IN THE MATTER OF Sections 2 and 3 of the Consolidated Hearings Act, 1981 (S.O. 1981, c.20)

- and -

IN THE MATTER OF Section 12(2) and (3) of the Environmental Assessment Act (R.S.O. 1980, c.140)

- and -

IN THE MATTER OF Sections 6, 7 and 8 of the Expropriations Act (R.S.O. 1980, c.148)

- and -

IN THE MATTER OF an undertaking of Ontario Hydro consisting of the planning of, selection of locations for, acquisition of property rights for, and the design, construction, operation and maintenance of additional bulk electricity system facilities in Eastern Ontario consisting of switching and transformer stations, communications and control facilities, transmission lines and related facilities

C O U N S E L:

Bruce Campbell and Laura Formusa	-	for Ontario Hydro
John Tidball	-	for the Minister of the Environment
Janet Pounder	-	for the Ministry of Energy
Ernest L. McArthur	-	for the Regional Municipality of Ottawa-Carleton
Barbara McIsaac	-	for Her Majesty the Queen in Right of Canada
David Silverson	-	for the City of Kanata
Paul A. Webber	-	for the Township of Goulbourn
James R. Messel	-	for the Canadian Broadcasting Corporation
Douglas B.E. Kelly	-	for Douglas MacDonald Development Corporation and Urbandale Realty Corporation
David H. Chick	-	for Alan Sauve
Dr. Lois K. Smith	-	Agent, on her own behalf

TABLE OF CONTENTS

Table of Contents (continued)

REASONS FOR DECISION

These reasons for decision concern the first hearing in the second or "route stage" of the process adopted for considering the proposed Ontario Hydro undertaking in eastern Ontario.

On September 28, 1982, the Board approved the first stage or "Plan Stage" which set out the study area (M3) in which to select specific transmission and telecommunication routes. On June 29, 1984, the Board deferred hearing with respect to the route from Cornwall to Ottawa (the East Section). This hearing deals firstly with the issues common to the routes to be selected between Ottawa and Cornwall and Ottawa and Lennox G.S. and the selection of a route between Ottawa and Lennox G.S. (the West Section).

ISSUES COMMON TO BOTH ROUTES

Need

At the plan stage the Board heard evidence with respect to the urgent need for these facilities to serve eastern Ontario and found that the facilities were needed. Additional evidence at this hearing reinforces that finding. The 1985 load forecast projects an average annual load growth of 3.1 per cent for the Ottawa area to the year 2000. The January peak loads for 1984 and 1985 exceeded the critical load level, and the January 1985 peak has already surpassed the new load forecast. Unusual methods have had to be invoked to meet these

loads including the raising of towers, static capacitors and load rejection schemes. If new facilities are not installed by the early 1990's, the critical load area will extend over the entire Ottawa Valley area. The first line is required immediately, and will provide 1700 mw necessary to supply the projected load to 1990-91. The second line is required by 1990 to supply the projected load to 1998-99, and the third line by 1999.

The first line will be from Lennox G.S. to Hawthorne T.S. (Ottawa) with the second line location either paralleling this route, or from Hawthorne T.S. to St. Lawrence T.S. (Cornwall). That decision, and the line which will be the third to be constructed, will depend on the status of studies with respect to the interconnection with Quebec. However, even if there is no interconnection with Quebec, all three lines will be required by 1999.

The Ministry of Energy agrees with Hydro's load growth forecast and now supports the installation of two 500 kv lines between Lennox and Ottawa. This is a change from the Ministry position at the plan stage, when only one line was considered necessary. However, because of the present load forecast and the estimated in-service dates, the Ministry now considers Hydro's undertaking consistent with government policy.

The local municipal hydro systems support Hydro's undertaking and emphasize the urgent need in the Ottawa area.

Although there were many participants critical of Hydro's position for the need, none provided the Joint Board with any evidence.

Alternatives

Although it was again suggested, without support, that there were better alternatives, Hydro continues to be of the view that there are no acceptable alternatives to bulk transmission facilities to meet the forecasted need. A review of recent developments with respect to the alternatives of co-generation, biomass and power purchases from Quebec reveals no new developments which would render these alternatives sufficient to be considered acceptable alternatives to bulk transmission.

Telecommunications

Hydro uses microwave radio telecommunications stations approximately 50 km apart and located in loops and independent of the power lines. This is to ensure reliable fast communication of line faults. Alternatives, including power line carriers, fibre optics, leased facilities, shared facilities and satellite facilities were reviewed, but none was found to have the advantages of the microwave radio system. Two alternative microwave systems were evaluated. One, the preferred option, consists of a microwave radial system with power line carrier backup. The other is a microwave ring system with repeater stations. Although this latter system provides the best reliability, the other system is preferred because it is technically acceptable, requires fewer station sites and is the most cost effective alternative.

ROUTE SELECTION - West Section (Lennox G.S. to Hawthorne T.S.)

The plan stage study area for the West section comprises some 4,300 square kilometres. In order to select the ultimate transmission routes and microwave sites, Hydro collected land use and environmental data on a scale of 1:50,000 for computer input on a grid system in cells 500 metres square. Environmental data was organized into nine categories; and thirty-nine specific environmental situations or characteristics within these categories were identified. An objective statement was made for each situation to avoid the particular characteristic.

Maps were prepared for each of the nine factors and presented along with the objective statements to an Advisory Group. This group comprised representatives from Municipal, Provincial and Federal agencies, regional interest groups and other parties having an interest in the study. The Advisory Group was to review Hydro decisions throughout the study, rate the importance of criteria to identify alternative corridors, and act as liaison with their parent organization.

Each situation or objective was rated by each member of the Advisory Group. The ratings had five categories - Low, Moderately-Low, Moderate, High and Very High, with the categories representing the degree of resource value of each situation. Each category was numbered with Low being one and Very High being five. The average value rating for each of the thirty-nine situations was calculated. Hydro performed a similar rating exercise with respect to each of the thirty-nine situations by rating the possible effects of transmission facilities on

each objective. A combined overall rating was then calculated for each objective.

This information was used to produce a constraint map which, by the use of shading, identified areas rated from High to Low constraint. Linear pathways could then be identified through areas of relatively low constraint where transmission corridors could be located.

A diversity map was also produced indicating the number of situations occurring in any area of the study. This map was used to identify edges between single and multiple constraints.

A suitability map was also produced identifying existing transmission facilities and the fabric of the land. This map assisted in defining corridors along existing transmission lines and parallel to the fabric of the land to avoid diagonal severances.

These three maps, along with topographic and factor maps, were used to identify alternative corridors 1500 metres wide and 500 metres wide around existing transmission lines. These preliminary corridors were reviewed by the Advisory Group and, based on their comments and further field study, refinements were made.

Twenty-four municipal participation centres were held to review the corridors. Comments were received and analyzed indicating general support for minimizing new rights-of-way and avoiding areas of human settlement and natural areas. Suggestions by the public were reviewed and in some cases modifications to the corridors were made.

In order to identify alternative routes within the corridors, data was collected and mapped on a scale of 1:15,000. An airborne video survey of the corridors was made. Air photo mosaic base maps showing land use and environmental information were prepared. Those maps, along with topographic maps, property assessment maps, information obtained from the public, municipal planning documents, technical considerations for line and tower location, field inspections and the combined experience and judgment of the Hydro study team, resulted in the selection of seven alternative routes.

All property owners (some 6,000) affected by the routes were sent a map and bulletin and the times and locations of 24 municipal participation centres where citizens could review the alternatives and obtain detailed locational information. As a result of input received at these meetings, Hydro made numerous modifications to the routes.

Routes were evaluated and compared using three criteria: the relative land use and environmental impacts; the cost/technical considerations; and the socio-economic and public involvement considerations. Both quantitative and qualitative evaluations were made. The quantitative data for environmental situations and cost/technical considerations were supplemented by qualitative judgments based on general knowledge of the area and field inspections. The evaluation of socio-economic impact was based on comments received from the public and general knowledge of the area with little quantitative data available on a specific locational basis to assist in the evaluation, although some data was collected on community characteristics, age and income distribution and economic activity. Because some routes shared

common portions, the evaluation was broken into segments or links. The preliminary evaluation resulted in the elimination of three sub-routes with the result that five alternative routes remained for final evaluation. The two more northern routes, Blue and Red, were compared with the Green route, which was preferred. The Green route was then compared with the two southerly routes, the Yellow and the Brown/Orange, with the Yellow route being selected as the preferred route.

