# Halifax Water's Regional Development Charge Interested Parties Engagement Meeting Minutes

| Workshop #2 – Infrastructure List for Growth | | |
|---|---|---|
| Date: Tuesday January 28, 2025<br>Teams Meeting | Meeting Time: 1:00pm | Adjourned: 1:40pm |

- Introduction and Overview:
  - The focus of this workshop is the infrastructure list needed for growth. An overview of the Interested Parties schedule was given along with highlighting follow-up items from the previous workshops on population projections.
- Integrated Resource Plan (IRP):
  - A summary on the IRP was given and how the infrastructure list was formed using hydraulic model, flow monitoring data, and population projections.
- Benefit to Existing Methodologies:
  - The five methods within the Benefit to Existing (BTE) Position Paper (posted to the website) were highlighted. Examples were given on projects that were only for local growth (Beaver Bank Road upsizing), 50/50 split (Fish Hatchery Pumping Station), and 5%BTE/95%RDC (Albro Lake Sewer Separation)
- Post Period Benefit:
  - Highlighted how post period benefit accounts for the difference between the 20 year RDC period and 30 year master plan period.
- Changes to the Infrastructure List were highlighted with examples of the following:
  - Completed Projects:
  - Rescoped Projects
  - No Longer Required Projects
  - New Projects
- Next Steps:
  - Halifax Water will provide a draft infrastructure list for review and comment
- Clarification was given on the difference between regional and local infrastructure projects
- Additional clarification on the rational for the Benefit to Existing in the 2013/2014 RDC is explained in the transcript from pages 84 to 111 as part of M05811 (attached).

| Follow-Up Tasks |
|---|
| Provide draft infrastructure list for RDC for review by interested parties |

**NSUARB-W-HRWC-R-13(4)**
**Matter No. M05811**

**NOVA SCOTIA UTILITY AND REVIEW BOARD**

**IN THE MATTER OF:** **The Public Utilities Act**

- and -

**IN THE MATTER OF:** An Application by **Halifax Regional Water Commission** ("HRWC") for approval of a Regional Development Charge for Water and Wastewater Infrastructure and for approval of amendments to the Schedule of Rates, Rules and Regulations for Water, Wastewater and Stormwater Services and to the Schedule of Rates and Charges for Aerotech/Airport System to Establish a Regional Development Charge

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**TRANSCRIPT**

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**HEARD BEFORE:** Roland A. Deveau, Q.C., Vice-Chair
Kulvinder Dhillon, P.Eng., Member
Murray Doehler, CA, P.Eng., Member

**PLACE HEARD:** Offices of the Board
Halifax, Nova Scotia

**DATE HEARD:** December 2, 2013

**APPEARANCES:**

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| | |
|---|---|
| **Board Counsel:** | S. Bruce Outhouse, Q.C. |
| **Hearing Clerk:** | Anne Bonang, NSUARB |
| **Electronic Display:** | Jeff Goodine |
| **Recorded by:** | Dictum Digital Inc. |
| **Transcribed by:** | Dictum Digital Inc.<br>Halifax, Nova Scotia |

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**Halifax, Nova Scotia**

**--- Upon commencing at 9:03 a.m.**

**MR. OUTHOUSE:** Mr. Chair, I don't see Mr. Grant or Ms. Stewart here. I'm sure they're intending to be here.

**THE CHAIR:** The Court of Appeal wouldn't like us to start without them here, probably.

What we'll do is we'll just adjourn for a few minutes and then we'll come back.

**MR. OUTHOUSE:** Let's just do that.

--- Upon recessing at 9:03 a.m.

--- Upon resuming at 9:10 a.m.

**THE CHAIR:** Okay. Good morning, everyone.

This is a hearing of the Nova Scotia Utility and Review Board with respect to an application by the Halifax Regional Water Commission, who have made an application to -- for approval of the Regional Development Charge for water and wastewater infrastructure and for approval of amendments to the Schedule of Rates, Rules and Regulations for Water, Wastewater and Stormwater Services and to enter the Schedule of Rates and Charges for the

Aerotech/Airport System to establish a Regional Development Charge.

My name is Roland Deveau; I'm Vice-Chair of the Board. I'm presiding over this matter. And with me are my colleagues, to my right, Kulvinder Dhillon, and to my left, Murray Doehler.

As always, these matters are recorded and we have the Hearing Clerk, Anne Bonang, and our technical assistant, Jeff Goodine.

So we'll do appearances, starting with the Halifax Regional Water Commission.

**MR. MacPHERSON:** Thank you, Mr. Chairman. John MacPherson for the Halifax Regional Water Commission, and with me Carl Yates and Jamie Hannem.

**THE CHAIR:** Thank you.

And I'll just go through the order of the participants' list. Next is the Consumer Advocate.

**MR. MAHODY:** Good morning, Mr. Vice-Chair. Bill Mahody on behalf of the Consumer Advocate.

**THE CHAIR:** Good morning.

On behalf of Clayton Developments, Cresco Holdings, West Bedford Holdings Limited, and EMSCO

Limited is Mr. Larkin?

**MR. LARKIN:** Good morning, Mr. Vice-Chair. Raymond Larkin. Thank you.

**THE CHAIR:** Thank you.

And I would note, actually, that Mr. Larkin and I were in a conference this weekend in Ottawa. And of particulate note, one of the chief presenters' flight was adjourned or cancelled and didn't show up and on 15 minutes' notice, Mr. Larkin gave one of the major presentations for that on Friday, so you did an admirable job, Mr. Larkin.

**MR. LARKIN:** Thank you.

**THE CHAIR:** Ecology Action Centre?

**MR. BUTLER:** Good morning. My name is Mark Butler. I'm Policy Director of the Ecology Action Centre. And with me is Derek Simon, Andrew Murphy, Kathleen Hall, and Jocelyne Rankin.

**THE CHAIR:** Thank you.

And Mr. Grant, you're here for a few parties, the Halifax International Airport Authority and the Urban Development Institution of Nova Scotia?

**MR. GRANT:** Thank you, Mr. Chair,

that's correct. The Halifax International Airport Authority is in capacity as a watching brief. And assisting me is Maggie Stewart.

**THE CHAIR:** Okay. Thank you.

Anyone else that we missed?

Okay. So -- and Board counsel.

**MR. OUTHOUSE:** Bruce Outhouse on behalf of the Board. With me, Heidi MacIntosh.

**THE CHAIR:** Thank you.

Okay. Any preliminary matters before we move on to the opening statements?

No? Okay.

So in terms of opening statements, I note there's a few of them have been filed. I'm not sure if they're actually presented by panels or by counsel.

Perhaps, Mr. MacPherson, yours is first?

**MR. MacPHERSON:** We had intended, Mr. Chairman, for Mr. Hannem to give the opening statement for the Halifax Regional Water Commission and -- on his own.

**THE CHAIR:** Okay.

**MR. MacPHERSON:** And I don't know

where -- what's the best location for him to give that from.

**THE CHAIR:** I think when we come up -- when we put the panel up, we'll do it from there.

**MR. MacPHERSON:** Right, okay.

**THE CHAIR:** Okay. Was there another statement that's going to be given before the witness panels?

UDI, I think there were two statements.

**MR. GRANT:** Mr. Chair, our assumption was that we would deliver those statements just as our witnesses were testifying.

**THE CHAIR:** Okay. So I suppose that's what we'll do, then. And perhaps, Mr. MacPherson, you could call your first panel.

**MR. MacPHERSON:** Thank you, Mr. Chair.

**MR. OUTHOUSE:** Mr. Chair, some of the participants -- I'm reading the opening statements -- probably intended to deliver them at the outset of the proceedings. I think that Ecology Action Centre is one. I don't know whether anybody else intended to do that or

not.

**THE CHAIR:** Okay, sorry. That's what I thought I had asked.

So Mr. Butler, did you want to give yours before we begin?

**MR. BUTLER:** If that would be all right, yes, please.

**THE CHAIR:** Sure. No, that's fine.

So I'll just -- and we had marked that as Exhibit H-18.

So if you want to give that, Mr. Butler, you can proceed.

**OPENING STATEMENT - ECOLOGY ACTION CENTRE**

**MR. BUTLER:** As I said, my name is Mark Butler, and I'm the Policy Director at the Ecology Action Centre.

The Ecology Action Centre has been working since 1971 to create a healthier, more sustainable Nova Scotia. We have over 3,000 members, many of whom are residents of Halifax Regional Municipality.

The Centre works on a wide range of environmental issues, including the reduction of

greenhouse gases, the protection and conservation of fresh water and the enhancement of the built environment.

The EAC -- the Ecology Action Centre is an active participant in the five-year review of the Halifax Regional Plan, otherwise known as RP+5. Much of our engagement in the RP+5 process has been as member of Our HRM Alliance, a coalition of environmental, business, health and community groups committed to a liveable HRM.

The Alliance advocates seven solutions which will enable the HRM to grow in a denser, more sustainable way, both environmentally and economically. One of our seven solutions is effective development charges.

We have chosen to be an intervenor in this hearing because we are concerned about the impact of current development patterns on the environment and the residents of the Municipality. It is our contention, and one that appears to be shared by HRM, that denser, more compact forms of development bring multiple benefits.

The environmental and carbon footprint of a city is greatly reduced when it is more compact; in fact, it is the single biggest step a city can take to

reduce its impact on the environment. The quality of life and health of residents is improved when commute times are reduced and there are viable options for active transportation.

Most importantly from the point of view of this hearing, denser forms of development keep servicing costs lower, thereby reducing the financial burden on the municipality and consequently on the taxpayer and the ratepayer.

We support water conservation and efficiency as advanced by other intervenors, but we do not see these measures as a substitute for a rate structure that reflects the full cost of servicing new development and encourages more compact development.

The Halifax Regional Water Commission has applied for an increase in Regional Development Charges. The Ecology Action Centre is supportive of the concept of development charges. It is reasonable and fair that those who benefit from new infrastructure should pay the cost of new infrastructure. New infrastructure should not be paid for by rate increases for existing users, as was often done in the past.

However, the EAC opposes the proposed Regional Development Charges for wastewater and water. The reason for this is that the charges are flat charges, which do not accurately reflect the actual cost of services.

Single-unit dwellings, no matter where they are located in the serviced area of HRM, will carry the same wastewater charge of $5,728 and the same water charge of $337. Multiple unit dwellings will have a flat charge of $3,874 for wastewater and $226 for water.

These proposed rates do not accurately reflect the cost of installing these services to new developments. As numerous reports, including the report entitled “Economic Impact of Growth Related Infrastructure Costs,” prepared by Gardner Pinfold, and the report, “Quantifying the Costs and Benefits to HRM, Residents and the Environment of Alternate Growth Scenarios,” prepared by Stantec, show it is more expensive to service low-density developments and developments located farther from existing services than it is to service high-density developments located closer to existing growth and service centres.

The Ecology Action Centre is opposed to flat charges for the following eight reasons.

One, the proposed charges are unacceptable as to the criteria of fairness by class. Simply, these charges are too low for low-density single unit home developments and too high for multiple-unit dwellings.

Two, the flat charges will tend to encourage the building of a disproportionate share of low-density homes in far-flung areas of the suburbs and rural areas as compared to multi-unit -- multiple-unit dwellings units built in the condensed urban core and other growth centres. These charges do not reflect the goals of HRM's Regional Development Plan, nor do they make any attempt to achieve the possible savings identified in the Stantec report.

Three, the proposed charges are not defensible in relation to the expected cost of servicing different forms of settlement. Specifically, the cost to service widely-dispersed settlement will cost more than servicing a number of apartments built all on one site with one service connection.

The reason for this is because HRM's present municipal tax structure is based on property assessment rather than the actual cost of service. The encouragement of more suburban development will cause fiscal problems for the city simply because the pattern of servicing costs incurred will not be recovered by taxes collected.

Four, the proposed charges will expose the Halifax Regional Water Commission to considerable additional financial risk because of the additional costs of servicing low-density development.

Five, the proposed charges and the rate base analysis make no attempt to reflect the actual existing supply of suburban lots. Instead, by favouring suburban over urban development by under-recovering the suburban costs and over-recovering the urban costs, there will be a tendency to increase the supply of suburban lots far in excess of any kind of reasonable supply.

Six, by undercharging for suburban servicing costs, residents of HRM will be encouraged to settle in the suburban areas. We know that sprawling development patterns generate negative impacts, including

a disproportionate generation of greenhouse gases and negative impacts on human health because of a reliance on the automobile and lack of active transportation options.

Seven, the HRM's regional plan growth targets and other policies and the Halifax Regional Water Commission's proposed rates are not in harmony.

Eight, and final, through its IRP, the Halifax Regional Water Commission proposes to help the developers by building the trunk services for them and getting an equal contribution from all developers based on the number of units. What is unclear to the Ecology Action Centre is why Halifax Regional Water Commission wants to do this.

If Developer A wants to buy expensive valley land with arable soils and have cheap servicing where Developer B buys cheap land on a rocky hill and has expensive servicing, why should the HRM harmonize the costs? Let each developer bring services to and through their own subdivisions and have Halifax Regional Water Commission pay the over-sizing costs for trunk services.

To conclude, rather than charging flat rates, a superior method would be to charge by the square

foot of the dwelling. This should be adjusted for the lot size and the distance of the lot from water supply and sewage plants. In this instance, if new pipes had to be built to get to a new subdivision, there should be an incremental charge for this new infrastructure paid for by that subdivision.

Infrastructure charges, once collected, should be placed in reserve accounts. Transfers from these reserve accounts should not be allowed. This should prevent infrastructure charges collected from dense development in the core of the city from being used to finance even more suburban growth.

Thank you.

**THE CHAIR:** Thank you, Mr. Butler.

Okay, Mr. MacPherson, this is the panel?

**MR. MacPHERSON:** Yes, Mr. Chairman, this is our first panel with Ms. O'Toole, Mr. Hannem, Ms. MacKenzie, and Mr. Jorgensen.

I wonder if perhaps the -- you might wish to affirm them. Mr. Hannem can give his opening statement, then I'll have some brief direct, if that's

acceptable to the Board.

**THE CHAIR:** Sure.

**MS. CATHIE O'TOOLE, Affirmed:**

**MR. JAMIE HANNEM, Affirmed:**

**MS. KENDA MacKENZIE, Affirmed:**

**MR. JAMES JORGENSEN, Affirmed:**

**THE CHAIR:** And Mr. Hannem?

**OPENING STATEMENT - HALIFAX WATER COMMISSION**

**MR. HANNEM:** Good morning, Mr. Vice-Chair.

Jamie Hannem, Director of Engineering and Information Services with Halifax Water, and I'm pleased to read our opening statement.

On July 26th, 2013, Halifax Water filed an application for approval of a Regional Development Charge. The approach adopted by Halifax Water is used in many other jurisdictions and is a practice for financing growth-related costs endorsed by the American Water Works Association and the Water Environment Federation.

Development of the charge included many stakeholder consultation meetings. Halifax Water has maintained dialogue with intervenors and interested parties throughout the process.

Halifax Water's Integrated Resource

Plan identified that the utility needs to spend $2.6 billion over the next 30 years to maintain existing assets, be environmentally compliant and meet the need for new infrastructure caused by anticipated growth. The proposed charge would result in approximately 20 percent of the $2.6 billion being paid by new development.

Consistent with cost causation principles, Halifax Water's philosophy is that the cost of servicing new growth should be borne by new developments. Halifax Water has attempted to ensure that the proposed charges are reasonable. To that end, Halifax Water partnered with the Halifax Regional Municipality to engage Gardner Pinfold to analyze the economic impact of existing and proposed development charges.

The proposed Regional Development Charge will replace three existing charges. This will result in a framework that is easier to understand and be more efficient to administer. It will be applied consistently to all new developments and address existing inequities within the current framework for development charges.

Halifax Water has attempted to address

many of the concerns raised by intervenors to ensure that only regional infrastructure required to service new growth is captured within the charge.

Halifax Water is mindful that any increase in development-related charges has an economic impact. Halifax Water has therefore structured the charge in a manner that balances economic impact and cash flow concerns for new development with the utility's desire to ensure new growth pays a fair share of growth-related costs.

Halifax Water has also sought to minimize the impacts on existing ratepayers as a result of those new developments. To that end, additional studies were conducted and, based on the findings of those studies, the proposed charge has reduced substantially from those initially proposed.

Based on valuable input gained from the stakeholder consultation process, the growth-related costs included within the calculation of the charge were reduced by approximately $100 million.

The best information available has been used for these estimates. However, Halifax Water

recognizes that there is always some level of uncertainty with the introduction of a new charge of this type. To that end, Halifax Water has proposed the charge be adjusted every five years or when a condition changes that results in an impact of 15 percent in the charge.

Our goal is to establish a charge that will break even and not result in any surplus or deficit at the end of 30 years. Continued growth and development is vital to the economic prosperity of the Municipality and also provides a benefit to existing ratepayers.

Halifax Water has a key role in enabling growth by ensuring it will be able to meet the financial challenges associated with providing necessary water, wastewater and stormwater infrastructure. These services are vital to the residents and businesses of our region. With investment now and into the future, we will all benefit from the infrastructure that helps provide the economic environmental backbone for current and future generations.

Unfortunately, if Halifax Water does not have the revenues generated by a substantial increased development charge, the utility runs the risk of being

unable to meet the future demand for growth-related infrastructure.

That completes the opening statement. I would note that Halifax Water, for the benefit of all parties, has provided a summary document of the current charge calculation basically showing all the math on one sheet and the associated list of infrastructure.

I believe this was distributed in advance to most of the parties, and we suggest that it's a document that could be used by all through these hearings for clarity of information.

**THE CHAIR**: Okay. This obviously is the first time we've seen it, so -- is that correct, Mr. MacPherson?

**MR. MacPHERSON**: That's correct, Mr. Chair. It was intended to, I guess, recapitulate the most recent information and as well as the revised infrastructure lists ---

**THE CHAIR**: Okay. So ---

**MR. MacPHERSON**: --- reflecting those removed in the rebuttal.

**THE CHAIR**: Okay. So perhaps before

we mark that one, do you want to speak to the proof of -- proof of advertisement, Mr. MacPherson? I think you filed that.

**MR. MacPHERSON**: Yes, I filed with the clerk proof of advertisement, Mr. Chair.

**THE CHAIR**: Okay. So we'll mark that as H-22.

**MR. MacPHERSON**: Thank you.

**--- EXHIBIT NO. H-22:**

Proof of Advertising

**THE CHAIR:** And then the summary -- the summary Mr. Hannem spoke to, we'll mark that as H-23.

**--- EXHIBIT NO. H-23:**

Proposed Wastewater Calculation Summary

**MR. HANNEM:** Thank you, Mr. Chairman.

**THE CHAIR**: Okay. So Mr. MacPherson, you want to produce -- or you're going to do some direct examination?

**MR. MacPHERSON**: I do have some brief direct, Mr. Chairman, beginning with Mr. Hannem.

**DIRECT EXAMINATION BY MR. MacPHERSON**

**MR. MacPHERSON**: Mr. Hannem, you're employed by the Halifax Regional Water Commission?

**MR. HANNEM:** Yes.

**MR. MacPHERSON**: And what is your position with HRWC?

**MR. HANNEM:** My position is the Director of Engineering and Information Services with Halifax Water.

**MR. MacPHERSON**: And for what period of time have you been in that position?

**MR. HANNEM:** I've been in that exact role since 2007, but I've been in a similar role since 1994 with the evolution of the utility's role in that context.

**MR. MacPHERSON**: And can you provide a general description of the duties of that position?

**MR. HANNEM:** Yes. As the Director of the Engineering and Information Services Department, I lead a team of technical and professional staff in the areas of asset management, master planning, regulatory approval, capital budgeting, capital project delivery and information services as they relate to water, wastewater

and stormwater infrastructure.

**MR. MacPHERSON**: Okay. Have you been involved with this application for -- as it relates to a Regional Development Charge?

**MR. HANNEM:** Yes.

**MR. MacPHERSON**: Can you describe your involvement?

**MR. HANNEM:** My involvement as the Director responsible for the delivery of the Regional Development Charge, I would have been the team lead that pulled together the variety of in-house staff and external consultants that developed the methodology and the calculations, provided a senior oversight role for policy type discussions and technical discussions, and ultimately had the responsibility to deliver the application.

**MR. MacPHERSON**: Are you familiar with a document which is in this proceeding, the Halifax Regional Water Commission Regional Wastewater Functional Plan?

**MR. HANNEM:** Yes.

**MR. MacPHERSON**: Okay. And can you describe what that plan is and what role, if any, you had

in its development?

**MR. HANNEM:** The Regional Wastewater Functional Plan is a functional plan that got its definition from HRM's Regional Plan whereby a functional plan for wastewater service was proposed to understand the existing capacity of the regional infrastructure within our system and model and develop the impact that proposed growth would have on it and develop reasonable scenarios to provide infrastructure to support that growth.

My role as Director of Engineering and Information Services, I was directly responsible to ensure that project got completed and provided a high level oversight role with the technical staff that delivered the project.

**MR. MacPHERSON**: And what relevance, if any, does the Regional Wastewater Functional Plan have to the information which is contained in this application for a Regional Development Charge?

**MR. HANNEM:** The Regional Wastewater Functional Plan modelled and delivered a scenario of regional growth-related infrastructure for wastewater. It was then utilized as an input to the Integrated Resource

Plan that was completed and was also the underlying infrastructure list that formed the Regional Development Charge calculation.

**MR. MacPHERSON**: Okay. So we started off with the Regional Wastewater Functional Plan.

You just mentioned the Integrated Resource Plan. First of all, are you familiar with that document?

**MR. HANNEM:** Yes.

**MR. MacPHERSON**: And can you describe what it is?

**MR. HANNEM:** The Integrated Resource Plan is a master plan approach to look at the -- and understand the infrastructure requirements within Halifax Water for water, wastewater and storm utility across all aspects of our activities that would generally include asset renewal, environmental compliance and growth.

So it was an all-encompassing study that looked at our long-term infrastructure requirements across all three asset classes for all three drivers of infrastructure. And that’s the number we referenced, the $2.6 billion in infrastructure was the total investment

that the IRP identified.

That was a master plan that the UARB, in a recent rate decision, asked us to proceed and deliver with to help start to give the utility a vision of the long-term capital responsibilities.

**MR. MacPHERSON**: And did you have any role in the development of the Integrated Resource Plan?

**MR. HANNEM:** Yes.

**MR. MacPHERSON**: Can you describe that role?

**MR. HANNEM:** Yes. As the Director of Engineering and Information Services, I would have been responsible for the completion and delivery of that project and provided the high level oversight to the technical staff that developed and delivered the project.

**MR. MacPHERSON**: And what is the relationship between the information in the IRP and the information in this application?

**MR. HANNEM:** The Integrated Resource Plan was a master plan that would have filtered the core input from the Regional Wastewater Functional Plan in finalizing the regional infrastructure lists that were the

underlying component of the Regional Development Charge calculation.

**MR. MacPHERSON**: And finally, coming forward to the Regional Development Charge, what was your role -- in having been through the Regional Wastewater Functional Plan and the IRP, what was your role in preparing the application that's currently before the Board?

**MR. HANNEM:** So I was the Director responsible for completing the Regional Development Charge. I would have acted as the team lead that would have consolidated the internal staff and a variety of consultants that worked on the project, provided high level policy and technical oversight, and ensured that the application was completed and delivered.

**MR. MacPHERSON**: And is the information contained in this application true and accurate, to the best of your knowledge?

**MR. HANNEM:** Yes.

**MR. MacPHERSON**: So by application, I mean application, IRs and the various iterations which ---

**MR. HANNEM:** Yes.

**MR. MacPHERSON**: --- we've been through. Okay. Thank you.

Ms. O'Toole, you are employed by the Halifax Regional Water Commission?

