

Toronto transit commission

Report no.

Meeting date: November 14, 2007

Subject: 2008-2012 Capital Program and 10-Year Capital Forecast

Budget Context

Over the five-year period, 2008-2012, a total of \$4,400.9 million is required for the base capital program (\$4,123.4 million if the City's unspecified budget reduction is assumed). Based on current funding assumptions, this will leave a shortfall of at least \$420 million for the base program over the next five years - \$698 million without a scope reduction by the City of \$277.5 million. This is after assuming that we will receive \$481 million in long term vehicle funding from the Province and \$324 million from the Federal government for rail vehicle purchases. At the present time, neither of these amounts has been secured. All combined, this means that there is about \$1.5 billion (\$698M+\$481M+\$324M), in basic State-of-Good-Repair work that is presently unfunded.

The 2008 capital program includes \$751.6 million for the base capital program. This amount will be reduced by \$54.4 million for unspecified budget reductions for a net request of \$697.2 million. Based on current funding assumptions, there is enough funding available to cover this amount in 2008, with one exception – the required confirmation of funding for the streetcar fleet replacement order that is scheduled for the spring of 2008 has not yet been received from either the Provincial or Federal governments.

This places the TTC in the unusual position of having the Spadina Subway Extension largely funded and MoveOntario 2020 announced by the Province at the same time that we have up to a \$1.5 billion funding shortfall in base program funding. While this report will outline plans to close this funding gap, it is not clear when we will have answers on the funding necessary for the base program.

Recommendation

It is recommended that the Commission:

1.
 - a. Approve the amended 2008 Capital Program in the amount of \$751.6 million (\$697.2 million City adjusted), as outlined in this report (and as shown in Table 1) and the supporting documents:
 - TTC 2008-2012 Capital Program Overview
 - TTC 2008-2012 Capital Program (Blue Books)

- b. Approve the amended 2008-2012 Capital Program in the amount of \$4.401 billion as outlined in this report and the supporting documents.
 - c. Approve the amended 10-Year Capital Forecast in the amount of \$7.426 billion as outlined in this report and the supporting documents.
 - d. Approve the budget for the Spadina Subway Extension project which has an estimated final cost of \$2.634 billion, including \$56.8 million in 2008 and \$1.651 billion for the years 2008-2012 as shown in this report (see Table 3) and the supporting documents.
 - e. Approve expenditures in the amount of \$22.9 million in 2008 and 2009 for Environmental Assessments and preliminary work on Transit City Plan first priorities as shown in this report (see Table 3) and the supporting documents.
2. Approve the Capital Staffing Plan summarized in this report and detailed in the 2008 TTC Organization Charts.
3. Consider this report in concert with the following:
 - the TTC 2008 Operating Budget
 - the TTC 2008 Wheel-Trans Operating Budget
 - the TTC 2008 Departmental Goals and Objectives
 - the TTC 2008 Organization Charts
4. Forward this report to the City of Toronto for Council approval and confirmation of funding:
 - a. In the amount of \$697.2 million for 2008 and \$4.401 billion for the base 2008-2012 Capital Program and approval of the 10 year forecast.
 - b. In the amount of \$56.8 million for 2008 and \$1.651 billion for the 2008-2012 Capital Program for the Spadina Subway Extension project including a new project cost commitment of \$220.8 million (see Table 3).
 - c. In the amount of \$5.8 million for Environmental Assessment work in 2008 and 2009 and \$17.1 million for 2008 Transit City Plan first priority initiatives (see Table 3).
5. Forward this report to the Ontario Minister of Transportation, the Ontario Minister of Public Infrastructure Renewal, and to the Ontario Minister of Finance, for consideration of TTC's base and expansion capital needs and requesting confirmation of funding.

6. Forward this report to the Federal Minister of Transport, Infrastructure and Communities, for consideration of TTC's base and expansion capital needs and requesting confirmation of funding.
7. Forward this report to the Greater Toronto Transportation Authority, for consideration of TTC's base and expansion needs.

