

Chapter 1

Section 1.09

Metrolinx—Public Transit Construction Contract Awarding and Oversight

Follow-Up on VFM Section 3.09, 2016 Annual Report

RECOMMENDATION STATUS OVERVIEW						
	# of Actions Recommended	Status of Actions Recommended				
		Fully Implemented	In Process of Being Implemented	Little or No Progress	Will Not Be Implemented	No Longer Applicable
Recommendation 1	1	1				
Recommendation 2	2	1	1			
Recommendation 3	2	2				
Recommendation 4	2	1				1
Recommendation 5	2	2				
Recommendation 6	3	1	2			
Recommendation 7	1	1				
Recommendation 8	3	1	2			
Recommendation 9	2	1			1	
Recommendation 10	2		1		1	
Recommendation 11	1	1				
Recommendation 12	3	1	2			
Recommendation 13	4	3	1			
Recommendation 14	2		2			
Recommendation 15	5	3	2			
Recommendation 16	1	1				
Recommendation 17	2		1		1	
Total	38	20	14	0	3	1
%	100	53	37	0	8	2

Overall Conclusion

As of July 23, 2018, 53% of the actions we recommended in our *2016 Annual Report* have been fully implemented, while 37% were in the process of being implemented, 8% will not be implemented and 2% are no longer applicable.

Overall, Metrolinx has made progress on a number of our recommendations, including:

- implementing a new technical compliance review process to review consultants' designs for errors and omissions;
- completing implementation of its vendor performance management program that measures and manages the performance of vendors and incorporating the vendors' performance when evaluating their submissions for new contracts; and
- establishing a new project performance process where project teams are required to report monthly on the health and status of their projects, including identifying any risk of cost overruns and the likelihood of recovering these costs from the consultants/contractors.

However, some significant areas still require work, including:

- developing cost recovery guidance for costs incurred by Metrolinx as a result of design consultants' errors and omissions;
- training staff on warranty provisions stipulated in the construction contracts to ensure they have sufficient knowledge and understanding to administer these provisions; and
- completing an assessment of its contract management practices with Canadian National Railway (CN) and Canadian Pacific Railway (CP) contracts to ensure that costs paid are reasonable and relate only to contracted work.

The status of actions taken on each of our recommendations is described in this report.

Background

Metrolinx is an agency of the Ministry of Transportation responsible for operating a network of train and bus routes across more than 11,000 square kilometres (km) in the Greater Toronto and Hamilton Area. Valued at \$13.6 billion (\$11 billion in 2016), Metrolinx uses about 680 km of railway track on seven train lines, 66 train stations and 15 bus terminals. In total, about 69 million passenger boardings occur annually on Metrolinx vehicles.

Metrolinx was established in 2006 as a planning agency, and then merged in 2009 with GO Transit (GO), which had been operating the regional transit system since 1967. With this merger, Metrolinx became responsible for operating, maintaining and expanding GO's network of trains and buses.

In the last five years, Metrolinx spent about \$9.9 billion on 596 construction projects (compared to \$7.5 billion on 520 projects in the five years prior to our 2016 audit). The average cost of these projects was about \$16.6 million. These projects included building new parking lots, expanding GO railway tracks, building tunnels and bridges for trains, and upgrading existing GO stations.

Of the \$9.9 billion Metrolinx spent in the last five years, about \$9.7 billion (97.7%) was on projects where Metrolinx contracted out all of the work. For almost all of these projects, Metrolinx either contracted with a separate company to design the project and a different company to construct it (this is the traditional model for delivery of construction projects) or has used the alternative financing and procurement method, in which the design and construction of the project is with the same consortium of companies.

The other \$231 million (2.3%) of construction dollars Metrolinx spent in that period was paid to Canada's two major railway companies—the Canadian National Railway (CN) and the Canadian Pacific Railway (CP). When GO was first established, it used existing CN and CP track. As

demand for GO train service increased, GO bought as much CN and CP track and surrounding land that it could. When CN and CP would not sell land to GO, GO paid them to construct more track lines on their land and paid them, as per the terms of their agreement, to use the lines. This continued after Metrolinx assumed responsibility for GO. Thus, Metrolinx has had to hire either CN or CP as the sole contractor for these projects on CN and CP land.

Our audit found that Metrolinx did not have adequate processes in place to consistently ensure value for money in its delivery of construction projects. Because of deficiencies noted in its oversight processes around construction contracts, and because of deficiencies we confirmed in a sample of contracts, there was a risk that it was spending more than what was required, and there was a significant risk that this would continue to happen.

Our specific observations were as follows:

- Metrolinx allowed design consultants to produce designs that were not feasible to construct, contained errors, misestimated the quantity of materials required, or omitted specifications—all with no repercussions. In a sample of six projects whose total initial construction costs were over \$178 million, \$22.5 million more had to be spent because of the design consultants' errors and omissions. There were no repercussions in these cases, and Metrolinx did not factor in this poor performance when selecting these design consultants for future projects.
- With the exception of two contractors, Metrolinx did not appear to be addressing problems caused by construction contractors that had a history of poor performance on Metrolinx projects. A contractor might repeatedly be late in delivering work, not construct the project according to the approved design, not follow safety regulations and/or not fix deficiencies on time—yet Metrolinx would hire the contractor for future projects, provided it was the lowest bidder.
- Even though Metrolinx incurred significant costs because of contractors completing projects late (anywhere from four months to 25 months), it seldom took action against contractors who did not deliver on schedule.
- Metrolinx rarely took into account whether contractors breached safety regulations that resulted in unsafe site and working conditions when awarding future contracts. We found that even when a contractor had caused safety issues to the public as well as construction workers, Metrolinx took no action against it, and continued to award it future contracts.
- Metrolinx was not diligent in ensuring that contractors fixed deficiencies in their work in a timely manner. In three-quarters of the projects we reviewed, we noted that contractors took much longer than the industry standard of two months to fix all deficiencies. On average, these contractors took almost eight months to fix outstanding deficiencies.
- Metrolinx allowed contractors to subcontract up to 100% of the work on their projects. Metrolinx had experienced significant issues with sub-trades—to the extent that its staff requested that Metrolinx pre-screen sub-trades to ensure that those with a poor work history did not jeopardize project timelines.
- Metrolinx did not have, in its enterprise management system, a control in place to ensure that payments exceeding approved budgets were approved for overexpenditure. As a result, project staff had to manually keep track of project expenditures to ensure that they were within the budget. However, we found that they were not always doing this properly.
- Metrolinx's projects with CN and CP were costed in one of two ways. With some CN projects, CN provided an estimate of the total costs, and that estimate became the lump-sum amount Metrolinx ultimately must pay for the project. With other CN projects

and almost all CP projects, CN or CP invoiced Metrolinx based on the project's time and materials. In all cases, Metrolinx paid CN and CP without verifying most costs.

