Ottawa Light Rail Commission

Rupert Holloway
on Wednesday, April 6, 2022

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 6   OTTAWA LIGHT RAIL COMMISSION

 7   MEETING NO. 6: OLRTC - RUPERT HOLLOWAY

 8   APRIL 6, 2022

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12   --- Held via Zoom Videoconferencing, with all

13   participants attending remotely, on the 6th day of

14   April, 2022, 3:30 a.m. to 6:30 p.m.

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1   COMMISSION COUNSEL:

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3   Christine Mainville, Co-Lead Counsel Member

4   Anthony Imbesi, Litigation Counsel Member

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7   PARTICIPANTS:

8

9   Rupert Holloway

10   Jean-Claude Killey, Paliare Roland Rosenberg

11   Rothstein LLP

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14   ALSO PRESENT:

15

16   Joanne Lawrence, Stenographer/Transcriptionist

17   Benjamin Bilgen, Virtual Technician

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1 -- Upon commencing at 3:30 p.m.

2   MS. MAINVILLE: Thank you,

3 Mr. Holloway, for joining us, especially early this

4 morning, for you. The purpose of today is to

5 obtain your evidence under oath or solemn

6 declaration for use at the Commission's public

7 hearings. This will be a collaborative interview

8 such that my cocounsel, Mr. Imbesi, may intervene

9 to ask certain questions. If time permits, your

10 counsel may also ask follow-up questions at the end

11 of the interview.

12   This interview is being transcribed,

13 and the Commission intends to enter this transcript

14 into evidence at the Commission's public hearings,

15 either at the hearings or by way of procedural

16 order before the hearing commences. The transcript

17 will be posted to the Commission's public website,

18 along with any corrections made to it, after it's

19 entered into evidence. And the transcript, along

20 with any corrections later made, will be shared

21 with the Commission's participants and their

22 counsel on a confidential basis before being

23 entered into evidence.

24   You'll be given an opportunity to

25 review your transcript and correct any typos or

1   other errors before the transcript is shared with

2   other participants -- with participants or entered

3   into evidence. Any non-typographical corrections

4   made will be appended to the transcript.

5   And pursuant to Section 33(6) of the

6   Public Inquiries Act 2009:

7   "A witness at an inquiry shall

8   be deemed to have objected to answer

9   any question asked of him or her

10   upon the ground that his or her

11   answer may tend to incriminate the

12   witness or may tend to establish his

13   or her liability to civil

14   proceedings at the instance of the

15   Crown or of any person, and no

16   answer given by a witness at an

17   inquiry shall be used or be received

18   in evidence against him or her at

19   any trial or other proceedings

20   against him or her thereafter taking

21   place, other than a prosecution for

22   perjury in giving such evidence."

23   And as required by Section 33(7) of the Act, you

24   are hereby advised that you have the right to

25   object to answer any question under Section 5 of

1   the Canada Evidence Act.

2   So if that's all right, I'll commence,

3   first of all, with your résumé -- and thank you for

4   providing your résumé. We can pull it up. Do you

5   recognize this as the CV you provided?

6   MR. HOLLOWAY: Yeah.

7   MS. MAINVILLE: And the contents, I

8   take it, are accurate?

9   MR. HOLLOWAY: Yeah.

10   MS. MAINVILLE: You were with SNC

11   Lavalin, then, from February 2016 to June 2019?

12   MR. HOLLOWAY: Correct.

13   MS. MAINVILLE: And I see that you

14   worked on more than one rail project in Canada

15   during that time. Were those worked on

16   simultaneously, or sequentially?

17   MR. HOLLOWAY: Yeah, so the -- the --

18   my role in the business was SVP for the

19   construction portfolio, so there were a number of

20   projects inside that portfolio -- portfolio. My

21   responsibilities encompassed management of the

22   portfolio, so that didn't include me having a

23   day-to-day role on all of those projects, it

24   included me basically having an oversight, you

25   know, direct oversight relationship to those

 1   projects and SNC's involvement in them.

 2   MS. MAINVILLE: And so when were you

 3   involved in Phase 1 of Ottawa's LRT project?

 4   MR. HOLLOWAY: Yeah, so my involvement

 5   took two -- two -- two types, I suppose, or two --

 6   it was two sort of elements to my involvement. The

 7   first was from -- during the course of 2017, I went

 8   onto the OLRTC joint venture board. So this is

 9   the -- the joint venture team that was exercising

10   or the management team that was exercising joint

11   oversight over the progress of the project from an

12   OLRTC prospective, so that's the three consortium

13   members. They each had a senior executive from

14   their, you know -- you know, their kind of head

15   office, I suppose, to visit the project on a --

16   typically a monthly basis, review progress, discuss

17   safety, look at strategies for improvement, check

18   adequate resourcing, those sorts of activities. So

19   that was -- pretty much a monthly involvement.

20   And then when the project entered the

21   phase just after the sinkhole, the oversight group,

22   the joint venture steering -- steering committee,

23   if you like, thought that we should strengthen the

24   team with some additional resources, and at that

25   point, I joined in about May of 2018 as the project

1   director for OLRTC. So then I stopped sitting on

2   the board of the joint venture steering committee,

3   and a different SNC executive came in and actually

4   went day-to-day onto the project, and that was from

5   May 2018 through to about May 2019. And then in

6   June 2019, I left -- you know, I left the project

7   because I was leaving SNC and moved back to

8   Australia.

9   MS. MAINVILLE: Okay. Got it. So

10   we'll break that down a bit more after, but

11   ultimately you only became involved in the project

12   in 2017.

13   MR. HOLLOWAY: Yeah, about that. Might

14   have been at the back end of 2016, but I can't

15   recall, to be honest with you. For sure I was

16   there through 2017.

17   MS. MAINVILLE: Through -- okay. Okay.

18   And you -- I see you have experience in rail

19   construction?

20   MR. HOLLOWAY: Yeah. So pretty much --

21   I'm a civil engineer by training from the UK

22   originally, and whilst I've worked in oil and gas

23   and telecommunications, the bulk of my career has

24   been involved in civil projects related to

25   railways. So that's both in the UK, Europe,

1   Australia, and in Canada.

2   MS. MAINVILLE: Okay. And you -- aside

3   from engineering, you have a construction

4   management background. Or experience.

5   MR. HOLLOWAY: Yeah, yeah. So it --

6   typically in construction, you know, people will

7   select between either the design stream, so working

8   on the design side, or move into the actual

9   construction management side. I went the route

10   towards construction management and after entering

11   industry I then proceeded to get, you know, some

12   postgraduate qualifications in construction

13   management.

14   MS. MAINVILLE: Okay. Great. So we

15   can bring this down, and we'll file that as an

16   exhibit, madam court reporter. We can provide it

17   to you afterwards.

18   EXHIBIT 1: CV of Mr. Holloway

19   MS. MAINVILLE: So in terms of your

20   work through 2017, up until May 2018, I take it

21   your involvement, then, was limited to a monthly

22   sort of check-in on the project. Would you receive

23   updates in the interim?

24   MR. HOLLOWAY: Not really. They tend

25   to take the form of a monthly report, which would

1   then be presented by the management team on the

2   project to the steering committee, you know,

3   through a sort of -- typically a half-day long

4   meeting or review session. So we'd get the pack,

5   you know, three or four days before the meeting,

6   review it, and come prepared for the meeting, like

7   you would a normal board pack, I suppose, but there

8   wasn't usually a lot of day-to-day or weekly

9   interim updates at a cadence in between those

10   meetings.

11   MS. MAINVILLE: And who was submitting

12   these monthly reports at the time? Who was on the

13   project management team?

14   MR. HOLLOWAY: Yeah, it would have

15   been -- so we had -- prior to my involvement as

16   project director, there were two other project

17   directors. One was a guy called David Whyte, with

18   a 'Y,' and following David's departure from the

19   project, there was another guy called Eugene

20   Kramer.

21   MS. MAINVILLE: And would they appear

22   personally before the board or the steering

23   committee?

24   MR. HOLLOWAY: Oh, yeah. Yeah, yeah,

25   for sure. So typically the format was, you know,

1 the day -- it's very much, you know, analogous, I

2 suppose, to, you know, the -- a board of directors

3 with a company, right? So you'd have the project

4 directors, our proxy CEO, I suppose, and he would

5 bring his management team along to talk to the

6 relevant section - so the safety director would

7 talk to the safety section, the commercial director

8 would talk to the commercial section. The overall

9 process would be managed by the project director,

10 who orchestrated the meetings and the presentation

11 of the material, but we would see and have access

12 to the management team as well.

13   MS. MAINVILLE: Got it. And so when

14 Eugene Kramer, for instance, was project director,

15 he really was the person on the ground overseeing

16 everything.

17   MR. HOLLOWAY: Correct.

18   MS. MAINVILLE: Okay. And I take it

19 that included both the civils -- the civils work,

20 infrastructure, and rolling stock as well?

21   MR. HOLLOWAY: That's right. So all

22 that fell within the aegis of the OLRTC contract.

23 Naturally, no one person can span the full breadth

24 of a job as large as that, so he obviously is

25 relying on his management team and the specialists

1   to look at, you know, the areas in which they've

2   got their subject matter expertise: So you've got

3   a rolling stock lead, you've got a signalling lead

4   or a systems lead, you've got a building lead,

5   you've got a civils lead. So there are different

6   people inside the team that provide that more

7   detailed expert oversight of those specialist

8   areas, if you like, but ultimately it all stitches

9   back to the project director, who retains

10   accountability.

11   MS. MAINVILLE: And you said -- did you

12   say the oversight was strengthened or the team was

13   strengthened after the sinkhole?

14   MR. HOLLOWAY: The team was

15   strengthened, so we felt that -- you know, again

16   it's not unusual for projects of this size to go

17   through several refreshes of team. This is quite

18   typical in the construction industry, and it's

19   useful to understand probably that the construction

20   process follows several different cycles inside,

21   you know, the life cycle of a project. So you go

22   through a design phase, you go through a

23   construction phase, you go through a testing and

24   commissioning phase, and the skill sets that

25   dominate or should be leading, you know, taking

1   primacy in overseeing activities need to shift with

2   those change in priorities.

3   So as the sinkhole occurred, it was

4   occurring at a time where we were generally

5   shifting from a heavy civils phase into more of a

6   building, building fitout and systems phase, so it

7   forces an opportunity for us to reflect on that and

8   perhaps take a view that, you know, what -- what

9   other resources should we bring to bear at this new

10 phase that we're in, and also the fact that the

11 sinkhole caused quite a lot of, you know,

12 disruption to the schedule for, you know, our

13 construction schedule. You know, we felt that it

14 was important to try and bring forward some

15 additional resources at that point in time.

16   MS. MAINVILLE: And at that point in

17 time, is that May 2018, when you become project

18 director?

19   MR. HOLLOWAY: That's right. There was

20 a bit of -- you know, obviously there's a, you

21 know -- obviously you got to make people available

22 and supply them into the job and, you know -- you

23 know, there's a few logistics things, so there's

24 obviously a time separation from when the sinkhole

25 happened to, you know, when I physically started on

1   the job, but, you know the two things are kind

2   of -- were coupled, let's say.

3   MS. MAINVILLE: Were there -- was that

4   around the point in time when the ripple effect,

5   let's say, of the sinkhole were nearing -- were

6   being resolved or were nearing an end, or is that

7   not --

8   MR. HOLLOWAY: No. The sinkhole was an

9   incredibly disruptive impact on the overall program

10   for the project, so the -- I just say a few things

11   about the construction process. It maybe is -- by

12   way of context is helpful.

13   MS. MAINVILLE: Sure.

14   MR. HOLLOWAY: So the way these

15   projects are generally planned to be executed is

16   that there's, you know, kind of a sequence of

17   activities which is all logically, you know,

18   cascade from one set of activities, set of trades,

19   set of specialists with another, the coordination

20   of the access, you know, you need lay-down areas,

21   you need access for materials and workers to get to

22   the workplace, all that kind of good stuff. So

23   there was a prescribed way in which that was all

24   going to occur.

25   The sinkhole disrupted that massively

1   because the sinkhole occurred at the -- at one edge

2   of the Rideau Station cabin. The Rideau Station

3   was the critical path of the overall project. So

4   essentially, you know, the longest set of

5   activities that were going to happen on the whole

6   project for us all went through the Rideau Station

7   cabin, partly because that was the deepest station

8   that we were dealing with, and therefore had the

9   most infrastructure in it, and partly because it

10   was going to be the last station constructed. That

11   was just based on how the tunnelling plan was

12   developed.

13   So we had -- when you get a disruption

14   on your critical path, it has -- it's like throwing

15   a pebble in the pond. The ripple effect is felt

16   everywhere throughout the rest of the schedule. So

17   even though you can physically repair the sinkhole,

18   but the aftereffects of that in your construction

19   schedule are incredibly deleterious, right? So

20   because you're now working out of sequence, there's

21   a whole bunch of unintended consequential effects

22   in terms of the disruptive impact on the schedule,

23   which -- which lasted with us for, you know,

24   months, years, you know. The impact of this -- the

25   sinkhole was far more than repairing the hole,

1   right? Once you've done that, you're working out

2   of sequence, your trades are out of sequence,

3   you're having to do redesign, your temporary works

4   is different, your access patterns are different,

5   so the knock-on effect of the sinkhole was with us,

6   pretty much, I would say, in some shape or form all

7   the way to the end of the job, or certainly to the

8   end of my involvement, anyway.

9   MS. MAINVILLE: Am I right to say that

10 the -- and maybe there's a distinction between the

11 Rideau Station and the sinkhole, but am I right

12 that the sinkhole was not on the critical path? Or

13 you were saying it was.

14   MR. HOLLOWAY: Well, the sinkhole

15 wasn't planned, so it never formed part of the

16 critical path. What I'm saying is the impact or

17 the downstream consequence of the sinkhole had

18 impact on our critical path, yes.

19   MS. MAINVILLE: It did.

20   MR. HOLLOWAY: Yeah.

21   MS. MAINVILLE: Because it impacted the

22 Rideau Station.

23   MR. HOLLOWAY: Correct, yeah.

24   MS. MAINVILLE: And could you speak to

25 the delays in the stations and how that compared?

1   Because there seemed to have been significant delay

2   in respect of the stations, even more significant

3   delays, potentially.

4   MR. HOLLOWAY: Which stations? The

5   above ground? Underground? Which ones are you

6   referring to?

7   MS. MAINVILLE: Just generally, but

8   there were -- just give me a moment. There were

9   several stations - here we go: Pimisi, Lyon,

10   Parliament, Rideau, and Hurdman - which were

11   delayed, including early on in the schedule, so

12   this is of course before your time in 2014, but I

13   wonder if you know about the implications of that

14   and -- and the -- the move in --

15   MR. HOLLOWAY: Yeah, I can't -- to be

16   honest with you, my understanding was most of those

17   delays mostly occurred within float, so we had

18   available schedule. Maybe there were -- and it's

19   not unusual on large projects that things will move

20   around, which is why you have project float, right,

21   to accommodate delays in certain elements. Most of

22   the challenges, from my recollection, came in the

23   underground stations. Lyon -- and again, this is

24   maybe my incomplete memory -- but Lyon was pretty

25   well advanced, and, you know, I think in fact we

1 actually suspended works on that to allow the City

2 to gain early access for some public events and

3 things like that, so that was actually quite well

4 advanced.

5   MS. MAINVILLE: And what were --

6   MR. HOLLOWAY: In terms of Rideau and

7 Parliament, they were both -- sorry.

8   MS. MAINVILLE: No, go ahead. I think

9 you just froze, but --

10   MR. HOLLOWAY: I can go ahead? Oh,

11 sorry. In terms of -- in terms of Rideau and

12 Parliament, they were both impacted by -- actually,

13 I'm getting a message that my internet connection

14 is unstable. Do you mind if I just take the video

15 off? Because I think it might improve that

16 bandwidth.

17   MS. MAINVILLE: I think it's okay,

18 given the platform we're using.

19   MR. HOLLOWAY: Okay. How's that? Any

20 better?

21   MS. MAINVILLE: Yeah.

22   MR. HOLLOWAY: Yeah. So Rideau and

23 Parliament were both impacted by the Rideau because

24 the -- all of the underground stations were

25 interlinked through the concept that we were going

1   to cascade our various trades from one station to

2   another station to another station, so it had a

3   disruptive impact. There's a consequential

4   downstream effect of all your cascade of trades not

5   working effectively, so there was certainly that

6   impact. My recollection is that the other

7   stations -- there was movement in the schedule, but

8   we weren't particularly concerned by any of those,

9   and none of it -- you know, some of the delays were

10   kind of, you know, off the critical path of these

11   particular stations, if you like, so they were

12   activities that were getting delayed, but they

13   weren't essential for subsequent activities to be

14   completed, if that makes sense.

15   So the problem with Rideau was -- so

16   just to fully -- more completely attempt to

17   explain, the last phase of activity of these

18   projects is testing and commissioning phase, and

19   really, to be able to complete the testing and

20   commissioning phase, it works in a series of

21   building blocks. So you have each subsystem has to

22   be complete and tested, then you have to test how

23   that subsystem relates to other systems it may talk

24   or interact with, and then you have to check that

25   that's complete, and then you have to put them all

1 together to see if they deliver the functionality

2 in a joined-up sense across a whole battery of

3 subsystems.

4   The problem with the delay in the

5 Rideau was that that had impact on our overall

6 testing schedule, so we couldn't complete the

7 testing of all of the systems and the subsystems

8 until Rideau was complete. That's why it was such

9 a significant impact on schedule.

10   MS. MAINVILLE: Right.

11   MR. HOLLOWAY: So sorry, just to try

12 and amplify, if you think about it, you could

13 finish everything else everywhere else in the

14 tunnel, but if you hadn't finished Rideau, then you

15 hadn't finished. You know what I mean?

16   MS. MAINVILLE: Yes.

17   MR. HOLLOWAY: You couldn't advance all

18 of your testing until you finished that one

19 station.

