Update of Organics Management in Southeast Pennsylvania

Philadelphia Solid Waste and Recycling Advisory Committee Meeting

March 26, 2015

Wayne Bowen, Recycling Program Manager
Pennsylvania Recycling Markets Center (RMC)

Pennsylvania Recycling Markets Center

Presentation Outline

- Annual Recycling Tonnage Report
- Focus on Organics Tonnage Figures
- Beneficial Uses of Organics in PA
- Facility Permit Hierarchy for Food Scraps Management
- Facility Summary and Commercial Food Scraps Capacity by DEP Region
- Observations, Outlook, Opportunities

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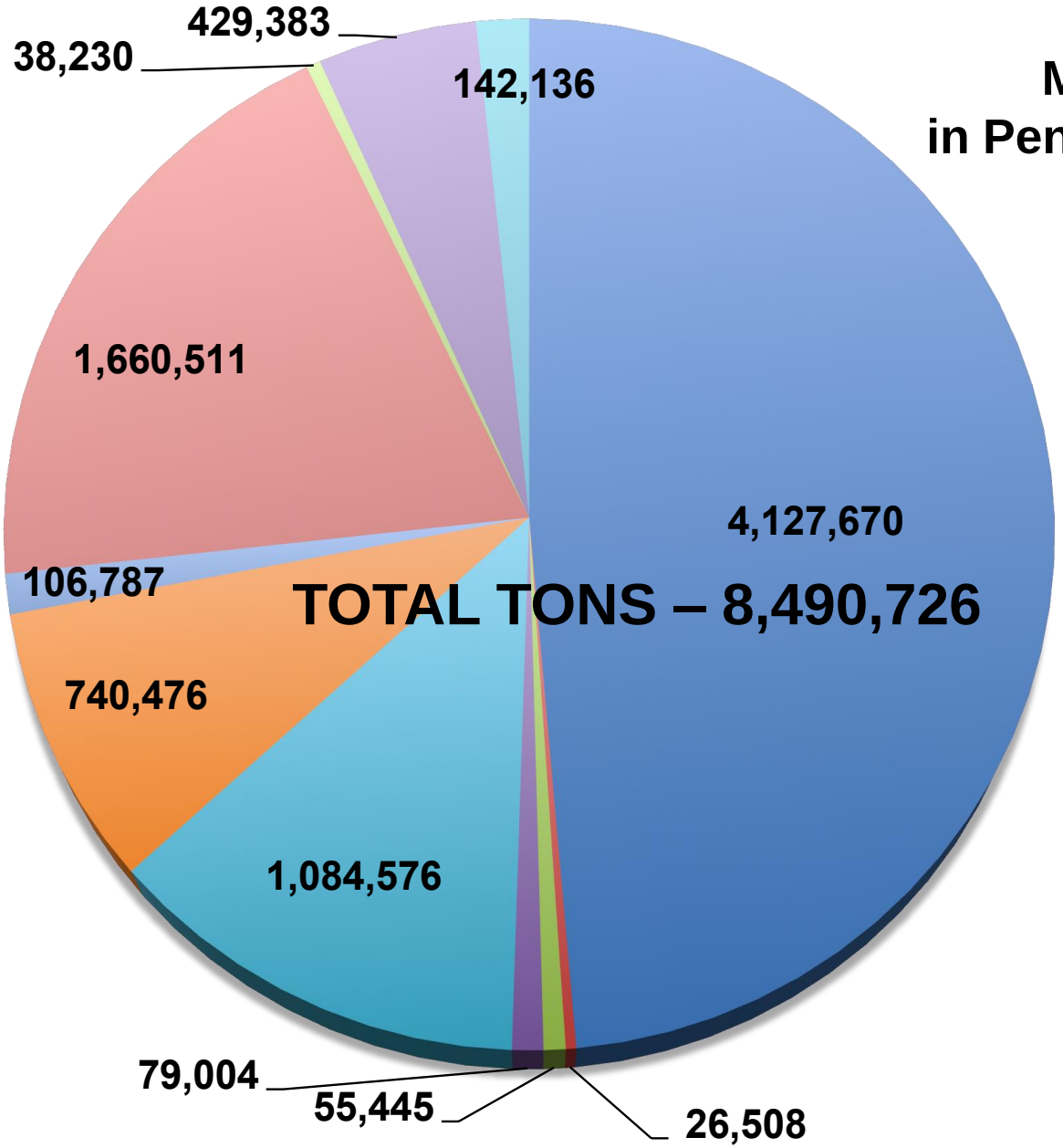
Materials Recycled in Pennsylvania (tons) - 2012



