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# **San Francisco Department of Public Works**

## **Municipal Refuse Collection Rates Comparative Analysis**

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Prepared for:

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## Introduction

The San Francisco Department of Public Works (DPW) is responsible for managing programs addressing illegally dumped materials and litter in the City and County of San Francisco (City).

In 2010, the City's Refuse Collection and Disposal Rate Board approved allocating an existing surcharge on refuse rates to the City's Impound Account to pay for removal of refuse from City streets and properties, as well as for programs to prevent littering and illegal dumping. This change in fund allocation had no impact on residential refuse collection rates.

DPW is proposing to continue to allocate the 1.3 percent surcharge on San Francisco refuse rates to the Impound Account to support DPW's litter reduction and illegal dumping pickup programs.

DPW lists the following items as refuse/litter related services to be included in the rate base:

- The incremental cost of hauling wastes from the DPW yard (where it was previously dumped directly into a long-haul truck and taken to landfill) to transfer station and segregating materials (increases diversion)
- Inspection, enforcement and education
- Pickup of abandoned wastes including separation of materials
- Anti-litter campaigns

This memorandum describes background and context for these programs including the regulatory framework and historical solid waste practices in the City. It also describes the generation and composition of discarded materials in the City and presents the result of a survey of communities with similar programs included in the rate base.

## Regulatory Framework for Solid Waste Management

Since the 1960s, federal, state, and city governments have developed a regulatory framework to ensure that solid and hazardous wastes are managed in an environmentally sound manner. Multiple agencies at each governmental level have responsibility for regulating each component of the solid waste management system including collection, processing, and final disposal. Regulation is generally used to set basic standards for waste transportation, handling, and disposal to ensure consistency and to protect public health and the environment. Education and voluntary programs are used to increase recycling, waste reduction, and composting rates; and to promote producer responsibility. Over the last 30 years, regulation of solid waste management has required adherence to increasingly stringent environmental standards.

### Role of the Federal Government in Regulating Solid Waste

The federal government sets basic requirements to ensure consistency among states and regulations to protect public health and the environment. The United States Environmental Protection Agency (U.S. EPA) is responsible for hazardous and non-hazardous solid waste management through the

Office for Solid Waste and Emergency Response. The Resource Conservation and Recovery Act of 1976 (RCRA) established landfill construction, management, and closure guidelines. This act also regulates hazardous waste management facilities that treat, store or dispose of hazardous waste. The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), known as Superfund, was enacted by Congress to address abandoned hazardous waste sites in the U.S. CERCLA has subsequently been amended, by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The Office of Air and Radiation regulates the solid waste-related air emissions, enforcing the Clean Air Act of 1976 (CAA) and subsequent amendments.

### **Role of the State Government in Regulating Solid Waste**

The California Integrated Waste Management Act of 1989, Assembly Bill 939 (AB 939) was the first recycling legislation in the country to mandate landfill diversion goals. California has successfully used AB 939 to motivate cities and counties to reduce reliance on landfill disposal and increase waste diversion through recycling, composting and source reduction. The California Natural Resources Agency's Department of Resources Recycling and Recovery (CalRecycle)<sup>1</sup> administers the California Beverage Container Recycling and Litter Reduction Act (Bottle Bill) which was enacted in 1986. California has historically been more proactive than any other state and the federal government in establishing the regulatory structure to promote zero waste. California will continue in this direction in the future as it works toward a statewide goal of 75 percent diversion by 2020. Assembly Bill 341 (AB 341) established a statewide goal of 75 percent and requires commercial generators (that generate more than four cubic yard per week of solid waste) and multifamily complexes (with five units or more) to recycle.

The California Environmental Protection Agency (Cal/EPA) and the California Natural Resources Agency both regulate hazardous and non-hazardous solid waste management within the state. Within the California Natural Resources Agency, CalRecycle<sup>2</sup> manages non-hazardous waste collection, processing, recycling, and disposal. CalRecycle is responsible for monitoring cities and counties to ensure they are implementing adequate source reduction, recycling, composting, and other diversion methods to meet the AB 939 waste diversion mandates. The Department of Toxic Substances Control (DTSC) focuses on preventing exposure of hazardous chemicals to humans and ecosystems and keeping them out of the waste stream.

