

To: Philip Safos[Philip.Safos@metrolinx.com]
From: Stephan Mehr
Sent: Thur 6/6/2013 12:44:44 PM
Subject: FW: Questions for SDG forecasting
[22393202 Rail Link Comparators v3.pdf](#)

Hi Phil:

Jim had a clarification question relative to hourly capacity with the 3 and 2 car train combination (see bottom of the message). If you have not already done so, could you clarify and send him a response?

Thanks

Stef

From: Richards, Jim [mailto:Jim.Richards@sdgworld.net]
Sent: Tuesday, June 04, 2013 11:58 AM
To: Stephan Mehr
Cc: Philip Safos; Daniel Haufschild; Wayne Duong; Berman, Sarah; Tang, Katie
Subject: RE: Questions for SDG forecasting

Stephan

Please see below the initial response to the questions raised by Arup in relation to our ridership study. We have responded in red to the questions, and hope that these will be sufficiently clear and informative.

It would appear that many of the questions are linked to the 2009 report undertaken for SNC, and I would suggest that there is merit in them being provided with both the 2012 and emerging 2013 reports (when finalised). It would also be worth thinking about supplying the benchmarking note (attached) which includes a section on ramp up that addresses one of the specific questions. In addition, we have an assumptions table that

might address a number of other questions.

Passenger Demand – Central forecasts:

· What is the future year forecast?

Forecasts are made in the capture model for 2015, 2020, 2025 and 2031, with exponential interpolation used to generate forecasts for intermediate years.

· What annualization factors are applicable?

Annualization factors are not used, and instead the starting point is annual air traffic forecasts for LBPIA. The profile of flights by day of week and hour of day 2012 (segmented by domestic/trans-border/international), together with assumptions on time spent in the airport before/after flying, was used to segment the potential demand into AM peak, PM peak and off-peak time periods.

· How is are ridership and costs distributed across the line? (UPE passenger OD matrix)

o Please can the following O-D matrices be provided for all ‘in-scope’ trips, for the Do-minimum (i.e. without UPE) and Do-Something (i.e. with UPE) scenarios and for all modeled (i.e. not ‘projected’) years:

§ Total demand

§ Demand by ‘in-scope’ mode

§ Journey times

§ Average wait time

Exclusion per Committee Direction

Can provide all of these other than

Exclusion per Committee Direction

Exclusion per Committee Direction

· What future year transportation baseline is assumed? (i.e. definition of the transportation base case for all modeled years)

See final row of assumptions table for infrastructure improvements assumed.

· Are there any material differences between the performance of the transportation baseline assumed for the creation of the UPE forecasts and the performance of the currently assumed Big Move future year rtransport baseline? (in other words, can we be confident that no changes have occurred to alter relative journey times for competing and complimentary modes?)

Not applicable

· What assumptions are made about the cost of competing modes over the forecast period to 2061?

No forecasts for beyond 2031 have been made since the SNC project in 2009. All mode costs are assumed to be constant in real terms after 2013.

· What assumptions are made about the availability of airline passenger car parking (and cost) at the airport?

No capacity constraints on airport parking are assumed. We have assumed costs of £105 (terminal car park) and £64 (reduced rate lot) based on 2013 published costs and length of stay profiles from SDG 2009 survey.

· What is the anticipated mode share of UPE for airline passengers and does that mode share alter during the forecast period to 2061?

Can be provided (up to 2031) from recent reports

Exclusion per Committee Direction

Exclusion per Committee Direction

- What behavioral assumptions underscore the analysis? (eg – the parameters used to modify Journey time and create Generalised Journey Times?)

Please, can the utility functions used in the logit models described in Section 4 of the iredacted report be provided

Can provide function and most parameters, but concerned at providing all parameters as this gives insight into our modeling techniques to a direct competitor of SDG.

- What assumptions were made about interchange times at Union Station, in particular for subway interchange movements? Are Union Station improvements taken into account? When and what is the estimated impact in terms of journey time or other relevant variables?

