Office of the City Auditor

1200, Scotia Place, Tower 1
10060 Jasper Avenue
Edmonton, Alberta T5J 3R8

edmonton.ca/auditor

# Utilities Infrastructure Branch Audit

**September 19, 2016**

The Office of the City Auditor conducted this project in accordance with the *International Standards for the Professional Practice of Internal Auditing*

# Utilities Infrastructure Branch Audit
# Table of Contents

1. Introduction ..... 1
2. Audit Objectives ..... 2
3. Key Findings ..... 2
4. Observations and Recommendations ..... 3
4.1. Objective 1: Resource Planning/Use ..... 3
4.1.1. Contract and Consulting Services ..... 3
4.1.2. Overtime ..... 4
4.2. Objective 2: Performance Measurement ..... 8
4.3. Objective 3: External Communications ..... 9
Appendix1: Background ..... 10
Appendix 2: Risk Assessment, Audit Scope, & Methodology ..... 13

This page intentionally left blank

# Utilities Infrastructure Branch Audit

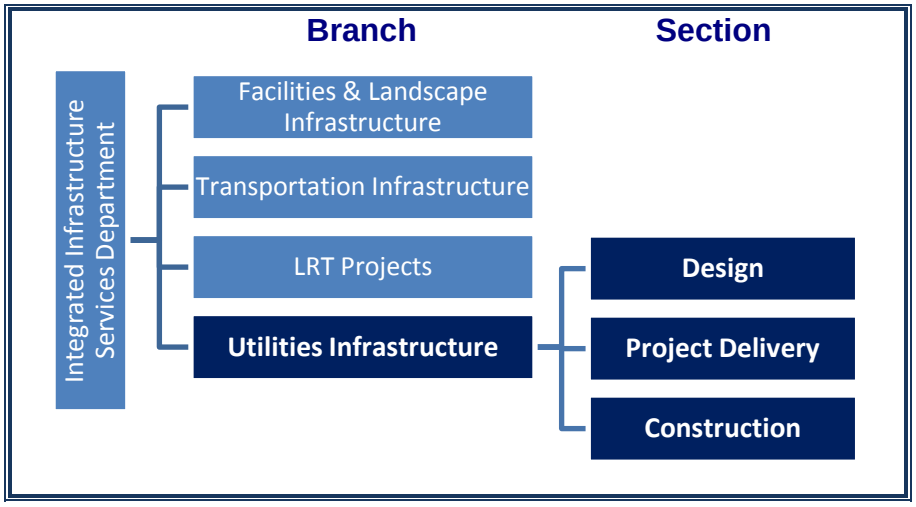
## 1. Introduction

The Office of the City Auditor (OCA) included an audit of the Drainage Design and Construction section of the Drainage Services branch in its 2016 Annual Work Plan. This report describes the objectives, findings, and recommendations from our audit work.

There have been two significant organizational changes since the OCA 2016 Annual Work Plan was approved by Audit Committee in November 2015. The Drainage Design and Construction section was moved to the new Integrated Infrastructure Services department and became the Utilities Infrastructure branch. Subsequently, a new organization chart was released showing the Department structured by function (e.g., Planning and Design branch). This replaces the traditional branches, including the Utilities Infrastructure branch.

Figure 1 illustrates the Utilities Infrastructure branch organizational structure at the time of this audit. Additional organizational and financial information is provided in Appendix 1, Background.

**Figure 1, January 2016 Organizational Structure**




The transformation of the Integrated Infrastructure Services department is currently underway. The transformation program represents a significant realignment of strategy, structure, processes, competencies, leadership style and culture to achieve success in the new organization. It is expected that this transformation will improve delivery of drainage design and construction services.

# 2. Audit Objectives

We had three objectives for this audit:

Objective 1 Resource Planning/Use: To assess the reasonableness of the mix of staff, consulting and contract resources used for the design and construction of drainage infrastructure.

Objective 2 Performance Measures: To assess if Utilities Infrastructure performance measures demonstrate efficient and effective operations.

Objective 3 External Communication: To determine if external communications are effective in managing community relations.

