

**Report to  
Rapport au:**

**Finance and Economic Development Committee  
Comité des finances et du développement économique  
24 February 2017 / 24 février 2017**

**and Council  
et au Conseil  
8 March 2017 / 8 mars 2017**

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**Ward: CITY WIDE / À L'ÉCHELLE DE LA VILLE      File Number: ACS2017-CSD-FIN-0002**

**SUBJECT: LONG RANGE FINANCIAL PLAN TRANSIT**

**OBJET: PLAN FINANCIER À LONG TERME DU TRANSPORT EN COMMUN**

#### **REPORT RECOMMENDATIONS**

**That the Finance and Economic Development Committee recommend Council receive this report for information.**

#### **RECOMMANDATIONS DU RAPPORT**

**Que le Comité des finances et du développement économique recommande que le Conseil municipal prenne connaissance de ce rapport à titre d'information.**

## EXECUTIVE SUMMARY

Within each term of Council the Long Range Financial Plan (LRFP) is updated to reflect the City's long term operating and capital requirements, ensuring consistency with recommendations of the Transportation Master Plan (TMP) and the City's Fiscal Framework. A separate LRFP for Transit is developed, as Transit's sources of funding are dedicated to that purpose and cannot be used to fund other services.

The City defines affordability from the point of view of current and future taxpayers and transit users. The parameters to determine affordability include:

- Transit taxes and transit fares will increase at the same rate as transit operating costs
- Annual debt servicing will not exceed provincial and city limits
- Debt used to purchase an asset will be fully retired before the end of the asset's useful life
- The city can operate, maintain in a good state of repair and expand the service to meet future needs
- The future transit expansion as defined in the TMP will be completed to service growth needs.

In order to test these parameters a financial model was constructed that includes both operating and capital needs for the bus and light rail system over a 32 year time period to 2048, which covers the full contract period of the Confederation Line and Stage 2 of the Light Rail Transit (Stage 2 LRT). Assumptions built into the model are generally conservative, in that increases in revenue are constrained while increases in cost are not. The model assumes that any transit taxes raised that are not required for operating and maintaining the system are available to fund capital works. In total \$27.1 billion of operating costs are forecast over the 32 year timeframe with transit revenue of \$15.6 billion available for capital.

In total \$13.9 billion in capital investments is forecast to be required including the transit capital projects identified in the TMP. As the timing of the revenue inflows for capital does not match the spending required in the capital plan the City will need to issue \$4.3 billion in debt to make up the difference. This debt is repaid from federal/provincial gas tax revenues, development charges and transit taxation.

The model shows that with the debt required to fund the transit capital plan, the debt servicing limits set by the Province and the City are respected. A sensitivity analysis was performed on the various assumptions to determine their impact on the affordability of the plan. The analysis showed that the plan is affordable only with the continued contributions from senior levels of government which in the model includes two-thirds funding of rapid transit projects, 100% funding of the Trim and Airport extensions, 50% Federal government funding for Public Transit Infrastructure Fund (PTIF) transit projects and that transit taxes and fares need to increase at the same rate as transit operating costs, which is assumed at 2.5% in the model. The model also estimates a higher level of transit development charges consistent with the recent changes to Development Charge (DC) legislation which eliminated the 10% statutory reduction and the historical service level cap requirements. The recently announced increase to the Provincial gas tax, which will double their contribution by 2021, has also been included in the model.

Costs to pay for principal and interest on debt will increase during the TMP time frame to 2031 however, the City's 7.5% debt policy limit that caps the amount of taxation revenues that can be used to service debt, will be adhered to. Given the transit component of the TMP to 2031 proposes a significant and advanced investment in new Light Rail and Bus Rapid Transit initiatives, the City's post 2031 investment in transit growth projects is limited to \$3.0 billion in order to retain debt at manageable levels. Debt servicing costs will remain well below the Provincial threshold of 25% of own source revenues throughout the period from 2017 to 2048.

## **RÉSUMÉ**

Au cours de chaque mandat du Conseil, on met à jour le plan financier à long terme afin qu'il corresponde aux besoins de la Ville en matière d'exploitation et d'immobilisations, en veillant à ce qu'il soit conforme aux recommandations du Plan directeur des transports (PDT) et au cadre financier de la Ville. Un plan financier à long terme distinct a donc été élaboré pour le transport en commun, car les sources de financement du transport en commun sont affectées exclusivement au transport en commun et ne peuvent être utilisées pour financer d'autres services.

La Ville détermine la capacité financière du point de vue des contribuables actuels et futurs et des usagers du transport en commun. Les paramètres utilisés pour déterminer la capacité financière sont :

- Les taxes servant à financer le transport en commun et des tarifs est lier augmentent au même taux d'escalade que les couts d'exploitation du service de transport en commun;

- Le montant du service annuel de la dette ne doit pas excéder les limites fixées par la province et la Ville;
- Les emprunts contractés pour l'achat d'un bien sont entièrement remboursés avant la fin de la vie utile du bien;
- La Ville peut exploiter le service, le maintenir en bon état de fonctionnement et l'agrandir pour répondre aux besoins futurs;
- L'expansion future du transport en commun, définie dans le PDT, sera effectuée de manière à répondre à la croissance des besoins.