Metals

Aluminum & Steel Cans

Plastics

Glass

Paper

Single Stream

Comingled

Organics

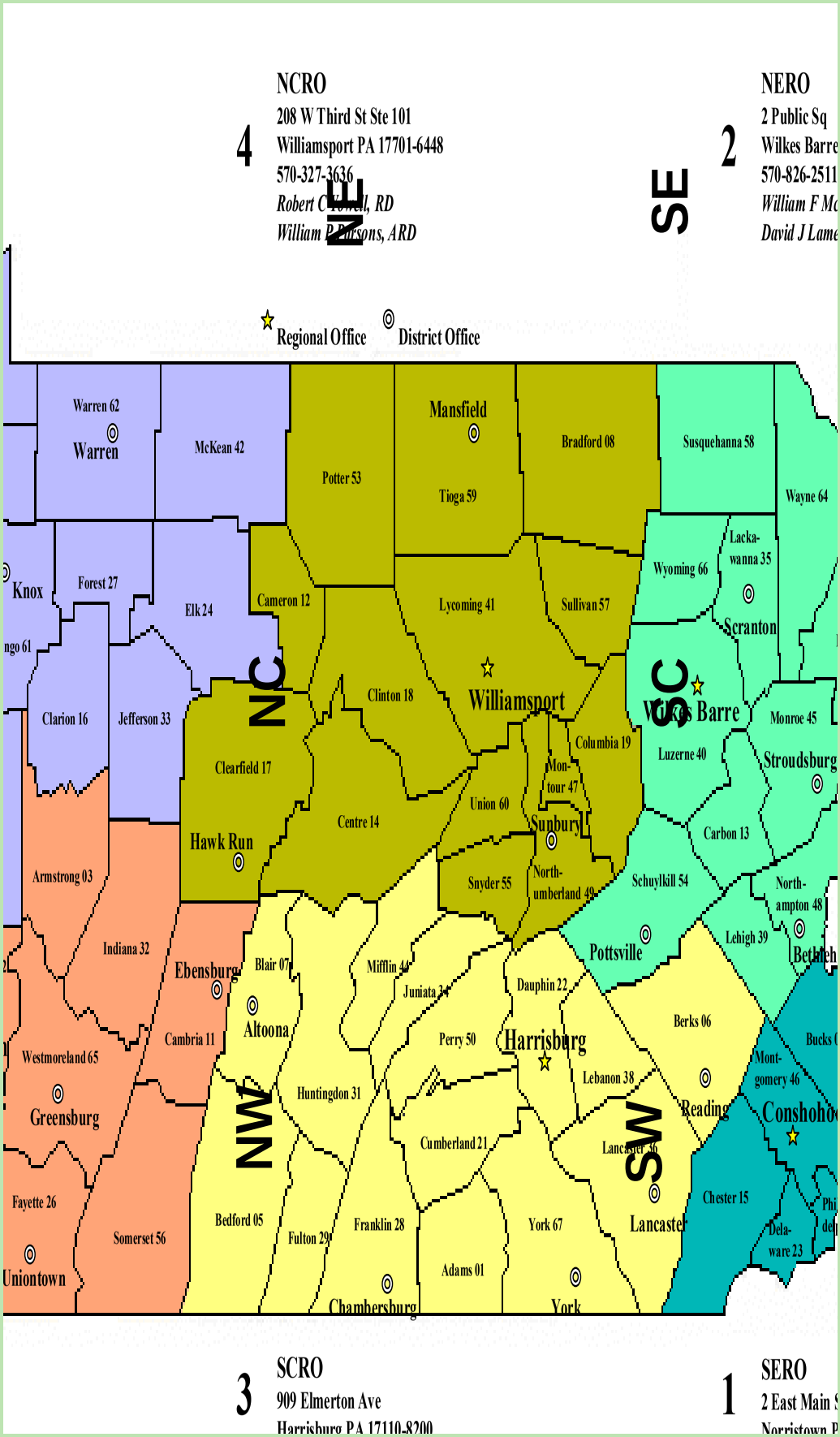
Tires

Construction & Demo

E-Scrap, Textiles, Misc.

Data Source -2012 PA DEP Annual Recycling Report

DEP Regions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NCRO
208 W Third St Ste 101
Williamsport PA 17701-6448
570-327-3636
Robert C [illegible], RD
William P Parsons, ARD
NE
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NERO
2 Public Sq
Wilkes Barre
570-826-2511
William F Mc
David J Lame
SE
Regional Office
District Office
Warren 62
Warren
McKean 42
Potter 53
Mansfield
Tioga 59
Bradford 08
Susquehanna 58
Wayne 64
Knox
Forest 27
Elk 24
Cameron 12
Lycoming 41
Sullivan 57
Wyoming 66
Lacka-
wanna 35
Scranton
Clarion 16
Jefferson 33
NC
Clinton 18
Williamsport
SC
Wilkes Barre
Monroe 45
Columbia 19
Luzerne 40
Stroudsburg
Clearfield 17
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tour 47
Union 60
Sunbury
Carbon 13
Hawk Run
Centre 14
Armstrong 03
Snyder 55
North-
umberland 49
Schuylkill 54
North-
ampton 48
Indiana 32
Ebensburg
Blair 07
Mifflin 44
Juniata 34
Dauphin 22
Pottsville
Lehigh 39
Bethleh
Altoona
Berks 06
Cambria 11
Perry 50
Harrisburg
Bucks
Westmoreland 65
Lebanon 38
Mont-
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York 67
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Somerset 56
Fulton 29
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Chambersburg
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3
SCRO
909 Elmerton Ave
Harrisburg PA 17110-8200
1
SERO
2 East Main S
Norristown P

Organics Collected for Recycling (tons) - 2012

DEP Region	Yard & Leaf Waste	Wood Waste	Food Waste	Totals
NW	41,163	11,275	784	**53,222**
NC	58,874	34,778	4,805	**98,457**
NE	152,484	94,336	11,039	**257,859**
SW	66,002	16,059	5,849	**87,910**
SC	122,919	72,139	22,561	**217,619**
SE	856,537	59,874	29,508	**945,918**
Philadelphia	*4,081*	*6,556*	*18,385*	***29,022***
Totals	**1,297,979**	**288,460**	**74,545**	**1,660,984**

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Data Source -2012 PA DEP Annual Recycling Report

Beneficial Uses of Organics

- Agriculture
  - Direct Application as Soil Amendment
  - Animal Feed

- Compost Feedstock

- Energy Recovery
  - Anaerobic Digestion
  - Alternative Fuels

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Food Scraps Permitting Hierarchy

- Exempt
  - Food processing waste if use for agriculture (must follow nutrient management plan)
  - Animal feed (regulated by FDA and PDA)

- Permit-by-rule for captive facilities

- General or individual permits for composting, anaerobic digestion and energy recovery

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Food Scraps Permitting Hierarchy (Cont.)

