
High Speed Rail 'Trends' Study

Workshop Meeting—March 5, 1993

On March 5, 1993, KPMG Peat Marwick conducted a full-day workshop to discuss trends in intercity transportation and government support in the Québec-Windsor Corridor over the next thirty years. The workshop was part of KPMG's study entitled 'Trends in Intercity Passenger Transportation and Government Support', a component of the Québec/Ontario High Speed Rail Project.

The workshop participants included: Daniel Brand; Daniel Brod; David Frank; Marc Gaudry; John Gratwick; and Richard Soberman (see appendix for biographical sketches). The workshop was chaired by Tom Lightbown of KPMG Peat Marwick who was assisted by Darcy Toms, also of KPMG.

In preparation for the workshop, the participants had reviewed a document entitled 'Issues Paper' prepared by KPMG which summarized the results of a literature search on transportation trends and a series of consultations conducted among representatives of government as well as air, rail and intercity bus carriers.

The results of the workshop were used as inputs to the development of a scenario ('Reference Scenario') which described the anticipated supply parameters of the Corridor's intercity passenger transportation network, absent high speed rail, for the period 2005-2025.

The text provided below is a transcript of the workshop proceedings which were tape-recorded. Only minor modifications have been made to the text to improve readability. There may be some errors in the transcription due to occasional lack of clarity in the recording.

Tom Lightbown—(After initial comments and introductions) Dan Brand is here as an active observer, and is representing one of the three forecasting consultants that have been engaged by the High Speed Rail Project. Representatives of the other two consultants were not able to attend today, but he is, in effect, my internal client for this particular deliverable—the Reference Scenario—because it is that Reference Scenario (which does not include high speed rail) that will serve as a basis for the demand forecasts.

Daniel Brand—Could I drive a small truck through that opening and say what I might be getting out of this? We have a methodology that we think is quite good at forecasting the diversion, the substitutability of high-speed rail for one mode or another. But we have potentially more difficulty relative to the problem of forecasting growth in future air travel and future auto travel. That is to say that we have time series models of future air and auto travel, by existing modes, as well as rail travel and bus travel. But that's a pretty simple nut to crack—how air travel varies with fares, frequencies and populations and incomes and so forth. The part which I think we are very close to cracking, or half cracking in a number of corridors is the diversion.

The big effort in terms of our work in this study has been on diversion, using stated preference techniques, and kind of learning. This is about the sixth or seventh corridor we've done some fairly elegant modelling on. What we have not paid any attention to basically in terms of our contract is the growth in air and auto and conventional rail and bus travel. In the U.S., basically a number, kind of picked out of the air, with intelligence and intuition, may well be the best you can do. Air travel—everybody thought it was growing at 7 or 10% a year; all of sudden it has been declining for the last 3 or 4 years. The conventional wisdom says it's 3-1/2 to 5 percent. But the point is that what we desperately need out of this group is your wisdom as to the growth rates of air, auto, conventional rail, and bus. In other words, what is out there to divert from in the future. Because we have not done the typical time series modeling of growth in those markets. There has been some of that work done in Canada, and we want to look at it more closely, but we would like to get a sense out of you as to what, absent high-speed rail or maglev, what is the future for the conventional modes.

Tom Lightbown—The forecasters clearly have the concern of demand—that's what they're about. We (the Trends study) are complementary to that, and our focus is on the supply, so we're looking at both sides of this coin, and we want to treat as much as we can of those two aspects today.

The reference scenario is, nonetheless, a supply scenario. I think we made that clear in the Issues Paper. What we want to do is to identify, recognizing the whole complex of issues and influences, what kind of network there may be in this future period of 2005 to 2025 in terms of road and airport infrastructure, the different public modes, what the automobile will be like, what levels of service will be offered, frequency, transit times, costs, fares, this whole complex of issues we want to address today. Simply put, the objective of this workshop is to develop a profile for each of the modes for the planning period, as we judge them to be influenced by the range of issues that we have identified in that Issues Paper. There may be other issues, and we can focus down on those that appear to be most critical.

There is no doubt that any one of you could help us for more than a day, in dealing with this full range of issues here. But we do need to move through the agenda in a somewhat disciplined fashion, and therefore we've divided the day up into two parts to deal with general issues in the morning and then look at modes, one by one, in the afternoon. If we need to make a brief phone call following our digestion of all this information, we hope we can do that. Any other comments or questions on the process for today?

John Gratwick—Going back to the origins of this whole exercise—what was the basic question that was being asked?

Tom Lightbown—The basic question that is being asked to us is, that is, the high-speed rail project wishes to answer the question "*Should governments—yes or no—support high-speed rail in the corridor?*" That is the overall question, and there are many many component studies underway.

Richard Soberman—Is this the study where we're looking at consumer surplus?

Tom Lightbown—Consumer surplus is part of the study as well.

Richard Soberman—I hope you're not going to spend too much of the taxpayers' dollars looking at consumer surplus! I had a drink at the airport last night—it cost me five bucks. And I was thirsty enough that I would have paid eight bucks for the same drink. The three bucks that I saved has got absolutely no public value. And that's what consumer surplus is.

Tom Lightbown—Thanks for that perspective. (Laughter)

Richard Soberman—No bias or any strong feelings! (Laughter)

Tom Lightbown—I think we are basically familiar with what's in the corridor right now, but just to rehearse very quickly a couple of points that are in the Issues Paper. Obviously we've got automobile that represents about 90% of intercity travel. In the air sector—Air Canada, Canadian, now Nationair pulling out—about 4% of the total trips. VIA Rail with about 3% and, the bus industry—Orleans Express, Gray Coach, Greyhound, Chaco, up and down the corridor, about 2.5%. From the information that has been developed by other consultants for the total project, the estimate for 1992 is 108 million trips which, if we take the 1987 figures that we used in a previous comparable exercise, represents about 2.5% growth in trips per year.

John Gratwick—These are between any two points on the corridor?

Tom Lightbown—..and from a point within the corridor to outside or from a point from outside the corridor to within the corridor. Any trip originating in the corridor and to a destination outside or vice versa. This is a slight update to those figures that I gave you (in the Issues Paper).

David Frank—2.5% a year—is that an annual growth rate?

Tom Lightbown—That would be annual growth rate, if we simply take the 96 million that was counted in 1987 and grow it to 1992.

Let's start with a discussion of the general issues affecting transportation in the corridor for this period. This is looking out a way from 2005 that is even beyond the year 2000 of the Royal Commission, to the year 2025. You can refer in this discussion to the questions that we raised in the Issues Paper and others you feel are pertinent. My first question has to do with socioeconomic factors. The question is "what are the principal socioeconomic changes that will influence the transportation network in the corridor and what effects are they likely to have?" This has to do with population, economic growth, an aging population, increasing suburbanization, increasing congestion, those types of issues.

Marc Gaudry—For fifty years the real prices of two modes have been falling, especially the quality-adjusted price. That's air and car. And for two modes, the price has not changed very much—that's bus and rail. This is my rough and unfair summary of the last 50 years here—and I think in Europe too, once you try to get the numbers straightened out. If this goes on another 30 years, how can you go without two modes just vanishing, except in very marginal niches? That's on the cost side. So I would claim that this unfair representation is the best I can think of and that bringing in high-speed rail doesn't change it at all. There has been a bit of technological catch up with it, but if you look at the prices, the costs of construction (of high-speed rail), every single country in Europe now, including France, I think it's valid. Everybody will be stuck with a huge problem if they keep going on with this. There is no indication that true costs are falling in any of the high-speed rail networks. So, you know, adjust it a little bit for high-speed rail—but I think it's true.

Now, that's on the cost side. I think that the way you framed the question excludes for the moment whether one thinks that governments will mend their ways or not. You're dealing with an analytical framework here, and you do not want us to discuss immediately whether we think that governments will mend their ways.

Tom Lightbown—I would like to come to government roles, but that's a separate question. Let me be very clear on this—high-speed rail is not part of this discussion. It is not part of the reference scenario. The reference scenario is the base line scenario which assumes that high-speed rail does not in fact get launched, so let's make sure that we keep that in mind in our comments. But the focus at this point is on the socioeconomic factors that are going to make a difference in the way transportation is required and delivered. And that has to do with population and economic growth. Is it going to be slow or fast? You have in the Issues Paper a first (socio-economic) projection (Transport Canada's). There has been some adjustment to those figures which show a slow down in population growth and GDP and so forth.

David Frank—What you said that really concerns me is that it's the traditional way of looking at this and planning—if population keeps growing and income keeps growing, we get this sort of traffic between two points. What I've been finding around the world—and this is especially true of air transport, but it can be extended to other modes, and it applies to everything—you've got to be looking at what is going to happen between the community of interests between the points in the corridor. Are they going to strengthen; are they going to grow? All of sudden Toronto, or any of these points, with a new air agreement and a new technology, are going to be looking north-south more, are going to be looking more internationally. Communities are looking farther afield. In Alberta—a classic case, where Edmonton and Calgary have been blowing each others brains out for years. Now all of sudden, they are being seduced by the international world. They've hauled into the international world. And so that focus on the need to travel from Edmonton down to Calgary—that's where we do business—now it's Vancouver, now it's beyond Vancouver to Tokyo. So I think there is a real risk as a forecaster just sitting there and saying, well, currently we have this many trips, we've used an econometric model here to come up with this economic growth forecast, and we've talked to our demographic guys and they said population is going to do this—and in crunching numbers, you can get this happening in the corridor. I think what's really going to drive this here is the community of interest between the key points within the corridor. Especially Montreal/Toronto: is it going to grow or is it going to fade? And I think the

pressure is out there that it will fade. We could have a dramatic shift or wave of traffic in this corridor that is completely unexpected. It could be just like a discrete function hit you there in the middle of your forecast.

Tom Lightbown—Is this a focus on principally business trips?

David Frank—I would say where business goes, personal relationships start happening. These different trends are out there, and the whole focus of communities can start shifting in different directions. For example, I see it happening in places like Orlando where all of sudden they're thinking about South America, whereas before it was Florida and Disney World. Now all of sudden Orlando is thinking 'we're not just a point in United States, and our community of interest is not really Miami and New York; we're becoming a link between Europe and South America.' Well, that just messes up all your thinking! Everybody else is going along thinking this is what is going to happen continuously for traffic to Orlando. So you've got a huge variable out there, and you have to get away from this traditional way of thinking and get into some real pie-in-the-sky thinking. That's pretty soft stuff, but will the community of interests between Montreal, Toronto, Ottawa and other points in the corridor grow or decline? And I would argue very strongly that given the Free Trade Agreement, given increasingly open air policy, given that it is—I'd use the word "sexier" cautiously—but it is sexier as a business person to go further afield. With NAFTA and things like that, people in Montreal are not going to be looking at Toronto with nearly the same passion as they did before.

John Gratwick—I couldn't agree more, because I think following on from that, there are two ways of perhaps looking at this. I worry a bit when we talk about the growth in the population and the growth in the households, because, really that has got nothing to do with the pattern of movement. In crude terms, you can divide up the users of whatever modes there are, whatever services there are in the corridor, into roughly three categories. I put the population in three categories: there is the big group who don't travel at all, who don't use it. Whether they are the wealthy ones or what they are, I don't know, but we don't bother to look and see. Secondly, there are the business users, the work and business-related travelers who again work to a different set of drummers. And thirdly you've got this rather amorphous mass of personal use of the system—everything from leisure, sports, vacations, family, all that compendium of things that you do on an individual basis. And looking at where they are going and what their socioeconomic structure and status is going to be is quite different for those three groups. The first group we don't have to worry about, except trying to get a handle on what size it is—the non-travelers, when, let's face it, less than half the population has ever been in an airplane and even less than that has ever been in a train.

Richard Soberman—One in ten.

John Gratwick—The idea of saying, well, either the population is going to grow or the general level of the economy is going to do this or that really has no relationship to what that behaviour of those three quite different groups is going to be. The other point is, quite clearly, looking on the time frame that we are looking at here, Canada is not going to be the player in the bulk export commodity business that it is at the moment. In the past, its whole economy has largely relied on this, and if we are going to have any place in the world at all, it's going to be in the economy that is coming from value-added and intellectual and other activity which essentially increases the, if you like, the—to sell a thousand tonnes of wheat to Malawi doesn't mean many trips to Malawi by anybody—

probably nobody ever even goes there. But if you want to sell that same value of telephones, there is going to be a lot of travel. But essentially, because of the way that the world is going and because of the way we are going to have to go, our travel is going to be far more in the business sense. There is going to be far more international travel than in fact domestic travel. We are not going to be selling between Montreal and Toronto. Both Montreal and Toronto are going to be selling to wherever, and depending on how the transport system settles down, you'll be looking at the corridor as a possible way of getting to where they are going. But if it isn't the most convenient or it doesn't fit today, then they will go some other way, much more likely to go north-south, even to start their travels.

David Frank—Just to throw out one number to help you with your thinking: in about 1951, the average length of haul for scheduled passenger air services around the world—both domestic and international—was about 850 kilometres, and now you're looking at about 1,600. So in that mode at least, people are going further afield. And I think it is intuitively correct that it is as easy to do business in Tokyo from Vancouver as it is to do business in Calgary.

Marc Gaudry—I agree on the importance of globalilzation, and it is very clear. But I think you have to be careful because we are dealing with a relatively short distance (in the corridor), and you can have a suburbanization of Montreal, for instance, becoming a suburb of Toronto slowly, which it is becoming. So you have to be very careful. As the large cities have suburbanized recently, you have opened up a lot more trips and a very big change in the structure of trips. Without going into high-speed rail too much, the high-speed rail network has this impact in France and elsewhere: the firms restructure. Production, head office can be in Toronto. Some activities can be decentralized, others centralized. So I agree about the importance of globalization, but we're dealing with relatively short distances, and we want to be sure that we're setting ourselves up to catch these strengths over and above the fact that, in any case, in the overall market, the share of work trips is falling everywhere. It is falling at all levels of all markets—urban, intercity, worldwide. Tourism is growing six times since 1980—that's very fast; faster than world trade. It's very hard to measure trips now without finding the share of work trips, defined no matter how, being anything but less than half and falling fast. So I agree to higher level things, but if our purpose is to think of a corridor which is becoming a very large town, we also want to build that in.

Tom Lightbown—Certainly we are interested in the travel in the corridor. I think the point that is being made is that there will be an increasing proportion of trips originating or ending in the corridor but which are going somewhere else or coming from somewhere else. And in fact, that is a fairly large component right now according to the 1992 data that was put together for this study.

David Frank—To pick up on what Marc said, and to combine what John and I said, we could see in the corridor two types of traffic: there is a downtown core-downtown core (business), and there is going to be a lot of pressure for that to decline unless the communities of interest between the key points build. And that's the sort of traffic that would be of most important interest to high-speed rail (but we are not supposed to talk about high-speed rail). You could still see substantial growth in this more wishy washy sort of traffic that's coming from miscellaneous points throughout this entire sprawling suburban area. And you've got to be really careful about the distinction between those two, because it will be next to impossible to capture a lot of that traffic that's spread so

diffusely throughout the corridor. What John and I are hitting on is really strong downward pressures—and probably disguised by some of these numbers—on the real downtown-to-downtown traffic.

Richard Soberman—The fundamental question that you're looking at in this study is: forget about high-speed rail; what's the travel pattern picture going to look like 35 years from now? There's belief on the part of proponents of these studies and government agencies who are in the business of providing transportation that there's going to be more of the same, a lot more of the same. And I think there are two dimensions to this. One is, what's actually going to happen to the economic activities in this area? You are talking about a generation of people who have grown up in southern Ontario and part of southern Québec who have never known anything other than continual growth except for short little blips. There's a belief that that's going to continue, but I don't think there's any substance to prove that it's going to continue. People in Toronto believe that when their house prices dropped 35% two years ago that this is a momentary blip. It used to happen to Ottawa all the time; it happened in Montreal many times. But in Toronto, it never happens! This is going to bounce back! Well, it's never going to bounce back. There's no fundamental economic reason for it to bounce back unless there's some conflagration some place in Yugoslavia and Ukraine or God knows where, and we get another 600,000 immigrants coming in to Toronto! There are fundamental structural changes occurring in the economy wherein Toronto is not the place to be anymore and southern Ontario is not the place to be anymore for a couple of reasons. And one of them has to do with the whole changing nature of the economic base of the country. So there is this concept that we are going to continue to grow the way we have already grown; that's one of the fundamental assumptions that goes into everybody's growth models whether it's Dan Brand's or Marc Gaudry's or whatever other consultants decide to predict growth in air travel.

I've got to translate this into an example. I'm very involved in what goes on in the metropolitan Toronto in terms of the rapid transit system. We are building subways into green fields because some people believe that Toronto's always going to grow. And we're building subways to carry 300 people an hour because we still have this mentality that the more you build the more there will be growth and these facilities will fill up, and that's the concept behind high-speed rail—if we build it, they will come! It's like the "Field of Dreams".

Now, the other dimension is the assumptions you make about growth: how are patterns and modal choices likely to change? Well, I think we have two railroads in this country that are in a great deal of difficulty, and one of the reasons they are in difficulty is that trade patterns are changing. And they are changing as matter of public policy. We have this free trade agreement which says east-west is not necessarily the predominant flow. I always agree with John (Gratwick), but I don't agree with him on his concept that we won't always be sort of resource based. The economic base of this country is still resource based. There are people who believe we are going to sell colour televisions to the Japanese, that we are going to change into a high tech society. But resources play a big role in the economic base of the country. Free trade says fundamentally we are changing trade patterns, so that Toronto/Montreal, Toronto/Ottawa, Ottawa/Montreal will always go to Ottawa as long as there are federal handouts—there is no other reason to go there. But if free trade says the trading patterns are going to change, then obviously business traveling patterns are going to be impacted. Today you cannot get an airplane from Toronto to Washington except via Baltimore with a propeller—or you would go to

Buffalo first or to Rochester. And this globalization says that Canadian companies want to deal with the World Bank and international agencies that are located in Washington, and they can't get to there from here, but they are certainly trying to do it. So, whatever you believe about growth, I think that the dominance of the Toronto/Montreal component of the so-called corridor is really going to be downplayed, setting aside any political differences. People used to go from Toronto to Montreal to go skiing. Some of those people now go to Whistler; Whistler didn't exist when families used to pile on the train to go to Montreal—and actually, if you price out Toronto/Mont Tremblant for a week versus Toronto/Whistler for a week, you know, there is not much in it anymore they way airlines' fares are—and it's warmer out there!

The last thing that I want to say is, surely there have got to be some technological impacts that are going to affect the trends. We are talking about a 33-year period. Thirty-three years from today, I don't expect to be at this meeting for very obvious reasons; but I don't expect anybody else to be at this meeting. I expect this meeting to be taking place in a different way. Not only that, if you look at some of the barriers to travel today, some of them are the antiquated air traffic control systems we have in Canada's major airport. And the grief of, say, traveling by air is really related to the airport problem. And 33 years from now, presumably we are going to be able to run our airports better than we do today. So some of the hassle factors which might make travel by rail or taking your car more desirable—for example, on a day like today [there was a storm the day before]—presumably the technology will take care of that. So I see the air mode having greater modal penetration, because they will benefit more by technological advances than intelligent highways. So, you make on page 1 (of the Issues Paper) the statement that says "*Clearly the corridor's transportation network will not be a simple extension of the present*". Well, I'm not at all convinced that it will be anything other than a simple extension of the present.

Daniel Brod—In addition to the trends that you brought up about globalization, I think there is a concurrent trend, and that's toward greater geographical concentration of specialized industries—a Silicon Valley type phenomenon—and I think we need to be sensitive to how industry along the corridor is going to develop, in particular if you are looking for higher living standards and higher productivity to be obtained, while being nice to the environment and everything else. An important thing for the development of the region is how industries will locate themselves along the corridor. And that depends on how easy is it to get from one place to another. I think the whole issue is basically how businesses choose to locate, particularly if you're looking at higher productivity service industries. Any business locates because they either get tax breaks, or there's cheap labour or because there are some tremendous advantages in a particular location, perhaps characteristics of the labour force. But even if it is better or overall more expensive transportation, you may have a price-time trade-off. But if business is confident they will be able to shave half a per cent off costs by locating in a particular location, that's where they're going to go. And if the whole focus is there, well, we're globalizing—everybody is going north-south and not in the east-west corridor anymore, then you may invite more of that supply and demand, and it may become a self-fulfilling prophecy.

Richard Soberman—Industries have always favoured the heartland of Canada—southern Ontario and Quebec—for a number of reasons: low cost power (which we don't have any more), lower labour costs (which we don't have anymore), lower cost of living (which we don't have any more). Higher productivity!—firms are not locating in southern Ontario;

they can go to the Niagara frontier in the State of New York, and they can get all of those things—a more willing work force, less taxation and government interference, just as low energy, if not lower energy costs, and lower wages.

Daniel Brod—So we have an antiquated transportation system—right?

Richard Soberman—What do you mean by an antiquated transportation system?

Daniel Brod—Let's say some minimal investment would improve

Richard Soberman—Let's put things in perspective. There is no transportation corridor in this continent that, relative to demands of population, is better served than the corridor you have right here. It's not like, hey, this is 19th century. We have fantastic highways, but nobody on them except in the urban areas. You're not going to deal with that problem. We have got an airport that carries in 24 hours, what Chicago carries in 20 minutes called "Miserabel." We've got buses, we've got aircraft, we've got trains: there is nothing antiquated about the system that exists here.

John Gratwick—May look antiquated by 2025.

Richard Soberman—Will it?

John Gratwick—I don't know.

Richard Soberman—His job is on trends such that we will be in big trouble 33 years from now with the existing systems. If you believe in intelligent vehicle highway systems; if you believe that there will be some improvement in air traffic control system, and aircraft technology and the environmental impact of aircraft technology—quicker aircraft and stuff like that—if you believe in some degree of substitution of communications for transportation, and if you put that in the context of a reasonable growth perspective for the area, I don't think anyone could say that the future portends disaster.

David Frank—I'd throw a couple of ideas in there to support that. If more of the airports here move to an airport authority, that would increase what could happen there and the potential. If you move to an open . . . Well, we will be moving to an open air policy. That will stop a lot of this Ottawa-to-Toronto-to-fly-to-the-capital-city-of-our-number-one trading-partner garbage. If you are talking 35 years, there is no reason why cabotage couldn't exist, and all of sudden you've got in this corridor a whole flood of foreign air carriers serving it as well. And you've got even today, if you want to look at the technology of aircraft, look at the Dornier 328 coming out this year: 30 seats very high speed passenger aircraft, and it has got a galley in it, and it has got a toilet in it! In the Portland–Seattle corridor...Horizon (?) Air provides air service every 30 minutes; people just get there, they don't even prebook, and away they go. Southwest Airlines is the only profitable air carrier doing the same thing, so the future is not automatically bleak.

Richard Soberman—There is also privatization which is something we've not mentioned. If things really got bad, and they don't have to get bad, somebody could make money providing a better rail passenger service between Montreal and Toronto today under the right conditions. There are some slow moves towards privatization, and the airport authority was the thin edge of the wedge. Given CN's picture today, surely some

businesses can cut a deal with CN to operating better service on their track or on CP's track between Toronto and Montreal—nothing to do with VIA—that would take some of the pressure off government and be more attractive from the standpoint of users, so there's an untapped potential there.

Daniel Brand—Let me just try to jump on that—the substitutability. The market for high-speed rail is diversion from air. Let's get that straight. When you say you can operate a system privately, where privatization has a chance to make money, are you really allocating all the costs?

Richard Soberman—We are not supposed to talk about high-speed, but the traditional market for high-speed rail is air. But the proponents of high-speed—and by the way, we are all here because there are some eloquent proponents of high-speed rail in the corridor—will never accept that argument in Canada, because if you took every single passenger in the Canadian aviation system and put them in high-speed, there still wouldn't be enough. So they are counting on penetrating the automobile market, and I think the sums don't add up if you look at the price. (But we're not supposed to be dealing with that). What I'm saying is that there are companies like an airline or bus company that could come to CN and say "look, we want to rent your track, not using any government costing formula; this is how much we're prepared to pay you." And on that basis, they could run a service which might or could be profitable from the standpoint of the investors. I mean, we are getting a little off topic, but since there are tremendous subsidies that go into the system today, there is a precedent in Canada that you ought to know about of governments capitalizing subsidies to buy out a service or saying, o.k. we now spend \$20 million a year in this service, you go build a bridge to Prince Edward Island and we'll give you the \$20 million a year. So that becomes part of your revenue calculation and you would worry about the financing. So there is a market for rail travel, and VIA actually has been reasonably successful in attracting riders. The market seems to be more quality-dependent than time-dependent, so it doesn't mean 300 kilometres an hour, but maybe someone can operate a Metroliner-type of service between Toronto and Montreal in 3-1/2 hours and, "In'sh Allah," and everyone thinks this is great. That's all we need.

Daniel Brand—Let me wander closer back to the topic. I know we are not on socioeconomic, but the statement was made that the existing transportation system in the corridor, that absent high-speed rail, the statement was made we've got a great transportation system in the corridor.

Richard Soberman—No. I said "not antiquated."

Daniel Brand—Okay ...that absent Nationair, that all I heard were bitter complaints on the part of folks in Toronto and Montreal about the price of air service between Toronto and Montreal, and indeed diversion to a true high-speed rail would be very dependent on the price structure between air and rail. I just wanted to confirm something I heard, and that is that the feeling is in the future, with foreign air carriers and competition and so forth, the price of air would come way down—could come way down in the corridor.

Marc Gaudry—I think you should leave government subsidies where they are. If you had true prices in the short run, you'd jack up everything in air 20%; Montreal/Toronto, probably 30%; probably 40–50% at the peak. But once you jack it up even 40% at peak, with a peak surcharge at Pearson, it would still be down trend. I think there is no

evidence that air will not keep falling in true price everywhere from the technological development. I think you're right, and irrespective of whether the government starts believing in self-financing of airports.

Tom Lightbown—We are getting into the next topic which is the role of government and policy and privatization and a whole range of issues there. Perhaps we can conclude on any other issues that fall into this domain of socioeconomic factors. What I hear being said is that, certainly as far as business is concerned, there is an important tendency to trips that are going to be outside the corridor which would take, in fact, ridership away from all systems including high-speed rail, unless it were convenient to connect, having made one part of the trip, let's say, between Montreal and Toronto or longer. That there are trends toward industrial location, and they take people away from the thin margins of corridor and, therefore, you would lose some of the concentration that can benefit the different modes. And that there is a diffuse mass of other travelers that maybe are not candidates for high-speed rail. But that basically, given those kinds of changes—and I'm picking up on Marc's first comment and Dick's comment—that maybe nothing will change; that there is this overwhelming trend of the use of the airplane and the automobile and one would expect those things to continue.

Richard Soberman—Well, I fully expect there would be lots of constraints on use in terms of the type of technology, energy taxes, and pricing. And the socialist government of Ontario is talking about toll roads, which is fine. I mean, it's probably the first good idea they have had in a long time, so, yes there is definitely ... (End of tape) .

Richard Soberman—...someone on Toronto Council, somebody stood up and complained about the environmental impact. The Metro chairman said, "Ravines are places where dirty little old men molest little boys, can we move on to the next item!" Thirty years later, you can't do that, and 30 years later you can't build expressways in almost any urban area in North America. So I don't think anyone here is of the belief that the automobile is not going to continue to do everything the way it always did. And I don't think there is even a belief that rail travel can't penetrate some of that market better because, presumably, if there are restraints on automobiles, some of that market is going to go to the railway.

But there is one other factor which is the urbanization pattern. We are talking about a corridor which has got two major poles, Montreal and Toronto. Quebec/Montreal is in the corridor, but it's not part of the Montreal/Toronto corridor, and Montreal/Windsor's in the corridor, but is not part of that Quebec/Windsor corridor, it just happens to be lying in the same general line. There is nobody going from Quebec to Windsor or from London, Ontario to Quebec City, but the organization pattern, and again we have to learn from history; we have the preeminent Science Council of Canada, Patrick McTaggart-Cowan who was the chairman. He cleaned up the oil spill, and he said trains will disappear; everybody is going to fly STOL. We had STOL demonstration services between Ottawa and Montreal. City Express is gone, Air Canada won't keep that Toronto Island service going much longer, because the downtown-to-downtown orientation is really changing. A much larger portion of the trips which leave Toronto to go any place, including Montreal, are not leaving from any place near to downtown. A lot are still going downtown, but even that is changing. And one of the features of rail systems, whether it's in the northeast corridor in the U.S. or in European cities, is that intercity rail is actually part of the package—that people get to the railway by using the metro in Paris or some form of public transit. Look at the most recent data from Toronto-the-Good (when I say

Toronto-the-Good, we have the reputation as being the most transit-happy people in North America; Boston would weep to have the kind of modal splits we have in public transportation in Toronto): We have just completed a 5-year update of the Transportation Tomorrow Survey, and guess what folks?—modal split is declining. It's a secret; I mean no one will admit it. We are starting to lose, and it's declining because of the spatial patterns of whatever population growth there is, so there's a mitigating factor against the downtown-to-downtown component which doesn't augur well for rail. It may not hurt rail more than anybody else, but it sure doesn't help out any.

