Ottawa Light Rail Commission

Roger Schmidt
on Thursday, May 19, 2022

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OTTAWA LIGHT RAIL COMMISSION

OLRT CONSTRUCTOR - ROGER SCHMIDT

MAY 19th, 2022

--- Held via Zoom Videoconferencing, with all participants attending remotely, on the 19th day of MAY, 2022, 1:00 p.m. to 4:00 p.m.

COMMISSION COUNSEL:
Anthony Imbesi & Tara Boghosian: Litigation Counsel Members

PARTICIPANTS:
Roger Schmidt: OLRT Constructor
Mannu Chowdhury: Paliare Roland Rosenberg Rothstein LLP

ALSO PRESENT:
Leila Heckert, Stenographer/Transcriptionist
Alicia Sims, Virtual Technician

INDEX OF EXHIBITS

* * The following is a list of documents undertaken to be produced, items to be followed up, or questions refused. * *

INDEX OF UNDERTAKINGS

The documents to be produced are noted by U/T and appear on the following page/line: 28/17; 28/24; 54/10.

--- Upon commencing at 1:00 p.m.

ROGER SCHMIDT: AFFIRMED.

ANTHONY IMBESI: Mr. Schmidt, my name is Anthony Imbesi. I'm here with my co-counsel Tara Boghosian on behalf of the Commission. I'll start by reading into the record the parameters of today's interview, and then we can get started.

The purpose of today's interview is to obtain your evidence under oath or solemn declaration for use at the Commission's public hearings.

This will be a collaborative interview, such that my co-counsel, Ms. Boghosian, may intervene to ask certain questions. If the time permits, your counsel may ask follow-up questions at the end of this interview.

This interview is being transcribed and the Commission intends to enter this transcript into evidence at the Commission's public hearings either at the hearings or by way of procedural order before the hearing is commenced.

The transcript will be posted to the

Commission's public website along with any corrections made to it after it is entered into evidence.

The transcript, along with any corrections later made to it, will also be shared with the Commission's participants and their counsel on a confidential basis before being entered into evidence.

You will be given the opportunity to review your transcript and correct any typos or other errors before the transcript is shared with the participants or entered into evidence. Any non-typographical corrections made will be appended to the transcript.

Pursuant to section 33(6) of the Public Inquiries Act 2009, a witness at an inquiry shall be deemed to have objected to answer any question asked him or her upon the ground that his or her answer may tend to incriminate the witness or may tend to establish his or her liability to civil proceedings at the instance of the Crown or of any person.

And no answer given by a witness at an inquiry shall be used or be receivable in evidence against him or her in any trial or

other proceedings against him or her thereafter taking place, other than a prosecution for perjury in giving such evidence.

As required by section 33(7) of that Act, you are hereby advised that you have the right to object to answer any question under section 5 of the Canada Evidence Act.

So with that out of the way, I'll just get you to start by explaining for us at a high level what role was in Stage II of it was LRT. Or excuse me, Stage I of Ottawa's LRT.

ROGER SCHMIDT: Well, I was the technical director for the design build contractor for OLRTC. I was in that role from February -- late February 2013 until roughly end of May 2018.

ANTHONY IMBESI: And you've provided us with a CV, and I will share my screen to put that up. Can you see what's on my screen?

ROGER SCHMIDT: Not yet, no.

ANTHONY IMBESI: One moment. Are you able to see what's on my screen?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: I can scroll through it if you'd like.

Do you recognize this as a copy of the CV that you've provided to us?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: Thank you. And so --

ROGER SCHMIDT: I think --

ANTHONY IMBESI: I'm sorry. Go ahead.

ROGER SCHMIDT: Yeah. That's the copy. That looks like the copy I gave to you, yes.

ANTHONY IMBESI: And so are you currently with Emplex Consulting?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And were you always involved in the project through Emplex Consulting?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And so can you just explain to us what is Emplex Consulting?

ROGER SCHMIDT: Emplex Consulting is a firm that I formed in 2000 to pursue engineering and management work that was there at the time in Vancouver, and was -- suited my skill set and also provided -- filled a niche in the industry.

And it's a small company. Predominately myself. At times there's been one

or two others. And my niche has been design management and technical management. So the tagline is technical management transportation industry.

ANTHONY IMBESI: So in respect of the transportation industry, is that all rail or predominantly rail?

ROGER SCHMIDT: It's been probably majority rail, but I have done highway projects, as well.

ANTHONY IMBESI: And it's set out in your CV, which we will make an exhibit, just so that evidence is there as to your experience.

But could you just give us a brief explanation of your rail transit experience prior to becoming involved in Ottawa's LRT?

ROGER SCHMIDT: Yeah. I was involved in the -- a number of rail projects in Vancouver. And in Calgary, I was the owners' engineers' representative on the Millennium Line responsible for the Burnaby and Vancouver segments initially, and then the Vancouver segment going forward for, you know, design development tasks, city interface task, and other -- I was actually an officer and director

of RTP 2000, which was the entity set up to deliver that system to the province.

I was the technical director for a study that was looking at timing for the Canada Line, whether it should be built in 2010 before the Olympics, or extended to 2021. That was a multiagency study that included the airport YVR City Vancouver, GVR (indiscernible), TransLink.

(Reporter seeks clarification.)

ROGER SCHMIDT: YVR, sorry. The airport YVR, that's the acronym for Vancouver Airport. City Vancouver, I mentioned, TransLink, GVRD.

There was eight partner agencies all basically representing various levels of government. And I was the technical director for that study. That was a technical economic study.

And I was the structural design manager for the Canada Line once it got approved and became -- in stages of development. So that was working from the design build contractor. Eight kilometres of elevated guideway, two major river crossings, bridges, first extradosed bridge structure in North America.

And then I was design manager for the Calgary West LRT having responsibility during that term for stations and systems.

I was involved in the bid preparation or the bid finalization for the Toronto airport rail link for SNC, which was development stage project. And also -- well, in a related P3, was technical director for the South Fraser perimeter road which was 40 kilometres of new highway in Vancouver over soft soils and with various challenges, including archaeological digs and public consultation.

So that's a few of the items from my resume that were prior to the Confederation Line.

ANTHONY IMBESI: So it sounds like from what you've just described, your involvement was primarily from a technical or design perspective?

ROGER SCHMIDT: Well, in all those projects -- well, I would not say that exclusively, no, actually because particularly maybe for the Millennium Line and also for the RAVP study, the timing study of the Canada Line, that had a number of issues that were beyond the

scope of purely technical.

ANTHONY IMBESI: And you had -- you just alluded to this in what you were just saying, but I take it you have previous P3 experience as well?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: How many P3 projects have you worked on?

ROGER SCHMIDT: I guess three. Well, actually, four that I can recall right now, possibly more.

ANTHONY IMBESI: And in the experience that you had prior to or was LRT, did any of your involvement, did it deal with the integration of the various different systems? What was your particular experience in that respect?

ROGER SCHMIDT: Well, the Calgary was on the early stages of the integration, Calgary West LRT, but not the final stages. So yes, to some extent, but not to the extent that it was -- that I had the responsibility of the Confederation Line.

ANTHONY IMBESI: So we will turn to your role then for the Confederation Line. So

you indicated you were working for OLRTC and that you were the technical director.

So could you just give us a high-level what the role of the technical director was for OLRTC and your general responsibilities?

ROGER SCHMIDT: Well, I was -- responsibility for most of the technical aspects, design development, survey control, document control, you know, coordination of the design, you know, ensuring -- there's three main designs.

There was Thales, there was our engineering joint venture, and there was Alstom. I did not have responsibility for the Alstom development, but I did have responsibility for the signalling interface to the vehicle and the Thales signalling development.

So, you know, design delivery to the City and eventual development of the design to system closure and including development of the testing and commissioning program.

ANTHONY IMBESI: So what would have been -- so within that role, what was your level of oversight and responsibility for the systems integration itself?

ROGER SCHMIDT: Well, my -- I guess when you say "systems integration", what are you referring to there?

ANTHONY IMBESI: I mean, I was speaking generally, but I think for the purposes of this, I'm most interested in signalling system, the rolling stock, and any elements that generally relate to those things.

ROGER SCHMIDT: Okay. Well, our -- my role was to, you know, make sure that the system's design and development was carried out, you know, with full transparency between as much as possible between the parties, that there was clear communication, that known issues were resolved, that the experts on both sides were cognizant of the issues, that management on either side was informed of roadblocks or, you know, anything that would prevent, you know, clear development and knowledge of the technical issues.

ANTHONY IMBESI: So just so I have a full understanding then of what your role was as it related to the integration component.

I understand that for a period of time, I believe starting in 2014, the OLRTC

employed a gentleman by the name of Jacques Bergeron as the director of systems integration?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: So what would have been the primary distinction between your roles when talking about systems integration in particular?

ROGER SCHMIDT: Well, I mean, I had a number of discipline leads reporting to me for various aspects of the technical scope. And Jacques was a senior individual who had a lot of experience, but -- and you could say that we were colleagues.

But in the structure, he reported to me on status of the Thales to Alstom integration, and the status of the Thales development, design development.

ANTHONY IMBESI: So in the technical hierarchy, he reported to you in that respect?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And who did you report to, or what level of position did you report to?

ROGER SCHMIDT: I reported to the deputy project director.

ANTHONY IMBESI: And so you had mentioned, as I understand it, that you didn't have a responsibility for the rolling stock, that your responsibility was more related to the integration than of the signalling system and whatever other components with the rolling stock?

ROGER SCHMIDT: Right.

ANTHONY IMBESI: And so in terms of these systems integration responsibilities -- oh, it was OLRTC that had the ultimate responsibility for systems integration, correct?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And what role did the engineering joint venture play in the systems integration piece?

ROGER SCHMIDT: Well, the engineering joint venture needed to provide systems design and suitable systems material and, you know, information to allow the systems to be assembled and to be connected and tested.

ANTHONY IMBESI: And was there ever an issue or dispute as between the engineering joint venture and the OLRTC as to the extent of each parties' role and responsibility with

respect to systems integration?

ROGER SCHMIDT: Yes, there was.

ANTHONY IMBESI: And I do understand that the nature of the dispute resolution may be subject to a confidentially claim. But just at a high-level from your experience on the project, what was that in relation to, this issue that you had mentioned?

ROGER SCHMIDT: Are you talking about which disciplines? Can you clarify that question? What...

ANTHONY IMBESI: Sure. I understand from what you'd said that at some point there was some nature of conflict or dispute as between the engineering joint venture and OLRTC, and particularly I'm talking about systems integration.

So I suppose I'm just wondering from you what was the nature of that conflict?

ROGER SCHMIDT: The nature of the conflict was regarding the ability for the -- the traceability of the test plans.

ANTHONY IMBESI: Okay. Would those be test plans in respect of the signalling and rolling stock?

ROGER SCHMIDT: Most of the signalling and rolling stock test plans were done by Thales. So Thales would have created the bulk of the system integration or site acceptance test or PICO test for their product, and whether it be, you know, land-based product or wayside product or vehicle product, Thales would do their own tests.

The test that would involve EJV were, if some of that would be interfacing with some of the equipment that the EJV had specified like guideway intrusion, for example.

ANTHONY IMBESI: So some of the other infrastructure then?

ROGER SCHMIDT: Yeah. For the most part, the Thales system interfaced primarily with the vehicle system. And there were some areas where the Thales system did interface with some other wayside. But that was more of a secondary feature.

ANTHONY IMBESI: And so I believe you had indicated that you joined the project in February, sometime in February of 2013. And I think you mentioned late February?

ROGER SCHMIDT: Yes. That's correct.

