

February 29, 2016

Mr. Mike Wehkind
Program Manager, Transportation Planning
City Planning
City of Toronto
City Hall
100 Queen Street West
East Tower, 21st Floor
Toronto, Ontario M5H 2N2

Dear Mr. Wehkind,

Re: Peer Review of SmartTrack Forecasts – Interim Report on Findings to Date

In June 2015, the City of Toronto engaged Parsons Inc., in association with David Kriger Consultants Inc. and Cambridge Systematics Inc., to conduct a peer review of [a] the City's new travel demand forecasting model and [b] the ridership forecasts for the proposed SmartTrack transit line which are based on this new model. The University of Toronto developed the model under contract to the City. The City intends to use the model as a multi-modal transportation planning tool for a broad range of applications. However, the focus of this peer review is on the applicability of the model to the SmartTrack initiative.

This interim report summarizes the key findings to date, categorized according to the four key study topics. The findings are highlighted in ***bold italic*** texts below.

1. Review of modelling framework. This topic considers the general structure, approach, and choice of methods and parameters that are used to conceptualize and design the travel demand forecasting model. We were provided with several technical documents, spreadsheets and presentation material, which the University overviewed with us at a special workshop in June 2015. Based on this material, we provided comments and questions on the framework in July 2015. The University addressed or explained these to our satisfaction, and, in the meantime, also updated the model, retaining the same framework but making improvements to its software in order to address certain technical considerations. These improvements were completed by December 2015, and some additional material was provided for our review.

We note that full documentation does not yet exist. However, based on the material we have been provided and on our team's experience in developing similar models in other large urban areas, ***we find the modelling framework to be robust, representing the state of the practice in the GTA and reflecting the general state of the art in travel demand modelling.***

2. Review of model calibration. This topic considers the 'goodness of fit' of the model equations, which are derived from sources such as the 2011 Transportation Tomorrow Survey, the 2011 Census of Population, and various traffic and transit counts. Based on a review of the aforementioned material and on our experience, ***we find the model calibration methods to be reasonable and to reflect the general state of the art in travel demand modelling.***
3. Review of model validation. This topic considers how well the model replicates existing conditions – notably, how the estimated (modelled) travel demand compares to observed travel demand from the



2011 Transportation Tomorrow Survey. Based on a review of the aforementioned material and on our experience, ***we find the model validation across the City, as broken down by mode, trip purpose, trip length distribution and time of day, to be at an acceptable level of performance. This performance may be further improved as the model is undergoing refinement by the University***, and we expect that further results will be provided by the University for our review within the next few days.

4. Review of SmartTrack ridership forecasts. This topic considers ridership forecasts under projected population and employment growth to the year 2031, and combinations of transit infrastructure improvements. These improvements included the SmartTrack, at a range of service frequencies and assuming a TTC fare structure (as opposed to a GO Transit fare structure), and a range of service frequencies for the planned Regional Express Rail (GO Rail) network.

We were provided with forecasts for a number of scenarios in January 2016. ***Along the SmartTrack corridor, overall growth in transit demand seems reasonable in comparison with the projected population and employment in the corridor stations' catchment areas.*** The City expects that the SmartTrack corridor would result in a reallocation of some population and employment to these catchment areas. An examination of the magnitude of these reallocations is beyond the scope of this peer review; however, ***the expectation of a reallocation of development seems reasonable in light of past experience with new rapid transit in Toronto.***

The SmartTrack ridership appears to comprise a combination of travellers who would use other transit (mainly TTC) and travellers who have diverted from other modes (i.e., the auto). Relatively few SmartTrack users appear to be drawn from GO Rail. ***This composition of sources of ridership seems reasonable*** in light of the location of the SmartTrack corridor compared with the TTC and GO alternatives, and given the expected residential and employment areas that would be served.

The review of the SmartTrack ridership forecasts is still in progress. Accordingly, we cannot yet provide final comments on the forecasts, as we are awaiting additional information from the University.

In sum, the model framework, calibration and validation provide a usable, state-of-the-practice / state-of-the-art basis for developing ridership forecasts for the City's SmartTrack transit initiative. The review of the forecasts thus far has yielded reasonable results, as described above. We are awaiting further information from the University in order to provide final comments on the forecasts. Based on the current timing for the receipt of the additional forecast information, we are expecting to be able to complete our formal report in April 2016. In the meantime, please feel free to contact the undersigned, should you need any additional information.

We thank you for the opportunity to assist the City with this peer review in support of this major transportation infrastructure initiative.

Sincerely,



Yannis C. Stogios, P.Eng.
Project Manager

Copy: David Kriger, DKCI

