



OFFICE OF INSPECTOR GENERAL
City of Chicago



REPORT OF THE INSPECTOR GENERAL'S OFFICE:

***DEPARTMENT OF STREETS AND SANITATION
GRID-BASED GARBAGE COLLECTION AUDIT***

JULY 2013

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To the Mayor, Members of the City Council, City Clerk, City Treasurer, and residents of the City of Chicago:

In April of this year Mayor Emanuel announced that the City had completed its transition, begun in June 2012, from a ward-based garbage collection system to a grid-based system.¹ Under the grid-based system, garbage collection service areas and routes are set using “main streets and natural boundaries” rather than the political boundaries of wards.²

The April announcement noted that the new system would result in \$18 million in savings after a full year of implementation. Department of Streets and Sanitation (DSS) Commissioner Charles Williams stated that “[t]he grid system has proven to reduce lost time and increase work productivity not only in refuse collection services, but forestry and graffiti as well.” In addition to reducing lost time and improving work productivity, Commissioner Williams committed himself and his department to continually re-evaluating garbage collection to “identify areas where we can streamline operations and improve our services for residents.”

In December 2012, the IGO initiated an audit to determine what impact the transition to the grid-based garbage collection system had on City resources. Specifically, we sought to validate the changes in trucks and personnel caused by the transition, and to understand DSS management’s intended methodology to maximize operational efficiency on a forward-going basis. Finally, we intended to determine whether the supervisory structure, carried over from the ward-based system, was efficient and effective in the new grid-based system.

Our audit objectives were essentially the very subjects addressed in the Mayor’s April announcement. However, in a meeting during the audit (and prior to April’s announcement) to discuss the specific performance measurements that would be used to manage continuing operations, the DSS Commissioner abruptly ended the meeting and walked out. The Commissioner did not respond to an additional request to continue the discussion.

¹ City of Chicago, “Mayor Emanuel Announces \$18 Million in Savings from Grid Garbage Transition,” April 11, 2013, accessed May 31, 2013,

http://www.cityofchicago.org/content/dam/city/depts/mayor/Press%20Room/Press%20Releases/2013/April/4.11.13_GridGarbageTransition.pdf.

² City of Chicago, “City of Chicago Begins Grid Garbage Collection on Chicago’s North Side,” June 11, 2012, accessed June 25, 2013,

http://www.cityofchicago.org/city/en/depts/streets/provdrs/streets_san/news/2012/jun/city_of_chicago_beginsgridgarbagecollectiononchicagosnorthside.html.

Due to the Commissioner's refusal to cooperate, we were precluded from evaluating the impact the transition had on even simple baseline measures, such as the number of trucks and personnel employed in the garbage collection process. In order to support the Mayor's announced claim of \$18 million savings, however, calculation of this impact by either DSS or the Mayor's Office, with information and analysis supplied by DSS would have been necessary.

Moreover, because DSS provided no specifics on how it would maximize efficiency going forward, we were precluded from determining how Commissioner Williams planned to fulfill his publicly stated commitment to continually re-evaluate routes and resources to identify opportunities to streamline operations and improve services for residents. DSS management did, however, state that the legacy ward-based supervisory structure for the grid-based collection system did not meet the current management needs. Nonetheless, DSS blocked the IGO effort to review or validate management's claimed efforts to correct this self-identified deficiency.

In sum, DSS has implemented a citywide restructuring of a major City service, and when the IGO inquired about forward going improvements to garbage collection, the Commissioner refused to cooperate. His refusal raises significant doubts about the City's commitment to, and ability to effect, continual improvement in this important City service. It also draws attention to the challenges of conducting independent analysis, evaluation, or even validation of information about tax-payer funded City services.

The IGO intends to try auditing this program again in the future. Few City services have an impact on the City as a whole in the way that garbage collection does; we are hopeful our next attempt meets with more success and cooperative partnership from DSS leadership.

Respectfully,



Joseph M. Ferguson
Inspector General
City of Chicago

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I. EXECUTIVE SUMMARY

The purpose of this audit was to evaluate the City's transition from a ward-based to a grid-based garbage collection system and identify how management would continue to drive efficiency gains in the future. The IGO planned to determine what impact the transition to the grid-based garbage collection system had on City resources, measured by trucks and personnel. Furthermore, we intended to gain an understanding of DSS management's intended methodology to maximize operational efficiency on a forward going basis. Finally, we planned to determine whether the supervisory structure, carried over from the ward-based system, was efficient and effective in the new grid-based system.

