Hemson Consulting Ltd
1000 – 30 St. Patrick Street, Toronto, ON M5T 3A3
416-593-5090 | hemson@hemson.com | www.hemson.com

MEMORANDUM

To: Gary Baker, City of Ottawa

From: Jaclyn Hall and John Hughes, Hemson Consulting

Date: September 9, 2021

Re: Summary Update of Comparative Municipal Fiscal Impact Analysis

A. INTRODUCTION

In 2013 Hemson Consulting Ltd. was retained by the City of Ottawa to undertake a Comparative Municipal Fiscal Impact Analysis examining the comparative operating and capital costs and revenues attributable to four categories of development in the City: higher-density urban; lower-density urban greenfield; low-density villages and scattered estate and low-density rural. The study expanded on previous analysis that Hemson prepared in 2009.

As it has been over eight years since the last study during which the city has grown substantially both in population and employment, City staff have been asked to undertake a high-level review of the current situation to assess the extent to which the relative costs and revenues for the categories have changed in the intervening period.

In response to the request, a summary level comparative analysis has been undertaken. The results of analysis suggest that while the variance within the different categories of development have changed at different rates, the broad relationships between the categories has not altered.

Given the potential constraints of a high-level analysis of this nature, it was decided to retain Hemson to carry out an additional review to the approach and to identify specific factors that could create an under or overestimation of the relative results of the analysis.

The review that follows contains five sections:

- Short summary of the 2013 report approach and results
- Review of the City's Comparative Analysis
- Comparative review of the 2013 and 2021 City Budgets

- Analysis of changes in assessments of representative developments for the various categories
- Conclusions

It is important to emphasize that both the City's analysis and this review should not be regarded as comparable to the 2013 report which was extremely detailed and relied on data that was difficult to assemble.

B. SUMMARY OF THE 2013 COMPARATIVE MUNICIPAL FISCAL IMPACT ANALYSIS REPORT

The 2013 Comparative Municipal Fiscal Impact Analysis study updated a 2009 report. Its purpose was to compare the average operating and capital costs and revenues associated with development in four geographic areas of the City:

- Inside the Greenbelt
- Outside the Greenbelt
- Villages located in Rural Areas
- Scattered Rural Areas outside village boundaries

- The approach used in the study was based on a **blend of average and marginal cost elements**. A marginal cost approach was employed in regard to growth-related capital and for the revenue (one-time and ongoing taxation and utility rates) for the representative developments. For services for which development-specific or sub-geographic based data were not available, City-wide sources used to estimate average costs.

- The **analysis was undertaken in two stages**. The first stage involved the allocation of operating and capital expenditures and revenues between the residential and non-residential sectors. In the second stage, the estimated expenditures and revenues relating to the residential sector were allocated between the four development categories. As the focus of the study was residential development, a detailed analysis of the non-residential sector was not undertaken.

- To undertake the allocation analysis, a wide range of factors (or measures) was used such as population, assessment and travel distances. The factors were selected **based on the best data that was available regarding specific municipal services.**

- The analysis of local services and development charges capital employed a marginal cost approach derived from **13 representative developments that had recently been constructed.** The capital analysis considered one-time and long-term replacement costs of growth-related capital.

- The analysis indicated that development in the **higher-density urban** category produced a surplus of $455/capita from the combination of tax and rate supported services. Development in the **lower-density urban greenfield** category had a negative variance of $409/capita while the **low-density village and scattered estate and low-density rural** categories had negative variances of $199/capita and $357/capita, respectively.

- Given the degree to which analyses of this type are influenced by modelling assumptions and data, the report emphasised that the study results should be regarded more as indicators of the comparative situation rather than as measures of absolute differences.

- It was noted that a contributing factor for the negative variances is that the estimated annual requirement for capital replacement were based on ideal asset replacement schedules. In this way, the four categories could be compared using the same criteria. However, the estimated "ideal" requirements were significantly higher than the City's actual average spending on capital replacements.

C. REVIEW OF THE CITY'S COMPARATIVE ANALYSIS

An analysis titled "2013 Growth Estimates Extrapolation" was prepared by the City in 2021. It considers three categories of development, High-density Urban Infill, Low Density Urban Greenfield and Low-density Rural Village. Using results from Hemson's 2013 report the analysis shows how they change when escalated to a 2020 level.

