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INDEX OF PROCEEDINGS

INDEX OF EXHIBITS

INDEX OF UNDERTAKINGS

NO UNDERTAKINGS

WEDNESDAY, MAY 10, 2017
UPON COMMENCING AT 9:30 A.M.

THE CHAIRMAN: Good morning, everyone, welcome to the third day of our hearings into the Manitoba-Minnesota Transmission Project.

At the request of Manitoba Hydro, we're going to make a slight change to the schedule this morning. Hydro's presentation is in three parts, so we will take a short break, 10 minute break after the first part and after the second part, in order to give them time to set up for the next section. That will probably run us a bit longer, maybe closer to 1:00 o'clock. But that way we'll get through the whole presentation this morning. And then the questioning will commence after lunch.

Okay. Thank you very much, and I'll turn it over to Manitoba Hydro.

MS. JOHNSON: Could you please state your names for the record?

MS. BRATLAND: My name is Maggie Bratland.

MR. MATTHEWSON: James Matthewson.

MR. BLOCK: Dave Block.

MR. GLASGOW: Jesse Glasgow.

(Routing Panel Sworn)

MS. BRATLAND: Thank you. Good morning, everyone. I want to welcome the Commission, participants and members of the public to today, our third day of presentations on the topic of the Manitoba-Minnesota Transmission Project. As noted, my name is Maggie Bratland and I have the pleasure of presenting our panel to you today. We will be discussing with you the topic of transmission line routing, and specifically the application of the routing methodology and the decisions made in selecting the final preferred route.

To my right is Mr. James Matthewson. He is a senior environmental assessment officer with Licensing and Assessment for Manitoba Hydro. Mr. Matthewson lead the route planning portion of the process.

To his right is Mr. Block. Mr. Block will not be participating as part of the front panel. He's sitting here today because he's helping us navigate through the slides today, but he is an important member of the routing team and is an environmental specialist with Manitoba

Hydro.

To his right is Mr. Jesse Glasgow. Jesse Glasgow is a principal with Team Spatial. He helped develop the EPRI-GTC methodology for the project and has implemented the EPRI-GTC methodology on numerous projects across North America.

And finally, me, I'm Maggie Bratland. I'm a senior environmental specialist with Licensing and Environmental Assessment at Manitoba Hydro. And I lead the coordination of engagement feedback into the transmission line routing process, and lead the facilitation of the route evaluation process.

For those of you that will be hearing this for the first time, I wanted to go over the scope of this presentation and put it into context. We covered a number of items in a previous presentation delivered on January 19th at the routing workshop. In this presentation, we covered routing methodology, how weightings and criteria were determined, and how feedback from engagement was incorporated into the models that make up the methodology.

In today's presentation, we will be

talking about the results and reasons for decisions that were taken. I will be going through route comparisons and why one was selected over the other.

It's a good thing that we broke these into two pieces because we would be here for five hours if we tried to cover all of that today.

By way of outline, today's presentation is going to cover the following topics: We'll go through some background and an overview and review of some key elements of the approach. Then we'll move into the decisions taken in each round of transmission line routing. We'll go through Round 1, where we selected a border crossing; Round 2, where we selected a preferred route to the border crossing; and then Round 3 where we selected our final preferred route. We'll go through a summary of this final preferred route and then make some concluding statements.

I'm going to stand up now and test out this mobile mic thing, because I want to get you oriented to the two screens that we'll be using today. And I'll stand in between them so I don't blind myself.

To the right-hand screen will be the powerpoint deck. You should have two handouts in front of you. The one is the slides I'll be going through to my right-hand side. The other are the visuals that are on the left-hand side. In transmission line routing, the things we talk about are very spatially oriented and visual in nature. So throughout this presentation we'll be referring to those visual elements, and those will be primarily on the left-hand side of the screen. We'll be going back and forth between both screens, and we promise to do our very best in making sure that we can all follow along.

I want to point out a couple of items on the map on the left-hand side, because we'll be using some terminology consistently throughout the presentation. We have all had some presentations already about the general project features, but I'm just going to point you to a couple of them today. And I'm going to try and reach -- and someone's got a laser pointer so that's good. This element of the project in the orange colour is what we refer to as the south loop transmission corridor. It's a corridor around southern Winnipeg that will host multiple transmission

lines and is a fixed portion of this project. The colour in sort of lemon yellow is what we refer to as the Riel/Vivian transmission corridor. The line in blue is what we refer to as the new right-of-way. And then this orange blob here is put on the map as a landmark, because we'll refer to it over and over again as we talk about different routes and where they are in the project area. That is the Watson P. Davidson Wildlife Management Area. And then we will be discussing elements along the border as well.

Okay, next slide. Thank you.

So by way of review, the goals of transmission line routing: The goal is to determine a preferred route for a high voltage transmission line. This is a complex iterative process and it has been designed to combine the interests and concerns from multiple perspectives, and in doing so limit the overall effect of the transmission line development on all of the different environments we consider.

Earlier you heard about public engagement and First Nation-Metis engagement processes for the project. The routing process was designed with these processes, specifically to

integrate feedback from these processes into decisions and decision-making factors. The engagement team worked with the routing team and the assessment teams to capture information at key stages and to provide context to help these teams with their consideration of the preferences and feedback of the groups and individuals that participated in the engagement processes.

You have heard us all speak about the learnings from past projects, and routing is no different. We had the opportunity to learn much from our past experiences. The routing process used at Manitoba Hydro is similar to the approach used on past projects and in other jurisdictions, in that it starts with an understanding of constraints and opportunities on the landscape, and incorporates information about the various land uses and features of the landscape. In designing the routing process, our teams carefully considered feedback received during regulatory processes on recent projects and advice received from the Clean Environment Commission hearing on Bipole III.

There were two key recommendations that I'd like to highlight today. The first is

non-licensing recommendation 7.1. This recommendation states that Manitoba Hydro develop a more streamlined, open and transparent approach to route selection, making more use of quantitative data.

The second recommendation, recommendation 7.2. This recommendation states that Manitoba Hydro in future should invite potentially affected public and communities, including the First Nations and Manitoba Metis Federation, to participate in the selection of alternative routes and route selection criteria. Adopting and applying the EPRI-GTC routing methodology and integrating it with our engagement processes is in direct consideration of these recommendations.

I'm now going to turn it over to Mr. Jesse Glasgow, who will provide further background in the EPRI-GTC methodology.

MR. GLASGOW: My name is Jesse Glasgow and I've been involved with transmission siting projects since 1999. I started working with Georgia Transmission Corporation, or GTC, to help them leverage geo-spatial technology to implement a more standardized, consistent, objective and

defensible siting process. While we were impressed with the benefits of using computers to analyze geographic information for transmission siting, there was an opportunity for improvement in how we integrated this technology into the overall siting process. In 2003 the Electric Power Research Institute and GTC co-sponsored a research project to develop a standardized method for siting transmission lines based on the work that we were doing at GTC.

EPRI is an international non-profit industry organization that provides thought leadership, industry expertise and collaborative value to help the electricity sector identify issues, technology gaps, and broader needs that can be addressed through effective research and development programs for the benefit of society.

The research team for this project was made up of four leading academics, an environmental attorney, a land rights attorney, several siting practitioners and technical experts, and included input from industry and external stakeholders through a series of workshops over two years. I was the technical team leader on the team that developed this

methodology. And this research project resulted in the EPRI-GTC Overhead Electric Transmission Line Siting Methodolgy which was described in a report published by EPRI in 2006. Since then this methodology has been widely used across a wide range of jurisdictions and has been calibrated for local concerns. I have personally been involved in a couple of hundred projects across seven states and provinces.

I began working with Manitoba Hydro on this project, on the MMTP project in March of 2013. I consulted with Hydro on the use of the EPRI-GTC Siting Methodology, and my team helped implement this methodology on this project by facilitating model building workshops and implementing these models to identify corridors and evaluate routes.

The 2006 EPRI report documented the "state of the art" methodology at the time. Since that time the methodology has been applied in other jurisdictions within a variety of physical and social environments. Because the differences between physical and social environments, the methodology has also often been enhanced in those other jurisdictions. As with many standard

processes, it has been refined over the years. The implementation of methodology varies from one jurisdiction to the other.

The MMTP project was among the most rigorous and transparent implementations of the methodology to date. It included as extensive public engagement and transparent documentation of any project with which I have been involved. I was especially impressed by Manitoba Hydro's grasp of the technical concepts and their application to a siting process.

So, you know, to save you from reading the EPRI report from 2006, I have kind of hit on some of the common themes of the EPRI methodology. Number one, projects that use this methodology use a data driven and objective process. Projects leverage external stakeholder input from representative organizations to help calibrate the Alternative Corridor model using the Analytical Hierarchy and the Modified Delphi processes. Projects rely on routing experts to identify alternate routes using the Alternate Corridors as a guide. Projects leverage internal experts to calibrate the Alternate Route Evaluation Model. We use the Alternate Route Evaluation Model to

help identify the top routes. And finally, we leverage internal expert judgment to calibrate the Preference Determination Model, also known as the Expert Judgment Model in the EPRI report.

So the methodology is analogous to a funnel in which we process information. Into the funnel goes geographic information, which is calibrated with community concerns, natural concerns and engineering considerations. Each phase of the process is like a filter in the funnel which is used to reduce the area of consideration. As the area of focus is reduced, we're able to invest more effort into studying the area at a greater level of detail. For example, it's common to use 30 metre satellite imagery at the macro corridor analysis phase, aerial photography based analysis on five metre resolution for alternate corridors, and very detailed one metre engineering survey data to refine the final route. We can also collect more detailed information as we proceed through the funnel leveraging external engagement and field studies. The bottom of the funnel results in a preferred route for the transmission line.

There are opportunities for

stakeholder engagement through the process. It's common to calibrate the Alternate Corridor Model with external stakeholder input through a workshop. When facilitating the workshop to calibrate the Southern Manitoba Corridor Model, we leveraged tools and techniques developed in the EPRI project and refined through implementations in other jurisdictions.

Thirty participants representing different stakeholders took part in a workshop that occurred over three days. After reviewing the methodology, the participants refined the siting criteria within their area of expertise. Once the criteria were identified, the stakeholders provided quantitative input processed through multiple rounds of discussion and consensus building. The stakeholders who participated in this workshop defined the criteria, the relative suitability of areas to host a transmission line, and the relative importance of the criteria. This model was then used to identify alternate corridors.

The project team identified routes within the alternate corridors and then used the Alternate Route Evaluation Model to filter out the

top routes for further consideration. Finally, the Preference Determination Model was used by the project team to select the preferred route. This resulted in documentation of the characteristics of the route alternatives and the rationale for the preferred route.

No two transmission siting projects are the same. A basic transmission project goes from one point to another point. More interesting transmission projects go from a line to a point. And the most interesting projects go from multiple potential starting points to multiple potential end points. MMTP is an example of one of those most interesting projects. We have options to start the new right-of-way from a point along the Riel to Vivian corridor, that Maggie pointed out that was shown in yellow. And our destination is somewhere along the U.S. border and ultimately into the U.S. This is the Minnesota portion of the project that's outside of our routing scope which is in the U.S.

The variety of potential endpoints resulted in iterative siting studies. These studies used an elimination process to reach the preferred route. We were able to leverage the

EPRI methodology to assist with this process.

One of the first tasks was to identify a border crossing so we could focus our efforts on finding the preferred route to that crossing. We chose to work through the funnel toward each of three border crossings so that we could evaluate them with consideration of the impact of the crossing location to the entire route. In doing so, we were able to identify representative routes to each crossing and then compare those representative routes. This is how we evaluated the border crossings, by comparing the representative routes to those crossings.

After the border crossing was selected, we were then able to back up and seek additional input and refine the route alternatives. We performed this over two more iterations, each time receiving input from the public and making adjustments accordingly. In the end, we produced a preferred route which balances impacts to people with the natural environment and engineering concerns.

Now I'll hand it back over to Maggie.

MS. BRATLAND: So as Jessie mentioned, the EPRI methodology makes use of a number of

models, which we covered in detail in the presentation on January 19th. These models are tools that provide a structured and transparent way to represent the trade-offs between stakeholder interests and land uses, along with the decision factors, that guide the transmission line routing process.

Each step in the funnel is informed by models that use criteria and associated weightings. I like to group these two models into two categories, the first category is Planning and the second is Evaluation. The Planning Model, the Macro Corridor Model, and the Alternative Corridor Model, describe the relative suitability of features on the landscape to co-exist with the transmission line.

The Evaluation Model, known as the Alternate Route Evaluation Model and the Preference Determination Model, are used to measure features of routes. They enable an apples to apples comparison of large number of routes, and then finally help us to select a preferred route from a smaller subset of routes. These tools help structure quantitative information which inform the decisions on the project. And

like all tools, it's people that use them.

This brings me to the topic of the teams that participated in our route planning and evaluation processes. So as I noted, the teams used the tools in the EPRI-GTC methodology to inform decision-making. This brings together a large amount of data and information about the landscape and interests on the lands, and additional information developed and received through engagement feedback and discipline specialist study, to help us in leveraging the expertise and knowledge and make decisions in a project team environment.

These tools bring together the collective knowledge of a team of professionals in making transparent decisions when determining a route. We had a number of teams that functioned on this project.

I'll start with the management team because you have already met one of them. The management team consisted of the transmission business unit senior managers. This team developed the criteria and weights of the preference determination model that we'll be talking more about.

The routing consultant, Mr. Glasgow and his team, guided the design and implementation of the EPRI-GTC process. They facilitated route evaluation workshops and analyzed geo-spatial data in developing metrics and statistics.

The routing team. The routing team developed alternative routes and mitigative segments and helped to coordinate the routing process.

Discipline specialists, also known as subject matter experts, conducted field studies and assessed the valued components of the project. They formed the members of the perspectives within the project team, and this also included our technical engineering specialists.

Our engagement teams, which you would have heard from yesterday, coordinated the gathering of input from the public engagement process, and the First Nation and Metis engagement processes, and participated in the route evaluation workshop.

Which brings me finally to the project team. The project team consists of representation of the teams noted, and participated in decision-making using the models and determining

the final preferred route. The project team at any given time consisted of roughly 25 to 40 members.

In total, roughly 60 people were directly involved in route planning and decision-making, and more than 100 were involved in assessments and analysis that fed into this process.

I apologize for the tiny print. This is merely to remind us all of a document that's in chapter 5, I like to call it the napkin. It's the overall representation of the steps in routing. It's the overall routing at a glance.

And I want to run you through this primarily to help us follow through on the left-hand screen. Because what we're going to do is show you visually what happens from the start of the routing process to the very end of the routing process. It's going to go fairly quickly. I'm not going to give you a lot of detail, but I wanted to give the visual of the story that we're going to follow through for the rest of this, hopefully, not too boring presentation.

Okay. So routing is broken into three routes. So on our screen here we have Round 1,

Round 2 and Round 3. Each round has an objective to narrow the area under consideration, because we are taking a broad geographic area and trying to find the place for an 80 to 100 metre wide right-of-way for a preferred route.

As Jessie mentioned, often transmission line routing starts with a defined start point and one defined endpoint. On this project that was not the case. Manitoba Hydro decided to apply the EPRI-GTC methodology to help inform the process of selecting a border crossing.

So now on the visual, on the second slide of the screen, I'm going to walk us through the steps of the methodology that lead us to that visually.

So we're starting with planning model. So our first planning model was the macro corridor model. We developed macro corridors on the landscape to the border crossing that helped us in delineating a route planning area. This black box is the route planning area, and those three black boxes are the border crossings under consideration. So throughout the presentation I'll refer to these border crossings, they are Gardenton, Piney West, Piney East.

The next step, once we have our route planning area, is to determine alternate corridors. These alternate corridors in the purple shade are developed with the help of the alternate corridor model that Mr. Glasgow mentioned was developed with the use of the stakeholder feedback. These alternate corridors help to map the stakeholder values on the landscape, and they inform areas for our route planners to then plan routes within.

Our route planners, with the help of these corridors, and additional information that we'll get into, develop route segments that connect into alternative routes. So these dashed blue lines are route segments. Route segments are then evaluated, helping us to select a border crossing. The border crossing that was selected was Piney west.

We then move into Round 2 of our routing process, with the objective to evaluate alternative routes to the selective border crossing and selective preferred route. These were the Round 2 routes that were evaluated in making the determination of a preferred route. This was the preferred route that was selected in

Round 2.

We go out for feedback engagement and analysis on the preferred route. We get considerable feedback, and we develop additional routes for consideration from that feedback. These routes are then evaluated again using the comparative evaluation tools of the methodology. And finally we arrive at a preferred route for our project.

So that's many steps, lots of information. We are going to next walk you through each stage that occurs in routing. So on the top here we have each stage that we have broken down. James and I are going to take turns walking you through the overall approach to planning of routes, the feedback and analysis step, and then the comparative evaluation exercise that results in decisions.

I'm now going to hand it over to James, who's going to describe the planning and feedback steps.

MR. MATTHEWSON: The objective in transmission line routing is to develop a preferred route for a proposed transmission line, based on the consideration of multiple factors and

interests, with the overarching goal of minimizing the overall effect of the route.

There are numerous potential effects associated with routing new transmission facilities. These potential effects are not typically mutually exclusive, meaning the avoidance of one potential effect will often result in a trade-off with another.

There are three primary considerations for how potential effects can be managed. Avoid, which is the preference. We'll always need to avoid an effect when possible. This is not always feasible, particularly in highly developed areas like urban environments where multiple effects could occur and overlap.

Mitigate: Mitigating effects involves finding ways to minimize the degree the potential effects pose when a specific effect cannot be avoided.

Compensate: When an effect cannot be avoided or reasonably mitigated, the last option is to compensate for the effect or loss caused by a project. Compensation can come in many forms and is typically developed and balanced through discussion with agencies, other affected

stakeholders, landowners, and the consideration of project engineering cost constraints.

Generally the objective when developing routes is to avoid effects that are difficult to compensate or mitigate. The more complex the mitigation or compensation required, the greater the pressure will be to simply avoid the potential effect, if possible.

General siting principles were used as high level guidance for overall alternative route segment development. These segments were based on professional judgment and experience drawn from a multi-disciplinary team, including additional guidance drawn from previous CEC recommendations, historic feedback from regulatory agencies, and feedback from public and First Nations and Metis engagement processes received during previous Manitoba Hydro transmission projects across southern Manitoba.

The siting principles include avoiding or limiting effects to residences, avoiding or limiting effects to the environment, utilizing existing transmission facilities where possible, parallel or following existing linear developments that are compatible, avoid or limit effects to

recreational areas, avoid or limit effects to agricultural operations, while considering the length and cost of proposed facilities. It is generally accepted that the shorter the route, the lower the potential for effects.

The alternate route corridor composite, which is a merging of all the perspectives, the engineering, the natural, the built, and the simple average as illustrated on the left, form a valuable stakeholder informed backdrop for route planning. The development of each perspective corridor was discussed on the January 19th workshop. The corridors were developed from the east side of the Riel/Vivian corridor, and to Piney East and Piney West border crossings, and it was run from the west side of the Riel/Vivian transmission corridor to all crossings.

Alternative route segments were developed by Manitoba Hydro routing team and take into account a number of considerations. The routing team is made up of senior transmission technical specialists in both engineering and design, and environmental assessment. It's a combined experience of over 35 years, and involved

in routing over 3,000 kilometres of transmission lines in Manitoba.

Planning considerations include the same factors that determine the alternate corridors, but at a much smaller scale, finer level of detail. Along with technical and environmental constraints, such as number or type of structures, tower structures, in particular the need for larger, more costly angle structures, land use and environmental features.

The routing team has participated in the public engagement process and the First Nation and Metis engagement processes for many projects, as well as observed the alternate corridor model development with the technical data holders. So with the routing team involved in all of those different components of the entire siting process, they have the benefit of being informed from a variety of different stakeholders, and getting the breadth of experience of all those different experts that are involved, the experts being the technical data holders or the landowner, or First Nations and Metis that have that local knowledge that is key to developing mitigative segments and route segments.

The routing team developed alternative route segments instead of complete alternative routes, as this provides the maximum number of routing possibilities informed by technical experience of the team. The alternative route segment is simply a portion of the route between two intersections. So this route here, that would be an intersection, and then it would go to that intersection, so that would be considered one segment.

With the siting principles and alternative corridors, the next step for Manitoba Hydro routing team was to develop alternate route segments within the alternate route corridors, to the extent possible. The general assumption at this stage is that the routing proposed within the alternate corridors should theoretically pose lower levels of overall impacts relative to the routing outside of them. The routing team assessed the route planning area for routing bottlenecks, which are areas which limit the possibilities of route segments. So on the left-hand side of the screen here, these are -- this illustrates the landscape by which we, as you can see by the route planning area outlined -- by

which the route planning segments were developed. All the different colours on the map represent different levels of constraints. So the bottlenecks, as I was referring to, are areas that really constrain route development. The yellow are really high density residential areas. And these more orange are these very large wetland complexes -- sorry, the blue are the large wetland complexes that exist in this portion of the eastern part of the study area. The orange represent areas of special interest, as designated by Manitoba Sustainable Development. So as you can see, the other multitude of different coloured dots represent buildings and homes and other features on the landscape, agricultural operations. The black areas represent the areas, additional areas of least preference that are prohibited from future development. This is the tall grass prairie area. This is that Watson P. Davidson Wildlife Management Area that is legally protected against any development.

So once those bottlenecks are identified and the route planners are starting to draw segments, we try to start on those segments and try and find segments that navigate through

those bottleneck areas. And once we have got those segments developed, we start to spread out and start joining those segments together to form, which could be formed into routes.

Once we have done all this, typically it's on large scale maps so you can kind of see the whole area, we take those digitized kind of segments, and the very rough lines that we draw on these maps, we digitize them into a geographic information system, and then we further refine and assess them with the full power of the information of the numerous geo-spatial data layers, including the areas of least preference, the buildings, and multiple versions of aerial imagery, and other model output that the corridors provide. The information reviewed include the additional data collected through field surveys of the corridors by the project team, which catalogue new development, buildings, new homes and structures that had developed on the landscape since the inventory of the imagery or data was collected.

So this only represents a very small portion of the geo-spatial information. But when you are looking at a paper map, you can only layer so many pieces of information on top of it before

you can't see any ground after. So with the power of the geographic information system, we can turn layers on and off through a variety of the information that was collected through the alternate corridor workshops. There were literally hundreds of different data sets that Manitoba Hydro has for this area to inform its route planning.

So the route planning team worked collaboratively to develop a series of alternative route segments, based on a variety of considerations and concerns specific to the different disciplines involved related to the potential effects and associated layers of geographic information. It really starts with those considerations of the areas of least preference within the route planning area that were identified with the stakeholder input from the alternate corridor model.

As a result of the route segments that were drawn, we ended up drawing 87 individual alternate route segments, developed within the route planning area, through the initial route planning exercise. And additional mitigative segments were identified as we moved through the

process. When combined, there is approximately 750,000 potential routes, when you join these segments together.

Now, the network of routes start at a single start point in this project, at some point along the southern loop corridor, and terminated at one of the different border crossing options that we have at the bottom. So it's important to note that not all of these routes are logical. So when we say there's 750,000 routes, they're not all logical routes. And the total number of all potential mathematical combinations that are possible using the number of connective segments. So to illustrate what one of those 750,000 routes could have been, we could have started here and we could have gone like this, and then it would have joined and then went like that, then went like this, and followed one of those segments to that border crossing. An illogical route that would have been generated, because we are trying to connect and look at every possible route combination of segments, this segment could have went like this, back up, down, come back to this way and looped back around, and came down to the right and then went down this way. So there's a

variety of things and that's where we have a variety of tools in the models and the steps of the EPRI-GTC methodology to narrow down the 750,000 routes into something that is manageable for evaluation.

The end result, as I mentioned, is this interconnected network of alternate route segments is to be presented to Round 1, to the public, First Nations, Metis engagement processes, for further analysis, and further analysis by those subject matter experts, those discipline specialists.

