

TORONTO TRANSIT COMMISSION REPORT NO.

MEETING DATE: JANUARY 20, 2010

SUBJECT: TRANSIT CITY IMPLEMENTATION –
THE ST. CLAIR PROJECT EXPERIENCE

ACTION ITEM

RECOMMENDATION

It is recommended that the Commission:

1. receive *"Getting It Right" Lessons from the Implementation of the St. Clair Streetcar for the Implementation of Transit City* and direct TTC staff to incorporate the lessons learned from the implementation of the St. Clair Streetcar into the Transit City project delivery;
2. request that this report be provided to the St. Clair Transit Community Liaison Committee for comment; and
3. provide this report to the Toronto City Manager for information.

DISCUSSION

The reconstruction of the St. Clair Streetcar has been the subject of public concern and has received considerable attention from the media. TTC staff are interested in learning from the St. Clair Streetcar experience to develop approaches to the delivery of Transit City that will improve project management and reduce disruption to the community.

TTC considers the St. Clair Streetcar experience as an important stepping stone in the evolution of LRT in Toronto which began with the Spadina LRT, then Harbourfront LRT to the St. Clair project. This invaluable experience is an important guide in the delivery of the Transit City program. The Transit City program retained the services of Richard Soberman and Les Kelman, highly regarded transportation experts, to conduct an independent overview of the St. Clair Streetcar experience and identify improvements that can be implemented for the delivery of Transit City.

FUNDING

There is no financial impact as a direct result of the recommendations of this report.

55-04-03
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Attachment: Appendix A –
"Getting It Right" Lessons from the Implementation of the St. Clair Streetcar for the Implementation of Transit City

7 January 2010

Mr. Sameh Ghaly
Program Manager, *Transit City*
Toronto Transit Commission
5160 Yonge Street, 13th Floor
Toronto, ON M2N 6L9

Dear Mr. Ghaly,

In response to your request for an independent review of the TTC's experience with implementation of the St. Clair streetcar and street enhancement project, we have prepared the attached report.

This report is not intended as an exhaustive assessment of all issues, problems, or accomplishments of the St. Clair project.

The main objective is to extract valuable lessons learned from the actual experience of implementing St. Clair streetcar improvements with the view to indicating how these lessons have affected and continue to guide the overall program for project management, budget, and schedule control for individual projects included in the *Transit City* LRT program.

The report addresses improvements in overall project management, contracting strategy, schedule and budget control, and coordination and integration of activities between the TTC and Departments of the City of Toronto, as well as development of a comprehensive communications program designed to mitigate disruption to affected local communities and maximize public support for the goals and objectives of the entire *Transit City* initiative.

The TTC, City Council, and the Province of Ontario have already approved *Transit City*. It is a plan that conforms with the City's *Official Plan*, as well as the Ontario *Places to Grow Act*. Our review indicates that improved strategies for the delivery of this LRT plan will result in greater efficiency and effectiveness and reduced negative impacts on individuals and businesses during construction.

Yours sincerely,



Les Kelman



Richard M. Soberman

“Getting it Right”

Lessons from the St. Clair Streetcar for the Implementation of *Transit City*

Les Kelman and Richard M. Soberman

7 January 2010

1. Background

Reconstruction of the St. Clair streetcar route is intended to improve service reliability and enhance urban design features of the local streetscape. In September 2004, City Council approved a capital investment of about \$48 million to proceed with the project, subsequently amended to \$65 million as a result of a more thorough analysis of estimated completion costs.

According to the 2010-2014 TTC and City budgets, the estimated total expenditure for St. Clair is now \$106 million. The most recent estimate of project completion (June 2010) results in a total implementation period of more than five years, considerably longer than anticipated.

These additional costs and delays have raised concerns about the ability of the City and the TTC to deliver projects, on budget, in a timely manner. Delay in project completion is also one of the reasons why this project has generated a general perception that unnecessary hardships were created for residents and businesses.

Lessons learned from the St. Clair experience are being applied to the implementation of *Transit City* as part of the TTC’s commitment to continuous improvement in the delivery of new initiatives in accordance with public expectations.

