



CITY OF ATLANTA

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AUDIT COMMITTEE
Marion Cameron, CPA, Chair
Cheryl Allen, PhD, CPA
Daniel Ebersole

TO: Honorable Mayor, City Council President, and members of the City Council

FROM: Leslie Ward, City Auditor 

DATE: February 20, 2017

SUBJECT: Building Permits Data Testing and Analysis

The purpose of this memo is to communicate the results of our re-analysis of building permits data. We undertook this project to complete work originally planned for our Building Permits audit, released in June 2015 that we were unable to complete because we could not access permit data from Accela during the original audit. New analysis assesses data reliability and red flags for staff conflicts of interest. In addition, we have corrected errors in our original analysis that resulted from records missing from the reports the Department of Planning and Community Development provided to us and from our misinterpretation of a provided date field. Government Auditing Standards require us to communicate such errors in the same manner used to distribute the original report and, if warranted, to issue revised findings or conclusions. We have also extended analysis to include fiscal years 2015 and 2016. Our corrected analysis showed that the time to issue general building permits in fiscal years 2013 and 2014 was faster than we had reported, but the department missed its performance target or could not assess its performance for about 53% percent of general building permits in those years.

Our objective was to assess the effect of our previous error on our audit conclusions and recommendations and to answer the following questions:

- What impact does a more complete and extended dataset have on prior analysis?
- Is Accela data reliable for generating reports?
- Are there patterns in the data that indicate red flags for potential fraud or abuse?

Background

The Office of Buildings, within the Department of Planning and Community Development, enforces the city's building code. The building code establishes minimum standards to safeguard life, health, property, and the public welfare. Section 101.2 of the city code requires permits for all new construction and for alterations to existing structures, including permits for structural, plumbing, mechanical, or electrical work.

The office reviews and approves applications and plans, issues required building permits, inspects work to ensure it complies with the approved permit, and issues certificates of occupancy to certify that the completed project complied with the code. The office enforces zoning regulations to ensure the health, property, and public welfare by controlling the design, location, use, or occupancy of all buildings and structures through the development of land and land uses.

Buildings employees track the status of permits in Accela, a web-based workflow management system that automates tasks associated with permitting, plan review, and inspections. Permit applicants can also access Accela to view the status of their permits and pay any outstanding fees. The office collects data in Accela, which is available to management and allows citizens to look up specific permitting activity through the Accela Citizen's Access web portal.

Scope and Methodology

We conducted this audit in accordance with generally accepted government auditing standards. Our analysis covered the Department of Planning and Community Development's permit data for fiscal years 2013 to 2016. We reviewed building permits opened during fiscal years 2013 to 2016.

Our audit methods included:

- Analyzing Accela database records for permits that were opened in fiscal years 2013 through 2016 to assess the number of permits applied for and issued, application acceptance and permit issuance turnaround times, individuals associated with permit applications, and the relationships among various steps in the permitting process
- Interviewing office staff to understand database features
- Performing statistical tests for independence and goodness of fit on permit application data

Generally, accepted government auditing 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 objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Performance Better than Previously Reported; Performance Targets Still Unmet or Unmeasurable

We found errors in our original data set resulting from records missing from the reports the department provided and from our misinterpretation of a date field provided. The reports used in the original audit excluded 21,153 building permit applications opened in fiscal years 2013 and 2014; most of the missing permit applications were for arborist permits. These missing applications make up about 31% of all applications opened in those years. We also misinterpreted a date field indicating the date of the last status change of a permit application, which led to an incorrect determination of the time it took the Office of Buildings to issue permits and to an incorrect calculation of the percent of permits meeting performance targets. We have recalculated affected analysis from the original audit including the missing data and added additional data from fiscal years 2015 and 2016.