No specific assumptions are made about walk time between subway and UPE at Union and instead interchange time and inconvenience are combined and modeled as a standard 10 minute penalty. Additional interchange penalties are applied where the transit access to ARL involves an interchange. No impact is assumed to result from Union Station improvements.

- What assumptions were made about the location of station facilities at Pearson and travel journey and time to each terminal from that facility?

ARL station is assumed to be adjacent to the terminal (equivalent to taxi/car/express bus drop-off location), so no additional egress time is modeled. No additional egress time has been modeled for transfer between terminals.

Exclusion per Committee Direction

Exclusion per Committee Direction

Forecast assumptions

- Can the general definition of low and high cases be provided?

Our recent work has not involved the running of defined low and high case tests

- Could we see the results of any sensitivity tests on these transportation baseline assumptions?

No such tests have been undertaken

- What future year economic activity assumptions drive the forecasts?

GDP assumptions from IMF and Transport Canada drive the air traffic forecasts. Also population and employment by zone from GGHM are used to redistribute demand geographically.

- Could we see the results of any sensitivity tests on these economic assumptions?

We did not test the economic assumptions explicitly, but did run a test using GTAA rather than SDG air traffic forecasts, resulting in a 13.8% upside on our 2011 forecasts.

Exclusion per Committee Direction

Exclusion per Committee Direction

Ramp up from opening year is described as 65% first year, 80% second year and 95% 3rd year. Is that profile still anticipated? What is it based on and how does it compare to other schemes? Should it be considered optimistic/pessimistic?

This profile is still assumed. See attached document on comparator rail links (issued to Metrolinx in June 2012, so references our 2011 not 2013 forecasts)

Has any work been completed to estimate demand growth beyond the ramp up period? If yes, please provide details and assumptions.

See above – demand growth based on future air traffic forecasts, changes in land use and relative competitiveness of ARL against competing modes

What is the existing modal split of access for a) workers and b) passengers and what is the forecast mode split once ARL demand has built to a mature state? (eg Year 4 of operation).

No forecast made for staff. Passenger mode splits forecasts can be viewed in the 2013 draft report.

Have any sensitivity tests been performed on the service specification

We carried out three such tests on our 2011 forecasts:

- ARL headway of 20 minutes reduced demand by 4.7%
- ARL run time 5 min slower than base reduced demand by 6.0%
- ARL run time 10 min slower than base reduced demand by 11.4%

What land use assumptions are made for the airport and intermediate stations?
Population and employment growth assumptions are sourced from the GGH model and take account of planned land use.

What air passenger growth is assumed to 2061?

We can provide air traffic forecasts to 2031

I hope these responses are helpful – please let me know if you require further clarifications. We are finalizing the revised assumptions table, and I'll issue that separately.

A key question is your calculation of seating capacity. The assumption of 617 seats per hour per direction from one of Philip's emails assumes that 4/7 of the trains run with three cars and 3/7 with two cars, whereas my understanding was that the operational capacity would be supplied by 3 x three-car and 1 x two-car trains per hour – this would give 660 seats per hour per direction. Please could you clarify.

Kind regards

Jim

Jim Richards

Associate Director

Steer Davies Gleave

direct +44 20 7910 5574

mobile 07827 082995

switchboard +44 20 7910 5000

From: Stephan Mehr [<mailto:Stephan.Mehr@upexpress.com>]

Sent: 28 May 2013 16:04

To: Richards, Jim

Cc: Philip Safos; Daniel Haufschild; Wayne Duong

Subject: FW: Questions for SDG forecasting

Hi Jim:

We have received some questions from the UP Express BCA consultants (ARUP) relative to the ridership study you have completed. The number of questions below seem long in length, but I believe most of them are easily answerable while others may not have an answer from you and your work (I can deal with those).

Would you mind looking at these and giving us some comments/reply where and when appropriate?