Budget Amendments

At the September 19, 2007 Commission meeting, staff was directed to move the Geospatial Initiatives project (next bus arrival, internet trip planning, automated customer notification and, E-commerce) into the base budget, thereby adding \$4.0 million in 2008 and \$6.5 million to the 2008-2012 capital program. Station Modernization work for Pape, Dufferin and Yonge-Bloor Stations was also moved into the base budget in the amount of \$4.4 million in 2008 and \$30.2 million for 2008-2012. Additional amendments over the five-year period include a reduction of \$28.170 million for SRT cars, deferral by one year of the McNicholl bus garage (\$40.775 million) and adjustment for the \$9.5 million estimated increase in bus expenditures in 2008 owing to delayed delivery of buses in 2007 (this will be handled through a budget carry-forward by the City).

In addition to these amendments, the City of Toronto intends to include an unspecified reduction of \$54.4 million in 2008. This represents a 10% reduction in non-vehicle expenditures over this timeframe (as well as additional reductions in 2008 to meet the City's overall corporate debt target), based on the premise that the TTC historically spends in the range of 90% of its non-vehicle budget. While TTC staff agree with the concept of a 1 year budget reduction in 2008, if it was extended for the 5 years, that would result in a scope reduction as outlined in Table 1. The impact of these adjustments is shown in Table 1 below:

While these amendments have been reflected in the Recommendations above, as a result of tight time constraints, the supporting budget documentation (Blue Books and Overview document) and the balance of this report does not reflect these amendments unless otherwise noted. Updated material will be issued following Council consideration of the budget in December.

Funding

The City of Toronto is responsible for funding the TTC's Capital Program. Several Provincial and Federal programs are in place or are being rolled out. An overview of these funding sources is provided in Appendix B and details are available in the "TTC 2008-2012 Capital Program Overview" document. Table 2 summarizes the projected funding as compared to budgeted expenditures for the TTC's base 2008-2012 Capital Program.

Note: Funding for the Spadina Subway Extension, Transit City and Waterfront projects are shown separately from the base program requirements.

The table shows that:

- For 2008, after applying an anticipated 10% unspecified budget reduction on non-vehicle purchases (by the City of Toronto) of approximately \$54 million, there is a net surplus of \$4 million compared to anticipated expenditures. However, it is important to note that all of this funding is not yet secured – most notably, Provincial and Federal funding for the LRV procurement which is anticipated to be awarded in the spring must be confirmed.
- For 2008-2012 there is currently projected to be a \$698 million funding shortfall without a scope reduction
- Without a scope reduction by the City, and if the Provincial Long Term Vehicle Funding and Federal Building Canada Funds are not secured, there may be a funding shortfall of up to \$1.503 billion for the five year period from 2008-2012 as outlined in Chart 1.

This places the TTC in the unusual position of having the Spadina Subway Extension largely funded and MoveOntario 2020 announced by the Province at the same time that we have up to a \$1.5 billion funding shortfall in base program funding.

It would be premature to spend money on expanding the system if the normal state-of-good-repair replacement and rehabilitation of the existing system is not fully funded. Consequently, staff has held discussions with City, Provincial, GTTA and Federal officials in an effort to close this funding gap. These discussions have focused on identifying transit projects that meet common strategic objectives that can link the TTC's priority state-of-good-repair needs with the MoveOntario 2020 initiatives. The following "packages" of projects are under consideration:

