R.W. Stratford Consulting Inc.

July 29, 2013 Project No. 213101

The Corporation of the City of Guelph
1 Carden Street
Finance & Enterprise
Guelph, Ontario
N1H 3A1

Attention: Ms. Sarah Purton, CMA
Manager, Financial Planning & Budgets

Subject: Peer Review - 2013 Development Charges Update
Hard Services Review

Dear Sarah:

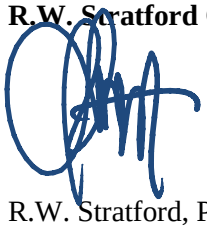
Please find attached, comments related to various hard services based on the information provided by the City on July 5, 2013. Additional comments have been provided by Audrey Jacob on July 24, 2013.

I trust you will circulate this information to the various Guelph DC Team members. We look forward to our meeting on August 1st.

Should you have any immediate questions or concerns, please do not hesitate to contact the undersigned.

Very truly yours,

R.W. Stratford Consulting Inc.



R.W. Stratford, P.Eng.

Encl.

c: Ms. A. Jacob, IBI Group

Tel: 519-857-8806 650 Waterloo Street, Ste. 101, London, ON, N6B 2R4

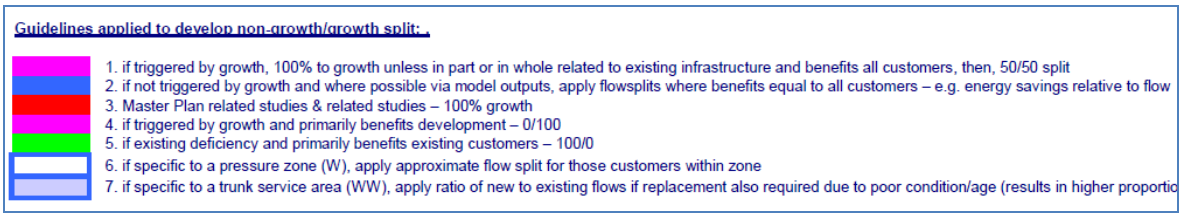
A. General Comments

1. Clear information should be provided to confirm the populations to be served by the various services over the planning horizon. For example, the wastewater collection system may have been designed for a population of 195,000 (c.f. projected population of 175,000 res).

2. Confirm whether any of the services are sized to accommodate growth outside of the existing municipal boundary.

3. For some of the individual line items in the various Water, Wastewater and Roads tables, it is unclear how the PPB, BTE , Excess Capacity and Urgent/Non-Growth Needs Issues are calculated or addressed. Colour-coded Tables were previously prepared for the Water and Wastewater items that contained footnotes which attempted to describe the methodology for calculating growth/non-growth splits.

   For example, Wastewater Collection and Pumping Projects "Guidelines applied to develop growth/non-growth split" were given as follows:



   Similarly, an estimation of Growth vs. Non-growth splits for wastewater works are based on a table included in the colour coded charts based on cross-sectional area of pipe size required. Please explain how that table was applied in the various cost splits.

   Since so many of the proposed "improvements" are located within the City core and built areas, it is difficult to assess apportionment. Conversely, in the absence of detailed descriptions and assignment of splits, the work may more readily be shown as lacking sufficient detail, in the case of a dispute. Greater detail should be provided on a line-by-line basis, as part of the background information, describing growth/non-growth calculations for all relevant line items.

4. No information was provided for the individual gross cost estimates for the various line items and the stated costs were, in general, not reviewed here. Have the individual cost estimates considered benefits derived from simultaneous construction of specific projects? Is the magnitude of potential savings identifiable and should reductions be applied?

5. It might be argued that the capital line items for oversizing (sewers, forcemains) are not DC eligible as they are not identified in background studies. However, it is 'typical' to include these quantities to ensure that unknown items are captured, once detailed designs identify the need. It would be beneficial to have other policies that identify when an 'oversizing' charge is applicable.

6. No background information has been provided with regard to Reserve Fund Accounting and is not reviewed here. Please provide annual DC reserve fund statements identifying growth related project expenditures.

B. Water Distribution and Supply Review

1. Water Plants

- Total Equivalent "Buildout" Population is 281,400 (Feb., 2013 Growth Forecast).
- Flow Rate (before conservation, etc.) is 450 l/c/d (300 x 1.5 MDD). MSP p.64.
- Total Supply provided via "New Supply" + Existing is 182,900 cu.m/day. WSMP.
- Therefore, required capacity to buildout is 281,440 x 0.450 = 126,648 cu.m/day.
- Based on CAP DC Tables, %PPB for new supply projects is calculated in the following table, based on the PPB assigned cost amounts provided. New capacity assigned to growth is the portion not assigned to PPB. The Total Supply generated (100% - 14.69%) is tabulated below (144,142 cu.m/d).

Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Gross Capital Cost Estimate	Post Period Benefit	%PPB	Total Supply Increase from Project cu.m/d	EX Supply + Supply to Buildout per %PPB
EXISTING SUPPLY					75,000
New Supply inside City:					
Arkell Infiltration	10,695,000	1,571,171	14.69	29,504	25,170
Membro/Downey	2,414,000	354,634	14.69	4,000	3,412
Clythe/Sacco/Smallfield/Scout	16,076,000	2,361,678	14.69	9,590	8,181
Logan/Fleming/McCurdy	10,273,000	1,509,176	14.69	8,467	7,223
Gordon/Clair Hanlon/Stone	6,615,000	971,790	14.69	7,456	6,361
Outside City (Wells)	42,500,000	6,243,551	14.69	22,032	18,795
Surface Water/ASR	85,707,000	85,707,000	100.00	27,123	-
				108,172	144,142
				Required Capacity to build-out	126,648
				Overpay by this much?	14%

Note: If employment demand is reduced by excluding 'work at home' and 'no fixed place of work' the capacity requirement would be further reduced

a) Please explain how the PPB costs (14.69%) were derived for the first 6 projects.

b) Should the increase in MDD from 1.35 to 1.5 equate to a further reduction in cost to growth by way of Benefit-to-Existing (increased service level) improvements?

c) Should the cost apportioned to growth be further reduced by virtue of anticipated conservation targets?

d) The Guelph Innovation District Secondary Plan (Section 3.4.3) imposes higher conservation targets than those contemplated in the WSMP, down to 250 l/c/d. Should these anticipated demand savings be factored into supply "requirements", thereby reducing overall supply costs?

e) The various supply projects contribute to Unaccounted for Water (UFW) How have these volumes been factored into PPB?

Refer to attached "RWS TABLE 1" where a Line No. column is added:

f) Gross Cost Estimates: Items common to the 2008 DC Study where estimates differ significantly in the updated tables are highlighted in red in the "Change from 2008 DC" column. Please provide the rationale for these cost revisions.

Prj.No	Line No.	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Timing (year)	Gross Capital Cost Estimate (2013 $)	Line item is in 2008 DC Tables		CHANGE FROM 2008 DC - Gross Capital Cost	
					Y/N	AMT		
WW0016	1	Arkell Spring Grounds	2013-2018	1,019,000	Y	500,000	519,000	104%
WT0002		**New Supply:**					-	
		New Supply inside City:					-	
	4	Clythe/Sacco/Smallfield/Scout	2013-2022	16,076,000	Y	14,675,000	1,401,000	10%
	5	Logan/Fleming/McCurdy	2013-2022	10,273,000	Y	9,389,000	884,000	9%
	6	Gordon/Clair Hanlon/Stone	2013-2022	6,615,000	Y	5,568,000	1,047,000	19%
	7	Outside City (Wells)	2018-2028	42,500,000	Y	39,312,000	3,188,000	8%
WW0106	9	Water Conservation and Efficiency	2013-2059	49,208,000	Y	29,627,041	19,580,959	66%
WW0097	10	W-F-0 Clair Tower Booster Pumping Sati	2014-2015	120,000	Y	2,000,000	(1,880,000)	-94%
WW100	12	W-F-3 Clythe Booster Upgrades	2014-2016	5,544,000	Y	5,000,000	544,000	11%

g) For Line Item No. 11, Verney/Clair Control Upgrades, the BTE has been reduced from 26% to 20% (2008DC vs. 2009DC). Please provide rationale.

2. Residential vs. Non-Residential Split (All Water and Wastewater Items):

a. The CAP tables show a 60%/40% split between Residential/Non-Residential. Based on the February 2013 Growth Projections, should the split be revised to 61%/39%?

Populations Per Feb 2013 Growth Projection Documents					
	Residential	Employment	Tot Equiv	%Res	%NonRes
Base Year	126,250	75,450	201,700	63%	37%
2023 (10 yr)	151,196	91,780	242,976	62%	38%
Buildout	172,400	109,040	281,440	61%	39%

b. The current Growth projections anticipate a significant increase in the proportion of High Density residential development compared to single-family/low density development form. Has or should any accommodation been made in the water modeling to reflect the lower water uses associated with higher density developments (i.e. reduced/eliminated lawn watering, other uses)?

3. Linear Infrastructure - Line Items.

Refer to attached "RWS TABLE 2" where a Line No. column is added

a. Line Items 24 through 36 are not identified in any of the Master Plans I possess. Identify source of information.

b. How was the 90% PPB and 10% Growth share derived for line Items 24 to 33?

c. How was the 55% BTE derived for Line Items 34 to 36?

d. Line Items 1 and 2 were included in the 2008DC Study but do not appear to be identified in the Master Plans. Identify source.

e. The cost for Line Items 2, 3 and 8, 15 to 18 and 31 appear significantly reduced compared to the 2008DC. Provide rationale for cost adjustments.

Prj.No	Line No.	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Timing (year)	Gross Capital Cost Estimate (2013 $)	Line item is in 2008 DC Tables		CHANGE FROM 2008 DC - Gross Capital Cost	
					Y/N	AMT		
WD0001	2	Gordon: (altby	2019	1,415,000	Y	1,615,000	(200,000)	-12%
WD0012	3	W-I-1 Cla y to Gordon	2013	750,000	Y	2,515,050	(1,765,050)	-70%
WW	8	W-I-6 Speedvale: Watson to Westmount	2013-2017	3,000,000	Y	6,075,000	(3,075,000)	-51%
WW0153	15	W-I-17 Stevenson: Woods to York	2023 - buildout	1,315,000				
WW	16	W-I-17 Stevenson: Elizabeth to Eramosa	2023 - buildout	2,192,000	Y	8,437,500	(987,500)	-12%
WW0	17	W-I-17 Stevenson: Eramosa to Speedvale	2023 - buildout	2,192,000				
1	18	W-I-17 Stevenson: Speedvale to Verney	2023 - buildout	1,751,000				
WW0139	23	W-I-25 Development Oversizing (New Development Allowance)	2013-2022	2,500,000	Y	3,750,000	(1,250,000)	-33%

f. Why is no PPB assigned to Line Items 15 to 18?

g. In general, explain how PPB and BTE were calculated in this table.

h. Line Item 14 was not included in 2008DC Study but does appear in the Servicing MP. What is the reason it was not included in 2008DC Study but is included in current tables?

i. Note significant reduction in Line item 23, Allowances.

j. Cost estimates are not provided for any of the works; please provide for review. Does the unit pricing for lineal projects consider that works may be constructed in conjunction with various other improvements (sanitary and road projects)?

4. **Miscellaneous**

a. No grants or subsidies are identified for any projects. Is this correct?

C. Wastewater Collection and Treatment Review

1. Linear Infrastructure - Line Items

Refer to attached "RWS TABLE 3" where a Line No. column is added

a. Line Items highlighted in blue (nos. 29 to 35) are not identified in any of the Master Plans I possess. Identify source of information. Have new studies been prepared?

b. Note only: Line Item Nos. 10 and 25 were not included in 2008 DC Study, but were identified in MSP.

c. Line Item No. 10, Replace Water Street Collector was previously shown to be 100% to non-growth to address existing capacity constraints, but is now shown to be apportioned 50% to growth. Explain rationale.

d. Line Item No. 27, Trunk Sewer Energy Capture. Show how the 57% BTE was calculated.

e. Gross Cost Estimates: Items common to the 2008 DC Study where estimates differ significantly in the updated tables are highlighted in red in the "Change from 2008 DC" column. Please provide the rationale for these.

Prj.No	Line No.	Increased Service Needs Attributable to Anticipated 2013-Urban Build Out	Timing (year)	Gross Capital Cost	Line item is in 2008 DC		CHANGE FROM 2008 DC - Gross Capital Cost	
					Y/N	AMT		
	2	WW-I-0/WW-S-4 Flow Monitors	2015	750,000	Y	1,688,000	(938,000)	-56%
	3	WW-I-1 York Trunk: Hanlon to Victoria	2013-2017	18,900,000	Y	9,150,000	9,750,000	107%
SC0003	4	WW-I-2 Stevenson Trunk: York Trunk to Eramosa	2014-2015	1,335,000	Y	3,410,000	(2,075,000)	-61%
SC0008	12	WW-I-10 River Crossings/Hanlon Expressay Crossings	2013-2014	700,000	Y	3,370,000	(220,000)	-7%
SC0008	13	WW-I-10 River Crossings/Hanlon Expressay Crossings	2016-2022	2,450,000				
SC0018	14	WW-I-12 Siphon improvements	2013-2014	840,000	Y	6,000,000	(960,000)	-16%
SC0018	15	WW-I-12 Siphon improvements	2016-2022	4,200,000				
SC0019	16	WW-I-14 I/I Reduction im ation program	2016-2022	2,200,000	Y	10,000,000	(7,800,000)	-78%
SC0020	17	WW-I-15 New Gravity Sewers - allowance (oversizing)	2013	250,000	Y	5,875,000	(3,875,000)	-66%
SC	18	WW-I-15 New Gravity Sewers - allowance (oversizing)	2016-2022	1,750,000				
SC	19	WW-I-16 New Forcemains - allowance (oversizing)	2013	150,000	Y	337,500	862,500	256%
SC0021	20	WW-I-16 New Forcemains - allowance (oversizing)	2016-2022	1,050,000				
SC0010	28	WW-S-6 Wastewater Master Plan Update	2016	300,000	Y	600,000	(300,000)	-50%

f. Please provide rationale for adjustments in PPB% and BTE% for those items highlighted in red in the last columns of Table 3.