During the audit, the IGO auditors pressed DSS management about performance measures they would use to monitor operations. However, the Commissioner walked out of the meeting without providing specific answers and continued to refuse to cooperate with the IGO by not responding to an additional request to continue the discussion.

Due to the refusal of the DSS Commissioner to cooperate, the IGO was precluded from determining the impact of the transition on the number of trucks and personnel involved in the garbage collection process. The Department also offered no specifics on how it would ensure maximum efficiency of garbage collection under the new system. Finally, DSS management stated that the legacy ward-based supervisory structure did not meet the current management needs, but the IGO was precluded from reviewing or validating management's efforts to correct this self-identified deficiency.

In April 2013, the Mayor's office issued a press release announcing \$18 million in annual savings resulting from the City's transition to a grid-based garbage collection system. The IGO recommends that DSS substantiate the reported \$18 million dollar savings by publicly releasing the data, calculations and supporting documentation that supports that public assertion. Furthermore, DSS should establish and apply specific performance measurements in the pursuit of continuous improvement as stated by the DSS Commissioner. Finally, DSS should review the current supervisory structure and implement changes to not only address the self-identified operational issues and inefficiencies, but also ensure optimally effective and efficient oversight of the grid-based garbage collection system.

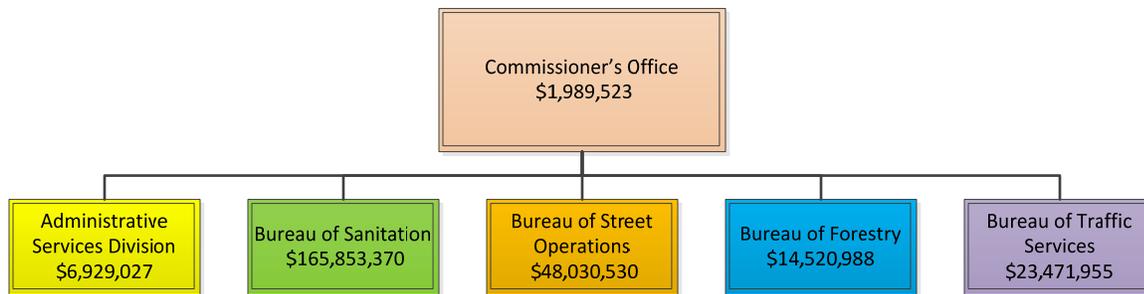
II. BACKGROUND

A. Department of Streets and Sanitation

According to the City of Chicago's 2013 Budget Overview:

The Department of Streets and Sanitation (DSS) manages the collection, recycling, and disposal of residential refuse; sweeps and plows city streets; removes graffiti; cleans vacant lots; coordinates the towing of illegally parked vehicles; enforces sanitation ordinances; abates rodents; and plants and trims trees.³

As listed in the 2013 Appropriation Ordinance, a total of \$260,795,393 was appropriated to fund the Department's five bureaus:⁴



B. Bureau of Sanitation

Residential garbage collection is the responsibility of the Bureau of Sanitation (BOS), the bureau with the largest appropriation of the department. According to DSS's website, BOS is responsible for the following:⁵

- Collecting residential garbage;
- Operating the City's Blue Cart Recycling Program;
- Providing technical assistance and support for the City's recycling initiatives;
- Providing assistance for the development of city-wide waste reduction and management programs and policies; and
- Coordinating street sweeping efforts for city main streets and side streets.

DSS provides weekly garbage collection service for approximately 600,000 residential households of four units or fewer.⁶ Owners of commercial, industrial, and larger residential

³ City of Chicago, "2013 Budget Overview," 112, accessed May 30, 2013, http://www.cityofchicago.org/content/dam/city/depts/obm/supp_info/2013%20Budget/2013Overview.pdf.

⁴ City of Chicago, "Annual Appropriation Ordinance for Year 2013," 15, accessed June 28, 2013, http://www.cityofchicago.org/content/dam/city/depts/obm/supp_info/2013%20Budget/2013ORDINANCEFINAL.pdf

⁵ City of Chicago, "Bureau of Sanitation – What We Do," accessed May 30, 2013, http://www.cityofchicago.org/city/en/depts/streets/provdrs/streets_san.html.

structures are required to procure private waste hauling services.⁷ City garbage trucks collect standard household garbage that residents place in City-provided 96-gallon black carts.⁸ Garbage collection is only for standard refuse, not construction waste, hazardous materials, or recycling. Some residents currently receive a separate recycling service, and the City is in the process of extending recycling service citywide.⁹ Recycling is not included in this audit.