The risk assessment, audit scope, and methodology for this audit are provided in Appendix 2, Risk Assessment, Audit Scope, and Methodology.

# 3. Key Findings

1. The Utilities Infrastructure branch implemented a resource planning tool for the 2015-2018 Capital Priorities Plan period to forecast and analyze internal and external resource requirements. This allows branch management to make informed decisions on the use of internal and external resources.
2. The Branch budgets for approximately $5.0 million for overtime annually. The budget is primarily based on historical records and the size of the capital budget. Clearly defined business decisions on the appropriate use of overtime needs to be developed and communicated to staff to ensure services are delivered in the most economical manner.
3. The application of overtime controls (e.g., pre-authorization, approval) has improved in 2016. However, compliance continues to be low. Management needs to continue to improve their oversight of overtime to ensure costs are minimized and are accurate.
4. The Branch is in the process of developing performance measures that will allow them to objectively report on the effectiveness and efficiency of operations. The development process has been suspended due to ongoing organizational changes. Management needs to resume their development efforts and ensure measures that have already been developed align with the new organization requirements.
5. The Branch took reasonable action to address recent communication issues. Sharing their analysis of the issues and action taken with other project teams will reduce the risk of similar incidence in the future.

We reviewed the Department's Transformation Program charter and implementation plan. We also reviewed the Program's project charters and found that the descriptions contained have the potential to address, at least in part, the two recommendations we make in this report.

# 4. Observations and Recommendations

## 4.1. Objective 1: Resource Planning/Use

### 4.1.1. Contract and Consulting Services

The Utilities Infrastructure branch uses contractors and consulting services for a variety of reasons, including:

- To supplement in-house resources during periods of high demand,
- A need for specialized skills not available in-house, and
- A need for an independent point of view.

**Consultant Use**

During our audit, we received a letter containing allegations related to the use of favoured consultants. To assess this risk, we reviewed a full listing of vendors who received contracts related to drainage design and construction over the past three years. We did not identify any unusual or recurring use of vendors that suggests favouritism.

Our review did not include an assessment of procurement practices, as the OCA has completed two corporate procurement reviews in 2016 (Change Order Process Review and Sole and Single Source Audit). An additional corporate procurement audit of the Tendering Evaluation Process is also planned for 2016.

**Internal and External Resource Planning**

Long-term resource planning is a process that identifies current and future resource needs for an organization to achieve its goals. It provides management with information needed to have the right resources for the right job at the right time.

Over the past four years, the Utilities Infrastructure branch has spent approximately half of its budget on contractors and consulting services. As shown in Table 1, the percentage of total branch expenditures for contract and consulting services has increased from approximately 48% to 57% between 2012 and 2015. As such, it is important to assess the approach for how work is allocated to internal staff and external resources.

**Table 1 – Contract and Consulting Expenditures (millions of dollars)**

| | 2012 Actual | 2013 Actual | 2014 Actual | 2015 Actual |
|---|---|---|---|---|
| **Total Branch Expenditures** | **$121.4** | **$118.2** | **$134.2** | **$152.5** |
| **Contracts & Consulting** | **$57.9** | **$55.8** | **$72.0** | **$86.4** |
| *% of Total Branch Expenditures* | *47.7%* | *47.2%* | *53.6%* | *56.7%* |

The Utilities Infrastructure branch implemented a “Program Planning Process” for the 2015-2018 Capital Priorities Plan period. The tool they use forecasts staffing requirements, equipment needs and the types of external resources required over the forecast period. The tool allows management to analyze resource requirements at the Branch, program (e.g., Neighbourhood Improvement, Flood Mitigation), and individual project level.

The Branch also has criteria and guidelines used during the project Planning Stage to assess the need to hire contractors for specific tasks prior to starting construction. We believe these tools provide Utilities Infrastructure branch management with the information needed to make decisions on the best use of internal and external resources.

