

Performance Audit

**Department of Public Works**  
**Bureau of Environmental Services**  
**Refuse and Recycling**  
**Divisions**

Report by the  
Office of City Controller

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MICHAEL E. LAMB

CITY CONTROLLER

First Floor City-County Building • 414 Grant Street • Pittsburgh, Pennsylvania 15219

May 28, 2015

To the Honorables: Mayor William Peduto and  
Members of Pittsburgh City Council:

The Office of City Controller is pleased to present this performance audit of the *Department of Public Works Bureau of Environmental Services Refuse and Recycling Divisions* conducted pursuant to the Controller's powers under Section 404(c) of the Pittsburgh Home Rule Charter.

## EXECUTIVE SUMMARY

The Bureau of Environmental Services (ES) is managed by the Director of Public Works and is divided into two divisions, the Refuse Division and the Recycling Division.

The Refuse Division collects regular mixed and bulk refuse from approximately 115,000 residential properties with five dwelling units or less. The Bureau also collects refuse from Pittsburgh municipal buildings, the Housing Authority of the City of Pittsburgh, and the Borough of Wilkinsburg.

The Recycling Division collects residential recyclable materials and monitors businesses served by private haulers for compliance with recycling ordinances.

The Bureau of Environmental Services is organized into four geographic zones, the Northern, Central, Eastern and Southern Divisions. The Bureau collects solid waste and a maximum of two bulk items every week. Recyclable trash from houses and smaller apartment buildings is collected every other week. All trash pickup is curbside.

## Findings and Recommendations

### *Environmental Services*

#### Coordination of Service Routes

Since 2005, the Bureau of Environmental Services has used Route Smart software developed by Route Smart Technologies. The software determines the basic collection routes

and ES customizes the routes with input by the collection crews that factor residential/rental density, length, terrain, tonnage, etc. into the final route.

### ***ES Bureau Vehicle Fleet***

#### 2012 and 2013 Inventory

In 2012 Environmental Services had a fleet inventory of 102 vehicles and in 2013 one pick-up truck was eliminated for an inventory of 101 vehicles. The refuse/recycling packers range from model years 2000 to 2012. The packers are depreciated as a fixed asset on a 72 month (6 year) schedule but remain in use if in good condition. The cost of a packer is approximately \$450,000 per vehicle.

#### 2014 Inventory

**Finding:** ES made several fleet changes in 2014 decreasing the vehicle inventory. Most of the vehicles eliminated were the older 2000 model packers.

### ***PM Scheduling and Compliance***

**Finding:** In 2012 twenty-three percent (23.2%) of the ES fleet and in 2013--17.8% of the ES fleet did not meet the two PM visits per year requirement.

**Recommendation:** The preventive maintenance program is a key component of continuing efficient ES collection. ES Administration should make complying with the twice annual Preventive Maintenance schedule a priority making sure that all packer vehicles receive the service.

#### Turnover Time for PM and Repairs

**Finding:** The PM program is efficient in that it doesn't take ES vehicles out of service for an extended period of time for routine maintenance service.

**Finding:** Contractual repairs constitute the bulk of repairs indicating that the services performed on ES vehicles are primarily for minor repairs and upkeep.

#### Turnover Time for Contractual and Non-Contractual Repairs

**Finding:** For 2012 and 2013, over 90% of the repairs were completed within 24 hours or less indicating that these repairs were minor and attended to promptly.

## Vehicle Age

**Finding:** The average age of the 2013 fleet was 5.5 years for the recycling packers and 8.9 years for solid waste packers. Thirty-four (34) of the 56 refuse packers belong to model years 2000-2004. The age of the ES fleet can affect vehicle performance.

**Recommendation:** Environmental Service began to modernize its fleet in 2014 and should continue to do so. Repair analysis shows that vehicles that have been in service for over seven years are the ones most likely to require extensive garage work and should be retired if possible or reserved for back-up duty.

## *Solid and Bulk Waste Pickup*

### Waste Collected

**Finding:** The amount of garbage collected from 2012 to 2013 decreased by 1,157.9 tons.

**Finding:** The workers collecting the garbage have to estimate weight by eye, heading to the landfill when they believe the truck has reached its 10 ton limit.

### Weight per Truck Load Test

**Finding:** The average loads delivered from daily collection routes indicate that the refuse routes, given the variables, have been planned and scheduled to allow for the maximum daily collection of solid waste.

**Finding:** Environmental Service crews do a good job of knowing when the 10 ton packer trucks are full and to head to the landfill.

## Solid Waste Landfilling

**Finding:** It is to the City's advantage to have two landfill sites available for both travel time reasons and in case one or the other landfill is compromised.

## *Solid Waste Service Agreements*

### Wilksburg and Housing Authority of the City of Pittsburgh

**Finding:** The solid waste collection contract with Wilksburg generates a small profit margin for the City.

**Finding:** Recyclables are not yet separated by all Housing Authority communities. Hi-rise units and the newer multi-apartment units now participate in recycling.

**Finding:** The Housing Authority of the City of Pittsburgh does not provide all its residents with the necessary containers/bags for recycling.

**Recommendation:** All HACP communities should separate their recyclable waste as mandated by PA State Act 101 titled Pennsylvania’s Municipal Waste Planning, Recycling, and Waste Reduction Act and the City Code.

#### Consequences of Not Recycling

**Finding:** The City suffers consequences when the HACP community does not recycle. The City’s landfill fees are increased, no recycling sales revenue is collected and the City does not receive State Grants for recycling performance. This cost is absorbed by City of Pittsburgh taxpayers.

**Finding:** The HACP community receives no repercussions for not following the July 1988 State Act 101 law. That is a 27 year span of non-compliance; 25 years since the City began to comply with Act 101.

**Recommendation:** The next City contract with the HACP should lay out specific guidelines and procedures for the HACP administration to participate in recycling, e.g. each resident must sign an “I agree to recycle” lease provision, provide blue bins etc. If administration and residents do not participate than a non-performance fine should be imposed.

#### Other Service Agreements

**Finding:** The Pennsylvania Intergovernmental Cooperation Handbook and the 2014 Amended Act 47 Recovery Plan suggests that the City should expand its waste collection services regionally if possible.

**Recommendation:** The Law Department should investigate and determine the legality of the City expanding its solid waste collection beyond its borders. If the Law Department deems the expansion of City waste collection into other areas legal, the City should consider the cost/benefits of such an expansion as a potential source of revenue.

### *City Recycling*

#### Residential and Single Stream Recycling Collection

Pittsburgh currently collects paper, cardboard, plastics, metals and glass for recycling. All plastic containers coded #1 through #5 and #7 are accepted, although no Styrofoam or plastic bags are collected.

The City opted for single stream recycling to increase participation and result in more recyclable tonnage being collected. The program proved successful, increasing the amount of recyclable material collected from approximately 11,000 tons in 2008 to 14,000 tons in the following year.

**Finding:** In 2012 and 2013, 30,089.16 tons of recyclable material collected by ES was processed, both generating a fee and not using landfill space.

### Neighborhood Recycling Participation

Since 2007, the Bureau of Environmental Services has conducted residential waste set-out assessments in Pittsburgh neighborhoods. These surveys have shown that the overall recycling participation has grown from 57% in 2007 to 72% in 2013.

**Finding:** Single stream recycling is fulfilling its goal of increased participation in the City's recycling program.

### Act 101 -- 25% Recycling Goal

One of the goals of Act 101 of 1988 was to recycle 25% of the solid waste generated by a municipality.

**Finding:** The City has not yet met the intended 25% recycling goal of Act 101.

**Recommendation:** Environmental Services Administration should continue making efforts to educate the citizens of Pittsburgh to the benefits of recycling in order to reach the 25% recycling goal of Act 101. An outreach effort should be made to work with Pittsburgh Public Schools to have recycling introduced as part of the City educational curriculum.

### *City Recycling Contract and Revenues*

The recycling contract during the audit period was held by Pittsburgh Recycling. The recyclable prices are determined by an industry index that is adjusted monthly.

**Finding:** Pittsburgh Recycling, with its processing facility located on Vespuccius Street in Hazelwood, went into bankruptcy in early 2014 and owes the City for recyclable materials received during 2013.

**Finding:** The loss dollar figures could not be determined for 2013 due to the bankruptcy, though published newspaper reports estimate that the City is owed an estimated \$75,000 - \$100,000 more on an average pay-out of \$35/ton of recyclable material. The final value and settlement of that debt has yet to be determined by the court.

**Finding:** The income derived from recyclable sales in 2013 was seriously affected by Pittsburgh Recycling's bankruptcy, falling to 54% of 2012's level.

### State Grants for Recycling Performance

Municipalities are awarded grants for their recycling programs by the State under sections 902 and 904 of Act 101. The amount of the Section 904 grant is based on the total tons recycled and the recycling rate according to the Pennsylvania Department of Environmental Protection (DEP), and is deposited in the City's general fund. In 2012 and 2013, the City received \$476,031 and \$375,204 in Section 904 grant revenue.

### Cost Impact of Recycling vs. Landfilling

Recycling improves finances in several ways; it requires no landfill fees, generates positive sales revenues and attracts grant funds from the State.

**Finding:** Due to the bankruptcy of the recycling vendor, 2013 was a weak performing year for positive recycling revenues.

### *Green Dates and Yard Waste Pick-Up*

Pittsburgh residents (proof of residency required) can drop off yard waste (including leaves, grass, plants, tree trimmings, branches and shrubs, loose or placed in a paper bag), old tires (limit two) and recyclable material at no cost in a car or SUV (a fee is assessed to larger vehicles or trailers). The City does not accept commercial yard cuttings or scrap.

### Drop off Locations

The Public Works compost/recycling drop-off locations are open Monday through Friday from 8 AM to 2 PM and are located at North Dallas Avenue at Hamilton Avenue (Homewood), Melanchton Avenue at Second Avenue (Hazelwood) and Hassler Street next to Hershel Field (Elliott). Additionally, recyclable materials only (no scrap metal, tires or yard waste) can be dropped off on Matthews Avenue by McKinley Park (Knoxville) and at the Strip District ES site.

Drop off sites for recyclables, compostable materials and tires are limited to the East End and West End of the City. The southern drop-off site is limited to recyclable material only and there is no drop off station of any sort in the northern section of the City.

**Recommendation:** A collection site for yard waste should be considered to serve the southern neighborhoods. ES should also consider the establishment of a drop-off center to serve the northern sector of the City, perhaps at Riverview Park.

## Green Dates and Compost

ES provides two extra days of collection service annually called Green Dates. These days fall on Saturdays in May and November and are scheduled to accommodate residents with their spring and fall yard clean up. All leaves and other yard waste from residents are used as compost.

In 2012, Environmental Services collected 2,810.25 tons of drop-off compost material and in 2013 they collected 3,178.76 tons.

## Compost Contractor

Compostable material is treated by a third party contractor at a facility that is permitted by the State Department of Environmental Protection to meet mandated processing standards.

**Recommendation:** The City should continue to work with environmental groups to educate the public on the benefits of composting for individuals and the community.

## City Controlled Mulching or Composting

**Finding:** The City, in 2013, collected 64% less in yard waste than it did in 1998.

**Finding:** Disposal of yard waste directly costs the City more than landfilling would, although the 10% compost return and indirect costs make its disposal through a third party at least a break-even alternative. Yard waste being treated and re-used rather than mixed with solid waste provides an ecological benefit that helps compensate for the expense.

**Recommendation:** In face of the costs of disposing of yard waste, the City may wish to assess the cost/benefits of starting its own yard waste operation (mulching and/or composting). Such an operation would be eligible for a State Section 902 grant that may cover the majority of its construction costs.

## *Commercial Recycling*

**Finding:** The drop in recyclable materials reported by private collectors decreased the City's Section 904 grant by \$100,827 from 2012 to 2013, a decrease of 21.2%.

**Recommendation:** The City oversight of recycling should be strengthened through both educational and enforcement efforts. Enforcement measures may require a multi-departmental approach, perhaps involving the Department of Permits, Licenses and Inspections and the Public Safety Department, which has the greatest night-time presence of any City department.

## Small Businesses and Apartments

Small neighborhood businesses and apartments have been excluded from City waste collection by City Code Chapter 619 because the City does not have the resources to include them in solid waste collection. However, it could be to both the City and the owners' benefit to establish a limited recycling program for smaller businesses and landlords.

**Recommendation:** The City should examine the possibility of collecting recyclable materials from small businesses and apartments on a test basis. The Director is enabled by City Code section 619.06.(b) to collect recyclable goods by agreement from commercial, rental or institutional clients and by section 619.06.(d) to "...establish pilot recycling programs in certain neighborhoods at his or her discretion."

## *Recycling - City Buildings, Parks, Special Events and the Board of Education*

### City Buildings

The City was cited in the last City Controller's audit for not recycling in its buildings. According to the ES administration and observations, Pittsburgh has changed that policy and now recycles in all the buildings it operates.

**Finding:** The City has acted on the prior audit recommendation and is now substantially more in compliance with its own recycling policies in regard to recycling in its buildings.