Thanks and Regards

Stephan Mehr

From: Daniel Haufschild

Sent: Tuesday, May 14, 2013 2:57 PM

To: Stephan Mehr

Subject: FW: Questions for SDG forecasting

From: Wayne Duong
Sent: Tuesday, May 14, 2013 10:12 AM
To: Daniel Haufschild
Cc: Daniel Fisher
Subject: Questions for SDG forecasting

Hi Daniel,

After speaking with our consultants running the UP Express BCA here are some questions that they have coming out of the redacted version of the SDG work. I know there are items that have been removed due to “commercial” sensitivity, however, having looked at some of the content that appears to be removed I’m not sure how it can be deemed commercially sensitive given that the numbers relate to a project that SNC is no longer responsible for the project. I can understand if they were an operator but their core business would be in the engineering and construction side so it’s not apparent how keeping info like ridership forecast/demand would be construed as commercially sensitive but such info is important to establishing a business case. We greatly appreciate your assistance in this matter and in helping influence SDG or others in understanding the importance of the info for confirming and building the business case. Below are the question from our consultants:

Passenger Demand – Central forecasts:

- What is the future year forecast?
- What annualization factors are applicable?
- How is are ridership and costs distributed across the line? (UPE passenger OD matrix)

o Please can the following O-D matrices be provided for all 'in-scope' trips, for the Do-minimum (i.e. without UPE) and Do-Something (i.e. with UPE) scenarios and for all modeled (i.e. not 'projected') years:

§ Total demand

§ Demand by 'in-scope' mode

§ Journey times

§ Average wait time

Exclusion per Committee Direction

· What future year transportation baseline is assumed? (i.e. definition of the transportation base case for all modeled years)

· Are there any material differences between the performance of the transportation baseline assumed for the creation of the UPE forecasts and the performance of the currently assumed Big Move future year rtransport baseline? (in other words, can we be confident that no changes have occurred to alter relative journey times for competing and complimentary modes?)

· What assumptions are made about the cost of competing modes over the forecast period to 2061?

· What assumptions are made about the availability of airline passenger car parking (and cost) at the airport?

· What is the anticipated mode share of UPE for airline passengers and does that mode share alter during the forecast period to 2061?

Exclusion per Committee Direction

Exclusion per Committee Direction

- What behavioral assumptions underscore the analysis? (eg – the parameters used to modify Journey time and create Generalised Journey Times?)

Please, can the utility functions used in the logit models described in Section 4 of the redacted report be provided

- What assumptions were made about interchange times at Union Station, in particular for subway interchange movements? Are Union Station improvements taken into account? When and what is the estimated impact in terms of journey time or other relevant variables?

- What assumptions were made about the location of station facilities at Pearson and travel journey and time to each terminal from that facility?

Exclusion per Committee Direction

Forecast assumptions

- Can the general definition of low and high cases be provided?
- Could we see the results of any sensitivity tests on these transportation baseline assumptions?
- What future year economic activity assumptions drive the forecasts?

· Could we see the results of any sensitivity tests on these economic assumptions?

Exclusion per Committee Direction

Exclusion per Committee Direction

Ramp up from opening year is described as 65% first year, 80% second year and 95% 3rd year. Is that profile still anticipated? What is it based on and how does it compare to other schemes? Should it be considered optimistic/pessimistic?

Has any work been completed to estimate demand growth beyond the ramp up period? If yes, please provide details and assumptions.

What is the existing modal split of access for a) workers and b) passengers and what is the forecast mode split once ARL demand has built to a mature state? (eg Year 4 of operation).

Have any sensitivity tests been performed on the service specification

What land use assumptions are made for the airport and intermediate stations?

What air passenger growth is assumed to 2061?

Best,
Wayne

Wayne Duong
Sr Advisor – Investment Strategy and Project Evaluation
Metrolinx
20 Bay St, Suite 1000
Toronto, ON
M5J 2W3

P: 416 869 3600 xt 5731

M: 416 697 8419

E: wayne.duong@metrolinx.com