General Permits (issued for specific waste types or processes):

Composting

GP-17 - On-Farm Operations

< 5 acres, 500 tpy food waste, no bonding

GP-25 – Commercial and Large Size/ Quantity Ops.

< 15 acres, no bonding for smaller ops., residual waste feedstocks allowed

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Food Scraps Permitting Hierarchy (Cont.)

General Permits (issued for specific waste types or processes):

Composting

GP-45 – Commercial Ops. Sited in Permitted Quarries,
< 5 acres, aerated piles or in-vessel

GP-46 – Commercial and Large Size/ Quantity Ops.
Similar to GP-25, mushroom substrate and treatment plant sludges, no post consumer food scraps

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Food Scraps Permitting Hierarchy (Cont.)

General Permits (issued for specific waste types or processes):

Energy Recovery

GP-27 – Processing food scraps by grinding, shredding, screening and blending with other approved materials for uses an alternative fuel material

GP-42 – Anaerobic digestion of manure, grease trap waste and food scraps

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PA Organics Management Facilities by PA DEP Region

	PBR	Captive/ Demonstration	GP17	GP25	GP27	GP42	GP45	GP46	Total	Private
NW	38	7	1	0	0	0	0	0	46	24
NC	36	4	1	1	0	3	0	0	45	11
NE	69	5	1	2	0	0	3	1	81	34
SW	63	0	2	1	0	0	0	0	66	15
SC	153	6	1	2	1	8	2	0	173	81
SE	65	4	4	0	0	0	0	0	73	21
Totals	**424**	**26**	**10**	**6**	**1**	**11**	**5**	**1**	**484**	**186**

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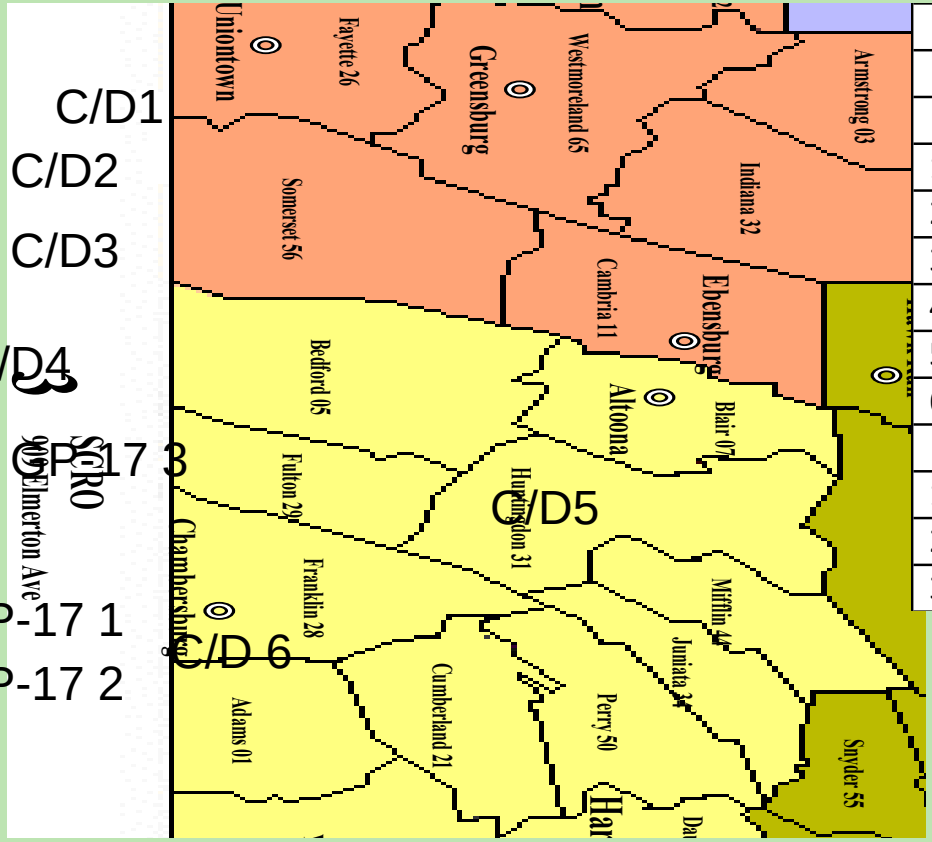
Data Source –DEP EFACTS

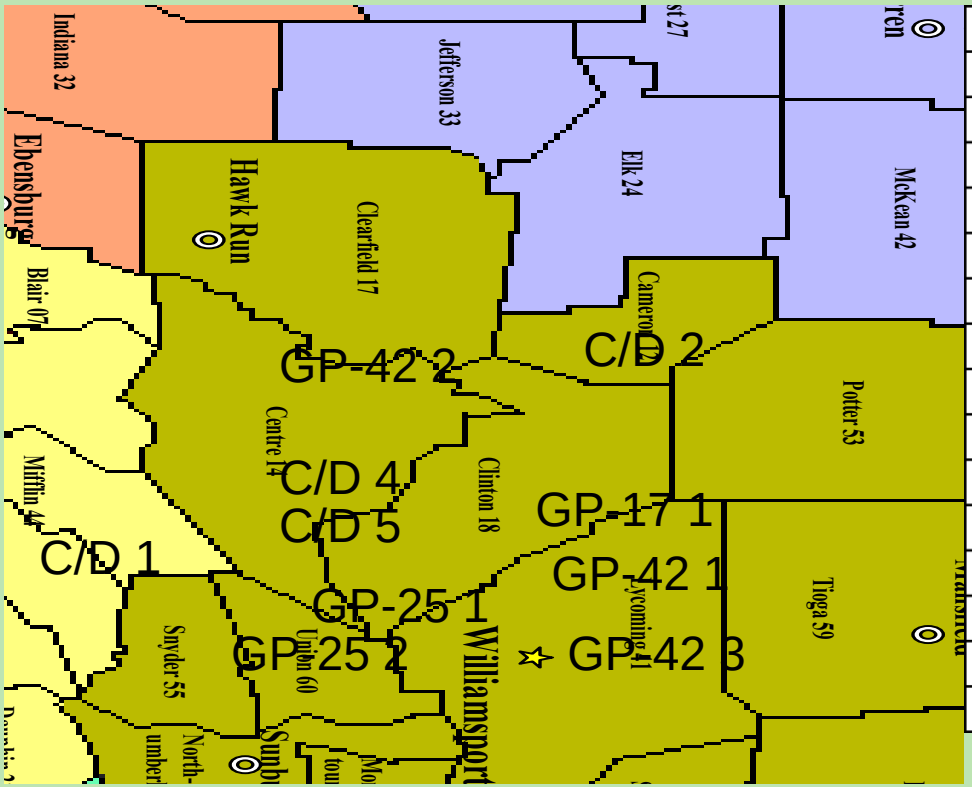
Facilities Permitted to Accept Food Scraps – NW Region