Tom Lightbown—What discussion can we have related to this on the issue of congestion, which obviously affects the length of the trip here in terms of time and obviously the distance that people are traveling? What's the pertinent discussion on the issue of congestion related to urbanization and how that affects or how that may affect choice of modes in this distant future?

Marc Gaudry—I think the answer is in your next section. It depends essentially on the government's management of supply and control reaction, and so that's really in the next section. It's an urban phenomenon here as in the corridor essentially, and it's a political market at present that's running supply prices.

Richard Soberman—The issue is, let's suppose I decided to come here this morning—I came here last night—the issue is how does urban congestion affect my choice whether to take the train or take the plane or use my automobile. Well, from Toronto to Montreal, I mean there are other factors such as comfort, safety and everything else. But my point about the change in spatial pattern is not that people won't go downtown to get a train. Downtown is still the most accessible point in the urban area. But for suburbanites coming to Montreal for the day, for many of them, it's easier to get to the airport than it is to get downtown. Forget about the speed aspect, at 7:00 o'clock in the morning, if you get out of your bed in Toronto, for the business market, more of them will find it easier because of where they live to get Pearson International Airport than they will to get to Union Station. So take the train service out to the airport.

John Gratwick—But then, Toronto geographically is a one-sided city. By definition anything that's (unintelligible) is nearer for the majority to downtown.

Daniel Brand—On socioeconomic issues, let's make sure that we don't overlook Marc's second point—and that is the potential for high-speed rail (sorry to mention it) to restructure the region. That means the potential may be high or may be low, but when the interstate highway system was built, for example in the U.S. in New England, the folks in New Hampshire could get the better lawyer in Boston very easily. It led to an incredible specialization of functions: you know the hospital at Dartmouth in Hanover served all of northern New England basically as opposed to the local community hospitals in Vermont and New Hampshire. I guess the issue is the restructuring of the region and the headquarters offices now all pulled to Toronto, if you will, not needing branch offices in Montreal, being able to serve Montreal with whatever train trips that could be made in a day back and forth (day trips). I think that this specialization of functions issue and the potential impact of high-speed rail on it is a very large issue which needs to be explored.

Richard Soberman—The issue is that if you put high-speed rail in, which none of the proponents want to stop at Kingston, which is kind of weird, which is halfway in-between, you'd change the regional specialization in Kingston because people will now

locate there knowing that they can get to Toronto and Montreal in an hour. But that's not what we're dealing with.

Tom Lightbown—I want to give you a couple of numbers that were kind of interesting from the research that has been done on travel in 1992, and this says something about people's willingness to use different modes. The mode access time for airports, and this is for all trip purposes, is about 30 minutes for Toronto—that's home to the airport. And for the use of rail, it's 15 minutes. So people are putting up with twice the access time to get to the airport.

Richard Soberman—I really believe you know there are lies, damn lies, and statistics. I don't believe that figure could be supported. I happen to have done some work on airport access to Toronto International Airport, and it is absolutely astonishing what the distribution of origins was of people going to International Airport. It may be that the average access time for people who use Union Station is....

Tom Lightbown—That's right. That's what the research I mentioned shows.

Richard Soberman—Okay. Alright. That in itself tells you a whole story.

Tom Lightbown—It does indeed; if you look at current travel, the choice of modes and current travel patterns, it tells you something about what people are going to put up with.

David Frank—On the socioeconomic discussion, to add to what Daniel (Brod) had said about industry concentration in areas and some of this globalization thinking and the restructuring that was linked to high-speed rail. Airports are really driving that restructuring right now. More and more goods and the whole way that our economy functions.... And I believe it is moving away from resources base into high-value. There are more telecommunications employees in B.C. now than there are forestry employees.

John Gratwick—More people grow marijuana than either of those. (Laughter)

David Frank—Airports are driving that restructuring and that trend is increasing out even more, and that would have far greater impacts than any rail station would ever have because a rail station is only helping a business restructure within that corridor whereas the airport hooks you up to all those points served by aircraft. Denver is becoming a biotechnology centre, and it's because Denver is a major airport for two air carriers. And you are going to see that trend accelerate, especially because your exports are now going out by air freight. In Australia, which is a resource-based economy, 25% of the value of all their exports goes out by air freight, and the growth is in air freight. So if you are looking for socioeconomic trends over the next 20 years, you're going to see more and more corporations—and it's happening already in the location decision—asking the questions "What are the air services, what's my access time to that airport, how convenient is it? It's also a big threat to your downtown cores as well. So when you're talking restructuring, in all these ways, I strongly believe it's going to happen through the airport.

John Gratwick—This highlights a point that we haven't actually touched on here—that one cannot consider the changes and developments in any of these modes in terms of passengers only, because in most cases there's some sharing. Either like airports, they are carrying both passengers and freight; railway certainly—I mean, the rail right of way at

the moment is being conditioned entirely by the freight demands on it, not primarily by the passenger demand, and that probably is going to be true for conventional rail as long as it exists. Certainly highways essentially are as much freight carriers as they are people carriers, and what you do with them depends on how each of those things grows. We have got to be very careful here so that we are not looking too much at passenger and passenger developments in isolation from freight which is by far the bigger user of the transport system than the passenger.

Tom Lightbown—One last point that I want to cover before we move on to government and policies (privatization and that kind of thing) is the changing population. What are your thoughts on an older population? We focused mostly on business, industry, commercial-based travel, that kind of thing. An older population—how would an older population require different or same services?

Richard Soberman—An older population definitely prefers rail service. They don't want to drive, they don't want the anxiety associated with using airports. Old people like trains because they believe that when they were young they used to like them. They forgot that they hated them. It was nostalgia that said, well, before the airlines came along people really supported passenger train in Canada. Well, John moved to Halifax, and I moved from Halifax. I spent a lot of my early life on trains, and anyone that thinks it was good then is really myopic. Our experience with transit in urban areas shows that Toronto has one of these aging population characteristics which causes a lot of the problems—we have more household formation with small households because they are older—children have left. They are the predominant users of transit, particularly in off-peak periods.

Darcy Toms—The older people 20 years from now won't have that train tradition that you are talking about. Are they going to be still favouring train in the future or are they more likely to take air because they have always been doing that?

Richard Soberman—Because they will be more sophisticated in terms that they will all have been on the Shinkansen and the TGV and all that sort of stuff. I mean there's a big, big appeal out there for super trains.

Tom Lightbown—How about the sophisticated highways, smart cars, driver information systems?

Richard Soberman—We're talking 35 years, not 350!

Daniel Brand—No, no, no—in 35 years it's going to happen.

Richard Soberman—Dan! That's what the president of RCA told us when we were students and that was 35 years ago.

John Gratwick—I'm not sure that it's so simple; I don't think it's just a one-way move. I think for a lot of older people, and we're seeing this very much in Nova Scotia at the moment, and it's causing the transport department regular problems. There is a grim determination with which older people are holding on to their driving licences. And what we're talking about now is saying they can't see the road signs, they're not fit, so they are putting up bigger road signs; we're not putting them off the road. We have a situation where these people are going to need a robotic driver there because they are not capable of doing it themselves, but they will not leave go. There was a terrible backlash when

there was some suggestion that at 85 you might have to have another test, and the thought was "what happens if I don't pass it? You mean I would lose my licence?" It was unheard of, but I think some transport departments may mean to do that.

Daniel Brand—I think that Dick has never hesitated to be a minority, but there is the smarty wax school of thought that says that as the current population used to cars ages, they will hold on to their cars and they won't go back to rail, and that's kind of a conventional wisdom.

David Frank—It applies to air too—a lot of these people are growing up with these small aircraft and the like. We are talking 35 years from now. The fear of flying is rapidly moving out of the system. Deregulation really accelerated that; you can see all these grandparents visiting grandchildren for the first time; there is a real social change because it became accessible. That might not apply as much to the corridor as it would in longer haul though. But people underestimate that in 35 years from now, fear of flying is basically going to be gone.

Daniel Brand—You've put your finger on something that is interesting, and that is the value of time. When you were 35, years ago, riding that train in Halifax, your value of time was less; and as a retiree, present company excepted, I guess that value of time certainly goes down, so that you might be more amenable to be using rail.

Richard Soberman—But I think it's more than value of time; I mean, it cannot possibly be quicker to go from New York City to Washington by Metroliner than it is to fly in the south, but a lot of people do it.

Daniel Brod—Downtown-to-downtown, it's a lot quicker.

Richard Soberman—Right, downtown-to-downtown. I don't think you or Danny could say it's a lot quicker, but let's say it's quicker by Metroliner. I don't think people take Metroliner solely because of the travel time difference. The trip is short enough that the anxiety level associated with using an airport, checking in and waiting in air traffic control, that is worth something. And there are people who every once in a while, just for the hell of it, like to take the train to Ottawa. I'm taking the train because I just want to check up because next time I write an article or something I want to make sure I'm roughly current; I want to be sure that there really are 20 more people on the crew of that train. I can't cite you the articles, but there have been articles that show that a lot of people take the Metroliner because they don't want the hassle of La Guardia. I agree that people going to see their grandparents in Vancouver aren't going to take the train. You asked the question—what's an aging population mean? Well I'll tell you something; if an aging population doesn't have some positive impacts on the use of rail travel in the corridor, then we are in deep trouble.

Tom Lightbown—Any other comments on socioeconomics?

John Gratwick—Is this the end of pollution and environmental questions?

Tom Lightbown—That's the next topic.

The next topic is the role of government and policies, and my question is "what are the principal changes in the role of governments and in policy that will influence

transportation in the corridor and what effects are they likely to have." This has to do with the role of different levels of government, the role of the private sector, the availability of support for modes (this is the whole question of subsidies versus user pay), the future of subsidies and VIA Rail, the current system of uneven distribution of support, the whole family of questions about this—fuel taxes, how they may change, environmental policies. What's key in this area; what are the key trends?

David Frank—Governments can't even afford this. They have to make some very tough decisions. And where are there more votes? Hidden or non-hidden subsidies to your transportation system or making sure people aren't lined up outside hospitals? Politically, that's a really simple decision: sorry transport companies, you're on your own. And it's going to be carved out. It's just a question of how fast. It's happening around the world: privatization of carriers; government will be removing its nose from subsidizing. You're seeing the last dying gasp of it right now, around the world. It's not just here. And also on the regulation front, there are controls on foreign ownership that will be declining because those companies have got to raise equity somehow. So the companies themselves are asking for that. On the regulatory front, you will see more open international policies following trade patterns and the like, massive withdrawal of government. It's just a question of how fast, and whether Canada is leading it or following it.

Tom Lightbown—Is this shared by the rest of you?

Richard Soberman—I think you guys are overly optimistic. The National Transportation Act of 1967 said: you lose money, you lose the services—that's what it said. Sure there have been some changes. I think that we overestimate the impact of government policy. Obviously certain government policies are really important, like whether or not you build an airport or expand an airport, or whether or not to build a highway system. So the decision to build Highway 401 is an issue of government policy and has tremendous impact on travel patterns, and decisions to improve the capacity and performance of Pearson Airport or Dorval have big impacts on how people use the system. You've got Terminal 3 in Toronto—it's an example of the private sector at work. Too bad they picked the wrong airline! But just keep in mind that Marc Gaudry and his jolly gentlemen of the Royal Commission said, "*Boy! we shouldn't spend public money on supporting passenger travel in a deregulated environment, and it's come one—come all*", and the next day the government turns around and gives \$60 million to Canadian Airlines! So I don't think the transport policies per se have a hell of a lot to do with what happens. Obviously, deregulation of the airlines has some impact, but that's a done deal.

Fuel taxation—this is where I keep going around in circles on these government reports. These guys say that automobile users are highly subsidized or that airport people that use the aviation system, people who travel between Montreal and Toronto by air, are not subsidized by anybody. Anyone who believes that Dorval or Pearson International Airport loses money is nuts! I don't care how you play with the figures. But the point is that fuel taxes and things like that have never been earmarked as transportation revenues, and governments in Ontario, Quebec and Ottawa will deal with fuel taxes on the basis of anything other than transportation. It's a cash cow, it's a fundamental source of government revenues. So they are going to increase or decrease fuel taxes on the basis of things that have nothing to do with transport policy.

Tom Lightbown—Do you think that will continue?

Marc Gaudry—Yes. I'd like to distinguish two different things here. First, you asked if we agreed with Dave's position. And let me say the following: I think as a general trend, I think it has to be right for the reasons that you've stated. But on the more specific question of how and whether it will fully happen, I think it's much harder to be precise. I think the tough one is not whether carriers will be subsidized or traffic control privatized. It's whether you get full cost recovery for infrastructure, because the orders of magnitude of subsidy are quite large, notably for freight, and if you want full cost recovery for roads, the problem is not as much cars, (we have roughly 10% subsidy on cars, it's questionable, it depends on trip lengths). Say cars break even roughly, bus breaks even, air is massively subsidized, no matter how you do the accounting (the Royal Commission spent a lot of resources doing a proper accounting exercise). But basically, the taxpayer doesn't get a return on land at Pearson. There is no proper, straight economic framework which will not give you a subsidy if you don't price land correctly. And obviously rail is massively subsidized, no matter how you do the accounting. So the top question is: will governments, because a lot of these subsidies are truly hidden, be willing to recover costs, especially for trucks. Let me say one thing on trucks and one thing on the environment. Let me clear the environment first. We tried to compute environment using very high prices for damages. And no matter how we did it, we came up with environmental damages that are no more than 3% of full transportation cost for passengers. Doesn't matter how wild you are unless you want to stop everything dead, it's no more than 10% of total cost. There's no way. And if you came up with 10% of total cost, people would fire you because they'd say you're estimates of damages are unacceptable. So let's clear out the environment in that sense.

Let's go back to the really tough one. I think the really tough one to answer, to be more precise on David's trend is: which government over which horizon will fully recover money from trucks? In Europe, cars are cash cows, but trucks produce large deficits, very large deficits, even with fuel rate properly computed, that are 3 to 4 times the Canadian ones. In Germany, without the externality costs, heavy trucks get a 20 to 25% subsidy easily on the German road network. The French—they're starting to compute it: it's higher. In Italy—they've been working on it for 3 years, it's ballpark or more. In Canada, the Royal Commission, in Volume 2, bent over backwards to be pleasant to the truckers, and their subsidy rates are 50 to 75%, being generous to the truckers for heavy trucks that would do say 100,000 kilometres. So, the true question is a political one. That is, because the massive iceberg in infrastructure is trucking subsidies, will the governments overcome the Allende complex. I call it like that because they all remember that Pinochet did not bring down Allende. The 9 months truckers' strike brought down Allende. The French government was nearly brought down in March 1987 and again this summer in July. The truckers are a menace and a growing menace, and nobody is willing to face it and they have such massive hidden subsidies of the order of magnitude or more of the train subsidies in percentage that unless we can swing this around, there will be billions and billions of subsidies that will go on for another three generations. So I think that's the major thing; that it requires tremendous political courage to price infrastructure correctly for trucks. It requires the army. Reagan brought out the national guard after the real wages of teachers fell for the first time after the deregulation. In Canada, our army wouldn't be sufficient to control the truckers even on the provincial capital. They are much too powerful.

Daniel Brod—I don't think you remember (Reagan's) tough stand against air traffic controllers.

Marc Gaudry—Yes. He couldn't try the truckers right now without the government falling. The French government can't do it, the German government can't do it. The Canadian government can't do it. That's where the money is, that's where the hidden subsidies are.

Tom Lightbown—So the problem is, if we are looking for a level playing field between passenger and freight, there probably is a difficult problem here.

Marc Gaudry—What Dave's saying is—and I wish you were right—government has no choice. They'll have to have truth in prices and get networks to be self-financing. I wish I could be alive to see it for trucks.

Richard Soberman—On subsidies for trucks, you've got me really worried. How big is it?

Marc Gaudry—Do you want a one minute or two on this?

Tom Lightbown—Sure, one minute or two.

Richard Soberman—If you're telling me it's based on the cost allocations study in the Royal Commission, I'm sorry; it has no credibility. I know about that study, and they wanted a study done in three months that took the U.S. government 17 years to do.

Marc Gaudry—There are two different things. Let me distinguish the Royal Commission from the overall problem of finding a good cost allocation for trucks. I would stake my career on stating that there is no way to show anywhere that the following is false: Truckers break even. I think no credible economist anywhere can show that truckers break even anywhere in their big networks. Now, whether we agree with the U.S. studies of the early 60's—whether it's 4th power or 20th power, as the Germans think when traffic moves up and down, whether it's third power—how you do the allocation of joint cost, all this has to do with the plumbing. But on the overall gist of it, I think it's massive, even by any reasonable accounting of what you do with the fuel taxes, the taxes are extremely high. I'm a consultant to the German government. I've been for 3 years, and we were all stunned to see that heavy trucks had 20-25% subsidies.

Richard Soberman—What is the magnitude of the subsidies to truckers? You made it sound like if truckers paid their fair share of public costs ... I just want to know what the magnitude is? Is it 5¢ a liter, is it 10¢?

Marc Gaudry—In percentage of total trucking costs, for a 25-tonne truck, assuming all trucks do 100,000 kilometres per year, the subsidies we computed are about 50% of total cost per kilometre for trucks. For 40-tonne trucks and 60-tonne trucks (the legal maximum) the percentage goes up to maybe 65-70% with admittedly conservative estimates (Volume 2, page 96 in the English text). I don't want to go into a side discussion on these exact amounts, because they are a question on their own, and there is reasonableness as to whether it is high or low and so forth. I'm just trying to answer a very global question that was asked by Tom concerning David's statement. I think it's in the right direction, but I think that we are dealing with one of the greatest challenges to a democracy, and it is the power of trucks. To give a yes answer to it, you have to

conclude that government agencies would become part of the infrastructure and can do economic accounting and costing on heavy trucks.

Tom Lightbown—Our focus is passenger transportation. The importance of this discussion is that there is something in the system that has to do with subsidization of truckers that would perhaps suggest that we would not automatically see the withering way of the state as far as subsidies are concerned. What we want to focus on of course is the other part of the subsidy, or the support equation for passenger transportation.

Daniel Brand—Could I just ask two quick questions on the passenger side which are factual? He said air—I think he used the term "massively subsidized"—and I think I understood you to say it's mostly the opportunity cost of the land for the airports.

Marc Gaudry—About half of the subsidy on average.

Daniel Brand—In the U.S. there seems to be this prevailing wisdom that air passenger transportation is not subsidized, when you take all the costs into account. But I don't think those costs (I'm not an expert on this—I haven't looked very closely at it), but I really don't think they worry about the opportunity cost of the land for the airports. Is Canada different from the U.S.?

Marc Gaudry—In administrative practice, not; in that the taxpayer can have zero return on Pearson or Vancouver or Montreal. So in that sense, no.

Daniel Brand—I meant in terms of this thought that if in the U.S., air transportation really breaks even, you can't say you should support high-speed rail because you're subsidizing air. In other words, is the argument not valid here that you should subsidize high-speed rail because you subsidized air?

Marc Gaudry—Not yet.

Daniel Brand—I just want to make a small point. While that's true in general about air transport, generally aviation is heavily subsidized; and it's probably true that you have trends that involve 30-passenger planes, and, the smaller the plane gets, the more subsidy you have. So that's the competing trend with rail. It's relevant to point out that smaller planes enjoy a subsidy.

Daniel Brand—The other kind of factual question was that I think I understood you to say the environmental damages from, I guess, passenger transportation, are really only about 10% of the cost.

Marc Gaudry—No, on average, for all modes, we computed 3% using very high estimates of nuisance costs, plus noise emissions using high numbers. I was saying if you thought these estimates underestimated the true cost of pollution, and you wanted to jack up the numbers and you multiplied the rates used by 3, you would be thrown out of court in any assembly because people would say you are using the ecologist millionaire implied values for all these things.

Daniel Brand—I would suggest though—and we have done a little work in this area—we really do not have a clue as to the ozone effect of the greenhouse effect cost, the long-term medical effects, so that it is very difficult to say that it's 3% or 10% or 100%.

Marc Gaudry—I concur entirely.

Tom Lightbown—One more question; then I suggest we take a 10-minute break.

David Frank—Let me modify what I boldly said at the beginning here. I would say visible subsidies to any transportation mode are in serious jeopardy and very quickly. New hidden subsidies are going to be very tricky to put in: some sorts of tax breaks and all those sort of things. The removal of these old hidden subsidies like the Royal Commission is trying to do there, that's a whole different question. The opportunity cost of airport land is a concept I have serious problems with because, why don't you just shut down Pearson, and then, all of sudden, that subsidy is gone and the wealth goes up. There are so many counter arguments, I think some of these old hidden subsidies are going to take a while to disappear. Two final points to clean up: first, earlier, it was said that air fares will probably go way down. I wouldn't stand up and say that. I think there is a slight downward trend, but there is not too much further they would go. In real terms. And then one thing Tom said about focussing on passenger: I believe this very passionately—you cannot examine any of these issues just by passengers. You should always be saying passenger and freight and preferably freight and passenger, because freight is driving the more macro trends here.

Tom Lightbown—Yes, I agree, and we will talk about it.

Daniel Brand—One last miscellaneous point: on the air fare issue, the air experts agree certainly that there is long-term slight decline in real terms of air fares. I think my concern is more that you will get Southwest-type airlines jumping in to this high volume shuttle market of Toronto/Montreal. I mean Southwest is the only profitable carrier in terms of planes with a 15-minute service. It doesn't have onboard services. It is really a low amenity, 15-minute frequency, Dallas-Houston service. And the average fare is \$50 for the trip. The published fares are in the range of \$29 – \$79. Is there a reason why that could not happen?

Richard Soberman—Well, it's happened; these guys come and go which is what deregulation is all about.

David Frank—I could see a decrease on average of about 10% in air fares over the next 12 years.

Richard Soberman—What about rail fares?

David Frank—I have no idea.

Richard Soberman—Just taking Amtrak policy that says that you've got to recover 70%—everything could change over night. The government did come close with rail passenger legislation establishing cost recovery targets for different classes of service including the corridor, and it gave the corridor 5 years to achieve full operating cost recovery. Had the legislation been tabled and had the legislation been passed, I think it would definitely have some impact on travel in the corridor.

John Gratwick—Generally, I agree with David. I think governments will not be in a position to afford any level of support that they may be giving whether it's unequal or

whatever it is at the moment. I don't think that they will be able to do it even if they are prepared to start allocating some tax revenues more directly to the costs. One way or another they are going to go on pulling out, and that is what they are doing now, and that is a worldwide phenomenon. I think the question of infrastructure, total infrastructure costs which includes the land side, is a more difficult problem, and it will be a slow evolution rather than a sudden conversion. I don't think you can change these things over night. Who is going to buy the Seaway when it becomes completely redundant? It gets pretty tricky to sell that sort of infrastructure or to think of it in terms of what is its value. Maybe we shall do the same as we did with the original canals: they fell out of use because of the railways, and eventually we gave them to Parks Canada who turned them into a recreational thing, and they became somebody else's responsibility. It may not be so easy in some of the other areas. I agree with Marc that the biggest problem in the whole costing/pricing ownership of infrastructure is the one of the clash between freight and other users of truck issue. It's very large. I don't quite know whether it's going to be an army issue or not in the sense of how you change it. What I think will tend to happen, however, and I think it resolves some of these arguments about this business of cost allocation, is that particularly as you increase the difference, you destroy any compatibility that exists between operating automobiles and trucks on the same piece of highway. And this is becoming more and more difficult for a lot of technical reasons as well as just the problem of cost allocation. I think what we shall see is dedicated lanes or even dedicated highways that will be freight highways, and you will have the smarter highways that will initially obviously apply to the automobile traffic, on to that side of the business. This will certainly make cost allocation a lot easier, because you won't have to allocate the cost; you will just say what's the cost of this lane versus what's the cost of that lane, and each one bears its own. And that will solve all these arguments about whether it's 4th power or anything else. I don't care what it is, this is what it costs and that's what has to be paid, so that may help to resolve that.

With respect to air, it seems to me that deregulation intends that there should be, as there is in trucking, funnily enough, continuous entry and exit. The good come in or the brave come in and try and the failures depart. And one of our great difficulties is that we don't let this happen at the moment so easily in air, even though they are deregulated. Clearly we've got to get use to the fact that the logo on the tail will change a little more frequently than it has in the past, and it is not a great crime. I don't think it matters if it happens, and I think we should see this and this may be the answer on the rail side as well. Here is a situation where the government support for rail is not as it happens primarily in the infrastructure. It is in operations of the railway, which certainly I think they are going to find ways out of. The primary one which is VIA is now the smaller of the two large subsidies to rail from government—the big one is the freight subsidy for grain, and it isn't a transport subsidy at all. It's a subsidy to farmers, and sooner or later we've got the same problem. They are just as powerful in their way as truckers, and they don't want to know the truth and they certainly don't want to be held responsible for it even to the extent of receiving the subsidy directly themselves. So I see broadly the trend of governments getting out of the business of supporting transport, and where they are still providers in the sense of being involved, perhaps in parts of the infrastructure, I think that will also move to a more rational form of cost recovery.

Daniel Brod—I pretty much prescribe to what you've put forth. How fast that happens and how rapidly Canada moves toward a rational policy depends on public attitudes more than anything. I was just reminded of a discussion I had with the Regional Municipality of Waterloo where... (End of tape)

Daniel Brod—...why should the government be in the business of running airports, and as long as the supply of transportation and the types of supply beyond safety, and if you have a legitimate concern, at least in the public's mind, the legitimate ground would be to operate through government. You probably won't have as rapid a withdrawal as the Commission would like to see.

Just a small comment on what you said about dedicated roads for trucks. At least in the U.S., nobody ever built a road for trucks and nobody ever built a dedicated link for trucks. And the reason it's not been done yet is that trucks don't vote. The entire transportation system is geared around the passenger side, and as rational as it may be to do that, you would never see the politicians gearing transportation policy towards freight.

Richard Soberman—But that means it's got to be for a logical reason. This is the same problem we have for exclusive transit lanes. If you dedicate a lane to transit and there are no buses, it's a waste of resources. If you have 3 lanes of a truck way and 3 lanes of an auto way between Toronto and Montreal, you've got 6 lanes. Maybe at times you need 3 and 3, but there are going to be times when you are going to have everybody in the 3 and nobody in the other. I mean, we are talking about harmonizing the use of capacity. Some really believe that they're going to take a bridge and say, well, since this one is for automobile, we're not going to build....

John Gratwick—Yes, but on the other side of that one you've increasing physical or, if you like, operational incompatibility between the two. Automobiles are getting smaller; trucks are getting larger.

Richard Soberman—There's a way to deal with that: limit the size of trucks—that's the function of the Association of American Railroads! (Laughter)

John Gratwick—But, if you manage to do that, I think we've already got to the point where the performance of those two is not very compatible, and certainly some of the weather conditions....

Richard Soberman—Look, it's even worse in the urban areas if you listen to the guys in the traffic helicopters. The big disasters occur because of an incompatibility of truck drivers and automobiles. It may not be the truck drivers' fault, but there is a fundamental incompatibility there. But you've got more faith in the future if you can imagine somebody twinning Highway 401 for trucks only. Taking Highway 401, and widening it, o.k., these will be truck lanes and truck traffic stay there, sure that's o.k. But then, soon as you do that, John, it does not solve the cost allocation problem. You're talking about a marginal increase in capacity—and, what, the pavement's going to be thicker in those lanes and thinner on the other lanes. Is that side of the bridge going to be stronger?

John Gratwick—Who pays for the white line that separates them? (Laughter)

Richard Soberman—If you did really beat up—and I'm no friend of the truckers by the way—if you really did beat up on the truckers and forced more traffic back onto the railways, the only potential for rail passenger travel is the continuing decline of railway freight, because now the railways have to look for some other sorts of revenue from renting their right of way—which also has an opportunity cost.

