

SCARBOROUGH TRANSIT **ACTION**

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**RE: Notice of Objections to *Scarborough Subway Extension (SSE)*
Environmental Project Report (EPR) submitted by the City of Toronto
and the Toronto Transit Commission**

This Notice of Objections is submitted by **Scarborough Transit Action**, a Scarborough residents group and its allies. Collectively, we have participated in the formal

Consultations for the Transit Project Assessment Process (TPAP) as well as attending and deputing at almost all TTC Board, Toronto City Council, and Toronto City Council Executive Committee meetings related to the SSE project and the larger transit planning context. Other concerned organizations and individuals have also added their signatures. (see below)

FIRST OBJECTION

Our first general complaint is that the TPAP study and approval process is misleading, and indeed fraudulent, from the point of view of those who engaged in the consultations. We learn only after-the-fact that the wide range of important issues we raised during the TPAP consultations are not relevant to the Ministry of Environment and Climate Change (MOE) actual approval process under [O Reg 231/08](#).

The MOE's instructions for an EPR state that proponents must provide opportunities for the public to ask questions, identify concerns, and raise complaints; furthermore, the proponents must make a record of the issues raised and describe how they, the proponents, dealt with them.

However, we have since learned that there is no provision for the minister to examine the issues raised by the public during the consultations. The only exception is a matter relating to the "natural environment" in a case where:

"The transit project may have a **negative impact on a matter of provincial importance that relates to the natural environment . . .**" [12 (5) (a) (I)]

Under the streamlined EA process (TPAP) the minister does not have the power to reject the project, but only to ask for further study or attach conditions in matters related to the "natural environment." Nor does the minister have the power to ask for a "bump-up" to a full Environmental Assessment (Part II EA) that would examine alternatives to the project, because in 2014 municipal transit projects were exempted from full EA's. However, the proponents (The City and TTC) could decide to engage in a Part II EA.

SECOND OBJECTION

Given these constraints, our specific objection focuses on the issue of **climate change**, which is an extremely serious "**matter of provincial importance that relates to the natural environment.**"

TPAP for Scarborough Subway Extension

The *Environmental Study Report* reveals that the TPAP failed to properly consider or deal with the issue of climate change, including impacts of the construction, operation, and maintenance of the subway. Nor does it examine how the existence of the six-kilometre, one-station subway will influence future levels of automobile use, transit

ridership, and traffic congestion, in Scarborough, with potential for increases or decreases of greenhouse gas (GHG) emissions.

OUR REQUEST

Thus, Scarborough Transit Action, its allies, and other concerned citizens and organizations, under **O Reg 231/08**, are asking the minister to request that the proponent give further consideration to the matter of climate change, taking into consideration all the information and analysis contained in this submission as well as additional study about the effects of the SSE project and its operations on GHG emissions.

- **12. (1) (b)** a **notice** requiring further consideration of the transit project,”
- whereby the proponent is asked to:
- **13(1) (a)** “Take such steps as are specified in the notice . . . including consultation with specified persons; and
- **b)** “prepare a revised environmental project report that includes a description of steps taken under clause (a) and any changes to the report that arise from taking those steps.”

Letter from Scarborough Transit Action and TTCRiders

As participants in the consultation, we noted the lack of any mention of climate change in the Terms of Reference and in the draft EPR, and in a letter of April 20, 2017 addressed to both the Premier of Ontario and the Minister of Environment and Climate Change. In the letter, we noted that:

- “The SSE has the potential to exacerbate, rather than reduce, Ontario’s greenhouse gas emissions.
- That building the seven-stop LRT instead, would reduce Ontario’s greenhouse gas emissions arising from transportation.”

We requested a comprehensive comparison of the SSE with the LRT, based on the need to achieve climate change targets. Our letter was also signed by more than 20 other organizations and more than 600 individuals.

Our letter noted that Ontario faces a stiff challenge in achieving its climate change targets and cited the 2016 Annual GHG Progress Report of the Environmental Commissioner of Ontario, which cautions that:

“transportation is Ontario’s highest and fastest growing source of GHGs, ... having increased over 27 per cent since 1990” and concludes that “reducing

transportation emissions, must, therefore, be Ontario's highest climate change priority."