### 4.1.2. Overtime

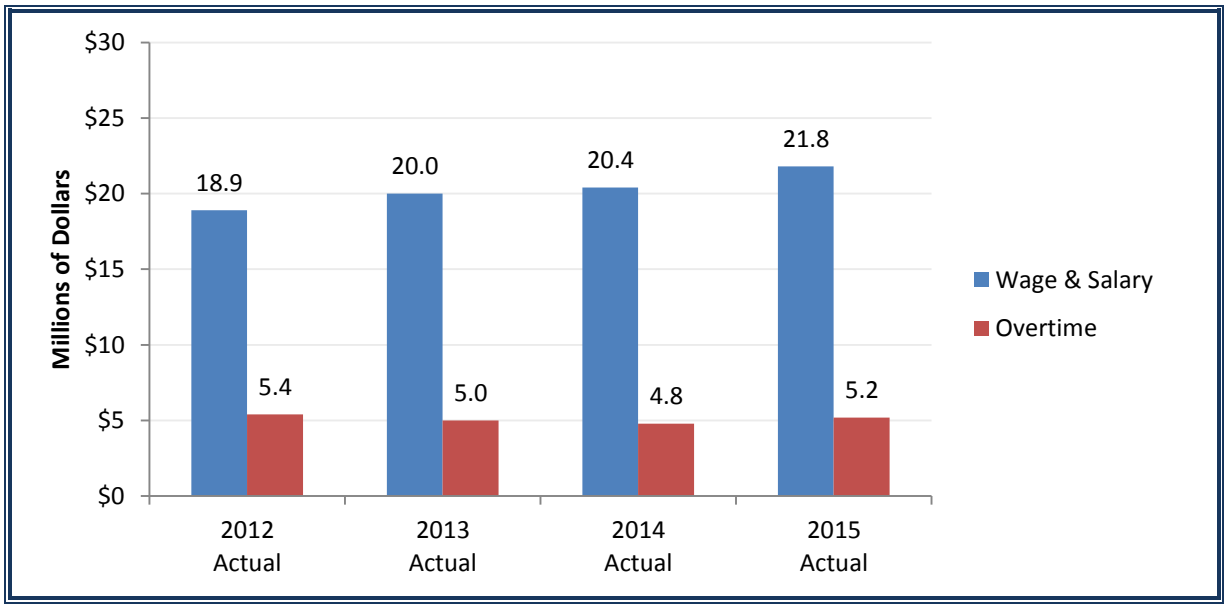
The use of overtime is an expensive choice. Using overtime effectively and efficiently requires a fine balance between meeting service delivery demands, maintaining appropriate staffing levels, and appropriate management oversight.

The Utilities Infrastructure branch uses overtime for a variety of reasons, including:

- To meet project timelines,
- To minimize disruption to the citizens,
- To deal with unforeseen circumstances,
- To respond to emergencies, and
- To address seasonal spikes in workload.

As shown in Chart 1, between 2012 and 2016 overtime expenditures have remained relatively constant - around $5 million.

**Chart 1 – Personnel Expenditures** (excluding overheads and benefits)




Due to the high cost of overtime, we met with Utilities Infrastructure branch management to determine if there was an overtime strategy in place to guide the use and monitoring of overtime. Branch management recognized the need to review overtime and initiated a review of overtime at the beginning of 2016. We reviewed a report titled *Construction Services Review of Overtime Usage in 2015* which summarized the results of management's overtime review.

Based on our discussions and review of the report, Utilities Infrastructure branch management is aware of the various ways to manage overtime. However, the Branch does not have a formal overtime strategy to guide the use and monitoring of overtime.