Tom Lightbown—Last comment, then we'll take a 10-minute break.

David Frank—I know you want a break, but it's kind of related. We've been focusing a little academically on the question of subsidies. I would like to throw it right at the hard core political reality. There is right now increasing pressure on different provincial government and federal government transportation ministries, when these tough decisions are being made, especially in B.C. Where did all that money come from? It came out of the Ministry of Highways, and it doesn't relate directly to subsidies and that but when you've got to balance education cost, health care cost and transportation ministries, it's transportation ministries that come up the losers. Even the ability to do some of these subsidies is declining, even to support current infrastructure. I see it declining dramatically over the next 5–10 years, as long as we have federal deficits and provincial government deficits, transportation budgets are easy, easy targets just like national defence.

Tom Lightbown—Let's come back in 10 minutes and carry on.

—BREAK—

Tom Lightbown—I'd like to continue with the discussion of role of government and policies and be a little more specific, a little more focused in our discussion. Let's try to do that by looking at the different components of the current network: roads, airports and the different modes. We'll come to modes specifically as far as service is concerned this afternoon, but we've been talking generally about the availability of funds, the difficulty of the financial situation governments find themselves in, the hidden subsidies that are there and the difficulty in moving away from an existing pattern. Let's take roads for a moment and discuss the role of governments, again looking into the future. We know what's in place now, how might that change?

Marc Gaudry—That ties in with David's last point that we should be precise and address where the political market is. I'll try to answer your question for road, but I'll try to give it as a general position because it wouldn't be true for all modes. And I'll try to give just the distinctive part of what I think is the new part. We all think we know how political markets work, and we try to forecast it. When we asked ourselves this question on the Royal Commission, our biggest problem was to really try to understand why on very big projects—high-speed rail—the Europeans are going all the way out or look as if they were. In addition to everything you've heard about it, we think we've hit one cause that we hadn't thought about and not heard about anywhere that might explain some of it and which is applicable for roads and for all the very large networks that government tends to supply now. We think that you could take out a component of the political market and call it my position in space relative to the others. I'm trying to be analytical to isolate it.

I went to talk to the Dutch government officials about the high-speed rail line. It's going to be the most expensive in Europe. The \$2 billion for the 100-kilometre line of infrastructure is written in the Dutch books *prêt à fonds perdus*, you know, "lost funds, forget the capital"—it's written as such! I said, how can you possibly say "forget the capital" on \$2 billion for 100-kilometre of line? And they said it's extremely simple; it has nothing to do with the environment, with the lobbies. We don't want to become the (unintelligible) of Europe; we don't want to be pushed up in relative distance from the heart. And then I realized, and I think others in questioning the German government

officials and the others realized: once the first guy has it, the others want it, not just because it's also a shiny car, but because suddenly everybody says that he's cutting his travel time by half. You don't want to be pushed out not having your relative travel position worsen by half. We didn't have time to work it out analytically or anything like that, but I've tried to push it a little bit, and it's very, very crucial for the structuring of the German high-speed rail—\$150 billion capital over the next 8 years. We know there are only 2 lines or 3 in Europe that make money in any comparable way, although we could quibble about the accounting. How are they going to last? A lot of it has to do with maintaining your relative position in space, and the political markets that hit now...that presents this demand can often be a lower level of government. For example—all the French regions are chipping in 30% of the infrastructure cost to get the high-speed rail line. They are pushing in roughly 30% to make it up to the 8% real discounted value that the French government has. They say we travellers can't afford to be left out in the wild, so we are willing to suffer an absolute loss to maintain our relative position. So we're all in the red, but our relative positions don't change. It's exactly like between 1870 and 1900—tremendous boom! They don't know what to do with these things 10 years from now maybe, but everybody wants this line, everybody is willing to put in a huge amount to keep his relative position in space the same. It's a very very powerful thing. It's hard to state it otherwise in an analytical fashion, and people could disagree with it, but it's the only clear thing that we thought was new after you've listed to everything that we all heard on these questions. And suddenly, the whole thing made sense to us.

Daniel Brand—But that assumes that there are real benefits, and I wonder if there are real benefits in Europe that aren't here because of densities and airport congestion and delays and whether....

Marc Gaudry—No, in addition to all that, even if on the basis of all of these other benefits, you could not justify it, you still want it. The other guy has it and you want it to keep your position, even if you get the negative return on your investment.

Daniel Brand—Well, this can't last forever. Once they start getting built, then the benefits either will be there or not. It doesn't take too many of these massive fiascoes to essentially turn public opinion around.

Daniel Brod—A good counter-example is 25 years ago, France and Britain went ahead and got a Concord, and the U.S. didn't build an SST and....

Richard Soberman—That's a tremendous battle.

Daniel Brod—That's right—everybody wanted the new shiny toys, but I don't think in retrospect there is any argument about who was the winner, and all of these investments at the end of the day have to be.... I mean you can build whatever fantastic scenario you want, but at the end of the day, you've got to be able to justify your investments by rate of return test. We have got a resource limit somewhere and....

Marc Gaudry—I agree with you. No economist could disagree with that. But if we're dealing with how this political market works in very special ways, if that's true, there might still be a political demand for something that obviously has net resource cost and implies net proven negative returns no matter how counted, but which people still want. Because they don't only care about absolute income but about their relative revenue income. So if you define the utility function not just on absolute levels....

Daniel Brod—It's national prestige?

Marc Gaudry—No it's, well...

John Gratwick—Yes, I think if you go back in transport history, this has been the norm, not the exception. This has been the way we have done everything. You've either linked it more directly to a question of national prestige or, more frequently, national security, national integrity or something.... Why did we build canals? We'd built canals originally because we wanted to be secure from the U.S. The railways were built again as a nation-unifying thing, not because there was a pent-up transport demand out there waiting to be used. It hasn't ever been used to the capacity it was built to, but it was built for non-transport reasons. The fixed link is our latest example of this; it has nothing to do with solving our transportation problems.

Richard Soberman—I thought Marc was actually going to say something else—which he almost did. I think you have to be a little careful here. The success stories in most countries deal with—at least in terms of technological innovation—with the need to deal with a real problem. So DeHavilland Otters and Beavers were fantastic success stories in Canada because they were developed to deal with the site-specific problems of remote regions in the north; militaries, all over the world wanted Otters and Beavers. Toronto started building a subway system, Montreal started building a subway system when no one else in North America was. It developed a transit manufacturing industry such that Hawker Siddley were able to piggy-back on Toronto orders, Bombardier was able to piggy-back on its orders and penetrate the U.S. market where there is no rail (transit) car manufacturing industry. But these were successes that came from responding to dealing with the domestic need. As soon as we start to push STOL aircraft for DeHavilland—Twin-Otters were successful airplanes, but not because of their STOL capability—there are no real STOL services of any consequence.

Now the French, one of the things about the French is, when you go to École Polytechnique, it is expected that you will spend some of your time working for public purpose. You might go to the Railway, you might go to the Paris Metro, you might go to the nuclear energy thing. I mean the last thing in the world anyone who is a top student in technical fields thinks about working for when he or she comes out of a Canadian school is working for one of the railways. But in France, it's different—the French decided as a matter of policy they were going to capture the world market for transit equipment and they did. The only bids the French don't win in the metro market are the ones that they don't have the capacity to win. And for right or wrong, the French decided that they were going to be the best in railway technology. And they have. I mean, 515 kilometres an hour on the ground. There is no way you could technologically. Now you have the demography and you have the environment, European structures of cities and the distances between cities, the size of cities—it's very different from what we have in North America. The example is Japan. Bullet train was a fantastic success, partly because there are one million Japanese per square inch and in Canada there are one million square inches per Canadian—and that's got something to do with the appropriateness of the technology. So, a digression: question—you said "*What are the trends in government policy?*" We're dealing with trends here. What trends in government policy are likely to impact on corridor issues? Well, if there was a government commitment to research and development in high tech in transportation, it could impact, but I don't think there is. If government said we're not going to spend any more money on airports, that would have

an impact on the corridor. But I think if government said we're not going to spend any more money on the airports, somebody would step in to fill the void. We have some example of it in Terminal 3. If government said we're not going to maintain, rehabilitate or expand the road system, that would have some impact on trends. But the likelihood of that is zero because that's the cash cow we are talking about. Road improvements are one of the easiest expenditures that government can make, recognizing that we are talking about two different governments. The one dealing with airports has got very little to do with the one dealing with highways except for airport access. So the only trend that we could look at that could affect the modal choices is the government policy with respect to paying the operating cost losses—I won't even call them subsidies anymore—for rail passenger service. I did a calculation last week: the Federal government spends \$180 million a year for VIA services in the corridor between Toronto and Montreal. Suppose they said "no—the writing is on the wall—we have a continuous decline in our payments for these services, and eventually it's going to go to zero." If you believe that, what impact would it have? And I think the impact that it would have is that actually if the subsidies weren't there, the service would be operated at lower cost.

Daniel Brand—Can I get back to the nation-building as a driving issue towards whether or not they're going to pay subsidies? Marc and John were very eloquent in terms of—I mean in Europe there are lots of Eureka or EC-type programs basically directed to building a united Europe (EC-building). I've spent some time in Taiwan, and their high-speed rail is being promoted principally to unify the country, to keep the folks back down on the farm and not all living in Taipei, but allowing them to get into Taipei—letting the whole country be a suburb of Taipei, in effect, to promote decentralization and fight the centralization. I guess the issue here is: we will build high-speed rail between Quebec and Ontario to promote "nation building", but maybe I'd get laughed out of the room by saying that. Is that real?

Richard Soberman—I actually don't think this nation was built on ribbons of steel, and maybe what we need is high-speed rail between Toronto and Montreal to solve the national unity problem—I don't know.

David Frank—There have been worst suggestions for solving the national unity problem. (Laughter)

John Gratwick—What shall we try this week? (more laughter)

Tom Lightbown—We've got two extremes—this position and the one that Dave started with, which is to say the government can't afford it any more; whatever it is the government can't afford it any more. What's the position, what's the basic value that's going to drive into the future?

Richard Soberman—I definitely believe the government can't afford it because we have competing demands of health, welfare, education the need to retrain people if we are going to have any economic growth, which have to come out of the same pot. We have today one of the best health care systems in the world, relatively. But the writing is on the wall. You young guys aren't going to be able to take advantage of that if governments continue to spend money the way they spend generally now.

David Frank—Something else to add to your list: you've got the role of governments, but also you've got the role of financial markets. In the last little while, we've had the

Latin American thing they got burned on; the financial markets got burned on energy, they got burned on real estate. I think the flavour of the next years is going to be transportation. In this country, we have two air carriers that are carrying combined \$8 billion in long-term lease obligations and debt. And they basically have a market capitalization value of only about \$130 million combined. Somebody's going to eat that. That's not theoretical money. These people who are issuing these bonds are going to take a real hard look, even with federal governments down the road saying "what are you spending this money on?" And they are going to stick their nose in this. And if somebody says "for nation building purposes; let's do this wonderful thing, and it will only be a couple billion dollars," the financial markets themselves might just say to the governments, "Sorry! It's just not in the cards." And we are talking 35 years down the road here; that's not an outrageous scenario. All it takes is for the government of Italy to default on a bond issue of some sort or delay payments, and you can bet these financial markets will come on like a ton of bricks on these different governments within the time frames you are talking about. That could be very real.

Daniel Brod—They have four times the debt that Canada has—that's 400% of GNP. I would say that even though a government doesn't have money, they are going to continue.... If they were pursuing the rational policy, the way they would look at infrastructure investment is to see if it has a good social rate of return. Then they would see how much is commercially viable. Today there is a lot of smoke and not much fire in privatization of transportation services, but it's slowly gathering speed in the United States. There will probably be 3 privatized highway projects starting in the next few years: 2 in California, and 2 in Virginia. And the issue for the financial markets is risk-sharing. What happens if they don't come; what happens if there is no traffic? So once you begin seeing the risk sharing arrangements being hammered out, the more privatized projects getting underway, then the government actually takes the steps on social rate of return, looking at commercial viability. They're going to look at something like the Prince Edward Island bridge and say, well the private investor is going to get so much out of it, here's the sweetener we have to kick in, and after we throw in the sweetener, it's still worth it from the social rate of return point of view. So I think that there will be severely limited resources, and the government probably has to take an active role, at least in guiding projects toward the private sector. They will certainly have to come in as some kind of guarantor with risk-sharing arrangements, even if they don't actually pay them from the budget. There will be some kinds of commitments if nobody rides on the roads. The government will have a role even if there is a privatized transportation future.

Tom Lightbown—What do you think the likely arrangements might be? Let's take airports. There may be some private financing of runway extensions and new runways. What kind of arrangements do we expect there would be? There will always be somebody who is going to respond if there is demand. The private sector comes in and there's going to be some arrangement as you suggest. What's the nature of those arrangements likely to be?

John Gratwick—One comment that we (National Transportation Act Review Commission) heard was that the only thing they (the banks) could see in the total transport spectrum, the only thing they could see ever putting money into was airport runways because there was a direct relationship between the landing fees ... in other words you build a runway, and there is a cashflow that comes in from that in terms of use of that runway.

Richard Soberman—What about the terminal building itself?

John Gratwick—Okay. But, what they are saying is that's got nothing to do with transportation. You can build a shopping mall anywhere.

Richard Soberman—Just as you can have runway charges, which is revenue for an investment, you can have gate charges, which is revenue. Obviously, in a place like Terminal 3, their expectation as to how many people were really going to buy things from stores was wrong. These are not the only guys in the world to make bad marketing judgements. There's a small firm in Toronto called Olympia & York that....

Tom Lightbown—How about the road?

Daniel Brod—Part of the arrangement will be that whether or not the traffic comes, if the alternative supplier of transportation services is the government, part of the arrangement is going to be guarantees by the government that they are not going to build another road to go around the toll road. Governments are going to have to promise not to provide alternative services which will undercut the investment, toll road or rail line or the air terminal.

Tom Lightbown—Can we be specific in the corridor? How do you apply the principle? How do you and others see that being applied in the corridor?

Daniel Brod—If you're looking at the privatized sector—if you are looking at a toll road section for example, there would probably be in your contracting agreement specification of limits on development to the alternative modes.

Daniel Brand—I think this is very interesting. You see in bond agreements of course these kinds of no-compete facilities. We're doing studies of a totally private financed high-speed rail system in the Texas triangle; and they've really become serious about it. And the unknown is Southwest Airlines and the fare war business, because presumably Southwest Airlines could drive this thing out of business in a fare war. Here in this corridor, are we to say (I would say God forbid) that if a high-speed rail line were built, that the government would agree not to subsidize national carriers anymore or not to promote air service or competition? This sort of suggests that maybe big funds ought not to be put into high-speed rail.

Richard Soberman—I think to be realistic, if this was a different government, if the government of Ontario, if the government of Quebec were to fund high-speed rail, it would give them an opportunity to not extend roads by saying we'll put the money into rail. The problem on the aviation side of it is that—say the federal government is responsible—we're not going to spend any more money on Pearson Airport in Toronto because we've put money in this high-speed rail. But the reality is, if you put in improved rail service—and I wish you guys wouldn't talk about high-speed rail—you should talk about improved rail service that covers a much larger gamut. Then presumably, if it is a successful investment, the government of Ontario won't have to promise not to expand their highway. They won't have to expand their highways because people will be on the train.

Daniel Brand—Especially the congested ones around metropolitan areas.

Richard Soberman—There's a million people on train service today. There's another million seats between Montreal and Toronto on the airlines. If you're saying it's not substitutable for anything but airlines, and you get the whole.... if you eliminate all air services between Toronto and Montreal, so you get everybody on the train....

Daniel Brand—I'm just saying that with the highway congestion problem in and on the periphery of metropolitan areas, with all the peak spreading and the kind of variety of travel choices that are and aren't made, the intercity folks aren't really going to be diverted from auto because the time advantages of high-speed rail kick in at the 4- or 6-hour trip length, but that those auto travellers are really a very minor fraction of the people who are congesting the highways in urban areas.

Richard Soberman—If you're talking about trends, where is the market for improved rail service going to come from? You're saying it's going to come from the airline market. Take the whole airline market—I'll give you 100%. Take 'em all! Cancel all airline services between Toronto and Montreal. You can have 100% of the airline market; that's not enough! These guys at Bombardier are going to hang you up by the yardarm if you say there are no automobile travellers that are going to use rail...

Daniel Brand—There are some.

Richard Soberman—...because that does not give you the numbers.

Tom Lightbown—I know that the role of high-speed rail—and we do keep on bringing it up, because it is obviously...

Richard Soberman—But we're not allowed to...

Tom Lightbown—It's not that we're not allowed to. It's that what Dan needs and the other forecasters need is a base line, and the base line doesn't have high-speed rail in it. Let me try a different approach. Currently, support is given to the different modes, and this is another feature of the work we are doing: we are also looking at each segment within the corridor and estimating modal subsidies. We are now in 1993, and we are looking out toward this future point in time. We talked broadly about the lack of monies you need to provide support. What is the likely evolution? The Commission has taken a stand and set up two scenarios. They would like to see it go to user pay. What do we think is going to happen for these different modes into the future?

David Frank—Let me hit you with airports because I think they are pretty straight forward. It's a little difficult to articulate, but the movement to airport authorities is going to have a profound impact on this. Montreal, by forming an airport authority, has a huge competitive advantage over Toronto. I have said this very publicly in Toronto that if they don't get to an airport authority—I mean, they are already pretty stuffed up with privatizing their different terminal buildings there—but if they don't get an airport authority in there, that airport is in serious jeopardy. There will not be cheques from the federal government or for people that build these runways to address these environmental concerns. One of the reasons they had to go to the private sector for Terminal 3 was there was no money coming under the federal regime for Pearson. With Montreal—and you have the authority there—the authority will be investing; it will be going to the bond market itself, it's going to be more customer driven, it's always going to be striving to

improve its role. So if you are looking at the future of the corridor from an airport perspective, it's heavily linked to whether these things form airport authorities. Now the airports who do not form airport authorities are going to be left behind. They are not going to be customer driven, they are still going to be buried in the bureaucracy from Ottawa, and that has serious implications for your air traffic.

Tom Lightbown—Let's say Pearson is not doing the same kinds of things that Montreal will be doing, what happens to traffic?

David Frank—I think what you will generally see is a weakening, at least of all these projected growth rates, and that on the Montreal-Toronto air corridor, you will see Montreal expending more externally, and less will be happening in Toronto. I think it's really been underestimated in the community of Toronto how linked they are to that airport, how important it is, and that the future of that airport really requires an airport authority to keep going. It just can't be done, this role of government—government doesn't know how to handle Pearson. They don't know how to solve the problem. They don't know how to put in a new runway. They sit there. Now they are split between 3 terminal buildings—it was a pain when it was two, and it was supposed to be an improvement. And that could really stuff up the future of the air corridor between Montreal and Toronto.

Tom Lightbown—This will impede travel?

David Frank—Airport authorities look further afield, and they're seduced by the more international side, the more exotic. You already see it between Edmonton and Calgary. What used to be the sky bus air corridor there is crumbling; it's not the cash cow it used to be. There is not the demand, people aren't hopping on that plane and booting down to Calgary. I see that same thing happening between Montreal and Toronto over time, especially if there is not an airport authority in Toronto. It's hard to articulate why; I'd have to think it through some more.

Richard Soberman—But I said that earlier, if they don't deal with bad management of Toronto International airport. We know it! It's terribly managed. If you take a guy in the Department of Veterans Affairs and you make him airport manager; that is part of the classical approach to government. It's a terrible airport, but it could be a lot better. If it gets bad enough, it's going to impact on short trips, and that will be good for other modes. People will say ... it goes back to the hassle of going to Toronto. Look, last night at 8:30, why am I sitting there for 20 minutes waiting to take off? There was no air traffic. In any other airport in the world, you'd be outta there: they close the door and 3 minutes later, you're gone. In Toronto, there's delays Thursday morning at 10:00 or 10:30. So the hassle at Toronto has impact on people taking short trips by other modes—it's good for rail. What's interesting, though, is the hassle isn't enough to have people fly from Island Airport which is downtown. Now, one of the reasons people don't fly to the Island Airport is because the hassle is worse; it's also propellor airplanes, but one day it will be jets. Canadian Airlines have tried to operate out of Buttonville. They're closing down. In other words, it's bad, but it's not bad enough yet. If it gets really bad, it gives a slight impetus for rail travel.

David Frank—I guess what I'm saying is that I don't see a shift as much to the modes in the corridor; I see that traffic just leaving the corridor. I see that traffic shifting, and, say you've got a more open international air agreement with the United States—a business

person in Montreal will avoid the hassles of dealing with Toronto Pearson airport and will shift business to where there's less hassle.

Tom Lightbown—You're suggesting somebody in Montreal might do business elsewhere?

Richard Soberman—You've taken an urban model that says if I can't go from here to there, I'll go some place else, and now you're applying it to an intercity concept that says it's too congested getting to Toronto, so I'll take my business to Boston.

John Gratwick—No, I don't think you're saying that because you're not really going because you want to go to Toronto. You're going because Toronto is the air hub to go everywhere else, and you won't use it in that sense.

David Frank—That's the immediate impact, if it is a hassle, if the commute is a continuous hassle, as we reduce these different trade barriers and that, businesses will start to look elsewhere.

Richard Soberman—What you're saying is that Toronto as an attractor and generator is going to decline due to mismanagement in the airport.

David Frank—Correct.

Richard Soberman—This is the airport that Marc says is subsidizing everybody because of the opportunity cost of

Daniel Brand—Let me give you this specific example. This study is being managed out of both Toronto and Montreal. To get to Boston, I have the wonderful choice of a 4:25 puddle-jumper, non-stop, and the last plane at 6:46, which I'm taking tonight, a puddle jumper via Hartford—that's the service in the evening from Montreal to Boston—2 to 3 million population!

Richard Soberman—How about Toronto to Boston?

Daniel Brand—There's lots of service. So, I always jump up and down when we have these coordination meetings with 50 people and say "Let's hold them in Toronto; Montreal is a pain."

David Frank—The reason those things are there—how, I'm not sure in the Boston case—it's against the law for that service to be provided. That's why you do these weird things—well, that's disappearing.

Richard Soberman—Come on guys. The reason you have your puddle jumper and all that, it's got nothing to do with the airport at each end. The Toronto/Boston market is stronger than the Montreal/Boston market; otherwise, you would have more frequent service. In just the same way you cannot get from Washington to Ottawa non-stop, you can't get from Toronto to Washington non-stop. It's a hassle, but it doesn't mean that instead of going to Washington you're going to go to Detroit.

David Frank—That's not right though. You can't fly from—there is no service between Ottawa and Washington, D.C. because it's against the law. The bilateral prohibits it. The demand is there. You and I cannot start an air carrier and start that service.

Richard Soberman—I know that! But what I'm saying is, it's against the law, it's a hassle, but people still do it. The reason Dan can't get a decent service between Montreal and Boston is that Montreal and Boston is not a really fantastic market. I mean, I know we've got this high-speed study with Charles River Associates and Peat Marwick, but this really is not the basis of national transportation policy. The connection Montreal/Boston is not as great as....

Tom Lightbown—The local airport authorities, one of which is established in Montreal—is that going to most likely repeat itself at the other airports in the corridor? And if so, what will that mean in respect of government support?

Richard Soberman—Is it going to happen in Ottawa, in the nation's capital?

John Gratwick—It's unlikely to. I can't see any initiative coming from the local region to take it on. Their main customer is running it at the moment and will let it carry on doing so.

Tom Lightbown—I'm very interested in knowing what the responsibility, the continuing or the curtailment of responsibility of governments, will be in respect of these airports and roads and so forth. Because we have another responsibility which has to do with what it's going to continue to cost, and I'd like to get your thoughts on that.

Daniel Brod—There are limitations to what the airport authorities are going to get you. I think a case in point is the guys we saw last week at the Port Authority of New York and New Jersey. They run 3 airports, and the two reasons why businesses leave New York, after crime and schools, are terrible access to the airports and congestion surrounding the airport. That's one authority running three airports. And there are all kinds of rules that one airport can only fly for 1,500 miles, and they'll protect from Kennedy which is further out. The coordination of the authority isn't enough to guarantee that everything will run smoothly, that you'll attract all the markets you want and you'll get all the competitive advantages that you can....

Daniel Brand—But it does. We are doing a big airport access study, AGT, the people mover system, and they are willing to spend \$2 or 3 billion—and that's kind of pulled out of the air, out of the 5 or 6 billion, for that AGT system. So that authority has a lot of money, and they're addressing the problem in some sense.

David Frank—The role of government will back off substantially from airport operation, to be more specific. Even to the non-airport authority. If Toronto doesn't convert over, Toronto is not going to be able to go to the federal government and say, "well we'd like you to lend us money." They're going to say, "That's not our problem; our policy is airport authorities. If you want to solve that problem, form an airport authority then do it yourself." They are going to be very hard nosed on that.

Darcy Toms—What about the air traffic control system? Because the air traffic control improvement can alleviate some of the problems on the ground.

John Gratwick—I think the government's holding on to air traffic control is more concerned with protecting turf. I think they're frightened to death that they're going to lose control over the large number of employees which they have running the airport side. They're going to have a downsizing problem which is going to be very bad. Transport Canada has a vested interest in staying in business somewhere. It's taken on safety as its mission in life—transport safety generally—and it's the overly real sort of policy directions it's got to hold on to—I don't think it wants to let go.

Marc Gaudry—I think that's a good point. Suppose you say here is now, and over there is 100% private sector for all the transportation networks. What would keep us from getting there or what is the path from here to there? (End of tape)

Marc Gaudry—...regulatory role of government, it's not a specifically transportation role. The sweetener role on the way there is...because the political market's still working, so you're changing the form of the subsidy and you're capping it, putting it in a box of a slightly different colour and defining it a little more. I think your second one, the guarantees one, is a major one. When the French government decided to set out these intercity road authorities in the 1970's, they set up 10 or 11. All of them except one went broke in 1982 when demand fell. The Spanish government also had to come and make good its guarantees when its highway authority turned broke in the 82/83 recession, to everybody's surprise. Only one of them survived in France without the government making good its guarantees. Demand can't go down even if it's going up 12% now for five years, it can go down 20% in three years. You never know. So this one is a major one, because you still have large investments. Think of this gang in Ontario which came up in front of the Commission and said "We are going to build a whole highway system for all southern Ontario—a whole 3-lane highway system from the U.S. border, sort of doubling up the network, and we don't want a cent from you; we might want a guarantee." So there will be more and more of these hidden things. Maybe even limits on competition. They're harder to make clear, but it's an old tendency; airport access is given to monopolies by the civil servants. It's very easy to manage, you don't want free access and it's a lot of work and giving them gifts. So I think that's a good one. I think you've hit on some very good things that might appear on the way from here to there. Cars 100% privatized, infrastructure controlled and carrier systems. So government can do a lot of things.

Richard Soberman—Local airport authorities are not privatized. LAA's involve devolving responsibilities from federal government to a more efficient local government. And the problem in Toronto is that if you take the federal government out of Toronto international airport and put in any local authority, if you think you are going to get somebody that's better that will manage better, then you believe in Santa Claus. (Laughter) Why should it be any better? We're not talking about privatizing the airport, putting in the private sector. We're talking about turning it into the hands of local elected officials.

David Frank—That's not the model in Canada though. It's an authority set up as a not-for-profit corporation under the Companies Act, and it has shareholders, it has a board of directors none of which can be elected officials.

Richard Soberman—But the reality in Toronto is that the people who are put in charge of it are going to be put in charge by local politicians, and they are not going to be really any better than the people in federal government.

David Frank—But the model in Vancouver is that the appointees are from a broad range of different organizations so that you don't have a domination by, say, appointees from the City of Toronto specifically.

Richard Soberman—But the history of all these kinds of boards in Canada—Air Canada had a board that was appointed by government, VIA Rail had a board, they are proxies for ... these people love being on boards. They're good for a couple of years and they eventually degenerate. I'm not saying don't have a local airport authority, because I think there are certain cause and effect relationships that you would be able to capture, but don't treat it synonymously as privatizing the airport, because that it ain't. Even the TTC, the greatest transit system in the world, it took time. But I think it's just like the MTA in Boston today; it's only a matter of days.