1. Streetcars – includes the acquisition of 204 LRV's to replace the TTC's current fleet of streetcars that are reaching the end of their 30-year life (\$1.25 billion). The potential exists to pursue a joint procurement which should result in lower overall vehicle costs and to meet both the needs of other transit properties (i.e. Mississauga Transit) as well as providing for the vehicles required to support the LRT network envisaged under Transit City and MoveOntario 2020.
2. Scarborough Rapid Transit – the TTC's plans for conversion of the existing SRT line and replacement of the existing fleet of SRT vehicles could be combined with the MoveOntario 2020 initiative to extend the SRT line into the Malvern community for a total combined project in the order of \$1.3 billion.
3. Subway Capacity – before proceeding with expansion of the Yonge Subway to York Region, capacity of the existing line must be increased. Projects currently contained in the base capital program that are consistent with this MoveOntario 2020 vision include: introduction of automatic train control (ATC) on the Yonge-University-Spadina line, replacement of the H6 subway cars, completion of the Yonge BRT and improvements to the Yonge/Bloor interchange.
4. Accessibility – the AODA (Accessibility for Ontarians with Disabilities Act) requires full accessibility by 2025. The TTC is moving forward to achieve this goal with its bus

fleet by 2010, its stations by 2020 and light rail by 2018. A Provincial commitment for long-term sustainable funding for accessibility would assist with projects underway or required such as installation of elevators in all stations and Wheel-Trans vehicles as well as contribution towards the Wheel-Trans operating budget.

5. GTA Farecard – funding in the amount of \$140 million has been identified under the Canada Strategic Infrastructure Fund, however, it is currently estimated that this project will cost in the order of \$260 million.

Chart 2 summarizes the cash flow associated with these ‘packages’.

If funding beyond that currently assumed to be available (see Table 2) can be provided for these funding packages, then this would significantly reduce the 2008-2012 funding shortfall of \$698 million and would allow the TTC to address its state-of-good-repair needs and at the same time move forward and expand the transit network as set out in MoveOntario 2020. Failure to achieve this funding would require both the TTC and the City to reconsider how best to invest the funds available to ensure that the existing system can be maintained in a state-of-good-repair.

Discussion

The TTC Base Capital Budget covers the acquisition of new and replacement transit assets needed by the TTC for the provision of public transit services within the City of Toronto and under contract with adjacent municipalities.

The priorities of the TTC Capital Budget remain unchanged. They are:

- State of Good Repair/Safety
- Legislated
- Capacity Enhancement
- Improvements
- Expansion

In the sections below, these various elements will be described at a summary-level; the supporting documents to this report describe the projects in successively more detail.

Economic Context For The Budgets

With the rapid growth in the GTA and the City of Toronto over the past decade or so and with the projected growth in population, employment and economic activity projected for the region over the coming decades, there is clearly a need for significantly expanding Toronto’s and the GTAs transit system network. The TTC’s annual ridership level has grown from 372 million in 1996 to an expected 464 million in 2008: a 25% growth at a time when the City of Toronto population grew by a little over 5% (from 1996 to 2006). In light of this growth, the TTC has struggled at times over the past several years to keep up with the daily ridership. With the TTC in the midst of a decade-long level of record retirements of transit operators and other skilled employees, with limits on the numbers of new hires that can be adequately trained, with the lead time for ordering buses at 2 years plus and rail vehicles at 3 or 4 years, with the lead time to design and construct new maintenance facilities at upwards of 5 years and with major rail expansion taking even longer, planning for growth is a highly complicated and critical exercise.

In addition to the expansion of the system that is so desperately needed, the existing system needs to be maintained as a prerequisite. With in excess of \$10 billion in existing assets, many of which last for decades, the state of good repair and rehabilitation portion of the budget is worth over \$4.4 billion over the next 5 years alone. In total, the Spadina Subway Extension will cost about \$2.6 billion and Transit City Plans about \$8.3 billion (including vehicle requirements and maintenance & storage facilities). Without guaranteed and predictable long-term capital and operating funding, planning for these expenditures can be speculative.

