

Report to/Rapport au :

**Finance and Economic Development Committee
Comité des finances et du développement économique**

and Council / et au Conseil

05 May 2011 / le 05 mai 2011

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City Wide/à l'échelle de la Ville

Ref N°: ACS2011-ICS-RIO-0001

SUBJECT: OTTAWA'S LIGHT RAIL TRANSIT (OLRT) PROJECT SCHEDULE ACCELERATION AND PROCUREMENT OPTION SELECTION

OBJET : ACCÉLÉRATION DE LA MISE EN ŒUVRE DU PROJET DE TRAIN LÉGER SUR RAIL D'OTTAWA (TLRO) ET CHOIX DES OPTIONS D'APPROVISIONNEMENT

REPORT RECOMMENDATIONS

That the Finance and Economic Development Committee recommend Council:

- 1. Direct staff to accelerate the implementation of Ottawa's Light Rail Transit (OLRT) project as outlined in this report;**
- 2. Direct staff to advance the procurement of the OLRT project as a Design Build Maintain (DBM) project as outlined in this report;**
- 3. Delegate authority to the Deputy City Manager, Infrastructure Services and Community Sustainability, to advance the engineering assessment on the utility work required for the commencement of the Hwy 417 widening and to report to Council on the scope and financial impact of the work when determined; and**
- 4. Direct staff to accelerate the acquisition of properties for the OLRT project by:**
 - a. Beginning the expropriation process, where required, to accelerate the construction of the OLRT project pursuant to Section 4 of the *Expropriations Act*; and**

- b. **Increasing the property acquisition delegated authority limit as outlined in Table 1 in this report.**

RECOMMANDATIONS DU RAPPORT

Que le Comité des finances et du développement économique recommande au Conseil :

1. **De demander au personnel d'accélérer la mise en œuvre du projet de train léger sur rail d'Ottawa (TLRO) comme il est décrit dans le présent rapport;**
2. **De demander au personnel de devancer le processus d'approvisionnement du projet TLRO à titre de projet selon le modèle conception-construction-entretien, comme il est mentionné dans le présent rapport;**
3. **De déléguer le pouvoir à la directrice municipale adjointe, Portefeuille des services d'infrastructure et de la viabilité des collectivités, pour accélérer l'évaluation technique des travaux de services publics requis pour commencer l'élargissement de l'autoroute 417 et rendre compte au Conseil de la portée et des répercussions financières des travaux une fois qu'elles sont établies; et**
4. **De demander au personnel d'accélérer le processus d'acquisition de propriétés pour le projet TLRO :**
 - a. **en procédant à l'expropriation des droits de propriété, au besoin, afin d'accélérer la construction du projet TLRO conformément à l'article 4 de la *Loi sur l'expropriation*; et**
 - b. **en augmentant la limite d'autorisation pour l'acquisition de propriétés qui est décrite dans le tableau 1 du présent rapport.**

EXECUTIVE SUMMARY

Background

At the March 1, 2011 meeting of the Finance and Economic Development Committee (FEDCO), staff were directed to explore opportunities to accelerate Ottawa's Light Rail Transit (OLRT) project's schedule. In addition, the Mayor has engaged the Rail Implementation Office (RIO) to ensure that every opportunity to advance the project more quickly is fully explored. Based on this direction the preliminary engineering team has worked with RIO to develop a plan to accelerate project delivery while maintaining excellence in planning, design and responsible implementation.

The purpose of this report to Committee and Council is to identify ways through which the implementation schedule can be accelerated and seek the authority to move forward more quickly than had been planned by the previous Council. This report identifies an approach for harnessing private sector management and innovation to deliver a low-risk build of the OLRT project.

Analysis

In January 2010, Council was presented with an interim project implementation schedule from functional design approval to the completion of the Request for Proposals (RFP) process. The original schedule would have seen the system designed, constructed, commissioned and in service by the middle of 2019.

Based on a best practices review and expert analysis, staff have been able to accelerate the pre-construction elements of the project schedule by six months. This was made possible, in large part, by the advancement and staging of the Request for Qualifications (RFQ) and Request for Proposals (RFP) releases. These options, laid out in detail in this report, allow the OLRT project to go to the market place faster, accessing the next level of private sector innovation sooner. It is important to note that a critical consideration in staff's analysis of the project schedule was to minimize the impact on the City's transportation network during conversion of the BRT to rail and construction of stations and related infrastructure.

Further, staff directed the preliminary engineering team to undertake an analysis of the functional design level construction schedule and accelerate elements where possible. The result of this analysis is a refined construction schedule that, when combined with the pre-construction time savings, indicate a project in revenue service by Spring 2018 rather than Spring 2019; a full year earlier. It is anticipated that the successful private sector consortium may be able to further accelerate the construction schedule.