**MS. O'TOOLE**: That's correct.

**MR. MacPHERSON**: And in what position?

**MS. O'TOOLE**: I'm the Director of Finance and Customer Service.

**MR. MacPHERSON**: And for what period of time?

**MS. O'TOOLE:** I have been employed there for two years and nine months.

**MR. MacPHERSON:** Okay. And what, in general, are the duties of that position?

**MS. O'TOOLE:** I fulfil the duties of the Chief Financial Officer, so I oversee the Finance Department which includes procurement, accounting and budgeting, the metering and billing section, and the Customer Service Department.

**MR. MacPHERSON:** I went through with Mr. Hannem the various documents which have contributed to this rate application; can you describe what role, if any,

you had in the development of this application?

**MS. O'TOOLE:** I played a supportive role to the Engineering Department and ensured that numbers that were presented tied through documents to the best of our ability and provided advice on matters of policies, particularly issues that impacted our future rates and financing.

**MR. MacPHERSON:** And is the information contained in this application to which you had input true and accurate, to the best of your knowledge?

**MS. O'TOOLE:** Yes.

**MR. MacPHERSON:** Ms. MacKenzie, you're employed by the Halifax Regional Water Commission?

**MS. MacKENZIE:** Yes.

**MR. MacPHERSON:** And in what position?

**MS. MacKENZIE:** I am the Manager of Engineering Approvals within the Engineering and IS Department.

**MR. MacPHERSON:** And for what period of time have you held that position?

**MS. MacKENZIE:** I have been in that role for approximately five and a half years.

**MR. MacPHERSON:** Prior to being employed by the Halifax Regional Water Commission, who was your employer?

**MS. MacKENZIE:** I was working with HRM at the time.

**MR. MacPHERSON:** For what period of time?

**MS. MacKENZIE:** Approximately seven and a half years.

**MR. MacPHERSON:** And what position did you -- what was your final position with HRM?

**MS. MacKENZIE:** My final position prior to joining Halifax Water Commission was in the Engineering Capital Costs Contribution Department, with infrastructure and asset management. And that was about a year, and previous to that I had been development engineer for the Dartmouth Region.

**MR. MacPHERSON:** And can you -- coming back to your current position as Manager of Engineering Approvals with HRWC, can you describe the general duties of that position?

**MS. MacKENZIE:** Okay. As the Manager

of the Engineering Approvals group I oversee staff that review and approve building permits, subdivision applications, both minor and major, whereby services are extended, water mains, sewer mains and stormwater mains. We also are responsible for commenting on planning applications through HRM's planning process for re-zonings and development agreements. As well, we provide support on Regional Plan updates and reviews, and a review of growth centre developments where there's going to be a proposed service extension.

As well, coming out of those projects, for master planning communities where secondary plan is being implemented and there is a need for master plan infrastructure, we are a direct support to that in developing capital cost contribution charges, where appropriate, for oversized infrastructure. And on a regular basis we are tasked with the management of the existing CCC, or capital cost charge, areas, and the development of new ones.

**MR. MacPHERSON:** Now, there has been mention obviously of the Regional Wastewater Functional Plan. Are you familiar with that document?

**MS. MacKENZIE:** Yes, I am.

**MR. MacPHERSON:** What role, if any, did you have in the preparation of the Regional Wastewater Functional Plan?

**MS. MacKENZIE:** I was the project manager for that project.

**MR. MacPHERSON:** And in that role what tasks were you responsible for?

**MS. MacKENZIE:** As the project manager for that project, I was responsible for direct relationships with the consulting team which was comprised of CBCL Limited and AECOM and the organization of stakeholder meetings, both internal and external, and the deliverables of that overall project looking at the regional wastewater that’s required to provide support for the growth that’s anticipated.

**MR. MacPHERSON:** And just for the purposes of, I guess, of the transcript and clarity of everyone here, you referred to AECOM which I believe certain of its reports are in evidence and is spelled A-E-C-O-M, all in capitals?

**MS. MacKENZIE:** Correct.

**MR. MacPHERSON:** Are you familiar with the Integrated Resource Plan?

**MS. MacKENZIE:** Yes, I am.

**MR. MacPHERSON:** And what role, if any, did you have in the development of the IRP?

**MS. MacKENZIE:** I played a support role coordinating, as Mr. Hannem had indicated previous. The Regional Wastewater Functional Plan had outcomes that were a direct feed into the Integrated Resource Plan, and where the project manager for the Integrated Resource Plan needed to coordinate deliverables between the two project teams, I was tasked with ensuring that the project team we had for the Functional Plan was able to deliver those to the Integrated Resource Plan Team.

**MR. MacPHERSON:** And who at the Halifax Regional Water Commission took the lead in the development of the IRP?

**MS. MacKENZIE:** That was Valerie Williams.

**MR. MacPHERSON:** And her position is?

**MS. MacKENZIE:** She is the Manager of the Asset Management Group.

**MR. MacPHERSON:** What role, if any, did you play in the development of the regional charge, in particular the application and documents that are currently before this Board in that regard?

**MS. MacKENZIE:** With the development of the Regional Development Charge, I played a coordinating role for the stakeholder engagement management of some of the technical reports that are contained within the application, development of the charge like we see within the application, and addressing the information requests and such as the application progressed.

**MR. MacPHERSON:** Did you have any involvement in the stakeholder engagement process?

**MS. MacKENZIE:** Yes, I did.

**MR. MacPHERSON:** Can you describe that involvement?

**MS. MacKENZIE:** At a high level, I was tasked with setting up the stakeholder meetings reaching out to the stakeholders that we saw that would be potentially impacted by the charge and trying to develop a process for that.

**MR. MacPHERSON:** And is the information contained in this application true and accurate, to the best of your knowledge?

**MS. MacKENZIE:** Yes, it is.

**MR. MacPHERSON:** Thank you.

Mr. Jorgensen?

**MR. JORGENSEN:** Yes.

**MR. MacPHERSON:** By whom are you employed?

**MR. JORGENSEN:** BluePlan Engineering Consultants.

**MR. MacPHERSON:** And what is your position with that company?

**MR. JORGENSEN:** I'm the infrastructure planning technical leader.

**MR. MacPHERSON:** And have you filed a résumé in regard to your educational and employment background in this matter?

**MR. JORGENSEN:** Yes.

**MR. MacPHERSON:** And that is, I believe, an attachment to Exhibit H-16? If we might -- at the end, I believe, of the Halifax Regional Water rebuttal

evidence?

**MR. JORGENSEN:** Yes, the final two pages of this.

**MR. MacPHERSON:** Can you see a document on the screen before you that is a portion of Exhibit H-16; is that your résumé?

**MR. JORGENSEN:** It is.

**MR. MacPHERSON:** And looking first at Educational Background, can you describe for the Board what is your education.

**MR. JORGENSEN:** So I have a geography degree from the University of Plymouth in the United Kingdom, which is a Bachelor’s Honours degree.

**MR. MacPHERSON:** And do you have any professional registrations or designations?

**MR. JORGENSEN:** Yes.

**MR. MacPHERSON:** And those are listed on the screen?

**MR. JORGENSEN:** Yes.

**MR. MacPHERSON:** Now, the first of those is a Member of the Chartered Institute of Water and Environmental Management. Can you inform the Board what

is the Institute of Water and Environmental Management?

**MR. JORGENSEN:** So CIWEM is a chartered institution. It's an organization which promotes the public benefit of sustainable and green environment for our world.

**MR. MacPHERSON:** Okay. And below that it indicates that you are Chartered Water and Environmental Manager by -- how does one obtain that designation?

**MR. JORGENSEN:** So through CIWEM there's two designations that you have upon full membership. You have the M-CIWEM when you become a member and then also if you go through the entire process you can become a Chartered Water and Environmental Manager.

I have both designations. To achieve that you need to undertake a series of 10 mandatory competencies which need to get approved by a Fellow of the organization.

Upon completion of that aspect, you then need to undertake a project report and a career report outlining where you've come from in your career and also to discuss in detail some of the projects that you've

been involved in. If they're acceptable, you are then asked for -- to attend an interview process whereby a panel of Fellows and members of the organization will ask you questions regarding your competence and professionalism and then, ultimately, accept or reject you.

**MR. MacPHERSON:** And upon acceptance, you have the designation of CIWEM?

**MR. JORGENSEN:** Correct.

**MR. MacPHERSON:** Okay. Now, the second designation is Chartered Environmentalist.

Can you explain for the Board, first of all, by which organization is that designation granted?

**MR. JORGENSEN:** So that's from the Society of the Environment, which is -- they're an umbrella organization which allow related organizations such as CIWEM, such as the Institute of Chartered Engineers to allow them to designate the Chartered Environmentalist.

**MR. MacPHERSON:** Okay. And can you describe the process by which one becomes a Chartered Environmentalist?

**MR. JORGENSEN:** So for Chartered Environmentalist, it follows the same approach as the CIWEM, the only difference being is, upon your interview, a member of the Society of the Environment is present on the panel which asks you questions.

**MR. MacPHERSON:** Great. Okay. The next designation is Member of the Institute of Asset Management.

Can you describe that institute and the significance of being a member of it?

**MR. JORGENSEN:** So the institute's focus is for all professionals who manage, implement or take care of any physical assets. To achieve the designation, you would go through a process of outlining your competence, again on a set of prescripted competencies that are given by the institution. There's no interview process with that institution.

**MR. MacPHERSON:** Okay. And finally, you're a member of an asset management committee.

Can you, I guess, explain first of all what the acronyms are and what that involves?

**MR. JORGENSEN:** So WEAO is the Water

Environment Association of Ontario and the OWWA is the Ontario Water Works Association, so that they work together, and I sit on the asset management committee under the WEAO organization.

**MR. MacPHERSON:** Okay. And following down with work experience, if we can start, I guess, at the bottom with AECOM UK, and from 2009 to 2011 you were a Graduate Engineer to Associate Director.

Can you explain exactly, first of all, what ACOM -- AECOM, I'm sorry -- AECOM UK does and, secondly, your role there during the course of that nine-year period?

**MR. JORGENSEN:** Sure. So AECOM is a global engineering consultancy providing engineering services and many others. It's a multi-disciplinary consultancy.

In 2002, I started as a Graduate Engineer and, upon leaving AECOM UK in 2011, I was the Associate Director. So by that stage, I was managing some other staff and managing projects and being the technical lead, so being responsible for technical outputs to clients.

**MR. MacPHERSON:** Now, obviously this application involves a utility that's engaged in water and wastewater. What, if any, of your working experience at AECOM UK was in that area?

**MR. JORGENSEN:** All of it. So my entire career has been focused on water, and primarily wastewater aspects. In the UK, our primary client was a water company. So Southwest Water in particular was a consistent client throughout that period, working on behalf of them. And the types of work that I was undertaking were infrastructure planning, wastewater planning type projects.

**MR. MacPHERSON:** In 2011, you -- it appears you began employment with AECOM Canada Limited.

**MR. JORGENSEN:** Yeah. So it's essentially the same global company, and it was a transfer from the UK to Canada. So I took up a position in Canada as the Master Planning Practice Leader, which to some extent is the Canadian terminology for the infrastructure planning type work that I was doing in the UK.

**MR. MacPHERSON:** So you were working again in the water and wastewater areas.

**MR. JORGENSEN:** Correct.

**MR. MacPHERSON:** Okay. And finally, your current employer is BluePlan Engineering Consultants Limited.

First of all, can you tell the Board what BluePlan Engineering Consultants Limited do?

**MR. JORGENSEN:** So we're an engineering consultant, but we're far smaller than AECOM. We specialize in infrastructure planning, hydraulic modelling and asset management.

**MR. MacPHERSON:** And what functions do you perform at that firm?

**MR. JORGENSEN:** As I said, I'm the Technical Leader in the infrastructure planning group there, and I'm responsible for technical outputs, managing projects, all within the water, wastewater, infrastructure planning, asset management realm.

**MR. MacPHERSON:** Okay. So if we can just go back for one moment to AECOM Canada Limited, did that company provide any services to Halifax Water with which you were involved?

**MR. JORGENSEN:** Yes.

**MR. MacPHERSON:** Can you describe what they are?

**MR. JORGENSEN:** So AECOM Canada was the consultant working with CBCL for the Regional Wastewater Functional Plan on behalf of Halifax Water.

**THE CHAIR:** I'm sorry; that was the -- which plan?

**MR. JORGENSEN:** The Regional Wastewater Functional Plan -- the functional plan.

**THE CHAIR:** Thank you.

**MR. MacPHERSON:** And on behalf of AECOM Canada, were you involved with the development of that plan?

**MR. JORGENSEN:** Yes.

**MR. MacPHERSON:** Okay. And can you describe your involvement?

**MR. JORGENSEN:** I was the technical lead, so myself and the project manager from the AECOM team were the prime people that were liaising with the client and also CBCL, the other consultant team working on the project.

**MR. MacPHERSON:** Okay. Moving forward

to BluePlan, what services, if any, have they provided to the Halifax Regional Water Commission, and what has your involvement been with the provision of those services?

**MR. JORGENSEN:** Sure. I'll just jump back quickly ---

**MR. MacPHERSON:** Sure.

**MR. JORGENSEN:** --- to AECOM Canada.

So under AECOM Canada, I was also working on the review document, the RDC review document, which is pages -- starts 179 of the full application of evidence, H-1. So that was under -- when I was at AECOM.

**MR. MacPHERSON:** So you had input into the development of that document.

**MR. JORGENSEN:** I was the project manager and technical lead for that aspect of work.

**MR. MacPHERSON:** In non-engineering terms a lawyer might understand, did you write it?

**MR. JORGENSEN:** I was the prime writer ---

**MR. MacPHERSON:** Okay.

**MR. JORGENSEN:** --- so I had the ultimate responsibility in terms of final review before

issue to client.

There was a larger project team who I worked with in order to put it together, but ultimately, I was responsible.

**MR. MacPHERSON:** Right. So then moving forward to BluePlan ---

**MR. JORGENSEN:** Yeah.

**MR. MacPHERSON:** --- can you describe the services they have provided to Halifax Regional Water Commission and your involvement with it?

**MR. JORGENSEN:** So under direct contract from BluePlan to Halifax Water, I've been assisting with the support work as part of this hearing.

**MR. MacPHERSON:** Okay. And that flowed, I gather, from your work at AECOM Canada?

**MR. JORGENSEN:** Correct, yes. It was a continuation, really, of the knowledge that I'd gained through the functional plan, the development charge report.

**MR. MacPHERSON:** Now, obviously this plan relates to Regional Development Charges.

What experience, if any, have you had

in regard to the formulation of Regional Development Charges?

**MR. JORGENSEN:** Sure. So one of the key things that I work on in Canada is master plans in -- though many of them, I suppose most relevant would be the Region of Peal, which is listed on my resume, and then City of Cambridge. And currently, we're undertaking City of Brantford master plan, all of which will have a development charge component in order to align the capital program that are developed into a capital program applicable for a development charge input.

**MR. MacPHERSON:** And all three of those municipalities are in Ontario, as I understand it.

**MR. JORGENSEN:** That's correct.

**MR. MacPHERSON:** And in Ontario, which entity led these development charges?

**MR. JORGENSEN:** So it's a provincial law, ultimately, and then beneath that it's municipalities' council have by-laws.

**MR. MacPHERSON:** And prior to that, in the UK, did you have experience with similar types of charges?

**MR. JORGENSEN:** Similar, yes, but the process is slightly different. So I assisted water companies, primarily South West Water and Anglian Water, with the development of their submissions to the water regulator, Ofwat. So every five years, water companies are required to submit their required -- or their believed required -- expenditures for the following five years, which are then subject to audit by the regulator and then ultimately there will be a decision as to whether or not the water company can increase rates to pay for that required work.

**MR. MacPHERSON:** Okay.

**MR. JORGENSEN:** So similar but different.

**MR. MacPHERSON:** Right.

Your résumé also indicates that you have been involved in various rate studies. I think at page 2 of that résumé, at the top.

**MR. JORGENSEN:** Yeah. So very related but often put under the category of asset management, the rate reviews I've undertaken in Canada; Town of Woolwich, which has recently completed; Township of Mapleton which

is an asset management plan under the Ministry of Infrastructure, that's ongoing due to be submitted by Christmas; and then the City of Temiskaming Shores which I undertook when I was with AECOM Canada.

**MR. MacPHERSON:** Right. As well, in one of the items which is mentioned during the course of -- in some of the documentation, at least, in this application is hydraulic modelling. Do you have any experience with hydraulic modelling?

**MR. JORGENSEN:** Yes.

**MR. MacPHERSON:** Can you describe that experience, please?

**MR. JORGENSEN:** Yeah. So I've been participating in hydraulic modelling activities since I started with AECOM UK in 2002, primarily using one specific software in the UK but then, since then, in Canada I've been involved in the Region of Peel wastewater hydraulic model; City of Cambridge, which I was the lead modeller overseeing the calibration and build of that model. I also worked closely with the Halifax water model after it was built and calibrated by CBCL.

**MR. MacPHERSON:** Right.

**MR. JORGENSEN:** There's others on there.

**MR. MacPHERSON:** Thank you, Mr. Jorgensen.

Mr. Chair, we would ask that Mr. Jorgensen be qualified as an expert in the development of master plans, the development of development charges, and hydraulic modelling.

And those are our questions.

**THE CHAIR:** Do any parties have questions in relation to qualifications?

**MR. GRANT:** I have several, Mr. Chair, if I may?

**THE CHAIR:** Thank you.

**CROSS-EXAMINATION BY MR. GRANT (ON QUALIFICATIONS)**

**MR. GRANT:** Mr. Jorgensen, where is the Chartered Institute of Water and Environmental Management headquartered?

**MR. JORGENSEN:** The CIWEM is headquartered in the UK.

**MR. GRANT:** Okay, so it's a UK organization?

**MR. JORGENSEN:** That's where it's headquartered.

**MR. GRANT:** Yeah. Does it have a Canadian arm?

**MR. JORGENSEN:** It doesn't have a specific Canadian arm, although there are members in Canada.

**MR. GRANT:** Mr. Jorgensen, you are ---

**MR. JORGENSEN:** It's a worldwide organization.

**MR. GRANT:** You're not a professional engineer?

**MR. JORGENSEN:** No.

**MR. GRANT:** Thank you. Those are my questions.

**THE CHAIR:** Mr. Larkin, any questions?

**MR. LARKIN:** No, thank you.

**THE CHAIR:** Mr. Mahody?

**MR. MAHODY:** No, thank you, Mr. Chair.

**THE CHAIR:** And Mr. Butler?

**MR. BUTLER:** No.

**QUESTIONS FROM THE CHAIR**

**THE CHAIR:** I just have two questions Mr. Jorgensen. The -- or one question. The master plans in your résumé, I note that they're all undertaken essentially within the last year.

**MR. JORGENSEN:** Well yeah, two years really.

**THE CHAIR:** Okay, 2012 and 2013. So my question is ---

**MR. JORGENSEN:** They are more about completion dates. So the Region of Peel I've been working on since I've arrived in Canada in 2011, for example.

**THE CHAIR:** Okay.

**MR. JORGENSEN:** However, it's only -- well, it's still not formally complete yet.

**THE CHAIR:** Okay. Okay, thank you.

Anything rising from that? Any comments relating to qualifications?

Okay. So Mr. MacPherson, he's so qualified.

**MR. MacPHERSON:** Thank you, Mr. Chair, those are our questions.

**THE CHAIR:** So is there any preference

in relation to cross-examination? Mr. Grant, are you going first I understand, or is that your understanding as well?

**MR. GRANT:** That's correct, Mr. Chair.

**THE CHAIR:** Did you want to do it from there, or did you want to move? It's up to you.

**MR. GRANT:** I think I'm fine from here if I could get Mr. Yates maybe to move a little to the right?

**(LAUGHTER)**

**MR. GRANT:** Or to take his head off, his choice. Thank you.

**CROSS-EXAMINATION BY MR. GRANT**

**MR. GRANT:** So just to maybe start off, panel, with some general propositions. The Regional Development Charge as it's being developed, and I may say, just in terms of the materiality we're focusing on, the wastewater side rather than the water side, but I suppose some of the questions may pertain to both, but the Regional Development Charge as it is developed is intended to recover from new growth the projected cost of infrastructure required to service that growth over the

next 30 years. Is that correct?

**MR. HANNEM:** I would qualify that by saying it is the regional component of the infrastructure required to support the growth. And the clarity is that, you know, if a new subdivision is being built, there are -- as described in our application, there is local infrastructure the developer would have to build, there is area master infrastructure that they would have to build, and the current Regional Development Charge is about recovering the costs for the regional component of the infrastructure. Otherwise, I would agree with you.

**MR. GRANT:** Thank you. And -- thank you for that qualification.

So you have to design the charge, you have to identify what that regional infrastructure which is required over the next 30 years is; correct?

**MR. HANNEM:** That is correct.

**MR. GRANT:** And there are a number of other assumptions that HRWC and its consultants have to make in order to determine the size of that infrastructure; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** All right. And one of those assumptions relates to the projected population growth for the serviced area of the municipality?

**MR. HANNEM:** That is correct.

**MR. GRANT:** All right. And if the population growth assumptions are too high, potentially more infrastructure will be projected to be required than will actually be required in fact?

**MR. HANNEM:** If the population is higher we would require more infrastructure, yes.

**MR. GRANT:** Yeah. And if you're -- if the projections that you're relying upon are too high for population then you may have included in your 30-year infrastructure plan, infrastructure that will not be required as time passes?

**MR. HANNEM:** That's a correct statement.

**MR. GRANT:** Right. If the population growth estimates are incorrect, the timing at which the infrastructure -- the regional infrastructure that forms part of the proposed Regional Development Charge -- may change; correct?

**MR. HANNEM:** It may change.

**MR. GRANT:** Right. It may -- it may be required sooner, or it may be required later, or not at all within the 30-year timeframe.

**MR. HANNEM:** That's correct. There's many variables that may change that timing.

**MR. GRANT:** Okay. Another assumption that you make in preparing the Regional Development Charge is assumptions regarding the amount of water consumed by new customers of the utility; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** And the assumptions regarding the consumption levels of new customers will drive, in part, the amount of wastewater that has to be treated by Halifax Water?

**MR. HANNEM:** Correct.

**MR. GRANT:** So it may either reduce the capacity of the existing facilities or increase the capacity of the existing facilities?

**MR. HANNEM:** In part, yes.

**MR. GRANT:** Right. Now, another assumption that you have to make -- you had to make with

the assistance of your consultants was the amount of wastewater which will be generated both from the existing -- from existing areas of development and the projected new growth development over the next 30 years. Correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** And that is, as we determined a moment ago, partly a function of the water consumption levels; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** But it's also -- it also has to take into account inflow and infiltration into the wastewater system; correct?

**MR. HANNEM:** correct.

**MR. GRANT:** And so you had to make some assumptions regarding I&I generation rates for new customers; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** And if those assumptions are incorrect, they may affect the timing of the infrastructure that's required to regional infrastructure that's required to accommodate anticipated growth; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** It may postpone some of that infrastructure right outside the 30-year time period; right?

**MR. HANNEM:** I think it's fair to say it could impact the timing.

**MR. GRANT:** All right.

Another assumption that you had to make in developing the Regional Development Charge is the settlement patterns for new growth; correct?

**MR. HANNEM:** Yeah, I just want to be clear, and I'll just refer to Ms. MacKenzie of whether we made those assumptions or those were part of the information provided by the Municipality. So if I might, I'd ask Ms. MacKenzie to reply.

**MR. GRANT:** Thank you.

**MS. MacKENZIE**: Yes. With regards to the settlement patterns, we consulted with HRM Regional Planning Staff. They had population projections from work that they were doing in conjunction with the existing Regional Plan that was approved in 2006 and looking forward to the RP+5 which is the Regional Plan update that

they’re under -- currently underway with.

And we sought their input on where growth centres were desired under the Regional Plan. And so those patters and areas were identified by HRM staff.

