

# The SWEEP Municipal Standard

**Comment Draft:**

Has not been balloted or approved for release.

***December 14, 2018***



**Development Draft Updated: 12/14/18**

Thank you for downloading the SWEEP (Solid Waste Environmental Excellence Protocol) Municipal Standard First Comment Draft!

SWEEP is the product of volunteer industry experts, like you, sharing their experience and expertise in best practices to help transform the solid waste sector toward sustainability.

We will be accepting comments on the Draft Municipal Standard until the beginning of February, 2019. If you have comments and would like to contribute, we have 2 options available:

- (1) Email your comments—on company letterhead, accompanied by your full name, affiliation and email address—to [info@sweepstandard.org](mailto:info@sweepstandard.org)
- (2) Sign up to comment on the SWEEP website <http://nrra.net/sweep/> through the SWEEP Municipal Standard Comment Portal. (Direct link coming soon!).

Once again, thank you for your interest and we look forward to receiving your comments and benefiting from your expertise!

– The SWEEP Team

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# Executive Description of SWEEP

The Municipal Market SWEEP Standard evaluates the environmental, economic and social aspects of providing municipal solid waste services. The standard will be achievable by municipal governments of all sizes and covers a range of activities, whether contracted out to waste industry companies, or provided by municipal employees.

## Performance Categories, KPIs and Credits

The Municipal and Industry Standards are composed of **6 Performance Categories**, designed to comprehensively address sustainable waste management from intention (policy) through to implementation and verification (data collection):

1. **Sustainable Material Management Policy (SMMP)**
2. **Waste Generation and Prevention (WGP)**
3. **Solid Waste Collection (SWC)**
4. **Post-Collection Recovery (PCR)**
5. **Post-Collection Disposal (PCD)**
6. **Innovation**

In addition to the 6 core Performance Categories, a separate Innovation performance category will recognize measures and approaches that are beyond best practice.

Within the Performance Categories, credit is given for specific measurable and verified actions. Credits under these Performance Categories are organized by

**Key Performance Indicators (KPIs):**

1. **Efficiency and Effectiveness**
2. **Environmental Performance**
3. **Economic Performance**
4. **Public Participation, Working Conditions and Social Impact**

KPIs define the framework through which success is measured.

**Credits** are defined actions designed to meet the goals of SWEEP that are documented by entities seeking certification and verified by an independent certification body approved by SWEEP. At the outset, SWEEP may perform the certification activity.



SWEEP credits are structured as follows:

- Intent:** States the underlying purpose of the credit (the “Why”).
- Requirements:** Describes the specific actions the applicant needs to take to achieve credit toward certification (the “What”).
- Potential Strategies:** Examples of how to achieve the Requirement(s) (the “How”).  
*Strategies are for reference only; projects are not required to follow the examples given.*

Detailed documentation requirements, calculation methodologies, default values and other key information about achieving SWEEP credits are found in a separate Certification Manual\* that may be purchased from SWEEP.

## **SWEEP Volunteer Committees**

The following volunteer professionals dedicated many hours to developing the draft standard and SWEEP deeply appreciates their efforts and their expertise.

<b>Steering Committee Member</b>	<b>Organization</b>
Adam Gendel	GreenBlue
Bob Gedert	National Recycling Coalition
Michael Mignano	International Brotherhood of Teamsters
Susan Robinson	Waste Management
Jim Thompson	Waste Business Journal
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Susan Moulton	Waste Management
Don Gambelin	Compology
Bob Cappadona	Casella
Bill Keegan	Dem-Con. Company

<b>Municipal Standard Committee Member</b>	<b>Organization</b>
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Ms. Kim Braun	Culver City, CA
George Payba	Los Angeles
Annie White	Washington DC
Jordan Fengel	State of Texas Alliance for Recycling (STAR)

**\*NOTE:** The SWEEP Certification Manual will be developed during the Pilot Phase.



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# 1. Municipal Sustainable Materials Management Policies (SMMP)

**|| Sustainable Materials Management Policies ||** refer to a broad array of regulatory and policy measures aimed at minimizing solid waste generation, improving the performance of solid waste collection, processing, and recovery practices.

The Municipal SMMP requirements of SWEEP take into account four key performance indicators (KPI):

1. Efficiency and Effectiveness
2. Environmental Performance
3. Economic Performance
4. Public Participation

# Municipal SMMP Efficiency & Effectiveness Key Performance Indicator (KPI)

## Municipal SMMP Draft Prerequisite 1: ***Comprehensive Sustainable Materials Management Policy*** (x points)

**Intent:**

To promote highest and best use of materials.

**Requirements:**

Contract with a SWEEP Certified waste services provider that addresses the following requirements.

**Or**

Design and adopt a Comprehensive Sustainable Materials Management policy that covers all of the following elements as applicable to the jurisdiction:

- Procurement rules for environmentally preferred products (EPP) and recycled content products, with emphasis on domestic infrastructure
- Requirements for source separation of materials
- Environmental and energy performance standards for collection vehicles
- Establish a public and municipal employee education and information program
- Require best available management practices for landfill operations (methane recovery, leachate treatment, odor and vector control, safety)
- Require best available management practices for incineration operations (minimum: meet state emissions standards; better: best available particulate and criteria air pollution control)

## Municipal SMMP Draft Credit 1: ***Materials Processing Infrastructure and Market Development Policy*** (x points)

### **Intent:**

To support economic development by increasing local and/or regional processing infrastructure and markets for recovered materials.

### **Requirements:**

Develop and adopt a policy that facilitates and supports the development of public and/or private processing and manufacturing infrastructure for recovered materials and incentives for purchasing the output of these facilities.

### **Potential Strategies:**

- Convene an enabling board to support local economic development through material recovery and processing infrastructure.
- “Buy local” and “buy recycled” content incentives in procurement. Incentives can include low-interest loans, grants, technical assistance and business development and marketing support.
- Streamline the project development process for qualifying projects, including accelerating permitting, fee or tax reductions, etc.

## Municipal SMMP Draft Credit 2: ***Adoption of Diversion and Recycling Goals*** (x points)

### **Intent:**

Increase recycling, composting and other beneficial utilization of waste.

### **Requirements:**

Contract with a SWEEP Certified waste services provider that addresses the following requirements.

### **Or**

Adopt a policy that sets recycling and landfill diversion goals that exceed U.S. national average recycling and diversion rates as reported by the Environmental Protection Agency. Policy must require publicly reporting achieved recycling/diversion goals.

- Tier 1: Adopt a policy goal to achieve recycling and diversion rates 10% higher than the national average recycling rate
- Tier 2: Adopt a policy goal to achieve recycling and diversion rates 20% higher than the national average recycling rate.

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Policy must adopt or reference the *SWEEP Diversion Calculation Methodology* and *SWEEP Guidelines for Waste Characterization and Waste Generation Studies*<sup>1</sup> as the basis of the calculations.

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### Alternative Compliance Path: (For discussion)

- Tier 1: Adopt a policy goal to achieve recycling and diversion rates 10% higher than the municipality's state average and develop and submit a plan to achieve 10% higher than national average diversion within a period of 3-5 years.
- Tier 2: Adopt a policy goal to achieve recycling and diversion rates 20% higher than the state average and develop and submit a plan to achieve 20% higher than national average diversion within a period of 3-5 years.

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<sup>1</sup> SWEEP Methodologies are under development.

<sup>2</sup> The SWEEP waste characterization and generation guideline methodology is under development.

## Municipal SMMP Draft Credit 3: ***Regular Waste Characterization and Generation Study Policy*** (x points)

**Intent:**

To collect up-to-date data to support development and evaluation of effective sustainable materials management programs.

**Requirements:**

Develop and adopt a policy to regularly collect data on the generation and characterization of all materials collected in the municipality.

The policy shall reference and require waste characterization and generation studies to follow the *SWEEP Guidelines for Waste Characterization and Waste Generation Studies*<sup>2</sup>.