The analysis also includes comparable escalation results regarding a set of alternative estimates that were prepared by MGP in 2013. This analysis does not address the reasonableness of these estimates.

The analysis uses the key per capita results set out in Tables 15 and 16 of the 2013 report as the basis for the comparison (referred to as "Hemson 2012$"). The amounts in the table are escalated to a 2020$ level using a number of factors. The analysis considers cost and revenue separately.

- For costs, the construction price index is used (29.1%). Given the high-level nature of the analysis and the many different types of costs that are involved this is considered a reasonable choice as a composite index. It relates well to important aspects of the City's operations many of which involve significant infrastructure elements. Were a more granular service-by-service analysis to be undertaken, the use of other more specialized indices would be appropriate.

- For tax supported revenues, the actual percentage tax increase between 2012 and 2020 by housing type was used. This approach is very appropriate given its direct relationship to the source of revenue. Notwithstanding this, the approach does not take account of differential changes in assessments that may have occurred as of result reassessments.

- To escalate rate supported revenues, the 2012-2020 actual rate increase was used. This approach is considered very appropriate. It does assume that consumption patterns have remained the same over the 2012-2020 period which may not the case given the significant increase in rates.

The results of the analysis are shown in Table 1.

Table 1: 2013 Growth Estimates Extrapolation

	High Density Urban Infill ($/capita)						Low Density Urban Greenfield ($/capita)						Low Density Rural Village ($/capita)		
	Hemson 2012$	**Escalation**	**Hemson Escalated to 2020$**	**MGP 2012$**	**Escalation**	**MGP Escalated to 2020$**	**Hemson 2012$**	**Escalation**	**Hemson Escalated to 2020$**	**MGP 2012$**	**Escalation**	**MGP Escalated to 2020$**	**Hemson 2012$**	**Escalation**	**Hemson Escalated to 2020$**
Cost															
Tax Levy Supported	$1,175.00	$342.51	$1,517.51	$962.00	$280.42	$1,242.42	$1,510.00	$440.17	$1,950.17	$1,078.00	$314.24	$1,392.24	$1,601.00	$466.69	$2,067.69
Rate Supported	$165.00	$48.10	$213.10	$204.00	$59.47	$263.47	$289.00	$84.24	$373.24	$214.00	$62.38	$276.38	$365.00	$106.40	$471.40
Total Cost	**$1,340.00**	**$390.61**	**$1,730.61**	**$1,167.00**	**$340.18**	**$1,507.18**	**$1,799.00**	**$524.41**	**$2,323.41**	**$1,167.00**	**$340.18**	**$1,507.18**	**$1,966.00**	**$573.09**	**$2,539.09**
Revenue															
Tax Levy Supported	$1,455.00	$324.47	$1,779.47	$1,455.00	$324.47	$1,779.47	$1,011.00	$225.45	$1,236.45	$1,011.00	$225.45	$1,236.45	$1,235.00	$275.41	$1,510.41
Rate Supported	$340.00	$217.60	$557.60	$340.00	$217.60	$557.60	$379.00	$242.56	$621.56	$379.00	$242.56	$621.56	$533.00	$341.12	$874.12
Total Revenue	**$1,795.00**	**$542.07**	**$2,337.07**	**$1,795.00**	**$542.07**	**$2,337.07**	**$1,390.00**	**$468.01**	**$1,858.01**	**$1,390.00**	**$468.01**	**$1,858.01**	**$1,768.00**	**$616.53**	**$2,384.53**
Variance on Expenditures															
Tax Levy Supported	$280.00	($18.05)	$261.95	$493.00	$44.04	$537.04	($499.00)	($214.71)	($713.71)	($65.00)	($88.78)	($155.78)	($367.00)	($191.29)	($557.29)
Rate Supported	$175.00	$169.50	$344.50	$135.00	$158.13	$294.13	$90.00	$158.32	$248.32	$166.00	$180.18	$345.18	$168.00	$234.72	$402.72
Total Variance	**$455.00**	**$151.46**	**$606.46**	**$628.00**	**$202.18**	**$831.18**	**($409.00)**	**($56.40)**	**($465.40)**	**$100.00**	**$91.40**	**$189.40**	**($199.00)**	**$43.44**	**($154.56)**

Notes

Escalation of Costs based on Construction Price Index Inflation 2012-2020

Escalation of Tax Levey Revenue based on City actual tax increase percentage 2012-2020 by housing type

Escalation of Rate Supported revenue based on City actual rate increases 2012-2020

Costs in the Hemson Model are based on the ideal capital replacement rate which is not necessarily reflective of City practice

The Hemson and MGP reports dispute the methodology about whether a Marginal Cost Approach vs an Average Cost Approach

The Hemson and MGP reports dispute the assessment value of suburban residential dwellings

The results show that for the High-density Urban Infill, the positive variance between costs and revenues increased over the eight-year period. In contrast, for Urban Greenfield development, the negative variance occurred while for Rural Village development the negative variance declined.

