

The logo for the City of Edmonton, featuring the word "Edmonton" in white text on a blue square background.

Edmonton

OFFICE OF  
THE CITY AUDITOR

# REPORT

## SAFETY CODES PERMITS & INSPECTIONS AUDIT

October 3, 2022

# Report Summary

## BACKGROUND

The City of Edmonton's Development Services Branch is responsible for safety codes, permits, and inspections (SCPI). The Branch's SCPI team monitors buildings and structures to make sure that they comply with the *Safety Codes Act* and other regulations.

The City's Quality Management Plan (QMP):

- Sets minimum service levels the City must provide to meet its responsibilities under the *Safety Codes Act*.
- Outlines service delivery standards for each of the construction disciplines: (Building, Heat Ventilation & Air Conditioning (HVAC), Electrical, Plumbing and Gas).
- Establishes responsibilities and processes in order for the City to provide compliance monitoring services.

## AUDIT OBJECTIVES & SCOPE<sup>1</sup>

Our objectives were to determine whether:

1. SCPI's building permits process is effective, efficient, and aligns with regulatory requirements.
2. SCPI is managing the building permits process to meet stakeholder expectations.

This audit focuses on permits and inspections for new single-detached homes. However, observations in this report may also apply to permitting and inspections of multi-unit housing and commercial units.

## WHAT WE FOUND

The City is accredited to administer the *Safety Codes Act*. SCPI staff receive training through the Safety Codes Council to obtain and maintain their Safety Codes Officer certification.

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<sup>1</sup> We conducted this engagement in conformance with the Institute of Internal Auditors' *International Standards for the Professional Practice of Internal Auditing*.

SCPI asks stakeholders for feedback to improve their process through the Permit and Licensing Improvement Initiative. This includes workshops and discussions to learn about their experiences with obtaining permits. There are a number of projects under this initiative, some extending into 2023. In 2022, the project to establish timelines was completed. This project sets out the expectation on the length of time required by SCPI to process various types of applications including building permits.

However, we found that the minimum inspection requirements are unclear and not consistent. The Branch has not structured SCPI to carry out the number of inspections required in the City's QMP for Building and HVAC. The number of required inspections is not consistent across various sources of information. This can lead to stakeholder confusion as to what the actual requirements are or why they are different.

SCPI can expand the use of their risk-based model to reduce the number of inspections they complete on each single-detached home. They continue to complete inspections with high first-time pass rates and overall are conducting more inspections per home than the number required by the City's QMP.

SCPI lacks comprehensive, documented procedures. For example, intake staff don't have updated checklists to make sure permit applications include all required documents. As a result, they are sending permit applications to Plans Examination before the application itself is complete. Safety Codes Officers are also not providing consistent information in their inspection reports to applicants.

In our meetings with stakeholders, timelines were a common theme of concern. We identified areas in the permit issuance and inspection booking processes that can cause increased timelines. Delays include permit applications that require more information from the applicant to process, complete applications waiting an average of 14 days to be assigned to a

plans examiner, and applicants being unable to book inspections within the time period stated on the City's public website.

The Branch releases quarterly activity reports which include performance measures that SCPI uses to make business decisions. We found issues with the reliability, understandability, and comparability of the performance measures. Additionally, SCPI has not set targets for the measures we reviewed.

## RECOMMENDATIONS

- |                  |   |
|------------------|---|
| Recommendation 1 | We recommend that SCPI review and re-set minimum inspection requirements so that service expectations are clear and consistent.   |
| Recommendation 2 | We recommend that SCPI expand its use of their risk-based model to determine the actual inspections needed for new single-detached homes.   |
| Recommendation 3 | We recommend that the Development Services Branch update its procedures and checklists for application intake, and develop operating procedures and checklists to improve consistency of Safety Codes Officers' site inspections. |
| Recommendation 4 | We recommend that SCPI review the permit application and inspection processes and implement a plan to improve efficiency.   |
| Recommendation 5 | We recommend that the Development Services Branch enhance its performance measures so they are reliable, understandable, comparable, and include measurable targets.  |

**WHY THIS IS IMPORTANT**

Without a clear and consistent approach to issuing permits and carrying out inspections, stakeholders may experience frustration and confusion with the City's permitting process.