The Advisory Group and the public, through 24 municipal participation centres, were presented with the recommended route selection. Suggestions for minor changes were received and considered.

Parks Canada, in support of its opposition to the preferred route, particularly because of its crossing of the Rideau Canal at Jones Falls, submitted evidence criticizing the methodology used by Hydro to select the routes and the preferred route. Two witnesses reviewed their report, Exhibit 223. Their conclusion was that Hydro's methodology is not the most suitable basis for recommending a preferred route. They found that Hydro had

> "...not established a mechanism, a rating, preference or weighting system to resolve conflicts that occur between situations and the net effects...are not well documented, in Volume II, as being evaluated in consideration of the advantages and disadvantages for all of the alternatives."
> (Page 1)

Their review of the methodology leading to the selection of corridors concluded that:

> "Overall, the Corridor step data is adequate for the decisions being made. The data was well organized using the factor, situation and objective format. In the appendix was a comprehensive list of the data and where it

> came from that was used to develop the situations. The objectives include a description, the resource value, possible effects and possible mitigation."
> (Page 10)

The only real criticism is thus with the route step, where the conclusion was that the data was not well organized and documented.

It was the evidence of Hydro that the route step was a review of specific on-site data within the corridors, based on judgment with no relative weighting of data types. A route within the corridor was selected to approximate a right-of-way location. Thus the routes identified were merely a refinement of the corridors. The Board finds it difficult to understand the criticism of this step by Parks Canada witnesses, while at the same time finding the corridor evaluation adequate. The routes are within the corridors and the evaluation for the routes must therefore encompass the evaluation to determine corridors. The Ministry of the Environment, in considering and co-ordinating the government review, supports Hydro's methodology.

Parks Canada witnesses were of the view that the evaluation of alternative routes was confusing. However, it was acknowledged that the evaluation was based on subjective interpretation and that such a technique is a valid approach to complex data. In argument, however, Parks Canada seems to suggest that not only was the criteria used at the corridor stage abandoned, but that only an objective evaluation method could be valid. This does not seem to agree with the evidence of Parks Canada that a subjective evaluation is valid. Further, it was the evidence of Hydro that their evaluation of alternative routes was based not only on the data collected for the corridor step, but on additional data collected. While it is true that all this information

was not combined into a rating system with relative weights, it was the evidence of Hydro that to have done so would require judgments about weights, and they did not consider such a methodology helpful. Rather, they implicitly applied those weights to the situations by their judgment concerning the effects on the situations.

The fact that the result of Hydro's judgment results in the preferred route crossing the Rideau Canal (presumably because of the judgment that to use existing rights-of-way as much as possible was of prime importance, as stated by the public and suggested by the Royal Commission on Electric Power Planning) may be unacceptable to Parks Canada, but this does not invalidate that judgment.

The Board is of the opinion that Hydro's judgments were based on sufficient and detailed information, and that the methodology used to evaluate and compare the alternative routes and select the preferred route was adequate and acceptable.

MICROWAVE SITE SELECTION

Initially two plans were developed to extend the microwave radio system from Hinchinbrooke S.S. to Hawthorne T.S.. Plan I consisted of two repeater stations and Plan II consisted of three. Study areas were selected for each of the repeater stations based on environmental and technical criteria. One study area was common to both plans. Using the data from the route study, environmental constraint maps were produced for each study area. Technical constraint maps were also produced using distance criteria from airports, television or radio

broadcast stations and access to a year-round road. These maps were available at the first municipal participation centres for public input.

Because Plan I had no environmental advantages over Plan II and because of cost and technical considerations, it was eliminated for further study.

In Plan II, one repeater station would be located on Hydro lands at the Smiths Falls T.S., one between Hinchinbrooke S.S. and Smiths Falls T.S., and one between Smiths Falls T.S. and Hawthorne T.S..

The environmental and technical constraint maps for the two study areas were combined to identify alternative sites of low constraint. Additional specific site data was collected and criteria for site selection developed. Eight sites were initially identified in the North Crosby/South Sherbrooke study area, i.e, between Hinchinbrooke S.S. and Smith Falls T.S., and six sites in the Goulbourn/Beckwith study area, i.e., between Smith Falls T.S. and Hawthorne T.S.. Site owners, neighbours and other interested persons were sent information on the alternative sites and invited to attend one of the municipal participation centres where comments were received by Hydro.

Sites W2 and M3 are Hydro's recommended sites, both of which are owned by willing sellers, are vacant lands, have few residences nearby, have low visibility, good access and are the lowest cost.

ALTERNATIVE ROUTES - 500 KV LINES

All of the alternative routes selected for review have a common section from Lennox G.S. to Point A, which is shown on the Eastern Ontario Study West Section Map filed as Exhibit 17. This is a point just west of Glenvale. This portion (Lennox to Point A) is along an existing Hydro right-of-way. All of the proposed alternative routes converge at Point R with the exception of an option O_1Y.

The Blue route is the most northerly route, (A, B, E, F, J, Q, R, Y). From Point A the Blue route continues northerly, following an existing 115 kv right-of-way past Cataraqui T.S. (located just south of Harrowsmith), slightly east of Hartington, and close to but, again, just east of Godfrey, past and just east of Hinchinbrooke S.S., west of Bob's Lake, east of Sharbot Lake to a point north and west of Zealand, just before Bolton Creek. It then angles northeasterly from the 115 kv line to meet with an existing 230 kv line southwest of Almonte, and then, following that line generally easterly, it eventually departs from the 230 kv line south and west of Old Stittsville to take a diagonal swing towards Hazeldean, then it swings easterly again to rejoin the 230 kv line, and then through Bridlewood to join the existing right-of-way through the Stony Swamp at Point R.

The Red route (A, B, E, F, J, K, P, R, Y) follows the Blue route past Hinchinbrooke S.S. on the 230 kv line to a point south of Sharbot Lake. It then angles easterly and crosses the Trans Canada Highway twice, one at the intersection with the Bathurst Township line, and again in Drummond Township just south of Drummond. It passes through

the east end of the Blueberry Marsh but misses a marsh in Beckwith Township. It then proceeds to Point K just west of Prospect.

From there three sub-alternatives proceed to common Point R. The three sub-alternatives are KPP_1R, $KNOO_1P_1RY$, $KNOO_1R$. Alternative KPP_1R was the one finally analyzed. Section OP_1R is also common to the Green, Yellow and Orange/Brown alternatives.

The Green route (A, B, E, G, L_1, M, O, O_1, P_1, R, Y) follows the same direction as the Blue and Red routes on the existing rights-of-way to Point E, which is just south of Hinchinbrooke S.S.. It then proceeds easterly crossing a 230 kv line (running from Hinchinbrooke S.S. past and south of Newborne), then proceeds generally south of Crosby Lake and southeasterly of Pike Lake crossing the Tay River and the canal east of Perth, using the GL_1 alternative to avoid the Tay Marsh. Then it proceeds to Point L (situate on the 115 kv line running from Frontenac T.S. through to Bell's Corners). This 115 kv line generally is used in the Yellow and Orange/Brown routes to Point O, just north and east of Stapleton.

Sub-alternative O_1Y utilizes the 115 kv right-of-way, the most southerly right-of-way in the plan stage area, to the Stony Swamp intersection with other Hydro lines.

Sub-alternative $MNPP_1RY$ jogs westerly from Point M through Stapleton and joins the Yellow preferred route alignment southeast of Stanley Corners.

The Yellow route (A, B, C, D, I, L, M, O_1, P_1, R, Y) is Hydro's preferred route. This follows the existing rights-of-way to Cataraqui T.S.. It then generally follows an easterly route along the north shore of Loughborough Lake close to Leland, south and east of Elbow Lake to Point D situate on the 115 kv line (Frontenac T.S. through to Smiths Falls T.S.), then north and just west of Jones Falls, east of Smiths Falls, crossing the Rideau between Old Sly's and Edmonds locks, then to Point O_1, northeast of Stapleton. This route follows diagonally through Goulbourn Township, and then diagonally through the undeveloped part of the Bridlewood community in Kanata.

The Brown route (A, D) is a link running between Point A, south of Cataraqui T.S. east, which joins the 115 kv line (Frontenac T.S. to Smith Falls T.S.) just north of Mount Chesney and follows that route, east of Sunbury to join the Yellow route at Point D. It then utilizes the same route as the Yellow route into the Ottawa area.