DSS operates both refuse trucks and a few split-body trucks that collect both garbage and recycling. Most of the trucks are staffed by one motor truck driver and two laborers. The trucks are assigned to one of DSS's yard lots. Generally, laborers and drivers report to work at the yard lots and receive their daily assignments before leaving for preset routes. Laborers are shuttled separately to and from each route by DSS's managers, called Refuse Collection Coordinators (RCCs). The RCCs also supervise the laborers and motor truck drivers to ensure completeness of the routes and promote staff productivity. Ward Superintendents oversee the RCCs and coordinate between DSS and aldermen on garbage collection and other issues.

C. The Transition from Ward-Based to Grid-Based Garbage Collection

From June 2012 through April 2013, DSS phased in a grid-based collection system across the City. Prior to 2012, DSS allocated and routed its garbage trucks and staff within each of the 50 wards, with trucks only servicing one ward. Starting in June 2012 at the northeast corner of the City, trucks and personnel began to be assigned based on a grid-based system. The final grid-based system has nine grid regions, bounded by major roads and natural features such as parks or rivers.

The grid-based system eliminated the need for some of the yard lots, as trucks and personnel are no longer allocated to only one ward. Within the grid-based regions, yard lots, trucks, and staff are located strategically and are not constrained by wards. DSS continues to utilize the RCCs for transportation and staff supervision, although they are assigned to regions rather than wards. The 50 ward superintendents, however, remain.

⁶ City of Chicago, "Streets & Sanitation – Residential Garbage," accessed May 30, 2013, http://www.cityofchicago.org/city/en/depts/streets/supp_info/residential_garbage.html.

⁷ City of Chicago, "Sanitation Ordinance," accessed June 26, 2013, http://www.cityofchicago.org/city/en/depts/streets/provdrs/streets_san/svcs/sanitation_ordinance.html

⁸ City of Chicago, "Roll-Out Refuse Carts," accessed June 26, 2013, http://www.cityofchicago.org/city/en/depts/streets/provdrs/streets_san/svcs/roll-out_refuse_carts.html.

⁹ City of Chicago, "City of Chicago Announces Second Phase of Citywide Recycling Expansion," June 4, 2013, accessed June 24, 2013, http://www.cityofchicago.org/city/en/depts/streets/provdrs/streets_san/news/2013/jun/city_of_chicago_announcessecondphaseofcitywiderecyclingexpansion.html.

III. OBJECTIVES, SCOPE, AND METHODOLOGY

A. Objectives

The objectives of the audit were to determine the following:

- What effect has the grid-based collection system had on the number of trucks and personnel required per ton of garbage collected, as compared to the ward-based system?
- Does DSS sufficiently and reliably measure garbage collection performance in order to maximize efficiency?
- Does the supervisory structure of the grid-based collection system ensure effective and efficient oversight?

B. Scope

The audit focused on the change in resources and performance management after the transition from the ward-based garbage collection system to the grid-based garbage collection system. The transition began in June 2012 and was completed in April 2013. The audit also sought to gain an understanding of and assess DSS's management tools for measuring and ensuring efficient operations on a forward going basis, as well as supervisory structures before and after the transition.

C. Methodology

We were able to conduct some interviews of DSS management, observe some field operations, and obtain some data. However, due to DSS's refusal to cooperate, we were precluded from validating data, comparing ward-based data to grid-based data, and conducting further critical interviews.

D. Standards

We conducted this audit in accordance with generally accepted Government Auditing Standards (GAS) issued by the Comptroller General of the United States, except for GAS 7.32.¹⁰ Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. Although we were unable to validate or verify much of the evidence provided by DSS, we believe that the limited evidence obtained provides a reasonable basis for our conclusions based on our audit objectives.

E. Authority and Role

The authority to perform this audit is established in the City of Chicago Municipal Code § 2-56-030 which states that the Inspector General's Office has the power and duty to review the programs of City government in order to identify any inefficiencies, waste, and potential for misconduct, and to promote economy, efficiency, effectiveness, and integrity in the administration of City programs and operations.

