by the year 2013 for a minimum of seven of eleven materials identified in the *2009 State Plan* as being highly amenable to recovery from municipal solid waste.

Table VII-1 identifies the materials used to demonstrate compliance. Seven materials are designated including glass, steel containers, aluminum containers, plastic containers, yard waste, and lead acid batteries for the residential sector and aluminum and steel containers for the commercial/institutional sector.

1. Residential Sector Compliance

a. Service Area

The Service Area for the residential component of the waste stream is the entire District.

b. Access

To comply with Goal #1, the District must demonstrate that a minimum of 90% of the population of the Service Area has access to solid waste reduction and recycling opportunities. Access is defined as the presence of waste reduction/recycling services or opportunities including drop-off recycling, non-subscription curbside, subscription curbside, centralized MRF service, or a combination of any of these. To demonstrate access, default population values as defined in O.A.C. 3745-27-90 were used for all opportunities, i.e. 100% of the population for non-subscription curbside, 25% of the population

for subscription curbside, 5,000 persons for a full service drop-off in an urban area, and 2,500 persons for a full service drop-off in a rural area.

Table VII-2 lists the opportunities present in the reference year (2013) and demonstrates the number of persons “credited” with access for each opportunity.

The Erie County Services Center, Sandusky City Services Complex, Kiwanis Park, Margaretta Township, Vermilion Township, Sandusky Steel, and Osborn MetroPark drop-off sites are all full time sites located in cities or townships of greater than a population of 5,000, and available to all residents of Erie County. They are therefore considered to be full time, urban drop-offs with access credit of 5,000 persons for a total of 35,000 persons by using the following formula:

$$7 \text{ drop-off locations} \times 5,000 \text{ persons} = 35,000 \text{ persons}$$

The remaining drop-off sites are located in townships of less than a population of 5,000 and are therefore considered full time, rural drop-offs with access credit of 2,500 persons for a total of 12,500 persons by using the following formula:

$$5 \text{ drop-off locations} \times 2,500 \text{ persons} = 12,500 \text{ persons}$$

Non-subscription curbside services were available in the City of Huron and Huron Township during the reference year. The combined population for the reference year was 10,657 and 100% had access to the program.

$$10,657 \text{ persons}$$

Subscription curbside services are available in the City of Sandusky, Perkins Township, Vermilion Township, Huron Township, Margaretta Township, and Milan Township (including the Village of Milan). With the total subscription curbside services of 12,531 persons by using the following formula:

$$50,122 \text{ persons} \times 25\% = 12,531 \text{ persons}$$

Demonstrate Compliance with Goal #1 or Goal #2 of the 2001 State Plan

In the reference year 2013, access is demonstrated for 99% of the District population due to overlapping services, which demonstrates compliance with Goal #1, i.e. to provide access to recycling opportunities for 90% of the residential population.

$$70,842 \text{ persons with access} / 71,524 \text{ population} = 99\%$$

Erie County Access Progress		
Population with Access		
Program	2013	
	Pop	Access Credit
Non-Subscription Curbside		
City of Huron	7,045	7,045
Huron Township	3,612	3,612
Subscription Curbside		
Bay View Village	616	154
Berlin Township	2,963	741
Berlin Village	714	179
Castalia Village	835	209
Sandusky	25,346	6,337
Perkins Twp.	11,911	2,978
Margaretta Township	4,453	1,113
Milan Township	2,554	639
Milan Village	1,346	337
Full-Time Drop-Off Locations		
Sandusky Steel	25,493	5,000
Sandusky City Services Complex	29,493	5,000
Sandusky East	29,493	5,000
Erie County Services Center	11,911	5,000
Osborn MetroPark	3,612	5,000
Margaretta Twp.	4,464	5,000
Vermilion Twp.	4,894	5,000
Part-Time Drop-Off Locations		
Berlin Hts./ Berlin Twp.	3,690	2,500
Erie County landfill (Milan Township)	2,577	2,500
Florence Township	2,434	2,500
Groton Township	1,414	2,500
Oxford Township	1,194	2,500
Kelleys Island	313	
Total		70,842
Total Population		71,524
Percent of Access		99%

Current Status

Combined access of drop-off locations, subscription curbside services, and non-subscription services gives access to recycling and waste reduction opportunities throughout Erie County. This gives the District 99%, which is 9% higher than required 90% due to overlapping services.

The Erie County Solid Waste Management District Policy Committee set the following goals for the 2010 District Plan:

1. Fifty percent of the population in Erie County participating in a curbside recycling program by 2015, five years after the plan is approved.
2. Seventy-five percent of the population in Erie County participating in a curbside recycling program by 2020, ten years after the plan is approved.

