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Edmonton

POSSE System Review

January 30, 2017

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

POSSE System Review

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Executive Summary

POSSE stands for Public One Stop Service application and is a work-flow management system that allows business areas to design and automate business processes. It has been an integral part of the corporation for the past 20 years and is considered a core enterprise resource planning application system at the City of Edmonton (City). POSSE is used to process permits, licenses, and development fees and also supports several management processes throughout the City.

We performed a value-for-money audit of the POSSE application and the processes used to support it. For this audit, value-for-money was defined as POSSE's ability to enable users to be efficient and effective when performing City business given the capital investments and costs to operate it.

We identified four audit objectives for this audit:
1. To determine if a governance structure is in place to support the effective use of POSSE;
2. To determine if adequate processes are in place that ensure POSSE is operating as designed;
3. To determine if POSSE enables End-Users (users) to achieve their business needs in an effective, efficient, and satisfying way; and
4. To determine if business processes are in place to support the efficient and effective use of POSSE.

Overall, we found that a governance structure is in place to make and monitor investment decisions in POSSE and ensure that its use in the City is properly supported. Better clarity and consistency of key roles and terminology in the governing documents however would ensure that governance decisions are consistently understood and applied.

Within the governance structure processes have also been put in place to track POSSE's project and operating costs. However, these processes occur separately and not in a way that would facilitate the calculation of POSSE's total cost. In absence of a total cost for POSSE, we were unable to conclude if the City is receiving value for money from the application. Assigning accountability to monitor and report on POSSE's total cost within the governance structure will enable the City to monitor the reasonableness of the cost.

Similarly, POSSE's non-financial value is not defined in the governing documents nor has it been expressed into terms that would allow for a meaningful value assessment. Accountability for this process has also not been assigned. Doing so, in combination with establishing a process to monitor and report on POSSE's non-financial value, would enable the City to regularly assess if it is receiving the value it expects from an automated workflow solution.

In terms of the day-to-day use of POSSE, we did find that processes are in place to support users when using the POSSE application. However, improvements to these processes need to occur to ensure that users are efficient and effective when using the application.

To address our findings we recommend the following to Administration:
1. Assign accountability for, and establish a process to, determine and monitor the total cost and value of POSSE;
2. Clarify and ensure consistency of roles, accountabilities, and key terms in the governing documents;
3. Enhance communication to business areas about POSSE and the processes that are in place to support its use to users; and
4. Improve the efficiency of key processes, including the establishment of a method that efficiently addresses users' requests for minor enhancements to POSSE jobs.

We thank Administration for their time and cooperation in facilitating this audit. Administration has agreed to these recommendations and has begun work to address them.

POSSE System Review

1   Introduction

POSSE stands for Public One Stop Service application and is a workflow management system which allows business areas to design their specific jobs to reflect their work processes. For approximately 20 years, POSSE has been an integral part of the corporation, in part because City staff developed it. In an organization such as the City of Edmonton, a workflow management system is an essential tool to automate key business processes. POSSE is one of the City's key enterprise applications and is therefore critical to the achievement of day-to-day City business.

POSSE is used mainly to process permits, licenses, and development fees. POSSE is also used to support a variety of processes including property enforcement, grants and subsidies management, and animal case management. According to Administration, approximately $86.4M in revenue was processed using POSSE in 2015. As a key enterprise resource application significant investments in POSSE are made each year. The Office of the City Auditor (OCA) included a review of POSSE as a value-for-money audit in its 2016 Annual Audit Plan.

2   Audit Objectives

The overall objective of this review was a value-for-money audit of the POSSE application and the processes used to support it. For this audit, value-for-money was defined as POSSE's ability to enable users to be efficient and effective when performing City business given the capital investments and costs to operate it. We identified the following four audit objectives as a result of our risk identification and assessment process:

1.   To determine if a governance structure is in place to support the effective use of POSSE. (Section 3.1)
2.   To determine if adequate processes are in place that ensures POSSE is operating as designed. (Section 3.2)
3.   To determine if the application enables End-Users (users) to achieve their business needs in an effective, efficient, and satisfying way. (Section 3.3)
4.   To determine if business processes are in place to support the efficient and effective use of POSSE. (Section 3.4)

A discussion of the background and our audit methodology are provided in Appendices 1 and 2 respectively.