At a minimum, the policy must specify that a Major Waste Characterization and Generation Study be conducted every 5 years, with at least one Waste Characterization Update between major studies.

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<sup>2</sup> The SWEEP waste characterization and generation guideline methodology is under development.

## Municipal SMMP Draft Credit 4: ***Advanced Comprehensive Sustainable Materials Management Policy*** (x points)

### **Intent:**

To collect up-to-date data to support development and evaluation of effective sustainable materials management programs.

### **Requirements:**

Develop and adopt a policy to regularly collect data on the generation and characterization of all materials collected in the municipality that includes the following elements:

- Regular collection of waste characterization and volume data
- Collection and treatment of organics
- Energy and contamination standards for material recovery facilities (MRFs)
- Research, Development & Deployment (RD&D) incentive and education program for advanced sustainable material management technology and products for recovered materials
- Landfill material ban(s)

# Municipal SMMP Environmental Performance KPI

## Municipal SMMP Draft Credit 5: ***Solid Waste Greenhouse Gas Footprint Reduction Policy*** (x points)

**Intent:**

To reduce the greenhouse gas footprint of the municipality's solid waste management program.

**Requirements:**

Adopt a policy to measure and reduce the per capita greenhouse gas footprint of the collection, recovery and disposal of waste within the jurisdiction by at least 20 percent compared with a 2015 baseline within 5 years of policy adoption

**Potential Strategies**

Use a metric of carbon dioxide equivalents to quantify the carbon impact of waste, assessing the emissions generated by producing and recycling materials as well as the emissions from the disposal process itself.

## Municipal SMMP Draft Credit 6: ***Source Reduction Policy*** (x points)

### **Intent:**

Reduce waste generation and disposal through programs that encourage reuse.

### **Requirements:**

Develop and adopt a policy to promote product and material reuse. The policy should allow or facilitate most of the following or equivalent programs:

- Partnerships with Food Rescue Groups
- Partnerships with local reuse organizations, such as Habitat for Humanity, Salvation Army, and Goodwill.
- Promote citizen or industry repair programs and infrastructure through “tool libraries,” “repair cafes,” corporate events (e.g. Patagonia repair bus), etc
- Adopt building deconstruction policies, codes or ordinances
- Support for and development of material exchanges
- Promoting backyard composting with subsidized bins, education and other support.
- Programs to eliminate or reduce usage of products,
- Partnership with companies that handle hard-to-recycle items
- Programs to eliminate or reduce usage of products, e.g.
  - Bag bans or taxes/promotion or distribution of reusable bags
  - Water bottle refilling stations in public places
  - Procurement programs that emphasize and reward source reduction
  - Life Cycle assessment
  - Funding for source reduction programs
  - Training and education programs about source reduction
  - Support for and development of material exchanges
  - Developing “On demand” programs for consumer items in service establishment, such as straws in restaurants
  - Promoting backyard composting with subsidized bins, education and other support.
  - Offer and promote no-cost regular business waste assessment/audit with recommendations for “right-sizing”.



# Municipal SMMP Economic Performance KPI

## Municipal SMMP Draft Credit 7: ***Market-Based Waste Management Program Policy*** (x points)

**Intent:**

Use market mechanisms to reduce waste generation and to incentivize more efficient waste management systems.

**Requirements:**

Adopt the following incentive/market-based policies or procurement requirements for collection/processing franchises or service provider licensing.

Tier 1: Develop and adopt 3 policies/programs

Tier 2: Develop and adopt 5 or more policies/programs

- Pay-as-you-throw variable pricing for black bin, blue bin and green bin services.
- Offer and promote no-cost regular business waste assessment/audit with recommendations for “right-sizing”.
- Incentives for product ‘lightweighting’.
- Tax breaks or other incentives for donations to non-profit food rescue or other intermediate material reuse organizations.
- Incentives for xeriscape or other policies to reduce grass planting.
- Optimize and incentivize procurement policies for products and materials that are recyclable and have recycled content.
- Creation of recycling market development zones.
- Adoption of reward-based recycling incentive programs, such as Recyclebank & Tomra buyback centers.
- Advanced disposal/processing fees; e.g. Tire and battery disposal fees, bottle bill and other container reuse/recovery fees.
- Extended Producer Responsibility (EPR) requirements in municipal procurement or requirements for retail establishments.

## Municipal SMMP Public Participation KPI

### Municipal SMMP Draft Credit 8: ***Policy for Comprehensive Public Participation in Solid Waste Management Program Development*** (x points)

**Intent:**

Solicit and encourage broad public input into decision making around solid waste management.

**Requirements:**

Adopt a policy of best-practices public participation in solid waste management decision making\* as described in the EPA's Resource Conservation and Recovery Act Public Participation Manual January 11, 2017

[https://www.epa.gov/sites/production/files/2017-01/documents/final\\_rcra\\_ppm.pdf](https://www.epa.gov/sites/production/files/2017-01/documents/final_rcra_ppm.pdf) .

\*Solid waste management programs that could be addressed include: recycling program development, waste management fees and contracts, landfill operations (municipal and contracted), Solid Waste Management Plans, etc.

## 2. Municipal Waste Generation & Prevention (WGP)

**Waste generation** refers to the volume or tonnage of solid waste generated prior to any recovery or disposal. Preventing and minimizing waste generation is considered to be more important than solid waste recovery, prioritized first in the U.S. Environmental Protection Agency's waste management hierarchy. Two mechanisms are employed to minimize waste generation: source reduction and reuse.

The Municipal WGP requirements of SWEEP take into account **four key performance indicators (KPI)**:

- 1) Efficiency and Effectiveness
- 2) Environmental Performance
- 3) Economic Performance
- 4) Public Participation

# Municipal WGP Efficiency & Effectiveness KPI

## Municipal WGP Draft Credit 1: ***Measuring and Calculating Waste Generation & Source Reduction*** (x points)

### **Intent:**

To consistently measure or calculate the generation of municipal waste, which is the foundation for effective waste management policies and programs.

### **Requirements:**

#### Tier 1: Measuring Waste Generation

Calculate the generation of municipal waste, construction and demolition waste and municipal wastewater biosolids within the boundaries of the jurisdiction for residential, commercial and non-hazardous industrial waste that is collected or controlled by the municipality. Municipal waste is defined according to the [EPA](#)

Municipalities should report total aggregated annual tonnage of mixed waste, recycling (including contamination), green waste, C&D and wastewater biosolids as weighed on certified scales at the final destination of the material. Total waste imports should be measured/quantified separately, but should not be included in the calculation of municipal generation.

#### Tier 2: Calculating Source Reduction Potential

Based on calculated or measured waste generation and characterization, calculate the Source Reduction potential for the municipality.

Utilize the source reduction potential calculation methodology outlined in the US EPA's *Source Reduction Program Potential Manual* available at <https://www.epa.gov/nscep>

### **Potential Strategies:**

- Adopt and implement *SWEEP Guidelines for Waste Characterization and Waste Generation Studies*.
- Food rescue programs/projects "Spoiler Alert" for products with limited lifetime esp. Food
- Implementation of local mandatory recycling policy
- Enforce local mandatory recycling policy
- Educational programs on reuse and source reduction

- Prevalence and magnitude of educational programs for residents &/or commercial/institutional organizations
- Prevalence and magnitude of educational programs for waste management employees
- Measuring/calculating
  - total solid waste generated;
  - per capita solid waste generation;
  - Residential vs. Commercial origin;
- Procurement policies and achievements
  - EPP policy-recycling, composting, etc.
    - Muni building recycling & composting programs
    - Buy used
    - remanufactured toner cartridges
    - Buy Recycled
  - Auction /resale of used goods
  - Encouraging take-back programs
- Product labeling practices
  - Procurement guidelines regarding labeling products as compostable or other definitional label
- Municipally Sponsored Source Reduction programs:
  - Backyard composting;
  - Material exchanges/material libraries, e.g. textiles/clothing
  - Waste audit & recommendations “right-size” programs
  - Phone book opt out
  - Grasscycling