John Gratwick—I think the move to the airport authority...it's not just anything to handle a lot of the practical nonsense of being a part of the department, and it's exactly the same if you look at Ports Canada and the Harbour Commission. The Harbour Commission can make fairly significant decisions on its own about its changes in procedures and capital expenditures and certainly in operating practices, and it can respond to the market very quickly. An airport, if they want to change the parking fee rate in the car parking lot, it's an Order in Council, isn't it?

Richard Soberman—I know, John, but look. One of the things that you have to recognize is when you take this local airports authority in Toronto—there are two big problems in Toronto international airport—one is the traffic control problem and a capacity problem. Now, we've said that air traffic control, they're not talking about privatizing that. That they're going to keep in Ottawa or Cornwall or wherever they train these guys. The second issue, the airport expansion issue, at Toronto is all an environmental issue, community opposition to airport expansion, and all these lands and so forth. The locals find it much more difficult to deal with that than the feds. I think that in Toronto, the environmental review said "Don't twin some of these runways." And the federal government says, "we're going to do it." The local authorities have more difficulty in responding to the people of Brampton and the Hazel McCallions and Mississauga. So it's a two-edge sword. The feds are totally insensitive to people. That's why we got Pickering. Don Jamieson's went down to Pickering and said, "Hey, you guys, I've got an airport here." They threw eggs at him! He was shocked. They don't know the magnitude of (they know a little bit better now) the local airports authority which is going to have the pals of the Metro chairman and Hazel McCallion and everything on it. They are going to have less able to deal with the capacity expansion problem than the federal government which is a little bit more removed. That's why feds wanted out of the Toronto Harbour Commission and places like that. The local problems became such a nightmare they didn't want to handle it. But the Harbour Commission is managed locally, and it's a disaster. It's not better than a harbour that is....

John Gratwick—Except the move now is to go in that direction like some of the other harbours in Vancouver. Vancouver's port corporation is embarrassed; it's the large port out there and it's got two commission harbours sort of inside its underbelly which can run

rings around it, and it wants to be the same. One way or another, they're never going to be perfect, but there's a move in this direction.

Richard Soberman—I known, I'm not disagreeing that there is a move. I'm just cautioning that the move is not necessarily going to have an order of magnitude impact on what happens.

Daniel Brand—I've been trying to come up with a conclusion, but I can't. But just let me throw something on the table. This issue of the distance between the level of government paying the money and making the decision and the level of government where the problems really occur is kind of interesting to explore in terms of the federal role here versus the U.S. You pointed out the feds here don't build roads. Do they subsidize?

Richard Soberman—No! They have special purpose programs—Trans Canada highway, Roads to Resources....

Daniel Brand—The reason why the highway controversy in the U.S. lasted so long was because of the very strong federal role, the distance of the federal government from the local opposition. And it took until 1970 to stop building interstates in most crowded cities, but they're still building them in Texas. But at the federal role, also, there is this tremendous capital formation in the U.S., and you can do things like Westside Highways, if you could do it, and the central artery depression in Boston. Clinton keeps talking about high-speed rail. We are all sort of waiting for where it's going to be plopped down, but I think the fact that the feds are more involved in the U.S. suggests that there is going to be more of a federal role—because it's far removed from the local—in building some of these major infrastructure projects. There is less budget pressure. Here, with the provinces, the trade-offs between health care and welfare and transportation are sort of more real. The locals can really see the trade-offs, and so the role of government may diminish faster, I guess is what I'm trying to say, in Canada than in the U.S. Of course, conversely, if the U.S. really does wind up building high-speed rail in a few locations, then Canada will want to go. A sort of second order effect.

Tom Lightbown—I want to move to a topic that's related to roads and airports, and that is the question of environmental protection and policies that may change. I think that, John, earlier you asked were we going to get into the whole area of environmental policies, and so forth. What do you foresee as being important, and what kind of impact would those policies have on the corridor network? This is going to touch automobile.

Richard Soberman—One of the issues that's going to have a big impact on any of these projects is the process itself—the process for environmental impact assessment. Requirements of different jurisdictions are perceived to be incredibly cumbersome and are becoming even more so. So if you talk about intercity-type infrastructure between two provincial jurisdictions and many of the municipal jurisdictions and involving the federal government, it's taking longer (this is in the municipal arena). It's taking longer to do an environmental assessment on the subway extension to Toronto than it will take to build it. And it's the same actually with the airport stuff. I think what's happening is that the process is getting about as bad as it can, and then expediency will require it to be reformulated a little bit to eliminate some of the democratic aspects of it.

Tom Lightbown—What positions are likely to be taken and then formulated into policies that will have an impact on the use of automobiles, the way airports are designed and the way aircraft take-off and land?

Daniel Brod—You mentioned the NIMBY phenomenon in the Issues Paper. I know that community participation is more pronounced in Canada than in the U.S. You are going to have to have more types of consensus-building frameworks in order to get a community to accept an infrastructure development project. Will you have technological developments to enhance airport capacity? I think anyone who's looked at it seriously will say those are all pipe dreams that air traffic control is going to use to modernize their equipment. There are choke points on the ground, and the choke points are the concrete. With all the microwave landing systems and all the new technology, planes are not going to be landing that much closer together than they are today. You have better flow control, and maybe you can hold planes on the ground, but the capacity constraints were there when we made the runways. And along the corridor, you're going to have to be building more runways if you're to have increased air traffic.

Richard Soberman—But Dan, with the runways that Toronto has, different air traffic control regime would get more capacity. The Toronto guys say, ah! but that's because we're safer.

Daniel Brod—A 1988 FAA study said they will be getting these tremendous gains if they do ABC, and they got most of the benefits anyway through traffic management. So I doubt ... I don't think the new technologies are going to move the choke pointed system away from the runway away from the need to pour more concrete. So again, what will become important is to get all those home owners—I think there's something like this in Vancouver to get them to agree with a new runway: 6,000 home owners were holding up expansion of the runway. Noise was the concern, and it took a 2-year process to get the home owners to realize that the benefits from the project were so strong, with a net present value of \$4 billion, and the total gross loss came to \$23 million, that it wasn't worth holding up the project if they were compensated. I think your fundamental rule of ground work economics is never to compensate, because the reason why you never compensate is because your defensive markets won't function. If you can apply externalities, then maybe you'll be operating where you should. Around O'Hare Airport, people who bought the houses knew that the master plan included runway extensions, and that went into the price of the house when they bought the house. In light of the expansion, they're trying to get some sort of compensation for the noise. So from a policy point of view, that would be bad policy. The difference in Vancouver was that the people were promised (or it was claimed that) that the runway, the extension wouldn't come in, and it was held up for a number of years, so that this was a case where previous commitments by the government would be broken if they extended the runways. So that sort of gives you the prima facie argument for approving a compensation scheme to people who would be hurt by noise. I think what we'll see in a lot of places where you want to overcome the NIMBY phenomenon is going to be a much broader, more extensive framework of community involvement guiding these communities through a process by which they can see for themselves that they are going to benefit from the project, and showing they won't be such tremendous losers, or where somebody else is benefiting at their expense.

Tom Lightbown—Is what you are describing here the protraction of realizing large-scale development plans?

Daniel Brod—You have CEAA, and you are not going to be able to get away from this process. What I was pointing out is that that's the will of the people. They want environmental impact statements, and they want the review process. You are not going to get away from it. I'm just saying that a lot of it can proceed in tandem with the planning process, that it's not a net 2 or 3 years added from the drawing board to realization.

Richard Soberman—Ah!, no, but the reality is you do an EAA, and there are some objections, and as a result of the objections, you go back to the drawing board and do some more, and the smart objectors have a whole itinerary. We don't give you our 8 objections. This year we give you one. Whoever heard of an environmental lawyer. It's a whole new.... Lawyers are driving taxi cabs in Toronto, and probably in Montreal except the ones who are in environmental law or in bankruptcy. It's a fantastic field—green law. And as soon as you turn this into a legal process, it's worst than traffic consultants—you have to square the time involved.

Marc Gaudry—I missed one point which I think is very interesting. You said you think that actual compensation of both losers, without defining it too precisely, will not happen because it generates more defensive kinds of ...

Daniel Brod—I was saying that the general rule of environmental economics (or of any economics) is that government should be clear about its intentions. So when I go to buy a house, I know that the house is in the master plan that's going to have a runway 20 years from now. So there's no justification for someone who buys the house to compensate them.

Robert Soberman—What happens if a year after you've bought the house somebody introduces an airport master plan which has got that runway.

Marc Gaudry—There was an implicit one-tenth of 1% risk of that, already discounted, that the government would change its mind.

Daniel Brand—Conversely, Boston has tried to go through an exercise of locating a second airport, and basically it is so controversial that no governor wants to say 20 years from now, when I'm long gone, there is going to be an airport there and take the hostility and the opposition. So it's very hard for government to put all that in writing.

Richard Soberman—Let's be realistic. We're talking about Toronto/Montreal, high-speed; we're talking about trends. If people believe that there is a market for improved rail service between Toronto and Montreal, downtown-to-downtown, then you've got to believe that if you operate a small jet aircraft from Toronto Island Airport to Dorval, there's got to be a market for that. It's exactly the same point-to-point thing. And the reason there isn't is because of an environmental agreement that said there shall be no jet aircraft operating out of Toronto Island Airport, even though modern jets are quieter than.... The Twin Otters, by the way I don't think meet the noise standards—and there will be no fixed link. You talk about fixed link between PEI and New Brunswick, there will be no fixed link between the Island Airport which is 400 feet from Toronto, from the

mainland. O.k., so there is a little ferry service that goes back and forth. And those are a reflection of environmental concerns on the part of the City of Toronto. You remove those concerns and put in a nice little jet airplane back and forth between Toronto and Montreal. If you don't think it could make money, how the hell could a rail service make money.

Tom Lightbown—What's the likelihood of that restriction being removed?

Richard Soberman—I don't know. The length of the agreement—it's a tri-partite agreement between Transport Canada and the City of Toronto and Toronto Harbour Commission.

John Gratwick—There is another aspect of the environmental question which, to some extent, comes from the Commission. You had identified the variable environmental charge or surcharge by modes, and this, I think was primarily based on emissions. It wasn't anything to do with the capital environment was it? The infrastructure...it was the vehicle environment side of the environment. This also tends to flow through to this modal choice one that rail traditionally is always held to be much less polluting than the equivalent modes. I was going to sound a note of warning about these sorts of comparisons, because in most cases, they are remarkably shaky and in fact they do tend to isolate just the immediate emissions per mile of useful work. It doesn't take into account even the maintenance emissions, the maintenance of the right of way, which cumulatively probably do more emitting than the actual operation itself. In the same sense, it's always a little naive to talk about, ah, well, if you go electrify, of course then you have no emissions. All you've done is move it somewhere else in most cases. Not in the corridor so much perhaps, but certainly in other parts of the country where you rely on oil or coal-fired electrical generation, and you've also got to pay for the transmission losses. I hesitate to do that piece of arithmetic. I always remember BART, the Bay Area Transit Rapid Transit system. I think the energy consumption of the capital construction of that was about 350 years worth of operating emissions, and it will take a long time before you got even the quality in any of these vehicles. I think in most cases what I would say is it is a risky and often a phony argument to make comparisons or to try to give advantage to one mode over another on this immediate operating thing.

Richard Soberman—I think it is phony and I think it's pretty hard to beat the fuel efficiency of four people in a Volkswagen bug or people on a bus or.... But the problem has very different dimensions in an urban area. I don't know what the figures are for Montreal, but in Toronto, you have a million and half people a day who are on transit vehicles. If you put those million and a half people in private automobiles, the CO₂ emissions are going to be much higher. What that really means worldwide for ozone depletion and forests in Brazil—who the hell knows! Whoever you ask gives you a different answer. So when you take the status quo and talk about modal use.... If we got a couple thousand people a day or 10,000 people a day out of automobiles or out of aircraft and put them on the trains that are already running, there has got to be some environmental benefit that in a way is proportional to ridership. If you talk about building a completely brand new dedicated right-of-way for 550 kilometres, then the accounting is quite different.

John Gratwick—The other problem I see with this is that these emissions are identical to the emissions of a large number of houses that are oil-fired, and I don't know whether one could treat them differently. If these people who save all this time by going by transit

rather than using their automobile turn their heat up before they leave home, a little later, maybe they use just as much. (Laughter) I don't think you relate these things on non-economic arguments. If you think these things are dangerous, then you tax the fuel, whether it's used in transport or wherever you are using it.

Richard Soberman—Well, Ontario taxed tires at \$5 a tire. It is an environmental tax for getting rid of the rubber. The interesting thing is you could achieve the same purpose by taxing the fuel. It can generate the same income, without the downside—and the downside of taxing tires is the teenage with the jalopy who kicks the tires and says "I should really change the tires, but that's another \$20, so I'll wait" or the truck driver who is at the margin and has got 16 of these things. "Well, you know, I'll give it another month." Your pricing—you could achieve it another way with fuel tax. Well, if the teenage said "Well, fuel is more; I'll drive less," that's what we want, right? But it is a clear environmental tax in Ontario that's imposed on automotive users.

Marc Gaudry—We're dealing with political values in this section. If one could be sure that green taxes would be defined and applied efficiently, then we would have deflated and internalized completely by environment in the evaluation process. Part of the problem is that some of the elements that drive the political decisions, for instance on the environment, don't have this easy conversion into a standard unit, and you are left with verbal arguments that politicians have to deal with. We were stunned when we computed these numbers on environment—we are having trouble getting environmental damages worth more than 2% of total transportation cost. If you can internalize the environmental argument by pricing it, by putting a number on it, you've got rid of it. Do we think that over the next 30 years in this trend, that the environment will just be another number in the evaluation process because the politicians will do that? I think that's really a toughie.

David Frank—Time out here. We've been having a very sophisticated argument about the environment and that, but almost everything we've discussed here I don't see directly driving what you're looking at. Two things that I think that are going to happen in the next while: one is taxes are going to have to go up because governments are basically bankrupt. People hate taxes; the way you make them as popular as possible is by wrapping yourself in a green flag. So it might only be 3% on all these different numbers out there, but in political markets, in the name of the environment, there are going to be tax increases, and transportation is linked to that. Whether they are economically efficient or not is probably irrelevant. It's smart politics. And the second thing is on what you have to do in these review processes and how long they take. And Vancouver was a real text book case study on how to get something through. But a social trend that's driving that is that the power of an individual has greatly increased because of their access to information, their education level and their access to the media. So that's not going to go away either. You just take one person who just decides that they don't like something and has got so much more power now to block a project than they ever had. And that trend is not going to disappear. It could even get worse—no matter what processes you put in or how much sledge hammer can come down from a certain government. Those are two things that could affect your demand modelling in practical terms.

John Gratwick—I think too that there's now a new industry, environmental law and environmental protest and everything else, which, with high unemployment is an interesting growth industry. It's becoming very attractive. And clearly there are a lot of

people now and there appear to be resources for them often voluntarily to support such activities, so one can expect more.

Richard Soberman—The reality in terms of trends from an environmental standpoint is airports and highways are seen as bad; transit and rail are seen as good. To the extent that politicians react to perceptions—and you're dealing with transit—trends are going to be less opposition to rail-type improvements than to either highway-type improvements or airport expansion.

Daniel Brand—Let me agree and disagree. The agreement is that I do think that as we worry more and more about the ozone effect and the greenhouse effect, maybe 10 or 20 years from now we'll demonstrate that it doesn't exist. But as we worry more about it, the 3% may well go to 100% and that will support rail. The converse, however, that we are certainly seeing in Texas, is the power of a few individuals—the NIMBY effect—who are standing up at the 39 public hearings throughout Texas, screaming and yelling about the fact that the trains are going to kill the cows. They tried to take some of these farmers over to France and show them these severe pictures of cows next to the tracks, but it didn't work. At an airport, at least Toronto can see what the benefits are to Toronto of improving the airport. The folks right next to the airport can see the benefits. But when you've got 800 miles or whatever, this corridor includes folks that are disenfranchised by the physical dislocation and noise and the rest of it. You can get a lot more opposition by high-speed rail than you could by improving airports, in the places that benefit from the airports.

John Gratwick—We have another issue which is certainly on the time frame that you are talking about, and that is unfortunately the greenhouse effect of CO₂ emissions. (The warming effect is) going to be nothing but benefits to Canada, and this is probably what will double our habitable area. (Laughter)

Tom Lightbown—I'd like to address two other items before we break for lunch. One that certainly merits a long discussion, but let's try to do it briefly if we can, is the future of support to VIA—that is to say, conventional rail. Because our scenario that we are talking about is a scenario that includes conventional rail but not high-speed rail, if it includes conventional rail at all. Right now the supplier is VIA. What is the likely future? The Royal Commission has taken a position—that as of the next 10 years, these subsidies will be wound down. Is that what's likely to happen?

Richard Soberman—No. Look. It doesn't matter what the Royal Commission or anybody else says. You have to look at the start. In 1980, government cut VIA subsidies by 30%, 1984 to 1985, the new government increased it by 46%. In 1990, they reduced by 50%. So what you've got is cut and up, bigger cut. Someone is going to promise to put it back. I think that, yes, 35 years, I would find it hard to imagine that there are any monies being paid for operating subsidies for corridor services. It's government's own legislation that suggested that. We talk about level playing field. If you talk about direct head-to-head competition, the real head-to-head competition is between rail passenger service and bus service, not necessarily Toronto and Montreal, but surely to God Ottawa/Montreal, Montreal/Quebec, and it's happening already, without subsidized competition. And before Marc jumps up tells me how much the buses are subsidized, different studies have come to different conclusions. The range is that bus passengers are either subsidized a tenth of a cent per passenger-mile or they contribute a tenth of a cent per passenger-mile. There's not a lot of excitement about subsidies to the bus industry in

terms of the road infrastructure because he's taking it all out on the truckers. But the evidence is that the head-to-head bus/rail competition put aside fair or unfair, really has inhibited the bus industry from capturing a share of market through market segmentation, special purpose, classy services with T.V.'s and all that. And what we really see in southwestern Ontario is that kids that go to university in western Ontario would never consider using the bus. The Bay Street bus stations are the pits in Toronto: it's for derelicts and everything else. Always take the train service. Greyhound has now ... the kids are starting to take the bus because they can sit there and watch TV. It's a 2-hour trip, the buses are nice, and they have bigger seats and all that sort of thing. There's some substitutability there.

Tom Lightbown—You went out 35 years to come to the conclusion about the absence of operating subsidies to conventional rail. Let's start at the year 2005 which is the window into the 20-year period we're looking at. Let's move out from there. What's the evolution within that period of time?

John Gratwick—It'll be gone by then.

Richard Soberman—What, rail passenger service?

John Gratwick—No, subsidies. It will be the best....

Richard Soberman—The subsidy will be gone, and I think there will be contract carriers who are....

John Gratwick—They'll come to CP and say "I want to run a train," and it'll be a contract service and there will be customers for it. It won't be going to CN or CP, it will be going either to a joint CN and CP track authority or it will be a more open one. It may not even have any label of CN/CP. It will be at least a joint track operating authority. We've got to go to that because rationalization is going to, in fact, piece-meal remove chunks of one or the other. It shall no longer have two sets of continuous

Daniel Brand—Will there be subsidies of the rights of way on the rails?

John Gratwick—I don't think there will be any more subsidy than it is now, because in fact, I think everybody using it, the contract carriers, whether they pay CN/CP or whether they pay an authority, will pay a toll to use it which is the same as the railways do now. The railways pay for it now. The difference may well be that in moving to an authority it will become a not-for-profit authority, and it will just be a utility, providing the infrastructure service, getting much closer to a toll road.

Richard Soberman—I agree with you John, but we are talking about this publicization of what's already public. Some day we're going to get smart railway presidents, and Voyageur is going to come just like this guy, I forget his name, the travel agent. Voyageur is going to say, "Look, I think I can make money running a nice passenger service, 3-1/2 hours between Toronto and Montreal, and I want to do it. What are you going to charge me for using your track?" Whether, CN is subsidized or not subsidized, there is somebody could make some kind of money in that market. It may be a 4-hour service it may be a 5-hour service, it may be a 3-hour service, who knows? Somebody can make it. We'll never find out while it's subsidized because while it's subsidized, why should anybody try to make it?

Tom Lightbown—Is this a common opinion? Does this in effect say that VIA is out of business in the year 2005? No more subsidies for that particular operator? Someone's going to come in, you're saying, and provide a service.

Richard Soberman—I think the operating ratio you have now is about 40%. Unless they hire themselves Peat Marwick or somebody to do some really creative accounting, I think what we're saying is we're not going to have a service which has got such a distortion in the operating subsidy to revenue quotient as it does today relative to the other modes. The Royal Commission says nothing should be subsidized. Well it's 7% or 8% in the airline and 2 or 3% in the bus; maybe it will be 10% in rail, but it's not going to be the kind of distortion that you have today.

John Gratwick—That cannot stay, I don't think.

Richard Soberman—They won't lose many votes by eliminating them.

John Gratwick—In 35 years, they will have lost most of the CN pensioners who have got free passes; they will have passed on, and most of their passengers of the present will have disappeared. CN has twice as many pensioners as it has employees.

Richard Soberman—And they won't get guys running trains who are getting 3-1/2 days pay for a 4-hour trip.

David Frank—But, just like in the bus industry, you will see new revitalized service. I can't tell you what it's going to be, but it will be perceived as higher quality and the theme is not going to be high-speed; it's going to be *higher* speed. That's what Greyhound started giving us. They started saying "Get the heck out of Vancouver and on to the highway system; let's not stop at every dog and pony show along the way, picking up a half passenger every block", and they went out to create demand.

Tom Lightbown—Last point. What's the likely outcome on deregulation or continued regulation of intercity bus?

David Frank—I don't see a lot of support for deregulation of intercity bus. It's a political minefield right now, and there are a lot of people out there who are saying, well there is nobody else serving these 3,000 small communities—whatever the right number is.

John Gratwick—New Brunswick has bucked the trend, and it's got away with it. And now there are small places again that have a revitalized service—mini vans and so on run by local private operators, and they say they're all better off than they were before because they took the risk of trying it.

Daniel Brand—They're subsidized aren't they?

John Gratwick—No, not at all.

David Frank—I would like to see it, but I'm not sure that it is going to happen.

John Gratwick—I don't think the other provinces have got the nerve yet.

Richard Soberman—What would happen if the federal government reclaimed its authority? A long time ago they gave it to the provinces; they said we don't want it. They could take it back. They could conceivably take it back and deregulate it.

David Frank—Although I would like to see deregulation in intercity bus, I wouldn't stand up and say it's going to happen because, there is no political benefit to do that. The bus industry has always been ignored. It's perceived as cheap, anyway. Their big argument for deregulation is it would lower fares. Well, you have already got cheap fares as the general perception. There is no real gain from it, politically, and there was a lot of political downside in the deregulation in the airline industry, everything from cats getting sick to dogs dying have blamed on it. I don't see it happening.

John Gratwick—I'm not as pessimistic as that. I think it may do.... (End of tape)

Marc Gaudry—...VIA rates to anybody who would run the train in competition with VIA. If a VIA rail train runs on a track in Canada, nobody else has a right to run any train without the union rates. We say, give VIA Rail the monopoly for ten years and by getting its monopoly, in the meantime, you hide the problem of free access, but it's a real problem, because the operator could not do it now without applying the rail system.

John Gratwick—But, wait a minute. I think that probably it's exactly the same for passengers as it is for freight. But what you do—of course, that's why the shortlines are appearing—is that you bring it up within the province, and then the labour contract is cut. The Supreme Court has rules, but that doesn't continue.

Marc Gaudry—That's a major problem for your track authority, because if you have a track authority that runs the network, rationalized and so forth, anybody who says I'm going to run my little train on this thing has to pay, and is bound by the legal labour requirements. That prevents people who would use the same track from effectively....

Richard Soberman—Yeah, but listen Marc, the problem is.... Your right; you can't come in and operate under a different operating work rule regime than existed for the prior operator—that's basically the labour successor rights. But Amtrak pays locomotive engineers by the hour; we pay locomotive engineers by the mile, and 100 miles is a day's work. It's the whole industry. If over 35 years we're still operating with 5-person crews, where 100 miles is a day's work and this train is traveling at 250 miles an hour, we're not allowed to mention TGV, but if we're talking TGV.... So if we haven't changed any of that in 35 years, we are going to have a problem because there won't be anybody left. The last person will have to turn the light out.

Marc Gaudry—Did you guys clear that on your Commission (NTA Review Commission)? Did you suggest removing these restrictions to a free access to the infrastructure?

John Gratwick—At the moment, we pointed out and went just as far as saying the only way out at the moment was sort of provincialization of the railway. We pointed out the natural advantage and therefore the benefit in examining and how this could be achieved rather than solving all the problems.

Richard Soberman—Amtrak's labour productivity is twice VIA's. Twice! Basically people working for VIA work half-time, so VIA or whoever is going to change, because they won't have jobs, or it's going to change because the structure will be

John Gratwick—We compared wages of all the modes, and rail is something like 15% higher than air which is in turn higher than water, and truck is at the bottom. And the only one that's just on the edge or even slightly below the national wage average is, in fact, truck.

Richard Soberman—I had a student do a simulation last year of taking Toronto/Montreal train services, costing out the labour components under 3 different conditions pretending that the locomotive engineers were DC-9 captains, and pretending that the conductors were first officers. We ran the cost of operating the train from Toronto to Montreal to see at what speed is it cheaper to pay them as though they were airline captains. And the speed happens to be 125 miles an hour. But if you paid them as though they were an Air Canada pilot, it would be cheaper than the railways. And I'm not talking about crew size.

—Lunch break—

Tom Lightbown—Our program this afternoon focuses on specific modes. This will get us a bit closer to some of Dan's requirements, and of course, we are very interested, since we have to build that reference scenario, in your points of view on what particular modes will look like—what equipment, what operating characteristics—as best we can and try to come to grips with that. As an introduction, maybe we could spend just a few minutes talking about potential changes in demand. I know we've had a little glimpse of this morning, but this is going to respond directly to one of Dan's questions about the growth in the air mode and auto. Just conventional wisdom on the growth rates for each of the modes. Let's start with air.

Daniel Brand—Let me give you just a couple of data points or projection points. There is a report that uses this cross-sectional modal, I think it's Transport Canada; and, as usual, when you leave for a trip you have 20 minutes to get to the airport. And, it says that for Ontario, air travel is going to grow by 3.6%, maybe it's 3.5%, a year and for Quebec it's going to grow by 3.4% a year. There's a .1% difference. And so my question is, what happens to interprovincial, particularly in this corridor, particularly between the major markets, of which, of course, Montreal/Toronto is the ultimate. We could happily take the average and just say, that's it, and then we divert high-speed rail from that growth, from the total traffic projected with that growth.

Richard Soberman—What about induced traffic?

Daniel Brand—That's a separate issue. That's the third stage of the process. We're going to deal with 3 stages—growth in existing travel, diversion and the induced travel.

Richard Soberman—But the French argue that their big increases came from induced travel.

Daniel Brand—We've got a handle on that. I'm not so much worried about that. Are these growth rates I mentioned reasonable? Does the corridor grow faster than total travel? From what we've been saying here, it sounds as though, if air travel from and to

each of those provinces is growing at 3.5% for purpose of argument, perhaps a good deal of that growth is north-south, and so maybe between the provinces it's really growing at 2.5%. Help us pick a number.

David Frank—Your origin-destination traffic just between your points, by air mode: you're probably seeing it just growing at population growth. There is a trend of thinking out there that people are only going to fly so many times, and that things are starting to become saturated—that you aren't going to see the continuous growth rates that we've seen for the last 20 years. You could see a substantial decrease actually in the other components of the traffic which is not O and D traffic. If you get a new air agreement through with the United States, then you won't get as much of this traffic from, say, Ottawa to Toronto. Some of these points will be opening up directly. Your growth is going to happen outside the corridor in air transport, and you could actually lose a substantial amount of this traffic since the corridor is just a component of an international or transborder or domestic journey.

