



**Office of the Auditor General: Follow-up to the
2014 Independent Review of the Airport Parkway
Pedestrian/Cycling Bridge, Tabled at Audit
Committee – June 14, 2018**

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Executive summary

The City initiated the process to construct a pedestrian/cycling bridge across the airport parkway. The project encountered a series of problems that resulted in a three-year schedule delay and a significant increase to the budget. The City contracted for an independent review of the project that included recommendations for future projects. The Independent Review of the Airport Parkway Pedestrian/Cycling Bridge was presented to Council in 2014. Also that year, the Finance and Economic Development Committee approved the inclusion of a follow-up on the implementation of the recommendations of that report in the Office of the Auditor General's (OAG) 2014 Work Plan.

The scope of the original review was the City's management of the bridge project. The review included all phases and processes of the project from the initial Environmental Assessment to Project Intake, Design, Construction and Oversight.

The key findings of the original review were:

- The events that had a substantive impact on the project were delays in project initiation, defects in concrete placement, deficiencies in fabrication and design of the steel anchor plate and design deficiencies and defects discovered in a third-party design review.
- The project schedule was established early in the project in 2010 and did not change despite early indications that key construction milestones were not being met. There was limited evidence of rigorous schedule management prior to 2012.
- Project communications did not meet expectations and lacked coordination. Senior management and elected officials were not made aware of issues during the initial construction period.
- A third-party design review discovered deficiencies and defects in the design including that the design was complex and did not sufficiently address constructability issues.
- There was a lack of appreciation for the complexity of the work during construction.

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- There were deficiencies in the management of the project. These deficiencies included the project hand-off, project reporting, consultant management, construction contract management, risk management and project management accountability.
- There were no performance indicators to monitor project delivery.
- City project managers had full authority for changes to budget and scope without having to obtain additional approval for schedule extensions and contract defaults.
- “Liquidated damages” were used as the default resolution strategy; however, this only sought to compensate the City for direct costs, which were relatively minor.
- The City’s Supplier Performance process did not provide suppliers with a clear appreciation of the City’s expectations and use in making bid decisions.

Table 1: Summary of status of completion of recommendations

Recommendations	Total	Complete	Partially complete	Not started	No longer applicable
Number	18	11	7	-	-
Percentage	100%	61%	39%	-	-

Conclusion

Management has made good progress completing 11 of 18 recommendations.

Management also made significant progress on the seven other partially completed recommendations. All of these partially completed recommendations require Infrastructure Services’ new project management software, vISion, to be fully implemented.

Subsequent to our March 2018 fieldwork, Infrastructure Services officially launched vISion on May 14, 2018. Soon after it was launched, we confirmed that the system was operational. While we also observed that the full functionality of vISion was not yet available, this was because the system was not yet fully populated with project data. We expect all of the review’s recommendations will be complete as the system becomes fully operational.

Acknowledgement

We wish to express our appreciation for the cooperation and assistance afforded the audit team by management.

Detailed report – Assessment of implementation status

The following information outlines management's assessment of the implementation status of each recommendation as of December 2017 and the Office of the Auditor General's (OAG) assessment as of March 2018.

Note that the process used by the Independent Third-Party reviewer differed from the OAG's standard reporting process. The initial review report did not include a management response to each recommendation.

Schedule Management:

Recommendation #1 (6.1.1)

Table 2: Status

Management update	OAG assessment
Partially complete	Partially complete

Review recommendation:

That a project schedule be prepared by the project manager (PM) and that policies and procedures on schedule management be included in the ISD PDM2013 document to provide guidance and resources to project managers. It should be linked to the risk management process so that projects identified with a high schedule risk profile have an increased level of schedule management effort.

Management update:

Improvements to project scheduling and project level risk management were implemented in 2015 and 2016 as part of Releases 1 and 2 of Infrastructure Services' (IS) Integrated Departmental Management Plan (IDMP). Further improvements are planned as part of Release 3 throughout 2018.

The Project Delivery Manual (PDM) will be updated after the completion of the IDMP to align with the new system being implemented as part of Release 3.

OAG assessment:

The Integrated Departmental Management Plan (IDMP) reflects the City's project scheduling process at a high-level and includes risk identification and corresponding management strategies. The Project Delivery Manual (PDM) provides a much more detailed guide for project managers for the project scheduling process. Project managers are required to complete a number of planning steps, one of which is completing a Program Reporting Risk template. OAG has confirmed that key aspects of the planning and risk management procedures from the IDMP and PDM have been built into Infrastructure Services new vISion program which is scheduled to be rolled out during Q2 2018.

