SWANA Abbreviated Policy Position Statements including Full Definitions (T-0)

Contents

T-1 Integrated Solid Waste Management

POSITION STATEMENT

Integrated solid waste management (ISWM) is a series of complementary actions to reduce the quantities of solid waste generated and managing the generated materials in an economically and environmentally sound manner. **SWANA supports** the principles and practices of ISWM. The cornerstone of ISWM includes the following management strategies:

- **Materials uses policies** – industry design and content initiatives that reduce product packaging discards and encourage reuse, recycling, and longevity of products and packaging
- **Solid waste reduction** – initiatives by all stakeholders to reduce solid waste generated
- Specific planning by local government units (LGUs) for comprehensive management of the solid waste generated by or imported into their jurisdiction, including the necessary elements of:
    - Management and operations
    - Storage, collection, and transport
    - Facility siting and processing of recycling, composting, combustion, and landfilling
- Financing and funding initiatives by LGUs to provide the capital for implementation, and the ongoing funds necessary for operating, maintaining, managing, and paying debt service on the integrated system.

The methods of managing solid waste should be selected in an integrated manner from the menu above based on the environmental, economic, and public policies of local government. **SWANA supports** the policy that LGUs must be responsible for solid waste management, that LGUs need not own or operate all, or any part of, a solid waste management system, and that the LGU's integrated solid waste management plans will determine the way solid waste is to be managed and that the implementation is carried out to protect the public interest.

T-2 Solid Waste Reduction – Material Use Practices in Product Packaging and Design

POSITION STATEMENT

SWANA supports initiatives that promote the source reduction of solid waste products and packaging. Manufacturers, businesses, the industry, individuals; and provincial, state, and local governments backed by SWANA further these initiatives.

- ***Manufacturers and businesses*** use of solid waste audits can address processes that reduce the generation of off-spec products, the number of materials wasted, put forth internal recycling programs, utilize less materials with toxic constituents, avoid single-use items, purchase products that contain more recyclable materials, and promote less paper use.
- ***Industry*** can optimize material-use policies to advocate for consumer product packaging reduction in weight or volume and levels of toxic concentrations; thus, they can encourage improvement in rate of recycling, lifespan, increasing number of recycled materials, and the compatibility of discarded materials.
- ***Individuals*** can support recycling and educational programs, purchase and use more recyclable products, compost, donate used items, and maintain/repair items.
- ***Governments*** both provincial and state, can support initiatives by providing technical solid waste reduction assistance programs, assist in solid waste audits, give priority to purchasing products with recyclable content, sponsor solid waste reduction, provide information through clearinghouses, offer grants and loans, and educate. Additionally, similar practices to higher level governments and local governments can stimulate change of shopping practices and establish alternative programs for the diversion and utilization of yard waste.

T-2.1 Product Stewardship

POSITION STATEMENT

Product stewardship is defined as the act of minimizing the health, safety, environmental, social impacts, and maximizing the economic benefits of a product and its packaging throughout all lifecycle stages. Product stewardship calls on manufacturers and the supply chain to take on new responsibilities to reduce adverse impacts associated with the design and enabling reuse or recycling at end of life. The producer of the product has the greatest ability to minimize adverse impacts, but other stakeholders, such as suppliers, retailers, and consumers can also play a role. Priorities for Product Stewardship include products that contain materials or characteristics that cause them to require special collection, handling, recycling, or disposal procedures different from conventional solid waste management. All product lifecycle costs (including health, environmental, and end-of-life management) should be internalized, recognized, and reflected in the total product cost.

Stewardship can be either voluntary or required by law. Voluntary programs should be supported and funded by manufacturers, importers, or retailers in cooperation with local governments and others. Governments have the important role of establishing programs or policies to encourage industry to reduce product impacts, and oversee product stewardship, and if necessary, provide oversight and regulatory requirements.[1] Programs should be efficient, cost-effective, and easy to use, and should not create new or duplicative programs that preempt existing programs. Product Stewardship programs should encourage manufacturers and importer/retailers to minimize the impacts of products on the environment or human health by:

1. Continually improving the design, manufacture, and handling product:
    - Priorities include products that: are made using less energy and materials, reduce pollutants, generate less waste (through reduction, reuse, recycling, and composting), and use less energy to operate.
2. Establishing and/or funding programs to develop sustainable and environmentally sound systems to collect, reuse, process, and reuse or recycle products at the end of their lives.
3. Measuring the improvements with reasonable goals and timelines to identify policy / program achievements.

EPTEP[1] Along with other governmental roles in addressing barriers, technical assistance, consumer information, prohibiting offshoring of the materials, and ensuring programs protect human health and others.

T-2.2 Deposit Systems

POSITION STATEMENT

Solid Waste Disposal Systems assess a fee to provide incentives and funding for waste reduction, litter control, and proper solid waste management. Disposal systems are one tool for reducing generation and disposal, and play a role in special, hazardous, and other targeted streams. Federal-based systems best standardize competition and level the manufacturer playing field, but federal legislation should not limit certain controls that may meet state or provincial needs. **Best deposit systems are**:

- Established as a tool for proper management of "special wastes"[2] in the municipal solid waste (MSW) stream, enacted at the state/provincial level.
- Used to encourage diversion or reduction of toxic substances in products or changing material use practices, enacted at the federal level, with advance disposal charge revenues passed back to state /provincial and local governments for integrated MSW management systems.
- Not limited to beverage containers.
- Designed to encourage or direct materials from the MSW stream to predetermined management options and should be compatible with existing or planned materials recovery or energy recovery programs.
- Designed to have fees high enough to influence consumer or manufacturer behavior toward reducing toxic or problematic materials in consumption, disposal, and product content and design. To provide revenue to finance the management of diverted materials and municipal solid waste management (MSWM) initiatives *but* should not be used to generate profits for MSWM or non-MSWM.
- Avoiding imposing a regressive tax, avoid increases in government spending, or cause increases in energy resources.

[2] E.g., tires, white goods, batteries, waste oil, etc.

T-3 Strategic Planning for Integrated Solid Waste Management

POSITION STATEMENT

Integrated solid waste management (ISWM): environmentally and economically sound, systematic approach to handling solid waste that

- conserves and recovers resources
- disposes of Solid Waste

in a manner that protects human health and the environment.

"Handling" combines source reduction, reuse, recycling, composting, energy recovery, collection, transfer, transport and disposal in sanitary landfills, solid waste combustors, or other solid waste disposal and processing facilities.

SWANA supports integrated management of all types of solid wastes. Strategic planners should consider the role of both public and private service providers. It should assess significant, affecting factors, including:

- Economics, finance, and funding
- Politics
- Law and regulation
- Technology
- Society / culture
- Environment
- Competition

ISWM Planning Considerations includes changes in waste characterization and handling, need for governmental control over waste stream, fluctuating recycling markets, regionalization, full cost accounting, enterprise funds, and avoiding subsidy for reuse, re-fabrication, recycling, and composting to ensure long-term sustainability. See the following policies for specific, important aspects of strategic planning for ISWM:

- **T-3.1:** *Resource Recovery as an Integral Part of a Comprehensive Waste Management System.*
- **T-3.2:** *Strategic Planning for Integral Solid Waste Management*
- **T-3.3:** *Role of the Public Sector*
- **T-3.4:** *Ownership of Municipal Solid Waste Management Systems*. (In addition to possible ownership -whether through contracts, franchises, or the open market - private, or non-profit entities can also provide solid waste service (including collection, recovery, disposal, and public education) and consulting advice; operate ISWM facilities; market / broker recovered materials.[3]
- **T-3.5***: Environmental Justice and Equity Decisions in the Siting of Municipal Solid Waste Management Facilities*
- **T-3.6:** *Solid Waste Disposal Bans*

T-3.1 Resource Recovery as an Integral Part of a Comprehensive Solid Waste Management System

POSITION STATEMENT

Since the mid-1980s municipal solid waste in urban centers and smaller jurisdiction has been a major issue throughout North America. Federal, state, and local entities are seeking comprehensive approaches to manage this waste by reduction, recycling, compost, energy recovery, landfill gas recovery, and sanitary landfilling. New approaches need to be developed to manage these systems successfully. These approaches need to include public support and understanding of materials recovery, maximization of economic marketable materials, utilization of energy value of solid waste, and state-of-the-art energy recovery facilities with strict controls.

SWANA supports the following should be an integral part of this solid waste management system comprehensive approach:

- Support legislative initiatives that provide economic incentives for materials recovery at the federal, provincial, state, and local level
- Support material and energy recovery technologies
- Develop solid waste management training programs and seminars that encourage a balanced approach to managing municipal solid waste
- Develop a standard that assesses full avoided cost and known avoided environmental costs for resource recovery

T-3.2 Strategic Planning for Integrated Municipal Solid Waste Management

POSITION STATEMENT

MSWM has regulators who are the provincial/state governments, and the operators are the local governments and their contractors. The United States Federal Government has mostly not participated in this system for years. The fundamental premises of MSWM is: (1) the quality of operations and (2) the systems selected are directly related to the quality of regulations and how they are written, interpreted, and enforced.

SWANA supports significant provincial/state government investments in regulations and enforcement in the form of training, education, and technical assistances. Investments must directly be used to develop and operate aggressive balanced regulatory programs. These regulations should address all MSWM considering many results of improper hazardous waste management practices highlighting the importance of cradle-to-grave control. All municipal solid waste management systems (MSWMS) need to meet the same regulations, or poor operations by the government or private sector. If these regulations are not met it can lead to a threat to public health and environmental quality degradation. Elements of these programs must include:

- Well defined and equal regulations with clear enforcement in both the civil and criminal courts
- Well defined implementation strategies for regulatory program
- Well defined permit requirements with receipt and processing of permit applications
- Surveillance of all facilities
- Willingness to go to court to get compliance
- Investment on all aspects of the regulatory program
- Prioritization on enforcement strategies considering not all cases have the same degree of threat

T-3.3 Role of the Public Sector

POSITION STATEMENT

MSWM is an essential public service necessary to protect the health, safety, welfare, and environment of its citizens, businesses, industries, and other institutions. As a result, local governments have the responsibility to plan for, oversee, and provide for the management of MSW within their jurisdictions.