Electrical, plumbing, and mechanical permits comprised 53% of permits applied for in fiscal years 2013 through 2016. The Office of Buildings opened 149,794 permit applications in fiscal years 2013 to 2016 (see Exhibit 1). About 1% of the applications were terminated or withdrawn by the applicant. Electrical permits accounted for about 28% of permit applications. General building permits, the second highest category, accounted for about 23% of permit applications. General building permits include permits for new commercial buildings, additions, and alterations; new single-family residences/duplexes, additions, and alterations; and new multifamily buildings, additions, and alterations. The number of permit applications increased by an average of 10% each year from fiscal year 2013 to 2016.

Exhibit 1: Number of Permit Applications Opened in Fiscal Years 2013 to 2016

Permit Type	FY13	FY14	FY15	FY16	Total
General Building	6,785	6,987	7,596	8,394	34,273
Mechanical	3,464	4,452	5,047	5,594	18,557
Electrical	10,123	11,444	12,107	12,715	41,878
Plumbing	4,123	4,646	4,834	5,721	19,324
Land Development	94	117	116	119	446
Arborist	7,030	7,790	7,932	9,337	32,089
Signs	537	947	989	754	3,227
Total	32,156	36,383	38,621	42,634	149,794

Source: Accela permit data, July 1, 2012, to June 30, 2016

The office accepted most permit applications within one day of submission. The median time for the Office of Buildings to complete permit intake was one workday in fiscal years 2013-2016 (see Exhibit 2). For some categories of building permits, the time to complete permit intake was slower in fiscal years 2015 and 2016 than in 2013 or 2014. The office accepted at least 75% of permit applications within two workdays in all four fiscal years. The office took longer than five workdays to accept just under 4% of permit applications.

Exhibit 2: Workdays to Accept Permit Applications

Permit Type	FY13		FY14		FY15		FY16	
	Median	75%	Median	75%	Median	75%	Median	75%
General Building	1	2	1	2	2	2	2	2
Mechanical	1	2	1	2	1	2	1	2
Electrical	1	1	1	2	1	3	1	2
Plumbing	1	2	1	2	1	2	1	2
Land Development	2	2	2	2	2	3	2	3
Arborist	1	1	1	1	1	1	1	1
Signs	1	1	1	1	1	1	1	1
All Types	1	2	1	2	1	2	1	2

Source: Accela permit data, July 1, 2012, to June 30, 2016

The office issued most electrical, plumbing, and mechanical permits within one workday of permit acceptance, but took much longer to issue other types of permits. The median time for the Office of Buildings to issue permits after accepting applications was one work day in fiscal years 2013 to 2016 (see Exhibit 3). The office issued 75% of permits within four days in fiscal years 2013-2014 and within five days in fiscal years 2015-2016. The time to issue general building permits, however, was much longer. The median times to issue general building permits ranged from 12 to 21 workdays in fiscal years 2013-2016. These accounted for about 23% of permit applications. The median time to issue land development permits was also much longer, but these comprised less than one-half of one percent of permit applications.

Exhibit 3: Workdays to Issue Permits after Acceptance

Permit Type	FY13		FY14		FY15		FY16	
	Median	75th %	Median	75th %	Median	75th %	Median	75th %
General Building	12	26	17	35	21	40	18	34
Mechanical	1	1	1	1	1	1	1	1
Electrical	1	1	1	1	1	1	1	1
Plumbing	1	1	1	1	1	1	1	1
Land Development	72	113	85	130	89.5	133.5	71	105.5
Arborist	3	6	4	5	4	6	5	8
Signs	11	19	16	28	18	31	16	25
All Types	1	4	1	4	1	5	1	5

Source: Accela permit data, July 1, 2012, to June 30, 2016

Over the four fiscal years 2013-2016, issued general building permits met performance targets 42% of the time. Most of the performance targets for general building permits are 10 to 15 days, excluding time for applicants to revise and resubmit plans. We were unable to assess how much time applicants needed to revise and resubmit plans because staff inconsistently entered this data. However, just over half of the permits that did not meet performance targets had at least some indication that plan revisions by applicants were required. Without attempting to calculate time required for revisions, the percent of issued general building permits that met performance goals varied from 34% to 54% in each fiscal year (see Exhibit 4).