The Orange route follows the Green route to Point G, and intersects and follows an existing 230 kv line (Hinchinbrooke S.S. to south of Newborne) which passes north of Newboro south of Freeland to Point I, intersecting the 115 kv line used by the Yellow and Brown routes and then follows those routes to Ottawa. The Brown and Orange routes were combined for analysis purposes.

The Purple route is the Yellow route to Point C (north of Missouri) then it goes to the Orange route at H, then through to Newboro on the 230 kv line used by the Orange route to Point I, then on the 115 kv line through to and along the same route as the Yellow, Orange and Brown.

The aforementioned routes were those that were set out initially in the environmental assessment documents, Exhibits 137, 138 and 139. As a result of a series of municipal participation centres, after those alternatives were selected, refinements were made by Ontario Hydro, as listed on Pages 416/417 (Exhibit 138).

The Ministry of Energy

The Ministry was in support of the undertaking as being consistent with, and in furtherance of, Government Energy policy. While at the Plan Stage the timing and need for the third 500 kv line was of concern to the Ministry's witnesses, the further evidence of Hydro's forecasters, in the opinion of the Ministry, now supports the need for the three lines by the year 1999.

While no position is taken as to a specific route by the Ministry, the Ministry noted that the preferred route follows and utilizes about 85 km of existing rights-of-way out of a total route length of 139 km which supports the view of the Royal Commission on Electric Power Planning:

> "Ontario Hydro should continue to explore all alternatives that will permit the upgrading of existing transmission facilities and lead to optimizing the use of existing rights-of way."

Hydro's evidence, in the Ministry's opinion, also supports the position that -

> "the taking of lands is fair, sound and reasonably necessary in the achievement of the general and specific purpose of the undertaking."

The Regional Municipality of Ottawa-Carleton

The Region, while not supporting a specific route, reinforced Hydro's evidence as to need for the facilities in light of and supported by the Regional Official Plan policies projecting significant growth for the municipality.

Goulbourn/Kanata

Counsel for the Township of Goulbourn, the City of Kanata, Urbandale Realty Corporation and Douglas MacDonald Development Corporation, provided evidence related not to the general matters, but to the path of the preferred Yellow route through the Township of Goulbourn and through the Bridlewood community in the City of Kanata. They presented alternatives which were analyzed and compared by Hydro. This evidence will be dealt with in Site Specific Concerns. Numerous individuals resident in Goulbourn and Kanata also gave evidence at the Bridlewood Community Centre.

Parks Canada

The position and evidence of Parks Canada was directed at the choice of the preferred route involving the specific crossings of the Rideau Canal near the Jones Falls Lock Station site, and between Old Sly's and Edmonds lock sites as well as the visual impact of the transmission lines along those other portions of the canal up to Ottawa,

from which it might be visible. Their evidence related to the specifics of the two sites and, as well as earlier set out, a challenge to the methodology which selected the alternative routes following the selection of the corridors.

Dr. Lois Smith

Dr. Smith, on her own behalf, was a veritable watchdog as to detail, ensuring that all the relevant and background considerations of a biological nature were elaborated for the Joint Board.

Storrington

The emphasis of participants at Storrington related to the general impact of any line on the environment and on historic buildings and sites, and specifically the preferred Yellow route as it passes close to Loughborough Lake. Their evidence was critical of the impact on the view shed of the lake and thereby on the recreational and tourist aspects of the area surrounding Loughborough Lake.

The Minister of the Environment

Counsel, on behalf of the Minister of the Environment, advised at the commencement of the hearing that he did not intend to call any evidence or witnesses and did not intend to cross-examine any witnesses called on behalf of any party. The same counsel advised that the hearing would be audited on behalf of the Minister generally and that he would be prepared at any time to respond to any issues that might come up during the proceedings.

This submission was based upon the Ministry's review and discussions, negotiations and consultation with representatives of Ontario Hydro with respect to the environmental assessment documents and other submissions. In this regard the Minister filed as Exhibit 140 the review of the environmental assessment. The conclusion in part, quoting from that document under Section 3.6, is as follows:

> 3.6 Conclusions on Scope of Inquiry and Method of Analysis
>
> "On the basis of a thorough evaluation of the EA document (as discussed in the preceding section), the EA Branch concludes that in selecting the proposed route for the transmission facilities and the sites for the telecommunications facilities, Ontario Hydro has considered all the components of an environmental assessment which the Branch interprets as required by section 5(3) of the EA Act, and all of the components of the environment as defined in section 1(c) of the Act. The method of analysis considers the advantages and disadvantages of the net effects of the alternatives on the environment. The selection of the preferred alternative resulted from a process of successively narrowing down options until the best alternative was left. Thus, the scope of inquiry and method of analysis are considered to be satisfactory."

In the general review by various ministries represented on the Government Review team, the following quotation is found under Section 5.2:

> 5.2 Technical Quality and the Level of Detail
>
> "In terms of the selection of routes for transmission facilities and sites for telecommunications facilities, most of the government review team expressed no concern over the technical quality of the material or the level of detail in which their concerns were addressed. There were, however, some disagreements with the conclusions.

The Ontario Ministry of Tourism and Recreation and Parks Canada did not agree with the final choice of the preferred route.

The remainder of the specific concerns expressed by reviewers dealt with mitigation measures to be employed during the construction and operation of the facilities. Ontario Hydro has held discussions with the Ministry of the Environment to explore possible methods of resolving concerns, and have agreed on the means of resolution. These are outlined in a letter included in Appendix 2. Ontario Hydro has indicated that discussions aimed at resolving conflicts occurred with the Ministry of Citizenship and Culture throughout the planning process."

ROUTE SELECTION

The route selection was accomplished in two stages. The most northerly routes, the Blue, Red and Green were first compared. With two of those (Red and Blue) eliminated, the third was then compared with the two more southerly routes. This stage process was used to avoid undue complexities. We accept the staged process considering that from a review of the various maps there appears to be a commonality of topography of these routes, i.e. the northerly group and then the southerly group.

First Comparisons - Red-Blue-Green

In the most northerly route there is a large common section between A and E. It then becomes a matter of analyzing those routes beyond point E. The quantitative data used in comparing all of the routes with respect to the land use and the environmental factors is set out in Table 6.7 in the Environmental Assessment (Exhibit 138). In terms of agricultural resource in the first comparison, the Green route

was preferred since its impact on agriculture was of an intermittent nature affecting smaller fields, allowing greater opportunity to align towers on fence rows and wood lot edges. For the other two routes (Blue, Red) there is a greater possibility of interference with agricultural land in locating towers in mid field. These routes also have a greater length of agricultural land being crossed and therefore more being taken out of production in terms of the new right-of-way required.

With respect to the appearance of the landscape, the Green and Red routes were about equal. As to the effect on the landscape, on major crests, scenic roads and the number of homes in the view sheds of the lines, the Blue route had the greatest impact especially on the river landscape along its length.

The lowest effects were found on the Green route for the biological resources of sensitive biological areas, forestry, stream crossings and secondary wildlife habitat. It would have the highest effect on the primary wildlife habitat along its length. However, the greatest effects on stream crossings and biological resources in general, and specifically for larger wetlands, were most affected by the Blue and Red routes and made them the worst choices.

The Red route has the lowest effect on maple sugarbush areas and on forest management areas. It would require more forest cutting, especially in younger forest stands. The Blue would have the highest impact on all forestry aspects, as compared with the relatively low effect on maple sugarbush, hardwood forests and overall cutting for the Green route.

The Green route would be second to the Blue alternative in terms of heritage resources. It has the middle impact on the degree of change to the existing landscape and would be second with respect to areas of reported but unsubstantiated archaelogical sites. The Red alternative would have the highest effects on view sheds of historic communities and on potential archeological sites.

The northerly routes impact somewhat similarly in the area of Portland Township. There are homes in that area which would be required to be removed between Harrowsmith and Howes Lake and one of them is a heritage home. Beyond that point, the Green alternative is only slightly preferred over the Red, impacting relatively few homes in the northern part of the study area, although it has a greater impact on farm outbuildings. The Blue route affects the greatest number of residences and farms directly, and one industrial development proposed in West Carleton Township. The Green alternative is the least preferred with respect to mineral resource. It has the highest overall effect on all aspects of those resources. The other two routes had lower overall effects on minerals in general and especially the areas of pits and quarries and of high industrial mineral potential.

