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TORONTO TRANSIT COMMISSION
REPORT NO.

MEETING DATE: February 18, 2009

SUBJECT: TRANSIT CITY LIGHT RAIL PLAN:
STATUS UPDATE FOR FEBRUARY 2009

ACTION ITEM

RECOMMENDATION

It is recommended that the Commission forward this report to the City of Toronto, Metrolinx, the Ontario Ministries of Transportation and Energy and Infrastructure, and Transport Canada, noting that:

- significant progress is being made on accelerated environmental assessments for all seven *Transit City* light rail lines, and the Scarborough RT, as described in this report;
- detailed engineering and design work is proceeding to allow the start of construction this fall on the first of the *Transit City* light rail lines – the Sheppard East LRT;
- preliminary engineering work is also underway for the Etobicoke-Finch West light rail line and for the maintenance and storage facilities needed for the line;
- as with all major capital projects, *Transit City* needs committed and predictable funding to allow continuous and uninterrupted progress, to avoid project delays which would affect planned construction and start dates and associated cost;
- TTC, City, and Metrolinx staff are meeting on a continuous and regular basis in order to complete "Benefit Case Analysis" studies for each of the *Transit City* light rail lines and for the Scarborough RT, in support of Metrolinx's consideration of these lines for funding, and
- there have been a number of requests to extend or modify the original *Transit City* light rail lines, and all such requests will be undertaken as follow-up phases of the original EA-related work, subject to Commission- or Council-endorsement, and subject to provision of the required funding for the expanded scope of work, as explained in this report.

FUNDING

Funds in the amount of $7.1 million have been provided by the Province of Ontario. A further $22.8 million for *Transit City* projects was approved by City Council on December 10, 2008, as part of the TTC 2009–2013 Capital Program, to allow *Transit City* Environmental Assessments (EAs) and related activities to progress as planned.

This will allow projects to proceed without interruption at a cost of $29.9 million through April 2009, at which time it is expected that Provincial funding approval for further work will be available.

BACKGROUND

The *Transit City Light Rail Plan* consists of seven new light rail transit (LRT) lines that will, upon implementation, provide a network of rapid transit throughout Toronto. The Commission endorsed the *Transit City* plan at its meeting of March 21, 2007 and has since received several updates.

At its meeting of June 13, 2007, the Commission approved a report entitled, *Transit City Light Rail Plan – Implementation Work Plan*, which outlined the activities being undertaken to implement the *Transit City Light Rail Plan*.

At its meetings of February 27, 2008, April 23, 2008 and October 23, 2008, the Commission received status updates for the *Transit City Light Rail Plan*. The Commission requested staff to provide periodic progress updates on the *Plan*. This report is the next such update. For the sake of brevity, only the most-important information for each project is provided in this report. Additional detail can be obtained from the Project Managers for each line.

DISCUSSION

TTC staff spearheaded the efforts to establish a streamlined environmental assessment (EA) process for transit projects. Staff are now working to deliver accelerated EA's and project assessments on the *Transit City* light rail lines, and on the Scarborough RT upgrading and extension project, to allow the quickest possible start of construction. Excellent progress is being made on the EA and project assessment work for all of these projects.

Co-ordination with City of Toronto

All seven *Transit City* LRT lines, the maintenance and storage facilities, and the Scarborough RT upgrading and extension have dedicated Project Managers and consultant teams. TTC and City staff are working together on a continual basis on all EA work. Technical Advisory and Working Groups have been established for each project. These groups report to the Transit City Steering Committee that meets monthly and is co-chaired by TTC Chief General Manager Gary Webster and Deputy City Manager Richard Butts.

Public Consultation

Public meetings are being held for each *Transit City* line, using a Public Information Centre (PIC) format. Prior to each public meeting, Commissioners, Councillors, MPPs, and MPs are notified of the coming meeting, and an advance briefing session is offered to Councillors. The public meetings have generally been well attended, indicating a high level of interest in the *Transit City* plan. At these meetings, TTC, City, and consultant staff have presented display boards and narrated slide shows, and have been available to answer many questions from the public on a one-on-one basis. The public has been invited to provide comments on the proposed lines and options, and the feedback on the light rail proposals has generally been quite positive. Comments received from the public during the first round of PICs indicate that the format of the meetings has been well-received.

