

COMPARATIVE FISCAL IMPACT ANALYSIS OF GROWTH STUDY

City of Greater Sudbury

HEMSON Consulting Ltd.

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EXECUTIVE SUMMARY

The intent of the Comparative Fiscal Impact Analysis of Growth Study is to build an understanding of the financial implications associated with residential land use planning decisions. It synthesizes various data sources to estimate the comparative servicing costs, and revenues, associated with various types of development. The analysis considers both the built form (single detached, rows, apartments etc.) and the location of development (Urban, Suburban, Rural).

Key study findings are summarized below. It is noted that results are presented on an aggregate basis, while there are likely to be significant variations at the individual site level:

- In most cases, new development contributes adequate revenue to offset additional servicing costs. This stems from new dwelling units having higher average assessed values than the existing community.
- Servicing costs are typically higher in more distant areas of the City and less in urban areas. This is particularly evident for services reliant on linear infrastructure.
- For certain services, an infrastructure funding gap can be observed when comparing the City's current capital spending to that required according to ideal asset replacement schedules. This finding is present in most Ontario municipalities and as growth occurs the gap will continue to grow.
- The City should encourage development in high density urban areas as it is generally the most cost-efficient. Practically, however, not all future growth can be accommodated by this form of development, particularly families. The City should encourage the development of these units throughout the City, which would reduce cost disparities.
- The City should encourage the development of larger apartment units suitable for families as the cost and revenue per capita values are favourable. The construction cost and sale price of apartments, on a per square foot basis, is more expensive than low density units. These market elements are not easily overcome.

- The City should focus growth in areas that have existing capacity (especially for water, wastewater, fire and transit services) to maximize development revenue and minimize additional infrastructure costs.

The fiscal impact of growth analysis for the City of Greater Sudbury produced results which are commonly found across other jurisdictions. However, it is important to note that financial factors are one of many considerations that guide the City's planning policies. For example, high density apartments may be more cost effective for the City, but a large condominium apartment that could accommodate a family of five would be very costly for the landowner.

The findings of this report provide guiding principals for fiscally sustainable development practices, but the conclusions should not be applied on a unit by unit basis. In this regard, the creation of one additional rural unit is not likely to have a impact on the City's finances but if the proportionate share of all new development was to dramatically shift from urban units to low density rural units it would have an impact on the City's budget. The type of analysis undertaken in this report should be reviewed periodically to ensure fiscal considerations continue taken into account during the development of Official Plan policies.

I INTRODUCTION

The preparation of the Comparative Fiscal Impact Analysis of Growth Study is the culmination of important work that the City of Greater Sudbury has undertaken over the last several years. In this regard, various data sources have been used to estimate the overall costs and revenues associated with new development in the City. While the analysis ultimately summarized in a series of per capita and household values, this report is intended to help guide the City from a high-level perspective. Two underlying questions to be considered are: does development adequately contribute to the increased costs of providing municipal services? And, are certain types of developments more fiscally beneficial than others?

A. STUDY BACKGROUND AND CONTEXT

The City of Greater Sudbury is a unique municipality within Ontario. The City is the 14th most populous city in the province; however the land area is the largest of any local municipality. Through amalgamation in 2001, the former municipalities of Sudbury, Valley East, Rayside-Balfour, Nickel Centre, Onaping Falls, Walden and Capreol were combined into one large single-tier City, now known as Greater Sudbury. This history has produced a City with vast array of settlement areas and rural development spread out over a large geographic area. In terms of service delivery, the geographic nature of the City requires a complex network of municipal infrastructure to service residents and businesses.

The City has wisely placed emphasis on ensuring future development is managed in a fiscally sustainable way and the full cost and revenue implications of growth are considered. Hemson Consulting Ltd. was retained in 2012 to undertake a series of studies for the City relating to growth management. The interrelated studies are:

- Growth Outlook to 2036
- Development Charges Study
- Comparative Fiscal Impact Analysis of Growth Study

The Growth Outlook Study involved the preparation of population, household and employment forecasts for the City to 2036. Two scenarios were prepared as part of the study: the first was a reference, or conservative forecast whereas the second scenario was predicated on higher rates of growth. The conservative growth forecast, which was presented to Council in May 2013, was selected for City planning and financial forecasting purposes.

The Development Charges Study was released in April 2014 followed by Council passage of the City's current development charges by-law. For this exercise, the 2014 development charges study was significant as it contains a ten year forecast of development-related expenditures that is referenced in this report.

The intent of the Comparative Fiscal Impact Analysis of Growth Study is to synthesize various data sources to estimate the comparative servicing costs, and revenues, associated with various types of development. The analysis considers both the built form (single detached, rows, apartments etc.) and the location of development (Urban, Suburban, Rural).

B. SEVERAL KEY DATA SOURCES ARE USED THROUGHOUT STUDY

Table 1 shows the principal data sources used in the study.

Key Data Sources			Table 1
Development-Specific	Sub-Geography	City-Wide	
• GIS based MPAC Data • Plans of Subdivision	• Departmental Budgets • GIS service delivery data • 2005 Transportation Study • Census Releases • Growth Outlook Report	• 2013 Operating and Capital Budget • Tangible Capital Asset Inventory • 2014 Development Charges Study	

Development-specific or sub-geographic data is preferred since it best aligns with the marginal cost approach. In the absence of development-specific data, the next best alternative is sub-geographic data.

For services for which development-specific or sub-geographic based data were not available, City-wide sources have been used to estimate average costs. This approach was employed largely for operating expenditures as many departments either do not have cost data at sub-geographic level or because the cost data at the geographic level does not show any variations.

C. ANALYSIS FOCUSES ON THE RESIDENTIAL SECTOR

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 geographic areas and unit types. A detailed allocation was not undertaken for the non-residential sector, however net costs have been calculated for certain service categories including water and wastewater.

For tax supported services, shares of population and employment were used to split net costs between the sectors. The existing City-wide split of 67% residential and 33% non-residential is utilized throughout the report.

D. SEVERAL GEOGRAPHIC DIFFERENTIATIONS ARE USED

Each service category has area-specific data associated with various unique geographies in the City of Greater Sudbury. Most services are split into three geographic categories as follows:

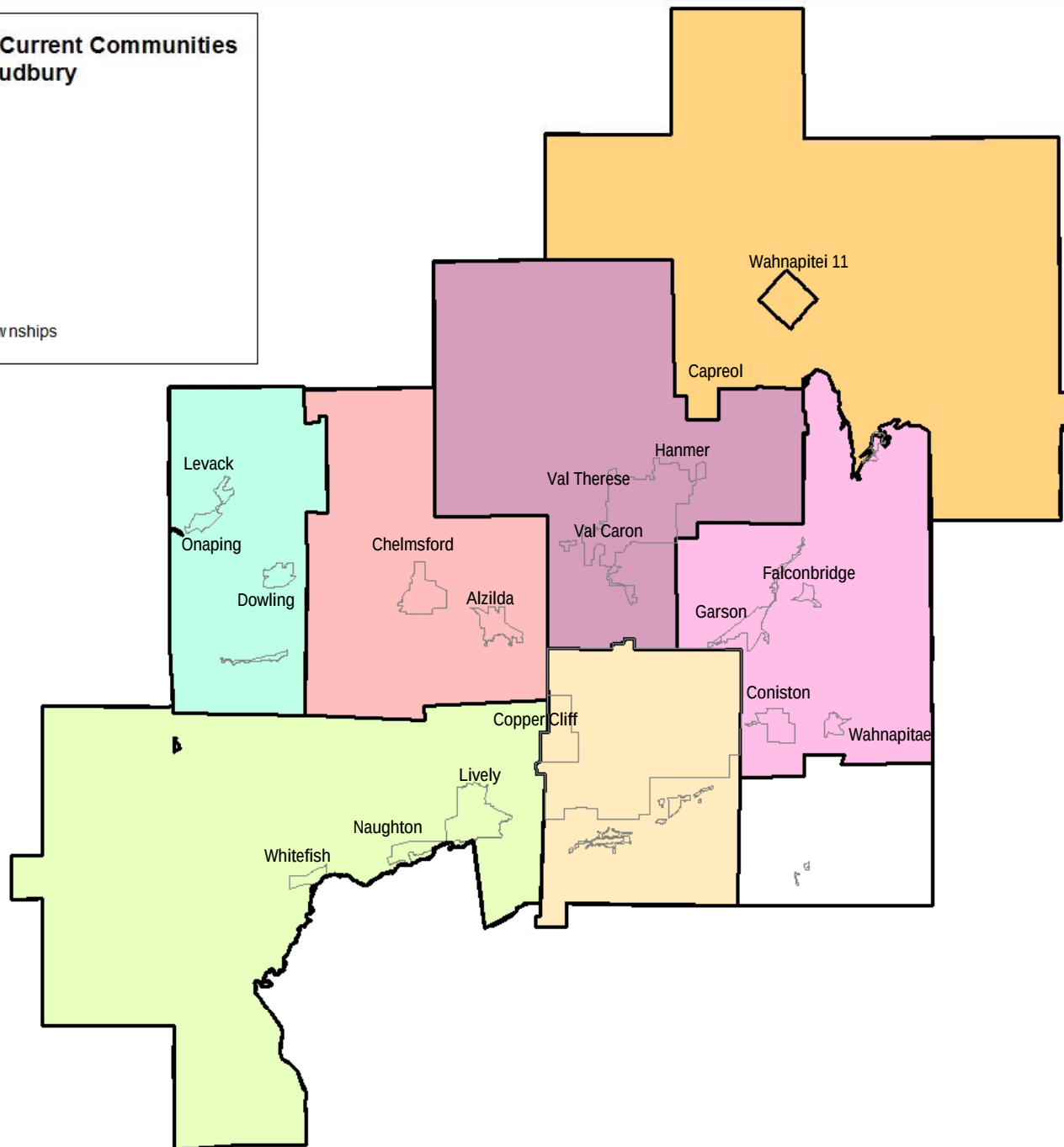
- Urban area: For the purposes of this analysis we have used the former City of Sudbury as a proxy to represent urban development. This is the most built-up area of the municipality and this approach aligns with the manner in which the City's data is organized.

- Suburban areas: These include the community settlement areas outside of the Urban area. For reference, the City's former municipalities and urban settlement areas are shown in Figure 1; and
- Rural areas: Locations outside the Urban and Suburban areas.

Fire Services differs slightly with the geographic categories of Urban (full time), Valley East (composite) and Other Suburban and Rural (volunteer). Environmental Services is split into Urban Areas and Rural Areas only. Finally, the City's water and wastewater network is separated into Urban and Suburban areas only.

Former CSD's & Current Communities City of Greater Sudbury

- Sudbury
- Walden
- Rayside Balfour
- Valley East
- Nickle Centre
- Onaping Falls
- Wanup
- Capreol & NE Townships



E. PER HOUSEHOLD AND PER CAPITA VALUES ARE SHOWN FOR EACH SERVICE CATEGORY

In addition to the geographic delineations, the analysis has been separated into two housing categories: low and high density. Low density includes single detached, semi detached and row townhouses. High density development includes apartments and stacked-style townhouses. The Statistics Canada definitions of the various dwelling units were used herein, which is consistent with the dwelling unit categories in the Growth Outlook to 2036 report. As noted later in the report, some City departments consider townhouses a high density use. Because the total number of townhouse units in the City is quite small, this does not have a significant impact the results.

