Albert P. Singh, MBA, CGA
Vice-President, Finance & CFO

WATERLOO NORTH HYDRO INC.

PO Box 640
526 Country Squire Rd.
Waterloo ON N2J 4A3
Telephone 519-888-5542
Fax 519-886-8592
E-mail asingh@wnhydro.com
www.wnhydro.com

August 7, 2015

Ontario Energy Board
P.O. Box 2319
27th Floor
2300 Yonge Street
Toronto, Ontario
M4P 1E4

Attention: Ms. Kirsten Walli, Board Secretary

Dear Ms Walli:

Re: Re: January 1, 2016 Cost of Service Rate Application / EB-2015-0108 – Interrogatory Responses

Pursuant to Procedural Order 1, and Waterloo North Hydro's (WNH) Interrogatory Responses Letter of July 31, 2015, please find attached a copy of the remaining Interrogatory Responses for its January 1, 2016 Cost of Service Rate Application.

WNH has three reports being filed in response to 2-Staff-37(a) which have been redacted and are being filed in confidence in accordance with the *Rules of Practice and Procedure* and the Board's *Practice Direction on Confidential Filings.* The reasons for the confidentiality request are described in the response to 2-Staff-37(a).

We enclose two (2) hard copies of WNH's Interrogatory Responses.

WNH has previously forwarded the PDF version and Excel Files for its Interrogatory Responses via the Board's web portal.

If there are any questions, please contact Chris Amos at 519-888-5541, camos@wnhydro.com or Albert Singh at 519-888-5542, asingh@wnhydro.com .

Yours truly,

Original Signed By

Albert P. Singh, MBA, CGA
Vice-President, Finance and CFO

EB-2015-0108

Waterloo North Hydro Inc. (WNH)

Interrogatory Responses

August 7, 2015

Table of Contents

EXHIBIT 1 – ADMINISTRATIVE DOCUMENTS 6
1-Staff-1 6
1-Staff-16 8
1-Energy Probe-5 9
1.0-VECC-2 13
1.0-VECC-7 16
EXHIBIT 2 – RATE BASE 17
2-Staff-19 17
2-Staff-20 19
2-Staff-30 20
2-Staff-37 23
2-Staff-40 26
2-Staff-51 31
2-Staff-53 40
2-Staff-54 41
2-Staff-61 45
2-Staff-63 46
2-Staff-67 48
2-Staff-72 50
2-Staff-75 52
2-Staff-79 55
2-Staff-91 58
2-Energy Probe-14 61
2-Energy Probe-18 65
2-SEC-7 66
2-SEC-8 68

2-SEC-17 72
2-SEC-25 74
2-SEC- 29 75
2-SEC-37 76
2.0-VECC-10 77
2.0-VECC-11 80
EXHIBIT 3 – OPERATING REVENUE 81
3-Staff-99 81
3-Staff-105 82
3-Staff-107 83
3-Staff-111 85
3-Energy Probe-19 87
3-Energy Probe-21 88
3-Energy Probe-26 89
3.0–VECC-20 92
3.0–VECC-21 93
3.0–VECC-24 95
3.0–VECC-25 96
EXHIBIT 4 – OPERATING EXPENSES 97
4-Staff-112 97
4-Staff-116 98
4-Staff-119 101
4-Staff-122 102
4-Staff-126 104
4-Staff-131 106
4-Staff-132 111
4-Energy Probe-35 112

4-Energy Probe-40 113
4-Energy Probe-43 116
4-SEC-39 117
4-SEC-41 118
4.0-VECC-27 119
4.0-VECC-28 120
4.0-VECC-36 121
4.0–VECC-39 124
EXHIBIT 5: COST OF CAPITAL AND CAPITAL STRUCTURE 128
EXHIBIT 6: CALCULATION OF REVENUE DEFICIENCY OR SUFFICIENCY 129
6-Energy Probe-49 129
EXHIBIT 7 – COST ALLOCATION 133
7-Staff-136 133
7-Energy Probe-51 134
EXHIBIT 8- RATE DESIGN 135
8-Staff-138 135
8-Staff-141 138
8-Staff-142 139
8-Energy Probe-53 153
8.0–VECC-46 155
EXHIBIT 9 – DEFERRAL AND VARIANCE ACCOUNTS 157
9-Staff-143 157
9-Staff-145 158
9-Staff-146 159
9-Staff-147 160
9-Staff-149 161
9-Energy Probe-54 164

2-E2-1 (Exhibit 9) 165

EXHIBIT 1 – ADMINISTRATIVE DOCUMENTS

1-Staff-1

Updates

Interrogatory:

Upon completing all interrogatories from OEB staff and intervenors, please provide an updated RRWF in working Microsoft Excel format with any corrections or adjustments that WNH wishes to make to the amounts in the previous version of the RRWF included in the middle column. Please include documentation of the corrections and adjustments, such as a reference to an interrogatory response or an explanatory note.

Also upon completing all interrogatories from OEB staff and intervenors please provide any updates to the following Microsoft Excel documents in working format: PILS, any Appendix 2 changes (e.g. cost allocation, rate design, and bill impacts, and so on as required), EDDVAR spreadsheet, and the updated cost allocation model reflecting the revised revenue requirement in the updated RRWF.

Response:

WNH has attached the following documents to this response:

- Updated RRWF, titled 'Waterloo_1-Staff-1-2016_Rev_Reqt_Work_Form_V6_20150807'
- Updated PILs Model, titled 'Waterloo_1-Staff-1-2015 Test_year_Income_Tax_PILs_Workform_v3_20150807'
- Updated Cost Allocation Model, titled 'Waterloo_1-Staff-1-Cost_Allocation_Model_V3_FINAL_20150807'
- Updated Load Forecast Model, titled 'Waterloo_1-Staff-1-2016 Load Forecast Model_20150807'

- Updated EDDVAR Model, titled ‘Waterloo_1-Staff-1-2016 COS_2015_EDDVAR_Continuity_Schedule_CoS_20150807’
- Updated Appendix 2-W Rate Impacts, titled ‘Waterloo_1-Staff-1-2016 Bill Impacts_Appendix 2-W_20150807’
- Updated Appendix 2-Z Proposed Tariff Sheet, titled ‘Waterloo_1-Staff-1-Proposed 2016 Tariff Schedule_Appendix 2-Z_20150807’
- Updated Appendix 2-P Cost Allocation, titled ‘Waterloo_1-Staff-1Cost Allocation Tables 7-6 to 7-8 Appendix 2-P_20150807’
- Updated Appendix 2-IA Load Forecast Information, titled ‘Waterloo_1-Staff-1-Appendix 2-IA Updated Load Forecast Information_20150807’

1-Staff-16

Reference: Exhibit 1, Attachment 1-14, OEB Issued WNH Scorecard

Interrogatory:

Please update the scorecard to include data for 2014.

Response:

The Board's 2014 Scorecard Activities Schedule for Electricity Distributors (Updated May 22, 2015) states that *"The OEB will update the scorecard in the OEB's portal (assessable via the E-filing Services) in the first week of August to include the benchmarking results for the cost control measure and the public safety measure …"* WNH will forward the updated scorecard as soon as it is received and reviewed.

1-Energy Probe-5

Reference: Exhibit 1, page 37

Interrogatory:

a) Please explain why WNH selected propane as the dual fuel rather than natural gas.

b) Please provide a list of all previously used building and properties for the service centre, administration offices and spare parts storage. Please provide a table for each of these buildings and properties that shows whether the building/property is still owned by WNH and if so, what the building/property is now being used for.

c) For all buildings/properties shown in the above requested table that are no longer owned by WNH, please show the amount included in rate base when the building/property was disposed of, the year of disposition, the value received for the building/property and the resulting loss or gain on the building/property.

Response:

a) WNH selected propane as the dual fuel rather than compressed natural gas for our small vehicles for the following reasons:

- The cost of converting a small vehicle to dual fuel propane is approximately $4,500 to $5,500. The cost of converting a small vehicle to dual fuel compressed natural gas is in the range of $7,000 to $10,000. The primary reason for the cost difference is that compressed natural gas requires a much higher (and more expensive) pressure vessel to contain it.
- The cost per litre of propane is typically much less than the cost per litre of compressed natural gas. The website www.altfuelprices.com shows the cost per litre of propane in Ontario in the range of $0.40 to $0.60 per litre and the cost of compressed natural gas in the range of $0.70 to $1.00 per litre.
- Propane provides much greater operating range than compressed natural gas for the same size tank. A pickup truck with an 8 litre engine using an 80 litre tank of compressed natural gas will have a range of approximately 100

km. The same type of vehicle using an 80 litre tank of propane will have a range of approximately 350 km.

- At the current time there are many more refueling stations for propane in Ontario than there are for compressed natural gas. This is a consideration as some of the vehicles we have converted will be required to travel outside our service territory when we are called on to respond to severe storm damage by one of our mutual aid partner LDCs.
- At the present time WNH is refueling its dual fuel propane vehicles at a local private refueling station that is in close proximity to WNH's service centre. Should it prove economical to do so in the future, the cost of installing WNH's own propane refueling station is presently estimated at $10,000. The cost of installing our own compressed natural gas refueling station is presently estimated at $100,000.

b) The following list of properties includes those sites that have been used by WNH for the service centre, administration offices and spare parts storage.

Property Name	Property Address	Property Used For
WNH Service Centre and Administration Offices	300 Northfield Drive, Waterloo	WNH operations, maintenance and administrative functions
WNH Service Centre and Administration Offices	526 Country Squire Road, Waterloo	WNH operations, maintenance and administrative functions
MS#1	17 William Street, Waterloo	Municipal substation and spare parts storage
MS#3	266 King Street North, Waterloo	Municipal substation and spare parts storage

The following table identifies for each of the properties in the above list whether the property is currently owned by WNH and for those that are, what the property is presently used for.

Property Street Address	Still Owned by WNH	Property Now Used For
300 Northfield Drive, Waterloo	No	Not Applicable No longer owned by WNH
526 Country Squire Road, Waterloo	Yes	WNH operations, maintenance and administrative functions
17 William Street, Waterloo	Yes	Operating municipal substation. Scheduled to be decommissioned in 2016. This property no longer used for spare parts storage
266 King Street North, Waterloo	Yes	Decommissioned former municipal substation. Site remediation underway. This property is no longer used for spare parts storage.

c) The property at 300 Northfield Dr., Waterloo was removed from Rate Base as follows:

USoA	Description	Disposal		
		Cost	Acc Dep	NBV
1805	Land	$ (743,394)		$ (743,394)
1808	Buildings and Fixtures	$ (4,618,012)	$ 1,838,324	$ (2,779,687)
Total		**(5,361,406)**	**1,838,324**	**(3,523,081)**

The property was sold June 27, 2013.

In Exhibit 9, Page 34, Table 9-23 WNH provided the details of the gain of the loss of this building/property. The Net Book Value of the Land and Building was shown incorrectly shown at ($3,545,641), this should have read ($3,523,081) which agrees with the table above.

The revised Gain on Sale of Building and Variance Owing from Customers is reflected below.

Details		Costs
Proceeds on Sale of Building		7,100,000
Selling Costs		
Commission	284,000	
Legal	6,600	(290,600)
Clean Up Costs		(1,353,059)
Net Book Value of Land and Building		(3,523,081)
Taxes		(381,881)
Gain on Sale of Building		1,551,379
75% of Gain Payable to Customers		**(1,163,534)**
Monies Refunded to Customers [1]		**1,579,471**
Variance Owing From Customers		**415,937**

[1] *Rate Rider was effective May 1, 2011 to April 30, 2014*

WNH has adjusted the difference in the Revised EDDVAR Model attached to WNH's response. The file is titled 'Waterloo_1-Staff-1-2016 COS_2015_EDDVAR_Continuity_Schedule_CoS_20150807' and the adjustment of 75% of $22,560 = $16,920, is reflected in Tab 2, 2014 Continuity Schedule, cell BB48 (it is reflected in the 2013 adjustment column as no adjustment column for 2014 is in the model) resulting in a revised variance of $415,937. The resulting changes in rate riders are reflected in WNH's Revised Proposed Tariff of Rates and Charges.

1.0-VECC-2

Reference: E1/pg.17

Interrogatory:

The evidence states that WNH selected and began implementing a new Outage Management System in 2014. However, Appendix 2-AA shows a $190,000 investment for this project in 2015.

a) Please provide the total costs of the outage management system and the expected in-service dates.
b) Please provide the expected reduction in duration of outages from implementing this system.
c) What are the annual operating costs of this system and what are the expected benefits?

Response:

a) The Outage Management System (OMS) is a multi-stage project. The initial purchase and loading of the OMS software began in late 2014, however the functionality was activated in the WNH Control Room on April 20, 2015.

The second major stage of the OMS project will be the activation of the Customer Public Outage Map. This will allow customers to use the internet from either a personal computer (if they are at a location that has power) or a mobile smart phone to check a real time map display of WNH's service territory. Confirmed outages within WNH's service territory will be indicated as highlighted areas on the Public Outage Map. The projected in-service date for this phase of the project is Q3 – 2015.

The third stage of the OMS project focuses on seamless integration between the OMS and a Customer centric Interactive Voice Recognition (IVR) system. During

this stage, WNH will also include integration with our 'Automated Vehicle Locator' system and our 'Load Flow Analysis' Tool. This stage is scheduled for completion in 2015.

The actual OMS project cost for the 2015 first two major activation stages is $192,259. This is reported as a $193,000 capital project in Table 2-38 – Capital Projects Table – 2011 – 2016, reference Exhibit 2, page 77. The third stage scheduled for 2015 completion represents a projected cost of $67,524. The latter is below the materiality threshold and is therefore not reported separately in Table 2-38.

b) Based on WNH's limited experience using the OMS for the past two months, we presently expect a reduction in the duration of both small and scattered power outages of approximately 5 to 15 minutes as a result of implementing this system.

Major power outages are detected quickly by our SCADA system. By integrating the real time messages transmitted by WNH's Smart Meters when they detect the loss of input voltage, the OMS will be able to identify the location of both small and scattered power outages much more quickly than the legacy method of WNH being notified by a telephone call from a customer affected by the power outage. This will allow WNH to dispatch resources to investigate confirmed outages and restore power sooner.

c) The annual operating costs of the OMS are forecast to be $35,000.

The expected benefits of the OMS include faster response to minor and scattered power outages as well as improved information to customers via the Public Outage Map and the IVR system, particularly during severe weather events and large scale outages. Ultimately, WNH plans to use the information provided by the OMS along

with SCADA controlled remote switching equipment to isolate the faulted feeder segment to reduce the scope of the outage and re-route power to restore supply to customers connected to the balance of the feeder that is not impacted by the faulted equipment. This will contribute to reducing WNH's total number of customer outage minutes and help to maintain and potentially improve our distribution system reliability.

Please note that there is a risk that the total customer outage minutes recorded for WNH's distribution system may increase in the short term after the OMS is in-service for a full year. This risk is due to the fact that the OMS will receive automatic outage notification messages from WNH's 54,222 Smart Meters which are installed on the electric services WNH supplies to both residential and GS<50 kW customers. Prior to implementing the OMS, WNH typically received the initial notification of a minor or small scattered power outage via a telephone call from an affected customer. It is WNH's experience that not all customers call in to report every power outage they experience. It is likely the OMS will confirm more outages as a result of the automated messages from the Smart Meters and the recorded start time for each outage will be earlier than it would have been if it was reported via the traditional method of a telephone call from the affected customer.

1.0-VECC-7

Reference: E1/Attachment 1-14

Interrogatory:

a) Please update the OEB Scorecard to include 2014 results.

Response:

Please refer to 1-Staff-16.

EXHIBIT 2 – RATE BASE

2-Staff-19

Reference: Exhibit 2, Section 2.5.1.2, Gross Assets – Property, Plant and Equipment and Accumulated Depreciation, Table 2-20

Interrogatory:

Please provide a variance analysis for the Contributed Capital line in the above referenced table**.**

Response:

Description	2011 Board Approved	2011 Actual	2011 Actual vs Board Approved	2012 Actual	2012 vs 2011 Actual	2013 Actual	2013 vs 2012 Actual	2014 Actual	2014 vs 2013 Actual	2015 Bridge Year	2015 Bridge vs 2014 Actual	2016 Test Year	2016 Test vs 2015 Bridge
Reporting Basis	CGAAP	CGAAP		CGAAP		RCGAAP		MIFRS		MIFRS		MIFRS	
Contributions and Grants	(27,931,213)	(27,272,714)	658,499	(30,158,715)	(2,886,001)	(31,831,420)	(1,672,705)	(33,424,664)	(1,593,244)	(39,713,602)	(6,288,938)	(46,085,912)	(6,372,309)

The variances for Contributed Capital on Table 2-20 are as follows:

Variance Analysis is as follows:

WNH has a typical level of Contributed Capital of approximately $1.5M to $1.6M. However, 2012, 2015 and 2016 exceed this typical level. WNH provided the variance analysis for these three years, in addition to the 2011 Actual vs. 2011 Board Approved below.

2011 Actual vs. 2011 Board Approved Contributed Capital

Some of the activity that was budgeted in the 2011 COS was not able to proceed as three projects were appealed to the Ontario Municipal Board; two projects driven by a Developer were not ready although they had previously indicated a 2011 construction date. This resulted in a decrease in Contributed Capital in the 2011 Actual vs. the 2011 Board Approved.

2012 Actual

WNH's Contributed Capital of $2.89M in 2012 was higher than normal due to amounts collected totalling $1.65M for the Westside Main 600A Feeder Split and Development Work. This is approximately $1.0M higher than WNH's typical amount collected for these activities.

2015 Actual

WNH's forecasted Contributed Capital in 2015 is $6.3M which is higher than the normal level of $1.5M - $1.6M primarily due to the increased capital contribution forecast of $4.7M for the construction of the LRT.

2016 Forecast

WNH's forecasted Contributed Capital for 2016 is $6.4M. This increase from the typical amount for capital contribution is due to the construction of the LRT in the amount of $3.4M and $1.6M for the Erb Street to Wilmot Line (a project that is 100% funded by Contributed Capital).

2-Staff-20

Reference: Exhibit 2, Section 2.5.1.2, Gross Assets – Property, Plant and Equipment and Accumulated Depreciation, page 44

Interrogatory:

(a) Please explain how relocations of fixed assets are accounted for. Are expenses related to relocations capitalized or expensed?

(b) Are any fixed asset disposals recorded related to the relocations?

(c) What is the net impact of the relocations on the rate base?

Response:

(a) WNH's experience is that relocations do not often involve moving existing plant, rather new plant is required to be installed as the existing plant's age and condition does not warrant its re-use. In addition, the existing plant often does not meet new Engineering or ESA standards. Thus, new plant installed due to the requirement of the municipality's relocation is capitalized.

(b) No fixed asset disposals are recorded related to relocations; please refer to 2-Staff-18.

(c) As discussed above in (a), new assets are installed due to relocation requirements, thus, the assets are capitalized in the year installed.

2-Staff-30

Reference: Exhibit 2, Table 2-38, Capital Projects Table – 2011-2016

Interrogatory:

In Table 2-38 WNH has provided a list of 2016 capital projects. The total Test Year 2016 gross capital expenditure for all projects is $19,078,917 (before including contributed capital).

(a) Are all of the projects and related capital expenditure of $19,078,917 that are listed in Table 2-38 expected to be placed in-service in 2016 and to be added to the 2016 Rate Base?

(b) If some of the projects that are listed in Table 2-38 are not expected to be in-service in 2016 and as a result will not be added to the 2016 Rate Base, please identify all such projects, the associated capital expenditure and the expected in-service date.

Response:

(a) No. Please refer to Table in (b).

(b) The projects listed in Table 2-38 that are not expected to be in service in 2016 and not added to 2016 Rate Base are detailed below. Please refer to 2-Energy Probe-14 for details of changes to 2015 and 2016 capital, these changes have been reflected in the RRWF filed as a response with 1-Staff-1.

Table2-38 Not in Service in 2016

Projects	2015 Bridge Budget Amount	Projected In Service Date		2016 Test Budget Amount	Projected In Service Date
Reporting Basis	***MIFRS***			***MIFRS***	***MIFRS***
System Access					
Light Rail Transit Relocations - 21					
2015 - LRT - Caroline St, Allen St to Railway	215,149	2015			
2015 - LRT - Erb St. FDB- Caroline St.	413,010	2016			
2015 - LRT - Spur - Columbia St.	760,777	2015			
2015 - LRT - 27.6 kV King St.- Northfield Dr.	242,336	2015			
2015 - LRT - 13.8 kV King St.- Northfield Dr.	230,400	2015			
2015 - LRT - 13.8 kV Northfield Dr. - Conestogo Rd.	280,221	2015			
2015 - LRT - Allen St - King St to Caroline St	261,893	2015			
2014 - LRT - King St. - Union St to Allen St	336,971	2015			
2014 - LRT - Spur - Erb St.	214,739	2015			
2014 - LRT - William St.- King St. to Caroline St.	471,290	2016			
2016 - LRT - University Ave. Spur- Westmount Rd.				245,642	2016
2016 - LRT - 27.6 kV - King St.- Northfield Dr.				221,444	2016
2016 - LRT - 13.8 kV - King St.- Northfield Dr.				221,444	2016
2016 - LRT - 13.8 kV - King St.- Conestogo Rd.				195,059	2015
2016 - LRT - 13.8 kV - Northfield Dr. - Conestogo Rd.				460,277	2015
2016 - LRT - Spur - Kumpf Dr.				222,154	2016
2016 - LRT - Spur - Quiet Pl.				202,079	2015
Municipal Relocations - 22					
Weber St., Forwell Creek to Blythwood Rd	488,324	2017			
King St., Printery Rd to Princess St., St Jacobs	209,785	2015			
Sawmill Rd., Northfield Dr to Golf Course Rd., Conestogo	342,562	2015			
Shantz Station Rd., Kossuth to Menno	422,354	2017			
Columbia St - Erbsville to F-H Rd.	348,560	2015			
Woolwich St S, Woolwich St N to Dolman Breslau	222,315	2017			
Erb St. HONI ROW to Wilmot Ln	337,986	2016			
Caroline St - Allen St to John St.	345,027	2017			
Bridgeport Rd/Caroline St, King St to Erb St				237,956	2016
Hutchinson Rd - Through Crosshill				179,643	2016
Erb St. - HONI to Costco				286,095	2016
Customer Connections - 23					
New Overhead Service Connections/Upgrades	724,981	2015		727,131	2016
New Underground Service Connections/Upgrades	1,413,455	2015		1,429,245	2016
Expansions (Subdivisions) - 24					
Galantai - Woolwich St. - 72 Lots	222,531	2015			
Subdivisions - 200 lots				593,795	2016
LTLT - 26					
Line 86, Manser Rd to 7810 Line 86	420,482	2015			
Retail Meters - 28					
Residential Meters (Retail)	220,898	2015		210,467	2016
C&I Meters > 50kW (Retail)	313,457	2015		306,402	2016
OEB Miscallenous					
Various Projects Less Than Materiality	1,625,005	2015		884,025	2016
Sub-Total	**11,084,508**			**6,622,858**	

Projects	2015 Bridge Budget Amount	Projected In Service Date		2016 Test Budget Amount	Projected In Service Date
Reporting Basis	***MIFRS***			***MIFRS***	***MIFRS***
System Renewal					
Overhead Line Renewal - 1					
William Hastings, Manser to Lichty				262,223	2016
Underground Line Renewal - 2					
2015 Fox Hunt Area - Davenport Rd.	248,863	2015			
2015 Green Warbler - Elmira	333,833	2017			
2015 Aspen Drive - Elmira	231,692	2015			
2016 Lakeshore North Ph 8				250,824	2016
2016 Lakeshore North Ph 9				558,293	2016
Overhead Line Renewal - Failing Conductor - 3					
#4/#6 Lichty Rd from Perth Line	187,366	2015			
#6: Cardinal, Robin, Second, Bluebird, Backlot	549,328	2017			
#6: Killdeer backlot from First St W.	320,347	2017			
#6: Sawmill Rd, Conestogo - side streets				330,981	2016
#6: Buehler Ln - Lavery Rd to Lichty Rd				578,988	2016
Overhead Line Renewal (8kV) - 4					
Kressler Rd - Hessen Strasse to Lobsinger Ln	282,755	2015			
New Jerusalem Rd - Scotch Ln to Sawmill Rd	582,682	2015			
Floradale Rd - from existing 27.6kV to Florapine Rd + 3ph Ruggles Rd	265,168	2015			
Deborah Glaister Ln - Chalmers Forest to Rd 116				295,897	2016
Woolwich/Guelph Townline - Victoria to Chilligo				199,335	2016
Nafziger Rd - Gerber Rd to Queen's Bush Rd				268,740	2016
Chilligo Rd - Kossuth to Woolwich/Guelph Townline				692,257	2016
Scotch Line, New Jerusalem Rd to Arthur St				385,294	2016
Overhead Line Renewal (4kV) - 5					
Birdland 4kV Rebuild - Whippoorwill Rd	220,914	2017			
Roslin Ave - Erb St to Norman St - Uptown West	340,384	2015			
City 4kV - John St - King St to Moore Ave				184,736	2016
City 4kV - Allen St - Railway to Weber St + side streets				264,024	2016
City 4kV - Union St - King St to Weber St				431,717	2016
City 4kV - Weber St - Allen St to Hartwood Ave				271,184	2016
City 4kV - William St & Willow Sts - Regina St to Allen St				210,022	2016
Overhead Line Refurbishment (4kV)					
4kV OH Conversions				205,390	2016
Reactive Renewal (Storms and Damage) - 7					
2015 Storm and Equipment Damage	190,963	2015			
2016 Storm and Equipment Damage				228,539	2016
Station Breaker Renewal - 9					
HSB Breaker Refurbishment Option - 2 Buses	193,460	2015			
HSB Breaker Refurbishment Option - 2 Buses, Phase 2 of 2				193,611	2016
OEB Miscallenous					
Various Projects Less Than Materiality	2,517,351	2015		2,368,976	2016
Sub-Total	**6,465,106**			**8,181,031**	
System Service					
System Enhancements - Localized Capacity Deficiency - 11					
Huntsberger Rd - Katherine St to Golf Course Rd				**407011**	2016
Northfield Dr - Weber St to Westmount Rd				**401821**	2016
System Enhancements - Distribution Automation - 12					
2015 Viper Reclosers	1,107,418	2015			
2016 Recloser Program				1,035,635	2016
OEB Miscallenous					
Various Projects Less Than Materiality	419,130	2015		561,483	2016
Sub-Total	**1,526,548**			**2,405,950**	
General Plant					
Outage Mgmt System	193,000	2015			
R53 - 68' Single Elevator	424,349	2015			
R52 - 55' SB MHAD	405,071	2015			
Asset Management Software Implementation				277,128	2016
New Customer Information System Software				340,779	2016
R60 - RBD				454,513	2016
OEB Miscallenous					
Various Projects Less Than Materiality	1,210,030	2015		796,658	2016
Sub-Total	**2,232,450**			**1,869,078**	
Miscellaneous					
Total	**21,308,612**			**19,078,917**	

2-Staff-37

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, Table 1-5

Interrogatory:

(a) If available, please provide reports and/or analysis on power quality issues for each of the 20 largest customers provided in Table1-5 completed by WNH since 2011.

(b) Please describe how WNH addresses the special needs of its GS > 50kW and Large Use customers; contrasted to the way needs are addressed for smaller customer loads.

(c) Please provide a summary of any recent issues and resolutions with service to WHN's one large user.

(d) Do any projects/sub projects address the needs of the one large user?

Response:

(a) WNH has provided power quality monitoring for 2 of our largest 20 customers as listed in Exhibit 2, Attachment 2-1, Table 1-5, page 18.

WNH has attached three Redacted files with this Interrogatory Response, the files are titled 'Redacted – Waterloo_2-Staff-37a_Voltage_Monitoring_GS_Greater_Than_50_kW_Customer_1_of_3; 2_of_3 and 3_of_3'.

WNH is filing these reports pursuant to the Board's *Practice Direction on Confidential Filings*. Customer identifying information has been redacted from each of these reports for the purposes of filing.

The redacted information, together with the detailed information contained in the voltage reports, constitutes confidential information related to a particular identifiable customer, the public disclosure of which could reasonably be expected

to prejudice those customers. In particular, it is reasonably foreseeable that a specified service address exhibiting past voltage issues may witness a decline in property value (whether for sale or for lease).

WNH requests that the redacted information be treated as confidential. Unredacted copies of these reports will be sent to the Board and will be distributed to parties who have signed the Board's Declaration and Confidentiality Undertaking in accordance with the Board's *Practice Direction on Confidential Filings*.

(b) The special needs of WNH's GS > 50 kW and Large Use customers typically include requests for information regarding the cause of outages affecting their service. This information is typically provided through contact with WNH's Operating Supervisor who manages WNH's 24/7 Control Room. These larger customers may have sensitive equipment that can be affected by voltage deviations on WNH's distribution system. When a customer reports a problem, WNH's Operating Supervisor will review our distribution system log and report back to the customer with details to identify events that may have contributed to the problem the customer experienced. If these events are detected multiple times affecting the same customer, then WNH's Metering Supervisor will coordinate the installation of power quality monitoring equipment to collect accurate information that can be used by both the customer and WNH's Engineering Department to identify the scope of the problem and alternatives for resolving it.

WNH responds to concerns raised by residential and small commercial (GS < 50 kW) customers in a similar manner. The concerns raised by residential and small commercial customers are more often related to confirming the cause of a recent momentary outage with our Operating Supervisor.

(c) The most recent issue WNH is aware of with our single large user was an inquiry the customer made to our Operating Supervisor on May 12, 2014 to express concern about the impact of two momentary outages affecting the electricity supply to one of their buildings. WNH's Operating Supervisor responded to the inquiry on the same business day to confirm that our SCADA system recorded two momentary outages on the morning of May 11, 2014 and that information from WNH's field crew confirmed the outages were caused by animal contact on the circuit supplying the large user's building.

(d) Yes. The LRT project on University Ave between the railway line spur and Westmount Road is being done for LRT and for system needs, but it will have a side benefit of making provisions for a third point of supply to the one large user as this customer is over capacity in a contingency scenario on its two existing supply points.

2-Staff-40

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, pages 28 & 29

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, page 91

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, page. 103

Interrogatory:

The Asset Management Framework shown on Figure 3-1 describes a comprehensive framework implemented by WNH to drive optimal asset management decisions. It also outlines that all assets have undergone a condition assessment, are identified if they are under performing or at risk, and evaluated through a risk assessment. In addition, WNH in Section 1.3.2 System Renewal states *"WNH has established comprehensive data collection, asset inspection, testing, and maintenance programs to provide for continuous condition assessment and remediation of distribution system assets." And "WNH's projects have been identified by their age and condition as requiring replacement."*

For the risk assessment, WNH states on page 103 of this DSP that it *"… uses qualitative and semi-quantitative risk assessment methods to determine the severity of the asset condition or performance and the probability of occurrence. WNH's qualitative methods are based on the judgment, skills and experience of specialists and experts. WNH's semi-quantitative methods use classifications such as low, medium, high or immediate to provide relative levels of risk".*

(a) For each asset component please provide the following information in regards with the asset condition assessment:

1. A list of factors included in the calculation of the asset condition and a formula used to calculate a condition.
2. A measure of availability (in percent) of data used to calculate the asset condition relative to the actual formulation.
3. Is there a threshold of data availability below which a condition assessment cannot be completed?

(b) Please describe a methodology or provide documentation, if available, used by WNH to identify underperforming or at risk assets, and to perform an asset risk assessment.

(c) Please provide a description of risk qualitative and semi-quantitative assessment methods. Please explain how both these type of methods are used together for risk assessment. Please identify whether risk is assessed at the asset level or only at a project level.

(d) For each of the considerations given to the age, condition, risk please provide a breakdown of how much each influences the determination of project impact when identifying and prioritizing projects, if available.

(e) Please provide a list of assets have been identified for the purpose of the current DSP as underperforming or at risk, with associated condition assessment rating and risk assessment rating, if available.

(f) Please identify those assets from part e that are included in 2016 projects and what projects in Appendix G of the DSP they are part of.

(g) Please identify those assets from part e that are included in 2017 – 2020 capital spending in the DSP.

Response:

(a)

1. Asset condition factors are listed in the attached table. The question assumes a particular methodology in determining the condition of an asset that is not utilized by WNH. WNH does not currently mathematically calculate an asset condition. WNH relies on the expertise and judgment of its staff to assess the asset condition factors to arrive at an asset condition. WNH contemplates incorporating a formulaic methodology to determine asset condition prior to its next COS application.

Asset	% TUL	Asset Performance	Asset Group Performance	Repair History	Applicable Life Extension work	Electrical Tests	Oil Tests (quality & DGA)	# Operations	OEB Inspections	Comprehensive Inspections	Infrared Thermography	Vibration Analysis	Wood Fibre Strength Testing	Availability of Information
Large Power Transformers	☑	☑	☑	☑	☑	☑	☑		☑	☑	☑	☑		100%
MS / DS Transformers	☑	☑	☑	☑	☑	☑	☑		☑	☑	☑			100%
Transformer Tap Changers	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑		100%
TS Switchgear	☑	☑	☑	☑	☑	☑			☑	☑	☑			100%
TS Main & Tie Breaker	☑	☑	☑	☑	☑	☑		☑	☑	☑	☑			100%
TS Feeder Breaker	☑	☑	☑	☑	☑	☑		☑	☑	☑	☑			100%
TS Feeder Cables	☑	☑	☑	☑	☑	☑			☑		☑			100%
TS HV Circuit Switches	☑	☑	☑	☑	☑	☑		☑	☑	☑	☑			100%
TS Protection Systems	☑	☑	☑	☑	☑	☑			☑	☑				100%
Wood Poles	☑	☑	☑	☑	☑				☑	☑			☑	Age - 95% Fibre Strength - 30% Inspection - 100%
Underground Primary Cable	☑	☑	☑	☑	☑				☑					90%
WNH Distribution Transformers (Overhead) 1 Phase	☑	☑	☑	☑	☑				☑		☑			95%
WNH Distribution Transformers (Underground) Submersible	☑	☑	☑	☑	☑				☑		☑			95%

2. Please refer to the response in part (1) above.

3. Yes, as a minimum the age of an asset needs to be determined.

(b) Underperforming assets are those that are not meeting WNH's performance expectations which are derived from manufacturer's recommendations, past experience and asset class performance. These assets are typically identified through testing & inspection, planned and reactive maintenance activities. Underperforming assets typically are degrading faster than expected, exhibiting shorter expected useful lives, require more reactive maintenance activities, or experience a greater number of mis-operations or operational failures.

(c) In evaluating risk WNH considers

(a) The impact if the work is not completed. WNH looks at factors such as safety, impact on customers, and collateral damage to other assets and quantifies the loss of connected load and number of customers.

(b) The likelihood and consequences for each.

(c) Controls to minimize the risk.

WNH relies on the expertise and judgment of its staff to form the risk assessment.

Depending on the assets and the scope of the project, risk can be assessed at either or both.

(d) When prioritizing projects WNH normally considers in order Risk, Condition and Age. WNH does not have specific weightings for each.

(e) The following assets have been identified as underperforming.

1) HMSTS “A” High Voltage Switches. Please also refer to the DSP page 116, High Voltage Transformer Circuit Switches (230 kV and 115 kV).
2) Submersible Transformers. Please also refer to the DSP page 29.

(f) Submersible Transformers are included in System Renewal project Underground Line Renewal, DSP page 19.

(g) Submersible Transformers are included in System Renewal projects similar to 2016 Underground Line Renewal, DSP page 19.

2-Staff-51

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, Section 2.3

Interrogatory:

WNH identifies performance indicators that provide "*feedback as to the effectiveness of its operating performance*". WNH provides the following indicators:

"Customer Oriented Performance

- *Consumer Bill Impacts;*
- *Reliability;*
- *Power Quality;*
- *Stray Voltage.*

Cost Efficiency and Effectiveness with respect to Planning Quality and DS PLAN Implementation

- *Planning Quality Indicators;*
- *Operating Efficiency Indicators;*

Asset and/or System Operations Performance

- *Supply System Reliability Indicators;*
- *Typical Useful Life (TUL); and*
- *Asset Health Indices"*

(a) Please provide a description of specific measures and metrics for each of the aforementioned indicators. For each of the measures and metrics please provide a brief description of its purpose, form (e.g. formula if quantitative metric) and motivation (e.g. consumer, legislative, regulatory, corporate). Please use the following table:

Indicator	Measure/metric	Purpose	Form	Motivation
Customer Oriented Performance				
Consumer Bill Impacts;				
Reliability;				
Power Quality;				
Stray Voltage				
Cost Efficiency and Effectiveness with respect to Planning Quality and DS PLAN Implementation				
Planning Quality Indicators;				
Operating Efficiency Indicators				
Asset and/or System Operations Performance				
Supply System Reliability Indicators;				
Typical Useful Life (TUL);				
Asset Health Indices				

(b) Please provide targets and actual values for each of the measures or metrics for each year 2011 – 2014 and an outlook till the end of 2015.

(c) Please provide targets for each of the measures or metrics identified on this page for each of the years 2016 – 2020, if available.

(d) Please provide a detailed description of the methodology used to forecast each of the measures or metrics for 2016 – 2020 and specific calculations that were used to come up with the forecasted values (in MS Excel spreadsheet).

Response:

(a)

Indicator	Measure/metric	Purpose	Form	Motivation
Customer Oriented Performance				
Competitive ranking of consumer bills	Change in Total Bill Amount (for Typical Customer consumption level by Rate Class)	To ensure WNH's rates are competitive with the rates of other LDC's in the Waterloo Region	Average monthly bill	Consumer, Corporate, Regulatory
Reliability;	SAIDI, SAIFI	To ensure reliable electricity service is maintained to customers	Refer to definition in OEB RRR filing requirements	Consumer, Corporate, Regulatory
Power Quality;	Number of Customers requesting a power quality investigation % Complaints Investigated % Investigations Resolved % of power quality investigations completed by WNH that confirm WNH's electricity supply to the customer is within the limits specified in CSA C235.	To ensure WNH's electricity supply to customers is within the limits specified in CSA C235 Please refer to WNH's DSP, Exhibit 2, Attachment 2-1, pg. 78.	% Complaints Investigated % Investigations Resolved	Consumer, Corporate

Stray Voltage	Number of Customers requesting a stray voltage investigation. Please refer to WNH's DSP, Exhibit 2, Attachment 2-1, pg. 78-79. % Complaints Investigated % Investigations resolved % of stray voltage investigations completed by WNH that confirm WNH's electricity supply to farm customers does not result in stray voltage conditions beyond the limits prescribed by the OEB in the Distribution System Code, Section 4.7	To ensure WNH's electricity supply to farm customers does not result in stray voltage conditions beyond the limits prescribed by the OEB in the Distribution System Code, Section 4.7	Refer to Distribution System Code, Section 4.7	Consumer, Corporate, Regulatory

Cost Efficiency and Effectiveness with respect to Planning Quality and DS PLAN Implementation				
Planning Quality Indicators;	% of planned capital spending vs. budget	To ensure spending for planned capital work is within budget	Budgeted spending vs. actual spending	Consumer, Corporate
Operating Efficiency Indicators	Controllable cost per customer. Controllable cost per megawatt hour	To minimize operational costs	Controllable cost is total OM&A cost	Consumer, Corporate
Asset and/or System Operations Performance				
Supply System Reliability Indicators;	SAIDI, SAIFI (with and without Loss of Supply)	To ensure reliable electricity service is maintained to customers	Refer to definition in OEB RRR filing requirements	Consumer, Corporate, Regulatory
Typical Useful Life (TUL);	% TUL. WNH uses the asset TUL in combination with the in-service age of an asset to calculate the percentage of remaining life of an asset or asset group.	At a high level, it is a leading indicator of impending deterioration of asset performance and is one of several measures that inform WNH's asset management process on which assets require greater attention.	(In-service age / TUL of asset class)	Consumer, Corporate

Asset Health Indices	An Asset Health Indice is a rating of an asset's current condition relative to a new asset.	A way of comparing different assets and asset classes in a consistent manner. An input, to WNH's asset management process.	The data parameters include, age, and other factors that reflect on the condition of an asset such as % Fibre Strength for poles.	Consumer, Corporate

(b)

Summary of Target and Actual Metrics for 2011 to 2014 and Forecast for 2015

	2011 Target	2011 Actual	2012 Target	2012 Actual	2012 EME	2013 Target	2013 Actual	2013 EME	2014 Target	2014 Actual	2015 Target	2015 Forecast
Consumer Bill Impacts												
Bill Comparison - Residential	< 10.0%	6.1%	< 10.0%	3.3%	NA	< 10.0%	2.6%	NA	< 10.0%	9.9%	< 10.0%	8.5%
Bill Comparison - GS < 50 kW	< 10.0%	6.3%	< 10.0%	6.1%	NA	< 10.0%	5.3%	NA	< 10.0%	8.3%	< 10.0%	8.3%
Bill Comparison - GS > 50 kW	< 10.0%	-0.1%	< 10.0%	1.1%	NA	< 10.0%	1.5%	NA	< 10.0%	0.97%	< 10.0%	-0.6%
Reliability Measures												
Exclusive of Supply												
SAIDI (Duration)	0.75-1.11	0.75	0.75-1.11	1.66	0.79	0.75-0.79	5.19	0.88	0.75-0.88	0.81	0.81-0.88	0.85
SAIFI (Frequency)	0.85-0.99	0.85	0.85-0.94	1.39	1.16	0.85-1.16	3.16	1.86	0.85-1.86	1.21	1.16-1.21	1.19
Inclusive of Supply												
SAIDI (Duration)	0.80-1.22	1.06	0.80-1.22	3.37	0.82	0.80-1.06	9.13	1.36	0.82-1.36	0.97	0.82-1.36	1.10
SAIFI (Frequency)	0.91-1.09	0.96	0.91-1.02	2.10	1.18	0.91-1.18	3.97	2.23	0.96-2.23	1.71	1.18-1.71	1.45
ME = Major Events					2 ME			3 ME				
EME = Excluding Major Events												
Power Quality												
Number of Customers Requesting	30	34	35	47	NA	40	45	NA	40	21	30	25
a Power Quality Investigation												
% of Complaints Investigated	100%	100%	100%	100%	NA	100%	100%	NA	100%	100%	100%	100%
% of Investigations Resolved	100%	100%	100%	100%	NA	100%	100%	NA	100%	100%	100%	100%
% of PQ Investigations Completed	90%	100%	90%	100%	NA	100%	90%	NA	90%	100%	90%	100%
by WNH that Confirm WNH's												
Electricity Supply meets CSA C235												
Stray Voltage												
Number of Customers Requesting	20	6	10	3	NA	10	2	NA	10	8	10	10
a Stray Voltage Investigation												
% of Complaints Investigated	100%	100%	100%	100%	NA	100%	100%	NA	100%	100%	100%	100%
% of Investigations Resolved	100%	100%	100%	100%	NA	100%	100%	NA	100%	100%	100%	100%
% of Stray Voltage Investigations	90%	100%	90%	67%	NA	90%	100%	NA	90%	67%	90%	90%
Completed by WNH that Confirm												
WNH's Supply Meets Limits in												
DSC, Section 4.7												
Cost Efficiency and Effectiveness												
Planning Quality Indicators												
% of Planned Capital Construction - Spent vs Budget	100.0%	112.9%	100.0%	105.1%	NA	100.0%	109.6%	NA	100.0%	98.9%	100.0%	100.0%
Operating Efficiency Indicators												
Controllable Cost per Customer	$ 199.90	$ 192.34	$ 206.84	$ 199.88	NA	$ 252.72	$ 236.79	NA	$ 249.06	$ 248.44	$ 238.46	$ 238.46
Controllable Cost per MWh	$ 7.20	$ 6.80	$ 7.23	$ 7.15	NA	$ 9.08	$ 8.61	NA	$ 9.10	$ 9.18	$ 8.78	$ 8.78
Asset and/or System Operations												
Peformance												
Supply System Reliability Indicators												
See SAIDI and SAIFI (inclusive and												
exclusive of supply) above												
Typical Useful Life (TUL)	Not Available	Not Available	Not Available	Not Available	NA	Not Available	Not Available	NA	See Note 1	**See Note 1**	**See Note 1**	**See Note 1**
Asset Health Indicies	Not Available	Not Available	Not Available	Not Available	NA	Not Available	Not Available	NA	See Note 2	**See Note 2**	**See Note 2**	**See Note 2**

Note 1. Please refer to Exhibit 2, Attachment 2-1, DSP. Information on % TUL and Condition Rating (2014) for major assets is available starting at page 109. Data for other years is not available.

Note 2. Please refer to Exhibit 2, Attachment 2-1, DSP. Information the only Asset Health Indices we have at this time (2014) is for wood poles (2014) beginning on page 125 & 126, Table 3-25, Figure 3-3, Figure 3-4. Data for other years is not available.

(c) WNH confirms this information is not available.

(d) WNH reviews the range of actual values over the previous three to five years for these metrics and uses that information as the basis for establishing the forecast target for the current year. At the present time WNH's business process does not include forecasting target values for these metrics for years beyond the current year.

2-Staff-53

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, page 68

Interrogatory:

WNH states that "*An analysis of bill impacts for all customer classes …forms part of the decision making process before the final investment plan is approved by WNH senior management and the WNH Board of Directors*." What instructions did the WNH Board of Directors provide to WNH staff with respect to bill impacts for all customer classes resulting from this 2016 application?

Response:

WNH's Board of Directors' concern with bill impacts formed part of the discussions at the 2015 Budget Planning Presentation to the Board in September of 2014. The Board provided overall direction to staff to explore options available to reduce impacts and maintain competitive rates on the overall bill within 10.0% of the lowest LDC in the region while not reducing service quality. In addition, the Board directed staff to manage the total bill rate increase to no more than 2.5% per year. Please refer to the attachment for 1-SEC-1.

2-Staff-54

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, page 73

Interrogatory:

Significant portion of the capital plan is being delivered by contractors. "*WNH utilizes a mixture of permanent staff, part-time staff and contract services to execute its investment plans in a cost effective manner. WNH maintains relatively consistent staffing levels which allows it to perform most of the O&M work; approximately 65% of annual capital overhead construction and approximately 90% of all capital engineering work. In underground capital construction 100% of the civil work and 80% of the electrical installation is completed by contracted services. In stations, nearly 100% of all O&M is performed by WNH staff. Capital projects vary considerably project by project. Overall, contracted services are utilized where they can be most effective in both cost and execution*".

(a) What is a total capital spending portion of system access, system renewal and system service to be delivered by contractors in 2011 – 2015?

(b) What will be an average percentage of work in these three programs delivered by contractors in 2016 – 2020?

(c) How does WNH compare costs effectiveness and efficiency between contractors and work done internally?

(d) Has WNH completed any analysis or study to compare cost effectiveness and efficiency between contractors and internal construction crews? If yes, please provide all documentation related to any analysis or study.

(e) Has WNH investigated an option to perform capital construction of the civil work by internal crews?

(f) Please provide an average contract price or an average unit price increase for capital construction costs for civil work, overhead construction, underground construction for each of the year 2011 – 2015 and a forecast for 2016.

(g) What procedures and practices does WNH have in place to ensure that contractors have enough incentives for continuous improvement and do not raise an average unit price by more than inflation minus productivity factor?

Response:

(a) Contracted Services for 2014 – 2015, the only period that data is available, based on WNH's Application, is as follows:

Contracted Services - Capital			
Year	**SA**	**SR**	**SS**
2014	11%	37%	12%
2015	17%	17%	0%

(b) Over the period 2016 - 2020, WNH expects the total percentage of contracted services to remain consistent with historical levels. WNH has not made any definitive decision as to using contract services vs. in-house labour for 2016 – 2020.

(c) WNH estimates a number of projects based on work completed internally and compares to pricing received through tendered contracted work. Contract work can be more effective when:

- Contractors are used for more variable work programs
- Contractors are used for seasonal work programs
- Contractors are not subject to work disruptions due to emergency and/or on call activities allowing them to focus on capital project construction
- Contractors have greater flexibility in hours of work
- Contractors have access to specialized skills and equipment that are not cost effective for WNH to retain.

(d) WNH has performed this type of analysis. WNH has provided a relative comparison to demonstrate the results of its analysis.

Line Construction Services Tenders Evaluation of Tender Submissions 2012

A	B	C	D	E	WNH
103%	91%	123%	166%		100%

Contractor B was selected to perform the work

Line Construction Services Tenders Evaluation of Tender Submissions 2014

A	B	C	D	E		WNH
142%	91%	171%	125%	127%		100%

Contractor B was selected to perform the work

(e) Yes, WNH has investigated an option to perform capital construction of the civil work by internal crews and determined it is not viable. WNH does not possess the internal skill set nor does it have the needed equipment to perform this work; external staff would need to be hired and additional equipment would need to be purchased. The amount of civil construction at times is not sufficient to keep internal staff continually employed; personnel and equipment would be idle at times. At other times additional work would still need to be contracted out.

(f) Overhead construction:

First annual contract in place in 2012

Increase in 2013 0%

Increase in 2014 2.8%

Increase in 2015 0%

Underground civil construction – new subdivisions:

Increase in 2011	0%
Increase in 2012	0%
Increase in 2013	0%
Increase in 2014	0%
Increase in 2015	0%

Underground civil construction – existing subdivisions:

Increase in 2011	0%
Increase in 2012	0%
Increase in 2013	0%
Increase in 2014	5%
Increase in 2015	10%

For 2016 WNH has forecast a 2% increase in contracted services.

(g) WNH tenders major work on a regular basis thus keeping contracting costs aligned with market rates. WNH does not provide direct monetary incentives to its contractors. WNH does incent contractors to provide competitive pricing and performance with the invitation to perform additional work at previously tendered prices.

2-Staff-61

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, page 89

Reference: ISO 55000 Standards for Asset Management

Interrogatory:

WNH "*for asset management purposes 7 of WNH's Strategic Imperatives have been adopted as Asset Management Objectives*". As indicated by ISO 55000 Asset Management standard, an asset management objective should be specific and measurable. Please provide specific and measurable objectives for each of the strategic imperatives that guided the Asset Management Strategy and ultimately the Distribution System Plan.

Response:

The ISO 55000 standard was only first published on January 10, 2014. WNH has not yet adopted any specific Asset Management Standard. WNH is making efforts to improve its asset management process and is contemplating the incorporation of more specific and measurable asset management objectives prior to its next COS application.

2-Staff-63

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, page 94

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, page 103

Interrogatory:

WNH states on page 94 *"Deficiencies are categorized by the degree of noncompliance to a target, the estimated time to failure and consequence of failure."* On page 103 "*As previously stated WNH's asset condition, age and performance targets are either prescribed (i.e. OEB, IESO) or adopted (i.e. IEC, IEEE, CEA, industry best practices). Utilizing the judgment, skills and experience of in-house and contracted subject matter experts, WNH analyses and compares actual asset condition and performance to target parameters. The degree to which these targets are approached or exceeded helps define the relative probability that the asset may physically fail or may fail to meet performance targets*".

(a) Please identify all the performance targets used by WNH to develop the DSP and consequential actions that WNH takes to remediate a failure of the asset to meet the target.

(b) For each project and material sub-project please provide the degree of noncompliance to a target (along with the target), estimated time to failure, and consequence of failure.

Response:

(a) Please refer to response in 2-Staff-51 for an overview of performance targets used to develop the DSP.

With respect to asset performance, WNH evaluates the available information regarding the condition, age, reactive maintenance and reliability history of an asset and compares the performance to similar assets or the asset classes. As an example, it was noted in the DSP that the High Voltage Switches at HMSTS "A"

were experiencing an unexpected number of operational problems after 14 years of service. WNH's target of 30 years is based on past experience with similar assets, albeit different manufacturers and models.

To remediate the failure of the asset to meet the target WNH normally takes a three step approach. First, Asset Maintenance is considered. In the case of the switches, repairs have been made to restore operation. Secondly, Asset Refurbishment is considered, although not viable in this instance due to obsolescence of components. The third option is Asset Replacement which the manufacturer has advised will be needed if operational failures continue.

(b) The degree of noncompliance to a target (along with the target) and estimated time to failure information is not available.

The consequences of failure are provided in each of the Appendix G, Material Capital sheets, Relationship between the Characteristics of Targeted Assets and the Consequences of Asset Failure (5.4.5.2.C.b.first bullet) for each System Renewal Project.

2-Staff-67

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, page 126

Interrogatory:

According to the above reference, approximately 100 poles are replaced per year due to relocations, damage from motor vehicle accidents, service upgrades, etc.

(a) Are costs of the replacement poles capitalized or expensed? If the costs are capitalized, what amount was capitalized related to replacement poles in 2014?

(b) How were the replaced poles recorded in WNH's accounts?

(c) Were amounts removed from account 1830 but not included in the "Disposals" column on the fixed asset continuity schedules?

(d) If so, what amount of NBV was removed from Account 1830 for 2011 to 2014?

(e) How are the costs related to the removals and replacements reflected in the current rate proceeding?

(f) What is the net impact of the removals and replacements on the rate base?

(g) What is the estimated NBV of poles included in the 2013 financial statements that are no longer in service? The following factors suggest the NBV of these poles may be material:

- WNH's accounting policy is to only remove assets that are not specifically identifiable at the end of the estimated average services life.
- 45 year estimated service life for the poles
- WNH replaces approximately 100 poles per year due to damage, relocations, etc.

Response:

(a) The cost of the replacement poles is capitalized. The amount in 2014 would be approximately $47,000 for the 100 poles.

(b) The replaced poles are recorded in USoA 1830 Poles, Towers & Fixtures.

(c) The amounts were not removed in the fixed asset continuity schedules. Please refer to 2-Staff-18. When each pole is removed from the field it is not considered material in nature, thus, not removed. In addition, the poles typically have been depreciated for a number of years, thus, the Net Book Value is not material.

(d) Not Applicable.

(e) The cost related to the removals and replacements discussed above are included in capital as WNH has not considered these items to be material in nature and has not segregated the costs.

(f) The net impact has not been segregated in WNH's records, prior to IFRS this was not required and after implementation of IFRS WNH has forecast that it will not be material.

(g) Prior to the implementation of IFRS in 2015 WNH was not required to track this information, nor were distributors required to remove these grouped/pooled assets from their fixed asset system. Thus, this information is not available. Please refer to 2-Staff-18 for information on WNH's policy regarding removal of assets from its fixed asset system. WNH notes that prior to 2013, poles were depreciated over 25 years, and thus, many poles are fully depreciated.

2-Staff-72

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, page 177

Interrogatory:

Regarding the new CIS system WNH states *"WNH performed a cost/benefit analysis and determined a 3 year payback for this investment based on reduction of annual maintenance fees alone. The new software will have improved customer support capabilities, enhanced field based service order processing, and streamlined and automated billing related routines leading to improved productivity and organizational effectiveness with a measurable annual reduction of $100,000 in maintenance fees."*

Please provide the cost/benefit analysis completed to justify the CIS system.

Response:

The current CIS was purchased in 2000, was based on mature technology at the time of purchase and today is costly to maintain and difficult to modify.

The proposed cost of the new CIS is $378,363. By installing the new CIS, WNH has reduced the annual maintenance fee associated with the current CIS by approximately $100,000. WNH's analysis resulted in the determination of a 3.8 year payback for the investment with up-to-date technology.

This results in:

Capital Cost of CIS System $378,000
Annual Reduction in Software Maintenance ($100,000)
$378,000/$100,000 = 3.78 Year Payback Period or 26.5% Return on Investment Annually

Please refer to Exhibit 2, Attachment 2-1, DSP, Appendix G, pages 57 through 60, in which WNH has documented in detail the benefits, the drivers, the alternatives considered, the risk and risk mitigation, the effect on system operation and cost effectiveness, and the net benefits accruing to WNH's customers.

2-Staff-75

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, page 201

Interrogatory:

(a) Please reconcile Tables 4-11a and 4-11b to eliminate an impact of a change from CGAAP to RCGAAP to ensure correct comparison of 2011 – 2015 period with 2016 – 2020 proposed investments. Provide approximate numbers if detailed reconciliation is very time consuming.

(b) While the change in accounting practices is stated to affect SA, SS and GP, it is presumed to affect SR as well. Please confirm.

(c) Please provide a variance analysis for investment fluctuations in each of the DSP category between 2016/2017, 2017/2018, 2018/2019, 2019/2020.

Response:

(a) WNH has provided approximate numbers for this elimination of the impact in the change from CGAAP to RCGAAP as follows:

Year	Additions, No Contributed Capital, CGAAP	Additions, No Contributed Capital RCGAAP	Costs in OM&A Previously Capitalized	Approximate Additions, No Contributed Capital, CGAAP	Estimated Impact of Capitalized Costs - CGAAP EPIR13
2011	46,753,654			46,753,654	2,300,000
2012	31,474,270			31,474,270	2,300,000
2013		19,951,316	2,458,160	22,409,476	
2014		19,694,006	2,204,651	21,898,657	
2015		21,308,611	2,314,937	23,623,548	
2016		19,078,917	2,303,326	21,382,243	
2017		18,930,869	2,350,000	21,280,262	
2018		18,844,622	2,400,000	21,241,003	
2019		17,593,336	2,450,000	20,037,644	
2020		17,886,713	2,500,000	20,379,907	

Approximate values

(b) WNH confirms that the change in accounting practices also affects SR.

(c) The variance analysis is as follows:

OEB Investment Category	2016	2017	2017 - 2016	%
System Access	$ 6,622,858	$ 5,892,104	$ (730,754)	-11.0%
System Renewal	$ 8,181,031	$ 8,545,000	$ 363,969	4.4%
System Service	$ 2,405,950	$ 1,680,000	$ (725,950)	-30.2%
General Plant	$ 1,869,078	$ 2,813,765	$ 944,687	50.5%
Totals	$ 19,078,917	$ 18,930,869	$ (148,048)	-0.8%

- Reduction in 2017 SA investments due to LRT work completion in 2016.
- Increase in 2017 SR investments due to HMSTS “B” switchgear Arc Resistance upgrade.
- 2016 SS investments higher than normal due large amount of LRT work completion in 2015. 2017 SS will return to more historical levels.
- Increase in 2017 GP investments due to purchase of Control Room Wall display for Scada. Also Service Centre building is planned to be connected to municipal sanitary system.

OEB Investment Category	2017	2018	2018 - 2017	%
System Access	$ 5,892,104	$ 6,020,046	$ 127,942	2.2%
System Renewal	$ 8,545,000	$ 9,438,200	$ 893,200	10.5%
System Service	$ 1,680,000	$ 1,725,200	$ 45,200	2.7%
General Plant	$ 2,813,765	$ 1,661,176	$ (1,152,590)	-41.0%
Totals	$ 18,930,869	$ 18,844,622	$ (86,247)	-0.5%

- Increase in 2018 SR investments due to MS Transformer purchase
- 2018 GP investments returning to more historical levels.

OEB Investment Category	2018	2019	2019 - 2018	%
System Access	$ 6,020,046	$ 5,946,859	$ (73,187)	-1.2%
System Renewal	$ 9,438,200	$ 8,800,764	$ (637,436)	-6.8%
System Service	$ 1,725,200	$ 1,175,404	$ (549,796)	-31.9%
General Plant	$ 1,661,176	$ 1,670,309	$ 9,134	0.5%
Totals	$ 18,844,622	$ 17,593,336	$ (1,251,286)	-6.6%

- Reduction in 2019 SR investments due to MS Transformer purchase in 2018 work
- Reduction in 2019 SS investments due to reduction in new underground feeders.

OEB Investment Category	2019	2020	2020 - 2019	%
System Access	$ 5,946,859	$ 6,085,796	$ 138,937	2.3%
System Renewal	$ 8,800,764	$ 8,975,779	$ 175,015	2.0%
System Service	$ 1,175,404	$ 1,175,612	$ 208	0.0%
General Plant	$ 1,670,309	$ 1,649,525	$ (20,784)	-1.2%
Totals	$ 17,593,336	$ 17,886,713	$ 293,376	1.7%

- There are no exceptional variances in 2019 – 2020 investments.

2-Staff-79

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, Appendix G, pages 1-3, Light Rail Transit Relocations

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, pages 40-41

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, Table 2-1

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, Table 4-5A

Interrogatory:

WNH states "*Roadway relocations represent WNH's second largest proposed investment in this asset category. In 2016 WNH proposes to make material investments of $2.5 million over 10 various projects. This represents approximately 37% of all 2016 System Access investments and 13% of WNH's total 2016 investment plan (Table 1-14). This is NOT typical of the level of investment proposed in the 2017 – 2020 forecast period due mostly to the LRT project. In this multi-year project (2014 – 2016) WNH is expecting to invest approximately $6.3 million in relocation work and expecting to recover approximately 60% from the Region of Waterloo.*

Roadway relocations are one of the most difficult activities to forecast. Despite best efforts at consulting with roadway authorities, the scope, timing, and more importantly the financial impact of relocation projects on WNH's DS Plan remains uncertain until shortly before construction. Table 1-14 illustrates WNH's proposal in 2016 for material investments of $1.8 million over 7 various projects for the LRT project and $703,000 over 3 projects for other municipal relocations.

Investments in the LRT, which is a one-off project, is expected to be complete by the end of 2016. The investments in other municipal relocations are more typical of that proposed during the forecast period."

In addition, WNH describes the details of this project in Appendix G and also mentions that LRT Relocation is "*a special one-off project"*. However, overall system access investments will fluctuate only from $5,892,104 to $6,622,858 in 2016 – 2020, assuming that this LRT Relocations of $1.8M is atypical and presents a one-off expense.

Please provide the following information for Light Rail Transit Relocations project:

(a) Capital spending on LRT Relocations in 2014 and 2015.

(b) Actual cost recovery rate for spending in 2014 and 2015.

(c) Confirmation that there are only 7 projects for the LRT relocations for material investments of $1.8M in 2016.

(d) Any documents that have been developed to support a statement "*Approximately 20% of the work involves assets that are near end of life*".

(e) What is a percentage of poles that will be relocated as a result of this activity that are in a Very Poor and Poor condition?

(f) Please provide "negotiated cost recovery terms" document that supports a statement to "… recover approximately 60% of the overall costs for the entire project as compared to approximately 30% under PSWHA".

(g) List of other atypical Relocation projects and respective capital spending that are planned to be executed in 2017 – 2020 to support approximately the same level of investments in system access category.

Response:

(a) Capital spending in 2014 for the LRT was $78,456.
Please refer to 2-VECC-10 for capital spending projection for 2015.

(b) Cost recovery in 2014 for LRT is nil due to the fact that the project was completed late in 2014 and was not billed until 2015. Cost recovery projection for 2015 is provided in a table for 2-VECC-10 part (a).

(c) There are only 7 projects above the materiality level which are projected to add to $4.9M in 2016. Please refer to 2-VECC-10.

(d) This was an approximation based on the knowledge of the LRT route and the vintage of assets in the vicinity of the route. No specific document was developed to expressly support this number.

(e) Of the approximately 129 poles impacted by this project, one (1) pole is in Poor condition and no poles are in Very Poor condition.

(f) The 60% is an estimate of the total cost recovery over the entire project. Individual phases of the work have different cost recovery rates of 50% or 100%. At the time of filing, average recovery rate was estimated to be approximately 60%. Currently with changes in the LRT project scope or work, the average recovery rate is approximately 70%. Please refer to the document attached to this response titled Attachment 2-Staff-79 Stage 1 Light Rail Project Municipal Hydro Utilities Cost Sharing.

(g) There are no other atypical Relocation projects currently known to WNH.

2-Staff-91

Reference: Exhibit 2, Attachment 2-1, Distribution System Plan, Appendix G, page 65

Interrogatory:

WNH's future direction in fleet management includes the purchase of an "RBD" type truck in 2016. WMH's fleet assessment (Table 3-48) would suggest multiple large trucks, small trucks and trailers are at or will be at "Typical Useful Life" during the period of this study. Please indicate the expected fleet renewal strategy over the period of this study considered as an overall program?

Response:

WNH's expected fleet renewal strategy over the period from 2016 to 2020 as an overall program is as follows:

Fleet Renewal Program - 2015 and 2016 Capital Budget and Forecast for 2017 to 2020

Project Description	2015 Budget	2016 Budget	2017 Forecast	2018 Forecast	2019 Forecast	2020 Forecast
Vehicles	912,045	619,407	865,000	945,000	950,000	925,000

WNH's fleet renewal strategy is to prioritize planned vehicle and transportation equipment replacement over the upcoming five year period as part of the development of WNH's annual capital budget. The goals of WNH's vehicle replacement schedule are to:

- schedule the replacement of a vehicle prior to the vehicle's condition assessment indicating there is a high risk of incurring major future maintenance costs;
- sequence vehicle replacements to ensure large vehicles that require a two year lead time for ordering are scheduled well in advance; and
- minimize large fluctuations in the year to year level of the fleet capital budget.

The timing of a specific vehicle's replacement will be prioritized based on an analysis of the vehicle's most recent condition assessment, annual operating and maintenance costs, total engine operating hours, and total kilometres driven. For vehicles and equipment with higher usage, replacement is typically scheduled at intervals close to the typical useful life for that type of vehicle. For vehicles with less usage or whose condition assessment indicates they are still in good condition, the scheduled year for their planned replacement can be extended.

The following revised version of Table 3-48 has been updated to include the planned replacement year for each of the vehicles/equipment scheduled for replacement in the years 2016 to 2020.

Table 3-48 : Fleet / Rolling Stock Replacement Schedule 2016 to 2020

Fleet ID	Vehicle Type	Model Year	Planned Replacement Year	TUL	Age at Planned Replacement
R65	RBD	1996	2016	12	20
O154	Cargo Van	2005	2016	8	11
O150	Pickup	2005	2016	8	11
T-539	Pole Trailer	1979	2016	15	37
R86	Knuckle Crane	1999	2017	12	18
R9	Single Bucket MHAD	2001	2017	12	16
B109	Mini Van	2010	2017	8	7
R98	Double Bucket MHAD	2000	2018	12	18
R31	Single Bucket MHAD	2003	2018	12	15
R115	Pickup	2011	2018	8	7
R116	Pickup	2011	2018	8	7
O172	Cargo Van	2007	2018	8	11
R40	RBD	2004	2019	12	15
O51	Workbody Step Van	2005	2019	12	14
R133	Mini Van	2013	2019	8	6
R127	Pickup	2012	2019	8	7
R128	Pickup	2012	2019	8	7
O189	Cargo Van	2008	2019	8	11
R180	Pickup	2008	2019	8	11
R89	Single Bucket	2008	2020	12	12
R99	Dump Truck	2009	2020	12	11
Y124	Cargo Van	2012	2020	8	8
Y125	Cargo Van	2012	2020	8	8
R132	Pickup	2013	2020	8	7
R190	SUV	2009	2020	8	11
R183	Pickup	2008	2020	8	12
G186	Mini Van	2008	2020	8	12
G100	Mini Van	2010	2020	8	10
T-532	Reel Trailer	1968	2020	15	52
T-533	Material Trailer	1989	2020	15	31
T-521	Pole Trailer	1985	2020	15	35
T-540	Stringing Trailer	1999	2020	15	21

2-Energy Probe-14

Reference: Exhibit 2, Tables 2-17 & 2-18

Interrogatory:

a) Please update Table 2-17 to reflect actual capital expenditures/additions based on the most recent year-to-date actuals available, along with an update forecast for the remainder of the 2015 bridge year. Please explain any significant changes based on projects being delayed, deferred, or not in the original forecast.

b) Based on the response to part (a) above, please update Table 2-18 to reflect any change in the opening NBV, along with any changes to the additions as a result of changes in 2015.

Response:

(a) There are a number of material changes projected for 2015, the majority of which are as a result of timing and scope changes to mandatory System Access projects, such as LRT relocations, other road relocations, and new subdivisions. The most impactful changes are a result of LRT project requirements. Overall, WNH's LRT project work has increased from $6.3 million to $11.6 million, with most of the work required to be completed in 2015 and 2016. In addition to the increase in work, WNH has also been forced to adjust the sequencing of LRT projects to ensure coordination with other parties involved in the project. This has resulted in a number of projects being advanced from 2016 to 2015 and others deferred from 2015 to 2016. Details about the project changes in costs and timing are provided in response to IR 2-VECC-10.

The magnitude of the LRT work has had a ripple impact on other road relocations and the municipalities have deferred a number projects, mostly into 2017. Details regarding changes to scope and timing of other road relocations are provided in response to IR 2-VECC-10.

WNH has also seen developer requests for new subdivision servicing almost double the 2015 budget amount. This is work to be completed by the end of 2015.

The magnitude of the increase in LRT work has forced WNH to closely re-examine its original 2015 and the 2016 capital program from a timing and resource point of view to ensure that customer requirements can be met. To balance design and construction resources and pace capital investments in 2015, 2016 and 2017 WNH has advanced a previously designed project from 2017 to 2015 and deferred 4 smaller projects to 2017. This resulted in approximately $300,000 being deferred from 2015 to 2017, and in its place WNH re-staged and advanced a portion of a 2016 project valued at approximately $360,000 to 2015. This advancement will also help with pacing of the work and help reduce the impact of LRT related changes in 2016.

As detailed design for LRT projects is now substantially complete by both, the municipality and WNH, WNH does not expect further significant changes to the forecasted amounts for this project.

The net effect of the changes above is as follows:

Change	2015	2016	Total
Additions	1,530,366	4,141,804	5,672,169
Contributed Capital	(1,374,120)	(4,082,571)	(5,456,692)
Net Change	**156,245**	**59,232**	**215,478**

Fixed Asset Continuity Schedule

CGAAP 2015 | "Revised CGAAP" EPIR14

CCA Class	OEB	Description	Cost						Accumulated Depreciation				Net Book Value
			Opening Balance	June 2015 Costs	Forecast Costs Jy-Dec/15	Total Forecast Addns 2015	Disposals	Closing Balance	Opening Balance	Additions	Disposals	Closing Balance	
12	1611	Computer Software (Formally known as Account 1925)	6,112,349	633,974	77,392	711,366		6,823,715	(5,284,974)	(508,875)		(5,793,849)	1,029,866
1b	1612	Land Rights (Formally known as Account 1806)	654,021	24,809	18,350	43,159		697,180	-	-		-	697,180
	1805	Land	2,323,796		-	-		2,323,796	-	-		-	2,323,796
1b	1808	Buildings	30,303,174	63,015	147,680	210,695		30,513,869	(3,142,079)	(841,062)		(3,983,141)	26,530,728
	1810	Leasehold Improvements	-		-	-		-	-	-		-	-
47	1815	Transformer Station Equipment >50 kV	31,956,150	378,829	367,793	746,622		32,702,772	(12,077,303)	(1,318,764)		(13,396,067)	19,306,704
47	1820	Distribution Station Equipment <50 kV	5,597,083	11,463	(11,463)	-		5,597,083	(3,574,499)	(135,823)		(3,710,322)	1,886,761
47	1825	Storage Battery Equipment	-		-	-		-	-	-		-	-
47	1830	Poles, Towers & Fixtures	64,842,339	2,220,175	1,357,910	3,578,085		68,420,424	(24,917,368)	(1,136,384)		(26,053,752)	42,366,672
47	1835	Overhead Conductors & Devices	34,526,826	1,361,663	2,097,214	3,458,877		37,985,703	(10,598,549)	(840,715)		(11,439,265)	26,546,438
47	1840	Underground Conduit	17,369,842	590,381	1,206,636	1,797,017		19,166,859	(8,164,769)	(260,464)		(8,425,233)	10,741,626
47	1845	Underground Conductors & Devices	39,015,566	914,356	4,462,275	5,376,631		44,392,197	(19,252,512)	(953,418)		(20,205,930)	24,186,267
47	1850	Line Transformers	53,903,386	1,613,050	1,991,408	3,604,458		57,507,844	(23,019,414)	(1,094,441)		(24,113,855)	33,393,989
47	1855	Services (Overhead & Underground)	25,370,945	541,077	497,511	1,038,588		26,409,533	(12,426,660)	(353,256)		(12,779,915)	13,629,617
8	1860	Meters	6,681,238	428,744	301,270	730,014		7,411,252	(3,249,821)	(297,989)		(3,547,810)	3,863,442
8	1860	Meters (Smart Meters)	6,265,880		-	-		6,265,880	(1,083,219)	(541,563)		(1,624,782)	4,641,098
	1905	Land	-		-	-		-	-	-		-	-
	1908	Buildings & Fixtures	-		-	-		-	-	-		-	-
	1910	Leasehold Improvements	-		-	-		-	-	-		-	-
8	1915	Office Furniture & Equipment (10 years)	1,567,630	1,000	8,500	9,500		1,577,130	(909,973)	(106,607)		(1,016,580)	560,550
8	1915	Office Furniture & Equipment (5 years)	-		-	-		-	-	-		-	-
	1920	Computer Equipment - Hardware			-	-		-				-	-
	1920	Computer Equip.-Hardware(Post Mar. 22/04)	-		-	-		-	-	-		-	-
50	1920	Computer Equip.-Hardware(Post Mar. 19/07)	4,055,309	90,768	88,712	179,480		4,234,789	(3,721,839)	(195,522)		(3,917,361)	317,428
10	1930	Transportation Equipment	8,856,261	535,933	376,111	912,044	(642,135)	9,126,170	(5,528,133)	(568,909)	624,772	(5,472,270)	3,653,900
8	1935	Stores Equipment	542,506		-	-		542,506	(287,690)	(46,942)		(334,631)	207,875
8	1940	Tools, Shop & Garage Equipment	1,344,361	39,261	63,739	103,000		1,447,361	(1,013,424)	(117,947)		(1,131,371)	315,990
8	1945	Measurement & Testing Equipment	932,204		9,000	9,000		941,204	(772,339)	(50,341)		(822,680)	118,524
8	1950	Power Operated Equipment	-		-	-		-	-	-		-	-
8	1955	Communications Equipment	929,763	781	13,719	14,500		944,263	(514,999)	(92,837)		(607,835)	336,428
8	1955	Communication Equipment (Smart Meters)	-		-	-		-	-	-		-	-
8	1960	Miscellaneous Equipment	2,594,400	1,550	25,450	27,000		2,621,400	(1,471,915)	(241,460)		(1,713,374)	908,026
	1970	Load Management Controls Customer Premises	-		-	-		-	-	-		-	-
	1975	Load Management Controls Utility Premises	-		-	-		-	-	-		-	-
8	1980	System Supervisor Equipment	4,675,659	253,974	34,968	288,942		4,964,601	(2,711,760)	(211,479)		(2,923,239)	2,041,362
	1985	Miscellaneous Fixed Assets	-		-	-		-	-			-	-
	1990	Other Tangible Property	-		-	-		-	-			-	-
47	1995	Contributions & Grants	(33,424,664)		-	-		(33,424,664)	9,747,822	779,728		10,527,550	(22,897,114)
47	2440	Deferred Revenue5		(675,927)	(5,613,011)	(6,288,938)		(6,288,938)		164,469		164,469	(6,124,470)
													-
		Sub-Total	**316,996,025**	**9,028,874**	**7,521,165**	**16,550,039**	**(642,135)**	**332,903,929**	**(133,975,418)**	**(8,970,598)**	**624,772**	**(142,321,244)**	**190,582,684**
		Less Socialized Renewable Energy Generation Investments (input as negative)						-				-	-
		Less Other Non Rate-Regulated Utility Assets (input as negative)						-				-	-
		Total PP&E	**316,996,025**	**9,028,874**	**7,521,165**	**16,550,039**	**(642,135)**	**332,903,929**	**(133,975,418)**	**(8,970,598)**	**624,772**	**(142,321,244)**	**190,582,684**
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets), if applicable6											
		Total								**(8,970,598)**			

10		Transportation
10		Truck Tools
8		Stores Equipment

Less: Fully Allocated Depreciation	
Transportation	(568,909)
Truck Tools	(117,947)
Stores Equipment	(46,942)
Net Depreciation	**(8,232,613)**

(a) Please refer to part (a) above for details of changes made. An updated Table 2-18 is provided below.

Fixed Asset Continuity Schedule

Accounting Standard	CGAAP	"Revised CGAAP"
Year	2016	EPIR14

			Cost				Accumulated Depreciation				Net Book Value
CCA Class	OEB	Description	Opening Balance	Additions	Disposals	Closing Balance	Opening Balance	Additions	Disposals	Closing Balance	
12	1611	Computer Software (Formally known as Account 1925)	6,823,715	871,760		7,695,475	(5,793,849)	(476,948)		(6,270,797)	1,424,678
1b	1612	Land Rights (Formally known as Account 1806)	697,180	43,259		740,439	-	-		-	740,439
	1805	Land	2,323,796			2,323,796	-	-		-	2,323,796
1b	1808	Buildings	30,513,869	128,050		30,641,919	(3,983,141)	(843,813)		(4,826,955)	25,814,964
	1810	Leasehold Improvements	-			-	-	-		-	-
47	1815	Transformer Station Equipment >50 kV	32,702,772	516,518		33,219,290	(13,396,067)	(1,137,573)		(14,533,640)	18,685,650
47	1820	Distribution Station Equipment <50 kV	5,597,083	94,587		5,691,670	(3,710,322)	(137,510)		(3,847,832)	1,843,838
47	1825	Storage Battery Equipment	-			-	-	-		-	-
47	1830	Poles, Towers & Fixtures	68,420,424	3,611,587		72,032,011	(26,053,752)	(1,176,513)		(27,230,264)	44,801,746
47	1835	Overhead Conductors & Devices	37,985,703	3,569,842		41,555,544	(11,439,265)	(904,974)		(12,344,239)	29,211,305
47	1840	Underground Conduit	19,166,859	1,964,870		21,131,729	(8,425,233)	(280,113)		(8,705,346)	12,426,383
47	1845	Underground Conductors & Devices	44,392,197	5,500,630		49,892,827	(20,205,930)	(1,025,728)		(21,231,658)	28,661,169
47	1850	Line Transformers	57,507,844	4,106,004		61,613,848	(24,113,855)	(1,146,132)		(25,259,987)	36,353,861
47	1855	Services (Overhead & Underground)	26,409,533	1,044,553		27,454,086	(12,779,915)	(364,147)		(13,144,063)	14,310,024
8	1860	Meters	7,411,252	644,367		8,055,619	(3,547,810)	(319,468)		(3,867,278)	4,188,341
8	1860	Meters (Smart Meters)	6,265,880			6,265,880	(1,624,782)	(541,563)		(2,166,344)	4,099,536
	1905	Land	-			-	-	-		-	-
	1908	Buildings & Fixtures	-			-	-	-		-	-
	1910	Leasehold Improvements	-			-	-	-		-	-
8	1915	Office Furniture & Equipment (10 years)	1,577,130	7,000		1,584,130	(1,016,580)	(106,957)		(1,123,536)	460,593
8	1915	Office Furniture & Equipment (5 years)	-			-	-	-		-	-
	1920	Computer Equipment - Hardware	-			-	-			-	-
	1920	Computer Equip.-Hardware(Post Mar. 22/04)	-			-	-	-		-	-
50	1920	Computer Equip.-Hardware(Post Mar. 19/07)	4,234,789	108,650		4,343,439	(3,917,361)	(132,136)		(4,049,497)	293,943
10	1930	Transportation Equipment	9,126,170	619,409	316,071	9,429,508	(5,472,270)	(589,154)	305,084	(5,756,340)	3,673,169
8	1935	Stores Equipment	542,506			542,506	(334,631)	(46,942)		(381,573)	160,933
8	1940	Tools, Shop & Garage Equipment	1,447,361	77,000		1,524,361	(1,131,371)	(117,919)		(1,249,290)	275,072
8	1945	Measurement & Testing Equipment	941,204	15,000		956,204	(822,680)	(44,963)		(867,642)	88,562
8	1950	Power Operated Equipment	-			-	-	-		-	-
8	1955	Communications Equipment	944,263			944,263	(607,835)	(92,368)		(700,203)	244,060
8	1955	Communication Equipment (Smart Meters)	-			-	-			-	-
8	1960	Miscellaneous Equipment	2,621,400	32,000		2,653,400	(1,713,374)	(242,943)		(1,956,317)	697,083
	1970	Load Management Controls Customer Premises	-			-	-			-	-
	1975	Load Management Controls Utility Premises	-			-	-			-	-
8	1980	System Supervisor Equipment	4,964,601	265,636		5,230,237	(2,923,239)	(210,279)		(3,133,518)	2,096,718
	1985	Miscellaneous Fixed Assets	-			-	-			-	-
	1990	Other Tangible Property	-			-	-			-	-
47	1995	Contributions & Grants	(33,424,664)			(33,424,664)	10,527,550	778,853		11,306,403	(22,118,261)
47	2440	Deferred Revenue5	(6,288,938)	(6,372,309)		(12,661,248)	164,469	248,033		412,501	(12,248,746)
						-				-	-
		Sub-Total	**332,903,929**	**16,848,411**	**316,071**	**349,436,269**	**(142,321,244)**	**(8,911,254)**	**305,084**	**(150,927,415)**	**198,508,855**
		Less Socialized Renewable Energy Generation Investments (input as negative)				-				-	-
		Less Other Non Rate-Regulated Utility Assets (input as negative)				-				-	-
		Total PP&E	**332,903,929**	16,848,411	**316,071**	**349,436,269**	**(142,321,244)**	**(8,911,254)**	**305,084**	**(150,927,415)**	**198,508,855**
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets), if applicable6									
		Total						**(8,911,254)**			

10		Transportation
10		Truck Tools
8		Stores Equipment

Less: Fully Allocated Depreciation	
Transportation	(589,154)
Truck Tools	(117,919)
Stores Equipment	(46,942)
Net Depreciation	**(8,157,240)**

2-Energy Probe-18

Reference: Exhibit 2, Tables 2-12 through 2-18

Interrogatory:

a) Please provide a table that shows for each of 2011 through 2016 the breakdown of the gross capital expenditures and the associated contributions and grants/deferred revenue for each of the items that attract capital contributions, such as, but not limited to, new subdivisions, relocations, etc. Please separate out as a distinct item the costs and contributions associated with the Light Rail Transit System.

b) Is the Light Rail Transit System currently being constructed in the Region of Waterloo on schedule? If not, how will any delay affect the forecasted spending WNH has included in 2015 and 2016?

Response:

a)

	Activity / Gross Capital Expenditures						Activity & Capital Contribution							
	LRT Relocations	Road Relocations	Connections	Expansions	Reactive Renewal	TOTAL	LRT Relocations	Road Relocations	Connections Total	Connections O/H	Connections U/G	Expansions	Reactive Renewal	TOTAL Capital Contributions
2011	-	481,210	2,316,512	1,009,825	247,983	4,055,530	-	45,060	869,620	475,527	394,093	433,378	136,052	1,484,110
2012	-	165,369	2,382,786	1,458,126	401,292	4,407,573	-	160,945	936,276	208,013	728,263	1,495,756	288,043	2,881,020
2013	-	2,052,912	2,236,601	833,390	1,021,222	6,144,125	-	551,043	738,924	133,156	605,768	236,383	146,355	1,672,705
2014	-	801,705	2,372,048	737,710	704,047	4,615,510	-	321,097	706,190	220,988	485,202	311,080	250,329	1,588,695
2015	6,712,542	900,907	2,242,481	800,386	190,963	10,847,279	4,729,453	238,355	888,417	138,417	750,000	432,714	-	6,288,939
2016	4,944,485	2,607,114	2,257,764	593,795	228,539	10,631,697	3,413,420	1,749,822	892,942	142,942	750,000	316,126	-	6,372,310

b) Yes, the Region of Waterloo has informed WNH that the LRT project is on schedule.

2-SEC-7

[Ex. 2, p.13]

Interrogatory:

The evidence indicates 2012 was impacted in part by the disposal of a Service Centre and Administration Land and Building.

a. Please provide the sale dates and the disposal amounts for the Service Centre and Administration Land and Building, separately.
b. Please provide the analysis to support that the sale of the Service Centre and Administration Land and Building reflect fair market value.
c. Please indicate whether each asset was sold to a private party or an affiliate.
d. Please provide the variance between the asset amounts identified as disposals in the 2011 COS application compared to the actual disposal amounts.
e. Please provide the 2011 Board Approved Fixed Asset Continuity Schedule.

Response:

a. The service centre and administration building was sold on June 27, 2013.
Please refer to 1-Energy Probe-5 (c) for disposal amounts.

b. The sale of the service centre and administrative land and building was conducted through a commercial real estate agent. Multiple offers were received and an unconditional offer was negotiated with the highest bidder. This offer was accepted and the sale closed. WNH believes that the price received represents fair market value based on the economic and market conditions at the time.

c. The Land and Building at 300 Northfield Dr., Waterloo was sold to a private party.

d. Please refer to 1-Energy Probe-5 (c).

e. The 2011 Board Approved Fixed Asset Continuity Schedule is presented below.

		Fixed Asset Continuity Schedule (Distribution & Operations) As at December 31, 2011									
			Cost				Accumulated Depreciation				
CCA Class	OEB	Description	Opening Balance	Additions	Disposals	Closing Balance	Opening Balance	Additions	Disposals	Closing Balance	Net Book Value
N/A	1805	Land	1,577,530	1,483,905	754,394	2,307,041	0			0	2,307,041
CEC	1806	Land Rights	394,606	16,350		410,956	0			0	410,956
47	1808	Buildings and Fixtures	9,092,183	23,556,990	4,674,464	27,974,709	2,555,615	311,209	1,758,156	1,108,668	26,866,041
13	1810	Leasehold Improvements	0			0	0			0	0
47	1815	Transformer Station Equipment - Normally Prima	28,891,888	265,871		29,157,759	8,028,693	690,816		8,719,509	20,438,250
47	1820	Distribution Station Equipment - Normally Prima	4,686,556	15,171		4,701,727	3,124,776	87,542		3,212,318	1,489,409
47	1825	Storage Battery Equipment	0			0	0			0	0
47	1830	Poles, Towers and Fixtures	45,333,270	3,878,501		49,211,771	19,323,363	1,733,085		21,056,449	28,155,322
47	1835	Overhead Conductors and Devices	21,094,660	2,953,287		24,047,947	7,388,990	846,392		8,235,382	15,812,566
47	1840	Underground Conduit	13,849,434	820,062		14,669,496	6,650,245	521,437		7,171,681	7,497,815
47	1845	Underground Conductors and Devices	30,652,553	2,748,362		33,400,915	15,170,250	1,166,771		16,337,020	17,063,895
47	1850	Line Transformers	41,679,303	4,253,666		45,932,969	17,651,137	1,662,022		19,313,159	26,619,810
47	1855	Services	20,538,589	676,804		21,215,393	10,231,637	740,810		10,972,447	10,242,946
47	1860	Meters	9,379,724	315,250		9,694,974	5,698,765	326,966		6,025,730	3,669,244
N/A	1865	Other Installations on Customer's Premises	0			0	0			0	0
N/A	1905	Land	0			0	0			0	0
CEC	1906	Land Rights	0			0	0			0	0
47	1908	Buildings and Fixtures	0			0	0			0	0
13	1910	Leasehold Improvements	0			0	0			0	0
8	1915	Office Furniture and Equipment	812,410	1,710,204		2,522,614	640,410	124,832		765,242	1,757,372
10	1920	Computer Equipment - Hardware	3,035,778	349,544		3,385,322	2,793,106	136,417		2,929,523	455,799
12	1925	Computer Software	4,132,538	647,615		4,780,152	3,288,224	377,676		3,665,900	1,114,252
10	1930	Transportation Equipment	7,210,242	570,468		7,780,710	5,410,947	457,522		5,868,469	1,912,241
8	1935	Stores Equipment	180,403	53,500		233,903	105,001	13,817		118,818	115,085
8	1940	Tools, Shop and Garage Equipment	831,342	162,037		993,379	550,019	61,925		611,945	381,434
8	1945	Measurement and Testing Equipment	685,917	115,278		801,195	584,261	24,064		608,325	192,870
8	1950	Power Operated Equipment	0			0	0			0	0
8	1955	Communication Equipment	446,091			446,091	163,198	39,470		202,668	243,423
8	1960	Miscellaneous Equipment	678,460			678,460	510,911	26,363		537,274	141,186
47	1970	Load Management Controls - Customer Premise	0			0	0			0	0
47	1975	Load Management Controls - Utility Premises	0			0	0			0	0
47	1980	System Supervisory Equipment	2,861,401	1,048,432		3,909,833	2,008,025	137,336		2,145,361	1,764,471
47	1985	Sentinel Lighting Rentals	0			0	0			0	0
47	1990	Other Tangible Property	0			0	0			0	0
47	1995	Contributions and Grants	(25,788,604)	(2,142,609)		(27,931,213)	(5,929,595)	(1,075,560)		(7,005,155)	(20,926,058)
	2005	Property under Capital Lease	0			0	0			0	0
		Total before Work in Process	**222,256,275**	**43,498,688**	**5,428,858**	**260,326,104**	**105,947,980**	**8,410,910**	**1,758,156**	**112,600,734**	**147,725,370**
WIP		Work in Process	14,032,148	2,223,133	13,791,492	2,463,788	0			0	2,463,788
		Total after Work in Process	**236,288,422**	**45,721,820**	**19,220,350**	**262,789,892**	**105,947,980**	**8,410,910**	**1,758,156**	**112,600,734**	**150,189,158**

Less: Fully Allocated Depreciation	
Transportation/Tools	519,447
Stores	13,817
Engineering Hardware	1,404
Engineering Software	126,820
Net Depreciation	7,749,422

2-SEC-8

[Ex. 2, p.13]

Interrogatory:

Table 2-31 shows the Applicant's Capital Expenditure Summary (Appendix 2-AB) and includes historical actuals for the years 2011 to 2014, budget for 2015 and forecast for 2016-2020. Plan amounts for the years 2011 to 2014 are shown as N/A.

a. Please provide the Board Approved capital budget amounts for 2011.

b. Please provide the Applicant's internally budget amounts for the years 2011, 2013 and 2014, and provide copies of the documents that set out the internally budgeted amount.

c. Please provide year to date actuals for 2015 and the forecast to year end.

Response:

a. Please refer to 2-Energy Probe-17.

b. WNH's internally budgeted documents for 2011, 2013 and 2014 are presented below.

Waterloo North Hydro Inc.
2011 Capital Budget Summary

	2011 Budget Gross	2011 Budget Contributed Capital	2011 Budget Net
Land and Land Rights	$ 16,350		$ 16,350
Buildings: New Service Centre	14,027,361		14,027,361
Buildings: Fixtures and Improvements	195,313		195,313
Substation Equipment	89,425		89,425
Transformer Station Equipment	335,261		335,261
Distribution System - Overhead	8,630,267	$ 106,400	8,523,867
Distribution System - Underground	5,105,581	1,847,124	3,258,457
Services	1,798,658	88,750	1,709,908
Meters	1,234,321		1,234,321
Computer Equipment - Hardware	364,544		364,544
Computer Equipment - Software	609,714		609,714
GIS System	151,418		151,418
Transportation Equipment	680,518		680,518
Tools, Shop and Garage Equipment	162,037		162,037
Measurement and Testing Equipment	101,760		101,760
SCADA Equipment	1,009,112		1,009,112
Street Lighting	400,746	400,746	-
TOTAL	**$ 34,912,386**	**$ 2,443,020**	**$ 32,469,366**

Capital Additions			
Total Above	$ 34,912,386	$ 2,443,020	$ 32,469,366
Remove Street Lighting - Pass Through	(400,746)	(400,746)	-
Remove MS Disposal Costs in Building: Fixtures and Improvements	(50,000)		(50,000)
Capital Additions	**$ 34,461,640**	**$ 2,042,274**	**$ 32,419,366**

Waterloo North Hydro Inc.
2013 Capital Budget Summary

	2013 Budget Gross	2013 Budget Contributed Capital	2013 Budget Net
Land and Land Rights	$ 25,000		$ 25,000
Buildings: New Service Centre	-		-
Buildings: Fixtures and Improvements	261,335		261,335
Substation Equipment	302,423		302,423
Transformer Station Equipment	602,686		602,686
Distribution System - Overhead	8,480,040	$ 257,417	8,222,623
Distribution System - Underground	4,260,241	1,137,747	3,122,494
Services	2,626,221	926,173	1,700,048
Meters	792,774		792,774
Office Furniture and Equipment	36,635		36,635
Computer Equipment - Hardware	72,088		72,088
Computer Equipment - Software	1,041,033		1,041,033
GIS System	153,852		153,852
Transportation Equipment	857,879		857,879
Tools, Shop and Garage Equipment	133,500		133,500
Measurement and Testing Equipment	-		-
SCADA Equipment	124,644		124,644
Street Lighting	373,293	373,293	-
TOTAL	**$ 20,143,644**	**$ 2,694,630**	**$ 17,449,014**

Capital Additions			
Total Above	$ 20,143,644	$ 2,694,630	$ 17,449,014
Remove Street Lighting - Pass Through	(373,293)	(373,293)	-
Remove MS Disposal Costs in Building: Fixtures and Improvements	(82,284)		(82,284)
Capital Additions	**$ 19,688,067**	**$ 2,321,337**	**$ 17,366,730**

Waterloo North Hydro Inc.
2014 Capital Budget Summary

	2014 Budget Gross	2014 Budget Contributed Capital	2014 Budget Net
Land and Land Rights	$ 30,130		$ 30,130
Buildings: Fixtures and Improvements	749,470		749,470
Substation Equipment	304,934		304,934
Transformer Station Equipment	612,068		612,068
Distribution System - Overhead	10,176,169	$ 541,534	9,634,635
Distribution System - Underground	4,713,565	1,257,962	3,455,603
Services	2,290,954	890,319	1,400,635
Meters	520,367		520,367
Office Furniture and Equipment	53,500		53,500
Computer Equipment - Hardware	112,800		112,800
Computer Equipment - Software	973,556		973,556
GIS System	71,096		71,096
Transportation Equipment	931,884		931,884
Tools, Shop and Garage Equipment	96,500		96,500
Measurement and Testing Equipment	13,500		13,500
SCADA Equipment	279,574		279,574
Street Lighting	568,353	568,353	-
TOTAL	**$ 22,498,420**	**$ 3,258,168**	**$ 19,240,252**

Capital Additions			
Total Above	$ 22,498,420	$ 3,258,168	$ 19,240,252
Remove Street Lighting - Pass Through	(568,353)	(568,353)	-
Remove MS Disposal Costs in Building: Fixtures and Improvements	(314,927)		(314,927)
Capital Additions	**$ 21,615,140**	**$ 2,689,815**	**$ 18,925,325**

c. Please refer to 2-Energy Probe-14 (a).

2-SEC-17

[Ex.2, Attachment 2-1, p. 68]

Interrogatory:

The evidence states the Applicant undertakes an analysis of bill impacts for all customer classes at the distribution, delivery and total bill impact level as a performance indicator (including the percentage and absolute dollar impact).

a. Does the Applicant set an annual distribution, delivery and total bill impact level target? If not, why not?

b. Please provide a summary of bill impacts (percentage and absolute dollar impact) at the distribution, delivery and total bill impact level for the years 2010 to 2016.

Response:

a. Each year with the annual budgeting process, WNH seeks to balance the need to reinvest in the system and maintain service levels with the impact on distribution rates to its customers. The Board directed staff to manage the total bill rate increase to no more than 2.5% per year.

b. WNH has provided a summary below.

Residential - 800 kWh per month														
Bill Impacts	2010		2011		2012		2013		2014		2015		2016 ***	
	$	%	$	%	$	%	$	%	$	%	$	%	$	%
Distribution	$ (2.57)	-9.69%	$ 4.41	18.39%	$ (2.35)	-8.27%	$ (0.26)	-0.96%	$ 5.09	17.21%	$ 0.36	1.04%	$ 1.78	5.02%
Delivery	$ (1.82)	-5.63%	$ 5.26	17.23%	$ (2.18)	-6.10%	$ (0.17)	-0.48%	$ 5.01	13.24%	$ 0.44	1.03%	$ 1.58	3.61%
Total	$ (1.56)	-1.58%	$ 5.27	4.74%	$ (2.22)	-2.05%	$ (0.17)	-0.15%	$ 5.18	4.41%	$ 0.45	0.37%	$ 1.58	1.22%

GS < 50 kW - 2,000 kWh per month														
Bill Impacts	2010		2011		2012		2013		2014		2015		2016 ***	
	$	%	$	%	$	%	$	%	$	%	$	%	$	%
Distribution	$ (6.32)	-11.80%	$ 6.99	14.80%	$ (4.54)	-8.37%	$ (1.86)	-3.02%	$ 3.44	5.17%	$ 1.01	1.44%	$ 5.50	7.65%
Delivery	$ (4.64)	-6.95%	$ 8.93	14.36%	$ (4.12)	-5.80%	$ (1.65)	-2.06%	$ 3.23	3.79%	$ 1.22	1.38%	$ 5.01	5.53%
Total	$ (3.99)	-1.68%	$ 8.41	3.22%	$ (4.19)	-1.61%	$ (1.68)	-0.60%	$ 3.50	1.23%	$ 1.24	0.43%	$ 5.04	1.58%

GS > 50 kW - 100,000 kWh & 250 kW per month														
Bill Impacts	2010		2011		2012		2013		2014		2015		2016 ***	
	$	%	$	%	$	%	$	%	$	%	$	%	$	%
Distribution	$ (2,896.85)	-31.49%	$ 265.26	31.70%	$ (151.76)	-15.19%	$ (113.73)	-12.19%	$ 259.58	22.41%	$ 141.01	9.94%	$ 597.21	39.22%
Delivery	$ (2,087.37)	-13.46%	$ 288.44	17.66%	$ (70.01)	-3.85%	$ (102.93)	-5.61%	$ 245.68	7.99%	$ 163.18	4.92%	$ 576.99	23.67%
Total	$ (1,752.73)	-1.70%	$ 325.93	2.86%	$ (71.20)	-0.68%	$ (116.31)	-0.89%	$ 289.37	2.01%	$ 184.39	1.25%	$ 649.29	4.33%

Large User - 7,000,000 kWh & 12,300 kW per month														
Bill Impacts	2010 *		2011 **		2012		2013		2014		2015		2016 ***	
	$	%	$	%	$	%	$	%	$	%	$	%	$	%
Distribution	$ (7,275.69)	-35.15%	$ 5,210.48	31.59%	$ (8,181.51)	-28.75%	$ (9,888.74)	-38.35%	$ 21,742.47	54.87%	$ 1,705.74	2.78%	$ 23,274.17	48.35%
Delivery	$ (5,343.19)	-14.87%	$ 8,339.58	21.49%	$ (3,417.72)	-4.46%	$ (9,290.96)	-11.81%	$ 21,335.34	22.91%	$ 2,308.44	2.02%	$ 21,880.72	19.64%
Total	$ (4,474.67)	-1.70%	$ 9,423.72	0.82%	$ (3,475.82)	-0.53%	$ (10,498.78)	-1.32%	$ 24,931.88	2.86%	$ 2,608.54	0.29%	$ 24,491.79	2.22%

Unmetered Scattered Load - 250 kWh per month														
Bill Impacts	2010		2011		2012		2013		2014		2015		2016 ***	
	$	%	$	%	$	%	$	%	$	%	$	%	$	%
Distribution	$ (0.98)	-5.38%	$ 3.42	19.77%	$ (1.05)	-5.06%	$ (16.49)	-56.90%	$ 2.03	10.00%	$ (0.44)	-2.21%	$ (5.75)	-29.99%
Delivery	$ (0.78)	-3.92%	$ 3.66	19.11%	$ (0.84)	-3.68%	$ (16.41)	-45.09%	$ 2.00	8.85%	$ (0.42)	-1.99%	$ (5.79)	-28.13%
Total	$ (0.71)	-1.75%	$ 4.98	11.13%	$ (0.86)	-1.93%	$ (18.54)	-14.32%	$ 2.29	4.31%	$ (0.47)	-1.17%	$ (6.55)	-3.51%

Street Light - 50 kWh & .14 kW per month														
Bill Impacts	2010		2011		2012		2013		2014		2015		2016 ***	
	$	%	$	%	$	%	$	%	$	%	$	%	$	%
Distribution	$ (0.17)	-13.08%	$ 0.28	24.38%	$ (0.11)	-8.11%	$ (0.05)	-3.85%	$ 0.21	14.53%	$ 0.05	3.29%	$ 0.39	23.39%
Delivery	$ (0.13)	-8.28%	$ 0.38	26.17%	$ (0.08)	-4.53%	$ (0.04)	-2.38%	$ 0.20	11.25%	$ 0.06	2.87%	$ 0.38	18.53%
Total	$ (0.12)	-2.06%	$ 0.74	9.25%	$ (0.08)	-1.27%	$ (0.05)	-0.61%	$ 0.23	3.01%	$ 0.07	0.81%	$ 0.43	4.89%

Embedded Distributor - Rate Class Commenced May 1, 2011 - 50 kWh & .14 kW per month														
Bill Impacts	2010		2011		2012		2013		2014		2015		2016 ***	
	$	%	$	%	$	%	$	%	$	%	$	%	$	%
Distribution	n/a	n/a	n/a	n/a	$ (2,385.12)	34.32%	$ (2,736.00)	37.91%	$ 4,496.88	-236.74%	$ 3,475.80	133.82%	$ 9,036.17	903.64%
Delivery	n/a	n/a	n/a	n/a	$ (2,385.12)	34.32%	$ (2,736.00)	37.91%	$ 4,496.88	-236.74%	$ 3,475.80	133.82%	$ 9,036.17	903.64%
Total	n/a	n/a	n/a	n/a	$ (2,425.67)	-1.27%	$ (3,091.68)	-1.22%	$ 5,360.75	2.08%	$ 3,927.65	1.49%	$ 10,134.57	3.18%

** Rate Impact calculated at 5M kW and 2.6M kWh in 2010 Approved Rate Application*
*** Rate Impact calculated at 6.5M kW and12M kWh in 2011 Approved Rate Application*
**** Per IRR 1-Staff-1 Appendix 2-W*

2-SEC-25

[Ex.2, Attachment 2-1, p.110-138]

Interrogatory:

Please complete the attached spreadsheet to provide a summary of the quantities of assets in very poor, poor, fair, good and very good and the proposed replacement rate.

Response:

Asset	Population	# Assets At Or Beyond WNH TUL	# Assets At Or Beyond Kinetrics TUL	Condition					Number of Units Planned for Replacement					
				Very Good	Good	Fair	Poor	Very Poor	2015 Bridge	2016 Test Year	2017 Forecast	2018 Forecast	2019 Forecast	2020 Forecast
Large Power Transformers	8	0	2	4	2	2	0	0	0	0	0	0	0	0
TS Switchgear (note 1)	10	0	0	0	6	0	4	0	2	2	0	0	0	0
TS Main& Tie Breaker (note 2)	15	0	0	0	9	0	6	0	6	9	0	0	0	0
TS Feeder Breaker (note 2)	44	0	0	12	20	8	4	0	4	0	0	0	0	0
TS Feeder Cables	42	0	0	11	19	12	0	0	0	0	0	0	0	0
TS HV Circuit Switches	8	0	0	4	0	4	0	0	1	0	0	2	1	0
TS Protection Systems	4	0	0	2	1	1	0	0	0	0	0	0	0	0
MS/DS Transformer	15	11	9	0	3	5	7	0	0	0	0	1	0	0
Wood Poles	20634	3348	3348	15717	3660	532	706	19	650	650	650	650	650	650
Underground Primary Cable (km)	516	38	27	225	121	133	37	0	3615	1656	3700	3700	3700	3700
WNH Distribution Transformers (Overhead) 3 Phase	492	15	28	237	164	86	5	0	5	5	6	6	6	7
WNH Distribution Transformers (Overhead) 1 Phase	4464	223	515	2031	1250	1084	88	11	234	217	200	183	166	149
WNH Distribution Transformers (Underground) Padmount	3199	20	20	1043	964	1061	115	16	118	120	120	120	120	120
WNH Distribution Transformers (Underground) Submersible	140	17	17	20	4	49	50	17	0	0	0	0	0	0

Notes:
1) Switchgear - life extension refurbishment not replacement
2) Circuit Breakers - life extension refurbishment not replacement

2-SEC- 29

[Ex. 2, Attachment 2-154]

Interrogatory:

Please provide the reactive based capital costs for the years 2010 to 2014 and forecast budget for 2015 to 2020.

Response:

The reactive based capital costs for the years 2010 to 2014 and forecast budget for 2015 to 2020 below.

Reactive Based Capital - Actual Costs 2010 to 2014

2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual
$ 147,333	$ 167,071	$ 158,557	$ 778,487	$ 461,312

Reactive Based Capital - Forecast Costs 2015 to 2020

2015 Forecast	2016 Forecast	2017 Forecast	2018 Forecast	2019 Forecast	2020 Forecast
$ 190,963	$ 228,539	$ 233,110	$ 237,772	$ 242,527	$ 247,378

2-SEC-37

Interrogatory:

Please provide an update on the forecasted in-service date for all 2015 material capital projects.

Response:

Please see Table in 2-Staff-30 (b).

2.0-VECC-10

Reference: E2/pgs.44, 69 / Table 2-38 /

Interrogatory:

a) Please provide a table showing all the LRT investments for each of 2015 through 2016 showing the expected start and completion date for each segment.

b) Please provide the same form of table for all other road relocations for each of 2015 and 2016

c) For each year please show the expected capital contribution for each category (LRT and other Road Relocations)

d) In the DSP (pg.49) WNH makes this statement: "*It is important to note that WNH has been required to produce cost estimates and start engineering with the LRT plans only 10 - 30% complete. This presents the risk of having to perform rework in a climate of uncertainty*." Has WHN considered applying for a deferral account to capture the net costs of the LRT and other road relocations given both the uncertainty and the fact that these investments are beyond the control of Utility management?

Response:

a) The table showing all LRT investments for 2015 and 2016 is as follows:

Project	S	Project Description	Budget		2015 Projected Totals	2016 Projected Totals	Project Start Date	Project Completion Date
		2015 Budget						
06EN08	14	2015 - LRT - Spur - Columbia St.	786,436		$ 1,095,409	$ -	2015	2015
06EN08	28	2014 - LRT - William St.- King St. to Caroline St.	471,290		$ -	$ -	2016	2016
06EN08	13	2015 - LRT - Erb St. FDB- Caroline St.	413,010		$ 75,000	$ -	2015	2015
06EN08	15	2014 - LRT - King St. - Union St to Allen St	336,971		$ 258,712	$ -	2015	2015
06EN08	24	2015 - LRT - 13.8 kV Northfield Dr. - Conestogo Rd.	280,220		$ 1,023,811	$ -	2015	2015
06EN08	21	2015 - LRT - Allen St - King St to Caroline St	261,894		$ 774,844	$ -	2015	2015
06EN08	19	2015 - LRT - 27.6 kV King St.- Northfield Dr.	242,335		$ 305,490	$ -	2015	2015
06EN08	20	2015 - LRT - 13.8 kV King St.- Northfield Dr.	250,193		$ 502,974	$ -	2015	2015
06EN05	3	2015 - LRT - Caroline St, Allen St to Railway	222,188		$ 578,473	$ -	2015	2015
06EN08	13	2014 - LRT - Spur - Erb St.	214,739		$ 300,000	$ -	2015	2015
		Sum of Individual Projects Below Materiality	650,384		$ 1,797,829	$ -	2015	2016
		LRT Subtotal	**$4,129,660**		**$6,712,543**	**$0**		
		Capital Contributions - LRT	2,818,988		$ 4,729,453	$ -		
		Capital Contribution Subtotal	**$3,858,302**		**$4,874,823**	**$0**		
		2016 Budget						
06EN08	24	2016 - LRT - 13.8 kV - Northfield Dr. - Conestogo Rd.	460,277		$ -	$ -	2015	2015
06EN08	16	2016 - LRT - University Ave. Spur- Westmount Rd.	245,643		$ -	$ 470,923	2016	2016
06EN08	27	2016 - LRT - Spur - Kumpf Dr.	222,153		$ -	$ 531,728	2016	2016
06EN08	20	2016 - LRT - 13.8 kV - King St.- Northfield Dr.	221,444		$ -	$ 755,389	2016	2016
06EN08	19	2016 - LRT - 27.6 kV - King St.- Northfield Dr.	221,444		$ -	$ 556,905	2016	2016
06EN08	29	2016 - LRT - Spur - Quiet Pl.	202,079		$ -	$ -	2015	2015
06EN08	21	2016 - LRT - 13.8 kV - King St.- Conestogo Rd.	195,059		$ -	$ -	2015	2015
		Sum of Individual Projects Below Materiality	325,690		$ -	$ -	2015	2015
		LRT Subtotal	**$2,093,789**		**$0**	**$2,314,945**		
		Capital Contributions - LRT	899,385		$ -	$ 1,392,934		
		2016 Unbudgeted Projects						
06EN08	28	2014 - LRT - William St.- King St. to Caroline St.			$ -	$ 941,649	2016	2016
06EN08	13	2015 - LRT - Erb St. FDB- Caroline St.			$ -	$ 252,266	2016	2016
		Sum of uncompleted projects below materiality from 2015			$ -	$ 224,251	2016	2016
		LRT - Northfield Dr - tracks to Weber widening			$ -	$ 1,211,374	2016	2016
					$ -	$ -		
		LRT Subtotal	**$0**		**$0**	**$2,629,539**		
		Capital Contributions - LRT			$ -	$ 2,020,485		
		Project Grand Totals	**2015 Budget**	**2016 Budget**	**2015 Project.**	**2016 Project.**		**Total Project.**
		LRT Subtotal	**$4,129,660**	**$2,093,789**	**$6,712,543**	**$4,944,485**		**$11,657,027**
		LRT Capital Contribution	**$2,818,988**	**$899,385**	**$4,729,453**	**$3,413,420**		**$8,142,873**
		Net Effect on Rates LRT	**$1,310,672**	**$1,194,404**	**$1,983,090**	**$1,531,065**		**$3,514,155**

b) The table for All Other Road Relocations is as follows:

Project	S	Project Description	Budget	2015 Projected Totals	2016 Projected Totals	Project Start Date	Project Completion Date
		2015 Budget					
06EN08	25	Caroline St - Allen St to John St.	**345,027**	$ -	$ -	2017	2017
06EN05	9	Weber St., Forwell Creek to Blythwood Rd - Road Widening	**488,324**	$ -	$ -	2017	2017
06EN05	19	Shantz Station Rd., Kossuth to Menno	**422,354**	$ -	$ -	2017	2017
06EN05	30	Columbia St - Erbsville to F-H Rd.	**348,560**	$ 348,560	$ -	2015	2015
06EN05	18	Sawmill Rd., Northfield Dr to Golf Course Rd., Conestogo	**342,562**	$ 342,562	$ -	2015	2015
06EN05	60	Erb St. Honi ROW to Wilmot Ln - Road Widening	**337,986**	$ -	$ -	2016	2016
06EN05	40	Woolwich St S, Woolwich St N to Dolman Breslau	**222,315**	$ -	$ -	2017	2017
06EN05	15	King St., Printery Rd to Princess St., St Jacobs	**209,785**	$ 209,785	$ -	2015	2015
		Sum of Individual Projects Below Materiality	**196,254**	$ -	$ -	2016	2016
		Other Road Relocations Subtotal	**$2,913,167**	**$900,907**	**$0**		
		Capital Contributions - Other Road Relocations Subtotal	**1,039,314**	$ 238,355	$ -		
		2016 Budget					
06EN08	22	2016 - Erb St. - HONI to Costco	**286,095**	$ -	$ 286,095	2016	2016
06EN05	1	Bridgeport Rd/Caroline St, King St to Erb St	**237,956**	$ -	$ 237,956	2016	2016
06EN05	25	Hutchinson Rd - Through Crosshill	**179,643**	$ -	$ 179,643	2016	2016
		Sum of Individual Projects Below Materiality	**205,343**	$ -	$ 205,343	2016	2016
		Other Road Relocations Subtotal	**$909,037**	**$0**	**$909,037**		
		Capital Contributions - Other Road Relocations Subtotal	**181,285**	$ -	$ 181,285		
		2016 Unbudgeted Projects					
		Carry Over Projects	**-**	$ -	$ -		
		Sum of uncompleted projects below materiality from 2015		$ -	$ 135,861	2016	2016
		Erb St. HONI ROW to Wilmot Ln - Road Widening		$ -	$ 1,562,216	2016	2016
				$ -	$ -		
		Other Road Relocations Subtotal		**$0**	**$1,698,077**		
		Capital Contributions - Other Road Relocations Subtotal		$ -	$ 1,568,537		
		Project Grand Totals	**2015**	**2015**	**2016**		**Total**
		Other Road Relocations Subtotal	**$2,913,167**	**$900,907**	**$2,607,114**		**$3,508,021**
		Other Capital Contribution	**$1,039,314**	**$238,355**	**$1,749,822**		**$1,988,177**
		Net Effect on Rates - Others	**$1,873,853**	**$662,552**	**$857,293**		**$1,519,845**

c) Please see table in response for parts (a) and (b) above.

d) WNH had not considered applying for a deferral account at the time the Application was filed.

2.0-VECC-11

Reference: E2/pg.59/Table 2-31

Interrogatory:

a) For each investment category shown in table 2-31 please show the capital contributions for each of the years 2011 through 2016.

Response:

The investment category breakdown for Capital Contributions is as follows:

Category	2011	2012	2013	2014	2015	2016
SA	(1,348,058)	(2,592,976)	(1,555,864)	(1,338,367)	(6,288,938)	(6,372,309)
SR	(136,052)	(288,043)	(116,841)	(250,329)		
SS						
GP		(4,982)		(4,548)		
Total	**(1,484,110)**	**(2,886,001)**	**(1,672,705)**	**(1,593,244)**	**(6,288,938)**	**(6,372,309)**

EXHIBIT 3 – OPERATING REVENUE

3-Staff-99

Reference: Exhibit 3, Section 2.6.1, Load and Revenue Forecast

Interrogatory:

The application states that "*to determine the total weather normalized energy billed forecast, the total system weather normalized purchases forecast is adjusted by a historical loss factor*" and shows the result as 1,513.1/1.365 = 1,459.9. In fact 1,513.1/1,459.9 = 1.03644. Nevertheless, why has WNH used a historical loss factor to adjust the forecasted total purchases and not the proposed loss factor of 3.62%?

Response:

WNH has adjusted its Load Forecast, by the Proposed Loss Factor of 3.62. The revised Load Forecast is titled 'Waterloo_1-Staff-1-2016 Load Forecast Model_20150807'.

3-Staff-105

Reference: Exhibit 3, Section 2.6.2, Accuracy of Load Forecast and Variance Analysis

Interrogatory:

Please update Tables 3-33 and 3-34 to reflect most available 2015 actuals.

Response:

WNH has provided an updated Table 3-33 reflecting June 2015 actuals.

Distribution Revenues	2014 Actual	2015 Bridge	2014 Actual vs 2015 Bridge	YTD 2015 (June/15)
Residential	17,916,114	17,803,347	(112,768)	8,991,322
GS < 50 kW	5,282,838	5,239,877	(42,961)	2,667,478
GS > 50 kW	9,050,940	8,739,422	(311,518)	4,312,569
Large User	629,742	647,311	17,570	310,643
Unmetered Scattered Load	156,056	163,554	7,497	76,183
Street Lighting	242,278	239,631	(2,647)	118,940
Embedded Distributor	892	898	5	481
Total	**33,278,860**	**32,834,039**	**(444,822)**	**16,477,616**

WNH has provided an updated Table 3-34 reflecting June 2015 actuals.

Billing Determinants	Customer/Connections					kWh			kW			Volumetric Difference
	2014 Actual Avg	2015 Bridge Avg	Difference	June 30, 2015 Avg	June 30, 2015 Month End	2014 Actual	2015 Bridge	2015 Actual to June 30	2014 Actual	2015 Bridge	2015 Actual to June 30	
Residential	48,191	48,705	515	48,364	48,538	410,104,642	404,568,390	207,069,049				(5,536,252)
GS < 50 kW	5,547	5,596	49	5,569	5,591	197,096,102	194,995,025	102,215,689				(2,101,076)
GS > 50 kW	683	694	11	684	684				1,726,654	1,749,824	850,459	23,170
Large User	1	1	-	1	1				166,649	170,073	81,717	3,424
Unmetered Scattered Load	519	541	22	526	533	2,544,974	2,829,382	1,310,785				284,408
Street Lighting	13,853	13,808	(45)	13,846	13,840				21,568	21,240	10,583	(329)
Embedded Distributor	1	1	-	1	1				72,407	71,803	38,725	(604)
Direct Market Participant	2	2	-	2	2				12,738	12,785	5,843	47
Total	**68,796**	**69,348**	**552**	**68,993**	**69,190**	**609,745,718**	**602,392,797**	**310,595,523**	**2,000,016**	**2,025,724**	**987,327**	

3-Staff-107

Reference: Exhibit 3, Section 2.6.1, Load and Revenue Forecast, Tables 3-2, 3-6and 3-20.

Reference: Kitchener-Waterloo-Cambridge-Guelph Integrated Regional Resource Plan (KWCG IRRP), April 28, 2015

Interrogatory:

The following table has been produced using data from the referenced tables. The losses shown are as a percentage of purchases and the 2015 and 2016 have been updated for the CDM adjustment as per the sales.

Year	Purchases GWh	Growth	Sales GWh	Growth	Sales MW	Growth	Losses
2003	1,270		1,217		1718		4.2%
2004	1,294	1.9%	1,250	2.7%	1735	1.0%	3.4%
2005	1,359	5.0%	1,305	4.4%	1770	2.0%	4.0%
2006	1,373	1.0%	1,326	1.6%	1793	1.3%	3.4%
2007	1,424	3.7%	1,368	3.1%	1820	1.5%	3.9%
2008	1,422	-0.1%	1,371	0.2%	1834	0.8%	3.6%
2009	1,412	-0.7%	1,360	-0.7%	1848	0.8%	3.6%
2010	1,479	4.8%	1,426	4.8%	1940	5.0%	3.6%
2011	1,489	0.7%	1,437	0.8%	1998	3.0%	3.5%
2012	1,496	0.5%	1,449	0.8%	2066	3.4%	3.1%
2013	1,493	-0.2%	1,448	-0.1%	2042	-1.2%	3.0%
2014	1,491	-0.1%	1,447	-0.1%	2000	-2.1%	2.9%
2015	1,506	1.1%	1,453	0.4%	2026	1.3%	3.5%
2016	1,499	-0.5%	1,446	-0.5%	2026	0.0%	3.6%

(a) Please confirm that these numbers are accurate.

(b) Please explain why losses as a percentage of purchases are increasing in 2015 and 2016 when WNH's distribution loss factor is decreasing.

(c) Page 20 of the recently issued KWCG IRRP states that the Gross Demand (MW) for Waterloo North Hydro's service area is forecast to grow at annual rates of 3.2%. Please reconcile this with the 0% growth in MW sales in WNH's load forecast.

(d) Please file a copy of the completed KWCG-IRRP, issued April 28, 2015.

Response:

(a) WNH does not confirm that these numbers are accurate. The Sales MW for 2006 should read 1,791; 2008 should read 1,833 and 2009 should read 1,849.

The Purchases Growth % for 2008 should read -0.2%; 2012 should read 0.4%; 2014 should read 0.2% and 2015 should read 1.0%.

The kW Growth % for 2004 should read 0.9%; 2006 should read 1.2%; 2007 should read 1.6%; 2008 should read 0.7% and 2014 should read 2.0%.

(b) WNH is adjusting the Loss Factor in the Load Forecast, please see 3-Staff-99 above, thus, this issue will be resolved.

(c) The MW sales in WNH's Load Forecast represents the MW annual billing determinants for those rate classes that charge distribution volumetric charge on a kW basis which is not comparable with the system gross demand discussed in the KWCG IRRP.

(d) The completed report is attached to this Interrogatory Response; the document is titled 'Waterloo_3-Staff-107 2015-KWCG-IRRP-Report_20150807'.

3-Staff-111

Reference: Exhibit 3, Table 3-37, Other Revenue with Variances

Reference: Exhibit 3, Table 3-2, Summary of Load and Customer/Connection Forecast

Interrogatory:

2011 Board Approved Other Revenue on this table is $1,164,444 and 2016 proposed Other Revenue is $1,181,606, only a 1.5% increase over 5 years. Given that customer numbers have increased over the same period by 5.4%, please explain why Other Revenue has not followed suit.

Response:

In the accounts that are impacted by customer growth, such as SSS Administration Charge Revenue and Late Payment Charges, the increase is larger than the customer growth percentage.

The areas where there were significant decreases were in Revenues and Expenses for Non-Utility Operations and Interest and Dividend Income. External metering services included in 4375 have decreased by approximately $60,000 since 2011 which is not related to customer growth. Additionally, there were large deferral and variance account balances that collected carrying charges in 2011 that have since expired. This amount is anticipated to be insignificant in 2016.

Please note that WNH has adjusted USoA 4310, please refer to 9-Staff-149 for details.

USoA	Other Revenue	2011 Board Approved	2016 Test Year	Difference	Difference %
4086	SSS Administration Charge Revenue	135,000	156,000	21,000	15.6%
4082	Retail Services Revenue	26,000	29,000	3,000	11.5%
4210	Rent from Electric Property	243,819	256,383	12,564	5.2%
4220	Other Electric Revenues	9,000	4,300	(4,700)	-52.2%
4225	Late Payment Charges	180,000	242,900	62,900	34.9%
4235	Miscellaneous Service Revenues	245,845	315,500	69,655	28.3%
4305	Regulatory Debits	-	-	-	0.0%
4310	Regulatory Credits	-	9,766	9,766	100.0%
4355	Gain on Disposition of Utility and Other Property	22,000	-	(22,000)	-100.0%
4360	Loss on Disposition of Utility and Other Property	-	(10,987)	(10,987)	-100.0%
4375	Revenues for Non-Utility Operations	2,012,888	1,349,892	(662,996)	-32.9%
4380	Expenses for Non-Utility Operations	(1,884,598)	(1,301,158)	583,440	-31.0%
4390	Miscellaneous Non-Operating Income	85,720	125,000	39,280	45.8%
4405	Interest and Dividend Income	88,770	7,000	(81,770)	-92.1%
Other Revenue		**1,164,444**	**1,183,596**	**19,152**	**1.6%**

3-Energy Probe-19

Reference: Exhibit 3, page 14

Interrogatory:

Please explain why WNP has used a loss factor based on the average of 2003 to 2014 rather than based on the same period over which the regression equation was estimated.

Response:

Please refer to 3-Staff-99.

3-Energy Probe-21

Reference: Exhibit 3, Table 3-7

Interrogatory:

Please provide the number of customers/connections for each rate class shown in Table 3-7 based on the latest month for which information is available. Please also provide the number of customers in each of those classes for the same month in 2014, along with the change in the number of customers/connections.

Response:

The number of customers / connections for each rate class for June 2015 and June 2014 and the change year over year is presented below. Please note that these are month end numbers.

Rate Class	# Customers / Connections		
	June 2015	June 2014	Change
Residential	48,538	48,014	524
GS < 50 kW	5,591	5,547	44
GS > 50 kW	686	669	17
Large Use	1	1	-
Unmetered Scattered Load	533	518	15
Street Lighting	13,840	13,953	(113)
Embedded Distributor	1	1	-
Total	**69,190**	**68,703**	**487**

3-Energy Probe-26

Reference: Exhibit 3, Table 3-37

Interrogatory:

a) Please provide a version of Table 3-37 that excludes interest on deferral and variance accounts and all CDM related revenues, costs and incentives. Please also exclude the profits and losses from financial instrument hedges and the impact related to account 1576.

b) Based on the response to part (a), please provide the most recent year-to-date actual figures for 2015 in the same level of detail as in Table 3-37. Please also provide the figures for the corresponding period in 2014.

c) Please explain how WNH has forecast the amount for 2016 in account 4360.

d) Please explain why there is no amount forecast for 2016 in account 4355.

e) Please explain the drop in 2015 and 2016 in account 4405.

Response:

a) The version requested of Table 3-37 is presented below

USoA	Other Revenue	2011 Actual	2012 Actual	2012 Actual vs. 2011 Actual	2013 Actual	2013 Actual vs. 2012 Actual	2014 Actual	2014 Actual vs. 2013 Actual	2015 Bridge Year	2015 Bridge Year vs. 2014 Actual	2016 Test Year	2016 Test Year vs. 2015 Bridge Year
4086	SSS Administration Charge Revenue	138,917	148,562	9,645	151,303	2,741	154,071	2,768	155,658	1,587	156,000	342
4082	Retail Services Revenue	25,192	23,514	(1,678)	37,451	13,937	34,644	(2,807)	29,000	(5,644)	29,000	-
4210	Rent from Electric Property	251,349	253,499	2,150	251,214	(2,285)	254,994	3,780	251,083	(3,911)	256,383	5,300
4220	Other Electric Revenues	2,877	3,116	239	3,350	234	1,574	(1,776)	4,100	2,526	4,300	200
4225	Late Payment Charges	167,150	209,156	42,006	216,221	7,065	233,180	16,959	238,000	4,820	242,900	4,900
4235	Miscellaneous Service Revenues	439,354	281,155	(158,199)	291,961	10,806	304,027	12,066	305,900	1,873	315,500	9,600
4305	Regulatory Debits	-	-	-	-	-	-	-	-	-	-	-
4310	Regulatory Credits	-	-	-	-	-	-	-	-	-	9,766	9,766
4355	Gain on Disposition of Utility and Other Property	68,727	48,658	(20,069)	481,230	432,572	175	(481,055)	-	(175)	-	-
4360	Loss on Disposition of Utility and Other Property	(40)	(17,218)	(17,178)	(61,105)	(43,887)	-	61,105	(24,201)	(24,201)	(10,987)	13,214
4375	Revenues for Non-Utility Operations	837,014	1,341,985	504,971	804,368	(537,617)	763,087	(41,281)	1,114,417	351,330	1,349,892	235,475
4380	Expenses for Non-Utility Operations	(802,614)	(1,155,865)	(353,251)	(714,193)	441,672	(703,741)	10,452	(1,069,506)	(365,765)	(1,301,158)	(231,652)
4390	Miscellaneous Non-Operating Income	137,599	118,298	(19,301)	140,971	22,673	158,307	17,336	120,000	(38,307)	125,000	5,000
4405	Interest and Dividend Income	10,674	8,167	(2,507)	13,938	5,771	15,946	2,008	7,100	(8,846)	7,000	(100)
Other Revenue		**1,276,199**	**1,263,027**	**(13,172)**	**1,616,709**	**353,682**	**1,216,262**	**(400,445)**	**1,131,550**	**(84,713)**	**1,183,596**	**52,045**

Please note that WNH has adjusted USoA 4310 to reflect the change as a result of 9-Staff-149.

b) The June 30, 2015 actual figures and the corresponding June 30, 2014 figures are presented below.

USoA	Other Revenue	2014 Actual	2014 to June 30/14	% of 2014 Total	2015 Bridge Year	2015 Bridge YTD June 30/15	% of 2015 Budget YTD
4086	SSS Administration Charge Revenue	154,071	75,671	49%	155,658	77,171	50%
4082	Retail Services Revenue	34,644	18,374	53%	29,000	16,384	56%
4210	Rent from Electric Property	254,994	125,964	49%	251,083	127,128	51%
4220	Other Electric Revenues	1,574	516	33%	4,100	602	15%
4225	Late Payment Charges	233,180	112,143	48%	238,000	120,195	51%
4235	Miscellaneous Service Revenues	304,027	127,892	42%	305,900	121,461	40%
4355	Gain on Disposition of Utility and Other Property	175	-	0%	-	-	0%
4360	Loss on Disposition of Utility and Other Property	-	-	0%	(24,201)	-	0%
4375	Revenues for Non-Utility Operations	763,087	423,591	56%	1,114,417	381,619	34%
4380	Expenses for Non-Utility Operations	(703,741)	(397,915)	57%	(1,069,506)	(348,123)	33%
4390	Miscellaneous Non-Operating Income	158,307	52,738	33%	120,000	52,521	44%
4405	Interest and Dividend Income	15,946	4,529	28%	7,100	2,926	41%
Other Revenue		**1,216,262**	**543,503**	**45%**	**1,131,550**	**551,884**	**49%**

c) WNH has forecast the amount for 2016 in account 4360 as follows:

Disposal Year	Tag #	Asset ID	Cost	LTD Depreciation	2015 Depreciation	NBV	Proceeds	Loss
2016	R65	530	227,509	(227,509)		-		
	Improvements	1888	13,534	(9,909)	(725)	2,900		
		1976	6,728	(4,205)	(420)	2,103		
		2428	9,404	(2,672)	(748)	5,984		
						10,987	-	**10,987**
	R150	544	32,655.96	(32,655.96)	-	-		
		595	6,732.62	(6,732.62)	-	-		
						$ -	$ -	**-**
	O153	545	25,936.20	(25,936.20)	-	-		
	Improvements	567	87.32	(87.32)	-	-		
		596	2,665.11	(2,665.11)		-		
						$ -	$ -	**-**
Totals			**$ 325,253**	**$ (312,372)**	**$ (1,893)**	**$ 10,987**		**$ 10,987**

d) WNH does not anticipate any gain on sale in account 4335 in 2016, the disposals provided in part (c) above are the forecasted disposals in 2016 with no gain resulting. The gain on sale in account 4335 in 2015 was $175.

e) USoA 4405 includes interest revenue and expenses for carrying charges on rate riders. Several rate riders expired as of April 30, 2014 and therefore there was a significant drop in interest income forecast for 2015. WNH has additional rate riders expiring April 30, 2015 which will continue this trend. WNH has also forecast fewer funds to invest in 2015 and 2016.

3.0–VECC-20

Reference: E3, pg. 11-14

Interrogatory:

a) Please clarify whether the Number of Peak Hours was used as an independent variable in the equation. Lines 4-10 suggest it was not. However, lines 22-23 suggest it was.

b) Please revised the equation set out on page 11, lines 4-10 and/or Table 3-5 accordingly.

c) Please confirm that the values in Table 3-6 are prior to any manual adjustment for CDM.

d) Please clarify Waterloo North's definition of HDD and CDD (i.e. what baseline value for degrees Celsius was used for each)?

e) With respect to page 14, over what historical period was the 1.365 loss factor determined?

Response:

a) Please refer to 3-Staff-104.

b) Please refer to 3-Staff-104.

c) WNH confirms that the values for 2015 and 2016 are prior to any manual adjustment for CDM.

d) Please refer to 3-Staff-97.

e) Please refer to 3-Staff-99.

3.0–VECC-21

Reference: E3, pg. 14-16

Interrogatory:

a) The Application (page 15, lines 10-11) states that Waterloo North "reviewed future development and proposed connections". Please indicate what information Waterloo North reviewed and its sources.

b) Please provide any recent projections of future growth prepared by the local or regional governments.

c) Given the increased emphasis that the Board plans to place on customer counts in setting future rates (see second reference above), has Waterloo North investigated any alternative approaches to forecasting customer count, particularly for the Residential class? If yes, what approaches have been considered?

d) Please reconcile the statement on page 16 that the GS>50 class grew by 24 customers in 2014 with the increase of 13 customers shown in Table 3-7.

e) Please reconcile the discussion on page 16 (lines 13-18) which suggests the number of streetlight connections declined by 109 in 2014 (i.e., 24-133) with the increase of 8 connections shown in Table 3-7.

f) Please reconcile the discussion on page 16 (lines 13-18) which indicates that there were 133 new metered GS<50 connections in 2014 due to certain streetlight connections being metered with the GS<50 customer count increase of 44 shown in Table 3-7.

Response:

a) WNH's projections for customer growth are based on a review of activities related to the development community, municipal planning departments and economic forecasts.

b) WNH has provided seven reports attached to this interrogatory response. All files commence with the title Attachment 3.0-VECC-21.

c) WNH has not investigated any alternative approaches to forecasting customer count, particularly for the Residential class.

d) Please refer to 3-Energy Probe-20 (a).

e) Please refer to 3-Energy Probe-20 (d).

f) Please refer to 3-Energy Probe-20 (f).

3.0–VECC-24

Reference: E3, pg. 22-23
Chapter 2 Appendices, Appendix 2-I

Interrogatory:

a) Please confirm that Table 3-18 sets out the 2015 and 2016 CDM adjustments by customer class for purposes of the load forecast and not for purposes of calculating LRAMVA amounts as suggested by the table's title.

b) Please confirm that the 2016 savings for LRAMVA purposes should be the sum of the annualized savings for 2015 and 2016 – 14,950,000 kWh – per Table 3-16. If not confirmed please provide what Waterloo North considers to be the appropriate value and explain why.

c) Please provide a breakdown by customer class of Waterloo North's expected 2016 savings for LRAMVA purposes.