This report briefly summarizes:

- the chronology of events related to the St. Clair streetcar enhancement project,
- main difficulties encountered in the implementation of this 6.8 km project,
- lessons that may be relevant to implementation of the 120 km *Transit City* program, and
- how *Transit City* projects will be delivered with improved cost and schedule control, as well as reductions in negative community impacts.

2. Evolution of the St. Clair Streetcar Improvement Program

1. Early in 2003, the need for track rehabilitation and replacement on the St. Clair streetcar route presented an opportunity to enhance both streetcar service and roadway operations. For this reason, Council approved preparation of an environmental assessment (EA) of building a 6.8 km exclusive right-of-way streetcar facility on St. Clair Avenue West between Yonge Street and Gunn’s loop.

2. The concept of exclusive lanes for streetcars conforms to transportation policies of Toronto's Official Plan that emphasize:
 - more efficient use of available road space,
 - reduced reliance on private automobiles,
 - improved competitiveness of public transit as a means of reducing congestion, pollution, and energy consumption, and
 - priority for buses and streetcars on City streets.
3. The project scope that emerged from various planning activities and reports for this enhanced streetcar service includes:
 - Two centre lanes for exclusive use by streetcars and emergency vehicles,
 - A raised, mountable trackbed to provide transit lane protection,
 - Two traffic lanes in each direction on both sides of the streetcar lanes,
 - One lane of this two lane configuration allocated to parking during off-peak periods,
 - Exclusive control at signalized intersections for left turns, and
 - Enhanced streetscape and urban design features including streetcar shelters, platforms, and public art.
4. In September 2004, Council approved continuation of the ongoing Class EA study and authorized a capital expenditure of approximately \$48 million for:
 - Track replacement,
 - Platforms and shelters,
 - Intersection improvements,
 - Public art,
 - Urban design,
 - Additional civil works and streetscaping, and
 - Property acquisition.
5. This amount was subsequently increased to \$65 million following preparation of more thorough and detailed cost estimates.
6. However, following the commencement of both the detailed design and construction phases, debate on project scope, including street enhancements, continued with the result that additional features were added. *In other words, the project scope changed while the project was under construction.*
7. Changes in the St. Clair budget included decisions to:
 - replace existing hydro service with underground services and
 - expand project scope (including escalation) for:
 - enhanced street lighting,
 - relocation of hydrants, and
 - sidewalk and roadway enhancements.

8. Although management and budgeting of the main transit elements of the St. Clair project were the responsibility of the TTC, project management and budgeting of those elements related to the scope changes noted above became the responsibility of the City of Toronto. *In other words, various elements of the project were neither centralized nor controlled by any single entity.*
9. More than 20 separate, relatively small construction contracts were awarded for this 6.8 km transit improvement. Due to the small size of these contracts, few, if any, large contracting firms with greater project management resources to ensure effective cost and schedule control were attracted to the project.
10. During the planning phase, there was extensive public consultation involving numerous open forums, community workshops, and follow-up meetings with community groups, property owners, individuals, and other stakeholders.
11. Despite this emphasis on consultation, after completion of the EA study, formal objections were raised regarding the lack of adequate public consultation. One group that objected was an association of individuals who fundamentally opposed the main purpose of the project, namely construction of exclusive streetcar lanes on St. Clair Avenue.
12. As a result, the Minister of the Environment ordered further public consultation as a pre-condition for project approval.
13. In addition, *after* construction had commenced, project approval was contested through a special Judicial Review on grounds that the streetcar improvements constituted an entirely new *rapid transit* facility that contravened the City's Official Plan.
14. In August 2005, the Judicial Review ordered all work to be halted during its deliberations. Rails and other track structure materials were stockpiled in the middle of St. Clair Avenue for an extensive period, the cause of considerable objection by nearby residents and businesses, as well as by both transit and road traffic users.
15. In October 2005, more than a year after City Council had approved the project, the Judicial Review ruled in favour of the complainants. However, the City of Toronto appealed this ruling and in February 2006, the Divisional Court of Ontario over-ruled the Judicial Review thereby providing the City of Toronto and the TTC with authority to continue with construction.
16. The domino effect initiated by the Minister of the Environment's decision to grant special standing to the main complainant, followed by the Judicial Review, essentially introduced significant construction delay which was one of the main causes of considerable criticism by, and hardship for, affected residents and businesses. (The Judicial review process itself introduced a delay of eight months).