Per capita, or per person, values are also provided throughout the report. For some services, the per capita costs for the two dwelling unit categories are different and, in other cases, they are identical. The following person per unit assumptions are used throughout the report. They are based on 2011 Statistics Canada Nation Household Survey data.

	Low Density	High Density	Overall
Existing Persons Per Unit	2.61	1.63	2.34
Persons Per Unit in New Dwellings	2.89	1.59	2.45

Newer low density dwelling units tend to have a higher population per unit than existing dwellings. This situation arises in most municipalities across Ontario and is due to the aging population in existing units.

F. APPROACH USED IN THIS STUDY IS BASED ON BLEND OF AVERAGE AND MARGINAL COST ELEMENTS

The analysis in this report is predicated on both an average and marginal cost approach. Under the average cost approach, municipal expenditures (and recoveries) for each service area are estimated. These amounts are then translated into per household and per capita amounts. The underlying assumption of the approach is that the average

amount that the City currently expends on the given service is indicative of what is required to service new units and residents.

While the average cost analysis provided a substantial amount of information, it has limitations with respect to growth-related capital. In particular, it does not take into account the potential benefit of some development making use of existing capacity. To address this concern the development charges study has also been considered in this analysis for growth-related capital. More specifically, the replacement contribution for infrastructure required as a result of development is estimated using the City's useful life assumptions. Development was also deemed to be responsible for the tax funded statutory 10% development charges discount, where applicable.

All costs and revenues in this report are presented on an annual basis.

G. STUDY STRUCTURE

The remainder of this study is generally split between tax supported services and utility rate supported services. Chapter II describes the cost analysis for tax supported services and revenue projections. Chapter III provides the cost and revenue analysis for water and wastewater services. Chapter IV provides the overall findings and concluding remarks.

II ANALYSIS OF TAX SUPPORTED SERVICES

As discussed in the previous chapter, the cost of growth analysis was completed on a service-by-service and location-by-location basis. This chapter provides the details of the analysis for each municipal tax supported service. Findings and conclusions are described in Chapter IV.

All of the City's tax supported services are considered in the analysis. In some cases services or departments are combined when geographic or built form fiscal variations are not anticipated.

The analysis is initially shown at the cost level, which is followed by the revenue, or taxation, side of the analysis considered in the final section.

A. TRANSPORTATION

Transportation infrastructure includes the emplacement and operation of road, sidewalk, streetlight, signal, culverts and similar infrastructure across the City.

1. Transportation Methodology

Two approaches were used to apportion the City's roads-related operating costs to the various geographies. The first approach considered average daily vehicle kilometres travelled. Using the City's 2005 Transportation Study origin-destination survey, the average number of trips between each community was multiplied by trip length to estimate the number of kilometres travelled across the City's road network in a day. Trips originating from or finishing outside Greater Sudbury are excluded. This approach generally reflects use of the road.

For the second method of apportioning costs, a GIS layer showing all road types and lengths across the City was used to estimate the total square metres of road right-of-way in each geographic area. Local and minor collector roads were separated from arterial and major collector. Local roads are excluded given that many facilities are in non-residential areas and reflect historic resource activity rather than residential growth patterns. The approach generally considers the requirement to have a road regardless of how much it is used.

As shown in Table 2, the two approaches were weighted 75:25 respectively to create an overall apportionment that considers use and necessity. The Rural category considers households/people residing in non-settlement areas across the City.

Table 2 Apportionment of Road Operating Costs			
Geographic Area	Trip Distance Apportionment	Arterial & Major Collector Area Apportionment	Two Approaches Weighted 75:25
Urban	45.2%	37.1%	43.2%
Suburban	39.0%	23.1%	35.0%
Rural	15.8%	39.8%	21.8%
Total	100.0%	100.0%	100.0%

Table 2 shows that the Rural area has the most square metres of roads (39.8%), however less trips are generated from this area than the Urban area, for example. Conversely, the Urban area has a lower quantity of roads but they are used more frequently.

Sidewalk and streetlight operating costs were apportioned using total road area shares across the geographies. Rural areas were assumed to have no sidewalks and streetlights.

Table 3 Apportionment of Sidewalk and Streetlight Operating Costs	
Geographic Area	Arterial, Collector and Local Road Area Apportionment
Urban	59.1%
Suburban	40.9%
Rural	0.0%
Total	100.0%

The 2013 budget was used as the basis of the operating cost estimates. For all road, sidewalk, and streetlight operating costs, 67% of the expenditures were deemed to be related to the residential sector. This ratio is based on shares of population and employment in 2013.

Future capital contributions were estimated using the City's 2014 Development Charges Study, as well as standard useful life and replacement cost assumptions. The

existing annual capital contribution, based on the 2013 budget, is also shown for comparison purposes.

2. Transportation Findings

Table 4 provides the estimated annual road operating costs for eight geographies. The “Total” row represents the City-wide average. The Urban area, which has the highest population density of all the geographies, has the lowest cost per household and capita. Rural areas have the highest costs per household.

Roads Operating Costs Table 4					
Geographic Area	Net Operating Costs (\$000)	Residential Share of Operating Costs (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Urban	\$14,042.5	\$9,451.1	\$282	\$176	\$108
Suburban	\$11,393.4	\$7,668.2	\$350	\$219	\$134
Rural	\$7,102.6	\$4,780.3	\$558	\$349	\$214
Total	\$32,538.4	\$21,899.7	\$342	\$214	\$131

Table 5 provides the average streetlight and sidewalk operating costs for the locations.

Streetlight and Sidewalk Operating Costs Table 5					
Geographic Area	Net Operating Costs (\$000)	Residential Share of Operating Costs (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Urban	\$2,097.5	\$1,260.6	\$38	\$23	\$14
Suburban	\$1,453.1	\$1,142.7	\$52	\$33	\$20
Rural	\$0.0	\$0.0	\$0	\$0	\$0
Total	\$3,550.7	\$2,403.3	\$38	\$23	\$14

Due to the large number of local and collector roads in the Urban area, this location has the highest cost. However, this geography has the highest population density and results in a lower cost per capita than in the Suburban area. It is likely that many of these roads are not serviced to a high standard, therefore caution should be exercised when drawing conclusions from the values in the Suburban area. The GIS data used in the analysis considers quantity of roads rather than quality.

The initial cost of local roads required through planning agreements and arterial roads required through development charges are the responsibility of developers. Only the replacement shares of these projects are included in the analysis. Table 6 provides the annual capital contribution calculated using the 2013 Budget and the development-related contribution based on projects identified in the development charges study (for arterial and major collector roads). The local road replacement contribution amount is based on the City's current average annual capital contribution.

Roads Capital Costs					Table 6
Capital Contribution	Low Density Units		High Density Units		
	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)	
Existing Capital Contribution	\$274	\$105	\$171	\$105	
Development-Related Share - Arterial	\$230	\$80	\$126	\$80	
Development-Related Share - Local	\$290	\$100	\$0	\$0	
Total Development-Related Contribution	\$520	\$180	\$126	\$80	

High density built forms such as apartments do not require local roads. However, arterial and major collector roads will likely be required at a similar per capita amount to low density residents.

A summary of the transportation analysis is provided in Table 7.

Total Transportation Costs					Table 7
Geographic Area	Low Density Units		High Density Units		
	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)	
Urban	\$839	\$302	\$326	\$202	
Suburban	\$922	\$334	\$377	\$234	
Rural	\$1,078	\$394	\$475	\$293	
Total	\$899	\$325	\$363	\$225	

The denser areas of the City tend to have lower costs per household and per capita with the Urban area being the lowest. High density units, irrespective of where they are constructed, have lower transportation costs due to the absence of local road requirements.

B. FIRE SERVICES

Similar to many other large cities with urban and rural residents, the City of Greater Sudbury Fire Department is staffed by full time, composite and volunteer firefighters. The appropriate staffing arrangement is largely driven by call volumes and Provincial response guidelines. It is important to note that cost variations for the provision of Fire services between areas must consider the service standard provided. For example, rural areas typically cost less to service, however a lower level of service is often provided. However, if hypothetically all future growth were to occur in rural areas, the service requirements would increase and volunteer forces would no longer be adequate.

Due to the varying levels of service that are provided, the City of Greater Sudbury varies the tax rates based on the staffing structure. The three tax rates are shown below:

- Career - this rate is applied to properties in the Urban area
- Composite - this rate is applied to the properties in the former City of Valley East
- Volunteer - this rate is applied to all other areas of the City of Greater Sudbury

1. Fire Methodology

Much of the City's budget data is separated into the service areas, which were also utilized in this analysis. The City's 2013 operating budget was then further split into fixed costs and variable costs. Fixed costs include administration, facilities maintenance, training, and utility expenses. Other costs such as firefighter salaries benefits and materials were deemed to vary and were categorized into one of the three service areas.

Capital expenditures were analysed at the City-wide level and were not deemed to vary significantly between areas. For example, all areas require stations, trucks, turn-out gear etc. The 2013 capital budget capital contribution is used in the calculation of the existing contribution whereas the development charges study was used to show the anticipated marginal cost for each new dwelling unit.

2. Fire Findings

Table 8 shows the City-wide fixed and variable operating costs. Variable expenditures represent 69% of the total costs.

Table 8					
Fire Operating Costs					
Geographic Area	Net Operating Costs (\$000)	Residential Share of Operating Costs (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Fixed Operating Costs	\$6,479.9	\$4,361.2	\$46	\$29	\$18
Variable Operating Costs	\$14,638.3	\$9,294.3	\$98	\$61	\$37
Total	\$21,118.2	\$13,655.5	\$144	\$90	\$55
Variable Shares					
Urban	\$12,200.8	\$7,332.7	\$208	\$130	\$80
Valley East	\$1,417.28	\$1,175.2	\$122	\$76	\$47
Other Suburban and Rural	\$1,020.25	\$786.3	\$41	\$26	\$16

The Urban area, being a full-time serviced area, has a variable operating cost of \$80 per capita, which is significantly higher than Valley East (\$47) and other Suburban and Rural areas (\$16). Fixed operating costs of approximately \$18 per capita also apply to all areas.

Fire capital contributions were estimated at the City-wide level as presented in Table 9. The 2013 Budget contribution of \$4.86 per capita per year is higher than the development charges-based estimated growth-related capital contribution of \$3.89 per capita. This indicates that future development can make use of existing facilities, although these facilities will require reoccurring replacement.

Table 9					
Fire Capital Costs					
Geographic Area	Total Contribution (\$000)	Residential Share of Contribution (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Existing Capital Contribution	\$1,207.1	\$812.5	\$12.69	\$7.93	\$4.86
Development-Related Share			\$11.25	\$6.17	\$3.89

The summary of the Fire analysis is shown in Table 10. The Suburban (other than Valley East) and Rural areas are the least expensive to service given the volunteer compliment (\$37 per capita per year). The composite, Valley East, area is \$68 per capita while the full-time Urban area is most expensive at \$101 per capita. Given most of the City of Great Sudbury's households and population is within the full-time serviced area, the overall City average is \$59 per capita.