Afin de vérifier ces paramètres, on a construit un modèle financier incluant les besoins en matière d'exploitation et d'immobilisations pour le réseau d'autobus et de train léger sur 32 ans, ce qui couvre la période entière du contrat de la Ligne de la Confédération et de l'Étape 2 du système de train léger rapide (TLR) jusqu'en 2048. Les hypothèses émises dans le modèle sont généralement conservatrices et tiennent compte d'une croissance limitée des revenus, et d'une augmentation sans limites des coûts. Le modèle pose comme hypothèse que toutes les taxes imposées au titre du transport en commun qui ne sont pas nécessaires à l'exploitation et à l'entretien du réseau peuvent servir au financement de travaux d'immobilisations. Au total, on prévoit que les coûts d'exploitation s'élèveront à 27,1 milliards de dollars sur la période de 32 ans, et que la somme de 15,6 milliards de dollars en revenus perçus au titre du transport en commun sera disponible pour les immobilisations.

On prévoit que les dépenses en immobilisations s'élèveront à 13,9 milliards de dollars, cette somme comprend les projets d'immobilisations présentés dans le PDT. Puisqu'au moment d'engager les dépenses requises dans le plan d'immobilisations, les entrées de revenus affectés aux immobilisations ne seront pas suffisantes, la Ville devra émettre 4,3 milliards de dollars en titres de créances pour combler l'écart. La dette est remboursée grâce aux revenus générés par les taxes sur l'essence provinciale et fédérale, les redevances d'aménagement et l'imposition au titre du transport en commun.

Le modèle indique que, compte tenu des emprunts nécessaires pour financer le plan d'immobilisations du transport en commun, il n'y aura pas de problème à respecter les limites établies pour le service de la dette par le gouvernement provincial et l'administration municipale. Une analyse de sensibilité a été effectuée concernant les différentes hypothèses afin d'en déterminer l'incidence sur la capacité financière du plan. L'analyse indique que le plan est abordable seulement s'il y a un apport continu

des instances supérieures des administrations publiques, ce qui, dans le modèle, comprend les deux tiers du financement des projets transport en commun rapide, 100 pour cent du financement du prolongement du chemin Trim et de celui de l'aéroport, 50 pour cent du financement du gouvernement fédéral pour les projets de transport en commun au titre du fonds pour les infrastructures du transport en commun, et que les taxes perçues au titre du transport en commun et les tarifs doivent augmenter au même taux que les coûts d'exploitation, estimé à 2,5 %. Le modèle suppose aussi des redevances d'aménagement affectées au transport en commun plus élevées, conformes aux changements apportés récemment à la législation sur les redevances d'aménagement, qui permettent à la Ville d'exclure les projets de train léger de l'application du plafonnement fondé sur les niveaux historiques de service et des exigences de réduction de 10 % prévues par la loi. Les augmentations qui viennent d'être annoncées à la taxe provinciale sur l'essence doublant leur contribution d'ici à 2021, ont également été prises en compte dans le modèle.

Les coûts requis pour payer le capital et les intérêts sur la dette augmenteront pendant la période couverte par le PDT, jusqu'en 2031; cependant, la Ville respectera sa politique d'endettement de 7,5 %, qui limite le pourcentage des recettes fiscales qu'elle peut consacrer au service de la dette. Étant donné que le volet transport en commun du PDT jusqu'en 2031 propose un investissement important accéléré pour les nouvelles initiatives de train léger sur rail et de transport en commun rapide par autobus, la Ville devra limiter ses investissements à 3,0 milliards dans des projets de croissance du transport en commun après 2031, et ce, afin de maintenir un niveau d'endettement gérable. Les coûts du service de la dette resteront très inférieurs au seuil provincial de 25 % des recettes autonomes de la Ville pour toute la période allant de 2017 à 2048.

## **BACKGROUND**

Within each term of Council the Long Range Financial Plan (LRFP) is updated to reflect any changes to the City's long term operating and capital requirements, ensuring consistency with recommendations of the Transportation Master Plan (TMP) and the City's Fiscal Framework. The LRFP is divided into three parts, reflecting the funding categories that exist within the City: Tax, Rate and Transit. Transit is an area-specific tax so the funds raised from that levy cannot be used for any purpose other than Transit. Similarly, the gas taxes and development charges used to fund transit capital projects are only available for transit purposes. For that reason a separate LRFP for transit is being presented. The previous Transit LRFP was submitted to Council in 2011 and was updated in 2013 to reflect the revised 2013 TMP. A summary of these previous transit affordability plans is as follows:

**Long Range Financial Plan Transit (July 2011) ([ACS2011-CMR-FIN-0039](#)):**

An affordability model for transit projects was prepared which looked at the cost of the transit capital plan for the next 38 years to ensure the resources are in place to not only construct but run the system envisioned in the 2008 TMP. The report concluded that the City could afford to invest and operate the transit system as detailed in the 2008 TMP, including the first increment of the Light Rail Transit system. The analysis showed that the plan was affordable with continued contributions from senior levels of government and with transit taxes and fares increasing at the rate of transit's inflation.