We include a [link](#) to our letter of April 20, 2017 with this submission as evidence of our ongoing concern about the relationship between climate change and transportation.

GOVERNMENT POLICIES AND GOALS

The TPAP process for the SSE violates the requirements of the Ministry of the Environment and climate change by failing to consider how this transit project relates to climate change policies and goals of our municipal, provincial, and federal governments, especially as set out in the province's Climate Change Action Plan, the MOE's Environmental Assessment Guide, and the MOE's pledge to the Auditor General, all listed below:

Ontario's Climate Change Action Plan:

As Premier Wynne declared in her message announcing the Action Plan:

"We know that climate change is real and is happening at an alarming rate. Ontario has a responsibility to tackle the immediate threat — and seize the opportunity — that climate change poses. Our coordinated efforts will protect and improve our way of life, while bolstering the economy and leaving a sustainable legacy for our children and grandchildren ...

"We are establishing ourselves as global leaders in the fight against climate change. By showing the important role that provinces and regions play in building a low-carbon economy, we are influencing action around the world ...

"The areas of action in this plan cross a wide spectrum, and are broadly outlined as follows:

" ... Creating a cleaner transportation system by addressing greenhouse gas pollution from cars on the road today, by increasing the availability of zero-emission vehicles on the road tomorrow, by deploying cleaner trucks, and making transit more available"

MOE GUIDE: Consideration of Climate Change in Environmental Assessment in Ontario (August, 2016)

The Ministry of the Environment and Climate Change has produced a draft that outlines its [expectations](#) on how proponents should take climate change into account. It explains that:

“Considering how a project may contribute to climate change, through its greenhouse gas emissions or its effects on the natural landscape, is important to the planning process as it allows proponents to consider climate mitigation measures to avoid, minimize, or offset such effects.”

The [Guide](#) makes clear that it is applicable to streamlined Environmental Assessment processes, such as the TPAP:

“A proponent should consult this Guide when preparing a terms of reference for an environmental assessment, when preparing an environmental assessment study, or when planning projects carried out as part of a class environmental assessment or other streamlined environmental assessment process. ”

It advises that:

“Proponents should seek to determine as early as possible in the environmental assessment process, whether there are likely to be relevant climate change considerations associated with the project that should be addressed in more detail. In the case of some projects being planned under streamlined environmental assessment processes, a proponent might conclude that an undertaking is sufficiently minor in scale and short in lifespan that a climate consideration cannot be practically carried out or is not applicable. In this instance, the proponent should provide a rationale where possible in the environmental assessment documentation as to why the consideration of climate change could not be completed or is not applicable.”

In its overview of climate change and climate effects, the guide emphasizes that:

“Before knowing what mitigation or adaptation is appropriate for a project, it is important to consider and understand the potential effects that a project may have on climate change, the potential effects that climate change may have on a project, and the effect of the project on the local environment’s resilience to climate change”

Auditor General of Ontario

Last year, in response to the Provincial Auditor General’s [investigation](#) into the many serious inadequacies of the environmental assessment process, including [concerns about streamlined processes](#) such as the TPAP, the Ministry of the Environment made the following [pledge to the Auditor General](#):

“We will further integrate the [assessment of climate change](#) and cumulative effects into the Ministry’s decision-making process. The ministry has prepared a

draft guide to consider climate change in environmental assessment and has made it available for public review. In 2017 we will finalize a draft guideline for public review for assessing cumulative effects for environmental assessments."

RELEVANT STUDIES AND REPORTS

OUR CRITIQUE OF THE SSE REGARDING CONSTRUCTION

Scarborough Subway Extension Environmental Project Report (SSE ERP)

The SSE ERP was released on August 24, 2017 and mentions Climate Change in Section 5: Impacts, Mitigation Measures and Monitoring. However, the treatment of this critical issue is brief and misleading, with no assessment of GHG emissions from the construction of the project, nor the resulting impact of the completed line on a decrease or increase of emissions related to transit ridership and potential modal shift from private cars.

The proponents' material does not indicate how much cement and rebar will be used to construct the 6.2 kilometre long tunnel, nor to build the station and the bus terminal that together will be more than 530 metres in length. Nor does it attempt to assess the climate change impacts of these capital inputs, either from the production process of the materials or the emissions from the trucks trips. The study gives only a small glimpse into the very large number of trucks involved, with the Project Description's note that

"it is estimated that each work site would accommodate approximately 240 trucks a day to both remove the extracted soil and to deliver tunnel liner sections."

