

TO:	CHAIR AND MEMBERS CORPORATE SERVICES COMMITTEE NOVEMBER 7, 2017
FROM:	ANNA LISA BARBON MANAGING DIRECTOR, CORPORATE SERVICES AND CITY TREASURER, CHIEF FINANCIAL OFFICER
SUBJECT:	DEVELOPMENT CHARGES RATE MONITORING – 2017 REVIEW

RECOMMENDATION

That on the recommendation of the Managing Director, Corporate Services and City Treasurer, Chief Financial Officer, the Development Charges Rate Monitoring – 2017 Review report **BE RECEIVED** for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER
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Strategic Priorities & Policy Committee – May 15, 2017 – Growth Management Implementation Strategy (GMIS): 2018 Annual Review & Update

Strategic Priorities & Policy Committee – November 7, 2016 – Development Charges Rate Monitoring 2016 Review

Strategic Priorities & Policy Committee – November 7, 2016 – 2015 Annual Report, Development Charges Reserve Funds

Strategic Priorities & Policy Committee – June 23, 2014 – Approval of 2014 Development Charges (DC) By-law and DC Background Study

BACKGROUND

Development Charge (DC) Rate setting typically occurs on a five year cycle, as provided for in the *Development Charges Act*. In the intervening years, monitoring of actual experience in DC costs and revenues against estimates used in DC rate setting is useful primarily to determine whether DC rates are reasonably accurate. As well, periodic observations about the pace of actual growth in relation to the pace of projected growth in the DC Study can assist in informing decisions about the rate of spending to provide capacity for future growth. DC monitoring can be broken down into three critical reporting tools:

- **DC Rate Monitoring** - involves analysis of actual & projected costs and growth assumptions as compared to the estimates used in setting DC rates. DC rate monitoring provides evidence about how suitable the current DC rates are in recovering the actual costs of growth being experienced. It is intended to make high level observations regarding the cost estimates used in setting the 2014 DC rates.
- **Statutory Annual DC Report** – provides information on the activity of each DC Reserve Fund detailing the transactions that result in the opening and closing fund balances. Section 43 of the *Development Charges Act* requires this annual statement to be provided to Council.
- **Growth Management Implementation Strategy (GMIS)** – used to coordinate growth infrastructure with development approvals and correspond with the pace of growth across the City, while maintaining an acceptable financial position. Its purpose is to ensure the affordability of growth servicing in the City of London, while providing development opportunities to meet market demand.

This report addresses DC rate monitoring over the period August 2014 (inception of new DC By-law) to July 31, 2017. It is intended to make high level observations regarding the costs estimates used in setting 2014 DC rates.

At the outset, it should be understood that the DC rate study forecasts growth needs (for “hard service” infrastructure) projects for a full twenty year period. For monitoring purposes, we have approximately three years of actual experience with which to judge the accuracy of these forecasts. The analysis below provides some initial observations from projects that were estimated to be constructed in either 2014, 2015, 2016 or 2017. The annual update of this information is important to determine trends over time in how the estimates used to set DC rates differ from actual experience.

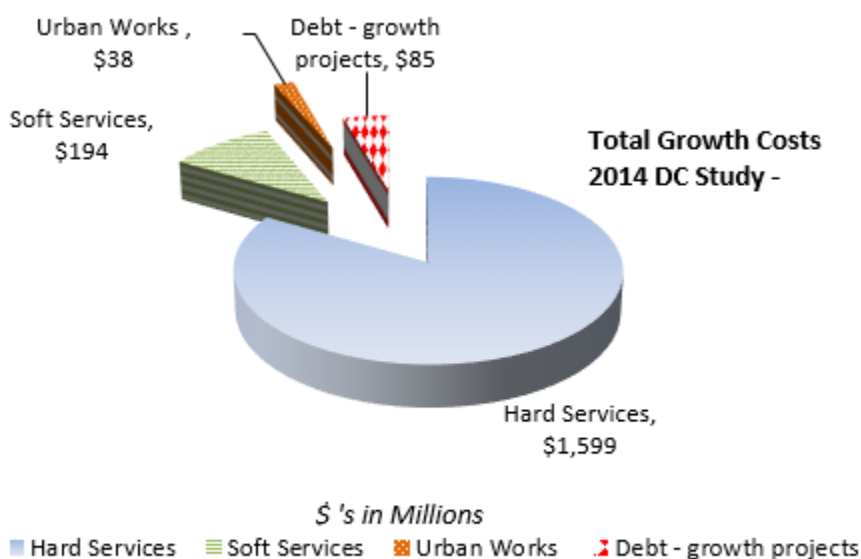
An improvement from last year’s report is the inclusion of monitoring City Services Reserve Fund (CSRF) revenues. In the past, unit or square foot construction was used as a proxy to make assumptions on the expected impact to the reserve funds. While there is a correlation between permit issuance and revenue, it is difficult to quantify the impact in dollars to the reserve funds when growth projections are either not met or exceeded and how the variance could be offset from each DC rate category. This information will be discussed in section 4.

SCOPE & ANALYSIS

1. ASPECTS OF DC RATE MONITORING

a. What is the scope of the costs under review through DC rate monitoring?