At this stage Manitoba Hydro has developed route segments with all of the considerations discussed, with the understanding that they are ready for the next data feedback analysis, which will result in the development of mitigative segments that respond to this feedback. This can include additions, modifications or deletions to the network of route segments. That's what we have illustrated here.

So the feedback analysis step, as I mentioned, comes from participants, the discipline specialists, and the analysis of information gathered from all of those different processes.

So on the right-hand side of the screen, this is an illustration of all the different data that was collected through -- sorry, not data, observations that were collected through the field studies. So each one of these dots represents something on the landscape that either Manitoba Hydro employees saw, or one of the routing -- sorry, the project team saw in its field studies.

So as an example, the purple dots are residences and buildings that were mapped through driving every route in the study area and documenting the presence or absence of homes, agricultural buildings, all types of buildings. We of course first initially had done this using aerial imagery, but the imagery is a few years old, so we go out and we drive every single road and visually confirm what type of buildings are on the landscapes, or features. There could be an antenna for a cellular tower, there could be a grain bin, a variety of different information.

The various other colours represent all the different dots, observations collected through field studies from the biophysical team. The gold coloured dots represent the observations

collected through aerial surveys.

So the intent of this image is to illustrate the level of observation, direct observation that the project team had on the landscape which informed the route development process and the route evaluation process.

The set of alternative route segments are presented to the public and to our project team for further evaluation. At the same time, the public and First Nation and Metis engagement processes worked to present alternatives and gain feedback from participants, as described in the previous presentation by Ms. Coughlin and Mr. Joyal. The information from the engagement process informs the environmental assessment and informs the evaluation of alternative routes. But before routes are evaluated, all the feedback is gathered, analyzed and developed what we call mitigative segments.

Mitigative segments are developed in response to feedback or concerns received through research and engagement programs. So the planned routes that went out for Round 1 are the purple. So those are the routes that Manitoba Hydro drew and presented to the public. The blue dashed

lines represent the mitigative segments that were collected in a variety of ways. So they could be developed from feedback. So route segment could have been developed by the routing engagement teams themselves to respond to concerns heard. So we may have not got a direct have a look at this route, we may have just gotten general concerns from the public about more paralleling, more avoidance of a particular feature. So we developed some mitigative segments, some of which are in blue there. The other form that we get are direct. So in some cases the route segments are proposed directly by participants in the engagement process.

In an open house workshop, as Mr. Joyal presented, there are very large maps of the entire area. They are very detailed. People can see where their homes are, where their agricultural operations are, where there are forested areas, and areas they go and hunt or do traditional practices. They can draw right on those maps and say, hey, what about a route here, what about a route over here?

The routing team reviews those mitigative segments for viability through three

main tests. So, is it technically feasible from an engineering perspective, what has been drawn? Is the movement of a tower to lengthen a span to avoid an obstacle possible? So we talked about, Mr. Swatek talked about span lengths and angle towers. So those towers, there's engineering constraints on how far apart they can be and the angle by which they can turn. Those have to be evaluated for any mitigative segment that's added. Is it a net benefit or mutual with respect to potential effect? So if the segment is simply moving from one property to another, with no apparent net benefit, such as shifting effects. So if we had a proposed route mitigative segment from a landowner that said, well, put it over here on this mile road, we would evaluate that and say, well, there doesn't appear to be any change in effect other than shifting the effect from one landowner to another. It didn't seem to mitigate any direct concern other than a particular person's concern.

The third test, is it financially feasible and responsible to ratepayers? So a direct recommendation may be modified. So while somebody may have drawn a route that says, well,

go way out here or go in this way, there may be technical reasons, financial reasons, it's just excessively long. But what we will do is we'll take that mitigative segment and try to modify that as route planners, to figure out if there's a way to still address their concern but do it in a financially responsible manner.

So these segments are included for evaluation alongside the routes developed initially by the routing team.

So once combined together, once we take the segments, the blue mitigative segments and the purple initial route plan segments, we combine them together, we call those segments all together. And when we run the models to join them into routes, they form evaluation routes.

So now I'm going to pass the presentation back to Maggie who is going to discuss the steps of comparing those evaluation routes.

MS. BRATLAND: Thank you, James.

Once our mitigative segments have been added, and feedback and analysis from a round is complete, the project team participates in a route evaluation workshop. This image here is an image

from one of those route evaluation workshops. At this workshop, the project team comes together, armed with the analysis and feedback they have received on the specific routes in order to conduct their evaluation and make decisions.

Two of the EPRI-GTC tools are used at this stage, the alternate route evaluation model and the preference determination model. I will likely start using the terminology AREM for the Alternate Route Evaluation Model, and PDM for the Preference Determination Model, because I'm going to say it a lot. So hopefully that won't be too confusing.

These models and how their criteria are developed was described in the January 19th presentation, and is described in detail in the EIS, and was touched on in terms of preference determination earlier by Mr. Mailey.

So today we're going to talk more about these workshops and how are these models actually used by people to inform decision making?

Now, remember I said the project team represents roughly 20 to 40 people. They come together to these workshops and participate in discussions and deliberations over the information

we have received and the routes that are considered. These discussions are lead by facilitators. The facilitators on this project were primarily myself and Mr. Glasgow. We guided the project team through an agenda. We guided them through consideration of the alternatives and the models and the data that was available to them. In this setting, we challenged and encouraged participants to challenge the positions and information represented at the meeting, in order to drive the team to a strong common understanding, and ultimately consensus decision-making at the end.

So let's start by looking at our Alternative Route Evaluation Model. The model criteria and weightings are on the right-hand screen for your consideration, and I'll be speaking to the left-hand slide.

The first objective of our route evaluation workshop is to select a set of finalists from a very large set of possible route alternatives. As Mr. Matthewson mentioned in Round 1, we had roughly 700,000 route alternatives to begin. The AREM model is used to calculate metrics and statistics for the evaluation routes.

The statistics are then normalized, distributing values along a scale of 0 to 1. This allows the criteria with different units, such as miles or counts or dollars, to be added and compared, which enables an apples to apples route comparison.

The criteria in the AREM model are grouped into the three perspectives that we'll be discussing. The statistics are calculated with differing levels of emphasis for each perspective to emphasize the routes that will be preferred from each of the perspectives. Four perspectives are calculated and compared: Built, natural, engineering, and a simple average which weighs all perspectives equally. With consideration of these statistics and review of routes from each perspective, the team looks at the differences between routes, and can be helped to quickly focus on the strengths and weaknesses and the attributes of routes, and use this information, as well as their feedback and analysis, to help screen in a subset of finalists.

This subset of finalists that is screened in for further consideration, then moves onto the next stage of preference determination.

So on my right-hand screen, our

right-hand screen, we have the Preference Determination Model criteria and weightings developed by the management team.

Once the set of finalists is selected, the Preference Determination Model is used for further evaluation. In preference determination, the subset of route finalists is compared against each other. At this step, this tool allows the project team to bring additional important information, and information that is not measured necessarily in metres or dollars but very important to consider, into the route evaluation step. More intangible elements, such as community feedback and cultural values or interests, or the interconnectedness of landscapes features, for example, can be better represented through this discussion. This helps the team to focus on the differences between routes, because this is essentially a comparative evaluation. We're trying to decide what is different about these items and what should drive our choice. It helps to evaluate the significance of those differences and results in the assignment of a score by the project team against each of these criteria. And when they assign their score for a criteria -- so

if we're looking at the criteria of cost, one route must receive an assignment of one. One indicates most preferred against that criteria. And all other levels of preference scoring are assigned relative to that.

So for a criteria such as cost, this can be quite straightforward as it is a quantitative element. For a criteria such as community, this is decidedly more difficult. In considering feedback from the public engagement processes, and the First Nation and Metis engagement processes, the team considers preferences, concerns, interests, which vary from location to location as the land types, land uses and interests vary.

In scoring of each route, subsets of the project team evaluate the cumulative data and feedback gathered to date, and then bring that to bear in the process, along with their collective knowledge, judgment and experience.

So we have breakout sessions in the workshop. Community is initially scored by the engagement team. Cost and system reliability are initially scored by the engineering team. The natural and built criteria are initially scored by

the relevant team of discipline specialists. And then finally, schedule risk is scored by the group of all project team members as elements of each of those groups are represented under schedule risk.

In all cases, the preference scores that are assigned in a breakout group are then brought back to the larger project team discussion, presented to the overall project team, along with the rationale driving those scores, for challenge, discussion, and ultimately a shared understanding and consensus decision. So that's a little bit behind the background of how these workshops generally play out.

So now that we have walked through each of the steps of a round of routing and what happens with these tools, we're going to go back to Round 1 and walk through the specific consideration in each of the stages of a routing. So I'm going to turn it back to James who is going to start us through the planning stage of Round 1.

MR. MATTHEWSON: So as Maggie described, I had previously described route planning at an overall level. Now we're going to go into the specifics of each round. So we'll begin with Round 1.

The objective of Round 1, as you heard from Mr. Glasgow, was to determine a border crossing for the project. The transmission line must connect to a point of the border. Therefore a process was developed with Minnesota Power to allow for a structured approach to negotiating a border crossing point that both parties could agree was in the best overall interest of the project.

First each party progressed through their separate routing and engagement processes to gather feedback, evaluate options, and select a preferred crossing. Then information was shared, and using the overall considerations of length, schedule, community, and permitting a decision to be made regarding the crossing point in the best interest of the project.

The alternate route segments presented in Round 1 were designed to exit the south loop corridor and cross a variety of landscapes and land uses. Guided by the alternate corridors in a technically feasible manner, to each of the border crossings, options were provided to solicit feedback on the trade-offs between those options. As we can illustrate, some of those options were

within agricultural lands, some of them were within forested lands, some on them were within wetlands and pasture lands, some of them were on various sides of M602F, the existing 500 kV transmission line.

We considered the areas of least preference. Of note, the starting point of Dorsey and the endpoint of three border crossings were planning constraints, along with the 10 kilometre separation buffer Mr. Swatek discussed. That separation buffer was in place for the Round 1 route planning. And as we've discussed previously, that buffer was subsequently relaxed when we moved through evaluation and through the route planning process, as we got and received further information from other studies and other sources of information, such as engagement which encouraged the use of corridors as much as possible, existing corridors.

In addition to the meetings, open houses and discussions that were part of the public engagement, and First Nations and Metis engagement processes, there were also specific workshops held to gather input into route selection criteria. So the AREM criteria that Ms.

Bratland discussed, as per the CEC recommendation about getting input into those.

Manitoba Hydro invited stakeholder groups, First Nations and the MMF to participate in these workshops. These workshops were opportunities for participants to determine route selection criteria, most important to stakeholder groups, identify preferences and concerns regarding the alternative routes and preferred border crossings, and address the route selection criteria and suggest modifications.

At the same time there is a variety of studies going on during this round, ongoing discipline, specialist research and data gathering. The weather study was under way to inform our discussion on separation from the existing 500 line.

So on the right-hand side of the screen, these are some of the -- so this was an example of the windshield survey, some of the marsh wetland surveys that were conducted, the open houses that were held within the community, as well as the development of mitigative segments.

So each border crossing was evaluated separately in this phase, with a set of finalists

determined for each border crossing.

So as illustrated on the left, this is the Gardenton, the Piney West and the Piney East border crossings. We went through alternative route evaluation and preference determination and selected preferred route to each one of these border crossings.

The next step was to utilize the alternate route evaluation process to evaluate them. And then the top routes from that process, these preferred routes, is then moved to a final preference determination step to enable comparison of top routes against each other. So this step here.

The final preference determination helped to flesh out the strengths and weaknesses of the border crossings, as illustrated by alternative routes deemed most ideal to reach these crossings.

So now I'll pass it back to Ms. Bratland to discuss the evaluation.

THE CHAIRMAN: This is the Chair, Serge Scrafield. I just wanted to ask on timing, when we'll be having the first break of the two? There was a logical place I think.

MS. BRATLAND: Yes, we had a little mini discussion here to see if we felt like we could keep going. So there is a place to break right before Round 2.

THE CHAIRMAN: Okay.

MS. BRATLAND: If you would like to break now, we certainly can.

THE CHAIRMAN: Is that place to break before Round 2, that's one of the two, there will be a second one after that as well?

MS. BRATLAND: Sure. We can break any time.

THE CHAIRMAN: I only raise this, because the request from Hydro this morning was that there was two logical breaks in the presentation, so that's where I'm heading with the question. Are there two logical breaks?

MS. BRATLAND: There are two logical breaks, we just passed one of them.

THE CHAIRMAN: Okay. Then I am going to suggest a 10 minute break now, and then we'll continue.

MS. BRATLAND: Sounds good.

(PROCEEDINGS RECESSED AT 10:34 A.M. AND RECONVENED AT 10:45 A.M.)

THE CHAIRMAN: Welcome back everyone. If you can take your seats and we'll recommence the hearing where we left off. Thank you.

Okay, you're good to go when you're ready.

MS. BRATLAND: Okay. I'm going to take another moment to get everyone oriented to the visuals because we're switching into a very visual portion of the presentation.

The slide here indicates the finalists for the border crossing selection stage of Round 1. In these slides we will be using colour coding and labels to help you follow along on the map screen. So blue represents route TC. You can see route TC here. And route TC travels all the way up through there and along the rest of that portion of the route.

Pink represents AQS. AQS is very similar, travels west of the Wildlife Management Area and then diverges here towards Piney West.

Yellow is DKT. It's at the north there -- sorry, I made it a little bigger so you can see it, follow the laser printer down -- travels the farthest east to the Piney East border crossing. And route EEL, which is purple, travels

to the west of the existing 500 line. Sorry, I'll point this out as well. These grey lines represent the existing export lines, the one farther to the west would be line M602F, and the line slightly further in is the 230-kilovolt existing line. So, colours, colours.

As James noted, we determined that using the tools of the methodology would help us to evaluate the strengths and weaknesses of the various ways to get to each border crossing. This would help inform our preference for border crossing and help us understand the land uses, interests, and concerns that lay between the starting point and the endpoints of different route alternatives.

We used the metrics and statistics in consideration of the land uses in the area to screen in routes to each border crossing and select preferred routes to each border crossing.

TC was the most preferred route to the Gardenton border crossing, which is the western most border crossing. AQS was the most preferred route to Piney West. And EEL was the most preferred route to Piney East. DKT was added to include an additional eastern route for comparison

purposes.

Feedback from the public engagement process noted that an option using predominantly Crown land should be considered to increase the distance from the transmission development, from built up areas and residential communities and agricultural lands. Adding route DKT at this stage made sure that an option with this consideration was included for further analysis. Also, route EEL and route DKT are very different routes in terms of the lands they traverse. They represent different trade-offs, interests and potential mitigations for issues.

The team decided that both routes should go through to this final preference determination step and be considered.

I'm now going to turn you to the preference determination table at this stage of the decision-making. Again, please note that the routes across the top follow that same colour coding of the routes on the map.

So, let's start with cost. As I mentioned, cost is scored initially by the engineering team, and it's fairly straightforward. It just represents the variability in the metrics

in the costs calculated for each route. In this round, the routes vary quite a bit in terms of length, which is a driving factor behind cost. So you can see that the preference scores for cost range from 1, which is always the most preferred, to 2.2, to represent that relative difference.

For the consideration of reliability, reliability, the key consideration here would be the proximity to the existing 500 line and crossing of any existing transmission lines. Any point that you are in close distance from an existing line of a similar purpose presents a reliability concern, as Mr. Swatek would have highlighted for you. And any time you cross over an existing line introduces a point of possible multiple failure.

Route DKT was assigned a preference score of 3 -- 2.5, sorry, I'm trying to read this. And all other routes were assigned a preference score of 1. This preference scores represents the fact that DKT is in closer proximity to the 500 line that exists and crosses that existing 500 line.

From a natural perspective, it's clear that these routes are in very different

landscapes. Route DKT to the far east crosses the most amount of intact natural habitat that is forested and includes wetland areas. This was also in an area noted by NGOs, environmental non-government organizations, as an area incorporating a high amount of biodiversity, and also incorporates, as was previously noted on the map that James shared, a number of areas of special interest and proposed protected areas as highlighted by Manitoba Sustainable Development. For this reason, the natural team assigned a preference score of 3, which would indicate less preferred.

In contrast, looking at route TC, again route TC is the one that travels west the furthest when coming out of Watson P. Davidson Wildlife Management Area. Route TC has the potential to affect the least amount of natural habitat, as it travels through the more developed area for most of its length. So it was assigned the most preferred score of 1.

Moving to AQS and EEL, which are our pink and purple routes. The chief difference between these two routes is the alignment that it takes on either side of the Watson P. Davidson

Wildlife Management Area. Route AQS travels west of the Wildlife Management Area on more agricultural lands in that first western portion. Route EEL travels east through a much less developed area between the Watson P. Davidson Wildlife Management Area and that Pocock Lake ecological reserve that's not shown, and that's up here. And then travels down through the community of Sandilands, and then travels through a developed agricultural area down to the border crossing.

These two routes were considered slightly less preferred from a natural perspective than route TC, which remember we gave a score of 1, because of the fact that they traverse more natural habitats, some additional wetlands and forested areas, in comparison.

Turning to the built criteria, which is in this column here. The built team, in their breakout discussions, considered the proximity to residential developments, the potential effects on proposed future developments, and effects to agricultural lands, as their primary consideration.

Again, we'll start with route DKT to

the far east. DKT avoids built up areas primarily, with the least amount of private and agricultural lands, and is farther from residences. So, as you might expect, the built team ranked this most preferred and assigned a score of 1.

In contrast, moving to route AQS and TC, AQS affects more developed areas than DKT, and marginally less than TC, which is reflected in the scores that are assigned.

Route EEL is similar to route AQS, but is east of that Wildlife Management Area and traverses areas of residential development near the Town of Marchand, which is up here. And then also affects proximity to the Town of Sandilands -- actually, I think they're villages, so I will call them villages -- and affects more agricultural land than route AQS. So route EEL receives a score of 3, of less preferred.

Turning now to community considerations. As I noted, our routes are in a fairly broad geographic region, and these different regions have very different land tenures and land interests and uses. The community team considered how well routes balanced concerns, or

incorporated preferences heard during engagement processes. Again, a 1 here will indicate the most preferred route based on this feedback. At this stage, our First Nations and Metis engagement process had some broad feedback to consider, and we also had some site specific feedback to consider received through public engagement.

I'm going to summarize those pieces of feedback at a fairly high level. It wouldn't be reasonable really to go through all of the detailed feedback, but I will give my best high level summary for you.

So from the perspective of First Nations and Metis engagement processes and what we heard, the highest area of concern is represented farther east in the route planning area, east of the existing 500 line. In this area there is the impact to, the potential impact to natural areas, which we heard as a concern through our First Nation and Metis engagement process, and wildlife habitat, which is valued. There is also a high potential for burials, gathering areas, and sites of cultural importance in this area, with the highest concern noted, closest to the border crossing near Piney East.

So this region was a fairly high concern, but the highest concern was noted down in the far eastern corner of the route planning area, close to what is called the Medicine Line at the border crossing.

There are also concerns noted regionally on the eastern side of the Watson P. Davidson Wildlife Management Area. Again, this was an area of high potential for heritage, traditional use, and culturally important and sacred sites.

From the public engagement process, we heard concerns regarding private land, impact to high value agricultural land, impact to agricultural operations, and high concern related to the proximity to residences and potential to impact proposed developments. Proximity to residences, the concerns heard were related to potential health effects associated with the transmission project, concern about the potential to impact property value, impact to the visual enjoyment of the area. So, as you can see fairly plainly on this map, the intensity of residential development goes up as you travel west through this planning area. We have higher value

agricultural lands as we approach the City of Winnipeg, with larger towns and rural residential development associated with those larger towns, so a higher chance of proximity to residences over here.

So not surprising, the public engagement process provided feedback that routes should stay primarily to the east. And the First Nations and Metis engagement process feedback indicated that route should stay on more developed lands farther to the west.

One thing that those processes had in common, however, was a preference, and that preference was to incorporate as much paralleling as possible. Both of those perspectives agreed from that perspective. I think I'm going to say perspective a lot in the next couple of days. I apologize for overuse of the term.

So how was that reflected in the scores assigned by the community team? The scores assigned by community for DKT, TC and AQS were all 1, indicating these could be preferred from the different perspectives, because they offered a balancing of various concerns and mitigative options. DKT was reviewed favourably through the

public engagement process because of its distance away from residences, and less favourably through the First Nation and Metis engagement process because of the predominance of Crown lands with a high potential for traditional, sacred and cultural uses.

So TC, AQS and EEL, now I just want to point out here the commonality between these three routes. They all share the same segments from this point north.

Route TC, when it travels south of La Broquerie and south of the Wildlife Management Area, it does use predominantly private lands. However, in this region here there were very few concerns brought forward by public engagement participants, and there was the use of favourable alignments and parallel of the roadway. First Nation and Metis engagement process did indicate that there could be some areas of harvesting and potential heritage sites in the area.

Route AQS, south of the Wildlife Management Area, in this area here, which is the primary difference between the three. There were limited concerns raised with AQS as it was further from residences, and in the southern portion makes

more use of Crown lands in this area. So from a public engagement perspective, that was more acceptable.

One concern from the public engagement process for route AQS was proximity to that Ridgeland cemetery that you heard about yesterday.

Route EEL was given the lower preference score reflected by the 2, as there were concerns from both engagement processes in terms of the southern portion of this route due to the high likelihood of heritage sites and sites of importance from a cultural perspective, the use of Crown lands to the east of the Watson P. Davidson Wildlife Management Area, as well as concerns related to the proximity to Sandilands and Marchand. Marchand is up there, Sandilands is down here. I wish I had those labelled. So that was the rationale driving those community scores.

Next was a consideration of schedule. Schedule which has a 5 per cent ranking. Schedule was considered by the entire team and it was determined that DKT was the least preferred option, because of the prevalence of forested and Crown lands. What drove this was the fact that in highly forested areas there can be delays,

construction delays caused by bird timing windows or other restrictions related to when you can construct in that landscape. It can also be difficult to construct in wetland areas in the summer months, it's preferred to do that in the winter months. There were also considerations related to the amount and type of Crown land through that area and the additional approvals that would be required from Crown agencies in order to gain our Environment Act licence.

In contrast, route TC was most preferred. Route TC had less Crown lands, and in terms of the private lands crossed, we heard few concerns related to the alignment of the route in that southern area.

Route AQS had a higher amount of private lands that would require an acquisition process, so it was slightly less preferred than route TC.

EEL had more effect on the proposed residential developments that we talked about, but also a fair amount of Crown land approvals associated with it, east of the Wildlife Management Area, which could pose a risk to schedule, and additional forested area there that

would have those same bird timing window restrictions. So this was considered less preferred than AQS and TC, but more preferred than DKT, because it had less of a prevalence of forested Crown lands that could post timing restrictions.

And that takes us through all the numbers in the table, which is so boring and dry, I apologize, but I think important to go through to understand the rationale.

So what happens now is once our teams has proposed their scores, pretend we're the workshop, we have a vigorous discussion about the rationale and the underpinning logic, so that the entire team can gain an appreciation and understanding for what drove those numbers. And if there's consideration that there could be some faulty logic or some confusing statements behind it, we drive down through the heart of those and arrive at consensus.

What results is a rank at the bottom here, for each of the routes, with the route receiving the lowest score becoming the preference. So in this case, Manitoba Hydro determined that route TC to Gardenton, in this

exercise, would be our preferred route. But remember, we're not trying to pick a preferred route right now, we're using the tools of the models and the methodology to help guide our understanding of the strengths and weaknesses of these different routes and different landscapes, to help inform our decision-making about a border crossing. Because when you look at the border zone, you can't just look at one mile by one mile, or a small area, you have to think about how are you going to get there? What's going to happen between my start point and my endpoint, and what are the balance of land uses, interests and concerns on my way there? This exercise allowed us to do that.

