



The City of London Advanced Traffic Management System (ATMS) Project Review

Audit Performed: December 2021
Report Issued: January 28, 2022

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Executive Summary

Background

The City of London (the “City”) is implementing an Advanced Traffic Management System (ATMS) to replace the current traffic signal system with a new intelligent transportation technology. The ATMS project is being implemented as part of the Transportation Intelligent Mobility Management System (TIMMS) program, which is aligned to City of London’s strategic objective to improve all transportation modes, get London moving, now and into the future.

Objectives and scope

A review of the ATMS project was incorporated into the 2021 Internal Audit Plan. The review was performed by Internal Audit with a focus on the project management governance and controls. This is to ensure the project is being delivered using the appropriate project management methodologies in planning, monitoring, and controlling in regards to its scope, cost, and schedule. The intent of the audit is to assess the controls for the remainder of the ATMS project and allow for any relevant learnings to be applied to the projects being implemented under the TIMMS program.

Please refer to Appendix I for detailed information on review scope.

Summary

Based on our review of the City’s ATMS project, part of the TIMMS program, we identified four medium and one low observations that the City of London should consider going forward. Please refer to *Appendix 2: Internal Audit rating scale* for definitions of the four-point scale.

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| | High priority | | Medium priority | | Low priority | | Leading practice |
| | 0 | | 4 | | 1 | | 0 |

The identified considerations and observations noted in this report should be addressed in a timely manner to enhance current controls and mitigate relevant risks. Below is a summary of each identified observation. Please note the identifier ‘TM’ in each Observation Id stands for Traffic Management and is included for consistency across Internal Audit reports.

| Priority | Observation Id | Observation Summary |
|------------------------|----------------|--|
| Medium Priority | TM 1.01 | Lack of controls for cost management and reporting on actuals against forecast |
| Medium Priority | TM 1.02 | Lack of program oversight including limited interdependency management, and informal status reporting |
| Medium Priority | TM 1.03 | A project risk log is in place although risk monitoring activities are not documented, including risk owners |
| Medium Priority | TM 1.04 | No process for benefits realization management including baselining and quantification of benefits |
| Low Priority | TM 1.05 | Change Management activities are being undertaken by a third party (Parsons) but no overall Change Management Plan is in place |

Areas for Continued Enhancement

In completing the procedures noted in *Appendix 4: Audit procedures performed*, Internal Audit identified the following areas for continued enhancement:

| Medium Priority | TM 1.01 - Lack of controls for cost management and reporting on actuals against forecast. |
|-------------------------------------|---|
| Observation | <p>A project budget is the total amount of monetary resources that are allocated for a project to achieve the stated goals and objectives. The purpose of project cost management is to estimate project costs, and monitor and track actuals during the project life cycle.</p> <p>The City has a budget and sub-ledgers to track costs of the projects under the TIMMS program. There are three sub-ledgers assigned to the ATMS project. However, there is a lack of controls around cost management and financial reporting:</p> <ul style="list-style-type: none"> • Although payment certificates are managed on a monthly basis the sub-ledgers are reviewed semi-annually to evaluate the total costs spent. There is not a level of granularity below the sub-ledgers to understand how costs are being spent and against forecasted costs. This makes it difficult to understand if the project is under or over budget at a given point in time of the project’s lifecycle. • There is a lack of reporting of costs to the Steering Committee to highlight the financial health of the ATMS project. Further, there are no financial metrics reported (e.g., total budget, actual cost, and estimate to complete.) |
| Implication | <ul style="list-style-type: none"> • Risk of running over budget. • Missed opportunities for the City to reduce cost as it fails to identify unnecessary expenses. |
| Recommendation | <ul style="list-style-type: none"> • Increase granularity on tracking of project costs. • Track actual costs against the baselined budget on a monthly basis. • Report financial metrics to Steering Committee including total budget, actual costs and estimate to complete. |
| Management Comments | <p>Increased granularity has been implemented to track project costs. Traffic Engineering will work with Finance to obtain monthly tables to relate spending by subledger back to the overall TIMMS program. This will be reported monthly at the Steering Committee meetings.</p> |
| Responsible Party and timing | <p>Shane Maguire, Divisional Manager, Traffic Engineering with support from Finance</p> <p>Completed January 2022.</p> |