The 2014 DC Study projected costs of \$1.9 billion (see diagram below) to serve anticipated growth over the next 20 years. For the purposes of this review, only hard service infrastructure is assessed to test the 2014 DC rates. As seen in the diagram below, hard services make up 84% of all costs identified in the Study, so the project variances experienced in these areas have the biggest impact to the calculated DC rate.



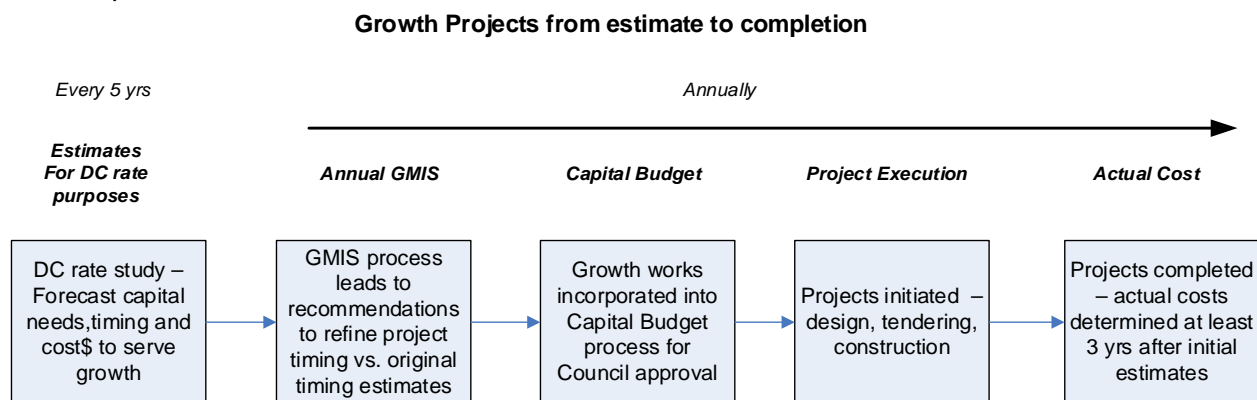
b. How can we assess the accuracy of the calculated DC rates?

The DC rate study estimates project costs by implementing knowledge from master plan studies for each respective service area. Project cost estimates are based on a number of informed assumptions about input costs (e.g., pipes, asphalt), physical installation costs, and high-level analysis of project location, design work and restoration costs.

The accuracy of DC rates depends on a number of factors, including:

- the accuracy of the cost estimates (spanning twenty years) used in the rate calculations;
- the adequacy of contingencies, where specific project costs cannot be developed;
- the actual executed timing of construction of infrastructure works in relation to the anticipated timing in the Study; and,
- the rate of building activity and volume of activity in relation to growth forecasts.

The graphic below depicts the general process from growth expenditure forecast to project completion.



DC rate monitoring entails forecasting the final project costs to determine whether the initial costs used to establish DC rates are reasonably accurate. The results of these reviews on costs are discussed below.

2. GROWTH COSTS – OBSERVATIONS RELATED TO 2014 DC RATE ESTIMATES & FORECASTED FINAL PROJECTED COSTS

This section reports observations on estimated project costs used in the 2014 DC Study compared to actual or anticipated final costs. Observations are based on a review of the projects which were identified to be constructed since 2014 in the Study. Since 2014 many project estimates have changed, construction timing has changed and scope changes have occurred. This analysis attempts to gauge the impact of all these changes, which provides a high-level conclusion on how effective the current DC rates are for recovering the costs of growth.

The analysis was undertaken through assistance from project managers in Environmental and Engineering Services (EES) responsible for the design and tender of each DC infrastructure project. Approvals to commence these works are generally sought through Civic Works Committee with Sources of Financing reports prepared by Financial Planning and Policy. Planning and Environment Committee reports recommending development approvals with DC infrastructure were also reviewed to compile costing information.

The findings from monitoring Development Charge funded projects will be discussed in the following sections (i) – (v):

(i) TOTAL HARD SERVICES PROJECT SUMMARY

Mentioned in the scope briefing, the cost of hard services (Roads, Wastewater, Stormwater and Water Distribution) make up 84% of the costs for the twenty year growth period, equating to \$1.6 billion. The full detailed list of projects evaluated can be found in the appendices.

Table 1 below provides a summary of the total projected costs compared to estimates used to establish DC rates for: Arterial Roads, Wastewater, Stormwater and Water Distribution Areas (i.e. the “Hard Services”).

TABLE 1: SUMMARY OF 2014-2017 INFRASTRUCTURE PROJECTS

Hard Services Summary Growth Projects	Total Costs (Millions of \$)	% of Total 20 Year Program
2014 DC Study Estimate	\$331.4	30%
2017 DC Rate Monitoring Estimate	\$337.7	
Variance	(\$6.3)	

The overall cost of hard service growth has remained fairly consistent from 2014, resulting in an estimated increase in costs of approximately 2% or \$6.3 million. The scope of costs being evaluated is roughly 30% of all hard service growth infrastructure identified in the 2014 DC Study.

Specific project variances have ranged from +61% to -227%; given the large spread, it is important to note that the estimations used in the DC Study for rate calculation purposes are based on best available information, which is incorporated into the master planning process. Footnotes on specific projects variances can be found in the Appendices.

The specific service areas are analyzed further in the following sections for the distribution of costs.