**MR. GRANT:** Yeah. What year was that consultation?

**MS. MacKENZIE:** It would have began, I believe, the latter part of 2011 into 2012.

**MR. GRANT:** Did that consultation feed into the Regional Wastewater Functional Plan?

**MS. MacKENZIE:** Yes, it provided information to both the Regional Wastewater Functional Plan and the Integrated Resource Plan by default.

**MR. GRANT:** For the purposes of preparing the RDC, Halifax Water had to make assumptions about the number of persons per unit for residential development; correct?

**MR. HANNEM:** That’s correct.

**MR. GRANT:** And you made those assumptions at various levels for single family dwellings and for -- and townhouses, on the one hand, and for multiple residential apartments on the other hand;

correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** Okay. And if the assumption about the number of persons per unit are too high and the population grows at the projected rate, there will be -- the RDC will have more units to collect charges from than was anticipated; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** And that will result -- that would result in higher than anticipated revenues for -- than that which you're seeking in this application?

**MR. HANNEM:** Under that scenario, yes.

**MR. GRANT:** Right. HRWC has begun an inflow and infiltration reduction program; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** And at this point in time, you have -- sorry; at this point in time you have plans to continue with the I&I reduction program in the area of existing services; correct?

**MR. HANNEM:** Yes, we do.

**MR. GRANT:** And you have aspirations for that program to be an effective way to create

additional capacity, do you not?

**MR. HANNEM:** We do.

**MR. GRANT:** At this point you have not taken into account any additional capacity to be created by those prospective I&I reduction programs, have you?

**MR. HANNEM:** We have not at this point in time.

**MR. GRANT:** No. And if those I&I reduction programs are effective, infrastructure which is included within the RDC charge may either be eliminated or postponed; would you agree?

**MR. HANNEM:** It may be. I&I reduction is a complicated process and it may result in that, among many other results.

**MR. GRANT:** Right. It's the case, is it not, Mr. Hannem, that within the Regional Wastewater Function -- Functional Plan you identify an I&I pilot project for Dartmouth; for the Dartmouth Sewer Shed?

**MR. HANNEM:** I understand the one you reference. I believe that was in the Integrated Resource Plan.

**MR. GRANT:** Okay. In any event ---

**MR. HANNEM:** Nonetheless ---

**MR. GRANT:** It was not carried through in the Regional Wastewater Functional Plan?

**MR. HANNEM:** The Regional Functional Plan fed into the Integrated Resource Plan. The Integrated Resource Plan in its completion included a illustrated example of the potential impact of II in the system, and that is the Dartmouth scenario that you referred to.

**MR. GRANT:** Okay. And the scenario in Dartmouth is that if there were to be an effective I&I reduction program within the Dartmouth Sewer Shed, an expansion of the Dartmouth Wastewater Treatment facility may not be required within the RDC period?

**MR. HANNEM:** That's what that example showed, yes.

**MR. GRANT:** All right. And Mr. Hannem, would you agree with me that for the assumptions that we've just touched upon and the questions that I've addressed to you, HRWC has taken a conservative approach as to what will be required in the RDC in order to meet those assumptions?

**MR. HANNEM:** I don't think it's fair to characterize the full suite of assumptions that we've gone through as conservative through the full list. We have developed what we believe are reasonable assumptions based on our data in industry best practice. Some would be conservative, some would be deemed aggressive.

And if you would like to go into each of those in detail, we could perhaps separate those and Mr. Jorgensen is most familiar with the -- with the calculations of the assumptions on whether they're conservative or aggressive or practical.

**MR. GRANT:** Okay.

**MR. HANNEM:** I wouldn't characterize them all as conservative, though, to your question.

**MR. GRANT:** Well, we'll get into some of the details, I'm sure, over the rest of the hearing, but would you agree that the HRWC emphasis has been to build in margins so that service can be provided while meeting regulatory requirements; that as your first priority?

**MR. HANNEM:** Yeah, I wouldn't characterize it that way. I'd say we try to find what are

appropriate assumptions based on the information and data we have to support that.

**MR. GRANT:** Okay. Turning to the I&I example, you have assumed for the purpose of the plan that there's no increase in capacity as a result of I&I reduction programs within the existing service area; correct?

**MR. HANNEM:** That is correct.

**MR. GRANT:** Your assumption is that I&I from new growth will offset any existing additional capacity achieved through the I&I reduction program?

**MR. HANNEM:** I don't think that's exactly accurate. I think we have separated the inflow and infiltration, II, as we call it.

There's two separate issues. There's the historical II that exists in the system today and how we're going to deal with that and what impacts that may have on future infrastructure requirements. And then, as a separate issue, there's what's the appropriate II rate to use for the new growth.

So I think you're referring to the historical component still.

**MR. GRANT:** Okay.

**MR. HANNEM:** And what we are saying is, at this time, although we are underway with extensive II reduction programs, we do not have the corporate data to justify saying exactly what impact that might have on our system in general and then more specifically on available capacity for development.

We did make a statement that one of the things that we'll have to do as a minimum is at least have success with II to offset the increased aging of the infrastructure. We made that more as a passing statement than as a, you know, exact formula decision.

I think the bottom line is that we do not have the full dataset corporately to fully understand or even begin to understand the potential impact on the many components of our system, including growth capacity, that II reduction programs can and may have.

**MR. GRANT:** Okay. Your hydraulic modelling for the growth area includes an I&I component, does it not?

**MR. HANNEM:** That is correct.

**MR. GRANT:** Okay. Mr. Hannem, you

don’t have any pretension that your assumptions about what’s going to happen over the next 30 years will be correct, do you?

**MR. HANNEM:** No.

**MR. GRANT:** No. You can’t -- it’s -- the truth is, it’s likely that they’re incorrect in some respects.

**MR. HANNEM:** Well, I think it’s like anything in a 30-year projection. You’re making the most reasonable, but the actuals will likely never ---

**MR. GRANT:** Right.

**MR. HANNEM:** --- exactly equal what you projected.

**MR. GRANT:** Yeah. And would you agree with me that it’s easier to predict what’s likely to be built within the next five to 10 years than it is to what is to be built in the next 20 to 30 years?

**MR. HANNEM:** In the context of our wastewater infrastructure, I would tend to disagree with that statement.

**MR. GRANT:** Okay. Can you tell me today whether the Anderson Lake Storage Facility Project

projected for 2039 is going to be built in 2039?

**MR. HANNEM:** No, I can't.

**MR. GRANT:** Okay. HRWC recognizes that because of all the assumptions in the modelling and the uncertainty with respect to predicting what's going to happen in the future that there is a need to revisit the RDC on a periodic basis; correct?

**MR. HANNEM:** That is our proposal, yes.

**MR. GRANT:** Okay. And you propose to do it on a five-year period or at any time when the RDC is out of touch by plus or minus 15 percent from the amount it should be.

**MR. HANNEM:** Correct.

**MR. GRANT:** All right. The adjustment that you propose -- and this proposal came in your rebuttal evidence, did it not; the proposal for adjustments to the RDC every five years and plus or minus 15 percent?

**MR. HANNEM:** No, I think that was consistent with the previous information, not just in the rebuttal.

**MR. GRANT:** Oh, I'm sorry. And in the rebuttal, you indicated that you would do it when it was plus or minus 15 percent on a mandatory basis as opposed to a discretionary basis.

**MR. HANNEM:** That's correct. I think the rebuttal cleaned up the discretionary component.

**MR. GRANT:** Okay, thank you.

But in this adjustment that you propose as part of the rate, the adjustment is a prospective adjustment. It applies if it is implemented to future new growth customers who are required to pay the RDC; correct?

**MR. HANNEM:** If you could restate that. I'm not sure I completely understand your question.

**MR. GRANT:** Okay. If -- by prospective, I mean that when the adjustment is made, it will apply to new customers who are required to pay the RDC after the date of the adjustment. It is not retrospective in the sense that you go back and adjust for customers who have already paid the RDC if they've overpaid.

**MR. HANNEM:** I think I understand the

question now. Thanks for that clarity.

**MR. GRANT:** Yeah.

**MR. HANNEM:** I'm going to ask Ms. O'Toole to address that, please.

**MS. O'TOOLE:** In one of our IR responses to a UDI IR, we had proposed that the adjustment would provide for retroactive application if we determined there was an over-collection that we would be refunding it.

**MR. GRANT:** I beg your pardon; if there was?

**MS. O'TOOLE:** We had proposed retroactive adjustment. If it was determined there had been an over-collection, we would refund it.

We are not proposing retroactive adjustment in the event of an under-collection, so the utility would assume risk with respect to that.

**MR. GRANT:** Okay. And that -- is that proposal in the IR part of this application?

**MS. O'TOOLE:** Yes, it was provided as an answer in response to one of the IRs, I believe.

**MR. GRANT:** In your rebuttal evidence,

Exhibit H-16, Halifax Water takes the position that RDC is a lienable event within the meaning of Section 33 of the **Halifax Regional Water Commission Act**; correct?

**MS. O'TOOLE:** Yes.

**MR. GRANT:** And utilizing that analysis, you propose that where the total amount of the RDC is in excess of $100,000 that you'd be prepared to treat 25 percent of it as a lien.

**MS. O'TOOLE:** That is correct.

**MR. GRANT:** Okay. And to be clear, is that intended to apply simply to institutional, commercial, industrial buildings and to multi-unit residential buildings?

**MS. O'TOOLE:** Typically, it would be those types of properties that would result in a Regional Development Charge that would be in excess of $100,000, so yes.

**MR. GRANT:** Okay. So if, for instance, a developer were looking at a -- say, a 50-unit subdivision, single-family residential, that developer would not get the benefit of that 25 percent lienable.

**MR. HANNEM:** That's correct, on the

theory that the charge is allocated at building permit, and it would be based on the series of individual building permits coming forward from that development.

**MR. GRANT:** Okay. One of the problems for developers with respect to the RDC that was identified in the course of the stakeholder meetings is that the RDC is imposed upon them at the time of building permit; correct?

**MS. O'TOOLE:** Correct.

**MR. GRANT:** And one of the difficulties with respect to that is that it affects financing and cash flow; correct?

**MS. O'TOOLE:** Correct.

**MR. GRANT:** And it also affects the ultimate consumer because it gets grossed up with respect to financing charges and developer's profit as it gets passed along on the sale of the property; correct?

**MS. O'TOOLE:** In all likelihood, correct.

**MR. GRANT:** Right. Have you considered as an option in the structure of the plan to have -- in the structure of the charge, rather, to have

direct lien for the entire amount as a Regional Development Charge on the property?

**MS. O'TOOLE:** No, we had not considered that.

Generally, development charges are paid at the building permit stage. We have found some jurisdictions where there is a lien placed on the property. Generally, it's not for the entire amount.

The issue with imposing it as 100 percent lienable charge is it doesn't resolve the utility's immediate cash flow requirement to be able to fund the growth-related infrastructure.

The second issue with respect to that is the fact that the Municipality may not have sufficient cash flow to be able to take those charges on and provide the lien.

In effect, when the Municipality places a lien on a property, we are assigning them our accounts receivable and they are giving us the funds. And they assume the collection risk, and it impacts the Municipality's cash flow.

**MR. GRANT:** Okay. So you did not

contemplate the lien as a charge or a form of security which would be available to HRWC to ensure payment of the remainder of the RDC over the term of repayment.

**MS. O'TOOLE:** We had proposed the lien because stakeholders had raised the cash flow impact as a significant concern. We had initially proposed an idea that 50 percent of the charge could be collected at the building permit stage and 50 percent could be collected at the point of meter collection -- connection.

Essentially, that would spread the charge out over a period of two, maybe three years.

The issue with respect to that is there's some collection risk on the portion you defer to the meter stage, and we had suggested perhaps developers or builders could provide us with a letter of credit or some form of security. That was determined by our stakeholders not to be a useful mitigative measure.

The stakeholders suggested that could we look at putting a portion as a lienable charge, and we went back and started doing more research on that and, frankly, tried to be really creative in determining a way to mitigate that concern. And that resulted in our

suggestion that a portion could be placed as a lienable charge.

**MR. GRANT:** Okay. The sewer development charge, which is one of the charges that the RDC is intended to replace?

**MR. HANNEM:** That is correct.

**MR. GRANT:** That charge is now deferrable until -- and not necessarily payable until the occupancy permit is issued for the property?

**MR. HANNEM:** I'm just going to ask Ms. MacKenzie to speak on the mechanics of that charge.

**MS. MacKENZIE:** The sewer redevelopment charge, the collection still remains at HRM at the building permit stage and they make application and the funds are transferred to Halifax Water. HRM's by-law enabled the deferral of that when, 2007, with the merger and the transition of the funds for the sewer development charge coming to Halifax Water, I believe the deferral option was removed.

**MR. GRANT:** Okay. What difficulty would be presented to HRWC if the RDC were not payable until the issuance of an occupancy permit as opposed to

the issuance of a development permit?

**MS. O'TOOLE:** There would potentially be some cash flow impact. I can't provide a number off the top of my head, but I don't think it would be that significant.

**MR. GRANT:** Okay. Would you be prepared to consider that as the timing point for an RDC?

**MS. O'TOOLE:** There would be a collection risk. There are instances where properties commence or developments commence construction and a bankruptcy or a sale or something happens throughout the process, and we would need to find a mitigative measure to ensure that, if we're deferring collection of any funds beyond that initial building permit stage, that we have a mechanism to ensure that we can ultimately recoup it.

**MR. HANNEM:** And in addition -- sorry.

**MR. GRANT:** Sorry; I was happy to go on, but I don't understand that.

If a developer or a builder goes bankrupt and has a building permit in his hand and a completed building, either the builder or his -- the receiver for whoever's financing the building is going to

wish to liquidate the asset; correct?

To liquidate the asset, the builder or the receiver is going to have to sell it and it's going to have be sold on the basis that the purchaser can make use of it and will require an occupancy permit. Where is the collection risk?

**MS. O'TOOLE:** The collection risk results from the fact that not everybody gets an occupancy permit. The lienable charge gives the certainty that -- or having it attached as a lienable charge, if the property is going to sell, it has to be paid.

**MR. GRANT:** Okay. But if the property owner doesn't obtain an occupancy permit, the property owner's not entitled to occupy the property; right?

**MS. O'TOOLE:** That is correct.

**MR. GRANT:** You're not obliged to provide services and that property doesn't generate any wastewater that you need to service; correct?

**MR. HANNEM:** I just want to clarify that one point on the occupancy permit through Ms. MacKenzie.

**MS. MacKENZIE:** I just want to -- I --

clarify, I guess, the process by which a building becomes serviced and occupied.

We feed into HRM's building permit process with our approvals. During that process, there's a series of inspections and steps that the builder takes and that HRM undertakes as well as ourselves.

In order for the builder to get what they constitute final inspection and then, subsequently, the occupancy permit, the water service has to be active, and so the meter has been installed by the time that the builder comes in for a final inspection and occupancy permit. So if they stop at final inspection and do not finish to get -- the process to get the occupancy permit, they have already obtained their meter and have service through us.

**MR. GRANT:** I appreciate that explanation. It sounds to me like it's more a matter of -- there are technical solutions to that, though, right?

Just the fact that you've given a meter doesn't necessarily recognize that you've identified it as open for service; right?

**MS. MacKENZIE:** What -- it's HRM's

building officials that would have to manage the process if a homeowner or builder does not obtain the occupancy permit, so ---

**MR. GRANT:** Okay. Can you not make the occupancy permit conditional upon payment of any RDC that's owing?

**MS. MacKENZIE:** I think that would have to be answered or managed through HRM's building permit process. My understanding is that as long as the building is compliant with building code regulations that, typically, the occupancy permit is issued. So it would just be a matter of finding the appropriate trigger or the appropriate step in the process.

**THE CHAIR:** Would that be a lienable event under Section 33, that you could advise HRM that you had a lien on that property?

**MS. O'TOOLE:** I believe if we attached it at the occupancy permit stage and then we issued the bill and something happened, it didn't get paid, then it would become lienable under that second provision as an uncollectable outstanding account.

**MR. GRANT:** Okay. And if it's not

paid, you can cut off service.

**MS. O'TOOLE:** That's correct.

**MR. GRANT:** Thank you.

The -- for the RDC, all capital costs as collected in the RDC are expressed in 2012 dollars; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** That's regardless of when the project is built.

**MR. HANNEM:** That's correct.

**MR. GRANT:** And the total to be recovered includes the financing costs.

**MR. HANNEM:** It includes the specific project financing costs, yes.

**MR. GRANT:** Right. And -- well, but it also includes the financing costs that reflect the difference in timing and the collection of RDC charges and the payout of the collected charges for projects; right?

**MS. O'TOOLE:** It does for water; however, it doesn't for wastewater.

Halifax Water's first discussion paper, which is within the Application at page 85, shows

the initial charges presented to stakeholders were based on a total infrastructure cost of about $655 million. That did include financing costs.

Discussion paper number 2 within the Application at page 126 shows total infrastructure costs of $607 million, which included the financing costs of $52 million, but at the time when we conducted stakeholder conference number 2, you can see on page 135 of the Application that the overall ---

**MR. GRANT:** Okay. Just let me follow you with ---

**MS. O'TOOLE:** Essentially, at page 135, you can see the overall infrastructure cost was reduced to $579 million. The main difference in that change is that the financing costs were removed, so our numbers have been evolving throughout the process in response to some of the stakeholder feedback.

**MR. GRANT:** Just a moment. Where on 135?

**MS. O'TOOLE:** So if you look at the -- page 135 right here, the slide that says "Overall infrastructure costs," wastewater is five fifty-five.

**MR. GRANT:** Right.

**MS. O'TOOLE:** That does not include any financing cost. And the cost which the RDC is calculated upon for wastewater does not include financing costs. Financing costs of $52 million have been removed.

Financing costs of $2.5 million still remain within the water number and should be removed to be consistent with wastewater.

**MR. GRANT:** Okay. And that's going to require a little explanation for me.

Can I ask you to turn to Exhibit H-1 at page 125? This is Table 1-4, wastewater; correct?

**MS. O'TOOLE:** Correct.

**MR. GRANT:** And this is cash flow analysis for the purposes of determining the charge; correct?

**MS. O'TOOLE:** Correct. This was a -- this was our first paper, and it was our preliminary vision of how the actual reserve would work. We were envisioning that we would collect RDC funds, put them into segregated reserve, pay for the growth-related projects from that reserve and we would have to borrow to support

the reserve in years when there was a negative balance.

To that extent, we had initially envisioned building the financing costs within the regionable (sic) -- Regional Development Charge. Subsequently, those financing costs were removed.

So by stakeholder consultation, number 2, the financing costs, had been removed.

**MR. GRANT:** Okay. So if we -- if we look at the bottom of Table 1, the second-last column, as the interest cost of borrowing deducts the interest on -- when the RDC is positive to get the net financing cost of 52 million that now forms no part of the charge.

**MS. O'TOOLE:** That is correct.

**MR. GRANT:** May I ask you to turn to Exhibit H-1, page 199. This is Appendix B.

So this is Appendix B to Appendix A-14 of the Application, and this sets out your preferred scenario F for the calculation of the Regional Development Charge; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** Okay. And this is the most up-to-date and comprehensive table of this sort that

we should rely upon for looking at the RDC. Is that right?

**MR. HANNEM:** Of this type, yes.

**MR. GRANT:** Okay.

**MR. HANNEM:** We've subsequently adjusted it by a -- in a line item, "Adjustments to the infrastructure list," but of this type of going through the full scenario.

**MR. GRANT:** Okay. And I take it that the panel is satisfied that the numbers set out in this table are accurate and reliable?

**MS. O'TOOLE:** Yes.

**MR. HANNEM:** Yes.

**MR. GRANT:** Okay. The initial approach to the RDC identified projects over the next 30 years driven by growth considerations and allocated the entire cost to be recovered in the RDC, correct, of those projects?

**MS. O'TOOLE:** Correct.

**MR. GRANT:** And at the time, the consultants in HRWC considered that to be an appropriate approach; correct?

**MS. MacKENZIE:** Yes.

**MR. GRANT:** Okay. In July of this year, AECOM and BluePlan, at HRWC's request, prepared a paper setting out alternatives or modifications to the original plan; correct?

**MR. HANNEM:** Yeah, I'll get Mr. Jorgensen to speak specifically to that.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Okay. And that paper is reflected in the Application, H-1 -- application -- Appendix 14 beginning at page 177. That's the -- that's the document.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Now, at page 190 of the same exhibit ---

**MR. JORGENSEN:** M'hm.

**MR. GRANT:** --- there is a summary of various alternative scenarios that were considered by AECOM and BluePlan pursuant to this mandate; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And I want to focus on scenarios C1 and C2, which deal with the benefit to

existing; correct?

**MR. JORGENSEN:** Okay.

**MR. GRANT:** And you considered a scenario C1 which allocated a minimum of 5 percent of the capital costs of the regional infrastructure which was forming part of the RDC to be deducted as representing a benefit to the existing customers; correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And you, at the same time, considered a scenario C2 which allocated a benefit to the existing based on judgment with respect to individual projects.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And it is that second scenario, C2, which is the one that forms your preferred scenario F at page 199.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** From HRWC's perspective, any three of the scenarios for allocating benefit to existing would have been acceptable.

**MR. JORGENSEN:** I can't comment on behalf of HRWC, but the main difference, really ---

**MR. GRANT:** Well, if you can't ---

**MR. JORGENSEN:** All right.

**MR. GRANT:** --- let me ask HRWC.

**MR. HANNEM:** Yeah. Could you restate that, please?

**MR. GRANT:** Okay. From your perspective, any three of the scenarios for dealing with benefit to existing would have been acceptable. You initially proposed no allocation and then there were two additional scenarios that were put forward in this report.

Any three of those scenarios would have been satisfactory for HRWC.

**MR. JORGENSEN:** Well, I could probably answer that given some thought because there were discussions in meetings regarding the benefit to existing, so originally there was no benefit to existing applied and then, through consultation with the consultant project team, of which I was the technical leader for, we suggested including a benefit to existing in some of the -- the two primary approaches that we suggested for consideration was a blanket percentage across the board and then one which looked at individual projects.

**MR. GRANT:** Okay. And -- but at various times, any one of those three was proposed as a basis for the RDC; correct?

**MR. JORGENSEN:** The only one that was proposed as the basis for the RDC was the one included in scenario F based on the recommendation, as I recall.

**MR. GRANT:** Okay, yeah. But that scenario F ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** --- was only introduced in the stakeholder meetings in July of 2013; correct?

**MR. HANNEM:** Yes. I think what you're suggesting is that the initial calculation had zero benefit to existing ---

**MR. GRANT:** Right.

**MR. HANNEM:** --- suggesting that either of them, thus, would be acceptable. I think our broader goal was to find what was appropriate if we had initially had assumed zero percent benefit to existing that was based on our best understanding of the information.

Through stakeholder consultation,

further review of the consultants we came to understand a more preferred approach and drove to the more preferred approach.

**MR. GRANT:** Okay. If I can refer you to page 188 of the same exhibit. And I want to refer you to paragraph 4.3.2 where the topic of benefit to existing is dealt with. You say there:

> "The non-growth BTE component is typically identified for certain projects which benefit the existing service area. These components are typically associated with upgrades to the existing systems or facilities necessary to maintain service levels to existing residential and non-residential users. These projects may also involve upgrades or expansions which provide additional capacity to meet growth in the service area.

An engineering assessment of all capital program individual projects was completed. The review concluded that most projects could be considered to have some benefit to the existing population through improved levels of service, reduced servicing costs and environmental improvements.
Averaged across the applicable development charge eligible projects, the BTE represents approximately 10 percent of the total capital program costs.
This is consistent with other jurisdictions, including Ontario where the BTE is accounted for as part of the development charges by law." (As read)

Right? So that's the explanation as

to what you did; right?