Table 10			
Fire Total Costs			
Geographic Area	Per Household (\$)		Per Capita (\$)
	Low Density	High Density	
Urban	\$265	\$165	\$101
Valley East	\$179	\$111	\$68
Other Suburban and Rural	\$98	\$61	\$37
Total	\$155	\$96	\$59

C. EMERGENCY MEDICAL SERVICES

Emergency Medical Services (EMS) in the City of Greater Sudbury are responsible for providing medical services for local residents and employees and to those requiring assistance outside the City limits through agreements with neighbouring municipalities. Due to the large geographic nature of the City, EMS staff constantly analyse data in order to best provide service to all areas of the City. However, on a per unit/person basis, as one would expect, certain remote areas of the City require more staff time to service than others due to the physical distance to on duty paramedics.

1. EMS Methodology

The City's EMS department has a detailed GIS-based inventory of all calls received by the service including the time required to complete each call. In consultation with EMS staff, it was determined that the most appropriate way of analysing the data would be through separating the City into four general geographies: Urban, Suburban, Rural and External (outside the City which are excluded in the analysis). All calls from 2010-2012 were considered in the analysis.

It was determined that only the staff time from "Enroute to Arrived Scene" and the staff time from "Depart Scene to Arrive Destination" would vary by geography. "Arrive Destination" is predominantly Health Sciences North.

Using the large sampling of calls it was determined that the Urban area required 19% less staff time than the City-wide average call. This is due to the location of hospital within its boundaries and close proximity of paramedics available to respond to calls. The Suburban area required 25% more staff time on an average call and Rural areas 57%. These percentages are not applied to all EMS operating costs since many costs are fixed.

Fixed costs include management and administration, facilities maintenance, utilities etc. Fixed costs also include the time paramedics spend not travelling to and from calls. This includes hospital offload staff time, time awaiting calls, time reaching response zone and time assisting patients on scene. Of the \$15.38 million operating budget, only \$2.89 million, or 18%, was deemed to have the potential to vary by geography.

Capital cost requirements were calculated using two methods. First, the City's existing average capital contribution was used to estimate future vehicle and equipment contributions. These costs were weighted to the three geographic areas using the same staff time ratios described above. The development charges study was used to estimate future capital contributions associated with new station development. This is a City-wide number calculated by applying the City's useful life and replacement cost assumptions to the development-related projects identified in the Background Study.

2. EMS Findings

Table 11 provides the summary of the allocation of the EMS operating costs.

EMS Operating Costs					Table 11
Geographic Area	Net Operating Costs (\$000)	Residential Share of Operating Costs (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density (\$)	High Density (\$)	
Fixed Operating Costs	\$12,486.4	\$8,403.8	\$131	\$82	\$50
Variable Operating Costs	\$2,894.4	\$1,948.0	\$30	\$19	\$12
Total	\$15,380.8	\$10,351.9	\$162	\$101	\$62
Variable Shares					
Urban			\$25	\$15	\$9
Suburban			\$38	\$24	\$15
Rural			\$48	\$30	\$18

As shown in the table, the Urban area has the lowest variable operating cost at \$9 per capita, which is \$6 lower than the Suburban area. This variation is likely due the location of the hospital within the Urban area. Rural areas are the most expensive to service at \$18 per capita. The time required to reach the scene of the call and the time required to reach the hospital are highest in this category. Fixed operating costs of \$50 per capita also apply City-wide.

The capital cost apportionment for EMS is shown in Table 12. Consistent with the operating cost apportionment, the Urban area has the lowest required annual capital cost contribution while the Rural areas have the highest.

Table 12					
EMS Capital Costs					
Geographic Area	Total Contribution (\$000)	Residential Share of Contribution (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Station Development - DC Study			\$3.50	\$1.92	\$1.21
Statutory 10% - DC Study			\$1.20	\$0.66	\$0.42
Subtotal DC (Fixed)			\$4.70	\$2.58	\$1.63
Equip. & Vehicles (Fixed)	\$706.4	\$475.4	\$7.42	\$4.64	\$2.84
Equip. & Vehicles (Variable)	\$199.3	\$134.1	\$2.09	\$1.31	\$0.80
Total Equip. & Vehicles	\$905.7	\$609.6	\$9.52	\$5.95	\$3.65
Variable Shares					
Urban			\$1.69	\$1.06	\$0.65
Suburban			\$2.61	\$1.63	\$1.00
Rural			\$3.30	\$2.06	\$1.26

The overall operating and capital marginal costs by geography are shown in Table 13. The annual marginal cost for each new Rural resident is \$74 per capita, for an Urban resident, \$65 per capita and \$70 per capita for a Suburban resident. The overall City-wide average is \$67 per capita.

Table 13			
EMS Total Costs			
Geographic Area	Per Household (\$)		Per Capita (\$)
	Low Density	High Density	
Urban	\$170	\$106	\$65
Suburban	\$184	\$115	\$70
Rural	\$195	\$121	\$74
Total	\$176	\$110	\$67

D. POLICE SERVICES

The approach used to estimate the cost of police services by area generally follows the same approach to that used for EMS. Presently, Greater Sudbury Police does not have a detailed time analysis of each call linked to GPS coordinates. However, we understand that this system is being developed. As such, EMS data was generally used as a proxy.

1. Police Methodology

As described in the prior EMS section, only the time spent travelling to a call and the time spent travelling from a call to the hospital was estimated to vary by location. For police, time travelling from a call to a central location, such as a holding cell, is less frequent since many calls are resolved on scene. Accordingly, only travel time from call to scene was deemed to vary by geography for police services. This conservative approach implies that only \$1.87 million, or 4%, of the \$47.47 million operating budget is deemed have the potential to vary by location.

Capital costs were calculated using two methods. First, the City's existing average was used to estimate future vehicle and equipment contributions. These costs were weighted to the three geographic areas using the same staff time ratios described above. The development charges study was used to estimate future capital contributions associated with new station development. A City-wide cost per capita/household was used for stations.

2. Police Findings

Table 14 presents the summary of the operating cost analysis for police services. Fixed costs are estimated at \$184 per capita. The City-wide variable costs are estimated at \$8 per capita, which is slightly higher than the Urban value of \$6 and lower than the Suburban per capita value of \$10 and the Rural value of \$13.

Table 14					
Police Operating Costs					
Geographic Area	Net Operating Costs (\$000)	Residential Share of Operating Costs (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Fixed Operating Costs	\$45,602.7	\$30,692.4	\$479	\$299	\$184
Variable Operating Costs	\$1,868.2	\$1,257.4	\$20	\$12	\$8
Total	\$47,470.8	\$31,949.8	\$499	\$312	\$191
Variable Shares					
Urban			\$14	\$9	\$6
Suburban			\$27	\$17	\$10
Rural			\$34	\$21	\$13

The capital cost apportionment for Police is shown in Table 15. Similar to the operating cost apportionment, the Urban area has the lowest required annual capital cost contribution while the Rural areas have the highest. A large majority of capital costs are fixed and only a small portion of future capital costs are anticipated to vary by location.

Table 15					
Police Capital Costs					
Geographic Area	Total Contribution (\$000)	Residential Share of Contribution (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Station Development - DC Study (Fixed)			\$5.95	\$3.26	\$2.06
Equip. & Vehicles (Fixed)	\$2,369.7	\$1,594.9	\$24.90	\$15.56	\$9.54
Equip. & Vehicles (Variable)	\$33.4	\$22.5	\$0.35	\$0.22	\$0.13
Total Equip. & Vehicles	\$2,403.1	\$1,617.4	\$25.25	\$15.78	\$9.67
Variable Shares					
Urban			\$0.26	\$0.16	\$0.10
Suburban			\$0.48	\$0.30	\$0.19
Rural			\$0.61	\$0.38	\$0.24

The overall operating and capital marginal costs by geography are shown in Table 16. The annual marginal cost for each new rural resident is \$209 per capita, \$201 per capita for an Urban resident and \$206 per capita for a Suburban resident. The overall City-wide average is \$203 per capita.

Table 16			
Police Total Costs			
Geographic Area	Per Household (\$)		Per Capita (\$)
	Low Density	High Density	
Urban	\$525	\$327	\$201
Suburban	\$538	\$335	\$206
Rural	\$545	\$340	\$209
Total	\$530	\$331	\$203

E. TRANSIT

The Transit service category includes traditional bus service and Trans Cab service. Handi transit is excluded and is considered separately in the following section.

All Greater Sudbury residents can use Transit services provided by the City. However, the City does vary its transit tax rate in accordance with primary benefits received. The transit tax rate is currently separated into three categories:

- Urban - applies to properties in the Urban area
- Commuter Rate - applies to all other areas of the City of Greater Sudbury with the exception of the formerly unorganized areas
- No Rate - applies to formerly unorganized areas

These categories were altered slightly for the purposes of this study. The Urban category was maintained. However, the areas with commuter service were separated into the Suburban areas, Rural areas with Trans Cab and Rural areas without any service.

1. Transit Methodology

It was assumed that the Urban area would continue to contribute 76.3% of overall net transit costs (after fare recoveries). This assumption implies that transit costs and revenues across the City will increase at similar rates.

Bus-related transit operating costs in the commuter areas were split according to the number of dwellings within one kilometre of a transit route. Similarly, net Trans Cab costs were split according to the number of dwelling units within Trans Cab service

areas. A proportionate share of net bus costs were also applied to Trans Cab areas. No costs were assigned to Rural areas without bus or Trans Cab services.

Development-related transit capital costs were applied City-wide.

2. Transit Findings

Table 17 below provides the operating costs for Transit. Areas with Trans Cab service are the most expensive to service on a per capita and per household basis. The Urban area has a higher per capita net cost than the Suburban area (but also a higher tax rate).

Transit Operating Costs					Table 17
Geographic Area	Net Operating Costs (\$000)	Residential Share of Operating Costs (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Total	\$11,764.4	\$7,882.2	\$128	\$80	\$49
Variable Shares					
Urban ¹	\$6,962.1	\$4,184.3	\$119	\$74	\$45
Suburban ¹	\$1,813.7	\$1,426.2	\$61	\$38	\$23
Rural - Cab Service	\$660.8	\$444.8	\$150	\$94	\$58
Rural - Unserved	\$0.0	\$0.0	\$0	\$0	\$0

1. Cab service rate may apply to certain areas

For capital costs the future development charges-based capital contribution is \$7.43 per capita, which is higher than the City's current contribution amount of \$2.26.

Table 18					
Transit Capital Costs					
Geographic Area	Total Contribution (\$000)	Residential Share of Contribution (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Existing Contribution	\$561.2	\$377.7	\$5.90	\$3.68	\$2.26
Variable Shares					
Urban ¹	\$428.1	\$257.3	\$7.29	\$4.55	\$2.79
Suburban ¹	\$133.1	\$104.7	\$4.46	\$2.78	\$1.71
Rural - Cab Service	\$0.0	\$0.0	\$0.00	\$0.00	\$0.00
Rural - Unserviced	\$0.0	\$0.0	\$0.00	\$0.00	\$0.00
Development-Related Share – DC			\$15.99	\$8.77	\$5.53
Development-Related Share - 10%			\$5.51	\$3.02	\$1.90
Development-Related Share - Total			\$21.50	\$11.79	\$7.43

1. Cab service rate may apply to certain areas

The combined operating and capital transit costs are shown in Table 19. Cab serviced areas and the Urban area are the most costly, but also receive a different service than the other areas.