For recreational resource, the Red route is preferred, with the Green alternative being second. The Red route was considered to have the least overall effect in terms of view sheds of public parks, for trails and canoe routes, and it managed to avoid all areas associated with the Rideau Canal. The Green alternative had the least effect on view sheds of private camp grounds and cottage lakes. It does cross the Rideau system at the Tay Canal, an area where visual effects would be a minimum. The Blue is considered to have the highest effect on

view sheds, canoe routes, and a high effect on view sheds of public parks and cottage lakes.

Dealing with the socio-economic aspects, the Green route was considered to experience the least economic base change and the least social lifestyle change. It was intermediate in terms of ability to handle the change as compared to the Blue route. For compatibility with the community, because of its large cottage and rural farm and alternative lifestyle communities, the Green route was the least preferred.

The comments provided by the public, from the point of view of following existing rights-of-way, suggest the Blue route, but in terms of impact on homes and buildings, it would be the worst. The Green route has the least impact on agricultural and natural areas but requires the greatest length of new right-of-way.

The Green route was marginally the lowest cost route, and shared with the Red alternative, the lowest overall right-of-way route length and line length. Narrowing in on agriculture, human settlement and length of right-of-way, the Green is preferred for the next level of comparison.

Second Comparisons - Green-Yellow-Brown/Orange

Again, proceeding through the considerations of land use and environmental data in Table 6.7, the agricultural resource section indicates the Brown/Orange combination is the best. Although it crosses a greater quantity of agricultural land, because of consolidations in its greater length of existing rights-of-way, it would

require fewer new towers. There would be slight shiftings in tower footings, but generally the effects would be less than those of the other two alternatives, Yellow and Green. For them the disruption would be manifested by locating multiple towers in agricultural fields.

For the appearance of the landscape, all three would impact the Rideau Canal system. Two would cross that system twice while the Green alternative would be preferred because it would require only one crossing of the Tay Canal. It was considered to have the least intrusion on view sheds of settlements, and will avoid the main Rideau Crossings in the shield landscape. The Brown/Orange was second, in that it would have offsetting effects on many aspects of the appearance of the landscape, again, because of the longer consolidation in the southern end of the study area. It, like the Yellow, would cross Sand Lake and Jones Falls. It would also cross the system in the area of the Village of Newboro and at Smiths Falls. The Yellow, because of the requirement of two lines in parallel across the Rideau Canal on the existing right-of-way, would have the worst impact in this respect.

For the biological and forest resources, the least impact would be that of the Brown/Orange route, again, because of the present impact of the existing right-of-way for its longer length. It will, however, affect the most sensitive biological areas in total in a greater way and impact greater areas of forest management. The Yellow has the second level or medium impact on areas of biological resource and the least effect on maple sugarbush operations. The Green route, while having the lowest effect on sensitive biological areas and stream crossings, would have the highest effects on wildlife habitat, wetlands, maple sugarbushes and total forest cutting requirements.

The heritage resource area would be impacted least by the Yellow alternative. Its degree of effect on view sheds of historic communities would be low, since it already has a line through most or at least the greatest length for long distances between Portland Township and Ottawa. The subjective judgment is made that the degree of change on the environment would be relatively low for the Yellow route, because the impacts are indirect rather than direct. Specific attention directed to the Jones Falls crossing acknowledged indirect impact. The Brown/Orange combination was the least preferred for the heritage resource impact, while the Green was the middle alternative.

There would be higher effects for the Green alternative on reported and potential archaeological sites, and it would change the character of certain historic communities to a greater degree than would the Yellow.

In terms of human settlement the Yellow and the Green were preferred over the Brown/Orange. Neither one significantly differed from the other. The Yellow route has the least removal in terms of residential properties and farm buildings and has the fewest residential and farm buildings in proximity to the line. The Green route would have the same overall effect, but a slightly higher number of permanent residential buildings would be removed, although it would have less home and farm removals than the Brown/Orange, which requires the most removals of homes and farms and has the most buildings in proximity. Advice was given that the Yellow route conforms to all Official Plans along its entire length.

The Yellow alternative is preferred in the area of mineral resources. It avoids all areas of potential industrial, mineral and and geological resources considered to be sensitive. This was followed by the Brown/Orange alternative, which affects slightly more pits and quarry operations, and more potential industrial mineral areas. The Green has the highest effect on sand and gravel extraction operations, and on areas of potential industrial and aggregate resource areas.

The Green route was preferred in respect of recreational resource, having the least effect on view sheds of the canal system, private camp grounds, cottage lakes and canoe routes. It does impact the Tay Canal and the area of the Rideau Valley Conservation Authority property south of Perth, as well as the view shed of a private camp ground at Burridge Lake. The Brown/Orange is slightly preferred over the Yellow, having relatively higher effects on more of the recreational aspects than the Yellow. With the crossings on the Rideau Canal in the vicinity of existing rights-of-way and consolidation with those existing lines, the Brown/Orange would provide greater opportunity to minimize the number of towers in the view shed of the Canal system. The Brown/Orange would, however, be in the view shed of the Rideau Canal for the longest distance.

The qualitative assessment with respect to the Yellow alternative indicates that despite the low area figures for that route in all categories, there would have to be special consideration of the two crossings of the Rideau Canal and of the Hewlett-Packard property.

For the socio-economic criteria, the Yellow route was slightly preferred over the Brown/Orange, which was preferred over the Green

route in the areas of ability to handle change and compatibility with the community. Considering that each of the Yellow and Brown/Orange had cottage populations, rural estate populations and rural farm populations, the Yellow route would result in some change to the community along and over a lake and would create new access roads in Storrington Township and, as is suggested, some changes in the Jones Falls area. The Brown/Orange route would result in changes to the communities in Portland Township and the villages of Portland and Newboro, and changes in the Jones Falls area similar to that of the Yellow. The Brown/Orange would effect greater economic change than the Yellow, and the Green more so than either of the others.

The Brown/Orange has the greatest opportunity for a consolidation of new lines with the existing lines over a greater length and would, for that reason, most closely adhere to the stated public guidelines. The Yellow route was the middle choice, in that it was better in terms of avoiding homes and buildings. It requires slightly greater lengths on new rights-of-way. It was middle in terms of its effect on agricultural and natural areas. The Green required the greatest length of new rights-of-way and there would be fewer opportunities available for consolidation. It had the greatest impact on the natural areas.

The cost/technical indicates that the Brown/Orange, for reasons of its greatest length, has the greatest cost. The Yellow has slightly less total right-of-way length than that of the Green, and the cost is therefore slightly less.

Overall, potential for mitigation was one of the considerations in the final analysis. It was determined that in the area of Loughborough Lake and Jones Falls on which more detailed evidence was given, there was greater opportunity for mitigation on the Yellow route than on any of the other routes. These are some of those subjective (qualitative) evaluations done by Hydro in their specific location analysis. On a detailed analysis of the latter three routes, the most significant concern in the various sections for the Green and the Brown/Orange were the building removals.

In our view, it should not be unexpected that the ingredient of existing lines and rights-of-way should play a significant role in the final analysis. Throughout the whole process, commencing with the Royal Commission on Electric Power Planning, continuing through those considerable years through to and including our Plan Stage hearings, there was constant public expression encouraging the use of the existing rights-of-way and thereby to potentially reduce the taking. It is necessary now for the Board to consider the subjective views and opinions of those who provided evidence and opinion with respect to sites in which they have particular interest. During the process certain of the participants, and some of the parties, convinced the proponent to alter specific locations on the Yellow preferred route. The Board considers the analysis and evaluation undertaken by Hydro in the selection of the preferred Yellow route and those alterations to be reasonable, appropriate and adequate.

The concentration in the final selection was the use of existing rights-of-way and the various potentials to either consolidate or

parallel the lines. Of major concern was the avoidance of human settlement, i.e. removal of buildings.

The concerns of use of existing rights- of-way and of agricultural resource, and the maintenance of buildings in the human settlement factor, are pitted directly against the features of the recreational and heritage resource factors in the Yellow route. The recreational and heritage factors result from the two crossings of the Rideau system and the alignments adjacent to the north shore of Loughborough Lake. A significant difference appears to be between direct and indirect impacts, especially in the case of Jones Falls, and this also must be weighed against closer or more direct impact on other heritage resources and crossings of the canals by the other routes.