### Parks

There are recycling-only trash bins in all the regional parks and in several of the more active neighborhood parks and fields.

**Finding:** Public recycling containers are clearly marked as such. But the bags the refuse is collected in, unlike those of residents who must use a blue bag for recyclable materials, are the same color. This could result in recyclable material being misidentified and considered regular solid waste.

**Recommendation:** The City should consider using a different color plastic bag (preferably but not necessarily blue) to sort its recyclables from solid waste in parks, fields and public buildings.

### Pittsburgh Board of Education (PBOE)

Another observation from the prior ES audit was that the Pittsburgh Board of Education did not have a district-wide policy for the disposal of recyclables, and the individual schools and facilities made the final decision regarding what materials to recycle. The amount of recyclable material separated by the schools varied widely under this policy.

**Finding:** The Pittsburgh School District has yet to implement a district-wide recycling policy for its buildings, allowing the individual schools to determine their own policy. The result is that several City schools do not participate in recycling.

**Recommendation:** As noted before, either through more robust enforcement or education, the City must continue to engage commercial, large residential and institutional entities such as the PBOE to participate in recycling to a greater degree.

### *Special Events Recycling*

**Finding:** Often special events generate large amounts of waste that result in litter, leaving collection and disposal to the City and the DPW crew assigned to the area in the event's wake.

**Recommendation:** The City should be more stringent in the waste collection efforts during and after special events, both during the planning stage and the event itself. The event sponsors should sort and collect waste generated by the event, according to the pre-event plans that are a required part of the permit process.

An organization known as Waste Watchers has volunteers in 31 American cities who work at big public events, separating waste into trash, recycling and compost.

**Recommendation:** The City, while providing assistance in planning and waste collection for special events, should be more robust in its efforts to police these events, perhaps using a private-public model such as Waste Watchers to improve recyclable collection and education.

### *Items Not Recycled By the City*

The items not collected by the City present environmental challenges, but do not lend themselves to municipal collection and disposal.

The City does not collect plastic bags or film used by groceries and other businesses, although they are made of #2 HDPE and #4 LDPE plastic, both of which are recyclable. The same is true of #6 expandable polystyrene (EPS), better known by its trade name of Styrofoam, which is classified as a miscellaneous plastic and is also recyclable. The two major issues that prevent their collection is that neither can be collected by truck as the material must be pristine, with no food or other stains, to be processed. Both also require specialized processing, so the plants and vendors are limited.

#### Plastic Bags and Plastic Film

The environmental problem with single-use plastic bags is that they do not biodegrade even when properly landfilled.

**Recommendation:** A more active residential educational program should be established to bolster the recycling of film plastic material along with City collaboration with private recyclers. The City should use its variety of resources, such as The Clean City Commission, to partner with private sector plastic bag recycling efforts and businesses that emphasize reusable totes.

**Recommendation:** The City should consider allowing residents to drop off plastic bags at its already existing recycling centers and at municipal gathering spots such as the City-County Building, recreation centers and senior centers. In lieu of seeking a recycler, the City should work with the stores that already collect and recycle plastic bags to dispose of plastic film.

## Styrofoam

Styrofoam is neither biodegradable nor easily recycled by municipalities. The recycling collection is limited mainly to expanded polystyrene (EPS) packing material as plates or drink glasses cannot be recycled because after use, they are contaminated. Contaminated EPS containers can only be treated as solid waste. NOVA Chemical of Monaca has partnered with the Pennsylvania Resource Council and The Appliance Warehouse to collect and accept EPS. The Appliance Warehouse, on Bingham Street in the South Side, is the only business that collects EPS from the public for recycling in the City.

**Recommendation:** The City and the Clean City Commission should examine a possible partnership with NOVA Chemical, Appliance Warehouse or any other interested firms for the drop-off collection and disposal of EPS.

**Recommendation:** The City should consider measures to limit the use of EPS, as the reduction of its use would be the most effective method to control its impact on the local waste.

## Electronic Waste (e-waste)

The City does not collect electronics such as computers, computer peripherals or televisions, in compliance with Pennsylvania Act 108 of 2010, the Covered Devices Recycling Act. ES's annual newsletter refers people to the recycling hotline, or to check [www.pittsburghpa.gov](http://www.pittsburghpa.gov) or to check [www.depweb.dstate.pa.us](http://www.depweb.dstate.pa.us) – DEP Programs A-Z Electronics Recycling. On these websites companies that collect e-waste, for a fee or free, are listed.

## Other Not-Collected Materials

Appliances that contain Freon, batteries, cell phones, commercial construction debris, chemicals, oil, medications, tires, paint or hazardous/infectious waste are also excluded from curbside collection.

Pittsburgh partners with Allegheny County and other organizations to provide disposal opportunities for these items.

## Hazardous/Pharmaceutical Waste

Pittsburgh considers hazardous wastes as defined under the Pennsylvania Solid Waste Management Act, 35 P.S. 6018.103, as amended. The Pennsylvania Department of Environmental Protection (DEP) generally defines household hazardous wastes (HHW) as those produced in households, such as paint related products, pesticides, pool chemicals, drain cleaners, batteries, degreasers and many car care products. The City does not collect explosive, medical, chemical, hazardous, infectious or flammable materials.

**Finding:** The City has no dedicated hazardous waste program.

**Recommendation:** The City should continue to partner with other institutional and industry groups or with private disposal agencies to sponsor community pick-up days. This type of collection event is especially advantageous for the inclusion of City neighborhoods that because of distance, convenience or other reasons do not regularly participate in e-waste, hazardous waste and unwanted/expired pharmaceutical recycling and disposal.

## *Complaints and Claims Made Against Environmental Services*

### 311 Response Center Complaint Logs

The City of Pittsburgh's 311 Response Center (311) takes calls regarding the Bureau of Environmental Services' performance.

**Finding:** The Southern Division accounted for the most complaints in 2012 and 2013. In 2012 they had 901 (33.8%) complaints and in 2013 they had 1,064 (38.9%) complaints.

### Resident Code Violations Complaints

The majority (40.5%) of complaints from the Southern Division were for Resident Code Violations or neighbors reporting other neighbor's code infractions.

**Recommendation:** With the volume of complaints made from the Southern Division concerning Resident Code Violations, ES should increase its educational and enforcement efforts in that district.

### Collection Complaints

The largest problem type recorded to the 311 Response Center involved missed bag pick-ups or collection issues. ES management stated that many of these missed bag collection complaints are from residents who set out their bags late, in inaccessible areas or are filled with materials that ES doesn't collect. ES management states that door hangers or stickers are left on

the house door or garbage bag explaining why the bag was not picked up if it was in violation of ES pick-up regulations.

### Personnel Complaints

In the Controller's 2009 ES Audit Personnel Complaints accounted for 4.5 % of all complaints received by the 311 Response Center. During 2012 and 2013, Personnel Complaints totaled 3.4% of the total ES complaints received by the City's 311 Response Center.

**Finding:** The overall percentage of complaints concerning the behavior of ES Personnel has decreased by 1.1%. This may indicate satisfactory performance by the ES workforce or that the neighbors aren't complaining as much. This cannot be determined.

### *Law Suit Claims Made Against Environmental Services*

During 2012-13, there were 115 incidents that resulted in a claim being filed against ES with the City Law Department, (four cases remained open during the audit period). Most incidents (54) involved a refuse truck damaging a resident's vehicle or property. Other common incidents that were reported were missing items such as garbage cans (38), property damage by an ES employee (6), or property damage by an ES vehicle (17).

**Finding:** During 2012 and 2013, damage caused by 71 ES vehicles incidents represented 61.7% of the total number of claims and accounted for \$57,049.66, or 96.9% of money awarded.

### *City Code Enforcement by ES*

The Refuse Division enforces the City Code ordinances for refuse violations of all residents and businesses. Violations can result in ES citing the offenders. A code violation may be reported by the foreman, an ES crew member, or through the City's 311 Response Center. The goal of ES is voluntary compliance with refuse regulations, so the first step once a violation is discovered is usually to issue a warning rather than a citation. For most people a warning solves the problem. The Refuse Division keeps a database record of the citations it issues from the date of issuance until resolution.

### Number of Citations

ES cites the owner of the property where the violation occurs. It is the owner's responsibility to correct the code violation.

**Finding:** In 2012-2103, the Northern Division was issued the most citations, 124 or 44.3%, followed by the Central Division, with 102 or 36.4%. These two divisions accounted for 80.7% of the total number of citations issued.

The division with the most complaints during the audit period, the Southern, had the next to lowest percentage of citations issued. The Northern division is easily the most active in enforcement, issuing 124 (44.3%) of the citations.

**Recommendation:** ES should investigate the large disparity between the Central and Northern Divisions number of citations and the Eastern and Southern Divisions citation numbers. ES should strive to have equal enforcement emphasis from all its divisions.

#### Type of Citations

**Finding:** Five categories of violations, Accumulation of Waste, Improper Storage of Waste, Early Set out of Trash, Littering/Dumping and Non-Separation of Solid/Recyclable Waste, accounted for 92.5% of the total citations issued.

#### Citation Fines and Outcomes

Out of 128 citations in 2012, only one outcome was documented and in 2013, of 152 citations issued, only 40 had an outcome documented. The ES clerk documents the actual fine collected from the issued citation only if the person attending the hearing reports the amount of the fine back to the clerk. The Municipal Courts do not return hearing results to ES.

**Recommendation:** ES management should determine if they want to continue keeping track of the outcomes (fined, dismissed or withdrawn) of each citation. If management decides to keep track of outcome of citations, it should commit to entering every citation result into the database. If the case is dismissed, it should be entered as such in the database. ES should contact the Municipal Courts to establish a timely reporting system for the outcome of each citation in its database.

**Recommendation:** A date as to when the code violation was corrected should be part of the database. Only then can the effectiveness of issuing citations be quantified.

#### *Citation Data Comparison to Prior Audit*

The prior City Controller's audit noted a decrease in citations along with incomplete entries going from 919 in 2007 to 332 in 2008 for a total of 1,251 citations. In 2012-13, 280 citations were issued, a decrease of 78% from the prior audit sample period.

In 2012-13, ES appears to either not be recording all issued citations in the database or the foremen are not performing this assignment with the same level of diligence as they did during the prior audit sample period. While it is possible that violations are at an all-time low, the numbers of complaints made to the 311 complaint center suggest that the violations are on the increase.

## *Workers Compensation*

Bureau of Labor Statistics include a subset of data that shows the most dangerous jobs in America. According to the 2012 National Census of Fatal Occupational Injuries, Environmental Services ranked as the sixth most dangerous job in the U.S. with most of the injuries occurring from lifting heavy items and the handling of hazardous materials.

**Finding:** The injury rate, lost time and severity of injury for ES employees increased in 2012 and 2013 over the previous audit scope period of 2007 and 2008.

The Controller's 2009 audit found that when an extra person was added to the 2 man work crew injuries decreased. The 3 person work crews have not changed.

**Recommendation:** ES should investigate the cause of the increase in injuries and accidents. It may be that employees need a refresher course in safe practices of refuse and recycling collection to reinforce their introductory safety classes.

## Indemnity Payments

The total amount of indemnity payments received by workers in 2012 totaled \$339,985.71. In 2013, the total was \$137,786.48, totaling \$477,772.19 for both years.

## *2014 Biofuel Experiment*

Although initiated after the audit scope closed, it should be noted that the Public Works Department ran a small scale experiment with biofuel conversion of five dump trucks in 2014 with promising results. Biofuel was 25% less expensive than diesel fuel and provided a drastic reduction in greenhouse gas emission, according to results posted in The Municipal Magazine's January 2015 article "Pittsburgh Goes Green(er) – Without CNG." (Natural Gas)

**Recommendation:** While the five dump trucks fitted with an alternate fuel system is a small sample size, the results suggest that DPW should continue to examine alternate fuel sources/systems and extend the testing to ES vehicles. The department already has converted some of its smaller vehicles to natural gas fuel in an effort to curb fuel consumption.

We are pleased that the *Department of Public Works Bureau of Environmental Services Refuse and Recycling Division* agrees with our recommendations and have begun the process of implementing them.

Sincerely,



Michael E. Lamb  
City Controller

## INTRODUCTION

This performance audit of the Department of Public Works Bureau of Environmental Services Refuse and Recycling Divisions was conducted pursuant to Section 404(c) of the Pittsburgh Home Rule Charter. This is a follow up report to the Controller's 2009 audit of the DPW Refuse Division. That audit examined the effectiveness of Bureau operations and compliance with previous audit recommendations.

## OVERVIEW

The Bureau of Environmental Services (ES) is managed by the Director of Public Works. The Bureau of Environmental Services Assistant Director, 4 Supervisors (2 Refuse, 1 Recycling and 1 Program) and 13 Foremen oversee 51 Refuse Drivers and 122 Co-Drivers (helpers). The Bureau had 5 administrative positions in 2012 (Administrator 2, Account Clerk, Communications Clerk and two Clerk 2's). In 2013, there were six Administrative Positions (Administrative Specialist, Account Clerk, two Communication Clerks and two Clerk 2's) according to the 2012-13 City Council Final Budgets. The Bureau also had an Anti-Litter Coordinator and a Lot Coordinator.