	Northwest Region		
	Facility	Municipality	County
	Captive/Demonstration		
1	Mercyhurst College	Erie	Erie
2	Penn State Behrend	Erie	Erie
3	Allegheny College	Meadville	Crawford
4	Crawford County Prison	Saegertown	Crawford
5	Farmers Inn Restaurant	Eldred Twp.	Jefferson
6	Slippery Rock University	Slippery Rock	Butler
	GP-17		
1	Charlie Moose Farm	New Wilmington	Lawrence
2	Black Moon Farm	Volant	Lawrence
3	Westminster College	New Wilmington	Mercer

SOURCE – PADEP

Facilities Permitted to Accept Food Scraps – NC Region



	Northcentral Region		
	Facility	Municipality	County
	Captive/ Demonstration		
1	SCI - Clearfield	Clearfield	Clearfield
2	Penn College	Montgomery	Lycoming
3	Rowse Howse Farms	Milton	N-umberland
4	Tait Farm	Harris Twp.	Centre
5	St. Andrews Church	State College	Centre
	GP-25		
1	Penn State University	University Park	Centre
2	State College Borough	Patton Twp.	Centre
	GP-17		
1	Briar Patch Organic Farms	Mifflinburg	Union
	GP-42		
1	Ideal Farms	Beavertown	Snyder
2	Schrack Farms	Loganton	Clinton

SOURCE – PADEP

State College Borough Food Scraps Collection and Composting

- Pilot curbside collection began January, 2010 for 549 residences and 9 businesses (schools, grocery store, restaurants included)
- Borough-wide collection March 2013
- Composted and bagged at Borough facility

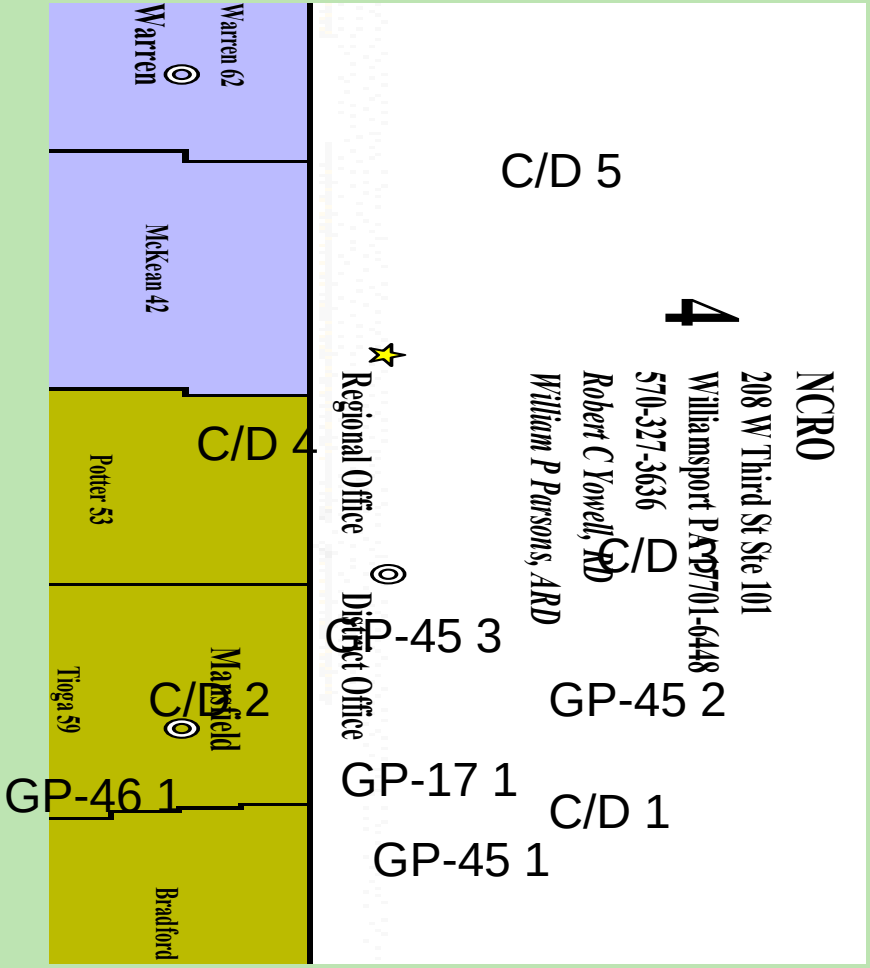
Ideal Family Farms Anaerobic Digester

- Raises 30,000 nursery and finishing hogs annually
- Permitted to accept up to 15,000 gallons/ day food scraps and grease trap waste
- 180 KW generator
- Plans to build food scraps receiving station