- Metrolinx informed us that it sometimes visually inspected railways once they were built, but inspections were not mandatory, and the results of any inspections were not documented.

We made 17 recommendations, consisting of 38 action items, to address our audit findings.

We received commitment from Metrolinx that it would take action to address our recommendations.

Status of Actions Taken on Recommendations

We conducted assurance follow-up work between April 1, 2018, and July 23, 2018, and obtained written representation from Metrolinx that, effective October 31, 2018, it has provided us with a complete update of the status of the recommendations we made in the *2016 Annual Report*.

The status of actions taken on each of our recommendations and the related actions are described in the following sections.

Metrolinx Is Not Effectively Addressing the Poor Performance of Design Consultants

Recommendation 1

To ensure that it does not incur excessive costs as a result of consultants' design errors and omissions, Metrolinx should implement policies and procedures for reviewing designs for their accuracy, their constructability, and their inclusion of all specifications.

Status: Fully implemented.

Details

During our 2016 audit, we found that Metrolinx rarely took action to hold design consultants

accountable when they produced designs that were not feasible to construct, that were unclear or contained errors, that misestimated the quantity of materials required, or that omitted specifications. The resulting cost from these errors and omissions could be significant. In our review of a sample of construction projects that had experienced cost overruns over the previous five years, we found \$22.5 million of these overruns were the result of design errors and omissions.

Our follow-up found that Metrolinx started a new technical compliance review process in January 2018 to guide the review of designs for both alternative financing and procurement (AFP) and traditionally procured projects. Under this process, Metrolinx project managers are required to work with the Technical Compliance Manager and Technical Compliance Reviewer(s) from the appropriate areas within Metrolinx (for example, from GO Rail Operations, Station Services, Bus Facilities) to review the designs for errors and omissions.

Comments and concerns noted from the review are recorded in a technical compliance review comment log and forwarded to the design consultants for responses. The consultants are required to respond to the comments in the log in preparation for the technical compliance review meeting to discuss the designs. The consultants are also required to update the log based on the discussion from the meeting and update the designs to address any identified concerns. The Technical Compliance Manager will then provide a recommendation to the project manager on whether to accept the responses from the consultants or further revision is needed before accepting the design as proposed by the consultants.

Recommendation 2

Where design errors and omissions are found that result in additional costs to Metrolinx, Metrolinx should:

- *recover those costs from the design consultant by any means it deems reasonable, including through errors and omissions insurance;*

Status: In the process of being implemented by November 2018.

Details

During our 2016 audit, we found that Metrolinx rarely attempted to recover cost overruns from the consultants due to errors and omissions in their designs. We found that in a sample of construction projects reviewed, Metrolinx paid \$22.5 million more as a result of design errors and omissions. While Metrolinx's contracts allowed it to recover the cost of design errors and omissions through a claims process with the consultants' insurance company, we noted Metrolinx did not attempt to recover these costs for any of the projects we reviewed.

Since our audit, Metrolinx has issued one claim against one of its design consultants due to errors and omissions on a bus rapid transit station project. This claim was settled with the consultant in April 2018, in which the consultant agreed to fix its errors and omissions under the contract and to fulfil the remainder of scope of services in the contract at no cost to Metrolinx.

Further, on July 3, 2018, Metrolinx formally adopted a new Project Management Policy that requires the project teams to identify any potential cost overruns and the likelihood of recovering design or construction cost overruns due to design errors and omissions in their monthly report on each project in their portfolio. In the event that errors and omissions affecting project performance are identified, project teams are to discuss the prospect of cost recovery with senior management for further action.

Metrolinx is also in the process of developing cost recovery guidance to complement the Project Management Policy to provide more details on expectations for recovering design or construction cost overruns due to design errors and omissions. The target completion date is November 2018.

- *consider the design consultant's performance in the awarding of future business.*

Status: Fully implemented.

Details

During our 2016 audit, we found there were no repercussions in cases where design consultants delivered poor quality and/or late designs. As well, Metrolinx did not factor in this poor performance when selecting these design consultants for future projects.

Our follow-up found that as of April 2018, Metrolinx had fully implemented its vendor performance management program that measures and manages the performance of vendors. Under this program, the performance of vendors is assessed using a contract performance appraisal scorecard that includes key performance indicators for each of their projects with Metrolinx. Key performance indicators include quality of work performed, compliance with milestones and substantial completion dates, timeliness in resolving deficiencies, and compliance with contract terms and safety requirements.

This appraisal is completed at least twice per contract for short-term contracts and every six months for contracts longer than one year. The results of the appraisals are recorded centrally and a vendor performance rating is calculated for each vendor using the average appraisal scores over the most recent three-year period. A period of three years is used to avoid outdated, less relevant evaluations that may not represent the vendors' ongoing operations and practices.

Competitive procurements starting in April 2018 include the consultant's vendor performance rating in the evaluation of their submissions for new contracts.

Recommendation 3

To ensure that all cost overruns resulting from design consultants' errors and omissions are assessed for potential recovery, Metrolinx should implement policies and procedures that:

- *enable tracking of cost overruns; and*
- *clearly define the roles and responsibilities of the staff involved in recovering the overruns.*

Status: Fully implemented.