The District did not reach the 2015 goal; however, the District did increase curbside recycling opportunities to the residents of Erie County by 28%. The District is planning to reach the access goal for recycling services to be provided to 90% of the residential population by the end of 2016 by updating the District Service Provider Agreements (Appendix J) and the Solid Waste Rules to require all trash hauling services providers in Erie County to provide non-subscription curbside recycling. If non-subscription curbside recycling results in unreasonable rates and charges for trash hauling service, as determined in the sole discretion of the District, the District reserves the right to amend the Service Provider Agreements to require subscription curbside recycling instead.

Compliance with the Erie County Curbside Recycling Initiative

Under the authority granted by Revised Code section 343.01(G)(2) and the District's Rules, haulers that provide trash service to the residents of Erie County must enter into a Service Provider Agreement with the District. The updated Service Provider Agreement will require that haulers:

- Offer curbside trash hauling service;
- Offer non-subscription curbside recycling services to all residents who obtain curbside trash hauling service;
- Collect curbside trash and curbside recycling in separate containers;
- Provide the District with Quarterly Reports on forms prescribed by the District;
- Comply with any other District Rule set forth in Appendix I, or as later amended by the District.

Non-compliance with the District's Curbside Recycling Initiative may be enforced as a violation of the District's Rules in accordance with Revised Code section 343.99, or as a breach of contract of the Service Provider Agreement.

Erie County Access Progress		
Population with Access		
Program	2018	
	Pop	Access Credit
Non-Subscription Curbside		72,598
Bay View Village	627	627
Berlin Township	3,016	3,016
Berlin Village	727	727
Castalia Village	850	850
City of Huron	7,170	7,170
City of Sandusky	12,122	12,122
Florence Township	25,796	25,796
Groton Township	2,477	2,477
Huron Township	1,439	1,439
Margaretta Township	3,676	3,676
Milan Township	4,532	4,532
Milan Village	2,599	2,599
Oxford Township	1,370	1,370
Perkins Township	1,215	1,215
Vermilion Township	4,981	4,981
Full-Time Drop-Off Locations		5,000
Sandusky Steel	25,493	5,000
Part-Time Drop-Off Locations		5,000
Erie County landfill (Milan Township)	2,577	2,500
Kelleys Island	319	2,500
Total		82,598
Total Population		72,794
Percent of Access		113%

The Table above shows compliance of Goal #1 three years after the Plan has been approved.

Table VII-2A lists the opportunities present in the reference year (2013) and three years after the Plan has been adopted to show compliance (2016) demonstrates the number of persons “credited” with access for each opportunity.

Goal #2 Waste Reduction and Recycling Rates - – the SWMD shall reduce and recycle at least 25% of the solid waste generated by the residential/commercial sector and at least 66% of the solid waste generated by the industrial sector.

In the reference year 2013, the District met the requirements of Goal #2 by: Achieving a 33% reduction and recycling rate for the residential/commercial sector, and 92% of the solid waste generated in the industrial sector. Both targets are projected to be met throughout the planning period.

Section IV.G of this plan shows the following data for 2013.

Residential/Commercial Waste	
Landfill Disposal - GSW	74,401
Landfill Disposal - asbestos	532
Reported Recycling	29,256
Composting	8,661
Yard Waste Land Application	60
Net Incineration	0
Total	112,909

$((\text{Reported Recycling} + \text{Composting}) / \text{Total Generation}) * 100 = \% \text{ of waste reduced or recycled}$

$$((29,256 \text{ tons} + 8,661 \text{ tons}) / 116,128) * 100 = 33\%$$

Industrial Waste Reduction Strategies

The District has met the goal to reduce or recycle at least 66% of industrial waste generation through **reported recycling by industries** as shown below and documented via the District's annual industrial survey.

Section IV.G of this plan shows the following data for 2013.

Industrial Waste	
Landfill disposal - ISW	10,374
Reported Recycling	112,200
Composting	0
Total	122,574

$((\text{Reported Recycling} + \text{Composting}) / \text{Total Generation}) * 100 = \% \text{ of waste reduced or recycled}$

$$(112,200) / 122,574 * 100 = 92\% \text{ industrial waste reduction}$$

Information provided above was using the statistics provided by Section IV. G when calculating the waste reduction rates. Utilizing the charts provided in this section the Residential/Commercial Recycling rate of waste reduction is 40% and is projected to meet the goal of 25% or higher throughout the planning period.