**Design, Build, Finance and Maintenance of Ottawa's Light Rail Transit (OLRT) Project (December 2012) ([ACS2012-ICS-RIO-0004](#)) :**

In preparation for the consideration of the award of the contract for the Confederation Line, the July 2011 Transit Affordability Model was updated in November 2012 to reflect the financial requirements associated with the award of the OLRT contract. All other assumptions regarding revenue sources and post OLRT capital project requirements remained constant. The update of the plan also looked at the total debt servicing requirements for the City.

**Affordability of the Transportation Master Plan, Ottawa Pedestrian Plan and Ottawa Cycling Plan (October 2013) ([ACS2013-CMR-FIN-0038](#)):**

This report discussed the affordability of the new TMP, Cycling Plan and Pedestrian plans, which cover the period 2014 to 2031. The report also looked at the future debt profile and capacity to fund transit projects in the period from 2031 to 2048 in order to assess the impact of the TMP recommendations on the future financial profile of the City. The recommended Transit network was determined to be affordable assuming continued two-thirds funding from senior levels of government and with transit taxes and fares increasing at the rate of transit's cost increases. Costs to pay for principal and interest on debt would increase during the TMP time frame to 2031. However, the City would need to limit its post 2031 investment in transit growth projects in order to retain debt at manageable levels.

A comprehensive and sophisticated financial model was used to assess the affordability of the transit financial plan. The model has the capability to test multiple assumptions and conduct sensitivity scenarios. The 2011 model included an assessment of transit funding and costs for operations, maintenance and capital development, for transit from

2011 to 2048, including the Confederation Line. In 2013, the City updated the transit affordability model to reflect the transit component of the 2013 TMP, including incorporation of Stage 2 of the Ottawa Light Rail Transit project (Stage 2 LRT).

For this 2017 Transit LRFP report, the financial model was updated to reflect the most current financial and operational results, include the recent refinements to Stage 2 LRT functional design and construction timing described in the Report “Stage 2 Light Rail Transit Implementation – Project Definition and Procurement Plan”, and revise projections of the key drivers of transit operating costs and revenues, ridership, fleet plan, service levels and funding sources. Inputs to the model have been provided by Transit, O-Train Planning, O-Train Construction, Transportation Planning, Infrastructure Services and Finance.

The model covers a 32 year period which covers the full contract period of the Confederation Line and Stage 2 LRT to 2048 and includes the transit capital works identified in the 2013 TMP. By going out 32 years the impacts of these capital investments on operations can be modeled.

## **DISCUSSION**

### **How does the City define Affordability?**

In order to come to a conclusion as to whether the City can afford the capital plan identified in the TMP, including the Stage 2 LRT, the meaning of affordable had to be defined. As a public service, affordability has to be defined from the perspective of current and future taxpayers and transit riders. This section outlines all the parameters that need to be met in order to be considered affordable.

Transit taxes are area-specific and therefore cannot be used for any other purpose, they form part of the overall property tax bill, but must increase with transit operating costs, in order for the long term transit plan to be affordable. Consistent with the approach adopted by Council the affordability parameter with respect to taxation was defined as:

- Transit taxes will increase at the same rate as transit operating costs.

Similar to taxation there is a limit as to how much transit fares can increase before the service is considered unaffordable. To be consistent with taxation the affordability parameter with respect to transit fares was defined as:

- Transit fares will increase at the same rate as transit operating costs.

Net cash flow remains positive when transit taxes and fare revenue, plus all other sources of funding (government funding, gas tax, development charges and other revenue) are greater than the City's transit costs (operating, capital expenditures and debt charges). Another criterion of affordability is:

- Net cash flow generated by the transit plan must be greater than or equal to zero.

Once cash flows fall below zero, the City must issue debt to pay for capital works. Another key affordability principle is that debt cannot be issued to pay for annual debt servicing. The debt service coverage ratio (DSCR), which is defined as the amount of annualized capital funding divided by the City's annual debt charges, is measured to ensure that revenue is always sufficient to meet annual debt charges:

- The DSCR cannot drop below 1.0 in any given year.

Furthermore, the City has a provincially imposed limit on the total debt that can be issued and Council has set other limits on debt, these parameters also need to be respected. In addition, while debt is an appropriate financing tool to use for assets that benefit multiple generations, the use of debt needs to be controlled so that future generations are not paying for assets that are no longer in service. The parameters for affordability with respect to debt are therefore defined as:

- The total City cost of servicing debt will not exceed the annual Provincial Debt Servicing limit of 25% of own source revenues
- The amount of debt servicing funded from transit taxation will never exceed 7.5% of City own source revenues
- The debt issued for any capital work will be fully retired before the end of the asset's expected service life.