20   MS. MAINVILLE: And do you recall when

21 it was finished?

22   MR. HOLLOWAY: No, sorry, I'm not

23 carrying out (indiscernible) --

24   MS. MAINVILLE: Fair enough.

25   MR. HOLLOWAY: -- anymore.

1   MS. MAINVILLE: While you were still

2   there, though.

3   MR. HOLLOWAY: Yeah, yeah, yeah, yeah,

4   yeah.

5   MS. MAINVILLE: And I think that's

6   clear from your -- what your evidence is, but

7   Rideau was an underground station?

8   MR. HOLLOWAY: Correct, yeah.

9   MS. MAINVILLE: And were there other

10   complexities in terms of completing the stations,

11   perhaps the other underground stations?

12   MR. HOLLOWAY: Look, all large projects

13   have their challenges, but nothing -- you know,

14   my -- my -- certainly my memory of it was that we

15   weren't confronted with the same problems at any of

16   the others that we were at Rideau, so Rideau stands

17   out in my memory as being, you know, the pinch

18   point, if you like, in terms of the one that had an

19   impact on the overall outcome of the project.

20   MS. MAINVILLE: Okay. And that was --

21   that was the one that held up the testing and

22   commissioning in terms of at least integration

23   testing?

24   MR. HOLLOWAY: Yeah. Certainly it had

25   an impact because there's only so much you can do

1   until you have that element of work completed, and

2   that was the last station completed. It was, you

3   know, in some ways the most complex station because

4   it was the deepest and therefore had more

5   infrastructure, systems infrastructure, inside of

6   it, and it was obviously one of the three, you

7   know, cabin underground stations, so it had the

8   tunnel vent system, which was obviously a complex

9   piece of testing as well. So yeah, Rideau was

10 certainly, you know, the -- the -- you know, like I

11 said, the pinch point in terms of the schedule.

12   MS. MAINVILLE: And then how was that

13 mitigated, the impact on the schedule?

14   MR. HOLLOWAY: Well, a whole bunch of

15 different ways. So you try to advance other work

16 fronts that you can as far as possible, you know,

17 that are unrelated to that. You try to bring in

18 additional resources. You work additional shifts.

19 You, you know, bring in additional plant. You

20 bring in additional supervision. All of the above,

21 you know, we -- we deployed all of the strategies

22 available to us as -- as countermeasures.

23   MS. MAINVILLE: And specifically

24 relating to testing and commissioning, can you

25 speak, first of all, to what the original plan was

1   for that and then we'll talk about how that

2   changed.

3   MR. HOLLOWAY: I -- honestly, I'm

4   struggling to remember what the original plan was.

5   I mean, I -- I vaguely recall that we had, like, a

6   zone-based plan, right, which was -- so all the

7   different subsystems interrelate to each other in a

8   different way. So you've got the signalling

9   subsystem, you've got the power subsystem, you've

10   got the SCADA subsystem, you've got the, you know,

11   the telecommunications, you've got all of these

12   different subsystems, and they break down into

13   modules geographically and functionally, okay,

14   which are different. Okay. That's normal. Just

15   trying to break down, what might make sense for a

16   reducible unit that you could test for signalling

17   would not necessarily overlap with a reducible unit

18   for testing for power.

19   So what we -- part of the strategy was

20   to try and align as far as possible chunks or

21   geographical chunks where those alignments could be

22   achieved and achieve those testing it in --

23   progressively in units, but really, each subsystem

24   is tested in its own right, so that you would test,

25   like, the signalling system in a zone, which is

1 a -- a partial part of real estate of the -- the

2 whole extent. You test that zone, then you try and

3 add another zone to it or two zones to can we

4 communicate across those two zones effectively?

5 Yes, we can. Right, now let's have a look at --

6 see how the power systems relate to those two

7 zones. So it was built up in a series of modules,

8 but exactly how and what the sequence was, I can't

9 recall.

10   MS. MAINVILLE: Was it -- was the plan

11 a firm one? Like, was there something in place, at

12 least, that you recall in terms of something that

13 had been devised that was comprehensive?

14   MR. HOLLOWAY: Yes, yeah.

15   MS. MAINVILLE: And ultimately how

16 would you say that changed with the schedule

17 delays, just in terms of the general picture?

18   MR. HOLLOWAY: Yeah, well, it obviously

19 disrupted the -- the delays in the Rideau obviously

20 disrupted the implementation of that plan to a

21 certain degree. So, you know, there was a

22 downstream consequential impact of not being able

23 to enact that strategy, as more the, you know, an

24 overarching strategy of how you're going to do it,

25 and I think, you know, there would have been an

1   impact there. As to what exactly what that impact

2   was or what subsystem, I can't recall.

3   MS. MAINVILLE: Who would have devised

4   the testing and commissioning plans, or how -- what

5   would that process entail?

6   MR. HOLLOWAY: So we had a systems

7   lead, and the systems lead who -- I can't recall

8   who it was at the time. The systems lead would

9   then relate to the various different subvendors

10   that we had - so for example, Thales in signalling;

11   and there would have been different subvendors for

12   the overhead line system, which I can't remember

13   who they were; and different vendors for the SCADA

14   system. You know, they would be the person who

15   would coordinate between all of those different

16   subvendors and subcontractors to try and coordinate

17   an overall testing plan because typically the --

18   you know, the specialist subcontract that is the

19   one that will explain how their system needs to be

20   tested and proved, and it's really about then

21   coordinating those different activities together.

22   MS. MAINVILLE: So can those be found

23   in one place, to your knowledge?

24   MR. HOLLOWAY: Can -- sorry, can

25   those --

1   MS. MAINVILLE: These testing and

2   commissioning plans, or at least as it relates to

3   integration testing.

4   MR. HOLLOWAY: Yeah, I think what you'd

5   find is there's probably a testing and

6   commissioning strategy that shows how they're all

7   proposed to be interrelated, and then each plan

8   would be a standalone thing because they would be

9   managed by their own subvendor, but at some point

10   they do get brought together at a high level in

11   terms of showing how that all coordinates, and then

12   when the testing and commissioning -- the

13   integration -- because these systems, right -- so

14   this railway's a very, very complex railway in

15   terms of the specifications, so it was a very

16   sophisticated, systems-heavy railway, you know, by

17   comparison to, you know, other railways in

18   existence around the place, so there was a lot of

19   systems componentry in there with a lot of

20   interfaces.

21   So once you have all your subsystems

22   together and you've tested each one of those, you

23   then test how those integrate together, and in

24   terms of developing the systems integration and

25   testing plan, we had a person whose sole job was to

1   oversee that integration of that -- you know, like

2   a tester in charge, the integration of all those

3   subsystems working together, so this is where you

4   would stop looking at the subsystem and start

5   looking at the end-to-end functionality of how all

6   the systems are interrelating and working together.

7   So we had, you know, quite a comprehensive set of

8   test procedures that had to be undertaken,

9   followed, passed, you know, which are reasonably

10   sophisticated documents being quite specific about

11   when a task -- when a task could or couldn't be

12   shown as being complete and therefore when a

13   task -- you know, a test was actually passed or not

14   passed.

15   So there would be -- I would imagine --

16   I can't remember now, but there would have been

17   well over a hundred test procedures that had to be

18   analyzed as part of that process, the integration

19   testing, and each one of those test procedures

20   would have encompassed, you know, a large number of

21   individual tests inside of it. So they were all

22   tracked. They were all overseen. So this is where

23   the -- the subvendors are involved because each of

24   their subsystems are, you know, part of the

25   process, but this is about where the consortium is

1   now taking that oversight of how those tests are

2   all coordinated together in an integrated fashion.

3   I don't know, did that make sense?

4   MS. MAINVILLE: Yes. Who was that

5   person who was overseeing that?

6   MR. HOLLOWAY: So at the latter stages,

7   certainly it was a gentleman called Steve Nadon.

8   MS. MAINVILLE: M-hm. And in terms of

9   the trial running phase, do you recall any plan and

10   criteria devised for that early on?

11   MR. HOLLOWAY: Sorry, can you just say

12   a bit more?

13   MS. MAINVILLE: Yes. Well, I take it

14   you were not there for the trial running, which was

15   ultimately in the lead-up to RSA.

16   MR. HOLLOWAY: Oh, yeah, yeah.

17   MS. MAINVILLE: But do you know if

18   there was a plan and what that was, in terms of

19   criteria devised for it?

20   MR. HOLLOWAY: So when -- I'm just

21   trying to get our terms -- clarity on terms. So

22   trial running is -- do you mean trial running

23   undertaken by the construction consortium, or do

24   you mean trial running that is undertaken by the

25   City when it's handed over to them?

1   MS. MAINVILLE: Well, perhaps explain

2   both and the distinction you see.

3   MR. HOLLOWAY: Yeah, okay. So

4   generally -- and again, this is my recollection --

5   the -- my understanding of the arrangement was that

6   the consortium was there to provide the

7   confirmation that the asset would work as intended.

8   So to demonstrate that the asset would work as

9   intended, we do the -- follow the process I talked

10   about: You do all your subsystems tests, you test

11   how all those relate or link together, and then you

12   test the end-to-end functionality that you're

13   trying to achieve. So this could be something

14   like, you know, when I activate the tunnel vent

15   fans, do I get -- do the louver doors blow open?

16   Do all the CCTV cameras pan or zoom on the station

17   where the evacuation's occurring? Do I have a

18   SCADA indication going through the control panel to

19   trigger the fire detection alarm system? I can't

20   remember what all the subsystems are, but there

21   would be a number of them all interrelated.

22   So we've checked that that all works,

23   and then we'd want to then just to a certain

24   degree, you know, kind of repeat those tests a few

25   times, maybe not with a formal test procedure, but

1   just go through a cycle of activity, just to check

2   that we're not getting any -- you know, to make

3   sure everything works more than once effectively,

4   you know, so you're doing some -- you're doing some

5   repeat testing, just to, you know, satisfy yourself

6   that the system is stable.

7   Once we've validated that everything

8   works as it should and we're happy and we hand it

9   over to the City, then my -- typically what an

10   operator will do is that they will then undertake a

11   period of their own reliability growth testing. So

12   they will simulate operation without passengers

13   over a protracted period of time to, 'A,' not only

14   satisfy themselves that the system is working as

15   they thought it would, but also to go through

16   the -- you know, the man-machine interface of

17   making sure that the operators understand how to

18   operate the network completely, that they can

19   understand what -- this is a fairly sophisticated

20   asset, so you're getting a lot of different alarms

21   coming from the SCADA system that you have to take

22   the right intervention for, being able to raise

23   tickets when there's a maintenance concern, all

24   that kind of stuff.

25   So you'd go through a period where the

1   City or the operator would test through this

2   reliability growth period with a number of, you

3   know, a protracted period of simulated operation,

4   perhaps trying some degraded modes. So you might

5   say, Well, let's pretend we've had a failure at,

6   you know, this set of fittings, or let's pretend

7   that we've lost vertical transportation at this

8   station: How would we respond? How do we call the

9   maintainer out? Let's practice the maintainer

10   coming out and responding to that fault.

11   And that typically is kind of a, you

12   know, fairly long period because you've got to get

13   everyone working together in a coordinated way, so

14   you need the -- not only the operators to be

15   trained, but they also then have to find a way that

16   can work effectively not only with the asset but

17   also with their maintainers. So for -- to allow

18   time for that cadence and rhythm to develop, you

19   usually have a -- another piece of -- which could

20   be called trial running after the asset's been

21   handed over to the operator. So I'm not talking

22   about that bit because I wasn't involved in that

23   bit, but we obviously had a plan to do analytical

24   trial running on the contractor side, which is more

25   about -- not so much about following strict test

1   procedures, but more to just get in a few reps for

2   using all of the assets and making sure that we

3   were happy that the assets were stable in their

4   reliability.

5   MS. MAINVILLE: Was that to be done in

6   conjunction with the City, though?

7   MR. HOLLOWAY: Well, the City were

8   always involved because they were driving the

9   trains, and to a certain degree, some of -- they

10   had some involvement, as I remember, in the control

11   room, although primarily that was under our

12   control, but that wasn't -- that shouldn't be

13   conflated with the trial running or the reliability

14   growth-type trial running that should be done by

15   the City after hand-over because we were doing that

16   work for our purposes and not theirs, right? So we

17   were doing that for our own construction reasons

18   and not for reasons of practicing operation and

19   maintenance. So for example, the maintainer didn't

20   have any involvement in that process other than a

21   passive observation one, right? So there wasn't

22   any true simulation of how the network would be

23   operating in practice.

24   MS. MAINVILLE: Would Alstom have been

25   involved?

1   MR. HOLLOWAY: Yeah, Alstom was

2   involved, they were our subcontractors, so they

3   were involved from the construction and the

4   maintenance side.

5   MR. IMBESI: Just a follow-up question

6   for you, sir. You have talked quite a bit about

7   the testing. What was OLRTC's role in managing the

8   testing between the systems, both all systems

9   generally and specifically the integration of fail

10   system with the -- sorry, the Thales system with

11   the Alstom rolling stock?

12   MR. HOLLOWAY: Yeah, OLRTC is

13   responsible for all the systems. It's responsible

14   for the whole project. So yeah, the oversight and

15   the coordination and the testing was overseen by

16   OLRTC, but as I mentioned -- you know, for example,

17   Thales are the specialists in communication-based

18   train control systems, and they lead that testing

19   for their asset or their product. Our job, from an

20   OLRTC point of view, was to integrate that with the

21   other subvendors and make sure that was coordinated

22   in a way that made the schedule work together.

23   MS. MAINVILLE: And the project

24   experienced some issues with the integration of

25   Alstom and Thales's systems, is that fair to say?

1   MR. HOLLOWAY: Yeah, but I don't think

2   that was too unusual. I mean, it's quite normal

3   for the -- the signalling system and the rolling

4   stock -- you know, these are complicated

5   interfaces, and you're effectively -- you're trying

6   to get -- you know, again, this is -- I'm a civil

7   engineer, so this is not my area of specialism, but

8   again you've got essentially a computer-based

9   control system onboard the train supplied by one

10   company, Alstom, that has to communicate live

11   critical information to another computer installed

12   on the train, from Thales. Those two interfaces

13   have to work effectively, they have to be

14   coordinated, the handshake has to happen with the

15   right fidelity, the right data quality and all that

16   kind of stuff, in a very highly reliable way, and

17   the amount of infrastructure and cabling, you know,

18   just like you -- the server-type units that you

19   have to install and all of the associated

20   infrastructure is not insignificant. So, you know,

21   it's quite normal for there to be a bit of a

22   shakedown process where you get these two

23   contractors to coordinate effectively.

24   My recollection was, yeah, we did have

25   some issues, but we kind of got on top of those

1   reasonably well, and once we -- we would -- for

2   example, you know, there was a -- there was a

3   little bit of a -- an issue at one point where

4   Thales, for example, would be dependent upon Alstom

5   doing certain amounts of work for them in terms of

6   prepping the vehicles so that they could -- Thales

7   could fit their equipment. Thales would fit their

8   equipment and then give it back to Alstom so Alstom

9   could do some testings -- testing on their system

10   so that they could certify the vehicle fit for, you

11   know, taking out and testing on the network, for

12   example.

13   So there's -- and I'm probably

14   understating the complexity of those interfaces, to

15   be honest with you. So there was a couple of baton

16   hand-overs between each other, and we did have some

17   complaints from one contractor complaining about

18   the other one, that the quality of work wasn't done

19   in the way it should be done or, you know, that

20   sort of stuff, but those are normal sorts of things

21   that occur on projects of this nature, and they

22   were resolved reasonably expeditiously.

23   MS. MAINVILLE: Did you understand that

24   there was someone in the systems integrator role

25   during your time there?

1   MR. HOLLOWAY: Yeah. So we -- sorry,

2   in the -- we had a systems director who was Matthew

3   Slade. So when I joined the team in May, at around

4   about the same time, Matthew joined the team as

5   well to lead the systems effort, which, again, is

6   back to that kind of shift in focus that we were

7   coming from the heavy civils more into a systems

8   focus. So like I mentioned earlier, it's quite

9   normal that you'll bring, you know, kind of more

10   expertise to focus on the phase of activity that's

11   going to be the dominant one as you transition from

12   one phase of the life cycle to another.

13   MS. MAINVILLE: Are you aware of how

14   that role was filled prior to your time there?

15   MR. HOLLOWAY: Yeah, there was another

16   guy there called -- well, I think they went through

17   few different people, but I seem to recall there

18   was another guy there called Frank Fitzgerald there

19   prior to Matthew. And I think Frank may have

20   stayed there for a while when Matthew came in.

21   Frank was more working more of a lower level in

22   terms of some of the detailed interfaces,

23   particularly some of the subsystems coordination,

24   and before Frank, there was someone else, but I

25   honestly -- I -- no, sorry, I just can't dig up

1   what the name of the person was, to be honest with

2   you.

3   MR. IMBESI: Would there have been any

4   management plans to deal with the integration? How

5   did that work at OLRTC?

6   MR. HOLLOWAY: I'm sure there's some

7   documentation in terms of the strategy, how that

8   was all going to work. In terms of whether you'd

9   class them as a management plan or not, I couldn't

10   tell you.

11   MS. MAINVILLE: In terms of your time

12   in 2017 on the joint venture board, do you recall

13   concerns being brought to your attention or to the

14   board's attention, at least from Thales's

15   perspective, about that -- filling that systems

16   integrator role or needing more in terms of that

17   interface between Thales and Alstom's systems?

18   MR. HOLLOWAY: Yeah, there was some

19   issues with Thales. I mean, Thales also had some

20   commercial and contractual disputes with us as

21   well, so they all got kind of, you know, conflated

22   together. We certainly had Thales come and present

23   to the joint venture board at some point and

24   discuss some of their concerns. We responded,

25   obviously, to those concerns by undertaking a

1   process of negotiation and closing off the

2   commission on contractual concerns with Thales and

3   bolstering the team. You know, one of the things

4   that we did was bring Matthew Slade in there and

5   put some additional focus in terms of how we handle

6   some of those issues. And plus I think there was a

7   revision to -- we took onboard Thales's feedback

8   and revised our testing strategy to try and

9   accommodate their concerns.