The Industrial Recycling rate of waste reduction is 92% by using the charts provided in this section. The District is projected to meet the Industrial Recycling rate of 66% or higher throughout the planning period.

c. Participation

To demonstrate meeting the participation standard, the District must 1) develop and implement an adequate education and awareness program, and 2) evaluate the feasibility of education programs for promotion of financial incentives to encourage increased recycling and/or waste reduction.

The District's Education and Awareness Program, and Informational Assistance program described in Section IV.E, and Section V.E under Goal #4 adequately address the **education and awareness** component required to demonstrate participation.

The District's financial incentives to promote waste reduction, i.e. 1) replacing drop-off recycling with curbside recycling, 2) franchising combined trash collection and recycling service with optional yard waste removal and 3) with money saved by the District from previously stated financial incentives increase special collections that are harder for the average resident to dispose of properly, for example:

- Annual Household Hazardous Waste HHW Collections instead of bi-annual
- Increased appliance or electronics collections
- Report Card Incentives will be implemented to encourage participation and healthy competition between communities.

2. Commercial/institutional Sector Compliance

a. Service Area

The Service Area for the commercial/institutional component of the waste stream is the entire District.

b. Access

The District provides access to commercial and institutional facilities through the full-service drop-off recycling sites located throughout the District as shown in Table III-5. All of these locations accept the four materials designated for the commercial/industrial sector shown in Table VII-1.

The District has also been successful in aiding commercial and institutional facilities with their own recycling efforts. The District has accomplished

these programs through coordination of waste/recycle hauling agencies and businesses and providing information on recycling containers and current rates.

The District would also like to offer a joint workshop with surrounding solid waste districts. The workshop would offer waste audits, current available recycling services and a revolving loan fund to aid them in getting a recycling program started and/or address a specific material.

c. Participation

To meet the participation standard, the District must demonstrate that education/awareness strategies targeted at the commercial/institutional sector are in place. Section V.E describes the District's existing education/awareness strategies, which adequately address this requirement, under Goal #4 Residential/Commercial Waste Reduction Strategies and Goal #4 Industrial Waste Reduction Strategies.

3. Targets for Reduction and Recycling

a. Residential/Commercial

In the reference year 2013, the District did not meet the target set by Ohio EPA of 25% reduction and recycling percentage rate for the residential/commercial sector. **Table VII-3** demonstrates that the District is not projected to meet the Goal throughout the planning period.

b. Industrial

Table VII-4 indicates the District's industrial waste reduction and recycling rate in 2013 was 92%, exceeding the 66% minimum target. The District is not projected to remain in compliance during the planning period.

c. Total District Solid Waste

Table VII-5 indicates that the District's waste reduction rate for all solid waste will not meet 50% throughout the planning period.

Table VII-1. Materials Designated to Demonstrate Compliance with Goal #1

Eleven Materials Highly Amenable to Recycling, etc.	Four Materials Designated for the Residential Sector	Four Materials Designated for the Commercial/Institutional Sector	Number of Times Material is Designated
Corrugated Cardboard		x	1
Office paper		x	1
Newspaper		x	1
Glass Containers	x		1
Steel Containers	x		1
Aluminum Containers	x	x	2
Plastic Containers	x		1
Wood packaging & Pallets			
Lead-acid Batteries			
Major appliances			
Yard wastes			
Totals	4	4	8

Table VII-2. Calculation of Access for Residential Sector:

	Reference Year 2013 Population	Year 2018 Population
Non-Subscription Curbside	10,657	72,598
Bay View Village		627
Berlin Township		3,016
Berlin Village		727
Castalia Village		850
City of Huron	7,045	7,170
City of Sandusky		25,796
Florence Township		2,477
Groton Township		1,439
Huron Township	3,612	3,676
Margaretta Township		4,532
Milan Township		2,599
Milan Village		1,370
Oxford Township		1,215
Perkins Township		12,122
Vermilion Township		4,981
Subscription Curbside	9,707	0
Bay View Village	154	
Berlin Township	741	
Berlin Village	179	
Castalia Village	209	
City of Huron		
City of Sandusky	6,337	
Florence Township		
Groton Township		
Huron Township		
Margaretta Township	1,113	
Milan Township	639	
Milan Village	337	
Oxford Township		
Perkins Township		
Vermilion Township		
Full-Time Drop-Off Locations	35000	5000
Sandusky Steel	5,000	5,000
Sandusky City Services Complex	5,000	
Sandusky East	5,000	
Erie County Services Center	5,000	
Osborn MetroPark	5,000	
Margaretta Twp.	5,000	
Vermilion Twp.	5,000	
Part-Time Drop-Off Locations	12500	5000
Berlin Hts./ Berlin Twp.	2,500	
Erie County landfill (Milan Township)	2,500	2,500
Florence Township	2,500	
Groton Township	2,500	
Oxford Township	2,500	
Kelleys Island		2,500
Totals	67,864	82,598
Service Area Population	71,524	72,794
Percentage	95%	113%