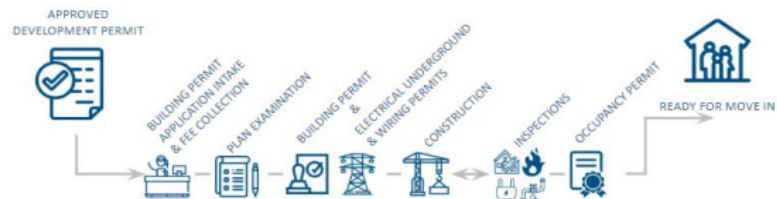
Reducing inspections through risk-based decision making and reviewing inspection and permitting processes will improve SCPI's efficiency.

# Permits and Inspections Process

## SAFETY CODES PERMITS AND INSPECTIONS

The Safety Codes Permits and Inspection (SCPI) team is part of the Development Services Branch. SCPI monitors the construction process to make sure that buildings meet the requirements of the *Safety Codes Act* as well as other codes and regulations.

The permit and inspection process is part of the entire property development process. It begins with an approved development permit and ends with an occupancy permit. Once an occupancy permit is issued, the building is ready for occupancy.



The permit and inspection process generally begins when an applicant submits a building permit application. Staff in the Building Permit Application Intake and Fee Collection section (intake)<sup>2</sup> review the application for completeness.

Once the building permit application is complete, intake staff places the application in a queue for assignment to Plans Examination. Once assigned, the Safety Codes Officer in Plans Examination reviews the permit application and issues a building permit. With this permit, the applicant can begin construction.

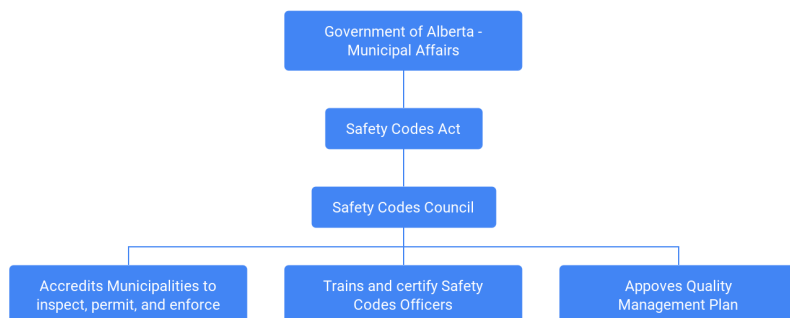
The applicant must also book inspections at various stages of construction. Safety Codes Officers that are certified in the

<sup>2</sup> Intake is part of the Development Permits section of the Development Services Branch.

applicable discipline complete the inspections. If the applicant fails the inspection, the Safety Codes Officer will complete a re-inspection once the applicant has made the required corrections.

## GOVERNING STRUCTURE

The Government of Alberta delegates responsibility for administering the *Safety Codes Act* to municipalities and other entities. The Safety Codes Council supports the Province by accrediting municipalities, training Safety Codes Officers, and approving a quality management plan (QMP) with each municipality.



## QUALITY MANAGEMENT PLAN

The Safety Codes Council creates a QMP template for all municipalities to use. Each municipality's QMP is an agreement with the Safety Codes Council. It sets out the minimum service levels needed to meet the requirements of the *Safety Codes Act*. It also includes administrative items, as well as the minimum number of inspections for each of the disciplines (Building, HVAC, Electrical, Plumbing and Gas). Municipalities can customize the template to satisfy their operations.

The Safety Codes Council must approve each municipality's QMP.

The City's customized QMP is approved by both the Administrator of Accreditation (Safety Codes Council) and the City Manager (City of Edmonton).

# Recommendation 1 & 2: Minimum Inspections & Risk-based Model

## RECOMMENDATION 1

We recommend that SCPI review and re-set minimum inspection requirements so that service expectations are clear and consistent.

## RECOMMENDATION 2

We recommend that SCPI expand its use of their risk-based model to determine the actual inspections needed for new single-detached homes.

## KEY FINDINGS

The number of inspections required for a new single-detached home building permit is not clear. SCPI has multiple sources of information that require different numbers of inspections. This can confuse stakeholders as to the actual requirements and why they might differ. We made the following observations:

- The minimum number of inspections for the Building and HVAC disciplines in the City's QMP is not workable in practice.
- The City QMP's minimum number of required inspections is not the same as the Safety Codes Council's QMP template.
- The City QMP's minimum number of required inspections is not the same as the listed number of required inspections on SCPI's public website.