10   So I'm a little bit hazy on the

11   details, to be honest with you, but I do remember

12   Thales presenting to the joint venture board at

13   least once, maybe more than once, and then we, you

14   know, acted on that with a series of activities

15   afterwards to try and respond to their concerns.

16   MS. MAINVILLE: Do you recall this

17   interface ultimately leading to quite a bit of

18   delay in respect of the rolling stock?

19   MR. HOLLOWAY: I don't think -- well,

20   that's not my recollection, to be honest with you,

21   no.

22   MS. MAINVILLE: What is --

23   MR. HOLLOWAY: I don't think the

24   interface between Thales and Alstom caused delay to

25   the rolling stock.

1   MS. MAINVILLE: Do you understand that

2   there was delay to the rolling stock?

3   MR. HOLLOWAY: Yeah.

4   MS. MAINVILLE: What is your

5   understanding of what caused that delay?

6   MR. HOLLOWAY: Well, that seemed to be

7   more -- to my mind, anyway, seems to be more of an

8   Alstom issue in terms of managing their own process

9   and their own supply chain.

10   MS. MAINVILLE: Do you recall where

11   they were having issues on their supply chain in

12   particular?

13   MR. HOLLOWAY: They -- they had

14   multiple issues. I couldn't tell you what the --

15   from memory now which specific areas, but, you

16   know, these vehicles are an assemblage of, you

17   know, 70,000 different subcomponents, right? So

18   the challenge for Alstom was that as they were --

19   they had to change their supply chain to meet the

20   parameters set for them in terms of local content,

21   and I think, you know, that forced them to, you

22   know, work with either new suppliers or to

23   configure some of their -- well, maybe the company

24   was the same, but the -- you know, the factory or

25   the unit providing the material was perhaps

1   different, and I think they did have some issues in

2   that -- you know, getting the alignment between

3   their new supply chain or their revised supply

4   chain and achieving, you know, either the

5   timeliness or the level of quality or functionality

6   that came from their different subsuppliers -

7   which, again, is not unusual - but that was a

8   problem. That was a challenge for sure.

9   MS. MAINVILLE: And maybe you can speak

10 to that a bit more. You spoke about how this was a

11 very complex rail system because of the

12 specifications and requirements. Can you explain a

13 bit more your perspective on that?

14   MR. HOLLOWAY: Sure. So I think one of

15 the big challenges for all of these rail projects

16 is this web of subsystems that need to coordinate

17 and communicate with each other in a way to provide

18 some kind of functional outcome, and the more

19 sophisticated the functionality that you require,

20 the more complex that web of interrelated vendors

21 and subvendors. So if we -- if I just give you an

22 example, if you think about the train or the

23 vehicle supplied by Alstom has to communicate --

24 say -- say it detects a fire onboard the train,

25 right? So there will be a sensor system inside the

1 train, and I can't remember whether they're smoke

2 or heat based or both, but anyway, there will be

3 some kind of sensor inside the train, and it will

4 send a notice through to the onboard control

5 system, which is the -- you know, kind of the brain

6 of the vehicle, and say, Hey, I've got a fire being

7 registered in car number wherever it is, you know,

8 we need to notify someone.

9   That message will then have to go

10 across an interface into the Thales system. The

11 Thales system then needs to communicate to wayside

12 equipment and say, Transmit back that information

13 that there's a train, it's at position wherever it

14 is, it's headed in this direction, and it needs to

15 tell the -- you know, the control room that the

16 train's on fire; it's headed towards Rideau

17 Station; it's going to be there in 80 seconds,

18 right?

19   That communication happens over a

20 mixture of different equipment. So some of it will

21 be happening across Thales equipment, but some of

22 it will be happening across equipment that would be

23 supplied by other vendors and subvendors - you

24 know, telecommunications equipment, fibre backbone.

25 You know, there will be a whole range of -- how

1   that message arrives back at the control room will

2   be across a whole range of different pieces of

3   infrastructure supplied by different people.

4   When it gets into the control room, it

5   will come into a SCADA interface and integration

6   room, and it will send an alarm to another

7   subsystem inside the control room and say, Hey,

8   there's a train; it's heading towards Rideau; it's

9   going to be there in 80 seconds; it's on fire.

10   And in the control room, the SCADA

11   system will trigger a, Well, we better sound the

12   fire alarm and evacuate Rideau Station; we better

13   turn off all the vertical transportation so we stop

14   funneling people towards the potential fire; we

15   better notify the fire service so that they can

16   respond; we'd better push over the public

17   announcements; we'd better instruct all the other

18   trains in the area to undertake some sort of

19   behaviour - you know, so that will be either depart

20   from Rideau Station and get away from the fire or

21   hold them at their current location - and we'd

22   better turn on the tunnel vent fans. And dependent

23   upon what information is known about the fire,

24   there will be a different mode selected for those

25   fans.

1   All of these systems and subsystems are

2   provided and delivered by other people, and they've

3   all got to work together and with the right

4   fidelity, the right latency across all those

5   different bits of infrastructure and firewalls, and

6   it needs to all happen so we can spin up the fans

7   fast enough to provide a tenable environment for

8   the people trying to get off the train that's on

9   fire at Rideau Station.

10   So that's just one simple example.

11   It's not that simple, but there's many permutations

12   and combinations of those sorts of failures that

13   have to be developed, have to be designed, have to

14   be tested, both at system, subsystem level, and

15   laid on top of each other. So there's literally

16   thousands of -- many thousands of end devices, you

17   know, from CCT cameras to, you know, tunnel vent

18   PLCs to, you know, a whole range of other

19   componentry on these jobs, and they've all got to

20   be coordinated in an effective way, and that's the

21   real challenge of these modern rail projects. The

22   more emphasis you put on systems, the more

23   complexity you're incorporating into that process.

24   I suppose for people who are not

25   familiar with this as an area, I would refer you to

1   have a look at the experience of Crossrail in

2   London, which is really -- is a large project, much

3   larger than the Ottawa job, but very similar levels

4   of complexity in a number of ways that has really

5   struggled with achieving this integration.

6   So that project was due to open in

7   December 2018. In May 2018, they reported to the

8   UK government that they were on schedule to open in

9   December of that year. As we sit here in 2022,

10   they're still not open because they're still going

11   through that system integration process. So the

12   project was largely complete in 2018 in terms of

13   the built asset, but in terms of the system

14   integration process, it's really quite -- I mean,

15   their railway is really complex because it's larger

16   as well, but it's illustrative of how challenging

17   those integration activities can be.

18   MS. MAINVILLE: And what were the

19   particular challenges that OLRTC faced with

20   interface management on this project?

21   MR. HOLLOWAY: Well, I think they're

22   the ones I've just described, really. It's just

23   the large and multifarious nature of the different

24   subsystems and how they interrelate with each

25   other. So you've got to get each system working at

1   the right level of quality and then make sure that

2   the handshakes between each of those subsystems

3   work in an effective way so that you get the end

4   result. So, you know, I think any -- in each of

5   the subsystem areas, we had challenges, which is

6   normal on large projects, but the -- the ones that

7   stood out for me in terms of being particularly

8   challenging, I suppose, would have been the tunnel

9   vent.

10   MS. MAINVILLE: Did that cause

11   significant delay, or is that what stands out?

12   MR. HOLLOWAY: Well, it -- I mean, it's

13   hard to judge, right, because the tunnel vent was

14   always the last thing in the critical path, so it's

15   always going to be -- your last activity is always

16   the one that gets delayed, right? So if preceding

17   activities have been delayed, then you get delay in

18   subsequent activity.

19   But I do remember that being a

20   particularly challenging piece of testing, you

21   know, that involved not only multiple tests with,

22   you know, the suppliers -- and because you are

23   coordinating across a bunch of different suppliers

24   there, but also we then had the involvement of the

25   local fire service as well, and, you know, they had

1   views about how that should be tested, how they

2   wanted to see it demonstrated to them which were

3   perhaps different than what we had anticipated, not

4   necessarily that that's a problem, but it did, you

5   know, drive some additional activities and some

6   additional tests.

7   But again, that's not unusual for these

8   railways, right? Usually the local fire service is

9   the arbiter of -- you know, they're the one that

10   has to own the outcome of that, you know, the

11   system being used, so it's quite normal for them --

12   you know, the blue light services, whether they're

13   the fire, the ambulance, or the police, to have a

14   say about some of the fire or life safety

15   infrastructure on these projects.

16   MS. MAINVILLE: Would you say there

17   were perhaps too many interfaces on this subject --

18   on this project? Would it have been possible to

19   have fewer?

20   MR. HOLLOWAY: For sure. You

21   definitely could have had fewer interfaces, but

22   then you would have had to accept a lower level of

23   functionality. So effectively this is largely a

24   tradeoff between how much staffing you want to

25   apply to the railway versus how staff-free you want

1   the railway to be. So the more you automate, the

2   less staff you need.

3   So the -- the specification that we

4   were provided with obviously required us to provide

5   these systems because the client's objective was to

6   have a lower level of staffing. I presume that was

7   their motivation. I don't know what their

8   motivation was. But obviously that's why we ended

9   up with a pretty sophisticated railway, which was

10   essentially, you know, unmanned stations and, you

11   know, whilst the drive -- you know, the train is

12   manned, essentially it is an ATO signalling system,

13   right? So the train drives itself. The computer

14   drives the train. The driver is there really in

15   attendance in case of, you know, something

16   occurring. But really, the system is the same

17   system that's designed -- it's the same base system

18   that Thales supplied to Vancouver, where there are

19   no drivers, right? So it's -- it's the CellTrak

20   system, so essentially it can operate without a

21   driver being there.

22   MS. MAINVILLE: Do you understand the

23   Vancouver system -- and I take it you mean the

24   Canada Line?

25   MR. HOLLOWAY: Yeah.

1   MS. MAINVILLE: Do you understand it to

2   be a much simpler system, though?

3   MR. HOLLOWAY: I couldn't -- I -- I

4   couldn't authoritatively talk to that, to be honest

5   with you. I think there are -- there are some --

6   there probably are some differences between the

7   two, but I couldn't speak authoritatively between

8   them because I -- I haven't reviewed the

9   specifications of Canada Line.

10   MS. MAINVILLE: Sure. What other

11   specifications in this project would you say made

12   it more complex or leading edge, perhaps?

13   MR. HOLLOWAY: Well, I think the fact

14   that the stations were going to be largely unmanned

15   and that the large amount of intrusion and access

16   control devices, the large amount of CCTV coverage,

17   you know, all of those elements of functionality

18   inside the station cabins definitely added a degree

19   of complexity.

20   You know, and obviously you can, to a

21   certain degree, circumvent some of those provisions

22   if you choose to with -- by staffing, right? So

23   that's -- that's the offset, I suppose, is that you

24   need, you know, less SCADA control, for example.

25   The stations, from memory, were designed to be

1   opened remotely from the control room. They could

2   open the station each day without actually a human

3   going there to open the station. So, you know,

4   those sorts of things are all examples of a

5   tradeoff that someone's decided, well, we'd rather

6   have the complexity and have the automation versus

7   have the staffing level and reduce the complexity.

8   MS. MAINVILLE: What about the rolling

9   stock in particular, though?

10   MR. HOLLOWAY: I'm not sure that the

11 rolling stock really make a big difference in this

12 context. I think there are some other issues

13 around the specification of the rolling stock which

14 I'm not really too well-versed on because all of

15 that occurred before I arrived, but, you know,

16 whether you want a low floor vehicle, or a high

17 floor vehicle, you know, what sorts of levels of

18 performance you want from the vehicle in terms of

19 speed, you know, there's a bunch of stuff in there

20 in relation to the vehicle that would drive

21 complexity for the vehicle construction. It

22 wouldn't necessarily drive a lot of additional

23 complexity for the interface with the other

24 subsystems, though.

25   MS. MAINVILLE: Right. Do you know

1   whether -- or do you have a perspective on whether

2   the vehicles that were being provided here by

3   Alstom were a proven vehicle?

4   MR. HOLLOWAY: Yeah, well, I think, you

5   know, this is -- this is an interesting topic

6   because the -- the vehicle and the -- you know, a

7   rolling stock specialist would obviously give a

8   more authoritative point of view, but the stock is

9   off a platform that's a widely-used vehicle, but

10 there's a point at which, where you make that many

11 changes to a platform, it's no longer

12 representative of a platform. And I couldn't

13 really tell you if the number of changes that were

14 implemented on that vehicle made it such that it

15 kind of dislocated from what would be considered to

16 be the tried-and-tested design from Alstom.

17   So, you know, for example, if you

18 change the braking system and you change the power

19 system and you change the -- you know, the -- you

20 change the propulsion and braking system, you

21 change the layout of the car, you change the

22 structural frame, like at what point does it stop

23 being the last vehicle? I don't know, right? So,

24 you know -- or the vehicle that's been sold into

25 other -- into other jurisdictions.

1   Certainly my understanding was that

2   the -- you know, the fact that they had to rebuild

3   the supply chain was a challenge. What I don't

4   understand personally is whether that was a

5   challenge because of the local content or because

6   of changes in design, you know, from their base

7   platform. Does that make sense?

8   MS. MAINVILLE: Yes.

9   MR. HOLLOWAY: Yes.

10   MS. MAINVILLE: And what about Thales's

11   signalling system? Do you know whether it was a

12   standard system for Thales?

13   MR. HOLLOWAY: Yeah, I think it was

14   pretty standard. There was some configuration

15   done - which is, again, all within the normal

16   practice, as I understand it, for these sorts of

17   things. So different operators want different ways

18   of operating their signalling system, and they want

19   different, you know, kind of -- they have their

20   certain elements which preference can be expressed

21   in terms of how the signalling system should

22   respond in different fault conditions, for example,

23   and that sort of stuff. But I think it was a

24   pretty -- it was a pretty straightforward

25   signalling design for Thales in terms of being

1   representative of what they've done elsewhere.

2   MS. MAINVILLE: Did you --

3   MR. IMBESI: When you're talking about

4   the Thales system, previously you'd mentioned that

5   they had -- they had revised testing strategy to

6   address some concerns that were brought by Thales,

7   some of the presentations. Do you recall what

8   those concerns were or what test -- what was

9   changed in the testing strategy?

10   MR. HOLLOWAY: Yeah, I mean, again,

11   this may be an incomplete recollection, but my

12   understanding was, you know, that Thales had some

13   commercial concerns and that they were conflating

14   together the commercial concerns with some

15   technical concerns to try and, you know, help their

16   commercial contractual position in the discussion.

17   I think once we resolved the commercial concerns,

18   many of the technical problems were resolved.

19   MS. MAINVILLE: Did you understand that

20   there had been no early validation testing done on

21   any of the -- like, on the prototype vehicle?

22   MR. HOLLOWAY: I can't recall, to be

23   honest with you.

24   MS. MAINVILLE: Do you understand that

25   the validation testing ended up happening quite

1   late in the day, which would have been during your

2   time there?

3   MR. HOLLOWAY: Well, there was testing

4   ongoing, but I -- I'm not sure that I recall it

5   being classified as validation testing. I mean,

6   what we typically will do -- I mean, there was a

7   vehicle that was prepared -- there was a vehicle

8   that was largely prepared offsite in Hornell, I

9   think, by Alstom, which was meant to be sort of the

10   prototype vehicle. That vehicle was I think

11   brought to Ottawa and used for some testing, but

12   whether that corresponds with your question, I'm

13   not -- no, I'm not certain, to be honest with you.

14   There -- I mean, testing was ongoing -- as the

15   vehicles became available, you know, there was

16   consistent ongoing testing of the whole fleet as

17   they became available of different types, so I

18   can't discriminate between one type of testing and

19   another, from memory.

20   MS. MAINVILLE: Did you understand that

21   a significant amount of retrofits were required on

22   this project, perhaps more so than is typical?

23   MR. HOLLOWAY: Yeah, I can't talk to

24   what's typical, to be honest with you, not from a

25   rolling stock point of view, but I mean, the reason

1   they do this in a series of prototypes is because

2   they expect an amount of retrofit.

3   MS. MAINVILLE: Could you speak to the

4   delays in the test tracks becoming available?

5   MR. HOLLOWAY: Yeah, I can't recall

6   what the test track -- that's just not in my head,

7   to be honest with you. Sorry.

8   MS. MAINVILLE: Okay. Were there any

9   issues from your perspective in terms of

10   interfacing with Alstom?

11   MR. HOLLOWAY: I mean, Alstom were a

12   major supplier on the project. We had a number of

13   issues in terms of progress, as you would on any

14   large project. We had a number of interactions

15   with them at different levels of their management

16   seniority. We had a number of changes through

17   Alstom in terms of their team composition and

18   leadership through the course of the time that I

19   was there, and generally, you know, Alstom were

20   pretty responsive and they'd get on top -- you

21   know, we had the usual, you know, kind of arm

22   wrestle that you get with all subcontractors at

23   various points, but that was all pretty typical. I

24   mean, we did find that Alstom were quite responsive

25   in trying to get on and deal with their problems.

1   You know, there were a number of issues.

2   Like I say, they were -- I suppose, you

3   know, my memory there was that the interface with

4   Alstom and Thales is a good -- is emblematic

5   insofar as there was some issues, but they got

6   resolved and then they stayed resolved, so that was

7   quite successful. I think the challenge for Alstom

8   was they kept finding new issues. So they were

9   fixing issues, but new issues were emerging.

10   MS. MAINVILLE: Did you understand what

11   the root cause of that was, the sort of issues -- a

12   significant amount of apparent issues arising

13   fairly late in the project?