John Gratwick—I get very leery about any of these macro forecasters, with 3.6% stretching out. I know that Transport Canada loves them. They've been doing them for years. They never of course show you the past; they always suggest this is what you'll be in the future. And I come back to looking with a somewhat different approach, if one could make the forecast at all on the time frame we are talking about. I think maybe you can do some forecast over a comparatively modest near-term, but I don't know whether you can really do a long-term forecast, primarily because the real growth in the past—where there has been growth in transport—has been by the provision of services not by demand. People don't invent jet aircrafts to meet an unfilled demand and then dash around to try coax people into using them. And that's what's been the history of most of our transport system. The railways, initially, we couldn't find anybody in Canada to use them. So we went and got immigrants from Europe and said you'll use it. And it's been that way in the long-term. Eventually, it depends on what is available and what's interesting. But the other approach we should be thinking about is back to this business of looking at the population. If we say in some way it's related to population, it's really more important to look at the 3 subpopulations: the non-travelers, the occasional personal travelers, and then the small, business, work-related travel market—and try to make some guesses in two directions: first of all what are the shifts between those 3 populations? Will in fact older people, our aging population...certainly they will move out of the labour group, and they will move perhaps to the occasional traveling course, and eventually, when they get really senile, they will move in to the non-traveling group. And so shifts between those three blocks, if we had some idea of their sizes would be useful. And then secondly, look inside each of those. You needn't look inside the non-travelers, which, I'm pretty certain are over 50% of the population. In the other two, what changes in their travel behaviour is likely to come about? Will they do the same sorts of journeys or will they add to the number of journeys, or will they decrease? We've always suggested that probably in the business market, if anything two things will happen: those who are still traveling for business will be looking at a wider range or destinations from their origin points if they are in the corridor, and secondly, they will probably be traveling less. As Dick said, shan't come to a meeting like this for a day. You can make some guesses about what may happen in the long-term in that business market area. The middle group is the one that's difficult because I think they are also the biggest and the one that there is the most competition for. The business market still, by and large, is not price competitive; it is fairly interested in performance, reliability and reasonable speed. The middle group is not necessarily looking for any particular characteristic. If there is

one that's common, it's probably the cheapest possible, excepting whatever it is will meet what their requirements are. And there is much more variability in that one, and a much more difficult one to predict in terms of a restricted corridor sense, because I think a minority of the people in that category will be using the corridor as part of their trip to somewhere else or from somewhere else. You haven't got this large mass of people dashing up now between Montreal and Toronto just for the fun of it. There doing it to come from somewhere or to go somewhere. There will be a few people who have relatives in both places, I suppose, but I don't think they will be a large part. And it may be, I don't have the numbers, but I have a feeling that even if one can only semi-quantify those categories and those directions that each of the categories might be taking, it might be an alternative to this rather sort of precise 3.5%, which I think is absolute nonsense, quite frankly, and I don't think it's worth writing down.

Daniel Brand—What has been the historic growth rate of air travel in Canada, over the long-term?

John Gratwick—Nobody's separated it out in that sense. The real growth in air travel in Canada has been international in terms of quantity. And it was the coming of the jet aircraft which opened up the possibility of masses of new destinations. The amount of domestic transport, even on domestic links, is limited. But if you look at figures of the Canadian airlines, it includes all that. My guess is that the growth of the pure domestic side has been higher. For a number of years, certainly through the '70's and almost into the '80's automobile travel was going up annually by the order of 3.5% or something, that's almost like the cost of money. The residual figure you always arrive at by mucking about with numbers, but I think air was going up a little bit higher than that. But I don't have definite figures.

Daniel Brod—I'm familiar with where these numbers are cooked from. There's a model with an elasticity of 1, with 24 different market segments. And with these assumptions, you're not going to get 3.6%. You have a population going up 1.5% you've got an elasticity of 1, and the GDP per capita is also growing at about 1.5. The elasticity should be about .7. So, forget about getting 3.6% out of that, unless there is some assumption on a radically dropping air fare.

Richard Soberman—But, if you look at Exhibit 5 (of the Issues Paper)...

Tom Lightbown—Excuse me, I want to draw your attention to this piece of paper I gave you in your package this morning because it has 2005–2025, and it's a better point to look at. This is what Dan Brand has been looking at. These are the current base figures—there are still some adjustments being made—that were prepared by Transport Canada and are being used as the underpinnings of the population and employment forecasts. The number that isn't shown here, and I can give it to you, I've calculated it, is the household expenditures on transport which would grow in Ontario during the coming 13 years at 5.2%, then drop to 3.7%. In Quebec for the 13-period to 2005, 4.8 dropping to 3.5. The other figures are as shown in terms of population.

Daniel Brod—So it should be growing at more or less the same rate as income.

Tom Lightbown—I think that's right. We've got about a 3.1% adjustment to make.

Daniel Brand—You've got a constant dollar thing for income.

Richard Soberman—Your raw population projections in the corridor zones are about 1.25% per year of population growth.

John Gratwick—Is this corridor or is this ... ?

Tom Lightbown—This is the corridor; it's the population zones around the corridor.

John Gratwick—That wasn't very different from the provincial figures, I noticed.

Richard Soberman—Look at Exhibit 15. If you look at the residual, there's not much there. But if you take your 13.2 million and take out of the 21 million over this period of time—I just worked it out on the calculator—it's around 1.2% annual growth rate in population compounded. Look at the demographic data: population (I may have taken the wrong figures). These population statistics, I know how they are derived, and we do it all the time in Toronto. We have a committee, and the problem is you start talking about the numbers, and someone says, "I'm sorry, you have last week's projections," because people are just allocating stuff. I can see no reason why growth in air travel should exceed the growth in population.

Daniel Brand—Well, there's an income component.

Richard Soberman—Just a sec! I can see a lot of reasons why it wouldn't for mainly competing destinations, if you are only looking at air. How many people travel by air depends on what the rest of the system looks like, but if you just take the Toronto/Montreal air travel, and the population goes up, why should the air travel go up faster when there is a multiplicity of destinations to Dallas and Florida, and they're growing at a much faster rate. People are going for vacations; the business purpose is that traditionally they might have gone to Montreal. We used to have to go to Montreal to get a good meal, now can get them in Toronto—once in a while.

David Frank—As that happens and you start going to these other destinations, the community of interest between Montreal and Toronto actually begins to decline over this period of time as well. And compounding that is as you open up your air policy and the like, you aren't forced to route along this corridor to make connecting flights as much. So you have a number of factors. Air traffic overall in the corridor, from this region to the world, could increase dramatically, and that would be the common way; most analysts would tell that. But in the corridor itself, it will definitely be a decreasing percentage or perhaps a rapidly decreasing percentage of the total air traffic that's generated by and received by this region.

Richard Soberman—I know where the 1.25% came from. They show a corridor total of 15.8 (million) in 1992 rising to 21.1 (million) in the year 2015. In 23 years, your going up roughly 6 million and it works out to be 1.25% per year.

David Frank—Just to really hammer this point, in Vancouver over the last year, domestic traffic is roughly off by about 1%, and the transborder is up about 1%, but international is up double digits, it's 12 and 13%. And you can expect that to keep happening.

Daniel Brand—I'm a little worried about your statement that it's not going to grow any faster than population, although if a community of interest business is there or is not there, you're probably right. I certainly agree that the magic 3.5% is going to be composed—the bulk of it is going to be composed—of travel of other destinations and non-stops to other destinations and so forth. But I do think there is some income effect.

Richard Soberman—But wait a second. You've got the population of Toronto growing and the population of Montreal growing. I can't prove it, but the onus is on somebody else to prove that the linkage between Toronto and Montreal will grow faster than the absolute values of the group. There is more competition for linkages as we go to free trade—North American free trade, Mexican free trade, world trade and globalization. Why would the linkage between Toronto -Montreal grow faster than the two places themselves?

John Gratwick—Are you talking about business linkages?

Richard Soberman—Anything! We are not talking about a 2-dimensional model which is looking at 2 cities. We're talking about more like an urban model which is distributing travel. Forget about the numbers; Toronto and Montreal both increase in size by about 25% over the next X years.

Daniel Brod—They become richer. There's more income per capita, which means there are more people moving from lower to higher productivity industries, to services.

Richard Soberman—On the other hand, there are all kinds of competing destinations and... There are guys walking around who are saying this is the first generation in the history of Canada, if not North America, that's not going to live as well as its predecessors. And Transport Canada says income levels are going to increase in real terms and therefore people are going to have disposable income, therefore they are going to travel more. Let's keep the transport people dealing with transport, not.... People's disposable income in these areas is not increasing.

David Frank—The point was made earlier about there being lots more reasons why this would be smaller rather than larger. We could be approaching a saturation of growth in air transport since deregulation. Your going to be decreasing the amount of traffic going through this corridor to connect out of Pearson; your going to be increasing the different choices of destinations out there as things open up, and also you could see a declining community of interest between the major communities in this corridor, I could really see this crumbling, not crumbling—it's a too strong word—but just declining as an air traffic corridor, and there is evidence of that happening in Alberta between Calgary and Edmonton.

Richard Soberman—If you believe free trade, the ascendancy of the Toronto/Montreal linkage has to be less than other linkages. That's all I'm saying.

Marc Gaudry—I'm not sure of the real units here. Income per household, right, is the expression there—in real terms of \$86 on the last but one line. Well, it's very hard to believe that the increase will be that low. The secular increase per household is much much higher than the average per person increase. Real wages in North America haven't changed very much. But the incomes per household have increased dramatically because

we've gone off to work more. So the real incomes per household have increased a lot, although the wage per hour has hardly changed. So I would like to know what's there. Secondly, it would be very surprising if we would overall, as a country, despite free trade or maybe because of free trade, do less well than our recent secular trend which is—instead of being 4%, make it 3%, if you're a pessimist. So it's still on average an increase of real incomes, compounded, of 3% per year. Now, the fact that some people will lose their jobs is a problem of structure. But on average, I think it's crazy not to expect that we will keep going up. If you're a pessimist, make it 2. Lower it by 1% more than we have over the '80's, but it has to be higher than that. And then you get to the structure. Suppose it does go up 2 to 3%, where is it going to go now? That's a different spatial distribution of the flow, I think one has to have a view of each one. We're trying to see if we can agree to reasonable numbers. It just seems to me something is a little funny in those numbers.

Tom Lightbown—Just a brief explanation, Marc. The reason I draw your attention to these is that these are the numbers, or some variation of these figures, that will be used in this project. They were produced by Transport Canada. They have been further adjusted, and I've shown these in brackets. There has been a lot of argument over these figures, and some people are arguing for much stronger income growth. This is where it stands at this point. These are Transport Canada's figures for the Base Scenario, and there is a Low Scenario and a High Scenario as well.

David Frank—I have absolutely no faith in the forecasting abilities of Transport Canada. I hope I don't step on anybody's toes here. We did forecasting work for Winnipeg airport, and we just plotted historically all their wonderful little curves and they just kept going. Well, the actuals followed along the bottom line. And based on that one piece of evidence, just tear up all their work. In that one case, it was ridiculously wrong historically and every year that they redo it.

Daniel Brand—Would a consensus of this group would be that on the low side—we are not going to get consensus on one number, but in terms of a bracketing—that the growth in air travel in the corridor grows only with the sum of the population, to grow by O/D pair—that's on the low side, and on the high side you add to that growth a, say, using a .7 income elasticity on the growth of per capita income or household income or whatever?

Richard Soberman—I would put it the other way around. I think the high side is proportional. Look, we are talking fundamental prejudices here; we are not talking statistical extrapolation. Your opinion is as good as mine, but, you're just as old as me; you've got kids in college, how much tuition do they pay? Do they pay more than \$1,500 a year? What do you pay for health care? You pay more than \$400 or \$500 a year? O.k. That's the United States of America. You say 30 years from now with what everyone has said about the economy and taxation and bankruptcy, that even if people's disposable income has gone up, we're going to be in real terms paying zero user cost for health care system and almost zero user cost for post secondary school system. The writing is on the wall already now, the students are ready to revolt. Tuition fees are going to.... These things are all free goods in Canada from the standpoint of the user.

Daniel Brand—We (Americans) will get there. (Laughter)

Richard Soberman—Right. You're coming down and we're going up, so, say the population of Toronto and Montreal collectively is going to grow by 15%, and since

incomes are going to go up, travel between Toronto and Montreal is going to go up by even more than 15%, I mean look, Dan, you are entitled to your opinion, and I'm entitled to mine and nobody can prove differently. The only thing I caution you is that I've been around government too long, and government, consultants, university—doesn't matter. These kinds of numbers are put together by people sitting around the table just the way we are now, allocating percentage growth.

John Gratwick—For 20 years Transport Canada's forecasting process, particularly on the air side, has essentially been self-serving. Their preoccupation is building and operating airports and air traffic control systems.

Daniel Brand—Historical data is that from 1975 to 1982, air travel nationally, inter-city passengers by air in Canada, within Canada, '75 to '82 grew 4.33% per year (I assume compounded), '82 to '88, 3.58% per year—in other words, there was a somewhat diminished growth. Presumably from '88 till now, it's flat or down. In the '80 to '82 recession, it was down and in '90 to '92. But those 3.5% to 4.5% annual growth rates, over an extended period, kind of suggest to me that intercity air travel in Canada is going to grow more than 15% in the next 20 or 30 years.

Richard Soberman—That's Canada. We're talking Toronto/Montreal. There's a big difference.

Daniel Brand—Toronto/Montreal represents no doubt the largest intercity pair in terms of intercity passengers in Canada. The population in the corridor, looking at these, is 1.2% per year when you average all of these things. If it has been growing 3.5 % to 4.5% a year, it strikes me that a lower bound is the 1.2% a year, and that there is some range above that that we need to get a handle on, and maybe an income elasticity on the real income growth is the thing to add to that. It's simplistic, but it's sort of a number you can...it's a hook.

David Frank—I don't understand the logic of how you could use the domestic growth rates and apply it to a specific corridor, because then I'd come back, and I'd argue, well, overall in the world, the average has been 7% per year, and the corridor is within the world, so why don't we use 7%. It's going to be driven by the communities of interest between the two communities, and all of these don't reflect that. Not one of these numbers reflects how much somebody in Montreal is going to travel to Toronto.

Daniel Brand—I'm just looking for some consensus. I was perhaps in my sales mode.

Richard Soberman—This is what is really critical; this is the whole book, because you've already played your hand Dan! You've said that high-speed rail was only going to be able to penetrate the airline market. The going-in assumptions on airline growth is actually the only really important thing that bears on the high-speed rail study.

Daniel Brand—The growth in the other modes is certainly relevant to the rail.

Richard Soberman—The airline figure is very important.

Daniel Brand—I threw out the range. What range would you like to throw out? You need hooks. You need to be able to explain ...

David Frank—I think you have to say these are the different traffic types in this corridor and then apply some logic to each one of those.

Daniel Brand—If we had that good data, we could. But I don't think we have that kind of data. We just have total travel—I guess by purpose. But we don't have time series by business/non-business.

John Gratwick—This is why I was saying the only hope was to look at what the sort of the key components were in this process and try to put pluses, minuses or equal signs on where they were going, shifts in the patterns, and shifts, to some extent, in the intentions of the groups of people and look at it from the point of view of what it's all about—what are they doing. They are not doing it to fill up aircraft. They are traveling because it fits in with some purposes of their own, and it's trying to identify what changes there are in that process. If everyone is going to go on behaving exactly as they are now—if business people will be doing what they are doing now—the personal travelers will be doing what they are doing now, and the non-travelers staying as non-travelers, then you could apply something like this. But I'm not convinced that those groups are staying the same size, or that they are going the same directions.

Daniel Brod—What you need is a risk analysis.

John Gratwick—It's not this approach. What is it—how many years? You're talking about putting a single figure on 27 to 30 years.

Richard Soberman—For the last couple of years, McGill has been the most fashionable destination for upper class Ontario residents. My daughter goes to McGill. Five years ago, I don't think there was a student from Ontario at McGill. McGill is now fashionable because the MacLeans magazine says it's the second best university in the country. There are these kinds of shifts. When I think about the years since I've lived in Toronto.... I used to go to Montreal all the time. This is the first time I've been in Montreal on business in a long time. But patterns, the linkages really change. Canadian consultants try to penetrate UN, World Bank-type markets. There is no work left in Canada once this high-speed rail study is finished and you guys are all paid off, so they are all going to Malawi and Zanzibar and places like that. They're not traveling Toronto or Montreal. They are traveling Montreal to Washington....

David Frank—I'd say on the pure origin-destination air traffic in this corridor, that your high side boundary would be, using whatever comes out this model that you feel comfortable with, and you're making a very bold assumption that the community of interest between the different cities stays the same. So that would be the high side; I don't know what the low side would be. And then the rest of the traffic in the corridor which is stuff going through the corridor and then beyond, you're going to see that in decline as you get the more open air policies.

Daniel Brand—Can you put a number on that first one? I didn't get a model at least.

David Frank—Take the O&D traffic that exists in the corridor, and then what your high side percentage would be, however Transport Canada or whoever crunches through with this and whatever you feel comfortable with ...

Daniel Brand—But there's no air travel (referring to socioeconomic projections). I'm trying to get a model or figures or something. Did you mean to take the 3.5% that comes out of this Transport Canada model? It seems awfully high in terms of the conversation that's been going on here.

David Frank—I've no idea. I'm not sure whether it's relevant. I just say that there is a heck of a lot more downward pressure than people realize out there. Whatever you come up with, it's going to be at the high end.

Daniel Brod—The FAA had a conference 10 days ago, and their average annual growth trend for traffic is down below 2% over 20 years.

Richard Soberman—I discovered something in the last couple of weeks that when we mention water quality and pollution, we have standards for how many parts per million you can have of lead and things like that. Do you know what dictates the standard?

Darcy Toms—What you can measure.

Richard Soberman—What you can measure. So the standard has got higher lately because they can measure finer. For the next X years until we can predict with greater accuracy ...

Daniel Brand—We can measure the sum of the populations.

Richard Soberman—I don't think we can do that.

Tom Lightbown—We're really going to have to move along. We're trying to get some quick snap shots and then move into the modes.

Daniel Brand—Historically, '75 to '82, car travel has (intercity in Canada) grown 2.8% per year; '82 to '88, 1.96% per year. In the U.S., it is still growing through the recession. It's not down like air travel.

John Gratwick—Is that trips or passenger kilometres?

Daniel Brand—Seems to be trips.... .. intercity in Canada. In the U.S., we get, with time-series models, about .6 for the sum of the population, and about .6 income elasticity for intercity travel between particular cities ... adjusted for gas price, adjusted for fleet fuel economy and real gas price. (End of tape)

Marc Gaudry—There is something paradoxical in this, because all the trip distribution models tend to give you quite high distance elasticities. I realize that they're high, inconsistent, and we don't have the impact of substitutes, but when they cut them in half and put (unintelligible) they should reflect the long-term elasticity demand for kilometres. So I think it's hard for anybody to accept that they're smaller than 1.0. So how come people who work in gasoline demand models come up with these very, very low price elasticities, even if they try to build in some long-term structural adjustment mechanism? I find it very hard to believe that the true long-term gas price elasticities are that close to zero, or let's say 2.1–2.2. If you were OPEC, and you had a true working monopoly, what would be your inside guesstimate as to what the long-term elasticity of demand for

gasoline is? I don't think it would be .1—not the long-term one; it's not credible. So I realize there's a problem with some of the time series models that tend to give you things that are low; the cross-sections give you things that look high, and it reflects on long-term structure more. And there is trouble reconciling them too, something that fits the sum of our feelings about it. We know also that the demand for air travel is going up quite fast secularly everywhere, and for some of the other modes. In Europe in 1983/84, everybody was convinced that the cars wouldn't grow very much. Now that's 7% growth per year since '85 and they don't know where to put the things. It's very easy to be wrong on the long-term thing because you are in a cycle or.... I think that your approach to anchor this general level into a time series, the mechanics of which you don't understand, is wise. There's nothing like past realities to give some inkling of the future—and then adjust it—and that value has to be.... Boeing is building; it's forecasting worldwide 5% to 8%. Freight's going up 8% worldwide, 8% to 12% everywhere. The major study that was done by a big American firm two years ago on the whole air market, one of these big economics firms, the numbers were between 5% and 12%, depending on markets, for the next 20 years—as far as we can see. We know the value of time is going up everywhere, because real incomes are going down everywhere. So even if nothing happens, people would shift to air. In addition, of the things that are happening, I think the long-term future for air is fantastic, and that these low numbers that were mentioned are very hard to believe. Major forecasts are correlated with the cycles. They're not independent of the cycles.

David Frank—I agree with the optimism on the long-term for air. But we are talking about a specific corridor here.

Marc Gaudry—I agree! I started with the total and I moved to some specific modes. Now, when you move to the detailed structure, there are two things. It's true the free trade structure is changing it, but it's also true that the French when they did it for I've been following the French high-speed rail thing since 1977, every year since then. I never believed a word they were saying for many years. But the structure of demand in space has changed dramatically because of the high-speed rail network. That is, when we do a modal choice study, we say 85% is in diversion and there is a bit induced, and maybe that's 2 or 3% a year—and discounted at 8%, there is nothing left today. So, we don't want to deal with the small increase because it's not worth anything in present value; and everything is in diversion now in terms of profitability. But that's the second exercise—the discounting of the flows. When you get these major changes in networks, you can't make forecasts of O&D pair changes—these models are inconsistent; they have the same limitations in terms of spatial structure as the II models for diversion, so I think that you have to move down to reasonable assumptions total and so forth, by mode and play with the modal structure. And that's a very hard guesstimate thing to do. I think it's very hard to do better than that, except in one sense. There has to be a number by which a bankers group could say I'm going to lend money on the basis of this best guesstimate you'll never get better than that. I don't think it's possible to model this structural change in space easily now unless somebody has new data.

Tom Lightbown—Let's move on. We have a lot of ground to cover.

Daniel Brand—I understand. I didn't hear any position on auto. We went from 2.8%, 1975 to 1982, 2% 1982 to 1988. What are we talking about—1% a year?—given the fact that (the rate of growth of) incomes is going down, real incomes are going down, community of interest may be decreasing.

Richard Soberman—A lot of people use public transit in urban areas because they don't have an automobile. And they're going to get one because they're fed up with public transit. And once they get one, they are going to start to travel to Montreal. How's that?

Daniel Brand—We are reaching saturation. If a decline from 2.8% of 2% reflects the approach to saturation in car ownership, that suggests that there will be still further leveling off in terms of long-term auto growth rate.

Richard Soberman—Automobile growth rates have got to level off.

Daniel Brand—How about 1%?

John Gratwick—We're talking about people trips here we are not talking about automobile trips. What's certainly is happening is that the size of households is getting smaller, and you are certainly getting less occupants per vehicle.

Richard Soberman—In fact, the stats we have in Toronto—if you project them, 10 years from now, we are going to have 0.9 persons per automobile, because it's gone from 1.3 to 1.1%.

Daniel Brand—Why don't we do bus now? Bus lost 1.59% per year from 1975 to 1982, and minus 4.27% per year, 1982 to 1988.

Richard Soberman—But in 1990, 30% of the rail passenger system was eliminated. Fifty per cent. So, I would expect—well, it depends what part of the cycle you take—I would have expected when 50% of the rail passenger service disappeared, there must have been some increase in bus travel. What you want to get is get some figures real fast about what happened...since it's bus/rail competition which is the head-to-head competition, you've got to get some numbers on what happened since the big VIA Rail cuts.

Daniel Brand—Independent of my needs, we are supposed to talk about the future of the bus industry itself, and the rail industry and so forth. But if we say that absent step function sorts of jolts, as it might have happened in 1990, or whenever it happened, if the long-term trend was 1.5% in the '70's, and minus 4% in the '80's, what's going to happen to the bus industry in general in the next 30 years.

David Frank—As we phase out the subsidies to passenger rail that we talked about earlier, then I think it's looking not too bad for bus. It's looking really great for rail.

Tom Lightbown—A lot depends on what happens to VIA.

Marc Gaudry—The same thing happened in the States, then, with the same risk of collapse, your bus industry's collapsing. It's a strong downward trend, and there are non-linearities there too.

Darcy Toms—You talked earlier about things like TV's in the bus, better seats, all these things. Do they have an effect as well?

Richard Soberman—I'm going to tell you this. I last year started skiing for six Wednesdays with the ladies. I joined the ladies' ski group. And I'm too old to chase ladies, so why did I join the ladies' ski group? Because I go up in the bus—it's a comfortable bus, and I ski all day, and I get off the bus, I get off the ski slopes, and I get on the bus and I don't have to drive. We're only talking about a 2-hour trip. I have in Toronto always been able to go to the Gray Coach Bus Station on a Wednesday and, by taking the day off with my skis, ride the bus up to Collingwood with all the poor people. And it's the difference in quality of service that's made it. I've said that students from Western, people from London, certain segments of the bus market are doing alright. And part of it is the quality of the vehicles and the stations.

Daniel Brand—The imminent collapse of the bus industry; we're talking about the very high volume intercity pairs where even in the U.S. it hasn't collapsed. Do we want to say it's minus 5% a year? That's pretty big.

John Gratwick—To some extent I would argue it's what the industry itself wants to make it. It's again one of these things that if attractive bus services are offered, and particularly with the demise of rail which would be its traditional market, I think bus is much more likely to go for a small component of the automobile market, because it's that sort of range of distances that it's talking about. It's not necessarily the full trip. And if they want to, I think they can make it. It may change shape, but I think it will sustain them and it will grow. I think it will grow even more if, in fact, they are able to get themselves deregulated. I wouldn't see a negative figure for this in the longer term.

Daniel Brand—Stability?

David Frank—Even a very low slow growth rate, but all coming at the expense of rail.

Daniel Brand—O.k. so plus 1%, let's say. Is that too high?

Marc Gaudry—I would say the secular slope. Maybe that's a little too low. If you deregulate, it's too low.

Daniel Brand—So, what'll we say? Minus?

Frank David—No. I'm still leaning to the positive, and I'm really negative on rail.

John Gratwick—Rather zero than a negative, I think.

Daniel Brand—O.k. Rail!

David Frank—Serious problems.

Richard Soberman—Phrase the question. What's the question?

Daniel Brand—What's the long-term average annual growth rate for intercity rail travel, absent high-speed rail?

Marc Gaudry—Undefined.

Richard Soberman—Totally undefined because it depends on some smart people being in charge of certain things. And the likelihood of that happening on the basis of the past is probably zip. The effect of rail depends upon a lot of things; certain smart, good things happening. What's the likelihood of those good things happening? Not bloody likely.

David Frank—I'd say a negative of 2-4% a year for 10 years, and then it might turn around. If we were following what we were discussing earlier, we are going to slash these subsidies over 10-period. Well, that's sure as hell going to have a negative impact on.... Then there's a chance that some entrepreneurs will come in.

John Gratwick—The existing rail has got to disappear way before—or it's got to be on its way before you can see any rail at all.

Richard Soberman—Let's ask the real question. What's happened to corridor traffic? You're using these stats....

Daniel Brand—O.k. Intercity passengers is, 1985 to 1982, minus 1.42%; 1982 to 1988, minus 1%.

Richard Soberman—Is that the corridor?

Daniel Brand—No. We don't have time series for the corridor.

Tom Lightbown—I can give you share. This is 1987 base year. This is from the Peat Marwick High-Speed Rail Study done in 1991. Ridership on rail was 3.4 million. No, don't forget, there were cuts in the corridor including Quebec. The 1992 expanded data give us 2.9 million. There were cuts in 1990.

Daniel Brand—Those are two independently collected data bases.

David Frank—Well, if we can assume that these operating subsidies are disappearing, which I think was a consensus over 10 years, this mode is in for a tough time. And bus will pick it up.

Daniel Brand—There is about 3 or 4% a year decline in 1987 to 1992—gross average.

John Gratwick—That's gone in 18 years on that basis.

Richard Soberman—You project the rail passenger service. Because it's crummy, it's going to go down, and then we are going to compare that with a really good high-speed service. High-speed service is going to look great because you are comparing it to what was by definition deteriorating service.

Daniel Brand—No, because rail.... The most substitutable, depending on the fares charge, is with rail. So if we destroy our universe of existing rail riders, we are not going to get them back on high-speed rail. The way it works is we take it market by market, mode by mode. Our approach is mode by mode substitution, and one of the other approaches says we grow total travel in the corridor by x-per cent a year, and we do an IIA model (multinomial logit). I think, for a number of reasons, I like the model structure better, but I also like the sense that you've been talking about that we need to

look at components of the pluses and minuses. At least, we are able to think about the modes and what's happening to the modes. If I had to pick a number out of the air for total travel in the corridor, I would be even more mystified.