Response:

a) WNH confirms that Table 3-18 sets out the 2015 and 2016 CDM Adjustments by customer class for the purpose of the load forecast.

b) WNH confirms the 2016 savings for LRAMVA purposes should be the sum of the full year annualized savings for 2015 and 2016 – 14,950,000 kWh.

c) Please note that the breakdown below reflects the adjustment between the GS > 50 kW and Large Use rate classes in 4-Staff-131.

Details	Total 2016 CDM Adjustment	Residential	GS < 50 kW	GS < 50 kW	Large Use
kWh	14,050,000				
% Split		18.4%	27.2%	38.1%	16.3%
kWh in LRAMVA		**2,581,024**	**3,819,199**	5,357,355	2,292,422
kW / kWh Ratio in Load Forecast				0.2459%	0.1826%
kW in LRAMVA				**13,173.74**	**4,185.82**

3.0–VECC-25

Reference: E3, pg. 39

Interrogatory:

a) Please provide the year to date Other Revenue for 2015 (broken down per Table 3-37) and indicate what months are included.

b) Please explain why the difference between Revenues for Non-Utility Operations (#4375) and the Expenses for Non-Utility Operations (#4380) has varied so significantly from year to year on an historical basis.

Response:

a) Please refer to 3-Energy Probe-26 (b).

b) Revenues for Non-Utility Operations (#4375) and the Expenses for Non-Utility Operations (#4380) have varied so significantly from year to year on an historical basis due to variations in Street Light Construction Revenue and Expenses and OPA/CDM Revenue and Expenses.

EXHIBIT 4 – OPERATING EXPENSES

4-Staff-112

Reference: Exhibit 4, Section 2.7.1, Overview, Table 4-2, Overall Cost Trends

Interrogatory:

In the referenced table, which explains the change in OM&A from 2011 Board approved to 2016, there is an adjustment of ($1.6M) entitled 'Remove 2016 Salary Costs in Overhead Change as included in Change Operating Portion of Salary/Wages'. Please explain in more detail what this adjustment represents.

Response:

In Table 4-2 WNH has reflected the increase in the operating portion of salary costs and benefits between 2011 Board Approved and 2016. This increase includes salaries already included in the 2016 Overhead Capitalization Change Impact to OM&A, Previously Capitalized figure. The salary portion included in the Overhead Capitalization Change has been removed, in order that these costs are not reflected twice in the Cost Driver analysis.

4-Staff-116

Reference: Exhibit 4, Section 2.7.1, Overview, page 11, Post-Retirement Benefits

Interrogatory:

WNH has recovered OPEBs in rates previously.

(a) Please indicate if OPEBs were recovered on a cash or accrual accounting basis for each year since WNH started to recover OPEBs.

(b) Please complete the table below to show how much more than the actual cash benefit payments, if any, have been recovered from ratepayers from the year WNH started recovering amounts for OPEBs.

(c) Please describe what WNH has done with the recoveries in excess of cash benefit payments.

OPEBs	First year of recovery to 2011	2012	2013	2014	2015	2016	Total
Amounts included in rates							
OM&A							
Capital							
Sub-total							
Paid benefit amounts							
Net excess amount included in rates greater than amounts actually paid							

Response:

(a) WNH does not have information to confirm the basis of rates for OPEBs before 2006, since rates were set on a formula basis and not attributed to specific expenses. WNH confirms that the basis of recovery from the 2006 application forward was on the accrual basis.

(b) WNH has completed the table provided in 4-Staff-116 below.

OPEBs	2006-2010	2011	2012	2013	2014	2015 Budget	2016 Budget	Total
Amounts included in rates								
OM&A	558,756	236,430	236,430	236,430	236,430	236,430	391,999	2,132,905
Capital	372,504	133,570	133,570	133,570	133,570	133,570	-	1,040,354
Sub-total	**931,260**	**370,000**	**370,000**	**370,000**	**370,000**	**370,000**	**391,999**	**3,173,259**
Paid benefit amounts	**732,329**	**204,822**	**212,428**	**203,422**	**195,499**	**211,640**	**215,973**	**1,976,113**
Net excess amount included in rates greater than amounts actually paid	**198,931**	**165,178**	**157,572**	**166,578**	**174,501**	**158,360**	**176,026**	**1,197,146**

WNH notes that it does not fully recover the additions to capital each year in rates. Annually WNH receives the rate of return on capital as well as depreciation, based on values set in the previous Cost of Service Filing. WNH has, thus, included an additional table that WNH feels is more representative of the amounts that WNH would receive in rates annually.

OPEBs	2006-2010	2011	2012	2013	2014	2015 Budget	2016 Budget	Total
Amounts included in rates								
OM&A	558,756	236,430	236,430	236,430	236,430	236,430	391,999	2,132,905
Capital:								
Rate of Return on Capital 2011		4,575	4,624	4,646	4,711	4,773		23,329
Rate of Return on Capital 2011-2015							34,606	34,606
Rate of Return on Capital 2006-2010		22,455	22,697	22,806	23,125	23,426	17,161	131,670
Depreciation on Capital		2,671	2,700	2,713	2,751	2,787	5,343	18,966
Depreciation on Capital 2006-2010		14,900	15,061	6,726	6,820	6,908	6,908	57,323
Capital Sub-total	-	44,601	45,083	36,891	37,408	37,894	64,018	265,894
OM&A & Capital in Rates	**558,756**	**281,031**	**281,513**	**273,321**	**273,838**	**274,324**	**456,017**	**2,398,799**
Annual Premiums Paid	**732,329**	**204,822**	**212,428**	**203,422**	**195,499**	**211,640**	**215,973**	**1,976,113**
Net excess amount included in rates greater than amounts actually paid	**(173,573)**	**76,209**	**69,085**	**69,899**	**78,339**	**62,684**	**240,044**	**422,686**

Assumptions							
# Years Depreciation	**25**	**25**	**25**	**25**	**25**	**25**	**45**
Applied GDP-IPI - X - Stretch Factor %	**n/a**	**COS**	**1.08%**	**0.48%**	**1.40%**	**1.30%**	**COS**
Capital Assumptions:							
2006 Rates set on 2004 Costs, WNH did not receive return on 2006 Capital until 2011							
1/2 Year Rule Applied Where Applicable							
Rebasing does not occur annually, thus, amounts in rates are those set in the COS 2011 and 2016 Test Years							
Rate of Return on Capital at COS Years is applied on the NBV at the Rebasing Date							
2011 - 2015 Applied WNH Applicable Annual GDP-IPI-X-Stretch Factor %							
OM&A Assumptions:							
2006 Rates set on 2004 Costs, thus, included 2004 amount, this amount stayed in rates until 2011							
2011 COS based on the 2011 Test Year Forecasted Amounts							
2011 - 2015 Applied WNH Applicable Annual GDP-IPI-X-Stretch Factor %							
2016 COS based on the 2016 Test Year Forecasted Amounts							

(c) WNH has included variances in the liability account. WNH is responsible to fund the future payments represented by the liability. This is a legitimate cost of doing business which should, in turn, be included within the calculation of just and reasonable distribution rates.

4-Staff-119

Reference: Exhibit 4, Section 2.7.2, Summary and Cost Driver Tables, Table 4-8, FTE Comparison

Interrogatory:

The referenced table shows a forecasted number of FTEs for 2015 as 133.11, an increase of 1.99 FTEs from 2014 actual. Please provide an update on actual FTEs to date in 2015.

Response:

At June 30, 2015 WNH has 132.88 FTEs.

4-Staff-122

Reference: Exhibit 4, Tables 4-19 to 4-23, Year over Year variances FTEs

Reference: Exhibit 4, Table 4-17, Summary of Turnover in Employees

Interrogatory:

From the above-referenced tables, the net change in FTEs can be determined as shown below. Table 4-17 provides the number of retirements, both actual and forecasted, until 2020. On the table below, for each year please show the number of actual/forecasted newly hired apprentices plus other changes in FTEs to reconcile back to the net change in FTEs. Please also provide the forecasted change in overall headcount over the next four years (i.e. the green shaded areas).

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Retirements	**-5**	**-3**	**-6**	**-4**	**-11**	**-5**	**-9**	**-4**	**-10**	**-6**
Apprentices										
Contract/Coop/ Student		**4.1**	**-0.3**	**-0.2**	**-2.9**	**-2**				
Other										
Net Change		**4.3**	**4.6**	**-1.4**	**2**	**-1**				

Response:

In 2015, the 11 eligible retirees will be replaced by 1 apprentice and 10 FTEs. The overall result is a net change of 2 FTEs.

For the period 2017-2020, WNH anticipates replacing their retirees. Net changes in FTEs may take place to accommodate unanticipated initiatives or strategic changes.

							Not Forecasted			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Retirements	(5.0)	(3.0)	(6.0)	(4.0)	(11.0)	(5.0)	(9.0)	(4.0)	(10.0)	(6.0)
Apprentices		0.51	3.32	(2.80)	1.00	(0.67)	-	-	-	-
Contract/Co-op/Students		4.1	(0.3)	(0.2)	(2.9)	(2.0)	-	-	-	-
Other - Replacements for retirees		2.4	6.0	4.0	10.0	5.0	9	4	10	6
Other		-	1.6	1.6	4.9	1.7	-	-	-	-
Net Changes		4.0	4.6	(1.4)	2.0	(1.0)	0	0	0	0

4-Staff-126

Reference: Exhibit 4, Section 2.7.3.4, One-Time Costs, Table 4-37, Regulatory Costs Appendix 2-M

Interrogatory:

In the above referenced table, WNH is proposing to recover the one-time costs related to the 2016 cost of service application preparation in the amount of $425,000 over a 5-year period, which means over the test year and the subsequent IRM term (i.e. 2016 to 2020). The proposed annual one-time cost to be recovered is $85,000.

(a) Why is WNH estimating that its current proceeding will cost more than two and one half times that of the approved cost of its previous cost of service application?

(b) Upon what assumptions has WNH made this projection?

Response:

(a) There are numerous incremental requirements that did not exist in the last Cost of Service Application that are included in this budget, including but not limited to: enhanced and incremental customer engagement obligations, formalized distribution system planning requirements, and outcome oriented RRFE performance metrics. Each of these incremental requirements necessitated additional upfront costs, result in incremental discovery questions, and raise new issues that would not have been raised in the last Cost of Service Application.

In addition, WNH estimated the current proceeding costs based upon WNH having to participate in an Oral Hearing. The 2011 COS proceeding had a Settlement reached and no Oral Hearing was required. WNH notes that in its 2011 COS actual costs were $153,557; $160,000 had been forecast.

WNH notes that in its response to 4.0-VECC-36 (b) it has proposed an increase of $50,000 total, thus, $10,000 in the Test Year, for additional Board DSP Consultant Costs.

(b) WNH provided for an Oral Hearing as in the recent past a number of distributors have been unable to completely settle and have required an Oral Hearing.

4-Staff-131

Reference: Exhibit 4, Table 4-58, Summary of Requested LRAM Amounts

Reference: Exhibit 3, Table 3-19, Alignment of Non-Normal to Weather Normalized Forecast

Interrogatory:

Table 4-58 shows that there is no lost revenue, and hence no CDM savings for the Large User class in 2011 to 2013.

(a) Please explain why there are no CDM savings associated with the Large User class?

(b) Has the one Large User chosen to not participate in any CDM programs?

(c) Table 3-19 indicates no adjustment to the load forecast for the Large User in 2015 and 2016 related to CDM, which implies that WNH does not expect this customer to participate in any future CDM initiatives. Is there a reason for this?

Response:

(a) WNH has revised the LRAMVA amounts and its Load Forecast to reflect Large User Savings in 2012 and 2013, which were previously recorded in the GS> 50 kW rate class. WNH has updated Tables 4-58, 4-59 and 4-60 from Exhibit 4 of its Application and has presented them below. The EDDVAR Model and the Load Forecast Model, Tab 'Rate Class Energy Model', rows 85 and 86 have also had this change reflected. The EDDVAR Model and Load Forecast are filed with WNH's IR Responses. . The revised Load Forecast is titled 'Waterloo_2016 Load Forecast_Model_Revised_20150807'. The Revised EDDVAR Model is titled 'Waterloo_1-Staff-1-2016 COS_2015_EDDVAR_Continuity_Schedule_CoS_20150807'.

Revised Table 4-58 – Summary of Requested LRAM Amounts

Rate Class	Lost Revenue				CDM $ in 2011 COS	Net LRAMVA	Interest	Total LRAMVA Claim
	2011	2012	2013	Total				
Residential	22,288	41,097	58,499	121,884	120,652	1,232	50	1,282
General Service Less Than 50 kW	22,651	39,916	72,164	134,731	41,139	93,591	3,791	97,383
General Service 50 to 4,999 kW	53,034	121,362	143,354	317,749	79,932	237,818	9,634	247,452
Large User	-	14,852	16,023	30,875	7,553	23,322	945	24,266
Total LRAMVA Claim	**97,973**	**217,228**	**290,039**	**605,239**	**249,276**	**355,963**	**14,420**	**370,383**

Revised Table 4-59 – Allocation of OPA Results

LRAMVA Calculation for 2011 to 2013 final results of OPA Program								
Net KWh saved from OPA program								
OPA Initiative Name	Program Year	Results Status	Rate Class	Market	2011 kWh Saved	2012 kWh Saved	2013 kWh Saved	Total kWh Saved
Appliance Retirement	2011	Final	Residential	Consumer	180,566	180,566	180,566	541,698
Appliance Exchange	2011	Final	Residential	Consumer	3,051	3,051	3,051	9,152
HVAC Incentives	2011	Final	Residential	Consumer	650,749	650,749	650,749	1,952,247
Conservation Instant Coupon Booklet	2011	Final	Residential	Consumer	189,312	189,312	189,312	567,936
Bi-Annual Retailer Event	2011	Final	Residential	Consumer	316,302	316,302	316,302	948,907
Equipment Replacement Incentive Initiative	2011	Final	<50 kW - 12%	Business	172,665	172,665	172,665	517,994
			>50 kW - 88%	Business	1,260,457	1,260,457	1,260,457	3,781,371
Direct Install Lighting	2011	Final	<50 kW	Business	635,841	635,841	616,566	1,888,248
Energy Audit	2011	Final	<50 kW	Business	75,529	75,529	75,529	226,586
Demand Response 3	2011	Final	>50 kW	Business	4,323	-	-	4,323
Equipment Replacement Incentive Initiaitve	2011	Final	>50 kW	Industrial	1,128,878	1,128,878	1,128,878	3,386,633
Demand Response 3	2011	Final	>50 kW	Industrial	23,003	-	-	23,003
Electricity Retrofit Incentive Program	2011	Final	<50 kW	Business	913,663	913,663	913,663	2,740,988
High Performance New Construction	2011	Final	>50 kW	Business	346,664	346,664	346,664	1,039,993
Appliance Retirement	2012	Final	Residential	Consumer		99,292	99,292	198,584
Appliance Exchange	2012	Final	Residential	Consumer		18,832	18,832	37,664
HVAC Incentives	2012	Final	Residential	Consumer		450,385	450,385	900,770
Conservation Instant Coupon Booklet	2012	Final	Residential	Consumer		14,008	14,008	28,017
Bi-Annual Retailer Event	2012	Final	Residential	Consumer		268,321	268,321	536,641
Retrofit	2012	Final	<50 kW - 12%	Business		592,562	588,384	1,180,947
			>50 kW - 28.8%	Business		1,415,765	1,405,782	2,821,548
			Large Use - 59.2%	Business		2,909,959	2,889,440	5,799,399
Direct Install Lighting	2012	Final	<50 kW	Business		307,810	307,810	615,620
New Construction	2012	Final	>50 kW	Business		3,763	3,763	7,525
Energy Audit	2012	Final	<50 kW	Business		201,410	201,410	402,820
Demand Response 3	2012	Final	>50 kW	Business		1,614	-	1,614
Demand Response 3	2012	Final	>50 kW	Industrial		30,360	-	30,360
Home Assistance Program	2012	Final	Residential	Consumer		26,655	26,655	53,310
High Performance New Construction	2012	Final	>50 kW	Business		105,383	105,383	210,767
Appliance Retirement	2013	Final	Residential	Consumer			63,885	63,885
Appliance Exchange	2013	Final	Residential	Consumer			23,275	23,275
HVAC Incentives	2013	Final	Residential	Consumer			409,133	409,133
Conservation Instant Coupon Booklet	2013	Final	Residential	Consumer			77,221	77,221
Bi-Annual Retailer Event	2013	Final	Residential	Consumer			172,122	172,122
Residential Demand Response	2013	Final	Residential	Consumer			652	652
Retrofit	2013	Final	<50 kW - 12%	Business			368,777	368,777
			>50 kW - 83.3%	Business			2,548,366	2,548,366
			Large Use -4.7%	Business			143,716	143,716
Direct Install Lighting	2013	Final	<50 kW	Business			408,878	408,878
New Construction	2013	Final	>50 kW	Business			1,047	1,047
Energy Audit	2013	Final	<50 kW	Business			1,550,425	1,550,425
Small Commercial Demand Response	2013	Final	<50 kW	Business			10	10
Demand Response 3	2013	Final	>50 kW	Business			1,504	1,504
Demand Response 3	2013	Final	>50 kW	Industrial			30,917	30,917
Home Assistance Program	2013	Final	Residential	Consumer			170,106	170,106
								-
Total					**5,901,002**	**12,319,795**	**18,203,899**	**36,424,697**

Rate Class Allocation (kWh)		2011 kWh Saved	2012 kWh Saved	2013 kWh Saved	Total kWh Saved
Residential		**1,339,980**	**2,217,473**	**3,133,866**	**6,691,319**
General Service < 50 kW		**1,797,697**	**2,899,479**	**5,204,115**	**9,901,292**
General Service 50 to 4,999 kW		**2,763,326**	**4,292,884**	**6,832,762**	**13,888,971**
Large Use			**2,909,959**	**3,033,156**	**5,943,115**
Total		**5,901,002**	**12,319,795**	**18,203,899**	**36,424,697**

Net KW saved from OPA program								
OPA Initiative Name	**Program Year**	**Results Status**	**Rate Class**	**Market**	**2011 kW Saved**	**2012 kW Saved**	**2013 kW Saved**	**Total kW Saved**
Appliance Retirement	2011	Final	Residential	Consumer	24.3	24.3	24.3	72.9
Appliance Exchange	2011	Final	Residential	Consumer	2.4	2.4	2.4	7.1
HVAC Incentives	2011	Final	Residential	Consumer	349.9	349.9	349.9	1,049.7
Conservation Instant Coupon Booklet	2011	Final	Residential	Consumer	11.7	11.7	11.7	35.0
Bi-Annual Retailer Event	2011	Final	Residential	Consumer	17.9	17.9	17.9	53.8
Residential Demand Response	2011	Final	Residential	Consumer	72.2	-	-	72.2
Equipment Replacement Incentive Initiative	2011	Final	<50 kW - 16%	Business	41.2	41.2	41.2	123.5
			>50 kW - 84%	Business	221.4	221.4	221.4	664.3
Direct Install Lighting	2011	Final	<50 kW	Business	256.3	256.3	249.1	761.7
Energy Audit	2011	Final	<50 kW	Business	15.5	15.5	15.5	46.6
Commercial Demand Response	2011	Final	<50 kW	Business	5.1	-	-	5.1
Demand Response 3	2011	Final	>50 kW	Business	110.4	-	-	110.4
Equipment Replacement Incentive Initiaitve	2011	Final	>50 kW	Industrial	179.9	179.9	179.9	539.6
Demand Response 3	2011	Final	>50 kW	Industrial	391.9	-	-	391.9
Electricity Retrofit Incentive Program	2011	Final	<50 kW	Consumer, Business	180.8	180.8	180.8	542.4
High Performance New Construction	2011	Final	>50 kW	Business	187.1	187.1	187.1	561.2
Appliance Retirement	2012	Final	Residential	Consumer		14.5	14.5	28.9
Appliance Exchange	2012	Final	Residential	Consumer		10.8	10.8	21.6
HVAC Incentives	2012	Final	Residential	Consumer		261.0	261.0	522.1
Conservation Instant Coupon Booklet	2012	Final	Residential	Consumer		2.3	2.3	4.6
Bi-Annual Retailer Event	2012	Final	Residential	Consumer		14.8	14.8	29.7
Retrofit	2012	Final	<50 kW - 16%	Business		128.1	126.4	254.5
			>50 kW - 37%	Business		304.8	300.8	605.6
			Large Use - 47%	Business		384.1	379.1	763.2
Direct Install Lighting	2012	Final	<50 kW	Business		82.2	82.2	164.5
New Construction	2012	Final	>50 kW	Business		3.8	3.8	7.5
Energy Audit	2012	Final	<50 kW	Business		41.4	41.4	82.8
Demand Response 3	2012	Final	>50 kW	Business		111.1	-	111.1
Demand Response 3	2012	Final	>50 kW	Industrial		1,259.8	-	1,259.8
Home Assistance Program	2012	Final	Residential	Consumer		2.2	2.2	4.5
High Performance New Construction	2012	Final	>50 kW	Business		21.4	21.4	42.9
Appliance Retirement	2013	Final	Residential	Consumer			9.7	9.7
Appliance Exchange	2013	Final	Residential	Consumer			13.1	13.1
HVAC Incentives	2013	Final	Residential	Consumer			240.4	240.4
Conservation Instant Coupon Booklet	2013	Final	Residential	Consumer			5.2	5.2
Bi-Annual Retailer Event	2013	Final	Residential	Consumer			11.9	11.9
Residential Demand Response	2013	Final	Residential	Consumer			195.7	195.7
Retrofit	2013	Final	<50 kW - 16%	Business			87.3	87.3
			>50 kW - 78%	Business			437.2	437.2
			Large Use - 46%	Business			32.5	32.5
Direct Install Lighting	2013	Final	<50 kW	Business			114.0	114.0
New Construction	2013	Final	>50 kW	Business			0.6	0.6
Energy Audit	2013	Final	<50 kW	Business			282.0	282.0
Small Commercial Demand Response	2013	Final	<50 kW	Business			6.4	6.4
Demand Response 3	2013	Final	>50 kW	Business			112.6	112.6
Demand Response 3	2013	Final	>50 kW	Industrial			1,150.8	1,150.8
Home Assistance Program	2013	Final	Residential	Consumer			12.0	12.0
								-
Total					**2,067.9**	**4,130.6**	**5,453.4**	**11,652.0**
General Service 50 to 4,999 kW (kW)					**1,090.6**	**2,289.2**	**2,615.7**	**5,995.5**
Large Use kW (kW)						**384.1**	**411.6**	**795.7**

Revised Table 4-60 Calculation of LRAMVA

Summary Units Lost		2011 kWh Saved	2012 kWh Saved	2013 kWh Saved	Total kWh Saved
Residential (/kWh)		1,339,980	2,217,473	3,133,866	6,691,319
General Service Less Than 50 kW (/kWh)		1,797,697	2,899,479	5,204,115	9,901,292
General Service 50 to 4,999 kW (/kW)		13,088	27,470	31,388	71,946
Large Use (/kW)		-	4,609	4,939	9,548

Rate Class Distribution Volumetric Rates	Eff: Apr 1, 2010	Eff: May 1, 2011	Eff: May 1, 2012	Eff: May 1, 2013
Residential (/kWh)	0.0131	0.0184	0.0186	0.0187
General Service Less Than 50 kW (/kWh)	0.0104	0.0137	0.0138	0.0139
General Service 50 to 4999 kW (/kW)	3.5420	4.3073	4.4733	4.6141
Large User	2.6959	3.1991	3.2337	3.2492

Rate Class Distribution Volumetric Rates (Annualized)	2011	2012	2013
Residential (/kWh)	0.0166	0.0185	0.0187
General Service Less Than 50 kW (/kWh)	0.0126	0.0138	0.0139
General Service 50 to 4,999 kW (/kW)	4.0522	4.4180	4.5672
Large User	3.0314	3.2222	3.2440

LRAM $	2011	2012	2013	Total
Residential (/kWh)	22,288	41,097	58,499	121,884
General Service Less Than 50 kW (/kWh)	22,651	39,916	72,164	134,731
General Service 50 to 4,999 kW (/kW)	53,034	121,362	143,354	317,749
Large User (/kW)	-	14,852	16,023	30,875
Total	97,973	217,228	290,039	605,239

CDM in 2011 Forecast			2011	2012	2013
Residential (/kWh)	kWh		2,241,213	2,241,213	2,241,213
General Service Less Than 50 kW (/kWh)	kWh		1,022,523	1,022,523	1,022,523
General Service 50 to 4,999 kW (/kW)	kW		6,131	6,131	6,131
Large User (kW)	kW		795	795	795

CDM in 2011 Forecast $			2011	2012	2013	Total
Residential (/kWh)	kWh		$ 37,279	$ 41,537	$ 41,836	$ 120,652
General Service Less Than 50 kW (/kWh)	kWh		$ 12,884	$ 14,077	$ 14,179	$ 41,139
General Service 50 to 4,999 kW (/kW)	kW		$ 24,844	$ 27,087	$ 28,001	$ 79,932
Large User (kW)	kW		$ 2,411	$ 2,562	$ 2,580	$ 7,553
Total			$ 77,417	$ 85,263	$ 86,596	$ 249,276

LRAMVA - LRAM $ vs CDM in 2011 Forecast $			2011	2012	2013	Total
Residential (/kWh)	kWh		$ (14,991)	$ (440)	$ 16,663	$ 1,232
General Service Less Than 50 kW (/kWh)	kWh		$ 9,767	$ 25,839	$ 57,985	$ 93,591
General Service 50 to 4,999 kW (/kW)	kW		$ 28,190	$ 94,276	$ 115,352	$ 237,818
Large User (kW)	kW		$ (2,411)	$ 12,290	$ 13,443	$ 23,322
Total			$ 20,556	$ 131,965	$ 203,443	$ 355,963

LRAM Rate Rider	LRAMVA	CDM $ in 2011 COS	Net LRAMVA	Interest	Total LRAMVA Claim	2016 Proposed Billing Determinant	UOM	LRAMVA Rider
Residential	$121,884	$ 120,652	$ 1,232	$ 50	$ 1,282	399,471,640	kWh	$ 0.0000
General Service Less Than 50 kW	$134,731	$ 41,139	$ 93,591	$ 3,791	$ 97,383	192,172,348	kWh	$ 0.0005
General Service 50 to 4,999 kW -	$317,749	$ 79,932	$ 237,818	$ 9,634	$ 247,452	1,765,423	kW	$ 0.1402
Large User	$ 30,875	$ 7,553	$ 23,322	$ 945	$ 24,266	169,451	kW	$ 0.1432
Total	$605,239	$ 249,276	$ 355,963	$ 14,420	$ 370,383			

The Load Forecast Model, Tab 'Rate Class Energy Model', rows 85 and 86 have been adjusted as follows:

Details	Total 2016 CDM Adjustment	Residential	GS < 50 kW	GS < 50 kW	Large Use
CDM					
2015	6,625,000	1,217,031	1,800,868	2,526,155	1,080,946
2016	**14,050,000**	**2,581,024**	**3,819,199**	**5,357,355**	**2,292,422**

(b) Please see WNH's response to (a) above.

(c) Please see WNH's response to (a) above.

4-Staff-132

Reference: Exhibit 4, Table 4-60, Calculation of LRAMVA

Interrogatory:

Please provide a reconciliation of the kWh and kW shown in Table 4-60 under CDM in 2011 Forecast with the total of 66.49 GWh agreed to in WNH's Approved 2011 COS Settlement.

Response:

Please refer to 4.0-VECC-39 (a).

4-Energy Probe-35

Reference: Exhibit 4, Table 4-1

Interrogatory:

Please provide the most recent year-to-date actual expenditures for 2015, at the same level of detail as shown in Table 4-1. Please also provide the figures for the corresponding period in 2014.

Response:

The June 2015 and June 2014 Year-to-Date Actual Expenditures are presented below:

Expenses	2015 YTD to June 30	2014 YTD to June 30
Distribution Expenses - Operation	2,750,810	2,954,183
Distribution Expenses - Maintenance	869,867	906,895
Billing and Collecting	1,292,391	1,194,992
Community Relations	29,720	82,355
Administrative and General Expenses	1,349,581	1,343,100
Total	**6,292,369**	**6,481,525**

4-Energy Probe-40

Reference: Exhibit 4, Attachment 4-4 &
Exhibit 2, Table 2-16

Interrogatory:

a) Please reconcile the 2014 additions of $18,100,762 shown in Table 2-16 with the additions for CCA purposes of $17,587,684 shown in CCA schedule in Attachment 4-4.

b) Please provide a mapping between the line items in Table 2-16 for each of the line items shown in Table 2-16. For example, please explain the additions of $143,108 for CCA class 12 with the amounts shown in Table 2-16 in accounts 1611 and 1930.

Response:

a) The difference between $18,100,762 shown in Table 2-16 and $17,587,684 in the 2014 tax return is $513,078. Based on a discussion with our tax accountants, the amounts allocated to capital for fleet and stores burdens are to be backed out on Schedule 8 and the difference flows through the add back on Schedule 1 amortization in order for the add back to agree to the income statement.

b) Please see the attached mapping between the line items shown in Table 2-16 to the Schedule 8 on the 2014 tax return as well as the notes of explanation. The line items that are highlighted in pink were incorrectly stated in Table 2-16 and have been updated below. While the incorrect CCA class was listed in Table 2-16, the calculation of CCA was correct.

CCA Class	OEB	Description	Additions		CCA Class	Additions CCA
12	1611	Computer Software (Formally known as Account 1925)	**362,002**			362,002
				See Note 1		(218,894)
					12	**143,108**
1B	1612	Land Rights (Formally known as Account 1806)	99,902			99,902
1B	1808	Buildings	726,502			726,502
			826,404		**1B**	**826,404**
47	1815	Transformer Station Equipment >50 kV	194,308			194,308
47	1820	Distribution Station Equipment <50 kV	160,850			160,850
47	1830	Poles, Towers & Fixtures	4,965,069			4,965,069
47	1835	Overhead Conductors & Devices	4,052,486			4,052,486
47	1840	Underground Conduit	949,493			949,493
47	1845	Underground Conductors & Devices	1,715,849			1,715,849
47	1850	Line Transformers	2,960,653			2,960,653
47	1855	Services (Overhead & Underground)	1,286,256			1,286,256
				See Note 2		196,857
47	1995	Contributions & Grants	(1,593,244)			(1,593,244)
				See Note 3		(513,078)
			14,691,721		**47**	**14,375,500**
50	1920	Computer Equip.-Hardware(Post Mar. 19/07)	**127,191**			127,191
				See Note 1		218,894
					50	**346,085**
10	1930	Transportation Equipment	**1,032,897**		**10**	**1,032,897**
8	1940	Tools, Shop & Garage Equipment	116,661			116,661
8	1945	Measurement & Testing Equipment	36,197			36,197
8	1955	Communications Equipment	19,274			19,274
8	1915	Office Furniture & Equipment (10 years)	22,322			22,322
8	1960	Miscellaneous Equipment	35,224			35,224
8	1980	System Supervisor Equipment	261,141			261,141
8	1860	Meters	569,728			569,728
				See Note 2		(196,857)
			1,060,548		**8**	**863,691**
		Total	**18,100,762**			**17,587,684**

Note 1:

The software that was included in class 50 was systems software for the AS400 computer equipment. According to the income tax regulations for class 50, property to be included in class 50 is: “property acquired after March 18, 2007 that is general-purpose electronic data processing equipment and **systems software** for that equipment…”. The description of the software as AS400 software is consistent with the description of the audited fixed asset continuity schedule. This accounts for $218,894 which was included in USoA 1611 but in class 50 for tax.

Note 2:

There was an amount of $196,857 of Wholesale Meters was re-allocated between USoA 1860 and 1820.

Note 3:

Please refer to part (a) above.

4-Energy Probe-43

Reference: Exhibit 4, Attachment 4-8 & Table 4-54

Interrogatory:

In the Taxable Income - Test Year, an addition to taxable income of $21,000 is made at line 112. Please explain what this $21,000 is related to and please indicate whether or not it is included in the test year revenue requirement through OM&A or elsewhere. If this amount is related to expected donation receipt from Conestoga College, please explain why the donation receipt for $21,000 increases taxable income, but there is no corresponding decrease in taxable income through a tax credit in Table 4-54.

Response:

The $21,000 amount included in the test year is expected donation receipts from Conestoga College. No funds are received for the donation of vehicles that WNH no longer uses, thus, no revenue has been recorded. Table 4-54 shows tax credits agreeing to the Income Tax/PILs Workform investment tax credit line. The taxable deduction of $21,000 should have been included in the Income Tax/PILs Workform for the test year on line 311 and should not have been included on line 112 as this will not be incurred as a cash expense and therefore not included in the Net Income before Taxes. Our tax accountants have confirmed this treatment. This Workform has been revised to correct this error. Please refer to the revised PILs Workform attached to this response which it titled 'Waterloo_1-Staff-1-2015 Test_year_Income_Tax_PILs_Workform_v3_20150807'.

4-SEC-39

[Appendix-JC]

Interrogatory:

Please provide a copy of Appendix 2-JC showing 2015 year-to-date actuals.

Response:

The June 2015 Year-to-Date Actuals are presented below.

Appendix 2-JC
OM&A Programs Table

Programs	Programs (Strategic Imperatives) #	2011 Board Approved	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Bridge	2016 Test	2016 Test vs 2014 Actual	2016 Test vs 2011 Board Approved	2015 YTD Actual (to June 30)
Reporting Basis		CGAAP	CGAAP	CGAAP	RCGAAP	RCGAAP	MIFRS	MIFRS			
Operations											
Control Room	1, 2, 3, 5, 6, 7	1,252,456	1,282,296	1,423,426	1,109,305	1,213,241	899,134	898,928	(314,313)	(353,528)	507,305
Structure/Station	1, 3, 7	840,207	479,423	855,470	797,266	1,018,843	977,776	841,771	(177,072)	1,564	529,660
Supervision/Miscellaneous/Overhead Change Impact	All	306,733	290,369	347,901	2,978,061	2,569,784	2,665,572	2,650,249	80,465	2,343,516	1,003,845
Overhead/Underground/Meters	1, 5, 6, 7, 9	1,478,139	1,515,625	1,837,887	1,237,949	1,444,710	1,333,842	1,408,433	(36,277)	(69,706)	710,000
									-	-	-
Sub-Total		**3,877,534**	**3,567,713**	**4,464,684**	**6,122,581**	**6,246,577**	**5,876,324**	**5,799,381**	**(447,196)**	**1,921,847**	**2,750,810**
Maintenance											
Structure/Station Expenses	1,3, 7	169,203	119,538	161,743	56,232	153,656	74,779	52,648	(101,008)	(116,555)	96,685
Miscellaneous/Overhead Change Impact	All	-	76,600	-	414,992	480,473	565,019	576,135	95,662	576,135	230,223
Overhead/Underground/Meters	1, 5, 6, 7, 9	944,262	731,184	841,701	515,273	779,909	676,571	689,337	(90,572)	(254,925)	377,126
Vegetation Management	1, 2, 3, 5, 6, 7, 9	445,716	360,535	262,845	297,486	431,620	290,693	295,020	(136,600)	(150,696)	165,833
									-	-	-
Sub-Total		**1,559,180**	**1,287,857**	**1,266,289**	**1,283,983**	**1,845,659**	**1,607,062**	**1,613,140**	**329,157**	**53,960**	**869,867**
Customer Service											
Billing/Supervision	1, 4, 5, 6	1,324,934	1,399,462	1,583,125	1,702,731	1,516,555	1,620,636	1,791,175	274,620	466,241	783,395
Meter Reading	3, 5, 6, 7	146,568	167,960	265,115	255,545	353,658	344,611	347,805	(5,853)	201,237	174,387
Collections	3, 5, 6, 7	503,687	545,412	566,790	548,282	662,579	637,626	671,751	9,172	168,064	267,868
Bad Debts	3, 5, 6, 7	100,000	96,037	525,006	125,624	82,322	100,000	92,000	9,678	(8,000)	66,741
Community Relations	3, 5, 6, 7, 8	236,777	164,146	202,478	193,918	163,854	147,200	142,200	(21,654)	(94,577)	29,720
Sub-Total		**2,311,966**	**2,373,017**	**3,142,514**	**2,826,100**	**2,778,967**	**2,850,073**	**3,044,931**	**218,831**	**732,965**	**1,322,111**
Administration											
Finance/Executive/IT/General/Administration Credit Transferred	All	1,236,026	1,519,922	1,191,928	1,602,395	1,671,027	1,477,928	1,617,045	(53,983)	381,018	811,216
Regulatory	3, 5, 6, 7	471,686	407,174	340,959	388,409	486,810	487,824	564,066	77,256	92,380	354,598
Other Services Purchased	4, 5, 6, 7	547,945	494,458	592,901	691,434	637,217	1,076,850	1,040,771	403,554	492,826	183,767
Sub-Total		**2,255,657**	**2,421,554**	**2,125,788**	**2,682,238**	**2,795,055**	**3,042,602**	**3,221,882**	**539,643**	**966,225**	**1,349,581**
Total		**10,004,338**	**9,650,141**	**10,999,275**	**12,914,902**	**13,666,258**	**13,376,061**	**13,679,334**	**640,435**	**3,674,996**	**6,292,369**

4-SEC-41

[Ex.4, p.16]

Interrogatory:

Please explain why the Applicant's actual Permanent FTEs were lower in each year between 2011 and 2014 than the 2011 Board approved amount.

Response:

Although WNH's Permanent FTE are lower between 2011 – 2014 than the 2011 Board Approved amount, WNH's Total FTE complement was higher than the 2011 Board Approved amount, in all years except for 2011. As is demonstrated in the table below, (replication of Table 4-8 of Exhibit 4, page 23, from WNH's Application), the Contract and Student FTE's filled the Permanent positions in all years, except 2011. Contract employees utilized are past employees (retirees) with specialized experience and knowledge. Their role is to assist in training of apprentices in the control room, operations and engineering departments.

Type	2011 Board Approved	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Bridge	2016 Test	2016 vs 2011 COS
Permanent FTE	120.05	114.32	114.26	119.20	117.98	122.81	123.87	3.82
Student/Contracts FTE	4.97	9.54	13.63	13.31	13.15	10.29	8.25	3.28
Total FTE	**125.02**	**123.86**	**127.88**	**132.50**	**131.12**	**133.11**	**132.12**	**7.10**

4.0-VECC-27

Reference: E4/p.12

Interrogatory:

a) Do the regulatory costs include the costs of the two customer surveys?

b) Please provide the costs of the Innovative Research and Utility Pulse Surveys.

Response:

a) The regulatory costs only include the Innovative Research survey.

b) The costs of the surveys are as follows:

- Innovative Research - WNH spent an amount that is less than 40% of its materiality threshold on customer engagement work with Innovative Research, and;
- Utility Pulse - WNH spent an amount that is less than 15% of its materiality threshold on customer engagement work with Utility Pulse.

4.0-VECC-28

Reference: E4/pgs.12, 23, 53

Interrogatory:

a) Please provide the number and the total compensation in 2016 for retirement and other backfill positions.

b) Of the 11 positions retiring in 2015 and 5 positions in 2016 as shown in Table 4-17, how many employees have announced/notified WNH of their intention to retire?

Response:

a) WNH forecast five retirements in 2016, three of which are forecast to retire at the end of 2016 and two which are forecast during 2016. WNH budgeted backfill positions for the two retirements during 2016. The total compensation including benefits for the five positions is budgeted at $514,000.

b) 4 employees have retired and 3 have announced their intention to retire.

4.0-VECC-36

Reference: E4/pg. 78/Table 4-37

Interrogatory:

a) Please provide a table similar to the second table on page 78 showing the actual application cost for 2011.

b) Please separate the categories of consultant and legal costs.

c) Please provide the actual incurred costs to-date for consultant and legal costs.

Response:

a) The actual 2011 COS application costs are as follows:

One-Time Costs 2011 COS Filing	
Consultants'/Legal Costs for Regulatory Matters	101,575
Incremental Operating Expenses	2,268
OEB/Intervenor Costs	49,714
Total One-Time Costs 2011 COS Filing	**153,557**

b) WNH has revised Table 4-37 which is presented below. WNH has been made aware that the Board will allocate their DSP Consultant Charges to the Applicant, thus, WNH has increased its 2016 Test Year OEB/Intervenor Cost Forecast by $50,000 for these fees. WNH has included the additional annual $10,000 ($50,000 over 5 years) in its 2016 revenue requirement. This change is documented in WNH's RRWF Tracking Sheet which is provided with 1-Staff-1.

Revised Table 4-37 Regulatory Costs Appendix 2-M

	Regulatory Cost Category	USoA Account	USoA Account Balance	Ongoing or One-time Cost? 2	2011 Board Approved	Most Current Actuals 2014	2015 Bridge	Annual % Change	2016 Test	Annual % Change
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H) = [(G)-(F)]/(F)	(I)	(J) = [(I)-(G)]/(G)
1	OEB Annual Assessment	5655		Ongoing	$ 180,000	$ 188,933	$ 197,000	4.27%	$ 200,000	1.52%
2	OEB Section 30 Costs (Applicant-originated)	5655		Ongoing	$ 40,000					
3	OEB Section 30 Costs (OEB-initiated)	5655		Ongoing	$ 10,000	$ 6,454	$ 6,500	0.71%	$ 7,000	7.69%
4	Legal costs for regulatory matters			Ongoing	$ 5,000	$ -				
5	Consultants' costs for regulatory matters	5655		Ongoing	$ 143,000	$ 141,580	$ 162,000	14.42%	$ -	-100.00%
6	Operating expenses associated with staff resources allocated to regulatory matters	5655		Ongoing	$ 83,686	$ 109,843	$ 122,324	11.36%	$ 272,066	122.41%
7	Intervenor costs	5655		Ongoing	$ 10,000	$ -	$ -			
8	**Sub-Total Ongoing Costs**				**$ 471,686**	**$ 446,810**	**$ 487,824**	**9.18%**	**$ 479,066**	**-1.80%**
9	Consultants'/Legal costs for regulatory matters			One-time	$ 105,000				$ 305,000	
10	Incremental operating expenses associated with other resources allocated to this application. 1			One-time					$ 10,000	
11	OEB/Intervenor costs			One-time	$ 55,000				$ 160,000	
12	**Sub-Total One-Time Costs**				**$ 160,000**	**$ -**	**$ -**		**$ 475,000**	
13	**2011 COS Expensed Over 4 Years**	**5655**			**$ 40,000**	**$ 40,000**	**$ -**			
14	**2016 COS Expensed Over 5 Years**	**5655**							**$ 95,000**	
15	**Total One-Time During the Year**				**$ 40,000**	**$ 40,000**	**$ -**		**$ 95,000**	
11	Sub-total - Ongoing Costs 3		$ -		$ 471,686	$ 446,810	$ 487,824	9.18%	$ 479,066	-1.80%
12	Sub-total - One-time Costs 4		$ -		$ 40,000	$ 40,000	$ -	-100.00%	$ 95,000	
13	**Total**		**$ -**		**$ 511,686**	**$ 486,810**	**$ 487,824**	**0.21%**	**$ 574,066**	**17.68%**

Please fill out the following table for all one-time costs related to this cost of service application to be amortized over the test year plus the IRM period.

	Item	2014 Actual	2015 Bridge	2016 Test	Total COS	Amortized Over 5 Years
6	Consultants'/Legal costs	8,176	296,824		305,000	61,000
8	Incremental operating expenses associated with other resources allocated		10,000		10,000	2,000
11	OEB/Intervenor costs			160,000	160,000	32,000
Total		**8,176**	**306,824**	**160,000**	**475,000**	**95,000**

The categories of Consultant's/Legal Costs that were combined for One-Time Costs are as follows:

One-Time Costs per Table 4-37 Appendix 2-M		
Consultants'/Legal Costs for Regulatory Matters	**$**	**305,000**
Allocated as follows:		
Consulting - Customer Engagement	$	100,000
Consuting - 2016 COS Assistance and Review	$	55,000
Consulting - Witness Training	$	40,000
Legal - 2016 COS Legal Advice	$	110,000
Total Consultants'/Legal Costs for Regulatory Matters	**$**	**305,000**

c) Legal and consultant costs incurred to June 30, 2015 for the 2016 COS Filing are as follows:

Consulting fees for Customer Engagement	$	68,198
Legal/Consultant Fees	$	30,648
Total to June 30, 2015	**$**	**98,846**

WNH is unable to split the Legal/Consultant fees as they are paid to the same firm.

4.0–VECC-39

Reference: E4, pg. 111
E4, Appendix 4-7, Table 5

Interrogatory:

a) With respect to page 111, please provide the 2011 Load Forecast analyses With and Without CDM as discussed at lines 12-20 and a summary schedule that sets out, by customer class the kWh and kW (where applicable) differences.

b) Please reconcile the 2011-2014 program savings shown on in Exhibit 3, Table 3-15 with OPA verified results as reported in Appendix 4-7, Table 5.

Response:

a) The Summary Schedule, which provides the kWh and kW by Rate Class details, after the 2011 Load Forecast was run with and without the CDM Adjustment agreed upon in WNH's Settlement Agreement, is detailed below.

Details	2011 Weather Normal with 2011 CDM	2012 Weather Normal No 2011 CDM	Change
Predicted kWh Purchases	**1,451,423,141**	**1,458,072,141**	**6,649,000**
Billed kWh	**1,396,942,388**	**1,403,341,810**	**6,399,423**
By Class			
Residential			
kWh	**393,839,964**	**396,081,176**	**2,241,213**
GS<50			
kWh	**179,684,119**	**180,706,642**	**1,022,523**
GS>50			
kWh	**734,340,856**	**737,064,891**	
kW	**1,652,784**	**1,658,915**	**6,131**
Large User			
kWh	**79,636,777**	**80,048,430**	
kW	**153,849**	**154,644**	**795**
Streetlights			
kWh	**7,792,006**	**7,792,006**	
kW	**21,835**	**21,835**	**-**
USL			
kWh	**1,648,666**	**1,648,666**	**-**
Total of Above			
kWh	**1,396,942,388**	**1,403,341,810**	
kW from applicable classes	**1,828,469**	**1,835,395**	

b) The reconciliation is as follows:

In WNH's reconciliation, WNH will demonstrate below the difference between Table 3-15 and OPA Table 5 in Attachment 4-7, the difference relates to the adjustment of prior years' programs. Please refer to the comparison tables below.

The adjustment for 2011 which was made in 2012, has been reflected in Table 3-15 once in 2011, however, in Table 5 it is reflected twice, in 2011 and 2012.

The adjustment for 2012 which was made in 2013, has been reflected in Table 3-15 once in 2012, however, in Table 5 it is reflected twice, in 2012 and 2013.

Table 3-15					
	2011	**2012**	**2013**	**2014**	**Total**
2011 Programs	5,901,003	6,463,000	6,444,000	6,271,000	25,079,003
2012 Programs		6,446,119	5,402,000	5,375,000	17,223,119
2013 Programs			5,970,033	6,320,000	12,290,033
2014 Programs					
Total	5,901,003	12,909,119	17,816,033	17,966,000	54,592,155
Summary					
2011 Programs	6,490,800				
Adjustment of 2011 in 2012	-589,797				
*2012 Programs **		6,058,238			
Adjustment of 2012 in 2013		387,881			
*2013 Programs**			5,970,033		
Total	**5,901,003**	**6,446,119**	**5,970,033**		
Table 5 Attachment 4-7					
	2011	**2012**	**2013**	**2014**	**Total**
2011 Programs	6,490,800	6,463,000	6,444,000	6,271,000	25,668,800
2012 Programs	-589,797	5,468,441	5,402,000	5,375,000	15,655,644
2013 Programs		387,881	6,357,914	6,320,000	13,065,795
2014 Programs					
Total	5,901,003	12,319,322	18,203,914	17,966,000	54,390,239
Summary					
2011 Programs	6,490,800				
Adjustment of 2011 in 2012	-589,797				
*2012 Programs **		6,058,238			
Adjustment of 2011 in 2012		-589,797			
		5,468,441			
Adjustment of 2012 in 2013		387,881			
*2013 Programs**			5,970,033		
Adjustment of 2012 in 2013			387,881		
Totals	**5,901,003**	**5,856,322**	**6,357,914**		
Difference Table 3-15 vs Table 5	**-**	**589,797**	**(387,881)**		**201,916**
			201,916		
** Please refer to Table 1 Attachment 4-7 below*					

Table 1: Waterloo North Hydro Inc. Initiative and Program Level Net Savings by Year (Scenario 1)					
Initiative	Unit	Net Incremental Energy Savings (kWh) (new energy savings from activity within the specified reporting period)			
		2011	2012	2013	2014
Energy Efficiency Total		6,463,473	6,026,264	5,936,950	
Demand Response Total (Scenario 1)		27,327	31,974	33,083	
Adjustments to Previous Years' Verified Results Total		0	-589,797	387,881	
OPA-Contracted LDC Portfolio Total (inc. Adjustments)		6,490,800	5,468,441	6,357,914	*18,317,155*
		5,901,002	6,446,119	5,970,033	
		18,317,155			
Results before Adjustments		6,490,800	6,058,238	5,970,033	

EXHIBIT 5: COST OF CAPITAL AND CAPITAL STRUCTURE

EXHIBIT 6: CALCULATION OF REVENUE DEFICIENCY OR SUFFICIENCY

6-Energy Probe-49

Reference: Exhibit 6

Interrogatory:

Based on any corrections, changes or updates (such as the cost of power updates, etc.), please:

a) Provide updated Tables 6-1 through 6-4; and,

b) Provide an updated RRWF (Attachment 6-1) that includes the appropriate and necessary entries in the Tracking Form. Please also provide the RRWF in electronic form.

Response:

a) WNH has provided updated Tables 6-1 through 6-4 below:

Table 6-1 – Determination of Net Utility Net Income

Details	Initial Application	IRR
Operating Revenues:		
Distribution Revenue (at Proposed Rates)	35,412,468	34,816,540
Other Revenue	1,181,606	1,183,596
Total Operating Revenues	36,594,074	36,000,135
Operating Expenses:		
OM&A Expenses	13,721,334	13,731,334
Depreciation/Amortization	8,151,672	8,157,240
Property taxes	489,734	489,734
Capital taxes	-	-
Other expense	-	-
Total Operating Expenses	22,362,740	22,378,308
Deemed Interest Expense	5,337,309	5,120,189
Total Expenses	27,700,049	27,498,497
Utility income before income taxes	8,894,025	8,501,639
Income taxes (grossed-up)	803,815	740,537
Utility net income	**8,090,209**	**7,761,102**

Table 6-2 – Rate Base

Rate Base		
Details	**Initial Application**	**IRR**
Net Fixed Assets		
Gross Fixed Assets (average)	340,984,238	341,170,099
Accumulated Depreciation (average)	(146,617,357)	(146,624,329)
Net Fixed Assets (average)	**194,366,880**	**194,545,770**
Allowance for Working Capital	23,111,861	14,086,000
Total Rate Base	**217,478,742**	**208,631,771**
Allowance for Working Capital - Derivation		
Controllable Expenses	13,457,054	13,467,054
Cost of Power	164,326,495	174,346,285
Working Capital Base	177,783,549	187,813,339
Working Capital Rate %	13%	7.5%
Working Capital Allowance	**23,111,861**	**14,086,000**

Table 6-3 Return on Rate Base

Description	2016 Test Existing Rates	2016 Test Required Revenue	2016 Test Existing Rates	2016 Test Required Revenue
Actual Return on Rate Base	**Initial Application**		**IRR**	
Rate Base	217,478,742	217,478,742	208,631,771	208,631,771
Interest Expense	5,337,309	5,337,309	5,120,189	5,120,189
Net Income	5,036,639	8,090,209	5,158,874	7,761,102
Total Actual Return on Rate Base	**10,373,949**	**13,427,518**	**10,279,063**	**12,881,291**
Actual Return on Rate Base	**4.77%**	**6.17%**	**4.93%**	**6.17%**
Required Return on Rate Base				
Rate Base	217,478,742	217,478,742	208,631,771	208,631,771
Return Rates:				
Return on Debt (Weighted)	4.09%	4.09%	4.09%	4.09%
Return on Equity	9.30%	9.30%	9.30%	9.30%
Deemed Interest Expense	5,337,309	5,337,309	5,120,189	5,120,189
Return on Equity	8,090,209	8,090,209	7,761,102	7,761,102
Total Return	**13,427,518**	**13,427,518**	**12,881,291**	**12,881,291**
Expected Return on Rate Base	**6.17%**	**6.17%**	**6.17%**	**6.17%**

Table 6-4 Revenue Deficiency Determination

Line No.	Particulars	Initial Application		IRR	
		At Current Approved Rates	At Proposed Rates	At Current Approved Rates	At Proposed Rates
1	Revenue Deficiency from Below		4,154,517		3,540,447
2	Distribution Revenue	31,257,951	31,257,951	31,276,093	31,276,093
3	Other Operating Revenue Offsets - net	1,181,606	1,181,606	1,183,596	1,183,596
4	Total Revenue	32,439,557	36,594,074	32,459,689	36,000,135
5	Operating Expenses	22,362,740	22,362,740	22,378,308	22,378,308
6	Deemed Interest Expense	5,337,309	5,337,309	5,120,189	5,120,189
8	Total Cost and Expenses	27,700,049	27,700,049	27,498,497	27,498,497
9	Utility Income Before Income Taxes	4,739,508	8,894,025	4,961,192	8,501,639
10	Tax Adjustments to Accounting Income per PILs model	(5,334,266)	(5,334,266)	(5,180,668)	(5,180,668)
11	Taxable Income	(594,759)	3,559,759	(219,476)	3,320,971
12	Income Tax Rate	26.50%	26.50%	26.50%	26.50%
13	Income Tax on Taxable Income	(157,611)	943,336	(58,161)	880,057
14	Income Tax Credits	(139,521)	(139,521)	(139,521)	(139,521)
15	Utility Net Income	5,036,639	8,090,210	5,158,874	7,761,102
16	Utility Rate Base	217,478,742	217,478,742	208,631,771	208,631,771
17	Deemed Equity Portion of Rate Base	86,991,497	86,991,497	83,452,708	83,452,708
18	Income/(Equity Portion of Rate Base)	5.79%	9.30%	6.18%	9.30%
19	Target Return - Equity on Rate Base	9.30%	9.30%	9.30%	9.30%
20	Deficiency/Sufficiency in Return on Equity	-3.51%	0.00%	-3.12%	0.00%
21	Indicated Rate of Return	4.77%	6.17%	4.93%	6.17%
22	Requested Rate of Return on Rate Base	6.17%	6.17%	6.17%	6.17%
23	Deficiency/Sufficiency in Rate of Return	-1.40%	0.00%	-1.25%	0.00%
24	Target Return on Equity	8,090,209	8,090,209	7,761,102	7,761,102
25	Revenue Deficiency/(Sufficiency)	3,053,570	0	2,602,228	0
26	**Gross Revenue Deficiency/(Sufficiency)**	**4,154,517**		**3,540,447**	

b) Please refer to 1-Staff-1.

EXHIBIT 7 – COST ALLOCATION

7-Staff-136

Reference: Cost Allocation Model

Reference: OEB Letter – New Cost Allocation Policy for Street Lighting Rate Class, June 12, 2015

Reference: Cost Allocation to Different Types of Street Lighting Configurations (EB-2012-0383), prepared by Navigant Consulting Ltd., June 12, 2015

Interrogatory:

On June 12, 2015, the OEB issued its letter outline the new policy regarding cost allocation for the street lighting class. The letter approved recommendations provided in the referenced report, prepared by Navigant Consulting Ltd.

Navigant Consulting Ltd.'s report recommended the use of a "street lighting adjustment factor" instead of the number of connections for the allocation of primary and line transformer assets.

The report also used the 4NCP values as the basis of the calculation of the street lighting adjustment factor. Please provide an updated cost allocation study (when the revised model is issued) reflecting the changes adopted by the OEB's new cost allocation policy for the street lighting class.

Response:

WNH has updated the Cost Allocation Study for the OEB's new Cost Allocation Policy for the Street Lighting Class. The change is reflected in the Updated Cost Allocation Model attached to this response, it is titled 'Waterloo_1-Staff-1-Cost_Allocation_Model_V3_FINAL_20150807'.

7-Energy Probe-51

Reference: Exhibit 7, Table 7-8

Interrogatory:

The Board issued a new cost allocation policy for the street lighting rate class by a letter dated June 12, 2015.

a) Please provide an updated cost allocation model that reflects the changes in the policy, including the change in the Board's target range for street lighting.

b) Please provide a revised Table 7-8 that shows the revenue to cost ratios that result from the changes and the proposed ratios.

Response:

a) Please refer to 7-Staff-136.

b) Please refer to 1-Staff-1, titled 'Waterloo_1-Staff-1Cost Allocation Tables 7-6 to 7-8 Appendix 2-P_20150807'.

EXHIBIT 8- RATE DESIGN

8-Staff-138

Reference: Exhibit 8, Section 2.11.1

Reference: A New Distribution Rate Design for Residential Electricity Customers (EB-2012-0140), April 2, 2015

Reference: Revised Chapter 2 Appendices, Version 2.4, July 7, 2015

Interrogatory:

WNH is proposing to maintain the current fixed/variable split for all classes and has requested an exemption from the requirement to initiate a move to fully fixed for the Residential class over four years. However, WNH has also said it would update the 2016 application after details of implementing the policy are available.

(a) Please complete Sheet 2-PA New Rate Design Policy for Residential Customers issued by the OEB on July 7, 2015 as part of the Revised Chapter 2 Appendices.

(b) Given the results of the above spreadsheet, is WNH prepared to move to a fully fixed for the Residential class over four years starting in 2016?

Response:

(a) WNH completed the most recent Sheet 2-PA on the Board's website, the model is replicated below. The results of transitioning over a four year period are as follows:

Appendix 2-PA
New Rate Design Policy For Residential Customers

Please complete the following tables.

A) Data Inputs

Test Year Billing Determinants for Residential Class	
Customers	49,305
kWh	399,471,640

Proposed Residential Class Specific Revenue Requirement1	$ 18,542,762.32

Residential Base Rates on Current Tariff	
Monthly Fixed Charge ($)	16.91
Distribution Volumetric Rate ($/kWh)	0.0214

B) Current Fixed/Variable Split

	Base Rates	Billing Determinants	Revenue	% of Total Revenue
Fixed	16.91	49,305	$ 10,004,970.60	53.92%
Variable	0.0214	399,471,640	$ 8,548,693.10	46.08%
TOTAL	-	-	$ 18,553,663.70	-

C) Calculating Test Year Base Rates

Number of Required Rate Design Policy Transition Years2	4

	Test Year Revenue @ Current F/V Split	Test Year Base Rates @ Current F/V Split	Reconciliation - Test Year Base Rates @ Current F/V Split
Fixed	$ 9,999,092.09	16.9	$ 9,999,054.00
Variable	$ 8,543,670.24	0.0214	$ 8,548,693.10
TOTAL	$ 18,542,762.32	-	$ 18,547,747.10

	New F/V Split	Revenue @ new F/V Split	Final Adjusted Base Rates	Reconciliation @ Adjusted Rates
Fixed	65.44%	$ 12,135,009.64	20.51	$ 12,134,946.60
Variable	34.56%	$ 6,407,752.68	0.0160	$ 6,391,546.24
TOTAL	-	$ 18,542,762.32	-	$ 18,526,492.84

Checks3	
Change in Fixed Rate	$ 3.61
Difference Between Revenues @ Proposed Rates and Class Specific Revenue Requirement	$ (16,269.48)
	-0.09%

(b) WNH is prepared to move to fully fixed Monthly Service Charge for the Residential class over four years starting in 2016.

Please refer to Updated Appendix 2-W Rate Impacts, titled 'Waterloo_1-Staff-1-2016 Bill Impacts_Appendix 2-W_20150807'. WNH notes that with the inclusion of the resultant Residential Monthly Service Charge and Distribution Variable Charge as calculated in (a) above, customers in the range of 100 kWh monthly consumption exceed a 10% increase in Total Bill. It is WNH's understanding that rate mitigation is required, if the highest consumption within the lowest 10th percentile of electricity consumption, exceeds a Total Bill Rate Impact exceeding 10%. The highest consumption within the lowest 10th percentile is in the >250 – 500 kWh monthly consumption which has a Total Bill Rate Impact of 2.82%, thus, mitigation will not be required.

8-Staff-141

Reference: Exhibit 8, Attachment 8-2 Current Tariff of Rates Exhibit 8, Attachment 8-3 Proposed Tariff of Rates

Interrogatory:

On the proposed tariff of rates for the microFIT class, WNH has included The Monthly Rates and Charges- Regulatory Component, which are not included in the Current Tariff of Rates. Is WNH proposing to start charging these Regulatory rates to the microFIT class customers?

Response:

WNH is not proposing to start charging the Regulatory rates and has removed it from the Proposed Tariff of Rates as reflected in the Proposed Tariff of Rates filed with the Interrogatory Responses. The file is titled 'Waterloo_1-Staff-1-Proposed 2016 Tariff Schedule_Appendix 2-Z_20150807'.

8-Staff-142

Reference: Exhibit 8, Attachment 8-4, Bill Impacts

Reference: http://www.energy.gov.on.ca/en/clean-energy-benefit/

Reference: http://www.fin.gov.on.ca/en/tax/drc/

Interrogatory:

As stated in the second and third reference above, the Ontario Clean Energy Benefit is scheduled to end on December 31, 2015 and the Ontario government is removing the Debt Retirement Charge (DRC) from residential electricity users' bills after December 31, 2015. Please recalculate the bill impacts for those affected by these changes.

Response:

(a) WNH has recalculated the bill impacts to reflect the removal of the OCEB and DRC from the appropriate rate classes and has provided the details below for the affected rate classes, namely, Residential and GS < 50.

WNH is concerned, however, that the removal of these two items, which are not in the control of the distributor, may not consistently represent the bill impact of WNH's Application. The Board in its Appendix 2-W, Bill Impacts for the 2015 Filings have held many rates constant in order to obtain the impact of the application. Rates which the Board has kept constant in Appendix 2-W include TOU Pricing and Energy Prices and OCEB as examples.

WNH also notes that the Board's *Filing Requirements for Electricity Distribution Rate Applications - 2015 Edition for 2016 Rate Applications*, issued July 16, 2015, Section 2.8.12 states: "*The distributor must provide the impact of changes resulting from the as-filed application on representative samples of end-users, i.e., volume, percentage rate change and revenue. The distributor must include the*

base distribution rates, any applicable rate adders or rate riders, and RTSRs. Commodity rates and regulatory charges should be held constant.".

In WNH's view, items such as OCEB and DRC charges would be classified as commodity rates and/or regulatory charges since they are not distribution rates, any applicable rate adders or rate riders, and RTSRs. As a result, the bill impact analysis should reflect they are constant.

The Bill Impacts reflecting the removal of OCEB and DRC for the applicable customers are presented below.

Appendix 2-W
Bill Impacts

Customer Class: Residential

TOU / non-TOU: TOU

Consumption 100 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly		1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	100	$ (0.01)	-$ 0.0001	100	$ (0.01)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		100	$ -	-$ 0.0006	100	$ (0.06)	$ (0.06)	
Distribution Volumetric Rate	per kWh	$ 0.0192	100	$ 1.92	$ 0.0160	100	$ 1.60	$ (0.32)	-16.67%
Sub-Total A (excluding pass through)				$ 19.22			$ 22.62	**$ 3.40**	**17.66%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	100	$ (0.14)	$ 0.0002	100	$ 0.02	$ 0.16	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	100	$ 0.01	$ 0.0002	100	$ 0.02	$ 0.01	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	4.04	$ 0.38	$ 0.0950	3.62	$ 0.34	$ (0.04)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 20.26**			**$ 23.79**	**$ 3.53**	**17.40%**
RTSR - Network	per kWh	$ 0.0076	104	$ 0.79	$ 0.0074	104	$ 0.77	$ (0.02)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	104	$ 0.24	$ 0.0023	104	$ 0.24	$ (0.00)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 21.29**			**$ 24.79**	**$ 3.50**	**16.44%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	104	$ 0.46	$ 0.0044	104	$ 0.46	$ (0.00)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	104	$ 0.14	$ 0.0013	104	$ 0.13	$ (0.00)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	100	$ 0.70	$ -	100	$ -	$ (0.70)	-100.00%
TOU - Off Peak	per kWh	$ 0.0770	64	$ 4.93	$ 0.0770	64	$ 4.93	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	18	$ 2.05	$ 0.1140	18	$ 2.05	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	18	$ 2.52	$ 0.1400	18	$ 2.52	$ -	0.00%
Energy - RPP - Tier 1 - Set at 600 kWh	per kWh	$ 0.0880	100	$ 8.80	$ 0.0880	100	$ 8.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	0	$ -	$ 0.1030	0	$ -	$ -	
Total Bill on TOU (before Taxes)				**$ 32.34**			**$ 35.13**	**$ 2.80**	**8.65%**
HST		13%		$ 4.20	13%		$ 4.57	$ 0.36	8.65%
Total Bill (including HST)				$ 36.54			$ 39.70	$ 3.16	8.65%
Ontario Clean Energy Benefit [1]				$ (3.65)			$ -	$ 3.65	-100.00%
Total Bill on TOU (including OCEB)				**$ 32.89**			**$ 39.70**	**$ 6.81**	**20.71%**
Total Bill on RPP (before Taxes)				**$ 31.64**			**$ 34.43**	**$ 2.80**	**8.84%**
HST		13%		$ 4.11	13%		$ 4.48	$ 0.36	8.84%
Total Bill (including HST)				$ 35.75			$ 38.91	$ 3.16	8.84%
Ontario Clean Energy Benefit [1]				$ (3.57)			$ -	$ 3.57	-100.00%
Total Bill on RPP (including OCEB)				**$ 32.18**			**$ 38.91**	**$ 6.73**	**20.92%**
Loss Factor (%)		4.04%			3.62%				

Appendix 2-W
Bill Impacts

Customer Class: Residential

TOU / non-TOU: TOU

Consumption 250 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	250	$ (0.03)	$ (0.00)	250	$ (0.03)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	250	$ -	-$ 0.0006	250	$ (0.15)	$ (0.15)	
Distribution Volumetric Rate	per kWh	$ 0.0192	250	$ 4.80	$ 0.0160	250	$ 4.00	$ (0.80)	-16.67%
Sub-Total A (excluding pass through)				$ 22.09			$ 24.91	**$ 2.83**	**12.79%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	250	$ (0.35)	$ 0.0002	250	$ 0.05	$ 0.40	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	250	$ 0.03	$ 0.0002	250	$ 0.05	$ 0.03	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	10.1	$ 0.96	$ 0.0950	9.05	$ 0.86	$ (0.10)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 23.51**			**$ 26.66**	**$ 3.15**	**13.40%**
RTSR - Network	per kWh	$ 0.0076	260	$ 1.98	$ 0.0074	259	$ 1.92	$ (0.06)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	260	$ 0.60	$ 0.0023	259	$ 0.60	$ (0.00)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 26.08**			**$ 29.17**	**$ 3.09**	**11.84%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	260	$ 1.14	$ 0.0044	259	$ 1.14	$ (0.00)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	260	$ 0.34	$ 0.0013	259	$ 0.34	$ (0.00)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	250	$ 1.75	$ -	250	$ -	$ (1.75)	-100.00%
TOU - Off Peak	per kWh	$ 0.0770	160	$ 12.32	$ 0.0770	160	$ 12.32	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	45	$ 5.13	$ 0.1140	45	$ 5.13	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	45	$ 6.30	$ 0.1400	45	$ 6.30	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	250	$ 22.00	$ 0.0880	250	$ 22.00	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	0	$ -	$ 0.1030	0	$ -	$ -	
Total Bill on TOU (before Taxes)				**$ 53.32**			**$ 54.65**	**$ 1.33**	**2.50%**
HST		13%		$ 6.93	13%		$ 7.10	$ 0.17	2.50%
Total Bill (including HST)				$ 60.25			$ 61.75	$ 1.51	2.50%
Ontario Clean Energy Benefit [1]				$ (6.02)			$ -	$ 6.02	-100.00%
Total Bill on TOU (including OCEB)				**$ 54.23**			**$ 61.75**	**$ 7.53**	**13.88%**
Total Bill on RPP (before Taxes)				**$ 51.57**			**$ 52.90**	**$ 1.33**	**2.58%**
HST		13%		$ 6.70	13%		$ 6.88	$ 0.17	2.58%
Total Bill (including HST)				$ 58.27			$ 59.78	$ 1.51	2.58%
Ontario Clean Energy Benefit [1]				$ (5.83)			$ -	$ 5.83	-100.00%
Total Bill on RPP (including OCEB)				**$ 52.44**			**$ 59.78**	**$ 7.34**	**13.99%**
Loss Factor (%)		4.04%			3.62%				

Appendix 2-W
Bill Impacts

Customer Class: Residential

TOU / non-TOU: TOU

Consumption 500 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	500	$ (0.05)	$ (0.00)	500	$ (0.05)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	500	$ -	-$ 0.0006	500	$ (0.30)	$ (0.30)	
Distribution Volumetric Rate	per kWh	$ 0.0192	500	$ 9.60	$ 0.0160	500	$ 8.00	$ (1.60)	-16.67%
Sub-Total A (excluding pass through)				$ 26.86			$ 28.74	**$ 1.88**	**6.98%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	500	$ (0.70)	$ 0.0002	500	$ 0.10	$ 0.80	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	500	$ 0.05	$ 0.0002	500	$ 0.10	$ 0.05	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	20.2	$ 1.92	$ 0.0950	18.1	$ 1.72	$ (0.20)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 28.92**			**$ 31.44**	**$ 2.53**	**8.73%**
RTSR - Network	per kWh	$ 0.0076	520	$ 3.95	$ 0.0074	518	$ 3.83	$ (0.12)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	520	$ 1.20	$ 0.0023	518	$ 1.19	$ (0.00)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 34.07**			**$ 36.47**	**$ 2.40**	**7.05%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	520	$ 2.29	$ 0.0044	518	$ 2.28	$ (0.01)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	520	$ 0.68	$ 0.0013	518	$ 0.67	$ (0.00)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	500	$ 3.50	$ -	500	$ -	$ (3.50)	-100.00%
TOU - Off Peak	per kWh	$ 0.0770	320	$ 24.64	$ 0.0770	320	$ 24.64	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	90	$ 10.26	$ 0.1140	90	$ 10.26	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	90	$ 12.60	$ 0.1400	90	$ 12.60	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	500	$ 44.00	$ 0.0880	500	$ 44.00	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	0	$ -	$ 0.1030	0	$ -	$ -	
Total Bill on TOU (before Taxes)				**$ 88.28**			**$ 87.17**	**$ (1.11)**	**-1.26%**
HST		13%		$ 11.48	13%		$ 11.33	$ (0.14)	-1.26%
Total Bill (including HST)				$ 99.76			$ 98.51	$ (1.26)	-1.26%
Ontario Clean Energy Benefit [1]				$ (9.98)			$ -	$ 9.98	-100.00%
Total Bill on TOU (including OCEB)				**$ 89.78**			**$ 98.51**	**$ 8.72**	**9.72%**
Total Bill on RPP (before Taxes)				**$ 84.78**			**$ 83.67**	**$ (1.11)**	**-1.31%**
HST		13%		$ 11.02	13%		$ 10.88	$ (0.14)	-1.31%
Total Bill (including HST)				$ 95.81			$ 94.55	$ (1.26)	-1.31%
Ontario Clean Energy Benefit [1]				$ (9.58)			$ -	$ 9.58	-100.00%
Total Bill on RPP (including OCEB)				**$ 86.23**			**$ 94.55**	**$ 8.32**	**9.65%**
Loss Factor (%)		4.04%			3.62%				

Appendix 2-W
Bill Impacts

Customer Class: Residential

TOU / non-TOU: TOU

Consumption 800 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR) - 3 YR v02	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	800	$ (0.08)	-$ 0.0001	800	$ (0.08)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	800	$ -	-$ 0.0006	800	$ (0.48)	$ (0.48)	
Distribution Volumetric Rate	per kWh	$ 0.0192	800	$ 15.36	$ 0.0160	800	$ 12.80	$ (2.56)	-16.67%
Sub-Total A (excluding pass through)				$ 32.59			$ 33.33	**$ 0.74**	**2.26%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	800	$ (1.12)	$ 0.0002	800	$ 0.16	$ 1.28	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	800	$ 0.08	$ 0.0002	800	$ 0.16	$ 0.08	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	32.32	$ 3.07	$ 0.0950	28.96	$ 2.75	$ (0.32)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 35.41**			**$ 37.19**	**$ 1.78**	**5.02%**
RTSR - Network	per kWh	$ 0.0076	832	$ 6.33	$ 0.0074	829	$ 6.13	$ (0.19)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	832	$ 1.91	$ 0.0023	829	$ 1.91	$ (0.01)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 43.65**			**$ 45.23**	**$ 1.58**	**3.61%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	832	$ 3.66	$ 0.0044	829	$ 3.65	$ (0.01)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	832	$ 1.08	$ 0.0013	829	$ 1.08	$ (0.00)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	800	$ 5.60	$ -	800	$ -	$ (5.60)	-100.00%
TOU - Off Peak	per kWh	$ 0.0770	512	$ 39.42	$ 0.0770	512	$ 39.42	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	144	$ 16.42	$ 0.1140	144	$ 16.42	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	144	$ 20.16	$ 0.1400	144	$ 20.16	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	200	$ 20.60	$ 0.1030	200	$ 20.60	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 130.24**			**$ 126.20**	**$ (4.04)**	**-3.10%**
HST		13%		$ 16.93	13%		$ 16.41	$ (0.53)	-3.10%
Total Bill (including HST)				$ 147.18			$ 142.61	$ (4.57)	-3.10%
Ontario Clean Energy Benefit [1]				$ (14.72)			$ -	$ 14.72	-100.00%
Total Bill on TOU (including OCEB)				**$ 132.46**			**$ 142.61**	**$ 10.15**	**7.66%**
Total Bill on RPP (before Taxes)				**$ 127.64**			**$ 123.60**	**$ (4.04)**	**-3.17%**
HST		13%		$ 16.59	13%		$ 16.07	$ (0.53)	-3.17%
Total Bill (including HST)				$ 144.24			$ 139.67	$ (4.57)	-3.17%
Ontario Clean Energy Benefit [1]				$ (14.42)			$ -	$ 14.42	-100.00%
Total Bill on RPP (including OCEB)				**$ 129.82**			**$ 139.67**	**$ 9.85**	**7.59%**
Loss Factor (%)		4.04%			3.62%				

Appendix 2-W
Bill Impacts

Customer Class: Residential

TOU / non-TOU: TOU

Consumption 1,000 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	1000	$ (0.10)	$ (0.00)	1000	$ (0.10)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	1000	$ -	-$ 0.0006	1000	$ (0.60)	$ (0.60)	
Distribution Volumetric Rate	per kWh	$ 0.0192	1000	$ 19.20	$ 0.0160	1000	$ 16.00	$ (3.20)	-16.67%
Sub-Total A (excluding pass through)				$ 36.41			$ 36.39	**$ (0.02)**	**-0.07%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	1000	$ (1.40)	$ 0.0002	1000	$ 0.20	$ 1.60	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	1000	$ 0.10	$ 0.0002	1000	$ 0.20	$ 0.10	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	40.4	$ 3.84	$ 0.0950	36.2	$ 3.44	$ (0.40)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 39.74**			**$ 41.01**	**$ 1.28**	**3.21%**
RTSR - Network	per kWh	$ 0.0076	1040	$ 7.91	$ 0.0074	1036	$ 7.67	$ (0.24)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	1040	$ 2.39	$ 0.0023	1036	$ 2.38	$ (0.01)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 50.04**			**$ 51.07**	**$ 1.03**	**2.05%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	1040	$ 4.58	$ 0.0044	1036	$ 4.56	$ (0.02)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	1040	$ 1.35	$ 0.0013	1036	$ 1.35	$ (0.01)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	1000	$ 7.00	$ -	1000	$ -	$ (7.00)	-100.00%
TOU - Off Peak	per kWh	$ 0.0770	640	$ 49.28	$ 0.0770	640	$ 49.28	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	180	$ 20.52	$ 0.1140	180	$ 20.52	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	180	$ 25.20	$ 0.1400	180	$ 25.20	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	400	$ 41.20	$ 0.1030	400	$ 41.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 158.22**			**$ 152.22**	**$ (6.00)**	**-3.79%**
HST		13%		$ 20.57	13%		$ 19.79	$ (0.78)	-3.79%
Total Bill (including HST)				$ 178.79			$ 172.01	$ (6.78)	-3.79%
Ontario Clean Energy Benefit [1]				$ (17.88)			$ -	$ 17.88	-100.00%
Total Bill on TOU (including OCEB)				**$ 160.91**			**$ 172.01**	**$ 11.10**	**6.90%**
Total Bill on RPP (before Taxes)				**$ 157.22**			**$ 151.22**	**$ (6.00)**	**-3.81%**
HST		13%		$ 20.44	13%		$ 19.66	$ (0.78)	-3.81%
Total Bill (including HST)				$ 177.66			$ 170.88	$ (6.78)	-3.81%
Ontario Clean Energy Benefit [1]				$ (17.77)			$ -	$ 17.77	-100.00%
Total Bill on RPP (including OCEB)				**$ 159.89**			**$ 170.88**	**$ 10.99**	**6.88%**
Loss Factor (%)		4.04%			3.62%				

Appendix 2-W
Bill Impacts

Customer Class: Residential

TOU / non-TOU: TOU

Consumption 1,500 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	1500	$ (0.15)	$ (0.00)	1500	$ (0.15)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	1500	$ -	-$ 0.0006	1500	$ (0.90)	$ (0.90)	
Distribution Volumetric Rate	per kWh	$ 0.0192	1500	$ 28.80	$ 0.0160	1500	$ 24.00	$ (4.80)	-16.67%
Sub-Total A (excluding pass through)				$ 45.96			$ 44.04	**$ (1.92)**	**-4.19%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	1500	$ (2.10)	$ 0.0002	1500	$ 0.30	$ 2.40	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	1500	$ 0.15	$ 0.0002	1500	$ 0.30	$ 0.15	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	60.6	$ 5.76	$ 0.0950	54.3	$ 5.16	$ (0.60)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 50.56**			**$ 50.58**	**$ 0.03**	**0.05%**
RTSR - Network	per kWh	$ 0.0076	1561	$ 11.86	$ 0.0074	1554	$ 11.50	$ (0.36)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	1561	$ 3.59	$ 0.0023	1554	$ 3.57	$ (0.01)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 66.01**			**$ 65.66**	**$ (0.35)**	**-0.53%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	1561	$ 6.87	$ 0.0044	1554	$ 6.84	$ (0.03)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	1561	$ 2.03	$ 0.0013	1554	$ 2.02	$ (0.01)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	1500	$ 10.50	$ -	1500	$ -	$ (10.50)	-100.00%
TOU - Off Peak	per kWh	$ 0.0770	960	$ 73.92	$ 0.0770	960	$ 73.92	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	270	$ 30.78	$ 0.1140	270	$ 30.78	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	270	$ 37.80	$ 0.1400	270	$ 37.80	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	900	$ 92.70	$ 0.1030	900	$ 92.70	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 228.15**			**$ 217.27**	**$ (10.88)**	**-4.77%**
HST		13%		$ 29.66	13%		$ 28.25	$ (1.41)	-4.77%
Total Bill (including HST)				$ 257.81			$ 245.52	$ (12.30)	-4.77%
Ontario Clean Energy Benefit [1]				$ (25.78)			$ -	$ 25.78	-100.00%
Total Bill on TOU (including OCEB)				**$ 232.03**			**$ 245.52**	**$ 13.48**	**5.81%**
Total Bill on RPP (before Taxes)				**$ 231.15**			**$ 220.27**	**$ (10.88)**	**-4.71%**
HST		13%		$ 30.05	13%		$ 28.64	$ (1.41)	-4.71%
Total Bill (including HST)				$ 261.20			$ 248.91	$ (12.30)	-4.71%
Ontario Clean Energy Benefit [1]				$ (26.12)			$ -	$ 26.12	-100.00%
Total Bill on RPP (including OCEB)				**$ 235.08**			**$ 248.91**	**$ 13.82**	**5.88%**
Loss Factor (%)		4.04%			3.62%				

Appendix 2-W
Bill Impacts

Customer Class: Residential

TOU / non-TOU: TOU

Consumption 2,000 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	2000	$ (0.20)	$ (0.00)	2000	$ (0.20)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	2000	$ -	-$ 0.0006	2000	$ (1.20)	$ (1.20)	
Distribution Volumetric Rate	per kWh	$ 0.0192	2000	$ 38.40	$ 0.0160	2000	$ 32.00	$ (6.40)	-16.67%
Sub-Total A (excluding pass through)				$ 55.51			$ 51.69	**$ (3.82)**	**-6.89%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	2000	$ (2.80)	$ 0.0002	2000	$ 0.40	$ 3.20	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	2000	$ 0.20	$ 0.0002	2000	$ 0.40	$ 0.20	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	80.8	$ 7.68	$ 0.0950	72.4	$ 6.88	$ (0.80)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 61.38**			**$ 60.15**	**$ (1.22)**	**-1.99%**
RTSR - Network	per kWh	$ 0.0076	2081	$ 15.81	$ 0.0074	2072	$ 15.34	$ (0.48)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	2081	$ 4.79	$ 0.0023	2072	$ 4.77	$ (0.02)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 81.98**			**$ 80.26**	**$ (1.72)**	**-2.10%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	2081	$ 9.16	$ 0.0044	2072	$ 9.12	$ (0.04)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	2081	$ 2.71	$ 0.0013	2072	$ 2.69	$ (0.01)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	2000	$ 14.00	$ -	2000	$ -	$ (14.00)	-100.00%
TOU - Off Peak	per kWh	$ 0.0770	1280	$ 98.56	$ 0.0770	1280	$ 98.56	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	360	$ 41.04	$ 0.1140	360	$ 41.04	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	360	$ 50.40	$ 0.1400	360	$ 50.40	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	1400	$ 144.20	$ 0.1030	1400	$ 144.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 298.09**			**$ 282.32**	**$ (15.77)**	**-5.29%**
HST		13%		$ 38.75	13%		$ 36.70	$ (2.05)	-5.29%
Total Bill (including HST)				$ 336.84			$ 319.02	$ (17.82)	-5.29%
Ontario Clean Energy Benefit [1]				$ (33.68)			$ -	$ 33.68	-100.00%
Total Bill on TOU (including OCEB)				**$ 303.16**			**$ 319.02**	**$ 15.86**	**5.23%**
Total Bill on RPP (before Taxes)				**$ 305.09**			**$ 289.32**	**$ (15.77)**	**-5.17%**
HST		13%		$ 39.66	13%		$ 37.61	$ (2.05)	-5.17%
Total Bill (including HST)				$ 344.75			$ 326.93	$ (17.82)	-5.17%
Ontario Clean Energy Benefit [1]				$ (34.47)			$ -	$ 34.47	-100.00%
Total Bill on RPP (including OCEB)				**$ 310.28**			**$ 326.93**	**$ 16.65**	**5.37%**
Loss Factor (%)		4.04%			3.62%				

Appendix 2-W
Bill Impacts

Customer Class: GS < 50 kW

TOU / non-TOU: TOU

Consumption 1,000 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 31.96	1	$ 31.96	$ 35.58	1	$ 35.58	$ 3.62	11.33%
Rate Rider for LRAMVA	per kWh		1000	$ -	$ 0.0005	1000	$ 0.50	$ 0.50	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 5.51	1	$ 5.51		1	$ -	$ (5.51)	-100.00%
Stranded Meter Rate Rider (SMRR) - 3 YR v02	Monthly		1	$ -	$ 1.38	1	$ 1.38	$ 1.38	
Rate Rider for Application of Tax Change	per kWh	-$ 0.00005	1000	$ (0.05)	-$ 0.00005	1000	$ (0.05)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		1000	$ -	-$ 0.0006	1000	$ (0.60)	$ (0.60)	
Distribution Volumetric Rate	per kWh	$ 0.0143	1000	$ 14.30	$ 0.0159	1000	$ 15.90	$ 1.60	11.19%
Sub-Total A (excluding pass through)				$ 51.72			$ 52.71	**$ 0.99**	**1.92%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	1000	$ (1.40)	$ 0.0004	1000	$ 0.40	$ 1.80	-128.57%
	per kWh		1000	$ -		1000	$ -	$ -	
Low Voltage Service Charge	per kWh	$ 0.0001	1000	$ 0.10	$ 0.0002	1000	$ 0.20	$ 0.10	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	40.4	$ 3.84	$ 0.0950	36.2	$ 3.44	$ (0.40)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 55.05**			**$ 57.54**	**$ 2.50**	**4.53%**
RTSR - Network	per kWh	$ 0.0069	1040	$ 7.18	$ 0.0067	1036	$ 6.94	$ (0.24)	-3.29%
RTSR - Line and Transformation Connection	per kWh	$ 0.0021	1040	$ 2.18	$ 0.0021	1036	$ 2.18	$ (0.01)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 64.41**			**$ 66.66**	**$ 2.25**	**3.49%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	1040	$ 4.58	$ 0.0044	1036	$ 4.56	$ (0.02)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	1040	$ 1.35	$ 0.0013	1036	$ 1.35	$ (0.01)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	1000	$ 7.00	$ 0.0070	1000	$ 7.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	640	$ 49.28	$ 0.0770	640	$ 49.28	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	180	$ 20.52	$ 0.1140	180	$ 20.52	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	180	$ 25.20	$ 0.1400	180	$ 25.20	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	400	$ 41.20	$ 0.1030	400	$ 41.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 172.59**			**$ 174.82**	**$ 2.23**	**1.29%**
HST		13%		$ 22.44	13%		$ 22.73	$ 0.29	1.29%
Total Bill (including HST)				$ 195.03			$ 197.54	$ 2.52	1.29%
Ontario Clean Energy Benefit [1]				$ (19.50)			$ -	$ 19.50	-100.00%
Total Bill on TOU (including OCEB)				**$ 175.53**			**$ 197.54**	**$ 22.02**	**12.54%**
Total Bill on RPP (before Taxes)				**$ 171.59**			**$ 173.82**	**$ 2.23**	**1.30%**
HST		13%		$ 22.31	13%		$ 22.60	$ 0.29	1.30%
Total Bill (including HST)				$ 193.90			$ 196.41	$ 2.52	1.30%
Ontario Clean Energy Benefit [1]				$ (19.39)			$ -	$ 19.39	-100.00%
Total Bill on RPP (including OCEB)				**$ 174.51**			**$ 196.41**	**$ 21.91**	**12.55%**
Loss Factor (%)		4.04%			3.62%				

Appendix 2-W
Bill Impacts

Customer Class: GS < 50 kW

TOU / non-TOU: TOU

Consumption 2,000 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 31.96	1	$ 31.96	$ 35.58	1	$ 35.58	$ 3.62	11.33%
Rate Rider for LRAMVA	per kWh		2000	$ -	$ 0.0005	2000	$ 1.00	$ 1.00	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 5.51	1	$ 5.51		1	$ -	$ (5.51)	-100.00%
Stranded Meter Rate Rider (SMRR) - 3 YR v02	Monthly		1	$ -	$ 1.38	1	$ 1.38	$ 1.38	
Rate Rider for Application of Tax Change	per kWh	-$ 0.00005	2000	$ (0.10)	-$ 0.0001	2000	$ (0.10)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		2000	$ -	-$ 0.0006	2000	$ (1.20)	$ (1.20)	
Distribution Volumetric Rate	per kWh	$ 0.0143	2000	$ 28.60	$ 0.0159	2000	$ 31.80	$ 3.20	11.19%
Sub-Total A (excluding pass through)				$ 65.97			$ 68.46	**$ 2.49**	**3.78%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	2000	$ (2.80)	$ 0.0004	2000	$ 0.80	$ 3.60	-128.57%
	per kWh		2000	$ -		2000	$ -	$ -	
Low Voltage Service Charge	per kWh	$ 0.0001	2000	$ 0.20	$ 0.0002	2000	$ 0.40	$ 0.20	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	80.8	$ 7.68	$ 0.0950	72.4	$ 6.88	$ (0.80)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 71.84**			**$ 77.33**	**$ 5.50**	**7.65%**
RTSR - Network	per kWh	$ 0.0069	2081	$ 14.36	$ 0.0067	2072	$ 13.89	$ (0.47)	-3.29%
RTSR - Line and Transformation Connection	per kWh	$ 0.0021	2081	$ 4.37	$ 0.0021	2072	$ 4.35	$ (0.02)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 90.56**			**$ 95.57**	**$ 5.01**	**5.53%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	2081	$ 9.16	$ 0.0044	2072	$ 9.12	$ (0.04)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	2081	$ 2.71	$ 0.0013	2072	$ 2.69	$ (0.01)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	2000	$ 14.00	$ 0.0070	2000	$ 14.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	1280	$ 98.56	$ 0.0770	1280	$ 98.56	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	360	$ 41.04	$ 0.1140	360	$ 41.04	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	360	$ 50.40	$ 0.1400	360	$ 50.40	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	1400	$ 144.20	$ 0.1030	1400	$ 144.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 306.67**			**$ 311.63**	**$ 4.96**	**1.62%**
HST		13%		$ 39.87	13%		$ 40.51	$ 0.64	1.62%
Total Bill (including HST)				$ 346.54			$ 352.14	$ 5.60	1.62%
Ontario Clean Energy Benefit [1]				$ (34.65)			$ -	$ 34.65	-100.00%
Total Bill on TOU (including OCEB)				**$ 311.89**			**$ 352.14**	**$ 40.25**	**12.91%**
Total Bill on RPP (before Taxes)				**$ 313.67**			**$ 318.63**	**$ 4.96**	**1.58%**
HST		13%		$ 40.78	13%		$ 41.42	$ 0.64	1.58%
Total Bill (including HST)				$ 354.45			$ 360.05	$ 5.60	1.58%
Ontario Clean Energy Benefit [1]				$ (35.45)			$ -	$ 35.45	-100.00%
Total Bill on RPP (including OCEB)				**$ 319.00**			**$ 360.05**	**$ 41.05**	**12.87%**
Loss Factor (%)		4.04%			3.62%				

Appendix 2-W
Bill Impacts

Customer Class: GS < 50 kW

TOU / non-TOU: TOU

Consumption 5,000 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 31.96	1	$ 31.96	$ 35.58	1	$ 35.58	$ 3.62	11.33%
Rate Rider for LRAMVA	per kWh		5000	$ -	$ 0.0005	5000	$ 2.50	$ 2.50	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 5.51	1	$ 5.51		1	$ -	$ (5.51)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly		1	$ -	$ 1.38	1	$ 1.38	$ 1.38	
Rate Rider for Application of Tax Change	per kWh	-$ 0.00005	5000	$ (0.25)	-$ 0.0001	5000	$ (0.25)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		5000	$ -	-$ 0.0006	5000	$ (3.00)	$ (3.00)	
Distribution Volumetric Rate	per kWh	$ 0.0143	5000	$ 71.50	$ 0.0159	5000	$ 79.50	$ 8.00	11.19%
Sub-Total A (excluding pass through)				$ 108.72			$ 115.71	**$ 6.99**	**6.43%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	5000	$ (7.00)	$ 0.0004	5000	$ 2.00	$ 9.00	-128.57%
	per kWh		5000	$ -		5000	$ -	$ -	
Low Voltage Service Charge	per kWh	$ 0.0001	5000	$ 0.50	$ 0.0002	5000	$ 1.00	$ 0.50	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	202	$ 19.19	$ 0.0950	181	$ 17.20	$ (2.00)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 122.20**			**$ 136.70**	**$ 14.50**	**11.87%**
RTSR - Network	per kWh	$ 0.0069	5202	$ 35.89	$ 0.0067	5181	$ 34.71	$ (1.18)	-3.29%
RTSR - Line and Transformation Connection	per kWh	$ 0.0021	5202	$ 10.92	$ 0.0021	5181	$ 10.88	$ (0.04)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 169.02**			**$ 182.29**	**$ 13.27**	**7.85%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	5202	$ 22.89	$ 0.0044	5181	$ 22.80	$ (0.09)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	5202	$ 6.76	$ 0.0013	5181	$ 6.74	$ (0.03)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	5000	$ 35.00	$ 0.0070	5000	$ 35.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	3200	$ 246.40	$ 0.0770	3200	$ 246.40	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	900	$ 102.60	$ 0.1140	900	$ 102.60	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	900	$ 126.00	$ 0.1400	900	$ 126.00	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	4400	$ 453.20	$ 0.1030	4400	$ 453.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 708.92**			**$ 722.07**	**$ 13.15**	**1.86%**
HST		13%		$ 92.16	13%		$ 93.87	$ 1.71	1.86%
Total Bill (including HST)				$ 801.08			$ 815.94	$ 14.86	1.86%
Ontario Clean Energy Benefit [1]				$ (80.11)			$ -	$ 80.11	-100.00%
Total Bill on TOU (including OCEB)				**$ 720.97**			**$ 815.94**	**$ 94.97**	**13.17%**
Total Bill on RPP (before Taxes)				**$ 739.92**			**$ 753.07**	**$ 13.15**	**1.78%**
HST		13%		$ 96.19	13%		$ 97.90	$ 1.71	1.78%
Total Bill (including HST)				$ 836.11			$ 850.97	$ 14.86	1.78%
Ontario Clean Energy Benefit [1]				$ (83.61)			$ -	$ 83.61	-100.00%
Total Bill on RPP (including OCEB)				**$ 752.50**			**$ 850.97**	**$ 98.47**	**13.09%**
Loss Factor (%)		4.04%			3.62%				

Appendix 2-W
Bill Impacts

Customer Class: GS < 50 kW

TOU / non-TOU: TOU

Consumption 10,000 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 31.96	1	$ 31.96	$ 35.58	1	$ 35.58	$ 3.62	11.33%
Rate Rider for LRAMVA	per kWh		10000	$ -	$ 0.0005	10000	$ 5.00	$ 5.00	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 5.51	1	$ 5.51		1	$ -	$ (5.51)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly		1	$ -	$ 1.38	1	$ 1.38	$ 1.38	
Rate Rider for Application of Tax Change	per kWh	-$ 0.00005	10000	$ (0.50)	-$ 0.0001	10000	$ (0.50)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		10000	$ -	-$ 0.0006	10000	$ (6.00)	$ (6.00)	
Distribution Volumetric Rate	per kWh	$ 0.0143	10000	$ 143.00	$ 0.0159	10000	$ 159.00	$ 16.00	11.19%
Sub-Total A (excluding pass through)				$ 179.97			$ 194.46	**$ 14.49**	**8.05%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	10000	$ (14.00)	$ 0.0004	10000	$ 4.00	$ 18.00	-128.57%
	per kWh		10000	$ -		10000	$ -	$ -	
Low Voltage Service Charge	per kWh	$ 0.0001	10000	$ 1.00	$ 0.0002	10000	$ 2.00	$ 1.00	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	404	$ 38.38	$ 0.0950	362	$ 34.39	$ (3.99)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 206.14**			**$ 235.64**	**$ 29.50**	**14.31%**
RTSR - Network	per kWh	$ 0.0069	10404	$ 71.79	$ 0.0067	10362	$ 69.43	$ (2.36)	-3.29%
RTSR - Line and Transformation Connection	per kWh	$ 0.0021	10404	$ 21.85	$ 0.0021	10362	$ 21.76	$ (0.09)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 299.78**			**$ 326.83**	**$ 27.05**	**9.02%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	10404	$ 45.78	$ 0.0044	10362	$ 45.59	$ (0.18)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	10404	$ 13.53	$ 0.0013	10362	$ 13.47	$ (0.05)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	10000	$ 70.00	$ 0.0070	10000	$ 70.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	6400	$ 492.80	$ 0.0770	6400	$ 492.80	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	1800	$ 205.20	$ 0.1140	1800	$ 205.20	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	1800	$ 252.00	$ 0.1400	1800	$ 252.00	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	9400	$ 968.20	$ 0.1030	9400	$ 968.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$1,379.33**			**$1,406.14**	**$ 26.81**	**1.94%**
HST		13%		$ 179.31	13%		$ 182.80	$ 3.49	1.94%
Total Bill (including HST)				$1,558.64			$1,588.94	$ 30.30	1.94%
Ontario Clean Energy Benefit [1]				$ (155.86)			$ -	$ 155.86	-100.00%
Total Bill on TOU (including OCEB)				**$1,402.78**			**$1,588.94**	**$ 186.16**	**13.27%**
Total Bill on RPP (before Taxes)				**$1,450.33**			**$1,477.14**	**$ 26.81**	**1.85%**
HST		13%		$ 188.54	13%		$ 192.03	$ 3.49	1.85%
Total Bill (including HST)				$1,638.87			$1,669.17	$ 30.30	1.85%
Ontario Clean Energy Benefit [1]				$ (163.89)			$ -	$ 163.89	-100.00%
Total Bill on RPP (including OCEB)				**$1,474.98**			**$1,669.17**	**$ 194.19**	**13.17%**
Loss Factor (%)		4.04%			3.62%				

Appendix 2-W
Bill Impacts

Customer Class: GS < 50 kW

TOU / non-TOU: TOU

Consumption 15,000 kWh

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 31.96	1	$ 31.96	$ 35.58	1	$ 35.58	$ 3.62	11.33%
Rate Rider for LRAMVA	per kWh		15000	$ -	$ 0.0005	15000	$ 7.50	$ 7.50	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 5.51	1	$ 5.51		1	$ -	$ (5.51)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly		1	$ -	$ 1.38	1	$ 1.38	$ 1.38	
Rate Rider for Application of Tax Change	per kWh	-$ 0.00005	15000	$ (0.75)	-$ 0.0001	15000	$ (0.75)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		15000	$ -	-$ 0.0006	15000	$ (9.00)	$ (9.00)	
Distribution Volumetric Rate	per kWh	$ 0.0143	15000	$ 214.50	$ 0.0159	15000	$ 238.50	$ 24.00	11.19%
Sub-Total A (excluding pass through)				$ 251.22			$ 273.21	**$ 21.99**	**8.75%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	15000	$ (21.00)	$ 0.0004	15000	$ 6.00	$ 27.00	-128.57%
	per kWh		15000	$ -		15000	$ -	$ -	
Low Voltage Service Charge	per kWh	$ 0.0001	15000	$ 1.50	$ 0.0002	15000	$ 3.00	$ 1.50	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	606	$ 57.57	$ 0.0950	543	$ 51.59	$ (5.99)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 290.08**			**$ 334.59**	**$ 44.51**	**15.34%**
RTSR - Network	per kWh	$ 0.0069	15606	$ 107.68	$ 0.0067	15543	$ 104.14	$ (3.54)	-3.29%
RTSR - Line and Transformation Connection	per kWh	$ 0.0021	15606	$ 32.77	$ 0.0021	15543	$ 32.64	$ (0.13)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 430.53**			**$ 471.37**	**$ 40.83**	**9.48%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	15606	$ 68.67	$ 0.0044	15543	$ 68.39	$ (0.28)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	15606	$ 20.29	$ 0.0013	15543	$ 20.21	$ (0.08)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	15000	$ 105.00	$ 0.0070	15000	$ 105.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	9600	$ 739.20	$ 0.0770	9600	$ 739.20	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	2700	$ 307.80	$ 0.1140	2700	$ 307.80	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	2700	$ 378.00	$ 0.1400	2700	$ 378.00	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	14400	$ 1,483.20	$ 0.1030	14400	$ 1,483.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 2,049.74**			**$ 2,090.21**	**$ 40.47**	**1.97%**
HST		13%		$ 266.47	13%		$ 271.73	$ 5.26	1.97%
Total Bill (including HST)				$ 2,316.20			$ 2,361.94	$ 45.74	1.97%
Ontario Clean Energy Benefit [1]				$ (231.62)			$ -	$ 231.62	-100.00%
Total Bill on TOU (including OCEB)				**$ 2,084.58**			**$ 2,361.94**	**$ 277.36**	**13.31%**
Total Bill on RPP (before Taxes)				**$ 2,160.74**			**$ 2,201.21**	**$ 40.47**	**1.87%**
HST		13%		$ 280.90	13%		$ 286.16	$ 5.26	1.87%
Total Bill (including HST)				$ 2,441.63			$ 2,487.37	$ 45.74	1.87%
Ontario Clean Energy Benefit [1]				$ (244.16)			$ -	$ 244.16	-100.00%
Total Bill on RPP (including OCEB)				**$ 2,197.47**			**$ 2,487.37**	**$ 289.90**	**13.19%**
Loss Factor (%)		4.04%			3.62%				

8-Energy Probe-53

Reference: Exhibit 8, Tab 1, Schedule 1

Interrogatory:

a) Please confirm that based on Table 8-4, if the residential service charge were to recover 100% of the base revenue requirement for the residential class, the charge would be $31.89. If not confirmed, please calculate what the charge would be.

b) Assuming that one-quarter of the increase from the proposed residential monthly charge of $17.21 to the figure noted above ($31.89 or as otherwise calculated) were added to the proposed monthly fixed charge of $17.21 and the volumetric rate was correspondingly decreased, please provide the bill impacts shown for the residential class in Attachment 8-4 for levels of consumption of 100, 250, 500, 800, 1,000, 1,500 and 2,000 kWh.

c) Based on the most recent 12 months of billing data available, please provide a breakdown as to the number of residential customers that fall into the following ranges of monthly usage:

* 0-100 kWh
* >100 – 250 kWh
* >250 - 500 kWh
* >500 – 800 kWh
* >800 – 1,000 kWh
* >1,000 – 1,500 kWh
* >1,500 – 2,000 kWh
* >2,000.

Response:

a) WNH has recalculated Appendix 2-PA in its response to 1-Staff-138 above. Based on the updated numbers as a result of the Interrogatories, if implemented the Residential Charge would be $31.34, rather than $31.89.

b) Please refer to 8-Staff-138 based on updated numbers.

c) Please find the breakdown as follows:

Consumption Level	# Customers
0-100 kWh	324
>100 – 250 kWh	2,925
>250 - 500 kWh	15,145
>500 – 800 kWh	16,483
>800 – 1,000 kWh	5,768
>1,000 – 1,500 kWh	5,695
>1,500 – 2,000 kWh	1,339
>2,000	832
Total	48,511

In order to produce this breakdown WNH compiled the data on the basis of location as WNH has many student moves and to run by account would produce unreasonable results.

8.0–VECC-46

Reference: E8, pg. 5-7

Interrogatory:

a) Please confirm that, based on Table 8-4, if the Residential revenue requirement was to be recovered entirely through a fixed charge, then the 2016 monthly Residential fixed charge would be $31.89. If not, what would the charge be?

b) Please confirm that if the 2016 Residential monthly service charge, assuming the current fixed-variable split, was increased ¼ of the way to this value then the 2016 Residential charge would be $20.88. If not, what would the result be?

c) Please provide the resulting Residential total bill impacts (i.e. the Residential tables in Appendix 2-W) if this service charge (per part (b)) was adopted and the variable charge decreased accordingly.

d) Based on the most recent 12 months of billing data please indicate how many Residential customers fall into each of the following average monthly use categories:

- 0-100 kWh
- >100-250 kWh
- >250-500 kWh
- >500-800 kWh
- >800-1,000 kWh
- >1,000-1,500 kWh
- >1,500-2,000 kWh
- >2,000 kWh

Response:

a) Please refer to 8-Energy Probe-53.

b) Please refer to 8-Staff-138, the Monthly Service Charge would be $20.53, rather than $20.88.

c) Please refer to the Updated Bill Impacts attached to this response and titled 'Waterloo_1-Staff-1-2016 Bill Impacts_Appendix 2-W_20150807'.

d) Please refer to 8-Energy Probe-53.

EXHIBIT 9 – DEFERRAL AND VARIANCE ACCOUNTS

9-Staff-143

Reference: Exhibit 9, Section 2.12, Deferral and Variance Accounts Overview, Table 9-1

Interrogatory:

There appears to be a discrepancy of $786,660 for account 1595 as at December 31, 2014. Per Table 9-1, the amounts for Account 1595 are:

1595 – 2010	$828,886
1595 – 2011	$86,501
1595 – 2012	$383,242
1595 – 2013	$211,575
Total	$1,510,204

Per the 2014 trial balance, the balance is $723,544. Please explain.

Response:

The 2014 Trial Balance has the 1595 – 2014 balances also included, which expire May 1, 2015, which were not included in the EDVAAR Model in error. This amount is not eligible for disposition as these Rate Riders do not expire until May 1, 2015, thus, no change in the Proposed Rate Riders is applicable. The EDDVAR Model has been updated to reflect this change and is attached with 1-Staff-1. WNH notes that the May 1, 2014 Approved Amounts and 2014 Transactions have been input in cell BJ37 for the Principal and cell BM37 for the Interest. The sum of 1595 (2010) through 1595 (2014) in the revised EDDVAR Model totals $723,544.

9-Staff-145

Reference: Exhibit 9, Section 2.12.5, Account 1576, Accounting Changes Under CGAAP, Table 9-16, Proposed Account 1576 Rate Rider Calculation

Reference: Exhibit 7, Cost Allocation, page 7

Interrogatory:

WNH is proposing to return $853k to customers in disposing of Account 1576 and states that this balance is related to capital costs. In the Exhibit 7 reference, WNH states that there are no capital costs associated with the Embedded Distributor Class. If this is the case, then why is WNH proposing to include the Embedded Distributor Class in the disposition of Account 1576?

Response:

WNH agrees that the Embedded Distributor Class should not be included in the disposition of Account 1576 and has changed the EDDVAR Model, Proposed Tariff of Rates and Rate Impacts to reflect its removal. Please refer to the Updated EDDVAR Model attached to this response titled 'Waterloo_1-Staff-1-2016 COS_2015_EDDVAR_Continuity_Schedule_CoS_20150807'.

9-Staff-146

Reference: Exhibit 9, Section 2.12.6, Retail Service Charges

Interrogatory:

Please provide the relative costs and revenues that go into accounts 1518 and 1548 and what the forecast is for 2016 and indicate where these amounts have been deducted from OM&A.

Response:

The revenue collected from retailers, in excess of incremental costs has resulted in a net increase in Account 1518 of $14,631 in 2014; $17,815 in 2013 and $21,202 in 2012. The incremental costs have been deducted from USoA 5315 Customer Billing. WNH forecast $29,000 in incremental costs in 2016, with the same amount forecast in USoA 4082 Retail Services Revenue.

The revenue collected from retailers has resulted in a net increase in Account 1548 of $902 in 2014; $794 in 2013 and $1,280 in 2012. WNH does not have incremental costs for this account.

9-Staff-147

Reference: Exhibit 9, Section 2.12.7, Disposition of Deferral and Variance Accounts

Interrogatory:

WNH received OEB approval on March 19, 2015, EB-2014-0119 for the disposition of Group 1 balances at December 31, 2013 and interest projected on these balances to April 30, 2015. The resulting rate riders are shown on WNH's current Tariff of Rates (Attachment 8-2) as being effective until April 30, 2016 yet do not appear on the Proposed Tariff of Rates (Attachment 2-Z). How is WNH proposing to deal with these rate riders?

Response:

WNH has adjusted the Proposed Tariff of Rates to reflect the May 1, 2015 Approved Rate Riders and the Rate Impact Calculations and attached these to WNH's Interrogatory Response. The Revised Proposed Tariff of Rates is titled 'Waterloo_1-Staff-1-2016 Bill Impacts_Appendix 2-W_20150807'.

9-Staff-149

Reference: Exhibit 9, Section 2.12.12, Cost of Eligible Investments for Connection of Qualifying Generation Facilities – Provincial Rate Payers.

Reference: Exhibit 2, Section 2.5.2.5, Cost of Eligible Investments for Connection of Qualifying Generation Facilities

Interrogatory:

Waterloo North Hydro has requested approval for recover of $7,776/year based one qualifying expansion project in 2013 for $117,320.

(a) Please provide further details of this project and why it qualifies for an expansion project (eligible for 17% direct benefit) versus a REI investment project (eligible for 6% direct benefit).

(b) Please explain why WNH is proposing to update Appendix 2-FC for any future Board issued cost of capital parameters, when the Appendix states that values from the last cost of service are to be used.

(c) The OEB issued APH guidance related to eligible investments as defined under O. Reg. 330/09 under the OEB Act on March 31, 2015.Has WNH followed this guidance (Question #10) as it relates to this project?

(d) How does WNH propose to continue to receive the Provincial Rate Protection from the IESO in subsequent IRM years?

Response:

(a) This project was an expansion to connect a new renewable energy generator and comprised of activity (a) and (c) as described in section 3.2.30 of the Distribution System Code (DSC). The project did not encompass any activities related to Renewable Enabling Improvements as described in section 3.3.2 of the DSC.

(b) WNH incorrectly applied future Board issued cost of capital parameters and has revised Appendix 2-FC to apply values from WNH's Approved 2011 COS Filing. WNH has attached the Revised Appendix 2-FA and 2-FC with WNH's Interrogatory Responses, the file is titled the file is '9-Staff-149_2016_Filing_Requirements_Chapter 2_Appendices_DRAFT_Appendix 2-FA FC_20150807'. WNH has also updated its Revenue Offset in USoA 4310 to $9,766 from $7,776.

(c) In Exhibit 9, page 39, of WNH's Application, WNH stated *"WNH is not proposing a variance account as the one project occurred in the historical year 2013 and no further eligible investments in connecting qualifying generation facilities has been forecast for the 2015 Bridge and 2016 Test Years*."

The OEB Issued APH Guidance in March 2015, Question 10, stated, regarding Deferral Account USoA 1533, *"The purpose of this variance account is to track the variance between the distributor's revenue requirement associated with the portion of the actual capital and/or operating costs that are eligible for rate protection, as incurred by the distributor for eligible renewable enabling and expansion investments, and the rate protection payments collected from the IESO."* As WNH was only applying for an already spent, actual amount, it had not proposed a variance account. In addition, WNH did not record the 2013 project in USoA 1533; it is recorded in the applicable capital USoA accounts. WNH's current proposal is to forego the collection of the revenue requirement on the project from 2013 to 2015, thus USoA 1533 was not used.

However, if the Board requires WNH to do so, it will set up the variance account with the anticipation of the balance being a $0 variance.

(d) In Exhibit 9, pages 38 to 39, of WNH's Application, it stated *"WNH is proposing in this Exhibit for the Board's approval for WNH to obtain payment from the IESO for Ratepayer Protection under O. Reg. 330/09 in the amount of $7,776 annually by payment of $648 monthly, the 2016 Provincial Rate Protection Amount as calculated by the Board's Appendix 2–FA and Appendix 2-FC."* Further to the response to (b) above, WNH is seeking Board approval in the amount of $9,766 annually by payment of $814 monthly for 2016; $9,499 annually by payment of $792 monthly for 2017; $9,232 annually by payment of $769 monthly for 2018; $8,965 annually by payment of $747 monthly for 2019; $8,698 annually by payment of $725 for 2020. These amounts are reflected in the revised model referred to in part (b) above.

9-Energy Probe-54

Reference: Exhibit 9, page 28

Interrogatory:

Does WNH agree that the disposition of the accounts may need to be updated to reflect any changes in the kW and/or kWh forecast if it were to change from that currently forecast?

Response:

WNH agrees that the disposition of the accounts may need to be updated to reflect any changes in the kW and/or kWh forecast if it were to change from that currently forecast.

2-E2-1 (Exhibit 9)

Ref: Exhibit 9, Proposed Rate Riders and Tables 26, 28, 29.

Interrogatory:

Modeling allocation assumptions for the LU are based on an annual consumption of 95,063,906 kWh and 173,581 kW / year. Including line losses, UofW, as the only LU consumer, actually consumed as follows: 87,273,575 kWh and 165,220 kW / year in Calendar Year 2012; 90,122,611 kWh and 168,361 kW/year in Calendar Year 2013; and 91,342,885 kWh and 165,723 kW / year in Calendar Year 2014.

i. What input was sought from UofW to confirm such an increase in load and demand growth in the Test Year?
ii. Were either UofW's Class A or CDM initiatives considered in the forecast?
iii. What would be the change in the LU class rate rider allocations if an average of the last three years was used as a proxy?

Response:

i. Customer Engagement presented rate impacts and did not test the Load Forecast. The Load Forecast is based on historical trends and regression models allocated to all rate classes.

ii. Please refer to 4-Staff-131 in which the Load Forecast has been updated to reflect CDM Savings in 2012 and 2013 for the Large User Rate Class.

iii. The Large User rate class Rate Rider Allocations in Tables 9-26, 9-28 and 9-29 would change as follows with the use of the average of the last three years kW compared with the kW as originally filed.

Details	Large User Rate Riders		
	Table 9-26	Table 9-28	Table 9-29
kW as originally filed	1.0643	(0.3233)	(0.0453)
Adjust to kW Avg 2012 - 2014	1.1083	(0.3366)	(0.0471)
Change	**0.0440**	**(0.0134)**	**(0.0019)**

Ontario Energy Board

Revenue Requirement Workform (RRWF) for 2016 Filers

Version 6.00

Utility Name	Waterloo North Hydro Inc.
Service Territory	
Assigned EB Number	EB-2015-0108
Name and Title	Albert P. Singh, VP Finance & CFO
Phone Number	519-888-5542
Email Address	asingh@wnhydro.com

This Workbook Model is protected by copyright and is being made available to you solely for the purpose of filing your application. You may use and copy this model for that purpose, and provide a copy of this model to any person that is advising or assisting you in that regard. Except as indicated above, any copying, reproduction, publication, sale, adaptation, translation, modification, reverse engineering or other use or dissemination of this model without the express written consent of the Ontario Energy Board is prohibited. If you provide a copy of this model to a person that is advising or assisting you in preparing the application or reviewing your draft rate order, you must ensure that the person understands and agrees to the restrictions noted above.

While this model has been provided in Excel format and is required to be filed with the applications, the onus remains on the applicant to ensure the accuracy of the data and the results.

Ontario Energy Board

Revenue Requirement Workform (RRWF) for 2016 Filers

1. Info

2. Table of Contents

3. Data_Input_Sheet

4. Rate_Base

5. Utility Income

6. Taxes_PILs

7. Cost_of_Capital

8. Rev_Def_Suff

9. Rev_Reqt

10. Tracking Sheet

Notes:

(1)	Pale green cells represent inputs
(2)	Pale green boxes at the bottom of each page are for additional notes
(3)	Pale yellow cells represent drop-down lists
(4)	***Please note that this model uses MACROS. Before starting, please ensure that macros have been enabled.***
(5)	***Completed versions of the Revenue Requirement Work Form are required to be filed in working Microsoft Excel***

Ontario Energy Board

Revenue Requirement Workform (RRWF) for 2016 Filers

Data Input [1]

		Initial Application	(2)	Adjustments	Interrogatory Responses	(6)	Adjustments	Per Board Decision	
1	**Rate Base**								
	Gross Fixed Assets (average)	$340,984,238		$185,862	$ 341,170,099			$341,170,099	
	Accumulated Depreciation (average)	($146,617,357)	(5)	($6,972)	($146,624,329)			($146,624,329)	
	Allowance for Working Capital:								
	Controllable Expenses	$13,457,054		$10,000	$ 13,467,054			$13,467,054	
	Cost of Power	$164,326,495		$10,019,790	$ 174,346,285			$174,346,285	
	Working Capital Rate (%)	13.00%	(9)		7.50%	(9)		7.50%	(9)
2	**Utility Income**								
	Operating Revenues:								
	Distribution Revenue at Current Rates	$31,257,951		$18,142	$31,276,093				
	Distribution Revenue at Proposed Rates	$35,412,468		($595,928)	$34,816,540				
	Other Revenue:								
	Specific Service Charges	$242,900		$0	$242,900				
	Late Payment Charges	$315,500		$0	$315,500				
	Other Distribution Revenue	$445,683		$0	$445,683				
	Other Income and Deductions	$177,523		$1,990	$179,513				
	Total Revenue Offsets	$1,181,606	(7)	$1,990	$1,183,596				
	Operating Expenses:								
	OM+A Expenses	$13,721,334		$10,000	$ 13,731,334			$13,731,334	
	Depreciation/Amortization	$8,151,672		$5,568	$ 8,157,240			$8,157,240	
	Property taxes	$489,734			$ 489,734			$489,734	
	Other expenses								
3	**Taxes/PILs**								
	Taxable Income:								
	Adjustments required to arrive at taxable income	($5,334,266)	(3)		($5,180,668)				
	Utility Income Taxes and Rates:								
	Income taxes (not grossed up)	$590,804			$544,294				
	Income taxes (grossed up)	$803,815			$740,537				
	Federal tax (%)	15.00%			15.00%				
	Provincial tax (%)	11.50%			11.50%				
	Income Tax Credits	($139,521)			($139,521)				
4	**Capitalization/Cost of Capital**								
	Capital Structure:								
	Long-term debt Capitalization Ratio (%)	56.0%			56.0%				
	Short-term debt Capitalization Ratio (%)	4.0%	(8)		4.0%	(8)			(8)
	Common Equity Capitalization Ratio (%)	40.0%			40.0%				
	Prefered Shares Capitalization Ratio (%)								
		100.0%			100.0%				
	Cost of Capital								
	Long-term debt Cost Rate (%)	4.23%			4.23%				
	Short-term debt Cost Rate (%)	2.16%			2.16%				
	Common Equity Cost Rate (%)	9.30%			9.30%				
	Prefered Shares Cost Rate (%)								

Notes:

General Data inputs are required on Sheets 3. Data from Sheet 3 will automatically complete calculations on sheets 4 through 9 (Rate Base through Revenue Requirement). Sheets 4 through 9 do not require any inputs except for notes that the Applicant may wish to enter to support the results. Pale green cells are available on sheets 4 through 9 to enter both footnotes beside key cells and the related text for the notes at the bottom of each sheet.

(1) All inputs are in dollars ($) except where inputs are individually identified as percentages (%)

(2) Data in column E is for Application as originally filed. For updated revenue requirement as a result of interrogatory responses, technical or settlement conferences, etc., use colimn M and Adjustments in column I

(3) Net of addbacks and deductions to arrive at taxable income.

(4) Average of Gross Fixed Assets at beginning and end of the Test Year

(5) Average of Accumulated Depreciation at the beginning and end of the Test Year. Enter as a negative amount.

(6) Select option from drop-down list by clicking on cell M10. This column allows for the application update reflecting the end of discovery or Argument-in-Chief. Also, the outcome of any Settlement Process can be reflected.

(7) Input total revenue offsets for deriving the base revenue requirement from the service revenue requirement

(8) 4.0% unless an Applicant has proposed or been approved for another amount.

(9) The default Working Capital Allowance factor is 7.5% (of Cost of Power plus controllable expenses), per the letter issued by the Board on June 3, 2015. Alternatively, WCA factor based on lead-lag study or approved WCA factor for another distributor, with supporting rationale.

Ontario Energy Board

Revenue Requirement Workform (RRWF) for 2016 Filers

Rate Base and Working Capital

Rate Base

Line No.	Particulars		Initial Application	Adjustments	Interrogatory Responses	Adjustments	Per Board Decision
1	Gross Fixed Assets (average)	(3)	$340,984,238	$185,862	$341,170,099	$ -	$341,170,099
2	Accumulated Depreciation (average)	(3)	($146,617,357)	($6,972)	($146,624,329)	$ -	($146,624,329)
3	Net Fixed Assets (average)	(3)	$194,366,880	$178,890	$194,545,770	$ -	$194,545,770
4	Allowance for Working Capital	(1)	$23,111,861	($9,025,861)	$14,086,000	$ -	$14,086,000
5	**Total Rate Base**		$217,478,742	($8,846,971)	$208,631,771	$ -	$208,631,771

(1) Allowance for Working Capital - Derivation

6	Controllable Expenses		$13,457,054	$10,000	$13,467,054	$ -	$13,467,054
7	Cost of Power		$164,326,495	$10,019,790	$174,346,285	$ -	$174,346,285
8	Working Capital Base		$177,783,549	$10,029,790	$187,813,339	$ -	$187,813,339
9	Working Capital Rate %	(2)	13.00%	-5.50%	7.50%	0.00%	7.50%
10	Working Capital Allowance		$23,111,861	($9,025,861)	$14,086,000	$ -	$14,086,000

Notes

(2) Some Applicants may have a unique rate as a result of a lead-lag study. The default rate for 2016 cost of service applications is 7.5%, per the letter issued by the Board on June 3, 2015. Alternatively, a utility could conduct and file its own lead-lag study.

(3) Average of opening and closing balances for the year.

Ontario Energy Board

Revenue Requirement Workform (RRWF) for 2016 Filers

Utility Income

Line No.	Particulars		Initial Application	Adjustments	Interrogatory Responses	Adjustments	Per Board Decision
	Operating Revenues:						
1	Distribution Revenue (at Proposed Rates)		$35,412,468	($595,928)	$34,816,540	$ -	$34,816,540
2	Other Revenue	(1)	$1,181,606	$1,990	$1,183,596	$ -	$1,183,596
3	Total Operating Revenues		$36,594,074	($593,938)	$36,000,136	$ -	$36,000,136
	Operating Expenses:						
4	OM+A Expenses		$13,721,334	$10,000	$13,731,334	$ -	$13,731,334
5	Depreciation/Amortization		$8,151,672	$5,568	$8,157,240	$ -	$8,157,240
6	Property taxes		$489,734	$ -	$489,734	$ -	$489,734
7	Capital taxes		$ -	$ -	$ -	$ -	$ -
8	Other expense		$ -	$ -		$ -	
9	Subtotal (lines 4 to 8)		$22,362,740	$15,568	$22,378,308	$ -	$22,378,308
10	Deemed Interest Expense		$5,337,309	($217,120)	$5,120,189	$ -	$5,120,189
11	Total Expenses (lines 9 to 10)		$27,700,049	($201,552)	$27,498,497	$ -	$27,498,497
12	**Utility income before income taxes**		$8,894,025	($392,386)	$8,501,639	$ -	$8,501,639
13	Income taxes (grossed-up)		$803,815	($63,279)	$740,537	$ -	$740,537
14	**Utility net income**		$8,090,210	($329,108)	$7,761,102	$ -	$7,761,102

Notes

Other Revenues / Revenue Offsets

(1)	Specific Service Charges		$242,900	$ -	$242,900		$242,900
	Late Payment Charges		$315,500	$ -	$315,500		$315,500
	Other Distribution Revenue		$445,683	$ -	$445,683		$445,683
	Other Income and Deductions		$177,523	$1,990	$179,513		$179,513
	Total Revenue Offsets		$1,181,606	$1,990	$1,183,596	$ -	$1,183,596

Taxes/PILs

Line No.	Particulars	Application	Interrogatory Responses	Per Board Decision
	Determination of Taxable Income			
1	Utility net income before taxes	$8,090,209	$7,761,102	$7,761,102
2	Adjustments required to arrive at taxable utility income	($5,334,266)	($5,180,668)	($5,334,266)
3	Taxable income	$2,755,943	$2,580,434	$2,426,836
	Calculation of Utility income Taxes			
4	Income taxes	$590,804	$544,294	$544,294
6	Total taxes	$590,804	$544,294	$544,294
7	Gross-up of Income Taxes	$213,011	$196,242	$196,242
8	Grossed-up Income Taxes	$803,815	$740,537	$740,537
9	PILs / tax Allowance (Grossed-up Income taxes + Capital taxes)	$803,815	$740,537	$740,537
10	Other tax Credits	($139,521)	($139,521)	($139,521)
	Tax Rates			
11	Federal tax (%)	15.00%	15.00%	15.00%
12	Provincial tax (%)	11.50%	11.50%	11.50%
13	Total tax rate (%)	26.50%	26.50%	26.50%

Notes

Capitalization/Cost of Capital

Line No.	Particulars	Capitalization Ratio		Cost Rate	Return
		Initial Application			
		(%)	($)	(%)	($)
	Debt				
1	Long-term Debt	56.00%	$121,788,095	4.23%	$5,149,408
2	Short-term Debt	4.00%	$8,699,150	2.16%	$187,902
3	**Total Debt**	60.00%	$130,487,245	4.09%	$5,337,309
	Equity				
4	Common Equity	40.00%	$86,991,497	9.30%	$8,090,209
5	Preferred Shares	0.00%	$ -	0.00%	$ -
6	**Total Equity**	40.00%	$86,991,497	9.30%	$8,090,209
7	**Total**	100.00%	$217,478,742	6.17%	$13,427,518
		Interrogatory Responses			
		(%)	($)	(%)	($)
	Debt				
1	Long-term Debt	56.00%	$116,833,792	4.23%	$4,939,931
2	Short-term Debt	4.00%	$8,345,271	2.16%	$180,258
3	**Total Debt**	60.00%	$125,179,062	4.09%	$5,120,189
	Equity				
4	Common Equity	40.00%	$83,452,708	9.30%	$7,761,102
5	Preferred Shares	0.00%	$ -	0.00%	$ -
6	**Total Equity**	40.00%	$83,452,708	9.30%	$7,761,102
7	**Total**	100.00%	$208,631,771	6.17%	$12,881,291
		Per Board Decision			
		(%)	($)	(%)	($)
	Debt				
8	Long-term Debt	56.00%	$116,833,792	4.23%	$4,939,931
9	Short-term Debt	4.00%	$8,345,271	2.16%	$180,258
10	**Total Debt**	60.00%	$125,179,062	4.09%	$5,120,189
	Equity				
11	Common Equity	40.00%	$83,452,708	9.30%	$7,761,102
12	Preferred Shares	0.00%	$ -	0.00%	$ -
13	**Total Equity**	40.00%	$83,452,708	9.30%	$7,761,102
14	**Total**	100.00%	$208,631,771	6.17%	$12,881,291

Notes

(1) Data in column E is for Application as originally filed. For updated revenue requirement as a result of interrogatory responses, technical or settlement conferences, etc., use colimn M and Adjustments in column I

Ontario Energy Board

Revenue Requirement Workform (RRWF) for 2016 Filers

Revenue Deficiency/Sufficiency

Line No.	Particulars	Initial Application		Interrogatory Responses		Per Board Decision	
		At Current Approved Rates	At Proposed Rates	At Current Approved Rates	At Proposed Rates	At Current Approved Rates	At Proposed Rates
1	Revenue Deficiency from Below		$4,154,517		$3,540,446		$3,540,446
2	Distribution Revenue	$31,257,951	$31,257,951	$31,276,093	$31,276,093	$31,276,093	$31,276,093
3	Other Operating Revenue Offsets - net	$1,181,606	$1,181,606	$1,183,596	$1,183,596	$1,183,596	$1,183,596
4	**Total Revenue**	$32,439,557	$36,594,074	$32,459,689	$36,000,136	$32,459,689	$36,000,136
5	Operating Expenses	$22,362,740	$22,362,740	$22,378,308	$22,378,308	$22,378,308	$22,378,308
6	Deemed Interest Expense	$5,337,309	$5,337,309	$5,120,189	$5,120,189	$5,120,189	$5,120,189
8	**Total Cost and Expenses**	$27,700,049	$27,700,049	$27,498,497	$27,498,497	$27,498,497	$27,498,497
9	**Utility Income Before Income Taxes**	$4,739,508	$8,894,025	$4,961,192	$8,501,639	$4,961,192	$8,501,639
10	Tax Adjustments to Accounting Income per 2013 PILs model	($5,334,266)	($5,334,266)	($5,180,668)	($5,180,668)	($5,180,668)	($5,180,668)
11	**Taxable Income**	($594,759)	$3,559,759	($219,476)	$3,320,971	($219,476)	$3,320,971
12	Income Tax Rate	26.50%	26.50%	26.50%	26.50%	26.50%	26.50%
13	**Income Tax on Taxable Income**	($157,611)	$943,336	($58,161)	$880,057	($58,161)	$880,057
14	**Income Tax Credits**	($139,521)	($139,521)	($139,521)	($139,521)	($139,521)	($139,521)
15	**Utility Net Income**	$5,036,639	$8,090,210	$5,158,874	$7,761,102	$5,158,874	$7,761,102
16	**Utility Rate Base**	$217,478,742	$217,478,742	$208,631,771	$208,631,771	$208,631,771	$208,631,771
17	Deemed Equity Portion of Rate Base	$86,991,497	$86,991,497	$83,452,708	$83,452,708	$83,452,708	$83,452,708
18	Income/(Equity Portion of Rate Base)	5.79%	9.30%	6.18%	9.30%	6.18%	9.30%
19	Target Return - Equity on Rate Base	9.30%	9.30%	9.30%	9.30%	9.30%	9.30%
20	Deficiency/Sufficiency in Return on Equity	-3.51%	0.00%	-3.12%	0.00%	-3.12%	0.00%
21	Indicated Rate of Return	4.77%	6.17%	4.93%	6.17%	4.93%	6.17%
22	Requested Rate of Return on Rate Base	6.17%	6.17%	6.17%	6.17%	6.17%	6.17%
23	Deficiency/Sufficiency in Rate of Return	-1.40%	0.00%	-1.25%	0.00%	-1.25%	0.00%
24	Target Return on Equity	$8,090,209	$8,090,209	$7,761,102	$7,761,102	$7,761,102	$7,761,102
25	Revenue Deficiency/(Sufficiency)	$3,053,570	$0	$2,602,228	$0	$2,602,228	$0
26	**Gross Revenue Deficiency/(Sufficiency)**	$4,154,517 **(1)**		$3,540,446 **(1)**		$3,540,446 **(1)**	

Notes:

(1) Revenue Deficiency/Sufficiency divided by (1 - Tax Rate)

Ontario Energy Board

Revenue Requirement Workform (RRWF) for 2016 Filers

Revenue Requirement

Line No.	Particulars	Application		Interrogatory Responses		Per Board Decision	
1	OM&A Expenses	$13,721,334		$13,731,334		$13,731,334	
2	Amortization/Depreciation	$8,151,672		$8,157,240		$8,157,240	
3	Property Taxes	$489,734		$489,734		$489,734	
5	Income Taxes (Grossed up)	$803,815		$740,537		$740,537	
6	Other Expenses	$ -					
7	Return						
	Deemed Interest Expense	$5,337,309		$5,120,189		$5,120,189	
	Return on Deemed Equity	$8,090,209		$7,761,102		$7,761,102	
8	**Service Revenue Requirement (before Revenues)**	$36,594,074		$36,000,135		$36,000,135	
9	Revenue Offsets	$1,181,606		$1,183,596		$ -	
10	**Base Revenue Requirement (excluding Tranformer Owership Allowance credit adjustment)**	$35,412,468		$34,816,539		$36,000,135	
11	Distribution revenue	$35,412,468		$34,816,540		$34,816,540	
12	Other revenue	$1,181,606		$1,183,596		$1,183,596	
13	**Total revenue**	$36,594,074		$36,000,136		$36,000,136	
14	**Difference (Total Revenue Less Distribution Revenue Requirement before Revenues)**	$0	(1)	$0	(1)	$0	(1)

Notes

(1) Line 11 - Line 8

Ontario Energy Board

Revenue Requirement Workform (RRWF) for 2016 Filers

Tracking Form

The last row shown is the most current estimate of the cost of service data reflecting the original application and any updates provided by the applicant distributor (for updated evidence, responses to interrogatories, undertakings, etc.)
Please ensure a Reference (Column B) and/or Item Description (Column C) is entered. Please note that unused rows will automatically be hidden and the PRINT AREA set when the PRINT BUTTON on Sheet 1 is activated.
(1) Short reference to evidence material (interrogatory response, undertaking, exhibit number, Board Decision, Code, Guideline, Report of the Board, etc.)
(2) Short description of change, issue, etc.

60 Tracking Rows have been provided below. If you require more, please contact Industry Relations @ IndustryRelations@ontarioenergyboard.ca.