Details

During our 2016 audit, we found that Metrolinx did not have processes to track cost overruns that were caused as a result of design consultants' errors and omissions. Consultants made errors such as estimating the wrong quantity of material that would be required, or produced vague and unclear designs that led to cost overruns during the construction phase. As well, there were no defined roles and responsibilities regarding who is responsible to review cost overruns to determine whether the overruns could be recovered from consultants' design errors and omissions.

Since our audit, Metrolinx has introduced a new process to review project performance starting in January 2018. Requirements under this process include:

- Project teams are required to provide monthly reports indicating health and status for each project, including scope, schedule, cost and quality of work.
- Monthly meetings are held and chaired by the CEO, Chief Capital Officer (CCO) and Deputy CCO to review project performance; and delivery leads and their project managers are required to address any inquiries from the meetings, including any risk of cost overruns, if any, and the likelihood of recovering these costs.
- An action log is used to track all required actions and associated due dates for completion.
- A monthly exception report that tracks projects at risk of cost overruns and delays is reported to the Investment Panel, chaired by the CFO, for an additional layer of review and guidance on project performance.

As well, in March 2018, Metrolinx completed its restructuring of the group responsible for

delivering capital projects. Project teams now also review:

- actual costs recorded in the projects on a monthly basis;
- detailed expenditure transaction reports, with teams challenging costs as required; and
- each payment prior to being recorded in the system.

These actions are to ensure that invoices cannot exceed the value in the contracts.

Further, on July 3, 2018, Metrolinx adopted a new project management policy. The policy requires the project teams to identify any potential cost overruns and the likelihood of recovering overruns due to design errors and omissions in their monthly report of each project in their portfolio. In the event that errors and omissions are identified, project teams are to discuss the prospect of cost recovery with senior management for further action.

Recommendation 4

To ensure that construction projects are not delayed because of the design consultant's failure to meet project timelines, Metrolinx should:

- *include contract provisions that allow it to address poorly performing consultants who do not meet project timelines;*

Status: No longer applicable.

Details

In our 2016 audit, we identified that design consultants were not always meeting timelines because the consultant team lacked the necessary expertise or did not have enough staff to complete the work on time. Metrolinx had limited means in design consultants' contracts to address the issue of missed deadlines. Despite situations where the design consultants had failed to provide professional and timely services, Metrolinx did not hold them financially accountable. The only action Metrolinx could take against late-delivering design consultants was to terminate the contract.

At the time of our follow-up, Metrolinx indicated that the consultant contract templates contain standard clauses, which define Metrolinx's rights to address poor performance by consultants, including failure to meet timelines. These include provisions that allow Metrolinx to seek remedies from the consultant for damages from any breach or threatened breach of their commitments in the contracts, a process for dispute resolution, and the ability to offset any amount owed to the vendor against any amount owed to Metrolinx.

These provisions are essentially unchanged in content since our 2016 audit; however, Metrolinx has changed its internal practices so that these contract provisions and other complementary tools are used more effectively to hold consultants accountable. Starting in March 2018, monthly project review meetings are chaired by the CEO, Chief Capital Office (CCO) and Deputy CCO to review the health and status of capital projects.

With the additional monitoring for earlier identification of potential problems, Metrolinx concluded the design contracts have sufficient provisions that allow Metrolinx to ensure design work is delivered on time. Rather than including new provisions in the contracts to address poor performers, Metrolinx indicated to us that it will develop better operational processes and staff training to ensure better enforcement of the existing rights in the contracts.

- *implement a system where consultants' track record for timeliness is taken into account when hiring them for future projects.*

Status: Fully implemented.

Details

During our 2016 audit, we found that Metrolinx did not take into account consultants' track record for timeliness when hiring them for future projects.

We found in our follow-up that in April 2018 Metrolinx fully implemented its vendor performance management program, which measures and manages the performance of vendors. The

performance of vendors is assessed using a contract performance appraisal scorecard that includes key performance indicators. We noted that 10 of the 44 indicators include elements of timeliness and compliance with contract schedules and timelines. The management program is discussed in more detail in action item two of **Recommendation 2**. Competitive procurements now include the consultant's vendor performance rating in the evaluation of its submissions for new contracts.

Metrolinx Rarely Prevents Poorly Performing Construction Contractors from Being Awarded Future Contracts

Recommendation 5

To ensure that contractors known to have poor performance do not jeopardize the success and safety of future Metrolinx projects, Metrolinx should implement policies and procedures to:

- *track contractors' performance in a centralized system;*

Status: Fully implemented.

Details

During our 2016 audit, we found that Metrolinx did not have a process to identify poorly performing contractors when it was awarding contracts. Metrolinx would hire the contractor for future projects, provided it was the lowest bidder.

In April 2018, Metrolinx fully implemented its vendor performance management program, which is discussed in more detail in action item two of **Recommendation 2**. Metrolinx procured a third-party web portal IT platform to store and manage all vendor performance data and workflows, including Metrolinx's appraisals of vendor performance. The results will be uploaded to the system and the average performance over the last three years will be assessed in the evaluation of a vendor's bid submission for any new contract.

- *incorporate this performance into its decision to award future business with Metrolinx.*

Status: Fully implemented.

Details

During our 2016 audit, we found that even when a contractor had a history of poor performance on Metrolinx projects, Metrolinx took little action to prevent it from working on future projects. Metrolinx rarely factored reviews of a contractor's references and the contractor's past performance into its decision to award it a contract. Similarly, once Metrolinx put a contractor on its roster of pre-qualified contractors, it did not assess whether the contractor's performance continued to be acceptable.

Since our audit, in April 2018, Metrolinx fully implemented its vendor performance management program, which is discussed in more detail in action item two of **Recommendation 2**.

Recommendation 6

To reduce the risk of jeopardizing worker and public safety because of safety breaches made by the contractor, Metrolinx should implement policies and procedures to address all instances of safety breaches found during safety audits, and all instances of safety incidents by:

- *requiring contractors to develop remedial plans to ensure that safety breaches or safety incidents do not re-occur;*

Status: In the process of being implemented by November 2018.