3   Observations and Recommendations

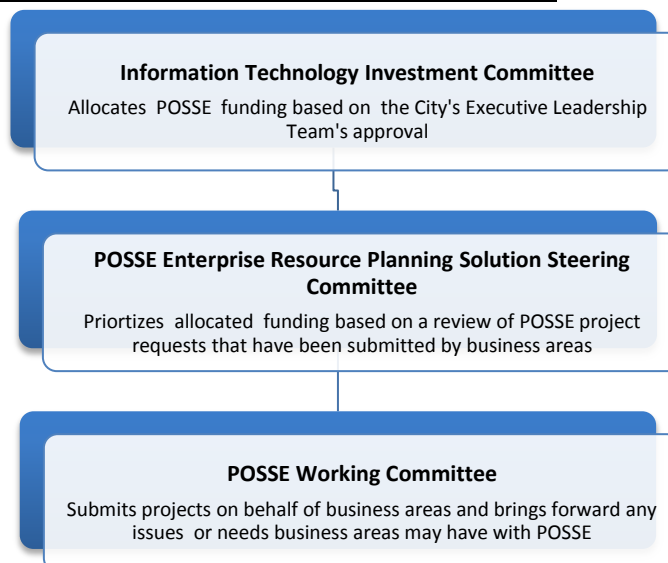## 3.1   POSSE's governance and value to the City

We found that Administration is employing several best practices in IT Governance to ensure that POSSE has an adequate governance structure. In particular, a committee approach has been adopted to set, agree, and monitor the overall direction, strategy and investment in POSSE. Governing documents which establish accountabilities and decision making have been created. Also, representation and active participation by senior management, from both the Information Technology Branch (IT) and City business (i.e., City Departments), is evident in the governance structure.

We identified several opportunities for improvement however. In the governing documents better clarity and consistency of roles and terminology would ensure that governance decisions are consistently understood and applied throughout the City. Establishing a process to calculate and monitor POSSE's total cost would enable Administration to monitor the reasonableness of these costs. Similarly, defining the "value" expected from POSSE in non-financial terms would enable Administration to determine if it is receiving the value it expects from an automated workflow solution. With both sets of information a proper value-for-money assessment could then be made.

3.1.1 Clarity and consistency of governing documents

Figure 1 illustrates the committees in POSSE's governance structure:

Figure 1: Committee's in POSSE's Governance Structure

Information Technology Investment Committee
Allocates POSSE funding based on the City's Executive Leadership Team's approval

POSSE Enterprise Resource Planning Solution Steering Committee
Priortizes allocated funding based on a review of POSSE project requests that have been submitted by business areas

POSSE Working Committee
Submits projects on behalf of business areas and brings forward any issues or needs business areas may have with POSSE

The OCA reviewed various governing documents including the Terms of Reference for each of the Information Technology Investment Committee, POSSE Enterprise Resource Planning Solution Steering Committee and the POSSE Working Committee. We observed that the assignment of accountabilities for key decisions is duplicated across the various committees and members of senior management from IT. This is inconsistent with the *City of Edmonton's Enterprise Information Management/Information Technology Governance Framework* which currently states that "only one [owner] can be accountable" for a key decision, while the responsibility of executing that decision can be shared. Ensuring alignment of the governing documents to the framework will support the clarity of accountability for governance decisions made for POSSE.

The OCA also observed that the majority of governing documents in POSSE's governance structure do not define key terminology and will use different terminology to describe the same underlying goal/strategy. Without such clarity the intended strategy and governance process supporting the POSSE application may be interpreted differently and applied differently by business areas across the City. Defining key terms in the governing documents, including statements of how they should be understood in the governance of POSSE, would clarify the governance strategy for POSSE. It would also support its consistent application across the City. (**Recommendation 1)**

3.1.2 Assessing POSSE's value to the City

Technology is advancing quickly and the City's processes are evolving continuously. A process should exist to monitor the value POSSE brings to City operations when compared to other automated workflow solutions. In our review of the governing documents we were unable to:

- Find a clear definition of what value means and how it would be assessed in the context of the POSSE application;
- Determine which committee or position is accountable for defining and monitoring POSSE's value;
- Obtain sufficient documentation that shows that the City is regularly assessing POSSE's ongoing value; and,
- Obtain sufficient documentation that demonstrates that POSSE is meeting the City's business needs and is currently the best automated workflow solution for the City.

We did find that on a smaller scale comparative studies do occur. For example, when a business area is looking for a solution for a particular process and POSSE is one option.

In 2009, the City hired a consultant to help determine an investment strategy for POSSE for the next three to five years. The report identified POSSE as an

integral system that would continue to play a significant role in the City. However, the report stopped short of providing a long-term vision. Instead it advised that Administration review the POSSE Vision and Strategy as well as the IT landscape at the end of five years to reassess POSSE's relevance to the City. We did not receive any documentation to suggest this reassessment occurred. Conducting an assessment would enable the City to properly determine if it is receiving value for money from POSSE and if it is the best automated workflow solution for the City now and in the future. The assessment should include: users' needs, the City's strategic goals and an evaluation of other automated workflow solutions against those needs. **(Recommendation 2)**

3.1.3 What is POSSE costing the City?

To determine if the City is receiving value for money from the POSSE application, we also needed to know what it costs the City in total. We defined the total cost for POSSE in two ways: the total annual cost for POSSE and the total cost of ownership. Total cost of ownership is defined as the total cost of using and maintaining an IT investment over time[1].