Table VII-3
Annual Rate of Waste Reduction:
Residential/Commercial Waste

Year	Source Red. & Recycled (R)	Composted (C)	Non- compostable waste (NC)	Incinerated (I)	Incinerator Ash Produced (A)	Incinerator Ash Recycled (RA)	Landfilled (DL)	Waste Reduction (TWR)	SWMD population (P)	Waste reduction rate (%) (WRR)	Waste reduction per capita in PPPPD (PCWR)
2016	23,036.14	6,406	0	0	0	0	75,528	29,442	72,607	28.05%	2.22
2017	23,712.05	6,406	0	0	0	0	75,625	30,118	72,700	28.48%	2.27
2018	24,449.77	6,406	0	0	0	0	75,722	30,856	72,794	28.95%	2.32
2019	25,260.15	6,406	0	0	0	0	75,819	31,666	72,887	29.46%	2.38
2020	26,156.16	6,406	0	0	0	0	75,916	32,562	72,981	30.02%	2.44
2021	27,153.36	6,406	0	0	0	0	76,014	33,559	73,074	30.63%	2.52
2022	28,270.36	6,406	0	0	0	0	76,111	34,676	73,168	31.30%	2.60
2023	29,529.50	6,406	0	0	0	0	76,209	35,936	73,262	32.04%	2.69
2024	30,957.52	6,406	0	0	0	0	76,307	37,364	73,356	32.87%	2.79
2025	32,586.49	6,406	0	0	0	0	76,404	38,992	73,450	33.79%	2.91
2026	34,454.86	6,406	0	0	0	0	76,502	40,861	73,544	34.82%	3.04
2027	36,608.73	6,406	0	0	0	0	76,600	43,015	73,638	35.96%	3.20
2028	39,103.39	6,406	0	0	0	0	76,698	45,509	73,733	37.24%	3.38
2029	42,005.15	6,406	0	0	0	0	76,797	48,411	73,827	38.66%	3.59
2030	45,393.56	6,406	0	0	0	0	76,895	51,800	73,921	40.25%	3.84
2031	49,364.01	6,406	0	0	0	0	76,987	55,770	74,010	42.01%	4.13

Sample Calculation:

$$TWR = R + (C - NC) + (I - A) + RA$$

$$2016 \text{ TWR} = 23,036 + (6,406 - 0) + (0 - 0) + 0 = 29,442 \text{ tons}$$

$$WRR = TWR / (TWR + DL)$$

$$2016 \text{ WRR} = 29,442 / (29,442 + 75,528) = .280 = 28.05\%$$

$$PCWR = (TWR \times 2,000 \text{ lbs.}) / (P \times 365 \text{ days})$$

$$2016 \text{ PCWR} = (29,442 \times 2,000) / (72,607 \times 365) = 2.22 \text{ pounds/person/day}$$

Sources of Information: R = Table VI-2 C = Table VI-2 I = Table VI-2 DL = Table VI-2 P = Table V-1

Table VII-4
Annual Rate of Waste Reduction:

Year	Source Red. & Recycled (R)	Composted (C)	Non- compostable waste (NC)	Incinerated (I)	Incinerator Ash Produced (A)	Incinerator Ash Recycled (RA)	Landfilled (DL)	Waste Reduction (TWR)	SWMD population (P)	Waste reduction rate (%) (WRR)	Waste reduction per capita in PPPPD (PCWR)
2016	122,574	0	0	0	0	0	10,374	122,574	72,607	92.20%	9.25
2017	116,445	0	0	0	0	0	10,374	116,445	72,700	91.82%	8.78
2018	110,623	0	0	0	0	0	10,374	110,623	72,794	91.43%	8.33
2019	105,092	0	0	0	0	0	10,374	105,092	72,887	91.02%	7.90
2020	99,837	0	0	0	0	0	10,374	99,837	72,981	90.59%	7.50
2021	94,845	0	0	0	0	0	10,374	94,845	73,074	90.14%	7.11
2022	90,103	0	0	0	0	0	10,374	90,103	73,168	89.68%	6.75
2023	85,598	0	0	0	0	0	10,374	85,598	73,262	89.19%	6.40
2024	81,318	0	0	0	0	0	10,374	81,318	73,356	88.69%	6.07
2025	77,252	0	0	0	0	0	10,374	77,252	73,450	88.16%	5.76
2026	73,390	0	0	0	0	0	10,374	73,390	73,544	87.62%	5.47
2027	69,720	0	0	0	0	0	10,374	69,720	73,638	87.05%	5.19
2028	66,234	0	0	0	0	0	10,374	66,234	73,733	86.46%	4.92
2029	62,922	0	0	0	0	0	10,374	62,922	73,827	85.85%	4.67
2030	59,776	0	0	0	0	0	10,374	59,776	73,921	85.21%	4.43
2031	56,787	0	0	0	0	0	10,374	56,787	74,010	84.55%	4.20