The California Air Resources Board (CARB) is responsible for maintaining healthy air quality, including developing the regulations to enforce the Global Warming Solutions Act, Assembly Bill 32 (AB 32), enacted in 2006. With the passage of AB 32, California became a national leader in legislation to reduce greenhouse gas emissions. This act makes a commitment to reduce the state's

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<sup>1</sup> Prior to July 2009, the Bottle Bill was administered by the Department of Conservation, Division of Recycling.

<sup>2</sup> Prior to July 2009, non-hazardous waste collection, processing, recycling, and disposal were managed by the California Integrated Waste Management Board (CIWMB).

emissions to 1990 levels by 2020, which is a reduction of approximately 25 percent from the expected emissions in the absence of regulation.<sup>3</sup>

The local Air Quality Management Districts throughout the state are responsible for ensuring that ambient air quality standards are attained and maintained in their respective air basins. The City is located within the Bay Area Air Quality Management District (BAAQMD), which regulates local air quality. All new construction within the BAAQMD, including solid waste processing and disposal facilities, must undergo a New Source Review in compliance with federal, state and BAAQMD regulations.

### **The City's Role in Regulating Solid Waste**

Under the 1932 Refuse Collection and Disposal Initiative Ordinance the City regulates collectors of discarded materials through 97 exclusive permit areas. Over time, Recology and its predecessor companies have acquired all of the permits and Recology is now the exclusive collector of discarded materials for a fee within the City limits. The City provides oversight, research and outreach while Recology develops infrastructure, provides collection, processing and reporting. Communication and cooperation is crucial. The City affects Recology's activities through the ratemaking process, when the City approves and sets the residential refuse rates. The City also manages Recology's programs in San Francisco through collaboration and problem-solving.

The 1932 Ordinance also requires all San Francisco generators to receive refuse collection service. The City's Mandatory Recycling and Composting Ordinance requires all generators to separate recyclable and compostable materials.

The City is a leader in zero waste and in 2002 established a goal of 75 percent diversion by 2010 and zero waste by 2020. The citywide diversion rate was 78 percent in 2009.

The comprehensive Environment Code, created in 2003, governs the protection of the environment, natural resources and sustainability. The City's environmental ordinances include those addressing:

- Mandatory recycling and composting - requires all generators to separate their recyclable and compostable materials from trash
- Checkout bag reduction – restricts the distribution of single-use checkout bags
- Green building – establishes LEED Gold as the minimum standard for City building projects
- Construction and demolition recycling – requires mixed construction and demolition debris to be delivered to a registered facility with a recovery rate of at least 65 percent
- Food service waste reduction – prohibits the use of polystyrene foam food service ware at food service establishments and City facilities

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<sup>3</sup> Text of AB 32: <http://www.arb.ca.gov/cc/docs/ab32text.pdf> (accessed April 12, 2012)

- Precautionary purchasing – strengthens the City’s environmentally preferable purchasing program and establishes an Approved Alternatives List for City purchases of targeted products
- Green business program – recognizes businesses that demonstrate environmental leadership, exceed minimum regulatory requirements, and take voluntary steps to conserve natural resources and prevent pollution

## Refuse Collection and Disposal Practices

Changes in refuse collection and solid waste disposal practices in the City have been made primarily in response to federal and state legislation and City initiatives.

In the early part of the 20<sup>th</sup> century, the City’s scavengers separated reusable and recyclable materials from household trash. When the bayfill landfills were closing in the 1980s, the City considered building a waste-to-energy facility in Brisbane. When this proposal was defeated, the City obtained a long-term disposal contract for trash and initiated the blue box curbside recycling program.



The City has a responsibility to reduce the toxicity of the solid waste that is ultimately disposed in landfills. Municipalities can be held liable under CERCLA for the solid waste which they generate and send to landfills. In response, the City has established a number of programs to divert hazardous materials from landfills, including: the household hazardous waste facility for residents and small quantity commercial generators; door-to-door pickup of household hazardous waste from residents, takeback programs through retailers for paint, oil, batteries and fluorescent lights; and load-check programs at the transfer station. Recology has also modified waste handling procedures to remove hazardous materials from loads destined for landfill.

