

Meeting Date: December 13, 2000

Subject: 2001-2005 Capital Program and 10-Year Capital Forecast

Recommendation

It is recommended that the Commission:

1. Approve the 2001-2005 Capital Program in the amount of \$1.5 billion as detailed in this Commission Report and its attachments, as well as in the following accompanying items:
 - TTC 2001-2005 Capital Program Overview
 - TTC 2001-2005 Capital Program (Blue Books)
 - Council Decisions Required This Term – TTC Capital Needs
 - Council Decisions Required This Term (Video)

Noting that the following projects are not included in the \$1.5 billion, but are recommended by staff should additional funding become available:

- i. TTC Commuter Parking Expansion – Phase II (\$32 million)
- ii. Easier Access Phase III (\$195 million)
- iii. Union Station New Platform (\$58 million)

(2) Approve the 10-Year Capital Forecast in the amount of \$3.8 billion as shown in the attached report;

(3) Forward this report to the City of Toronto for Council approval of the 2001-2005 Capital Program and approval of the 10 year forecast.

Report Overview

The TTC's 2001 to 2005 Capital Program is described in detail in the following:

- The Commission report that provides a discussion of the major policy issues.
- The accompanying document entitled "TTC 2001-2005 Capital Overview", which provides a detailed overview of the budget, highlights key changes from last year, and discusses funding issues and the operating budget impacts of the programs.
- The Blue Books, which describe every project in detail, including project justifications.

- The document entitled "Council Decisions Required This Term – TTC Capital Needs", which describes:
 - i. Capital investments in transit capacity made during the 1970-1990 period and associated ridership growth;
 - ii. The need to replace that capacity at current costs which are much higher than the original cost;
 - iii. The timeline for vehicle purchases and the decisions this Commission and this City Council will have to make; and
 - iv. The effects of Provincial downloading of transit capital costs to the City.
- The video entitled "Council Decisions Required this Term", which provides a visual presentation of the material contained in the "Council Decisions Required This Term – TTC Capital Needs" document, and a visual depiction of some of the key elements of the 2001-2005 TTC Capital Program.

Budget Context

As was described in the detail in the 2000-2004 TTC Capital Program approved by the Commission at this time last year, the overriding issues facing both the Commission and the City over the next 10 years continue to be the magnitude of the TTC Capital Program (about \$3.8 billion over the 10 years) and the fact the City of Toronto is solely responsible for the net capital cost of the TTC (the only such City in North America which is required to fund all net transit capital costs from property taxes). In addition, the strong ridership growth and robust economy are expected to continue to increase ridership demand for the foreseeable future. Consequently, the 2001-2005 program provides for more ridership growth than last year's 5 year program.

As will be described in more detail below, two things characterize the 1970-1990 period: continuous investment in transit capacity and almost 70% growth in ridership. That investment came essentially in two forms: substantial subway and RT expansion, and significant investment in revenue vehicles: subway cars (400 cars purchased), streetcars (196 CLRVs and 52 ALRVs), SRT cars (28), and a 69% increase in the size of the bus fleet.

The State of Good Repair and Safety projects contained in the Commission's capital program provide for the reinvestment and rehabilitation of that physical (fixed) plant, as well as the replacement of those revenue vehicles (rail cars have a useful life of 30 years, while buses have a useful life of 18 years). Approximately \$3.8 billion in investment will be needed over the next 10 years, exclusive of any subway expansion.

There are two other key points to remember. The first is that the price of transit vehicles has increased significantly faster than the normal rate of inflation. For example, an H2 subway car cost about \$165,000 in 1971. Assuming a normal rate of inflation, a subway car could cost about \$800,000 in today's dollars. However, the T1 subway cars currently on order cost approximately \$2 million each.

The second point is that most of the 1970-1990 system expansion (capacity investment) was done with the assistance of 75% provincial capital subsidy. Today, the Province does not provide funding for transit. Therefore, the City of Toronto, under current funding rules, will have to shoulder the entire burden of rehabilitating those assets.