Richard Soberman—But, look, the last four months, VIA Rail introduced for Toronto-Montreal 4-hour service—non-stop (stop at Dorval) which is where we were in 1967, with the turbo train; 3 hours and 45 minutes. If VIA runs this 4-hour service, with a fairly high degree of reliability, their financial performance has got to improve, sizably. People will start taking it. You're saying, no, we're not doing the global market and then segregating it, we're looking at each of the services. Bus service is not a lot to talk about—you can talk about the quality of the vehicle. Airline service—there's not much to talk about; you have 57 departures a day from Toronto to Montreal, the last time I counted them. The aircraft might change, but the speed doesn't change. But now you're talking about a VIA service where, for the first time in 35 years or whatever it is, you have non-stop service from Toronto to Montreal. But you're taking some stats from 5 years ago when there was a different service.

John Gratwick—Yes, but not very many people are going to take that because of its performance if it's only once a day. You won't get much of a measure; you will get people who would like to go by train being slightly more satisfied, if they go for some other reason, but until you get that up to a frequency which—until you can offer a high-speed service several times a day, you won't really genuinely bring people in because of its performance.

Richard Soberman—But, John, they've gone to this one 4-hour train service. Now they have 7 trains a day. We're saying that it will decline. Is that the figure we're using? A decline of service. I'm not sure we can predict a decline of service on the basis of modest improvements that they are doing right now.

Tom Lightbown—Let's remember too that VIA are putting major efforts into building a reputation for improving their service and pushing locomotive technology so they can get a 3-hour 30 minute service. That is what their interest is, that's the extreme of it. If we want to accept that kind of plan, we have to take into account that there is that kind of service available.

Richard Soberman—All I'm saying is that at the end of the day, what's going to come out of this is that somebody says, "Look these guys predict that if we don't put high-speed rail, the rail passenger service is going to disappear." And, yes, the rail passenger service as we knew it in 1988 is going to disappear.

Daniel Brand—In fairness, I think it's useful to think about this Most of the studies we do for private clients, a couple of years ago they used to say it's going to open in 1996 or 1997. Now, it can open in the year 2000 or 1999. Think in terms of a 7 or 8-year time frame that goes for all the environmental clearances and building and so forth. So we are not really thinking 30 years out. For this kind of prediction, we can think in terms of 7 years out. So what's going to happen? Think in terms of what we divert, we're going to divert at the outset, and then with our better service, we'll increase the ones diverted and also we are going to induce something. But our basic question is, when we open this service, what market is going to be there to divert from?

David Frank—I'm comfortable with the 3-4% loss over the decade, and then I think it's flat. That's consistent with our saying subsidies are going to be disappearing over the next 10 years. 3-4% loss per year over the next 10 years and then I'd say, if the world unfolds the way that we've very boldly predicted here, that there will be an independent rail service running on those tracks, and that would stop the decline.

Richard Soberman—What the government said was in 1990 was we are going to take VIA down to \$350 million a year; we will do it over 5 years. And the way to take VIA down to \$350 million a year is not to eliminate subsidies—it's to eliminate services that have the lowest operating ratio. Here we're talking about the services that have the highest operating ratio. They're not very high, but they're the highest of the system. So 5 to 7 years—the way VIA is marketing, the one 4-hour train becomes 2 or 3 or whatever the case may be. That's why I'm nervous; I could see Toronto-Montreal ridership increasing. VIA's total system went from 6 million to 3.6 or something, right?

John Gratwick—How much is full Toronto-Montreal?

Richard Soberman—That's another problem. They have figures here. What I wanted to say was in both of these high-speed proposals they talk about ignoring income which is absurd.

Daniel Brand—I assume that 1987 to 1992, 3.4 million to 2.9 million is really the ridership and the market served by these high-speed rail proposals, which is between the major cities in the corridor.

Richard Soberman—What I'm saying is you tell me over the next 5 to 7 years, rail passenger traffic in the corridor (certainly the Montreal to Toronto part of it) is going to decline by this percentage, I'm not convinced that that's true. In fact I think the embarrassment may be that it goes up, and then VIA turns around and says "What'd you mean? We increased our traffic by a million people!" That's the way these guys have worked. I think this is assuming a decline in that corridor rail traffic within the near-future is inconsistent.

Tom Lightbown—Let's look again at the bus and the rail because we are going ahead to rail, we want to come back to bus. If in fact bus and rail are principal competitors, even though VIA will say there getting their share of the air market as well, then if bus is losing, can rail be losing as well?

Daniel Brand—I would say the consensus was constant for bus: plus .5 for Dave; minus 1.0 for Marc, plus 1.0 for John. So it's roughly constant (plus or minus 1 per cent).

Richard Soberman—I'm not sure what we are arguing about, but all I heard was are we going to assume that rail passenger traffic in the corridor is going to continue to decline over the next several years. That doesn't sit right with me. I don't see that writing on the wall. I see it reverse. I see everybody pulling out all the stops to be left with the one gem in the disaster.

Daniel Brand—In the face of this decline from 1987 to 1992, maybe the safest assumption is stability for rail travel and a minus 1% decline, as Marc says, for bus.

Daniel Brod—The problem is that you also have to take into account interrelations between the modes. When you're at the low end of your growth rate for rail, you'll be at the high for...there will be a negative correlation between that and air travel for instance, if there is any kind of modal split and....

Daniel Brand—I was trying to be at the high end on rail, assuming stability in face of the precipitous decline in the last five years. And I took the low end for bus minus—1%. That's all I was trying to do. We're trying to get consensus here.

John Gratwick—I'd like to return to Dick's emphasis on the fact that, okay, so they've brought in one train a day—they've improved the service on one of the links in the corridor. That link, at the moment, represents what? 15% of the total rail travel in the corridor, and we've got an incremental increase to that 15% only. Montreal-Toronto is 15% of the rail travel in the corridor.

Richard Sober/Daniel Brand—Is that all? It's got to be much more.

John Gratwick—Montreal-Toronto is 459,000 out of 3 million. That's what a non-stop train would served; it wouldn't serve anybody else.

Daniel Brand—Of local travel the 459 is a much higher proportion.

John Gratwick—Quebec-Toronto is not included in Montreal-Toronto?

Tom Lightbown—That's correct.

Daniel Brand—I was trying to say that rail would be flat and bus would go down 1%, and you had a methodological comment: did it relate to another set of numbers?

Daniel Brod—Just to say that the results would be interrelated.

Tom Lightbown—Dan, would it help if we went on to talk about the futures of these individual modes and maybe we'll come back....

Richard Soberman—Just let me ask you one thing 459,000 trips between Montreal and Toronto by rail is the current, so you're going to say what part of that market would be penetrated by high-speed rail, right? And presumably you would say most of it (if you don't worry about prices). Anyone who's now taking the train from Toronto to Montreal will certainly take the high-speed train. We're not talking insignificant amounts here. This high-speed line needs 2 million passengers a year *minimum* just to be able to be seriously talked about. There is 25% of the potential right there. So that's a pretty important figure. Is it going to decline over the next 5-7 years?

John Gratwick—It would be extremely price competitive. Depending on whether the rail passes are going to be allowed on the high-speed rail—which they won't be.

Richard Soberman—They were not allowed, by the way, on the turbo, because the turbo was an experimental train.

Marc Gaudry—Are you assuming that service by the conventional tracks will still remain?

Richard Soberman—It will have to, because you still have Kingston and Belleville and all those places, but that's another story. VIA's operating ratios are going to go from 28% to 8%, because now they are going to be left with none of the lucrative....

Daniel Brod—Well, you can take the comparison of the Washington-New York corridor where the regular unreserved fare is \$85 round-trip; Metroliner round-trip is \$180. The unreserved is always jammed; Metroliner is always half full. Then, if you say will get another service which will shave an hour off the Metroliner....

Richard Soberman—This is 50% longer distance—Toronto-Montreal—and the other services are more localized. And that's actually where this interaction...because if you actually have high-speed rail taking some of this traffic away, bus penetration market would go up because now the bus is going to get all of the Kingston-Montreal and Kingston-Toronto traffic. It does a pretty good job of that right now. But still there is no university professor worth his weight in Kingston who would be caught dead on the bus when he could be taking the train. But when the train's gone where's he going to be—he's going to be on the bus.

But something's bothering me about our assumptions here. I think that when you get to looking at the impact of high-speed rail, it drags enough of the non-price sensitive rail market to leave you with a residual that is price-sensitive, but now you've robbed VIA of its ... so you end up with those people going by bus.

Marc Gaudry—On the French line (Paris-Lyon line), 20% of total rail traffic is on the old trains. Because the price difference is not very large. The price of high-speed rail is roughly the price of first class of the old trains. So you still have one passenger in five on the old line, on the O-D basis.

Daniel Brod—So we have rates of growth for each mode. Where do these go? Can you tell a broad-brush story about the potential with the Reference case?

Daniel Brand—Dick's scenario—if that is what you are worried about—that kind of equilibration.... Basically what we are trying to do is to produce trip tables by O-D pair for the first year of opening and then split high-speed rail from it.

Tom Lightbown—The first forecast does not have any high-speed rail, Our responsibility is the supply scenario. Dan's more concerned about these numbers, although we are going to talk about service in a moment. We will have to have some notion of what demand is.

John Gratwick—The difficulty about this is that if one doesn't know the starting date of high-speed rail, you are back to saying are the events between now and whatever that date is going to be ... is rail still going to be there or is any of these things? So your starting point is not really today, it's what's going to happen, and that isn't going to be decided by estimating your market as much as it is by deciding what's going to happen in the whole process. If, in fact, we do get the sorts of things we've talked about in rail—VIA subsidy being eliminated over the next ten years or so, and perhaps the possibility of private

contract rail operators working on whatever is left of the rail traffic, deregulation of bus and so on—you're then going to try to make a guess in 5, 10, 15 years time where your starting point is going to be. It's not as if the status quo is going to stay until we get to the starting point and we all we have got to do is estimate its size.

Daniel Brod—Right. But from a methodological point of view, it would gain a lot more credibility if you have a model. And rather than talking the answer, you were talking about the inputs; give me a range on income; give me a range on population.

Daniel Brand—That's what we do in most corridors, where we are talking about a specific O-D pair or the Texas triangle where there are 4 or 5 O-D pairs. The problem in this corridor is that.... Normally we are used to do the complete study. This study has about 5,000 contractors and 3,000 clients.

Richard Soberman—You don't understand the Canadian way!

Daniel Brand—So, we are not being so analytical in the forecast of total travel. We couldn't even collect our own datum; we had to fight to get our questionnaire. So, I would love to argue over whether income is only going to grow by .6% or 1.1%, but we have, particularly on the air travel side, talked about NAFTA and all the things that you can't capture in historical models that I think it's fine, what we're doing. It's more open to criticism, because everybody is an expert.

Richard Soberman—It seems to me you are trying to look at some trends on a mode by mode basis, and end up saying, well, this the potential airline market, this is potential bus market, this the potential auto market, potential rail market: now, how much of this can we capture by different service and pricing scenarios? Why not look at it from the standpoint of "What is the total market right now, everything, everything?" And how much of that do you have to be able to capture to justify this kind of investment? And is it reasonable—if this total market is 3.5 million (End of tape)

Richard Soberman—...this hypothetical rail passenger market—and that's the only one that's unreal—all the others are real. This one is unreal because one day the minister says "I'm cutting service by half," but nobody says we're cutting airport capacity by half or roads by half, so those are kind of real markets. This rail market—we could change that market tomorrow by a government order that says you have to recover 60%.

Daniel Band—We will do, no doubt, simulations on diversions of existing travel. And I suppose you could hang your hat a little bit on that. What we always do is to take the existing trip table and split it and see what happens. And then we do all kinds of fare sensitivity analyses and revenue maximization and public benefits maximization.

Richard Soberman—I would be more worried about getting a really good existing trip table than I would about assumptions for the growth rate.

Daniel Brand—Actually, there's been a couple million bucks spent to get a good existing trip table. It's really quite a heroic effort to get this current trip table.

Tom Lightbown—I want to move on to a discussion to develop a little profile for each of the modes.

David Frank—I still like the minus 3%, minus 4% on the rail. I really do.

Richard Soberman—So do a sensitivity analysis of from plus 3% to minus 3%.

Daniel Brand—As we said in the 60's, the questions asked determine the answers.

Richard Soberman—That's right. And you can say that in the 90's.

Tom Lightbown—I would like us to think about the components of the Reference Scenario—meaning the automobiles, buses and trains and planes—try to get a little snapshot or profile. What will automobile travel look like on the road network: are there any changes? What will we see in terms of changes to the road network? automobile toll roads, IVHS all those things that we poked at a little this morning. Try to focus down; we don't have to have an extensive discussion on it, but just give your best thoughts on it. We look into the year 2005 and then beyond another 20 years. I'll just read you my list of things I have here: Are there new roads? Do we have toll roads? IVHS driving information systems?, new automobile engines and new fuels?, speed limits?, fuel taxes?, pollution taxes?—a whole family of variables, a lot of which is driven from our discussion we had this morning. What are your thoughts on the future road infrastructure and the automobile.

Marc Gaudry—I'll start negative: no IVHS, zero, except for minor freight applications—real on line, but irrelevant for our purposes.

Tom Lightbown—Marc, why do you think it won't have a large applications in the corridor?

Marc Gaudry—When you go to a French town today they say, we recommend an itinerary, and they send you to the back roads. Minimizes total transportation cost for everybody. It's called a "system optimal solution." Anybody who knows what they are doing will still go through the old road, because that's the best road for him. So if you start with the minimum definition of IVHS, which is just giving information, you just make more people more (unintelligible) and can improve slightly the assignment when there is an accident. Before we move from here to real time control where you plug in and you have a real on-line system that manages your car from here to there, I think there is a really long way. You get the whole spectrum in between, but it's very hard to believe that you will get anything more than slightly better information, maybe on-line but very hard to believe. Now for freight, it's quite different because you want dynamic real assignments and optimization of your fleets, given the traffic conditions, and people are willing to follow orders from a central computer. So I think it makes sense for 10% of freight loads, but I think it's a whole overgrown thing.

Richard Soberman—In this corridor, for the freight, if they get this information what's the alternative if there is only one road. So having information....it's like—Metro Toronto now has the information system. What it tells you is this road is congested, but you have no other option. So with freight, I've talked to guys in the freight industry and they say, this thing is good, but for somebody taking his truckload from Toronto-Montreal, I don't know how the information comes in handy.

Daniel Brand—IVHS isn't really oriented to intercity. It is in sense of, I suppose, the trip that you get from AAA in the States. It's on-line now with IVHS, but it's not supposed to save time, it's supposed to save mileage which you've lost or something like that. The big application of IVHS is the intra-city, is the urban area, and again as I said before, the component of intercity travel that contributes to urban congestion is really quite small. Where I see IVHS having a major impact is really the travel information system, and I see it benefiting common carrier services—air and rail and bus—because now your on-line; when and where these vehicles are departing; you can optimize your own plans; everybody can be their own travel agent. And I see IVHS being really quite beneficial for the intercity common carrier.

Marc Gaudry—All the big European teams now working on some of the demand considerations of IVHS. They are really concentrating in the congested area of problems. I'm trying to avoid the flows cutting on the backward part of the congestion curve, and the most forward-thinking say if you could avoid cars through barriers and whatever automatic management, coming on the backward part of the travel time curve, then we'd be happy. That's the good statement of the most ambitious ambitions of the most ambitious people on the flow control.

John Gratwick—Yes, and that can apply to the highway as well. You only have to see the Laurentian Autoroute on a summer evening. If you can inject some suitable information into that process, it's to everybody's interest to go at a slightly different speed consistently than to roar up to this heap which then takes an awful long time to unhook itself. And this is not confined to the highway. The rail is still trying to work out how to stop everybody racing between points at 60 miles an hour, then having to pull a mile long train to a grinding halt and then start it up again a few moments later. The cost is enormous!

Daniel Brand—I do feel that the behavioral implications, the user responses to the information, the ATIS component of IVHS, is much more important than the ATMS, the traffic control aspect of it. In other words if you provide information that promotes choices and you give information in real time, with some predicted capability (because when you depart on your trip, you tell the system you're going to that destination presumably by the route that they would advise you, but not necessarily), if you've that kind of information that's reliable, you will now indeed even forego low value trips where you know they're congested or you will defer your departure time or take a different mode or whatever. You may now go to destinations that are further away if you know you can get there reliably, increasing your user benefit, measured, please, at a disaggregate individual trip-maker level which is the way you've got to measure the user benefit. But the aggregate levels of congestion and delay and DMT and so forth probably aren't going to change much. And so aggregate measures of travel time and delay in the network are real lower bound estimates of the user benefits of IVHS. The traffic control benefits are really minimal, I believe. The ATMS ramp-metering kinds of computer traffic signal control stuff that I worked in Toronto in 1961, and frankly, we had a better system in 1961 than now (that's a long story). We really aren't going to get much better on the traffic control side, but we are going to get an awful lot better on the travel information side and indeed on the information utility side affecting the benefits from activities and trip destinations—the yellow pages-type stuff. I think it will have a really profound impact on the control over our time and over our lives than it is from any funny little traffic control sort of improvement.

Tom Lightbown—What kinds of benefits would that bring? We tried to talk about the numbers of people who would use their automobile for these trips in the corridors. What kinds of real benefits are these going to bring? Is it just a new technology that allows you to know better what you are doing than today with pieces of paper? Will it have an impact? What kind of an impact will it have?

Marc Gaudry—It will increase the effectiveness of car relative to a lot of modes.

Daniel Brand—No, not for intercity. For intercity, I think it's going to increase the attractiveness of common carrier modes.

Richard Soberman—Why? Let's say you're in the interior of Toronto and you want to go to Montreal for the weekend. One of the biggest hassles is you know that leaving Toronto, for the first 30 or 40 miles ... that's what adds to your travel time and affects the choice of mode. When I lived in Ottawa, going to Toronto for a weekend was breeze as opposed to living in Toronto and going to Ottawa for a weekend.

Daniel Brand—So, once you have information, you may stay in your car. When I lived in Toronto, I was going north to Muskoka. Hoping that the congestion wasn't going to be there on Friday night. Now you'll know the congestion is there, you'll also know in real time on-line that you can take this and that mode to Montreal, (we are talking about high-volume corridors with lots of common carrier service), you are even more apt to take the common carriers one.

Richard Soberman—I think we are stretching here. Here I am, I'm getting ready to take a trip by car to Montreal. There is also some historical precedent: we kind of know when things are busy, right? We do have radio stations and helicopter pilots, that tell you all that stuff. In fact, I would really like to see somebody there develop some narrowband transmissions so that the only information you've got was relevant to the area that you were in because if I'm going east I'd find out about what's happening up Orillia.

Daniel Brand—Dick, you started up with a premise which is here I am, ready to take my trip by automobile. What I'm saying is that, yes indeed, I'll take that trip by automobile; and maybe the next one and the next one. But after a while, when you are confronted and have available TV information on all modes....

Richard Soberman—But I have that information now.

Daniel Brand—Not necessarily. Now, we don't know if our flight's delayed. There's a blizzard in Boston—and I don't know what time I'll get back tonight. The point is, after a while, you will pay attention to the information and adjust your travel in your own interest.

Richard Soberman—O.K. Let's say I'm not in my car. You're telling me that having better information about what's happening with the airline or the railway will influence my choice of mode. And I'm saying that you have a certain amount of that information, but based on your historical knowledge of those modes. After all, I can find out exactly whether flights are delayed right now. I use my modem, and I go into Genie and I get into the American Airline Sabre system. We have schedules, and you can turn on your TV and see what's happening. I don't think you make your choice of travel mode on any

kind of consistent basis for a corridor trip on the basis of up-to-date information on what's happening with that mode at the precise moment. You do have to buy a ticket and ...

Daniel Brand—You've got to have predicted capability. There has got to be some feedback between the user to say, yes, I am going to that destination on that route, so that the system predicts the flows and doesn't tell everybody obviously. It's not an all or nothing assignment. I would suggest that there is a modest positive impact of IVHS on the use of intercity common carrier.

Tom Lightbown—When is this likely to be in use. There are pilot projects all over the States. These things are under study by MTO and others—TDC.

David Frank—It's when the Koreans can make it cheap enough. Sell them in supermarkets.

Daniel Brod—It always draws a big crowd at the TRB Conference.

Daniel Brand—I think 2010/2015 you will see fairly.... I mean, once it happens, it's going to happen real fast. I think these information utilities 5 or 10 years from now—events are just going to overtake us.

Tom Lightbown—How about the road network itself—new roads, toll roads from year 2005 all the way up to 2025? And I guess this is principally within the urban areas. Toll roads, solutions to congestion, to get a sense of what kind of capacity there will be and what kind of solution to congestion there would be.

Marc Gaudry—If you think it's a matter of time before these road agencies are really set up, without too many constraints, apart from monopoly constraints, monopoly regulation, you will move from a situation where we have government failure and price-shyness, no demand management, always hoping to solve things by throwing another bit of capital at it to the demand side. And there you could have some differences. Let me give you very precise examples. Figures for 3 or 4 years ago: very few people were predicting that governments would put peak-load charges on roads. The French government has peak charges on Sunday in the right direction and at the right time on government roads. So a few years ago they would have put peak charges, lower the price at the peak time because people go to work, and raise them up off-peak for leisure travel. So, I think that this sort of thing—as soon as you've got these agencies going, there will be quite a change to demand management. It's hard to think of the impact on pricing exactly, but there will be more efficient pricing, if you want to charge peak-load charges, and they will do it by private companies.

Daniel Brand—I think the privatization thrust is what's going to lead to peak period pricing. We're doing a study for one of southern California's toll roads—time of day pricing—and they can do there because it's a new capacity and once it happens in a few places, it may well be a candidate for a much more wide acceptance.

Marc Gaudry—The German government announced full tolls on German auto roads—11,000 kilometres.

Daniel Brod—One of the difficulties that they are finding with the existing roads is that roads that have not been designed for the toll plazas are incredibly expensive to put them in.

Richard Soberman—Surely, they're not going to do this with conventional toll plazas.

Tom Lightbown—Just install the reader.

Daniel Brod—Well, you have to have something on both sides. You have to have the reader and some type of booth—something extending the right-of-way, 10–20 feet on each side.

Marc Gaudry—The French have it now. You get the normal toll booth, and you get a new one with automatic dynamic metres, and you have to slow down to 20 kilometres an hour.

Daniel Brand—Actually you don't, you can go through 100 miles an hour. But I think the problem of space is going to be decreasing rapidly over time. It reads 60 or 80 times just to make sure it hasn't got an error in terms of the code trick.

John Gratwick—Is this purely in the direction of just having readers, which is sort of passive, or is going to go the European telephone card where you actually prepay and deduct the amount?

Daniel Brand—Probably read/write in that sense, but there is a patent dispute going on now which is going to slow things down.

Tom Lightbown—Will these types of technologies and the use of controls—for example, road pricing—respond to congestion in a way that is going to keep it at the level it is now? Will all these things that we have been talking about respond to the congestion problem to keep the way it is now? Is it going to decrease it?

Marc Gaudry—Analytically, they will just be presented not as efficient prices, but as revenue-generating measures, if the government owns it. But congestion is ...it's a form of decreasing returns. The problem is not whether you have congestion; the problem is do you have optimal congestion? You should have congestion in town; you should have optimal congestion. You should price at marginal cost, not at average cost. You should not renew congestion. It's an efficient use of resources, in the same way you pack more and more people here you get decreasing returns, but it might be efficient to get it. If you want to be too rigorous in your formulation, you are implying that we really moved our deficiency in a directive way. If it comes more through private sector involvement or sort of revenue-generating measures, you are going to get the same thing but for different reasons. And efficiency defined strictly will not be a form of....

Daniel Brand—I think the conventional academic response to the notion of "Is congestion getting worse" is "it's not." Basically travel speeds and trip lengths measured in travel time and so forth are staying constant for the last 30 years in the U.S. or 20 years. This isn't to say that doesn't come without a cost. People have to adjust all of their travel choices in order to maintain their sanity and their net benefits for travel. But in general, the measurements suggest that while everybody may scream and yell about

congestion getting worse and so forth, in terms of aggregate measures of travel times and trip lengths measured in time, they're not changing. We are talking highway now.

Richard Soberman—Your question was more about toll roads. I think that Dan is right. In Metropolitan Toronto, average trip lengths seem to have been 29 minutes for ever. The difference is that people are traveling a lot further in their 29 minutes. When Dan lived in Toronto, when he talked about mammoth traffic jams going north...we still have mammoth traffic jams going north on a Friday night, but there are four times as many people doing it. So it's not worse. You don't feel any, you weren't any better off; they were fewer of you. But in terms of congestion you experienced, it wasn't any different. The toll road issue, I don't know how serious Ontario really is about this, and Dan may remember, we were in school with a bunch of people who said that toll roads were evil because it was double taxation. You're already paying fuel tax; why should you pay a toll? And I've never quite survived that kind of training. But the long and the short of it is that certainly in a place like Toronto or Montreal, as long as the cost of collecting the toll isn't greater than revenue, which I think is a really important consideration...because if we talk about toll roads, in Ontario, you could probably only build about two. You can't build them any place else, because the cost of.... I mean there isn't that much traffic. The traffic is only in the major metropolitan areas. The appeal that it has is that you could probably get in just the same way you try to raise bonds for the Massachusetts Turnpike Authority in the private financial markets. You could probably get private financial markets to fund the construction of Highway 407 as an investment where the tolls provided the income. So, the government has the funding responsibility, but in Canada, they've got very few cases where that would apply, because someone is going to say we'll finance it as long as we have the full faith and credit and backing of the Ontario government, because they're no fools, but Highway 407 around Toronto or having 401, for sure they would fund that; that could generate a lot of money. The other really appealing thing is that you are segregating the market because in places like Ontario, guys out in Sault Ste. Marie are saying we are getting a fuel tax to pay for a highway in Toronto. That's the beauty of it from a political standpoint, to say, you're not paying for; their users are paying for it. In principal, we can see a lot more toll road financing, but these guys have not addressed the question which is, well, how much toll road capacity is there. There isn't much; just one or two examples, and then your finished. Now they are saying of course, we won't do it on existing roads. That's a whole new game, the two becomes four, by the way. (Laughter) Remember, we still have a country with a population density of 0.1 persons per square hectare.

Daniel Broad—One point regarding finance. As long as you are operating with the government carrying 100% GNP debt, it's going to be heavily involved in the capital market. Your interest rates are going to be much higher than they would be if the government wasn't so heavily involved in capital markets. You have to pay through bonds. You have to pay 7 or 8% or more; you are not going to finance very many of these. When you look at funding the New Jersey Turnpike and the Ohio Turnpike, those were done with 3% or 4% interest. You may be looking at a limit to the interest on the bond that the highway can carry with the government having to subsidize the difference.

Tom Lightbown—Couple of other points on the auto and the road. You mentioned the average trip time of 29 minutes. I suppose that's very heavily weighted for commuter trips. Intercity length trips: speed limits, are they going to change? Is there any reason to believe that the trip length door-to-door for the automobile is going to any different from what it is now?

Marc Gaudry—We need to stylize facts again. I understand that trip times for work purpose 100 years ago were roughly the same as they are now. Every change in speed, you consume immediately by proportionate increase in business. If you look at the averages for trip times to work in a lot of the very large cities, they essential haven't changed in 100 years, despite horse-drawn, the trolleys and the trolley buses. Whether this relates to some relative valuation of travel time and why it doesn't change when real incomes go up, I don't know, but it's the response of the market, with the politicians applying infrastructure and the demand. The fact that the travel time to work has not changed, it's at a higher level than it is here of course. The only exception is Tokyo, but I'm not sure that it hasn't changed that much even there, but over 100 years it hasn't changed very much. We used to walk to work.

Tom Lightbown—Finally, any information you may have on the related issue of fuel taxes, alternative fuels as well?

David Frank—Fuel taxes will go up in the name of the environment. Deficit reduction will be the reality.

John Gratwick—It would be nice to say that some portion or all of the fuel tax will eventually become designated as being revenue for highway.

Marc Gaudry—I think all these regulations on fuel consumption...if you are thinking 30 years, I wouldn't be surprised if they vanish. Because as soon as people realize that accidents don't get more severe when you move the lighter cars, and if you regulate for the environment increases, it's a long shot, but if you believe the general direction that David mentioned this morning as a reflection of society, who cares whether you have a 4-wheel drive with 20 liters per 100 kilometres or whether you have a small car with two liters for 100 kilometres? It's nobody's business if you are willing to pay for it. As long as it's clean, of course. The fuel efficiency here has started decreasing. They lowered the price of fuel now the average fuel consumption rate of the fleet is increasing. It's going up quite fast for the whole stock of cars. And it's really very linked to price. The average is about flat; but the marginal is up. So the average will go up. Everybody is driving 4-wheel. It's very hard to believe that you can maintain those with artificial restraints.