AB 939 required the City to plan and implement programs to reach 25 percent diversion by 1995 and 50 percent diversion by 2000. The City developed its innovative three-cart collection program for commingled recycling (blue cart), source-separated composting (green cart) and landfilled trash (black cart) to increase diversion rates. The City’s diversion rate increased from 36 percent in 1995 to 46 percent in 2000.

The City reached 64 percent in 2002 and went on to establish a goal of 75 percent by 2010 and zero waste by 2020. These significantly higher diversion goals motivated the City to expand its recycling and organics collection programs to all generators. Recognizing the limitations of the voluntary programs, the City’s mandatory construction and demolition debris recovery ordinance and mandatory recycling and composting ordinance expanded the City’s diversion programs to all

generators. The City reached 78 percent diversion in 2009 and is now focused on reducing waste delivered to landfills to zero waste by 2020.

As the City focuses on zero waste, all discarded materials streams are being addressed to maximize diversion, including:

- Materials left behind on City buses – Muni has developed a program for diverting recyclable materials, including cans, bottles and newspapers
- Illegally dumped materials – Illegally dumped materials collected by DPW are sorted at the transfer station instead of being transported directly to the landfill
- Street sweepings – The City has analyzed the composition of street sweepings in different neighborhoods to divert uncontaminated organic materials to composting

## Waste Stream Characterization

San Francisco generates approximately 2 million tons of solid waste a year. The City studies the composition and quantity of discarded materials in order to plan and implement policies and programs targeting specific generators and materials streams.

Figure 1 presents the City's diversion and disposal by generator type for 2006, from the most recent generation study data. These figures include tons collected by Recology and other recyclers, and those materials hauled by residents and businesses within the City.

**Figure 1 San Francisco Waste Diversion and Disposal by Generator Type**

	Diverted Tons	Disposed Tons	Diversion Rate
<b>Residential</b>	226,701	222,642	50%
<b>Commercial</b>	944,189	382,197	71%
<b>City Government</b>	244,268	58,565	81%
<b>Citywide<sup>1</sup></b>	1,415,158	663,404	70%