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| Medium Priority | TM 1.02 - Lack of program oversight including limited interdependency management, and informal status reporting. |
| Observation | <p>A program is a collection of projects that form a connected package of work. The different projects are related to assist the program in achieving its objectives. While ATMS is a project under the TIMMS program, that aims to modernize the city’s traffic control system, there is a lack of program oversight to manage these projects as a program. To elaborate:</p> <ul style="list-style-type: none"> • There isn’t a detailed program schedule to identify and manage project-related interdependencies and risks. • There is a lack of detailed project status reporting in relation to cost, schedule and scope at the program level. |
| Implication | <ul style="list-style-type: none"> • Delivery of projects under TIMMS may have an impact (schedule, cost, scope) on the ATMS project. • ATMS decision making is difficult due to lack of transparency in overall program status. |
| Recommendation | <p>Document a TIMMS program schedule that includes high level milestones, activities and their independencies for all projects within the program.</p> <p>Implement a dashboard to display high level metrics, for each project, to provide an up-to-date summary of Program status. Suggested items include:</p> <ul style="list-style-type: none"> • Budget status, comparing actual spend with estimated budget. • Key risks with assigned owners, mitigation plan and progress status. • Key milestones or deliverables before the next reporting cycle, with estimated completion time. |
| Management Comments | <p>The TIMMS program schedule was presented to the Steering Committee at the onset of the program and updates on specific projects have been provided on a monthly basis. Management will establish a living program schedule similar to what has been done with individual projects and develop high-level metrics for updates at Steering Committee meetings.</p> |
| Responsible Party and timing | <p>Shane Maguire, Divisional Manager, Traffic Engineering with support from Information Technology Services</p> <p>June 30, 2022</p> |

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| Medium Priority | TM 1.03 - A project risk log is in place although risk monitoring activities are not documented, including risk owners. |
| Observation | <p>Risk management is a process that allows individual risk events and the overall project risk profile to be understood and managed proactively, optimizing delivery success by minimizing threats and maximizing opportunities. If risks materialize, they become issues that are required to be resolved.</p> <p>Although risks have been identified in a risk log there is limited information in the risk planning and risk monitoring section, there is no information that would suggest the risks are being actively monitored and deliberately addressed. For example, there are no assigned risk owners and mitigation plans to track how the risks are being managed.</p> |
| Implication | <ul style="list-style-type: none"> • Risks not well managed may materialize as issues which can cause delays to the project schedule and increase costs. • The full risk profile of the project is not known, which means the schedule and budget contingency is not well understood leading to less well managed timelines and costs. |
| Recommendation | <p>Reassess and update the risk register on a periodic basis.</p> <p>Document risk owners with risk monitoring actions and updates.</p> |
| Management Comments | <p>Management will undertake a full review of the Risk Log with the ATMS vendor with a focus on risk ownership and monitoring. Moving forward this will be reviewed minimum on a quarterly basis.</p> |
| Responsible Party and timing | <p>Shane Maguire, Divisional Manager, Traffic Engineering</p> <p>June 30, 2022</p> |

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| Medium Priority | TM 1.04 - No process for benefits realization management including baselining and quantification of benefits. |
| Observation | <p>A benefit is a quantifiable and measurable improvement resulting from an outcome. The benefit typically has a tangible value expressed in monetary or value terms.</p> <p>The benefits of implementing the ATMS project have been identified; however, not all of them have been quantified. Moreover, there is no evidence of a baseline measurement and no outlined process for benefit monitoring and realization.</p> |
| Implication | <ul style="list-style-type: none"> • The benefits of the ATMS project will not be known after implementation. • A lack of linkage between business case and actual outcome. • Return of investment (ROI) for the project is unknown. |
| Recommendation | <p>Develop, implement and execute on a benefit management plan that details the identification, definition, baseline and tracking of the following type of project benefits:</p> <ul style="list-style-type: none"> • Direct financial benefits (tangible).e.g., reduced operating costs. • Direct non-financial benefits (tangible).e.g., reduced peak travel times. • Indirect benefits (intangible), e.g., increased driver satisfaction |
| Management Comments | <p>Quantification of benefits realization are an ongoing challenge of the ATMS project both due to ever-changing, dynamic nature of transportation systems and, most recently, the impacts of COVID which show increased positive benefits due to decreased travel demands. However, opportunities will be sought to demonstrate the ATMS benefits through specific improvement initiatives including the Adaptive Corridor Pilot, corridor timing improvements, and transit priority through typical metrics such as travel time and reliability indexes and transit schedule adherence. The ATMS is a nexus point of many tools that will be realized under the overall TIMMS program.</p> |
| Responsible Party and timing | <p>Shane Maguire, Divisional Manager, Traffic Engineering</p> <p>June 30, 2022</p> |