Summary of Proposed Changes

			Cost of Capital		Rate Base and Capital Expenditures			Operating Expenses			Revenue Requirement			
	Reference (1)	Item / Description (2)	Regulated Return on Capital	Regulated Rate of Return	Rate Base	Working Capital	Working Capital Allowance ($)	Amortization / Depreciation	Taxes/PILs	OM&A	Service Revenue Requirement	Other Revenues	Base Revenue Requirement	Grossed up Revenue Deficiency / Sufficiency
		Original Application	$ 13,427,518	6.17%	$ 217,478,742	$ 177,783,549	$ 23,111,861	$ 8,151,672	$ 803,815	$ 13,721,334	$ 36,594,074	$ 1,181,606	$ 35,412,468	$ 4,154,517
1	Board Staff IR # 21	Change Working Capital Allowance % to 7.5%	$ 12,823,802	6.17%	$ 207,700,646	$ 177,783,549	$ 13,333,766	$ 8,151,672	$ 672,669	$ 13,721,334	$ 35,859,211	$ 1,181,606	$ 34,677,605	$ 3,419,654
		Change	-$ 603,717	0.00%	-$ 9,778,096	$ -	-$ 9,778,095	$ -	-$ 131,146	$ -	-$ 734,863	$ -	-$ 734,863	-$ 734,863
2	VECC # 10 / EP # 14 / SEC # 37	Update 2015 & 2016 LRT Capital Additions	$ 12,874,063	6.17%	$ 208,514,711	$ 177,783,549	$ 13,333,766	$ 8,172,435	$ 667,599	$ 13,721,334	$ 35,925,165	$ 1,181,606	$ 34,743,559	$ 3,485,608
		Change	$ 50,262	0.00%	$ 814,065	$ -	$ -	$ 20,763	-$ 5,070	$ -	$ 65,954	$ -	$ 65,954	$ 65,954
3	VECC # 10 / EP # 14 / SEC # 37	Update 2015 & 2016 All Other (Non-LRT) Capital Additions	$ 12,834,847	6.17%	$ 207,879,536	$ 177,783,549	$ 13,333,766	$ 8,157,240	$ 667,961	$ 13,721,334	$ 35,871,116	$ 1,181,606	$ 34,689,510	$ 3,431,559
		Change	-$ 39,217	0.00%	-$ 635,174	$ -	$ -	-$ 15,194	$ 362	$ -	-$ 54,049	$ -	-$ 54,049	-$ 54,049
4	1-Staff-149	Adjust Revenue Offset Appendix 2-FC	$ 12,834,847	6.17%	$ 207,879,536	$ 177,783,549	$ 13,333,766	$ 8,157,240	$ 667,961	$ 13,721,334	$ 35,871,116	$ 1,183,596	$ 34,687,520	$ 3,429,569
		Change	$ -	0.00%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,990	-$ 1,990	-$ 1,990
5	4.0-VECC-36	Increase Regulatory Expense - Board Costs	$ 12,834,893	6.17%	$ 207,880,286	$ 177,793,549	$ 13,334,516	$ 8,157,240	$ 667,971	$ 13,731,334	$ 35,881,172	$ 1,183,596	$ 34,697,576	$ 3,439,625
		Change	$ 46	0.00%	$ 750	$ 10,000	$ 750	$ -	$ 10	$ 10,000	$ 10,056	$ -	$ 10,056	$ 10,056
6	1-Staff-22 & 1-Staff-24	Adjust RPP% Res <50& Update Navigant Apr/15 Price	$ 12,881,291	6.17%	$ 208,631,771	$ 187,813,339	$ 14,086,000	$ 8,157,240	$ 678,050	$ 13,731,334	$ 35,937,649	$ 1,183,596	$ 34,754,053	$ 3,477,960
		Change	$ 46,398	0.00%	$ 751,484	$ 10,019,790	$ 751,484	$ -	$ 10,079	$ -	$ 56,477	$ -	$ 56,477	$ 38,335
7	4-Energy Probe-40 & 43	Correct PILs - Depreciation in Burdens and Donations	$ 12,881,291	6.17%	$ 208,631,771	$ 187,813,339	$ 14,086,000	$ 8,157,240	$ 740,537	$ 13,731,334	$ 36,000,135	$ 1,183,596	$ 34,816,540	$ 3,540,447
		Change	$ -	0.00%	$ -	$ -	$ -	$ -	$ 62,486	$ -	$ 62,486	$ -	$ 62,486	$ 62,486

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Version 3.0

Utility Name	Waterloo North Hydro Inc.
Assigned EB Number	EB-2015-0108
Name and Title	Albert P. Singh, Vice President Finance & CFO
Phone Number	519-888-5542
Email Address	asingh@wnhydro.com
Date	7-Aug-15
Last COS Re-based Year	**2011**

Note: Drop-down lists are shaded blue; Input cells are shaded green.

This Workbook Model is protected by copyright and is being made available to you solely for the purpose of filing your rate application. You may use and copy this model for that purpose, and provide a copy of this model to any person that is advising or assisting you in that regard. Except as indicated above, any copying, reproduction, publication, sale, adaptation, translation, modification, reverse engineering or other use or dissemination of this model without the express written consent of the Ontario Energy Board is prohibited. If you provide a copy of this model to a person that is advising or assisting you in preparing the application or reviewing your draft rate order, you must ensure that the person understands and agrees to the restrictions noted above.

While this model has been provided in Excel format and is required to be filed with the applications, the onus remains on the applicant to ensure the accuracy of the data and the results.

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

1. Info
A. Data Input Sheet
B. Tax Rates & Exemptions
C. Sch 8 Hist
D. Schedule 10 CEC Hist
E. Sch 13 Tax Reserves Hist
F. Sch 7-1 Loss Cfwd Hist
G. Adj. Taxable Income Historical
H. PILs,Tax Provision Historical
I. Schedule 8 CCA Bridge Year
J. Schedule 10 CEC Bridge Year
K. Sch 13 Tax Reserves Bridge
L. Sch 7-1 Loss Cfwd Bridge
M. Adj. Taxable Income Bridge
N. PILs,Tax Provision Bridge
O. Schedule 8 CCA Test Year
P. Schedule 10 CEC Test Year
Q Sch 13 Tax Reserve Test Year
R. Sch 7-1 Loss Cfwd
S. Taxable Income Test Year
T. PILs,Tax Provision

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Rate Base			$	208,631,771	
Return on Ratebase					
Deemed ShortTerm Debt %	4.00%	T	$	8,345,271	*W = S * T*
Deemed Long Term Debt %	56.00%	U	$	116,833,792	*X = S * U*
Deemed Equity %	40.00%	V	$	83,452,708	*Y = S * V*
Short Term Interest Rate	2.16%	Z	$	180,258	*AC = W * Z*
Long Term Interest	4.23%	AA	$	4,939,931	*AD = X * AA*
Return on Equity (Regulatory Income)	9.30%	AB	$	7,761,102	*AE = Y * AB*
Return on Rate Base			**$**	**12,881,291**	*AF = AC + AD + AE*

Questions that must be answered

	Historical	Bridge	Test Year
1. Does the applicant have any Investment Tax Credits (ITC)?	Yes	Yes	Yes
2. Does the applicant have any SRED Expenditures?	No	No	No
3. Does the applicant have any Capital Gains or Losses for tax purposes?	No	No	No
4. Does the applicant have any Capital Leases?	No	No	No
5. Does the applicant have any Loss Carry-Forwards (non-capital or net capital)?	No	No	No
6. Since 1999, has the applicant acquired another regulated applicant's assets?	No	No	No
7. Did the applicant pay dividends? *If Yes, please describe what was the tax treatment in the manager's summary.*	Yes	Yes	Yes
8. Did the applicant elect to capitalize interest incurred on CWIP for tax purposes?	Yes	No	No

WNH pays dividends to its Parent Company, a Connected Corporation (non-eligible), thus, there are no tax implications in WNH's Tax Return. WNH also does not receive a Refundable Dividend Tax Credit.

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Tax Rates Federal & Provincial As of June 20, 2012	Effective January 1, 2011	Effective January 1, 2012	Effective January 1, 2013	Effective January 1, 2014	Effective January 1, 2015	Effective January 1, 2016
Federal income tax						
General corporate rate	38.00%	38.00%	38.00%	38.00%	38.00%	38.00%
Federal tax abatement	-10.00%	-10.00%	-10.00%	-10.00%	-10.00%	-10.00%
Adjusted federal rate	28.00%	28.00%	28.00%	28.00%	28.00%	28.00%
Rate reduction	-11.50%	-13.00%	-13.00%	-13.00%	-13.00%	-13.00%
	16.50%	15.00%	15.00%	15.00%	15.00%	15.00%
Ontario income tax	11.75%	11.50%	11.50%	11.50%	11.50%	11.50%
Combined federal and Ontario	28.25%	26.50%	26.50%	26.50%	26.50%	26.50%
Federal & Ontario Small Business						
Federal small business threshold	500,000	500,000	500,000	500,000	500,000	500,000
Ontario Small Business Threshold	500,000	500,000	500,000	500,000	500,000	500,000
Federal small business rate	11.00%	11.00%	11.00%	11.00%	11.00%	11.00%
Ontario small business rate	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Schedule 8 - Historical Year

2014				
Class	Class Description	UCC End of Year Historical per tax returns	Less: Non-Distribution Portion	UCC Regulated Historical Year
1	Distribution System - post 1987	60,309,605		60,309,605
1 Enhanced	Non-residential Buildings Reg. 1100(1)(a.1) election	19,889,220		19,889,220
2	Distribution System - pre 1988			0
8	General Office/Stores Equip	8,282,247		8,282,247
10	Computer Hardware/ Vehicles	2,356,558		2,356,558
10.1	Certain Automobiles			0
12	Computer Software	71,554		71,554
13 1	Lease # 1			0
13 2	Lease #2			0
13 3	Lease # 3			0
13 4	Lease # 4			0
14	Franchise			0
17	New Electrical Generating Equipment Acq'd after Feb 27/00 Other Than Bldgs			0
42	Fibre Optic Cable			0
43.1	Certain Energy-Efficient Electrical Generating Equipment			0
43.2	Certain Clean Energy Generation Equipment			0
45	Computers & Systems Software acq'd post Mar 22/04	35		35
46	Data Network Infrastructure Equipment (acq'd post Mar 22/04)			0
47	Distribution System - post February 2005	84,657,990		84,657,990
50	Data Network Infrastructure Equipment - post Mar 2007	587,101		587,101
52	Computer Hardware and system software			0
95	CWIP			0
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
	SUB-TOTAL - UCC	176,154,310	0	176,154,310

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Schedule 10 CEC - Historical Year

Cumulative Eligible Capital				**0**
Additions				
Cost of Eligible Capital Property Acquired during Test Year	0			
Other Adjustments	0			
Subtotal	0	**x 3/4 =**	0	
Non-taxable portion of a non-arm's length transferor's gain realized on the transfer of an ECP to the Corporation after Friday, December 20, 2002	0	**x 1/2 =**	0	
			0	**0**
Amount transferred on amalgamation or wind-up of subsidiary	0			**0**
Subtotal				**0**
Deductions				
Proceeds of sale (less outlays and expenses not otherwise deductible) from the disposition of all ECP during Test Year	0			
Other Adjustments	0			
Subtotal	0	**x 3/4 =**		**0**
Cumulative Eligible Capital Balance				**0**
Current Year Deduction		**0**	**x 7% =**	**0**
Cumulative Eligible Capital - Closing Balance				**0**

Ontario Energy Board

Income Tax/PILs Workform for 2

Schedule 13 Tax Reserves - Historical

Continuity of Reserves

2014			
Description	**Historical Balance as per tax returns**	**Non-Distribution Eliminations**	**Utility Only**
Capital Gains Reserves ss.40(1)			0
Tax Reserves Not Deducted for accounting purposes			
Reserve for doubtful accounts ss. 20(1)(l)			0
Reserve for goods and services not delivered ss. 20(1)(m)			0
Reserve for unpaid amounts ss. 20(1)(n)			0
Debt & Share Issue Expenses ss. 20(1)(e)			0
Other tax reserves			0
			0
			0
			0
			0
			0
Total	**0**	**0**	**0**
Financial Statement Reserves (not deductible for Tax Purposes)			
General Reserve for Inventory Obsolescence (non-specific)			0
General reserve for bad debts	200,000		200,000
Accrued Employee Future Benefits:			0
- Medical and Life Insurance			0
-Short & Long-term Disability			0
-Accmulated Sick Leave	131,530		131,530
- Termination Cost	188,433		188,433
- Other Post-Employment Benefits	4,390,991		4,390,991
Provision for Environmental Costs			0
Restructuring Costs			0
Accrued Contingent Litigation Costs	37,829		37,829
Accrued Self-Insurance Costs			0
Other Contingent Liabilities	30,000		30,000
Bonuses Accrued and Not Paid Within 180 Days of Year-End ss. 78(4)			0
Unpaid Amounts to Related Person and Not Paid Within 3 Taxation Years ss. 78(1)			0
Other			0
			0
			0
Total	**4,978,783**	**0**	**4,978,783**

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Schedule 7-1 Loss Carry Forward - Historical

Corporation Loss Continuity and Application

Non-Capital Loss Carry Forward Deduction	Total	Non-Distribution Portion	Utility Balance
Actual Historical	0		0

Net Capital Loss Carry Forward Deduction	Total	Non-Distribution Portion	Utility Balance
Actual Historical	0		0

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Adjusted Taxable Income - Historical Year

2014				
	T2S1 line #	Total for Legal Entity	Non-Distribution Eliminations	Historic Wires Only
Income before PILs/Taxes	A	5,435,383		5,435,383
Additions:				
Interest and penalties on taxes	103			0
Amortization of tangible assets	104	7,766,628		7,766,628
Amortization of intangible assets	106			0
Recapture of capital cost allowance from Schedule 8	107			0
Gain on sale of eligible capital property from Schedule 10	108			0
Income or loss for tax purposes- joint ventures or partnerships	109			0
Loss in equity of subsidiaries and affiliates	110			0
Loss on disposal of assets	111			0
Charitable donations	112	38,105		38,105
Taxable Capital Gains	113			0
Political Donations	114			0
Deferred and prepaid expenses	116			0
Scientific research expenditures deducted on financial statements	118			0
Capitalized interest	119			0
Non-deductible club dues and fees	120	11,962		11,962
Non-deductible meals and entertainment expense	121	45,700		45,700
Non-deductible automobile expenses	122			0
Non-deductible life insurance premiums	123			0
Non-deductible company pension plans	124			0
Tax reserves deducted in prior year	125			0
Reserves from financial statements- balance at end of year	126	4,978,783		4,978,783
Soft costs on construction and renovation of buildings	127			0
Book loss on joint ventures or partnerships	205			0
Capital items expensed	206			0
Debt issue expense	208			0
Development expenses claimed in current year	212			0
Financing fees deducted in books	216			0
Gain on settlement of debt	220			0
Non-deductible advertising	226			0
Non-deductible interest	227			0
Non-deductible legal and accounting fees	228			0
Recapture of SR&ED expenditures	231			0
Share issue expense	235			0
Write down of capital property	236			0
Amounts received in respect of qualifying environment trust per paragraphs 12(1)(z.1) and 12(1)(z.2)	237			0
Other Additions				
Interest Expensed on Capital Leases	290			0
Realized Income from Deferred Credit Accounts	291			0
Pensions	292			0
Non-deductible penalties	293			0
	294			0
	295			0
ARO Accretion expense				0
Capital Contributions Received (ITA 12(1)(x))				0
Lease Inducements Received (ITA 12(1)(x))				0
Deferred Revenue (ITA 12(1)(a))				0
Prior Year Investment Tax Credits received		134,598		134,598
Unrealized loss on derivatives		2,542,608		2,542,608

				0
				0
				0
				0
				0
				0
				0
				0
				0
Total Additions		**15,518,384**	**0**	**15,518,384**
Deductions:				
Gain on disposal of assets per financial statements	401	175		175
Dividends not taxable under section 83	402			0
Capital cost allowance from Schedule 8	403	13,848,715		13,848,715
Terminal loss from Schedule 8	404			0
Cumulative eligible capital deduction from Schedule 10	405			0
Allowable business investment loss	406			0
Deferred and prepaid expenses	409			0
Scientific research expenses claimed in year	411			0
Tax reserves claimed in current year	413			0
Reserves from financial statements - balance at beginning of year	414	4,787,883		4,787,883
Contributions to deferred income plans	416			0
Book income of joint venture or partnership	305			0
Equity in income from subsidiary or affiliates	306			0
Other deductions: (Please explain in detail the nature of the item)				
Interest capitalized for accounting deducted for tax	390			0
Capital Lease Payments	391			0
Non-taxable imputed interest income on deferral and variance accounts	392			0
	393			0
	394			0
ARO Payments - Deductible for Tax when Paid				0
ITA 13(7.4) Election - Capital Contributions Received				0
ITA 13(7.4) Election - Apply Lease Inducement to cost of Leaseholds				0
Deferred Revenue - ITA 20(1)(m) reserve				0
Principal portion of lease payments				0
Lease Inducement Book Amortization credit to income				0
Financing fees for tax ITA 20(1)(e) and (e.1)				0
Valuation in sick leave booked to retained earnings		131,530		131,530
Property taxes included with PILs on FS		469,951		469,951
				0
				0
				0
				0
				0
Total Deductions		**19,238,254**	**0**	**19,238,254**
Net Income for Tax Purposes		**1,715,513**	**0**	**1,715,513**
Charitable donations from Schedule 2	311	38,104		38,104
Taxable dividends deductible under section 112 or 113, from Schedule 3 (item 82)	320			0
Non-capital losses of preceding taxation years from Schedule 4	331			0
Net-capital losses of preceding taxation years from Schedule 4 *(Please include explanation and calculation in Manager's summary)*	332			0
Limited partnership losses of preceding taxation years from Schedule 4	335			0
TAXABLE INCOME		**1,677,409**	**0**	**1,677,409**

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

PILs Tax Provision - Historical Year

						2014	
Note: Input the actual information from the tax returns for the historical year.						**Wires Only**	
Regulatory Taxable Income						$ 1,677,409	**A**
Ontario Income Taxes							
Income tax payable	**Ontario Income Tax**	11.50%	**B**	$ 192,902	**C = A * B**		
Small business credit	Ontario Small Business Threshold	$ 500,000	**D**				
	Rate reduction (negative)		**E**	$ -	**F = D * E**		
Ontario Income tax						$ 192,902	**J = C + F**
Combined Tax Rate and PILs	Effective Ontario Tax Rate			11.50%	**K = J / A**		
	Federal tax rate (Maximum 15%)			15.00%	**L**		
	Combined tax rate					26.50%	**M = K + L**
Total Income Taxes						**$ 444,513**	**N = A * M**
Investment Tax Credits						$ 159,741	**O**
Miscellaneous Tax Credits						$ 19,829	**P**
Total Tax Credits						**$ 179,570**	**Q = O + P**
Corporate PILs/Income Tax Provision for Historical Year						**$ 264,943**	**R = N - Q**

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Schedule 8 CCA - Bridge Year

Class	Class Description	UCC Regulated Historical Year	Additions	Disposals (Negative)	UCC Before 1/2 Yr Adjustment	1/2 Year Rule {1/2 Additions Less Disposals}	Reduced UCC	Rate %	Bridge Year CCA	UCC End of Bridge Year
1	Distribution System - post 1987	$ 60,309,605			$ 60,309,605	$ -	$ 60,309,605	4%	$ 2,412,384	$ 57,897,221
1 Enhanced	Non-residential Buildings Reg. 1100(1)(a.1) election	$ 19,889,220	$ 253,854		$ 20,143,074	$ 126,927	$ 20,016,147	6%	$ 1,200,969	$ 18,942,105
2	Distribution System - pre 1988				$ -	$ -	$ -	6%	$ -	$ -
8	General Office/Stores Equip	$ 8,282,247	$ 1,047,004		$ 9,329,251	$ 523,502	$ 8,805,749	20%	$ 1,761,150	$ 7,568,102
10	Computer Hardware/ Vehicles	$ 2,356,558	$ 478,023	-$ 34,000	$ 2,800,581	$ 222,012	$ 2,578,570	30%	$ 773,571	$ 2,027,010
10.1	Certain Automobiles				$ -	$ -	$ -	30%	$ -	$ -
12	Computer Software	$ 71,554	$ 150,564		$ 222,118	$ 75,282	$ 146,836	100%	$ 146,836	$ 75,282
13 1	Lease # 1				$ -	$ -	$ -		$ -	$ -
13 2	Lease #2				$ -	$ -	$ -		$ -	$ -
13 3	Lease # 3				$ -	$ -	$ -		$ -	$ -
13 4	Lease # 4				$ -	$ -	$ -		$ -	$ -
14	Franchise				$ -	$ -	$ -		$ -	$ -
17	New Electrical Generating Equipment Acq'd after Feb 27/00 Other Than Bldgs				$ -	$ -	$ -	8%	$ -	$ -
42	Fibre Optic Cable				$ -	$ -	$ -	12%	$ -	$ -
43.1	Certain Energy-Efficient Electrical Generating Equipment				$ -	$ -	$ -	30%	$ -	$ -
43.2	Certain Clean Energy Generation Equipment				$ -	$ -	$ -	50%	$ -	$ -
45	Computers & Systems Software acq'd post Mar 22/04	$ 35			$ 35	$ -	$ 35	45%	$ 16	$ 19
46	Data Network Infrastructure Equipment (acq'd post Mar 22/04)				$ -	$ -	$ -	30%	$ -	$ -
47	Distribution System - post February 2005	$ 84,657,990	$ 13,311,339		$ 97,969,329	$ 6,655,669	$ 91,313,659	8%	$ 7,305,093	$ 90,664,236
50	Data Network Infrastructure Equipment - post Mar 2007	$ 587,101	$ 740,282		$ 1,327,383	$ 370,141	$ 957,242	55%	$ 526,483	$ 800,900
52	Computer Hardware and system software				$ -	$ -	$ -	100%	$ -	$ -
95	CWIP				$ -	$ -	$ -		$ -	$ -
					$ -	$ -	$ -	5%	$ -	$ -
					$ -	$ -	$ -	10%	$ -	$ -
					$ -	$ -	$ -		$ -	$ -
					$ -	$ -	$ -		$ -	$ -
					$ -	$ -	$ -		$ -	$ -
					$ -	$ -	$ -		$ -	$ -
					$ -	$ -	$ -		$ -	$ -
					$ -	$ -	$ -		$ -	$ -
					$ -	$ -	$ -		$ -	$ -
					$ -	$ -	$ -		$ -	$ -
	TOTAL	$ 176,154,310	$ 15,981,067	-$ 34,000	$ 192,101,377	$ 7,973,533	$ 184,127,843		$ 14,126,501	$ 177,974,875

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Schedule 10 CEC - Bridge Year

Cumulative Eligible Capital				**0**
Additions				
Cost of Eligible Capital Property Acquired during Test Year	0			
Other Adjustments	0			
Subtotal	0	**x 3/4 =**	0	
Non-taxable portion of a non-arm's length transferor's gain realized on the transfer of an ECP to the Corporation after Friday, December 20, 2002	0	**x 1/2 =**	0	
			0	**0**
Amount transferred on amalgamation or wind-up of subsidiary	0			**0**
Subtotal				**0**
Deductions				
Proceeds of sale (less outlays and expenses not otherwise deductible) from the disposition of all ECP during Test Year	0			
Other Adjustments	0			
Subtotal	0	**x 3/4 =**		**0**
Cumulative Eligible Capital Balance				**0**
Current Year Deduction		**0**	**x 7% =**	**0**
Cumulative Eligible Capital - Closing Balance				**0**

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Schedule 13 Tax Reserves - Bridge Year

Continuity of Reserves

Description	Historical Utility Only	Eliminate Amounts Not Relevant for Bridge Year	Adjusted Utility Balance	Bridge Year Adjustments		Balance for Bridge Year	Change During the Year	Disallowed Expenses
				Additions	Disposals			
Capital Gains Reserves ss.40(1)	0		0			0	0	
Tax Reserves Not Deducted for accounting purposes								
Reserve for doubtful accounts ss. 20(1)(l)	0		0			0	0	
Reserve for goods and services not delivered ss. 20(1)(m)	0		0			0	0	
Reserve for unpaid amounts ss. 20(1)(n)	0		0			0	0	
Debt & Share Issue Expenses ss. 20(1)(e)	0		0			0	0	
Other tax reserves	0		0			0	0	
	0		0			0	0	
	0		0			0	0	
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Financial Statement Reserves (not deductible for Tax Purposes)								
General Reserve for Inventory Obsolescence (non-specific)	0		0			0	0	
General reserve for bad debts	200,000		200,000			200,000	0	
Accrued Employee Future Benefits:	0		0			0	0	
- Medical and Life Insurance	0		0			0	0	
-Short & Long-term Disability	0		0			0	0	
-Accmulated Sick Leave	131,530		131,530			131,530	0	
- Termination Cost	188,433		188,433		178,433	10,000	-178,433	
- Other Post-Employment Benefits	4,390,991		4,390,991	204,547		4,595,538	204,547	
Provision for Environmental Costs	0		0			0	0	
Restructuring Costs	0		0			0	0	
Accrued Contingent Litigation Costs	37,829		37,829		37,829	0	-37,829	
Accrued Self-Insurance Costs	0		0			0	0	
Other Contingent Liabilities	30,000		30,000		30,000	0	-30,000	
Bonuses Accrued and Not Paid Within 180 Days of Year-End ss. 78(4)	0		0			0	0	
Unpaid Amounts to Related Person and Not Paid Within 3 Taxation Years ss. 78(1)	0		0			0	0	
Other	0		0			0	0	
	0		0			0	0	
	0		0			0	0	
Total	**4,978,783**	**0**	**4,978,783**	**204,547**	**246,262**	**4,937,068**	**-41,715**	**0**

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Corporation Loss Continuity and Application

Schedule 7-1 Loss Carry Forward - Bridge Year

Non-Capital Loss Carry Forward Deduction	Total
Actual Historical	0
Application of Loss Carry Forward to reduce taxable income in Bridge Year	
Other Adjustments Add (+) Deduct (-)	0
Balance available for use in Test Year	0
Amount to be used in Bridge Year	0
Balance available for use post Bridge Year	0

Net Capital Loss Carry Forward Deduction	Total
Actual Historical	0
Application of Loss Carry Forward to reduce taxable income in Bridge Year	
Other Adjustments Add (+) Deduct (-)	
Balance available for use in Test Year	0
Amount to be used in Bridge Year	
Balance available for use post Bridge Year	0

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Adjusted Taxable Income - Bridge Year

	T2S1 line #	Total for Regulated Utility
Income before PILs/Taxes	A	5,800,691
Additions:		
Interest and penalties on taxes	103	
Amortization of tangible assets	104	8,970,598
Amortization of intangible assets	106	
Recapture of capital cost allowance from Schedule 8	107	
Gain on sale of eligible capital property from Schedule 10	108	
Income or loss for tax purposes- joint ventures or partnerships	109	
Loss in equity of subsidiaries and affiliates	110	
Loss on disposal of assets	111	24,201
Charitable donations	112	0
Taxable Capital Gains	113	
Political Donations	114	
Deferred and prepaid expenses	116	
Scientific research expenditures deducted on financial statements	118	
Capitalized interest	119	
Non-deductible club dues and fees	120	11,962
Non-deductible meals and entertainment expense	121	45,700
Non-deductible automobile expenses	122	
Non-deductible life insurance premiums	123	
Non-deductible company pension plans	124	
Tax reserves deducted in prior year	125	
Reserves from financial statements- balance at end of year	126	4,937,068
Soft costs on construction and renovation of buildings	127	
Book loss on joint ventures or partnerships	205	
Capital items expensed	206	
Debt issue expense	208	
Development expenses claimed in current year	212	
Financing fees deducted in books	216	
Gain on settlement of debt	220	
Non-deductible advertising	226	
Non-deductible interest	227	
Non-deductible legal and accounting fees	228	
Recapture of SR&ED expenditures	231	
Share issue expense	235	
Write down of capital property	236	
Amounts received in respect of qualifying environment trust per paragraphs 12(1)(z.1) and 12(1)(z.2)	237	

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Adjusted Taxable Income - Bridge Year

Other Additions		
Interest Expensed on Capital Leases	290	
Realized Income from Deferred Credit Accounts	291	
Pensions	292	
Non-deductible penalties	293	
	294	
	295	
ARO Accretion expense		
Capital Contributions Received (ITA 12(1)(x))		
Lease Inducements Received (ITA 12(1)(x))		
Deferred Revenue (ITA 12(1)(a))		
Prior Year Investment Tax Credits received		
Total Additions		**13,989,529**
Deductions:		
Gain on disposal of assets per financial statements	401	
Dividends not taxable under section 83	402	
Capital cost allowance from Schedule 8	403	14,126,501
Terminal loss from Schedule 8	404	
Cumulative eligible capital deduction from Schedule 10	405	0
Allowable business investment loss	406	
Deferred and prepaid expenses	409	
Scientific research expenses claimed in year	411	
Tax reserves claimed in current year	413	0
Reserves from financial statements - balance at beginning of year	414	4,978,783
Contributions to deferred income plans	416	
Book income of joint venture or partnership	305	
Equity in income from subsidiary or affiliates	306	
Other deductions: (Please explain in detail the nature of the item)		

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Adjusted Taxable Income - Bridge Year

Interest capitalized for accounting deducted for tax	390	
Capital Lease Payments	391	
Non-taxable imputed interest income on deferral and variance accounts	392	
	393	
	394	
ARO Payments - Deductible for Tax when Paid		
ITA 13(7.4) Election - Capital Contributions Received		
ITA 13(7.4) Election - Apply Lease Inducement to cost of Leaseholds		
Deferred Revenue - ITA 20(1)(m) reserve		
Principal portion of lease payments		
Lease Inducement Book Amortization credit to income		
Financing fees for tax ITA 20(1)(e) and (e.1)		
Total Deductions		**19,105,284**
Net Income for Tax Purposes		**684,936**
Charitable donations from Schedule 2	311	34,000
Taxable dividends deductible under section 112 or 113, from Schedule 3 (item 82)	320	
Non-capital losses of preceding taxation years from Schedule 4	331	0
Net-capital losses of preceding taxation years from Schedule 4 *(Please include explanation and calculation in Manager's summary)*	332	
Limited partnership losses of preceding taxation years from Schedule 4	335	
TAXABLE INCOME		**650,936**

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

PILS Tax Provision - Bridge Year

							Wires Only	
Regulatory Taxable Income							$ 650,936	**A**
Ontario Income Taxes								
Income tax payable	**Ontario Income Tax**	11.50%	**B**	$	74,858	**C = A * B**		
Small business credit	Ontario Small Business Threshold	$ 500,000	**D**					
	Rate reduction		**E**	$	-	**F = D * E**		
Ontario Income tax							$ 74,858	**J = C + F**
Combined Tax Rate and PILs	Effective Ontario Tax Rate				11.50%	**K = J / A**		
	Federal tax rate (Maximum 15%)				15.00%	**L**		
	Combined tax rate						26.50%	**M = K + L**
Total Income Taxes							**$ 172,498**	**N = A * M**
Investment Tax Credits							$ 148,671	**O**
Miscellaneous Tax Credits								**P**
Total Tax Credits							**$ 148,671**	**Q = O + P**
Corporate PILs/Income Tax Provision for Bridge Year							**$ 23,827**	**R = N - Q**

Note:

1. This is for the derivation of Bridge year PILs income tax expense and should not be used for Test year revenue requirement calculations.

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Schedule 8 CCA - Test Year

Check on if LoCoP includes $21k

Class	Class Description	UCC Test Year Opening Balance	Additions	Disposals (Negative)	UCC Before 1/2 Yr Adjustment	1/2 Year Rule {1/2 Additions Less Disposals}	Reduced UCC	Rate %	Test Year CCA	UCC End of Test Year
1	Distribution System - post 1987	$ 57,897,221			$ 57,897,221	$ -	$ 57,897,221	4%	$ 2,315,889	$ 55,581,332
1 Enhanced	Non-residential Buildings Reg. 1100(1)(a.1) election	$ 18,942,105	171,309		$ 19,113,414	$ 85,655	$ 19,027,760	6%	$ 1,141,666	$ 17,971,749
2	Distribution System - pre 1988	$ -			$ -	$ -	$ -	6%	$ -	$ -
8	General Office/Stores Equip	$ 7,568,102	906,630		$ 8,474,731	$ 453,315	$ 8,021,416	20%	$ 1,604,283	$ 6,870,448
10	Computer Hardware/ Vehicles	$ 2,027,010	173,361	-21,000	$ 2,179,371	$ 76,180	$ 2,103,191	30%	$ 630,957	$ 1,548,414
10.1	Certain Automobiles	$ -			$ -	$ -	$ -	30%	$ -	$ -
12	Computer Software	$ 75,282	57,171		$ 132,453	$ 28,586	$ 103,868	100%	$ 103,868	$ 28,586
13 1	Lease # 1	$ -			$ -	$ -	$ -		$ -	$ -
13 2	Lease #2	$ -			$ -	$ -	$ -		$ -	$ -
13 3	Lease # 3	$ -			$ -	$ -	$ -		$ -	$ -
13 4	Lease # 4	$ -			$ -	$ -	$ -		$ -	$ -
14	Franchise	$ -			$ -	$ -	$ -		$ -	$ -
17	New Electrical Generating Equipment Acq'd after Feb 27/00 Other Than I	$ -			$ -	$ -	$ -	8%	$ -	$ -
42	Fibre Optic Cable	$ -			$ -	$ -	$ -	12%	$ -	$ -
43.1	Certain Energy-Efficient Electrical Generating Equipment	$ -			$ -	$ -	$ -	30%	$ -	$ -
43.2	Certain Clean Energy Generation Equipment	$ -			$ -	$ -	$ -	50%	$ -	$ -
45	Computers & Systems Software acq'd post Mar 22/04	$ 19			$ 19	$ -	$ 19	45%	$ 9	$ 11
46	Data Network Infrastructure Equipment (acq'd post Mar 22/04)	$ -			$ -	$ -	$ -	30%	$ -	$ -
47	Distribution System - post February 2005	$ 90,664,236	14,036,281		$ 104,700,517	$ 7,018,140	$ 97,682,377	8%	$ 7,814,590	$ 96,885,927
50	Data Network Infrastructure Equipment - post Mar 2007	$ 800,900	923,239		$ 1,724,139	$ 461,620	$ 1,262,519	55%	$ 694,386	$ 1,029,753
52	Computer Hardware and system software	$ -			$ -	$ -	$ -	100%	$ -	$ -
95	CWIP	$ -			$ -	$ -	$ -	0%	$ -	$ -
		$ -			$ -	$ -	$ -	5%	$ -	$ -
		$ -			$ -	$ -	$ -	10%	$ -	$ -
		$ -			$ -	$ -	$ -	0%	$ -	$ -
		$ -			$ -	$ -	$ -	0%	$ -	$ -
		$ -			$ -	$ -	$ -	0%	$ -	$ -
		$ -			$ -	$ -	$ -	0%	$ -	$ -
		$ -			$ -	$ -	$ -	0%	$ -	$ -
		$ -			$ -	$ -	$ -	0%	$ -	$ -
		$ -			$ -	$ -	$ -	0%	$ -	$ -
	TOTAL	$ 177,974,875	$ 16,267,990	-$ 21,000	$ 194,221,866	$ 8,123,495	$ 186,098,370		$ 14,305,647	$ 179,916,219

2016 Additions	16,848,411
Remove Depreciation in Burdens -	580,421
	16,267,990

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Schedule 10 CEC - Test Year

Cumulative Eligible Capital

					0
Additions					
Cost of Eligible Capital Property Acquired during Test Year		0			
Other Adjustments		0			
	Subtotal	0	**x 3/4 =**	0	
Non-taxable portion of a non-arm's length transferor's gain realized on the transfer of an ECP to the Corporation after Friday, December 20, 2002		0	**x 1/2 =**	0	
				0	**0**
Amount transferred on amalgamation or wind-up of subsidiary		0			**0**
	Subtotal				**0**
Deductions					
Proceeds of sale (less outlays and expenses not otherwise deductible) from the disposition of all ECP during Test Year		0			
Other Adjustments		0			
	Subtotal	0	**x 3/4 =**		**0**

Cumulative Eligible Capital Balance			**0**
Current Year Deduction (Carry Forward to Tab "Test Year Taxable Income")	**0**	**x 7% =**	**0**
Cumulative Eligible Capital - Closing Balance			**0**

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Schedule 13 Tax Reserves - Test Year

Continuity of Reserves

Description	Bridge Year	Eliminate Amounts Not Relevant for Bridge Year	Adjusted Utility Balance	Test Year Adjustments		Balance for Test Year	Change During the Year	Disallowed Expenses
				Additions	Disposals			
Capital Gains Reserves ss.40(1)	0		0			0	0	
Tax Reserves Not Deducted for accounting purposes								
Reserve for doubtful accounts ss. 20(1)(l)	0		0			0	0	
Reserve for goods and services not delivered ss. 20(1)(m)	0		0			0	0	
Reserve for unpaid amounts ss. 20(1)(n)	0		0			0	0	
Debt & Share Issue Expenses ss. 20(1)(e)	0		0			0	0	
Other tax reserves	0		0			0	0	
	0		0			0	0	
	0		0			0	0	
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Financial Statement Reserves (not deductible for Tax Purposes)								
General Reserve for Inventory Obsolescence (non-specific)	0		0			0	0	
General reserve for bad debts	200,000		200,000			200,000	0	
Accrued Employee Future Benefits:	0		0			0	0	
- Medical and Life Insurance	0		0			0	0	
-Short & Long-term Disability	0		0			0	0	
-Accmulated Sick Leave	131,530		131,530			131,530	0	
- Termination Cost	10,000		10,000		10,000	0	-10,000	
- Other Post-Employment Benefits	4,595,538		4,595,538	176,076		4,771,614	176,076	
Provision for Environmental Costs	0		0			0	0	
Restructuring Costs	0		0			0	0	
Accrued Contingent Litigation Costs	0		0			0	0	
Accrued Self-Insurance Costs	0		0			0	0	
Other Contingent Liabilities	0		0			0	0	
Bonuses Accrued and Not Paid Within 180 Days of Year-End ss. 78(4)	0		0			0	0	
Unpaid Amounts to Related Person and Not Paid Within 3 Taxation Years ss. 78(1)	0		0			0	0	
Other	0		0			0	0	
	0		0			0	0	
	0		0			0	0	
Total	**4,937,068**	**0**	**4,937,068**	**176,076**	**10,000**	**5,103,144**	**166,076**	**0**

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Schedule 7-1 Loss Carry Forward - Test Year

Corporation Loss Continuity and Application

Non-Capital Loss Carry Forward Deduction	Total	Non-Distribution Portion	Utility Balance
Actual/Estimated Bridge Year	0		0
			0
Other Adjustments Add (+) Deduct (-)	0		0
Balance available for use in Test Year	0	0	0
Amount to be used in Test Year	0		0
Balance available for use post Test Year	0	0	0

Net Capital Loss Carry Forward Deduction	Total	Non-Distribution Portion	Utility Balance
Actual/Estimated Bridge Year	0		0
			0
Other Adjustments Add (+) Deduct (-)			0
Balance available for use in Test Year	0	0	0
Amount to be used in Test Year			0
Balance available for use post Test Year	0	0	0

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

Taxable Income - Test Year

		Test Year Taxable Income
Net Income Before Taxes		7,761,102

	T2 S1 line #	
Additions:		
Interest and penalties on taxes	103	
Amortization of tangible assets *2-4 ADJUSTED ACCOUNTING DATA P489*	104	8,911,254
Amortization of intangible assets *2-4 ADJUSTED ACCOUNTING DATA P490*	106	
Recapture of capital cost allowance from Schedule 8	107	
Gain on sale of eligible capital property from Schedule 10	108	
Income or loss for tax purposes- joint ventures or partnerships	109	
Loss in equity of subsidiaries and affiliates	110	
Loss on disposal of assets	111	10,987
Charitable donations	112	0
Taxable Capital Gains	113	
Political Donations	114	
Deferred and prepaid expenses	116	
Scientific research expenditures deducted on financial statements	118	
Capitalized interest	119	
Non-deductible club dues and fees	120	11,962
Non-deductible meals and entertainment expense	121	45,700
Non-deductible automobile expenses	122	
Non-deductible life insurance premiums	123	
Non-deductible company pension plans	124	
Tax reserves beginning of year	125	0
Reserves from financial statements- balance at end of year	126	5,103,144
Soft costs on construction and renovation of buildings	127	
Book loss on joint ventures or partnerships	205	
Capital items expensed	206	
Debt issue expense	208	
Development expenses claimed in current year	212	
Financing fees deducted in books	216	
Gain on settlement of debt	220	
Non-deductible advertising	226	
Non-deductible interest	227	
Non-deductible legal and accounting fees	228	
Recapture of SR&ED expenditures	231	
Share issue expense	235	
Write down of capital property	236	

Amounts received in respect of qualifying environment trust per paragraphs 12(1)(z.1) and 12(1)(z.2)	237	
Other Additions: (please explain in detail the nature of the item)		
Interest Expensed on Capital Leases	290	
Realized Income from Deferred Credit Accounts	291	
Pensions	292	
Non-deductible penalties	293	
	294	
	295	
	296	
	297	
ARO Accretion expense		
Capital Contributions Received (ITA 12(1)(x))		
Lease Inducements Received (ITA 12(1)(x))		
Deferred Revenue (ITA 12(1)(a))		
Prior Year Investment Tax Credits received		
Total Additions		**14,083,047**
Deductions:		
Gain on disposal of assets per financial statements	401	
Dividends not taxable under section 83	402	
Capital cost allowance from Schedule 8	403	14,305,647
Terminal loss from Schedule 8	404	
Cumulative eligible capital deduction from Schedule 10 CEC	405	0
Allowable business investment loss	406	
Deferred and prepaid expenses	409	
Scientific research expenses claimed in year	411	
Tax reserves end of year	413	0
Reserves from financial statements - balance at beginning of year	414	4,937,068
Contributions to deferred income plans	416	
Book income of joint venture or partnership	305	
Equity in income from subsidiary or affiliates	306	
Other deductions: (Please explain in detail the nature of the item)		
Interest capitalized for accounting deducted for tax	390	
Capital Lease Payments	391	

Non-taxable imputed interest income on deferral and variance accounts	392	
	393	
	394	
	395	
	396	
	397	
ARO Payments - Deductible for Tax when Paid		
ITA 13(7.4) Election - Capital Contributions Received		
ITA 13(7.4) Election - Apply Lease Inducement to cost of Leaseholds		
Deferred Revenue - ITA 20(1)(m) reserve		
Principal portion of lease payments		
Lease Inducement Book Amortization credit to income		
Financing fees for tax ITA 20(1)(e) and (e.1)		
Total Deductions		**19,242,715**
NET INCOME FOR TAX PURPOSES		**2,601,434**
Charitable donations	311	21,000
Taxable dividends received under section 112 or 113	320	
Non-capital losses of preceding taxation years from Schedule 7-1	331	0
Net-capital losses of preceding taxation years (Please show calculation)	332	
Limited partnership losses of preceding taxation years from Schedule 4	335	
REGULATORY TAXABLE INCOME		**2,580,434**

Ontario Energy Board

Income Tax/PILs Workform for 2015 Filers

PILs Tax Provision - Test Year

							Wires Only	
Regulatory Taxable Income							$ 2,580,434	**A**
Ontario Income Taxes								
Income tax payable	**Ontario Income Tax**	11.50%	**B**	$	296,750	**C = A * B**		
Small business credit	Ontario Small Business Threshold	$ 500,000	**D**					
	Rate reduction		**E**	$	-	**F = D * E**		
Ontario Income tax							$ 296,750	**J = C + F**
Combined Tax Rate and PILs	Effective Ontario Tax Rate				11.50%	**K = J / A**		
	Federal tax rate (Maximum 15%)				15.00%	**L**		
	Combined tax rate						26.50%	**M = K + L**
Total Income Taxes							**$ 683,815**	**N = A * M**
Investment Tax Credits							$ 139,521	**O**
Miscellaneous Tax Credits								**P**
Total Tax Credits							**$ 139,521**	**Q = O + P**
Corporate PILs/Income Tax Provision for Test Year							**$ 544,294**	**R = N - Q**
Corporate PILs/Income Tax Provision Gross Up [1]					73.50%	**S = 1 - M**	**$ 196,242**	**T = R / S - R**
Income Tax (grossed-up)							**$ 740,536**	**U = R + T**

Note:

1. This is for the derivation of revenue requirement and should not be used for sufficiency/deficiency calculations.

Ontario Energy Board

2016 Cost Allocation Model

EB-2015-0108

Sheet I6.1 Revenue Worksheet -

Total kWhs from Load Forecast	1,446,194,516
Total kWs from Load Forecast	2,027,394
Deficiency/sufficiency (RRWF 8. cell F51)	- 3,540,447
Miscellaneous Revenue (RRWF 5. cell F48)	1,183,596

			1	2	3	6	7	9	10
	ID	**Total**	**Residential**	**GS <50**	**GS>50-Regular**	**Large Use >5MW**	**Street Light**	**Unmetered Scattered Load**	**Embedded Distributor**
Billing Data									
Forecast kWh	**CEN**	1,446,194,516	399,471,640	192,172,348	719,634,313	92,802,320	7,594,660	3,140,372	31,378,863
Forecast kW	**CDEM**	2,027,394			1,765,423	169,451	21,115		71,406
Forecast kW, included in CDEM, of customers receiving line transformer allowance		1,194,336		124,353	1,069,983				
Optional - Forecast kWh, included in CEN, from customers that receive a line transformation allowance on a kWh basis. In most cases this will not be applicable and will be left blank.		-							
KWh excluding KWh from Wholesale Market Participants	**CEN EWMP**	1,439,371,002	399,471,640	192,172,348	712,810,799	92,802,320	7,594,660	3,140,372	31,378,863
Existing Monthly Charge			$15.20	$31.96	$119.38	$6,975.72	$0.33	$15.98	
Existing Distribution kWh Rate			$0.0192	$0.0143				$0.0199	
Existing Distribution kW Rate					$4.7395	$3.3375	$8.6832		$0.0126
Existing TOA Rate				$0.60	$0.60				
Additional Charges									
Distribution Revenue from Rates		$31,992,695	$16,663,087	$4,908,049	$9,362,850	$649,252	$238,101	$170,454	$900
Transformer Ownership Allowance		$716,602	$0	$74,612	$641,990	$0	$0	$0	$0
Net Class Revenue	**CREV**	$31,276,093	$16,663,087	$4,833,437	$8,720,861	$649,252	$238,101	$170,454	$900

Ontario Energy Board

2016 Cost Allocation Model

EB-2015-0108

Sheet I6.2 Customer Data Worksheet -

			1	2	3	6	7	9	10
	ID	Total	Residential	GS <50	GS>50-Regular	Large Use >5MW	Street Light	Unmetered Scattered Load	Embedded Distributor
Billing Data									
Bad Debt 3 Year Historical Average	BDHA	$303,930	$82,546	$27,191	$194,193	$0	$0	$0	$0
Late Payment 3 Year Historical Average	LPHA	$217,370	$130,017	$40,032	$47,009			$312	
Number of Bills	CNB	340,260	295,830	35,826.00	8,340.00	12.00	72.00	168.00	12
Number of Devices	CDEV						13,828		
Number of Connections (Unmetered)	CCON	2,472					1,909	563	
Total Number of Customers	CCA	55,653	49,305	5,632	695	1	6	14	
Bulk Customer Base	CCB	-							
Primary Customer Base	CCP	56,711	49,305	5,632	695	1	1,064	14	
Line Transformer Customer Base	CCLT	54,056	47,366	5,211	444	-	1,022	13	
Secondary Customer Base	CCS	53,733	47,785	5,285	649			14	
Weighted - Services	CWCS	47,785	47,785	-	-	-	-	-	-
Weighted Meter -Capital	CWMC	11,099,175	6,058,105	2,174,909	2,796,160	70,000	-	-	-
Weighted Meter Reading	CWMR	72,084	49,305	5,632	17,055	46	-	-	46
Weighted Bills	CWNB	340,453	295,830	36,901	7,500	9	71	133	9

Bad Debt Data

Historic Year:	2012	89,491	65,741	23,749	-				
Historic Year:	2013	682,323	83,722	18,911	579,690				
Historic Year:	2014	139,977	98,174	38,915	2,889				
Three-year average		**303,930**	**82,546**	**27,191**	**194,193**	**-**	**-**	**-**	**-**

Ontario Energy Board

2016 Cost Allocation Model

EB-2015-0108

Sheet I8 Demand Data Worksheet -

This is an input sheet for demand allocators.

CP TEST RESULTS	12 CP
NCP TEST RESULTS	4 NCP

Co-incident Peak	Indicator
1 CP	CP 1
4 CP	CP 4
12 CP	CP 12

Non-co-incident Peak	Indicator
1 NCP	NCP 1
4 NCP	NCP 4
12 NCP	NCP 12

Customer Classes		Total	1 Residential	2 GS <50	3 GS>50-Regular	6 Large Use >5MW	7 Street Light	9 Unmetered Scattered Load	10 Embedded Distributor
CO-INCIDENT PEAK									
1 CP									
Transformation CP	TCP1	229,988	82,038	32,907	100,505	12,342	1,812	383	
Bulk Delivery CP	BCP1	-							
Total Sytem CP	DCP1	229,988	82,038	32,907	100,505	12,342	1,812	383	
4 CP									
Transformation CP	TCP4	953,915	271,693	172,344	448,203	56,630	3,589	1,456	
Bulk Delivery CP	BCP4	-							
Total Sytem CP	DCP4	953,915	271,693	172,344	448,203	56,630	3,589	1,456	
12 CP									
Transformation CP	TCP12	2,677,963	757,644	477,794	1,271,700	156,804	9,737	4,285	
Bulk Delivery CP	BCP12	-							
Total Sytem CP	DCP12	2,677,963	757,644	477,794	1,271,700	156,804	9,737	4,285	
NON CO_INCIDENT PEAK									
1 NCP									
Classification NCP from Load Data Provider	DNCP1	284,426	86,479	51,327	126,252	18,161	1,821	385	
Primary NCP	PNCP1	284,426	86,479	51,327	126,252	18,161	1,821	385	
Line Transformer NCP	LTNCP1	266,265	86,479	51,327	126,252		1,821	385	
Secondary NCP	SNCP1	264,444	86,479	51,327	126,252			385	
4 NCP									
Classification NCP from Load Data Provider	DNCP4	1,092,641	335,469	193,238	486,883	68,289	7,241	1,521	
Primary NCP	PNCP4	1,092,641	335,469	193,238	486,883	68,289	7,241	1,521	
Line Transformer NCP	LTNCP4	1,024,352	335,469	193,238	486,883		7,241	1,521	
Secondary NCP	SNCP4	1,017,111	335,469	193,238	486,883			1,521	
12 NCP									
Classification NCP from Load Data Provider	DNCP12	3,010,704	902,388	516,546	1,383,317	182,967	21,103	4,383	
Primary NCP	PNCP12	3,010,704	902,388	516,546	1,383,317	182,967	21,103	4,383	
Line Transformer NCP	LTNCP12	2,827,737	902,388	516,546	1,383,317		21,103	4,383	
Secondary NCP	SNCP12	2,806,635	902,388	516,546	1,383,317			4,383	

Ontario Energy Board

2016 Cost Allocation Model

EB-2015-0108

Sheet O1 Revenue to Cost Summary Worksheet -

Instructions:
Please see the first tab in this workbook for detailed instructions

Class Revenue, Cost Analysis, and Return on Rate Base

Rate Base Assets		Total	1 Residential	2 GS <50	3 GS>50-Regular	6 Large Use >5MW	7 Street Light	9 Unmetered Scattered Load	10 Embedded Distributor
crev	Distribution Revenue at Existing Rates	$31,276,093	$16,663,087	$4,833,437	$8,720,861	$649,252	$238,101	$170,454	$900
mi	Miscellaneous Revenue (mi)	$1,183,596	$797,123	$161,568	$196,580	$15,140	$9,500	$3,662	$23
		Miscellaneous Revenue Input equals Output							
	Total Revenue at Existing Rates	$32,459,689	$17,460,211	$4,995,006	$8,917,441	$664,393	$247,601	$174,116	$922
	Factor required to recover deficiency (1 + D)	1.1132							
	Distribution Revenue at Status Quo Rates	$34,816,540	$18,549,345	$5,380,581	$9,708,060	$722,748	$265,054	$189,750	$1,002
	Miscellaneous Revenue (mi)	$1,183,596	$797,123	$161,568	$196,580	$15,140	$9,500	$3,662	$23
	Total Revenue at Status Quo Rates	$36,000,135	$19,346,468	$5,542,150	$9,904,640	$737,888	$274,554	$193,412	$1,024
	Expenses								
di	Distribution Costs (di)	$7,016,908	$3,499,051	$1,018,090	$2,206,160	$207,097	$62,694	$23,589	$226
cu	Customer Related Costs (cu)	$3,298,344	$2,618,929	$379,877	$294,996	$2,781	$516	$960	$286
ad	General and Administration (ad)	$3,905,816	$2,254,517	$538,576	$993,111	$84,686	$25,028	$9,715	$184
dep	Depreciation and Amortization (dep)	$8,157,240	$3,783,616	$1,294,331	$2,746,678	$248,221	$60,552	$23,401	$442
INPUT	PILs (INPUT)	$740,537	$349,221	$113,798	$246,345	$22,679	$6,107	$2,365	$22
INT	Interest	$5,120,189	$2,414,569	$786,814	$1,703,268	$156,807	$42,227	$16,350	$153
	Total Expenses	$28,239,034	$14,919,903	$4,131,485	$8,190,556	$722,272	$197,124	$76,380	$1,313
	Direct Allocation	$0	$0	$0	$0	$0	$0	$0	$0
NI	Allocated Net Income (NI)	$7,761,102	$3,659,966	$1,192,641	$2,581,786	$237,686	$64,007	$24,784	$233
	Revenue Requirement (includes NI)	$36,000,135	$18,579,869	$5,324,126	$10,772,343	$959,957	$261,131	$101,164	$1,546
		Revenue Requirement Input equals Output							
	Rate Base Calculation								
	Net Assets								
dp	Distribution Plant - Gross	$350,006,525	$174,279,275	$51,896,993	$110,352,276	$9,311,927	$2,999,787	$1,149,480	$16,785
gp	General Plant - Gross	$34,063,332	$16,564,472	$5,133,549	$11,005,033	$957,731	$289,945	$111,730	$872
accum dep	Accumulated Depreciation	($146,624,329)	($74,773,436)	($21,328,331)	($45,047,063)	($3,746,459)	($1,243,529)	($473,642)	($11,868)
co	Capital Contribution	($42,899,757)	($24,187,763)	($5,834,564)	($11,683,769)	($588,899)	($439,261)	($165,502)	$0
	Total Net Plant	$194,545,770	$91,882,548	$29,867,647	$64,626,477	$5,934,301	$1,606,942	$622,066	$5,789
	Directly Allocated Net Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0
COP	Cost of Power (COP)	$173,592,271	$48,159,505	$23,167,916	$85,999,620	$11,188,063	$915,597	$378,597	$3,782,973
	OM&A Expenses	$14,221,068	$8,372,497	$1,936,542	$3,494,267	$294,564	$88,238	$34,264	$695
	Directly Allocated Expenses	$0	$0	$0	$0	$0	$0	$0	$0
	Subtotal	***$187,813,339***	***$56,532,002***	***$25,104,458***	***$89,493,887***	***$11,482,627***	***$1,003,835***	***$412,861***	***$3,783,669***
	Working Capital	$14,086,000	$4,239,900	$1,882,834	$6,712,042	$861,197	$75,288	$30,965	$283,775
	Total Rate Base	$208,631,770	$96,122,448	$31,750,481	$71,338,519	$6,795,498	$1,682,230	$653,031	$289,564
		Rate Base Input equals Output							
	Equity Component of Rate Base	$83,452,708	$38,448,979	$12,700,192	$28,535,408	$2,718,199	$672,892	$261,212	$115,826
	Net Income on Allocated Assets	$7,761,102	$4,426,565	$1,410,665	$1,714,083	$15,616	$77,430	$117,031	($289)
	Net Income on Direct Allocation Assets	$0	$0	$0	$0	$0	$0	$0	$0
	Net Income	$7,761,102	$4,426,565	$1,410,665	$1,714,083	$15,616	$77,430	$117,031	($289)
	RATIOS ANALYSIS								
	REVENUE TO EXPENSES STATUS QUO%	100.00%	104.13%	104.10%	91.95%	76.87%	105.14%	191.19%	66.24%
	EXISTING REVENUE MINUS ALLOCATED COSTS	($3,540,447)	($1,119,658)	($329,120)	($1,854,902)	($295,565)	($13,530)	$72,952	($624)
		Deficiency Input equals Output							

Ontario Energy Board

2016 Cost Allocation Model

EB-2015-0108

Sheet O1 Revenue to Cost Summary Worksheet -

Instructions:
Please see the first tab in this workbook for detailed instructions

Class Revenue, Cost Analysis, and Return on Rate Base

Rate Base Assets	Total	1 Residential	2 GS <50	3 GS>50-Regular	6 Large Use >5MW	7 Street Light	9 Unmetered Scattered Load	10 Embedded Distributor
STATUS QUO REVENUE MINUS ALLOCATED COSTS	($0)	$766,599	$218,024	($867,703)	($222,069)	$13,423	$92,248	($522)
RETURN ON EQUITY COMPONENT OF RATE BASE	9.30%	11.51%	11.11%	6.01%	0.57%	11.51%	44.80%	-0.25%

Ontario Energy Board

2016 Cost Allocation Model

EB-2015-0108

Sheet O2 Monthly Fixed Charge Min. & Max. Worksheet -

Output sheet showing minimum and maximum level for Monthly Fixed Charge

Summary

	1	2	3	6	7	9	10
	Residential	GS <50	GS>50-Regular	Large Use >5MW	Street Light	Unmetered Scattered Load	Embedded Distributor
Customer Unit Cost per month - Avoided Cost	$5.34	$8.83	$64.25	$929.50	$0.01	$0.08	0
Customer Unit Cost per month - Directly Related	$7.01	$11.17	$78.02	$1,065.60	$0.02	$0.13	0
Customer Unit Cost per month - Minimum System with PLCC Adjustment	$20.29	$21.40	$99.35	$1,250.53	$7.08	$9.90	0
Existing Approved Fixed Charge	$15.20	$31.96	$119.38	$6,975.72	$0.33	$15.98	$0.00

Hydro Inc. Weather Normal Load Forecast for 2016 Rate Application

	2003 Actual	2004 Actual	2005 Actual	2006 Actual	2007 Actual	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Weather Normal	2016 Weather Normal	
Actual kWh Purchases	1,269,973,824	1,294,310,410	1,358,556,813	1,372,533,120	1,423,569,039	1,421,429,683	1,411,764,680	1,479,129,865	1,488,841,981	1,495,459,949	1,493,043,817	1,490,761,014			
Predicted kWh Purchases	1,274,021,085	1,286,052,696	1,387,950,221	1,364,186,175	1,374,953,814	1,399,504,551	1,369,103,038	1,421,723,729	1,492,547,995	1,496,338,277	1,525,289,731	1,546,559,962	1,513,105,368	1,513,105,368	
% Difference	0.3%	-0.6%	2.2%	-0.6%	-3.4%	-1.5%	-3.0%	-3.9%	0.2%	0.1%	2.2%	3.7%			
CDM Purchase Adjustment													(6,864,825)	(14,558,610)	
Predicted kWh Purchases after CDM													1,506,240,543	1,498,546,758	
Billed kWh	1,216,900,996	1,249,737,840	1,304,584,908	1,326,077,776	1,367,527,466	1,370,617,488	1,360,402,644	1,425,614,249	1,437,226,191	1,449,403,353	1,448,373,585	1,447,246,211	1,453,619,516	1,446,194,516	
By Class															
Residential															
Customers	39,236	40,531	41,769	42,668	43,382	44,172	44,853	45,488	46,194	46,877	47,602	48,191	48,705	49,305	
kWh	381,172,838	385,085,949	408,053,981	391,947,395	405,071,612	405,533,476	397,106,489	413,251,129	408,768,579	409,922,519	409,442,945	410,104,642	404,699,733	399,471,640	
General Service < 50 kW															
Customers	4,967	5,001	5,062	5,119	5,151	5,184	5,253	5,343	5,402	5,454	5,503	5,547	5,596	5,632	
kWh	178,733,409	181,654,718	187,375,742	189,284,333	192,047,825	185,031,934	179,794,279	185,040,278	187,070,265	190,189,482	194,737,949	197,096,102	195,058,723	192,172,348	
General Service > 50 to 4999 kW															
Customers	646	632	623	622	627	647	663	663	666	668	670	683	694	693	
kWh	581,134,405	606,602,563	627,713,059	660,327,538	682,785,512	693,615,296	697,125,703	734,775,051	725,123,828	716,491,037	705,737,128	699,842,688	712,834,228	712,810,799	719,634,313
kW	1,578,391	1,578,377	1,609,887	1,625,474	1,650,921	1,665,645	1,682,115	1,762,264	1,775,934	1,801,339	1,766,195	1,726,654	1,752,860	1,752,802	1,765,423
Large User															
Customers	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
kWh	65,433,586	66,067,057	70,553,960	73,668,918	77,115,461	76,733,608	76,507,951	82,593,009	84,249,637	86,740,767	90,202,679	91,205,251	92,091,821	92,802,320	
kW	120,391	136,143	138,634	144,512	147,258	145,766	144,355	155,986	160,630	165,061	168,361	166,649	168,154	169,451	
Direct Market Participant															
Customers	0	0	0	0	0	0	0	0	0	2	2	2	2	2	
kWh	0	0	0	0	0	0	0	0	0	3,552,539	7,094,070	7,002,713	6,912,533	6,823,514	
kW	0	0	0	0	0	0	0	0	0	5,848	13,338	12,738	12,785	12,620	
Street Lights															
Connections	12,292	12,568	12,935	13,177	13,358	13,459	13,548	13,639	13,678	13,736	13,841	13,853	13,808	13,828	
kWh	7,223,381	7,105,157	7,702,553	7,713,288	7,734,113	7,925,793	7,921,734	7,954,315	7,939,684	8,173,989	8,074,319	7,720,857	7,639,658	7,594,660	
kW	20,126	20,541	21,198	21,493	21,703	21,921	22,078	22,212	22,237	22,349	22,476	21,568	21,240	21,115	
Unmetered Loads															
Connections	459	490	491	530	554	534	534	537	499	472	496	519	541	563	
kWh	3,203,377	3,222,396	3,185,614	3,136,305	2,772,944	1,777,380	1,946,487	2,000,468	2,043,853	2,250,008	2,352,596	2,544,974	2,829,382	3,140,372	
Embedded Distributor															
Customers									1	1	1	1	1	1	
kWh									22,030,344	32,083,013	30,731,900	31,728,985	31,553,438	31,378,863	
kW									39,512	71,507	71,174	72,407	71,803	71,406	
Total															
Customer/Connections	57,599	59,223	60,879	62,116	63,072	63,995	64,851	65,670	66,440	67,209	68,116	68,796	69,348	70,025	
kWh	1,216,900,996	1,249,737,840	1,304,584,908	1,326,077,776	1,367,527,466	1,370,617,488	1,360,402,644	1,425,614,249	1,437,226,191	1,449,403,353	1,448,373,585	1,447,246,211	1,453,619,516	1,446,194,516	
kW from applicable classes	1,718,908	1,735,061	1,769,719	1,791,479	1,819,881	1,833,333	1,848,549	1,940,462	1,998,313	2,066,104	2,041,543	2,000,016	2,026,842	2,027,394	
	57,599	59,223	60,879	62,116	63,072	63,995	64,851	65,670	66,440	67,209	68,116	68,796	69,348	70,025	
	1,216,900,996	1,249,737,840	1,304,584,908	1,326,077,776	1,367,527,466	1,370,617,488	1,360,402,644	1,425,614,249	1,437,226,191	1,449,403,353	1,448,373,585	1,447,246,211	1,453,619,516	1,446,194,516	
	1,718,908	1,735,061	1,769,719	1,791,479	1,819,881	1,833,333	1,848,549	1,940,462	1,998,313	2,066,104	2,041,543	2,000,016	2,026,842	2,027,394	
															1,439,371,002

											Per 282-0109				
	Purchased kWh - IESO	Less Wallenstein Adjmt	Embedded Generation	Add MP	Less LTLT	Purchased kWh	Heating Degree Days	Cooling Degree Days	Number of Days in Month	Spring Fall Flag	Employment Kitchener-Waterloo-Cambridge (000's)	Number of Peak Hours	Predicted Purchases	Variances (kWh)	% Variance
Jan-96	104,439,190				484,331	103,954,859	789.4	0	31	0	196.7	352	101,600,262	(2,354,597)	-2.3%
Feb-96	97,116,320				450,371	96,665,949	712.6	0	29	0	196.7	336	94,589,895	(2,076,054)	-2.1%
Mar-96	93,206,737				432,241	92,774,496	670.4	0	31	1	197.0	336	95,475,764	2,701,267	2.9%
Apr-96	84,435,799				391,566	84,044,233	421.9	0	30	1	198.9	336	87,491,678	3,447,445	4.1%
May-96	79,585,420				369,073	79,216,347	216.1	10	31	1	200.8	352	87,373,881	8,157,534	10.3%
Jun-96	80,505,911				373,341	80,132,570	29.4	38.6	30	0	202.6	320	86,025,331	5,892,762	7.4%
Jul-96	82,378,016				382,023	81,995,993	18.9	41.9	31	0	203.7	352	90,824,297	8,828,305	10.8%
Aug-96	86,219,874				399,840	85,820,034	6.2	55.2	31	0	202.1	336	91,116,477	5,296,442	6.2%
Sep-96	81,006,662				375,664	80,630,998	102.2	12.6	30	1	199.2	320	79,960,537	(670,462)	-0.8%
Oct-96	84,736,264				392,959	84,343,305	301.4	0	31	1	195.6	352	85,649,277	1,305,973	1.5%
Nov-96	91,599,265				424,786	91,174,479	548.1	0	30	1	192.9	320	87,306,654	(3,867,824)	-4.2%
Dec-96	94,268,053				437,163	93,830,890	596.5	0	31	0	191.9	320	92,024,569	(1,806,321)	-1.9%
Jan-97	105,017,710				453,613	104,564,098	777.9	0	31	0	192.6	352	99,473,388	(5,090,709)	-4.9%
Feb-97	91,033,887				393,211	90,640,676	615	0	28	0	193.4	320	87,460,059	(3,180,617)	-3.5%
Mar-97	95,075,286				410,668	94,664,618	619.1	0	31	1	193.6	304	90,453,599	(4,211,020)	-4.4%
Apr-97	85,363,047				368,717	84,994,330	391.9	0	30	1	194.9	352	85,943,289	948,958	1.1%
May-97	81,823,270				353,427	81,469,843	289	0	31	1	197.9	336	85,269,640	3,799,798	4.7%
Jun-97	85,276,289				368,342	84,907,947	30.4	50.4	30	0	202.7	336	89,274,504	4,366,557	5.1%
Jul-97	88,667,230				382,989	88,284,242	22.1	59.8	31	0	204.3	352	94,406,690	6,122,448	6.9%
Aug-97	82,986,440				358,451	82,627,988	49.4	21.9	31	0	204.5	320	86,319,620	3,691,631	4.5%
Sep-97	82,339,214				355,655	81,983,559	115.2	5.4	30	1	203.2	336	81,834,931	(148,627)	-0.2%
Oct-97	87,421,436				377,608	87,043,828	288.9	1.6	31	1	203.3	352	88,984,369	1,940,541	2.2%
Nov-97	91,084,451				393,430	90,691,021	471.4	0	30	1	201.9	304	88,092,685	(2,598,336)	-2.9%
Dec-97	95,971,206				414,537	95,556,669	630.7	0	31	0	200.0	336	97,594,298	2,037,629	2.1%
Jan-98	99,755,427				369,728	99,385,699	652.8	0	31	0	199.4	336	97,963,084	(1,422,615)	-1.4%
Feb-98	88,298,732				327,266	87,971,466	547.1	0	29	0	200.0	320	90,386,503	2,415,036	2.7%
Mar-98	96,142,109				356,336	95,785,773	505.1	0	31	1	200.0	352	93,245,725	(2,540,048)	-2.7%
Apr-98	82,977,188				307,542	82,669,646	312	0	30	1	200.8	336	85,289,689	2,620,043	3.2%
May-98	85,056,523				315,249	84,741,274	77.1	16.8	31	1	202.0	320	83,162,647	(1,578,627)	-1.9%
Jun-98	90,611,662				335,838	90,275,824	66.7	63.7	30	0	205.5	352	94,970,927	4,695,103	5.2%
Jul-98	93,536,614				346,679	93,189,935	6.9	64.8	31	0	206.6	352	95,894,094	2,704,160	2.9%
Aug-98	94,443,253				350,040	94,093,214	12.1	83.1	31	0	207.4	320	97,595,517	3,502,303	3.7%
Sep-98	87,162,869				323,056	86,839,813	63	26	30	1	205.7	336	85,217,472	(1,622,341)	-1.9%
Oct-98	87,958,219				326,004	87,632,215	257.6	0	31	1	207.0	336	88,426,655	794,440	0.9%
Nov-98	91,550,898				339,319	91,211,579	440.1	0	30	1	209.3	336	92,597,421	1,385,842	1.5%
Dec-98	96,499,820				357,662	96,142,158	572.1	0	31	0	214.0	336	102,154,956	6,012,798	6.3%
Jan-99	106,347,680				391,586	105,956,094	789.6	0	31	0	215.0	320	107,569,352	1,613,258	1.5%
Feb-99	92,242,601				339,649	91,902,952	578.4	0	29	0	213.6	320	97,251,171	5,348,219	5.8%
Mar-99	99,528,299				366,476	99,161,823	592.5	0	31	1	211.4	368	101,773,077	2,611,254	2.6%
Apr-99	85,709,380				315,593	85,393,787	332.6	0	30	1	211.2	336	90,446,421	5,052,634	5.9%
May-99	85,001,059				312,985	84,688,074	126.7	10.5	31	1	212.0	320	87,812,809	3,124,734	3.7%
Jun-99	96,876,658				356,712	96,519,946	44.4	76.5	30	0	215.3	352	100,979,568	4,459,622	4.6%
Jul-99	102,363,582				376,916	101,986,666	3.2	138.9	31	0	219.1	336	113,643,708	11,657,042	11.4%
Aug-99	92,128,742				339,230	91,789,512	28.8	30.9	31	0	222.9	336	96,548,283	4,758,771	5.2%
Sep-99	90,659,575				333,820	90,325,755	88.9	27.7	30	1	222.6	336	93,693,240	3,367,485	3.7%
Oct-99	91,210,638				335,849	90,874,789	319	0	31	1	220.1	320	94,834,886	3,960,098	4.4%
Nov-99	95,821,859				352,828	95,469,031	405.1	0	30	1	216.5	352	95,836,223	367,192	0.4%
Dec-99	102,947,032				379,064	102,567,968	623.7	0	31	0	214.5	336	103,809,810	1,241,843	1.2%
Jan-00	108,597,914				359,435	108,238,479	773	0	31	0	212.9	320	106,182,250	(2,056,229)	-1.9%
Feb-00	99,596,964				329,644	99,267,320	643.8	0	28	0	212.8	336	97,871,435	(1,395,885)	-1.4%
Mar-00	99,214,146				328,377	98,885,769	446.9	0	31	1	214.0	368	98,871,449	(14,320)	0.0%
Apr-00	89,981,305				297,819	89,683,486	358.3	0	30	1	215.6	304	90,976,662	1,293,176	1.4%
May-00	91,415,321				302,565	91,112,756	152.4	18.7	31	1	220.6	352	95,893,997	4,781,241	5.2%
Jun-00	95,569,835				316,315	95,253,519	41.1	35.4	30	0	223.0	352	96,867,795	1,614,275	1.7%
Jul-00	95,254,773				315,273	94,939,500	18.6	44.8	31	0	224.4	320	98,360,476	3,420,976	3.6%
Aug-00	97,935,080				324,144	97,610,937	29.7	46.3	31	0	223.6	352	100,683,897	3,072,961	3.1%
Sep-00	93,176,991				308,396	92,868,596	134	23.8	30	1	222.4	320	93,069,929	201,333	0.2%
Oct-00	94,348,313				312,272	94,036,040	251.6	0	31	1	222.1	336	94,915,556	879,515	0.9%
Nov-00	100,873,405				333,869	100,539,536	470.9	0	30	1	221.7	352	99,957,475	(582,061)	-0.6%
Dec-00	111,445,741				368,861	111,076,880	826.5	0	31	0	222.5	304	110,876,916	(199,964)	-0.2%
Jan-01	112,581,869				441,337	112,140,533	715	0	31	0	222.4	352	110,854,105	(1,286,428)	-1.1%
Feb-01	99,788,048	104,864			390,772	99,292,412	620.2	0	28	0	222.1	320	100,246,463	954,051	1.0%
Mar-01	106,623,824	36,280			417,838	106,169,706	618.7	0	31	1	221.5	352	105,880,433	(289,274)	-0.3%
Apr-01	91,412,386	30,916			358,228	91,023,242	324.6	0	30	1	223.7	320	94,648,301	3,625,059	4.0%
May-01	91,851,848	77,020			359,770	91,415,058	140.3	7.7	31	1	223.9	352	95,027,894	3,612,837	4.0%
Jun-01	100,764,701	366,214			393,576	100,004,911	47	62.4	30	0	224.4	336	101,481,194	1,476,282	1.5%
Jul-01	101,480,960	460,998			396,012	100,623,949	22.3	65.7	31	0	223.9	336	103,085,906	2,461,957	2.4%
Aug-01	108,715,738	470,719			424,335	107,820,684	2.3	94.2	31	0	222.0	352	107,857,592	36,908	0.0%
Sep-01	94,386,426	432,816			368,311	93,585,299	118.8	19.2	30	1	221.7	304	90,470,824	(3,114,474)	-3.3%
Oct-01	99,648,193	450,486			388,869	98,808,837	276.7	0	31	1	221.0	352	96,152,534	(2,656,303)	-2.7%
Nov-01	101,041,156	461,530			394,286	100,185,339	370.8	0	30	1	222.7	352	97,615,496	(2,569,844)	-2.6%
Dec-01	105,627,132	437,328			412,359	104,777,445	563.3	0	31	0	222.6	304	103,604,102	(1,173,343)	-1.1%
Jan-02	113,024,588	462,984			105,964	112,455,640	625.7	0	31	0	220.8	352	107,666,348	(4,789,291)	-4.3%
Feb-02	102,515,395	411,477			96,119	102,007,798	592	0	28	0	219.2	320	98,184,264	(3,823,534)	-3.7%
Mar-02	109,462,737	484,062			102,591	108,876,083	581.2	0	31	1	218.0	320	101,198,351	(7,677,732)	-7.1%
Apr-02	101,175,171	484,651			94,789	100,595,731	356.2	6.6	30	1	219.4	352	96,945,632	(3,650,099)	-3.6%
May-02	99,710,889	473,869			93,420	99,143,600	266.8	5.3	31	1	222.7	352	97,582,697	(1,560,902)	-1.6%
Jun-02	104,229,282	414,660			97,730	103,716,893	53.1	54.5	30	0	226.3	320	99,977,762	(3,739,130)	-3.6%
Jul-02	118,623,870	434,817			111,262	118,077,792	4.7	129	31	0	228.4	352	117,022,816	(1,054,975)	-0.9%
Aug-02	111,583,120	449,451			104,620	111,029,049	11	72.3	31	0	229.5	336	106,430,677	(4,598,372)	-4.1%
Sep-02	105,982,565	448,586			99,348	105,434,631	50.2	47	30	1	227.9	320	97,349,603	(8,085,028)	-7.7%
Oct-02	105,094,244	468,666			98,493	104,527,084	349.3	1	31	1	228.5	352	101,656,995	(2,870,089)	-2.7%
Nov-02	107,844,017	482,077			101,069	107,260,871	486.4	0	30	1	228.4	336	102,303,347	(4,957,524)	-4.6%
Dec-02	113,855,250	475,040			106,735	113,273,476	675.6	0	31	0	232.4	320	112,069,663	(1,203,813)	-1.1%
Jan-03	122,281,722	568,885			197,928	121,514,909	868.4	0	31	0	233.3	352	119,923,029	(1,591,880)	-1.3%

	Purchased kWh - IESO	Less Wallenstein Adjmt	Embedded Generation	Add MP	Less LTLT	Purchased kWh	Heating Degree Days	Cooling Degree Days	Number of Days in Month	Spring Fall Flag	Per 282-0109 Employment Kitchener-Waterloo-Cambridge (000's)	Number of Peak Hours	Predicted Purchases	Variances (kWh)	% Variance
Feb-03	110,139,892	488,139			178,314	109,473,438	755.9	0	29	0	232.4	320	110,472,190	998,752	0.9%
Mar-03	112,160,711	521,553			181,546	111,457,612	638.7	0	31	1	230.3	336	109,291,188	(2,166,425)	-1.9%
Apr-03	101,765,882	504,137			164,670	101,097,074	397.4	0.7	30	1	230.3	336	100,792,914	(304,160)	-0.3%
May-03	96,091,846	517,449			155,422	95,418,975	217	0	31	1	232.8	336	98,669,975	3,250,999	3.4%
Jun-03	100,440,873	476,664			162,560	99,801,649	65.3	25.5	30	0	234.5	336	99,785,389	(16,260)	0.0%
Jul-03	109,723,172	519,355			177,586	109,026,232	12.5	50.1	31	0	234.8	352	105,827,898	(3,198,334)	-2.9%
Aug-03	104,089,100	498,723			168,457	103,421,920	18.9	72.4	31	0	235.0	320	108,019,773	4,597,853	4.4%
Sep-03	98,681,486	477,821			159,697	98,043,968	104.1	6	30	1	235.6	336	95,931,420	(2,112,547)	-2.2%
Oct-03	104,199,872	511,790			168,616	103,519,466	331.9	0	31	1	238.2	352	105,268,406	1,748,940	1.7%
Nov-03	105,671,242	481,980			171,057	105,018,205	434.4	0	30	1	240.7	320	105,193,883	175,678	0.2%
Dec-03	112,870,231	507,132			182,723	112,180,376	610	0	31	0	240.4	336	114,845,020	2,664,644	2.4%
Jan-04	123,356,627	491,163			216,044	122,649,421	879.2	0	31	0	238.2	336	121,359,005	(1,290,416)	-1.1%
Feb-04	110,886,761	454,979			194,180	110,237,601	699.2	0	28	0	235.3	320	108,279,746	(1,957,855)	-1.8%
Mar-04	114,371,810	479,037			200,266	113,692,507	540.9	0	31	1	233.9	368	110,256,042	(3,436,465)	-3.0%
Apr-04	100,778,720	497,337			176,332	100,105,050	354.1	0	30	1	234.4	336	101,270,090	1,165,039	1.2%
May-04	99,917,690	502,450			174,809	99,240,430	196.2	6.7	31	1	235.2	320	99,285,385	44,955	0.0%
Jun-04	101,500,696	522,271			177,558	100,800,868	92.5	16.3	30	0	239.4	352	102,079,972	1,279,104	1.3%
Jul-04	106,988,465	546,336			187,165	106,254,964	21.3	49.3	31	0	242.5	336	108,298,132	2,043,169	1.9%
Aug-04	105,697,735	523,277			184,936	104,989,522	55	30.6	31	0	243.7	336	106,390,634	1,401,112	1.3%
Sep-04	105,959,836	531,322			185,383	105,243,131	71.3	13.7	30	1	241.4	336	98,965,080	(6,278,051)	-6.0%
Oct-04	104,738,230	546,994			183,207	104,008,029	287.5	0	31	1	240.7	320	103,039,155	(968,874)	-0.9%
Nov-04	109,633,798	550,188			191,810	108,891,801	432.9	0	30	1	241.4	352	107,584,347	(1,307,453)	-1.2%
Dec-04	118,965,070	559,782			208,201	118,197,088	700.1	0	31	0	244.7	336	119,245,108	1,048,020	0.9%
Jan-05	125,529,169	560,017			169,527	124,799,625	814.7	0	31	0	246.4	320	122,107,453	(2,692,173)	-2.2%
Feb-05	110,018,389	494,481	1,891		148,575	109,377,224	683.5	0	28	0	248.0	320	113,422,253	4,045,029	3.7%
Mar-05	117,480,987	561,215	993		158,607	116,762,158	680.5	0	31	1	249.3	352	119,851,994	3,089,836	2.6%
Apr-05	102,655,932	533,776	611		138,534	101,984,233	354.6	0	30	1	251.4	336	108,777,160	6,792,927	6.7%
May-05	101,003,739	540,499	1,260		136,283	100,328,217	244.9	0	31	1	255.4	336	109,407,097	9,078,880	9.0%
Jun-05	120,806,868	529,091	1,538		163,163	120,116,153	27.3	104.8	30	0	258.8	352	124,782,911	4,666,758	3.9%
Jul-05	121,659,153	513,321	846		164,340	120,982,338	6.8	105.4	31	0	257.9	320	123,729,984	2,747,647	2.3%
Aug-05	118,714,206	531,068	976		160,321	118,023,792	11.9	67.9	31	0	256.5	352	118,586,960	563,167	0.5%
Sep-05	107,398,525	513,110	1,756		144,995	106,742,175	63.4	13.7	30	1	253.6	336	104,122,914	(2,619,261)	-2.5%
Oct-05	108,114,071	569,069	2,427		145,890	107,401,539	259.9	2.6	31	1	253.8	320	108,515,043	1,113,504	1.0%
Nov-05	112,273,619	544,498	536		151,566	111,578,091	433.1	0	30	1	251.9	352	112,218,042	639,951	0.6%
Dec-05	121,150,930	531,516	5,480		163,626	120,461,267	721.6	0	31	0	253.0	320	122,428,410	1,967,143	1.6%
Jan-06	120,719,775	495,201	3,630		196,929	120,031,274	590.6	0	31	0	254.1	336	120,344,319	313,045	0.3%
Feb-06	111,241,852	462,157	4,968		181,458	110,603,205	651.2	0	28	0	254.6	320	115,433,434	4,830,230	4.4%
Mar-06	118,804,708	502,980	3,065		193,780	118,111,013	562.4	0	31	1	252.2	368	118,919,914	808,901	0.7%
Apr-06	101,928,394	459,428	2,611		166,207	101,305,369	322.5	0	30	1	250.1	304	105,188,160	3,882,790	3.8%
May-06	109,352,162		2,275		179,120	109,175,317	177.8	17.7	31	1	250.7	352	109,687,041	511,724	0.5%
Jun-06	114,158,685		1,302		186,993	113,972,994	44.1	32.2	30	0	251.7	352	109,024,184	(4,948,810)	-4.3%
Jul-06	126,395,645		1,987		207,038	126,190,594	6.5	117.2	31	0	253.5	320	123,910,829	(2,279,765)	-1.8%
Aug-06	119,390,829		1,149		195,564	119,196,414	27.5	45.5	31	0	253.7	352	113,745,746	(5,450,668)	-4.6%
Sep-06	106,375,052		2,095		174,244	106,202,903	130.3	2.3	30	1	252.4	320	102,311,942	(3,890,961)	-3.7%
Oct-06	113,289,697		4,051		185,570	113,108,178	335.1	0	31	1	254.7	336	111,606,091	(1,502,087)	-1.3%
Nov-06	115,282,364		2,083		188,834	115,095,613	415.9	0	30	1	257.4	352	114,164,148	(931,465)	-0.8%
Dec-06	119,730,905		5,460		196,121	119,540,244	545.2	0	31	0	260.6	304	119,850,367	310,123	0.3%
Jan-07	127,521,206		3,907		220,176	127,304,937	698.3	0	31	0	257.9	352	126,037,352	(1,267,585)	-1.0%
Feb-07	121,012,861		4,243		208,939	120,808,165	785.1	0	29	0	254.3	320	120,936,910	128,744	0.1%
Mar-07	122,882,865		-		212,167	122,670,698	582	0	31	1	252.7	352	118,612,354	(4,058,343)	-3.3%
Apr-07	110,585,850		-		190,935	110,394,915	403	0	30	1	250.2	320	108,508,331	(1,886,583)	-1.7%
May-07	110,694,689		437		191,123	110,504,003	166.4	11.2	31	1	249.3	352	107,580,509	(2,923,494)	-2.6%
Jun-07	119,622,506		2,419		206,538	119,418,387	35.5	51.2	30	0	248.7	336	109,851,963	(9,566,424)	-8.0%
Jul-07	118,464,242		1,419		204,538	118,261,123	28	53.8	31	0	251.1	336	113,086,805	(5,174,318)	-4.4%
Aug-07	122,840,707		1,451		212,094	122,630,064	19.7	65.1	31	0	252.4	352	116,491,531	(6,138,532)	-5.0%
Sep-07	112,981,597		5,240		195,072	112,791,765	74.7	28	30	1	251.5	304	103,967,369	(8,824,396)	-7.8%
Oct-07	115,330,216		8,370		199,127	115,139,459	184.7	10.9	31	1	252.7	352	109,533,761	(5,605,698)	-4.9%
Nov-07	118,785,032		9,857		205,092	118,589,797	511.8	0	30	1	256.3	352	116,345,290	(2,244,507)	-1.9%
Dec-07	125,267,404		4,607		216,284	125,055,727	686.6	0	31	0	261.1	304	124,001,638	(1,054,089)	-0.8%
Jan-08	129,540,752		22,682		180,694	129,382,740	676.8	0	31	0	261.6	352	127,076,293	(2,306,447)	-1.8%
Feb-08	121,546,289		12,657		169,543	121,389,403	651.2	0	28	0	258.3	320	117,072,690	(4,316,713)	-3.6%
Mar-08	123,025,577		11,617		171,606	122,865,588	686.1	0	31	1	254.6	304	119,203,441	(3,662,147)	-3.0%
Apr-08	110,354,711		8,264		153,932	110,209,043	297.9	0	30	1	253.9	352	109,335,823	(873,220)	-0.8%
May-08	107,757,169		8,874		150,309	107,615,734	243.1	0.7	31	1	253.2	336	108,494,749	879,014	0.8%
Jun-08	115,141,214		6,366		160,608	114,986,972	40.6	53	30	0	255.7	336	113,388,135	(1,598,836)	-1.4%
Jul-08	125,482,805		4,505		175,034	125,312,276	7.6	75.8	31	0	256.4	352	119,854,187	(5,458,090)	-4.4%
Aug-08	116,642,720		3,345		162,703	116,483,362	36.2	29.5	31	0	260.0	320	111,786,620	(4,696,742)	-4.0%
Sep-08	113,785,450		3,183		158,717	113,629,916	93.2	12	30	1	261.9	336	108,287,384	(5,342,531)	-4.7%
Oct-08	114,890,260		8,696		160,258	114,738,698	325.7	0	31	1	266.1	352	117,399,431	2,660,733	2.3%
Nov-08	117,556,400		7,348		163,977	117,399,771	499.7	0	30	1	269.1	304	118,499,481	1,099,710	0.9%
Dec-08	127,583,980		10,165		177,965	127,416,180	694	0	31	0	267.5	336	129,106,317	1,690,137	1.3%
Jan-09	133,644,440		5,405		201,794	133,448,051	891.8	0	31	0	264.0	336	133,062,394	(385,657)	-0.3%
Feb-09	116,396,740		7,542		175,751	116,228,531	649.6	0	28	0	258.6	304	116,111,741	(116,790)	-0.1%
Mar-09	122,514,006		7,052		184,988	122,336,070	562.6	0	31	1	254.4	352	118,828,124	(3,507,946)	-2.9%
Apr-09	109,450,364		9,944		165,262	109,295,046	341.5	3.2	30	1	251.4	320	107,925,797	(1,369,249)	-1.3%
May-09	106,688,597		7,866		161,092	106,535,371	192.8	2.3	31	1	249.4	320	104,661,398	(1,873,973)	-1.8%
Jun-09	112,029,484		3,162		169,157	111,863,489	75.7	26.2	30	0	251.4	352	108,682,844	(3,180,645)	-2.8%
Jul-09	113,742,745		3,355		171,744	113,574,356	37.6	14.5	31	0	253.4	352	108,307,991	(5,266,365)	-4.6%
Aug-09	121,976,829		3,504		184,177	121,796,156	18.2	57.3	31	0	256.7	320	114,846,490	(6,949,666)	-5.7%
Sep-09	113,325,953		3,212		171,114	113,158,051	88.8	5.5	30	1	257.9	336	105,229,436	(7,928,615)	-7.0%
Oct-09	117,459,966		4,686		177,356	117,287,295	329.1	0	31	1	260.0	336	113,756,522	(3,530,774)	-3.0%
Nov-09	117,285,789		2,430		177,093	117,111,126	396.5	0	30	1	259.4	320	112,403,735	(4,707,391)	-4.0%
Dec-09	129,320,400		6,003		195,265	129,131,138	669.5	0	31	0	258.0	352	125,286,565	(3,844,573)	-3.0%
Jan-10	133,979,177		7,401		251,570	133,735,007	721.1	0	31	0	252.8	320	122,331,599	(11,403,408)	-8.5%
Feb-10	119,946,771		5,836		225,222	119,727,385	644.7	0	28	0	250.9	304	112,581,557	(7,145,828)	-6.0%

											Per 282-0109				
	Purchased kWh - IESO	Less Wallenstein Adjmt	Embedded Generation	Add MP	Less LTLT	Purchased kWh	Heating Degree Days	Cooling Degree Days	Number of Days in Month	Spring Fall Flag	Employment Kitchener-Waterloo-Cambridge (000's)	Number of Peak Hours	Predicted Purchases	Variances (kWh)	% Variance
Mar-10	123,452,454		5,029		231,804	123,225,678	470.9	0	31	1	252.1	368	116,313,808	(6,911,870)	-5.6%
Apr-10	109,614,094		7,763		205,820	109,416,037	260.6	0	30	1	255.5	320	106,906,729	(2,509,308)	-2.3%
May-10	117,656,799		7,341		220,922	117,443,218	144.7	21	31	1	261.1	320	111,854,575	(5,588,643)	-4.8%
Jun-10	120,954,770		5,298		227,114	120,732,954	37.7	32.6	30	0	267.2	352	115,745,186	(4,987,768)	-4.1%
Jul-10	135,775,256		2,288		254,943	135,522,601	6.7	106.6	31	0	273.5	336	131,873,703	(3,648,898)	-2.7%
Aug-10	132,798,939		31,996		249,354	132,581,581	14.2	85.3	31	0	274.1	336	128,504,374	(4,077,207)	-3.1%
Sep-10	116,946,781		21,552		219,589	116,748,744	122.7	23	30	1	270.4	336	114,838,344	(1,910,400)	-1.6%
Oct-10	116,794,004		33,695		219,302	116,608,398	284.6	0	31	1	264.9	320	113,630,528	(2,977,870)	-2.6%
Nov-10	121,142,765		26,467		227,467	120,941,764	424.1	0	30	1	263.9	336	116,203,196	(4,738,569)	-3.9%
Dec-10	132,686,798		8,843		249,143	132,446,497	719.4	0	31	0	265.3	368	130,940,130	(1,506,367)	-1.1%
Jan-11	136,994,789		17,067		62,828	136,949,028	822	0	31	0	267.6	336	132,708,761	(4,240,267)	-3.1%
Feb-11	122,135,594		32,587		56,014	122,112,167	689.3	0	29	0	270.6	304	124,418,011	2,305,844	1.9%
Mar-11	130,238,805		68,579		59,730	130,247,654	622.3	0	31	1	273.3	368	129,867,113	(380,541)	-0.3%
Apr-11	114,649,106		88,855		52,580	114,685,381	349.6	0	30	1	276.4	320	118,593,098	3,907,717	3.4%
May-11	115,314,928		92,813		52,886	115,354,856	156.7	13.2	31	1	277.0	336	118,838,156	3,483,300	3.0%
Jun-11	119,042,433		166,962		54,595	119,154,800	48.5	21.6	30	0	280.6	352	119,967,523	812,723	0.7%
Jul-11	138,200,903		177,168		63,381	138,314,689	0.8	129.7	31	0	283.2	320	139,103,490	788,801	0.6%
Aug-11	129,680,676		212,743		59,474	129,833,945	6.9	60.1	31	0	282.3	352	128,418,681	(1,415,264)	-1.1%
Sep-11	118,359,468		149,718		54,282	118,454,904	98.4	19.7	30	1	276.6	336	116,300,329	(2,154,575)	-1.8%
Oct-11	117,222,379		125,527		53,760	117,294,146	279.9	0	31	1	272.2	320	116,717,525	(576,621)	-0.5%
Nov-11	119,814,510		107,276		54,949	119,866,836	382.4	0	30	1	270.4	352	118,957,685	(909,152)	-0.8%
Dec-11	126,569,739		61,882		58,047	126,573,574	574.8	0	31	0	274.0	336	128,657,624	2,084,050	1.6%
Jan-12	133,066,136		90,401		78,254	133,078,284	657.3	0	31	0	275.6	336	131,656,342	(1,421,941)	-1.1%
Feb-12	120,957,212		141,343		71,133	121,027,422	573	0	28	0	279.1	320	124,066,866	3,039,443	2.5%
Mar-12	123,024,554		223,986		72,348	123,176,192	370.1	0	31	1	280.5	352	124,980,896	1,804,704	1.5%
Apr-12	112,718,684		259,168		66,288	112,911,564	365.3	0	30	1	282.8	320	121,850,512	8,938,948	7.9%
May-12	119,458,047		411,774		70,251	119,799,570	105.8	18.2	31	1	283.3	352	122,150,679	2,351,109	2.0%
Jun-12	126,042,453		351,651	156,552	74,123	126,319,981	42.1	61.2	30	0	281.8	336	126,413,248	93,267	0.1%
Jul-12	142,142,696		366,752	830,328	83,591	142,425,857	0	128.2	31	0	281.2	336	138,977,819	(3,448,038)	-2.4%
Aug-12	130,636,633		347,063	746,851	76,825	130,906,871	19.4	59.1	31	0	279.0	352	127,131,232	(3,775,639)	-2.9%
Sep-12	117,321,756		351,467	704,059	68,995	117,604,228	125.4	16.4	30	1	274.7	304	113,520,761	(4,083,467)	-3.5%
Oct-12	119,574,951		182,984	627,856	70,320	119,687,616	279.2	0	31	1	271.2	352	118,354,694	(1,332,921)	-1.1%
Nov-12	122,683,932		157,709	630,415	72,148	122,769,493	483.6	0	30	1	270.4	352	121,771,018	(998,475)	-0.8%
Dec-12	125,736,988		89,827	617,717	73,943	125,752,871	565.5	0	31	0	272.1	304	125,464,210	(288,661)	-0.2%
Jan-13	133,572,368		136,114	524,897	102,862	133,605,620	681.3	0	31	0	272.9	352	132,182,146	(1,423,474)	-1.1%
Feb-13	121,269,613		123,472	580,824	93,388	121,299,697	697.9	0	28	0	273.7	304	124,110,167	2,810,470	2.3%
Mar-13	127,636,348		308,773	576,251	98,291	127,846,830	612	0	31	1	275.6	320	127,448,452	(398,378)	-0.3%
Apr-13	116,631,619		352,455	648,361	89,816	116,894,258	384.7	0	30	1	277.9	352	122,327,435	5,433,177	4.6%
May-13	116,731,333		494,155	652,219	89,893	117,135,595	152.1	19.6	31	1	280.1	352	122,279,873	5,144,278	4.4%
Jun-13	120,478,511		431,928	699,684	92,778	120,817,660	52.6	31.3	30	0	282.4	320	120,527,268	(290,392)	-0.2%
Jul-13	135,929,115		475,818	695,737	104,677	136,300,256	15.1	86.5	31	0	282.4	352	133,452,993	(2,847,263)	-2.1%
Aug-13	126,659,105		509,730	637,368	97,538	127,071,297	32.7	42.1	31	0	283.2	336	125,236,902	(1,834,394)	-1.4%
Sep-13	117,767,937		424,343	617,906	90,691	118,101,589	128.1	20.5	30	1	285.5	320	120,144,486	2,042,897	1.7%
Oct-13	119,322,232		309,218	566,636	91,888	119,539,562	262.1	0	31	1	289.9	352	126,121,806	6,582,245	5.5%
Nov-13	123,255,163		222,932	591,294	94,917	123,383,178	517.7	0	30	1	293.6	336	131,896,261	8,513,083	6.9%
Dec-13	131,036,754		112,430	589,493	100,909	131,048,274	727.3	0	31	0	291.5	320	139,561,940	8,513,666	6.5%
Jan-14	141,162,234		163,375	589,493	109,394	141,216,215	865.9	0	31	0	290.5	352	145,071,613	3,855,398	2.7%
Feb-14	125,286,852		151,109	524,192	97,091	125,340,870	831.2	0	29	0	285.2	304	134,798,105	9,457,235	7.5%
Mar-14	133,301,246		492,909	578,734	103,302	133,690,854	757	0	31	1	282.7	336	135,657,617	1,966,763	1.5%
Apr-14	114,837,701		543,976	565,100	88,993	115,292,683	389.9	0	30	1	278.9	320	120,815,364	5,522,681	4.8%
May-14	114,338,195		695,153	631,838	88,621	114,944,726	168.9	9	31	1	281.8	336	120,535,397	5,590,671	4.9%
Jun-14	121,769,147		756,506	664,536	94,365	122,431,288	37.3	44.3	30	0	284.8	336	124,553,554	2,122,266	1.7%
Jul-14	124,264,855		735,821	676,098	96,299	124,904,377	36.8	38.8	31	0	285.8	352	126,950,313	2,045,936	1.6%
Aug-14	121,808,221		1,761,479	679,188	94,395	123,475,305	31.1	28.5	31	0	286.0	320	122,924,596	(550,710)	-0.4%
Sep-14	117,332,857		1,477,828	629,395	90,927	118,719,757	117.7	11.4	30	1	286.8	336	119,835,536	1,115,778	0.9%
Oct-14	116,443,638		1,428,424	607,775	90,238	117,781,824	257.1	0	31	1	290.7	352	126,335,427	8,553,604	7.3%
Nov-14	122,436,755		1,164,888	558,747	94,882	123,506,761	529.9	0	30	1	293.8	304	130,226,169	6,719,408	5.4%
Dec-14	127,930,696		1,624,797	580,527	99,140	129,456,353	597.6	0	31	0	295.7	336	138,856,270	9,399,917	7.3%
Jan-15							752.1	0.0	31	0	280.6	336	136,483,174		
Feb-15							664.3	0.0	28	0	280.6	304	126,202,497		
Mar-15							585.2	0.0	31	1	280.6	352	130,991,800		
Apr-15							353.6	0.6	30	1	280.6	336	121,690,460		
May-15							180.8	9.9	31	1	280.6	320	119,441,320		
Jun-15							48.0	46.4	30	0	280.6	352	124,413,428		
Jul-15							14.5	79.0	31	0	280.6	352	131,275,643		
Aug-15							22.7	55.1	31	0	280.6	320	125,099,126		
Sep-15							99.5	17.6	30	1	280.6	336	117,696,523		
Oct-15							287.4	0.8	31	1	280.6	336	121,817,339		
Nov-15							455.5	0.0	30	1	280.6	320	123,375,009		
Dec-15							647.4	0.0	31	0	280.6	352	134,619,048		
Jan-16							752.1	0.0	31	0	280.6	320	135,434,472		
Feb-16							664.3	0.0	28	0	280.6	320	127,251,199		
Mar-16							585.2	0.0	31	1	280.6	352	130,991,800		
Apr-16							353.6	0.6	30	1	280.6	336	121,690,460		
May-16							180.8	9.9	31	1	280.6	336	120,490,022		
Jun-16							48.0	46.4	30	0	280.6	352	124,413,428		
Jul-16							14.5	79.0	31	0	280.6	320	129,178,239		
Aug-16							22.7	55.1	31	0	280.6	352	127,196,530		
Sep-16							99.5	17.6	30	1	280.6	336	117,696,523		
Oct-16							287.4	0.8	31	1	280.6	320	120,768,637		
Nov-16							455.5	0.0	30	1	280.6	336	124,423,711		
Dec-16							647.4	0.0	31	0	280.6	336	133,570,346		
								Weather Normal					25,885,386,081		

											Per 282-0109				
	Purchased kWh - IESO	Less Wallenstein Adjmt	Embedded Generation	Add MP	Less LTLT	Purchased kWh	Heating Degree Days	Cooling Degree Days	Number of Days in Month	Spring Fall Flag	Employment Kitchener-Waterloo-Cambridge (000's)	Number of Peak Hours	Predicted Purchases	Variances (kWh)	% Variance
1998						1,089,938,594							1,106,904,690	16,966,096	1.6%
1999						1,136,636,397							1,184,198,549	47,562,152	4.2%
2000						1,173,512,817							1,184,527,835	11,015,018	0.9%
2001						1,205,847,416							1,206,924,843	1,077,427	0.1%
2002						1,286,398,647							1,238,388,156	(48,010,491)	-3.7%
2003						1,269,973,824							1,274,021,085	4,047,261	0.3%
2004						1,294,310,410							1,286,052,696	(8,257,714)	-0.6%
2005						1,358,556,813							1,387,950,221	29,393,408	2.2%
2006						1,372,533,120							1,364,186,175	(8,346,946)	-0.6%
2007						1,423,569,039							1,374,953,814	(48,615,225)	-3.4%
2008						1,421,429,683							1,399,504,551	(21,925,132)	-1.5%
2009						1,411,764,680							1,369,103,038	(42,661,643)	-3.0%
2010						1,479,129,865							1,421,723,729	(57,406,136)	-3.9%
2011						1,488,841,981							1,492,547,995	3,706,015	0.2%
2012						1,495,459,949							1,496,338,277	878,328	0.1%
2013						1,493,043,817							1,525,289,731	32,245,914	2.2%
2014						1,490,761,014							1,546,559,962	55,798,947	3.7%
2015													1,513,105,368		
2016													1,513,105,368		
Total to 2014						22,891,708,067							22,859,175,346	(32,532,721)	
													25,885,386,081	0	

Ontario Energy Board

2015 Deferral/Variance Account Workform

Version 2.4

Utility Name	Waterloo North Hydro Inc.
Service Territory	*(if applicable)*
Assigned EB Number	EB-2015-0108
Name of Contact and Title	Albert P. Singh
Phone Number	519-888-5542
Email Address	asingh@wnhydro.com

General Notes

Notes

Pale green cells represent input cells.

Pale blue cells represent drop-down lists. The applicant should select the appropriate item from the drop-down list.

White cells contain fixed values, automatically generated values or formulae.

This Workbook Model is protected by copyright and is being made available to you solely for the purpose of preparing your rate application. You may use and copy this model for that purpose, and provide a copy of this model to any person that is advising or assisting you in that regard. Except as indicated above, any copying, reproduction, publication, sale, adaptation, translation, modification, reverse engineering or other use or dissemination of this model without the express written consent of the Ontario Energy Board is prohibited. If you provide a copy of this model to a person that is advising or assisting you in preparing or reviewing your draft rate order, you must ensure that the person understands and agrees to the restrictions noted above.

Ontario Energy Board

2015 Deferral/Variance Account Workform

	Account Descriptions	Account Number	2009									
			Opening Principal Amounts as of Jan-1-09	Transactions Debit / (Credit) during 2009 excluding interest and adjustments [3]	Board-Approved Disposition during 2009	Adjustments during 2009 - other [2]	Closing Principal Balance as of Dec-31-09	Opening Interest Amounts as of Jan-1-09	Interest Jan-1 to Dec-31-09	Board-Approved Disposition during 2009	Adjustments during 2009 - other [2]	Closing Interest Amounts as of Dec-31-09
	Group 1 Accounts					2009 - RCVA 1548/1518, Incremental approved 2011 COS					1548/1518, Incremental approved 2011 COS	
1	LV Variance Account	1550					$0					$0
2	Smart Metering Entity Charge Variance Account	1551					$0					$0
3	RSVA - Wholesale Market Service Charge	1580					$0					$0
4	RSVA - Retail Transmission Network Charge	1584					$0					$0
5	RSVA - Retail Transmission Connection Charge	1586					$0					$0
6	RSVA - Power (excluding Global Adjustment)	1588					$0					$0
7	RSVA - Global Adjustment	1589					$0					$0
8	Disposition and Recovery/Refund of Regulatory Balances (2008)	1595					$0					$0
9	Disposition and Recovery/Refund of Regulatory Balances (2009)	1595					$0					$0
10	Disposition and Recovery/Refund of Regulatory Balances (2010)	1595					$0					$0
11	Disposition and Recovery/Refund of Regulatory Balances (2011)	1595					$0					$0
12	Disposition and Recovery/Refund of Regulatory Balances (2012)	1595					$0					$0
	Disposition and Recovery/Refund of Regulatory Balances (2013)	1595					$0					$0
	Disposition and Recovery/Refund of Regulatory Balances (2014)	1595										
	Group 1 Sub-Total (including Account 1589 - Global Adjustment)		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Group 1 Sub-Total (excluding Account 1589 - Global Adjustment)		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	RSVA - Global Adjustment	**1589**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Group 2 Accounts											
13	Other Regulatory Assets - Sub-Account - Deferred IFRS Transition Costs	1508		$44,170			$44,170		$161			$161
14	Other Regulatory Assets - Sub-Account - Incremental Capital Charges	1508				$750	$750				$8	$8
15	Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act[8]	1508										
16	Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Carrying Charges	1508										
17	Other Regulatory Assets - Sub-Account - Other [4] OMERS Difference - 2011 COS Settlement Agreement Item	1508					$0					$0
	Other Regulatory Assets - Sub-Account - Other [4] Capital Gain Variance - 2011 COS Settlement Agreement Item	1508					$0					$0
18	Retail Cost Variance Account - Retail	1518				-$256,142	-$256,142				-$20,620	-$20,620
19	Misc. Deferred Debits	1525					$0					$0
20	Renewable Generation Connection Capital Deferral Account	1531					$0					$0
21	Renewable Generation Connection OM&A Deferral Account	1532					$0					$0
22	Renewable Generation Connection Funding Adder Deferral Account	1533					$0					$0
23	Smart Grid Capital Deferral Account	1534					$0					$0
24	Smart Grid OM&A Deferral Account	1535					$0					$0
25	Smart Grid Funding Adder Deferral Account	1536					$0					$0
26	Retail Cost Variance Account - STR	1548				-$13,478	-$13,478				-$1,220	-$1,220
27	Board-Approved CDM Variance Account	1567					$0					$0
28	Extra-Ordinary Event Costs	1572					$0					$0
29	Deferred Rate Impact Amounts	1574					$0					$0
30	RSVA - One-time	1582					$0					$0
31	Other Deferred Credits	2425					$0					$0
	Group 2 Sub-Total		$0	$44,170	$0	-$268,870	-$224,701	$0	$161	$0	-$21,832	-$21,671
32	Deferred Payments in Lieu of Taxes	1562					$0					$0
33	PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592					$0					$0
34	PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592					$0					$0
	Total of Group 1 and Group 2 Accounts (including 1562 and 1592)		$0	$44,170	$0	-$268,870	-$224,701	$0	$161	$0	-$21,832	-$21,671
35	**LRAM Variance Account**	**1568**										
	Total including Account 1568		$0	$44,170	$0	-$268,870	-$224,701	$0	$161	$0	-$21,832	-$21,671
36	Smart Meter Capital and Recovery Offset Variance - Sub-Account - Capital[10]	1555					$0					$0
37	Smart Meter Capital and Recovery Offset Variance - Sub-Account - Recoveries[10]	1555					$0					$0
38	Smart Meter Capital and Recovery Offset Variance - Sub-Account - Stranded Meter Costs[10]	1555					$0					$0
39	Smart Meter OM&A Variance[10]	1556					$0					$0
40	IFRS-CGAAP Transition PP&E Amounts Balance + Return Component[9]	1575										
41	Accounting Changes Under CGAAP Balance + Return Component[9]	1576										

For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g: debit balances are to have a positive figure and credit balance are to have a negative figure) as per the related Board decision.

[1] Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs write-off, etc.

[1A] Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of the 2006 EDR and account 1595 during the 2008 EDR and subsequent years as ordered by the Board.

[2] Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved disposed balances, please provide amounts for adjustments and include supporting documentations.

[3] For RSVA accounts only, report the net variance to the account during the year. For all other accounts, record the transactions during the year.

[4] Please describe "other" components of 1508 and add more component lines if necessary.

[5] 1563 is a contra-account and is not included in the total but is shown on a memo basis. Account 1562 establishes the obligation to the ratepayer.

[6] If the LDC's 2014 rate year begins January 1, 2014, the projected interest is recorded from January 1, 2013 to December 31, 2013 on the December 31, 2012 balance adjusted for the disposed balances approved by the Board in the 2013 rate decision. If the LDC's 2013 rate year begins May 1, 2014 the projected interest is recorded from January 1, 2013 to April 30,

[8] As per the January 6, 2011 Letter from the Board, regarding the implementation of the Ontario Clean Energy Benefit:
"By way of exception... The Board does anticipate that licensed distributors that cannot adapt their invoices as of January 1, 2011 will require a variance account for OCEB purposes... The Board expects that any principal balances in "Sub account Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act" will be addressed through the monthly settlement process with the IESO or the host distributor, as applicable.

[9] The Board requires that disposition of Account 1575 and Account 1576 shall require the use of separate rate riders. In the "Other Adjustments during Q4 2012" column of the continuity schedule, please enter the amounts to be included in the Account 1575 and 1576 rate rider calculation from the applicable Chapter 2 appendices. For Account 1575, please provide the value in cell F39 from the relevant Chapter 2 Appendix (i.e. 2-EA, 2-EB or 2-EC). For Account 1576, please provide the value in cell F39 from the relevant Chapter 2 Appendix (i.e. 2-ED or 2-EE).

[10] Deferral accounts related to Smart Meter deployment are not to be recovered/refunded through the Deferral and Variance Account rate rider. For details on how to dispose of balances in Smart Meter accounts see the Board's Guideline: Smart Meter Disposition and Cost Recovery (G-2011-0001)

ntario Energy Board

2015 Deferral/Variance Account Workform

Account Descriptions	Account Number	2010										2011									
		Opening Principal Amounts as of Jan-1-10	Transactions Debit/(Credit) during 2010 excluding interest and adjustments [3]	Board-Approved Disposition during 2010	Adjustments during 2010 - other [2]	Closing Principal Balance as of Dec-31-10	Opening Interest Amounts as of Jan-1-10	Interest Jan-1 to Dec-31-10	Board-Approved Disposition during 2010	Adjustments during 2010 - other [2]	Closing Interest Amounts as of Dec-31-10	Opening Principal Amounts as of Jan-1-11	Transactions Debit/(Credit) during 2011 excluding interest and adjustments [3]	Board-Approved Disposition during 2011	Adjustments during 2010 - other [2]	Closing Principal Balance as of Dec-31-11	Opening Interest Amounts as of Jan-1-11	Interest Jan-1 to Dec-31-11	Board-Approved Disposition during 2011	Adjustments during 2011 - other [2]	Closing Interest Amounts as of Dec-31-11
Group 1 Accounts					Trsfr in / Approved					Trsfr in / Approved					Transfer In / Approved					Transfer In / Approved	
LV Variance Account	1550	$0				$0	$0				$0	$0				$0	$0				$0
Smart Metering Entity Charge Variance Account	1551	$0				$0	$0				$0	$0				$0	$0				$0
RSVA - Wholesale Market Service Charge	1580	$0				$0	$0				$0	$0				$0	$0				$0
RSVA - Retail Transmission Network Charge	1584	$0				$0	$0				$0	$0				$0	$0				$0
RSVA - Retail Transmission Connection Charge	1586	$0				$0	$0				$0	$0				$0	$0				$0
RSVA - Power (excluding Global Adjustment)	1588	$0				$0	$0				$0	$0				$0	$0				$0
RSVA - Global Adjustment	1589	$0				$0	$0				$0	$0				$0	$0				$0
Disposition and Recovery/Refund of Regulatory Balances (2008)	1595	$0				$0	$0				$0	$0				$0	$0				$0
Disposition and Recovery/Refund of Regulatory Balances (2009)	1595	$0				$0	$0				$0	$0				$0	$0				$0
Disposition and Recovery/Refund of Regulatory Balances (2010)	1595	$0	$2,451,271		-$12,472,653	-$10,021,382	$0	-$68,942		-$1,214,175	-$1,283,117	-$10,021,382	$3,687,137			-$6,334,246	-$1,283,117	-$122,130			-$1,405,247
Disposition and Recovery/Refund of Regulatory Balances (2011)	1595	$0				$0	$0				$0	$0	-$254,191		$1,151,115	$896,924	$0	$9,504		$127,965	$137,469
Disposition and Recovery/Refund of Regulatory Balances (2012)	1595	$0				$0	$0				$0	$0				$0	$0				$0
Disposition and Recovery/Refund of Regulatory Balances (2013)	1595	$0				$0	$0				$0	$0				$0	$0				$0
Disposition and Recovery/Refund of Regulatory Balances (2014)	1595																				
Group 1 Sub-Total (including Account 1589 - Global Adjustment)		$0	$2,451,271	$0	-$12,472,653	-$10,021,382	$0	-$68,942	$0	-$1,214,175	-$1,283,117	-$10,021,382	$3,432,946	$0	$1,151,115	-$5,437,321	-$1,283,117	-$112,626	$0	$127,965	-$1,267,777
Group 1 Sub-Total (excluding Account 1589 - Global Adjustment)		$0	$2,451,271	$0	-$12,472,653	-$10,021,382	$0	-$68,942	$0	-$1,214,175	-$1,283,117	-$10,021,382	$3,432,946	$0	$1,151,115	-$5,437,321	-$1,283,117	-$112,626	$0	$127,965	-$1,267,777
RSVA - Global Adjustment	**1589**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Group 2 Accounts																					
Other Regulatory Assets - Sub-Account - Deferred IFRS Transition Costs	1508	$44,170	$47,282			$91,451	$161	$620			$781	$91,451	$3,000			$94,451	$781	$1,355			$2,136
Other Regulatory Assets - Sub-Account - Incremental Capital Charges	1508	$750	$686			$1,436	$8	$10			$18	$1,436		$750		$686	$18	$6	$8		$16
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act[8]	1508											$0				$0	$0				$0
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Carrying Charges	1508											$0				$0	$0				$0
Other Regulatory Assets - Sub-Account - Other [4] OMERS Difference - 2011 COS Settlement Agreement Item	1508	$0				$0	$0				$0	$0	$48,310			$48,310	$0				$0
Other Regulatory Assets - Sub-Account - Other [4] Capital Gain Variance - 2011 COS Settlement Agreement Item	1508	$0				$0	$0				$0	$0	$310,846			$310,846	$0				$0
Retail Cost Variance Account - Retail	1518	-$256,142	-$46,314			-$302,456	-$20,620	-$208			-$20,828	-$302,456	-$30,750	-$256,142		-$77,065	-$20,828	-$862	-$20,620		-$1,070
Misc. Deferred Debits	1525	$0				$0	$0				$0	$0				$0	$0				$0
Renewable Generation Connection Capital Deferral Account	1531	$0				$0	$0				$0	$0				$0	$0				$0
Renewable Generation Connection OM&A Deferral Account	1532	$0				$0	$0				$0	$0				$0	$0				$0
Renewable Generation Connection Funding Adder Deferral Account	1533	$0				$0	$0				$0	$0				$0	$0				$0
Smart Grid Capital Deferral Account	1534	$0				$0	$0				$0	$0				$0	$0				$0
Smart Grid OM&A Deferral Account	1535	$0				$0	$0				$0	$0				$0	$0				$0
Smart Grid Funding Adder Deferral Account	1536	$0				$0	$0				$0	$0				$0	$0				$0
Retail Cost Variance Account - STR	1548	-$13,478	-$2,224			-$15,702	-$1,220	-$11			-$1,231	-$15,702	-$1,587	-$13,478		-$3,811	-$1,231	-$44	-$1,220		-$55
Board-Approved CDM Variance Account	1567					$0	$0				$0	$0				$0	$0				$0
Extra-Ordinary Event Costs	1572	$0				$0	$0				$0	$0				$0	$0				$0
Deferred Rate Impact Amounts	1574	$0				$0	$0				$0	$0				$0	$0				$0
RSVA - One-time	1582	$0				$0	$0				$0	$0				$0	$0				$0
Other Deferred Credits	2425	$0				$0	$0				$0	$0				$0	$0				$0
Group 2 Sub-Total		-$224,701	-$570	$0	$0	-$225,271	-$21,671	$411	$0	$0	-$21,260	-$225,271	$329,819	-$268,870	$0	$373,418	-$21,260	$455	-$21,832	$0	$1,027
Deferred Payments in Lieu of Taxes	1562	$0				$0	$0				$0	$0				$0	$0				$0
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592	$0	-$39,416			-$39,416	$0	-$206			-$206	-$39,416	-$13,178			-$52,594	-$206	-$676			-$882
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592	$0	-$30,733			-$30,733	$0	-$73			-$73	-$30,733				-$30,733	-$73	-$452			-$525
Total of Group 1 and Group 2 Accounts (including 1562 and 1592)		-$224,701	$2,380,551	$0	-$12,472,653	-$10,316,803	-$21,671	-$68,809	$0	-$1,214,175	-$1,304,655	-$10,316,803	$3,749,587	-$268,870	$1,151,115	-$5,147,231	-$1,304,655	-$113,299	-$21,832	$127,965	-$1,268,157
LRAM Variance Account	**1568**					$0					$0	$0	$20,556			$20,556	$0	$138			$138
Total including Account 1568		-$224,701	$2,380,551	$0	-$12,472,653	-$10,316,803	-$21,671	-$68,809	$0	-$1,214,175	-$1,304,655	-$10,316,803	$3,770,142	-$268,870	$1,151,115	-$5,126,675	-$1,304,655	-$113,161	-$21,832	$127,965	-$1,268,019
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Capital[10]	1555	$0				$0	$0				$0	$0				$0	$0				$0
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Recoveries[10]	1555	$0				$0	$0				$0	$0				$0	$0				$0
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Stranded Meter Costs[10]	1555	$0				$0	$0				$0	$0				$0	$0				$0
Smart Meter OM&A Variance[10]	1556	$0				$0	$0				$0	$0				$0	$0				$0
IFRS-CGAAP Transition PP&E Amounts Balance + Return Component[9]	1575																				
Accounting Changes Under CGAAP Balance + Return Component[9]	1576																				

For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g: d
figure and credit balance are to have a negative figure) as per the related Board decision.

Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs write-o

Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of the 200

Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved disposec

For RSVA accounts only, report the net variance to the account during the year. For all other accounts, record the transactions

Please describe "other" components of 1508 and add more component lines if necessary.

1563 is a contra-account and is not included in the total but is shown on a memo basis. Account 1562 establishes the obligati

If the LDC's 2014 rate year begins January 1, 2014, the projected interest is recorded from January 1, 2013 to December 31, 2013 on the December 31, 2012 balance adjusted for the disposed balances approved by the Board in the 2013 rate decision. If the LDC's 2013 rate year begins May 1, 2014 the projected interest is recorded from January 1, 2013 to April 30,

As per the January 6, 2011 Letter from the Board, regarding the implementation of the Ontario Clean Energy Benefit:

"By way of exception... The Board does anticipate that licensed distributors that cannot adapt their invoices as of January 1, 20 balances in "Sub account Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act" will be ad

The Board requires that disposition of Account 1575 and Account 1576 shall require the use of separate rate riders. In the "Oth the Account 1575 and 1576 rate rider calculation from the applicable Chapter 2 appendices. For Account 1575, please provide provide the value in cell F39 from the relevant Chapter 2 Appendix (i.e. 2-ED or 2-EE).

Deferral accounts related to Smart Meter deployment are not to be recovered/refunded through the Deferral and Variance Acco

Guideline: Smart Meter Disposition and Cost Recovery (G-2011-0001)

ntario Energy Board

2015 Deferral/Variance Account Workform

2012

Account Descriptions	Account Number	Opening Principal Amounts as of Jan-1-12	Transactions Debit / (Credit) during 2012 excluding interest and adjustments [3]	Board-Approved Disposition during 2012	Other [2] Adjustments during Q1 2012	Other [2] Adjustments during Q2 2012	Other [2] Adjustments during Q3 2012	Other [2] Adjustments during Q4 2012	Closing Principal Balance as of Dec-31-12	Opening Interest Amounts as of Jan-1-12	Interest Jan-1 to Dec-31-12	Board-Approved Disposition during 2012	Adjustments during 2012 - other [2]	Closing Interest Amounts as of Dec-31-12
Group 1 Accounts						Transfer In / Approved							Transfer In / Approved	
LV Variance Account	1550	$0							$0	$0				$0
Smart Metering Entity Charge Variance Account	1551	$0							$0	$0				$0
RSVA - Wholesale Market Service Charge	1580	$0							$0	$0				$0
RSVA - Retail Transmission Network Charge	1584	$0							$0	$0				$0
RSVA - Retail Transmission Connection Charge	1586	$0							$0	$0				$0
RSVA - Power (excluding Global Adjustment)	1588	$0							$0	$0				$0
RSVA - Global Adjustment	1589	$0							$0	$0				$0
Disposition and Recovery/Refund of Regulatory Balances (2008)	1595	$0							$0	$0				$0
Disposition and Recovery/Refund of Regulatory Balances (2009)	1595	$0							$0	$0				$0
Disposition and Recovery/Refund of Regulatory Balances (2010)	1595	-$6,334,246	$3,694,955						-$2,639,291	-$1,405,247	-$68,060			-$1,473,307
Disposition and Recovery/Refund of Regulatory Balances (2011)	1595	$896,924	-$421,457						$475,467	$137,469	$10,340			$147,809
Disposition and Recovery/Refund of Regulatory Balances (2012)	1595	$0	$1,758,134			-$4,597,499			-$2,839,365	$0	-$37,282		-$187,943	-$225,225
Disposition and Recovery/Refund of Regulatory Balances (2013)	1595	$0							$0	$0				$0
Disposition and Recovery/Refund of Regulatory Balances (2014)	1595													
Group 1 Sub-Total (including Account 1589 - Global Adjustment)		-$5,437,321	$5,031,632	$0	$0	-$4,597,499	$0	$0	-$5,003,188	-$1,267,777	-$95,002	$0	-$187,943	-$1,550,723
Group 1 Sub-Total (excluding Account 1589 - Global Adjustment)		-$5,437,321	$5,031,632	$0	$0	-$4,597,499	$0	$0	-$5,003,188	-$1,267,777	-$95,002	$0	-$187,943	-$1,550,723
RSVA - Global Adjustment	**1589**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Group 2 Accounts														
Other Regulatory Assets - Sub-Account - Deferred IFRS Transition Costs	1508	$94,451							$94,451	$2,136	$1,388			$3,525
Other Regulatory Assets - Sub-Account - Incremental Capital Charges	1508	$686							$686	$16	$10			$26
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act[8]	1508	$0							$0	$0				$0
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Carrying Charges	1508	$0							$0	$0				$0
Other Regulatory Assets - Sub-Account - Other [4] OMERS Difference - 2011 COS Settlement Agreement Item	1508	$48,310	$29,829						$78,139	$0				$0
Other Regulatory Assets - Sub-Account - Other [4] Capital Gain Variance - 2011 COS Settlement Agreement Item	1508	$310,846	$539,052						$849,898	$0				$0
Retail Cost Variance Account - Retail	1518	-$77,065	-$21,202						-$98,266	-$1,070	-$1,256			-$2,327
Misc. Deferred Debits	1525	$0							$0	$0				$0
Renewable Generation Connection Capital Deferral Account	1531	$0							$0	$0				$0
Renewable Generation Connection OM&A Deferral Account	1532	$0							$0	$0				$0
Renewable Generation Connection Funding Adder Deferral Account	1533	$0							$0	$0				$0
Smart Grid Capital Deferral Account	1534	$0							$0	$0				$0
Smart Grid OM&A Deferral Account	1535	$0							$0	$0				$0
Smart Grid Funding Adder Deferral Account	1536	$0							$0	$0				$0
Retail Cost Variance Account - STR	1548	-$3,811	-$1,280						-$5,091	-$55	-$64			-$119
Board-Approved CDM Variance Account	1567	$0							$0	$0				$0
Extra-Ordinary Event Costs	1572	$0							$0	$0				$0
Deferred Rate Impact Amounts	1574	$0							$0	$0				$0
RSVA - One-time	1582	$0							$0	$0				$0
Other Deferred Credits	2425	$0							$0	$0				$0
Group 2 Sub-Total		$373,418	$546,400	$0	$0	$0	$0	$0	$919,818	$1,027	$78	$0	$0	$1,105
Deferred Payments in Lieu of Taxes	1562	$0							$0	$0				$0
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592	-$52,594							-$52,594	-$882	-$773			-$1,655
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592	-$30,733							-$30,733	-$525	-$452			-$976
Total of Group 1 and Group 2 Accounts (including 1562 and 1592)		-$5,147,231	$5,578,032	$0	$0	-$4,597,499	$0	$0	-$4,166,698	-$1,268,157	-$96,149	$0	-$187,943	-$1,552,250
LRAM Variance Account	**1568**	$20,556	$131,965						$152,520	$138	$1,191			$1,330
Total including Account 1568		-$5,126,675	$5,709,996	$0	$0	-$4,597,499	$0	$0	-$4,014,178	-$1,268,019	-$94,958	$0	-$187,943	-$1,550,920
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Capital[10]	1555	$0							$0	$0				$0
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Recoveries[10]	1555	$0							$0	$0				$0
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Stranded Meter Costs[10]	1555	$0							$0	$0				$0
Smart Meter OM&A Variance[10]	1556	$0							$0	$0				$0
IFRS-CGAAP Transition PP&E Amounts Balance + Return Component[9]	1575								$0	$0				$0
Accounting Changes Under CGAAP Balance + Return Component[9]	1576							-$853,444	-$853,444	$0				$0

For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g: de
figure and credit balance are to have a negative figure) as per the related Board decision.

Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs write-o

Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of the 200

Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved disposec

For RSVA accounts only, report the net variance to the account during the year. For all other accounts, record the transactions

Please describe "other" components of 1508 and add more component lines if necessary.

1563 is a contra-account and is not included in the total but is shown on a memo basis. Account 1562 establishes the obligati

If the LDC's 2014 rate year begins January 1, 2014, the projected interest is recorded from January 1, 2013 to December 31, 2013 on the December 31, 2012 balance adjusted for the disposed balances approved by the Board in the 2013 rate decision. If the LDC's 2013 rate year begins May 1, 2014 the projected interest is recorded from January 1, 2013 to April 30,

As per the January 6, 2011 Letter from the Board, regarding the implementation of the Ontario Clean Energy Benefit:

"By way of exception... The Board does anticipate that licensed distributors that cannot adapt their invoices as of January 1, 20 balances in "Sub account Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act" will be ad

The Board requires that disposition of Account 1575 and Account 1576 shall require the use of separate rate riders. In the "Oth the Account 1575 and 1576 rate rider calculation from the applicable Chapter 2 appendices. For Account 1575, please provide provide the value in cell F39 from the relevant Chapter 2 Appendix (i.e. 2-ED or 2-EE).

Deferral accounts related to Smart Meter deployment are not to be recovered/refunded through the Deferral and Variance Acco

Guideline: Smart Meter Disposition and Cost Recovery (G-2011-0001)

ntario Energy Board

2015 Deferral/Variance Account Workform

2013

Account Descriptions	Account Number	Opening Principal Amounts as of Jan-1-13	Transactions Debit / (Credit) during 2013 excluding interest and adjustments 3	Board-Approved Disposition during 2013	Other 2 Adjustments during Q1 2013	Other 2 Adjustments during Q2 2013	Other 2 Adjustments during Q3 2013	Other 2 Adjustments during Q4 2013	Closing Principal Balance as of Dec-31-13	Opening Interest Amounts as of Jan-1-13	Interest Jan-1 to Dec-31-13	Board-Approved Disposition during 2013	Adjustments during 2013 - other 2	Closing Interest Amounts as of Dec-31-13
Group 1 Accounts						Transfer In / Approved						Transfer In / Approved 1595	*Proj Jan-Apr'15 Interest - 2015 IRM - Grp 1*	
LV Variance Account	1550	$0						$101,650	$101,650	$0	$562		$1,992	$2,554
Smart Metering Entity Charge Variance Account	1551	$0						$32,301	$32,301	$0	$314		$633	$947
RSVA - Wholesale Market Service Charge	1580	$0						-$926,113	-$926,113	$0	-$9,907		-$18,152	-$28,059
RSVA - Retail Transmission Network Charge	1584	$0						-$422,798	-$422,798	$0	-$2,708		-$8,287	-$10,994
RSVA - Retail Transmission Connection Charge	1586	$0						-$267,572	-$267,572	$0	-$2,098		-$5,244	-$7,342
RSVA - Power (excluding Global Adjustment)	1588	$0						-$462,831	-$462,831	$0	$595		-$9,071	-$8,477
RSVA - Global Adjustment	1589	$0						$430,530	$430,530	$0	$17,178		$8,438	$25,616
Disposition and Recovery/Refund of Regulatory Balances (2008)	1595	$0							$0	$0				$0
Disposition and Recovery/Refund of Regulatory Balances (2009)	1595	$0							$0	$0				$0
Disposition and Recovery/Refund of Regulatory Balances (2010)	1595	-$2,639,291	$3,685,142						$1,045,851	-$1,473,307	-$13,949			-$1,487,256
Disposition and Recovery/Refund of Regulatory Balances (2011)	1595	$475,467	-$412,337						$63,131	$147,809	$4,248			$152,058
Disposition and Recovery/Refund of Regulatory Balances (2012)	1595	-$2,839,365	$2,598,269						-$241,096	-$225,225	-$24,247			-$249,472
Disposition and Recovery/Refund of Regulatory Balances (2013)	1595	$0	$1,355,619			-$1,824,804			-$469,185	$0	-$12,222		-$45,811	-$58,033
Disposition and Recovery/Refund of Regulatory Balances (2014)	1595													
Group 1 Sub-Total (including Account 1589 - Global Adjustment)		-$5,003,188	$7,226,693	$0	$0	-$1,824,804	$0	-$1,514,833	-$1,116,132	-$1,550,723	-$42,234	$0	-$75,502	-$1,668,459
Group 1 Sub-Total (excluding Account 1589 - Global Adjustment)		-$5,003,188	$7,226,693	$0	$0	-$1,824,804	$0	-$1,945,363	-$1,546,662	-$1,550,723	-$59,412	$0	-$83,940	-$1,694,075
RSVA - Global Adjustment	**1589**	$0	$0	$0	$0	$0	$0	$430,530	$430,530	$0	$17,178	$0	$8,438	$25,616
Group 2 Accounts														
Other Regulatory Assets - Sub-Account - Deferred IFRS Transition Costs	1508	$94,451	$6,685						$101,136	$3,525	$1,462			$4,987
Other Regulatory Assets - Sub-Account - Incremental Capital Charges	1508	$686	$1,054						$1,740	$26	$15			$41
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act[8]	1508	$0							$0	$0				$0
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Carrying Charges	1508	$0							$0	$0				$0
Other Regulatory Assets - Sub-Account - Other [4] OMERS Difference - 2011 COS Settlement Agreement Item	1508	$78,139	-$3,462						$74,677	$0				$0
Other Regulatory Assets - Sub-Account - Other [4] Capital Gain Variance - 2011 COS Settlement Agreement Item	1508	$849,898	-$612,753					-$16,920	$220,225	$0				$0
Retail Cost Variance Account - Retail	1518	-$98,266	-$17,815						-$116,081	-$2,327	-$1,534			-$3,861
Misc. Deferred Debits	1525	$0							$0	$0				$0
Renewable Generation Connection Capital Deferral Account	1531	$0							$0	$0				$0
Renewable Generation Connection OM&A Deferral Account	1532	$0							$0	$0				$0
Renewable Generation Connection Funding Adder Deferral Account	1533	$0							$0	$0				$0
Smart Grid Capital Deferral Account	1534	$0							$0	$0				$0
Smart Grid OM&A Deferral Account	1535	$0							$0	$0				$0
Smart Grid Funding Adder Deferral Account	1536	$0							$0	$0				$0
Retail Cost Variance Account - STR	1548	-$5,091	-$794						-$5,885	-$119	-$81			-$200
Board-Approved CDM Variance Account	1567	$0							$0	$0				$0
Extra-Ordinary Event Costs	1572	$0							$0	$0				$0
Deferred Rate Impact Amounts	1574	$0							$0	$0				$0
RSVA - One-time	1582	$0							$0	$0				$0
Other Deferred Credits	2425	$0							$0	$0				$0
Group 2 Sub-Total		$919,818	-$627,084	$0	$0	$0	$0	-$16,920	$275,813	$1,105	-$137	$0	$0	$968
Deferred Payments in Lieu of Taxes	1562	$0							$0	$0				$0
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592	-$52,594							-$52,594	-$1,655	-$773			-$2,428
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592	-$30,733							-$30,733	-$976	-$452			-$1,428
Total of Group 1 and Group 2 Accounts (including 1562 and 1592)		-$4,166,698	$6,599,609	$0	$0	-$1,824,804	$0	-$1,531,753	-$923,646	-$1,552,250	-$43,596	$0	-$75,502	-$1,671,347
LRAM Variance Account	**1568**	$152,520	$203,443						$355,963	$1,330	$3,613			$4,943
Total including Account 1568		-$4,014,178	$6,803,052	$0	$0	-$1,824,804	$0	-$1,531,753	-$567,683	-$1,550,920	-$39,983	$0	-$75,502	-$1,666,405
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Capital[10]	1555	$0							$0	$0				$0
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Recoveries[10]	1555	$0							$0	$0				$0
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Stranded Meter Costs[10]	1555	$0							$0	$0				$0
Smart Meter OM&A Variance[10]	1556	$0							$0	$0				$0
IFRS-CGAAP Transition PP&E Amounts Balance + Return Component[9]	1575								$0	$0				$0
Accounting Changes Under CGAAP Balance + Return Component[9]	1576								$0	$0				$0

For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g: d
figure and credit balance are to have a negative figure) as per the related Board decision.

Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs write-o

Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of the 200

Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved disposec

For RSVA accounts only, report the net variance to the account during the year. For all other accounts, record the transactions

Please describe "other" components of 1508 and add more component lines if necessary.

1563 is a contra-account and is not included in the total but is shown on a memo basis. Account 1562 establishes the obligati

If the LDC's 2014 rate year begins January 1, 2014, the projected interest is recorded from January 1, 2013 to December 31, 2013 on the December 31, 2012 balance adjusted for the disposed balances approved by the Board in the 2013 rate decision. If the LDC's 2013 rate year begins May 1, 2014 the projected interest is recorded from January 1, 2013 to April 30,

As per the January 6, 2011 Letter from the Board, regarding the implementation of the Ontario Clean Energy Benefit:

"By way of exception... The Board does anticipate that licensed distributors that cannot adapt their invoices as of January 1, 20 balances in "Sub account Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act" will be ad

The Board requires that disposition of Account 1575 and Account 1576 shall require the use of separate rate riders. In the "Oth the Account 1575 and 1576 rate rider calculation from the applicable Chapter 2 appendices. For Account 1575, please provide provide the value in cell F39 from the relevant Chapter 2 Appendix (i.e. 2-ED or 2-EE).

Deferral accounts related to Smart Meter deployment are not to be recovered/refunded through the Deferral and Variance Acco

Guideline: Smart Meter Disposition and Cost Recovery (G-2011-0001)

ntario Energy Board

2015 Deferral/Variance Account Workform

Account Descriptions	Account Number	2014			2015					Projected Interest on Dec-31-13 Balances			2.1.7 RRR	
		Opening Principal Amounts as of Jan-1-14	Transactions Debit / (Credit) during 2014 excluding interest and adjustments [3]	Closing Principal Balance as of Dec-31-14	Opening Interest Amounts as of Jan-1-14	Interest Jan-1 to Dec-31-14	Closing Interest Amounts as of Dec-31-14	Principal Disposition during 2015 - instructed by Board	Interest Disposition during 2015 - instructed by Board	Closing Principal Balances as of Dec 31-14 Adjusted for Dispositions during 2015	Closing Interest Balances as of Dec 31-14 Adjusted for Dispositions during 2015	Projected Interest from Jan 1, 2015 to December 31, 2015 on Dec 31 -14 balance adjusted for disposition during 2015 [4]	Projected Interest from January 1, 2015 to April 30, 2015 on Dec 31 -13 balance adjusted for disposition during 2014 [4] N/A	Total Claim	As of Dec 31-14	Variance RRR vs. 2013 Balance (Principal + Interest)
Group 1 Accounts																
LV Variance Account	1550	$101,650	$99,111	$200,761	$2,554	$843	$3,397	$101,650	$2,554	$99,111	$843	$1,182		$101,136	$203,746	-$412
Smart Metering Entity Charge Variance Account	1551	$32,301	-$10,038	$22,263	$947	-$63	$884	$32,301	$947	-$10,038	-$63	-$120		-$10,221	$22,988	-$158
RSVA - Wholesale Market Service Charge	1580	-$926,113	-$177,404	-$1,103,517	-$28,059	$9,862	-$18,197	-$926,113	-$28,059	-$177,404	$9,862	-$2,116		-$169,657	-$1,117,176	$4,538
RSVA - Retail Transmission Network Charge	1584	-$422,798	-$251,888	-$674,686	-$10,994	-$2,634	-$13,628	-$422,798	-$10,994	-$251,888	-$2,634	-$3,004		-$257,526	-$686,242	$2,072
RSVA - Retail Transmission Connection Charge	1586	-$267,572	-$33,234	-$300,806	-$7,342	-$121	-$7,463	-$267,572	-$7,342	-$33,234	-$121	-$396		-$33,751	-$306,958	$1,311
RSVA - Power (excluding Global Adjustment)	1588	-$462,831	$1,040,210	$577,379	-$8,477	$3,907	-$4,570	-$462,831	-$8,477	$1,040,210	$3,907	$12,405		$1,056,522	$575,077	$2,268
RSVA - Global Adjustment	1589	$430,530	$2,293,411	$2,723,941	$25,616	$13,175	$38,792	$430,530	$25,616	$2,293,411	$13,175	$27,349		$2,333,935	$2,760,622	-$2,110
Disposition and Recovery/Refund of Regulatory Balances (2008)	1595	$0		$0	$0		$0			$0	$0			$0		$0
Disposition and Recovery/Refund of Regulatory Balances (2009)	1595	$0		$0	$0		$0			$0	$0			$0		$0
Disposition and Recovery/Refund of Regulatory Balances (2010)	1595	$1,045,851	$1,239,998	$2,285,850	-$1,487,256	$30,133	-$1,457,123			$2,285,850	-$1,457,123	$27,259		$855,985	$828,727	$0
Disposition and Recovery/Refund of Regulatory Balances (2011)	1595	$63,131	-$128,124	-$64,993	$152,058	-$563	$151,494			-$64,993	$151,494	-$775		$85,726	$86,501	$0
Disposition and Recovery/Refund of Regulatory Balances (2012)	1595	-$241,096	$866,995	$625,899	-$249,472	$6,814	-$242,658			$625,899	-$242,658	$7,464		$390,705	$383,242	$0
Disposition and Recovery/Refund of Regulatory Balances (2013)	1595	-$469,185	$737,214	$268,029	-$58,033	$1,579	-$56,454			$268,029	-$56,454	$3,196		$214,771	$211,575	$0
Disposition and Recovery/Refund of Regulatory Balances (2014)	1595		-$696,114	-$696,114		-$90,389	-$90,389			-$696,114	-$90,389				-$786,501	$1
Group 1 Sub-Total (including Account 1589 - Global Adjustment)		-$1,116,132	$5,676,251	$4,560,119	-$1,668,459	$62,933	-$1,605,526	-$1,514,833	-$25,755	$6,074,952	-$1,579,771	$72,444	$0	$4,567,625	$2,962,102	$7,509
Group 1 Sub-Total (excluding Account 1589 - Global Adjustment)		-$1,546,662	$3,382,840	$1,836,179	-$1,694,075	$49,757	-$1,644,318	-$1,945,363	-$51,371	$3,781,541	-$1,592,946	$45,095	$0	$2,233,690	$201,480	$9,619
RSVA - Global Adjustment	**1589**	$430,530	$2,293,411	$2,723,941	$25,616	$13,175	$38,792	$430,530	$25,616	$2,293,411	$13,175	$27,349	$0	$2,333,935	$2,760,622	-$2,110
Group 2 Accounts																
Other Regulatory Assets - Sub-Account - Deferred IFRS Transition Costs	1508	$101,136		$101,136	$4,987	$1,487	$6,474			$101,136	$6,474	$1,206		$108,816	$107,610	-$0
Other Regulatory Assets - Sub-Account - Incremental Capital Charges	1508	$1,740	$895	$2,634	$41	$32	$73			$2,634	$73	$31		$2,739	$2,708	$1
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act[8]	1508	$0		$0	$0		$0			$0	$0			$0		$0
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Carrying Charges	1508	$0		$0	$0		$0			$0	$0			$0		$0
Other Regulatory Assets - Sub-Account - Other [4] OMERS Difference - 2011 COS Settlement Agreement Item	1508	$74,677		$74,677	$0		$0			$74,677	$0			$74,677	$74,677	-$0
Other Regulatory Assets - Sub-Account - Other [4] Capital Gain Variance - 2011 COS Settlement Agreement Item	1508	$220,225	$195,712	$415,937	$0		$0			$415,937	$0			$415,937	$432,854	$16,917
Retail Cost Variance Account - Retail	1518	-$116,081	-$14,631	-$130,712	-$3,861	-$1,770	-$5,631			-$130,712	-$5,631	-$1,559		-$137,902	-$136,343	$1
Misc. Deferred Debits	1525	$0	$8,176	$8,176	$0		$0			$8,176	$0			$8,176	$8,176	$0
Renewable Generation Connection Capital Deferral Account	1531	$0		$0	$0		$0			$0	$0			$0		$0
Renewable Generation Connection OM&A Deferral Account	1532	$0		$0	$0		$0			$0	$0			$0		$0
Renewable Generation Connection Funding Adder Deferral Account	1533	$0		$0	$0		$0			$0	$0			$0		$0
Smart Grid Capital Deferral Account	1534	$0		$0	$0		$0			$0	$0			$0		$0
Smart Grid OM&A Deferral Account	1535	$0		$0	$0		$0			$0	$0			$0		$0
Smart Grid Funding Adder Deferral Account	1536	$0		$0	$0		$0			$0	$0			$0		$0
Retail Cost Variance Account - STR	1548	-$5,885	-$902	-$6,786	-$200	-$94	-$293			-$6,786	-$293	-$81		-$7,160	-$7,079	$0
Board-Approved CDM Variance Account	1567	$0		$0	$0		$0			$0	$0			$0		$0
Extra-Ordinary Event Costs	1572	$0		$0	$0		$0			$0	$0			$0		$0
Deferred Rate Impact Amounts	1574	$0		$0	$0		$0			$0	$0			$0		$0
RSVA - One-time	1582	$0		$0	$0		$0			$0	$0			$0		$0
Other Deferred Credits	2425	$0		$0	$0		$0			$0	$0			$0		$0
																$0
Group 2 Sub-Total		$275,813						$0	$0	$465,064	$622	-$402	$0	$465,284	$482,604	$16,918
																$0
Deferred Payments in Lieu of Taxes	1562	$0		$0	$0		$0			$0	$0			$0		$0
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account below)	1592	-$52,594	-$773	-$53,367	-$2,428		-$2,428			-$53,367	-$2,428	-$636		-$56,432	-$55,795	$0
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592	-$30,733		-$30,733	-$1,428	-$452	-$1,880			-$30,733	-$1,880	-$366		-$32,980	$0	$32,613
							$0									$0
Total of Group 1 and Group 2 Accounts (including 1562 and 1592)		-$923,646			-$1,671,347			-$1,514,833	-$25,755	$6,455,916	-$1,583,457	$71,039	$0	$4,943,497	$3,388,911	$3,388,911
																$0
																$0
LRAM Variance Account	**1568**	$355,963		$355,963	$4,943	$5,233	$10,175			$355,963	$10,175	$4,245		$370,383	$378,525	$12,386
																$0
																$0
Total including Account 1568		-$567,683			-$1,666,405		-$1,666,405	-$1,514,833	-$25,755	$6,811,879	-$1,573,282	$75,284	$0	$5,313,881	$3,767,436	$5,433,841
																$0
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Capital[10]	1555	$0		$0	$0		$0			$0	$0			$0		$0
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Recoveries[10]	1555	$0		$0	$0		$0			$0	$0			$0		$0
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Stranded Meter Costs[10]	1555	$0	$1,363,997	$1,363,997	$0		$0			$1,363,997	$0			$1,363,997	$1,363,996	-$0
Smart Meter OM&A Variance[10]	1556	$0		$0	$0		$0			$0	$0			$0		$0
				$0			$0									$0
IFRS-CGAAP Transition PP&E Amounts Balance + Return Component[9]	1575	$0		$0	$0		$0			$0	$0			$0		$0
Accounting Changes Under CGAAP Balance + Return Component[9]	1576	$0		$0	$0		$0			$0	$0			$0		$0

For all Board-Approved dispositions, please ensure that the disposition amount has the same sign (e.g: d
figure and credit balance are to have a negative figure) as per the related Board decision.

Provide supporting statement indicating whether due to denial of costs in 2006 EDR by the Board, 10% transition costs write-o

Adjustments Instructed by the Board include deferral/variance account balances moved to Account 1590 as a result of the 200

Please provide explanations for the nature of the adjustments. If the adjustment relates to previously Board Approved disposa

For RSVA accounts only, report the net variance to the account during the year. For all other accounts, record the transactions

Please describe "other" components of 1508 and add more component lines if necessary.

1563 is a contra-account and is not included in the total but is shown on a memo basis. Account 1562 establishes the obligati

If the LDC's 2014 rate year begins January 1, 2014, the projected interest is recorded from January 1, 2013 to December 31, 2013 on the December 31, 2012 balance adjusted for the disposed balances approved by the Board in the 2013 rate decision. If the LDC's 2013 rate year begins May 1, 2014 the projected interest is recorded from January 1, 2013 to April 30, As per the January 6, 2011 Letter from the Board, regarding the implementation of the Ontario Clean Energy Benefit:

"By way of exception... The Board does acticipate that licensed distributors that cannot adapt their invoices as of January 1, 20 balances in "Sub account Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act" will be ad The Board requires that disposition of Account 1575 and Account 1576 shall require the use of separate rate riders. In the "Oth the Account 1575 and 1576 rate rider calculation from the applicable Chapter 2 appendices. For Account 1575, please provide provide the value in cell F39 from the relevant Chapter 2 Appendix (i.e. 2-ED or 2-EE).

Deferral accounts related to Smart Meter deployment are not to be recovered/refunded through the Deferral and Variance Acco

Guideline: Smart Meter Disposition and Cost Recovery (G-2011-0001)



Deferral/Variance Account Workform for 2014 Filers

Accounts that produced a variance on the 2014 continuity schedule are listed below.
Please provide a detailed explanation for each variance below.

Account Descriptions	Account Number	Variance RRR vs. 2013 Balance (Principal + Interest)	Explanation
Group 1 Accounts			
LV Variance Account	1550	$ (412)	Difference is $498 Projected Jan-Apr 2015 Interest in Column BG which was approved by the Board in the 2015 IRM 2014-0119 and a correction adjustment of $86 interest
Smart Metering Entity Charge Variance Account	1551	$ (158)	Difference is Projected Jan-Apr 2015 Interest in Column BG which was approved by the Board in the 2015 IRM 2014-0119
RSVA - Wholesale Market Service Charge	1580	$ 4,538	Difference is Projected Jan-Apr 2015 Interest in Column BG which was approved by the Board in the 2015 IRM 2014-0119
RSVA - Retail Transmission Network Charge	1584	$ 2,072	Difference is Projected Jan-Apr 2015 Interest in Column BG which was approved by the Board in the 2015 IRM 2014-0119
RSVA - Retail Transmission Connection Charge	1586	$ 1,311	Difference is Projected Jan-Apr 2015 Interest in Column BG which was approved by the Board in the 2015 IRM 2014-0119
RSVA - Power (excluding Global Adjustment)	1588	$ 2,268	Difference is Projected Jan-Apr 2015 Interest in Column BG which was approved by the Board in the 2015 IRM 2014-0119
RSVA - Global Adjustment	1589	$ (2,110)	Difference is Projected Jan-Apr 2015 Interest in Column BG which was approved by the Board in the 2015 IRM 2014-0119
Disposition and Recovery/Refund of Regulatory Balances (2008)	1595	$ -	
Disposition and Recovery/Refund of Regulatory Balances (2009)	1595	$ -	
Disposition and Recovery/Refund of Regulatory Balances (2010)	1595	$ 0	
Disposition and Recovery/Refund of Regulatory Balances (2011)	1595	$ 0	
Disposition and Recovery/Refund of Regulatory Balances (2012)	1595	$ 0	
Disposition and Recovery/Refund of Regulatory Balances (2013)	1595	$ 0	
Group 2 Accounts			
Other Regulatory Assets - Sub-Account - Deferred IFRS Transition Costs	1508	$ (0)	
Other Regulatory Assets - Sub-Account - Incremental Capital Charges	1508	$ 1	Rounding
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act	1508	$ -	
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Carrying Charges	1508	$ -	
Other Regulatory Assets - Sub-Account - Other 4 OMERS Difference - 2011 COS Settlement Agreement Item	1508	$ (0)	
Other Regulatory Assets - Sub-Account - Other 4 Capital Gain Variance - 2011 COS Settlement Agreement Item	1508	$ -	
Retail Cost Variance Account - Retail	1518	$ 1	Rounding
Misc. Deferred Debits	1525	$ -	
Renewable Generation Connection Capital Deferral Account	1531	$ -	
Renewable Generation Connection OM&A Deferral Account	1532	$ -	
Renewable Generation Connection Funding Adder Deferral Account	1533	$ -	
Smart Grid Capital Deferral Account	1534	$ -	
Smart Grid OM&A Deferral Account	1535	$ -	
Smart Grid Funding Adder Deferral Account	1536	$ -	
Retail Cost Variance Account - STR	1548	$ 0	
Board-Approved CDM Variance Account	1567	$ -	
Extra-Ordinary Event Costs	1572	$ -	
Deferred Rate Impact Amounts	1574	$ -	
RSVA - One-time	1582	$ -	
Other Deferred Credits	2425	$ -	
Deferred Payments in Lieu of Taxes	1562	$ -	
PILs and Tax Variance for 2006 and Subsequent Years	1592	$ 0	
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT	1592	$ 32,613	As per the Board FAQ December 2010 for RRR Purposes the 1592 and its offsetting 1592 contra sub-account are to zero out, only upon disposition should the balance to customers be reflected. This represents 50% of the HST difference.
LRAM Variance Account	1568	$ 12,386	
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Capital	1555	$ -	
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Recoveries	1555	$ -	
Smart Meter Capital and Recovery Offset Variance - Sub-Account - Stranded Meter Costs	1555	$ (0)	
Smart Meter OM&A Variance	1556	$ -	
IFRS-CGAAP Transition PP&E Amounts Balance + Return Component	1575	$ -	
Accounting Changes Under CGAAP Balance + Return Component	1576	$ -	

Ontario Energy Board

2015 Deferral/Variance Account Workform

In the green shaded cells, enter the most recent Board Approved volumetric forecast. If there is a material difference between the latest Board-approved volumetric forecast and the most recent 12-month actual volumetric data, use the most recent 12-month actual data. Do not enter data for the MicroFit class.

Rate Class (Enter Rate Classes in cells below)	Units	# of Customers	Metered kWh	Metered kW	Billed kWh for Non-RPP Customers	Estimated kW for Non-RPP Customers	Distribution Revenue [1]	1590 Recovery Share Proportion	1595 Recovery Share Proportion (2008) [2]	1595 Recovery Share Proportion (2009) [2]	1595 Recovery Share Proportion (2010) [2]	1595 Recovery Share Proportion (2011) [2]	1595 Recovery Share Proportion (2012) [2]	1595 Recovery Share Proportion (2013) [2]	1568 LRAM Variance Account Class Allocation ($ amounts)
Residential	kWh	49,305	399,471,640		19,654,183	-					31.17%	10.12%	26.32%	32.68%	1,282
General Service Less Than 50 kW	kWh	5,632	192,172,348		33,236,983	-					13.98%	-1.14%	12.07%	14.60%	97,383
General Service 50 to 4,999 kW	kW	693	712,810,799	1,752,802	656,095,388	1,613,339					47.33%	80.97%	52.73%	43.65%	247,452
Large Use	kW	1	92,802,320	169,451	-	-					6.80%	9.15%	6.01%	6.80%	24,266
Unmetered Scattered Load	kWh	14	3,140,372		2,747	-					0.14%	0.65%	0.11%	0.13%	
Street Lighting	kW	6	7,594,660	21,115	7,800,435	21,687					0.59%	0.26%	0.58%	0.48%	
Embedded Distributor	kW	1	31,378,863	71,406	33,007,642	75,112							2.18%	1.67%	
General Service Greater than 50 kW - MP	kW	2	6,823,514	12,620		-									
						-									
						-									
						-									
						-									
						-									
						-									
						-									
						-									
						-									
						-									
						-									
						-									
Total		**55,654**	**1,446,194,516**	**2,027,394**	**749,797,378**	**1,710,138**	**$ -**	**0%**	**0%**	**0%**	**100%**	**100%**	**100%**		**$ 370,383**
													Balance as per Sheet 2		$ 370,383
													Variance		$ -

Residential	49,305	89.7%
General Service Less Than 50 kW	5,632	10.3%
	54,937	100.0%

[1] For Account 1562, the allocation to customer classes should be performed on the basis of the test year distribution revenue allocation to customer classes found in the Applicant's Cost of Service application that was most recently approved at the time of disposition of the 1562 account balances

[2] Residual Account balance to be allocated to rate classes in proportion to the recovery share as established when rate riders were implemented.

1576 Allocation - No Allocation to Embedded Distributor		
Residential	399,471,640	28.2%
General Service Less Than 50 kW	192,172,348	13.6%
General Service 50 to 4,999 kW	712,810,799	50.4%
Large Use	92,802,320	6.6%
Unmetered Scattered Load	3,140,372	0.2%
Street Lighting	7,594,660	0.5%
Embedded Distributor	-	0.0%
General Service Greater than 50 kW - MP	6,823,514	0.5%
	1,414,815,653	100.0%

Ontario Energy Board

2015 Deferral/Variance Account Workform

		Amounts from Sheet 2	Allocator	Residential	General Service Less Than 50 kW	General Service 50 to 4,999 kW	Large Use	Unmetered Scattered Load	Street Lighting	Embedded Distributor	General Service Greater than 50 kW - MP
LV Variance Account	1550	101,136	kWh	27,936	13,439	49,849	6,490	220	531	2,194	477
Smart Metering Entity Charge Variance Account	1551	(10,221)	kWh	(9,173)	(1,048)						
RSVA - Wholesale Market Service Charge	1580	(169,657)	kWh	(46,863)	(22,544)	(84,423)	(10,887)	(368)	(891)	(3,681)	
RSVA - Retail Transmission Network Charge	1584	(257,526)	kWh	(71,134)	(34,220)	(126,931)	(16,525)	(559)	(1,352)	(5,588)	(1,215)
RSVA - Retail Transmission Connection Charge	1586	(33,751)	kWh	(9,323)	(4,485)	(16,636)	(2,166)	(73)	(177)	(732)	(159)
RSVA - Power (excluding Global Adjustment)	1588	1,056,522	kWh	291,835	140,392	525,732	67,797	2,294	5,548	22,924	
RSVA - Global Adjustment	1589	2,333,935	Non-RPP kWh	61,179	103,459	2,042,264	0	9	24,281	102,745	0
Disposition and Recovery/Refund of Regulatory Balances (2008)	1595	0		0	0	0	0	0	0	0	0
Disposition and Recovery/Refund of Regulatory Balances (2009)	1595	0		0	0	0	0	0	0	0	0
Disposition and Recovery/Refund of Regulatory Balances (2010)	1595	855,985	%	266,814	119,625	405,121	58,181	1,188	5,057	0	0
Disposition and Recovery/Refund of Regulatory Balances (2011)	1595	85,726	%	8,671	(976)	69,410	7,842	553	226	0	0
Disposition and Recovery/Refund of Regulatory Balances (2012)	1595	390,705	%	102,841	47,141	206,012	23,475	439	2,281	8,515	0
Disposition and Recovery/Refund of Regulatory Balances (2013)	1595	214,771	%	70,184	31,352	93,746	14,602	279	1,027	3,580	0
Total of Group 1 Accounts (excluding 1589)		**2,233,690**		**631,788**	**288,675**	**1,121,880**	**148,809**	**3,972**	**12,250**	**27,213**	**(897)**
Other Regulatory Assets - Sub-Account - Deferred IFRS Transition Costs	1508	108,816	kWh	30,057	14,460	53,634	6,983	236	571	2,361	513
Other Regulatory Assets - Sub-Account - Incremental Capital Charges	1508	2,739	kWh	757	364	1,350	176	6	14	59	13
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Variance - Ontario Clean Energy Benefit Act[8]	1508	0		0	0	0	0	0	0	0	0
Other Regulatory Assets - Sub-Account - Financial Assistance Payment and Recovery Carrying Charges	1508	0		0	0	0	0	0	0	0	0
Other Regulatory Assets - Sub-Account - Other 4 OMERS Difference - 2011 COS Settlement Agreement Item	1508	74,677	kWh	20,628	9,923	36,808	4,792	162	392	1,620	352
Other Regulatory Assets - Sub-Account - Other 4 Capital Gain Variance - 2011 COS Settlement Agreement Item	1508	415,937	kWh	114,891	55,270	205,010	26,691	903	2,184	9,025	1,962
Retail Cost Variance Account - Retail	1518	(137,902)	# of Customers	(122,170)	(13,955)	(1,717)	(2)	(35)	(15)	(2)	(5)
Misc. Deferred Debits	1525	0		0	0	0	0	0	0	0	0
Renewable Generation Connection Capital Deferral Account	1531	0		0	0	0	0	0	0	0	0
Renewable Generation Connection OM&A Deferral Account	1532	0		0	0	0	0	0	0	0	0
Renewable Generation Connection Funding Adder Deferral Account	1533	0		0	0	0	0	0	0	0	0
Smart Grid Capital Deferral Account	1534	0		0	0	0	0	0	0	0	0
Smart Grid OM&A Deferral Account	1535	0		0	0	0	0	0	0	0	0
Smart Grid Funding Adder Deferral Account	1536	0		0	0	0	0	0	0	0	0
Retail Cost Variance Account - STR	1548	(7,160)	# of Customers	(6,343)	(725)	(89)	(0)	(2)	(1)	(0)	(0)
Board-Approved CDM Variance Account	1567	0		0	0	0	0	0	0	0	0
Extra-Ordinary Event Costs	1572	0		0	0	0	0	0	0	0	0
Deferred Rate Impact Amounts	1574	0		0	0	0	0	0	0	0	0
RSVA - One-time	1582	0		0	0	0	0	0	0	0	0
Other Deferred Credits	2425	0		0	0	0	0	0	0	0	0
Total of Group 2 Accounts		**457,108**		**37,819**	**65,337**	**294,995**	**38,639**	**1,271**	**3,147**	**13,063**	**2,836**
Deferred Payments in Lieu of Taxes	1562	0		0	0	0	0	0	0	0	0
PILs and Tax Variance for 2006 and Subsequent Years (excludes sub-account and contra account)	1592	(56,432)	kWh	(15,588)	(7,499)	(27,815)	(3,621)	(123)	(296)	(1,224)	(266)
PILs and Tax Variance for 2006 and Subsequent Years - Sub-Account HST/OVAT Input Tax Credits (ITCs)	1592	(32,980)	kWh	(9,110)	(4,382)	(16,255)	(2,116)	(72)	(173)	(716)	(156)
Total of Account 1562 and Account 1592		**(89,412)**		**(24,698)**	**(11,881)**	**(44,070)**	**(5,738)**	**(194)**	**(470)**	**(1,940)**	**(422)**
LRAM Variance Account **(Enter dollar amount for each class)**	1568	370,383		1,282	97,383	247,452	24,266				
(Account 1568 - total amount allocated to classes)		370,383									
Variance		0									
Total Balance Allocated to each class (excluding 1589 and 1586)		**2,601,387**		**644,910**	**342,132**	**1,372,806**	**181,710**	**5,049**	**14,927**	**38,336**	**1,517**
Total Balance Allocated to each class from Account 1589		**2,333,935**		**61,179**	**103,459**	**2,042,264**	**0**	**9**	**24,281**	**102,745**	**0**
Total Balance Allocated to each class (including 1589 and excluding 1586)		**4,935,322**		**706,088**	**445,590**	**3,415,069**	**181,710**	**5,058**	**39,208**	**141,080**	**1,517**
IFRS-CGAAP Transition PP&E Amounts Balance + Return Component	1575	0		0	0	0	0	0	0	0	0
Accounting Changes Under CGAAP Balance + Return Component	1576	(853,444)	kWh	(240,969)	(115,922)	(429,981)	(55,980)	(1,894)	(4,581)	0	(4,116)
Total Balance Allocated to each class for Accounts 1575 and 1576		**(853,444)**		**(240,969)**	**(115,922)**	**(429,981)**	**(55,980)**	**(1,894)**	**(4,581)**	**0**	**(4,116)**

Ontario Energy Board

2015 Deferral/Variance Account Workform

Please indicate the Rate Rider Recovery Period (in years) 1

Rate Rider Calculation for Deferral / Variance Accounts Balances (excluding Global Adj.)

Rate Class (Enter Rate Classes in cells below)	Units	kW / kWh / # of Customers	Allocated Balance (excluding 1589)	Rate Rider for Deferral/Variance Accounts	
Residential	kWh	399,471,640	$ 644,910	**0.0016**	$/kWh
General Service Less Than 50 kW	kWh	192,172,348	$ 342,132	**0.0018**	$/kWh
General Service 50 to 4,999 kW	**kW**	1,752,802	$ 1,372,806	**0.7832**	**$/kW**
Large Use	**kW**	169,451	$ 181,710	**1.0723**	**$/kW**
Unmetered Scattered Load	kWh	3,140,372	$ 5,049	**0.0016**	$/kWh
Street Lighting	**kW**	21,115	$ 14,927	**0.7070**	**$/kW**
Embedded Distributor	**kW**	71,406	$ 38,336	**0.5369**	**$/kW**
General Service Greater than 50 kW - MP	**kW**	12,620	$ 1,517	**0.1202**	**$/kW**
		-	$ -	**-**	
		-	$ -	**-**	
		-	$ -	**-**	
		-	$ -	**-**	
		-	$ -	**-**	
		-	$ -	**-**	
		-	$ -	**-**	
		-	$ -	**-**	
		-	$ -	**-**	
		-	$ -	**-**	
		-	$ -	**-**	
		-	$ -	**-**	
Total			**$ 2,601,387**		

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: **Residential**

TOU / non-TOU: TOU

Consumption **100** **kWh**

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly		1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	100	$ (0.01)	-$ 0.0001	100	$ (0.01)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		100	$ -	-$ 0.0006	100	$ (0.06)	$ (0.06)	
Distribution Volumetric Rate	per kWh	$ 0.0192	100	$ 1.92	$ 0.0160	100	$ 1.60	$ (0.32)	-16.67%
Sub-Total A (excluding pass through)				$ 19.22			$ 22.62	**$ 3.40**	**17.66%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	100	$ (0.14)	$ 0.0002	100	$ 0.02	$ 0.16	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	100	$ 0.01	$ 0.0002	100	$ 0.02	$ 0.01	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	4.04	$ 0.38	$ 0.0950	3.62	$ 0.34	$ (0.04)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 20.26**			**$ 23.79**	**$ 3.53**	**17.40%**
RTSR - Network	per kWh	$ 0.0076	104	$ 0.79	$ 0.0074	104	$ 0.77	$ (0.02)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	104	$ 0.24	$ 0.0023	104	$ 0.24	$ (0.00)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 21.29**			**$ 24.79**	**$ 3.50**	**16.44%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	104	$ 0.46	$ 0.0044	104	$ 0.46	$ (0.00)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	104	$ 0.14	$ 0.0013	104	$ 0.13	$ (0.00)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	100	$ 0.70	$ 0.0070	100	$ 0.70	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	64	$ 4.93	$ 0.0770	64	$ 4.93	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	18	$ 2.05	$ 0.1140	18	$ 2.05	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	18	$ 2.52	$ 0.1400	18	$ 2.52	$ -	0.00%
Energy - RPP - Tier 1 - Set at 600 kWh	per kWh	$ 0.0880	100	$ 8.80	$ 0.0880	100	$ 8.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	0	$ -	$ 0.1030	0	$ -	$ -	
Total Bill on TOU (before Taxes)				**$ 32.34**			**$ 35.83**	**$ 3.50**	**10.82%**
HST		13%		$ 4.20	13%		$ 4.66	$ 0.45	10.82%
Total Bill (including HST)				$ 36.54			$ 40.49	$ 3.95	10.82%
Ontario Clean Energy Benefit [1]				$ (3.65)			$ (4.05)	$ (0.40)	10.96%
Total Bill on TOU (including OCEB)				**$ 32.89**			**$ 36.44**	**$ 3.55**	**10.80%**
Total Bill on RPP (before Taxes)				**$ 31.64**			**$ 35.13**	**$ 3.50**	**11.06%**
HST		13%		$ 4.11	13%		$ 4.57	$ 0.45	11.06%
Total Bill (including HST)				$ 35.75			$ 39.70	$ 3.95	11.06%
Ontario Clean Energy Benefit [1]				$ (3.57)			$ (3.97)	$ (0.40)	11.20%
Total Bill on RPP (including OCEB)				**$ 32.18**			**$ 35.73**	**$ 3.55**	**11.04%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: **Residential**

TOU / non-TOU: TOU

Consumption 250 **kWh**

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	250	$ (0.03)	$ (0.00)	250	$ (0.03)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	250	$ -	-$ 0.0006	250	$ (0.15)	$ (0.15)	
Distribution Volumetric Rate	per kWh	$ 0.0192	250	$ 4.80	$ 0.0160	250	$ 4.00	$ (0.80)	-16.67%
Sub-Total A (excluding pass through)				$ 22.09			$ 24.91	**$ 2.83**	**12.79%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	250	$ (0.35)	$ 0.0002	250	$ 0.05	$ 0.40	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	250	$ 0.03	$ 0.0002	250	$ 0.05	$ 0.03	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	10.1	$ 0.96	$ 0.0950	9.05	$ 0.86	$ (0.10)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 23.51**			**$ 26.66**	**$ 3.15**	**13.40%**
RTSR - Network	per kWh	$ 0.0076	260	$ 1.98	$ 0.0074	259	$ 1.92	$ (0.06)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	260	$ 0.60	$ 0.0023	259	$ 0.60	$ (0.00)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 26.08**			**$ 29.17**	**$ 3.09**	**11.84%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	260	$ 1.14	$ 0.0044	259	$ 1.14	$ (0.00)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	260	$ 0.34	$ 0.0013	259	$ 0.34	$ (0.00)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	250	$ 1.75	$ 0.0070	250	$ 1.75	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	160	$ 12.32	$ 0.0770	160	$ 12.32	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	45	$ 5.13	$ 0.1140	45	$ 5.13	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	45	$ 6.30	$ 0.1400	45	$ 6.30	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	250	$ 22.00	$ 0.0880	250	$ 22.00	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	0	$ -	$ 0.1030	0	$ -	$ -	
Total Bill on TOU (before Taxes)				**$ 53.32**			**$ 56.40**	**$ 3.08**	**5.78%**
HST		13%		$ 6.93	13%		$ 7.33	$ 0.40	5.78%
Total Bill (including HST)				$ 60.25			$ 63.73	$ 3.48	5.78%
Ontario Clean Energy Benefit [1]				$ (6.02)			$ (6.37)	$ (0.35)	5.81%
Total Bill on TOU (including OCEB)				**$ 54.23**			**$ 57.36**	**$ 3.13**	**5.78%**
Total Bill on RPP (before Taxes)				**$ 51.57**			**$ 54.65**	**$ 3.08**	**5.98%**
HST		13%		$ 6.70	13%		$ 7.10	$ 0.40	5.98%
Total Bill (including HST)				$ 58.27			$ 61.75	$ 3.48	5.98%
Ontario Clean Energy Benefit [1]				$ (5.83)			$ (6.18)	$ (0.35)	6.00%
Total Bill on RPP (including OCEB)				**$ 52.44**			**$ 55.57**	**$ 3.13**	**5.97%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: **Residential**

TOU / non-TOU: TOU

Consumption 500 **kWh**

		Current Board-Approved			Proposed			Impact	
		Rate	Volume	Charge	Rate	Volume	Charge		
	Charge Unit	($)		($)	($)		($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	500	$ (0.05)	$ (0.00)	500	$ (0.05)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	500	$ -	-$ 0.0006	500	$ (0.30)	$ (0.30)	
Distribution Volumetric Rate	per kWh	$ 0.0192	500	$ 9.60	$ 0.0160	500	$ 8.00	$ (1.60)	-16.67%
Sub-Total A (excluding pass through)				$ 26.86			$ 28.74	**$ 1.88**	**6.98%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	500	$ (0.70)	$ 0.0002	500	$ 0.10	$ 0.80	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	500	$ 0.05	$ 0.0002	500	$ 0.10	$ 0.05	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	20.2	$ 1.92	$ 0.0950	18.1	$ 1.72	$ (0.20)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 28.92**			**$ 31.44**	**$ 2.53**	**8.73%**
RTSR - Network	per kWh	$ 0.0076	520	$ 3.95	$ 0.0074	518	$ 3.83	$ (0.12)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	520	$ 1.20	$ 0.0023	518	$ 1.19	$ (0.00)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 34.07**			**$ 36.47**	**$ 2.40**	**7.05%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	520	$ 2.29	$ 0.0044	518	$ 2.28	$ (0.01)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	520	$ 0.68	$ 0.0013	518	$ 0.67	$ (0.00)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	500	$ 3.50	$ 0.0070	500	$ 3.50	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	320	$ 24.64	$ 0.0770	320	$ 24.64	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	90	$ 10.26	$ 0.1140	90	$ 10.26	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	90	$ 12.60	$ 0.1400	90	$ 12.60	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	500	$ 44.00	$ 0.0880	500	$ 44.00	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	0	$ -	$ 0.1030	0	$ -	$ -	
Total Bill on TOU (before Taxes)				**$ 88.28**			**$ 90.67**	**$ 2.39**	**2.71%**
HST		13%		$ 11.48	13%		$ 11.79	$ 0.31	2.71%
Total Bill (including HST)				$ 99.76			$ 102.46	$ 2.70	2.71%
Ontario Clean Energy Benefit [1]				$ (9.98)			$ (10.25)	$ (0.27)	2.71%
Total Bill on TOU (including OCEB)				**$ 89.78**			**$ 92.21**	**$ 2.43**	**2.71%**
Total Bill on RPP (before Taxes)				**$ 84.78**			**$ 87.17**	**$ 2.39**	**2.82%**
HST		13%		$ 11.02	13%		$ 11.33	$ 0.31	2.82%
Total Bill (including HST)				$ 95.81			$ 98.51	$ 2.70	2.82%
Ontario Clean Energy Benefit [1]				$ (9.58)			$ (9.85)	$ (0.27)	2.82%
Total Bill on RPP (including OCEB)				**$ 86.23**			**$ 88.66**	**$ 2.43**	**2.82%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: **Residential**

TOU / non-TOU: TOU

Consumption 800 **kWh**

		Current Board-Approved			Proposed			Impact	
	Charge Unit	**Rate ($)**	**Volume**	**Charge ($)**	**Rate ($)**	**Volume**	**Charge ($)**	**$ Change**	**% Change**
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR) - 3 YR v02	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	800	$ (0.08)	-$ 0.0001	800	$ (0.08)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	800	$ -	-$ 0.0006	800	$ (0.48)	$ (0.48)	
Distribution Volumetric Rate	per kWh	$ 0.0192	800	$ 15.36	$ 0.0160	800	$ 12.80	$ (2.56)	-16.67%
Sub-Total A (excluding pass through)				$ 32.59			$ 33.33	**$ 0.74**	**2.26%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	800	$ (1.12)	$ 0.0002	800	$ 0.16	$ 1.28	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	800	$ 0.08	$ 0.0002	800	$ 0.16	$ 0.08	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	32.32	$ 3.07	$ 0.0950	28.96	$ 2.75	$ (0.32)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 35.41**			**$ 37.19**	**$ 1.78**	**5.02%**
RTSR - Network	per kWh	$ 0.0076	832	$ 6.33	$ 0.0074	829	$ 6.13	$ (0.19)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	832	$ 1.91	$ 0.0023	829	$ 1.91	$ (0.01)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 43.65**			**$ 45.23**	**$ 1.58**	**3.61%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	832	$ 3.66	$ 0.0044	829	$ 3.65	$ (0.01)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	832	$ 1.08	$ 0.0013	829	$ 1.08	$ (0.00)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	800	$ 5.60	$ 0.0070	800	$ 5.60	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	512	$ 39.42	$ 0.0770	512	$ 39.42	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	144	$ 16.42	$ 0.1140	144	$ 16.42	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	144	$ 20.16	$ 0.1400	144	$ 20.16	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	200	$ 20.60	$ 0.1030	200	$ 20.60	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 130.24**			**$ 131.80**	**$ 1.56**	**1.20%**
HST		13%		$ 16.93	13%		$ 17.13	$ 0.20	1.20%
Total Bill (including HST)				$ 147.18			$ 148.94	$ 1.76	1.20%
Ontario Clean Energy Benefit [1]				$ (14.72)			$ (14.89)	$ (0.17)	1.15%
Total Bill on TOU (including OCEB)				**$ 132.46**			**$ 134.05**	**$ 1.59**	**1.20%**
Total Bill on RPP (before Taxes)				**$ 127.64**			**$ 129.20**	**$ 1.56**	**1.22%**
HST		13%		$ 16.59	13%		$ 16.80	$ 0.20	1.22%
Total Bill (including HST)				$ 144.24			$ 146.00	$ 1.76	1.22%
Ontario Clean Energy Benefit [1]				$ (14.42)			$ (14.60)	$ (0.18)	1.25%
Total Bill on RPP (including OCEB)				**$ 129.82**			**$ 131.40**	**$ 1.58**	**1.22%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: **Residential**

TOU / non-TOU: TOU

Consumption 1,000 **kWh**

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	1000	$ (0.10)	$ (0.00)	1000	$ (0.10)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	1000	$ -	-$ 0.0006	1000	$ (0.60)	$ (0.60)	
Distribution Volumetric Rate	per kWh	$ 0.0192	1000	$ 19.20	$ 0.0160	1000	$ 16.00	$ (3.20)	-16.67%
Sub-Total A (excluding pass through)				$ 36.41			$ 36.39	**$ (0.02)**	**-0.07%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	1000	$ (1.40)	$ 0.0002	1000	$ 0.20	$ 1.60	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	1000	$ 0.10	$ 0.0002	1000	$ 0.20	$ 0.10	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	40.4	$ 3.84	$ 0.0950	36.2	$ 3.44	$ (0.40)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 39.74**			**$ 41.01**	**$ 1.28**	**3.21%**
RTSR - Network	per kWh	$ 0.0076	1040	$ 7.91	$ 0.0074	1036	$ 7.67	$ (0.24)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	1040	$ 2.39	$ 0.0023	1036	$ 2.38	$ (0.01)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 50.04**			**$ 51.07**	**$ 1.03**	**2.05%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	1040	$ 4.58	$ 0.0044	1036	$ 4.56	$ (0.02)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	1040	$ 1.35	$ 0.0013	1036	$ 1.35	$ (0.01)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	1000	$ 7.00	$ 0.0070	1000	$ 7.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	640	$ 49.28	$ 0.0770	640	$ 49.28	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	180	$ 20.52	$ 0.1140	180	$ 20.52	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	180	$ 25.20	$ 0.1400	180	$ 25.20	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	400	$ 41.20	$ 0.1030	400	$ 41.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 158.22**			**$ 159.22**	**$ 1.00**	**0.63%**
HST		13%		$ 20.57	13%		$ 20.70	$ 0.13	0.63%
Total Bill (including HST)				$ 178.79			$ 179.92	$ 1.13	0.63%
Ontario Clean Energy Benefit [1]				$ (17.88)			$ (17.99)	$ (0.11)	0.62%
Total Bill on TOU (including OCEB)				**$ 160.91**			**$ 161.93**	**$ 1.02**	**0.64%**
Total Bill on RPP (before Taxes)				**$ 157.22**			**$ 158.22**	**$ 1.00**	**0.64%**
HST		13%		$ 20.44	13%		$ 20.57	$ 0.13	0.64%
Total Bill (including HST)				$ 177.66			$ 178.79	$ 1.13	0.64%
Ontario Clean Energy Benefit [1]				$ (17.77)			$ (17.88)	$ (0.11)	0.62%
Total Bill on RPP (including OCEB)				**$ 159.89**			**$ 160.91**	**$ 1.02**	**0.64%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: **Residential**

TOU / non-TOU: TOU

Consumption 1,500 **kWh**

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	1500	$ (0.15)	$ (0.00)	1500	$ (0.15)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	1500	$ -	-$ 0.0006	1500	$ (0.90)	$ (0.90)	
Distribution Volumetric Rate	per kWh	$ 0.0192	1500	$ 28.80	$ 0.0160	1500	$ 24.00	$ (4.80)	-16.67%
Sub-Total A (excluding pass through)				$ 45.96			$ 44.04	**$ (1.92)**	**-4.19%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	1500	$ (2.10)	$ 0.0002	1500	$ 0.30	$ 2.40	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	1500	$ 0.15	$ 0.0002	1500	$ 0.30	$ 0.15	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	60.6	$ 5.76	$ 0.0950	54.3	$ 5.16	$ (0.60)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 50.56**			**$ 50.58**	**$ 0.03**	**0.05%**
RTSR - Network	per kWh	$ 0.0076	1561	$ 11.86	$ 0.0074	1554	$ 11.50	$ (0.36)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	1561	$ 3.59	$ 0.0023	1554	$ 3.57	$ (0.01)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 66.01**			**$ 65.66**	**$ (0.35)**	**-0.53%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	1561	$ 6.87	$ 0.0044	1554	$ 6.84	$ (0.03)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	1561	$ 2.03	$ 0.0013	1554	$ 2.02	$ (0.01)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	1500	$ 10.50	$ 0.0070	1500	$ 10.50	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	960	$ 73.92	$ 0.0770	960	$ 73.92	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	270	$ 30.78	$ 0.1140	270	$ 30.78	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	270	$ 37.80	$ 0.1400	270	$ 37.80	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	900	$ 92.70	$ 0.1030	900	$ 92.70	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 228.15**			**$ 227.77**	**$ (0.38)**	**-0.17%**
HST		13%		$ 29.66	13%		$ 29.61	$ (0.05)	-0.17%
Total Bill (including HST)				$ 257.81			$ 257.38	$ (0.43)	-0.17%
Ontario Clean Energy Benefit [1]				$ (25.78)			$ (25.74)	$ 0.04	-0.16%
Total Bill on TOU (including OCEB)				**$ 232.03**			**$ 231.64**	**$ (0.39)**	**-0.17%**
Total Bill on RPP (before Taxes)				**$ 231.15**			**$ 230.77**	**$ (0.38)**	**-0.17%**
HST		13%		$ 30.05	13%		$ 30.00	$ (0.05)	-0.17%
Total Bill (including HST)				$ 261.20			$ 260.77	$ (0.43)	-0.17%
Ontario Clean Energy Benefit [1]				$ (26.12)			$ (26.08)	$ 0.04	-0.15%
Total Bill on RPP (including OCEB)				**$ 235.08**			**$ 234.69**	**$ (0.39)**	**-0.17%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: **Residential**

TOU / non-TOU: TOU

Consumption 2,000 **kWh**

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 15.20	1	$ 15.20	$ 20.51	1	$ 20.51	$ 5.31	34.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly	$ -	1	$ -		1	$ -	$ -	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 2.11	1	$ 2.11		1	$ -	$ (2.11)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly	$ -	1	$ -	$ 0.58	1	$ 0.58	$ 0.58	
Rate Rider for Application of Tax Change	per kWh	-$ 0.0001	2000	$ (0.20)	$ (0.00)	2000	$ (0.20)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh	$ -	2000	$ -	-$ 0.0006	2000	$ (1.20)	$ (1.20)	
Distribution Volumetric Rate	per kWh	$ 0.0192	2000	$ 38.40	$ 0.0160	2000	$ 32.00	$ (6.40)	-16.67%
Sub-Total A (excluding pass through)				$ 55.51			$ 51.69	**$ (3.82)**	**-6.89%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	2000	$ (2.80)	$ 0.0002	2000	$ 0.40	$ 3.20	-114.29%
Low Voltage Service Charge	per kWh	$ 0.0001	2000	$ 0.20	$ 0.0002	2000	$ 0.40	$ 0.20	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	80.8	$ 7.68	$ 0.0950	72.4	$ 6.88	$ (0.80)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 61.38**			**$ 60.15**	**$ (1.22)**	**-1.99%**
RTSR - Network	per kWh	$ 0.0076	2081	$ 15.81	$ 0.0074	2072	$ 15.34	$ (0.48)	-3.02%
RTSR - Line and Transformation Connection	per kWh	$ 0.0023	2081	$ 4.79	$ 0.0023	2072	$ 4.77	$ (0.02)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 81.98**			**$ 80.26**	**$ (1.72)**	**-2.10%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	2081	$ 9.16	$ 0.0044	2072	$ 9.12	$ (0.04)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	2081	$ 2.71	$ 0.0013	2072	$ 2.69	$ (0.01)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	2000	$ 14.00	$ 0.0070	2000	$ 14.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	1280	$ 98.56	$ 0.0770	1280	$ 98.56	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	360	$ 41.04	$ 0.1140	360	$ 41.04	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	360	$ 50.40	$ 0.1400	360	$ 50.40	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	1400	$ 144.20	$ 0.1030	1400	$ 144.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 298.09**			**$ 296.32**	**$ (1.77)**	**-0.59%**
HST		13%		$ 38.75	13%		$ 38.52	$ (0.23)	-0.59%
Total Bill (including HST)				$ 336.84			$ 334.84	$ (2.00)	-0.59%
Ontario Clean Energy Benefit [1]				$ (33.68)			$ (33.48)	$ 0.20	-0.59%
Total Bill on TOU (including OCEB)				**$ 303.16**			**$ 301.36**	**$ (1.80)**	**-0.59%**
Total Bill on RPP (before Taxes)				**$ 305.09**			**$ 303.32**	**$ (1.77)**	**-0.58%**
HST		13%		$ 39.66	13%		$ 39.43	$ (0.23)	-0.58%
Total Bill (including HST)				$ 344.75			$ 342.75	$ (2.00)	-0.58%
Ontario Clean Energy Benefit [1]				$ (34.47)			$ (34.27)	$ 0.20	-0.58%
Total Bill on RPP (including OCEB)				**$ 310.28**			**$ 308.48**	**$ (1.80)**	**-0.58%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: GS < 50 kW

TOU / non-TOU: TOU

Consumption 1,000 **kWh**

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 31.96	1	$ 31.96	$ 35.58	1	$ 35.58	$ 3.62	11.33%
Rate Rider for LRAMVA	per kWh		1000	$ -	$ 0.0005	1000	$ 0.50	$ 0.50	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 5.51	1	$ 5.51		1	$ -	$ (5.51)	-100.00%
Stranded Meter Rate Rider (SMRR) - 3 YR v02	Monthly		1	$ -	$ 1.38	1	$ 1.38	$ 1.38	
Rate Rider for Application of Tax Change	per kWh	-$ 0.00005	1000	$ (0.05)	-$ 0.00005	1000	$ (0.05)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		1000	$ -	-$ 0.0006	1000	$ (0.60)	$ (0.60)	
Distribution Volumetric Rate	per kWh	$ 0.0143	1000	$ 14.30	$ 0.0159	1000	$ 15.90	$ 1.60	11.19%
Sub-Total A (excluding pass through)				$ 51.72			$ 52.71	**$ 0.99**	**1.92%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	1000	$ (1.40)	$ 0.0004	1000	$ 0.40	$ 1.80	-128.57%
	per kWh		1000	$ -		1000	$ -	$ -	
Low Voltage Service Charge	per kWh	$ 0.0001	1000	$ 0.10	$ 0.0002	1000	$ 0.20	$ 0.10	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	40.4	$ 3.84	$ 0.0950	36.2	$ 3.44	$ (0.40)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 55.05**			**$ 57.54**	**$ 2.50**	**4.53%**
RTSR - Network	per kWh	$ 0.0069	1040	$ 7.18	$ 0.0067	1036	$ 6.94	$ (0.24)	-3.29%
RTSR - Line and Transformation Connection	per kWh	$ 0.0021	1040	$ 2.18	$ 0.0021	1036	$ 2.18	$ (0.01)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 64.41**			**$ 66.66**	**$ 2.25**	**3.49%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	1040	$ 4.58	$ 0.0044	1036	$ 4.56	$ (0.02)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	1040	$ 1.35	$ 0.0013	1036	$ 1.35	$ (0.01)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	1000	$ 7.00	$ 0.0070	1000	$ 7.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	640	$ 49.28	$ 0.0770	640	$ 49.28	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	180	$ 20.52	$ 0.1140	180	$ 20.52	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	180	$ 25.20	$ 0.1400	180	$ 25.20	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	400	$ 41.20	$ 0.1030	400	$ 41.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 172.59**			**$ 174.82**	**$ 2.23**	**1.29%**
HST		13%		$ 22.44	13%		$ 22.73	$ 0.29	1.29%
Total Bill (including HST)				$ 195.03			$ 197.54	$ 2.52	1.29%
Ontario Clean Energy Benefit [1]				$ (19.50)			$ (19.75)	$ (0.25)	1.28%
Total Bill on TOU (including OCEB)				**$ 175.53**			**$ 177.79**	**$ 2.27**	**1.29%**
Total Bill on RPP (before Taxes)				**$ 171.59**			**$ 173.82**	**$ 2.23**	**1.30%**
HST		13%		$ 22.31	13%		$ 22.60	$ 0.29	1.30%
Total Bill (including HST)				$ 193.90			$ 196.41	$ 2.52	1.30%
Ontario Clean Energy Benefit [1]				$ (19.39)			$ (19.64)	$ (0.25)	1.29%
Total Bill on RPP (including OCEB)				**$ 174.51**			**$ 176.77**	**$ 2.27**	**1.30%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: GS < 50 kW

TOU / non-TOU: TOU

Consumption 2,000 **kWh**

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 31.96	1	$ 31.96	$ 35.58	1	$ 35.58	$ 3.62	11.33%
Rate Rider for LRAMVA	per kWh		2000	$ -	$ 0.0005	2000	$ 1.00	$ 1.00	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 5.51	1	$ 5.51		1	$ -	$ (5.51)	-100.00%
Stranded Meter Rate Rider (SMRR) - 3 YR v02	Monthly		1	$ -	$ 1.38	1	$ 1.38	$ 1.38	
Rate Rider for Application of Tax Change	per kWh	-$ 0.00005	2000	$ (0.10)	-$ 0.0001	2000	$ (0.10)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		2000	$ -	-$ 0.0006	2000	$ (1.20)	$ (1.20)	
Distribution Volumetric Rate	per kWh	$ 0.0143	2000	$ 28.60	$ 0.0159	2000	$ 31.80	$ 3.20	11.19%
Sub-Total A (excluding pass through)				$ 65.97			$ 68.46	**$ 2.49**	**3.78%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	2000	$ (2.80)	$ 0.0004	2000	$ 0.80	$ 3.60	-128.57%
	per kWh		2000	$ -		2000	$ -	$ -	
Low Voltage Service Charge	per kWh	$ 0.0001	2000	$ 0.20	$ 0.0002	2000	$ 0.40	$ 0.20	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	80.8	$ 7.68	$ 0.0950	72.4	$ 6.88	$ (0.80)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 71.84**			**$ 77.33**	**$ 5.50**	**7.65%**
RTSR - Network	per kWh	$ 0.0069	2081	$ 14.36	$ 0.0067	2072	$ 13.89	$ (0.47)	-3.29%
RTSR - Line and Transformation Connection	per kWh	$ 0.0021	2081	$ 4.37	$ 0.0021	2072	$ 4.35	$ (0.02)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 90.56**			**$ 95.57**	**$ 5.01**	**5.53%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	2081	$ 9.16	$ 0.0044	2072	$ 9.12	$ (0.04)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	2081	$ 2.71	$ 0.0013	2072	$ 2.69	$ (0.01)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	2000	$ 14.00	$ 0.0070	2000	$ 14.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	1280	$ 98.56	$ 0.0770	1280	$ 98.56	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	360	$ 41.04	$ 0.1140	360	$ 41.04	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	360	$ 50.40	$ 0.1400	360	$ 50.40	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	1400	$ 144.20	$ 0.1030	1400	$ 144.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 306.67**			**$ 311.63**	**$ 4.96**	**1.62%**
HST		13%		$ 39.87	13%		$ 40.51	$ 0.64	1.62%
Total Bill (including HST)				$ 346.54			$ 352.14	$ 5.60	1.62%
Ontario Clean Energy Benefit [1]				$ (34.65)			$ (35.21)	$ (0.56)	1.62%
Total Bill on TOU (including OCEB)				**$ 311.89**			**$ 316.93**	**$ 5.04**	**1.62%**
Total Bill on RPP (before Taxes)				**$ 313.67**			**$ 318.63**	**$ 4.96**	**1.58%**
HST		13%		$ 40.78	13%		$ 41.42	$ 0.64	1.58%
Total Bill (including HST)				$ 354.45			$ 360.05	$ 5.60	1.58%
Ontario Clean Energy Benefit [1]				$ (35.45)			$ (36.01)	$ (0.56)	1.58%
Total Bill on RPP (including OCEB)				**$ 319.00**			**$ 324.04**	**$ 5.04**	**1.58%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: GS < 50 kW

TOU / non-TOU: TOU

Consumption 5,000 **kWh**

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 31.96	1	$ 31.96	$ 35.58	1	$ 35.58	$ 3.62	11.33%
Rate Rider for LRAMVA	per kWh		5000	$ -	$ 0.0005	5000	$ 2.50	$ 2.50	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 5.51	1	$ 5.51		1	$ -	$ (5.51)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly		1	$ -	$ 1.38	1	$ 1.38	$ 1.38	
Rate Rider for Application of Tax Change	per kWh	-$ 0.00005	5000	$ (0.25)	-$ 0.0001	5000	$ (0.25)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		5000	$ -	-$ 0.0006	5000	$ (3.00)	$ (3.00)	
Distribution Volumetric Rate	per kWh	$ 0.0143	5000	$ 71.50	$ 0.0159	5000	$ 79.50	$ 8.00	11.19%
Sub-Total A (excluding pass through)				$ 108.72			$ 115.71	**$ 6.99**	**6.43%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	5000	$ (7.00)	$ 0.0004	5000	$ 2.00	$ 9.00	-128.57%
	per kWh		5000	$ -		5000	$ -	$ -	
Low Voltage Service Charge	per kWh	$ 0.0001	5000	$ 0.50	$ 0.0002	5000	$ 1.00	$ 0.50	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	202	$ 19.19	$ 0.0950	181	$ 17.20	$ (2.00)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 122.20**			**$ 136.70**	**$ 14.50**	**11.87%**
RTSR - Network	per kWh	$ 0.0069	5202	$ 35.89	$ 0.0067	5181	$ 34.71	$ (1.18)	-3.29%
RTSR - Line and Transformation Connection	per kWh	$ 0.0021	5202	$ 10.92	$ 0.0021	5181	$ 10.88	$ (0.04)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 169.02**			**$ 182.29**	**$ 13.27**	**7.85%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	5202	$ 22.89	$ 0.0044	5181	$ 22.80	$ (0.09)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	5202	$ 6.76	$ 0.0013	5181	$ 6.74	$ (0.03)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	5000	$ 35.00	$ 0.0070	5000	$ 35.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	3200	$ 246.40	$ 0.0770	3200	$ 246.40	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	900	$ 102.60	$ 0.1140	900	$ 102.60	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	900	$ 126.00	$ 0.1400	900	$ 126.00	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	4400	$ 453.20	$ 0.1030	4400	$ 453.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 708.92**			**$ 722.07**	**$ 13.15**	**1.86%**
HST		13%		$ 92.16	13%		$ 93.87	$ 1.71	1.86%
Total Bill (including HST)				$ 801.08			$ 815.94	$ 14.86	1.86%
Ontario Clean Energy Benefit [1]				$ (80.11)			$ (81.59)	$ (1.48)	1.85%
Total Bill on TOU (including OCEB)				**$ 720.97**			**$ 734.35**	**$ 13.38**	**1.86%**
Total Bill on RPP (before Taxes)				**$ 739.92**			**$ 753.07**	**$ 13.15**	**1.78%**
HST		13%		$ 96.19	13%		$ 97.90	$ 1.71	1.78%
Total Bill (including HST)				$ 836.11			$ 850.97	$ 14.86	1.78%
Ontario Clean Energy Benefit [1]				$ (83.61)			$ (85.10)	$ (1.49)	1.78%
Total Bill on RPP (including OCEB)				**$ 752.50**			**$ 765.87**	**$ 13.37**	**1.78%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: GS < 50 kW

TOU / non-TOU: TOU

Consumption 10,000 kWh

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 31.96	1	$ 31.96	$ 35.58	1	$ 35.58	$ 3.62	11.33%
Rate Rider for LRAMVA	per kWh		10000	$ -	$ 0.0005	10000	$ 5.00	$ 5.00	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 5.51	1	$ 5.51		1	$ -	$ (5.51)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly		1	$ -	$ 1.38	1	$ 1.38	$ 1.38	
Rate Rider for Application of Tax Change	per kWh	-$ 0.00005	10000	$ (0.50)	-$ 0.0001	10000	$ (0.50)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		10000	$ -	-$ 0.0006	10000	$ (6.00)	$ (6.00)	
Distribution Volumetric Rate	per kWh	$ 0.0143	10000	$ 143.00	$ 0.0159	10000	$ 159.00	$ 16.00	11.19%
Sub-Total A (excluding pass through)				$ 179.97			$ 194.46	**$ 14.49**	**8.05%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	10000	$ (14.00)	$ 0.0004	10000	$ 4.00	$ 18.00	-128.57%
	per kWh		10000	$ -		10000	$ -	$ -	
Low Voltage Service Charge	per kWh	$ 0.0001	10000	$ 1.00	$ 0.0002	10000	$ 2.00	$ 1.00	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	404	$ 38.38	$ 0.0950	362	$ 34.39	$ (3.99)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 206.14**			**$ 235.64**	**$ 29.50**	**14.31%**
RTSR - Network	per kWh	$ 0.0069	10404	$ 71.79	$ 0.0067	10362	$ 69.43	$ (2.36)	-3.29%
RTSR - Line and Transformation Connection	per kWh	$ 0.0021	10404	$ 21.85	$ 0.0021	10362	$ 21.76	$ (0.09)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 299.78**			**$ 326.83**	**$ 27.05**	**9.02%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	10404	$ 45.78	$ 0.0044	10362	$ 45.59	$ (0.18)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	10404	$ 13.53	$ 0.0013	10362	$ 13.47	$ (0.05)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	10000	$ 70.00	$ 0.0070	10000	$ 70.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	6400	$ 492.80	$ 0.0770	6400	$ 492.80	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	1800	$ 205.20	$ 0.1140	1800	$ 205.20	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	1800	$ 252.00	$ 0.1400	1800	$ 252.00	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	9400	$ 968.20	$ 0.1030	9400	$ 968.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 1,379.33**			**$ 1,406.14**	**$ 26.81**	**1.94%**
HST		13%		$ 179.31	13%		$ 182.80	$ 3.49	1.94%
Total Bill (including HST)				$ 1,558.64			$ 1,588.94	$ 30.30	1.94%
Ontario Clean Energy Benefit [1]				$ (155.86)			$ (158.89)	$ (3.03)	1.94%
Total Bill on TOU (including OCEB)				**$ 1,402.78**			**$ 1,430.05**	**$ 27.27**	**1.94%**
Total Bill on RPP (before Taxes)				**$ 1,450.33**			**$ 1,477.14**	**$ 26.81**	**1.85%**
HST		13%		$ 188.54	13%		$ 192.03	$ 3.49	1.85%
Total Bill (including HST)				$ 1,638.87			$ 1,669.17	$ 30.30	1.85%
Ontario Clean Energy Benefit [1]				$ (163.89)			$ (166.92)	$ (3.03)	1.85%
Total Bill on RPP (including OCEB)				**$ 1,474.98**			**$ 1,502.25**	**$ 27.27**	**1.85%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: GS < 50 kW

TOU / non-TOU: TOU

Consumption 15,000 kWh

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 31.96	1	$ 31.96	$ 35.58	1	$ 35.58	$ 3.62	11.33%
Rate Rider for LRAMVA	per kWh		15000	$ -	$ 0.0005	15000	$ 7.50	$ 7.50	
Rate Rider for Smart Meter Incremental Revenue Requirement	Monthly	$ 5.51	1	$ 5.51		1	$ -	$ (5.51)	-100.00%
Stranded Meter Rate Rider (SMRR)	Monthly		1	$ -	$ 1.38	1	$ 1.38	$ 1.38	
Rate Rider for Application of Tax Change	per kWh	-$ 0.00005	15000	$ (0.75)	-$ 0.0001	15000	$ (0.75)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		15000	$ -	-$ 0.0006	15000	$ (9.00)	$ (9.00)	
Distribution Volumetric Rate	per kWh	$ 0.0143	15000	$ 214.50	$ 0.0159	15000	$ 238.50	$ 24.00	11.19%
Sub-Total A (excluding pass through)				$ 251.22			$ 273.21	**$ 21.99**	**8.75%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0014	15000	$ (21.00)	$ 0.0004	15000	$ 6.00	$ 27.00	-128.57%
	per kWh		15000	$ -		15000	$ -	$ -	
Low Voltage Service Charge	per kWh	$ 0.0001	15000	$ 1.50	$ 0.0002	15000	$ 3.00	$ 1.50	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0950	606	$ 57.57	$ 0.0950	543	$ 51.59	$ (5.99)	-10.40%
Smart Meter Entity Charge	Monthly	$ 0.79	1	$ 0.79	$ 0.79	1	$ 0.79	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 290.08**			**$ 334.59**	**$ 44.51**	**15.34%**
RTSR - Network	per kWh	$ 0.0069	15606	$ 107.68	$ 0.0067	15543	$ 104.14	$ (3.54)	-3.29%
RTSR - Line and Transformation Connection	per kWh	$ 0.0021	15606	$ 32.77	$ 0.0021	15543	$ 32.64	$ (0.13)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 430.53**			**$ 471.37**	**$ 40.83**	**9.48%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	15606	$ 68.67	$ 0.0044	15543	$ 68.39	$ (0.28)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	15606	$ 20.29	$ 0.0013	15543	$ 20.21	$ (0.08)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	15000	$ 105.00	$ 0.0070	15000	$ 105.00	$ -	0.00%
TOU - Off Peak	per kWh	$ 0.0770	9600	$ 739.20	$ 0.0770	9600	$ 739.20	$ -	0.00%
TOU - Mid Peak	per kWh	$ 0.1140	2700	$ 307.80	$ 0.1140	2700	$ 307.80	$ -	0.00%
TOU - On Peak	per kWh	$ 0.1400	2700	$ 378.00	$ 0.1400	2700	$ 378.00	$ -	0.00%
Energy - RPP - Tier 1	per kWh	$ 0.0880	600	$ 52.80	$ 0.0880	600	$ 52.80	$ -	0.00%
Energy - RPP - Tier 2	per kWh	$ 0.1030	14400	$ 1,483.20	$ 0.1030	14400	$ 1,483.20	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 2,049.74**			**$ 2,090.21**	**$ 40.47**	**1.97%**
HST		13%		$ 266.47	13%		$ 271.73	$ 5.26	1.97%
Total Bill (including HST)				$ 2,316.20			$ 2,361.94	$ 45.74	1.97%
Ontario Clean Energy Benefit [1]				$ (231.62)			$ (236.19)	$ (4.57)	1.97%
Total Bill on TOU (including OCEB)				**$ 2,084.58**			**$ 2,125.75**	**$ 41.17**	**1.97%**
Total Bill on RPP (before Taxes)				**$ 2,160.74**			**$ 2,201.21**	**$ 40.47**	**1.87%**
HST		13%		$ 280.90	13%		$ 286.16	$ 5.26	1.87%
Total Bill (including HST)				$ 2,441.63			$ 2,487.37	$ 45.74	1.87%
Ontario Clean Energy Benefit [1]				$ (244.16)			$ (248.74)	$ (4.58)	1.88%
Total Bill on RPP (including OCEB)				**$ 2,197.47**			**$ 2,238.63**	**$ 41.16**	**1.87%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

Appendix 2-W
Bill Impacts

Customer Class: GS 50-4999 kW

TOU / non-TOU: non-TOU

Consumption 20,000 kWh 60 kW

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 119.38	1	$ 119.38	$ 132.89	1	$ 132.89	$ 13.51	11.32%
Rate Rider for LRAMVA	per kW		60	$ -	$ 0.1417	60	$ 8.50	$ 8.50	
Rate Rider for Application of Tax Change	per kW	-$ 0.0099	60	$ (0.59)	-$ 0.0099	60	$ (0.59)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kW		60	$ -	-$ 0.2453	60	$ (14.72)	$ (14.72)	
Distribution Volumetric Rate	per kW	$ 4.7395	60	$ 284.37	$ 5.2348	60	$ 314.09	$ 29.72	10.45%
Sub-Total A (excluding pass through)				$ 403.16			$ 440.17	**$ 37.01**	**9.18%**
Deferral/Variance Account Disposition Rate Rider	per kW	-$ 0.6502	60	$ (39.01)	$ 0.1330	60	$ 7.98	$ 46.99	-120.46%
	per kW		60	$ -		60	$ -	$ -	
Rate Rider for Disposition of Global Adjustment Sub-Account(Applicable only for Non-RPP Customers)	per kW	$ 0.2675	60	$ 16.05	$ 1.5334	60	$ 92.00	$ 75.95	473.23%
Low Voltage Service Charge	per kW	$ 0.0551	60	$ 3.31	$ 0.0751	60	$ 4.51	$ 1.20	36.30%
Line Losses on Cost of Power	per kWh	$ 0.0750	808	$ 60.60	$ 0.0750	724	$ 54.30	$ (6.30)	-10.40%
	Monthly		0	$ -		0	$ -	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 444.10**			**$ 598.96**	**$ 154.86**	**34.87%**
RTSR - Network	per kW	$ 2.8421	60	$ 170.53	$ 2.7741	60	$ 166.45	$ (4.08)	-2.39%
RTSR - Line and Transformation Connection	per kW	$ 0.8165	60	$ 48.99	$ 0.8036	60	$ 48.22	$ (0.77)	-1.58%
Sub-Total C - Delivery (including Sub-Total B)				**$ 663.62**			**$ 813.62**	**$ 150.00**	**22.60%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	20808	$ 91.56	$ 0.0044	20724	$ 91.19	$ (0.37)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	20808	$ 27.05	$ 0.0013	20724	$ 26.94	$ (0.11)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	20000	$ 140.00	$ 0.0070	20000	$ 140.00	$ -	0.00%
COP Spot Price - Oct/Nov/14 Navigant	per kWh	$ 0.0955	20000	$ 1,910.40	$ 0.0955	20000	$ 1,910.40	$ -	0.00%
Total Bill on RPP (before Taxes)				**$ 2,832.87**			**$ 2,982.40**	**$ 149.53**	**5.28%**
HST		13%		$ 368.27	13%		$ 387.71	$ 19.44	5.28%
Total Bill (including HST)				$ 3,201.14			$ 3,370.11	$ 168.96	5.28%
Ontario Clean Energy Benefit [1]								$ -	
Total Bill on RPP (including OCEB)				**$ 3,201.14**			**$ 3,370.11**	**$ 168.96**	**5.28%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: GS 50-4999 kW

TOU / non-TOU: non-TOU

Consumption 40,000 kWh 100 kW

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 119.38	1	$ 119.38	$ 132.89	1	$ 132.89	$ 13.51	11.32%
Rate Rider for LRAMVA	per kW		100	$ -	$ 0.1417	100	$ 14.17	$ 14.17	
Rate Rider for Application of Tax Change	per kW	-$ 0.0099	100	$ (0.99)	-$ 0.0099	100	$ (0.99)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kW		100	$ -	-$ 0.2453	100	$ (24.53)	$ (24.53)	
Distribution Volumetric Rate	per kW	$ 4.7395	100	$ 473.95	$ 5.2348	100	$ 523.48	$ 49.53	10.45%
Sub-Total A (excluding pass through)				$ 592.34			$ 645.02	**$ 52.68**	**8.89%**
Deferral/Variance Account Disposition Rate Rider	per kW	-$ 0.6502	100	$ (65.02)	$ 0.1330	100	$ 13.30	$ 78.32	-120.46%
	per kW		100	$ -		100	$ -	$ -	
Rate Rider for Disposition of Global Adjustment Sub-Account(Applicable only for Non-RPP Customers)	per kW	$ 0.2675	100	$ 26.75	$ 1.5334	100	$ 153.34	$ 126.59	473.23%
Low Voltage Service Charge	per kW	$ 0.0551	100	$ 5.51	$ 0.0751	100	$ 7.51	$ 2.00	36.30%
Line Losses on Cost of Power	per kWh	$ 0.0750	1616	$ 121.20	$ 0.0750	1448	$ 108.60	$ (12.60)	-10.40%
	Monthly		0	$ -		0	$ -	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 680.78**			**$ 927.77**	**$ 246.99**	**36.28%**
RTSR - Network	per kW	$ 2.8421	100	$ 284.21	$ 2.7741	100	$ 277.41	$ (6.80)	-2.39%
RTSR - Line and Transformation Connection	per kW	$ 0.8165	100	$ 81.65	$ 0.8036	100	$ 80.36	$ (1.29)	-1.58%
Sub-Total C - Delivery (including Sub-Total B)				**$ 1,046.64**			**$ 1,285.54**	**$ 238.90**	**22.83%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	41616	$ 183.11	$ 0.0044	41448	$ 182.37	$ (0.74)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	41616	$ 54.10	$ 0.0013	41448	$ 53.88	$ (0.22)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	40000	$ 280.00	$ 0.0070	40000	$ 280.00	$ -	0.00%
COP Spot Price - Oct/Nov/14 Navigant	per kWh	$ 0.0955	40000	$ 3,820.80	$ 0.0955	40000	$ 3,820.80	$ -	0.00%
Total Bill on RPP (before Taxes)				**$ 5,384.90**			**$ 5,622.84**	**$ 237.94**	**4.42%**
HST		13%		$ 700.04	13%		$ 730.97	$ 30.93	4.42%
Total Bill (including HST)				$ 6,084.94			$ 6,353.81	$ 268.87	4.42%
Ontario Clean Energy Benefit [1]								$ -	
Total Bill on RPP (including OCEB)				**$ 6,084.94**			**$ 6,353.81**	**$ 268.87**	**4.42%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: GS 50-4999 kW

TOU / non-TOU: non-TOU

Consumption 100,000 kWh 250 kW

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 119.38	1	$ 119.38	$ 132.89	1	$ 132.89	$ 13.51	11.32%
Rate Rider for LRAMVA	per kW		250	$ -	$ 0.1417	250	$ 35.43	$ 35.43	
	Monthly		1	$ -		1	$ -	$ -	
	Monthly		1	$ -		1	$ -	$ -	
Rate Rider for Application of Tax Change	per kW	-$ 0.0099	250	$ (2.48)	-$ 0.0099	250	$ (2.48)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kW		250	$ -	-$ 0.2453	250	$ (61.33)	$ (61.33)	
Distribution Volumetric Rate	per kW	$ 4.7395	250	$ 1,184.88	$ 5.2348	250	$ 1,308.70	$ 123.83	10.45%
Sub-Total A (excluding pass through)				$ 1,301.78			$ 1,413.22	**$ 111.44**	**8.56%**
Deferral/Variance Account Disposition Rate Rider	per kW	-$ 0.6502	250	$ (162.55)	$ 0.1330	250	$ 33.25	$ 195.80	-120.46%
	per kW		250	$ -		250	$ -	$ -	
Rate Rider for Disposition of Global Adjustment Sub-Account(Applicable only for Non-RPP Customers)	per kW	$ 0.2675	250	$ 66.88	$ 1.5334	250	$ 383.35	$ 316.48	473.23%
Low Voltage Service Charge	per kW	$ 0.0551	250	$ 13.78	$ 0.0751	250	$ 18.78	$ 5.00	36.30%
Line Losses on Cost of Power	per kWh	$ 0.0750	4040	$ 303.00	$ 0.0750	3620	$ 271.50	$ (31.50)	-10.40%
	Monthly		0	$ -		0	$ -	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 1,522.88**			**$ 2,120.09**	**$ 597.21**	**39.22%**
RTSR - Network	per kW	$ 2.8421	250	$ 710.53	$ 2.7741	250	$ 693.53	$ (17.00)	-2.39%
RTSR - Line and Transformation Connection	per kW	$ 0.8165	250	$ 204.13	$ 0.8036	250	$ 200.90	$ (3.22)	-1.58%
Sub-Total C - Delivery (including Sub-Total B)				**$ 2,437.53**			**$ 3,014.52**	**$ 576.99**	**23.67%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	104040	$ 457.78	$ 0.0044	103620	$ 455.93	$ (1.85)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	104040	$ 135.25	$ 0.0013	103620	$ 134.71	$ (0.55)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	100000	$ 700.00	$ 0.0070	100000	$ 700.00	$ -	0.00%
COP Spot Price - Oct/Nov/14 Navigant	per kWh	$ 0.0955	100000	$ 9,552.00	$ 0.0955	100000	$ 9,552.00	$ -	0.00%
Total Bill on RPP (before Taxes)				**$ 13,282.81**			**$ 13,857.40**	**$ 574.59**	**4.33%**
HST		13%		$ 1,726.77	13%		$ 1,801.46	$ 74.70	4.33%
Total Bill (including HST)				$ 15,009.57			$ 15,658.86	$ 649.29	4.33%
Ontario Clean Energy Benefit [1]								$ -	
Total Bill on RPP (including OCEB)				**$ 15,009.57**			**$ 15,658.86**	**$ 649.29**	**4.33%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: GS 50-4999 kW

TOU / non-TOU: non-TOU

Consumption 200,000 kWh 500 kW

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 119.38	1	$ 119.38	$ 132.89	1	$ 132.89	$ 13.51	11.32%
Rate Rider for LRAMVA	per kW		500	$ -	$ 0.1417	500	$ 70.85	$ 70.85	
Rate Rider for Application of Tax Change	per kW	-$ 0.0099	500	$ (4.95)	-$ 0.0099	500	$ (4.95)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kW		500	$ -	-$ 0.2453	500	$ (122.65)	$ (122.65)	
Distribution Volumetric Rate	per kW	$ 4.7395	500	$ 2,369.75	$ 5.2348	500	$ 2,617.40	$ 247.65	10.45%
Sub-Total A (excluding pass through)				$ 2,484.18			$ 2,693.54	**$ 209.36**	**8.43%**
Deferral/Variance Account Disposition Rate Rider	per kW	-$ 0.6502	500	$ (325.10)	$ 0.1330	500	$ 66.50	$ 391.60	-120.46%
	per kW		500	$ -		500	$ -	$ -	
Rate Rider for Disposition of Global Adjustment Sub-Account(Applicable only for Non-RPP Customers)	per kW	$ 0.2675	500	$ 133.75	$ 1.5334	500	$ 766.70	$ 632.95	473.23%
Low Voltage Service Charge	per kW	$ 0.0551	500	$ 27.55	$ 0.0751	500	$ 37.55	$ 10.00	36.30%
Line Losses on Cost of Power	per kWh	$ 0.0750	8080	$ 606.00	$ 0.0750	7240	$ 543.00	$ (63.00)	-10.40%
	Monthly		0	$ -		0	$ -	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 2,926.38**			**$ 4,107.29**	**$ 1,180.91**	**40.35%**
RTSR - Network	per kW	$ 2.8421	500	$ 1,421.05	$ 2.7741	500	$ 1,387.05	$ (34.00)	-2.39%
RTSR - Line and Transformation Connection	per kW	$ 0.8165	500	$ 408.25	$ 0.8036	500	$ 401.80	$ (6.45)	-1.58%
Sub-Total C - Delivery (including Sub-Total B)				**$ 4,755.68**			**$ 5,896.14**	**$ 1,140.46**	**23.98%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	208080	$ 915.55	$ 0.0044	207240	$ 911.86	$ (3.70)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	208080	$ 270.50	$ 0.0013	207240	$ 269.41	$ (1.09)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	200000	$ 1,400.00	$ 0.0070	200000	$ 1,400.00	$ -	0.00%
COP Spot Price - Oct/Nov/14 Navigant	per kWh	$ 0.0955	200000	$ 19,104.00	$ 0.0955	200000	$ 19,104.00	$ -	0.00%
Total Bill on RPP (before Taxes)				**$ 26,445.99**			**$ 27,581.66**	**$ 1,135.67**	**4.29%**
HST		13%		$ 3,437.98	13%		$ 3,585.62	$ 147.64	4.29%
Total Bill (including HST)				$ 29,883.96			$ 31,167.27	$ 1,283.31	4.29%
Ontario Clean Energy Benefit [1]								$ -	
Total Bill on RPP (including OCEB)				**$ 29,883.96**			**$ 31,167.27**	**$ 1,283.31**	**4.29%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: GS 50-4999 kW

TOU / non-TOU: non-TOU

Consumption 400,000 kWh 1,000 kW

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 119.38	1	$ 119.38	$ 132.89	1	$ 132.89	$ 13.51	11.32%
Rate Rider for LRAMVA	Monthly		1,000	$ -	$ 0.1417	1,000	$ 141.70	$ 141.70	
Rate Rider for Application of Tax Change	per kW	-$ 0.0099	1,000	$ (9.90)	-$ 0.0099	1,000	$ (9.90)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kW		1,000	$ -	-$ 0.2453	1,000	$ (245.30)	$ (245.30)	
Distribution Volumetric Rate	per kW	$ 4.7395	1,000	$ 4,739.50	$ 5.2348	1,000	$ 5,234.80	$ 495.30	10.45%
Sub-Total A (excluding pass through)				$ 4,848.98			$ 5,254.19	**$ 405.21**	**8.36%**
Deferral/Variance Account Disposition Rate Rider	per kW	-$ 0.6502	1,000	$ (650.20)	$ 0.1330	1,000	$ 133.00	$ 783.20	-120.46%
	per kW		1,000	$ -		1,000	$ -	$ -	
Rate Rider for Disposition of Global Adjustment Sub-Account(Applicable only for Non-RPP Customers)	per kW	$ 0.2675	1,000	$ 267.50	$ 1.5334	1,000	$ 1,533.40	$ 1,265.90	473.23%
Low Voltage Service Charge	per kW	$ 0.0551	1,000	$ 55.10	$ 0.0751	1,000	$ 75.10	$ 20.00	36.30%
Line Losses on Cost of Power	per kWh	$ 0.0750	16160	$ 1,212.00	$ 0.0750	14480	$ 1,086.00	$ (126.00)	-10.40%
	Monthly		0	$ -		0	$ -	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 5,733.38**			**$ 8,081.69**	**$ 2,348.31**	**40.96%**
RTSR - Network	per kW	$ 2.8421	1000	$ 2,842.10	$ 2.7741	1000	$ 2,774.10	$ (68.00)	-2.39%
RTSR - Line and Transformation Connection	per kW	$ 0.8165	1000	$ 816.50	$ 0.8036	1000	$ 803.60	$ (12.90)	-1.58%
Sub-Total C - Delivery (including Sub-Total B)				**$ 9,391.98**			**$ 11,659.39**	**$ 2,267.41**	**24.14%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	16160	$ 71.10	$ 0.0044	14480	$ 63.71	$ (7.39)	-10.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	16160	$ 21.01	$ 0.0013	14480	$ 18.82	$ (2.18)	-10.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	400000	$ 2,800.00	$ 0.0070	400000	$ 2,800.00	$ -	0.00%
COP Spot Price - Oct/Nov/14 Navigant	per kWh	$ 0.0955	400000	$ 38,208.00	$ 0.0955	400000	$ 38,208.00	$ -	0.00%
Total Bill on RPP (before Taxes)				**$ 50,492.34**			**$ 52,750.18**	**$ 2,257.83**	**4.47%**
HST		13%		$ 6,564.00	13%		$ 6,857.52	$ 293.52	4.47%
Total Bill (including HST)				$ 57,056.35			$ 59,607.70	$ 2,551.35	4.47%
Ontario Clean Energy Benefit [1]								$ -	
Total Bill on RPP (including OCEB)				**$ 57,056.35**			**$ 59,607.70**	**$ 2,551.35**	**4.47%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

Appendix 2-W
Bill Impacts

Customer Class: Large Use

TOU / non-TOU: non-TOU

Consumption 8,000,000 kWh 14,500 kW

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 6,975.72	1	$ 6,975.72	$ 8,604.24	1	$ 8,604.24	$ 1,628.52	23.35%
Rate Rider for LRAMVA	per kW		14,500	$ -	$ 0.1398	14,500	$ 2,027.10	$ 2,027.10	
Rate Rider for Application of Tax Change	per kW	-$ 0.0072	14,500	$ (104.40)	-$ 0.0072	14,500	$ (104.40)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kW		14,500	$ -	$ (0.3304)	14,500	$ (4,790.80)	$ (4,790.80)	
Distribution Volumetric Rate	per kW	$ 3.3375	14,500	$ 48,393.75	$ 4.1167	14,500	$ 59,692.15	$ 11,298.40	23.35%
Sub-Total A (excluding pass through)				$ 55,265.07			$ 65,428.29	**$ 10,163.22**	**18.39%**
Deferral/Variance Account Disposition Rate Rider	per kW	-$ 0.7541	14,500	$ (10,934.45)	$ 0.3182	14,500	$ 4,613.90	$ 15,548.35	-142.20%
	per kW		14,500	$ -		14,500	$ -	$ -	
Rate Rider for Disposition of Global Adjustment Sub-Account(Applicable only for Non-RPP Customers)	per kW		14,500	$ -		14,500	$ -	$ -	
Low Voltage Service Charge	per kW	$ 0.0553	14,500	$ 801.85	$ 0.0941	14,500	$ 1,364.45	$ 562.60	70.16%
Line Losses on Cost of Power	per kWh	$ 0.0750	40000	$ 3,000.00	$ -	3760	$ -	$ (3,000.00)	-100.00%
	Monthly		0	$ -		0	$ -	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 48,132.47**			**$ 71,406.64**	**$ 23,274.17**	**48.35%**
RTSR - Network	per kW	$ 3.3423	14500	$ 48,463.35	$ 3.2624	14500	$ 47,304.80	$ (1,158.55)	-2.39%
RTSR - Line and Transformation Connection	per kW	$ 1.0234	14500	$ 14,839.30	$ 1.0072	14500	$ 14,604.40	$ (234.90)	-1.58%
Sub-Total C - Delivery (including Sub-Total B)				**$ 111,435.12**			**$ 133,315.84**	**$ 21,880.72**	**19.64%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	8040000	$ 35,376.00	$ 0.0044	8003760	$ 35,216.54	$ (159.46)	-0.45%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	8040000	$ 10,452.00	$ 0.0013	8003760	$ 10,404.89	$ (47.11)	-0.45%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	8000000	$ 56,000.00	$ 0.0070	8000000	$ 56,000.00	$ -	0.00%
COP Spot Price - Oct/Nov/14 Navigant	per kWh	$ 0.0955	8000000	$ 764,160.00	$ 0.0955	8000000	$ 764,160.00	$ -	0.00%
Total Bill on RPP (before Taxes)				**$ 977,423.37**			**$ 999,097.52**	**$ 21,674.15**	**2.22%**
HST		13%		$ 127,065.04	13%		$ 129,882.68	$ 2,817.64	2.22%
Total Bill (including HST)				$ 1,104,488.41			$ 1,128,980.20	$ 24,491.79	2.22%
Ontario Clean Energy Benefit [1]								$ -	
Total Bill on RPP (including OCEB)				**$ 1,104,488.41**			**$ 1,128,980.20**	**$ 24,491.79**	**2.22%**
Loss Factor (%)		0.50%			0.047%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: Street Lighting

TOU / non-TOU: non-TOU

Consumption 150 kWh 1 kW

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 0.33	1	$ 0.33	$ 0.37	1	$ 0.37	$ 0.04	11.18%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly		1	$ -		1	$ -	$ -	
Rate Rider for Application of Tax Change	per kW	-$ 0.0208	1	$ (0.02)	-$ 0.0208	1	$ (0.02)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kW		1	$ -	$ (0.2170)	1	$ (0.22)	$ (0.22)	
Distribution Volumetric Rate	per kW	$ 8.6832	1	$ 8.68	$ 9.6661	1	$ 9.67	$ 0.98	11.32%
Sub-Total A (excluding pass through)				$ 8.99			$ 9.80	**$ 0.80**	**8.93%**
Deferral/Variance Account Disposition Rate Rider	per kW	-$ 0.5199	1	$ (0.52)	$ 0.1871	1	$ 0.19	$ 0.71	-135.99%
Rate Rider for Disposition of Global Adjustment Sub-Account(Applicable only for Non-RPP Customers)	per kW	$ 0.2139	1	$ 0.21	$ 1.3335	1	$ 1.33	$ 1.12	523.42%
Low Voltage Service Charge	per kW	$ 0.0341	1	$ 0.03	$ 0.0580	1	$ 0.06	$ 0.02	70.12%
Line Losses on Cost of Power	per kWh	$ 0.0750	6.06	$ 0.45	$ 0.0750	5.43	$ 0.41	$ (0.05)	-10.40%
	Monthly		0	$ -		0	$ -	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 9.18**			**$ 11.78**	**$ 2.61**	**28.40%**
RTSR - Network	per kW	$ 2.1437	1	$ 2.14	$ 2.0924	1	$ 2.09	$ (0.05)	-2.39%
RTSR - Line and Transformation Connection	per kW	$ 0.6310	1	$ 0.63	$ 0.6210	1	$ 0.62	$ (0.01)	-1.58%
Sub-Total C - Delivery (including Sub-Total B)				**$ 11.95**			**$ 14.49**	**$ 2.54**	**21.30%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	156	$ 0.69	$ 0.0044	155	$ 0.68	$ (0.00)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	156	$ 0.20	$ 0.0013	155	$ 0.20	$ (0.00)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	150	$ 1.05	$ 0.0070	150	$ 1.05	$ -	0.00%
COP Spot Price - Oct/Nov/14 Navigant	per kWh	$ 0.0955	150	$ 14.33	$ 0.0955	150	$ 14.33	$ -	0.00%
Total Bill on RPP (before Taxes)				**$ 28.47**			**$ 31.01**	**$ 2.54**	**8.93%**
HST		13%		$ 3.70	13%		$ 4.03	$ 0.33	8.93%
Total Bill (including HST)				$ 32.17			$ 35.04	$ 2.87	8.93%
Ontario Clean Energy Benefit [1]								$ -	
Total Bill on RPP (including OCEB)				**$ 32.17**			**$ 35.04**	**$ 2.87**	**8.93%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: Street Lighting

TOU / non-TOU: non-TOU

Consumption 50 kWh 0.14 kW

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly	$ 0.33	1.00	$ 0.33	$ 0.37	1.00	$ 0.37	$ 0.04	11.18%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly		1.00	$ -		1.00	$ -	$ -	
Rate Rider for Application of Tax Change	per kW	-$ 0.0208	0.14	$ (0.00)	-$ 0.0208	0.14	$ (0.00)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kW		0.14	$ -	$ (0.2170)	0.14	$ (0.03)	$ (0.03)	
Distribution Volumetric Rate	per kW	$ 8.6832	0.14	$ 1.22	$ 9.6661	0.14	$ 1.35	$ 0.14	11.32%
Sub-Total A (excluding pass through)				$ 1.54			$ 1.69	**$ 0.14**	**9.34%**
Deferral/Variance Account Disposition Rate Rider	per kW	-$ 0.5199	0.14	$ (0.07)	$ 0.1871	0.14	$ 0.03	$ 0.10	-135.99%
Rate Rider for Disposition of Global Adjustment Sub-Account(Applicable only for Non-RPP Customers)	per kW	$ 0.2139	0.14	$ 0.03	$ 1.3335	0.14	$ 0.19	$ 0.16	523.42%
Low Voltage Service Charge	per kW	$ 0.0341	0.14	$ 0.00	$ 0.0580	0.14	$ 0.01	$ 0.00	70.09%
Line Losses on Cost of Power	per kWh	$ 0.0750	2.02	$ 0.15	$ 0.0750	1.81	$ 0.14	$ (0.02)	-10.40%
	Monthly		0	$ -		-	$ -	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 1.66**			**$ 2.04**	**$ 0.39**	**23.39%**
RTSR - Network	per kW	$ 2.1437	0.14	$ 0.30	$ 2.0924	0.14	$ 0.29	$ (0.01)	-2.39%
RTSR - Line and Transformation Connection	per kW	$ 0.6310	0.14	$ 0.09	$ 0.6210	0.14	$ 0.09	$ (0.00)	-1.58%
Sub-Total C - Delivery (including Sub-Total B)				**$ 2.04**			**$ 2.42**	**$ 0.38**	**18.53%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	52.02	$ 0.23	$ 0.0044	51.81	$ 0.23	$ (0.00)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	52.02	$ 0.07	$ 0.0013	51.81	$ 0.07	$ (0.00)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1.00	$ 0.25	$ 0.25	1.00	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	50.00	$ 0.35	$ 0.0070	50.00	$ 0.35	$ -	0.00%
COP Spot Price - Oct/Nov/14 Navigant	per kWh	$ 0.0955	50.00	$ 4.78	$ 0.0955	50.00	$ 4.78	$ -	0.00%
Total Bill on RPP (before Taxes)				**$ 7.72**			**$ 8.09**	**$ 0.38**	**4.89%**
HST		13%		$ 1.00	13%		$ 1.05	$ 0.05	4.89%
Total Bill (including HST)				$ 8.72			$ 9.15	$ 0.43	4.89%
Ontario Clean Energy Benefit [1]								$ -	
Total Bill on RPP (including OCEB)				**$ 8.72**			**$ 9.15**	**$ 0.43**	**4.89%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: **Unmetered Scattered Load**

TOU / non-TOU: non-TOU

Consumption 150 **kWh**

	Charge Unit	Current Board-Approved Rate ($)	Volume	Charge ($)	Proposed Rate ($)	Volume	Charge ($)	Impact $ Change	Impact % Change
Monthly Service Charge	Monthly	$ 15.98	1	$ 15.98	$ 11.04	1	$ 11.04	$ (4.94)	-30.93%
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly		1	$ -		1	$ -	$ -	
Rate Rider for Application of Tax Change	per kWh	$ (0.0002)	150	$ (0.02)	-$ 0.0002	150	$ (0.02)	$ -	0.00%
Rate Rider for Accounts 1575 and 1576	per kWh		150	$ -	$ (0.0006)	150	$ (0.09)	$ (0.09)	
Distribution Volumetric Rate	per kWh	$ 0.0199	150	$ 2.99	$ 0.0137	150	$ 2.06	$ (0.93)	-31.16%
Sub-Total A (excluding pass through)				$ 18.94			$ 12.98	**$ (5.96)**	**-31.48%**
Deferral/Variance Account Disposition Rate Rider	per kWh	-$ 0.0015	150	$ (0.23)	$ 0.0001	150	$ 0.02	$ 0.24	-106.67%
Rate Rider for Disposition of Global Adjustment Sub-Account(Applicable only for Non-RPP Customers)	per kWh		150	$ -	$ -	150	$ -	$ -	
Low Voltage Service Charge	per kWh	$ 0.0001	150	$ 0.02	$ 0.0002	150	$ 0.03	$ 0.02	100.00%
Line Losses on Cost of Power	per kWh	$ 0.0750	6.06	$ 0.45	$ 0.0750	5.43	$ 0.41	$ (0.05)	-10.40%
	Monthly		0	$ -		0	$ -	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ 19.19**			**$ 13.43**	**$ (5.75)**	**-29.99%**
RTSR - Network	per kWh	$ 0.0069	156	$ 1.08	$ 0.0067	155	$ 1.04	$ (0.04)	-3.29%
RTSR - Line and Transformation Connection	per kWh	$ 0.0021	156	$ 0.33	$ 0.0021	155	$ 0.33	$ (0.00)	-0.40%
Sub-Total C - Delivery (including Sub-Total B)				**$ 20.59**			**$ 14.80**	**$ (5.79)**	**-28.13%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	156	$ 0.69	$ 0.0044	155	$ 0.68	$ (0.00)	-0.40%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	156	$ 0.20	$ 0.0013	155	$ 0.20	$ (0.00)	-0.40%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	150	$ 1.05	$ 0.0070	150	$ 1.05	$ -	0.00%
COP Spot Price - use RPP Rate	per kWh	$ 0.9496	150	$ 142.44	$ 0.9496	150	$ 142.44	$ -	0.00%
Total Bill on RPP (before Taxes)				**$ 165.22**			**$ 159.43**	**$ (5.79)**	**-3.51%**
HST		13%		$ 21.48	13%		$ 20.73	$ (0.75)	-3.51%
Total Bill (including HST)				$ 186.70			$ 180.15	$ (6.55)	-3.51%
Ontario Clean Energy Benefit [1]								$ -	
Total Bill on RPP (including OCEB)				**$ 186.70**			**$ 180.15**	**$ (6.55)**	**-3.51%**
Loss Factor (%)		4.04%			3.62%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:	EB-2015-0108
Exhibit:	8
Tab:	Attachment 8-4
Filed:	30-Apr-15

Appendix 2-W
Bill Impacts

Customer Class: **Embedded Distributor**

TOU / non-TOU: non-TOU

Consumption 2,615,000 **kWh** 6,000 **kW**

		Current Board-Approved			Proposed			Impact	
	Charge Unit	Rate ($)	Volume	Charge ($)	Rate ($)	Volume	Charge ($)	$ Change	% Change
Monthly Service Charge	Monthly		1	$ -		1	$ -	$ -	
Rate Rider for Disposal of Residual Historical Smart Meter Costs - effective until April 30, 2014	Monthly		1	$ -		1	$ -	$ -	
	Monthly		1	$ -		1	$ -	$ -	
	Monthly		1	$ -		1	$ -	$ -	
Rate Rider for Application of Tax Change	per kW		6,000	$ -		6,000	$ -	$ -	
Rate Rider for Accounts 1575 and 1576	per kW		6,000	$ -	-$ 0.2594	6,000	$ (1,556.39)	$ (1,556.39)	
Distribution Volumetric Rate	per kW	$ 0.0126	6,000	$ 75.60	$ 0.0213	6,000	$ 127.80	$ 52.20	69.05%
Smart Meter Disposition Rider			2615000	$ -		2615000	$ -	$ -	
LRAM & SSM Rate Rider			2615000	$ -		2615000	$ -	$ -	
Sub-Total A (excluding pass through)				$ 75.60			$ (1,428.59)	**$ (1,504.19)**	**-1989.67%**
Deferral/Variance Account Disposition Rate Rider	per kW	-$ 0.5823	6,000	$ (3,493.80)	-$ 0.0454	6,000	$ (272.40)	$ 3,221.40	-92.20%
Rate Rider for Disposition of Global Adjustment Sub-Account(Applicable only for Non-RPP Customers)	per kW	$ 0.2396	6,000	$ 1,437.60	$ 1.6075	6,000	$ 9,645.00	$ 8,207.40	570.91%
Low Voltage Service Charge	per kW		6,000	$ -		6,000	$ -	$ -	
Line Losses on Cost of Power	per kWh	$ 0.0750	13075	$ 980.62	$ 0.0750	1229.05	$ 92.18	$ (888.45)	-90.60%
	Monthly		0	$ -		0	$ -	$ -	
Sub-Total B - Distribution (includes Sub-Total A)				**$ (999.98)**			**$ 8,036.19**	**$ 9,036.17**	**903.64%**
RTSR - Network	per kW		6000	$ -		6000	$ -	$ -	
RTSR - Line and Transformation Connection	per kW		6000	$ -		6000	$ -	$ -	
Sub-Total C - Delivery (including Sub-Total B)				**$ (999.98)**			**$ 8,036.19**	**$ 9,036.17**	**903.64%**
Wholesale Market Service Charge (WMSC)	per kWh	$ 0.0044	2628075	$ 11,563.53	$ 0.0044	2616229	$ 11,511.41	$ (52.12)	-0.45%
Rural and Remote Rate Protection (RRRP)	per kWh	$ 0.0013	2628075	$ 3,416.50	$ 0.0013	2616229	$ 3,401.10	$ (15.40)	-0.45%
Standard Supply Service Charge	Monthly	$ 0.25	1	$ 0.25	$ 0.25	1	$ 0.25	$ -	0.00%
Debt Retirement Charge (DRC)	per kWh	$ 0.0070	2615000	$ 18,305.00	$ 0.0070	2615000	$ 18,305.00	$ -	0.00%
COP Spot Price - Use Oct/Nov/14 Navigant	per kWh	$ 0.0955	2615000	$ 249,784.80	$ 0.0955	2615000	$ 249,784.80	$ -	0.00%
Total Bill on TOU (before Taxes)				**$ 282,070.10**			**$ 291,038.75**	**$ 8,968.64**	**3.18%**
HST		13%		$ 36,669.11	13%		$ 37,835.04	$ 1,165.92	3.18%
Total Bill (including HST)				$ 318,739.22			$ 328,873.78	$ 10,134.57	3.18%
Ontario Clean Energy Benefit [1]								$ -	
Total Bill on TOU (including OCEB)				**$ 318,739.22**			**$ 328,873.78**	**$ 10,134.57**	**3.18%**
Total Bill on RPP (before Taxes)				**$ 282,070.10**			**$ 291,038.75**	**$ 8,968.64**	**3.18%**
HST		13%		$ 36,669.11	13%		$ 37,835.04	$ 1,165.92	3.18%
Total Bill (including HST)				$ 318,739.22			$ 328,873.78	$ 10,134.57	3.18%
Ontario Clean Energy Benefit [1]								$ -	
Total Bill on RPP (including OCEB)				**$ 318,739.22**			**$ 328,873.78**	**$ 10,134.57**	**3.18%**
Loss Factor (%)		0.50%			0.047%				

[1] Applicable to eligible customers only. Refer to the *Ontario Clean Energy Benefit Act, 2010.*

Note that the "Charge $" columns provide breakdowns of the amounts that each bill component contributes to the total monthly bill at the referenced consumption level at existing and proposed rates.

Applicants must provide bill impacts for residential at 800 kWh and GS<50kW at 2000 kWh. In addition, their filing must cover the range that is relevant to their service territory, class by class. A general guideline of consumption levels follows:

Residential (kWh) - 100, 250, 500, 800, 1000, 1500, 2000
GS<50kW (kWh) - 1000, 2000, 5000, 10000, 15000
GS>50kW (kW) - 60, 100, 500, 1000
Large User - range appropriate for utility
Lighting Classes and USL - 150 kWh and 1 kW, range appropriate for utility.

Note that cells with the highlighted color shown to the left indicate quantities that are loss adjusted.

File Number:
Interrogatory:
Sheet:

Filed:

Rate Class	kWh	kW	# of Connections	2015 Bill $	2016 Bill $	$ Difference	Total Bill Impact %	Distribution Bill Impact %
Residential	100			32.89	36.44	3.55	10.80%	17.66%
Time-of-Use	250			54.23	57.36	3.13	5.78%	12.79%
	500			89.78	92.21	2.43	2.71%	6.98%
	800			132.46	134.05	1.59	1.20%	2.26%
	1,000			160.91	161.93	1.02	0.64%	-0.07%
	1,500			232.03	231.64	(0.39)	-0.17%	-4.19%
	2,000			303.16	301.36	(1.80)	-0.59%	-6.89%
GS < 50 kW	1,000			175.53	177.79	2.27	1.29%	1.92%
Time-of-Use	2,000			311.89	316.93	5.04	1.62%	3.78%
	5,000			720.97	734.35	13.38	1.86%	6.43%
	10,000			1,402.78	1,430.05	27.27	1.94%	8.05%
	15,000			2,084.58	2,125.75	41.17	1.97%	8.75%
GS 50-4,999 kW	20,000	60		3,201.14	3,370.11	168.96	5.28%	9.18%
	40,000	100		6,084.94	6,353.81	268.87	4.42%	8.89%
	100,000	250		15,009.57	15,658.86	649.29	4.33%	8.56%
	200,000	500		29,883.96	31,167.27	1,283.31	4.29%	8.43%
	400,000	1,000		57,056.35	59,607.70	2,551.35	4.47%	8.36%
Large Use	8,000,000	14,500		1,104,488.41	1,128,980.20	24,491.79	2.22%	18.39%
USL	150		1	186.70	180.15	(6.55)	-3.51%	-31.48%
Street Lighting	150	1	1	32.17	35.04	2.87	8.93%	8.93%
	50	0.14	1	8.72	9.15	0.43	4.89%	9.34%
Embedded Distributor	2,615,000	6,000		318,739.22	328,873.78	10,134.57	3.18%	-1989.67%

Rate Class	kWh	kW	# of Connections	2015 Bill $	2016 Bill $	$ Difference	Total Bill Impact %	Distribution Bill Impact %
Residential	800			132.46	134.05	1.59	1.20%	2.26%
GS < 50 kW	2,000			311.89	316.93	5.04	1.62%	3.78%
GS 50-4,999 kW	100,000	250		15,009.57	15,658.86	649.29	4.33%	8.56%
Large Use	8,000,000	14,500		1,104,488.41	1,128,980.20	24,491.79	2.22%	18.39%
USL	150		1	186.70	180.15	(6.55)	-3.51%	-31.48%
Street Lighting	50	0.14	1	8.72	9.15	0.43	4.89%	9.34%
Embedded Distributor	2,615,000	6,000		318,739.22	328,873.78	10,134.57	3.18%	-1989.67%

Waterloo North Hydro Inc.

TARIFF OF RATES AND CHARGES

Effective and Implementation Date January 1, 2016

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2015-0108

RESIDENTIAL SERVICE CLASSIFICATION

This classification applies to an account taking electricity at 750 volts or less where the electricity is used exclusively in a separate metered living accommodation. Customers shall be residing in single-dwelling units that consist of a detached house or one unit of a semi-detached, duplex, triplex or quadruplex house, with a residential zoning. Separately metered dwellings within a town house complex or apartment building also qualify as residential customers. All customers are single-phase. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable. In addition, the charges in the MONTHLY RATES AND CHARGES - Regulatory Component of this schedule do not apply to a customer that is an embedded wholesale market participant.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	20.51
Rate Rider for Smart Metering Entity Charge - effective until October 31, 2018	$	0.79
Distribution Volumetric Rate	$/kWh	0.0160
Low Voltage Service Rate	$/kWh	0.0002
Retail Transmission Rate - Network Service Rate	$/kWh	0.0074
Retail Transmission Rate - Line and Transformation Connection Service Rate	$/kWh	0.0023
Rate Rider for Tax Change (2015) - effective until April 30, 2016	$/kWh	(0.0001)
Rate Rider for Disposition of Deferral/Variance Accounts (2015) - effective until April 30, 2016	$/kWh	(0.0014)
Rate Rider for Disposition of Global Adjustment Account (2015) - effective until April 30, 2016 Applicable only for Non RPP Customers	$/kWh	0.0006
Rate Rider for Disposition of Deferral/Variance Accounts (2016) - effective until December 31, 2016	$/kWh	0.0016
Rate Rider for Disposition of Global Adjustment Account (2016) - effective until December 31, 2016 Applicable only for Non RPP Customers	$/kWh	0.0031
Rate rider for Disposition of Accounting Changes Under CGAAP Account 1576 - effective until December 31, 2016	$/kWh	(0.0006)
Rate Rider for Disposition of Stranded Meter Costs - effective until December 31, 2018	$	0.58

MONTHLY RATES AND CHARGES - Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0044
Rural Rate Protection Charge	$/kWh	0.0013
Standard Supply Service - Administrative Charge (if applicable)	$	0.25

Waterloo North Hydro Inc.

TARIFF OF RATES AND CHARGES

Effective and Implementation Date January 1, 2016

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2015-0108

GENERAL SERVICE LESS THAN 50 KW SERVICE CLASSIFICATION

This classification applies to a non residential account taking electricity at 750 volts or less whose average monthly maximum demand is less than, or is forecast to be less than, 50 kW. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable. In addition, the charges in the MONTHLY RATES AND CHARGES - Regulatory Component of this schedule do not apply to a customer that is an embedded wholesale market participant.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	35.58
Rate Rider for Smart Metering Entity Charge - effective until October 31, 2018	$	0.79
Distribution Volumetric Rate	$/kWh	0.0159
Low Voltage Service Rate	$/kWh	0.0002
Retail Transmission Rate - Network Service Rate	$/kWh	0.0067
Retail Transmission Rate - Line and Transformation Connection Service Rate	$/kWh	0.0021
Rate Rider for Tax Change (2015) - effective until April 30, 2016	$/kWh	(0.00005)
Rate Rider for Disposition of Deferral/Variance Accounts (2015) - effective until April 30, 2016	$/kWh	(0.0014)
Rate Rider for Disposition of Global Adjustment Account (2015) - effective until April 30, 2016 Applicable only for Non RPP Customers	$/kWh	0.0006
Rate Rider for Disposition of Deferral/Variance Accounts (2016) - effective until December 31, 2016	$/kWh	0.0018
Rate Rider for Disposition of Global Adjustment Account (2016) - effective until December 31, 2016 Applicable only for Non RPP Customers	$/kWh	0.0031
Rate Rider for Disposition of Stranded Meter Costs - effective until December 31, 2018	$	1.3800
Rate rider for Disposition of Accounting Changes Under CGAAP Account 1576 - effective until December 31, 2016	$/kWh	(0.0006)
Rate Rider for Recovery of Lost Revenue Adjustment Mechanism Variance Account (LRAMVA) (2016) - effective until December 31, 2016	$/kWh	0.0005

MONTHLY RATES AND CHARGES - Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0044
Rural Rate Protection Charge	$/kWh	0.0013
Standard Supply Service - Administrative Charge (if applicable)	$	0.25

Waterloo North Hydro Inc.

TARIFF OF RATES AND CHARGES

Effective and Implementation Date January 1, 2016

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2015-0108

GENERAL SERVICE 50 TO 4,999 KW SERVICE CLASSIFICATION

This classification applies to a non residential account whose average monthly maximum demand used for billing purposes is equal to or greater than, or is forecast to be equal to or greater than, 50 kW but less than 5,000 kW. Further servicing details are available in the distributor's Conditions of Service. Note that for the application of the Retail Transmission Rate – Network Service Rate and the Retail Transmission Rate – Line and Transformation Connection Service Rate the following sub-classifications apply: General Service 50 to 999 kW non-interval metered General Service 50 to 999 kW interval metered General Service 1,000 to 4,999 kW interval metered.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable. In addition, the charges in the MONTHLY RATES AND CHARGES - Regulatory Component of this schedule do not apply to a customer that is an embedded wholesale market participant.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	132.89
Distribution Volumetric Rate	$/kW	5.2348
Low Voltage Service Rate	$/kW	0.0751
Retail Transmission Rate - Network Service Rate - (less than 1,000 kW)	$/kW	2.7741
Retail Transmission Rate - Network Service Rate - Interval Metered (less than 1,000 kW)	$/kW	2.9465
Retail Transmission Rate - Network Service Rate - Interval Metered (1,000 to 4,999 kW)	$/kW	2.9427
Retail Transmission Rate - Line and Transformation Connection Service Rate - (less than 1,000 kW)	$/kW	0.8036
Retail Transmission Rate - Line and Transformation Connection Service Rate - Interval Metered (less than 1,000 kW)	$/kW	1.0037
Retail Transmission Rate - Line and Transformation Connection Service Rate - Interval Metered (1,000 to 4,999 kW)	$/kW	1.0026
Rate Rider for Tax Change (2015) - effective until April 30, 2016	$/kW	(0.0099)
Rate Rider for Disposition of Deferral/Variance Accounts (2015) - effective until April 30, 2016 Applicable only for Non Wholesale Market Participants	$/kW	(0.6502)
Rate Rider for Disposition of Deferral/Variance Accounts (2015) - effective until April 30, 2016 Applicable only for Wholesale Market Participants	$/kW	(0.1945)
Rate Rider for Disposition of Global Adjustment Account (2015) - effective until April 30, 2016 Applicable only for Non RPP Customers	$/kW	0.2675
Rate Rider for Disposition of Deferral/Variance Accounts (2016) - effective until December 31, 2016 Applicable Only for Non Wholesale Market Participants	$/kW	0.7832
Rate Rider for Disposition of Global Adjustment Account (2016) - effective until December 31, 2016 Applicable only for Non RPP Customers	$/kW	1.2659
Rate rider for Disposition of Accounting Changes Under CGAAP Account 1576 - effective until December 31, 2016 Applicable only for Non Wholesale Market Participants	$/kW	(0.2453)

Waterloo North Hydro Inc.

TARIFF OF RATES AND CHARGES

Effective and Implementation Date January 1, 2016

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

		EB-2015-0108
Rate Rider for Recovery of Lost Revenue Adjustment Mechanism Variance Account (LRAMVA) (2016) - effective until December 31, 2016	$/kW	0.1417
Rate Rider for Disposition of Deferral/Variance Accounts (2016) - effective until December 31, 2016 Applicable Only for Wholesale Market Participants	$/kW	0.1202
Rate rider for Disposition of Accounting Changes Under CGAAP Account 1576 - effective until December 31, 2016 Applicable only for Wholesale Market Participants	$/kW	(0.3261)

GENERAL SERVICE 50 TO 4,999 KW SERVICE CLASSIFICATION

MONTHLY RATES AND CHARGES - Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0044
Rural Rate Protection Charge	$/kWh	0.0013
Standard Supply Service - Administrative Charge (if applicable)	$	0.25

Waterloo North Hydro Inc.

TARIFF OF RATES AND CHARGES

Effective and Implementation Date January 1, 2016

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2015-0108

LARGE USE SERVICE CLASSIFICATION

This classification applies to an account whose average monthly maximum demand used for billing purposes is equal to or greater than, or is forecast to be equal to or greater than, 5,000 kW. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable. In addition, the charges in the MONTHLY RATES AND CHARGES - Regulatory Component of this schedule do not apply to a customer that is an embedded wholesale market participant.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	8,604.24
Distribution Volumetric Rate	$/kW	4.1167
Low Voltage Service Rate	$/kW	0.0941
Retail Transmission Rate - Network Service Rate	$/kW	3.2624
Retail Transmission Rate - Line and Transformation Connection Service Rate	$/kW	1.0072
Rate Rider for Tax Change (2015) - effective until April 30, 2016	$/kW	(0.0072)
Rate Rider for Disposition of Deferral/Variance Accounts (2015) - effective until April 30, 2016	$/kW	(0.7541)
Rate Rider for Disposition of Deferral/Variance Accounts (2016) - effective until December 31, 2016	$/kW	1.0723
Rate rider for Disposition of Accounting Changes Under CGAAP Account 1576 - effective until December 31, 2016	$/kW	(0.3304)
Rate Rider for Recovery of Lost Revenue Adjustment Mechanism Variance Account (LRAMVA) (2016) - effective until December 31, 2016	$/kW	0.1398

MONTHLY RATES AND CHARGES - Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0044
Rural Rate Protection Charge	$/kWh	0.0013
Standard Supply Service - Administrative Charge (if applicable)	$	0.25

Waterloo North Hydro Inc.

TARIFF OF RATES AND CHARGES

Effective and Implementation Date January 1, 2016

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2015-0108

UNMETERED SCATTERED LOAD SERVICE CLASSIFICATION

This classification applies to an account taking electricity at 750 volts or less whose average monthly maximum demand is less than, or is forecast to be less than, 50 kW and the consumption is unmetered. Such connections include cable TV power packs, bus shelters, telephone booths, traffic lights, railway crossings, etc. The level of the consumption will be agreed to by the distributor and the customer, based on detailed manufacturer information/ documentation with regard to electrical consumption of the unmetered load or periodic monitoring of actual consumption. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable. In addition, the charges in the MONTHLY RATES AND CHARGES - Regulatory Component of this schedule do not apply to a customer that is an embedded wholesale market participant.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	11.04
Distribution Volumetric Rate	$/kWh	0.0137
Low Voltage Service Rate	$/kWh	0.0002
Retail Transmission Rate - Network Service Rate	$/kWh	0.0067
Retail Transmission Rate - Line and Transformation Connection Service Rate	$/kWh	0.0021
Rate Rider for Tax Change (2015) - effective until April 30, 2016	$/kWh	(0.0002)
Rate Rider for Disposition of Deferral/Variance Accounts (2015) - effective until April 30, 2016	$/kWh	(0.0015)
Rate Rider for Disposition of Global Adjustment Account (2015) - effective until April 30, 2016 Applicable only for Non RPP Customers	$/kWh	0.0006
Rate Rider for Disposition of Deferral/Variance Accounts (2016) - effective until December 31, 2016	$/kWh	0.0016
Rate Rider for Disposition of Global Adjustment Account (2016) - effective until December 31, 2016 Applicable only for Non RPP Customers	$/kWh	0.0031
Rate rider for Disposition of Accounting Changes Under CGAAP Account 1576 - effective until December 31, 2016	$/kWh	(0.0006)

MONTHLY RATES AND CHARGES - Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0044
Rural Rate Protection Charge	$/kWh	0.0013
Standard Supply Service - Administrative Charge (if applicable)	$	0.25

Waterloo North Hydro Inc.

TARIFF OF RATES AND CHARGES

Effective and Implementation Date January 1, 2016

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2015-0108

STREET LIGHTING SERVICE CLASSIFICATION

This classification applies to an account for roadway lighting with a Municipality, Regional Municipality, Ministry of Transportation and private roadway lighting, controlled by photo cells. The consumption for these customers will be based on the calculated connected load times the required lighting times established in the approved OEB street lighting load shape template. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable. In addition, the charges in the MONTHLY RATES AND CHARGES - Regulatory Component of this schedule do not apply to a customer that is an embedded wholesale market participant.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	0.37
Distribution Volumetric Rate	$/kW	9.6661
Low Voltage Service Rate	$/kW	0.0580
Retail Transmission Rate - Network Service Rate	$/kW	2.0924
Retail Transmission Rate - Line and Transformation Connection Service Rate	$/kW	0.6210
Rate Rider for Tax Change (2015) - effective until April 30, 2016	$/kW	(0.0208)
Rate Rider for Disposition of Deferral/Variance Accounts (2015) - effective until April 30, 2016	$/kW	(0.5199)
Rate Rider for Disposition of Global Adjustment Account (2015) - effective until April 30, 2016 Applicable only for Non RPP Customers	$/kW	0.2139
Rate Rider for Disposition of Deferral/Variance Accounts (2016) - effective until December 31, 2016	$/kW	0.7070
Rate Rider for Disposition of Global Adjustment Account (2016) - effective until December 31, 2016 Applicable only for Non RPP Customers	$/kW	1.1196
Rate rider for Disposition of Accounting Changes Under CGAAP Account 1576 - effective until December 31, 2016	$/kW	(0.2170)

MONTHLY RATES AND CHARGES - Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0044
Rural Rate Protection Charge	$/kWh	0.0013
Standard Supply Service - Administrative Charge (if applicable)	$	0.25

Waterloo North Hydro Inc.

TARIFF OF RATES AND CHARGES

Effective and Implementation Date January 1, 2016

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2015-0108

microFIT SERVICE CLASSIFICATION

This classification applies to an electricity generation facility contracted under the Ontario Power Authority's microFIT program and connected to the distributor's distribution system. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

MONTHLY RATES AND CHARGES - Delivery Component

Service Charge	$	5.40

Waterloo North Hydro Inc.

TARIFF OF RATES AND CHARGES

Effective and Implementation Date January 1, 2016

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2015-0108

EMBEDDED DISTRIBUTOR SERVICE CLASSIFICATION

This classification applies to an electricity distributor licensed by the Board that is provided electricity by means of this distributor's facilities. Further servicing details are available in the distributor's Conditions of Service.

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

MONTHLY RATES AND CHARGES - Delivery Component

Distribution Volumetric Rate	$/kW	0.0213
Rate Rider for Disposition of Deferral/Variance Accounts (2015) - effective until April 30, 2016	$/kW	(0.5823)
Rate Rider for Disposition of Global Adjustment Account (2015) - effective until April 30, 2016 Applicable only for Non RPP Customers	$/kW	0.2396
Rate Rider for Disposition of Deferral/Variance Accounts (2016) - effective until December 31, 2016	$/kW	0.5369
Rate Rider for Disposition of Global Adjustment Account (2016) - effective until December 31, 2016 Applicable only for Non RPP Customers	$/kW	1.3679

MONTHLY RATES AND CHARGES - Regulatory Component

Wholesale Market Service Rate	$/kWh	0.0044
Rural Rate Protection Charge	$/kWh	0.0013
Standard Supply Service - Administrative Charge (if applicable)	$	0.25

Waterloo North Hydro Inc.

TARIFF OF RATES AND CHARGES

Effective and Implementation Date January 1, 2016

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2015-0108

ALLOWANCES

Transformer Allowance for Ownership - per kW of billing demand/month	$/kW	(0.60)
Primary Metering Allowance for transformer losses – applied to measured demand and energy	$	(1.00)

SPECIFIC SERVICE CHARGES

APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

Customer Administration		
Easement letter	$	15.00
Notification charge	$	15.00
Credit reference/credit check (plus credit agency costs)	$	15.00
Returned cheque charge (plus bank charges)	$	15.00
Duplicate invoices for previous billing	$	15.00
Income tax letter	$	15.00
Account set up charge/change of occupancy charge (plus credit agency costs if applicable)	$	30.00
Meter dispute charge plus Measurement Canada fees (if meter found correct)	$	30.00
Non-Payment of Account		
Late Payment - per month	%	1.50
Late Payment - per annum	%	19.56
Disconnect/Reconnect at meter - during regular hours	$	65.00
Disconnect/Reconnect at meter - after regular hours	$	185.00
Specific Charge for Access to the Power Poles $/pole/year	$	22.35

Waterloo North Hydro Inc.

TARIFF OF RATES AND CHARGES

Effective and Implementation Date January 1, 2016

This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors

EB-2015-0108

RETAIL SERVICE CHARGES (if applicable)

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

Retail Service Charges refer to services provided by a distributor to retailers or customers related to the supply of competitive electricity.

One-time charge, per retailer, to establish the service agreement between the distributor and the retailer	$	100.00
Monthly Fixed Charge, per retailer	$	20.00
Monthly Variable Charge, per customer, per retailer	$/cust.	0.5000
Distributor-consolidated billing monthly charge, per customer, per retailer	$/cust.	0.3000
Retailer-consolidated billing monthly credit, per customer, per retailer	$/cust.	(0.3000)
Service Transaction Requests (STR)		
Request fee, per request, applied to the requesting party	$	0.25
Processing fee, per request, applied to the requesting party	$	0.50
Request for customer information as outlined in Section 10.6.3 and Chapter 11 of the Retail Settlement Code directly to retailers and customers, if not delivered electronically through the Electronic Business Transaction (EBT) system, applied to the requesting party		
Up to twice a year	$	no charge
More than twice a year, per request (plus incremental delivery costs)	$	2.00

LOSS FACTORS

If the distributor is not capable of prorating changed loss factors jointly with distribution rates, the revised loss factors will be implemented upon the first subsequent billing for each billing cycle.

Total Loss Factor – Secondary Metered Customer < 5,000 kW	1.0362
Total Loss Factor – Secondary Metered Customer > 5,000 kW	1.0147
Total Loss Factor – Primary Metered Customer < 5,000 kW	1.0259
Total Loss Factor – Primary Metered Customer > 5,000 kW	1.0047

File Number:	0
Exhibit:	7
Tab:	1-Staff-1
Schedule:	
Page:	
Date:	Aug 7/15

Appendix 2-P
Cost Allocation

Please complete the following four tables.

A) Allocated Costs

Classes	Costs Allocated from Previous Study	%	Costs Allocated in Test Year Study (Column 7A)	%
Residential	$ 14,755,783	50.63%	$ 18,579,869	51.61%
GS < 50 kW	$ 4,854,060	16.65%	$ 5,324,126	14.79%
GS > 50 kW	$ 8,504,826	29.18%	$ 10,772,343	29.92%
Large User	$ 641,538	2.20%	$ 959,957	2.67%
Unmetered Scattered Load	$ 112,275	0.39%	$ 101,164	0.28%
Street Lighting	$ 276,249	0.95%	$ 261,131	0.73%
Embedded Distributor	$ 883	0.00%	$ 1,546	0.00%
Total	**$ 29,145,614**	**100.00%**	**$ 36,000,135**	**100.00%**

Notes

1 Customer Classification - If proposed rate classes differ from those in place in the previous Cost Allocation study, modify the rate classes to match the current application as closely as possible.

2 Host Distributors - Provide information on embedded distributor(s) as a separate class, if applicable. If embedded distributor(s) are billed as customers in a General Service class, include the allocated cost and revenue of the embedded distributor(s) in the applicable class. Also complete Appendix 2-Q.

3 Class Revenue Requirements - If using the Board-issued model, in column 7A enter the results from Worksheet O-1, Revenue Requirement (row 40 in the 2013 model). This excludes costs in deferral and variance accounts. Note to Embedded Distributor(s), it also does not include Account 4750 - Low Voltage (LV) Costs.

B) Calculated Class Revenues

	Column 7B	Column 7C	Column 7D	Column 7E
Classes	2016 Base Revenue at Existing Rates	2016 Proposed Base Revenue Allocated at Existing Rates Proportion	2016 Proposed Base Revenue	Miscellaneous Revenue
Residential	$ 16,663,087	$ 18,549,345	$ 18,542,762	$ 797,123
GS < 50 kW	$ 4,833,437	$ 5,380,581	$ 5,380,581	$ 161,568
GS > 50 kW	$ 8,720,861	$ 9,708,060	$ 9,708,060	$ 196,580
Large User	$ 649,252	$ 722,748	$ 800,823	$ 15,140
Unmetered Scattered Load	$ 170,454	$ 189,750	$ 117,735	$ 3,662
Street Lighting	$ 238,101	$ 265,054	$ 265,054	$ 9,500
Embedded Distributor	$ 900	$ 1,002	$ 1,524	$ 23
Total	**$ 31,276,093**	**$ 34,816,540**	**$ 34,816,540**	**$ 1,183,596**

Notes:

1 Columns 7B to 7D - LF means Load Forecast of Annual Billing Quantities (i.e. customers or connections X 12, (kWh or kW, as applicable). Revenue Quantities should be net of Transfomrer Ownership Allowance. Exclude revenue from rate adders and rate riders.

2 Columns 7C and 7D - Column total in each column should equal the Base Revenue Requirement

3 Columns 7C - The Board cost allocation model calculates "1+d" in worksheet O-1, cell C21. "d" is defined as Revenue Deficiency/ Revenue at Current Rates.

4 Columns 7E - If using the Board-issued Cost Allocation model, enter Miscellaneous Revenue as it appears in Worksheet O-1, row 19.

C) Rebalancing Revenue-to-Cost (R/C) Ratios

Class	Previously Approved Ratios	Status Quo Ratios	Proposed Ratios	Policy Range
	Most Recent Year: 2011	(7C + 7E) / (7A)	(7D + 7E) / (7A)	
Rate Class	2011 Board Approved	2016 Updated Cost Allocation Study	2016 Proposed Ratios	Board Targets
	%	%	%	%
Residential	107.72%	104.13%	104.09%	85 - 115
GS < 50 kW	93.78%	104.10%	104.10%	80 - 120
GS > 50 kW	91.04%	91.95%	91.95%	80 - 120
Large User	90.77%	76.87%	85.00%	85 - 115
Unmetered Scattered Load	120.00%	191.19%	120.00%	80 - 120
Street Lighting	86.20%	105.14%	105.14%	70 - 120
Embedded Distributor	100.00%	66.24%	100.00%	

Notes

1 Previously Approved Revenue-to-Cost Ratios - For most applicants, Most Recent Year would be the third year of the IRM 3 period, e.g. if the applicant rebased in 2009 with further adjustments over 2 years, the Most recent year is 2011. For applicants whose most recent rebasing year is 2006, the applicant should enter the ratios from their Informational Filing.

2 Status Quo Ratios - The Board's updated Cost Allocation Model yields the Status Quo Ratios in Worksheet O-1. Status Quo means "Before Rebalancing".

D) Proposed Revenue-to-Cost Ratios

Class	Proposed Revenue-to-Cost Ratios			Policy Range
	0	1	2	
	%	%	%	%
Residential	1.04			85 - 115
GS < 50 kW	1.04			80 - 120
GS > 50 kW	0.92			80 - 120
Large User	0.85			85 - 115
Unmetered Scattered Load	1.20			80 - 120
Street Lighting	1.05			70 - 120
Embedded Distributor	1.00			

Note

1 The applicant should complete Table D if it is applying for approval of a revenue to cost ratio in 2014 that is outside the Board's policy range for any customer class. Table (d) will show the information that the distributor would likely enter in the IRM model) in 2014. In 2015 Table (d), enter the planned ratios for the classes that will be 'Change' and 'No Change' in 2014 (in the current Revenue Cost Ratio Adjustment Workform, Worksheet C1.1 'Decision – Cost Revenue Adjustment', column d), and enter TBD for class(es) that will be entered as 'Rebalance'.

File Number:	EB-2015-0108
Exhibit:	3
Tab:	
Schedule:	Table 3-27
Page:	27
Date:	May 1, 2015

Appendix 2-IA
Summary and Variances of Actual and Forecast Data

Replace "Rate Class #" with the appropriate rate classification.

	2011 Board Approved	2011	2012	2013	2014	2015 Bridge	2016 Test
Residential							
# of Customers	46,613	46,194	46,877	47,602	48,191	48,705	49,305
kWh	393,848,054	408,768,579	409,922,519	409,442,945	410,104,642	404,699,733	399,471,640
kW							
Variance Analysis							
# of Customers		-0.90%	1.48%	1.55%	1.24%	1.07%	1.23%
kWh		3.79%	0.28%	-0.12%	0.16%	-1.32%	-1.29%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GS < 50 kW							
# of Customers	5,470	5,402	5,454	5,503	5,547	5,596	5,632
kWh	179,687,810	187,070,265	190,189,482	194,737,949	197,096,102	195,058,723	192,172,348
kW							
Variance Analysis							
# of Customers		-1.26%	0.96%	0.91%	0.79%	0.88%	0.65%
kWh		4.11%	1.67%	2.39%	1.21%	-1.03%	-1.48%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GS > 50 kW							
# of Customers	668	666	668	670	683	694	693
kWh	705,732,689	725,123,828	716,491,037	705,737,128	699,842,688	712,834,228	712,810,799
kW	1,581,207	1,775,934	1,801,339	1,766,195	1,726,654	1,752,860	1,752,802
Variance Analysis							
# of Customers		-0.30%	0.30%	0.30%	1.94%	1.61%	-0.14%
kWh		2.75%	-1.19%	-1.50%	-0.84%	1.86%	0.00%
kW		12.32%	1.43%	-1.95%	-2.24%	1.52%	0.00%
Large User							
# of Customers	1	1	1	1	1	1	1
kWh	79,638,262	84,249,637	86,740,767	90,202,679	91,205,251	92,091,821	92,802,320
kW	153,852	160,630	165,061	168,361	166,649	168,154	169,451
Variance Analysis							
# of Customers		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kWh		5.79%	2.96%	3.99%	1.11%	0.97%	0.77%
kW		4.41%	2.76%	2.00%	-1.02%	0.90%	0.77%
Unmetered Scattered Load							
# of Customers	551	499	472	496	519	541	563
kWh	1,648,666	2,043,853	2,250,008	2,352,596	2,544,974	2,829,382	3,140,372
kW							
Variance Analysis							
# of Customers		-9.50%	-5.51%	5.20%	4.64%	4.24%	4.07%
kWh		23.97%	10.09%	4.56%	8.18%	11.18%	10.99%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Street Lighting							
# of Customers	13,374	13,678	13,736	13,841	13,853	13,808	13,828
kWh	7,792,006	7,939,684	8,173,989	8,074,319	7,720,857	7,639,658	7,594,660
kW	21,835	22,237	22,349	22,476	21,568	21,240	21,115
Variance Analysis							
# of Customers		2.27%	0.42%	0.76%	0.09%	-0.32%	0.14%
kWh		1.90%	2.95%	-1.22%	-4.38%	-1.05%	-0.59%
kW		1.84%	0.51%	0.57%	-4.04%	-1.52%	-0.59%

Embedded Distributor							
# of Customers	1	1	1	1	1	1	1
kWh	28,618,000	22,030,344	32,083,013	30,731,900	31,728,985	31,553,438	31,378,863
kW	71,600	39,512	71,507	71,174	72,407	71,803	71,406
Variance Analysis							
# of Customers		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kWh		-23.02%	45.63%	-4.21%	3.24%	-0.55%	-0.55%
kW		-44.82%	80.97%	-0.47%	1.73%	-0.83%	-0.55%

Direct Market Participant							
# of Customers		-	2	2	2	2	2
kWh		-	3,552,539	7,094,070	7,002,713	6,912,533	6,823,514
kW		-	5,848	13,338	12,738	12,785	12,620
Variance Analysis							
# of Customers		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kWh		0.00%	0.00%	99.69%	-1.29%	-1.29%	-1.29%
kW		0.00%	0.00%	128.06%	-4.49%	0.37%	-1.29%

Rate Class 9							
# of Customers							
kWh							
kW							
Variance Analysis							
# of Customers		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kWh		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Rate Class 10							
# of Customers							
kWh							
kW							
Variance Analysis							
# of Customers		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kWh		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
kW		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Totals

Customers / Connections	66,679	66,440	67,207	68,114	68,794	69,348	70,025
kWh	1,396,965,487	1,437,226,191	1,445,850,814	1,441,279,514	1,440,243,497	1,453,619,516	1,446,194,516
kW from applicable classes	1,828,494	1,998,313	2,060,256	2,028,205	1,987,278	2,026,842	2,027,394

Totals - Variance

Customers / Connections		-0.36%	1.15%	1.35%	1.00%	0.81%	0.98%
kWh		2.88%	0.60%	-0.32%	-0.07%	0.93%	-0.51%
kW from applicable classes		9.29%	3.10%	-1.56%	-2.02%	1.99%	0.03%

North Hydro Inc.