Ideal Family Farms Anaerobic Digester

Ideal Family Farms
Anaerobic Digester

Facilities Permitted to Accept Food Scraps – NE Region



	Facility	Municipality	County
	Captive/ Demonstration		
1	Lafayette College	Easton	Northampton
2	Red Earth Farm	W. Brunswick Twp.	Schuylkill
3	Sanofi Pasteur, Inc.	Swiftwater	Monroe
4	SCI - Dallas	Dallas	Luzerne
5	SCI - Waymart	Waymart	Wayne
	GP-17		
1	Four Springs Farm	Weisenberg Twp.	Lehigh
	GP-46		
1	Summit Anthracite	Frailey Twp.	Schuylkill
	GP-45		
1	Haines & Kibblehouse	Allentown	Lehigh
2	Haines & Kibblehouse	Easton	Northampton
3	Hazleton Materials	Weatherly	Carbon

SOURCE – PADEP

American Biosoils Company

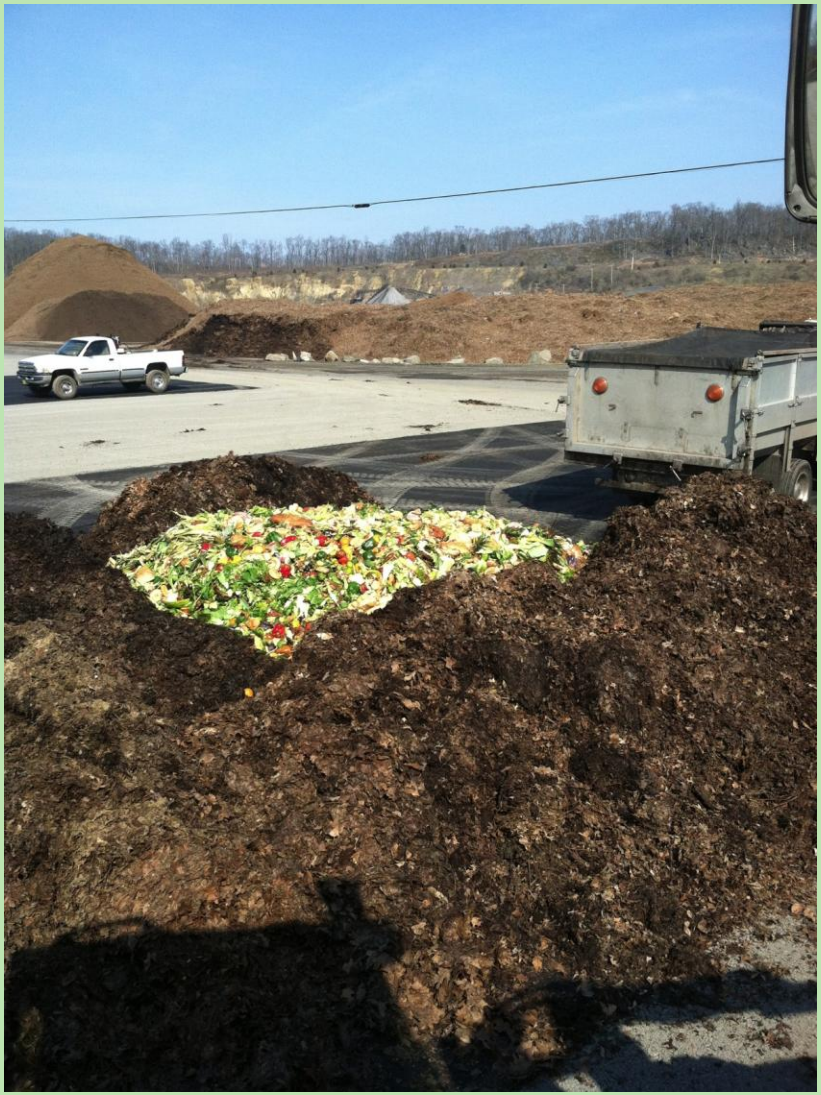
- Partnership between Ned Foley and the H&K Group, a large aggregate company headquartered in SE PA with dozens of holdings in PA, MD and NJ.
- Developing and operating 10 organics composting facilities within permitted quarry operations under a new GP-45.
- Each site has estimated 10 thousand tons of annual food scraps composting capacity.
- 5 sites in Lehigh, Northampton, Luzerne, Berks and Lancaster Counties currently permitted.
- Accepting food scraps from Weis Markets and producing bagged compost for sale in stores