Prj.No	Line No.	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	2013 DC STUDY				2008 DC STUDY			
			Post Period Benefit	PPB%	Benefit to Existing Development	BTE%	PPB 2008	%PPB	BTE 2008	%BTE
SC0018	14	WW-I-12 Siphon improvements	0		420,000	50%	864,000	14%	2,568,000	43%
SC0018	15	WW-I-12 Siphon improvements	0		2,100,000	50%				
SC0020	17	WW-I-15 New Gravity Sewers - allowance (oversizing)	0		25,000	10%	1,750,000	30%		
SC0020	18	WW-I-15 New Gravity Sewers - allowance (oversizing)	0		175,000	10%				
SC0021	19	WW-I-16 New Forcemains - allowance (oversizing)	0		15,000	10%	85,000	25%		
SC0021	20	WW-I-16 New Forcemains - allowance (oversizing)	0		105,000	10%				

2. Wastewater Treatment Plants - Line Items

Refer to attached "RWS TABLE 4" where a Line No. column is added

a. Line No. 15 is an added work compared to the 2008 DC Study. This item is not identified in any of the Master Plans I possess. Identify source of information. Provide rationale for 50% benefit to existing and 0% PPB.

Prj.No	Line No.	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Timing (year)	Gross Capital Cost Estimate (2013 $)	Post Period Benefit	PPB %	Less:	
							Benefit to Existing Development	BTE%
1	15	Process Operations Centre (POC) Expansion	2023-2032	4,150,000	0		2,075,000	50.0%

b. Gross Cost Estimates: Items common to the 2008 DC Study where estimates differ significantly in the updated tables are highlighted in red in the "Change from 2008 DC" column. Please provide the rationale for these.

Prj.No	Line	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Timing (year)	Gross Capital Cost Estimate (2013 $)	Line item is in 2008 DC Tables		CHANGE FROM 2008 DC - Gross Capital Cost	
					Y/N	AMT		
ST0003	5	Biosolids facility Upgrade	2014-2020	43,554,000	Y	40,204,000	3,350,000	8%
ST0004	7	Phase 2 Expansion to 73.3 MLD	2013-2017	14,701,000	Y	33,690,000	(18,989,000)	-56%
ST0004	8	Phase 3 expansion to 85 MLD	2023-2032	62,328,000	Y	45,000,000	17,328,000	39%
ST0005	11	WWTP Upgrades	2013-2019	10,483,000	Y	4,721,491	5,761,509	122%

c. Please provide rationale for adjustments in PPB% and BTE% for those items highlighted in red in the last columns of Table 3.

Prj.No	Line	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	2013 DC STUDY				2008 DC STUDY			
			Post Period	PPB%	Benefit to Existing	BTE%	PPB 2008	%PPB	BTE 2008	%BTE
ST0002	4	WWTP Upgrade Studies	0		0		1,691,176	68%	250,000	10%
ST0003	5	Biosolids facility Upgrade	0		13,066,200	30.0%			20,102,000	50%
ST0004	8	Phase 3 expansion to 85 MLD	25,037,700	40%	0		-	0%		
ST0004	9	Long Term Expansion	68,561,000	100%	0		52,800,000	80%		
ST0005	11	WWTP Upgrades	0		2,096,600	20.0%			3,541,118	75%
ST0008	17	Wastewater Treatment Master Plan	0		0		947,059	68%		

5. **Miscellaneous**

a. One grant, in the amount of $500,000 is shown for all wastewater projects; what is the source? Are there any additional anticipated grants, subsidies, etc.?

D. Stormwater Management Review

a. Does the City intend to incorporate the findings of the February 12, 2013 Stormwater Management Master Plan (AMEC) in this DC Update?

Table 6.1 of that study identifies preliminary quality control retrofit projects. Table 7.1 identifies proposed stormwater quantity control facilities.

b. Explain how the 26%/74% Res/Non-Res split was established on the CAP table.

Line-by-Line Review:

c. Hanlon Creek Storm, $200,000: Provide background information on costs and project description and BTE calculation.

d. Watershed Study Updates and Servicing Studies: Is it acceptable to include study work? Identify BTE calculation.

e. Stormwater Drainage Oversizing: Provide additional detail on Gross Amount and BTE. Does the City have a standard policy for oversizing works/rebates?

f. Downtown CIP: Considering that the downtown is currently "built-up", should all downtown improvements be assigned to existing/increased service level?

E. Highway (Roads) Review

Refer to attached "RWS TABLE 5".

a. Line items highlighted in red on Table 5 indicate items where significant changes are evident, compared to the 2008DC Study. Please explain the rationale for the various changes.

b. Should the Res/Non-Res split be adjusted as per Item B.2a above (i.e. 61/39)?

c. Similar to other hard services, some explanation/rationale for the BTE calculation should be provided and justification for little-to-no PPB given.

d. The Guelph Wellington Transportation Study 2005 relied on Ministry of Finance population forecasts which are now out of date. As well, these forecasts did not contemplate Places to Grow and the various policy initiatives intended to impact urban growth through encouraging intensification. Thus the base forecast in the TMP is, in our view, out of date. A relevant example is the Guelph Innovation District (GID) which was not contemplated at the time of the TMP but is included in the DC growth forecast.

e. How is the timing of road projects determined? An example is the Woodlawn-Silvercreek-Nicklin project which had been identified in the 2008 DC as being within the 0-5 year timeframe but is now contemplated for the 2023-2032 timeframe.

f. Projects contemplated for the last 10 year timeframe should consider PPB.

g. Noted significant "Grants, Subsidies and Other Contributions' for rail crossing/separation works. Are grants and other subsidies available for any of the transportation projects, including:

   i. Provincial funding for roads to accommodate 'external' traffic;

h. Project Nos. 1 to 9, inclusive, listed on the CAP table: identify where the need is identified in background studies.

i. Are gross cost deductions in order, considering opportunities for simultaneous construction with other hard services? Has this been considered?

j. Confirm that the projects listed on page 38 of the TMP as "deficient" today are not included in the capital works.

TABLE 3.3: EXISTING AND FUTURE ROAD NETWORK DEFICIENCIES

- 2001
  - Highway 7
  - Wellington 124 W
  - Hanlon (College – Wellington)
  - Gordon (Stone-Wellington)
  - Edinburgh (Kortright-Ironwood, Wellington-London)
  - Imperial (Massey-Willow)
  - Woolwich (London-Speedvale)
  - York (Downtown – Watson)
  - Victoria (College – Stone)

k. Not certain how or if the issue of increased "external traffic flow" could or should be addressed in the update. Topic to be discussed.

l. Provide the background information regarding the Table line items describing Existing Debt Principal, Debt interest and Reserve Fund Adjustments. In addition, provide Reserve Fund Accounting data from 2008 to present.

INFRASTRUCTURE COSTS COVERED IN THE DC CALCULATION

RWS TABLE 1

City of Guelph
Service: Water Facilities

Prj.No	Line No.	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Timing (year)	Gross Capital Cost Estimate (2013 $)	Post Period Benefit	PPB%	Other Deductions	Net Capital Cost	Less: Benefit to Existing Development	Less: BTE%	Less: Grants, Subsidies and Other Contributions	Total	Total: Residential Share 60%	Total: Non-Residential Share 40%	Line item is in 2008 DC Tables: Y/N	Line item is in 2008 DC Tables: AMT	INCREASE FROM 2008 DC: Red = significant change vs 2008		PPB 2008	%PPB	BTE 2008	%BTE
WW0016	1	Arkell Spring Grounds	2013-2018	1,019,000	-			1,019,000	-		0	1,019,000	611,400	407,600	Y	500,000	519,000	104%				
WT0002		**New Supply:**															-					
		New Supply inside City:															-					
	2	Arkell Infiltration	2013-2022	10,695,000	1,571,171	15%		9,123,829	-			9,123,829	5,474,297	3,649,532	Y	10,295,000	400,000	4%	4,335,408	42%		
	3	Membro/Downey	2013-2022	2,414,000	354,634	15%		2,059,366	-			2,059,366	1,235,620	823,747	Y	2,324,000	90,000	4%	978,678	42%		
	4	Clythe/Sacco/Smallfield/Scout	2013-2022	16,076,000	2,361,678	15%		13,714,322	-			13,714,322	8,228,593	5,485,729	Y	14,675,000	1,401,000	10%	6,179,904	42%		
	5	Logan/Fleming/McCurdy	2013-2022	10,273,000	1,509,176	15%		8,763,824	-			8,763,824	5,258,294	3,505,529	Y	9,389,000	884,000	9%	3,953,875	42%		
	6	Gordon/Clair Hanlon/Stone	2013-2022	6,615,000	971,790	15%		5,643,210	-			5,643,210	3,385,926	2,257,284	Y	5,568,000	1,047,000	19%	2,344,784	42%		
	7	Outside City (Wells)	2018-2028	42,500,000	6,243,551	15%		36,256,449	-			36,256,449	21,753,870	14,502,580	Y	39,312,000	3,188,000	8%	16,554,984	42%		
	8	Surface Water/ASR	2023-2043	85,707,000	85,707,000	100%		-	-				-	-	Y	82,505,000	3,202,000	4%	34,744,326	42%		
WW0106	9	Water Conservation and Efficiency	2013-2059	49,208,000	30,777,000	63%		18,431,000	-			18,431,000	11,058,600	7,372,400	Y	29,627,041	19,580,959	66%	29,627,041	100%		
WW0097	10	W-F-0 Clair Tower Booster Pumping Sation	2014-2015	120,000	-			120,000	-			120,000	72,000	48,000	Y	2,000,000	(1,880,000)	-94%				
WW099	11	W-F-2 Verney/Clair Control Upgrades	2014-2015	1,322,325	-			1,322,325	343,800	26%		978,525	587,115	391,410	Y	1,350,000	(27,675)	-2%			270,000	20%
WW100	12	W-F-3 Clythe Booster Upgrades	2014-2016	5,544,000	-			5,544,000	2,772,000	50%		2,772,000	1,663,200	1,108,800	Y	5,000,000	544,000	11%				
WW0102	13	W-F-5 Water Quality Upgrades (Corrosion & C	2014-2031	4,155,000	-			4,155,000	2,795,900	67%		1,359,100	815,460	543,640	Y	4,000,000	155,000	4%			2,680,000	67%
WW0103	14	W-F-6 Zone 1A/1B BPS & Reservoir	2014-2018	14,024,000	-			14,024,000	1,402,400	10%		12,621,600	7,572,960	5,048,640	Y	13,500,000	524,000	4%				
WW0104	15	W-F-7 Zone 3 Elevated Tank	2016-2017	2,805,000	-			2,805,000	-			2,805,000	1,683,000	1,122,000	Y	2,700,000	105,000	4%				
3	16	W-F-8 Zone 3 Booster Expansion	2023-2032	421,000	-			421,000	-			421,000	252,600	168,400	Y	405,000	16,000	4%				
4	17	W-F-9 East Side BPS & Reservoir	2023-2032	14,024,000	-			14,024,000	1,402,400	10%		12,621,600	7,572,960	5,048,640	Y	13,500,000	524,000	4%				
5	18	W-F-10 Guelph Lake Storage & BPS	2024-2043	14,024,000	14,024,000	100%		-	-			-	-	-	Y	13,500,000	524,000	4%				
WW0105	19	W-S-1-7 Water Master Plan Studies	2013-2033	1,350,000	-			1,350,000	421,000	31%		929,000	557,400	371,600	Y	1,300,000	50,000	4%			403,000	31%
		SUBTOTALS		**282,296,325**	**143,520,000**			**138,776,325**	**9,137,500**			**129,638,825**	**77,783,295**	**51,855,530**		**251,450,041**	**30,846,284**					
		2008 DC TOTALS			98,719,000			168,199,877	4,053,400			154,480,600	97,131,328									
			DIFF		44,801,000			-29,423,552	5,084,100			-24,841,775	-19,348,033									
		Existing Debt Principal	2013-2019	2,911,138	-			2,911,138	-			2,911,138	1,746,683	1,164,455								
		Existing Debt Interest (discounted)	2013-2019	478,419	-			478,419	-			478,419	287,051	191,367								
		Reserve Fund Adjustment							6,555,544			(6,555,544)	(3,933,327)	(2,622,218)								
		Total		**285,685,881**	**143,520,000**		**0**	**142,165,881**	**15,693,044**		**0**	**126,472,837**	**75,883,702**	**50,589,135**	**0**	**251,450,041**	**30,846,284**					