### Overtime Controls

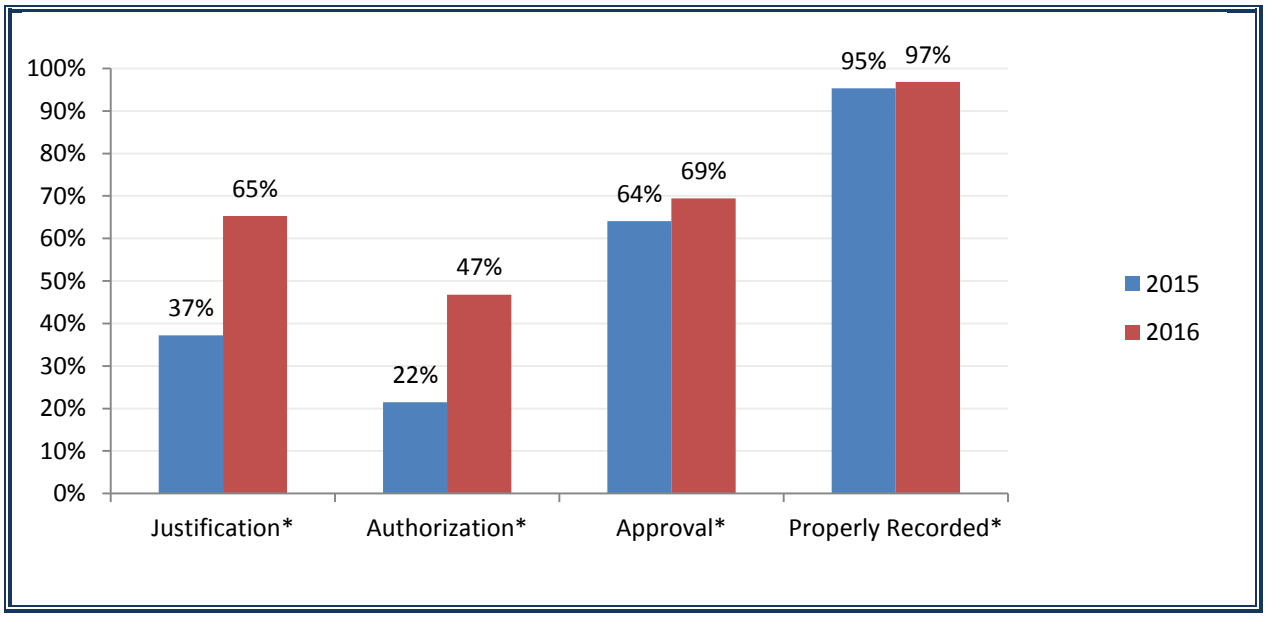
The *Construction Services Review of Overtime Usage in 2015* report indicates that overtime must be justified, authorized, approved, and properly recorded. We used these controls to assess the management of overtime.

Prior to testing, Utilities Infrastructure branch management advised us that overtime documentation might be insufficient for 2015. They also indicated they have started to improve documentation of overtime in 2016.

We chose a sample of employees from the list of top overtime earners from the Branch in 2015 and 2016. We then selected two to three pay periods for each employee. We reviewed all timesheets in the selected pay periods for that employee.

As shown in Chart 2, we found that overtime documentation has improved between 2015 and 2016. However compliance rates are still low. For example, the chart shows that the rate for written authorization increased from 22% in 2015 to 47% in 2016.

## Chart 2 – Changes in Overtime Compliance Documentation




***Justification** – A reasonable explanation for the overtime was documented prior to authorization.*

***Authorization** – Overtime was authorized by the appropriate supervisor prior to being worked.*

***Approval** – Overtime hours recorded on timesheets were approved by the appropriate supervisor prior to entry into the payroll system.*