## Municipal WGP Draft Credit 2: ***Municipal Source Reduction Programs*** (x points)

### **Intent:**

Encourage reduced waste generation to reduce material use

### **Requirements:**

Develop, support and promote at least 5 of the following—or equivalent—waste reduction/reuse programs in the municipality

- Pay as you throw programs [issue of illegal dumping and ‘cheating’]
- Food waste reduction: Prevent healthy and consumable food from being wasted
- Staffed swap shops & construction material clearing houses
- Repair cafes
- Support corporate reuse/repair programs, Patagonia, etc.
- Charity reuse programs, such as Salvation Army and Goodwill; Vietnam Veterans of America programs--materials collected and distributed to veterans
- Backyard composting or grasscycling programs
- Material exchanges and/or material libraries, (e.g. textiles/clothing)
- Material opt-out options (i.e. phone books, news publications, etc.)
- Municipal-sponsored book drives for community re-circulation

### **Potential Strategies**

- Provide residents kitchen composting bins, composting instruction manuals.
- Printed and online resources to respond to questions.

## Municipal WGP Draft Credit 3: *Food Rescue Programs/Projects* (x points)

**Intent:**

Prevent healthy and consumable food from being wasted.

**Requirements:**

Tier 1: Implement a daily food rescue program for healthy and consumable food that serves at least [50 people.

and/or,

Implement program of heavily discounted pricing for food near or at expiration date in [10% of grocery establishments within the municipality's borders.

Tier 2: Implement a daily food rescue program that serves at least [100 people.

and/or,

Implement program of heavily discounted pricing for food near or at expiration date in [25% of grocery establishments.

**Potential Strategies:**

- Connect residents with food rescue smartphone applications that alert user whenever excess food becomes available for discounted or free consumption (ex: Food for All, Gebni, goMkt, etc).
- "Spoiler Alert" for products with limited lifetime esp. food.

# Municipal WGP Environmental Performance KPI

## Municipal WGP Draft Credit 4: *Litter Prevention and Reduction Infrastructure* (x points)

### **Intent:**

To beautify local areas, prevent materials from polluting the natural environment, and encourage proper handling of material by municipalities.

### **Requirements:**

- Prevention
  - Implement a program that encourages the adoption of durable products such as reusable bags and cups and disincentivizes single-use alternatives; to complement SMMP policy.
  
- Reduction
  - Maintain a sufficient number of receptacles in public areas including walkways, parks, and other public places.
    - Receptacles should be both visible and have effective signage.
    - Receptacles must have openings that contain waste without impeding the introduction of new material (i.e. push flaps, tops).
  - Consistent and reliable servicing of receptacles.
    - A schedule is in place to appropriately empty receptacles nearing capacity.
    - Limit overflow events to *zero* (0) per year.

### **Potential Strategies**

- Example methods include unified language, artwork, vibrant colors, and/or colors that coincide with universal understanding (i.e. blue for recycling, yellow for compost).
- In addition to trash, have multi-material disposal options (such as trash and recycling together).



## Municipal WGP Draft Credit 5: ***Environmentally Preferable Product Procurement*** (x points)

### **Intent:**

To encourage and increase the procurement of recycled content and other environmentally preferable products (EPP\*).

### **Requirements:**

Tier 1: Demonstrate procurement of products that meet EPP requirements for a minimum of 10% of the department's budget.

Tier 2: Demonstrate procurement of products that meet EPP requirements for a minimum of 25% of the department's budget.

### **Potential Strategies**

- Utilize an open database of 'preferred' alternative chemicals, materials, and processes to help companies reformulate products to make them more circular
- Establish procurement guidelines to label products as compostable or other definitional label

\*EPP criteria should be consistent with EPA guidelines for environmentally preferable products as outlined in Federal Executive Order 13693 [sections TBD, or other comparable EPP criteria.] or demonstrated through life cycle assessment.

## Municipal WGP Draft Credit 6: ***Sustainable Capital and Utility Procurement*** (x points)

### **Intent:**

To establish energy efficiency and sustainability requirements for new purchases of capital equipment, construction, infrastructure, and utilities.

### **Requirements**

1. Maintain a sustainable purchasing program covering durable equipment associated with administration of the program with a high cost per unit that are not regularly replaced through the course of operations. These materials include, but are not limited to:
  - Vehicles
  - Office equipment and appliances
  
2. Maintain a sustainable purchasing program covering facility's total energy consumption through the course of operations. Options for renewable electricity include, but are not limited to:
  - Tier 1: RECs purchased from the grid that are Green-e certified or equivalent.
  
  - Tier 2: On-site renewables (wind, hydro, solar, etc.) or natural gas recovered from the waste stream
    - Credit assignment options: Electricity generation, cogeneration, heat generation, or cleaned and compressed for rolling stock or collection equipment
  
  - Tier 3: Certify all construction or renovation projects of waste processing facilities in excess of 5,000 square feet to LEED Silver Level.

# Municipal WGP Economic Performance KPI

## Municipal WGP Draft Credit 7: *Economic Assessment of Solid Waste Management Program* (x points)

### **Intent:**

Provide transparency around the costs and benefits of solid waste management programs.

### **Requirements:**

1. Calculate and publish total solid waste program costs.
2. Provide breakouts as follows:
  - Total solid waste management cost per ton.
  - Collection costs per ton:
    - Black bin
    - Blue bin
    - Green bin
  - Disposal costs per ton.
  - Recycling processing costs per ton:
    - Gross
    - Net
  - Organic processing costs per ton:
    - Gross
    - Net
3. Estimate impact on:
  - a. employment and
  - b. economic activityfrom waste management program, including indirect and induced effects.

# Municipal WGP Public Participation KPI

## Municipal WGP Draft Credit 8: *Education Programs on Waste Reduction and Reuse* (x points)

### **Intent:**

Reduce waste generation and disposal through public education and internal training programs.

### **Requirements:**

#### Implement an Internal Training Program

- Conduct municipal staff training programs on waste prevention.
- Training programs to teach EPP (environmentally preferable products) requirements guidelines in municipal procurement.
- Develop and/or develop procurement collaboratives to share guidelines for EPP with procurement departments of various departments or other institutions, such as local school districts, as well as retail establishments.
  - In the case that a city/county does not have the capacity to create these programs, partner with a product stewardship organizations, such as PSI or NSAC for support.

#### Implement a Public Education Program

Develop education and/or information programs on source reduction, reuse, and proper materials disposal. Information should be accessible to at least 80% of the customers in the municipality.

The educational components should include the following:

- a website and physical materials, e.g. calendars & refrigerator magnets, that are regularly distributed and posted in public areas.

#### Required Information:

Information on how to reduce material consumption and channels for reuse of materials:

- Current list of materials accepted for curbside collection (link to another credit later on).
- Current list of materials not accepted for curbside collection.
- Drop-off locations for materials not accepted curbside.
- Information on household hazardous waste.

### Optional Information

- Calendar (physical or virtual) of waste-related events.
- Educational activities and information designed for educating children, residents, and businesses.
- In the case that a city/county does not have the capacity/ability to create these materials, Partner with Environmental Education groups such as the state's Recycling Organization or Department for Environmental Quality; or other nonprofits.
- Promote education programs that encourage, announce, and remind residents to utilize waste reduction infrastructure and events such as 'tool libraries', 'repair cafes', and corporate sponsored programs (e.g. Patagonia repair bus), etc.
- Offer educational programs to the public on reducing consumption and reusing products.
- Citizen education programs to eliminate or reduce usage of products, e.g. bag bans or taxes/promotion or distribution of reusable bags; water bottle refilling stations in public places.
- Education programs on Food waste Prevention & reuse geared toward children, families and businesses.
- Public information on existing partnerships/programs with companies that handle hard-to-recycle items (e.g. Best Buy's TVs recycling programs, Terracycle, etc.)

