

July 26, 2018

Audrey Jacob, Dukhee Nam
IBI Group
7th Floor – 55 St. Clair Avenue West
Toronto ON M4V 2Y7

RE: City responses to IBI memorandum dated May 29, 2018 for the 2018 DC
Background Study

This document provides responses to the questions and comments submitted May 29, 2018.

Attachment #1: Response to IBI Group May 29, 2018 Memo, was drafted by Jamie Cook from Watson & Associates and Jason Downham from the City's Planning department to answer the following 5 questions:

Q1. What happened to the supply of single/semi detached units in the intervening years?

Q2. Please provide details on Development Priorities Plans and demonstrate how the referenced documents together align with the supply information in the 2018 DCBS.

Q3. Given the lack of specific supply/yield information in the GID and LGMS documents, please provide details or reference pages to demonstrate the reconciliation of supply and demand over time.

Q4. Please explain how the City has accounted for changes to the NHS arising from OPA 42, which reduced the amount of developable land, given that the OPA was adopted post the LGMS?

Q5. Please consider including growth and required infrastructure in the CMSP areas in the pre-2031 period

City Staff have provided responses to questions 6-8.

Q6. Please provide further details as to how the land value assumptions were developed. Are the assumptions for residential land or non-residential land? Where are sample properties located, i.e., downtown vs. suburban? What stage of development does land value represent, i.e., servicing, level of approval, etc?

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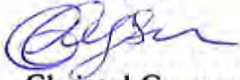
IBI Group

July 26, 2018

RE: City responses to IBI memorandum dated May 29, 2018 for the 2018 DC
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Page 3 of 3

Thanks you,



Christel Gregson, Sr. Corporate Analyst Development Charges and Long-term
Planning

Corporate Services, Finance

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Memorandum

To:	Tara Baker/Christel Gregson	Fax	<input type="checkbox"/>
From:	Gary Scandlan/Jamie Cook	Courier	<input type="checkbox"/>
Date:	June 15, 2018	Mail	<input type="checkbox"/>
Re:	Response to IBI Group May 29, 2018 Memo	e-mail	<input type="checkbox"/>

Below is our response to the May 29, 2018 memo provided by IBI Group regarding comments/questions on growth forecasts and level of service calculations.

1. DCBS Growth Forecast

Supply Changes Between 2013 DCBS and 2018 DCBS

Q1. *What happened to the supply of single/semi detached units in the intervening years?*

R1. The supply of low density units in the 2018 DC Background Study (DCBS) is lower than what was reported in the 2013 DCBS for several reasons:

- New applications for plans of subdivision have been submitted, bringing greater certainty to the anticipated housing supply by unit mix.
- The evolution of several existing plans of subdivision since 2013 has also resulted in changes to the anticipated mix of housing units.
- The low-density housing supply in the 2008 and 2013 DCBS also included low density infill resulting from anticipated severance activity and accessory apartments. These figures have been excluded from the housing supply on Schedule 6 of the DCBS residential growth forecast.
- It is also noted that the time period between the housing supply tables provided in the 2013 DCBS (mid-2013) and 2018 DCBS (end-2017) is 4.5 years, while the residential building permit activity summarized in the May 29, 2018 IBI memo is 5 years (2013 to 2017).

Services

- | | | | |
|--|--|---|---|
| ▪ Demographics, Pupil Forecasting, Industrial/Commercial Forecasts | ▪ Development/Education Development Charge Policy | ▪ Financial Analysis of Municipal Restructuring Options | ▪ Fiscal Impact of Development |
| ▪ Land Needs and Market Studies | ▪ Long Range Financial Planning for Municipalities | ▪ Municipal Management Improvement | ▪ O.M.B. Hearings – Financial, Market, Demographic |
| ▪ School Board Planning and Financing | ▪ Servicing Cost Sharing | ▪ Tax Policy Analysis | ▪ Waste Management Rate Setting, Valuation and Planning |

Map 1, provided herein, provides a geographic summary of the City of Guelph Potential Housing Supply as per Schedule 6 of the 2018 DCBS.

Q2. Please provide details on Development Priorities Plans and demonstrate how the referenced documents together align with the supply information in the 2018 DCBS.

R2. The Development Priorities Plan has only reports on the status of large development projects and does not provide a fulsome account of the City's total housing supply. The City's 2017 Growth Management Monitoring Report provides the most recent details on the City's total housing supply as defined by the PPS. This housing supply, provided by unit type expands upon the housing supply from the DPP by including smaller development projects, sites that are zoned and serviced, and sites that are designated for residential development.

Q3. Given the lack of specific supply/yield information in the GID and LGMS documents, please provide details or reference pages to demonstrate the reconciliation of supply and demand over time.

R3. The City's Residential Intensification Analysis from the fall of 2007 was used as a foundation for the LGMS and provides some detail on the potential location and capacity for infill development. The LGMS also provides an overall summary of the number of units by growth area, as well as the total number of anticipated units by type. Further to this, the attachments as noted in question 1 provides additional details on the housing supply, and unit assumptions for the GID.

Q4. Please explain how the City has accounted for changes to the NHS arising from OPA 42, which reduced the amount of developable land, given that the OPA was adopted post the LGMS?

R4. The City's Natural Heritage Strategy commenced in 2004, several years before the LGMS commenced. Since its inception, the LGMS has always had regard for the NHS and as the NHS continued to mature and evolve, adjustments were made to account for the amount of land available for development.