14   MR. HOLLOWAY: I think it goes back to

15   the supply chain issue. That's certainly my

16   recollection, anyway, is that you're combining a

17   bunch of componentry whilst may be similar to other

18   vehicles that you've used elsewhere, you're using

19   from different suppliers. You know, so what --

20   how -- again, I -- this is my recollection, so I

21   might be inaccurate because I'm, again, not a

22   rolling stock engineer, but essentially Alstom

23   is -- it literally is something like 70,000

24   subcomponents in a vehicle, and what Alstom will do

25   is they will cascade some of the design

1   responsibility to some of their larger

2   subsuppliers, so Alstom don't have, you know, every

3   element of every vehicle fully designed, and they

4   just give it to someone to make. Certain elements

5   of what's being supplied them are actually designed

6   by their subsuppliers, so when they change

7   subsupplier, there's obviously the requirement then

8   for some redesign effort from the new subsupplier

9   that's saying I've got to coordinate with everyone

10   else's componentry. I think, you know, the issues

11   from my -- as an outside observer seem to be more

12   tied up with that than anything else.

13   MS. MAINVILLE: Do you recall when

14   OLRTC would have been aware that either Thales or

15   Alstom could not meet the RSA date?

16   MR. HOLLOWAY: No, sorry.

17   MS. MAINVILLE: Do you recall what

18   first impacted the RSA date from OLRTC's

19   perspective?

20   MR. HOLLOWAY: No, I can't. I'm sorry.

21   MS. MAINVILLE: Would -- well, perhaps

22   you can speak to the -- how the schedule was

23   managed, the overall schedule was managed on

24   OLRTC's end. Was the -- was there a -- an

25   integrated working schedule?

1   MR. HOLLOWAY: Yes. Yeah. So there

2   was a team of P6 schedulers who would work to

3   coordinate the various subschedules, whether, you

4   know, from different subsuppliers that would stitch

5   it together into an integrated schedule, and we

6   had, you know, like a project management function

7   there that was a dedicated team looking solely to

8   manage the P6 schedule for the -- for the contract.

9   MS. MAINVILLE: So who would have been

10   in charge of that?

11   MR. HOLLOWAY: I couldn't tell you, to

12   be honest with you. We did have a few changes

13   through the course of the -- the project, and I

14   can't remember their names.

15   MS. MAINVILLE: Are you aware of some

16   issues with coordinating the different -- some of

17   the different schedules?

18   MR. HOLLOWAY: Not especially, other

19   than, like, I think that's the case on all large

20   mega projects, that there's always a challenge in

21   terms of coordinating schedules, but nothing that

22   sticks out for me at this distance.

23   MS. MAINVILLE: Do you recall OLRTC

24   granting Thales an extension of time in December

25   2017 that modified the RSA date to November 2018?

1   MR. HOLLOWAY: Well, I don't recall,

2   but I would imagine that's probably tied up with

3   the commercial contractual negotiations that were

4   ongoing with Thales at the time.

5   MS. MAINVILLE: And so do you recall

6   whether that -- or how that was coordinated with

7   Alstom's schedule?

8   MR. HOLLOWAY: Well, it would have been

9   coordinated insofar as we would have known. I

10   think there would be -- you know, there was --

11   there's obviously a degree of subcontractor

12   management where you don't necessarily want to

13   communicate everything that one subsupplier is

14   dealing with in relation to another subsupplier

15   because want to keep the competitive tension from

16   your subsupply chain, right? So, you know, I'm

17   sure that it was known -- well, it was definitely

18   known by OLRTC and then there would have been a

19   decision about how that was or wasn't communicated

20   on to Alstom. And -- and the reasons for not

21   communicating it on would be more about trying to

22   motivate Alstom to hold their schedule.

23   MS. MAINVILLE: That's what you --

24   MR. HOLLOWAY: But I can't definitively

25   say whether we did or we didn't because I can't

1   remember.

2   MS. MAINVILLE: Okay. But that's what

3   you would call competitive tension?

4   MR. HOLLOWAY: Well, you know what I

5   mean. Not competitive tension, that's probably not

6   the right phrase, but you want to maintain some

7   tension in the schedule. So if you're a supplier,

8   and you know that your delivery is dependent on

9   another supplier and that supplier's gone late, you

10   might -- and you've been notified of that, you can

11   take -- you can take the foot off the gas and slow

12   up your delivery, knowing that you're no longer the

13   critical path.

14   You know, the adage for these projects

15   is when there's work phase available, we should

16   move as quickly as we can to try to progress work

17   on that work phase, so we obviously don't want to

18   set up that potential negative consequence with a

19   subsupplier, possibly. If the interface is more

20   complex and more intimate, then obviously you would

21   need to declare it, so I just don't know whether

22   this was or wasn't part of a discussion with

23   Alstom.

24   MS. MAINVILLE: Do you recall, though,

25   Alstom making many schedule changes that were

1   rejected by OLRTC?

2   MR. HOLLOWAY: Yeah, yeah. I -- I

3   mean, again, that's sort of normal -- normal

4   construction experiences, that, you know, you'll

5   get -- when a contractor is struggling with their

6   own issues, they will quite often try and look to

7   the principal for extensions of time. If the

8   principal doesn't want to provide those extensions

9   of time, then they may try to initiate a claims

10   process, you know, and then it's up to the

11   person -- you know, the contract administration to

12   decide whether that claim's got validity or not. I

13   remember there were a number of instances where

14   Alstom approached us claiming a delay that we felt

15   was not valid.

16   MS. MAINVILLE: Do you recall whether

17   there was a decision made not to grant Alstom any

18   extensions given all of the delays they were

19   encountering and perhaps the delays to their supply

20   chain, as you've described?

21   MR. HOLLOWAY: Yeah, but it depends on

22   whether that was their contractual responsibility

23   or the consortium's. So we wouldn't necessarily

24   give someone -- grant them, you know, access to an

25   extension of time if the delay was caused by

1   their -- on their -- you know, on their own

2   retained risks, right? Which was -- you know,

3   again from memory, my recollection was we felt

4   Alstom had had delays, but they'd caused them --

5   well, not caused them, but they'd been on their

6   side of their allocated risk profile, and therefore

7   it was not something that we should be allocating

8   an extension of time for.

9   MS. MAINVILLE: And what happens when

10   that timeline becomes unachievable or unreasonable?

11   MR. HOLLOWAY: Unreasonable in --

12   MS. MAINVILLE: Well, to the extent

13   that it cannot -- it simply cannot be met, so if

14   they're being held to an unrealistic timeline.

15   MR. HOLLOWAY: Well, I think we felt

16   certainly that Alstom is one of the largest train

17   manufacturers in the world, and if they brought the

18   weight of Alstom to bear in terms of solving their

19   problems, they could have resolved them.

20   MS. MAINVILLE: Do you recall some

21   factoring in of the extension granted to Thales in

22   that respect and how that would have impacted

23   Alstom's ability to meet its RSA deadline?

24   MR. HOLLOWAY: No. I mean, I can't

25   recall, but I can't, as we sit here today,

1   understand how Thales's timeline would have

2   impacted Alstom in a material way.

3   MS. MAINVILLE: Wouldn't Alstom require

4   Thales's final product before being -- before

5   making the trains available?

6   MR. HOLLOWAY: Yeah, but Thales were

7   always ahead of Alstom's supply.

8   MS. MAINVILLE: That was your

9   understanding of --

10   MR. HOLLOWAY: Yeah, that's my

11   recollection, anyway.

12   MS. MAINVILLE: Did you -- or did OLRTC

13   have any issues interfacing with Thales?

14   MR. HOLLOWAY: Look, you know, it's --

15   it -- I think Thales had some commercial concerns,

16   as we talked about, but those got resolved, and the

17   actual working experience with Thales was really

18   productive, from memory. Certainly Matthew Slade,

19   who was the systems director, had more to do with

20   them on a day-to-day basis than I did, but we found

21   them cooperative and, you know, good in terms of

22   tackling the usual emerging issues that you get on

23   those projects.

24   MS. MAINVILLE: And sorry, going back

25   to Alstom, do you believe that Alstom resourced the

1   project as required, then?

2   MR. HOLLOWAY: Well, you know, we

3   obviously didn't get the outcome that we wanted, so

4   I suppose that you could have looked back at this

5   stage and said we would have liked to see different

6   or more or a change in resource profile because

7   that's the -- the consumption experience wasn't,

8   you know, what we were aiming for, but at the time,

9   we obviously felt that he had adequate competency

10   because otherwise we would have escalated the

11   issue. In fact, I think we probably did along the

12   way, and they did change some staff at different

13   points through the process.

14   MS. MAINVILLE: Do you have a view as

15   to the suitability of the MSF for the manufacturing

16   of the trains?

17   MR. HOLLOWAY: Not really because it's

18   outside of my area of expertise. I mean, I think

19   it -- you know, the -- I don't know that

20   necessarily the MSF was a problem. I think that

21   the fact -- again, back to the -- back to the other

22   issue, I think it's the fact that you had, like,

23   this different supply chain process, and then how

24   we were choosing to do some of that assembly at the

25   MSF required us to have sort of local expertise or

1   local staff to do some of that work, and I know

2   that Alstom arranged a process by which those staff

3   were trained, and they brought experienced

4   personnel in, but I think there's -- there's

5   inevitably a learning curve that you've got to go

6   through in making that choice, which you wouldn't

7   do if you were trying to assemble things locally,

8   you'd build them in a factory where people do that

9   all day every day for years. What we've done is

10 we've stood up a one-off assembly or a

11 manufacturing station with people that are not

12 necessarily expert in doing that, and we're doing

13 it for the first time, and any time you do things

14 like that on very complex assets, you can expect to

15 go through a learning curve. Now, that's not to

16 say that that learning curve wasn't anticipated,

17 because I think it well -- it was understood by all

18 parties. As to whether the reality matched the

19 expectation, I couldn't talk to that.

20   MS. MAINVILLE: Could you talk about

21 how the interface between OLRTC and RTG worked?

22   MR. HOLLOWAY: Yeah. So obviously we

23 were a -- OLRTC was a supplier to RTG, and we

24 deferred to RTG in terms of their interface with

25 the client. You know, we tried to stay in our lane

1   in terms of making sure that we were providing RTG

2   with the information that they needed to be able to

3   manage that communication back to the client

4   effectively.

5   MS. MAINVILLE: So in terms of

6   significant delays to the project, how would that

7   be managed with RTG?

8   MR. HOLLOWAY: We would formally notify

9   them, you know, of status of projects. I mean, RTG

10   also were interacting with the lender's technical

11   advisor as well, so there was frequently an

12   interaction back with the LTA in terms of, you

13   know, their assessing our schedule or our progress,

14   that sort of thing. So yeah, it was -- there would

15   have been a formal process for notification.

16   MS. MAINVILLE: And sorry, what does

17   LTA stand for?

18   MR. HOLLOWAY: Lender's technical

19   advisor.

20   MS. MAINVILLE: Right.

21   MR. HOLLOWAY: Which I think was Atkins

22   on this project.

23   MS. MAINVILLE: And how would a change

24   to the RSA date be -- come to be agreed upon, or

25   who would ultimately be able to make that change?

1   MR. HOLLOWAY: I -- I honestly couldn't

2   tell you. I mean, my expectation would be that we

3   would declare where we're at with the construction

4   process, and we would inform the RTG colleagues.

5   They would be the ones that would formally advise

6   the City. The decision really about delay or not

7   delay is not one for RTG because it's a -- it's a

8   downstream consequence of what the contractor to

9   RTG can provide.

10   MS. MAINVILLE: Right. So it's an

11 OLRTC decision.

12   MR. HOLLOWAY: Right. I mean, I don't

13 think RTG would be taking a decision to delay the

14 project if we told them that we could deliver it on

15 time.

16   MS. MAINVILLE: But in terms of the

17 reversed scenario, if OLRTC was late, RTG would

18 necessarily have to delay the RSA date. Is that

19 fair?

20   MR. HOLLOWAY: Well, again, you know,

21 it would depend on what we've communicated to RTG,

22 right? So you're -- on these large projects,

23 you're constantly dealing with delays,

24 countermeasures to deal with those delays, the

25 treatment of float, the resequencing of activity,

1   you know, how you can affect acceleration. So you

2   don't necessarily report every delay that you're

3   experiencing on the project through to the client,

4   right? That's -- that's not normal. You will be

5   trying to understand what -- what level of

6   probability of certainty that you have associated

7   with the schedule, and when that level of certainty

8   drops below a certain threshold, then you'd be

9   discussing, right, okay, we're no longer confident

10   we can get to this date.

11   And it doesn't come like a -- kind of a

12   bolt out of the blue. It will become -- it will

13   become progressively as either your countermeasures

14   are failing to achieve the success that you wanted

15   in terms of recovery or the acceleration's not as

16   effective as you thought it was going to be, or

17   some unintended connection between one supplier and

18   another supplier's emerged or a new problem's

19   happened -- you know, there's a shifting -- a

20   constant shifting of the -- the -- you know, the

21   schedule in that sense, and you're not reporting

22   every single delay up the way. What you're

23   obviously doing is trying to take a balance of

24   probabilities perspective of where the schedule as

25   an overall position is heading.

1   MS. MAINVILLE: And would that relate

2   both to the RSA date and any milestones?

3   MR. HOLLOWAY: Yeah, probably. Yeah,

4   it would probably relate to milestones as well.

5   MS. MAINVILLE: But not something that

6   would not impact the critical path to those -- to

7   those milestones.

8   MR. HOLLOWAY: I'm not sure I

9   understand that question.

10   MS. MAINVILLE: It wouldn't -- you

11   would not raise with RTG delays that did not

12   ultimately touch on -- or that would impact either

13   a milestone or an RSA date.

14   MR. HOLLOWAY: Oh, yeah. Well, you

15   might do. You might let them know, hey, look,

16   we're dealing with this particular problem, here's

17   what we're doing about it, but we're not predicting

18   an impact on the schedule at this point, so we may

19   have flagged to them, you know, that we were

20   dealing with issues, but we had control measures to

21   try to recover the schedule. We may have done

22   that -- you know, we probably wouldn't have done

23   that formally. We would be formally communicating

24   any changes to the schedule for sure, but there was

25   a fairly open dialogue in terms of trying to keep

1   people apprised in terms of, you know, what we were

2   doing to try and recover or mitigate or, you know,

3   implement as countermeasures were issues were

4   emerging, and that's normal practice in

5   construction.

6   MS. MAINVILLE: Right. And were you

7   ever at the table with the City in terms of

8   conveying some of the project delays?

9   MR. HOLLOWAY: I certainly met with the

10   City a number of times, always with RTG, and we

11   had -- we would talk through the challenges that we

12   were facing on the project and communicate to them

13   what we were doing about those challenges.

14   MS. MAINVILLE: Was it your view that

15   the City understood -- had a realistic

16   understanding of the project delays?

17   MR. HOLLOWAY: I can't really talk to

18   that, to be honest with you. I mean, I don't know

19   what the City's -- you know, it was difficult to

20   get an understanding of what the City's position

21   was.

22   MS. MAINVILLE: And why is that?

23   MR. HOLLOWAY: The -- you know, they

24   didn't communicate or share with us in terms of,

25   you know, providing that understanding. Well,

1   that's certainly how I'm recalling it now. So I

2   mean, it was very much -- I mean, we were

3   presenting to them. This was not necessarily a

4   dialogue, so this was a presentation, here's the

5   issue, here's what we're doing about it, take a few

6   questions. You know, I -- how they then reflected

7   on that information and decided how they felt, I

8   wasn't party to those discussions.

9   MS. MAINVILLE: Would you say that

10   OLRTC -- without conveying every project delay to

11   RTG or the City, would you say it was transparent

12   about when there was a belief that RSA could not be

13   met?

14   MR. HOLLOWAY: I think we were

15   transparent -- I mean, again, you -- I know you

16   keep going back to RSA, and I just don't carry that

17   in my head as a significant event, you know? We

18   were -- it's more of an ongoing dialogue about

19   where are we at with the schedule and what we were

20   doing with issues with the schedule, so that's how

21   it occurs to me in my memory now. I think we were

22   transparent, and we were, you know, clear about,

23   you know, what we were doing to try and mitigate

24   and recover.

25   MS. MAINVILLE: Do you recall how the

1   City responded to the delay to the RSA date?

2   MR. HOLLOWAY: No, I don't. I'm sorry.

3   MS. MAINVILLE: And I know -- I think

4   you said you don't recall when OLRTC believed it

5   would not meet the RSA date, but in terms of point

6   in time as it relates to any particular event, do

7   you have a sense of when -- you know, how long

8   post-sinkhole, for instance, or further down the

9   line did OLRTC come to believe that it would not

10   meet the May 2018 RSA date?

11   MR. HOLLOWAY: Yeah, I can't remember.

12   I think my -- my sort of memory of it was that, you

13   know, it was an unfolding realization as opposed to

14   kind of a -- you know, kind of a point in time

15   where it was crystal clear that that was an issue.

16   So I think as the consequences of the sinkhole

17   became more completely understood, you know, we

18   obviously deployed countermeasures and acceleration

19   tactics to try to deal with that, but then more

20   issues kept unfolding, so it was kind of a

21   progressive -- it was a progressive appreciation of

22   the consequential impact.

23   MR. IMBESI: And in terms of the

24   delay - and you're speaking about the sinkhole -

25   did the delay to those civil works affect the

1   testing of the complex systems? I know you gave us

2   a description of an example of some of the

3   complexity of the systems, but did the delays to

4   the civil works affect the testing of those systems

5   and their interoperability --

6   MR. HOLLOWAY: Yes.

7   MR. IMBESI: It did, yeah? And

8   specifically did you feel or did OLRTC feel that

9   sufficient time and attention was given to those

10   testing aspects in light of the delays that were

11   experienced?