17. On the positive side, it should be noted that the first completed section of the St. Clair streetcar project (between Yonge Street and the St. Clair West subway station) appears to have been operating successfully since February 2007. In December of 2009, operation was extended to Landsdowne.

3. Principal Causes of Concern

The reasons for delays and cost escalation of the St. Clair streetcar project fall into four main categories.

Scope Definition

First (and probably foremost), the lack of 'closure' on the project derives primarily from failure to properly define the *scope of the project in its entirety* before proceeding with detailed design and construction. In other words, construction commenced in the absence of a comprehensive design of what was to be constructed.

Long after the start of construction, project scope definition continued almost as a 'moving target', contributing, in the process, to cost escalation, schedule delay, and a large number of complaints about community disruption from affected residents and businesses. This lack of certitude with respect to project completion allowed for scope 'creep' and, as well, also led to the belief that the project scope was open for revision at critical points in time.

This is the main reason why the affected community appears so frustrated about just when the 'pain' of disruption will actually end and just when 'gain' of improved transit will actually begin.

The addition of underground hydro relocation after project scope had already been agreed upon, for example, increased both total costs and implementation time. Funding for Hydro improvements (about \$30 million) was included in the budget of the Transportation Services division of the City, with some contribution from Toronto Hydro.

These costs for upgrading hydro, as well as other budget items such as hydrant relocation, should have been included within the overall project scope to reflect proper cost and schedule impacts before the start of construction, rather than as an afterthought.

Supplementary amendments to project definition of this scale are indicative of a less than comprehensive process for defining project scope, with corresponding implications for budget and schedule control.

Project Management

Responsibility for managing all components of the project is distributed among several agencies, each with their own procedures for project management, procurement, budgeting, and schedule control.

Under conditions where there is no single entity responsible for the entire project, coordination is complicated by the lack of clear lines of authority and it is more difficult to ensure effective schedule control.

In addition, time and space conflicts arise when, for example, one contractor attempts to mobilize equipment and material deliveries during the same time period required by another contractor in the same general location.

Contracting Strategy

The contracting strategy itself, notably, the large number of relative small individual contracts, introduced a number of barriers to efficient project coordination and delivery.

Probably viewed originally as a means of expediting construction, overall project control was complicated by awarding contracts to small firms with insufficient resources to provide effective project management of their own forces as well as those performed by electrical and mechanical sub-contractors. Delays resulted from the complexity of coordinating a large number of *independent*, yet *inter-dependent*, activities.

Community Consultation

Community consultation was carried out through the normal practices of the City of Toronto and the TTC in accordance with requirements of the day embedded in the Class Environmental Assessment process. Though well intended, these procedures led to a Ministerial order to step back and pay special attention to the objections of a group of individuals, the majority of whom were diametrically opposed to the very basic concept of an exclusive transit right-of-way on St. Clair Avenue.

The Ontario Minister of the Environment was simply far too accommodating of matters raised by those opposed to the project, matters that, with some degree of resolve, should have been addressed directly. As a result, inordinate attention and resources were devoted to dealing with individuals whose main interest was to ensure that the project would not proceed. Extension of the public debate in this manner really meant that 'closure' of the consultation process was never really achieved. Lack of closure plagued the entire implementation process.

Anyone experienced in community consultation regarding public works, of course, recognizes that conflicts almost always arise between those charged with 'getting something done' and those who want to ensure that 'nothing is done'.

Consultation through Construction Liaison Committees (CLCs) was effective. Participants included local business owners, residents, school representatives, City Councillors and City and TTC consultation and construction staff.

The scope of the CLCs and the focus on resolving day to day construction concerns allowed for constructive dialogue and resolution of a series of issues, including arrangements for special deliveries, altering signage to allow for on-street parking, the deployment of police officers in the most effective locations to direct traffic, and ensuring local businesses were aware of planned traffic re-routing in order to provide advance notice to their customers.

Community stakeholders should be credited for taking a positive approach at the CLC and their input was certainly valuable in helping to reduce construction disruption.

4. *Transit City*

Lessons learned from the St. Clair experience have already influenced a number of actions and decisions related to the delivery of *Transit City* projects. These actions are expected to streamline the implementation of specific LRT initiatives such as the Sheppard, Finch, Eglinton and SRT LRT projects.