In our review we identified four types of costs for POSSE: capital project costs, operating project costs, vendor costs, and IT support costs. Each type is discussed below:

- Capital project costs: A capital project helps maintain or improve an existing asset. POSSE's Enterprise Resource Planning Solution Steering Committee allocates capital funding for POSSE to various projects and monitors spending for each project. We obtained a list of 19 POSSE capital projects for the period January 1, 2010 and May 20, 2016 and estimated that the City spent approximately $5.4 M on these capital projects. However, this list did not include POSSE capital projects that were developed internally by the City without the involvement of the vendor (i.e., developed in-house).

- Operating project costs: An operating project supports or enhances the ongoing functionality of POSSE. POSSE's Enterprise Resource Planning Solution Steering Committee review, monitors, prioritizes and approves funding for POSSE operating projects. We obtained a list of 26 POSSE operating projects for the period January 1, 2010 and May 20, 2016 and estimated the City spent approximately $15.5 M on operating projects. This list also did not include operating projects that were developed

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[1] The total cost of ownership for an enterprise resource application is the sum of all direct and indirect costs incurred to enhance (e.g., Capital costs), sustain (e.g., operating costs), and maintain (e.g. licensing costs) the application. When applicable, the total cost of ownership should also separate the costs of vendor and non-vendor (i.e., in-house) development activities in order to arrive at a truer picture of what the application is costing the organization.

internally by the City without the involvement of the vendor (i.e., developed in-house).

- Vendor costs: Vendor costs include all the costs paid to the external vendor for licensing, maintenance and additional services. We observed that vendor costs are properly monitored and managed by IT management. Between January 1, 2010 and May 20, 2016 the City paid $7.2 M to the vendor for POSSE related services. As per the contract, annual Maintenance and Licensing Fees are $350K. The other costs are for service charges related mainly to various capital and operating projects already discussed above.

- IT support costs allocated to POSSE: These costs are the costs of running the application and include expenditures for staffing, hardware maintenance, in-house training, and security. The IT Branch Manager reviews and monitors total IT operating costs. IT estimated that the annual operating cost for POSSE is approximately $1.9 M.

While adequate processes are in place to monitor and report on each cost type, management was unable to provide us with a current report that summarized the POSSE's annual consolidated cost. The OCA did attempt to calculate POSSE's total cost, however overlap of information between the reports and the fact that the reports did not factor the cost of internally developed POSSE projects made the calculation incomplete and therefore inaccurate.

A reporting process to determine the total cost, and by extension, the total cost of ownership for POSSE currently does not exist. Consequently, we could not determine what the application is costing the City overall. Further, accountability for reporting and monitoring POSSE's total cost has not been assigned to any committee or position in POSSE's current governance structure. Regular reporting at the consolidated level will enable Administration to answer the questions: what is POSSE costing the City and what is its total cost of ownership? **(Recommendation 2)**

3.2 POSSE's operating performance

To determine if POSSE is operating as designed we reviewed the processes IT management has in place to ensure POSSE's functionality, availability, and responsiveness.

We observed that POSSE's functionality, availability, and response time is monitored daily by the IT Operations business unit through a variety of reports and statistics. However, we observed that baseline targets to assess the reasonability of the statistics have not been established. Instead Database Administrators use their knowledge and experience to identify any exceptions

with POSSE's performance. Establishing baseline targets would enable IT to identify patterns of poor operating performance in POSSE.

We observed that IT has publically established and monitors two performance measures to assess POSSE's operating performance:

- the Availability measure which is designed to ensure that POSSE is running Monday to Friday 7 am-5 pm; and,
- the Recovery Time Objective measure which is designed to ensure that POSSE will be available two hours after a major and unplanned outage.

IT has also established processes to identify defects[2] with POSSE's functionality including monthly stewardship meetings with the vendor to discuss POSSE's current and future requirements. **(Recommendation 4)**

3.3 Users' perception of their effectiveness, efficiency, and satisfaction with POSSE

We surveyed POSSE users to determine if using the application enables them to achieve their tasks in an efficient, effective and satisfying way. Our survey results revealed that the City needs to improve users' efficiency and effectiveness when using POSSE to complete City business.

We sent surveys to more than 4,000 users and more than 1,000 responses were received. We focused our review on the responses of users who self- identified themselves as primary users (695 responses) given the nature of their interaction with the application.[3] The average results for primary users' perception of their efficiency, effectiveness and satisfaction when using POSSE are summarized in Table 1.

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[2] Defects are defined as product bugs that can only be addressed and fixed by POSSE's vendor.
[3] Respondents had to self-identify their use of POSSE based on the following questions in the survey:
    1) Users who can edit/change information in POSSE were categorized as Primary Users by the OCA.
    2) Users who support the POSSE application and/or ensure that the application has the right security infrastructure were categorized as Secondary Users by the OCA and
    3) Users who can view information in POSSE but cannot enter or edit information in POSSE were categorized as Indirect Users by the OCA. We focused our analysis on the Primary Users given the nature of their interaction with POSSE.