Table 19			
Transit Total Costs			
Geographic Area	Per Household (\$)		Per Capita (\$)
	Low Density	High Density	
Urban ¹	\$140	\$86	\$53
Suburban ¹	\$82	\$50	\$31
Rural - Cab Service	\$172	\$106	\$65
Rural - Unserviced	\$0	\$0	\$0
Total	\$121	\$74	\$45

1. Cab service rate may apply to certain areas

F. HANDI TRANSIT

Handi Transit operates in a different manner than traditional transit services. As opposed to defined routes, Handi Transit is provided through a trip booking approach. The accessible transit service is offered throughout the City including areas not serviced by traditional transit.

The service is used by individuals who are unable to access traditional transit services due to physical disabilities. Accessible transit is governed by Provincial legislation and municipalities cannot simply choose to reduce services. The fare-based cost recovery rate for accessible transit services is typically much lower than traditional transit. In the City of Greater Sudbury, fares recover less than 10% of the cost of providing the service.

1. Handi Transit Methodology

When analysing the net cost of proving Handi Transit services, the trip distance apportionment method used for roads operating costs was deemed to be the most appropriate. This approach involves the use of the City's origin-destination study to estimate the average number of kilometers travelled to service each geographic area. The general premise is that areas requiring longer trips should be apportioned a relatively higher percentage of the costs.

2. Handi Transit Findings

Handi Transit net operating expenditures presented in Table 20 below also include capital expenditures embedded in purchased contracts.

Handi Transit Operating Costs					Table 20
Geographic Area	Net Operating Costs (\$000)	Residential Share of Operating Costs (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Urban	\$1,051.8	\$707.9	\$21	\$13	\$8
Suburban	\$907.3	\$610.6	\$28	\$17	\$11
Rural	\$368.7	\$248.2	\$29	\$18	\$11
Total	\$2,327.8	\$1,566.7	\$24	\$15	\$9

As shown in the total row, the residential net cost of proving the service is estimated at \$9 per capita. The nature of travel patterns indicates that trips destined to the Suburban and Rural areas are typically longer than the Urban area. Trips in the Urban area are slightly more cost effective than the City-wide average since trips tend to be more localized.

G. ENVIRONMENTAL SERVICES

Environmental Services captures a variety of functions, including the planning, design, approval and operation of all solid waste landfills. This includes leachate and gas collection systems; the operation of hauled sewage waste disposal sites; the operation of landfill diversion programs, the administration of landfill tipping fees; garbage collection, leaf and yard trimmings; and the collection and processing of Green Cart organics. These services are available to all residents of low density dwellings across the City.

The City does not automatically provide solid waste services to the high density residential sector. Environmental Services define the high density “as a property with an apartment building, condominium complex, townhouse complex, row housing complex, co-operative housing complex, non-profit complex, trailer/mobile park or other similar residential complexes containing more than six residential dwelling units and in which no residential dwelling is rented for a term less than one month, or for a periodic term less than a month in length.” High density dwellings can be provided collection services through a separate agreement (charged at \$40 per unit).

Street townhouses are included in the low density category in this report and were assumed to have garbage collection. However, empirically certain row townhouse blocks may not receive the service. Given the small number of townhouses in the City, approximately 4% of households, it is not expected to affect the results significantly.

The non-residential sector does not receive curbside collection but the sector can use landfill facilities which require the payment of tipping fees. For this analysis it was assumed the non-residential sector contributed tipping fees in an amount equivalent to the costs of providing the service.

1. Environmental Services Methodology

As mentioned above the net costs (after fees) of providing solid waste services were allocated 100% to the low density residential sector. The residential net costs were then split into fixed and variable categories with the fixed costs calculated City-wide while the variable costs were analysed geographically.

Fixed costs include all landfill and transfer station costs and revenues and all administrative, marketing and awareness expenditures associated with Environmental

Services. All processing costs were also considered to be uniform throughout the City. Collection costs were considered to be 50% fixed and 50% variable. The rationale is that time travelling to and from transfer stations and the time transferring materials from a curb to a truck would not vary between areas. The time driving between residences would however vary based on the prevailing built form.

Overall, fixed costs represent 74% of total environmental services net costs while variable costs are estimated at 26%.

Residential density (people per hectare) was deemed to be the best metric to allocate the variable share of collection costs (\$2.25 million). An apportionment of the costs to each of the City's settlement areas was considered but the persons per hectare values for low density units was similar in each urban settlement area. Therefore the net variable costs were apportioned into two categories urban and rural. The density of urban settlement areas is approximately 3.85 times greater than the City-wide average used for rural areas.

2. Environmental Services Findings

Table 21 presents the summary of the operating cost analysis for Environmental Services. Fixed costs are estimated at \$126 per household and \$48 per capita in low density units. The City-wide variable costs for low density units are estimated at \$45 per household, or \$17 per capita. When the variable costs are split, the Rural area share is \$113 per household and \$43 per capita and the Urban area cost is \$29 per household; and \$11 per capita.

Table 21						
Environmental Services Operating Costs						
Geographic Area	Net Operating Costs (\$000)	Residential Share of Operating Costs (\$000)	Low Density Units		High Density Units	
			Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
Fixed Operating Costs	\$6,331.1	\$6,331.1	\$126	\$48	\$0	\$0
Variable Operating Costs	\$2,247.9	\$2,247.9	\$45	\$17	\$0	\$0
Total	\$8,579.0	\$8,579.0	\$170.2	\$65.2	\$0	\$0
Variable Shares						
Urban Areas			\$29	\$11	\$0	\$0
Rural Areas			\$113	\$43	\$0	\$0

The analysis above was derived using an average cost approach and likely represents a "worst case" cost with respect to each new unit added to the City. It is anticipated that

many new units will be added along existing collection routes and the marginal cost for each new unit could be lower than the existing average.

The capital cost apportionment for Environmental Services is shown in Table 22. A City-wide average cost approach was used for capital costs and results a net cost of \$20 per household or \$8 per capita.

Table 22						
Environmental Services Capital Costs						
Geographic Area	Net Operating Costs (\$000)	Residential Share of Operating Costs (\$000)	Low Density Units		High Density Units	
			Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
Capital Contributions	\$992.8	\$992.8	\$20	\$8	\$0	\$0

The overall operating and capital costs by geography are shown in Table 23. The total annual cost for low-density units is \$259 per household and \$99 per capita. The total cost for Urban low density units is \$175 per household and \$67 per capita in low density units. High density units in both the Rural and Urban areas are excluded from the analysis.

Table 23				
Environmental Services Total Costs				
Geographic Area	Low Density Units		High Density Units	
	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
Urban Areas	\$175	\$67	\$0	\$0
Rural Areas	\$259	\$99	\$0	\$0
Total	\$190	\$73	\$0	\$0

H. CITY WIDE SERVICES

There are several City services that are not expected to vary by location. They are presented in the following three tables. Calculations for all of services were based on a uniform average cost approach.

Table 24					
City-Wide Services Operating Costs					
Service	Net Operating Costs (\$000)	Residential Share of Operating Costs (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Emergency Management	\$640.4	\$431.0	\$7	\$4	\$3
Planning and Building	\$2,077.4	\$1,398.2	\$22	\$14	\$8
Parking	(\$841.0)	(\$566.1)	(\$9)	(\$6)	(\$3)
Drains	\$172.7	\$116.2	\$2	\$1	\$1
Fleet	(\$975.7)	(\$656.7)	(\$10)	(\$6)	(\$4)
Social Services	\$35,885.2	\$35,885.2	\$560	\$350	\$215
Parks, Recreation, & Leisure	\$23,646.1	\$23,646.1	\$369	\$231	\$141
Total	\$60,605.1	\$60,254.0	\$941	\$588	\$360

Table 25					
City-Wide Services Capital Costs					
Service	Total Contribution (\$000)	Residential Share of Contribution (\$000)	Per Household (\$)		Per Capita (\$)
			Low Density	High Density	
Existing Contributions					
Emergency Management	\$10.6	\$7.1	\$0	\$0	\$0
Planning and Building	\$119.5	\$80.5	\$1	\$1	\$0
Parking	\$641.0	\$431.4	\$7	\$4	\$3
Drains	\$193.5	\$130.2	\$2	\$1	\$1
Fleet	\$2,411.7	\$1,623.2	\$25	\$16	\$10
Social Services	\$4,166.3	\$4,166.3	\$65	\$41	\$25
Parks, Recreation, & Leisure	\$667.2	\$667.2	\$10	\$7	\$4
Total	\$8,210.0	\$7,106.0	\$111	\$69	\$43
DC-Based Contributions					
Emergency Management			\$16	\$9	\$6
Planning and Building (existing cont.)			\$1	\$1	\$0
Parking (existing cont.)			\$7	\$4	\$3
Drains			\$8	\$4	\$3
Fleet (existing cont.)			\$25	\$16	\$10
Social Services (existing cont.)			\$65	\$41	\$25
Parks, Recreation, & Leisure			\$112	\$61	\$39
Total			\$234	\$136	\$85

Table 26			
City-Wide Services Total Costs			
Service	Per Household (\$)		Per Capita (\$)
	Low Density	High Density	
Emergency Management	\$23	\$13	\$8
Planning and Building	\$23	\$14	\$9
Parking	(\$2)	(\$1)	(\$1)
Drains	\$9	\$5	\$3
Fleet	\$15	\$9	\$6
Social Services	\$625	\$391	\$240
Parks, Recreation, & Leisure	\$481	\$292	\$180
Total	\$1,175	\$724	\$445

I. CORPORATE SERVICES

Corporate Services include a variety of departments and services focused on the general administration of municipal government. A breakdown of the items contained in this category is shown below:

- Mayor and Council
- Senior Management Offices
- Communication & Translation
- Community Partnerships
- Auditor General
- Information technology
- Financial Services
- Accounting Services
- Taxation
- Human Resources
- Health & Safety
- Pensioners
- Land Reclamation
- Community & Strategic Planning
- Citizen Services Administration
- Legal Services
- Clerks Services
- Election Services
- Provincial Offences
- Greater Sudbury Development Corporation
- Tourism and Convention Services
- Youth Strategy
- Web and Marketing Support
- Mining Supply Assistance Program
- Farmer's Market
- Building Management
- Compliance & Enforcement
- Lake Water Quality
- Geographic Info., Surveys & Map
- Municipal Buildings Debt and Contributions to Capital

The costs associated with Corporate Services have been apportioned based on the sum of all other costs described above. The rationale being that service categories with

higher costs will require more administrative time. As shown in Table 27, Corporate Services costs do not vary significantly by location or dwelling type.

The net operating and capital cost of providing these administrative services is \$29.7 million with the residential share estimated at \$20.0 million.