Environmental Assessment Process

The Class Environmental Assessment process was followed for the St. Clair streetcar project. Since then, revisions have been made to EA requirements that:

- eliminate the need to include a wide range of sometimes unrealistic alternatives,
- permit transit projects, by and large, to be considered as having *pre-approval*, in principle,
- allow the choice of LRT technology to be decided by the TTC and the City of Toronto Council, and
- reduce the overall time needed to complete the EA process.

Environmental assessments can now concentrate on how best to mitigate the environmental impacts of the project and the range of concerns raised by residents, Business Improvement Associations (BIAs), and other affected individuals and groups.

Once the City and TTC are able to demonstrate how these concerns have been taken into account in final project scope and design, projects are expected to proceed without serious delays resulting from continuing opposition.

Project Scope Definition

Because EAs were initiated almost simultaneously for eight *Transit City* projects, common benchmarks have already been developed that incorporate the main urban design, utility planning, and streetscape concepts that are considered as integral components of total project scope.

Aside from specific local conditions that will always be encountered, such as rights-of-way that are too narrow, these components are included in a *standard 36 m cross-section* that has been discussed, debated and adopted by all affected departments of the City and the TTC. Standard cross sections for narrower rights-of-way are now being finalized as well.

Space related to streetscape design, street furniture, location of utilities, public art, and the key geometric design features of the LRT service itself are included in this design template which has already been presented as a *common vision* to all local councillors and the public.

In addition, an *Operating Concept* for *Transit City* is nearing completion as the basis for detailed project design. This Operating Concept defines fundamental characteristics of LRT in terms of:

- civil works,
- track structure,
- power supply and transmission (electrification),
- vehicle specifications,
- train control and signalling
- traffic control and signalling,
- fare collection,
- yards and maintenance facilities,
- communications,
- safety and security, and
- system-wide supervisory control.

Common standards will be applied to the design of all *Transit City* projects in order to facilitate the tendering and procurement of construction contracts, processes that, themselves, are often very time consuming.

Recognizing the importance of comprehensive scope definition prior to the start of construction, it is noteworthy that in the spring of 2009, the Province of Ontario announced a transit project delivery framework that introduces a new level of approval required for finalizing project scope. Under this framework,

- provincially funded *Transit City* projects will be owned and controlled by *Metrolinx*,
- the *Metrolinx* Board will be responsible for final decisions on scope, budget and schedule, and
- *Transit City* projects are subject to agreements between *Metrolinx* and the TTC for delivery, operation and maintenance.

Project Management

A single office has been established within the TTC for all matters related to *Transit City*. This office is directed by a Program Manager who reports directly to the Chief General Manager and serves as the single point of contact with *Metrolinx*.

A Steering Committee to coordinate with the City of Toronto, co-chaired by the Deputy City Manager and the Chief General Manager of the TTC and attended by the *Transit City* Program and Project managers, as well as officials of relevant City departments, are meeting regularly to treat both program-wide and project-specific issues.

The project management plan being prepared by the *Transit City* office incorporates all aspects of:

- final planning decisions,
- the process for detailed design,

- preparation of integrated construction packages,
- pre-qualification of potential contractors,
- contract administration,
- budget and schedule control,
- risk mitigation,
- public communications, and
- standard operating procedures.

The Program Manager is responsible for the delivery of *Transit City* from inception through planning to design and construction including the completion of EAs, communications with the public, detailed design, and all aspects of tendering and procurement. The Program Manager is also responsible for coordination with *Metrolinx*, as well as ensuring co-ordination between individual project managers and:

- relevant departments of the TTC,
- relevant departments of the City of Toronto (including urban design, transportation services, technical services, and emergency services),
- the Ontario Ministry of Transportation,
- the Ontario Ministry of the Environment, and
- *Infrastructure Ontario*.

Centralized project management, of course, hardly guarantees the complete absence of variances from agreed upon schedules or costs for valid reasons. However, centralized project management does significantly reduce the likelihood of *ad hoc* decisions that alter project scope and, more importantly, allows all projects to proceed under the same set of assumptions and procedures with a clear understanding of the decision-making process.