INFRASTRUCTURE COSTS COVERED IN THE DC CALCULATION

RWS TABLE 2

City of Guelph
Service: Water Distribution

Prj.No	Line No.	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Timing (year)	Gross Capital Cost Estimate (2013 $)	Post Period Benefit	PPB%	Other Deductions	Net Capital Cost	Less: Benefit to Existing Development	Less: BTE %	Less: Grants, Subsidies and Other Contributions Attributable to	Total: Total	Total: Residential Share 60%	Total: Non-Residential Share 40%	Line item is in 2008 DC Tables: Y/N	Line item is in 2008 DC Tables: AMT	CHANGE FROM 2008 DC - Gross Capital Cost		PPB 2008	%PPB	BTE 2008	%BTE
																	Red = significant change vs 2008					
WW0060	1	Maltby: Southgate to Gordon - Industrial Park	2015-2020	1,657,000	0			1,657,000	165,700	10%		1,491,300	894,780	596,520	Y	1,595,000	62,000	4%				
WD0001	2	Gordon: Clair to Maltby	2019	1,415,000	0			1,415,000	141,500	10%		1,273,500	764,100	509,400	Y	1,615,000	(200,000)	-12%				
WD0012	3	W-I-1 Clair: Crawley to Gordon	2013	750,000	0			750,000	0			750,000	450,000	300,000	Y	2,515,050	(1,765,050)	-70%				
WW0082	4	W-I-2 Scout Camp Aquaduct Tie-In	2013-2015	2,078,000	0			2,078,000	1,039,000	50%		1,039,000	623,400	415,600	Y	2,000,000	78,000	4%				
WD0002	5	W-I-3 Hanlon: Wellington to Clair	2013-2017	9,750,000	0			9,750,000	2,535,000	26%		7,215,000	4,329,000	2,886,000	Y	10,192,500	(442,500)	-4%			2,038,500	20%
WD0003	6	W-I-4 Edinburgh to Kortright	2019-2022	1,200,000	0			1,200,000	312,000	26%		888,000	532,800	355,200	Y	1,265,625	(65,625)	-5%			253,120	20%
WD0004	7	W-I-5 Kortright to Edinburgh to Gordon	2019-2021	1,500,000	0			1,500,000	390,000	26%		1,110,000	666,000	444,000	Y	1,458,000	42,000	3%			291,600	20%
WD0005	8	W-I-6 Speedvale: Watson to Westmount	2013-2017	3,000,000	0			3,000,000	1,500,000	50%		1,500,000	900,000	600,000	Y	6,075,000	(3,075,000)	-51%			3,038,000	50%
WD0007	9	W-I-9 Wellington: Hanlon to Watson	2013-2020	10,900,000	0			10,900,000	5,450,000	50%		5,450,000	3,270,000	2,180,000	Y	10,125,000	775,000	8%			5,062,500	50%
WD0011	10	W-I-11 Kortright Zone 1B: Edinburgh to Rickson	2017	486,000	0			486,000	126,360	26%		359,640	215,784	143,856	Y	486,000	-	0%			97,200	20%
WD0008	11	W-I-12 Zone 1 A/B Split	2020	500,000	0			500,000	250,000	50%		250,000	150,000	100,000	Y	500,000	-	0%			250,000	50%
WD0009	12	W-I-14 Arkell Well Transmission Main	2018-2021	14,500,000	0			14,500,000	7,250,000	50%		7,250,000	4,350,000	2,900,000	Y	14,985,000	(485,000)	-3%			7,492,500	50%
WD0017	13	W-I-15 Watson: Speedvale to Hwy 24	2021	975,000	0			975,000	0			975,000	585,000	390,000	Y	972,000	3,000	0%				
WD0016	14	Silvercreek - Wellington to Paisley BS (400 mm) (security)	2013-2015	1,900,000	0			1,900,000	950,000	50%		950,000	570,000	380,000	n	-	1,900,000	na				
WW0093	15	W-I-17 Stevenson: Woods to York	2023 - buildout	1,315,000	0			1,315,000	263,000	20%		1,052,000	631,200	420,800								
WW0095	16	W-I-17 Stevenson: Elizabeth to Eramosa	2023 - buildout	2,192,000	0			2,192,000	438,400	20%		1,753,600	1,052,160	701,440	Y	8,437,500	(987,500)	-12%				
WW0096	17	W-I-17 Stevenson: Eramosa to Speedvale	2023 - buildout	2,192,000	0			2,192,000	438,400	20%		1,753,600	1,052,160	701,440								
1	18	W-I-17 Stevenson: Speedvale to Verney	2023 - buildout	1,751,000	0			1,751,000	350,200	20%		1,400,800	840,480	560,320								
WD0013	19	W-I-18 Exhibition/Dublin - Verney to Wellington	2020-2021	5,060,000	0			5,060,000	1,012,000	20%		4,048,000	2,428,800	1,619,200	Y	5,062,500	(2,500)	0%				
2	20	W-I-22 Woodlawn: Watson to Imperial	2024-2028	10,097,000	0			10,097,000	0			10,097,000	6,058,200	4,038,800	Y	9,720,000	377,000	4%				
3	21	W-I-23 Imperial: Woodlawn to Paisley	2024-2028	3,786,000	0			3,786,000	0			3,786,000	2,271,600	1,514,400	Y	3,645,000	141,000	4%				
4	22	W-I-24 River Crossing Connections	2024-2028	2,078,000	0			2,078,000	1,039,000	50%		1,039,000	623,400	415,600	Y	2,000,000	78,000	4%			1,000,000	50%
WW0139	23	W-I-25 Development Oversizing (New Development Allowance)	2013-2022	2,500,000	0			2,500,000	0			2,500,000	1,500,000	1,000,000	Y	3,750,000	(1,250,000)	-33%				
5	24	South End - 2 in ground reservoirs	2033+	6,752,000	6,076,800	90%		675,200	0			675,200	405,120	270,080			6,752,000					
6	25	South End - 2 booster pump stations	2033+	4,155,000	3,739,500	90%		415,500	0			415,500	249,300	166,200			4,155,000					
7	26	South End - Transmission Mains	2033+	4,155,000	3,739,500	90%		415,500	0			415,500	249,300	166,200			4,155,000					
8	27	South End - 4 control valves	2033+	1,039,000	935,100	90%		103,900	0			103,900	62,340	41,560			1,039,000					
9	28	South End - Additional pipiing to prevent dead ends	2033+	10,388,000	9,349,200	90%		1,038,800	0			1,038,800	623,280	415,520			10,388,000					
10	29	South End - Elevated storage Tank	2033+	2,078,000	1,870,200	90%		207,800	0			207,800	124,680	83,120			2,078,000					
11	30	South End - Booster Pump Station	2033+	2,078,000	1,870,200	90%		207,800	0			207,800	124,680	83,120			2,078,000					
12	31	South End - Transmission Mains (ring system)	2033+	6,233,000	5,609,700	90%		623,300	0			623,300	373,980	249,320			6,233,000					
13	32	South End - New watermain from Woods PS to Strone Rd.	2033+	3,740,000	3,366,000	90%		374,000	0			374,000	224,400	149,600			3,740,000					
14	33	South End - New watermain from Eramosa river crossing to Victoria Rd	2033+	1,558,000	1,402,200	90%		155,800	0			155,800	93,480	62,320			1,558,000					
WD0018	34	East Side Transmission Line	2013-2015	1,800,000	0			1,800,000	990,000	55%		810,000	486,000	324,000			1,800,000					
WD0019	35	East Side Zone 2 upgrades	2013-2015	400,000	0			400,000	220,000	55%		180,000	108,000	72,000			400,000					
WT0012	36	East Side Elevation Tank - Zone 2	2013-2015	3,200,000	0			3,200,000	1,760,000	55%		1,440,000	864,000	576,000			3,200,000					
	37	Existing Debt Principal	2013-2019	1,719,536	0			1,719,536	0			1,719,536	1,031,722	687,815			1,719,536					
	38	Existing Debt Interest (discounted)	2013-2019	282,590	0			282,590	0			282,590	169,554	113,036			282,590					
		Total		**131,160,126**	**37,958,400**		**0**	**93,201,726**	**26,620,560**		**0**	**66,581,166**	**39,948,700**	**26,632,467**	**-**	**86,399,175**	**44,760,951**					

reduced by $4M

INCREASE 44,760,951

INFRASTRUCTURE COSTS COVERED IN THE DC CALCULATION

RWS TABLE 3

City of Guelph
Service: Wastewater - Sewers

Prj.No	Line No.	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Timing (year)	Gross Capital Cost Estimate (2013 $)	Post Period Benefit	PPB%	Net Capital Cost	Less: Benefit to Existing Development	Less: BTE%	Less: Grants, Subsidies and Other Contributions	Total	Residential Share 60%	Non-Residential Share 40%	Line item is in 2008 DC Tables Y/N	Line item is in 2008 DC Tables AMT	CHANGE FROM 2008 DC - Gross Capital Cost	Red = significant change vs 2008	PPB 2008	%PPB	BTE 2008	%BTE
SC0001	1	Speedvale Avenue: Elmira to West of Governors	2014	217,000	0		217,000	21,700	10%		195,300	117,180	78,120	Y	217,000	-					
SC0002	2	WW-I-0/WW-S-4 Flow Monitors	2015	750,000	0		750,000	375,000	50%		375,000	225,000	150,000	Y	1,688,000	(938,000)	-56%			844,000	50%
WS0085	3	WW-I-1 York Trunk: Hanlon to Victoria	2013-2017	18,900,000	0		18,900,000	14,931,000	79%		3,969,000	2,381,400	1,587,600	Y	9,150,000	9,750,000	107%			7,228,500	79%
SC0003	4	WW-I-2 Stevenson Trunk: York Trunk to Eramosa	2014-2015	1,335,000	0		1,335,000	1,054,650	79%		280,350	168,210	112,140	Y	3,410,000	(2,075,000)	-61%			2,693,900	79%
SC0004	5	WW-I-3 Speed Trunk: East of Hanlon to Eramosa River	2016-2021	4,250,000	0		4,250,000	3,315,000	78%		935,000	561,000	374,000	Y	4,250,000	-				3,315,000	78%
SC0005	6	WW-I-4 Waterloo Trunk: East of Hanlon to Yorkshire	2019-2021	1,780,000	0		1,780,000	1,157,000	65%		623,000	373,800	249,200	Y	1,780,000	-				1,157,000	65%
SC0012	7	WW-I-5 Replace Yorkshire Trunk	2020	1,380,000	0		1,380,000	138,000	10%		1,242,000	745,200	496,800	Y	2,755,000	5,000					
SC0012	8	WW-I-5 Replace Yorkshire Trunk	2022	1,380,000	0		1,380,000	138,000	10%		1,242,000	745,200	496,800								
SC0006	9	WW-I-7 Speedvale Collector from Marlboro to Metcalf	2014	915,000	0		915,000	91,500	10%		823,500	494,100	329,400	Y	915,000	-					
1	10	WW-I-8 Replace Water Street Collector	2023	865,000	0		865,000	432,500	50%		432,500	259,500	173,000	N	861,300	3,700	0%				
SC0007	11	WW-I-9 Downey Trunk from Downey to Hazelwood to Teal	2015-2016	1,620,000	0		1,620,000	0			1,620,000	972,000	648,000	Y	1,685,000	(65,000)	-4%				
SC0008	12	WW-I-10 River Crossings/Hanlon Expressay Crossings	2013-2014	700,000	0		700,000	399,000	57%		301,000	180,600	120,400	Y	3,370,000	(220,000)	-7%			1,920,900	57%
SC0008	13	WW-I-10 River Crossings/Hanlon Expressay Crossings	2016-2022	2,450,000	0		2,450,000	1,396,500	57%		1,053,500	632,100	421,400								
SC0018	14	WW-I-12 Siphon improvements	2013-2014	840,000	0		840,000	420,000	50%		420,000	252,000	168,000	Y	6,000,000	(960,000)	-16%	864,000	14%	2,568,000	43%
SC0018	15	WW-I-12 Siphon improvements	2016-2022	4,200,000	0		4,200,000	2,100,000	50%		2,100,000	1,260,000	840,000								
SC0019	16	WW-I-14 I/I Reduction implementation program	2016-2022	2,200,000	0		2,200,000	1,100,000	50%		1,100,000	660,000	440,000	Y	10,000,000	(7,800,000)	-78%			5,000,000	50%
SC0020	17	WW-I-15 New Gravity Sewers - allowance (oversizing)	2013	250,000	0		250,000	25,000	10%		225,000	135,000	90,000	Y	5,875,000	(3,875,000)	-66%	1,750,000	30%		
SC0020	18	WW-I-15 New Gravity Sewers - allowance (oversizing)	2016-2022	1,750,000	0		1,750,000	175,000	10%		1,575,000	945,000	630,000								
SC0021	19	WW-I-16 New Forcemains - allowance (oversizing)	2013	150,000	0		150,000	15,000	10%		135,000	81,000	54,000	Y	337,500	862,500	256%	85,000	25%		
SC0021	20	WW-I-16 New Forcemains - allowance (oversizing)	2016-2022	1,050,000	0		1,050,000	105,000	10%		945,000	567,000	378,000								
SC0023	21	WW-F-1 Decommission Gordon SPS	2015	2,700,000	0		2,700,000	1,350,000	50%		1,350,000	810,000	540,000	Y	2,700,000	-					
SC0009	22	WW-F-3 York/Speed TrunkStorage/Equalization	2016-2017	1,070,000	0		1,070,000	214,000	20%		856,000	513,600	342,400	Y	2,140,000	-					
SC0009	23	WW-F-3 York/Speed TrunkStorage/Equalization	2019-2020	1,070,000	0		1,070,000	214,000	20%		856,000	513,600	342,400								
WS0102	24	WW-F-4 South SPS	2020 - buildout	2,104,000	0		2,104,000	0			2,104,000	1,262,400	841,600	Y	2,025,000	79,000	4%				
2	25	WW-F-5 Possible new SPS in South (ICI) - future development south of C	2020 - buildout	2,104,000	0		2,104,000	0			2,104,000	1,262,400	841,600	N	2,025,000	79,000	4%				
WS0103	26	WW-S-1 Trunk Sewer Condition Assessment	2016	260,000	0		260,000	130,000	50%		130,000	78,000	52,000	Y	250,000	10,000	4%			125,000	50%
WS0105	27	WW-S-3 Trunk Sewer Energy Capture	2016	52,000	0		52,000	29,452	57%		22,548	13,529	9,019	Y	50,000	2,000	4%			28,500	57%
SC0010	28	WW-S-6 Wastewater Master Plan Update	2016	300,000	0		300,000	0			300,000	180,000	120,000	Y	600,000	(300,000)	-50%				
Blue highlight = Items not included in 2008 DC Study or MSP?																					
SC0011	29	York Rd. - Victoria to Watson	2017-2019	2,325,000	0		2,325,000	232,500	10%		2,092,500	1,255,500	837,000	N		2,325,000					
SC0027	30	Gordon - Clair to Maltby	2020	1,500,000	0		1,500,000	150,000	10%		1,350,000	810,000	540,000	N		1,500,000					
SC0029	31	Servicing Studies	2013	150,000	0		150,000	15,000	10%		135,000	81,000	54,000	N		150,000					
WD0023	32	Servicing Studies	2013	100,000	0		100,000	10,000	10%		90,000	54,000	36,000	N		100,000					
3	33	South End South of Clair Servicing Trunk sewers	2020 - buildout	8,310,000	7,479,000	90.0%	830,999	0			830,999	498,599	332,400	N		8,310,000					
4	34	South End South of Clair Servicing SPSs	2020 - buildout	3,116,000	2,804,400	90.0%	311,599	0			311,599	186,959	124,640	N		3,116,000					
5	35	South End South of Clair Servicing Permenant Flow Meter	2020 - buildout	260,000	234,000	90.0%	25,999	0			25,999	15,599	10,400	N		260,000					
		Total		**72,403,000**	**10,517,400**		**61,885,597**	**29,734,802**		**0**	**32,150,795**	**19,290,477**	**12,860,318**		**62,083,800**	**10,319,200**					