Communication Management:

Recommendation #2 (6.2.1)

Table 3: Status

Management update	OAG assessment
Complete	Complete

Review recommendation:

That a communication protocol be established in the Project Charter. The protocol would establish formal and informal communication links and strategies applicable to the project.

Management update:

In 2016, IS implemented improvements to communications protocols as part of Release 2 of the IDMP. This included a new Project Charter and a new Project Change Control process to provide greater clarity on project communications and stakeholder engagement.

OAG assessment:

OAG reviewed the most recent version of the Project Charter template used for Infrastructure Services Project Information Management Solution (PIMS). The template includes sections to document the flow of relevant project information to all the relevant internal and external stakeholders.

Recommendation #3 (6.2.2)

Table 4: Status

Management update	OAG assessment
Complete	Complete

Review recommendation:

That communication with elected officials is coordinated through a dedicated team within ISD. The use of an Inquiry Process is established to ensure response times meet the needs of Council and that consistent information is delivered from ISD.

Management update:

IS has improved the information and consistency of project reporting to elected officials through the monthly Project Status Updates (PSU). Given the ongoing interactions between elected officials and project staff, having all communications coordinated through a dedicated team is not practical nor effective to fostering positive relationships that are key to the delivery of successful projects. Instead, management is providing broader oversight to ensure these communications are effective.

OAG assessment:

OAG confirmed that project managers complete Project Status Updates (PSU) on an ongoing basis throughout the lifecycle of a project. Project managers complete the PSU reports by following the PSU Manual, which provides a standard report that contains the relevant information on the project. A dedicated team of IS staff collate the PSU's by ward and transmit the ward report monthly to applicable Councillors.

Design:

Recommendation #4 (6.3.1)

Table 5: Status

Management update	OAG assessment
Partially complete	Partially complete

Review recommendation:

That ISD monitor compliance with policy and procedures for the management of consultant contracts and constructability reviews.

Management update:

In 2014, IS issued directive ISD-2014-02 to staff highlighting key project delivery expectations.

In 2014, IS also issued directive ISD-2014-01 implementing independent reviews, including constructability review, for bridges and major structural projects. The third-party review process has been implemented during design criteria (for seismic retrofitting), preliminary and detail design stages. In addition, IS has been pre-qualifying consultants and contractors for bridge and other major projects since 2014.

Further improvements are planned as part of Release 3 throughout 2018 that will include various stage gates and mandatory deliverables approved by the program managers.

OAG assessment:

OAG confirmed that a directive was issued by IS management that required constructability reviews for all bridge and major structural projects.

Furthermore, management provided project managers with a departmental directive highlighting their main responsibilities throughout the lifecycle of a project. OAG identified five main project stages: Initiation, Planning, Design, Implementation and Closeout Infrastructure’s new project management system, vISion, will require all projects to flow through the various stage gates. At each stage gate, IS management monitors to ensure adherence to relevant policies and procedures for that stage of the

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project. These will include the management of consultant contracts and constructability reviews, as applicable to the project.

Recommendation #5 (6.3.2)

Table 6: Status

Management update	OAG assessment
Complete	Complete

Review recommendation:

That the City link payments to consultants with deliverables required by contract.

Management update:

Enhancements linking payments to consultant deliverables was implemented by Supply Services on March 18, 2014. This was communicated to IS staff through directive ISD-2014-02.

OAG assessment:

OAG confirmed that Infrastructure Services has aligned payments to contractors and consultants to contract milestones. Infrastructure Services' management communicated these requirements to their staff. OAG reviewed a recent consultant contract and confirmed that it included the required milestone structure.

Construction:

Recommendation #6 (6.4.1)

Table 7: Status

Management update	OAG assessment
Partially complete	Partially complete

Review recommendation:

That “constructability risk” is included in the Risk Management Process and template. Consider pre-qualification of Suppliers as a mitigation measure.

Management update:

In 2014, IS issued directive ISD-2014-01 implementing independent reviews for bridges and major structural projects. IS is also pre-qualifying consultants and contractors for bridge and other major projects.