Budget Control

All budgeting, preparation of contract documents, tendering, materials procurement, award of construction contracts, disbursements, and conformance with TTC budgeting controls (excluding utility upgrades) will be centralized within the *Transit City* office.

Construction related to utility modifications integral to the transit project itself will be included in the *Transit City* project budget. Although budgeting for utility upgrades will remain in the capital budget of the City of Toronto, each *Transit City* Project Manager chairs a working group of all affected City departments.

These working groups coordinate the packaging of construction contracts and will be provided with up-to-date progress reports on construction status that will allow City departments to adjust 5 year capital budgets and take advantage of the LRT staging schedule to minimize community disruption.

The *Transit City* Office and the City of Toronto Major Infrastructure Coordination Office will integrate the City's utility plans with transit construction schedules and phasing.

The intention is that no LRT construction involving utility upgrades should be started before guarantees that funding for work on the City account are in place and adequately reflected in construction documents.

Coordination between *Transit City* and the City of Toronto

As noted previously, some of the issues associated with implementation of the St. Clair project arose due to divided responsibility for separate elements of the project scope which itself changed from time-to-time.

Through early dissemination of matters related to final design and construction by the *Transit City* office, well in advance of the City's capital planning for utilities, issues related to coordination of construction, as well as other activities such as interim traffic management plans, will be addressed within a comprehensive framework that expedites efficient implementation.

Even though non-transit utility upgrades, for example, will be budgeted by the City, they will be integrated into overall construction and staging plans for individual LRT projects by the responsible *Transit City* Project Manager. Coordination and integration will be facilitated through project implementation working groups that include representatives of relevant City departments. In this regard, it is important to note that the City of Toronto has also established a single point of contact for all *Transit City* projects.

In other words, all non-transit construction activities that impact on the delivery of specific LRT projects are to be integrated within the *Transit City* program for implementation and schedule control. They will be coordinated by the individual Project Managers. Centralizing project management in this manner clears the lines of communication for all co-operative decision-making.

Contracting Strategy

The large number of individual contracts for construction of the St. Clair streetcar project created numerous difficulties with respect to project control and coordination. With a large number of relatively small contracts, non-performance by one small contractor can affect completion of the overall project within approved cost and schedule estimates.

Small contractors usually have insufficient resources to provide effective control of their sub-contractors and, wherever they are working in close proximity to other small contractors, conflicts often arise with respect to the use of the same space by different groups of trades during, more or less, the same time periods.

Reducing the total number of individual construction contracts obviously eliminates some of these problems. Moreover, with a smaller number of contracts to be executed, the time required for procurement before construction commences as a single integrated project is less than the time required to finalize a large number of individual contracts.

For these reasons, a pre-qualification process is planned for all *Transit City* projects as a means of soliciting interest in contracts that are of sufficient scale to attract the attention of large construction organizations. The intent is to obtain early 'buy in' from the construction industry itself for more efficient packaging of the civil, electrical, and mechanical project elements as totally integrated contracts.

Large contractors are better able to leverage the size of the contract to exercise more market control over sub-suppliers. Minimizing the number of different 'players' also increases the likelihood of schedule adherence and facilitates the overall efficiency of project management and coordination.

In short, awarding larger contracts to a smaller number of construction companies is expected to:

- lead to more effective project management,
- achieve economies of scale (particularly with respect to sub-contractors who will respond more competitively to large contracts),
- avoid issues that derive from 'divided' responsibility,
- minimize conflicts related to timing and the use of space, and
- make more resources available for the management of sub-contractors and trades.

Special attention will also be paid to:

- ensuring construction contract conditions that facilitate staging and traffic management plans,
- including both incentives and disincentives related to meeting construction milestones,
- finalizing methods of staging construction through workshops with consultants, contractors, and the City, as well as affected utilities, and
- promoting pro-active liaison with residents, businesses and BIAs early in the final design and construction stages.

As part of the process of developing a more effective contracting strategy, the *Transit City* office is arranging a workshop in February 2010 with contractors, consultants, utility companies, and representatives of BIAs and the community in order to maximize construction efficiency and minimize community disruption and dissatisfaction.

The main reason for this consultation is to obtain 'buy-in' from those affected as early as possible before the actual start of construction in order to reduce the likelihood of unscheduled interruptions as the work progresses.