SITE SPECIFIC CONCERNS

Loughborough Lake

Commencing from the most westerly point, the major areas of concern are as follows. The view shed of Loughborough Lake was the major concern expressed at Storrington by numerous participants. They related the visual impact of the preferred Yellow route which would impact the view shed of the lake and thereby affect the tourist and recreational industry. This concern was also expressed to Hydro at their municipal participation centres earlier. Final recommendations for the lines on the north shore of the lake, proposes the use of V-guide structures parallel to the shore of the lake which generally lowers the height, and thereby the profile of the towers as set out in

the photo montage. There was also the recommendation that the towers be situated at locatable blind spots in this area. The Joint Board is of the opinion in these circumstances that this proposal is a reasonable response to the concerns.

Realignment North Shore Loughborough Lake

The preferred Yellow route north of Loughborough Lake crosses the property of Mr. Alan Dickson and runs close to a small subdivision known as Loughborough Park.

As a result of comments received by Hydro from area residents, Hydro developed and evaluated two alternative alignments as shown on Exhibit 252. The area residents, including Mr. Dickson, prefer Alternative 2 which is the farthest away from them and closest to the lake. Mr. Dickson would have preferred the preferred Yellow route rather than Alternative 1 as his property would then be expropriated, and he might at least recover some of his investment, whereas Alternative 1 would be very close to his property and he would get no compensation.

Hydro prefers Alternative 1 over Alternative 2 and are prepared to recommend a realignment of the preferred Yellow route in accordance with Alternative 1. The reasons for this preference are that Alternative 1 moves away from the subdivision and avoids the Dickson property but does not move as far away as would Alternative 2, which would come close to the lakeshore and affect the view from the homes on the south shore of the lake. Also, Alternative 1 avoids crossing any agricultural land, requires less cutting for access and avoids eighteen registered lots. Further, two property owners to the south of Alternative 1, one of which sits between the two alternatives, would

prefer the line behind his house so as not to impede the view of the lake, and the other, who is on the shoreline, would prefer Alternative 1, as it is farther away from his home. The increased cost of both alternatives are the same at $110,000.

The Board agrees with Hydro's analysis and considers Alternative 1 to be the best compromise, satisfying to some extent the concerns of the Loughborough Park residents and at least avoiding Mr. Dickson's property by a reasonable margin and at the same time considering the property owners to the south.

Hewlett-Packard - At Elbow and Spectacle Lakes

The evidence is that the lines would not be visible from and will not directly affect the recreational potential of the site or any of the facilities. The route crosses within one-quarter to one-half mile of the south end of the property as well as the township road at the entrance to the site. This is a significant recreational site, virtually in its early stages of development. In this circumstance the proponent intends to maximize the use of existing vegetation to attempt, as much as possible, to screen the towers on the entrance route. The Board accepts the evidence of the proponent as to impacts of this line on this facility and rejects the perceived concerns of a threat to future development.

Jones Falls

The position of Parks Canada, on other than the methodology employed by Ontario Hydro to select corridors, and then routes, was concern in two areas on the Rideau Canal system.

The Rideau Canal system is now the best preserved of the 19th Century canals. In 1925 it was declared to be of national historic significance. That was reaffirmed in 1967.

The major area of concern, and on which the majority of evidence was led by Parks Canada, was Jones Falls. It is described as the most historic of the lock stations on the system. A considerable part of its area is in private hands, and it therefore has not been subject to any significant detailed archaelogical investigations. It is, according to the evidence, the most heavily visited of the lock sites, except for the urban Ottawa area. There is already a 115 kv line which passes through the Jones Falls area about 600 metres away from the locks.

There is a fish sanctuary adjacent to the lock station which, it is suggested, could be affected during construction. Initially, in the evidence, the area to be devoted to the towers was believed to contain the location of the "Officers Quarters", the area where the officers were housed during the period of construction. The final evidence on location of those quarters places them a considerable distance from the area of the proposed lines. There is also a defensible lockmaster's house and a blacksmith shop. The most significant structure is a stone arch dam which represents a major engineering achievement. There is also a power dam still in use, a detached single lock and, below that, a series of three locks.

The evidence of the Parks Canada witnesses suggested that the wires and towers to be located on and to the north of the present

right-of-way would intrude into the natural setting and the historic environment and would thereby be objectionable.

It was generally agreed, and confirmed in the evidence of Dr. Smith, that Jones Falls is a very scenic area where visual balance is necessary. Part of Dr. Smith's evidence convinced Hydro to adopt one of her recommendations with respect to tower top design. She also agreed that mitigation of the lines and towers should be undertaken, and made various suggestions in that respect. She suggested that use of this length of potential visibility on this site was preferable to other crossings and view sheds located on other routes.

There was considerable evidence and cross-examination as to where and from what locations the lines would be visible for those who visit the various parts of the Jones Falls area. To assist the Board, Ontario Hydro flew balloons to the height of the towers, and on a photograph provided an artistic interpretation of the impact at the location of the lines viewed from the stone arch dam. The evidence was reasonably clear as to the other locations which would provide a view of the transmission lines and towers. They would be visible from the day use areas where camping and docking are permitted. They would be visible for about a mile north of the lock station, from Sand Lake and from the docks at the upper locks. They would not be visible from the blacksmith shop and many other of the site locations.

As to the boating vantage, there is no question there will be increased visibility overhead in replacing the 115 kv lines with two double circuit 500 kv lines. It is suggested by Hydro, however, that because of the navigational complications in the area of the Quarters

and the already visible modern bridge, with mitigation measures proposed on the right-of-way to the water level, the impact would not be as great as suggested.

There was opinion, but no detail to support the suggestion of the Parks Canada witnesses that there would be a detrimental impact on the view. We have considered the evidence of visibility of the approximately 600 feet of lines and towers from the various locations on the site, including that of the boating vista in the area of the Quarters. We have also considered the final evidence as to the possible location of the Officers' Quarters.

Having regard for the foregoing, and recognizing the existing Hydro facility and the distances involved, we accept the opinion that there will be some change in the visual amenities from certain site facilities, but Hydro's proposal and its change to the area is sufficiently limited in degree to be indirect. The impact, having regard for the mitigation possible and proposed, which again is one of the distinctly potential benefits of the preferred route, does not outweigh the other advantages of the Yellow route.

Parks Canada submitted in argument that if the Joint Board selected the Yellow route, the necessary permits would be issued to cross their lands.

In addition to the following mitigation measures proposed by Hydro, there is agreement between Parks Canada and Hydro that if the Yellow route is approved they will conduct a joint study of the mitigation measures for the proposal covering several matters including

landscaping, the potential archaelogical sites and to facilitate implementation of the results. Some of the mitigation measures already proposed by Hydro are to have unbalanced towers, so as to minimize the width of the tree cutting. The lines would then be on the interiors of the two towers. Recognizing this, the width of the right-of-way has been reduced from 350 to 310 metres. With regard to vegetative planting, since the outside conductor is moved higher, this leaves only one conductor at the lower level on the internal side between the towers. Hydro proposes to maintain the maximum amount of tree cover in the area of the crossing, and proposes to have a special type of vegetation, and as little tree clearing close to the canal as possible. There is to be a special selective placement of the towers and screening in front of the right-of-way. All requisite construction is to be done at one time. A two-year vegetative cutting cycle is proposed by Hydro in order to allow greater growth without interfering with the normal operations of the transmission lines.

Old Sly's and Edmonds

A description of Old Sly's indicates that there are two flight locks with a total height of 16 feet, a small stone arch dam and a waste weir. Close to the locks is a rail bridge built in 1859, which was the first rail crossing of the canal. There is also a rail bridge crossing the river. Edmonds is below Old Sly's and is a single 8-foot lock with a stone arch overflow dam, said to be the best such preserved on the Rideau system.

In that area it is suggested that there would be a view of the transmission towers and lines from the two lock stations, the Heritage

House, the Lower Reach Park, and the navigational channel, all towards the railway bridge. It is asserted that the view of the railway bridge would be framed by the transmission lines, and the view and appeal thereby disrupted.

The general area is flat, and does not provide opportunity for screening and the impacts of transmission towers are thereby not capable of mitigation.

The preferred Yellow route lies between the two lock stations. It is clear from the evidence that although the transmission towers and lines would be over the top of, or visually frame the railway bridge, there is already considerable visual diversion and intrusion of development in the area. There is a 300 foot radio transmission tower. There is some considerable residential development alongside. There is a 115 kv transmission line which presently crosses the canal but which would be removed. The locks are adjacent to Highway 43 and it is clearly visible. Beyond the highway is a large hospital complex. Close to the area and visible therefrom is a sewage treatment lagoon, an industrial park, and one of the most physically prominent of industrial operations in Smiths Falls, the Hershey plant.