The last affordability parameter deals with duration and capacity. Decisions on capital investments result in increased operating and maintenance costs which, if not accounted for, can affect the ability to expand services in the future. Affordability cannot be just one point in time as the City must be able to afford to operate the system, maintain the system assets at an appropriate level and expand the system over time to meet the needs of future residents. In the case of Transit, this is particularly important as this involves a network that must be coordinated to ensure it operates both effectively and efficiently across the network. The TMP identifies all of Council's current



transit priorities so these projects must be included within the plan's timeframe. The affordability parameter for duration and capacity is defined as:

- The future expansion of the transit system, as defined in the TMP, will be completed to service growth needs
- The City will be able to operate and maintain the transit system; and, expand the system to meet future needs.

### **The Financial Affordability Model**

The model covers the full contract period of the Confederation Line, including Stage 2 of the LRT to 2048 and allows for all of the required transit capital works identified in the TMP to be included.

The costs of operating and maintaining the transit and light rail systems were also incorporated in the model so that the affordability of the entire system could be assessed. A number of assumptions were adjusted to reflect current operating forecasts, inflationary estimates and include the refinements provided by the recent Stage 2 preliminary engineering designs, construction, maintenance and lifecycle cost estimates. All of the assumptions were then tested for sensitivity to determine how much they could change before they negated one or more of the affordability parameters. The revenue and expenditure inputs and assumptions built into the model are described below.

#### *Operating Revenues and Cost Assumptions*

A key assumption in the model is that transit operations are funded first, and any funds not required are then used to fund capital. For this reason the model starts with the development of the operating costs and revenues.

Transit operations are primarily funded from two sources, fares and taxes. Additionally, some revenues are received from advertising and provincial gas tax revenue is applied towards operations annually. It is assumed that transit fares and transit tax rates will increase in keeping with the assumed 2.5% increase in transit costs. The model reflects the recent Provincial announcement to double gas tax contributions from \$35 million in 2017 to \$70 million by 2021 and is held constant thereafter. In the model, \$16 million of the annual provincial gas tax is applied to operating costs and the remainder is used as capital funding.

Transit taxes will also increase by growth to the assessment base. The forecasted assessment growth in the model is conservatively estimated at 1.3% per year, reflecting recent trends and then levelling out to 1% post 2025.

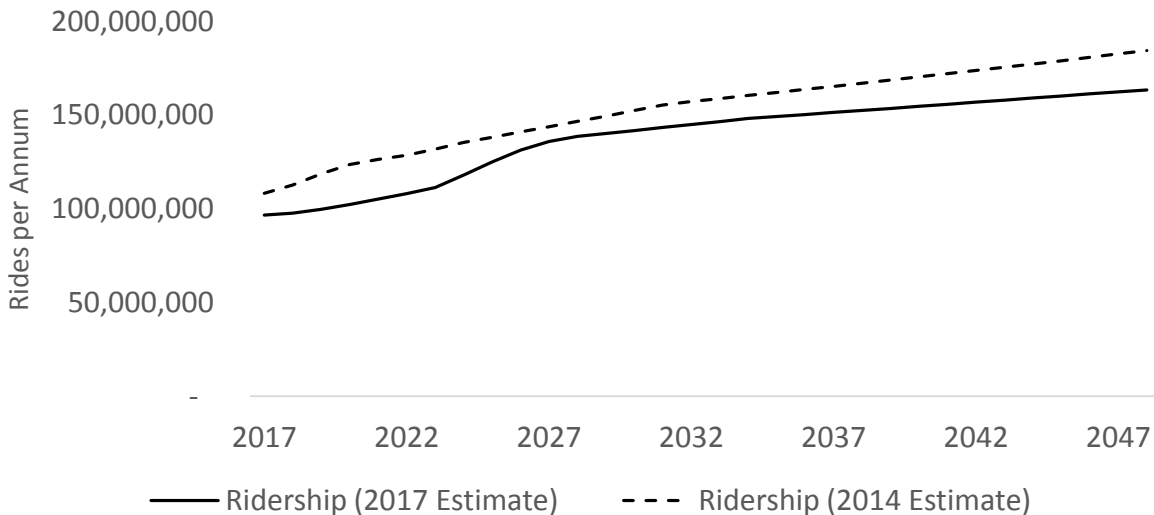
**Table 1 - Forecasted Assessment Growth**

Period	2017 - 2025	2026 - 2048
Rate of Growth <sup>[1]</sup>	1.3%	1.0%

<sup>[1]</sup>Average increase per annum

Transit fare revenue also increases as ridership increases. The forecast number of riders is determined by looking at population growth projections, employment projections, and transit service offered. The ridership projections used in this model have been adjusted to reflect the most current estimates:

**Figure 1 - Forecasted Ridership Growth**



Higher ridership increases are anticipated in the period 2019 to 2027 as the opening of light rail line will remove constraints on transit ridership that are currently being caused by the restricted capacity, extended travel times and unreliability of the bus service operating on downtown streets. It is estimated that system-wide transit ridership will grow by 2% in 2019 and 6% in 2024. These ridership assumptions were reviewed by ridership forecasting experts in order to confirm their validity.