ANTHONY IMBESI: So what was the status of the project then when you arrived?

ROGER SCHMIDT: It was just awarded, you know, maybe a week, it was a week or so into award, maybe two weeks past the award date, the formal award date.

ANTHONY IMBESI: So at that time, you were there from the outset of the project award essentially or fairly close.

How did you view OLRTC's approach to systems integration generally throughout your time on the project?

ROGER SCHMIDT: Every project is different. I think it's -- I think that we -- I considered in the initial stages that it was a reasonable approach from what was intended.

ANTHONY IMBESI: And so you mentioned that you considered in the initial stage, are you saying that you changed at all over time?

ROGER SCHMIDT: Possibly with some aspects, you know, there was definitions of the word "integration" that came into play that, you know, affected my understanding of how the integration was going to be done.

ANTHONY IMBESI: And is that as

between OLRTC and the engineering joint venture? Is that what you are referring to?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: But just in terms generally, you know, in terms of the planning and resources that had been done with respect to systems integration from the outset of the project, did you feel that that was sufficient?

ROGER SCHMIDT: At the outset, no. I felt like we needed more resources and, you know, we subsequently obtained more resources on our side, on the OLRTC side to facilitate that integration.

ANTHONY IMBESI: And when you're talking about resources, are you talking about personnel?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: The number of personnel, the experience of the personnel? What specifically are you referring to?

ROGER SCHMIDT: Yeah, both, the number and experience of personnel.

ANTHONY IMBESI: And so we'd spoke already about Mr. Bergeron. So he was someone that was brought on in, sometime in 2014 to deal

with the systems integration?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And was OLRTC looking to have someone fill the position of director of systems integration prior to the hiring of Jacques Bergeron?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: Is there a reason why that, as I understand it, that position hadn't been filled prior to his involvement?

ROGER SCHMIDT: Suitable candidates, you know. Look, it's not simple to find a suitable candidate.

ANTHONY IMBESI: So was he one of the main aspects then that led you to just say that the resources ultimately improved as the project progressed?

ROGER SCHMIDT: Well, he hired people in his group. There was also other related staff to system integration. We had a safety manager, Brian McDonnell. We had other people come on board, John Selke and others as the project progressed. Some of those weren't initially on the org chart, but they were deemed necessary, so they were added.

ANTHONY IMBESI: So I take it then, it would have been preferred to have someone in Mr. Bergeron's place earlier on in the project then?

ROGER SCHMIDT: I didn't see -- I didn't see his timing as being late. I mean, I saw a need identified and -- or we hired really the first available candidate that was suitable.

ANTHONY IMBESI: And sorry. I'd like to talk to you about some of the system. So starting with the Thales signalling system, is there anything unique about the particular Thales signalling system that was utilized on the project?

ROGER SCHMIDT: Well, I think it's a common product for Thales, but I think it was unique in that -- well, it was unique in that it hadn't been installed in that particular vehicle before, so that vehicle hadn't been automatically controlled before.

ANTHONY IMBESI: So it wasn't a unique or new system, but it was new in the sense of being integrated with that specific vehicle?

ROGER SCHMIDT: Right.

ANTHONY IMBESI: And so turning to

that -- turning to the vehicle then, did you have any view in your role as to whether the Citadis Spirit was a proven LRV vehicle?

ROGER SCHMIDT: Well, I understood that it was, and that, you know, I mean, that work would have been done before I got there.

But there was evidence, in my understanding, from its usage in Europe and Northern Europe and, yeah, that it was Citadis proven, yeah.

ANTHONY IMBESI: And I appreciate what you'd said earlier in terms of, you know, you didn't have the direct responsibility for the rolling stock.

But did you get an appreciation of any modifications that needed to be made to the pre-existing Citadis model to meet the requirements of the Ottawa project?

ROGER SCHMIDT: Well, I wasn't -- no, I never did any comparison of the previous model to the North America model. But the North American model had a complete new set of suppliers for primary components such as doors and brakes and other things of that nature. So it was quite a few unique aspects just because

of that.

ANTHONY IMBESI: And do you know whether this project was the first time that a CBTC system was integrated with a low-flow floor LRV?

ROGER SCHMIDT: No, I'm not aware if there's -- I'm not aware if there's other low floors that would have...

ANTHONY IMBESI: With the fact that the Citadis Spirit is a low floor LRV, does that raise any technical issues or challenges that need to be overcome in terms of integrating CBTC system with the LRV?

ROGER SCHMIDT: Well, the low floor -- we did have challenges with placing equipment. We needed to find room for, you know, the vehicle onboard computer and other things that were necessary to be placed.

The room found within the vehicle for these elements, and the low floor vehicle has not much spare room. There's room above. Most of the equipment on a low floor vehicle is put on the roof.

But, you know, other areas and zones are kind of in a premium in terms of space. And

that was one aspect that was a challenge although we did make it work.

But in terms of incorporating CBTC system into a low floor, you know, I -- there was some challenges on the axle counter but nothing insurmountable.

I mean low floor is primary for pedestrian access at street level and, you know...

ANTHONY IMBESI: You mentioned space requirements, which I understand. Can you just explain for us you mentioned the axle counter. What is that?

ROGER SCHMIDT: It's a -- the CBTC system keeps track of the vehicle's speed by everything is redundant by two or three methods and one of the methods is by counting the revolutions of the axle and there's a counter on there.

And there was quite a bit of discussion on Alstom's, you know, equipment and Thales, you know, being happy with it or coming to terms with it. But eventually, they agreed on, you know, the size, the number of teeth, and things like that.

ANTHONY IMBESI: And you see I still have your CV up on the screen. So I'll take that down, if we could mark that as Exhibit 1 to the interview today.

EXHIBIT NO. 1: Curriculum Vitae of Roger Schmidt.

ANTHONY IMBESI: And so we just talked about some issues that were addressed with respect to the CBTC system and the particular rolling stock.

So at the outset of the project when you first became involved in the role were there any concerns or issues related to the integration of the rolling stock and signalling system, you know, that you became aware fairly quickly that needed to be worked through beyond what we've just spoken about?

ROGER SCHMIDT: Well, my first -- my concern in the early stages was who the operator was and the involvement of the operator. And I didn't find it clear in the documents.

I felt that we needed specific operator input from the people that were eventually going to be running the system, and spent quite a bit of effort to try to clarify

that which I think -- you know, the system --

The system, the railway system is actually a system of components, electrical and human operators and procedures. So the system involves people and procedures as well. And that was my early focus and the biggest, sort of, gap that I saw initially.

ANTHONY IMBESI: So I do have a few follow-up questions with respect to that. So the biggest gap that you are referring to, is that the lack of input from the operator in to certain aspects that you thought would be important?

ROGER SCHMIDT: Well, the lack of identification of who the operator was and who the operator was represented by, and then who the operator was eventually going to be because some operating -- some operating features are preferential, I mean, because someone, you know, prefers it that way.

And we wanted to get -- I wanted to get those things clarified as soon as possible. I wanted to start to speak face to face with the entity, the person, the group that was going to operate to say, you know, how many staff, you

know, what are you -- how are you -- what's your preferences in terms of running this thing.

ANTHONY IMBESI: And so you would be talking, I take it in this case, the operator would be OC Transpo?

ROGER SCHMIDT: We didn't know that at that point.

ANTHONY IMBESI: Who --

ROGER SCHMIDT: I wrote a significant White paper with the title "Who is the operator?" And we presented that to the City and I believe the works committee, the technical committee, we had a special meeting. And they responded with, you know, give us a list of questions that you want the operator to answer.

So they reduced that request to, you know, a list of questions. But anyways, to me, it was more than, you know, answer these questions. It was like, who is the person, right? Who is the entity?

And later on they described it -- later on, they identified it as OCT, so it was going to be OCT, so that came later. And then a fair a while later, there was an individual installed as, you know, the operations manager

and that helped things considerably.

ANTHONY IMBESI: Who was this individual that was installed?

ROGER SCHMIDT: Oh, I was trying to remember -- Jim. He's from BC. But his name slips my mind right now.

ANTHONY IMBESI: Jim something?

ROGER SCHMIDT: Yep.

ANTHONY IMBESI: Counsel, do you know whether the White paper has been produced?

MANNU CHOWDHURY: I am not aware, Mr. Imbesi. But we can certainly look into it and look into producing it.

ANTHONY IMBESI: I just ask for an undertaking to either identify it if it has been produced or to produce a copy.

U/T MANNU CHOWDHURY: Yes. We will provide that undertaking.

ANTHONY IMBESI: And also if Mr. Schmidt is able to identify the last name of Jim that he just referenced in terms of the person that was installed for OC Transpo, that would be helpful as well.

U/T MANNU CHOWDHURY: Certainly, we can look into both.

ANTHONY IMBESI: Thank you. I'm sorry, Mr. Schmidt, I cut you off there as I was finishing.

ROGER SCHMIDT: Well, I don't know that that White paper was ever posted to -- I said it was an internal one to OLRTC.

ANTHONY IMBESI: And so you've talk generally about input that you feel would have been important to have from the operator.

Can you just give us some examples of what specifics would have been useful to you during that period of time, and I know you mentioned the number of operators.

ROGER SCHMIDT: Well, you know, even the role of the driver, the level of presence at the stations. Later on in the process, it was communicated to us that the driver was fundamental and was to be considered a safety critical feature.

Like, they wanted drivers to not be, sort of, a redundant feature, but made a significant part of the system. And, you know, that's good information to know as early as possible which we didn't in the beginning.

Yeah, so there's a number of things,

you know, I guess those are two that I can think of.

ANTHONY IMBESI: So just taking, for example, the role of the operator, and I'm just trying to understand.

So how would that have changed OLRTC's approach or your approach in your role? What would that information have assisted you with?

ROGER SCHMIDT: Well, I think that we were -- we were trying to -- I was trying to start with the end in mind. Like, you know, begin the project with the end in mind, and trying to identify the critical parameters, nail them down so that when we were looking to eventual handover that we were not surprising anybody.

And, you know, if the operator, for example, one of the -- you know, we had various crossovers, and those crossovers can affect the way the system is operated. If the operator had, for example, not been happy with those, then we may have had to adjust them or remove them. And I wanted that finalized before we started finalizing our design.

ANTHONY IMBESI: And just for me, what

is a crossover?

ROGER SCHMIDT: It's a switch. You know, it's a way for moving a train from one side of the tracks to the other side of the track.

ANTHONY IMBESI: So that could potentially be some design implications --

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: -- with the desires or input from the operator?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And so you had alluded to OC Transpo eventually becoming more involved in that process and the installation of Jim in that position.

Do you recall when approximately that would have been?

ROGER SCHMIDT: Not exactly. But, you know, I think past -- maybe past the halfway point, so not until about at least two and half years in from my five-year term.

ANTHONY IMBESI: And once OC Transpo did become more involved in that respect, what was your view on their level of knowledge and experience with this type of system?

ROGER SCHMIDT: Well, actually, I'm recalling now that they did, sort of, install -- before Jim, they had a couple leads, like OCT leads who were identified as kind of the key representative of the operations group.

But they weren't that knowledgeable. They were -- you know, of LRT issues. They were knowledgeable about OCT as an organization and about staffing and things, but not about LRT issues.

So it wasn't really until Jim was installed that there was a knowledgeable element on the rules and procedures that were preferred. You know, how they intended to operate the system.

ANTHONY IMBESI: And so once they became more involved, did you feel that they were able to give you the level of information that you required at that point in time?

ROGER SCHMIDT: Well, we -- for example, we had written a complete set of rules and procedures and OCT took them and customized them, and made them their own and almost -- probably edited every one to some significant degree.