In 1996, the Province entered into a 5-yr Capital Funding agreement with the Commission and the former Metro Toronto government. The State of Good Repair and Safety related projects accounted for approximately \$1.2 billion worth of the agreement (equating to a \$240 million annual average). These costs were mostly split 75% Provincial Funding and 25% Metro. If the \$240 million average was intended to be revenue neutral under the downloading exercise, then it's reasonable that any capital savings under the \$240 million per year average should be credited to the Province and any annual costs above the \$240 million should be paid 75% by the Province.

Twenty Year Budget Profile

Combining the 10-year forecast with historic data provides a 20-year budget profile. The budget profile identifies the expenditure patterns over a long-term period and serves to highlight the major funding crisis both the TTC and the City of Toronto will be facing in the next 10 years.

Infrastructure and Ridership Profile

TTC's system assets are valued at approximately \$7.7 billion for insurance purposes. These assets have been acquired over a long period of time and have become key to meeting both the City of Toronto and the GTA's transportation needs. Currently the TTC carries 86% of all local Transit trips in the GTA/Hamilton-Wentworth area. One subway line equals 27 lanes of highway (or Highways 400, 401 and 403 combined) and it takes 53,000 automobiles/hour off the road.

The first subway line was built in 1954 and will be over 50 years old by the end of the current 5 year budget cycle. Further significant increases to the Subway, RT and LRT systems began in the 1970's and have continued over time. Figure 1 summarizes the major increases since the 1970's:

Figure 1

Ridership has shadowed the infrastructure growth: specifically ridership grew by 70% from 275 million in 1970 to 459 million in 1990. This was as a result of a strong economy, and significant and continuing investment in transit infrastructure. This investment included key subway line expansions, construction of the Scarborough RT

and Harbourfront RT, increased rail vehicles and facilities, and a 60% increase in the bus fleet.

Between 1990 and 1996, due to a combination of a poor economy, coupled with fare increases and service cuts, ridership fell to 372 million in 1996. In response, the bus fleet was cut by 22%, amongst other reductions.

Ridership has since recovered to a point where it is now projected to be 410 million in 2000 and could grow to a level of 466 million by 2010.

TTC's five-year program and ten-year forecast are based on the need to maintain the assets described above. With the exception of a small amount of investment in vehicles and yard/garage capacity (the Ridership Growth Related projects, which essentially accommodate the recent subway extensions, and replace the Bus Garage facilities that were closed and not replaced) the 10-year program is intended to maintain the system in a safe State of Good Repair.

As shown on Figure 1 above, it is projected ridership growth could further increase from 466 to 525 million by 2010 if the population and demographic projections included in the draft City of Toronto Official Plan are realized. To accommodate this growth, were it to occur, would take a significant investment in additional infrastructure above and beyond the current plans. Funding for this should only be considered once funding for the long term state of good repair work has been secured.

Expenditure Profile

Table 1 identifies the \$3.8 billion capital investment required over the next 10 years.

Table 1

<i>\$ millions</i>	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
<i>Expenditures</i>	372	285	330	276	246	419	438	486	549	411	3,812

Figure 2 combines the most recent 10-year forecast with historical spending from 1991 to 2000 to provide a 20-year budget profile. Over the next 10-years, the TTC will need approximately \$3.8 billion in capital investment.