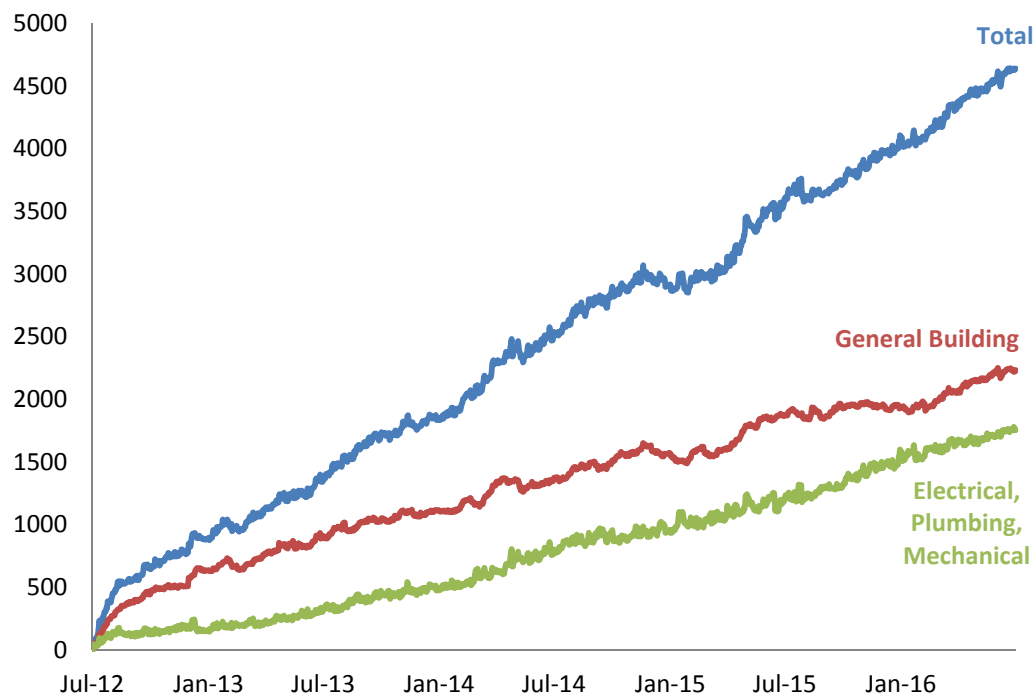
Exhibit 4: Time to Issue General Building Permits Compared to Goals

General Building Permits	Count	Performance Goal (Days)	% Met FY13 (Measurement includes time for applicants to revise plans)	% Met FY14	% Met FY15	% Met FY16
Commercial						
Addition	189	30	40.4%	39.0%	29.0%	26.5%
Alteration	5,205	10	36.2%	17.8%	13.1%	18.1%
Conversion	323	30	60.5%	37.3%	28.2%	31.7%
Demolition	236	15	28.6%	35.1%	18.2%	10.0%
Miscellaneous	1,653	15	61.0%	37.6%	28.3%	40.8%
New	231	30	27.1%	31.4%	26.3%	37.8%
Pool	28	15	25.0%	0.0%	0.0%	0.0%
Repair	107	10	100.0%	100.0%	100.0%	100.0%
Multi-Family						
Addition	27	15	42.9%	0.0%	12.5%	0.0%
Alteration	1,223	10	36.5%	38.3%	38.3%	36.6%
Conversion	12	15	25.0%	0.0%	0.0%	None
Demolition	76	15	42.1%	45.5%	18.2%	25.0%
New	861	15	7.0%	13.2%	4.0%	6.6%
Repair	221	10	93.0%	96.9%	97.7%	100.0%
Residential						
Addition	2,520	15	29.2%	16.4%	9.3%	12.3%
Alteration	2,258	10	81.6%	72.1%	64.5%	64.9%
Conversion	59	15	46.2%	27.8%	21.4%	14.3%
Demolition	1,805	15	46.8%	30.5%	23.4%	24.3%
Miscellaneous	1,892	15	57.5%	47.0%	39.0%	57.8%
New	1,964	15	10.3%	6.2%	2.2%	2.8%
Pool	348	15	20.0%	13.3%	10.3%	10.7%
Repair	4,108	10	97.5%	97.6%	95.9%	96.8%
Other						
Outdoor Events	106	Unknown	N/A	N/A	N/A	N/A
Airport	330	10	59.3%	29.8%	19.2%	16.9%
Total	25,782		53.6%	41.2%	33.9%	40.6%