Both the TTC and GO Transit, and to a lesser degree the rest of the transit systems in the GTA, are in an enviable position that most transit systems in the world would dearly love to be in: both systems today have pent up demand for service. Adding service directly results in additional ridership. Residents in the City of Toronto and the GTA want and will use more of both systems. To live in a city and a region that accepts public transit as a viable and often preferred mode of travel is a lot less common than would seem evident to the average Toronto resident. Most cities have to spend hundreds of millions and often billions of dollars to attract riders without any real guarantee the service will be fully utilized. The expansion plans contained in this report and the associated ridership projections are achievable, if they are funded by the Commission's funding partners.

The Base Budget: State-Of-Good-Repair

As has been the case for the past decade or more, the TTC Capital Budget is dominated by the State-of-Good-Repair portion of the budget. This is as it should be.

For the year 2008, 84% of the \$752 million base budget (before the unspecified budget reduction) is for the state-of-good-repair portion of the budget. The major expenditures items are: \$176 million for the purchase of buses, \$79 million for payments for the new Toronto Rocket subway trains, \$55 million for initial payments on the new LRV cars to replace the aging existing fleet of streetcars, \$156 million for rehabilitation of buildings, structures, tunnels and bridges, \$49 million for trackwork, \$51 million for various signals, electrical and communications equipment, \$43 million for vehicles overhauls and \$22 million for various IT projects. In addition, the TTC will spend \$20 million on legislative projects (mostly environmental programs and elevator installations), \$3 million for minor capacity enhancement projects, \$70 million for improvements (mostly for the reserved lanes on St. Clair and the redevelopments at Kipling and Islington Station) and \$29 million on non-rail expansion projects (the BRT to York University being the biggest single project).

For the 5-years 2008-2012, a total of \$4.401 billion is budgeted for the base budget. Of this, over \$3.6 billion or 81% plus is for the state-of-good-repair. As can be seen from Chart 3 below, almost \$2 billion or 54% of this part of the budget is for vehicle fleet needs.

CHART 3

Each program or project element identified above is described in detail in the Blue Books and the "2008-2012 Capital Program Overview" documents. A high level summary of expenditures (before amendments and with no City unspecified budget reduction) is attached as Appendix A to this report.

How To Handle The Growth

The TTC's long-term plan for accommodating the growth envisioned by the City of Toronto's Official Plan and growth plans for the GTA generally falls into the following areas:

The subway System

The Yonge-University-Spadina subway is largely operating at maximum capacity during rush hour, particularly southbound from Finch station in the mornings, utilizing the existing technology of the line. To increase that capacity, the TTC has the following plans:

- The Toronto Rocket (TR) Trains: These new trains currently under order are designed to be 3 times more reliable than the most reliable subways the TTC currently runs and because there is an open gangway, the trains can carry an extra 10%-13% more riders than current trains. This increase in reliability and extra passenger carrying capacity effectively means we will carry more riders on the existing system than we are currently able to. In addition, a \$312 million project for the advanced replacement of 126 H6 cars from 2017, will result in a significant option price reduction as well as increased safety, reliability and efficiency through the exclusive operation of the TR fleet on the Y/U/S line.
- Spadina Subway Extension: This extension into York Region, not only will provide greatly improved service to York University, it will spur transit-oriented development both within the City of Toronto and within York Region. Large commuter parking lots and major bus-subway interface terminals, will not only allow for improved connections between TTC, York Region Transit and GO Transit services, it should allow for a lessening of York Region ridership flowing into the Yonge Subway at Finch station and a corresponding increase to the Spadina portion of the line.

It is currently estimated that this project will cost in excess of \$2.6 billion, including \$1.65 billion over the next five years and \$56.8 million in 2008. This cash flow has been identified in the 2008-2012 budget request to the City and confirmation of funding approval up to \$225 million over the next two years has also been requested.