Table 27						
Total Corporate Services Costs						
Geographic Area	Total Net Cost (\$000)	Residential Share of Costs (\$000)	Low Density Units (\$)		High Density Units (\$)	
			Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
Urban			\$315	\$121	\$199	\$122
Suburban			\$305	\$117	\$191	\$117
Rural - Cab Service			\$339	\$130	\$210	\$129
Rural - Unserved			\$322	\$124	\$198	\$121
Total	\$29,666.4	\$19,966.7	\$312	\$119	\$195	\$119

The total residential operating and capital corporate cost is \$119 per capita, \$312 for a low density unit and \$195 for a high density unit at the City-wide level.

J. TOTAL COSTS FOR ALL SERVICES

The total servicing cost for tax supported services is presented in Table 28 below. Taxation revenue and varying tax rates for fire and transit is considered in the next section.

Table 28				
Total Development-Related Net Costs For Tax Supported Services				
Geographic Area	Low Density Units		High Density Units	
	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
Urban	\$3,624	\$1,362	\$1,945	\$1,196
Suburban	\$3,507	\$1,317	\$1,870	\$1,150
Rural with Transit	\$3,889	\$1,464	\$2,054	\$1,263
Rural w/o Transit	\$3,701	\$1,393	\$1,937	\$1,191
Weighted Average	\$3,582	\$1,346	\$1,907	\$1,173
Simple Average	\$3,642	\$1,369	\$1,943	\$1,195

As shown in the table, there are not drastic differences in servicing costs between areas. Some services are costlier in some areas and less expensive in others. Additionally, many services are provided at the City-wide level without regard to location. Areas further away from the City centre tend to be slightly more expensive to service.

Higher density units are less costly across all areas. Besides having lower occupancies, higher density developments do not have the local road requirements present in lower density built forms, nor do they receive environmental services collection.

K. TAX SUPPORTED REVENUE ANALYSIS

The preceding analysis focused on net costs which consider user fees and operating grants but no taxation revenue. In this section taxation revenue is considered.

1. Assessment Methodology

Assessment of existing units and recently constructed were both estimated. The assessed values of recently constructed units is used as a proxy for units likely to be added in the future. In both cases, destination assessment for the 2013 taxation year was used. Table 29 provides the assessment of the representative developments used to estimate future assessments for single detached and condominium apartment units.

Large samples of recently built semi detached and row units were unavailable therefore these assessments were estimated using the City's existing base.

Existing and Forecast Assesemnt Values								Table 29
Name	Sample Streets	New Single Detached Units		Existing Single Detached Units		% Difference		
		Average Assessment	Median Assessment	Average Assessment	Median Assessment	Average Assessment	Median Assessment	
Sudbury 1	LANDREVILLE DR & RICHELIEU CRT	\$ 475,722	\$ 482,000					
Sudbury 2	SUNRISE RIDGE DR	\$ 362,147	\$ 358,000					
Sudbury 3	TUSCANY TRAIL & MEROLT CRT	\$ 401,545	\$ 404,000					
Sudbury 4	SAPPHIRE CRT	\$ 421,545	\$ 409,000					
Sudbury		\$ 415,240	\$ 413,250	\$ 252,191	\$ 233,000	65%	77%	
Walden (Lively) 1	SILVERBERRY ST	\$ 361,088	\$ 353,000					
Walden (Lively) 2	BONNIE DR	\$ 332,316	\$ 323,000					
Walden		\$ 346,702	\$ 338,000	\$ 250,496	\$ 250,496	38%	35%	
Val Caron 1	JUSTIN ST	\$ 315,523	\$ 313,500					
Blezard Valley 1	CLOVERDATE CRT & VALECREST DR	\$ 424,500	\$ 419,000					
Hanmer 1	JEANNE D'ARC ST	\$ 345,769	\$ 330,000					
Hanmer 2	ST MICHEL ST, BUSHCROFT CRT, ASTERWOOD CRT	\$ 376,250	\$ 333,500					
Valley East		\$ 365,510	\$ 349,000	\$ 243,125	\$ 227,000	50%	54%	
Azilda 1	FLEETWOOD DR	\$ 330,179	\$ 326,000	\$ 237,219	\$ 225,000	39%	45%	
Chelmsford 1	LAURA DRIVE	\$ 409,000	\$ 409,000	\$ 236,398	\$ 219,000	73%	87%	
Rayside-Balfour		\$ 369,590	\$ 367,500	\$ 236,690	\$ 221,000	56%	66%	
Garson 1	BERRYGROVE CRT	\$ 349,056	\$ 349,500					
Garson 2	SPRINGHILL DR	\$ 323,692	\$ 326,000					
Garson 3	CEDARGREEN DR, RACICOT DR	\$ 310,391	\$ 303,000					
Garson 4	RACICOT DR, ALPINE ST	\$ 318,714	\$ 323,000					
Garson 5	RACICOT DR	\$ 260,429	\$ 282,000					
Nickel Centre		\$ 312,456	\$ 316,700	\$ 245,828	\$ 230,000	27%	38%	
Onaping Falls	ESTIMATE	\$ 172,290	\$ 170,390	\$ 120,483	\$ 115,000	43%	48%	
Capreol	ESTIMATE	\$ 226,478	\$ 229,656	\$ 158,377	\$ 155,000	43%	48%	
City Average - Unweighted		\$ 315,467	\$ 312,071	\$ 215,313	\$ 204,499			
City Average - Weighted				\$ 237,787	\$ 223,000			
APARTMENTS								
Condo Apartment 1	869 LASALLE BLVD	\$ 119,375	\$ 122,000					
Condo Apartment 2	199 LOACH'S RD	\$ 189,944	\$ 188,000					
Condo Apartment 3	15 MAKI AVE	\$ 382,920	\$ 374,000					
Condo Apartment 4	1717 PARIS ST	\$ 273,357	\$ 274,500					
Condo Apartment		\$ 241,399	\$ 239,625					

As shown in Table 30, it is important to note that the average assessment of new units is notably higher than the existing base. This is expected since newer dwellings are often larger, better designed and ultimately more desirable than older units.

Table 30				
Existing and New Assessed Values				
	Low Density Units		High Density Units	
	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
City-Wide Existing Assessment	\$228,800	\$87,653	\$140,400	\$86,086
New Assessment				
Urban	\$390,000	\$134,870	\$240,000	\$151,348
Suburban	\$282,000	\$97,521	\$240,000	\$151,348
Rural	\$282,000	\$97,521	n/a	n/a

For apartment units, the City's existing base is predominantly comprised of rental apartments. These units are assessed much lower than condominium units but in most cases have a much higher taxation weighting. The existing high density value of \$140,400 per household including recently constructed condominium units with no weighting and the larger base of older apartments weighted upwards to reflect the taxes generated. In the future, condominium assessments with the standard residential weighting (1.0) are assumed.

2. Cost and Revenue Variance to Existing Base

The following four tables illustrate the annual cost and revenue estimates for new development compared to existing household and population averages. Separate tables were prepared for Fire and Transit since different geographic tax rates apply to these services. Table 34 provides the overall summary.

The development-related costs of servicing new low density development are higher for new units. This is expected since the long-term capital requirements calculated for new development are based on ideal asset management provisions which are higher than the City's current expenditures on capital. New high density development is expected to generate less annual costs than the City's existing average expenditures.

In terms of revenue, the higher assessment of new units results in higher taxation revenue for new development across all geographies and dwelling types.

Overall, Urban development is the most cost effective with a positive variance of \$561 per capita for low density units and \$983 per capita for high density units. Suburban development also produces a positive overall variance of \$46 per capita for low density units and \$1,020 per capita for high density units. Rural development (assumed to

have transit) produces a positive variance on a household basis but a negative variance on a per person basis. This implies new Rural development is close to fiscally neutral when compared to the City's existing base.

Table 31

Comparison to Existing Costs and Revenues: Tax Supported Services (excl. Fire and Transit)					
Geographic Area	All Units	Low Density Units		High Density Units	
	Per Capita (\$)	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
City-Wide Existing Assessment	\$87,300	\$228,800	\$87,653	\$140,400	\$86,086
Existing City-Wide Net Costs	\$1,148	\$3,010	\$1,148	\$1,870	\$1,148
Required Tax Rate for Cost Recovery	1.31%	1.31%	1.31%	1.31%	1.31%
Caluclated Existing Tax Revenue	\$1,148	\$3,008	\$1,153	\$1,846	\$1,132
New Development Based Costs					
Urban		\$3,220	\$1,209	\$1,694	\$1,042
Suburban		\$3,401	\$1,278	\$1,807	\$1,112
Rural		\$3,602	\$1,355		
New Development Cost Premium					
Urban		\$210	\$61	(\$176)	(\$105)
Suburban		\$392	\$130	(\$63)	(\$36)
Rural		\$593	\$207		
Esimtated Assessment of New Units					
Urban		\$390,000	\$134,870	\$240,000	\$151,348
Suburban		\$282,000	\$97,521	\$240,000	\$151,348
Rural		\$282,000	\$97,521		
New Revenue					
Urban		\$5,128	\$1,773	\$3,156	\$1,990
Suburban		\$3,708	\$1,282	\$3,156	\$1,990
Rural		\$3,708	\$1,282		
New Development Revenue Premium					
Urban		\$2,120	\$621	\$1,310	\$858
Suburban		\$700	\$130	\$1,310	\$858
Rural		\$700	\$130		
Revenue Premium minus Cost Premium					
Urban		\$1,910	\$560	\$1,485	\$964
Suburban		\$308	(\$1)	\$1,372	\$894
Rural		\$107	(\$78)		

Table 32					
Comparison to Existing Costs and Revenues: Fire Services Revenue Analysis					
	All Units	Low Density Units		High Density Units	
Geographic Area	Per Capita (\$)	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
City-Wide Existing Assessment	\$87,300	\$228,800	\$87,653	\$140,400	\$86,086
Existing City-Wide Net Costs	\$60	\$156	\$60	\$98	\$60
Required Tax Rate City-Wide	0.07%	0.07%	0.07%	0.07%	0.07%
Urban	0.09%	0.09%	0.09%	0.09%	0.09%
Valley East	0.06%	0.06%	0.06%	0.06%	0.06%
Rural	0.04%	0.04%	0.04%		
Existing Net Costs/Revenue					
Urban	\$77	\$202	\$77	\$124	\$76
Valley East	\$55	\$143	\$55	\$88	\$54
Rural	\$31	\$81	\$31		
New Development Based Costs					
Urban		\$265	\$101	\$165	\$101
Valley East		\$179	\$68	\$111	\$68
Rural		\$98	\$37		
New Development Cost Premium					
Urban		\$63	\$24	\$41	\$25
Valley East		\$36	\$13	\$23	\$14
Rural		\$17	\$6		
Esimated Assessment of New Units					
Urban		\$390,000	\$134,870	\$240,000	\$151,348
Valley East		\$282,000	\$97,521	\$240,000	\$151,348
Rural		\$282,000	\$97,521		
New Revenue					
Urban		\$267	\$92	\$164	\$104
Valley East		\$249	\$86	\$212	\$134
Rural		\$177	\$61		
New Development Revenue Premium					
Urban		\$65	\$15	\$41	\$28
Valley East		\$106	\$31	\$124	\$80
Rural		\$96	\$30		
Revenue Premium minus Cost Premium					
Urban		\$3	(\$9)	(\$0)	\$3
Valley East		\$70	\$18	\$101	\$65
Rural		\$78	\$24		