Industrial Waste

Sample Calculation:

$$TWR = R + (C - NC) + (I - A) + RA$$

$$2016 \quad TWR = 122,574 + (0 - 0) + (0 - 0) + 0 = 122,574 \text{ tons}$$

$$WRR = TWR / (TWR + DL)$$

$$2016 \quad WRR = 122,574 / (122,574 + 10,374) = 0.922 = 92.20\%$$

$$PCWR = (TWR \times 2,000 \text{ lbs.}) / (P \times 365 \text{ days})$$

$$2016 \quad PCWR = (122,574 \times 2,000) / (72,607 \times 365) = 9.25 \text{ pounds/person/day}$$

Sources of Information:

R = Table VI-3

I = Table VI-3

P = Table V-1

C = Included in Source Reduced & Recycled due to very low composting Table VI-3
DL = Table VI-3

Table VII-5

Annual Rate of Waste Reduction:
Total District Solid Waste

Year	Source Red. & Recycled (R)	Composted (C)	Non- compostable waste (NC)	Incinerated (I)	Incinerator Ash Produced (A)	Incinerator Ash Recycled (RA)	Landfilled (DL)	Waste Reduction (TWR)	SWMD population (P)	Waste reduction rate (%) (WRR)	Waste reduction per capita (PPPPD) (PCWR)
2016	145,610	6,406	0	0	0	0	85,902	152,016	72,607	63.89%	11.47
2017	140,157	6,406	0	0	0	0	85,999	146,563	72,700	63.02%	11.05
2018	135,073	6,406	0	0	0	0	86,096	141,479	72,794	62.17%	10.65
2019	130,352	6,406	0	0	0	0	86,193	136,758	72,887	61.34%	10.28
2020	125,993	6,406	0	0	0	0	86,290	132,399	72,981	60.54%	9.94
2021	121,999	6,406	0	0	0	0	86,388	128,405	73,074	59.78%	9.63
2022	118,374	6,406	0	0	0	0	86,485	124,780	73,168	59.06%	9.34
2023	115,127	6,406	0	0	0	0	86,583	121,533	73,262	58.40%	9.09
2024	112,276	6,406	0	0	0	0	86,681	118,682	73,356	57.79%	8.87
2025	109,839	6,406	0	0	0	0	86,778	116,245	73,450	57.26%	8.67
2026	107,844	6,406	0	0	0	0	86,876	114,250	73,544	56.81%	8.51
2027	106,329	6,406	0	0	0	0	86,974	112,735	73,638	56.45%	8.39
2028	105,337	6,406	0	0	0	0	87,072	111,743	73,733	56.20%	8.30
2029	104,928	6,406	0	0	0	0	87,171	111,334	73,827	56.09%	8.26
2030	105,170	6,406	0	0	0	0	87,269	111,576	73,921	56.11%	8.27
2031	106,151	6,406	0	0	0	0	87,361	112,557	74,010	56.30%	8.33

Sample Calculation:

$$TWR = R + (C-NC) + (I-A) + RA$$

$$2016 \quad TWR = 145,610 + (6,406 - 0) + (0 - 0) + 0 = 152,016$$

$$WRR = TWR / (TWR + DL)$$

$$2016 \quad WRR = 152,016 / (152,016 + 85,902) = .638 = 63.89\%$$

$$PCWR = (TWR \times 2,000 \text{ lbs.}) / (P \times 365 \text{ days})$$

2016 PCWR = $(152,016 \times 2000) / (72,607 \times 365) = 11.47$ pounds/person/day

Sources of Information:

R = Table VII-3 + Table VII-4

I, A, RA = Table VII-3 + Table VII-4

P = Table V-1

C = Table VII-3 + Table VII-4

DL = Table VII-3 + Table VII-4