Although no major concern was addressed to this crossing in argument, the evidence leads the Board to the conclusion that despite the expressed concerns of visual intrusion, there is already significant visual distraction so that the additional impact would be minimal.

Realignment South Elmsley and Kitley Townships

As a result of comments from residents of the area of the boundary between South Elmsley and Kitley Townships, south of the Town of Smiths Falls and directly west of Highway 29, Hydro conducted further studies and is now recommending a realignment as shown on the map attached to Exhibit 279. This is the same map entered as Exhibit 267 by Mr. Schevchenko.

The preferred Yellow route follows the existing 115 kv line and would require the removal of one farm and one residential house. The proposed realignment avoids these removals, reduces the number of homes in proximity to the line, reduces the effect on agricultural land and more closely follows the property fabric. The increase in cost for this realignment is $88,000.

Mr. George Wood is the owner of a home and farm buildings that would require removal if the preferred Yellow route is approved. He is, however, not satisfied with the proposed realignment as it goes through some of his more productive farm land and a portion of maple bush would have to be cut down. Aerial spraying would not be possible. His property would be crossed by two rights-of-way, the existing 115 kv line and the new route. He suggests an alternative alignment as shown on Exhibit 274 which goes south of his buildings and entirely on his property.

Hydro's evidence with respect to Mr. Wood's suggested alignment is that it would require more angle towers on two other farms and that the potential for tower placements at the edge of the fields would not be as great as for the realignment proposed by Hydro. Also, Mr. Wood's

proposal would cost an estimated further $120,000 over Hydro's proposed realignment.

Mr. Sheridan objects to Mr. Wood's proposal as it would be viewed from his house and utilize more of his land. Mr. Duff, another affected owner, prefers Hydro's original routing. Mr. Wood's proposal puts more towers into Mr. Duff's fields.

The Board rejects Mr. Wood's alternative and accepts Hydro's alternative realignment as it avoids farm buildings and a home and, at the same time, is better for tower placement, with less impact on agricultural land.

Realignment Lots 3 and 4, Concession 2, Township of South Elmsley

Mr. Arden Hunter presented two alternative realignments across his farm, one at the rear of this farm along Otter Creek and the other for a specific tower location, both as shown on Exhibit 271.

Hydro agrees to realign the southern boundary of the right-of-way as requested by Mr. Hunter and to work with the affected property owners to achieve the best tower locations, taking into consideration their concerns.

Realignment Lots 7, 8, 9 and 10, Concession 1, Township of South Elmsley

Mr. Gerald Hunter owns Lots 7 and 9 but also farms Lots 8 and 10. The preferred Yellow route goes through the centre of the farm. He would like to see the line moved to the southern edge of the property. Alternatively, he would like to be consulted with respect to tower placement.

Hydro rejects Mr. Hunter's request to realign the line south as it would require large based angle towers, four additional for each of the two lines at an estimated increase in cost of some $500,000. An alternative arrangement would require the removal of at least two houses and avoid crossing Mr. Hunter's tile drained fields.

The Board accepts Hydro's position.

City of Kanata and the Township of Goulbourn

The City of Kanata and the Township of Goulbourn are adjoining municipalities and both presented evidence and made submissions in support of realignments to Ontario Hydro's preferred Yellow route.

Since the final route selection made with respect to one municipality may have a determining effect with respect to the other, these two matters are considered together. In summary, the City of Kanata is concerned about the proposed transmission line routing through a partially developed residential area known as the Bridlewood community, whereas the Township of Goulbourn complains that Hydro's preferred route passes through prime agricultural land.

Dealing first with the City of Kanata, it came into existence in 1978 and is predominantly an urban community located within the western edge of the Regional Municipality of Ottawa-Carleton. In the long-term planning for the Region, Kanata would provide an area for urban development in order to assist the Region in reaching its 30-year population goal of one million people. Of this target population, Kanata is expected to accommodate approximately 100,000 people.

Kanata itself has been described as an elongated municipality offering two major areas for development, the Bridlewood community and the Marchwood/Lakeside area. Both the Regional Official Plan and local Official Plan have recognized the importance of the Bridlewood community in reaching the population objectives over the planning period. As a result, it is expected that the Bridlewood community will be developed to a population of 27,000 people.

The Bridlewood community is located in the southern part of the municipality with Eagleson Road as its western boundary, and generally lying north of the Hope Side Road and west of Scissons Road. Bridlewood, when fully developed, will consist of five neighbourhoods and a community core. As present, only Neighbourhood Number One in the northern part of the community is developed, and its present population is 2,000 people.

Bridlewood, formerly in the City of Nepean, has been the subject of a secondary plan which sets out the development policies for the community. The secondary plan was adopted by the local municipality and approved by the regional municipality. The secondary plan directs that development in the Bridlewood community is to be guided by means of a development plan. Such a plan has been prepared and has been used as a reference for evaluating development proposals, although the evidence is clear that this development plan has never been adopted by either the City of Nepean or its successor, the City of Kanata, as part of the secondary plan.

Ontario Hydro's recommended route intersects Eagleson Road between Fernbank Road and the Hope Side Road and then cuts diagonally across the undeveloped section of the Bridlewood community where it joins with Ontario Hydro's existing 230 kv right-of-way just westerly from Scissons Road. A right-of-way width of 100 metres is proposed through the Bridlewood section, which would occupy 50 acres of vacant land. This is the section that has raised the concern of both the officials of the City of Kanata, the present inhabitants of the Bridlewood community and several development corporations.

The concerns expressed relate to the difficult planning considerations to be given to this municipality because of its graphic location at the western end of the region and its elongated shape. In particular, planning for the Bridlewood community is difficult because of existing fragmentation caused by the railway line located along the northern fringe of the community, and two Hydro corridors, one 80 feet in width supporting a 115 kv line, and the second, 275 feet wide, used for a 230 kv line. The 115 kv line crosses the northern section in a south-easterly direction, and the 230 kv line passes through Neighbourhood Number One.

Evidence on behalf of Kanata was presented to show that the introduction of a third Hydro right-of-way would further fragment the community and that it would not only severely hamper the planning for the remainder of the vacant lands, but would tend to isolate the existing development and destroy the community effect. These concerns prompted the City of Kanata to establish a Citizen's Task Force to study in detail Hydro's recommended route and to make submissions to the Joint Board on its concerns and alternative recommendations.

The Task Force engaged a consulting firm to report on the implications of Hydro's recommended route and to develop suitable alternatives for consideration, and their report identified eight different alternative transmission line routes through the Bridlewood community and also considered using Hydro's existing 230 kv corridor through Neighbourhood Number One.

Originally Hydro ruled out the possibility of redeveloping the existing 230 kv corridor to include the new 500 kv transmission lines as being technically unfeasible due to the narrow right-of-way width. Later, however, Hydro changed its assessment and concluded that by using higher poles (185 feet high) this redevelopment option was technically satisfactory and met their reliability criteria. Hydro's change in technical position did not alter the position of either the Task Force or the Consultant's study that the higher towers would present a severe visual impact on the community. Hydro also considered that "the higher towers would be out of character with the residential community."

The Consultant's study directed attention to other route locations and an alternative, described as 2A, was studied. It deviates from Hydro's recommended route at a point west of Eagleson Road and cuts diagonally southward to the Hope Side Road, proceeds easterly along the north side and parallel to the Hope Side Road to Scissons Road, and then northerly along the easterly side of Scissons Road and through lands owned by the National Capital Commission, to join up with Hydro's existing 230 kv corridor. This alignment would generally follow the proposed location for the new regional arterial road, Terry Fox Drive.

A variation of Alternative 2A prescribes a location for the transmission line along the south side of the Hope Side Road and was identified as Alternative 2B.

The advantages suggested for Alternatives 2A and 2B are as follows. Both provide a boundary delineation for the Bridlewood community and avoid vacant lands which are proposed for residential development. They would allow the municipality to proceed with its development plans for the community without further fragmentation.

MacDonald Homes, a division of the Douglas MacDonald Development Corporation and Urbandale Realty Corporation oppose Hydro's recommended route because it utilizes a portion of their lands slated for residential development. Furthermore, Hydro's routing does not respond fairly to proposed development plans and severely hampers the options available for land use planning for the remaining neighbourhoods of this community. As a result, these corporations support Alternative 2A.