Further enhancement to risk management processes are planned as part of Release 3 throughout 2018.

OAG assessment:

OAG confirmed that Infrastructure Services has instituted independent reviews for bridges and major structural projects. The functional design of vISion includes a section on risk management and constructability risks are an option that program managers can select while compiling a project’s risk profile. vISion is scheduled to be rolled out during Q2 2018.

Project Management:

Recommendation #7 (6.5.1)

Table 8: Status

Management update	OAG assessment
Complete	Complete

Review recommendation:

That ISD provide input to project milestones during the Environmental Assessment (EA) process in advance of the Project Initiation Form or scoping process and/or establish design and construction delivery standards that can be used as guidelines during the EA process.

Management update:

In 2014, IS issued directive ISD-2014-02 highlighting key project delivery expectations and further enhancements were made as part of the IS Project Charter and project intake process implemented in 2016 as part of Release 2 of the IDMP.

OAG assessment:

OAG confirmed that Infrastructure Services' management has provided project managers with a directive that highlights key project delivery expectations. Included in the directive is the expectation that Infrastructure Services' staff will be involved in the early planning stages of projects, such as the Environmental Assessment process, to provide support to other client departments as needed.

Recommendation #8 (6.5.2)

Table 9: Status

Management update	OAG assessment
Partially complete	Partially complete

Review recommendation:

That ISD develop a quality system to monitor compliance to project management processes, including the “no surprises” provision of the ISD PDM2013.

Management update:

In 2014, IS issued directive ISD-2014-02 highlighting key project delivery expectations and oversight, including project issue identification and escalation. Since 2014, IS has been holding weekly (initially was twice a week) issue escalation meetings with the management team. This has supported the “no surprises” provision.

Enhancements to issue management practices were implemented in 2015 as part of Release 1 of the IDMP.

Further improvements to project controls, risk and issue management, are planned as part of Release 3 throughout 2018.

OAG assessment:

OAG confirmed that Infrastructure Services’ management has issued directives to staff that highlight the project delivery expectations for project managers. Specific guidance surrounding issue identification and escalation was included in the Project Delivery manual, and the IDMP. Infrastructure Services has built the project management process from the PDM into the framework of vISion. The sign-off function at stage gates in vISion will allow for monitoring of the completion of the PDM processes.

Recommendation #9 (6.5.3)

Table 10: Status

Management update	OAG assessment
Complete	Complete

Review recommendation:

That ISD provide additional guidance to PMs on the management of consultant contracts.

Management update:

Beyond the provisions included in the IS Project Delivery Manual (PDM), further enhancements linking payments to consultant deliverables was implemented by Supply Services on March 18, 2014. This was communicated to IS' staff through directive ISD-2014-02. Management has also been playing an active role in providing guidance and oversight to project managers on the management of consultant assignments.

The Vendor Performance Management (VPM) process implemented in 2015 as part of Release 1 of the IDMP has also increased the level of communication between project managers and consultants related to expectations and consultant performance.

OAG assessment:

OAG confirmed that Infrastructure Services' management has provided documents that outline the responsibilities of the project manager throughout the life cycle of a project. The PDM provides specific guidance regarding the selection of consultants. Beyond the selection stage, project managers must complete the PDM project management requirements, which also apply to consultant-based projects.

Recommendation #10 (6.5.4)

Table 11: Status

Management update	OAG assessment
Complete	Complete

Review recommendation:

That ISD establish more rigorous policies and procedures for contract management. Contract Administration and Inspection procedures are addressed in the ISD Project Delivery Manual; however, there is limited guidance to PMs on how to deal with contract defaults, schedule management, insurance and bonding and claims management

Management update:

In 2014, IS held a construction contract management session for staff delivered by Revay Associates. Contract management sessions were also part of the joint City-National Capital Heavy Construction Agency (NCHCA) and Consulting Engineers of Ontario (CEO) Education Series in 2014, 2015 and 2017.

In 2015, IS implemented a new Vendor Performance Management (VPM) process as part of Release 1 of the IDMP. This has increased the level of communication between project managers and consultants related to expectations and consultant performance.

In 2016, IS implemented improvements to scope management as part of Release 2 of the IDMP. This included a new Project Charter and a new Project Change Control process to provide greater control on approval to project scope, budget, schedule and quality.