Schedule Control

Schedule control is a direct by-product of coordinating the various elements of final design and construction. As already noted, with a smaller number of independent contractors and a single point of contact within the TTC, better project coordination will provide a considerably higher degree of schedule control and adherence.

Public Consultation

The *Transit City* office has already appointed a Deputy Program Manager and a number of staff responsible for implementing a comprehensive communications program related to the entire *Transit City* program. Specific individuals for projects such as the Sheppard and Finch LRTs, as well as a designated Public Affairs Officer, have now been appointed to provide the interface between project managers and the public.

This communications group has initiated a number of preliminary meetings with BIAs and other community groups, as well as consultants, contractors, and elected officials as the first step in developing a consultation and communications program dedicated specifically to support individual projects encompassed by the *Transit City* program. The CLC format that has already been underway with the Sheppard East Village BIA will be a hallmark of the Transit City program.

The main goals of the communications strategy are to:

- increase the general level of understanding of the benefits of improved transit services across the City,
- increase the understanding within the affected community as to the purpose and scope of the overall *Transit City* Program and specific projects encompassed by that program,
- provide a single point of contact for the community and elected officials in order to respond directly to questions, comments and suggestions,
- ensure that technical information is communicated in a manner that is easily understood by the general public,
- directly engage those immediately affected by the project in meaningful dialogue early in the stages of design and construction,
- ensure that all pertinent information and data are made available to the public,
- make certain that relevant elected officials are party to the public dialogue,
- sensitize those responsible for project delivery to the main issues and concerns of affected residents and businesses,
- obtain recognition that the entire communications process is open and comprehensive, provides value added, and is conducted in a manner that is not intimidating, and
- achieve closure on community involvement within reasonable timelines.

Although increasingly widespread access to the internet and electronic communications facilitates meeting these goals, it is still important to encourage face-to-face dialogue among those responsible for project delivery, elected officials, and the public at large.

Key elements of the Community Relations program include:

- public information centres organized at strategic times in the implementation process,
- providing all attendees with information about the objectives of the program, project scope, technical details, and major issues,
- providing opportunities to ask questions and receive answers from qualified professionals,
- presentations to community meetings organized by councillors or community groups,
- access to project information through state-of-the art project websites,
- opportunities for the public to raise questions and offer comments through email and social networking,
- creation and maintenance of mailing lists for interested individuals and groups, and
- distribution of notices, supplementary information, status reports, and newsletters.

Communications related specially to construction phases include:

- project and area specific information about transit services, traffic management, and access to businesses during construction, and
- liaison staff dedicated to individual projects as points of contact for both the public and elected officials interested in information specifically related to construction plans and schedules.

The Community Relations Program also provides opportunities for public education concerning the overall benefits of *Transit City's* extremely large investment of public funds for improved transit by the Province of Ontario and other levels of government in terms of:

- reductions in greenhouse gas emissions,
- stimulation of employment and the economy, and
- achieving objectives for land use intensification and redevelopment consistent with Toronto's Official Plan and Ontario's *Places to Grow* legislation.

5. Conclusions

Despite questions raised by implementation of the St. Clair streetcar project related to the credibility of promises to deliver major projects on budget in a timely manner, lessons learned from the St. Clair experience have had a positive impact on designing the delivery process for the overall *Transit City* program.

Because of the St. Clair experience, *Transit City* is better positioned to develop an approach for meeting the challenge of delivering an extensive network of city-wide LRT services more efficiently and effectively with less disruption to residents, businesses, road users, and transit passengers. This approach concentrates both overall program and individual project management within a single organizational umbrella.

Establishment of a designated *Transit City* office, the creation of new positions for overall program management, individual project management, and other program responsibilities, including public communications, are all important steps for achieving a high level of program coordination, integration, and control.

Formation of a Program Steering Committee and individual Project Working Groups also centralizes inter-agency communication and decision-making among relevant departments of the TTC and the City of Toronto that are essential for effective program and project implementation.

In addition, changes to the EA process, as well as new approaches related to project scoping, management, budget and schedule control, procurement, construction strategy and public consultation, provide a high level of confidence that mistakes perceived to characterize completion of the St. Clair streetcar project will not be repeated in the delivery of Toronto's new LRT initiative.