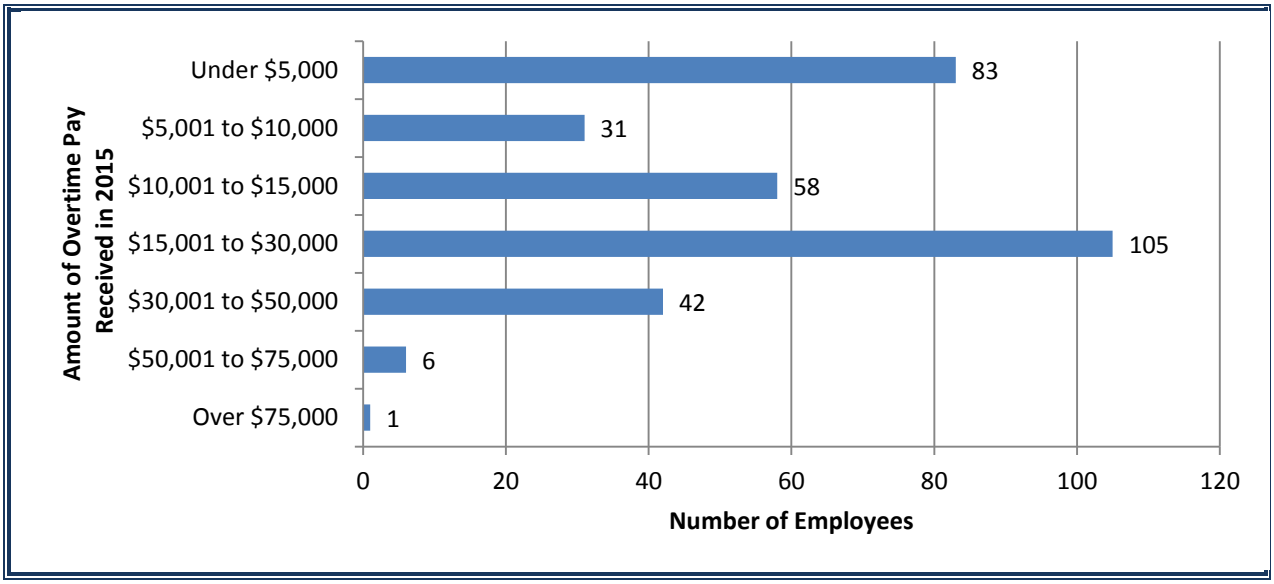
***Properly Recorded** – The overtime hours recorded in the payroll and financial systems match the hours approved by the supervisor.*

We were advised that normal practice for authorization included verbal authorization and the assumption that overtime was authorized if a response to an overtime request was not received. Verbal and assumed authorizations do not provide the evidence needed to demonstrate overtime was appropriate.

We were also advised that the Integrated Infrastructure Services department will be developing guidelines for use and management of overtime for the Department. The guidelines will supplement the Corporate Overtime Management Guide that was released in February 2016.

We reviewed a list of Utilities Infrastructure branch employees who received overtime payments in 2015. There are 326 employees who earned overtime. Just over half of these employees earned under $15,000. The top earner received over $89,000. Chart 3 provides a breakdown of the number of employees who received overtime in various amounts in 2015.

### Chart 3 – Overtime Received by Employees




While there are many legitimate reasons for the use of overtime, relying too much on overtime can result in higher cost and lead to:

- Increased health and safety risks,
- Decreased productivity, and
- Increased absenteeism and staff turnover rates.

Improving overtime controls and management oversight can reduce these risks.

**Recommendation 1**– Overtime Use and Monitoring Guidelines

The OCA recommends that the Deputy City Manager, Integrated Infrastructure Services department implement guidelines to improve management oversight and the ability to identify alternate service delivery methods to reduce overtime costs.

**Management Response and Action Plan**

**Accepted**

**Action Plan:** Guidelines on the appropriate use and oversight of overtime will be developed.

**Planned Implementation Date:** December 2017

**Responsible Party:** Deputy City Manager, Integrated Infrastructure Services

## 4.2. Objective 2: Performance Measurement

An adequate performance measurement system helps to ensure that business outcomes are consistently achieved in an efficient and effective manner.

We reviewed the performance measures of the Utilities Infrastructure branch to assess whether these measures demonstrate the efficiency and effectiveness of the Branch.

In 2014, the Drainage Services branch initiated a 3-year process to define performance measures for all business areas within the Branch. We reviewed the performance measurement development process that had been followed. We believe the process has the potential to result in a defined and credible set of performance measures. However, we were advised that the development process has been suspended due to the organizational changes and that there may be changes to this process.

We also reviewed the inventory of performance measures that have been identified to date and a sample of the reporting that will be available after the development process is complete.

Based on our review of the current performance measure inventory and the sample reports Utilities Infrastructure branch management will have the information available to objectively demonstrate the efficiency and effectiveness of its operation when the development process is complete.

**Recommendation 2** – Performance Measures

The OCA recommends that the Deputy City Manager, Integrated Infrastructure Services department, needs to ensure that performance measures development process is complete and that the results align with Departmental requirements.