Details

Our 2016 audit noted that Metrolinx audited 25 different projects in the previous three years. In each of the 25 projects, Metrolinx staff found instances of contractors not following safety regulations and procedures. Metrolinx informed us that in each of these instances, the contractor, upon Metrolinx's request, had stopped the unsafe behaviour right away. However, we noted that there were no further follow-up audits to determine whether the

contractor continued to breach safety regulations, nor any repercussions for the contractor for its unsafe actions.

We found in our follow-up that starting in January 2018, Metrolinx required all alternative financing and procurement projects, such as the Eglinton Crosstown Light Rail Transit project, and new construction contracts to provide monthly safety data on their projects for continuous monitoring of safety on the projects. Metrolinx uses this data to develop and evaluate safety trends to identify opportunities for improvement, additional corrective actions and/or scheduling of an audit for the project. Senior management discusses the information at the monthly project performance review meeting.

In addition, the mandate of the construction Health and Safety group at Metrolinx was expanded in March 2018 to include all major construction projects and was approved for an additional 17 staff. The group is also updating the Construction Safety Management Program to include:

- formalizing the requirement for contractors to include a corrective action plan for non-compliance issues identified through inspections, observations or incident reports and for Metrolinx to audit the contractors to ensure corrective actions have been successfully implemented;
- developing a draft compliance audit procedure with the requirement for contractors to provide corrective/remedial action plans to prevent re-occurrence; and
- developing a Construction Safety Management System Framework to replace the current program.

The updates were presented to Metrolinx's Executive Safety, Security, Health and Environment Committee in October 2018 and rollout of the new safety management program is expected by November 2018.

- *implement follow-up audits to verify whether remedial plans have been implemented;*
Status: In the process of being implemented by November 2018.

Details

As part of the updates to its construction safety program (discussed above), Metrolinx has developed a draft compliance audit procedure, which includes requiring corrective action plans and follow-up audits where identified hazards are not addressed at the time of the inspection. This draft procedure was part of the package presented to Metrolinx's Executive Safety, Security, Health and Environment Committee in October 2018. Formal implementation is expected by November 2018.

In the meantime, the draft document has been circulated to the Health and Safety staff to prepare for being put in place, and it will include follow-up audits to confirm that remedial plans are completed.

- *take frequent and/or serious safety breaches and incidents into consideration, as part of its contractor performance management system, when awarding future contracts to contractors.*
Status: Fully implemented.

Details

During our 2016 audit, we found that although Metrolinx was aware of contractors' safety breaches, the contractors continued to work for Metrolinx without being fined or facing other repercussions. Also, when awarding future contracts, Metrolinx did not take into account whether contractors breached safety regulations.

Since our audit, Metrolinx has fully implemented its vendor performance management program as discussed in more detail in action item two of **Recommendation 2**. We noted that the indicators related to safety must be included in the assessment of performance for the vendors and their weighting in the assessment ranges from 5% for procurement of IT-related services to 20% for construction services. Competitive procurements

starting in April 2018 include the vendor performance rating for consultants in the evaluation of their submissions for new contracts.

Construction Contractors' Delivering Work Late Results in Additional Costs to Metrolinx—and Inconveniences Commuters

Recommendation 7

To ensure that Metrolinx limits its exposure to additional costs and that its customers are not inconvenienced because of contractor-caused delays on construction projects, Metrolinx should incorporate disincentives, such as liquidated damages, in all its construction contracts for situations where contractors fail to meet project timelines.

Status: Fully implemented.

Details

We found in 2016 that Metrolinx did not take action against contractors who did not deliver on schedule—even though it incurred significant costs because of contractors completing projects late.

Our follow-up found that Metrolinx sought input from external stakeholders in July 2017 and completed its internal reviews in January 2018 on creating a more consistent approach to including liquidated damages in contracts. Based on the results of the reviews, Metrolinx updated its construction tendering templates in July 2018 to include liquidated damages for failure to achieve substantial performance of the work and milestones, and for train delays and cancellations, track closures, and safety incidents.

The assessment of whether or not to include liquidated damages provisions in the contract templates is discussed during the planning phase of the projects, as well as with the Tender Review Committee, before posting the contract for procurement.

Metrolinx Is Experiencing Delays with Contractors Not Fixing Deficiencies in Their Work in a Timely Manner

Recommendation 8

To ensure that deficiencies do not remain unfixed, Metrolinx should:

- include contract provisions that require contractors to fix deficiencies within acceptable industry standards;

Status: In the process of being implemented by December 2018.

Details

During our 2016 audit, we found that Metrolinx experienced delays when contractors did not fix deficiencies in their work that remained outstanding after a project was substantially complete. In 15 out of 20 projects we reviewed, we noted that contractors took much longer than the industry standard of two months to fix all deficiencies. On average, these contractors took almost eight months to fix outstanding deficiencies. We noted that Metrolinx lacked contractual provisions that would allow it to require contractors to fix deficiencies on a timely basis.

Metrolinx informed us during our follow-up that it has updated its contract templates with a new warranty letter of credit to ensure contractors fix deficiencies in a timely manner. All contracts awarded starting in December 2018 will be assessed if this new requirement is applicable for the project.

Under the new requirement, the contractor must submit the letter of credit prior to starting the contract. The value of the warranty letter of credit is 2% of the contract value. If the contractor fails to correct deficiencies within the time allotted in the contract, after substantial performance has been achieved, Metrolinx reserves the right to draw upon the warranty period letter of credit. The letter of credit would be returned after total performance of the work has been achieved.

- take contractors' past performance in fixing deficiencies into consideration, as part of its contractor performance management system, when awarding future Metrolinx business;

Status: Fully implemented.

Details

Metrolinx experiences delays when contractors do not fix deficiencies in their work that remain outstanding after a project is substantially complete. During our 2016 audit, we noted that Metrolinx did not take into account a history of such delays when selecting contractors for future contracts.

Since our audit, Metrolinx has fully implemented its vendor performance management program as discussed in action item two of **Recommendation 2**. We noted that performance indicators that addressed deficiencies are quality of work performed, the amount of reworking required to meet requirements, and the timeliness to resolve deficiencies. Competitive procurements starting in April 2018 include the vendor performance rating for consultants in the evaluation of their submissions for new contracts.