Local governments include both incorporated and unincorporated jurisdictions that have been established for purposes of serving a designated population within a state, province, territory, or interstate/interprovincial/interterritorial areas.

Local governments are faced with assessing and identifying how they deliver MSWMS based on their own unique local circumstances. Each local government should determine how these services will be provided including storage, collection, transfer, processing, treatment, or disposal of solid waste. To achieve this objective, local governments should develop comprehensive solid waste management plans that characterize the current services and programs, project future needs, identify strategies and options, and develop recommendations supported with an implementation plan. In some instances, local governments may find it beneficial to collaborate on a regional basis to achieve these objectives. These plans should be periodically updated to ensure that MSWMS are safe, reliable, efficient, cost-effective, and environmentally-sound.

Currently municipal solid waste management services are provided using a variety of institutional arrangements via the public sector, private sector, and/or a public/private partnership. There is no one specific arrangement that is preferred over another. However, local governments are responsible for creating the framework for the delivery of this essential service through a variety of mechanisms such as planning, ordinances, licensing, technical assistance, and education/information programs.

T-3.4 Ownership of Municipal Solid Waste Management Systems

POSITION STATEMENT

Local government is ultimately responsible for managing MSW generated within, imported into, or exported out of its jurisdiction, but it need not provide MSW services itself, with municipal employees, or own/operate MSW facilities. It may alternatively provide MSW services by private sector and non-profit entities, through contracts or regulation.

Determining ownership is one aspect of integrated solid waste management systems (ISWMS) planning.[4] These considerations include:

- collection
- transfer
- recovery/recycling (materials recovery facilities)
- composting (windrow, anaerobic digestion)
- combustion (incineration or waste to energy)
- land disposal (landfilling)

Ownership of Transfer Stations: Transfer stations provide more economical transport of materials in large-capacity transfer trucks (containers) to the processing or disposal facilities than direct haul in collection vehicles. Ownership of transfer stations should be based upon ownership of the collection subsystem, the need for such facilities, and the economic or logistical benefits of such facilities.
Ownership of Recycling Systems and Facilities: Ownership of processing/recycling facilities should be based upon an analysis of existing capacity, the ability and willingness of the existing capacity to expand to fill the needed capacity, the ability of any proposed capacity to meet long-term needs, and the risks involved in trying to fill the perceived needs.
Ownership of Combustion Facilities: Ownership of combustion facilities should be based upon an analysis of the costs and benefits as weighed by the local jurisdiction's own value system through the local political process.
Ownership of Disposal Facilities: Ownership of disposal facilities should be based upon an analysis of the ability to provide financial assurance, capacity assurance, and equitable service.

[4] See Technical Policy T-3 Strategic Planning for Integrated Municipal Solid Waste Management. For a description of the solid waste stream, (see "The Municipal Solid Waste Stream" Policy Attached Section B).

T-3.5 Environmental Justice and Equity Decisions in the Siting of Municipal Solid Waste Management Facilities

POSITION STATEMENT

The MSW community including the siting MSW management facilities have been fostering debate surrounding environmental equity. These communities are considering whether there is inequitable distribution of facilities based on racial, ethnic, cultural, and/or economic considerations. **SWANA supports** the following policy relative to the siting of MSWM facilities:

- Land use planning and local zoning rules and regulations should be the basis for siting
- Racial, ethnic, cultural, and/or economic characteristics of a community or neighborhood should not be a reason to either justify or deny the siting of a facility
- Siting decisions should be made based on science and actual impacts

Once siting has been achieved, to assure the protection of human health and the environment when designing, constructing, and operating MSWM facilities:

- All facilities must comply with all applicable environmental laws and regulations
- Compliance with national, provincial, state, and local rules and regulations must be followed
- MSW facility sitting decisions should be faithfully pursued through open and informed dialogue

T-3.6 Solid Waste Disposal Bans

POSITION STATEMENT

"Solid waste disposal bans" prohibit or restrict disposing specific wastes in a landfill. Examples include:

- materials in recovery and recycling programs (landscape waste, newspapers, beverage containers)
- hazardous materials (cathode ray tubes, batteries, motor oil, products containing mercury)
- difficult-to-handle items (tires)
- materials perceived to pose a risk to human health and the environment

Before implementing a ban, policy makers must consult with stakeholders, including other jurisdictions affected by the ban (for example, alternative transportation).

(1) **Need and Impacts**: Policy makers must evaluate the need for banning the identified material, and the environmental, cost, and management impacts of both continued disposal and alternative management options. They should use full cost accounting and determine how to distribute that cost among stakeholders (producers, distributors, retailers, consumers, and solid waste managers). They must not place an unfunded mandate on governmental or private owners/operators of any part of the integrated solid waste system. They should determine the impacts on every part of the integrated waste system, including collection.

(2) **Alternatives**. Policy makers should project the quantity of banned material how it can be reasonably handled in an alternative manner. The ban should not be implemented before the alternative method of handling is in place or effect, including infrastructure that has sufficient capacity for reclamation, recycling, and re-use of the banned material.

Policy makers should provide for periodic review of the ban and ability to temporarily halt it in emergencies and unforeseen circumstances.

T-4 Funding, Managing, and Operating Solid Waste Management Systems

POSITION STATEMENT

Funding, managing, and operating solid waste management systems are interdependent and important to the proper establishment and functioning of the system. Local governments and other responsible political subdivisions, consistent with the powers and limitations prescribed by state or provincial law, are responsible for planning and managing waste in a manner that protects public health, welfare, and the environment. To accomplish this fundamental policy, SWANA's policy is that local government / political subdivisions are responsible for the following:

Management and operation

- Utilizing its authorities to establish and implement policies and plans, and sufficient resources to support (integrated) solid waste management.
- Planning and managing all solid waste generated within the local government jurisdiction, including oversight and regulation of private sector service providers.
- Utilizing private sector service providers when local government / political subdivisions determine that to do so is in the best interest of the public, institutions, industry, and businesses.

Funding

- Adequate funding to accomplish the foregoing. **SWANA supports** adequate funding and full cost accounting for solid waste management systems, and the funding of such systems through service and/or user fees, on an enterprise fund basis.

T-4.1 Contracting for Municipal Solid Waste Management Services

POSITION STATEMENT

Local agencies are responsible for providing MSWM, but they do not have to provide it with municipal employees. They might contract for services (such as collection contracts for integrated MSWM, or operation of a publicly owned MSW facility) with private public, or non-profit entities. (See *T-3.3 The Role of the Public Sector*.) Procuring contracts should comply not only with law, but MSW plans and policy. They should protect human health and the environment as well as public funds. Lastly, SWANA recommends competitive procurement that is open to multiple proposers or bidders.

This policy suggests detailed but non-prescriptive considerations when contracting for services of establishing contract procurement rules, prescribing performance specifications and standard, structing the business deal, and administering and enforcing the contract.

A. **Establishing Contract Procurement Rules.** Conduct competitive proposals that may include Expressions of Interest (to determine competition), Requests for Qualifications, and Request for Proposals (RFPs). RFPs (as opposed to bids) allow for best-and-final offers and negotiation, including simultaneous negotiations with more than one proposer. Include acceptance of / exceptions to the full-service contract attached to the RFP. Consider foregoing pre-proposal meetings – especially mandatory – that can reveal the competition.

B. **Prescribing Performance Specifications and Standard.** Fundamental contract provisions include more than program descriptions and detailed provisions for service and performance standards. They can include contract administration and enforcement tools, liquid performance assurance, and more. Additional provisions relate to the type of service.

- ***a.*** **Collection.** Include basic program information identifying MSW materials, customers, and scope of services. Consider outsourcing all or part of additional services such as public education.
- ***b.*** **Facilities** (generally). Include acceptable materials (type and level), tipping/turn-around guaranties, throughput, and with respect to operation of publicly owned facilities, maintenance repair and replacement.
- **c.** **Transfer/Transport Facilities.** Include container availability, damage checks, weighing protocols and back up service if the facility is closed.
- ***d.*** **Recyclables, C&D débris, compost.** Include acceptable waste (characterization/contamination limits), recovery/residue guaranties, product specifications, marketing obligations and performance incentives. With respect to municipal solid waste facilities (MSFs), see SWANA/National Waste & Recycling Organization's *JOINT ADVISORY ON DESIGNING CONTRACTS FOR PROCESSING OF MUNICIPAL RECYCLABLES.*
- **e.** **Disposal** (for operations contract). Include compaction guaranties, designated cells, pollution liability, and (CERCLA) indemnifications.
- **f.** **Special wastes.** In addition to provisions for facilities generally, include recycling obligations.
- **g.** **Landfill Gas (LFG).** Include provisions for royalties; sharing of tax, GHG, and renewable energy credits; emissions monitoring; reporting.
- **h.** **Facilities (development).** Include siting, permitting, financing obligations; public bidding (if required) and construction management; acceptance protocols; completion benchmarks and liquidated damages.

C. **Structuring the Business Deal.** The length of the contract term and termination rights are key because they affect capital recovery. Develop a compensation adjustment protocol that takes account implementation costs, term length. Ask how often one wants to test the market price.

D. **Administering and Enforcing the Contract.** Include contractor obligations such as explicit record keeping, and timing and content of reports; required period for responding to local government communications; time-limited cures for breaches; easy accessibility to performance assurance (such as drawing upon liquid letters of credit upon breach). Craft dispute protocols that allow rapid conclusion in the context of public health threats from putrescible waste. (For example, adopt American Arbitration to shorten response time and limit submissions.)