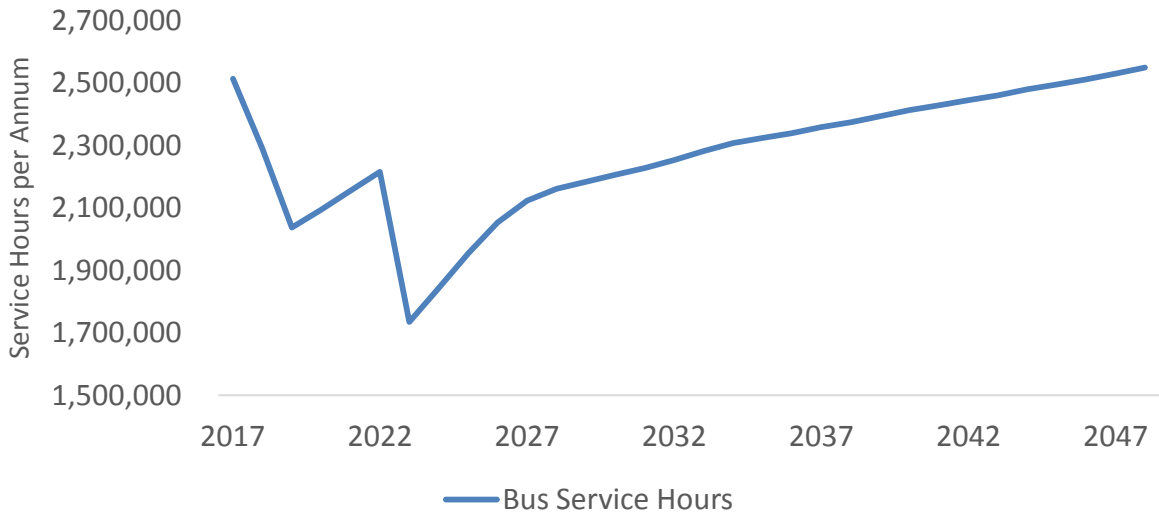
Applying the growth in assessment, ridership and the inflationary increases to taxes and fares, the model shows operating revenue for transit purposes as follows.

**Table 2 - Forecasted Revenue**

	Period 1 (2017-2031) \$Billions	Period 2 (2032-2048) \$Billions	Total \$Billions
Transit Fare Revenue	4.4	9.4	13.8
Other Operating Revenue	0.3	0.4	0.7
Transit Taxes	5.7	10.9	16.6
<b>Total Funds</b>	<b>10.4</b>	<b>20.7</b>	<b>31.1</b>

The LRFPP includes the costs to operate the existing transit system and then reflects the changes in the cost structure as the City moves key segments from a bus system to a rail system. The first 3 years of the operating projections are based on the 2017 budget and Transit financial plans for the next two years. The operating cost estimates take into consideration all the proposed components of the Stage 2 refined design for East, West and South LRT, including Trim, Airport and Moodie extensions and Moodie MSF.

The cost of running the transit system is largely a function of the number of service hours required to accommodate ridership. Service hours are calculated based on the projected ridership, route length, and the size and speed of the bus or train, and the composition of the transit fleet placed in service (i.e. regular 40 foot bus, high capacity bus, O-Train, light rail train). Service hours included in the model are shown in the following figure with reductions in service hours when Stage 1 and Stage 2 LRT are operational.

**Figure 2 - Bus Service Hours**

As can be seen in the figure the number of service hours increases as ridership increases. The number of service hours decrease as transitions are made to high-capacity light rail trains. Some changes in service hour projections are also based on the faster speed of light rail than buses through downtown, the slower speed of the overall bus system as the transitway is gradually converted to rail, and by the retirement of some high-capacity buses as rail takes over from buses on the main corridors and buses are increasingly used on feeder services. Some bus growth is included in the next few years to address capacity and reliability needs and for other service improvements.

The cost of a service hour is different between rail and bus type but includes: costs for operators, energy source (diesel fuel or electricity), and maintenance. Operators and maintenance hourly rates are expected to increase at an assumed 2.5% rate of inflation. Fuel costs, which have seen significant decreases in the last few years, are estimated to inflate at the same rate of 2.5%, whereas in the previous model fuel inflation was estimated at 4.7%.

Increases to all other transit costs such as overhead and administration have also been increased by the general rate of inflation assumed at 2.5%.

The result of this modeling shows the costs to run the transit system can be accommodated within inflationary increases to revenue while providing sufficient funding to contribute to the capital program. The analysis also shows that the amount

of taxes required to subsidize operating costs declines over time. This moves the Revenue/Cost ratio slightly above the City's 55% target. This should be expected as the City grows, ridership rises and productivity increases with LRT.

Transit revenue, including the portion of Provincial gas taxes dedicated to operations, are first used to fund transit operations. Any revenue in excess of the operating costs form part of the capital formation envelope available to fund capital and debt servicing charges in a given year.