Table 1: Primary users' perception of their efficiency, effectiveness and satisfaction when using POSSE

Question	Assessment intended by OCA	Agreed/Somewhat Agreed	Neutral	Somewhat Disagreed/ Disagreed
No Wasted Time/ No Work Arounds	Efficiency	54%	17%	29%
Can Do Everything I need it to / No Rework is required	Effectiveness	48%	18%	34%
Satisfaction (e.g., Layout, Ease of Use, Speed)	Satisfaction	46%	19%	35%

As conveyed in Table 1, about half of primary users feel efficient, effective, and satisfied when using POSSE to conduct City work.

In addition to the survey responses, the primary users provided approximately 250 comments about their experience using POSSE. We provided these comments to management and have included several of them in the remainder of the report to highlight the impact of issues being discussed on the user.

3.4   Processes to support the efficient and effective use of POSSE

Processes are in place to support the use of POSSE by users. In our assessment of the efficiency and effectiveness of those processes, we defined efficiency to mean the ability of the processes to enable users to complete their tasks on time and without resorting to workarounds. Effectiveness was defined as the ability of the processes to enable users to complete their tasks in the required way.

We observed that enhancing and centralizing the communication about the processes to users would ensure that the processes are used more effectively. We also found that implementing a timely method to address the minor enhancements needs of POSSE users would support the efficient and effective use of the processes. Finally, we observed that establishing measures to monitor the efficiency of the *Technology Investment Request* process would enable business areas to better manage business timelines.

3.4.1 Enhance communication about POSSE and the processes that are in place to support its use.

Administration has established two methods to address POSSE requests (i.e., questions/concerns/upgrades) from users: *The Remedy Ticket* process and the *Technology Investment Request* process. Figure 2 shows these processes.

Figure 2: Processes to address users' requests with POSSE
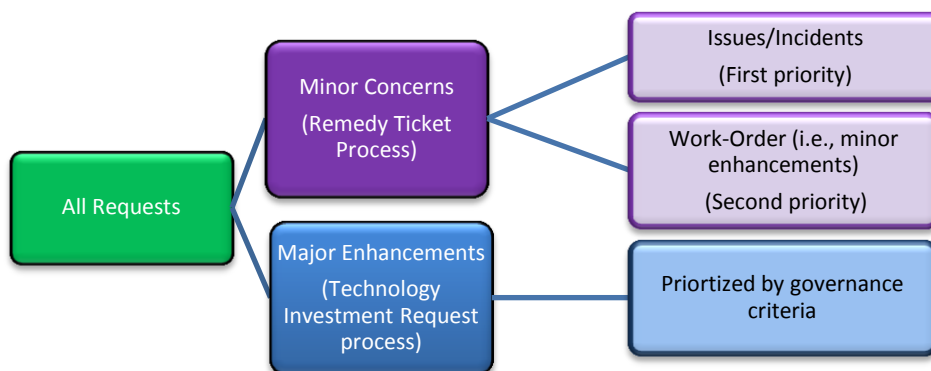
User Requests: Issues and minor enhancements

Users that have issues or minor enhancement concerns with POSSE have their requests logged into the City's Remedy Ticket Process. The Remedy Ticket Process is the system used by IT to manage requests that users may have with the City's enterprise resource applications including POSSE. For the POSSE application, IT categorizes and prioritizes these requests as either "Incidents" (which must be addressed first to ensure that a POSSE job remains operational) or "work-orders" (which are minor functional enhancements to existing jobs and are addressed last).

IT has established a formal process to address incident tickets and has measures to assess the effectiveness and efficiency of the process. However, a similar process to address work-orders does not exist. Discussions with users reveal that they are not aware of IT's methodology to resolve remedy tickets, particularly work-order tickets. IT should communicate information about how they address work-order tickets to POSSE users. This would help them manage their expectations and business timelines. (**Recommendation 3 and 4)**

Technology Investment Request Process

Users' requests for new POSSE jobs go through the Technology Investment Request process. Additionally, as a general guideline, requests for enhancements that require more than 14 days of IT's time also go through this process.

Through discussions with users we were informed that they are frustrated with the amount of time the Technology Investment Request process takes. Specifically, from the point they submit a Technology investment Request to the point that they are notified that their Technology Investment Request has been approved (or not). There is a document detailing steps in the Technology Investment Request process however timelines for each step in the process are not provided. We were informed by management that timelines for key steps in the Technology Investment Request process are being tracked by IT's Project

Management Office. However, these timelines have not been communicated to users. Communication about timelines associated with the Technology Investment Request process would enable business areas to better manage business timelines. (**Recommendation 3)**

As part of our review of the Technology Investment Request process, we also observed that two additional supports have been put in place to ensure that POSSE is appropriately used for major enhancement projects; the use of Business Relationship Managers, and the City's Enterprise Architecture Principles.