12   MR. HOLLOWAY: I don't know. It's hard

13   to recall. I mean, I know that we were very

14   focussed on it. The -- because we've changed

15   sequence of work in Rideau, and obviously we're

16   trying to reprioritize, so in the Rideau cabin

17   inside the station building, you've got a number of

18   different rooms inside that building which house

19   different bits of equipment which were essential to

20   the testing process. So when we had the delay at

21   Rideau, we obviously tried to reprogram that

22   construction process so that we would bring those

23   rooms earlier in the schedule so that we could

24   accelerate our -- well, not accelerate, but we

25   could try to mitigate any delay to the testing

1   process, so we started off with a plan to try and

2   accelerate the readiness of those rooms and

3   resequence the activity to allow those rooms to be

4   ready earlier in the schedule than they otherwise

5   would have been so that we would, you know,

6   therefore have less of a delay on the subsequent

7   testing activities. Because unless you have the

8   room, you can't put the equipment in. If you don't

9   have the equipment, you can't pull the cable, all

10   that kind of stuff.

11   And my -- my memory is that, you know,

12   whilst we had a plan to do that, it was really

13   super difficult to implement in practice because we

14   ended up with a whole lot of congestion in those

15   stations, with different trades working on top of

16   each other, the coordination of activities, you

17   know, just available work space access, logistical

18   access, not only for plant and personnel but also

19   materials. You know, everything became a lot more

20   complicated through the introduction of the

21   sinkhole and the consequential downstream impact

22   that had on all of those things.

23   So whilst we -- probably the early on

24   thought: No, we can recover this because what

25   we'll do is we'll accelerate these rooms or we'll

1   do this or we'll do that, some of those plans

2   proved not to be practical in terms of their

3   implementation through other unforeseen

4   complications coming through the logistical supply

5   chain and the coordination of activities, which

6   meant that we didn't render the benefit that we

7   thought we were going to get in terms of trying to

8   mitigate those delays. That was a lot of words.

9   Did that make sense?

10   MR. IMBESI: It does. Could you maybe

11   give us an example, then? You had mentioned that,

12   you know, they had proved not practical. Give us

13   an example of a benefit you didn't get and what was

14   the cause of that.

15   MR. HOLLOWAY: Well, we were trying to,

16   for example, bring forward some of the fit-out of

17   the comms rooms in Rideau. We were trying to bring

18   forward some of the low-voltage rooms where we were

19   housing switch gear equipment. We were trying to

20   bring forward some of the rooms that related to

21   equipment and control mechanisms for the tunnel

22   vents. So it was those sorts of things that we

23   were trying to bring forward in the schedule, but

24   in reality it turned out to be very difficult to

25   achieve that acceleration. And we were monitoring

1   progress on those elements on a day-by-day basis,

2   right? So it was being tracked on a fairly short

3   half-life.

4   MR. IMBESI: Right. And I think you

5   answered my first question, but you had -- did you

6   acknowledge yes when I asked whether the civil

7   delay impacted testing of these different

8   components?

9   MR. HOLLOWAY: Yeah, yeah, it did, yes.

10   Sorry. The second part of my question was trying

11   to explain the first part, sorry. So yes, it did

12   have an impact. We tried to mitigate that impact

13   through these acceleration tactics, but the

14   acceleration tactics weren't always successful in

15   achieving the result that we were aiming for. So,

16   you know, time moves on, so what you decide to do

17   in, I don't know, let's say January, you're

18   assuming that if we can achieve this thing in -- in

19   January, it's a decision, if we can achieve these

20   things in April, we're going to get these results

21   in May. And of course, in the -- by the time you

22   arrive in April, you might find out, well, we

23   didn't quite achieve all the things we were going

24   to achieve.

25   And it's not just one rescheduling, so

1   you're talking about layers of rescheduling here,

2   so it would be things -- you know, it gets down to

3   a much finer level of detail. So you might say,

4   you know, there's a massive amount of

5   infrastructure in those station cabins, right? So

6   if you think about a 4-inch pipe, 4-inch conduit,

7   we put 300 kilometres of 4-inch conduit in that one

8   station to pull all of the services, all of the

9   cables. So that's the low voltage, high voltage,

10   SCADA, CCTV, tunnel vent supply control cables. So

11   300 kilometres of cable, and you can imagine how

12   much cable you can get in a 4-inch conduit, so I

13   don't know the actual number of metres of cables

14   that we pulled, but it would be vast.

15   So you would be trying to say, well, I

16   need to terminate this device for tunnel vent in

17   this room by this date, and then we'd say, oh, hang

18   on, we've got a delay. The fireproofer can't get

19   in to do the fireproofing on the cable run, so we

20   can't pull that cable next Tuesday like we thought

21   we were going to do. Okay, no problem, what can we

22   do? Maybe we can pull this cable in this other

23   room, so we'll save that time that way. So it's a

24   constant iteration of schedule, reschedule, all the

25   time looking to see how we can accelerate, how we

1   can fight the delay, how we can get back on track,

2   recognizing of course that, you know, new and

3   different issues are emerging on a daily basis

4   because of the -- the fact that we were condensing

5   a large amount of trades inside that one station

6   building in an effort to try to accelerate the

7   works.

8   MR. IMBESI: Right. And in terms of

9   the impacts on testing that you had mentioned, did

10   you have any knowledge as to any effect that the

11   impact on the testing would have had on the

12   performance of the system and the rolling-in period

13   after the commencement of operation?

14   MR. HOLLOWAY: No, I don't think those

15   two things are that strongly correlated, in my

16   view, and I think it goes back to the discussions

17   we were having earlier about reliability growth

18   versus testing. So when the testing is done,

19   you're proving that the system is doing what it's

20   meant to be doing. The reliability growth process

21   of making sure that the system operates in a stable

22   and consistent way is as much as anything about

23   this sort of, you know, kind of combination of

24   effort between the asset, the maintainer and the

25   operator all working together in harness, and

1   that's not something that you -- you can't just

2   flick a switch and make that occur on Day 1. That

3   takes times to build that -- you know, that

4   rapport, that kind of intimacy.

5   So the way that, you know, if you look

6   at -- if you look at how the reality of these rail

7   services -- and, of course, I was gone from the

8   project by the time it was put in service, but I do

9   have some experience in other railways. If you

10   look at how railways operate, you know, typically

11   you've got two peaks a day: You've got a morning

12   peak and you've got an evening peak, which you're

13   trying to resource up to get people into the city

14   or back home again at the end of the day. And it's

15   absolutely all-consuming, right? It's absolutely

16   all-consuming about being able to service those

17   peaks and make sure you can ramp up all the train

18   services and deal with all of the emerging issues

19   about people being unwell on trains or there's a

20   security incident somewhere, all that sort of

21   stuff.

22   So it does not leave a lot of bandwidth

23   for you to shake down any rapport issues between

24   the operator and the maintainer or between the

25   operator becoming more familiar with the asset and

1   its functionality or between the maintainer

2   becoming more intimate in terms of how the asset

3   should be maintained or how they need to coordinate

4   their activity and access with the operator. And

5   that's the piece where the reliability growth is

6   important, because you're doing it outside of the

7   scrutiny of this peak cycle. Because once you get

8   into delivering train service on a daily basis,

9   there's not a lot of oxygen left for all of that

10   systemic learning to occur.

11   So if you've proven that the asset

12   works and all the things do the right thing and

13   when you press the button you get the light on over

14   there, that's -- you know, that's only one piece of

15   the puzzle. The actual, you know, making that

16   railway work reliably is a far larger amount of --

17   has many other dependencies rather than the asset

18   performing as it designed to -- as it was intended

19   to perform, because you've got this interplay

20   between maintainer, operator and the asset on a

21   daily basis. Does that make sense?

22   MR. IMBESI: Yes, it does. Thank you.

23   And I think you also indicated that you were no

24   longer involved in the train went into service?

25   MR. HOLLOWAY: Correct, yeah.

1   MS. MAINVILLE: I'll check in about a

2   break very shortly, but if I could just ask a few

3   more questions about the change to the RSA date.

4   Do you recall whether -- well, let me -- let me

5   rephrase. Alstom would have made clear to OLRTC

6   that it was not feasible to have all 34 LRVs ready

7   for RSA in late May 2017, and Thales had also

8   repeatedly communicated to OLRTC that a May 2018

9   RSA date was not feasible, at least by July 2017.

10 Is that something that you -- that would have been

11 brought to your attention or that you would expect

12 would be brought to your attention when you were on

13 the steering committee in 2017?

14   MR. HOLLOWAY: Yeah, I think we

15 probably had some discussions along those lines,

16 and again the analysis at that point in time was

17 that was posturing from the subcontractors, as

18 opposed to hard fact that these were not

19 achievable, because don't forget, we also had our

20 own expertise within the project team who were

21 providing analysis as to whether those -- the

22 legitimacy of those claims. You know, the normal

23 way of these things is that contractors,

24 subcontractors will make claims like that as a

25 means to trying to attract management's attention

1   and, you know, give the proverbial gun to the head

2   to try and achieve a commercial outcome. So, you

3   know, that is not an unusual thing is that you'll

4   get contractors writing to you saying, look, we're

5   not going to be able to hit your deadline,

6   Mr. Contractor; you better send us some money if

7   you want us to get back on track.

8   MS. MAINVILLE: So in terms of a

9   commercial outcome, you mean some level of

10 reprieve, money or additional time?

11   MR. HOLLOWAY: Well, yeah, I -- I mean,

12 from my memory, I think it was more about money,

13 but maybe I'm wrong.

14   MS. MAINVILLE: And do you recall -- so

15 the RSA date changed in November 2017, in the -- at

16 least in the November 2017 schedule. Do you recall

17 what led to that change at that point in time?

18   MR. HOLLOWAY: No. No, I don't -- I

19 mean, I don't recall, and I think I mentioned

20 earlier that I thought it was more an aggregation

21 of, you know, the realization that certain control

22 measures weren't going to be able to achieve the

23 desired result, but that's more an impression

24 rather than a hard recollection.

25   MS. MAINVILLE: And then do you recall

1   whether OLRTC only informed Alstom in May 2018 that

2   the new RSA target was November 2018?

3   MR. HOLLOWAY: No, I can't remember

4   that. I'm not saying it didn't happen. I just

5   can't remember.

6   MS. MAINVILLE: Would that make sense

7   to you, the original RSA date being May 2018?

8   Would it make sense to you that Alstom would not be

9   informed prior to just -- up until the RSA date

10 that it would not -- that that was no longer the

11 RSA date target?

12   MR. HOLLOWAY: I think Alstom were well

13 aware of the condition of the project, and they had

14 very senior executives involved in the project, so

15 I don't think they'd be waiting for a piece of

16 correspondence to understand where we're at in the

17 progress.

18   MS. MAINVILLE: But would there be a

19 concern that the RSA date might become meaningless

20 or artificial? To the subcontractor, to be clear.

21   MR. HOLLOWAY: So I think the way this

22 works, again, you know, is that the RSA date was

23 important to OLRTC for a whole bunch of reasons.

24 The RSA date, we tried to encourage a back-to-back

25 relationship with our subcontractors to have

1   concern for the RSA date as well, but ultimately

2   the contractors were very attuned to the fact that

3   we had -- we, the consortium, had a big stake

4   riding on that RSA date and that was a potential

5   point of leverage for them with us.

6   MS. MAINVILLE: And so it's possible

7   that, for instance, RTG or the City would be

8   informed of a need to push back the RSA date

9   without informing Alstom or one of the

10   subcontractors?

11   MR. HOLLOWAY: Yeah, that's possible.

12   And I mean, the other thing is that you -- you

13   know, getting back to that other point is, you

14   know, why -- why would you -- if the -- if you feel

15   that the delays are within the subcontractor

16   themselves, why would we -- what useful purpose

17   would it serve for us to essentially tell them that

18   we're slowing the job down or we're delaying the

19   finish date, you know? We don't want to do that.

20   We want to keep the pressure on with those

21   subcontractors to make sure they keep producing as

22   fast with they possibly can, because they're

23   suffering emerging delays anyway, right, so we want

24   them to try and get as far ahead as they possibly

25   can.

1   The other thing about communicating the

2   with RSA date -- and again, this may be -- you

3   know, obviously there's some sensitivity tied up

4   with that because it was -- you know, how it was

5   going to arrive in the public domain, et cetera, so

6   we -- we were obviously fairly circumspect about,

7   you know, who we were telling, how we were telling

8   them because we didn't want to, you know, kind of

9   cause any issues for the City in that

10 communication. I think it would have been -- I

11 think Alstom would have fully understood where the

12 project was at. You know, I mean, they were

13 literally based on the project. You know, they

14 have seasoned professionals involved in that

15 project. I mean, what we're not doing is we're

16 possibly up until that point not telling them that

17 there's a new date and they should reschedule

18 around that new date, we're just saying, look, keep

19 doing what you're doing and make sure you deliver

20 those vehicles as fast as you can, please.

21   MS. MAINVILLE: And what did you

22 understand -- well, two questions: What did you

23 expect Alstom to do in terms of countermeasures to

24 speed things up, and do you have an understanding

25 of what Alstom may have done to accelerate?

1   MR. HOLLOWAY: Yeah, hard to remember

2   exactly now. I mean, certainly additional shifts,

3   the connecting with their subsuppliers to try and

4   get them to accelerate supply, you know, we tackled

5   a number of -- some of the issues were tied up with

6   quality, so, you know, we tried to cut down the

7   amount of rework by improving the quality walk down

8   process. Those sorts of things, certainly. And

9   some of those were successful in terms of having a

10   beneficial impact, but as I said, you know, as we

11   got further into the process, new issues emerged.

12   So it was very much like, you know, issues were

13   getting resolved and then as we got further down

14   through the testing process with the vehicles or

15   they had more kilometres on them, new issues were

16   then coming to light.

17   MS. MAINVILLE: And you said OLRTC

18   would be circumspect about some of the delays so

19   that the information -- well, considering the fact

20   that the information might end up in the public

21   domain and that might cause issues for the City,

22   would there have been a concern that if these

23   delays were not conveyed that it would create a

24   public expectation of an earlier delivery than what

25   was realistically achievable?

1   MR. HOLLOWAY: No, I don't think that

2   was really part of our thinking. I think we were

3   just trying to be, you know, a good supplier to the

4   City and make sure that we kept these sort of, you

5   know, sensitive communications as confidential as

6   we could.

7   MS. MAINVILLE: So you -- are you

8   saying you were not circumspect in respect of the

9   City, only beyond that, or were you also

10   circumspect in terms of what was being conveyed to

11   the City?

12   MR. HOLLOWAY: Well, we didn't want to

13   give the City incorrect information, so we

14   obviously wanted to make sure that we had a level

15   of certainty about what we were saying to the City,

16   so we were -- we were measured in terms of that

17   communication. Sorry, I thought -- I misunderstood

18   your question. I thought you were relating to how

19   we were communicating to the subsuppliers about

20   what the end date was, right? I mean, obviously we

21   wanted to be circumspect about that because that

22   will end up in the local media and that sort of

23   thing.

24   MS. MAINVILLE: Okay. But you did

25   not -- did you believe it was important for the

1   City to have a realistic understanding of what the

2   RSA date was?

3   MR. HOLLOWAY: Yeah, for sure. And

4   you're always in a tension here, you know, as a

5   supplier that you're trying to give your client

6   what they want, so you're trying to deliver the job

7   as fast as possible, so, you know, we would be

8   explaining to -- and the City were kind of, you

9   know -- you know, quite closely involved in

10   reviewing schedules on a monthly cycle and asking

11   us questions about those schedules and asking us

12   questions about our mitigation and our control

13   measures to try to recover the schedule, so we're

14   sharing that information.

15   I mean, the other thing that we want to

16   do is obviously we want to make sure that when

17   we're sharing that information, it's as factual as

18   we can and we've got a degree of certainty in it,

19   and of course we were in a fast-paced, dynamic

20   environment where there was a lot of flux. So

21   we're not sharing perhaps every issue and concern

22   along the way where we felt we had them under

23   control. We're sharing, you know, the big

24   program-level or, you know, the big sort of -- you

25   know, the high-level program-type issues, not sort

1   of micro delays or we can pull a cable at station

2   XYZ this Thursday, not that sort of thing, but the

3   big things we were sharing with the City and

4   explaining to them what we were doing about

5   controlling the schedule. And we did that through

6   RTG. You know, RTG were there with us as well.

7   MS. MAINVILLE: In hindsight, do you

8   think there was an undue level of optimism about

9   the schedule?

10   MR. HOLLOWAY: Yeah, for sure. I mean,

11   you know, when you look back now, you look at the

12   end result, and you say, well, we didn't achieve

13   those -- we didn't achieve those things, but

14   that's -- that's -- hindsight's a wonderful thing,

15   right? I mean, at the time we felt we were doing

16   the right thing and we were going about it in an

17   appropriate way.

18   The fact that new issues emerged, our

19   forecast acceleration didn't have the desired

20   effect, you know, constraints coupled in a way that

21   we didn't anticipate, and all those sort of things

22   happened in a way that, you know, that did impact

23   us, which from this point of view, you know, is

24   obviously regrettable in the fact that we didn't

25   get it done faster.

1   MS. MAINVILLE: Could we just perhaps

2   go off the record briefly?

3   -- OFF THE RECORD DISCUSSION --

4   -- RECESS AT 5:16 --

5   -- UPON RESUMING AT 5:26 --

6   MS. MAINVILLE: Mr. Holloway, is it

7   fair to say that OLRTC's monthly work reports to

8   RTG don't include any metrics on the overall

9   progress completion?

10   MR. HOLLOWAY: I don't know. I can't

11 recall.

12   MS. MAINVILLE: Okay. Do you have a

13 recollection of how OLRTC did communicate such

14 metrics to RTG?

15   MR. HOLLOWAY: I mean, there was a

16 standard protocol for communicating with RTG when I

17 arrived on the project, and I think we just

18 continued with that approach, so I don't -- I can't

19 recall exactly what was provided to RTG on a

20 monthly basis.

21   MS. MAINVILLE: Okay. And was there

22 a -- any regular reporting to the City by OLRTC?

23   MR. HOLLOWAY: Yeah, I think we had --

24 again, I may be misremembering, but I think we had

25 to provide, like, a monthly schedule report.

1   MS. MAINVILLE: Would -- that would

2   have been different from the one sent to RTG, to

3   your recollection?

4   MR. HOLLOWAY: No, no, it would have

5   been the same. So what went to RTG would have then

6   been forward by RTG to the City.