**MR. HANNEM:** Yeah.

**MR. GRANT:** Okay. And we asked Halifax Water, Exhibit H-4, IR-48, page 79, Mr. Goodine. Thank you. So actually just the previous page, if I may. That's really where the question is. Thank you.

So in IR-48 UDI asked HRWC in paragraph (f) to provide a separate worksheet that shows:

> "The BTE percentage for the project along with the working papers and calculations relied upon to allocate project costs and benefits to existing and growth."

That question was asked. And the response that we received is under paragraph (f):

> "BTE analysis was not done for specific individual projects. Please refer to page 188 Section

4.3.2 for an overview of the general allocation of the BTE to project classes."

Correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** That was the answer. So what we have in terms of determining the benefit to existing for all the projects that are included in the RTC is the two paragraph statement 4.3.2, which I read to you a moment ago; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And Appendix B which is scenario (f) analysis at page 199.

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** Right. That is all that we have; correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** Right.

**MR. JORGENSEN:** I think so.

**MR. GRANT:** And the benefit to existing analysis prepared by Halifax Regional Water

Commission was first presented to the stakeholders on -- at the last stakeholder consult on July 22nd, 2013. Isn't that correct?

**MR. JORGENSEN**: I wasn't present at the meeting.

**MR. GRANT:** Okay.

**MR. JORGENSEN**: It would have been around there.

**MR. GRANT:** Is that correct, Mr. Hannem?

**MR. HANNEM:** I think that's the correct timing, yes.

**MR. GRANT:** Okay. And the application for this RDC was filed with the Board on July 26, 2013; correct?

**MR. HANNEM:** That's correct.

**MR. GRANT:** Okay.

**MR. HANNEM:** Cathie -- Ms. O'Toole has a follow-up question.

**MR. GRANT:** Okay. And -- and just -- just to be clear, the report submitted by HRWC staff to the Board of the Halifax Regional Water Commission

authorizing the filing of this application was dated July 17, 2013. Isn't that correct?

**MS. O'TOOLE**: That's correct. And the report did contain a paragraph that is consistent with what was conveyed to stakeholders before we went to that Board meeting, that:

> "It is important to note that during the time period from the HRWC Board approval until the UARB hearing date, staff will be conducting additional quality control as the Charge Application is assembled and continued dialogue with the industry stakeholders. There may be changes in the proposed charge application as a result. The Halifax Regional Water Commission Board will be notified if anything substantive is changed..." (As read)

**MR. GRANT:** Right.

**MS. O'TOOLE**: "...that causes an impact greater than +/-5% on the proposed charges." (As read)

And on August 16th, we also emailed some of the stakeholders to let them know that the application was filed; however, we were continuing dialogue; we anticipate there will be changes throughout the process.

**MR. GRANT:** Okay.

**THE CHAIR**: Sorry. You were reading from something there. Where are you reading from?

**MS. O'TOOLE**: It's an excerpt from the report that Mr. Grant was referencing that went to the Halifax Regional Water Commission Board meeting seeking approval to submit the application.

**THE CHAIR**: Okay. So that's not in evidence, is it?

**MR. GRANT:** Yes, it is. It's Exhibit H-9 at page 26.

**THE CHAIR**: Thank you.

**MR. GRANT:** You would agree that between July 22nd and July 26 there wasn't a great deal of opportunity for stakeholder input with respect to the selected alternative for benefit to existing which was proposed by HRWC?

**MR. HANNEM:** Could you just restate those dates, please?

**MR. GRANT:** Between July 22nd, the date of the last stakeholder consultation meeting, and July 26, the date of the filing of the application, there wasn't a great deal of opportunity for consultation with stakeholders regarding the benefit to existing.

**MR. HANNEM:** Yeah, I would -- I would agree with that. The point that you say that the 22nd was the first time they were introduced to the BTE though, I believe that concept came out earlier in our process.

**MR. GRANT:** But your proposal as to what you were going to do with the BTE was first introduced at the July 22nd meeting?

**MR. HANNEM:** The specific math.

**MR. GRANT:** Right.

**MR. HANNEM:** Yes.

**MR. GRANT:** And you would agree with me, Mr. Hannem, that members of the industry, representatives of the Urban Development Institute, repeatedly raise in the course of the stakeholder meetings, is there any benefit to the existing customers of this infrastructure which you're including with the RDC; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** And is it not the case as well that in some of those earlier meetings, they were advised by HRWC that that has already been taken into account in preparing the infrastructure list?

**MR. HANNEM:** I don't recall that specific statement.

**MR. GRANT:** Okay. Now, Mr. Jorgensen, I take it you're here -- you're the one on the panel who can speak to the allocation of the benefit to existing as it appears at page 199 of the application?

**MR. JORGENSEN**: Yeah.

**MR. GRANT:** Okay. And that appears in the ninth column to the right?

**MR. JORGENSEN**: Yeah.

**MR. GRANT:** From the right?

**MR. JORGENSEN**: Title, “Benefit to Existing.”

**MR. GRANT:** Right. And there’s a fair measure of uniformity in the assignment of the amount of benefit, is there not?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Okay. If we take out -- I’m sorry, Mr. Goodine, it’s Exhibit H-1, page 199.

May I ask you to enlarge that? It is the fifth column from the right -- on the right-hand side. See, Mr. Chair, it says “Benefit to Existing”?

**THE CHAIR:** Sorry. Did you say fifth column from the right or ninth column?

**MR. GRANT:** Start on the right and move -- sorry, eighth column.

**THE CHAIR:** Right.

**MR. GRANT:** It’s in purple. Next to the one in purple.

So Mr. Jorgensen, as you look down that set of assignments, there’s one at 50 percent and another at 15 percent, but the balance are either zero, 5

or 10 percent.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** Correct?

And there are no detailed working papers which set out the basis upon which those numbers were assigned.

**MR. JORGENSEN:** None.

**MR. GRANT:** No.

**MR. JORGENSEN:** There is -- I don’t believe it’s made as evidence, but the supporting information is just text -- textual commentary.

**MR. GRANT:** Okay. So -- well, we asked for whatever you had in the IR and you told us to go back and look at this paper; right?

**MR. JORGENSEN:** Okay. So that potentially could have been missed under the plethora of IRs that were there. It wasn’t an intentional omission.

I can certainly talk you through the approach taken.

**MR. GRANT:** I -- well, I’d like to see the paper. That’s what I asked for in the IR.

**MR. JORGENSEN:** Okay. So at present,

that’s ---

**MR. GRANT:** Well, no. Just -- I don’t want to hear what you have to say.

Mr. Chair, I’d like to see the paper so I can use it for purposes of cross-examination.

**THE CHAIR:** So you’re asking for an undertaking or the one that’s prepared to be provided?

**MR. GRANT:** The one that’s prepared. That’s what I want to see.

**THE CHAIR:** So is that available, Mr. Jorgensen?

**MR. JORGENSEN:** I believe so. It’s not going to show you very much more than what you’ve got here, other than an additional column on the end which provides a sentence of text.

**MR. GRANT:** For each item.

**MR. JORGENSEN:** For each project item.

So would you like me to elaborate, or not?

**THE CHAIR:** Is it something ---

**MR. GRANT:** Mr. Chair, I don’t think that’s fair that -- I asked the question on the IR. I

didn't get a response, and now I'm being offered viva voce ---

**MR. JORGENSEN:** Well ---

**MR. GRANT:** I'm being offered viva voce testimony which I haven't had an opportunity to prepare or deal with.

**THE CHAIR:** So I guess my question, Mr. Grant, is do you want to see the paper or don't you? I'm not sure what you're asking.

**MR. GRANT:** No, I'd like to see the paper, but I want to see it now and I don't want to hear what he has to say ---

**THE CHAIR:** Okay.

**MR. GRANT:** --- until I've had a chance to review it.

**THE CHAIR:** So Mr. Jorgensen, it's something you have available in short order? Because we're approaching time for a break as well, so we could provide Mr. Grant an opportunity to ---

**MR. JORGENSEN:** I believe it is available on my laptop, yeah.

**THE CHAIR:** So perhaps what we could

do, we'll take a break. We'll take a break with -- through Ms. Bonang and Mr. MacPherson, we'll get it printed for Mr. Grant and others here. Okay?

**MR. GRANT:** Thank you.

**THE CHAIR:** So we'll take a break until 25 past 11:00.

**MR. GRANT:** Thank you.

--- Upon recessing at 11:01 a.m.

--- Upon resuming at 11:30 a.m.

**THE CHAIR:** Okay. So we're reconvened, and Mr. Grant, did you want to mark this as an exhibit?

**MR. GRANT:** Yes, please, Mr. Chair.

**THE CHAIR:** Okay. So we'll mark that as Exhibit H-24.

**--- EXHIBIT NO. H-24:**

Wastewater Capital Program – Consumption Reduction Assessment Regional Servicing

**THE CHAIR:** Okay. You can proceed, Mr. Grant.

**MS. CATHIE O'TOOLE, Resumed:**

**MR. JAMIE HANNEM, Resumed:**

**MS. KENDA MacKENZIE, Resumed:**

**MR. JAMES JORGENSEN, Resumed:**

**CROSS-EXAMINATION BY MR. GRANT (Cont'd)**

**MR. GRANT:** So Mr. Jorgensen, I want to refer you to Exhibit H-24.

This is the additional document that we were provided at the break; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And this is the only other document that you have that explains the rationale for the final adjustment to the benefit to existing for the projects which are part of the RDC.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Right.

Can we have the exhibit up on the screen or do you have ---

**MR. JORGENSEN:** Sure.

**MR. GRANT:** So Mr. Jorgensen, the Exhibit H-24 consists of two pages of very long sheets; correct?

**MR. JORGENSEN:** In printed form, yeah,

I believe ---

**MR. GRANT:** In printed form.

**MR. JORGENSEN:** --- it's on four sheets.

**MR. GRANT:** And it lists a number of capital projects which are identified in the second column; correct?

**MR. JORGENSEN:** Yeah. That's got the capital plan project number in there.

**MR. GRANT:** Right. And the explanations that are provided -- sorry. The only additional information on Exhibit H-24 that I've not seen before is the description that appears in the far column on the right. Is that right?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** And that description is an explanation for the assignment of the estimated benefit to existing contained in the fourth-last column.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** All right. Now, this exhibit lists a number of projects which are not included within the RDC as well.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** Right? So you would have to compare this to Appendix F to identify which of those projects had been eliminated.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Right. Now, looking at the expansion -- or look at the description that appears on H-24. If I were to take, just by way of example, say, Capital Plan Project 28, which is seven lines down.

**MR. JORGENSEN:** Okay.

**MR. GRANT:** All right? The project description is -- it's in the Bedford-Lakeside-Timberlea area; correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And it's a new pumping station -- wastewater pumping station at Timberlea Village Parkway, site to be confirmed; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And as we go across the line, it indicates that the project's to be built in 2024. It benefits or serves growth areas 28 and 51; correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And you've allocated a 5 percent benefit to existing for that project.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** And your explanation is that it's new infrastructure, improved environment.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** And from what I gather of your evidence, there are no back-up working papers where you've done calculations to justify the 5 percent. That's judgment on your part to assign 5 percent.

**MR. JORGENSEN:** That was decided through the project team, an engineering assessment through project team, sitting down, looking at each project and assigning that percentage.

**MR. GRANT:** Right. But there's no working papers, there's no calculations to support that 5 percent. It's judgment on the part of the team.

**MR. JORGENSEN:** Correct. Engineering judgment, yes.

**MR. GRANT:** Right. Now, in allocating either zero, 5, 10 percent or higher as a benefit to existing, what rationale or principles did you apply to

form that judgment?

**MR. JORGENSEN:** Okay. So as a starting point, we reviewed what other municipalities apply as a percentage, primarily those around the GTA and projects that ---

**MR. GRANT:** Because those are the ones you're familiar with.

**MR. JORGENSEN:** Correct, and the project team that I was working with were most used to that, and also because Ontario and those around the GTA have been employing development charges and, therefore, assessing their benefit to existing development charges for a long time. Whereas there is no necessity for -- there's no law for development charges in Nova Scotia, so there's very minimal information available regarding the percentages applied to benefit to existing.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** So then, following that, we then went through each project by project, and the basic rationale was that if it was completely new infrastructure and it was only going to be taking growth flows, then there would be no benefit to the existing

population. If there was new infrastructure, which would end up taking some level of existing population flow, and there was a potential that it would improve the environment, then the 5 percent was allocated.

If it was an expansion or a replacement or a renewal of existing infrastructure, so for a sewer if there was an existing sewer and our project was going to run a line along the same course, then through upsizing that infrastructure or twinning that infrastructure, it would be improving the infrastructure that was already in the ground. Therefore, we applied a 10 percent.

For the 15 percent, the comment, I believe, relates to an improved level of service. The project number being 40 under Dartmouth, “potential to improve LOS” is the comment. Yeah.

So here, line 21 of the spreadsheet, that project is the new sewer -- well, running along the alignment of an existing sewer in Dartmouth where there has been a history of some flooding issues.

**MR. GRANT:** Right.

**MR. JORGENSEN:** So it was felt that

that could -- had a potential to alleviate some of the historic flooding issues and, therefore, a greater percentage was applied.

**MR. GRANT:** Okay. So if you identified that a level of service were improved upon, you would apply a higher percentage benefit to existing.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** And would you consider a decrease in the number of overflows to be an improvement to the level of service?

**MR. JORGENSEN:** It would be, completely.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** So to qualify that statement, all of the infrastructure was designed to maintain overflows at their existing level. So none of the infrastructure within the Wastewater Functional Plan had the objective to reduce overflows.

**MR. GRANT:** Okay. And if the -- but if, nonetheless, the project had that outcome, would you recognize that to be of benefit to existing?

**MR. JORGENSEN:** Well, that would be an

improved environment, yes.

**MR. GRANT:** Right, okay. And if a project resulted in lower volumes of overflows, would you recognize that as well to be of benefit to existing?

**MR. JORGENSEN:** It would be, yes.

**MR. GRANT:** And so it should be allocated a higher percentage.

**MR. JORGENSEN:** Yes, but the infrastructure that we specified isn't designed to do that.

**MR. GRANT:** Okay. But the fact that it has that impact, and sometimes it will have that impact, is something that should be recognized in benefit to existing. Would you agree?

**MR. JORGENSEN:** It wouldn't have that impact. The projects -- the infrastructure that's been identified has specifically targeted maintaining overflows at their current frequency and volume.

**MR. GRANT:** All right. So when you allocate a 5 or 10 or 15 percent benefit to existing, are you doing it on the basis that the costs would be incurred in any event because of growth, but -- so that existing

should only have to pay the incremental costs associated with the project?

**MR. JORGENSEN:** Yes, if the -- the project wouldn't be triggered and it wouldn't be on the list if it wasn't for growth, or at least the infrastructure list is part of the Regional Development Charge.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** As you can see, there are lists that you have before you in this Exhibit H-24, we've numbered it, has additional projects. This is primarily from the Regional Functional Plan.

Many of the projects that you see on this list that aren't in scenario H -- F were removed because they weren't deemed relevant to development charge anyway.

**MR. GRANT:** Mr. Jorgensen, it seems to me that you've allocated the costs on a proportionate basis.

You said that if there's a 15 percent benefit to existing, then they should pay 15 percent of the costs. Is that right? Isn't that the cost allocation

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**MR. JORGENSEN:** Correct. So you have

---

**MR. GRANT:** --- mechanism that you used?

**MR. JORGENSEN:** --- 15 percent of the total, in that particular example, line 21 there. Fifteen (15) percent of the total project cost is to -- is removed from the development charge application and, instead, it's an undertaking or an acknowledgement from Halifax Water that they will undertake the additional costs or they will provide the additional costs funded through the rate base

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**MR. GRANT:** Yeah.

**MR. JORGENSEN:** --- i.e., through the replacement programs.

**MR. GRANT:** When did you and your team prepare Exhibit H-24?

**MR. JORGENSEN:** So the spreadsheet's dated the 4th of June 2013, so it would have been ---

**MR. GRANT:** Prior to that.

**MR. JORGENSEN:** So -- yeah.

Although saying that, I think I might have got my days and months messed around.

**MR. GRANT:** You think that's April 6th, 2013?

**MR. JORGENSEN:** I'm not entirely sure. This has been one of the hardest things to grasp since coming to Canada.

It was last printed, according to the document properties, on the 11th of May 2012.

**MR. GRANT:** So this was done some time before the final stakeholder meeting.

**MR. JORGENSEN:** It would ---

**MR. GRANT:** You think it was done in April or May.

**MR. JORGENSEN:** --- have been done around the same time.

I think the June date would probably be most applicable because this was their continuation on from the capital program that was developed for the Regional Functional Plan.

**MR. GRANT:** Can you tell from your timesheets when that was done?

**MR. JORGENSEN:** That would be difficult now. I could, but it would require me to go back to my former employer, AECOM.

**MR. GRANT:** Well, HRWC could do that on your behalf.

**MR. JORGENSEN:** I can be reasonably confident that it's the June date because ---

**MR. GRANT:** Okay, Mr. Chair, could I ask for that to be checked by HRWC?

**THE CHAIR:** And what's the undertaking, exactly?

**MR. GRANT:** To find out the date that H-24 was prepared, when it was prepared, and what the date intended by the printing on the bottom, whether it's June or April.

**THE CHAIR:** Okay.

**MR. JORGENSEN:** So it would have been the June date.

**MR. DHILLON:** But there's a date at the bottom of the page, Mr. Grant.

**MR. GRANT:** I beg your pardon?

**MR. DHILLON:** There's a date at the

bottom of the page.

**MR. GRANT:** Yeah, but he -- the witness wasn't sure whether it was June or April.

**MR. JORGENSEN:** Oh, that was based on the -- yeah, that's based on the file name. I'm -- it's June -- 4th of June 2013.

**MR. GRANT:** Okay, thank you.

**MR. DOEHLER:** Mr. Grant, just before you proceed, I'd like to understand something.

That line you identified on the Dartmouth project, the 15 percent you're talking about ---

**MR. JORGENSEN:** Yeah.

**MR. DOEHLER:** --- it had potential to improve LOS. What's LOS, please?

**MR. JORGENSEN:** Level of service.

**MR. DOEHLER:** Okay, thank you.

Sorry, Mr. Grant.

**MR. GRANT:** Thank you.

So I want to focus in on one of the projects here, Mr. Jorgensen, and to do so I want to refer to a report that you prepared dated July 2012. It appears in Exhibit H-4(ii), Appendix I, which is PDF page 772.

**MR. JORGENSEN:** What IR number was that, please?

**MR. GRANT:** H4(ii), PDF 772.

So if I could refer to the next page, please, this is a report that you prepared directed to Mr. Murphy at CBCL and Mr. Rice at a -- a copy to Mr. Rice dated July 2012. And the subject matter is the “Halifax Water Regional Wastewater Functional Plan review of storage determination methodology.”

**MR. JORGENSEN:** Correct.

**MR. GRANT:** Correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And in this report, you give some background into how to determine the modelling information to be used for wastewater storage facilities; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And then you go on and look at the application of that methodology in a particular application involving a storage plant in the Mill Cove system sewer shed; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** Right. So in the modelling background -- on your modelling background on the page that's in front of you, the first page, you make reference to the Canada-wide strategy for management of municipal wastewater effluent, CCME ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** --- right?

And you note that it directs that there should not be an increase in frequency due to development or growth unless it occurs as part of an approved long-term management plan; correct?

**MR. JORGENSEN:** M'hm. Yeah.

**MR. GRANT:** And that would be the principal aim of addressing the storage size requirements for wastewater storage; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** But then you go on and say at the bottom of the page -- of that first page that:

> "In order to proactively manage this issue, the approach taken is to assess the frequency of the

average volume and the annual total discharge, thus the aim is to maintain or better all three criteria." (As read)

Correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** So in that case, the maintenance of the frequency of overflows would be the principal objective to the extent that you're able to reduce the volume and the annual total volume. That would be an improvement in the level of service; correct?

**MR. JORGENSEN:** Yes, if that was the case.

**MR. GRANT:** Okay. And then you look at the baseline model on the next page ---

**MR. JORGENSEN:** M'hm.

**MR. GRANT:** --- for the average year 2003, and then you do a growth model to accommodate growth from 2003 to 2046; right?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And you're using this

discussion as part of the exercise in determining what the size should be for these storage tanks on the Mill Cove system.

**MR. JORGENSEN:** It was really to provide background into the approach undertaken to the growth modelling component.

**MR. GRANT:** Okay. So as a point where you're looking at the growth plan from 2003 to 2046, whatever is being proposed as infrastructure to accommodate that growth is going to be in the RDC.

**MR. JORGENSEN:** The RDC project list was reviewed specifically for the purposes of the RDC and, as a result, many projects from the functional plan were removed.

**MR. GRANT:** Okay. But the point here is the project that you're identifying for the functional plan in this report ---

**MR. JORGENSEN:** M'hm.

**MR. GRANT:** --- is one that's required in order to accommodate growth between 2003 and 2046.

**MR. JORGENSEN:** Yes, the 2003 isn't really a timeline between -- from then to 2046. Two

thousand and three (2003) was the average year rainfall that was used in the modelling approach.

I understand that the title of Section 1.2, “Growth Model Average Year 2003 Plus Growth to 2046” is somewhat ambiguous, but the growth equated from 2011 to 2046. The average year rainfall from 2003 is what was used as a typical year.

**MR. GRANT:** Okay. So let’s look at the -- you do the growth impact analysis under Section 1.3 of the document and then, under Section 1.4, you have a discussion on limitations of the storage volume requirement; right?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And I guess, to be clear, what we’re talking about here is what eventually became project 12; right?

So if you look at Exhibit H-24, project 12 is in the central area. It’s a storage facility number 1 at Glendale, Old Beaver Bank Road upstream of the Bedford-Sackville trunk sewer.

**MR. JORGENSEN:** Okay, yes.

**MR. GRANT:** That’s -- I’m correct in

that?

**MR. JORGENSEN:** Can I just have one second?

**MR. GRANT:** Certainly.

**(SHORT PAUSE)**

**MR. JORGENSEN:** No. So the example provided in H-4(ii) which relates to fish hatchery pumping station overflow isn't a project on the list. The one closest to that, I think, would be project -- capital plan project number 13, storage facility 2 at Bedford Range Park.

The number 12, I think, is much further upstream and ---

**MR. GRANT:** Okay, so -- I beg your pardon. So it's project 13. It is project 13 that you're looking ---

**MR. JORGENSEN:** It's not project 13. The example used in the H-4(ii) isn't a project. It was just used to show the approach taken to understanding their requirement for storage and the numbers ---

**MR. GRANT:** Okay. Was there ultimately -- was there ultimately a project included in

the infrastructure for the Regional Development Charge that reflected the need for storage in this area?

**MR. JORGENSEN:** Yeah. I believe so; 12 and 13.

**MR. GRANT:** Twelve (12) and 13. Okay.

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** So in 1.4 you look at the approach for sizing the project; correct?

**MR. JORGENSEN:** In Section 1.4 of the memo.

**MR. GRANT:** Of the memo.

**MR. JORGENSEN:** Yeah, that discusses the limitations to the approach.

**MR. GRANT:** Right. And if I look under the first paragraph of 1.4, it says that in looking at the preferred solutions you took into account upstream system solutions to ensure a more accurate assessment of the actual storage requirements; correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And then the next sentence, it says:

"Indeed, in the example of fish hatchery, there's a restriction upstream of the pumping station that, under growth only simulation, restricts the flow to the station and, in turn, limits the extent of the overflows." (As read)

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** Okay. So in layman's terms, under the existing circumstances there is a sewer overflow outfall upstream of the fish hatchery that is entering into the Sackville River; right?

**MR. JORGENSEN:** Yeah, it would flood or discharge, yes.

**MR. GRANT:** Right. And in order to determine the size of the storage tank that's required on this sewer shed, you are going to close off that outfall so it never occurs again.