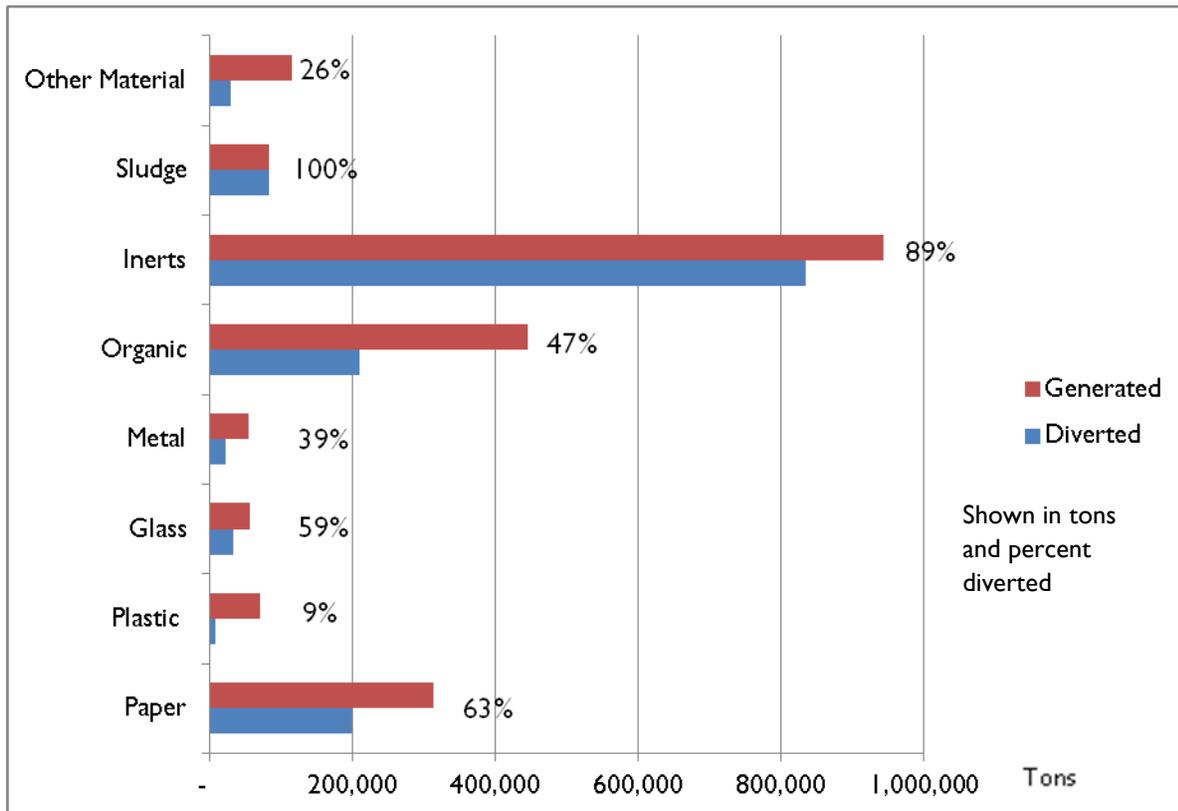
Source: 2006 Generation Study Table

<sup>1</sup>Includes adjustments for biomass diversion

Commercial and City government generators have achieved very high diversion rates. This is due, in part, to the aggressive diversion programs for construction and demolition debris (including inert materials) and sludge residues from the wastewater treatment plant.

Figure 2 presents the breakdown of the waste stream and capture rates by material type. Capture rates illustrate the percentage diversion. For example, out of the total amount of paper generated in the City in 2006, 63 percent was diverted from disposal.

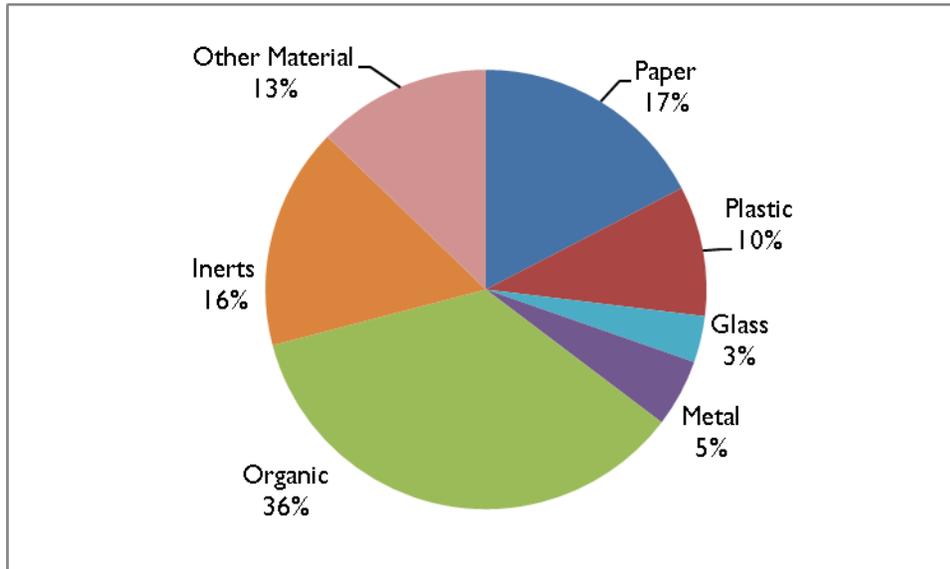
Figure 2 San Francisco Capture Rates by Material Type (2006)



Source: San Francisco 2006 Generation Study Table

Note: "Inerts" include construction and demolition debris, such as asphalt, concrete and soil.