## Municipal WGP Draft Credit 9: ***Litter education and engagement*** (x points)

### **Intent:**

Educate the public on the social and environmental impact of litter and engage the community in litter reduction activities.

### **Requirements:**

- Publish litter education tools and materials online and through other media and ensure equal accessibility to all residents.
- Example tools and materials include: school modules, educational activities designed for both children and adults, downloadable PDF posters clearly listing materials accepted in recycling streams, etc. e.g. Marking storm drains that empty directly into local water bodies.
  - Demonstrate that information about the program is accessible to 80% or more of the community.
  - Establish a continual litter prevention campaign within the community (i.e. slogans such as “Don’t Mess with Texas”).
    - Option 1: Pursue as an independent entity.
    - Option 2: Partner with an organization (i.e. non-profit).
- Target litter prevention through sponsored area clean-ups (i.e. parks, beaches, highways, etc.).

### **Potential Strategies**

- Ballot bins (fun questions for people to vote with their litter).
- Slogans that curb littering behavior (i.e. Don’t Mess with Texas).
- Turn litter bins into charity collection tins.
- Dunna Chuck Bruck: example of putting the community first in litter prevention campaign.
- Partnering with local businesses and doing “Adopt a Street” programs.
- Social media and press visibility.
- Partnerships with companies to reduce litter on streets, especially since litter has their brand on it.
- Characterizing litter stream for public info on common items being tossed.
- More complete enforcement of litter laws.

## Municipal WGP Draft Credit 10: ***Household Hazardous Waste reduction and engagement program*** (x points)

### **Intent:**

Educate the public on existing HHW infrastructure and available avenues for HHW reduction in order minimize the potential for negative human health impacts and pollution of the natural environment.

### **Requirements:**

Demonstrate 80-90% engagement of residents in the household hazardous waste program. Best practices include the following:

- List of materials considered household hazardous waste and how to properly dispose (i.e. drop-off or pickup) through an engaging platform (i.e. website).
- List of products that meet the Safer Choice Standard as outlined by the EPA
- Publish activities, lessons, and/or worksheets that explain household hazardous waste and the danger of exposure designed for children.
- Advertise local household hazardous waste disposal and recycling drop off locations and services through an engaging platform (i.e. website or other available media distribution channels).

## Municipal WGP Draft Credit 11: ***Public and Worker Education and Training*** (x points)

### **Intent:**

To educate customers, consumers and educate and train employees about best practices in the waste management sector.

### **Requirements:**

Publish and promote online resources that provide an overview of the overall waste management program and the material management process occurring at facilities owned by the municipality.

Tier 1: Provide on-site public educational tours of the waste management facilities operated by the municipality.

Tier 2: Achieve Tier 1 and Conduct ongoing employee training programs relating to operations at facilities owned by the municipality.

**Note:** **Education & Training** to encompass all facilities (MRF, Landfill, Transfer Station WTE, Gasification, etc.).

### **Potential Strategies:**

- Learning centers
- Speakers on subject matter
- Educational components relating to STEM
- Programs designed by educators in the field



### 3. Municipal Solid Waste Collection (SWC)

**Waste collection** refers to the process of gathering, consolidating, and transporting solid waste, encompassing considerations related to waste receptacles and hauling practices. Waste collection tends to be distinct between commercial, institutional, residential, and away-from-home waste generation points.

The Municipal SWC requirements of SWEEP take into account four key performance indicators (KPI) related to Solid Waste Collection:

1. Efficiency and Effectiveness
2. Environmental Performance
3. Economic Performance
4. Working Conditions and Social Impact

# Municipal SWC **Efficiency and Effectiveness** KPI

## Municipal SWC Draft Credit 1: ***Alternative Collection Options for Recyclable and Compostable Products and Materials*** (x points)

**Intent:**

Provide various collection methods for recyclable and discarded materials

**Requirements:**

Demonstrate access for 80 percent or more of your customers to one or more of the following collection options for recyclable and compostable materials:

- Pick-up programs: curbside (frequency, scope)
  - E.g. Weekly curbside pick-up of recyclables.
- Drop-off programs/facilities (accessibility; proximity; hours of operation)
- Safety, cleanliness features of collection programs/facilities
- Street bins: Coverage, servicing, materials collected, color-coding/identification
- Contamination percentage in recycling and/or composting receptacles
- Extent of source separation in collection practices

# Municipal SWC Environmental Performance KPI

## Municipal SWC Draft Credit 2: ***Energy Efficient and Low Emissions Collection*** (x points)

**Intent:**

Reduce fuel consumption and lower air emissions resulting from waste collection

**Requirements:**

Option 1: Demonstrate fleet fuel economy or criteria emissions per ton-mile of solid waste collection

- Level 1: Fleet efficiency of 3.4 miles per gallon/gallons diesel equivalent
- Level 2: Fleet efficiency of 3.55 miles per gallon/gallons diesel equivalent

Option 2: Demonstrate fuel economy of <2.8 annual gallons per ton of waste collected

or

- annual emissions per ton of waste collected according to the following table:

<b>Emissions</b>	<b>Grams/Ton</b>
VOC	[X grams/ton
CO	[X grams/ton
NO <sub>x</sub>	[X grams/ton
PM2.5	[X grams/ton
PM10	[X grams/ton

**Potential Strategies**

- Baseline: MPG or MPGGE (Gallon-gasoline equivalents)
  - GGE conversion factors: <https://epact.energy.gov/fuel-conversion-factors>
  - Diesel gallon equivalents = gasoline gallon equivalents \* 1.155

## Municipal SWC Draft Credit 3: ***Alternative Fueled Solid Waste Collection Vehicles*** (x points)

### **Intent:**

Reduce atmospheric emissions associated with collection and transportation of solid waste and promote renewable and low-carbon intensity alternatives to non-renewable transportation fuels.

### **Requirements:**

Demonstrate, on a percentage basis, the use of renewable or low-emission fuels in the solid waste collection vehicles. The percentage of alternative fuel use can be determined on the basis of either the fraction of the vehicle fleet or the fraction of annual miles traveled.

- Level 1: 30 percent or more of fleet vehicles or total mileage traveled utilizes alternative fuels
- Level 2: 60 percent or more of fleet vehicles or total mileage traveled utilizes alternative fuels

## Municipal SWC Draft Credit 4: ***Household Hazardous Waste Collection infrastructure*** (x points)

### **Intent:**

To ensure proper handling and disposal of HHW by the municipal entity and greater community, preventing negative human health impacts and pollution of the natural environment.

### **Requirements:**

Implement an exclusive program that handles household hazardous waste as defined by the EPA and involves RCRA Subtitle C regulation

- Demonstrate accessibility to 95% of residents. Services may consist of “drop off locations, “to-house pick-up services.” and/or recycling services.

All of the following must be considered in program development

- Batteries
- Light bulbs
- Paint
- Cleaning products (i.e. drain, oven, glass, etc.)
- Automobile fluids (i.e. motor oil, brake fluid, antifreeze, etc.)
- Prescription drugs
- Pesticides, herbicides and insecticides
- Other derivatives of HHW sub-programs will be taken into consideration upon review

## Municipal SWC Draft Credit 5: Minimizing Emissions from Transfer Stations (x points)

**Intent:**

Reduce the environmental footprint of transfer stations

**Requirements:**

- For [50%] of rolling stock utilized on site or [50%] of total fuel consumption: Utilize low-sulfur diesel fuel; install catalytic and particulate pollution control devices and/or utilize the ISX12N engine from Cummins Westport or equivalent class of diesel engine
- For [50%] of Processing Equipment:
  - Utilize electric equipment or use ultra low-sulfur diesel fuel; install catalytic and particulate pollution control devices and/or
  - Utilize **ULEV** diesel engines
- Limit onsite turnaround time to 15 minutes
- Institute best practice dust control techniques

Demonstrate that the transfer station has the capacity to store and/or treat 100% of on-site runoff, including any run-on from adjacent property, prior to discharge to the sewer system, street or any nearby waterway.