(ii) ROAD SERVICES PROJECT REVIEW

The total twenty year cost estimate of growth related Road Services projects in the 2014 DC rate calculation is approximately \$1.1 billion. Table 2 below summarizes the analysis for monitoring road services projects, the list of projects can be found in Appendix ‘A’.

TABLE 2: SUMMARY OF 2014-2017 ROAD SERVICES PROJECTS

Roads Services Growth Projects	Total Costs (Millions of \$)	% of 20 Year Roads Program
2014 DC Study Estimate	\$126.3	11%
2017 DC Rate Monitoring Estimate	\$124.5	
Variance	\$1.8	

At present, the current DC rate for Arterial Roads appears sufficient to support DC funded Transportation projects, with a slight positive variance of 1% or \$1.8 million. The scope of road service costs is only 11% of the total \$1.1 billion identified in the 2014 DC Study. Future road construction projects will provide greater clarity on the suitability of the Road Service portion of the DC rate.

(iii) WASTEWATER PROJECT REVIEW

The total twenty year cost estimate of growth related wastewater projects in the 2014 DC rate calculation is approximately \$203 million. Table 3 below summarizes the analysis for monitoring wastewater projects; the list of projects can be found in Appendix ‘B’.

TABLE 3: SUMMARY OF 2014-2017 WASTEWATER PROJECTS

Wastewater Growth Projects	Total Costs (Millions of \$)	% of 20 Year Wastewater Program
2014 DC Study Estimate	\$89.9	44%
2017 DC Rate Monitoring Estimate	\$87.5	
Variance	\$2.4	

The wastewater rate is proving to be sufficient to cover the costs of the estimated projects for the short term, with a favourable variance of 3% or \$2.4 million. It should be noted that some projects have experienced some large discrepancies in preliminary cost estimation and expected cost. The range spans from -177% to +48%. This spread supports the fact that the DC Study is based on best available information and knowledge of the expected project which can significantly vary as construction nears.

As part of the ongoing process of planning infrastructure, EES staff attempt to ensure that the most cost efficient servicing solutions are advanced, while at the same time, meeting the desires of development proponents. As a result of this effort, an opportunity may exist to adjust the routing and timing of some of the growth sanitary sewers. This will also provide better DC Sanitary Reserve Fund stability in the long term and still accommodate growth in specific areas of the City.

(iv) STORMWATER MANAGEMENT PROJECT REVIEW

The total twenty year cost estimate of growth related SWM projects in the 2014 DC Study is approximately \$253 million. Table 4 below summarizes the analysis for monitoring Stormwater Management projects; the list of projects can be found in Appendix 'C'.

TABLE 4: SUMMARY OF 2014-2017 STORMWATER MANAGEMENT PROJECTS

Stormwater Management (SWM) Growth Projects	Total Costs (Millions of \$)	% of 20 Year SWM Program
2014 DC Study Estimate	\$101.2	40%
2017 DC Rate Monitoring Estimate	\$112.2	
Variance	(\$11.0)	

The stormwater program is expected to have net increased costs of approximately 10% or \$11 million. There are a few scenarios listed below which should be taken into account before drawing any conclusions from the chart pictured above.

- One project, Riverbend Trib 'C' accounts for \$7.5 million of the negative variance. The scope of the project varied due to complexity, requiring technical expertise of the area resulting in a change from one planned facility to three individual facilities (wet pond, a linear conveyance / infiltration, and a dry pond with an infiltration component), which is attributed to the cost increase.
- Three projects have been tendered, in which two have come in under the DC Estimate with an expected savings of \$2.7 million. With 25 projects under review, the lack of construction can partially be due to the Just-In-Time Stormwater Management Delivery Policy, where the infrastructure investment is paced with the timing of development. The other main contributing factor is the Dingman EA mentioned below which has put most of the scheduled projects on hold in the Southwest Area.
- Some of the facilities in the Dingman Creek area are under review as part of the Dingman Area Environmental Assessment (EA). The broader approach to the EA is supported by the Ontario Ministry of the Environment and Climate Change and will look for alternate ways of accommodating surface flows, adjusting the required timing of some facilities, reducing the size of some facilities, opening up land for development, and potentially removing the need for some facilities entirely. The conclusion of this study could drastically change the cost structure of the SWM facilities in the Southwest area. As part of the 2017 GMIS the timing of many projects in the Southwest area was adjusted for immediate strategic needs.

With these factors in mind, the Stormwater rate appears to be deficient to support the short term projects; given the increase in costs, the GMIS has been proactive in mitigating the impact to the Stormwater Reserve Fund. The result has allowed the pace of development to catch up with the expected increase in investments in the short term, closing the gap. Obtaining actual construction values for future scheduled projects will help in providing granularity on the suitability of the calculated rate; adjustments for the 2019 DC Study may be required.

(v) WATER DISTRIBUTION RATE

The total twenty year cost estimate of growth related Water projects in the 2014 DC rate calculation is approximately \$113 million. The table below summarizes the analysis of water distribution projects; the full list can be found in Appendix 'D'.