ES is divided into two divisions, the Refuse Division and the Recycling Division. The Refuse Division collects regular mixed and bulk refuse from approximately 115,000 residential properties with five dwelling units or less. The Bureau also collects refuse from Pittsburgh municipal buildings, the Housing Authority of the City of Pittsburgh, and the Borough of Wilkinsburg. The Recycling Division collects residential recyclable materials and monitors businesses served by private haulers for compliance with recycling ordinances.

The Bureau of Environmental Services is organized into four geographic zones, the Northern, Central, Eastern and Southern Divisions. The Bureau collects solid waste and a maximum of two bulk items every week. Recyclable trash from houses and smaller apartment buildings is collected every other week. All trash pickup is curbside.

The four divisions collect from 37 solid waste pickup routes and 13 recycling routes each business day. These include two recycling routes that collect from downtown, the North Shore and other City business districts. Wilkinsburg also has two solid waste routes and the Housing Authority has a one front loader refuse route served by ES.

In 2013, the Bureau's refuse and recycling fleet consisted of 101 vehicles: 59 refuse and 14 recycling packers, 21 pickup trucks, three mini packers, and one each of a SUV, minivan, flatbed truck and roll off truck. In addition to trash and recyclable collection, the Division enforces City Ordinances for refuse violations such as early set out of trash and accumulation of waste or bulk items on the sidewalk.

Residents of the City of Pittsburgh can drop off yard debris, tires and scrap metal at one of the Bureau's three drop off sites located in Hazelwood, Elliott and Homewood sections of the City.

## **OBJECTIVES**

1. To evaluate the Bureau's compliance with previous audit recommendations.
2. To evaluate the Bureau's efforts to improve the effectiveness, efficiency and economy of its refuse and recycling operations.
3. To evaluate the Bureau's legal compliance with local and State regulations.
4. To evaluate the Bureau's efforts to increase recycling participation.
5. To evaluate the number, cause and response of citizen complaints regarding waste collection.
6. To evaluate the Bureau's fleet inventory, their preventative maintenance compliance, work order history, and days out of service.
7. To make Recommendations for Improvement.

## **SCOPE**

The audit examined the activities of the Bureau of Environmental Services between January 1<sup>st</sup>, 2012 and December 31<sup>st</sup>, 2013. The 2014 fleet inventory and a biofuel experiment were also examined and noted.

## METHODOLOGY

The auditors met with Director of the Department of Public Works (DPW), the Assistant Director of Environmental Services (ES), and the Program Supervisor to discuss general solid waste and recycling collection issues involving staffing and vehicle fleet, along with existing contracts, service agreements, workers compensation, and code enforcement. Further data and information was supplied by the Recycling Supervisor and Administrator II.

ES provided data on tonnage collected, revenues generated, citations and other statistical information collected by the Bureau.

The auditors obtained the 2012 and 2013 Refuse Division complaint histories from the 311 Response Center. First Vehicle Services and DPW supplied ES's vehicle inventory, while FVS provided the records of ES vehicles serviced under the preventive maintenance program, and vehicles that required unscheduled work due to equipment malfunction or accident. The Fleet Contract manager provided fuel consumption information.

Invoices archived on the City Controller's OnBase software system were examined. A 25% sampling of landfill invoices was used to calculate tonnage per load.

The Law Department supplied the auditors with the 2012 and 2013 Environmental Service Claims report. The Personnel Department provided ES's Workers' Compensation data. Environmental Services supplied a database of citations issued by their department and various statistical data. The contracts and agreements entered into by ES and the Bureau's legal obligations under the City Code and State law were also examined for compliance.

General industry statistics and information was gathered via the internet. The auditors also compared current performance measures with those found in the last ES audit of 2007-08 to determine compliance with the past findings and recommendations.

## FINDINGS AND RECOMMENDATIONS

### Environmental Services

#### Divisions and Routes

Environmental Service’s divisions are divided into four service zones. The Central Division runs between the rivers from the Central Business District downtown to an eastern border consisting of Oakland, Bloomfield, Friendship, East Liberty and Highland Park. The Eastern Division collects from neighborhoods to the east of the Central Division, including the 31<sup>st</sup> Ward (Hays and Lincoln Place). The Northern Division takes in all of the City’s northern and western neighborhoods. The Southern Division serves the communities south of the Monongahela River, extending west to Beechview and Duquesne Heights.

All ES personnel and trucks leave in the morning from one central location in the Strip District. All drivers and co-drivers are on an incentive-based schedule. This means once the route is finished co-drivers (helpers) can go directly home from the route, which is an established practice in the industry for non-automated packer crews and included as part of the labor contract with Teamster’s Local #249. Drivers must dispose of waste at a landfill and drop their truck off at the Strip District lot before concluding their work day.

On a weekly basis, ES collects refuse from approximately 115,000 households. ES administration estimates that refuse packers cover 9,000 miles during a weekly route and recycling packers cover 1,500 miles during recycling pick up (both estimates include landfill trips). Non-recyclable refuse is taken directly to a landfill and recyclable materials are dropped off directly to the vendor’s site in Hazelwood. (ES changed recycling contractors and the drop-off location in 2014.)

The Southern and Northern divisions use the BFI/Allied Waste Management landfill in Imperial while the Central and Eastern Divisions use the Waste Management landfill in Monroeville.

**TABLE 1**  
**Daily ES Routes By Division 2012-13**

Division	Solid Waste Routes	Recycling Routes
Southern	10	3
Eastern	9	3
Northern	8	3
Central	7	2
Wilksburg	2	0
Business Districts	0	2
Housing Authority	1	0
<b>Daily Routes</b>	<b>37</b>	<b>13</b>

*Source: Bureau of Environmental Services*

Since 2005, the Bureau of Environmental Services has used Route Smart software developed by Route Smart Technologies, a proprietary program used by over 200 municipalities and private waste haulers to aid the planning of their collection routes. The software license and maintenance agreement is renewed annually. During the audit period, the fee was \$3,750 in 2012 and \$4,125 in 2013 for a total of \$7,875.

The software determines the basic collection routes for both the City of Pittsburgh and Wilksburg, and ES customizes the routes with input from the collection crews that factor residential/rental density, length, terrain, tonnage, etc. into the final route.

## **Bureau Vehicle Fleet**

### 2012 and 2013 Inventory

In 2012 Environmental Services had a fleet inventory of 102 vehicles and in 2013 one pick-up truck was eliminated for an inventory of 101 vehicles.

In 2013 the City's refuse and bulk pick up was collected by 59 refuse packers. Three of the packers are front loaders that use automatic forks to pick up dumpsters in Housing Authority City of Pittsburgh (HACP) communities. All recyclable material is picked up by 14 blue recycling packers. Eleven (11) are single packers and three are older dual packers. Dual packers have two separate bins located in the back of the vehicle, one for paper and the second for the remaining co-mingled recyclable material. The remainder of the fleet consisted of 3 mini packers, 21 pickups, a SUV, minivan, flatbed truck and roll-off truck.

ES was unable to provide a detailed fleet list, and the auditors had to examine 2012 and 2013 First Vehicle repair work orders to determine the number of ES vehicles available in both years. First Vehicle Services (FVS) is the City's fleet repair contractor.

The refuse/recycling packers ranged from model years 2000 to 2012. The packers are depreciated as a fixed asset on a 72 month (6 year) schedule but remain in use if in good condition. The cost of a packer is approximately \$280,000 per vehicle.

### 2014 Inventory

The 2014 fleet inventory list was obtained from the City Fleet Contract Manager. This person is a City employee who coordinates fleet management between the Administration and other City departments.

**Finding:** ES made several fleet changes in 2014 decreasing the vehicle inventory. Most of the vehicles eliminated were the older 2000 model packers.

In 2014 the number of vehicles decreased from 101 to 92, with the biggest change being a decrease in refuse packers. Seven of their 2000 models, three from 2002 and one from 2008

were retired while three 2013 refuse packers and one 2014 model were added, decreasing the number of refuse packers from 59 to 52. One dual recycling packer was retired and replaced by a back loaded recycling packer. Also, three pick-ups were scrapped and one added.

The City's Fleet Contract Manager's records showed that the average miles per gallon for an ES packer are 2.8 MPG. In 2012, the fleet consumed 199,269 gallons of diesel fuel at a cost of \$629,689. In 2013, ES used 243,809 gallons of diesel at a cost of \$780,189. ES estimates that the packers use 20 gallons of fuel daily on average.

#### Fleet Preventive Maintenance/Inspection

ES maintains the fleet by following a preventative maintenance (PM) schedule to identify routine problems and to inspect the vehicles once a year as required by the State of Pennsylvania. All PM is performed under contract by First Vehicle Services (FVS). All fleet vehicles (solid waste and recycling) are scheduled for PM twice a year. Sometimes a vehicle is pulled from service for repair, and during that time preventive maintenance may also be performed rather than scheduling a separate PM visit.

#### PM Scheduling and Compliance

ES personnel are notified when a vehicle has a scheduled PM date; the vehicle is pulled from service and taken to the First Vehicle garage. Table 2 shows the number of times ES fleet personnel complied with the twice a year PM schedule.

**TABLE 2  
Preventive Maintenance of ES Vehicles 2012-13**

<b>2012 AND 2013 PREVENTATIVE MAINTENANCE (PM) TRIPS PER VEHICLE</b>					
<b>FLEET YEAR</b>	<b>VEHICLES</b>	<b># of PM TRIPS ≥ 2</b>	<b>% of PM TRIPS ≥ 2</b>	<b># of PM TRIPS &lt;2</b>	<b>% of PM TRIPS &lt;2</b>
2012	99*	76	76.8%	23	23.2%
2013	101	83	82.2%	18	17.8%

*\*3 vehicles in 2012 were not included - 1 decommissioned packer in March and 2 pickups that were new in November. Source: First Vehicle Services*

In 2012, there were 3 vehicles that did not have any PM visits documented. The vehicles were 3 refuse packers. Twenty (20) other vehicles were inspected once. In 2013, there were 7 vehicles that did not have any PM visits documented. The vehicles were 4 refuse packers, 1 front loader, 1 dual recycling packer and 1 pickup truck. Another 11 vehicles were inspected just once.

**Finding:** In 2012 twenty-three percent (23.2%) of the ES fleet and in 2013--17.8% of the ES fleet did not meet the two PM visits per year requirement.

### **RECOMMENDATION NO. 1:**

The preventive maintenance program is a key component of continuing efficient ES collection. ES Administration should make complying with the twice annual Preventive Maintenance schedule a priority making sure that all packer vehicles receive the service.

#### Turnover Time for PM

While the solid waste division has 59 trucks to cover 37 routes, the recycling division has just 14 vehicles, along with 3 mini-packers, available to cover 13 recycling routes. This leaves the recycling division especially vulnerable to vehicle downtime.

The auditors analyzed a work order spread sheet provided by First Vehicle. In 2012 and 2013, all vehicles receiving purely PM work (no added repairs required) were back in service within 24 hours.

**Finding:** The PM program is efficient in that it doesn't take ES vehicles out of service for an extended period of time for routine maintenance service.

#### Repairs

All ES vehicle repairs are done by First Vehicle Services (FVS). Repairs are classified as either contractual or non-contractual. Contractual repairs are defined in the FVS agreement as "generally routine vehicle maintenance and repair activities that are reasonably predictable and, therefore, lend themselves to projection and estimation". Examples of contractual repairs are flat tires, broken turn signals, brake adjustments, lights, hydraulic leaks, other fluid checks and fill-up etc. The fees for contractual work are included in the monthly contract fee paid to FVS.

Non-contractual repairs are made on vehicles that are out of service as a result of accidents, weather damage, abnormal use, vandalism, and theft. The costs of these repairs are charged to the City separately, with a cost estimate requiring City approval before work begins.

In 2012, the Environmental Services fleet of 102 vehicles had 3,492 repairs done, of which 2,528 (72.4%) were contractual repairs. In 2013, 101 vehicles required 3,612 repair visits with 2,570 (71.2%) completed as contractual repairs.

**Finding:** Contractual repairs constitute the bulk of repairs indicating that the services performed on ES vehicles are primarily for minor repairs and upkeep.

## Turnover Time for Contractual and Non-Contractual Repairs

It is critical for refuse and recycling packers to be repaired in a timely manner so that the ES fleet can cover their daily routes. Table 3 shows the combined number of contract and non-contract repairs refuse and recycling packers had in 2012-2013 and how long each job took to finish. Negative-time entries were eliminated as reporting errors. Also removed from this analysis were pick-up trucks, mini packers, SUV, minivan, flatbed truck and the roll-off truck.