Every Project Manager responsible for an EA has a comprehensive list of stakeholders so that they may be contacted. The Project Management teams facilitate and encourage participation. Stakeholders are asked to provide timely input to allow adherence to the schedule of the *Transit City* work plan.

Metrolinx Benefit Case Analyses

Metrolinx has the responsibility of recommending the allocation of funding for the many transit projects which are included in the *MoveOntario 2020* initiative. In order to allow a consistent, systematic, and objective assessment of each of the candidate projects, Metrolinx has established a "multi-account" cost/benefit evaluation process which requires every such project to be assessed against five major categories of variables:

- transportation
- financial
- environmental
- economic
- socio-community

TTC, City, and Metrolinx staff meet every week to discuss various matters, but the focus of the most-recent meetings has been the completion of the Benefits Case Analyses in support of the highest-priority *Transit City* projects: Scarborough RT, Etobicoke-Finch West, Sheppard East, and Eglinton-Crosstown. The Benefit Case Analyses for all of these projects are either complete or are nearing completion, and these will be presented to the Metrolinx Board of Directors in the near future, in support of the funding requirements for the projects.

The most advanced of the Benefit Case Analyses is the one for the Scarborough RT. TTC, City, and Metrolinx staff have spent several months developing and refining this analysis. The study started with a long list of possible alignment alternatives, but was narrowed down to four possible options, all of which were evaluated relative to a "base case" consisting of only replacing the existing old RT cars with new ones and doing necessary repairs and upgrades to the existing right-of-way and stations. The four options studied in most detail are:

- Option 1: Extend the Scarborough RT to Malvern Town Centre via an exclusive right-of-way

- Option 2: Extend the Scarborough RT to the intersection of Markham Road and Sheppard Avenue, and provide a transfer opportunity there to the Sheppard East LRT which would have a branch which would travel east and north at grade, operating in a partially-exclusive right-of-way (similar in concept to Spadina or St.Clair Avenues) to Malvern Town Centre

- Option 3: Convert the Scarborough RT to light rail technology (LRT), continue to use the existing right-of-way between Kennedy and Scarborough Centre Stations, and extend this light rail line to Malvern Town Centre via an exclusive right-of-way

- Option 4: Convert the Scarborough RT to light rail technology (LRT), continue to use the existing right-of-way between Kennedy and Scarborough Centre Stations, and extend this light rail line to Malvern Town Centre at grade, operating in a partially-exclusive right-of-way (similar in concept to Spadina or St.Clair Avenues)

The benefit-cost ratios for each of these options were all very strong, with values exceeding 1.0, considered to be very good for transportation investments. As such, the benefit case analysis for the Scarborough RT leads to the conclusion that this project should proceed. The study results have been posted on the Metrolinx website.

As explained later in this report, TTC staff are continuing to study the possibility of an at-grade option to ensure that this project has been analysed in an exhaustive manner. Additionally, the Metrolinx Regional Transportation Plan (RTP) introduces the concept of joining the Scarborough RT to the Eglinton-Crosstown LRT and operating these two lines as one amalgamated, continuous, transfer-free line. The RTP states that, if such a continuous transfer-free line were fully grade-separated, higher speed and more reliable service could be provided and this, in turn, would attract more riders to the line than would two separate lines, one or both of which might operate in partially-exclusive rights-of-way. This outstanding matter, including all of its cost and operational implications, has to be resolved before the Benefits Case Analysis for the Scarborough RT can be finalized.

Canadian (Federal) Environmental Assessment Process

If the Federal Government decides to provide funding for any *Transit City* projects, then, under current regulations, a separate and additional environmental assessment – over and above that which would be done to meet provincial requirements – would have to be prepared for the Federal Government. TTC staff are working on all fronts to minimize or reduce process-related redundancies and inefficiencies, so that *Transit City* projects can proceed to construction as quickly as possible.

In support of this, and in consultation with Metrolinx, TTC staff are undertaking work to identify a streamlined environmental assessment process for Federal Government purposes, which is based on the environmental "screening" reports which were prepared for the Canadian Environmental Assessment Agency in support of the St.Clair, York University, and Mississauga-Eglinton transit projects. Staff will report on progress on this initiative in future *Transit City* status reports.