In 2019, SCPI implemented a risk-based model to reduce the number of actual inspections. SCPI is not making the most of their risk-based model to decide which inspections to actually complete. We found that:



- SCPI continues to conduct inspections with high first time pass rates.
- SCPI does an average<sup>3</sup> of five more inspections for new single-detached homes than the minimum required in the City's QMP.

### **INCONSISTENT MINIMUM INSPECTION STANDARDS**

The minimum number of inspections required in the City's QMP is not consistent with other information sources. Other information sources include the Safety Codes Council's QMP template, City website information for each construction discipline, and the City's workflow management system.

Discipline	Number of Inspections			
	City's QMP	Safety Codes Council's QMP Template	City's Website	City's Workflow Management System <sup>4</sup>
Building	2	3	4	4
HVAC			4	2
Electrical	2	2	4	3
Plumbing	1	2	2	2
Gas	1	2	1	1
<b>Total</b>	<b>6</b>	<b>9</b>	<b>15</b>	<b>12</b>

In addition, the minimum number of inspections required in the Building and HVAC disciplines in the City's QMP is not workable in practice. The City's QMP has Building and HVAC as one discipline requiring two inspections. In practice, SCPI has this as two separate disciplines, each with their own specialized

<sup>3</sup> To address the effect of outliers, the average is represented as the middle number in a sorted list of all distinct inspections for all new single-detached homes that were constructed.

<sup>4</sup> This system sends the permit holder notifications as the build progresses to ensure inspections are booked and completed.

Safety Codes Officer. As a result, SCPI has to conduct 3 separate inspections to satisfy the Building and HVAC requirements:

- One building inspection during project construction
- One inspection for the final building inspection at end of construction
- One inspection for the final HVAC inspection at end of construction

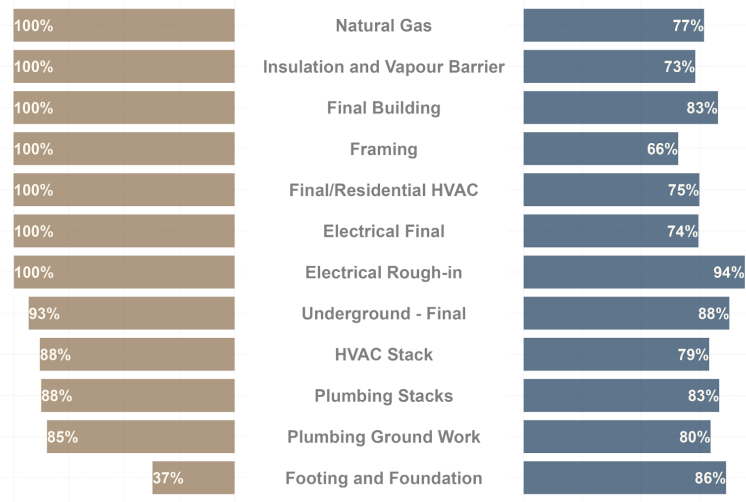
**RISK-BASED MODEL**

In 2019, SCPI began using a risk-based model to reduce the number of actual inspections. This includes inspections such as footing and foundation, plumbing stack, plumbing ground, HVAC concealed duct, and HVAC stack. A variety of criteria is used to make the assessment, including contractor performance and pass rates. However, SCPI is not making the best use of their risk-based model to reduce the number of inspections completed for a new single-detached home.

We reviewed the top 12 inspection types in terms of frequency, from 2019 to 2021, and found that SCPI is conducting inspections with a high first-time pass rate.

See graph below for a comparison of inspections completed for each new single-detached home and their first-time pass rate.