- provide training to staff responsible for administering warranties to ensure they have sufficient knowledge and understanding of all warranty provisions stipulated in the construction contract.

Status: In the process of being implemented by March 2019.

Details

During our 2016 audit, we noted that staff who administered warranties had limited knowledge of how to enforce and administer warranty provisions that were included in the Metrolinx contracts. For example, Metrolinx staff were unaware that deficiencies were covered, under warranty, for a period of two years after they were fixed.

Since our audit, Metrolinx has developed training materials using summaries of key terms and conditions in the contracts, including applicable warranties in the contracts. These materials

will provide staff with an understanding of the warranty provisions and enable them to identify circumstances in which warranty claims should be made. Since February 2018, Metrolinx and a consulting firm have been working on creating a training program that will run 10 sessions from July 2018 to March 2019.

Metrolinx Allows Contractors to Subcontract up to 100% of Projects Yet Does Not Vet Subcontractors

Recommendation 9

To ensure that poorly performing sub-trades do not delay projects, Metrolinx should assess industry best practices of pre-screening sub-trades and consider implementing a policy on pre-screening sub-trades based on industry best practices.

Status: Will not be implemented. The Office of the Auditor General continues to believe that to ensure that performance issues from sub-trades do not delay projects as noted in our 2016 audit, it is important that Metrolinx proactively monitor the sub-trades used by general contractors. In instances where sub-trades are negatively affecting the quality and timelines of projects, Metrolinx should take prompt action against general contractors to remedy the situation as quickly as possible so that projects are not delayed due to failure of the sub-trades.

Details

During our 2016 audit, we found that Metrolinx allowed contractors to subcontract up to 100% of their work to subcontractors, yet it did not pre-screen the subcontractors for reliability. In addition, staff at Metrolinx had requested that Metrolinx start pre-screening sub-trades to ensure that sub-trades with a poor work history did not jeopardize project timelines. However, we noted that Metrolinx had not implemented such a process.

At the time of our follow-up, Metrolinx indicated to us that industry best practices and standard contract documents of the Canadian Construction Documents Committee make sub-trades the

responsibilities of the general contractor. Metrolinx stated that pre-screening sub-trades transfers risk to Metrolinx. It said it would only in very limited and highly specialized circumstances require the general contractor to work with pre-qualified sub-trades selected by Metrolinx (for example, track and signals maintenance contractors). Therefore, Metrolinx will not be implementing this recommendation.

To ensure that poorly performing sub-trades do not adversely impact projects, Metrolinx should implement, through its contractor performance management system, a process to hold general contractors accountable for the performance of their sub-trades.

Status: Fully implemented.

Details

During our 2016 audit, we noted that Metrolinx had limited tools to hold general contractors accountable for the performance of sub-trades. Apart from putting the contractor into default, which can further increase delays and costs, Metrolinx could not hold contractors accountable for poor work of sub-trades.

Since our audit, Metrolinx has fully implemented its vendor performance management program as discussed in action item two of **Recommendation 2**. Key performance indicators that address the performance of sub-trades are included in the vendor performance appraisals. Poor performance by sub-trades will affect the rating for the general contractors that will be used to assess their submissions for future contracts with Metrolinx.

Recommendation 10

To ensure that it can protect its rights as an owner and prevent contractors from misusing their right to subcontract, Metrolinx should:

- *set limits on the total amount of work that contractors can subcontract to any one company;*

Status: In the process of being implemented by December 2018.

Details

During our 2016 audit, we found that Metrolinx allowed contractors to subcontract up to 100% of their work to subcontractors, yet it did not pre-screen the subcontractors for reliability. Also, because Metrolinx did not have a direct contractual relationship with the subcontractors, it was limited in the actions it could take when subcontractors failed to perform at expected levels.

We found in our follow-up that Metrolinx has had internal discussions regarding setting limits on the amount of work that contractors can subcontract to any one company. Metrolinx plans to conduct research with the construction community on what limits would work.

Metrolinx has a working relationship with the Ontario Road Builders' Association and is currently establishing a working relationship with the Ontario General Contractors Association for it to be part of the discussion on this issue. Metrolinx indicated to us that it plans to consult with the industry over the summer of 2018 and finalize a limit by December 2018.

- *include contract provisions that protect its interests in situations where sub-trades and sub-sub-trades are used.*

Status: Will not be implemented. The Office of the Auditor General continues to support the implementation of this recommendation.

Details

During our 2016 audit, we found that Metrolinx allowed contractors to subcontract up to 100% of their work to subcontractors, yet it did not pre-screen the subcontractors for reliability. Also, because Metrolinx did not have a direct contractual relationship with the subcontractors, it was limited in the actions it could take when subcontractors failed to perform at expected levels.

At the time of our follow-up, Metrolinx indicated that industry best practices and standard Canadian Construction Documents Committee contract documents used by Metrolinx require

the general contractor to be responsible for the actions and performance of all levels of sub-trades. Metrolinx stated that it does not need to include any new contract provisions in situations where sub-trades are used because Metrolinx's contractual relationship is only with the general contractor. Therefore, Metrolinx will not be implementing this recommendation.

However, it is important that Metrolinx take prompt action to hold the general contractor accountable for resolving any issues with the sub-trades or sub-sub-trades.

Metrolinx Accepts Handover of Nearly Completed Projects even though Critical Items Are Still Outstanding

Recommendation 11

To ensure that projects can be safely and successfully operated once substantially complete, Metrolinx should develop and implement the use of a substantial completion checklist requiring, at a minimum, that critical items needed to operate the project and ensure commuter safety have been completed or received prior to Metrolinx issuing a certificate of substantial completion.

Status: Fully implemented.

Details

We found in our 2016 audit that Metrolinx did not require that all essential elements of a project be completed before it took ownership of the project from the contractor. We noted that Metrolinx did not specify which items must be completed before handover. We also noted that Metrolinx took ownership of some projects well in advance of the contractor completing basic work necessary for the operation of the structure or facility.