Richard Soberman—There are countries that have dictated fuel consumption rates through pricing mechanisms. Everyone in here would like to drive a BMW, but we can't afford, it except those who are in the consulting business or university professors, but the fact of the matter is there is a gizillion BMW's that are made in Europe for European conditions which are much smaller, but they are not sold in North America because here there is no market for them—there there is because of the price of fuel. In some European countries, it's four times per gallon than what it is in United States. We're near twice what it is in the United States. The 4-wheel drive, the Cherokee and stuff like that, everybody that I know is driving Cherokee's now, but I don't really know very many people. I would have thought that average fleet fuel consumption was still declining because some of these 6-cylinder cars are still a lot more efficient. But here we are hostage to the U.S. because whatever the U.S. decides it's going to establish as policies—our automotive end of it is going to conform to the U.S. market because it's ten times as large. The NDP government introduced a huge tax on vehicle licence. When you buy the car, there's a huge penalty that you pay for a big cube engine, and that's in Ontario. And it's sizable—it's \$700, \$800 or \$900 if you want to buy one of these Cherokees.

Daniel Brand—Alternate fuels...the feeling is there not much of a market for that.

John Gratwick—Not even in the time frame we're talking about? Alternate fuels by choice or by fears.

Daniel Brand—Well certainly choice. There were three speakers at TRB this year on CNG and electric cars, and the rest of it. And the DOE guy was kind of forlorn, thinking that electrical cars in California don't really have an impact. There might be 1% of 2%, if it's by fiat in California: so-called zero-emission vehicles. But people weren't all that enthusiastic.

Marc Gaudry—The demand for safety is very income-elastic. And the demand for all these funny things related to safety ... one can expect waves of fashion and worry and scientific research on many of those. The demand for safety is crucial. The accident rates, the fatality rates of the road, measured however you want to measure it, are extremely high in underdeveloped countries and falling rapidly. And they are 4,200 times higher than ours (and then they are underestimated). It moves up more than with the logarithm of income. As income goes up, demand goes up—demand for safety. It's really striking, the relationship with income and the level of development. That is the fastest rising thing apart from the value of time, of course, if real incomes go up. Demand for safety goes up very fast; value of time goes up fast; so you'd expect a shift toward faster and safer modes. And I don't know how this would affect our mode choice here, but demand for safety is the only handle people have on restrictions on truckers.

John Gratwick—Does that go as far as people saying we, as individual drivers of automobiles, want to be more safe? In other words, does it go with sharper penalties for unsafe behaviour? I got the impression if anything it goes the other way.

Marc Gaudry—The result can be due to demand management, supply improvement, equal improvement, all of those. It's unclear what the mechanism is, but the net impact seems to be as incomes go up, demand for safety on infrastructure, on vehicles, on police control, all go in the same direction. And the changes are dramatic and quite strong.

John Gratwick—It's become some sort of cliché that the dangerous part of your air journey is getting to the airport. Looking at those combined journeys, that's where more of the accidents happen. I hadn't realized that the pressure was there as far as the automobile is concerned. I'd seen this double-standard—we insist on absolute safety in rail and air, but we lose ferries like crazy all around the world, but for air and rail we mustn't do that. The initial difference between freight and passengers in air was said by one of our politicians: on the air, (they were talking about moving mail), he said, with mail you can lose it, but you mustn't delay it. With passengers, you can delay them but you mustn't lose them. (Laughter)

Marc Gaudry—The French had a terrorist bomb in one of their high-speed rail train. The baggage compartment was blown open, but nothing happened; nobody was killed (there could have been 500 dead). And it's very relevant, because if you start putting safety measures to these high tech modes comparable to airports, a lot of the time gains will vanish. And they were very, very lucky. This happened 4 years ago.

Tom Lightbown—I would like to move to the air mode now. We have got enough information on car and road. Same question, and we've got the same time period here. What can we expect? We are collecting information from the airports: What their plans are, etc. But what about new generations of aircraft, their capacity, speed, fuel consumption, structure of the industry, changes in level of service, anything on operating costs?

David Frank—I'll go on a soliloquy here. The year is 2015 (End of tape)

David Frank—...Washington National, subway system plugged into it, etc. No major changes despite what all the technologists say, and at higher speed, 400 knots high frequency prop services is dominating the corridor here, a greater independence of the Ottawa, Montreal, Pearson airports. What I mean is there is far less of this routing from one airport through the corridor and beyond. A substantial relative decline in Pearson's role in North American's air transport system, while at the same time an increasing role for Montreal and especially for Ottawa airport. Real cost in the industry not dramatically reduced, and it will in the year 2015 be recognized that since about 1990, the corridor air market has been a mature market: growth in traffic, but relatively low through the corridor, and there has been a shift of the economic base in this industry coalition towards the airport sites. The Island Airport is going to have a fixed link, and it's going to be a busy O&D operations airport. And cabotage will be allowed, and basically the only large jet service services in the corridor connecting up with points will be services provided by "foreign carriers," although "foreign carriers" won't have much meaning any more because there won't be any foreign ownership restrictions and the like, and they will all be part of global families. There will be substantial airport delay problems at several of the key airports. I can't really tell you which ones right now. Delays due to congestion. It will be generally recognized that 1992 was the year that the corridor air system was the most interdependent and tied together, and ever since that time each year, there's become more of an O&D system and the individual airports, especially Ottawa, Montreal and Toronto, will have gone their own ways serving points externally.

Darcy Toms—With smaller turbo prop aircraft you're saying?

David Frank—The corridor will be dominated by high frequency, higher speed than today's turbo prop services. Dominant in the corridor.

Daniel Brand—But the Toronto-Montreal will still be jet? I assume it's jet now?

David Frank—Maybe, maybe not, it could end up a mix. Even the Dornier 328 coming out travels at 400 knots, so turbo props will be near jet speed.

Marc Gaudry—Can you explain why do you think the relative importance of Pearson will decrease there. I don't understand why?

David Frank—Right now a lot of traffic due to the restrictive nature of air agreements is really to Toronto and beyond. And by 2015, you will have an open international air policy in general.

Daniel Brod—Why wouldn't Toronto turn into a hub for Europe versus United States?

David Frank—It might, but I'd say it would be in competition with all of the other U.S. gateways and the Canadian gateways. People have options there. Toronto getting its act together and effectively running an airport authority. They've privatized the terminal buildings there, which has put it at a competitive disadvantage versus other airport authorities. It's split between three terminals: it's like you have three airports out there.

Daniel Brod—If Terminals 1 and 2 get underway, as one terminal, you're going to have an investor who will have dumped \$750 million for each development, and together with Terminal 3, I would imagine it will be pretty darn aggressive trying to throw traffic to Toronto, and particularly with open sky they will do everything they can to compete with Buffalo.

Richard Soberman—But wait a minute. People don't go to airports because the airport Toronto, I said all those nasty things about Toronto, but it's still the economic altar of Canada right now. The airport is a mess; the last thing in the world we need is \$750 million imposed on either bankrupt carriers or government. Why would anyone want to spend \$750 million putting Terminals 1 and 2 together. The airlines don't want it, the passengers don't want it, who wants it?

Daniel Broad—Well, the private groups competed for it, and one was granted the rights to do it.

Richard Soberman—But who wants it? That \$750 million has to be carried by somebody. The passengers don't want to carry it, and the airlines don't want to carry it. With open skies etc. and so forth, the important thing is that you will be able to go from Toronto to a lot of different places and you will be able to go from Montreal to a lot of different places. And what's important is the relative attractiveness of traffic of Toronto and Montreal, not the relative attractiveness of their airports.

Daniel Brod—Toronto is attractive as a geographic hub. You can hub cheaper through Toronto, assuming that the ground sites and everything else is all equal, you can hub cheaper through Toronto than you can through New York or through Montreal or to....

Richard Soberman—O.k. I would see Toronto going up because, even if you can fly from Ottawa to Chicago, the nature of the airline business is that there is not enough Ottawa-Chicago business. You'll hub them and Toronto is the place to hub them.

Marc Gaudry—Suppose that the international market really develops. Suppose you can get a flight to Europe every 10 minutes out of Chicago. I could see hubbing to Chicago to go to Europe, because you can chose your time of day and destination with unbelievable frequency. And Toronto's 25 to Europe a day don't carry any ... so it becomes a feeding hub for international trips to O'Hare. I could see that, if Ontario's falling, Montreal is already in poor shape, so I could see a relative shift away from Toronto. I am trying to build Toronto internationally as a feeder for Chicago and maybe competing more with other airports. I am trying to understand how this could happen.

Richard Soberman—Look at the flip side. If you want to go to Denver from Toronto, then you'll have to go through Chicago. That's the pain! But presumably 35 years from now you'll be able to go from Toronto to Denver.

Marc Gaudry—I'm not denying that the structure of the direct flights will increase as it has in the United States. This argument has to do with a decrease in the relative and maybe absolute importance of Toronto, and I don't understand it. So how will it happen?

David Frank—It's definitely not a decline in the absolute importance of Toronto. It's relative. You have an open air policy in North America, all of sudden Pearson airport is in competition with the other top 75 largest airports in North America. And you have there a facility which is going to have difficulty expanding its runways. You are split between, best case scenario, two different developments. Your home base carriers are both effectively bankrupt, so you are starting from pretty ... I mean, who is going to make this magical gateway? And it's not going to be \$750 million worth of development there because it didn't happen with Terminal 3. Terminal 3 did not all of sudden start trying to position itself as an international gateway. You will see out of Ottawa—the Ottawa-Chicago numbers do work under open skies, so that's immediate—and then, they'll keep building from there for about ... The way that that works is U.S. air carriers serving from Ottawa down into major hub airports in the United States, and then all of sudden, Ottawa starts becoming a stand-alone North American centre, whereas right now it's dependent on Toronto.

Richard Soberman—Who wants to go to Ottawa? I'm not being facetious here. Even if Ottawa-Chicago, if the numbers are there, this hub-and-spoke arrangement that you have in the States, (you don't really care that you can't get from Omaha to St. Paul). If it's not Air Canada or if it's not Canadian Airlines, maybe Toronto is a hub for American Airlines. But they are not going to take people from Ottawa to Denver. They're going to take them from Ottawa to Toronto, and from Toronto to Denver.

Marc Gaudry—Either the federal government will merge the international rights, or Canadian and Air Canada will have to. It owns these rights. Give them to one carrier so that it has a fighting chance, and the question will be can this carrier have a gateway and a hub in Toronto, or will it just become a big feeder to the States. I would put as a proposition to discuss that there is a good chance that it will have a fighting chance to maintain and increase the relative importance of Toronto, if you pool all the international rights.

Richard Soberman—I think the issue is, I don't know, forget about allegiances, is Toronto a sensible hub in the network of airline hubs in North America? I would think it is, and I would think that 25 years from now....

Daniel Brand—We may be beating this one to death more than it's worth. The high-speed rail is not being seriously proposed as a link in a hub-spoke, that is to say, as a connect. It's really the local O-D market, and I think there are some other issues that we need to solve in the next hour and that is air, rail, bus frequencies, fares—that set of issues on the other modes that we all need to forecast.

Tom Lightbown—Let's get a little more detail on air. You said greater frequency, higher speed. Is there a continuous trend here? Is there other information you can provide?

David Frank—Well, for the turbo prop, they keep cranking up the speeds on the turbo prop. Even the Dash-8 has kept going up in speed, so you will see, you are already

seeing at the end of this year turbo prop aircraft that are near jet speed, that are traveling at 400 knots.

Tom Lightbown—Looking way out to 2025, are there practical limits to speed. I mean a plane has to take off and land ... it cruises.

David Frank—Within this corridor, way out in the future, there will be very little difference between turbo prop and jet service, and because of the economies, it will end up with turbo prop.

Tom Lightbown—Tell us about the economies, fuel consumption, costs, anything about labour productivity?

David Frank—There is only so much further you can go. Your fuel costs are about 20% if I remember correctly on your total, labour costs have been soft under deregulation. They'll decline to some degree, especially in the people who don't deal directly with the customers. There will be a lot of downward pressure on those labour cost. But still, in real terms, there is only so far that that can go. Capital costs that just falls into your normal ... actually the capital cost per seat, as long as they keep doing all this safety approach that they have, you can expect that to stay the same or even increase over time.

Darcy Toms—The labour cost per seat for the onboard services presumably are going to go up if you've got smaller aircraft....

David Frank—No, because that is set again by regulation. It's about 40 seats per flight, safety specialist, flight attendant. So you end up, if you have a turbo prop aircraft like a Dash-8 at 37 seats, if you fly a 100-seater around there, you will have to have 2 flight attendants anyway.

Tom Lightbown—What about fuel efficiency?

David Frank—Fuel efficiency will increase but not dramatically—they're really pushing the limits of theoretical technology. There's not much room to go. There are no real magic reductions in costs left. There is lots of things they can still do to keep chipping away at it, but they're not major.

John Gratwick—The aircraft that you're going to be using in this period are already designed if they're not already built. They have a longish life.

Daniel Brand—The net of all this: do you believe that the cost per passenger, capital and operating is going to go down slightly over the period.

David Frank—Slightly, real cost to the clients. Per passenger kilometer.

Daniel Brand—As much as 1% a year?

David Frank—No! Not to the year 2005. You probably could squeeze .5% a year efficiency over the long run.

Tom Lightbown—Fares—any thoughts? Just the same kind of decline?

David Frank—Fares are being subsidized by about 5% by the liquidation of assets and shareholder wealth. So don't expect any...you could see major shifts in the way they do fares. It's totally unsustainable (unintelligible) between discount and full fare pricing out there. The yield management system has completely out of whack, and they forget that people have a learning curve, and they learn these things. So you can see changes in fare costs and deep discount fares in the near-term; they are going to have to go up. But the real decline in fares will still keep a fair level cost.

Daniel Brand—Let me just argue though that a Southwest could enter the market, this very high volume market, just as they started up Dallas-Houston which is a very high volume market and no frills, fast turnaround. I think there is always this potential here.

Daniel Brod—Until Southwest has a crash or someone gets hepatitis on board.

Tom Lightbown—In another meeting, we had a discussion within the deregulated environment about the Compasses and the Nationair's coming in, and they fail and they go out, and fares will do things up and down. The data that we have is from three waves of data,—summer, fall and winter—and during the summer/fall there was very little Nationair in those numbers. In the winter wave, there is some Nationair. But one would expect with the open skies and cabotage certainly some downward pressures on fares.

David Frank—You are looking at long-term trend here. What's this going to average out to in the year 2025? And the entries of a Southwest or a Compass or a Nationair—these are "one-of" situations. Most of the cost savings under deregulation have been passed on to the consumer. Even if you allow cabotage in here, 'cause the cost structure between the American air carriers and Canadian airlines is not that completely different.

Daniel Brod—The question is whether these aren't aberrations by Peoples Express several years ago or You have cycles where somebody perceives possibly entry into the market to haul people around for \$30 to fly anywhere, and I'm not so sure, particularly now with the experience with Nationair and past experiences, that you'll see much of these. In the United States, the market is reducing to 5 or 6 carriers, and what would happen if its were truly open skies in Canada?

Daniel Brand—Rumor has it that the Crandell is so furious about Southwest's success in the Texas triangle, and now going into the California corridor and St. Louis and moving up to Chicago, that America may just start a no frills subsidiary, basically operating like Southwest. And there may be that trend.

John Gratwick—We shouldn't forget too that there is still a place, and perhaps an increasing place, for charter operations as opposed to combating the scheduled operations. And some of these people are coming from that background and are running more in that way. What they managed to do, of course, is something which obviously the major airlines can't, is that you cannot run a scheduled service with high utilization on all flights. The two things just don't happen. The cost of scheduling and operating fixed times, is very expensive, and the charters can always come up with that. The larger markets like corridors and things, there is always a place for a 10%–20% maybe of the market. We can't look at the market as a single market. The personal leisure traveler for whom time and time of departure is not all that critical, can well accept this. My son came up to Halifax yesterday from Toronto—\$99 each way, on a pseudo charter flight

that had at least a time of departure the day before. It was a known time. There is always going to be a place for that, and it will never capture the majority of the market, but it's a useful adjunct. If you then will look at prices across the board, it tends to keep them down. I don't think we include those figures in any these comparisons we see. We look at the range of prices for the scheduled carriers. Their range of prices is pretty large, but you've also got this other fringe tending to hold it down. And not only is it no frills, the main point is it's high utilization which by far is the biggest profit-maker for any airline. The difference between 60% and 70% in utilization—certainly between 90% is enormous.

Daniel Brand—Can I ask about aircraft size, because that relates to frequency. I'm still hung up about the difference between Toronto-Montreal, where I assume big planes fly, and where, indeed, the turbo prop may actually increase air travel times (line haul times). And all the other O-D pairs where little planes fly, where these turbo props may be bigger than the puddle jumpers we have now and faster. Is this a fair characterization?

David Frank—It's rapidly becoming dated and if you are looking out 35 years. I was having this discussion in Australia as well, and airports around the world are really being caught unaware by the success of these different turbo prop aircraft, and none of them has catered to them. But the new generations that are coming out right now of turbo prop are very close to near-jet speed, so I should not stand up and say no it's going to be jets serving Toronto-Montreal from now for the next 35 years. I think that would be a very foolish thing to say. On your cost dropping, the real cost over a 35-year term, I'd probably go to about .75% per year over a 35-year period, and I would end up with a shaving off to the year 2025, shaving about 40% of the real cost. That's as far as you can go. You might be able to do that with a little bit of technology, and of course, an increase in fuel price would wipe all that out.

Darcy Toms—Is the new generation of turbo prop as comfortable and as quiet as a jet?

David Frank—Yes, more comfortable, more room for passengers. There is more room for a passenger in a Dash-8 aircraft than there is in a 747 aircraft.

Darcy Toms—Nobody wants to ride in a Dash-8.

John Gratwick—Not initially. We're back...that's the bus syndrome. And it's much as anything it was a community-related thing. We are being downgraded: we used to have one jet a day, now we've got 8 Dash-8's; we've got a deterioration of service, and after the first three months, they realize it's a lot better.

Darcy Toms—But the Buttonville service we talked about—that's a smaller plane, the HR-42, and they are not very popular overall.

Richard Soberman—They are more popular in the summer than they are in the winter. The trouble is if you go in the winter, you have to decide whether you want to sit in the airplane or whether you want your coat to sit in the airplane. There is an order of magnitude difference. City Express operating out of Island Airport: one of the big barriers was if you have to put your winter coat some place and hold your briefcase.... Dash-7, Dash-8, there's no room. Remember, in Canada, we're not as generous as the Americans are in terms of carryon luggage. In American airports, you can get away with blue murder in terms of the amount of luggage you carry on the plane. They are a little stricter in Canada, but I think business travelers are very sensitive to the fact that they

can't A guy comes on with a hang-up bag; they say I'm sorry, it's at the back. They get incensed about that sort of thing.

Daniel Brod—You also mentioned why the preference for the Metroliner. People sit down and do three hours of work. And business travelers look at airplanes as a place to work, and if the space isn't there

Richard Soberman—If you come up to this meeting on a crowded airplane from Toronto, no matter how you cut it, this is the way you have to do this.

David Frank—The trend is already toward turbo prop aircraft. You're talking 35 years to keep working on those technologies—you are going to see it.

Daniel Brand—Does a turbo prop get up to 30,000 feet?

David Frank—The jets don't get up to 30,000 feet on this short haul.

Marc Gaudry—What's your total drop over 30 years with this compounded rate on the air cost?

David Frank—41% over 35 years.

Tom Lightbown—Maybe you can give us more information on frequency and capacity.

David Frank—Frequency really drives demand; it's the Number One tool to create demand. It's already happening in this corridor, where people are expecting aircraft to leave at a certain time on every half hour, and that's the way things will run. When you apply this to your high-speed rail scenario, that's what you will be competing against—this service every 30 minutes, 20-30 minutes, like clockwork all during the day.

Richard Soberman—This is where the airport configuration is important. If I leave Dorval to go to Toronto, I might have a plane every 30 minutes, because if I just missed Air Canada, I'll take Canadian. But you can't do that at Toronto.

David Frank—The corridor that you have right now is pretty close to saturated. The Toronto to Montreal frequency is very high. We're not talking about increases in frequency here.

Tom Lightbown—You mentioned congestion. I guess we've got an increase in volumes here, we've got some improvement to terminals; probably increases in processing times—terminal processing times—as well as congestion related to the airplanes themselves.

David Frank—Terminal processing times could go either way.

Darcy Tom—The only thing I'm having trouble with is we're talking about smaller planes, more traffic, limits on the number of gates and all the capacity constraints. I'm just having trouble putting all the pieces together. You would think that if you've got a fixed number of gates and runways and everything, and more people, wouldn't the tendency be toward a larger plane rather than a small plane?

David Frank—I see that you're pretty close to a mature market right now air-wise. And as you open your air policy, the growth is going to be going elsewhere, it's not going to be in the corridor itself.

Daniel Brod—I don't know how it is in Canada—90% of the flight minutes in U.S. air space are for narrow body/wide body jets. The turbo prop is only 5% or even less of the actual planes flying. So if their share goes from 5% to 8–9%, it perhaps will make a difference on capacity constraint. Any addition of aircraft will.

Darcy Toms—It's not so much the turbo prop issue that's puzzling me. If they are cheaper to operate and they are as comfortable, as quiet and everything, it's natural that it will happen. But what puzzles me a little is the size of the aircraft going down. If you have a choice between having one 737 a day or 10 turbo props smaller, then you could have a rationale for it. But if you already have half hour service, would you have 15 minutes service with turbo props to fly the same number of people?

David Frank—We're talking about the network as a whole here. On the Montreal-Toronto part, I can see there could be rapid turnarounds with 737's, that Southwest type of service. But the point I'm trying to make is, don't think that that service is different from the turbo prop that's doing the same sort of frequency on another part of the corridor. Just view them as identical—that's the trend that you will see.

John Gratwick—I think the point is that if you go back and look at the complete corridor, it may well be that if the service between Quebec City and Montreal obviously doesn't justify the frequency of Toronto-Montreal, there is certainly traffic there, and the turbo prop may be far more appropriate for that because you can offer the higher frequency. And it may well be that some of those would then go Toronto, because it would be again quicker in total time than wandering in a turbo prop to Montreal and then changing over to...because the change over is prohibitive. Because of the fact that you have to allow for a variation in performance, you have to allow a large interconnect time—45 minutes—which is comparable to the duration. So it clearly then makes sense to keep those into the longer run. You start seeing it as a network, and you can see lots of flows. It seems to be one of the things that it offers is this greater flexibility to the airlines to mix and match by days of the week and hours of the day. And that's where their economy can come into it. If you've got one type of aircraft and that's it—one size does all. Wonderful for servicing the aircraft, but not so good from the point of view of what you are trying to do.

Daniel Brod—US Air has a daily flight from Baltimore to Ottawa. And three days of the week, they use 737's and one or two days they use a Dash-8.

Tom Lightbown—Let's move on. We can choose rail or bus. The order isn't important to me. Let's start with bus. We've seen a declining ridership, cost-cutting as passengers have been lost, so the industry is still in business. What we had initially said was about a 1% loss per year. We hadn't revisited that assumption, but assuming a decline in the rail passenger market too, what's in store for bus?

John Gratwick—One of the things we didn't talk about with bus, that Dave and I heard about this last week—one of the interesting growth areas for bus is freight, and in some cases, it's almost carrying the passengers; cross-subsidization going on here.

David Frank—40% of the revenues is cargo for Greyhound out in western Canada.

John Gratwick—There are some regulatory constraints on that at the moment, again like there is with everything else in buses, but if they are allowed to go to the pup freight trailer, they can increase their freight capacity very considerably, and the revenue per trip very considerably, which will help to extend if anything the availability of the passenger side of it. And this is a very real component of the economics and certainly the future economics of bus. All of this ties in of course to the increased use of various forms of courier service, and that's really what that is part of. As the Post Office declines and disappears from performing useful work, it's tending to move to everything else. And bus is one of those, and it will cash in on this. It's particularly good in the parcel area and service and price at the moment which is cheaper than anything else. It's mainly the saving grace for the passenger side. It's cheaper than mail.

Tom Lightbown—There is some talk too of better equipment—articulated buses on highways for passengers.

John Gratwick—All the possible improvements in technology for buses have already been well invented and tried everywhere else in the world except in North America. And it only takes a few more people to spend some time, particularly in Europe, using some of these magnificent rolling hotels to find out what is possible in the bus business.

Richard Soberman—But highway improvements that we are talking about are obviously related, particularly information systems. One of the things I've always thought about the bus is that a bus schedule didn't really mean anything. Because how can you have a schedule—you can have a schedule when it leaves, but how can you really estimate when it's going to arrive—it depends on the traffic conditions. The fact is some of these intercity bus schedules are quite on, and they allow for traffic congestion on a Friday night at 5:00 in the same way as your airline schedule allows for take-off delay. If you really got on the airplane and closed the doors and took off from Toronto, you would be here in 35 minutes—which I was once when a guy had a heart attack on the airplane. It took 40 minutes take-off to landing time.

Tom Lightbown—We said earlier that congestion maybe wouldn't change much—that effective congestion was constant—so I would conclude here that as far as the bus's transit time is going to be concerned, over time it would not change materially.

Richard Soberman—I agree, and I think also there is a perception problem with the bus industry which relates to the terminals. And the bus industry has always said that they know this, but why should they do anything about it with the kinds of returns on their investment?

Daniel Brand—Will frequencies basically stay the same, given that ridership stays the same?

John Gratwick—I stand to be corrected on the Montreal to Toronto route, but I certainly know for Montreal-Ottawa that they have an hourly service, and if there was an overflow of passengers, they would put another bus on. So you've got a fixed frequency but variable capacity.

Richard Soberman—When it really gets busy, what it simply means is you just go down and get on the bus because as soon as its full Toronto-Montreal, I think Voyageur has given up. They have a reasonable frequency of service, but they don't really believe that they can compete with rail because it is a 6- to 7-hour trip. Ottawa-Montreal, Ottawa-Kingston, Kingston-Montreal, Kingston-Toronto, these are shorter trips.

Marc Gaudry—I think there is one problem—I don't know whether it's major or not, but how can you increase efficiency for buses on these large O&D pairs? Apart from the freight timing, you're caught with reasonably.... It's very hard to increase the productivity of labour, so you're stuck with a very restrictive technology there.

John Gratwick—They're already efficient in comparison with anything else. They could put a bar on board and make money on the liquor.

Marc Gaudry—How about articulated buses?

Darcy Toms—Articulated buses have to have very specific market conditions before they make economic sense—intercity buses.

David Frank—Those cargo trailers—that would substantially increase your productivity.

Darcy Toms—How about cost in terms of deregulation; is there the economic grant issue with drivers' wages right now?

Marc Gaudry—I would say that would improve the problem in the corridor because now they are cross-subsidizing their profits in the corridor. Montreal-Toronto is being used to subsidize unprofitable routes. It would make them more competitive on the Montreal-Toronto route.

Richard Soberman—Not from the standpoint of more competition, but from the standpoint of eliminating cross-subsidies.

Darcy Toms—And driver wages would be pushed down?

Richard Soberman—Maybe not.

John Gratwick—What proportion of the total operating cost is the drivers?

Darcy Toms—It's a big chunk, I don't have the data here.

John Gratwick—Is fuel the largest?

Darcy Toms—I think the driver is largest and then probably the equipment, maintenance and also the capital cost—the ownership cost—of the equipment.

Daniel Brand—Urban transit labour is 85% including maintenance labour.

Tom Lightbown—I think intercity is about 67%.

Darcy Toms—So we wouldn't expect a big change. Driver wages are very high in the bus industry compared to the trucking industry, for example. Now with deregulation—if that were to happen—if we don't think it's going to happen, then it's a non-issue. If we don't think deregulation is going to happen.

Richard Soberman—I phoned up a big bus company yesterday and I got a quote for chartering a bus to take 50 students some place. \$655 for 47 seats. I'm taking them a long way, a 2-1/2 hour drive away. It worked out to \$13 per student, and I'm not talking about a round trip. One way. They come back two weeks later. That's another \$655. That's pretty cheap transportation. It's almost 150 miles. This is the company that took over Travelways—Canar, or whatever they call it.

David Frank—You will see bus being viewed more upscale in 35 years too.