T-4.2 Full Cost Accounting for Municipal Solid Waste Management Systems

POSITION STATEMENT

Full cost accounting[5] helps the public, elected officials, and managers see and understand all cost and funding components of a MSWMS, even those that may not be immediately evident. It empowers them to make informed policy ad budget decisions, considering competing and limited resources.

SWANA supports the establishment of full cost accounting for MSWMS

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a. **Reader-friendly; Transparent:** Full cost accounting should give to the public, policy makers and managers of MSWMS a clear, easily understood presentation of all the costs and expenses of MSWMS.

b. **Categorized Costs:** Cost and funding sources of a MSWMS should be itemized separately and explicitly disclosed. (For example, each integrated MSWMS component (collection, recycling, organics management, transfer, disposal).

c. **Disclosure of Amounts and Sources of Costs:** Users of the MSWMS should know the system costs, and those costs should be reflected by identified user fees, energy or material sales, or taxes itemized on a tax bill.

d. **Basis of Establishing Fees:** In an MSWMS funded as an enterprise activity, the full costs reported to the users of the systems should be the basis for establishing fees. These fees must benefit all users of the system and should be equitable in their application.

e. **Comprehensive Costs:** Full cost accounting must include all direct and indirect costs necessary for a MSWMS to provide all the services identified in the MSWMS plan. (For example, post closure disposal costs, employee benefits; regulatory compliance; public education and outreach, infrastructure maintenance and replacement funding; contract services.)

When MSWMS are competitively bid with private sector service providers, the competitive bid (service fee) becomes the cost for purposes of full cost accounting.

For details on how to provide full cost accounting, see “Considerations” attached to the full policy.

[5] **Full cost accounting:** collecting and presenting all costs incurred in implementing municipal solid waste management system(s) (MSWMS), and accounting for both *direct costs* associated with a particular MSWMS and *indirect costs* such as future liabilities and shared service costs. Costs include service fees paid to private contractors.

T-5 Storage, Collection, Transportation and Transfer of Solid Waste

POSITION STATEMENT

Solid waste management of storage, collection, and transportation has been the responsibility of local governments. Generators comply with storage requirements, while municipal, commercial, and self-haulers comply with collection and transportation requirements. Many state and provincial governments set waste diversion goals. Local governments exercise their police power to protect public and environmental health and individuals' safety and provide reliable collection and transportation services.

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SWANA supports local, state, and provincial government that develop, implement and enforce standards and requirements for disposal, storage, collection and transportation services to ensure sanitary, safe, convenient, efficient, and affordable solid waste management.

- **Discards:** Only municipal solid waste is acceptable/permitted waste. Provincial, state, and local governments can also prohibit discard through Mandatory Recycling/Disposal Bans.
- **Storage:** Containers should be leak-proof, covered, and compatible with applicable collection programs and standards. Collection frequency should be no less than weekly for putrescible waste and bi-weekly for non-putrescible waste. Provincial, state, and/or local governments may require containers be stored from public view and mandate multi-family or commercial buildings provide proper space and location for storing recyclables and flammable waste.
- **Collection:** Local governments may set requirements for container placement and establish standards and specifications for mandatory collection services, through regulations and agreements, which may be provided by the local government themselves or through the private sector. Such services may be non, semi or exclusive at the local governments discretion and could be automated to maximize collection.
- **Transportation:** Local governments should prohibit transporters of solid waste materials from littering or leaking loads and consider truck impacts (e.g., traffic, noise, and road maintenance) when establishing truck routing requirements.

T-5.1 Flow Control of Municipal Solid Waste

POSITION STATEMENT

SWANA supports free movement of MSW across state, provincial, or local government boundaries. *(See T-5.2 Importation and Exportation of Municipal Solid Waste)*. This policy clarifies that that government can limit free movement of MSW via "flow control" in certain conditions stated in US Supreme Court Opinions. SWANA recognizes that flow control to publicly owned MSFs is an effective and legitimate instrument of local governments' integrated MSWM if they first solicit public opinion and then treat all private businesses, in-state or out-of-state, equally.

"Flow control" is a regulatory measure (such as an ordinance, rule, or other official directive, usually be a local government) mandating transportation of all or a portion of MSW from point of generation to a MSW management facility designated by a local government.

First, local governments cannot direct MSW to *privately* owned MSW facilities via regulation. This discriminates against commerce in contravention of the US Constitution's interstate commerce clause. (*C&A Carbone v. Town of Clarkstown*, 511 U.S. 383 (1994)).

Secondly, local governments can direct MSW to *publicly* owned facilities via regulation. Managing MSW is an exercise of local governments' police power. The benefits of flow control to public facilities outweighs any burden on interstate commerce. (*United Haulers Association v. Oneida-Herkimer Solid Waste Management Authority*, 127 S. Ct. 1786 (2007)).

T-5.2 Importation and Exportation of Municipal Solid Waste

POSITION STATEMENT

SWANA supports free movement of MSW across state, provincial, or local government boundaries - the geographical limits in which they authority over solid waste management. Free movement includes *import* (originating outside the jurisdiction) and *export* (originating in the jurisdiction). The MSF receiving the waste may be privately or publicly owned/operated.

Jurisdictions should fulfill the following responsibilities.

State and provincial governments should adopt regulations to protect the public and the environment, including MSW transport. They should adopt MSW plans addressing type, capacity, and location of MSW management facilities, and permitting requirements, but delegate authority to implement those plans to the local government. Plans should include economic development. The permitting process should include public participation.

Local governments should implement MSWM plans in accordance with local zoning and land-use requirements to mitigate impacts, including transportation. They should negotiate host agreements with owners/operators of the MSF to provide mitigations such as monetary compensation and operating schedules and other practices.

T-6: Recycling as Part of Integrated Solid Waste Management

POSITION STATEMENT

SWANA defines recycling as the collection, sorting, marketing, processing, and transforming or remanufacturing of Recyclable Materials into other materials and products. Stewardship polices, Conversion Technologies, Organics Management practices, and Waste-to-Energy technologies are all policies supported by SWANA. Additionally, **SWANA supports** recycling programs that integrate solid waste management systems, follow regulations, have successful economic practices, and protect human health and safety. Implementation of solid waste diversion and recycling initiatives are:

- ***Industry, Businesses, and Institutions*** should advocate for establishing programs and adopting polices that provide maximum diversion and purchasing power including the develop of intermediate processing facilities. Furthermore, these sectors should adopt business practices that divert materials from the solid waste stream by regular monitoring, employee opportunities, design, supporting alternative technologies, and purchase recycled-material products.
- ***Federal Government*** can identify funding sources, assure uniformity and consistency in materials, promote individual recycling education, and purchase recycled materials. They can foster development in national recycling goals, materials use practices, markets for new materials, stimulate the green industry, and provide research and development of alternative technologies. Policy initiatives that can be supported and/or adopted through product stewardship, requiring all federal agencies to have similar waste reduction goals as lower jurisdictions, reuse initiatives, legislation to ban harmful or improper disposal of products, and extend producer polices.
- ***Provincial and State Governments*** can apply similar initiatives as the Federal Government but can also provide provincial/state specific diversion goals, technical assistance programs, information through clearinghouses, grants and loans, and regulations and permits for facilities.
- ***Local Governments*** can establish regulations and ordinances to achieve mandatory diversion rates, require developers to incorporate recycling design, require recycling at all vendors, and allow for intermediate processing facilities. The development of procurement policies, solid waste recycling and educational programs, short- and long-term diversion goals, collection and drop-off programs, and programs for proper utilization and diversion of yard trimmings and food scraps can promote initiatives. In addition, local governments can assist businesses and industries in diversion and recycling programs, while they can require private sector providers to have solid waste management plans. Monitoring progress in recycling goals with periodical evaluation will similarly further initiatives.
- ***Educational*** initiatives and programs highlight purchasing habits, leave grass cuttings on lawn, educate future generations, incorporate recycled material into construction projects, support research and development in alternative technologies, support extended producer policies, and allow for the discovery of open market opportunities.

T-6.1 Municipal Solid Waste Recycling

POSITION STATEMENT

Recycling is the collection, sorting, marketing, and processing, of materials removed from the solid waste stream, and the transformation or remanufacture of those materials for new products and/or other productive uses. Principal solid waste streams are residential, commercial, industrial, and sometimes considered bio-medical, construction and demolition debris, and other waste sources. Potential opportunities for local governments' capture involves waste management of paper, containers, food scraps, vegetative wastes, non-food/beverage container glass, household hazardous wastes (HHW)/paints/pesticides/unregulated hazardous waste, construction and demolition debris, batteries, and others.

SWANA supports recycling as a method of municipal solid waste management and often incorporating integrated municipal solid waste methods. Additionally, SWANA believes considerations of collection, processing, markets, and economics should be involved when state or local governments implement bans on landfill disposal of recyclable materials. The following should be considered for the recycling of MSW:

- Recycling programs should be implemented when the market is in demand, societal benefits are clearly established, and the program can be sustained
- Development of:
    - Mandatory diversion programs should be considered for market expansion
    - Nation-wide programs to establish solid waste generation measurement method should take place
    - The market through leadership roles and the government adopting procurement policies should occur
    - The True cost of recycling within the local solid waste management system with the manufacturer and generator paying to support recycling should be implemented
- A wide variety of materials with consistent quality can be reused and should be removed from MSW streams to reduce dependence on non-renewable resources, consumes less energy, reduce the cost of MSW management systems, and it does not allow for greater adverse environmental impact
- Mandatory coding for plastic resins with a corollary public education program should be adopted
- Subsides that favor use of virgin materials should be eliminated, and state and federal incentives should be established to invest in recycling opportunities including production changes
- Extended produced responsibility polices should be considered for used and unused products for recycling or deconstruction
- Private, provincial/state, and federal initiatives are needed to expand and stabilize recovered materials markets

T-6.2 Safe Recycling of Mercury-Containing Lamps

POSITION STATEMENT

SWANA supports the following policy positions on responsible recycling of mercury lamps:

- **Required Recycling:** Governments at all levels should require safe recycling of all mercury-containing lamps from households, and small and large quantity generators. Recycling programs should:
  - Include enforceable worker safety, public health, and environmental protection standards
  - Provide flexible and cost-effective options for households, small and large quantity generators
  - Require the use of protective, mercury vapor packaging to prevent releases to the environment.