So this is what I expected from the beginning that they were going to put their stamp on things and I wanted it to be sooner rather than later.

ANTHONY IMBESI: And when you're talking about the rules and procedures, are those operational rules --

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: -- rules and procedures?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: So for the operation of the vehicles?

ROGER SCHMIDT: Yes. And this is -- you know, like I mentioned, the system, the system is a combination of electronic and mechanical and human actions, right? So the rules and procedures provide boundaries around the human actions so that they are consistent with the safe and operation of the system.

So they're quite important and fundamental, you know, to the whole working of the thing.

ANTHONY IMBESI: Right. And as you said that that might dictate some design

requirements?

ROGER SCHMIDT: Yes. In the end -- in the end, you know, a problem, let's say, can be mitigated by a barrier or electronic monitor or an adjustment to a procedure. There's a number of ways to resolve issues.

ANTHONY IMBESI: And do you recall -- so speaking of some of those issues then that may have arisen as a result of the potential late delivery of some of this information, do you recall what any implications may have been from that in any particular instances?

ROGER SCHMIDT: Well, I think that -- I can't recall specifics in terms of anything that was significantly changed. There was some responses like to the guideway intrusion that were iterated and, you know, took longer to complete.

But, you know, those -- those are things that need input and discussion. And, you know, the conclusions that we came to on those responses and the development that we made on that, I think was good and solid, so much so that I've seen it used on subsequent projects.

So, you know, some of the -- some of

the -- the struggle with the newness on OLRTC has been, you know, created things that are being used regularly in the industry now.

ANTHONY IMBESI: What specifically?

ROGER SCHMIDT: Well, I'm just thinking about a procedure and a functionality for train response to guideway intrusion, for example, which is a complicated, sort of, human train control semiautomatic driver vehicle interaction.

So the process that we set up that Jacques worked with that Thales and Alstom incorporated was -- and that OLRTC had, you know, the operator had input into.

ANTHONY IMBESI: And so you mentioned because of the newness of the system, so what specifically, and I know we talked about the Thales system not really being new necessarily.

So what is it about this Ottawa system when you're referring to newness?

ROGER SCHMIDT: Well, I think the low floor, you mentioned that before, and maybe my memory is just tweaking. But there was concerns that the low floor, the low platforms would be more encouraging and enticing for people to step

off the platform into the guideway.

And the guideway intrusion system had to account for that and to do it in ways that -- you know, I don't know if it's completely new, but it was new to the project participants. A lot of which had quite a bit of experience in the North American LRT field. So it was novel in that sense.

ANTHONY IMBESI: So is that because it was a lower floor that there might be more likelihood to step between the cab and the platform?

ROGER SCHMIDT: Well, no. If you drop your phone, if you're on the platform and you drop your phone, and if you're in Toronto, for example and it's a 2-foot drop to the rail, you might just say, Well, I'm going to get another one.

But if it's only 8 inches from the platform to the rail, as it is in Ottawa, you're more tempted to go in there and grab it, and then, you know, you'll get stuck and suddenly you are trapped in there, and it's a potential safety incident, right?

ANTHONY IMBESI: I see. So it's the

potential to go in the track area when the train is not there at that moment?

ROGER SCHMIDT: Yes, that's right.

ANTHONY IMBESI: So we talked about, you know, some concerns or focus that you had early in the project about the integration. And I'm talking particularly about the rolling stock and the signalling system, and we discussed a few things that were top of mind for you then.

And then as the project progressed, were there any challenges that arose with respect to the integration of the signalling system and the rolling stock? And I'm talking about anything that's of relative significance.

ROGER SCHMIDT: I think that, you know, the challenges that were faced were really those that could be expected from trying to amalgamate to sophisticated and, you know, complicated systems.

Like, the train control system, you know, when the train control system sends a command to brake, for example, it doesn't brake the train. It sends a signal to the train's computer system, the TCMS, as to say, Now I want the train's computer system to brake the train,

so it's like the interface of two systems.

And, you know, a lot of -- you know, as you could probably imagine, the testing reveals some problems, as it's supposed to, and there's software updates.

And then the software updates create new interfaces and it's just -- it's an ongoing time-consuming challenge to get the systems to, you know -- in spite of the advanced work on all the cabling and the connections and the equipment, there's just a necessary amount of time and struggle to get the systems themselves and the software to interact seamlessly.

So that we experienced definitely. We experienced maybe more time than we wanted, but not necessarily more time than would be expected for this type of integration.

ANTHONY IMBESI: And was there anything about the vehicle requirements for this project that created any of those integration challenges that needed to be overcome?

ROGER SCHMIDT: Well, there was -- there were not necessarily the vehicle requirements, but I think the rigidity of the reviewers. I think there was a lot of -- I know

from what people reported to me that there was a lot of time spent on answering reviewers' questions.

So in that sense, it wasn't really a partnership to solve the overall challenge. It was sort of a compliance enforcement relationship that was a distraction.

You know, like, so that -- I mean -- that's my recollection.

ANTHONY IMBESI: So who are you talking about when you speak about the reviewers?

ROGER SCHMIDT: The owners' engineer hired by the City.

ANTHONY IMBESI: That would be Capital Transit Partners?

ROGER SCHMIDT: Well, and I think for the vehicle particularly was STV.

ANTHONY IMBESI: STV. Okay. And so when you're speaking of the rigidity of the process, are you suggesting that they were taking, you know, more of a compliance based approach, you know, check off whether you've met these certain requirements as opposed to a more holistic approach of how do we solve these

technical challenges?

ROGER SCHMIDT: Yes. And it was, you know, very rigid and very prescriptive. And the one that comes to mind that I remember is the PA prescribed weathering steel for the vehicle.

And if you are familiar with weathering steel, it's this brown, dirty, scaly stuff that they use for bridges that, you know, when it reacts with water, it creates this crusting scale that stays on the steel, and then you don't need to paint it. The scale, kind of, performs this protective layer and that's why it's called "weathering steel" it just kind of weathers naturally.

But hasn't been used -- I was astounded to see it was specified for vehicles and Paul Tetrault, you know, it was used on like, 20 years ago but massive regret and disappointment. It was a complete failure.

But spent hours and number of meetings trying to get that requirement removed, and talking about equivalencies to that requirement, which, in my mind, was a little nonsensical because if it's not a suitable product, then you don't want an equivalent, right? You want

something different or better.

But that's maybe an extreme example. But there was just quite a few other examples of time -- you know, and you have a limited amount of time on these project. And when you're spending a lot of time arguing about these issues that are either of secondary importance or some of them are trivial, you take time from your more important tasks.

ANTHONY IMBESI: And I understand that the steel was ultimately switched with another project, correct?

ROGER SCHMIDT: It was -- no. I wouldn't say it that way. I would say the steel that was intended to be used was used from the beginning and the requirement was removed. The requirement that never made sense was eventually stricken or substituted.

But I think if you talk to the vehicle supplier, they'd say that they were using the steel they used from the beginning.

ANTHONY IMBESI: Right. Just which wasn't that type of steel that was specified.

ROGER SCHMIDT: Right.

ANTHONY IMBESI: And so in terms of

the implications of the rigidity of this review process, I think you talked, it took up resources.

Did it cause delays to the design and production of the vehicles, or any other component that they were looking in?

ROGER SCHMIDT: Well, that's hard to quantify. But I would say that, you know, in as much as production can't proceed in earnest until design is finalized, and that process tended to -- that extended an onerous review process tended to extend the finalization of design. I would say yes, it did have an effect.

And I think there is bigger effect of just basically distraction. You know, like, when the client -- the client is always important and the person that's paying the bills has influence.

And when people go home at the end of the week and they feel like they've satisfied the most important person every week, they feel satisfied. But, you know, when that process takes up all the air in the room or all the space on the shelf, it has unintended consequences as well, right?

ANTHONY IMBESI: Right. So you're saying that effort had to be focused on that aspect of things when it could've been better served dealing with the rest of the project?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And so you became involved in February 2013. So I take it you had no involvement in the negotiation providing the Alstom or Thales contracts?

ROGER SCHMIDT: No.

ANTHONY IMBESI: Would you be familiar with both of those contracts or would have been at the time?

ROGER SCHMIDT: I became familiar with them, yes, they were -- I -- I read them both.

ANTHONY IMBESI: And so as the project unfolded, were there ever any concerns or issues with respect to the alignment of the two contracts? I mean, I'm talking about timelines for deliverables, disputes as to the scope of what was required from each subcontractor, anything of that nature?

ROGER SCHMIDT: Yes. I mean, timelines -- you know, timelines that were assumed at the bid didn't materialize as

planned, and the schedule needed to be harmonized.

ANTHONY IMBESI: And so particularly what comes to mind is, as I understand it, the Alstom subcontract required a finalized CBTC specification by Thales by, I believe, it was April of 2013. Do you have a recollection similar to that?

ROGER SCHMIDT: Yes. I don't know the exact -- I can't recall the exact dates. But there were numerous requirements of that nature, yes.

ANTHONY IMBESI: Would a requirement like that where a finalized specification was required a few months into the project, is that something that's reasonable or possible in your experience?

ROGER SCHMIDT: In my experience, it's not very reasonable. And when things like that are not reasonable in a contract, they don't tend to hold up very well. So they're negotiated and they're improved.

ANTHONY IMBESI: And so why is it then from, you know, a technical standpoint as to why that isn't reasonable to have available, a

finalized specification at that point in time?

ROGER SCHMIDT: There was just development work that has to be done. There's a coordination. I'm not aware of how much of the vehicle and the details of the vehicle that, you know, one party that Thales was aware of, and it takes time to -- specifications are the detail part, right?

That's when you know everything enough to supply all its parameters and its performance limits and, you know, you need to understand quite a bit about its interaction and it's usage and the environment, the operational environment before you get there, right?

ANTHONY IMBESI: And just at a high level then, what would Thales need to know about the Alstom vehicle in order to get to the point where they could prepare a finalized or close to a finalized specification? What are the components that they are looking forward to implement into their design, into their specification?

ROGER SCHMIDT: Well, I'm not going to be exhaustive. But I don't think, you know -- but basically they need to know acceleration

curves, braking curves; they need to know geometry; they need to know where the equipment is going to fit; they need to know how supply for their equipment in the vehicle; they need to know the response, the intended response in the cab. I mean their Thales system is a big part of what the driver sees in the cab.

So when you take all those together, there needs to be a degree of finalization of the large-use system design, there needs to be a look at the human factors, the driver, and also quite a bit of the vehicle development, right?

ANTHONY IMBESI: And, so do you recall at what point in time it would have gotten to that level on this project?

ROGER SCHMIDT: Well, maybe a year, a year and a half in. I'm just, sort of, guessing. But, you know, often these things are done in a more collaborative approach where you say this is what I need critically to finalize this software build, and the rest can wait.

Whereas, you know, the one supplier might say, I want it all at once just because that's simple and easy to write down as a requirement. But the reality is more of a

collaborative pace development.

ANTHONY IMBESI: And how did you view from your position the relationship and interaction between Alstom and Thales?

ROGER SCHMIDT: It was formal and guarded, but it was rigorous and it was professional and well-managed. And, you know, there were occasional flares of personality, but those were rare. And I think it was, for the most part, it was very formal and structured.

ANTHONY IMBESI: So you mention that it was a guarded.

What was your sense of why that was?

ROGER SCHMIDT: Well, initial reluctance to share full plans because they're in the same business. I mean, Alstom has a signalling division, and Thales is seen as a competitor.

I'm reading their minds there, so but, you know, I suspect that's the reason.

ANTHONY IMBESI: And so you've explained how you perceive the relationship.