**TABLE 3**  
**Refuse and Recycling Packer Total Repairs**  
**And Number of Days Out Of Service in 2012-13**

Number of Days Out of Service	2012	%	2013	%
Same Day	2787	86.8%	2947	89.0%
1 Day	125	3.9%	102	3.1%
2-7 Days	174	5.4%	162	4.9%
8-30 Days	95	3.0%	83	2.5%
Over 30 Days	31	1.0%	19	0.6%
<b>Total Packer Repair Jobs</b>	<b>3212</b>	<b>100.0%</b>	<b>3313</b>	<b>100.0%</b>

*Source: First Vehicle Services*

The refuse and recycling packers had a total of 3,212 repair jobs performed in 2012 with 2,912 (90.7%) of the jobs finished within 24 hours or less. In 2013, the packers had 3,313 repair jobs conducted with a total of 3,049 (92.1%) finished within 24 hours or less.

**Finding:** For 2012 and 2013, over 90% of the repairs were completed within 24 hours or less indicating that these repairs were minor and attended to promptly.

In 2012, 25 packers had 31 repairs that took them out of service for more than 30 days, with an average repair time of 67 days. Four (4) of these packers were out of service for over 100 days. In 2013, 14 packers had 19 repairs that took over 30 days to complete and had an average repair time of 90 days. Seven (7) of these packers were out of service for 90 or more days, including three that were over 150 days.

## Vehicle Age

Of those refuse trucks that required repairs of 30 days or more in 2012, 15 packer vehicles (out of 25 in this category, or 60%) were 2004 models or older. In 2013, 10 of the 14 packers (71.4%) that required 30 day or longer repair times were 2005 models or older.

**Finding:** The average age of the 2013 fleet was 5.5 years for the recycling packers and 8.9 years for solid waste packers. Thirty-four (34) of the 56 refuse packers belong to model years 2000-2004. The age of the ES fleet can affect vehicle performance.

## **RECOMMENDATION NO. 2:**

As noted on Pages six (6) and seven (7), the Bureau began to modernize its fleet in 2014 and should continue to do so. As seen by the repair analysis, vehicles that have been in service for over seven years are the ones most likely to require extensive garage work and should be retired if possible or reserved for back-up duty.

### **Solid and Bulk Waste Pickup**

ES operates 37 solid waste refuse routes daily from four City divisions, the Central, Eastern, Northern and Southern. The routes include those in Wilkinsburg and City Housing Authority communities, which are part of the City's service area as per their service agreements.

Curbside pick-ups are made weekly by three-man crews consisting of a driver and two co-drivers (helpers). Two bulk items (large items such as furniture or appliances) can be put out weekly. The routes are checked during the day by the foreman for any potential problems or code violations. Collection is the same day of the week throughout the year, unless a holiday pushes the collection back 24 hours. A newsletter and calendar is sent to each residence in early January to notify them of the collection schedule for that year.

### **Waste Collected**

Pittsburgh collected 96,761 tons of non-recyclable solid waste in 2012 and 95,603 tons in 2013 according to Waste Management & BFI/Allied landfill invoices.

**TABLE 4**  
**2012-13 Non-Recyclable Waste Collected**  
**(Includes Wilkinsburg Borough and Housing Authority collected waste)**

<b>Month</b>	<b>2012 Tonnage</b>	<b>2012 Cost</b>	<b>2013 Tonnage</b>	<b>2013 Cost</b>
January	7,357.16	\$185,445.29	7,494.18	\$194,377.36
February	6,497.35	\$166,691.84	5,928.20	\$153,731.00
March	8,162.79	\$210,491.82	6,707.81	\$170,049.38
April	7,842.10	\$203,196.78	8,374.57	\$212,847.23
May	9,415.35	\$243,875.92	9,140.91	\$232,586.57
June	8,511.54	\$221,105.96	8,366.03	\$213,430.28
July	8,566.57	\$222,543.88	9,920.93	\$253,093.46
August	9,251.19	\$241,378.07	8,702.71	\$222,199.41
September	7,445.90	\$193,541.02	7,819.62	\$199,308.26
October	8,268.27	\$214,844.08	8,224.06	\$205,713.90
November	8,196.89	\$214,007.78	7,439.84	\$189,849.56
December	7,246.18	\$188,200.06	7,484.53	\$190,333.12
<b>TOTALS</b>	<b>96,761.29</b>	<b>\$2,505,322.50</b>	<b>95,603.39</b>	<b>\$2,437,519.53</b>

*Source: Waste Management & BFI/Allied Invoices*

**Finding:** The amount of garbage collected from 2012 to 2013 decreased by 1,157.9 tons.

Routes should generate approximately 10 tons of waste per daily collection; the recommended weight load for the refuse packers. The packers do not have in-truck scales because, according to ES officials, they are both expensive and not consistently accurate.

**Finding:** The workers collecting the garbage have to estimate weight by eye, heading to the landfill when they believe the truck has reached its 10 ton limit.

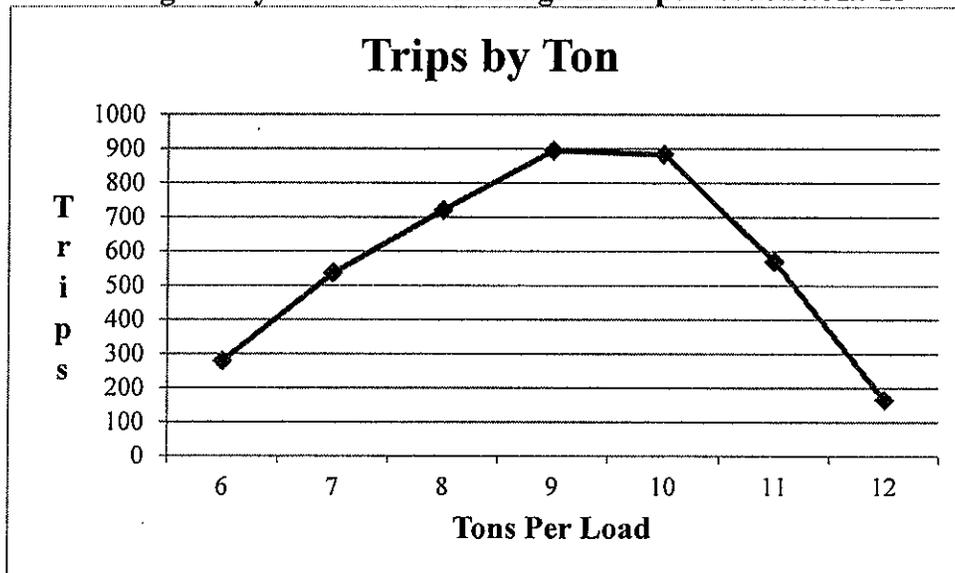
### Weight per Truck Load Test

A random 25% sample of landfill invoices were selected, which shows individual truck loads by weight. Loads of less than five tons were not included because many of these were either overflow loads (when a daily route generates more than one load of waste) or a disposal trip made by another Bureau, such as Animal Control.

This 25% sample consisted of 4,556 total trips with 345 (7.6% of 4,556 total trips) discarded, leaving a total of 4,211 trips. The invoices are submitted from the Monroeville landfill a Waste Management facility and the Imperial landfill which is an Allied facility. Chart 1 and Table 5 show the results of this analysis.

Chart 1 shows the average daily solid waste tonnage per truck load for 2012 and 2013, with the highest amount of trips falling in the 9-10.99 ton range of daily refuse collected; the majority of daily trips collecting between 7-11 tons.

**CHART 1**  
**Average Daily Solid Waste Tonnage Load per Truck 2012-13**



*Source: BFI/Allied & Waste Management landfill invoices*

Table 5 shows the months selected for the sample, the number of trips counted in the sample and the tonnage of every trip. It indicates that the 5-to-9.99 ton daily collection rate of solid waste material makes up 61.58% (2,593 of 4,211) of the trips. When landfill deliveries are expanded to include 10-11.99 ton loads, 96.08% (4,046 of 4,211) of the trips are represented.

**TABLE 5**

<b>Sampled Refuse Collection by Number of Trips, Tonnage and Month (Tons Per Truckload)</b>									
<b>Sample Month*</b>	<b>5 to 5.99</b>	<b>6 to 6.99</b>	<b>7 to 7.99</b>	<b>8 to 8.99</b>	<b>9 to 9.99</b>	<b>10 to 10.99</b>	<b>11 to 11.99</b>	<b>≥ 12</b>	<b>Trips</b>
Feb 2012 (Imp)	10	30	81	97	86	51	15	2	372
Mar 2012 (Mon)	10	12	53	70	116	99	60	8	428
June 2012 (Mon)	13	21	26	62	118	125	56	13	434
Aug 2012 (Imp)	10	8	21	50	98	99	102	44	432
Oct 2012 (Imp)	1	19	34	79	91	98	61	23	406
Nov 2012 (Mon)	3	11	16	36	55	70	41	10	242
Jan 2013 (Imp)	10	34	88	102	65	63	36	6	404
Apr 2013 (Imp)	15	21	38	61	78	133	77	18	441
May 2013 (Mon)	17	12	32	27	52	45	45	14	244
July 2013 (Mon)	7	15	20	13	53	55	58	23	244
Sep 2013 (Imp)	51	65	77	54	33	32	15	4	331
Dec 2013 (Mon)	17	30	50	70	49	13	4	0	233
<b>Totals</b>	<b>164</b>	<b>278</b>	<b>536</b>	<b>721</b>	<b>894</b>	<b>883</b>	<b>570</b>	<b>165</b>	<b>4211</b>

*\*Mon (Monroeville Landfill - Waste Management) and Imp (Imperial Landfill - Allied)*

Different variables of residential refuse output affect tonnage; e.g. bulk collection, weather-related “wet” weight and time of year (especially in college rental areas).

**Finding:** The average loads delivered from daily collection routes indicate that the refuse routes, given the variables, have been planned and scheduled to allow for the maximum daily collection of solid waste.

**Finding:** As shown on Chart 1 (Page 12), Environmental Service crews do a good job of recognizing when the 10 ton packer trucks are full and to head to the landfill.

### Solid Waste Landfilling

The City transports its solid waste to one of two local landfills. One is located in Imperial and operated by BFI/Allied Waste (City Controller contract #50097). It disposes of the trash collected by the Northern and Southern divisions, and requires a 48.6 mile mid-point roundtrip. Waste Management (City Controller contract #50096) operates the Monroeville landfill and accepts the refuse collected by the Eastern and Central divisions, with 20.4 mile round trip required. The contracts began on March of 2013 and run until the end of February 2016.

Both contracts were awarded by the City based on an Allegheny County/City of Pittsburgh cooperative agreement. The Allied bid was for \$22.16 per ton and Waste Management's bid was for \$28.90 per ton. Both landfills offer adequate capacity, and both have at least an estimated 10 year lifespan.

Although Waste Management's tonnage fee was higher, its bid was considered the lowest because of travel time savings due to the nearness of the landfill as determined by the DPW and as calculated in the prior 2009 ES audit by the Controller's Office.

**Finding:** It is to the City's advantage to have two landfill sites available for both travel time reasons and in case one or the other landfill is compromised.

### **Solid Waste Service Agreements**

#### Wilkinsburg

The City entered into an agreement with the Borough of Wilkinsburg in 2007 to "provide full service pickup five days a week of all non-recyclable solid wastes and refuse generated by all single-family dwellings and small apartment buildings in the Borough. The City shall divide the Borough into five pickup areas . . . The Borough shall be responsible for providing for the garbage collection from all multiple family dwellings and commercial, institutional and municipal establishments located within the Borough . . . and for collection of all recyclable materials" per Section 2A of Controller's contract #46470. (Wilkinsburg's Public Works Department collects recyclables and yard waste.) The contract has been extended twice.

The Agreement was executed under the provisions of the State Municipal Waste Planning Act which permits municipalities to contract with a private hauler or another municipality to carry out its duties with regard to transportation, collection, and storage of its municipal waste. Along with the Intergovernmental Cooperation Act which allows joint municipal cooperation. ES operates two daily solid waste collection routes in Wilkinsburg, Monday through Friday.

The service fee is paid monthly and adjusted annually. In 2012, Wilkinsburg paid the City \$851,964 (\$70,997/month) and in 2013 the Borough paid \$877,524 (\$73,127/month) for refuse collection as reported by the Controller's 2012-13 Statements of Revenues.

The auditors approximated the City expenditures required to fulfill the contract by totaling salaries (with 5% overtime), benefits (36% of wages as suggested by the US Department of Labor for union positions), landfill fees, vehicle maintenance/fuel (calculated at \$5,000/month), depreciation, and overhead/ administrative costs (calculated at 7%). The City made a 4.6% profit in 2012 (\$39,204) and 6.6% in 2013 (\$57,743) under the above assumptions.

**Finding:** The solid waste collection contract with Wilkinsburg generates a small profit margin for the City.

## Housing Authority of the City of Pittsburgh

The service agreement in place during the 2012-13 audit period provided that the Housing Authority (HACP) “lease” to the City one new front-loading and one new rear-loading style municipal solid waste packer. In return, the City would “provide garbage collection and disposal services” for five years for HACP community housing complexes and senior high rises. In essence, the HACP provides ES with a pair of vehicles and the Bureau provides collection services with no further fee during the five-year life of the agreement. The service agreement started in 2009.