Numbers taken from SMP if not in 2008DC Study (Lines 10 and 25)

INFRASTRUCTURE COSTS COVERED IN THE DC CALCULATION

RWS TABLE 4

City of Guelph
Service: **Wastewater Facilities**

Prj.No	Line No.	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Timing (year)	Gross Capital Cost Estimate (2013 $)	Post Period Benefit	PPB%	Other Deductions	Net Capital Cost	Less: Benefit to Existing Development	Less: BTE%	Less: Grants, Subsidies and Other Contributions	Total	Total: Residential Share 60%	Total: Non-Residential Share 40%	Line item is in 2008 DC Tables Y/N	Line item is in 2008 DC Tables AMT	CHANGE FROM 2008 DC - Gross Capital Cost		PPB 2008	%PPB	BTE 2008	%BTE
																	Red = significant change vs 2008					
ST0001	1	Plant Rerating Phosphorous Reduction	2014-2022	510,000	0			510,000	0			510,000	306,000	204,000	Y	600,000	(90,000)	-15%				
ST0001	2	Plant Rerating Phosphorous Reduction	2023-2032	510,000	0			510,000	0			510,000	306,000	204,000	N		510,000					
ST0002	3	WWTP Upgrade Studies	2013-2022	2,045,000	0			2,045,000	1,533,750	75.0%		511,250	306,750	204,500	Y	2,300,000	(255,000)	-11%			1,725,000	75%
ST0002	4	WWTP Upgrade Studies	2023-2054	2,597,000	0			2,597,000	0			2,597,000	1,558,200	1,038,800	Y	2,500,000	97,000	4%	1,691,176	68%	250,000	10%
ST0003	5	Biosolids facility Upgrade	2014-2020	43,554,000	0			43,554,000	13,066,200	30.0%		30,487,800	18,292,680	12,195,120	Y	40,204,000	3,350,000	8%			20,102,000	50%
ST0003	6	Biosolids facility Upgrade	2023-2032	13,504,000	0			13,504,000	0			13,504,000	8,102,400	5,401,600	Y	13,000,000	504,000	4%				
ST0004	7	Phase 2 Expansion to 73.3 MLD	2013-2017	14,701,000	0			14,701,000	0		500,000	14,201,000	8,520,600	5,680,400	Y	33,690,000	#########	-56%				
ST0004	8	Phase 3 expansion to 85 MLD	2023-2032	62,328,000	25,037,700	40%		37,290,300	0			37,290,300	22,374,180	14,916,120	Y	45,000,000	17,328,000	39%	-	0%		
ST0004	9	Long Term Expansion	2033-2042	68,561,000	68,561,000	100%		0	0			0	0	0	Y	66,000,000	2,561,000	4%	52,800,000	80%		
ST0004	10	Long Term Expansion	2043-2054	124,657,000	124,657,000	100%		0	0			0	0	0	Y	120,000,000	4,657,000	4%	120,000,000	100%		
ST0005	11	WWTP Upgrades	2013-2019	10,483,000	0			10,483,000	2,096,600	20.0%		8,386,400	5,031,840	3,354,560	Y	4,721,491	5,761,509	122%			3,541,118	75%
ST0005	12	WWTP Upgrades	2023-2032	8,000,000	0			8,000,000	0			8,000,000	4,800,000	3,200,000	Y	8,000,000	-					
ST0006	13	SCADA Upgrades	2015-2020	612,000	0			612,000	459,000	75.0%		153,000	91,800	61,200	Y	700,000	(88,000)	-13%			525,000	75%
ST0006	14	SCADA Upgrades	2022-2032	1,122,000	0			1,122,000	841,500	75.0%		280,500	168,300	112,200	N		1,122,000					
1	15	Process Operations Centre (POC) Expansion	2023-2032	4,150,000	0			4,150,000	2,075,000	50.0%		2,075,000	1,245,000	830,000	N		4,150,000					
ST0008	16	Wastewater Treatment Master Plan	2013	102,000	0			102,000	0			102,000	61,200	40,800	Y	440,000	(338,000)	-77%				
ST0008	17	Wastewater Treatment Master Plan	2015-2032	808,000	0			808,000	0			808,000	484,800	323,200	Y	1,400,000	(592,000)	-42%	947,059	68%		
	18	Existing Debt Principal	2013-2019	4,255,952	0			4,255,952	0			4,255,952	2,553,571	1,702,381								
	19	Existing Debt Interest (discounted)	2013-2019	699,426	0			699,426	0			699,426	419,656	279,771								
	20	Reserve Fund Adjustment		516,593	0			516,593	0			516,593	309,956	206,637			-					
		Total		**363,715,971**	**218,255,700**		**0**	**145,460,271**	**20,072,050**		**500,000**	**124,888,221**	**74,932,933**	**49,955,289**								

INFRASTRUCTURE COSTS COVERED IN THE DC CALCULATION

RWS TABLE 5

City of Guelph
Service: Services Related to a Highway

Prj .No	Increased Service Needs Attributable to Anticipated Development 2013-2031	Timing (year)	Gross Capital Cost Estimate (2013 $)	Post Period Benefit	PPB%	Other Deductions	Net Capital Cost	Less: Benefit to Existing Development	Less: BTE %	Less: Grants, Subsidies and Other Contributions Attributable to New Development	Potential DC Recoverable Cost: Total	Residential Share 60%	Non-Residential Share 40%	Line item is in 2008 DC Tables Y/N	Line item is in 2008 DC Tables AMT	INCREASE FROM 2008 DC		PPB 2008	%PPB	BTE 2008	%BTE
																Red = significant change vs 2008					
RD0078	Victoria:Stone-Arkell	2013-2014	2,000,000	-			2,000,000	600,000	30%		1,400,000	840,000	560,000	Y	7,397,000	(5,397,000)	-73%	-		2,099,100	28%
RD0286	Niska:Bridge Replacement	2013-2015	2,200,000	-			2,200,000	660,000	30%		1,540,000	924,000	616,000			2,200,000					
RD0090	Woodlawn:Silvercreek-Nicklin	2023-2032	10,221,000	-			10,221,000	1,599,000	16%	4,919,500	3,702,500	2,221,500	1,481,000	Y	9,839,000	382,000	4%			1,475,850	15%
RD0270	York: Victoria-E. City Limits	2017-2019	10,500,000	-			10,500,000	2,047,500	20%	3,675,000	4,777,500	2,866,500	1,911,000			10,500,000					
RD0091	Crawly - Clair to Maltby	2023-2032	1,000,000	-			1,000,000	-			1,000,000	600,000	400,000	Y	910,000	90,000	10%	91,000	10%		
RD0265	Gordon: Clair-Maltby	2019-2021	5,900,000	-			5,900,000	557,100	9%	329,000	5,013,900	3,008,340	2,005,560	Y	7,984,000	(2,084,000)	-26%			2,254,200	28%
RD0118	Transportation Strategy Implement & TDM Initiatives	2013-2023	1,000,000	-			1,000,000	500,000	50%		500,000	300,000	200,000	Y	1,000,000	-	0%			500,000	50%
RD0122	Eastview:Starwood-Watson	2016-2017	1,400,000	-			1,400,000	817,600	58%	280,000	302,400	181,440	120,960	Y	2,479,000	(1,079,000)	-44%			623,700	25%
RD0271	Stone: Monticello-Victoria	2013-2015	4,300,000	-			4,300,000	1,229,100	29%	203,000	2,867,900	1,720,740	1,147,160	Y	3,527,000	773,000	22%			971,100	28%
RD0272	Victoria:York-Stone -II	2015-2017	3,950,000	-			3,950,000	1,185,000	30%		2,765,000	1,659,000	1,106,000	Y	3,770,000	180,000	5%			1,131,000	30%
RD0269	Clair/Laird & Hanlon Interchage	2013-2015	17,670,000	-			17,670,000	-		3,550,000	14,120,000	8,472,000	5,648,000	Y	20,000,000	(2,330,000)	-12%	1,590,000	8%	-	
RD0249	HCBP Oversizing	2013-2017	1,000,000	-			1,000,000	-			1,000,000	600,000	400,000			1,000,000					
RD0140	New Railway Crossing Install	2023-2032	1,922,000	-			1,922,000	966,000	50%		956,000	573,600	382,400	Y	1,850,000	72,000	4%			925,000	50%
RD0141	Woodlawn:Silvercreek-Nicklin	2013-2017	2,501,000	-			2,501,000	754,500	30%		1,746,500	1,047,900	698,600			2,501,000					
RD0155	Speedvale: Elmira-W City Lmt	2013-2017	2,140,000	-			2,140,000	645,600	30%		1,494,400	896,640	597,760	Y	2,060,000	80,000	4%			525,000	25%
RD0158	Watson:Eastview-Speedvale	2018-2022	1,392,000	-			1,392,000	420,000	30%		972,000	583,200	388,800	Y	1,340,000	52,000	4%				
RD0165	Hanlon-Kortright Improvements	2023-2032	2,521,000	-			2,521,000	-			2,521,000	1,512,600	1,008,400	Y	2,521,000	-	0%				
RD0170	Railway Crossings at Edinburgh Road and adjacent Roads	2013-2023	2,000,000	-			2,000,000	300,000	15%	1,000,000	700,000	420,000	280,000			2,000,000					
RD0273	Silvercreek Parkway/CN Grade Separation and Improvements	2013-2015	10,000,000	-			10,000,000	1,500,000	15%	5,000,000	3,500,000	2,100,000	1,400,000	Y	7,000,000	3,000,000	43%			690,000	10%
RD0269	Laird: Clair to Southgate	2013-2015	3,000,000	-			3,000,000	900,000	30%		2,100,000	1,260,000	840,000			3,000,000					
RD0308	Elmira Road Extenstion to WR 124 (Hwy 24) Feasibility Study	2021	300,000	-			300,000	150,000	50%		150,000	90,000	60,000			300,000					
RD0309	Cityview	2013-2014	325,000	-			325,000	-		225,000	100,000	60,000	40,000			325,000					
RD0285	Starwood: Watson to Grange	2016	190,000	-			190,000	57,000	30%		133,000	79,800	53,200			190,000					
TF0001	Mid-Block Coll New Watson	2014	150,000	-			150,000	45,000	30%		105,000	63,000	42,000			150,000					
RD0310	Gordon: Edinburgh to Lowes	2014-2016	1,500,000				1,500,000	-		750,000	750,000	450,000	300,000			1,500,000					
1	College Avenue (East of Edinburgh)	2014-2015	2,000,000	-			2,000,000	500,000	25%	1,000,000	500,000	300,000	200,000			2,000,000					
2	Harts Lane	2015-2023	1,500,000	-			1,500,000	-		750,000	750,000	450,000	300,000			1,500,000					
3	Victoria Road	2023-2032	6,000,000	3,000,000	50%		3,000,000	-		1,500,000	1,500,000	900,000	600,000			6,000,000					
4	Maltby Road	2023-2032	6,000,000	3,000,000	50%		3,000,000	-		1,500,000	1,500,000	900,000	600,000			6,000,000					
5	Victoria Road Widening (3 to 4 lanes) (North of Arkell to Clair)	2023-2032	3,000,000	-			3,000,000	300,000	10%		2,700,000	1,620,000	1,080,000			3,000,000					
6	Provision for Road Oversizing - Various Locations	2013-2032	2,000,000	-			2,000,000	-			2,000,000	1,200,000	800,000			2,000,000					
	Intersection Improvements			-												-					
RD0313	Int:Speedvale & Silvercreek	2022	1,800,000	-			1,800,000	900,000	50%		900,000	540,000	360,000	Y	1,764,000	36,000	2%			882,000	50%
RD0312	Int College & Scottsdale	2022	1,600,000	-			1,600,000	800,000	50%		800,000	480,000	320,000	Y	1,587,000	13,000	1%			793,500	50%
RD0274	Int Speedvale & Delhi	2016	1,000,000	-			1,000,000	500,000	50%		500,000	300,000	200,000	Y	1,587,000	(587,000)	-37%			793,500	50%
7	Int Victoria/Clair	2013-2017	150,000	-			150,000	-			150,000	90,000	60,000			150,000					
	Active Transportation			-			-	-			-	-	-			-					
8	Active Transporation Feasibility Study	2013-2014	150,000	-			150,000	-			150,000	90,000	60,000			150,000					
9	Active Transportation Corridors	2014-2032	4,500,000	-			4,500,000	2,250,000	50%		2,250,000	1,350,000	900,000			4,500,000					
	Complete Streets															-					
RD0268	Complete Street Modifications study	2013-2014	300,000	-			300,000	90,000	30%		210,000	126,000	84,000			300,000					
RD0268	Complete Street Modifications	2013-2032	5,000,000	-			5,000,000	2,500,000	50%		2,500,000	1,500,000	1,000,000			5,000,000					
TC0006	Satellite Clair/Gordon	2015-2017	350,000	-			350,000	-			350,000	210,000	140,000			350,000					
TR0026	West End Recreation Centre	2013	100,000	-			100,000	50,000	50%		50,000	30,000	20,000			100,000					
TR0031	York / Watson	2013-2017	300,000	-			300,000	150,000	50%		150,000	90,000	60,000		300,000	-	0%			150,000	50%
TC0018	Curbside Road Layby (various locations)	2014-2015	210,000	-			210,000	-			210,000	126,000	84,000			210,000					
	Existing Debt (Terminal Road Upgrades) Principal	2013-2019	1,358,483	-			1,358,483	-			1,358,483	815,090	543,393			1,358,483					
	Existing Debt (Terminal Road Upgrades) Interest (discounted)	2013-2019	223,254	-			223,254	-			223,254	133,952	89,302			223,254					
	Reserve Fund Adjustment		1,287,299	-			1,287,299	-			1,287,299	772,379	514,920			1,287,299					
	Total		**127,911,036**	**6,000,000**		**-**	**121,911,036**	**22,973,400**		**24,681,500**	**74,256,136**	**44,553,681**	**29,702,454**								

September 18, 2013

To Robert Stratford and Audrey Jacobs

From: Sarah Purton, City of Guelph

RE: City of Guelph Development Charge Study 2013- Peer Review, Hard Services
R.W. Stratford

Please find enclosed the City's responses to your memo dated July 29, 2013.