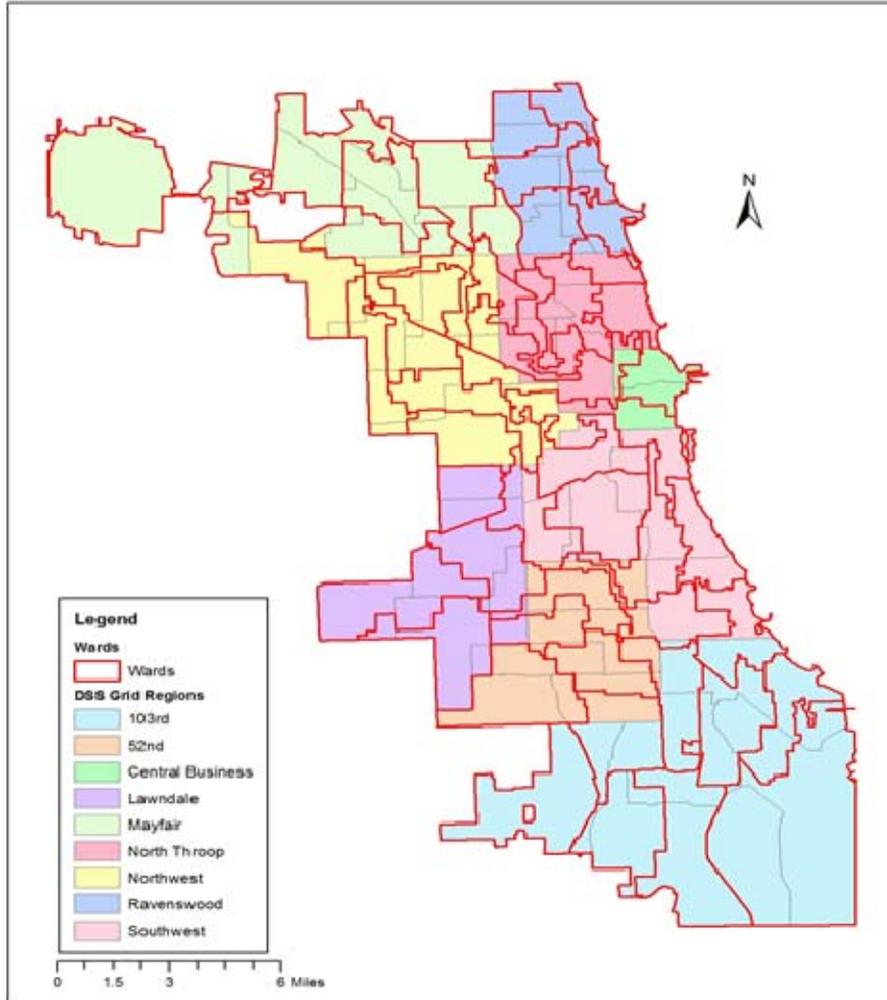
¹⁰ GAS 7.32 requires that auditors report the views of responsible officials of the audited program. Because DSS refused to cooperate with the audit, the IGO did not seek DSS's response to this report.

The role of the IGO is to review City operations and make recommendations for improvement. City management is responsible for establishing and maintaining processes to ensure that City programs operate economically, efficiently, effectively, and with integrity.

IV. AUDIT RESULTS

A. **Audit Initiation**

In December 2012, the IGO initiated an audit of the garbage collection system which was transitioning from ward-based routes (wards outlined in red below) to grid-based routes (grid regions represented by the various colors).



Specifically, the objectives of the audit were to determine:

- What effect has the grid-based collection system had on the number of trucks and personnel required per ton of garbage collected as compared to the ward-based system?
- Does DSS sufficiently and reliably measure garbage collection performance in order to maximize efficiency?
- Does the supervisory structure of the grid-based collection system ensure effective and efficient oversight?

B. DSS Refusal to Cooperate

IGO auditors met with DSS representatives on four different occasions after the initiation of the audit. The purpose of the meetings was to gather information and documentation related to the audit objectives. During the fourth meeting on March 21, 2013, the Deputy Commissioner stated that the first step in improving efficiency was to work with consultants and develop the grid-based routes. The first step would make the routes more efficient compared to the ward-based system. Then, once the program was implemented, the second step would be to effectively manage the grid-based program.

When the auditors asked about specific performance measures—basic criteria to assist in determining efficiency and effectiveness of the program—for garbage collection operations, DSS representatives provided generalizations, such as (a) the program would be monitored all the time, (b) monitoring would be ongoing, and (c) the performance of the program would be continuously reviewed and adjusted. After IGO staff pressed several times for DSS representatives to cite specific performance measures that would be used, the Commissioner stated that the discussion was over and that it was a waste of his time. He then left the conference room, refusing to cooperate further.