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| Low Priority | TM 1.05 - Change Management activities are being undertaken by third party (Parsons) but no overall Change Management Plan is in place. |
| Observation | <p>Change management is the approach taken in an organization to move from the current to a future desirable state using a coordinated and structured approach in collaboration with stakeholders. The change management process links strategy with execution, and deployment with operation and the ultimate realization of the expected benefits.</p> <p>As part of the scope of the overall project, updates are being made to the central management software (ATMS) as well as over 400 intersection controller computers . There is no completed change management plan to assess the change impact, with respect to people, process and tools. Although Parsons have training built into their deployment plans and system training has already been completed, it isn't clear whether all aspects of the change have been anticipated.</p> |
| Implication | <ul style="list-style-type: none"> • Employees are not fully prepared for the change the project brings, leading to low employee engagement and errors. • New processes are not transferred to the organization to embed as new working practices. |
| Recommendation | <p>Identify all relevant stakeholders that are affected by the changes and document how they will be impacted by and kept informed of the changes.</p> <p>Develop, implement and execute a change management plan for the ATMS project that details the nature of the changes, and the training and communications approach required across stakeholders.</p> |
| Management Comments | Traffic Engineering staff and the traffic signal maintenance contractor are trained on the systems. Traffic Engineering and Information Technology Services are currently working on a Transition-to-Operations plan. |
| Responsible Party and timing | <p>Shane Maguire, Divisional Manager, Traffic Engineering with support from Information Technology Services</p> <p>June 30, 2022</p> |

Appendix 1 - Internal Audit Detailed Scope

Specifically, the Internal Audit addressed the following areas:

Review of the governance and controls over ATMS project (December 2021):

- Review governing policies and procedures related to software procurement and software development Lifecycle as it relates to the acquisition of technology products and services.
 - Review project charter and supporting documentation to ensure time, scope, project milestones, including the roles and responsibilities are clearly defined and approved by appropriate management
 - Review the Risk management process to understand how software/technology risks are identified and mitigated.
 - Understand the Change management process relevant to TMS implementation process, including but not limited to UAT, roll back plans, post-implementation support and decommissioning of existing systems are in place.
 - Assess existing employee training and awareness initiatives related to use of TMS.
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Appendix 2 - Internal Audit Rating Scale

Individual observation prioritization

Internal Audit has prioritized each observation and recommendation within this report using a four point rating scale. The four point rating scale is as follows:

| Description | Definition |
|-------------------------|---|
| High | Observation is high priority and should be given immediate attention due to the existence of either significant internal control risk or a potential significant operational improvement opportunity. |
| Medium | Observation is a moderate priority risk or operational improvement opportunity and should be addressed in the near term. |
| Low | Observation does not present a significant or medium control risk but should be addressed to either improve internal controls or process efficiency. |
| Leading Practice | Consideration should be given to implementing recommendations in order to improve the maturity of the process and align with leading practices. |

Appendix 3 - Stakeholder Involvement

In conducting this assessment, the following City of London management and staff were interviewed to gain an understanding of the City's processes and practices.

| Stakeholder | Position | Division |
|---------------|------------------|---------------------------------------|
| Jon Kostyniuk | Project Manager | Traffic Engineering |
| Shane Maguire | Division Manager | Traffic Engineering |
| Al Davila | ITS Manager | Information Technology Services (ITS) |

Appendix 4 - Audit Procedures Performed

As part of The City of London's ATMS project assessment, the following procedures were performed:

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- Requested for documentation on the TIMMS program and ATMS project.
 - Conducted meetings with City management and staff to obtain an understanding of the control framework and assessment criteria.
 - Obtained project documentation regarding relevant procedures and controls to perform an inspection of:
 - Governance,
 - project scope,
 - Risk management,
 - Budget Management, and
 - Project delivery.
 - Performed interviews with key personnel on the current state of ATMS project.
 - Using the reviewed documentation and interview narratives, assessed the effectiveness of ATMS project with regards to governance and controls.
 - Conducted a closing meeting with key management stakeholders to validate and communicate our findings, and
 - Issued this Internal Audit report with our detailed observations.
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