**Management Response and Action Plan**

**Accepted**

**Action Plan:** The performance measures development process will be completed in alignment with Department requirements.

**Planned Implementation Date:** December 2018

**Responsible Party:** Deputy City Manager, Integrated Infrastructure Services

## 4.3. Objective 3: External Communications

Effective communication with the public is important to the City. As such, we reviewed the documentation related to the West Jasper Place drainage rehabilitation project. The Branch identified communication concerns with the project. These concerns related to the quality and frequency of communication with citizens. The purpose of this review was to identify risks and opportunities to support more effective public communications.

There was conflict between the community and the City in the early communications we reviewed. However, after the City acknowledged that there were issues, changed the frequency of their communications, and initiated a task force with community participation, the level of conflict decreased.

Identifying the root cause for communications issues can be difficult since there are many factors that can cause, escalate, and de-escalate conflict in specific situations. We noted that

1. Project Managers are accountable for project communication and often are a first point of contact for citizens. The Branch has started to provide media or public communication training to staff who communicate with the public regularly.
2. Corporate Communications participates in the development of a communication strategy in the project design stage. When a communication issue occurs the Project Manager is responsible for deciding when to request Corporate Communication assistance.
3. The City's Project Management Reference Guide requires that project teams document issues, determine their cause and impact on the project. The project team is also required to make recommendations to avoid or address similar issues later in the project and in future projects.

We found that Corporate Communication's staff were involved in resolving the communication issues after it had been escalated. We also found that Utilities Infrastructure staff in conjunction with Corporate Communications have analyzed and documented the issues they encountered in the West Jasper Place drainage rehabilitation project. They also developed preliminary strategies to address the issues on a proactive basis.

# Appendix1: Background

### Edmonton's Sewer System

Unlike roads, recreation centres, and the LRT, the sewer pipes that run underneath virtually every structure in Edmonton are out of sight and out of mind - until something goes wrong. When there is sewer backup in homes and neighbourhoods, or when odours begin to affect quality of life, it is a stark reminder that proper sewer function is critical to quality of life for Edmontonians.

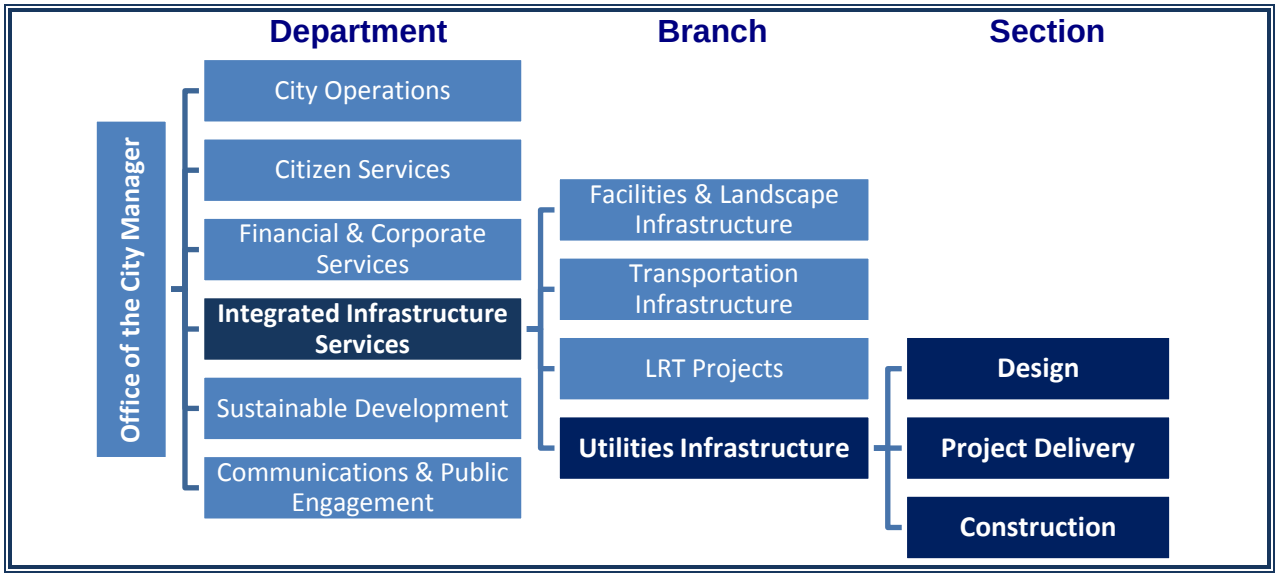
In 1905, Edmonton's sewer system consisted of approximately 10 kilometres of pipe. In 2016, there is over 5,800 kilometres of storm, sanitary, and combined sewers in Edmonton. Each year the size, complexity, value, and cost of our sewer system continues to grow.