Several of the LGMS background reports make reference to the NHS being incorporated in the LGMS analysis:

- Page 18 of the LGMS Recommendation Report (April 2008) made mention of the NHS, and notes that the Natural Heritage Strategy would impact the City's development potential in environmentally sensitive areas.
- Page 30 of the LGMS Phase IV Implications Analysis report (April 2009) notes that the Recommended NHS (March 2009), finalized through Phase 2 of the strategy was incorporated into the LGMS analysis.

There were no changes to the NHS between the recommended NHS as presented in the final phase 2 report, adopted by Council in July of 2010, and the ministry approval in 2011. Since that time, any refinements to the NHS have occurred through settlements,

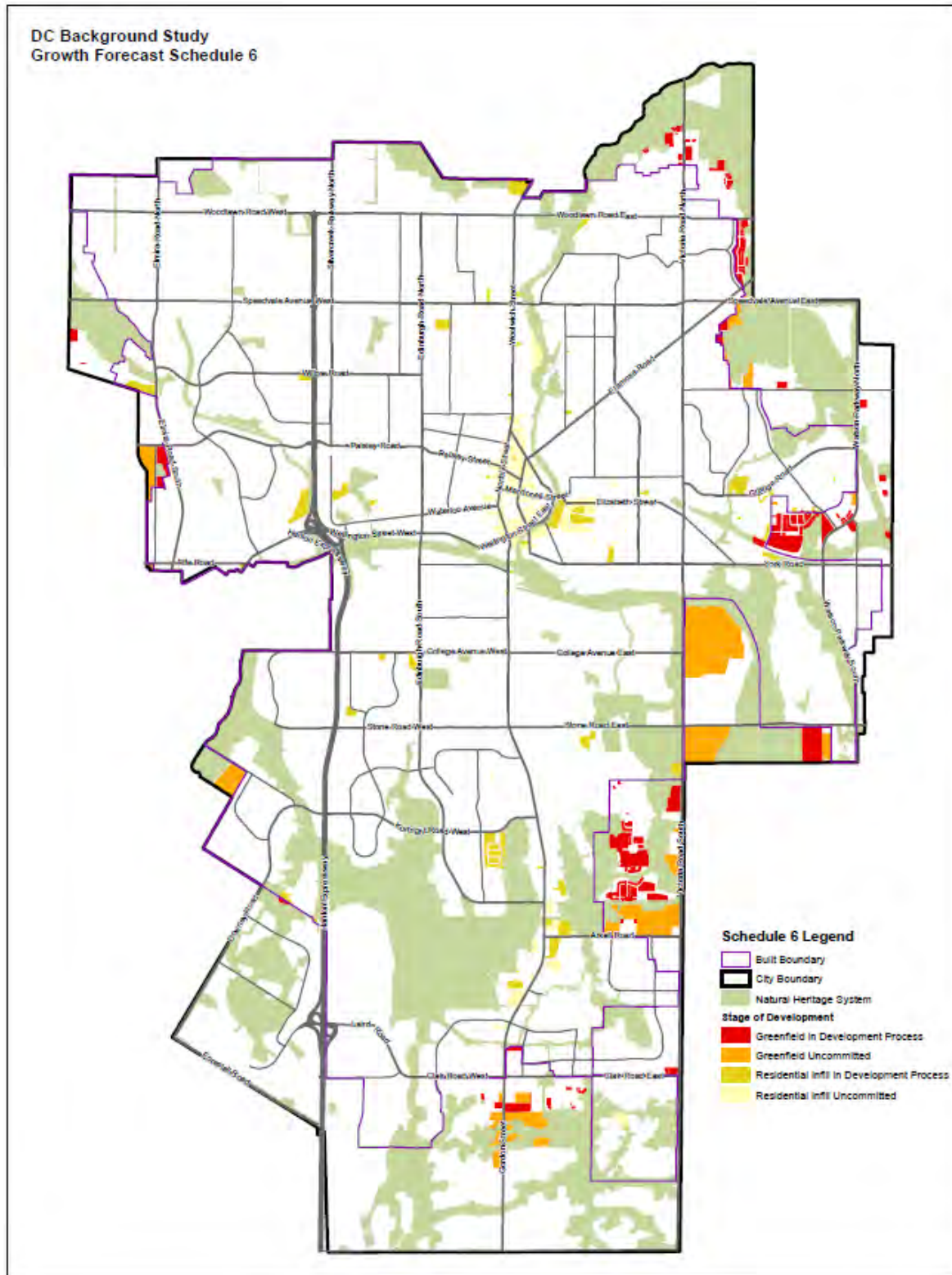
primarily within the Clair-Maltby Secondary Plan Area. These refinements through settlements resulted in a net increase to the quantum of land available for development. Outside of the Clair-Maltby Secondary Plan there have been minimal adjustments to the NHS since ministry approval.

Inclusions of Growth in Clair-Maltby Secondary Plan Area

Q5. Please consider including growth and required infrastructure in the CMSP areas in the pre-2031 period.

R5. We do not disagree that it is reasonable to assume that there would be development in place in the CMSP area before 2031. Furthermore, it is also recognized that the Clair-Maltby Secondary Plan Area will significantly add to the City's ground-oriented residential land supply. The Preliminary Preferred Community Structure Concept Plan for the CMSP area designates the majority of the developable lands within the study areas as low-density and medium-density residential. However, until the CMSP is approved and all supporting master plan studies are complete, we cannot include the population and employment growth associated with this area in the City of Guelph DCBS.