1.   Business Relationship Managers
Business Relationship Managers are members of IT management that are responsible for assisting business areas with translating their long-term IT needs into IT strategy. Part of this responsibility includes assisting business areas with Technology Investment Requests. However, when we interviewed users, they did not seem to be aware of the Business Relationship Managers and their role. IT needs to ensure that POSSE users are aware of this resource. This would ensure that submitted Technology Investment Requests are relevant and complete. It would also support POSSE's governance as it would ensure that the long-term POSSE needs of business areas are properly reflected in POSSE's strategic roadmap. (**Recommendation 3)**

2.   Enterprise Architecture Principles
The City's Enterprise Architecture team uses a set of principles to determine whether or not POSSE is the right solution to address a particular Technology Investment Request. Appendix 3 outlines these principles which include the principle to "*Balance Corporate and Branch Needs Where Practical.*" Based on discussions with users however, we found that some users believe that POSSE is always considered as the solution for their needs without a reasonable assessment. As a result, there is the perception among users that POSSE is used to address business needs it was not meant to address. The following survey comment from a Primary User highlights this perception:

" POSSE has been stretched and re-worked to do so much more than the original intention, I think it's time to recognize the limitations and be more open to other options."

Better communication to users about the Enterprise Architecture principles and how they are used to determine that POSSE is the appropriate solution needs to occur. (**Recommendation 3)**

3.4.2 Implement a function to address minor enhancements

As discussed in Section 3.4.1, work-orders represent minor enhancements users need to make to existing POSSE jobs and are submitted through the City's Remedy Ticket Process. We were informed that business areas do not have an operational contact to assist them with work-order tickets. Through discussions with users, the OCA learned that business areas resort to creating workarounds to complete tasks in the interim. Additionally, the fact that work-order tickets are only addressed by IT after incident tickets also negatively impacts the current backlog in remedy tickets for POSSE.

Our discussions with users revealed that many of the minor enhancements they request to their POSSE jobs can be addressed by POSSE Super Users in their business areas (i.e., expert and experienced POSSE users). With appropriate POSSE privileges and allocated time, we observed that POSSE Super Users can assist IT in addressing some of the work-order tickets. With the assistance of IT we were able to determine, that the overall backlog in remedy tickets could have been reduced by 41%[4] as at May 31, 2016 using the skill set of POSSE Super Users.

The following survey comments from Primary Users' highlight the need for efficiency in addressing work-order remedy tickets:

> 1. "*Changes to Posse are far too slow. The program is not adaptable to the changing needs of my work.*"
>
> 2."*We have been experiencing extensive time delays when changes need to be made to the processes that we use on a daily basis. We have been waiting more than 6 months to have some of the changes required to our POSSE processes.*"
>
> 3. "*There are a number of items that have been requested to be changed in Posse that never seem to get done. Simple changes such as revising the template of a certain permit type and updated it with other tasks. Adapting the program to changing needs seems to be almost impossible. Better support should be provided to give every user access.*"

Administration needs to develop a timely and appropriate method to address work-order remedy tickets for business areas. Doing so will increase users' efficiency when using POSSE. It would also reduce the overall backlog in remedy tickets for IT. (**Recommendation 4)**

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[4] This estimate was intended to provide an understanding of what could technically be done by Super Users and does not consider the implications of this type of potential change on business areas.

3.4.3 Establish and monitor measures of efficiency for the Technology Investment Request Process

Discussions with users indicated their frustration for the long waiting times associated with approving and completing Technology Investment Requests. As a result, some business areas create work-arounds to achieve their business needs rather than wait for a project to go through the process. This also creates inefficiencies in POSSE use.

However, based on discussions with members from POSSE's Enterprise Resource Planning Solution Steering Committee, the detail and scrutiny required for the review is necessary to ensure that the City is deriving the most value from every Technology Investment Request that may be chosen. The OCA was informed that the IT Project Management Office does track key timelines on the Technology Investment Request process. However, the timelines have not been formalized into measures that would enable IT to monitor, assess, and subsequently communicate the efficiency of the Technology Investment Request process to users. **(Recommendation 4)**

4 Conclusions and Recommendations

Overall, we found that a governance structure is in place to make and monitor investment decisions in POSSE and to ensure that its use throughout the City is properly supported. Clarity and consistency of key roles and terminology in the governing documents would ensure that governance decisions are consistently understood and applied throughout the City.

Determining an annual cost for POSSE and its total cost of ownership would enable Administration to monitor the reasonableness of its financial value. Since we could not calculate this cost we were unable to conclude if the City is receiving value for money from the application. We also found that establishing a process to define and monitor POSSE's non-financial value would enable Administration to regularly assess if POSSE is the best automated workflow solution for the City.