TABLE 5: SUMMARY OF WATER DISTRIBUTION 2014-2017 PROJECTS

Water Distribution Growth Projects	Total Costs (Millions of \$)	% of 20 Year Water Program
2014 DC Study Estimate	\$14.0	12%
2017 DC Rate Monitoring Estimate	\$13.5	
Variance	\$0.5	

The water distribution rate calculated for 2014 is sufficient to fund the near term projects evaluated. The cost estimation spread was fairly narrow ranging from -19% to +61%, and in total, a slight positive variance of 3.5% is being estimated from the projects reviewed.

3. OBSERVATIONS RELATED TO URBAN WORKS RESERVE FUND (UWRF) CLAIMS

A key deliverable of the 2014 Development Charge study was to incorporate a phased approach to retirement of the Urban Work Reserve Fund (UWRF) and to move financing of development works in-line with the Growth Management Implementation Strategy (GMIS) and capital budgeting process undertaken by Finance and EES.

In the absence of a budget based system that tracked developer led UWRF claims, from initial estimate to project completion (unlike the capital budget system which does so), the analysis related to adequacy of the UWRF estimates is more complex than for CSRF works. Also, the significance of these claims, in relation to the overall DC rate is relatively minor (comprising less than 5% of the overall growth infrastructure servicing costs in the 2014 DC study).

Due to the minor scope of the UWRF rate in comparison to CSRF rates for hard services, it is recommended that staff continue to track and assess outstanding claims as they are submitted. While still providing quarterly reporting to the development community on the remaining claims required to liquidate UWRF obligations under existing development agreements. The retirement of the UWRF will be further addressed through 2019 DC Study discussions.

4. ANNUAL PROGRAM MONITORING

Development in the city frequently involves the construction of minor works that are eligible for partial or full DC recovery through claims. Various annual programs were identified in the 2014 DC Study to fund the construction of minor work. These annual programs are predominately setup with a straight-line calculation for twenty years based on specific unit costs identified through the master planning process, with the assumption in mind that the developer will be responsible to construct the works. Also, the funding source is 100% from DC's with no future growth benefit attributed. These works are contingent on development activity and provide regional benefit to the area adjacent to the development.

The identification of these works occurs through the development approvals process and is ultimately triggered by a subdivision, site plan or consent agreement. If the pace of development needing these types of works is over and above the allotted annual budget, it could put pressure on the City's ability to reimburse the developer for completing the works. The scope of the annual programs across the \$1.6 billion "hard service" projects is 3.5% for a total of \$56 million over the twenty year period. Given the small percentage of the total hard service program, these annual programs are not included in this report. However, careful monitoring and use of these types of programs is tracked on a continual basis to ensure adequate funding is consistently made available.

5. MONITORING CITY SERVICES RESERVE FUND (CSRF) REVENUES

An important relationship exists between the projected amount of residential and non-residential growth and the City's investments in infrastructure projects. Development Charge rate calculations are based on growth projections that determine servicing needs, which in turn establish DC rates. If actual growth in the form of building construction does not consistently meet the growth projections contained in the DC Background Study, then the amount of DC revenue being generated is not sufficient to maintain the original schedule of infrastructure investments. The two key elements – growth activity and investment in infrastructure – should move in tandem.

Historically, the practice for conducting a growth analysis was to compare building construction (permits issued) with the DC Background Study growth projections for residential and non-residential development. The analysis has been refined below to show the amount of DC revenues in terms of dollars instead of units and square feet; this helps in measuring the impact to the DC Reserve Funds. The GMIS is a valuable tool to adjust the capital investments according to the pace of growth, which has been underperforming the projections adopted for the 2014 DC Study.

Table 6 seen below consolidates total CSRF revenues received from issued building permits for residential and non-residential DC's since August 4, 2014 (inception of current DC By-law) to July 31, 2017:

TABLE 6: COMPARISON OF CSRF REVENUES

	<i>All Values (000's)</i>		
	DC Study Projection	Actuals	Variance
LOW DENSITY	\$97,222	\$70,507	(\$26,715)
MEDIUM DENSITY	\$22,558	\$28,652	\$6,094
HIGH DENSITY	\$29,588	\$38,663	\$9,074
RESIDENTIAL TOTAL	\$149,368	\$137,822	(\$11,546)
INDUSTRIAL	\$24,339	\$12,630	(\$11,709)
COMMERCIAL	\$10,896	\$20,094	\$9,199
INSTITUTIONAL	\$15,131	\$13,207	(\$1,925)
NON-RESIDENTIAL TOTAL	\$50,366	\$45,931	(\$4,436)
GRAND TOTAL	\$199,734	\$183,753	(\$15,982)

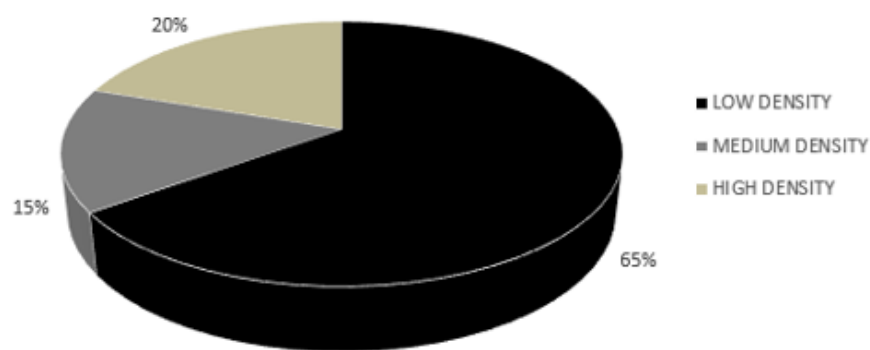
Note: Period of analysis includes Aug 4th, 2014 (inception of current DC By-law) to July 31, 2017. For comparison purposes the 2014 DC Study projections were prorated based on calendar days.