Inspection rate and first time pass rate for single-detached homes, 2019 to 2021



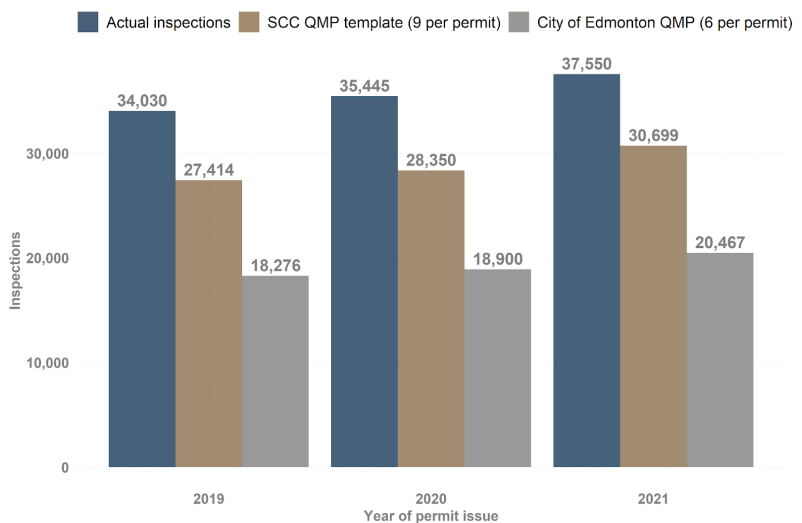
The footing and foundation inspection illustrates how a risk-based model can work. In this example, the first time pass rate is high (86 percent), with a corresponding low inspection rate (37 percent). However, the other inspections have a high inspection rate and a high first time pass rate. For example, plumbing stack has a rate over 83 percent for both the inspection rate and the first time pass rate.

**ACTUAL INSPECTIONS CONDUCTED COMPARED TO QMPs**

SCPI is doing more inspections than the minimum of 6 inspections required by the City’s QMP or the 9 required by the Safety Codes Council’s QMP template for each new single-detached home. SCPI does between 10 and 12 distinct inspections for each new single-detached home. The average is 11 distinct inspections for each new single-detached home. Regardless of which standard is used, SCPI is doing more inspections than required.

In 2021, SCPI completed 37,550 inspections for the 3,400 new homes constructed. This is 6,851 more than required by the Safety Codes Council’s QMP template and 17,083 more than required by the City’s QMP.

**Minimum required inspections vs. actual inspections**



Each inspection requires the applicant to book an inspection and have their site ready. As well, a Safety Codes Officer's time is required to attend and complete the inspection.

### WHY THIS IS IMPORTANT

Clarity on the minimum number of inspections required in the City's QMP will provide SCPI and the public with a consistent understanding of required inspections. Reviewing the required inspections and expanding their use of their risk-based model for inspections with a high pass rate will lead to increased efficiencies.

### RECOMMENDATION 1 MANAGEMENT RESPONSE

Review and re-set minimum inspection requirements so that service expectations are clear and consistent.



#### Responsible Party

Director, Safety Codes, Permits, and Inspections



Accepted by Management

#### Management Response

Administration will update the existing Quality Management Plan, standard operating procedures, technologies and customer portal/ website materials to provide clarity on requirements.



#### Implementation Date

September 30, 2023

**RECOMMENDATION 2**  
**MANAGEMENT RESPONSE**

Expand its use of their risk-based model to determine the actual inspections needed for new single-detached homes.



**Responsible Party**

Director, Safety Codes, Permits, and Inspections



Accepted by Management

**Management Response**

Administration will evaluate elective inspections for the opportunity for inclusion within the risk based model.



**Implementation Date**

September 30, 2023

# Recommendation 3: Standard Operating Procedures and Checklists

## RECOMMENDATION

We recommend that the Development Services Branch update its procedures and checklists for application intake, and develop operating procedures and checklists to improve consistency of Safety Codes Officers' site inspections.

## KEY FINDINGS

SCPI has an operations manual with checklists for examining residential plans and quality assurance processes to review the work of Safety Codes Officers in both plan examinations and inspections. For example, a senior Safety Codes Officer attends a site with the Safety Codes Officer conducting the inspection and observes their processes. As well, all inspection disciplines use an electronic program to record their results on a mobile device.

However, documented procedures for the intake of permit applications are outdated and inconsistent with current practices.

In addition, there is limited documented guidance for a Safety Codes Officer to perform inspections. Each Safety Codes Officer will develop their own method to inspect, through their own experience and on-the-job training they receive from mentors.

## INTAKE — STANDARD OPERATING PROCEDURES

Service technicians in the Development Services Branch provide intake services for permit applicants. Intake is the first stage in the application review process. Intake staff review the application for completeness, including determining whether

the City requires a development permit, before sending the application for review by a plans examiner.