On March 27, the IGO sent an e-mail to the DSS Commissioner asking him to respond with his intentions to continue the discussion on performance measurements and the supervisory structure of the grid-based system. The e-mail stated that if DSS did not cooperate, then our report would “state that the department did not provide evidence of metrics used to maximize program efficiency or of the adequacy of the supervisory structure.” The Commissioner did not respond to that e-mail.¹¹

C. City Press Release Issued

On April 11, 2013, Mayor Emanuel issued a press release announcing \$18 million in savings would be achieved after a full year of implementation of the grid-based garbage collection system.¹² “We are delivering on a promise to taxpayers to provide residents with the most efficient, cost-effective services,” the Mayor said in the press release.

As part of the same official release, DSS Commissioner Williams added that “[t]he grid system has proven to reduce lost time and increase work productivity not only in refuse collection services, but forestry and graffiti as well.” He further stated, “Though the transition is complete, we are committed to continually re-evaluating all of our routes and resources to identify areas where we can streamline operations and improve our services for residents.”

¹¹ The IGO sent a short letter to the DSS Commissioner on April 10, 2013, requesting confirmation of four specific facts gathered from the few meetings. The Commissioner provided clarification on those four limited subjects on April 17, 2013.

¹² City of Chicago, “Mayor Emanuel Announces \$18 Million in Savings from Grid Garbage Transition,” April 11, 2013, accessed May 31, 2013, http://www.cityofchicago.org/content/dam/city/depts/mayor/Press%20Room/Press%20Releases/2013/April/4.11.13_GridGarbageTransition.pdf

D. Conclusion and Recommendations

Because of DSS’s refusal to cooperate, the IGO was precluded from accomplishing any of the three audit objectives. Although the Commissioner stated that DSS had a commitment to continuous evaluation to improve operations, he did not provide any specific performance measures that would be used in that evaluation. Finally, while DSS management admitted that the current supervisory structure related to garbage collection does not fit the needs of the grid-based system, the IGO was prohibited from determining the impact of this issue without the cooperation of DSS.

The following chart summarizes the status of audit work related to each objective. A more detailed description is available in the Objective Summaries section on page 11.

Objective:	Audit Work:
<p>What effect has the grid-based collection system had on the number of trucks and personnel required per ton of garbage collected, as compared to the ward-based system?</p>	<p>The IGO planned to compare historical ward-based garbage collection data to grid-based collection data. We were aware this would entail waiting until the grid-based system was fully implemented and DSS management agreed this would be the best approach. While the IGO received some historical data, we were unable to validate the data prior to the Commissioner’s refusal to cooperate.</p>
<p>Does DSS sufficiently and reliably measure garbage collection performance in order to maximize efficiency?</p>	<p>The IGO planned to ask DSS management about specific performance measures related to garbage collection operations and review evidence that DSS actually used the performance measures in the course of operations to maximize efficiency.</p> <p>While five performance measures related to the transition from a ward-based system to a grid-based system were identified, very few performance measures were identified related to the continuous improvement of garbage collection operations. When pressed to identify specific performance measures, the Commissioner instead walked out of the discussion.</p>
<p>Does the supervisory structure of the grid-based collection system ensure effective and efficient oversight?</p>	<p>The auditors were still planning the audit work related to this objective at the time that DSS refused to cooperate. However, DSS management had stated that the legacy ward-based supervisory structure of garbage collection operations did not meet current needs of the grid-based system.</p>

The IGO recommends that DSS substantiate the \$18 million dollar savings reported in the Mayor's press release by publicly reporting the calculations and documentation that supports that assertion. Furthermore, DSS should establish and use specific performance measurements in the pursuit of continuous improvement as stated by the DSS Commissioner. Finally, DSS should review the current supervisory structure and implement changes to not only address the self-identified issues, but also ensure effective and efficient oversight of the grid-based garbage collection system.

V. OBJECTIVE SUMMARIES

Objective 1: What effect has the grid-based collection system had on the number of trucks and personnel required per ton of garbage collected, as compared to the ward-based system?