**MR. JORGENSEN:** To -- well, we needed to maintain the existing level of service provided. So as

a result, we needed to ensure that the growth flows from upstream didn't discharge so that they made their way so that we could understand the full need of storage.

**MR. GRANT:** But then you say:

> "Under the preferred option strategy modelling, with the restriction removed, the storage requirement was assessed to be much greater than that identifying using the high level approach." (As read)

So you've removed the restriction, meaning that outfall is not occurring any more. Am I not correct?

**MR. JORGENSEN:** Yes. So in the initial model runs, if you were to just run the model and let it run its course, then a lot of the growth flows wouldn't reach that pumping station. They were discharging prior to that, so that would give you an unrepresentative figure for storage required.

However, when you undertake hydraulic modelling, you try and simulate what's most -- what will happen in reality. And whilst the model may not look like the configuration of the real system, it's providing you with an indication of what's required in terms of the storage.

**MR. GRANT:** Now, my point, though, is when you look at the storage that you're designing here ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** --- by sizing it with the restriction removed, you're necessarily enhancing the level of service within the sewer shed, are you not?

**MR. JORGENSEN:** With the modelling that we undertook in that area, there wasn't -- it wasn't flooding before. It was only as a result of growth that the problems occurred.

I see what you're saying and there is potential, yes, that you could potentially argue that it's improving the level of service.

**MR. GRANT:** Okay. Now, if we go to the next page of the memo, you have two tables, Table 1

and Table 2.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** And what you do here on these tables is you model the discharge events under Table 1 under the current situation. In Table 2, you model it with your growth assumptions in play; correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And because of the CCME guidelines, which require you to restrict the number of overflows to not more than those under the current scenario, under Table 2 you identified the need to restrict it to no more than six overflows a year; correct?

**MR. JORGENSEN:** Yes. In that methodology, yes.

**MR. GRANT:** And then, in addition, because you have this enhanced objective of not increasing the volume of any of the overflows, you wish to restrict the flows to less than the 11,571 cubic metres which is in rank number 1 under Table 1; correct?

**MR. JORGENSEN:** No. What we were trying to achieve through the allocation of storage is the total annual spill volume.

So if I could explain a little further in terms of the approach required to assess storage requirements, it may shed some light?

**MR. GRANT:** Okay.

**MR. JORGENSEN:** So when using a hydraulic model as a tool to help you understand what's required in terms of storage, there's the two things. There's frequency of the discharge and the volume of the discharge. CCME only made reference to frequency.

However, you could have one discharge that lasts for a full 24 hours, and that counts as one discharge, or you could have one discharge that lasts for one hour and it counts for one discharge.

So within the same frequency of discharge events, you can have very, very different requirements for storage and you can almost, if you so desire, play tunes with the hydraulic model to have fewer frequency but much greater volume, therefore, maintain frequency.

That wasn't felt as a sustainable approach or something that we wanted to entertain, so that's where we introduced the idea of trying to maintain

a similar level of total annual discharge in terms of spill volume.

So that was the reasoning behind what you say was an enhanced level, but, really, it's not an enhanced level; it's just trying to maintain the existing level.

Furthermore, you're never going to, using a hydraulic model, using a before and after -- so the existing situation to growth -- you're never going to line them up exactly. There's no exact answer that comes from hydraulic modelling in this regard.

The danger with hydraulic modelling and storage volumes is that people take a number and that becomes the number that's required, whereas you can see from Table 2 that if you were to capture all the volume up to rank number 7, it's only 911. But if you were to reduce the frequency by one more, you're then jumping to 2,200.

That was one of the main limitations that I was trying to explain in Section 1.4 of that memo.

**MR. GRANT:** Okay. The size of the required storage facility is determined in this case, is

it not, by the difference in volume from rank 1 under Table 2 and rank 1 in Table 1?

**MR. JORGENSEN:** It's a combination of the total annual volume and the frequency. This -- yeah. It's more complex than what's outlined in this memo.

**MR. GRANT:** Okay. You'll agree with me that the difference between the volume in rank 1 of Table 1 and rank 1 of Table 2 is 6,000 cubic metres.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Okay. And that, indeed, is the size of project ---

**MR. JORGENSEN:** Twelve (12).

**MR. GRANT:** --- 13?

**MR. JORGENSEN:** Twelve (12).

**MR. GRANT:** Project 12.

**MR. JORGENSEN:** Yes, which is the upstream storage tank.

**MR. GRANT:** Okay. And you say this relates to project 13, which is 7,000.

**MR. JORGENSEN:** It most -- project 13 is in the most closest vicinity to fish hatchery pumping station.

**MR. GRANT:** Can I refer you to Exhibit H-4(iv), at page 33? Just so you know what it is, at page 1, it's a copy of a memo from you to Ms. MacKenzie, copied to Ray Rice, dated October 2012.

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And you're -- this is part of the developer charges cost allocation; correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And if we go to page 33, I think it's another large spreadsheet.

**MR. JORGENSEN:** M'hm.

**MR. GRANT:** And if we look at -- find it better here -- Projects 12 and 13 ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** --- are listed in this spreadsheet. And it shows, does it not -- and maybe I just have to -- if I could ask Mr. Goodine to swing up to the top so I can see the descriptions, and just slide it over to the right so I can see the remaining columns. I think there's further ones there.

Yeah, so there's one column that says, "Growth Population Benefited"; correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And for Projects 12 and 13, the total population benefited -- 2041 growth population benefited for 12 and 13 ---

**MR. JORGENSEN:** It's the 3144 and the 1608, and then the columns to the right of that, yeah?

**MR. GRANT:** Right. So it's -- and is it not -- it's all part of the one that's shown for 6120, right? 6120 are all part of the growth area that is benefited by those two storage tanks.

**MR. JORGENSEN:** How did you arrive at that number?

**MR. GRANT:** Well, I think I'm looking at items 12, 13 and 14 because I read them to be connected in the areas that are shown.

**MR. JORGENSEN:** Okay, so project 14 as well?

**(SHORT PAUSE)**

**MR. GRANT:** Yeah. So I apologize; localized improvements to the Bedford-Sackville trunk sewer sections, and I believe that that is in the vicinity of 12, 13 and 14; correct?

**MR. JORGENSEN:** Okay.

**MR. GRANT:** And as you scroll across, you see the various areas that are affected by projects 12, 13, and 14.

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And it includes areas 38, 39, 40, 42, 43, and 44.

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** Right? So the total population of those areas, you don't aggregate them if you peel them out, it's 6120.

**MR. JORGENSEN:** Okay.

**MR. GRANT:** Is that right, or not?

**MR. JORGENSEN:** I would say -– I'm not sure what you mean. So project 14, I can see the 6,120 there.

**MR. GRANT:** Yeah. Okay, well let me suggest to you that 6,120 is not far out of line for the project's -- for the population that would be benefited from those three projects in the growth area as shown on your table.

**MR. JORGENSEN:** I guess. Okay.

**MR. GRANT:** Okay.

Now, the concept of a wastewater storage tank is to hold back wastewater generated during peak flows, and then to release it when there is a lower flow on the system and it can be accommodated without -- accommodated and treated without overflow; correct?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Okay. And typically the peak flow period is fairly limited in duration; right?

**MR. JORGENSEN:** Yes, as a function of rainfall. But, yes, I would agree.

**MR. GRANT:** Right, so we see in your report on the sizing of the plant, the rank order incidence, the duration under Table 1 is 10.5 hours, and on the other is 11.5 hours; right?

**MR. JORGENSEN:** That’s the duration of the overflow, yes.

**MR. GRANT:** Right, okay. Which presumably is at peak flow, isn’t it?

**MR. JORGENSEN:** Yeah, that’s it. Yeah, that’s the highest amount of flow and that’s how long that it was above the threshold to discharge.

**MR. GRANT:** Okay. And when you say -- if we say that there are 6,000 people in the growth area who are being benefited by this storage tank, it's appropriate, is it not, to look at the 6,000 persons and what sort of wastewater flow they will generate as the project -- as the growth occurs? Would you agree?

**MR. JORGENSEN:** Yeah, to some extent, yes.

**MR. GRANT:** Okay. So -- and for design purposes HRWC used 340 litres per person per day as the ---

**MR. JORGENSEN:** Per capita flow.

**MR. GRANT:** --- for water consumption; correct?

**MR. JORGENSEN:** M'hm.

**MR. GRANT:** So that would result in -- and I guess on top of that, for design purposes you have to have an allowance for inflow and infiltration, do you not?

**MR. JORGENSEN:** Correct, yeah.

**MR. GRANT:** Okay. And I know that that allowance is one that -- in terms of calculating I&I

for the hydraulic model there's a complicated input, but as a rough figure would it be fair to say 50 percent of the consumption is -- of water consumption can be used for the II component?

**MR. JORGENSEN:** No. No, that wouldn't be correct.

**MR. GRANT:** Okay. That is in fact the number that you use for pipe design purposes, is it not?

**MR. JORGENSEN:** No.

**MR. GRANT:** Well, you used the 24 litres per person -- or per hectare ---

**MR. JORGENSEN:** Per second, per hectare, yes.

**MR. GRANT:** --- per day, right. And what does that work out on a per person basis?

**MR. JORGENSEN:** I don't know.

**MR. GRANT:** Can you give me a ---

**MR. JORGENSEN:** It depends what it -- I don't know what it works out on -- it depends on how many people there are within that development. It's 0.24 litres per second per hectare, in addition to population. So population is essentially a flat line, and then the I&I

component that the population gets peaked using the Harman Criteria.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** Which again, is based on the amount of people that you're trying to calculate for. So normally you would apply a minimum of a peaking factor of two and a maximum of four.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** And then on top of that you would apply your I&I component, which is calculated as a size of the development error.

**MR. GRANT:** Okay. If we're looking at the Sackville area for this particular development, all right ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** **---** and I want you to assume that it's generally not high-density residential there, generally residential, some apartment buildings; okay?

**MR. JORGENSEN:** Okay.

**MR. GRANT:** All right? Would you agree that 6,000 persons in a development which is

generally low-density residential is not likely, within a peak period, to generate 1,300 -- 13,000 cubic metres of wastewater?

**MR. JORGENSEN:** Not in dry weather flow. That sounds high for dry weather flow.

**MR. GRANT:** Yeah. But even for wet weather, right?

**MR. JORGENSEN:** Well, wet weather is -- yeah, it's a function of the development area. That sounds doable in terms of a spill, a discharge ---

**MR. GRANT:** Okay. If ---

**MR. JORGENSEN:** --- perhaps. I -- you know, you'd -- I'd need to look at it in a lot more detail.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** Say the design criteria ---

**MR. GRANT:** I guess what I'm ---

**MR. JORGENSEN:** --- again, is easy to ---

**MR. GRANT:** --- ultimately asking you, Mr. Jorgensen, and trying not to get tied in knots on the

technicalities, but if you look at policies -- at projects 12 and 13 ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** --- in this area, you have a -- and maybe I've got to look at it differently.

If I look at Exhibit H-1, page 199 ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** --- for projects 12 and 13 under the sixth column, there is a sizing column, right? It sets out the sizing.

**MR. JORGENSEN:** Yeah, length, flow, volume. Well, yeah.

**MR. GRANT:** Okay. And for these two projects, the storage size is 6,000 and 7,000 cubic metres for a total of 13,000 cubic metres of storage ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** --- right? And the population benefited by that -- by those two projects is something like 6,000 people.

**MR. JORGENSEN:** I'd like to check ---

**MR. GRANT:** The growth population.

**MR. JORGENSEN:** --- that -- the growth

population. Looking at that other spreadsheet, potentially it's around that figure.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And I'm suggesting to you that the sizing of those two storage tanks, given the growth population that they're intended to serve, suggests that the size of the tanks is not simply for the growth population, but also for existing populations.

**MR. JORGENSEN:** Yeah, I understand what you're saying. What I would like to check is that I think potentially is the growth population benefited. That 6,000 isn't a culmination of the other projects. It would be in addition to, so it'd be the 6,000 plus the 1,600 plus the 3,100.

I'd need to go back and review how I -- how that was done.

**MR. GRANT:** Okay. Okay.

**MR. JORGENSEN:** But I suspect that it would have been around the 10,000 mark.

**(SHORT PAUSE)**

**MR. JORGENSEN:** So just on the

projects as well, to provide some further clarity, they are two separate projects. And whilst they are two storm tanks, one is essentially upstream of the trunk sewer and one is essentially downstream of the trunk sewer.

And the main reason that they were put forward as the preferred solution is because they were a more cost-effective solution in upsizing the entire trunk sewer.

**(SHORT PAUSE)**

**MR. GRANT:** Mr. Chair, I'm having a little technical problem here finding something. I don't know what your wish is as to how long to go this morning.

I need a few minutes to -- my computer seems to have crashed here.

**THE CHAIR:** Okay. This storage facility number 2 is right above my house, so I find this totally riveting.

(**LAUGHTER)**

**THE CHAIR:** But did you want to break for lunch now? Is that what you're suggesting?

**MR. GRANT:** If you wish, let's.

**THE CHAIR:** Yeah.

**MR. GRANT:** Yeah.

**THE CHAIR:** We're coming back at 2:00, I believe, for -- we're going to have Mr. Pettipas, I think, speak at 2:00, so we usually -- we would take an hour and a half for lunch anyhow, so -- well, up to an hour and a half, so if this is convenient for you and then ---

**MR. GRANT:** It is.

**THE CHAIR:** --- we can come back?

**MR. GRANT:** It is. Thank you.

**THE CHAIR:** Okay. So we'll take a break until 2 o'clock and come back and we'll have Mr. Pettipas first. And I think -- is there two speakers?

Okay, sorry, we have two speakers. So we'll do the speakers first at 2:00 and I think for Ms. Bonang, what we'll do is we'll put the speakers here at that table over there.

So the panel, during the lunch break, you're still under oath, obviously, so you can speak amongst yourself, but don't talk to anybody else about your testimony. But you can speak amongst yourselves if you wish; okay?

So we'll come back at 2 o'clock. Thanks.

--- Upon recessing at 12:24 p.m.

--- Upon resuming at 2:02 p.m.

**THE CHAIR:** Okay, we're reconvened.

And, as we discussed this morning, I think the Clerk of the Board had advised the parties that rather than coming back for an evening session that two speakers who had registered to speak for the evening session would come during the day today -- or at 2 o'clock and speak to us.

So the first speaker is Mr. Paul Pettipas representing the Nova Scotia Home Builders' Association; and that's you, Mr. Pettipas?

**MR. PETTIPAS:** That is correct.

**THE CHAIR:** Okay. So, first of all, thank you for accommodating us to save us from having to come in overnight. It may have been beneficial to you as well, I'm not sure. So I'll give you the floor.

**ORAL PRESENTATION - NOVA SCOTIA HOME BUILDERS' ASSOCIATION**

**MR. PETTIPAS:** Thank you, Mr. Chair, for giving us the opportunity to present.

The Nova Scotia Home Builders' Association are the people who build most of the Part 9 buildings in HRM, so we do have a very, very important part to play in this process.

Our Mission Statement is:

"To raise the professionalism of the industry and provide housing people can afford." (As read)

There's no argument among our members, builders or developers, that we will pay our fair share. I think that's the problem, that's the challenge. I would also remind you, though, all of these costs, charges, taxes, all flow down to the purchaser.

In HRM right now single starts are down 30 percent. We have a tremendous out-migration of not only young people but of workers, labour, and the like. We have a 22 percent costs/fees/charges from the

different levels of government on all new housing in HRM at the present time.

Now we have, coupled with this, Halifax Water looking to add another $6,000. We do have some concerns and one of my major concerns and my members' is the 30-year plan. Economists have trouble predicting what's going to happen next year. Our experts on housing have difficulty telling us what's going to happen in one year, five years or ten years, and yet Halifax Water is projecting 30 years. It just does not make sense to us, it's a shot in the dark; it's flip a coin. There's no certainty to this.

I'm not going to talk to you about the numbers, UDI and others are going to talk about the number-crunching. What I want to talk to you about is the conservation aspect, and as an association we are well-versed in this.

We have been in the energy efficiency business for many years, and Nova Scotia Home Builders' Association pioneered the R-2000 program in the mid-'80s. We've recently worked with Conserve Nova Scotia to bring in one of the only energy codes in Canada and make it part

of our building code. So we know what we're talking about when we talk about energy efficiency and conservation.

Halifax Water has not convinced us that they know the true definition of conservation. There's an engineer's mentality that if you stop the water flowing from the pipes, that's conservation. We don't agree with that. To us, conservation is going right back to the end user and using less water. If you use less water you can put less pipes in the ground.

So before anything that should happen, in all due respect, at these hearings, before any money is given to Halifax Water to pursue what they have to do, then we feel a whole conservation plan has got to be put forward, and it's got to be put forward by an independent third body. You cannot expect the person that is selling the water to be the person to conserve the water. It just does not make sense, in our opinion. So what we'd like to see is a plan put in place.

And the new building code takes care of new construction. All new construction now requires six-litre toilets, low-flow showers, so Halifax Water is getting a tremendous benefit there. Where they're not

getting the benefit is in existing construction. Existing construction has anywhere from 9-, 13-, 18-, 19-, 24-litre toilets. It has urinals that run continually, and I want to give you a little example.

Through our Home Builders' Care Program we provided a $100,000 renovation to the Brunswick Street Mission to further their good work. We finished it last week. We replaced all of their 13-litre toilets with 6-litre. They had a urinal that was running continually. We've replaced that with an automatic one.

Gentlemen, I'd ask you to consider that and multiply it by thousands of times to see how much water we could save. So if we're going to give Halifax Water anywhere near 600 million, let's force them to take a percentage of that and put it back into helping their existing customers to save water. And, again, it should be done by an independent third party. We've seen it done before with energy; it can be done.

One of the big problems we have in Nova Scotia is we don't take water as a precious commodity. We see we're surrounded by water, we have all kinds.

I enjoy playing golf so I travel a bit, and I'm seeing what's happening on golf courses in the United States. I've talked to some of the superintendents and what they call themselves now is water preservers. They are under a tremendous pressure to save water. We're not under that same pressure, but we should be.

If we consider electricity important enough to have Efficiency Nova Scotia, why wouldn't we consider water in the same vein?

So I think I have five minutes; I must be getting close -- but my message is -- and I hope you remembered throughout -- that Halifax Water has not proved they know what a conservation policy is all about. They are going to have to have someone tell them what conservation is about. They're going to have to have a third party put that policy in place.

I thank you very much for giving me the opportunity. If you have any questions or if you want anything clarified, I'd be happy to answer them.

**THE CHAIR:** I will allow the lawyers to ask you questions if they any; first before we go

there.

**QUESTIONS FROM THE CHAIR**

**THE CHAIR:** Your membership is how many people are in the organization in ---

**MR. PETTIPAS:** Over 300 member companies across the province that range from mom-and-pop to multi-million dollar companies.

**THE CHAIR:** And how many of those would be in HRM?

**MR. PETTIPAS:** HRM would be about three-quarters, 75 to 80 percent. It goes along, Mr. Chair, with building in Nova Scotia which is about 75, 80 percent in HRM, 25 the rest of the province.

**THE CHAIR:** And are there builders, contractors, developers as well?

**MR. PETTIPAS:** We have developer members. Many of the UDI members are our members as well. Many of them build as well as develop.

**THE CHAIR:** And the difference between UDI and the Nova Scotia Home Builders' Association, what would be the distinction between those two?

**MR. PETTIPAS:** Well, my main focus is

on the builder/renovators. Their main focus, I think, is on the developers.

**THE CHAIR:** Okay.

**MR. PETTIPAS:** There's an overlap at times. We're certainly not in competition. We do work together, we try to work together.

**THE CHAIR:** Okay, so in terms of questions, Mr. MacPherson, do you have any questions?

**MR. MacPHERSON:** No questions, Mr. Chair.

**THE CHAIR:** Mr. Grant?

**MR. GRANT:** None, thank you.

**THE CHAIR:** Mr. Larkin?

**MR. LARKIN:** No, thank you, Mr. Vice-Chair.

**THE CHAIR:** Mr. Mahody?

**MR. MAHODY:** No, thank you, Chair.

**THE CHAIR:** Mr. Butler, anyone from ---

**MR. BUTLER:** No.

**THE CHAIR:** --- the Ecology Action Centre?

**MR. BUTLER:** No questions.

**THE CHAIR:** Okay. Mr. Outhouse?

**MR. OUTHOUSE:** No.

**THE CHAIR:** Okay. Do you have questions?

**MR. DHILLON:** Yes.

**THE CHAIR:** Mr. Dhillon has a question.

**QUESTIONS FROM MR. DHILLON**

**MR. DHILLON:** I guess your suggestion to have a third party to do the conservation, we know that in the electricity sector we have Efficiency Nova Scotia created by the Province. So when you said third party, could you expand on that?

**MR. PETTIPAS**: Efficiencies are redoing water conversation. Part of the new building code was actually resource conservation, and Efficiency Nova Scotia’s done a great job with limited resources on helping people, education, information, where to get product. They would be an ideal group to take this over because the infrastructure’s in place.

**MR. DHILLON**: So that would be across

the province, not necessarily in HRWC.

**MR. PETTIPAS**: Yeah. But -- but I think -- as you know, Mr. Dhillon, from your days with the -- when you and I worked together many years ago, what happens in Halifax usually goes across. If there are structural problems here, if there are problems with budgeting, these people meet on a regular basis and they're -- they're going to ask for the same amount of money.

**MR. DHILLON**: Thank you.

**THE CHAIR**: Thank you, Mr. Pettipas, for coming in and giving your views today.

**MR. PETTIPAS**: Thank you very much.

**THE CHAIR**: Thank you.

Mr. Cantwell? Is he here? Come forward, please. Right in front, yes.

**MR. CANTWELL**: Good afternoon.

**THE CHAIR**: Good afternoon, Mr. Cantwell. Again, thank you for accommodating us and coming in during the day.

So you're President of the Housing Trust of Nova Scotia?

**MR. CANTWELL**: That's correct.

**THE CHAIR**: Okay. I'll give you the floor.

**ORAL PRESENTATION - THE HOUSING TRUST OF NOVA SCOTIA**

**MR. CANTWELL**: Thank you. I'm -- yes, I'm President of the Housing Trust of Nova Scotia.

We're a non-profit housing organization that was formed in 2009 with a goal of providing high quality, affordable housing for the working poor.

My particular interest here is the, I guess, fairness of some of these proposed charges. And we have a couple of projects that we're trying to build right now, and I'd like to let you know some of the impacts of these proposed charges on our projects.

So workforce housing, affordable housing, is -- is fairly misunderstood, in my opinion, at least in Nova Scotia. And our focus, which is the more traditional North American focus of affordable housing, is workforce housing. So it's people that are working, but are just having a hard time keeping up with the increasing cost of living.

So these are people that make anything from minimum wage to $14, $15 an hour, depending on how many people in the family are working and how many

children they may have. So these would be -- examples might be people who clean this building at night, restaurant workers, daycare workers, administrative assistants, security guards, people like that.

And on a minimum wage, if you work eight hours a day, 22 days a month, your total take-home pay is about $1,800. If you only spent 30 percent of that on rent, that would be a rental payment of $543 a month. Well, that’s almost impossible in this city.

So we know there are -- I don’t have the exact figures here, but there’s a very large percentage, 25, 35 percent of the population in Nova -- in Halifax is spending more than 30 percent of their income.

We’re particularly concerned about the working poor, as I indicated.

So why are we concerned? Well, as a non-profit group, we’re all volunteer driven. We were lucky enough to get about $3 million of funding through a federal-provincial cooperation agreement on affordable housing three years ago, and we purchased two properties on Gottingen Street. And we’ve been going through the planning approvals process to get permission to build

these particular projects.

So one building has 115 units, of which 58 would be affordable housing. And the other building has 124 units, of which 65 would be affordable housing. And the intent is that some of the market rate units would help offset the cost of the affordable housing units.