Map 1: Summary of City of Guelph Potential Housing Supply (Schedule 6, 2018 DCBS)



DC Background Study Housing Supply Summary, 2018

As of December 31, 2017

Greenfield Units	Singles	Semis	Towns	Apts	Total
Plan of Subdivision	656	68	720	2250	3694
Zoned Sites & Zoning Applications Outside Plan of Subdivision	5	0	67	1029	1101
Uncommitted	798	0	2587	2887	6272
Greenfield SUBTOTAL	1459	68	3374	6166	11067
Infill Units	Singles	Semis	Towns	Apts	Total
Plan of Subdivision	170	38	338	509	1055
Zoned Sites & Zoning Applications Outside Plan of Subdivision	54	0	366	2193	2613
Uncommitted	52	0	970	1468	2490
Infill SUBTOTAL	276	38	1674	4170	6158
City-wide TOTAL	1735	106	5048	10336	17225

Remaining Units by Plan of Subdivision

As of December 31, 2017

Greenfield Units	Singles	Semis	Towns	Apts	Total
23T01508	131	0	171	377	679
23T07506	83	26	51	330	490
23T08502	0	0	0	124	124
23T11503	116	4	61	152	333
23T12501	125	0	14	180	317
23T12502	96	26	66	54	242
23T16501	19	0	0	0	19
23T86004	0	0	0	521	521
23T91007	7	0	0	0	7
61M113	2	0	0	0	2
61M122	3	0	0	0	3
61M151	0	0	39	0	39
61M159	0	0	0	117	117
61M166	8	0	80	0	88
61M169	0	0	21	0	21
61M172	1	0	0	0	1
61M173	0	0	0	50	50
61M178	10	0	0	0	10
61M189	0	0	14	0	14
61M191	8	0	39	0	47
61M193	0	4	0	0	4
61M194	0	0	0	46	46
61M196	1	0	70	0	71
61M198	0	0	0	206	206
61M200	20	0	10	0	30
61M206	0	0	84	0	84
61M212	15	0	0	0	15
61M214	11	8	0	0	19
61M65	0	0	0	93	93
Greenfield SUBTOTAL	656	68	720	2250	3692
Infill	Singles	Semis	Towns	Apts	Total
PLAN 853	1	0	0	0	1
23T04503	0	0	0	356	356
23T07505	14	0	78	0	92
23T12501	6	0	0	0	6
23T12502	2	26	0	0	28
23T14502	113	4	68	153	338
23T99504	3	8	8	0	19
61M133	1	0	0	0	1
61M18	11	0	0	0	11
61M181	8	0	0	0	8
61M188	1	0	0	0	1
61M26	0	0	129	0	129
61M37	5	0	0	0	5
61M54	0	0	55	0	55
61M82	3	0	0	0	3
61M90	1	0	0	0	1
61M91	1	0	0	0	1
Infill SUBTOTAL	170	38	338	509	1055
City-wide TOTAL	826	106	1058	2759	4747

Zoned Sites and Zoning Applications Outside Plans of Subdivision
As of December 31, 2017

Greenfield Address	Singles	Semis	Towns	Apts	Total
144 WATSON PKY N	0	0	0	133	133
78 STARWOOD DR	0	0	0	405	405
735 STONE RD E	5	0	0	0	67
1229 VICTORIA RD S	0	0	67	0	5
1888 GORDON ST	0	0	0	491	491
Greenfield SUBTOTAL	5	0	67	1029	1101
Infill Address	Singles	Semis	Towns	Apts	Total
32 BAYBERRY DR	0	0	0	172	172
240 COLLEGE AVE W	0	0	0	42	42
375 EDINBURGH RD S	0	0	0	62	62
404-408 WILLOW RD	0	0	0	50	50
43 SPEEDVALE AVE W	0	0	0	71	71
95 WOODLAWN RD E	0	0	0	90	90
GEMMEL LANE	0	0	0	49	49
106 SUNNYLEA CRES	0	0	0	8	8
64 DUKE ST	0	0	41	88	129
37-39 ARKELL ST	0	0	71	0	71
139 MORRIS ST	0	0	20	42	62
60 ARKELL RD	0	0	47	0	47
781 VICTORIA RD S	17	0	0	0	17
0 LANDSDOWN DR	27	0	0	0	27
1 STEVENSON ST N	10	0	0	0	10
11 CITYVIEW DR S	0	0	10	0	10
1131 GORDON ST	0	0	16	0	16
120 WESTMOUNT RD	0	0	0	220	220
1300 GORDON ST	0	0	0	32	32
180 GORDON ST	0	0	11	0	11
19 to 59 LOWES RD	0	0	60	0	60
237 JANEFIELD AVE	0	0	0	185	185
288 WOOLWICH ST	0	0	2	3	5
33 ARKELL RD	0	0	0	41	41
360 WOOLWICH ST	0	0	0	6	6
40 SILVERCREEK PKY S	0	0	0	350	350
45 YARMOUTH ST	0	0	0	75	75
5 ARTHUR ST S	0	0	17	403	420
515 WOOLWICH ST	0	0	6	0	6
55 DELHI ST	0	0	0	12	12
71 WYNDHAM ST S	0	0	0	140	140
75 DUBLIN ST N	0	0	0	37	37
781-783 WELLINGTON RD	0	0	0	15	15
816 WOOLWICH ST	0	0	31	0	31
89 BEECHWOOD AVE	0	0	34	0	34
Infill SUBTOTAL	54	0	366	2193	2613
City-wide TOTAL	59	0	433	3222	3714