To answer this objective, the IGO planned to compare historical ward-based garbage collection data to grid-based garbage collection data. The IGO and DSS agreed to use the comparison period of April through August for the ward-based information (from 2009 through 2011) compared to the grid-based information (for 2013).¹³ Because the ward and grid regions do not include the same routes or households, the comparison would only be done citywide. DSS management stated that the following five metrics would be available for measuring the success of the grid-based garbage collection system:

1. Alley time – the time a garbage truck spends in an alley collecting garbage;
2. Tonnage – the weight of the garbage collected;
3. Crews – the personnel on a garbage truck (Motor Truck Drivers and laborers);
4. Fuel – the fuel used by garbage trucks; and
5. Trucks – the number of garbage trucks used.¹⁴

Given the limited data gathered by the City, the IGO and DSS management agreed that this citywide comparison of ward-based to grid-based resource use would be the most appropriate method to evaluate the relative efficiency of the new system, as compared to the old ward-based system. DSS provided spreadsheets with truck and personnel deployment information for August 2009 through January 2013 and an example of the tonnage report for the month of April 2009. The IGO was told, but was precluded from validating, the following details regarding the provided data:

- Prior to implementation of the grid-based system, the spreadsheets containing truck and personnel deployment information were used to keep track of the needs for additional trucks and to measure of absenteeism. DSS management also stated that after implementation of the grid-based system the spreadsheets would be maintained as historical records to assess deployment trends and prepare future budgets.
- DSS management stated that the tonnage report for the month of April 2009 was an example of the reports on which refuse disposal fees were based.

The IGO was precluded from validating any of the data provided prior to, or obtaining additional data after, the Commissioner's refusal to cooperate.

¹³ 2012 was a transition year during which part of the city was under the ward-based system and part was under the grid-based system so the IGO did not plan to use it to compare the two systems.

¹⁴ At the time of the audit, information regarding a sixth metric—the number of black refuse carts—was unavailable. However, DSS management stated that they had themselves previously identified the need for that information and had requested and received budgetary approval to fund an inventory of those items. The IGO was precluded from reviewing documentation of the approval for funding to conduct the inventory.

Objective 2: Does DSS sufficiently and reliably measure garbage collection performance in order to maximize efficiency?

The IGO interviewed DSS management to identify the performance measures that DSS would use after implementation of the grid-based garbage collection system in order to maximize efficiency. DSS management offered generalizations, such as (a) the program would be monitored all the time, (b) monitoring would be ongoing, and (c) the performance of the program would be continuously reviewed and adjusted. When pressed to identify specific performance measures that would be used for continuous improvement, the Commissioner ended the meeting and walked out.

On March 27, the IGO sent an e-mail to the DSS Commissioner asking him to respond with his intentions to continue the discussion. The IGO received no response related to that e-mail. Therefore, while the Commissioner stated in the Mayor's press release that "we are committed to continually re-evaluating all of our routes and resources to identify areas where we can streamline operations and improve our services for residents," during the audit DSS would not describe any specific performance measures they would monitor to fulfill that commitment.

Objective 3: Does the supervisory structure of the grid-based collection system ensure effective and efficient oversight?

DSS management stated that the legacy ward-based supervisory structure for garbage collection did not meet the current management needs for grid-based collection. Specifically, DSS management discussed the following:

- The new grid-based system requires good communication and intensive supervision, but the management structure has been slow to adapt;
- Regional Collection Coordinators (RCCs) were not yet trained in the duties which are expected of them, such as managing field laborers and assigning routes;
- Offices in facilities that serve more than one ward under the grid-based system are still inhabited by ward-based personnel;
- The Ward Superintendent and RCC positions were not designed for the grid system; and
- In the past, there would either be a Ward Superintendent or an RCC on duty, but a coverage gap now exists because their duties are split so it can be difficult to ensure coverage when one is absent.

DSS management stated that they planned to address some of these issues through future training.

DSS management refused to cooperate and, consequently, the IGO was not allowed to interview field workers, Ward Superintendents, or RCCs with knowledge of City garbage collection to identify if the supervisory structure in place ensured effective and efficient oversight. As a result, the IGO was precluded from completing this objective.

CITY OF CHICAGO OFFICE OF THE INSPECTOR GENERAL

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- Administrative and criminal investigations
- Audits of City programs and operations
- Reviews of City programs, operations, and policies

From these activities, the IGO issues reports of findings, disciplinary, and other recommendations to assure that City officials, employees, and vendors are held accountable for the provision of efficient, cost-effective government operations and further to prevent, detect, identify, expose and eliminate waste, inefficiency, misconduct, fraud, corruption, and abuse of public authority and resources.

AUTHORITY

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