City Hall
1 Carden St
Guelph, ON
Canada
N1H 3A1

T 519-822-1260
TTY 519-826-9771

guelph.ca

A. General Comments

1. Populations to be served by various services over the planning horizon.[1] The population information used for current and previous DC planning, and the most recent master planning information, is summarized as follows:

Description	Populations			Comments
	People	Employment (FTE's)	Total	
2013 DC Update (1) Water/Wastewater Servicing Modeling is being completed by AECOM for the City using these populations.	169,400	95,934	265,334	Preliminary water/wastewater servicing works were identified for the June submission. These will be finalized based on the modeling outputs in late September.

(1) Updated population information dated August 8, 2013.

Description	Populations			Comments
	People	Employment (FTE's)	Total	
2008 Development Charges Based on 2008 Water/Wastewater Servicing Master Plan for scenarios ranging from a 195,000 population to 165,000 population (people only).	169,000	95,000	270,000	Works reduced (lengths), to service growth areas within the municipal boundary. Sizes are however in place to service to the Municipal boundary, and possibly beyond based on topography. Post-Period Benefit is identified if a greater than 10% cost differential occurred.
2001 Water Supply Master Plan Water supply works were applied in a stepped manner to add up to the total necessary within a 20 year DC period.	180,000	97,000	277,000	Stepped approach was applied through mediation for the 2008 DC, and again for the 2013 DC. These were initially prorated incorrectly and corrected through mediation.

[1] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013", AECOM, August 13, 2013

2. Confirm whether any services are sized to accommodate growth outside existing municipal boundary:[2] Any Water/Wastewater servicing necessary to service growth within the municipal boundary (or potentially beyond if actually draining into the City), has been identified to address these needs. However, the lengths of these works were reduced to fit the growth area to be populated as per each DC projection. Given depths and all other costs are generally constant, if the size of the work caused costs to increase greater than 10% Post-Period Benefit was identified. If not, the costs for increased size were minor.

3. For some of the individual line items in the various water, wastewater and roads tables, it is unclear how the PPB, BTE, Excess Capacity and Urgent/non-growth needs issues are calculated or addressed. Colour-coded tables were previously prepared for the water and wastewater items that contained footnotes which attempted to describe the methodology for calculating growth/non growth splits.[3] The supplementary information provided July 31, 2013 should answer most of the questions posed by Mr. Stratford. Generally speaking, the following is provided:

    - Post Period Benefit (PPB) was only identified for those works with a cost differential greater than 10% for servicing within the 20 year growth area within the municipal boundary.
    - Benefit to Existing (BTE) was determined for water/wastewater servicing based on previous modeling outputs (2008 Water/Wastewater Servicing Master Plan and/or 2008 DC and Mediation Outputs). This is being updated currently and will reflect the current DC update. This will be presented in late September.
    - Excess capacity. Same as above.
    - Urgent Non-Growth and Growth needs. Same as above.
    - Pumping, storage and/or treatment work needs are more closely related to the appropriate population projection being utilized for

[2] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013", AECOM, August 13, 2013
[3] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013, AECOM, August 13, 2013

Master Planning and/or Development Charge purposes. For phasing that provides a need well beyond the DC population projection (>10% cost differential), PPB would be identified.

4. No Information was provided for the individual gross cost estimates for the various line items and the stated costs were, in general, not reviewed here. Have the individual cost estimates considered benefits derived from simultaneous construction of specific projects? Is the magnitude for potential savings identifiable and should reductions be applied? Opportunities to combine construction of various infrastructure projects are considered on an individual project basis. This is not possible to evaluate at the master plan level as exact timing of specific projects cannot be identified for reasons such as budgeting constraints. At the time of detail design and construction, the City does consider the other improvements that can be realized but it is difficult to determine this at the master plan level.

5. Oversizing- policies that identify when an oversizing charge is applicable.[4] As per the August 1 meeting, it was generally agreed that the principle of "over-sizing" in the DC is appropriate. The cost budget may be debateable and has been revised to reflect the 5-year DC update frequency. Local servicing policy outlining the use and implementation of over-sizing funds was provided to the peer review team at the August 1 meeting.

6. Reserve schedules: Finance has provide schedules

B. Water Distribution and Supply Review

a. Water Plants[5]

- Total equivalent build-out population is 265,334 (169,400 real people + 95,934 FTE's for employment).
- Flow rate is 450 litres per capita per day as shown. (300 lpcd x 1.50 max day factor)
- Total supply via "new supply" is as shown (182,900 m^3/day), from the Water Supply Master Plan.

[4] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013, AECOM, August 13, 2013
[5] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013, AECOM, August 13, 2013

- Required capacity for the 2013 DC to build out is 119,400 m^3/day.
- Based on the CAP DC Tables, PPB% for new supply projects in calculated in the following table. As discussed at the August 1 meeting, the prorated approach shown in the 2008 DC and used by Mr. Stratford is incorrect. This was modified through the mediation process to the stepped approach used in the WSMP utilizing the targeted capacity for each work given ranges are associated with each based on hydrogeological study outputs; yield potential; actual pumping potential; MOE/MNR adaptive management approvals on a stepped basis; eventual MOE Certificate of Approval for the system; and that the system is multi point with areas pumping against other areas impacting the flow needed to service City residents. See the attached table identifying high/low ranges and targeted capacities for the various Water Supply Master Plan works.

  Allowing for current day consumption/production (which reflects a 5,000 m^3 reduction through water conservation efforts over the past 10 years), and a further 3000 m^3 reduction over the next ten years, brings the actual water needs down to 100,500 m^3 per day. Providing a 10% contingency to address the MOE at 85% factor brings us to approximately 110,000 m^3/day. This capacity can be serviced by wells projected inside and outside the City without the Guelph Lake Surface Water Supply. Previously the start of this work was necessary, but with the reduction due to conservation (or for other reasons), and the belief that a further 10% reduction is possible, we feel comfortable in recommending the Guelph Lake Works not be included for the 20 year DC period at this time. This should be reassessed in 5 years. As a result, Water Supply needs for the next 20 years are well matched to current and projected water supply needs and there is no overstatement as suggested, nor are there any significant Post-Period Benefits.

a) Please explain how the PPB costs (14.69%) were derived for the first 6 projects. This figure shown in Mr. Stratford's table is

incorrect as confirmed by Watson & Associates at the meeting. See the information provided July 31, 2013 for the correct Water Supply table.

b) Should the increase in MDD from 1.35 to 1.5 equate to a further reduction in cost to growth by way of benefit-to-existing (increased service level) improvements? The Water Supply Master Plan established service level at a 1.5 max day factor which is the absolute lowest for a City the size of Guelph based on current MOE guidelines. All new works are therefore being implemented on this basis. There is no benefit to existing since all existing supplies serve existing residents at whatever service level shown. Any upgrades completed for existing works servicing existing residents will be moved to 1.5 but are not included herein since this is all new water supply to service new growth only.

c) Should the cost apportioned to growth be further reduced by virtue of anticipated conservation targets. As discussed above, a conservation reduction is already reflected for the past 10 years, and is allowed for going forward by taking a reduced contingency and dropping the Guelph Lake Water Supply Works.

d) The Guelph innovation District Secondary Plan imposes higher conservation targets than those contemplated in the WSMP, down to 250 l/c/d. Should these anticipated demand savings be factored into supply "requirements', thereby reducing overall supply costs? The City's current standard for new works to be implemented is 300 lpcd. The Water Supply Master Plan Update is currently reviewing this and is expected to be completed the middle of next year. At that time, this standard may or may not be adjusted and will be used going forward. The next DC update will consider this and translate any related changes for wastewater treatment and water/wastewater servicing.

e) The various supply projects contribute to Unaccounted for Water (UFW) How have these volumes been factored into PPB? The City's current Unaccounted for Water (UFW) is in the 10-11% range. Any municipality or system below 10% is considered in good condition. Any leakage or deficiency components part of

UFW would not be included as part of any new works, but other components such as fire flow, bulk water supply, etc., would be included and is appropriate to service new growth. As such, there is no adjustment for UFW or related PPB.

f) Gross Cost Estimates: items common to the 2008 DC Study where estimates differ significanltly in the updated tables are highlighted in red in the "change from 2008 DC" column. Please provide the rationale for these cost revisions. As discussed at the meeting and previously in our response, cost increases less than 10% are due to construction cost indexing. Increases above 10% are reflective of updated study or design work.

Project 1 – Increased costs related to ongoing commissioning of new well field as driven by staged regulatory approvals process. Province is requiring the City to perform multi-year pump testing, monitoring, and reporting to confirm new groundwater supply pumping does not have a negative effect on the local environment.

Project 6 – Increased costs related to additional modeling of potential negative environmental impacts of new water supply pumping and potential development and implementation of a mitigation program to reduce these impacts and allow pumping to proceed. These work programs are ultimately driven by the requirements of the provincial regulator.

Project 9 - Increase in DC funded rebate and other program costs across the board at approx. $75k/annum. Furthermore, increased budget also includes new capital works to implement district metered areas across City to reduce water loss and increase water servicing capacity available for new growth. Technical memo describing capital needs and anticipated servicing capacity to be reclaimed currently under development and will be shared with Peer Review Team in late September/early October 2013.

Project 10 – Reduction as remaining funds only required to finish commissioning of the booster pumping station.

Project 12 – Increase driven by need to purchase property to accommodate booster upgrades. Current land holdings will not cost-effectively support the upgrade.

g) For Verney/Clair Control Upgrades, the BTE has been reduced from 26% to 20% (2008DC vs 2013DC) please provide rationale. Returned to 26% as per updated modeling results

b. Residential vs. Non-Residential Split (All water and Wastewater items)

a) The CAP table shows 60/40 split between res/non-res. Based on the Feb 2013 Growth projections, should the split be revised to 61/39[6]? The 60/40 split between residential and non-residential was confirmed by Watson at the meeting as being appropriate based on the population information cited earlier.

b) The current Growth projection anticipates a significant increase in the proportion of high density residential development compared to single-family low density development form. Has or should any accommodation been made in the water modeling to reflect the lower water uses associated with higher density developments (i.e. reduce/eliminate lawn watering, other uses)?

Any changes resulting from an intensification approach are reflected in the updated Engineering and DC tables dated October 9, 2013 which are based on the model update outputs.

c. Linear Infrastructure – Line Items

a) Line items 24 through 36 are not identified in any of the Master Plans I possess. Identify the source of information[7]. See the updated Engineering and DC tables dated October 9, 2013

b) How was the 90% PPB and 10% Growth share derived for line items 24-33?.[8] The 90%/10% split was assumed. These will be

[6] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013, AECOM, August 13, 2013
[7] [7] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013, AECOM, August 13, 2013

revised based on the modeling work being completed. Through the mediation process, the principle of 0% to 100% was challenged extensively by both parties. As such, we reverted to a 90%/10% default to reflect any stray growth or non-growth components not reflected by a 0% to 100% determination, or accuracy in a less than 10% range.

c) How was the 55% BTE derived for line items 34 to 36?

These have been revised to reflect the updated modeling outputs.

d) Line items 1 and 2 (Maltby Southgate to Gordon and Gordon Clair to Maltby) were included in the 2008 DC study but do not appear to be identified in the Master Plans. Please Identify the source.

Additional works required based on updated modeling outputs

e) Provide Rational for the cost reductions in:

- WD0001 Gordon Clair to Maltby –Linear costs updated after remodeling review
- WD0012 W-I-1 Clair: Crawley to Gordon was 2,515,050 now $750,000- Watermain has been completed from Crawley to poppy. Remaining portion to Gordon is being looked at by a consulting firm. This portion will likely continue along poppy towards Gordon
- WD0005 W-I-6 Speedvale: Watson to Westmount was $6,075,000 now $3,000,000- Watermain has been completed from Watson to Manhatton Court. Remaining is stretch to Westmount and a small portion at Victoria
- WW0093-WW0096 plus #1: W-I-17 Stevenson: was 8,437,500, now 7,450,000-Water distribution is required to the Verney Tower and downtown however the route along Stevenson is not preferred. Modelling is considering different route therefore this project remains as this distribution will be required in the future with the route/aligment to be finalized
- WW0139 W-I-25 Development Oversizing –The 2008 amount reflected the Master Plan estimate. A very high level review. For the 2013 DC, I am now redcing it to $500K beyond the 10 year forecast. Basically, it appears that our projected oversizing requirements were originally

[8] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013, AECOM, August 13, 2013

too high and based on recent and projected development the revised estimate and timeline is sufficient.

f) Why is no PPB assigned to Line items 15-18? PPB was not identified for any works unless there was a greater than 10% cost difference. This was shown where appropriate.
These works are being completed within the growth period, hence no PPB

g) In general, explain how PPB and BTE were calculated in this table[9]. Project deleted and replaced by W-I-18 which is to be completed within the growth period, hence no PPB

h) Line item 14 (WD0016 Silver Creek Wellington to Paisley) was not included in 2008DC why was it added? It was included in the Master Plan under WI16 Hanlon Crossing to Paisley. It was not included in the DC at that time as it was considered non-growth.