Residential Analysis:

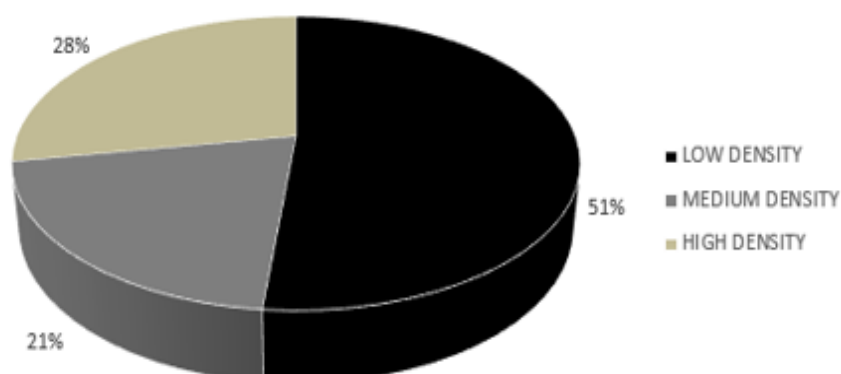
CSRF revenues account for a total shortfall of \$11.5 million when compared to the projections in the 2014 DC Study. Unexpectedly the low density residential share of revenues has been extremely low, underperforming for a total of \$26.7 million. Conversely, high density and medium density residential are outperforming the revenue projections by a total of \$15.1 million. The substainstial outperformance of higher density housing has been beneficial towards the health of the DC Reserve Funds, closing the gap being experienced in low density housing. This figure provides a snapshot in time, it should be noted that constuction levels remain strong and the current revenue shortfall is anticipated to slowly recover, as preparations are underway for the 2019 DC Study.

The two diagrams below demonstrate how the residential CSRF revenue has varied from DC study projections. The most notable difference can be seen in the drop in low density revenues from a projected 65% share to a 51% share.

Residential CSRF Revenue Distribution - PROJECTION



Residential CSRF Revenue Distribution - ACTUALS



Non-Residential Analysis:

CSRF revenues account for a total shortfall of \$4.4 million when compared to the projections in the 2014 DC Study. Industrial building is significantly lower than what was projected totalling a shortfall of \$11.7 million. Commercial revenues have significantly outperformed the projection by a total of \$9.2 million; this increase has absorbed a lot of the shortfall that was experienced with industrial building. Institutional revenues are only slightly below the projection with over 50% of those revenues being realized in 2016 as a result of a spike in construction activity. The total non-residential share of CSRF revenue has remained constant from the projections making up a quarter of all CSRF revenues.

Conclusion:

The introduction of monitoring revenues for this report assists in providing a holistic view for judging the suitability of the 2014 DC Study calculated rates. Although the allocation of growth has varied, the DC revenues in its entirety are below the projections by approximately 8%. 2015 was an extremely challenging year for DC revenues, as a result the reserve funds were under-funded by a total of \$23 million in the calendar year, which was a contributing factor to the major hard service program adjustments adopted in the 2017 GMIS Update. Staff are encouraged by the recent construction activity and anticipate the revenue gap to continue to close, led by increased revenue experienced over the past year.

6. LIMITATIONS IN THIS REPORT

This report has two general limitations that the reader should be aware of:

1. First, this report has addressed DC funded "Hard Services" costs in the 2014 DC study. The figure in section 1 depicts other elements of costs that are incorporated into the DC rate structure, that have not been addressed in this monitoring report. Significant variances in "soft" services would also affect DC rates, but not nearly to the same extent as variances in the more costly "hard" services.
2. Secondly, the scope of this report is limited, given the relatively few projects for which tender results are available (24 projects, not including annual programs), in relation to the number of projects upon which DC rates were set (for the hard services addressed in this report, in excess of 500 hard service infrastructure projects spanning a twenty year period impact the calculation of the DC rates). Tender results in the future may, or may not reveal currently undiscovered variances that would impact conclusions on the overall "health" of the DC rates.

7. COMMENT ON NATURE OF DC ESTIMATES

It is necessary to use estimates in the DC rate calculation that are based on preliminary, best available information and costing models. These cost estimates are prone to variations as further design, study or market conditions reveal. Therefore, it is important that staff and consultants exercise diligence in developing cost estimates and provide for ample contingencies in the DC rate calculations.

CONCLUSION

This concludes the analysis of monitoring DC projects & revenues that were used in the 2014 DC Study. The focus has been to assess the accuracy of DC rates for growth infrastructure, based on the review, the discussed calculated rates from 2014 are largely acceptable. The estimated variance in Stormwater Management costs and possible changes in program scope will be monitored for the 2019 DC Study.

Residential and Non-Residential construction, however, has generally been below what was anticipated when DC rates were calculated. As a result staff have utilized the GMIS process to be proactive in responding to the economic conditions impacting the 2014 DC Study forecasts. The continual monitoring of the costs and timing for hard service projects will be critical in rating the effectiveness of the changes implemented.