If Council directs staff to pursue this accelerated schedule it is possible some project elements, may be fully constructed and be available for a ceremonial opening and/or festive celebrations around Canada's sesquicentennial celebrations in July 2017.

In order to accelerate the project schedule as outlined above, staff require direction from Council on the procurement methodology, delegated authority to advance the engineering assessment on the utility work associated with the 417 lane widening, and tools to streamline the property acquisition required for the OLRT project.

Procurement Option

After expert analysis, internal review and broad industry consultation, staff recommends adopting a private sector driven Design-Build-Maintain model in one integrated competition and contract. This approach requires staff to advance the project design to an optimal level for procurement, leaving the private sector to finalize the design, construct the system and undertake the long term maintenance of the OLRT project. The Design- Build (DB) procurement method ensures a faster project implementation, better cost certainty and control and better capture of private sector innovation than the Design Bid Build (DBB) approach traditionally used by the City. Staff further recommends that the operations of the OLRT system should remain with the City as part of one integrated transit system. An appropriate package of financial mechanisms for ensuring contractor performance will be presented in a report being advanced to Committee and Council in July.

Property Acquisition Streamlining

Acquiring the necessary property for the OLRT project must be completed in advance of a contract award. In order to ensure that the required property is acquired in time to meet the

accelerated project schedule, staff requires Council direction to streamline the property acquisition process in two ways:

- Begin the expropriation process on property rights where required pursuant to Section 4 of the *Expropriations Act*.
- Increasing the property acquisition delegated authority limit.

It is important to note that the City does not anticipate that any residential properties need to be acquired for the implementation of the OLRT project.

If approved by Council, this report will direct staff to accelerate the OLRT project's implementation schedule, while ensuring the City's broader goals, such as ensuring mobility during construction, are met.

Legal/Risk Management Implications:

There are no legal/risk management impediments to implementing any of the recommendations in this report

Financial Implications:

A funding source for the work required to relocate the water mains associated with the widening of the 417 will be identified in the subsequent report that details the cost of the project.

The funds for the purchase of land associated with this project have already been established and approved in previous years' capital budget. The Transit Funding model used to determine affordability in 2009 is being updated to be presented to Council in July. The update will include the impact of the accelerated project timing as identified in this report and any costs associated with performance security.

RÉSUMÉ

Contexte

À la réunion du 1^{er} mars 2011 du Comité des finances et du développement économique, il a été demandé au personnel d'examiner les possibilités d'accélérer le calendrier d'exécution du projet de train léger d'Ottawa (TLRO). De plus, le maire a demandé au Bureau de mise en œuvre du train de veiller à ce que chaque possibilité d'accélérer le projet soit prise en compte et dûment examinée. Conformément à cette directive, l'équipe de l'étude d'ingénierie préliminaire a travaillé de concert avec le Bureau de mise en œuvre du train afin d'accélérer la livraison du projet tout en conservant l'excellence de la planification et de la conception.

Le but du présent rapport, qui est destiné au comité et au Conseil, est de trouver des moyens d'accélérer le calendrier de mise en œuvre et d'obtenir l'autorité nécessaire pour progresser plus rapidement que ce qui a été planifié par le Conseil précédent. Le présent rapport détermine une démarche pour exploiter les compétences en gestion et innovation du secteur privé pour l'exécution de la construction à faible risque du projet de TLRO.

Analyse

En janvier 2010, le Conseil a eu à examiner un calendrier provisoire de mise en œuvre du projet allant de l'approbation de la conception fonctionnelle à la réalisation du processus de demande de proposition (DP). Selon le calendrier initial, la conception, construction, mise en œuvre et mise en service commerciale auraient été complétées à la fin du premier semestre de 2019.

S'inspirant des conclusions d'une étude des pratiques exemplaires et de l'analyse d'experts, le personnel a été en mesure d'avancer de six mois certains éléments préalables à la construction prévus dans le projet. Cet objectif a été réalisé en grande partie en devançant le processus de Demande de qualification (DDQ) et de Demande de propositions (DP). Ces options, présentées ici en détail, permettent de lancer plus rapidement l'appel d'offres et ainsi, de tirer profit de l'innovation du secteur privé plus rapidement. Il est important de savoir que l'un des éléments importants de l'analyse du calendrier du projet réalisée par le personnel était de minimiser l'impact sur la circulation routière pendant la conversion du réseau de transport commun rapide en autobus en rail et la construction des stations et de l'infrastructure connexe.