In December 2017, Metrolinx approved and implemented a substantial completion procedure and associated checklist to ensure projects can be safely and successfully operated once substantially complete. During our follow-up, it indicated to us

that the checklist provides high-level guidance as to what issues should be verified when validating a vendor's work at substantial completion. It must be used in accordance with applicable handover protocols and standards and contract requirements.

Items on this checklist include safety requirements—such as and completed fireproofing and fire hazard assessments, and completed emergency lighting and closed-circuit television infrastructure—that must be completed before a certificate of substantial completion is issued.

Recommendation 12

To ensure that performance issues with both design consultants and contractors can be effectively resolved during the project, Metrolinx should:

- *issue mandatory work orders to compel consultants or contractors to complete work in the time frame and manner required by Metrolinx;*

Status: Fully implemented.

Details

During our 2016 audit, we found that although project handover usually occurred when about 98% of project payments were made, some items that were critical to the operation of the structure or facility could still be outstanding at that point.

At the time of our follow-up, Metrolinx indicated that under the current construction and consultant contracts, Metrolinx retains the right to enforce performance of the contract against the contractors. Enforcement for non-performance and non-compliance escalates through meetings and results in letters of instruction, which Metrolinx indicated are equivalent to mandatory work orders, to the contractor.

If consultants and contractors do not fulfil their obligations under the contract, letters of instruction are also used to escalate issues, such as initiating a default into a claim and the subsequent process of resolving the claim through the dispute-resolution process. Regardless of any ongoing dispute with the contractor, the contractor is required to continue

with the work and complete the projects within the terms of the contracts.

- *implement a dispute-resolution process where claims filed by consultants or contractors (that dispute the costs associated with the work order) are reviewed by Metrolinx staff who are independent from the project team;*

Status: In the process of being implemented by December 2018.

Details

During our 2016 audit, Metrolinx had lacked a process for timely resolution of current and future performance issues with consultants and contractors. We did find that Metrolinx had a process whereby its project team would review claims. However, it did not have a process whereby the reviews could be escalated to Metrolinx staff who were independent from the project team to allow for an independent review of claims and disputes.

Our follow-up found that Metrolinx began to put in place a claims management team in April 2018. It is independent from the project teams to review claims and disputes with the contractors and consultants. This team provides independent reviews of proposed settlement agreements prepared by the project delivery teams, and resolves some of the current challenges with the claims management process. Current challenges include:

- inadequate definition of roles and responsibilities with regard to claims management;
- inconsistent reporting of claims and change management for project staff; and
- lack of consistency in the way contractors, consultants and suppliers provide notification of claims.

The proposed organizational structure for this team is 16 members, made up of seven full-time staff and nine consultants. Metrolinx expects to fully staff this team by December 2018.

- *track the results of all claim reviews in a centralized system.*

Status: In the process of being implemented by December 2018.

Details

During our 2016 audit, we found that Metrolinx did not centrally track claims filed by consultants or contractors, as well as the results of the claims reviewed.

Since our audit, Metrolinx has been using an Excel-based log to track the claims in a claims register. Metrolinx advised us during our follow-up that the claims register would be transferred by December 2018 to its contract management system, which will allow the data to be reviewed more thoroughly.

Limitations in the Accounting System Led to Metrolinx Making Payments to Contractors Beyond Projects' Approved Budgets

Recommendation 13

To ensure that only authorized payments are made to contractors within approved or authorized increased budgets, Metrolinx should:

- *correct its accounting system to ensure that it issues payment only for invoices up to the approved budget and Purchase Order limits;*

Status: Fully implemented.

Details

We found in our 2016 audit that Metrolinx did not have a control in place that ensured payments exceeding approved budgets had been approved. We found instances where Metrolinx should not have issued a cheque until someone with sufficient authority approved a budget extension. In addition, we found that in the previous five years, out of 7,300 payments Metrolinx made to construction contractors, 4,600—or 63%—were made without being tracked against their assigned Purchase Orders in Metrolinx's accounting system.

Our follow-up found that Metrolinx upgraded its accounting system in July 2017 to require three-way matching to ensure payments are not made in excess of the approved contract or Purchase Order limits. The invoices must be matched by line item to a Purchase Order/contract and the Purchase Order/contract limit.

In addition, on June 1, 2018, Metrolinx created an interface between its contract management system, which tracks invoices and the approved contract budgets, and its accounting system to automatically close out Purchase Orders and contracts once the work is completed on the contracts. This is to prevent any further transactions against those contracts and Purchase Orders. The two systems are synched twice a day.

- *clarify and communicate to staff, who are responsible for manually tracking payments against project budgets, their roles and responsibilities in this regard;*

Status: In the process of being implemented by March 2019.

Details

During our 2016 audit, we found that Metrolinx had partly relied on a manual control whereby project staff tracked payments against approved budgets. However, there were some significant drawbacks to this manual control, and payments exceeding approved budgets were not caught.

We found during our follow-up that Metrolinx approved a new payment process in January 2017 that clearly states staff's responsibilities around tracking payments against project budgets. As well, Metrolinx has set up a centralized payment processing department to manage the payment process, so that project staff can ensure they do not exceed budgets. An invoice review checklist that was started in February 2014 for the rapid transit capital projects was rolled out to the other capital projects. Staff reviewing the invoices for payments are specifically required to verify that the invoiced amounts to date do not exceed the amounts authorized in the contracts and Purchase Orders.

In addition, Metrolinx began in July 2017 to migrate its major capital projects into a centralized contract management system where payments are measured against contract budgets, removing the need for manual processing of payments. As of July 2018, there were still about \$900 million of capital projects not yet migrated into the system. Metrolinx anticipates this will be done by March 2019.

- *close out the Purchase Order numbers on all completed projects;*

Status: Fully implemented.

Details

During our 2016 audit, we found that Metrolinx lacked a process to automatically close Purchase Orders when a project is complete. At the time of our audit, unclosed Purchase Orders for completed projects had remaining budgets of about \$4 million.