Uncommitted Land Unit Summary
As of December 31, 2017

Greenfield Units	Singles	Semis	Towns	Apts	Total
Low Density Residential	648	0	450	539	1637
Medium Density Residential	0	0	738	0	738
High Density Residential	0	0	0	604	604
Guelph Innovation District	150	0	1399	1744	3293
Greenfield Uncommitted SUBTOTAL	798	0	2587	2887	6272
Infill Units	Singles	Semis	Towns	Apts	Total
Designated and Available	50	0	366	486	902
Downtown (Uncommitted)	0	0	604	982	1586
Infill Uncommitted SUBTOTAL	50	0	970	1468	2488
City-Wide Uncommitted TOTAL	848	0	3557	4355	8760

Notes:

- 1) Uncommitted lands downtown are the remaining minimum number of required units outside of development applications to meet the Growth Plan minimum density target of 150 persons and jobs per hectare.
- 2) Designated and available includes vacant lots of record, lands with preliminary development applications and vacant lands that were redesignated through OPA 48
- 3) The Guelph Innovation District unit estimates reflect the vision of the Plan

Assumptions	Distance	Unit
Boulevard Width	4.5	M
Typical Pipe Depth	1.2	M
Road Depth (for Bedrock Excavation)	1	M
Road Depth (for Grading - Collector)	0.76	M
Road Depth (for Grading - Local)	0.615	M
Quantity of Audible Buttons	8	EA
Quantity of Truncated Domes	16	EA
Quantity of Ramps	8	EA
Driveway - Residential, Width	5	M
Driveway - Residential, Depth	2	M

Right of Way	Road Width (meter)	ROW Width	Qty of Lanes
Local	8.7	13	2 4.35
Collector	10.7	14	4 2.675
Arterial	15.7	19	4 3.925
Expressway			6
Typical Trench Width	3		
Sanitary Depth	1.2		
Sidewalk Width	1.8		
Lane Width	3		
Water takes out 1 lane	3		
Wastewater takes out 1 lane	4		

Start-up Costs (Mobilization, Bonds, Traffic Control, etc)	Spec Number	Unit	Unit Price
Mobilization (60%) and Demobilization (40%). Payment Bond, and Labour Materials Bond, and insurance	GC-11	/M	\$ 175.01
	SP-2	/M	\$ 158.16
	SP-3		
Traffic and pedestrian control	SSP-2	/M	\$ 112.30
Supply, install, maintain and remove detour signage		/M	\$ 40.23
Pre-Condition Survey of existing buildings and structures within 100m of work area (all stages)	SP-1	/M	\$ 44.09
Contractor Layout	SS-30	/M	\$ 65.17
Supply, install, maintain and remove Construction Fencing (Provisional)	SP-6	M	\$ 15.49
Mud and Dust Control	SP-6	/M	\$ 94.42
Supply, maintain & remove administrator's field office including hydro connections	GC-11	/M	\$ 27.90
Site Dewatering for Construction	SP-14; SSP-8	/M	\$ 254.87
Exposures of Existing Utility, Storm Sewer, Sanitary Sewer and Watermain Connection or conflict points	SSP-12	/M	\$ 66.69
Utility Coordination	SSP-4	/M	\$ 32.46
Supply, install, maintain and remove Tree Protection Zone fencing as per SD-90a	SP-5	M	\$ 22.21
Supply, install, maintain and remove Tree Protection Zone fencing as per SD-90c	OPSS-541; SP-6	EA	\$ 127.93
Supply, install and maintain heavy duty silt fence as per SD-74B		/M	\$ 18.15
Temporary Construction Hoarding, 1.8m H			\$ 13.26
Supply, install and maintain light duty silt fence, as per OPSD 219.110		/M	

Removals	Assumptions	Unit	Unit Price
Assumptions	Collector	Local	
wearing course asphalt (SCA) depth	0.045	0.04	M
base course asphalt (BCA) depth	0.09	0.05	M
granular 'A' base depth	0.175	0.175	M
granular 'B' sub-base depth	0.45	0.35	M
road section depth	0.76	0.615	M
road foundation depth	0.76	0.615	M
	Spec Number	Unit	
Remove and dispose of trees larger than 150mm DBA including stump and roots	SS-1 OPSS 201	each	\$ 1,847.88
Remove and dispose of trees smaller than 150mm DBA including stump and roots	SS-1 OPSS 201	each	\$ 761.26
Remove trees (50mm dia to 100mm dia) incl. stumps	OPSS 510 SS-1	/M	\$ 13.87
Remove trees (100mm dia to 200mm dia) incl. stumps	OPSS 510 SS-1	/M	\$ 16.73
Remove trees (200mm dia or greater) incl. stumps	OPSS 510 SS-1	/M	\$ 63.91
Sawcutting & Removal of Concrete Curb & Gutter (All Types and Sizes)	SS-12 SP-8	M	\$ 18.84
Bituminous pavement including driveway entrances	SP-8 SP-10	m ²	\$ 6.40
Concrete Sidewalks including walkways	SP-8 SP-10	m ²	\$ 16.23
Removal of all storm pipes and culverts	SP-11 OPSS 510	M	\$ 96.61
Remove and dispose of all sewer pipes (all types)	OPSS 510 SP-11	M	\$ 63.84
Removal and disposal of all sewer laterals (Sanitary and Storm) and catchbasin leads	OPSS 510 SP-11	M	\$ 36.64
Removal of catch basins (all types and sizes)	SP-11 OPSS 510	each	\$ 508.45
Remove and dispose of existing sanitary & storm manholes (all types and sizes)	OPSS 510 SP-11	each	\$ 656.20
Removal of water services (19mm - 50mm) including associated fittings and fixtures incl. curb stops	SP-12 OPSS 510	each	\$ 304.73
Remove and dispose existing watermain pipe, including associated fittings, valves and fixtures (all types and sizes)	OPSS 510 SP12	M	\$ 107.46
Removal of existing hydrant set, including associated fittings, valve and fixtures (all types and sizes)	SP-12 OPSS 510	each	\$ 1,978.23
Removal of street signs	SS-300	/M	\$ 9.75
Fill Abandoned 150mm watermain pipe with concrete fill	SSP-4OPSS 1359	M	\$ 35.05
excavate & dispose road foundation and store on site	SP-14 SSP-5 OPSS 206	m ²	\$ 22.44
Excavation of Bedrock	SP-15 OPSS 206	M ³	\$ 396.71
Loading and transporting contaminated soil	SP-14 SSP-5,6,7,8,9	Tonnes	\$ 83.12
Excavation and disposal of unsuitable material (not contaminated).	SP-16;SSP-6	Tonnes	\$ 48.92
Remove interlocking pavers & reinstall			\$ 156.43