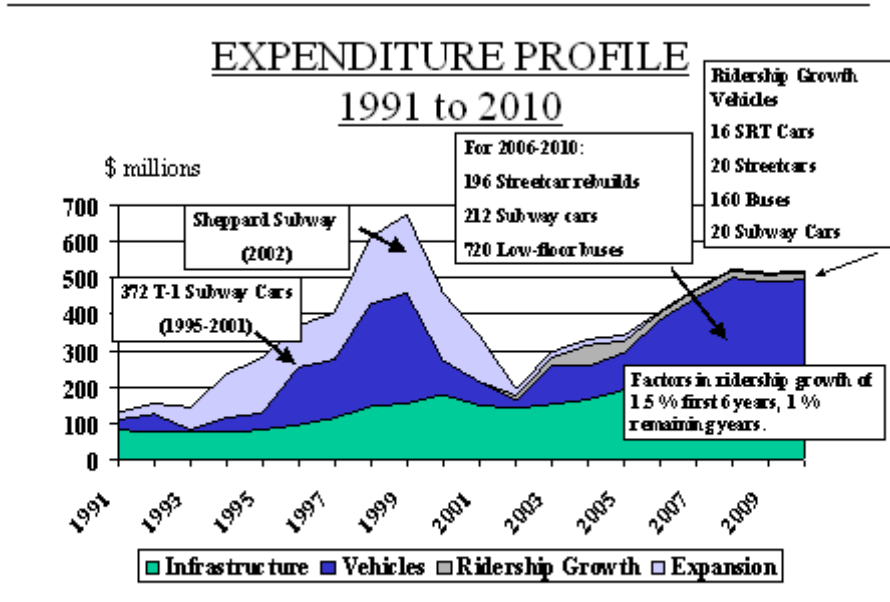


Figure 2

As the system ages, the annual average amount spent on maintaining the system will increase. As an example, recent work on the Structures and Tunnels program has identified the average annual expenditure should be approximately \$25 million in the long term if the assets are to be properly maintained. The recommended 5-year capital program provides annual expenditures in the order of \$10 to \$15 million.

In contrast to the infrastructure program, the annual expenditure on revenue vehicles is uneven because subway cars (30-year assets) are ordered in bulk to obtain a reasonable price and delivered over a 4 to 5 year period. TTC's capital budget is currently at a relatively low point in its spending pattern due to the absence of major vehicle orders. In the future years (2006 and beyond), substantial funding will be needed primarily due to the next subway car order, the need to order replacement buses, and especially the need to rebuild and purchase additional streetcars to address ridership growth.

As mentioned briefly above, vehicle replacement costs have increased at a rate higher than inflation. Table 2 provides a summary of these changes for TTC's vehicle fleet.

Table 2

	ORIGINAL COST	ESCALATED COST	REPLACEMENT COST
	(per vehicle)	(per vehicle)	(per vehicle)
Vehicle Description			

274 Subway Cars (H2-H5)	\$165-460K	\$790k-1.4M	\$2M
196 CLRV Streetcars	500K	1.3 M	3M
28 SRT Cars	750K	1.2 M	2 M
126 Subway Cars (H6)	1.3 M	2.0 M	2 M
52 ALRV Streetcars	1.8 M	2.5 M	5 M
768 Buses	50-175 K	250 K	500 K

The vehicle capacity built up in the 1970's and 1980's originally cost in the order of \$600 million. The replacement cost will be about \$2 billion.

Funding Profile

Since the early 1970's, the Province had provided funding support (both operating and capital) for municipal transit. While the amount and conditions changed over time, the Province essentially provided 75% funding for capital work and 16% funding for operating budget expenditures.

That support continued until 1996, when the Province announced its intention to discontinue operating funding after 1997 and to reduce its funding for new transit capital projects to 50%. In response, the TTC and Metro Toronto entered into an agreement with the Province to secure capital funding for the five-year capital program.

In 1998, the Province discontinued operating funding and announced its intention to prepay its obligations under the 5-yr capital funding agreement. In response, the TTC and the City entered into an agreement with the Province to release the Province from its obligations in exchange for a lump sum payment of \$829.2 million. The funds were placed in two reserve funds by the City of Toronto, which were to be used for funding the construction of the Sheppard Subway Project (\$357.4 million) and the TTC's on-going State of Good Repair Capital Program (\$471.8 million). Both reserves have been exhausted.