We observed that several processes have been put in place to support the efficient and effective use of POSSE. Enhancing communication about these processes would ensure that POSSE is used effectively throughout the City. Implementing a method to resolve work-order remedy tickets would address the minor enhancement needs required by business areas. This would enable users to use POSSE more efficiently. Establishing and communicating measures that convey the timelines associated with Technology Investment Request process would also help business areas manage their internal business timelines.

Finally, we observed that processes are in place to monitor POSSE's functionality, availability and responsiveness. Establishing baseline targets of

acceptable performance would facilitate the ongoing assessment of POSSE's operating performance.

We are making the following recommendations to address the issues we observed during this audit. City Administration has provided its responses to these recommendations:

Recommendation 1– Clarify and ensure consistency governing documents

We recommend that the Deputy City Manager, Sustainable Development Department and the Branch Manager, Information Technology:

1. Clarify and ensure consistency in the definitions of key roles, accountabilities, and responsibilities described in POSSE's governing documents.

2. Define and clarify key strategies, terms, and statements that are used to describe POSSE's governance strategy in the governing documents.

Management Response

Action Plan
Sustainable Development Department and Information Technology Branch Management accept this recommendation.

Revisions to a standardized Terms of Reference will be undertaken to ensure consistency and clarify governance strategies across committees, including Information Technology Investment Committee (ITIC) and POSSE Steering and Working Committees. These changes will be published on the IT Project Management Office & IT Governance Portal, presented at committee meetings, and communicated to other stakeholders to ensure clear understanding of key roles and authorities. These improvements to governing documents will be leveraged, as appropriate, with other City applications.

Current status
An action plan has been devised and is underway, with the revised Terms of Reference in early draft and ready for management review. Next step is to approve the Terms of Reference and publish and communicate to respective governance committees and stakeholders.

Planned Implementation Date: September 30, 2017

Responsible Parties: Deputy City Manager, Sustainable Development Department and the Branch Manager, Information Technology

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Recommendation 2 - Determine the Value and Total Cost of POSSE

We recommend that the Deputy City Manager, Sustainable Development Department, and the Branch Manager, Financial Strategies and Budget:

1. Design and implement a process to regularly assess and report on the total cost of POSSE (i.e., POSSE's annual cost and total cost of ownership) on an ongoing basis.

2. Develop and implement a process to define value, in terms of what the City needs and expects from an automated workflow solution, and regularly assess the use of POSSE in the City to that definition.

3. Assign accountability within the governance structure for the reporting and monitoring of POSSE's total cost and value.

Management Response

Action Plan
Sustainable Development and Financial and Corporate Services Departments' management accept this recommendation.

A Value Management Framework will be developed, that includes total cost of ownership evaluation and monitoring, and integrated into the POSSE governance process with oversight by the POSSE Steering Committee. The IT Knowledge Management and Change Management team will be engaged to educate stakeholders in the framework and their respective responsibilities. This methodology and resulting recommendations will be leveraged, as appropriate, with other City applications and supporting processes.

Current Status
Value Management Framework development activities are planned to commence in February 2017 upon identification and assignment of suitable resources.

Planned Implementation Date: February 28, 2018

Responsible Parties: Deputy City Manager, Sustainable Development Department, and the Branch Manager, Financial Strategies and Budget

Recommendation 3 – Enhance communication of key processes

We recommend that the Deputy City Manager, Sustainable Development Department, and the Information Technology Branch Manager:

Provide one-stop and easily accessible communication to business areas about POSSE and the processes that are in place to support its use including information on:

- What POSSE is;
- What POSSE is used for;
- The purpose and role of the Business Relationship Managers;
- The purpose and role of the Enterprise Architecture Principles; and,
- The purpose and methodologies of the Remedy Ticketing, Work Order Tickets, and Technology Investment Request processes.

Management Response

Action Plan
Sustainable Development Department and Information Technology Branch Management accept this recommendation.

The One City IT website will be strengthened to provide clarification and instruction for submitting service tickets, work orders, and Technology Investment Requests. A link to this site will also be available on the IT PMO & IT Governance Portal. The POSSE Steering Committee Terms of Reference will be revised to clearly articulate the roles of key stakeholders, including Business Relationship Managers (BRMs). The IT Branch's Knowledge Management and Change Management team will implement additional communication streams aimed at strengthening awareness about POSSE support structures and how to use them. These improvements to communication processes will be leveraged, as appropriate, with other City applications.

Current status
A OneCity IT website is now available that describes POSSE and its purpose. It also identifies how to obtain access, with reference to training available from the IT Knowledge Management and Change Management team. A link to this site is available on the IT PMO & IT Governance Portal. Next step is to complete this website by adding references to POSSE supporting structures, BRM role, and EA Principles. The purpose and methods of the Remedy Ticketing, Work Orders and Technology Investment Requests are also being added. The Terms of Reference will be updated and approved by the POSSE IT Steering Committee, and communicated to respective stakeholders.