Design for Narrow Right-of-Way

The *Transit City* Program Management team and City staff have developed a standard right-of-way cross-section that is intended to guide the design of and, to the greatest detail possible, ensure consistency of design for all *Transit City* light rail lines where a full 36 metres of public right-of-way is available. The right-of-way standard provides for an exclusive right-of-way for light rail operations in the centre of the road, two traffic lanes in each direction, a left-turn lane at intersections, cycle lanes in each direction, and provision for planting/street furniture zones and pedestrian sidewalks.

City and TTC staff are also working to determine how to accommodate *Transit City* light rail lines in municipal rights-of-way that are narrower than 36 metres. These narrower roadways present more challenges in accommodating the elements of transit operations, traffic operations, pedestrian realm, and urban planning. The problem of the municipal right-of-way being less than 36 metres is most pronounced on parts of the Etobicoke-Finch West LRT, Jane LRT, and Don Mills LRT. The *Transit City* LRT design concepts will fully respect the need to protect the street life, activities, and urban design objectives of the local streets and communities.

In support of this, the *Transit City* EA teams are working intensively to identify a right-of-way design which will allow all road users to co-exist on roads with narrow widths. Designs from other cities have been reviewed and a number of design options are being investigated in order to meet this challenge. A report will be brought forward when a conclusion is reached pertaining to the feasibility of LRT at-grade operation on narrow streets. This work is necessarily slowing down the EA process for any *Transit City* lines which have such narrow rights-of-way.

Centre-Pole versus Side-Pole Support for Overhead Power Supply

One issue that arose during the planning and construction of previous light rail lines, such as those on St. Clair Avenue and on Queen's Quay, and which is still relevant and topical today, is whether the overhead traction power supply wires should be supported by poles located in the centre of the transit right-of-way (such as can be seen on St.Clair Avenue) or by poles located on the pedestrian sidewalks adjacent to the roadway (such as can be seen in the TTC's existing streetcar network on Queen Street or King Street). There are legitimate arguments for both designs: Centre-located poles are preferred from an urban design perspective (removal of some visual clutter from the street) and because they cost less to construct and are less prone to damage and maintenance requirements. Side-located poles are preferred from the perspective of emergency service providers – notably Toronto Fire – because this design leaves the transit right-of-way wide open and unobstructed, thus making travel on the right-of-way much easier for emergency vehicles. TTC staff are continuing to meet with emergency service providers in order to determine the design choice which will achieve the best balance in meeting these various objectives.

Study of Justification for Grade-Separating LRT Interchanges

A detailed study is underway to assess whether and where there would be justification to spend additional money to construct grade-separated crossings or interchanges at locations where there will be LRT-to-LRT, or LRT-to-subway, connections.

This grade-separated design concept has been traditionally used by the TTC to provide a notably-higher level of customer convenience when transferring between services. Examples are the 512 ST. CLAIR streetcar connection at St. Clair West subway station, and the 510 SPADINA streetcar connection at Spadina station. The customer convenience and comfort benefits of such grade-separated connections are inarguable, but they are costly to construct.

Surface and grade-separated options are being developed for each such location. Each option will be evaluated based on passenger convenience and safety, transit system operations and efficiency, surface traffic operations, implementation logistics, cost, and affordability. Recommendations for each location will be presented in spring 2009.

Schedule and Budget Allocation

The original schedule for the planning and implementation of the *Transit City* light rail lines was prepared in accordance with the Provincial government's objective for the *MoveOntario 2020* program of having all components of that program substantially complete by 2020. The current *Transit City* work plan is focused on meeting this target but, inevitably, complications and unforeseen circumstances may arise which could affect the feasibility of adhering strictly to this time frame.

Similarly, the original costing of all components of the *Transit City* plan was based on well-researched unit cost factors, such as the cost per kilometre of light rail right-of-way and the cost per kilometre of associated urban design and streetscaping treatments. These costs are, by necessity, generic and representative in nature at these relatively early stages in the project. As the environmental assessments are completed, and detailed engineering and design work undertaken, more-detailed information will become available about line-specific designs, components, and requirements, more-precise costs will be generated, and more-refined implementation schedules will be produced.

In order to avoid the confusion of having continually-changing schedules and costs for the *Transit City* plan, it will be the practice of the *Transit City* management team to update schedules and costs only upon completion of the environmental assessments and substantive engineering work.