The standard operating procedure and associated checklist for intake do not reflect current practices. The Development Services Branch moved to an electronic submission process for single detached homes in April 2017. The current standard operating procedure was developed when the process was still manual. The Branch has also updated some of its processes.

This inconsistency has led to service technicians passing incomplete permit applications to the Plans Examination area. We reviewed 20 plan examination samples where the Plans Examiner asked for more information from the applicant. In 50 percent of the samples, the request included information on items that service technicians performing the intake should have noticed were missing. Additional guidance, including a more thorough review of permit applications during intake, would ensure applications are complete and ready for a Plans Examiner to review.

The amount of time it takes to review a permit is extended when Plan Examiners ask for items that should have been requested during the intake stage.

### **SITE INSPECTIONS — STANDARD OPERATING PROCEDURES**

SCPI does not have documented guidance, such as a standard operating procedure, to guide how Safety Codes Officers conduct inspections. Research shows that standard operating procedures can improve consistency, reduce errors, and provide a method to communicate process changes.

The Inspection Staff Operating Manual (May 2021) is mostly administrative in nature and includes topics such as staff performance, training, scheduling, safety, etiquette, overtime, and mileage. However, the document does not provide guidance on how to conduct inspections. (For example, what to look for, what to include in comments to the applicant, checklist of key items). In addition, we found that:

- All disciplines have a high-level checklist that contains limited description of items Safety Codes Officers review during inspections. These are published on the website for each of the fifteen inspections listed.
- The Building discipline has detailed checklists to guide Safety Codes Officers in conducting inspections. These checklists include items to look for on the main floor, upper floor, and basement. However, the Plumbing and Gas, Electrical, and HVAC disciplines do not have detailed checklists.

The high-level checklist that is currently in place for the disciplines can be expanded to include more details for the Safety Codes Officers to guide the inspection process.

Not having documented procedures and checklists has led to inconsistencies in how Safety Codes Officers conduct inspections and how they communicate results. We reviewed a sample of failed site inspections and found:

- 55 percent of the Building framing and HVAC final samples did not have images of the deficiency.
- The samples for Building framing and HVAC final inspections did not refer to the section of the code that is violated. The Electrical discipline refers to the section of the code violation in their inspection report that is provided to the applicant.
- Two samples in Building framing had the same deficiency; one received a conditional pass and the other failed.

### **WHY THIS IS IMPORTANT**

Without clear guidance through standard operating procedures and checklists, the intake of permit applications may not be completed accurately. This resulted in inefficiencies in the plans examination stage. In addition, when Safety Codes Officers do not have clear guidance for inspections, the inspection results may not be documented and communicated consistently.



**RECOMMENDATION 3  
MANAGEMENT RESPONSE**

Update its procedures and checklists for application intake, and develop operating procedures and checklists to improve consistency of Safety Codes Officers' site inspections.

**Responsible Party**

Branch Manager, Development Services Branch



Accepted by Management

**Management Response**

Administration will evaluate and update the current house permit intake and inspection processes for effectiveness and efficiency. Administration will review and update the standard operating procedures, checklists and job aids contained in Development Services' Knowledge Library for completeness and accuracy and develop an action plan for adding missing procedures or updating old procedures.

**Implementation Date**

June 30, 2023

# Recommendation 4: Permit Issuance and Inspection Booking Timelines

## RECOMMENDATION

We recommend that SCPI review the permit application and inspection processes and implement a plan to improve efficiency.

## KEY FINDINGS

In 2021, SCPI took an average of 42 days from intake to building permit issuance for new single-detached homes. This includes application intake, obtaining a development permit, plans examination, and building permit issuance. We also found that in 2022, SCPI completed inspections on the day the applicant scheduled it for 89 percent of the time.

However, we found areas where SCPI can improve the efficiency of their processes:

- Some permits take longer to process because plan examiners need more information from the applicant before they can review the permit application.
- Applications sit idle for an average of 14 days before being assigned to a plans examiner.
- The number of available inspection booking time slots does not consistently allow applicants to book next day inspections or inspections within 2 business days, as stated on the City's public website.