Did you get the sense that there was that level of collaboration that you mentioned is required in that circumstance?

ROGER SCHMIDT: Yes, I did. And I think it's -- when engineers get involved and when they are facilitated by someone who is clearly working towards a goal, I believe Jacques was that day, they tend to be problem solvers and get it done.

ANTHONY IMBESI: And so within OLRTC, how were the technical aspects of the Thales and Alstom subcontracts managed?

ROGER SCHMIDT: We had -- well, Jacques and his staff had regular meetings. I believe it was weekly. And they had punch lists of items that were either not yet resolved or becoming stubborn.

And, you know, if there was, you know, particularly difficult issue, they would hold specific meetings to resolve it. They would try to overcome communication hurdles due to, you know, remote locations or with even just, you know, corporate cultures trying to get beyond, you know, difficulties related to that.

ANTHONY IMBESI: And those regular meetings that you mentioned, would those be interface meetings?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And would you have had any involvement in that or would that be left to Jacques and his team?

ROGER SCHMIDT: I occasionally attended them when I had time and just to see what was going on. But I was more of a secondary participant. It was Jacques leading on that.

ANTHONY IMBESI: And so how would those interface meetings work in practice?

ROGER SCHMIDT: They would either be attending in person or one party would be dialing in if necessary and they would be tackling a topic whether it was layout of train lines and connection of devices or software issues or who knows what else.

And they would use it as a working meeting to resolve it. And if not, they would table it as an issue that needed to be tracked for future resolution.

ANTHONY IMBESI: And so any decisions that were made to overcome these issues that they were dealing with, how would that be reflected in practice following meetings? Is it expected -- was it expected from OLRTC that

there would be updated formal ICDs, or another formal document that would be submitted to reflect what had been discussed and agreed upon at the meeting, or how would that work in practice?

ROGER SCHMIDT: Submitted to who? Sorry.

ANTHONY IMBESI: Would OLRTC be expecting to receive formalized documents, documenting changes that were agreed upon or anything of that nature, the mechanisms for dealing with these issues.

How were these decisions implemented is what I'm driving at?

ROGER SCHMIDT: Well, I -- we did have a change control board and talked about issues that had change effects that were multi-disciplined.

But I, you know -- for the most part it was between Alstom and Thales that was between Jacques. And we also had a contract administrator for both of them. So they would have regular communication and correspondence with the parties through the contract administrator.

ANTHONY IMBESI: Would that be to deal with the commercial aspects of the contract?

ROGER SCHMIDT: Yes. Well, that was to methodically deal with contract administration. And that, I think, was scheduled. It wasn't just commercial, it was scheduled, it was unresolved technical items. If they needed to be escalated to that level.

ANTHONY IMBESI: And were there any times during the project where you felt that these issues weren't overcome as quickly as they should have been as between Thales and Alstom?

ROGER SCHMIDT: None that I can think of, no.

ANTHONY IMBESI: So in terms of the project, the testing and commissioning, I understand from your CV, it indicates that you established the testing and commissioning program.

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: So can you just explain to us what that means?

ROGER SCHMIDT: Well, testing and commissioning is a fairly complex period of the project and it involves a number of aspects.

And one of it is basically temporary operations so you need to set up an operations environment within a construction zone with people that are largely used to construction procedures like, you know, pouring cement or laying rail.

Now they have to become familiar with railway operations, even though it's a temporary railway operation, it still is -- it's like a -- it is a railway, so you are running trains, you are needing staff, you're needing drivers, you are needing a control room, you're needing temporary operational procedures.

So there's that aspect. And then there's also the aspect of arranging the tests and the equipment to do the tests, the schedule for the tests, the personnel, strategy, what's the sequence that you are going to do the tests in.

And then there's just basically the, usually, fairly mundane aspects of performing a test as you get, you know, you get a test document and you hook up the electrodes or whatever you're doing, and you record the results.

But then you also need test review

panel if there's tests that fail, you know, or someone to review the test results. So all that is part of the testing commissioning, sort of, program, and that's what I worked to establish.

So hire a testing commissioning manager. He started to facilitate a team, he got equipment onboard, we worked with OCT to do staff training, driver training, to develop temporary operations. We developed -- we established a temporary operations committee.

Safety-wise, you know, it can be a dangerous time, too. I mean, often in the construction period that testing commissioning is where there is safety incidents, sometimes fatal.

So all that stuff is what is -- what I worked to establish and developed for OLRTC.

ANTHONY IMBESI: Who was the testing and commissioning manager that you just mentioned?

ROGER SCHMIDT: Mathieu Branconnier. He was subsequently, not replaced, but he was augmented by another testing commissioning manager later on in the project.

ANTHONY IMBESI: Who is the later

individual?

ROGER SCHMIDT: That was somewhat hired by the project director and that was -- the guy's name slips my mind right now, but I can get back to you on that.

ANTHONY IMBESI: If you are able. I can let your counsel chime in. But if you are able to determine that name, I would certainly appreciate hearing that.

U/T MANNU CHOWDHURY: Yes, we can take that as an undertaking as well.

ANTHONY IMBESI: Thank you. And you mentioned a test review panel.

How did that function and who would have been part of that?

ROGER SCHMIDT: Well, we had that internally, and I think we had -- we may have had OCT at that. It was a process that we established and we wrote -- we had a couple before I left, a couple of meetings, initial meetings on that. So it was mainly establishing the process of that.

ANTHONY IMBESI: So by the time you had left the project, had the panel done anything in practice or was it --

ROGER SCHMIDT: No, I think they --
ANTHONY IMBESI: -- (inaudible) to the planning stage?
ROGER SCHMIDT: I think they had a meeting, or a meeting or two.
ANTHONY IMBESI: You had mentioned something done internally, but you also may have had OC Transpo at that.
Was it designed to typically involve the operator in that as well?
ROGER SCHMIDT: Yes.
ANTHONY IMBESI: So what would have been the reasoning then to have the operator involved on the panel?
ROGER SCHMIDT: Well, just, you know, temporary operations. Just that aspect of T&C that it involved operations, it involved -- I think there was, you know, drivers that were from OTC that were participating, so it could involve them.
ANTHONY IMBESI: So it wasn't to do with providing them with a level of familiarity of the system and how the testing and commissioning was progressing, it was more related to the fact that they were involved by

the nature of -- the operators --

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And so would these have been formalized into formal plans. So you've described all the different programs and everything that you had created for testing and commissioning.

Would those have been formalized in any way?

ROGER SCHMIDT: Yes, I believe so.

ANTHONY IMBESI: Testing and commissioning plan or things of that nature?

ROGER SCHMIDT: Yes. Safety plan, yeah.

ANTHONY IMBESI: And any other plans in particular that come to mind?

ROGER SCHMIDT: Well, there was the list of tests, the list of the test procedures.

ANTHONY IMBESI: So at a high level then, what would have been, you know, the main categories of the test procedures that would have been done, you know, from a high level, what was it that would fall under the testing and commissioning? Is it all the different systems? How would that work in practice?

ROGER SCHMIDT: Well, yeah. Each system had its individual tests to ensure it was operating as per its isolated parameters. Like there was site acceptance tests, there was PICO test, there was various tests that you did that confirm, you know, product as delivered or as supplied by a supplier was operational.

And then there was system integration tests which were, you know, confirming that the product operated in integration with other systems that it was connected to. So those are the main groupings of tests.

ANTHONY IMBESI: And to what extent would the rolling stock be involved in that? And I appreciate, obviously, the rolling stock isn't involved in the testing overall.

But would they be included in this oversight of testing for all the different tests that were required of the vehicles from the outset of the production?

ROGER SCHMIDT: Yes. I mean, the Alstom and Thales tests were -- and the vehicle tests were a big part of T&C, yeah.

ANTHONY IMBESI: And I'll turn to some of the vehicle testing in a few moments. But

would you have been involved at all -- well, I suppose I should ask you this.

At the time that you left the project of May of 2018, what was the status of the testing and commissioning? What had been done to that point in time?

ROGER SCHMIDT: Well, the processes in the program was established. The means by which to gain availability to track the vehicle tests were ongoing. They were type testing and serial testing.

So I think that, you know, after the vehicle had, kind of, got to a certain level of acceptance, then you would start the Thales tests. And then there was, you know, three or four levels of maturity on the Thales tests.

So it was -- when I left, I believe that we were just getting past, you know, some of the type tests and the multi, you know, some of the -- I think the MSF Thales tests were done, and we were getting into some of the vehicle-related -- just starting some of the vehicle-related Thales to Alstom maturity tests.

ANTHONY IMBESI: And the type tests for the vehicles, is that one of the -- in the

grand scheme of the number of different tests that have to occur in a certain progression, is at a relatively early test?

ROGER SCHMIDT: Yeah. Yes. So, you know, when you're asking me the progression of the vehicle tests, there's -- I mean, it's a few years back and also, again, this is mainly Jacques who was dealing with this, and so in terms of the details of where they got, I might not get that right.

But the type tests are done on, you know, a single vehicle just to prove a system, like, you know, you prove braking or your prove something as a type.

And then once that's proven, it's applicable to all the vehicles in general, and they're serially tested to confirm for each vehicle if there's no unique aspects that are going to discount the type tests, right?

ANTHONY IMBESI: So the type tests are for specific components to essentially validate them for production, and then there's serial testing on each individual vehicle to make sure it meets certain requirements for the certain components?

ROGER SCHMIDT: Yes, exactly.

ANTHONY IMBESI: And did you have -- in the context of your planning of testing and commissioning, would you have been involved in determining the length of time in the schedule that would have been allocated to do all of these various things?

ROGER SCHMIDT: Well, we had rough ideas of how long it would take and we looked to, you know, Thales and Alstom to work together to get a harmonized schedule and an optimized schedule.

On a broad sense of how long it might take, I was involved in a detailed sense of working out, you know, the interaction and the optimization, that was others.

ANTHONY IMBESI: So speaking of the broad strokes, what would have been in your knowledge then at the time, you know, what general length of time was allocated for testing and commissioning subject to all the optimization and everything.

What was your sense of how much time was supposed to be dedicated to testing and commissioning?

ROGER SCHMIDT: Well, for the vehicles?

ANTHONY IMBESI: For the vehicles and overall.

ROGER SCHMIDT: Well, it wasn't my -- I wasn't bringing a lot of past experience with me on that. But it was my understanding that it was at least a year. It was, you know, you needed at least a year to go from, you know, production and type test to trial running.

ANTHONY IMBESI: And so you talked about, you know, approximately a year from the type tests to trial running. So as that testing and commissioning -- and I'm speaking of how you -- it was envisioned when you were preparing these plans because I appreciate you weren't there past May of 2018.

But would there have been a plan to run the trains for a period of time, like a burning in period or something of that nature prior to trial running?

ROGER SCHMIDT: We didn't have -- I wasn't familiar with the term "burning in", and we thought we would get quite a bit of usage out of each vehicle for driver training, for various

testing applications and my -- I wasn't allocating or planning for, like, a burn in period under the assumptions that all the other tasks would accumulate quite a bit of mileage on each vehicle.

And then there were quite a few. We had quite a few discussions on powers of driver training and, you know, various other, you know, testing that was required.

ANTHONY IMBESI: And would the driver training occur in tandem to the testing and commissioning? So if you had, you know, a vehicle that was tested and integrated with the Thales signalling system, would that then be used for driver training potentially?

Or would you be waiting until you were in a position where you essentially had a fully running system that had not yet reached trial running in order to start the driver training?