American Biosoils Company

H & K Pottstown Trap Rock Composting Facility

American Biosoils Company

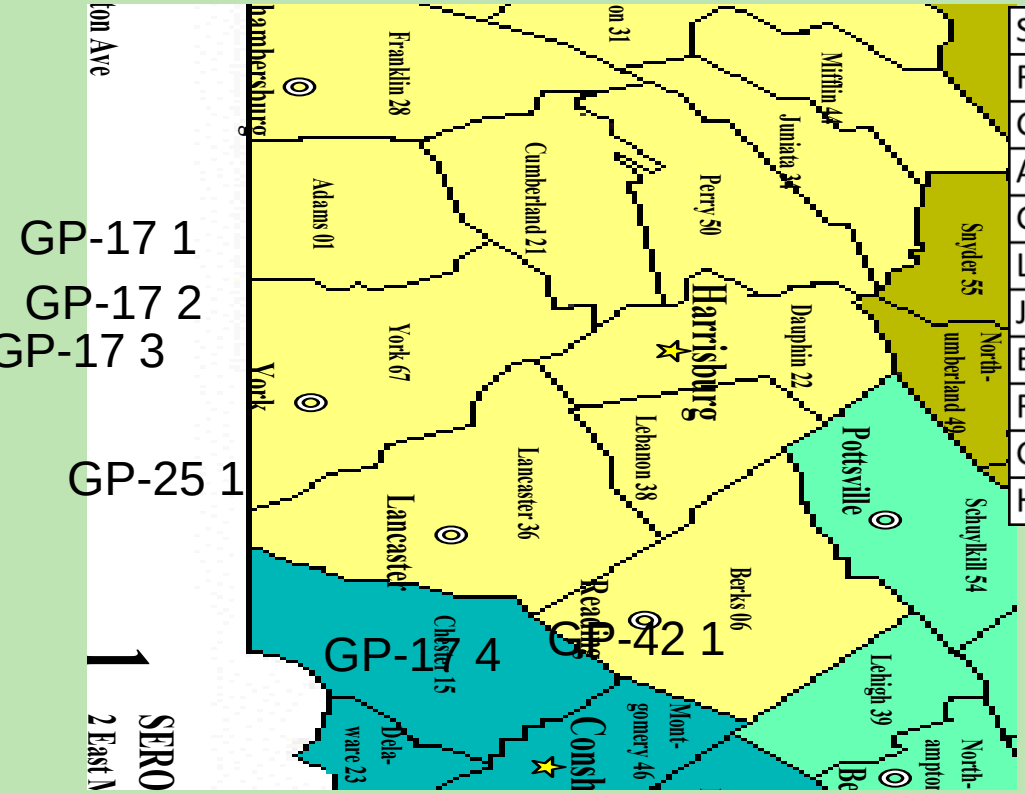
H & K Pottstown Trap Rock Composting Facility



American Biosoils Company

H & K Pottstown Trap Rock Composting Facility

Facilities Permitted to Accept Food Scraps – SW Region



Southwest Region		
Facility	Municipality	County
GP- 25		
AgRecycle, Inc.	N. Strabane Twp.	Washington
GP-17		
Lockwood Farms	Darlington	Beaver
Jay's Composting	Darlington	Beaver
Echo Valley Farm	New Galilee	Beaver
Reskovic Farms	Uniontown	Fayette
GP-42		
Hillcrest Savior Farms	Middlecreek Twp.	Somerset

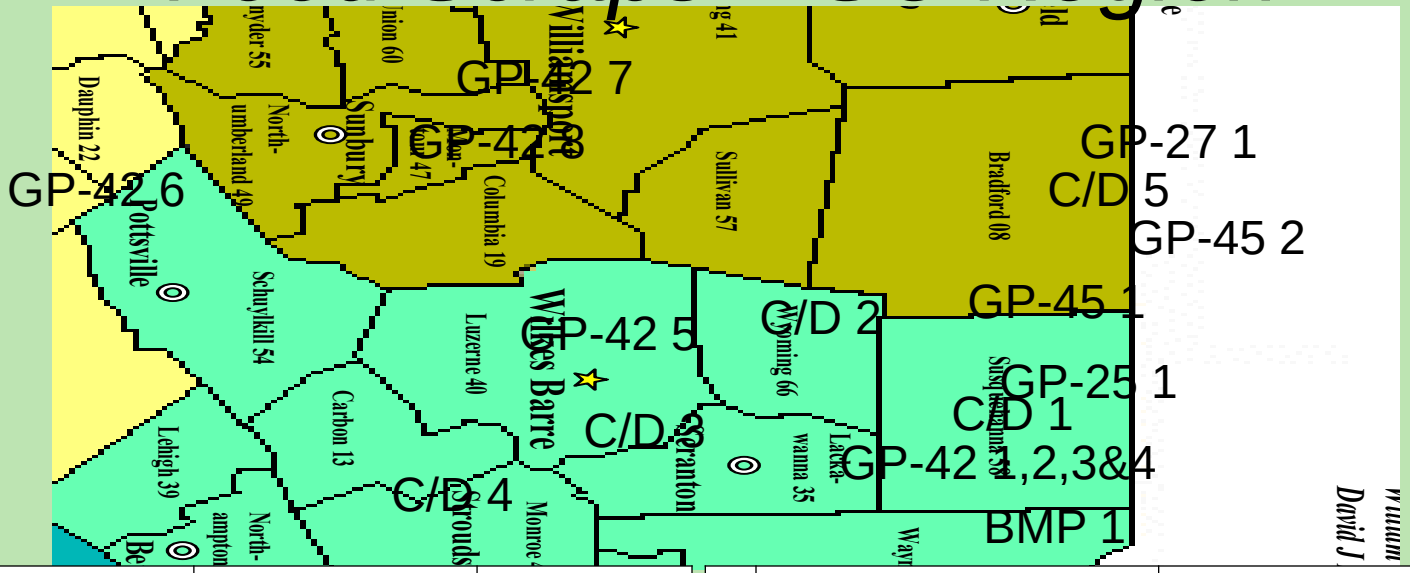
SOURCE – PADEP

AgRecycle

- Only commercial facility in SW PA
- Must compete against low landfill tipping fees
- Focuses on producing high quality compost for golf course and high-end landscape applications
- Community/ PR oriented (i.e. Pirates, Steelers, Arts Festival)

Photos courtesy of AgRecycle, Inc.