See the revised Growth/Non- Growth split and inclusion as part of project W-I-16 in the updated Engineering and DC tables dated October 9, 2013

i) Note significant reduction in Line item 23[10]. Over-sizing cost reductions are based on a 5 year review vs. a 20 year outlook.

j) Cost estimates for review. Does the unit pricing for lineal projects consider that works may be constructed in conjunction with various other improvements (sanitary and roads)? The City manages projects by constructing them in the most cost effective manner. If at the time of project implementation, simultaneous construction of services can be achieved, the City will undertake the project work in that fashion. However, the determination of whether or not cost savings can be achieved for simultaneous construction may not be known until the detailed design stage. Factors that may play a role in determining specific project construction methodology include utility conflicts, geotechnical

[9] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013, AECOM, August 13, 2013
[10] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013, AECOM, August 13, 2013

considerations, traffic impacts, servicing constraints, funding availability, development activity, infrastructure condition, approvals and environmental impacts. Project estimates for the background study did not take into account possible simultaneous construction savings because of the some issues listed above. The projects in the background study were reasonably estimated for the Gross Cost magnitudes for roads, watermains, sanitary sewers and stormwater management and included review of current and historical projects.

d. Miscellaneous

- No grants or subsidies are identified for any projects. Is this correct? Currently, the only grant known about to the City is the SWI grant for Wastewater ($500,000) and other funds towards the Verney/Clair Control Upgrades.($75,000).

C. Wastewater Collection and Treatment Review

1. Linear Infrastructure – Line Items

a. Line Items highlighted in blue (29-35) are not identified in any of the Master Plans I possess. Identify source of information. Have new studies been prepared?[11]

See the updated Engineering and DC tables dated October 9, 2013

b. Note only: Line item #10 and #25 were not included in 2008DC but were identified in MSP. WW-I-8 Replace Water street Collector $865K, Possible New SPS in South $2.104M

#10 WW-I-8 is required as per the updated modeling outputs. #25 is not required within the 20 year growth period so it has been deleted based on the updated modeling outputs.

c. Line Item No. 10, Replace Water Street Collector was previously shown to be 100% to non growth to address existing capacity constraints, but is now shown to b apportioned 50% to growth. Explain rationale.

This has been revised to 47% as per the updated modeling outputs

[11] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013, AECOM, August 13, 2013

d. Line Item #27 Trunk Sewer Energy Capture. Explain how the 57% BTE was calculated[12].

This project has been deleted since the City is not proceeding with is in the next 5 years

e. Gross Cost Estimates: Items common to the 2008DC where estimates differ significantly in the updated tables are highlighted in red in the "change from 2008 DC" column. Please provide rationale.

	2008 DC	2014 DC	Staff Comments
SC0002 WWI0/WWS4 FLOW MONITORING	1,688,000	750,000	I/I Study Concluded that the City does not have significant sources of I/I therefore permanent flow monitoring to the extent previously identified is not required
SC0003 WWI2 STEVENSON - YORK-ERAMOSA	3,410,000	1,335,000	Already been completed. Stevenson Trunk from York to Elizabeth has already been completed
SC0008 WWI10 RIVER CROSSING/HANLON EXP	3,370,000	3,150,000	Refined based on modeling work
SC0010 WWS6 WASTEWATER MPLAN UPDATE	600,000	300,000	Refined based on modeling work
SC0018 WWI12 SIPHON IMPROVEMENTS	6,000,000	5,040,000	Refined based on modeling work
SC0019 WWI14 I&I REDUCTION IMPL	10,000,000	2,200,000	I/I study identified that the City does not have significant sources of I/I therefore not all the measures previously identified in master plan have been carried forward
SC0020 WWI15 NEW GRAVITY SEWERS	5,875,000	2,000,000	Refine based on modeling work
SC0021 WWI16 NEW FORCEMAINS	337,500	1,200,000	Refined based on modeling work
WS0085 WWI1 YORK - HANLON-VICTORIA	9,150,000	18,900,000	EA updated the costs associated with the Trunk sewer from just over $9M to 18M

[12] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013, AECOM, August 13, 2013

f) Please provide rationale for adjustments in PPB% and BTE% for those items highlighted in red in the last columns of table 3[13]. Any PPB or BTE will be confirmed as part of modeling. The oversizing allowances reflect a 5-year perspective vs. a 20 year perspective.

2. Wastewater Treatment Plants- Line Items

a) Line 15 (Process Operations Centre (PDC) expansion) 2023-2032 for $4,150,000 was added to the 2014 DC background study but it was not included on the 2008 background study or included in any master plans. Please provide rationale for the project, and the 50% benefit to existing and the 0% Post period benefit. The Administration Building has been renamed as Process Operations Centre. It is not included in the Master plan as the focus of master plan is on treatment processes. The amount is an estimate for accommodating training area for existing staff, maintenance facility expansion for existing staff and storage area. 50 % benefit to growth is based on the additional staff in the next 20 years and amenities such as washroom, lunch room, lockers etc for new staff.

b) Explain why the following project have increased or decreased significantly from the 2008 DC.

a. ST0003 Biosolids facility upgrade from $40.2M in 2008 to $43.56M in 2014The Bio solids Management Master plan had included approximately 3.0 Million for Miscellaneous projects, we had not been included in the previous DC study.

b. ST0004 Phase 2 Expansion to 73.3 MLD from $33.7M to $14.7M. Decrease is due to $15 million being transferred out of phase 2 expansion into phase 3 expansion. i.e., 2008 study assumed $15M of capital would be required as part of phase 2 expansion and phase 3 would require 45 million. However phase 3 requires 60 Million as per the master plan. Out of the $18 M, $ 14M is for phase 2 expansion and the $ 4 M budgeted

[13] John Hassen, "2013 Development Charges Update or Services Review R.W. Stratford Correspondence dated July 29, 2013, AECOM, August 13, 2013

for side stream treatment project , the project currently in implementation.

c. ST0004-Phase 3 Expansion to 85 MLD from $45M to $62.3M in 2014. Increased amount transferred from Phase 2 expansion as a result of Master Plan information (see response above C,2.b.b).

d. ST0005 –WWTP upgrade was $4.7M now $10.5M. Out of the $10.4M, $2.4M is miscellaneous upgrades and $8M for disinfection. Disinfection was missed in previous study and added in for this study. We reduced the $4.7M to $2.4M based on works already completed from the $ 4.7M.

c) Please provide rationale for adjustments in PPB% and BTE% for the following 6:

	Prj #	Desc	Timing	Gross $M	PPB 2013 $M	BTE 2013	PPB 2008 $M	BTE 2008	Explanation
1	ST0002	WWTP Upgrade Studies	2023-2054	2.045	0		1.69, or 68%	.25 or 10%	For this line item there is 0% BTE because the studies for this time period (2023-2032) will be for items related to growth. Non growth related items will be covered in the studies on line 3. The line item has 0%PPB because all studies will be related to growth up to and including the final year of the DC study, and not beyond
2	ST0003	Biosolids facility Upgrade	2014-2020	43.554	0	13.07, or 30%	0	20.102 or 50%	The projected dollar amount of $43M includes $13M (30%) for replacement or upgrade of the existing compost facility. This project would be qualified as BTE since it is not growth related. The remaining $30M (70%) is for expansion projects related to the biosolids processes of the plant. These expansion projects are necessitated by growth. Thus 30% of the $43M benefits existing population while the remainder of the projects are driven by growth

3	ST0004	Phase3 expansion to 85 MLD	2023-2032	62.328	25.038, or 40%	0	0	0	The phase 3 expansion will take the plant flow to 85 mld. 85 mld will not actually be required until past the end of the period (post 2031). Thus the PPB is a reflection of the % flow increase which will occur after the DC period. This number increased from zero in the 2008 study because the lower growth numbers combined with the conservation have resulted in the flow projections being pushed out from what was projected in 2008.
4	ST0004	Long Term Expansion	2033-2042	68.561	68.56 or 100%	0	52.8, or 80%	0	The long term expansions listed for the years 2033-2042 and 2043-2054 both fall outside the period for the current study. These two expansions are now projected later than in the 2008 study because the lower growth rate and decreased flows due to conservation have resulted in lower projected flows for the plant. At the end of calendar year 2031 (the final year in the study), the projected plant flow is approximately 79 MLD. At that time the plant will have been expanded and rated for 85 mld, and thus the two long term expansions are 100% PPB.
5	ST0005	WWTP Upgrades	2013-2019	10.483	0	2.097, or 20%	0	3.54, or 75%	This line item includes $2.1M for miscellaneous upgrades. These projects will be upgrades or improvements to existing systems and not related to growth. The remaining $8.4M is for an expansion of the disinfection system. That expansion is driven by growth. Thus the BTE is $2.1M/$10.5M or 20%
6	ST0008	Wastewater Treatment Master Plan	2013	102.	0	0	.947 or 68%		The dollars included in the line item are for master plan studies between the present and the end of 2031, the final year in the study. These master plans studies are necessitated by growth, thus there is 0%BTE

3. Miscellaneous

a. One grant in the amount of $500,000 is shown for all wastewater projects; what is the source? Are there any additional anticipated grants, subsidies, etc? There is only one grant, $1M, from the Ministry of the Environment for side stream treatment project.

D. Stormwater Management Review

a) Does the City intend to incorporate the findings of the Feb 12, 2013 Stormwater Management Master Plan in this DC update? The Master Plan only considers infrastructure upgrades to the existing system without considering future growth. Therefore, no infrastructure projects identified in the Master Plan have been carried forward to the DC background study.

b) Explain how the 26/74% Res/Non-Res split was established on the CAP table. Response pending.

c) Hanlon Creek Storm, $200,000: Provide background info on costs and project description and BTE calc.

This is the amount that was carried forward from previous DC Study.

d) Watershed study updates and servicing studies: is it acceptable to include study work? Identify BTE calculation.

Watershed studies set targets for development so they in theory are acceptable to include in the DCs.

e) Stormwater Drainage Oversizing: Provide additional detail on Gross Amount and BTE. Does the City have a standard policy for oversizing works/rebates? Response pending

f) Downtown CIP: Considering that the downtown is currently "built up", should all downtown improvements be assigned to existing/increased service levels? To be removed from DC Background Study.

g) Are gross cost deduction sin order, considering opportunities for simultaneous construction with other hard services? Has this been considered? The City manages projects by constructing them in the most cost effective manner. If at the time of project implementation, simultaneous construction of services can be achieved, the City will undertake the project work in that fashion. However, the determination of whether or not cost savings can be achieved for simultaneous construction may not be known until the detailed design stage. Factors that may play a role in determining specific project construction methodology include utility conflicts, geotechnical considerations, traffic

impacts, servicing constraints, funding availability, development activity, infrastructure condition, approvals and environmental impacts. Project estimates for the background study did not take into account possible simultaneous construction savings because of the some issues listed above. The projects in the background study were reasonably estimated for the Gross Cost magnitudes for roads, watermains, sanitary sewers and stormwater management and included review of current and historical projects.

E. Highway (Roads) Review

a) Please explain the rationale for the various changes in red.

i) For the five projects identified for having been **reduced** significantly:

RD0078 Victoria: Stone to Arkell; nearly complete, $1M is required to finish the project in 2013.

RD0122 Eastview: Starwood-Watson is partially complete. The existing budget of $1.048M is reflected in the roads DC reserve adjustment. The $1.4M listed on the capital infrastructure sheet is the incremental amount requested for that stretch of road in 2016.

RD0265 Gordon: Clair to Maltby: design phase complete and construction phase to begin in 2019.

RD0274 Int Speedvale and Delhi was reduced after reciving updated/additional information. Project planned for 2016.

RD0269 Hanlon Larid Interchange (actually RD0267 in our capital budget) is a Provincial project (with DC payment under cost-sharing agreement). The reduced cost is based on the actual tender for this project which is currently under construction.

ii) Projects that have increased gross costs estimates over 2008 (RD0091, RD0271 and RD0273) have updated design and/or other information.

b) Should the Res/Non-Res split be adjusted as per Item B 2a above (i.e.61/39)?
Response pending

c) Similar to other hard services, some explanation/rationale for the BTE calculation should be provided and justification for little-to-no PPB given. PPB's are assigned to two new projects (RD0320 Victoria Road: South of Clair and Maltyb Road) which are located in an area where new developments are anticipated after the build-out planning horizon. All the other road projects are required to service development before build-out.

BTE's are the same as before for projects already identified in the previous DC studies, and are based on growth/non-growth splits of projected road volumes. BTE for new projects is applied as follows:

- 0% for projects that exclusively required to support new development, (but in these projects the direct developer contribution accounts for 50%).
- 10% is applied to Victoria Road widening between Arkell and Clair, as this is primarily required as a result of intensification on the corridor.
- 50% is applied for intersection improvements which are required as a result of growth but also benefit existing development.

d) The Guelph Wellington Transportation Study 2005 relied on Ministry of Finance population forecasts which are now out of date. As well, these forecasts did not contemplate Places to Grow and the various policy initiatives intended to impact urban growth through encouraging intensification. Thus the base forecast in the TMP is, in our view, out of date. A relevant example is the GID which was not contemplated at the time of the TMP but is included in the DC growth forecast.
The Transportation Master Plan was completed in 2005 using the 2001 TTS data. However, Guelph operates a travel demand forecasting model which is regularly updated and has been used in reviewing subsequent growth projections and targets, including the current Growth Plan corresponding to Places to Grow, as well as the GID. Specifically for the GID area, development projections were included in the TMP but the new GID Sec Plan provides for more residential development than previously assumed.
With the City growing within its geographical limits, there is no change to the widening requirements of arterial roads from 2 to 4 lanes as identified in the TMP, and included in the 2004 DC and 2008 DC. New improvements identified are more local in nature to support development intensification under the Growth Plan.