## Municipal SWC **Economic Performance KPI**

### Municipal SWC Draft Credit 6: ***Solid Waste Collection Cost-Effectiveness*** (x points)

**Intent:**

To optimize collection costs

**Requirements:**

- Conduct a cost-effectiveness analysis of the waste collection program
- Demonstrate waste collection costs that is below/meets a [relevant benchmark TBD

**Potential Strategies:**

Include performance/service and labor rate issues

# Municipal SWC Working Conditions & Social Impact KPI

- Collection hours and impacts on:
  - Traffic congestion
  - Noise considerations
  - Wage standards and compensation
  - Shift length of drivers and haulers
  
- Health benefits and injury prevention and/or treatment practices
  
- Ergonomic Issues related to waste collection practices
  
- Mechanized waste receptacle pick-up
  
- Ergonomic considerations of receptacle design
  
- Training practices related to ergonomic health



## Municipal SWC Draft Credit 7: ***Commitment to Safe Working Conditions*** (x points)

### **Intent:**

Ensure worker safety and health outcomes during daily waste collection through attention to hazards and making worker protection a part of company culture.

### **Requirements:**

Accomplish increased operational regulation, safety resources, and safety awareness campaigns by implementing the relevant SWANA Hauler Safety Toolkit recommendations at each disposal site. Priority must be taken to protect workers from danger on the job, including on the street, inside buildings, inside the vehicle cab, and behind/beside the vehicle hauling material:

- Make available and complete all employee safety and health training programs in the primary language of the attending employees.
- Complete and record Risk Assessments for all work tasks.
- Monitor, record, and report worker fatalities and injuries.
- Regularly hold focus group meetings between employees and employers. Ensure both parties have the opportunity to communicate opinions on the effectiveness of worker safety regulation, and suggestions for improvement.

## Municipal SWC Draft Credit 8: ***Collection Safety Protocols and Training*** (x points)

### **Intent:**

Reduce collection vehicle accidents and worker injuries.

### **Requirements:**

*Mandatory:* Implement an ongoing safety and equipment usage training program.

Option 1: “Accessible” Training (Mandatory for new hires; ongoing) In the predominant/fluent language; graphic-based or video training; globalized hazard recognition symbols used.

Option 2: Conduct an OSHA-Level audit by a qualified auditor.

Qualified auditors include:

- Federal or State OSHA inspector;
- Insurance inspector;
- Union safety official;

Option 3: Full remediation of all OSHA incidents reported

- “OSHA-Type” inspection/audit; insurance company; inspection recommendations
  - Worker injuries
  - Automated arms to reduce injuries
  - Right side of the road pick-up; Lighting and strobes; limiting tote sizes
- Collection vehicle accidents
  - “Safety tailgates”
  - “Pre-trip checklist form—safety included” DOT requires this.
  - Smartphone limitations for drivers—hands-free installation; policies
  - Vehicle monitoring devices
  - Truck maintenance requirements.

## 4. Municipal Post Collection Recovery (PCR)

**|| Post-collection Recovery ||** refers to practices aimed at avoiding landfilling of solid waste by preserving and utilizing its residual material value. There are several methods of recovery including mechanical recycling, chemical recycling, composting, energy recovery, in addition to emerging novel recovery methods. Waste sortation is often prerequisite to each of these processes, depending on collection methods. Waste disposal refers to landfilling practices.

The Municipal PCR requirements of SWEEP take into account four key performance indicators (KPI) related to Post Collection Recovery:

1. Efficiency and Effectiveness
2. Environmental Performance
3. Economic Performance
4. Working Conditions and Social Impact

## Municipal PCR **Efficiency and Effectiveness** KPI

- Recycling practices
- Percent of solid waste recycled
- Sortation technologies
- Geographic proximity of material recovery facilities
- MRF residual rate
- Use of recovered materials as alternative daily landfill cover
- Composting practices
- Percent of solid waste composted
- Distances traveled from material processing to end market

## Municipal PCR Draft Credit 1: ***Material Recovery Optimization*** (x points)

### **Intent:**

To encourage the acceptance of a wide range of materials and to promote the production of marketable commodities with the highest percentage of captured product and lowest percentage of residue.

### **Requirements:**

C&D recycling (processing source-separated materials) Maintain facility uptime of 90% or better and

- Tier 1: Recover [60% or more of the C&D stream.
- Tier 2: Recover [75% or more of the C&D stream.

and/or

Mixed Waste MRF (processing mixed MSW or commercial waste to remove recyclables from the waste stream) Maintain facility uptime of 90% or better and

- Tier 1 - Recovery of greater than [25% of the waste stream (MSW).
- Tier 2 - Recovery of greater than [40% of the waste stream (MSW).

and/or...

Single stream recycling (processing source-separated materials collected in one bin) Maintain facility uptime of 90% or better and

- Tier 1 - Recovery of at least [40% of the paper, metal, glass and plastic recycling stream.
- Tier 2 - Recovery of at least [50% of the paper, metal, glass and plastic recycling stream.

and/or...

Dual stream recycling (processing source-separated materials collected in two or more) Maintain facility uptime of 90% or better and

- Tier 1 - Recovery of at least [75% of the fiber stream and [50% of the non-fiber stream.
- Tier 2 - Recovery of at least [85% of the fiber stream and [75% of the non-fiber stream.

### **Potential Strategies:**

The facility has and uses the following processing/sorting technology:

- Inspection and potential presort occurs on the Tip Floor.
- Shredding and sizing of materials.

- Positive pick belt sort - A conveyor belt is used to present material to laborers in an effort to recover recyclable materials.
- Negative pick belt sort - A conveyor is used to present material and laborers remove contaminants from the belt prior to recycling.
- Mechanical Screening.
- Optical sorting.
- Magnetic (ferrous metal)
- Eddy Current (non-ferrous metal)
- Air classification
- Robotic
- Quality Assurance/Quality Control

The facility has and uses a daily maintenance program to maintain the effectiveness of the sorting process.

The facility has and uses best practices for the bale storage area.

## Municipal PCR Draft Credit 2: **Minimize Contamination Rate** (x points)

### **Intent:**

To mitigate post-sorting contamination or residue rates for the successful recirculation of recovered materials

### **Requirements:**

Demonstrate that material recovery facilities (MRFs) operated by the municipality, or operated by companies contracted by the municipality, or operated by companies subcontracted by franchise haulers, achieve the following post-sorting contamination/residue rates:

#### Mixed Waste MRFs

Tier 1: Achieve post sorting contamination/residue rates below 10%

Tier 2: Achieve post sorting contamination/residue rates below 5%

Tier 3: Achieve post sorting contamination/residue rates below 3%

#### Single Stream MRFs

Tier 1: Achieve post sorting contamination/residue rates below 5%

Tier 2: Achieve post sorting contamination/residue rates below 3%

Tier 3: Achieve post sorting contamination/residue rates below 1%

#### Dual Stream MRFs

Tier 1: Achieve post sorting contamination/residue rates below 3%

Tier 2: Achieve post sorting contamination/residue rates below 2%

Tier 3: Achieve post sorting contamination/residue rates below 1%

### Potential Strategies:

- Utilize contamination/residue rate calculation methodology in SWEEP Certification Manual
- Material grading of inbound material
- Inbound volume metric collection (for calculation)
- Sorting on tipping floor
- Metering drums and conveyor speeds
- Film removal (vacuum)
- Manual sorting (pick line)
- Density sorting technology (ballistic separators, conventional disc screening, etc.)
- 2-D vs. 3-D sort
- Eddy Current (Aluminum)
- Magnets (Ferrous and other metals)



**Development Draft Updated: 12/14/18**

- Optical sorting (glass by colors, plastics by types, etc.)
- Sorted stream metrics collection
- Residual metrics collection



## Municipal PCR Draft Credit 3: ***Producing High Quality Products from Recovered Organic Materials*** (x points)

### **Intent:**

Promote high quality organic end products from organic processing infrastructure

### **Requirements:**

#### Composting Operations

Produce STA Certified Compost for 80% of compost produced.