Facilities Permitted to Accept Food Scraps – SC Region



	Southcentral Region		
	Facility	Municipality	County
	Captive/ Demonstration		
1	Columbia Borough	Columbia Borough	Lancaster
2	Penn State Harrisburg	L. Swatara Twp.	Dauphin
3	Dickinson College Farm	S. Middleton Twp.	Cumberland
4	Wilson College	Chambersburg	Franklin
5	Berks County Prison	Bern Township	Berks
	GP-25		
1	Oregon Dairy	Manheim Twp.	
	On-Farm BMP		
1	Graywood Farms	Fulton Twp.	Lancaster
	GP-27		
1	D.W. Zwicky	Richland Twp.	Berks

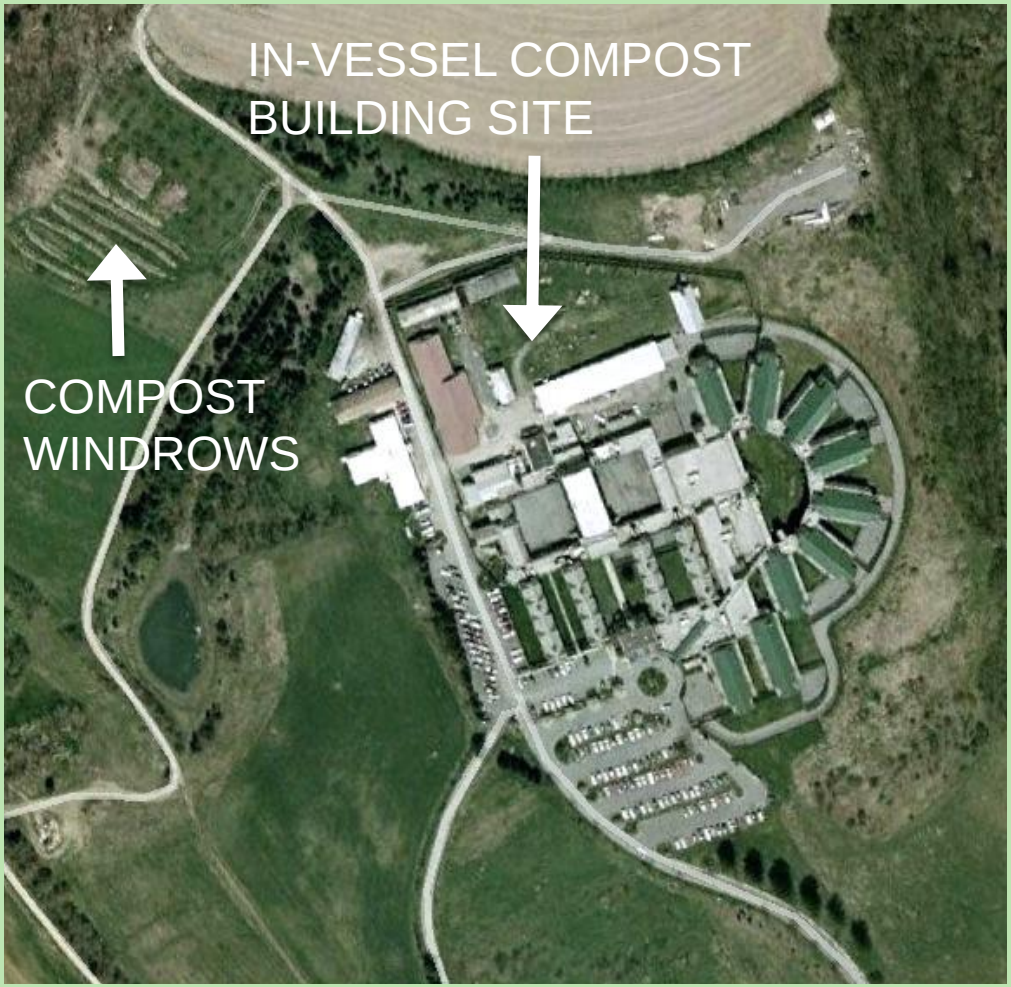
	Facility	Municipality	County
	GP-42		
1	Benner's Yippee Farms	Rapho Township	Lancaster
2	Brubaker Farms	E. Donegal Twp.	Lancaster
3	Cliff Sensenig	Little Britain	Lancaster
4	S&A Kreider Farm	Quarryville	Lancaster
5	Keefer Hard Earned Acres	Southampton	Cumberland
6	Penn England, LLC	Williamsburg	Blair
7	Reinford Farms	Walker Twp.	Juniata
8	Reinford- Frymoyer Farm	Walker Twp.	Juniata
	GP-45		
1	Silver Hill Quarry	Narvon	Lancaster
2	Pottstown Trap Rock	Douglassville	Berks

Oregon Dairy Organics

- PA’s first large scale commercial agricultural-based facility
- Partners with a hauling company
- Addresses Chesapeake Bay cleanup initiatives and best practices for manure management
- Diverse and innovative funding sources
- Focuses on producing high quality compost for athletic field and high-end landscape applications

Wheeler Structures

Berks County Prison
In-vessel Composting



- Located in rural Bern Township
- 5 miles NW of City of Reading
- Surrounded by county-operated farms and facilities
- 1,100 inmates
- 240 staff
- 800 lbs/ day food scraps