De plus, le personnel a demandé à l'équipe de l'étude d'ingénierie préliminaire d'entreprendre l'analyse du calendrier de construction à l'étape de la conception fonctionnelle et d'accélérer les éléments si possibles. Donc, cette analyse a donné lieu à l'élaboration d'un calendrier de construction peaufiné qui, lorsque combiné aux gains de temps réalisés avant la construction, indique une mise en service commerciale d'ici le printemps de 2018 plutôt que 2019; soit un gain d'une année. On prévoit de plus que le consortium d'entreprises du secteur privé pourrait être en mesure d'accélérer le calendrier de construction.

Si le Conseil demande au personnel de poursuivre avec ce calendrier accéléré, on prévoit qu'un grand nombre d'éléments du projet, notamment les stations du centre-ville, seront terminés et possiblement prêts pour l'ouverture officielle autour des célébrations du cent cinquantième du Canada en juillet 2017.

Afin d'accélérer le calendrier du projet comme il est décrit ci-dessus, le personnel a besoin de directives du Conseil relativement à la méthodologie d'approvisionnement, de la délégation d'autorité nécessaire pour entreprendre les travaux d'immobilisations associés à l'élargissement de la 417, et des outils pour simplifier l'acquisition des propriétés requises pour le projet TLRO.

Option d'approvisionnement

Se fondant sur les résultats de l'analyse des experts, de l'examen interne et d'une vaste consultation auprès des intervenants du secteur, le personnel recommande d'opter pour un modèle conception-construction-entretien mené par le secteur privé le tout réalisé dans un processus intégré de concours et d'octroi du contrat. Cette démarche exige que le personnel veille à ce que la conception du projet soit optimale afin de laisser au secteur privé l'initiative pour finaliser la conception, construire le réseau et entreprendre l'entretien à long terme du projet TLRO. Cette méthode d'approvisionnement garantit une mise en œuvre plus rapide du projet, un meilleur contrôle des coûts, et la tranquillité associée, et l'exploitation maximale des qualités d'innovations du secteur privé. De plus, le personnel recommande que l'exploitation du réseau de TLRO demeure la responsabilité de la Ville dans le cadre d'un réseau de

transport en commun intégré. La Ville devrait profiter de sa solide cote de crédit et de sa situation enviable au sein du marché obligataire pour autofinancer la dette à long terme associée au projet. Le rapport qui sera présenté au comité et au Conseil en juillet expliquera en détail les mécanismes financiers appropriés afin de garantir le rendement de l'entrepreneur. Il devrait comprendre certains des détails du financement à court terme des fournisseurs de service de construction.

Simplification de l'acquisition de propriétés

Il faut d'abord finaliser l'acquisition des propriétés pour le projet TLRO avant l'octroi du contrat de construction. Afin que ces acquisitions soient effectuées en temps opportun pour accélérer le calendrier de construction du projet, le personnel demande au Conseil de lui donner les moyens pour simplifier le processus d'acquisition de deux manières :

- Expropriation des droits de propriété au besoin, conformément à l'article 4 de la *Loi sur l'expropriation*.
- Accroissement de la limite d'autorisation pour l'acquisition de propriétés.

Ce rapport, s'il est approuvé par le Conseil, donne au personnel les directives pour accélérer le calendrier de mise en œuvre du projet TLRO, tout en veillant aux objectifs plus larges de la Ville, comme celui de garantir la mobilité durant la construction.

Incidences juridiques / concernant la gestion des risques :

Aucun empêchement juridique ni autre problème de gestion du risque n'interdisent de mettre en œuvre les recommandations de ce rapport.

Répercussions financières :

- Une source de financement pour les travaux qui nécessitent le déplacement des conduites d'eau principales dans le cadre de l'élargissement de l'autoroute 417 sera précisée dans le rapport subséquent qui énoncera en détail le coût du projet.

Le financement de l'achat de terres associées à ce projet a déjà été établi et approuvé dans le budget des immobilisations des années précédentes. Le modèle de financement du transport en commun utilisé pour déterminer l'abordabilité en 2009 fait l'objet d'une mise à jour aux fins de présentations au Conseil en juillet. La mise à jour comprendra les répercussions de l'échéancier accéléré du projet qui sont précisées dans ce rapport et tous les coûts rattachés à la sécurité du rendement.

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BACKGROUND

Ottawa is moving forward with Phase 1 Increment 1 of the Transportation Master Plan (TMP); a Light Rail Transit (LRT) system from the Tunney's Pasture employment node in the west to Blair Road in the east. The 12.5km, 13 station LRT system includes a tunnel through the downtown core to address the transit bottleneck that slows service and challenges the reliability of the system today.