With the discussion on 'Limitations in this Report' above in mind, it is the opinion of staff that DC rates for CSRF funded infrastructure projects are reasonably accurate, with both favourable and unfavourable variances in individual projects being observed. The 2019 DC Study process is currently underway, and therefore it is premature at this time to make any adjustments to the current DC rates.

PREPARED BY:	REVIEWED BY:
ADAM LANGMUIR COORDINATOR, FINANCIAL INFORMATION, DEVELOPMENT FINANCE	PAUL YEOMAN, RPP, PLE DIRECTOR, DEVELOPMENT FINANCE
CONCURRED IN BY:	
KELLY SCHERR, P. ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES AND CITY ENGINEER	
RECOMMENDED BY :	
ANNA LISA BARBON, CPA, CGA MANAGING DIRECTOR, CORPORATE SERVICES AND CITY TREASURER, CHIEF FINANCIAL OFFICER	

October 30, 2017

c.c. London Development Institute
Urban League of London
London Home Builders' Association
George Kotsifas, Managing Director, Development & Compliance Services and Chief Building Official
Jason Senese, Manager, Financial Planning and Policy

attchmts: Appendix A – Road Services Projects
Appendix B – Wastewater Projects
Appendix C – Stormwater Management Projects
Appendix D – Water Distribution Projects

APPENDIX 'A'
ROAD SERVICES GROWTH PROJECTS

City Account Number	Project Description	DC Project ID	Expected Year	DC Study Estimated Cost	Final Projected Cost	Variance	Percentage
TS1496-2	12 (1a): Sunningdale Road-Stage 1 - Phase 1 - Wonderland/Sunningdale Intersection (2 to 4 through lanes)	DC14-RS00002	2014	\$ 3,300,000	\$ 3,276,300	\$ 23,700	1%
TS1477-1	11a: Hyde Park Road-Oxford to CPR (2 to 4 through lanes) 39: Hyde Park Road-CPR to Fanshawe Park Road (2 to 4 through lanes)	DC14-RS00001	2014	\$ 22,980,000	\$ 21,201,415	\$ 1,778,585	8%
TS1477-2	2: Commissioners Road-Wonderland Road to Viscount Road (2 to 4 through lanes with centre turn lane)	DC14-RS00005	2015	\$ 15,585,500	\$ 15,000,000	\$ 585,500	4%
TS1470		DC14-RS00004	2015	\$ 13,802,000	\$ 14,314,000	\$ (512,000)	(-4%)
TS1308	5: Wonderland Interchange-Highway 401 (Interchange)	DC14-RS00003	2015	\$ 10,450,000	\$ 10,450,000	\$ -	0%
TS1037	Transportation Network Model	DC14-GS00049	2016	\$ 150,000	\$ 150,000	\$ -	0%
TS1409	Kilally Rd Upgrades @ Webster Phase 1	DC14-RS00215	2016	\$ 2,695,000	\$ 2,695,000	\$ -	0%
TS1430-7	RT7 - Richmond St. to Raymond Ave	DC14-RS00107	2016	\$ 14,542,000	\$ 14,542,000	\$ -	0%
TS1475-2	Fanshawe Pk Rd E Widening Phase 2	DC14-RS00007	2016	\$ 15,460,000	\$ 13,708,000	\$ 1,752,000	11%
TS1484	Samia Widening - Wonderland to Sleightholme 22b: Bradley Avenue Extension-Phase 2 - Wharncliffe to Wonderland (4 through lanes)	DC14-RS00008	2016	\$ 8,362,000	\$ 10,200,000	\$ (1,838,000)	(-22%) ¹
TS1523-1	Wonderland (4 through lanes)	DC14-RS00012	2017	\$ 12,264,375	\$ 12,264,375	\$ -	0%
TS1627	Intersection- Western/Sarina	DC14-RS00076	2017	\$ 2,490,000	\$ 2,490,000	\$ -	0%
TS1349-2	Samia Road - Stage 2 Phase 2 - Hyde Park to Oakcrossing Gate (2LUA)	DC14-RS00202	2017	\$ 5,060,000	\$ 5,060,000	\$ -	0%
TS1406	Sunningdale - South Winege to Highbury (2LUA)	DC14-RS00204	2017	\$ 3,520,000	\$ 3,520,000	\$ -	0%
TS1487	Wonderland - 401 to 402 (2LRA)	DC14-RS00205	2017	\$ 10,395,000	\$ 10,395,000	\$ -	0%

¹. Samia widening project tender value came in higher than DC Estimate at \$8.9 million; business case was submitted to change scope of project.