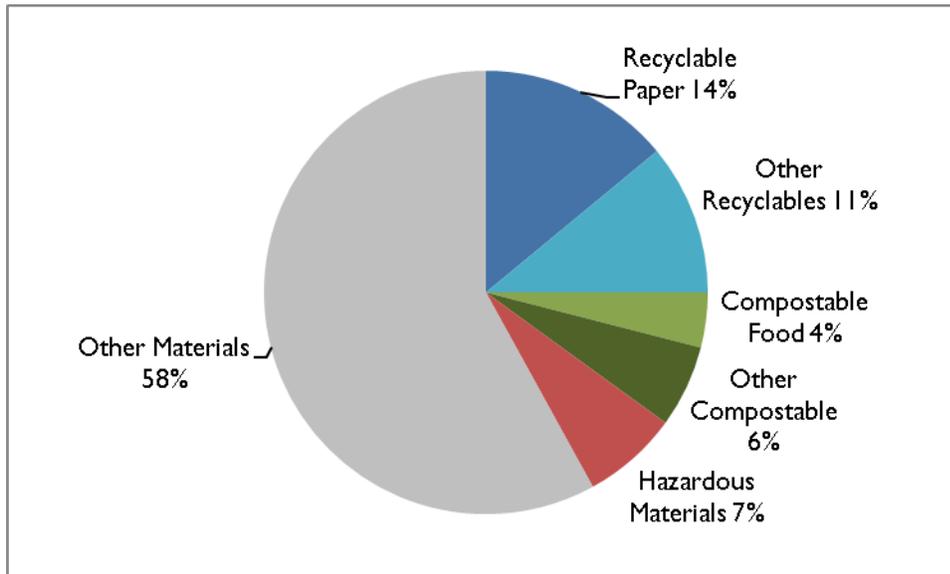
Figure 3 presents the breakdown of the portion of the waste stream that was going to landfill in 2006. Compostable organic materials (including food scraps, yard trimmings and wood) are the largest components of the disposed materials, totaling 36 percent. Recyclable materials (including paper, plastic, glass and metal) are also large components, totaling 35 percent. The City hopes to achieve higher diversion rates with more aggressive programs and separation prior to hauling to the landfill.

**Figure 3 San Francisco Composition of Landfilled Materials**

Source: San Francisco Waste Characterization Study, March 2006

The City also estimated the amount of hazardous materials disposed in landfills. Three percent of the “Other Material” disposed in landfills consisted of hazardous materials, such as paint, pesticides, batteries, gasoline, motor oil, oil filters, asbestos, and medical waste. The vast majority of this material was treated wood and electronics. The City and Recology have since taken additional efforts to address these items. The City takes special care to reduce the amount of hazardous materials disposed in landfills. Recology conducts a load checking program at the transfer station and monitors materials brought into the transfer station by the public and by Recology.

Abandoned waste and illegally dumped materials are collected by DPW and brought to the transfer station where recyclable and compostable materials are diverted from disposal, to the extent possible, and hazardous materials are removed. Figure 4 shows the percentage of recyclable, compostable and hazardous materials in the DPW loads. The materials collected by DPW in packer trucks and through its litter patrol represent less than two percent of the total waste generated in San Francisco.

**Figure 4 Composition Self-Hauled Materials from the Department of Public Works**

Source: San Francisco Waste Characterization Study, March 2006

## Rate Survey

Communities throughout California and across the country take different approaches to how they allocate the costs of municipal programs. Cities typically identify a variety of funding sources for traditional municipal functions, including those required to comply with state and federal regulations. The most common approach to pay for solid waste management costs is through customer collection rates. Charges related to solid waste management are sometimes included in property tax assessments or utility bills.

Services provided by communities and their contractors and paid through collection rates can include:

- Removal of materials placed for collection on premises
- Household hazardous collection on premises or at drop off facilities
- Street sweeping
- Illegal dumping abatement
- Removal of materials placed in city litter cans
- Drop-off facilities for recyclable and reusable materials
- Material processing and marketing
- Residual waste disposal at landfills
- Maintenance and monitoring of closed landfills

- Street repair associated with collection vehicle impacts
- Outreach, education and marketing
- Collection services provided to city facilities
- Collection services provided to schools
- Collection services at special events

## **Stockton**

The City of Stockton, California contracts for collection services through Allied Waste and Waste Management. The city has established exclusive residential collection areas for each service provider and commercial customers throughout the city may receive services from either company. Prior to 2003, the city had provided street sweeping services and seasonal leaf collection as a municipal function. When the city renegotiated the collection contracts in 2003, the city assigned the task of street sweeping to Waste Management and Allied Waste. Allied Waste and Waste Management contract for services with a third-party street sweeping company and pay for these services through the residential and commercial collection rates.