ROGER SCHMIDT: Well, the plan was to get the vehicle to a point where OCT considered it reasonable and safe to have their drivers use it and then get them involved in their driver training in parallel with the testing commissioning activities wherever possible.

ANTHONY IMBESI: So that would be a situation where they, for example, felt one, two, three, a few vehicles were in that state, they were safe to use, it would begin on those vehicles --

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: -- that were in position where that could happen?

ROGER SCHMIDT: Yes. And they also had dedicated track or reserved -- they reserved track for driver training just for its own purposes, right? So when we wouldn't necessarily have been operating a test, but they would be driving vehicles.

ANTHONY IMBESI: And was there any -- and I'm speaking about the vehicles in particular, was there any dynamic testing plan for winter-weather conditions?

ROGER SCHMIDT: Well, you'd have to ask -- I mean, Alstom had their winter and their climate testing. And they had their regime of testing. But I think our testing period went through the winter, so, you know, we felt that we would experience winter conditions as a matter of fact during the T&C period.

ANTHONY IMBESI: Right. Just because where that fell at that point in time?

THE WITNESS: Um-hmm.

ANTHONY IMBESI: And so you've explained how you planned this, planned the testing and commissioning from a high level, and you gave us your broad sense of how long you thought that period of time would take.

Did you have any sense by the time you left as to whether the testing and commissioning was proceeding, you know, along the lines of what you had contemplated or were things being delayed and falling behind schedule by the time you left? What was the status of that?

ROGER SCHMIDT: I think that it was going slower than was hoped for by the schedule. But in my mind, perhaps not slower than could be anticipated given the, you know, goal of trying to harmonize these systems and, you know, these software-driven systems that take time, you know, and take debugging.

And so I felt that it was the, you know, it was the work that was going to be done early that was going to be the learning curve, the early part of the learning curve that was

going to allow it to accelerate later. But at the time that I left, I thought it was -- it was -- well, it was going slower than hoped.

ANTHONY IMBESI: But were there any reasons for that beyond just overcoming the technical issues that, by their very nature, are associated with integrating these types of systems?

Like, were there any other factors that contributed to this falling behind in terms of, you know, were there delays in the delivery of any certain components, or other external factors?

ROGER SCHMIDT: No delays in external components. Track availability was provided as much as was possible and, you know, I think that once one vehicle got configured to test, there was, you know, some issue that arose because of it, then it was a challenge to reconfigure another vehicle and took time.

So I don't know that anything that was, you know -- there was regular meetings to try to iron out differences or to accelerate schedule or to try to find ways to minimize delays. But nothing that comes to mind that's

like additional or external.

ANTHONY IMBESI: Were there any issues with track availability in terms of, you know, the amount of track that was able to be provided at a certain period of times or issues with access or power or anything of that nature?

ROGER SCHMIDT: There was -- power was, you know, power was provided. We provided -- because of some construction, you know, delays, let's say, in the Rideau station area, we realized that we couldn't really test the whole -- we couldn't test, sort of, a circuit for quite some time if we were waiting for the whole line.

And so we, sort of, created this mini system, or using -- using some of the existing crossovers, we created like a system within the system that was mostly on the east end, and so you would be able to do a circuit that was a part of the whole system, but in that circuit you would be able to, hopefully, qualify a number of aspects, like station integration, and multiple vehicle operation, and stopping and, you know, even sort of, maybe headways.

And I think that was a good mitigating

plan that we had for -- and then once you have -- once you have that mini system running, you know, it would be less onerous to kind of extend it to various further sections because some of this -- some of those features, like approaching station stops and things, had a really been basically qualified.

So we adopted that to mitigate track-work availability issues or to make the most out of the track that we had.

ANTHONY IMBESI: So the testing and commissioning plan, is it fair to say that it pivoted to a certain extent to have the testing and commissioning done in segments or to maximize the track that you had at that point in time before integrating out the full track and completing the testing and commissioning?

ROGER SCHMIDT: Yeah. It I was actually to do as much as possible with the eastern segment as a closed-loop, and then extend that -- extend the benefits gained to the western segment as a time-saving.

ANTHONY IMBESI: So beyond, obviously, the inability to have the trains running the full track by virtue of this eastern -- having

this eastern segment.

Were there any other limitations on the testing, and so really what I'm driving at were the trains able to get up to the speeds that they required, were they able to perform most of the functions that they should be performing for the purposes of testing and commissioning on that smaller segment?

ROGER SCHMIDT: As far as I'm aware and for the level that it was operating when I left, I think it was. I mean, there was a few hiccups with the cabs getting too hot, and the drivers not going to work in that environment, and a couple of other things that I recall.

But those were more hiccups. So yeah, you question was: Was it successful or?

ANTHONY IMBESI: No. Well, if you have a view on whether that was successful, I'd certainly like to hear it.

ROGER SCHMIDT: I think it was -- I think my -- I think the comment that I can make is I think it was a good mitigation strategy, and I think at the time that I left, I hadn't fully been able to assess whether it was successful, but I believe it was going to be

successful.

ANTHONY IMBESI: And so during your time there, and I appreciate you had left before the testing and commissioning would have been completed.

But did you get any sense that either the length of the testing and commissioning or its scope was being compressed in any way as a result of any potential delays or slowdowns to the testing and commissioning?

ROGER SCHMIDT: I think -- no. I think that the testing commissioning is on most projects is wanting to be compressed to make up for other issues. You know, there's other extensions that happen prior and, you know, it desires to have testing commissioning somehow press to make up for that.

But it's -- I think particularly on this project, I think it was not that feasible given the amount of newness that I spoke of, like the new train control system, the new vehicle to North America, it was unlikely in my mind that testing commissioning was going to be compressed.

ANTHONY IMBESI: So given the newness

that we've already spoken about, the compression really wouldn't have been possible or advisable in those circumstances?

ROGER SCHMIDT: Yeah. Well, it was -- the word that I used was "unlikely". I mean, it could be planned, it could be attempted, but it was likely going to take the time it was going to take.

ANTHONY IMBESI: There was no level of compression or potential compression that you saw before you left that would have given rise to any concerns?

ROGER SCHMIDT: No.

ANTHONY IMBESI: Was there increased pressure during that phase to meet revenue service availability?

ROGER SCHMIDT: Well, there's always pressure to meet revenue service availability. What do you mean by that?

ANTHONY IMBESI: I suppose I mean, did any pressure to meet revenue service availability impact in any way on the testing and commissioning phase?

ROGER SCHMIDT: No, I don't -- testing commissioning is supposed to be independent and

it's supposed to be unbiased, and it should give the results that it gives. And, you know, so wasn't -- I didn't see any attempt to bias the process or make it put up results that it wasn't putting out.

Testing and commission also, by being the last process and this sequence, tends to expose, you know, any, sort of, elements that are not quite finished or, you know, you can't test and commission a system or piece of equipment until it's completely installed and ready to go and other features are ready.

So it -- by virtue of it being the last process in the sequence, it tends to pick up some of the, you know, delay that is inherent there and having to tie up loose ends.

ANTHONY IMBESI: And just the tie off the testing and commissioning then.

By the time you had left the project, were you aware of any significant issues with the system that had arisen during testing and commissioning? Was there anything that seemed of significance or stuck out in your mind?

ROGER SCHMIDT: There was -- the only thing that stuck out for me was the, you know,

final system installation where T&C would come on an area to test or a piece of equipment to test and, for example, all the connections wouldn't have been made.

And so they would have to go back and identify the connections need to be finalized. And sometimes the connections hadn't been finalized for various, you know, reasons that made sense in terms of one contractor not wanting the risk of powering something on without approval or whatever.

You know, often this, sort of, final stage of installation was just not yet completed, which resulted in the test not being done and having to be rescheduled, and that's the thing that I noticed.

ANTHONY IMBESI: So I'm going to switch areas now, so I think this is probably a good time for us to take a break. So we can go off record.

-- RECESS TAKEN AT 2:38 P.M.

-- RESUME AT 2:49 P.M.

ANTHONY IMBESI: I'll just ask before I move on. I'll just ask my co-counsel, Ms. Boghosian if she had any follow-up questions

to anything we've spoken about prior to the break.

TARA BOGHOSIAN: I don't. I think you covered it.

ANTHONY IMBESI: Thank you. Okay. Ms. Schmidt, I'd like to move on and talk to you about the sinkhole. I know that you had alluded to some delays to the Rideau station area previously.

And were those the results of the sinkhole that opened in the vicinity of the Rideau station?

ROGER SCHMIDT: I think so, yeah.

ANTHONY IMBESI: And what involvement, if any, would you have had in and around the sinkhole?

ROGER SCHMIDT: Well, you know, I was -- as the technical director, I was responsible for the broad strokes of the temporary support. So, you know, coordinating that design with the permanent design and interfacing with the tunnel support engineers, Dr. Sauer & Partners, making sure that they had presence and were -- you know, any concerns that were being heard.

It was also a construction realm, so it was a bit of an area where there is overlap of responsibility technical and construction. But that was the broad aspects so, yeah, I -- it was a big part of my year, that event.

ANTHONY IMBESI: And how did you -- how did the sinkhole impact the project?

ROGER SCHMIDT: Oh, it caused months, months of delay when we were, you know, cleaning up, investigating, going to meetings, talking about, you know, recovery plans.

And just the aftermath of it, and the cleanup and the restoration was an event. And then the effect on the mining and completion of the mining in the area. And then the station construction, the Rideau cavern station construction.

I mean, I wasn't working on the detailed development of schedules and all of those areas. But it had a noticeable effect on all those areas.

ANTHONY IMBESI: And is it fair to say that it had a knock on effect on testing and commissioning as well? We'd already spoken about having to use a more of a segmented

approach.

ROGER SCHMIDT: Yeah, it had an effect on the testing commissioning strategy.

ANTHONY IMBESI: Were there any implications on the testing and commissioning strategy beyond what we've already spoken about?

ROGER SCHMIDT: Well, I think the only -- no. The one that we've spoken about that I think is most pertinent is the fact that it was a delay -- in my mind, it was a significant enough delay that testing commissioning couldn't absorb it. You know, you couldn't ask testing and commissioning to absorb a six-month delay, for example.

ANTHONY IMBESI: In the sense of compression -- compressing that period of time to accommodate --

ROGER SCHMIDT: Exactly.

ANTHONY IMBESI: -- the delay associated with that sinkhole?

ROGER SCHMIDT: Exactly.

ANTHONY IMBESI: Did you have any interaction with the City at any point in time during your involvement?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: What would the nature of your involvement have been? I know we spoke about the involvement of the operator.

But what else -- what would have been the nature of your involvement with the City?

ROGER SCHMIDT: Well, I wasn't -- I was on the management team. But I wasn't part of their works committees or the, sort of, regular committee meetings, and I think that was because I was a consultant, and I wasn't really a member of, you know, Dragados executive or SNC executive, so I didn't really have signing authority in that sense.

So I was mainly, I guess, a senior contributor to discussions when they seem to be technical or want that kind of thing at a senior management level.

So, but my regular focus was at the more technical meetings, the regular technical coordination meetings with the City's design review leads, the operating maintenance working group, the -- other, sort of, technical working groups that either I attended or chaired.

ANTHONY IMBESI: So how would you assess OLRTC's and RTG's relationship with the

City in your experience?

ROGER SCHMIDT: Oh, very polite and accommodating, and really wanting to serve the City's interests.

ANTHONY IMBESI: And did the relationship with the City, did that change at all at any point in time following the sinkhole or any other period of time?

ROGER SCHMIDT: No. Well, you know, from my perspective, no, it didn't. And I think that there was a -- there was quite a partnering approach in terms of the face for the public, and, you know, it was consistently shown to be more or less a unified group.