The Agreement is an amendment to the original Cooperation Agreement of March 31, 1950 between the City and the Housing Authority. That agreement “requires the City to furnish or cause to be furnished to the Housing Authority and its tenants’ municipal solid waste collection and disposal services equal to those provided to other dwellings and inhabitants in the City at no cost or charge, with the exception of bulk items, which will be removed by Housing Authority employees.”

The previous City Controller’s 2009 audit found that HACP did not require separation of its recyclable material from its solid waste, and it was recommended that the Law Department examine the legality of that action. Since that time, ES has partnered with the HACP to educate the residents regarding recycling.

**Finding:** Recyclables are not yet separated by all Housing Authority communities. Hi-rise units and the newer multi-apartment units now participate in recycling.

**Finding:** The Housing Authority of the City of Pittsburgh does not provide all its residents with the necessary containers/bags for recycling.

### **RECOMMENDATION NO. 3:**

All HACP communities should separate their recyclable waste as mandated by PA State Act 101 titled Pennsylvania’s Municipal Waste Planning, Recycling, and Waste Reduction Act and the City Code.

#### Consequences of Not Recycling

There are consequences when residents, businesses and organizations decide not to participate in recycling.

**Finding:** The City suffers financial consequences when the HACP community does not recycle; the City’s landfill fees are increased, potential recycling sales revenue is lost and the City does not receive State Grants for recycling performance. (See page 20.) This cost is absorbed by City of Pittsburgh taxpayers.

**Finding:** The HACP community suffers no repercussions for not following the July 1988 State Act 101 law. That is a 27 year span of non-compliance; 25 years since the City began to comply with Act 101.

#### **RECOMMENDATION NO. 4:**

The next City contract with the HACP should lay out specific guidelines and procedures for the HACP administration to participate in recycling, with residential recycling included in the lease provision, the provision of blue bins etc. If administration and residents do not participate than a non-performance fine should be imposed.

#### Other Service Agreements

ES does not have any service agreements with any other municipalities, commercial businesses, institutional, non-profit clients or large apartment buildings, other than to collect the recyclable material generated by some of the residential units, which is sometimes done by tacit agreement. Waste generated by other than residential customers is collected by private haulers.

The Bureau does not believe that it currently has the manpower or resources to expand into further municipal or commercial collection, particularly for business entities that generate large quantities of waste and require more than once-per-week collection.

ES Administration stated that it has discussed additional municipal collection routes outside the City informally with bordering suburban communities, as eight of the ten most populous municipalities in Allegheny County outside Pittsburgh are served by private waste management firms. The Bureau has concerns not only regarding the resources available to them, but also the legality of competing against private business, in either the municipal or commercial market.

The Pennsylvania Intergovernmental Cooperation Handbook states that “If a municipality is to be the provider of (waste) collection services for other municipalities, the arrangements should be established in an Act 177 agreement”. That would seem to establish a framework for multi-municipal waste collection, as followed by the Wilksburg agreement.

According to the *2014 Amended Act 47 Recovery Plan*, “the City should continue to pursue opportunities to provide services to neighboring communities on a full cost recovery basis, as it is currently providing . . . to the neighboring Borough of Wilksburg”. This suggests that the City should expand its services regionally if and when possible.

**Finding:** The Pennsylvania Intergovernmental Cooperation Handbook and the 2014 Amended Act 47 Recovery Plan suggests that the City should expand its waste collection services regionally if possible.

## **RECOMMENDATION NO. 5:**

The Law Department should investigate and determine the legality of the City expanding its solid waste collection beyond its borders. If the Law Department deems the expansion of City waste collection into other areas legal, the City should consider the cost/benefits of such an expansion as a potential source of revenue.

### **City Recycling**

The City began recycling in 1990 to comply with Pennsylvania Act 101, titled "Municipal Waste Planning, Recycling and Waste Reduction Act" by collecting co-mingled glass, plastics and metals. In 1992, newsprint was added to the acceptable recyclable items with yard debris added the following year, and it remained that way for the next 15 years.

In 2008, the City established a mandatory "single stream" recycling program, allowing all recycled material to be comingled. Pittsburgh decided that recyclables other than paper and cardboard should be packaged in a blue bag. Community supermarkets helped establish the program by providing blue bags for groceries, which were reused as recycling bags.

### **Residential Recycling Collection**

Pittsburgh currently collects paper, cardboard, plastics, metals and glass for recycling.

The paper waste that is recycled includes phonebooks, newspapers, magazines, junk mail, office paper, mixed paper, books, catalogs, paperboard (packaging containers) and pizza boxes (no food tainting or wax paper). Corrugated cardboard that has been flattened is also accepted.

All plastic containers coded #1 through #5 and #7 are accepted; neither Styrofoam nor plastic bags are collected. Metal containers, including aluminum, steel, bimetal aerosol cans and paint cans are collected, along with glass containers. All items must be rinsed and have their lids or caps removed. These items are co-mingled for pick up; that is, they can be mixed within the blue bags. Paper is separated at the curbside, although both it and co-mingled recyclables are mixed and transported together in single trailer packers.

The recyclable material is picked up every other week, on the same day as solid waste's picked up. The refuse is picked up curbside and is set out under the same time guidelines: after 7 PM on the evening prior to collection and before 6 AM on the day of collection. The City services 13 recycling routes daily.

The City also collects recyclables from approximately 130 street containers in a program begun in 2013, paid for by a Pennsylvania Department of Environmental Protection grant. They are located in the Central Business District and several neighborhood business areas. Two crews collect the recyclables from these areas every week.

The recycled material is not handled or sorted in any way by Environmental Services, but hauled directly to the contractor for processing

### Single Stream (Co-mingled) Recycling

The City opted for single stream recycling to increase participation, resulting in more recyclable tonnage being collected. The program proved successful, increasing the amount of recyclable material collected from approximately 11,000 tons in 2008 to 14,000 tons in the following year and was approaching 16,000 tons in 2013. Of that collected material, 94.93% was successfully recycled during the audit period; the remainder (5.07%) could not be processed because of tainting or because it was not recyclable.

**TABLE 6**  
**Recyclable Material Collected 2012-13**

<b>Recyclables</b>	<b>2012 Tonnage</b>	<b>2013 Tonnage</b>	<b>Total Tonnage</b>	<b>% of Total</b>
Blue Bag Material	14,299.60	14,540.20	28,839.80	90.99
Scrap Metal	49.20	58.33	107.53	00.34
Paper/Cardboard	565.23	576.60	1,141.83	3.60
Could Not Process*	798.67	806.57	1,605.24	5.07
<b>Totals</b>	<b>15,712.70</b>	<b>15,981.70</b>	<b>31,694.40</b>	<b>100</b>

*Tonnages provided by the Bureau of Environmental Services \*Spoiled or non-recyclable material*

**Finding:** In 2012 and 2013, 30,089.16 tons (31,394.4 - 1,605.24) of recyclable material collected by ES was processed, both generating a fee and not using landfill space.

### Neighborhood Recycling Participation

Since 2007, the Bureau of Environmental Services has conducted residential waste set-out assessments in Pittsburgh neighborhoods. These surveys have shown that the overall recycling participation has grown from 57% in 2007 to 72% in 2013, per the Mayor's Office. Currently every neighborhood now has over 35% recycling participation. In the 2007 survey, 25% of the neighborhoods fell below that figure.

**Finding:** Single stream recycling is fulfilling its goal of increased participation in the City's recycling program.

### Act 101 -- 25% Recycling Goal

One of the goals of Act 101 of 1988 was to recycle 25% of the solid waste generated by a municipality. *(Note: In the following Table 7, waste collected from Wilkinsburg by service agreement is omitted as the City does not collect its recyclable material.)*

**TABLE 7**  
**Percentage of Recycled/Composted Waste**  
**From the Total of All Collected City Waste**

<b>Year</b>	<b>Solid Waste*</b>	<b>Recyclables</b>	<b>Compost/Tires**</b>	<b>Total</b>	<b>Recycled %</b>
2012	91,262	15,712	2,829	109,803	16.9
2013	90,306	15,981	3,187	109,474	17.5
<b>Totals</b>	<b>181,568</b>	<b>31,693</b>	<b>6,016</b>	<b>219,277</b>	<b>17.2</b>

*\*Waste & compost weight provided by the Bureau of Environmental Services & 2012-13 Landfill Invoices*

*\*\*Tire tonnage taken from 2013 Clean City Commission report*

Solid waste landfill tonnage is decreasing incrementally in Pittsburgh while recyclable collection is increasing incrementally. The trends are encouraging.

**Finding:** The City has not yet met the 25% recycling goal of Act 101.

**RECOMMENDATION NO. 6:**

Environmental Services Administration should continue making efforts to educate the citizens of Pittsburgh to the benefits of recycling in order to reach the 25% recycling goal of Act 101. An outreach effort should be made to work with Pittsburgh Public Schools to have recycling introduced as part of the City's educational curriculum.

**City Recycling Contract and Revenues**

The recycling contract during the audit period was held by Pittsburgh Recycling. The recyclable prices are determined by an industry index that is adjusted monthly. In 2012, recycled material was worth an average of \$33.55/ton (co-mingled - \$32.64/ton, scrap iron \$135.55/ton, paper & cardboard - \$10.93/ton).

**Finding:** Pittsburgh Recycling, with its processing facility located on Vespuccius Street in Hazelwood, went into bankruptcy in early 2014 and owes the City for recyclable materials received during 2013.

**Finding:** The loss dollar figures could not be determined for 2013 due to the bankruptcy, though published newspaper reports estimate that the City is owed an estimated \$75,000 - \$100,000 more on an average pay-out of \$35/ton of recyclable material. The final value and settlement of that debt has yet to be determined by the court.

**TABLE 8**  
**Recycling Sale Revenues 2012-13**

<b>Recyclable Category</b>	<b>2012 Revenue</b>	<b>2013 Revenue</b>	<b>Total</b>
Blue Bag Material	\$466,796.00	\$247,700.00	\$714,496.00
Scrap Metal	\$6,642.00	\$7,874.00	\$14,516.00
Paper/Cardboard	\$6,174.00	\$4,800.00	\$10,974.00
<b>Totals</b>	<b>\$479,612.00</b>	<b>\$260,374.00</b>	<b>\$739,986.00</b>

*Source: Bureau of Environmental Services*

**Finding:** The income derived from recyclable sales in 2013 was seriously affected by Pittsburgh Recycling’s bankruptcy, falling to 54% of 2012’s level.

The revenue collected from the sale of recyclable materials is deposited in the Solid Waste Trust Fund. The Trust Fund was established by Resolution #522 of 1990 to capture miscellaneous solid waste revenues to be used for “training, education, equipment, consultation and construction expenses related to solid waste management”.

#### State Grants for Recycling Performance

Municipalities are awarded grants for their recycling programs by the State under sections 902 and 904 of Act 101. The amount of the Section 904 grant is based on the total tons recycled and the recycling rate according to the Pennsylvania Department of Environmental Protection (DEP), and is deposited in the City’s general fund. In 2012 and 2013, the city received \$476,031 and \$375,204 in Section 904 grant revenue.

The Section 902 grants are dedicated to recycling program development and implementation expenses per DEP. In 2012, the City received \$482,942 in Section 902 grant monies that carried into 2013.

#### Cost Impact of Recycling vs. Landfilling

Recycling improves City finances in several ways; it incurs no landfill fees, generates positive sales revenues and attracts grant funds from the State.

**TABLE 9**  
**Positive Cost Impacts of Recycling 2012-13**

<b>Revenue Category</b>	<b>2012</b>	<b>2013</b>	<b>Total</b>
State 902 Grant	\$482,942.00	\$0.00	\$482,942.00
State 904 Grant	\$476,031.00	\$375,204.00	\$851,235.00
Recyclable Sales	\$479,612.00	\$260,374.00	\$739,986.00
Landfill Costs Avoided	\$406,784.00	\$407,356.00	\$814,140.00
<b>Totals</b>	<b>\$1,845,369.00</b>	<b>\$1,042,934.00</b>	<b>\$2,888,303.00</b>

*Source: Bureau of Environmental Services Landfill Invoices*

**Finding:** Due to the bankruptcy of the recycling vendor and the carry-over of the 2012 State 902 grant, 2013 was a weak performing year for positive recycling revenue.