**Table 3 - Summary of Forecasted Revenue and Costs**

	Period 1 (2011-2031) \$ Billions	Period 2 (2032-2048) \$Billions	Total \$Billions
Total Funds Available	10.4	20.7	31.1
Bus Costs	5.2	9.7	14.9
Rail Costs	2.1	5.5	7.6
All Other Costs	1.7	2.9	4.6
Total Operating Costs	9.0	18.1	27.1
Total Taxes and Fare Revenue Available for Capital	1.4	2.6	4.0

There is a total projected capital spend of \$13.9 billion from 2017 to 2048 and \$4.0 billion available from transit operations, which means that the remaining \$9.9 billion must be funded by other sources of capital revenue and with debt.

#### *Capital Revenue Sources and Assumptions*

Capital sources of revenue include gas tax from both levels of government. The federal gas tax is approximately \$55 M per year and the provincial gas tax is \$35M of which \$16M is contributed towards operating costs. Federal gas taxes are assumed to inflate each year by an assumed Canadian Price Index (CPI) of 2 per cent. The provincial gas tax doubles by 2021 but then remains fixed over the life of the financial model as it is not currently indexed. This increase in provincial gas tax helps to supplement the net

capital funding available to reduce reliance on additional debt and provide a sustainable funding source for future transit capital works. As a result the future LRT projects in this update (post 2031) have increased to \$3.0 billion from the \$850 million projected in the previous Transit LRFP.

Assumed in the model is a combined two-thirds funding from the senior levels of government on all major new transit system infrastructure. This excludes the purchase of growth buses and other supporting infrastructure such as park and rides etc., but includes rail vehicle purchases related to openings of new rail segments. The first increment of LRT has a fixed Federal and Provincial subsidy of \$1.2 billion, which represents 57% of the estimated cost of \$2.1 billion. The Stage 2 LRT has a fixed Federal and Provincial subsidy \$2.5 billion which includes two-thirds funding of eligible Stage 2 LRT costs and 100 per cent funding of the Airport and Trim extensions. The model also includes funding for the recently approved Public Transit Infrastructure Fund (PTIF) projects.

The City collects development charges (DC) from new construction to pay for the capital investments required by the City to service new development. Transit is one of 15 services that are included in the overall DC. Separate charges are established for: inside the greenbelt, outside the greenbelt, rural, and non-residential. In each of these four DC areas, the size of the transit component varies. For “inside the greenbelt” the transit component of the charge is 25%, whereas for “outside the greenbelt” the transit component is 15% of the charge. Council has over the years repeatedly endorsed policy statements that growth is to pay for itself.

Due to the recent changes in DC regulation, the percentage of growth capital works that are to be funded by DC's has been increased. This reflects the elimination of the statutory 10% reduction and service level cap. For major transit projects, 2/3 funding is provided from senior levels of government leaving the remaining municipal share at 1/3. Growth related capital requirements of \$8.2 billion are projected over the 32 year planning timeframe. With corresponding senior government funding of \$5.1 billion, this leaves \$3.1 billion of transit growth projects to be funded from municipal sources. The model estimates a total of \$2.4 billion in DC's to pay for growth.

Using the assumptions for all of the various sources of capital revenue generates the following amounts within the model.

**Table 4 - Forecasted Capital Funds**

	Period 1 (2017-2031) \$ Billions	Period 2 (2032-2048) \$ Billions	Total \$ Billions
City of Ottawa available for capital	1.4	2.6	4.0
Canadian and Provincial Governments	3.4	1.7	5.1
Federal and provincial gas tax	1.7	2.4	4.0
Development charges	1.0	1.4	2.4
Total	7.5	8.1	15.6

### *Capital Costs and Assumptions*

The most recent TMP, issued in 2013, identified a variety of bus rapid transit (BRT), LRT and transit priority capital projects for the next 15 years or to 2031. All of these projects have been included in the model. In addition growth needs beyond this period to 2048 have also been considered to accommodate anticipated ridership numbers in light of extended population and employment projections to 2048.

The model includes the cashflow estimates for the remaining construction costs of the Stage 1 LRT to 2018 and recent refinements of the Stage 2 LRT functional design for Confederation Line and Trillium, including Airport, Trim and Moodie extensions, Moodie MSF and transit-related bundled projects. Approximately \$42 million for the costs of disruption during the construction period has also been identified and included in the model. These costs include the need for additional buses to maintain service levels while the transitway is closed.

The costs required to renew the system assets, both those that exist today or are planned for the future, were developed with the objective to maintain them in a good state of repair.

On average, capital project costs were inflated to year of spend estimates. Specific escalation factors were used in the estimates for Stage 2 LRT construction.

In summary, capital project investments required for Transit and included in the model are identified in the following table.

**Table 5 - Forecast of Capital Investments**

	Period 1 (2011 – 2031) \$ Billions	Period 2 (2032-2048) \$Billions	Total \$Billions
Growth	5.2	3.0	8.2
Renewal	2.4	3.3	5.7
Total	7.6	6.3	13.9

*Use of Debt*

Debt is an appropriate financing tool for assets that benefit multiple generations, like LRT as it allows future generations to contribute towards the cost. Municipalities can only use debt for capital works. In the first 15 year period ending in 2031, the required capital investments, including the conversion to light rail, exceeds the amount of funds available from all sources to fund capital. Essentially, investment is required at the front end of the period to secure the shift from bus to train operations. This requires the use of debt to pay for any cash shortfall.