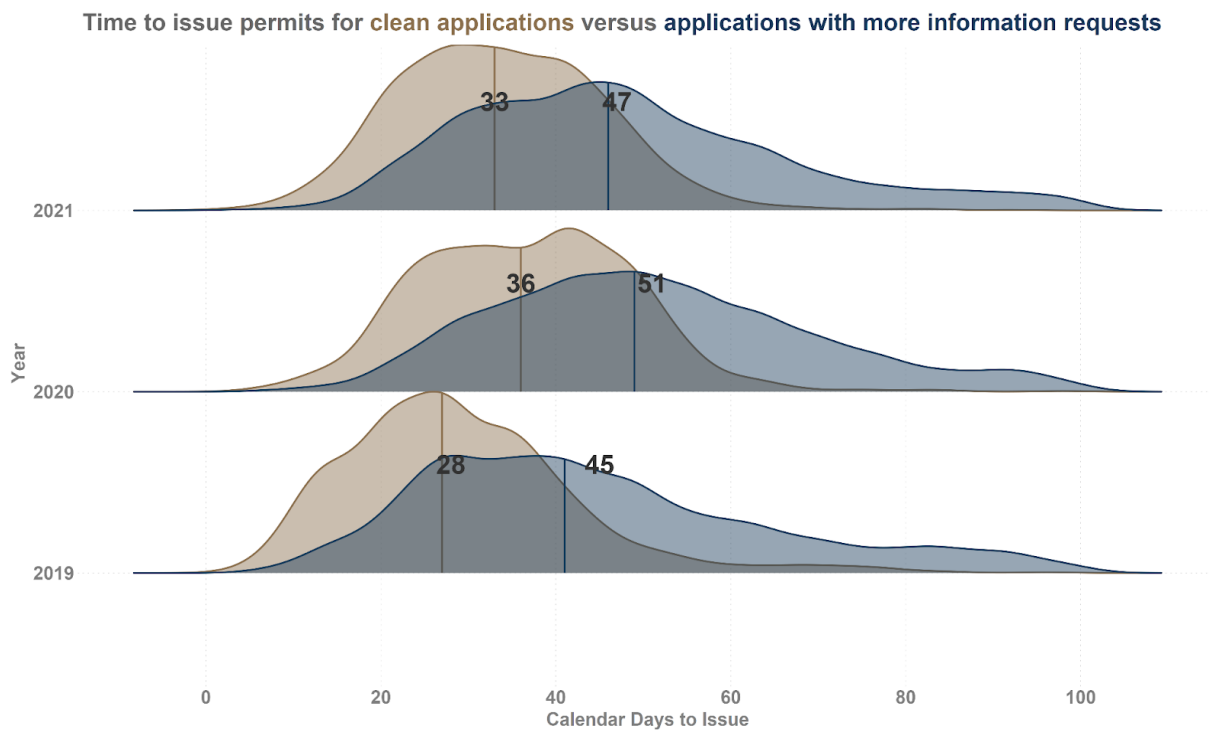
## MORE INFORMATION REQUESTS

During the plan examination review stage, Plan Examiners are receiving building permit applications that do not have all the required documentation or complete information required for

a proper review. This results in a Plan Examiner asking for more information from the applicant during their review.