- **Implement Recycling Prior to Disposal Ban**s: As part of an integrated solid waste management system, ensure recycling infrastructure is in place prior to banning disposal of mercury-containing lamps.

T-6.3 Safe Recycling of Electronic Waste

POSITION STATEMENT

SWANA supports the following policy positions on responsible recycling of electronic waste:

- Regional and local governments should endeavor to assure that flexible and cost-effective recycling options that meet applicable state and local requirements are available to all households and businesses within their jurisdictions.
- Federal governments should assure that options are available for the reuse and/or recycling of e-waste generated by all federal departments and agencies.
- All levels of government should require that recycling facilities comply with enforceable worker safety, public health, and environmental standards. Requiring recycling facilities to be certified under recognized, national recycling certification programs would facilitate compliance.
- Federal and international programs and conventions should prohibit the international shipment of e-waste to facilities that do not comply with standards for worker safety and public health and the environment, and to countries that do not have regulatory programs to enforce such standards.

Implement Recycling Prior to Disposal Bans: In accordance with SWANA Technical Policy T-3.6 Solid Waste Disposal Bans, prior to implementing a disposal ban or restriction on e-waste, infrastructure must be in place to regulate, collect, store, transport, re-use, recycle or remanufacture the e-waste. Disposal bans should include provisions to protect owner/operators of solid waste facilities from liability for inadvertent disposal of e-waste, if they carry out waste screening programs in accordance with the provision of the facility permits and have made good faith efforts to post signs and notify haulers that covered electronics are not accepted by the facility.

T-6.4 Measuring Recycling

POSITION STATEMENT

Recycling and recycling progress has been measured using a variety of approaches. Measurement allows calculation of the benefits of recycling and progress of efforts to implement sustainable materials management programs. **SWANA supports** the use of transparent and consistent methods to measure tons of materials recycled as part of an ISWMS. SWANA's policy is established to:

- Encourage entities that measure recycling to disclose and provide transparency regarding the numbers and methods used to calculated recycled tons.
    - All terms should be well-defined, and transparency includes clarity about the management methods, material types, sectors, reporting period, and other elements.
- Recommend a consistent methodology be used for measuring recycling across organization, program types, and specific materials.
    - The policy identifies supporting resources dedicated to defensible measurement methods, including EPA's "Measuring Recycling" publications and others.

Historical methods have included recycling rate, participation rate, capture rate, generation rate, per-capita metrics, and metrics related to materials including life cycle, and other environmental and impact metrics. SWANA should continue to evaluate approaches to measuring recycling. The policy does not focus on an approach for measuring diversion from landfills, separate from recycling.

T-7 Organics Management as Part of Integrated Solid Waste Management

POSITION STATEMENT

"Organics" includes yard *trimmings/green waste* (from homes, nurseries, arbor services), *food scraps* (from residential, commercial, industrial sources), *biosolids and bulking agents* (e.g., sawdust). Organic waste comprises a large portion of the municipal solid waste stream, but also has multiple diversion options, including *source reduction and recycling/composting* in accordance with the EPA waste hierarchy.

Source reduction includes:

- Backyard composting
- Grass-cycling
- Food recovery (placing people first, then animals), grass recycling
- Mowing bans

Recycling/ composting includes use as:

- Alternative daily cover (ADC) on landfills (See T-6.4 Measure Recycling; T-9.2 Alternative Daily Cover Materials for Sanitary Landfills)
- Mulching (chipped or ground for landscaping and erosion control)
- Composting to produce soil amendments and fertilizer
- Anaerobic digestion (AD), the biological decomposition of organics under controlled conditions in non- or reduced-oxygen environments, to produce biogas or energy

All composting/recycling methods depend on the type and characterization of the feedstock, such as the degree of contamination/waste in organics and pretreatment (sorting, grinding, shredding, conversion to slurry).

Governments should provide technical assistance to businesses and institutions to - develop diversion and recycling programs/facilities and foster markets, including purchasing organics products. Governments might further create grant/loan programs and initiatives to divert organics.

Composting Includes:

- **Feedstock:** yard and landscape trimming, food scraps, biosolid, and bulking agents such as sawdust
- **Methods:** turned windrows) depending on location, markets, feedstock, and economic feasibility
- **environmental benefits:** soil amendment, reducing need for water, fertilizers, and pesticides
- **uses:** erosion control, stormwater management
- **impacts:** odors, VOCs, methane/greenhouse gases

[

Anaerobic digestion (AD) includes:

- **Methods:** organics having wet/low or high moisture content (less or greater than 80%), and sub-methods based on staging operations, temperature, batch/continuous feeding. Organics can be co-digested with biosolids.
- **Products**
  - Biogas (to heat water, buildings; use as engine fuel, generate electricity – with possible qualification as renewable energy portfolio, process, and natural gas).

Digestate: for compost, production of fertilizer

T-8 Resource Recovery: Conversion and Combustion as Part of Integrated Solid Waste Management

Integrated waste management conversion and combustion technologies can have beneficial uses of waste for recover of renewable energy in forms of steam heat, hot water, electricity, and fuel. These waste to energy technologies result in net carbon reductions when compared to other common methods. Refuse Derived Fuel (RDF) technologies are the most used technology of energy from solid waste and other related emerging technologies. These technologies should be considered for implementation specifically accessing integrated solid waste management characteristics and attributes.

SWANA does not support any one waste management method more than another. SWANA's position is that local governments choose management methods that best meet all their community's goals. These methods include life-cycle analysis, economic and technical feasibility analyses, education, supporting beneficial use programs, reduce and reuse solid waste, and lastly, maximize recovery, beneficial utility, and best use.

Compliance to federal, provincial, state, and/or local government regulations shall accompany the selection of technology in consistency with best practices regarding economics, environmental performance, technical performance, and public health issues. **SWANA supports** the following best practices:

BEST PRACTICES	PRINCIPLES
Planning	Conduct audit of current waste-feedstock quantity and character / Mass and Energy balance by an independent engineer; project future volume / content by and determine need for the project. Depending on the technology, waste- feedstocks includes organic, forest, agricultural wastes and algae.
	Conduct life cycle and economic feasibility analysis with financial specialist.
	Ascertain community opinion: acceptance of risk, indifference, concerns, objections – NIMBY
	Identify regulatory requirements and compliance calendar
	Choose business model (financing, ownership, operation): • Design Build (DB) • Design Build Operate (DBO) • Design Build Own Operate (DBOO), etc.
	Project future waste volume and determine allocation of risk between community / operator (flow control all waste; put-or-pay volume of waste)
	Conduct general risk analysis, considering: • Permitting timeline • Technology's demonstrated reliability, including specifically with community's quantity and character of waste • Possibility of failing to meet environmental standards • Failing to operate as projected in initial studies • Price paid for products or energy may change • Operator or technology provider may become insolvent.
	Investigate technology's operating history/ performance record (regulatory compliance); visit an existing facility
	Confirm comparability / complementarity with current & planned waste diversion programs
Siting	Comply with Land use conditions / zoning codes
	Calculate distance from waste-collection routes and residue reuse or disposal facilities

	Analyze traffic impacts
	Estimate energy demand
	Identify existing infrastructure (roads/rail; utilities' power transmission lines)
Design	Consider environmental justice
	Employ experienced, registered engineers and licensed professionals [? What is example of "professionals"? Architects? What are examples of "License" v. "Registered"?]
	Plan for long-term, high-capacity operation
	Design to be energy efficient; minimize water and chemical use; re-use; discharge zero-water
	Minimize air contaminants (including greenhouse gas)
	Maximize energy / heat recovery, ferrous metals, and other reusable materials
	Enable continuous measurement of input and output (residue, energy, products)
	Reserve area for waste screening
	Incorporate areas for household hazardous waste and e-waste recovery programs; beneficial reuse of residue
	Control run-on and run-off; prevent surface water contamination
	Install continuous emissions monitoring
Construction	Enable safe transport of residue for disposal
Commissioning	Contractors: (1) licensed (2) experienced with energy generation, managing and monitoring RR construction;
Operation	Conduct performance tests to confirm compliance with performance specifications & guaranties
	Employ licensed / certified operator
	Employ operator who is [licensed or certified] by the American Society of Mechanical Engineering (ASME).
	Implement Asset management; predictive maintenance programs
	Obtain real-time emissions
	Train personnel on on-going basis
	Provide personnel, customer safety
	Control access
	Check (inspect) waste for hazardous or other non-permitted materials
	Manage Residue in accordance with design & permitting requirements

T-9 The Sanitary Landfill Component of Integrated Solid Waste Management

POSITION STATEMENT

Landfilling is at a reduced rate due to success of diversion programs. **SWANA supports** sanitary landfilling as a necessary element of ISWM. These facilities must take into consideration new issues, tools, and technologies. SWANA believes that responsible sanitary landfilling includes:

- ***Selection of Sites for Sanitary Landfills*** should protect flood plains, wetlands, from unstable geological settings, minimize impacts on air and water quality, and protect against bird hazard risk to aircraft. Site selection should follow local land use conditions and codes, manage location and costs, and provide best practices in design, construction, operation, and closure.
- ***Design of Sanitary Landfill*** can meet preferred criteria under the supervision of professional engineers and other licensed professionals. The criteria elaborate on providing controlled access to the site, use by individuals of convenience areas, means for measurement and screening, control of storm water run-on and -of, monitoring systems, and prevention of water contamination. Design needs to constructible and easy to maintain and operate with overall operations that are efficient and safe, consequently, allowing for practicable post-closure uses. Management must control landfill gas in proper compliance of regulations, control recovery and flaring when necessary, and provide collection, recovery, and management of leachate.
- ***Operation of Sanitary Landfills*** are managed under a certified operations/operator/integrated solid waste manager who should supervise and provide training for on-site personnel, controlling access and use, conduct random inspections, and measure incoming waste. Permitting and regulations must be followed appropriately for specifically allowed waste in the facility. Operations must enable the 'close as you go' initiative and abide by proper emergency planning and prevent inadvertent fire. Lastly, use of daily cover, control of vectors and birds, and control of invasive species on-site should be provided.
- ***Closure and Post Closure of Sanitary Landfills*** must provide financial assurance, meet closure standards, allow for monitoring to meet those standards, restrict access to authorized personnel only, evaluate end use of the site, integrate on-site beneficial use opportunities, minimize long-term impacts, and document former use.