Planned Implementation Date: September 30, 2017

Responsible Parties:
Deputy City Manager, Sustainable Development Department, and the Information Technology Branch Manager

Recommendation 4 – Improve efficiency of key processes

We recommend that the Deputy City Manager, Sustainable Development; Human Resources Branch Manager; and the Information Technology Branch Manager:

1. Establish, document, and monitor baseline targets of expected operating performance for POSSE.
2. Review and quantify methods to address work-order tickets (minor enhancement requests). The review should include the assessment of a function within business areas that has the capability and capacity to make small enhancement changes to POSSE. The OCA further recommends that from this review, the most efficient and productive solution be chosen.
3. Establish and monitor measures that assess the efficiency of the Work Order Tickets and Technology Investment Request processes in order to identify stages where efficiency could be improved.

Management Response

Action Plan
Sustainable Development Department, Human Resources Branch, and Information Technology Branch Management accept this recommendation.

A monthly performance dashboard for critical applications, including POSSE, will be published and presented and monitored by governance committees. An analysis is planned which, if feasible, will transition POSSE minor enhancements to business areas. A governance framework and work queue and performance dashboard will be introduced to identify improvement opportunities in ticket and work order management. Technology Investment Request (TIR) forms and processes will be strengthened and, aligned with the semi-annual Supplemental Capital Budget Adjustment (SCBA), TIRs will be reviewed with stakeholders to ensure strategic alignment, relevance, timeliness, and priority. Measures to assess improved efficiency in TIR creation will be developed. To improve efficiency from concept to TIR, the City's School of Business will develop a strategy to assess and address employee competence in business case development and cost/benefit evaluation. These enhancements to improve efficiency will be leveraged, as appropriate, with other City applications.

Current status
The IT performance dashboard becomes operational in February 2017, and baseline operating performance expectations for all critical applications have been published on the IT PMO & IT Governance websites. The next step is to publish and present the dashboard at IT governance meetings.

The governance and performance framework is underway to identify improvement opportunities in ticket and work order management. Upon identification of suitable resources in February, an analysis will commence of POSSE minor enhancement requests being performed by business areas.

Work to strengthen TIR forms and processes is complete. Aligned with the semi-annual SCBA process, outstanding TIRs are planned to be reviewed with stakeholders. The City's School of Business has been engaged to develop a strategy to assess and address employee competence in business case development and cost/benefit evaluation.

Planned Implementation Date: September 30, 2017

Responsible Parties: Deputy City Manager, Sustainable Development; Human Resources Branch Manager; and the Information Technology Branch Manager

The Office of the City Auditor would like to thank the Information Technology Branch and Sustainable Development Department for their cooperation with this audit. We would also like to thank all of the other departments who willingly shared their knowledge and experiences throughout the audit process.

Appendix 1: Background

Background

City staff and the vendor of POSSE jointly developed POSSE for the City in 1995. Currently, more than 30 organizations across North America use POSSE. The City of Edmonton is their premiere showcase reference site for the POSSE software.

POSSE Usage and Integration

Currently, almost every department in the City, as well as the Edmonton Police Service, and external users (e.g., contractors, developers and citizens) use POSSE. There are more than 3,300 City employees and 8,200 external users who use POSSE. Table 2 shows the number of users in each area.

Table 2: Number of POSSE Users by User Area[5]

User Area	# of POSSE Users
Sustainable Development Department	928
Citizen Services Department	637
City Operations Department	527
Financial and Corporate Services Department	512
Integrated infrastructure Services Department	487
Edmonton Police Services	104
Office of the City Manager	74
Communications and Public Engagement Department	21
Office of the Councilors	39
Office of the City Auditor	8
Office of the Mayor	6
Edmonton Police Commission	1
Total Internal Users	**3,344**
Total External Users	**8,252**
Total POSSE Users	**11,596**

POSSE is integrated with other enterprise-wide applications used by the City. This helps to facilitate the following management processes in the City:

- Financial Management
- Asset Management
- Customer Relationship Management

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[5] POSSE User count information provided by IT as at September 8, 2016. We re-categorized the original data to reflect the City's most recent organizational chart. As a result of this re-categorization we may have marginally overstated / understated the user count.

- Property Stewardship
- Human Resources Management

Contract Costs

In 2010, an enterprise partnership agreement was established between the City and the vendor of POSSE for a three year period. In 2013, a new agreement was signed to enable ongoing use and maintenance of the application. Both sole source agreements were approved by Executive Committee. On May 21, 2016, the City exercised the first of two 3-year options to renew its contract. It is anticipated that budgeted costs for the 3-year period 2016-2019 will amount to $1.9M annually. These costs will cover the annual licensing fee of $350K and expected annual enhancements costs to POSSE of $1.55M. As shown in Table 3, from January 1, 2010 – May 20, 2016 approximately $7.2M was paid to the vendor for the use of POSSE including enhancement support[6].