VOLTAGE COMPLAINTS (1673)

Transformer 6506

er Number _____ **Address** [redacted]

STEP	WHO	WHEN
trol Room Initiates Project ce Call Sheet ce Drawing former Loading History mer Demand History ge Complaint Form	Greg Verbrugghe **System Control Operator**	June 25/13 **Date**
ce Crew Check Connections former Pole & Hardware · Base mer Pole & Hardware an Connections ndary Conductor leted Voltage Complaint Form	**Service Foreman** M. Kroetsch **Lineman #1** J. Spencer **Lineman #2**	**Date** June 25th **Date** **Truck #** 89
Meter Department l Recording Volt Meters **Date Installed** /13 **Date Removed** /02/13 Required	**Meter Technician**	07/03/13 **Date**
erating Supervisor		

Voltage ok, see reports a graphs.
Spoke to [redacted] about results
M.P

Service Call Field Report

SC#:	47607	Date:	6/25/2013	Time:	11:48

Name:	[redacted]	Address:	[redacted]		
Municipality:	Waterloo	Phone #:	[redacted]	Ext:	

Device:	Unknown	Feeder:	21M25
Type/Effect:	0 - Unknown/Other	Cause:	**Voltage Complaints**

Location Information

Location	Date On (MM/dd /yyyy)	Time Off (HH24:MM)	Time On (HH24:MM)	KVA	# of Cust	Comments

General Remarks:	According to the electrician, there is low voltage on the high side of each of the customer's two transformers. No new significant equipment has been added recently. The feed is currently coming from Cambridge.

Police Report

CST Name:		Badge#:		Incident#:		Work Order#:	

Job Status:	Follow Up Required	Follow Up:	Randy Kent	Assigned To Truck#:	

Completed By:	Mike Kroetsch	and	Mark Ferguson

Site Left in Safe Condition - No Undo Hazard:	Mike Kroetsch

Remarks:	Primary voltage seems low. R-N - ~~15.3~~ 15.3KV W-N - 15.4 KV B-N - 15.7KV R-B - 26.2KV B-W - 26.8KV. R-W - 27.4KV Should look into [redacted] to find out whether Cambridge did any switching on their feed.

Data Electronically Logged By:		Date(MM/DD /YYYY):	

Version Date October 31, 2012

VOLTAGE COMPLAINT FORM

System Operation

Control Room Service Call # 47607 Date June 25/13

System Operator Greg Verbruggha

Location

Caller Name Matt

Telephone Number [redacted] Tx # 6506

Apt # - Street # [redacted] Feeder # 21M25

City [redacted] Feeder Load (fed from Cambridge)

☐ Owner ☐ Tenant ☑ Contractor ☐ Other

Description Of Problem ☑ Low Voltage ☐ High Voltage ☐ Flickering Voltage ☐ Loss Of Voltage ☐ Brown Outs ☐ Other

[redacted] / Currently being fed from Cambridge. Cap bank off line.

When does this occur? Time of Day? Any changes to your properties electrical system? New equipment?

Check List

☑ Service Call Sheet ☑ Voltage Complaint Form ☐ Is Tx dual voltage/winding?

☑ Service Drawing ☑ Transformer Loading History ☐ Customer Demand History

☑ Feeder # ☐ Feeder Loading ☐ History of Voltage Complaints in Area

Power Line Maintainance

☐ No Taps ☐ Internal Taps ☐ External Taps

Tap Position Found _____ Size _____ Customer owned TX's.

Tap Position Left _____ Loading _____

Single Phase	Existing Conditions Found			
Readings	L1	L2	L1 - L2	Neutral
Voltage				
Amperage				

Three Phase				
Readings	R L1 - N	B L2 - N	W L3 - N	Neutral
Voltage	15.3 kV	15.7 kV	15.4 kV	
~~Amperage~~ V	R-B 26.2 kV	R-W 27.4 kV	B-W 26.8 kV	
	L1 - L2	L1 - L3	L2 - L3	
Voltage				

Connections	Checked	Replaced
Transformer		
Pole		
Stack		
Meter Base		

	Required	Not Required
Voltage Recorders		

	Name	Truck
PLM #1		
PLM #2		

Single Phase	Conditions After Tap Adjustment			
Readings	L1	L2	L1 - L2	Neutral
Voltage				
Amperage				

Three Phase				
Readings	L1 - N	L2 - N	L3 - N	Neutral
Voltage				
Amperage				
	L1 - L2	L1 - L3	L2 - L3	
Voltage				

Neutral voltage to be taken between the neutral and a remote ground when checking for tingle voltage

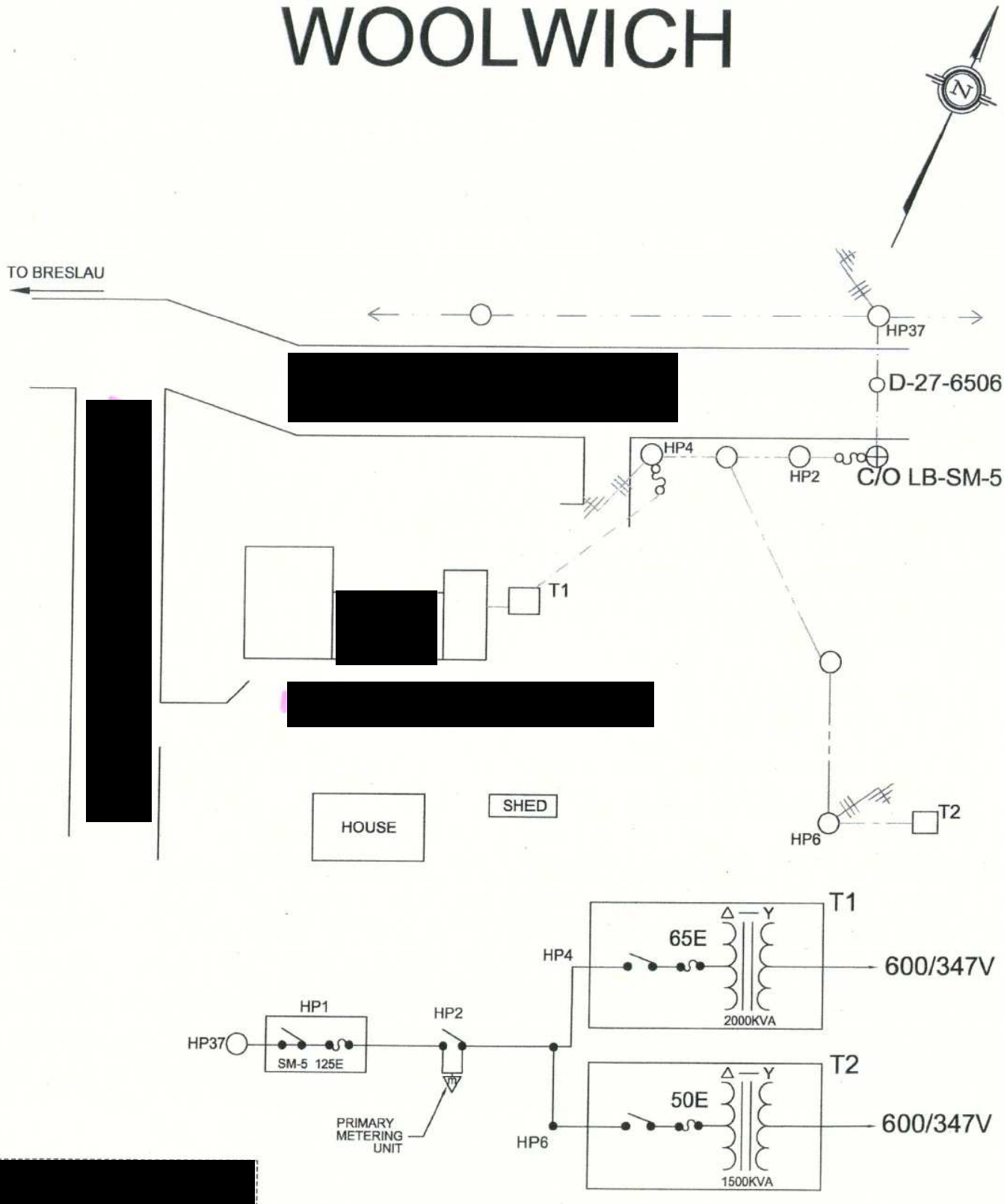
Notes:

See Readings

Ø - Ø = 583 V

Ø - GND = 336 V

WOOLWICH



[redacted]

3500KVA 600/347 27.6KV
C/O

TX. UPGRADED TO 2000KVA
NOV/01
1500KVA TX ADDED AUG 15/04

ENG FILE# 5310-01-M8

6506

WATERLOO NORTH HYDRO BANK LOAD

2013/06/25

Bank # : 6506 Type Code :

Location : [redacted]

Local # : 6506 3500 kVA

Location ID	Serv Code	Address	Peak Demand	Last Reading
323111-001	E	[redacted]	2373.4	1703.1

Bank Summary

Number of Customers Residential :	1	12 Month Peak Demand :	2373.4
General Service :	0	Bank kVA :	3500.0
		% Utilization :	68 %

Engineering Department

4150 Columbia
12B

RT- 16900:120
= 140:1 June 27/13 @ 4:04pm

114.8 = 16072
114.7 = 16058
113.9 = 15946 / 16025

198.3 = 27832
197.5 = 27650
198.5 = 27790 / 27757

RECORD OF INSTALLATION

INSTALLATION NO.:		Location No:
1673	***PRIMARY METERING TRNS LOSSES AND DISCOUNT***	0432311

Utility: *Waterloo North Hydro Inc.* MTR PHONE No: [redacted]

Customer: [redacted]

Address:

Primary: Volts	Amperes	Phase	Wire	System
27,600/16,000		3	4	WYE

Multiple used for billing:	Demand	Energy
	1,400	**1,400**

Demand units: kW kVA kW & kVA kW & kVAR

Meter seal dates:
65335 **2012** 00000kWh Ke=0.05 CH1-Wh, CH2-VAh, CH3-VARh

METERS

Inspection No.	Maker	Serial No.	Type	Volts	Amps	Mult	Kh	Phase	Wire	Element
65335	ELST	14928919	A3RL	120	20	1	1.8	3	4	3

INSTRUMENT TRANSFORMERS Recording Unit				VOLTS		AMPS				
				Primary	Secondary	Primary	Secondary	Acc. class	Wire	Primary
CT'S										
5425	SAD	2009416701	OCF36-3			**50**	5	0.15SB0.5 RF=3.0	2	BAR
5426	SAD	2009416702	OCF36-3			**50**	5	0.15SB0.5 RF=3.0	2	BAR
5427	SAD	2009416703	OCF36-3			**50**	5	0.15SB0.5 RF=3.0	2	BAR
PT'S										
1960	SAD	2009416698	YE7	16,800	120			0.3WXYZ 0.6Z		
1961	SAD	2009416699	YE7	16,800	120			0.3WXYZ 0.6Z		
1962	SAD	2009416670	YE7	16,800	120			0.3WXYZ 0.6Z		
AUX.										

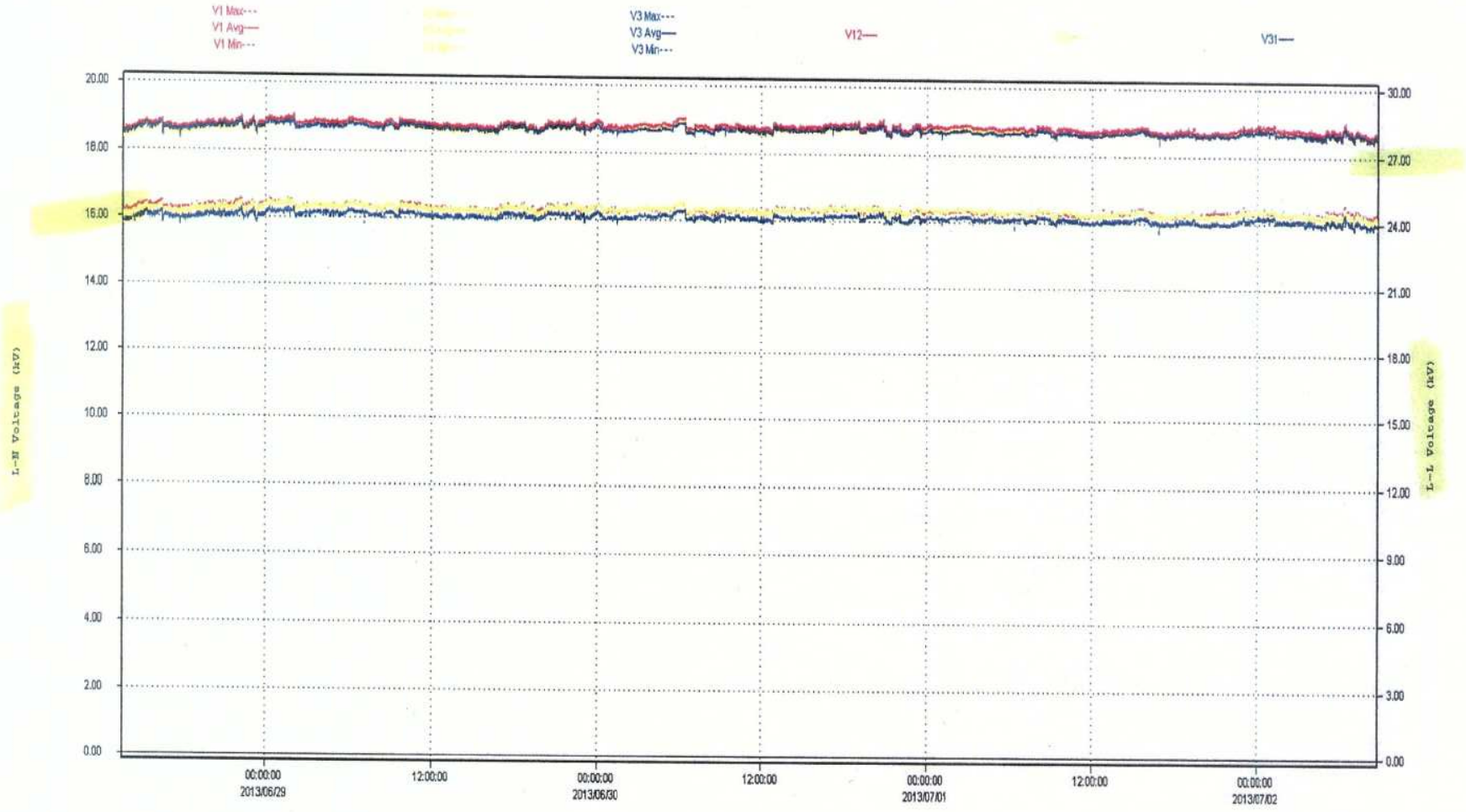
For utility: ROBERT GUDZAK

☑ CT & PT Cards Filed.
☑ Installation verified on system

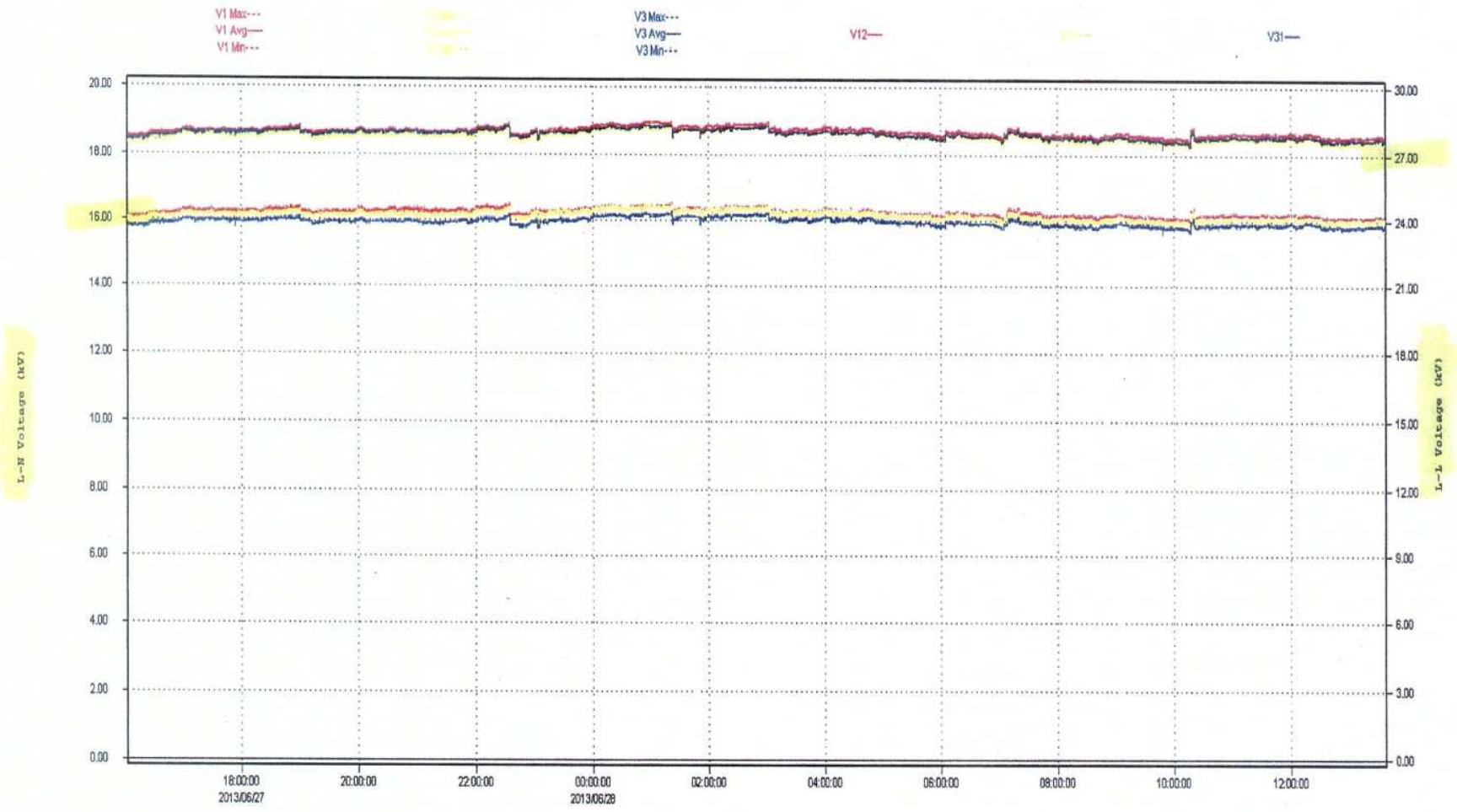
Date: 29-May-12

COPY

[redacted]2013.PPF - L-N Voltage and L-L Voltage Graph
[redacted] 13:43:00 to 2013/07/02 08:44:10



[redacted]13.PPF - L-N Voltage and L-L Voltage Graph
2013/06/27 16:03:30 to 2013/06/28 13:37:05



[redacted] **Summary**

This Trend report is based on 65535 records
recorded between
2013/06/28 13:43:00 and 2013/07/02 08:44:10

Notes
Voltage Readings off metering PTs, reads multiplied x140.

PowerPro Options
Event Capture - Enabled
Flicker - Disabled
Current Inrush - Enabled
Spike Detect - Enabled
400 Hz - Disabled
Encrgy/Costing Enabled

PowerPro Configuration
Logger ID: RSET
Service Type: 3 Phase - 4 Wire
Ch4 Recording: Off
RMS Storage Interval: 5 seconds
Harmonic Storage Interval: 5 seconds
Voltage Range: 600V
External PT Ratio 1 : 1
External CT Ratio 1 : 1
Phase CT: 2000A Flex

Software Configuration
PT Ratio 140 : 1
CT Ratio 1 : 1
15 minute fixed window

Voltage Summary

V1 maximum was 16.5 kV and occurred at 2013/07/02 06:23:55
V1 minimum was 15.9 kV and occurred at 2013/06/28 17:46:25
V1 average was 16.3 kV
V2 maximum was 16.5 kV and occurred at 2013/06/30 06:24:25
V2 minimum was 15.8 kV and occurred at 2013/06/28 17:46:20
V2 average was 16.3 kV
V3 maximum was 16.3 kV and occurred at 2013/06/30 20:52:45
V3 minimum was 15.6 kV and occurred at 2013/07/01 16:50:25
V3 average was 16.1 kV

V12 maximum was 28.6 kV and occurred at 2013/06/30 06:24:25
V12 minimum was 27.6 kV and occurred at 2013/07/01 16:54:45
V12 average was 28.2 kV
V23 maximum was 28.4 kV and occurred at 2013/06/30 06:24:25
V23 minimum was 27.4 kV and occurred at 2013/06/28 17:46:20
V23 average was 28.0 kV
V31 maximum was 28.4 kV and occurred at 2013/07/02 06:23:20
V31 minimum was 27.5 kV and occurred at 2013/06/28 17:46:20
V31 average was 28.0 kV

Current Summary

I1 maximum was 1.221 A and occurred at 2013/07/02 08:44:10
I1 minimum was 0.611 A and occurred at 2013/07/02 08:44:10
I1 average was 1.126 A
I2 maximum was 0.000 A and occurred at 2013/07/02 08:44:10
I2 minimum was 0.000 A and occurred at 2013/07/02 08:44:10
I2 average was 0.000 A
I3 maximum was 1.832 A and occurred at 2013/07/02 08:44:10
I3 minimum was 1.221 A and occurred at 2013/07/02 08:44:10
I3 average was 1.221 A

Frequency Summary

Frequency maximum was 60.05 Hz and occurred at 2013/06/30 08:59:55
Frequency minimum was 59.94 Hz and occurred at 2013/07/01 06:02:35
Frequency average was 60.00 Hz

Power Factor Summary

PF1 maximum was lagging 1.000 and occurred at 2013/07/02 07:54:50
PF1 minimum was leading 0.028 and occurred at 2013/07/02 04:00:30
PF1 average was leading 0.079
PF2 maximum was lagging 1.000 and occurred at 2013/07/02 08:44:10
PF2 minimum was lagging 1.000 and occurred at 2013/07/02 08:44:10
PF2 average was lagging 1.000
PF3 maximum was leading 0.037 and occurred at 2013/07/02 08:35:15
PF3 minimum was leading 0.006 and occurred at 2013/07/01 19:02:25
PF3 average was leading 0.018
Total maximum was lagging 1.000 and occurred at 2013/07/02 07:54:50
Total minimum was leading 0.023 and occurred at 2013/07/02 03:08:45

[redacted] **Voltage Summary**

This Trend report is based on 15524 records
recorded between
2013/06/27 16:03:30 and 2013/06/28 13:37:05

Notes

PowerPro Options

Event Capture - Enabled
Flicker - Disabled
Current Inrush - Enabled
Spike Detect - Enabled
400 Hz - Disabled
Energy/Costing - Enabled

PowerPro Configuration

Logger ID: RSET
Service Type: 3 Phase - 4 Wire
Ch4 Recording: Off
RMS Storage Interval: 5 seconds
Harmonic Storage Interval: 5 seconds
Voltage Range: 600V
External PT Ratio 1 : 1
External CT Ratio 1 : 1
Phase CT: 2000A Flex

Software Configuration

PT Ratio 140 : 1
CT Ratio 1 : 1
15 minute fixed window

Voltage Summary

V1 maximum was 16.5 kV and occurred at 2013/06/28 01:21:55
V1 minimum was 15.8 kV and occurred at 2013/06/28 09:48:55
V1 average was 16.2 kV
V2 maximum was 16.5 kV and occurred at 2013/06/28 01:22:35
V2 minimum was 15.7 kV and occurred at 2013/06/28 09:48:55
V2 average was 16.1 kV
V3 maximum was 16.3 kV and occurred at 2013/06/28 01:22:35
V3 minimum was 15.6 kV and occurred at 2013/06/28 09:48:55
V3 average was 15.9 kV

V12 maximum was 28.5 kV and occurred at 2013/06/28 01:22:30
V12 minimum was 27.4 kV and occurred at 2013/06/28 09:48:55
V12 average was 28.0 kV
V23 maximum was 28.3 kV and occurred at 2013/06/28 01:22:30
V23 minimum was 27.2 kV and occurred at 2013/06/28 10:17:45
V23 average was 27.8 kV
V31 maximum was 28.4 kV and occurred at 2013/06/28 01:22:30
V31 minimum was 27.3 kV and occurred at 2013/06/28 09:48:55
V31 average was 27.9 kV

Current Summary

I1 maximum was 2.442 A and occurred at 2013/06/27 16:04:25
I1 minimum was 0.611 A and occurred at 2013/06/28 13:36:25
I1 average was 1.044 A
I2 maximum was 1.832 A and occurred at 2013/06/27 16:04:00
I2 minimum was 0.000 A and occurred at 2013/06/28 13:37:05
I2 average was 0.000 A
I3 maximum was 1.832 A and occurred at 2013/06/28 13:35:40
I3 minimum was 1.221 A and occurred at 2013/06/28 13:37:05
I3 average was 1.221 A

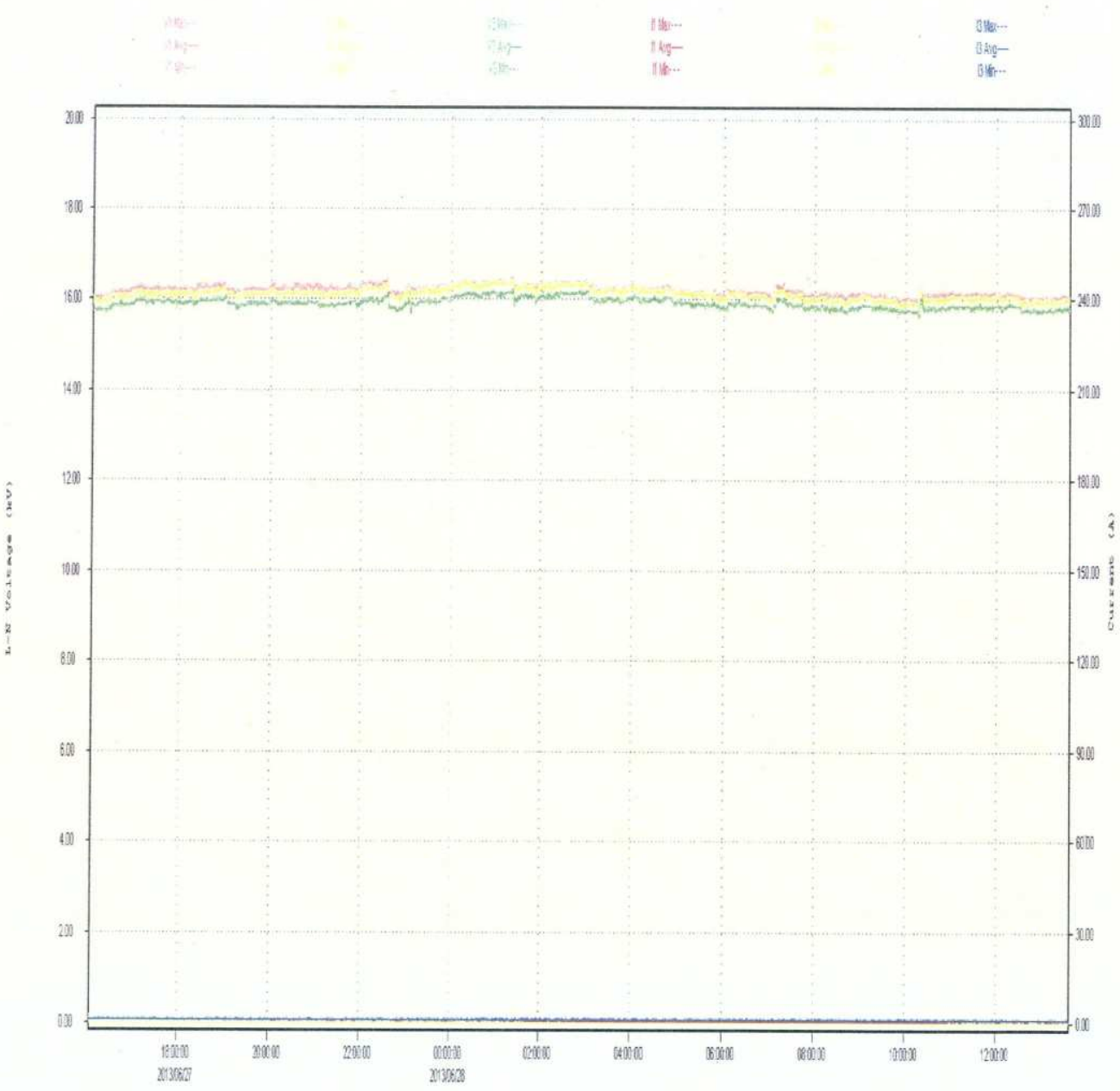
Frequency Summary

Frequency maximum was 60.04 Hz and occurred at 2013/06/28 07:00:30
Frequency minimum was 59.93 Hz and occurred at 2013/06/28 13:31:15
Frequency average was 60.00 Hz

Power Factor Summary

PF1 maximum was leading 0.167 and occurred at 2013/06/28 10:08:05
PF1 minimum was leading 0.019 and occurred at 2013/06/28 10:17:45
PF1 average was leading 0.080
PF2 maximum was lagging 0.000 and occurred at 2013/06/27 16:03:45
PF2 minimum was lagging 1.000 and occurred at 2013/06/28 13:37:05
PF2 average was lagging 1.000
PF3 maximum was leading 0.028 and occurred at 2013/06/28 13:25:30
PF3 minimum was leading 0.000 and occurred at 2013/06/27 20:00:35
PF3 average was leading 0.017
Total maximum was leading 0.074 and occurred at 2013/06/28 10:08:05
Total minimum was leading 0.025 and occurred at 2013/06/28 10:17:45

[redacted]62013 PPF - L-N Voltage and Current Graph
20130627 16:03:39 to 20130628 12:37:05



[redacted] **Summary**

This Trend report is based on 604579 records
recorded between
2013/11/13 11:36:00 and 2013/11/20 11:32:18

Notes

The text entered in the notes field during processing of a logger file is copied into the report summaries.

EnergyPro Configuration

Storage Interval: 1 second
CT: 3000A Clamp
Configuration: 3P4W
V1: Phase A
V2: Phase B
V3: Phase C
I1: Phase A
I2: Phase B
I3: Phase C

Software Configuration

PT Ratio 140 : 1
CT Ratio 1 : 1
15 minute fixed window

Voltage Summary

V1 maximum was 17.0 kV and occurred at 2013/11/18 23:10:34
V1 minimum was 0.0 kV and occurred at 2013/11/18 00:29:57
V1 average was 15.9 kV
V2 maximum was 16.9 kV and occurred at 2013/11/18 23:10:44
V2 minimum was 0.0 kV and occurred at 2013/11/18 00:29:57
V2 average was 15.8 kV
V3 maximum was 17.0 kV and occurred at 2013/11/18 23:10:31
V3 minimum was 0.0 kV and occurred at 2013/11/18 00:29:57
V3 average was 15.9 kV

L2L Voltage Summary

Vab maximum was 29.3 kV and occurred at 2013/11/18 23:10:32
Vab minimum was 0.0 kV and occurred at 2013/11/18 00:29:57
Vab average was 27.5 kV
Vbc maximum was 29.4 kV and occurred at 2013/11/18 23:10:31
Vbc minimum was 0.0 kV and occurred at 2013/11/18 00:29:57
Vbc average was 27.5 kV
Vca maximum was 29.3 kV and occurred at 2013/11/18 23:10:34
Vca minimum was 0.0 kV and occurred at 2013/11/18 00:29:57
Vca average was 27.5 kV

Current Summary

I1 maximum was 1.00 A and occurred at 2013/11/20 11:32:03
I1 minimum was 0.00 A and occurred at 2013/11/20 11:32:18
I1 average was 0.23 A
I2 maximum was 2.00 A and occurred at 2013/11/14 08:45:28
I2 minimum was 0.00 A and occurred at 2013/11/20 11:32:18
I2 average was 0.06 A
I3 maximum was 0.00 A and occurred at 2013/11/20 11:32:18
I3 minimum was 0.00 A and occurred at 2013/11/20 11:32:18
I3 average was 0.00 A
IN maximum was 2.00 A and occurred at 2013/11/20 09:50:51
IN minimum was 0.00 A and occurred at 2013/11/20 11:32:18
IN average was 0.27 A

Frequency Summary

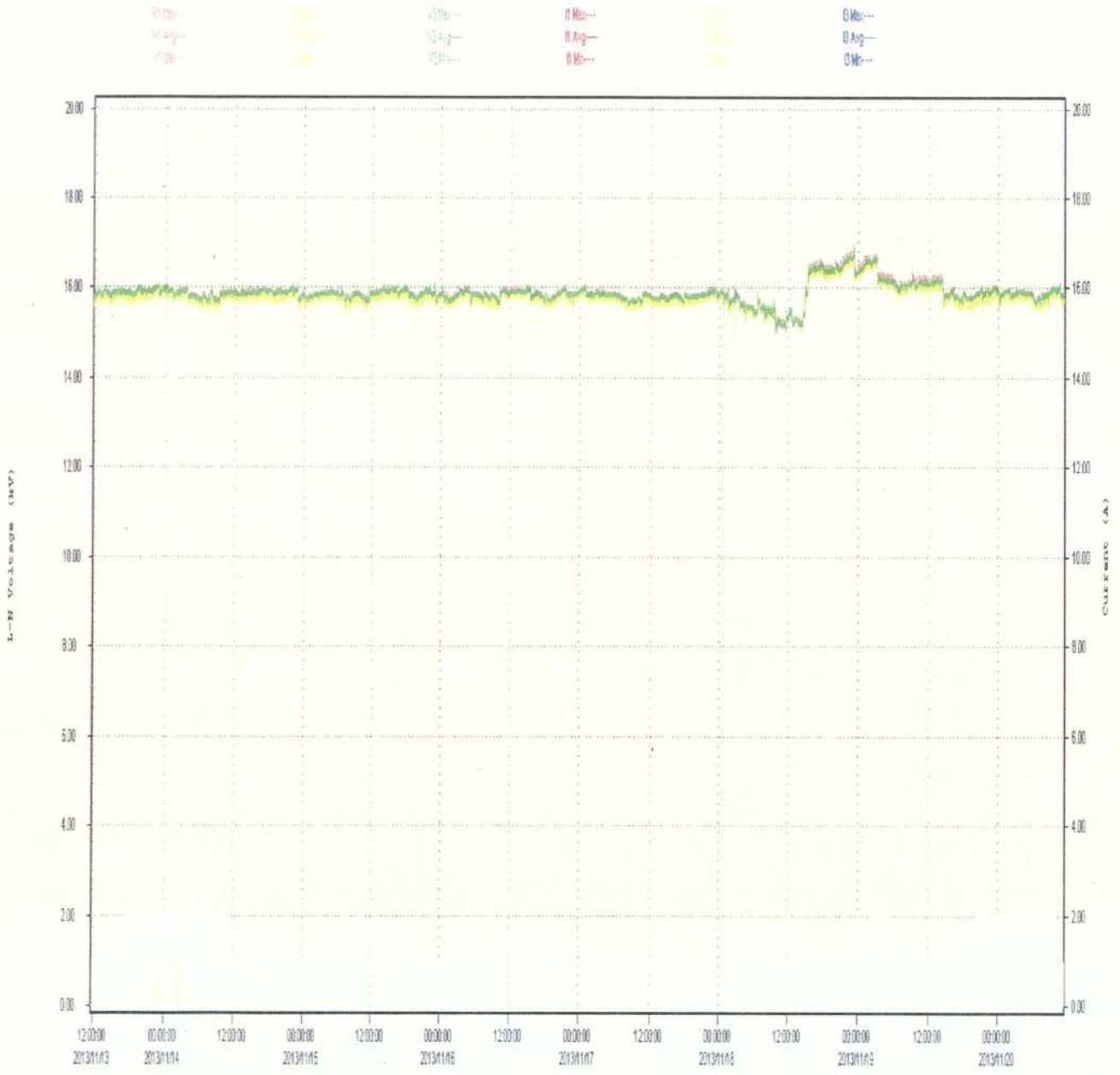
Frequency maximum was 61.77 Hz and occurred at 2013/11/18 00:29:56
Frequency minimum was 44.90 Hz and occurred at 2013/11/18 00:29:57
Frequency average was 60.01 Hz

Power Factor Summary

PF1 maximum was lagging 1.000 and occurred at 2013/11/20 11:32:18
PF1 minimum was lagging 1.000 and occurred at 2013/11/20 11:32:18
PF1 average was lagging 1.000
PF2 maximum was lagging 1.000 and occurred at 2013/11/20 11:32:18
PF2 minimum was lagging 1.000 and occurred at 2013/11/20 11:32:18
PF2 average was lagging 1.000
PF3 maximum was lagging 1.000 and occurred at 2013/11/20 11:32:18

[redacted]age and Current Graph

2013/11/03 11:30:00 to 2013/11/20 11:32:18



Report: E-14-017

Region of Waterloo

Transportation and Environmental Services

Rapid Transit

To: Chair Jim Wideman and Members of the Planning and Works Committee

Date: February 11, 2014 **File Code:** A02-30/PW

Subject: **Stage 1 Light Rail Project - Municipal Hydro Utilities Cost Sharing**

Recommendation:

That the Regional Municipality of Waterloo enter into formal cost sharing agreements with Kitchener Wilmot Hydro and Waterloo North Hydro for relocation of hydro infrastructure to accommodate the Light Rail Project, in form and content satisfactory to the Commissioner of Transportation and Environmental Services and the Regional Solicitor at an estimated cost of $12,765,784 exclusive of HST as outlined in Report E-14-017 dated February 11, 2014.

Summary: Nil

Report:

On June 15, 2011 Regional Council approved light rail transit ("LRT") as the preferred technology from Conestoga Mall in the City of Waterloo to the Ainslie Street Terminal in the City of Cambridge. The approved Stage 1 of the project will include LRT from Conestoga Mall in Waterloo to Fairview Park Mall in Kitchener and is slated for construction in 2014 with completion in 2017.

Construction of Stage 1 will require relocation of existing municipal hydro utilities which are currently located within the proposed rapid transit corridors in the City of Kitchener and the City of Waterloo. Some of the relocations will be done during the project construction stage, however to minimize delays a significant amount of relocation works are being completed in advance.

Generally, the allocation of cost sharing for relocation of public utilities within municipal road allowances is determined by guidelines in provincial legislation, namely the *Public Service Works on Highways Act*. This legislation provides that, in the absence of an agreement otherwise, the municipality and the utility will equally share the cost of the labour associated with the relocation work. This results in the municipality paying for 30% or more of the total cost of utility relocations with a utility paying the remainder, subject to the final determination of the actual cost of labour associated with a particular project. Where a party is not satisfied with the applicability of the provincial cost allocation guideline for utility relocation within a highway, either party may apply to the Ontario Municipal Board which may apportion the cost in such manner as appears to it to be equitable.

Recognizing the impact that major relocations to accommodate the LRT would have on their capital budgets and rate structures, and the mutual benefit of burying existing overhead crossings along the LRT route, the parties have negotiated a tentative settlement which is outlined in the table below. This settlement will be a one-time variance from the provincial cost apportionment guidelines for highway-related utility relocations. In recommending this resolution, Region and municipal utility staff are mindful of the ability of the municipal utilities to absorb the one-time costs of the required relocations within their existing capital budgets and rate structures which are approved and fixed by the Ontario Energy Board and funded by local utility ratepayers.

Both hydro utilities have agreed to allow the future Design Build Finance Operate Maintain (DBFOM) contractor for the Stage 1 LRT project to perform some of the civil works on their behalf and perform the remaining work with their own forces or contractors. The hydro utilities have already started some early works (self-performed or contracted) that will be completed prior to the DBFOM contractor mobilizing for Stage 1 construction. Some of these works will likely continue during the Stage 1 construction and will require coordination with the DBFOM contractor and the Region.

Staff have also agreed to the following cost sharing arrangement for different categories of work with both hydro utilities.

1. Underground Relocations, like for like:
    - 50% utility and 50% Region
2. Overhead Relocations, like for like
    - 50% utility and 50% Region
3. Conversion of Overhead crossings of LRT to Underground crossings:
    - 100% of civil costs (completed by DBFOM contractor) to Region
    - 100% of civil costs (completed by utility) to Region
    - 50% of electrical costs (completed by utility) to Region, 50% to utility

4. Conversion of Overhead to Underground parallel to LRT route
    - 100% of civil costs (completed by DBFOM contractor) to Region
    - 100% of civil costs (completed by utility) to Region
    - 50% of electrical costs (completed by utility) to Region, 50% to utility
5. Temporary overhead and underground works for staging of relocations
    - 100% of contractor and utility forces cost to Region
6. Utility administration cost of 5%. As part of the municipal rate setting process, the Ontario Energy Board and Interveners are diligent to make sure that utilities recover all indirect and overhead costs for billable work so that ratepayers are not subsidizing the cost of work done for a specific party. The administration charge is meant to recover indirect costs and overheads which are not capable of being attributed directly to a project, such as accounting, billing, office equipment, occupancy costs (cost of office space and utilities) and administrative/ clerical staff not directly involved with the project.

Costs for these 6 categories are reflected in the table below:

Category	KW Hydro Total Cost	Region cost	WNH Total Cost	Region Cost	Total Cost	Total Region Cost	Region % of Total
1	8,730,000	4,365,000	99,689	49,845	8,829,689	4,414,845	50%
2	1,870,000	935,000	220,199	110,099	2,090,199	1,045,099	50%
3	1,286,000	849,000	5,288,560	3,313,987	6,574,560	4,162,987	63%
4	183,000	128,000	964,384	654,959	1,147,384	782,959	68%
5	1,752,000	1,752,000	0	0	1,752,000	1,752,000	100%
6	0	401,450	0	206,444		607,894	
Total*	**13,821,000**	**8,430,450**	**6,572,832**	**4,335,334**	**20,393,832**	**12,765,784**	**60%**

Corporate Strategic Plan:

The report supports Focus Area 3.1 of Council's Strategic Focus: Develop an implementation plan for light rail transit including corridor and station area planning.

Financial Implications

In June 2011, Council approved the implementation of the RT project, including LRT and aBRT, with estimated capital costs of $818 million, in 2014 dollars, with capital funding to be provided by the Province (up to $300 million), the federal government

(one third of eligible project costs to a maximum of $265 million) and the Region ($253 million). The RT project and improvements to conventional transit are financed through annual tax rate increases.

These costs have been incorporated into the LRT project as part of the early works estimate previously presented to council. The overall costs will be funded from the approved Rapid Transit project budget.

Other Department Consultations/Concurrence:

This report was prepared with input from Transportation and Environmental Services and Finance.

Prepared By: Derick Finn, Manager Rapid Transit Engineering

Approved By: Thomas Schmidt, Commissioner Transportation and Environmental Services

KITCHENER-WATERLOO-CAMBRIDGE-GUELPH REGION
INTEGRATED REGIONAL RESOURCE PLAN

April 28, 2015



ieso
Independent Electricity System Operator

Integrated Regional Resource Plan

Kitchener-Waterloo-Cambridge-Guelph

This Integrated Regional Resource Plan ("IRRP") was prepared by the IESO pursuant to the terms of its Ontario Energy Board licence, EI-2013-0066.

This IRRP was prepared on behalf of the KWCG Region Working Group, which included the following members:

- Independent Electricity System Operator
- Kitchener-Wilmot Hydro Inc.
- Waterloo North Hydro Inc.
- Cambridge & North Dumfries Hydro Inc.
- Guelph Hydro Electric Systems Inc.
- Hydro One Networks Inc. (Distribution) and
- Hydro One Networks Inc. (Transmission)

The KWCG Region Working Group assessed the adequacy of electricity supply to customers in the KWCG Region over a 20-year period; developed a flexible, comprehensive, integrated plan that considers opportunities for coordination in anticipation of potential demand growth scenarios and varying supply conditions in the KWCG Region; and developed an implementation plan for the recommended options, while maintaining flexibility in order to accommodate changes in key assumptions over time.

KWCG Region Working Group members agree with the IRRP's recommendations and support implementation of the plan through the recommended actions. KWCG Region Working Group members do not commit to any capital expenditures and must still obtain all necessary regulatory and other approvals to implement recommended actions.

Copyright © 2015 Independent Electricity System Operator. All rights reserved.

Table of Contents

1. Introduction 1

2. The Integrated Regional Resource Plan 3

2.1 Near- and Medium-Term Plan (2014-2023) 3

2.2 Long-Term Plan (2024-2033) 5

3. Development of the IRRP 7

3.1 The Regional Planning Process 7

3.2 The IESO's Approach to Regional Planning 10

3.3 KWCG Working Group and IRRP Development 11

4. Background and Scope of the KWCG IRRP 13

4.1 Scope of the KWCG IRRP 13

4.2 Existing Electricity System in the KWCG Region 15

5. Demand Forecast 17

5.1 Historical Electricity Demand 17

5.2 Demand Forecast Methodology 18

5.3 Near- and Medium-Term Planning Forecast 20

5.3.1 Gross Demand Forecast 20

5.3.2 Estimated Peak Demand Savings from Provincial Energy Conservation Targets 21

5.3.3 Expected Peak Demand Contribution of Contracted Distributed Generation 23

5.3.4 Planning Forecast 23

5.4 Long-Term Planning Forecast 24

5.4.1 High-Growth Scenario 25

5.4.2 Low-Growth Scenario 26

5.5 Summary of Demand Forecast 27

6. Near- and Medium-Term Plan 28

6.1 Needs Assessment Methodology 28

6.2 Summary of Near- and Medium-Term Needs 29

6.2.1 Supply Capacity Needs on the South-Central Guelph and Kitchener-Guelph 115 kV Systems 31

6.2.2 Load Restoration Needs on the Waterloo-Guelph, and Cambridge-Kitchener 230 kV Sub-system 31
6.3 Options to Address the Near- and Medium-Term Needs 32
6.3.1 Guelph Area Transmission Refurbishment (GATR) Project 33
6.3.2 Options to Improve Load Restoration on the Cambridge-Kitchener 230 kV Sub-system 35
6.4 Recommendations for the Near and Medium Term 38
7. Long-Term Plan (2024-2033) 40
7.1 Summary of Long-Term Needs 40
7.1.1 High-Growth Scenario – Long-Term Needs 40
7.1.2 Low-Growth Scenario – Long-Term Needs 41
7.2 Approaches to Address Long-Term Needs 42
7.2.1 Community Self-Sufficiency 42
7.2.2 Delivering Provincial Resources ("Wires" Planning) 46
7.2.3 Large, Localized Generation Resources 47
7.3 Recommendations for the Long Term 49
8. Community, Aboriginal and Stakeholder Engagement 51
9. Conclusion 55

List of Figures

Figure 3-1: Levels of Electricity System Planning 9
Figure 3-2: Steps in the IRRP Process 11
Figure 4-1: Kitchener, Waterloo, Cambridge and Guelph Area 14
Figure 4-2: KWCG Electricity System 15
Figure 4-3: LDC Service Area 16
Figure 5-1: Historical Summer Peak Demand in the KWCG Region 18
Figure 5-2: Development of a 20-Year Planning Forecast 19
Figure 5-3: Gross Demand Forecast by LDCs 21
Figure 5-4: KWCG Near-and Medium-Term Planning Forecast 2014-2023 24
Figure 5-5: Long-Term Planning Forecast Scenarios 2024-2033 25
Figure 5-6: High-Growth Scenario – Incremental Peak Demand Growth 2024-2033 by Municipality 26
Figure 5-7: Historical Peak Demand, Planning Forecast and Long-Term Scenarios 27
Figure 6-1: Regional Sub-systems in the KWCG Region 30
Figure 6-2: Guelph Area Transmission Refurbishment (GATR) Project 34
Figure 6-3: Two Circuit Switchers at Galt Junction 36
Figure 7-1: Remaining Transmission Supply Capacity 2024-2033 41
Figure 7-2: Potential Transmission Supply into the KWCG Region 47
Figure 7-3: Large, Transmission-Connected Generation Option 48
Figure 8-1: Summary of the KWCG IRRP Community Engagement Process 52

List of Tables

Table 6-1: Near- and Medium-Term Needs in the KWCG Region 30

Table 6-2: Summary of Needs Addressed by the GATR Project 35

Table 6-3: Implementation of the Near-Term Plan for the KWCG Region 39

Table 7-1: Implementation of Near-Term Actions in Support of the Long-Term Plan for KWCG Region 50

List of Appendices

Appendix A: Demand Forecasting – Methodology and Assumptions

Appendix B: Needs Assessment

Appendix C: Transmission Options to Improve Load Restoration on Cambridge-Kitchener 230 kV Sub-system

List of Abbreviations

Abbreviation	Description
BCP	Brant County Power
C&S	Codes and Standards
CDM	Conservation Demand Management
CEP	Community Energy Plan
CHP	Combined Heat and Power
CHPSOP	Combined Heat and Power Standard Offer Program
DG	Distributed Generation
DR	Demand Response
ECO	(Region of Waterloo's) Energy Conservation Office
EV	Electric Vehicle
EE	Energy Efficiency
FIT	Feed-in Tariff
GATR	Guelph Area Transmission Refurbishment
GS	Generating Station
GHG	Greenhouse Gases
GDP	Gross Domestic Product
IESO	Independent Electricity System Operator
IPSP	(2007) Integrated Power System Plan
IRRP	Integrated Regional Resource Plan
KWCG Region or Region	Kitchener, Waterloo, Cambridge and Guelph
kV	Kilovolt
LAC	Local Advisory Committee
LRT	Light Rail Transit
LMC	Load Meeting Capability
LDC	Local Distribution Company
LED	Light Emitting Diode
LTEP	(2013) Long-Term Energy Plan
MW	Megawatt
MEP/CEP	Municipal or Community Energy Plan
MTS	Municipal Transformer Station
NERC	North American Electric Reliability Corporation
NPCC	Northeast Power Coordinating Council
OEB or Board	Ontario Energy Board
OPA	Ontario Power Authority
ORTAC	Ontario Resource and Transmission Assessment Criteria
PPWG	Planning Process Working Group

Abbreviation	Description
PV	Photovoltaic
RIP	Regional Infrastructure Plan
SCADA	Supervisory Control and Data Acquisition
SS	Switching Station
TWh	Terawatt Hour(s)
TOR	Terms of Reference
TOU	Time-of-Use
TS	Transformer Station
Working Group	Technical Working Group of the KWCG Region

1. Introduction

This report outlines the Integrated Regional Resource Plan ("IRRP") for the Kitchener, Waterloo, Cambridge and Guelph ("KWCG") Region (together "KWCG Region" or "Region") over the next 20 years. This report was prepared by the IESO on behalf of a technical Working Group composed of Kitchener-Wilmot Hydro, Waterloo North Hydro, Guelph Hydro Electric Systems Inc., Hydro One Distribution, Cambridge and North Dumfries Hydro, and Hydro One Transmission (the "Working Group").

The KWCG Region is located in southwestern Ontario and includes the Region of Waterloo, the City of Guelph, Wellington County and a portion of Oxford County. The population of the region is forecast to significantly grow during the 20-year period (2011-2031) – by roughly 40% – according to the province's "Places to Grow" initiative.[1] This growth will be accompanied by population intensification, the development of regional transit infrastructure, redevelopment of the downtown areas, and the development of commercial and industrial parks. A reliable supply of electricity is essential to supporting community growth. There is therefore a strong need for integrated regional electricity planning to ensure that the electricity system can support the pace of development over the long term.

In Ontario, planning to meet the electrical supply and reliability needs of a large area or region is done through regional electricity planning, a process that was formalized by the Ontario Energy Board ("OEB" or "Board") in 2013. In accordance with the OEB regional planning process, transmitters, distributers and the IESO are required to carry out regional planning activities for the 21 electricity planning regions at least once every five years.

The KWCG Region is one of the 21 electricity planning regions in Ontario as identified through the regional planning process. This IRRP fulfills the requirements for the Region as required by the IESO's OEB licence.

This IRRP for KWCG identifies electricity supply and reliability needs in the near term (0-5 years), medium term (5-10 years) and long term (10-20 years), and sets out specific priorities and investments to meet near- and medium-term needs, respecting the lead time for development. This IRRP also identifies actions to develop long-term options and to facilitate discussions about how the communities may plan their future electricity supply. Since

[1] http://www.placestogrow.ca/

economic, demographic, and technological conditions will inevitably change, IRRPs will be reviewed on a five-year cycle so that plans can be updated to reflect the changing electricity outlook. The KWCG IRRP will be revisited in 2020 or sooner, if significant changes occur relative to the current forecast.

This report is organized as follows:

- A summary of the recommended plan for the Region is provided in Section 2;
- The process and methodology used to develop the plan are discussed in Section 3;
- The context for electricity planning in the Region and the study scope are discussed in Section 4;
- Demand forecast scenarios, and conservation and DG assumptions, are described in Section 5;
- The near- and medium-term plan is presented in Section 6;
- The long-term plan is presented in Section 7;
- A summary of community, aboriginal and stakeholder engagement to date and moving forward in developing this IRRP is provided in Section 8;
- A conclusion is provided in Section 9.

2. The Integrated Regional Resource Plan

The KWCG IRRP addresses the Region's electricity needs over the next 20 years, based on application of the IESO's Ontario Resource and Transmission Assessment Criteria ("ORTAC"). This IRRP identifies the needs that are forecast to arise in the near- and medium-term (0-10 years) and in the long-term (10-20 years). These two planning horizons are distinguished in the IRRP to reflect the level of commitment required to address needs over these time periods. The plans for both timeframes are coordinated to ensure consistency. The IRRP was developed based on consideration of planning criteria, including reliability, cost and feasibility; and, in the near term, it seeks to maximize the use of the existing electricity system, where it is economic to do so.

For the near- and medium-term, the IRRP identifies specific actions and investments for immediate implementation. This ensures that necessary resources are in service in time to address the KWCG Region's more urgent needs.

For the long term, the IRRP identifies potential approaches to meet needs that may arise in 10-20 years. It is not necessary to recommend specific projects at this time (nor would it be prudent given forecast uncertainty and the potential for technological change). Instead, the long-term plan focuses on developing and maintaining the viability of long-term options, engaging with the communities, and gathering information to lay the groundwork for making decisions on future options. These actions are intended to be completed before the next IRRP cycle in 2020 so that their results can inform a decision, should one be needed at that time.

The needs and recommended actions are summarized below.

2.1 Near- and Medium-Term Plan (2014-2023)

Today, the electricity system supplying the KWCG Region is approaching its maximum capacity and has limited ability to minimize potential supply interruptions to customers. The plan to meet the needs of electricity customers in the KWCG Region over the near and medium term was developed based on consideration of planning criteria, including reliability, cost, feasibility, and maximizing the use of the existing electricity system, where it is economic to do so. The near- and medium-term plan was also developed to be consistent with the long-term development of the Region's electricity system.

Recommendations

1. Implement conservation and distributed generation (LDCs/IESO)

The implementation of provincial energy conservation targets established in the 2013 Long-Term Energy Plan ("LTEP") is a key component of the near- and medium-term plan for the KWCG Region. As part of the near- and medium-term plan, peak demand savings from provincial energy conservation targets are estimated to account for 40% of the forecast peak demand growth in the KWCG Region between 2014-2023.

To ensure that these savings materialize, it is recommended that the LDCs' conservation efforts be focused not only on achieving their energy savings targets, but also maximizing peak demand reductions. Monitoring conservation achievements, and measuring peak demand savings, will be important elements of the near- and medium-term plan, and will also lay the foundation for the long-term plan by reviewing performance of specific conservation measures in the KWCG Region, and assessing potential in the KWCG Region for further conservation efforts.

Provincial programs that encourage the development of DG, such as the Feed-in Tariff ("FIT"), and Combined Heat and Power Standard Offer ("CHPSOP") programs, and local interests and opportunities for distributed generation ("DG") development can also contribute to reducing peak demand in the KWCG Region. The LDCs and the IESO will continue their activities to support these initiatives and monitor their impacts.

2. Implement the Guelph Area Transmission Refurbishment (GATR) project (Hydro One)

In 2012, the Working Group recommended proceeding with the implementation of the Guelph Area Transmission Refurbishment ("GATR") project to address imminent supply needs in South-Central Guelph and the Kitchener area and to minimize the impact of potential supply interruptions to customers in Waterloo, Guelph and surrounding areas. This project includes the installation of two 115 kV/230 kV auto-transformers, switching facilities, and the upgrade of an existing transmission line in Guelph. The GATR project was approved by the OEB on September 26, 2013 and is expected to be in service by spring 2016. The project will substantially contribute to meeting near- and medium-term needs in the KWCG Region.

3. Install two circuit switchers at Galt Junction and explore opportunities to further improve restoration capability in the Cambridge area (Hydro One)

To substantially improve load restoration in the Cambridge and Kitchener area following a major transmission outage, the Working Group recommends proceeding with the installation of two 230 kilovolt ("kV") circuit switchers at Galt Junction, near Highway 5. Hydro One has begun early development work on these switching facilities, which are expected to be in-service by spring 2017. Hydro One will continue to examine other potential measures to further improve the restoration capability in the Cambridge area. Please refer to Appendix C for further information regarding load restoration improvements for the Cambridge-Kitchener 230 kV sub-system.

2.2 Long-Term Plan (2024-2033)

There are no major regional supply and reliability needs identified in the KWCG Region beyond 2023, therefore early development work for major infrastructure projects in the KWCG Region is not required at this time. Localized needs, such as transformer station ("TS") capacity needs in the KWCG Region, may arise over the long term under certain growth scenarios, but these potential needs do not require any immediate action. There may be opportunity for communities and local utilities to manage their future electricity demand through the development of community-based solutions. Communities and local utilities in the KWCG Region have become increasingly involved in the development of DG and conservation initiatives. The results of early community-based pilot projects, energy conservation initiatives, and achievable potential studies of the IESO will provide useful information to consider the potential for conservation to address identified needs in the KWCG Region in the next iteration of the plan and the ongoing regional planning process.[2]

Recommendations

1. Undertake community engagement (IESO/LDCs)

In between the 5-year regional planning cycle, the IESO and LDCs will continue to engage with First Nations communities and other stakeholders through community planning, environmental and sustainability initiatives, and broader community outreach such as, informational public open houses.

[2] The IESO's is currently developing an achievable potential study scheduled to be completed by June 1, 2016. This study will provide an updated forecast for conservation potential in Ontario.

2. Monitor demand growth, conservation and demand management (CDM) achievement and distributed generation (IESO)

On an annual basis, the IESO will coordinate a review of conservation and demand management ("CDM" or "conservation") achievement, provincial DG projects, and demand growth in the KWCG Region. This information will be used to track the expected timing of long-term needs to determine when a decision on the long-term plan is required. Information on CDM and DG performance will also provide useful input into the ongoing development of these options as potential long-term solutions.

3. Explore opportunities to coordinate use and development of transformation station facilities in the KWCG Region (LDCs)

Depending on the location, timing and magnitude of electricity demand growth, TS capacity needs may arise in the KWCG Region beyond 2023. LDCs will monitor the load closely to determine the timing of potential transformation needs. Where possible, these LDCs will coordinate use and development of transformation station facilities in the KWCG Region. The need, timing and location of transformer(s) will be confirmed in the next planning cycle.

3. Development of the IRRP

3.1 The Regional Planning Process

In Ontario, planning to meet the electricity needs of customers at a regional level is done through regional planning. Regional planning assesses the interrelated needs of a region - defined by common electricity supply infrastructure over the near, medium and long term, and develops a plan to ensure cost-effective, reliable, electricity supply. Regional plans consider the existing electricity infrastructure in an area, forecast growth and customer reliability, evaluate options for addressing needs, and recommend actions.

Regional planning has been conducted on an as needed basis in Ontario for many years. Most recently, the Ontario Power Authority ("OPA") carried out regional planning activities to address regional electricity supply needs. The OPA conducted joint regional planning studies with distributors, transmitters, the IESO and other stakeholders in regions where a need for coordinated regional planning had been identified.

In 2012, the Ontario Energy Board convened the Planning Process Working Group ("PPWG") to develop a more structured, transparent, and systematic regional planning process. This group was composed of industry stakeholders including electricity agencies, utilities, and stakeholders. In May 2013, the PPWG released its Working Group Report to the Board, setting out the new regional planning process. Twenty-one electricity planning regions in the province were identified in the Working Group Report and a phased schedule for completion was outlined. The Board endorsed the Working Group Report and formalized the process timelines through changes to the Transmission System Code and Distribution System Code in August 2013, as well as through changes to the OPA's licence in October 2013. The OPA licence changes required it to lead a number of aspects of regional planning, including the completion of comprehensive IRRPs. Following the merger of the IESO and the OPA on January 1, 2015, the regional planning responsibilities identified in the OPA's licence were transferred to the IESO.

The regional planning process begins with a Needs Screening process performed by the transmitter, which determines whether there are needs requiring regional coordination. If regional planning is required, the IESO then conducts a Scoping Assessment to determine whether a comprehensive IRRP is required, which considers conservation, generation, transmission, and distribution solutions, or whether a straightforward "wires" solution is the

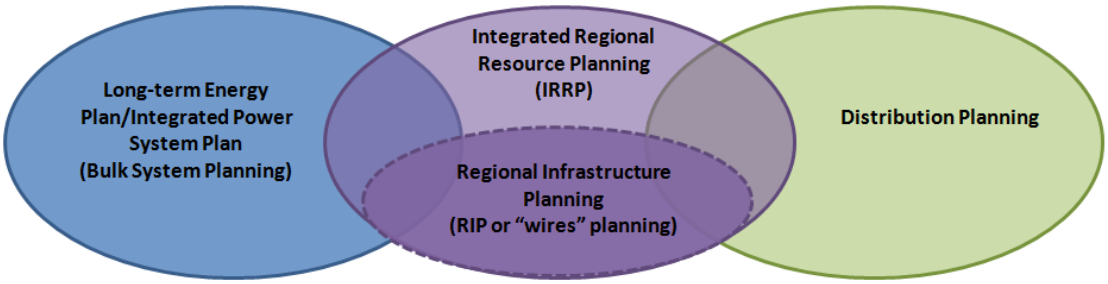
only option. If the latter applies, then a transmission and distribution focused Regional Infrastructure Plan ("RIP") is required. The Scoping Assessment process also identifies any sub-regions that require assessment. There may also be regions where infrastructure investments do not require regional coordination and can be planned directly by the distributor and transmitter, outside of the regional planning process. At the conclusion of the Scoping Assessment, the IESO produces a report that includes the results of the Needs Screening process – identifying whether an IRRP, RIP or no regional coordination is required - and a preliminary Terms of Reference. If an IRRP is the identified outcome, then the IESO is required to complete the IRRP within 18 months. If a RIP is required, the transmitter takes the lead and has six months to complete it. Both RIPs and IRRPs are to be updated at least every five years.

The final IRRPs and RIPs are to be posted on the IESO and relevant transmitter websites, and can be used as supporting evidence in a rate hearing or Leave to Construct application for specific infrastructure investments. These documents may also be used by municipalities for planning purposes and by other parties to better understand local electricity growth and infrastructure requirements.

Regional planning, as shown in Figure 3-1, is just one form of electricity planning that is undertaken in Ontario. There are three types of electricity planning in Ontario:

- Bulk system planning
- Regional system planning
- Distribution system planning

Figure 3-1: Levels of Electricity System Planning



Bulk System Planning

- 500 kV & 230 kV transmission
- Interconnections
- Inter-area network transfer capability
- System reliability (security and adequacy) to meet NERC, NPCC, ORTAC
- Congestion and system efficiency
- System supply and demand forecasts
- Incorporation of large generation
- Typically medium- and long-term focused

Regional Planning

- 230 kV & 115 kV transmission
- 115/230 kV autotransformers and associated switchyard facilities
- Customer connections
- Load supply stations
- Regional reliability (security and adequacy) to meet NERC, NPCC & ORTAC
- ORTAC local area reliability criteria
- Regional/local area generation & CDM resources
- Typically near- & medium-term focused

Distribution Network Planning

- Transformer stations to connect to the transmission system
- Distribution network planning (e.g. new & modified Dx facilities)
- Distribution system reliability (capacity & security)
- Distribution connected generation & CDM resources
- LDC demand forecasts
- Near- & medium-term focused

Planning at the bulk system level typically considers the 230 kV and 500 kV network. Bulk system planning considers the major transmission facilities and assesses the resources needed to adequately supply the province. Bulk system planning is carried out by the IESO in accordance with government policy. Distribution planning, which is carried out by local distribution companies, looks at specific investments on the low voltage, distribution system.

Regional planning can overlap with bulk system planning. For example, overlap can occur at interface points where regional resource options may also address a bulk system issue. Similarly, regional planning can overlap with the distribution planning of LDCs. An example of this is when a distribution solution addresses the needs of the broader local area or region. Therefore, to ensure efficiency and cost-effectiveness, it is important for regional planning to be coordinated with both bulk and distribution system planning.

By recognizing the linkages with bulk and distribution system planning, and coordinating multiple needs identified within a given region over the long term, the regional planning process provides an integrated assessment of needs. Regional planning aligns near- and long-term solutions and allows specific investments recommended in the plan to be understood as part of a larger context. Furthermore, regional planning optimizes ratepayer interests by avoiding piecemeal planning and asset duplication, and allows Ontario ratepayers' interests to be represented along with the interests of LDC ratepayers. Where IRRPs are undertaken, they

allow an evaluation of the multiple options available to meet needs, including conservation, generation, and "wires" solutions. Regional plans also provide greater transparency through engagement in the planning process, and by making plans available to the public.

3.2 The IESO's Approach to Regional Planning

IRRPs assess electricity system needs for a region over a 20-year period. The 20-year outlook anticipates long-term trends so that near-term actions are developed within the context of a longer-term view. This enables coordination and consistency with the long-term plan, rather than simply reacting to immediate needs.

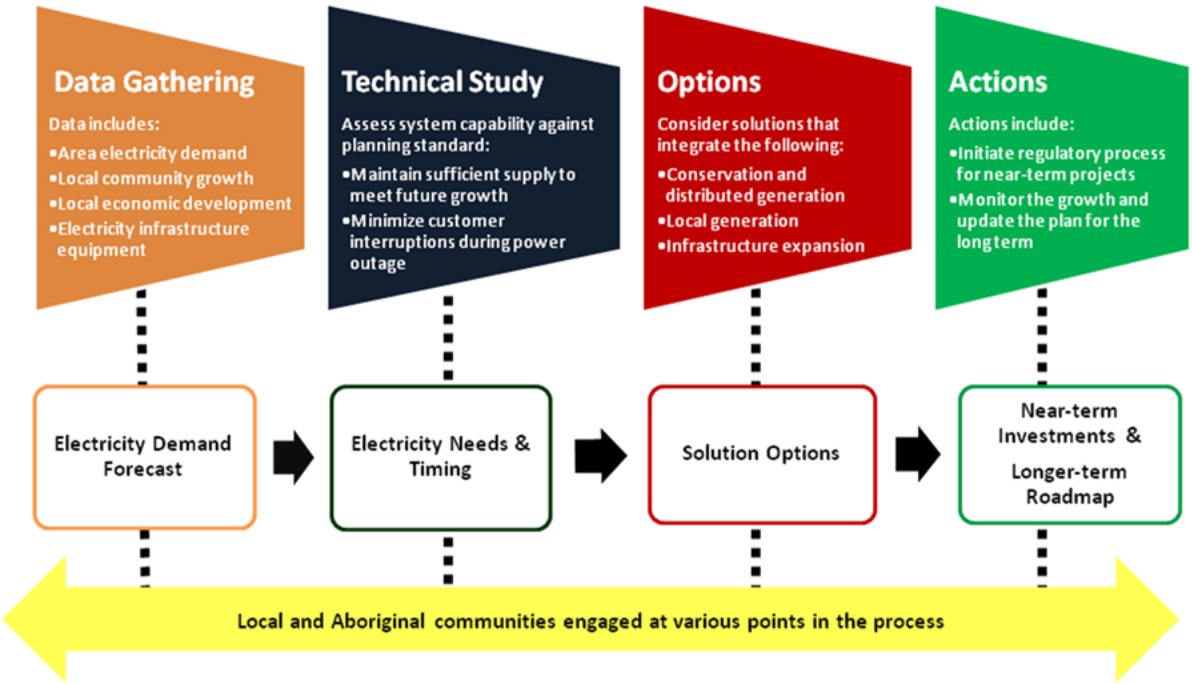
In developing an IRRP, a different approach is taken to developing the plan for the first 10 years of the plan—the near- and medium-term—than for the longer-term period of 10-20 years. The plan for the first 10 years is developed based on best available information on demand, conservation, and other local developments. Given the long lead time to develop electricity infrastructure, near-term electricity needs require prompt action to enable the specified solutions in a timely manner. By contrast, the long-term plan is characterized by greater forecast uncertainty and longer development lead time; as such solutions do not need to be committed to immediately. Given the potential for changing conditions and technological development, the IRRP for the long term is more directional, focusing on developing and maintaining the viability of options for the future, and continuing to monitor demand forecast scenarios.

In developing an IRRP, the IESO and regional working groups (see Figure 3-2 below) carry out a number of steps. These steps include electricity demand forecasts; technical studies to determine electricity needs and the timing of these needs; the development of potential options; and, a recommended plan including actions for the near and long-term. Throughout this process, engagement is carried out with communities, including local First Nations and Métis communities and stakeholders who may have an interest in the planning area. The steps of an IRRP are illustrated in Figure 3-2 below.

The IRRP report documents the inputs, findings and recommendations developed through the process described above, and provides recommended actions for the various entities responsible for plan implementation. Where "wires"" solutions are included in the plan recommendations, the completion of the IRRP report is the trigger for the transmitter to initiate an RIP process to develop those options. Other actions may involve development of

conservation, local generation, or other solutions, community engagement, or information gathering to support future iterations of the regional planning process in the region.

Figure 3-2: Steps in the IRRP Process



3.3 KWCG Working Group and IRRP Development

Prior to the formation of the OEB's Regional Planning Process in 2013, regional planning activities were undertaken by the IESO, the OPA, Hydro One and local LDCs in order to maintain a reliable supply of electricity to the KWCG Region. In the absence of a formalized process, regional planning activities in the area were triggered on an as needed basis, and solutions were examined, implemented, or deferred depending on the timing of electricity system requirements.

In 2003, as the result of a regional transmission study conducted by Hydro One and the local LDCs, a 115 kV/230 kV auto-transformer and associated remedial measures were installed at the Preston Transformer Station ("TS") to improve the Region's reliability. In 2007, in order to meet forecast electricity demand growth in the South-Central Guelph and Kitchener area, the Integrated Power System Plan ("IPSP")[3] recommended proceeding with the development of the GATR project. However, as a result of the global economic recession in 2008/2009, electricity

[3] Integrated Power System Plan 2007 - EB-2007-0707 – Exhibit E Tab 5 Schedule 2

consumption declined across the KWCG Region and the development work for the GATR project was put on hold.

In 2010, the KWCG planning electricity supply study was initiated to re-assess electricity supply and reliability over the next 20 years. The OPA agreed that a coordinated, integrated approach was appropriate and formed the Working Group. The Working Group developed the Terms of Reference for the study[4] and gathered data, identified near and long-term needs in the Region, and assessed a range of integrated options. In 2012/2013, the Working Group recommended proceeding with the implementation of GATR and initiating early development work on the second 115 kV/230 kV auto-transformer at Preston TS to address imminent supply and reliability needs in the KWCG Region.[5] In March 2013, Hydro One submitted the Leave to Construct application for the GATR project and in September 2013, the application was approved by the OEB.[6]

In October 2013, the KWCG planning electricity supply study was transitioned to align with the OEB's new regional planning process. The Working Group revised the Terms of Reference to reflect the new process, and updated the study information, including demand forecasts and conservation and DG data.[7] With this updated information, the Working Group re-confirmed the reliability and supply needs in the KWCG Region, re-examined the need for the second 115 kV/230 kV auto-transformer at Preston in the near term, and continued to revise the near-term plan and to develop recommendations for the long-term plan. This IRRP reflects this revised and updated information.

[4] Original Terms of Reference:
http://www.ieso.ca/Documents/Regional-Planning/KWCG/KWCG-Terms-of-References.pdf
[5] OPA Letter to Hydro One - March 8, 2012:
http://www.ieso.ca/Documents/Regional-Planning/KWCG/Exhibit%20B-1-4,%20Attachments%201%20and%202.pdf
OPA Letter to Hydro One - May 29, 2013:
http://www.ieso.ca/Documents/Regional-Planning/KWCG/OPA-Letter-Hydro-One-KWCG.pdf
[6] (EB-2013-0056) Ontario Energy Board Decision and Order dated September 26, 2013
[7] Revised July 2014 Terms of Reference (Addendum):
http://www.ieso.ca/Documents/Regional-Planning/KWCG/Addendum-TOR-KWCG.pdf

4. Background and Scope of the KWCG IRRP

The KWCG IRRP assesses the regional electricity supply and reliability needs for the KWCG Region, and identifies integrated solutions for the 20-year period from 2014 to 2033. Specifically, this IRRP includes the following components:

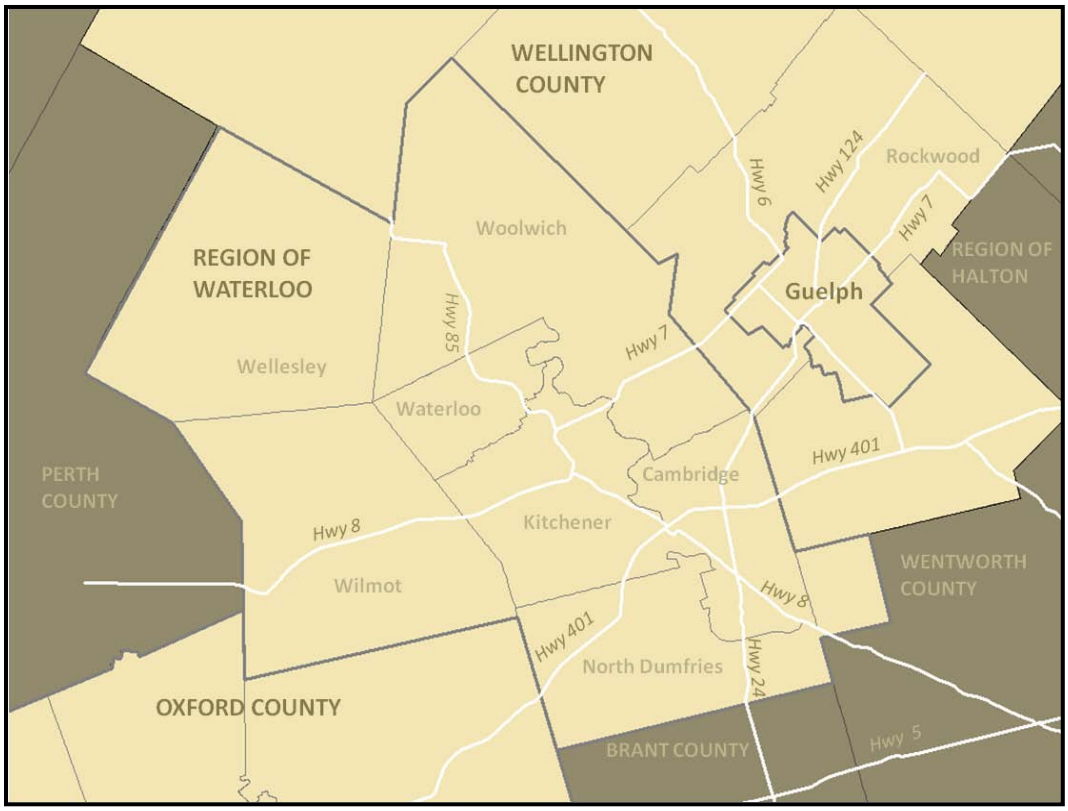
- Examination of electricity demand requirements in the near- and medium-term (2014-2023) and under alternate long-term demand growth scenarios (2024-2033);
- Reliability and adequacy assessment of the electricity system in the KWCG Region;
- Development and evaluation of integrated alternatives including a mix of CDM, generation, transmission and distribution facilities, and other electricity system initiatives to address near- and medium-term electricity supply needs in this region (2014-2023);
- Assessment of alternate demand scenarios and development of potential approaches for the local community to address future long-term electricity supply needs (2024-2033); and
- Development of an implementation plan to address near- and medium-term electricity requirements and to ensure that options remain available to address long-term needs.

To set the context for this IRRP, the scope of this IRRP and a description of the Region are set out in Section 4.1. Section 4.2 details the existing transmission system in the KWCG Region.

4.1 Scope of the KWCG IRRP

The KWCG Region is located in southwestern Ontario and includes the Region of Waterloo, the City of Guelph, Wellington County and the Township of Blandford-Blenheim (Oxford County), as shown in Figure 4-1.

Figure 4-1: Kitchener, Waterloo, Cambridge and Guelph Area



The KWCG Region has an estimated population of 735,000.[8] Based on growth plans, as detailed in the provincial Places to Grow Initiative,[9] the population is forecast to increase by approximately 40% over a 20-year period (2011-2031). This is equivalent to adding 14,500 new residents and 6,500 new jobs each year. This growth will be accompanied by population intensification, the development of regional transit infrastructure, redevelopment of the downtown areas, and the development of commercial and industrial parks.

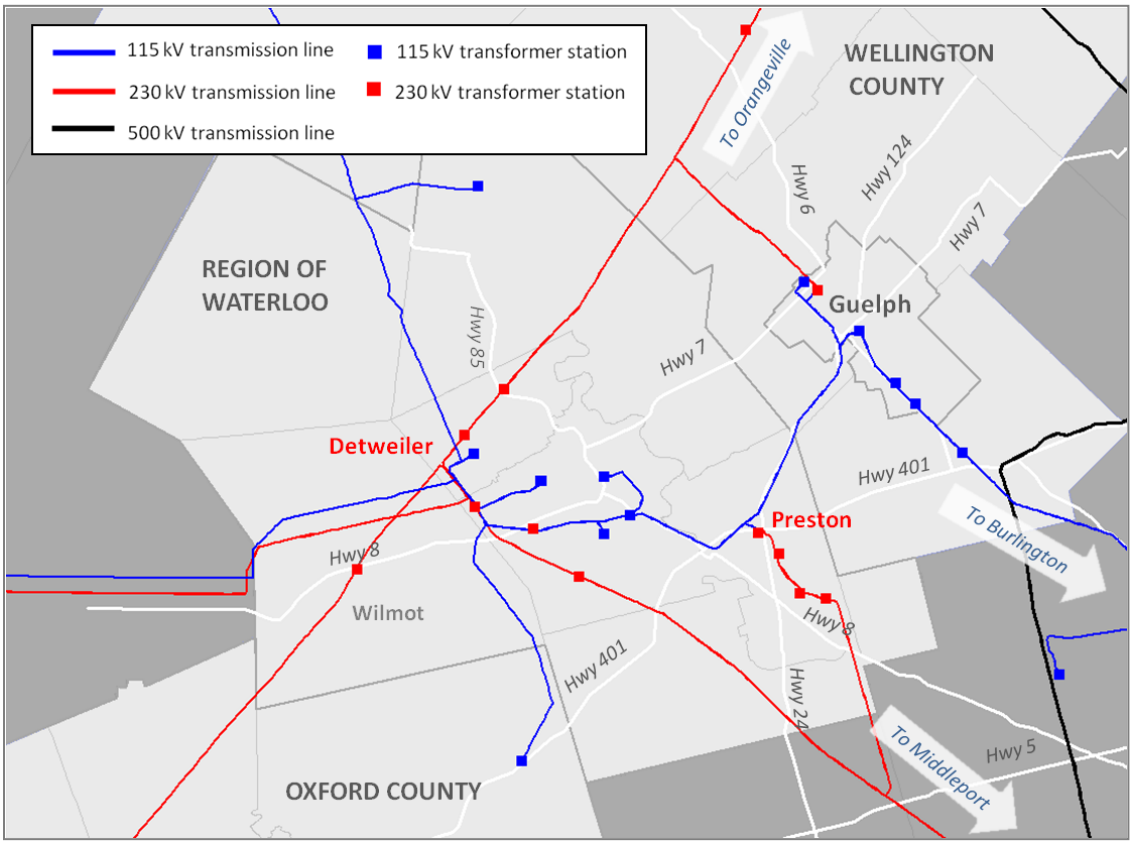
Given the mix of rural and urban development, the nature of growth and local developments may vary across the Region of Waterloo, City of Guelph, Wellington County and the Township of Blandford-Blenheim. The economic activities in the Region of Waterloo and the City of Guelph include a mix of educational institutions, manufacturing, and high-tech industries. For Wellington County and the Township of Blandford-Blenheim, the agriculture and manufacturing sectors play a key role in its economic development.

[8] 2011 Census Data
[9] http://www.placestogrow.ca/

4.2 Existing Electricity System in the KWCG Region

The KWCG Region relies primarily on the regional transmission and distribution infrastructure to deliver electricity into the local area, as there is no large, centralized generation resource in the region. The transmission system within the KWCG Region consists of an integrated 230 kV and 115 kV network. As shown in Figure 4-2, the main sources of electricity into the KWCG Region are Middleport Transformer Station, Detweiler TS, Orangeville TS, and Burlington TS.

Figure 4-2: KWCG Electricity System

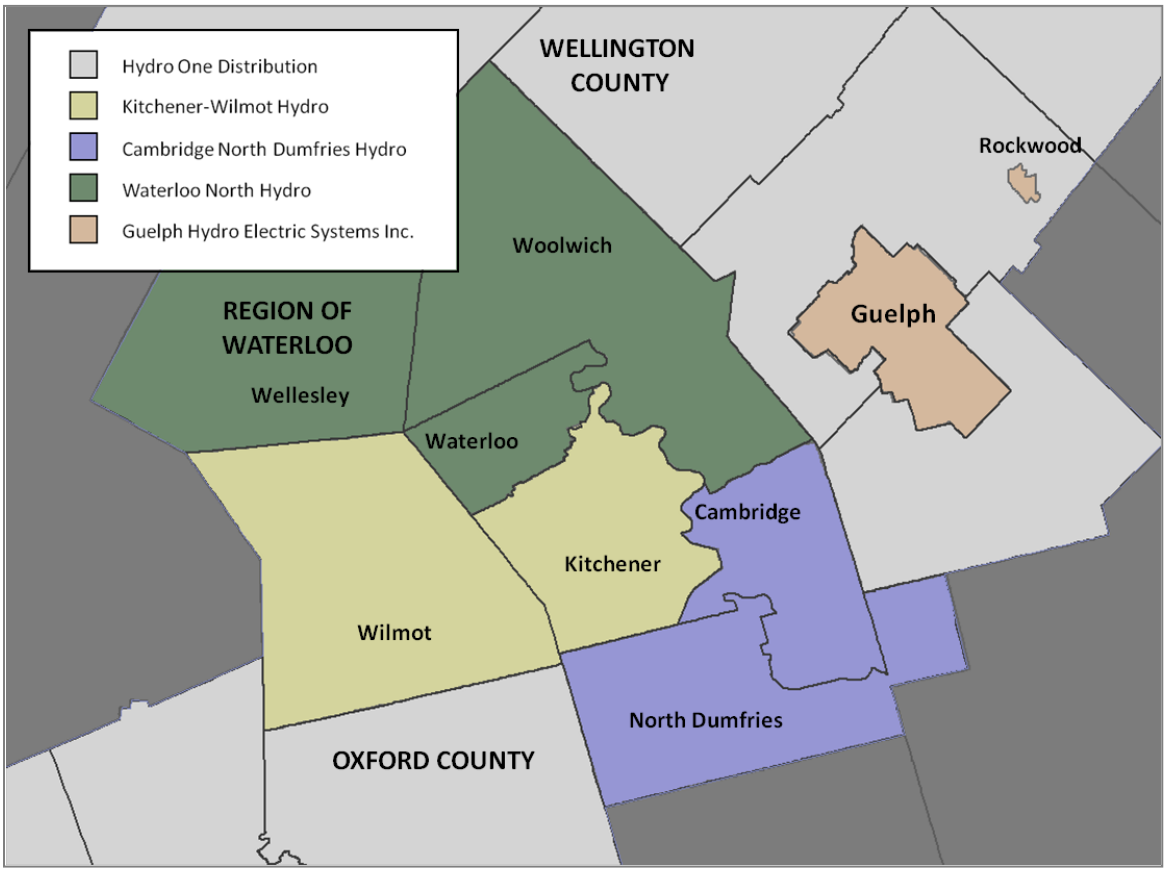


Along these local 230 kV and 115 kV networks, there are three transmission-connected customers and 25 step-down transformers that enable electricity to be delivered from the high-voltage transmission system (115 kV or 230 kV) to the low-voltage distribution systems that serve the communities.

The local distribution system in the KWCG Region is operated and managed by five LDCs: Guelph Hydro Electric Systems Inc. ("Guelph Hydro"), Waterloo North Hydro Inc. ("Waterloo North Hydro"), Kitchener-Wilmot Hydro Inc. ("Kitchener-Wilmot Hydro") Hydro One

Networks Inc. ("Hydro One Distribution"), and Cambridge North Dumfries Hydro Inc. ("Cambridge North Dumfries Hydro"), as shown in Figure 4-3 below.

Figure 4-3: LDC Service Area



5. Demand Forecast

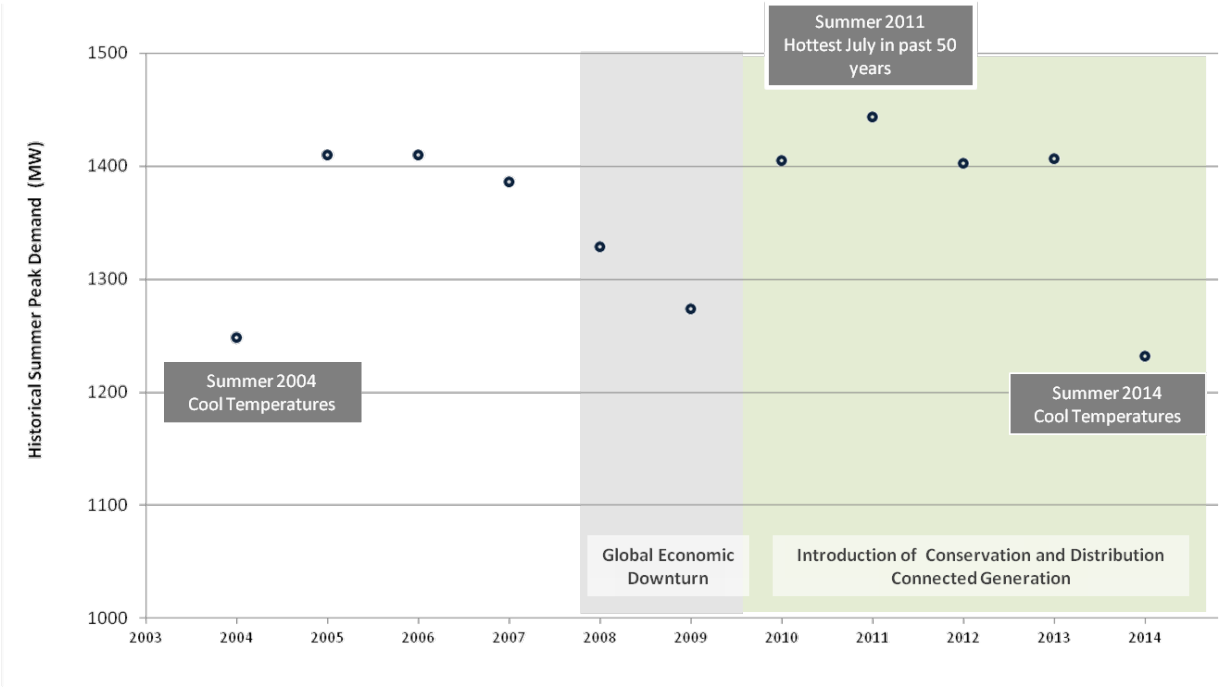
This section describes the specific details of the development of the regional demand forecast: Section 5.1 describes electricity demand trends in the region from 2004 to 2014; Section 5.2 describes the demand forecast methodology used in this study; Section 5.3 provides the near- and medium-term planning forecast; and Section 5.4 explains the long-term planning demand forecast.

5.1 Historical Electricity Demand

The KWCG Region electricity demand is a mix of residential, commercial and industrial loads, encompassing diverse economic activities ranging from educational institutions to automobile manufacturing. While the industrial and commercial sector is the largest consumer of electricity, high-energy-consuming end uses such as air conditioning also play a significant role in contributing to peak electricity demand. During the summer months, peak demand can also be influenced by extreme weather conditions, with peaks in demand typically occurring after several days of high temperatures.

As shown in Figure 5-1, the 2004-2014 historical summer peak demand has fluctuated between 1,250 MW to 1,450 MW, due to a combination of extreme summer temperatures and factors affecting commercial and industrial energy demand, such as the impact of the economic downturn, improvements in energy efficiency ("EE"), and the development of on-site generation. Specifically, the combination of the global recession and low summer temperatures resulted in a decrease in peak demand consumption during 2008 and 2009.

Figure 5-1: Historical Summer Peak Demand in the KWCG Region



In recent years, provincial policies and incentives encouraging conservation, demand response ("DR") and on-site generation have provided opportunities for businesses and residents to better manage their electricity use. These initiatives have resulted in an increase in on-site generation, district energy systems and EE improvements for industrial, commercial, and municipal customers. This in turn has resulted in a reduced reliance on the provincial electricity grid. Local utilities in the KWCG Region have also observed more modest growth in electricity consumption in their service areas due to increased DG and conservation.

5.2 Demand Forecast Methodology

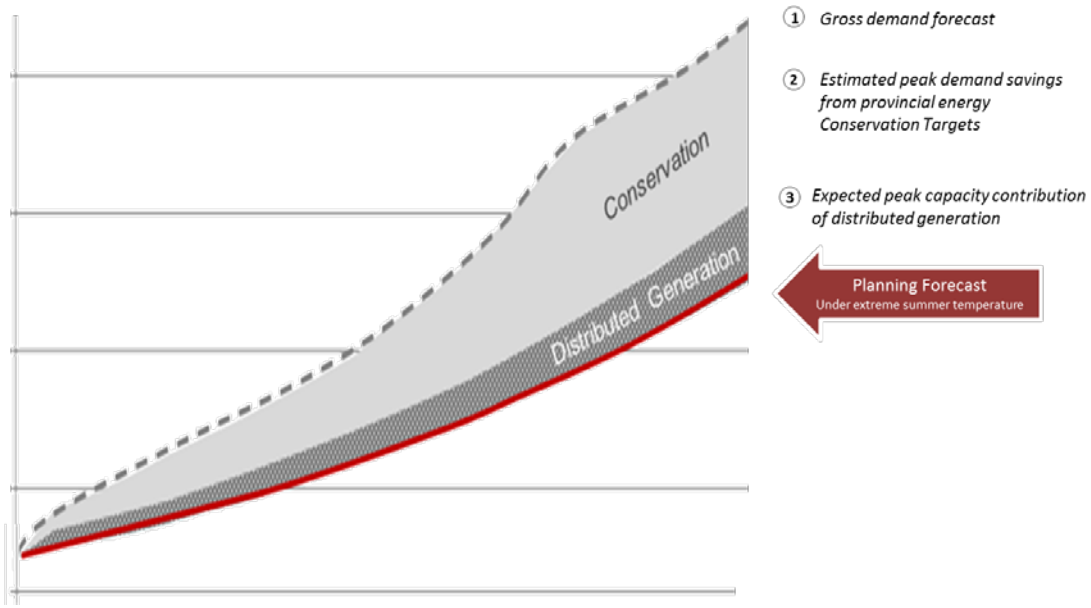
The regional electricity systems in southern Ontario are designed to meet regional coincident peak demand under extreme summer temperature conditions. Regional coincident peak demand is the 1-hour period each year when total regional demand for electricity is the highest.

For the purpose of the IRRP, a 20-year planning forecast is developed to assess supply and reliability needs at the regional level.

The 20-year planning forecast takes into consideration the gross demand forecast, estimated peak demand savings from provincial energy conservation targets, and expected peak capacity contribution of contracted DG, and adjusted to reflect extreme summer temperature conditions,

as shown in Figure 5-2. The methodology and assumptions used for the development of planning forecasts are described in detail in Appendix A.

Figure 5-2: Development of a 20-Year Planning Forecast



The 20-year planning forecast is divided into two timeframes. The first 10 years is developed under normal-year temperature conditions and is based on expected peak demand consumption growth projections from LDCs and from transmission-connected customers' in the LDC's service territory. These growth projections are modified to reflect the estimated peak demand savings from provincial energy conservation targets and contracted DG, and are also adjusted to reflect extreme temperature conditions. This modified forecast represents the near- and medium-term planning forecast, which is required to inform more immediate planning decisions.

For the 10-20-year timeframe, there is greater uncertainty with electricity demand growth, peak demand impact of conservation, DG, and emerging technologies. Longer-term demand scenarios, which consider policy drivers and emerging trends, are developed. These scenarios help communities anticipate potential future electricity demand requirements and electricity supply and reliability needs.

5.3 Near- and Medium-Term Planning Forecast

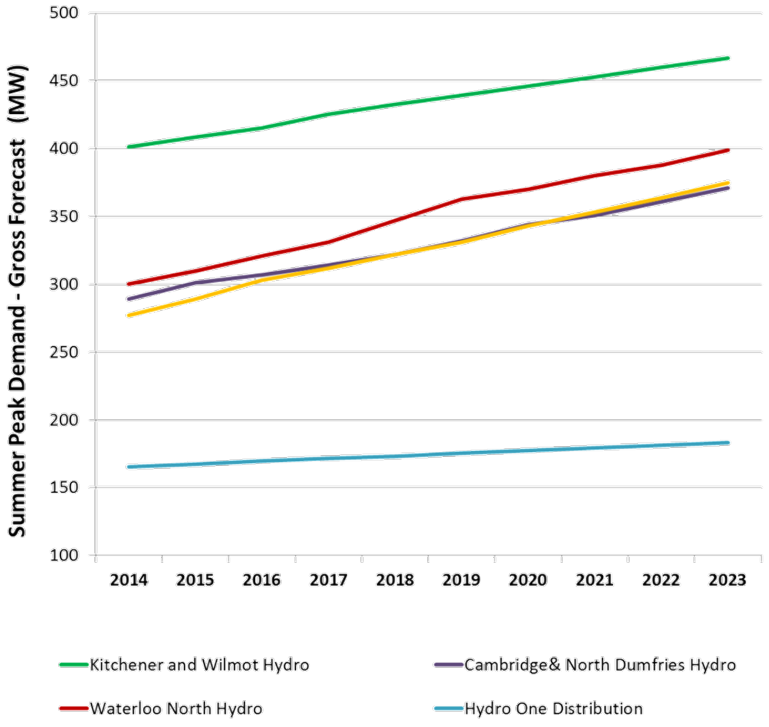
As described above, the near- and medium-term planning forecast (2014-2023) begins with the LDCs' gross demand forecast. Peak demand savings from provincial energy conservation targets and contracted DG are then deducted, and the forecast adjusted for extreme weather to produce the planning forecast. The details of this near- and medium-term forecast are described in the following sections.

5.3.1 Gross Demand Forecast

The gross demand forecast was initially developed in 2010 by the LDCs based on customer connection requests, local economic development and growth assumptions outlined in Ontario's *Places to Grow Act, 2005*, which are reflected in municipal and regional plans. LDCs periodically reviewed and updated the gross demand forecast for their service area to reflect the latest information and electricity demand trends.

Based on the most up-to-date information, LDCs indicate that the gross demand in the KWCG Region is expected to grow at an annual rate of 2.5% in the near and medium term. Consistent with the 2010 projection, Kitchener-Wilmot Hydro, Waterloo North Hydro, and Hydro One Distribution's service areas are forecast to grow at annual rates of 1.7%, 3.2%, and 1.1% respectively. Although Guelph Hydro has made a downward adjustment to the 2014 electricity peak demand level to align with current electricity consumption patterns, it expects electricity peak demand in its service area to grow at an annual rate of 3.4% over the next 10 years. In contrast, Cambridge and North Dumfries Hydro anticipate slower growth in the near term than initially forecast in 2010. A slower than expected economic recovery and a decline in energy usage from industrial customers are the primary reasons for the reduced peak demand growth in the near and medium term. Figure 5-3 shows the gross demand forecast for the LDCs in the KWCG Region.

Figure 5-3: Gross Demand Forecast by LDCs



LDCs	Gross Demand Forecast 2014-2023 Annual Growth Rate
Cambridge & North Dumfries Hydro	2.8%
Guelph Hydro	3.4%
Kitchener-Wilmot Hydro	1.7%
Waterloo North Hydro	3.2%
Hydro One Distribution	1.1%

In addition, three transmission-connected customers also contribute to the overall peak demand in the KWCG Region. For planning purposes, the IESO estimates the peak demand of these transmission-connected customers based on historical metering data and expected peak demand consumption. Prior to 2014, the peak demand of the three transmission-connected customers accounted for approximately 47 MW of the peak demand in the KWCG Region. In 2014, the total peak demand contributed by the transmission-customers was reduced to 12 MW to reflect a reduction in energy usage by a transmission-connected customer in the Cambridge area.

The specific forecasting methodology and assumptions for the gross demand forecast can be found in Appendix A.

5.3.2 Estimated Peak Demand Savings from Provincial Energy Conservation Targets

Conservation plays a key role in maximizing the useful life of existing infrastructure, and maintaining reliable supply. The 2013 LTEP committed to establishing a new 6-year

Conservation First Framework beginning in January 2015 to enable the achievement of all cost-effective conservation. In the near term, Ontario's LDCs have an aggregate energy reduction target of 7 TWh, as well as individual LDC specific targets. These targets are to be achieved between 2015 and the end of 2020 through LDC conservation programs enabled by the Conservation First Framework. Each LDC is required to prepare a CDM Plan describing how their target will be achieved and submit their CDM Plan by May 1, 2015.[10] The LDC CDM Plans will link closely with regional plans, providing more detail about how a portion of the conservation targets that have been incorporated into regional planning will be realized.

As part of the Conservation First policy, the provincial government has adopted a broad definition of conservation that includes various types of customer action and behind-the-meter generation. This means that conservation includes any efforts to reduce the amount of energy consumed from the provincial electricity grid. Conservation initiatives, including behind the meter generation projects and on-site generation,[11] are expected to reduce customers' reliance on the provincial electricity grid and contribute to peak demand savings in the KWCG Region over the next 10 years. For the purpose of this IRRP, the allocation of the provincial energy savings target for the KWCG Region is estimated to offset approximately 144 MW or 40% of the forecast peak demand growth in the KWCG Region between 2014-2023. It is assumed that existing DR already in the base year will continue but savings from potential future DR resources are not included in the forecast. Instead, future savings are considered as possible solution to identified future needs.

Using a planning forecast that is net of provincial energy conservation targets provides consistency with the province's Conservation First policy by reducing demand requirements before assessing any growth-related needs. The planning forecast assumes that the targets will be met, and will produce the expected local peak demand impacts. Therefore, an important aspect of plan implementation will be monitoring the actual peak demand impacts of conservation programs delivered by the local LDCs.

The estimated annual peak demand savings from the provincial energy conservation targets in the KWCG Region are summarized in Appendix A.

---

[10] At the time of this report, the CDM plans have not been submitted by the LDCs. The CDM plans will be available on the IESO and LDCs' websites once they have been submitted and reviewed.

[11] The government has directed the former OPA to "consider CDM to be inclusive of activities aimed at reducing electricity consumption and reducing the draw from the electricity grid, such as geothermal heating and cooling, solar heating and small scale (i.e., < 10 MW) behind-the-meter customer generation."

5.3.3 Expected Peak Demand Contribution of Contracted Distributed Generation

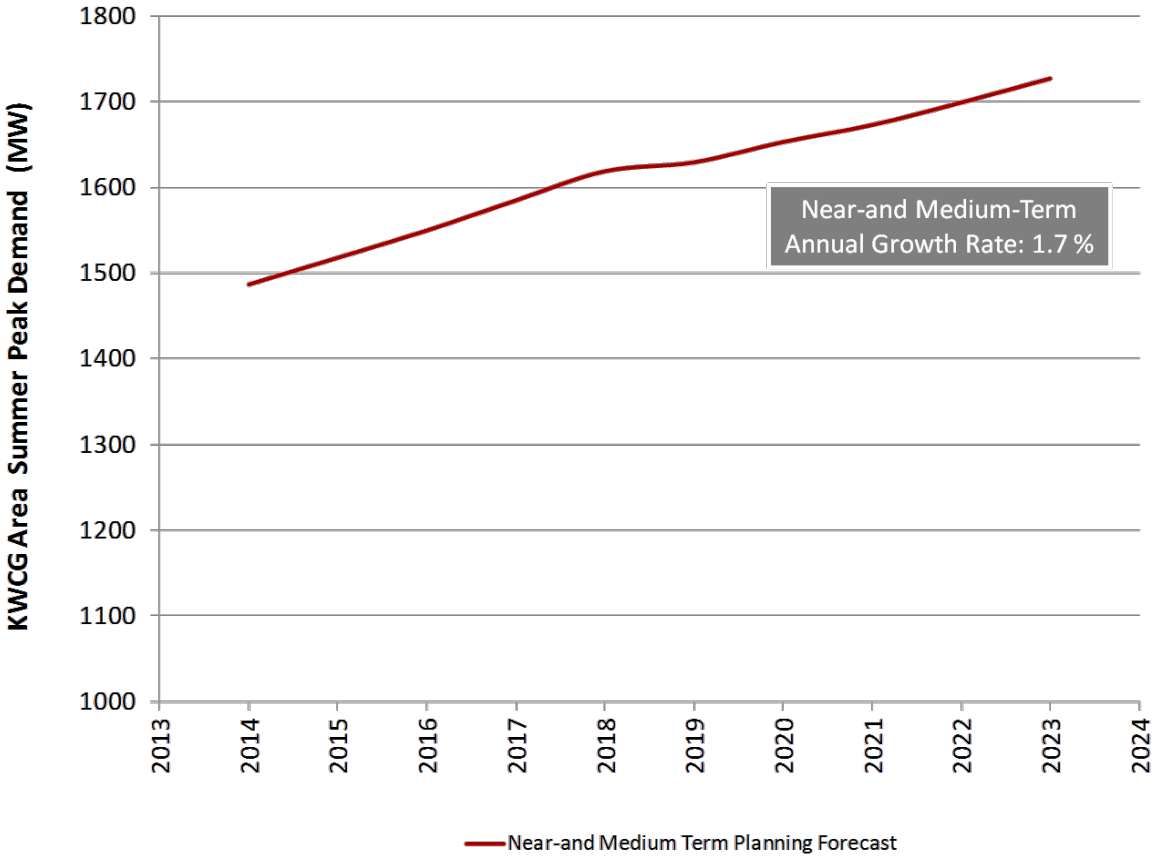
In recent years, a number of DG projects including, wind, solar, hydro and combined heat and power ("CHP") projects, have been developed in the KWCG Region as a result of provincial procurement programs such as FIT and CHPSOP. Since 2010, an additional 98 MW of DG was contracted in the KWCG Region. These contracted DG resources are expected to reduce the regional peak demand by 35 MW or about 10% of forecast demand growth in the Region during the 2014-2023 timeframe. Future DG uptake was, as noted, not included in the planning forecast and is instead considered as an option for meeting identified needs.

The expected annual peak demand contribution of contracted DG in the KWCG Region can be found in Appendix A.

5.3.4 Planning Forecast

Figure 5-4 shows the near- and medium-term planning forecast for the KWCG Region (2014-2023), which takes into consideration the gross demand forecast, estimated peak demand savings from provincial energy conservation targets, and contracted DG adjusted to reflect extreme summer temperature conditions.

Figure 5-4: KWCG Near-and Medium-Term Planning Forecast 2014-2023



According to the planning forecast, the summer peak electricity demand in the KWCG Region is expected to increase at a rate of approximately 1.7% each year, with an incremental peak demand growth of approximately 250 MW between 2014-2023. Over the next 10 years, a large portion of the demand growth will be concentrated in Guelph and Waterloo. The near- and medium-term growth is driven by several concentrated areas of local developments, such as the Region of Waterloo East-Side Lands, the Rapid Transit Initiatives in Waterloo, and the Hanlon Creek Business Park in Guelph.

5.4 Long-Term Planning Forecast

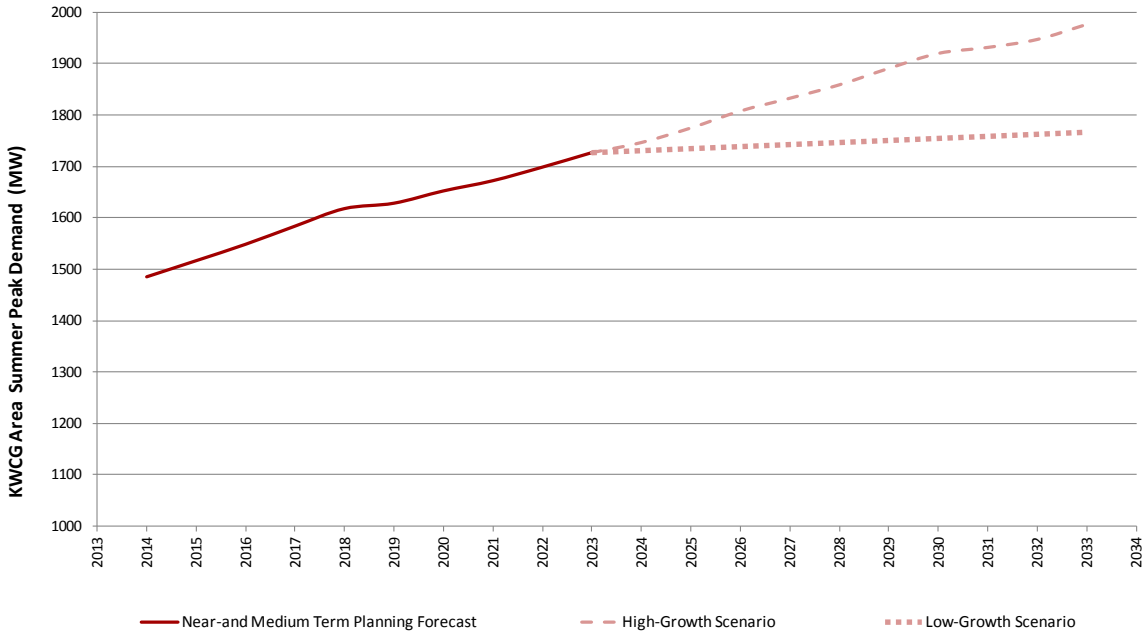
As described in Section 5.2 above, for the 10-20 year timeframe, due to greater uncertainty with electricity demand growth, two longer-term demand scenarios were developed.

Two alternate policy drivers were considered in the development of long-term demand scenarios for the KWCG Region:

- Ontario's *Places to Grow Act, 2005*; and
- Ontario's 2013 LTEP.

The two long-term demand scenarios are shown in Figure 5-5 below and are described in the following sections. Additional details related to the development of these longer-term scenarios are provided in Appendix A.

Figure 5-5: Long-Term Planning Forecast Scenarios 2024-2033



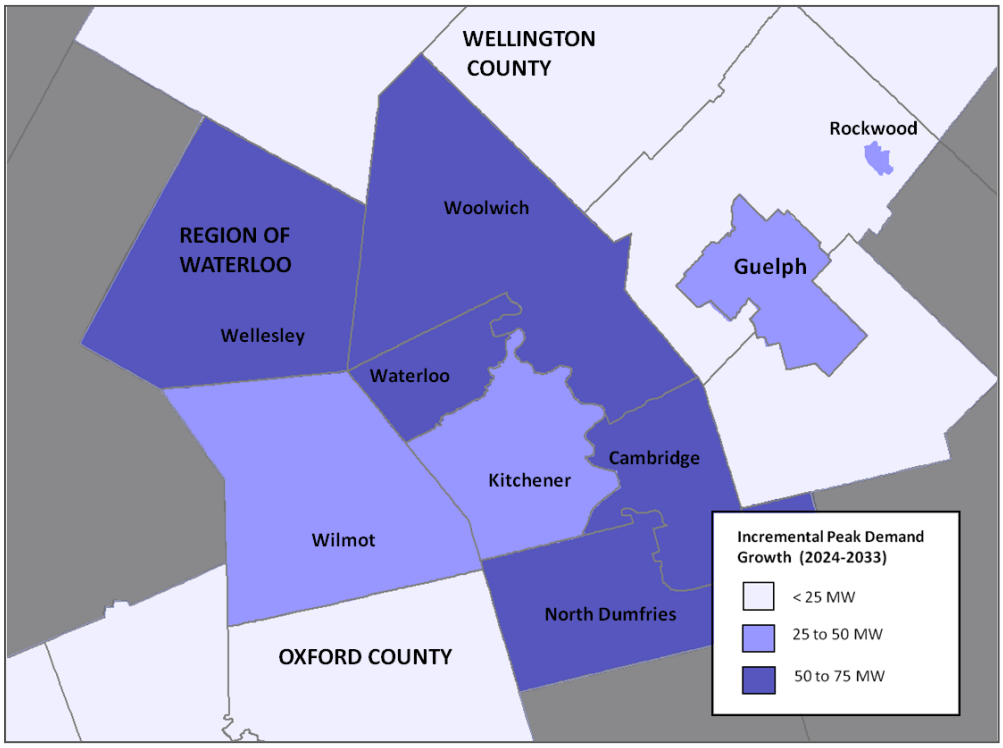
5.4.1 High-Growth Scenario

This scenario reflects the Region's forecast peak electricity demand requirements associated with growth assumptions as detailed in Ontario's Places to Grow plan. It represents a future with sustained electricity demand growth across the region driven by local developments and intensification initiatives outlined in the Places to Grow plan and as reflected in municipal official plans.

Under the high-growth scenario, the summer peak electricity demand requirement in the KWCG Region is forecast to increase at a rate of 1.4% each year over the long term, with an

incremental growth of 150 MW between 2024-2033. Figure 5-6 shows the forecast incremental peak demand growth for the municipalities in the KWCG Region over the longer term.

Figure 5-6: High-Growth Scenario – Incremental Peak Demand Growth 2024-2033 by Municipality



5.4.2 Low-Growth Scenario

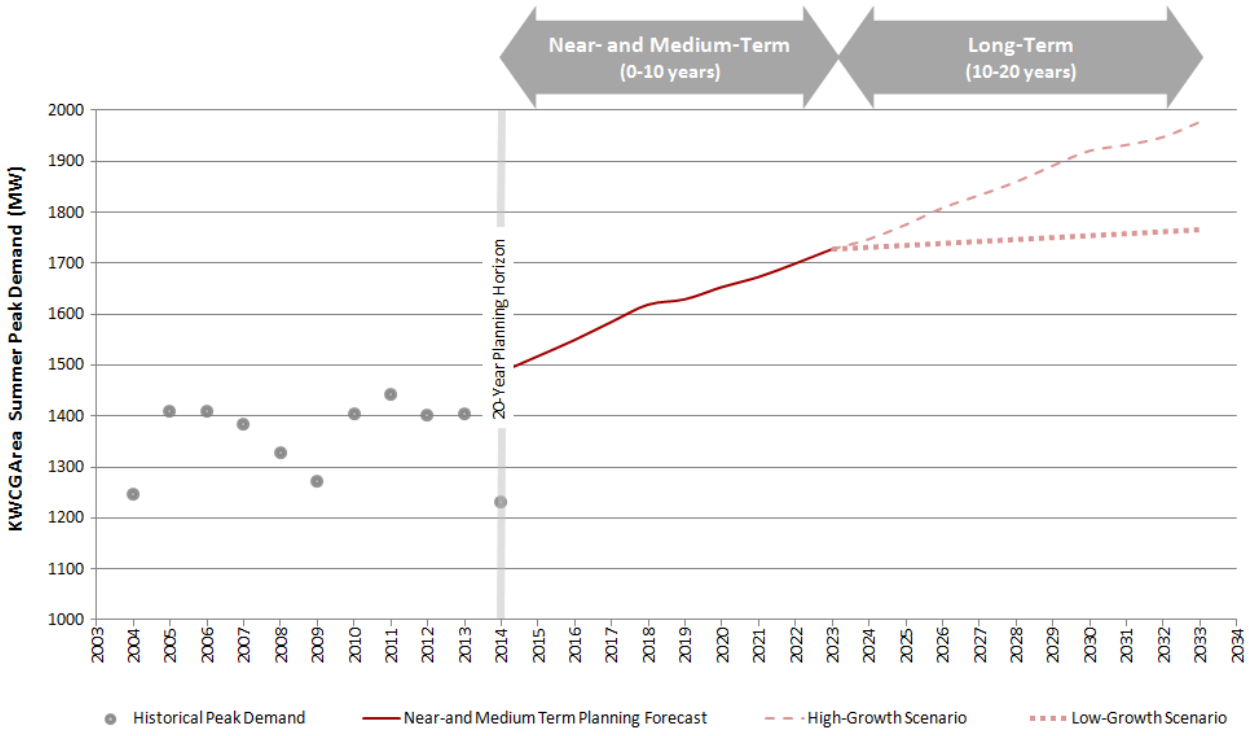
This scenario reflects the region's forecast peak electricity demand requirements associated with the more modest growth assumptions in the 2013 LTEP. The low-growth scenario represents a future with lower electricity demand growth due to higher electricity prices, increased electricity conservation and lower energy intensity within the broader economy. Despite an expected increase in population, energy consumption per household is assumed to decrease over time. Similarly, lower energy intensity is assumed for the commercial and industrial sectors.

Consistent with the 2013 LTEP forecast for southwest Ontario, the peak demand in the KWCG Region beyond 2023 is assumed to grow at a rate of 0.2%, far less than the high-growth scenario. This scenario assumes that electricity demand growth is managed through increased conservation and DG efforts, resulting in less incremental consumption on the provincial electricity grid in the long term.

5.5 Summary of Demand Forecast

The historical peak demand, near- and medium-term planning forecast, and long-term scenarios are shown in Figure 5-7. The annual historical demand data is influenced by variable weather and energy consumption patterns. The planning forecast was developed using assumptions based on extreme weather conditions and typical energy consumption patterns so that demand can be met under a range of conditions. Historical peak demand data was not adjusted to align with the extreme temperature and typical consumption pattern assumptions used in the planning forecast, and as such, may be lower than future projections.

Figure 5-7: Historical Peak Demand, Planning Forecast and Long-Term Scenarios



6. Near- and Medium-Term Plan

The regional planning process considers when system needs may arise by comparing the capability of the existing system with the forecast electricity demand. This section identifies the needs in the near and medium term, considers available options, and recommends actions in the near and medium term.

6.1 Needs Assessment Methodology

The IESO's Ontario Resource and Transmission Assessment Criteria ("ORTAC"),[12] the provincial standard for assessing the reliability of the transmission system, was applied to assess supply capacity and reliability needs. ORTAC includes criteria related to the assessment of the bulk transmission system, as well as the assessment of local or regional reliability requirements (see Appendix B for more details).

Through the application of these criteria, three broad categories of needs can be identified:

- **Transformer Station Capacity** describes the electricity system's ability to deliver power to the local distribution network through the regional transformer stations. This is limited by the 10-day Limited Time Rating ("LTR") of the step-down transformer stations in the local area. Transformer station capacity need is identified when the peak demand at step-down transformer stations in the local area exceeds the combined LTR ratings.
- **Supply Capacity** describes the electricity system's ability to provide continuous supply to a local area. This is limited by the load meeting capability ("LMC") of the transmission line or sub-system which is the maximum demand that can be supplied on a transmission line or sub-system under applicable transmission and generation outage scenarios as prescribed by ORTAC, and is determined through power system simulations analysis (See Appendix B for more details). Supply capacity needs are identified when peak demand on a transmission line or sub-system exceeds its LMC.
- **Load Security and Restoration** describes the electricity system's ability to minimize the impacts of potential supply interruptions to customers in the event of a major transmission outage, such as an outage on a double-circuit tower line resulting in the loss of both circuits. Load security describes the amount of load susceptible to supply interruptions in the event of a major transmission outage. Load restoration describes the

[12] http://www.ieso.ca/imoweb/pubs/marketadmin/imo_req_0041_transmissionassessmentcriteria.pdf

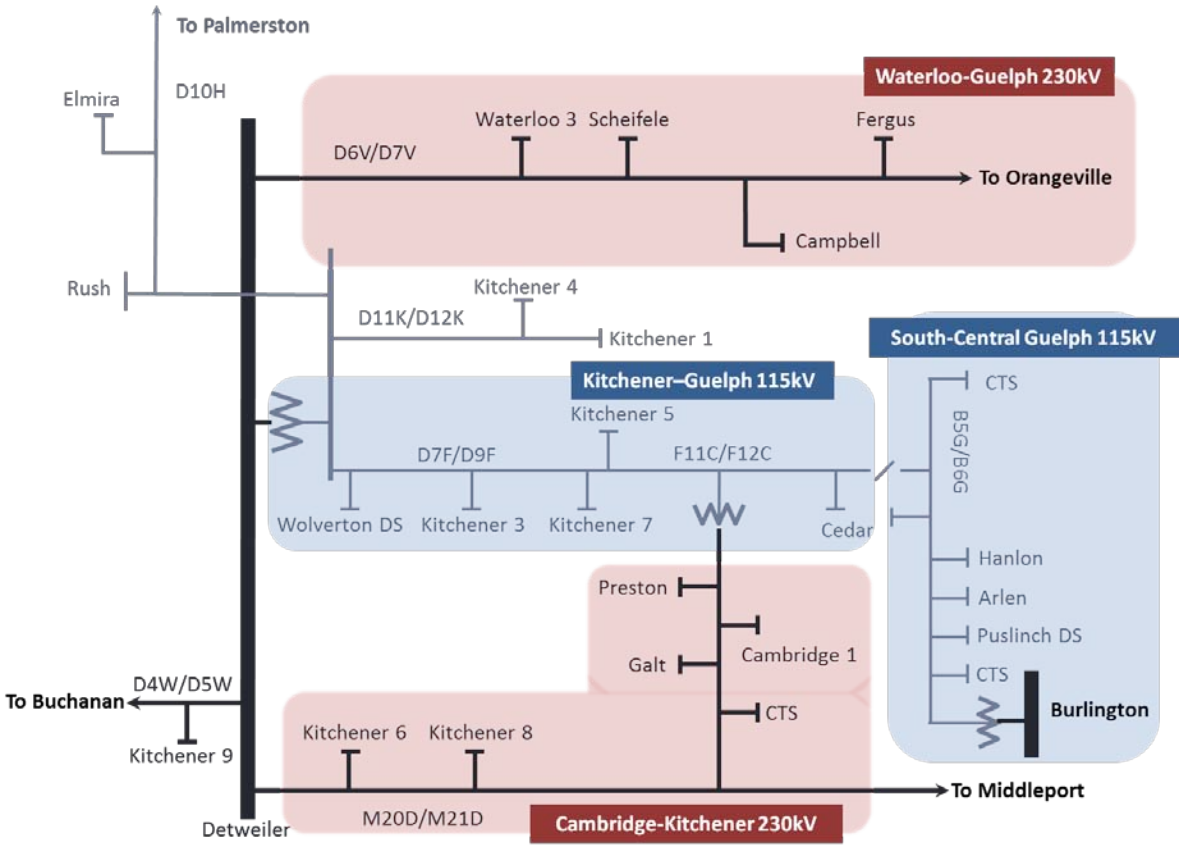
electricity system's ability to restore power to those affected by a major transmission outage within reasonable timeframes. The specific load security and restoration requirements prescribed by ORTAC are described in Appendix B.

In addition, the needs assessment may also identify needs related to transmission reliability performance, equipment end-of-life and planned sustainment activities. Reliability performance describes the frequency and probability of major outages on an electricity system, which can be affected by various factors such as exposure to elements, age and maintenance of equipment, and length and configuration of the transmission or distribution network. Equipment reaching the end of its life and planned sustainment activities may have an impact on the needs assessment and option development.

6.2 Summary of Near- and Medium-Term Needs

As noted earlier, the transmission system within the KWCG Region consists of an integrated 230 kV and 115 kV network. Figure 6-1, The KWCG transmission system can be further subdivided into four regional sub-systems.

Figure 6-1: Regional Sub-systems in the KWCG Region



Today, the 115 kV sub-systems supplying the KWCG Region are at or approaching maximum capacity, and the 230 kV sub-systems have limited ability to restore electricity supply to customers in the event of a major transmission outage. Table 6-1 provides a summary of the near- and medium-term needs in the KWCG Region.

Table 6-1: Near- and Medium-Term Needs in the KWCG Region

Needs	Regional Sub-systems	Need Date
Supply Capacity	South-Central Guelph 115 kV	Today
	Kitchener-Guelph 115 kV	
Load Restoration	Waterloo-Guelph 230 kV	
	Cambridge-Kitchener 230 kV	

6.2.1 Supply Capacity Needs on the South-Central Guelph and Kitchener-Guelph 115 kV Systems

South-Central Guelph 115 kV Sub-system

The South-Central Guelph 115 kV sub-system can provide up to 100 MW of continuous supply to the Kitchener and Guelph area under specific transmission and outage scenarios as defined by ORTAC (South-Central Guelph 115 kV System LMC = 100 MW). Based on the historical peak demand, the summer peak demand in the South-Central Guelph area has already exceeded the 100 MW LMC limit of the South-Central Guelph 115 kV sub-system over the last two years. The existing South-Central Guelph 115 kV sub-system therefore does not meet the ORTAC supply capacity criteria.

Kitchener-Guelph 115 kV sub-system

The Kitchener-Guelph 115 kV sub-system can provide up to 260 MW of continuous supply to the Kitchener and Guelph area under specific transmission and outage scenarios as defined by ORTAC (Kitchener-Guelph 115 kV sub-system LMC = 260 MW). Based on the planning forecast, the peak demand in the Kitchener and Guelph area exceeded the 260 MW LMC limit of Kitchener-Guelph 115 kV system in the summer of 2014. Given the forecast near- and medium-term summer peak demand growth, the existing Kitchener-Guelph 115 kV sub-system does not meet the ORTAC supply capacity criteria.

6.2.2 Load Restoration Needs on the Waterloo-Guelph, and Cambridge-Kitchener 230 kV Sub-system

Waterloo-Guelph 230 kV Sub-system

The Waterloo-Guelph 230 kV sub-system is a 77 km double-circuit 230 kV transmission line (D6V/D7V) between Detweiler TS and Orangeville TS. This system currently supplies about 465 MW of peak demand load in the Waterloo and Guelph area. Based on the planning forecast, the summer peak demand on this system is expected to increase to about 550 MW by 2023. As prescribed by ORTAC, no more than 250 MW of load can be without electricity supply within 30 minutes of a major outage involving the loss of two transmission elements.

In the event of a major outage involving the loss of both transmission circuits on the Waterloo-Guelph 230 kV system (D6/7V), all load supplied by this transmission line would be interrupted. The existing system cannot restore any load within 30 minutes, and can only

restore electricity supply in 3-4 hours using manual restoration procedures. As a result, the Waterloo-Guelph 230 kV system does not meet the ORTAC 30 minute restoration criteria.

A major outage of this type occurred on February 29, 2012, when a forced outage on one of the D6V/D7V circuits, coupled with scheduled maintenance on the companion circuit, resulted in the interruption of electricity supply for three hours to approximately 350 MW of load in Waterloo, Guelph and the surrounding area.

Cambridge-Kitchener 230 kV Sub-system

The Cambridge-Kitchener 230 kV sub-system consists of an 82 km double-circuit 230 kV transmission line (M20D/M21D) between Detweiler TS and Middleport TS. This system currently supplies about 420 MW of peak electricity demand in the Cambridge and Kitchener area. Based on the planning forecast, the summer peak demand on this system is expected to increase to about 480 MW by 2023. As prescribed by ORTAC, no more than 250 MW of load can be without electricity supply within 30 minutes of a major transmission outage.

Should a major outage involving the loss of both transmission circuits on the Cambridge-Kitchener 230 kV system (M20/21D) occur, all load supplied by M20D/M21D would be interrupted. The existing system has the ability to restore up to 65 MW of electricity supply in Cambridge within 30 minutes via the existing 115 kV/230 kV auto-transformer and the circuit switchers at Preston TS. This existing system does not meet the ORTAC criteria because more than 250 MW of load on the Cambridge-Kitchener 230 kV system would still be without service within 30 minutes of a major outage. In fact, a large portion of the customers on the Cambridge-Kitchener 230 kV sub-system would be without power for at least 3-4 hours.

Prior to the installation of the existing 115 kV/230 kV auto-transformer and disconnect switches at Preston TS, power could not be restored to any customers in the area in a timely manner. Such was the case in 2003, when supply to parts of the City of Cambridge, the Township of North Dumfries and the City of Kitchener, totaling over 250 MW, was interrupted for nearly four hours.

6.3 Options to Address the Near- and Medium-Term Needs

In developing the near- and medium-term plan, the Working Group considered a range of integrated alternatives for addressing the needs, including a mix of conservation, generation, transmission and distribution facilities, and other electricity system initiatives. Technical

feasibility, cost, and consistency with long-term needs and options were considered when evaluating alternatives. Solutions that maximized the use of existing infrastructure were given priority.

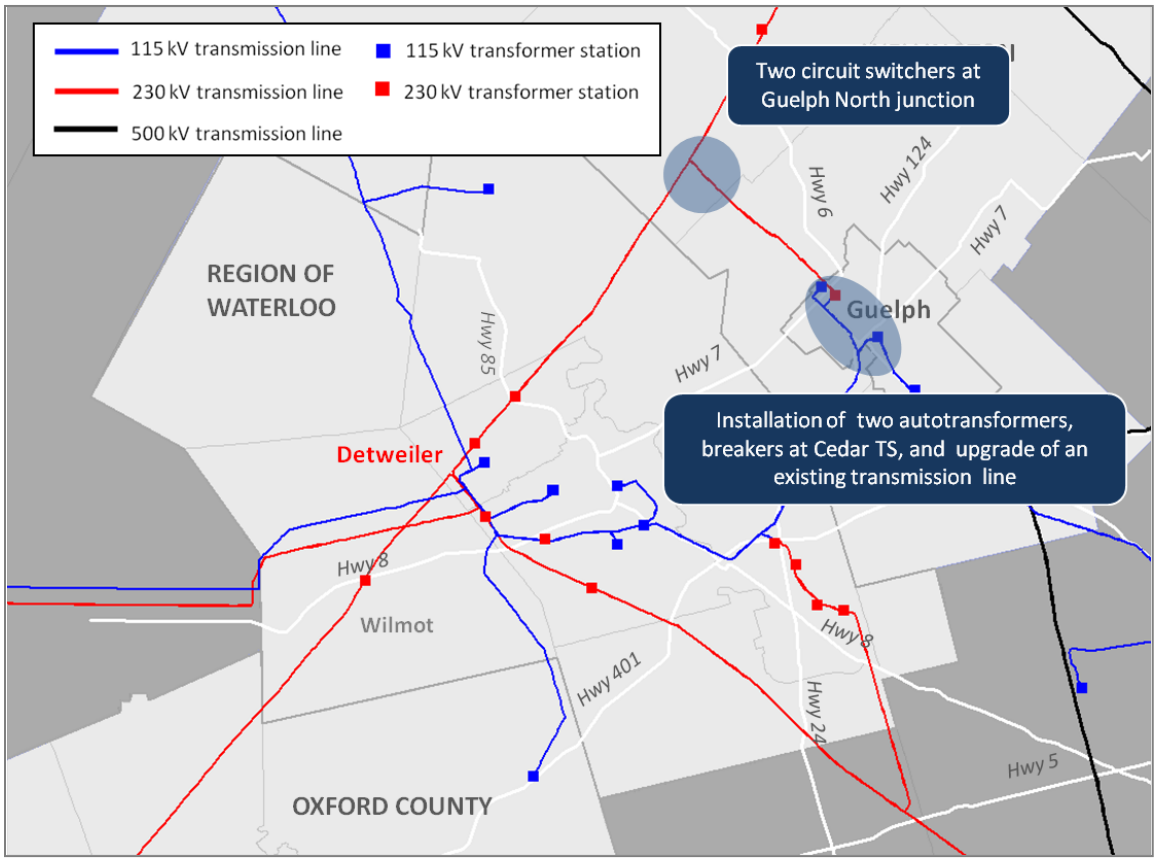
For needs arising in the near term, specific projects are recommended. Given the lead time required to develop electricity infrastructure and CDM programs, these projects must be commenced as soon as possible to ensure customer reliability. Typically, conservation solutions can be implemented within six months, or up to two years for larger projects, whereas transmission and distribution facilities can take 5-7 years. The lead time for generation development is typically 2-3 years, but it could be longer depending on the size and technology type. Recommended actions are therefore identified to initiate investments.

6.3.1 Guelph Area Transmission Refurbishment (GATR) Project

As discussed in Section 3.3, the Working Group recommended proceeding with the implementation of the GATR project, in combination with increased conservation and DG, to address imminent supply capacity and restoration needs in the KWCG Region. This project includes the installation of two 115 kV/230 kV auto-transformers, two 230 kV circuit switchers at Guelph North Junction, two 115 kV breakers at Cedar TS, and the upgrade of an existing transmission line in Guelph (as shown in Figure 6-2). The cost of the GATR project is approximately $95 million. The project was approved by the OEB and is expected to be in-service by spring 2016.[13]

[13] EB-2013-0056 Ontario Energy Board Decision and Order dated September 26, 2013

Figure 6-2: Guelph Area Transmission Refurbishment (GATR) Project



By interconnecting the Waterloo-Guelph 230 kV system with the South Central Guelph 115 kV system and the Kitchener-Guelph 115 kV system, the GATR project maximizes the use of the existing infrastructure and brings a strong source of supply capacity into both 115 kV systems. Following the installation of GATR, there will be sufficient supply capacity on both 115 kV systems to supply electricity demand growth in Guelph and Kitchener and to accommodate up to 100 MW of electricity demand growth in the Cambridge area over the longer term.

The GATR project also improves the ability to restore power to customers on the Waterloo-Guelph 230 kV system. By installing two 230 kV circuit switchers at Guelph North Junction,[14] the sections of the Waterloo-Guelph 230 kV system affected by a possible outage can be isolated

[14] The installation of two 230 kV circuit breakers at Guelph North Junction was originally identified in the GATR Section 92 filing as the preferred option to reduce the impact of supply interruptions to customers on the Waterloo-Guelph 230 kV sub-system. However, after reviewing detailed engineering studies and considering other options, the Working Group determined that it would be cost-effective to install circuit switchers at Guelph North Junction in the near-term and to defer the installation of breakers if and when they are required.

quickly. As a result, about 50% of the electricity supply to customers on the Waterloo-Guelph 230 kV system could be restored within 30 minutes.

The detailed discussion on rationale for GATR and alternatives considered can be found in the Hydro One Inc. Leave to Construct filing for GATR.[15]

6.3.2 Options to Improve Load Restoration on the Cambridge-Kitchener 230 kV Sub-system

As shown in Table 6-2, the GATR project provides sufficient supply capacity on the 115 kV regional sub-systems to meet the electricity demand growth in Guelph, Kitchener and Cambridge over the near and medium term, and improve the ability to restore supply to customers in Waterloo and Guelph. However, the restoration needs on the Cambridge-Kitchener 230 kV sub-system remain.