Specific issues that landfilling is facing has increased regulatory, operation, and environmental pressures, which are discussed below:

- ***Life Cycle Analysis*** evaluates the energy use, environmental emissions, and cost of alternative MSWM practices. To develop a cleaner system, planners need to understand the impacts of landfilling compared to alternative practices.
- ***Third-Party Agreements*** should be used to establish the basic responsibilities of environmental compliance by the multiple parties involved.
- ***Bioreactor Landfills or Landfills with Accelerate Biodegradation*** have multiple benefits that include accelerated stabilization of waste, recapture of airspace, reductions involving closure, and reduction in leachate treatment and disposal costs during operation. The cost-benefits of these efforts need to be evaluated in more detail, specifically, in increased capital, operations, and construction cost.

- ***Greenhouse Gas (GHG) Regulations*** have prompted landfills to be designed and operated to provide significant GHG benefits through capture and management of methane and production of renewable energy.

T-9.1 Financing of Municipal Solid Waste Management Disposal Facilities

POSITION STATEMENT

The MSWM utilizes several intermediate steps (collection, curbside recycling, transfer, materials recovery, combustion, etc.) before some portion of the solid waste is presented for final disposal in a landfill. Operating financial assurance, post-closure care funding, and long-term care are a significant part of the cost of doing business. During the active life of a landfill, funds for corrective action and environmental monitoring are raised by tipping fees or taxes. Funds for closure of a landfill facility can be collected and accelerated during the remaining time of operation. Post-closure funds should be included in gate fees and set aside in protected financial reserve accounts.

SWANA supports regulations that establish reasonable requirements for financial assurance, which are:

- Corrective Action During the Active Life of a Disposal Facility
- Closure
- Post-Closure Care (PCC) and Monitoring
- Post-Closure Corrective Action

These financial assurances are viable options, but the utilization of trust funds offers more fair and equitable solutions. Direct charges to the user can fund trust deposits. If owners do not charge a gate fee both the public and private sector can acquire revenue sources that are on the basis of their annual operating budgets. Trust fund planning needs to be established for activities including investments of deposited funds with secure assets. Provincial and state agencies need to establish the integrity of the trust funds through rules and policies such as providing oversight on deposit dates and ensure that regulations are followed. When the post-closure term is completed, and obligations are fulfilled any balance of remaining monies should be returned to the organization establishing them.

T-9.2 Alternative Daily Cover Materials for Sanitary Landfills

POSITION STATEMENT

Advancements in technology have led to the emergence of a variety of materials to serve as ADC, which often provides an advantage of conservation of airspace. The materials of the ADCs may be waste derived or not, and can be constructed out of spray on material, geosynthetic materials, or tarps. Differences in performance between cover and ADC relate to the relative value of space in a landfill, local weather conditions, site specific conditions, net cost differential, design considerations relative to movement of landfill gas, and other conditions.

SWANA supports the appropriate usage of field proven ADCs incorporating site-specific characteristics of each disposal site and the applicable provincial, state, or local government rules and regulation. The use of ADCs as a substitute for compacted soil should be based upon:

- Economic analysis
- Performance of the ADC material to prevent nuisances and provide protection of human health and environmental quality under specific sit conditions and other complementary management practices (comparable results to soil cover)

T-9.3 Termination of Municipal Solid Waste Landfill Post-Closure Care Requirements

POSITION STATEMENT

SWANA supports the use of a performance-based evaluation process for considering the termination of regulatory PCC or municipal solid waste landfills (MSWLFs), if it clearly identifies the criteria for demonstrating protection of human health and the environment (HEE) in the absence of active control system for leachate and landfill gas. The EPA established under the Resource Conservation and Recovery Act (RCRA), Subtitle D Criteria for MSWLFs with a required PCC period of thirty years, but it has not prepared similar guidance for evaluating PCC at landfill facilities. The two current approaches for PCC requirements are organic stability and functional stability. Some states have developed their own methods for termination of regulatory PCC, and those include Florida, Kanas, Washington, and Wisconsin. States need to incorporate three fundamental principles in developing proper guidance and/or regulations:

- The regulatory PCC period should have a finite term with the length determined on a site-specific basis.
- The conduct of a performance-based evaluation of the closed MSWLF that relies on the collection and analysis of site-specific data over a defined period can be an effective means of establishing the requisite length of the PCC period on a scientific basis.
- The identification and weighting of performance-based criteria should be established along with the technical evaluation approach with input and consensus from appropriate stakeholders.

T-9.4 The Long-term Management of Municipal Solid Waste Landfills

POSITION STATEMENT

Few regulatory agencies have established specific requirements or guidance for long-term management (LTM) of MSWLFs**. SWANA supports** the following positions:

- After the post-closure care there should be LTM to ensure the final landfill cover system and other control systems to protect HHE.
- Regulatory agencies and landfill owners/operators should recognize that there are potential costs associated with facilities in LTM such as inspections to verify the integrity of the landfill cover system and other control systems and/or corrective action.
- LTM of a facility may cease provided all parties agree that based on site-specific data, that the organic or functionally stabilized waste mass poses an acceptable level of risk to potential receptors.

T-10 Safe Disposal of Unused or Expired Household Pharmaceuticals

POSITION STATEMENT

Responsible disposal of unused or expired pharmaceuticals is critical to addressing water pollution and community drug abuse. Effective management of pharmaceuticals can be met in accordance with the following disposal practices:

- **Take-back Programs with incineration:** Communities should work with the pharmaceutical industry (manufacturers, distributers, pharmacies / retailers), interested organizations, individuals, and other stakeholders to develop take-back programs as part of product stewardship that incinerate the collected pharmaceuticals in MWI (mixed waste incinerator, or waste-to-energy/WTE facilities).
- **Incineration:** Communities that dispose of their municipal solid waste at a MWI or WTE facility can allow their residents to discard pharmaceuticals in household trash.
- **Lined Landfills:** Where communities do not have take-back programs and/or incineration they should educate the public on best disposal practices of mixing waste pharmaceuticals with contaminants (coffee grounds, cat litter) and disposing of them in non-descript containers with household trash.
- Communities should also educate residents not to discard and flush pharmaceuticals into the public sewer system and encourage the FDA to abandon its recommendation to flush listed pharmaceuticals.

T-11 Conversion Technologies as Part of Integrated Solid Waste Management

POSITION STATEMENT

"Conversion Technology" (CT) utilizes thermal, chemical, mechanical, or biological methods as a waste management technology by processing MSW or potions of the waste stream into fuels, chemical products, energy sources, organic solid conditioners, or other useful products. CT has the potential for recovery of the waste stream of marketable material or energy, but the technology must be a successful complement to the local integrated solid waste management system. CT requirements should coincide with the USEPA Waste Management Hierarchy or similar regulations in the country. Additionally, the American Society of Mechanical Engineering (ASME) or equivalent, accredited organization in the county addresses permitting of CT facilities, which must be consistent with long term capacity needs of the community including proper financial efforts of all operating, design, and construction costs. Expected revenues should be considered as part of the full cost accounting. Important factors to consider when implementing CT is the integrated solid waste management system and commercial viability. This new technology hasn't been successful in operation on a commercial scale for an extended standard of time in North America. Considering this factor many risks can occur including:

- Unfamiliarity for regulatory agencies creating lengthy permitting and approval processes
- May not process waste on a long-term and consistent basis
- May not be able to process on a mixed municipal basis
- Technology may not meet required environmental performance standards
- Products produced might not be marketable
- May not be able to operate on economic pro forma basis
- Company promoting of technology and/or operating the facility may remain solvent

Appropriate planning can alleviate these risks through methods of waste prevention, reuse, recycling, processing, and energy recovery and disposal.

T-0: Definitions of Term Used in SWANA Technical Policies and Solid Waste Management

ATTACHMENT A
SELECTED SOLID WASTE DEFINITIONS

Aerobic Decomposition: degradation of Organic Wastes in the *presence* of oxygen by microorganisms and bacteria, releasing carbon dioxide gas and heat and producing solid material (compost) that can be used as a soil amendment. An example of Aerobic Decomposition is the waste degradation that occurs in a compost pile. See "Composting". Contrast "Anaerobic Digestion".

Alternative Daily Cover (ADC): See "T-9.2 Alternative Daily Cover Materials for Sanitary Landfills"

Anaerobic Digestion: degradation of Organic Wastes in the *absence* of oxygen by microorganisms and bacteria, releasing methane that can be collected and used as a fuel and producing relatively inert solid materials that can be processed for use as a soil amendment. An example of Anaerobic Digestion is the waste degradation that occurs in a landfill. Contrast "Aerobic Decomposition".

Automated Collection: Solid Waste collection by mechanical means, where arms or other devices extend from the collection vehicle, grasp or otherwise manipulate containers, lift them overhead, tip them to empty solid waste into the vehicle, and set them back down on the ground. Fully Automated Collection requires no manual labor to grasp containers; semi- Automated Collection requires manual labor to position containers for mechanical grasping. Contrast "Manual Collection."

Beneficial Use: utilization or reuse of a material that would otherwise become Solid Waste. Examples include landfill cover, aggregate substitute, fuel substitute or the feedstock in a manufacturing process.