Source: Accela permit data, July 1, 2012, to June 30, 2016; Office of Buildings Performance Targets

The number of permit applications in queue increased throughout the four fiscal years we reviewed. We analyzed the number of permit applications in process by day from July 1, 2012, through June 30, 2016. We do not know the number of permits that were already in process at the beginning of the period, so the queue represents the growth in the number of permits in process. The number of permits in process reached 4,639 at the end of June 2016; 2,233 (48%) of these were general building permits (see Exhibit 5). The average number of electrical, plumbing, and mechanical permits in process each day was about 800. If office staff never recorded that a permit application was issued, terminated, or withdrawn—even if it was—then it would still appear to be in queue.

Exhibit 5: Growth in Permit Applications in Process Fiscal Years 2013 through 2016



Source: Accela permit data, July 1, 2012, to June 30, 2016

Data Patterns Flag Potential Abuse, But Inconsistent Data Entry Limits Decision Usefulness of Permit Application Data

During our analysis of the Accela building permits database, we noticed patterns of inconsistencies within the data. Lack of accountability in data entry and inconsistent or incomplete data limit the value of reports to management. Individual employees sometimes handle multiple key steps of the permitting process, which can heighten risk by allowing a single employee more easily to commit fraud or abuse without the need for collusion. The office issues some permits prior to the completion of all required approvals, though this occurred less often in the most recent fiscal year.

Lack of accountability in data entry and inconsistent or incomplete data compromise the reliability of reports. Employees can record completed work and attribute that work to other employees, increasing flexibility but reducing accountability. For 40% of issued general building permits, a different employee recorded the approval than the employee who performed the review for at least one required approval (see Exhibit 6). These records of approvals by a different employee account for 4% of total plan review approvals on issued general building permits. Staff inconsistently entered data regarding revision and resubmittal of plans by applicants. We observed many cases of typos—for example, street names appearing in phone number fields—that could be prevented by input controls. Additionally, important fields on many permit applications were blank, including applicant name and phone number. During fiscal year 2016, several records appeared in the database for permit applications with open dates in fiscal years 2014 and 2015. For these reasons, reports to management may be incomplete or incorrect, limiting their value.

Exhibit 6: Issued General Building Permits with Non-Matching Approval Records

Fiscal Year	% of Permits	% of Approvals
FY 2013	36%	4%
FY 2014	37%	3%
FY 2015	42%	5%
FY 2016	43%	6%
Total	40%	4%

Source: Accela permit data, July 1, 2012, to June 30, 2016

Individual employees sometimes handle multiple key steps of the permitting process, increasing risk. Employees who accept permit applications at intake sometimes assign or approve plan review. Conversely, employees who assign or approve plan review sometimes accept permit applications at intake. Over the four fiscal years 2013-2016, 953 general building permits had plan review assigned by employees who had accepted the application at intake (see Exhibit 7). Over this same period, 912 general building permits had some part of plan review approved by the same employee who had accepted the application at intake. For 262 permits, the same employee who had accepted the permit application both assigned some part of plan review and approved some part of plan review. This conflation of job duties can heighten risk by allowing a single employee to commit fraud or abuse without the need for collusion.