With the first building, 115 units, our total construction budget is just on about $20 million. The province and the federal government provided us with $1.45 million of funding to acquire the land. Under the current cost scenario within HRM, the building permit fees for that project are $197,000.

Assuming we’re able to get approvals this spring and we can -- we can just get to the first tier of cost increases, our -- our total fee increases for a building permit are going to increase by -- to $458,000. So that’s a $261,000 increase in the cost of this project, which is equivalent to 10 additional units of affordable housing according to the Provincial-Federal Funding Agreement on Affordable Housing.

To add more irony to this, the HST on

that whole project is about 2.5 million, of which about two-thirds of it will flow back to the province. So the province gave us a million and a half dollars of funding to building something, and they're going to collect $1.6 million in HST on the way back.

But Halifax Water's going to get an additional $261,000 of fees on this particular project.

The second building is 124 units of housing. Our budget for that is just under $22 million. Again, we received $1.6 million of funding subsidy.

Current building permit fees to HRM, including the allocation for Halifax Water, are 226,000. Because this project won't be built until after 2015, the fee increase for the building permit goes to 774,000, so that's an increase of $548,000 in fees for this particular building. So the combined cost of these changes to the Housing Trust will be $809,000 of additional fees, which would support, under the current funding formula, 32 units of affordable housing.

And so I guess there's a couple of things about these fees.

I think the indication is that the

average apartment size is 1,400 square feet. Our typical apartment size in these buildings are anywhere from 525 square feet to perhaps, you know, low to mid-800 square foot range for two bedrooms. So we're significantly lower than what's being anticipated, yet the fee that we're being charged is much higher.

As well, with 115 and 124 units, that's 200 and -- over 200 units on one acre of land. So that's very dense development by HRM standards. There should be some coefficient that's applied to some of these charges to make it more cost effective in urban areas where, yes, we have pipes that need upgrading, but the cost of putting that service connection to these two buildings are a couple of hundred metres apart.

And it's -- so the density that we're looking for on the peninsula is much more cost effective and, therefore, some of these fees should reflect that.

And I guess in closing, I'd just like to say that while Halifax Water is just looking at -- some of the literature that goes out there says, "Well, this only cost you $10 a month" for a particular family. But we've got Nova Scotia Power that's been, you know,

increasing their rates about 15 percent over the last couple of years, Heritage Gas rates going up, HRM solid waste fees, those are going up, Halifax Water coming in, you know, quite substantially.

So when you add all these costs up, they are quite substantial. And they may not be substantial for people of average or upper incomes, but when you look at the cumulative impacts of these on the working poor, someone who makes, you know, a minimum wage or modest wage, these families are deciding whether they're going to eat or pay their bills.

And I think we need to take another look at this, and I'd like to see affordable housing projects being exempt from these charges. And I also think that projects on the peninsula should be -- should have a reduced connection charge because they're more -- they're more efficient in terms of the provision of services.

And perhaps they should look at something on a square footage basis instead of a per unit basis because, on the peninsula, we're seeing smaller and smaller units to compensate for the increased costs of

construction in urban locations. And we don't want to put a funding formula in place that encourages the development to go to the periphery because that's going to cost the taxpayer more.

Thank you.

**THE CHAIR**: Thank you.

Mr. MacPherson, any questions?

**MR. MacPHERSON**: No, thank you, no questions.

**THE CHAIR**: Mr. Grant?

**MR. GRANT:** No questions, thank you.

**THE CHAIR**: Mr. Larkin?

**MR. LARKIN**: No, thank you.

**THE CHAIR**: Mr. Mahody?

**MR. MAHODY**: No, thank you.

**THE CHAIR**: Mr. Butler?

**MR. BUTLER:** No questions.

**THE CHAIR**: Thank you very much, Mr. Cantwell, for coming in today. Thank you.

Mr. Grant, you're going to continue your cross-examination?

**MR. GRANT:** Thank you, Mr. Chair. I

think, Mr. Chair, before we broke I was asking Mr. Jorgensen about the storage facilities proposed under the RDC for the Mill Cove sewer shed, and I think we kind of stalled at the point where Mr. Jorgensen was referring to projects 12 and 13, which are two storage tanks on the -- in that sewer shed. And I think we stalled when he said, “I’m not sure whether those two tanks are in addition to some other storage tank projects for the area.”

And I was -- I wanted to pull out the Regional Wastewater Functional Plan and my computer collapsed, and it remains in that happy state.

**MS. CATHIE O'TOOLE, Resumed:**

**MR. JAMIE HANNEM, Resumed:**

**MS. KENDA MacKENZIE, Resumed:**

**MR. JAMES JORGENSEN, Resumed:**

**CROSS-EXAMINATION BY MR. GRANT (Cont'd)**

**MR. GRANT:** So Mr. Jorgensen, I have found the Regional Wastewater Functional Plan. I'm going at it old style under paper, but I can ask Mr. Goodine to turn it up.

If we could go to Exhibit 4(ii) and turn up page -- PDF page 130, which is the Mill Cove project file. You have that in front of you now.

So as we flip through the Mill Cove project file and maybe just go to the next page, there's -- you identify various servicing options and track those. You evaluate them. And then, as we get to PDF 137, there is a -- okay, 136, rather, there is a page which shows Mill Cove alternative sites detailed evaluation; correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And there are three sites that are being evaluated there; correct?

**MR. JORGENSEN:** M'hm.

**MR. GRANT:** Are you able to follow that?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** So three sites are being evaluated and two of the sites are given high evaluations, the first one being the Glendale Drive site near the Old Beaver Bank Road ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** --- and the second one is Site 6, which is the -- near Range Park; right?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** And as we continue, if we go to PDF -- it might be the very next page in the PDF. It is -- no, I think it’s PDF page 139. Right, thank you.

So this shows a construction estimate to provide additional storage, one tank at Beaver Bank and one tank at Bedford Range Park; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And if we go down the page, on this page it shows the -- it shows a couple of things. The volume of the two storage tanks together in the third column, the storage volume is 13,000 cubic

metres; correct?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** As we scroll down to the bottom of the page, there is a project value of $41.6 million.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Correct?

Now, can I ask you to turn to PDF page 152?

And I'm a little confused about this because this shows the Mill Cove Strategy 5, which is the preferred strategy; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And on this preferred strategy, it only shows one storage tank in green, and that looks like the Range Park's storage tank; correct?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** I'm not sure this is the preferred strategy, is it? It's Strategy 5.

**MR. GRANT:** It's Strategy 5. I think if you go back to 134 ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** --- PDF 134. No, it's two pages before that -- or one page before that, 133. Right. So -- thank you for pulling that up.

So Strategy 5 is identified. And if you go to the bottom of the page, if we just scroll down, it's shown as being the high and preferred strategy; correct?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Okay. Now, if we -- but if we go to -- so we showed Strategy 5 and there was only one storage tank in the map representation. But if we go to the last page of this document, which is PDF 157, this document is entitled "Preferred Storage Locations," and it shows two storage tanks, does it not?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** One at Range Park and the other at Glenbourne and ---

**MR. JORGENSEN:** Yes.

**MR. GRANT:** --- Beaver Bank Road.

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** So the preferred strategy

in the Regional Wastewater Functional Plan is for two storage tanks to serve this area.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** Right? And their total storage capacity is 13,000 cubic metres.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** Okay. And that, indeed, is the two projects that were brought forward as projects 12 and 13.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Right, okay.

And I think we established on the spreadsheet where it showed the number of growth persons or the persons in the growth area that would be served by this is some 6,120; correct?

**MR. JORGENSEN:** Slight amendment to that. So that 6,120, I think that is a problem. Yes. Yeah.

**MR. GRANT:** Sorry; okay?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** So 13,000 cubic metres of storage for 6,000 people.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Does that volume suggest to you that someone else is getting served at all by ---

**MR. JORGENSEN:** When you look at it simplistically, yes. I can elaborate, which would provide an explanation, if you ---

**MR. GRANT:** Okay. Okay.

**MR. JORGENSEN:** Yeah?

**MR. GRANT:** You assigned zero contribution or benefit to existing customers.

**MR. JORGENSEN:** That was the intent of the strategy, yes.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** Shall I elaborate or not?

**MR. GRANT:** Yeah, we might as well hear it. We'll hear it eventually.

**MR. JORGENSEN:** Okay. So the preferred strategy for Mill Cove, and in particular this section of Mill Cove, revolved around the large trunk sewer running from the north right the way down to Fish Hatchery Pumping Station and then which pumps across

through the treatment works.

So the growth that is proposed was going to trigger a need for an increased capacity in the trunk sewer so it was felt, through the evaluation process, that rather than upsizing the entire trunk sewer from the north right the way down to the -- to Fish Hatchery Pumping Station, which would have then, in turn, caused an increased requirement for Fish Hatchery Pumping Station, which would have in turn caused an increased requirement on the force main and would have impacted on peak flows arriving at the works, it was felt that it would be more cost effective, better for the environment, less impact to society in terms of disruption to follow a strategy which had storage in order to mitigate the peak flows. Hence why there's one at the top of the catchment, to mitigate the peak flows prior to entry to the trunk sewer, to limit the flow exiting that storage facility to within the capacity of the trunk sewer.

And then the lower storage facility was to enable the pass forward flow from that storage facility to stay within the capacity of Fish Hatchery Pumping Station, negating the need to upsize those

facilities.

So on the face of it, 13,000 cubic metres sounds like a large volume for what is essentially 6,000 plus people. But the alternative to that would have been potentially upsizing the entire trunk sewer from the north to the south with the knock on impact to the pumping station at Fish Hatchery force main.

The other clarification which may be useful for people in the room is that the design criteria based on your 340 litres per hectare day with your harm and peaking factor, and then your I&I allowance, that's used to size pipes. Gravity pipe would be sized using that methodology.

The approach taken to size the storage was using a hydraulic model and that took, as we've said, the 2003 rainfall series, which was assessed to be a typical year's rainfall, and that's where these storage volumes derived.

**MR. GRANT:** Okay. Mr. Jorgensen, in the Regional Wastewater Functional Plan there is no discussion of the drivers with respect to the projects that are identified, are there?

**MR. JORGENSEN:** What specific project?

**MR. GRANT:** It doesn't identify what the driver is for each specific project, does it?

**MR. JORGENSEN:** Well, the driver is to maintain the existing performance of the system.

**MR. GRANT:** Okay. But the projects identified in the Regional Wastewater Functional Plan then came forward into the IRP. Am I not correct?

**MR. JORGENSEN:** I believe that's correct, yeah.

**MR. GRANT:** Okay. Did you check the IRP as to how the project was identified as to the driver?

**MR. JORGENSEN:** It was -- I believe -- well, from the functional plan, which is all I can speak knowledgably on. I wasn't involved in the IRP other than being in some meetings and discussions with the IRP, I think, two times.

Within the functional plan, the driver was growth related.

**MR. GRANT:** Okay. Mr. Jorgensen, can I refer you to Exhibit 4(i)? This is an appendix to the IRP.

**MR. JORGENSEN:** Okay.

**MR. GRANT:** Okay. And can I refer to page 154?

**MR. JORGENSEN:** Wastewater projects?

**MR. GRANT:** Right.

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** So this is the appendix. And if we can move to page 155, this document identifies the projects by ID number, project name, indicates when it's required, and provides some comments. But in the third column it provides a driver; right?

**MR. JORGENSEN:** Correct. Yeah, I see that.

**MR. GRANT:** And the drivers are identified as AR, which is asset renewal, G, which is growth; correct?

**MR. JORGENSEN:** Yes. Well ---

**MR. GRANT:** And C, which is compliance.

**MR. JORGENSEN:** I had very little input into the IRP, but the driver definitions I agree with, certainly.

**MR. GRANT:** Okay. So can we -- can I refer you to page 158?

Okay. And I'd like to direct your attention to the project ID 290 at the bottom, towards the bottom. It's about three-quarters of the way down.

**MR. JORGENSEN:** Yeah. Holding tanks.

**MR. GRANT:** Okay. Bedford-Sackville trunk sewer holding tanks; correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And it's identified as the driver there is for compliance, is it not?

**MR. JORGENSEN:** Yes, it is.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** So from what I know of the functional plan and the IRP, the functional plan and the costs associated are all as if -- are all driven by the requirement of growth. I believe what may have happened and can be confirmed, possibly with Kenda, is that in the IRP process I believe that there was an assumption that over the 30-year period that there would be a requirement to -- for increased compliance throughout the region.

So it would appear, looking at this, that there was monies allocated to take care of that aspect over and above the requirement for growth specified in the functional plan, so ---

**MS. MacKENZIE:** Yeah, that's generally the concept. I'm just looking for a reference here in the IRP exhibit to help with this question.

**(SHORT PAUSE)**

**MR. HANNEM:** Just for clarity, I believe the issue that we're looking at here is there is two set of projects.

There were tanks identified in the exhibit that's in front of us that are about future compliance, about reducing overflows. There's also the Regional Functional Plan projects of maintaining overflows due to new development.

We're just struggling through the massive IRP document to show the two different exhibits to show that those are two -- actually two separate projects.

**MS. MacKENZIE:** Yeah. I just can't find the page right now.

**MR. GRANT:** Maybe if you could just

undertake and provide us with the information ---

**MR. HANNEM:** Yes.

**MR. GRANT:** --- where that's shown.

**MR. HANNEM:** That's acceptable.

**MR. GRANT:** Okay.

**THE CHAIR:** So that will be Undertaking U-1.

**UNDERTAKING U-1 - To provide confirmation of separate projects with respect to Bedford Holding tanks, namely one project for compliance and one project for growth**

**MR. GRANT:** I want to go back to H-1 at page 199 and direct your attention again to projects 12, 13, and 14, the two storage tanks together with the trunk sewer.

And you've assigned a benefit to existing of zero for each of the two storage tanks and 10 percent for the trunk sewer upgrade; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** Can I refer you now to the

Regional Wastewater Functional Plan, Exhibit H-4(ii) at page 929?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** Okay, so I'm referring you to Table 29. This shows the impacts of the preferred options for servicing the Mill Cove tributary system; right?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And it shows at the bottom of the page, total system overflows per year will be reduced from 157 to 145.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** Correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And it shows that the overflow volume is reduced from 769,000 cubic metres to 453,000 cubic metres.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** Okay. So I would suggest to you that both of those aspects would demonstrate an improvement in the level of service over existing.

**MR. JORGENSEN:** Yes, on the face of

it.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** So these are absolute numbers taken from the hydraulic model which is one of the better ways that we can, as engineers or as professionals working in this arena to convey the message, the difficulties, the intricacies of the model. I'm providing an exact match. The intent was to maintain. The result is that there is a -- an improvement.

**MR. GRANT:** And an improvement is useful to the existing customers; is it not?

**MR. JORGENSEN:** Yes. Yes, that can be ---

**MR. GRANT:** I think you said earlier that ---

**MR. JORGENSEN:** Yes. Yeah, I agree.

**MR. GRANT:** --- while CCME is indicating it doesn't want to have an increase in the overflows, we don't know what CM -- CCME is going to do in the future; right?

**MR. JORGENSEN:** Yes, correct.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** So the difficulty that we had when trying to define the exact volume required through a modeling tool is -- as you can see, there's a decrease on fish hatchery. There's a minor decrease on the Chandler Drive, a significant one on the Bedford Pumping Station, but then -- and an increase on the Mill Cove overflow. So while some decrease, others increased. So is -- whilst putting together the preferred strategy, it's somewhat of a balancing act to try and keep each overflow performing at its same level because obviously the impact on one overflow has a knock-on impact to those downstream.

**MR. GRANT:** So what you've done in your allocation of the benefit to existing is you've excluded the two storage tanks because it's new infrastructure and you've allowed 10 percent for the trunk sewer because it's a renewal of an existing linear infrastructure?

**MR. JORGENSEN:** That's correct.

**MR. GRANT:** Okay. But you haven't attempted to take into account these increases in levels of service as demonstrated on this Table 29?

**MR. JORGENSEN:** No, but the intent of the development charge is that it is a regional one and by looking into individual projects, you very quickly lose sight of that regional aspect which is to maintain the status quo region-wide.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** But I agree with your assertion.

**MR. GRANT:** Okay. Now, I'd like to refer you to the Regional Wastewater Functional Plan. This is the same document, PDF 948, and I want to direct you to the preferred solution with respect to Herring Cove; all right?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** There's six projects identified: Implement 9(i) reduction program ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** --- which would deal with existing; correct? And that's a project that's not carried forward as part of the RDC.

**MR. JORGENSEN:** No, that was felt by Halifax Water that any I&I reduction program should be

removed from the development charge, which was to some extent against the advice of myself and the project team.

**MR. GRANT:** Okay. And then we have a new sewer from Herring Cove diversion to Roach's Pond Pumping Station, and I'd suggest to you that that's project number 32 ---

**MR. JORGENSEN:** Okay.

**MR. GRANT:** --- from page 199 of Exhibit H-1; right?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And then you have new sewer from Princeton Road to Herring Cove Road, and I'd suggest that that is carried through as project 33.

**MR. JORGENSEN:** Okay, yeah.

**MR. GRANT:** Yeah. And then upgrade of the Herring Cove Road Pumping Station, I'd suggest that's carried forward as project number 34; do you agree?

**MR. JORGENSEN:** Yes. Yeah.

**MR. GRANT:** Force main from Herring Cove Road -- Herring Cove Pumping Station to Herring Cove is project 35 carried forward as -- correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And then the upgrade of the Herring Cove Wastewater Treatment Facility, which is carried forward as project 36.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And that last -- if we go to the preferred scenario f) which is page 199 of Exhibit H-1, the last project we mentioned is certainly one of the larger ones on the list; it's $700 million; correct?

**MR. JORGENSEN:** Yes, before -- yeah, base price.

**MR. GRANT:** Right.

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And for each of those projects, you've allocated a 10 percent benefit to existing.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** And your explanation for that on Exhibit H-24 is for 32 and 33, new infrastructure, improved level of service and for 34 -- sorry; 34, it's expansion or improvement of existing facility; 35 is renewal of existing linear facility -- I have that right -- and 36 is expansion or improvement of existing

facility; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** Now, if we turn to the Regional Wastewater Functional Plan, Exhibit H-4(ii) at page 950, there's a summary of, in Table 40, the Herring Cove preferred solution summary of impacts that are modeled for those projects; right?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** Yeah. So if we look at overflows per year, there's a reduction of total overflows from 72 to 57?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** Fifteen (15) fewer overflows.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And that represents a 20 percent improvement in the number of overflows.

**MR. JORGENSEN:** Okay.

**MR. GRANT:** All right. And then on the sum of the -- of overflow event volume, it's reduced from 197,000 cubic metres to 140,000 cubic metres; correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And that's a reduction of about 28 percent in the overflow.

**MR. JORGENSEN:** Okay.

**MR. GRANT:** All right? And you've assigned as the benefit to existing 10 percent ---

**MR. JORGENSEN:** Okay.

**MR. GRANT:** --- existing.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Correct?

**MR. JORGENSEN:** Yeah. Sorry, the benefit to existing assessment wasn't undertaken using quantified flows; it was done with an engineering assessment, just by looking at the projects as a team and defining a percentage. And as I said, that was started by looking around to what other municipalities had.

**MR. GRANT:** Right. And so you relied on -- you said particularly your ---

**MR. JORGENSEN:** Industry standards.

**MR. GRANT:** --- experience with municipalities in the -- in Ontario.

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Okay. Would you agree that each utility is -- should be judged on its own merits?

**MR. JORGENSEN:** Yes, which is why we decided to at least take an engineering judgment, look at each individual project rather that to apply a blanket 5 percent across the board, which was one of the suggestions.

**MR. GRANT:** Yeah, but you said your 5 percent and your 10 percent and zero percent allocations are generally based on your judgment as to what's done in Ontario, did you not?

**MR. JORGENSEN**: Well, we defined it project by project, but within the realm of what is seen within the industry in Ontario, correct. Yes.

There is no doubt that you could look at the benefit to existing in a number of different ways and come up with a different percentage each time.

What we've -- what we've done is based on what we believe is standard practice across the industry in terms of the actual percentage we've arrived at and wouldn't change dramatically if you looked at it in

a number of the other different ways of assessing it. We believe it's reasonable.

**MR. GRANT:** Yeah. The difficulty, of course, Mr. Jorgensen, is the explanation that the -- that our clients and the other stakeholders have is confined to a paragraph and then one line and an exhibit that we received today as to how it was done. And so it's a fairly large adjustment to the Regional Development Charge, would you not agree?

**MR. JORGENSEN:** What's a large change?

**MR. GRANT:** The benefit existing. It drops $36 million off the capital in 2012 dollars that is being recovered by the plant.

**MR. JORGENSEN:** Yes, it results in a lesser development charge.

**MR. GRANT:** Right.

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** Right. And -- and with the lack of explanation, it appears it's, I'd suggest not unreasonably, to be numbers pulled out of the air.

**MR. JORGENSEN:** I think that's an overstatement.

**MR. GRANT:** Well, I don't see any 17 percent reductions. I don't see any 8.9 percent benefit to existing. It doesn't -- it doesn't look like it's being done in a rigorous way that could be regenerated and -- and applied by way of a precedent in future for dealing with that.

**MR. JORGENSEN**: Well, it could be applied again in a similar way by looking at project by project or you could decide to look at it in -- in a quantified flow by flow project approach as well.

**MR. GRANT:** Yeah. I want to return to the Anderson Lake storage facility now. This is described in the rebuttal evidence -- or appears in the rebuttal evidence, H-16, Appendix A at page 11. And this is Project number 42, is it not?

**MR. JORGENSEN**: Yeah.

**MR. GRANT:** All right. And the amount that it contributes to the overall fund to be recovered through the RDC is almost $27 million; correct?

**MR. JORGENSEN**: Yes.

**MR. GRANT:** If I can refer you to the Regional Wastewater Functional Plan, which is Exhibit H-

4(ii) at Appendix A, PDF 180.

**MR. JORGENSEN**: Yeah.

**MR. GRANT:** All right. And for project 42, it shows that the projected population to be served by this project is some 21,600 people, does it not?

**MR. JORGENSEN**: Sorry; I'm just trying to catch up. What was the project number, please?

**MR. GRANT:** Forty-two (42).

**MR. JORGENSEN**: So this spreadsheet, it's on screen on projects.

**MR. GRANT:** Okay.

**MR. JORGENSEN**: They're growth areas. Forty (40). Growth area 48.

**MR. GRANT:** Growth area -- so it's done by growth area, right. So ---

**MR. JORGENSEN**: So yeah, this is a growth area spreadsheet. Yeah.

**MR. GRANT:** And it shows the population equivalent of 21,600 ---

**MR. JORGENSEN**: Yes. Yeah, yeah, yeah.

**MR. GRANT:** --- for this ---

**MR. JORGENSEN**: Sorry, I ---

**MR. GRANT:** --- project; right?

**MR. JORGENSEN**: Yeah. Yeah. Well ---

**THE CHAIR**: I think we -- you've lost the Panel there, Mr. Grant.

Are you talking about that Springfield Lake number 42?

**MR. GRANT:** No, I'm sorry, Mr. Chair. It's -- the Anderson Lake storage facility is identified here by the number 48 rather than 42. It's in red. Just above the Dartmouth total.

**THE CHAIR**: Okay.

**MR. JORGENSEN**: So the growth area spreadsheet that you see on your screen, they're growth area references, not project references. So number 48 has a potential build-out of 21,600.

However, the actual build-out, if you look over to the far right-hand column, which is the total constructed, the population equivalent is 7,000 -- 3,768, which was the -- which was the number used in the growth modelling and the growth assessment.

**MR. GRANT:** And this project only

serves the 48 growth area; correct?

**MR. JORGENSEN**: Yes, I believe so. The Anderson Lake storage tank project, I believe, serves the number 48 growth line.