So, through this exercise, we determined that Gardenton was our preferred crossing. And although predominantly private lands leading to this crossing, there were very few concerns heard regarding the southern segment of the route, which runs primarily through pasture land. The routes to this crossing were generally shorter, and it's a fairly logical principle that the shorter the route you have, the less potential for impact in general you have, because you are

crossing less total acres of land. It also had strong technical attributes, the routes to this crossing. They were shorter, cheaper, reliable, more favourable from natural perspective and considerations, with a low degree of concerns through the First Nation and Metis engagement process. So Manitoba Hydro felt comfortable moving forward to our discussions with Minnesota Power, with this in mind.

As noted, Minnesota Power had conducted their own routing exercise and determined their own preference in terms of border crossing. And prior to coming to this point, where we made a determination together about what would be a preferred border crossing, we had established a process by which we would conduct these discussions. And it was agreed that we would compare length, potential effect on people, potential effect on the environment, regulatory agency feedback and consideration of approvals, community feedback and schedule, when determining a preferred crossing point in the interest of the overall project.

Minnesota Power, through their own exercise, indicated that Piney East was their

preferred crossing and that Piney West was not feasible -- not Piney West, sorry, Gardenton was not feasible, because it would affect many more homes and productive farmland, while at the time creating many miles of new corridor for Minnesota Power.

So remember, they're also considering the ways in which they can get to these border crossings. Gardenton west from Minnesota Power required them to go around a number of features which would add additional length. They also had concerns regarding high levels of biodiversity in this region of the project area. So in contrast to Manitoba Hydro's concerns, our concerns around higher biodiversity and natural paths were towards this end.

So we met together, we shared the attributes of our discussions, and we came to the conclusion that Piney West offered a compromise position and an option that would be in the best interest of the overall project, because it brought together our considerations of length, our considerations of community, and potential impact on natural, and schedule.

So once we had that discussion with

Minnesota Power, we had determined our border crossing of Piney West. So again, I'll just say that Piney East was preferred by Minnesota Power, Gardenton was preferred by Manitoba Hydro, and Piney West was agreed would offer the best option in the overall interest of the project.

That completed our Round 1 determination. So then we went back to the drawing board and we said, now we have an endpoint for our project, let's develop some more options and see if we can determine a preferred route?

I'm now going to pass it over to James, who is going to walk us through the planning and feedback and analysis steps for Round 2.

MR. MATTHEWSON: Okay. So as Ms. Bratland mentioned, we started with route AQS, so that's the blue line on the map. So why didn't we just take this as the preferred route and stop there, call it the final preferred route and go no further? Because of what we heard in Round 1. So Round 1 we heard about a strong preference for the use of existing corridors and paralleling existing transmission lines. So, route planning, through the route planning process we added a few more

segments. So we started here and we added this segment down through here. So this segment, as we have discussed previously, is the Riel/Vivian transmission corridor. There is room in that corridor for additional transmission lines. So it was added to the Round 2 routes.

We also heard about paralleling existing. So we also looked at paralleling the existing 230 kV transmission line in this area right here and down through this area.

The 10 kilometre buffer that we had in Round 1, we had at this point of the routing process received more information from the weather study, preliminary information. There was more discussion about that measured risk with respect to paralleling the 500 kV transmission line. So that's where we could introduce this paralleling option, as well as bring 207 back into the route planning scenario, because it is in close proximity to 500 transmission line.

And then the introduction of using the Riel/Vivian corridor increased that in the west/east direction because of what the preliminary results of the weather study introduced, as being a lower risk and easy to

respond to in an emergency situation of a dual outage. Again, that's another reason for this segment is that it was something that the system planners allowed us to introduce into the route planning process. They were still studying it, we are still studying it. We have discipline experts still studying the area. We, of course, have public engagement with First Nation and Metis engagement processes.

This one allowed accessibility as well to -- in the event of any type of weather event, that we could still access this part of the line. And this part of the line, it is an accessible section, versus areas up here are very isolated in the wetland environment.

So those various segments were added, and mitigative segments were added based on some of the feedback that we had received through Round 1. So this segment down here. So we were previously going across that wetland known as the Piney bog. We received some comments and concerns from Manitoba Sustainable Development about directly transecting that bog. So we introduced another segment that provided an option to go around the bog as much as we could. It's still on

the top end, but it provided us an option to go around to address that concern.

So these alternatives packaged together here were presented to the public and feedback and analysis began. And this ran from April 2014 to August 2014. So during this feedback analysis process, of course, we've got all the open houses, and First Nation and Metis engagement processes that Sarah and Trevor talked about. We have much more environmental field studies happening at this point in time, because we have narrowed our geographic area to a smaller area. So we start doing much more wildlife surveys, aerial surveys, we get more information from our windshield surveys, through the windshield of a helicopter, the windshield of a car, about mineral resources and gravel activities. This is an airport in the Piney area.

So we follow the same process, the weather study is being more completed. And so while the engineers allowed us to parallel, still this weather study wasn't 100 percent complete, it was still undergoing finalization. Mitigative segments were developed, following the same process I described previously, were developed by

Manitoba Hydro, and then they were gathered through the public and First Nations and Metis engagement processes.

So I'm going to run you through a few of these mitigative segments. So on my left we'll have an overarching kind of where we are on the route, and this will illustrate a zoomed in view of the mitigative segments that have been discussed.

So this area in near Richer, routing options were presented in the eastern sections from the RM of Tache, where there is less agricultural and more marginal lands, and less residential development. This was presented by landowners based on a review of the landscape. The segment would combine to be the only segment that would combine to 207, where there was less residential development going all the way around. So this was developed by the RM. They would have drawn a route that kind of goes like this. And then as I discussed earlier for the planning, we look at the route, we try to now design to something that is technically feasible, and we look at paralleling options with this area and avoidance of homes and all the data that we have

available to us.

The next one was, a landowner approached us through the public engagement program, and the aerial photography didn't show any homes in this area when we had drawn the route -- up along in this area here, sorry. But they were in preliminary phases of construction and development. So when the landowners approached us through the public engagement process, they told us about these homes. We developed a mitigative segment that allowed the transmission line to follow the eastern boundary of their parcel. So we weren't moving it on to another landowner, but we moved it back away from the residential developments in this area, back into the eastern edge of their property.

This subsequently was accepted as part of the final preferred route, as we'll see.

Moving on, these routes here were developed by the routing team. So these were a response to landowner and RM concerns. So here we have very large gravel resource, actually two -- this one is owned by the RM -- as well as landowner concerns with respect to residential proximity. This is the 230 kV transmission line

right through here. It's called R49R. And you could see initially, when we drew the segments for public engagement, we went to here and then this point, and then we deviated off of it. The reason for the deviation is there were homes on this side of the line that, if we were to continue to parallel, we would get in closer proximity.

There was also, through the public engagement process, more residential development in subdivisions potential, as well as a conservation easement shared on the, through the engagement process. So we developed mitigative segments that looked, and tried to go around some of those features for evaluation.

I'm going to pause.

So this one, segment 353, another mitigative segment, parallels an existing transmission line and required the purchase of a home. So what we heard through the public engagement process on this is that there was a subdivision development over here, but they had a second phase -- sorry, a third phase that they were developing over in here. So as we talked with that landowner, we needed to look at a better option to get through here. So paralleling,

everybody was certainly talking a bit more about paralleling, it's one of those siting principles, to parallel what we could. In order for the paralleling to work, there was many homes that had built up next to R49R since its original construction. And this home here was within the limits of the right-of-way if we were to parallel R49R. So prior to evaluating this route, or going to the public with this route, Manitoba Hydro approached that homeowner. We said, we are looking to planning a route here, would you have an interest in selling your parcel of land? If the landowner interest did not have an interest in selling that parcel of land, this mitigative segment may never have been developed. But that landowner did. So we developed the parcel, the mitigative segment, and ultimately purchased this home from the landowner, as well as this home to the north. While it wasn't within the right-of-way, it was within a close proximity. And we approached that landowner to discuss with them the possibility if they were interested in selling the property as well, which they agreed.

This final route segment here was another suggestion from Manitoba Conservation and

Wildlife Branch at the time, and now Manitoba Sustainable Development. This is one of the first Wildlife Management Areas developed, it is the first Wildlife Management Area developed in Manitoba. It has a legal designation of protection to it, so that's why there are no routes through it. We had a route segment that was adjacent to it, and we were trying to mitigate some concerns with the paralleling of the rail in that area. There's a lot of induction issues when you parallel a transmission line which has energy running through conductors, and you have two metal pipes on the ground, there's this thing called induction, which was discussed in an IR. So they did request further separation from that WMA. This is common for the branch to request that in transmission line siting.

While we tried to develop this segment to address our concerns with the rail as much as we could, but we were still in close proximity to the rail, but also that Pocock Lake Ecological Reserve really forced us, and the Town of Sandilands forced us into, constrained us in where exactly we could adjust that alignment. So we put this as far away from the WMA as we could, while

recognizing the other constraints on the landscape.

So this one, the border crossing adjustment. So, in our story of discussions with Minnesota Power and the ongoing engagement that they were conducting on their end, and that we were conducting on our end, Minnesota Power determined that the proposed border crossing, right here, was no longer feasible, in part due to that combined effect of constraints associated with the future expansion of the runway.

So there is an airport right here, it's actually an across the border airport. It literally crosses the U.S./Canada border in a northwest/southeast direction. But they have plans on their airport plan for future expansion in an east/west direction. So where Minnesota Power was looking at routes coming up from this direction here, you could see how that was going to cause some potential conflict with the future expansion of that airport. Also this area here is the Roseau River Wildlife Management Area, so they were constrained from the Minnesota DNR about encroaching on that Wildlife Management Area, similar to the concerns that Manitoba Sustainable

Development had on the Watson P. Davidson Wildlife Management Area in Manitoba.

So Minnesota Power and Manitoba Hydro reached an agreement on a new border crossing, which shifted approximately four miles to the east of the one previously proposed. Manitoba Hydro planned a variety of route segments for inclusion in the public engagement of First Nation and Metis. So once this information came during the Round 2, we had to look at different segments to get to that border crossing at this point in time. And so once we had looked at some options, as illustrated by the purple dashed lines here, myself and Mr. Joyal took the opportunity to meet with a large landowner in that area. And we toured the entire area with the landowner. And he explained a whole variety of future expansion plans, and the future developments and operations that they wanted us to do in this whole area. Also through the First Nations and Metis engagement process, once these lines were identified and shared with them, there was some concerns identified with that parcel of wooded area.

So the landowner talked about

potential UAV operations being conducted for monitoring his crop performance, all the improvements he was making to improve the quality of his agricultural lands, other dairy farm, chicken barns, and he explained the whole process of separation for bio-security reasons. So we developed with that landowner some mitigative segments to address the concerns that he had.

So now I'm going to pass it over to Maggie, who is going to walk us through that comparative evaluation of those at Round 2.

MS. BRATLAND: As James noted, we develop mitigative segments, we add them to the set of segments that we initially present to the public and First Nation and Metis engagement processes, and then we move into comparative evaluation.

Again, comparative evaluation is when we take all of the routes, all of the possible combinations of routes, evaluate them and determine which will be the preferred route for the project, as that was the objective for Round 2. This analysis and evaluation was conducted in a routing workshop which was held November 17th to 18th of 2014.

Again, we use our colour coding in our table to correspond to the routes on the left-hand screen. So you'll see that Route AY is the lime green colour, which corresponds to this route. Route URQ is yellow, which corresponds to this route. Route URV, very similar to route URQ, is pink. Route SIL is blue. And route SGZ is lemon yellow.

In screening in routes for consideration and preference determination, the project team used the alternate route evaluation statistics and metrics, and considered additional knowledge generated during the feedback and analysis stage, and held a discussion about the route options, and selected routes to carry forward based on this discussion. The routes that were carried forward were determined to be strong options statistically, that represented alternate ways that major concerns heard during Round 2 could be mitigated, and support further analysis of these trade-offs with the use of the preference determination step.

And that step again, I'll remind you, is when we can bring to bear those things that are more intangible and less measured in numbers, and

can better reflect the feedback and analysis that we have done.

So, how did that screening work? Well first let's take a look at these routes and talk about the trade-offs and different elements of the landscape that they cross. And I'll start in the northern portion of our route planning area towards the Riel/Vivian transmission corridor.

So in the northern portion of the route planning area, routes URQ and URV are identical. They cross over more private lands and higher value agricultural lands in this region. In this portion, route SIL and SGZ are identical. They make use of the Riel/Vivian transmission corridor and then travel south through a rural residential and forested area. Route AY parallels the Riel/Vivian corridor for longer and then travels down rural residential areas to the east, traversing more Crown lands and forested wetland areas. I'll also note that routes URQ and URV parallel Trans-Canada Highway number 1.

In the central portion, routes AY and SGZ travel to the east of the wildlife Management Area. Here there is a greater prevalence of forested Crown lands and less private and

agricultural lands. And we will probably have a fair bit of discussion today about segments 207 and 208. This makes use of segment 207.

Route URV, URQ and SIL in comparison in this region travel west of the Wildlife Management Area. And in this area they make a greater use of private lands, traverse private lands, agricultural lands and have greater proximity to some residential areas. That would be making use of segment 208.

Turning to the southern portion of the route planning area. All three routes make common use of this segment in this area, and then diverge in terms of the southern alignment. Route SIL, URV and SGZ take a more southerly path through the forested wetland area in the south, while Route AY and URQ take a more northern path through that area.

So we have three broad regions, each region with different trade-offs. So when screening in those routes -- I just want to make one note on that last slide again, please, on this side. Route URV represented the top engineering route from the perspective of statistics. Route URQ represented the top natural route from the

perspective of statistics. Route AY was the top built route. Route SGZ was the top simple average route, with all perspectives considered equally. And then route SIL was screened into the process by the team because it was considered to mitigate a number of concerns, and was the top simple average route that was considered to mitigate those concerns. So Route SIL is the only route in this group that includes the Riel/Vivian transmission corridor parallel, as well as the western segment, west of the Watson P. Davidson Wildlife Management Area. Without including that route, we wouldn't have those two mitigative features available to evaluate and align route option.

Okay. So now that we have screened in our routes for preference determination, our breakout groups go to their separate rooms and discuss their criteria for their initial preference determination scoring exercise. Let me turn to our preference determination table which represents the outcome of those discussions.

So again, we begin with the consideration of cost. The engineering team considers cost and begins with a consideration of

the alternate route evaluation metrics that calculate quantitatively cost.

Now, in this round, remember I said in Round 1 we had a wider variability in terms of length, the routes were covering a lot more distance. We're now talking about a smaller geographic area. We have routes with lengths that are not so far apart, which drives the metrics in the AREM calculations for cost. The engineering team looked at these and realized, you know, our costs aren't very variable. Are there other elements to cost that we should be considering when drilling down on the differences between these routes? Other tangible cost factors that we should perhaps consider? So the engineering team decided to add some additional considerations. They included the consideration of private property acquisition costs. They also considered the use of specialty mitigation, so the use of special types of towers that can be quite expensive to get around different features such as when you are paralleling a highway, going over highway interchanges. They also looked at the extra cost that could be incurred in terms of paralleling rail. James had mentioned that there

are mitigative costs if we parallel for very long, we have to work to help not interfere with communication structures through induction issues. And we also looked at the potential cost of relocating homes.

The engineers considered this and added that to the initial alternate route evaluation metrics, and then looked at the relative costs. By considering those, the relative costs were still fairly small, as you can see in the numbers in the top line, 1 is the most preferred, so represents the cheapest route with all those considerations, and the decimals represent the variability from that cost. So we have .02, .04 and .06 difference, so not much variability.

What that does when you have low variability across routes for something with a 40 per cent weight is it makes that criteria very -- not very unimportant, but relatively less important than those criteria with a higher variability across routes.

The next consideration was system reliability for the engineering breakout team. So when they made their determination on system

reliability, the engineering team took a consideration of the routes with respect to paralleling and understanding of those preliminary results from the weather study. They noted that the location with direct paralleling was in the Riel/Vivian transmission corridor, and that in terms of the broad relative difference, routes URQ and URV were definitely farther away. However, SIL, AY and SGZ, by making use of that corridor, would have a greater risk to system reliability. They reflected this in the scores by .5 difference.

From a natural perspective, the natural team investigated the different route segments and determined which segments would cross over more natural features and have more potential effect. So they looked at measures of forested area, wetlands crossed, potential wildlife habitat, and measures of intactness of that habitat that could support important species.

From the natural team's perspective, route URQ was the most preferred. Route URQ has the least amount of natural features affected, and in the southern area -- if we could just scroll to that, Dave -- takes a better alignment through the

wetland area and forested area causing less fragmentation in that region. Route URV, being very similar to route URQ, with this one difference, was slightly less preferred, and that difference was represented by a margin of .2 in that preference score.

In contrast, routes AY and route SGZ had the lower preference because they affected the largest amount of natural features. Route AY received the lowest preference because -- so the difference being this is route SGZ and route AY continues north, route AY crossed a larger number of natural features, more wetland and forested areas, and more intact habitat. So from the natural perspective, that's less preferred.

Turning now to the built consideration. The key factors for the built team again were proximity to homes, the potential to affect high value agricultural lands, and the potential to impact proposed developments.

Route URV and URQ, as you can see, travelled through high value agricultural lands near Trans-Canada Highway. There was also a high number of proposed developments on either side of the highway, and have a larger proximity to homes.

Route SIL was more preferred than route URQ and URV, because by making use of that existing corridor in the north, it gets out of those prime agricultural lands and further away from those homes. But it does travel south through our rural residential area, near the community of Ste. Genevieve.

Route AY was most preferred from the built perspective, as it affects fewer residences, has less potential to affect high value farmland, and affects less potential development in the region than the other options.

And route SGZ had the next highest preference to AY. It affects comparatively fewer residences and less high value farmland, but does come in proximity to the communities of Marchand and Sandilands.

Turning to community, this is always my longest-winded explanation because it is fairly involved. The community perspective scores, as before, reflect the knowledge and feedback heard through the public engagement processes and the First Nation and Metis engagement processes to this point. Again, the interests, concerns and preferences that we heard in these processes were

often conflicting. The preferences from the First Nation and Metis engagement process were to favour routes with less Crown land, with less potential impact to natural areas, harvesting areas, and in particular, they would like avoidance of areas with high potential current and historic sacred and cultural uses. They had a strong preference heard for routes in developed areas to the west of the study area.

Through the public engagement process, again, the key concerns were related to proximity to homes, and those associated concerns related to property value, potential health effects, visual impacts, traversing private lands in general, and the potential effects to agricultural lands. There was also concern raised about affecting lands that support habitat and recreational uses. So I don't want to give the perspective that while these views were in general different, that they were completely unsympathetic to the different things that were valued. There were individuals in the public engagement process that noted the value of wildlife habitat, that noted the value of recreation and use of those wildlife habitats. Just like in the First Nations and Metis

engagement processes, communities were sensitive to concerns about proximity to homes, and they understood the concerns that residents would have about the potential impact to their property values and their health. But there was overwhelming difference in terms of the overarching perspectives.

So with these difference in mind, and the feedback heard on a specific and regional scale, the community team met to discuss what preference scores will we assign? We have one line in this chart. We have to reflect how do we balance the concerns of community from both of these perspectives?

After their discussions about site-specific concerns that they shared with each other, and the potential mitigations for those concerns, the team built a shared understanding of how well each of these routes could balance those concerns heard.

So going into the challenge of indicating a number of 1 or 3, it was decided that routes that were most strongly preferred by each perspective would receive a score of 2. Routes that were less preferred, but not least preferred,

would receive a score of 3. And the routes that best balance the concerns from both of these perspectives, striking a middle ground, would receive a score of 1.

In terms of general comparators again, the routes with predominantly private residential or agricultural land are on the west, and the routes with the predominantly Crown lands are on the east.

So from the First Nation and Metis engagement perspective, the top route was URV, as it traversed predominantly developed private lands and avoided in the south an area identified as a harvesting area by First Nations communities. However Route URV would be the least preferred option from the public perspective.

The most preferred route, based on public feedback, would be AY. It avoids farmland, it's more distant from residences, and had strong support through the public engagement process and it was recommended through that process.

This was the least preferred route from the First Nations and Metis engagement perspective. These routes, AY and URV, were given a preference rank of 2, as they each represented a

strongly favoured route from one of the perspectives.

Turning now to route SGZ and URQ. These were ranked 3, as they did not represent a most preferred option from either the public engagement process or the First Nation and Metis engagement process. Route SGZ is similar to AY from a First Nation and Metis engagement process perspective, as it incorporates that segment to the east of route SGZ that has a high potential to impact heritage, historical, cultural and sacred sites, particularly around the Wildlife Management Area in this region. This is the area of the Pocock Lake ecological reserve. It was slightly more preferred because it uses comparatively less Crown lands than AY.

Route SGZ is less preferred than route URQ from a public perspective, because while it travels over less private farmland, it still has the potential to affect the communities of Ste. Genevieve in the north, through the blue portion of that segment, and the Sandilands and Marchand areas.

Finally, turning to route SIL. Route SIL was determined to be most preferred from

the community perspective because this route offered a balance of concerns and preferences heard from the public engagement and First Nation and Metis engagement perspectives. Where the route is in proximity to residences, so where it turns south from the use of paralleling in the Riel/Vivian corridor, it is in a treed area. This treed area acts as a buffer for visual impact on nearby homes, in contrast to route URQ and URV, which are in a more open, more visual area. This route uses the segment that avoids the areas of higher Crown land and high potential historical and cultural uses to the east and limits the potential residential effects on the Sandilands area.

So this route, from the public perspective, was felt to most balance the concerns and preferences heard through the two processes and was scored as most preferred.

Let's move onto risk to schedule. So the project team considers risk to schedule as a group. We come back from our breakout sessions and we all share our perspectives together from the elements that could affect risk to schedule. Many considerations are discussed, including

transmission line crossings, the amount of Crown versus private land and associated related approvals, and restrictions due to construction timing elements related to things like forested areas, breeding bird windows and wetlands.

Considerable discussion was held that determined that all of these routes had similar levels of risk associated with most of these factors, with the exception of the consideration of private versus Crown lands and the approvals associated with those lands. The experience of Manitoba Hydro has been that the length of time necessary to gain approvals for the use of Crown lands poses a greater risk to schedule with larger amounts of Crown lands that support multiple land uses. These multiple land uses are a value to many parties, including First Nations and Metis communities.

As Crown approvals are required before an Environment Act approval can be issued, this poses a greater risk to schedule than private land acquisition. Our experience on private land acquisition has been one that is a shorter process, and one that is a fairly more defined process for Manitoba Hydro. The team decided that

with these considerations, that routes with a greater proportion of Crown land should be ranked as less preferred, because this basis of risk to schedule was the key difference between routes. All of the other factors were considered as well, the transmission line crossings, the prevalence of forest land, but the difference is what we're trying to highlight here.

So once the team had put together the different scores and the different elements of the table, had our vigorous discussion and debate, which I can tell you was extremely vigorous in this round, our preference scores were assigned, the numbers were weighted and added, and the route rankings were produced. This resulted in SIL being selected as the preferred route from Round 2.

And no, I'm not done yet. So I'm going to pause and spend some time here, because this is a critical pivotal decision point on the project. This is picking the preferred route. The central issues and concerns that played out in these discussions and debates are very important to understand. They were very carefully and thoroughly debated by the project team. So I just

wanted to reiterate and highlight some of those things now.

We've been talking about east versus west. We've been talking about the comparators on the different sides of the route planning area. And what I'm going to pull up for you now is a map that compares the route finalists with a couple of key features. The turquoise colour is Crown land. The beige colour is the high value private lands -- I shouldn't say high value, they are private lands. They are, of course, of high value to those that own them and to those that use them.