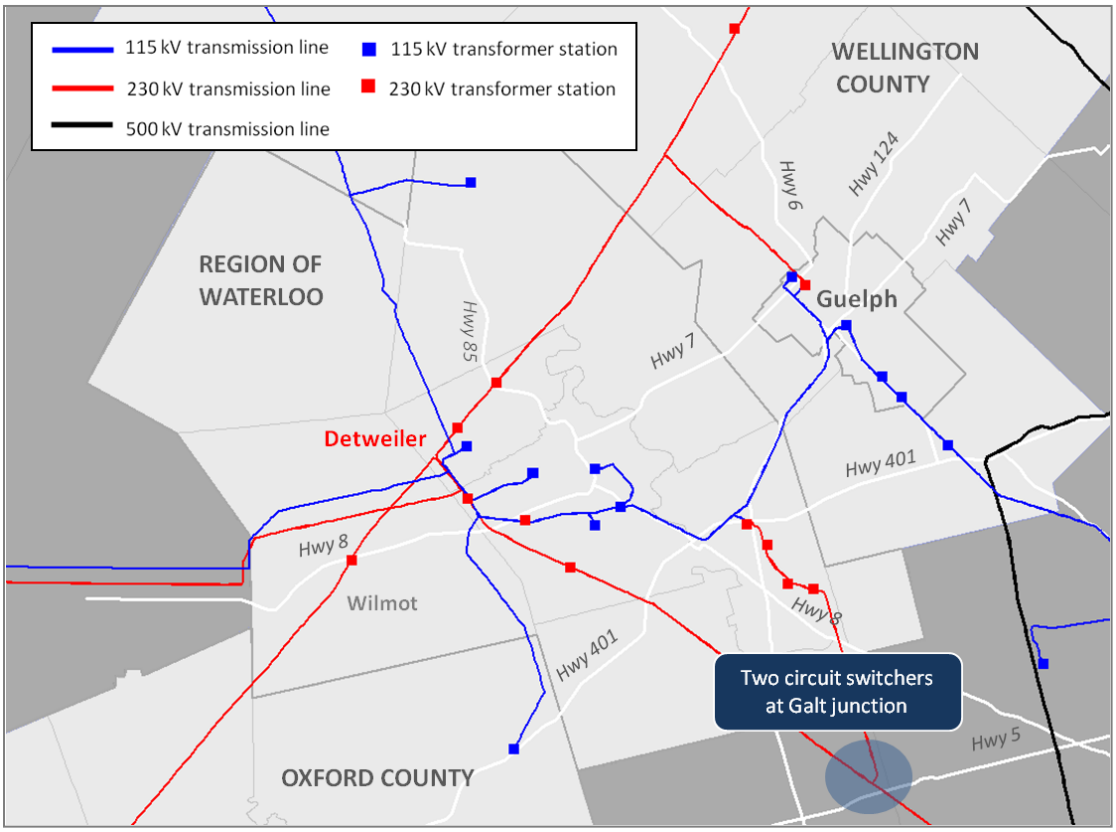
Table 6-2: Summary of Needs Addressed by the GATR Project

Needs	Regional Sub-systems	Needs addressed by the GATR project
Supply Capacity	South Central Guelph 115 kV	✓
	Kitchener-Guelph 115 kV	✓
Load Restoration	Waterloo-Guelph 230 kV	✓
	Cambridge-Kitchener 230 kV	

To substantially improve load restoration in Cambridge and Kitchener in the event of major transmission outages, the Working Group recommended proceeding with the installation of two 230 kV circuit switchers at Galt Junction, near Highway 5, as shown in Figure 6-3. The following section describes the alternatives considered and the rationale for the recommendation.

[15] EB-2013-0056
http://www.rds.ontarioenergyboard.ca/webdrawer/webdrawer.dll/webdrawer/search/rec&sm_udf10=eb-2013-0053&sortd1=rs_dateregistered&rows=200

Figure 6-3: Two Circuit Switchers at Galt Junction



6.3.2.1 Conservation Options

The allocation of the provincial energy savings target is estimated to account for about 40 MW or 40% of the forecast peak demand growth on the Cambridge-Kitchener 230 kV sub-system between 2014-2023. After taking into consideration the estimated peak demand savings from the provincial energy savings conservation targets in the development of the planning forecast, more than 400 MW will still be interrupted on the Cambridge-Kitchener 230 kV sub-system in the event of major transmission outage and power will need to be restored to these customers.

While conservation can be an effective means for communities to manage electricity demand growth and reduce their reliance on the provincial electricity grid, conservation cannot aid in the restoration of power to customers in the event of a major transmission outage. As such, conservation was not considered a feasible solution to address the restoration needs on the Cambridge-Kitchener 230 kV system.

6.3.2.2 Local Generation Options

The extent to which DG can restore electricity supply following a major transmission outage depends on a number of factors, such as the size of the facility, the facility's start-up time, the ramp rate, the availability of black-start capability, storage options, safety protocols and other operating procedures. Given the uncertainties and variability associated with DG, the Working Group agreed that it cannot rely on DG to address restoration needs on the Cambridge-Kitchener 230 kV sub-system.

A large, centralized, transmission-connected generation source (100-200 MW) could improve the restoration on the 230 kV system if properly sited and integrated (e.g., Preston TS and associated switching devices). However, given the high cost associated with large, centralized generation, this option is only cost-effective when it can contribute to both regional and provincial capacity and energy needs. It is not cost-effective to implement a large, centralized generation only for improving load restoration in a local area. This option was therefore ruled out by the Working Group.

6.3.2.3 Distribution Options

One method to restore electricity supply to customers following a major outage on the transmission system is to execute temporary load transfers through the distribution network to unaffected neighboring transformer stations. The amount of load that can be transferred temporarily through the distribution network, as well as the time required to transfer, are highly variable and can depend on various factors such as load level at neighboring stations, distance between stations, voltage of the neighboring distribution system, time of day and operating procedures in place on the distribution system. As such, the Working Group determined that it is difficult to rely on distribution load transfer to restore large amounts of load on the Cambridge-Kitchener 230 kV sub-system in the event of a major transmission outage.

6.3.2.4 Transmission Options

As discussed in Section 3.3, in 2013, the installation of a second 115 kV/230 kV auto-transformer at Preston TS and associated switching and reactive facilities was previously identified by the Working Group as a potential option to address the restoration needs on the Cambridge-Kitchener 230 kV sub-system. In response to the hand-off letter to undertake a detailed study

on the development of the second 115 kV/230 kV auto-transformer at Preston TS option,[16] Hydro One also identified and examined a number of alternatives to reduce the impact of supply interruptions to customers in Cambridge and Kitchener in the event of a major transmission outage on the 230 kV system. Based on Hydro One's analysis,[17] the installation of two 230 kV circuit switchers at Galt junction meets the ORTAC 30-minute restoration criteria on the Cambridge-Kitchener 230 kV sub-system, provides regional benefits, and strikes a reasonable balance between cost, reliability improvement, and feasibility. As such, the Working Group recommended proceeding with the installation of two 230 kV circuit switchers at Galt junction. Hydro One has begun early development work on these switching facilities, which are expected to be in service by spring 2017. Hydro One will continue to examine other potential measures to further improve the restoration capability in the Cambridge area. Please refer to Appendix C for further information regarding load restoration improvements for the Cambridge-Kitchener 230 kV sub-system.

6.4 Recommendations for the Near and Medium Term

Based on the evaluation of alternatives discussed above, the Working Group recommends the actions described below to meet the near-term electricity needs of the KWCG Region. Successful implementation of this plan will substantially address the regional electricity supply needs in the KWCG Region over the next 20 years.

To ensure that the near-term electricity needs of the KWCG Region are addressed, it is important that the near-term plan recommendations are implemented in a timely manner. The specific actions and deliverables associated with the near-term plan are outlined in Table 6-3, along with the proposed timing and the parties that will lead the implementation.

The KWCG Working Group will continue to meet at regular intervals during the implementation phase of this IRRP to monitor developments in the KWCG Region and to track progress toward these deliverables.

[16] OPA Letter to Hydro One - May 29, 2013 for the 2nd Preston Autotransformer: http://www.ieso.ca/Documents/Regional-Planning/KWCG/OPA-Letter-Hydro-One-KWCG.pdf

[17] Hydro One's Kitchener-Waterloo-Cambridge-Guelph area Adequacy of Transmission Facilities Report 2013/2014 report

Table 6-3: Implementation of the Near-Term Plan for the KWCG Region

Recommendations		Action(s)/Deliverable(s)	Lead Responsibility	Timeframe
1	Implement conservation and DG	Develop CDM plans	LDCs	May 2015
		LDC CDM programs implemented	LDCs	2015-2020
		Conduct Evaluation, Measurement and Verification (EM&V) of programs, including peak-demand impacts, and provide results to Working Group	IESO	annually
		Continue to support provincial DG programs	LDCs/ IESO	ongoing
2	Implement the GATR project	Design, develop and construct Seek project approval from the OEB (Leave to Construct application)	Hydro One	Submitted Leave to Construct application on March 8, 2013 Approved by the OEB on Sept 29 2013 In-service spring 2016
3	Install two 230 kV circuit switchers at Galt Junction and explore opportunities to further improve restoration capability in the Cambridge area	Design, develop and construct two 230 kV circuit switchers near Galt junction, near Highway 5 Examine cost and feasibility of potential measures to further improve restoration capability in the Cambridge area	Hydro One	In-service spring 2017

7. Long-Term Plan (2024-2033)

Given the uncertainty in forecasting demand beyond 2023, the purpose of the long-term plan is to consider alternate potential demand scenarios in order to facilitate discussions about how the KWCG Region may plan its future electricity supply, and to lay the groundwork for the next regional planning cycle. This section describes potential long-term needs, approaches to addressing these needs, and recommended actions.

7.1 Summary of Long-Term Needs

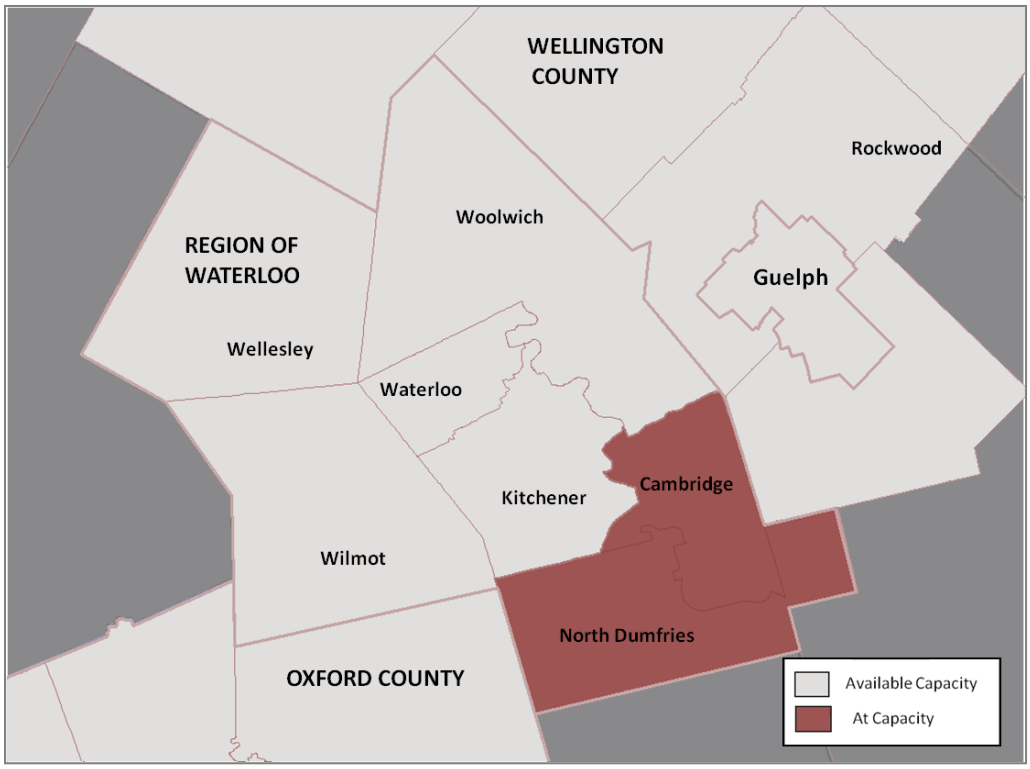
Using the needs assessment methodology outlined in Section 6.1, the KWCG Region was assessed under both of the long-term scenarios: the high-growth scenario and the low-growth scenario.

7.1.1 High-Growth Scenario – Long-Term Needs

Following the implementation of the near-term plan (Section 6.4), there will be sufficient supply capacity on the 115 kV and 230 kV systems over the long term to support the electricity demand growth projected under the high-growth scenario.

Although the 230 kV transmission system supplying customers in the Cambridge area is expected to approach its maximum capacity in the long term, as shown in Figure 7-1, future electricity demand growth in the Cambridge area can utilize the Kitchener-Guelph 115 kV sub-system as an alternative source of supply.

Figure 7-1: Remaining Transmission Supply Capacity 2024-2033



As discussed in Section 6.3.1, once the GATR project comes into service around 2016, there will be sufficient capacity on the Kitchener-Guelph 115 kV sub-system to supply up to 100 MW of peak demand growth in Cambridge over the longer-term. Therefore, no major regional supply and reliability needs are identified in the KWCG Region beyond 2023.

However, localized reliability and supply needs, such as TS capacity needs, may arise in the long term. LDCs are monitoring the load closely to determine the timing of potential transformation needs. Where possible, these LDCs are exploring opportunities to coordinate use and development of TS facilities in the KWCG Region over the long term.

7.1.2 Low-Growth Scenario – Long-Term Needs

Under the low-growth scenario, there is little incremental demand growth in the long term, and no additional needs are identified beyond 2023. Following the implementation of the near- and medium-term plan (see Section 6.4), the electricity system would have sufficient capacity to maintain reliability and manage the demand requirements under the low-growth scenario.

7.2 Approaches to Address Long-Term Needs

For localized needs developing over the long term, there is an opportunity to develop and explore a broader set of options, as specific projects do not need to be committed to immediately. Instead, the focus is on identifying possible approaches to meeting long-term needs, including alternatives that are not currently in widespread use but which show promise for the future. To facilitate these long-term options, preliminary actions should be taken to develop the identified alternatives, monitor growth, and engage with stakeholders and communities in the KWCG Region.

This approach is designed to maintain flexibility, avoid committing ratepayers to investments before they are needed, provide adequate time to gauge the success and future potential of conservation measures, test out emerging technologies, engage with communities and stakeholders, coordinate with any municipal or community energy planning ("MEP/CEP") activities, and to lay the foundation for informed decisions in the future. While it is not necessary to commit to specific projects given forecast uncertainty and technological change, the long-term plan identifies near-term actions to develop alternatives, engage with the communities, gather information and lay the groundwork for future options.

To facilitate discussions about how the KWCG Region may plan its future electricity supply and lay the groundwork for the next planning cycle, the Working Group examined three conceptual approaches to address potential long-term electricity needs in the KWCG Region: community self-sufficiency; delivering provincial resources ("wires" planning); and, large localized generation. In practice, certain elements of electricity plans will be common to all three approaches, and some overlap between them may be necessary. It is likely that all plans will contain some combination of conservation, local generation, transmission and distribution elements. The following section describes the attributes, benefits, risks and implementation requirements associated with each of the three long-term approaches.

7.2.1 Community Self-Sufficiency

The purpose of the community self-sufficiency approach is to reduce a community's reliance on the provincial electricity system by meeting their electricity needs with local, distributed resources and community-based solutions. This approach can include: aggressive DR and conservation programs, DG and advanced storage technologies, micro-grid and smart-grid technologies, and more efficient and integrated process systems combining heat and power and electric vehicles ("EV").

Community self-sufficiency can supplement and/or defer transmission or generation infrastructure development and improve energy security for communities by reducing their reliance on the provincial electricity system through conservation efforts and DG. This approach can be an effective means for addressing localized supply and reliability needs and managing a community's electricity demand growth over the long term.

This approach acknowledges community interest and the desire for grassroots involvement in local electricity planning and infrastructure siting. In recent years, a number of municipalities across the province began undertaking Municipal Energy Plans[18] to better understand their local energy needs, identify opportunities for EE and renewable energy, and to begin aligning their land use planning with energy infrastructure planning. With the self-sufficiency approach, commercial and industrial businesses, educational institutions, municipalities and community energy cooperatives have the ability to take greater ownership of their electricity needs and related infrastructure requirements.

Addressing the long-term needs of the KWCG Region through community self-sufficiency requires leadership from the community to identify local opportunities, to align community energy planning initiatives with the regional electricity planning process, and to develop appropriate local and provincial policy and incentives to guide the development of community-based energy solutions. This can be achieved through the development of municipal and community energy plans and increased coordination between the provincial, regional and municipal governments and local utilities.

As this approach relies on emerging technologies, recently, some communities and/or local utilities are taking action to examine the feasibility, scalability and cost-effectiveness of such technologies through the implementation of pilot projects. Going forward, regulatory guidance would be required to clarify cost recovery mechanisms for emerging technologies and to address the potential risk of stranding assets.

Communities and local utilities in the KWCG Region have become increasingly involved in the development of DG and conservation initiatives as a result of provincial procurement programs and conservation policy. The following sections provide an overview of the ongoing

[18] A Municipal Energy Plan is a comprehensive long-term plan to improve energy efficiency, reduce energy consumption and greenhouse gas (GHG) emissions.

community energy initiatives, policies and solutions being developed in the City of Guelph, Region of Waterloo, Wellington County and Oxford County.

City of Guelph

The City of Guelph places an emphasis on community-based energy management and solutions. According to the Guelph Community Energy Initiative, the City of Guelph has established ambitious goals to reduce energy use per capita, to encourage and facilitate community-based renewable energy systems and to reduce greenhouse gases ("GHG") over the next 20 years.

To facilitate the implementation of these goals under the Guelph Community Energy Initiative, the City of Guelph formed Envida Community Energy Inc. to develop and implement community-based electricity generation, thermal energy and energy management solutions. In recent years, Envida has successfully developed and implemented various district energy, combined heat and power, solar energy and bio-energy projects. Such projects include the Hanlon Creek Business Park District Energy System and Combined Heat and Power Project, the Eastview Landfill Gas Facility, and the Galt District Energy System in downtown Guelph. To facilitate the integration and optimization of these distributed resources, Guelph Hydro has been upgrading its smart grid.

In addition, Guelph Hydro and Envida have taken steps to better understand the potential and feasibility of community-based solutions and emerging technologies. Guelph Hydro conducted an Electric Vehicle Market Research Study in 2011 and was involved with an EV charging station pilot. As part of Guelph's District Energy Strategic Plan, Envida identified 10 potential areas for district energy development and set out a 20-year roadmap for district energy development in Guelph.

To facilitate EE improvements, the City of Guelph has established building codes and efficiency requirements on building renovations and implemented voluntary energy performance labeling in buildings.

Region of Waterloo

The Region of Waterloo released a Corporate Energy Plan for 2014-2024 to effectively manage the region's corporate energy use. Over the next 10 years, the region plans to pursue EE retrofits for buildings and renewable energy generation. The region's Energy Conservation Office ("ECO"), established in 2007, will play a leading role in implementing the goals as

detailed in the Corporate Energy Plan. To date, the ECO has implemented more than 130 conservation and DG projects across the region, including demand shifting, energy audits, building retrofits, and geothermal, biogas, landfill gas, solar heating and solar photovoltaic ("PV") installations. The ECO will provide information on new and emerging generation technologies to the region, by initiating new partnerships with cities and local organizations, attending relevant conferences, and reviewing research publications.

A Climate Action Plan was also developed for the region, as a collective direction for municipal and community leaders to investigate several strategies to reduce energy needs and increase local renewable energy generation. According to the plan, local building codes and standards are to be updated and improved in terms of energy efficiency, targeting building retrofits and new development. In order to help cover capital costs of building retrofits and renewable generation for homeowners, the region will consider using Local Improvement Charges as a funding mechanism. A district energy feasibility study will be conducted for the Region of Waterloo, to identify opportunities within the region for both homes and businesses. By installing public EV charging stations and raising awareness among the local residents, the region intends to have 1,000 EVs in the community. The application of geothermal energy, solar hot water systems and PV net metering solutions will be explored and developed through increased collaboration with LDCs.

The Community Environmental Fund in the Region of Waterloo has supported community-based environmental initiatives, such as supporting a solar thermal project and associated education workshops, and funding a green housing demonstration project combining passive and active solar design as well as integrated energy production.

To facilitate the integration and optimization of distributed resources, LDCs in the Region of Waterloo have invested in advanced smart grid technologies, such as automated switching, Supervisory Control and Data Acquisition ("SCADA"), and outage management systems.

Wellington and Oxford Counties

Both Wellington and Oxford Counties have recently published their Energy Management Plans that outline their goals and initiatives to monitor energy usage, reduce energy consumption and minimize carbon emission and environmental footprints in their communities. These initiatives include installing light emitting diode ("LED") streetlights, conducting energy audits in municipal-owned and high-energy consumption buildings and exploring opportunities for the development of DG in their communities. Today, Wellington County has 15 solar PV units

operating with revenues directed to the Green Energy Reserve, a fund for future green initiatives.

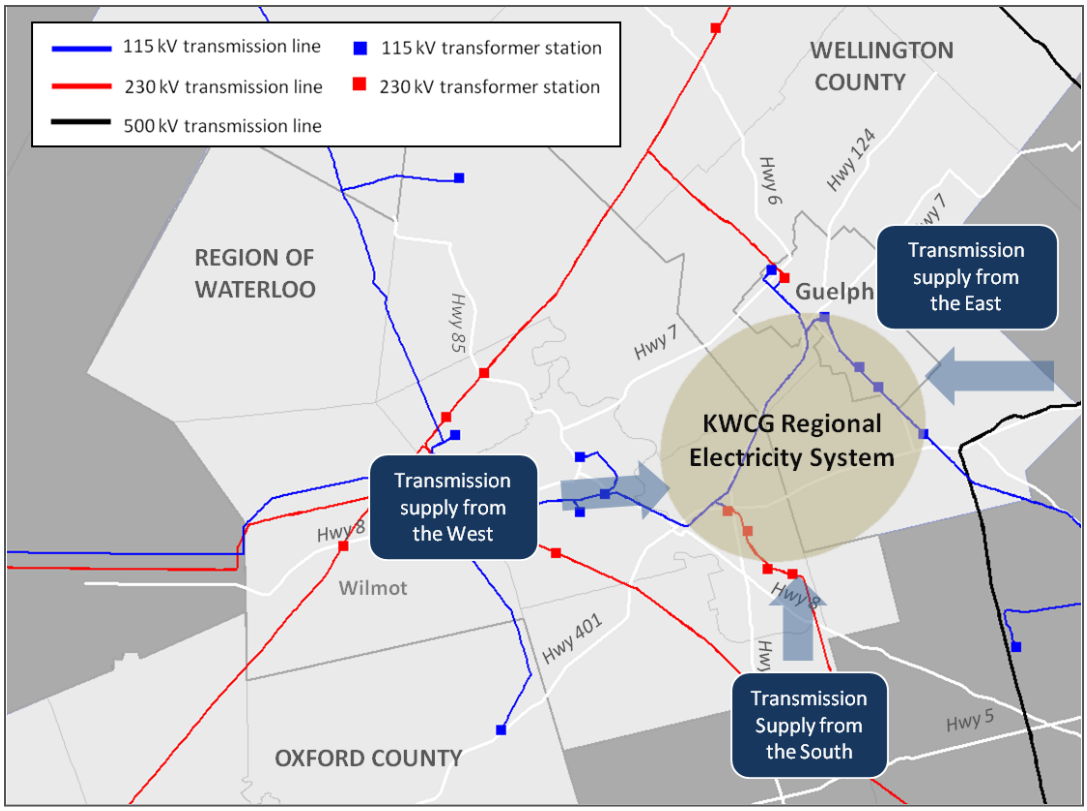
7.2.2 Delivering Provincial Resources ("Wires" Planning)

Delivering provincial resources, or "wires" planning, reflects the traditional regional electricity planning approach associated with the development of centralized electric power systems. This approach involves using transmission and distribution infrastructure to supply a region's electricity needs, taking power from the provincial electricity system. This model takes advantage of generation that is planned at the provincial level, with generation sources typically located remotely from the region. Utilities, both transmitters and distributors, play a lead role in the development of this approach.

Transmission and distribution enhancements, such as the installation of a TS, reactive support and switching facilities, can be an effective means for addressing localized supply and reliability needs in the KWCG Region in the long term.

Although it is not required at this time, a transmission line bringing supply from the west, south or east into the KWCG regional electricity system can be a potential option to address major regional supply needs (as shown in Figure 7-2), if such needs are identified in future planning cycles.

Figure 7-2: Potential Transmission Supply into the KWCG Region



Standard planning practices give preference to solutions that make use of existing corridors and brownfield sites, or that involve development of new joint-use corridors for linear infrastructure. Planning, coordination and engagement with local communities and key stakeholders are required to align land use planning and the siting of transmission and distribution infrastructure. Depending on the requirements and size of the transmission and distribution facilities, the lead time for transmission or distribution facilities is typically 5-7 years. These enhancements may be subject to regulatory approvals, such as a Class Environmental Assessment and a Leave to Construct application. The costs of "wires" solutions would depend not only on the specific infrastructure involved, but also on the cost of providing energy at the provincial system level. Cost responsibility for the transmission and distribution infrastructure would be determined as part of the regulatory application review process.

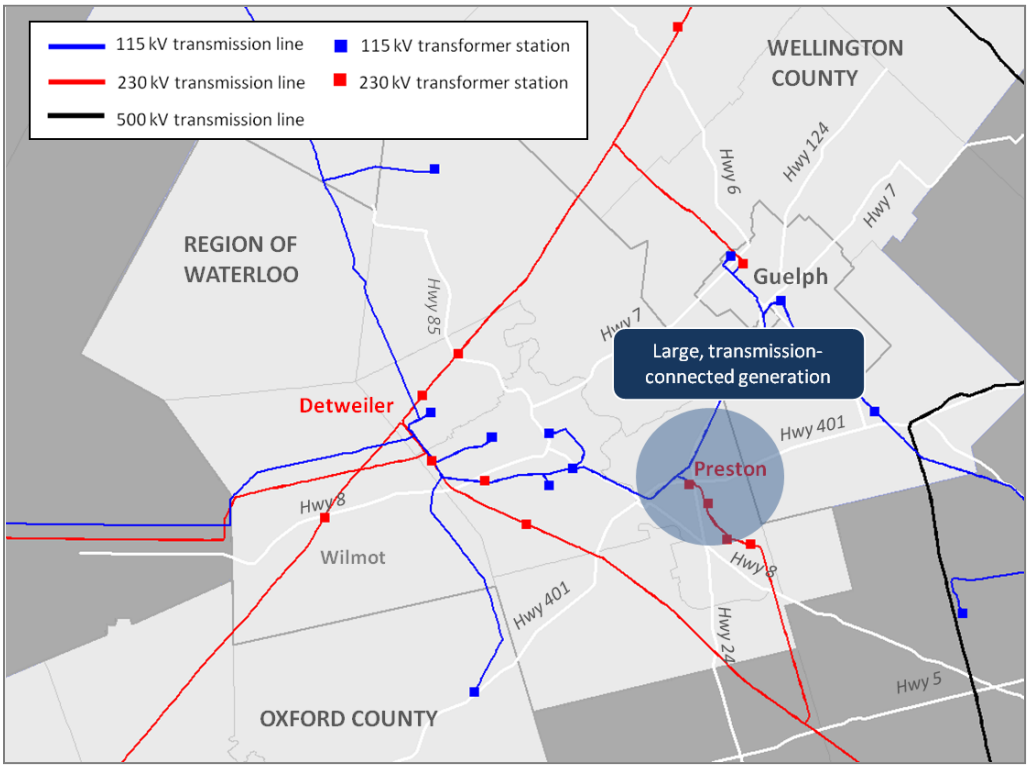
7.2.3 Large, Localized Generation Resources

Siting localized generation based on the size and location of the electricity requirements can be an effective means for addressing major regional supply and reliability needs over the long

term. While this approach is similar to community self-sufficiency in that it shares the goal of providing supply locally, the emphasis is on large, transmission-connected generation facilities rather than smaller, distributed resources.

In the context of the KWCG Region, a large, transmission-connected generation source can be sited near Cambridge (as shown in Figure 7-3) to address major regional supply needs, if such needs are identified in future planning cycles.

Figure 7-3: Large, Transmission-Connected Generation Option



There are a number of factors that need to be considered when siting localized generation, and any decisions about siting this generation would need to align with appropriate recommendations found in the August 2013 report entitled "Engaging Local Communities in Ontario's Electricity Planning Continuum"[19] that was prepared for the Minister of Energy by the OPA and the IESO.

[19] http://www.powerauthority.on.ca/stakeholder-engagement/stakeholder-consultation/ontario-regional-energy-planning-review

As the requirements in the KWCG Region are for additional capacity during times of peak demand, a large, transmission-connected generation solution would need to be capable of being dispatched when needed, and to operate at an appropriate capacity factor. In some cases, additional transmission reinforcements may be required to accompany the generation. In addition, siting may be a challenge if the generation is to be sited in densely populated and/or urban areas.

The cost of the centralized generation option depends on the size and technology of the units chosen, as well as the degree to which they can contribute to the local and provincial capacity or energy need. The lead time for generation development is typically 2-3 years, but it could be longer depending on the size and technology type.

7.3 Recommendations for the Long Term

While specific solutions do not need to be committed to today, it is appropriate to begin work now to gather information, monitor developments, engage the community and develop alternatives to support decision-making for the next iteration of the IRRP. The long-term plan sets out the near-term actions required to ensure that options remain available to address future needs, if and when they arise.

Localized reliability and supply needs may still arise in the long term under certain growth scenarios, but these potential needs do not require any immediate action. There may be opportunity for communities and local utilities to manage their future electricity demand through the development of community-based solutions. Communities and local utilities in the KWCG Region have become increasing involved in the development of DG and conservation initiatives. The results of early community-based pilot projects, energy conservation initiatives, and achievable potential studies will be an important input to the long-term plan for the KWCG Region and will be considered in the next iteration of the KWCG IRRP.

The recommended actions and deliverables for the long-term plan are outlined in Table 7-1, along with the proposed timing, and the parties assigned with lead responsibility for implementation. The KWCG Working Group will continue to meet regularly during the implementation phase of this IRRP to monitor developments in the KWCG Region and to track progress of these deliverables.

Table 7-1: Implementation of Near-Term Actions in Support of the Long-Term Plan for KWCG Region

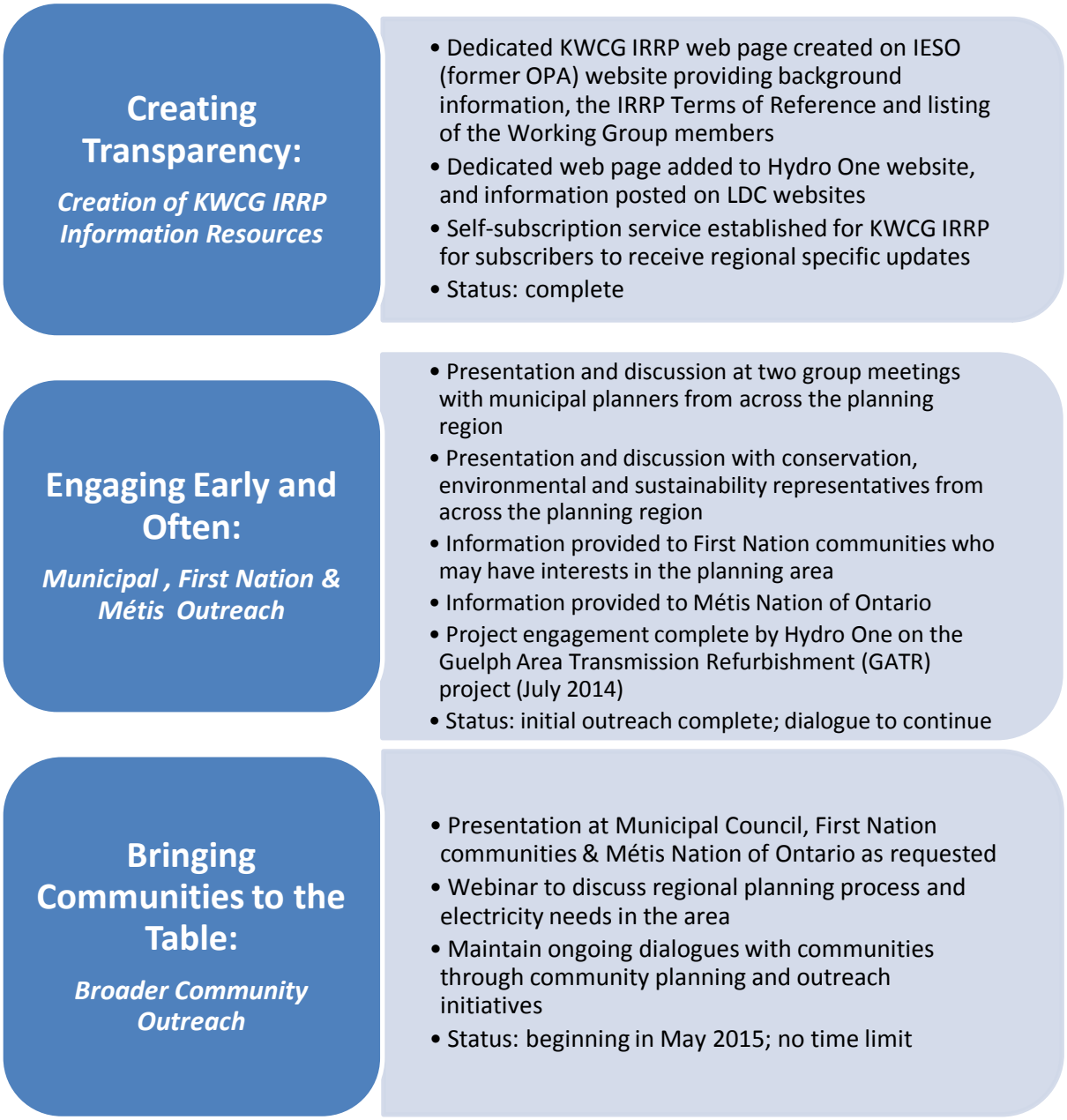
Recommendations		Action(s)/Deliverable(s)	Lead Responsibility	Timeframe
1	Maintain ongoing dialogues with communities about their future electricity supply	Engage with municipalities through community planning and outreach initiatives Engage with First Nations communities through community planning and outreach indicatives	IESO/LDC	2015-2020
2	Monitor load growth, CDM achievement, and DG uptake	Prepare annual update to the Working Group on demand, conservation and DG trends in the area, based on information provided by Working Group	IESO	Annually
3	Coordinate use and development of TS facilities	Monitor growth in respective service area Explore opportunity to coordinate use and development of TS facilities among the LDCs in the KWCG Region	LDCs	2015-2020

8. Community, Aboriginal and Stakeholder Engagement

Community engagement is an important aspect of the regional planning process. Providing opportunities for input in the regional planning process enables the views and preferences of the community to be considered in the development of the plan, and helps lay the foundation for successful implementation. This section outlines the engagement principles as well as the activities undertaken to date for the KWCG Region IRRP and those that will take place to discuss the long-term needs identified in the plan and obtain input in the development of options.

A phased community engagement approach has been developed for the KWCG IRRP based on the core principles of creating transparency, engaging early and often, and bringing communities to the table. These principles were established as a result of the IESO's outreach with Ontarians to determine how to improve the regional planning process, and they are now guiding the IRRP outreach with communities and will ensure this dialogue continues and expands as the plan moves forward.

Figure 8-1: Summary of the KWCG IRRP Community Engagement Process



Creating Transparency

To start the dialogue on the KWCG IRRP and build transparency in the planning process, a number of information resources were created for the plan. A dedicated web page was created on the IESO (former OPA) website to provide a map of the regional planning area, information on why the plan was being developed, the Terms of Reference for the IRRP and a listing of the organizations involved was posted on the websites of the Working Group members. A dedicated email subscription service was also established for the KWCG IRRP where communities and stakeholders could subscribe to receive email updates about the IRRP.

Engaging Early and Often

The first step in the engagement of the KWCG IRRP was meeting with representatives from the municipalities and the First Nations communities in the Region. For the municipal meetings, presentations were made to the KWCG Region municipal planners at two group meetings held in Kitchener and Guelph. The IESO held a separate meeting with representatives of the Six Nations Elected Council. During these meetings, key topics of discussion included Hydro One's Guelph Area Transmission Refurbishment Project (GATR), confirmation of the growth projections, discussion of the near- and long-term needs identified in the KWCG Region, a review of the identified near-term projects including those that have already begun due to timing requirements, and a discussion of the possible approaches to address long-term needs. The discussion also focused on ways to achieve greater community self-sufficiency in the long term, a topic which was also discussed at a separate meeting with conservation, environmental and sustainability representatives from across the planning Region. Invitations to meet to discuss the KWCG IRRP were also extended to the Mississaugas of the New Credit First Nation and to the Haudenosaunee Confederacy Chiefs Council, and the IESO remains committed to responding to any questions or concerns from these communities.

Over the last couple of years, Hydro One has undertaken engagement activities for the GATR project. Going forward, additional engagement activities may be undertaken for other near-term projects. Information on these project-level engagements will be provided on Hydro One's website and will also be listed on the IESO's KWCG IRRP main webpage.

Bringing Communities to the Table

This engagement will begin with a webinar hosted by the Working Group to discuss the plan and potential approaches of possible long-term options. Presentations on the KWCG IRRP will also be made to Municipal Councils on request. To maintain ongoing dialogues with

communities, the IESO and LDCs will continue to engage with First Nations, the Métis Nation of Ontario and municipalities through community planning, environmental and sustainability initiatives and broader community outreach such as, informational public open houses, in between the 5-year regional planning cycle.

Strengthening processes for early and sustained engagement with communities and the public were introduced following an engagement held in 2013 with 1,250 Ontarians on how to enhance regional electricity planning in 2013. This feedback resulted in the development of a series of recommendations that were presented to, and subsequently adopted by the Minister of Energy. Further information can be found in the report entitled "Engaging Local Communities in Ontario's Electricity Planning Continuum"[20] available on the IESO website.

Information on outreach activities for the KWCG Region IRRP can be found on the IESO website and updates will be sent to all subscribers who have requested updates on the KWCG IRRP.

[20] http://www.powerauthority.on.ca/stakeholder-engagement/stakeholder-consultation/ontario-regional-energy-planning-review

9. Conclusion

This report documents the IRRP that has been carried out for the KWCG Region and fulfills the OEB's regional planning requirement for the KWCG Region. The IRRP identifies electricity needs in the KWCG Region over the 20-year period from 2014 to 2033, and recommends a plan to address near-term needs and actions to facilitate discussions about how the KWCG Region may plan its future electricity supply over the longer-term.

Implementation of the near-term plan is already underway. Consistent with the Conservation First policy, LDCs are currently preparing CDM plans, which will be submitted to the IESO by May 2015. Concurrently, the GATR project has been approved and is expected to come into service in 2016. The early development work for the two circuit switchers on the Cambridge-Kitchener 230 kV sub-system is underway. The implementation of these near-term actions would substantially address electricity supply and reliability needs in the KWCG Region and there are no major regional needs identified beyond 2023. Early development work for major electricity infrastructure projects in the KWCG Region is not required at this time. Localized reliability and supply needs may still arise in the long term under certain growth scenarios, but these potential needs do not require any immediate action. There may be opportunity for communities and local utilities to manage their future electricity demand through the development of community-based solutions.

The KWCG Working Group will continue to meet regularly throughout the implementation of the plan to monitor progress and developments in the area, and will produce annual update reports that will be posted on the IESO website. To support development of the long-term plan, a number of actions have been identified to develop alternatives, engage with the community, and monitor growth in the area, and responsibility has been assigned to appropriate members of the Working Group for these actions. Information gathered and lessons learned from these activities will inform development of the next iteration of the IRRP for the KWCG Region. The plan will be revisited according to the OEB-mandated 5-year schedule.

Region of Waterloo

Land Budget

(as Revised April 30, 2009)

Prepared in support of the New Regional Official Plan 2009 – 2029

emphasis on intensification and optimizing the use of the existing land supply represents a new approach to city-building in the Greater Golden Horseshoe, one which concentrates more on making better use of our existing infrastructure, and less on continuously expanding the urban area."

Places to Grow: Better Choices. Brighter Future. Growth Plan for the Greater Golden Horseshoe (2006)

NOTE: The version of the Regional Land Budget presented at the Regional Planning and Works Committee meeting of April 21, 2009 contained an error in Table 4 located in Section 3.4. This version of the Regional Land Budget includes a corrected version of Table 4 along with appropriate revisions to Sections 3.3 and 6.1. None of these changes in any way affect either the conclusions of the April 21, 2009 version of the Regional Land Budget or the recommendation contained in Regional Planning, Housing and Community Services Report P-09-023.

This version of the Regional Land Budget also contains an additional appendix which provides answers to commonly asked questions that arose throughout the process leading to the completion of this document.

Table of Contents

Executive Summary ____ *v*

1.0 Introduction ____ *1*

2.0 The Growth Plan - Context ____ *2*

2.1 Geographic Area of the Analysis ____ 2

2.2 Planning Horizon ____ 3

2.3 Built Boundary ____ 3

2.4 Designated Greenfield Areas ____ 3

2.5 Provincially Constrained Environmental Areas ____ 4

2.6 Minimum Urban Area Capacity ____ 5

3.0 Designated Greenfield Area Capacity ____ *7*

3.1 Residential Designated Greenfield Area ____ 7

3.2 Non-Residential Designated Greenfield Area ____ 8

3.3 Allocation of Required Density Target Between Residential and Non-residential Designated Greenfield Areas ____ 9

3.4 Capacity of Residential and Non-residential Designated Greenfield Areas ____ 10

4.0 Residential Demand ____ *12*

4.1 Net Household Population Increase – Year End 2006 to Year End 2029 ____ 12

4.1.1 2006 Census Household Population ____ 12

4.1.2 Census Household Population Undercount Adjustment Factor ____ 12

4.1.3 Year End 2006 Household Population ____ 12

4.1.4 Growth Plan Population Forecast Extrapolated to 2029 ____ 12

4.1.5 Adjustment for Students ____ 12

4.1.6 Forecasted Increase in Household Population Year End 2006 to Year End 2029 ____ 14

4.1.7 Forecasted Increase in Households Year End 2006 to Year End 2029 ____ 15

4.1.8 Person per Unit Values for New Development ____ 15

4.2 Change in Number of People Housed in the Existing Housing Stock ____ 16

4.2.1 Impact of Vacant Dwellings on Existing Housing Stock Capacity ____ 16

4.2.2 Forecasted Change in Number of People Housed in Existing Housing Stock to 2029 ____ 16

4.3 Reurbanization Rates ____ 17

4.3.1 Existing Reurbanization Rate ____ 17

4.3.2 Required Reurbanization Rate 2006 - 2029 ____ 18

4.4 Calculation of Population and Related Employment to be accommodated within the Residential Portion of the Designated Greenfield Area ____ 18

4.5 Sensitivity Analysis of Reurbanization Rates, Net Population Increases and PPU Projections for Residential Units within the Residential Designated Greenfield Area and within the Built Boundary ____ 22

5.0 Employment ____ *24*

5.1 Employment Forecast – 2006 to 2029 ____ 24

5.1.1 2006 Census – Employment ____ 24

5.1.2 Census Employment Undercount Adjustment Factor and Adjustment to Year End. 24
5.1.3 Growth Plan Employment Forecast Extrapolated to 2029 24
5.1.4 Forecasted Increase in Regional Employment 2006-2029 24
5.2 Jobs to be accommodated within the Non-residential Portion of the Designated Greenfield Area 24
5.2.1 Industrial and Business Park Uses 25
5.2.2 Prime Industrial / Strategic Reserve 26
5.2.3 Major Retail Commercial 27
6.0 Demand Versus Capacity Analysis *29*
6.1 Residential Demand versus Capacity Sensitivity Analysis 29
6.2 Capacity to Accommodate Forecasted Employment 30
7.0 Conclusions *32*
8.0 Glossary *34*
Appendix A: Region of Waterloo Built-up Area
Appendix B: Non-residential and Residential Mapping of the Designated Greenfield Area
Appendix C: Reurbanization Monitoring Line vs the Built-up Area
Appendix D: Land Budget Commonly Asked Questions and Answers

Executive Summary

On June 16, 2006, the Province of Ontario's (Province) Growth Plan for the Greater Golden Horseshoe (Growth Plan) came into effect, thereby creating a new set of rules regulating how expansions to urban areas within the Greater Golden Horseshoe will be considered. The Growth Plan also establishes population and employment forecasts for the Region of Waterloo that are to be used in all planning studies including the preparation of the Regional Municipality of Waterloo's (Region) new Regional Official Plan (ROP). The Regional Land Budget has been prepared in accordance with the provisions of the Growth Plan as a background document to the new ROP to determine whether justification exists to add land to the urban areas of the region as part of the adoption of the new ROP.

In accordance with the provisions of the Growth Plan, the planning horizon for municipal official plans, including the new ROP, is restricted to 20 years. The Places to Grow Act requires that all municipal official plans be brought into conformity with the Growth Plan by June 2009. As a result, the planning horizon for both the Regional Land Budget and the new ROP is the year 2029.

It is important to note that this is not the only opportunity to provide additional land to accommodate development occurring in the next twenty years. In accordance with the provisions of the Planning Act, the new ROP (and by extension corresponding background documents such as the Regional Land Budget) is to be reviewed every five years. As a result, a minimum of three such mandated reviews will occur before the 20 year planning horizon of the new ROP expires. Future changes in assumptions, market conditions and legislation can be reviewed through these processes and appropriate amendments to the ROP, potentially including the extension of the planning horizon to a maximum of 20 years from the date of the review, can be considered at that time. In addition, should an immediate need for urban boundary expansion be determined prior to, or between such reviews, Regional Council may initiate a comprehensive review of the land supply at any time.

There are a number of factors that impact how the community will evolve over the coming years that are in the process of changing. These changes include: the legislative framework within which growth will occur; the demographic make-up of the community; the rising cost of transportation; the changing economy; and the availability of a wider variety of housing, all of which have the potential to affect people's choice of housing type and location as well as the nature of the living arrangements that will form over time. The degree of potential change that can be expected in many of the variables makes accurate forecasting extremely difficult, if not impossible. As a result, the Regional Land Budget does not seek to offer definitive predictions of household size, or choice of unit type that will be experienced in the future. Instead, the Regional Land Budget analyses a range of outcomes for these variables and then tests them against their impact on the need for additional land to accommodate the population and employment forecast within the rules established through the Growth Plan.

The Growth Plan requires that a minimum of 40% of all new residential development occur within the *built-up area* as defined by the Province by the year 2015, and that *designated greenfield areas* be planned to achieve an average density of 50 people and jobs per hectare. These requirements within the Growth Plan effectively establish the minimum capacity of the urban areas to accommodate growth.

Expansions are only permitted when the growth forecasted by the Growth Plan exceeds the minimum capacity of the urban area.

The Growth Plan states that the *designated greenfield areas* will be planned to achieve a minimum *density target* that is not less than 50 people and jobs combined per hectare. If this density cannot be met on certain types of land uses (e.g. non-residential lands or lands already subject to existing plans of subdivision), the Growth Plan requires that the shortfall in capacity be met by increasing the densities on other lands.

One of the difficulties this presents, is that the extent of the transfers in density required to compensate for lower densities elsewhere results in unreasonable densities needing to be achieved in residential *designated greenfield areas*. As a consequence, unless the standard methodology is modified, the resulting densities on the remaining buildable residential *designated greenfield areas* would likely be unachievable.

To address this issue, the Region has proposed to achieve the minimum urban area capacity as anticipated through the Growth Plan using alternative means. By requiring a minimum of 45% intensification to be achieved by the year 2015 instead of 40%, the densities within the residential *designated greenfield areas* required to achieve the minimum urban area capacity can be reduced down to an achievable level with no impact, positive or negative, on the need for urban area expansions. Thereore, the Regional Land Budget recommends that the minimum capacity of the urban area, as calculated by applying the density and intensification targets of the Growth Plan, be achieved by requiring that:

a) an average of 45% of residential development occur within the *built boundary* by the year 2015 and every year thereafter; and

b) *designated greenfield areas* be planned to achieve on average across the region the following densities:

   i) 55 people and jobs per hectare within the residential *Urban Area designated greenfield areas* not subject to plans of subdivision submitted prior to June 16, 2006;

   ii) 45 people and jobs per hectare within the residential *Township Urban Area designated greenfield areas* not subject to plans of subdivision submitted prior to June 16, 2006;

   iii) 40 jobs per hectare within serviced non-residential *designated greenfield areas*;

   iv) 25 jobs per hectare within Prime Industrial / Strategic Reserve lands within the *designated greenfield areas*; and

   iv) 25 jobs per hectare for unserviced non-residential *designated greenfield areas* of the Townships.

The Regional Land Budget also concludes that no additional residential or commercial land is required to meet forecasted growth to 2029, but does continue to support expansions of the urban area for Prime Industrial / Strategic Reserve purposes consistent with the results of the 2006 Industrial and Business Park

Vacant Land Inventory and Demand Analysis. In addition, the Regional Land Budget proposes to permit an urban area expansion for employment purposes within Wellesley Township to provide opportunities for additional land (currently only 2 hectares of vacant non-residential lands exist within the *designated greenfield area*) to assist in meeting the applicable employment forecast.

1.0 Introduction

On June 16, 2006, the Province of Ontario's (Province) Growth Plan for the Greater Golden Horseshoe (Growth Plan) came into effect, thereby creating a new set of rules regulating how expansions to urban areas within the Greater Golden Horseshoe will be considered. The Regional Land Budget has been prepared as a background document to the Regional Municipality of Waterloo's (Region) new Regional Official Plan (ROP). The purpose of the Regional Land Budget is to determine whether justification exists under the provisions of the Provincial Growth Plan to add land to the urban areas of the Region as part of the development of the new ROP. These rules now exist and must be complied with in accordance with the provisions of the Planning Act and other applicable Provincial legislation.

It is important to note that this is not the only opportunity to provide additional land to accommodate development occurring in the next twenty years. In accordance with the provisions of the Planning Act, the new ROP (and by extension corresponding background documents such as the Regional Land Budget) is to be reviewed every five years. As a result, a minimum of three such mandated reviews will occur before the 20 year planning horizon of the new ROP expires. Future changes in assumptions, market conditions and legislation can be reviewed through these processes and appropriate amendments to the ROP, potentially including the extension of the planning horizon to a maximum of 20 years from the date of the review, can be considered at that time. In addition, should an immediate need for urban boundary expansion be determined prior to, or between such reviews, Regional Council may initiate a comprehensive review of the land supply at any time.

There are a number of factors that impact how the community will evolve over the coming years that are in the process of changing. These changes include: the legislative framework within which growth will occur; the demographic make-up of the community; the rising cost of transportation; the changing economy; and the availability of a wider variety of housing, all of which have the potential to affect people's choice of housing type and location as well as the nature of the living arrangements that will form over time. The degree of potential change that can be expected in many of the variables makes accurate forecasting extremely difficult, if not impossible. As a result, the Regional Land Budget does not seek to offer definitive predictions of household size, or choice of unit type that will be experienced in the future. Instead, the Regional Land Budget illustrates a most likely scenario and then analyses a range of outcomes for these variables against their impact on the need for additional land to accommodate the population and employment forecast within the objectives established through the Growth Plan. Within the Regional Land Budget, the terms intensification (as used in the Growth Plan) and reurbanization (as used in the new ROP) are used interchangeably and are intended to mean the same thing.

As part of the preparation of the Regional Land Budget, Regional staff has consulted with the Province, the Area Municipalities, the Waterloo Regional Homebuilder's Association, and the Prosperity Council of Waterloo Region's Regional Growth Management Strategy Liaison Task Force. Subsequent implementation processes, such as the establishment and distribution of density targets will also be undertaken in collaboration with our Area Municipal partners.

2.0 The Growth Plan - Context

In June 2006, the Province established the Growth Plan under the Places to Grow Act, 2005 that regulates how growth is to be managed within the Greater Golden Horseshoe (which includes the Region of Waterloo). All decisions relating to Planning Act applications, and all municipal planning exercises within the Region of Waterloo, must conform to the Growth Plan.

The Growth Plan was prepared and needs to be read in conjunction with the 2005 Provincial Policy Statement and the Greenbelt Plan. In the event of conflict between these Provincial documents, the Growth Plan prevails to the extent of any conflict, the one exception being where the policies of the other documents speak to protection of the natural environment or human health. In such a case, the policies that provide more protection to the natural environment or human health prevail. For the purposes of the Regional Land Budget, the policies of the Growth Plan are the appropriate policies to be considered.

The Growth Plan contains residential and employment growth forecasts for the region that are to be used for planning and managing growth. The Growth Plan also specifies density and intensification targets that must be met within the Growth Plan's planning horizon of 2031. The need to achieve these targets represents one of the most important changes in policy direction the Province has established through the development and approval of the Growth Plan.

The following are the key policy areas of the Growth Plan that need to be addressed and considered as part of the Regional Land Budget.

2.1 Geographic Area of the Analysis

Policy 2.2.8.2 a) of the Growth Plan regulates the geographic area to which the justification analysis applies. Policy 2.2.8.2 a) states that expansions may only occur where:

> "Sufficient opportunities to accommodate forecasted growth contained in Schedule 3, through intensification and in *designated greenfield areas*, using the intensification target and density targets, are not available:
>
> i) within the regional market area, as determined by the upper- or single-tier municipality, and
>
> ii) within the applicable lower-tier municipality to accommodate the growth allocated to the municipality pursuant to this plan"

The Glossary in the Growth Plan describes the "regional market area" as an area that has a high degree of social and economic interaction and in Southern Ontario in particular, as normally being the area of the upper- or single tier municipality. Consistent with the Growth Plan, the Region of Waterloo will be considered the regional housing market area for the purposes of the analysis.

The test provided in Policy 2.2.8.2 a) of the Growth Plan first requires there to be a lack of sufficient

opportunities to accommodate growth at the 'regional market level" (determined above to be the Region of Waterloo) before any expansions can be considered. As a result, the analysis contained in the Regional Land Budget initially addresses the need at the Regional scale. If there is found to be a lack of sufficient capacity, consistent with the policies of the Growth Plan, the analysis will be expanded to address which of the Area Municipalities requires additional land to be added to their respective urban areas.

2.2 Planning Horizon

The Places to Grow Act requires all municipalities within the Greater Golden Horseshoe to amend their Official Plans to conform to the Growth Plan by June 16, 2009. Policy 2.2.8.2 b) in the Growth Plan requires that expansions may only occur where:

> "the expansion makes available sufficient lands for a time horizon not exceeding 20 years, based on the analysis provided for in Policy 2.2.8.2 (a)"'

Consequently, the maximum planning horizon for the new ROP, and therefore the Regional Land Budget, is the year 2029.

2.3 Built Boundary

The *built boundary* is defined by the glossary in the Growth Plan as being: "The limits of the developed urban area as defined by the Minister of Public Infrastructure Renewal" (now the Ministry of Energy and Infrastructure). On April 2, 2008, the Ministry of Public Infrastructure Renewal released the final version of the *built boundary* (see Appendix 'A'). The *built boundary* is to remain fixed in place throughout the life of the Growth Plan and is to be used primarily for two purposes:

a) to delineate the boundary between the *built-up area* and the *designated greenfield area* for the purposes of implementation of policies within the Growth Plan; and

b) to serve as a monitoring line for the purposes of determining compliance with the policies of the Growth Plan.

2.4 Designated Greenfield Areas

The Growth Plan defines the *designated greenfield area* as the area within a *settlement area* that is not within the *built-up area* (See Appendix A). For the purposes of the Regional Land Budget, the "*settlement area*" referred to in the definition of *designated greenfield area* will consist of the lands designated as *City Urban Area* or *Township Urban Area a*nd *Settlement Areas* within the current Regional Official Policies Plan, where a *built boundary* has been delineated by the Province. Given their extremely limited capacity for new development, and the fact they are primarily privately serviced, Rural S*ettlement Areas* and/or Industrial/Commercial Areas that have not been assigned a *built boundary* by the Province are not considered to contain any *designated greenfield area.*

The Growth Plan states that the *designated greenfield area* will be planned to achieve a minimum *density target*. The Growth Plan's *designated greenfield area density target* applies to all lands within the *designated greenfield area* net of *provincially constrained environmental areas* as defined in Section 2.6 below. The Growth Plan does not allow other areas of land that may otherwise be undevelopable due to existing development, the lack of existing or planned infrastructure, or environmental constraints (e.g. locally significant woodlots, wetlands and parkland) to be exempt from the *density target* in the *designated greenfield area*. As a result, developable land will have to achieve a density higher than the overall average *density target* to compensate for density that cannot be accommodated on otherwise undevelopable land not meeting the test of a *provincially constrained environmental area* as provided for in the Growth Plan (see Section 2.6 below).

Similar to undevelopable land not meeting the test of a *provincially constrained environmental area*, where certain categories of development within the *designated greenfield area* (such as privately serviced non-residential land) cannot meet the *density target*, then the density of another category needs to be increased accordingly to compensate for it.

While plans of subdivision (pending, draft approved and registered) that existed as of June 16, 2006 are exempted from the provisions of the Growth Plan, the lands subject to these plans remain subject to the *density target*. As a result, any shortfall in the densities associated with the existence of these plans needs to be made up on the remainder of the *designated greenfield area*. Therefore, the actual density which must be achieved on the developable portion of the region's *designated greenfield area* will be higher than the overall average *density target* established by the Province.

2.5 Provincially Constrained Environmental Areas

Provincially constrained environmental areas refer to natural features found in the *designated greenfield area* where the feature is both identified in an applicable official plan or Provincial plan, and where the applicable Provincial plan or policy statement prohibits development in the feature. The area of these features will be considered *provincially constrained environmental area* and will be removed from the *designated greenfield area* to which the *density target* will be applied. Mapping of *provincially constrained environmental areas* can be seen in Appendix A. For the purpose of the Regional Land Budget, these features are defined as:

a) Environmentally Sensitive Policy Areas (as designated in the ROP);

b) Provincially Significant Wetlands (as identified by MNR);

c) Provincially Significant Woodlands (woodlands > 4 hectares in size);

d) Significant Valleys (includes the floodplains of the Grand, Conestogo, Speed and Nith Rivers); and

e) Habitat of Threatened and Endangered Species (as identified by MNR).

Note: The Habitat of Endangered and Threatened Species is not included on mapping as part of Appendix 'A' in order to protect such area from disturbance. However, the area of such habitat not

included in the other features noted above, will be considered *provincially constrained environmental area* for the purposes of density calculations.

2.6 Minimum Urban Area Capacity

The Growth Plan requires that a minimum intensification rate of 40% of all new residential development occur within the *built-up area* as defined by the Province by the year 2015, and that *designated greenfield areas* be planned to achieve an average density of 50 people and jobs per hectare. The combination of these requirements within the Growth Plan effectively establishes the minimum capacity of the urban areas within the region to accommodate growth. Expansions are only permitted when the growth forecasted by the Growth Plan exceeds the minimum capacity of the urban area.

As noted above, the Growth Plan states that the *designated greenfield areas* will be planned to achieve a minimum *density target* that is not less than 50 people and jobs combined per hectare. If this density cannot be met on certain types of land uses (e.g. non-residential lands or lands already subject to existing plans of subdivision), the Growth Plan requires that the shortfall in capacity be met by increasing the densities on other lands. As part of the preparation of the Regional Land Budget, it has been determined that such transfers in density onto the remaining residential *designated greenfield areas* to compensate for lower densities on non-residential lands and existing residential subdivisions would result in densities on this remaining land that are unachievable without locating significant quantities of high density development within the *designated greenfield area*, high density development that would be required around Major Transit Station Areas to achieve other policies within the Growth Plan.

To address this issue, the Regional Land Budget proposes to achieve the same minimum urban area capacity as anticipated through the Growth Plan through alternative means. By requiring a minimum intensification rate 45% to be achieved by the year 2015 instead of 40%, the densities within the residential *designated greenfield areas* required to achieve the minimum urban area capacity as anticipated by the Growth Plan can be reduced down to an achievable amount with no impact, positive or negative, on the need for urban area expansions. Therefore, the Regional Land Budget recommends that the minimum capacity of the urban area, as calculated by applying the density and intensification targets of the Growth Plan, be achieved by requiring that:

a) an average of 45% of residential development occur within the *built boundary* by the year 2015 and every year thereafter; and

b) *designated greenfield areas* be planned to achieve on average across the region the following densities:

   i) 55 people and jobs per hectare within the residential *Urban Area designated greenfield areas* not subject to plans of subdivision submitted prior to June 16, 2006;

   ii) 45 people and jobs per hectare within the residential *Township Urban Area designated greenfield areas* not subject to plans of subdivision submitted prior to June 16, 2006;

iii) 40 jobs per hectare within serviced non-residential *designated greenfield areas*;

iv) 25 jobs per hectare within Prime Industrial / Strategic Reserve lands within the *designated greenfield areas*; and

iv) 25 jobs per hectare for unserviced non-residential *designated greenfield areas* of the Townships.

Plans of subdivision submitted prior to June 16, 2006 are exempt from the minimum *designated greenfield area* densities noted above, but will be required on average to achieve densities consistent with the those incorporated in the plans at the time of submission. The proposed *designated greenfield area* density and intensification targets provided for in the Regional Land Budget, including the capacity of plans of subdivision submitted prior to June 16, 2006 as noted above, deliver the same minimum urban area capacity as anticipated by the Growth Plan.

3.0 Designated Greenfield Area Capacity

Determination of the capacity of the *designated greenfield area* is a relatively simple process given the rules established in the Growth Plan. The first step in this process is to determine the area between the *built boundary* established by the Province and the urban boundary as designated in the ROP. The second step is to net out the *provincially constrained environmental areas* as defined in accordance with the provisions of the Growth Plan. The third is to multiply the *designated greenfield area* net of the *provincially constrained environmental areas* by the 50 people and jobs per hectare *density target* established in the Growth Plan. The fourth step is to subtract the number of residents and jobs that already exist within the area. The result of these calculations is the capacity within the *designated greenfield area* for the purposes of the justification process established by the Growth Plan.

In order to determine the capacity of the *designated greenfield area* for employment and residential uses, land use designations in Area Municipal official plans were aggregated into two categories; "residential" and "non-residential" lands and were mapped accordingly (See Appendix B). The non-residential category reflects lands designated for non-residential uses only, such as business parks and industrial land. The remaining land was considered residential. For the purposes of the Regional Land Budget, lands categorized as residential will contain all residential land uses, and may contain blocks of land set aside for commercial plazas, small businesses and other employment uses generally associated with residential areas (such as schools, daycares and churches), it may also contain mixed use blocks were both employment and residential uses may be located in one area.

For the purposes of the Regional Land Budget, Area Municipal Official Plan land use designations where development is not generally permitted, such as parks or designated open space, have been assigned to the adjacent or surrounding "non-residential" or "residential" category land uses. Where such lands meet the test of a *provincially constrained environmental area*, they are netted out as noted above.

Mapping of the *designated greenfield area,* including the residential and non-residential categories and the *provincially constrained environmental areas* are contained in Appendix B.

3.1 Residential Designated Greenfield Area

The total area of the residential component of the *designated greenfield area* net of *provincially constrained environmental areas* is 3,612 ha. Table 1 provides a breakdown of the residential component of the *designated greenfield area* net of *provincially constrained environmental areas* by Area Municipality.

Residential Designated Greenfield Area by Municipality (Table 1)			
Municipality	Urban Area Residential DGA net of provincial constraints (ha)	Township Urban Area Residential DGA net of provincial constraints (ha)	Total
City of Cambridge	774		774
City of Kitchener	1,553		1,553
City of Waterloo	529		529
Township of North Dumfries		128	128
Township of Wellesley		50	50
Township of Wilmot		177	177
Township of Woolwich	157	244	401
REGION TOTAL	3,013	599	3,612

3.2 Non-Residential Designated Greenfield Area

The total area of the non-residential component of the *designated greenfield area,* net of *provincially constrained environmental areas,* is 1,955 ha. Table 2 provides a breakdown of the non-residential component of the *designated greenfield area* net of *provincially constrained environmental areas* by Area Municipality.

Non-residential Designated Greenfield Area by Municipality (Table 2)				
Municipality	Designated Serviced Non-residential DGA net of provincial constraints (ha)	Designated Unserviced Non-residential DGA net of provincial constraints (ha)	Prime Industrial Non-residential DGA net of provincial constraints	Total
City of Cambridge (includes 300 net hectares of PISR and 43 hectares of associated land justified for inclusion)	429		343	772
City of Kitchener	225		0	225
City of Waterloo	320		0	320
Township of North Dumfries (includes 100 ha of soon to be designated PISR)		100	100	200
Township of Wellesley		2	0	2
Township of Wilmot	92		0	92
Township of Woolwich	201	143	0	344
REGION TOTAL	1,267	245	443	1,955

3.3 Allocation of Required Density Target Between Residential and Non-residential Designated Greenfield Areas

The Growth Plan requires *designated greenfield areas* to be developed at an average density of 50 people and jobs per hectare. Achieving this *density target* is virtually impossible in some categories of land uses and so there needs to be compensation for reduced densities in some areas, by applying higher densities in others. Consideration in establishing these densities was given to the availability of transit services, wastewater and water servicing, and the current understanding as to the proposed uses of the land. Compensation for reduced densities on residential plans of subdivision within the *designated greenfield area* submitted prior to June 16, 2006 is calculated based on the actual densities of the plans submitted (see Table 3).

Total Area of Land Under Residential Plan as of June 16, 2006 and Average Density of Residential Land Under Plans of Subdivision within the Designated Greenfield Area by Municipality
(Table 3)

	Urban Area				Township Urban Area			
	Cambridge	Kitchener	Waterloo	Woolwich UA	Woolwich TUA	Wilmot	North Dumfries	Wellesley
Area (ha)	178	670	256.7	92.2	14.6	112.7	24.2	28.8
Population and PRE (P&J)	7,468	34,621	11,822	2,983	740	4,604	1,084	1047
Density Under Plan (P&J/ha)	42	51.6	46.1	32.4	50.7	40.85	44.8	36.4

To compensate for the reduced densities on residential plans of subdivision within the designated greenfield area, while keeping the density required to be achieved on the residential lands outside of plans of subdivision to a reasonable level, Regional staff is proposing an alternative calculation methodology which achieves the minimum urban area capacity as described in Section 2.6. To achieve this minimum urban area capacity, Regional staff propose increasing the reurbanization rate to 45 percent by 2015 (an average annual rate of 42% to 2029) as discussed in Section 2.6. This increase in reurbanization effectively transfers higher density development to areas better serviced by high frequency transit consistent with the objectives of the Growth Plan.

Compensation for reduced densities on non-residential lands was based on the amount of land expected to be used within the planning horizon. This will be assumed to be: 10% of the forecast on unserviced non-residential lands (87.7 ha); 15% of the forecast on Prime Industrial / Strategic Reserve non-residential lands (131.47 ha); and 75% of the forecast on serviced non-residential lands (410.85 ha).

The following are the densities proposed for the *designated greenfield area* in order to achieve the minimum urban area capacity consistent with the objectives of the Growth Plan.

Residential Designated Greenfield Areas within the Urban Area (55 people and jobs/hectare for all land not subject to a plan of subdivision as of June 16, 2006) - Includes all residential *designated greenfield areas* within the Cities of Cambridge, Waterloo and Kitchener and the Breslau Settlement Area in the Township of Woolwich as shown in Appendix B. There are 3,013 hectares of residential *designated greenfield area* within the *Urban Areas* of the region.

Residential Designated Greenfield Areas within Township Urban Areas (45 people and jobs/hectare for all land not subject to a plan of subdivision as of June 16, 2006) - Includes all residential *designated greenfield areas* within the *Township Urban Areas* of Wellesley, Elmira, St. Jacobs, New Hamburg, Baden and Ayr as shown in Appendix B. There are 599 hectares of residential *designated greenfield area* within the *Township Urban Areas* of the region.

Serviced Non-residential Designated Greenfield Areas (40 jobs/hectare) - Includes all non-residential areas designated for full services. There are 1,609 hectares of full serviced non-residential *designated greenfield area* within the region.

Unserviced non-residential Designated Greenfield Areas (25 jobs/hectare) - Includes all non-residential areas not designated for full services. There are 345 hectares of unserviced non-residential *designated greenfield area* within the region.

Prime Industrial / Strategic Reserve Lands (25 jobs/ha) - This will include all lands designated as Prime Industrial / Strategic Reserve within the ROP. There are currently no lands designated as Prime Industrial / Strategic Reserve fully approved at this time. Regional Official Plan Amendment No. 28, which seeks to establish the first 150 hectares of Prime Industrial / Strategic Reserve in the northern part of Cambridge is currently before the Ontario Municipal Board. In addition to the lands subject to Amendment No. 28, justification has been established for an additional 150 hectares of serviced and 100 hectares of unserviced Prime Industrial / Strategic Reserve through the Industrial and Business Park Vacant Land Inventory and Demand Analysis (2006). This justification was recently accepted by the Ontario Municipal Board in a preliminary ruling relating to ROPP Amendment No. 28.

3.4 Capacity of Residential and Non-residential Designated Greenfield Areas

Based on the required densities as outlined in Section 3.3, Tables 4 and 5 illustrate the capacities within the residential and non-residential *designated greenfield areas*.

Capacity in the Designated Greenfield with 42% Average Yearly Reurbanization (Table 4)						
City	Capacity of Plans of Subdivision in the DGA (p&j)	DGA Outside of Plans of Subdivision (ha)	Capacity of Urban Area DGA outside of Plans of Subdivision 55 p&j density	Capacity of Township Urban Area DGA outside of Plans of Subdivision 45 p&j density	Existing Development Outside of Plans (p&j)	Net Residential DGA Capacity (p&j)
Cambridge	7,468	596	32,780		1,111	39,137
Kitchener	35,621	883	48,565		2,899	81,287
Waterloo	11,822	272.3	14,976.5		703	26,096
Woolwich UA	2,983	64.8	3,564			
Woolwich TUA	740	229.4		10,323	352	17,258
Wilmot	4,604	64.3		2,893.5	140	7,358
North Dumfries	1,084	103.8		4,671	19	5,736
Wellesley	1,047	21.2		954	54	1,947
REGIONAL TOTAL	65,369	2,235	99,886	18,842	5,278	178,818

Non-residential Designated Greenfield Area and Capacity by Municipality (Table 5)					
Municipality	Non-residential DGA Net of Provincial Constraints (ha)	Gross Non-residential DGA Capacity (40 Jobs) (25 PISR)	Gross Non-residential Unserviced DGA Capacity (25 Jobs) (25 PISR)	Existing Development (P&J)	Net Non-residential DGA Capacity (Jobs)
City of Cambridge	429	17,160		95	25,640
	343 PISR	8,575			
City of Kitchener	224	8,960		14	8,946
City of Waterloo	320	12,800		21	12,779
Township of North Dumfries	100		2,500	9	4,991
	100 PISR		2,500		
Township of Wellesley	2		50	1	49
Township of Wilmot	92	3,680		5	3,675
Township of Woolwich	201 Serviced 143 Unserviced	8,040	3,575	73	11,542
REGION TOTAL	1,954	59,215	8,625	218	67,622

4.0 Residential Demand

4.1 Net Household Population Increase – Year End 2006 to Year End 2029

4.1.1 2006 Census Household Population

The household population of the Region of Waterloo as reported in the 2006 Census was 478,121.

4.1.2 Census Household Population Undercount Adjustment Factor

The population forecasts provided within the Growth Plan for the Region of Waterloo use the population reported through the 2001 Census inflated by an undercount assumption of 4% as the population for its 2001 base year. As a result, the 2031 forecasted population contained in the Growth Plan also is reflective of an assumed undercount of 4%. For the purposes of the Regional Land Budget, a 4% undercount factor is applied to the 2006 Census household population.

4.1.3 Year End 2006 Household Population

One of the key factors in determining the amount of land required to accommodate growth is the location of the *built boundary* established by the Province to reflect the extent of the *built-up area* as of the coming into effect of the Growth Plan on June 16, 2006. The process used to determine the extent of the *built boundary* included a review of all building permits issued up until that date, with such permits recognized as built provided construction of the foundations had begun. Consequently, the *built boundary* included homes that otherwise were not occupied at the time of the 2006 Census. In order to properly correlate the *built-up area* with the population it actually reflects, the Region uses the population at year end 2006 as the base population for this Regional Land Budget. This population would correlate with the building permits issued prior to June 16, 2006 as there is an approximate six month lag time between building permit issuance and occupancy of such dwellings. The year end 2006 household population was then determined using the 2006 Census population, the undercount adjustment factor, population projections to year end 2006, and students requiring regular housing that would not otherwise be included within the Census population. The household population including students to year end 2006 was 510,600.

4.1.4 Growth Plan Population Forecast Extrapolated to 2029

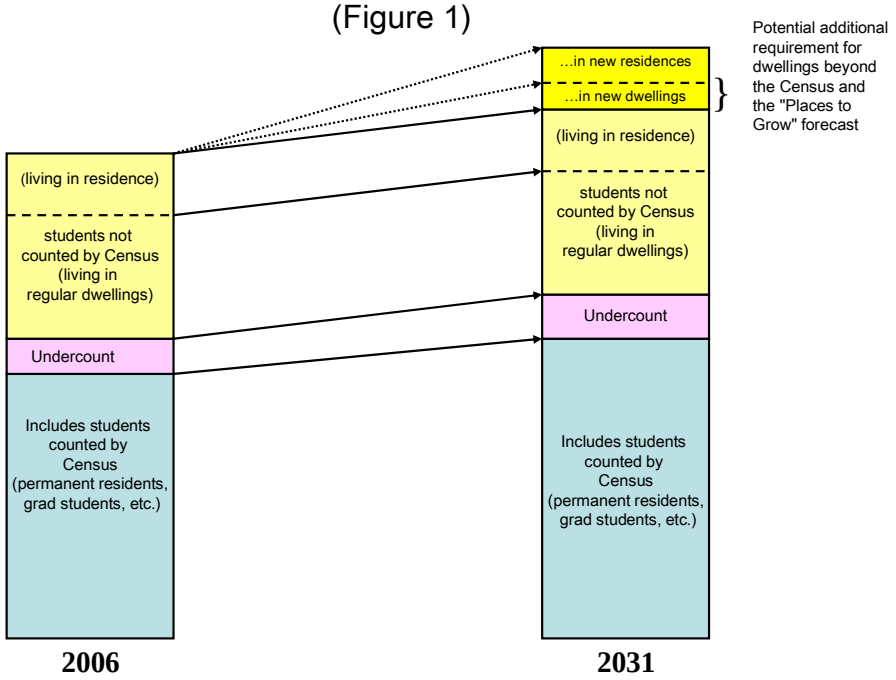
In keeping with the requirements of the Growth Plan, the new ROP will have a planning horizon of 2029. As a result, the 2021 population forecast contained in the Growth Plan needs to be extrapolated to year end 2029 for use in both the new ROP and the Regional Land Budget. This process was undertaken through a modeling exercise using the Region's Population and Land Use Model (PLUM) employing rates of growth since the 2001 base year of the Growth Plan, and applying the projected mortality, birth and immigration rates to the year 2029. As a result of this modeling exercise, a household population of 716,000 will be used as the forecasted population for year end 2029 in the calculations contained in the Regional Land Budget.

4.1.5 Adjustment for Students

Many of the students attending the University of Waterloo, Wilfrid Laurier University or Conestoga College are counted through the Census process, either as students living at home (within the region or elsewhere),

or as students who have become full time residents in the region. In addition to the growth in students reflected through the Census, the Region anticipates that there will be a number of students not counted through the Census process that must be accommodated in residential units within the region (see Figure 1).

Existing and Projected
University / College Students
(Figure 1)



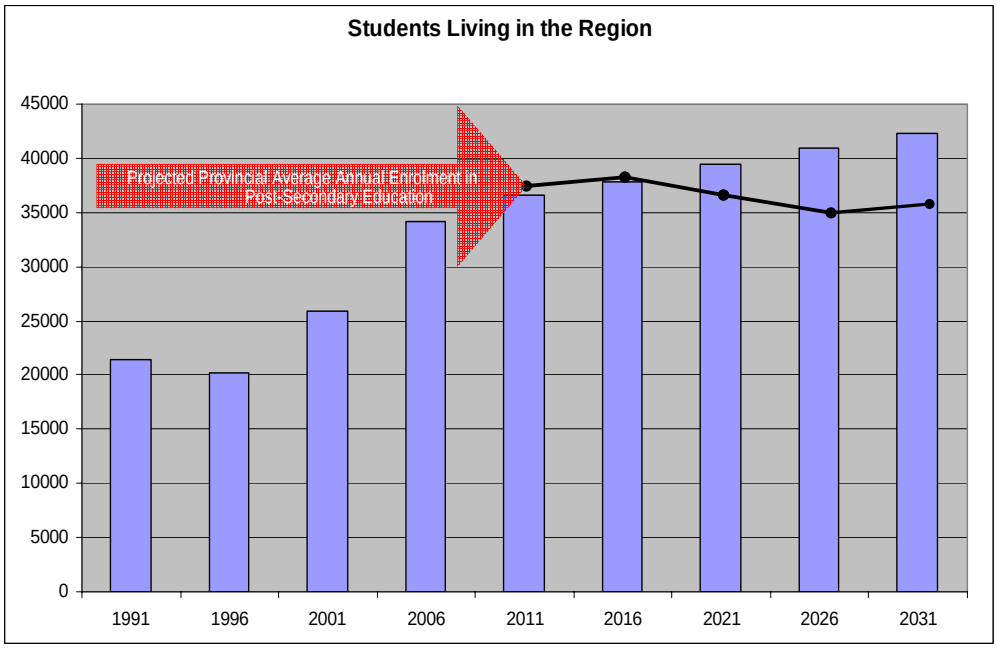
In the time period between the 2001 and 2006 Census, universities and colleges absorbed what is commonly referred to as the “double cohort” that resulted from the elimination of the fifth year of high school within the Provincial education system. This produced two years of students graduating high school and subsequently entering post secondary education at the same time. In response to the double cohort, the capacity of the post secondary education facilities in the region was increased dramatically to accommodate the sudden influx of students. This has resulted in a one time increase in the number of students of approximately 7,000 students between 2001 and 2006 that may otherwise not have been captured in the Census process. While the effects of the double cohort will pass through the post secondary education system fairly quickly, the housing capacity increases already developed in the region in 2006 are expected to be maintained and will result in little need to expand the capacity of undergraduate programs and therefore housing capacity for a significant number of years.

While it is expected that the post secondary educational institutions will continue to grow in the Region of Waterloo, this growth will be primarily focused on growth in the post graduate students. Unlike undergrads, graduate students usually live within the community year round and as a result are picked up by the Census and therefore factored into any Census based projections.

Historical trends in student age population in the region, forecasts provided by the Universities and

Conestoga College, and the demographic profile of the regional population to the year 2029 were used to develop a student forecast to the year 2031. This forecast (see Figure 2) includes a net increase in the number of students that would not be accounted for in the Census based forecasts that would require regular housing of 2,700 (to 2029). Also included on Figure 2 is an extrapolation of the Statistics Canada projection of annual enrollment in post secondary education in the Province of Ontario. This projection, which is based on demographic trends, would indicate that the Region's forecast for 2031 is optimistic, reflecting an assumption that the quality of the region's post-secondary institutions will draw a greater than average proportion of the available Provincial student population.

University / College Student Projections
Based on Demographics
(Figure 2)



4.1.6 Forecasted Increase in Household Population Year End 2006 to Year End 2029

The forecasted increase in the household population from the year end 2006 base year for this analysis (510,600) to the horizon year of 2029 (716,000) including an adjustment for students (2,700) is 208,100. This is the net household population increase that needs to be accommodated through the Regional Land Budget process.

NOTE: The population living in collectives has been excluded within the net increase in the household population that needs to be accommodated for the purposes of the Regional Land Budget calculations.

4.1.7 Forecasted Increase in Households Year End 2006 to Year End 2029

The forecasted increase in new households for the period year end 2006 to year end 2009 is 90,000. This forecast has been developed in consultation with Hemson Consulting Ltd. and is consistent with the household forecasts being used for other planning and development charge studies being undertaken in the region.

4.1.8 Person per Unit Values for New Development

For the purposes of the Regional Land Budget, the PPU values used in all calculations of population accommodated in new development will be: single-detached units (3.30), townhouses (2.48) and apartments (1.83). These figures reflect the historic average PPU for these units developed between 1986 and 2006 (see Table 6) and likely reflect the PPU values that could be expected from new development at the end of the Regional Land Budget's planning horizon. Single-detached units will include semi-detached units for the purposes of this analysis, and the blended weighted average of singles detached and semi detached units is reflected in the 3.3 PPU.

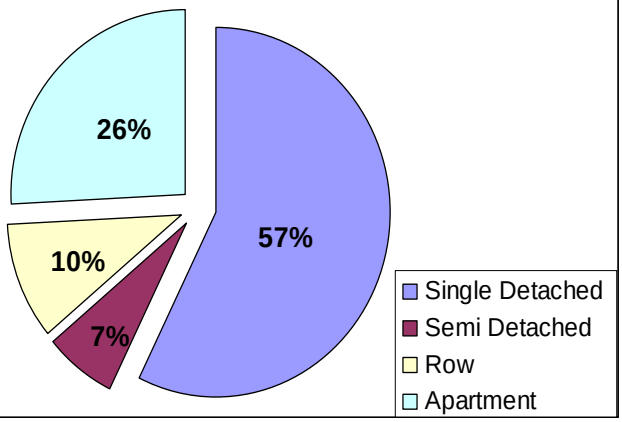
Household Size by Unit Type by Period of Construction: 2006 Census
(Table 6)

	Period of Construction									
	Pre 1946	1946-60	1961-70	1971-80	1981-85	1986-90	1991-95	1996-01	2001-06	20 year AVG.
Single Detached										
Number	13,900	14,480	12,655	14,430	6,210	10,305	6,185	9,630	13,975	40,095
Household Size	2.81	2.43	2.71	2.92	3.15	3.3	3.32	3.38	3.31	3.32
Semis										
Number	1,100	635	1,415	3,060	940	1,145	1,530	1,085	1,135	4,895
Household Size	2.79	2.85	2.8	2.99	3.16	2.96	2.95	3.04	2.86	2.95
Rows										
Number	265	530	1,730	3,815	1,700	2,525	2,290	2,155	3,030	10,000
Household Size	2.68	2.96	2.85	2.68	2.73	2.65	2.72	2.31	2.28	2.48
Apartments										
Number	6,060	6,110	9,545	10,200	4,200	3,790	2,740	1,355	2,240	7,297
Household Size	1.81	1.81	1.82	1.84	1.88	1.78	1.83	1.85	1.9	1.83

4.2 Change in Number of People Housed in the Existing Housing Stock

One of the most significant variables in determining how much additional land will be required to accommodate forecasted growth to the year 2029 is the number of people that will be housed at that time in units that currently exist today. In 2006, Waterloo Region contained 178,095 occupied dwelling units (*existing housing stock*) with an average person per unit value (PPU) of 2.64 (2006 Census). The inventory of dwelling types by percentage of unit type as derived from the 2006 Census is shown on Figure 3.

Waterloo Region Dwelling Types, 2006
(Figure 3)



4.2.1 Impact of Vacant Dwellings on Existing Housing Stock Capacity

For the purposes of the Regional Land Budget it is assumed that the vacancy rate within the *existing housing stock* over the next twenty years will fluctuate, but at the end of the twenty year planning horizon will remain at a similar rate to what the vacancy rate was in 2006 (between 3 and 4%). As a result, vacancy rates are assumed to have no impact on the calculations within the Regional Land Budget.

4.2.2 Forecasted Change in Number of People Housed in Existing Housing Stock to 2029

The average PPU by dwelling type for the dwelling units that existed in the Region of Waterloo as of June 16, 2006, were derived from the 2006 Census as contained in Table 7. Table 8 provides the same data for 1991 for comparison purposes.

Persons per Unit Values for Dwellings in Region of Waterloo Existing Housing Stock 2006
(Table 7)

	Occupied Dwellings	PPU
Total	178,095	2.64
Single Detached	101,770	2.98
Semi Detached	12,045	2.94
Row	18,040	2.6
Apartment	46,240	1.83

Persons per Unit Values for Dwellings in Region of Waterloo Existing Housing Stock 1991 (Table 8)		
	Occupied Dwellings	PPU
Total	134,730	2.76
Single Detached	75,610	3.13
Semi Detached	8,975	3.20
Row	10,845	3.00
Apartment	38,515	1.87

The number of people that will occupy the 178,095 housing units (the *existing housing stock)* in the year 2029 is dictated by a multitude of factors including: the changing demographics of the community; changes in preferences for housing types and locations; and the response by the development industry to changing market demands associated with these factors.

Examining the impact of these factors is important because a decline in the average PPU within the *existing housing stock* (i.e. fewer people living within these units) means that more people than the net increase in population would need to be accommodated within new development. Alternatively, a rise in the average PPU within the *existing housing stock* (i.e. more people living within these units) would mean that fewer people than the net increase in population would need to be housed in new residential units within the planning horizon.

There is considerable debate among professionals as to when the impact of the future turnover of the single detached dwellings currently occupied in large numbers by the Baby Boom generation will take effect. For the purposes of the Regional Land Budget, it is forecasted that number of people in the *existing housing stock* will decline by 20,000 to year end 2029, resulting in a total of 228,125 people having to be accommodated within new development between year end 2006 and year end 2009. This represents a decline in the average PPU for existing dwellings to approximately 2.53 from the current 2.64, and is consistent with the leveling off of the decline in PPUs that has occurred over the past several decades.

4.3 Reurbanization Rates

4.3.1 Existing Reurbanization Rate

The Regional Land Budget requires that by the year 2015, and every year after, a minimum of 45% of all new residential units be built within the *built-up area* as it existed on June 16, 2006 (see Section 2.6).

Since 2004, the Region has been monitoring the rate of reurbanization activity based on a monitoring line, separate but internal to the *built boundary* (see Appendix C). This monitoring line is based on the built form in the year 1994, (reflective of building permits issued prior to this time) and was established to exclude unbuilt portions of plans of subdivision as well as natural areas found around the periphery of the line in a manner similar to that used by the Province in establishing the *built boundary*. A monitoring line was deemed necessary to capture "true" reurbanization, so that unbuilt units within plans of subdivision, which

were caught within the *built boundary* on June 16, 2006, do not artificially inflate the average regional reurbanization rate in the early years of reurbanization monitoring. Given the majority of plans of subdivision take approximately 10 to 12 years to almost entirely build out after registration, the year 1994 was picked as the basis for the monitoring line. In 2006, reurbanization activity within the monitoring line represented 29% of the residential building permits issued throughout the year.

4.3.2 Required Reurbanization Rate 2006 - 2029

In order to simplify the Regional Land Budget calculation, a yearly average reurbanization will be used that reflects a combination of the phase-in period to 2015 and the 45% reurbanization rate to be achieved annually between 2015 and 2029. This average utilizes a linear increase between the reurbanization rates in 2006 (29%) and 2015 and thereafter at a steady rate of 45%. Using this formula, the average minimum yearly reurbanization rate to be achieved between the years 2006 and 2029 is 42.2%. This has been rounded down to 42% for the purposes of calculations within the Regional Land Budget.

4.4 Calculation of Population and Related Employment to be accommodated within the Residential Portion of the Designated Greenfield Area

The residential portion of the *designated greenfield area* (as shown in Appendix B) represents large discrete areas within the *designated greenfield area* that are expected to accommodate primarily residential uses, but may also contain population serving employment uses such as commercial areas, schools, churches and small offices. The process for calculating the population and related employment that will be located within the residential *designated greenfield area* is as described in Steps 1 to 5 below. Assumptions have been derived for each of the factors necessary for the purposes of demonstrating the methodology. These factors presented in this section represent a combination of assumptions that could reasonably reflect future development within the community. Other combinations of these factors are presented through the sensitivity analysis contained in Section 4.5.

Step 1 – DETERMINE THE NUMBER OF UNITS REQUIRED WITHIN THE BUILT-UP AREA

The average minimum yearly reurbanization rate (proportion of residential units to be built within the *built-up area*) was determined through the process outlined in Section 4.3.2 to be 42%. As a result, the number of residential units expected to be built within the *built boundary* between 2006 and 2029 would be determined as follows:

> Proportion of total development within the *built-up area* x the total number of new residential units = the number of new residential units anticipated to be built within the *built boundary* (2006 – 2029)
>
> 0.42 x 90,000 = 37,800 (rounded to nearest unit)

The number of residential units required within the *built-up area* is 37,800.

Step 2 - PPU PROJECTION FOR NEW RESIDENTIAL UNITS WITHIN THE BUILT BOUNDARY

The starting point for estimating the PPU for new residential units within the *built boundary,* is the 2006 Census apartment PPU of 1.83, as the majority of such units will be multiple dwellings typically in the form of apartments. However, consideration needs to be given to adjusting this number based on several factors:

a) Development of Ground-oriented Reurbanization Units - Within the *built-up area* there is considerable opportunity for the development of a mix of housing through reurbanization. As can be seen in many of the projects built to date, a mix of ground oriented units in the form of townhouses or stacked townhouses can often be incorporated into such developments. The average PPU for townhouse units that have been built over the past 20 years in the Region of Waterloo is 2.48.

b) Build out of the Remaining Suburban Development Captured within the Built-up Area - The *built boundary* captures a considerable amount of yet unbuilt units in plans of subdivision, including a significant number of ground oriented and single-detached units. On June 16, 2006, there were 1,947 unbuilt single-detached units, 197 unbuilt semi-detached units and 1,580 unbuilt townhome units in registered, draft approved and pending plans of subdivision delivering PPU factors (based on 20 year averages as noted in Section 4.1.8) of 3.30 for single-detached / semi-detached units and 2.48 for townhome units caught within the *built boundary*. Although these units will be absorbed fairly early in the planning horizon, they count toward the residential units to be located within the *built boundary,* and so need to be considered within the PPU factor. The existence of these units alone will increase the PPU for reurbanization units by approximately 0.11 (based on 37,800 units) above the current apartment rate.

In consideration of the factors noted above, an average PPU value of 2.05 will be assigned to new residential units within the *built-up area* for the purposes of this analysis.

Step 3 - CALCULATE PPU FOR ALL NEW RESIDENTIAL UNITS

The average PPU for all new residential units developed between 2006 and 2029 is calculated as follows:

Net increase in population to the year 2029 (208,125) + assumption of decline in *existing housing stock* (20,000) / household forecast (90,000) = PPU for all new residential units

= 228,125 / 90,000
= 2.53

Step 4 - CALCULATE PPU FOR NEW RESIDENTIAL UNITS WITHIN THE DESIGNATED GREENFIELD AREA

The average PPU for new residential units developed between 2006 and 2029 within the *designated greenfield area* is determined as follows:

Average PPU for all new development (2.53) – (reurbanization rate (42%) x reurbanization PPU factor (2.05)) / Proportion of new development to locate within the *designated greenfield area* (58%)

= (2.53 - (0.42 x 2.05)) / 0.58
= 2.88 PPU

As of June 16, 2006, a significant portion of the lands within the residential *designated greenfield area* were already the subject of applications for plan of subdivision approval (planned portion of the *designated greenfield area*). These subdivisions, which were in various stages of approval, encompass approximately 37.9% of the residential *designated greenfield area*. The breakdown of unbuilt residential units within the plans of subdivision applicable to lands within the *designated greenfield area* as of June 16, 2006 is as shown on Table 9.

Unbuilt Units in Plans in the Designated Greenfield Area
as of June 16, 2006
(Table 9)

	Single/Semis	Rows	Apartments	Total
Registered	2,793	828	1227	4,848
Draft Approved	6,105	1,640	1,167	8,911
Pending	4,394	870	279	5,542
TOTAL	13,292	3,338	2,672	19,301
Percent of Total	69%	17%	14%	-

Based on 20 year PPU values for development within the *designated greenfield area*, this unbuilt inventory can be anticipated to yield a PPU of approximately 2.95 with an average density of approximately 49.5 (including *population related employment*). It is important to remember that achieving the required density of 55 people and jobs per hectare within the portion not subject to these plans of subdivision will result in an increase in both the number of units and the percentage of these units having to be townhomes or apartments. As a result, it can reasonably be expected that the overall PPU for the urban *designated greenfield areas* will have to decrease to meet these density requirements. This further reinforces the case for a 2.88 PPU for *designated greenfield area* units as noted above..

Step 5 – DETERMINE THE NUMBER OF PEOPLE TO BE ACCOMMODATED WITHIN THE RESIDENTIAL DESIGNATED GREENFIELD AREA

The formula for determining the number of people to be accommodated within the residential *designated greenfield area* is as follows:

(Total number of units of new development x percentage of units to be built within the *designated greenfield area*) x PPU of new development within the *designated greenfield area* = the number of people to be accommodated within the *designated greenfield area*

90,000 x .58 x 2.88 = number of people to be accommodated within the *designated greenfield area*
52,200 x 2.85 = 150,336 people

Step 6 – CALCULATE THE AMOUNT OF EMPLOYMENT ASSOCIATED WITH THE RESIDENTIAL DESIGNATED GREENFIELD AREA

Population related employment (PRE) is the employment directly related to and located within what are primarily residential areas. This includes people that telecommute/work from home (work-at-home) and employment in residential areas associated with churches, schools and local, community and neighbourhood commercial malls, arterial commercial adjacent to residential areas and small professional offices (population serving employment).

PRE is calculated based on the number of people and units expected to be found in *designated greenfield areas.* Work-at-home has been projected based on the results of the 2006 Census and represents a factor of 2.8% of the overall population. Population serving employment has been calculated based on a review of the employment occurring within existing primarily residential neighbourhoods within Waterloo Region using the 2001 Census. Population serving employment has been found to occur at a rate of 0.3 employees per residential unit.

The formula for calculating *PRE* within the residential portion of the *designated greenfield area* is as follows:

(Population to be accommodated within the *designated greenfield area* x 0.028%) + (number of new residential units within the *designated greenfield area* x 0.3) = *PRE*

(150,336 x 0.028) + (52,200 x 0.3) = *PRE*

4,209 + 15,660 = 19,869 jobs

Step 7 – CALCULATE THE TOTAL PEOPLE AND JOBS TO BE ACCOMMODATED WITHIN THE RESIDENTIAL DESIGNATED GREENFIELD AREA

The formula for calculating the total people and jobs in the residential *designated greenfield area* is as follows:

Number of people to be accommodated within the residential *designated greenfield area* + *PRE* = total people and jobs

150,336 + 19,869 = 170,205 people and jobs

4.5 Sensitivity Analysis of Reurbanization Rates, Net Population Increases and PPU Projections for Residential Units within the Residential Designated Greenfield Area and within the Built Boundary

For the purposes of this sensitivity analysis, PPU values of 1.9, 2.05 and 2.2 for dwelling units within the *built boundary* will be tested against reurbanization rates of 40% and 45% by the year 2015 and each year there after (average reurbanization rates of 38% and 42% respectively), and a decrease in population housed within the housing stock of 10,000, 20,000 and 30,000 people.

The 2.05 reurbanization PPU tested through Steps 1 to 5 in the previous section (Scenario 11) yielded an need to accommodate 170,205 people and jobs within the *designated greenfield area*. Scenario 11 is the scenario recommended by the Regional Land Budget.

Sensitivity Analysis of PPU Projections for Residential Units within the Residential *Designated Greenfield Area* and within the Built Boundary - Net Population Increase of 218,125
(decline of 10,000 in the population within the existing housing stock)
(Table 10)

	Average Reurb. Rate	Household Forecast	Overall PPU New Dev.	PPU Reurb Units	PPU Greenfield Units	Pop'n in Greenfield	Pop'n Related Emp.	Total Greenfield P&J
1	38%	90,000	2.42	1.9	2.74	152,892	21,021	173,913
2	38%	90,000	2.42	2.05	2.65	147,870	20,880	168,750
3	38%	90,000	2.42	2.2	2.55	142,290	20,724	163,014
4	42%	90,000	2.42	1.9	2.80	146,160	19,752	165,912
5	42%	90,000	2.42	2.05	2.69	140,418	19,592	160,010
6	42%	90,000	2.42	2.2	2.58	134,676	19,431	154,107

Sensitivity Analysis of PPU Projections for Residential Units within the Residential *Designated Greenfield Area* and within the Built Boundary - Net Population Increase of 228,125
(decline of 20,000 in the population within the existing housing stock)
(Table 11)

	Average Reurb. Rate	Household Forecast	Overall PPU New Dev.	PPU Reurb Units	PPU Greenfield Units	Pop'n in Greenfield	Pop'n Related Emp.	Total Greenfield P&J
7	38%	90,000	2.53	1.9	2.92	162,936	21,302	184,238
8	38%	90,000	2.53	2.05	2.82	157,356	21,146	178,502
9	38%	90,000	2.53	2.2	2.73	152,334	21,005	173,339
10	42%	90,000	2.53	1.9	2.99	156,078	20,030	176,108
11	42%	90,000	2.53	2.05	2.88	150,336	19,869	170,205
12	42%	90,000	2.53	2.2	2.77	144,594	19,709	164,303

Sensitivity Analysis of PPU Projections for Residential Units within the Residential *Designated Greenfield Area* and within the Built Boundary - Net Population Increase of 238,125 (decline of 30,000 in the population within the existing housing stock) (Table 12)								
	Average Reurb. Rate	Household Forecast	Overall PPU New Dev.	PPU Reurb Units	PPU Greenfield Units	Pop'n in Greenfield	Pop'n Related Emp.	Total Greenfield P&J
13	38%	90,000	2.65	1.9	3.11	173,538	21,599	195,137
14	38%	90,000	2.65	2.05	3.02	168,516	21,458	189,974
15	38%	90,000	2.65	2.2	2.93	163,494	21,318	184,812
16	42%	90,000	2.65	1.9	3.19	166,518	20,323	186,841
17	42%	90,000	2.65	2.05	3.08	160,776	20,162	180,938
18	42%	90,000	2.65	2.2	2.98	155,556	20,016	175,572

5.0 Employment

5.1 Employment Forecast – 2006 to 2029

5.1.1 2006 Census – Employment

Employment within the Region of Waterloo as reported in the 2006 Census was 262,308.

5.1.2 Census Employment Undercount Adjustment Factor and Adjustment to Year End.

The employment forecast provided in the Growth Plan for the Region of Waterloo use the employment reported through the 2001 Census inflated by a factor of 1.72% as the employment for the 2001 base year. As a result, the 2031 employment forecast in the Growth Plan is also reflective of this assumed undercount factor. The Regional Land Budget utilizes the results of the 2006 Census as its base year. In order to be consistent with the forecast used within the Growth Plan, the 2006 Census results for employment have also been inflated by 1.72%, resulting in a 2006 Census Population (adjusted for the assumed undercount) of 266,820. This was then extrapolated to year end 2006 as a year end employment total of 270,600. This is the base employment that will be used in all calculations within the Regional Land Budget.

5.1.3 Growth Plan Employment Forecast Extrapolated to 2029

Consistent with the process described in section 4.1.3, the Growth Plan employment forecast extrapolated to the year 2029 is 361,900.

5.1.4 Forecasted Increase in Regional Employment 2006-2029

The forecasted net increase in employment from the base year of 2006 (270,600) to the horizon year of 2029 (361,900) is 91,300.

5.2 Jobs to be accommodated within the Non-residential Portion of the Designated Greenfield Area

The non-residential portion of the *designated greenfield area* as shown on Appendix 'B' represents large discrete areas within the *designated greenfield area* that are expected to accommodate only employment uses. Only a portion of the new jobs that will be created within the region from 2006 to 2029 can be expected to locate within the non-residential *designated greenfield area*. New employment occurring within the Urban Growth Centres, Major Transit Station Areas, Major Local Nodes and Reurbanization Corridors as well as major institutional uses, population serving employment, work-at-home and no-fixed-place-of-work represent the majority all employment within the Region. Other than two areas which are currently proposed to accommodate major commercial uses, the non-residential portion of the *designated greenfield area* will primarily be developed for non-residential uses traditionally found in industrial and business parks.

In early 2006, the Region, in conjunction with the Area Municipalities and the Prosperity Council of Waterloo Region's Regional Growth Management Strategy Liaison Task Force, undertook the completion of the Region of Waterloo Industrial and Business Park Vacant Land Inventory and Demand Analysis. This study established and qualitatively analyzed the existing inventory of vacant industrial and business park lands within the region. The study also contained a supply / demand analysis that looked at historic rates of land absorption, the movement away from a public to a private sector led market place, and the changing nature of the industrial and business park land supply within the Region.

5.2.1 Industrial and Business Park Uses

The current share of all regional employment accommodated within industrial and business parks is approximately 40%. For the purposes of this analysis it will be assumed that while there will be changes in the form, density and mix of uses associated with businesses within industrial and business parks, the overall percentage of employment that locates within these areas will remain at 40%. This would result in a need to accommodate 36,520 new jobs, within industrial and business parks to 2029. It should be noted that Growth Plan strongly promotes an urban form that would result in a significant number of office jobs within the Urban Growth Centres and Major Transit Station Areas to support and be supported by the development of a rapid transit system. With full implementation of these policies over time, it can be expected that there will be some decline in the office component of what has more recently become considered as typical industrial and business park uses. As a result, the forecasted 40% of overall employment anticipated to occur within the industrial and business parks could be expected to decline in the future, but will be used within this Regional Land Budget as a conservative estimate.

The 2006 Industrial and Business Park Vacant Land Inventory and Demand Analysis as noted below also addressed the absorption of some of the new industrial and business park job growth through intensification.

> One of the important factors that have to be taken into consideration in determining how this employment will be accommodated relates to the intensification that can reasonably be expected to occur through additions to existing buildings. Over the ten years between 1995 and 2004, additions have averaged approximately 40% of total growth in industrial floor space and given the low to moderate densities existing on industrial and business park lands, it is not unreasonable to assume this trend will continue for the foreseeable future. Over this same ten year period, the square footage cost of additions has been approximately 8 percent higher than the square footage cost of new development. While the cost of additions traditionally exceeds the cost of new development, the relative value of the construction suggests that the intensification being experienced is relatively complex in form (i.e. not simply storage or warehousing space), and will continue to represent a significant factor in accommodating new employment through intensification.

At the time (2006), the 3,433 hectares of built industrial and business park lands within the Cities of Cambridge, Kitchener and Waterloo were found to have employment densities of approximately 27.6 jobs per hectare, providing considerable opportunity for intensification. In addition, as of year end 2006, there was 305 net hectares of fully serviced vacant industrial and business park lands located within the *built*

boundary. While these lands are not subject to the Growth Plan *density targets*, it is still reasonable to assume that vacant industrial and business parks located within the *built boundary* will continue to absorb a reasonable level of employment over the 2029 planning horizon. For the purposes of this analysis, it is assumed that 40% of all of the anticipated industrial and business park employment (14,608) will occur within the *built boundary*. While this is not a requirement of the Growth Plan, it is a reasonable assumption based upon the factors noted above. As a result, 21,912 of the new industrial and business park jobs will occur within the non-residential portion of the *designated greenfield area*.

5.2.2 Prime Industrial / Strategic Reserve

The 2006 Industrial and Business Park Vacant Land Inventory and Demand Analysis also addressed the issue of the need to maintain a continuous supply of large lot industrial land available in the market place in order to maximize the opportunities for such development when it occurs. The study addressed the issue of the Prime Industrial component as follows:

> One of the keys to ensuring the Region is in a position to maximize long term economic development opportunities is to ensure the immediate and consistent availability of large lot industrial land. Although these "prime industrial" parcels have historically represented a small percentage of the total volume of land sales, the types of business they can accommodate have significant positive impact on both the regional and provincial economy, and need to be consistently available if the maximum community benefit associated with attracting such businesses is to be realized.
>
> A review of the inventory in Appendix 3 reveals a number of parcels exist in this size range (10 hectares or 25 acres and up), however, it is extremely difficult to ensure the long term availability of such parcels, as they are often broken up into smaller inventories for easier sale. A review of the sales data for the City of Cambridge contained in Table 13 demonstrates the difficulty of maintaining inventories of larger parcels. Between 1998 and 2005, only 3 of the 143 parcels sold by the City of Cambridge were within this size range. A review of the longer term municipal land sales (Table 10) indicates that only eleven times between 1980 and 2004 did any individual municipality have total annual land sales in excess of 50 acres or 20 hectares (with seven of these falling in the years 1986 to 1989). Only once in this time frame has a municipality sold more than 100 acres (40 ha)(Cambridge 1999 – Loblaws and Seaforth Creamery lands being the two major sales).
>
> Given the sales history, it would be difficult to expect land owners to hold large parcels voluntarily for what could be a decade between sales of parcels in this size range. The Provincial interest in ensuring Prime Industrial lands are available to accommodate future growth is identified in the Proposed Growth Plan and is to be further defined through the associated sub-area assessment process. The East Side Lands represent a significant opportunity to work with the Province to create a Prime Industrial area. Its proximity to the Region of Waterloo International Airport, and major transportation corridors including Highways 401, 6, 7 and 8, as well as its relatively flat topography, make these very worthy of consideration for this type of designation.

> One of the keys to establishing a Prime Industrial area will be not only the immediate availability of servicing, but also the establishment of policy regulations to ensure parcels remain large enough to attract large scale manufacturing uses. These policy regulations could potentially be established in the Regional Official Plan and/or in the Growth Plan, and could be reviewed and updated as conditions change.

The 2006 study also addressed a second potential role for the Prime Industrial Lands, a Strategic Reserve function.

> Prime Industrial land can also serve a very important second purpose. Ensuring consistent availability of both a variety of lands for purchase and of a range of tenure opportunities (whether provided by the public or private sector), is key to ensuring the continued prosperity of our community and needs to be considered a priority for all levels of government. In addition to providing for the future development of large scale manufacturing uses, Prime Industrial lands can also serve as a "Strategic Reserve" that can be partially tapped into if on-going monitoring clearly demonstrates that the land requirements of new and expanding businesses are not being met within the market place. This is especially important in times of transition similar to that occurring in the Region of Waterloo today. Having the ability to strategically access previously serviced large parcels of industrial land to respond to critical shortfalls in available short and medium term inventory, would provide municipalities with the ability to more effectively manage such situations.

The study concluded that 300 net hectares of fully serviced Prime Industrial land needed to be added to the *Urban Area* to properly meet the objective of ensuring large lot industrial lands are consistently available throughout the planning horizon. The study then went on to conclude that consideration should also be given to expanding the 97/401 Industrial Area by up to 100 net hectares of unserviced Prime Industrial Lands to provide additional capacity to accommodate logistics and dry industrial uses. All lands designated as Prime Industrial / Strategic Reserve were to be regulated in a manner to ensure such parcels were not reduced in size below eight hectares, except where necessary to fulfill the strategic reserve function.

In August 2007, Regional Council adopted Regional Official Policies Plan Amendment No. 28 which seeks to designate 150 net hectares in the northern part of the City of Cambridge as Prime Industrial / Strategic Reserve. This amendment was subsequently appealed and is now before the Ontario Municipal Board. The conclusions of the 2006 Industrial and Business Park Vacant Land Inventory and Demand Analysis continue to be supported and it is currently anticipated that the designation of the remaining 150 net hectares of serviced and 100 net hectares of unserviced Prime Industrial / Strategic Reserve will occur within the next several years following completion of appropriate planning related studies. As a result, both the remaining serviced and unserviced Prime Industrial Strategic Reserve Lands will be accounted for within this Regional Land Budget.

5.2.3 Major Retail Commercial

There were two proposed major retail commercial sites that existed within the non-residential portion of the *designated greenfield area* as of 2006 totaling approximately 73 hectares. The first site is located in the Mercedes Industrial Commercial Area in Woolwich and is currently being developed to accommodate major

commercial uses. The second site, which straddles the boundaries of Kitchener and Waterloo west of the intersection of University Avenue and Ira Needles Boulevard, is currently the subject of an application seeking to expand existing permission for major commercial uses on the Waterloo end of the property over all or a portion of the remainder of the site. The review of this proposal is still in progress and no decision has been made with regard to the acceptability of the proposed uses on the site.

Although the Regional Land Budget does not directly address the adequacy of the supply of land designated for retail commercial uses in the *designated greenfield area,* the new community structure introduced within the ROP directs retail commercial uses into Urban Growth Centres, Major Transit Station Areas, Rurbanization Corridors and Local Nodes. Even if the retail commercial policies of the new ROP were to change so as to support suburban major retail commercial centres, consideration would have to be first given to conversion of a portion of this excess inventory, justified through a local municipal comprehensive review and appropriate planning studies, before an expansion of the *Urban Area* or *Township Urban Area* within the ROP could occur.

6.0 Demand Versus Capacity Analysis

6.1 Residential Demand versus Capacity Sensitivity Analysis

Tables 13-15 compare the sensitivity analysis undertaken in Section 4.5 with the capacity within the *residential greenfield areas* as determined in Section 3.4. Each of the scenarios below includes a factor for PRE and has been calculated using the methodology described in Section 4.4.

The net capacity available in all scenarios assuming a 38% percent average annual reurbanization rate is 187,392 (based on 55 and 45 people and jobs / hectare densities on all lands within Urban Area and Township Urban Area *designated greenfield areas* net of provincial constraints and existing development respectively). This would require the lands outside of plans of subdivision to be developed at an average density of 61 to compensate for the lower densities on existing plans of subdivision.

The net capacity available in all scenarios assuming a 42% percent average annual reurbanization rate is 178,818 (based on 55 and 45 people and jobs / hectare densities on lands outside of plans of subdivision within Urban Area and Township Urban Area *designated greenfield areas* net of provincial constraints and existing development respectively - see Table 4). Lands outside of plans of subdivision would be required to develop at an average density of 55 with no compensation required for lower densities on existing plans of subdivision. Scenario 11 is the scenario assumed by the Regional Land Budget.

Residential Demand and Capacity for net population increase of 218,125
(decline of 10,000 in the population within the existing housing stock)
(Table 13)

	Household forecast	Overall PPU New Development	Reurb Rate	PPU Reurb	PPU DGA	Total Demand for DGA (P&J)	Remaining capacity (P&J)
1	90,000	2.42	38%	1.9	2.74	173,913	13,479
2	90,000	2.42	38%	2.05	2.65	168,750	18,642
3	90,000	2.42	38%	2.2	2.55	163,014	24,378
4	90,000	2.42	42%	1.9	2.80	165,912	12,906
5	90,000	2.42	42%	2.05	2.69	160,010	18,808
6	90,000	2.42	42%	2.2	2.58	154,107	24,711

Residential Demand and Capacity for net population increase of 228,125
(decline of 20,000 in the population within the existing housing stock)
(Table 14)

	Household forecast	Overall PPU New Development	Reurb Rate	PPU Reurb	PPU DGA	Total Demand for DGA (P&J)	Remaining capacity (P&J)
7	90,000	2.53	38%	1.9	2.92	184,238	3,154
8	90,000	2.53	38%	2.05	2.82	178,502	8,890
9	90,000	2.53	38%	2.2	2.73	173,339	14,053
10	90,000	2.53	42%	1.9	2.99	176,108	2,710
11	90,000	2.53	42%	2.05	2.88	170,205	8,613
12	90,000	2.53	42%	2.2	2.77	164,303	14,515

Residential Demand and Capacity for net population increase of 238,125 (decline of 30,000 in the population within the existing housing stock) (Table 15)							
	Household forecast	**Overall PPU New Development**	**Reurb Rate**	**PPU Reurb**	**PPU DGA**	**Total Demand for DGA (P&J)**	**Remaining capacity (P&J)**
13	90,000	2.65	38%	1.9	3.11	195,137	(7,745)
14	90,000	2.65	38%	2.05	3.02	189,974	(2,582)
15	90,000	2.65	38%	2.2	2.93	184,812	2,580
16	90,000	2.65	42%	1.9	3.19	186,841	(8,023)
17	90,000	2.65	42%	2.05	3.08	180,938	(2,120)
18	90,000	2.65	42%	2.2	2.98	175,572	3,246

In all but four of the scenarios tested (Scenario Nos. 13, 14, 16 and 17), no additional land is required to accommodate residential development within the planning horizon.

In these four scenarios, the associated PPUs within the *designated greenfield area* would require between approximately 75% (3.01 PPU) and 90% (3.19 PPU) of all units in the *designated greenfield area* to be built as single detached units. For comparison purposes, each of these scenarios significantly exceeds the 2.95 PPU in the inventory of plans of subdivision (as it existed on June 16, 2006) within the *designated greenfield area,* which consisted of 69% singles (see Table 9).

It is also important to note that based on the PPU values for various forms of development used within this Regional Land Budget, it would be physically impossible to build the minimum 75% single-detached units (at a density of 55 people and jobs / hectare as required within the *Urban Area designated greenfield area),* required to achieve any of these four scenarios. Given that the land outside of plans of subdivision within the *Urban Area designated greenfield area* constitutes 81% of all of such land, none of these four scenarios can realistically be achieved and as such are discounted from further consideration.

6.2 Capacity to Accommodate Forecasted Employment

Section 5.2 provides an overview of the demand for non-residential lands between 2006 and 2029. Except for a couple of potential major commercial sites, the non-residential portion of the *designated greenfield area* is anticipated to accommodate primarily industrial and business park type uses. This report adopts the basic demand analysis from the 2006 Industrial and Business Park Vacant Land Inventory and Demand Analysis with respect to industrial and business park uses and provides updates of the related forecasted employment information to year end 2006. This updated forecast would result in a total of 36,520 jobs within industrial and business parks, with 40% of these jobs (14,608) occurring through intensification of already built non-residential lands and infill of the approximately 305 net hectares of vacant industrial and business park parcels located within the *built boundary*. The remaining 21,912 jobs are anticipated to be accommodated within the non-residential portion of the *designated greenfield area*.

If the approximately 73 hectares associated with the two proposed major commercial sites are subtracted from the non-residential *designated greenfield area* calculations provided in Table 5 (at the forecasted density for serviced non-residential land of 40 jobs per hectare used in the calculations), there would

remain capacity for approximately 64,702 jobs within the non-residential portion of the *designated greenfield area*. This would not only accommodate the 60% of industrial and business park type jobs forecasted to locate within the *designated greenfield area* (21,912) but would actually accommodate 100% of theses jobs (36,520) if necessary.

Therefore, there is more than sufficient capacity within the non-residential portion of the *designated greenfield area* to accommodate the forecasted employment anticipated to occur on such lands.

The one notable exception is in the Township of Wellesley, where there is clearly a shortfall of opportunity for the development of non-residential uses (2 hectares). Consideration should be given to allowing for a reasonable amount of additional lands to be brought into an urban designation within the Township of Wellesley to accommodate forecasted employment growth as determined through the process leading to the development of the new ROP.

It is also important to remember that providing choice in location is critical to the successful marketing of Waterloo Region. As a result, the conversion of industrial or business park lands to major commercial or residential uses should be strongly discouraged where such lands can reasonably accommodate light or heavy industrial uses. Such conversions should only be considered following completion of a comprehensive review consistent with the provisions of the Provincial Policy Statement which considers the information contained in this report and the 2006 Industrial and Business Park Vacant Land Inventory and Demand Analysis (and its subsequent updates), both within a regional context and within the context of the available supply and anticipated short, medium and long term demand for such lands within the Area Municipalities.

7.0 Conclusions

1) Sufficient capacity exists within the residential *designated greenfield area* to accommodate forecasted population growth to the year 2029. As a result, no justification exists under the provisions of the Growth Plan for any expansion to the *Urban Area* or *Township Urban Area* of the region for residential purposes at this time.

2) The minimum capacity of urban areas, as calculated by applying the density and intensification targets of the Growth Plan, be achieved by establishing policies in the ROP requiring that:

a) an average of 45% of residential development occur within the *built boundary* by the year 2015 and every year thereafter; and

b) *designated greenfield areas* be planned to achieve on average across the region the following densities:

i) 55 people and jobs per hectare within the residential *Urban Area designated greenfield areas* not subject to plans of subdivision submitted prior to June 16, 2006;

ii) 45 people and jobs per hectare within the residential *Township Urban Area designated greenfield areas* not subject to plans of subdivision submitted prior to June 16, 2006;

iii) 40 jobs per hectare within serviced non-residential *designated greenfield areas*;

iv) 25 jobs per hectare within Prime Industrial / Strategic Reserve lands within the *designated greenfield areas*; and

iv) 25 jobs per hectare for unserviced non-residential *designated greenfield areas* of the Townships.

3) The Region and Area Municipalities should immediately begin a process of determining how the overall density requirements identified through this Regional Land Budget, (residential, non-residential and reurbanization) will be distributed among the various municipalities. Consideration of the distribution of the 42% yearly average reurbanization requirement should also be addressed through the same process.

4) Until such time as the process of distributing the densities between area municipal *designated greenfield areas* is complete, plans of subdivision submitted after June 16, 2006 should be required, wherever possible, to meet a minimum of 55 people and jobs per hectare in the *Urban Area* and 45 people and jobs per hectare in the *Township Urban Area*, with such areas being as defined in the draft ROP.

5) The methodology of future Water and Wastewater Monitoring Reports should be changed to ensure water and wastewater capacity is reserved to accommodate forecasted reurbanization.

6) Sufficient capacity exists within the overall non-residential *designated greenfield area* to accommodate forecasted employment to the year 2029. However, the following demand in the market place remains to be addressed:

i) As previously justified thorough the 2006 Industrial and Business Park Vacant Land Inventory and Demand Analysis, 400 net hectares of Prime Industrial / Strategic Reserve (300 serviced and 100 unserviced) are required to ensure a continuous supply of parcels over 8 hectares in size is available within the market place. 150 net hectares of the serviced Prime Industrial / Strategic Reserve need is being addressed by Regional Official Plan Amendment No. 28 which is currently before the Ontario Municipal Board for approval. The additional lands should be considered for designation either through the preparation of the new ROP or at the earliest opportunity thereafter if sufficient information to support such expansions is not available at the time the new ROP proceeds to Regional Council for approval; and

ii) The new ROP should provide an opportunity for consideration to be given to the designation of additional non-residential lands within the Township of Wellesley to accommodate forecasted employment growth.

7) This Regional Land Budget should be updated every five years as part of the mandated five year review of the ROP to see if additional land is required to accommodate forecasted population or employment growth.

8.0 Glossary

Built-up Area- all land within the built boundary, which delineates the limits of the developed urban area.

Built Boundary- defined as the limits of development within the *City* and *Township Urban Areas* as of June 16, 2006. This boundary was determined by the Ministry of Public Infrastructure Renewal as part of the Places to Grow initiative and will remain fixed in place.

Density Target - refers to the target for the designated greenfield area of 50 people and jobs per hectare as defined in the Growth Plan S. 2.2.7.2, 2.2.7.3 and 2.2.7.5.

Designated Greenfield Area - is the area within a CUA or TUA and Settlement Areas for which a built boundary has been applied, which is not the Built-up Area.

Existing Housing Stock - refers to housing units built as of June 16, 2006 within Waterloo Region.

Population Related Employment (PRE) - employment directly related to and located within residential areas. This type of employment includes people that telecommute / work from home, employment in churches and schools and employment in commercial areas located within primarily residential neighbourhoods.

Provincially Constrained Environmental Areas – landscape features where the features are both identified in any applicable official plan or *Provincial plan*, and where the applicable *Provincial plan* or Provincial Policy Statement prohibits development in the features: wetlands, woodlands, valleys/valleylands, areas of natural and scientific interest, habitat of endangered species and threatened species, wildlife habitat and fish habitat

Settlement Areas - areas designated in Area Municipal official plans to accommodate residential and other land uses.

Urban Areas and Township Urban Areas (UA/TUA) - These lands are designated within the ROP to provide employment opportunities and to accommodate growth for the Cities of Cambridge, Kitchener and Waterloo and the Townships of North Dumfries, Wellesley, Wilmot and Woolwich.

GRANDBYDESIGN

Shaping Our Community













Waterloo Region is one of the fastest growing communities in Canada, and has long been recognized as a leader in technical innovation, environmental protection and growth management. Discover some of our most recent community successes as we plan for a bright and prosperous future.

HIGHLIGHTS OF THE REGIONAL GROWTH MANAGEMENT STRATEGY (RGMS)



Region of Waterloo

the RGMS



DID YOU KNOW

THAT WATERLOO REGION HAS A LONG AND SUCCESSFUL HISTORY OF BALANCING GROWTH AND QUALITY OF LIFE?

- North America's first Blue Box program was launched in Waterloo Region in 1983.
- The Waterloo Regional Heritage Foundation was the first heritage foundation to be set up by a Regional government.
- Waterloo Region was the first Canadian community to implement a comprehensive Water Resources Protection Strategy and the first in Ontario to require watershed planning as a part of the urban development process.
- In 2005, Waterloo Region experienced the second fastest economic growth rate in Canada. A 5.1 per cent growth rate in real Gross Domestic Product (GDP) far exceeded the provincial and national averages.
- The Region was the first mid-sized community in Ontario to appoint a full-time staff member to develop and implement a Transportation Demand Management program that is now being actively promoted through local businesses and schools.
- Since 2000, Grand River Transit has increased ridership by 33 per cent and now carries 13 million riders annually. This number is steadily growing thanks to ongoing, system-wide service improvements and programs like the UPASS that is currently providing transit passes to approximately 9,500 post-secondary students as part of their tuition.
- Grand River Transit was the first transit service in Ontario to install bicycle racks on 100 per cent of its buses, encouraging more residents in the Region to choose sustainable transportation options. The Regional Cycling Network comprises 256 km of bikeways, and is expanded annually by the Region in partnership with Local Municipalities.
- In 2004, Waterloo Region was one of the top three markets for information technology investment in Ontario, along with Ottawa and Toronto, and the fifth most active market in Canada.
- The Region of Waterloo was the first in Ontario to develop a Regional Official Plan. Since 1976, the Regional Official Policy Plan has provided the policies for planning Regional growth management, transportation, water and wastewater and human services.

IN ACTION...



Waterloo Region has always been a desirable place to live, work and raise a family. We are committed to maintaining the exceptional quality of life this community has come to appreciate and enjoy.

Our community is experiencing strong growth which comes with both opportunities and challenges. To ensure that our future is planned by design, not by chance, Regional Council adopted the Regional Growth Management Strategy (RGMS) in June 2003. This proactive, long-term strategy is a model of how municipalities can successfully implement Ontario's recently approved *Places to Grow Growth Plan for the Greater Golden Horseshoe*.

The RGMS was built through extensive consultation with the public and is founded on the following

SIX GOALS:

- ENHANCING OUR NATURAL ENVIRONMENT
- BUILDING VIBRANT URBAN PLACES
- PROVIDING GREATER TRANSPORTATION CHOICE
- PROTECTING OUR COUNTRYSIDE
- FOSTERING A STRONG ECONOMY
- ENSURING OVERALL COORDINATION & COMMUNICATION

> *"Land use and transportation policies have a direct bearing on public health in Ontario. That's why the Regional Growth Management Strategy is an important tool to help our community plan for the future."*
>
> -DR. DIANNE ENSING
> REGIONAL GROWTH MANAGEMENT STRATEGY/RAPID TRANSIT PUBLIC ADVISORY COMMITTEE

There are more than 70 projects already in progress that reflect these goals. This brochure highlights some of the exciting initiatives and successes that are helping to shape our community through partnerships and planning for the future. One of these initiatives, the new Regional Official Plan (ROP), is expected to be finalized in 2008 and will reflect the planning policies that will help the Region to continue successfully implementing the RGMS.

enhancing THE NATURAL ENVIRONMENT

Waterloo Region takes its environmental responsibility very seriously. Our growth needs must be balanced with the protection and enjoyment of our precious natural resources.

- The Region owns and manages 16 forests covering 435 hectares (1,074 acres).
- The Region has distributed more than 70,000 backyard composting bins and 28,000 rain barrels in an effort to promote waste reduction and water conservation.
- Residents and businesses in Waterloo Region consistently meet or exceed water conservation targets.
- The Region has recently taken steps to amend its Official Plan to further protect 3,440 hectares (8,500 acres) of land under a new Environmentally Sensitive Landscape (ESL) designation.



BEAUTIFUL SUNFISH LAKE IN WILMOT TOWNSHIP IS LOCATED ON THE WATERLOO MORAINE, WITHIN ONE OF THE REGION'S NEWLY IDENTIFIED ENVIRONMENTALLY SENSITIVE LANDSCAPES.

"Waterloo Region … operates on a consensus that growth need not run roughshod over environmental or community goals…The community is also action-oriented — it actually does things, rather than engage in endless debates about change."

-GLOBE AND MAIL REPORT ON BUSINESS
APRIL 26, 2006



protecting OUR COUNTRYSIDE

The preservation of agricultural land is vital to the Region's economy. In fact, agriculture-related businesses employ 11.3 per cent of the Region's labour force.









- Waterloo Region is famous for its diverse farm communities and unique Mennonite culture. The Region's *Buy Local, Buy Fresh* program lists more than 75 locations where residents can support local farmers by purchasing locally grown food.
- In 2006, Regional Council approved an amendment to its Official Plan to redraw the countryside line to protect an additional 202 hectares (500 acres) of environmentally sensitive land that had formerly been designated for urban use. The Region's Official Plan also has policies that focus new development in existing rural settlement areas to protect prime agricultural lands from development.
- The Region's *Historical Driving Tour* covers 373 km of routes throughout our rural townships. By highlighting heritage buildings, landmarks, historic settlements, scenic roads, hiking trails, historic bridges and natural heritage areas, the tours help raise awareness about the need for protection and conservation.



THIS AERIAL PHOTO SHOWS PART OF THE COUNTRYSIDE LINE, WHICH SERVES AS THE BOUNDARY BETWEEN RURAL AND URBAN AREAS. THE REGION IS COMMITTED TO ENSURING THAT URBAN GROWTH DOES NOT ENCROACH ON OUR VALUABLE AGRICULTURAL LAND.

> *"Waterloo Region is managing its future wisely and boldly using its remarkable tradition of barn building - many neighbours collaborating with different skills and assets to create a more civic and prosperous society."*
>
> -DAVID JOHNSTON
> PRESIDENT, UNIVERSITY OF WATERLOO

building VIBRANT URBAN PLACES

> *"It is inspiring to be part of an economy characterized by independent, entrepreneurial and homegrown businesses…This community is so successful because it has quality people building great companies, and the supportive associations that bring the community together to seize on the opportunities that abound."*

-JOHN BOWEY,
CHAIRMAN OF THE BOARD, DELOITTE & TOUCHE LLP

We are creating vibrant and diverse downtown areas where we can all safely live, work and play. Redeveloping and revitalizing our downtowns will bring more business and tourism to our Region, preserve our historic architecture, and create new jobs and housing.

- The Province's *Places to Grow Growth Plan for the Greater Golden Horseshoe* requires that a significant portion of the Region's population and employment growth be directed to downtown Cambridge and Kitchener and uptown Waterloo. In order to better understand what this growth might look like, Regional staff has completed Phase 1 of the *Visualizing Densities* project, which provides a pictorial representation of current densities and urban forms. Phase 2 will examine opportunities for both achieving enhanced densities while maintaining excellence in urban design.

- The Wellington Square project in Cambridge (shown below, middle) is a mid-rise residential development of 161 units built on a formerly contaminated site. The development is built next to the Grand River Transit terminal and is helping to revitalize the downtown. The project was the first to take advantage of Cambridge's Contaminated Sites Grant program and received Regional, Provincial and Federal funding for 77 rental units that have been designated as affordable housing for the next 20 years.



THE UNIVERSITY OF WATERLOO'S SCHOOL OF ARCHITECTURE, BUILT IN A RENOVATED RIVERSIDE SILK MILL IN CAMBRIDGE, ILLUSTRATES OUR GOAL TO REDEVELOP AND INTENSIFY OUR CORE AREAS.











fostering A STRONG ECONOMY

A strong economy is essential to sustaining the exceptional quality of life we have come to value in our community. Through enhanced infrastructure and new partnerships, we expect to attract new business, improve our competitive advantage and build on our economic strength.

- In consultation with community stakeholders, the Region is now implementing the first phase of its *East Side Community Structure Plan* and *Highway 401/97 Expansion* initiatives. These initiatives will bring on 300 hectares (741 acres) in north Cambridge and 100 hectares (247 acres) in the Highway 401/97 area of the Township of North Dumfries to provide large parcels of land for new employment development.
- The grand opening of the *Accelerator Centre* (top right) was celebrated on May 18, 2006. The Centre provides office space, administrative services and networking opportunities to connect new technology businesses with investors and service providers. The Centre, and the University of Waterloo's Research + Technology Park where it is located, were both created through a financial partnership between the Region of Waterloo, the City of Waterloo, the University of Waterloo, and the Provincial and Federal governments to augment a strong technology sector and provide new economic benefits to the Region.













THE REVITALIZATION OF THE WATERLOO TOWN SQUARE IS A GOOD EXAMPLE OF THE KIND OF URBAN REDEVELOPMENT THAT IS ENRICHING OUR ECONOMY.

"Waterloo Region is …the blueprint for how other communities can become economic warriors in the global battle for jobs and growth. It holds the key for Canada's economic survival and perhaps dominance."

-GLOBE AND MAIL REPORT ON BUSINESS, APRIL 26, 2006

providing GREATER TRANSPORTATION CHOICE

The Region is committed to providing a more integrated, sustainable and convenient transportation system. This improved system will provide greater access to jobs and services, improve air quality, and help to address increasing traffic congestion. Overall, it is a critical element of community building that will help us manage future growth.

- The *iXpress* is a fast, limited-stop bus route, allowing riders to travel quickly and comfortably between Waterloo, Kitchener and Cambridge. Since its inception, ridership has increased from 48,000 weekday boardings per month to almost 75,000. The iXpress is the first step in providing faster and more convenient transit services connecting the Region's three cities.
- The Region is now undertaking a Rapid Transit Environmental Assessment (EA) to provide for a rapid transit system linking Cambridge, Kitchener and Waterloo. Regional Council approved Phase 1 of the three-phase EA in July 2006. Rapid Transit is designed to be comfortable, convenient and fast in order to be competitive with automobile travel.

"Investment in rapid transit is a key to developing sustainable communities with fast, frequent and reliable transportation options. Rapid transit is a symbol of a growing, vibrant and competitive urban economy that lays the groundwork for future generations."

-MICHAEL W. ROSCHLAU
PRESIDENT AND CHIEF EXECUTIVE OFFICER
CANADIAN URBAN TRANSIT ASSOCIATION











RAPID TRANSIT'S SIGNIFICANT IMPACT ON LAND VALUES AND DEVELOPMENT DECISIONS MAKES IT AN IMPORTANT PLANNING TOOL FOR INFLUENCING FUTURE DEVELOPMENT AND INVESTMENT ALONG A CENTRAL TRANSIT CORRIDOR. FOR MORE INFO, PLEASE VISIT THE RAPID TRANSIT WEBSITE AT WWW.REGION.WATERLOO.ON.CA/TRANSITEA.





ensuring OVERALL COORDINATION & COMMUNICATION

Our homes. Our neighbourhoods. Our community. Our Region. Each of us as individuals, homeowners and citizens has an important role to play in shaping our community.

- The development and implementation of the Regional Growth Management Strategy (RGMS) requires continued active collaboration with the seven Local Municipalities who are essential partners to the success of the RGMS.

- The community also plays a vital role in implementing the RGMS – individually and through stakeholder groups like the: Grand River Conservation Authority; Waterloo Regional Police Services; Community Safety and Crime Prevention Council; Prosperity Council and Homebuilders Liaison Committees; RGMS/Rapid Transit Public Advisory Committee; and educational institutions.

- The *Reurbanization Conference*, the *Growth Management Forum* and the *Grand By Design Community Tour and Education Series* are just a few of the many public growth management workshops and events hosted by the Region. As part of its commitment to open consultation, Regional staff will continue to communicate with stakeholders using a wide variety of techniques, including public information sessions and events, websites and media releases.



Courtesy of Robbie, Young + Wright Architects and Hariri Pontarini Architects.