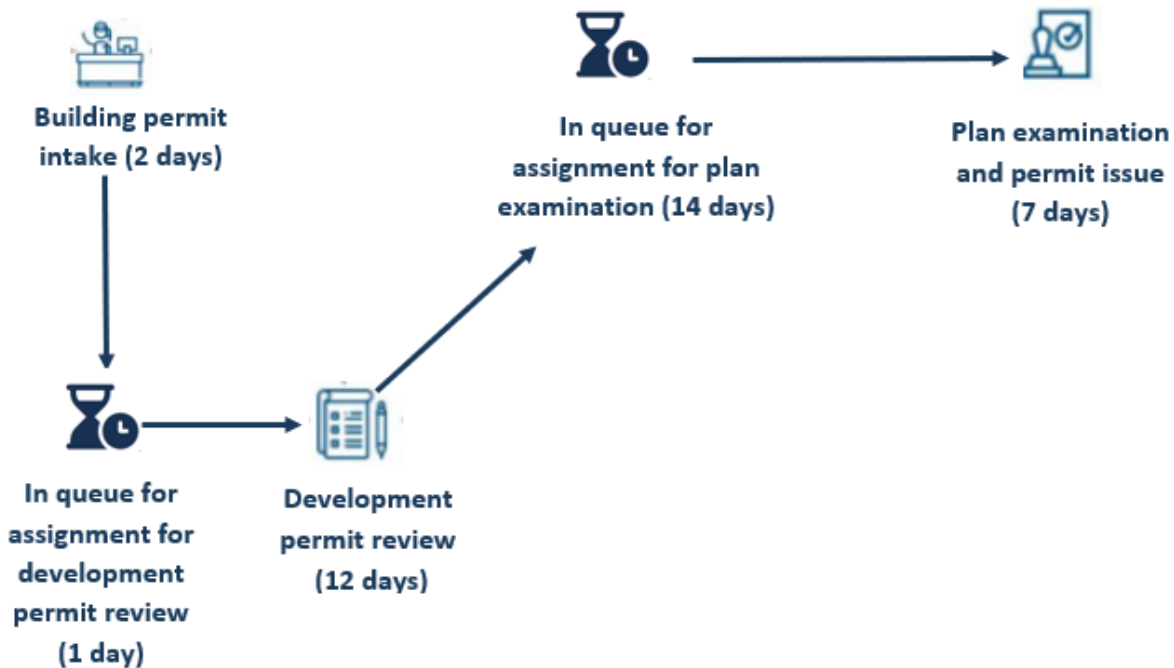
Requests for more information are the responsibility of both the applicant and SCPI. Permit applications that are complete and accurate take less time to review than applications that require more information. In 2021, a clean application took an average of 33 days to review and issue a permit. When more information is requested at any stage in the process (intake, plans examination), this increases to 47 days.

See the graph below for a comparison of the impact of needing more information from an applicant on timelines for 2019 to 2021.



### PLANS EXAMINATION — QUEUING TIME

Permit issuance consists of three distinct stages: intake, development permit, and plans examination. The graphic below shows the average<sup>5</sup> number of days needed to complete each of these stages in the process.



The longest stage in the permit issuance timeline is when an application is in the queue waiting for assignment to a plans examiner. The permit application is idle for an average of 14 days compared to a 1 day wait for assignment for a development review. Assignment is done as space becomes available based on the capacity of a plans examiner.

### BOOKING INSPECTIONS

SCPI's website provides information to applicants on the inspection booking process. Videos on the website inform applicants that inspections can be booked for the next business day if they call in before noon. When applicants call in after

<sup>5</sup> Due to rounding and the effects of outliers, the average for the whole process of 42 days is greater than adding the averages of the individual stages (36 days).

noon, the website states that SCPI will complete inspections within 2 business days.

However, SCPI has implemented a capacity<sup>6</sup> based booking system that sets the number of time slots available for booking each day based on the estimated number of Safety Codes Officers available and the number of inspections they can complete. Once capacity is reached, that day is no longer available and another day and time slot needs to be selected. SCPI has the ability to use contracted resources and/or overtime to increase the capacity.

In 2020 and 2021 the majority of applicants booked inspections within 1 to 2 days of calling in to book. However, in 2022, fewer applicants were able to book inspections for the next business day. The average remained at 2 days; some inspections are being booked even farther in advance (3 days and up).

See graph below for a comparison of the lead time for booking an inspection for 2020 to 2022<sup>7</sup>.



<sup>6</sup> Capacity based booking implementation dates: December 2021 for HVAC, March 2022 for Plumbing & Gas, May 2022 for Building.

<sup>7</sup> 2022 data is not a full year (includes January to August)

Once the inspection date is booked, SCPI is conducting the inspections on that day most of the time. In 2022, Safety Codes Officers completed inspections the day it was scheduled 89 percent of the time.

### WHY THIS IS IMPORTANT

More efficient building permit and inspection processes can reduce timelines. This will also reduce stakeholder frustration.

### RECOMMENDATION 4 MANAGEMENT RESPONSE

Review the permit application and inspection processes and implement a plan to improve efficiency.



#### Responsible Party

Director, Safety Codes, Permits, and Inspections




Accepted by Management

#### Management Response

SCPI process improvements will include updating, refining and adding to existing Standard Operating Procedures, application checklists and guides, further clarity and transparency by updating webpage language and content. Establishing minimum submission requirements for an application to be accepted.