Table 3: POSSE Contract Costs January 1, 2010- May 20, 2016[7]

Year	Amount
2010	$ 799,532
2011	$ 807,879
2012	$ 1,009,474
2013	$ 1,434,494
2014	$ 1,784,034
2015	$ 1,134,401
2016*	$ 245,066
Total	**$ 7,214,880**

*Up to May 20, 2016: end date of the first term of the current contract.

Governance

As an enterprise-wide application, POSSE is subject to a governance framework. This framework begins with the City's Information Technology Investment Committee which allocates annual POSSE funding based on the City's Executive Leadership Team approval. The Information Technology Investment Committee subsequently relies on POSSE's Enterprise Resource Planning Steering Solution Committee to prioritize the funding based on a review of Technology Investment Requests that have been submitted by business areas. The Technology Investment Requests are brought forth to the Enterprise Resource Planning Steering Solution Committee by the POSSE Working Committee. The POSSE Working Committee therefore serves as the direct link to business areas in the governance structure for POSSE. Its members are accountable to bring forward any concerns, ideas, and business requirements their respective business areas may have to the Working Committee.

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[6] Total cost of $7.2 M includes annual license fees, cost of enhancement and sustainment activities, the vendor's contractors and software/hardware purchases.
[7] Data is based on financial information for the vendor. This information was retrieved from the City's financial systems.

Appendix 2: Audit Methodology

Audit Scope

The period under review was from May 21, 2013 to May 20, 2016. This is the original term of the current agreement for the POSSE application between the City of Edmonton and the vendor of POSSE. On May 21, 2016 the parties entered into a 3-year-renewal. Where necessary, we also reviewed information outside the defined audit period.

Risk Assessment

To determine and understand where our review of the POSSE application could add the most value, we conducted a variety of risk identification and assessment activities including, but not limited to:

- Interviewed IT management, members of the governance committees, and users.
- Reviewed committee meeting minutes, previous consulting reports, cost information, and the vendor's contracts.
- Performed walk-throughs and sample tests to ensure that controls were properly designed and implemented including controls related to the reliability, integrity, and security of the POSSE application.

Methodology

We used the following methods to gather evidence to support our findings and conclusions:

- Performed additional and more detailed interviews with IT Management, Finance Management, and members of POSSE's governance committees.
- Reviewed key governing and strategic documents in IT's governance structure including *The City of Edmonton – Corporate IM/IT Strategy, The Corporate Technology Investment Principles and, the City's Enterprise Architecture Principles*.
- Reviewed POSSE project costs and support costs for the defined audit period and attempted to combine those figures into an overall annual cost for POSSE.
- Conducted a survey to assess users' experience with the POSSE application.

Appendix 3: Enterprise Architecture Principles

The following principles are taken from the document *Enterprise Architecture Principles and Common Requirements*. They apply to all decisions made in the City regarding the Enterprise Architecture.

Table 4: Enterprise Architecture Principles

EA Principle	Statement
One City	Information and technology decisions are made to provide the best value to the City as a whole.
Balance Corporate and Branch Needs Where Practical	Departments can make their own decisions and investments in information and technology, in situations where the decisions are about solutions that apply specifically to the needs of the department (or other organizational unit) and do **not** result in reduced benefit or significant unnecessary cost to the City.
IT Solutions are Functionally and Technically Scalable	Solutions are designed to be scalable (from both a technical and functional perspective), given known and probable requirements.
Ease of Use	Solutions are designed for ease of use, whether by internal or external users. This includes the total user experience, and not just the application software.
Reuse before Buy, Buy before Build	Prior to acquiring new assets, the City will reuse applicable existing information and technology assets. If no existing internal asset is available for reuse, the City prefers to acquire, by purchasing or licensing, applicable externally available assets. The City's least preferred option is to custom build a new asset.
Data is Provided by the Authoritative Source	Data must be provided from its authoritative source to all consumers of the data. Put another way, consumers of data must take the data from its authoritative source.
Routine Tasks are Automated Where Appropriate	Routine tasks that can be automated are automated, where the benefit justifies the cost.
Data is Captured Once and Exchanged	Data is captured once and is provided to other consumer solutions within the City.
Prefer Real-Time Data Exchange	Data exchange speed and latency must be based on business need, with a preference for real-time exchange to improve the delivery of City services.
Active Management of Public Information and Technology Assets	Information and technology assets are actively managed public assets. City-generated information assets should be available for public use where feasible.
Risk-Based Approach to Security	Ensure that risks to confidentiality, integrity, and availability of information and technology systems are treated in a consistent and effective manner.
Security by Design	Controls for the protection of confidentiality, integrity, and availability should be designed into all aspects of solutions from initiation, not as an afterthought. Security should also be designed into the business processes within which an IT system will be used.