**APPENDIX B'
WASTEWATER GROWTH PROJECTS**

City Account Number	Project Description	DC Project ID	Expected Year	DC Study Estimated Cost	Final Projected Cost	Variance	Percentage
ES2685	Greenway PCP Treatment Capacity Upgrades	DC14-WW01001	2014	\$ 46,166,750	\$ 46,166,750	\$ -	0%
ES2493	HP7A - Hyde Park Growth Area Oxford PCP sewershed	DC14-WW00001	2014	\$ 5,625,000	\$ 5,085,000	\$ 540,000	10%
ES5253	RB1B - River Bend Growth Area Oxford PCP sewershed	DC14-WW00002	2014	\$ 3,774,900	\$ 3,774,900	\$ -	0%
ES2466	Hyde Park Pumping Station Upgrade	DC14-WW01004	2014	\$ 198,500	\$ 550,346	\$ (351,846)	(-177%) ¹
ES5016	Wonderland Pumping Station Optimization	DC14-WW01010	2014	\$ 500,000	\$ 195,000	\$ 305,000	61% ²
ES5260	SS3A - Lambeth Growth Area Greenway PCP sewershed	DC14-WW00004	2015	\$ 7,940,525	\$ 9,051,495	\$ (1,110,970)	(-14%) ³
ES5247	SS14A - Wonderland Growth Area Greenway PCP sewershed	DC14-WW00003	2015	\$ 4,582,260	\$ 3,312,415	\$ 1,269,845	28% ⁴
ES2494	SS15A - North Talbot/Lambeth Growth Area	DC14-WW00005-E	2016	\$ 2,765,700	\$ 2,765,700	\$ -	0%
ES5256	SS12B - Exeter Rd/Longwoods Growth Area	DC14-WW00007	2016	\$ 5,442,400	\$ 2,818,973	\$ 2,623,427	48% ⁵
ES5132	East Park Pumping Station Upgrade	DC14-WW01005	2016	\$ 1,653,000	\$ 1,653,000	\$ -	0%
ES523616	Medway Sanitary Sewer - Landea & Clarke	--	2017	\$ -	\$ 800,000	\$ (800,000)	n/a ⁶
ES2498	SS15C - North Talbot Growth Area Greenway PCP sewershed	DC14-WW00006	2017	\$ 4,025,754	\$ 4,025,754	\$ -	0%
ES5252	KL1B - Killaly Growth Area Adelaide PCP sewershed	DC14-WW00008	2017	\$ 1,198,598	\$ 1,198,598	\$ -	0%
ES2204	Colonel Talbot Pumping Station	DC14-WW01006	2017	\$ 6,100,000	\$ 6,100,000	\$ -	0%

1. Scope change, upgrades needed due to enhanced sewershed, includes pump purchase and electrical upgrades.
2. Project cost only reflects pump purchase.
3. Intersection complexities drove costs higher than estimate.
4. Location change to boulevard instead of roadway allowed for cost savings.
5. DC Study overestimated the length of sewer required to construct SS12B (1500m vs. 1065m).
6. Project was not identified in the 2014 DC Study. However, through detailed design the project was identified as a growth area need, which provides a regional benefit. Funding was sourced from projects that were completed and had positive variances.

**APPENDIX 'C'
STORMWATER GROWTH PROJECTS**

City Account Number	Project Description	DC Project ID	Expected Year	DC Study Estimated Cost	Final Projected Cost	Variance	Percentage
ES3020-HP6	Hyde Park SWMF 6	DC2009	2013	\$ 2,416,700	\$ 2,416,700	\$ -	0%
ESSWM-SB	Wickerson SB SWMF	DC14-MS00041	2014	\$ 3,691,000	\$ 2,566,000	\$ 1,125,000	30% ¹
ESSWM-MM4	Murray Marr SWMF 4 - Phase 1	DC14-MS00016	2014	\$ 2,100,000	\$ 2,100,000	\$ -	0%
ESSWM-PDR	Pincombe Drain Remediation	DC14-MS00028	2014	\$ 4,200,000	\$ 4,300,000	\$ (100,000)	(-2%)
ID2095-2014	Industrial Facility 1	DC14-MS00053	2014	\$ 5,001,914	\$ 5,001,914	\$ -	0%
ESSWM-OV1	Old Victoria SWMF 1	DC14-MS00026	2015	\$ 1,814,938	\$ 3,085,000	\$ (1,270,062)	(-70%) ²
ESSWM-HP5	Hyde Park SWMF 5 - Phase 1	DC14-MS00008	2015	\$ 5,779,000	\$ 5,518,000	\$ 261,000	5%
ESSWM-DCB4	Dingman Tributary SWMF B4	DC14-MS00005	2015	\$ 3,638,342	\$ 2,055,884	\$ 1,582,458	43% ³
ES2681	Mud Creek SWMF 1	DC14-MS00013	2015	\$ 9,405,000	\$ 10,314,000	\$ (909,000)	(-10%)
ID2095-2015	Industrial Facility 2	DC14-MS00054	2015	\$ 5,001,914	\$ 5,001,914	\$ -	0%
ES3020-RVBTC	Riverbend SWMF Trib 'C' -A,F,G	DC14-MS00032	2016	\$ 3,300,000	\$ 10,800,000	\$ (7,500,000)	(-227%) ⁴
ES3201	Dingman Online Stormwater	DC14-MS00002	2016	\$ 6,390,000	\$ 6,500,000	\$ (110,000)	(-2%)
ESSWM-DCNL P9	Dingman Creek - North Lambeth P9 SWMF	DC14-MS00025	2016	\$ 3,795,220	\$ 5,570,378	\$ (1,775,158)	(-47%) ⁵
ESSWM-PD3	Pincombe Drain SWMF 3	DC14-MS00029	2016	\$ 2,448,000	\$ 2,567,000	\$ (119,000)	(-5%)
ESSWM-PKR	Parker SWMF Phase 1	DC14-MS00027	2016	\$ 4,367,000	\$ 4,555,000	\$ (188,000)	(-4%)
ESSWM-SC2	Stoney Creek SWMF 2	DC14-MS00035	2016	\$ 1,994,200	\$ 2,099,000	\$ (104,800)	(-5%)
ESSWM-SC7	Stoney Creek SWMF 7.1	DC14-MS00033	2016	\$ 1,668,200	\$ 1,800,000	\$ (131,800)	(-8%)
ESSWMMSD6A	Sunningdale SWMF 6A	DC14-MS00037	2016	\$ 1,696,400	\$ 1,800,000	\$ (103,600)	(-6%)
ESSWM-WO3	White Oaks SWMF No. 3	DC14-MS00039	2016	\$ 2,837,000	\$ 2,925,000	\$ (88,000)	(-3%)
ESSWM-WO4	White Oaks SWMF No. 4 Phase 1	DC14-MS00040	2016	\$ 4,698,000	\$ 4,900,000	\$ (202,000)	(-4%)
ES2475	Dingman Creek Channel Remm. Works	DC14-MS00001	2017	\$ 9,511,000	\$ 10,100,000	\$ (589,000)	(-6%)
ES3202	Dingman Creek Online 2	DC14-MS00003	2017	\$ 4,740,000	\$ 5,000,000	\$ (260,000)	(-5%)
ESSWM-NLP7	North Lambeth P7	DC14-MS00023	2017	\$ 3,605,565	\$ 3,850,000	\$ (244,435)	(-7%)
ESSWM-PD4	Pincombe Drain SWMF 4 - Phase 1	DC14-MS00030	2017	\$ 5,128,000	\$ 5,354,000	\$ (226,000)	(-4%)
ESSWM-SDE1	Sunningdale SWMF E1	DC14-MS00038	2017	\$ 1,961,950	\$ 2,100,000	\$ (138,050)	(-7%)