Figure 1: Ottawa's Light Rail Transit (OLRT) Project

Preliminary engineering work for this new LRT system began in earnest in September 2010 following approval in principle of the Federal and Provincial government of funding for the project. A private sector team comprised of Morrison Hershfield Limited, Jacobs Associates Canada Ltd, STV Canada Consulting Inc, and URS Canada Incorporated was selected to advance the design through preliminary engineering before initiating the procurement process to implement the system. This joint venture, known as Capital Transit Partners (CTP), has collectively delivered a number of LRT projects including the Dallas Area Rapid Transit (DART), Hudson-Bergen Light Rail on the New Jersey Gold Coast, and the Sound Transit University Link in Seattle, WA.

CTP and the City's Rail Implementation Office (RIO) are working to define a more detailed set of performance based specifications that will allow for a strong private sector competition to build the system the City expects. This work will advance the design to prepare output specifications for the procurement process and a more refined project cost estimate, leading to final design and construction. Preliminary engineering will also include a value engineering process that will ensure tight management of project costs. In early July of this year, the first phase of this work will be complete and a presentation on the preliminary engineering findings and recommended design will be made to the Finance and Economic Development Committee FEDCO and City Council.

At the March 1, 2011 meeting of FEDCO staff were directed to explore opportunities to accelerate the OLRT project schedule. In addition, the Mayor has engaged the Rail Implementation Office to ensure that every opportunity to advance the project more quickly is fully explored. Based on this direction, the CTP team has worked with RIO to develop a plan to deliver the project more quickly, while maintaining excellence in planning, design and responsible implementation.

The purpose of this report to Committee and Council is to identify ways through which the implementation schedule can be accelerated and seek the authority to move forward more quickly than had been planned by the previous Council. This report identifies an approach for harnessing private sector management to implement the OLRT project in a way that appropriately shifts risks from the City to the private sector.

DISCUSSION

A. SCHEDULE ACCELERATION

Original Schedule

In January 2010, Council was presented with an interim project implementation schedule from functional design approval to the completion of the Request for Proposals (RFP) process. The original schedule would have seen the system designed, constructed, commissioned and in revenue service by the middle of 2019, with the Request for Qualifications (RFQ) beginning in the fall of 2011. The issuance of the RFP was to come in March of 2012; the successful proponent was to be selected by the summer of 2013 and construction underway before the

end of 2013. This schedule was based on the functional design and was subject to further refinement as the project design advanced.

Schedule Considerations

Important considerations in exploring options to responsibly accelerate the project schedule are the elements of the schedule that cannot, or should not, be transferred to the project builder. These elements, described below, are activities in which the City is exclusively empowered or best placed to advance. If these milestones are not achieved in advance of the release of the RFP or contract award, the result may be fewer bidders and/or increased cost due to the risk the consortia will cost into a bid.

Regulatory Approvals: All necessary regulatory approvals will be secured by the City prior to the contract award, including NCC approval of the conceptual alignment and station designs, Federal Environmental Assessment (EA) approval, and Railway Regulations.

Construction Staging and Transit Rerouting: When converting sections of the Transitway to LRT, minimizing transportation disruption is a critical consideration. In March 2011 the Province of Ontario tabled the provincial budget that included funding for the Queensway (Hwy 417) widening, which has enabled the projects acceleration and will significantly increase transportation mobility during project construction. The City requires the use of all lanes by the end of 2015, in time to accommodate enhanced mobility and transit service in the east-end of Ottawa during Transitway conversion. The City will need to work closely with the Provincial Ministry of Transportation (MTO) to identify and accelerate City utility relocation/protection to facilitate this accelerated completion timeline.

In addition to the Queensway widening, infrastructure projects across the City such as community redevelopments, relocation of utilities and other City capital works will be fully integrated into construction planning in advance of the RFP.

Property Acquisition: The City will ensure that all properties required for the OLRT project are acquired in advance of contract award. This will provide confidence to the bidding community that construction will not be delayed by the need to acquire property.

Contribution Agreements: The City will finalize negotiations to secure a contribution agreement from the Provincial Government and a Commitment Letter from the Federal Government in advance of the release of the RFP. This requires the City to fulfill a number of conditions set out in both the Provincial “Green Light” letter and the Federal Approval in Principle letter.

Pre-Construction Schedule

On March 1, 2011 FEDCO directed staff to explore options to accelerate the OLRT project schedule. Based on consultation with industry experts, staff have developed several options to fulfill this direction. These options advance pre-construction project elements and allow the procurement process for implementation of the OLRT project to start earlier, accessing the next level of private sector innovation sooner.

Approve Private Sector Procurement Approach: If approved by FEDCO, this report sets the stage for an accelerated implementation process through a Design – Build (DB)

procurement model. In order for the preconstruction elements to be accelerated, Council is required to provide direction on a procurement methodology. This report recommends the DB procurement methodology that challenges private industry to take the design from the preliminary engineering level to a construction-ready state. This will allow private sector innovation to come forward without overly prescriptive -specification of design details. At the same time it will ensure the City gets best value, optimal contractor performance and transfer of appropriate risk to the private sector. This differs from the traditional method of infrastructure development used by the City where final design of the infrastructure is completed before tendering the construction of that design [Design – Bid – Build (DBB)]. The proposed approach for the OLRT project will take design to the point necessary to fully understand the performance required, secure necessary regulatory approvals, clearly compare bids, maximize opportunities for innovation and minimize risks.