ROAD WORKS				
Paving & Roadway	Assumption		Unit	Unit Price
Assumptions	Collector	Local		
wearing course asphalt (SCA) depth	0.045	0.04	M	
base course asphalt (BCA) depth	0.09	0.05	M	
granular 'A' base depth	0.175	0.175	M	
granular 'B' sub-base depth	0.45	0.35	M	
road section depth	0.76	0.615	M	
road foundation depth	0.76	0.615	M	
supply & place wearing course HL3 asphalt	\$	16.24	\$	14.43 M
supply & place base course HL8 asphalt	\$	19.94	\$	11.08 M
supply & place granular 'a' sub-base	\$	8.48	\$	8.48 M
supply & place granular 'b' sub-base	\$	19.49	\$	15.16 M
milling @ 5% of road area	\$	63.24	\$	63.24 M
	Spec Number		Unit	Unit Price
Water for compaction or dust control	SS-4 SP24		M ²	\$ 4.07
Calcium chloride (Flake) for dust control	SP-25 OPSS 506		M ²	\$ 1.24
Cold plane bituminous pavement	SP-19 OPSS 510		M ²	\$ 47.10
supply & place wearing course HL3 asphalt	SP-20 SP-21 OPSS 314		M ³ (from tonne)	\$ 360.83
supply & place base course HL4 / HL8 asphalt	SP-20 SSP-7 OPSS 102 OPSS 310		M ³ (from tonne)	\$ 221.53
supply & place granular 'a' sub-base	SP-18 OPSS 102 OPSS 314 OPSS 501		M ³ (from tonne)	\$ 48.44
supply & place granular 'b' sub-base	SP-17		M ³ (from tonne)	\$ 43.30
milling @ 5% of road area			m ²	\$ 63.24
Supply and place 150mm perforated pipe subdrain including excavation, bedding and backfill material as per OPSD 207.044	OPSS 405 SP-26		M	\$ 33.34
Excavation of materials - Grading (cut)			M ²	\$ 34.97
Stripping and stockpile of existing topsoil			/M	\$ 15.63
Retaining Walls - Poured in place	SP-64		M ²	\$ 1,496.63
Retaining Walls - Precast			M ²	\$ 636.88
Guardrails - Metal				\$ 121.31
Guardrails - Concrete				
Line Painting & Signage	Assumption		Unit	Unit Price
Supply Road signs a) up to 1 SF in area			/M	\$ 6.32
Supply Road signs b) over 1 SF and up to 4 SF in area			/M	\$ 8.45
Supply Road Signs Over 4SF			/M	\$ 1.53
Line painting, 10cm thick lines, solid	SS-300 SP-30 OPSS 710 OPSS 1712 OPSS 1750		M	\$ 9.53

Attachment #2: A7: Unit Costs by Component for Road Replacement Costs

	SS-300			
	SP-30			
Line painting, 10cm thick lines, broken	OPSS 710			
	OPSS 1712			
	OPSS 1750	M	\$	4.66
	SS-300			
	SP-30			
30 cm wide lines	OPSS 710			
	OPSS 1712			
	OPSS 1750	M	\$	41.47
45 cm wide lines			\$	15.78
60 cm wide lines			\$	18.20
Bike Symbols		/M	\$	137.20
Turn arrows		/M	\$	1.02
Stop Bar		/M	\$	61.87
Diamond Symbol		/M	\$	0.76
Supply and Install road signs on telspar posts		/M	\$	8.57
Supply and Install road signs on utility poles		/M	\$	8.75
Supply and install telespar sign posts		/M	\$	18.72
Lump sum painting (conver to LS for 16-015			\$	5.01

Intersections	Spec Number	Unit	Unit Price
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Signals

New Installation

Small Intersection (Standard)			100000
Large Intersection (W/Islands)			180000

Rebuild/Upgrade

Small Intersection (Standard)			60000
Large Intersection (W/Islands)			80000

Temporary Signals	OPSS 106	SS-300 4 SP 43	EA	\$ 35,419.49
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Audibles

Audible Buttons				1000
Audible Button Slabs				79

Barrier Free Access

Truncated Domes (sidewalks) (24x30)			EA	\$ 509.71
Truncated Domes (sidewalks) (18"x24")			EA	\$ 855.49

Ramps (Sidewalks)

Pavement Markings (Roads)

Signage (Corridor)

Intersection Expansionn (Turning Lane)