Biodegradable: describes waste materials capable of being biologically decomposed by microorganisms and bacteria. For example, Organic Wastes such as paper, wood, food, and plants are biodegradable; metals, glass and most plastics are not.

Bioreactor Landfill: engineered landfill or landfill cell where liquid and gas are actively managed to accelerate or enhance Biostabilization of waste. Example management includes controlled addition and recirculation of water and capture of methane gas in a piping network.

Biostabilization: biological decay of Organic Wastes through process that reduces Leachate and Landfill Gas generation.

Bottle Bill: law that requires payment of a deposit on specified beverage containers (such as aluminum cans or glass beverage bottles) by consumers at time of purchase, and subsequent refund of the deposit by the product retailer or other entity when consumers return the containers for redemption. Bottle Bills encourage container recycling and discourage littering.

Buyback Center: facility that refunds deposits on containers subject to Bottle Bill redemption and/or purchases Recyclable Materials.

Buy Recycled: purchasing Recycled Products. Buy Recycled programs often emphasize purchase of products that contain a specified or maximum level of Post-Consumer content and/or Recyclable Materials content without affecting the intended use of the product.

Capture Rate: ratio of quantity of Recyclable Materials diverted for Recovery, to the total quantity of Recyclable Materials available for Recovery. See "Diversion Rate" and "Participation Rate".

Carbone (*C&A Carbone Inc.* v. *Town of Clarkson* 511 U.S 383 (1994)): case in which the U.S. Supreme Court overturned a local ordinance that required all Solid Waste within the Town of Clarkstown be processed at a town-designated privately owned transfer station. The court found that the ordinance unconstitutionally discriminated against interstate commerce.

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CERCLA: Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S. C Section 9601 *et seq*., referred to colloquially as "Superfund", providing for cleanup and remediation of uncontrolled or abandoned Hazardous Waste sites and response to accidents, spills and other emergency releases of hazardous substances. CERCLA provides EPA with enforcement authority to ensure that responsible parties pay the cleanup costs. ("PRPs" are Potentially Responsible Parties.)

CESQG (pronounced SQUEEGY): Conditionally Exempt Small Quantity Generators, which are facilities that produce less than 100 kg. (220 lbs.) of Hazardous Waste (or less than 1 kg. of acutely Hazardous Waste) per calendar month. CESQGs are exempt from many of the requirements applicable to Hazardous Waste generators provided they comply with certain conditions specified in Subtitle C regulations.

Closure: cessation of operations at a Solid Waste Management facility (especially a Sanitary Landfill) and implementing plans promulgated in accordance with provisions of RCRA to ensure future protection of human health and the environment. An example closure requirement is providing specified grading and final cover of a Sanitary Landfill. See "Post Closure Care".

Commingled Recyclables: Recyclable Materials designated for Recycling either by (1) generators' placement with other Recyclable Materials mixed in a single, common container for collection, or (2) collectors' sorting and placement in a single, common compartment on the collection vehicle. Contrast "Source Separated Recyclables."

Compaction Density: ratio of weight to unit volume of Solid Waste, Recyclables or other materials usually expressed as pounds per cubic yard or kilogram per cubic meter (lbs./y3 or kg/m3). Compaction is achieved in Sanitary Landfills, collection vehicles and storage containers by using Compactors. Greater Compaction Density increases the life of Sanitary Landfills, route length of collection vehicles or capacity of storage containers. Prescribed Compaction Density may be a performance standard in Solid Waste Management agreements. Compaction Density varies, depending on where and how it is measured. For example, in a Sanitary Landfill, Compaction Density is affected by type of Cover, the initial moisture content of the waste, type of landfill Compactors used, number of passes by the landfill Compactors, where it is measured (e.g. on side slopes), etc. Compaction in a Sanitary Landfill can be measured by multiple means, including aerial surveys, GIS etc. During collection, greater Compaction Density may be undesirable for certain Recyclable Materials such as glass. **Compactors:** machines that reduce the volume of Solid Waste by crushing, compression or compaction. A **landfill Compactor** is a piece of heavy

construction equipment with a blade (to push waste) and steel wheels with cleats (to minimize surface contact with waste and maximize pressure). It reduces volume of Solid Waste in a Sanitary Landfill by rolling over Solid Waste deposited on the surface of the Sanitary Landfill. A **Compactor collection truck** is equipped with a hydraulic ram and compactor plate that reduces volume by pushing and compressing wastes into the main body of the truck. **Stationary compactors** contain a ram that pushes and compresses waste into a container or bale.

Compost: the end product of Composting. It is a humus-like material that can be added to soils to increase soil fertility, aeration and nutrient retention.

Composting: biological decomposition or decay of Organic Wastes (sometimes including mixed Solid Waste) under controlled conditions. Composting takes place under aerobic conditions, typically in an open pile (called a windrow) or in a tank or container (called in-vessel composting). See "Aerobic Decomposition"

Contamination: commingling of Garbage, Refuse or other material having unsuitable physical or chemical properties with Recyclable Materials or Organic Wastes, thereby rendering the Recyclables Materials or Organic Wastes unfit for further Reuse, requiring processing prior to Reuse, or decreasing their value for Reuse. A Recycling example is paper products sullied by food. A Composting example is Compost degraded by glass particles (a physical property) or heavy metals (a chemical property) present in the feedstock.

Corrective Action: action taken to investigate, describe, evaluate, correct and cleanup contamination from Solid Waste Management facilities as prescribed in accordance with law, including CERCLA and RCRA.

Cover (or Cap) (*noun*): soil or Alternative Daily Cover used to cover exposed Solid Waste in a Sanitary Landfill. **Alternative Daily Cover (ADC)** is Cover other than soil, such as spray slurries, tarps, foams, vegetative waste and ash.

Daily Cover is Cover applied at the end of each Sanitary Landfill operating day. **Final cover** or **cap** is Cover comprised of layers of impermeable materials such as compacted clay, drainage materials, topsoil and vegetation applied over the top of a closed cell of a Sanitary Landfill to minimize the infiltration of rainwater and the production of Leachate.

Daily Cover: See "Cover".

Debris Boxes: See "Drop-Off Center".

Dioxin: group of chemical compounds sharing certain similar physical structures and biological characteristics that can be emitted when burning Solid Waste if there is incomplete combustion and inadequate air pollution control devices. Studies have shown that exposure to Dioxin at high levels may adversely affect health. Federal air quality standards for Waste-to-Energy facilities establish very stringent emission limits for Dioxin.

Diversion: re-direction of Recyclable Materials from disposal through Resource Recovery.

Diversion Goals: Diversion Rates encouraged by law or policy, carrying no penalties, fines or other adverse consequences for non-achievement. Contrast ""Diversion Mandates".

Diversion Mandates: Diversion Rates prescribed by law, carrying penalties, fines or other adverse consequences for non-achievement. Contrast "Diversion Mandates".

Diversion Rate: ratio of the quantity of Recovered materials, to the sum of the quantity of Recovered materials plus the quantity of disposed materials. What materials are deemed Recovered or disposed may vary among different local, state, provincial and national governments. "Diversion Rate" is often referred to as "recycling rate" or "recycling diversion rate". Compare "Capture Rate" and "Participation Rate".

Drop-Off Center: containers such as bins and Roll Off Boxes placed at collection sites designated for deposit by generators of specified materials such as Recyclable Materials or Solid Waste.

EIS: Environmental Impact Statement, a document that identifies and analyzes in detail the environmental impacts of a proposed action, including in some instances, the construction of Solid Waste Management facilities, prepared in compliance with the National Environmental Policy Act or state and provincial laws.

Energy Recovery: includes (1) harnessing the heat from Solid Waste incineration or other thermal destruction process to produce steam for direct use or the generation of electricity; (2) extracting fuel from landfill gas, and (3) converting Solid Waste into liquid or gaseous fuels by chemical, thermal or biological processes.

Enterprise Fund: self-supporting method of funding Solid Waste Management programs and operations through revenues generated from service charges and fees, deposited and kept separate and distinct from local governments' general funds.

Environmental Justice: fair distribution of environmental risks among all socioeconomic and racial groups. From a Solid Waste perspective, Environmental Justice concerns arise when Solid Waste Management facilities are, or are perceived to be, located predominantly in areas with minority or lower income populations.

Ergonomic Injuries: injuries to the musculoskeletal system resulting from repetitive motion, heavy lifting, forceful exertion, contact stress, vibration, awkward posture, rapid hand and wrist movement, etc. Responsible Solid Waste Management operations implement training programs and workplace controls to reduce Ergonomic Injuries.

Financial Assurance: regulatory requirements designed to ensure that Solid Waste facility owners will have the financial resources to pay for Closure, Post Closure Care and Corrective Action, for example through dedicated trust funds, insurance or bonds, revenue pledges or meeting prescribed financial tests.

Flow Control: overt regulatory measure - usually in the form of a local governmental ordinance or official directive - mandating that Solid Waste, Recyclable Material or other material be transported to one or more designated Sanitary Landfills, transfer stations, Materials Recovery Facilities or other Solid Waste Management facilities. Flow Control has been significantly curtailed by *Carbone*. Some local

governments have created financial incentives for haulers to bring wastes to particular facilities, and such methods (known as **economic flow control)** tend
6 6 to withstand legal challenges. Contrast "Flow Control" with "facility designation", which is not regulatory in nature: for example, where a service provider agrees, by contract, to transport or deliver waste or other material in accordance with the provisions of an agreement between the service provider and a governmental authority.

Franchise: right or privilege conferred by a local government on one or more private entities for the collection, transportation or other handling of Solid Waste or Recyclable Materials. A Franchise may extend throughout the corporate limits of the local government or may be limited to a specified area. Local power to grant Franchises typically stems from state or provincial law, municipal charter, or home rule authority. Franchisees may be required to secure licenses or permits in order to perform franchised services.