### Organizational History

In November 2015, when our 2016 Annual Work Plan was approved Drainage Design & Construction were functional areas in the Drainage Services branch, Financial Services & Utilities department.

In January 2016, the City Manager announced a reorganization of the City Structure along functional lines. This resulted in the Drainage Services branch being disbanded and the Drainage Design and Construction functions being transferred to the newly created Integrated Infrastructure Services department. Figure 2 shows how the Drainage Design & Construction section were impacted by the re-organization.

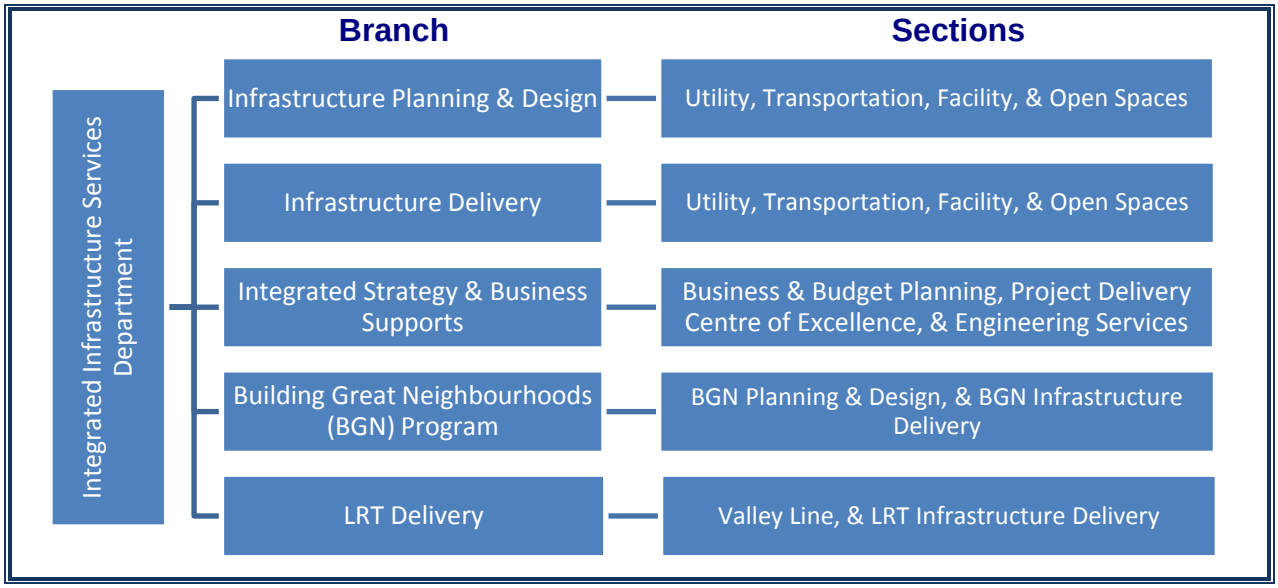
**Figure 2, January 2016 Corporate Organizational Structure**



It was noted in the announcement that this was the first milestone and work on recombining and integrating work teams was underway.

In May 2016, the Integrated Infrastructure Services department released a new organization chart. The transformation included additional restructuring to incorporate lifecycle considerations early on in the infrastructure planning and design phase. It also consolidates all in-house construction functions, and provides an integrated strategy and business support function to the entire department. Figure 3 shows how functions have been aligned in the Integrated Infrastructure Services department.