\$ 131,199.26

Attachment #2: A7: Unit Costs by Component for Road Replacement Costs

Driveways	Assumption	Unit	Unit Price
Driveway RE/RE			
	Spec Number	Unit	Unit Price
	SP-20		
supply & place 300 mm Granular "A" driveway HL3 & HL8 asphalt - Residential	SP-21 OPSS 314	m ²	\$ 61.30
	SP-20		
supply & place 200 mm Granular "A" driveway HL3 & HL8 asphalt - Commercial	SP-21 OPSS 314	m ²	\$ 111.16
	SP-20		
supply and place 150mm Gran A, 175 mm concrete driveway - Residential	SP-21 OPSS 314	m ²	\$ 178.69
	SP-20		
Supply and place 300 mm Granular "A", reinstall interlocking pavers - Residential	SP-21 OPSS 314	m ²	\$ 270.15
Curbs	Assumption	Unit	Unit Price
CURB RE/RE UNIT RATE			
Survey for Curb Works			
	Spec Number	Unit	Unit Price
	SS-16		
Install new Curb	SP-27 SS-16	M	\$ 60.42
	SS-16		
OPSD 600.110 Install Curb (hand placed and formed)	OPSS 353 SP-27	M	\$ 144.45

Sidewalks	Assumption	Unit	Unit Price
Sidewalk Installation			
	Spec Number	Unit	Unit Price
install sidewalk - concrete sidewalk, 75 mm deep of Gran A, 125 mm thick concrete	SS-17 SP-28 OPSS 351	M ²	\$ 66.89
install sidewalk - concrete sidewalk, 75 mm deep of Gran A, 175 mm thick concrete	SS-17 SP-28 OPSS 351	M ²	\$ 79.95
Concrete sidewalk (all widths) with 75 mm depth of Granular 'A' bedding c) 125mm thick concrete sidewalk w. CU Structural Soil base in lieu of Granular 'A'	SS-17 SP-28 OPSS 351	M ²	\$ 546.52
Streetscaping	Assumption	Unit	Unit Price
Structural Soil cells		M ²	\$ 858.29
Pavers		M ²	\$ 404.80
Bollards		/M	\$ 447.85
Landscaping Surface Materials - s eed	SSP 17, 18, 21, 22	M ²	\$ 18.34
Landscaping Surface Materials - sod		M ²	\$ 41.83
New Tree - Deciduous, 60 mm cal	SSP 17, 18, 20	/M	\$ 38.14
New Tree - Deciduous, 45- mm cal	SSP 17, 18, 21	/M	\$ 3.44
Trees			
Turkish HAYelnut (60 mm)			
Common Hackberry (60 mm)			
Princeton Sentry Ginko (60mm)			
Espresso Kentucky Coffeetree (60mm)			
Boulevard Linden (60mm)			
Platanus X acerfolia, London Plane			
Celtis occidentalis, Common Hackberry			
Acer x freemanii, Autumn BIAYe Maple			
Acer nigrum, 60mm - Black Maple			
Celtis occidentalis, 60mm - Hackberry			
Quercus macrocarpa, 60mm ? Burr OAY			
Quercus rubra, 60mm ? Red OAY			
Acer ruburm 'Autumn Flame', 60mm Cal W.B.			
Platanus x acerifolia 'Morton Circle', 60mm Cal W.B.			
Tree grates		/M	\$ 424.07
Benches - Metal		/M	\$ 130.57
Benches - Wood		/M	
Bike Racks		/M	\$ 241.38
Manholes, Catchbasins and Valve Adjustments	Spec Number	Unit	Unit Price
Adjustment of existing catchbasins, maintenance holes, valve chambers, including frame and grate	SS-14 SP-34 OPSS 408	EA	\$ 771.50
Adjustment of catchbasin (single)			\$ 927.99
Adjustment of catchbasin (double)			\$ 1,089.36

Sanitary System	Assumption	Unit	Unit Price
Average Lateral Length (assumption)	4	M	
Average spacing of Catchbasins			
Average Number of Catchbasins leads			
Manhole Spacing		M	
Pipesize			
1mm - 150mm			\$ 361.05
175mm - 300mm			\$ 394.74
325mm -450 mm			\$ 468.37
475mm - 600mm			\$ 686.16
625mm - 750mm			\$ 638.82
775mm - 900mm			\$ 1,071.74
925mm+			\$ 1,413.45
	Spec Number	Unit	Unit Price
Temporary Connections	SS-100; SP-32	/M	\$ 127.80
Insulation on Pipe			\$ 67.11
Supply and install of a self-levelling manhole frames and grate			\$ 1,186.90
	SS-100		
Sanitary lateral connection 100 -150mm dia	SP-35	EA	\$ 3,012.59
Manhole Connections		EA	
	SS-100		
	SP-33		
Manhole	DGSSMS	EA	
	SS-100		
	SP-33		
1200 mm Diameter	DGSSMS	EA	\$ 9,325.28
	SS-100		
	SP-33		
1500 mm diameter	DGSSMS	EA	\$ 19,957.76
	SS-100		
	SP-33		
1800 mm Diameter	DGSSMS	EA	\$ 18,511.60
Laterals			
Service pipe - 100 mm dia		M	\$ 298.61
Service pipe - 150 mm dia	SS-100; SP-35	M	\$ 648.21
Service pipe - 200mm dia	SS-100; SP-35	M	\$ 481.60
a) Installation of sanitary (HDPE DR17) service by the pipe bursting method.	OPSS 404, 416, 450, 463, SS-100SP-35	M	\$ 261.47
b) Installation of sanitary service by the horizontal boring method.	OPSS 404, 416, 450, 463, SS-100SP-35	M	\$ 253.77
Robotically reinstating sanitary service connections from inside the line			\$ 357.64
	SS-100		
	SP-34		
CCTV Inspections	SSP-8	LM	\$ 17.57
Sewer Lining	SSP-8	LM	
250 mm - 450 mm	SSP-8	LM	
525 mm - 675 mm	SSP-8	LM	\$ 202.80
Lateral Lining			
Dewatering & Permits			
Permits			
Well Points			
Sanitary Modelling			
	OPSS 404, 416, 450, 463		
Trenchless Service Installation (This line for generic details)	SS-100		
	SP-35		\$ 420.66
100mm		M	\$ 1,137.07
Pipesize			