Additional services included in the collection rates include:

- Weekly curbside trash collection
- Single stream recycling
- Used motor oil and oil filters collection
- Green waste and food waste collection
- Seasonal leaf collection
- Street sweeping
- On-call bulky item pickup
- Christmas tree collection
- Recycling and trash collection at special events
- Recycling and trash collection at city facilities, including disposal of abandoned waste picked up by city crews
- Recycling and trash collection at neighborhood cleanup events
- Trash collection from community cleanup events
- Trash collection from city litter cans
- Community workshops
- School outreach programs

- Festival attendance

## San Jose

The City of San Jose, California contracts for residential trash collection services through Garden City Sanitation and GreenTeam, residential recycling through California Waste Solutions and GreenTeam, and residential and trimmings and street sweeping through GreenWaste Recovery. The city is transitioning its commercial collection services to a citywide contract with Allied Waste. GreenWaste Recovery provides weekly collection of yard trimmings in carts and from piles left by residents in the street. GreenWaste provides residential street sweeping on a monthly basis on the same day as trash collection. The costs for the street sweeping services (approximately \$2 million annually) are currently paid out of the Integrated Waste Management Fund, which is supported by customer rates and other sources, and the Storm/Sewer Operating Fund. In fiscal year 2012-13, the city is proposing to shift all of the costs into the Storm/Sewer Fund. The source of funds are fees paid by residents and businesses to the city for services and facilities furnished by the city in connection with its storm drainage system to or for each premise which benefits directly or indirectly.

Additional services provided in San Jose that are reflected in the collection rate base include:

- Trash collection, recycling services
- Public outreach, and administration
- Management of the citywide disposal contract
- Customer billing and customer service
- Household hazardous waste services
- Environmental planning and policy development
- Residential street sweeping
- Environmental facility management
- Closed landfill compliance

## Austin

The City of Austin, Texas provides municipal collection services to residential customers in the city. The Austin Resource Recovery Department receives funding from two sources: residential collection fees and citywide anti-litter fees. The residential collection fee is determined on a “pay as you throw” basis. That is, customers with larger trash collection carts pay more than customers with smaller collection carts. The anti-litter fee is assessed as a flat monthly rate for residential and commercial utility customers; the current rate is \$5 per month for all utility customers. Both fees are paid through the municipal utility bill.

The anti-litter fee raises \$22 million annually and pays for:

- Curbside bulk and large brush collection for single-family homes
- Street sweeping
- Dead animal collection
- Household hazardous waste facility
- Litter collection and street sweeping, and flushing in the downtown area
- Enforcement of some city codes

The residential collection fee pays for:

- Weekly trash collection in automated carts
- Weekly yard trimmings collection in bundles and containers provided by customers
- Bi-weekly single-stream recycling collection
- Closed landfill maintenance
- Outreach, education and marketing
- Recycling drop-off center

## **Sacramento**

The City of Sacramento, California Department of Utilities Solid Waste Services provides trash, recycling, and yard trimmings collection and street sweeping to both residential and commercial customers. Solid Waste Services provides weekly residential trash collection service to more than 124,000 households. The material placed in green trash containers goes to a landfill. Recyclable materials placed in blue recycling containers are sorted at a transfer station and shipped to markets that make products with recycled content. During leaf season, the city collects nearly 27,000 tons of yard trimmings. Yard trimmings are collected loose in the street. Residents with this service can place a single pile of yard trimmings, up to two cubic yards, in front of their homes for collection. More than 100,000 residents participate in the Containerized Yard Waste Collection Program. Participants must use a 96-gallon yard trimmings container for weekly collection and may place yard trimmings loose-on-the-street for collection eight scheduled times per year, during peak seasons.

The Solid Waste Services Department provides bi-monthly street sweeping in most areas of the city. Charges for refuse collection services are paid through the city's utility bill and funds are maintained in the Solid Waste Services enterprise fund.

The Solid Waste Fund is financially responsible for the operation, maintenance, and related capital improvements for the city's refuse collection and disposal services, including yard trimmings, recycling, street sweeping, and a variety of related community service programs (intra-city services). Solid Waste funds are also used to finance landfill site post-closure expenses including the Landfill Site Closure capital improvement project, as required by state law. Revenues are generated from user fees.

Services included in the solid waste utility bill include:

- Trash, recycling and yard waste collection
- Street sweeping
- Household hazardous waste facility
- Curbside collection of used oil and oil filters
- Illegal dumping abatement
- Customer service
- Closed landfill maintenance