7   MS. MAINVILLE: Okay. And did you ever

8   have concerns about what RTG was conveying to the

9   City regarding the schedule, concerns about

10   accuracy?

11   MR. HOLLOWAY: No.

12   MS. MAINVILLE: Were there ever any

13   discussion that you're aware of about having a soft

14   opening or soft start?

15   MR. HOLLOWAY: Yeah. I mean, that was

16   something that was discussed. I can't recall

17   exactly who it was discussed with, but it was

18   certainly something -- well, I personally was a big

19   advocate for it because it links back to this

20   discussion we were having earlier about reliability

21   growth. A soft opening is a -- is a traditional

22   strategy employed by many rail operators in terms

23   of how they take their new mega projects into use

24   because it allows for a more benign environment for

25   that reliability growth process to shake itself out

1   in terms of the interplay between the asset, the

2   maintainer, and the operator.

3   I mean, if you look around the world at

4   the people who do this, you know, kind of more

5   extensively, people like -- organizations like MTR

6   out of Hong Kong, Deutsche Bahn that -- Rail, many

7   of them will adopt the soft opening strategy for

8   new assets for exactly that reason, and I think

9   it's a prudent approach when you've got a very

10   complicated asset like we did.

11   MS. MAINVILLE: And just so I'm clear

12   that we're referencing the same thing, what would

13   be your definition of a soft opening?

14   MR. HOLLOWAY: A soft opening, in my

15   sort of -- I suppose it's a term of art, really,

16   but it's really where you're running a less-than

17   full service or a reduced service, degraded service

18   in some shape or form that's -- if there are a few

19   slips, trips, and falls metaphorically in terms of

20   delivering that service, the consequential impact

21   is minor on the travelling public, but at the same

22   time, it allows sufficient -- you know, I think we

23   mentioned earlier, you know, there's just not a lot

24   of oxygen left for learning when you're running a

25   full peak, on full service, so this just allows

1   everyone to just, you know, get into that role, get

2   the rapport, get the intimacy, get the

3   understanding of the asset and the relative roles,

4   perhaps become a bit more expert in the way that

5   they're going through discharging their roles, and

6   obviously making sure that the interplay between

7   operator, maintainer, and asset is working more

8   effectively.

9   So typically, you know, soft openings

10   can take a number of different forms, and every

11   operator will make their own judgment based on

12   their asset and their own level of experience, so

13   if you're taking on an asset which you -- you know,

14   like, is a very business-as-usual-type asset, you

15   know, with very conventional technology that you've

16   got a lot of in your railway already, you might

17   choose to take still a soft opening, but, you know,

18   you'd probably be more aggressive in that because

19   it's a more known quantity, there's less for people

20   to learn, get familiar with. If you've got a

21   highly dissimilar asset to the one that you

22   currently operate, you know, people will be more

23   conservative in terms of the level of service that

24   they're going to provide so they have more capacity

25   for that learning to occur. And I think, you know,

1 we talked about Crossrail earlier and how, in

2 London, how they were delayed from 2018 to now. I

3 think their initial plan is to do some form of soft

4 opening on that railway as well, just by way of

5 reference.

6   MS. MAINVILLE: How long approximately

7 would you think would have been appropriate for

8 this particular project?

9   MR. HOLLOWAY: Well, I'm not an

10 operator. I'm a construction professional. But I

11 have -- we have undertaken some analysis of what

12 other people would do, and like I say, it is a bit

13 situational. Recognizing that we had a new

14 maintainer, an inexperienced and new operator and a

15 very sophisticated, complex asset yuan for me, I

16 would be -- if I was -- if you're asking me to

17 speculate about how I would do it, I would say 6

18 months.

19   MS. MAINVILLE: Do you recall that

20 being raised with the city at any point in time?

21   MR. HOLLOWAY: Yeah, I'm pretty sure it

22 was discussed with the City. I couldn't hand on

23 heart say who it was discussed with or in what

24 forum, but I know we saw that there was a potential

25 for some overlap between a soft opening and some

1 elements of testing still being undertaken on other

2 elements of the job, so you could have a partial

3 network opening and allow some of that reliability

4 growth to occur. Those -- those discussions didn't

5 bear fruit, and they weren't seen as seeing an

6 acceptable strategy by the City. That's certainly

7 my recollection.

8   MS. MAINVILLE: And so to be clear on

9 timing, this would have been when you are

10 project --

11   MR. HOLLOWAY: Yeah.

12   MS. MAINVILLE: -- director.

13   MR. HOLLOWAY: Correct, yeah. Although

14 I think we may have even approached some of those

15 discussions before that time. I think the SPV --

16 sorry, the RTG colleagues may have had some of

17 those discussions with the City before that time.

18 We certainly discussed that internally before I

19 arrived at project director. As to what that then

20 transferred to in terms of conversation with the

21 City, I can't say authoritatively.

22   MS. MAINVILLE: Would you have been

23 there for any of those discussions with -- no?

24   MR. HOLLOWAY: No, I don't think so.

25   MS. MAINVILLE: So you wouldn't know or

1   would it have been reported back to you what the

2   City's position was on that?

3   MR. HOLLOWAY: I mean, I think my -- my

4   impression of it was -- and again, this is just

5   a -- you know, kind of a recollection, is that the

6   City kind of saw that suggestion as being the

7   contractor, namely us, trying to escape an

8   obligation or trying to, you know, like, trying to

9   circumvent something that we were accountable for,

10   which wasn't really the intention, but that's the

11   way it was sort of received, and that's why it got

12   shut down fairly quickly.

13   MS. MAINVILLE: Would there have been

14   an expectation of full payment from the

15   contractor's side, or would -- would that

16   necessarily have involved a reduced --

17   MR. HOLLOWAY: No, I don't think you

18   can expect full payment unless you give full

19   service, so I think the concept was, you know,

20   perhaps there's a win-win in here somewhere where

21   we could do -- we could get into partial operation

22   or partial service, and that might provide some

23   relief to the contractor whilst still keeping us

24   incentivized to finish but allowing the beneficial

25   side effect of the reliability growth process to

1   shake itself out in parallel with some of the other

2   works ongoing.

3   MS. MAINVILLE: Right. And what about

4   a burn-in period? If that's --

5   MR. HOLLOWAY: Yeah, it's kind of the

6   same thing, I suppose, burn-in, reliability growth.

7   I think they're probably -- I mean, by my

8   understanding, a burn-in is the same thing as

9   reliability growth, right?

10   MS. MAINVILLE: And there were none --

11 there was none on this project, on Stage 1?

12   MR. HOLLOWAY: Well, that's really on

13 the other side of the substantial completion

14 boundary, right?

15   MS. MAINVILLE: Right.

16   MR. HOLLOWAY: So it wasn't for OLRTC

17 to do that work. We're obviously looking across

18 that boundary, going, hey, maybe you could bring

19 some of your activities forward on our side of the

20 fence here. We could then accelerate, you know,

21 the public benefit being realized, but we would

22 still then have the facility to carry on working.

23 So that -- that was certainly the thought process.

24 We were thinking about how can we -- you know,

25 more -- how do we -- rather than, you know, just

1   sort of a very stark, stay in your lane type

2   strategy of just concern yourself with the things

3   you've got contract for, we were trying to take a

4   more macro view and say, how could we service the

5   overall project, recognizing that you've got some

6   stuff to do once we hand the asset over to you, is

7   there any way that we can bring some of that

8   activity forward whilst we continue to do the

9   things that we're struggling with on delays, and

10   get a win-win out of that process? But like I say,

11   it didn't -- it didn't get legs with -- with the

12   principal.

13   MS. MAINVILLE: And I understand your

14   comments on, you know, there are new maintainers,

15   new operators on this project. In terms of just

16   the -- the train itself, is there a distinction in

17   your mind about putting a new system, a completely

18   brand-new system into operation, new track, new

19   rolling stock, as opposed to, you know, a new --

20   new rolling stock on preexisting track in terms of

21   the amount of burn-in or slow start that you might

22   need to -- to ensure the system is working

23   properly?

24   MR. HOLLOWAY: Let me attempt to answer

25   because I'm not sure I 100 percent understood the

1   question. So let -- I mean, I think it's not

2   wholly useful to view these things as the

3   independent subsystems. The railway needs to work

4   as an integrated whole, so, you know, the rolling

5   stock and its interaction with the overhead line,

6   catenary system, its interaction with the wayside

7   signaling installation, its interaction with the

8   rail wheel interface, all can't be seen as separate

9   from the way in which it's being operated and the

10   way it's being maintained.

11   So I -- I think you have to look at

12   these things as a coherent whole, which is why when

13   we're talking about burn-in or reliability growth

14   process, we're talking about there's a key

15   distinction here between running trains up and down

16   the network under the oversight of the contractor.

17   That's one thing, versus simulating some form of

18   operation that's wholly under the control of the

19   operator and the maintainer. They're very -- you

20   know, it's -- it may sound like, well, in both

21   instances trains run up and down a network. That's

22   certainly true, but the actual -- what's happening,

23   if you think of the iceberg, you know, what's

24   happening below the water is an entirely different

25   ecosystem from the one where we're just cycling

1 trains up and down for testing purposes. And, you

2 know, I'm not simulating any operation environment

3 as a contractor. I'm just interested in that train

4 running to satisfy some of my testing criteria.

5   So we're not really getting into the

6 full dynamic of what it's like to launch a peak,

7 what it's like to respond to a fault at a set of

8 points when you're launching a peak, what it's like

9 to -- how quickly does it take the maintainers to

10 respond to that, what we might then do in terms of

11 providing public announcements to traveling

12 passengers to deal with that. You know, I'm not

13 doing any of that stuff because it's not within my

14 gift. You know, it's not within my agreement.

15   So I think that's really where, you

16 know, you -- if we were going to supply parts of

17 the network, we would try to supply parts of the

18 network in its sort of vertically integrated sense,

19 not as in, well, you've got the track, and you've

20 got the overhead wiring, so you're all good, right?

21 No, I think the level of benefit you receive from

22 that is quite marginal from an operator-maintainer

23 point of view.

24   MS. MAINVILLE: And so perhaps you'll

25 have the same answer to this question in terms of

1   it not conceiving of this as a global system, but

2   is there a distinction between -- well, when you

3   have a new train, if I can make a comparison to

4   driving a brand-new car off a car lot, is that

5   comparable? Should it just run perfectly or not,

6   in terms of there being potential bugs and --

7   and -- and issues to -- to work out?

8   MR. HOLLOWAY: So I would liken it --

9   can I change your analogy?

10   MS. MAINVILLE: Yes.

11   THE WITNESS: Think about it like an

12   architecturally designed house. In an

13   architecturally designed house, there's an

14   interplay between the project owner or the consumer

15   of the house and the architect, and, you know, the

16   house owner might say, Well, I'd like a continuous

17   glass window here, and the architect will say,

18   Well, okay, I'll need to put a column in there if

19   you want to do that. Are you happy with that? Do

20   you want a slender column? Do you want a steel

21   column? Do you want a concrete column? Do you

22   want one out of masonry? And there's an interplay

23   in terms of how the form and function need to be

24   tailored to the taste or the requirements of the

25   homeowner.

1   With these vehicles, they're more

2   closer to -- they're less correlated to a Toyota

3   Corolla coming off the production line and more of

4   a, you know, bespoke product that's been specified

5   by the City because there's certain, again from

6   memory, certain specifications which were unique to

7   Ottawa, and that led for this -- you know, slightly

8   more complex interplay between, you know, how

9   you're going to consume that product. And I think

10   it's -- it's not -- I would say, again, you know,

11   not entirely reasonable to expect no amount of

12   shakedown, no amount of troubleshooting, no amount

13   of, you know, kind of issues to be dealt with in

14   either the vehicle or the fixed asset component,

15   which is why when you look at comparable rail

16   operators around the world they go for those soft

17   openings. They're doing that for a reason.

18   They're doing that because they understand that

19   there's a process to be played out in terms of

20   achieving the level of reliability.

21   MS. MAINVILLE: And I know you weren't

22   there leading up to RSA, but in terms of OC

23   Transpo, OC Transpo's preparedness as the operator,

24   are you able to speak to that at all from -- based

25   on the time you were there?

1   MR. HOLLOWAY: Yeah, I mean, I think,

2   you know, again, it's just -- it was a challenging

3   circumstance for anyone, not just OC Transpo to

4   take on a railway of that complexity without, you

5   know, a hinterland of, you know, of deep railway

6   experience, which although OC Transpo had been

7   running the Trillium Line, it's really not that

8   comparable to the product that was being provided

9   in the Confederation Line. So I think that was a

10   very kind of maybe -- it's not reasonable to

11   extrapolate Trillium Line to Confederation Line is

12   really what I'm saying. So there would have been a

13   challenge for anyone taking on that particular step

14   in competency, right, because you're going from

15   not some -- you know, almost a standing start to

16   one of the more sophisticated railways in operation

17   in North America.

18   MS. MAINVILLE: And are you able to

19   explain why -- what are -- what are the operating

20   challenges, considering that, you know, as we --

21   we've been told, the trains effectively drive

22   themselves, right? So what is the challenging part

23   of operating them?

24   MR. HOLLOWAY: Right. So you'll get

25   constant perturbations on the system, right? So

1 you're going to get -- you know, these are large

2 assets composed of, you know, many thousands of

3 subsystems and componentry, all of which are in a

4 constant state of degradation as you run trains

5 over them. So you're going to consistently getting

6 an alarm: Hey, we've got an alarm coming from a

7 traction substation; okay, we've got to divert

8 power from that traction substation to another

9 traction substation; or hang on a minute, we've

10 just been told that there's a security incident at

11 Lyon Station and we've got to pause all trains;

12 okay, now we've got to make an announcement

13 associated with the fact that we've had a guideway

14 intrusion by a trespasser at such a place. You

15 know, there's a whole lot of things going on which

16 are both related to the operation environment, you

17 know, sort of interacting with the travelling

18 public, the asset condition and its natural, you

19 know, operation and the fact that things go wrong

20 and have to be fixed and all that kind of stuff,

21 and what decisions you choose to take as an

22 operator in response to those criteria.

23   Now, the signalling system is automatic

24 and therefore is helpful because the signalling

25 system will automatically try to regulate the

1   activity of the trains on the system, so, you know,

2   if you start to get a bunch up in one area, it will

3   try and smooth out that through automatic route

4   setting, it will try to space the trains out, but

5   that doesn't mean there's nothing for the operator

6   to do in relation to that. The reason for the

7   delay may mean that they've got to raise a

8   maintenance ticket and get a maintenance crew to

9   look at something, they may have, you know, the

10   police service responding to an issue. They may

11   have, you know, any number of things they may have

12   to interact with, and all of that is part of that

13   daily cadence of, you know, managing the peaks.

14   So I think all of that -- all of those

15   sorts of things -- and it is an interplay between,

16   like I say, the asset, the maintainer and the

17   operational environment needs some practice. So,

18   you know, if you bought a brand-new Boeing 747, and

19   you had a fully trained flight crew but they've

20   never flown before, they've been fully trained on

21   the simulator and maybe driven up and down the

22   runway a couple of times, and we've got a brand-new

23   maintenance team and they've been trained on all

24   the manuals of how to maintain that aircraft, you

25   know, you're probably unlikely to go straight into

1   commercial service before you've done a bit of

2   rehearsal with that group of people. And, you

3   know, I'm not saying that the railway is as complex

4   as a Boeing 747, but it is a complex asset, and

5   there is some analogy there that's got some merit,

6   I think, in terms of how you shake down that team

7   working together in sympathy with the asset.

8   MS. MAINVILLE: Do you know what, if

9   any, planning there was around that preparation as

10   between the various interfaces with maintenance and

11   the operators and whatnot?

12   MR. HOLLOWAY: No, I don't. No.

13   MS. MAINVILLE: Would you have

14   expected, then, or have you seen elsewhere when

15   there's a new operator bringing in a shadow

16   operator with commercial experience?

17   MR. HOLLOWAY: Yeah, I mean, that's a

18   legitimate strategy that I've heard other people

19   have employed. Again, most of my work has been

20   with fairly seasoned rail operators, so that hasn't

21   been a concern, but for example, I know what you

22   will find on occasion is that the construction

23   consortium will bring in a shadow operator to

24   support the constructor in understanding the

25   operator's environment, you know, so that's a

1   typical thing because not all construction

2   contractors carry an operational experience. In

3   this context, we obviously had SNC involved, and

4   SNC did have the operator's experience and we

5   actually did bring in controllers from the Canada

6   Line project to support the OC Transpo guys in the

7   control room.

8   MS. MAINVILLE: How did OLRTC assess OC

9   Transpo's engagement during design and

10   construction?

11   MR. HOLLOWAY: Yeah, so I think the --

12   it was a -- it was a particularly fractious

13   relationship, from my point of view, with OC

14   Transpo, certainly towards the end of my tenure

15   there. I -- all projects have issues, and it's all

16   about how you deal with them, right? You know,

17   so -- and large projects have large issues, and,

18   you know, that of course requires a degree of

19   cooperation to resolve them, and I think it's a

20   well understood truism in construction that the

21   level of cooperation between participants is

22   directly correlated to the level of success of a

23   project, and the PPP, because of its sharp

24   allocation of risks, you know, and very kind of,

25   you know, intentional passing of risks, sort of

1   tends to drive more of a -- a zero-sum game type

2   mentality between participants, and, you know,

3   like, I can only win if you lose type thing, and

4   that's really not that conducive to a cooperative

5   environment.

6   So when you do get issues, you've got

7   essentially commercial and contractual incentives

8   against cooperation, so the one social process

9   that's most likely to give you a successful outcome

10   is actually actively disincentivized by the

11   commercial regime, so you've got to find a way of

12   transcending that. And, you know, other clients

13   that I've worked with through my career have found

14   strategies for being able to deal with that, you

15   know, that inconsistency between the commercial

16   contractual incentive and the human activity system

17   imperative. My experience was we -- and whether

18   it's because everyone was under pressure or

19   whatever, we just didn't enjoy a good level of --

20   from my point of view, a good level of cooperation

21   with the City participants.