Attachment #2: A7: Unit Costs by Component for Road Replacement Costs

1mm - 150mm		\$	361.05
175mm - 300mm		\$	394.74
325mm -450 mm		\$	468.37
475mm - 600mm		\$	686.16
625mm - 750mm		\$	638.82
775mm - 900mm		\$	1,071.74
925mm+		\$	1,413.45
0	M		
50	M	\$	292.21
75	M	\$	292.21
100	M	\$	292.21
120	M	\$	379.17
125	M	\$	400.91
150	M	\$	509.61
200	M	\$	412.51
220	M	\$	400.65
225	M	\$	397.68
250	M	\$	382.84
255	M	\$	383.67
300	M	\$	391.10
350	M	\$	433.55
375	M	\$	454.78
380	M	\$	459.03
400	M	\$	476.01
450	M	\$	518.46
500	M	\$	597.15
525	M	\$	636.49
600	M	\$	824.83
675	M	\$	395.41
750	M	\$	882.22
800	M	\$	1,072.78
825	M	\$	1,168.06
900	M	\$	974.38
975	M	\$	1,037.94
1050	M	\$	1,101.50
1200	M	\$	1,228.61
1345	M	\$	1,351.49
1350	M	\$	1,355.72
1525	M	\$	1,504.02
1650	M	\$	1,609.95
2250	M	\$	2,118.40

Water Supply System	Assumption	Unit	Unit Price
Valves/Curb Stops	By Fronting Property	M	
Average distance between Hydrants	150	M	
Average distance between Testpits/Swab	100	M	
Pipesize	Unit Cost	Units	
1mm - 150mm		/M	\$ 284.60
175mm - 300mm		/M	\$ 612.03
325mm -450 mm		/M	\$ 791.27
475mm - 600mm		/M	\$ 1,066.60
625mm - 750mm		/M	\$ 1,310.47
775mm - 900mm		/M	\$ 1,617.27
925mm+		/M	\$ 1,853.28
	Spec Number	Unit	Unit Price
Temporary Watermains	SS-200; SP-36	/M	\$ 216.20
	SS-100		
Supply Insulation on pipe above 1.2M	SSP-12	/M	\$ 117.89
Valves			
Direct buried gate valves with valve box, valve extensions and mechanical joint fittings, 150mm dia. PVC DR 18 AWWA C900	SS-200 SP-39 SP-42	EA	\$ 2,278.38
Direct buried gate valves with valve box, valve extensions and mechanical joint fittings, 200mm dia. PVC DR 18 AWWA C900		EA	\$ 3,458.65
Direct buried gate valves with valve box, valve extensions and mechanical joint fittings, 300mm dia. PVC DR 18 AWWA C900		EA	\$ 7,197.75
	SS-200		
Supply and install water main stop and including cathodic protection, connection and union, 25mm	SP-39	EA	\$ 1,860.06
Supply and install water curb stop and box, including cathodic protection, connection and union, 25mm	SS-200 SP-39	EA	\$ 626.31
Supply and install direct buried gate valves with valve box, valve box extensions and mechanical joint fittings (SD-24) 50mm dia.		EA	\$ 2,412.84
50mm copper watermain services (includes 24lb anode, curb stop, main stop, curb stop box and 50mm copper pipe)		EA	
50 mm water service main stop		EA	\$ 2,147.07
50 mm water service curb stop		EA	\$ 235.15
Supply and install direct buried gate valves with valve box, valve box extensions and mechanical joint fittings (SD-24) a) 150mm dia.		EA	
Watermain Connections		EA	\$ 7,367.98
150 mm to 200 mm at Victoria Rd S		EA	\$ 2,786.81
	SS-200		
Hydrant - new connection	SP-40	EA	\$ 9,823.69
Swab/Testpits			
Service Lines			
25mm copper service	OPSS 450, 463, 450	M	\$ 239.70
Trenchless - 25 mm copper Service	OPSS 450, 463, 450		\$ 498.10
50 mm copper service	OPSS 450, 463, 450		\$ 10,621.88
Trenchless - 50mm copper service	OPSS 450, 463, 450		
200mm PVC service	SS-200, SP-39		\$ 886.71
Industrial	OPSS 450, 463, 450		
a) Installation of water service by the directional			\$ 238.55
b) Installation of water service by the piecing tool			\$ 401.27
Lining			
Watermain Connections (Use line if just single, Pipesize			\$ 6,447.76

Attachment #2: A7: Unit Costs by Component for Road Replacement Costs

19		M	\$	236.65
25	Assuming copper pipe	M	\$	236.65
35		M	\$	266.46
38		M	\$	275.41
40		M	\$	281.37
50	SS-200	M	\$	311.18
100		M	\$	326.75
150	SS-200	M	\$	342.32
200		M	\$	481.24
250		M	\$	612.03
300		M	\$	742.82
350		M	\$	751.93
400		M	\$	830.60
450		M	\$	909.27
500		M	\$	987.93
600		M	\$	1,145.27
660		M	\$	1,239.67
750		M	\$	1,381.27
900		M	\$	1,617.27
1050		M	\$	1,853.28