ANTHONY IMBESI: And so I think you said that your involvement with the City was primarily from a technical or a design perspective. Is that fair?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And so how would you characterize the level of the City's oversight and involvement in those components that you were dealing with then?

ROGER SCHMIDT: Well, they had five -- I would characterize it to be as fair and

accurate as possible as I think the City was doing a diligent job of what they saw as their main task which was enforcing compliance to the PA.

And I think that they had regular meetings, they -- the five design reviews took up a lot of time and they -- by their diligence at their own task, at their perceived task, I think they became a dominant feature of the design and I think they -- I think they created unintended consequences by their focus on enforcement of the PA.

ANTHONY IMBESI: In what sense? Can you explain that?

ROGER SCHMIDT: Well, I mean, I would come to designers sometimes and look for improvements, or maybe optimizations to the design and they would say, We can't -- well, maybe we could, but we can't because that design has already been approved. And the City wouldn't like the language "approval" because they said they never approved anything.

But effectively, you know, in the designer's mind, the main approver, or the main client was the City. And so we -- I felt myself

often in competition with the City as a voice of input to the designer.

And the PA is very prescriptive and onerous and, you know, it just -- it created a very -- it created a very inflexible environment where -- and, also, I think on reflection, I think it -- well, not only on reflection.

I thought that at the time was that it created an environment that -- you know, your primary focus was on achieving the approval of a group who explicitly often stated that when it came down to the eventual running and handover, we're going to have -- we're going to take no responsibility.

So, you know, it was an odd situation where they were dominant. There were dominant in the early stages and then disappeared.

ANTHONY IMBESI: So just so I can understand that. Is it fair then for me to say that, you know, they were fairly dominant in driving the design to the extent that they demanded rigid compliance with a variety of things, but at the same time, didn't want to sign off or take accountability for what was being imposed?

ROGER SCHMIDT: Yeah. And I think that, you know, like the unintended consequences is that the designers came to simplify. But I shouldn't say that. Again, I don't want to put words in people's mouths.

But I felt like it leaned towards simplifying the LRT. The LRT design process is chaotic at worst; it's complex, adaptive generally. And you have to get work hard to get it just to be complicated. And the PA is a simple document that is achievable.

We were focused on achieving PA compliance, and I think it, you know -- in a design -- you know, I think a good designer is always asking, like, What if? Or they are speculating. They're going, What could go wrong? Have I looked at everything? Could I do it better? Could I do it cheaper?

But with the PA mindset, it was reduced. And this was by repetition. I mean, I came to understand that -- like, you know, my question of the operator in the early stages was, you know, seem to be almost, not a reasonable question because it was, like, just do it according to PA, right?

I felt like it -- I felt like it changed the focus. It, you know, it did a lot -- it had unintended consequences in a number of ways, you know, reducing creativity, oversimplifying the work, and then changing the focus of, you know -- it almost changed the focus from success to compliance, like, you know.

Compliance -- compliance became everything. I mean, I -- I heard it in elevators with senior executives, We're going to make sure you are compliant. It was just -- it was the mantra, compliance was the mantra.

ANTHONY IMBESI: I'm just trying to understand then. So what are the knock on effects or implications of that? You've mentioned that it, sort of, stifled the creativity, it maybe oversimplified the process.

But how does that play out? What does that mean?

ROGER SCHMIDT: Well, if I would -- well, just some of my personal challenges. If I would question a document, I would often get, Well, it's compliant, and I've got approval from the City. So it, I wouldn't say it eliminated,

but it made more difficult anything that was above and different than the PA, right.

You became focused to compliance, and other things were seen as peripheral, that's one. And it locked things in early because after a review cycle, and an approval cycle that was seen as valuable, and you didn't want to, sort of, change something and open it up again to potential rejection. That's another one.

And I think it resulted in overdesign, you know, from my perspective wasted -- some wasted money, you know, that is never good because it causes contractors to become in a worse financial position, and they're under stress. So, that kind of thing.

Yeah, so I -- and I would like to stress that I don't think it's -- I don't think it was a malicious process, and I don't think it was executed for the intent of distracting. But I do think it was an unintended consequence and it was the culture of the project.

ANTHONY IMBESI: And I just wanted to follow up on one thing you said. You talked about overdesign and waste of money, potentially.

Is there anything that sticks out in your mind as an example of that?

ROGER SCHMIDT: Couple things. I was looking at a glass reduction exercise at one time because from my previous experience, you know, stations that I've been a part of in Vancouver had been termed, you know, crystal palaces in the sky and too much glass and chrome.

And I thought we should try to reduce some of this and couldn't -- couldn't reduce a single panel of glass because of those factors - either the approval or the PA compliance or, you know.

So and the other one was we had an innovation proposal to reduce a rebar in the tunnel because the tunnel was very conservatively designed and almost all -- well, under compression completely, and rebar is mostly a liability in that scenario because it corrodes or can corrode, and concrete mainly needs rebar for tension, not for compression, doesn't need it at all for compression. So that was rejected.

So that probably had time and schedule

effects. But, yeah, so just, you know -- I notice -- often, you know, a reviewer's comment, you know, an owner's reviewer's comment about compliance. I think designers are mainly concerned about getting through a project without any harm to their credentials or their reputation.

And so if a designer hints that they are taking an approach that is -- if an owner's engineer hints that they're taking an approach that's going to lead to noncompliance, they, instead of resisting, they just make it bigger, and that's the simpler way out.

So these, you know -- I came to believe on this project that an owner has an incredible leadership role on a project and whether they -- you know, that will have its effect on some.

I believe that -- yeah, so those are the areas that I -- those are the areas that I can think of.

ANTHONY IMBESI: And so in your experience, would you have expected a more collaborative approach as opposed to a more strict interpretation and enforcement of the PA?

ROGER SCHMIDT: Definitely. That was my experience on previous projects. Because, you know, with strict enforcement approach assumes that the PA is without flaw and that the PA is sufficient.

I remember asking a designer when I came early in the project, where is the design manual for the project? And they said, We don't have one. It's the PA. The PA is exhaustive enough that we're using it as a design manual. And...

ANTHONY IMBESI: So there was no design manual then for this project?

ROGER SCHMIDT: Well, not for the -- for the -- that was the response from the EJV. And I'm not saying that's a -- I'm not saying that's an incorrect conclusion they came to. I'm just saying that it's a reality that, you know, the PA was so prescriptive that they understood that creating a design manual would be redundant.

ANTHONY IMBESI: So it's not that having a design manual would have had more information or use to you, it's just a sense that the PA was so prescriptive that it was

unnecessary or redundant?

ROGER SCHMIDT: Yes. And also, then you lose the benefit of having created the design manual because, you know, when you're -- in my opinion, when you're working to the PA, you're following someone else's dictates. When you create a design manual, you're defining the dictates for yourself and it makes a huge difference.

ANTHONY IMBESI: And did you feel in your interactions with the City that they had the level of technical knowledge that was required or that you would have expected of an owner on this kind of project?

ROGER SCHMIDT: No. For the most part, I didn't. I think in some areas in the civil and utilities and in the stations, they were good.

And in other areas, like in -- you know, particularly in the handover and the operations and the public consultation, there were not that strong.

ANTHONY IMBESI: Are there any implications of that? How does that manifest itself?

ROGER SCHMIDT: How did I become aware of it? Or how -- what --

ANTHONY IMBESI: No. As I understand, you've said there was a less of a technical level of knowledge as would be expected in certain components of the project.

So what are the implications of that? Are there any effects of the owner not having that technical level of expertise?

ROGER SCHMIDT: Yeah. I think it -- potentially it leads to inefficiency because you initially take their input as having strength, and then when you realize, and maybe when everybody realizes that it needs to be adapted, you've already spent some time and effort following that route, and you have to adjust and go down another route, and it's inefficient.

ANTHONY IMBESI: And so I'd like to turn back for a moment to the rolling stock. And through your involvement in the project, did you ever get a sense that production of the rolling stock was delayed in any way?

ROGER SCHMIDT: Delayed. Well, some of the -- you know, yeah. Some of the vehicles weren't coming out as quickly as planned. I

mean, we -- that was another first on the project, the MSF production of the vehicles.

That had an effect. And then, also, I think that you had asked earlier about was there any -- I mean, occasionally, there was, you know, a wish for more useful vehicles on T&C that were available.

ANTHONY IMBESI: A more wish for useful vehicles for the testing and commissioning that were made available?

ROGER SCHMIDT: Than had been produced or ready to use, yeah.

ANTHONY IMBESI: And so my next question for you was going to be did you have any insight as to why the production and the testing of the LRVs was delayed? And I think you were alluding to potential issue with the MSF, the maintenance storage facility.

ROGER SCHMIDT: Well, that's the only one I can really point to because the other ones you have to ask Paul or Jacques in terms of the detail. I mean, I know we had monitoring and presence and management of that. But in terms of the reasons you have to ask them.

But in terms of the start, I think it

was a little bit later. I don't know the amount of weeks or months, but the MSF availability. But the MSF is a critical design component and it's really hard to rush that and to -- it's also out of sequence.

Like, the MSF is normally one of the later pieces of design to arrive rather than the first. So that was a particular challenge to get that design and that construction completed in an early stage of the project.

ANTHONY IMBESI: So was the issue then the ability to construct and turn over the MSF to Alstom in order to commence the production of the LRVs, is that what you're saying?

ROGER SCHMIDT: Well, not the issue, but I just said that's one factor.

ANTHONY IMBESI: Was the MSF -- was the turn over delayed to your knowledge?

ROGER SCHMIDT: Well, it wasn't the original dates specified. And so -- it wasn't much later. But it was later.

ANTHONY IMBESI: And did you have any view as to the suitability of the MSF for LRV assembly?

ROGER SCHMIDT: No. Although, you

know, it seems suitable to me. I mean, it was designed with Alstom's requirement. And, you know, basically, a building that had to be designed for two purposes, Alstom's and then RTM's later.

ANTHONY IMBESI: And correct me if I'm wrong, but I think you mentioned that that was a first. What was a first?

ROGER SCHMIDT: Well, in my mind I wasn't aware of another project where the vehicles had been constructed in the eventual maintenance and storage facility.

ANTHONY IMBESI: I see. So to your knowledge, that was a first on this type of project?

ROGER SCHMIDT: Yeah.

ANTHONY IMBESI: And in terms of the -- as I understand it, there would be two, what I will call prototype vehicles that were to produced first by Alstom before the serial assembly. Is that correct?

ROGER SCHMIDT: Yeah. There was discussions of that. Again, you know, I can't speak definitively to that.

ANTHONY IMBESI: And so would you have

any knowledge of the shifting of the location of the assembly of those vehicles?

ROGER SCHMIDT: It's secondary knowledge, yeah. As part of other discussions, but not, sort of, direct knowledge.

ANTHONY IMBESI: Would you have been aware then that initially they were planned to have been assembled elsewhere other than at the MSF?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And that would have been, as I understand it, initially in France, and subsequently in Hornell, New York.

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And do you have any knowledge, secondhand or otherwise, as to why the decision was made to move the assembly of those vehicles from, ultimately, from New York to the MSF?

ROGER SCHMIDT: Just -- no. In general, yes. I mean, it was just more beneficial, it was less transfer of skills and things. It was just seemed to be more efficient for the supplier, for Alstom. And that was my understanding.

ANTHONY IMBESI: So as I understand it, the vehicles are produced. There's supposed to be some validation testing done.

Is there any particular validation type testing that's to be done on the first two LRVs, that's different from the rest?

ROGER SCHMIDT: Yeah. I believe that they are the main tools to use to do the bulk of the type testing.