This does not include an estimate of the number of trucks involved with carrying other materials or with cement. Nor does it give an overall estimate of the number of days - or years – that these trucks would be spewing GHGs.

There is a growing body of research that documents the enormous releases of GHGs from construction of subways. We hope that the minister will take into account the information and analysis presented in the studies, reports, and articles listed below that correlate the choice of technology with related GHG emissions, and that this will be included in the Revised ERP that we are requesting.

Pembina Institute Report

The January 2011 Pembina Institute [report](#) (*Making Tracks to Torontonians: Building transit where we need it*) analyzed competing subway and LRT plans then being considered by Toronto City Council. Based on analysis of LRT technology's superior ability to reduced greenhouse gas emissions, the study overwhelmingly supported building an LRT network over subway technology.

Organization for Economic Cooperation and Development (OECD) Report

The OECD's 2010 [report](#), *Reducing Carbon Emissions from Transport Projects*, noted that transit construction projects that involve extensive tunneling produce much larger amounts of GHG emissions than other types of transit construction because of the requirement for greater amounts of concrete and structural steel.

"For most transport projects, construction emissions are small in proportion to operations emissions, which are typically measured over a period of 20 years or more. However, this is not true with respect to projects that involve extensive tunneling or elevated structures, as both require a lot more concrete and structural steel, which are carbon-intensive. CO2 emissions associated with construction of metro rail transit (MRT) projects with underground tracks and stations can be equivalent to those associated with several years of operations of these projects. The latter are likely to be offset by long-term CO2 reductions caused by the modal shift from high-carbon modes and the CO2 benefits of transit-oriented development."

University of Toronto Engineering Study

Published in Transportation Research Part D 51 (2017)

By Shoshanna Saxe, Eric Miller, Peter Guthrie

The net greenhouse gas impact of the Sheppard Subway Line

In March 2017, the Toronto Star [reported](#) on the publication of a new [study](#) by University of Toronto civil engineers who examined GHG emissions associated with subway construction:

"Shoshana Saxe, an associate professor at the university's department of civil engineering and one of the study's authors, said that while there was already research about the pollution-saving effects of public transit, most previous studies only looked at transit once it was built, and didn't account for the significant emissions produced during construction.

Saxe, who used to work as a geotechnical engineer designing TTC subway stations, said that approach misses the bigger picture.

"We should be thinking about greenhouse gas emissions and the impact at all the stages of design," she said. "We should be thinking about them during construction, we should be thinking about them as we do our transport and land use planning. And this study puts the numbers underneath it to help us think about it in a constructive way."

This University of Toronto study notes that

“The construction industry consumes a massive amount of new and recycled materials, from concrete and steel to wood and plastics. Before it can be used for construction, each material must be extracted, processed and transported to site. This process is very energy and resource intensive. Significant environmental impacts are embodied in the use of any material for construction. ... The worldwide impacts of construction materials on global GHG emissions are significant. For example, annually, 1.45 giga Tonnes of cement is produced worldwide accounting for 5% of global anthropogenic CO2 emissions.” [p. 265]

The environmental benefits of good public transit in promoting a decrease in auto use and emissions will take longer to realize if significant emissions are produced during the construction process. According to the U of T researchers,

“This paper finds that Sheppard Subway GHG payback has taken/will take between 11 and 35 years depending on optimistic to pessimistic approaches taken to automobile induced demand and changes in residential intensity.” [p.272]

The study made a number of recommendations to encourage rapid GHG payback, but its number one recommendation was to consider the type of technology at the outset:

“A number of policies should be considered during the planning of new metro to facilitate rapid GHG payback and maximize long-term savings.