The amount of transit capital investment, capital funding, and corresponding amount of debt to be issued is detailed by period in the following table.

**Table 6 - Comparison of Capital Funds vs Capital Investments**

	Period 1 (2011 – 2031) \$ Billions	Period 2 (2032-2048) \$Billions
Capital Funds	7.5	8.1
Capital Investments	7.6	6.3
Debt to be Issued	2.1	2.2

The debt servicing costs per funding source for each period is detailed in the following table.



**Table 7 - Sources of Debt Servicing (Principal and Interest)**

	Period 1 (2017 – 2031) \$ Billions	Period 2 (2032-2048) \$Billions
Federal and Provincial Gas Taxes	0.8	1.6
Development Charges	0.5	0.9
Transit Taxes	0.8	1.5
Total Debt Servicing	2.1	4.0

Additional criteria are normally considered in establishing the amount and term of debt issued and these have been applied in the model. These include the useful life of the asset, and debt servicing limits established by the Province and by Council's own policy.

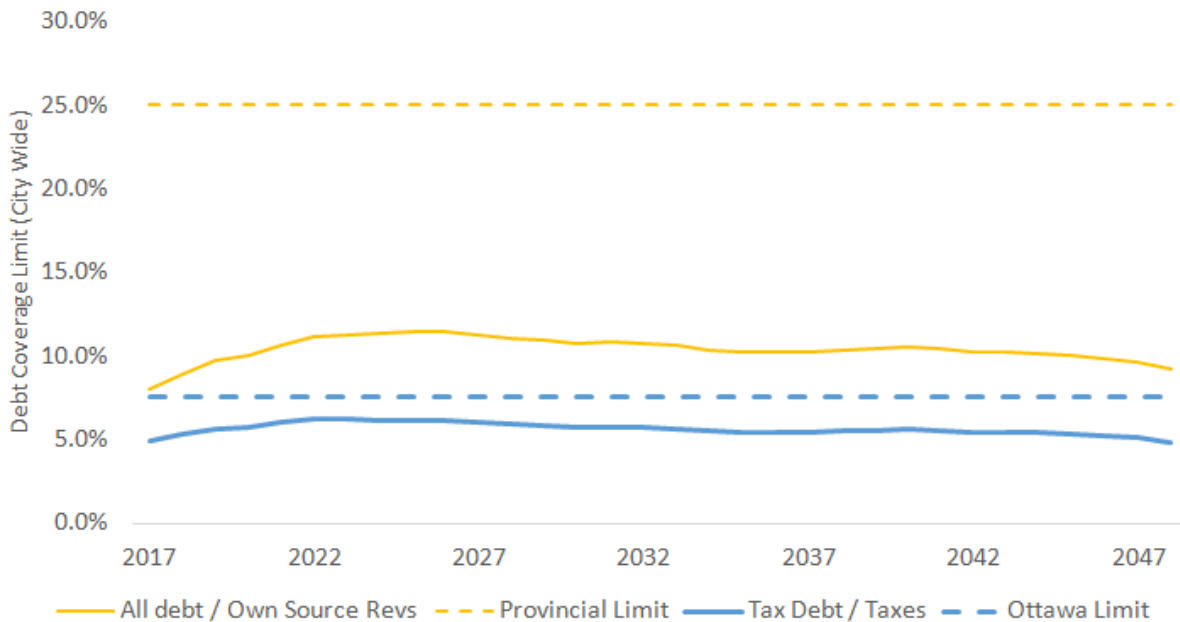
(a) Useful life of asset – Council has established a policy regarding debt which states that the term of the debt should be less than the useful life of the asset which it is intended to finance. This ensures that the generations that benefit from the use of the asset share in paying for its cost. Also, since longer debt terms mean more interest is paid, any flexibility that exists to shorten the term of the debt is considered and made at the time of each debt issue. The City has debt terms that range from 10 to 40 years in keeping with varied useful lives of assets. Interest rates differ depending on the debt term. The rates have been assumed at 4.5% for a 10 year term, 4.75% for a 20 year term and 5% for a 30 year term. Lower interest rates were assumed over the first five years of the forecast period, to reflect recent debt issues that have ranged between 3.0 – 3.2 per cent in the last several years. As most of the assets for transit will last 30 years or more, the most common debt term used is 30 years.

(b) Debt servicing limits – Province - Long-term debt for a municipality is restricted by the *Municipal Act*. Long term debt can only be used to fund capital works, and the City is limited in how much debt servicing (repayment of principle and interest) it can enter into by the provincially established Annual Debt Servicing Limit. The annual debt servicing limit is 25% of own source revenues, which is defined as all revenues other than those provided by the senior levels of government or from the value of contributed assets. At the end of 2015 the City was at 7.5% of the 25% limit and could issue an additional \$6.0 billion of debt for 30 years at 5% before the limit would be exceeded.