Advance Request for Qualifications (RFQ): The approval of the private sector driven procurement methodology detailed in this report will begin the procurement process with the issuance of the RFQ in May 2011, five months earlier than the originally planned September 2011 release. This early RFQ release will, in turn, accelerate the entire procurement process, including the identification and announcement of qualified bidders. The RFQ release allows industry to formalize any consortia arrangements, thereby creating an earlier and more robust pursuit of the project goals. Immediately following approval of the updated design and costing by FEDCO and Council in July, 2011 the City will release a targeted addendum for teams to complete their qualification submissions by the end of August 2011. This will result in a short-list of pre-qualified Respondents in October 2011 instead of March of 2012.

Advance Request for Proposals (RFP): If the RFQ process is accelerated as indicated above, the subsequent RFP will also be accelerated, made possible by staging its release. This staged approach, which allows for an accelerated release, is made up of an early design release followed by release of the full preliminary engineering design and specifications in a second stage. The first stage RFP will be released by October 2011, instead of March 2012 as originally contemplated. This approach provides proponents with nine months to submit final proposals. The RFP documentation will also include a full draft version of the Project and Maintenance Agreements to be negotiated with the successful proponent.

By issuing a draft of the proposed Project and Maintenance Agreements concurrent with the RFP process, staff are able accelerate the agreement negotiation process and advance the schedule by a further month, putting the contract award date in December 2012 rather than June 2013.

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This new schedule will accelerate the bidding process by six full months while maintaining all of the advantages of risk reduction, and ensuring fully comparable functional proposals. By eliminating uncertainties, advancing the RFQ phase and moving the release of the RFP from 2012 to 2011, the City is expecting to achieve the same robust competition more quickly.

Figure 2: Original & Accelerated OLRT Project Schedule

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Construction Schedule

The original completion date of 2019 for the OLRT system was based on a high level functional design and construction plan. A more developed construction timeline has been

prepared by the RIO and the preliminary engineering team. The construction timeline will be further refined for the July presentation to Committee and Council.

The effort to accelerate the project implementation schedule recognizes and has taken into consideration a number of important requirements. For example, careful consideration is being given to staging construction to maintain transit and mobility in an effort to provide a viable and attractive level of transit service during construction; widening of the Hwy 417 is an integral part of this plan. In addition, the 150th anniversary of the founding of our nation will be celebrated in Ottawa during the summer of 2017. As the nation's capital, we will play host to Canadians from coast to coast and international visitors. The City must ensure the downtown area is ready for this important event by limiting disruption from construction activities.

As the detailed RFP document is developed, considerable weight will be given to project scheduling. A premium will be placed on the fastest possible construction with the least possible disruption to transit and traffic operations while achieving the best value for the City. After careful review of the original construction time frame and development of a more detailed construction timetable, the RIO estimates that the OLRT project can be delivered and in operation by the spring of 2018, more than a year earlier than originally planned. This means that virtually all construction in the downtown, including mining and extraction operations for stations, is expected to be completed by the Spring of 2017. It should be possible to have stations open for public events, organized by the City or other stakeholders, and trains available for public viewing during the summer of 2017. The shortlisted proponents will be challenged during the RFP process to review these estimates and to commit to identifying additional schedule advancement opportunities.

Highway 417 Lane Widening

In March 2011, the funding for the widening of Hwy 417 between Nicholas Street and the OR 174 was included in the Provincial Budget. This funding was advanced to provide an opportunity to use the additional lanes as exclusive bus lanes to mitigate transit service disruption during construction and testing of the OLRT project. The advancement of this work has enabled the project's acceleration and will significantly increase transportation mobility during project construction. The large scale nature of the two projects and the acceleration of the OLRT project schedule outlined above means the coordination of the two construction schedules is a critical consideration for the OLRT project implementation schedule.

Before the Ontario Ministry of Transportation's (MTO) construction on Hwy 417 widening and the City's work on the LRT conversion can proceed, adjacent utilities located just south of Hwy 417, including two large water transmission mains, will require relocation or protection. Staff is currently undertaking work to determine the scope of the protection measures or relocations required for these water mains. Decisions on whether to protect or relocate will be made in consultation with staff in the Infrastructure Services and Environmental Services Departments, while considering all factors including risk assessment and life cycle.