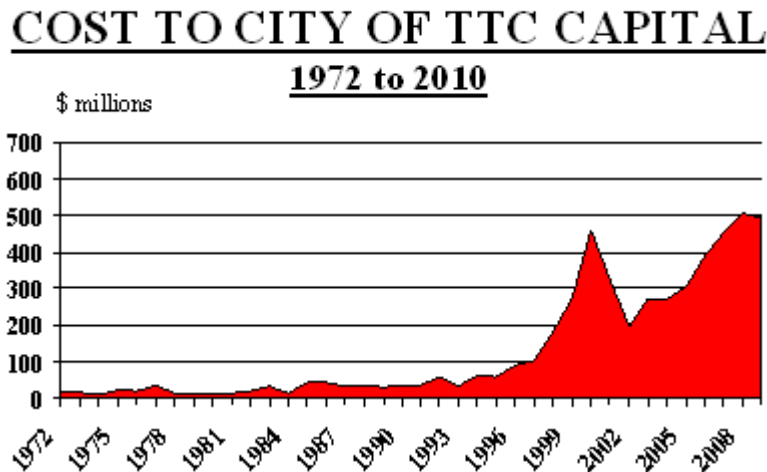
While the lump sum payment assisted the City in meeting the funding needs of the TTC, the TTC's program now extends well beyond the period the payment was intended to cover. Therefore, the City must now fund the TTC's capital program solely through the assessment base. This leaves Toronto as the only such city in North America. Attachment 1 shows TTC funding as compared to other North America Transit properties.

The Province's Local Services Realignment (LSR) process was intended to be revenue neutral and was calculated during a relatively low point in TTC capital expenditures (about \$240 million annually). If the tax neutrality of the LSR process is to be

maintained, the Province should reasonably provide 75% subsidy for expenditures over and above the \$240 million amount.

Figure 3 illustrates the effects of the TTC downloading on the City. The area under the graph represents the City's funding requirements. As can be seen, the City's share has increased significantly since 1972 and more importantly will approach \$500 million per year by the year 2010.

Figure 3



This graph serves to highlight the major funding crunch both the TTC and the City of Toronto will be facing in the next 10 years.

Longer Term Summary

TTC carries 86 % of all local transit trips in the GTA and Hamilton Wentworth. Replacing the subway and surface transportation infrastructure is necessary to maintain the system. The capacity added in the 1970's and 1980's needs life cycle replacement. The vehicles cost more today in constant dollars than the original vehicles. Ridership is growing and the current capacity is strained. Due to the multi-year lead-time for vehicle procurements, large capital dollars on vehicle replacement are decisions that will happen in this term of the new Council.

It is questionable whether the City can fund the TTC's long term program without assistance from the Province and/or Federal Government. Therefore, the City and the TTC must actively seek out funding from the upper tier levels of government.

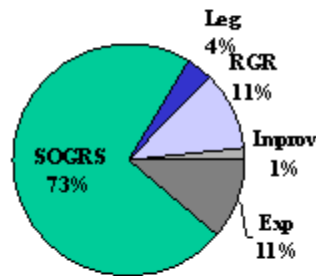
SHORT TERM INVESTMENTS NECESSARY TO ADDRESS RIDERSHIP GROWTH

Figure 4 shows the TTC’s 2001 - 2005 Capital program as submitted for approval.

Figure 4

CAPITAL PROGRAM
2001 TO 2005
By Major Category

<u>\$millions</u>	<u>\$</u>	<u>%</u>
State of Good Repair & Safety	1,095	73%
Legislative	55	4%
Ridership Growth Related	168	11%
Improvement	23	1%
Expansion	168	11%
<i>Total</i>	1,509	



As can be seen in Figure 4, the majority of TTC’s five-year program continues to be driven by the State of Good Repair and Safety. In combination, the Legislative and State of Good Repair and Safety projects account for approximately 80% of the program. The remainder of the program is a combination of Expansion projects (mainly the Sheppard Subway project), and a series of projects that are required due to current ridership growth. A small portion of the program (1%) is associated with projects that improve the overall efficiency of the system. These projects tend to have a positive payback through either direct operating budget savings or cost avoidance. A detailed discussion of all of these projects is included in the attached TTC 2001 to 2005 Capital Program Budget Overview document and the associated Blue Books.

Ridership Growth Initiatives

A key component of the 2001 - 2005 Capital Program is the Ridership Growth Related category. Over the past five years, ridership increases have not resulted in a significant investment in infrastructure. The majority of the increases were accommodated through the various vehicle replacement programs and increases directly attributable to ridership growth were only apparent in the fleet plans. During that same time period, the fleet sizes

were decreasing due to other efficiency initiatives such as a reduced maintenance spares ratio (made possible by the bus rebuild and purchase programs).