Exhibit 7: Counts of Issued General Building Permits: Single Employee Handled Multiple Key Steps

Fiscal Year	Accepted Application & Assigned Review	Accepted Application & Approved Review	Accepted App & Assigned Review Accepted App & Approved Review
FY 2013	81	86	7
FY 2014	141	61	5
FY 2015	179	191	91
FY 2016	552	574	159
Total	953	912	262

Source: Accela permit data, July 1, 2012, to June 30, 2016

The office issued some permits prior to completion of approvals. Of the issued general building permits opened in fiscal years 2013-2016, the office issued about 5% before approving all required parts of plan review (see Exhibit 8). This appears to be occurring less often recently; the office issued only 2% of general building permits in fiscal year 2016 prior to completion of all required approvals. Mechanical, electrical, or plumbing approvals accounted for most approvals completed after permit issuance. Permit expeditors, as a group, were significantly more likely than non-expeditors to be issued permits before all approvals had been completed.

Exhibit 8: Percent of Issued General Building Permits Issued Before Approvals

Fiscal Year	% of Permits
FY 2013	10%
FY 2014	4%
FY 2015	3%
FY 2016	2%
Total	5%

Source: Accela permit data, July 1, 2012, to June 30, 2016

We omitted specific information from this report related to indications of potential fraud and/or abuse so as not to interfere with investigation. We referred this information to our investigations unit and notified the audit committee of the referral, in accordance with audit standards.

If you have questions, you may call Amanda Noble at 404/330-6750 or you may reach me at 404/330-6804. We appreciate staff's courtesy and cooperation throughout the audit.

Recommendation

1. We recommend that the commissioner of Planning and Community Development take steps to ensure the completeness and correctness of data used in generating reports.



KASIM REED
MAYOR

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TIM KEANE
COMMISSIONER

MEMORANDUM

TO: Leslie Ward, City Auditor
FROM: Tim Keane, Commissioner *TK*
DATE: January 27, 2017
SUBJECT: Response to the Permitting Audit Report
CC: Terri M. Lee, Deputy Commissioner

Thank you for assistance and cooperation in the undertaking of the audit review of the Department's permitting process. Your work provides essential opportunities for us to evaluate our progress and test our approach. I want to provide a general update on our work in the Office of Buildings (OOB) as context for my specific response to your three recommendations.

In May 2016, we started the process of remaking our permitting process in the OOB. The approach we are taking is one we came to after a study of the business led by BKD CPA's and Advisors. The fundamental problem we discovered in this study is that OOB had no Standard Operating Procedures (SOPs). In addition, the operation was not designed to address the unique needs of each of its customers. Therefore, the plan we are implementing is to organize this practice around each customer type and establish SOPs customized to each.

We have the following five cross functional teams aligned to the customers: 1) online (self-service), 2) express, 3) residential, 4) light commercial, and 5) commercial. Each team will be trained and staffed to handle all the customer's needs from intake to issuance. At the first of May we started the online and express teams, in mid-July we started the residential and light commercial teams and this month we are starting the commercial team. Initially the teams are composed of OOB staff, but the desired outcome is that all City departments that touch a permit have membership in these teams. That will be the organization of our future multi-departmental Permit Center.

Our training and hiring is supporting the full realization of this new organization. We currently have training for Plans Examiners underway to broaden our base of staff that can do all plan reviews, i.e. trades and building. These are essential to the team concept. We have recruitment underway for skilled, customer focused employees to fully staff each team. From a capacity standpoint, we still have work to do to get the teams fully operational. We are making progress.

Each team is also developing SOPs relevant to each customer type. This process will result in new Service Level Agreements (SLAs) for each team that is also relevant to the customer. These SLAs will be tied to the entire process not just one component like plan review as has been the practice in the past.