As such, staff seeks Council direction to delegate authority to the Deputy City Manager, Infrastructure Services and Community Sustainability, to advance the engineering assessment for the utility work required for the commencement of the Hwy 417 widening and to report to Council on the scope and financial impact of the work when determined.

B. RECOMMENDED PROCUREMENT APPROACH

The implementation of a large project of this type warrants careful examination of the procurement approach to find the best method of delivering the system on time and on budget. The proposed procurement methodology differs from the traditional approach used by the City of Ottawa to deliver major infrastructure projects. With expert advice from Deloitte & Touche LLP, staff have sought to follow best practices in major procurements of this type and have examined procurement strategies to identify the approach that best achieves the goals outlined below:

- Reduce the cost of program development to the City;
- Achieve the earliest revenue ready service date;
- Achieve the lowest life-cycle cost;
- Achieve the highest project quality;
- Minimize procurement risk;
- Minimize exposure to claims and changes;
- Achieve the most beneficial plan of finance;
- Attract quality bidders; and
- Minimize impacts on City staff resources.

A traditional approach where by the City of Ottawa designs a complete LRT system and tenders these detailed designs, Design-Bid-Build (DBB), has some significant disadvantages when examined using these criteria. While this DBB method has worked relatively well for the incremental construction of the Transitway system, staff do not recommend that it be employed for the OLRT project.

Instead, the Design-Build model, a more private sector driven approach, should be used to transfer the appropriate risk to the private sector, capture innovation, shorten delivery timelines and control costs. The following sections detail the elements of the private sector approach recommended for the OLRT project procurement.

Design-Build

The traditional DBB process, where the City undertakes 100% of the design and then asks for various contractors to price the construction of that exact detailed design, tends to be highly prescriptive and does not maximize value on large integrated projects of this type. Design-Build is fast becoming the norm for large projects in the transportation industry. In the last 20 years, there have been over \$58 Billion of projects contracted for in the US and Canada using various forms of Design-Build project delivery.

Design-Build tends to lower the total installed cost of a project by combining its design with its construction. The baseline design is specified in the RFP, in this case bringing the OLRT project to an appropriate level of design (~30%) for procurement and providing a Class C project cost estimate (+/- 15%). The final (~70%) of the design and means and methods of construction are in the hands of the private sector consortia. This approach maximizes their flexibility and challenges them to deliver more value for lower cost by leveraging their experience and best practices earlier. The supply of materials, the actual construction, and the start-up and commissioning of the entire system is sought in one single competitive process.

By their very nature, Design-Build models establish clear responsibility to deliver a strong, integrated, final project. There can be no blame by a contractor on inadequate design; they are responsible for completing the project design as well as the construction, start-up, and commissioning of the system. With clear responsibility for delivering the integrated system resting on the private sector, the City can focus on holding contractors to deliver as promised. Upon contract award, the City's role is to hold contractors to performance by conducting engineering reviews of contractor supplied documents, field inspection and compliance reviews during construction.

Using a Design-Build approach also tends to deliver projects much more quickly. Large integrated bid teams with experience in delivering these significant transit projects can deliver the project in shorter timelines. This combines with the ability, in a Design-Build process, to commence construction elements while finalizing design. Experience around the world has shown that Design-Build results in significantly lower total cost while delivering equal or higher installation quality than what would be achievable under a traditional Design-Bid-Build process.

It is expected that proponents will put forward quality enhancements for the OLRT project aimed at reducing system operating and maintenance costs, which can be reviewed and assessed by the City as part of the evaluation of proposals. This also helps to achieve best overall life cycle cost. In addition total program costs are more precisely identified earlier in the process than during Design-Bid-Build. Design-Build significantly reduces the City's exposure to claims and change orders. The contractor provides a firm lump sum price and a guaranteed completion date for the entire project, subject to defined exclusions and contingencies. The integration of engineering and construction into one comprehensive contract assures that all design uncertainty and design interpretation is the responsibility of the design-build team. The cost and schedule impact of resolving design conflicts is kept internal to the contractor team and remains at all times the vendor's responsibility to resolve.

Maintenance

Variations of the Design Build model include Design-Build-Maintain where the contractor maintains all or part of the system during revenue operations. It is staff's recommendation that the long-term maintenance of vehicles, signals and system infrastructure be included in the overall project contract.

Adding maintenance to the scope of the contract provides both a life-cycle cost benefit and increase in quality. The contractor must "bid" on the ongoing cost of maintenance as well as manage replacement of assets, including a turn back of the maintenance elements (the Maintenance Facility, vehicles, systems etc.) at the end of the contract period. The shifting of responsibility to the private sector for long-term maintenance, under a contract with defined performance standards, helps ensure better initial construction quality and superior vehicle and system reliability.