22   MS. MAINVILLE: And would that have

23   been the general manager of OC Transpo

24   specifically, or was it broader than that, or is

25   that --

1   MR. HOLLOWAY: No, I think it was

2   broader than that. I mean, I think -- it kind of

3   manifested itself in sort of a couple of -- in a

4   number of different ways. So in a -- in one sense,

5   there's a... Okay. So on a big project, there's a

6   hundred thousand things happening every day, you

7   know? There's someone wiring a train, there's

8   someone hooking up a PLC in Rideau cabin, there's

9   someone erecting scaffold at such a place. You

10   know, there's a hundred thousand things happening,

11   and we're turning over a peak in many millions of

12   dollars a day, so there's a lot of activity

13   occurring. You've got a limited number of

14   management calories that you can allocate to

15   overseeing that process, so critical amongst --

16   critical -- a critical thing to achieve is how do

17   you triage your effort effectively. So you need to

18   be able to galvanize your management attention as a

19   construction contractor on the critical few.

20   What I felt we suffered with with the

21   City was that they would consistently try to drag

22   our attention away from what we saw as being the

23   critical few towards more tertiary, less important

24   issues, and we consumed our management bandwidth in

25   the wrong -- well, you know, we ended up having our

1   management bandwidth consumed in the wrong places

2   rather than on the big issues that we really needed

3   to tackle.

4   Now, you know, I'm not saying that's

5   down to a lack of cooperation. That might be down

6   to a differing set of priorities, or, you know,

7   some other factors, which I'm not going to

8   speculate about, but what I have seen in other

9   contracts and my experience in working in other

10   contexts on other large mega projects is where the

11   world view between the client and the contractor

12   more closely overlaps, you tend to get more of an

13   alignment in terms of where everyone should be

14   spending their effort, and I don't think the world

15   view between what OLRTC saw as important in terms

16   of where we should spend our effort and where the

17   City thought we should spend our effort coalesced

18   with sufficient overlap to get the best outcome.

19   MS. MAINVILLE: And could you give me

20   one example of what the City was focussing on

21   versus what OLRTC thought should be the priority?

22   MR. HOLLOWAY: Yeah, it's hard at this

23   range, but I do remember that we got dragged into a

24   lot of really kind of quite minor building control

25   type stuff, which was treated as a, you know, super

1   urgent priority - so, you know, like is there a

2   heat trace on a drain at Tremblay Station or

3   something like that - which is not, you know,

4   critical path for me to concern myself with, how

5   are we going to get the tunnel vent tested.

6   So we did get quite a lot of -- you

7   know, there are sort of -- I suppose in

8   construction projects, you can think about

9   classifying problems in three sort of categories:

10   simple problems -- right? -- it's obvious what the

11   issue is, we know exactly what the fix is, we can

12   just do it; complicated problems - we know there's

13   a right answer in there but we're probably going to

14   have to synthesize two different sets of expertise

15   together to solve it, and I might need a

16   geotechnical engineer with a structural engineer or

17   I might need a telecommunications engineer with an

18   IT engineer, but there's a fix in there somewhere;

19   and the really complex problems, which were more

20   analogous to our systems challenges where we're

21   actually undertaking problem-solving through

22   experimentation. You're doing probe, analyze,

23   response type problem-solving.

24   So we've never combined all these

25   subsystems of these different vendors together in

1   this way, therefore there is no playbook to work

2   out, how do we solve these problems. What you've

3   got to do is: Try this; does it work? No, try

4   something else. Does that work? Yeah, that works.

5   Okay, keep doing that, move to the next problem.

6   What I felt was we should be putting

7   80 percent of our effort into the complex problems,

8   and my feeling was we were getting dragged by the

9   City towards the simple and the complicated

10   problems because they were more easily understood

11   than allowing us to focus on the -- what I saw as

12   being the big stuff. Now, you know, that's just

13   my -- my recollection of it.

14   MS. MAINVILLE: And was your perception

15   that there was a lack of experience on the City's

16   side in terms of a project like this or P3,

17   perhaps?

18   MR. HOLLOWAY: I think -- and I'm not

19   going to speculate about the City's personnel

20   because I just don't know, but I would just say in

21   my experience that the more seasoned people are in

22   dealing with more mega projects of this nature, the

23   better they are able to triage their effort

24   accordingly. So, you know, in the places where --

25   and this is -- this is correlation, maybe not

1 causation, right, but in the places where I've seen

2 this work effectively, it's where you've got more

3 seasoned clients who were able to see the

4 importance of the complex elements and be more

5 relaxed or, you know, kind of less focussed on the

6 more simple, smaller problems. So whether that's

7 a -- whether that was, you know, like a competence

8 issue, an experience issue, or a leadership issue,

9 I can't speculate. I don't know.

10   MS. MAINVILLE: Do you think OLRTC was

11 sufficiently resourced?

12   MR. HOLLOWAY: I do. I mean, I think

13 the -- the challenge with these projects is that,

14 you know, there's a certain number of resources

15 where -- which make sense for this size of the

16 challenge. So adding more resources doesn't

17 actually make you go faster. If you think about

18 the analogy of decorating a room, two decorators

19 can decorate a room faster than six can, because if

20 you put six in a room, they're all getting in each

21 other's way. And to a certain degree, that was

22 kind of the problem with some of the more complex

23 issues: What we didn't need to do was throw more

24 voices in there. What we needed to do was allow

25 the people who were dealing -- we needed to make

1   sure we had the right competency in dealing with

2   those probe, analyze, respond type challenges and

3   support them with whatever resources they needed.

4   Not necessarily having more of them would have

5   solved the problem any quicker, I think.

6   MS. MAINVILLE: And --

7   MR. HOLLOWAY: And sorry, just to add,

8   I came in from being an executive with one of the

9   consortium companies, and, you know, what I would

10   say is that we had nothing but full support from

11   the three companies. It's like, what do you need?

12   What in our world can we possibly supply to you

13   that's going to help you go faster, be more

14   effective or whatever? So there wasn't a

15   constraint on resources in -- like, you know, it

16   wasn't the sort of mindset of going, oh, look, you

17   know, you haven't got any more staff budget, so you

18   can't have any more people. None of that. We had

19   free rein to bring the resources that were

20   available in the three constituent companies to

21   bear, and at times, you know, different specialists

22   came in from those companies to help us. Like, for

23   example, we flew controllers in from Vancouver to

24   support us in the control room. EllisDon brought

25   some of their local staff in to help accelerate

1   some of the subcontractor management for the local

2   trades. You know, we had specialists coming in

3   from, you know, Dragados to support us with

4   elements of the tunnelling activity. So, you know,

5   we did get good support from the -- from the three

6   companies as well in terms of making sure that we

7   had what we needed.

8   MS. MAINVILLE: Okay. And are there --

9   in terms of management plans, are there -- you

10   know, were there project management plan -- or a

11   project management plan, a quality management plan,

12   and an engineering management plan, that type of

13   thing?

14   MR. HOLLOWAY: For sure there would

15   have been because there are on every project, but

16   in terms of remembering exactly what the contents

17   of those are, I couldn't tell you. I think what

18   generally happens is those documents are frequently

19   used at the beginning of a project to set out the

20   operating model for how the project's going to

21   work, right? So this is about talking about, you

22   know, how are we going to bring these three

23   companies together and align on how are we going to

24   do schedule management, or how are we going to deal

25   with requests for information in the design

1   process, or how are we going to effect document

2   control? So those documents are used typically as,

3   like, a foundational document to set the operating

4   model and establish how everyone's going to operate

5   in practice in terms of that consortium forming one

6   team. They're not always managed -- they're not

7   always updated in the currency of the project to

8   reflect, you know, the current prevailing reality

9   because, you know, they often are more utility.

10   Once everyone knows what they're doing, everyone

11   knows what they're doing. You don't have to write

12   it down in a management plan necessarily.

13   So whilst those documents would have

14   existed, I'm not certain how important they were in

15   terms of providing guidance to how the OLRTC was

16   operating in the phase when I was there. What we

17   were -- I mean, everyone was in an established

18   pattern of relationship in terms of -- I mean that

19   in a hard system sense and a soft system sense, so,

20   you know, we understand who's doing what, who hold

21   the decision rights for what sort of activity.

22   That was all tacitly understood by everyone because

23   they had been working together for several years.

24   We did change some elements of the operating model,

25   primarily in the systems area when Matthew Slade

1   joined, and those were really articulated through

2   the use of a visual management system that we used

3   in terms of tracking daily progress, but I don't

4   think you'd find that the -- you know, there wasn't

5   sort of formal updates to the -- you know, whatever

6   management plan was in place at the time to reflect

7   that.

8   MS. MAINVILLE: Okay. Is there more

9   you can say about how OLRTC performed its

10   governance and oversight?

11   MR. HOLLOWAY: Sure. So internally, we

12   would track progress on a daily -- on a daily

13   basis, and we'd split down by the different areas

14   of the job. So from a non-systems point of view,

15   the job was divided up into different geographical

16   chunks, and we had I think focusses around -- in

17   the latter stages, anyway, focussed by the station

18   in terms of, you know, the three underground cabin

19   stations and above ground stations were treated as

20   different chunks. Progress against plan was

21   tracked on a planned vs actual target daily against

22   the key metrics, where -- progress against planned

23   versus actual, where we got a variance, we'd be

24   installing a countermeasure on a daily basis to try

25   and recover, hey, we didn't get that cable pull

1   done last night; okay, how are we going to recover

2   it today, that sort of thing. So that happened on

3   the civil and the building side. So we'd be

4   tracking things like how many metres of tiles were

5   installed, how many metres of cable were pulled,

6   how many metres of concrete got poured, how many

7   tonnes of steel got tied, whatever it might be.

8   And then on a systems point of view, we

9   then had a similar equivalent type arrangement

10   where we'd be tracking how many vehicles Alstom

11   were releasing to us in terms of testing. We'd be

12   tracking how many tests were being conducted on a

13   daily basis, planned versus actual by Thales. We'd

14   be tracking, you know, whatever subsystems needed

15   to be prepared for other elements of testing,

16   whether that's in the power system or whatever. So

17   we had two visual management rooms, one in the --

18   one in the site offices -- and I'm trying to

19   remember the place where that is. Bayview, one in

20   the sites offices at Bayview and one in the meeting

21   offices in the MFS at Belfast Road. So the Belfast

22   Road one was the systems visual management room,

23   and the one at Bayview was the civil and building

24   one. So we tracked that daily, and those outputs

25   would then get rolled up into the weekly schedule,

1   the weekly schedule would get rolled up into the

2   monthly schedule, and that's how we tracked the --

3   the progress on the job.

4   MS. MAINVILLE: And would there be a

5   proactive approach in terms of identifying project

6   risks from all the key parties involved and

7   developing, you know, integrated mitigation

8   strategies?

9   MR. HOLLOWAY: Yeah. So we would

10   typically look at the project risks on a monthly

11   cycle, and that would align with the JV board

12   meeting as well, right? So we would -- typically,

13   we'd maintain risk registers, but we'd also operate

14   a more tactical risk register as well, so we'd be

15   looking at like what are the emerging issues in the

16   month, what are the countermeasures we're proposing

17   to deploy, and we'd present that to the JV steering

18   group on a monthly cycle so they could understand

19   how that was operating, but we'd actually operate

20   that in practice at a lower level within the

21   project as well, so it wasn't just a reporting

22   function. We're actually using it to guide

23   management activity as well.

24   MS. MAINVILLE: Were there changes to

25   the milestone payments while you were involved in

1   the project?

2   MR. HOLLOWAY: Not that I can really

3   remember, to be honest with you.

4   MS. MAINVILLE: Would you say overall

5   the City's budget for this project was a tight

6   budget?

7   MR. HOLLOWAY: I can't comment on it.

8   MS. MAINVILLE: No? Are you familiar

9   with the financial impacts on OLRTC of the delays?

10   MR. HOLLOWAY: Not -- not really. I

11   mean, I was at the time, but obviously I'm not

12   carrying that around in my head at this time.

13   MS. MAINVILLE: Okay. What kind of

14   pressure was there to get to substantial completion

15   and RSA as time elapsed?

16   MR. HOLLOWAY: Well, there was a lot of

17   pressure to get the job done for sure. I mean, we

18   want -- we were all highly committed to try to make

19   sure that occurred as expeditiously as possible.

20   You know, no one wants to be late on a project, and

21   we were late, and, you know, that generated its own

22   impetus to try to get some resolution on it. There

23   were obviously, you know, financial implications

24   for the companies as well, but that didn't -- like,

25   it's -- it's not that useful to spend too much

1   time -- you know, the -- you can't change the --

2   you can't change what's happened. You can only

3   change what's going to happen. So most of the

4   management effort and most of the dialogue,

5   certainly with the steering committee and

6   internally, was on the, you know, what are we going

7   to do to try to improve the situation? We didn't

8   spend a lot of time in terms of, you know, looking

9   in the rearview mirror because there's not much

10   utility in it when you've still got -- like I said,

11   you're still turning over millions of dollars a

12   day, and you've still got a lot of people in the

13   field, so you've got to stay grounded in the

14   reality of what you're trying to achieve on a daily

15   basis.

16   MS. MAINVILLE: Would you say that

17   OLRTC's focus was generally more on -- and perhaps

18   just based on its experience based -- more focussed

19   on the civils work than the rolling stock?

20   MR. HOLLOWAY: Oh, yeah, because, I

21   mean, you engage a company like Alstom because

22   they're one of the world's leading experts in

23   rolling stock design and manufacture, and therefore

24   what we did was we employed someone who was an

25   ex-Bombardier rolling stock engineer, very seasoned

1   executive -- in fact, we had two guys from

2   Bombardier who were both very senior within

3   Bombardier. We'd recruit them -- whether we got

4   them straight from Bombardier, I can't recall, but

5   they were both rolling stock experts, so they

6   provided the -- sort of appreciation and oversight

7   of the Alstom activities, so they would be the ones

8   that would be counselling us about, you know, the

9   legitimacy of claims or, you know, issues coming

10   from Alstom. But really in terms of leaving Alstom

11   to how they solved problems, we will -- we would

12   give them free rein there, obviously. What we did

13   do was we were very clear about what we needed from

14   them to be delivered, so, you know, obviously I was

15   talking about the daily -- you know, the daily

16   visualization meetings. We'd be very clear with

17   Alstom about, hey, for us to achieve this next

18   test, you need to give us two vehicles. We need

19   this vehicle number and that vehicle number

20   tomorrow, or, you know, in two days' time or

21   whatever it might be; can you commit that you're

22   going to deliver those things? So we're being

23   quite active in the prioritization of their work as

24   it related to other activities, but we're not

25   trying to tell them how to rewire a control panel

1   inside the train because that's not our expertise.

2   MS. MAINVILLE: And the two people from

3   Bombardier that you referenced, would that be

4   Jacques Valjean?

5   MR. HOLLOWAY: Jacques was one, and

6   also Paul Tétreault, who was there earlier on in

7   the project, yeah.

8   MS. MAINVILLE: Okay. Were you

9   there -- I believe when there was a first attempt

10 or a first -- well, attempt at substantial

11 completion by RTG, ultimately, but in terms of

12 meeting that milestone and trying to get

13 certification for that?

14   MR. HOLLOWAY: Yeah, I was there then,

15 yeah.

16   MS. MAINVILLE: And was that -- and

17 that one was rejected, correct?

18   MR. HOLLOWAY: Yeah, correct, yeah.

19   MS. MAINVILLE: Can you speak to that

20 and whether you believe that substantial completion

21 had actually been met at that point and what the

22 intent behind the request was?

23   MR. HOLLOWAY: Yeah, sure. So I think

24 that the thing with substantial completion is it

25 allows you to carry certain defects into the next

1   phase of activity which can be rectified while the

2   client progresses their, you know, burn-in,

3   reliability growth, whatever it might be. And we

4   were of the view that whilst we recognized there

5   were still things to be done, they were of a, you

6   know, comparatively minor nature and therefore not

7   material and shouldn't stop substantial completion,

8   and that's why we applied for it at the time.

9   Now, the City took a different view of

10   that -- and again, you know, we -- opinions vary in

11   terms of whether that -- their judgment was right

12   or not -- but, you know, from our point of view, we

13   thought that the bulk of the asset had been

14   commissioned, was capable of being put into some

15   use, and could have then started that reliability

16   shakedown process in an effective way. The City

17   were taking a more strict interpretation than we

18   were applying in terms of what constituted an

19   acceptable defect to carry over into that next

20   phase.

21   MS. MAINVILLE: Okay. Was there --

22   well, first of all, you were there when the City

23   underwrote RTG's debt?

24   MR. HOLLOWAY: Yeah.

25   MS. MAINVILLE: Did that have an impact

1   on the project, on the relationship?

2   MR. HOLLOWAY: I did detect -- and

3   again, you know, probably the RTG colleagues had --

4   would be more in -- more in the front line of this

5   experience, but we did detect a hardening of the

6   City's rhetoric in terms of how they were dealing

7   with us. So there was an amount of tacit threat,

8   I'll say, small 'T' threat, you know, from the City

9   up to a certain point in time, and it sort of

10   became more extant in terms of, you know, kind of

11   their adversarial approach after the debt. That's

12   just my recollection. Maybe it was just -- those

13   two things don't -- maybe they correlate, but

14   there's not a causal link between them, but we

15   certainly -- my experience was we saw a degradation

16   in terms of the relationship after that point.

17   MS. MAINVILLE: Would there have been

18   an impact on information sharing from either OLRTC

19   or RTG's perspective? In terms of the level of

20   information sharing that you'd have -- that was --

21   MR. HOLLOWAY: Not -- not -- not

22   really. Not in my recollection. I don't think

23   that made any impact because I still -- we still

24   had the same sort of obligations in either context,

25   right, so nothing changed from that point of view.