(c) Debt servicing limits – City Policy - Council has established a secondary set of criteria to ensure that debt is well managed in the City. Council’s concern is focused on the amount of debt that is serviced from taxes and fees it collects. Council has established a limit of 7.5 % of the amount raised from taxes and fees that can be used for debt servicing. The difference between the two limit values are that the City’s limit considers debt solely repaid from taxes and fees whereas the provincial limit also considers debt repaid by development charges and gas taxes.

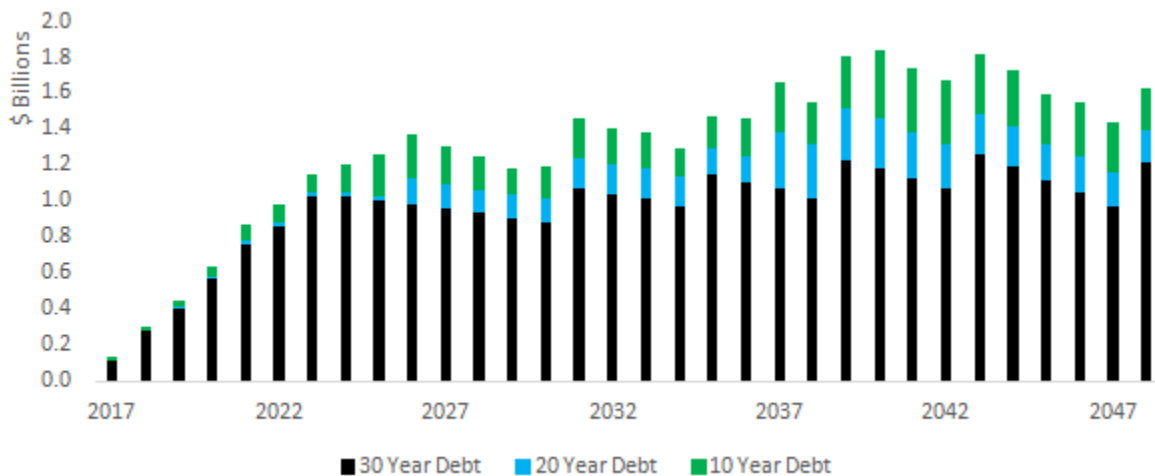
In order to assess against the provincial limits the debt servicing requirements identified in the model has been added to an estimate of the total amount of City debt servicing required for all of the remaining City’s capital requirements that are known at this time. The estimate for other City debt servicing was developed by inflating the current amount of debt (excluding transit) by 2.0% every year and by the percentage increase in assessment. City own source revenues have also been calculated using the same escalation rate. The results in the figure below show that the debt issued for these transit projects and all other city programs reaches a maximum of 11.9% of own source revenues compared to the 25% provincial limit. The figure also shows that the debt servicing funded from taxation reaches a maximum of 6.1% compared to Council’s 7.5% limit.

**Figure 3 - Debt Servicing Limits Analysis**



Of particular importance is that the model results indicate that the amount of transit debt declines over the period analyzed, confirming that the City is more than capable of meeting its annual debt servicing requirements in each year through to 2048.

**Figure 4 - Debt Continuity Schedule**



## Conclusion

The results of the modelling exercise show that the City can afford to invest and operate the transit system in keeping with the strategic directions established in the current TMP including Stage 2 of the Light Rail Transit system. The transit systems will continue to be affordable as long as the following assumptions built into the affordability model are maintained going forward:

- Transit taxes and transit fares will increase at the same rate as transit's cost increase.
- Contributions of two-thirds funding from other levels of government for LRT and BRT projects.
- Interest rates remain below 6%

Any deviation from these assumptions will require a reassessment of the operating and capital cost plans going forward.

## RURAL IMPLICATIONS

Not applicable.

**CONSULTATION**

Not applicable.

**COMMENTS BY THE WARD COUNCILLOR(S)**

Not applicable.

**ADVISORY COMMITTEE(S) COMMENTS**

**Not applicable.**

**LEGAL IMPLICATIONS**

There are no legal impediments to receiving the information in this report.

**RISK MANAGEMENT IMPLICATIONS**

There are no risk impediments to implementing the recommendations in this report.

**ASSET MANAGEMENT IMPLICATIONS**

The information documented in this report is consistent with the City's Comprehensive Asset Management (CAM) Program ([City of Ottawa Comprehensive Asset Management Program](#)) objectives. Undertaking long term financial analysis of operating and capital renewal asset requirements as outlined assists to fulfil the City's obligation to deliver quality services to the community, in a way that balances service levels, risk, and affordability.

**FINANCIAL IMPLICATIONS**

As outlined in the report.

**ACCESSIBILITY IMPACTS**

There are no accessibility impact implications with this report.

**TERM OF COUNCIL PRIORITIES**

FS1 – Demonstrate sound financial management

FS2 – Align strategic priorities to Council's financial targets

TM5 – Ensure reliable, safe, accessible and affordable transit services

**DISPOSITION**

Not applicable.