Adding maintenance to the equation generally results in lower total life-cycle costs than Design-Bid-Build or simple Design-Build for two reasons. First, maintenance personnel are part of the proponent's value engineering process during preparation for the RFP submission. This ensures a focus on system maintenance and minimizing life cycle cost, in addition to engineering ingenuity. Second, a Design-Build-Maintain contract optimizes construction costs

to minimize overall lifecycle costs. The successful proponent is given the right incentives to increase the quality of construction material to reduce total life-cycle cost of the project. This benefit is maximized if the contractor maintains the vehicles, rail systems, rail infrastructure, and operates the maintenance facility.

This arrangement will respect and be compliant with all existing City contractual obligations, including collective agreements, in place at the time of contract execution.

Operations

In Design-Build projects that include a maintenance component it is also possible to include a long term operational component where the contractor operates all or part of the system during revenue service. It is staff's recommendation to exclude operations from the scope of the OLRT project contract. This project is the first of multiple phases of an expanded transit system throughout Ottawa outlined as part of the City's Transportation Master Plan. Including operations would introduce a significant complication to bidding and implementing future phases of LRT throughout the City. Having multiple operators for different phases of the same continuous line would not be practical and would lead to a non-competitive situation where the winning contractors could have a significant advantage in future competitions.

To maintain continuity and integration of operations and service as the system expands, a single entity must be responsible and accountable for the performance of the entire system including both buses and trains. Public transit in Ottawa is one integrated network, and the bus system must work in coordination with the new LRT system to be effective. Recognizing this interrelationship, it is recommended to have OCtranspo responsible for all aspects of the transit system operations. This recommendation is subject to change based on future labour negotiations.

Security against Performance

An important consideration on a project of this size is the financial method to secure performance from and transfer risk to the successful consortia. Holding back some payment until after the completion of construction is one tool that can help to secure this performance. Some progress payments can be made as milestones are reached but the consortium is required to finance a portion of construction themselves with final payment not made until the system is fully constructed and handed over for operations. Consequently private capital is at risk during the construction period since the private sector must perform by completing construction in order to repay its funders. This payment mechanism, referred to as short term private financing, has the following advantages:

- Strong incentives for on-time and on-budget delivery, since late delivery results in higher financing costs and erodes the private sector partner's returns;
- Liquid performance security in the form of deferred payment for construction; and
- Likelihood of increased due diligence and monitoring of construction plans, timeline, and execution by lenders who have an interest in on-time and on-budget completion of the project so they can be repaid.

The downside to short term financing is that in order to be an effective tool a certain minimum amount of the project must be funded through this type of arrangement and the funds are

reimbursed with interest at the conclusion of the project. As the City's borrowing rate is lower than the private sector this would add additional costs to the project. More traditional forms of ensuring vendor performance are also available which may be able to achieve the same objective.

Considering the above, staff will continue to evaluate traditional security performance against implementing a short term private financing model to achieve the goals outlined above. The decision to recommend private finance to Council and the exact size of the payment hold back will be made in consultation with the City's financial advisors, legal advisors and Infrastructure Ontario (IO). Private financing and risk transfer is one method that has been used in Ontario, through the province's IO agency. Consideration will also be given to the City's strong balance sheet, exceptional credit rating and corresponding low borrowing cost. Security to protect for appropriate life cycle maintenance can be secured via an external audit process that ensures the City's stated lifecycle goals are met. The results of the analysis will be outlined to Council in July, 2011, along with the updated OLRT project costs estimates.

Contracting Strategy

A single integrated Design-Build-Maintain approach is recommended as the best way to manage risk, optimize value and achieve cost certainty. Once bids are evaluated, an award is made and a contract is signed, there is a fixed price. A single contract places the risks and coordination of integrating project elements on the contractor. The contractor is responsible for implementing a fixed price bid within this framework. If the City contracts elements separately it will be required to manage the construction integration and will be responsible for associated risks and costs.

Staff's recommendation is that the OLRT be procured as one single integrated contract.

Procurement Agent (Infrastructure Ontario)

Based on Council's direction, staff continues to assess the appropriateness of engaging Infrastructure Ontario (IO) as part of the implementation of the OLRT project. To that end, in April 2011 senior officials from IO visited Ottawa to present the procurement model they offer municipalities and are currently advising the City on its financing model, as outlined in the financing section above. Staff will continue assessing IO's potential role on the OLRT project and report with recommendations to Council in July, 2011.

Procurement Recommendations

In summary, after expert analysis, internal review, and broad industry consultation, staff recommends adopting a private sector driven Design-Build-Maintain (DBM) model in one integrated competition and contract. The operations of the OLRT system should remain with the City as part of one integrated transit system. The City should take advantage of its strong credit rating and position in the bond market by self-financing the long-term debt planned for the project. An appropriate package of security mechanisms for ensuring contractor performance will be presented in the July report.