The projects summarized in Table 3 are those directly resulting from the ridership growth. These projects differ from expansion projects in that they are being implemented in response to ridership growth that is already occurring on existing services (or projected to occur by demand only) and not being put in place to generate ridership growth due to improved facilities, rapid transit expansions, etc.

Table 3

Ridership Growth Related		2001	2001
\$ millions			to 2005
Wilson Yard Track		7.1	7.1
Radios for Subway Fleet		0.3	0.3
Subway Car Rebuild		4.8	17.7
McCowan Yard			4.3
SRT Vehicles			71.7
Future Bus Garage			9.0
Queensway Garage Fleet Accommodation		0.9	28.4
Birchmount Garage Fleet Accommodation		2.8	19.7
Bus Roadway Improvements Kennedy		1.0	1.0
Streetcar Facility Modifications			0.3
Commuter Parking Expansion – Short term		1.6	8.7
TOTAL		18.5	168.2

Some of the projects are described below:

Subway System Growth Requirements – Due to Ridership growth, there is a need to increase the fleet size by 80 cars. With the additional cars comes the need for additional track space. In the fall of 2000, the Commission approved proceeding with the construction of sufficient track to store the additional cars. There is \$7 million in 2001 to finish the construction of these tracks, which essentially involves electrifying the track.

Eighty (80) H4 cars that were approved for replacement as part of the 372 T1 car order, now need to be rebuilt at a cost of \$18 million so they can be used for service to address ridership growth.

Scarborough Rapid Transit Line - Total weekday ridership on the SRT has grown steadily, reaching an all-time high of 40,300 passengers per day in 1999. The capacity of the SRT is currently being constrained by the size of the fleet and it is believed that the peak morning service loading of 220 customers per train (55 customers per car) is the maximum crowding that customers will tolerate. It is estimated an additional ridership of 15 % during peak morning service could have been carried in 1999 if more capacity had been available. To address this, bus service is being re-routed. However, this is not a viable solution for accommodating ridership demand, in the long term.

The SRT plan provides for 16 new motorized Mark I cars to be added to the fleet, bringing the total to 44 cars. This should meet present ridership needs and expected ridership growth forecasted over the next 15 years. These cars would be received in 2003 and 2004 at an estimated cost of \$71.7 million.

Bus Fleet Garage Requirements – The latest ridership forecast suggests a ridership increase of 1.5% per year for the next five years followed by 1% growth for subsequent years. The higher ridership forecast results in an increase in fleet size which in turn requires an increase in garage capacity.

To maximize the existing facilities, the Queensway and Birchmount garages will be expanded to allow for a fleet size of 250 buses rather than build a new garage. This expansion will delay the need for a future bus garage by 4-yrs from 2005 to 2009 and will maximize the efficiency of these garages. Typically, a TTC bus garage has overhead costs of \$3 million per year to staff the facility on a 24 hour basis. Therefore, there is a significant cost avoidance by delaying the need for a new facility.

Summary – Short Term Program

TTC's 2001 to 2005 Capital Program reflects the Commission's needs for the next five years. It is based on actual asset inventories and condition studies. Each project has been developed from "first principles" and is based on industry standards.

The vast majority of the program relates to State of Good Repair and Safety and Legislative projects, with the remaining 20% evenly split between Expansion (the conclusion of the Sheppard project) and Ridership Growth Related Projects. The Ridership Growth Related Projects are for the most part driven by known increases to the system. Failure to fund these projects will require the TTC and the City to reconsider its longer-term ridership goals including the feasibility of the City's proposed Official Plan.

2001 Program

Expenditures totalling \$372 million are budgeted for the year 2001. The cash flow for 2001 has increased by \$58 million as compared to last year's submission. The increases are a result of: \$7 million in slippages (under expenditures in earlier years), \$16 million due to ridership growth related projects, \$7 million in work necessary to address environmental, health and safety issues, \$5 million in work associated with the Computer and Software Equipment (the Commission developed an Information Technology Strategic Plan in 2000) and about \$23 million in various other programs related to increased costs or changes in scope. These are discussed in detail in the Program overview document and the Blue Books.

December 5, 2000

23-23

Attachment: TTC 2001-2005 Capital Program Overview