THIS IS AN ARTIST'S RENDERING OF THE UNIVERSITY OF WATERLOO SCHOOL OF PHARMACY AT THE DOWNTOWN KITCHENER HEALTH SCIENCES CAMPUS. THANKS TO AN EXCITING PARTNERSHIP BETWEEN THE UNIVERSITIES, THE CITY OF KITCHENER AND THE REGION OF WATERLOO, THIS CAMPUS WILL ALSO BE HOME TO A SATELLITE OF MCMASTER UNIVERSITY'S MICHAEL G. DEGROOTE SCHOOL OF MEDICINE. THE REGION HAS COMMITTED $15 MILLION TOWARD THE NEW SCHOOL OF MEDICINE.



"When you get really bright people together, great things happen. You never know where the next innovation is going to come from."

-HOWARD BURTON
EXECUTIVE DIRECTOR, PERIMETER INSTITUTE

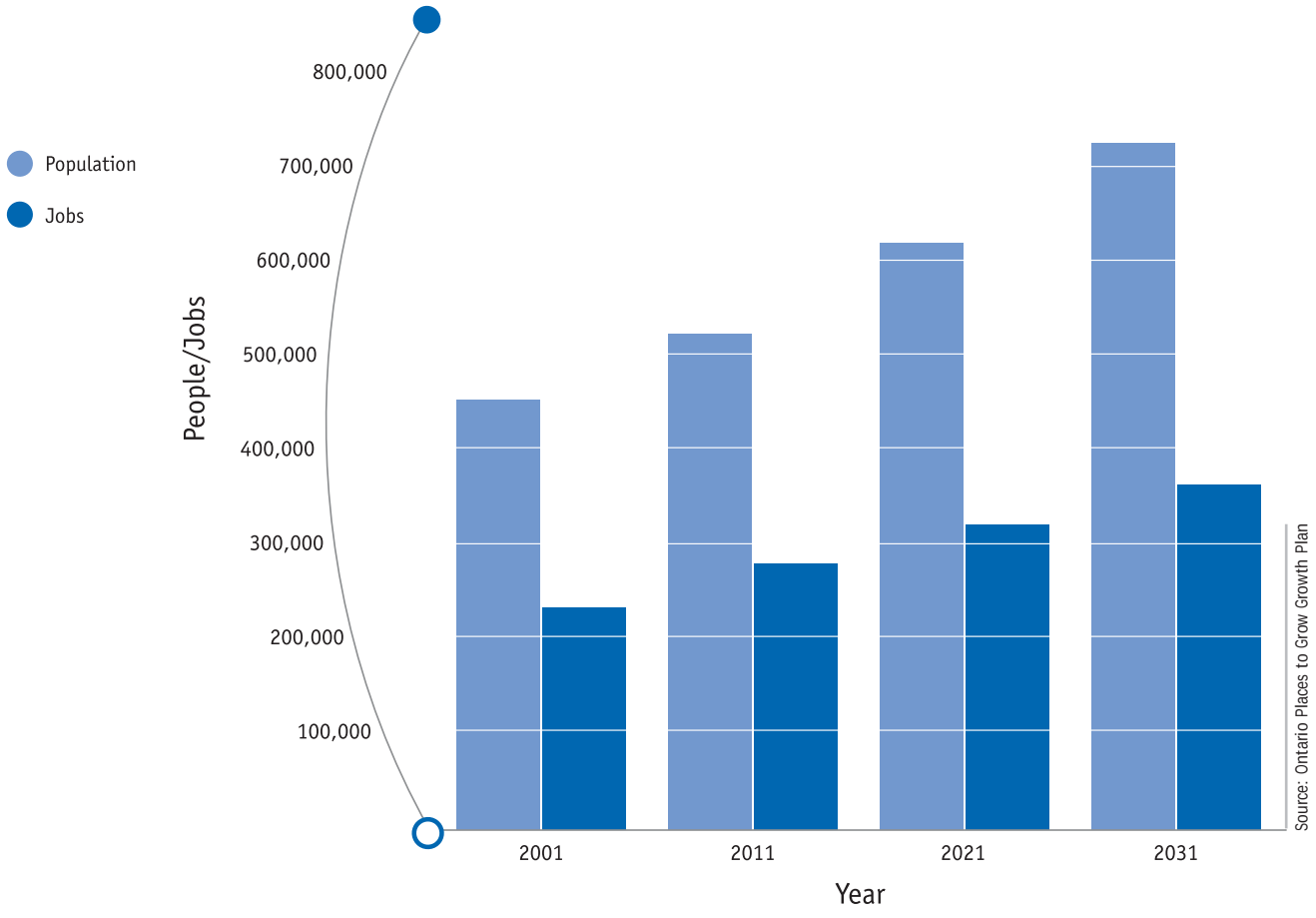
grand BY DESIGN:

Shaping Our Community

With a current population of more than 500,000, Waterloo Region is currently the fourth largest urban area in Ontario and the 10th largest in Canada. That growth is expected to continue with our population and employment forecast to be 729,000 people and 336,000 jobs by 2031.

POPULATION GROWTH IN WATERLOO REGION...

yesterday, today and tomorrow!



WATERLOO REGION



Known as Canada's Technology Triangle (CTT), Waterloo Region is an innovative and prosperous community with a unique balance between urban and rural lifestyles, a diverse ethnic makeup and excellent educational, health, cultural and recreational facilities.







"This area is central...We're within a 500-mile (800 km) radius of 150 million people and...have the benefit of a diversified economy and a diversified labour force. Really you can't beat it."

-RICHARD CATER
PRESIDENT, LEROUX STEEL

GRANDBYDESIGN
Shaping Our Community

shaping OUR FUTURE

There are more exciting and innovative growth management projects and studies on the horizon.

For more detailed information on Regional Growth Management Strategy initiatives, or to provide your input on the RGMS, please visit www.region.waterloo.on.ca/rgms or contact:

Keren Adderley,
Coordinator of Communications and Marketing
Planning, Housing and Community Services

Region of Waterloo
150 Frederick St., 8th Floor
Kitchener, ON
e. akeren@region.waterloo.on.ca
t. 519 575 4508
f. 519 575 4449



Mike Murray, P. Eng.
Chief Administrative Officer

Rob Horne, MA, MCIP, RPP
Commissioner, Planning, Housing and Community Services

www.region.waterloo.on.ca/rgms

2004 – 2006 Regional Council
Chair: Ken Seiling
Councillors: Jane Brewer, Mike Connolly, Doug Craig, Kim Denouden, Herb Epp, Tom Galloway, Jean Haalboom, Ross Kelterborn, Claudette Millar, Jane Mitchell, Wayne Roth, Jake Smola, Bill Strauss, Jim Wideman, Carl Zehr

This brochure was published by the Region of Waterloo.

Region of Waterloo

Regional Municipality of Waterloo

Special Council Agenda

Tuesday, May 26, 2015

9:00 a.m.

Regional Council Chamber

150 Frederick Street, Kitchener, ON

The purpose of the meeting is to approve the items listed below:

1. **Waiving of Rules of Procedure**
2. **Declaration of Pecuniary Interest Under the "Municipal Conflict of Interest Act"**
3. **Motion to Go Into Committee Of The Whole**
4. **Reports**
   a) PDL-15-03, Regional Official Plan – Background to the Settlement Between the Region of Waterloo and Appellants
5. **Motion for Committee Of The Whole To Rise And Council Resume**
6. **Motion to Adopt Proceedings Of Committee Of The Whole**
7. **Other Business**
8. **Enactment of By-Laws – First, Second & Third Readings**
   a) A By-law to Confirm the Actions of Council – May 26, 2015
9. **Adjourn**

Report: PDL-15-03

Region of Waterloo

Planning, Development and Legislative Services

Commissioner's Office

To: Chair Ken Seiling and Members of Regional Council

Date: May 26, 2015 **File Code:** L15-20

Subject: **Regional Official Plan – Background to the Settlement Between the Region of Waterloo and Appellants**

Recommendation:

That The Regional Municipality of Waterloo approve the settlement of the Ontario Municipal Board appeals of the Regional Official Plan as described in Report PDL-15-03, dated May 26, 2015 and authorize the Commissioner of Planning, Development and Legislative Services to sign Minutes of Settlement and any ancillary or related documents or agreements on behalf of the Region to finalize such settlement for submission to the Ontario Municipal Board.

Summary:

In 2009, Regional Council endorsed an entirely new Regional Official Plan (ROP) to replace the existing Regional Official Policies Plan (ROPP). The new ROP was developed following approximately five years of extensive public consultation and technical review. The vision of the ROP was largely founded on the Regional Growth Management Strategy, adopted by Regional Council in 2003 to guide future growth in such ways as establishing more compact development, the protection of environmental systems, reduced dependence on the automobile, and the creation of new strategic employment lands.

In 2010, after extensive review, the Provincial government approved the ROP (with certain modifications). A Notice of Decision was issued followed by an appeal period, during which appeals from over 20 individuals and entities were received. The majority of these appeals pertained to challenges around how the Region should grow, and specifically that additional development lands be designated.

Following the receipt of the appeals, pre-hearings and the first phase of a four phase hearing process were completed by the Ontario Municipal Board (OMB or Board), the Provincially-established entity that hears and rules on these appeals. In its first major decision, the Board ruled (in 2013) on the amount of additional land that should be added for new development. The Region's position was that up to 85 hectares be added, since a large amount of vacant greenfield land to accommodate future subdivisions still existed, the Region intended to grow at higher densities of development, and a greater proportion of development would occur within existing built-up areas (with ready transit accessibility and use of the ION rapid transit system). The appellants argued that 1053 hectares be added. In its ruling, the OMB noted its preference toward the appellants' land budget, which presumed much more land being needed (1053 hectares), based on an assumption that future development would follow historic trends.

Following this OMB ruling, Regional Council initiated a number of legal actions to continue to advance its ROP (and its vision). This included asking the OMB to reconsider its decision (which the Board did and re-affirmed that decision) and two proceedings in Divisional Court. The first proceeding asserts the OMB erred in its interpretation of the Provincial Growth Plan for the Greater Golden Horseshoe. The second proceeding asserts that there was a reasonable apprehension of bias in the hearing that resulted in the 2013 ruling because the OMB received training from a consultant representing some of the appellants at the same time that the appeals were pending before the Board. Both of these proceedings remain before the courts. There is also a related proceeding or motion for leave to appeal based upon the Board's own decision in 2014 on the issue of bias.

In an attempt to arrive at a solution outside of hearings and litigation, and given the fact that only Phase 1 of the OMB hearings had been completed since 2009, the appellants seeking a greater Urban Area expansion, met with the Region in late 2013 and began preliminary discussions. The Region and the appellants then established a negotiating framework and began formal discussions toward a collaborative settlement.

These negotiations have now culminated in a settlement, which is described in this report, that would see the ROP come into force and effect as the community's plan for guiding growth across the Region to 2031. The settlement must receive final approval from the OMB, and a hearing to present that settlement is scheduled to occur in June of 2015. Upon final approval by the Board, the OMB proceedings respecting the growth-related appeals will be concluded and all legal proceedings before Divisional Court will be withdrawn.

The proposed modifications to the ROP policies and mapping are scheduled to be presented to the OMB at its prehearing on June 16, 2015.

The Region of Waterloo views this settlement as a very positive outcome, wherein the community vision for growth in the community will be anchored in the Regional Official Plan, an important legal document that guides growth and development to 2031. The settlement also avoids the added costs and eliminates any uncertainty associated with Provincial tribunals (i.e. the OMB) and Provincial courts making decisions on behalf of the community, which created this collective vision for the future.

Report:

Background and Key Milestones to Date

i) Defining an Official Plan

An official plan (and in this case, the Regional Official Plan or ROP) is a legal document established under the Provincial Planning Act. An official plan guides growth over a 20 year period, and is reviewed every 5 years. A key element of an official plan lies in the delineation of boundaries limiting further development.

ii) Key Milestones

Regional Growth Management Strategy (RGMS) – From 2001 to 2003, Regional Council initiated and adopted (in 2003) the RGMS, containing key elements of the community's vision for the future.

The RGMS was structured on six goals:

- Enhancing our Natural Environment
- Building Vibrant Urban Places
- Providing Greater Transportation Choice
- Protecting our Countryside
- Fostering a Stronger Economy
- Ensuring Overall Coordination and Cooperation.

The specific features and directions of the RGMS included:

- The Region as an area of prosperity and ongoing significant growth attraction. The Region is identified in the Provincial Growth Plan for the Greater Golden Horseshoe (Places to Grow) as being expected to grow from 550,000 people today to over 740,000 people by 2031.
- The dependence of our Region on groundwater. About 80% of the Region's water supply is drawn out of the ground, and there is a compelling need to better protect our groundwater.
- The need to protect environmental systems. The Region has identified about 35,000 acres as Environmentally Sensitive Landscape (ESL), and the ESL system would be completed through the new ROP.

- New strategic employment lands were identified in the RGMS as a critical element to supporting our economy. Specifically, the “East Side” lands (east of the Grand River) were required to provide larger lot opportunities for existing businesses to relocate and expand, or for new investment to develop and create new employment in our community.
- The importance of developing at higher densities in a more compact way, with the better integration of public transit and development. In fact, the ION rapid transit system is currently being built with the dual goals of moving people and shaping the community.

Preparation of Regional Official Plan (ROP) – From 2005 to 2009, Regional Council engaged in an extensive process to develop a new ROP. This document was founded on the vision of the RGMS, the need to conform to the Provincial Growth Plan (which came into effect in 2006), and to reflect the opportunities created by the establishment of a Regional rapid transit system (ION). The process involved unprecedented community consultation and extensive technical review.

ROP Approval – Regional Council approved the new ROP in June of 2009 and forwarded the document to the Province for final approval and a Notice of Decision to be issued, as required under the Planning Act.

Provincial Approval – On December 22, 2010, the Provincial Ministry of Municipal Affairs and Housing (MMAH) approved the ROP with relatively minor modifications being made to address matters of Provincial interest. As approved by the Province, the ROP is deemed to conform to the Growth Plan and the Greenbelt Plan, and to be consistent with the PPS. MMAH subsequently issued a Notice of Decision on January 4, 2011, thereby triggering a 20 day period within which appeals to the decision of MMAH could be filed. Appeals to the ROP are adjudicated by the Ontario Municipal Board (the OMB or Board).

Appeals - A total of 26 appeals were received during the appeal period. The majority of the appeals were growth related. Two appeals were also filed by the Region and the Township of Woolwich relating directly to modifications MMAH made to aggregate polices adopted by Regional Council. In addition, the Region appealed the failure of MMAH to modify the ROP to apply the Protected Countryside designation to the agricultural lands in southwest Kitchener as requested by Regional Council. This omission by MMAH was unintentional and resulted from a clerical error during preparation of the approval.

While some of the appeals have subsequently been resolved, additional persons or groups have also come forward to the Board and formally requested the right to participate in the hearing process. The Board has granted some of these requests, and as a result, there are currently 22 parties with official status in the hearing process. It is important to note that some of the appeals filed relate to the entire ROP, and as a

result, until such time as they are resolved by the OMB, or withdrawn by the appellants, the 1995 Regional Official Policies Plan (the ROPP) remains in full force and effect, and in conjunction with the Growth Plan and the PPS will govern the processing of development applications.

Board Process – Phasing and Motions - As a result of a number of pre-hearing conferences and motion hearings, the OMB ordered that the issues under appeal be addressed though a phased hearing process, as opposed to one omnibus hearing. The benefit of phasing the hearing is that the decisions at the end of each phase can help inform the process for the next phase, thereby potentially allowing some parties to withdraw should the decision on an earlier phase resolve or address their issues. The OMB ordered that the phases of the hearing be addressed as follows:

> **Phase 1** - The hearing of all appeals related to the land budget related issues including: a) justification for expansions to the urban areas to provide for the growth forecasts contained in Schedule 3 of the Growth Plan; and b) the nature and application of intensification and greenfield density targets. The Phase 1 Hearing was held over five weeks in July and August 2012.
>
> **Phase 2** - The hearing of all appeals related to the policies or mapping with respect to: a) the prime and non-prime agricultural area policies and mapping; b) the natural heritage resources policies and mapping; c) the water resource protection policies and mapping; d) the natural heritage resources policies and mapping; and e) the Protected Countryside and Countryside Line policies and mapping.
>
> **Phase 3** - The hearing of all appeals related to: a) allocation of population and employment forecasts to the area municipalities; b) site specific allocation of additional Urban Area or Township Urban Area (if any) determined to be required through Phase 1 Hearing; c) general policies and mapping; and d) site specific issues.
>
> **Phase 4** – Aggregate policies appeals are being dealt with on a parallel basis. This process is ongoing and will be reported on separately at a later date.

Board Decision – Phase 1 - On January 21, 2013, the OMB released its decision (the OMB ROP Land Budget Decision) regarding the Phase 1 Hearing. In its decision, the Board “preferred” the methodology advocated by the developers, subject to revisions being made to the amount of land permitted to be excluded from the density calculation.

The Region’s position was that up to 85 hectares be added, since a large amount of vacant greenfield land still existed to accommodate future subdivisions, the Region intended to grow at higher densities of development, and a greater proportion of development would occur within existing built-up areas (with ready transit accessibility and use of the ION rapid transit system). The appellants argued that 1053 hectares be

added. In its ruling, the OMB noted its preference toward the appellants' land budget, which presumed much more land being needed (1053 hectares), based on the assumption that future development would follow historic trends.

Subsequent Legal Actions by the Region of Waterloo - Following this OMB ruling, Regional Council initiated a number of legal actions to continue to advance its ROP (and its vision). This included asking the OMB to reconsider its decision (which the Board did and re-affirmed that decision) and two proceedings in Divisional Court. In the first proceeding the Region asserts that the OMB erred in its interpretation of the Provincial Growth Plan for the Greater Golden Horseshoe. The second proceeding asserts that there was a reasonable apprehension of bias in the hearing that resulted in the 2013 ruling because the OMB received training from a consultant representing some of the appellants at the same time that the appeals were pending before the Board. Both of these proceedings remain before the courts. There is also a related proceeding or motion for leave to appeal based upon the Board's own decision in 2014 on the issue of bias.

Settlement Discussions Leading to Current Settlement - In an attempt to arrive at a solution outside of hearings and litigation, the appellants seeking a greater Urban Area expansion, met with the Region in late 2013 and began preliminary discussions. The Region and the appellants then established a negotiating framework and began formal discussions toward a collaborative settlement. Given the fact that only Phase 1 of the OMB hearing has been completed since 2009, all parties also agreed that a negotiated settlement was the best available process.

These negotiations have now culminated in a settlement, which is described in this report, that would see the ROP come into force and effect as the community's plan for guiding growth across the Region to 2031. The settlement must receive final approval from the OMB, and a hearing to present that settlement is scheduled to occur in June of 2015. Upon approval by the Board, the OMB proceedings respecting the growth-related appeals will be concluded and all legal proceedings before Divisional Court will be withdrawn.

The Region of Waterloo views this settlement as a very positive outcome, wherein the community vision for growth in the community will be anchored in the Regional Official Plan, an important legal document that guides growth and development to 2031. The settlement also avoids the added costs and eliminates any uncertainty associated with Provincial tribunals (i.e. the OMB) and Provincial courts making decisions on behalf of the community, which created this collective vision for the future.

Highlights of Regional Interests Achieved in the Settlement

If approved by the OMB, the settlement reached with the appellants would achieve the following Regional interests for the community:

- **Adherence to the vision of the Regional Growth Management Strategy.** Regional Council has maintained its commitment to the goals and directions contained in the RGMS, as generally described in this report. The Region of Waterloo views this settlement as a very positive outcome, wherein the community vision to 2031 will be anchored in the Regional Official Plan, an important legal document that guides growth and development. The settlement also avoids the added costs and eliminates any uncertainty associated with Provincial tribunals (i.e. the OMB) and Provincial courts making decisions on behalf of the community, which created this collective vision for the future
- **Use of the Region's land budget methodology.** If approved by the OMB, the settlement will also provide assurance that, going forward, the parties agree that the Region's methodology will be used to calculate the amount of agricultural land that will be converted to urban development in future official plans so that the Region may plan for and ensure sustainable future development. It should also be noted that the Region's five year average for new residential development in built-up areas is already 55%, well above the 40% threshold required under the Provincial Growth Plan.
- **Establishment of a Countryside Line.** This is a new feature, representing the long-term boundary between the existing future Urban Area/Township Urban Areas and the Countryside.
- **Establishment of a Protected Countryside, including Regional Recharge Areas.** This new feature includes a continuous band of environmental features and agricultural lands surrounding the north, west and south sides of the urban Area designation that is to be permanently protected. **Regional Recharge Areas** further elevate groundwater protection measures by designating large environmental features where considerable deposits of sand and gravel allow for the infiltration of large quantities of rainfall and snowmelt deep into the ground. This important hydrologic function sustains some of the richest sources of groundwater in the Grand River Watershed.
- **Completion of Environmentally Sensitive Landscape (ESL) System.** The new ROP would see the final element of the ESL system completed, namely the establishment of the Dumfries Carolinian ESL.
- **Completion of East Side Lands Prime Industrial Strategic Reserve Designation.** The new ROP would add lands for new employment purposes in north Cambridge that generally lie west of Fountain Street and north of Allandale Road. Lands east of Fountain Street already have this designation, as established under the existing ROPP.
- **Full Integration of Public Transit and Development.** A full chapter of the new ROP is dedicated to policies that direct how this integration will occur (Chapter 2: Shaping Waterloo Region's Urban Centres).
- **Expanded Policies to Further Support the Economy.** The new ROP includes

considerably more policy directed at supporting business and dedicates a full chapter to this imperative (Chapter 4).

- **Continued Recognition of the Importance of the Region's Vibrant Rural Communities.** Chapter 6 of the new ROP, entitled "Supporting the Countryside", includes a range of policies, from agricultural-related uses to the establishment of "Countryside/Future Urban Expansion Area".
- **Minimizing the Addition of Areas for New Urban Development.** This issue is described below.

Overview of Elements Negotiated with Appellants

As with any negotiation, accommodation must be made by all parties to reach settlement. In the case of this settlement, if approved by the OMB, the Region of Waterloo has agreed to:

- Allow for more development lands. The settlement provides for an additional 255 hectares of land to be designated now to permit development. These 255 hectares represents the resolution of the land budget dispute that had the Region proposing a need for 85 additional hectares to accommodate growth to 2031 and the appellants proposing that 1,053 hectares were required. This is over and above the vacant land (approximately 3,500 hectares) that existed at the time the calculations were done in 2009 (based on 2006 data).
- Provide for additional growth forecast by the Province - In addition to resolving the above noted dispute, the settlement also directs how lands required to meet other obligations to accommodate future growth will be addressed. In 2012 the Province amended the Growth Plan to change the population projection for the region in 2031 from 729,000 people (which is what the OMB decision was based upon) to 742,000. The settlement provides that 170 hectares of additional land be designated to permit development to meet this increase in forecasted population. In addition, the settlement provides direction relating to a future 28 hectare expansion in 2019, when the Official Plan will be expanded to provide for growth beyond 2031.
- Determined where new areas for development should be located. The map attached to this report shows the locations of the areas to be designated urban as described above. The new areas where future development will be allowed to occur fall into three categories. 1) development in southwest Kitchener east of Fischer-Hallman Road that was described in the RGMS as a possible new location for future development; 2) development on the East Side which will help support the Region's goals of achieving in the near term a mix of uses in this area that is proposed to accommodate the majority of the Region's long term growth; and 3) a number of minor rounding outs of the currently designated urban lands to create permanent long term boundaries.

- Provides for study of where growth may be considered in the future. Through the settlement discussions it was determined that additional work is required to determine whether a small portion of land located in southwest Kitchener needs to be permanently protected as important groundwater recharge area or whether these lands could accommodate urban development at some time in the future. The resolution of this issue, within what is described in the settlement as the Southwest Kitchener Policy Area, will occur in 2019.

Expected Next Steps

With Regional Council and the appellants having reached agreement, the following next steps will occur:

- The Region and the appellants will present the proposed modifications of the ROP to the OMB for consideration and final approval. This is presently scheduled to occur at the pre-hearing scheduled for June 16-19, 2015;
- The Board will also need to deal with outstanding appeals relating to aggregates (not a part of the settlement described in this report) and a report to Council is expected in the immediate future; and
- The new ROP would come into legal force and effect (replacing the existing ROPP) through a final decision issued by the OMB. The timing of this entire process lies with the OMB.

Area Municipal Consultation/Coordination

All Area Municipalities were involved in the development of the ROP. This is especially important as local official plans must conform to the ROP under the Provincial Planning Act. Over the process of dealing with the appeals, all Area Municipalities were updated as discussions advanced. The settlement would also see the withdrawal of a number of associated appeals to local official plans.

Corporate Strategic Plan:

The ROP supports all focus areas of the Strategic Plan, and particularly Focus Area 2: Growth Management and Prosperity.

Financial Implications:

The 10 Year Capital Program provides a total of $1.6 million for the completion of Watershed Growth Studies in the years 2015 to 2019 inclusive, and includes the planned studies supporting the ROP, specifically the Randall Drain, Breslau Drain and Cedar Creek Subwatershed Studies. The exact cost to the Region of the above-noted studies would be determined prior to the initiation of the studies, but it is not expected to exceed the funds dedicated for such purposes over this period.

Other Department Consultations/Concurrence:

All Departments were involved in the preparation of the ROP.

Attachments:

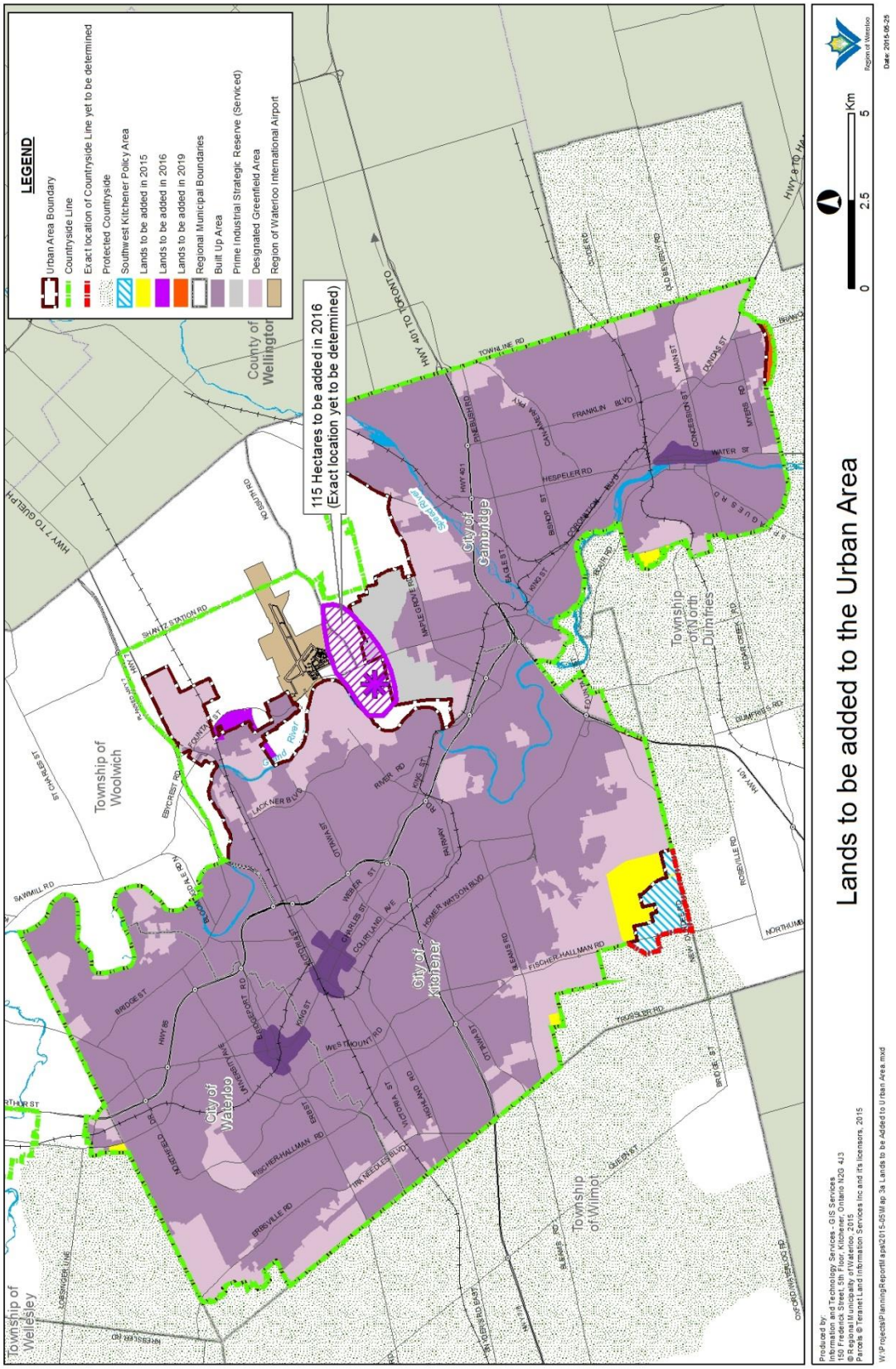
Attachment 1 – Location Map

Prepared By: **Rob Horne**, Commissioner, Planning, Development and Legislative Services

Kevin Eby, Director, Community Planning

Approved By: **Rob Horne**, Commissioner, Planning, Development and Legislative Services

Attachment A



2015 REGIONAL ECONOMIC OUTLOOK

Kitchener-Waterloo-Barrie

Presented by the Credit Unions of Ontario and the Ontario Chamber of Commerce

1. Kitchener-Waterloo-Barrie is creating jobs at a rate that outpaces every other region. The region is expected to add 30,000 jobs over the next two years.

2. The regional unemployment rate, already below the provincial average of 7.3 percent, is expected to shrink to 6.2 percent by 2016.

3. Net migration to the region is expected to be strong, growing at a rate of 1 percent in 2015 and 1.1 percent in 2016 as the region grows by just under 30,000.

Credit Unions of Ontario

ontario chamber of commerce

Economic growth in the **Kitchener-Waterloo-Barrie** (KWB) region will gain some momentum during the next two years led by exports and business investment spending in manufacturing and high-tech. However, varied performances in other sectors will result in moderate overall growth. Economic conditions and prospects are uneven across this large region with the Kitchener-Cambridge-Waterloo census metropolitan area (CMA) and the region's other two CMAs (Guelph and Barrie) driving growth and having brighter prospects compared to other areas in the region.

This region has fared relatively well since the last recession, compared to other regions in the province, though not without its difficulties and challenges. The region's more diverse manufacturing sector with its information and communications technology (ICT) sector concentration better absorbs economic and market risks. Significant education institutions in the region provide stability and growth potential for start-ups.

Economic conditions in 2014 were mixed across sectors and industries. Employment grew 1.3 percent following a 2.5 percent gain in 2013 and a 0.4 percent contraction in 2012. Construction employment posted another solid yearly gain due to more residential and non-residential building construction. However, manufacturing employment did not fare as well with its second consecutive annual decline. Growth in several service-producing industries, notably transportation-warehousing, finance-insurance-real estate, professional-scientific-technical, and information-cultural-recreation, provided an underpinning.

Regional and local ICT output data are not available but Canadian data show a drop in ICT manufacturing offset by a large gain in ICT services output. Ontario's ICT merchandise exports were down six percent year-to-date in October compared to last year, though they are up slightly in Canadian dollars. Information processing equipment investment spending in the U.S. is up modestly in 2014 and it is roughly even with spending last year in Canada. U.S. investment spending is poised to increase in 2015 and 2016 as its economy grows faster resulting in higher local output and exports.

There is a fair likelihood that ICT manufacturing is at or near a cyclical low in the region and in Canada, based on improved demand prospects ahead. The lower Canadian dollar combined with a faster growing U.S. economy will boost exports and company profitability and ultimately investment spending. Lower oil prices may also assist the bottom line for some manufacturers. In addition,

growth in the rest of the global economy will also begin to improve and potentially expand ICT exports.

ICT services activity is growing at a rapid pace and is on a significant long-term uptrend. The future is bright for this sector with ongoing technological innovation in mobility, cloud, security, storage, business intelligence, and big data and analytics. Businesses are constantly looking for ways to reach new customers, better serve existing clients, and to improve their bottom line through efficiencies. Consumer demand for new and improved software and other services is also growing.

Notable regionally-based companies such as BlackBerry announced plans to hire about 350 engineers with many of the positions based in Waterloo. Desire2Learn, another Waterloo-based company, plans to hire 60 to 100 employees. Cogeco Data Services is expanding its Barrie centre, adding 20,000 square feet. Export Development Canada announced US$850 million in financial assistance to Vodafone with the majority of the money to be spent on BlackBerry's handsets, software and support services.

BlackBerry's downsizing and restructuring appears nearly complete and its new business plan is beginning to show promise. The company rolled out its new Passport and Classic phones. Also, the success of BlackBerry Enterprise Server 12, which manages cross-platform devices such as Android and iPhones, will be critical.

The region's auto-related sector improved with a cyclical rebound in U.S. auto sales, benefitting companies like parts-giant Linamar and vehicle assemblers. Linamar has announced a $507 million expansion at its operations in Guelph. Honda of Canada recently announced that it is investing about $857 million over three years in new technologies, worker training and research partnerships with Ontario colleges and universities. With higher U.S. new vehicle sales forecast on the horizon, the ongoing expansion in Asian markets, and the lower Canadian currency, this sector's prospects are improving.

Some other manufacturing operations face a different future. For example, the Schneiders' plant in Kitchener is laying off over 600 workers and will close in the first quarter of 2015. Owens Corning will be cutting more than 100 jobs at its fibreglass plant in Guelph by 2016 when it shifts some production to Mexico. CCL Industries announced that it will close its aerosol container facility in Penetanguishene by mid-2015 affecting 170 jobs.

Total manufacturing employment in the KWB region declined during 2014 to its lowest level in more than a decade. Performance was uneven across the region with the larger centres such as the Kitchener-Cambridge-Waterloo CMA holding up along with the Guelph and Barrie CMAs to a lesser extent. The bulk of job losses were in smaller centres outside the metro areas, where employment fell to 1996 levels.

The construction industry remains very active in both the residential and non-residential sectors. Residential building permits were up around 12 percent in 2014 while non-residential building permits jumped 35 percent on the strength of a near doubling in government-institutional permits from the $187 million expansion of Cambridge Memorial Hospital. Other major projects underway include Phase 1 of the ION Light Rail Transit (LRT) project and the Centre of Excellence for Innovation in Aging at the University of Waterloo. The $160 million Waterloo Corporate Campus project will be completed in phases by 2018.

Transportation improvements such as the LRT and expansion of GO Transit service between Kitchener-Waterloo and Toronto will facilitate residential and commercial development, generate travel-time savings, and make the region more attractive for business relocation and retention.

Housing markets performed well in 2014 with unit sales only slightly lower than in 2013 though the average sale price was about five percent higher. Housing starts more than doubled on a surge in apartment condominium and rental activity in the Kitchener-Cambridge-Waterloo CMA. The area's declining rental vacancy rate may reverse with this supply increase, though demand could outstrip new supply.

The housing outlook is mixed in that new construction will likely decline in 2015 while housing

prices rise further and housing sales remain in the range seen for the past several years. Higher mortgage rates in 2016 will crimp sales demand though some offset from higher employment, income, and population growth should limit the decline.

Non-residential building permits will, not surprisingly, decline in 2015 following the 2014 spike in public permits. However, higher investment activity in 2016 is seen in conjunction with the improving economy. Population growth will remain low by historical standards but begin to experience rising net migration into the region. A diminishing net interprovincial outflow to the west and a rising intraprovincial net inflow are the main expected unfolding trends while net international migration is seen holding near current levels. Rising intraprovincial net migration reflects the region's attraction as high-tech and higher education centres.

Read on to find out how the Kitchener-Waterloo-Barrie economic region stacks up against the rest of Ontario >>>



REGIONAL ECONOMIC OUTLOOK

Kitchener-Waterloo-Barrie

	2012	2013	2014	2015	2016
Labour Force (000s)	735.3	753.3	757.2	765.0	780.0
% change	*-1.1*	*2.4*	*0.5*	*1.0*	*2.0*
Total Employment (000s)	687.0	704.3	713.5	727.0	743.5
% change	*-0.4*	*2.5*	*1.3*	*1.9*	*2.3*
Unemployment Rate	6.6	6.5	5.8	5.0	4.7
MLS® Residential Sales	19,977	20,706	21,101	22,000	23,000
% change	*2.5*	*3.6*	*1.9*	*4.3*	*4.5*
MLS® Residential Average Price	301,329	313,709	330,413	343,000	356,000
% change	*3.9*	*4.1*	*5.3*	*3.8*	*3.8*
Residential Permits (units)	6,325	7,084	7,900	7,500	7,900
% change	*-19.2*	*12.0*	*11.5*	*-5.1*	*5.3*
Non-Residential Permits ($ millions)	987	982	1,325	980	1,100
% change	*-29.6*	*-0.5*	*34.9*	*-26.0*	*12.2*
Private Non-Residential Building Permits ($ millions)	669	732	850	700	800
% change	*-26.2*	*9.5*	*16.0*	*-17.6*	*14.3*
Public Non-Residential Building Permits ($ millions)	318	250	475	280	300
% change	*-36.0*	*-21.4*	*90.1*	*-41.1*	*7.1*
Population (000s)	1,271.6	1,285.5	1,298.0	1,311.0	1,325.0
% change	*1.2*	*1.1*	*1.0*	*1.0*	*1.1*
Net Migration	10,730	9,141	8,000	8,500	9,200
Net International	*4,056*	*3,583*	*3,000*	*2,800*	*2,800*
Net Interprovincial	*-1,793*	*-2,909*	*-3,000*	*-2,500*	*-2,000*
Net Intraprovincial	*8,467*	*8,467*	*8,000*	*8,200*	*8,500*

Source: Statistics Canada, CREA, Central 1 Credit Union forecasts.
Notes: Housing sales and prices represent combined activity in real estate boards within the region.



CENSUS METROPOLITAN AREA OUTLOOK

Kitchener-Cambridge-Waterloo

	2012	2013	2014	2015	2016
Total Employment (000s)	277.3	283.8	287.5	294.0	301.0
% change	*0.4*	*2.3*	*1.3*	*2.3*	*2.4*
Unemployment Rate	6.6	6.9	6.2	5.3	4.8
MLS® Residential Sales*	9,204	9,563	9,659	10,100	10,700
% change	*-0.9*	*3.9*	*1.0*	*4.6*	*5.9*
MLS® Residential Average Price*	306,573	315,879	332,735	344,000	359,000
% change	*3.3*	*3.0*	*5.3*	*3.4*	*4.4*
Residential Permits (units)	2,280	2,431	3,600	3,000	3,350
% change	*-32.9*	*6.6*	*48.1*	*-16.7*	*11.7*
Non-Residential Permits ($ millions)	478	380	575	460	550
% change	*-38.1*	*-20.5*	*51.2*	*-20.0*	*19.6*
Population (000s)	499.0	504.3	509.3	514.4	520.0
% change	*1.2*	*1.1*	*1.0*	*1.0*	*1.1*

Source: Statistics Canada, CREA, Central 1 Credit Union forecasts.
*Approximated with combined data from the Kitchener-Waterloo Association of REALTORS®

Read on to find out how the Kitchener-Waterloo-Barrie economic region stacks up against the rest of Ontario >>>





2015 REGIONAL ECONOMIC OUTLOOK

Summary of Ontario




1. Improving external conditions support higher provincial growth.
2. Regional economies boosted by varying degrees.
3. Narrowing regional growth disparities.

Credit Unions of Ontario

ontario chamber of commerce

SUMMARY

External factors are setting the stage for a better performing Ontario economy and its regional economies. The expected improvement is broadly based across industries and regions, though some manufacturers will experience negative fallout from the decline in exports to oil-producing provinces. Overall, Ontario is a net beneficiary of low oil prices and, when combined with other drivers such as the lower Canadian dollar and faster U.S. economic growth, economic prospects are improving.

Regional economies in southwestern and central Ontario are well-positioned to benefit from the expected improvement in manufacturing, agriculture, and tourism. Business investment gains appear later in the forecast. Domestic economic activity, for example in housing, will also firm up in most regions and will be aided by higher population growth. Northern regions, which are heavily dependent on mining, face less optimistic prospects.

FAVOURABLE EXTERNAL CONDITIONS FOR ONTARIO'S ECONOMY

Ontario stands to benefit from external forces more than at any time in the past 10 years. The combination of higher U.S. growth, the lower Canadian dollar, and cost savings by consumers and businesses, from lower oil prices, notably in transportation, will push up the province's real GDP growth to 2.7 percent in each of the next two years. This compares to an estimated 1.9 percent in 2014 and 1.3 percent actual in 2013.

The global economic recovery remains uneven and slow, with weakness in Europe, slowing growth in China, recession in Brazil and Russia, and sluggish commodity-based economies offset by firmer growth in the U.S. and U.K. The collapse in oil prices has mixed impacts which will contribute to lower headline inflation in many countries and prompt some central banks to ease or postpone tightening. However, low energy prices will support global economic growth by reallocating some energy-related savings to spending on non-energy goods and services. Oil-producing economies will bear the brunt of this price collapse and will drag down overall economic growth. On balance, however, global growth should receive a lift.

Canada's economic growth will be negatively affected by the oil price collapse, and depending on where oil prices settle and on how long prices remain low, the impact on real GDP growth could

be 0.5 percent in 2015. This will cause the Bank of Canada to hold off on a rate increase until the first quarter of 2016 and possibly later. With the U.S. Fed poised for its first rate increase around mid-2015, the narrowing interest rate differential, along with the widening growth differential, will put downward pressure on the Canadian dollar.

Interprovincial migration flows will reflect the changing economic circumstances between the oil-producing regions of the country and the rest of Canada. Ontario's net interprovincial outflow to Alberta of about 15,000 persons annually will decline and turn into a net inflow, providing a small lift to the province's population growth rate.

There are negative impacts from the oil price collapse that will ripple through Ontario's economy. Less capital expenditure by oil companies will mean less demand for machinery, equipment, fabricated metal products, professional-technical services, and financing from Ontario firms. Job layoffs in the oil patch will translate directly to lower income for commuting workers from Ontario. Lower government revenue from these sources is another negative.

Gauging the net positives and negatives from lower oil prices depends on how low prices will fall and for how long. Current thinking is that it is a net positive for Ontario and other oil-importing provinces.

The housing market will hold up and post further gains under improving economic and population growth, low interest rates, and pent-up demand in some of the province's regions. Markets in the manufacturing regions stand to gain the most given their modest recovery since the recession.

REGIONAL GROWTH ROTATION

Ontario's regional economies are quite diverse in their industry makeup though some dominant aspects exist in several of them. Higher U.S. growth, reduced oil-related costs, the lower loonie, ongoing low interest rates, and improved provincial growth will benefit all regions, though initial conditions and industry-specifics will contribute to some growth differences. The improved growth backdrop will take time for its benefits to work through the economy with growth gaining momentum through 2016.

Manufacturing-oriented economies outside of the Toronto and Kitchener-Waterloo-Barrie regions are beginning to see gains and are poised for faster growth. The composition of manufacturing activities in a region will make a difference as well, but a general improvement is likely in most types of manufacturing. Southwestern regions and the Hamilton-Niagara region are favourably positioned and also have the added advantage of robust agricultural and, in some cases, tourism sectors.

Northern regions will continue to lag because of their large dependence on the mining sector, which faces weak prices and export prospects as long as slow growth persists in emerging markets such as China. However, the wood products sector faces better prospects from rising U.S. housing starts.

One trend not expected to change soon is the dominance of a metropolitan area in a region relative to rural centres. In some regions, economic and population trends are considerably less positive in those rural areas than in the larger, more industry-diversified metro area, which is usually a region's service and distribution hub.

REGIONAL ECONOMIC OUTLOOK

Ontario Summary

LABOUR FORCE (000s)					
ECONOMIC REGION	2012	2013	2014	2015	2016
Hamilton-Niagara Peninsula	770.2	758.5	762.5	770.0	779.0
% change	*0.8*	*-1.5*	*0.5*	*1.0*	*1.2*
Kingston-Pembroke	229.8	229.0	230.8	230.5	230.0
% change	*-2.0*	*-0.3*	*0.8*	*-0.1*	*-0.2*
Kitchener-Waterloo-Barrie	**735.3**	**753.3**	**757.2**	**765.0**	**780.0**
% change	***-1.1***	***2.4***	***0.5***	***1.0***	***2.0***
London	356.2	355.7	351.3	351.0	352.0
% change	*0.3*	*-0.1*	*-1.2*	*-0.1*	*0.3*
Muskoka-Kawarthas	186.7	182.2	197.7	199.5	202.0
% change	*-3.5*	*-2.4*	*8.5*	*0.9*	*1.3*
Northeast	276.0	273.3	273.4	272.8	272.5
% change	*-2.9*	*-1.0*	*0.0*	*-0.2*	*-0.1*
Northwest	108.6	109.8	106.5	106.6	107.5
% change	*1.9*	*1.1*	*-3.0*	*0.1*	*0.8*
Ottawa	745.5	733.8	745.2	751.0	760.0
% change	*2.5*	*-1.6*	*1.6*	*0.8*	*1.2*
Stratford-Bruce Peninsula	159.8	159.2	158.8	158.4	159.0
% change	*-4.1*	*-0.4*	*-0.3*	*-0.3*	*0.4*
Toronto	3,463.2	3,565.8	3,570.0	3,615.0	3,665.0
% change	*1.8*	*3.0*	*0.1*	*1.3*	*1.4*
Windsor-Sarnia	325.8	320.2	322.6	323.8	326.0
% change	*0.6*	*-1.7*	*0.7*	*0.4*	*0.7*
Ontario	7,357.1	7,440.8	7,476.0	7,543.6	7,633.0
% change	*0.8*	*1.1*	*0.5*	*0.9*	*1.2*

Source: Statistics Canada, Central 1 Credit Union forecasts.

REGIONAL ECONOMIC OUTLOOK

Ontario Summary

EMPLOYMENT (000s)					
ECONOMIC REGION	2012	2013	2014	2015	2016
Hamilton-Niagara Peninsula	715.0	705.0	712.3	722.7	733.8
% change	*0.8*	*-1.4*	*1.0*	*1.5*	*1.5*
Kingston-Pembroke	213.0	213.5	210.5	213.0	215.1
% change	*-2.0*	*0.2*	*-1.4*	*1.2*	*1.0*
Kitchener-Waterloo-Barrie	**687.0**	**704.3**	**713.5**	**727.0**	**743.5**
% change	***-0.4***	***2.5***	***1.3***	***1.9***	***2.3***
London	328.0	328.1	326.8	329.5	333.0
% change	*1.0*	*0.0*	*-0.4*	*0.8*	*1.1*
Muskoka-Kawarthas	172.7	168.4	185.1	187.0	189.5
% change	*-2.4*	*-2.5*	*9.9*	*1.0*	*1.3*
Northeast	255.8	252.9	254.8	255.0	255.5
% change	*-2.4*	*-1.1*	*0.8*	*0.1*	*0.2*
Northwest	101.3	101.9	99.9	100.3	101.3
% change	*2.6*	*0.6*	*-2.0*	*0.4*	*1.0*
Ottawa	697.6	687.4	696.5	706.0	715.5
% change	*2.4*	*-1.5*	*1.3*	*1.4*	*1.3*
Stratford-Bruce Peninsula	152.6	150.2	151.2	152.0	153.5
% change	*-3.2*	*-1.6*	*0.7*	*0.5*	*1.0*
Toronto	3,164.3	3,274.5	3,285.3	3,333.8	3,392.0
% change	*1.5*	*3.5*	*0.3*	*1.5*	*1.7*
Windsor-Sarnia	296.4	293.3	297.2	301.0	305.0
% change	*0.5*	*-1.0*	*1.3*	*1.3*	*1.3*
Ontario	6,783.7	6,879.5	6,933.1	7,027.3	7,137.7
% change	*0.8*	*1.4*	*0.8*	*1.4*	*1.6*

Source: Statistics Canada, Central 1 Credit Union forecasts.

REGIONAL ECONOMIC OUTLOOK

Ontario Summary

UNEMPLOYMENT RATE (%)					
ECONOMIC REGION	2012	2013	2014	2015	2016
Hamilton-Niagara Peninsula	7.2	7.1	6.6	6.1	5.8
Kingston-Pembroke	7.3	6.8	8.8	7.6	6.5
Kitchener-Waterloo-Barrie	**6.6**	**6.5**	**5.8**	**5.0**	**4.7**
London	7.9	7.8	7.0	6.1	5.4
Muskoka-Kawarthas	7.5	7.6	6.4	6.3	6.2
Northeast	7.3	7.5	6.8	6.5	6.2
Northwest	6.7	7.2	6.2	5.9	5.8
Ottawa	6.4	6.3	6.5	6.0	5.9
Stratford-Bruce Peninsula	4.5	5.7	4.8	4.0	3.5
Toronto	8.6	8.2	8.0	7.8	7.4
Windsor-Sarnia	9.0	8.4	7.9	7.0	6.4
Ontario	7.8	7.5	7.3	6.8	6.5

Source: Statistics Canada, Central 1 Credit Union forecasts.

REGIONAL ECONOMIC OUTLOOK

Ontario Summary

NON-RESIDENTIAL BUILDING PERMITS ($ millions)

ECONOMIC REGION	2012	2013	2014	2015	2016
Hamilton-Niagara Peninsula	1,491	1,264	925	960	990
% change	*100.7*	*-15.2*	*-26.8*	*3.8*	*3.1*
Kingston-Pembroke	299	238	495	230	280
% change	*-10.6*	*-20.5*	*110.3*	*-58.0*	*19.0*
Kitchener-Waterloo-Barrie	**987**	**982**	**1,325**	**980**	**1,100**
% change	***-29.6***	***-0.5***	***34.9***	***-26.0***	***12.2***
London	474	479	435	450	500
% change	*-55.5*	*1.1*	*-9.3*	*3.4*	*11.1*
Muskoka-Kawarthas	170	129	240	170	180
% change	*23.3*	*-24.0*	*85.5*	*-29.2*	*5.9*
Northeast	359	381	450	400	425
% change	*-16.4*	*6.2*	*18.1*	*-11.1*	*6.3*
Northwest	247	194	87	120	140
% change	*75.5*	*-21.8*	*-55.1*	*37.9*	*16.7*
Ottawa	1,284	1,179	1,200	1,100	1,220
% change	*24.5*	*-8.2*	*1.8*	*-8.3*	*10.9*
Stratford-Bruce Peninsula	262	263	315	285	300
% change	*15.2*	*0.4*	*19.9*	*-9.5*	*5.3*
Toronto	5,995	6,193	6,200	6,650	7,000
% change	*0.2*	*3.3*	*4.9*	*2.3*	*3.4*
Windsor-Sarnia	598	363	350	375	425
% change	*45.6*	*-39.2*	*-3.7*	*7.1*	*13.3*
Ontario	12,166	11,666	12,022	11,720	12,560
% change	*2.2*	*-4.1*	*3.1*	*-2.5*	*7.2*

Source: Statistics Canada, Central 1 Credit Union forecasts.

REGIONAL ECONOMIC OUTLOOK

Ontario Summary

RESIDENTIAL BUILDING PERMITS (units)

ECONOMIC REGION	2012	2013	2014	2015	2016
Hamilton-Niagara Peninsula	5,416	4,975	5,000	5,300	5,700
% change	*2.6*	*-8.1*	*0.5*	*6.0*	*7.5*
Kingston-Pembroke	1,928	2,050	1,850	1,850	2,000
% change	*-6.7*	*6.3*	*-9.8*	*0.0*	*8.1*
Kitchener-Waterloo-Barrie	**6,325**	**7,084**	**7,900**	**7,500**	**7,900**
% change	***-19.2***	***12.0***	***11.5***	***-5.1***	***5.3***
London	3,121	2,971	2,875	3,000	3,300
% change	*39.1*	*-4.8*	*-3.2*	*4.3*	*10.0*
Muskoka-Kawarthas	1,737	1,819	2,100	2,150	2,260
% change	*8.0*	*4.7*	*15.4*	*2.4*	*5.1*
Northeast	1,484	1,305	1,100	1,000	1,000
% change	*-7.5*	*-12.1*	*-15.7*	*-9.1*	*0.0*
Northwest	429	450	390	400	425
% change	*-28.0*	*4.9*	*-13.3*	*2.6*	*6.3*
Ottawa	8,211	6,643	8,950	7,800	8,000
% change	*2.7*	*-19.1*	*34.7*	*-12.8*	*2.6*
Stratford-Bruce Peninsula	1,079	1,088	1,050	1,075	1,125
% change	*-6.0*	*0.8*	*-3.5*	*2.4*	*4.7*
Toronto	38,841	40,256	35,000	36,500	38,500
% change	*14.9*	*3.6*	*-13.1*	*4.3*	*5.5*
Windsor-Sarnia	1,313	1,492	1,425	1,500	1,600
% change	*10.5*	*13.6*	*-4.5*	*5.3*	*6.7*
Ontario	69,884	70,133	67,640	68,075	71,810
% change	*6.9*	*0.4*	*-3.6*	*0.6*	*5.5*

Source: Statistics Canada, Central 1 Credit Union forecasts.

REGIONAL ECONOMIC OUTLOOK

Ontario Summary

MLS RESIDENTIAL SALES (units)					
ECONOMIC REGION	2012	2013	2014	2015	2016
Hamilton-Niagara Peninsula	20,572	21,048	22,274	23,000	24,000
% change	*-5.2*	*3.0*	*5.8*	*3.3*	*4.3*
Kingston-Pembroke	7,685	7,272	7,095	7,200	7,350
% change	*3.0*	*-5.4*	*-2.4*	*1.4*	*2.1*
Kitchener-Waterloo-Barrie	**19,977**	**20,706**	**21,101**	**22,000**	**23,000**
% change	***2.5***	***3.6***	***1.9***	***4.3***	***4.5***
London	9,787	9,783	10,405	10,800	11,200
% change	*-1.2*	*0.0*	*6.4*	*3.8*	*3.7*
Muskoka-Kawarthas	8,439	8,573	9,054	9,300	9,600
% change	*3.2*	*1.6*	*5.6*	*2.7*	*3.2*
Northeast	6,515	6,167	5,842	5,750	5,700
% change	*-1.7*	*-5.3*	*-5.3*	*-1.6*	*-0.9*
Northwest	2,056	2,053	2,264	2,300	2,375
% change	*-1.0*	*-0.1*	*10.3*	*1.6*	*3.3*
Ottawa	17,184	16,539	16,472	16,750	17,400
% change	*0.2*	*-3.8*	*-0.4*	*1.7*	*3.9*
Stratford-Bruce Peninsula	3,806	3,700	4,017	4,200	4,350
% change	*4.9*	*-2.8*	*8.6*	*4.6*	*3.6*
Toronto	93,765	94,588	99,193	100,500	102,800
% change	*-3.9*	*0.9*	*5.7*	*1.9*	*2.3*
Windsor-Sarnia	7,834	8,110	8,255	8,500	8,800
% change	*1.2*	*3.5*	*1.8*	*3.0*	*3.5*
Ontario	197,620	198,539	205,972	210,300	216,575
% change	*-1.9*	*0.5*	*3.7*	*2.1*	*3.0*

Source: CREA, Statistics Canada, Central 1 Credit Union forecasts.

REGIONAL ECONOMIC OUTLOOK

Ontario Summary

MLS RESIDENTIAL AVERAGE SALE PRICE ($)					
ECONOMIC REGION	2012	2013	2014	2015	2016
Hamilton-Niagara Peninsula	314,450	333,673	352,833	365,500	380,000
% change	*6.5*	*6.1*	*5.7*	*3.6*	*4.0*
Kingston-Pembroke	240,440	247,163	247,935	248,500	251,000
% change	*2.5*	*2.8*	*0.3*	*0.2*	*1.0*
Kitchener-Waterloo-Barrie	**301,329**	**313,709**	**330,413**	**343,000**	**357,000**
% change	***3.9***	***4.1***	***5.3***	***3.8***	***4.1***
London	237,516	243,155	251,964	259,000	268,000
% change	*3.2*	*2.4*	*3.6*	*2.8*	*3.5*
Muskoka-Kawarthas	292,001	300,793	319,358	330,000	342,000
% change	*1.8*	*3.0*	*6.2*	*3.3*	*3.6*
Northeast	209,857	212,386	216,113	217,000	218,000
% change	*4.7*	*1.2*	*1.8*	*0.4*	*0.5*
Northwest	182,447	195,100	208,909	217,000	223,500
% change	*11.0*	*6.9*	*7.1*	*3.9*	*3.0*
Ottawa	327,656	334,320	339,785	344,000	350,000
% change	*2.4*	*2.0*	*1.6*	*1.2*	*1.7*
Stratford-Bruce Peninsula	219,790	226,108	233,598	239,000	247,000
% change	*1.0*	*2.9*	*3.3*	*2.3*	*3.3*
Toronto	504,377	529,948	573,183	602,500	633,500
% change	7.2	5.1	8.2	5.1	5.1
Windsor-Sarnia	172,177	179,294	186,650	196,000	205,000
% change	*3.3*	*4.1*	*4.1*	*5.0*	*4.6*
Ontario	384,455	402,595	430,984	448,587	467,858
% change	*5.3*	*4.7*	*7.1*	*4.1*	*4.3*

Source: CREA, Statistics Canada, Central 1 Credit Union forecasts.

REGIONAL ECONOMIC OUTLOOK

Ontario Summary

POPULATION (000s)					
ECONOMIC REGION	2012	2013	2014	2015	2016
Hamilton-Niagara Peninsula	1,423.0	1,432.6	1,443.0	1,453.0	1,465.5
% change	*0.8*	*0.7*	*0.7*	*0.7*	*0.9*
Kingston-Pembroke	466.7	467.1	467.2	467.2	467.1
% change	*0.3*	*0.1*	*0.0*	*0.0*	*0.0*
Kitchener-Waterloo-Barrie	**1,271.6**	**1,285.5**	**1,298.0**	**1,311.0**	**1,325.0**
% change	***1.2***	***1.1***	***1.0***	***1.0***	***1.1***
London	657.7	662.9	667.5	673.5	680.0
% change	*1.0*	*0.8*	*0.7*	*0.9*	*1.0*
Muskoka-Kawarthas	378.2	379.9	381.5	383.0	385.5
% change	*0.6*	*0.5*	*0.4*	*0.4*	*0.7*
Northeast	565.7	563.5	562.0	560.5	559.0
% change	*-0.2*	*-0.4*	*-0.3*	*-0.3*	*-0.3*
Northwest	240.4	239.8	239.0	238.5	238.0
% change	*-0.1*	*-0.3*	*-0.3*	*-0.2*	*-0.2*
Ottawa	1,297.8	1,308.3	1,318.0	1,330.0	1,342.0
% change	*1.0*	*0.8*	*0.7*	*0.9*	*0.9*
Stratford-Bruce Peninsula	299.8	299.2	298.6	298.3	298.3
% change	*-0.1*	*-0.2*	*-0.2*	*-0.1*	*0.0*
Toronto	6,172.7	6,261.2	6,348.7	6,440.0	6,535.0
% change	*1.6*	*1.4*	*1.4*	*1.4*	*1.5*
Windsor-Sarnia	638.5	638.1	637.5	637.2	637.7
% change	*0.1*	*-0.1*	*-0.1*	*0.0*	*0.1*
Ontario	13,412.0	13,538.0	13,661.0	13,792.2	13,933.1
% change	*1.1*	*0.9*	*0.9*	*1.0*	*1.0*

Source: Statistics Canada, Central 1 Credit Union forecasts.

DISCLAIMER: ***Regional Economic Outlook: Kitchener-Waterloo-Barrie (the "Analysis")*** may have forward-looking statements about the future economic growth of the Province of Ontario and its regions. These statements are subject to risk and uncertainty. Actual results may differ due to a variety of factors, including regulatory or legislative developments, competition, technological change, global capital market activity and general economic conditions in Canada, North America or internationally. This list is not exhaustive of the factors that may affect any of the Analysis' forward-looking statements, and all factors should be considered carefully by readers and readers should not place undue reliance on the Analysis' forward-looking statements.

The information contained in this Analysis ("Content") does not constitute professional advice, and should not be relied upon as accurate, reliable, complete, timely or fit for any particular purpose without receiving appropriate and qualified professional advice. The Content is provided on an "as is" basis, without any representations, warranties, conditions or guarantees, whether express or implied, including any representations, warranties, conditions or guarantees as to the accuracy, reliability, completeness, currency, fitness for a particular purpose and non-infringement, all of which are hereby disclaimed by Central 1 Credit Union, the Ontario Chamber of Commerce, and all of the credit unions of Ontario and all the chambers of commerce and boards of trade in Ontario to the fullest extent permitted by law. Central 1 Credit Union, the Ontario Chamber of Commerce, and all of the credit unions of Ontario and all the chambers of commerce and boards of trade in Ontario and their respective directors, officers, employees and agents will not under any circumstances be liable for any loss or damage in connection with the use of the Content. Readers' use of the Content is at their own risk.

Report: PDL-CPL-15-16

Region of Waterloo

Planning, Development and Legislative Services

Community Planning

To: Chair Tom Galloway and Members of the Planning and Works Committee

Date: March 24, 2015 **File Code:** D15-60 (A)

Subject: Year-End 2014 Population and Household Estimates for Waterloo Region

---

Recommendation:

For Information.

Summary:

Each year, an estimate of the year-end population and households is produced for the Region and each Area Municipality by Regional staff. The Regional population as of year-end 2014 is estimated at 568,500 including university and college students temporarily residing in the Region.

The annual population growth rate of 1.14% was slightly higher than the previous year (1.12%), but remains below the fifteen-year average rate of 1.63%. The estimated number of households is 203,930, a growth rate of 1.5%, similar to that for population. These levels show that the Region continues to grow at a steady rate, reflecting the diversity of the local economy and the community's desirability as a place to reside.

The Regional figures are based on Census population and household data; however, they also include an estimate of temporary post-secondary students and the Census undercount, at year-end, and therefore provide a more useful estimate of the total number of people and households that require services such as water, social services, transportation and policing.

Tables in this report are proposed to be included in a Planning Information Bulletin to be distributed to Area Municipalities and other parties, as well as being posted on the Region's website for broader community access.

Population estimates are used by many Regional and Area Municipal departments,

agencies, boards and community groups to understand land use, plan infrastructure and service programs, calculate service costs per resident, assess housing needs and track health-related trends.

Report:

Population and Household Estimates

Table 1 provides the year-end 2014 population and household estimates for all Area Municipalities, along with 2013 comparators. The population estimate for year-end 2014 is 568,500. This represents an increase of 6,400 people or 1.14% over the population estimate for 2013 of 562,100. Of the Area Municipalities, Kitchener experienced the highest annual growth rate, at 1.3%. This represented an additional 3,100 people, giving Kitchener the largest absolute growth in the Region as well.

The estimated number of households in the Region is 203,930. Households are equivalent to “occupied dwellings”. Growth in households from 2013 was 3,060 (1.52%), a notable increase over the previous year (1.24%) year. In recent years, Waterloo has seen significant growth in apartments purpose-built for the student market. While this trend continues, in 2014 there were some indications that activity in this niche may be beginning to slow.

The calculated Persons Per Unit (PPU) for year-end 2014 has declined to 2.70, representing the estimated Regional population in regular households in relation to the number of households in the Region. This PPU value includes the students who are resident in the Region, as well as the under-coverage rate applied to Regional population estimates. The decrease in the PPU is visible in the larger proportion of multiple-unit dwellings in the new housing market, and is consistent with a trend that has been evident for several decades. Census data indicate that the trend is likely the result of smaller and fewer families, increased economic well-being and independence, and an aging population.

Although the population and household estimates in this report are intended to provide a standard reference for all Regional activities, it is important to recognize that there are specific needs and perspectives that require variations on the basic definitions used in this report. These differences may apply to the actual timing of the estimates (e.g., mid-year rather than year end), to the geography (such as a service area rather than a municipality), or the content (for example, the exclusion of temporary students). These special considerations apply in many areas, such as health services, road signs, water and wastewater monitoring, and development charge studies. Therefore, values cited in some studies may appear to differ from this report, when in fact they are consistent after allowance is made for the kinds of differences noted above.

The household estimates contained in this report differ from the number of dwellings occupied by usual residents reported in the Census, due to the following adjustments:

- vacancy rates in rental accommodations, which have fallen to 2.3% in 2014 (from 2.9% in 2013) as reported by Canada Mortgage and Housing Corporation;
- some student households, since the Census figure does not include dwellings

solely occupied by foreign and temporary residents; and
- growth during the time period from mid-May to year-end.

A more detailed description of the methodology used to create the year-end population and household estimates is contained in Appendix 1 to this report.

Table 1 - Year-end 2014 Population and Household Estimates for Waterloo Region

	Region of Waterloo**	Cambridge	Kitchener	North Dumfries	Waterloo	Wellesley	Wilmot	Woolwich
Total Population Year-end 2014*	**568,500**	**133,800**	**236,500**	**9,730**	**132,300**	**11,000**	**20,580**	**24,650**
Population in Regular Households	551,200	131,900	232,700	9,700	121,600	11,000	20,320	24,020
Population in Collective Dwellings***	17,290	1,930	3,760	30	10,690	0	260	630
Total Population Year-end 2013*	562,100	132,600	233,400	9,630	130,700	10,930	20,350	24,560
Additional Population	6,400	1,200	3,100	100	1,600	70	230	90
Population Change 2013-2014 (%)	1.14	0.9	1.3	1.0	1.2	0.6	1.1	0.4
Households Year-end 2014*	**203,930**	**48,320**	**90,560**	**3,340**	**42,730**	**3,250**	**7,370**	**8,380**
Households Year-end 2013*	200,870	47,790	89,180	3,300	41,800	3,210	7,280	8,320
Additional Households	3,060	530	1,380	40	930	40	90	60
Household Change 2013-2014 (%)	1.52	1.1	1.5	1.2	2.2	1.3	1.2	0.7
Persons per Unit+	2.70	2.73	2.57	2.91	2.85	3.39	2.76	2.87
Student Population (included above)	**22,390**	**(1,050)**	**(830)**	**(100)**	**24,760**	**(50)**	**(180)**	**(160)**
Students Arriving	29,800	710	2,820	30	26,040	40	60	100
Living in Student Residences	9,490	0	530	0	8,960	0	0	0
Living in Other Accommodations	20,300	710	2,290	30	17,090	40	60	100
Students Leaving++	(7,400)	(1,760)	(3,650)	(130)	(1,280)	(90)	(240)	(250)

* Although based on the Census of 2011, this number includes adjustments for students and other foreign/temporary residents, net Census undercoverage, and vacancy rates. Due to various corrections and adjustments, direct comparisons to last year's estimates may not be valid.
** Municipal totals may not add due to independent rounding.
*** Collective Dwellings include student residences, nursing homes, hospitals, jails, larger lodging houses, etc.
+ 'Persons per Unit' (PPU) calculation is based on the 'Population in Regular Households', not on 'Total Population'.
++ These are students who leave home to attend school. They represent the reverse flow of the temporary students arriving here from elsewhere.

Estimates of Post-Secondary Students

The temporary student population contributes a substantial component to the total population. Reviews of the post-secondary student population and housing requirements are on-going and undertaken in conjunction with projects such as Waterloo's Town & Gown Committee, and based on recent data from the University of Waterloo, Wilfrid Laurier University and Conestoga College. This work is resulting in a better understanding of the many facets of the student population in the Region.

As of November 2014, 58,765 post-secondary students were enrolled in full-time programs of Conestoga College, the University of Waterloo, and Wilfrid Laurier University, on the campuses that are located in Waterloo Region (Table 2). As was expected due to demographics, the student population appears to have stabilized at these levels. The flat or declining enrolments that have been evident in elementary and secondary schools for over a decade are now beginning to be felt at the post-secondary level.

Not included in these figures are the students at smaller schools such as business and technical training colleges, as well as thousands of students with part-time enrolments at our local schools. Typically these students already live in the Region or commute in for these programs, and therefore do not add to the local population.

Table 2 - University and College Enrolment by Institution (Fall 2014)

University and College Enrolment by Institution (Fall 2014)				
	Conestoga	**Waterloo**	**Laurier**	**Total**
Full-time Enrolment	12,334	33,367	13,064	58,765
Commuters, co-op work term, etc.	3,833	5,870	567	10,270
Resident in Region	8,501	27,497	12,497	48,495
Temporary Residents	1,150	18,918	9,745	29,813

Of the 58,765 full-time students on local campuses, there are an estimated 10,270 who live outside the Region and either commute in for school, are on co-op work terms, or have other arrangements. However, approximately 48,500 full-time students do reside in Waterloo Region. About 29,800 of these students are only temporarily living in the Region, and their primary place of residence remains elsewhere, typically at the home of their parents.

It is estimated there are approximately 8,740 students living in university or college residences, and 21,000 living elsewhere in the community.

Conversely, there are students whose home is within the Region, but who reside elsewhere during the school year. After considering the flows of students, both into and out of the Region, the net effect of post-secondary students on the year-end population of Waterloo Region is 22,550 people (Table 1).

Population and Household Trends

Adjustments of population and dwelling estimates (that had previously been based on Census data) have been made as National Household Survey data has become available. The new data, as well as cancellation of building permits and other updates to historical data, necessitate retroactive adjustments to previous years' population and household estimates.

Table 3 provides revised estimates for 2000-2014, together with a preliminary forecast for year-end 2015 based on recent building activity. It is anticipated that 2015 population increase will slightly exceed 2014 growth, despite some recent tapering of new building permit activity, due to the future occupation of large numbers of apartment units that

were issued building permits in recent years.

The fifteen-year period from 2000 to 2014 approximates one typical cycle in the housing market, during which the Region's population grew by an average of 8,153 per annum, or 1.63%. The most recent five-year period, from 2010 to 2014, has been characterized by more moderate growth, with annual average of 6,660 people (1.22%) and 2,820 households per year (1.44%) in Waterloo Region.

Table 3 – Long-term Trends in Population and Households: Waterloo Region

Year-end	Population	Change (%)	Households	Change (%)
2000	**454,800**	1.94	**161,590**	2.10
2001	**465,200**	2.28	**164,620**	1.88
2002	**474,500**	2.00	**167,550**	1.78
2003	**485,200**	2.25	**170,830**	1.96
2004	**497,500**	2.54	**175,060**	2.48
2005	**507,800**	2.07	**178,790**	2.13
2006	**517,400**	1.88	**182,230**	1.92
2007	**523,100**	1.10	**185,140**	1.60
2008	**532,100**	1.71	**188,810**	1.98
2009	**535,200**	0.59	**189,830**	0.54
2010	**543,900**	1.63	**193,240**	1.80
2011	**551,400**	1.37	**196,480**	1.68
2012	**555,900**	0.82	**198,400**	0.98
2013	**562,100**	1.12	**200,870**	1.24
2014	**568,500**	**1.14**	**203,930**	**1.52**
2015(f)	**576,200**	1.36	**207,370**	1.69
5-yr average:	6,660	1.22	2,820	1.44
15-yr average:	8,153	1.63	3,044	1.71

Area Municipal Consultation/Coordination

This report has been circulated to all Area Municipalities.

Corporate Strategic Plan:

Many of the objectives and actions contained in the Corporate Strategic Plan rely on estimates of population and households, including Strategic Objectives 2.2 "Develop, optimize and maintain infrastructure to meet current and projected needs", and 5.3 "Ensure Regional programs and services are efficient and effective and demonstrate accountability to the public".

Financial Implications:

Nil.

Other Department Consultations/Concurrence:

Nil.

Attachments:

Attachment 1 - Methodology for Estimation of Regional Year-end Population

Prepared By: **Virgil Martin**, Planning Information Specialist

Margaret Parkin, Manager, Planning Research and Analytics

Approved By: **Rob Horne**, Commissioner, Planning, Development and Legislative Services

Attachment 1

Methodology for Estimation of Regional Year-end Population

An estimate of the current population and households in the Region is prepared by Planning, Development and Legislative Services staff each year. The estimate is primarily based on the most recent Census of Canada, which was May 2011. The Census data provides a 2011 count of 507,096 population and 191,595 occupied dwellings, and is further described in a series of Census Bulletins for Waterloo Region prepared by Regional staff and available on the Region's website. Additional demographic and dwelling characteristics data, which shed further light on students and other aspects of population and dwellings, became available through the National Household Survey in 2013. The Census estimate of undercoverage for the 2011 Census is now available and has been reviewed by staff. The reported values for Waterloo Region are in line with historical rates. Given the very high degree of uncertainly around the specific estimate of net undercoverage, together with the disruptive effect of making historical changes, it has been decided to continue with the current practice of using a 4% addition to Census values to estimate the actual population. This also effectively maintains consistency with the assumptions used in the Places to Grow forecasts.

While the Region's population and household estimates are anchored to 2011 Census estimates, in the subsequent inter-censal years (2012 – 2015), the households and their related populations are extrapolated from building activity. Building permits are received from the Area Municipalities, and an estimated occupancy date is assigned to each permit. The estimated lag between building permit issuance and occupancy varies by dwelling type. These sources are supplemented by data from the Municipal Property Assessment Corporation (MPAC), correlated with a visual inspection of recent aerial photography, and data such as vacancy rates published by Canada Mortgage and Housing Corporation (CMHC). As a result, the growth in households cannot be directly compared to building activity in each year.

Although the Census population and household counts provide the foundational data, the estimate of population contained in this report differs from the population reported by the Census in several important ways. To best reflect the total number of people consuming services at year-end within the Region, adjustments are made to include:

- the Census net undercoverage (those people who were missed or double counted by the Census);
- temporary residents in the Region, most notably students who study at our post-secondary institutions, as well as those who leave to study elsewhere;
- growth during the time period from mid-May to year-end; and
- adjustments for long-term trends in 'Persons Per Unit' by type of dwelling, as reflected in changing household sizes.

Please note:

As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website (www.region.waterloo.on.ca/newrop).

REGIONAL OFFICIAL PLAN



Region of Waterloo

As approved, with modifications, by the Minister of Municipal Affairs and Housing on December 22, 2010.

Explanatory Note

The Minister of Municipal Affairs and Housing approved the new Regional Official Plan (ROP), with modifications, on December 22, 2010. The Minister's approval was released in a Notice of Decision dated January 4, 2011, and was subject to a 20 day appeal period under the *Planning Act.* A total of 26 appeals were filed to the Ontario Municipal Board (OMB) by various parties on a wide range of planning policy and land use matters. A complete listing of the appellants and the reasons for their appeals are summarized below. Due to the scope of the appeals, this Plan, in its entirety, is currently before the OMB.

The Minister's decision included a total of 68 modifications to the ROP. Any text shown in red font illustrates new wording that has been added by the Minister's modification. Any text shown with a ~~red strikethrough~~ illustrates wording that has been deleted by modification. The numbers shown in the box beside each modification correspond to the numbers used in the Minister's Notice of Decision.

Summary of Appeals Submitted to Ontario Municipal Board

1. An appeal, received from Dryden Smith & Head, on behalf of Myles Schmidt Property - City of Kitchener - 845026 Ontario Limited, on January 17, 2011 regarding the "Core Environmental" designation on their lands.

2. An appeal, received from Garrod Pickfield LLP, on behalf of Lea Silvestri Investments Ltd. and 1541179 Ontario Ltd, on January 20, 2011 regarding the inclusion of their lands within the Protected Countryside in the Township of North Dumfries.

3. An appeal, received from Goodmans LLP, on behalf of Activa Holdings Inc., on January 21, 2011 regarding:

   (a) the methodology used by the Region to prepare the Regional Land Budget exercise;
   (b) the growth management policies respecting the Countyside, Countyside Line, Protected Countyside and associated mapping;
   (c) Regional Recharge Area designation and policies and the delineation of the wellhead protection area;
   (d) Greenlands Network policies and mapping; and
   (e) any other policies impeding the development of their lands.

4. An appeal, received from Goodmans LLP, on behalf of 2140065 Ontario Inc., on January 21, 2011 regarding:

   (a) the methodology used by the Region to prepare the Regional Land Budget exercise;

(b) the growth management policies respecting the Countyside, Countyside Line, Protected Countyside and associated mapping;
(c) Regional Recharge Area designation and policies and the delineation of the wellhead protection area;
(d) Greenlands Network policies and mapping; and
(e) any other policies impeding the development of their lands.

5. An appeal, received from Goodmans LLP, on behalf of 159805 Ontario lnc., on January 21, 2011 regarding:

(a) the methodology used by the Region to prepare the Regional Land Budget exercise;
(b) the growth management policies respecting the Countyside, Countyside Line, Protected Countyside and associated mapping;
(c) Regional Recharge Area designation and policies and the delineation of the wellhead protection area;
(d) Greenlands Network policies and mapping; and
(e) any other policies impeding the development of their lands.

6. An appeal, received from Goodmans LLP, on behalf of Stonefield Properties Corp., on January 21, 2011 regarding:

(a) the methodology used by the Region to prepare the Regional Land Budget exercise;
(b) the growth management policies respecting the Countyside, Countyside Line, Protected Countyside and associated mapping;
(c) Regional Recharge Area designation and policies and the delineation of the wellhead protection area;
(d) Greenlands Network policies and mapping; and
(e) any other policies impeding the development of their lands.

7. An appeal received from the Regional Municipality of Waterloo, on January 21, 2011 regarding source water protection, regulating the depth of mineral aggregate resource extraction, study requirements for new mineral aggregate resource extractions below the water table, and mineral aggregate extraction within Environmentally Sensitive Policy Areas. In addition, the Region appealed four modifications to correct minor clerical errors as well as portions of Map 7 (Protected Countryside)

8. An appeal, received from Brenda and Rusty Brissette, on January 21, 2011 regarding the Protected Countryside designation on their lands.

9. An appeal, received from Springbank Investments lnc., on behalf of Kirtaff Holdings Inc., Edmund Patrick Taylor, Linda Margaret Taylor, Mary Alma Corbett, John Kostas, on January 21, 2011 regarding policies, maps and section which impede the development of their lands.

10. An appeal, received from MHBC Planning, on behalf of William Gies, on January 24, 2011 regarding Protected Countryside designation on a portion of his lands in the Township of Woolwich.

11. An appeal, received from Bratty and Partners, LLP, on behalf of Madison Homes Inc., on January 24, 2011 regarding the exclusion of their lands from the Urban Area designation.

12. An appeal, received from Ontario Stone, Sand & Gravel Association, on January 24, 2011 regarding various mineral resource policies and study requirements.

13. An appeal, received from Connie and Robert Bogusat, on January 24, 2011 regarding the inclusion of their lands within the Protected Countryside in the City of Kitchener.

14. An appeal, received from White, Duncan, Linton LLP, on behalf of Plains Westmount Farms Limited, on January 24, 2011 regarding specific sections and maps on the basis that proper studies have not been conducted to justify the Protected Countryside and Regional Recharge Areas designations.

15. An appeal, received from Hardy Bromberg, on January 24, 2011 regarding the Protected Countryside designation and Environmentally Sensitive Landscape and Core Environmental Features designation on his property in the Township of North Dumfries.

16. An appeal, received from Townsend and Associates, on behalf of Mattamy Development Corporation, on January 24, 2011 regarding the Region's land budget methodology and development restrictions.

17. An appeal, received from Ricketts, Harris LLP, on behalf of Elaine Fratton and Howard Lemieux, on January 24, 2011 regarding the affordable housing policies which deal with the conversion of rental affordable housing to condominium ownership.

18. An appeal, received from Glen Schnarr & Associates Inc., on behalf of 2163846 Ontario Inc., (Arden Semper) on January 24, 2011 regarding the exclusion of their lands in the City of Kitchener from the urban area designation and applicable policies.

19. An appeal, received from Gowlings Lafleur Henderson, LLP, on behalf of Alfred and Rita Cutaja, Lisa and Willi Kellner, on January 24, 2011 regarding the Greenlands Network, Core Environmental Features and Regional Recharge Area designation on their lands in the City of Kitchener.

20. An appeal, received from Weir Foulds LLP, on behalf of Select Sand and Gravel, Robert Kieswetter in Trust, B&B Kieswetter Excavating, Kieswetter Holdings Limited & STAMM Investments, on January 24, 2011 regarding various sections of the ROP and the glossary of terms as it relates to their interest to develop their land.

21. An appeal, received from Weir Foulds LLP, on behalf of The INCC Corp, on January 24, 2011 regarding various sections of the ROP and the glossary of terms as it relates to their interest to develop a large parcel of land for commercial purposes in the City of Waterloo and the City of Kitchener.

22. An appeal, received from Goodmans LLP, on behalf of Northgate Land Corp., on January 24, 2011, regarding:

    (a) the 'Core Environmental Features' designation on their lands in the City of Waterloo;
    (b) the methodology used by the Region to prepare the Regional Land Budget Exercise;
    (c) the Greenland Network policy requirements; and
    (d) Source Water Protection.

23. An appeal, received from Goodmans LLP, on behalf of 2115881 Ontario Limited, on January 24, 2011, regarding:

    (a) the 'Core Environmental Features' designation on their lands in the City of Waterloo;
    (b) the methodology used by the Region to prepare the Regional Land Budget Exercise;
    (c) the Greenland Network policy requirements; and
    (d) Source Water Protection.

24. An appeal, received from Goodmans LLP, on behalf of Hallman Construction Limited, on January 24, 2011, regarding:

    (a) the methodology used by the Region to prepare the Regional Land Budget exercise;
    (b) the growth management policies;
    (c) any other policies which appear to predetermine the location for growth.

25. An appeal, received from Goodmans LLP, on behalf of Gatestone Development Corp., on January 24, 2011, regarding:

    (a) the methodology used by the Region to prepare the Regional Land Budget exercise;
    (b) the growth management policies;
    (c) any other policies which appear to predetermine the location for growth.

26. An appeal, received from the Township of Woolwich, on January 24, 2011 regarding source water protection, regulating the depth of mineral aggregate resource extraction, study requirements for new mineral aggregate resource extractions below the water table, and mineral aggregate extraction within Environmentally Sensitive Policy Areas. In addition, the Township appealed a modification to correct a minor clerical error.

TABLE OF CONTENTS

CHAPTER 1	**INTRODUCTION TO THE REGIONAL OFFICIAL PLAN**	**1**
1.A	**Overview of Waterloo Region**	**1**
1.B	**Vision for a Sustainable and Liveable Waterloo Region**	**2**
	A Sustainable Waterloo Region	2
	A Liveable Waterloo Region	3
1.C	**Role of the Regional Official Plan**	**3**
	Protecting Regional Corporate Interests	4
	Ensuring Conformity with the ROP	4
	Exercising Delegated Development Review Responsibilities	5
	Exercising Assigned Approval Authority Responsibilities	5
1.D	**Preparing the Plan**	**5**
1.E	**Plan Organization and Structure**	**6**
	Plan Organization	6
	Plan Structure	7
CHAPTER 2	**SHAPING WATERLOO REGION'S URBAN COMMUNITIES**	**9**
2.A	**Population and Employment Forecasts**	**10**
2.B	**Planned Community Structure**	**11**
	The Countryside Line	13
	Urban Area	13
	Urban Area Expansions	13
	Township Urban Areas	14
	Township Urban Area Expansions/Rationalizations	15
2.C	**Reurbanization Target**	**16**
2.D	**Urban Area Development Policies**	**17**
	General Development Policies	18
	Transit Oriented Development Policies	18
	Urban Growth Centres	19
	Major Transit Station Areas	20
	Reurbanization Corridors	22
	Major Local Nodes	23
	Urban Designated Greenfield Areas	23
	Prime Industrial/Strategic Reserve (Serviced)	24
	Special Policies for Urban Areas	26
2.E	**Township Urban Areas Development Policies**	**27**
	General Development Policies	27
	Township Urban Growth Centres	27
	Township Designated Greenfield Areas	28
2.F	**Highway 401/Regional Road 97 Employment Area**	**29**
2.G	**General Policies for Urban Development**	**30**
	Major Urban Greenlands	30
	Retail Commercial Centres	31
	Offices and Institutional Land Uses	32
	General Intensification	32
	Land Use Compatibility	32
	Noise from Transportation Sources	33
	Contaminated Sites	35

CHAPTER 3	**LIVEABILITY IN WATERLOO REGION**	**36**
3.A	**Range and Mix of Housing**	**37**
	Affordable Housing	37
	Special Needs and Community Housing	38
3.B	**Walking and Cycling**	**39**
3.C	**Transportation Demand Management**	**40**
3.D	**Energy Conservation**	**41**
	Alternative/Renewable Energy Systems	43
	Lighting for Dark Sky	43
3.E	**Air Quality**	**43**
3.F	**Access to Locally Grown and Other Healthy Foods**	**44**
3.G	**Cultural Heritage**	**45**
	Identification of Cultural Heritage Resources	46
	Cultural Heritage Landscapes	47
	Archaeology	47
	Heritage Planning Advisory Committee	48
	Cultural Heritage Impact Assessment	48
	Conservation, Promotion and Research	50
	Scenic Roads	51
3.H	**Human Services**	**51**
CHAPTER 4	**SUPPORTING WATERLOO REGION'S BUSINESS COMMUNITY**	**53**
4.A	**Employment Areas**	**54**
4.B	**Planning and Managing Physical Infrastructure**	**55**
4.C	**Collaborative Partnerships**	**56**
4.D	**Environment and Business**	**57**
CHAPTER 5	**ADDRESSING WATERLOO REGION'S INFRASTRUCTURE NEEDS**	**58**
5.A	**Transportation Systems Planning**	**59**
	General Policies	59
	Regional Transit System	60
	Walking and Cycling Networks	61
	Region of Waterloo International Airport	61
	Road Network	62
	Regional Road Design, Construction and Operation	64
	Designated Regional Road Allowances	65
	Rail Network	66
5.B	**Wastewater Treatment**	**67**
	General Policies	67
	Individual Wastewater Treatment Systems	68
5.C	**Water Supply**	**68**
	General Policies	68
	Private Wells	69
5.D	**Regional Infrastructure Planning Agreements and Monitoring**	**69**
5.E	**Waste Management**	**70**
5.F	**Utilities**	**71**

CHAPTER 6 SUPPORTING THE COUNTRYSIDE 72

6.A Countryside 73
6.B Protected Countryside 74
6.C General Policies 75
Agriculture-Related Uses 76
Secondary Uses 77
~~Small-Scale Alternative/Renewable Energy Systems 77~~
~~Large-Scale Alternative/Renewable Energy Systems 78~~
Expansions/Intensification of Existing Employment Uses within the Countryside Line 79
6.D Rural Areas Special Policies 80
Recreational and Tourism Uses 80
Rural Institutional Uses 80
6.E Lot Creation and Lot Adjustment Policies 81
Farm Lot Severances 81
Severance of Agriculture-Related Uses 83
Severances for Surplus Dwellings Designated Under the Heritage Act 83
Severances for Woodlands/Conservation Lands 83
Severances for Residential Infilling – Rural Areas Only 84
Severances for Recreational and Tourism Uses – Rural Areas Only 84
Severances for Rural Institutional Uses 85
Severances for Rural Residential Lots – Beverly Area (Township of North Dumfries) 86
Minor Lot Boundary Adjustments 86
6.F Rural Mixed-Use/Agricultural Clusters 87
6.G Countryside Settlements 88
~~6.H Countryside/Future Urban Expansion Area 91~~

CHAPTER 7 THE GREENLANDS NETWORK 92

7.A The Greenlands Network 93
Ecological and Environmental Advisory Committee 95
7.B Landscape Level Systems 95
Environmentally Sensitive Landscapes 96
Environmentally Sensitive Landscape Policies 98
Significant Valleys 102
Regional Recharge Areas (Environmental Protection) 103
Provincial Greenbelt 104
7.C Core Environmental Features 104
Significant Habitat of Endangered or Threatened Species 105
Provincially Significant Wetlands 105
Environmentally Sensitive Policy Areas 105
~~Regionally~~ Significant Woodlands 106
Environmentally Significant Valley Features 107
Core Environmental Features Policies 107
7.D Fisheries 110
7.E Supporting Environmental Features 110
Linkages 111
7.F Watershed Planning 111
7.G Environmental Impact Statements 113
7.H Natural Hazards 115

7.I Environmental Stewardship 121
Managing Woodland Resources 121
Land Stewardship 122

CHAPTER 8 SOURCE WATER PROTECTION 124

8.A Source Water Protection Areas 125
General Policies 125
Source Water Protection Land Use Categories 126
Time of Travel Capture Zones 127
Wellhead Protection Areas 127
GUIDI Wells and High Microbial Risk Management Zones 131
Surface Water Intake Protection Zones 132
Regional Recharge Areas (Source Water Protection) 133
8.B De-icing Salts 133
8.C Stewardship 134

CHAPTER 9 MANAGING AGGREGATE RESOURCES 135

9.A Resource Protection 136
9.B Existing Mineral Aggregate Operations 138
9.C New Mineral Aggregate Operations 139
Required Technical Information 139
Review Criteria 140
9.D Extraction Below the Water Table 144
9.E Wayside Pits and Quarries, Portable Asphalt and Concrete Plants 145
9.F Rehabilitation of Aggregate Operations 146

CHAPTER 10 FULFILLING CONSULTATION AND IMPLEMENTATION ROLES 148

10.A Public Consultation 149
Partnerships and Collaboration 149
10.B Planning Tools and Resources 150
Corporate Strategic and Fiscal Planning 150
Community Improvement Plans 150
Implementation Guidelines 151
10.C Policy and Mapping Interpretations 152
Policy Interpretation 152
Boundary Interpretation 153
10.D Development Review Process 154
10.E Plan Conformity 156
10.F Amendments to the Plan 157
10.G Monitoring, Plan Review and Updating 159

TABLES

Table 1 Interim Regional Population and Employment Forecasts 11

Table 2 Noise Criteria for Noise Sensitive Land Uses 33

APPENDICES

Schedule A:	Designated Road Allowances	A - 1
Schedule B:	Source Water Protection Land Use Categories	A - 17
Schedule C:	Other Information and Materials that May be Required to Process an Application	A - 19

GLOSSARY OF TERMS G - 1

MAPS

Map 1	Regional Context
Map 2	Area Municipalities
Map 3a	Urban Area
Map 3b	Township of Woolwich, Township Urban Area, Elmira & St. Jacobs
Map 3c	Township of Wilmot, Township Urban Area, Baden & New Hamburg
Map 3d	Township of Wellesley, Township Urban Area, Wellesley
Map 3e	Township of North Dumfries, Township Urban Area, Ayr
Map 4	Greenlands Network
Map 5a	Regional Transit Network
Map 5b	Existing, Planned and Proposed Roads and Corridors
Map 5c	Regional Cycling Routes
Map 6a	Urban Area Source Water Protection Areas
Map 6b	Township of Woolwich Source Water Protection Areas
Map 6c	Township of Wilmot Source Water Protection Areas
Map 6d	Township of Wellesley Source Water Protection Areas
Map 6e	Township of North Dumfries Source Water Protection Areas
Map 6f	Other Source Water Protection Areas – High Microbial Risk Management Zones
Map 6g	Other Source Water Protection Areas
Map 7	The Countryside
Map 8	Mineral Aggregate Resource Areas

1. Introduction to the Regional Official Plan

1.A Overview of Waterloo Region

This is the Regional Official Plan (Plan), the Regional Municipality of Waterloo's guiding document for directing growth and change for the next 20 years. This Plan represents a fundamental shift in shaping Waterloo Region (see Map 1) towards a more balanced community structure, building from a strong, long standing planning policy framework that has supported substantial historical growth and change.

With a population of just over half a million, Waterloo Region is currently the fourth largest urban area in the Province of Ontario and tenth largest in Canada. It is also one of the fastest growing urban areas in the Province and is projected to grow to 712,000 people by 2029. Officially established on January 1, 1973, Waterloo Region includes the Cities of Cambridge, Kitchener, and Waterloo and the Townships of North Dumfries, Wellesley, Wilmot, and Woolwich (Area Municipalities), blending a unique balance of urban and rural centres (see Map 2). Internationally known for its leading-edge technology and advanced manufacturing industries, innovative educational institutions, vibrant agricultural communities and the historically significant Grand River, Waterloo Region continues to earn its reputation as a forward-thinking community and as an attractive place to live, work and play.

The Regional Municipality of Waterloo (the Region) is also recognized for its innovative and progressive approach to growth management. In light of the anticipated population increase and associated growth pressures, the Region embarked on the development of a proactive strategy in 2001 to manage growth in order to further the sustainability and *liveability* of the community.

In June 2003, following an extensive public consultation process, Regional Council adopted the Regional Growth Management Strategy. The Strategy identified a vision for the future of the community and recognized that strong partnerships with Area Municipalities and other stakeholders are necessary to help this vision be realized. The Strategy advocated a balanced approach to growth management that fundamentally changes the way planning occurs within the community. The key elements of the Regional Growth Management Strategy are: big picture environmental planning; a Countryside Line; *reurbanization;* transportation choice, including the creation of a *rapid transit* system; targeted development in greenfield areas; and quality of life initiatives.

The Regional Growth Management Strategy also identified forward-looking initiatives that integrated land use and transportation planning, consistent with the direction originally established in the first Regional Official Policies Plan in 1976. Structured around six goals, the Regional Growth Management Strategy provided a long-term strategic framework that identified where and how growth should be accommodated to further enhance the high quality of life already enjoyed in the community.

The six main goals of the Regional Growth Management Strategy include:

1. Building vibrant urban places
2. Fostering a strong economy
3. Providing greater transportation choice
4. Protecting our countryside
5. Enhancing our natural environment
6. Ensuring coordination and communication

On June 16, 2006, the *Province* approved the Places to Grow: Growth Plan for the Greater Golden Horseshoe (the Growth Plan), a document which reflects many of the same principles and directions of the Regional Growth Management Strategy. Prepared under the Places to Grow Act, the Growth Plan represents a key component of the *Province*'s initiative to "plan for healthy and prosperous growth throughout Ontario". The Growth Plan is consistent with and directly complements the Regional Growth Management Strategy.

This Plan implements the Regional Growth Management Strategy as well as the mandated components from the Growth Plan. It also incorporates many of the policies of the former Regional Official Policies Plan and the broad direction set out in the Region's Corporate Strategic Plan. As such, this Plan creates a policy framework that retains an historically relevant tie with successful past policy approaches, while moving forward with a refined vision for a *sustainable* and *liveable* future for Waterloo Region.

1.B Vision for a Sustainable and Liveable Waterloo Region

In keeping with Regional Council's Corporate Strategic Plan, the vision of this Plan is that **"Waterloo Region will be an inclusive, thriving, and *sustainable* community committed to maintaining harmony between rural and urban areas and fostering opportunities for current and future generations".** This vision embraces *sustainability* and *liveability* as central concepts and provides the foundation for the policies and future actions set out in this Plan.

A Sustainable Waterloo Region

A *sustainable* region is one that is robust, resilient and strives to live within its natural limits. Economic growth and prosperity are acknowledged as being fundamental to sustaining a high quality of life, but not at the expense of the other components of a *sustainable* community. For Waterloo Region to be such a community, the four related elements of *sustainability* – cultural, economic, environmental and social - need to be balanced.

From a Regional perspective, achieving the cultural element of *sustainability* includes fostering a strong sense of place and community identity by preserving elements of the past, providing new opportunities for cultural expression and supporting quality urban and rural design. Providing appropriate *community infrastructure* and physical *infrastructure* and services to support a diverse and growing economy ensures that the regional economy continues to develop in a *sustainable* manner.

From an environmental perspective, *sustainability* means maintaining, enhancing and even restoring the natural environment. It also means developing a culture of conservation to protect, enhance and wisely use the valuable natural resources for current and future generations. Finally, social *sustainability* involves building cities and towns as *complete communities*, which provide for the needs of all residents, foster social equity, inclusion and collaboration, and encourage healthy lifestyles. This Plan has been prepared from the perspective that the key to achieving and maintaining *sustainability* lies in the Region and its partners embracing a *sustainability* ethic, or set of values, which consistently inform and direct day-to-day actions and decision-making.

A Liveable Waterloo Region

Waterloo Region also needs to be a *liveable* community that is well-designed, accommodates people at all stages of life, offers a variety of employment opportunities and provides easy access to shopping, health care, educational, recreational and other services to meet daily needs. One of the key ways to achieving *liveability* is by taking steps to ensure that, wherever feasible, Waterloo Region develops as an integrated, compact and *mixed-use* community. *Liveable* communities also have a distinct sense of place and character with which people closely identify, and which sets them apart from other communities. This Plan recognizes that “place matters”. Much of Waterloo Region’s distinctive character is associated with its various cultural heritage elements: the Grand River, which has been nationally recognized as a Canadian Heritage River for its outstanding natural, cultural and recreational values; the diverse range of cities, towns, villages, and hamlets; and the gently rolling countryside. Ensuring *liveability* in Waterloo Region means planning to retain and/or create the types of distinct local communities that will provide people with choices about where they live, work and play.

1.C Role of the Regional Official Plan

In accordance with the provisions of the Planning Act, the Region is required to prepare and update an official plan. The Regional Official Plan is a legal document that contains goals, objectives and policies to manage and direct physical (land use) change and its effects on the cultural, social, economic and natural environment within the regional community. Once approved, the Planning Act requires that all Regional and Area Municipal public works, Area Municipal official plans and land use related by-laws, and all future *development* must conform to the Regional Official Plan.

The underlying philosophy of this Plan is that land use planning is a shared responsibility between the Region and Area Municipalities. This responsibility is grounded in the idea that citizens are best served by effective Regional and Area Municipal partnerships and collaboration, including the development and review of their respective official plans. This Plan incorporates the policy and regulatory framework established by the *Province*, as outlined in the Provincial Policy Statement, the Growth Plan, the Greenbelt Plan and other Provincial legislation. Within this framework, Area Municipal official plans provide the detailed community planning goals, objectives and policies that implement this Plan in a manner that reflects unique local needs and circumstances.

This Plan also serves as a guide for *infrastructure* planning and strategic investment decisions to support and accommodate forecasted population and economic growth consistent with the Planned Community Structure described in Chapter 2.

In addition, this Plan establishes the basis for exercising the Region's four roles in the review and approval of *development applications*:

1. protecting Regional corporate interests;
2. ensuring conformity with the Regional Official Plan;
3. exercising *development* review responsibilities delegated to the Region; and
4. exercising approval authority responsibilities assigned to the Region through the Planning Act.

Protecting Regional Corporate Interests

The Region is responsible for commenting on how proposed *development applications* affect Regional corporate interests such as *community housing*, transit, water supply, wastewater treatment, Regional Roads and *Regional forests*. In these circumstances, the Region has a direct corporate interest in, and responsibility for, Planning Act approvals that affect Regionally owned and operated facilities. These interests are defined by policies in this Plan and other corporate documents, including Regional Council's Corporate Strategic Plan.

Ensuring Conformity with the Regional Official Plan

The Regional Official Plan, as adopted by Regional Council, sets out Council's intent in the form of policies dealing with planning within Waterloo Region to the year 2029. The Plan establishes a legal policy framework that directs and informs public and private sector decisions regarding immediate and longer-term land use, servicing, transportation and other *infrastructure* investment, and economic matters in Waterloo Region. The Region and Area Municipalities are responsible for ensuring *development applications* conform to the policies of the Regional Official Plan.

Exercising Delegated Development Review Responsibilities

The Region has been delegated *development* review responsibility on behalf of the *Province*. In exercising this authority, the Region also ensures that Provincial interests in planning matters, as expressed in the Provincial Policy Statement, the Growth Plan and the Greenbelt Plan issued and approved in accordance with the provisions of Section 3 of the Planning Act, are appropriately addressed.

Mod. No. 1

Exercising Assigned Approval Authority Responsibilities

The Region is also the approval authority for Area Municipal official plans, official plan amendments, plans of subdivision, plans of condominium and part-lot control exemption by-laws. This responsibility is assigned to the Region through the Planning Act, or, in the case of *development applications* that were submitted prior to March 28, 1995, is delegated to the Region by the *Province*. Regional Council has the authority to sub-delegate any or all approval authority responsibilities to Regional staff, or to Area Municipalities as it deems appropriate.

1.D Preparing the Plan

The original Regional Official Policies Plan was approved in 1976 and updated in1986. Although minor revisions were made at that time, the basic objectives of the Regional Official Policies Plan were left unchanged.

In 1991, Regional Council determined that a comprehensive review of the Regional Official Policies Plan was needed to address the social, economic and environmental changes that had occurred since 1976. This review resulted in a new Regional Official Policies Plan, which was approved in 1995, that reflected changes in public values, better integrated land, *infrastructure*, environmental and social policies, and established a mechanism to monitor the success of key policies.

Regional Council's adoption of the Regional Growth Management Strategy in 2003 prompted work to begin on another comprehensive review of the Regional Official Policies Plan. The purpose of this review was to implement the policy directions of the Regional Growth Management Strategy, and to bring the Regional Official Policies Plan into conformity and/or consistency with a range of new Provincial policies and legislation including the Municipal Act, the Places to Grow Act and Growth Plan, the Greenbelt Act and Greenbelt Plan, the Safe Drinking Water Act, the Clean Water Act, and updates to the Provincial Policy Statement and the Planning Act. This review culminated in June 2009, with the completion of this current Regional Official Plan as adopted by Regional Council.

Specific policies contained in this Plan anticipate that amendments will be required to implement the results of various ongoing and future Regional studies. These specific

amendments are not intended to modify the fundamental structure, vision, goals and objectives of this Plan, but to establish policies that address issues that were not resolved at the time the Plan was adopted. Additional amendments to this Plan may also be considered by Regional Council in accordance with the provisions of the Planning Act to implement new Regional initiatives, respond to change having Regional implications, and to keep this Plan up-to-date with respect to changing Federal and Provincial regulatory frameworks.

1.E Plan Organization and Structure

Plan Organization

The policies contained in this Plan provide a statement of the intentions of Regional Council. If clarification of any policy is necessary, reference should first be made to the introductory text of each Chapter, and then to the overall goals and objectives of this Plan. The introductory text at the beginning of each Chapter provides a general statement of intent and a context for the policies, recognizing that it may not be possible, or feasible, to achieve everything in all situations or within the time frame of this Plan. The vision for this Plan, as described in this Chapter, provides a broad overview of the expected effect of the policies, but is not intended to take precedence over any other part of this Plan. The maps, tables and schedules contained in this Plan must be read in the context of the related policies.

Policies in this Plan that use the word “will” express a mandatory course of action. Where the words “encourage” or “may” are used, it indicates that the Region requires consideration be given to the policy, but not necessarily compliance in all instances. Such policies provide direction and support for achieving the Vision of a *Sustainable* and *Liveable* Waterloo Region. None of the policies are intended to formally commit Regional Council to provide funding for their implementation. Funding decisions will be made by Regional Council on a case-by-case basis.

Italicized terms in this Plan are defined in the Glossary. Defined terms are intended to capture both the singular and plural of forms of these terms. For other terms, the normal meaning of the word applies. Where the term “Region” is used, it refers to the Corporation of the Regional Municipality of Waterloo. Where the term “region” is used, it refers to the geographic area comprising Waterloo Region.

Where a specified planning horizon is required, this Plan uses the year 2029. However, in all planning decisions, it is the responsibility of those concerned to recognize that the results of these decisions will often have a permanent effect on the region, and that they should be made in the context of a time frame well beyond 20 years.

Plan Structure

Chapter One introduces the main purpose of this Plan as well as providing the context related to complementary documents, such as the Regional Growth Management Strategy and the Growth Plan. This Chapter also provides a brief overview of the **Vision** of this Plan and explains the concepts of *sustainability* and liveability in the context of decision-making in Waterloo Region.

Chapter Two provides the policy framework for **Shaping Waterloo Region's Urban Communities** in both the cities and the townships, and outlines the policies that direct a greater share of new urban development towards existing communities.

Chapter Three focuses on **Liveability in Waterloo Region** and introduces policies related to creating vibrant urban and rural places.

Chapter Four outlines the Region's policies for **Supporting the Business Community**. The policy-related goal is to collaborate with Area Municipalities, Canada's Technology Triangle Inc., and other stakeholders to foster a diverse, innovative and globally competitive regional economy.

Chapter Five focuses on **Addressing Waterloo Region's Infrastructure Needs** with policies providing for the planning and development of cost effective *infrastructure* to support growth in a compact and efficient form.

Chapter Six focuses on **Supporting the Countryside** and the policies that will protect the rural character of the countryside while supporting the development of strong and prosperous rural communities.

Chapter Seven outlines the policy framework for the **Greenlands Network** that protects *environmental features* and *ecological functions* from *adverse environmental impacts*. The Chapter provides policies related to the natural environment through the conservation and enhancement of the region's sensitive natural areas and native *biodiversity,* and the promotion of informed stewardship.

Chapter Eight establishes a **Source Water Protection** policy framework to govern land uses that have the potential to impact surface and groundwater resources that contribute to the *municipal drinking-water supply system*.

Chapter Nine outlines the policies for **Managing Aggregate Resources** that balance the Provincial interest of permitting the extraction of mineral aggregates with other planning objectives.

Chapter Ten is the final Chapter of the Plan. This Chapter supports the implementation of the preceding policies and focuses on **Fulfilling Consultation and Implementation Roles.**

2. Shaping Waterloo Region's Urban Communities

Much of the region's growth over the past several decades has occurred in suburban areas that separated where people live from where they work and shop. This pattern of growth has increased the need for automobile travel and contributed to higher energy consumption, declining air quality and public health. The policies in this Chapter seek to alter this trend by promoting a more balanced approach to growth.

Achieving more balanced growth means directing a greater share of new development to the existing Built-Up Area to make better use of land, existing physical *infrastructure, community infrastructure* and *human services*. This also means building more compact, vibrant and *complete communities* in Urban and Township Designated Greenfield Areas, with walkable neighbourhoods and a better mix of employment, housing, shopping and services. Implementing these measures will, among other benefits, promote efficient development patterns and reduce the need to expand roads, watermains and wastewater collection systems.

This Chapter sets out a Planned Community Structure for the region's urban communities, and outlines the detailed policies for guiding and directing development within this structure. A fundamental objective of these policies is to more closely integrate land use and transportation planning decisions. Communities that focus on moving people and goods primarily by trucks and automobiles generally create a dispersed, auto-oriented urban form. By contrast, communities that focus Transit Oriented Development around a balanced network of roads, railways, sidewalks, cycling paths and transit routes help create a more compact and *pedestrian*-friendly urban environment. The policies in this Chapter seek to implement this important objective and promote the development of a more *sustainable* and *liveable* regional community.

Overall Goal – Promote balanced growth by directing a greater share of urban development towards the existing Built-Up Area and by contributing to the creation of *complete communities* in Urban and Township Designated Greenfield Areas.

Objectives:

2.1 Establish a Countryside Line to contain future urban growth and protect farmlands and sensitive natural areas.

2.2 Support the development of a Planned Community Structure based on a system of nodes, corridors and other development areas linked together by an integrated transportation system.

2.3 Promote Transit Oriented Development with a diverse mix of land uses, housing types and open spaces in close proximity to each other.

2.4 Meet or, where feasible, exceed Provincially-directed density and *reurbanization* targets to make better use of land and *infrastructure*.

2.5 Anticipate and plan for growth in Urban and Township Designated Greenfield Areas and ~~the Countryside/Future Urban Expansion Area~~ other areas within the Countryside Line as appropriate to ensure sufficient lands are available for future residential, employment and other needs.

Mod. No. 2

2.6 Strengthen the economic vitality of the region's townships by directing most of their growth into the Township Urban Areas.

2.A Population and Employment Forecasts

The region's population is anticipated to reach approximately 712,000 by the year 2029, which represents an increase of approximately 35 per cent over the region's population in 2009. This Provincial forecast will be used as the basis for planning and managing growth in the region. The amount of growth allocated to each Area Municipality has been determined by the Region in collaboration with Area Municipalities.

Most of the region's future population growth is expected to occur through in-migration. Over the forecast period, net migration to the region may account for nearly seventy-five percent of total population growth. By 2029, it is anticipated that almost one-third of new migrants to the region will have been born outside Canada, further enhancing the vibrancy and cultural diversity of the community. In addition, as the baby boom generation continues to age, the region will have a significantly higher percentage of seniors than in the past.

Achievement of the goals and objectives of this Plan will depend on the strength of the region's economy and employment growth. Over the forecast period, the regional economy is expected to remain robust as it continues to diversify.

2.A.1 The Region and Area Municipalities will use the population and employment forecasts shown on Table 1 as the basis for planning and growth management, determining future transportation requirements, calculating water and wastewater servicing needs, and planning for the delivery of a wide variety of public services and programs.

2.A.2 Longer-term forecasts beyond the 2029 planning horizon, prepared using the same methodology as the Regional population and employment forecasts contained in Table 1, may be used for *infrastructure* planning studies undertaken by or for the Region and/or Area Municipalities.

2.A.3 The Region, in collaboration with Area Municipalities, will review the population and employment forecasts contained in Table 1 in conjunction with any reviews

undertaken by the *Province*. If necessary, any revisions to these forecasts, including Area Municipal allocations, will require an amendment to this Plan and will only be considered as part of a five-year *municipal comprehensive review*, or the completion of a *municipal comprehensive review* as otherwise initiated by Regional Council.

2.A.4 The Region will prepare and update a Regional Implementation Guideline for Population and Employment Forecasts. This guideline will provide details regarding forecasting methodology, the components of Regional population and employment, and five-year forecasts from 2006 to 2029 by Area Municipality.

Table 1:
Regional Population and Employment Forecasts

	POPULATION		EMPLOYMENT	
	2006	**2029**	**2006**	**2029**
Cambridge	123,900	173,000	75,220	100,000
Kitchener	214,500	313,000	99,380	130,000
North Dumfries	9,200	16,000	6,080	8,400
Waterloo	101,700	137,000	64,070	88,000
Wellesley	10,100	12,000	3,290	4,100
Wilmot	17,700	28,500	6,730	9,700
Woolwich	20,100	32,500	13,540	18,800
Region	**497,200**	**712,000**	**268,310**	**359,000**

Notes:
1. This forecast is derived from the "Places to Grow" population forecast of 729,000 and employment forecast of 366,000 in 2031.
2. Population figures in this table show "census-based population plus 4% undercoverage." As such, it does not include university and college students who temporarily reside in the Region (either in student residences or other accommodation) to study at post-secondary institutions.
3. All population and employment in this table represent mid-year figures.

2.B Planned Community Structure

This Plan seeks to implement a Planned Community Structure based on a system of nodes, corridors and other development areas connected by a network of roads, transit routes, cycling paths and *pedestrian* connections. The components of the Planned Community Structure include the Urban Area, Township Urban Areas, Urban Growth Centres, Major Transit Station Areas, Reurbanization Corridors, Major Local Nodes,

Urban Designated Greenfield Areas, the Prime Industrial/Strategic Reserve, Township Urban Growth Centres, Township Designated Greenfield Areas and the Highway 401/Regional Road 97 Employment Area.

This Planned Community Structure reflects the intent of the Regional Growth Management Strategy and provides a framework for decision-making on a wide range of issues, including land use and transportation planning, environmental protection, cultural heritage, economic development and priorities for strategic *infrastructure* investments.

Virtually all of the region's future growth will occur within the Urban Area and Township Urban Area designations, with a substantial portion of this growth directed to the existing Built-Up Area of the region through *reurbanization*. Focal points for *reurbanization* include Urban Growth Centres, Township Urban Growth Centres, Major Transit Station Areas, Reurbanization Corridors and Major Local Nodes. These focal points will make better use of existing urbanized land and *infrastructure* and reduce development pressure on farmlands and sensitive natural areas.

Most of the Built-Up Area consists of established residential neighbourhoods where the majority of buildings are not expected to change significantly in use or form during the planning horizon of this Plan. These neighbourhoods vary in age and style and contribute to the region's vitality and quality of life. Any future development within or adjacent to these neighbourhoods will need to respect the existing physical character of the area.

Major Urban Greenlands represent an important element of the Planned Community Structure. These public greenlands contribute to the beauty of local communities and provide many health and environmental benefits. This Plan seeks to strengthen and, wherever possible, enhance the unique qualities of these areas and ensure balance between the built and natural environments.

Although a key objective of this Chapter is to accommodate more growth through *reurbanization*, new development will also continue to occur in Urban and Township Designated Greenfield Areas. Future development in these areas will contribute to the creation of *complete communities* with a greater mix of land uses and development patterns that support trips by walking, cycling and, where available, transit services.

Maintaining a balanced supply of employment lands is fundamental to the region's future economic prosperity. Accordingly, this Chapter contains policies regarding the location of office and institutional uses, and the Prime Industrial/Strategic Reserve designation in the vicinity of the Region of Waterloo International Airport and within the Highway 401/Regional Road 97 Employment Area.

The Countryside Line

2.B.1 The Countryside Line is designated as shown on Map 7. The Countryside Line represents the long-term boundary between the existing ~~and future~~ Urban Area/Township Urban Areas and the countryside. Where the Countryside Line coincides with the Protected Countryside designation as shown on Map 7, the Countryside Line will be considered a permanent boundary.

Mod. No. 3

Urban Area

2.B.2 The Urban Area is designated as shown on Map 3a. This designation contains the primary urban areas of the Cities of Cambridge, Kitchener and Waterloo and also extends into portions of the Township of Woolwich. The lands included within this designation are intended to accommodate the majority of the Region's growth within the planning horizon of this Plan, and will be planned and developed in accordance with the policies in Sections 2.C, 2.D, and 2.G and other applicable policies in this Plan.

Urban Area Expansions

2.B.3 Future expansions to the boundaries of the Urban Area are only permitted onto ~~the Countryside/Future Urban Expansion Area designated~~ lands within the Countryside Line as shown on Map 7 where:

Mod. No. 4

(a) the expansion is justified through the preparation of a Regional Land Budget completed by the Region as part of a five-year *municipal comprehensive review* of this Plan, or the completion of a *municipal comprehensive review* as otherwise initiated by Regional Council;

(b) the density targets and *reurbanization* targets contained in this Plan have been met or exceeded for the Region as a whole, or it can be clearly demonstrated that achievement of such targets will not be hindered by the proposed expansion;

(c) sufficient opportunities to accommodate the population and employment forecasts in this Plan, through *reurbanization* and in Urban and Township Designated Greenfield Areas, are not available:

i) within the region as a whole; and

ii) within the applicable Area Municipality to accommodate the growth allocated to the Area Municipality by this Plan;

(d) the expansion provides sufficient lands for a time horizon not exceeding 20 years, using the density targets, *reurbanization* targets and other policies in this Plan;

(e) the existing or planned *infrastructure* required to accommodate the proposed expansion can be provided in a financially and environmentally *sustainable* manner and is consistent with any applicable Regional and/or Area Municipal *infrastructure* master plan;

(f) the expansion is of a sufficient size to be developed as a *complete community* by itself, or can be integrated with existing development to contribute to a *complete community*;

(g) any applicable *watershed studies* have been completed consistent with the policies in Section 7.F, prior to the approval of the expansion; and

(h) for any proposed Urban Area expansions east of the Grand River the Township of Woolwich and the City of Cambridge, in collaboration with the Region, have undertaken a planning process to determine the development densities, and general mix and location of land uses appropriate for that area;

(i) The Township of Woolwich may propose a rationalization of the boundary of the Urban Area designation between the Planned Highway 7 and the Region of Waterloo International Airport as shown on Map 3a, through a further amendment to this Plan, provided that the rationalization:

Mod. No. 4

(i) only occurs at the time that the Woolwich Official plan is first brought into conformity with this Plan;

(ii) takes into consideration existing property configurations, patterns of existing land use, natural and constructed features, and will not extend or promote strip development;

(iii) does not result in a net increase in the amount of land designated as Urban Designated Greenfield Areas; and

(iv) does not exchange provincially constrained environmental areas for unconstrained developable areas.

Township Urban Areas

2.B.4 Township Urban Areas are designated as shown on Maps 3b to 3e. This designation contains the primary urban areas of the Townships of North

Dumfries, Wellesley, Wilmot and Woolwich that are not part of the Urban Area. The lands included within this designation are intended to serve as the primary focus for non-Urban Area growth within the planning horizon of this Plan, and will be planned and developed in accordance with the policies in Sections 2.C, 2.E and 2.G and other applicable policies in this Plan.

Township Urban Area Expansions/Rationalizations

2.B.5 Future expansions to the boundaries of Township Urban Areas are only permitted onto lands ~~currently designated as Countryside/Future Urban Expansion Area~~ within the Countryside Line as shown on Map 7 in this Plan, and will be subject to the following:

Mod. No. 5

(a) the proposed expansion will be in conformity with the provisions set out in Policy 2.B.3 (a) to (g) inclusive; and

(b) the proposed expansion will maintain, or move significantly towards, a minimum of one full-time job per three residents within the Township Urban Area.

2.B.6 The Townships of North Dumfries, Wellesley, Wilmot and Woolwich may propose a rationalization of the boundaries of their respective Township Urban Areas and/or the Countryside Line applicable to a Township Urban Area, to be implemented through a further amendment to this Plan, provided that the rationalization:

(a) only occurs at the time the Area Municipal official plan is first brought into conformity with this Plan;

(b) takes into consideration existing property configurations, patterns of existing land use, natural and constructed features, and will not extend or promote strip development;

(c) does not result in a net increase in the amount of land designated as Township Designated Greenfield Area and/or ~~identified as Countryside/Future Urban Expansion Area~~ located within the Countryside Line, except as provided for in accordance with Policy 2.B.7; and

Mod. No. 6

(d) does not exchange *provincially constrained environmental areas* for unconstrained developable areas.

2.B.7 To further focus growth in Township Urban Areas, boundary rationalizations that would result in a net increase in the amount of land designated as Township Designated Greenfield Area and/or ~~identified as Countryside/Future~~

Mod. No. 6

~~Urban Expansion Area~~ located within the Countryside Line may be permitted through a further amendment to this Plan where:

(a) the boundary rationalization deletes areas from a Rural Settlement Area designation and adds it to a Township Urban Area designation in an Area Municipal official plan;

(b) the area being transferred from the Rural Settlement Area to the Township Urban Area does not result in a net increase in the amount of developable land;

(c) the area being deleted from the Rural Settlement Area designation is re-designated as Prime Agricultural Area, or Rural Areas, in the Area Municipal official plan; and

(d) the boundary rationalization is in conformity with all other applicable policies in this Plan, including Policy 2.B.6 (a), (b), and (d).

2.C Reurbanization Target

As part of the implementation of the Growth Plan, the *Province* has delineated a *built boundary* for Waterloo Region that identifies the limits of the developed Urban Area and Township Urban Areas as of June 16, 2006. The purpose of the *built boundary* is to implement and monitor *reurbanization* targets established in accordance with the provisions of the Growth Plan.

New residential development occurring within the *built boundary* will be counted towards the achievement of the *reurbanization* target set out in this Plan. Lands that lie outside the *built boundary*, but within the Urban Area and Township Urban Areas, are subject to the policies and density targets in this Plan for Urban Designated Greenfield Areas and Township Designated Greenfield Areas.

2.C.1 The Built-Up Area is designated as shown on Maps 3a to 3e. This area identifies all lands within the *built boundary* of the Urban Area and Township Urban Areas as of June 16, 2006. This boundary was established by the *Province* and will remain fixed in place to monitor the density targets and *reurbanization* targets of this Plan.

2.C.2 Area Municipalities will establish policies in their official plans and other supporting documents to ensure that by 2015 and each year thereafter a minimum of 45 per cent of all new residential development occurring annually within the region as a whole will be constructed within the Built-Up Area.

2.C.3 The Region, in collaboration with Area Municipalities, will within one year of the approval of this Plan, carry out a process to determine how the *reurbanization* target in Policy 2.C.2 will be implemented across each of the Area Municipalities. This process will be used to:

(a) establish *reurbanization* targets specific to each Area Municipality in order to achieve the overall *reurbanization* target on average over the entire Built-Up Area;

(b) in addition to the nodes and corridors identified in this Plan, identify other potential *reurbanization* areas in Area Municipalities to support the achievement of the *reurbanization* target; and

(c) where appropriate, establish minimum density targets for priority *reurbanization* areas consistent with existing or planned transit service levels.

2.D Urban Area Development Policies

The Urban Area designation broadly identifies where the majority of the region's future growth will occur. This designation contains the physical *infrastructure* and *community infrastructure* to support major growth, including transportation networks, *municipal drinking-water supply systems and municipal wastewater systems,* and a broad range of social and public health services. It is also well-served by the existing Regional transit system, which is intended to be further enhanced through the introduction of *rapid transit*. For these reasons, lands within the Urban Area have the greatest capacity to accommodate growth and serve as the primary focus for employment, housing, cultural and recreational opportunities in the region.

Within the Urban Area, most of the region's future growth will be directed to Urban Growth Centres, Major Transit Station Areas, Reurbanization Corridors, Major Local Nodes and Urban Designated Greenfield Areas. The planned function and development provisions for each of these areas are outlined in the policies below. In general, these areas will be planned to create a more compact urban form with a greater mix of employment, housing and services in close proximity to each other.
Many of the policies in this Section are grounded in the principles of Transit Oriented Development. This form of development is characterized by a greater mix of medium to high density land uses located within an easy walk of a Major Transit Station Area, or a higher frequency *transit stop*. Transit Oriented Development differs from conventional development in that the built form is specifically designed to integrate with transit and facilitate walking and transit use for everyday activities.

This Plan recognizes the different starting points, local conditions and growth potential of each of the identified Major Transit Station Areas. Not all station areas will achieve

the same mix of land uses, or will reach their full development potential at the same time. Initially, some station areas may not be able to fully meet the Transit Oriented Development policies outlined in this Chapter. Over the long-term, however, it is the intent of this Plan that Major Transit Station Areas be developed in a manner consistent with these policies.

General Development Policies

2.D.1 In preparing or reviewing planning studies, or in reviewing *development applications* or *site plans*, the Region and/or Area Municipalities will ensure that *development* occurring within the Urban Area is planned and developed in a manner that:

(a) supports the Planned Community Structure described in this Plan;

(b) is serviced by a *municipal drinking-water supply system* and a *municipal wastewater system*;

(c) contributes to the creation of *complete communities* with development patterns, densities and an appropriate mix of land uses that supports walking, cycling and the use of transit;

(d) protects the natural environment, and surface water and groundwater resources;

(e) conserves *cultural heritage resources* and supports the adaptive reuse of historic buildings;

(f) respects the scale, physical character and context of established neighbourhoods in areas where *reurbanization* is planned to occur;

(g) facilitates residents' access to locally grown and other healthy foods in neighbourhoods; and

(h) promotes building designs and orientations that incorporate energy conservation features and the use of *alternative and/or renewable energy systems*.

Transit Oriented Development Policies

2.D.2 In addition to the general development provisions described in Policy 2.D.1, the Region and Area Municipalities will apply the following Transit Oriented Development provisions in reviewing *development applications* or *site plans,* on

or near sites that are served by existing or planned *rapid transit*, or higher frequency transit to ensure that *development*:

(a) creates an interconnected and multi-modal street pattern that encourages walking, cycling or the use of transit and supports *mixed-use* development;

(b) supports a more compact urban form that locates the majority of transit supportive uses within a comfortable walking distance of the *transit stop* or Major Transit Station Area;

(c) provides an appropriate mix of land uses, including a range of food destinations, that allows people to walk or take transit to work, and also provides for a variety of services and amenities that foster vibrant, transit-supportive neighbourhoods;

(d) promotes medium and higher density development as close as possible to the transit stop to support higher frequency transit service and optimize transit rider convenience;

(e) fosters walkability by creating *pedestrian*-friendly environments that allow walking to be a safe, comfortable, barrier-free and convenient form of urban travel;

(f) supports a high quality public realm to enhance the identity of the area and create gathering points for social interaction, community events and other activities; and

(g) provides access from various transportation modes to the transit facility, including consideration of *pedestrian*, bicycle parking, and where applicable, passenger transfer and commuter pick-up/drop off areas.

Urban Growth Centres

2.D.3 Urban Growth Centres are designated as shown conceptually on Map 3a. This designation identifies the region's primary business, civic, commercial and cultural centres that will be planned and developed:

(a) to accommodate a significant share of the region's future population and employment growth;

(b) as focal points for investment in institutional and regional-scale *human services* as well as commercial, recreational, cultural and entertainment land uses;

(c) to accommodate applicable Major Transit Station Areas in accordance with Policies 2.D.6 and 2.D.7;

(d) to serve as high density major employment centres that will attract significant employment-related land uses; and

(e) to achieve, by 2029 or earlier, a minimum gross density of 200 residents and jobs combined per hectare for each of the Downtown Kitchener and Uptown Waterloo Urban Growth Centres, and 150 residents and jobs combined per hectare for the Downtown Cambridge Urban Growth Centre.

2.D.4 The Cities of Cambridge, Kitchener and Waterloo will delineate the boundaries of Urban Growth Centres and establish associated policies in their official plans to ensure that *development* within these areas is in conformity with the policies in this Plan.

2.D.5 The Region, in collaboration with Area Municipalities, will support growth and development within each Urban Growth Centre through *infrastructure* investments in such areas as:

(a) the Regional transit system, including *rapid transit;*

(b) the Regional Road and cycling network and *pedestrian* environment;

(c) *municipal drinking-water supply systems* and *municipal wastewater systems*;

(d) *community infrastructure* including Regional buildings, facilities and associated *human services*; and

(e) participation in Area Municipal and Regional *Community Improvement Plans* and other programs that support the goals and objectives of this Plan, and plans for the respective Urban Growth Centres.

Major Transit Station Areas

2.D.6 Major Transit Station Areas are lands typically located within a 600 to 800 metre radius of a *rapid transit* station. Following the completion of the Rapid Transit Environmental Assessment, the Region will designate these station areas conceptually on Map 3a through a future amendment to this Plan. Major Transit Station Areas will be planned and developed to achieve:

(a) increased densities that support and ensure the viability of existing and planned *rapid transit* service levels; and

(b) a mix of residential, office, institutional and commercial development, wherever appropriate.

2.D.7 Area Municipalities, in collaboration with the Region, will prepare a Station Area Plan for each Major Transit Station Area located outside of an Urban Growth Centre. Each Station Area Plan will provide direction on how the Major Transit Station Area is to be developed and phased-in over time. Station Area Plans will include, but not be limited to, the following:

(a) a comprehensive land use plan that defines the station area's boundaries, development concept, unique characteristics and minimum density requirements;

(b) design guidelines and development standards to implement Transit Oriented Development;

(c) a parking management strategy for land uses within the station area to maximize *reurbanization* opportunities, minimize surface parking areas and discourage auto-oriented land uses; and

(d) a description of the future actions required to implement the Station Area Plan, which may include Regional and/or Area Municipal *Community Improvement Plans* and associated financial incentive programs, and other appropriate implementation tools.

2.D.8 Area Municipalities will designate Major Transit Station Areas and establish associated policies for these areas in their official plans in conformity with the policies in this Plan. Following the completion of a Station Area Plan required under Policy 2.D.7, Area Municipalities will establish additional policies, as required, to incorporate the minimum density requirements, the land use mix and other key elements of the Station Area Plan into their official plans.

2.D.9 Existing developments within Major Transit Station Areas that do not meet the policies for Major Transit Station Areas outlined in this Chapter will be encouraged to redevelop in a manner consistent with those policies. Area Municipalities are encouraged to apply flexible zoning regulations, reduced parking requirements and other incentives as necessary and appropriate to assist in facilitating redevelopment of such areas to support Transit Oriented Development.

2.D.10 Until such time as an Area Municipality has established policies for its respective Major Transit Station Areas in accordance with Policies 2.D.3(c) and 2.D.8, any *development applications* or *site plans* submitted within a Major

Transit Station Area will be reviewed in accordance with the Transit Oriented Development provisions described in Policy 2.D.2. Any such applications that do not fully meet the Transit Oriented Development provisions may be permitted, provided the owner/applicant demonstrates, to the satisfaction of the Region and the Area Municipality, that the proposed *development* is designed in such a way that subsequent phases or infilling would meet the Transit Oriented Development provisions.

Reurbanization Corridors

2.D.11 Reurbanization Corridors identify areas along Existing or Planned Transit Corridors that link directly with *rapid transit* and offer considerable potential for medium and higher density *reurbanization*. Following the completion of the Rapid Transit Environmental Assessment, the Region, in collaboration with Area Municipalities, will designate Reurbanization Corridors on Map 3a through a future amendment to this Plan. Reurbanization Corridors will be planned and developed to:

(a) accommodate additional population and employment growth served by high frequency transit connections to the *rapid transit* system;

(b) achieve higher development densities to support and ensure the viability of existing and planned transit service levels;

(c) provide a mix of residential, office, institutional and commercial development, wherever appropriate; and

(d) connect and facilitate movement among Urban Growth Centres, Major Transit Station Areas and Major Local Nodes.

2.D.12 Area Municipalities will designate Reurbanization Corridors and establish associated policies in their official plans to ensure that *development* within these corridors is in conformity with the policies in this Plan. Area Municipalities may designate additional local *reurbanization* corridors in their official plans to accommodate additional growth consistent with existing or planned transit service levels.

2.D.13 When planning and undertaking public works within the right-of-way of a Reurbanization Corridor, the Region will endeavour to improve the corridor's *pedestrian* and cycling environment consistent with the Regional Transportation Corridor Design Implementation Guideline.

Major Local Nodes

2.D.14 Major Local Nodes refer to existing or planned clusters of development located along or at the key intersections of Transit Corridors. These nodes will be planned and developed to accommodate additional population and/or employment growth consistent with existing or planned transit service levels.

2.D.15 Area Municipalities will, where applicable, designate Major Local Nodes and establish associated policies in their official plans to ensure that future development within these nodes is in conformity with the policies in this Plan.

Urban Designated Greenfield Areas

2.D.16 Urban Designated Greenfield Areas are designated as shown on Map 3a. This designation identifies lands within the Urban Area that are located outside the *built boundary* as identified by the *Province*.

2.D.17 Area Municipalities, in collaboration with the Region, will ensure that *development* occurring in Urban Designated Greenfield Areas will be planned and developed to:

(a) conform to the general development provisions described in Policy 2.D.1;

(b) achieve the following density targets:

i) areas serving primarily a residential function will meet or exceed a minimum density of 55 residents and jobs combined per hectare on lands not subject to a plan of subdivision application as of June 16, 2006;

ii) areas serving solely an employment function (serviced) will be planned to meet or exceed a minimum density of 40 residents and jobs combined per hectare;

iii) lands designated as Prime/Industrial Strategic Reserve (Serviced) as shown on Map 3a will be planned to meet or exceed a minimum density target of 25 jobs per hectare;

In all cases, densities will be measured on average over the entire Urban and Township Designated Greenfield Areas of the region in accordance with the methodology established by the *Province,* which excludes only *provincially constrained environmental areas.*

(c) establish a network of continuous sidewalks, community trails and bicycle pathways that provide direct, safe, comfortable and convenient linkages within the neighbourhood and externally to other neighbourhoods, including linkages to *transit stops*, *employment areas*, school sites, food destinations and community facilities;

(d) provide any required easements, land dedications and *pedestrian* amenities in accordance with Policy 5.A.3 to support walking, cycling and existing or planned transit services for everyday activities;

(e) ensure that the design of the road network provides for direct and efficient transit routes within and between communities;

(f) locate land uses such that the distance to a *transit stop* is generally within a 450 metre walking distance; and

(g) discourage the use of noise attenuation walls and berms through the use of *passive noise attenuation* measures in accordance with Policy 2.G.15.

2.D.18 The Region, in collaboration with Area Municipalities, will within one year of the approval of this Plan, carry out a process to determine how the density targets identified in Policies 2.D.17 and 2.E.6 will be distributed amongst each of the Area Municipalities. This process will identify the density targets for each Area Municipality to achieve the average minimum density target established by this Plan over the Urban and Township Designated Greenfield Areas.

2.D.19 Area Municipalities will develop and implement official plan policies, including phasing policies and other strategies for Urban Designated Greenfield Areas to ensure logical and orderly development so as to provide for the early introduction of transit services into new areas and minimize partially developed communities.

2.D.20 Area Municipalities are encouraged to prepare urban design guidelines to provide more detailed direction for *development* within Urban Designated Greenfield Areas.

Prime Industrial/Strategic Reserve (Serviced)

2.D.21 The Prime Industrial/Strategic Reserve (Serviced) is designated as shown on Map 3a. This designation identifies prime industrial lands in the vicinity of the Region of Waterloo International Airport. The main purpose of this designation is to ensure an adequate supply of industrial land is available within the region for new large-lot manufacturing or business park land uses serviced by a *municipal drinking-water supply system* and *a municipal wastewater system*.