Stormwater	Assumption	Unit	Unit Price
Average Lateral Length (assumption)	4	/M	
Average spacing of Catchbasins		/M	
Average Number of Catchbasins leads	2	ea.	
Average distance between Manholes		/M	
Pipe Size	Unit Cost	Unit	
1mm - 150mm		/M	\$ 397.31
175mm - 300mm		/M	\$ 389.08
325mm -450 mm		/M	\$ 433.38
475mm - 600mm		/M	\$ 455.72
625mm - 750mm		/M	\$ 546.83
775mm - 900mm		/M	\$ 724.35
925mm+		/M	\$ 2,340.71

	Spec Number	Unit	Unit Price
Temporary Connections	SS-100	/M	\$ 45.59
Connections (use this line if a single, general number is provided)		EA	\$ 5,476.09
Storm Manhole			
	SS-100		
1200 mm dia., OPSD 701.010	SP-36	EA	\$ 6,894.71
1500 mm Dia., OPSD 401.010	SS-100 SP-36 DGSSMS	EA	\$ 10,333.49
1800 mm		EA	\$ 16,540.96
	SS-100		
2400 mm dia., OPSD 701.013	SP-36	EA	\$ 19,266.91
	SS-100		
3000 mm dia., OPSD 701.014	SP-36	EA	\$ 34,632.67
1500 mm Dia., OPSD 401.011 Twin			
1800mm dia, with TEE			\$ 12,464.80
SAFL Baffle or equivalent	SSP-11	EA	\$ 14,209.00
Supply and install of new self-levelling manhole frame and grate			\$ 2,366.33
Supply Insulation on pipe above 1.2M	SS-100	M	\$ 134.23
	SS-13		
	SS-100		
Pipe Bedding - 200mm dia pipe	SP-36	M	\$ 232.98
	SS-13		
	SS-100		
Pipe Bedding - 300mm dia pipe	SP-36	M	\$ 256.39

Attachment #2: A7: Unit Costs by Component for Road Replacement Costs

Catch basin Laterals				
150 mm Dia			\$	329.31
	SS-13			
	SS-100			
200mm Dia Connection	SP-36	M	\$	458.21
250mm Dia Connection				
	SS-13			
	SS-100			
300mm Dia Connection	SP-36	M	\$	1,348.07
Catchbasin - Single, no size provided		EA	\$	2,859.81
Catchbasin - Double, no size provided		EA		
	SS-13			
	SS-100			
Catchbasin 600mm x 600 mm	SP-36	EA	\$	2,828.18
	SS-13			
	SS-100			
Catchbasin 600mm x 1200 mm	SP-36	EA	\$	3,889.49
	SS-13			
	SS-100			
Catchbasin. 1450mm x 600mm	SP-36	EA	\$	4,436.63
Catchbasin 600mm x 600 mm, double inlet			\$	4,504.81
	SS-100			
Precast Concrete Headwall - 1050mm outlet	SP-36	EA	\$	188,745.91
	SS-13			
	SS-100			
Catchbasins Leads	SP-36	M	\$	120.00
	SS-100			
CCTV Inspections	SP-34	M	\$	16.45
Lining				
250 mm - 450 mm				
525 mm - 675 mm				
Lateral Lining				
Storm Modelling				
Pipe Size				
50		M	\$	397.93
68		M	\$	397.93
75		M	\$	397.93
100		M	\$	397.93
150		M	\$	394.85
200		M	\$	391.77
225		M	\$	390.23
250		M	\$	388.69
300		M	\$	385.61
350		M	\$	366.53
375		M	\$	356.99
400		M	\$	430.99
450		M	\$	578.99
500		M	\$	465.83
525		M	\$	409.25
575		M	\$	460.97
600		M	\$	486.82
650		M	\$	504.89
675		M	\$	513.93
725		M	\$	570.19
750		M	\$	598.32
780		M	\$	642.80
825		M	\$	709.53
900		M	\$	820.73
975		M	\$	962.44
1000		M	\$	1,009.68

Attachment #2: A7: Unit Costs by Component for Road Replacement Costs

1050	M	\$	1,104.15
1200	M	\$	1,347.21
1350	M	\$	1,590.28
1400	M	\$	1,671.30
1500	M	\$	1,833.35
1600	M	\$	1,995.39
1650	M	\$	2,076.41
1800	M	\$	2,319.48
1950	M	\$	2,163.29
2000	M	\$	2,217.91
2100	M	\$	2,327.15
2250	M	\$	2,491.01
2400	M	\$	2,654.86
2550	M	\$	2,818.72
3000	M	\$	3,310.29
3300	M	\$	3,638.01
3450	M	\$	3,801.87
3500	M	\$	3,856.48
3600	M	\$	3,965.72
Box Culverts			
f) 735mm x 1145mm		\$	1,009.34
g) 865mm x 1345mm		\$	1,156.81
h) 2400 x 1800mm		\$	7,244.93
i) 900 x 1800		\$	3,102.41

Utility Costs	Spec Number	Unit	Unit Price
	SP-68		
Utilities - vaccum excavate	SSP-26	ea	\$ 379.44
Utility Protection	SP-68	m ²	\$ 380.39
Consultation - Design			20%
Contract Administration			10%
Contingency Amount			30%