1   I think the -- you know, what we -- what we were --

2   what we tended -- my -- again, this is my

3   recollection -- is that, you know, what we saw more

4   after the -- the -- the change in debt ownership

5   was this sort of kind of slightly more focus on

6   following the black letter of the law type approach

7   as opposed to, you know, let's work through the

8   issues sort of approach.

9   MS. MAINVILLE: M-hm. And just in

10 terms of testing and commissioning, going back to

11 that, was there, to your knowledge, a consideration

12 of the seasonal conditions in terms of the -- in

13 particular, the winter testing?

14   MR. HOLLOWAY: There were some

15 considerations of it in relation to some of the

16 subsystems were designed to be reconfigured between

17 summer and winter modes. So for example -- and

18 I'll give you one that springs to mind was the

19 guideway intrusion system, which is basically like

20 a laser that scans the swept envelope of the

21 guideway and is meant to detect if someone jumps

22 into the guideway so that it can, you know,

23 communicate to the train to say, hey, someone's in

24 the way of the train; you might want to put the

25 brakes on. That system has to be configured

1 between the summer and winter settings because it

2 has to deal with the fact that you're going to get

3 snowfall, and it changes the swept envelope of the

4 laser profile, so there was some testing of that,

5 and there was some configuration of that.

6   Obviously the vehicles had some testing

7 in the -- you know, there was some lab-based

8 testing for the vehicles which was, you know, cold

9 climate testing that was undertaken there. Other

10 than that, you know, obviously you're undertaking

11 testing at the time that it falls in the seasonal

12 cycle, right? You're not kind of like, hey, we've

13 got to do all these tests in summer and, hey, we've

14 got to do all these tests again in winter. That

15 wasn't the way the contract was structured, so the

16 testing occurred when that became available -- you

17 know, when that work phase became available, and

18 that was just dependent upon when that happened to

19 fall seasonally.

20   MS. MAINVILLE: Is there -- do you have

21 a -- any view, you know, as to what may have

22 contributed to the ultimate breakdowns and

23 derailments? I know you were gone by then, but in

24 terms of the broader circumstances that -- and

25 environment that may have led to -- to some of

1   these -- the issues that the -- that the system

2   later suffered from, do you have any perspective on

3   that?

4   MR. HOLLOWAY: I mean, my only

5   observation is the same one that I had earlier,

6   which is I'd be interested in trying to explore how

7   well the interaction between operator and

8   maintainer was functioning in that space, because

9   generally what you'll find is that these things

10   don't happen in isolation. You know, usually when

11   there's an operational problem, it links to a

12   maintenance problem. That maintenance problem

13   might, in turn, link to another method of operation

14   problem. You know, there's a -- kind of like a

15   complex chain of events there, and, you know, what

16   is probably not a useful frame of reference is just

17   to say, let's just look entirely within

18   maintenance. You actually probably need to look at

19   the two things folded together -- well, the three,

20   really: the asset itself, the maintenance approach,

21   and the operations approach. So for me, I would

22   look there first, but other than that -- I mean, we

23   saw no signs of issues with the vehicles during the

24   testing processes, and we ran, you know, like, you

25   know, tens of thousands of kilometres with those

1   vehicles when we were doing the testing. I can't

2   even remember what the number was, but it would

3   have been a large number, probably over 100,000

4   kilometres I wouldn't be at all surprised that we

5   had run with the vehicles, and I didn't see any

6   issues with them in terms of performance that gave

7   us cause for concern. Neither did we see any

8   concerns in terms of the wheel-rail interface, you

9   know, in terms of the way that the vehicles were

10   performing in their interaction with the track.

11   We did have a couple of issues with

12   some dewiring events in the testing process, and

13   that led to us -- I think it was tied up with --

14   and maybe my memory might be a bit sketchy, but I

15   think where de-icing salts were being used on

16   overbridges in close proximity to -- to the

17   railway, we were finding that there was some

18   advanced corrosion of some of the componentry on

19   the overhead wiring structure, so -- and we had a

20   couple of failures of a component called a Parafil,

21   and we modified or we changed the product that we

22   were using, and that seemed to resolve the issue,

23   which is again, you know, just a situational

24   learning thing about, you know, how product -- you

25   know, that's probably an exemplar, really, of how

1 these sort of products need to be understood or

2 these assets need to be understood in their

3 operational context. It's a perfectly acceptable

4 component except for when you put it next to a

5 bridge that's getting de-icing chemicals placed on

6 it, in which case it causes it to corrode at a

7 faster rate than anyone anticipated, so we changed

8 the product, and it was okay.

9   MS. MAINVILLE: Do you have a view as

10 to the political pressure or did you experience

11 anything from the political side of the City that

12 may have impacted the project?

13   MR. HOLLOWAY: Well, there was clearly

14 a lot of pressure to get the job completed, and,

15 you know, that -- that was in part, obviously, a

16 political concern. You know, I think -- you know,

17 just from living in Ottawa at the time and seeing

18 what was being written in the press and what

19 communications were being put out, you know, there

20 was obviously some expectations being set by the

21 City with the -- with the public about what was

22 going to be delivered and when it was going to be

23 delivered, and I'm sure that imposed some pressure

24 on all involved on the City's side in terms of

25 trying to meet those expectations.

1   MS. MAINVILLE: I'll ask my colleague,

2 my cocounsel, if he has any questions, but is there

3 anything that you haven't conveyed already that you

4 think ought to be conveyed?

5   MR. HOLLOWAY: I'll have a think about

6 it while you ask any other questions you've got, if

7 you want.

8   MS. MAINVILLE: Nothing on your end,

9 Anthony?

10   MR. IMBESI: Sorry, I have one note

11 here. Going back to your previous reference about

12 data mapping and -- I believe it was actual testing

13 versus planned testing schedules? Does that --

14   MR. HOLLOWAY: Yeah.

15   MR. IMBESI: -- ring a bell with you?

16 So I guess my question is were there significant

17 differences in what you saw, and do you have any

18 knowledge as to where we could find these reports

19 or these documents, what we would be looking for?

20   MR. HOLLOWAY: Right, okay. So we did

21 see variances in certain places, as you would

22 normally see on any project, right, because, you

23 know, of course we're -- you know, that's the

24 nature of these jobs is that that's how they kind

25 of get progressed is that you have a plan, you try

1   to implement that plan, sometimes you are

2   successful in implementing the plan; sometimes

3   other events, you know, emerge; or you might fail a

4   test and have to repeat. You know, sometimes

5   you -- because again, don't forget we're talking

6   about a large assembly of subsystems, right? So

7   you might find, you know, it test -- it passed

8   these 15 tests but not these 5, and these 5 it

9   failed because the firewall handoff between this

10   packet of data and that packet of data wasn't

11   configured correctly, okay, we've got to go away

12   and put a patch in the firewall or whatever sort of

13   thing, okay, and we'd run the test again but just

14   for the 5 that failed. So that's quite normal.

15   Mostly because we were dealing with

16   this on a day-by-day proposition, these were

17   tracked through a series of -- you know, the visual

18   management process is similar to that used by

19   companies like Toyota or -- it's a kanban process,

20   so you're doing it with live data on whiteboards in

21   a room. So these are not -- you know, there are

22   some trend graphs collected, but the daily progress

23   on that stuff was not really collected in a formal

24   spreadsheet or anything like that, you know, on a

25   daily cycle because we're reviewing it live as a

1   collective and setting the new targets for the next

2   day based on the day's performance.

3   So there will be -- clearly there will

4   be records about how tests were progressed and how

5   they were completed because it all went back to the

6   assurance -- safety assurance argument that was

7   made for the project about why it was safe to

8   operate. But in terms of the day by day, you know,

9   kind of rhythm of what got passed -- what got

10   tested and what got passed or what got replanned,

11   I'm not sure how much of that would be recoverable,

12   but there will be certainly records of when things

13   got completed and signed off, because we had to

14   then declare that to the independent safety

15   advisor.

16   MR. IMBESI: Thank you.

17   MR. HOLLOWAY: I suppose the only other

18   comment from me, just to say, is that, you know --

19   and I think we did talk a little bit about it, but

20   I do think the -- the criticality of cooperation on

21   these projects is -- is not to be underestimated,

22   and, you know, it is something that the -- you

23   know, the sort of zero-sum game type model of

24   contracting, you know, does mitigate against

25   effective cooperation in a number of ways, which is

1   why you will see, in other applications around the

2   world, clients have adopted more of an alliance

3   procurement strategy for large complex assets such

4   as railways like this, and so this is -- I'm in

5   Australia at the moment, and that is a proven --

6   that is the preferred model for delivering, you

7   know, large, complex Bradfield rail assets is

8   through alliance because it promotes the social

9   process of cooperation between client and

10   contractor. So I think that's something to think

11   about.

12   And the other thing I think is where

13   PPPs have worked together, Canada Line being a case

14   in point, it's where all of the elements of the

15   delivery were encompassed under one roof. So you

16   have, you know, the financing, the design, the

17   construction, the testing, commissioning, and the

18   operation and maintenance all in one shop, right?

19   So there's one guiding mind over the top of that

20   forcing all of those interfaces to work

21   effectively. Because in this arrangement we had

22   the lamination between everything except the

23   operator, and the operator was, you know, across a

24   contractual boundary, and then added to the fact

25   that it was a very sophisticated railway, we had a

1   relatively inexperienced operator, and we had a

2   contractual boundary there, and there was a lot of

3   pressure on the job, I don't think those

4   circumstances necessarily were ideal for the best

5   outcome.

6   MS. MAINVILLE: And I think I'm

7   inferring this from your other answers, but you've

8   had other P3 experiences?

9   MR. HOLLOWAY: Correct, yeah. So I've

10   worked on P3s in Australia. Obviously we had some

11   P3s in Canada as well, and I'm working on a P3

12   right now in -- in Brisbane.

13   MS. MAINVILLE: In Brisbane. And did

14   you -- you were not as close to it, perhaps, as

15   RTG, but did you have a view as to the City's

16   consultants that were brought in on the project?

17   MR. HOLLOWAY: Yeah, we had some

18   exposure to some of the consultants, and that

19   was -- that was reasonably -- they were -- they

20   were -- they were pretty good guys. We did -- we

21   did sort of see that, you know, there was obviously

22   consultants tend to dance to the -- the beat of the

23   drum that their engaging client dictates, right?

24   So when we were talking -- we were talking earlier

25   about the prioritization of, you know, simple,

1   complicated, complex, what we did find with the

2   consultants was a kindred spirit in terms of them

3   trying to steer the discussions towards the

4   complex, but over time we did sort of see them

5   gravitating towards some of the -- you know, more

6   of the tertiary issues as well, and whether that

7   was -- I can't speculate as to why that occurred,

8   but certainly the consultant, the external

9   consultants were helpful in terms of getting

10 everyone focussed on the big issues in the times

11 that they were present.

12   MS. MAINVILLE: And you spoke about the

13 complexity of some of the requirements. Were they,

14 to your mind and having been involved in other P3

15 projects, more prescriptive than usual or less --

16 or not entirely performance-based?

17   MR. HOLLOWAY: I -- no, I think there

18 was -- there was a -- I mean, again, you know, just

19 an impression really because it's been a long time

20 since I looked at any of the documentation, but my

21 take on it is that they were reasonably well

22 specified in terms of being more performance-based,

23 so they were more, you know, what and less how,

24 which is what you want as a contractor. I suppose

25 if you -- one observation I do have is if you look

1 at the vehicle specification, I think that was

2 quite prescriptive, and certainly when you

3 benchmark against the vehicle specification we had

4 for Canada Line, which was a -- you know, very high

5 level, very kind of elemental performance-based

6 specification, it was in stark contrast to the one

7 that was provided in -- for the Confederation Line

8 in terms of the vehicle, so I think that was

9 potentially -- that would potentially be something

10 worth looking at. You know, I think over time, as

11 clients engage specialist subconsultants to compile

12 specifications for them, the tendency is for those

13 documents to get bigger and bigger and bigger, and

14 I think that Canada Line was earlier in that

15 process, so it's probably not emblematic of what it

16 looks like in practice now, but it was good

17 practice. If you looked at some of the

18 specifications that I've seen elsewhere in the

19 world, you know, they would be slightly more

20 performance-based and less prescriptive, but, you

21 know, it's -- I didn't think it was -- you know, it

22 wasn't -- doesn't strike me as an outlier anywhere

23 other than in the vehicle spec.

24   MS. MAINVILLE: Okay. Perhaps my last

25 question: Could you speak a bit more about what is

1   different in terms of the alliance-based model that

2   you've described?

3   MR. HOLLOWAY: Yeah. I mean,

4   essentially, with -- so these are -- these projects

5   are heavily intertwined, right? So you've got a

6   complex stakeholder environment; you've got, you

7   know, really complicated things that you're trying

8   to build; you've got political pressures; you've

9   got commercial pressures; you've got lenders;

10   you've got all of these things swirling around.

11   And when you're trying to administrate this through

12   a zero-sum -- you know, someone has to be wrong,

13   you must lose for me to win type model, you know,

14   there's limitations with how practical that is

15   because what you tend to find is, you know, there's

16   a consequential effect, you know, so you kind of

17   go, Well, you're late, and we go, Yeah, but we're

18   late because you didn't give me 'X,' and I'll say,

19   Well, I didn't give you 'X' because you didn't

20   achieve 'Y.' Well, I couldn't achieve 'Y' because

21   you never did 'Z,' so -- you know, and you'd get

22   this chain. And if you're trying to litigate that,

23   small 'L' litigate that, on a progressive basis

24   while you're trying to deliver the job, you're

25   distracting your management effort away from the

1 core, which is trying to manage the critical path

2 and deliver the project.

3   I think clients have come to realize --

4 and it started in the North Sea oil and gas

5 industry where they needed to take large amounts of

6 cost out of the construction process, they said,

7 Look, there's got to be a better way of doing this.

8 Why don't we just incentivize everyone to

9 cooperate? So this involves basically removing

10 some of the cost risk from the contractor. So the

11 contractor still has all their profit and their

12 corporate overhead at risk, but they don't have the

13 cost at risk. And when you remove the threat of

14 cost risk from a contractor, it makes the options

15 for cooperation far more ready, because if all the

16 time you've got the sword of Damocles hanging over

17 your head that, you know, you're going to get

18 absolutely nailed to the wall by your client if

19 you're late or the lender's going to effect these

20 massive damages against you, it's not a great --

21 there's not much oxygen in the room for cooperation

22 to occur. You're just in a -- you're in a very

23 challenging circumstance there, and what alliances

24 do is they remove that tendency by saying, look,

25 your best interests are the same as our best

1 interests, so instead of a win-lose dynamic, it's a

2 win-win or a lose-lose dynamic, we either all win

3 together or we all lose together, and I think the

4 power of those relationships have proven to be

5 extremely successful. The case study in all of

6 this was the CRINE initiative in the North Sea in

7 the late '90s, which took 30 percent out of the

8 cost base and brought, you know, oil and gas

9 platforms online many months ahead of schedule, you

10 know, so there's a well-worn sort of track record

11 for alliance working successfully, but obviously

12 what the client asks -- the bargain the client has

13 to make in all of that is they have to accept a

14 higher risk profile themselves, and that's not

15 acceptable to all clients.

16   MS. MAINVILLE: And on that point, in

17 terms of the geotech risk in this case, you know,

18 of course the risk materialized, but it -- but do

19 you have a view as to whether that risk should have

20 been taken on in the way it was by RTG?

21   MR. HOLLOWAY: I don't have a view on

22 that because it kind of predates my involvement

23 with the job. So you know, by the time I got there

24 and the issues had occurred, we were just dealing

25 with that as a fact, and it didn't really -- I

1   didn't really invest much energy in, you know,

2   trying to forensically analyze whether we should or

3   shouldn't have taken that risk because it didn't

4   matter. You know, the risk profile was the one

5   that we contracted for, and we just had to move on.

6   MS. MAINVILLE: But in terms of, like,

7   who's better placed to address a risk or take on a

8   risk like that, is that something that --

9   MR. HOLLOWAY: Oh, for sure. I mean, I

10   think low-probability, high-impact risks are

11   usually not best placed for the contractor. I

12   mean, that's the reality of it, right, is if you

13   have -- and you know, contractors are all in

14   competition against each other, so typically

15   they'll take on a risk profile which is more

16   aggressive than perhaps they should on the hope

17   that those risks won't materialize; but then on the

18   flip side of it, you should be thinking, well, as a

19   responsible client, should I be trying to transfer

20   that risk to someone who can't really handle it?

21   And clients have the commercial and contractual

22   power to do that, but that doesn't necessarily mean

23   it's the right thing to do.

24   MS. MAINVILLE: Thank you. Anthony, do

25   you have anything else?

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 1                  MR. IMBESI:  I don't.  Thank you.

 2                  MS. MAINVILLE:  That would be it,

 3  Mr. Holloway -- well, actually, unless your counsel

 4  has questions, there's a couple of minutes.

 5                  MR. KILLEY:  I don't, no.  Thanks.

 6                  MS. MAINVILLE:  So that would be it,

 7  then.  And I thank you very much for your time.

 8                  MR. HOLLOWAY:  No problem.  Thanks for

 9  staying late.  All good.

10                  MS. MAINVILLE:  It's easier than early.

11  So thank you.

12                  MR. HOLLOWAY:  Thanks much.  Bye-bye.

13  -- Concluded at 6:29 p.m.

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1   REPORTER'S CERTIFICATE
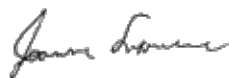
2

3   I, JOANNE A. LAWRENCE, Registered

4   Professional Reporter, certify;

5   That the foregoing proceedings were

6   taken before me at the time and place therein set

7   forth, at which time the witness was put under oath

8   by me;

9   That the testimony of the witness

10 and all objections made at the time of the

11 examination were recorded stenographically by me

12 and were thereafter transcribed;

13   That the foregoing is a true and

14 correct transcript of my shorthand notes so taken.

15

16   Dated this 6th day of April, 2022.

17

18   _[signature]_

19   _____

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23

24

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