- YUS Re-Signaling and Automatic Train Operation: One of the most significant initiatives the TTC has for increasing the capacity of the Yonge Subway (and effectively putting off the ultimate need for another north-south relief subway into the downtown core) is the \$342 million project to re-signal the Yonge subway line. The existing signal system was installed with the line when it was built over 50 years ago. By replacing it with industry standard, state-of-the-art signaling equipment and equipping the line with automatic train control, closer headways (the time between trains) and coupled with the new TR subway trains a significant increase in carrying capacity and regularity of service will be achieved.
- Union Station 2nd Platform: Design of this second platform is underway and funded through the Waterfront Revitalization Corporation. When completed, it will help alleviate the current overcrowding of the station. It will also significantly increase the passenger boarding capacity of the station and should markedly reduce the dwell time at the station for trains loading and off-loading customers; contributing to more regular service on the YUS subway.

- BRT on Yonge Street from Finch to Steeles: This \$24 million project will serve to accommodate demand and improve bus regularity to and from York Region on Yonge Street to and from Finch station, as a precursor to the extension of the Yonge Subway northwards. This initiative builds on facility improvements completed at Finch Station for a new bus exit and new transit priority signaling.
- Yonge Subway Extension to Highway 7: The Province's MoveOntario 2020 Plan calls for extending the Yonge subway north to Highway 7. All of the Yonge subway related projects noted above are required prior to the extension of this line in order to ensure sufficient carrying capacity, reliability and regularity south of Finch to accommodate the ridership generated by this extension.
- Other Capacity Issues: In the longer term, adding a 7th car to the Toronto Rocket trains, improvements to the movement of trains at the terminal stations to allow quicker turnaround time and the possible installation of platform edge doors will all be examined to further enhance the carrying capacity of the YUS subway.

The Scarborough RT

This line has been operating at capacity during rush hour for several years, with supplementary bus service in place to attempt to handle the growth. The proposed plan is to convert the existing system to utilize longer vehicles, which are needed to replace the existing fleet and ultimately to extend the line to the Malvern Community. This combined \$1.3 billion project would allow the TTC to properly service an area that's been underserved for years.

Bus Fleet

The Commission is in the process of replacing its aging buses with modern, accessible hybrid buses. Once completed, the TTC will have the largest fully accessible bus fleet in Canada by 2010 and the largest hybrid fleet by far in Canada.

Streetcar and LRT Network

The existing Streetcar Lines are all either freshly rehabilitated or are in the process of being rehabilitated. Where practical, such as on St. Clair Avenue, the lines will be converted to lines within segregated rights-of-way to remove them from mixed traffic in an effort to improve the regularity of the service. In addition, transit priority measures are being installed to improve transit vehicular movement. Lastly, and most importantly, a new fleet of 204 accessible modern LRT Cars (Light Rail Transit) will be procured over the next few years to replace the aging existing fleets that are approaching the end of their useful life.

Transit City, a \$6.1 billion plus plan to construct an interconnected network of LRT lines throughout the City of Toronto, and ultimately connecting to the transit systems in the 905 area, was approved by the Commission on March 21, 2007. There are 7 major projects included in this plan:

- Sheppard East LRT

- Finch West LRT
- Eglinton LRT
- Jane LRT
- Don Mills LRT
- Waterfront West LRT
- Malvern LRT

It should be noted that the \$6.1 billion figure included early estimates of vehicle requirements, however it did not include costs for the necessary maintenance and storage facility requirements to support this expanded LRT network. Vehicle requirements have also been reassessed to determine more realistic assumptions for LRV loading standard capacity, average operating speeds and maintenance spares ratios. Total costs for Transit City are currently estimated to be in the order of \$8.3 billion.

Under the Province's MoveOntario 2020, as announced on June 15, 2007, the design and construction of this network is to be funded 2/3 by the Province and 1/3 by the Federal Government.