Hydro maintains that the recommended route is to be favoured over either Alternatives 2A or 2B principally because the alternatives require four extra sets of heavy angle towers with their adverse visual impact on the area. Existing residences are avoided with the recommended route whereas the alternatives interfere with two residences on Richmond Road. The Alternatives 2A and 2B would require the use of additional lands owned by the National Capital Commission and, finally, the alternatives would cost about $1.4 to $1.5 million more than Hydro's recommended route.

For the purpose of the Bridlewood realignments, the Joint Board has accepted as a fact that the National Capital Commission will approve either Hydro's recommended route or any of the alternatives discussed as they may require the occupancy of the Commission's lands. We have also accepted the position that the proposed Alternatives 2A and 2B can be co-ordinated with the future planning and development of Terry Fox Drive.

In weighing the advantages and disadvantages of the alternative routings presented, the Joint Board does not consider the cost advantage to be the major factor. Protection for urban settlement is a high priority objective and Alternatives 2A and 2B, are designed to meet that objective. The additional visual impact caused by the use of heavy angle towers may be offset by the willingness of the local residents to accept that type of burden. Whether these considerations would be sufficient to outweigh the advantages of the preferred route, would be a difficult choice. There is a third option, however, which the Joint Board believes is more favourable, and that is the use of the existing 230 kv hydro right-of-way.

It may be somewhat unfortunate that utilization of the existing 230 kv right-of-way was initially rejected by Ontario Hydro as being technically unacceptable. Therefore, that option was put aside without serious consideration. When the evidence on reconstructing the existing 230 kv line was presented to the Board, none of the witnesses gave sufficient attention to the mitigation measures which may be employed to reduce the visual impact of the transmission facilities. Admittedly, using steel poles was discussed as a means of producing a

better visual effect but such studies as landscaping and planting proposals and secondary right-of-way uses were never undertaken.

The existing right-of-way option would eliminate the need for a new severance and thereby avoid further fragmentation of the community. Heavy angle towers are avoided and the vacant lands are left untouched for future development. No new NCC lands are required and existing residences can be avoided. The increase in tower height is not, in our view, sufficient to override the positive aspects of using the existing hydro corridor.

We believe that with appropriate study of the landscaping opportunities and secondary uses, the new transmission facilities will present no greater visual impact on the landscape than already exists at this location. Ontario Hydro must carry the burden for providing these studies and the implementation of the works necessary to carry out the program. This will include, as well, the use of steel poles on the approaches to, and through, Bridlewood community. Before finalizing the use of the 230 kv right-of-way, it is necessary to consider the proposed modifications presented by the Township of Goulbourn because choices made in one municipality affect the options available in the other.

The Township of Goulbourn is a predominantly rural municipality and its official plan recognizes this fact by directing that the agricultural economy of the municipality be maintained. The plan establishes policies to ensure, where possible, that land of prime or moderate agricultural capability is preserved for agricultural purposes. It is with respect to the policy of maintaining the agricul-

tural integrity of the community that the Township of Goulbourn has brought forward two realignments to Hydro's preferred Yellow route, both of which are designed to preserve prime agricultural land.

The first route variation, referred to as Alternative 3A, commences in Lot 25, Concession 9, at a point designated "A" on an aerial map filed as Exhibit 230. This alternative routing continues northerly through bush and pasture land west of Shea Road at an angle to the existing lot lines and extends to the south side of the existing CPR tracks. The route then follows along the southerly limit of the CPR tracks to Hydro's existing 230 kv right-of-way where it proceeds along the right-of-way, rejoining Hydro's recommended route at point A-11, a point on the line dividing the City of Kanata and the City of Nepean. Route 3A utilizes the existing 230 kv right-of-way through the Bridlewood community, discussed earlier.

Hydro's recommended route for the transmission line from point "A" proceeds in an easterly direction at the mid lot point of several agricultural holdings until it crosses Eagleson Road in the area of the Bridlewood community. While acknowledging that this section of the Yellow route crosses prime agricultural land, Hydro suggests that since the route is perpendicular to the lot lines, appropriate mitigation measures may be undertaken to minimize the impact on the agricultural resource.

The Ontario Federation of Agriculture supports the township proposal but suggests that more agricultural land should be preserved for production by constructing the transmission line along the north

side of the railway tracks rather than the south side. Several ratepayers offered their support to the township alternative route as well.

William Davidson, an owner of 160 acres, Lot 25, Concession 9, objects to the 3A realignment because it will have a significant visual impact thereby affecting the enjoyment of his property. He also pointed out that route 3A would pass very near to two existing residences (Ashton and Jones households), and at least one would have to be purchased by Ontario Hydro in order to construct the Alternative route 3A.

Mr. Davidson supports Hydro's recommended route but as an alternative, he presented a modification (identified as 3B) to the Township's route 3A. Modification 3B continues the extension of the recommended route past point "A" on a diagonal across the farm fields until it intersects with the south side of the CPR railway right-of-way. It would then follow the alternative routing for 3A as proposed by the township utilizing the existing 230 kv corridor. In support of the diagonal crossing of agricultural lands, Mr. Davidson argues that these lands are Class 5 lands with the exception of the farm owned by Mr. Elmer Cathcart. A further variation, route 3B-2, was suggested to avoid crossing the Cathcart farm fields. The alternative routes and modifications are shown graphically on Exhibit 247.

Advantages favouring the Alternatives 3A and 3B include the utilization of the existing Hydro and railway rights-of-way. A back lot location reduces the number of severances and the alternatives do not impact prime agricultural land as severely as Hydro's recommended route.

The disadvantages of Alternative 3A are that at least one residence would have to be removed to accommodate the power line and one other residence could be affected by its proximity to the power line. More forested areas would be affected by either Alternative 3B and 3A and there is an additional cost of construction, plus an extra cost associated with construction adjacent to the railway line.

Hydro carried out a cost comparison of the various alternatives. Alternative 3A would require an additional construction cost of slightly more than one million dollars over a base cost for this section of the route of $5.1 million. The additional cost represents the installation of heavier angled towers at corners and the longer length of line. Alternative 3B, as proposed by Mr. Davidson, would be about $300,000 more expensive than the base costs of Hydro's recommended route.

Hydro prefers Alternative 3B over Alternative 3A and the modification 3B-2. While acknowledging that the choice between Alternative 3B and Hydro's recommended route is very close, Hydro still recommends that their Yellow route be adopted because of the cost savings, the fact that appropriate mitigation measures may be undertaken to preserve agricultural land, and that utilizing the existing 230 kv right-of-way through the Bridlewood community would require high towers, which would be out of character with the residential development.

When looking at the question of cost, the Township of Goulbourn suggests that it is a misrepresentation to compare the additional cost with the base cost. A more accurate assessment, in its view, is gained by comparing the additional cost with the total cost of the project, that is some $300 million. In the Board's opinion, adopting one method over the other is too simplistic. Both comparisons should be examined.

Dealing with this particular choice of routes, it is our view that the cost difference is not a major factor to be applied. No attempt was made to ascertain, nor are we in a position to assess, what the total environmental costs might be, and to place undue weight on a portion of the total cost, namely the construction cost, would be unfair.

It is our opinion that Alternative 3A should be chosen. It was supported by the municipal council and a number of ratepayers of the municipality, as well as the Ontario Federation of Agriculture. It has the least impact on prime agricultural land and utilizes, to a great extent, existing railway and Hydro rights-of-way. Hydro's concern that the transmission line on the existing 230 kv corridor would be out of character with the Bridlewood community, is not based on a detailed study, nor has it taken into account possible mitigation measures. Hydro officials admitted that secondary land uses can be employed on the right-of-way in consort with a comprehensive landscaping program. Our conclusion, stated earlier, is that if appropriate mitigation action is taken, then the visual impact on the Bridlewood community after the line is reconstructed with higher poles will be no greater than the visual impact presently experienced by the residents of the area.

It follows that Hydro must be financially responsible for conducting the appropriate studies and implementing a program for landscaping and the development of secondary uses. It is, therefore, the decision of the Joint Board that Alternative 3A be used, and that the new transmission line be constructed using the existing 230 kv corridor through the Bridlewood community. Approval is conditional upon an agreement being entered into between Ontario Hydro and the City of Kanata to study and implement appropriate mitigation measures in the Bridlewood community, including appropriate landscaping, secondary uses and the use of steel poles. The cost of this study and implementation is to be borne by Ontario Hydro up to an amount which the Joint Board sets at $700,000. If the City and Hydro are unable to reach the agreement required herein, the Joint Board may be spoken to.