**MR. GRANT:** Okay. So would you agree that the cost of a storage facility is largely a function of the size -- of the size of the facility?

**MR. JORGENSEN**: The cost is a function of the -- yes. Yes.

**MR. GRANT:** Yeah. It's largely a big concrete container with some sort of ---

**MR. JORGENSEN**: Yeah. The bigger the tank, generally, the more it's going to cost you, yes.

**MR. GRANT:** All right. And the size is determined by the volume of the wastewater generated by the population to be served.

**MR. JORGENSEN**: And the area of the development.

**MR. GRANT:** Okay. Can I refer you to Exhibit H-4(ii), which is the Regional Wastewater Functional Plan -- we're still in that -- at PDF 56.

So this is an aerial shot showing

generally the location for the storage tank; correct?

**MR. JORGENSEN**: Yes.

**MR. GRANT:** All right. There's no consideration in the costing of this tank to the lower consumption per person that was made in the adjustments for the final application for the RDC.

**MR. JORGENSEN**: There -- so with the reduced consumption ---

**MR. GRANT:** Right.

**MR. JORGENSEN**: --- this project stays the same?

**MR. GRANT:** Right.

**MR. JORGENSEN**: Okay.

**MR. GRANT:** Is there any adjustment for it?

**MR. JORGENSEN**: If the -- so the project stayed the same from the functional plan through to the application.

**MR. GRANT:** Well, I'm asking you to confirm. Is that the case?

**MR. JORGENSEN**: I don't know. I'll have to check.

**MR. GRANT:** Yeah. Who did those adjustments to the cost; was it you and your team?

**MR. JORGENSEN:** For the -- for the application?

**MR. GRANT:** For the final application.

**MR. JORGENSEN:** Yeah, it was myself and the team.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** The BluePlan team.

**MR. GRANT:** Can you tell from looking at page 199 whether there's been an adjustment to that cost? Exhibit H-1, page 199.

**MR. JORGENSEN:** Yes, there was an adjustment.

**MR. GRANT:** How much of an adjustment was there made?

**MR. JORGENSEN:** It went down about 1.3 million.

**MR. GRANT:** Right.

**MR. JORGENSEN:** From 28 -- 28.18 to 26.81 million.

**MR. GRANT:** Okay. Mr. Jorgensen, the

Anderson Lake area is in the upper headwaters, if I can put it that way, of the Dartmouth treatment sewer shed, is it not?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** There's nothing above the Anderson area, right?

**MR. JORGENSEN:** Not that I'm aware of. I don't think, no.

**MR. GRANT:** So then the storage tank is not required until 2039; right?

**MR. JORGENSEN:** That's what -- yeah, that's when it's scheduled in the functional plan, yeah.

**MR. GRANT:** Okay. Which is almost at the end of the entire 30-year period; right?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** And I don't know whether this is a question for you or for others, but it's the case, is it not, that that area is not yet zoned or designated for development by HRM; there would need to be an amendment to its plans in order to permit development?

**MS. MacKENZIE:** Yes, the Anderson Lake lands are designated urban reserve right now ---

**MR. GRANT:** Right.

**MS. MacKENZIE:** --- as opposed to urban settlement.

**MR. GRANT:** Okay. So it's -- I'd suggest to you it's not beyond the realm of possibility that this is one project that would be pushed right outside the development period being considered for the RDC, depending on how population increases and all the rest; right?

**MR. JORGENSEN:** In the same way as every other project could have variation at that time frame, yeah.

**MR. GRANT:** Yeah. But this one is right on the margin so it doesn't take much to push it outside the timeframe, does it?

**MR. JORGENSEN:** Well, it wouldn't, no, but you could also potentially have to bring it forward depending on how development occurs.

**MR. GRANT:** I think we've just indicated that the population to be served by the Anderson Lake source tank is some 3,768 persons; correct?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Okay. Question -- and it's perhaps not for you Mr. Jorgensen but maybe for others -- is, since this is piece of infrastructure that is serving one area alone, why is it considered as a piece of regional development infrastructure as opposed to infrastructure servicing a discrete area which should be covered by a local area charge?

**MR. HANNEM:** Right. It comes back to the label. Anderson Lake is really -- because of the upstream generation --if we look to our definition of area master infrastructure, when the -- and we can't pan out, I don't believe, on that map on the screen, but the actual development area of Anderson Lake is all to the north or west of this -- I'll call it those undeveloped lands to the north and west of this point, and as that land develops through normal HRM planning process, they would be required to do their master planning and develop the local and master infrastructure required to service those lands, including the infrastructure required to collect and deliver the wastewater across to the downstream boundary of that master plan area, which is generally as we arrive at this corner of Burnside.

From the Regional Wastewater Functional Plan perspective, if you take all of that effluent that is generally -- that will be generally be created from the Anderson Lake area, and then stick it into the regional trunk sewer system, that system does not have capacity.

The most economical way to deal with that is to install storage at the upper end of that regional trunk system to reduce the peak flow and eliminate the need to have to oversize the trunk sewer and/or the treatment works downstream.

So the storage tank is a more cost effective alternative to over-sizing the downstream regional infrastructure. The tank is not in replacement or in any way takes away from the requirement for local or area master infrastructure within the full Anderson Lake development area.

**MR. GRANT:** M'hm. Even the ---

**MR. HANNEM:** Thus the tank, as a alternative to upgrading the downstream regional infrastructure, is defined as regional infrastructure for RDC purposes.

**MR. GRANT:** Mr. Jorgensen, in allocating the benefit to existing, with respect to discrete projects included in the RDC, did you give any consideration to whether or not the projects which are proceeding, and which will benefit existing, would have been required in some form or manner in any event if there were no growth at all?

**MR. JORGENSEN:** No, all of the projects specified are to mitigate the impact of growth.

**MR. GRANT:** Okay, let me try this ---

**MR. JORGENSEN:** There’s a couple of additional projects which are in the functional plan which don’t just mitigate growth, but they’ve been removed. There’s a couple in Dartmouth on surface water sewage which were separate in those local sewers that are in the functional plan in Eastern Passage; they have been removed because they were local upgrades, but they weren’t really identified through the functional plan.

**MR. GRANT:** Okay, let me try -- let me try this another way.

To the extent that the projects benefit existing customers at all, it’s a suggestion --

there’s a suggestion that that benefit is going to relieve existing customers from having to construct some infrastructure of some description in order to remain compliant at some time in the future. Is that fair?

**MR. JORGENSEN:** So the benefit to the existing customer base is that they’ll receive sometimes a renewed infrastructure, or there may be a benefit to the environment like we’ve outlined.

**MR. GRANT:** Right.

**MR. JORGENSEN:** I’m not sure it would -- it wouldn’t necessarily -- I don’t see that it would put off or push out the need for new infrastructure to the existing population because the sizing of infrastructure has been sized just to take the additional growth.

There’s been no over-sizing component within the functional plan. So if a 60- millimetre sewer was needed, that’s what’s specified. It wasn’t put in -- it wasn’t specified as 750 taking into account the idea that an area may be subject to increased development, for example. So there is no over-sizing applied ---

**MR. GRANT:** Okay.

**MR. JORGENSEN:** --- which we did do in

other projects.

**MR. GRANT:** But when we're looking at what infrastructure is required over the next 30 years, it's difficult to project accurately what standards of compliance are going to be exacted by the regulators on utilities such as Halifax Water; correct?

**MR. JORGENSEN:** Very difficult.

**MR. GRANT:** Right? And part of the rather large, or definitely large infrastructure deficit identified in the IRP is to catch up with new compliance standards that are going to be imposed upon HRWC; right?

**MR. JORGENSEN:** Possibly. I'm not sure on the IRP.

**MR. GRANT:** Okay. You're forgiven if you've zoned out, but does anyone else ---

**MR. HANNEM:** Do you want to repeat that ---

**MR. GRANT:** Yeah, okay, if I can.

A large component of the infrastructure deficit identified in the IRP relates to infrastructure that's required in order to meet new compliance standards being imposed by government.

**MR. HANNEM:** Right.

**MR. GRANT:** Okay, thanks.

And I guess my question is, to the extent that any of the projects identified as infrastructure for the RDC increased the levels of service, they may relieve the existing customers from other construction that would have been required in order to meet new compliance standards which may occur in the future.

**MR. HANNEM:** I think that's generally true. It's to what extent, right?

**MR. GRANT:** Right.

**MR. HANNEM:** The fact that there's no growth, there may be no further motivation to do the infrastructure work in that area and we simply don't get the other benefit or it may come around to be a required renewal or compliance project and they may receive the benefit through that.

**MR. GRANT:** Yes. In considering the benefit to existing, have you given any consideration to the operational efficiencies that may be afforded as a result of the new systems being put in pursuant to the RDC

identified infrastructure?

**MR. JORGENSEN:** Operational efficiencies as a result of new ---

**MR. GRANT:** Yes.

**MR. JORGENSEN:** --- infrastructure.

**MR. GRANT:** Yes. So it's lower -- it's a lower cost per unit to operate or maintain.

**MR. JORGENSEN:** We didn't include that aspect, whether that would have been to the reduction or the increase in operating costs.

**MR. GRANT:** Okay. One of the areas where the -- the infrastructure areas where you've looked at the -- which is included in the RDC in which you've looked at the benefit to existing relates to the Beechville-Lakeside-Timberlea reconfiguration; correct?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And in general terms, growth in that area is constrained at present by reason of the capacity of the BLT Wastewater Treatment Facility, which dumps into Nine Mile River.

**MR. JORGENSEN:** So I understand, correct.

**MR. GRANT:** Right. And the solution to that constraint is to build a force main that's going to pump sewage from that area and from growth in that area onto the peninsula where it can be treated initially through the Halifax Wastewater Treatment Facility; correct?

**MR. JORGENSEN:** As far as I'm aware, yeah.

**MR. GRANT:** Okay. And then a later -- a later piece of infrastructural work to be implemented pursuant to that strategy is then to redirect the flows back through the Armdale Rotary and up to the Roach's Pond Pumping Station and, ultimately, to the Herring Cove Wastewater Treatment Facility ---

**MR. JORGENSEN:** Correct.

**MR. GRANT:** --- for treatment there.

Parenthetically, I wonder why I needed all that knowledge about the sewage treatment facility in this utility works, but anyways, I won't know it tomorrow.

That overall strategy is going to result, ultimately, in the wastewater generated in the existing area of BLT, Beechville-Lakeside-Timberlea, and

the growth area surrounding it being handled by a larger treatment facility in Herring Cove; right?

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** And that Herring Cove facility, obviously, dumps into -- has a saltwater outfall as opposed to a freshwater outfall.

**MR. JORGENSEN:** Yes. Yes, it's an open body of water.

**MR. GRANT:** Okay. And ultimately, the Nine Mile River facility will be decommissioned and closed down. Am I correct?

**MR. HANNEM:** Yes. Ultimately, in a later phase of the functional plan.

**MR. GRANT:** Okay. And I'm going to suggest to you that from an operational standpoint, handling large volumes of wastewater at one facility is more efficient, easier to manage, easier to maintain compliance than having to deal with a number of small wastewater treatment facilities.

**MR. JORGENSEN:** In my opinion, I generally agree with that.

**MR. HANNEM:** Yes. From the treatment

plant perspective, we would likely have a lower total cost of treatment per unit at the large facility than ---

**MR. GRANT:** Right.

**MR. HANNEM:** --- multiple smaller facilities.

**MR. GRANT:** Right.

**MR. HANNEM:** But the reality is, we do have to pump the effluent farther and there may be some increased pumping costs, so I think there is a plus and a minus -- a series of pluses and minuses on that ledger of finding what the net impact on operating costs is.

**MR. GRANT:** Right. And I guess the other concern is that the receiving body for the Nine Mile River treatment plant is -- does not have as much buffering capacity as the ocean, obviously.

**MR. HANNEM:** That’s correct.

**MR. GRANT:** Right. And Halifax Water is going to be under increasing pressure with respect to its wastewater treatment facilities that discharge into small freshwater bodies of water.

**MR. HANNEM:** It is a higher level of treatment and a higher operational challenge, yes, but

there still are many facilities that will exist operating in that function.

**MR. GRANT:** Now, when you assign a benefit for a particular project into the -- as being a benefit to the existing, that amount is deducted from the capital amount to be recovered in the Regional Development Charge; correct?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** It doesn’t eliminate that cost and it doesn’t lower the overall capital costs of the projects, does it?

**MR. JORGENSEN:** No. The benefit to existing cost is essentially going to be taken on by Halifax Water.

**MR. GRANT:** Right.

**MR. JORGENSEN:** Not through the development charge.

**MR. GRANT:** Right. It gets rolled into the rate base and recovered from rates from all the customers of Halifax Water.

**MR. JORGENSEN:** Correct.

**MR. GRANT:** Right?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** And those customers include not only the existing customers today, but those future customers who are going to be subject to the Regional Development Charge. Isn't that the case?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** Okay. And in that respect, the more growth, the more customers that Halifax Water acquires in future is going to assist in lowering the regular rates for the existing customers that are on the system today.

**MR. HANNEM:** I think I'll direct that one to Ms. O'Toole.

**MS. O'TOOLE:** We have done 30-year modelling that was a companion piece to the Integrated Resource Plan or as part of our efficient funding strategy document. And although the growth-related costs we were modelling are slightly higher because they don't now reflect the subset used for the Regional Development Charge, the addition of customers from new growth areas certainly provides benefit through helping mitigate future rate increases, but it does not mean that there are not

future rate increases because the new growth projects are bringing a significant amount of new operating and maintenance costs that would be part of future revenue requirements. And, also, the need for future depreciation expense or replacement of those capital items at some point in time, which would also be part of the rate-based costs.

**MR. GRANT:** I think I took that it is an advantage for existing customers to have more growth. Is that fair?

Overall, it's a benefit to existing customers.

**MS. O'TOOLE:** Actually, I don't think that is something that I could comment on without doing a spreadsheet because I think if -- we haven't run an analysis with no growth to see what the implications of that would be.

**MR. GRANT:** I'd like now to refer to Exhibit H-4(iv).

So Mr. Jorgensen, this is another paper that you wrote dated October 2012, and it's the development charge, charges cost allocation. Correct?

**MR. JORGENSEN:** Correct.

**MR. GRANT:** And if I can refer you to page 2 of that report.

**(SHORT PAUSE)**

**MR. GRANT:** Mr. Chair, that's not what I expected to see. I don't know what time you wish to take a break. I can move to something else. I'll have to come back.

**THE CHAIR:** Well, we can take a break now and come back at quarter to 4:00?

**MR. GRANT:** Okay, thank you.

**THE CHAIR:** Quarter -- yeah, quarter to 4:00. Thank you.

**MR. GRANT:** Thank you.

--- Upon recessing at 3:22 p.m.

--- Upon resuming at 3:46 p.m.

**THE CHAIR:** Okay, Mr. Grant.

**MR. GRANT:** Thank you, Mr. Chair.

**MS. CATHIE O'TOOLE, Resumed:**

**MR. JAMIE HANNEM, Resumed:**

**MS. KENDA MacKENZIE, Resumed:**

**MR. JAMES JORGENSEN, Resumed:**

**CROSS-EXAMINATION BY MR. GRANT (Cont'd)**

**MR. GRANT:** With respect to the Anderson Lake Storage Facility, it's not required until 2039. It's being built to benefit some 3,700 new growth customers, or persons.

How much remaining capacity will there be in a storage facility not taken up by growth based upon your growth scenarios as of the conclusion of the RDC period?

**MR. JORGENSEN:** So the tank was sized to accommodate the growth only. It wasn't oversized. So it was sized to take the entire growth as described.

**MR. GRANT:** So that assumes that the entire Anderson Lake area is built out to capacity by the end of the period, 2043.

**MR. JORGENSEN:** Yeah, and that's the size of the infrastructure that would be required.

**MR. GRANT:** Okay. The infrastructure that is subject to the RDC will generally have a useful life that extends beyond the period covered by the RDC.

**MR. JORGENSEN:** Yes, in terms of the lifecycle of that infrastructure.

**MR. GRANT:** Right.

**MR. JORGENSEN:** But in terms of the sizing of the infrastructure, it was sized to accommodate the growth that's defined. So there is no out-of-period benefit ---

**MR. GRANT:** Right.

**MR. JORGENSEN:** --- in terms of costs or sizing.

**MR. GRANT:** Okay. And the entire cost of that infrastructure is being recovered within the RDC period, the next 30 years ---

**MR. JORGENSEN:** Yes.

**MR. GRANT:** --- according to the rate design.

So that if we look at the Anderson Lake Storage Facility as being built in 2039 and will be fully paid for by the RDC on the conclusion of the time period in 2043.

**MR. JORGENSEN:** Yes, the RDC is to collect funds over the 30-year period to pay for all of the infrastructure. So it's not the people in 2030 -- 2031 did ---

**MR. GRANT:** Twenty thirty-three (2033), isn't it; '43, rather?

**MR. JORGENSEN:** Yeah, so the people -- the growth people at that time, their dollar isn't the same dollar that's necessarily going to pay for it. It's the entire program, the entire plan, all of the infrastructure costs within that will be paid for by all of the growth population that that infrastructure will serve.

**MR. GRANT:** Right. So in effect, what you're saying is that the charges that a new customer in 2014 would pay would help pay for Anderson Lake Storage Facility required in 2039.

**MR. JORGENSEN:** You could look at it that way, yes.

**MR. GRANT:** All right. And the way the charge is structured, new customers who may make use of the RDC infrastructure who come on to the system after 2043 will not be charged for the cost of building that.

**MR. JORGENSEN:** No, there would have been an updated ---

**MR. HANNEM:** Yeah, I think the reality

is, is that the size of the infrastructure within the RDC model right sizes the infrastructure for the 30-year growth period.

When we came to actually build the specific project, we may, through other reasons and engineering principles, build that piece of infrastructure larger and maybe even, in anticipation of future use, but the portion that's allocated to the 30-year growth would still be the same.

So if we exact size a tank or a piece of pipe to be the exact 30-year population to meet the 30-year growth standard, when we physically build the project we may choose to build it larger with the balance of the funds coming from the utility that might be recovered from a future RDC or from some other benefits. So you know, the actual physical facility may be built larger at the time, but it wouldn't impact the cost structure in the RDC model.

**MR. GRANT:** Yeah. I want to cleanse the palette, as I'm sure everyone else is feeling the need as well, and turn to the question of consumption per capita.

The initial assumption per capita for water consumption for the purposes of the Regional Wastewater Functional Plan was 340 litres per capita per day; correct?

**MR. JORGENSEN:** Yes.

**MR. GRANT:** And UDI representatives questioned the appropriateness of that number for the growth area from the very outset. Isn't that case? Perhaps Ms. MacKenzie or ---

**MR. JORGENSEN:** Yeah, I believe ---

**MR. GRANT:** --- Mr. Hannem.

**MS. MacKENZIE:** Yes, they did.

**MR. GRANT:** Okay. And it was the case as well, was it not, Ms. MacKenzie, that initially HRWC advised that those consumption numbers included an I&I contribution as well?

**MS. MacKENZIE:** Yes, through some of the questions that we were receiving and in-house just going through the model and how it was set up, initially we did think that there was a component of II, but we, I believe, clarified that afterwards.

**MR. GRANT:** Okay. It's now clear that

the 340 litres per capita per day applies -- is intended to refer only to water consumption; right?

**MR. JORGENSEN:** Wastewater generation, which almost is the same thing, but it's not quite.

**MR. GRANT:** Okay. So the distinction is you have taken out of the calculation water purchases which you know do not get into the wastewater system. Is that right?

**MR. JORGENSEN:** Yeah, so that is essentially a consumption figure.

**MR. GRANT:** Okay. So what figures -- what figures are deducted to reach that consumption figure?

**MR. JORGENSEN:** The 340.

**MR. GRANT:** Yes.

**MR. JORGENSEN:** The 340, I believe, was taken from the Atlantic Canada guidelines for wastewater standard design.

**MR. GRANT:** No, no, Mr. Jorgensen, you clarified. You said that the 340 litres per person was wastewater generation ---

**MR. JORGENSEN:** Yeah.

**MR. GRANT:** --- rather than water consumption, which you said is similar but not quite the same thing. And my follow-up was ---

**MR. JORGENSEN:** M'hm.

**MR. GRANT:** --- is it the case that you're deducting water that is purchased but which you know does not get into the wastewater system? Is that the difference between the two?

**MR. JORGENSEN:** That's essentially the difference, yeah ---

**MR. GRANT:** Okay.

**MR. JORGENSEN:** --- or there could be outdoor water usage, which is almost lost water. Some municipalities have a different design criteria rate for water demand against water consumption.

**MR. GRANT:** Okay. So water that is sold but doesn't enter the wastewater facility, what does that include? Water sold to Halifax Port Authority for ships; right?

**MS. MacKENZIE:** Just to go back to how the model was initially established, we took information from flow monitoring data and other models, the studies

that have been done, to develop the model for existing wastewater generation. So customers such as the port that purchase water but it doesn't return back to the wastewater system ---

**MR. GRANT:** Right.

**MS. MacKENZIE:** --- that wouldn't be realized in the model. So the model would reflect the wastewater that's getting back into the system.

The growth component that was modelled on top of that reflected the different populations and inputs that were going to be anticipated over the lifespan of the 30-year plan.

**MR. GRANT:** Okay, but I'm interested in the concept of how much water is purchased but doesn't become wastewater. Can you tell me how much in the Halifax water utility water sales does not become wastewater? You do have a provision in your rates and regulations that if a customer is able to show that the water purchases are not being generated into the wastewater system they get an adjustment to their wastewater volumes; right?

**MS. O'TOOLE:** Yes, we do have a

wastewater rebate with a 50 percent threshold. There are approximately 12 customers, I would say, who are on that program at the moment. Consequently, it's not a really large volume. I'm not sure if I have that level of detailed information with me but I know I certainly have it in my rate application files and would be happy to provide it.

**MR. GRANT:** That would be great, thank you.

**THE CHAIR:** So we'll mark that as Undertaking U-2.

**UNDERTAKING U-2 - To identify the customers and volumes for water and wastewater**

**THE CHAIR:** Mr. Grant, that would be the customers and the volume?

**MR. GRANT:** Yes.

**MR. DHILLON:** Is that going to be for wastewater too, Mr. Grant, or just for water? There could be different volumes for water and wastewater.

**MR. GRANT:** I'd like to see both, you know, the amount of the water sales and the wastewater

generated for those customers, yeah.

So going back to the initial question, the 340 litres per capita per day assumed to be wastewater generation from water consumption was a number which you said, Mr. Jorgensen, came from some -- the Atlantic Canada Wastewater Report, correct, initially?

**MR. JORGENSEN:** That was my understanding ---

**MR. GRANT:** Right.

**MR. JORGENSEN:** --- but it ---

**MR. GRANT:** And ---

**MR. JORGENSEN:** --- in addition it sounds like it was confirmed through the use of looking at flow gating data.

**MR. GRANT:** Okay. And, Ms. MacKenzie, you had indicated that in this initial stakeholder meetings, the Halifax Regional Water Commission thought that there may have been an I&I component in the 340 litres, but now it’s clear that there’s not; correct?

**MS. MacKENZIE:** Correct.

**MR. GRANT:** Okay. I’d like to turn to Exhibit H-23, which was introduced this morning. This is

the calculation summary for the rates. And this may be questions for tomorrow's panel, for the population panel. If that's the case I'm happy to refer to it later, but I have a basic question here.

So the -- I'm wondering where the number comes for the ICI growth equivalent for a population equivalent for residential growth. It seems apparent from the document that you use a ratio of 69 percent for non-residential population growth and 31 percent for ICI growth; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** And I assume that we will hear from the other panel about where the 153,834 persons comes from for the residential growth?

**MR. HANNEM:** Correct.

**MR. GRANT:** Right? It's the relationship to the ICI growth where you allocate 70,690 persons equivalents for that, and I'm wondering where that comes from?