OAG assessment:

OAG confirmed that Infrastructure Services has provided project managers with guidance on contract administration processes. Infrastructure Services continues to complete updates to the IDMP and the PDM that highlight the expectations of project managers throughout the lifecycle of a project.

Recommendation #11 (6.5.5)

Table 12: Status

Management update	OAG assessment
Partially complete	Partially complete

Review recommendation:

That the risk management process be required throughout the life cycle of a project to permit the transfer of critical information between project phases and ensure that high-risk issues are being reported and addressed at the appropriate management level.

Management update:

In 2014, IS issued directive ISD-2014-02 highlighting key project delivery expectations, including project risks.

In 2015, improvements to project level risk management (issue management) were implemented as part of Release 1 of the IDMP.

In 2016, further enhancements to risk identification were made as part of the IS Project Charter as part of Release 2 of the IDMP.

Further improvements are planned as part of Release 3 of the IDMP throughout 2018 to include the ability to track mitigation plans and convert risks to issues when realized.

IS has also been tracking and reporting risks related to scope, budget, schedule and quality as part of the Project Status Update and monthly reporting.

OAG assessment:

Infrastructure Services released the Project Charter for Infrastructure Services Project Information Management System (PIMS) in 2016. OAG confirmed that Infrastructure Services designed PIMS to improve project management procedures, including the reporting of project costs, schedules, risks and issues. With the upcoming planned release of vISion, until the project manager closes a risk, it will remain present and visible in vISion’s Project Risk Register throughout the lifecycle of the project.

Recommendation #12 (6.5.6)

Table 13: Status

Management update	OAG assessment
Complete	Complete

Review recommendation:

That ISD provide clear direction on the expectations of project managers in adherence to policy, directives, guidelines, procedures, processes and forms.

Management update:

In 2014, IS issued directive ISD-2014-02 highlighting key project delivery expectations. This has been supported by project managers attending Project Management Training (PM1 to PM4) through the Learning Centre, the IDMP Releases 1 and 2, the rollout of a new vision, mission and guiding principles in 2017 and ongoing management support and oversight. This will continue to evolve through Release 3 of the IDMP.

OAG assessment:

OAG confirmed that Infrastructure Services issued a directive to all project managers outlining key expectations throughout the life cycle of a project. Project delivery expectations and processes were components of additional training provided to project managers. In addition, the City's Project Management policy identifies the requirement that all staff are expected to adhere to the referenced policies and by-laws.

Recommendation #13 (6.5.7)

Table 14: Status

Management update	OAG assessment
Partially complete	Partially complete

Review recommendation:

That ISD ensure that all staff assigned Project Management duties are assigned PM accountability.

Management update:

In 2014, IS issued directive ISD-2014-02 highlighting key project delivery expectations. In 2015 and 2016, IS implemented Releases 1 and 2 focused on improving project delivery practices.

In 2017, IS rolled out a new vision, mission and guiding principles clarifying the “iWay”; the team approach to the services provided by IS.

Further improvements are planned as part of Release 3 of the IDMP throughout 2018 that will bring greater consistency to project delivery practices.

OAG assessment:

OAG confirmed that Infrastructure Services has clarified the role of the project manager in the IDMP. All staff received a management directive highlighting key project delivery expectations. Infrastructure Services has also built accountability into the vISion project management system. All project managers will be responsible for completing and signing off on all stages of the project delivery process in vISion once it is rolled out.

Recommendation #14 (6.5.8)

Table 15: Status

Management update	OAG assessment
Partially complete	Partially complete

Review recommendation:

That ISD continue to evolve its project management processes and to integrate best practices and principles from PMI.

Management update:

In 2014, IS issued directive ISD-2014-02 highlighting key project delivery expectations. This has been supported by project managers attending Project Management Training (PM1 to PM4) through the Learning Centre, the IDMP Releases 1 and 2 (2015 and 2016), the roll-out of a new vision, mission and guiding principles in 2017 clarifying the “iWay”; the team approach to the services provided by IS.

Alignment to PMI principles and practices will be further integrated through Release 3 of the IDMP throughout 2018 and through ongoing management support and oversight.

OAG assessment:

Infrastructure Services’ management indicated that the vISion concept, design and implementation are based on the best practice guidance from the Project Management Institute. vISion is scheduled to be rolled out during Q2 2018.