1. Favourable tender result.
2. Location of the facility changed through detailed design; the result being a higher land acquisition cost. Additionally, the facility is also in a Hydro One corridor, which has led to increased construction costs due to physical limitations.
3. Favourable tender and land acquisition results.
4. Scope of the project varied due to complexity, requiring technical expertise of the area resulting in a change from one planned facility to three individual facilities (wet pond, a linear conveyance / infiltration, and a dry pond with an infiltration component).
5. DC Study cost estimate was low; land purchase has increased due to developable land classification, revised estimate is based off consulting engineer from April, 2017.

APPENDIX 'D'
WATER DISTRIBUTION GROWTH PROJECTS

City Account Number	Project Description	DC Project ID	Expected Year	DC Study Estimated Cost	Final Projected Cost	Variance	Percentage
EW3652	River Bend Growth Area - Westdel Bourne (Mid Westdel Bourne to Oxford)	DC14-WD00023	2014	\$ 458,156	\$ 458,156	\$ -	0%
EW3652	River Bend Growth Area - Oxford (Westdel Bourne to Kains)	DC14-WD00024	2014	\$ 1,109,349	\$ 1,109,349	\$ -	0%
EW3551	Growth Needs (2028) - Sarnia (West of Deer Ridge to Hyde Park)	DC14-WD00038	2014	\$ 879,660	\$ 340,000	\$ 539,660	61% ¹
EW3551	Growth Needs (2032) - Hyde Park (Sarnia to South Carriage)	DC14-WD00039	2014	\$ 1,130,288	\$ 1,348,631	\$ (218,343)	(-19%) ¹
EW3595	Growth Needs (ADD1) (Upsizing) - Hyde Park (Royal York to Sarnia)	DC14-WD00005	2014	\$ 2,652,345	\$ 2,415,200	\$ 237,145	9%
EW3590	Uplands PS	DC14-WD02002	2015	\$ 360,000	\$ 310,000	\$ 50,000	14%
EW3591	Hyde Park PS	DC14-WD02003	2015	\$ 700,000	\$ 700,000	\$ -	0%
EW3628	Southeast Pressure Zone	DC14-WD02005	2014	\$ 2,700,000	\$ 2,700,000	\$ -	0%
EW3582	Talbot Growth Area - Tillman Road (Southdale to End)	DC14-WD00031	2014	\$ 688,500	\$ 735,000	\$ (46,500)	(-7%)
EW3694	Kilally Rd (A30) Highbury to Clarke Phase 1	DC14-WD00012	2016	\$ 1,268,900	\$ 1,268,900	\$ -	0%
EW2310	Growth Needs (New-6) (Upsizing) - Western Road (Oxford to Plat)	DC14-WD00008	2017	\$ 1,444,109	\$ 2,079,418.50	\$ -	0%
EW2310	Growth Needs (New-7) (Upsizing) - Western Road (Platt's Lane to DC14-WD00034)	DC14-WD00034	2017	\$ 635,310	\$ -	\$ -	0%
ID2195	Industrial Water Servicing Internal o/s	DC14-WD00091	2014-2023	\$ 40,000	\$ -	\$ 40,000	
EW3818	Watermain Internal Oversizing Subsidy	DC14-WD01001	2014-2033	\$ 200,000	\$ 367,257	\$ (167,257)	

1. These two projects should be read in conjunction as they are sourced from the same capital account, the result being a net positive variance of 1 16%.