Berks County Prison
In-vessel Composting

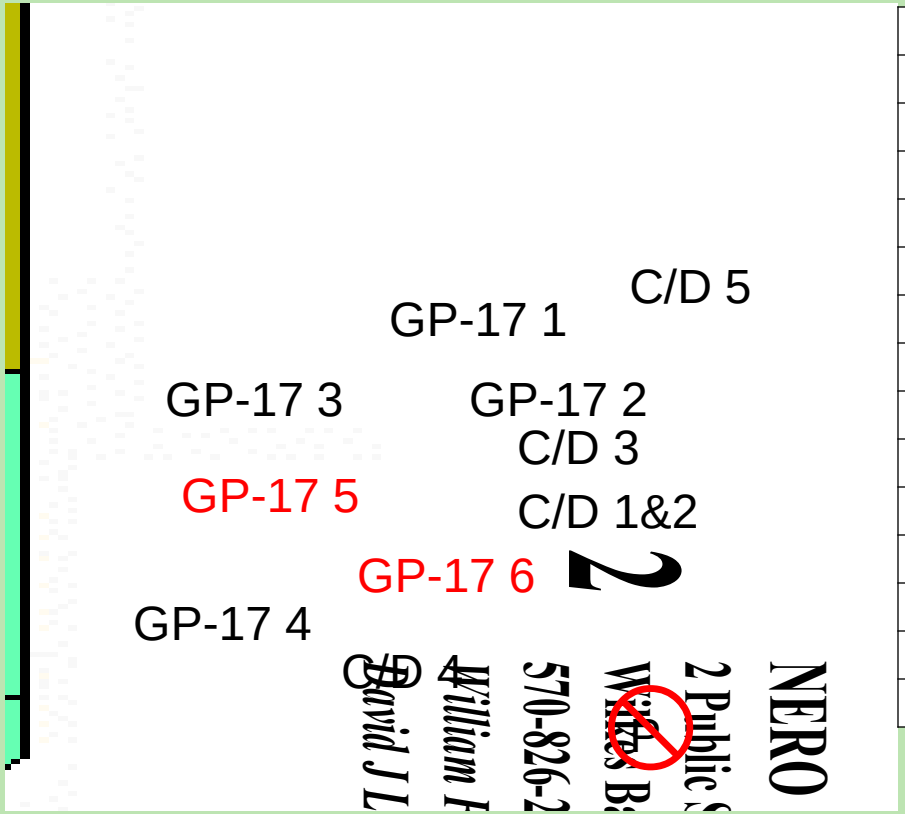
IN-VESSEL COMPOST BUILDING

- 40L' X 32'W X10'H concrete and steel structure
- (3) – 26'L X 10'W composting bays
- 30'L X 10' Control Room
- $140,000 materials cost
- Built by jail staff

Berks County Prison
In-vessel Composting

Berks County Prison
In-vessel Composting

Facilities Permitted to Accept Food Scraps – SE Region



	Southeast Region		
	Facility	Municipality	County
	Captive/ Demonstration		
1	Dirt Factory	Market St.	Philadelphia
2	Philadelphia Prison	Philadelphia	Philadelphia
3	SCI - Graterford	Graterford	Montgomery
4	Swarthmore College	Swarthmore	Delaware
5	Del Val College	Doylestown	Bucks
	GP-17		
1	Two Particular Acres	U. Providence Twp.	Montgomery
2	Barnside Farm	Schwenksville	Montgomery
3	Arborganic Acres	N. Coventry Twp.	Chester
4	Longwood Gardens	Kennett Square	Chester
5	Thornbury Farm	West Chester	Chester
6	Linvilla Orhards	Middletown	Delaware

SOURCE – PADEP

Two Particular Acres

- 1st GP-17 in PA
- Operating since 2003
- Uses aerated static pile method

Two Particular Acres

PA Food Scraps Annual Composting and Anaerobic Digestion Facility Capacity (tons)

DEP Region	Composting Capacity	AD Capacity	Totals
NW	1,500		**1,500**
NC	7,000	29,000	**36,000**
NE	31,000		**31,000**
SW	7,500	15,000	**22,500**
SC	32,000	63,000	**95,000**
SE	2,000		**2,000**
Peninsula	~~33,000~~	-	~~**33,000**~~
Totals	**81,000**	**107,000**	**188,000**

Observations/ Outlook

- **Organics Management in PA is a growth industry, particularly food scraps diversion**
- ***Existing and/or future capacity for food scraps exists in all DEP regions***
- ***Additional food scraps composting and AD capacity is needed for NW, SW and SE regions***

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Opportunities to Increase Organics Recycling Capacity

- **Expand food scraps composting systems to other prison locations and evaluate the feasibility of using this model in other Philadelphia institutions (i.e. school system, universities, corporate campuses)**

Philadelphia Prison System Aerated Composting Unit

Photo courtesy of Laura Cassidy

Opportunities to Increase Organics Recycling Capacity

- Expand food scraps composting systems to other prison locations and evaluate the feasibility of using this model in other Philadelphia institutions (i.e. school system, universities, corporate campuses)

- **Populate the City with BiobiNs**

By capturing odor and reducing volume, BiobiN® provides a sustainable option for organic waste collection, enabling businesses to increase recycling rates while decreasing the number of pick-ups, and the related costs and carbon emissions.

The **MinibiN™** (Front end load system)

A standard, ground-feed roll-off BiobiN® application

BiobiN® can be customized with a loading platform or thru-the-wall chute

Opportunities to Increase Organics Recycling Capacity

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- Populate the City with BiobiNs
- ***Expand the Role of Fairmont Park Organics Facility***

1/4 Mile
Site Boundary
50 Feet
100 Feet
300 Feet
LCGE (Woody Material) Processing Area
Legend
PaGWIS Wells
Hydrology
NWI Wetlands
WT Depth 8cm
500 Year Floodplain
100 Year Floodplain (Non-detailed)
100 Year Floodplain (Detailed)
Floodway
0 60 120 240
Feet
Fairmont Park Organic Recycling Center
City of Philadelphia, PA
Permit-by-Rule
FIGURE 3
SITING CRITERIA MAP
Scale (Feet)
0 60 120 240
Gannett Fleming
APRIL 2011

Opportunities to Increase Organics Recycling Capacity

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- ***Expand the Role of Fairmont Park Organics Facility***
  - ***Food scraps from Park concessions and other City owned/ controlled generators (captive facility approval needed- possibly GP25)***
  - ***Receiver of BiobiN material***
  - ***Commercial Accounts***
  - ***Consider conversion to aerated system***

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- ***Attract and partner with mid-size compost and AD facility developers***

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  - *Consider conversion to aerated system*

- *Attract and partner with mid-size compost and AD facility developers*

- ***Develop a DEP general permit for small community compost facilities***

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Red Hook Community Farm

The compost site at Red Hook Community Farm is approximately 20,000 square feet. It uses a mechanized system that forces air into the middle of compost piles, which speeds decomposition.

Image Courtesy of 2014 NYC Community Composting Report

Thank You

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