The second route realignment suggested by the Township of Goulbourn is described as the "McCoy" alternative because it is designed to avoid the prime agricultural land of the McCoy farm. It is shown graphically on Exhibit 230 and is represented by the coding A9-A5-A10. Its northerly leg is east of and parallel to Regional Road 5 and follows back lot lines through a wooded area.

The principal feature of this variation is that it cuts across more marginal bush land rather than good farm land and it follows the existing property fabric in a better fashion. It also avoids an area which is proposed for residential development, described as the Red Pine subdivision, and another area used for aggregate extraction.

The bulk of the prime agricultural land to be avoided is owned and operated by Ronald McCoy and family under the name of Sunnycrest Farm. The holding is 300 acres in Lot 21, Concession 7, where registered Holstein cattle and purebred Belgian horses are bred. Hydro proposes to construct the transmission line to within 400 feet of the McCoy barn. Mr. McCoy is concerned about the effect of "tingle" or "transient" voltage on the breeding and feeding patterns of his farm livestock. The Joint Board is satisfied that the concern expressed relating to tingle voltage is not valid because this problem is associated with lower voltage lines.

The disadvantages of the "McCoy" modification are its slightly greater visual impact due to the heavy angle towers, the destruction of some forested area and its additional cost of about one million dollars on a base cost of $2.4 million.

Hydro admitted that the additional cost could be reduced by $100,000 if allowance was made for using narrow-based towers on the farm fields.

Hydro's position is that the recommended route should be approved since the additional cost of about $900,000 does not outweigh the advantage related to preserving agricultural land.

We believe that the modified route, A9-A5-A10 should be chosen. It better recognizes the municipality's objective to preserve agricultural lands, and it does this by following more closely the existing lot lines and by utilizing marginal farm lands. Hydro's

recommended route cuts across good quality, active farm land at a diagonal, thereby diminishing the opportunities for employing mitigation measures.

STATION SITES

With respect to the facilities to be located at the various terminal points in the system, the evidence indicated that at Lennox G.S. the Hydro-owned property could accommodate all the facilities required for the two new 500 kv lines.

At Hawthorne T.S., the facilities for the first two 500 kv lines in the proposal can be accommodated on the existing Hydro-owned property. There is a requirement, however, and there are plans for expansion of this location on the NCC property presently vacant to accommodate the facilities for the third 500 kv line. This presents no problem to NCC.

The other station site affected by the West section study is at Merrivale. The two 500 kv lines from Lennox G.S. can be accommodated on this particular site without any additional acquisitions.

With respect to the station sites, there is no complication or taking of lands necessary at this particular stage, except NCC property, and no impacts resulting from the additional facilities were outlined or even addressed in the evidence of the proponent or any of the parties present.

ACCEPTANCE OF THE ENVIRONMENTAL ASSESSMENT

As set out in the Plan Stage Reasons for Decision, the evidence and submissions presented at the hearing, as well as the documents entitled "The Environmental Assessment", are considered in enabling the Joint Board to reach a conclusion as to whether the environmental assessment is satisfactory to enable a decision to be made on whether approval to proceed with the undertaking should or should not be given, and whether or not a condition or conditions should be considered.

Some errors and changes in the written documents, Exhibits 137, 138 and 139, were outlined in the evidence of the Hydro witness panels. This evidence provided additional refinement and elaboration of the qualitative judgments made by the Hydro team in the analysis of all routes and selection of the preferred route.

Certain submissions by participants with respect to specific locations resulted in site specific re-evaluations of other alternatives by Hydro. Based on those further evaluations, the proponent has altered the preferred route in certain locations.

All of this evidence is part of the assessment process as transcribed and, as such, it forms part of the written record.

In our view, it is unnecessary to modify the assessment documents to reflect the changes and corrections made at the hearing. Based on the evidence and the exhibits in total, it is our opinion that the environmental assessment as presented is satisfactory to enable us to make a decision.

APPROVAL TO PROCEED WITH THE UNDERTAKING

The issues at this stage were a further consideration of the aspect of need, a brief summary of considerations of alternatives to, and of the constraint methodology and other factors used by the proponent in its selection of the preferred route.

We concluded that the evaluation of the alternatives to the undertaking is adequate. We have also concluded that the load forecasting evidence clearly supports the need. We accept the constraint methodology used to select the corridors and we consider it a reasonable approach to determining the relative impacts as between the corridors. We similarly accept the proponent's basis of selecting routes having regard for environmental concerns as were used in the corridor determination, together with a consideration of socio-economic and cost/technical concerns, and public participation. We have considered the evaluations and comparisons made by the proponent in response to specific realignments proposed at various locations. We have accepted the proponent's suggested realignments based on those evaluations, with the exception of the evaluations carried out in the Township of Goulbourn and the Bridlewood community of the City of Kanata.

The logical progression of and the rationale for the staging of these hearings from those of the Plan Stage and now of the Route Stage hearings was stressed by the Board in its earlier Reasons for Decision. At that time, we considered that the approval then granted and our selection of Plan M3 was without constraint to future

decisions. Having regard for that condition, we are now of the opinion that there was nothing in the evidence and submissions provided during the Route Stage hearings (West Section) to prompt the Board to alter its earlier decision.

In all of those circumstances therefore, the proponent's undertaking involving the Yellow route is approved as amended by them, and as amended by the Joint Board in the Goulbourn/Kanata area. The telecommunication sites and station sites are approved as part of the undertaking.

EXPROPRIATIONS ACT

Pursuant to the provisions of the Expropriations Act, we have concluded that in view of all of the evidence, the taking of the lands is fair, sound and reasonably necessary to enable the undertaking to proceed.

As submitted during argument by counsel on behalf of the proponent, and in view of the issuance for all other purposes of the Reasons for Decision and the Decision of the Joint Board, the Joint Board defers to itself the exercise of its jurisdiction both as the Inquiry Officer in delivering its report to the Approving Authority, and as the Approving Authority when granting approval for the expropriations required for this undertaking. This is necessary in order to ensure that the three-month period set out in Section 9(1) of the Expropriations Act does not commence to run before the proponent

has had sufficient time to complete the survey of the final right-of-way alignment and to prepare expropriation plans in a registrable form.

SUMMARY

The proponent shall prepare a draft Decision on this the Route Stage (West Section) in accordance with these Reasons for Decision. The draft Decision granting approval for the undertaking, described as the preferred Yellow route and telecommunication station facilities and station sites, is subject to the conditions described herein, including those in the Appendix. The draft Decision shall be circulated to all parties for their concurrence by October 4, 1985, in accordance with these Reasons.

The Board has set 10:00 a.m. on October 10, 1985 at the Metcalfe Community Centre, Metcalfe, Ontario, for a hearing of final submissions on the Decision.

COSTS

Costs were requested by two participants. One was the Citizen's Task Force, which is composed of seven members of the Bridlewood Community Association, who had volunteered their time in co-ordinating the preparation and presentation of material with respect to the issue as the preferred route passes through the Bridlewood community. They retained a consulting firm which prepared Exhibit 178 and gave evidence

and support to that document with respect to the several proposals suggested as alternatives to the Hydro preferred route.

The Task Force approached and obtained funding from the Kanata City Council in the amount $20,000, which was referred to as "interim funding". As one of the criteria earlier established by this Board in considering whether or not to award costs was the ability of parties or participants to raise funds on their own, it would seem that the funding has been satisfied in these circumstances. Further, it is our view that the nature of the hearings is such that the municipal support is proper as, indeed, several other municipalities participated at their own expense. On balance, the evidence of other participants involved in the Goulbourn/Kanata issue, including all of the Kanata residents who gave evidence, was helpful to the Board in arriving at its Decision. The report and the support evidence does not, in our view, meet the criteria of a significant contribution alone, but forms part of the overall contribution of all of the residents and municipalities involved in this area.

Subsequent to the hearing of the evidence, Irma Aikman made a written submission with respect to incidental expenses. Frequent attendance and the submissions of a few questions directed at Hydro witnesses and very brief evidence as to the Blue route does not, in our view, fit the Board's criteria of a contribution to warrant reimbursement of those costs.

There will be no Order as to costs, except the costs of transcribing the proceedings. The costs of reporting will be

apportioned with Ontario Hydro paying 75 per cent, and the Joint Board absorbing the balance of the costs.

DATED at TORONTO this 30TH day of SEPTEMBER, 1985.

D.S. COLBOURNE,
Chairman

B.E. SMITH,
Vice-Chairman

D.H. McROBB,
Member