### **Green Dates and Yard Waste Pick-Up**

Pittsburgh residents (proof of residency required) can drop off yard waste (including leaves, grass, plants, tree trimmings, branches and shrubs, loose or placed in a paper bag), old tires (limit two) and recyclable material at no cost in a car or SUV (a fee is assessed to larger vehicles or trailers). The City does not accept commercial yard cuttings or scrap. The fee schedule, as provided by the Bureau of Environmental Services:

Cars and SUVs	No charge
Cars and SUVs with trailer	\$20.00 per load
Pickups and Vans	\$20.00 per load
Pickups and Vans with trailer	\$30.00 per load
Dumps or Box Vans (only with prior approval from Director of DPW)	\$50.00 per load

### **Drop off Locations**

The Public Works compost/recycling drop-off locations are open Monday through Friday from 8 AM to 2 PM and are located at North Dallas Avenue at Hamilton Avenue (Homewood), Melancton Avenue at Second Avenue (Hazelwood) and Hassler Street next to Hershel Field (Elliott). Additionally, recyclable materials only (no scrap metal, tires or yard waste) can be dropped off on Matthews Avenue by McKinley Park (Knoxville) and at the Strip District ES site.

The yard waste contributes to the compostable material collected by the City on its “Green Date” routes (see Chart 2), while the Clean City Commission’s 2013 Annual Report said that 27 tons of tires were collected in 2012-13 (19 in 2012; 8 in 2013).

Drop off sites for recyclables, compostable materials and tires are limited to the East End and West End of the City. The southern drop-off site is limited to recyclable material only and there is no drop off station of any sort in the northern section of the City.

### **RECOMMENDATION NO. 7:**

A collection site for yard waste should be considered to serve the southern neighborhoods. ES should also consider the establishment of a drop-off center to serve the northern sector of the City, perhaps at Riverview Park.

## Green Dates

ES provides two extra days of collection service annually called Green Dates. These days fall on Saturdays in May and November and are scheduled to accommodate residents with their spring and fall yard clean up. On Green Dates, residents can place an unlimited amount of open brown bags of leaves, grass, trimmings and branches for curbside pickup. Other than these dates, compostable material must be taken to a drop off center for City disposal. ES no longer picks up Christmas trees, but disposes of them with the usual solid waste collection because of collection cost. (Residents can drop-off their Christmas Trees for composting at any regular yard-debris drop-off locations in January).

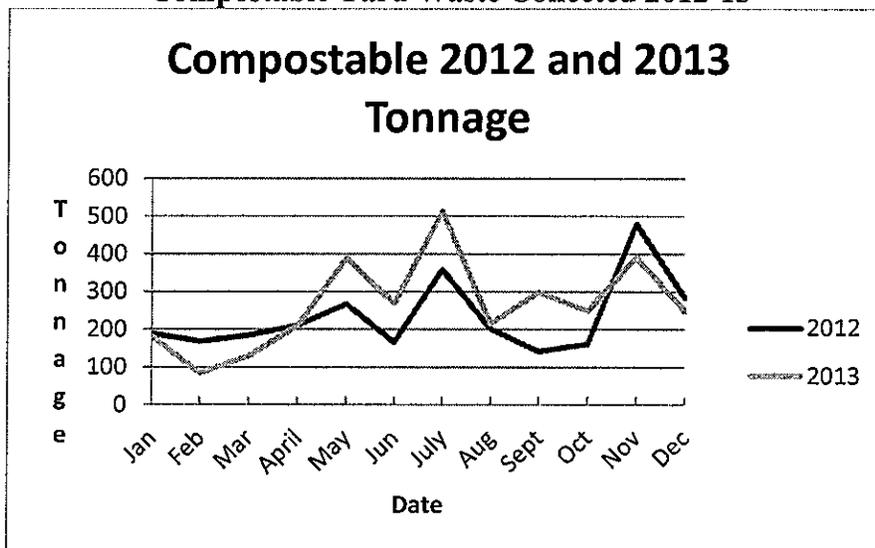
According to ES Administration Green Dates cost the City an estimated \$30,000 per day in collection costs and are limited to twice per year because of the expense.

## Compost

All leaves and other yard waste from residents are used as compost.

In 2012, Environmental Services collected 2,810.25 tons of drop-off compost material and in 2013 they collected 3,178.76 tons.

**CHART 2**  
**Compostable Yard Waste Collected 2012-13**



*Source: Diamond Mulch invoices*

## Compost Contractor

Compostable material is treated by a third party contractor. Because of the large quantity of yard waste to be composted, the compostor must use a facility that is permitted and regulated by the State Department of Environmental Protection to meet mandated processing standards.

Rather than expend limited funds to build and operate such a facility, the City collects the material and then uses a vendor for composting.

The City's compost contract during the audit period was held by Diamond Mulch, also doing business as Emory Tree. (In 2014 Wood Waste became the vendor.) The company collected compostable material collected by ES for a fee of \$30.95 per ton, and provided 10% of the compost created from that material back to the City for use in parks and municipal landscaping. During the audit period, Diamond Mulch handled 5,989 tons of compostable waste at a cost to the City of \$185,359.86, or approximately 3,000 tons of yard waste annually.

As part of the compost contractor's contract Diamond Mulch is to provide 10% of the composted material back to the City for use in parks for landscaping. According to ES records, 285 tons of compost was delivered to the City in 2012 and 335 tons in 2013. With Diamond Mulch billing the City for approximately 3,000 tons of yard waste annually these 10% tonnage return numbers generally meet the contractual requirements.

### **RECOMMENDATION NO. 8:**

The City should continue to work with environmental groups to educate the public on the benefits of composting for individuals and the community.

#### City Controlled Mulching or Composting

R. W. Beck was an international technical-based business consultant firm specializing in energy, water, wastewater and solid waste industries.

In October 13, 1999 a letter from R. W. Beck was written to the program coordinator of the City of Pittsburgh Recycling Program. This letter provided the City's Recycling Program "with the results of R.W. Beck's efforts to assess what would be required to develop, implement and promote a yard waste management facility for the City of Pittsburgh". The letter states that 4,700 tons of residential yard waste was collected throughout the City.

With the City currently collecting approximately 3,000 tons of yard waste annually this is 64% less than the 4,700 tons collected in 1998.

**Finding:** The City, in 2013, collected 64% less in yard waste than it did in 1998.

Part of the reason may be because Christmas tree collection has been eliminated due to costs. Also, yard waste is often left with other solid waste and accepted as curbside pick-up. Both of these factors contribute to the difference in collection tonnage.

**Finding:** Disposal of yard waste directly costs the City more than landfilling would, although the 10% compost return and indirect costs make its disposal through a third party at least a

break-even alternative. Yard waste being treated and re-used rather than mixed with solid waste provides an ecological benefit that helps compensate for the expense.

### **RECOMMENDATION NO. 9:**

In face of the costs of disposing of yard waste, the City may wish to assess the cost/benefits of starting its own yard waste operation (mulching and/or composting). Such an operation would be eligible for a State Section 902 grant that may cover the majority of its construction costs.

### **Commercial Recycling**

The City does not collect recyclable waste from commercial, institutional or large residential (over five units) customers. The City is not legally required to collect that waste stream, and cite a lack of available resources and legal uncertainty to expand its mission.

The larger concerns are still obligated to recycle. According to section 619.06.(b) of the City Code, “Persons who own or operate commercial, institutional, and municipal establishments...” are responsible for recycling the materials they generate that are considered recyclable by the City. Several large institutions such as the University of Pittsburgh and Carnegie-Mellon University have fairly robust recycling programs in place; other non-residential entities are not as compliant.

As reported in the required annual Act 101 reports to the State, Pittsburgh-based commercial, institutional and larger residential entities generated 52,999 tons in 2012 and 31,983 tons in 2013 of recyclable materials.

While City residential recycling tonnage remained steady, City commercial, institutional and large residential recycling amounts fell from 52,999 tons collected in 2012 to 31,983 tons in 2013, a drop of 34.3%.

**Finding:** The drop in recyclable materials reported by private collectors decreased the City’s Section 904 grant by \$100,827 from 2012 to 2013, a decrease of 21.2%.

This suggests that the City should be more diligent in educating or enforcing the larger City non-residential entities as to recycling implementation.

### **RECOMMENDATION NO. 10:**

The City oversight of recycling should be strengthened through both educational and enforcement efforts. Enforcement measures may require a multi-departmental approach, perhaps involving the Department of Permits, Licenses and Inspections and the Public Safety Department, which has the greatest night-time presence of any City department.

## Small Businesses and Apartments

Small neighborhood businesses and apartments have been excluded from City waste collection by City Code Chapter 619 because the City does not have the resources to include them in solid waste collection. However, it could be to both the City and the owners' benefit to examine a limited recycling program for smaller businesses and landlords.

It is possible that both City revenues and its recycling participation rate would grow if small businesses and apartments were included in ES's recycling collection routes. It would also help the businesses financially, as they would not have to pay a private vendor for recyclable waste disposal. There are small neighborhood corridors in Greenfield, Morningside, Stanton Heights and other communities that could serve as beta testers for this concept. This type of program should also be eligible for Section 902 reimbursement.

### **RECOMMENDATION NO. 11:**

The City should examine the possibility of establishing a policy that would allow for the collection of recyclable materials from small businesses and apartments. The Director is enabled by City Code section 619.06.(b) to collect recyclable goods by agreement from commercial, rental or institutional clients and by section 619.06.(d) to "...establish pilot recycling programs in certain neighborhoods at his or her discretion."

## **Recycling - City Buildings, Parks, Board of Education and Special Events**

### City Buildings

The City was cited in the last City Controller's audit for not recycling in its buildings. According to ES administration and observations, Pittsburgh has changed that policy and now recycles in all the buildings it operates.

**Finding:** The City has acted on the prior audit recommendation and is now substantially more in compliance with its own recycling policies in regard to recycling in its buildings.

### Parks

Pittsburgh maintains 171 parks, including Point State Park, five regional parks (Schenley, Frick, Highland, Emerald View and Riverview), several large community parks and many smaller neighborhood parklets and outdoor recreational areas. There are recycling-only trash bins in all the regional parks and in several of the more active neighborhood parks and fields. These are collected by the Public Works Park Maintenance crews and stored in bins for collection.

**Finding:** Public recycling containers are clearly marked as such. But the bags the refuse is collected in, unlike those of residents who must use a blue bag for recyclable materials, are the

same color. This could result in recyclable material being misidentified and considered regular solid waste.

**RECOMMENDATION NO. 12:**

The City should consider using a different color plastic bag (preferably but not necessarily blue) to sort its recyclables from solid waste in parks, fields and public buildings.

Pittsburgh Board of Education (PBOE)

Another observation from the prior ES audit was that the Pittsburgh Board of Education did not have a district-wide policy for the disposal of recyclables, and the individual schools and facilities made the final decision regarding what materials to recycle. The amount of recyclable material separated by the schools varied widely under this policy.

ES has established a more robust working relationship with the PBOE. However, there is still no district-wide policy in place. This not only affects the City's efforts to maximize recyclable collections, but sets a poor example to the students regarding recycling.

**Finding:** The Pittsburgh School District has yet to implement a district-wide recycling policy for its buildings, allowing the individual schools to determine their own policy. The result is that several City schools do not participate in recycling.

**RECOMMENDATION NO. 13:**

As noted before, either through more robust enforcement or education, the City must continue to engage commercial, large residential and institutional entities such as the PBOE to participate in recycling to a greater degree.

Special Events

Organizers of all special and community events who expect 200 or more individuals per day are required, under City Code 619.05.(c), to recycle beverage containers such as glass, plastics, aluminum and steel cans (co-mingled material), and corrugated cardboard. The event sponsor can (1) hire a private hauler to collect recycling, (2) self-haul recyclables collected at the event to a City of Pittsburgh recycling drop-off or a recycling processor, or (3) contact the City of Pittsburgh Recycling Division to determine logistics for the City to collect recycling at the end of the recycling event.

ES's Recycling Division offers assistance to special event organizers with planning and equipment. Event organizers must organize volunteers or provide staff for the collection,

maintenance and supervision of containers during the event. These include City-wide and regional events ranging from the Marathon and Great Race to neighborhood festivals.

The Recycling Division provides an educational booth and special recycling containers at these events. Although the event organizers should collect the waste generated, much of the refuse is generated as litter and picked up the following day as solid refuse and sent to a landfill, according to Public Works employees.

**Finding:** Often special events generate large amounts of waste that result in litter, leaving collection and disposal to the City and the DPW crew assigned to the area in the event's wake.

#### **RECOMMENDATION NO. 14:**

The City should be more stringent in the waste collection efforts during and after special events, both during the planning stage and the event itself. The event sponsors should sort and collect waste generated by the event, according to the pre-event plans that are a required part of the permit process.

An organization known as Waste Watchers has volunteers in 31 American cities who work at big public events, separating waste into trash, recycling and compost.

Philadelphia's Waste Watchers initiative, begun in 2011, has trained more than 1,400 volunteers to help those attending large-scale citywide events separate their waste. They are used to cleaning up after these city-wide events: the Philadelphia Marathon, Broad Street Run, Philadelphia Science Festival Carnival and the Philadelphia Cycling Classic. The initiative is collaborative among the City, the non-profit institutions and corporate community and provides a possible working model for a Public Private Partnership (PPP).

#### **RECOMMENDATION NO. 15:**

The City, while providing assistance in planning and waste collection for special events, should be more robust in its efforts to police these events, perhaps using a private-public model such as Waste Watchers to improve recyclable collection and education.