<https://compostingcouncil.org/seal-of-testing-assurance/>

#### Anaerobic Digestion Operations

Tier 1: Produce biogas with a minimum average 65% CH<sub>4</sub> content

Tier 2: Process biogas output to extract non-combustible and contaminant gases

### **Potential Strategies:**

- Pre and post-composting screening for organic inputs and compost outputs
- Regular testing for heavy metals and other contaminants per ACC guidelines.

## Municipal PCR Draft Credit 4: **Anaerobic Digestion Infrastructure** (x points)

### **Intent:**

To develop infrastructure to provide optimized anaerobic breakdown of food waste and, if indicated, other organic material to produce gas, fertilizer and other useful products.

### **Requirements:**

Tier 1: Demonstrate operating capacity to anaerobically digest [15%] of the food waste collected.

Tier 2: Demonstrate operating capacity to anaerobically digest [25%] of the food waste collected.

In all cases, demonstrate biogas processing and utilization infrastructure to utilize the gas output of the facility.

### **Potential Strategies:**

Install capacity to process the required volume of food waste using mesophilic or thermophilic anaerobic digestion equipment.

Include gas scrubbing and other processing equipment, such as compressors for use as transportation fuel or direct connection with combined heat and power generators or connection with existing gas transmission networks.

## Municipal PCR Draft Credit 5: ***Efficient Commodity/Output Supply Chain*** (x points)

### **Intent:**

Maximize local environmental and economic benefits and minimize environmental footprint through compact, efficient, and transparent supply chains.

### **Requirements:**

Tier 1: Demonstrate that 80% of outputs from material recovery and organics processing facilities are sold or utilized within 2,000 miles

Tier 2: Demonstrate that 50% of outputs from material recovery and organics processing facilities are sold or utilized within 500 miles

Tier 3: Demonstrate that 25% of outputs from material recovery and organics processing facilities are sold or utilized within 50 miles

### **Potential Strategies:**

Work with your broker to identify local demand for processed materials

# Municipal PCR Environmental Performance KPI

## Municipal PCR Draft Credit 6: ***Energy Efficient and Low Emissions Operations*** (x points)

**Intent:**

Reduce the environmental footprint of material recovery facility operations

**Requirements:**

Demonstrate that organics processing operations meet the following targets:

- <[XX] diesel gallon equivalent energy consumption per ton of product
- For [50%] of rolling stock or [50%] of total fuel consumption: Utilize low-sulfur diesel fuel; install catalytic and particulate pollution control devices and/or utilize the ISX12N engine from Cummins Westport or equivalent class of diesel engines
- For [50%] of Processing Equipment:
  - Utilize electric equipment or use ultra low-sulfur diesel fuel; install catalytic and particulate pollution control devices and/or
  - Utilize **ULEV** diesel engines
- Limit onsite turnaround time to 15 minutes
- Reduce VOC emissions from active composting phase by 80%
- Institute best practice dust control techniques

Covered activities include:

- Take measures to improve energy efficiency per ton of output (machines and buildings)
- Procure energy efficient or alternative fueled rolling stock (front-end loaders; forklifts; yard hustlers and other onsite hauling) vehicle emissions
- Procure low emission processing equipment with best available emissions control (e.g. windrow turning equip. + other)
- Minimize emissions from collection vehicle queuing through idling policies and minimizing facility turnaround time
- Implement interior and site-level dust & litter suppression
- Employ odor control technology as warranted
- Methane & other emissions control for composting

## Municipal PCR Draft Credit 7: ***Efficient Material Recovery and Processing Facilities*** (x points)

### **Intent:**

Minimizing the environmental footprint of material recovery facilities.

### **Requirements:**

#### Tier #1:

- Energy conservation which results in a \_\_\_\_\_% saving in energy consumption (over a \_\_\_ baseline).
- \_\_\_\_\_% reduction in non-point source (e.g. rolling stock) emissions and/or energy consumption
- Facility addresses ambient and indoor air quality through proper dust control practices. Facility achieves X% above OSHA-required standards for ambient and indoor air quality.
- Facility provides employees with daylight/natural light and access to views/nature.
- The facility is generating 1-3% of its required power by using solar energy.
- \_\_\_\_\_% of the facility (by value) is constructed from recycled or repurposed material.

#### Tier #2:

Facility is LEED-certified.

### **Strategies:**

- Does the facility utilize solar energy? **What percentage of the KWH is provided through solar?**
- Does the facility use electric, natural gas or alternative fueled vehicles?
- Does the facility implement energy-reduction processes (motion-activated lighting, efficient equipment, etc.) and practices? **We will want to benchmark energy consumption for a typical facility.**

## Municipal PCR Draft Credit 8: *Alternative Fueled Rolling Stock* (x points)

### **Intent:**

Reduce atmospheric emissions associated with recovery of solid waste and promote renewable and low-carbon intensity alternatives to non-renewable transportation fuels.

### **Requirements:**

Demonstrate, on a percentage basis, the use of renewable or low-emission fuels in the on-site vehicles. The percentage of alternative fuel use can be determined on the basis of either the fraction of the vehicle fleet or the fraction of annual hours used.

Tier 1: 30 percent or more use of alternative fuels use of onsite vehicles/rolling stock with hours as the primary meter

Tier 2: 60 percent or more use of alternative fuels use of onsite vehicles/rolling stock with hours as the primary meter

### **Potential Strategies**

- Natural gas vehicles
- Electric powered vehicles
- Solar power charging stations
- Diesel Hybrids
- MRF Energy consumption
- Greenhouse gas (GHG) emissions
  - Prevention and/or mitigation of compost emissions
  - Landfill emission intensity

## Municipal PCR Economic Performance KPI

- Cost intensity of solid waste recovery
- Revenue gained from sale of recycled materials
- Revenue gained from sale of compost
- Employment and social considerations for waste recovery
- Jobs created by post-collection recovery practices

# Municipal PCR Working Conditions and Social Impact KPI

## Municipal PCR Draft Credit 9: *Good Neighbor Policy* (x points)

**Intent:**

To minimize impacts on community quality of life from waste management facility operations.

**Requirements:**

The material recovery and/or organic processing facility owned by the municipality has a policy and specified practices to address all aspects of operations that might result in a reduction in the quality of life for the surrounding residents and/or businesses.

Demonstrate that the facility has no unresolved or unaddressed complaints regarding the operational elements listed above.

- No unaddressed noise complaints or violations within the last year
- Proper filtration of ventilation
- Dust or litter is inspected and recovered within a 1 mile radius of facility boundary; and at least 2 miles along primary access routes
- Record of no unaddressed complaints or violations
- Emissions from rolling stock and other operations
- No unaddressed odor complaints or violations within the last year
- Stormwater management (wind control)
- No unaddressed pest/vermin complaints or violations within the last year
- Property value issues (this may be an “Innovation” credit?)
- No unaddressed traffic complaints or violations within the last year



## Municipal PCR Draft Credit 10: ***Post-Collection Recovery Facility Safety Protocols and Training*** (x points)

**Intent:**

Reduce material recovery accidents and injury.

**Requirements:**

*Mandatory:*

Implement an ongoing safety and equipment usage training program

*Tier 1:* “Accessible” Training (Mandatory for new hires; ongoing) Training is available in the predominant/fluently language of the workers being trained; graphic-based or video training; globalized hazard recognition symbols used

*Tier 2:* Conduct an OSHA (or equivalent)-Level audit by a qualified auditor OSHA-level audits follow the official forms [include form #s in the credit, which must be completely filled out

Qualified auditors include:

- Federal or State OSHA inspector;
- Insurance inspector;
- Union safety official;

*Tier 3:* Full remediation of all OSHA (or equivalent) incidents reported

## Municipal PCR Draft Credit 11: ***Commitment to Safe Working Conditions in Material Recovery and Organic Processing Facilities*** (x points)

### **Intent:**

Ensure worker safety and health outcomes during daily post-collection facility operations through attention to hazards and making worker protection a part of company culture.