(1) Reducing the capital GHG of new infrastructure:

Concrete and steel, two major components of metro construction, are both GHG intensive materials. Leaner structures and/or smaller, simpler stations would reduce the capital GHG. At-grade, track and stations require capital GHG investment an order of magnitude smaller than that required for tunnels and underground stations. Where possible, at-grade track and stations should be considered.” [p.273]

Vatorantim Cimentos -- TTC Success Story

A short [article](#) by the St. Mary’s Cement Company website gives additional insight into the huge amounts of concrete that were transported and processed to create the Vaughan Centre subway station on the York-Spadina line:

“The Vaughan Metropolitan Centre Station required one of the largest concrete pours in TTC history, which came with its own set of complexities. There was major planning required for the staging of this pour, not only due to the shape of the structure, but also because of its size and the time constraints involved with working with concrete. Three CBM [Canada Building Materials] concrete plants were involved with this particular project, which took 24 ½ hours to complete,

with trucks arriving on site every five minutes. According to the TTC, concrete was placed at a rate of 70-100 cubic metres per hour with a total of 2250 cubic metres poured.

OUR CRITIQUE OF THE SSE REGARDING RIDERSHIP Scarborough Subway Extension Environmental Project Report

The proponents' brief paragraph in the SSE ERP on climate change contains a series of misleading statements about ridership. First, there is the false statement that confuses subway capacity with actual use and also ignores the potential capacity of the already-approved but ignored LRT line. The ERP states that:

"By extending Line 2 express to the Centre, this may lead to a shift in the modal split, and ultimately a reduction in the amount of cars, and as a result GHGs (which are a major contributor to climate change). The Line 2 extension will provide a capacity of over 30,000 people per hour whereas the SRT (Line 3) with the current fleet has a capacity of 4,000 people."

First of all the projected peak-hour ridership in 2031 for the SSE is now 7,400. This is well below the minimum standard benchmark of 15,000 riders that is used to justify the use of subway technology. For the proponents to suggest that the SSE will actually carry 30,000 riders per hour is extremely misleading and implicitly acknowledges that subway technology is not appropriate for the actual level of anticipated ridership.

Second, the ERP compares subway capacity (30,000/hour) with the low, inadequate capacity of the existing SRT (4000/hour). The proper comparison would be with the LRT technology that was intended to replace the aging SRT. The LRT has a capacity of 15,000 / hour, which more than meets the projected demand for that corridor.

As can be seen from the evidence below, these two statements demonstrate the proponents' blatant disregard of the importance of ridership and its connection to climate change when planning a transit system. Fewer stations will result in more buses and cars on the road and therefore more GHG Emissions.

Toronto Star, March 27, 2017

How busy will the Scarborough subway extension be?

Ridership is the big factor in determining whether a project pays back its carbon footprint. The Toronto Star article of March 27th says that:

"When you compare that stretch of tunnel to other six kilometre sections in the existing subway system, the Scarborough subway extension will see by far the least amount of transit users, even less than the five-stop Sheppard subway — Line 4, which runs 5.5 kilometres — which is sometimes called a "white elephant" of transit lines."

“The subway will also be below capacity in the rush hour period by 2031, projected to carry just 7,400 people in the busiest hour in the busiest direction. That is well below the accepted minimum threshold used to justify a subway at 15,000 people and the maximum capacity of 36,000 people.”

“An LRT can carry a maximum 15,000 people an hour—more than twice the number of rush hour riders anticipated for Scarborough.”

Below is an excerpt from the graph in the Star [article](#), providing daily station usage:

Bathurst to Pape -	516,700
Lawrence to Finch -	254,570
Victoria Park to Kennedy -	128,140
Sheppard to Don Mills -	98,150
Kennedy to Scarborough Centre -	64,000

Study by Murtaza Haider and Liam Donaldson of Ryerson University
Measuring Accessibility to Rail Transit Stations in Scarborough: Subway vs. LRT

Subway proponents have argued that the SSE would result in savings of travel time, but a recent [study](#) conducted by Murtaza Haider and Liam Donaldson of Ryerson University evaluated travel times, comparing the performance of the SSE with the current SRT and the earlier planned seven-stop LRT. They found that the SSE would result in longer bus rides for most residents in Scarborough compared to building the seven-stop LRT. The SSE performed even worse in this regard than the existing SRT. Commenting on the common-sense basis of this finding, the researchers noted that

“Given that the SSE option results in a single new subway station at STC, Scarborough residents would have to travel longer distances to get to the subway station at either STC or Kennedy. Although a fewer station configuration would lead to an obvious conclusion, one still needs to quantify the magnitude of excess trip distance/time that Scarborough riders will experience with the SSE option in comparison to LRT or SRT options.”