The primary reason for these differential results is the significant difference between the increase in taxes (22.3%) and the increase in rates (64.0%). Since both Low-density Urban and Rural Village development have proportionately-high rate shares, compared to High-density Urban Infill, and because the rate increase between periods was significantly greater than for taxes, developments in these areas were correspondingly affected.

In summary, given its high-level nature, the approach taken by the City to the Comparative Analysis is considered reasonable. Of necessity, the analysis relies upon a limited number of inputs and assumptions. The alternative to this approach would be to update many of the data inputs and re-run the original analysis. This would be a very complex and time-consuming exercise which, given the purpose for which the current analysis is required, is likely not warranted at this time.

D. COMPARATIVE REVIEW OF THE 2013 AND 2021 CITY BUDGETS

In order to provide additional context to the City's Comparative Analysis and to cross-check the reasonableness of the results, a comparative review of the adopted 2013 and 2021 operating budgets was undertaken. The review considered the service areas of the tax supported Departments and the External Boards and Agencies. These account for approximately 89% of expenditure in both years.

Over the eight-year period expenditures increased by approximately 34.9% from $2.53 billion to $3.53 billion. This increase is the result of changes in three key drivers: inflation, increased service needs for the City's growing population and employment, and changes in the scope and level of services.

In order to provide an indication of the effective real change in expenditures adjustments for inflation and population and employment should be made.

- In keeping with the use of the Construction Price Index discussed above, an escalation of 24.5% was applied. This is the Index change in the cost of non-residential buildings for the Ottawa-Gatineau CMA between Q1 2013 and Q1 2021.

- While population and employment numbers are not yet available for 2021 from Statistics Canada, a reasonable estimate is that between 2013 and 2021 the combined growth of population and employment has been in the order of 170,000 which equates to growth of approximately 11.3%.

- Applying these two escalation factors to the 2013 expenditure budget of $2.53 billion provides an escalated budget estimate of $3.51 billion, very close to the actual amount of $3.53 billion. The inference that can be drawn from this is that after accounting for a reasonable allowance for inflation, the remaining amount equates to about the same rate of expenditure for the added population and employment as the 2013 base. Put simply, between 2013 and 2021 **the city's new residents and employees have required approximately the same level of expenditures as those already in the city.**

The implications of the overall assessment discussed above were also considered in relation to growth in the different categories of development. Of the overall growth in the city in the eight years, population growth has accounted for around 100,000 people. Predominately - in excess of 80%- they have located in the Low-density Urban Greenfield areas.

Based on the City's cost escalation analysis, this would tend to suggest that the anticipated escalation in costs resulting from this settlement pattern would have outpaced the rate of growth. This is because the 2013 report indicated that developments in this category were relatively costly to serve. However, as the report noted, a partial reason for this is the inclusion in the analysis of an "ideal" annual allowance for the capital replacements. Since the City has not been budgeting for "ideal" replacement amounts the actual expenditures would therefore not be as high as projected based on the calculated amounts in both the 2013 report and the City's escalation analysis.

This review has also considered the level of budget increases for particular services for which the 2013 report allocated relatively high or low shares of costs to the different categories of development in order to reflect the differential service demands they placed on each service. Three services warrant comment:

- **Fire Services**. In the 2013 report a relatively high share was allocated to the High-density Urban category. The 2013-2021 rate of increase shown in the budgets is below the average for the budget as a whole implying a small moderating impact on costs for this category.

- **Transportation Services and Roads**. The Rural Village and Scattered Rural categories proportionately have a significantly higher allocation. The rate of increase in costs for these services is somewhat above the average. This suggests that Rural developments would experience somewhat higher costs for these services compared to other categories.