Front End Loaders: include (1) Solid Waste collection vehicles (a) originally designed to collect Commercial, Institutional and Industrial Solid Waste from large containers such as dumpsters, having 2 forks attached to the front that lift bins overhead and empty them into a hopper on top of the vehicle, and (b) adopted to collect Residential Solid Waste, for example, from cans dumped manually into buckets or hoppers attached to the front that lift the emptied Solid Waste overhead and empty it into the hopper (compare "Side Loaders"); and (2) heavy equipment with a bucket or grapple used to push or pickup materials in Solid Waste facilities.

Garbage: putrescible Solid Waste. Contrast "Refuse".

Green Purchasing (or environmentally preferable purchasing): buying environmentally preferable products or services that have a less or reduced adverse effect on human health and the environment than competing products or services that serve the same purpose, considering life cycle impacts: raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance or disposal.

Groundwater Monitoring: sampling and analysis of water beneath the surface of the ground for the purpose of detecting the release of contamination from a Solid Waste Management facility.

Hazardous Waste Screening Protocol: procedures implemented in accordance with law or best industry practice to identify and remove Hazardous Waste from further handling within the Solid Waste Infrastructure, including during collection and upon delivery to transfer or disposal facilities.

Heavy Metals: trace metals present in Solid Waste that are sometimes found in the air emissions and ash from Solid Waste Combustors, Leachate, Compost or other products or residuals resulting from the processing of Solid Waste. Examples include mercury, cadmium, lead and chromium. Studies have shown that exposure to Heavy Metals at high levels may adversely affect health.

HDPE: High-Density Polyethylene, a plastic used to make a variety of products including milk jugs and landfill liners. HDPE containers are often identified by the number "2" inside the recycling arrows stamped on the container.

Incinerator: generic term for an enclosed unit that burns Solid Waste, sometimes without energy recovery.

Inerts: materials such as concrete, fully cured asphalt paving, glass, plastics, fiberglass, asphalt or fiberglass roofing shingles, brick, slag, ceramics, plaster, clay and clay and clay products that do not degrade or putrefy and are not Hazardous Waste.

Integrated Solid Waste Management (ISWM): environmentally and economically sound, systematic approach to Solid Waste handling that combines Source Reduction, Reuse, Recycling, Composting, Energy Recovery, collection, transfer, transport and disposal in Sanitary Landfills, Solid Waste Combustors or other Solid Waste Disposal and processing facilities in order to conserve and recover resources and dispose of Solid Waste in a manner that protects human health and the environment.

Intermediate Processing Center (IPC): term used interchangeably with "MRF", or to signify MRF that not only sorts and recovers Single Stream and Commingled Recyclables (usually from residential and commercial sources) but additionally processes them into new Recycled Materials feedstock or Recycled Products. See "MRF".

Interstate Commerce Clause: provision of the United States Constitution prohibiting state and local governments from discriminating against interstate commerce *unless* they are acting as market participants like private parties. See "*Carbone"* and "Flow Control".

ISWM: See "Integrated Solid Waste Management".

Landfill Gas: gas produced when Organic Waste naturally decomposes in a Sanitary Landfill, comprised of approximately 50 percent methane (the primary component of natural gas) and 50 percent carbon dioxide. Landfill gas can be collected and used as a fuel for heating, generating electricity or fueling engines.

Leachate: liquid that has percolated through or drained from Solid Waste, often containing suspended or dissolved waste materials.

Liner: layer of natural or synthetic material laid beneath and on the sides of a Sanitary Landfill that restricts the downward or lateral escape of Leachate and Landfill Gas. **Clay liners** can be constructed from tightly compacted clay soils or manufactured geosynthetic clay. **Synthetic liners** (sometimes called flexible membrane liners or FML) are constructed from plastic membranes (geomembranes). **Composite liners** combine layers of both clay and synthetic liners. State, provincial and national law may prescribe minimum specifications for liner systems.

Managed Competition: process where municipal or public sector Solid Waste departments submit proposals or bids in competition with private sector Solid Waste companies in response to a publicly tendered service contract. Managed competition could be applied to any Solid Waste service (or any other municipal service) but generally has been applied to Solid Waste collection services.

Manual Collection: Solid Waste collection by hand rather than machine, where workers grasp, lift and empty cans or toss bags into hoppers or buckets on a collection vehicle. Contrast "Automated Collection**".**

Materials Recovery Facility (MRF): building where Commingled Recyclables are separated and processed (including sorting, baling and crushing) or where Source Separated Recyclables are processed for sale to various markets. See "Intermediate Processing Center". In a **Dirty**

MRF the incoming Recyclable Materials are co-collected and commingled with other non- Recyclable portions of Solid Waste. See "Mixed Waste Processing".

Mixed Waste Processing: picking, sorting and otherwise separating Recyclable Materials from commingled Refuse and Garbage, as opposed to picking, sorting and otherwise separating one type of Commingled Recyclables (such as fiber) that was separated and collected separately from Solid Waste from another type of Commingled Recyclable (such as containers). See "MRF".

MOLO: Manager of Landfill Operations, one of SWANA's certification disciplines. See "SWANA Certified"**. MRF** (pronounced MURF**):** See **"**Materials Recovery Facility".

MSW: Municipal Solid Waste

NIMBY (Not In My Backyard): neighborhood, community or local political opposition to the siting and development of Solid Waste Management facilities.

Participation Rate: ratio of generators (e.g., individuals, households or businesses) of Recyclables Materials that actually participate in a Recycling Program by setting out Recyclables for collection during a prescribed period of time, to generators who are served by the Recycling Program and could participate in the Recycling Program. See ""Diversion Rate".

PAYT (Pay As You Throw): See "Variable Rates".

PET (Polyethylene Terephthalate): plastic commonly used to make containers such as soft drink bottles. PET containers are often identified by the number "1" inside the recycling arrows stamped on the container.

Post Closure Care: activities during the period after Closure of a Solid Waste Disposal facility where the facility owner is required to carry out monitoring, maintenance and any necessary Corrective Action needed to contain liquid, gas and Solid Waste and to detect, prevent or respond to the release of liquid, gas and Solid Waste.

Post-Consumer: describes products purchased and used by consumers, then discarded or recycled, such as a newspaper that has been purchased and read, Recycled, then used to make newsprint. Contrast "Pre-Consumer".

Pre-Consumer: describes feedstock used in manufacturing, fabrication or industrial production, then discarded or recycled, comprised of scrap, trimmings, cuttings and other post-production discards such as overruns, over issue publications, and obsolete inventories. Contrast "Post Consumer".

Privatization: use of the private sector to provide Solid Waste Management services, ranging from complete private ownership and operation of ISWM facilities, service contracts or Franchise agreements between local governments and private parties to provide ISWM services, to private operation of ISWM facilities or equipment owned by the public sector.

Procurement Preference: purchase of Recycled Products even though their price exceeds the price of similar products with lesser or no Recycled Materials content, often by creating exceptions to procurement laws or practices that require purchasing qualifying products having the lowest cost.

Products of Combustion: gases and particulates that result from the combustion of Solid Waste.

Product Stewardship: appeal to all parties in a product life cycle - manufacturers, retailers, users and waste managers - to share responsibility and costs for reducing the adverse environmental impacts of products. From a Solid Waste Management perspective, Product Stewardship involves the actions taken to improve the design and manufacture of products to facilitate either their reuse, recycling or disposal, as well as actions to establish programs to collect, process and Reuse or Recycle products when they are discarded.

Pyrolysis: thermal and chemical decomposition of Organic Waste in a furnace operated without sufficient oxygen to allow combustion. Pyrolytic products include combustible gases, oils, charcoal and mineral matter.

Rail Haul: transportation of Solid Waste (generally long distances) by railroad.

Recovery: (or Recovering): See "Resource Recovery".

RCRA (pronounced RECK RAA): Resource Conservation and Recovery Act, 42 S.S. C. Section 6901 *et. seq.*, as amended, the major U.S. federal legislation first adopted in 1976 that governs the management of Solid Waste and Hazardous Waste in the U.S.

Recyclables Broker: individual or entity that acts as agent or intermediary between the sellers and buyers of Recyclable Materials such as metals, paper and glass.

Recyclable Material: substance that can potentially be reused as or recycled into a Recycled Material or Recycled Product. See also "Recycled Product".

Recycled Content: portion of a product's or package's weight that is composed of materials re-manufactured from a Recyclable Product or packaging material, including Pre-Consumer Materials or Post-Consumer Materials.

Recycled Material: Recyclable Material that has been converted into feedstock for use in the manufacture of a new Recycled Product, including containers or packaging. See "Recycled Product".

Recycled Products: includes (1) products having specified percentages of their total weight comprised of Pre-Consumer or Post-Consumer Recycled Material and/or secondary materials (such as certain paper products, plastic products, aluminum containers, Compost and co-compost, glass products, lubricating oils, paints and solvents); (2) used products that are not disposed but refurbished for Reuse without substantial alteration (such as refilling beverage bottles returned to a bottler, dock bumpers made of scrap tires, remanufactured laser toner cartridges, repaired office furniture, reconditioned carpet, retreaded tires, and reformatted computer disks)**.**

Recycled or **Recycling:** includes (1) collection, sorting, marketing, processing, and transforming or remanufacturing Recyclable Materials into Recycled Materials and Recycled Products, including marketing thereof; and (2) the purchase and use of Recycled Products. See "Recycled Materials" and "Recycled Products".

Redemption: return of Recyclable Materials such as beverage containers covered by Bottle Bills to the retailer thereof or a Buy Back Center for refund of amounts at least equal to the deposit, made at the time of sale.

Refuse: non-putrescible Solid Waste. Contrast "Garbage".

Remanufacture: disassembling used products that have been recovered instead of discarded, including cleaning, repairing or replacing necessary parts, and reassembling them for resale and reuse. "Remanufacture" often involves breaking down a used product into its main / core subsystems / modules and adding extensive parts and labor. "Remanufacture" may be distinguished from "**refurbishing**", which is less extensive, including renovating, repairing, restoring, or generally improving the appearance, performance, quality, functionality, or value of the used product for reuse or resale.