Table 33					
Comparison to Existing Costs and Revenues: Transit Services Revenue Analysis					
	All Units	Low Density Units		High Density Units	
Geographic Area	Per Capita (\$)	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
City-Wide Existing Assessment	\$87,300	\$228,800	\$87,653	\$140,400	\$86,086
Existing City-Wide Net Costs	\$40	\$105	\$40	\$66	\$40
Required Tax Rate City-Wide	0.05%	0.05%	0.05%	0.05%	0.05%
Urban	0.06%	0.06%	0.06%	0.06%	0.06%
Suburban	0.03%	0.03%	0.03%	0.03%	0.03%
Rural with Transit	0.03%	0.03%	0.03%		
Existing Net Costs/Revenue					
Urban	\$52	\$137	\$53	\$84	\$52
Suburban	\$25	\$67	\$26	\$41	\$25
Rural with Transit	\$25	\$67	\$26		
New Development Based Costs					
Urban		\$140	\$53	\$86	\$53
Suburban		\$81	\$30	\$49	\$30
Rural with Transit		\$172	\$65	\$106	\$65
New Development Cost Premium					
Urban		\$3	\$0	\$2	\$1
Suburban		\$14	\$5	\$8	\$5
Rural with Transit		\$105	\$40		
Esimtated Assessment of New Units					
Urban		\$390,000	\$134,870	\$240,000	\$151,348
Suburban		\$282,000	\$97,521	\$240,000	\$151,348
Rural with Transit		\$282,000	\$97,521		
New Revenue					
Urban		\$180	\$62	\$111	\$70
Suburban		\$169	\$59	\$144	\$91
Rural with Transit		\$82	\$28		
New Development Revenue Premium					
Urban		\$42	\$10	\$26	\$18
Suburban		\$103	\$33	\$103	\$66
Rural with Transit		\$15	\$3		
Revenue Premium minus Cost Premium					
Urban		\$40	\$9	\$25	\$17
Suburban		\$89	\$28	\$95	\$61
Rural with Transit		(\$90)	(\$37)		

Table 34				
Comparison to Existing Costs and Revenues: All Services Summary				
Geographic Area	Low Density Units		High Density Units	
	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
Existing Net Costs				
Urban	\$3,349	\$1,278	\$2,078	\$1,276
Suburban	\$3,220	\$1,228	\$1,999	\$1,227
Rural with Transit	\$3,157	\$1,204		
New Development Based Costs				
Urban	\$3,624	\$1,362	\$1,945	\$1,196
Suburban	\$3,661	\$1,377	\$1,967	\$1,210
Rural with Transit	\$3,872	\$1,458	\$106	\$65
New Development Cost Premium				
Urban	\$275	\$85	(\$134)	(\$79)
Suburban	\$442	\$148	(\$32)	(\$17)
Rural with Transit	\$715	\$253		
New Revenue				
Urban	\$5,575	\$1,928	\$3,431	\$2,164
Suburban	\$4,126	\$1,427	\$3,512	\$2,215
Rural with Transit	\$3,967	\$1,372	\$0	\$0
New Development Revenue Premium				
Urban	\$2,227	\$645	\$1,377	\$904
Suburban	\$908	\$194	\$1,537	\$1,004
Rural with Transit	\$811	\$163		
Revenue Premium minus Cost Premium				
Urban	\$1,952	\$561	\$1,510	\$983
Suburban	\$466	\$46	\$1,568	\$1,020
Rural with Transit	\$95	(\$90)		

3. Cost and Revenue Variance to New Development

The following four tables illustrate the annual cost and revenue estimates for new development compared to other forms of new development. Table 38 provides the overall summary.

As shown in Table 38, the development-related costs of servicing new low density development is higher than high density development on a per capita basis. The table also shows that new assessment, and thereby taxation revenue, in the Urban area tends to be higher than in the Suburban and Rural areas. When cost and revenue considerations are combined Urban development the most fiscally beneficial, when compared to the other areas.

Table 35					
Comparison to New Costs and Revenues: Tax Supported Services (excl. Fire and Transit)					
Geographic Area	All Units	Low Density Units		High Density Units	
	Per Capita (\$)	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
New City-Wide Assessment	\$125,729	\$335,000	\$115,849	\$240,000	\$151,348
New Development Based City-Wide Net Cost	\$1,208	\$3,306	\$1,208	\$1,737	\$1,208
Required Tax Rate for Cost Recovery	0.96%	0.96%	0.96%	0.96%	0.96%
Notional Calculated Tax Revenue	\$1,208	\$3,218	\$1,113	\$2,305	\$1,454
New Development Based Costs					
Urban		\$3,220	\$1,209	\$1,694	\$1,042
Suburban		\$3,401	\$1,278	\$1,807	\$1,112
Rural		\$3,602	\$1,355		
Cost Premium to City-Wide New Costs					
Urban		(\$86)	\$1	(\$43)	(\$165)
Suburban		\$95	\$71	\$70	(\$96)
Rural		\$296	\$148		
New Revenue					
Urban		\$3,746	\$1,295	\$2,305	\$1,454
Suburban		\$2,709	\$937	\$2,305	\$1,454
Rural		\$2,709	\$937		
Revenue Premium to City-Wide Revenue					
Urban		\$528	\$183	\$0	\$0
Suburban		(\$509)	(\$176)	\$0	\$0
Rural		(\$509)	(\$176)		
Revenue Premium minus Cost Premium					
Urban		\$615	\$182	\$43	\$165
Suburban		(\$604)	(\$247)	(\$70)	\$96
Rural		(\$805)	(\$324)		

Table 36					
Comparison to New Costs and Revenues: Fire Services					
Geographic Area	All Units	Low Density Units		High Density Units	
	Per Capita (\$)	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
New City-Wide Assessment	\$125,729	\$335,000	\$115,849	\$240,000	\$151,348
New Development Based City-Wide Net Costs	\$59	\$155	\$59	\$96	\$59
Required Tax Rate for Cost Recovery	0.05%	0.05%	0.05%	0.05%	0.05%
Urban	0.06%	0.06%	0.06%	0.06%	0.06%
Valley East	0.04%	0.04%	0.04%	0.04%	0.04%
Rural	0.02%	0.02%	0.02%		
Notional Calculated Tax Revenue	\$59	\$157	\$54	\$112	\$71
New Development Based Costs					
Urban		\$265	\$101	\$165	\$101
Valley East		\$179	\$68	\$111	\$68
Rural		\$98	\$37		
Cost Premium to City-Wide New Costs					
Urban		\$110	\$42	\$69	\$42
Communities		\$24	\$9	\$15	\$9
Rural		(\$57)	(\$22)		
New Revenue					
Urban		\$235	\$81	\$145	\$91
Communities		\$121	\$42	\$103	\$65
Rural		\$68	\$24		
Revenue Premium to City-Wide Revenue					
Urban		\$78	\$27	\$32	\$20
Communities		(\$36)	(\$12)	(\$10)	(\$6)
Rural		(\$89)	(\$31)		
Revenue Premium minus Cost Premium					
Urban		(\$32)	(\$15)	(\$36)	(\$22)
Communities		(\$61)	(\$22)	(\$25)	(\$15)
Rural		(\$32)	(\$9)		

Table 37					
Comparison to New Costs and Revenues: Transit Services					
Geographic Area	All Units	Low Density Units		High Density Units	
	Per Capita (\$)	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
New City-Wide Assessment	\$125,729	\$335,000	\$115,849	\$240,000	\$151,348
New Development Based City-Wide Net Co	\$45	\$121	\$45	\$74	\$45
Required Tax Rate for Cost Recovery	0.04%	0.04%	0.04%	0.04%	0.04%
Urban	0.05%	0.05%	0.05%	0.05%	0.05%
Suburban	0.02%	0.02%	0.02%	0.02%	0.02%
Rural with Transit	0.02%	0.02%	0.02%		
Notional Calculated Tax Revenue	\$45	\$121	\$42	\$87	\$55
New Development Based Costs					
Urban		\$140	\$53	\$86	\$53
Suburban		\$81	\$30	\$49	\$30
Rural with Transit		\$172	\$65		
Cost Premium to City-Wide New Costs					
Urban		\$19	\$7	\$12	\$7
Suburban		(\$40)	(\$15)	(\$25)	(\$15)
Rural with Transit		\$51	\$20		
New Revenue					
Urban		\$184	\$63	\$113	\$71
Suburban		\$64	\$22	\$55	\$35
Rural with Transit		\$64	\$22		
Revenue Premium to City-Wide Revenue					
Urban		\$63	\$22	\$26	\$17
Suburban		(\$57)	(\$20)	(\$32)	(\$20)
Rural with Transit		(\$57)	(\$20)		
Revenue Premium minus Cost Premium					
Urban		\$43	\$14	\$14	\$9
Suburban		(\$17)	(\$4)	(\$7)	(\$5)
Rural with Transit		(\$108)	(\$39)		

Table 38				
Comparison to New Costs and Revenues: All Services Summary				
Geographic Area	Low Density Units		High Density Units	
	Per Household (\$)	Per Capita (\$)	Per Household (\$)	Per Capita (\$)
Development Based City-Wide Net Costs				
Urban	\$3,582	\$1,312	\$1,907	\$1,312
Suburban	\$3,582	\$1,312	\$1,907	\$1,312
Rural with Transit	\$3,582	\$1,312		
New Development Based Costs				
Urban	\$3,624	\$1,362	\$1,945	\$1,196
Suburban	\$3,661	\$1,377	\$1,967	\$1,210
Rural with Transit	\$3,872	\$1,458		
Cost Premium to City-Wide New Costs				
Urban	\$43	\$50	\$38	(\$116)
Suburban	\$80	\$65	\$60	(\$102)
Rural with Transit	\$291	\$146		
New Revenue				
Urban	\$4,165	\$1,440	\$2,563	\$1,616
Suburban	\$2,894	\$1,001	\$2,463	\$1,553
Rural with Transit	\$2,841	\$983		
Revenue Premium to City-Wide Revenue				
Urban	\$669	\$231	\$59	\$37
Suburban	(\$602)	(\$208)	(\$42)	(\$26)
Rural with Transit	(\$654)	(\$226)		
Revenue Premium minus Cost Premium				
Urban	\$626	\$181	\$21	\$153
Suburban	(\$682)	(\$273)	(\$102)	\$76
Rural with Transit	(\$945)	(\$372)		

III ANALYSIS OF WATER AND WASTEWATER SERVICES

The City of Greater Sudbury has a complex water and wastewater system. For the purposes of this report, the water and wastewater system has been categorized into two general service areas: Urban and Suburban.

A. METHODOLOGY FOR WATER AND WASTEWATER ANALYSIS

The results of the water and wastewater analysis are presented in a series of tables. The methodology used to calculate the results is detailed in Table 39. The results are presented on a *per year* basis.