#### **Items Not Recycled By the City**

ES's annual "recycling/refuse newsletter and calendar" is mailed to every City household and explains what waste is collected and what waste is recycled. It is an 8"x 11" trifold color document that informs City residents of the entire Citywide ES refuse and recycling program. It contains a year's calendar showing the name of their Division, what weeks are recycling weeks, holidays and yard debris pick-up dates. It also has a City map showing the Divisions and drop-off locations around the City.

The items not collected by the City present environmental challenges, but do not lend themselves to municipal collection and disposal. Environmental Services is the City's lead agency, but just one of several actors in the collection and disposal of these items.

The City does not collect plastic bags or film used by groceries and other businesses, although they are made of #2 HDPE and #4 LDPE plastic, both of which are recyclable. The same is true of #6 expandable polystyrene (EPS), better known by its trade name of Styrofoam, which is classified as a miscellaneous plastic and is also recyclable.

The two major issues that prevent their collection is that neither can be collected by truck as the material must be pristine, with no food or other stains, to be processed. Both also require specialized processing, so the plants and vendors are limited. From a municipal collection standpoint, the lack of recyclers and specialized collection needs make plastic bag/film and Styrofoam recycling impractical for the City.

#### Plastic Bags and Plastic Film

The environmental problem with single-use plastic bags is that they do not biodegrade even when properly landfilled. Over many years the bags shred through abrasion, tearing, and photo-degradation into toxic plastic ribbons that contaminate soil and water that enters the food chain. Often, thin plastics are not collected at all and end up as litter. (The amount of flexible plastics generated in the City during the audit period could not be determined. An earlier environmental study estimates that plastic bags make up .4-.5% of most waste streams.)

Some municipalities have addressed this matter legislatively, mostly through an outright ban or a fee per bag in an effort to reduce usage. Pittsburgh is on the first step of the enforcement ladder, with voluntary recycling being handled by stores like Giant Eagle, Target, Lowe's and Walmart. Other groceries and vendors sell reusable cloth bags that can be used repeatedly for shopping trips and other purposes to eliminate the need for plastic or paper bags.

The City's position on reducing/recycling plastic bags is epitomized in ES's annual residential recycling/refuse newsletter and calendar, which simply states "Plastic Grocery Bags – Drop off at grocery or department stores. Do not include with curbside recycling". This is the only public notice given to City residents as to how to dispose of plastic bags.

#### **RECOMMENDATION NO. 16:**

A more active residential educational program should be established to bolster the recycling of film plastic material along with City collaboration with private recyclers. The City should use its variety of resources, such as The Clean City Commission, to partner with private sector plastic bag recycling efforts and businesses that emphasize reusable totes.

**RECOMMENDATION NO. 17:**

The City should consider allowing residents to drop off plastic bags at its already existing recycling centers and at municipal gathering spots such as the City-County Building, recreation centers and senior centers. In lieu of seeking a recycler, the City should work with the stores that already collect and recycle plastic bags to dispose of plastic film.

Styrofoam

Styrofoam is neither biodegradable nor easily recycled by municipalities. The recycling collection is limited mainly to expanded polystyrene (EPS) packing material as plates or drink glasses cannot be recycled because after use, they are contaminated. Contaminated EPS containers can only be treated as solid waste. NOVA Chemical of Monaca has partnered with the Pennsylvania Resource Council and The Appliance Warehouse to collect and accept EPS. The Appliance Warehouse, on Bingham Street in the South Side, is the only business that collects EPS from the public for recycling in the City.

Organizations that voluntarily collect recyclable items that the City does not collect can end their collection efforts at any time. Because of this, ES only publicizes drop-off availability on its website, so if drop-off availability ends the notice can easily be removed. The ES newsletter does not list any private disposal options for items the City does not recycle, but refers the public to its website because it can be kept more current.

**RECOMMENDATION NO. 18:**

The City and the Clean City Commission should examine a possible partnership with NOVA Chemical, Appliance Warehouse or any other interested firms for the drop-off collection and disposal of EPS.

**RECOMMENDATION NO. 19:**

The City should consider measures to limit the use of EPS, as the reduction of its use would be the most effective method to control its impact on the local waste.

Electronic Waste (e-waste)

The City does not collect electronics such as computers, computer peripherals or televisions, in compliance with Pennsylvania Act 108 of 2010, the Covered Devices Recycling Act. ES's annual newsletter states that electronic waste is not collected by the City but does not list any place to take the e-waste. Rather the newsletter refers people to the recycling hotline, or to check [www.pittsburghpa.gov](http://www.pittsburghpa.gov) or to check [www.depweb.dstate.pa.us](http://www.depweb.dstate.pa.us) – DEP Programs A-Z Electronics Recycling. On these websites companies that collect e-waste, for a fee or free, are listed.

## Other Non-Collected Materials

Appliances that contain Freon, batteries, cell phones, commercial construction debris, chemicals, oil, medications, tires, paint or hazardous/infectious waste are also excluded from curbside collection.

Pittsburgh partners with Allegheny County and other organizations to provide disposal opportunities for these items. These collection events are sponsored by government and various private agencies to gather and dispose of waste that requires special treatment. Most of the time a fee for removal of the waste is involved.

The 2015 ES newsletter lists the Appliance Warehouse for recycling of Freon appliances, Construction Junction for used and surplus building materials, Pittsburgh Police headquarters on Western Avenue for disposing of medications and the Pennsylvania Resources Council number for locations and dates of household chemical disposal. The newsletter also lists City drop off locations and hours for tire, yard waste grass and leaves.

## Hazardous/Pharmaceutical Waste

Pittsburgh considers hazardous wastes as defined under the Pennsylvania Solid Waste Management Act, 35 P.S. 6018.103, as amended. The Pennsylvania Department of Environmental Protection (DEP) generally defines household hazardous wastes (HHW) as those produced in households, such as paint related products, pesticides, pool chemicals, drain cleaners, batteries, degreasers and many car care products. The City does not collect explosive, medical, chemical, hazardous, infectious or flammable materials.

Each person in Pennsylvania produces an average of four pounds of HHW each year which adds up to about 25,000 tons/year statewide, according to DEP. These wastes often create environmental and public health hazards. Hazardous waste is disposed by incineration.

The Environmental Protection Agency recommends the following for the disposal of household hazardous wastes:

- **Permanent collection or exchange.** Some communities have a facility that collects HHW year-round with exchange areas for unused or leftover paints, solvents, pesticides, cleaning and automotive products, and other materials for reuse.
- **Special collection days.** Some communities offer designated collection at a central location to ensure safe management and disposal of hazardous household wastes.
- **Local business collection sites.** Some local businesses accept HHW for recycling or proper disposal, generally for a fee.

Unused medications in homes and health facilities can create public health and safety issues. They can be accidentally ingested or stolen. Also, in ever increasing amounts, old

medications are being disposed of as regular trash or flushed, degrading municipal water systems.

The semi-annual National Take-Back Day events are part of an initiative of the U.S. Drug Enforcement Administration (DEA) in coordination with State and local law enforcement agencies. This initiative has launched several nationwide events over the past few years to provide the public opportunities to safely dispose of pharmaceuticals found in their homes.

Other organizations also sponsor pharmaceutical take back events and some law enforcement agencies have collection bins available for the public to drop off their unwanted pharmaceuticals (as does Pittsburgh). Pharmaceuticals are usually disposed of through municipal or hazardous solid waste incinerators.

**Finding:** The City has no dedicated hazardous waste program.

### **RECOMMENDATION NO. 20:**

The City should continue to partner with other institutional and industry groups or with private disposal agencies to sponsor community pick-up days. This type of collection event is especially advantageous for the inclusion of City neighborhoods that because of distance, convenience or other reasons do not regularly participate in e-waste, hazardous waste and unwanted/expired pharmaceutical recycling and disposal.

The solution to recycling and reducing items that are not part of the current waste stream will involve the collaboration of other City departments, the Clean City Commission, local and regional environmental organizations, local businesses, industry groups and an educated public.

### **Complaints and Claims Made Against Environmental Services**

#### **311 Response Center Complaint Logs**

The City of Pittsburgh's 311 Response Center (311) takes calls regarding the Bureau of Environmental Services' performance. The majority of calls are to register complaints, along with service requests, general inquiries and other questions.

Once a complaint is received, the Response Center places it into one of 20 categories of problem types and sends the complaint to the appropriate ES division. Calls are tracked from the time the complaint is registered until it is resolved.

The auditors grouped the 20 categories into three (3) major areas of examination:

- **Residential code violations** are calls from neighbors reporting other neighbor's infractions of City Code Chapter 619 such as early trash set-out, overflowing dumpsters, or failure to recycle.
- **Collection issues** are calls about missed or partial pick-ups of garbage bags; residents complain that their own garbage wasn't picked up. However, this could be because of the residents own errors e.g. putting out too many bulk items, putting out uncollectable material or "blue bags" on the incorrect day, et cetera.
- **Personnel calls** are those calls directly involving ES performance during collection, such as worker conduct, damage to resident property, spillage or equipment issues.

**TABLE 10**

<b>311 RESPONSE CENTER COMPLAINTS for 2012 and 2013 CALLS by ES DIVISION</b>					
<b>DIVISION</b>	<b>2012 CALLS</b>	<b>% OF CALLS</b>	<b>2013 CALLS</b>	<b>% OF CALLS</b>	<b>TOTAL CALLS</b>
CENTRAL	566	21.2%	557	20.4%	1123
EASTERN	584	21.9%	525	19.2%	1109
NORTHERN	608	22.8%	585	21.4%	1193
<b>SOUTHERN</b>	<b>901</b>	<b>33.8%</b>	<b>1064</b>	<b>38.9%</b>	<b>1965</b>
WILKINSBURG	5	0.2%	6	0.2%	11
<b>TOTAL</b>	<b>2664</b>	<b>100.0%</b>	<b>2737</b>	<b>100.0%</b>	<b>5401</b>

*Source: City of Pittsburgh's 311 Response Center*

In the previous 2008-09 Controller's audit complaints received by 311 regarding Environment Services totaled 4,957 calls. In 2012-13, ES complaint calls numbered 5,401, an increase in complaint volume of 9.2%. This suggests both increased awareness and more familiarity with the 311 system by the public.

**Finding:** The Southern Division accounted for the most complaints in 2012 and 2013. In 2012 they had 901 (33.8%) complaints and in 2013 they had 1,064 (38.9%) complaints.

**TABLE 11**

<b>311 RESPONSE CENTER COMPLAINTS for 2012 and 2013 by DIVISION, TYPE and PERCENTAGE</b>						
<b>DIVISION</b>	<b>PERSONNEL</b>	<b>% OF CALLS</b>	<b>COLLECTION ISSUES</b>	<b>% OF CALLS</b>	<b>RESIDENTIAL CODE VIOLATIONS</b>	<b>% OF CALLS</b>
Central	31	16.7%	506	19.2%	586	22.7%
Eastern	43	23.1%	608	23.1%	458	17.8%
Northern	52	28.0%	654	24.8%	487	18.9%
<b>Southern</b>	<b>60</b>	<b>32.3%</b>	<b>860</b>	<b>32.6%</b>	<b>1045</b>	<b>40.5%</b>
Wilkinsburg	0	0.0%	9	0.3%	2	0.1%
<b>TOTAL</b>	<b>186</b>	<b>100.0%</b>	<b>2637</b>	<b>100.0%</b>	<b>2578</b>	<b>100.0%</b>

*Source: City of Pittsburgh's 311 Response Center*

## Resident Code Violations Complaints

The majority (40.5%) of complaints from the Southern Division were for Resident Code Violations or neighbors reporting other neighbor's code infractions.

### **RECOMMENDATION NO. 22:**

With the volume of complaints made from the Southern Division concerning Resident Code Violations, ES should increase its educational and enforcement efforts in that district.

## Collection Complaints

The largest problem type recorded to the 311 Response Center involved missed bag pick-ups or collection issues. In 2012, missed bag pick-up complaints accounted for 1,115 (41.9%) out of the 2,664 calls received. In 2013, missed bag pick-up complaints accounted for 1,205 (44.0%) of the 2,737 calls received.

ES management stated that many of these missed bag collection complaints are from residents who set out their bags late, in inaccessible areas or are filled with materials that ES doesn't collect. ES foreman follow up on complaints and as a general rule collect missed garbage bags within 24-48 hours of receiving the complaint regardless of who is perceived at fault. But if the item is filled with materials that ES doesn't collect, the ES foreman will not collect the bags.

ES management states that door hangers or stickers are left on the house door or garbage bag explaining why the bag was not picked up if it was in violation of ES pick-up regulations.

## Personnel Complaints

In the Controller's 2009 ES Audit Personnel Complaints accounted for 4.5 % of all complaints received by the 311 Response Center. During 2012 and 2013, Personnel Complaints totaled 3.4% of the total ES complaints received by the City's 311 Response Center.