So Round 2 was a key decision point. And I want to talk about these east and west perspectives a little bit more deeply. The potential effects of the project along the more western routes -- and when I say western, I mean west of that Watson P. Davidson Wildlife Management Area -- that were considered in the decision-making process included concerns related to property value, the proximity to proposed and existing homes, and agricultural land use. The more eastern routes that make more use of Crown lands will travel through an area of relatively intact habitat that interconnects protected

conservation areas and supports a number of valued species.

The eastern routes would also affect areas noted for cultural and heritage value that is valued as a resource use area by the public, First Nations and Metis.

From a tactical perspective, the eastern routes, in contrast to the western routes, travel closer to our existing 500-kilovolt transmission line, which poses a greater risk to system reliability should severe weather happen in the region.

As I've noted, the community perspective scores reflected the feedback heard through the First Nation and Metis engagement process and the public engagement process. Because the nature of the interests and the land types associated, these perspectives were often conflicting. We heard through the First Nation and Metis engagement process that participants respected concerns of homeowners related to residential proximity, but the preference was to favour routes with less Crown lands, in particular routes that would affect areas with high potential current and historic value.

We heard through the PEP, the Public Engagement Process, the concerns about potential effect in natural areas in support of wildlife habitat areas, but a very strong preference to route away from homes, avoid private lands, avoid agricultural lands, make more use of those Crown lands. These conflicting perspectives related to Crown and private land use, and interests were central in importance when making our decision regarding routing. The project team deliberated at length regarding these perspectives, leading up to and during our round to route evaluation workshops.

The decision to select SIL as the preferred route in Round 2 reflected careful consideration, reflected all of the feedback and analysis up to this stage, and reflects in our opinion a balancing of these perspectives, in addition to the consideration of the natural, built, and technical factors.

I'm now going to turn it over to James. You're going to feel like you're in Groundhog Day here, because we're going to walk through Round 3 and all of our four stages of routing.

And Mr. Chair, this could be a good time for another break.

THE CHAIRMAN: Okay. Let's do that. Thank you, and we'll take 10 minutes.

MR. TOYNE: Can I ask a question very quickly?

THE CHAIRMAN: Is this a process question or a question about the presentation?

MR. TOYNE: It's about what's to come in the presentation, just so I know if I need --

THE CHAIRMAN: Go ahead. As long as this isn't a matter that's going to be followed up in the questions later.

MR. TOYNE: No, no, no. So I'm just wondering if the presentation will include the table where SIL was eliminated, because if not, then I can print that table off and bring it.

MS. BRATLAND: I can answer that.

THE CHAIRMAN: Go ahead.

MS. BRATLAND: Yes. Thank you for that, Mr. Toyne.

The presentation that you have in front of you right now, I don't think we have provided it yet, but we have added to the end of the presentation the working table and the final

table from Round 2, and we will cover in depth what occurred during those discussions and why it appeared that SIL was ranked as third. So that will be covered. We will provide those handouts to everybody here. So don't worry about printing it out, we've got it for you.

MR. TOYNE: All right. Thank you.

THE CHAIRMAN: Okay, thanks. And we'll take 10 minutes. So we'll be back here at 5 after 12:00. Thanks.

(PROCEEDINGS RECESSED AT 11:55 A.M. AND RECONVENED AT 12:05 P.M.)

THE CHAIRMAN: Okay. We're ready to start. I wonder if you could all take your seats. And as soon as you are ready to go, Manitoba Hydro, feel free to start.

MR. MATTHEWSON: So we're at Round 3. The objective of Round 3 is to determine a final preferred route, using the feedback that we gained through another round of engagement processes and additional assessment that's being conducted by the discipline specialists. At this stage, because the spatial extent of the route is more defined, analysis is more detailed, and the benefits from the data gathering conducted in

previous rounds, so we have a lot more information about exactly where specific wildlife habitats are, where there are other pieces on the landscape that were collected through those studies, we have much more understanding of that. Of course, as well as the First Nations and Metis engagement program, at this point in time, the traditional knowledge reports are starting to come in. We had been hearing all kinds of information as those reports had been progressing, but we are starting to see some more mapping and detail and specific concerns.

So normally this round would entail making small adjustments to the route, within a mile wide buffer or so. But because of the level of concern received in Round 3 public engagement process, were received, the public engagement process for this one with respect to the proximity of the routes to residential developments near La Broquerie, larger deviations were considered than normally would typically for Manitoba Hydro.

For this reason, the exercise of finalizing preferred route became more complicated and it required rigorous comparison of alternative options.

So in the planning stage of things, we took Route SIL selected as the preferred route, as Ms. Bratland had illustrated. It was further reviewed by the technical team, the engagement team, to make sure that the proposed route, so making it a preferred route for Round 3 was technically feasible, the public input had been fully considered, and as a result the route was further refined, as I'm going to discuss here. The technical review of the preferred route included a final scale design, where offsets of property lines, existing transmission lines and road alignments are all more accurately representative. We were zooming in, we're getting into a finer scale of detailed information, we're measuring precisely our offsets from existing lines, measuring precisely the offsets of the roads and adjusting the route to those.

The location of the angle towers, so at each one of these angles, we're just double-checking our understanding of what the landscape or the soil types are from visual interpretation, to make sure that we've got that angle structure in the best possible place, from what we can tell from aerial photography. Because

as I mentioned, it's that angle structure that is a bigger structure and undergoes a lot more forces on it because of the change in the direction of the line. So it's important that those locations are very -- selected with much diligence.

We're also field validating again that there are no new buildings, no new residences that have been built or established. In this area there are basements going in, like you could see basements going in every week in the summer time. So we are constantly resurveying the area, being aware of what new developments are coming onto the landscape.

So based on the Round 2 feedback, several route adjustments were implemented to SIL to be shared in this Round 3 engagement. So there's a few landowner requests that moved, as I mentioned, farther east to place the route on the edge of the property. That was one of those mitigative segments that we had discussed. We had looked at different alignments on either side of R49, trying to gain separation from landowners. That was up in that area there.

The route was also adjusted to placing corner towers closer to highways to allow

crossover and clearances, height clearances on the highways, so we adjusted that a little bit. There was a home that we -- I pointed out during the fly-over where there was a clump of trees in an agricultural area, it's approximately here, I believe -- sorry, approximately there -- where the SIL was going through and was going to take out a portion of those trees right adjacent to that homestead, which was a nice, very large one acre area of trees. So we were able to adjust the alignment of SIL, the preferred route, adjust it so that we wouldn't have to remove any of those trees. So there was a slight adjustment there. The more visible adjustments were in this area.

So as I discussed, with Mr. Joyal and myself's tour with the landowner there, we talked about mitigative segments and we developed some new routes with that, in conjunction with the landowner, and we ended up adjusting to those yellow lines.

As well as there was some important feedback from the First Nations and Metis process about a feature within the wetland that we avoided with the preferred route change as well.

So those adjustments that we made to

the preferred route, they were endeavoured to satisfy concerns of individual landowners, to review them to make sure that those -- as I mentioned the trade-off, that we weren't moving an effect from one landowner to another. And if the change didn't have a net increase in effect or shift the effect to somebody else, then we accepted those minor alignment changes.

So the Round 3 started in January of 2015 and ended in April of 2015. We have again all that data gathering of the full breadth of the environmental assessment team, which you'll hear about in the socio-economic and panels. They are really starting to focus a lot of analysis that's going on in this area. We have really narrowed down our routes for them to focus their efforts. We have, of course, received some more mitigative segments. So, as I mentioned, we start deviating. Normally we just look at mile alignments and moving things around. But as we see in these blue routes, these were the mitigative segments that were added to address things like residential proximity. You can barely see the little adjustments up in there, a little tinge of blue that's come up, Fire Guard 13.

So Fire Guard 13, a Fire Guard was a trail or a road that was developed many years ago by the Government of Manitoba throughout the Sandilands Provincial Forest. So this whole area here, there's a variety of Fire Guards, and they were established for the purposes for firefighting. So accessible to the landscape, to get access to provide some level of fire break, they do provide that a little bit. But they're not really wide, they are as wide as the road. The primary thing was to allow access to the areas for firefighting purposes. So Fire Guard 13, to illustrate where it is, this is the community of Marchand, Fire Guard 13 starts right here at the highway, and goes in a straight fashion following our mitigative segment -- sorry, our mitigative segment follows Fire Guard 13. And then it meanders through the wetlands and all the way up to Highway Number 1. So that is what's called Fire Guard 13.

So there was a request for some mitigative segments in that area, which is what we illustrated there. It would involve some more -- we developed some mitigative segments to address that.

I'll come back to my proximity to buildings in a minute. So advance two slides, please?

So this is the Fire Guard 13 area, Wildlife Management Area, it's right at the tip there. This was proposed by the RM of La Broquerie to address the concerns that they had with proximity of the preferred route through the R.M. of La Broquerie in this area. So we looked at, again, paralleling of the 230 kV transmission lines, had a couple difference options there, and then coming along Fire Guard 13 down to the Marchand area.

So I'll just go back one slide there, please? The proximity concern, so this was an example of an area near La Broquerie. So the Town of La Broquerie is just over here about a mile and a half away. This is a road called Quintro Road. It was a stop in the fly-over video that I showed you. So we developed, during Round 3 we developed, we got some feedback about the proximity of the preferred route and we developed the mitigative segment that did a couple of things. One, it provided us a better crossing of the Seine River, as well as further separation

from Quintro Road and the subdivision. There is a subdivision buried in the woods over here that we tried to balance and keep equal distance separation between the two.

So in this area there was numerous mitigative segments developed, as you can see in this area. Where we had livestock operations, feedback from the livestock operations, those are illustrated here, here, here, throughout the area from a variety of large agricultural operations; as well as calving grounds, which is represented, it's a high point of land in this entire area, so it was an important area on which the calving operation was focused for one of the landowners.

We also had a concern on this segment here. This is the preferred route in this plan right through here. We had developed these mitigative segments between those two barns. One agricultural operation had a concern about those barns are separated for very good reasons, to reduce bio-security risks and transfer of bio-security concerns between the two barns. So they were concerned with a transmission line that was in between the two and that the traffic that may introduce would introduce some risks to their

bio-security operations.

Private recreational land use. So also in this area where the preferred route is, we had further engagement with some private landowners on the recreational land use that they were developing and had ongoing in that area. So we looked to mitigative segments out here in the blue to address those concerns. And also in this area right here is Crown land, there's a parcel of Crown land in here. But when we had discussed with Manitoba Sustainable Development, they gave us some feedback that they really preferred us to maintain the intactness of that Crown land parcel because of the importance of engagements to the WMA. So that's part of why there's different segments there, mitigative segments there that were developed for evaluation.

This segment here, 475, this segment was developed to address concerns raised by a landowner concerning the potential effect of the transmission line on First Nations traditional and cultural land use on a privately held parcel of land. I believe that was discussed at the public engagement panel, where this landowner, the preferred route had gone through here, this

landowner owned this parcel of land, privately held, we heard it through the public engagement process, through the landowner, plus through the First Nation and Metis engagement process through Roseau River. So we developed the mitigative segment, trying to balance the concerns from this landowner with the residences in this area, and the wetland complex in this area. As I mentioned, a corner tower, it's integral that it's in very stable soil conditions as much as possible because of the extra strength and forces placed on that tower. So we did a mitigative segment that got as far out of this area of interest from the landowner as we could, putting it right near the corner of the parcel of the wetland area, while trying to balance the concerns of the residences to the west.

And I'm going to pass it over to Maggie, who is going to talk about the comparative evaluation portion of Round 3.

MS. BRATLAND: Thank you. So now that we have our feedback and analysis completed, and we have developed mitigative segments to address concerns we have heard in the area, we have our set of evaluation routes for consideration and

comparative evaluation.

At this stage there were over 4,000 possible routes with various land uses and interests. The valuation tools then were used again to enable us to compare this many options and to guide decision-making and route evaluation in a workshop held on April 30th of 2015.

So in the subsequent slides, I will walk you through the decision-making.

In screening in the routes for this round, again, we considered the statistics, the discussions around trade-offs and land uses, and the ways to mitigate these concerns. And we screened forward routes that were strong alternatives statistically, that represented different balances and trade-offs between the natural built and technical variables.

James walked you through a number of mitigative concerns, and now that we're in a smaller area of consideration, we're drilling down to those parcel specific concerns in a lot of ways.

So what I have done to highlight for you what the route finalists have in terms of their ability to mitigate these concerns is a

table with the mitigations that James just listed on the right-hand side, the routes that we will consider here, and a check mark if they are believed to mitigate that concern. And that will help us as we walk through here.

This one gets really complicated because of the fact that there's so many B routes, so I'll try my best to keep them straight for you here as I talk about the different concerns that are mitigated.

So let's start with route BWZ and route BXP. So route BWZ uses that yellow segment that you see here. It's the yellow route. So it makes use of Fire Guard 13, which we understand to help mitigate some of those concerns about residential proximity in the Town of La Broquerie. Unfortunately, by making use of Fire Guard 13, this shifts the residential proximity concern from the Town of Marchand -- from the Town of La Broquerie to the Village of Marchand.

In our discussions with the RM of La Broquerie, when discussing the option of using Fire Guard 13, we did point this out to them as a concern, and it was a debate held by council about, well, are we shifting that effect, like we

consider when we look at mitigative options, are we shifting it from our residents in La Broquerie to our residents in Marchand? And there really was no clear that's better, that's better. So we said, you know what, we will put it in the bucket and we will evaluate it based on all of the effects we need to consider. So group BWZ gets a check-mark for the Town of La Broquerie because it mitigates that concern, but not the Town of Marchand. Similarly, route BXP, which uses that same segment, uses Fire Guard 13.

Route BXP in this area travels closer to the wildlife Management Area. And as James indicated, that brings it in close proximity to those two barns, which raises bio-security concerns from a livestock perspective. It also crosses the private recreational land users holding. So those are all concerns. So you can see route BKP doesn't have a lot of check-marks in that table which shows what it mitigates, but it was something to consider because it is shorter. BWZ makes use of Fire Guard 13, but in order to avoid using this segment has to backtrack further, which adds length.

The landowner in the southern area,

that was a privately held parcel with identified First Nation and Metis uses, we refer to that landowner in the EIS as landowner D. So in my table, that's indicated as landowner D.

Route BMY, which is our blue route, travels west of the Wildlife Management Area, does not make use of Fire Guard 13, but does make an adjustment in the south for the concerns of landowner D.

So as you can see from the check-marks in the table, overall route BMY, which travels further to the west to avoid any proximity to the Wildlife Management Area, bio-security concerns, and mitigates the concerns of landowner D, does a fairly good job of mitigating these concerns overall.

So rather than walk us through in painful detail, I'm just going to summarize high level, if we can turn to that slide here?

So in the workshop and discussions with the team, which were held in the same manner as previous workshops, the trade-offs apparent between routes were discussed in breakout groups, and the scores were presented to the project team for further consideration. Again, these were sort

of a small geographic area, length doesn't vary very much, so the cost differences are small, as reflected by the values in the table.

Reliability, routes to the east with more proximity to the existing 500 route for longer were given a slightly less preference.

For the natural team, routes further away from the Wildlife Management Area were given higher preferences because they have less proximity to that ecological feature and have less fragmentation of features on the landscape.

All of these interests and concerns considered together, and the ability of each route in its entirety to balance concerns and offer potential mitigation when summed together resulted in the selection of BMY.

So as noted in the previous table -- and if I can have the next map, please -- more concerns were mitigated by route BMY, which also offers the best balance of interest and concerns from the community perspective when considering that table of check-marks. Concerns of landowner D could be mitigated through alignment in the southern part of the route. Concerns of livestock operations near the Wildlife Management Area were

addressed through this alignment. The route resulted in less Crown land fragmentation and habitat fragmentation and avoided the parcel of private recreational land. And while not making use of Fire Guard 13 to mitigate the concerns regarding proximity to the Town of La Broquerie, the adopted segment increased the separation distance from homes on Quintro Road.

So James showed you that mitigative segment that was adjusted, that where we pass through the Town of Marchand. We had residential development to one side, residential development to the other. We shifted that over to be able to increase that proximity to hopefully partially mitigate the concerns of those homeowners. And by not making use of Fire Guard 13, we didn't bring the route in closer proximity to the Village of Marchand. The other routes have various different levels of balance of all these concerns, but when considered together, BMY was the preferred route.

So through this process we selected our final preferred route, which is presented to you here, again with the benefit of the map indicating the amount of Crown land and the amount

of private land.

So I'm now going to turn it over to James, who is going to walk you through a summary of this final preferred route and its features.

MR. MATTHEWSON: So the overall length of the final preferred route is 213 kilometres in total length, 92 kilometres in existing rights-of-way. So that is the use of the existing corridors, so the southern loop transmission corridor, the Riel/Vivian transmission corridor. We have 121 kilometres of new right-of-way. And of that new right-of-way, as you saw on the maps one slide back, 30 per cent of that right-of-way is on Crown owned land, 70 per cent is on private land. And approximately 500 hectares of clearing are required. 500 sounds like a big number, but it is a very small number relative to a project like Bipole. One section of Bipole is almost double the amount of hectares of clearing, and a section of Bipole is approximately 200 kilometres in length. 126 private landowners are directly affected by the route.

So I'm going to circle back, and I'd like to review for the Commission the route planning of the final preferred route.

So this final preferred route would not be possible without the input gathered from the public engagement and First Nations and Metis engagement processes previously described to you by Trevor and Sarah. It is this local knowledge that is valuable for informing the process of determining a final preferred route.

I would like to review with you those siting principles I talked about in the beginning, so the avoided or limited effects to residences. So Manitoba Hydro has achieved this siting principle as -- strived to achieve the siting principle through mitigation such as what you saw on Quintro Road. And there's things that we're still developing with regards to tower spotting and the exact location of the tower in relation to residences and their fields of view, and the visual quality out of their windows are still things that we are working with landowners to address.

The avoidance and limiting the effects on intactness, such as on wetlands, such as the Caliento bog and the Sundown bogs. You'll hear about those in the upcoming presentations -- the Caliento bog is in this area, and the Sundown bog

is a little further south -- about how we skirted the edges of those bogs, trying to minimize that disruption of intactness and the complex environments in those wetlands.

We utilized the south loop transmission corridor and the Riel/Vivian transmission corridor. Again, the public engagement processes, the strong, or the feedback that we got was use existing transmission corridors where you can.

The other feedback we got through the public engagement, parallel transmission lines, such as what we have done on R49R. So that's this 230 kV transmission line where we have paralleled it there, and we have paralleled it in that location.

You have heard from the engineers the challenges with paralleling the 500, and their requirements from reliability perspective on the separation from the 500 lines.

We have tried to avoid or limit the effects on agriculture through the avoidance of use of diagonal transmission line routing across cultivated cropland. We follow property alignments and road alignments where we can with

the routing.

We tried to limit those effects on recreational, as we talked about on one of those mitigative segments with the recreational land use in this area, outside the WMA, and the traditional use areas that are on the Crown lands adjacent. So as much as we can, we tried to mitigate those concerns through avoidance.

We've gone through numerous efforts to understand site specific land uses from landowner to landowner conversations that Trevor had talked about. We've met with every single landowner on this FPR at some point in time, and tried to mitigate their concerns through tower spotting, through bio-security processes, those things that we worked with the landowners to try and mitigate their concerns as much as we can.

It's planned with the technical knowledge and that local knowledge, that's what planned this final preferred route. There are essentially three pillars that are required for route planning, in my opinion. These include the vast amounts of geo-spatial data that you need to do an exercise like this, the huge amounts of information that we need. We need public, First

Nations and Metis engagement processes to contribute to the whole process. That's the second pillar. The third pillar is that technical expertise that the route planners have to try to design a line and a route that tries to address these concerns.

Routes cannot be planned from the desk. I cannot draw routes solely, a final preferred route from a desk top. We certainly started the desk top, we draw routes, we go to the public, we drive, we scour the entire study area, learning it, understanding it as much as we can as route planners, but relying heavily on that public engagement of First Nations. And it's the engagement process that brings that local knowledge to us to help come up with a final preferred route. It's not something that we can just get in a helicopter, fly around, and figure out, oh, the route should go there. It's just not possible.

We have taken several years to develop this, over three years of extensive public and First Nations and Metis engagement processes, as described in the previous presentations. It's the sum collective knowledge, as Ms. Bratland likes to

use, this final preferred route is the sum collective knowledge of all of our processes, whether it be the discipline experts on the environmental side, the public engagement, or the First Nations and Metis engagement processes, and the technical expertise to come up with this final preferred route.

Now, to circle back on the concept of corridors. So we started with corridors, we started with an alternate corridor. We decided to develop the simple average corridor as an illustration. So when we talked about those corridors, we started in two places with those corridors. We started at the end of the Riel/Vivian corridor, and we started around the south of the loop when we first developed the alternate corridors. We started there and we started along here. So to kind of circle back to what those stakeholders told us, we decided to run a corridor model from a start point to an endpoint, which would have been the simplest way to develop this project perhaps, and to validate the final preferred route -- to not necessarily validate it, because all of those things I talked about with the final preferred route, they've been

informed by all kinds of knowledge from the public and the First Nations, Metis engagement processes, that this corridor and these stakeholder models, they don't have. But they do have the values of the landscape and what's on the land. So we looked at this corridor and, say, okay, what would the final preferred route look like if we modelled the simple average corridor only? So as we discussed, there the built perspective, the natural perspective, the engineering perspective, the simple average. So the one that balances all of those concerns equally is the simple average.

So when we mapped out that corridor from a defined start to a defined endpoint, this is what we receive. And you can see that the final preferred route falls within that simple average corridor for much of its length. Where it doesn't, is an area where we are paralleling existing transmission facilities to gain further separation from people, and to provide that opportunity that the public told us, use existing as much as you can. So that's where we deviated outside of the simple average corridor, to avoid that higher residential density.

I'll pass it back to Ms. Bratland to

summarize everything for you.

MS. BRATLAND: So in summary, the final preferred route proposed by Manitoba Hydro is the result of three years of study, in consideration of hundreds of thousands of route alternatives. Input was sought early and often, and informed the development of route selection criteria, the routes planned, and the route evaluation.

We engaged with 13 First Nations, 4 Aboriginal organizations and the MMF, collecting input over the course of 90 leadership meetings, open houses, workshops, and community events initiated in 2013. The public engagement process, we had over 1,500 people participate over the course of three years. We held 39 open houses and landowner information sessions, held in 15 communities. And efforts are ongoing, including the work of the dedicated landowner liaisons who will work with landowners that are traversed by the final preferred route.

Data: There was data collection at every stage. Data characterizing land uses and features were collected across the area under consideration through numerous on the ground and

aerial surveys conducted by a wide range of disciplined specialists.

The decisions regarding the route selection were guided by a streamlined framework and made by a multi-disciplinary team, leveraging the experience and expertise of the collective knowledge, which I like to say of more than 60 professionals, making use of quantitative data at every step. The result is a route that Manitoba Hydro confidently proposes as the final proposed route.

I'd like to take us back to the recommendations made by this Commission on Bipole III, represented in this table.

It was recommended that we have an open process. Our open process included opportunities for participation at multiple stages.

It was recommended that we be more quantitative. We have quantitative input, that can be very difficult to measure even, included in the decision making process, alongside those more quantitative factors such as cost.

We were recommended to be more transparent. We have attempted to accomplish

that. We have made the weightings and the judgments, and essentially all of the trade-offs made in making those judgments, transparent and are shared in our documents and our models.

You said that we should be more streamlined. We have used consistent steps and processes, and have used whole route comparisons throughout.

It was indicated that we should have participation in the selection of routing criteria. This was accomplished through the use of routing workshops, both at the Alternate Corridor Model stage and the Alternate Route Evaluation Model stage.

And it was indicated to us that we should allow participation in route selection. We feel that we accomplished this through the development of mitigative segments through the feedback and analysis stage of routing and in the evaluation criteria.