### **Requirements:**

Accomplish increased operational regulation, safety resources, and safety awareness campaigns by implementing the relevant SWANA Hauler Safety Toolkit recommendations at each facility (including landfills, MRFs, WTE incineration, and other waste treatment facilities).

- Complete all employee safety and health training programs
- Complete and record Risk Assessments for all work tasks
- Implement and follow a Safe Driving Policy (option: using SWANA's template)
- Distribute Press Release announcing participation in National Safety Stand Down

Measure compliance with SWANA Hauler Safety Toolkit:

- Monitor, record, and report worker fatalities and injuries
- Regularly hold focus group meetings between employees and employers. Ensure both parties have the opportunity to communicate opinions on the effectiveness of worker safety regulation, and suggestions for improvement
- Siting of processing, recovery, and disposal facilities
- Proximity to residential populations
- Proximity to areas with special sensitivities
- Demographics of areas surrounding waste infrastructure

## Municipal PCD Draft Credit 12: ***OSHA-Compliant Facilities*** (x points)

### **Intent:**

Promote safe and efficient operation of disposal facilities.

### **Requirements:**

Prevent or identify and correct OSHA-related operational violations and/or recommendations in all OSHA covered facilities under the control of the company.

Unresolved Violations within the past year = 0 points

No unresolved violations for one year = 1 point

No unresolved violations for 2+ years = 2 points

### **Potential Strategies:**

List all OSHA violations and state of resolution for last 5 years.

Incorporate recommendations for improved practices

## 5. Municipal Post Collection Disposal (PCD)

The **efficiency and effectiveness** of waste disposal:

- Energy recovery practices
- Percent of solid waste utilized for energy recovery
- Landfill practices
- Percent of solid waste landfilled
- Landfill gas capture rate
- Landfill gas utilization rate
- Landfill gas utilization practices
- Capping strategies and cell size practices
- Leachate management practices

The **environmental performance** of waste disposal:

- Landfill air & water emissions control
- Incineration emissions control

The **economic performance** of waste recovery and disposal:

- Cost intensity of solid waste disposal
- Revenue gained from sale of energy generated
- Revenue gained from landfill gas utilization
- Employment and social considerations for waste disposal
- Jobs created by post-collection disposal practices

The **working conditions/social impact** in recovery and disposal facilities:

- Good neighbor practices: traffic dust, litter, vermin, runoff etc. control & considerations in facility operations

# Municipal PCD **Efficiency and Effectiveness** KPI

## Municipal PCD Draft Credit 1: ***Thermal Conversion Technology Efficiency*** (x points)

**Intent:**

Maximize thermal efficiency of thermal conversion facilities.

**Requirements:**

Demonstrate a “Primary Energy Savings” (PES) greater than [0.5 utilizing the PES calculator.

$$\text{PES} = \frac{\text{Reference Plant Primary Energy} - \text{Primary Energy Use of Thermal Conversion Embodied Energy of RDF} + \text{Primary Energy Use of Thermal Conversion}}$$

A natural gas combined cycle plant with a heat rate of 7,650 Btu/kWh shall be the Reference Plant

**Potential Strategies:**

- Reduce moisture content of incoming fuel
- Pelletize or otherwise form input fuel
- Minimize need for co-firing with fossil fuel
- Utilize biogas or other recovered gas as a co-firing fuel

## Municipal PCD Economic Performance KPI

- Cost intensity of solid waste disposal
- Revenue gained from sale of recovered methane
- Employment and economic multipliers and jobs creation considerations for waste disposal practices

# Municipal PCD Environmental Performance KPI

## Municipal PCD Draft Credit 2: *Alternative Fueled Rolling Stock* (x points)

### **Intent:**

Reduce atmospheric emissions associated with disposal of solid waste and promote renewable and low-carbon intensity alternatives to non-renewable transportation fuels

### **Requirements:**

Demonstrate, on a percentage basis, the use of renewable or low-emission fuels in the on-site vehicles. The percentage of alternative fuel use can be determined on the basis of either the fraction of the vehicle fleet or the fraction of annual miles traveled.

Tier 1: 30 percent or more of rolling stock or other onsite fossil fuel powered process equipment uses alternative fuels. Can be evaluated by percentage of equipment or percentage of utilization.

Tier 2: 60 percent or more of rolling stock or other onsite fossil fuel powered process equipment uses alternative fuels. Can be evaluated by percentage of equipment or percentage of utilization.

### **Potential Strategies**

- Utilize landfill methane or natural gas
- Solar Powered
- Diesel Hybrids
- MRF Energy consumption
- Greenhouse gas (GHG) emissions
  - Prevention and/or mitigation of compost emissions
  - Landfill Emission Intensity

## Municipal PCD Draft Credit 4: ***Landfill Stormwater management*** (x points)

### **Intent:**

To effectively manage stormwater at a landfill to minimize run-off exposure to waste and production of leachate.

### **Requirements:**

Develop a comprehensive stormwater management plan that

- minimizes stormwater penetration of open and closed cells
- provides for regular inspection of stormwater
- meets the performance objectives of the system described below

Demonstrate that the landfill has an effective stormwater management system in place to prevent rainwater from entering the waste, including:

- Landfill must not be sited:
  - in wetlands
  - in the 100-year flood plain of adjacent rivers or streams
- Leachate and stormwater management systems must be separate
- Stormwater run-on must not come within 100 yards of the base of capped or active cells.
- Stormwater runoff must not exit site untreated

### **Potential Strategies:**

- Design of the daily cell to minimize ponding and run-off into the waste
- Maintaining the slopes of the landfill to minimize erosion and increased runoff
- Define existing and intermittent flow channels and the area and characteristics of the contributing watershed;
- Schedule landfilling operations to minimize disturbed areas (i.e., phase-in operations);
- Attempt to limit the handling of topsoil or cover materials to only one operation;
- Construct and stabilize stormwater controls in advance of landfilling;
- Stop flowing water from entering the active fill area with permanent perimeter diversions;
- Establish a complete sequence of controls (i.e. interception, conveyance, transportation, energy dissipation and sediment disposition);
- Use stormwater detention to improve the quality and reduce the intensity of stormwater;
- Plan for the National Pollutant Discharge Elimination System (NPDES) stormwater permit by keeping good operations records and monitoring discharges off the site;



- Avoid, if possible, combining leachate and stormwater management systems;
- Use a surface water collection/ removal (SWCR) system immediately above the hydraulic barrier in the final closure cap. Geonets, geocomposites and/or granular material can be used for this purpose;
- Inspect and maintain controls after each significant storm
- Integrate run-off/run-on and erosion and sediment control into every phase of the landfill operation.

Resource on how to measure/manage stormwater:

[https://www.waste360.com/mag/waste\\_fighting\\_elements\\_keys](https://www.waste360.com/mag/waste_fighting_elements_keys)

## Municipal PCD Draft Credit 5: ***Landfill Emissions Minimization*** (x points)

### **Intent:**

To effectively manage and minimize emissions from landfills, including air emissions and leachate in order to prevent or reduce air and surface and groundwater contamination.

### **Requirements:**

#### Air Emissions

Implement a control system designed and operated to

- reduce NMOC by 98 weight percent, or,
- when an enclosed combustion device is used for control,
  - to either reduce NMOC by 98 weight percent or
  - to reduce the outlet to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen.

The reduction efficiency or parts per million by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in § 60.754(d).