Table 39 Water and Wastewater Methodology Description	
Heading	Description
Revenue	- Amount of revenue collected based on 2013 City-wide water and wastewater rates and actual 2012 consumption in each service area. - Water rates: Volume Rate \$1.171 Per Cubic Metre; Flat rate \$15.71 per month per account - Wastewater rates: Volume Rate \$1.370 Per Cubic Metre; Flat rate \$18.38 per month per account
OPERATING EXPENSES	
Linear Operating Costs	- Based on three year average (2010-2012) - Water: \$6,897 per km of pipe in each service area - Wastewater: \$4,394 per km of pipe in each service area - Split between uses based on accounts and consumption
Plant/Well/Lagoon Operating Costs	- Based on three year average (2010-2012) of actual costs in each service area. - Split between uses based on consumption
Engineering Operating Costs	- Based on three year average (2010-2012) of City-wide operating costs. - Water assumed to be 9.3% of revenue. - Wastewater assumed to be 9.1% of revenue. - Split between uses based on consumption.
Admin Operating Costs	- Based on three year average (2010-2012) of City-wide operating costs. - Water assumed to be 7.1% of revenue. - Wastewater assumed to be 7.0% of revenue. - Split between uses based on accounts.
Total Operating Expenses	Sum of the four costs above.

CAPITAL EXPENSES	
Annual Replacement Provision Linear	• Based on 2013 Tangible Capital Asset Data for each service area. • Split between uses based on accounts and consumption
Annual Replacement Provision Plant/Well/Lagoon	• Based on 2013 Tangible Capital Asset Data for each service area. • Split between uses based on consumption
Annual Replacement Provision Meters	• Based on 2013 Tangible Capital Asset Data for each service area. • Split between uses based on accounts.
Total Capital Provision	• Sum of three costs above.
TOTAL EXPENSES	• Sum operating expenses and capital provision
COST/REVENUE VARIANCE	• Sum operating expenses and capital provision
Units	• Number of residential units by type in each service area (consumption data used to estimate low density units, assessment data used for multi-residential units)
COST/REVENUE VARIANCE PER UNIT	• Cost/Revenue Variance divided by units
MARGINAL COST OF UNITS	
Total Revenue	• Total Revenue divided by units
<i>Linear Operating Costs</i>	• Applied average operating cost per km to pipes under 250mm or less for each service area.
<i>Plant/Well Operating Costs</i>	• Based on average Materials, Chemicals & Energy Operating costs per unit
<i>Engineering Operating Costs</i>	• Assumed to be 75% of average cost per unit
<i>Admin Operating Costs</i>	• Based on average cost per unit
<i>Annual Replacement Provision Linear</i>	• Applied 2013 Tangible Capital Asset contribution for pipes under 250mm for each service area applies to new units.
<i>Annual Replacement Provision Plant/Well/Lagoon</i>	• Created annual replacement contribution based on development related share of projects within 2014 DC Study (within each service area)
<i>Annual Replacement Provision Meters</i>	• Based on average cost per unit
Total Expenses	• Sum of seven expenditures above
MARGINAL COST/REVENUE VARIANCE PER UNIT	• Total Revenue per unit minus total expenses per unit

It is important to note that the replacement provisions described in Table 39 are based on ideal asset management provisions. As with most municipalities, the City's actual contributions to capital are typically less than the tangible capital asset calculated amount. This is often because assets can last longer than their notional useful lives. Using ideal replacement provisions allows for a consistent comparison point between geographies and unit types.

B. WATER AND WASTEWATER FINDINGS

1. Water Service

Table 40 provides the summary of the analysis for water service.

a. Low Density Units

For low density units, the average net cost of providing water servicing is negative in both the Urban and Suburban areas. This is largely because the water rates do not reflect the calculated tangible capital asset contributions. The Urban Water system is the most efficient with a negative variance of \$40 per unit. Water systems in the Suburban areas are less efficient with a negative variance of \$119 per unit, generally due to their smaller nature.

The net marginal variance is the cost/benefit to the City of adding one additional unit. The Urban service area is the most efficient with a positive variance of \$81 per unit. From an operating cost perspective, efficiencies that result from a large system are present. From a capital cost perspective, as shown in the City's development charges study, additional units can be added to this service area without a significant requirement for new infrastructure. By contrast, Water systems in the Suburban areas produce a negative variance of \$48 per additional low density unit.

b. High Density Units

Multi-dwelling units were analysed for condominium and rental/other apartments. Condominium apartments are only present in the Urban service area. The average cost-based variance is -\$51 per unit while the marginal cost based variance is +\$90 per unit.

For multi-residential units, which are primarily rental units, the average cost variance per unit is negative for all areas. The greater number of negative values when compared to the low-density average variance is due to lower revenues. This is partly because the City's water rate structure has a flat rate per account. Since many residential units are on one account the City receives less revenue. Additionally, higher density units often consume less water leading to lower revenue for the municipality. From a pure cost perspective, ignoring revenue, multiple dwellings are more efficient.

The marginal cost of adding a multiple unit is positive for the Urban area, and negative for the Suburban area.

CITY OF GREATER SUDBURY
SUMMARY OF FINANCIAL WATER ANALYSIS BY SERVICE AREA
TABLE 40 - PAGE 1

REVENUE	Urban	Suburban
Low-Density Residential		
Total Revenue Per Unit	\$384	\$375
Total Low-Density Residential Revenue	\$10,805,651	\$6,874,336
Condo Residential		
Total Revenue Per Unit	\$282	\$0
Total Condo Residential Revenue	\$106,922	\$0
Multi-Unit Residential		
Total Revenue Per Unit	\$183	\$168
Total Multi-Unit Residential Revenue	\$3,154,881	\$424,634
Non-Residential		
Total Charge Per Account	\$2,188	\$1,845
Total Non-Residential Revenue	\$2,986,203	\$1,833,986
TOTAL REVENUE	\$17,053,657	\$9,132,956
RESIDENTIAL AND NON-RESIDENTIAL		
OPERATING EXPENSES		
Linear Operating Costs	\$3,519,007	\$2,966,422
Plant/Well Operating Costs	\$3,304,414	\$1,281,758
Engineering Operating Costs	\$1,581,015	\$846,701
Admin Operating Costs	\$1,202,946	\$644,229
Total Operating Expenses	\$9,607,383	\$5,739,109
CAPITAL EXPENSES		
Annual Replacement Provision Linear	\$5,702,444	\$4,783,597
Annual Replacement Provision Plant/Well	\$3,572,147	\$1,429,636
Annual Replacement Provision Meters	\$374,286	\$231,283
Total Capital Provision	\$9,648,877	\$6,444,517
TOTAL EXPENSES	\$19,256,259	\$12,183,626
COST/REVENUE VARIANCE	-\$2,202,603	-\$3,050,670

CITY OF GREATER SUDBURY
SUMMARY OF FINANCIAL WATER ANALYSIS BY SERVICE AREA
TABLE 40 - PAGE 2

LOW DENSITY RESIDENTIAL ONLY	Urban	Suburban
TOTAL LOW-DENSITY RESIDENTIAL REVENUE	\$10,805,651	\$6,874,336
OPERATING EXPENSES		
Linear Operating Costs	\$2,405,808	\$2,331,850
Plant/Well Operating Costs	\$1,665,661	\$737,974
Engineering Operating Costs	\$796,945	\$549,291
Admin Operating Costs	\$1,038,444	\$596,012
Total Operating Expenses	\$5,906,857	\$4,215,128
CAPITAL EXPENSES		
Annual Replacement Provision Linear	\$3,898,539	\$3,757,271
Annual Replacement Provision Plant/Well	\$1,800,617	\$862,525
Annual Replacement Provision Meters	\$323,102	\$214,067
Total Capital Provision	\$6,022,258	\$4,833,864
TOTAL EXPENSES	\$11,929,116	\$9,048,991
COST/REVENUE VARIANCE	-\$1,123,465	-\$2,174,655
Units	28,167	18,321
COST/REVENUE VARIANCE PER UNIT	-\$40	-\$119
MARGINAL COST OF LOW DENSITY RESIDENTIAL		
Total Revenue	\$384	\$375
Linear Operating Costs	\$64	\$97
Plant/Well Operating Costs	\$34	\$23
Engineering Operating Costs	\$21	\$22
Admin Operating Costs	\$37	\$33
Annual Replacement Provision Linear	\$104	\$157
Annual Replacement Provision Plant/Well	\$31	\$80
Annual Replacement Provision Meters	\$11	\$12
Total Expenses	\$303	\$424
MARGINAL COST/REVENUE VARIANCE PER UNIT	\$81	-\$48

CITY OF GREATER SUDBURY
SUMMARY OF FINANCIAL WATER ANALYSIS BY SERVICE AREA
TABLE 40 - PAGE 3

CONDO RESIDENTIAL ONLY	Urban	Suburban
TOTAL CONDO RESIDENTIAL REVENUE	\$106,922	
OPERATING EXPENSES		
Linear Operating Costs	\$18,431	
Plant/Well Operating Costs	\$29,550	
Engineering Operating Costs	\$14,138	
Admin Operating Costs	\$1,843	
Total Operating Expenses	\$63,963	
CAPITAL EXPENSES		
Annual Replacement Provision Linear	\$29,867	
Annual Replacement Provision Plant/Well	\$31,944	
Annual Replacement Provision Meters	\$574	
Total Capital Provision	\$62,384	
TOTAL EXPENSES	\$126,347	
COST/REVENUE VARIANCE	-\$19,425	
Units	379	
COST/REVENUE VARIANCE PER UNIT	-\$51	
MARGINAL COST OF CONDO RESIDENTIAL		
Total Revenue	\$282	
Linear Operating Costs	\$36	
Plant/Well Operating Costs	\$45	
Engineering Operating Costs	\$28	
Admin Operating Costs	\$5	
Annual Replacement Provision Linear	\$59	
Annual Replacement Provision Plant/Well	\$17	
Annual Replacement Provision Meters	\$2	
Total Expenses	\$192	
MARGINAL COST/REVENUE VARIANCE PER UNIT	\$90	

CITY OF GREATER SUDBURY
SUMMARY OF FINANCIAL WATER ANALYSIS BY SERVICE AREA
TABLE 40 - PAGE 4

MULTI-UNIT RESIDENTIAL ONLY	Urban	Suburban
TOTAL MULTI-UNIT RESIDENTIAL REVENUE	\$3,154,881	\$424,634
OPERATING EXPENSES		
Linear Operating Costs	\$580,759	\$127,604
Plant/Well Operating Costs	\$782,110	\$77,273
Engineering Operating Costs	\$374,205	\$53,175
Admin Operating Costs	\$112,335	\$15,408
Total Operating Expenses	\$1,849,409	\$273,460
CAPITAL EXPENSES		
Annual Replacement Provision Linear	\$941,102	\$205,205
Annual Replacement Provision Plant/Well	\$845,479	\$81,667
Annual Replacement Provision Meters	\$34,952	\$5,571
Total Capital Provision	\$1,821,533	\$292,443
TOTAL EXPENSES	\$3,670,943	\$565,903
COST/REVENUE VARIANCE	-\$516,062	-\$141,268
Units	17,194	2,527
COST/REVENUE VARIANCE PER UNIT	-\$30	-\$56
MARGINAL COST OF MULTI-UNIT RESIDENTIAL		
Total Revenue	\$183	\$168
Linear Operating Costs	\$25	\$39
Plant/Well Operating Costs	\$26	\$17
Engineering Operating Costs	\$16	\$16
Admin Operating Costs	\$7	\$6
Annual Replacement Provision Linear	\$41	\$62
Annual Replacement Provision Plant/Well	\$17	\$40
Annual Replacement Provision Meters	\$2	\$2
Total Expenses	\$135	\$181
MARGINAL COST/REVENUE VARIANCE PER UNIT	\$49	-\$13

2. Wastewater Service

Table 41 provides a summary of the analysis for wastewater services.

a. Low Density Units

For low density units, the average net cost of providing wastewater servicing is negative both Urban and Suburban areas. Similar to water servicing, this is largely because the wastewater rates do not reflect the calculated tangible capital asset contributions. The Urban Water system is more efficient with a negative variance of \$95 per unit. The Suburban systems are calculated to be less efficient with a negative variance of \$169 per unit due to their smaller nature.