Performance Management:

Recommendation #15 (6.6.1)

Table 16: Status

Management update	OAG assessment
Partially complete	Complete

Review recommendation:

That ISD establish key performance indicators (KPI) that track project and contract performance particularly in the two key areas of schedule and cost.

Management update:

In 2014, IS issued directive ISD-2014-02 highlighting key project delivery expectations, including areas of scope, budget and schedule.

The Vendor Performance Management (VPM) process implemented in 2015 as part of Release 1 of the IDMP included the development of standard KPI for Construction and Design contracts.

In 2016, enhancements to project scope, budget, cost and quality indicators were made as part of Release 2 of the IDMP, focused on a new IS Project Charter and Project Change Control process.

IS has also been tracking and reporting risks related to scope, budget, schedule and quality as part of the PSU and monthly reporting. Management reviews have been taking place on a bi-weekly basis focused on projects with red indicators.

Further improvements are planned as part of Release 3 of the IDMP throughout 2018.

OAG assessment:

OAG confirmed that management has incorporated KPI's for schedule and cost into the monthly Project Status Updates. OAG has confirmed that vISion will utilize the same KPI's currently in use.

Project Authority:

Recommendation #16 (6.7.1)

Table 17: Status

Management update	OAG assessment
Complete	Complete

Review recommendation:

That ISD maintain the principle of full authority for PMs, but that this authority is within the context of the project scope, budget and schedule established in the Project Charter. Changes must then be escalated within ISD to the appropriate level.

Management update:

In 2014, IS issued directive ISD-2014-02 highlighting key project delivery expectations. In 2016, IS implemented improvements to scope management as part of Release 2 of the IDMP. This included a new Project Charter and a new Project Change Control process to provide greater control on approval to project scope, budget, schedule and quality.

OAG assessment:

OAG confirmed management provided all Infrastructure Services' staff with a directive that highlighted key project delivery expectations. As well, the Project Charter section of the Project Information Management System contains the necessary definitions of authority for project managers. It also requires the project manager to escalate all issues following established reporting guidelines.

Contract Default:

Recommendation #17 (6.8.1)

Table 18: Status

Management update	OAG assessment
Complete	Complete

Review recommendation:

That ISD in conjunction with Supply Branch refine policies and procedures to effectively deal with contract defaults beyond the current use of Liquidated Damages.

Management update:

In 2014, IS held a construction contract management session for staff delivered by Revay Associates. Contract management sessions were also part of the joint City-NCHCA-CEO Education Series in 2014, 2015 and 2017.

In 2015, IS, working with Supply Services, implemented a new Vendor Performance Management (VPM) process as part of Release 1 of the IDMP. This has increased the level of communication between project managers and contractors related to expectations and contractor performance. Supply will begin using VPM scores in the awarding of contracts in 2018. IS' management and Supply Services have also been playing a greater role in overall contract management and the application of incentive/disincentive clauses and liquidated damages contract provisions.

OAG assessment:

OAG confirmed that management has developed policies and procedures to guide project managers through contract default situations. Management has provided staff with training on contract management and the use of incentives/disincentives. OAG has confirmed that Infrastructure Services followed these established procedures during a recent contract default.

Supplier Performance:

Recommendation #18 (6.9.1)

Table 19: Status

Management update	OAG assessment
Complete	Complete

Review recommendation:

That the Vendor Performance System currently under development includes a provision for assessment of contractor performance during the work to be used as means of communication for performance expectations with consequences for future bid opportunity.

Management update:

In 2015, IS, working with Supply Services, implemented a new Vendor Performance Management (VPM) process as part of Release 1 of the IDMP. This has increased the level of communication between project managers and contractors related to expectations and contractor performance.

In 2018, Supply Services will begin to use VPM scores in the awarding of contracts.

OAG assessment:

In 2015, Supply Services, along with Infrastructure Services, instituted a Vendor Performance Management process. This system provides vendors with a score at the conclusion of their contract based on factors including overall project management, schedule and budget management. In 2018, Supply Services began factoring these scores into the awarding of contracts.

Table 20: Status legend

Status	Definition
Not started	No significant progress has been made. Generating informal plans is regarded as insignificant progress.
Partially complete	The City has begun implementation; however, it is not yet complete.
Complete	Action is complete, and/or structures and processes are operating as intended and implemented fully in all intended areas of the City.
No longer applicable	The recommendation is obsolete due to time lapses, new policies, etc.