It is currently estimated that the MoveOntario initiatives (inclusive of Transit City projects) will have a total cost in the order of \$11.6 billion, including \$4.2 billion over the next five years and \$19.9 million in 2008. Transit City Plan Environmental Assessment (EA) work that commenced in 2007 (\$1.3 million) will continue in 2008 and 2009 (an additional \$5.8 million) for a total estimated cost of \$7.1 million, with a further \$17.1 million required to allow engineering, design, and associated work to commence on the first priorities of the Transit City Plan. This cash flow has been identified in the 2008-2012 budget request to the City and confirmation of funding up to \$22.9 million over the next two years has also been requested. The MoveOntario 2020 also includes extensions to the SRT (\$0.8 billion) and the Yonge Subway line north to Highway 7 (\$2.4 billion).

Additional details on Transit City Plan and MoveOntario 2020 are included in the capital program supporting documentation.

The total budgetary request for the base capital program, Toronto York Spadina Subway Extension and the Transit City Plan first priorities for the 2008-2012 Capital Program are provided in Table 3 below.

Workforce Implications

At the end of 2007, the TTC had an approved capital workforce of 1,123. More than half of these positions were for hourly-rated workers who perform most of the major rehabilitation work on the Commission's assets covering everything from track installation to structural work in the subway to signals, electrical and communication equipment work to revenue vehicle rebuilds. The bulk of the rest of the employees are for design and project management for major capital projects. The positions are tied to specific capital projects and once those projects (or series) of projects are completed, the employees are transferred to other projects for which they are suited.

In addition, the Commission utilizes a series of external consultants, mostly for design and IT project services, when the volume or skill of internal employees isn't sufficient to complete the capital program. During 2007, the TTC undertook an analysis of both traditional engineering/construction work and IT

project work and have developed plans that will take a few years to complete to bring some of this work in-house, where cost-effective and where there's enough long-term work to warrant the hiring of full-time employees and reduce the dependence on consultants. Lastly, the Commission will be increasing its capital workforce to accommodate new major projects, such as the Spadina Subway Extension and the MoveOntario 2020 projects as they receive funding approval. The capital workforce will increase as follows in 2008:

AREA	2007	2008	CHANGE
Engineering/Construction	183	255	72
Spadina Subway Extension	3	21	18
ITS Projects	20	31	11
All Other	917	880	(37)
Total	1123	1187	64

The listing of all of the capital positions is included in the companion report to the report entitled 2008 TTC Organization Charts, which list each position in the Commission, including all of these capital jobs.

For 2009, it is anticipated that there will be another increase in both the engineering/construction and ITS areas as more consultant work is brought in-house both to save money, to retain knowledge in-house and to handle the increased workload. Further, commencing in 2009, it is anticipated that an additional 5 to 8 staff resources will be required in the Legal, Materials & Procurement and Finance Departments to support the Spadina Subway Extension project.

Summary

The TTC is charged with the responsibility for providing efficient, safe and affordable public transit to the residents of the City Toronto. The Capital Budget detailed in this report attempts to strike the correct balance between keeping the existing system in a state-of-good-repair, maximizing the use and useful life of assets and providing for substantial expansion of the network over the next decade or so. The plans contained in this report ensure the City of Toronto continues to become the Transit City, complete with extensive interconnections to the GO Transit and 905 transit systems to form a comprehensive network throughout the GTA region: a Transit City for all the world to see.

The public has demonstrated their willingness to use public transit. The plans are practical and achievable. All of this is dependent upon funding from all three orders of government to achieve these plans. While large sums of money have already been committed, not all of it has been

secured. Most importantly, significant parts of the state-of-good-repair portion of the budget (the highest priority portion of it), remain unfunded. Expanding the systems, as much as it is needed, only makes sense if the existing system is properly funded. The future looks bright. All that is needed is to close the remaining funding gap and then getting on with the plan.

November 9, 2007

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Attachment: Appendix A - 2008-2012 Capital Program Summary

Appendix B – Summary of Funding Programs

Supporting Documents: TTC 2008-2012 Capital Program Overview

TTC 2008-2012 Detailed Blue Books