**Figure 3, Current Integrated Infrastructure Services department Organizational Structure**




On July 12, 2016, City Council received an Integrated Infrastructure Services Update report that included the Vision, Mission, and Values. The report also described elements of the Transformation Program that had been initiated to align strategy, structure, process, competencies, leadership behavior, and culture.

The new structure is intended to show how the Department will work together to achieve their vision of inspiring trust among citizens and Council in their commitment and ability to deliver quality infrastructure.

### Financial History

Table 3 provides the 2012 - 2015 expenditures and recoveries for the Utilities Infrastructure branch as it existed at the beginning of this audit.

### Table 3 – Utilities Infrastructure Financial Summary
**(millions of dollars)**

| | 2012 Actual | 2013 Actual | 2014 Actual | 2015 Actual |
|---|---|---|---|---|
| **Recoveries and Revenues** | | | | |
| • Internal Recoveries | $116.1 | $113.1 | $124.2 | $146.8 |
| • External Revenues | 6.0 | 5.1 | 7.0 | 2.3 |
| **Total Recoveries and Revenues** | **$122.1** | **$118.2** | **$131.2** | **$149.1** |
| **Expenditures and Transfers** | | | | |
| • Internal Service Delivery | $51.5 | $54.5 | $55.3 | $56.3 |
| • Contract & Consulting Services | 57.9 | 55.8 | 72.0 | 86.5 |
| • Administrative & Other Costs | 7.1 | 6.9 | 4.6 | 6.1 |
| • Transfer to Reserves | 4.9 | 1.0 | 2.3 | 3.6 |
| **Total Expenditures and Transfers** | **$121.4** | **$118.2** | **$134.2** | **$152.5** |
| **Net Position – Favourable/(Unfavourable)** | **$0.7** | **$--** | **$(3.0)** | **$(3.4)** |
| **Full Time Equivalent Positions** | **365** | **365** | **365** | **368** |

This table shows that in 2012 the branch ended with a favourable position of $700,000 and an unfavourable position of $3.0 and $3.4 million in 2014 and 2015 respectively.

# Appendix 2: Risk Assessment, Audit Scope, & Methodology

### Risk Assessment and Audit Scope

At the time the *2016 OCA Annual Work Plan* was approved, the scope of organizational changes and Transformation Program that has since occurred was not anticipated. Conducting a full audit of a business unit that no longer exists and of processes that are being actively changed, would provide very limited value to the organization. We therefore decided not to conduct an in-depth audit of Drainage Design and Construction business unit, as it no longer exists.

We completed a risk assessment to assist us in focusing this audit on the processes and risks that have the greatest impact on the successful completion of projects, and achievement of Branch goals.

The results of the risk assessment indicated that the highest rated risks relate to the decision-making model and the planning and design process. The potential impact, should risks materialize, can result in higher project costs and construction delays. Communications with the public was also identified as a reputation risk for the City.

The Transformation Program being completed by the Integrated Infrastructure Services department addresses these risks and many aspects of what would typically be included in a branch audit including: a review of the organization or governance structure, the business model, and performance management. To minimize duplication the OCA will assess the need for a full value-for-money audit in a future year.

### Out-of-Scope

We were asked to consider including an audit of the Millwoods Double Barrel Project as part of this audit. An audit of the Millwoods Double Barrel Replacement project would be complex and require a resource allocation not available within this Utilities Infrastructure Audit. Therefore, the Millwoods Double Barrel Replacement project will not fall within the scope of this audit.

An audit of the Millwoods Double Barrel Replacement project will be included in the 2017 audit universe and prioritized against all other potential projects.

### Methodology

We used the following methods to address our audit objectives:

- Discussions with Utilities Infrastructure branch management and supervisors
- Discussion with the Integrated Infrastructure Services department Transformation program manager.

- Review of performance measurement information
- Test of a sample of overtime transactions.
- Review of communication related policies and directives.
- Discussion of various topics with subject matter experts outside of the Integrated Infrastructure Services department.