C. STREAMLINING OLRT PROPERTY ACQUISITION

As noted earlier, securing the required property for the OLRT project is required in advance of contract award. In order to ensure that the required property is acquired in time to meet the updated project schedule, it is necessary to streamline the property acquisition process in two ways:

Begin the Land Acquisition Process: The process of acquiring the land and property rights required to bid the project with certainty can be time consuming. The City of Ottawa's Real Property Acquisition Policy states that negotiation is the preferred method of obtaining real property rights. Every effort will be made to negotiate mutually agreeable settlements with all property owners. Where landlords have tenants or complicated ownership structures, they will often prefer to have the City expropriate the property and take advantage of various provisions offered by the Expropriations Act. Where necessary or advantageous to the landholder, expropriation should begin immediately in order to meet the updated scheduled timelines. Providing this clarity to owners of properties requiring total outright acquisition will ensure the maximum time to relocate for owners and tenants. Authority to begin expropriations where appropriate is contained in the recommendations of this report. As indicated above, the LRT project does not anticipate the acquisition of any residential properties.

Authority to Acquire Necessary Lands: Negotiations are now underway to acquire a limited number of parcels of land or buildings along the established alignment. This alignment was fully approved by Council in January 2010 and the National Capital Commission on April 6th 2011.

Staff recommends amending the Delegation of Authority By-law to provide additional delegated authority to acquire required properties by increasing the monetary limits of the appropriate staff to align with the current market value of the required land. This increase is required to facilitate timely acquisition of properties required for the OLRT Project.

The proposed monetary limits are detailed in Table 2 below.

Table 1: Proposed amendments to the Delegation of Authority By-law

Position	Proposed Limit
Program Manager, RIO	\$100 000 or less
RIO Director	\$500 000 or less
REPDO Director	\$1 000 000 or less
City Manager	\$2 000 000 or less
Reports to FEDCO	quarterly

Council will be kept informed of property related matters through individual acquisition reports, semi-annual delegated authority reports and quarterly OLRT project updates to FEDCO.

Table 2: Estimated value of the property right required for the OLRT project.

Property Class	\$500k and less (RIO Director and	\$500k-\$1M (REPDO Director)	\$1M - \$2M (City Manager)	Over \$2M (City Council)	Total Transaction Numbers

	Program Manager)				
Public Sector	15	7	13	3	38
Private Owners	24	8	6	5	43
Totals Transactions by Category	39	15	19	8	81

NOTE: All City of Ottawa owned property requirements except 805 Belfast Road have been excluded from this Table. The majority of the affected City of Ottawa owned property is vacant land except for 805 Belfast Road, which is an improved property.

If approved by Council, the proposed amendments will assist the OLRT Project to meet the accelerated schedule timelines by improving efficiency and responsiveness in the property acquisition process while continuing to maintain accountability to Council for delegated authority that has been exercised at the staff level.

RURAL IMPLICATIONS

N/A

CONSULTATION

N/A

COMMENTS BY THE WARD COUNCILLOR(S)

N/A

LEGAL/RISK MANAGEMENT IMPLICATIONS

There are no legal/risk management impediments to implementing any of the recommendations in this report.

CITY STRATEGIC PLAN

The recommendations contained herein directly and indirectly support the following objectives of the Strategic Plan.

A1. Improve the City's transportation network to afford ease of mobility, keep pace with growth, reduce congestion and work towards modal split targets.

B1. Attain transit goals (30% modal split) by 2021.

E6. Require walking, transit and cycling oriented communities and employment centres.

F2. Respect the existing urban fabric, neighbourhood form and the limits of existing hard services, so that new growth is integrated seamlessly with established communities.

F4. Ensure that City infrastructure required for new growth is built or improved as needed to serve the growth.

TECHNICAL IMPLICATIONS

N/A

FINANCIAL IMPLICATIONS

A funding source for the work required to relocate the water mains associated with the widening of the 417 will be identified in the subsequent report that details the cost of the project.

The funds for the purchase of land associated with this project have already been established and approved in previous years' capital budget. The Transit Funding model used to determine affordability in 2009 is being updated to be presented to Council in July. The update will include the impact of the accelerated project timing as identified in this report and any costs associated with performance security.

SUPPORTING DOCUMENTATION

N/A

DISPOSITION

Following Committee and Council approval of the recommendations contained herein, the Rail Implementation office will undertake the following:

- Accelerate the OLRT schedule as outlined in this report.
- Procure the OLRT project as a Design Build Maintain (DBM) project.
- Accelerate the property acquisition necessary for the OLRT project.

City Clerk and Solicitor Department staff will arrange to amend the City's Delegation of Authority By-Law to reflect the changes noted in Table 1 of this report as approved by Council.