So let's circle back finally to our objectives. The objectives, again, were to determine a route for a transmission line by balancing multiple perspectives, and by doing so, limiting the overall effect of the transmission

line. The transmission line routing process is essentially a land use planning process, for a piece of linear infrastructure that necessarily affects the preferred land uses and interests of many parties. Manitoba Hydro conducted a balanced and comprehensive study of alternatives in this exercise. Options with various balances of land uses and associated interests were evaluated multiple times, at increasingly detailed levels of information collection and geographic scale. The central issues and competing perspectives associated with private versus Crown lands, and land uses they support, were examined at every stage in every round.

We want to acknowledge that those that are affected by this transmission project may not accept this as their preferred route, and that's completely understandable. But I want you to know that our team interacted directly with those potentially affected individuals and communities and landowners. We were a part of all of those conversations. And we have dedicated our time and our energy over the last five years to carefully plan, engage and assess, with the aim of limiting the effects of the transmission line on people and

the environment.

In the presentations that follow, you will hear from our construction teams, our property teams, our socio-economic and biophysical panels, who will all share with you how we will work to limit the effects of this transmission line. And we look forward to addressing your questions and comments on this topic.

So now that was going to be the end of my presentation. But as we discussed earlier, and as Mr. Toyne raised some very important questions yesterday, we'd like to address those before concluding and passing it over to the question period.

So the two specific things that I would like to address further, one was the question about screening in of SIL and the fact that it was felt that this was eliminated and then brought back into the process inappropriately. So I will further discuss that. Although I do believe I have addressed it in the presentation, but we'll talk about it again. And then we'll talk about the context behind the working tables that appear in the notes in the EIS, where it appears that SIL ranked third, and I'll describe

the work and discussion that happened around that process.

I want to talk about the SIL screening process, so if we could go back to the Round 2 finalist map? And you could go back to the slide on this one with the finalist table.

Okay. So, as I noted in my presentation, in the comparative evaluation stage, the first step is to take a large number of routes. In the Round 2 case, I believe there was approximately 15,000 routes, that we needed to identify a small subset to screen further, forward in, for further consideration in preference determination. So these were the routes that ended up being screened in.

So when the team starts the workshop in the meeting, we have an overview of the team in terms of what our challenge is today, what tools we will have, and what we will discuss. And we talk about the challenge of screening routes forward. We have the understanding that we have a number of tools and measures that we can use to inform the decisions of what to screen forward. Those include the metrics and statistics calculated from the alternate route evaluation

model. That helps us to evaluate strengths and weaknesses of routes very quickly, to see what are more preferred from different perspectives, based on just the knowledge of those metrics. Then we consider all the segments that make up these potential routes. So we will look visually, as a team, at the different routes. And all along we're always talking about what are we losing or what are we missing? Because when you go from 15,000 to 5, you're getting rid of a lot of stuff. So at this point we want to make sure that we retain for further conversation those important trade-offs that need to be understood and evaluated further with the benefit of the preference determination model.

And remember that model and that tool is a way for the project team to bring to bear community feedback, further detailed analysis around landscape features, intactness, and things that aren't measured or represented in the metrics. We bring that expert judgment to bear here.

So in discussion of the different segments, it was noted that when we looked at the -- can I have the table before this, please --

when we looked at the top routes from the different perspectives, we clearly had something that paralleled the Trans-Canada Highway, we had options that planned the Riel/Vivian corridor, we had options that went east and west to the Wildlife Management Area, and in the south.

So we got to the end of the meeting and I said to everyone, okay, we need to adjourn, we're coming back tomorrow. Consider before we get back in the room whether we feel like we have all the important trade-offs represented, and we'll start the day tomorrow by finalizing what our set will be in preference determination.

After the session for that day -- and Mr. Toyne, I remember who made that recommendation and I'll share that with you today. Ms. Johnson approached me after the workshop and indicated a question. She said, was there any route that came forward that incorporated the Riel/Vivian transmission corridor paralleling and went west of the Wildlife Management Area? So I reflected on that. I looked at the routes that had been screened forward, as the facilitator for this process, and I noted that there wasn't a route that had that.

So when we began the workshop the next day, I approached the team with that same question. Would it be important to consider a route option that included these two elements, the Riel/Vivian transmission corridor paralleling, as well as west of the Wildlife Management Area?

The team discussed that. We looked at the visual of the routes, the different regional trade-offs that needed to be evaluated, and it was agreed that we should consider a route that incorporated those segments, those segments specifically because of those trade-offs that could be represented. But what route to consider? So we turned again to our metrics and our statistics and queried those. We asked our data team to look at those metrics and tell us, using those two segments, which is the top route from the simple average perspective that uses those two segments?

So they were able to look into the metrics and tell us that the top route that uses the segment in the north with the Riel/Vivian, and a segment to the west of the Wildlife Management Area, was Route SIL. So this is how Route SIL came to be screened in for the final step in

preference determination. I hope that addresses that question.

Next let's turn to the question of the working tables. So I have pulled up on the screen what you have in your handouts, and these come from the route evaluation workshop related to Round 2. So what's on what side here?

So on my right is what I will refer to as the working table, and on my left is what I will refer to as the preference determination table. When I indicated how these sessions work, so the engineering team and the natural team, they will go out into a breakout session. They will go through each of the criteria that they are charged with determining a ranking for, and then they will come back and propose those preference rankings to the team. This working table was the working table that captured that first discussion. So the engineering team came back and indicated that they had evaluated cost and applied a certain logic to how they assigned the rank of 1 and 2.

So in applying this rank of 1 and 2, the engineers determined that they would take an average of the cost between the routes and anything within 5 per cent of this average would

get a 1. Anything over this would get a 2.

So what you see here in cost is a series of 1's and 2's, and in that -- you can't really make it out but it's highlighted -- it says, we took average of all costs, consideration of costs from the metrics and adding those factors that I've highlighted. And if actual within 5 per cent of average, then 1 if it's greater, then 10 over 2.

So this was how they stated the relative difference between the routes and the working table that they presented back to the project team as a whole.

As I mentioned, as the facilitator of the process, I challenge, when people put forward an assumption, to make sure they have provided a rationale to the group. And other members of the project team will also challenge those rationales and underpinning assumptions and logic.

So this was something that was challenged. Other members of the project team indicated that they felt that this approach overstated the differences between routes on the basis of cost.

So through that discussion, we

determined that it was more representative to use a relative difference of cost to represent the difference between the routes on that basis. So what you see in the cost category here, the 1's and 2's, was then changed to what you see here, which represents the relative difference, which is achieved by taking the cost for a route, dividing it by the lowest cost route value. So you get basically a range of percentages. The 1 is the preferred, .03 would be 3 per cent more expensive than the cheapest route, which was SGZ in that case.

So while it appeared that SIL was determined to be not preferred, this was a working table that was part of a discussion that lead to the outcome and the decision supported by the project team represented by the final preference determination table.

So I hope that that helps to clear up that question, and I look forward to the rest of the questions for the rest of the session. Thank you so much for your time and patience. I understand that was a long presentation. Thank you.

THE CHAIRMAN: So thank you very much,

Manitoba Hydro, for that presentation. And we will reconvene at -- why don't we make it a little bit shorter, so let's say quarter to 2:00. It gives you just around 45 minutes, and we'll start questioning at that time. Thank you.

(PROCEEDINGS RECESSED AT 12:53 P.M. AND RECONVENED AT 1:45 P.M.)

THE CHAIRMAN: Okay, welcome back, everyone. We are about to start. I just got the high sign that my mic is working now, so hopefully we are good to go.

All right. So we are going to start the questioning. Every day, for those of you who maybe aren't familiar with the process, every day we start at a different point in the order. So today we will be starting with number 3, and that will be Peguis First Nation. So take it away.

MR. VALDRON: Once again, for the monitor, my name is Den Valdron, representing Peguis First Nation. Once again I offer greeting to the Commission and a big hello to Manitoba Hydro.

And I guess to start out, I would like to thank you for the very exhaustive, brutally detailed panel this morning. Without being

sarcastic, I was rapt through the whole thing, and I found it very helpful and informative, and it really brought home to me just how much work and how much dedication that you've brought to this and committed to this.

And so before I get into the nuts and bolts of the cross-examination, which I think you will find as gentle and welcome as a summer's breeze, I have got to say first, look: Cut a guy a break, please. No, seriously. You have these beautiful, wonderful PowerPoint presentations, and then when we get the sheets, they are like this tiny size. Okay. It is like -- I don't have a magnifying glass to break them down.

I'm not really complaining about that, per se. But you know, you have all of these maps, you have these charts, you have these wonderful coloured flow thingies. Okay, fine. Very good. No complaints about that. But what I will ask you to do in the future is that if you are putting up a chart or table or a map that's also included in your EIS report, just point us to it.

You know, if you look around, a whole bunch of people have brought binders and binders here; they can actually look up the physical

document if they need to. I brought a laptop. Several other people have laptops. Two clicks on the mouse, and I can look at this on my computer and expand it to fill the frame.

So, as you were doing this, where I would find myself getting lost is that you would have one of these tables up, and sometimes I could find it, you know, Table F2, or Table F3, and that made it so much easier to follow along. But there was no concordance, no guidance, either on the PowerPoint presentation itself or in the sheets that you handed out. So I would be hunting a lot, and sometimes, as I was hunting, I would fall half a dozen tables behind.

I'm not saying just redo everything, but when you are putting these things up, it might help a little bit to go -- "Oh, and by the way, this is Table 5.2 in chapter 5 of the EIS," so we can find it easy. It would make it so much easier for all of us.

Now, we might stare at a piece of paper, or at a screen on the laptop rather than up there, but trust me, we are still listening to you. We are still committed. So help a guy out.

I'm seeing nods.

MR. MATTHEWSON: Duly noted.

MR. VALDRON: All right. So here we are. So as I understand it -- and you will excuse me, because I'm not -- I'm just a simple young lawyer.

This is a EPRI-GTC; have I pronounced that right? Great. An EPRI-GTC methodology, and it is modified, correct?

MS. BRATLAND: The EPRI-GTC methodology was modified in its application --

MR. VALDRON: Beautiful.

MS. BRATLAND: -- on this project.

MR. VALDRON: Okay. So can you tell me what the principal modifications were? How does this differ from the usual EPRI-GTC?

MS. BRATLAND: We have a number of IRs on that topic. I'm just going to pull them and reference you to them. One moment.

MR. VALDRON: Okay. Terrific.

MS. BRATLAND: Okay. So as Mr. Glasgow mentioned in his presentation, it is typical, when the EPRI-GTC methodology is applied in any new jurisdiction, to calibrate that model and to use the models in a custom application in any given setting. Responses to SSC IR 013 and

015 go into more detail about the elements of the application that were modified.

MR. VALDRON: All right. Thank you very much. And perhaps this is also in the IRs: Can you tell me why the EPRI-GTC was selected? Were there other Canadian models that were available? What made this model stand out for you? What was special about this one?

MS. BRATLAND: I'm going to begin by answering that, and then I will pass that to my colleague, Mr. Matthewson.

As I noted in my presentation, the EPRI-GTC methodology was selected because it afforded the opportunity for early input from stakeholders in terms of developing criteria for the alternate corridor model, and we were able to integrate it with our public engagement processes and our First Nation-Metis engagement processes in order to incorporate as much feedback as possible.

MR. MATTHEWSON: So the EPRI-GTC methodology, when Manitoba Hydro was investigating alternate routing methodologies through a variety of mechanisms, through discussions with utilities in adjacent jurisdictions and across Canada and across the U.S., we looked at different options

that were available. We also conducted a request for proposals, which was across Canada, across North America, request for different routing methodologies. And we, through our evaluation, determined that the EPRI-GTC methodology was the most compatible with the recommendations from the Clean Environment Commission and our desire to include as much stakeholder feedback as possible at various steps in the decision-making process.

MR. VALDRON: Okay, thank you.

I think I heard you say this was the first time that the EPRI-GTC model was used in Canada; did I get that wrong?

MS. BRATLAND: This would have been the second time for Manitoba Hydro's application of the model on a project. The first time that we used it, we used it on the St. Vital-to-Letellier transmission project, and then this was the second application of the framework.

MR. VALDRON: Okay. And when did you use it on the St. Vital-Letellier?

MS. BRATLAND: I don't have the date off the top of my head.

MR. VALDRON: Just ballpark it.

MS. BRATLAND: That project was in

2013.

MR. VALDRON: All right.

In terms of the EPRI-GTC down in the States, I guess, has it been used for situations involving tribal lands or tribal interests?

MR. GLASGOW: So the EPRI methodology has been used on a variety of projects. I can only speak to the ones that I have been involved with, and I don't recall tribal interests in those projects.

MR. VALDRON: Okay. Fair enough. I asked that, of course, because this situation here involves First Nations' interests, which is equal to tribal in the U.S.

Now, I believe you referred to using baseline studies when feeding into or setting up the EPRI. Can you tell us if any baseline studies were identified by First Nations that you incorporated in terms of developing your model?

MS. BRATLAND: There were no specific baseline studies that were incorporated into the stages of alternate corridor model criteria development, if that's what you are referring to. The process of calibrating that and subsequent models reflected on feedback from past projects

and started from that point.

MR. VALDRON: Past projects; so this would include projects like Bipole or the St. Vital that you just mentioned?

MS. BRATLAND: Yes.

MR. VALDRON: Okay. Were any of these past projects particularly significant in terms of calibrating?

MS. BRATLAND: No, I would say that our collective experience from those past projects helped us understand past issues, concerns associated with various land uses.

MR. VALDRON: So you didn't use any past experiences; the baseline was just general?

MS. BRATLAND: Just general knowledge.

MR. VALDRON: Okay.

Now, this may be answered in an IR, but if so, I didn't run across it; maybe that's my fault. But in terms of the criteria that was added to the methodology, did any of these criteria come from or relate to First Nations? Like, when you were customizing the EPRI-GTC?

Is "customizing" the right word? Is that a word that you are okay with?

MS. BRATLAND: Sorry, "customize"?

MR. VALDRON: Yes.

MS. BRATLAND: I think we use "customize" in terms of calibration, so --

MR. VALDRON: Yeah, when you were adapting or calibrating.

MS. BRATLAND: Yeah.

Just one second. I took the words right out of his mouth.

MR. VALDRON: Okay.

MS. BRATLAND: So I'm going to assume that you are referring to the alternate corridor model.

MR. VALDRON: Um-hum.

MS. BRATLAND: Which is that first stage of developing alternate corridors on the landscape with stakeholder values.

MR. VALDRON: Yes.

MS. BRATLAND: As we noted in a couple of IR responses, we did not have indigenous communities participating in this workshop. However, the features and categories that are represented in the model -- in particular, under the "Natural" category -- we understand to represent a number of the land features and land uses that are valued by First Nations communities,

based on the feedback we've received from past projects.

For example -- I'll just take a couple of examples out of here.

Under "Wildlife Habitat," we would understand that harvesting, hunting for waterfowl and wildlife would be a valued activity, and we included that land type in this category. Also the types of habitat that support important plants would be represented under the "Natural" category as well.

MR. VALDRON: Yes, yes, and we will come back to the "Natural" category.

With respect to the EPRI-GTC -- I think I pronounced that right -- was this version particularly supported by U.S. interests, by the U.S. regulators or by your U.S. partners? Was that one of the reasons that you considered or went with this particular model?

MS. BRATLAND: No.

MR. VALDRON: No. I like that; that's very definite. Okay.

Apart from use by Hydro, I think it has only been used once in Canada, and that was by you guys, so ...

All right. You talked quite a bit about transparency. Can you comment on the level of transparency compared to other EPRI-GTC projects? I guess that would be for you, and you will forgive me if I just go completely blank on your name.

MR. GLASGOW: My name is Jesse.

MR. VALDRON: I will forget that in 30 seconds; I'm like a goldfish. But please, go on, Jesse.

MR. GLASGOW: So your question is, what is the level of transparency on this project relative to other projects of which I've been involved?

MR. VALDRON: Yes.

MR. GLASGOW: I would say this is probably the most transparent project I've ever been involved in. For example, the detailed meeting minutes have been made available through the EIS; every round of evaluation, the numbers have been made available. And in general, it is very transparent.

MR. VALDRON: Okay. Thank you very much. I appreciate that answer.

Now, with respect to this methodology,

I've wondered about the environmental elements being assessed, and so I will just leave it to the bunch of you. And just so I can get a handle on it in terms of comparisons, but can you advise me, say, in comparison to Bipole III, as to whether more or less valued ecosystem components were assessed or identified? I mean, how does this compare to, say, Bipole III as a baseline?

MS. BRATLAND: The number of valued components that were assessed is not a question for routing. The assessment itself considers the value components. The value components in this application were linked to the criteria and the elements considered.

In terms of whether there were more natural features considered in Bipole, I would say without -- well, subject to check, of course, that my expectation is that we considered a similar number and types of features, and that it was different in the way that the framework brought those together.

MR. VALDRON: Okay. Thank you.

Can you tell me if there was any quantitative data that was used in the MMTP routing that wasn't used for the routing in the

St. Vital complex or for Bipole III?

MR. MATTHEWSON: Sorry, could you repeat the question?

MR. VALDRON: What quantitative data was used for the MMTP routing that wasn't used in the routing for the St. Vital complex or the Bipole III? As I understand this, you've upped the game. So what's changed? What is the increase, or what sorts of quantitative data?

MR. MATTHEWSON: I think the amount of the windshield surveys certainly is a big thing that we did on this project. We did it on the St. Vital project as well, but it wasn't done on Bipole, where literally we drove every single road, every route, mapped every home, business, residence, structure.

Just due to the geographic nature of southeast Manitoba, there is a variety of different data sets that exist in this area, such as tall grass prairie, or -- probably that would be the most unique natural feature in this landscape. Very similar in the types of data, certainly through the alternate corridor evaluation model development with the technical data holders that we brought together for that,

they certainly brought together new data sets that we weren't aware of on the Bipole III project and were incorporated into this project, such as some of the waterfowl habitats, the unique ungulate habitats, the grouse like areas. There is a variety of different features that we were able to gather through building -- conducting that workshop, and people telling us and making us aware of new data sets such as wetlands; in this study area there was extensive wetland mapping being undertaken by various agencies, and we had that available to us throughout the different stages of the assessment on routing, which we didn't have for a project the scale of Bipole. The wetlands are simply just not mapped for the province of Manitoba at that scale.

MR. VALDRON: I take it that there was no quantitative data from First Nations in Round 1?

MS. BRATLAND: Ms. Thompson previously covered the information that was available in Round 1, the information related to regional considerations, areas that were valued for historical, cultural, and sacred purposes. There was some information about some previous

historical sites as well. So the number and location of those might have been considered quantitative, but mostly it was more regional.

MR. VALDRON: Okay. Thank you.

Now, just before I go on to the next phase, I guess one thing I was wondering about was how were those three border crossings originally selected? I wasn't sure -- maybe I zoned out at the moment, but I wasn't sure if I heard that one.

MS. BRATLAND: We are just going to look up an IR for you on that one, because we don't have a response.

MR. MATTHEWSON: Okay. In Section 5.3.1 of chapter 5 of the transmission line routing, it explains the development of the potential border crossings. And it was a process conducted using criteria outlined on Table 5-2 to understand the constraints and opportunities along the border itself.

So this was an exercise that Manitoba Hydro conducted with Minnesota Power to delineate areas along the border through a common set of factors and constraints, as described in Table 5-2, such as Treaty land entitlements, existing transmission corridors, water types,

wetlands, designated historic sites. There was a variety of protected areas, proposed protected areas, on both sides of the border.

So where we essentially took those data sets together, we mapped each other's respective boundaries along the side, looked at areas by which we could legally, or -- because some of these areas are protected against development -- or they are a significant area of special interest through Manitoba Sustainable Development's Protected Areas Initiative.

We did that on our side; Minnesota Power did it on their side of the border. And when we came up, and we shared each other's data, we had a meeting, and we delineated the zones, as illustrated by the border-crossing boxes. They are approximately ten kilometres in length; they vary a little bit in width. But they were really delineated by constraints on either side of the border, as described in Table 5-2.

MR. VALDRON: Thank you. Thank you very much. I appreciate that answer.

You mentioned TLE, and so I was just wondering, were TLE considerations part of the first round at all?

MR. MATTHEWSON: I believe we have an IR on that. The nature of the concern was -- or TLE interest was with Buffalo Point First Nation, I believe. They had an area in close proximity to -- or a community interest zone surrounding that community by which Manitoba Hydro delineated the border crossing up to that point, but not into that area, due to the ongoing area of potential selection there.

So there were no defined Treaty Land Entitlement selections in there, but it was an area of potential selection, as delineated through the Treaty Land Entitlement agreements.

MR. VALDRON: Yes. You are aware that Peguis, for instance, has about 165,000 acres in outstanding TLE selection, so --

MR. MATTHEWSON: Yes.

MR. VALDRON: -- obviously this is a concern to us.

MR. MATTHEWSON: We were also aware of the Treaty Land Entitlement that Peguis had selected and was in the selection process, which was to the east, near the end of the Riel/Vivian corridor.

MR. VALDRON: Okay. So, then, this

was part of your first round considerations?

MR. MATTHEWSON: Yes. The TLE selections formed an area of least preference in route planning, the ones that were selected.

MR. VALDRON: Okay, good.

Now, as you went through the rounds, I think that there was -- and feel free to contradict me, because obviously I'm just -- you know, not as technically skilled, so I'm just struggling to keep up with you guys.

But as you went through the rounds, I believe that the emphasis was to try and weigh everything equally, rather than give particular weights preference; is that right? Or did the weighting shift from one round to the next?

MS. BRATLAND: The weightings that were established for the different models that are used within the framework were applied consistently from round to round. The weights never changed.

In your question, you indicated, was everything considered equally? So the weightings themselves indicate that different things were given different levels of consideration in decision-making, but those weightings were set at

the onset of the project and continued through.

MR. VALDRON: Okay. So the relative weights just remained consistent through every single round; they didn't change?

MS. BRATLAND: Correct.

MR. VALDRON: Okay. That helps, so thank you very much for that.

With respect to Crown lands and private lands, were they weighted the same? Were they given equal weight?

MS. BRATLAND: Crown lands and private lands were not assigned a weight. They were not a criteria in any of the models, but they were a consideration that informed decision-making and influenced the criteria of schedule risk.

MR. VALDRON: Right. Were they given the same consideration? Were they treated the same, or were they differentiated?

MS. BRATLAND: Crown land and private land were considered from the perspective of what types of approvals could be required prior to the project. In my presentation I discussed, and in the EIS it is discussed, that when the only difference between a route is the percentage of Crown land and private land, the nature and extent

of the Crown land, and the natural and other uses that it supports, is a consideration for the potential risk to schedule, and was determined by the project team that a higher risk to schedule would be assigned to routes with a higher proportion of natural Crown lands.

MR. VALDRON: Okay. Thank you.

Now, I gather that indigenous information -- or First Nations, or ATK, whatever phrase you want to use -- wasn't a direct input into the rounds, but rather mediated through engagement; is that correct?

MS. BRATLAND: Any information received through the First Nation and Metis engagement process was incorporated in any decision that was going on. So if we had information from a preliminary stage of a study that was shared with us, the First Nation and Metis engagement team brought that forward to the project team for consideration in overall decision-making.

So it wasn't only thought about by the First Nations and Metis engagement team; it was shared by them, communicated to the project team from them with context around it, and then

considered by the whole team.

MR. VALDRON: Well, I certainly appreciate the good work and the efforts of the engagement team, and do not misjudge me on that.

But I think what I was wondering is apparently there were direct inputs in the first round -- for instance, Ducks Unlimited. But First Nations, or First Nation organizations, didn't have a chance to input directly.

MS. BRATLAND: I'm sorry, I would just like to clarify in your question: When you say "first round," are you referring to the development of the alternate corridor model?

MR. VALDRON: Yes.

MS. BRATLAND: That would be what we consider to be preliminary planning prior to Round 1, and there were no First Nation or Metis organizations or communities that were participating in that process.