John Gratwick—There is much quicker turn around time on bus capital. In other words, new buses can flow through the system, and new and improved ones come on line in very short order by comparison with the other modes of transport. They have great flexibility in terms of growth.

Darcy Toms—There are some big differences in fuel consumption for the next generation of buses.

John Gratwick—That tends to have more impact on the start and stop of the local and transit buses doesn't it?

Darcy Toms—No. Even on highways—the electronic controlled engines. On the trucking application, people used to think 5 or 6 miles to the gallon, and it's now 7 or 8 miles to the gallon, over the last 10 years.

Richard Soberman—One of the downside facts has been the relocation of bus terminals. You are catering to a low income market. For example, in Kingston, you take a bus from Montreal to Kingston to save money and then you end up spending \$7 or \$8 on a taxi. (End of tape) ... they are talking about moving a bus station in Toronto to a peripheral location. One of the advantages, is while it's a decrepit station, it's very easy to get to. But you move it, it's not so easy to get to, and you're talking about public transportation. You're talking about a price sensitive market.

Tom Lighdown—Last mode is rail. And the question is, if what we know as VIA Rail is not in operation after they run out of subsidies in the year 2000, 2005, what might replace them?

John Gratwick—I think their problem is not only the question of where does the money come from but it's the fact that they have ingrained management and operating style which is never likely to change enough. It's comparable almost to the railways. It's imbedded in the organization, the attitude and the style of operation, coupled with an impossibly high wage bill, under their present structure. It will be easier to let VIA go out of existence and start again than it will be to change.

Tom Lighdown—And what would those operations look like? If we had to describe now what kind of service is provided in the corridor after this particular supplier of

service is gone? And we are talking about a declining market—maybe some kind of increase after new services are provided. What do those services look like? I guess this is the counterpart to the short-line railway.

John Gratwick—In some places, they would still probably want to keep some part of their service to schedule, to a timetable.

Darcy Toms—If VIA's gone, isn't Union Station gone, and Central Station gone and all the....

Richard Soberman—You still have GO Transit. First of all, you're going to have the commuter rail systems like GO Transit—and it's already the thin edge of the wedge. They will assume—they already have—some of the services that were previously offered by VIA Rail, because they were forced into it politically. So they will operate to Peterborough and Brantford and Barrie: those are all VIA services and they become part of the commuter network. You're still going to have, at least in Toronto, I don't know about Montreal, about their commuter rail services, but Union Station is there. Take VIA out of there, you take the railway line—all of the CN stuff—out of there, it's going to be like this building. I imagine you can get a pretty good deal in trying to rent a floor in this building today in Montreal. In the real world, you will be able to get a very good deal in renting track space in Union Station when VIA's gone. And someone could turn around and buy those trains....

Tom Lightbown—Dick, are you saying that all the...there is an expansion of the suburban system: GO Transit has taken over Gray Coach's suburban runs over time; that the commuter network (and there's one that will be growing in Montreal too), would be expanding. So what's left? We've got all these O-D pairs for rail.

Richard Soberman—Let's explore some scenarios. Let's suppose the federal government really did get out of subsidizing rail passenger service from Toronto to Montreal. You could conceivably, with the politics and everything else, you could get a Quebec/Ontario government initiative, to take over the service, buying some equipment from VIA or any place else or buying brand new equipment made by Bombardier (let's not forget that Bombardier is now in Montreal and in Toronto). So here is Quebec and Ontario redesigning new intercity passenger equipment. They jointly decide to operate between Toronto and Montreal with stops at Dorval and Kingston. That's it. That could well happen: you've got the two provinces coming in and assuming responsibility for this poor service. Or you could have these provinces going out for private sector. You could find a willing I mean, it's not out of the realm of possibility that you could have private contractor operating on behalf of the Quebec and Ontario governments in return for some quid pro quo? With some subsidies. Sure. You see GO Transit is subsidized. But there isn't anybody in the world that would say the GO Transit is not a smashing success. The subsidy doesn't matter. I tell you one thing: whatever Ontario and Quebec do with a brand new service, the cost will be less than what the federal government faces now on their VIA-type operation. We're very hard on VIA guys, but you can't take the 18th century mentality out of VIA. GO Transit is a different type of organization than VIA in terms of its response to the marketplace. I don't know about the commuter rail operation in Montreal. Realistically, I just do not see, with all the cuts in the world, governments in this area abdicating completely the provision of passenger service between Toronto and Montreal.

John Gratwick—And if it is confined to the two provincial governments, who are presumably the provinces that benefit from this service, or want to have this service, then it doesn't involve allocation of federal funds selectively? It wouldn't cause a ripple outside Quebec and Ontario.

Richard Soberman—And if Quebec and Ontario get some smart consultants, they will be able to pull this off in way that does not cost them that much.

John Gratwick—This is one of the reasons why I think I'm fairly certain that the federal subsidization of VIA is going to have to go. It's not because of anything here; it's because of the rest of the country.

Tom Lightbown—The city pairs that make sense when you compare rail and bus are Montreal-Toronto, Ottawa-Toronto, Kingston-Toronto, and Toronto-Windsor. That's where rail is stronger than bus.

Richard Soberman—But Toronto-London—that will be an Ontario-only problem. When you talk Toronto-Montreal, you have got 2 provincial governments involved. You start talking Toronto-London, Toronto-Windsor, that's the province of Ontario's baby.

Tom Lightbown—If VIA disappeared, and some services are required, the bus would pick it up.

Richard Soberman—I think so. On the other hand, they jumped in to pick up the Barrie service.

John Gratwick—Nothing would stop the bus company from running the rail line.

Richard Soberman—That might be a model. When I say if some smart guy came along, I'm thinking of some operator that involves buses, and coming along and offering a deal with integrated feeder services and stuff like that.

Tom Lightbown—To get some sense of what cities are actually served by this notion, it can be as small as Montreal-Toronto. Is Ottawa included?

Richard Soberman—Ottawa is a little off line, but in fact they have some good track now that they built for passenger service. Toronto-Ottawa is a much better trip than it used to be. There is some 100-mile an hour track out there for the last....

Daniel Brod—Freight carriers don't use this track, do they?

Richard Soberman—Oh, they do, but they have more than they need.

John Gratwick—The problem here is that CN and CP still maintain distinct identities and they separate the track. If you put the two together and you became a common user track facility, as CN and CP are at long last beginning to talk about themselves, then you will have lots of capacity. You will have what is the old classic, European. You'll have the fast and slow up and down lines. It's what the four-track was the standard thing: freight on the slow tracks and passenger on the fast, with the ability to swap between them for traffic-sorting purposes.

Richard Soberman—Didn't CP last year hire a consultant to do a little Mickey Mouse study of high-speed potential—CP and Air Canada? They got Wilbur Smith.

Daniel Brand—We were going to do it until I said that high-speed rail diverts from air. And they said: oh no, we're good corporate citizens of Canada. Of course, high-speed rail won't touch our market. It diverts from auto. And I said, well o.k., try and find out, but....

Richard Soberman—It needn't have been a Mickey Mouse study. The mixture was right, because you have a railway that has a track that it could get some revenue from. But Canadian Pacific even less than Canadian National can spell the word "passenger". So you bring in a kind of company that knows how to deal with people, like an airline or maybe a bus company and you look at this route and say what could we really do here?

Daniel Brand—Actually, in Texas—there is no question that they would love to have American Airlines operate the high-speed rail service in the Texas Triangle. Because they're passenger-oriented.

Tom Lightbown—Assuming your notion of this new company comes in as an integrated bus and rail operation. What's the viability of that? You have a limited number of city pairs to serve here.

Richard Soberman—It would be a downsized system. VIA can't run a train from Toronto to Montreal and not stop in Brockville. All their trains don't stop at Brockville, but they have to, and they have to stop I guess in Belleville, and the occasional one stops in Cornwall. But an organization that had a bus and an airline, and maybe you make Bombardier part of the consortium to make sure that you're not just selling them equipment; you buying a service. It's definitely a possibility that you could approach from a business standpoint. You've got a half-million passengers a year, so there is something there.

Darcy Toms—Would the Ontario government be able to say no to Brockville any more than the federal government could?

Richard Soberman—They could, because they have to say no all the time on GO Transit. What happens is that the federal government is abdicating their responsibilities. So now, the provincial government, everyone comes and cries on the provincial government's shoulder, and the provincial government comes back and they say "O.k. this is not our responsibility. Legally, look at the constitution (or whatever they call it), this isn't our responsibility." But this is what we're going to do. That's how they get into that. That's a little different than their being the airport authority and saying we are going to expand the airport.

Daniel Brand—Yeah, but the rep from Brockville has more clout in Queen's Park than in Ottawa.

Richard Soberman—That depends. All I'm saying is that there are lots of options. One option is Quebec and Ontario do something; another option is that some private sector consortium does something. And what the private sector consortium does is it puts its act

together and comes to Quebec and Ontario and says, look we want to invest, and we need \$10 million a year, or whatever it is that you need to do this.

John Gratwick—The real issue is who or what was the residual owner/provider of the infrastructure and what the pricing or the tolls would be on the user. The railways, to some extent, have got themselves into trouble because they always treated this as the regulatory body (unintelligible) which is you calculate the system average cost for the use of right of way, irrespective of the conditions of your use. And one of the great problems they've always had up to now with the costing of the use by VIA has been that it's been against this standard costing formula which the railways don't really control. They provide the basic expense figures that go into all the slots in the cost model, but nobody has every considered how you would market the infrastructure in terms of capacity usage and times and so on. Also the underlying question would then come to what extent would you be looking to treat that as an asset for which there must be a continuing return. That's where the opportunity comes to bring the rail infrastructure into line, at least with highways. Even if you assume that you collect the operating costs on highways.

Richard Soberman—But, under today's type of service, the railway says we have a legal right to collect a certain amount of money from you—it's under a costing order, etc. And we have smarter accountants than you—we hire Peat Marwick; you guys hire Soberman, right? But we do smoke—and-mirrors, and I'm telling you, this is what you owe us. Now, we're talking about a completely different scenario. Some guy comes along and says "We don't care what your costs are, Canadian National—How much do you want to charge me to run this train from here to here?" The only time in Ontario we ever succeeded was the one time the government asked some of us to negotiate with the railway before they made the announcement. Typically the government of Ontario said, "we are going to Georgetown; go and negotiate with the railway. I want you to be a tough negotiator." In fact, the negotiation with CP was.... Les Smith, who was the regional vice-president, got very upset. He brought Harvey Romoff down, and we had a little conversation, and I said "No, I mean, really trust me; at that price, we don't have a deal." It's the only time we ever got something because the threat was if the price was too high, they would not get the business. We have these two railways that claim they have a few problems; they've got capacity to sell. But they don't know how to price it. So someone else comes in and makes them an offer. It's got to be able to be done. It's almost like a shortline, but we don't own it. We are just going to rent the railways.

Daniel Brand—One of the entertaining discussion items after we do the study is going to be that ridership varies dramatically with fare. We have a revenue-maximizing fare and, of course, the public benefit maximizing fare may well be a zero fare. Any thoughts on ... you know, public benefits justify public subsidies; this thing's going to have to be heavily subsidized anyway, rather than maximize the user revenue.

Richard Soberman—Wait a minute! You just said that "this thing is going have to be subsidized anyway"—this high-speed service? We came to the high-speed table because Bombardier and the guys said "*Pas de problème*,! We could build this thing and we can make money. Well, we might need a *little* bit of federal money, but this thing can make money." We've been arguing here about the financial difficulties, etc. I have no doubt that there would be some federal government money that somehow goes into this system, whether it's translation of certain books. They could say "We spend \$180 million a year on this service now. I tell you what, we'll settle: \$90 million; we'll capitalize it; we'll give you so much etc." But morally, this is the most highly serviced part of all of

Canada. We have highways; we have airports; you name it, we've got it coming out our ears. How does some cabinet minister sitting in Newfoundland, how does he come along and says "Oh sure, we are going to put \$3 billion into the Quebec-Windsor corridor." What for? If that's the case, then you can't talk about high-speed rail, you have to talk *higher* speed rail. These guys have said we're going to make you an offer you can't refuse, we're going to build this thing and it's going to pay for itself. If that's the case, I'll take a Metroliner, thank you very much, or some thing in between.

Daniel Brand—Actually, at the last meeting of 50 people this issue came up and it was, correct my recollection, but I may have blurted out something along this line, and they said "well, it will cover operating cost" or ... but I think there was a general agreement or general recognition this thing was going to pay little if any of the capital cost.

Richard Soberman—The French maintain the TGV paid for itself in ten years.

Marc Gaudry—Three things. France's (TGV) internal rate of return calculations in 1978/79, two years before operations, were a yield, calculated in discounted present value terms, of about minus 12%. The same calculations done now, knowing costs of construction and real flows, are about plus 9%. And they've convinced me of that. So, the only quibble is on research, how do you assign research and development costs. So they've made a mistake of 20%, measured in rate of return all present discounted, when they took the decision. Internal rate of return criteria.

Daniel Brod—None of this value of time or airy-fairy ... financial? Money rate of return!

Marc Gaudry—I'm not joking. I followed it closely from inside every year since 1981, on both the civil servant side and the regular side, and I didn't believe it was making money until 3 years ago. You asked for a thought—I have two thoughts. The first one is the one you have raised about the assignment of grade-crossing costs. Here we make an ethical argument: we say when 2 roads cross, you build a north-south road. You don't charge the cost of the intersection to the north-south road. We don't do that. If two networks cross, the crossing's a joint cost. From a system or government point of view, why would you impute the cost of the crossing to the new guy. Why would you grandfather the previous mode? I realize as a marginal change in output from the total point of view of the economy we should, but from the point of view of how do you run the assignment of your joint costs in networks—why would you do that? Indeed, if you give priority arbitrarily to the north-south guys—put a stop and a red light, and he holds the total cost of stopping and more on them, why would you impute the totality of the cost to the car? So the assignment becomes an arbitrary assignment between 0 and 100%, irrespective of the legal system which has rules about this. There's about \$1 billion easily on this. The French have never thought about it. And Bombardier, when they came up, I made the argument; they never thought about it. ABB never thought about it. But we had it as a strict paragraph in the interim report and in the final report (of the Royal Commission).

Secondly, on your difference between financial return and public benefits; (sometimes generalized as consumer surplus, I suppose): To make the consumer surplus argument credible, it would have to include the welfare losses due to the taxation and higher interest rates on capital on the borrowing side. You would have to prove that the welfare

losses elsewhere are not bigger than the welfare gains implied in the transfer. It's quite hard to sell, if you count yourself the losses due to the taxation on the other side.

Richard Soberman—The French report 163% operating ratio on the TGV-sud. They claim that their revenues exceed their cost by 63%, and that's a contribution.

Marc Gaudry—That's why the figures I gave you are computed by the toughest civil servants, and unquestionably hard guys. They include everything.

Richard Soberman—Amtrak says it will break even by the year 2000.

Marc Gaudry—They (the French) need a cash cow too, because SNCF revenues have fallen last year. High-speed rail has gone down a little bit with recession. They generated a \$500 million deficit last year unexpectedly over the whole network. They were recalibrated 4 or 5 years at zero. They're supposed to break-even, so costs in railways are not going down. But the point is that they're making true economic surpluses including financial ones on the first line. And the only other line where they have reasonable expectations of that is London/Paris. They think that they can make real profits on that line under reasonable conditions. But none of the others. By straight computation without cross-subsidies. All the others lose money. It's true of all the German ones. They all lose money; there is not a single one that anything like breaks even.

Richard Soberman—But everybody is losing money: airlines are losing money, the railways are losing money, the bus companies losing money, the transit companies are losing money, the shipping companies are losing money.

John Gratwick—There's a message here (Laughter)

Richard Soberman—Everybody in Canada is losing money in transportation and we claim that transportation is so important to the economy ...

Daniel Brand—The cost/benefit consultant on this study is Transurb in Montreal. They have a pretty sophisticated document actually. I'm pretty sure it has some of what you were talking about, Marc.

Daniel Brod—The only thing I'd like to say is that a 9% financial rate of return wouldn't draw any private sector investor.

Tom Lightbown—The only remaining question I have is does any of you, have any caveats or reservations that you would like to give us on this kind of exercise? We have been very bold in a number of areas, and I know it has been difficult chasing some numbers. We had only one day to discuss this. What constraints would you put on the kinds of the things that we talked about today.

John Gratwick—I worry about the intermixing of the pseudo-precise figures and numbers, and I doubt if anything much in terms of real decision-making should be hung on anything much less than half an order of magnitude—due to the crudity of the process. I would feel much more comfortable with indications of direction and change. Certainly getting the direction right is important, and we haven't had absolute unanimity or even on direction to some of these things. So, much more than worry about whether it's 3.1 or 3.3

per cent, I would like to know is it plus or minus to start with. And I think that in some of these areas, we're almost as far out as that, and I think in any case these sorts of decisions are never made on anything that's fairly close. It's got to be blindingly obvious in one direction or another before any of these things will happen. It seems to me that's going to be the danger in the process, particularly perhaps in the way that this is being done, because it is one of the common ways (unintelligible) can bring together information is by turning it all into a number. And I think that is probably inappropriate in a lot of these cases.

Daniel Brod—To take off on John's comments, I think that to make the economic case, you have to get very strong, believable traffic forecasts—demand forecasts.

Daniel Brand—I don't entirely disagree with the course of this decentralized study. The time series model—direct demand model for air, auto and rail—that we would do would still be subject to the discussion we've had here, and I think it might be false precision. I'd rather model the demand, the consumer side part of it, with the diversion, substitution of modes, and be sensible about the growth and the travel on the existing modes. I mean sure, it would be nice to do some good modeling and to see what it tells you and then to increment or decrement from there, no question about it, but....

I'm reacting to what I perceived potentially as skepticism that the exercise we've gone through today is about as much as the entire study is worth, and I think there are parts of the study that are subject to a lot more quantification, but ultimately they rest on forecast of total travel, and it's subject to a lot of uncertainty.

Richard Soberman—But, there have been lots of forecasts of travel in this area which start with the basic premise that you are trying to prove something. As far as I'm concerned, the most important thing that can come out of this whole \$6 million study is a reasonable assessment or an assessment of the reasonable potential for high-speed rail under certain kinds of conditions. To give you an example, there was this conference at Queens, and Ray Ellis did his "show and tell" at Queens and he showed some numbers. And he had some Northeast corridor data in there. And I'm sitting in the audience and I said "Ray, look, something doesn't make sense here. You've got as many people going between Toronto and Montreal as you have between New York and Washington, and New York has a shuttle service and has 24 trains a day, etc." So Ray looked at it and he started saying something is wrong here. And then some guy from Queens—from CIGGT—said "Soberman doesn't understand that Toronto and Montreal is a business market." Washington/New York is a not business market? Like, making excuses. So, I'm very skeptical about this high-speed rail study because I know the guys on the Ontario side that are running it. I'm sorry. At the end of the day, quality will out, and I have no confidence. But the demand side of it is what's important. Because then, you say no financial guys are going to invest in this. You're right unless they happen to own a company that makes the equipment. There's a lot of intrigue going on here. Bombardier may become the financier of the project in order to sell equipment. I hear this crazy stuff in the airline business. American Airlines isn't really interested in Canadian Airlines because it's a money loser, but they want to sell them their reservation system. I never quite totally understood this. Why would you want to sell somebody something if they ... anyway. We're not interested in the airline business; we're only interested in selling a service to these guys who are going to go bankrupt. I don't understand all of that. So, maybe Bombardier is going to put together a financial community if the numbers are right, with certain federal ... that's what's going to happen if this thing ever goes. There

will be certain federal guarantees which will make this attractive to certain people. At the end of the day, a reasoned demand analysis allows people to do some sensitivity. That's what's got to come out of this. The cost estimates that will come out of this—they're going to be very low. They always are in Ontario and Quebec—they're going to be very low. Nothing has been built in this area in the last 20 years that was not 3 times the multiple of the original cost estimate. The cost estimates for this high-speed line are one-twelfth per kilometre of the cost estimates for roughly around Southampton to London. That's a more difficult area to build a high-speed line. But 12 times? So you've got it all! We're depending on you, Dan.

Tom Lightbown—Any other caveats?

Marc Gaudry—There are two big hammers that we haven't tried. And they are the industrial policy arguments and the macro effects that would happen somewhere in the economy that somehow are not captured in this project. The industrial policy argument is if you do it now, you could sell in it abroad—the show case approach. We haven't dealt with that, and a big open door. And second one is the current fashion of believing that investment in infrastructure has a special magic and their effect on GNP. I think it's totally fallacious. If you invest in infrastructure in Montana, if it doesn't do anything else, it's reducing GNP or GNP is increasing, and we do the same here. There is a fashion about these arguments now, and we haven't touched on it. These are my two caveats, things that hit you at the back of the head, irrespective of what we've done today.

Richard Soberman—Like Marc said, everything is justified on the grounds of employment. So we should build pyramids. And then you do a benefit/cost analysis. If you take a labour-intensive project, and you treat its cost, the cost of building and it's all labour, you increase benefits, the employment, everything is justified. I gather that what you were trying to get here was a sense of ... in some things, we've got quite reasonable consensus, on other things ... It's not only that if you had a different group you would get a different assessment; if you had us here tomorrow, you'd get a different assessment.

David Frank—The only qualifier I have is that when you have a Delphi session like this, the results get out and people think it's a new chapter of the Bible or something, that it's treated as fact when what it is is a consensus that kind of wanders during the day and depends on the coffee you had as to how good it turns out. My only concern is that the people out there are saying, this is truth. And it's not; it's brainstorming. And it's very important to remember that.

Tom Lightbown—We certainly recognize that, and obviously there are many inputs to what we are doing here. We are responsible for producing the Reference Scenario which we hope is clear and useful and unambiguous. And when it goes to the forecasters that it serves the purpose.

David Frank—The other point that's got nothing to do with what we did here but it's really concerning me. You're saying this high-speed rail project would be an origin-destination project. That's really backwards thinking. It's got to be an integrated part of your complete international network serving this area. It's got to be hooked up in the terminal buildings of your airports. It's got to be addressing freight and passenger. Don't make the same mistakes that were made in the terms of reference for the Royal Commission.

Daniel Brand—I think I might have spoken too quickly. I mean it's very expensive to go into current airports, but I think those are possible

David Frank—But it's absolutely vital. It's the correct way of thinking, so you have to have passengers and freight, and you've got to think this is part of a complete system that hooks you up to the world, 24 hours a day.

Tom Lightbown—Thanks very much for the day. Let me say, there was enormous interest in this meeting, but we didn't want to have more than the people who are around the table here. This meeting is for our purposes and translates into deliverables that we have to give to the forecasters. There is enormous interest in knowing what transpired here. For our own purposes, we'd like to make a transcript. Is it a problem for a sanitized version of this transcript getting exposure?

John Gratwick (et al)—Depends on how sanitized. An unsanitized version is fine.

—Meeting adjourned—

Appendix—Biographical Sketches of Workshop Participants

External Experts

Daniel Brod

Daniel Brod is a Principal with Hickling Corporation and has over fifteen years experience in economics, finance and management sciences with clients in the U.S., Canada and abroad. His areas of expertise include risk analysis, benefit-cost analysis, and applied economic and policy analysis. Mr. Brod has been very active in transportation economics and has conducted research in this area and is conducting ongoing projects for the Transportation Research Board. He has co-authored a benefit-cost analysis manual for transportation investment appraisal to be used by Transport Canada.

He has been a key contributor to the development of new analytic frameworks for estimating the relationship between freight transport and industry productivity. For the Federal Transit Administration he has been assisting in the development of an Urban Transportation Monitoring System. He has conducted risk analysis for the evaluation of the construction and right-of-way costs of the MAG Freeway/Expressway Plan for the Arizona Department of Transportation.

In the area of finance of public projects, Mr. Brod led Hickling's evaluation of the financial structure of the \$1.3 billion tax exempt revenue bond issue for the New Denver Airport—conducted for the U.S. General Accounting Office.

Mr. Brod holds degrees in economics and mathematics from Tel Aviv University and the Illinois Institute of Technology.

John Gratwick

John Gratwick is a transportation consultant and writer; until retirement in 1988, he was Executive Director of the International Institute for Transportation and Ocean Policy Studies at Dalhousie University, and remains an Associate of its successor, the Oceans Institute of Canada. He is also a Partner in Hickling, the Ottawa consulting firm.

He was formerly a Vice-President of Canadian National, and was first President of CN Marine (now Marine Atlantic) on its formation in 1978.

He is Chairman of the Halifax-Dartmouth Port Development Commission, a Governor of Mount Saint Vincent University and Vice-Chairman of Halifax's Transit Advisory

Committee. In January 1992 he was appointed to the Commission to review the National Transportation Act; its report will be presented to Parliament in March.

Mr. Gratwick is a Fellow of the Chartered Institute of Transport, a Fellow of the Royal Statistical Society and an Honorary Life Member of the Canadian Transportation Research Forum.

Dave Frank

Dave Frank completed both his B.Sc. (Physics) and his MBA at the University of British Columbia and was asked to remain active with the Faculty of Commerce to create, manage and obtain funding for the Industry Productivity Study Group. He has coordinated research in all modes of transportation, economic development, forestry and tourism industries as well as in the productivity, forecasting, advanced human resources needs, information technology and marketing areas.

While at the university, Dave co-authored the book *Deregulation and Airline Employment*. Most recently, he has been the community observer for the Association of Canadian Airport Communities at the "Open Skies" negotiations between Canada and the United States. He has also been managing the development of a long-term strategic and marketing plan for Melbourne Airport (Australia).

He is a Founding Principal and Managing Director of Horizon Pacific Ventures Limited, an economic development consulting, marketing, facilitating and project implementation firm based in Vancouver. At Horizon Pacific, he has coordinated a diverse range of projects from Royal Commission submissions on developing competitive advantage through future-thinking transportation policy to creating demand for air passenger and cargo services, as well as others.

Marc Gaudry

Marc Gaudry is a Full Professor of Economics and Senior Researcher of the *Centre de recherche sur les transports* (CRT) at the *Université de Montréal*. He has published extensively, principally in applied econometrics and transportation, and has developed a number of documented statistical estimation programs and data banks in collaboration with others.

He is an associate editor of the Transportation Research Board for *Les Cahiers Scientifiques du Transport* and of *Recherche Transports Sécurité*. He was elected Alexander von Humboldt research fellow in 1985 and Fellow of the Royal Society of Canada in 1987. In 1990, he won the Quebec Transportation Research and Development Prize and an Alexander von Humboldt Research Award.

Associated with the CRT since its beginning in 1971, he has contributed as founding member, assistant director, and occasionally as director, to making the CRT one of the world's leading research centres in transportation planning.

During the period 1989-1992, he was a member of the Royal Commission on National Passenger Transportation that studied the future of passenger transportation in Canada.

Mr. Gaudry holds degrees from the *Université de Montréal*, Oxford University, the *Institut Catholique de Paris*, and Princeton University.

Richard M. Soberman

A graduate of Dalhousie University and M.I.T., Richard Soberman is Chairman of the Department of Civil Engineering at the University of Toronto. He formerly served as Director of the Metropolitan Toronto Transportation Plan Review, an inter-governmental task force responsible for the development of comprehensive transportation and land use plans in the early 1970s.

He has held positions as Director of Research in the Canadian Transport Commission, Director of the Toronto Commuter Rail Study, Senior Vice President of the Urban Transportation Development Corporation, and Director of the University of Toronto-York University, Joint Program in Transportation.

Mr. Soberman has been involved in a wide variety of transportation studies and projects in both Canada and the United States, as well as in Latin America, Africa and the Middle East. He is a former member of the National Capital Commission, Transit Advisory Group to the Ontario Minister of Transportation, and Deputy Director (Transportation) of the 1985 federal government Ministerial Task Force on Program Review.

High Speed Rail Project Consultants

Daniel Brand

Daniel Brand is Vice President of Charles River Associates, Incorporated (CRA). Mr. Brand has extensive experience in both Canada and the United States in traffic forecasting, corridor studies, and the analysis of potential for high speed rail systems. CRA are one of the three forecasting specialists engaged by the High Speed Rail Project.

Tom Lightbown

Tom Lightbown is a Partner with KPMG Peat Marwick Stevenson & Kellogg and has over twenty years of experience in transportation and general management consulting.

Darcy Toms

Darcy Toms is a Senior Consultant with KPMG Peat Marwick Stevenson & Kellogg and is a member of the firm's National Transportation Practice.