The study analyzed travel time from 123 different census tracts in Scarborough to the closest transit station. The subway option resulted in a bus ride that was an average of 6.8 minutes longer with the SSE than with the LRT option. In addition, on average, a commuter would have to travel an additional 1.4 kilometres on the bus to get to the subway compared with the bus trip to the nearest LRT station.

These extra bus-kilometres mean increased fuel consumption by and emissions from transit vehicles. The extra travel time would also attract and retain fewer riders to the system. The study’s authors concluded with a call for a comprehensive cost-benefit analysis and greater transparency in infrastructure decisions:

“This report recommends that any evaluation of alternatives for infrastructure development should be done as per the best practices in engineering economics where a comprehensive cost-benefit analysis is undertaken to compare competing alternatives. Based on the information released to date, it appears that a comprehensive analysis of alternatives to replace or refurbish the SRT has not taken place.

Essential details about the modelling work and assumptions that influence the results have also not been made public. This report recommends greater transparency in infrastructure decisions. Especially, the assumptions instrumental in determining the outputs from the travel demand modelling work should be shared with the public to understand the difference in ridership and travel time estimates generated by the modelling work commissioned by the City.”

The fact that the SSE will eliminate four of the five current stops on the SRT—which together are used by more than 16,000 riders per day—can only mean more rather than fewer commuters using buses. This will mean more buses on the city’s roads, or more people driving their own vehicles. This in turn will result in greater GHG emissions and even more time for SSE ridership to pay back its carbon footprint.

Scarborough Rapid Transit Benefits Case, 2009

The Metrolinx 2009 [Benefits Case](#) analysis for the upgrading of the SRT, in contrast to the SSE EPR, examined four options and measured CO2 emissions. The conclusion was that:

“It is estimated that the improvements to the SRT will cause a reduction in auto usage by more than 60 million kilometres annually in 2031 relative to the Base Case. ... this translates into an annual reduction of CO2 emissions by 10,000 tonnes in 2021 increasing to 13,000 tonnes in 2031. The value of the incremental emission reduction over the 30-year period is estimated at between \$5.5 million and \$5.7 million.”

The [Benefits Case](#) also acknowledged the problem of harmful emissions arising from the physical construction process:

“Unlike the greenhouse gas reductions for auto use, the harmful emissions associated with construction have not been quantified for the purpose of this comparison. Intuitively, it is reasonable to assume that the construction impacts associated with those options that require longer extensions will be incrementally greater than for those options that do not. The extent to which these negative impacts are outweighed by the positive benefits from reduced auto use will depend on the specific option selected as well as the construction materials and

method used for implementation. It is anticipated that this environmental analysis will be undertaken for the preferred option as part of the mandatory environmental assessment process.”

Conclusion and Request

In conclusion, we have noted provincial policies, action plans, and guidelines that highlight the urgency of the climate change crisis and mandate measures to reduce our GHG emissions. These documents note that transportation is a major contributor to these emissions.

In addition, we have listed studies and articles that provide important technical information and analysis about GHG emissions related to the construction and operation of transit systems.

We therefore request that the Environmental Project Report be revised to incorporate this material, and that further studies of the SSE be conducted and added to the EPR. The Revised EPR also needs to assess how completion of Scarborough Subway Extension would affect the viability of the Toronto transit system as a whole.

We must all grasp that “climate change” is not just another item to be checked off on the approval list. As the Minister of the Environment and Climate Change, himself stated yesterday at a media event, climate change is the greatest crisis that humanity has ever faced (think of Houston). We must use all our resources as effectively as possible to reduce CO2 emissions and provide for a sustainable future.

In closing, we wish to remind you of the important instructions contained in the mandate letter from Premier Wynne. The premier’s September 23, 2016, mandate letter to the Minister of the Environment and climate Change charged the minister with important responsibilities. In particular, he/she is to:

“...support the government in ensuring climate change mitigation and adaptation are taken into account in the government decision-making process. This will include . . . considerations for public infrastructure investments and government procurement decisions.”

The premier emphasized in the minister’s mandate letter that:

“...it is essential that we work collaboratively across every sector of government to support **evidence-based decision-making** to ensure that programs and services are effective, efficient and sustainable...”

Thank you for taking action,

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