MR. VALDRON: Okay. They weren't invited to participate; is that correct?

MS. BRATLAND: That's correct. There is an IR on that. I will just point you to it, because it is quite helpful.

In response to SSC IR 37, we talk

about the invitations to the workshop that was held. And in CEC IR 007, it discusses this further, in terms of the definition of technical knowledge holders.

MR. VALDRON: Okay. But among the parties that provided input at the early stage were Ducks Unlimited; is that correct?

MS. BRATLAND: Ducks Unlimited was a participant, yes.

MR. VALDRON: On what basis was Ducks Unlimited a participant?

MS. BRATLAND: Ducks Unlimited was a participant because they hold regional data about wetland and wildlife use of wetlands in Southern Manitoba, and they have knowledge about those things.

MR. VALDRON: And I believe that Indian Affairs, or AANDC, as they are calling themselves now, was also a participant?

MS. BRATLAND: They were invited, but were unable to participate on the day of the workshop.

MR. VALDRON: Not terribly surprised -- without being sarcastic at all.

No, actually I guess that was

sarcastic; I'm sorry. I will withdraw that comment.

Yeah. Why, for instance, was AANDC invited to participate and not, say, Peguis? I'm asking this because -- I mean, from our point of view, AANDC doesn't usually get involved in Treaty or traditional lands issues. I have never seen them, for instance, participate in a hunting rights case, whereas Peguis has a wide-ranging commitment to supporting its population, and to being aware of and participating with its population in these processes.

Peguis has been involved in something like 30 of these, and not CEC per se, but 30 different processes at this point. And it has a consultation department. So why weren't we at the table at that point?

MS. BRATLAND: As we highlight in the response to CEC IR 007, the workshops that were conducted in May of 2013 were not a project-specific workshop; they were a regional workshop, in which technical data holders were invited to attend to describe the features that they had knowledge of on the landscape and the relative suitability of those features to interact

with transmission lines.

It was decided to include technical data knowledge holders because this model is built on the understanding of locations and geospatial information, and those people that were invited to attend were understood to be holders of that information and to be -- determined by their organizations to be able to speak on behalf of that.

We have had feedback in the past from communities, that they prefer to be engaged on specific projects, once a project was known; and this was before specific application of the model to the project.

MR. VALDRON: But I would suggest to you that with respect to Peguis, Peguis had regional knowledge and regional expertise that would have been valuable to you.

MS. BRATLAND: I don't doubt that they do.

MR. VALDRON: But they weren't invited.

MS. BRATLAND: As outlined in the IR, they were not.

MR. VALDRON: Okay. Was there a

specific reason for that? Was it just an oversight? Or you thought about Peguis, and then thought, no?

MS. BRATLAND: I believe I already answered that question, and it is outlined in the IR, CEC IR 007. I'm just going to find the line to read to you here.

Sorry, I'm just trying to find the best reference to point you to here.

MR. VALDRON: Would it be CEC IR 39? Because I was looking at that one.

MS. BRATLAND: So IR 37 talks about the process we went through in terms of identifying groups to be invited to the workshop. We were advised by the routing consultant that these individuals should be technical data holders, and that the purpose of the discussions were regional-based and consensus-driven.

The decision was made to not invite rural municipalities, members of the public, or specific First Nations communities, because of the fact that we were looking for more regional input from the basis of those technical data holders.

MR. VALDRON: All right. I would suggest to you that in the future, First Nations

would be relevant as regional data holders, or regional -- or holders of regional technical data, in ways that individual property owners or a particular municipality simply are not.

A municipality, I mean, is defined by its legally mandated boundaries. The private property owner simply owns private property, but a First Nation, I would suggest to you, is fundamentally different, in that it represents or contains a group of people or a body of people who have rights and undertakings and activities on a regional basis that extends well beyond the boundaries of the reserve.

So I'll simply suggest that for future processes, that -- you know, you may wish to look at it from that point of view.

MS. BRATLAND: Noted, and thank you.

MR. VALDRON: No problem. All right.

And I'll also suggest to you that First Nations and First Nations people are much more directly connected to lands and environmental issues. So if you are looking at a nature component, and I think that was part of your inputs, in assessing nature -- and I think that's terrific, by the way, that -- you know, First

Nations offer potentially a set of unique insights into any assessment of nature.

You are just smiling at me.

MS. BRATLAND: Was there a question?

MR. VALDRON: If you can just acknowledge it, I can move on.

MS. BRATLAND: Acknowledged.

MR. VALDRON: Great. All right.

Now, with respect to -- you know, First Nations engagement, if there had been earlier engagement or direct engagement with Peguis or First Nations, do you feel, or -- that this could have potentially been helpful?

MS. BRATLAND: We always like to have as much information as possible as early as possible in the decision-making process, so we would certainly invite the most information possible. However, there has been the experience of Manitoba Hydro that there is a reluctance for communities to share information about specific land uses over a broad region of scale that could be used on multiple projects, so we were also trying to be sensitive to that feedback we had received.

But yes, we always like to have more

information sooner.

MR. VALDRON: Yes. Well, I would suggest that they can't really venture an opinion as to whether or not to participate if you don't ask them in the first place. Would that be correct?

MS. BRATLAND: That's correct. However, we did engage early with First Nations communities, invite them to participate in the ways that they felt were meaningful throughout the project, and had multiple opportunities for that. So I hope that that has allowed a meaningful opportunity to affect the decisions and inform the assessment.

MR. VALDRON: That is certainly acknowledged, and I believe that Peguis has certainly taken advantage of and participated in those opportunities.

Now, with respect to the engagement and how it is fed into the rounds, I believe that Peguis information started to show up or became part of your consideration through the engagement process in the second round, or the third round? Was it the second round?

MS. BRATLAND: We had preliminary

information in Round 1.

MR. VALDRON: From Peguis?

MS. BRATLAND: Yes.

MR. VALDRON: How did you get preliminary information in Round 1 if Peguis wasn't involved?

MS. BRATLAND: I'm just going to consult with my colleague.

MR. VALDRON: Okay. Go right ahead.

MS. BRATLAND: I'm advised that in Round 1, there were a number of workbooks completed from Peguis that included specific feedback about route segments that were provided in Round 1.

MR. VALDRON: Fascinating. Thank you.

MS. BRATLAND: Sorry, I'm advised that that was Round 2. In Round 1, we had general feedback from Peguis. In Round 2, we had the specific segment-based feedback.

MR. VALDRON: So that answer actually relates to Round 2?

MS. BRATLAND: No. We had preliminary feedback in Round 1 --

MR. VALDRON: In Round 1, from Peguis?

MS. BRATLAND: Yes. And in Round 2,

we had more specific feedback pertaining to specific segments provided through the use of workbooks.

MR. VALDRON: Okay.

MS. BRATLAND: Sorry.

MR. VALDRON: So the workbooks were in Round 2?

MS. BRATLAND: Yes.

MR. VALDRON: Okay. And Round 3?

MS. BRATLAND: One moment.

We had additional conversations and feedback in Round 3, and the feedback related to routing in that round is in chapter 4.

MR. VALDRON: Terrific.

All right. I understand that field work is still going on; is that correct?

MS. BRATLAND: Field work pertaining to which?

MR. VALDRON: Field work pertaining to First Nations engagement. Is that correct? Field work pertaining to natural -- or the natural environment?

MR. MATTHEWSON: Can you rephrase, please?

MR. VALDRON: I've been informed that

there is still some continuing field work that's being done.

MS. BRATLAND: By whom?

MR. VALDRON: By Hydro.

MR. MATTHEWSON: Yes, there is, as outlined in Manitoba Hydro's environmental effects monitoring plan, there is pre-construction field activities that are occurring currently, prior to construction.

MR. VALDRON: Okay. And is that likely to have any effect on routing?

MR. MATTHEWSON: No, it won't have -- we don't anticipate it to have an effect on routing. It may have an effect on tower spotting, of individual placement of towers, to the nature of the field studies.

MR. VALDRON: Okay. Thank you.

All right. Now I would like to just explore issues with respect to Crown land versus private land. And you talked about some of your considerations. The First Nations, however, particularly Peguis, bring other considerations, and I just want to check to determine if this showed up for your process.

One of the considerations for Peguis

is that with respect to exercise of traditional way of life, their position is that this is non-compensable in the same way that the private land is compensable. So if we are in fact using Crown lands or wildlands for the purpose of hunting or trapping or fishing, it's not as if interference with that would be something that could be easily remedied, the way that crossing a farmer's field would. Was that brought to your attention?

MS. BRATLAND: Yes, it was.

MR. VALDRON: Okay. And another concern that Peguis has, and wishes to continue to bring to attention, is that with respect to the impacts on nature, impacts on private land tend to be very specific, quantifiable, and stuck to boundaries; but impacts on Crown lands -- impacting, say, wildlife, game, et cetera -- tends to bleed all over the place. The impacts or effects can be unpredictable and can be subtle.

So for Peguis, the preference is that if you were going to be affecting land, the preference is to affect private land rather than wildland, simply because of the unpredictability of these effects. Was Peguis bringing that to

your attention?

MS. BRATLAND: Yes, we did hear concerns from Peguis about the use of natural Crown lands and the potential effects that could have.

MR. VALDRON: Another key issue for Peguis, of course, is that so many of their members are in Winnipeg, 5,000 approximately. So if you are looking for areas for Peguis members to try and practice their traditional ways and traditional activities from Winnipeg, a major -- the major area is principally southeast Manitoba; otherwise you are travelling six or seven hours. And did the engagement process highlight that? Was that part of the considerations in routing?

MS. BRATLAND: Yes, it was.

MR. VALDRON: Okay. All right.

Well, thank you very much. I appreciate your taking your time.

MR. MATTHEWSON: Thank you for the questions.

MR. VALDRON: And thank you to the Commission.

THE CHAIRMAN: Thank you very much.

All right. That brings us to the next

on the list. I believe Manitoba Wildlands is not here, right? Okay. So then we will move on to Southeast Stakeholders -- oh, sorry, Manitoba Metis Federation is next. My apologies. I'm starting at the wrong spot. Thank you.

MS. STRACHAN: Good afternoon, Mr. Chair, Commissioners. Good afternoon to the panelists. My name is Megan Strachan, counsel for the Manitoba Metis Federation, or MMF.

I would invite any of the experts on the panel to answer these questions as you feel appropriate.

My understanding is that the EPRI-GTC methodology requires the use of four different models, and that's the macro corridor model, the alternative corridor model, the alternative route evaluation model, and the preference determination model. And that's correct?

MS. BRATLAND: Those are the four models, yes.

MS. STRACHAN: And I understand that there were three perspectives that were identified: Natural, built, and technical. And those were considered the key perspectives for Manitoba Hydro, and they were included at all

stages of the process in each one of these models. Is that correct?

MS. BRATLAND: Natural, built, and technical were the three perspectives. There was a fourth perspective, called simple average. When those are all considered, balanced against one another.

MS. STRACHAN: Thank you.

And so I understand that these -- the three perspectives plus the average, these were considered in each of the four models?

MS. BRATLAND: They were considered in the alternate corridor model and the alternate route evaluation model. They are also represented within the preference determination model, but there are more perspectives brought to bear in that model.

MS. STRACHAN: Thank you. And so I understand that none of these three perspectives specifically, of natural, built, and technical, included any kind of specific criteria to Metis land use or Metis harvesting. Is that correct?

MS. BRATLAND: There were no specific criteria labeled as such, but there were criteria that were understood to represent the types of

land features and uses that might be valued by different First Nation and Metis communities.

MS. STRACHAN: And I suspect that the answer to my next question will be the same, but I'm going to ask it anyway.

I also understand that specifically, impacts on Aboriginal rights weren't considered in the three perspectives as sort of a specific criteria?

MS. BRATLAND: No, there was no specific criteria for Aboriginal rights.

MS. STRACHAN: I have a few questions specific to the alternate corridor evaluation model. So were hunting and trapping locations used as criteria in that model?

MS. BRATLAND: Hunting and trapping locations were underneath the built perspective. However, there was no data to support that at the time of the development of this model.

MS. STRACHAN: And so does that mean that it wasn't calibrated in the model?

MS. BRATLAND: It was calibrated into the model, but we didn't have data to represent it.

MS. STRACHAN: I'm sorry, can you

explain how it was calibrated if there was no data?

MS. BRATLAND: One moment, please.

MR. GLASGOW: So in the workshop, I believe it was noted as a criteria of concern, and so we were able to get input from stakeholders regarding the relative preference and the weight.

And so it was in the model. However, after each workshop, we do detailed research to see if we can identify data sets that can be used to model that criteria.

In that phase, as I understand it, that's when we identified that we don't have a data set that could be used to apply that criteria in the model. And so, when we don't have data that represents this, we can't run it in a GIS model.

That's what we mean when we say it was calibrated, in that we understand the values and the weights the stakeholders placed on that. But when we didn't have data, we were unable to implement that in the corridor model.

MS. STRACHAN: Thank you very much.

MS. BRATLAND: Just to build on what Mr. Glasgow said, this is the alternate corridor

model, so that's that first stage of mapping, to start to develop routes within. The identification of hunting and trapping locations was something that came to us much later, with the use of the ATK reports, and was factored into routing when we received it.

MS. STRACHAN: Thank you.

And so at the stage of alternate route corridor evaluation, I understand it is sort of a planning stage. Are you able to tell me if the Metis use of lands, or the suitability of lands for use by Metis, or the exercise of Aboriginal rights, was considered when the criteria were being selected?

MS. BRATLAND: So, as I understand your question, it refers to the development of the criteria in the next model, the alternate route evaluation model?

MS. STRACHAN: No, I'm still talking about the alternative corridor evaluation model.

MS. BRATLAND: Sorry. Can you repeat the question, then, now that I'm clear?

MS. STRACHAN: Sure. I was wondering if you are able to tell me if there was any discussion around Metis use of lands, or the

suitability of lands for use by the Metis, when these criteria were being selected?

MS. BRATLAND: When the criteria were being selected, there was certainly discussion about the use of natural lands and the practice of traditional harvest or contemporary use of the lands, and the types of lands that would be most used by that, from past projects, past experience and knowledge.

MS. STRACHAN: And so could you tell me, was undeveloped Crown land -- and by that I mean land that's free of a legal restriction, like being an ecological reserve, or something like that -- was this kind of undeveloped Crown land considered to be a criteria as part of the alternative route corridor evaluation model?

MR. MATTHEWSON: No, there was no category for undeveloped Crown land. We did utilize categories of Crown land with special codes, which were -- we discussed in an IR, as well, about what the special codes represented. And generally those were undeveloped lands, protected for management of wildlife -- sorry, not necessarily protected, but designated for management of wildlife as one of the purposes for

that parcel of land.

The measure -- as we move forward, the measure of intactness was a way that we could quantify some of those intact, large intact forested areas. But there was not a direct connection to undeveloped, because some of those intact parcels did have, as you mentioned, some type of legal restriction on them, like an ecological reserve or a wildlife management area.

MS. STRACHAN: I just have a follow-up question about intactness. Is it possible that land that was found to be intact would include both Crown lands and private lands? Or would it only have been Crown lands?

MR. MATTHEWSON: It would have been both.

MS. STRACHAN: Okay. Thank you.

So I understand, then, that undeveloped Crown lands weren't included as a specific criteria, and so they also were not determined to be an area of least preference in the alternative route corridor evaluation model; is that correct?

MR. MATTHEWSON: That's correct.

MS. STRACHAN: What kinds of lands

were put in the category of being an area of least preference?

MR. MATTHEWSON: As outlined in Table 5-3 of chapter 5, there's a section that outlines all the different areas of least preference that Manitoba Hydro considered in the study areas.

Some examples to provide are wildlife refuges, mines and quarries that are active, contaminated sites, campgrounds and picnic areas, airports, schools, day-care parcels, heritage sites, Provincial parks, known archeological sites.

Those are a variety of the different areas of least preference.

MS. STRACHAN: And why were these particular kinds of lands chosen as areas of least preference?

MR. MATTHEWSON: These categories were chosen by the stakeholders in the alternate corridor evaluation model workshops. Some of them are designated by -- there are features to avoid when routing a transmission line, due to -- sometimes a physical constraint; an extreme slope, or a long water crossing; or there is some type of

regulation limiting their development. As an example, a protected area, like an ecological reserve, or the Watson P. Davidson Wildlife Management Area, or areas that would require some type of extensive mitigation or compensation to traverse, such as an airport or an aircraft landing area. While we do have some transmission lines in close proximity to those, there are special mitigation measures that we have to do in our structure designs to mitigate the effects.

MS. STRACHAN: Did the need to pay compensation play a role at all in making that determination?

MR. MATTHEWSON: Yes, compensation was considered.

MS. STRACHAN: And so, sticking with determining whether an area is one of least preference, was its suitability for use by the Metis for harvesting or traditional activities considered?

MR. MATTHEWSON: Not specifically, no.

MS. STRACHAN: So I wonder if you could just offer some clarification, still in the alternative corridor evaluation model, on what the "no special lands" factor or criteria is?

MR. MATTHEWSON: So each of the green boxes are the layers in this case, special features. They cover the entire study area, so the entire study area has to be classified by one of these categories.

So in this case we have a list of the special features that the stakeholders identified, and then if it was not on that list, it would be called "no special land" -- it would be like an "Other" category.

MS. STRACHAN: Okay. So in this "Other" category, that would likely include potentially undeveloped Crown lands that don't have some sort of other designation on them; is that fair?

MR. MATTHEWSON: Yes. If they weren't captured by one of the other categories, then yes.

MS. STRACHAN: Thank you.

I have a couple of questions now on the alternative route evaluation model. So I understand this model also doesn't include any criteria that are specific to Metis use or Metis harvesting. Is that correct?

MS. BRATLAND: Correct. Similar to the alternate corridor model, there are criteria

that capture the types of lands that would support land uses that we've heard in the past that could be a value to Metis land uses.

MS. STRACHAN: Thank you. I just have a few questions left, on the preference determination model.

And so I understand that this model is the one model of the four that numerically ranks and weighs feedback from the perspective of community; that's correct?

MS. BRATLAND: Correct.

MS. STRACHAN: And the community perspectives group, so the group that came up with the numerical ranking, was composed of Manitoba Hydro staff and consultants?

MS. BRATLAND: Correct. It was the First Nation and Metis engagement team that would have been engaged with First Nations communities and the MMF.

MS. STRACHAN: So this community perspectives group, its mandate was to consider feedback from stakeholder groups and the public organizations and Aboriginal groups, consider all of the perspectives, and assign a single value to each route that they assessed; is that right?

MS. BRATLAND: Yes.

MS. STRACHAN: So for each route, 30 per cent of the route score was represented by the single value that represented this whole host of stakeholders?

MS. BRATLAND: Correct. As I noted in my presentation, it was a very challenging task.

MS. STRACHAN: I imagine it would be.

I understood from the presentation that, for instance, if a route was strongly preferred by the public but may not have been preferred by First Nations or Metis, it could still be given a score of 1, because it was most preferred from one of the perspectives, sort of in the community group; is that fair?

MS. BRATLAND: No, the score of 1 would be reserved for a route that was considered to balance the concerns from both perspectives, and take advantage of preferences from those perspectives.

MS. STRACHAN: So what I'm thinking of specifically is the -- I think it was the DKT example. And perhaps I misunderstood the presentation, but my impression there was that that was a line that was routed predominantly on

Crown land, which was preferred from the perspective of the public, and it was given a score of 1, meaning that it was more preferred.

MS. BRATLAND: I'm just going to check my notes. One moment.

Yes, you are correct.

MS. STRACHAN: I have one more clarification about the presentation, and this was dealt with on Slide Number 48.

I believe you mentioned that at one point, the costs were so equal that you had tried to factor in additional methods of costing to try and get some separation between the different routes, such as the cost of relocating homes or of acquiring private lands. I was wondering, was the cost of compensating Metis or First Nations considered at all in this additional cost calculation?

MS. BRATLAND: No.

MS. STRACHAN: Thank you. Those are all of my questions.

THE CHAIRMAN: Thank you very much, Ms. Strachan.

That brings up next -- as I asked earlier, I don't believe Manitoba Wildlands is

here, so that will bring us to the Southeast Stakeholders Coalition.

Mr. Toyne, I just wanted to mention before you get started, we are likely to take a break at -- we will take a break at 3. We will make it a bit shorter, because we started late; maybe ten minutes. But would you rather we took it now, or would you rather you start, and then we take it?

MR. TOYNE: Why don't we take a break.

THE CHAIRMAN: Okay. We will be back at 5 after 3, and then we will start with Mr. Toyne.

(Recessed at 2:53 to 3:05 p.m.)

THE CHAIRMAN: All right. It is just about 3:05, so we are about to start with questioning from the Southeast Stakeholders Coalition, and Mr. Toyne.

MR. TOYNE: All right. Thank you very much, Mr. Chair.

And just for the benefit of the witness panel, and for the Commission, what I've tried to do is group all of my questions together through each of the different stages of the methodology. If it turns out that I've made a

mess of that, I apologize, if we sort of get confused bouncing back and forth.

But I do have a couple of questions that don't really fit in that chronology, so I will start with those.

Just to confirm this -- because I thought we had confirmed it the other day, but then the presentation this morning seemed to suggest otherwise -- the decision to adopt this EPRI-GTC methodology, that decision was made by Manitoba Hydro before the Bipole III report was released; correct?

MR. MATTHEWSON: Yes, we've confirmed it was before.

MR. TOYNE: All right.

Now, I hope that Manitoba Hydro doesn't object, but I'm going to make reference to a couple of the slides from this morning. If you would be kind enough to pull up Slide 17. Yes, that's the one. All right.

So this is one of the questions that doesn't quite fit into the methodology pathway or funnel, so I just want to make sure that I understand this.

So the ability to effectively avoid

impacts or effects depends on Hydro accurately assessing your ability to either mitigate or compensate those effects; is that a fair statement?

MR. MATTHEWSON: Can you rephrase, just so I'm clear?

MR. TOYNE: As it came out, it was a little clunky; let me try again.

So if Manitoba Hydro, say, underestimates your ability to mitigate a particular effect, or if you underestimate your ability to compensate a particular effect, you may not take sufficient steps to avoid that effect.

I think that's a clearer path to where I was headed. Would you agree with me?

MR. MATTHEWSON: Yes, with the knowledge that we have at the time of initial route planning, we may not be avoiding all effects at that time, which is why we go through the multiple rounds of engagement, to garner that new information.

MR. TOYNE: So the idea is that as the process goes on, your understanding of your ability to mitigate and compensate those effects should get better, and your ability to take

appropriate steps to avoid them should similarly get better?

MR. MATTHEWSON: Correct.

MR. TOYNE: Okay.

So if we could talk about the first step -- at least as I understand the first step in the way that you applied this methodology, and that's to identify potential border crossings. So the first part of that was to develop a list of regional criteria, right?

MR. MATTHEWSON: There were constraints, yep, regional constraints along the border crossing zone.

MR. TOYNE: As I understand it, once those constraints were taken into account, there were really two major routing options that were identified. There was a north/south route on the more western portion of the preliminary planning area, and there was a more remote north/south route on the more easterly portion of the preliminary planning area, through the Sandilands Provincial Forest. Is that right?

MS. BRATLAND: We're just going to look up the reference in the document. One moment.

MR. MATTHEWSON: Are you referring to Map 5-2, when you were talking about preliminary planning area?

MR. TOYNE: Yeah. So when I use the phrase "preliminary planning area", that would be what I'm referring to.

So, as I understand it, one option was north/south on the western side, and another option was also north/south on the more easterly side. And again, this is still at the very early stages of planning.

MR. MATTHEWSON: At this stage of the planning, we were simply looking at areas within the border crossing zone itself, not any particular routes that ran in a north/south or east/west direction.

MR. TOYNE: Right. So it's not as if you were actually drawing those segments that then connected into routes that you talk about doing later in the process, but at this very early stage there was really two ways to get to the border that are being considered. There's the broad western and the broad eastern, both going in a north/south direction?