Sheppard East LRT

The Environmental Project Report for the Sheppard East LRT project was completed and filed with the Ministry of the Environment (MOE) on January 9, 2009. The 30-day public review period ended on February 9, 2009. At the time of preparation of this report, four requests for Part II orders – also known as "bump-up" requests -- had been registered with the Ministry regarding the report, and TTC staff are working with Ministry staff to address these requests.

Engineering for the McCowan Road–to-Neilson Road section of this light rail line is underway, and construction is planned to begin there in the fall of 2009. Detailed engineering has also been initiated for the grade separation of Sheppard Avenue East and the GO Transit tracks east of Kennedy Road, and construction is planned to begin there in June 2009. Engineering is planned to start in spring 2009 for the next section of work, between Birchmount Road and McCowan Road.

The options for the LRT connection at Don Mills Station on the Sheppard Subway, which were presented in the Environmental Study Report (ESR), are being reviewed in conjunction with the Metrolinx Regional Transportation Plan (RTP) and its vision to have a continuous east-west service across northern Toronto via Sheppard and Finch Avenues. An option which would facilitate this, and may be feasible, would be an extension of the Etobicoke-Finch West LRT, east of Yonge Street to Don Mills Road, and then south to meet the Sheppard East LRT at Don Mills Station. Both surface and various grade-separated arrangements for this possible connection at Don Mills Station are being studied. The effects on costs and schedule for the Sheppard East LRT project are being analyzed.

Etobicoke-Finch West LRT

This is one of the high-priority lines in the *Transit City* plan, so significant resources are being applied in order to undertake both the EA–related work and the preliminary engineering.

Key issues for this project presently include developing an acceptable engineering/design concept for the line through the Highway 400 area. The project team has developed a potential solution that contains the exclusive LRT right-of-way while preserving existing traffic capacity for much of the area; this is uniquely important here because of the huge volume of vehicular traffic accessing Highway 400, including a very large volume of trucks. The team's proposal has been reviewed with Ministry of Transportation (MTO) staff who have requested detailed traffic analysis and micro-simulation modelling. The results of this work and a recommended alignment through this area will be reviewed with MTO staff in March 2009.

As noted earlier, the section of this corridor between Yonge Street and Bathurst Street has a narrower 30-metre road allowance. Therefore, the design of the line through this section will be guided by the findings of the current work on the narrow rights-of-way, with a focus on urban design. At the same time, TTC and City staff are reviewing means by which the road allowance could be widened to 36 metres over time.

Meetings with Humber College have resulted in an agreed-upon terminal location. Discussions with Woodbine Entertainment Group have resulted in an agreement to extend the EA study area to the proposed Woodbine Live Development and to Toronto Pearson International Airport. This expanded scope of work will be done independently of the main EA work and, therefore, it will not affect or delay the completion of the EA study for the initial Yonge Street-to-Humber College section of the line.

The next public meeting for this project is planned for early spring 2009. Work in preparation for these public meetings includes design options for connections to Finch and Finch West subway stations. Surface and grade-separated options are being studied

through the discipline of the previously-mentioned Interchange Study. As described earlier in this report, the extension of the Etobicoke-Finch West LRT east of Yonge Street to link with the Sheppard East LRT is being considered. Such an extension would affect the cost and schedule for this project.

Eglinton-Crosstown LRT

The key components of the Eglinton-Crosstown LRT EA process have progressed significantly over the past months. These include preparation of the "Existing and Future Conditions" reports, the development of the horizontal and vertical alignments, planning of interchanges with other *Transit City* LRT lines and GO Transit, and input to the development of the system-wide traction power requirements study.

The feasibility study for this line is to be supplemented with a construction methodology study which will address the design and construction options for the proposed underground section between approximately Brentcliffe Road in the east and the Black Creek Drive area in the west. Consideration is being given to both deep and shallow underground structures, with either single or twin tunnels. Completion of this study is essential to the timing for the second round of public consultation, which is currently scheduled for summer 2009.

Planning for the section of the Eglinton-Crosstown LRT from Martin Grove Road to Toronto Pearson International Airport has been advanced through a series of workshops between the TTC, City of Toronto, Mississauga Transit, Greater Toronto Airports Authority (GTAA) and the MTO. Alternative alignments are currently under evaluation, with recommendations to be presented to the public in summer 2009.