**MR. HANNEM:** Ms. MacKenzie, is that for today or tomorrow?

**MS. MacKENZIE:** I believe it will be

for tomorrow.

**MR. GRANT:** Tomorrow, okay.

I'd like to refer you to your annual report, and I think we have a copy. We sent a copy to the Board or have we -- yeah? I'm looking at the Sixteenth Annual Report, March 31st, 2012.

**MS. STEWART:** Do you want me to give him a copy ---

**MR. GRANT:** If you could, yes.

**MS. STEWART:** Yes, okay.

**(SHORT PAUSE)**

**MR. GRANT:** So actually we have four reports and I want to refer to the 2012 report which is in page PDF 164. Okay, previous page, page 1, that's it.

So in the lower right-hand corner there, there's a heading "Population Served" and it says:

> "Halifax Regional Municipality estimated population served, 350,000." (As read)

Right? Is that Halifax Water's best

estimate of the number of persons that it serves within its customer base?

**MS. O'TOOLE:** That is correct.

**MR. GRANT:** Okay.

**MS. O'TOOLE:** It's a little bit complicated for us; we can't just take the number of population within the Halifax census metropolitan area because we've got a student population that's seasonal.

**MR. GRANT:** Okay. But these are real people; right?

**MS. O'TOOLE:** Yeah.

**MR. GRANT:** They're not people equivalents?

**MS. O'TOOLE:** These are real people, yes.

**MR. GRANT:** Okay, all right. And, as I understand it, the ICI projected generation is really person equivalents for water/wastewater generated through operations such as Summit Place or the universities or anything that that's an industrial, commercial or institutional use in the city; right?

**MS. MacKENZIE:** Yes, it was ---

**MR. GRANT:** Okay. And the consumption per capita based on that estimate is 308 litres per day; right?

**MS. O'TOOLE:** Yes.

**MR. GRANT:** Okay. So I just wondered if we could get to your total sales per person annually by using that information.

So if we take 308 litres per day and we multiply that by 365,000 days per year and then multiply it by 350,000 persons, we should get more or less your annual residential sales. Is that right?

**MS. O'TOOLE:** I think it should be pretty close.

**MR. GRANT:** Okay. And Ms. O'Toole, you're much better with calculators and perhaps slide rules than I am. What number do you get for that?

I think it's 311 -- no, I'm sorry, it's 308. Right.

**MS. O'TOOLE:** Times 365. Times 350,000.

Excuse me. My laptop's too far away and I'm getting old. I can't see. About 39 million.

**MR. GRANT:** Thirty-nine million, three hundred and forty-seven thousand (39,347,000) cubic metres?

**MS. O'TOOLE:** Yeah.

**MR. GRANT:** Okay. And we asked in IR-13, Exhibit H-4, whether the metered consumption -- oh, sorry, we asked for the metered consumption history of Halifax Water; right? And we were given the chart which is shown at that document. It's page 18.

Right, there we go. Right?

**MS. O'TOOLE:** That's correct.

**MR. GRANT:** Okay.

**MS. O'TOOLE:** And I believe this is just the urban core system. This is not the urban core system plus the Aerotech System, which is what I believe the report in the annual -- the number in the annual report is based on.

**MR. GRANT:** All right. So that's helpful.

So the actual metered consumption for 2000 -- for the year 2012 is 36 million -- the better part of 37 million cubic metres; correct?

**MS. O'TOOLE:** That is correct.

**MR. GRANT:** Okay. And as you said, that includes -- that would include the Aerotech.

**MS. O'TOOLE:** No.

**MR. GRANT:** No, it does not.

**MS. O'TOOLE:** That does not include Aerotech.

**MR. GRANT:** Exclusive of Aerotech.

**MS. O'TOOLE:** That's exclusive of Aerotech. However, what's reflected in the annual report includes Aerotech.

**MR. GRANT:** Okay. So there's about two million cubic metres per year sold to -- in the Aerotech.

**MS. O'TOOLE:** I don't have the number in front of me, but that would be the difference between the number in the annual report and what's presented here.

**MR. GRANT:** Okay. The -- this consumption sales shown here include the sales of water to ICI customers as well, does it not?

**MS. O'TOOLE:** This is all metered consumption, correct.

**MR. GRANT:** Okay. So the average consumption of 308 litres per day per capita includes metered consumption to ICI customers as well.

**MS. O'TOOLE:** I suspect it does.

What's produced in that annual report is information that's used for communication purposes to give people an idea of the size representatively of the population served and the volume of water we sell. It wouldn't have the same level of accuracy, necessarily, or be calculated the same way as anything we would bring to a hearing or to a rate application.

**MR. GRANT:** And I'm not talking to the 1,000 cubic metres, but it's a pretty good number, isn't it, because we just did the math ---

**MS. O'TOOLE:** Yeah.

**MR. GRANT:** And we come within two million cubic metres without accounting for the Aerotech Park.

I guess the point is, though, that the ICI purchases would have to be netted out to come to an average consumption per capita per residential customer; right?

**MS. O'TOOLE:** And that is very difficult for us to do because there are some meter sizes, for instance, one-inch and two-inch, where there's a residential component within it. And there is an ICI component within it.

Also, within the 5/8 customer class, what you would typically assume is residential, there is an ICI component in that also that we're forced to adjust through in our Cost of Service Manual because we have a large number of businesses that are operating out of houses. So they would have a 5/8 meter, they'd look like a residential customer if you went on meter size, but they're actually a business.

**MR. GRANT:** Okay. If you're assuming -- let me get this right, then.

For the purposes of determining the consumption or the purposes of determining the infrastructure required as a result of growth, you take the actual projected number of persons by which the utility will grow for the next 30 years; correct?

**MR. HANNEM:** That's correct.

**MR. GRANT:** And you use -- you

initially use the 340 litres per capita, right, for wastewater production?

**MR. HANNEM:** I believe the 340 was initially used.

**MR. GRANT:** Right.

**MR. JORGENSEN:** Yes, in the hydraulic model, yeah.

**MR. GRANT:** Okay. But you also adjust to add an ICI component which represents, I think it's 31 percent of the total additional population; right?

**MR. JORGENSEN:** So within the hydraulic model, the 340 represents the total population, all in. So part of the reason that we needed to use 340 is -- per day was in order to be able to calibrate to the observed flow gauge data that we were seeing.

**MR. GRANT:** Okay. But Mr. Jorgensen, when you're using it per head per day, the per heads that you were counting are the actual projected additional residents, person people, and the person equivalents per ICI population; correct?

**MR. JORGENSEN:** Within that 340. I think so. I'd have to ---

**MR. GRANT:** Okay. I'm not asking you what's in the 340. I'm asking you what do you multiply by the 340 to get to the volumes that you're going to handle.

**MR. JORGENSEN:** We ---

**MR. GRANT:** Is it ---

**MR. JORGENSEN:** --- didn't. Three forty (340) was the starting point.

**MR. GRANT:** Per capita.

**MR. JORGENSEN:** Well, yeah.

**MR. GRANT:** And per capita, is it ---

**MR. JORGENSEN:** So population wasn't directly applied to the model. Demand, consumption, flows were allocated to the model.

So we didn't -- within the hydraulic model, there's many different hydraulic models, but this particular one, we don't apply a number which represents people and then multiply it by 340. We allocate a flow consumption, a demand, to manholes within the model.

**MR. GRANT:** To manholes?

**MR. JORGENSEN:** To nodes, yeah.

So to discuss population in terms of the hydraulic model is difficult because it's a little bit

apple and pear.

The original hydraulic model was calibrated against observed flow monitor data and demands were allocated in part based on upstream populations, but not directly. It was more about flow generation.

**MR. GRANT:** Okay. I'll try ---

**MR. JORGENSEN:** Hydraulic model is all about flow. Other hydraulic models, you can. So different softwares and different methods, you can apply a population and then you apply a per-capita consumption and apply a diurnal profile to that.

**MR. GRANT:** Okay, I'm going to try this again and maybe ask the other three members of the panel if they can help me and we don't get into hydraulic models.

**MR. JORGENSEN:** That's what I was hoping, yes.

**MR. GRANT:** Okay, thank you.

**(LAUGHTER)**

**MR. GRANT:** Okay. Well, our hopes and expectations are meeting one another.

So initially you used 340 litres per

capita for each resident of eight -- of your service area to identify -- or your projected resident of your service area to project the flows from residential customers; correct?

**MR. HANNEM:** Correct.

**MR. GRANT:** Okay. And that is per person, a real live person.

**MR. HANNEM:** Right.

**MS. MacKENZIE:** I apologize. Can you repeat the question?

**MR. GRANT:** The three -- the -- for the 340 litres per person per day, for the purpose of calculating wastewater flows from anticipated population over the next 30 years, you used the actual projected resident individual persons; right?

**MS. MacKENZIE:** Yes.

**MR. GRANT:** Okay. And what I want to understand is for the purposes of determining the wastewater volumes that you are going to have to serve, did you also use the 340 litres per capita per day and apply that to the ICI population equivalents for the projected growth for the 30 years?

**MS. MacKENZIE:** That's what I was just trying to confirm with Mr. Jorgensen, so ---

**MR. JORGENSEN:** So in terms of the growth for the ICI, that didn't use 340 litres per head per day based on that equivalent. The allocation to -- of flow to ICI within the growth component put into the hydraulic model was based on the area of the development, and using the Atlantic Canada Guidelines which defines approximate flow generation rates from industrial areas; it has 35 metres cubes per hectare for light industrial to 55 metres cubed for heavy. We opted to use 45, given that the exact definition of what would constitute the industry in each of the business ICI growth areas isn't completely set in stone.

**MR. GRANT:** Okay.

**MR. JORGENSEN:** So we didn't want to use the low one; we didn't want to use the high one; we opted for the middle.

**MR. GRANT:** And is that wastewater generation inclusive of I&I?

**MR. JORGENSEN:** No, I&I ---

**MR. GRANT:** For ICI?

**MR. JORGENSEN:** No, I&I was allocated in addition, so I&I needs to be assigned to all areas regardless of land use.

**MR. GRANT:** Okay. Can you advise us through the Board of what the total water consumption volume that you assumed for ICI growth in the 30-year period is?

**MR. JORGENSEN:** I can, but not right now.

**MR. GRANT:** Okay. We'll ask that -- if you'll take that as an undertaking.

**THE CHAIR:** So do you want those figures, Mr. Grant, on a yearly basis or how do you want them tabulated?

**MR. GRANT:** Okay.

**MR. JORGENSEN:** So I would ---

**MR. GRANT:** That's a good question. I would say yearly if -- but if you have them ---

**MR. JORGENSEN:** So my intention to provide what I think you want will be to take the identified business specific growth areas which are listed in the functional plan and others, to take the area, run

through the calculation and then -- well, in terms of the I&I, I would need to look at the hydraulic model for that, so yeah, I could -- yeah, I can provide it any way you want, but what would be most beneficial, I guess? Just thinking that through.

So I can provide you with a flow based on a design-criteria I&I, so we could use the 0.24; otherwise, I'd have to go through and run the hydraulic model. And then depending on if you wanted it to show a 2003 annual to run the hydraulic models for 2003 -- because they were with my former employer so I don't have the simulations, it would take most of a day to run the simulations. But if what you want is an indicative number, I can provide that with the calculation.

**MR. GRANT:** Okay. Now, I may be getting confused. Is the hydraulic -- does not the hydraulic model include I&I considerations?

**MR. JORGENSEN:** Yes. Yes, ---

**MR. GRANT:** Oh, okay.

**MR. JORGENSEN:** --- but it's not ---

**MR. GRANT:** And ---

**MR. JORGENSEN:** --- based on a design

criteria ---

**MR. GRANT:** Okay.

**MR. JORGENSEN:** --- as such.

**MR. GRANT:** Okay. Mr. Jorgensen, you're the one that's familiar with the model. What I wanted to understand is what water consumption you have assumed for ICI for the purposes of generating the infrastructure sizes?

**MR. JORGENSEN:** Okay.

**MR. GRANT:** And ---

**MR. JORGENSEN:** I think I can provide you the information that will answer that question so ---

**MR. GRANT:** Okay.

**MR. JORGENSEN:** --- just ---

**MR. GRANT:** And I guess another question -- maybe it's -- maybe it is ---

**MR. JORGENSEN:** So in terms of water consumption, it would be that 45 litres cubed per hectare of ---

**MR. GRANT:** Right.

**MR. JORGENSEN:** --- ICI development. That would be your water consumption value.

**MR. GRANT:** Forty-five (45) cubic metres (sic) per hectare times the number of hectares. All right.

And can you tell me the -- what assumptions you have made with respect to the square foot area of the total ICI growth that's been assumed over the 30-year period?

**MR. JORGENSEN:** So from my point of view, that number was provided to me in terms of the development area which -- HRM?

**MS. MacKENZIE:** It's two part. So HRM had provided -- this is probably further to the discussion on the population panel, but HRM provided areas anticipated within the business growth area such as Burnside, Bayer's Lake, over the next 30 years and then Atlantic Canada Guidelines has a value, which Mr. Jorgensen referred to, which is a range of 35 to 55, so we just simply took the areas that were provided and applied the median flow of 45, so there -- we didn't really generate a per square foot flow rate, per se.

**MR. GRANT:** Okay, but then ---

**MS. MacKENZIE:** But ---

**MR. GRANT:** But then you utilize ---

**MS. MacKENZIE:** Yeah. So yeah, that's the next part of it.

**MR. GRANT:** --- the 733 square feet per person ---

**MS. MacKENZIE:** Right.

**MR. GRANT:** --- for ICI.

**MS. MacKENZIE:** Yes.

**MR. GRANT:** What is that?

**MS. MacKENZIE:** So I might refer to Mr. Jorgensen because it was developed through the consulting report.

**MR. JORGENSEN:** So the 70,000 ---

**MS. MacKENZIE:** Seventy-three (73) square foot per person.

**MR. JORGENSEN:** The -- that?

**MS. MacKENZIE:** That.

**MR. JORGENSEN:** So the 733 square foot per person is the combined rate of the institutional, commercial, and the third one.

**MR. HANNEM:** Industrial.

**MR. JORGENSEN:** Industrial.

**MR. GRANT:** Yeah. There's no industrial in Nova Scotia, so just -- actually, it's good. So for ICI, 733 square feet of space -- building space per person; is that right?

**MR. JORGENSEN:** Correct, which was the blended rate from the commercial at 400, industrial at 1,100, institutional at 700.

**MR. GRANT:** Okay. And the 733 then gets multiplied by the -- what number? Is it per person of additional growth or is it for the ICI equivalent number of persons?

**MS. MacKENZIE:** So for ease of managing the applications when they come through the door at building permit stage with HRM, typically what's provided is square footage at the counter. So we came up with a charge that we could apply so that you -- whenever you come in with your 1,000-square-foot building -- that's probably underestimated -- but it would just be applied the $2.71 a square foot. So we tried to convert what is a flow per acre or per hectare, to a square foot per building for the implementation of it.

**MR. GRANT:** Okay. So I think I

understand what you're saying about the charge, Ms. MacKenzie. But what I'm trying to determine is what have you assumed with respect to the development of ICI over the next 30 years, in terms of the total area of ICI development?

**MR. JORGENSEN:** So that will be contained within the -- I think it will be in the functional plan. So on evidence H-4(ii), page 181 of the PDF, "other business growth areas...." So they are the specific business growth area to which the 45 metres cubed per hectare was applied, in terms of consumption.

**MR. GRANT:** Right. Okay. And I'm asking ---

**MR. JORGENSEN:** And you can see the hectares there.

**MR. GRANT:** Right. So I'm asking what does that translate into square footage of ICI space that's been assumed over the next 30 years?

**MR. JORGENSEN:** I don't know right now.

**MS. MacKENZIE:** We don't have that number at hand. It was an exercise whereby we were given

an area and had to come up with -- and knew that that area can convert to and represents a flow, and then had to come up with a mechanism to collect that on a square footage basis. So we used some industry standards of a per employee and, essentially, kind of back calculated the equivalent population so that we could get a flow per employee -- per square foot per employee, so that we could develop a square foot charge.

**THE CHAIR:** But you had to make certain assumptions to make that conversion from a flow rate to a per square foot rate; right? And I think that's what Mr. Grant is asking for.

**MS. MacKENZIE:** Yeah.

**MR. GRANT:** Right.

**THE CHAIR:** So is that ---

**MR. HANNEM:** Those are the industry standard numbers that we quoted from the Atlantic Canada Guidelines. There was a separate number for institutional, commercial, and industrial.

**THE CHAIR:** That was for the flow rate?

**MR. HANNEM:** Correct.

**THE CHAIR:** Right. But I think what Mr. Grant is asking for is how you converted that to a per square foot rate. Is that ---

**MR. HANNEM:** But that's (inaudible) ---

**MR. GRANT:** Mr. Chair, what I'm really trying to determine is what did they assume as to the uptake of institutional, commercial, and industrial space in the city over the next 30 years. And I'm just thinking there may be an easy answer; it may be the total amount that you have to collect under the ICI charge for RDC over the next 30 years divided by 733.

**MR. DHILLON:** Mr. Grant, would that be 733 multiplied by 70,000 people. That'll be (inaudible) square feet of uptake?

**MR. HANNEM:** That would provide the simple math, I think, if you look at our statistics here.

**MR. DHILLON:** That would be the uptake of ICI if you multiply 70,690 by 733 square feet. Is that kind of getting close? Not sure that answers that.

**MR. GRANT:** Right. Yes, okay.

**MR. HANNEM:** The reality is our

calculations were working from the opposite direction of the formula.

**MR. GRANT:** Right.

**MR. HANNEM:** We were provided a total development area of 698.1 hectares. That's the regional -- or the HRM information that we can discuss tomorrow. We converted that to an equivalent population and through the guideline standards converted that to equivalent flow.

**MR. GRANT:** So if I get that correctly, your -- at 733 square feet per person and an equivalent non-residential population of 70,690 persons, you're looking at almost 52 million square feet of new ICI space within the city -- within your area.

**MR. HANNEM:** Yeah, if you applied our math in reverse you would come up with -- trusting your calculation was correct, yes.

**MR. GRANT:** So ---

**THE CHAIR:** Perhaps just before we go any further, we'll mark that first -- in terms of the water consumption for the ICI over the 30-year period, that'll be Undertaking U-3.

**UNDERTAKING U-3 - To provide what**

**the total volume for water consumption growth for ICI used to generate the infrastructure sizing over a 30-year period**

**THE CHAIR:** So there's no second part to that then, Mr. Grant in terms of the flow to the square footage conversion?

**MR. GRANT:** No, I don't think so. Right now I'm just asking for the flows from water consumption from ICI.

Going back to Exhibit H-4, IR-13, the metered consumption history shown for 2011-'12 is about 37 million cubic metres; correct?

**MS. O'TOOLE:** Correct.

**MR. GRANT:** And that's your total sales, including residential and ICI?

**MS. O'TOOLE:** That is correct.

**MR. GRANT:** Okay. And your -- and that's not far off what we get using 308 litres per capita just multiplying by your number of residential customers, assumed number of residential customers?

**MS. O'TOOLE:** That's not our number of

residential customers though. That is our estimate of the population who pass through our service area and get service. Our number of residential customers we know with certainty the number of residential connections we have, which is about 78,500, but we don't know with certainty how many people live in each household, hence we tend to rely on ---

**MR. GRANT:** Okay.

**MS. O'TOOLE:** --- Statistics Canada data about assumptions and averages.

**MR. GRANT:** Right. But I think what this shows is that if you're using a consumption rate of 308 litres per person per resident of your serviced area, that the 308 litres is too high because you've got almost nothing left to count for ICI; right?

**MS. O'TOOLE:** That would be correct; however, the -- that 308 figure is not what is relied upon within the infrastructure, sizing, within the infrastructure list that supports the Regional Development Charge.

**MR. GRANT:** Okay. If we were to take the 36 or almost 37 million cubic metres of sales for 2012

and use the allocation that you have used in Exhibit H-24 between residential and non-residential population ratios, we would allocate 69 percent of the total to residential and 31 percent to ICI, would we not?

**THE CHAIR:** Sorry, you referred to H-24, you meant H ---

**MR. GRANT:** Sorry, H-23, I beg your pardon.

**MR. HANNEM:** Yes, that would be correct.

**MR. GRANT:** Okay. So 69 percent of the 37 million cubic metres would be about 25,000,500 cubic metres allocable to residential use; right?

**MR. HANNEM:** From that math, yes.

**MR. GRANT:** Okay, what's wrong with that math?

**MR. HANNEM:** No, no, I'm just trying to follow ---

**MR. GRANT:** Okay.

**MR. HANNEM:** --- applying the 69/31 ratio to that total actual flow for the areas.

**MR. GRANT:** Okay. When you used the

69/31 ratio for the future, were you not assuming it was reasonably representative of the present?

**MR. HANNEM:** I believe so.

**MR. GRANT:** Okay. If you take that 25.5 million cubic metres allocable to residential, and divide it by 365 to get to a daily consumption, and then divide it by the 350,000 residential customers, you would get to an average consumption per litre per person per day; correct?

**MR. HANNEM:** Those would be the units, yes. I understand, yes.

**MR. GRANT:** Okay. And if we do that math, and I suggest to you you can accept this subject to check, you get to about 199 litres per person per day?

**MR. HANNEM:** Okay.

**MR. GRANT:** Right? Is that correct?

**MR. HANNEM:** I'll accept your math, yes.

**MR. GRANT:** Okay.

**MR. HANNEM:** Yeah.

**MR. GRANT:** And is there anything wrong, not with the math but with the actual formula that

I'm using, in terms of trying to get to the number of litres consumed per person per day by existing customers?

**MR. HANNEM:** Yeah, it's difficult to comment because they're coming from a very general spot to a specific spot. So it is something I would -- I'd prefer to review. I accept the math you've done from those numbers.

**MR. GRANT:** But, you know -- but at this moment you can't see anything that's wrong with what I've done?

**MR. HANNEM:** That's correct.

**MR. GRANT:** Okay. I'd like to refer you now ---

**THE CHAIR:** Mr. Grant, when would be an appropriate time to stop for the day?

**MR. GRANT:** I'd say at the limit of anyone's endurance, and I'm close to mine, so ---

**(LAUGHTER)**

**THE CHAIR:** I think we passed ours a long time ago.

**(LAUGHTER)**

**MR. GRANT:** I thought you may have,

Mr. Chair.

**THE CHAIR:** And so is now a convenient time?

**MR. GRANT:** Yeah, that's fine.

**THE CHAIR:** Okay.

So we'll break for the day and we'll reconvene tomorrow at 9 o'clock.

And the panel, again, you can -- in terms of your testimony you can speak amongst yourselves but don't speak about your testimony to anybody else.

Thank you.

**MR. MacPHERSON:** On that, Mr. Chairman.

**THE CHAIR:** Yes.

**MR. MacPHERSON:** I spoke with my friends -- two of my friends, Mr. Larkin and Mr. Grant, and I didn't get a chance to speak to Mr. Mahody or Mr. Outhouse, but I understand that Mr. Grant may have a witness he wants to put on out of order. And I have requested other counsels' permission and the Board's permission to speak to my clients only in the context of preparation for cross-examination of that witness.

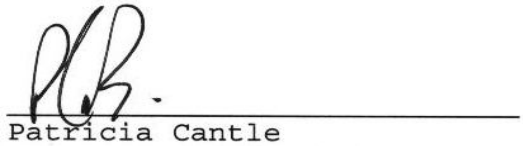
**THE CHAIR:** Sure, that’s fine.

Thank you.

--- Upon adjourning at 4:41 p.m.

**CERTIFICATE OF COURT TRANSCRIBER**

I, Patricia Cantle, Court Transcriber, hereby certify that I have transcribed the foregoing and it is a true and accurate transcript of the evidence given in this matter.



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Halifax, Nova Scotia
Monday, December 2, 2013