ANTHONY IMBESI: And do you have any knowledge as to whether the type testing proceeded as planned. So particularly, I mean, was it done to the extent that it was initially planned, and was it done at the time when it was initially planned to be done?

ROGER SCHMIDT: I was aware of no relaxations or modifications to reduced level of type testing, and I can't really speak to that schedule in terms of whether it was longer or not.

ANTHONY IMBESI: What about whether it was to be done prior to serial production?

ROGER SCHMIDT: I can't really speak to the schedule aspect either.

ANTHONY IMBESI: Are you aware of any

issues associated or arising out of the Canadian content requirements for the production of the LRVs?

ROGER SCHMIDT: Well, the only one that I can think of is the use of the MSF, which I believe is related to that directly. And other than that, I think Alstom provided the certificate and complied with everything that was noted.

But in terms of the effect or items of effect, I mean, that seems to be the main one for me.

ANTHONY IMBESI: And I think you already indicated you didn't observe any issues associated with the production of the LRVs at the MSF?

ROGER SCHMIDT: No, I didn't.

ANTHONY IMBESI: So in terms of the evolution of the assembly and the testing and commissioning of the LRVs, was there a number of retrofits that had to be performed with respect to the LRVs?

ROGER SCHMIDT: There was some retrofits, yes.

ANTHONY IMBESI: And can you just

explain, you know, at a high level what those would have been and why?

ROGER SCHMIDT: No, I can't go into the details because I don't recall. I think, you know, there's a production of 30-some vehicles and something comes up during the process, whether it's a supplier issue, whether it's an issue from compliance, or some of these meetings, or whether it's an issue that's arisen during testing that requires a modification.

And if it's after, you know, vehicles X, Y have already been produced, then they need to be retrofitted. So I don't -- personally, I didn't see that as a -- I saw that is the process working because, you know, a testing plan is meant to identify issues.

And, you know, it's a positive if a testing plan -- maybe an integration plan identifies some issue with the way the brake is operating while it's integrated to the vehicle, well, then you need to revise that for the earlier vehicles.

That did create a schedule issue as far as I was aware about putting those vehicles back in the line to be retrofitted. But I saw

that as the process working.

ANTHONY IMBESI: Sorry. You said there was a schedule impact?

ROGER SCHMIDT: Well, there would have been because, you know, those vehicles had to be put back in the queue, so to speak, to perform the retrofit.

ANTHONY IMBESI: And were the retrofits that arose out of the ongoing integration process between the Thales signalling system and the LRVs?

ROGER SCHMIDT: Not that I was aware of.

ANTHONY IMBESI: So you wouldn't -- so you don't believe there were more retrofits than would ordinarily have been expected?

ROGER SCHMIDT: No, I don't.

ANTHONY IMBESI: And so I appreciate you saying that it did have or it would necessarily have a certain impact on scheduling performing these retrofits.

At the retrofits were being performed, were they being performed in a timely manner?

ROGER SCHMIDT: Yeah. We had -- for a good part of it, we had full-time, you know,

monitoring staff of our own resident in the facility. So they were -- yeah, they were timely. As timely as we could manage with our coordination with Alstom, yes.

ANTHONY IMBESI: Were there any issues with the installation or the testing that was done by Thales?

ROGER SCHMIDT: Any issues? No. I think there was, you know, coordination for them to have access, and sometimes debates as to whether it was Thales or Alstom issue that was causing a specific problem of the day or the week. But that was likely to be expected. I think they generally worked well together.

ANTHONY IMBESI: Was Thales delayed at all in any of its work?

ROGER SCHMIDT: I can't really answer that. I'm not -- I wasn't really at a point of being deeply involved in the schedule details to that extent.

ANTHONY IMBESI: Did you have any involvement in planning for what ultimately became trial running?

ROGER SCHMIDT: Yes. As I said in the early stages, we wanted to set up, like, the

foundation for testing commissioning. On one of the things I noticed is that there wasn't really a definitive pass-fail criteria for trial running in the PA.

And I know that I've been mentioning prescriptive nature of the PA, but I just felt that -- and I think the City agreed that it was better to define those criteria earlier rather than later.

So we came up with a change order or a change directive to the PA after quite a bit of discussion that said, you know, this amount of, you know, kilometres, this amount of failure is unacceptable, and this amount of failure is acceptable.

So these were -- it's like a negotiation really. But it's like trying to get the subjective issues resolved before the trial running starts. So we did that, and we documented it in a directive.

ANTHONY IMBESI: And you just mentioned the nonprescriptive nature of the trial running requirements in the Project Agreement.

Would you have expected it to include

more detail in the Project Agreement in your experience, or was that not uncommon to see it as it was?

ROGER SCHMIDT: Well, I wasn't -- no. I -- you know, it's actually interesting because the Project Agreement is quite silent and weak on handover and transfer of the system in general. In fact, it's almost silent on how to -- who to give it to, how to give it to them, what the process for this, you know, handover.

But what it does talk about quite a bit is trial running. So trial running was almost like the proxy for handover, and we were quite concerned about -- I was quite concerned about, you know, making explicit any expectations about handover so that we would meet them if possible.

And so in that regard, we just wanted to get that clear so that we'd know when we crossed the line, so to speak. And, yeah, other jurisdictions are different, and it's not so much that it was different from other PAs in that it was just -- that's a sense where we -- it was nonprescriptive, and we managed that by discussions, by face to face discussions.

Which I think is better, I think is a better process than making it prescriptive to start and then having two parties were most familiar with dealing with it, having to wrestle with third party who also wrote the contract, right? To me, what that shows is a nonprescriptive contract works because people fill in the gaps where they need to.

ANTHONY IMBESI: And so you've mentioned requirements for handover, and that you were looking to fill those. Were you just speaking of the trial running requirements, or were you talking about other requirements associated with the transfer and handover?

ROGER SCHMIDT: Well, we were interest -- I was interested in all of them, but that was the one that was easiest to tackle. I mean, the regulations -- we were responsible for the regulations. We were -- like I said, you know, it's the same thing as who is the operator, right?

It was kind of -- it was a big part of our concern from the beginning is what's the end in this? What are the steps that constitute the end of this project? And because they were, in

my mind, not very clear in the PA.

ANTHONY IMBESI: And so leaving the trial running requirements aside, then I'll come back to them in a second.

What else needed to be addressed in respect of the handover or transfer of the system? What other gaps did you perceive to be in the Project Agreement?

ROGER SCHMIDT: I don't know if it was gaps. But we wanted to have a shared understanding of what would constitute safe system because, you know, for example, in other jurisdictions, there's like, the BC Safety Authority that's -- but in Ottawa it was more independent.

And so we wanted to define that and, you know, also identify who was assessing this -- who would be assessing the system and, you know, if we would create a suite of documents, who would be reviewing them? That type of thing.

ANTHONY IMBESI: So for the suite of documents, what would you be referring to specifically, like, manuals and things to be delivered at handover?

ROGER SCHMIDT: Yeah. Well, you know, it can be a number of things. And in other projects, it was, you know, for example, a number of signed letters by all the professionals involved with, you know, the safety certifier's -- you know, our safety certifier's letter on top. I mean, in that sense, I would call it mainly professional guarantees of fitness.

Or in other -- you know, there's other processes that are mainly -- like, as we discovered eventually that the City wanted mainly a process or, like, show us a rigorous process. So it can vary as to what -- but usually, there's some level of documents that are required to hand over a system, right.

ANTHONY IMBESI: I see. And you were ultimately able to settle on all of that prior to you leaving the project?

ROGER SCHMIDT: Yeah. We were, you know, we were pursuing an avenue of certification by professional certification of fitness, and then fairly late in the project we were advised that this was really going to be more process and highly process structured and

the certificates were almost going to be non-required.

So that's one of those areas where, in my mind, the approach was altered midstream.

ANTHONY IMBESI: And just so I understand that then. The initial discussion or the initial approach, at least from RTG and OLRTC's perspective was to have some semblance of certification sign-off by, you know, whatever professionals needed to sign off on certain components. Is that right?

ROGER SCHMIDT: Yeah. And, you know, there is language in the PA that talked about other documents like a safety case that was required. You know, our approach was we would have the documents and then those would have a certain weight, and in our mind the professional certification would be, you know, equal weight with those and we present the whole package to this -- whoever was looking at it.

For some time, we just referred to the empty room. Like, we put this in the empty room and whoever chose to look at it would be able to do so when they chose.

But the process changed to something

that was governed by the installation of the safety auditor who really demanded a much more process-driven, like, tightly defined structured, process-driven approach to safety.

ANTHONY IMBESI: And so can you just explain that for me then, when you say and process-driven approach to safety? What is it you mean by that?

ROGER SCHMIDT: Well, it's where you -- this is my perspective, is where you define where you have a rigorous definition of your requirements and all your safety requirements from the start, and then you have a rigorous process of confirming that all those requirements that have been initially defined have been met through -- all the way through testing and commissioning, right, so that it's fully defined -- a fully defined system with all the safety features at the start, rigorous.

And then a tracing of that all the way through to the end to say, Well, my fully rigorously defined system is now complete. So in order to achieve that, we had to basically work to, you know, develop that -- re-create that process from the start after the fact.

ANTHONY IMBESI: Did that pose any difficulties?

ROGER SCHMIDT: I think it added time and expense and it was unexpected. But I don't -- I don't think it -- I don't think it posed any difficulties on the system. Like I -- you know, no tangible results other than a lot of extra effort and time.

ANTHONY IMBESI: And so changing course to that approach from what the OLRTC had initially envisioned, was that something that was discussed and ultimately agreed upon by the parties? How did it come about that that's where you ended up?

ROGER SCHMIDT: Well, we had discussed -- we had discussed an approach with the City and got, I would say, general acceptance but not documented acceptance for our approach.

But we didn't get -- unlike the -- unlike the trial running, we didn't get a change order. We just said -- we just got, sort of, increasing level of general acceptance.

And then at some point, maybe a year or so before revenue service, before the initial revenue service availability date, the approach

was changed. So it was identified as requiring more, which was this process-driven approach.

So I mean, there's a lot of aspects of the process that were valid and would have been included in our approach anyways. But it's just that this was an exhaustive and detailed approach.

ANTHONY IMBESI: And that was something that wasn't detailed in the Project Agreement?

ROGER SCHMIDT: Well, the Project Agreement talked about a safety auditor. And in my mind, a safety auditor was going to come for a week or a month and review things. But what it eventually developed into being was an independent safety auditor which is indicative of this process approach and which was, you know, something different.

They were -- they were, in fact, there for over -- for a couple of years, and were championing this intensive process-driven approach.

ANTHONY IMBESI: And turning back to trial running in particular and the criteria, would you have been involved then in devising

the trial running criteria that was formalized in a plan in about sometime in 2017?

ROGER SCHMIDT: Was that -- 2017 sounds like when we talked with -- are these the performance -- acceptable performance limits for trial running?

ANTHONY IMBESI: Yes. And I'm speaking to what was formalized in a trial running plan that contained the AVKR and a number of, you know, a number of certain pass-fail --

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: -- criteria. Okay. So you had direct involvement in the preparation of that?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: And what would have been the nature of your involvement in that?

ROGER SCHMIDT: Identifying the need for it, coordinating the levels, the limits within our team that we felt were achievable and reasonable. And then negotiating that with the City to, you know, to a level that became agreeable to all parties.

ANTHONY IMBESI: And so how would --

ultimately, how were those levels determined?

ROGER SCHMIDT: Well, you know, you can say they were subjective. They were based on the limitations of any system. I mean, any system is going to have some level of failure.