Additionally, with the focus on enhancing alternative transportation modes, the City has completed a Transit Master Plan and a Bicycle Master Plan.

e) How is the timing of road projects determined? An example is the Woodlawn Silvercreek – Nicklin project which had been identified in the 2008 DC as being within the 0-5 year time frame but is now contemplated for the 2023-2032 timeframe? Woodlawn Road project involves the addition of a fifth lane (centre-turn lane) as part of anticipated development changes in this corridor and pavement upgrading, and is based on MTO (connecting-link) contribution and developer frontage contributions. A section of the road (Woolwich to Nicklin) was completed in conjunction with Wall Mart development. The remaining section (Nicklin to Silvercreek) did not proceed because anticipated redevelopment did not materialize. However, the City got ISF funding for pavement upgrade which was completed. The five-lane-widening is now pushed back to accommodate other priorities.

f) Projects contemplated for the last 10 year timeframe should consider PPB. Further to b i) above, the roads slated for the ten years are required to accommodate Growth Plan targets before 2031. The projected development areas after 2031 are at the south end of the City, and will be serviced by Victoria Road (south of Clair) and Maltby Road, and PPB has included for these.

g) Noted significant "grants, subsidies and other contributions" for rail crossing/separation works. Are grants and other subsidies available for any of the transportation projects including Provincial funding for roads to accommodated external traffic?
External traffic through the City is served by the Hanlon Expressway (Provincial), Woodlawn Road and York Road. The two roads are connecting links on Hwy 7, and connect link grants are included for the two projects. The Hanlon upgrades are not part of the City DC, except Hanlon/Laird interchange, which is being undertaken by the MTO on the basis of a cost-sharing agreement with the City because it is required to support the development of employment areas at this location. The City's share is included in the DC.

h) Project Nos. 1-9, inclusive, listed on the CAP table identify where the need is indentified in background studies.
    a. New Projects 1-9
        i. 1 & 2 - College Avenue, Harts Lane are development driven.

ii. 3 & 4 - Victoria & Maltby are arterial roads but were not included in the earlier DC because the adjacent lands were Urban Reserve. Growth Plan allows them for development.
iii. 5 & 7 Victoria Road widening and Victoria/Clair intersection are required because of intensification.
iv. 6 - Provision for over-sizing: This needs to addressed as part of Local Services Guidelines.
v. 8 & 9 – Cycling Master Plan and staff reports

i) Are gross cost deductions in order, considering opportunities for simultaneous construction with other hard services? Has this been considered? The City manages projects by constructing them in the most cost effective manner. If at the time of project implementation, simultaneous construction of services can be achieved, the City will undertake the project work in that fashion. However, the determination of whether or not cost savings can be achieved for simultaneous construction may not be known until the detailed design stage. Factors that may play a role in determining specific project construction methodology include utility conflicts, geotechnical considerations, traffic impacts, servicing constraints, funding availability, development activity, infrastructure condition, approvals and environmental impacts. Project estimates for the background study did not take into account possible simultaneous construction savings because of the some issues listed above. The projects in the background study were reasonably estimated for the Gross Cost magnitudes for roads, watermains, sanitary sewers and stormwater management and included review of current and historical projects.

j) Confirm that the projects listed on page 38 of the TMP as "deficient" today are not included in the capital works: Page 38 of TMP – Two projects are included: York (from Victoria to Watson and not the section) from Downtown to Victoria) and Victoria Road, both to be widened from 2 lanes to 4 lanes to support new development, i.e. GID.

k) Not certain how or if the issue of increased "external traffic flow" could or should be addressed in the update. Topic to be discussed. Further to g., above,

Guelph is not located to attract significant external-to-external through traffic. There are no City roads in Guelph with through traffic like Steele Avenue in Brampton, or Dundas Road in Mississauga. Hwy 401 provides a very competitive by-pass to any potential through traffic through Guelph. Any residual through traffic will use Hanlon Expressway, Woodlawn Road and York Road, as already noted.

R.W. Stratford Consulting Inc.

November 7, 2013 Project No. 213101

The Corporation of the City of Guelph
1 Carden Street
Finance & Enterprise
Guelph, Ontario
N1H 3A1

Attention: Ms. Sarah Purton, CMA
Manager, Financial Planning & Budgets

Subject: Peer Review - 2013 Development Charges Update
Hard Services Review

Dear Sarah:

Please find attached, comments related to various hard services based on the information provided by the City recently, including updated Capital Works Tables, updates cost split tables and the City's response letter dated September 18, 2013.

My current comments are inserted, in italics, into my July 29, 2013 letter.

My comments also have regard for additional responses and clarity provided at the October 31, 2013 meeting with the development industry.

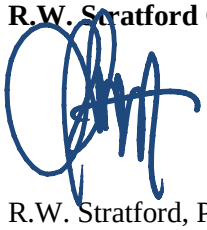
Reference should be made to the City's September 18th letter, when reviewing this document; a copy of the September letter is attached herewith for convenience.

I trust you will circulate this information to the various Guelph DC Team members.

Should you have any immediate questions or concerns, please do not hesitate to contact the undersigned.

Very truly yours,

R.W. Stratford Consulting Inc.



R.W. Stratford, P.Eng.

Encl.

c: Ms. A. Jacob, IBI Group

Tel: 519-857-8806 650 Waterloo Street, Ste. 101, London, ON, N6B 2R4

A. General Comments

1. Clear information should be provided to confirm the populations to be served by the various services over the planning horizon. For example, the wastewater collection system may have been designed for a population of 195,000 (c.f. projected population of 175,000 res).

   Updated population figures were provided in accordance with the latest data provided by the City.

   AECOM provided a detailed description of the historic Water and Wastewater modeling/master planning efforts as well as for the recently completed modeling (June to October, 2013), confirming that their work reflects the most recent population forecasts. Further discussion was provided on how the water supply systems have been "mapped" to growth forecasts in the recent revisions to the capital works tables by implementing a staged introduction of total supply from each source that recognizes the current MOE practice of demanding this approach (to ensure environmental effects are measured as sources are brought on).

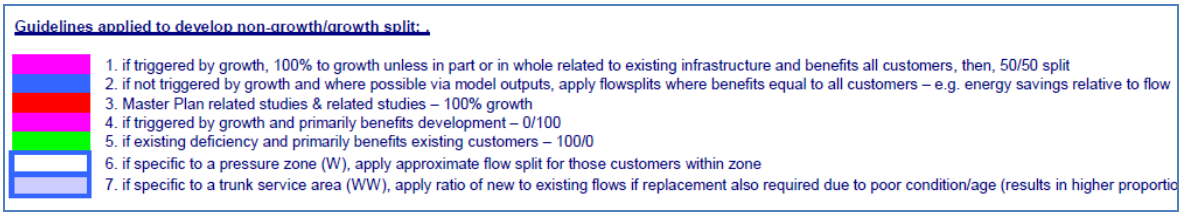
   AECOM also confirmed that the recently revised models reflected a "starting point" for existing infrastructure that is current.

2. Confirm whether any of the services are sized to accommodate growth outside of the existing municipal boundary.

   AECOM confirmed that based on remodeling, some of the lineal services were reduced in length; a lesser land area extent is serviced, given the increase in intensification in the latest growth forecast. It is recognized that for purposes of efficiency and good engineering planning, some services may have been oversized to collect naturally tributary areas at the periphery of the service area. Where the service size increased by a cost of more than 10% to accommodate this increase, a post-period-benefit (PPB) was defined in the cost split tables. Detailed cost estimates outlining the calculation of the 10% differential were not provided. AECOM advised that calculations were completed on a line-item basis, but this information was not provided to the peer review team. In the absence of detailed-design level of information, this method for determining cost splits can be supported for purposes of determining the DC rate.

3. For some of the individual line items in the various Water, Wastewater and Roads tables, it is unclear how the PPB, BTE , Excess Capacity and Urgent/Non-Growth Needs Issues are calculated or addressed. Colour-coded Tables were previously prepared for the Water and Wastewater items that contained footnotes which attempted to describe the methodology for calculating growth/non-growth splits.

   For example, Wastewater Collection and Pumping Projects "Guidelines applied to develop growth/non-growth split" were given as follows:



Similarly, an estimation of Growth vs. Non-growth splits for wastewater works are based on a table included in the colour coded charts based on cross-sectional area of pipe size required. Please explain how that table was applied in the various cost splits.

Since so many of the proposed "improvements" are located within the City core and built areas, it is difficult to assess apportionment. Conversely, in the absence of detailed descriptions and assignment of splits, the work may more readily be shown as lacking sufficient detail, in the case of a dispute. Greater detail should be provided on a line-by-line basis, as part of the background information, describing growth/non-growth calculations for all relevant line items.

AECOM provided updated "split" charts (refer also to comments in item 2 immediately above) using the principles described above and on the tables. The tables/splits have been updated based on the revised modeling, having regard for BTE, PP, etc.

Similar to the comments in item 2 above, detailed cost estimates outlining the calculation of the various "splits" were not provided to the peer review team. In my opinion, these splits will remain open to challenge; the level of effort applied in describing the current cost-split ratios and the justifications provided appear reasonable, however, the detailed calculations were not reviewed.

4. No information was provided for the individual gross cost estimates for the various line items and the stated costs were, in general, not reviewed here. Have the individual cost estimates considered benefits derived from simultaneous construction of specific projects? Is the magnitude of potential savings identifiable and should reductions be applied?

   Individual cost estimates were not reviewed in detail during the peer review. The City has considered the issue of applying reductions that consider the possibility of carrying out simultaneous construction of various line item works. The City maintains that, based on their experience, there is not enough certainty today to apply a reduction for any of the projects in this regard. The team was urged to review near-term projects, relative to the City's capital budget in an effort to identify possibilities for reductions. While there may be an argument that "master planning" level of detail is not conducive to recognizing the benefits of simultaneous construction, it appears that no consideration was given to this matter. The City should also consider the opportunity of "partnering" with private developers where opportunities may exist to combine private infrastructure works associated with a development with contiguous/necessary DC works, in order to achieve competitive bid prices. Developers could be 'credited' various components of the DC charge (depending on type of service) to facilitate this process.

5. It might be argued that the capital line items for oversizing (sewers, forcemains) are not DC eligible as they are not identified in background studies. However, it is 'typical' to include these quantities to ensure that unknown items are captured, once detailed designs identify the need. It would be beneficial to have other policies that identify when an 'oversizing' charge is applicable.

   AECOM has made adjustments to the various oversizing line items based on current modeling and having regard for the recently introduced Local Service Guideline document.

6. No background information has been provided with regard to Reserve Fund Accounting and is not reviewed here. Please provide annual DC reserve fund statements identifying growth related project expenditures.

   A brief review of the reserve fund statements was conducted at the team meeting on October 31, 2013.

B. Water Distribution and Supply Review

1. Water Plants

- Total Equivalent "Buildout" Population is 281,400 (Feb., 2013 Growth Forecast).
- Flow Rate (before conservation, etc.) is 450 l/c/d (300 x 1.5 MDD). MSP p.64.
- Total Supply provided via "New Supply" + Existing is 182,900 cu.m/day. WSMP.
- Therefore, required capacity to buildout is 281,440 x 0.450 = 126,648 cu.m/day.
- Based on CAP DC Tables, %PPB for new supply projects is calculated in the following table, based on the PPB assigned cost amounts provided. New capacity assigned to growth is the portion not assigned to PPB. The Total Supply generated (100% - 14.69%) is tabulated below (144,142 cu.m/d).

Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Gross Capital Cost Estimate	Post Period Benefit	%PPB	Total Supply Increase from Project cu.m/d	EX Supply + Supply to Buildout per %PPB
EXISTING SUPPLY					75,000
New Supply inside City:					
Arkell Infiltration	10,695,000	1,571,171	14.69	29,504	25,170
Membro/Downey	2,414,000	354,634	14.69	4,000	3,412
Clythe/Sacco/Smallfield/Scout	16,076,000	2,361,678	14.69	9,590	8,181
Logan/Fleming/McCurdy	10,273,000	1,509,176	14.69	8,467	7,223
Gordon/Clair Hanlon/Stone	6,615,000	971,790	14.69	7,456	6,361
Outside City (Wells)	42,500,000	6,243,551	14.69	22,032	18,795
Surface Water/ASR	85,707,000	85,707,000	100.00	27,123	-
				108,172	144,142
				Required Capacity to build-out	126,648
				Overpay by this much?	14%

Note: If employment demand is reduced by excluding 'work at home' and 'no fixed place of work' the capacity requirement would be further reduced

a) Please explain how the PPB costs (14.69%) were derived for the first 6 projects.

AECOM has provided a response, as described in item A. 1 further above. Currently, the MOE requires that new water supply systems be constructed and operated on a staged basis, whereby the total supply is not available on completion of the supply system until some environmental confirmation has been recorded; that is that no adverse effects are measured while bringing on the supply in a staged manner. On this basis, AECOM has stated that there is no oversupply of water during the study period. A table describing the staged implementation was provided at the October 31, 2013 team meeting. That table should form part of the formal record.

b) Should the increase in MDD from 1.35 to 1.5 equate to a further reduction in cost to growth by way of Benefit-to-Existing (increased service level) improvements?

The City's Team argues that this increase is fully attributable to growth; if no new systems were planned, then there would be no need to consider an increase in the MDD factor. The fact that new growth triggers the re-evaluation of the whole system on the basis of an increased MDD factor results in the associated costs being applied to growth. In other

words, there is no 'service level' change to the historic system, since the old and new system cannot be separated.

c) Should the cost apportioned to growth be further reduced by virtue of anticipated conservation targets?

AECOM has stated that reductions for conservation have been applied throughout the revised tables. In addition the Guelph Lake surface water supply project was dropped from the 20 year growth period, partly in consideration of the conservation reductions. A detailed analysis of the updated modeling was not carried out by the peer review team.

d) The Guelph Innovation District Secondary Plan (Section 3.4.3) imposes higher conservation targets than those contemplated in the WSMP, down to 250 l/c/d. Should these anticipated demand savings be factored into supply "requirements", thereby reducing overall supply costs?

The City is maintaining demand targets at 300 l/c/d in accordance with MOE guidelines. It is their right to maintain these levels. The City did advise that plans are in place to complete some new system modeling in the next year that will review the demand targets; that modeling combined with discussions with the MOE may result in reductions being implemented in future, which would be reflected in future Development Charges updates or addendums.

e) The various supply projects contribute to Unaccounted for Water (UFW) How have these volumes been factored into PPB?

AECOM states that the City is currently operating at a rate of 10-11% UFW, which is considered 'healthy'. UFW is not included as part of any new works; fire flow and bulk supply is. No adjustment for UFW and related PPB is accounted for in the cost-split for the works. This item could be challenged.

<u>Refer to attached "RWS TABLE 1" where a Line No. column is added:</u>

f) Gross Cost Estimates: Items common to the 2008 DC Study where estimates differ significantly in the updated tables are highlighted in red in the "Change from 2008 DC" column. Please provide the rationale for these cost revisions.