#### Water Emissions

1. Implement PCD Stormwater Management Credit
2. The landfill has no outstanding violations of existing permitted landfill effluent emission limits including:
  - Discharges from wastewater treatment facilities handling the leachate.
  - Groundwater and surface water pollutant concentration limits.
3. The landfill has an effective leachate management system, which includes:
  - Operational practices that prevent water from penetrating the landfill cap in the first place.
  - Methods of measuring leachate volumes, concentration and composition
  - Leachate collection and diversion infrastructure.
  - Effective methods of processing leachate (on-site or off-site).
  - Regular testing of groundwater and surface water for the presence of leachate compounds.
  - Remediation plan in the case of leakage.

## Municipal PCD Draft Credit 6: ***Effective Utilization of Recovered Methane*** (x points)

**Intent:**

Minimize greenhouse gas emissions from landfills.

**Requirements:**

Demonstrate that at least [95% of landfill gas generated is utilized in place of conventional fossil fuels.

**Potential Strategies**

Utilized recovered landfill gas for:

- Process heat
- Electricity generation
- Combined heat and power
- Compressed fuel for rolling stock and or collection vehicles

## Municipal PCD Draft Credit 7: **Minimize Thermal Conversion Emissions** (x points)

### **Intent:**

Promote clean air and mitigate climate change by minimizing emissions of net CO<sub>2</sub>e, Criteria Air Pollutants and Hazardous Air Pollutants from thermal conversion processes.

### **Requirements:**

- Demonstrate net CO<sub>2</sub>e emissions below 850 lbs CO<sub>2</sub>e/MWh (1)
- Demonstrate that Criteria Air Pollutant(2) emissions meet the levels in the table below:
- Demonstrate total VOC + Hazardous Air Pollutant + Hydrogen Sulfide (H<sub>2</sub>S) + Ammonia (NH<sub>3</sub>) (3) levels below 0.1 lbs/MWh

### Criteria Air Pollutant limit Table (lbs/MWh)

NO <sub>x</sub> :	<1 lb/MWh
SO <sub>2</sub> :	<1 lb/MWh
PM 2.5-10: (4)	
Daily Basis	10 mg m-3
Half-hour basis:	30 mg m-3

Emissions should be continuously measured and verified by the local air quality management regulator.

### **Strategies:**

- Install flue gas continuing monitoring equipment
- Install best available control technologies
- Utilize biogas or landfill methane for co-firing
- Remove potentially hazardous materials from the waste stream before combustion

### Notes

“Thermal conversion processes” include various forms of incineration, gasification and pyrolysis technologies

- (1) 2013 Clean Power Plan emissions requirements for combined cycle natural gas = 890 lbs CO<sub>2</sub> - MWh (403 g/kWh)
- (2) Criteria Air Pollutants are: NO<sub>x</sub>, SO<sub>2</sub>, O<sub>3</sub>, PM 2.5-10
- (3) HAPs include: benzene, naphthalene, 1,3-butadiene, Polycyclic aromatic hydrocarbons (PAH); Hydrogen Fluoride (HF) and Hydrogen Cyanide (HCN); Mercury, Lead, Chromium and other heavy metals.
- (4) (Based on (Directive 2010/75/EU)



**Development Draft Updated: 12/14/18**

# Municipal PCD Working Conditions/Social Impact Performance KPI

## Municipal PCD Draft Credit 8: ***Commitment to Safe Working Conditions*** (x points)

**Intent:**

Ensure worker safety and health outcomes during daily post-collection facility operations through attention to hazards and making worker protection a part of company culture.

**Requirements:**

Accomplish increased operational regulation, safety resources, and safety awareness campaigns by implementing the relevant SWANA Hauler Safety Toolkit recommendations at each facility (including landfills, MRFs, WTE incineration, and other waste treatment facilities).

- Complete all employee safety and health training programs
- Complete and record Risk Assessments for all work tasks
- Implement and follow a Safe Driving Policy
- Distribute Press Release announcing participation in National Safety Stand Down

Measure compliance with SWANA Hauler Safety Toolkit:

- Monitor, record, and report worker fatalities and injuries
- Regularly hold focus group meetings between employees and employers. Ensure both parties have the opportunity to communicate opinions on the effectiveness of worker safety regulation, and suggestions for improvement

## Municipal PCD Draft Credit 9: ***Post-Collection Disposal Facility Safety Protocols and Training*** (x points)

**Intent:**

Reduce material disposal accidents and injury.

**Requirements:**

*Mandatory:* Implement an ongoing safety and equipment usage training program.

*Tier 1:* “Accessible” Training (Mandatory for new hires; ongoing) In the predominant/fluent language; graphic-based or video training; globalized hazard recognition symbols used.

*Tier 2:* Conduct an OSHA (or equivalent)-Level audit by a qualified auditor  
OSHA-level audits follow the official forms.

Qualified auditors include:

- Federal or State OSHA inspector;
- Insurance inspector;
- Union safety official;

*Tier 3:* Full remediation of all OSHA (or equivalent) incidents reported

## Municipal PCD Draft Credit 10: ***Good Neighbor Policy*** (x points)

**Intent:**

To minimize impacts on community quality of life from waste management facility operations.

**Requirements:**

The waste disposal facility\* owned by the municipality has a policy and specified practices to address all aspects of operations that might result in a reduction in the quality of life for the surrounding residents and/or businesses.

Demonstrate that the facility has no unresolved or unaddressed complaints regarding the operational elements listed above.

- No unaddressed noise complaints or violations within the last year
- Proper filtration of ventilation
- Dust or litter is inspected and recovered within a 1 mile radius of facility boundary; and at least 2 miles along primary access routes
- Record of no unaddressed complaints or violations
- Emissions from rolling stock and other operations
- No unaddressed odor complaints or violations within the last year
- Stormwater management (wind control)
- No unaddressed pest/vermin complaints or violations within the last year
- Property value issues (this may be an “Innovation” credit?)
- No unaddressed traffic complaints or violations within the last year

**\*Note:** “Waste disposal facility” includes transfer stations, landfills and thermal conversion facilities.



## Municipal PCD Draft Credit 11: ***OSHA-Compliant Facilities*** (x points)

### **Intent:**

Promote safe and efficient operation of disposal facilities.

### **Requirements:**

Prevent or identify and correct OSHA-related operational violations and/or recommendations in all OSHA covered facilities under the control of the company.

- Unresolved Violations within the past year = 0 points
- No unresolved violations for one year = 1 point
- No unresolved violations for 2+ years = 2 points

### **Potential Strategies:**

List all OSHA violations and state of resolution for last 5 years.

Incorporate recommendations for improved practices

## Municipal Standard Innovation Credits

|| **Innovation** || refers to practices or actions not necessarily outlined in the 4 core sub-standards (SMMP, WGP, Collection, and PCPD), but demonstrate exemplary performance within solid waste policy, generation, collection, and/or recovery processing and disposal. This supplemental sub-standard serves to acknowledge extraordinary investment, development, and/or implementation of innovative mechanisms related to solid waste management.

Up to 10 credits will be given for innovative approaches to waste management including:

1. Exemplary performance of at least 1 performance increment compared with the credit Requirements.
  - a. E.g. if the first tier is a 10% improvement and a second tier is 20% improvement, innovation will be given for 30+% improvement
2. “Exploration Credits” proposed by SWEEP
3. Previously approved Innovation Credits from other certified entities.
4. Project specific Innovation proposed by entities seeking SWEEP certification

### **Examples of Innovative Approaches**

#### **Sustainable Materials Management Policy**

- Organizations share innovative, open-source advancements for the greater good of the industry and environmental enhancement

#### **Waste Generation Prevention**

- Monitoring, development, investment, and advancement toward innovative processes and technology
  - Investment in research
  - Implementation of pilot studies

#### **Post Collection Recovery and Disposal**

- Innovative steps or actions that a facility invests in to improve the recovery of materials
- Monitoring, development, investment, and advancement toward innovative processes and technology
  - Investment in research
  - Implementation of pilot studies