We found in our follow-up that in December 2016 Metrolinx approved the Contract Completion and Close-out Procedure that defines the process to close Purchase Orders once the work on construction contracts has been completed. As part of the data cleansing process from February 2017 to June 2017, Metrolinx closed out 10,367 Purchase Orders that were deemed to be completed based on parameters, such as the period of time since there was any payment activity or amendments to the Purchase Order, and funds remaining on the contract. This cleansing process will be performed on at least an annual basis with the goal of being performed quarterly.

- *put a process in place to close out future Purchase Orders upon project completion.*

Status: Fully implemented.

Details

As noted in the preceding action item, in December 2016 Metrolinx approved the Contract Completion and Close-out Procedure that defines the process to close Purchase Orders once the work on construction contracts has been completed.

In addition, effective June 1, 2018, Metrolinx has interfaced its contract management system and accounting system to close out Purchase Orders once the work is completed on the contracts to prevent further transactions against the Purchase Orders. The interface is scheduled to synch twice a day as an automated process to close out Purchase Orders on completed projects.

Metrolinx Pays CN and CP Without Verifying Most Costs

Recommendation 14

To ensure that the costs that Metrolinx pays CN are reasonable and relate only to contracted work, Metrolinx should obtain detailed information to support the lump sums CN estimates and charges and review it thoroughly. The information should include, but not be limited to:

- *estimated labour hours, which Metrolinx should assess for reasonableness; and*
- *the construction plan, which Metrolinx should assess for the reasonableness of costs such as materials, transportation, subcontracted services and rented goods and services.*

Status: In the process of being implemented by December 2018.

Details

During our 2016 audit, we found that Metrolinx performed limited review of CN's lump sum construction estimates for reasonableness—these estimates form the basis of milestone payments. Metrolinx paid for CN's labour costs when they were invoiced without knowing the hours of labour behind them, or assessing what the labour hours were for. We also found that Metrolinx paid for CN's subcontractors' and transportation costs without knowing the construction plan behind them, or assessing these costs for reasonableness.

Metrolinx informed us during our follow-up that it initiated a review of its contract management practices for its CN and CP contracts. A consulting

firm was engaged to do this work in June 2018. The scope of work includes:

- compile an inventory of all agreements and amendments held with CN;
- identify existing gaps as compared with leading practices; and
- enhance/develop standard contract management workflows and processes.

This work was completed in August 2018.

In addition to this, Metrolinx has been gathering data and collating all the CN and CP Purchase Orders and related materials to understand what work has been done and the current process that is in place, and this is expected to be completed by October 2018. Taking the results of both the external and internal reviews, Metrolinx expects to have a new contract management process in place by December 2018 that would improve how it manages the CN contracts.

Recommendation 15

To ensure that Metrolinx pays only for Metrolinx construction costs actually incurred by CN and CP and that these costs are reasonable, Metrolinx should:

- *obtain detailed invoices and follow a process to validate each item to ensure its reasonableness;*

Status: Fully implemented.

Details

During our 2016 audit, we found that Metrolinx had no process for verifying the charges on CN and CP invoices. Rather, Metrolinx simply ensured that actual costs did not surpass original construction estimates, and these estimates were not reviewed for reasonableness. We found if CN's or CP's actual costs came in under the original estimate, CN or CP could still invoice Metrolinx up to the original estimate, even if the work was not done or was done for some other project. We also noted that there were instances where CN charged Metrolinx for work done on track it owned that GO trains never use.

Our follow-up found that in January 2017, Metrolinx developed a new approval and invoice payment process. Under the new process, CN and CP are required to submit invoices with a summary of charges including labour, materials, and equipment costs and all supporting documents. Invoices for progress payments are paid based on percentages outlined in the contracts, and the final invoice is submitted to Metrolinx for payment when work is completed. Metrolinx will audit the work done and issue the final payment only after all deficiencies have been fixed.

For instance, Metrolinx received the final CN invoice for the 2017/18 capital rehabilitation plan in March 2018 and proceeded to cross-check the work based on the estimates and invoiced amounts. A meeting was held on May 30, 2018, to discuss the discrepancies noted, and subsequently a reduction was made on the invoice for work not completed as per the plan. The invoice is expected to be finalized by November 2018.

- *for each project contracted for with CN and CP, assess the reasonableness of labour and materials costs;*

Status: In the process of being implemented by December 2018.

Details

During our 2016 audit, we found that Metrolinx did not perform detailed reviews of construction estimates by CN and CP. We also found that CN charged significantly higher rates for both material costs and labour costs. Also, for CP, Metrolinx could not determine whether CP projects were overpriced because CP did not provide any breakdown of its construction estimates.

Metrolinx staff informed us during our follow-up that they are reviewing industry benchmarks for the costs of railway work to be used as a baseline to evaluate the costs included in the agreements with CN and CP. This will then guide a third-party assessment of rail costs, and set consistent,

nation-wide schedules and guidelines for work performed by railway companies.

Once this review is completed in December 2018, Metrolinx expects to use this information to negotiate labour and material costs in new agreements with CN and CP.

- *perform audits on CN invoices as allowed under the Metrolinx/CN long-term agreement;*

Status: Fully implemented.

Details

In our 2016 audit, we found that Metrolinx, under its long-term agreement with CN, had the right to audit all CN invoices for a period of six months after they were issued. However, Metrolinx had not done so.

In January 2017, Metrolinx started a new approval and invoice payment process. Under the new process, once CN submits invoices for payment Metrolinx will inspect the work done and only issue payment after all identified deficiencies have been fixed.

For example, Metrolinx received the final CN invoice for the 2017/18 capital rehabilitation work in March 2018, and Metrolinx engaged a third party to inspect the work. Metrolinx met with CN on May 30, 2018, to discuss the discrepancies noted on the invoice and expects to finalize the invoice by November 2018.

- *negotiate with CP to put in place the ability for Metrolinx to perform audits on CP invoices for all corridors, and perform the audits;*

Status: In the process of being implemented by December 2019.