And there's also some maturity growth, like, of reliability that, you know, as a system continues, it grows. So what level is appropriate at trial running. Experience of people on our team, including RTM, we got feedback from our maintainer.

So it was just basically, you know, what was a reasonable place to draw the line that would provide indication of successful system.

And probably if you went to any detail of that line, you could say it was subjective. But the basis of it what was professional experience.

ANTHONY IMBESI: So what input would RTM, Rideau Transit Maintenance, have had into that discussion? What would be the basis of their input?

ROGER SCHMIDT: Well, they were interested in a system that operated reasonably

well, and they were brought in to make sure that those parameters that we chose would be acceptable to them.

ANTHONY IMBESI: Did they have any prescribed level of performance requirements in their contract that dictated what they wanted to see in the trial running plan to your knowledge?

ROGER SCHMIDT: Well, there were -- there were various things in their contract. But I think not specific enough to trial running. But I think that they did -- we did have iterations with them on the values that were proposed and eventually accepted. So they did have a -- they did have a real input into the process.

ANTHONY IMBESI: And in terms of the actual length of what needed to be met for trial running, so I'm speaking of the 12-day requirement. Do you recall?

ROGER SCHMIDT: Yeah, vaguely. But, yeah.

ANTHONY IMBESI: In your experience is 12 days a sufficient period of time for trial running?

ROGER SCHMIDT: Well, this was -- this

was, you know, the period when you're actually providing the system for acceptance. So it's not that the system is only running for 12 days, but it's that you run it up to a point and then you're willing to subject it to the 12-day test.

ANTHONY IMBESI: But would you -- in your experience, is there -- is it typical to have a longer period of time, shorter period of time, is this about average? Do you have any insight --

ROGER SCHMIDT: It was -- I mean, the baseline was the PA requirements. So I don't think that we would come back with, you know, a 35-day test because we wanted to make it sympathetic or coordinated with the PA. So that's one fact.

And then the other fact is I hadn't done trial running on a system before, but it is within the range of my -- of what I've -- you know, sort of, the rule-of-thumb range, so it didn't seem unreasonable either.

ANTHONY IMBESI: How would you describe that rule-of-thumb range?

ROGER SCHMIDT: Well, you know, two or three weeks, yeah.

ANTHONY IMBESI: And how were the pass-fail restart criteria determined to your recollection?

ROGER SCHMIDT: It was just -- it was what seemed reasonable because, you know, if you had, you know, what was -- what was enough to penalize the system to restart? You know, so we were just trying to look at -- looking ahead, you know, what would be reasonable for both parties.

Again, I have to say, it's like a negotiation, so it's -- if you'd run successfully for, you know, X number of days and you have one issue, does that reasonably constitute the need to start over? Or can that be accommodated in -- you know, it's that type of discussion and negotiation.

ANTHONY IMBESI: Would the types of issue impact on that? For example, would a safety issue have greater impact than another type of issue?

ROGER SCHMIDT: Generally, yes.

ANTHONY IMBESI: So what were, broad strokes, what were the primary parameters then for determining whether something was a restart

or a fail? I mean, you mentioned safety is being a critical issue.

Were there any other broad stroke categories and issues?

ROGER SCHMIDT: I mean, the one that I can recall is, I think station performance was also tied in, and so like if an escalator failed, you want to start trial running over because trial running is mainly for the vehicles and the train control system. You know, it's that type of thing.

Is it primary? Is it fundamental to the operation? Is it indicative of a root problem or is it secondary and more, you know, manageable and superficial?

ANTHONY IMBESI: So during your time on the project, was there ever any discussion about a soft opening of the system or opening of the system with reduced operations or parallel bus service?

ROGER SCHMIDT: No.

ANTHONY IMBESI: In your experience, how would you expect it to be started? Would it be a full start on day 1, or would there be any kind of a soft opening?

ROGER SCHMIDT: Often -- well, I think, particularly on the system, I think there is precedent for a soft opening because trial running is not done with passengers. And as soon as you introduce passengers, you introduce a new variable that you don't know how it's going to react.

And particularly -- well, you can anticipate it, but you don't know exactly. And particular in the City like Ottawa where they don't have LRT experience, I think a soft opening is, you know, a good idea because there's, sort of, a familiarity a growing -- you need to grow familiarity, you need to educate, you need to, you know -- you need to understand how the system works, what it accommodates and what it doesn't accommodate.

ANTHONY IMBESI: Was that idea ever expressed by yourself or anyone else, to your knowledge, during your time on the project?

ROGER SCHMIDT: Well, we -- well, so, as I said, I wasn't aware of the soft opening. I left, probably, before those discussions happened in detail. But we -- I know from my experience earlier in the project that we were

pulled away and given a very small role in public communications.

So, you know, we started out believing that we have a larger role and influence, and then, you know, the City indicated fairly early that they were taking a strong lead on that.

ANTHONY IMBESI: And so when you say you thought that you had a larger role and influence, what specifically do you mean by that?

ROGER SCHMIDT: Well, often, on other projects, you know -- and there's wording in the PA that suggested that the design build contractor has -- you know, takes a lead or a semi-lead role in the communications.

It's an important aspect of the project and, you know, we -- I mean, we even -- we'd even produced -- in the early stages, we'd produced a video of our own, sort of describing the project and its features for the public, and found out that that was not what was expected and that video was effectively shelved and not used.

ANTHONY IMBESI: So it was really, are you saying, from a communication's perspective?

ROGER SCHMIDT: Yes.

ANTHONY IMBESI: Do you have any view as to whether the Citadis Spirit in particularly the LRV generally was the appropriate vehicle for the system?

ROGER SCHMIDT: Do I have a view? Well, it's a low floor vehicle, and I think that the only thing that makes sense for a low floor vehicle is if the system eventually has level crossings or runs in the street outside of the segregated right-of-way, otherwise it does not make sense to me to have a low floor vehicle.

And I don't know the City's planning, but I suspect that -- I suspect that they had intentions of running it in the street in the future but those intentions changed.

But, you know, those are all the way things have developed. But if you would just limit it to, is the Citadis Spirit as a low floor vehicle ideal for this system, I would say probably not because, you know, it's extra complexity for no real value in the usage that's developed, you know, or materialized.

ANTHONY IMBESI: And anything other than the low flow component that comes to mind

when you say that?

ROGER SCHMIDT: No. I mean, it's -- you know, no, I don't really -- I don't really have the knowledge of the other vehicle fleets and everything to adequately compare. I mean -- so I can't really say anything more than that.

ANTHONY IMBESI: In terms of the infrastructure itself, were there any concerns at any point in time in terms of the installation of the track, and in particular, I'm speaking about rail neutral temperature?

ROGER SCHMIDT: No. I mean, we had rail -- we had temperature guidelines in the track installation for, you know, bringing things down or accommodating the neutral temperature and the expansion and contraction.

So that's common practice in rail design and installation.

ANTHONY IMBESI: So to your knowledge then, no issues associated with that?

ROGER SCHMIDT: No. Yeah, to my knowledge, no issues.

ANTHONY IMBESI: In terms of what I'll refer to as the track bed, was there ever a discussion of having it be slab-on-grade as

opposed to a tie and ballast?

ROGER SCHMIDT: It is slab-on-grade in certain areas. And we had quite a few discussions on track form, as it's called, whether to have it on direct fasteners or direct fixation or ballast or slab-on-grade.

So that was part of the design effort. And I didn't have any issues with the outcome, and where those various track forms were selected. Because in the tunnel, for example, it's all direct fixation.

ANTHONY IMBESI: So that would be the locations where it would be slab-on-grade, would be in the tunnels?

ROGER SCHMIDT: Well, it's not really slab-on-grade. It's -- you know, slab-on -- there's embedded. Some track is embedded where it's, like, in a streetcar. This is slab with direct fixation fasteners and the rail on top of it. But, yeah, that's in the tunnel.

ANTHONY IMBESI: So in terms of the Commission generally, as you may be aware, our role is to investigate the commercial and technical circumstances leading to the breakdowns and derailments.

Is there anything in particular beyond what we've talked about already today that you think is important?

ROGER SCHMIDT: Yeah. It's quite a broad scope that you've been talking about. But I think I've mentioned -- I'm just -- I've made some notes. I think I mentioned most of the things that -- yeah.

I think -- yeah. I think that everything that I've noted from a broad perspective has already been discussed. And, you know, I don't think I have anything further to add.

ANTHONY IMBESI: Okay. And as part of his role, the Commissioner is also asked to make recommendations with respect to the circumstances.

Is there anything that comes to mind in terms of potential recommendations for the Commission to consider?

ROGER SCHMIDT: Yeah, well, I think the big one would be to, you know -- originally, P3s were described as public-private partnerships. And I think that -- I noticed that the contract is called alternate delivery

now. And I think they make -- deliver use of a change terminology. For good reason, because I don't think they're structured as partnerships anymore.

And I think it -- my recommendation is to recognize that LRT development is a complicated endeavour, and it's more complicated than technical. It's complicated because of human factors and the public and operator influence, all those things.

And it can't thrive in a prescriptive and non-partnering environment. I think that LRT development requires partnering and necessarily flexible environment.

And I think that that is also the way, in my opinion, to reduce risk and that would be my recommendation is to depart from the enforcement, compliance culture, and move towards a partnering, more flexible arrangement, and -- yeah.

ANTHONY IMBESI: And just one follow-up question on that.

You mentioned that the P3 model is, sort of, departing away from a partnership.

Is that because of a change in

structure of the contract as you've seen it or is it more the disposition of the parties involved?

ROGER SCHMIDT: Both. Both. And I think that I -- personally, I've noticed it between jurisdictions, you know, and maybe it's a time frames, too, because my work in BC was, you know, previous, like. And some of these things can change very quickly.

But, you know, the earlier P3s in other provinces were much more flexible, creative, adaptive and, you know, created success, like, on-time and on-budget projects.

So yeah, I think it's both. I think it's -- I think it's the way the contract is written and the way it's managed and administered and enforced.

ANTHONY IMBESI: What specifically about the way that is drafted? I mean, is that the enforcement mechanisms? What component of it do you see as being different from driving a true partnership?

ROGER SCHMIDT: Well, you know, there's not -- a true partnership would be, here's my job, here's your job, and we'll trust

each other to do our jobs and we'll coordinate impacts and, maybe, we'll even coordinate ways to improve things as we go.

But I didn't -- I think on the modern contract, I'll call it, is that the risk transfer is excessive so that the City does very -- the owner does very little, even things that it's really suited to do.

And I think it's a fallacy to believe that that ultimately reduces risk. So does that answer your question?

ANTHONY IMBESI: Yes, it does. Thank you. And I know we are just about a minute away from the end mark. So I will just turn briefly to my colleague. Ms. Boghosian, do you have any follow-up questions for Mr. Schmidt?

TARA BOGHOSIAN: No, I don't. I think you've covered it.

ANTHONY IMBESI: Thank you. And Mr. Chowdhury, do you have anything for Mr. Schmidt?

MANNU CHOWDHURY: Nothing for me. Thank you.

ANTHONY IMBESI: Okay. Well, thank you very much, Mr. Schmidt. We can go off

record.

Concluded at 3:59 P.M.

REPORTER'S CERTIFICATE

I, LEILA HECKERT, CVR, Certified Verbatim Reporter, certify;

That the foregoing proceedings were taken before me at the time and date therein set forth;

That the statements of the presenters and all comments made at the time of the meeting were recorded digitally by me;

That the foregoing is a certified transcript of my shorthand notes so taken.

Dated this 20th day of MAY, 2022.

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PER: LEILA HECKERT
CERTIFIED VERBATIM REPORTER

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