In order to facilitate the commencement of preliminary design in 2009, detailed topographic survey work has been initiated.

Scarborough RT

The EA process for the upgrade and extension of the Scarborough RT is ongoing. This work includes an amendment to the EA that was approved in 1994 for an extension of the line from McCowan Road to Sheppard Avenue, as well as an EA conducted under the new Transit Project Assessment Regulation for an extension of the line from Sheppard Avenue to Malvern Town Centre. Public meetings were held in April, June, and July 2008. There was strong support for the upgrading and extension of the line. Public feedback reveals a strong desire for a minimum of transfer requirements between lines and, where they are necessary, that they be designed in the most customer-friendly way possible. A preferred corridor was presented to the public and was well received.

The evaluation of various alignments within the preferred corridor is nearing completion. In the interests of exhaustively searching for a design which will provide the best possible local access to this rapid transit line and which would be most compatible with surrounding land uses and provide maximum potential for future extensions to the north-east, staff have spent significant resources re-assessing possible at-grade extension options, based on the conversion of the existing line to light rail technology. This re-assessment of at-grade

opportunities has delayed completion of the EA as well as presentation of a single preferred alignment to the public. The next public meeting for this project is planned for spring 2009.

Work is ongoing for the development of design alternatives for a major transit hub at Kennedy Station, which will include the subway, the Scarborough RT, the Eglinton-Crosstown LRT, the Scarborough-Malvern LRT, GO Transit, and bus services. In addition, a structural analysis of the existing Scarborough RT infrastructure is ongoing. The project team is also continuing its work on the development of conceptual designs for a new maintenance facility.

Scarborough-Malvern LRT

The feasibility study and report have been finalized for this *Transit City* light rail line, and two public meetings have been held at which staff presented a preferred alignment. The request by the Scarborough City Councillors to extend the Scarborough RT to Malvern Town Centre has made continuation of the Scarborough-Malvern LRT north of Sheppard Avenue to Malvern Town Centre redundant. Therefore, the Scarborough-Malvern LRT project is now planned to end at Sheppard Avenue, where it connects with the Sheppard East LRT.

The City of Toronto and TTC have completed the traffic analysis of the Mitigation and Impact section of the Environmental Project Report. The crossing of Highland Creek through its environmentally-sensitive area has been presented to the Toronto and Region Conservation Authority and was found to be acceptable.

Project team members are continuing to meet with the University of Toronto Scarborough to discuss alignments. Staff are participating in the Campus Master Planning Sessions in support of the 2015 Pan Am Games and potential Aquatic Centre which might be built on the University lands, as well as the potential expansion of the campus on the north side of Ellesmere Road. The University has been very supportive of, and co-operative in the planning to bring light rail transit to this large and growing travel destination.

Work is underway in the near-term to complete the draft reports, formally commence the Environmental Assessment, present the preferred alignment at the final public meetings, and complete the required Environmental Project Report.

Waterfront West LRT/Park Lawn Loop

The Modification Report for the environmental assessment originally undertaken for the section of the Waterfront West line rail line between Exhibition Place and Dufferin Street, recommended that this light rail line extend westward from Exhibition Place to Dufferin Street, parallel to the Gardiner Expressway and connecting to the existing track on King Street. That report was approved by the Commission in May 2008 and by City Council in July 2008. The report was available for public review between mid-September and mid-October. Design of this section is planned to commence in 2009 subject to funding by Metrolinx and/or the Province of Ontario.

The majority of objections received during that review related directly to the continued use of the existing Dufferin Loop on the west side of Dufferin street south of

Springhurst Avenue. Residents were advised that, at this time, there is no intent to use the streetcar portion of the loop for regular service, but it may be used on a non-scheduled basis to adjust service. It will continue to be used as a bus loop for the foreseeable future.

TTC staff continue to work with City staff and the Western Beaches Master Plan (WBMP) consultants in design the area west of Dufferin Street. The draft Beaches Master Plan has been designed to accommodate any of the proposed WWLRT alignments. The EA team is now working on identifying a preferred alignment for the section between Dufferin Street and Roncesvalles Avenue. This EA will be completed under the new Transit Project Assessment Regulation approved by the Province in June of last year. The EA is planned for completion in 2009.