Prj.No	Line No.	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Timing (year)	Gross Capital Cost Estimate (2013 $)	Line item is in 2008 DC Tables		CHANGE FROM 2008 DC - Gross Capital Cost	
					Y/N	AMT		
WW0016	1	Arkell Spring Grounds	2013-2018	1,019,000	Y	500,000	519,000	104%
WT0002		**New Supply:**					-	
		New Supply inside City:					-	
	4	Clythe/Sacco/Smallfield/Scout	2013-2022	16,076,000	Y	14,675,000	1,401,000	10%
	5	Logan/Fleming/McCurdy	2013-2022	10,273,000	Y	9,389,000	884,000	9%
	6	Gordon/Clair Hanlon/Stone	2013-2022	6,615,000	Y	5,568,000	1,047,000	19%
	7	Outside City (Wells)	2018-2028	42,500,000	Y	39,312,000	3,188,000	8%
WW0106	9	Water Conservation and Efficiency	2013-2059	49,208,000	Y	29,627,041	19,580,959	66%
WW0097	10	W-F-0 Clair Tower Booster Pumping Sati	2014-2015	120,000	Y	2,000,000	(1,880,000)	-94%
WW100	12	W-F-3 Clythe Booster Upgrades	2014-2016	5,544,000	Y	5,000,000	544,000	11%

g) For Line Item No. 11, Verney/Clair Control Upgrades, the BTE has been reduced from 26% to 20% (2008DC vs. 2009DC). Please provide rationale.

This item has been reverted back to 26% benefit to existing, based on updated modeling – a detailed review of the new modeling has not been completed by the peer review team.

2. Residential vs. Non-Residential Split (All Water and Wastewater Items):

a. The CAP tables show a 60%/40% split between Residential/Non-Residential. Based on the February 2013 Growth Projections, should the split be revised to 61%/39%?

City replies that Watson confirmed the 60/40 as appropriate.

Populations Per Feb 2013 Growth Projection Documents					
	Residential	Employment	Tot Equiv	%Res	%NonRes
Base Year	126,250	75,450	201,700	63%	37%
2023 (10 yr)	151,196	91,780	242,976	62%	38%
Buildout	172,400	109,040	281,440	61%	39%

b. The current Growth projections anticipate a significant increase in the proportion of High Density residential development compared to single-family/low density development form. Has or should any accommodation been made in the water modeling to reflect the lower water uses associated with higher density developments (i.e. reduced/eliminated lawn watering, other uses)?

AECOM advises that the size of the various works have been adjusted to reflect the updated growth forecasts and related intensification. As a result, the assignment of cost splits between growth and non-growth has also changed based on the updated modeling. Similarly, an effect on the scale of works at the periphery of growth areas was also accounted for in developing new cost splits.

3. Linear Infrastructure - Line Items.

AECOM provide updated cost split tables based on the recently completed modeling. Numerous adjustments have been made to the growth versus non-growth splits. The peer review team did not review the updated model; the various splits could be challenged if the modeling does not support the recommended splits.

Various line items have been deleted where the works are not identified in the Master Plans.

Greater detail has been provided on the cost split tables, describing the methodology used for determining the cost of growth versus non-growth components.

Refer also to previous comments regarding the cost-split tables.

4. **Miscellaneous**

a. No grants or subsidies are identified for any projects. Is this correct?

The City confirmed that all available grants and subsidies have now been identified in the cost tables.

C. Wastewater Collection and Treatment Review

1. Linear Infrastructure - Line Items

AECOM provide updated cost split tables based on the recently completed modeling. Numerous adjustments have been made to the growth versus non-growth splits. The peer review team did not review the updated model; the various splits could be challenged if the modeling does not support the recommended splits.

Various line items have been deleted where the works are not identified in the Master Plans.

Cost estimates for various line items were adjusted based on updated modeling work and considering that some projects or portions of projects have been completed recently.

Greater detail has been provided on the cost split tables, describing the methodology used for determining the cost of growth versus non-growth components.

2. Wastewater Treatment Plants - Line Items

Refer to attached "RWS TABLE 4" where a Line No. column is added

a. Line No. 15 is an added work compared to the 2008 DC Study. This item is not identified in any of the Master Plans I possess. Identify source of information. Provide rationale for 50% benefit to existing and 0% PPB.

The City has provided some justification for the cost-split associated with this item, noting that this facility was formally named the 'Administration Building'. The nature of work at this 'Process Operations Centre' has not changed, but the expansion is necessary for increased staffing levels associated with expanded wasterwater services, over the next twenty years.

Prj.No	**Line No.**	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Timing (year)	Gross Capital Cost Estimate (2013 $)	Post Period Benefit	PPB %	Less: Benefit to Existing Development	Less: BTE%
1	**15**	Process Operations Centre (POC) Expansion	2023-2032	4,150,000	0		2,075,000	50.0%

b. Gross Cost Estimates: Items common to the 2008 DC Study where estimates differ significantly in the updated tables are highlighted in red in the "Change from 2008 DC" column. Please provide the rationale for these.

The City has provided added detail describing how the various costs derived. In addition, implementation staging of the plant expansions have been altered and these changes have been reflected in the updated tables. Detailed analysis of gross cost estimates was not undertaken by the peer review team.

Prj.No	**Line**	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	Timing (year)	Gross Capital Cost Estimate (2013 $)	Line item is in 2008 DC Tables		CHANGE FROM 2008 DC - Gross Capital Cost	
					Y/N	AMT		
ST0003	**5**	Biosolids facility Upgrade	2014-2020	43,554,000	Y	40,204,000	3,350,000	8%
ST0004	**7**	Phase 2 Expansion to 73.3 MLD	2013-2017	14,701,000	Y	33,690,000	(18,989,000)	-56%
ST0004	**8**	Phase 3 expansion to 85 MLD	2023-2032	62,328,000	Y	45,000,000	17,328,000	39%
ST0005	**11**	WWTP Upgrades	2013-2019	10,483,000	Y	4,721,491	5,761,509	122%

c. Please provide rationale for adjustments in PPB% and BTE% for those items highlighted in red in the last columns of Table 3.

A detailed response has been provided by the City team and reference should be made to their September 18, 2013 response. Significantly, The justifications given on the response appear reasonable.

Prj.No	Line	Increased Service Needs Attributable to Anticipated Development 2013-Urban Build Out	2013 DC STUDY				2008 DC STUDY			
			Post Period	PPB%	Benefit to Existing	BTE%	PPB 2008	%PPB	BTE 2008	%BTE
ST0002	4	WWTP Upgrade Studies	0		0		1,691,176	68%	250,000	10%
ST0003	5	Biosolids facility Upgrade	0		13,066,200	30.0%			20,102,000	50%
ST0004	8	Phase 3 expansion to 85 MLD	25,037,700	40%	0		-	0%		
ST0004	9	Long Term Expansion	68,561,000	100%	0		52,800,000	80%		
ST0005	11	WWTP Upgrades	0		2,096,600	20.0%			3,541,118	75%
ST0008	17	Wastewater Treatment Master Plan	0		0		947,059	68%		

5. **Miscellaneous**

a. One grant, in the amount of $500,000 is shown for all wastewater projects; what is the source? Are there any additional anticipated grants, subsidies, etc.?

Confirmation of available grants has been provided and incorporated in the tables satisfactorily.

D. Stormwater Management Review

a. Does the City intend to incorporate the findings of the February 12, 2013 Stormwater Management Master Plan (AMEC) in this DC Update?

Table 6.1 of that study identifies preliminary quality control retrofit projects. Table 7.1 identifies proposed stormwater quantity control facilities.

The SWM Master Plan provides only for upgrades to existing infrastructure. There are no new projects included in the DC rate to accommodate new growth.

b. Explain how the 26%/74% Res/Non-Res split was established on the CAP table.

AECOM confirmed that the cost split has been adjusted to 60%/40%, based on the updated forecast.

Line-by-Line Review:

c. Hanlon Creek Storm, $200,000: Provide background information on costs and project description and BTE calculation.

A detailed response was not provided to this inquiry; the item is identified as "carried forward from prior study (2008)". Some supporting justification for this item should be provided.

d. Watershed Study Updates and Servicing Studies: Is it acceptable to include study work? Identify BTE calculation.

Master Planning studies such as subwatershed studies are acceptable for inclusion in the DC rate calculation. The City is maintaining this charge in the rate on the basis the benefit is solely to new growth.

e. Stormwater Drainage Oversizing: Provide additional detail on Gross Amount and BTE. Does the City have a standard policy for oversizing works/rebates?

The City has developed a Local Service Guideline document that addresses the questions raised here. Reference should be made to that document.

f. Downtown CIP: Considering that the downtown is currently "built-up", should all downtown improvements be assigned to existing/increased service level?

This item has been removed from tables/charge.

E. Highway (Roads) Review

Refer to attached "RWS TABLE 5".

a. Line items highlighted in red on Table 5 indicate items where significant changes are evident, compared to the 2008DC Study. Please explain the rationale for the various changes.

For those costs where prices were reduced compared to earlier versions of the Capital Works Tables, the City explained that various projects or portions of projects have been completed (construction or design) and the prices adjusted accordingly. The Speedvale/Delhi works were reduced in price based on updated design information.

Those projects (3 items) where costs increased over previous versions of the tables were based on updated design information. Detailed cost estimates were not analysed by the peer review team.

b. Should the Res/Non-Res split be adjusted as per Item B.2a above (i.e. 61/39)?

The cost split between residential and non-residential growth is now stated at 60%/40%.

c. Similar to other hard services, some explanation/rationale for the BTE calculation should be provided and justification for little-to-no PPB given.

The City has made some adjustments to the PPB amounts; including some allowance for two new projects that will benefit growth beyond the current boundary. The City maintains that all other projects entirely benefit growth inside the 20-year horizon.

With regard to BTE calculations, reference should be made to the City's September 18, 2013 response for a detailed explanation. The BTE amounts are based on projected road volumes. As noted in the next item below, the City states that their traffic model is constantly updated and the BTE calculations reflect this.

The City should establish a 'baseline' and document same in the DC study. A 'rolling' traffic analysis model does not provide an adequate base from which to measure 'needs' over a dedicated time period, which in turn hinders the ability to accurately reflect BTE and PPB assignments.

d. The Guelph Wellington Transportation Study 2005 relied on Ministry of Finance population forecasts which are now out of date. As well, these forecasts did not contemplate Places to Grow and the various policy initiatives intended to impact urban growth through encouraging intensification. Thus the base forecast in the TMP is, in our view, out of date. A relevant example is the Guelph Innovation District (GID) which was not contemplated at the time of the TMP but is included in the DC growth forecast.

The City advises that their travel demand forecasting model is "regularly updated" and has been used in reviewing the growth forecasts. Based on the updated modeling, the City confirms that no changes to the arterial road requirements. In the absence of a detailed model review, the results of the City's recommendations could be challenged.

e. How is the timing of road projects determined? An example is the Woodlawn-Silvercreek-Nicklin project which had been identified in the 2008 DC as being within the 0-5 year timeframe but is now contemplated for the 2023-2032 timeframe.

The City advises that the nature of the work associated with this project has altered since first included in the 2008 DC Study, such that the remaining component is the construction of a 5-lane widening, the timing of which has been pushed out to accommodate other priorities. This seems a reasonable justification.

f. Projects contemplated for the last 10 year timeframe should consider PPB.

The City again advises that based on their continually updated modeling, the roads included in the works tables are required to accommodate growth before 2031 and, as such no PPB has been considered. The City's modeling remains open to challenge and it would appear that insufficient information has been provided to-date to justify the absence of PPB amounts.

g. Noted significant "Grants, Subsidies and Other Contributions' for rail crossing/separation works. Are grants and other subsidies available for any of the transportation projects, including:

    i. Provincial funding for roads to accommodate 'external' traffic;

The City advises that they have incorporated all known grants, subsidies and other contributions that are available.

h. Project Nos. 1 to 9, inclusive, listed on the CAP table: identify where the need is identified in background studies.

Insufficient detail has been provided to justify the addition of projects labeled number 1 through 7. Some added justification and modeling should demonstrate that certain projects are "development driven". Similarly, some added justification for including an "Active Transportation Feasibility Study" ($150,000) and "Active Transportation Corridors" ($4,500,000) should be provided.

i. Are gross cost deductions in order, considering opportunities for simultaneous construction with other hard services? Has this been considered?

The City has considered the issue of applying reductions that consider the possibility of carrying out simultaneous construction of various line item works. The City maintains that, based on their experience, there is not enough certainty today to apply a reduction for any of the projects in this regard. The team was urged to review near-term projects, relative to the City's capital budget in an effort to identify possibilities for reductions. While there may be an argument that "master planning" level of detail is not conducive to recognizing the benefits of simultaneous construction, it appears that no consideration was given to this matter.

j. Confirm that the projects listed on page 38 of the TMP as "deficient" today are not included in the capital works.

The City has confirmed that two of these projects are included in the rate calculation (a portion of York and Victoria Road). No explanation is provided for why these roads, noted as 'deficient' today have been assigned the specific BTE assessments. The City should confirm that the transportation model dictates BTE and how much of the road deficiency is covered by non-growth .

TABLE 3.3: EXISTING AND FUTURE ROAD NETWORK DEFICIENCIES

- 2001
  - Highway 7
  - Wellington 124 W
  - Hanlon (College – Wellington)
  - Gordon (Stone-Wellington)
  - Edinburgh (Kortright-Ironwood, Wellington-London)
  - Imperial (Massey-Willow)
  - Woolwich (London-Speedvale)
  - York (Downtown – Watson)
  - Victoria (College – Stone)

k. Not certain how or if the issue of increased "external traffic flow" could or should be addressed in the update. Topic to be discussed.

The City indicates that Guelph is not geographically situated to "attract" significant external-to-external traffic. Further there is an indication from the City that work on roads that dos convey this traffic category benefits from grants or subsidies as described in item g) above. Unless there is modeling evidence that demonstrates these facts, then the cost apportionment for this item could be challenged.