Further refinement of the capacity based inspection scheduling system, related automated functions and customer self-serve portal options to achieve predictable, consistent and efficient processes for customers.

 **Implementation Date**  
September 30, 2023

# Recommendation 5: Performance Measures

## RECOMMENDATION

We recommend that the Development Services Branch enhance its performance measures so they are reliable, understandable, comparable, and include measurable targets.

## KEY FINDINGS

The Development Services Branch reports on a variety of measures for assessing the permit and inspection process. They release a Quarterly Activity Report publicly and include a variety of measures relating to the development process, from raw land to a finished development in Edmonton. The report also includes measures for SCPI.

However, SCPI has not documented the rationale for how it obtains the data it reports. As well, in reviewing the measures, we found issues with reliability, understandability, and comparability. SCPI has not set targets for the measures we reviewed.

## ASSESSMENT OF PERFORMANCE MEASURES

We assessed the following four measures for reliability, understandability, comparability, and consistency, including whether targets are disclosed:

- Safety codes and development inspections
- Analysis of more information requests for permits processed
- Residential semi-detached house permits
- Financials

### Reliability

Reliability means that reported amounts should be accurate and should be able to be recalculated.

SCPI has not documented the methodology and rationale for how they obtain the data to calculate their performance



measures. An SCPI staff member who is no longer with the business area developed the scripts but did not document the rationale or provided any comments. SCPI is still using the same scripts. The review process consists of chief inspectors reviewing the results for reasonability (e.g., five percent variance is acceptable).

We attempted to replicate selected data from the 2022 Quarter 1 Report and found:

- We replicated the number of inspections for three of the four inspection disciplines. However, even though the same query was used, we could not replicate the number of inspections for one discipline.
- We worked with SCPI to recalculate the average time waiting for more information requests. During this work, SCPI identified inconsistencies in the calculation and is in the process of investigating further to correct it.

### **Understandability**

Understandability means that the information presented uses graphs and tables and allows a reasonably informed user to interpret the data.

In its quarterly reports, the Branch does not include the methodology it uses to calculate the measures. This can make it difficult for a reader to fully understand the data. For example:

- There is a measure titled "Average time waiting on more information from customers by permit type". The report does not define what is meant by "time" (i.e., hours, days).
- For the measure of safety codes inspection pass/fail, the report does not define which inspections are included (i.e., first time inspections or all inspections conducted, including re-inspections).

### **Comparability**

Comparability means that data for the prior period should be provided and calculated using the same methodology and

same data source as the current results, unless otherwise stated and explained.

We found issues with comparability in the measures we reviewed:

- For 2 of the measures the prior quarter numbers cited in the Quarter 1 2022 report did not match those reported in the previous report (Quarter 4 2021). A reason for the difference was not provided in the measure.
- For one measure SCPI did not disclose the prior quarter number, even though data is available.

### **Consistency and Targets**

Consistency means that the performance measure results and targets should be included in the report every quarter.

SCPI does not have targets for the measures we reviewed.

Having targets defines performance expectations. Targets are typically based on current baseline data, industry standards, or desired results. Without a target, readers would not know if the performance numbers represent a positive, negative, or neutral result. For example, when SCPI reports that 50 percent of the applications it processed in quarter 1 of 2022 required more information from the applicant, is that good or bad?

### **WHY THIS IS IMPORTANT**

Performance measures with targets help business areas make data-based decisions and identify opportunities for improvement. When reported measures are not reliable, understandable, or comparable, and don't have targets, stakeholders may make incorrect interpretations or decisions using the data.

### **RECOMMENDATION 5 MANAGEMENT RESPONSE**

Enhance its performance measures so they are reliable, understandable, comparable, and include measurable targets.

**Responsible Party**

Branch Manager, Development Services Branch



Accepted by Management

**Management Response**

The Development Services Quarterly Activity Report will be updated to reflect performance measures that are reliable, understandable, comparable and include measurable targets.

**Implementation Date**

September 30, 2023

**ACKNOWLEDGEMENT**

We would like to thank the staff and management of the Safety Codes Permits and Inspection section for their cooperation during the audit. Additionally, we want to thank the external stakeholders who provided feedback during the completion of our audit.