Design work for the reconstruction and expansion of the Park Lawn Loop to accommodate streetcar service has been completed. Construction is planned to commence in June 2009, subject to funding by Metrolinx and or the Province of Ontario.

EA work on the segment from Park Lawn to Long Branch is continuing. Public meetings were held at two locations in December. There have been many public comments opposed to the project because of perceived impacts on traffic, parking, and access. Staff are working with the local councillor to address these concerns and develop an alignment solution that minimizes impacts. The EA is scheduled to be completed by the summer of 2009.

Don Mills LRT

Feasibility studies have been completed for the Don Mills LRT from Steeles Avenue to the Bloor-Danforth subway. Five public meetings were held in June, July, and September 2008, including one at Don Mills Station. City and TTC staff are currently developing and evaluating concepts for the corridor, including the key transfer/connection points at Sheppard and Eglinton Avenues. Current efforts are focused on:

- the selection of a routing to the Bloor-Danforth subway via one of Pape, Broadview, Donlands, or Bayview;
- Don Mills Station, where the line intersects with the Sheppard Subway and current bus terminal, and the Sheppard East LRT;
- Don Mills Road and Eglinton Avenue where the line will intersect with the Eglinton-Crosstown LRT; and
- coordination with York Region regarding the terminus at Steeles Avenue, and possible extension further north into York Region.

This work is being co-ordinated with the program-wide studies pertaining to narrow right-of-way options, and LRT/Subway interchanges. Dates have not yet been established for the next round of public meetings. The key issues noted above must have greater resolution prior to any further public consultation.

Jane LRT

Feasibility studies for the Jane LRT have been completed. There are constraints which will result from various narrow rights-of-way south of Wilson Avenue. Design options for this route are being examined in conjunction with the program-wide special study on narrow rights-of-way. This work is expected to be completed in spring 2009. Work is continuing on the evaluation of alternative alignments for the north section of the corridor and the connection to Steeles West Station on the Spadina Subway extension.
This study still has much work to be done, and is scheduled for completion in late 2009.

Requests for Changes or Extensions to *Transit City* Light Rail Lines

There have been a number of requests – endorsed by either the Commission or by City Council – to extend or modify *Transit City* light rail lines. Any such changes require an amendment to the original environmental assessment-related work plans, and adds to the cost, time, and resources required to undertake this work. The *Transit City* management team has set very ambitious timelines for the completion of the original work plans and, therefore, any requests to change these work plans, and the budgets established for those plans, must be treated as separate and independent phases of work which will be done only after the original work has been completed, and subject to the provision of the additional funding required to undertake the additional work. This approach is being applied consistently to all such requests, in the interests of fairness and budget management.

Here is a list of the Commission- or Council-endorsed requests for changes or extensions to the original *Transit City* light rail lines. All of these will be done as follow-up phases to the original work, and all require budget amendments to ensure that resources are available for the expanded scope of EA work.

- Sheppard East LRT:
  - branch via McCowan Road to Scarborough City Centre
  - extension to Toronto Zoo

- Etobicoke-Finch West LRT:
  - extension to Woodbine Live! Development
  - extension to Toronto Pearson Airport

- Eglinton-Finch West LRT:
  - extension to Toronto Pearson Airport

- Jane LRT:
  - extension of 512 ST. CLAIR streetcar right-of-way to Jane Street
  - extension south via South Kingsway to Lake Shore Boulevard

There has also been a request from the Town of Markham to expand the scope of study for the Don Mills LRT to include the area from Steeles Avenue north to Highway 7. This was not an "endorsed" request, nor has funding been secured for this requested expanded scope of work. At this point in time, the Town of Markham is taking responsibility for this work, with participation and support from both TTC and City staff.

Maintenance and Storage (M&S) Facilities

Consultant work is continuing to develop conceptual and functional designs for the *Transit City* maintenance and storage facilities (M&S), and for a new M&S facility for the existing streetcar network. Specifications and requirements for such facilities are being prepared. Property searches for the facilities are continuing, and a number of properties are currently being assessed for suitability and availability. The properties fall within the broad locations recommended in the related Master Plan Study:

- Sheppard and Morningside area;
- Finch and Jane area;
- Eglinton and Black Creek area;
- Don Mills corridor; and
- Portlands area (for the existing streetcar fleet)

Property acquisition will be subject to further approval by the Commission and City Council.

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February 2, 2009
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