We are also updating our Inspections strategy to more closely align with the Intake to Issuance process. Every inspection is not the same in terms of the time and expertise they require. Ideally combination inspectors provide the backbone of our inspections teams with trade-specific inspectors providing enhanced expertise on specific jobs. We are building our inspection team to enable us to respond quickly to calls for inspections. This requires us to set a specific target for inspections each day per inspector and the complexity of the inspections correlates closely with our customer teams.

We are now in alignment with Atlanta Information Management (AIM) regarding the direction of this practice and the need to establish new goals, strategies and initiatives with regard to use of technology. We are detailing our process flows to understand our "to be" condition. The reality of this is that our entire technology portfolio needs evaluation to ensure it is capable of supporting this new way of doing business.

Last fall we did a survey of customers and we are now doing the same survey again to see where we stand compared to last year. Also, this month we are establishing a residential and commercial Customer Advisory Council to meet quarterly and give us feedback on specific aspects of our service.

The good news is that we have a highly motivated and skilled core group of employees that have embraced this plan and are putting it in action. Our online, express and residential teams are already making great progress. The light commercial and commercial teams are led by an exceptional leader that is sure to make big strides in the near future. She has been tasked with leading both groups temporarily until we have a second manager to take over one of the teams. We still have a tremendous amount to do but the change is taking root and employees can see our path now. It's an exciting time for the City of Atlanta and our customers.

The scope and status of our change in the OOB is important to understand in the context of these specific responses. It is also critically important to address two issues noted within the report. The first area identified the practice of issuing permits before completion of all required approvals. It is common practice to approve permits conditionally as final details are completed and it's important that we have this opportunity in the permitting process. This in no way jeopardizes the quality of construction as full adherence to codes is ensured at the time inspections are completed and ultimately when a Certificate of Occupancy is issued. To have less than 5% of our permits being issued in such a manner is an appropriate scale of this practice. If it was occurring 25% of the time or some significant amount of the time then clearly we would need to change some aspect of our process.

A second area noted within the report was in reference to ensuring the Department has adequate control of risks associated with the practice of single employees handling multiple key steps of the permitting process. We need to have an in depth review of our new organization with you. The old practice of handing permits off from one person to the next is exactly what we are trying to avoid. The whole point of the new organization is to enable employees to do more within each review. The same person intaking may do the plan review. I suggest you visit our express lane. This is a true team

environment with all the employees doing more. The express lane has been issuing 30% or more of the non-self service permits we issue in the OOB. Single employees handling multiple tasks are essential to our success.

Thank you for the opportunity to provide a response to the audit report. The Department's response to one report recommendation is listed below.

Recommendation 1: We recommend that the commissioner of planning and community development take steps to ensure the completeness and correctness of data used in generating reports.

This is a big issue for us. We are making progress within the new teams; evaluating the information we are collecting, trying to simplify wherever possible but providing consistent and thorough tracking. You are correct we are not all the way there yet. Part of our challenge is the state of our data management tool. AIM is helping us analyze the software to determine if it can handle where we are going with the design of the business. Also, troubleshooting glitches in the existing system has been frustrating. I am confident we will have a good handle on this issue by the end of the calendar year.

Report # 16.02 Report Title: Building Permits Data Testing and Analysis Date: Dec 2016

Recommendation 1:

We recommend that the commissioner of planning and community development take steps to ensure the completeness and correctness of data used in generating reports.

Comments:

The Department of Planning and Community Development agrees with the recommendation established by the Office of the Internal Auditor.

Proposed Action:

While we are making significant progress within the new teams, this remains a critical issue to be addressed. A component of resolving this matter and implementing sustainable mechanisms, include evaluating the information we are collecting, trying to simplify wherever possible but providing consistent and thorough tracking. AIM is helping us analyze the software to determine if it can handle where we are going with the design of the business.

Implementation:

Month Year

Jul 2017

Person Responsible: Tim Keane, Commissioner

Agree