The net marginal variance is the cost/benefit to the City of adding one additional unit. Both the Urban and Suburban areas produce positive variances on a marginal per unit basis.

b. High Density Units

Multi-dwelling units were analysed for condominium and rental/other apartments. Condominium apartments are only present in the Urban service area. The average cost-based variance is -\$178 per unit while the marginal cost based variance is +\$120 per unit.

For multi-residential units, which are primarily rental units, the average cost variance per unit is negative for both the Urban and Suburban areas. Similar to water, the negative values are due to lower revenues. This is partly because the City's wastewater rate structure has a flat rate per account. Since many residential units are on one account the City receives less revenue. Additionally, higher density units often consume less water leading to lower revenue for the municipality. From a pure cost perspective, ignoring revenue, multiple dwellings are more efficient.

The marginal cost of adding a multiple unit is significantly positive for both the Urban and Suburban areas.

CITY OF GREATER SUDBURY
SUMMARY OF FINANCIAL WASTEWATER ANALYSIS BY SERVICE AREA
TABLE 41 - PAGE 1

REVENUE	Urban	Suburban
Low-Density Residential		
Total Revenue Per Unit	\$448	\$442
Total Low-Density Residential Revenue	\$10,802,666	\$9,440,775
Condo Residential		
Total Revenue Per Unit	\$330	0
Total Condo Residential Revenue	\$125,099	\$0
Multi-Unit Residential		
Total Revenue Per Unit	\$177	\$212
Total Multi-Unit Residential Revenue	\$2,922,497	\$659,277
Non-Residential		
Total Charge Per Account	\$2,650	\$2,135
Total Non-Residential Revenue	\$3,309,258	\$2,200,198
TOTAL REVENUE	\$17,159,520	\$12,300,250
RESIDENTIAL AND NON-RESIDENTIAL		
OPERATING EXPENSES		
Linear Operating Costs	\$1,789,071	\$1,720,451
Plant/Lagoon Operating Costs	\$2,499,453	\$2,570,537
Engineering Operating Costs	\$1,568,434	\$1,124,282
Admin Operating Costs	\$1,193,374	\$855,432
Total Operating Expenses	\$7,050,332	\$6,270,701
CAPITAL EXPENSES		
Annual Replacement Provision Linear	\$4,816,366	\$4,563,205
Annual Replacement Provision Plant/Lagoon	\$11,228,744	\$6,996,431
Annual Replacement Provision Meters	\$0	\$0
Total Capital Provision	\$16,045,110	\$11,559,637
TOTAL EXPENSES	\$23,095,442	\$17,830,338
COST/REVENUE VARIANCE	-\$5,935,922	-\$5,530,088

CITY OF GREATER SUDBURY
SUMMARY OF FINANCIAL WASTEWATER ANALYSIS BY SERVICE AREA
TABLE 41 - PAGE 2

LOW DENSITY RESIDENTIAL ONLY	Urban	Suburban
TOTAL LOW-DENSITY RESIDENTIAL REVENUE	\$10,802,666	\$9,440,775
OPERATING EXPENSES		
Linear Operating Costs	\$1,273,403	\$1,397,881
Plant/Lagoon Operating Costs	\$1,186,370	\$1,614,931
Engineering Operating Costs	\$744,460	\$766,758
Admin Operating Costs	\$1,132,372	\$785,113
Total Operating Expenses	\$4,336,606	\$4,564,683
CAPITAL EXPENSES		
Annual Replacement Provision Linear	\$3,428,134	\$3,708,409
Annual Replacement Provision Plant/Lagoon	\$5,329,745	\$4,784,498
Annual Replacement Provision Meters	\$0	\$0
Total Capital Provision	\$8,757,879	\$8,492,907
TOTAL EXPENSES	\$13,094,485	\$13,057,590
COST/REVENUE VARIANCE	-\$2,291,819	-\$3,616,815
Units	24,111	21,358
COST/REVENUE VARIANCE PER UNIT	-\$95	-\$169
MARGINAL COST OF LOW DENSITY RESIDENTIAL		
Total Revenue	\$448	\$442
<i>Linear Operating Costs</i>	\$35	\$52
<i>Plant/Well Operating Costs</i>	\$26	\$27
<i>Engineering Operating Costs</i>	\$23	\$27
<i>Admin Operating Costs</i>	\$47	\$37
<i>Annual Replacement Provision Linear</i>	\$93	\$138
<i>Annual Replacement Provision Plant/Lagoon</i>	\$129	\$127
<i>Annual Replacement Provision Meters</i>	\$0	\$0
Total Expenses	\$353	\$407
MARGINAL COST/REVENUE VARIANCE PER UNIT	\$95	\$35

CITY OF GREATER SUDBURY
SUMMARY OF FINANCIAL WASTEWATER ANALYSIS BY SERVICE AREA
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CONDO RESIDENTIAL ONLY	Urban	Suburban
TOTAL CONDO RESIDENTIAL REVENUE	\$125,099	
OPERATING EXPENSES		
Linear Operating Costs	\$10,591	
Plant/Lagoon Operating Costs	\$24,675	
Engineering Operating Costs	\$15,484	
Admin Operating Costs	\$2,348	
Total Operating Expenses	\$53,098	
CAPITAL EXPENSES		
Annual Replacement Provision Linear	\$28,512	
Annual Replacement Provision Plant/Lagoon	\$110,850	
Annual Replacement Provision Meters	\$0	
Total Capital Provision	\$139,363	
TOTAL EXPENSES	\$192,460	
COST/REVENUE VARIANCE	-\$67,361	
Units	379	
COST/REVENUE VARIANCE PER UNIT	-\$178	
MARGINAL COST OF CONDO RESIDENTIAL		
Total Revenue	\$330	
<i>Linear Operating Costs</i>	\$18	
<i>Plant/Well Operating Costs</i>	\$34	
<i>Engineering Operating Costs</i>	\$31	
<i>Admin Operating Costs</i>	\$6	
<i>Annual Replacement Provision Linear</i>	\$49	
<i>Annual Replacement Provision Plant/Lagoon</i>	\$71	
<i>Annual Replacement Provision Meters</i>	\$0	
Total Expenses	\$210	
MARGINAL COST/REVENUE VARIANCE PER UNIT	\$120	

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MULTI-UNIT RESIDENTIAL ONLY	Urban	Suburban
TOTAL MULTI-UNIT RESIDENTIAL REVENUE	\$2,922,497	\$659,277
OPERATING EXPENSES		
Linear Operating Costs	\$226,248	\$84,827
Plant/Lagoon Operating Costs	\$632,166	\$177,659
Engineering Operating Costs	\$396,691	\$74,514
Admin Operating Costs	\$0	\$30,467
Total Operating Expenses	\$1,255,105	\$367,467
CAPITAL EXPENSES		
Annual Replacement Provision Linear	\$609,082	\$224,447
Annual Replacement Provision Plant/Lagoon	\$2,839,994	\$454,904
Annual Replacement Provision Meters	\$0	\$0
Total Capital Provision	\$3,449,076	\$679,350
TOTAL EXPENSES	\$4,704,180	\$1,046,817
COST/REVENUE VARIANCE	-\$1,781,684	-\$387,541
Units	16,536	3,105
COST/REVENUE VARIANCE PER UNIT	-\$108	-\$125
MARGINAL COST OF MULTI-UNIT RESIDENTIAL		
Total Revenue	\$177	\$212
<i>Linear Operating Costs</i>	\$9	\$22
<i>Plant/Well Operating Costs</i>	\$20	\$21
<i>Engineering Operating Costs</i>	\$18	\$18
<i>Admin Operating Costs</i>	\$0	\$10
<i>Annual Replacement Provision Linear</i>	\$24	\$58
<i>Annual Replacement Provision Plant/Lagoon</i>	\$71	\$61
<i>Annual Replacement Provision Meters</i>	\$0	\$0
Total Expenses	\$142	\$190
MARGINAL COST/REVENUE VARIANCE PER UNIT	\$35	\$23

KEY CONCLUSIONS AND OBSERVATIONS

- The results in this report are based on a set of assumptions and approaches which illustrate a general situation rather than a finite outcome.
- In most cases, new development contributes adequate revenue to offset additional servicing costs. This stems from new dwelling units having higher average assessed values than the existing community.
- Servicing costs are typically higher in more distant areas of the City and less in urban areas. This is particularly evident for services reliant on linear infrastructure.
- For certain services, an infrastructure funding gap can be observed when comparing the City's current capital spending to that required according to ideal asset replacement schedules. This finding is present in most Ontario municipalities and as growth occurs the gap will continue to grow.
- The City should encourage development in high density urban areas as it is generally the most cost-efficient. Practically, however, not all future growth can be accommodated by this form of development, particularly families. The City should encourage the development of these units throughout the City, which would reduce cost disparities.
- Although the initial capital costs of local services infrastructure are borne by the developer, the long-term replacement of the assets is an important consideration in the analysis. The lower the amount of local infrastructure required by new development, the lower the annual replacement provisions. This is a major reason why high density developments are preferable from a fiscal standpoint.
- The City should encourage the development of larger apartment units suitable for families as the cost and revenue per capita values are favourable. However, from a homebuyer's standpoint, the per square foot cost of these units is often higher than of comparatively sized ground-related units. This is due to more specialized construction techniques such as concrete shells and more stringent fire prevention and accessibility requirements. Recent changes to the building code to allow taller wood frame apartments should reduce the cost variance somewhat.

- The City should focus growth in areas that have existing capacity (especially for water, wastewater, fire and transit services) to maximize development revenue and minimize additional infrastructure costs.
- When feasible, the City should continue make use of existing facilities to accommodate growth while looking for opportunities to combine facilities across departments (e.g. continue to combine fire and EMS stations) to reduce future upfront capital costs and replacement provisions.
- The City should maximize the use of development charges, within the statutory framework, so that the City's share of funding for the initial round capital emplacement is limited to the 10% deduction for non-engineered and non-protection services and service level improvements only.
- Besides capital projects identified in the City's Development Charges Study, tipping point projects (e.g. new water plants required when growth reaches a certain point) post-2023 have generally not been considered. Tipping point projects should be prioritized in the most cost effective locations identified in this report.
- The fiscal impact of growth analysis for the City of Greater Sudbury produced results similar to those calculated in other jurisdictions,
- The type of analysis undertaken in this report should be reviewed periodically to ensure fiscal considerations continue taken into account during the development of Official Plan policies.