- **Transit Services**. The Low-density Urban Greenfield category was allocated a comparatively large share of transit costs. The comparative budgets indicate that the cost of this service has risen by a higher rate than the average increase for services. This would result in a proportionately higher cost for this category of developments.

While the service-specific impacts noted above would change the comparative results for the categories they affect, overall, they are not significantly large in relation to the cost of services. It is also important to note that the allocations in the 2013 report also included capital components that are not reflected in the operating budgets considered in this review.

E. ANALYSIS OF THE IMPACT OF ASSESSMENT CHANGES FOR REPRESENTATIVE DEVELOPMENTS

A key component of the 2013 Report and the City's Escalation Analysis are the property taxes that developments in the respective categories generate. The estimated amounts used in the analysis were derived using the assessments of representative new developments. Taxes were calculated by applying the appropriate tax rates. The taxes were then expressed on a per-capita basis using persons per unit factors appropriate for the different unit types. For the City's escalation analysis, the actual tax increase percentage was used. While a reasonable approach, it does not take account of the influence that relative changes in assessments that have occurred in the intervening period.

To address this, the 2021 assessments for the units in the representative developments were compared to the assessments used in the 2013 report. Since that time, there has been a reassessment with the recent assessments now being on a 2016 base year. In the normal course of events, the assessments would have been updated to a 2020 base. However, due to the COVID-19 pandemic, the Ontario government postponed the update. Although the assessments used in this review do not reflect the most current values, they do account for some of the value changes that have occurred since the original analysis. The average changes by category of development are:

- High-density Urban 124.7%
- Low-density Urban 128.3%
- Rural Village 124.5%
- Scattered Rural 131.5%

These changes compared to the average for the four categories of 127.0%. For the Scattered Rural category which showed the largest variance (3.5%), the effect on the tax levy amount in the City's analysis would be approximately $53. For the Low-density Urban category, which has experienced the bulk of the recent growth, the variance from the average is 1.0%. When the delayed reassessment results are implemented, a recalculation using the more up to date values would be warranted.

F. CONCLUDING OBSERVATIONS

This purpose of this review has been to test the approach, assumptions and results of the City's high-level analysis of the escalation in municipal costs and revenues for different categories of development since Hemson's 2013 Cost of Growth report. The issue is important as it provides a financial context for the City's growth management planning process. Our conclusions are as follows:

- The 2013 report was extremely detailed. It relied upon a wide variety of data that was difficult to obtain. For these reasons it could not be easily updated to reflect the changes that have occurred since it was undertaken. Instead, the City prepared a high-level analysis using the key results of the 2013 study as the base. These results were escalated using the construction cost index to escalate costs and the City's tax and rate changes to escalate revenues.

- While this approach is extremely simplified compared to the approach used in the 2013 study, it is reasonable as a general indication of how the relative costs and revenues have changed. The results of the City's analysis suggest that the net differentials between costs and revenues for the various categories of development have changed. Analysis of the results suggests that the significant change in the City's rate is the principal cause for the change.

- An alternative perspective regarding cost escalations was developed using the City's 2013 and 2021 budgets for tax supported services. The escalation that could be attributed to inflation was calculated using the construction cost index. Allowance for growth was estimated based on increases in the City's population and employment. The result of this analysis suggests that, in terms of operating costs, the City's costs of growth have generally been in line with the amounts required to provide services to the existing base.

- Comparative budget increases for Transportation, Roads, Fire and Transit services were specifically considered since, relative to most other service the allocations developed in the 2013 study varied from the general allocation pattern. However, the effect of particular variances is not significant in relation to the overall costs.

- Relative changes in assessments were examined since this factor was not considered in the City's analysis. Compared to the average change, only the amount for the representative developments in the Scattered Rural category had the largest variance. Analysis of the full implications of changes in the value for new developments located in the areas considered cannot be undertaken a present as the reassessment to the 2020 base has been postponed. Given the significance of relative amounts of taxes, this analysis should be undertaken once the information becomes available.

- Given the simplifying constraints that a high-level analysis of this type imposes, conclusions are limited to those related to the broad results. The City's analysis indicates that while in the period between 2013 and 2021 there have been some changes in the costs and revenues for the different categories of development, the amounts of increases and decreases have not been significant enough to alter the overall pattern that was identified in Hemson's 2013 report. Analysis conducted in this review, while approached from a different perspective, supports this overall conclusion.