Details

During our 2016 audit, we found that Metrolinx could not perform audits on CP invoices for all corridors, as per their agreement.

Since our audit, Metrolinx has clarified the audit rights in all new contracts with CP—only two contracts have been signed in the last two years—

including the ability for Metrolinx or its designated accounting firm to perform audits on CP invoices.

The new contracts contain audit clauses that allow Metrolinx to have access to all relevant books, records, accounts and documentation of CP that are required to confirm the amounts payable under any invoice issued during the term of the agreement and for a period of five years afterward. There is currently no definitive plan to audit CP invoices because the CP work has only recently started; however, Metrolinx anticipates that by December 2019, work will have progressed sufficiently to have meaningful audits.

- *consider placing a Metrolinx inspector at sites where CN and CP are performing construction work for Metrolinx.*

Status: Fully implemented.

Details

During our 2016 audit, we found that Metrolinx did not ensure that costs it paid CN and CP for projects were actually incurred. As a result, we noted that Metrolinx paid CN and CP for costs not related to Metrolinx projects. For example, our review of a sample of CN invoices for the Lakeshore West GO Train expansion project between 2006 and 2008 found several that related to work CN did on track it owned that GO trains never use.

We found in our follow-up that while Metrolinx has not placed an inspector on site, it has undertaken spot inspections at sites where CN and CP are performing work. Inspections are also done to verify the work is completed when CN and CP submit invoices for payment.

The scope of the inspections is to inspect those sites, report on the conditions found at the sites, and verify the consistency between the track upgrades outlined in the agreement and the actual constructed track/switches. In addition, Metrolinx introduced three formal templates for inspection work; these were created in February, October and November 2016. In the last two years, Metrolinx completed 68 inspections of CN and CP work sites.

Metrolinx Does Not Require Verification that CN and CP Have Used New Construction Materials when Projects Call for Them

Recommendation 16

To ensure that it receives the quality of material it pays for on all its construction projects, Metrolinx should implement an independent inspection process.

Status: Fully implemented.

Details

During our 2016 audit, we found that Metrolinx had become aware that CN likely used recycled parts on a GO project but charged it for new parts. During the audit, Metrolinx informed us that its staff might sometimes visually inspect railways once they were built, but such a process was not mandatory, nor were its results documented.

In our follow-up, Metrolinx stated it has undertaken spot inspections at sites where CN and CP are performing work and inspections of work completed where either CN or CP had submitted invoices for payment. The inspections carried out at the sites verified the quality of material and actual work performed, such as track upgrades and constructed track/switches. In addition, as mentioned under **Recommendation 15**, Metrolinx introduced three formal templates for inspection work. In the last two years, Metrolinx completed 68 inspections of CN and CP work sites.

Metrolinx Pays CN and CP Excessive Mark-Up Rates

Recommendation 17

To ensure that Metrolinx does not pay excessive construction costs to CN and CP, it should:

- *renegotiate its long-term master agreement with CN so that mark-up rates are more in line with industry benchmarks;*

Status: In the process of being implemented by May 2019.

Details

During our 2016 audit, we found that the mark-up rates CN could charge on top of labour and materials costs exceeded industry benchmarks. We noted that Metrolinx had not renegotiated these high mark-up rates in recent years—it had last amended them only in 2003 as part of a restructure of its long-term agreement.

Since our audit, at the end of June 2018, Metrolinx completed an internal review of the agreement to identify potential updates, including proposed amendments to the commercial terms of the agreement. Items identified for potential amendments include processes that will allow it to better exercise oversight and detail the breakdown of contract rates.

As well, Metrolinx engaged an external firm to perform an independent assessment of the agreement to identify opportunities for improvement to the contract terms. This assessment was completed in July 2017, and it identified 13 areas for improvement to enhance contractor performance, contract management practices and contractual outcomes of negotiations with CN. These include implementing:

- a contractor performance management framework—to define a process for how CN's performance will be monitored;
- an invoicing process—to define how invoices will be prepared, issued and reviewed, including what supporting information is needed; and
- a change management process—to include guidelines for how changes are managed and negotiated, including appropriate authorization steps and documentation requirements.

Based on the internal review and independent assessment of the contract, Metrolinx is developing a list of potential updates to the master agreement, including proposed amendments to the commercial terms, such as the mark-up rates. Metrolinx anticipates that negotiations with CN will begin in early 2019.

- *negotiate an agreement with CP to ensure that estimates outline all costs in detail and that all mark-up rates are in line with industry benchmarks.*

Status: Will not be implemented. The Office of the Auditor General continues to believe that to ensure CP costs and mark-up rates are in line with industry benchmarks, it is important that Metrolinx require CP to provide detailed cost estimates for Metrolinx to review before signing any future contracts with CP.

Details

During our 2016 audit, we found that CP did not have a long-term construction agreement with Metrolinx. Therefore, there was no set understanding between Metrolinx and CP as to how construction projects should be costed, and what mark-ups were acceptable. CP also did not always disclose mark-up rates it charged Metrolinx. This made it difficult for Metrolinx to assess whether CP's costs were reasonable and fair, and whether the mark-up rates they charged were in line with industry standards.

Since our audit, contracts for work between Metrolinx and CP continue to be negotiated on a

project-by-project basis, with no long-term construction agreement in place. In the last two years, Metrolinx has executed two construction agreements with CP, and the terms of the agreements state Metrolinx will pay direct costs and reasonable indirect charges incurred by CP.

At the time of this follow-up, Metrolinx had no plans to negotiate a long-term construction agreement with CP because the volume of work required on CP lands is not the same as on CN lands. Metrolinx will continue to use template agreements (including a construction agreement) with mostly standard terms as the starting point for each project on CP lands. Metrolinx stated that this provides the benefit of a master agreement, which has consistency and standardization, and a contract that can be customized to reflect the specific requirements of each project. The construction template does require CP to provide a breakdown of the estimated costs of the CP work (including applicable overhead and surcharges and whether such work will be done by contractors or by CP's own workforce) to Metrolinx prior to starting work. This enables Metrolinx to review the contract and negotiate with CP if the estimate is problematic.