MR. MATTHEWSON: Are you referring

to -- just so I'm clarifying, east and west, are you referring to the corridor that's on that map, or the white area that comes out of the Dorsey Station on the west and the Riel Station on the east? Is that -- when you are referring to east and west, is that ... ?

MR. TOYNE: I don't believe so, but if it turns out that's what I'm referring to, then yes.

I'm sorry, I'm confusing you, asking you questions about how you picked the route; I'm not doing that intentionally.

MR. MATTHEWSON: At preliminary planning, we don't pick routes, so that's why I'm confused. I'm trying to give you the best information with respect to what we did in the preliminary planning stage.

MR. TOYNE: Well, if we can't figure that out, let's move on.

So regardless, eventually, the four border crossings on the bottom of this map, 5-2, are identified as potential border crossings. We have Gardenton West, Gardenton East, Piney West, and Piney East?

MR. MATTHEWSON: Correct.

MR. TOYNE: Okay. Most, if not all, of the maps that went up on the screen earlier today excluded the Gardenton West border crossing, right?

MR. MATTHEWSON: That's correct.

MR. TOYNE: And that's because it was eliminated fairly early on?

MR. MATTHEWSON: Yes, it was.

MR. TOYNE: And the reason it was eliminated fairly early on was given the -- the potentially viable routes to reach it were simply unacceptable, from a number of different perspectives; is that a fair statement?

MS. BRATLAND: In CEC IR 15, we discuss the reasons for the Gardenton removal.

MR. TOYNE: So the answer to my question is yes, or no?

MS. BRATLAND: The answer to your question is that we eliminated the western area from the route planning region, and then the western border crossing, which is also discussed in the EIS, because of the amount of development in the area, both in terms of rural residential development, the amount of agricultural land in the area, and the amount of transmission

development that was already in the area, undergoing or proposed.

MR. TOYNE: All right.

Now I'm going to make a suggestion. You know what, actually let me -- I will direct a question, I think, to Mr. Glasgow first.

How often, sir, is this methodology used to select points where a transmission line will cross an international border?

MR. GLASGOW: I'm not aware of another project off the top of my head, although I haven't been involved in every project where this methodology has been used.

MR. TOYNE: Fair enough. So you haven't been involved in any projects where that's happened, and to the extent this methodology has been used without your involvement, you aren't aware of it having been used to select a border crossing?

MR. GLASGOW: That's what I said.

MR. TOYNE: So the suggestion to the folks for Manitoba Hydro on the panel, I'm going to suggest to you that once you had reached this stage of the pre-planning or preliminary planning, you would have been able to select one of these

border crossings in discussions with Minnesota Power without running through this entire methodology. Would you agree or disagree?

MS. BRATLAND: I agree, because that's what we did. Selecting the border crossing occurred before we applied the EPRI-GTC methodology to this project -- sorry, removing the Gardenton West border crossing happened before we applied the EPRI-GTC methodology and tools.

MR. TOYNE: Right. And then the -- I apologize; the question I asked must have been confusing.

So what I'm suggesting is that once you had eliminated Gardenton West, you didn't have to use this methodology to determine which of these three border crossings you would rely on, and I'm asking if you agree or disagree with that.

MS. BRATLAND: I agree. We did not have to use the methodology.

MR. TOYNE: Okay.

And would you agree or disagree with the following suggestion: That at this point in the planning, you had sufficient information that would have allowed you to pick which of those three border crossings was Manitoba Hydro's

preference, without going through the EPRI-GTC methodology?

MS. BRATLAND: I would disagree.

MR. TOYNE: How many power lines does Manitoba Hydro currently have that cross the international border?

MS. BRATLAND: I'm going to confer with my colleagues. I believe that was noted in the presentation given by the first panel, on project description.

We don't have Mr. Mailey's presentation in front of us, so we are going to say approximately five, subject to check.

MR. TOYNE: Of those approximately five IPLs, how many of them used the EPRI-GTC methodology to determine where they crossed the international border?

MS. BRATLAND: None.

MR. TOYNE: If we could now turn to what I understand is the second stage; that's the alternative corridor generation evaluation. I've got a question that falls into this methodology, but I don't have a precise place to put it, and it is a question that goes to Mr. Glasgow.

There is a reference in that IR 37,

the Coalition IR 37, about stakeholders who had access to, I think, data sets or technical GIS data being invited to participate in developing the criteria, and that that was done at your recommendation, sir.

And just to follow up on the questions that were asked earlier, why was it that you recommended that only stakeholders with access to data sets be invited, as opposed to stakeholders who might be able to generate them but don't yet have them?

MR. GLASGOW: Could you please repeat the question?

MR. TOYNE: I did talk for about 30 or 40 seconds there; so let me try again.

So you recommended to Manitoba Hydro that they invite stakeholders who had data sets to participate in developing the criteria; correct?

MR. GLASGOW: Is that what it says in the IR?

MR. TOYNE: This one is not a trick question.

MR. GLASGOW: Yes, I recommended that Manitoba Hydro invite representative organizations so that they could use the data that they hold to

model the study area.

MR. TOYNE: Right. So to build on some of the questions that were asked earlier, why weren't groups that, say, represented important stakeholder interests, but that may not have had the data sets or been the technical knowledge holders invited?

So, for example, Peguis First Nation or the Manitoba Metis Federation, they could have obtained data and provided it, given the opportunity; but because they weren't invited, they didn't have that opportunity. Why did you make that recommendation?

MR. GLASGOW: So I believe the specific question you just asked was discussed at length in the previous conversation. I don't have anything in addition to add to that.

MR. TOYNE: Okay. So at the next step, the alternative corridor generation, four corridors are generated. We have built, natural, engineering, and the average. And as I understand it, those corridors were generated for each of the three border crossings. Correct?

MR. MATTHEWSON: That's correct.

MR. TOYNE: Now, if a border crossing

had already been selected without using the methodology, those four corridors would have been generated for just that particular border crossing. Right?

MR. MATTHEWSON: Hypothetically if we had one start point and one end point, there would only be one set of four corridors created from start point to end point.

MR. TOYNE: All right. And I understand that for analytical purposes, the three non-average perspectives -- built, natural, and engineering -- were given equal weights of one-third, one-third, one-third. Is that correct?

MR. GLASGOW: Okay. When we implement the alternate corridor model, we create four corridors. One corridor places five times emphasis on the natural factors, and one time emphasis on the engineering or technical, and one time emphasis on built. The other corridor places five times emphasis on natural; the other corridor five times emphasis on engineering; and then the fourth corridor places equal emphasis on those three perspectives.

MR. TOYNE: So the engineering corridor prefers the engineering criteria by a

multiple of five; built corridor, the built criteria by a multiple of five?

MR. GLASGOW: That's correct.

MR. TOYNE: Okay. And then the simple average, that's where the one-third, one-third, one-third comes in?

MR. GLASGOW: Yes. Simple average, it is an equal weight of the three perspectives.

MR. TOYNE: All right. Now, when we are talking just about the three non-average ones, is there a reason why the methodology uses a multiple of five as opposed to a multiple of four, or a multiple of six, or some other number?

MR. GLASGOW: When we developed the methodology, we tested several different sensitivities. And we had a group of academic experts in this area, and we did probably four or five hundred hours of testing different sensitivities, and we arrived at five times. That's why we used that on this project, and pretty much every other project that we've used this methodology on.

MR. TOYNE: Was any thought given to whether or not using the simple average corridor was appropriate, given the part of Manitoba that

this was going through, and the purposes that the transmission line was being built for?

MR. GLASGOW: Could you please repeat the question?

MR. TOYNE: Yes. Again, as it came out, it sounded a little awkward.

So was any thought given to using a different fourth corridor perspective, given the part of the province that this line was going through and the purpose for which it was being built?

Does that make more sense?

MS. BRATLAND: As I understand your question -- please correct me if I'm wrong -- you are asking is -- did we give consideration to just using a simple average corridor to guide route development?

MR. TOYNE: Did you consider using something other than the simple average corridor as the fourth corridor option?

MS. BRATLAND: No.

MR. TOYNE: And why not?

MS. BRATLAND: Because we felt we had the appropriate perspectives represented with the three corridors and the simple average as the

fourth.

MR. TOYNE: All right. And as I understand it, it is in this alternative corridor generation phase where the areas of least preference come into play; that's right?

MR. GLASGOW: The alternate corridor model does have a list of areas of least preference. I'm not saying that's the only place they are considered, but -- you are correct.

MR. TOYNE: So we will come back to the second point that you made.

But one of those areas of least preference for this project was buildings; right?

MR. MATTHEWSON: That's correct.

MR. TOYNE: Now, if we can put Slide 18 up on the screen, if that's something that you are able to do. Right, yeah. All right.

And I take it that one of the reasons why that's one of the areas of least preference is to reflect the first siting principle up on the screen, avoiding or limiting effects to residences?

MR. MATTHEWSON: Sorry, and environmental effect, the socio-economic environmental effect, which is agriculture.

MR. TOYNE: Now I also understand -- and this was in response to one of the IRs -- that it was not simply buildings that were an area of least preference, but there was also a small buffer around the buildings, and the buffer was 50 metres; is that correct?

MR. GLASGOW: Yeah. Honestly, that's just a -- art of mapping the buildings. We map the buildings with a point, and we create a buffer around that point to create an area, and that's used as the area of least preference. And the idea is to map the building using that method.

So we are trying to represent the buildings themselves as a physical constraint to transmission line construction. There are other components, such as proximity to buildings and building density, that considers buildings as well.

MR. TOYNE: All right. Now, the 50-metre buffer around each building, is that simply a reflection of the computer program or the level of detail that's available, or is there some sort of analytical or methodology-related reason for why it is a 50-metre buffer as opposed to something else?

MR. GLASGOW: I need to verify where 50 metres came from; it is not in the model that I'm looking at.

Without seeing the specific reference, I can say that in general, the way we model buildings as an area of least preference is we are trying to consider the building and the area that would be within the right-of-way of the building. Okay?

So not only are we concerned with the building itself, but usually half the distance of the right-of-way. But I would have to see the specific reference to 50 metres to know what you are talking about.

MR. TOYNE: You know, let me go grab -- I think I have it on my desk. I will just be one second. Hang on.

All right. The IR that I was referring to, without having the reference, was SSC IR 005.

MR. GLASGOW: Okay. I see your reference. Thank you.

MR. TOYNE: All right. So it is actually a bit more restrictive than I recalled when I was putting my list of questions together.

So there is a 50-metre buffer that's put around occupied houses; is there a similar buffer that's applied to either unoccupied houses, to the extent they have been identified, or other buildings?

MR. GLASGOW: I believe at this stage of the process, all buildings are modelled with a 50-metre buffer to represent the area of physical constraint because the right-of-way is 100 metres.

MR. TOYNE: Okay. So for someone who has got a philosophy as opposed to a technical background, the reason it is 50 is solely because it is half the right-of-way? No other reason?

MR. GLASGOW: Yeah. For example, if you have two buildings beside one another, and you are modeling them with a point, okay, so that takes up no space; in reality, those buildings do take up space.

So in order to create an area where the model would not put a right-of-way between those buildings, this building has a 50-metre buffer, this building has a 50-metre buffer, and that creates a block so the right-of-way can't get through there.

So the routing algorithm considers that the area of least preference, the centre of

the building plus 50 metres. Not the edge of the building.

MR. TOYNE: Right. Okay. So one of the ways to avoid the right-of-way going either through or very close to a building is this 50-metre buffer at this stage?

MR. GLASGOW: It is intended to keep the right-of-way from crossing a building, in the context of the alternate corridor evaluation. Understand that we are considering the entire study area, and so this is a way we inform the computer that there is a structure there.

MR. TOYNE: Right. And at least from a technical perspective -- I will get into the other perspective in a second -- but from a technical perspective, you would be able to increase the size of that buffer to, say, 75 metres, or 100 metres? There is no technical impediments to that?

MR. GLASGOW: I'm not aware of a technical reason one could not change that. But the reason it was modelled at 50 metres is that's half the distance of the right-of-way.

MR. TOYNE: Right. And was there any reason that Manitoba Hydro didn't use a larger

buffer than 50 metres around buildings?

MR. GLASGOW: Just to be clear, there is a proximity-to-buildings layer within the model which does consider a wider buffer around buildings.

MR. TOYNE: And can you remind me, if you've got it there, what that distance is?

MR. GLASGOW: There is multiple distances. They go from the right-of-way to 100 metres, 100 to 400 metres, 400 to 800 metres, and greater than 800 metres.

MR. TOYNE: And those are all areas of least preference?

MR. GLASGOW: Those are not areas of least preference, but they are modelled with relative suitability, with the most suitable being further away from the building.

MR. TOYNE: Right. Let's just stick with areas of least preference for right now.

So there is no technical impediments to Manitoba Hydro using a larger buffer around residences; the question is whether or not Manitoba Hydro considered extending the buffer beyond 50 metres for residences for the purposes of areas of least preference?

MR. MATTHEWSON: While during alternate corridor development and the areas of least preference, the -- for the modelling of alternate corridors, 50 metres is the number that was used. And then the distances away from the buildings, and the weights that those were determined, as illustrated in Table 5-3, those were through stakeholder -- the workshop; they developed those ranges, and the weights, and how far away, and what weight should be given to each one of those.

When it comes to route planning, that's a different scenario, when there is physical segments being drawn on a map, on how Manitoba Hydro avoids homes. It is not simply looking at a 50-metre buffer from avoiding homes; we are trying to draw route segments that have as great a separation as possible while drawing route segments.

MR. TOYNE: I understand how that applies to other aspects of the process, but I'm just asking about it at this stage, for the generation of alternative corridors, whether Manitoba Hydro gave consideration to a larger buffer around occupied homes than 50 metres. And

the sense I get from your answer is no.

MR. MATTHEWSON: No, we did not.

MR. TOYNE: Okay.

This might be a more technical question to start, and then we will end up back with Manitoba Hydro. Would there be any technical impediments to putting some sort of a buffer like this around entire communities, as opposed to just individual buildings?

MR. GLASGOW: There could be a technical impediment. If areas of least preference are too large, there may not be a corridor that connects Point A to B.

MR. TOYNE: Right. So when I say "technical," I meant in the -- you know, like the computer sense. So there is nothing that stops you --

MR. GLASGOW: Yes. It could be a failure in the process if you don't have an area that connects the start point for the end point, so that could be a technical impediment, yes.

MR. TOYNE: Stick with me with this quasi-hypothetical for a minute.

If Manitoba Hydro had done some sort of a buffer around communities in this particular

part of the province, do you know if that sort of a failure that you just referred to might have taken place?

MR. GLASGOW: I don't know.

MR. TOYNE: Okay. And I assume I know the answer to this question, but I'll ask anyways: Did Manitoba Hydro give any thoughts to putting some sort of a buffer around communities, as opposed to just buildings, for the purposes of generating alternative corridors?

MR. GLASGOW: So we try to model communities with building density. And so there is a layer that the stakeholders were able to weigh and value, called building density. And that's the way that we model communities.

You know, in the past, when we were developing this methodology, there is several different definitions of a community. Maybe it is a municipal boundary, or maybe it is -- maybe there is not a municipal boundary; maybe it is a cluster of buildings.

So our point was to have an objective method for identifying communities, and we used building density as that measure.

MR. TOYNE: And is building density an

area of least preference?

MR. GLASGOW: Building density is a measure of building density across the entire study area, with the idea being the areas that are more dense are less suitable, and the areas that are less dense are more suitable, with -- considering that layer only.

MR. TOYNE: So the answer to my question is no; building density is not an area of least preference?

MR. GLASGOW: Building density is not on the list of areas of least preference in the alternate corridor model.

MR. TOYNE: The question that I was attempting to ask is whether or not Manitoba Hydro considered putting some sort of a buffer around individual communities. And I take your point that there might be different ways to decide what a community is, whether it is a municipal boundary or something else.

I take it that Manitoba Hydro didn't even get to that point, because that wasn't even an option they were prepared to consider; is that a fair statement?

MS. BRATLAND: I just wanted to point

out that under building density, an area with more than ten buildings per acre was given a suitability of 9, which is the next closest thing to an area of least preference. So I would say that's a relatively close consideration to an area of least preference.

MR. GLASGOW: In addition, land uses considered in the built environment, such as residential land use, and that's also valued by the stakeholders.

MR. TOYNE: And the factors that you are referring to, those are criteria that aren't areas of least preference, but you are raising them because they are, in your view, close to an area of least preference? Is that a fair statement?

MR. GLASGOW: It was the external stakeholders that participated in this workshop that created the values in this model. So it is not necessarily our view. But as facilitators of that workshop, we can say that that's how those stakeholders chose to model those areas.

MR. TOYNE: And when we are talking about stakeholders, those are the technical knowledge holders with the data sets that you

recommended be invited?

MR. GLASGOW: Yes.

MR. TOYNE: Do you think you might have got a different set of areas of least preference if you had broadened the scope of the people that you actually spoke to? Say, actually spoke to some of the people who lived in the communities where this line might go?

MR. GLASGOW: We typically develop an alternate corridor model -- it is not project-specific; more of a regional-specific. Because we find that we get more objective input when we are not talking about a specific project, or someone's specific backyard; we are talking more of a regional -- in general, where the area is more suitable for transmission lines.

MR. TOYNE: So it is easier to ignore specific concerns if you don't ask for them? At least on a regional basis?

MS. BRATLAND: We invited regional information holders.

One thing I would like to point out is that one of those regional participants were regional planners, who understand the level of community development and plans for community

development in different regions. We also invited the Association of Manitoba Municipalities, who were unable to attend.

MR. TOYNE: I will make another suggestion; I suspect I know the answer.

If the buffer around buildings was larger than just 50 metres, or if there was some sort of a buffer around communities, would you agree with me that a lot of the concerns that have been expressed by landowners throughout all of the different rounds of engagement would largely have been taken care of at the outset of this process? Would you agree with that?

MS. BRATLAND: No, I would not.

MR. TOYNE: And then just to go back to a point that Mr. Glasgow had made earlier; conceptually, some of these areas of least preference continued to have a fairly strong impact on the routing process going forward, while others can have a progressively weaker impact as they go forward. Is that a fair statement?

MR. GLASGOW: Conceptually, if these areas of least preference are avoided in the beginning phases, they are probably not considered as much if they are no longer in play. But if

they are, then certainly they would be considered.

MR. TOYNE: All right. And is it fair to say that some of the -- or, for example, the area of least preference that relates to buildings, as the process went on, that was one of those areas of least preference that no longer had the same sort of impact as it would have during the alternative corridor generation process?

MR. MATTHEWSON: I would say it had a greater impact during route planning than the alternative corridor model -- process.

MR. TOYNE: Just to make sure I understand that, so in the alternative corridor process, buildings are areas of least preference -- and I think in a couple of the IRs, there is a use of a phrase, a "no-go area"? Is that another way to describe areas of least preference? Or am I mixing up --

MR. MATTHEWSON: Manitoba Hydro doesn't refer to them as "no-go areas". We refer to them as areas of least preference.

MR. TOYNE: Okay. So at the alternative corridor stage, buildings are areas of least preference; those are not areas that are considered for routing purposes. But once we are

into the alternative route generation and evaluation process, that's no longer the case, and they are considered as potentials for routing purposes. Is that a fair statement?

MR. MATTHEWSON: So when route planning, certainly the areas of least preference are a large factor in drawing route segments. However, as we move forward, there are more effects identified, and trade-offs that are identified on the landscape, as we get more and more information through the public engagement and the First Nation-Metis consultation process.

So that's why they are not considered a strict no-go area, for the purposes of routing. As our siting principles state, we are trying to avoid and limit the effects on residences and buildings as much as possible.

MR. TOYNE: Right. I thought that you had just said that the building area of least preference was even more important going forward in the process; is that not true?

MR. MATTHEWSON: Well, it becomes more important in -- not necessarily the exact footprint of that area of least preference, but it now becomes into the proximity. We are trying to

route lines that are -- we are trying to reduce the proximity to those buildings and areas of least preference as much as possible, avoiding those higher-density residential areas, where feasible.

MR. TOYNE: All right. I must be confused by something else you said, then.

Can you pull up Slide 20. This is the one that has the alternative route evaluation on it. It must be the other Slide 20. Sorry, my bad. That one is not on the list; I apologize.

MS. BRATLAND: Was it a visual? Or a --

MR. TOYNE: It would be on the screen that's currently dark.

MS. BRATLAND: Are you referring to the alternative route evaluation model? If you just give us a little more -- we can pull up the right thing.

MR. TOYNE: Yeah, it should be -- yeah, because -- it has a number 20 down on the bottom right corner.

MS. BRATLAND: What does it display on the slide, so we can navigate to it?

MR. TOYNE: That's the one that has

the different percentage numbers.

MS. BRATLAND: That's the alternative route evaluation model.

MR. TOYNE: Sorry, it has a number 20 on the handout.

MS. BRATLAND: Is that it?

MR. TOYNE: Yes.

In the alternative corridor model, as I understand it, that first criteria, the relocated residence within the right-of-way, that's represented by the buildings area of least preference. So that criteria in the corridor part of the model is a no-go area; but then once we are into the alternative route evaluation model, it is less than one-third of -- one-third of the criteria that are considered. Is that a fair statement, or is my math off?

MR. GLASGOW: These models have different uses in the methodology. If you recall the funnel, and the way we talked about how we start out with a wide area, and we use a certain level of detailed data, and as we work down through the funnel and the area gets more focused, we collect more detailed data.

So the corridor model is used to

identify the entire study area and identify general corridors that are suitable for alternate route development. This model is used to evaluate specific routes that have been identified by routing professionals, and it is used to score those routes and compare the routes to one another.

So you are kind of comparing apples to oranges when you compare the different models. I just wanted you to understand how the models were used in the methodology.

MR. TOYNE: Just so I'm clear, in the first model, the corridor model, residences within the right-of-way are sufficiently important that they are an area of least preference. And when we switch fruits, we are then into the routing model; residences within the right-of-way are now significantly less important?

MR. GLASGOW: Actually, in the alternate route evaluation model, I believe they're the most important thing within the built environment, at -- is it 27 per cent?

MR. TOYNE: 27.1.

MR. GLASGOW: Is there anything that has a higher number in the built environment?

MR. TOYNE: In the first model that Manitoba Hydro used, that criteria was actually at 43.4 per cent; but then at one of the stakeholder workshops we heard about, they slashed it to 27.1. So it did drop.

MR. GLASGOW: To answer your question, it is the most important criteria in the built model.

MR. TOYNE: And the built model at this stage, is it still representing at one-third, one-third, one-third?

MR. GLASGOW: We used a model with four different emphasis. One has placed five times emphasis on the built environment; the other places five times emphasis on the natural environment.

MR. TOYNE: Right. Sorry, you did say that. So in the simple average score, the built perspective would represent a one-third interest?

MR. GLASGOW: That's correct.

MR. TOYNE: Okay. All right.

So if we could go back to the alternative route corridor model, the apple that you were talking about a minute or two ago. My understanding is that there is 132 different

factors that were considered across the three perspectives: 27 engineering factors, 46 natural, and 59 built.

I don't know if any of you've added those up; I also don't know if the way I did it was accurate, but does that sound at least right, that there is in excess of 100 factors that were taken into account across the three perspectives?

MS. BRATLAND: We will go with what you say, subject to check.

MR. TOYNE: Okay.

This is what I think is a conceptual question, so perhaps this is something that Mr. Glasgow can answer.

If my math is right -- let's say we are at 132 factors -- isn't that -- by taking that many factors into account, aren't you diluting the impact or the importance of a lot of those factors?

MR. GLASGOW: This model was developed with input from external stakeholders, and they identified the siting criteria and the relative importance and relative suitability of the siting criteria.

With that said, specific to buildings,

I will list the factors that deal with buildings. There is proximity to buildings, building density, land use, and residential viewpoints. To the extent that they are historic buildings, they are listed in several different layers. And then of course there is the physical constraint of the building.