Request for Bids (RFBs. tender): procurement in which a local government solicits price bids for goods or services (such as Solid Waste collection and disposal, Recycling, or facility development or operation) based on prescribed, detailed specifications, usually with limited authority to negotiate or modify bids unless bidder does not meet minimum qualifications. The form, manner and timing of requests for bids are mandated by law. Once bidders meet minimum qualifications (such as experience), price is the only criteria. Contrast "Requests for Proposals (RFPs)".

Request for Proposals (RFPs): procurement in which a local government solicits price and/or program proposals for goods or services (such as Solid Waste collection and disposal, Recycling, or facility development or operation) based on prescribed but possibly alternative and general specifications, usually with broad authority to negotiate or modify proposals. The form, manner and timing of requests for proposals are subject to the local government's discretion. Not only price, but additional factors such as proposed program, experience, references, environmental record, history of litigation, recycling achievements, etc., may be criteria. Contrast "Requests for Bids (RFBs)".

Request for Qualifications (RFQs): in advance of issuing Requests for Proposals, local governments solicit qualifications of potential proposers. Contrast "Requests for Proposals (RFPs)".

Resource Recovery: recovery rather than disposal of Recyclable Materials or energy from Solid Waste, encompassing Recycling, Reuse, Composting and Energy Recovery.

Reuse: use of a product more than once in its same form for the same or different purpose without substantial alteration. See "Recycled Product".

RFP: See "Request for Proposals".

RFQ: See "Request for Qualifications".

Roll Off: open-topped rectangular containers for storage, collection and transport of Solid Waste that are rolled on and off flatbed collection vehicles via winches or reeving cylinders (hooks), originally servicing Commercial, Institutional and Industrial Solid Waste but increasingly servicing Drop-Off Centers for Residential Solid Waste or Recyclables or sites that generate C&D Debris. See also "Debris Boxes".

Route Efficiency: measurements of efficiency or productivity of a collection vehicle from the time it leaves the maintenance yard until it returns from collecting Solid Waste or Recyclable Materials and delivering them to Solid Waste Management facilities. Efficiency may be measured in various ways, including stops / route, time / route, cycling time, time between stops, etc.

Route-Selected Recyclables: Recyclables collected by a hauler with scheduled stops structured to minimize contamination of Recyclables by Garbage, Refuse or other unacceptable materials and maximize Resource Recovery, such as excluding restaurant and grocery stores from routes that collect paper from office buildings.

Sanitary Landfill: engineered Solid Waste disposal method on the land in accordance with Subtitle D, designed and operated to protect human health and the environment by establishing requirements with respect to location, operation, design, ground water monitoring, corrective action, closure and post-closure, and financial assurance.

Scavenging: (1) theft of Recyclable Materials set out by the generators, prior to collection by the hauler, done by individuals or illicit businesses, and (2) uncontrolled (and generally unsafe) removal of Recyclable Materials from the working areas of a Sanitary Landfill, Transfer Station, MRF or other Solid Waste Management Facility.

Side Loaders: collection vehicles that are loaded from the side manually or with fully or semi-automated mechanical arms that grip containers (primarily small residential carts), lift them overhead, and empty them into the collection vehicle. Compare "Front End Loaders".

Single Stream Recycling: See "Commingled Recycling".

Small Quantity Generator (pronounced SQEEGY): facilities that generate very small quantities of Hazardous Waste, between 100 kg. (220 lbs.) and 1000 kg. (2,200 lbs.) per calendar month. The regulatory requirements for Small Quantity Generators are less stringent than persons who, or entities that, generate larger quantities of Hazardous Waste.

Solid Waste: any Garbage, Refuse, sludge, and other discarded material, including solid, liquid, semisolid, or contained gaseous material, resulting from residential habitation; industrial, commercial, mining, and agricultural operations; and community activities. This definition may vary under diverse local, state, provincial and national laws.

Solid Waste Combustor: furnace that combusts Solid Waste as defined in regulations promulgated under the US Clean Air Act. Solid Waste Combustors are subject to stringent federal regulations that control the combustion process and establish emission limits for various air pollutants including Dioxin, Heavy Metals, acid gases (hydrogen chloride and sulfur dioxide), particulates and nitrogen oxides.

Solid Waste Combustor Ash: noncombustible residue remaining after the combustion of Solid Waste. **Bottom ash** is the noncombustible residue that falls to the bottom of the combustion chamber and is removed mechanically. **Fly ash** is particles of noncombustible residue that are entrained in the exhaust gases during combustion prior to exhaust into the atmosphere.

Solid Waste Disposal: the discharge, deposit, injection, dumping, spilling, leaking or placing of Solid Waste on or in the land or water. This definition may vary under diverse local, state, provincial and national laws. **Solid Waste Infrastructure:** facilities, furnishings, equipment, systems and programs developed to provide Solid Waste services, including privately or publicly owned or operated collection fleets, transfer stations, MRFs, composting facilities, Sanitary Landfills, Solid Waste Combustors and other Solid Waste Disposal facilities, or operation or service contracts therefor.

Solid Waste Management: planned and organized handling of Solid Waste and Recyclable Materials in an environmentally and economically sound manner, encompassing the generation, storage, collection, transfer, transportation, processing, Resource Recovery, Reuse, and disposal of Solid Waste and Recyclable Materials and including all administrative, financial, educational, environmental, legal, planning, marketing and operational aspects thereof.

Source Reduction (or Waste Reduction)**:** actions taken to reduce Solid Waste toxicity or disposal, including (1) manufacturers' redesign and management of products and packaging to extend product life, and facilitating repair, (2) consumers' reduced purchase and consumption of products that become wastes; and (3) manufacturers' and consumers' reuse of products**.**

Source Separated Recyclables: Recyclable Materials that are sorted and removed from Refuse, Garbage and Commingled Recyclables by the generator or owner of those Recyclable Materials so that they can be collected in different containers for Recycling or Composting. Examples include sorting newspapers, glass bottles, metal cans, plastic containers, corrugated cardboard, office papers and lawn and garden wastes. Contrast "Commingled Recyclables" and "Single Stream Recyclables".

Subtitle C: section of RCRA that authorizes U.S. EPA to establish regulations regarding Hazardous Waste management

Subtitle D: section of RCRA that authorizes U.S. EPA to establish regulations for Sanitary Landfills.

Superfund: common name for CERCLA, including generally the entire CERCLA program as well as specifically the trust fund established to fund cleanup of contaminated sites. See "CERCLA".

SWANA Certified: describes a Solid Waste professional who meets SWANA's eligibility requirements for education and experience, and who has passed one of SWANA's Certification Exams for a particular Solid Waste management discipline. SWANA currently offers Certification in seven disciplines:

- Management of Collection Systems
- Management of Composting Programs,
- Management of Construction and Demolition Materials,
- Management of Recycling Systems,
- Management of Landfill Operations,
- Management of Transfer Stations and
- Principles of Management of Municipal Solid Waste Systems.

TCLP: Toxicity Characteristic Leaching Procedure, a lab test designed to determine whether a Solid Waste is a Hazardous Waste because it releases toxic chemicals in Leachate.

Tipping Fee: fee charged for accepting Recyclable Materials or Solid Waste at a Solid Waste Management facility (such as a transfer station, Solid Waste Combustor, MRF, IPC or Sanitary Landfill.).

Transfer Station: facility that receives and consolidates Solid Waste or Recyclable Materials from municipal or commercial collection trucks and self-haulers' vehicles and loads the Solid Waste onto tractor trailers, railcars or barges for long-haul transport to a distant disposal facility.

Universal Wastes: several widely generated Hazardous Wastes identified by US EPA (such as batteries, pesticides, thermostats and mercury containing lamps and equipment) that are subject to streamlined requirements for collection, storage and processing if they are Recycled in accordance with law rather than disposed.

Upstream Diversion: Diversion of Recyclable Materials that occurs prior to a specified place or time before setting out the balance of Recyclable Materials at the curb for collection in a Recyclables collection program. An example of Upstream Diversion is as a generator's Source Reduction, charitable donation or delivery of Recyclable Materials to a Buy Back Center

Variable Rates (or PAYT / Pay as You Throw)**:** charges for Solid Waste collection services that incrementally increase with disposed Refuse and Garbage volume (such as 32, 64 or 96 gallon32-, 64- or 96-gallon carts) or weight, with lesser or no charges for Recyclables collection services, to encourage Recycling and discourage disposal. Variable rates do not necessarily reflect actual operational costs but rather constitute behavioral incentives (or disincentives)

WASTECON®: SWANA's Annual Conference and Solid Waste Exposition.

Waste Exchange: organization or service that facilitates or arranges for Recyclable Materials or discarded materials from various generators or industries to be Recycled or Reused by others.

WasteExpo: an annual Solid Waste conference and equipment exposition owned by Primedia, Inc.

Waste Generation: total amount of disposed Solid Waste and diverted Recyclables.

Waste Reduction: See "Source Reduction".

Waste Screening: monitoring and inspecting incoming Solid Waste at a Solid Waste Management facility in order to screen out Solid Waste and other materials that are prohibited or otherwise unacceptable.

Waste-to-Energy: controlled combustion of Solid Waste in Solid Waste Combustors having state-of-the-art pollution controls, and Energy Recovery there from. Types of Waste-to-Energy facilities include **mass burn units** that incinerate mixed Solid Waste with little or no prior separation, and **RDF** (Refuse Derived Fuel) units that separate combustible Solid Waste from noncombustible Solid Waste prior to combustion. See "Solid Waste Combustors" and "Incinerators"**.**

Zero Waste: efforts to reduce Solid Waste generation waste to nothing, or as close to nothing as possible, by minimizing excess consumption and maximizing the recovery of Solid Wastes through Recycling and Composting.