**Finding:** The overall percentage of complaints concerning the behavior of ES Personnel has decreased by 1.1%. This may indicate satisfactory performance by the ES workforce or that the neighbors aren't complaining as much. This cannot be determined.

## **Law Suit Claims Made Against Environmental Services**

During 2012-13, there were 115 incidents that resulted in a claim being filed against ES with the City Law Department, (four cases remained open during the audit period). Most

incidents (54) involved a refuse truck damaging a resident's vehicle or property. Other common incidents that were reported were missing items such as garbage cans (38), property damage by an ES employee (6), or property damage by an ES vehicle (17).

Out of the 111 closed cases, residents won cash awards in 99 (89.2%) for a total settlement amount of \$58,889.34. Only five cases were denied or withdrawn while seven others were closed but still waiting to be finalized. (This "closed but still waiting to be finalized" is the terminology of the City Law Department; it appears final paperwork isn't complete.)

**TABLE 12**  
**2012 AND 2013**  
**ES LAW DEPARTMENT CLAIMS**  
**by INCIDENT and SETTLEMENT AMOUNT**

<b>TYPE OF CLAIM</b>	<b># OF INCIDENTS</b>	<b>SETTLEMENT AMOUNT</b>	<b>% CASH AMOUNT</b>
Damaged Vehicle by ES Vehicle	54	\$30,323.44	51.5%
Personal Property Missing	38	\$1,603.87	2.7%
Property Damage by ES Employee	6	\$235.81	0.4%
Property Damage by ES Vehicle	17	\$26,726.22	45.4%
<b>TOTALS</b>	<b>115</b>	<b>\$58,889.34</b>	<b>100.0%</b>

*Source: City of Pittsburgh's Law Department*

**Finding:** During 2012 and 2013, damage caused by 71 ES vehicles incidents represented 61.7% of the total number of claims and accounted for \$57,049.66, or 96.9% of money awarded.

ES operates 50 routes per day, 281 days per year, and have to drive down every City street to collect refuse despite weather conditions, street width and City terrain. Given these circumstances, 115 claims are a low number of actionable complaints over the two years.

### **City Code Enforcement by Environmental Services**

The Refuse Division enforces the City Code ordinances for refuse violations of all residents and businesses. Division Foremen inspect the streets scheduled for next day pick up. Weekend Foremen are also on duty to pick up any missed refuse from Friday, to inspect for Monday's collection, to help with 311 complaints, Special Events and to do whatever else may be necessary.

A code violation may be reported by the foremen, an ES crew member, or through the City's 311 Response Center. The goal of ES is voluntary compliance with refuse regulations, so the first step once a violation is discovered is usually to issue a warning rather than a citation. For most people a warning solves the problem.

A citation is issued if attempts to obtain compliance have failed. Citations include a description of the violation, its City Code section and the amount of the fine.

Once a citation is written it is sent to the Non-Traffic Violation Section of the Municipal Courts on First Avenue. From there, the court sends a summons to the name and address on the ticket requesting a plea; either guilty or not guilty. If the individual pleads guilty, they return the summons to the courts with the amount of the fine listed on the ticket and the fine money is deposited into the City's General Fund. If the citation is ignored and no plea entered the court will issue a warrant for the individual for failure to respond.

If the individual pleads not guilty, the summons is returned to the courts with a request for a hearing where the defendant can present their case. Cases are heard every other week by a District Justice in the downtown Municipal Housing Court. The foreman who cited the person or their ES representative must appear at the hearing.

The District Judge can uphold, reduce, withdraw or dismiss the citation. If the defendant disagrees with the Housing Court's disposition, he or she can appeal to Common Pleas Court Summary Division.

#### Refuse Citation Database

The Refuse Division keeps a database record of the citations it issues from the date of issuance until resolution. The 2012 database lists the Name of the Person Being Cited, the Address of the Person being Cited, the Address where the Violation Occurs, the Specific Code Violation(s) Number, the Date Typed, the Date Issued, the Division (Northern, Southern, Eastern, and Central), the Citations Number(s), the Person's Name Writing the Citation, the Total Fine, Dismiss or Withdrawn and Hearing Date.

The 2013 database lists all the above but adds the lot and block number, Fine Costs instead of Total Fine and Status instead of Dismiss or Withdrawn. Missing is the Name, City, State and Zip of the person being cited.

#### Number of Citations

Foreman, for ES, cite the owner of the property where the violation occurs. It is the owner's responsibility to correct the code violation. If violations persist, the owner of any rental building will give the tenant name(s) to the foreman so the people actually residing in the unit, who are committing the violation, can be cited and held responsible. In this way one building can have 9 citations issued; 3 tenants with 3 code violations each.

2012 had 32 different address yielding 128 individual citations; 2013 had 62 individual addresses with violations yielding 152 written citations.

**TABLE 13**

<b>2012-2013 TOTAL NUMBER of CITATIONS by DIVISION</b>		
<b>Division</b>	<b># of Citations</b>	<b>% of Citations</b>
Central	102	36.4%
Eastern	23	8.2 %
<b>Northern</b>	<b>124</b>	<b>44.3%</b>
Southern	31	11.1%
<b>TOTAL</b>	<b>280</b>	<b>100.0%</b>

*Source: Bureau of Environmental Services*

**Finding:** In 2012-2103, the Northern Division was issued the most citations, 124 or 44.3%, followed by the Central Division, with 102 or 36.4%. These two divisions accounted for 80.7% of the total number of citations issued.

The division with the most complaints during the audit period, the Southern, had the next to lowest percentage of citations issued. The Northern division is easily the most active in enforcement, issuing 124 (44.3%) of the citations.

**RECOMMENDATION NO. 23:**

ES should investigate the large disparity between the Central and Northern Divisions number of citations and the Eastern and Southern Divisions citation numbers. ES should strive to have equal enforcement emphasis from all its divisions.

Type of Citations

A total of nine (9) different City code violations were found in the ES citation database. Table 14 lists all 9 of the different City code violations with the number and percent of citations.

**Finding:** Five categories of violations, Accumulation of Waste, Improper Storage of Waste, Early Set Out of Trash, Littering/Dumping and Non-Separation of Solid/Recyclable Waste, accounted for 92.5% of the total citations issued.

**TABLE 14**  
**2012 and 2013**  
**NUMBER and PERCENTAGE of CITATIONS**  
**by OFFENSE**

<b>CITY CODE SECTION</b>	<b># of Citations</b>	<b>% of Citations</b>
619.04-A = Accumulation of Waste	66	23.60%
619.03-A = Improper Storage of Waste	58	20.70%
619.03-B = Early Set Out of Trash	58	20.70%
601.11-A = Littering/Dumping	44	15.70%
619.05-A = Non-Separation of Solid/Recyclable Waste	33	11.80%
609.01 = Failure to remove debris	14	5.00%
765.09 = No license for Commercial Hauling of Municipal Waste	4	1.40%
416.02 = Failure to Obtain Permit for Dumpster	1	0.40%
619.12 = Hazardous Waste e.g. Tires etc.	1	0.40%
Code Entered Was Wrong	1	0.40%
<b>TOTAL</b>	280	100.0%

*Source: Bureau of Environmental Services Citation Database*

#### Citation Fines and Outcomes

The 2007-08 databases contained a column listing the possible maximum amount of each citation's fine; a total of \$198,160.00 for the 2 years audit period. Actual fines collected in 2007-08 were \$2,761.50, way less than the maximum amount of the fine.

For 2012 -13 ES no longer documents what the maximum assessed fine could be. The clerk documents the actual fine collected, but only if the ES representative attending the hearing reports the amount of the fine to the clerk. The Municipal Courts do not report hearing results to ES. In 2012-13 the ES database reported \$1,503.50 in fines: \$150 in 2012 and \$1,353.50 in 2013.

The 2012-13 figures could be inaccurate because out of 128 citations in 2012 only 1 outcome was documented and in 2013 out of 152 citations only 40 had an outcome documented. Nineteen (19) of these documented citations resulted in fines.

The 2012-13 ES database, 239 or 85% of the Fine, Status or Dismiss/Withdrawn columns were blank. Either the person pled guilty and paid the fine, or the person attending the hearing is not reporting back to the clerk the hearings outcome. Missing entirely from the database is a date as to when the violation was corrected.

#### **RECOMMENDATION NO. 24:**

ES management should determine if they want to continue keeping track of the outcomes (fined, dismissed or withdrawn) of each citation. If management decides to keep track of outcome of citations, it should commit to entering every citation result into the database. If the case is dismissed, it should be entered as such in the database. ES should contact the Municipal Courts to establish a timely reporting system for the outcome of each citation in its database.

#### **RECOMMENDATION NO. 25:**

A date as to when the code violation was corrected should be part of the database. Only then can the effectiveness of issuing citations be quantified.

#### **Citation Data Comparison to Prior Audit**

The prior City Controller's audit noted a decrease in citations along with incomplete entries going from 919 in 2007 to 332 in 2008 for a total of 1,251 citations. In 2012-13, 280 citations were issued, a decrease of 78% from the prior audit sample period.

In 2012-13, ES appears to either not be recording all issued citations in the database or the foremen are not performing this assignment with the same level of diligence as they did during the prior audit sample period. While it is possible that violations are at an all-time low, the numbers of complaints made to the 311 complaint center suggest that the violations are on the increase.

#### **Workers Compensation**

Bureau of Labor Statistics include a subset of data that shows the most dangerous jobs in America. According to the 2012 National Census of Fatal Occupational Injuries, Environmental Services ranked as the sixth most dangerous job in the U.S. with most of the injuries occurring from lifting heavy items and the handling of hazardous materials.

There are four National Workers Compensation classifications for claims. They are:

- *Incident Only* are claims not requiring time off or medical treatment.
- *Medical Only* are incident claims that involve medical treatment but no indemnity payments (payment for lost time).
- *Restricted Duty* claims involve medical treatment but involve no lost time. However, physical limitations are placed on the claimant, sometimes requiring a temporary alternative job assignment.
- *Lost Time* claims are the most severe cases, requiring medical treatment, indemnity payments and missed work.

TABLE 15

TYPE and NUMBER OF WORKERS COMPENSATION CLAIMS FOR 2012-13					
YEAR	INCIDENT ONLY	MEDICAL ONLY	RESTRICTED DUTY	LOST TIME	TOTAL INJURIES
2012	13	24	32	29	85
2013	23	23	23	21	81
<b>TOTAL</b>	<b>36</b>	<b>47</b>	<b>55</b>	<b>50</b>	<b>166</b>

Source: Department of Personnel and Civil Service

During this audit period, 166 injuries were reported, compared to 131 during the prior audit, an increase of 26.7%. In 2012 and 2013, lost time injuries accounted for 50 or 30% out of the 166 total incidents. This is higher than the previous audit, where in 2007 and 2008, lost time injuries were 15 or 11% out of the 131 total incidents.

**Finding:** The injury rate, lost time and severity of injury for ES employees increased in 2012 and 2013 over the previous audit scope period of 2007 and 2008.

The Controller's 2009 audit found that when an extra person was added to the 2 man work crew injuries decreased. The 3 person work crews have not changed.

**RECOMMENDATION NO. 26:**

ES should investigate the cause of the increase in injuries and accidents. It may be that employees need a refresher course in safe practices of refuse and recycling collection to reinforce their introductory safety classes.

**Indemnity Payments**

The total amount of indemnity payments received by workers in 2012 totaled \$339,985.71. In 2013, the total was \$137,786.48 or \$477,772.19 for both years.

**2014 Biofuel Experiment**

Although initiated after the audit scope closed, it should be noted that the Public Works Department ran a small scale experiment with biofuel conversion of five dump trucks in 2014 with promising results. Biofuel was 25% less expensive than diesel fuel and provided a drastic reduction in greenhouse gas emission, according to results posted in The Municipal Magazine's January 2015 article "Pittsburgh Goes Green(er) – Without CNG." (Natural Gas)

**RECOMMENDATION NO. 27:**

While the five dump trucks fitted with an alternate fuel system is a small sample size, the results suggest that DPW should continue to examine alternate fuel sources/systems and extend the testing to ES vehicles. The department already has converted some of its smaller vehicles to natural gas fuel in an effort to curb fuel consumption.



# CITY OF PITTSBURGH

## Department of Public Works

*William Peduto, Mayor*

*Michael Gable, Director*

May 6, 2015

Mr. Michael Lamb  
City Controller  
City of Pittsburgh  
Pittsburgh, PA 15219

Dear Controller Lamb:

We have reviewed the performance audit of the Department of Public Works/Bureau of Environmental Services. Our changes to the draft audit were made with the Microsoft Word track changes feature and sent electronically to your staff who met with Assistant Director Klimovich and myself to review. The final audit reflects the information we discussed with your staff and we agree with the content. Thank you for working collaboratively for the benefit of the residents of the City of Pittsburgh. If you need to discuss this further please email me or call me at 412-255-2726.

Sincerely,

Michael Gable, CPRP  
Director

MG:kah

C: Guy Costa, Chief of Operations/Mayor's Office  
Bill Klimovich, Assistant Director

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