So I would say, you know, buildings are pretty prominent throughout the model, and they are not just one of 130 factors.

MR. TOYNE: Right. I got that when I painstakingly counted and recounted and counted for a third time to make sure I was close to the total.

I guess maybe another way to ask it is, do you ever get to a point where there is too many factors being taken into account in one of these perspectives? Like, if 59 is not too many, is there some number that is too many?

MR. GLASGOW: With the alternate corridor model, we seek to model the input from the stakeholders, and so we don't have an artificial limit. What is important is the weight that is placed on each of the features.

For example, proposed development

within the built model -- and for those of you that aren't looking at, we are using Table 5-3 in the Environmental Impact Assessment. They can't really read it up there, but --

MR. TOYNE: You are lucky Gaile is not here.

MR. GLASGOW: So the weights represent the relative importance. So if you look within the built model, proximity to buildings gets 10 per cent; building density gets 15 per cent. There's 25 per cent to buildings already. So that's a quarter of the built model; that's before we consider the 16 per cent lane use controls, which is considered residential land use, proximity to historic sites, landscape character.

So the weights are the way the stakeholders give more emphasis to some factors; and those factors that may not be as important, such as proposed developments, would get less emphasis. That is the mechanism by which this model controls the large number of factors in the model.

MR. TOYNE: All right. Just to go back to the point you made a minute ago, there may not be an artificial limit that gets set; is there

an optimal number?

And I'll tell you why I'm asking. In the Bipole III report, the predecessor Commission was critical of Manitoba Hydro for using -- what was it, 23 or 28 criteria? And now we have blown by that by several multiples.

So is there an optimal number here, or is literally the sky the limit?

MR. GLASGOW: I would say this model is representative of an optimal number, based on the input we received from the stakeholders and the data that was available.

MR. TOYNE: When we are using "stakeholders" at this point, we are talking about the stakeholders who both had the technical data and actually got the invitation to attend?

MR. GLASGOW: That's the stakeholders that I'm referring to.

MR. TOYNE: Right. All right. And then all of those criteria -- and this builds on a point you made earlier -- are used to generate suitability services, and those suitability services are then used to generate composite corridors?

MR. GLASGOW: That's correct.

MR. TOYNE: And one of the questions I had, there is a reference in the EIS to the top three of all potential corridors, or the top three of all potential routes, as it relates to these composite corridors. I'm wondering if you can just explain that from the conceptual or theoretical perspective.

MR. GLASGOW: Please repeat the question.

MR. TOYNE: Sorry.

So there is a reference in the EIS to these corridors somehow representing or being connected to the top 3 per cent of optimal paths. It is on page 5-22 of the EIS.

MR. GLASGOW: Yes.

MR. TOYNE: I wonder if you can explain that in more detail.

MR. GLASGOW: The routing algorithm that is used to evaluate the suitability services that are based on this model consider every possible route to get from Point A to B, and basically theoretically scores the routes, based on the relative suitability for a new corridor.

So we look at the top 3 per cent, based on this model, and we form a corridor.

Okay? So the top 3 per cent of paths to get from Point A to B forms a corridor. And so the way we get from this model to, say, the built corridor, is we model built factors with five times more emphasis than other factors. We run the algorithm, and it identifies the corridor that basically models the built preferences.

MR. TOYNE: All right. So this next series of questions, I think, bridges the corridor part of the model into the route part of the model. So when the different route segments that Mr. Matthewson was talking about being drawn earlier, when they are being drawn, they are being drawn within these composite corridors that were identified; is that right?

MR. MATTHEWSON: They are being guided by the composite corridors. There are times when we have to go outside of those corridors to avoid a feature like dense urban development.

MR. TOYNE: Right. Okay. So the composite corridors have a pretty significant effect on where those route segments are drawn, but they're not dispositive; right? So if a route might go just a little bit outside of a composite corridor, that's not a disqualifying feature?

MR. MATTHEWSON: Correct.

MR. TOYNE: When we're talking about the corridors, at least on the maps I've seen, it is not as if they are being painted with a paintbrush; there is all sorts of gaps -- or at least they look like they're gaps to me -- in those corridors.

So those route segments, when they're being drawn in the corridors, you try to respect where those gaps are, but you may not be able to; is that a fair statement?

MR. MATTHEWSON: Yes.

MR. TOYNE: So we could then move into what I understand is Step 3 of the process, when you are actually determining the preferred border crossing in Round 1.

Once these corridors have been identified, then there is people who draw these different routes that Mr. Matthewson was referring to, and eventually, when they are put through the computer, I think the number is in excess of three-quarters of a million potential routes were identified.

How big or how small of a difference in a path from Point A to Point B was required

before you consider it to be a separate route?

MR. GLASGOW: A different combination of segments was a different route. So a route is a combination of segments that get between the termination points.

MR. TOYNE: So when we are talking about routes, at this point we are talking about them at a fairly high level; there were -- what, 87 routes that were originally drawn, and then we got up into the mid-100-teens for the mitigative segments? So those 750,000 we're talking about are variations connecting those 114, 115, 116 route segments?

MR. MATTHEWSON: Yes, that is correct.

MR. TOYNE: And if I remember correctly from your PowerPoint presentation, and I think at this point you had switched to the green laser pointer from the pink or the purple one, the route that you had shown, it went one direction, it went backwards, it went up, it went down, it went all over the place; it wasn't even close to what I would call a viable route.

And my understanding is that virtually all of those 750,000 routes that were generated were similarly garbage routes. Is that fair to

say?

MR. GLASGOW: Yes. So we are seeking to use an objective process to go from every possible combination of segments, which was approximately 750,000, to a reasonable set of alternatives for us to consider.

And so, yes, we tried to eliminate those routes that were not reasonable, using a systematic process.

MR. TOYNE: All right. And one of the ways that that was done was the -- and I apologize if I stumble over describing it in the technically accurate way -- reducing the number of routes with reference to route length. So any route that was 120 times longer than the shortest of those quarter of a million or three-quarters of a million potential routes, they were eliminated; is that one of the ways that you start to narrow it down?

MR. GLASGOW: I think it would be 120 per cent. Not 120 times, but --

MR. TOYNE: Did I say 120 times? Sorry, yes.

MR. GLASGOW: Yes.

But generally, what we are trying to

do is we're trying to come up with an objective method to eliminate these unreasonable segment combinations which one could call routes.

So we used 120 per cent as a threshold. So we were able to go from 750,000 possibilities to -- like, was it 1,500? 15,000 possibilities. So that was a significant -- and again, we could have done that manually, subjectively, but we were trying to use an objective method to do that, a quantitative method.

MS. BRATLAND: I will just refer you to SSC IR 089, which talks about the 120 per cent.

MR. TOYNE: If we could pull up right -- Slide 20. I hope this is the right one. Sorry, on the other screen. Yes, that is the one. All right.

So once we've started to eliminate a lot of routes that are generated, these are the criteria that are applied to determine which of those 15,000 or 6,500 routes are going to advance into the preference determination model?

MS. BRATLAND: As I noted in my presentation, the criteria are one tool that are used by the team in terms of screening forward

routes for further consideration.

So the emphasis of five times preference will give you a built score. We use statistics to understand which of those routes in the top percentiles from each perspective, and then consider information about trade-offs, other important mitigations and concerns when screening forward.

MR. TOYNE: Right. So if we could just talk about this for a second, because I think accurate terminology is important.

When you say "screen forward", what I hear is "not eliminate". Is that an accurate way to explain the phrase that Manitoba Hydro has now started to use?

MS. BRATLAND: I believe I've consistently used the term "screen forward", and yes, you could also consider that as not eliminating.

MR. TOYNE: Okay.

MS. BRATLAND: The project team, though, as I indicated, in those workshops, at all steps, reviews visually what the results are of these decisions. So we do put consideration into what is lost and what is eliminated.

MR. TOYNE: So when you say "screen forward", it is also appropriate to say "not eliminated"?

MS. BRATLAND: I think it is better if we consistently use the terminology "screen forward".

MR. TOYNE: Right, and we all understand why you think that.

The 750,000 potential routes, they are examined, and a subset of them are screened forward, I guess, and then these are the criteria that are used to determine which ones will then be screened forward a second time?

MS. BRATLAND: The criteria and statistics are one consideration when we look at what routes to screen forward, as I indicated in my presentation and in my previous response.

MR. TOYNE: All right.

Now, we heard a bit yesterday about some of the feedback that Mr. Joyal and his team had received about the importance of, in particular, the first three criteria up there in the built perspective. And just to confirm this with this panel, after receiving all of that feedback about how important those criteria were,

Manitoba Hydro reduced their statistical significance in the alternative route evaluation model?

MS. BRATLAND: As Mr. Matthewson noted in his presentation and Mr. Joyal noted yesterday, for each project, the alternative route model is calibrated with consideration of the feedback we receive and the types of decisions that we need to be making in that region under consideration.

The criteria here represent the feedback we received on this project. One of the new criteria that had to be represented was breaking out land use -- agricultural land use into two criteria; that was based on feedback from stakeholders.

We also understood the importance of proposed developments within the area. We highlighted for you earlier the discussion around the fact that there are many proposed developments that are actively under construction in some cases, with noting new basements and what-not, as we do our field tours.

So the criteria were adjusted to reflect the fact that those proposed developments were a key concern that we heard in the area, as

well as to better reflect that agricultural criteria.

So it wasn't really about -- we didn't try to reflect a very high concern by knocking it down; we needed to make room in this perspective for additional consideration for those other things.

MR. TOYNE: So to go back earlier to the questions that I had about areas of least preference. So if the concerns reflected in the building area of least preference, and the buffer concern, if they had been carried forward into this particular model, and if buildings and buffers around buildings -- and even that buffer around communities that I had talked to -- were applied, would it have been possible to remove those top three criteria? Because you wouldn't be putting -- you wouldn't be contemplating putting a line in those areas, and you then would have had more room to work with those other new and important criteria that you just referred to?

MS. BRATLAND: I would just like to remind everyone that this is the alternate route evaluation model. Those other models are for planning purposes, and serve a different role in

this process.

The problem, conceptually, that I believe you would run into if you buffer things like buildings and residences in an area with a fair bit of development and residential development on one end, is that ultimately you could force yourself into undeveloped areas. And we wanted to be able to develop routes that could include different trade-offs of land uses, including fairly undeveloped areas with more natural features, as well as more developed areas with agriculture and some proximity to homes.

This still reflects the fact that residences and agriculture are key concerns, and that was carried forward into the evaluation.

MR. TOYNE: Maybe this is more of a conceptual question, then, for Mr. Glasgow.

So if residences, and potentially even communities, were considered no-go for the purposes of the alternative route evaluation model, would that conceptually present a problem with running the numbers, running the criteria, from a technical perspective?

MR. GLASGOW: Buildings are considered areas of least preference in an alternate corridor

model.

MR. TOYNE: Right. If we carried through that heightened concern for buildings in the corridor model into the alternate route evaluation model, from a technical perspective, would the model still work if those top three criteria -- relocated residences, potential relocated residences, proximity to residences -- if they were simply no-go areas?

MR. GLASGOW: This model is used to evaluate routes that have been identified by a siting expert. I couldn't imagine evaluating routes without considering buildings. So buildings are in here, and it is the most important criteria.

MR. TOYNE: I will try to ask it a different way, and I apologize that my questions seem to be confusing.

So right now, in the alternate route evaluation model, the people that Mr. Matthewson referred to that are drawing routes, they can draw the right-of-way over somebody's residence?

MR. GLASGOW: Yes, based on their expert judgment, considering all the factors in the area. If they choose to do so, there is

probably going to be a very good reason to do so.

MR. TOYNE: You would certainly hope there is a very good reason to do so. But the question that I've got then is, right now, the model allows routes to be drawn over top of residences, or within 100 metres of residences, or within 400 metres of residences.

The question I'm trying to ask -- and I guess I'm struggling a bit -- is, if you took those three options off the table, so that routes couldn't be drawn over a house, or within 100 metres of a house, or within 400 metres of a house, technically, the model can still function. Is that a fair statement?

MR. GLASGOW: It may not be possible to draw routes, alternative routes that connect your end points with those more constrained criteria that you mentioned, within 400 metres of a house. I've never seen a project that didn't have at least one house within 400 metres.

MR. TOYNE: All right. So why don't we leave that one in there. So if we just took the first two out, technically speaking, the model would still function. So if you couldn't have a route that went over a house, and if you couldn't

have a right-of-way that was within 100 metres of a residence.

MR. GLASGOW: Yes, it is possible to build a project without relocating a residence, if that's what you are asking.

MR. TOYNE: I guess that's part of what I'm asking. What I'm trying to get at is if those first two criteria in built were simply no-go areas, where Mr. Matthewson's route drawers couldn't put a route, would the model still function?

MR. GLASGOW: It depends on the project. I can't say for certain that the model would still function in this area if we eliminated all options within 100 metres of a residence.

MR. TOYNE: I think this is maybe another more conceptual question for Mr. Glasgow.

So if we did take out those first two criteria, would those be considered some sort of external constraint that dictates where routes can or can't be drawn, similar, say, to the discretionary buffer that Manitoba Hydro has talked about that deals with some but not all tornado impacts on transmission lines?

MR. GLASGOW: Sorry, if a constraint

was added, would it be an external constraint? Is that what you are asking me?

MR. TOYNE: I guess. Maybe a different way to ask it is, how does this particular model interact with other external constraints that are placed on the individuals that are drawing the routes?

MR. GLASGOW: I think, when the individuals draw the routes, Mr. Matthewson demonstrated the objective to avoid, minimize, mitigate, I believe.

MR. TOYNE: So maybe if we can go down to the engineering criteria, so you will see the second one there says "Index of proximity to existing 500-kilovolt lines."

All right. As I understood it from the presentation, that particular criteria represents the proximity to existing 500-kilovolt lines, to the extent that the route that's been drawn is outside the 10-kilometre buffer that's been imposed by Manitoba Hydro system planners.

Or did I misunderstand that too?

MS. BRATLAND: You misunderstood that. That is a measure of how long a route is within a proximity. You can picture a heat map, so if you

are closer for longer, it is worse.

So it was a consideration of a relative measure.

MR. TOYNE: All right. So then when the segments were being drawn so that they could be evaluated under this model, the 10-kilometre buffer wasn't being taken into account.

MR. MATTHEWSON: The 10-kilometre buffer was taken into account only during the routes that were used for Round 1. Any subsequent routes after that, we are looking at drawing routes in proximity to that 500 line. And we actually had routes that went through evaluation that were right adjacent to the 500 line.

MR. TOYNE: So just so I've got it. So we're in Round 1; we're about to start drawing routes. The routes that are going to be drawn, for Round 1 purposes, will respect the 10-kilometre buffer. Right?

MR. MATTHEWSON: Yes, that's correct.

MR. TOYNE: Okay. Now, the routes that respect the 10-kilometre buffer will then be evaluated on this particular model, and one of the criteria that they are evaluated on is the index of proximity to existing 500-kV lines?

MR. MATTHEWSON: Yes, the routes that were drawn that respected the 10-kilometre buffer were evaluated using the proximity index -- the proximity of the 500-kV lines. And the routes that were drawn within the 10-kilometre buffer, which were the mitigative segments, were also evaluated in the same manner.

MR. TOYNE: Right. I guess, then, conceptually, what I'm suggesting be done for residences at this stage was done for existing 500-kilovolt lines. Is that a fair statement?

MS. BRATLAND: Can you please outline for us conceptually what exactly you are suggesting, just so we can give you an accurate response?

MR. TOYNE: All right. So from the engineering perspective, there is a 10-kilometre buffer constraint on the drawing of routes. Routes are drawn that respect that 10-kilometre buffer and then they are also assessed on their proximity to the 500-kilovolt line.

The question is, is -- that also could have been done for the relocated residences, so that could have been an external constraint that was imposed, just like the 10-kilometre buffer for

the lines, and then the proximity criteria there could have still been applied.

MS. BRATLAND: I want to again point to the fact that we have two different tools and two different steps that we are talking about here. When we talk about constraints, areas of least preference, those are considerations for the route planning team. This is an evaluation model, that helps the team look at these criteria and weigh the strengths and weaknesses of routes and measure how well they perform against each of these criteria.

So as much as a 10-kilometre buffer was an initial constraint that was ultimately relaxed, and mitigative routes were drawn within that buffer, it was still very important to measure the index of proximity to existing 500-kilovolt lines, as there is not only that 500-kilovolt line in the study area, but also Bipole III, which is under construction.

Similarly with homes, as much as we tried to avoid homes, the proximity to residences was variable, depending on what route segments were planned. It was important to measure how well any given route performed against that

criteria to inform our decision-making associated with that.

MR. TOYNE: So maybe another way to ask it, because I think I might still be struggling either to get the question out or to get the answer I'm looking for: The relocated residences, and the potential relocated residences, those could have been treated the same as the 10-kilometre buffer, for the purposes of drawing routes during Round 1; is that a fair statement?

MR. GLASGOW: I think they probably were treated very similarly. You probably do have some routes that are within 10 miles of a 500-kV line -- excuse me; 10 kilometres of a 500-kV line in Round 1, even though we are trying not to have routes within there.

Similarly, you probably had some routes that were within 100 metres of a residence, even though we are trying not to have routes there.

So what this model is used for is to score and evaluate routes that have been identified.

MR. TOYNE: So the 10-kilometre buffer

that we heard a lot about, and all of the rationale for it, for the purposes of drawing routes during Round 1, it was only partially respected? Is that what you were trying to say, Mr. Glasgow?

MR. MATTHEWSON: Yes. The routes that were planned for Round 1, as found on Map 5-11, there are routes that were drawn that did not respect the 10-kilometre buffer entirely. Those were in areas where there was ease of access, paralleling opportunities, and we were encroaching it. We were still 8 to 10 kilometres away; there was still adequate separation -- or there was still separation. Trying to honour that. But due to other constraints, we did have to infringe on that 10 kilometres when initial route planning.

MR. TOYNE: So everything we heard earlier in the week about how important this 10-kilometre buffer is, how it's mandatory, that wasn't even respected by the people at Manitoba Hydro drawing these route segments?

MR. MATTHEWSON: As Mr. Swatek recognized, when we drew those route segments in the north/south orientation, for those short lengths, that we were within the 10 kilometres.

These routes were all evaluated by the system planners before they went into route planning, and they felt that because of the short distance -- we were within the 10 kilometres -- it was acceptable and measured risk.

MR. TOYNE: So then the buffer that we've heard about, it is really a discretionary soft buffer; it is not actually a hard buffer that really governs, regardless?

MS. BRATLAND: I'm just going to jump in to build on Mr. Matthewson's response there.

The technical constraint provided by the system planners, just like the constraint about proximity to homes, is one of the many concerns that we have to balance. It is a very important constraint. And you can imagine the dynamic in a room, when we are sitting with the engineers, and we are saying, "We really need to be able to violate this buffer, so we can get further away from homes," because that's also a very important concern.

So that element that those route planners worked into the trade-offs that could be evaluated was within full consideration of the potential risk that would have to be accepted

should those routes go forward. And the fact that there was an index of proximity measure, to be able to evaluate that reliability concern, was also a very important consideration.

MR. TOYNE: All right. So is the -- what was previously been referred to as a buffer, is that, for the purposes of Round 1 routes, is that wholly reflected in index of proximity to existing 500-kilovolt lines? Or is it an external constraint on where those lines are being drawn?

MS. BRATLAND: I believe it is both. It is a consideration in planning and a consideration in evaluation.

MR. TOYNE: All right. And since we are approaching the end of the day, I just want to make sure I've got this, so that I can, I guess, move on in the morning.

The external constraint aspect of that buffer, a similar external constraint could have been placed on the drawing of route segments with respect to the first two criteria under the built category?

MR. GLASGOW: I would say it is very similar, in that we are trying to stay further away from the 500-kV line for reliability

purposes. When identifying routes, we are trying to stay further away from residences, to avoid -- to minimize impacts. So they were treated in a similar fashion.

MR. TOYNE: All right. So for the purposes of drawing routes at this stage, you could have a buffer of a certain distance from a power line, and you could also have a buffer that's a certain distance from a house. Manitoba Hydro chose to have a buffer from a power line, but did not choose to have a buffer from residences? Is that an accurate statement, given everything that we've just heard?

MR. MATTHEWSON: No.

MR. TOYNE: All right. So then if there was a buffer on relocated residences, would you still need to have it as one of the built criteria?

It strikes me as very strange that you would give 27 per cent weighting to something that simply couldn't happen if it was an external constraint.

MS. BRATLAND: I believe in my previous response I pointed out the fact that it is important to evaluate these routes with these

considerations as when developing the routes, because of the types and different land uses in the area. Route options are developed that have different elements of these considerations, with residences being one very important consideration. And reliability considerations, from the existing 500, also an important consideration in planning and evaluating routes.

MR. TOYNE: All right. I think I may have figured out how to finally get us off and onto something else.

So, Mr. Matthewson, when the individuals drawing the routes during Round 1, it would have been possible for them to draw routes that fully respected the 10-kilometre buffer from pre-existing 500-kilovolt lines; is that a fair statement?

MR. MATTHEWSON: Yes, it would have been possible, but there would have been less segments to consider.

MR. TOYNE: Right. I appreciate that, so we can get into the potential impacts of that.

So it would be possible for routes to be drawn that respected the 10-kilometre buffer; it also would have been possible for routes to be

drawn that avoided having residences located within the right-of-way. Is that correct?

MR. MATTHEWSON: Yes.

MR. TOYNE: And it also would have been possible to draw routes that not only had no residences located within the right-of-way, but also had no residences within 100 metres of the edge of the right-of-way. Correct?

MR. MATTHEWSON: It would be possible to do if you were just taking that as one consideration in route planning. There are a whole variety of other landscape features on the landscape which would constrain that possibility.

MR. TOYNE: Right. So it is a technical possibility, and there may be reasons why Hydro wouldn't want to pursue it?

MR. MATTHEWSON: No, there are other effects that would be -- there are other potential effects that may be affected -- sorry, considered when route planning. If we were to increase our avoidance of homes, it forces us to have a larger effect on some other feature, potentially.

MR. TOYNE: Right. But technically, it would have been possible for the people drawing the routes to completely avoid relocated

residences and residences within 100 metres?

MR. MATTHEWSON: We are not sure on the possibility of that, for us to be able to join the segments from the start points we have to the border crossings that we have, if that would be feasible.

MR. TOYNE: All right.

Mr. Chair, I see it is 4:30, and your mic is flashing. But there's no feedback yet, so ...

THE CHAIRMAN: I think we will end it there, then, unless you have one short question. But otherwise we are going to end it there and start in the morning.

MR. TOYNE: Thank you.

THE CHAIRMAN: We will see you all at 9:30 tomorrow morning.

Are there any documents to file?

MS. JOHNSON: Yes, there are.

MH026 will be the first part of the presentation we heard this morning. 027 is the second part. 028 are the meeting notes on SIL. 029 are the undertaking responses. 030 are the informal questions that were replied to. And 031 is the weather study.

(EXHIBIT MH-26: First part of Hydro Routing Presentation)

(EXHIBIT MH-27: Second part of Hydro Routing Presentation)

(EXHIBIT MH-28: Meeting notes on SIL)

(EXHIBIT MH-29: Undertaking responses)

(EXHIBIT MH-30: Informal questions that were replied to)

(EXHIBIT MH-31: Weather study)

(Adjourned at 4:30 p.m.)

OFFICIAL EXAMINER'S CERTIFICATE

Cecelia Reid and Debra Kot, duly appointed Official Examiners in the Province of Manitoba, do hereby certify the foregoing pages are a true and correct transcript of my Stenotype notes as taken by us at the time and place hereinbefore stated, to the best of our skill and ability.

Cecelia Reid

Official Examiner, Q.B.

Debra Kot

Official Examiner Q.B.