2.D.22 Lands within the Prime Industrial/Strategic Reserve (Serviced) designation will be developed for fully serviced employment and ancillary land uses. Unless otherwise compromised by design limitations associated with *environmental features*, property configurations, the provision of new local roads or existing development, the lands will be developed as parcels greater than eight hectares in size.

2.D.23 Notwithstanding Policy 2.D.22, where monitoring clearly demonstrates that there will be a critical shortfall in the inventory of lands available in the short to medium term to meet the needs of new and expanding businesses requiring lot sizes less than eight hectares, the Area Municipality may permit, through amendment to its official plan, the creation of smaller parcels to meet those needs.

2.D.24 Employment land uses that can be accommodated in unserviced ("dry") industrial areas and/or are high traffic generators will be discouraged from locating within the Prime Industrial/Strategic Reserve (Serviced). Any proposals to establish such land uses within the Prime Industrial/Strategic Reserve (Serviced) will require the submission of supporting studies demonstrating that the proposed use:

(a) will not negatively impact the planned function of the Regional Road and Provincial Highway network, taking into consideration all vacant and/or underutilized land within the Urban Area and the Countryside/Future Urban Expansion Area; and

Mod. No. 7

(b) will not compromise comprehensive planning for future development of the lands consistent with the goals and objectives of this Plan.

2.D.25 The necessary environmental, water and wastewater servicing and transportation studies will be completed and approved by the Region, the Area Municipality, ~~and~~ the Grand River Conservation Authority, and the Ministry of Transportation, as appropriate, before the approval of *development applications* applicable to lands within the Prime Industrial/Strategic Reserve (Serviced).

Mod. No. 8

2.D.26 Prior to the land designated in this Plan as Prime Industrial/Strategic Reserve (Serviced), located south of Allendale Road, being designated for such uses in the City of Cambridge Official Plan, appropriate road access to both King Street East and Maple Grove Road will be secured through appropriate levels of approval by all applicable agencies having jurisdiction over such matters, or other transportation solutions to permit development of the subject land have been identified through the Regional Transportation Master Plan process.

2.D.27 Prior to the lands designated in this Plan as Prime Industrial/Strategic Reserve (Serviced), located both north of Allendale Road and west of Fountain Street North, and east of Speedsville Road and north of Maple Grove Road being designated for such uses in the City of Cambridge Official Plan, transportation solutions to permit development of the subject lands will have been identified through the Regional Transportation Master Plan process.

Special Policies for Urban Areas

2.D.28 Notwithstanding the policies in this Plan, the lands designated as the Stockyards Industrial/Commercial Area in the Township of Woolwich Official Plan will be subject to the following:

(a) consideration may be given to the development of a Power Centre of up to a maximum of 28,334.5 square metres (305,000 square feet) on the lands identified as Power Centre Commercial in Township of Woolwich Official Plan Amendment No. 49 adopted by Township Council as By-law 80-2000 on November 7, 2000;

(b) with the exception of the lands identified as Power Centre Commercial under Policy 2.D.26(a), *development* within the Stockyards Industrial/Commercial will be in conformity with the policies contained in the Township of Woolwich Official Plan, as further clarified in the Stockyards Industrial/Commercial Area Implementation Plan adopted by the Council of the Township of Woolwich on March 22, 2005;

(c) any proposals to increase the range of commercial uses currently permitted on the lands subject to Policy 2.D.28(b) will require amendments to both this Plan and the Township of Woolwich Official Plan, and will only be considered as part of a *municipal comprehensive review*, which includes:

i) an assessment of the planned function of the Stockyards Industrial/ Commercial Area in the context of the Planned Community Structure set out in this Chapter;

ii) a review of the relationship between the Stockyards Industrial/ Commercial Area and the Regional transit system; and

iii) an evaluation of the planning and development impacts and implications related to such a proposal; and

(d) *development applications* proposing the use of individual wastewater treatment systems may be permitted where it is demonstrated to the

satisfaction of the Region that it is not feasible to extend servicing from a *municipal wastewater system*.

2.D.29 Notwithstanding the policies in this Plan, the lands within the Township of Woolwich legally described as Part of Lots 105, 106, 107 and 108, Germany Company Tract, and located on the east side of Hopewell Creek, south of Victoria Street, may be developed for dry industrial uses utilizing private wells and individual wastewater treatment systems where it is demonstrated, to the satisfaction of the Region, that it is not feasible to extend servicing from a *municipal drinking-water supply system* or a *municipal wastewater system.*

2.E Township Urban Areas Development Policies

The region contains several smaller urban areas located within the Townships of North Dumfries, Wellesley, Wilmot and Woolwich. These urban areas, which vary in size and level of economic activity, are designated as Township Urban Areas. Historically, these urban areas developed to serve the region's farming communities, but have since grown to become larger, more self-sufficient communities that offer people an alternative to larger city lifestyles. The primary role of these urban areas is to continue to serve as the focus for social, cultural and economic development activities within the townships.

Township Urban Areas include Ayr, Baden, Elmira, New Hamburg, St. Jacobs and Wellesley, each of which is serviced by *municipal drinking-water supply systems* and *municipal wastewater systems*. Future growth within Township Urban Areas will be directed mainly to Township Urban Growth Centres and Township Designated Greenfield Areas. The planned function and development provisions for these areas are outlined in the policies below.

General Development Policies

2.E.1 In preparing or reviewing planning studies, or in reviewing *development applications* or *site plans*, the Region and/or Area Municipalities will ensure that *development* occurring within Township Urban Areas is planned and developed in conformity with Policy 2.D.1 (a) and (c) to (h).

Township Urban Growth Centres

2.E.2 Township Urban Growth Centres are designated as shown conceptually on Maps 3b to 3e. This designation generally coincides with the traditional core areas of the Township Urban Areas that will be planned and developed:

(a) to accommodate additional population and employment growth consistent with their traditional role as the focus for social, economic and cultural activities in the townships;

(b) as focal points for investment in institutional and local *human services* as well as commercial, recreational, cultural and entertainment land uses; and

(c) to provide for a development pattern that supports the integration of Regional transit services, where planned to be available in the future.

2.E.3 Area Municipalities will designate Township Urban Growth Centres more precisely in their official plans and establish associated policies in conformity with the policies in this Plan.

2.E.4 A high priority will be given to the location and enhancement of appropriate Regional services and facilities within Township Urban Growth Centres, consistent with the provisions of Policy 2.D.5 (b) to (e).

Township Designated Greenfield Areas

2.E.5 Township Designated Greenfield Areas are designated as shown on Maps 3b to 3e. This designation identifies lands within Township Urban Areas that are outside the *built boundary* as identified by the *Province*.

2.E.6 Area Municipalities, in collaboration with the Region, will ensure that *development* occurring in Township Designated Greenfield Areas will be planned to:

(a) conform to Policy 2.D.17 (a), (c), (d) and (g);

(b) achieve the following density targets:

(i) areas serving primarily a residential function will meet or exceed a minimum density of 45 residents and jobs combined per hectare on lands not subject to a plan of subdivision application as of June 16, 2006;

(ii) areas serving solely an employment function (serviced) will be planned to meet or exceed a minimum density of 40 jobs per hectare;

(iii) areas serving primarily an employment function (unserviced) will be planned to meet or exceed a minimum density of 25 jobs per hectare.

In all cases, densities will be measured on average over the entire Urban and Township Designated Greenfield Areas of the Region in accordance with the methodology established by the *Province*, which excludes only *provincially constrained environmental areas.*

(c) provide a development pattern and road network that supports the integration of transit services, where planned to be available in the future; and

(d) require *development* to be serviced by a *municipal drinking-water supply system* and a *municipal wastewater system.*

2.E.7 Area Municipal-specific density targets for Township Designated Greenfield Areas will be determined in accordance with Policy 2.D.18.

2.E.8 Area Municipalities will develop and implement official plan policies, including phasing policies and other strategies for Township Designated Greenfield Areas to ensure a logical and orderly progression of development and minimize partially developed communities.

2.E.9 Area Municipalities are encouraged to prepare urban design guidelines for *development* within Township Designated Greenfield Areas.

2.F Highway 401/Regional Road 97 Employment Area

2.F.1 The Highway 401/Regional Road 97 Employment Area is designated as shown on Map 3e. Lands within this designation are intended to provide additional opportunities for employment growth and business development within the Township of North Dumfries. *Development* within this designation will generally be limited to privately serviced logistics and warehousing uses that require close access to the Highway 401 corridor to efficiently move goods into and out of the region.

2.F.2 A portion of the 100 hectares of land, previously justified for inclusion in the Highway 401/Regional Road 97 Employment Area, are designated as Prime Industrial Area/Strategic Reserve (Unserviced) as shown on Map 3e. The balance of the lands will be identified and designated through a future amendment to this Plan. Lands designated as Prime Industrial/Strategic Reserve (Unserviced) will be developed as parcels greater than eight hectares in size, unless otherwise compromised by such considerations as design

limitations associated with *environmental features*, property configurations, the provision of new local roads or existing development.

2.F.3 Notwithstanding Policy 2.F.2, where monitoring clearly demonstrates that there will be a critical shortfall in the inventory of unserviced lands available in the short to medium term to meet the needs of new and expanding businesses requiring lot sizes less than eight hectares, the Township of North Dumfries may permit, through an amendment to its Official Plan, the creation of smaller parcels to meet those needs.

2.F.4 Lands within the Highway 401/Regional Road 97 Employment Area designation will be planned to meet or exceed a density target of 25 jobs per hectare.

2.G General Policies for Urban Development

The policies in this Section apply to all lands in the region where urban development may be permitted.

Major Urban Greenlands

2.G.1 Major Urban Greenlands are relatively large, publicly accessible parklands or open spaces located within urban areas that are owned and maintained by the Region, Area Municipalities or the Grand River Conservation Authority. These urban greenlands are valued for their environmental, hydrological, recreational and public health benefits, and are intended to help maintain a balance between the built and natural environment in urban areas.

2.G.2 Area Municipalities, in collaboration with the Region and the Grand River Conservation Authority, will designate Major Urban Greenlands and establish associated policies for these areas in their official plans that:

(a) provide long-term protection from inappropriate development;

(b) require *development* on adjacent lands to not have an *adverse effect* on the valued characteristics of Major Urban Greenlands;

(c) facilitate public access to the Major Urban Greenlands through connections with transit, cycling and *pedestrian* facilities; and

(d) provide for recreational and/or visitor services, wherever appropriate.

2.G.3 Area Municipalities, in collaboration with the Region, the Grand River Conservation Authority and other stakeholders, will develop and implement an Urban Greenlands Strategy that:

(a) identifies a system of natural areas and open spaces, including Major Urban Greenlands, that enhance quality of life and public health within urban areas;

(b) helps mitigate air pollution, "heat island effect" and stormwater runoff within urban areas;

(c) promotes green roofs, community gardens and tree planting in urban areas;

(d) secures additional public urban greenlands through the *development* review process; and

(e) provides a range of open-space amenities.

Retail Commercial Centres

2.G.4 New *retail commercial centres* will be required to locate in Urban Growth Centres, Township Urban Growth Centres, Major Transit Station Areas, Reurbanization Corridors or Major Local Nodes.

2.G.5 *Development applications* to establish a new *retail commercial centre*, or expand an existing development into a *retail commercial centre,* will be in conformity with all applicable policies in this Plan and will be subject to Regional approval of a Transportation Impact Study in accordance with Policy 5.A.25.

2.G.6 New *retail commercial centres* exceeding 42,000 square metres of *gross leasable area*, or the expansion of an existing *retail commercial centre* to a *gross leasable area* exceeding 42,000 square metres, will only be permitted within Urban Growth Centres, Major Transit Station Areas or Major Local Nodes. Applicable *development applications* will be in conformity with the policies in this Plan and will be subject to Regional approval of:

(a) a Transportation Impact Study in accordance with Policy 5.A.25;

(b) a Retail Commercial Market Impact Study demonstrating that the proposed *development application* does not adversely affect the planned function of any Urban Growth Centre, Township Urban Growth Centre or Major Transit Station Area;

(c) a land use study demonstrating how the proposed *development application* supports the Planned Community Structure of this Plan; and

(d) a water and wastewater servicing plan demonstrating that the proposed *development application* can be adequately serviced.

Offices and Institutional Land Uses

2.G.7 *Major offices* and appropriate major institutional development should be located in Urban Growth Centres, Major Transit Station Areas, Reurbanization Corridors or Major Local Nodes.

2.G.8 *Development applications* to establish a new use identified in Policy 2.G.7, or which would expand an existing development to become such a use, will be in conformity with all applicable policies in this Plan and will be subject to Regional approval of a Transportation Impact Study in accordance with Policy 5.A.25.

General Intensification

2.G.9 Area Municipalities will establish policies in their official plans and, where appropriate, *Community Improvement Plans* and other implementation tools that promote the development of previously developed land, such as *brownfield* sites and *greyfield* sites located throughout the Urban Area and Township Urban Areas.

Land Use Compatibility

2.G.10 Area Municipalities will establish policies in their official plans to prevent or minimize potential *adverse effects* due to the encroachment of *sensitive land uses* and potentially incompatible uses on one another. Such policies may include requirements for noise and other applicable technical studies, building setbacks, separation distances, berms, security fencing, and noise attenuation and other measures.

2.G.11 The Region will consider the *adverse effects* associated with the operation of *municipal wastewater systems* on *sensitive land uses* during the *Environmental Assessment* and *development application* review processes and may require the use of separation distances or other mitigation measures.

2.G.12 The Region will investigate operating and closed Regional waste management facilities to establish ranges of influence within which *adverse effects,* resulting from the use of these facilities are, or could be, experienced. *Development applications* will not be approved within the identified ranges of influence until satisfactory measures have been implemented to mitigate the impacts, except where the *development application* would bring the existing situation into

conformity with the intent of this policy. Until the ranges of influence have been determined, all *development applications* proposed within 500 metres of the perimeter of a closed or operating Regional waste management facility will be required to submit studies, as appropriate, to evaluate the presence of any *adverse effects* and to identify necessary remedial measures, in accordance with Provincial legislation, policies and guidelines.

Noise from Transportation Sources

2.G.13 Where a *development application* for *a sensitive land use* is submitted in the vicinity of an Existing Regional Road, *Provincial Highway*, Planned Regional Road or *Provincial Highway*, the *rapid transit* system, transit terminals, railways or Area Municipal roads, a noise study may be required in accordance with the provisions of the Regional Implementation Guideline for Noise Policies. The noise criteria shown on Table 2 will be used in determining appropriate noise mitigation measures for the proposed development. Any required noise mitigation measures will be implemented through the *development application* review process.

2.G.14 Where projected noise levels exceed the noise criteria shown in Table 2 appropriate noise warning and/or noise attenuation measures will be required prior to, or as a condition of approval of the *development application* in accordance with the provisions of the Regional Implementation Guideline for Noise Policies. Such measures may include site design and building layout, noise warning clauses, noise attenuation barriers, air conditioning, and/or structural design measures such as multiple glazed windows and brick wall construction. Notwithstanding the above, *sensitive land uses* will be prohibited where the projected attenuated daytime noise level in the associated *outdoor living area* exceeds 70 dBA.

Table 2:
Noise Criteria for Noise Sensitive Land Uses

Receiver Category	Time Period	Road Traffic	Rail Traffic
Outdoor Living Area	0700 - 2300	Leq = 55 dBA	Leq = 55 dBA
Indoor Living Area	0700 - 2300	Leq = 45 dBA	Leq = 40 dBA
Indoor Living Area (Sleeping Quarters)	2300 - 0700	Leq = 40 dBA	Leq = 35 dBA

Leq means average sound level
dBA is a unit of measurement for sound levels

2.G.15 The Region will require consideration of *passive noise attenuation measures* during the preparation of *development applications* as a preferred means of reducing the use of noise attenuation barriers.

2.G.16 The impact of noise generated by increased traffic volumes that result from proposed Regional Road system expansions will be considered prior to approval of the project, where such projects are located adjacent to existing *sensitive land uses*. During the review of these projects, consideration will be given to implementing noise attenuation measures in accordance with the provisions of the Regional Implementation Guideline for Noise Policies.

2.G.17 In the vicinity of the Region of Waterloo International Airport:

(a) *development applications* proposing new residential development or other *sensitive land uses* will not be permitted in areas above 30 Noise Exposure Forecast (NEF);

(b) appropriate warning and/or noise attenuation measures will be required as a condition of approval for any *development applications* proposing new residential development or other *sensitive land uses* in areas between 25 and 30 NEF, including the requirement for permanent signage at the entrance to subdivisions identifying the presence of aircraft noise and other necessary noise attenuation measures; or

(c) *development applications* proposing redevelopment of existing residential land uses or other *sensitive land uses*, or infilling of residential or other *sensitive land uses*, in areas above 30 NEF may only be permitted where the proposed development:

i) will not negatively impact the long-term function of the Airport; and

ii) incorporates appropriate warning and/or noise attenuation measures, including noise warning and other necessary noise attenuation measures.

The NEF contours established under the Region of Waterloo International Airport Business Plan will be used for the purposes of implementing this policy and any other policies or legislation administered by the Provincial or Federal governments.

Contaminated Sites

2.G.18 Where a *development application* is proposed on, or adjacent to, a known or potentially contaminated site, planning approvals will be subject to the submission of a Record of Site Condition in accordance with the provision of the Regional Implementation Guideline for the Review of Development Applications On or Adjacent to Known and Potentially Contaminated Sites.

2.G.19 Where a road widening, required for a Regional Road in accordance with Policies 5.A.34 and 5.A.35, is on, or adjacent to, a potentially contaminated site, or a known contaminated site, such road widening will be dedicated to the Region in accordance with the provisions of the Regional Implementation Guideline for Road Allowance Dedications On or Adjacent to Known and Potentially Contaminated Sites, in addition to any other applicable policies in this Plan.

3. Liveability in Waterloo Region

A *liveable* Waterloo Region depends on many interconnected cultural, environmental, social and economic elements. The *liveability* of a region is based not only on its design and *infrastructure*, but also on how these elements are used to help the region become a desirable, accessible and safe community that places significant importance on providing choice, and maintaining and fostering a high quality of life.

Vibrant urban and rural communities require: a range and mix of housing options; access by walking, cycling and transit; integrated Transportation Demand Management programs to reduce automobile dependency; a high standard of air quality; access to locally grown and other healthy foods; opportunities for *alternative and/or renewable energy systems;* and that more consideration be given to *human services* needs.

Implementation of the policies in this Chapter will require multi-faceted and consultative approaches with collaboration being central to achieving the Vision for a *Sustainable* and *Liveable* Waterloo Region.

Overall Goal – Create vibrant urban and rural places.

Objectives:

3.1 Plan for an appropriate range and mix of housing choices for all income groups.

3.2 Increase transportation opportunities for *pedestrians*, cyclists and transit users.

3.3 Manage traffic congestion and reduce reliance on gas-powered vehicles.

3.4 Promote the use of *alternative and/or renewable energy systems* in appropriate locations.

3.5 Improve air quality and help reduce the potential for climate change by conserving energy, and reducing emissions of air pollutants and greenhouse gases.

3.6 Support the development of an environmentally *sustainable* and economically viable regional food system.

3.7 Plan for an older and more culturally diverse population.

3.8 Support the conservation of *cultural heritage resources.*

3.9 Promote social inclusion and improved access to *human services*.

3.10 Encourage *human services* to be planned and delivered in a coordinated and effective manner.

3.A Range and Mix of Housing

Housing is a basic necessity of life and is an essential element to individual health and community vitality. The provision of a full and diverse range and mix of permanent housing that is safe, affordable, of adequate size and meets the accessibility requirements of all residents, is important if the region is to maintain and enhance its quality of life. It also plays a key role in attracting and supporting a diversified and stable business environment.

3.A.1 The Region, in collaboration with Area Municipalities and other agencies, will prepare and regularly update the Community Action Plan for Housing and the Homelessness to Housing Stability Strategy.

3.A.2 Area Municipalities will plan to provide an appropriate range of housing in terms of form, tenure, density and affordability to satisfy the various physical, social, economic and personal support needs of current and future residents.

3.A.3 The Region encourages Area Municipalities to permit, wherever appropriate, individual lot intensification, such as secondary apartments and garden suites in residential neighbourhoods, where health, safety, servicing and other reasonable standards or criteria can be met.

Affordable Housing

3.A.4 *A development application* to create a plan of condominium, which would result in the conversion of rental *affordable housing* to condominium ownership, may only be permitted where:

(a) the rental vacancy rate for comparable units for the Area Municipality, or the Kitchener Census Metropolitan Area, if not available for the Area Municipality, has been at or above three per cent for the preceding three years; or

(b) the conversion will address and result in the creation of *affordable housing* for affordable home ownership; or

(c) the conversion will rectify existing health and safety issues through the completion of building renovations/retrofits, the cost of which would necessitate an increase in rent levels above the affordability threshold; and

(d) the owner/applicant submits a detailed inspection report on the physical condition of the property by a qualified architect or engineer to the satisfaction of the Region.

3.A.5 Where a *development application* proposing residential uses is submitted for a site containing two hectares or more of developable land, the Region and Area Municipalities will require, wherever appropriate, a minimum of 30 per cent of new residential units to be planned in forms other than single-detached and semi-detached units, such as town homes and multi-unit residential buildings.

3.A.6 The Region encourages the *Province* and Area Municipalities, as appropriate, to offer density bonuses, property tax exemptions and other incentives to help support the creation of *affordable housing* and *special needs housing*.

3.A.7 The Region will participate in and deliver Federal and/or Provincial housing programs that will benefit the region, whenever appropriate.

Special Needs and Community Housing

3.A.8 Redevelopment or conversion of Regional *community housing* that would have the effect of removing Regional *community housing* units will only be permitted where there is:

(a) full replacement of all Regional *community housing* units with new Regional *community housing* units at the existing rent levels; and

(b) relocation of the tenants, to the satisfaction of the Region, to comparable accommodation at the same rent level during the period of redevelopment, or to new Regional *community housing* development.

3.A.9 The Region supports the establishment of emergency shelters and other temporary accommodations for individuals and families across Waterloo Region based on demonstrated need, and will continue to work toward the elimination of homelessness.

3.A.10 *Special needs housing* will be permitted within all residential designations as defined by policies in Area Municipal official plans. Area Municipal policies may include size and locational criteria such as proximity to medical facilities, *employment areas*, social services, *human services*, transit and other *special needs housing*. Such criteria will not distinguish between users of property on the basis of the personal characteristics of individuals occupying the lands and premises.

3.B Walking and Cycling

This Plan recognizes that a substantial portion of the community does not, or will not, have access to private automobiles either by choice or due to financial, age or physical limitations. It is also socially and economically desirable for urban transportation systems to provide affordable, accessible and effective mobility to all members of the community. This Plan, along with the Regional Transportation Master Plan, establishes the framework for the creation of a transportation system that promotes a vibrant, healthy community using a combination of land use designations and urban design initiatives that make a wide range of transportation choices viable in the region.

Walking, cycling and transit are forms of transportation that are low cost, relatively low-polluting, energy efficient and provide significant health benefits. Walking and cycling can either be a form of recreation or an individual's primary or secondary means of transportation. Additional benefits of walking, cycling and transit use include reduced requirements for roadway capacity and parking spaces per traveller, reduced traffic congestion, improved air quality and reduced car dependency.

3.B.1 The Region and Area Municipalities will implement the recommendations of the Regional Cycling Master Plan, the Regional Transportation Master Plan, the Regional Pedestrian Master Plan and the Regional Pedestrian Charter through the *development* review process.

3.B.2 The Region will ensure, whenever feasible, the provision of facilities to encourage walking and cycling, and to address the needs, safety and convenience of *pedestrians* and cyclists when constructing or reconstructing Regional transportation facilities and public buildings.

3.B.3 Area Municipalities are encouraged to enhance *pedestrian* and cycling environments so that people have more opportunities to walk and cycle for convenient travel, recreational, health, environmental and economic reasons through such means as:

(a) providing consistent information and signage systems to support exploration, discovery and travel throughout the community on foot and bicycle;

(b) integrating *pedestrian* and cycling facilities into existing, expanded and new development areas;

(c) ensuring, wherever feasible and appropriate, that urban greenlands are *pedestrian*-friendly, safe and accessible;

(d) implementing Crime Prevention Through Environmental Design (CPTED) principles;

(e) creating urban design guidelines that support *pedestrian* and cycling activity in accordance with the provisions of the Canadian Institute of Transportation Engineers' guidelines for promoting *sustainable* transportation through site design;

(f) securing dedications for trail corridors, wherever appropriate; and

(g) providing *pedestrian* and cyclist connections to *transit stops*.

3.B.4 The Region will support walking, cycling and transit through promotional and educational initiatives that address issues such as personal security; safe behaviour by vehicle drivers, *pedestrians* and cyclists; barrier-free access; an appreciation of the health and environmental benefits of walking; and the comparative costs of private and public travel choices.

3.B.5 The Region will implement the Regional Pedestrian Master Plan prepared in accordance with Policy 5.A.18 to guide development and implementation of new Regional programs, facilities and *infrastructure,* and to encourage people to walk, cycle and reduce automobile dependence.

3.C Transportation Demand Management

Transportation demand management strives to reduce the demand for roadways and motor vehicles by developing policies, programs and services that influence how, where, when and whether people travel in order to support a more efficient use of the transportation system. The overall objective of transportation demand management strategies is to reduce the total number of automobile trips by influencing people to adopt more *sustainable* travel choices when it comes to types of travel. Transportation demand management supports and promotes walking, cycling, transit, carpooling and other forms of human-powered transportation.

The Region has implemented a variety of successful transportation demand management initiatives to date. The policies in this Chapter strive to build on these initiatives as a means of encouraging alternatives to drive-alone commuting.

3.C.1 The Region, in collaboration with Area Municipalities, will implement a comprehensive Transportation Demand Management program as part of its efforts to reduce automobile dependency. This program will involve independent action as well as partnerships with the private sector, other levels of government and non-governmental organizations including educational institutions and community groups. It will also seek to make alternatives to

driving more attractive, build a positive public attitude toward them, and provide information and incentives that encourage individuals to reduce automobile use. The Transportation Demand Management program will include, but not limited to:

(a) community-wide and area-specific Transportation Demand Management programs;

(b) employer Transportation Demand Management programs that support and enhance *sustainable* transportation choices to public and private sector employees and major institutions for such actions as walking, cycling, transit, carpooling, car sharing, teleworking, shuttle buses and ride-sharing programs, bicycle storage facilities and showers; and

(c) increasing transportation system efficiency by encouraging van and carpooling, preferential parking for car and van pools, shared parking, bicycle parking facilities, indoor bus waiting areas, queue-jumping lanes for transit buses, smart cards and high-occupancy vehicle lanes.

3.C.2 The Region will operate a commuter options program for Regional employees that supports and enhances *sustainable* transportation options for such actions as walking, cycling, transit, carpooling, car sharing, shuttle buses and ride-sharing programs, bicycle storage facilities and showers. *Sustainable* transportation options will also be supported and enhanced for commuter and business travel.

3.C.3 Where an owner/applicant agrees to implement, and can appropriately secure, the transportation demand management strategies recommended in a Transportation Impact Study prepared in accordance with Policy 5.A.25, the Region may consider granting reductions in the level of road improvement that would otherwise be required to support the development.

3.C.4 Area Municipalities are encouraged to provide reduced parking standards for *development applications* where the owner/applicant agrees to incorporate transportation demand management strategies as part of the proposed development.

3.D Energy Conservation

Energy is central to the provision of goods and services, production by industry, mobility, and comfort and *liveability* within the community. Using less energy is beneficial for the environment as it reduces the demand on resources to create energy and the *infrastructure* resources required for its distribution. Energy conservation can also help reduce greenhouse gases and other air emissions from combustion of fossil

fuels, which can affect climate change and air quality. Policies resulting in a reduction in energy consumption can be integrated into land use planning regulations by promoting the development of compact, *mixed-use*, *pedestrian* and bicycle friendly, and transit oriented communities. When coupled with the use of environmentally responsible materials and alternative fuels, trips by walking, cycling and transit can significantly reduce energy consumption levels in the region.

Policies in this Section also address the potential to reduce light pollution impacts on the night sky and flora and fauna in natural areas.

3.D.1 The Region will support energy conservation through policies in this Plan that:

(a) promote compact, *mixed-use* development;

(b) promote walking, cycling and the use of transit;

(c) maximize, wherever appropriate, the use and production of *alternative and/or renewable energy systems;*

(d) maximize the protection of existing natural areas and, wherever appropriate, promote the use of newly planted vegetation including green roofs to reduce the urban heat island effect;

(e) optimize the use of existing physical *infrastructure* and *community infrastructure* to support *reurbanization;*

(f) support water efficiency measures that reduce the demand for energy to pump and treat water resources; and

(g) promote building designs and orientations that incorporate energy conservation features, and the use of alternative or renewable energy.

3.D.2 The Region will effectively use and manage energy resources by using energy conservation techniques in Regional facilities and projects, wherever feasible.

3.D.3 The Region will continue to implement the recommendations of the Regional Environmental Sustainability Strategy.

3.D.4 The Region will pursue other energy conservation measures, including undertaking pilot projects and Community Energy Plans, to reduce the need for energy and non-renewable resources.

3.D.5 The Region, in collaboration with Area Municipalities, will continue to support initiatives that promote the benefits of reducing energy use, car dependence

and idling times, and other initiatives that encourage public agencies, private industries and individuals to participate in energy conservation programs.

Alternative/Renewable Energy Systems

3.D.6 Area Municipalities will establish policies in their official plans to permit *alternative and/or renewable energy systems* in all designations within the region, subject to the ~~following:~~ the development and use of *alternative and/ore renewable energy systems* being in accordance with *Provincial and Federal requirements,* including appropriate separation distances to address land use compatibility.

Mod. No. 9

~~(a) the development and use of *alternative energy and/or renewable energy systems* will be in accordance with *Provincial and Federal requirements,* including appropriate separation distances to address land use compatibility;~~

~~(b) conformity with the policies in Chapter 8;~~

~~(c) in Rural Areas and the Prime Agricultural Area, *alternative and/or renewable energy systems* will be in conformity with the provisions of Chapter 6;~~

~~(d) *alternative and/or renewable energy systems* will not be permitted within Core Environmental Features designated as shown on Map 4; and~~

~~(e) any other appropriate considerations identified by the Area Municipality.~~

Lighting for Dark-Sky

3.D.7 Area Municipalities are encouraged to develop policies or guidelines to prevent or minimize the impact of outdoor lighting on the night sky.

3.D.8 The Region will, wherever feasible and appropriate, use technology that supports dark-sky lighting in all new street lighting along Regional Roads and for outdoor lighting in all new Regional facilities.

3.E Air Quality

Having clean air to breathe is a prerequisite to health and *liveability*. Provincial legislation and Regional strategic directions strongly promote efforts to help reduce the potential for climate change and associated poor air quality through the land use planning process. Waterloo Region's dependence on the use of private automobiles, the need to heat homes and industrial activities all result in the emission of harmful air

pollutants and greenhouse gases. Although the Region does not regulate emissions, actions within its authority do significantly influence air quality and can help mitigate and adapt to climate change. As a result, the policies in this Plan seek to improve air quality in the region through a variety of measures to help support a healthy and *liveable* community.

3.E.1 The Region will support improved air quality through the policies in this Plan that support a more compact, transit-supportive urban form and will:

(a) assess the feasibility of developing a community-wide air quality monitoring and modeling program;

(b) continue initiatives to operate the Region's fleet of vehicles in an environmentally *sustainable* manner;

(c) develop an anti-idling campaign to encourage drivers to avoid idling their engines; and

(d) investigate opportunities for increasing forest cover throughout the region to achieve an overall target of 30 per cent forest cover or more of the region's total land area.

3.E.2 The Region will regularly monitor reductions in greenhouse gas emissions and other air pollutants generated by the Region's own corporate operations and establish reduction targets as part of the Regional Environmental Sustainability Strategy.

3.F Access to Locally Grown and Other Healthy Foods

The regional food system consists of the chain of activities related to the production, processing, distribution, consumption and eventual disposal of food. A strong and diverse regional food system provides many benefits to the community. It facilitates peoples' access to locally grown and other healthy foods, which contributes to healthier eating choices and the achievement of broader public health objectives. It also encourages a range of food destinations within easy walking distance of where people live and work. Such a system helps shorten the distance that food travels and that people travel to buy food, thereby reducing the demand on transportation *infrastructure* and the growth in vehicle emissions. As well, a strong regional food system supports local farmers and contributes to the vitality and economic strength of rural communities and Waterloo Region as a whole. For these reasons, this Plan seeks to strengthen and diversify the regional food system.

3.F.1 The Region will support the development of a strong regional food system through the policies in this Plan that:

(a) establish a Countryside Line to protect the countryside for long-term agricultural use;

(b) permit a full range of *agricultural uses*, *farm-related uses* and *secondary uses* to support the economic viability of local farms;

(c) provide for a mix of land uses, including food destinations, within close proximity of each other to facilitate residents' access to locally grown and other healthy food products; and

(d) provide a range of *human services* including *affordable housing*, subsidized daycare, employment and income supports that seek to ensure all residents have adequate incomes to be able to afford to buy locally grown and other healthy food products.

3.F.2 Area Municipalities will establish policies in their official plans to permit *temporary farmers' markets,* wherever appropriate, in existing and newly planned neighbourhoods, particularly in areas where access to locally grown food and other healthy food products may currently be limited.

3.F.3 Area Municipalities will establish policies in their official plans that encourage community gardens and rooftop gardens.

3.F.4 The Region will support community gardens, wherever feasible, by granting access to Regional lands, and by providing rain barrels, composting bins, compost, wood mulch or other forms of in-kind support.

3.F.5 The Region will collaborate with stakeholders to continue to implement initiatives supporting the development of a strong regional food system.

3.F.6 The Region supports food system planning as a means of improving the regional food system.

3.G Cultural Heritage

Cultural heritage resources are the inheritance of natural and cultural assets that give people a sense of place, community and personal identity. Continuity with the past promotes creativity and cultural diversity. The region has a rich and diverse heritage, including distinctive cultures, traditions, festivals, artisans and craftspeople, landmarks, landscapes, properties, structures, burial sites, cemeteries, natural features and *archaeological resources*. These resources provide an important means of defining and confirming a regional identity, enhancing the quality of life of the community, supporting social development and promoting economic prosperity. The Region is committed to

the conservation of its cultural heritage. This responsibility is shared with the Federal and Provincial governments, Area Municipalities, other government agencies, the private sector, property owners and the community.

Identification of Cultural Heritage Resources

3.G.1 The Region and Area Municipalities will ensure that *cultural heritage resources* are *conserved* using the provisions of the Heritage Act, the Planning Act, the Environmental Assessment Act, the Cemeteries Act and the Municipal Act.

3.G.2 The Region will prepare and update a Regional Implementation Guideline for Conserving Regionally Significant Cultural Heritage Resources. In accordance with the Ontario Heritage Act, this guideline will outline the criteria and processes the Region will follow to identify and *conserve cultural heritage resources* of Regional interest including regional roads that have cultural heritage value or interest.

Mod. No. 10

3.G.3 Area Municipalities will identify cultural heritage resources by establishing and maintaining a register of properties that are of cultural heritage value or interest. Area Municipalities will include on their register properties designated under Part IV, V or VI of the Heritage Act, and will consider including, but not be limited to, the following additional cultural heritage resources of cultural heritage value or interest:

(a) properties that have heritage conservation easements or covenants registered against title;

(b) cultural heritage resources of Regional interest; and

(c) cultural heritage resources identified by the Grand River Conservation Authority and the Federal or Provincial governments.

3.G.4 The Region will coordinate and maintain a region-wide inventory of *cultural heritage resources* that are:

(a) listed on registers established and maintained by Area Municipalities;

(b) identified by the Federal or Provincial governments, and the Grand River Conservation Authority;

(c) identified through research by the Region, Area Municipalities, post-secondary institutions or local historical societies;

(d) of Regional interest; or

(e) owned by the Region.

Cultural Heritage Landscapes

3.G.5 The Region will prepare and update a Regional Implementation Guideline for Cultural Heritage Landscape Conservation. This guideline will outline the framework for identifying *Cultural Heritage Landscapes,* including *Cultural Heritage Landscapes* of Regional interest, and for documenting each individual landscape through a Cultural Heritage Conservation Landscape Plan that includes:

(a) a statement of significance;

(b) a listing of the *cultural heritage resources* and attributes being *conserved* within the *Cultural Heritage Landscape* through the use of existing planning tools, such as Heritage Act designations, listings on the Municipal Register, official plan policies, secondary plans and zoning by-laws; and

(c) recommendations for additional conservation measures.

3.G.6 Area Municipalities will designate *Cultural Heritage Landscapes* in their official plans and establish associated policies to *conserve* these areas. The purpose of this designation is to *conserve* groupings of *cultural heritage resources* that together have greater heritage significance than their constituent elements or parts.

3.G.7 The Region will assist Area Municipalities with the preparation of Cultural Heritage Landscape Conservation Plans for *Cultural Heritage Landscapes* of Regional interest.

Archaeology

3.G.8 The Region will prepare and update a Regional Archaeological Master Plan, an associated Regional Archaeological Implementation Guideline, and maps identifying *archaeological resources* and *areas of archaeological potential.* The Master Plan will provide detailed information on the variables used to determine areas of *archaeological potential* and define the archaeological review process.

3.G.9 During the review of *development applications* and/or *site plans,* the Region and/or Area Municipalities will require the owner/applicant to submit an archaeological assessment conducted by a licensed archaeologist in accordance with the provisions of the Regional Archaeological Implementation

Mod. No. 11

Guideline following the Ministry of Tourism and Culture's Standards and Guidelines, to the satisfaction of the *Province,* where *archaeological resources* and/or *areas of archaeological potential* have been identified in the Archaeological Master Plan.

3.G.10 Where an *archaeological assessment* identifies a *significant archaeological resource*, the Region or Area Municipality will require the owner/applicant to *conserve* the *significant archaeological resource* by:

(a) ensuring the site remains undeveloped and, wherever appropriate, designated as open space by the Area Municipality; or

Mod. No. 12

(b) removing the *significant archaeological resource* from the site by a licensed archaeologist, prior to site grading or construction~~; or~~ .

Mod. No. 13

~~(c) capping the site in such a way that *development* will not affect the *significant archeological resource*.~~

Mod. No. 14

Heritage Planning Advisory Committee

3.G.11 The Region will maintain a Heritage Planning Advisory Committee to advise the Region on the implementation of the heritage policies in this Plan and other heritage issues of Regional interest, in accordance with the Terms of Reference adopted and periodically reviewed by Regional Council.

3.G.12 Area Municipalities are encouraged to maintain Municipal Heritage Advisory Committees to advise on heritage planning matters, including the conservation of properties of cultural heritage value or interest.

Cultural Heritage Impact Assessment

3.G.13 Area Municipalities will establish policies in their official plans to require the submission of a *Cultural Heritage Impact Assessment* in support of a proposed *development* that includes or is adjacent to a designated property, or includes a non-designated resource of cultural heritage value or interest listed on the Municipal Heritage Register.

3.G.14 Where a *Cultural Heritage Impact Assessment* required under Policy 3.G.13 relates to a *cultural heritage resource* of Regional interest, the Area Municipality will ensure that a copy of the assessment is circulated to the Region for review. In this situation, the *Cultural Heritage Impact Assessment* submitted by the owner/applicant will be completed to the satisfaction of both the Region and the Area Municipality.

3.G.15 Where a *development application* includes, or is adjacent to, a *cultural heritage resource* of Regional interest which is not listed on a Municipal Heritage Register, the owner/applicant will be required to submit a *Cultural Heritage Impact Assessment* to the satisfaction of the Region.

3.G.16 The Region will undertake a *Cultural Heritage Impact Assessment* and consult with the affected Area Municipality and the Regional Heritage Planning Advisory Committee prior to planning, designing or altering Regional buildings or *infrastructure* that may affect a *cultural heritage resource* listed on the region-wide inventory described in Policy 3.G.4. The *Cultural Heritage Impact Assessment* will be reviewed and approved in accordance with the policies in this Plan.

3.G.17 A *Cultural Heritage Impact Assessment* will include, but not be limited to the following:

(a) historical research, site analysis and evaluation;

(b) identification of the significance and heritage attributes of the *cultural heritage resource*;

(c) description of the proposed *development* or *site alteration*;

(d) assessment of *development* or *site alteration* impacts;

(e) consideration of alternatives, mitigation and conservation methods;

(f) schedule and reporting structure for implementation and monitoring; and

(g) a summary statement and conservation recommendations.

3.G.18 Where a *Cultural Heritage Impact Assessment* required in this Plan relates to a *cultural heritage resource* of Regional interest, the conservation recommendations will, wherever feasible, aim to *conserve cultural heritage resources* intact by:

(a) recognizing and incorporating heritage resources and their surrounding context into the proposed *development* in a manner that does not compromise or destroy the heritage resource;

(b) protecting and stabilizing *built heritage resources* that may be underutilized, derelict, or vacant; and

(c) designing *development* to be physically and visually compatible with, and distinguishable from, the heritage resource.

3.G.19 Where it is not feasible to *conserve* a *cultural heritage resource* intact in accordance with Policy 3.G.18, the conservation recommendations will:

Mod. No. 15

(a) promote the reuse or adaptive reuse of the resource, building, or building elements to preserve the resource and the handiwork of past artisans; and

(b) require the owner/applicant to provide measured drawings, a land use history, photographs and other available documentation of the *cultural heritage resource* in its surrounding context.

3.G.20 *Cultural Heritage Impact Assessments* may be scoped or waived by the Region or the Area Municipality as applicable.

Conservation, Promotion and Research

3.G.21 *Built heritage resources* owned by the Region and listed on a municipal heritage register, including Joseph Schneider Haus, the Governor's House and Gaol, McDougall Cottage and the West Montrose Covered Bridge will be *conserved*. Other Regionally owned heritage buildings, bridges, or properties, will be protected, restored or rehabilitated, wherever feasible, and where not feasible, the building or structural elements will be reused to the extent possible.

3.G.22 The Region supports the national recognition given to the Grand River as a Canadian Heritage River, including its major tributaries, the Nith River, Speed River and Conestogo River, and will continue to promote appropriate initiatives to maintain, enhance, manage and *conserve* natural, cultural, recreational, scenic and ecological features.

3.G.23 The Region will collect, manage and display movable heritage objects in accordance with standard museum protocols and the Regional Archives Policy.

3.G.24 Upon request, the Region may assist Area Municipalities in research, identification and documentation of *cultural heritage resources*.

3.G.25 The Region and Area Municipalities may coordinate the creation and delivery of financial incentive programs for the promotion, preservation, restoration and rehabilitation of *cultural heritage resources*. The Region will encourage coordination amongst the funding programs.

3.G.26 The Region, in collaboration with Area Municipalities, will develop and maintain an Arts, Culture and Heritage Master Plan for the purpose of:

(a) building community identity around the unique cultural heritage of the Region;

(b) enhancing public awareness of the benefits that arts, culture and heritage resources bring to the community;

(c) encouraging collaboration and resource sharing within the cultural heritage sector;

(d) providing resources to support the arts, culture and heritage sector; and

(e) maximizing accessibility to arts, culture and heritage opportunities and information.

Scenic Roads

3.G.27 The Region recognizes that many Regional Roads are characterized by natural, cultural heritage and recreational features that contribute to the scenic value of Regional Roads. During any construction or upgrades, the Region will, wherever feasible, endeavour to protect and/or enhance the scenic value of such features along Regional Roads.

3.G.28 Area Municipalities are encouraged to establish policies in their official plans to protect the scenic values of Regional Roads, including the view from the road to prominent heritage buildings or natural landscape features.

3.G.29 Area Municipalities are encouraged to protect the scenic values of roads under their jurisdiction.

3.H Human Services

Human service needs of regional residents, such as police services, social assistance, pre-employment services, child care and health care programs vary with age, ability, skill, background and interest. Access to these services is fundamental to the *liveability* of a community. The policies in this Plan provide the framework for meeting these diverse needs.

3.H.1 The Region will regularly update the Regional Human Services Plan to provide detailed information on the implementation of such services within the region.

3.H.2 The Region will locate its Public Health and Social Service facilities and programs close to *pedestrian*, cycling and transit facilities, and wherever appropriate, within businesses, schools and civic buildings. Other public service agencies are encouraged to co-locate their *human service* facilities using the same criteria.

3.H.3 Regional *human services* facilities will, to the extent feasible, be designed and located to be accessible to all people in the region and will support the Planned Community Structure of this Plan.

3.H.4 Area Municipalities are encouraged to consult with the Waterloo Regional Police Services to promote safety and security as part of the *development* review process.

3.H.5 The Region and Area Municipalities will, wherever appropriate, develop accessibility policies and regulations in their official plans, zoning by-laws, urban design guidelines, *site plan* guidelines, and other documents, in accordance with the provisions of the Accessibility for Ontarians with Disabilities Act.

4. Supporting Waterloo Region's Business Community

Much of Waterloo Region's high quality of life is attributable to its strong, diversified economy. Maintaining and enhancing economic strength in a globally competitive, knowledge-based economy demands that the Region collaborate with Area Municipalities and other private and public sector partners to ensure that Waterloo Region's economy is adaptable, innovative and creative. This effort will require on-going support not only for manufacturing, but also for sectors such as: high technology; post-secondary education; automotive; advanced manufacturing; business/financial; biotechnology and life sciences; environmental engineering, planning and management; agriculture and food processing; logistics and transportation; and construction.

The policies in this Chapter recognize the Region's traditional economic development support roles including: the planning and management of *infrastructure* to address the transportation, water supply, wastewater and waste management needs of the business community; ensuring that there are adequate quantities of strategically located *employment areas* available to accommodate forecast employment growth; advocating for Provincial and Federal government support assistance for key initiatives; and providing stable, long-term financial support for the world-wide marketing of Waterloo Region.

This Plan recognizes the important relationship between quality of life and economic prosperity. Communities that are vibrant, environmentally healthy and culturally diverse are not only great places to live, but they also attract people, jobs and new investment. This vision is reflected in this Plan through a broad range of policies that protect the environment, promote cultural heritage, coordinate *reurbanization*-oriented financial incentive programs and provide employment support services that help maximize the potential for employment and entrepreneurship.

Overall Goal – Collaborate with Area Municipalities, Canada's Technology Triangle Inc. and other stakeholders to foster a diverse, innovative and globally competitive regional economy.

Objectives:

4.1 Accommodate forecasted employment growth using a balanced approach to the provision and development of *employment areas* within both the Built-Up Area and Urban and Township Designated Greenfield Areas.

4.2 Ensure provision of required transportation *infrastructure* to accommodate forecasted growth, enhance the efficient movement of goods and improve access to employment and market opportunities for businesses and residents.

4.3 Ensure timely provision and maintenance of water supply, wastewater and waste management *infrastructure* to accommodate forecasted growth.

4.4 Provide a broad range of accessible employment opportunities throughout Waterloo Region, and maintain a competitive advantage in attracting and retaining people, jobs and investment.

4.5 Promote Waterloo Region as a leader in environmentally friendly business practices and as a centre of environmental consulting, products, research and services expertise.

4.A Employment Areas

4.A.1 The Region will plan to provide a supply of employment lands sufficient to accommodate the forecasted employment growth for Waterloo Region for the planning horizon of this Plan. Most of these lands will be located within existing employment areas and areas designated Prime Industrial/Strategic Reserve.

4.A.2 The Region will continue to collaborate with Area Municipalities, the Grand River Conservation Authority and other stakeholders to undertake the planning and infrastructure studies necessary to support the strategic development of *employment areas* in the vicinity of the Region of Waterloo International Airport to ensure these lands are readily available for development upon justification being established to bring them into the Urban Area.

4.A.3 Area Municipalities are encouraged to designate and preserve lands within the Urban Area and Township Urban Areas in the vicinity of existing major highway interchanges, rail yards, or the Region of Waterloo International Airport as *employment areas*, where appropriate.

4.A.4 The Region and Area Municipalities will collaborate with the *Province* as required to identify provincially strategic *employment areas* to help maintain and enhance the Greater Golden Horseshoe's position in the global economy.

4.A.5 Area Municipalities may permit redesignation of lands within existing *employment areas* to non-employment uses only through a *municipal comprehensive review* where it has been demonstrated that:

(a) there is a need for the redesignation;

(b) the Area Municipality will meet the employment forecast allocated to it pursuant to this Plan;

(c) the redesignation will not adversely affect the viability of the subject *employment area*, and achievement of the *reurbanization* target*,* density targets and other policies in this Plan;

(d) there is existing or planned *infrastructure* to accommodate the proposed redesignation;

(e) the lands are not required over the long-term for the employment purposes for which they are currently designated; and

(f) cross-jurisdictional issues have been considered.

4.A.6 Policy 4.A.5 only applies to existing *employment areas* that are not designated as an Urban Growth Centre, a Township Urban Growth Centre or areas identified by Area Municipalities as regeneration areas consistent with Provincial policies.

4.A.7 For the purposes of implementing Policy 4.A.5, non-employment uses will include *retail commercial centres*. Area Municipalities may establish policies in their official plans to further restrict the conversion of employment lands to non-employment uses.

4.A.8 The Region will facilitate the *reurbanization* of lands for employment uses through enhanced *development* review processes, financial incentive programs and the provision of physical *infrastructure* and *community infrastructure* that supports the Planned Community Structure of this Plan.

4.B Planning and Managing Physical Infrastructure

4.B.1 The Region of Waterloo International Airport will be planned, managed and promoted as an integral element in moving people and goods to and from Waterloo Region.

4.B.2 The Region will continue to partner with the *Province* to plan for the provision of GO Transit and enhanced VIA Rail passenger service between Waterloo Region and the communities within the Greater Golden Horseshoe.

4.B.3 The Region will continue to advocate for the provision of high-speed rail passenger service between Waterloo Region and other communities in the Windsor-Quebec City Corridor.

4.B.4 The Region will continue to advocate for improvements to the *Provincial Highway* system to support more effective movement of people and goods within and beyond Waterloo Region.

4.B.5 The Region will continue to collaborate with agencies and transportation service providers to coordinate and optimize rail-based goods movement systems.

4.B.6 The Region will plan, build and maintain Regional Roads to support more effective movement of people and goods within and beyond Waterloo Region.

4.B.7 The Region will plan to enhance transit service to key *employment areas*.

4.B.8 The Region will plan and manage water supply, wastewater treatment and waste management facilities and programs to ensure that they reflect existing and forecasted employment needs.

4.C Collaborative Partnerships

4.C.1 The Region will provide information, research, financial and in-kind support as appropriate to assist Canada's Technology Triangle Inc., in marketing Waterloo Region to the world.

4.C.2 The Region will work with other levels of government and private sector stakeholders on immigrant attraction and retention initiatives intended to further expand and strengthen Waterloo Region's workforce.

4.C.3 The Region recognizes that Conestoga College, the University of Waterloo and Wilfrid Laurier University support and enhance the competitiveness of the regional economy through research and development, innovation and the provision of skilled employees. Accordingly, the Region will support initiatives that strengthen these post-secondary education institutions and their linkages with the business community.

4.C.4 The Region, in collaboration with Area Municipalities, the business community, other levels of government and post-secondary institutions will, whenever feasible, help businesses adapt quickly and effectively to significant structural changes in the global economy and/or changes in international monetary or trade policy.

4.C.5 The Region will collaborate with Area Municipalities and the development industry in the planning and building of a range of housing, in terms of type and affordability, that supports the diverse needs of Waterloo Region.

4.C.6 The Region will support arts, culture and heritage initiatives that help make Waterloo Region a distinctive and unique place to live, work, visit and invest.

4.C.7 The Region will undertake and support healthy community initiatives that promote a healthy workforce.

4.C.8 The Region will provide pre-employment and employment programs that encourage inclusive employment opportunities for marginalized populations.

4.D Environment and Business

4.D.1 The Region, in collaboration with the business community, other levels of government and post-secondary institutions, will promote research and innovation in areas such as adaptation to climate change, water supply, efficient water use and re-use, air quality improvement, energy conservation, waste reduction and management, and ecological restoration.

4.D.2 *Employment areas* will, wherever possible, be designed and (re)developed to fully implement the overall goals, objectives and policies of this Plan.

4.D.3 New and existing businesses that use large quantities of water and/or discharge large amounts of wastewater requiring treatment will be discouraged from locating or expanding in Waterloo Region.

4.D.4 The Region will be a leader in corporate environmental *sustainability* through implementation of the Regional Environmental Sustainability Strategy and associated community outreach programs.

4.D.5 The Region will encourage new and renovated residential, office, industrial and commercial buildings and site design to be constructed to progressive environmental certification standards.

4.D.6 The Region will support the creation of an eco-business network with business and community stakeholders for the purpose of helping businesses share information as to how they can reduce their impact on the environment.

5. Addressing Waterloo Region's Infrastructure Needs

This Plan recognizes that successfully planning and managing *infrastructure* is an essential element of achieving the vision for a *sustainable* and *liveable* Waterloo Region. This Plan also recognizes that *infrastructure* planning and management requires the Region to consider opportunities to reduce the demand for additional *infrastructure* and to optimize the use of existing *infrastructure*. In addition, *infrastructure* can be used to help reshape Waterloo Region's urban form, create healthy, *sustainable*, safe and accessible communities and maximize the potential to capitalize on economic opportunities. In accordance with the provision of the Municipal Act, the responsibilities for planning and managing *infrastructure* are shared among the Federal and Provincial governments, the Region, Area Municipalities and other agencies.

The policies in this Chapter address the region's *infrastructure* needs, including the transportation system*, municipal drinking-water supply systems, municipal wastewater systems*, waste management and the provision of utility services. The transportation system policies seek to improve connectivity among transportation modes for the efficient movement of people and goods. The Region's transit system is a particular focus for this Chapter because of the strong link between land use and transportation planning, and the fact that the Region is the municipal transit authority. This Chapter also includes policies relating to Region of Waterloo International Airport to further support the transportation needs of the community.

Infrastructure master plans are used to plan and develop initiatives requiring significant *infrastructure* investment and/or having multiple stakeholders. These master plans will support the Planned Community Structure of this Plan and will also be used to set Regional and Area Municipal priorities for decisions on *infrastructure* investments in order to promote a coordinated approach to managing urban development.

The policies in this Chapter also set out requirements regarding the review of *development applications* relating to the assessment of the potential impacts that development can have on existing or planned *infrastructure*.

Overall Goal – Undertake *infrastructure* planning, development and asset management which optimizes the use of existing *infrastructure*, accommodates forecast growth, and promotes *sustainability* and a healthy population.

Objectives:

5.1 Plan and manage integrated, accessible and safe *multi-modal* transportation systems that provide transportation choice, and promote *sustainability*, a healthy population and the effective movement of goods.

5.2 Plan and manage *municipal drinking-water supply systems* using a comprehensive, integrated approach that reduces water demand, achieves

efficiency of water use and protects, improves or restores the water quality and quantity.

5.3 Plan and manage *municipal wastewater systems* to reduce future treatment capacity requirements, optimize the use of existing wastewater treatment plants and protect, improve or restore water quality and quantity in receiving waters.

5.4 Plan and manage waste management facilities and operations to reduce future landfill capacity requirements, optimize the use of existing landfill sites and consider alternatives to the disposal of waste at landfill sites.

5.5 Coordinate with utility providers to ensure that utilities are planned and managed in a manner that supports the overall goals and objectives of this Plan.

5.A Transportation Systems Planning

General Policies

5.A.1 The Region, in collaboration with Area Municipalities, will update the Regional Transportation Master Plan to inform and implement the policies in this Plan and guide the operation of the Region's day-to-day transportation programs.

5.A.2 The Region, in collaboration with Area Municipalities and community stakeholders, will prepare and regularly update the Regional Transportation Corridor Design Implementation Guideline, Regional Cycling Master Plan, Regional Pedestrian Master Plan, Regional Transportation Impact Study Implementation Guideline, Regional Road Access By-law Implementation Guideline and the Region of Waterloo International Airport Business Plan to inform and implement the policies in this Plan.

5.A.3 The Region and Area Municipalities will secure the following requirements prior to, or as a condition of approval of a *development application* or *site plan*, in order to support the development and operation of the Regional transit system and/or Regional Roads:

(a) the granting of easements and the dedication of land for sidewalks, bicycle pathways, *rapid transit* stations, transit terminals, *transit stops*, public transit rights-of-way, Regional Roads, roundabouts, rideshare facilities and utilities;

(b) the provision of associated amenities such as transit shelters, pads, energy efficient lighting and bicycle racks. The provision of such amenities will be the financial responsibility of the owner/applicant, unless funding is available through other sources satisfactory to the Region;

(c) *site plan* designs that meet the needs of *pedestrians*, cyclists and transit users, thereby promoting physical activity.

5.A.4 The Region, Area Municipalities and other agencies will seek to protect and, wherever feasible, acquire abandoned rail corridors for their possible inclusion in walking, cycling and transit networks, and future utility corridors.

5.A.5 The Region, in collaboration with the *Province* and Area Municipalities will promote and plan commuter parking and drop-off facilities to reduce single occupancy vehicle trips.

Regional Transit System

5.A.6 The Regional transit system will be improved on an on-going basis through the addition of *rapid transit* service and the preparation and implementation of the Transit Business Plan.

5.A.7 The Region will partner with the *Province* and other key stakeholders to improve the linkages between the Regional transit system and existing or planned inter-regional transit systems such as GO Transit.

5.A.8 Transit Corridors are Regional or Area Municipal Roads or dedicated rights-of-way outside of mixed traffic that accommodate existing or planned high frequency transit service. Wherever appropriate, Area Municipalities will adopt policies, by-laws and/or guidelines that apply the Transit Oriented Development provisions outlined in Policy 2.D.2 for *development* along Transit Corridors.

5.A.9 Existing and Planned Transit Corridors are designated as shown on Map 5a. Changes to the Transit Corridors as shown on Map 5a will require an amendment to this Plan.

5.A.10 The *Central Transit Corridor Environmental Assessment Study Area* is designated as shown on Map 3a. This Corridor identifies the study area within which an alignment for the proposed *rapid transit* system will be selected, and the area that may be directly and/or indirectly affected by the system. Following the completion of the Rapid Transit Environmental Assessment, the Region will delineate the alignment of the *rapid transit* system shown on Map 3a through a future amendment to this Plan.

5.A.11 The Region, in collaboration with Area Municipalities, will implement transit priority measures such as reserved bus lanes and bus priority at traffic signals on roads where appropriate.

5.A.12 Area Municipal parking strategies will, to the extent feasible, support existing and planned transit service levels and Transit Oriented Development.

5.A.13 New passenger rail terminals will be located and designed so as to promote safe and convenient access by *pedestrians*, cyclists, transit users and motorists.

Walking and Cycling Networks

5.A.14 Regional cycling routes are designated as shown on Map 5c. These regional-scale routes have been identified within the Regional Cycling Master Plan and will be developed in association with ongoing Regional and Area Municipal Road improvements and other activities.

5.A.15 The Region, in collaboration with Area Municipalities, will regularly update the Regional Cycling Master Plan to review the Regional cycling routes as shown on Map 5c and further develop policies and strategies to facilitate cycling for both recreational and everyday activities.

5.A.16 Regional Council will maintain a Cycling Advisory Committee to advise the Region on the implementation of the cycling policies in this Plan and the Regional Cycling Master Plan, in accordance with the Terms of Reference adopted and periodically reviewed by Regional Council.

5.A.17 Wherever feasible, sidewalks will be provided on both sides of streets where transit service currently exists or is planned, and on a minimum of one side of all other through-streets or streets that interconnect with the walking network.

5.A.18 The Region, in collaboration with Area Municipalities, will prepare and update a Regional Pedestrian Master Plan that identifies the *pedestrian* network component of the region's transportation system that will be developed in association with Regional and Area Municipal road improvement projects and other activities.

Region of Waterloo International Airport

5.A.19 The Region of Waterloo International Airport is designated as shown on Map 3a. Permitted land uses within this designation will be related to aviation and associated uses consistent with the Region of Waterloo International Airport Business Plan. Any future adjustments to the boundaries of the Region of Waterloo International Airport will not require an amendment to this Plan, but will be reflected as part of the five-year *municipal comprehensive review* of this Plan, or the completion of a *municipal comprehensive review* as otherwise initiated by Regional Council.

5.A.20 In planning for land uses in the vicinity of the Region of Waterloo International Airport, Area Municipalities will establish policies in their official plans that:

(a) support the long-term operation and economic role of the Airport;

(b) protect the Airport from development that would preclude or hinder its expansion or continued use, or which would be incompatible for reasons of public health, public safety or environmental concerns;

(c) ensure that the Airport and *sensitive land uses* are designed, buffered and/or separated from each other to prevent *adverse effects* from odour, noise and other contaminants;

(d) provide for the inclusion of warning clauses advising property owners in the vicinity of the Airport of potential outdoor lighting and height restrictions, and of the potential for occasional noise-related impacts;

(e) prohibit any land uses that may cause a potential aviation safety hazard; and

(f) be in conformity with Transport Canada's Region of Waterloo International Airport Zoning Regulations.

5.A.21 The Region will plan and stage improvements to the Region of Waterloo International Airport and related facilities in accordance with updates to the Region of Waterloo International Airport Business Plan.

Road Network

5.A.22 The road network that will be developed and maintained to support the policies in this Plan includes:

(a) Existing and Planned Transit Corridors as shown on Map 5a;

(b) Existing and Planned Regional Roads as shown on Map 5b;

(c) Existing and Planned *Provincial Highways* as shown on Map 5b; and

(d) Proposed Road Corridors as shown on Map 5b.

5.A.23 Regional Roads provide safe, direct, accessible and *multi-modal* transportation links for moving people and goods throughout Waterloo Region, and to adjacent municipalities. Regional Roads will be planned and constructed in

accordance with the provisions of the Regional Transportation Corridor Design Implementation Guideline.

5.A.24 The Region will update the Regional Road Access By-law as required for the purposes of classifying Regional Roads as either:

(a) Controlled Access – Prohibited: no access to these roads is generally permitted in recognition of their need to facilitate the efficient movement of high volumes of traffic within and between Area Municipalities and to *Provincial Highways*. Exemptions to permit access to these roads require the approval of Regional Council through amendment to the Controlled Access By–law.

(b) Controlled Access – Regulated: in recognition of the need to protect the regional transportation function served by these roads, the number and design of access points to the road system is regulated by the Regional Access Permit process.

5.A.25 Where a proposed *development* is likely to generate significant traffic as defined in the Regional Transportation Impact Study Implementation Guideline, the Region will require the owner/applicant to undertake a Transportation Impact Study in accordance with the provisions of the guideline to assess the impact of the *development* on the regional transportation system. In addition to determining the impact of private vehicles, the Transportation Impact Study will examine ways of encouraging alternative forms of transportation such as walking, cycling and public transit, and recommend necessary improvements. Such studies and measures will be the financial responsibility of the owner/applicant.

5.A.26 ~~In addition to the applicable Regional and Area Municipal requirements, all *development applications* adjacent to *Provincial Highways* are subject to the requirements and permits of the *Province* under the Public Transportation and Highway Improvement Act.~~

Mod. No. 16

In addition to the applicable Regional and Area Municipal requirements, all development applications adjacent to Provincial Highways are subject to the requirements and permits of the Province under the Public Transportation and Highway Improvement Act. New entrances or the upgrading of entrances, location of buildings, signs and encroachments within the Ministry of Transportation's permit control area of a Provincial Highway will be subject to the approval of the Ministry. Development applications proposing large traffic generators within the permit control area will require the submission of a Transportation Impact Study in accordance with the Ministry's "General Guidelines for the Preparation of Traffic Impact Studies". The Ministry of

Transportation may identify the need for other information and materials through the pre-submission consultation meeting with the Region and/or applicable Area Municipality.

5.A.27 Where a proposed *development application* may compromise the Environmental Assessment Act requirements for a Proposed Regional Road Corridor as shown on Map 5b, a future Proposed Transit Corridor, Proposed *Provincial Highway,* or Proposed Provincial Transit Corridor not shown on Map 5b, the Region and/or Area Municipalities may, in consultation with the *Province,* whenever appropriate, consider the proposed *development application* to be premature until transportation planning and Environmental Assessment studies are completed.

5.A.28 Where a proposed *development application* is affected by road improvements that are subject to a Municipal Class Environmental Assessment, the Environmental Assessment will be completed to the extent required before approval of the *development application* by the Region or Area Municipality.

5.A.29 The following changes to the designations of roads as shown on Map 5b may be made without amendment to this Plan:

(a) to recognize the construction of a Planned Regional Road or *Provincial Highway*; and

(b) to implement the alignment of a Proposed Regional Road consistent with the corridor as shown on Map 5b.

5.A.30 All Regional Roads will be classified as truck routes unless prohibitions or time restrictions are imposed on particular sections based on the following:

(a) the section of roadway is not designed or constructed for heavy truck traffic or long vehicles;

(b) there are critical height or weight restrictions on the section of roadway;

(c) the land uses adjacent to the roadway are primarily front-lotted urban residential and a suitable alternate route is available; or

(d) other considerations as determined by Regional Council.

Regional Road Design, Construction and Operation

5.A.31 The design, construction and operation of Regional Roads, and *development applications* or *site plans* that affect Regional Roads, will be in accordance with

the provisions of the Regional Transportation Corridor Design Implementation Guideline, the Regional Transportation Impact Study Implementation Guideline, the Regional Road Access By-law Implementation Guideline, the Regional Cycling Master Plan, the Regional Pedestrian Master Plan and applicable Area Municipal design guidelines.

5.A.32 In general, direct access to Regional Roads will be managed to maintain the integrity of the Regional Road system as follows:

(a) *development* along a Regional Road will have access provided from Area Municipal roads, wherever feasible. The need for, and feasibility of, providing access to a Regional Road will be determined by the Region in consultation with the Area Municipality;

(b) access locations will be discouraged in close proximity to intersections, at-grade railway crossings, road abutments, along lanes specifically identified for the purpose of exclusive vehicular turning movements, or where minimum sight distance requirements are not met; and

(c) openings in a centre median for a private access will only be permitted where there will be substantial trip generation or transit movements, and appropriate traffic control strategies can be implemented.

5.A.33 Where a safe access cannot be provided, or where any proposed new access, either alone or in combination with existing accesses, is determined by the Region to be detrimental to the operation of the Regional Road, such access may be denied.

Designated Regional Road Allowances

5.A.34 Designated Regional Road Allowances are shown in Schedule 'A'. An amendment to Schedule 'A' will be required where there is a proposal to change a designated Regional Road Allowance.

5.A.35 The Region will require road widenings from all lands contained within *development applications* and/or *site plans,* where the existing road allowance is less than the designated Regional Road Allowance, or where an additional widening is required in accordance with Policy 5.A.36. Any such road widenings will be obtained by dedication prior to, or as a condition of, the approval of the *development application* and/or *site plan*, in accordance with the provisions of the Planning Act, the Regional Implementation Guideline on the Dedication of Land for Regional Roads, and the Regional Implementation Guideline for Road Allowance Dedications On or Adjacent to Known and Potentially Contaminated Sites.

5.A.36 In addition to requiring road widenings to secure the Designated Road Allowance shown in Schedule 'A', the Region may require road widenings as a condition of approval of a *development application* and/or *site plan,* for the following purposes:

(a) to provide for transit and *rapid transit infrastructure*, *pedestrian* facilities and cycling lanes;

(b) at Regional Road intersections to accommodate roundabouts, turning lanes, daylighting triangles, channelization and locations for traffic control devices;

(c) to provide suitable access to major traffic generators or attractors; and

(d) to accommodate cut and fill slopes.

5.A.37 For the purposes of the *site plan* control provisions of the Planning Act, each Regional Road described in Schedule 'A' will constitute a "highway to be widened", and the designated Regional Road Allowance plus the road widenings specified in Policy 5.A.36 will constitute the "extent of the proposed widening".

5.A.38 The boundaries of the designated Regional Road Allowance will generally be equidistant from, and parallel to, the centre line of the original road allowance. However, unequal widenings may be required as a result of inaccuracies in the original surveys, legal encroachments, topographic features, historic building locations, significant environmental concerns or other unique conditions.

5.A.39 The Region may, where special circumstances warrant, without amendment to this Plan, reduce the required road widenings for any specific *development application* and/or *site plan,* or road section in accordance with the provisions of the Regional Implementation Guideline on the Dedication of Land for Regional Roads and the Regional Implementation Guideline for Road Allowance Dedications On or Adjacent to Known and Potentially Contaminated Sites.

Rail Network

5.A.40 The Region will collaborate with agencies and rail service providers to plan and stage improvements to railway *infrastructure* and services to facilitate the movement of people and goods into and out of Waterloo Region, and improve the safety and efficiency of the regional transportation system.

5.A.41 The Region will review and endeavour to protect the potential for future rail transportation through strategic planning for the land use and transportation needs of the community.

5.B Wastewater Treatment

General Policies

Mod. No. 17

5.B.1 The Region will prepare and update a Regional Wastewater Treatment Master Plan that supports the policies in this Plan, provides direction for planning and staging of investments in the Region's wastewater treatment plants and related facilities, ~~and~~ guides the operation of the Region's day-to-day wastewater treatment programs, and protects human health and the natural environment.

5.B.2 The Region will evaluate wastewater servicing options for *development applications*, based on the following order of priority:

(a) extension of servicing from a *municipal wastewater system*, unless it can be demonstrated to the satisfaction of the Region that such a servicing option is not feasible; and

(b) new individual wastewater treatment systems, except where such systems are not permitted in accordance with Policy 5.B.6.

5.B.3 A wastewater treatment surcharge may be assessed to specific businesses as a means of recovering additional costs associated with the treatment of high concentration effluent at a Regional wastewater treatment plant.

5.B.4 Area Municipalities are responsible for monitoring inflow and infiltration associated with Area Municipal wastewater collection systems, except in the Townships of North Dumfries and Wellesley where the Region has assumed responsibility for the wastewater collection systems. The Region and Area Municipalities, as applicable, will complete Inflow and Infiltration, and Sanitary Capacity Studies, and establish a program to implement recommendations of the approved studies prior to consideration being given to the expansion of Regional wastewater treatment plants.

5.B.5 The nature or concentrations of wastewater from non-residential sources will be regulated by the Region through the Sewer Use By-law, which may be periodically amended by Regional Council.

Individual Wastewater Treatment Systems

5.B.6 Notwithstanding Policy 5.B.2, *development applications* proposing the use of new individual wastewater treatment systems will not be permitted within:

(a) Wellhead Protection Sensitivity Area 1, High Microbial Risk Management Zones and Surface Water Intake Protection Zone 1, as described in the policies in Chapter 8; and

(b) the Urban Area designation, except as provided for in Policies 2.D.28 and 2.D.29; and

(c) the Township Designated Greenfield Areas designation.

5.B.7 Prior to the approval of any *development applications* proposing the use of individual wastewater treatment systems, studies prepared in accordance with the provisions of the Regional Implementation Guideline for Source Water Protection Studies and approved by the Region, must have demonstrated that such system(s) can operate satisfactorily on the site and will not have a negative impact on groundwater resources.

5.B.8 *Development applications* proposing alternative individual wastewater treatment systems will only be permitted where the proposed lot size would accommodate a conventional individual wastewater treatment system.

5.C Water Supply

General Policies

5.C.1 The Region will implement the Regional Long-Term Water Supply Strategy to support the policies in this Plan, provide direction for the planning and staging of investments in the Region's *municipal drinking-water supply systems*, ~~and~~ guide the operation of the Region's day-to-day water supply programs, and protects human health and the natural environment.

Mod. No. 18

5.C.2 The Region will implement the Regional Water Efficiency Master Plan and continue to develop and collaborate with community stakeholders on a range of water efficiency and demand reduction programs.

5.C.3 The Region will evaluate water supply servicing options for *development applications*, based on the following order of priority:

(a) extension of servicing from a *municipal drinking-water supply system*, unless it can be demonstrated to the satisfaction of the Region that such a

servicing option is not feasible;

(b) new private wells, except where such wells are not permitted in accordance with Policy 5.C.4.

Private Wells

5.C.4 Notwithstanding Policy 5.C.3, *development applications* proposing the use of private wells will not be permitted within:

(a) Wellhead Protection Sensitivity Area 1, High Microbial Risk Management Zones and Surface Water Intake Protection Zone 1, as described in Chapter 8; and

(b) the Urban Area designation, except as provided in Policy 2.D.29; and

(c) the Township Designated Greenfield Areas designations.

5.C.5 Prior to the approval of any *development applications* that propose the use of private wells as a servicing option, studies undertaken in accordance with the provisions of the Regional Implementation Guideline for Source Water Protection Studies, must have demonstrated that such wells can operate satisfactorily on the site and not negatively affect groundwater resources.

5.C.6 Where a *development application* proposes the use of private wells to supply potable water, only drilled wells with appropriate surface casing will be permitted.

5.D Regional Infrastructure Planning Agreements and Monitoring

5.D.1 The Regional servicing requirements for planned development and projected growth will be monitored to ensure that the total system capacities are not exceeded, and to provide sufficient lead time for the planning, design, approval, financing and construction of new facilities.

5.D.2 The Region, in collaboration with Area Municipalities, will specify procedures for the allocation of drinking-water supply and wastewater capacity for *development applications* approved under the Planning Act. Such procedures will include reserved capacity allocations for *reurbanization* within the Built-Up Area and new *development* within Urban and Township Designated Greenfield Areas, in conformity with the policies in Chapter 2, and consistent with applicable Area Municipal staging of development policies. Specific allocations for non-residential *development* will be provided as required.

5.D.3 The commitment of existing drinking-water supply and wastewater capacity to *development* will take place through an agreement specifying services between the Region and the owner/applicant for a specified time period. The Region will, in collaboration with Area Municipalities, review the potential for the *development* to achieve final approval prior to granting an extension of an agreement for services.

5.E Waste Management

5.E.1 The Region will prepare and update a Regional Waste Management Master Plan that supports the policies in this Plan, provides direction for planning and staging of investments in the Region's waste management facilities and guides the operation of the Region's day-to-day waste management programs.

5.E.2 The Region will design, operate and monitor waste management facilities in such a manner as to promote *sustainability* and public health and, wherever feasible, provide for future adaptive re-use opportunities in accordance with applicable Area Municipal official plan policies and Provincial requirements.

5.E.3 The Region will coordinate the collection and haulage of materials for recycling and composting to Regional waste management facilities and maximize opportunities for local composting and waste recycling.

5.E.4 Pursuant to the Environmental Protection Act, written approval from the *Province* will be required prior to consideration of a *development application* within areas formerly used as waste management facilities.

5.E.5 The Region will encourage the *Province* to use its regulatory authority to restrict landowners from discarding waste in private waste management facilities.

5.E.6 All Regional departments and agencies are encouraged to select products that have the least environmental impact, including products that:

(a) contain a high proportion of recycled materials;

(b) contain the least amount of packaging;

(c) can be readily recycled or re-used; and

(d) contain no *hazardous chemicals and/or substances* and minimal toxic substances.

5.F Utilities

5.F.1 The Region will review and comment on Environmental Assessment Studies, and may participate in the Environmental Assessment process for major utilities related projects to ensure that potential impacts on matters of Regional and Provincial interest are addressed.

5.F.2 Utility providers proposing to locate, relocate, or replace a facility within a Regional Road Allowance will require Regional approval and be subject to the provisions of all applicable Regional by-laws and Regional Implementation Guidelines.

5.F.3 Prior to receiving approval to locate, relocate, or replace a facility within a Regional Road Allowance or on other land owned by the Region, the utility provider may be required to conduct a public information meeting in an effort to identify and resolve the concerns of adjacent residents.

5.F.4 The Region will continue to advise utility providers of the need to:

(a) review the region-wide inventory of *cultural heritage resources* and areas of *archaeological potential* prior to undertaking construction, demolition or maintenance projects;

(b) consult with the Region and Area Municipalities; ~~and~~

(c) mitigate any impacts on *cultural heritage resources* including *archaeological resources* through acceptable conservation measures; and

(d) place equipment and devices in locations which do not detract from the visual character of cultural heritage resources and do not have a negative impact on the architectural integrity of these resources.

Mod. No. 19

5.F.5 The Region and Area Municipalities will confirm, as part of the *development* review process, that utility providers are able to provide services to support the proposed *development* in a timely manner and that, if required, appropriate locations for large utility equipment and utility cluster sites have been determined.

6. Supporting the Countryside

Waterloo Region's countryside contains a diversity of landscapes that both surround and sustain the region's urban areas. The countryside is made up of many unique natural and cultural heritage features as well as valuable natural resources, including agricultural lands, *woodlands*, mineral aggregate deposits and groundwater recharge areas. These assets form part of the region's rich natural capital and contribute to the community's quality of life. The policies in this Plan seek to protect the countryside from urbanization and inappropriate rural activities, while sustainably managing its natural resources for the needs of current and future generations.

Agriculture forms an important part of the region's economy and provides many positive benefits. Each job in the primary agriculture sector has been shown to support an additional four jobs in the wider regional economy. As providers of fresh, locally grown food, area farmers play an important role in the health of the community. Local agriculture also promotes *sustainability* by reducing reliance on longer distance food imports.

Although the region has some of the best farmland in Ontario, this Plan recognizes that simply protecting farmland will not guarantee that it will be actively and viably farmed. Farm businesses today face many economic challenges in a globally competitive environment. To help keep farmers on the land, this Plan contains policies that support on-farm diversification strategies as a means of supplementing farm income.

The surrounding countryside is also home to a large community of Mennonites whose ancestors were among the first pioneers to the region. The culture and farming practices of the Mennonites contribute to the strength of the region's agricultural sector. This Plan seeks to preserve and support the social, economic and cultural needs of this distinct segment of the region's rural population that, in many cases, still relies on horse-drawn vehicles for their primary means of transportation.

The region's countryside includes a series of smaller Rural Settlement Areas and Rural Employment Areas that provide opportunities for living and working in a rural setting. Most of these areas are serviced by private wells and individual wastewater treatment systems and have limited potential for growth. In the future, these areas will primarily grow through infill development that is consistent with their rural character and limited *infrastructure* capacities.

This Plan identifies a broad band of permanently protected *environmental features* and agricultural lands known as the Protected Countryside. This designation contains a unique concentration of farmlands, *woodlands*, watercourses, river valleys and *wetlands.* It also includes several significant Regional Recharge Areas, which sustain some of the richest sources of groundwater in the Grand River watershed and account for a significant share of the region's water supply. The Protected Countryside will

permanently protect these critical areas from urban development to ensure the region's continued environmental and economic health.

Overall Goal – Protect the rural character of the countryside while supporting the development of strong and prosperous rural communities.

Objectives:

6.1 Permanently protect the ecological and groundwater recharge functions of the Protected Countryside.

6.2 Support agriculture as the predominant land use within the countryside and help strengthen the viability of the farm sector.

6.3 Conserve renewable and non-renewable resources, while providing for their *sustainable* use by current and future generations.

6.4 Protect and enhance the countryside's open space character, topography, natural *linkages* and rural landscapes.

6.A Countryside

6.A.1 The Prime Agricultural Area and Rural Areas are designated as shown on Map 7.

6.A.2 The Prime Agricultural Area designation identifies an area where *prime agricultural lands* predominate. This designation includes areas of *prime agricultural lands* and associated areas of Canada Land Inventory Class 4 to 7 soils, and additional areas where there is a local concentration of farms that exhibit characteristics of ongoing agriculture.

6.A.3 The Rural Areas designation identifies areas where Canada Land Inventory Class 4 to 7 soils predominate and which are typically characterized by one or more of steep slopes, *environmental features* and/or existing *non-farm lots.*

6.A.4 The primary land uses permitted in the Prime Agricultural Area and Rural Areas designations will include a*gricultural uses*, *agriculture-related uses* and *secondary uses as* set out in the policies in this Chapter.

6.A.5 Within the Prime Agricultural Area and Rural Areas designations, all types, sizes and intensities of *agricultural uses* and *normal farm practices* will be promoted and protected in accordance with *Provincial* standards.

6.A.6 O*n-farm alternative and/or renewable energy systems* will be permitted in the Prime Agricultural Area and Rural Areas designations in accordance with the policies in this Plan.

6.A.7 *Mineral aggregate operations* may be permitted as an interim use in the Prime Agricultural Area and Rural Areas designations in accordance with the policies in Chapter 9.

6.A.8 *Recreational and tourism uses*, *rural institutional uses* and limited infill residential uses may be permitted in Rural Areas in accordance with the policies in this Chapter.

6.A.9 Within the Environmentally Sensitive Landscape designation as shown on Map 4, Policies 7.B.6 to 7.B.19 supersede the policies in this Chapter to the extent of any conflict.

6.A.10 The Region will identify *specialty crop areas* in accordance with the evaluation procedures established by the *Province*. These *specialty crop areas* will be designated on Map 7 through a future amendment to this Plan.

6.B Protected Countryside

6.B.1 The Protected Countryside is designated as shown on Map 7. This designation identifies a continuous band of *environmental features* and agricultural lands surrounding the north, west and south sides of the Urban Area designation that is to be permanently protected. Lands within the Protected Countryside contain a large concentration of *prime agricultural lands, woodlands,* watercourses, portions of the Grand River valley, *wetlands,* Environmentally Sensitive Landscapes, Regional Recharge Areas, and portions of the Waterloo and Paris-Galt Moraines. The Protected Countryside is intended to permanently protect these valuable areas from urban development, while providing for the continued use of the lands for agriculture, environmental and other appropriate rural uses in conformity with the policies in this Plan.

6.B.2 Land uses within the Protected Countryside will be regulated in accordance with the underlying policies of the Prime Agricultural Area, Rural Areas or Landscape Level Systems designations as shown in this Plan.

6.B.3 Expansions of the Urban Area, Township Urban Areas, Highway 401/Regional Road 97 Employment Area, Rural Settlement Areas or Rural Employment Areas will not be permitted into the Protected Countryside, except as provided for in Policy 6.B.4.

6.B.4 Minor expansions of Rural Settlement Areas located within the Protected Countryside designation may be permitted to facilitate the enlargement of an *existing* employment, recreational or institutional use subject to the provisions of Policy 6.G.8 and, where applicable, Policy 7.B.25. Such expansions will not

be permitted where the lands subject to the expansion proposal are also designated as Environmentally Sensitive Landscape.

6.B.5 The designation of lands as Protected Countryside will not affect *agricultural uses* and associated *normal farm practices* as defined in applicable Provincial legislation and regulations in conformity with approved Area Municipal official plans and zoning by-laws, and statutes, policies and regulations of other government agencies, including agricultural drainage through municipal or agreement drains.

6.B.6 Nothing in this Plan shall prevent the owner of a legal lot of record located within the Protected Countryside designation from obtaining a building permit to construct or enlarge a house, accessory building or farm structure, provided it is in conformity with all other Regional, Area Municipal and Grand River Conservation Authority policies and regulations.

6.C General Policies

The policies in Section 6.C apply to the Prime Agricultural Area and Rural Areas designations.

6.C.1 New land uses, including the creation of separate lots, expansions of existing lots and the development of new or expanding livestock facilities, will comply with the *minimum distance separation formulae*.

6.C.2 The placing of fill, removal of topsoil or extraction of peat will generally be discouraged within the Prime Agricultural Area and Rural Areas designations. Area Municipalities are encouraged to regulate such activities through site alteration by-laws, passed under the provisions of the Municipal Act or Topsoil Preservation Act, and to require the rehabilitation of lands from which peat or topsoil has been removed.

6.C.3 Additional permanent or temporary *farm-related residential units* may be permitted on a farm without severance to accommodate full-time farm employees, including members of the farm household directly involved in the farm operation, provided that:

(a) the size, nature and productive capability of the farm operation warrant additional farm employment for extended periods of time such that additional on-site accommodation is considered necessary;

(b) any new permanent dwellings will be limited to bunkhouses or the conversion and/or expansion of *existing farm-related residential units*;

(c) any new temporary dwellings will be located near existing farm buildings and will be removed if they are no longer required to accommodate farm employees; and

(d) the site can be appropriately serviced by private wells and individual wastewater treatment systems.

6.C.4 To preserve and support the historic, social and cultural needs of a unique segment of the region's existing rural community which relies on horse-drawn vehicles as their primary means of transportation, Area Municipalities may, by amendment to their zoning by-law, permit the establishment of small-scale schools, places of worship and associated cemeteries. In prime agricultural areas, an alternative locational analysis needs to be completed and the policies of Section 6.D.1 (b) to (d) inclusive, apply.

Mod. No. 20

6.C.5 Minor intensification of *existing* industrial, commercial, recreational and/or institutional uses, including minor changes to the uses thereof, may be permitted within the limits of the existing property.

6.C.6 The Region will endeavour to support environmentally *sustainable* agriculture by assisting farmers in the development of individual Environmental Farm Plans to minimize soil degradation, protect the quality and quantity of water resources, improve the management of potential on-site pollution sources and to maintain, enhance or, where feasible, restore the *ecological functions* of elements of the Greenlands Network.

Agriculture-Related Uses

6.C.7 Area Municipalities will establish policies in their official plans to permit *agriculture-related uses* within the Prime Agricultural Area and Rural Areas designations, subject to the following:

(a) the use minimizes the amount of land removed from agricultural production and is suitable for the site in comparison to other reasonable alternatives available in the Area Municipality, including sites with poorer agricultural soils or where fragmented or smaller lots and/or a mix of *non-farm lots* may already exist;

(b) the use mitigates any potential land use conflicts with adjacent farms and other land uses;

(c) the use can be appropriately serviced by private wells and individual wastewater treatment systems; and

(d) the severance of a lot for an *agriculture-related use* created in accordance with this policy may be permitted only in accordance with Policy 6.E.7.

Secondary Uses

6.C.8 Area Municipalities will establish policies in their official plans to permit *secondary uses* within the Prime Agricultural Area and Rural Areas designations, subject to the following:

(a) the *secondary use* will be clearly accessory to the principal use of the property;

(b) the *secondary use* will be small in scale and compatible with surrounding agricultural operations;

(c) for *secondary uses* located on a farm, any buildings, structures or facilities associated with the *secondary use*, except roadside produce stands, will be integrated with the main farm buildings and be constructed in a manner that will allow for ease of conversion to an *agricultural use* should the *secondary use* cease to exist. Minor retailing of products will be permitted directly from the farm provided that sales are limited to those goods produced or manufactured primarily on the farm; and

(d) the severance of a lot for a *secondary use* created in accordance with this policy will not be permitted.

6.C.9 Area Municipalities will establish regulations for *secondary uses* in their zoning by-laws.

~~**Small-Scale Alternative/Renewable Energy Systems**~~

~~6.C.10 Small-scale *alternative and/or renewable energy systems* refer to smaller, typically non-commercial energy systems that are intended to off-set or replace domestic energy consumption.~~

Mod. No. 21

~~6.C.11 Area Municipalities will establish policies in their official plans to permit small-scale *alternative and/or renewable energy systems* within the Prime Agricultural Area and Rural Areas designations, subject to the following:~~

~~(a) the system will occupy one hectare of land or less;~~

~~(b) the system will be secondary to the principal use of the property and will be in conformity with the provisions of Policy 6.C.8; and~~

(c) the system will be in accordance with *Federal and Provincial requirements*.

Mod. No. 21

Large-Scale Alternative/Renewable Energy Systems

6.C.12 Large-scale *alternative and/or renewable energy systems* refer to larger, commercial or centralized energy systems that are primarily intended to supply electricity to the electrical transmission grid.

6.C.13 Area Municipalities may permit the establishment of large-scale *alternative and/or renewable energy systems* within the Prime Agricultural Area or Rural Areas designations through an amendment to their official plan and zoning by-law, subject to the following:

(a) within the Prime Agricultural Area designation:

i) the system will not comprise a *specialty crop area*;

ii) there are no reasonable alternative locations for the system which avoid lands designated as Prime Agricultural Area;

iii) there are no reasonable alternative locations for the system within the Prime Agricultural Area designation with lower priority agricultural lands;

(b) the system will minimize impacts on surrounding agricultural operations, and be designed and constructed so as to maximize the opportunity to convert the site back to an *agricultural use* should the system cease to exist;

(c) the system will not be located within a Core Environmental Feature designated as shown on Map 4;

(d) the system will be in accordance with *Federal and Provincial requirements;* and

(e) the severance of a new lot for the system will not be permitted.

6.C.14 *Development applications* submitted in accordance with Policy 6.C.13 will only be approved where the owner/applicant submits the following studies, where applicable, to the satisfaction of the Region and/or other agency having jurisdiction over the issue addressed by the study:

~~(a) noise, vibration and air quality studies demonstrating that the proposed system is appropriately designed, buffered and/or separated from any surrounding *sensitive land uses* to prevent any *adverse effects*;~~

~~(b) a hydrogeological study prepared in accordance with the provisions of the Regional Implementation Guideline for Source Water Protection Studies, demonstrating that the proposed system will have no negative impacts on the quality and quantity of any surface water or groundwater resources in accordance with the policies in Chapter 8;~~

~~(c) an *Environmental Impact Statement* in accordance with the policies in Chapter 7, where the proposed system is *contiguous* to a Core Environmental Feature;~~

~~(d) an *archaeological assessment* and/or a *Cultural Heritage Impact Assessment* in accordance with the policies in Chapter 3; and~~

~~(e) for large-scale wind energy generation systems proposed within ten kilometres of the Region of Waterloo International Airport, confirmation that the proposed facility complies with any applicable Transport Canada and/or NAV Canada regulations.~~

Expansions/Intensification of Existing Employment Uses within the Countryside Line

Mod. No. 22

6.C.10 Lands located between the Urban Area/Township Urban Areas designations and the Countryside Line shown on Map 7 will continue to be subject to the Prime Agricultural Area and Rural Areas policies in this Plan, except where a development application is submitted to expand or intensify an existing employment use. In such situations, an Area Municipality may consider approving the development application without an amendment to this Plan only where:

(a) there is a demonstrated need to expand or intensify the use;

(b) the uses minimizes the amount of land removed from agricultural production;

(c) the land use mitigates any potential land use conflicts with adjacent farms and other land uses;

(d) the proposed land use will not compromise comprehensive planning for the future development of a comply community on the lands located within the Countryside Line; and

(e) the use is in conformity with all other applicable policies of this Plan.

6.D Rural Areas Special Policies

Recreational and Tourism Uses

6.D.1 Area Municipalities may permit the establishment or expansion of a *recreational and tourism use* within the Rural Areas designation by amendment to their official plan, provided that:

(a) any buildings or structures associated with the use are small-in-scale and do not include overnight guest accommodation, with the exception of campgrounds;

(b) the use is compatible with surrounding agricultural operations;

(c) the use minimizes the amount of land removed from agricultural production;

(d) the use complies with other policies in this Plan regarding mineral aggregate extraction, source water protection, the natural environment and water and wastewater servicing; and

(e) for proposed golf courses, the proponent submits a Best Management Practices report to the satisfaction of the Area Municipality that outlines measures to minimize irrigation, fertilizer and pesticide use requirements through use of Integrated Pest Management, promotes native and naturalized vegetation and minimizes active use areas.

Rural Institutional Uses

6.D.2 Area Municipalities may permit the establishment or expansion of a *rural institutional use* by amendment to their official plan and/or zoning by-law, provided that the proposed use:

(a) has a demonstrated need to locate within the Rural Areas designation; and

(b) will be in conformity with Policy 6.D.1 (a) to (d).

6.E Lot Creation and Lot Adjustment Policies

6.E.1 *Development applications* to create a new residential lot within the Prime Agricultural Area or Rural Areas designations, or which would otherwise result in the creation of a new residential lot, will not be permitted except in the following circumstances:

(a) to create a lot for a second residence designated under the Heritage Act that would become surplus to the farm operation as a result of a proposed consolidation of the farm, subject to Policy 6.E.8; and

(b) within the Rural Areas designation, to create new infill lots for residential purposes within an existing grouping of rural residential lots that has not been designated in an Area Municipal official plan as a Rural Settlement Area, subject to Policy 6.E.10.

6.E.2 *Development applications* to create new non-residential lots within the Prime Agricultural Area or Rural Areas designations may be permitted only in the following circumstances:

(a) within both the Prime Agricultural Area and Rural Areas designations, to create new farm parcels, or reconfigure existing farm parcels where lands are severed from one farm parcel and conveyed as a lot addition to an adjoining farm and held in one ownership in accordance with Policy 6.E.3;

(b) within both the Prime Agricultural Area and Rural Areas designations, to sever lands for *agriculture-related uses* in accordance with Policies 6.E.4 and 6.E.7;

(c) within both the Prime Agricultural Area and Rural Areas designation, to facilitate conveyances to public bodies or non-profit entities for the conservation of *environmental features* or elements of the Greenlands Network, in accordance with Policy 6.E.9; and

(d) within the Rural Areas designation, to create lots for *recreational and tourism uses* and *rural institutional uses,* in accordance with Policies 6.E.4, 6.E.11 and 6.E.13.

Farm Lot Severances

6.E.3 *Development applications* to create a new farm parcel, or reconfigure existing farm parcels where lands are severed from one farm parcel and conveyed as a lot addition to an adjoining farm and held in one ownership, will comply with the following:

(a) the minimum lot area for both the newly created and retained farm parcels will be 40 hectares each; or

(b) where the newly created or retained farm parcels would have lot areas less than 40 hectares, the owner/applicant will be required to provide information satisfactory to the Region, which demonstrates that the resulting farm parcels will:

i) be of a size appropriate for the type of *agricultural uses* common in the area; and

ii) be sufficiently large enough to sustain an economically viable farm operation and to maintain flexibility for future changes in the type or size of agricultural operations.

6.E.4 *Development applications* to sever lands from an existing farm parcel for an *agriculture-related use*, *recreational and tourism use*, *rural institutional use*, or for the purposes of conserving *environmental features* or elements of the Greenlands Network as provided for in this Plan, will be in conformity with all applicable policies in this Plan and the following:

(a) the minimum lot area for the retained farm parcel will be 40 hectares; or

(b) where the retained farm parcel would have a lot area less than 40 hectares, the owner/applicant will be required to provide information satisfactory to the Region, which demonstrates that the resulting farm parcel will:

i) be of a size appropriate for the type of *agricultural uses* common in the area; and

ii) be sufficiently large enough to sustain an economically viable farm operation, and to maintain flexibility for future changes in the type or size of agricultural operations.

6.E.5 The Region may consult with the *Province*, or other professionals knowledgeable in farm economics and management, at the owner's/applicant's expense, to evaluate the farm severance for conformity with the provisions of Policies 6.E.3 and 6.E.4.

6.E.6 This Plan recognizes that there are many existing farm parcels within the Prime Agricultural Area and Rural Areas designations that are less than 40 hectares

in area. These undersized parcels are considered as *agricultural uses* except where otherwise provided for in this Plan.

Severance of Agriculture-Related Uses

6.E.7 *Development applications* to sever lands for *agriculture-related uses* may be permitted, provided that:

(a) the severed lands will be limited to a minimum size needed to accommodate the use of private wells and individual wastewater treatment systems;

(b) the severance will not result in an undersized farm that may not be economically viable, as determined in accordance with Policy 6.E.4; and

(c) the consent to sever will not receive final approval until the buildings or structures associated with the use have been constructed or substantially completed.

Severances for Surplus Dwellings Designated Under the Heritage Act

6.E.8 Where two or more farm parcels are to be merged in title into one ownership, with each lot having one dwelling, a new lot may be created for the dwelling surplus to the needs of the merged farm provided that:

(a) the surplus dwelling is designated by the Area Municipality as a heritage property under the Heritage Act; and

(b) the new lot has a maximum area of one hectare, except where natural features or existing lot patterns justify the inclusion of additional lands.

Severances for Woodlands/Conservation Lands

6.E.9 Conveyance of lands specifically for the purpose of conserving *environmental features* or elements of the Greenlands Network may be permitted only where such lands are both designated and zoned in the Area Municipal official plan and zoning by-law to prohibit any use not related to conservation, and are covered by a conservation easement granted in favour of the Region, Area Municipality or other conservation organizations acceptable to the Region. The creation of such lots will not be permitted where the configuration of the remnant parcels will create the potential for new *non-farm lots*.

Severances for Residential Infilling – Rural Areas Only

6.E.10 Within the Rural Areas designation, Area Municipalities may permit the creation of new lots for residential infill purposes within an existing grouping of rural residential lots that has not been designated as a Rural Settlement Area within the Area Municipal official plan, provided that:

(a) the existing grouping of lots accommodating the proposed infilling lot(s) presently consists of a grouping of four or more *non-farm lots*, with each such unit or lot separated from each other by no more than 100 metres on the same side of an open public road;

(b) the measurement of the 100 metre separation distance is determined in accordance with the *rural residential infilling formulae*;

(c) the new lot has a maximum area of one hectare, except where natural features or existing lot patterns justify inclusion of additional lands;

(d) the new lot is not located within a Source Water Protection Area where individual wastewater treatment systems are identified as a prohibited use in accordance with the policies in Chapter 8; and

(e) the new lot can be appropriately serviced by private wells and individual wastewater treatment systems.

Severances for Recreational and Tourism Uses – Rural Areas Only

6.E.11 Within the Rural Areas designation, *development applications* to sever new lots for *recreational and tourism uses* established in accordance with Policy 6.D.1 may be permitted, provided that:

(a) the new lot will be limited to a minimum size needed to accommodate the use;

(b) the severance will not result in an undersized farm that may not be commercially viable, as determined in accordance with Policy 6.E.4;

(c) the lands to be severed have been designated and zoned in the Area Municipal official plan and zoning by-law to permit only the proposed use; and

(d) the new lot can be appropriately serviced by private wells and individual wastewater treatment systems.

6.E.12 Within the Rural Areas designation, *development applications* to expand the lot areas of *existing recreational and tourism uses* may be permitted, provided that:

(a) the *existing use* is not a legal non-conforming use;

(b) there is a demonstrated need for the additional land area;

(c) the use minimizes the amount of land that is removed from agricultural production;

(d) the expansion does not adversely affect the ability of surrounding agricultural operations to carry out *normal farm practices*; and

(e) the severance will not result in an undersized farm that may not be commercially viable, as determined in accordance with Policy 6.E.4.

Severances for Rural Institutional Uses

6.E.13 Within the Rural Areas designation, d*evelopment applications* to sever new lots for *rural institutional uses* established in accordance with Policy 6.D.2 may be permitted, provided that:

(a) the new lot will be limited to a minimum size needed to accommodate the use;

(b) the severance will not result in an undersized farm that may not be commercially viable, as determined in accordance with Policy 6.E.4;

(c) the severed lands have been designated and zoned in the Area Municipal official plan and zoning by-law to permit only the proposed use; and

(d) the new lot can be appropriately serviced by private wells and individual wastewater treatment systems.

6.E.14 Within the Prime Agricultural Area or Rural Areas designations, d*evelopment applications* to expand the lot areas of *existing rural institutional uses* may be permitted, provided that:

(a) the *existing use* is not a legal non-conforming use;

(b) there is a demonstrated need for the additional land area;

(c) the use minimizes the amount of land removed from agricultural

production;

(d) the expansion does not adversely affect the ability of surrounding agricultural operations to carry out *normal farm practices*; and

(e) the severance will not result in an undersized farm that may not be commercially viable, as determined in accordance with Policy 6.E.4.

Severances for Rural Residential Lots - Beverly Area (Township of North Dumfries)

6.E.15 Where a consent application has been submitted for a new rural residential lot within the Beverly Northern and Southern Areas of the Township of North Dumfries (designated as shown on Map 6 of the Regional Official Policies Plan,1995) prior to the date of approval of this Plan by the *Province*, such application, together with any associated existing or future zone change applications required to permit consideration of the new rural residential lot, will be continued and/or processed, and finally disposed of in accordance with all applicable policies of the Regional Official Policies Plan as it read on the day before the approval of this Plan.

Minor Lot Boundary Adjustments

6.E.16 Notwithstanding the provisions of Policies 6.E.1 and 6.E.2, a new farm or new lot will not be deemed to have been created where consent to sever is given for the following purposes:

(a) minor adjustments to lots so as to permit conformity with existing patterns of exclusive use and occupancy, or to rectify problems created by the encroachment of buildings, structures, private wells or individual wastewater treatment systems on abutting lots, provided that such adjustments do not result in the creation of any additional lot held, or capable of being held, in distinct and separate ownership pursuant to the Planning Act;

(b) minor adjustments to the boundaries of two adjoining *non-farm lots* recognized by the Area Municipal zoning by-law, provided that such adjustments do not result in the creation of any additional lot held, or capable of being held, in distinct and separate ownership pursuant to the Planning Act;

(c) minor adjustment to the boundaries between an adjoining farm and a *non-farm lot* that does not decrease the size of the farming operation;

(d) acquisitions of land for *infrastructure*, where the need for the project has been demonstrated through an *Environmental Assessment* or other appropriate study and the facility or corridor cannot be accommodated through the use of easements or rights-of-way;

(e) addressing legal or technical matters such as easements, rights-of-way, corrections of deeds, and quit claims that do not result in the creation of a separate lot, except where such easements or rights-of-way are intended to facilitate the construction of new buildings or structures on a vacant lot of record otherwise undevelopable due to a lack of frontage onto a public road. Consents for such easements will be considered an application to create a new lot and will be subject to the provisions set out in Policies 6.E.1 or 6.E.2 as applicable; or

(f) severing from each other two or more rural lots that have unintentionally merged in title, provided the severances reflect the original lot lines.

6.F Rural Mixed-Use/Agricultural Clusters

6.F.1 In order to preserve and support the historic social, economic and cultural needs of a unique segment of the region's existing rural community, which relies on horse-drawn vehicles as their primary means of transportation, the Township of Wellesley may designate a limited number of sites in its official plan to permit the development of Rural Mixed-Use/Agricultural Clusters. Rural Mixed-Use/Agricultural Clusters consist of lots on which a combination of compatible residential, industrial/commercial and limited, non-commercial farming uses are permitted. In addition, Rural Mixed-Use/Agricultural Clusters may also contain lots for small-scale schools, places of worship and associated cemeteries, as required to support this segment of the rural community.

6.F.2 Any Area Municipal official plan amendment to designate a Rural Mixed-Use/Agricultural Cluster will:

(a) not be adopted until the Area Municipality has completed a planning justification report addressing the need for this type of development;

(b) assess the suitability of the site proposed in comparison to reasonable alternatives available in the Area Municipality, including consideration of minimizing impacts on agricultural areas and operations by locating on lands of poorer soil capability, or where fragmented or smaller lots and/or a mix of *non-farm lots* uses may already exist;

(c) establish a minimum and maximum number of lots to be permitted in each Rural Mixed-Use/Agricultural Cluster, based on Policy 6.F.2 (d) to (i), and

the size and configuration of the selected site;

(d) permit additional lots within the Rural Mixed-Use/Agricultural Cluster for small-scale schools, places of worship and associated cemeteries as required to support the segment of the rural community which relies on horse-drawn vehicles as their primary means of transportation;

(e) propose lot sizes of approximately two hectares, except where studies submitted in accordance with Policy 6.F.2 (f) ii) have indicated additional lands are required to provide for wastewater and manure disposal in accordance with the requirements of the Nutrient Management Act, 2002, where appropriate, but lots will generally not be permitted to exceed four hectares in size; Mod. No. 23

(f) be accompanied by detailed servicing studies to determine:

i) the suitability of the lots for servicing by private wells; and

ii) the suitability of the lots for servicing by individual wastewater treatment systems, and for disposal of manure in accordance with the requirements of the Nutrient Management Act, 2002, where appropriate that could reasonably be anticipated to be generated by the limited, non-commercial farming uses; Mod. No. 23

(g) be accompanied by studies as required to address the impact of the establishment of the Rural Mixed-Use/Agricultural Cluster on the Greenlands Network in accordance with the policies in Chapter 7;

(h) propose appropriate separation of new Rural Mixed-Use/Agricultural Clusters from each other and from Rural Settlement Areas and Rural Employment Areas, and from Township Urban Areas as required to minimize conflicts; and

(i) be in conformity with the *minimum distance separation formulae* between Rural Mixed-Use/Agricultural Clusters and adjacent *agricultural uses*.

6.G Countryside Settlements

6.G.1 Rural Settlement Areas refer to existing smaller settlements, such as villages and hamlets, that generally comprise a limited mix of residential, commercial and institutional uses primarily serving the local community. These rural communities provide opportunities for living and working in the countryside, and also play a key role in the economic health and vitality of the townships. Rural

Settlement Areas are not identified within this Plan, but will be designated and zoned in Area Municipal official plans and zoning by-laws.

6.G.2 Rural Employment Areas refer to existing clusters of small-scale, industrial and associated commercial and ancillary uses. The primary function of Rural Employment Areas is to provide rural employment opportunities compatible with the surrounding countryside. Residential development will not be permitted within these areas. Rural Employment Areas are not identified in this Plan, but will be designated and zoned in Area Municipal official plans and zoning by-laws.

6.G.3 Where lands located within a Rural Employment Area are currently designated and zoned to permit commercial uses within an Area Municipal official plan and zoning by-law, as of the date of the adoption of this Plan by Regional Council, *development* in conformity with such designations and zoning will continue to be permitted.

6.G.4 Where an existing lot is partly within a Rural Settlement Area or Rural Employment Area, the part of the lot located outside the Rural Settlement Area or Rural Employment Area will be designated and zoned in the Area Municipal official plan and zoning by-law in accordance with the policies in this Chapter. Consent applications to sever the lot along the boundary of the Rural Settlement Area or Rural Employment Area, so as to create a new *non-farm lot* outside the Rural Settlement Area or Rural Employment Area, will not be permitted.

6.G.5 Area Municipal official plans will delineate Rural Settlement Area and Rural Employment Area boundaries in a definitive manner.

6.G.6 Within Rural Settlement Areas and Rural Employment Areas, *development applications* may be approved provided that any new lots can be appropriately serviced by private wells and individual wastewater treatment systems.

6.G.7 The expansion of existing Rural Settlement Areas or Rural Employment Areas will not be permitted, except as provided for in Policies 6.B.4, 6.G.8 or 7.B.24.

6.G.8 Area Municipalities, in collaboration with the Region, may give consideration to permitting a minor expansion to a Rural Settlement Area or Rural Employment Area to accommodate the future employment, recreational or institutional needs of the Township. Any such expansions will require an amendment to the Area Municipal official plan and will only be considered as part of the *municipal comprehensive review* of the Area Municipal official plan where:

(a) sufficient opportunities to accommodate the proposed employment, recreational or institutional use within existing Township Urban Areas, Rural Settlements or Rural Employment Areas are not available;

(b) the site is zoned for the specific use;

(c) within the Prime Agricultural Area designation:

i) the land does not comprise a *specialty crop area*;

ii) there are no reasonable alternatives that avoid the Prime Agricultural Area; and

iii) there are no reasonable alternatives on lower priority agricultural lands in the Prime Agricultural Area;

(d) the potential impacts on any surrounding agricultural operations are mitigated to the extent possible; and

(e) the minor expansion complies with all other applicable policies in this Plan.

6.G.9 The Townships of North Dumfries, Wellesley, Wilmot and Woolwich may rationalize the boundaries of their respective Rural Settlement Areas, including the deletion of areas from one Rural Settlement Area designation and the addition of areas to another Rural Settlement Area designation, provided that the boundary rationalization:

(a) only occurs at the time the Area Municipal official plan is first brought into conformity with this Plan;

(b) takes into consideration existing property configurations, patterns of existing land use, natural and constructed features, and will not extend or promote strip development;

(c) does not result in a net increase in developable land area;

(d) re-designates the area being deleted from the Rural Settlement Area as Prime Agricultural Area or Rural Areas, as appropriate, in the Area Municipal official plan;

(e) does not result in an expansion of a Rural Settlement Area within the Protected Countryside; and

(f) is minor and is in conformity with all other applicable policies in this Plan.

6.G.10 The designation of new Rural Settlement Areas or Rural Employment Areas will not be permitted.

~~**6.H Countryside/Future Urban Expansion Area**~~

Mod. No. 24

~~6.H.1 The Countryside/Future Urban Expansion Area is designated as shown on Map 7. This area identifies the lands located between the Countryside Line and the boundaries of the Urban Area and Township Urban Areas. The lands included within this area do not represent an urban designation, and are not required to accommodate growth in the region within the planning horizon of this Plan. The Countryside/Future Urban Expansion Area is intended to identify the direction for future urban expansions consistent with the Regional Growth Management Strategy, and to facilitate strategic land use and *infrastructure* planning for the area.~~

~~6.H.2 Lands identified as Countryside/Future Urban Expansion Area will continue to be subject to the Prime Agricultural Area and Rural Areas policies in this Plan, except where a *development application* is submitted to expand or intensify an *existing* employment use. In such situations, an Area Municipality may consider approving the *development application* without amendment to this Plan only where:~~

~~(a) there is a demonstrated need to expand or intensify the use;~~

~~(b) the use minimizes the amount of land removed from agricultural production;~~

~~(c) the land use mitigates any potential land use conflicts with adjacent farms and other land uses;~~

~~(d) the proposed land use will not compromise comprehensive planning for the future development of a *complete community* within the lands designated as Countryside/Future Urban Expansion Area; and~~

~~(e) the use is in conformity with all other applicable policies in this Plan.~~

7. The Greenlands Network

The Greenlands Network is defined as *environmental features* and the *linkages* among them. The Greenlands Network, and the *ecological functions* it provides, contributes to maintaining the environmental health of Waterloo Region and the Grand River watershed. This Plan contains policies to maintain, enhance or, wherever feasible, restore the Greenlands Network. Such action is necessary to counteract the negative effects of fragmentation which can result in a loss of ecological integrity and the degradation of natural *biodiversity*. Such action is also necessary to maintain biological and geological diversity, viable populations of native species and ecosystems, and make possible adaptation in response to actual or expected effects of climate change.

This Plan recognizes the importance of *wetlands*, watercourses, lakes and groundwater to the strength of the Greenland Network. These hydrological features and their associated functions provide a variety of environmental benefits and are fundamental components of the overall ecosystem.

Mod. No. 25

Responsibility for the environment is shared among Federal and Provincial governments, the Region, Area Municipalities, the Grand River Conservation Authority and private landowners. All have an important role in enhancing the natural environment within the region, and all have the responsibility to be good stewards. As a result, establishing a Greenlands Network requires co-operation among agencies, private landholders and the wider community.

This Chapter establishes a policy framework for a co-operative approach to the identification of the *environmental features* that comprise the Greenlands Network. It also outlines how provincially and regionally ~~significant~~ *significant* features (termed Core Environmental Features) will be maintained, enhanced or, wherever feasible, restored. The policies in this Chapter also provide direction on how other *environmental features* (termed Supporting Environmental Features) will be maintained, enhanced or, wherever feasible, restored and encourages the establishment of *linkages* among elements of the Greenlands Network

Mod. No. 26

The Greenlands Network is a layered approach to environmental protection comprised of Landscape Level Systems, Core Environmental Features and Supporting Environmental Features. Each layer contains policies that provide appropriate protection to areas of environmental significance. Landscape Level Systems are recognized within the Greenlands Network as macro-scale *environmental features* or as concentrations of high quality Core and Supporting Environmental Features. Policies relating to Landscape Level Systems focus on protecting and enhancing the ecological integrity and functions of these landscapes.

Core Environmental Features form key habitat for native flora and fauna and represent the most significant elements of the regional landscape in terms of maintaining

biodiversity and important *ecological functions*. Supporting Environmental Features play an important role in maintaining elements of the Greenlands Network not meeting the criteria for recognition as being regionally *significant*. *Linkages* between Core and Supporting Environmental Features permit the movement of native flora and fauna and help to maintain, enhance or restore the *ecological function* of the Greenlands Network.

Overall Goal – Work with the *Province*, Area Municipalities, the Grand River Conservation Authority and private landowners to maintain, enhance and restore a comprehensive Greenlands Network within the region.

Objectives:

7.1 ~~Maintain, enhance or, wherever feasible, restore landscape level *linkages* among *environmental features*.~~

Maintain, enhance or wherever feasible restore environmental features and the ecological and hydrological functions of the Greenlands Network including the Grand River and its tributaries and the landscape level linkages among environmental features.

Mod. No. 27

7.2 Use *watershed studies*, community plans and *development applications* as opportunities not merely to maintain, but also to enhance and restore the Greenlands Network.

7.3 Regulate *development* within *hazardous lands* and *hazardous sites* to prevent or minimize hazards to life and property.

7.4 Develop partnerships, programs and policies to maintain, enhance and restore the *ecological functions* of the Greenlands Network, including the Grand River and its tributaries.

7.5 Increase forest cover in appropriate locations to achieve an overall target of 30 per cent or more of the region's total land area.

7.6 Promote informed stewardship of the Greenlands Network.

7.A The Greenlands Network

7.A.1 The Greenlands Network comprises Landscape Level Systems, Core Environmental Features, Fish Habitat, Supporting Environmental Features and the *linkages* among these elements, and lands designated within the Provincial Greenbelt Plan as Natural Heritage System.

Mod. No. 28

7.A.2 Area Municipalities will designate and zone Landscape Level Systems and Core Environmental Features in their official plans and zoning by-laws

respectively to regulate the use of land within these areas in conformity with the policies in Sections 7.B and 7.C.

7.A.3 Area Municipalities are encouraged to identify and designate Supporting Environmental Features and *linkages*, and establish associated policies for these areas in their official plans in accordance with the policies in Section 7.E.

7.A.4 The Region will prepare and update a Regional Greenlands Network Implementation Guideline to guide the implementation of the policies in this Chapter.

7.A.5 The Region will develop and maintain a Technical Appendix for Landscape Level Systems and Core Environmental Features that provide additional technical information and more precise mapping relating to each element.

7.A.6 Interpretation of the boundaries of Landscape Level Systems and Core Environmental Features, as required to support the review of *development applications*, will be achieved through the completion of *Environmental Impact Statements* or other appropriate studies in accordance with the policies in Section 7.G.

7.A.7 Boundary interpretations not consistent with the Technical Appendix for Landscape Level Systems and Core Environmental Features must be approved by Regional Council, in consultation with the *Province*, Area Municipalities, the Grand River Conservation Authority and other stakeholders.

7.A.8 Boundary interpretations not generally in conformity with the Greenlands Network as shown on Map 4 will require an amendment to this Plan.

7.A.9 ~~On lands where elements of the Greenlands Network have not been adequately identified through a *watershed study* or similar process, *development* or *site alteration* will be prohibited until such time as a Greenlands Network Inventory has been prepared by an owner/applicant in consultation with the *Province*, Region, affected Area Municipalities and the Grand River Conservation Authority, to identify any such elements located on the subject lands and, wherever appropriate, *contiguous* lands. Where a Greenlands Network Inventory identifies such elements, the submission of an *Environmental Impact Statement* or other appropriate study may be required in accordance with the policies in Section 7.G.~~

Mod. No. 29

On lands where elements of the Greenland Network have not been adequately identified and evaluated through a *watershed study* or any other appropriate natural heritage review, *development* or *site alteration* will be prohibited until such time as an Environmental Impact Statement has been prepared by an

owner/applicant in accordance with the policies in Section 7.G. to identify and evaluate any such elements located on the subject lands and, wherever appropriate, *contiguous* lands.

7.A.10 Where lands have been identified by the *Province,* or through a *watershed study* or other appropriate field studies as fulfilling the criteria to be designated as a Core Environmental Feature, an amendment to this Plan will be considered to designate such lands as part of the Greenlands Network. Prior to the approval of the amendment, any *development* or *site alteration* proposed within or *contiguous* to the feature will be considered premature by the Region and affected Area Municipality, or will proceed on the basis that the lands identified as meeting the criteria as a Core Environmental Feature are protected as though they were a Core Environmental Feature in accordance with the policies in this Plan.

7.A.11 Where lands are designated as two or more elements of the Greenlands Network as shown on Map 4, the more restrictive policies pertaining to those elements will apply in the event of any conflict.

7.A.12 Illegal acts resulting, or having resulted, in a reduction in the form or function of an *environmental feature* within the Greenlands Network, including but not limited to such acts as tree removal, wetland filling or draining, or the diverting of watercourses, will not be recognized as existing conditions within the *development* review process. Restoration of the damaged area may be required prior to, or as a condition of, approval of any *development applications*.

7.A.13 Elements of the Greenlands Network that are privately owned are not for use by the public, except at the discretion of the owner.

Ecological and Environmental Advisory Committee

7.A.14 Regional Council will maintain an Ecological and Environmental Advisory Committee to advise the Region in the review of *development applications*, policy proposals and other matters, in accordance with terms of reference adopted and periodically reviewed by Regional Council.

7.B Landscape Level Systems

7.B.1 Landscape Level Systems are recognized within the Greenlands Network as large-scale *environmental features* or as significant concentrations of *environmental features*. Landscape Level Systems are designated as shown on Map 4 and comprise:

(a) Environmentally Sensitive Landscapes;

(b) Significant Valleys;

(c) Regional Recharge Areas; and

(d) Provincial Greenbelt Natural Heritage System.

7.B.2 The designation of lands as Landscape Level Systems will not affect *agricultural uses* and associated *normal farm practices* as defined in applicable Provincial legislation and regulations in conformity with approved Area Municipal official plans and zoning by-laws, and statutes, policies and regulations of other government agencies, including agricultural drainage through municipal or agreement drains.

7.B.3 The Region will maintain, enhance or, wherever feasible, restore the scenic qualities of Regional Roads within Landscape Level Systems and Area Municipalities are encouraged to do the same for Area Municipal roads.

Environmentally Sensitive Landscapes

7.B.4 Environmentally Sensitive Landscapes are designated as shown on Map 4.

7.B.5 To qualify for designation as an Environmentally Sensitive Landscape, an area will:

(a) fulfill all of the following:

i) be a geographically and ecologically definable landscape;

ii) contain natural features that are *contiguous*, linked or sufficiently close to allow for movement of flora or fauna through the area;

iii) not be bisected by major highways; and

iv) be located primarily outside areas designated for fully serviced urban development and/or established Rural Settlement Areas; and

(b) contain any two of the following designated natural features:

i) Significant Habitat of Endangered or Threatened Species;

ii) Environmentally Sensitive Policy Area;

iii) Provincially Significant Wetland;

iv) Regionally ~~significant~~ *significant* Earth Science *Area of Natural and Scientific Interest*;

Mod. No. 30

v) Significant Valleys; or

vi) Significant Woodlands; and

(c) contain any two of the following associated natural features:

i) rivers, major stream valleys, *floodplains* and associated *hazard lands*;

ii) *woodlands* greater than four hectares in extent;

iii) forest interior habitat;

iv) other *wetlands*;

v) significant landforms such as moraines, kettle lakes, kames, eskers and drumlins;

vi) *significant* wildlife habitat such as: winter habitat for deer or wild turkeys; colonial bird nesting areas; raptor roosting, feeding and nesting areas; hibernaculae or herpetofauna breeding areas; and significant migratory stop over areas; or

vii) specialized habitats such as but not limited to: savannas; tallgrass prairies; rare *woodland* types; cliffs; alvars; sand barrens; marl seeps; bogs; and fens; and

(d) sustain any two of the following *ecological functions:*

i) provide significant groundwater storage, recharge or discharge;

ii) sustain a fishery resource;

iii) provide diverse natural habitats;

iv) provide habitat for provincially or regionally *significant* species; or

v) serve as a *linkage*.

Environmentally Sensitive Landscape Policies

7.B.6 Expansions to the Urban Area, Township Urban Areas, lands designated to permit urban and recreational development within the Blair Village Special District as designated in the City of Cambridge Official Plan, Rural Settlement Areas and Rural Employment Areas as identified in Area Municipal official plans are not permitted within or into Environmentally Sensitive Landscapes.

7.B.7 *Development* may be considered inside Rural Settlement Areas and Rural Employment Areas located within Environmentally Sensitive Landscapes, and lands designated to permit urban and recreational development within the Blair Village Special District as designated in the Cambridge Official Plan, subject to the other policies of this Plan, Area Municipal official plans and the policies and regulations of other government agencies.

7.B.8 The creation of new lots for *non-farm-related residential units* within Environmentally Sensitive Landscapes is only permitted within Rural Settlement Areas and on lands designated to permit urban development within the Blair Village Special District as designated in the Cambridge Official Plan.

7.B.9 Within the Environmentally Sensitive Landscapes designation, *development applications* submitted in accordance with the policies in Chapter 6 to:

(a) establish or expand *recreational and tourism uses* or *rural institutional uses*;

(b) create a new lot, or permit a lot addition, for a *recreational and tourism use* or *rural institutional use;*

(c) permit the minor intensification of *existing* industrial, commercial, recreational and/or institutional uses, including minor changes in the uses thereof;

(d) permit new *agriculture-related uses* or *secondary uses;*

may be considered for approval subject to the following additional criteria:

i) there will be no *adverse environmental impacts* on *environmental features* and *ecological functions*, enhancement/restoration areas, existing corridors and *linkages*, watercourses, or the quality and quantity of groundwater within or *contiguous* to the Environmentally Sensitive Landscape resulting directly from the proposed *development* or through increases in traffic or development of required servicing *infrastructure*;

ii) disturbance of existing natural vegetation will be minimized;

iii) the *development* will be buffered from existing natural features by an appropriate width of natural vegetation, and will otherwise facilitate the enhancement or restoration of new areas and/or corridors and *linkages*; and

iv) all natural landscape features, required buffer strips, and enhancement or restoration areas on the subject property are given appropriate zoning in the zoning by-law of the respective Area Municipality and/or protected through a Conservation Easement acceptable to the Region.

7.B.10 The following land uses will not be permitted within Environmentally Sensitive Landscapes outside Rural Settlement Areas and outside lands designated to permit urban and recreational development within the Blair Village Special District as designated within the City of Cambridge Official Plan:

(a) abattoir and rendering plants;

(b) amusement, theme or water parks;

(c) bus yards;

(d) cemeteries, crematoria, or mausoleums;

(e) commercial manure composting of off-site material;

(f) commercial motor vehicle repair, sales, service and storage;

(g) commercial thermal waste treatment (incineration);

(h) commercial water extraction;

(n) hospitals;

(o) illuminated play fields;

(p) metal painting and fabricating;

(q) motorized vehicle tracks or competition sites;

(r) paintball facilities;

(s) portable toilet suppliers;

(t) private or public schools;

(u) private social clubs;

(i) contractor's yards;

(j) fairgrounds or stadiums;

(k) farm implement dealerships;

(l) golf courses, driving ranges or mini-putt courses;

(m) horse race tracks or casinos;

(v) resorts or conference centres;

(w) retailing/wholesaling of chemicals and/or fuels;

(x) shooting ranges;

(y) sod farming;

(z) trailer parks; and

(zi) wood treatment (including mulch processing).

7.B.11 The Region, in collaboration with willing landowners, Area Municipal and other agency staff, and other relevant organizations, will prepare a Regional Environmentally Sensitive Landscape Implementation Guideline for each Environmentally Sensitive Landscape. The Guideline will identify opportunities to enhance *environmental features*, landscape connectivity and the scenic value of roads within the Environmentally Sensitive Landscape, as well as landscape stewardship programs such as technical assistance or financial incentives that will assist in maintaining and/or enhancing the Environmentally Sensitive Landscape. The Guideline will not be used to introduce new policy which would restrict existing and future use of lands within Environmentally Sensitive Landscapes, and will be adopted by Regional Council following the public participation and notification requirements for Regional Implementation Guidelines outlined in the policies in Chapter 10.

7.B.12 Where *development* or *site alteration* is proposed on lands within or *contiguous* to an Environmentally Sensitive Landscape, the owner/applicant will be required to submit an *Environmental Impact Statement* which addresses landscape impacts in addition to any other requirements in accordance with the policies in Section 7.G.

7.B.13 Where review of an *Environmental Impact Statement* required in accordance with Policy 7.B.12 has demonstrated to the Region that the proposed *development* or *site alteration* would have no *adverse environmental impact* upon the *environmental features* and *ecological functions* of the Environmentally Sensitive Landscape, the Region may, subject to appropriate conditions, approve or recommend approval of the application.

7.B.14 Where review of an *Environmental Impact Statement* required in accordance with Policy 7.B.12 has demonstrated to the Region that a proposed *development* or *site alteration* may have an *adverse environmental impact* upon *environmental features*, or the *ecological functions* of the Environmentally Sensitive Landscape, the Region will refuse, or recommend refusal of, the application.

7.B.15 Where construction of a road on a new right-of-way, widening or upgrading of an existing roadway, construction or upgrading of a trunk sewer, trunk watermain, gas pipeline or electrical transmission line, wastewater treatment facility, waste management facility or groundwater taking project is proposed within or *contiguous* to an Environmentally Sensitive Landscape, the submission of an *Environmental Impact Statement*, or other appropriate study, in accordance with the policies in Section 7.G, which evaluates landscape level impacts, will be required.

7.B.16 Where review of a study completed in accordance with Policy 7.B.15 demonstrates to the satisfaction of the Region that the construction of the *infrastructure* project will:

(a) result in localized and/or reversible impacts to the *environmental features* and *ecological functions* of the Environmentally Sensitive Landscape, and that other alternatives are reasonably less feasible from a technical, environmental and/or financial perspective, the Region and Area Municipalities will, without amendment to this Plan:

i) require that appropriate mitigation measures be implemented; and

ii) approve the undertaking; or

iii) support the undertaking in comments, submissions or recommendations; or

(b) result in widespread *adverse environmental impacts* to the *environmental features* and *ecological functions* of the Environmentally Sensitive Landscape or result in long-term damage to its significant features and functions, and that other technically and financially feasible alternatives exist that would have less negative impact on the Environmentally Sensitive Landscape, the Region and Area Municipalities will:

i) not approve the undertaking; or

ii) not support the undertaking in comments, submissions or recommendations; or

(c) result in widespread *adverse environmental impacts* to the *environmental features* and *ecological functions* of the Environmentally Sensitive Landscape, or result in long-term damage to its significant features and functions, but that there is a clearly demonstrated need for the undertaking, and that all other alternatives to the recommended undertaking are substantially less reasonably feasible from a technical, environmental, and/or financial perspective, the Region and Area Municipalities will, without amendment to this Plan:

i) require that appropriate mitigation measures be implemented to reduce the impact of the undertaking to greatest extent feasible; and

ii) approve the undertaking; or

iii) support the undertaking in comments, submissions or recommendations.

7.B.17 Nothing in this Plan shall prevent the owner of a legal lot of record in an Environmentally Sensitive Landscape from obtaining a building permit to construct or enlarge a house, accessory building or farm structure, provided it is in conformity with all other Regional, Area Municipal and Grand River Conservation Authority policies and regulations.

7.B.18 The designation of an Environmentally Sensitive Landscape will not affect existing aggregate extraction and processing operations licensed under the Aggregate Resources Act.

7.B.19 Field studies will be conducted from time to time to determine whether Environmentally Sensitive Landscapes still fulfill criteria necessary for designation. The Regional Environmentally Sensitive Landscapes Implementation Guideline will be revised by resolution of Regional Council to reflect the results of these field investigations.

Significant Valleys

7.B.20 Significant Valleys are designated as shown on Map 4. This designation identifies valleys of the Grand River, Conestogo River, Nith River and Speed River, which are together nationally recognized as a Canadian Heritage River. Significant Valleys comprise the entire river channel within the region and run up to the point where the slope of the valley begins to grade into the surrounding upland.

7.B.21 To complement the Canadian Heritage River status of the Grand River, the Region and Area Municipalities, in collaboration with the Grand River

Conservation Authority, will seek to maintain the character of Significant Valleys by identifying, conserving, interpreting and enhancing *cultural heritage resources* of recreational and scenic value within Significant Valleys.

Regional Recharge Areas (Environmental Protection)

7.B.22 Regional Recharge Areas are designated as shown on Maps 4 and 6g. This designation, which includes portions of the Waterloo Moraine, identifies a large *environmental feature* where considerable deposits of sand and gravel allow for the infiltration of large quantities of rainfall and snowmelt deep into the ground. This important *hydrologic function* sustains some of the richest sources of groundwater in the Grand River watershed.

Regional Recharge Areas serve two important functions. From an environmental perspective, groundwater discharge from the shallow aquifers located within Regional Recharge Areas sustains a wide range of aquatic habitats and ecosystems within the Greenlands Network. This groundwater discharge also provides a high percentage of the baseflow to the Grand River, its tributary rivers and cold-water streams and therefore is critical to maintaining the health of the Grand River to the benefit of the region and downstream communities.

The second function of Regional Recharge Areas is to replenish deep underground aquifers that serve as a source for a significant share of the municipal drinking-water supply. Specific polices related to this source water supply function are outlined in the policies in Chapter 8.

7.B.23 Expansions of the Urban Area, Township Urban Areas, Rural Settlement Areas or Rural Employment Areas will not be permitted onto lands designated as Regional Recharge Areas, except as provided for in Policy 7.B.24.

7.B.24 Minor expansions of Rural Settlement Areas located within Regional Recharge Areas may be permitted to facilitate the enlargement of an *existing* employment, recreational or institutional use subject to the provisions of Policies 6.G.8 and 7.B.25. Such expansions will not be permitted where the lands subject to the expansion proposal are also designated as Environmentally Sensitive Landscape.

7.B.25 *Development applications* within Regional Recharge Areas on lands already designated for urban development in this Plan, will comply with the following:

(a) Category ‘A’ uses, or an employment land use restricted by Policy 8.A.5, will not be permitted;

(b) the *development* maintains, improves or restores the hydrogeologic and *hydrologic functions* of Regional Recharge Areas as established through *watershed studies*, community plans or through further study in accordance with Policy 8.A.4;

(c) the *development* incorporates best management practices, where appropriate, developed in accordance with the provisions of the Regional Implementation Guideline for Source Water Protection Studies; and

(d) the *development* is in conformity with all other applicable policies of this Plan.

Provincial Greenbelt

7.B.26 The Provincial Greenbelt Plan Natural Heritage System is shown on Map 4. This System identifies significant and/or sensitive natural heritage and water resource features that are part of, and connect to, broader natural heritage systems in southern Ontario. Any *development* within or *contiguous* to this Provincial designation will comply with the policies in this Plan and the Greenbelt Plan. Where there is discrepancy between this Plan and the Greenbelt Plan, the more restrictive policies will apply.

7.C Core Environmental Features

7.C.1 Core Environmental Features are those *environmental features* identified as being provincially ~~significant~~ *significant* or regionally *significant.* These features are the most significant elements of the regional landscape in terms of maintaining, protecting and enhancing *biodiversity* and important *ecological functions*. Core Environmental Features are designated as shown on Map 4. The Core Environmental Features designation applies to lands that meet the criteria as:

Mod. No. 31

(a) Significant Habitat of Endangered or Threatened Species;

(b) Provincially Significant Wetlands;

(c) Environmentally Sensitive Policy Areas;

(d) ~~Regionally~~ Significant Woodlands; or

(e) Environmentally Significant Valley Features.

7.C.2 Core Environmental Features are designated as shown on Map 4 or as identified in accordance with Policies 7.C.3 to 7.C.7.

Significant Habitat of Endangered or Threatened Species

7.C.3 Significant Habitat of Endangered or Threatened Species is ~~identified~~ approved by the *Province* or the Federal government. This habitat is necessary for the maintenance, survival and/or recovery of naturally occurring or reintroduced populations of *endangered or threatened species*, and where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of its life cycle. Mapping of the habitat of these species may not be shown on Map 4 and will not be shown within the Core Environmental Features Technical Appendix in order to protect such species and their habitat. ~~The Region will collaborate with the *Province* during the pre-submission consultation meetings to identify Significant Habitat of Endangered or Threatened Species on lands affected by or *contiguous* to any proposed *development* or *site alteration*.~~ The Region will collaborate with the Province to ensure that Significant Habitat of Endangered or Threatened Species on lands affected by or *contiguous* to any proposed *development* or *site alteration* is properly identified.

Mod. No. 32

Provincially Significant Wetlands

7.C.4 Provincially Significant Wetlands, as identified by the *Province,* will be considered Core Environmental Features for the purposes of this Plan. ~~The Region will collaborate with the *Province* on lands affected by or *contiguous* to any proposed *development* or *site alteration*.~~ The Region will collaborate with the Province to ensure that wetlands on lands affected by or *contiguous* to any proposed *development or site alteration* are properly evaluated and identified as Provincially Significant Wetlands, where appropriate.

Mod. No. 33

Environmentally Sensitive Policy Areas

7.C.5 Environmentally Sensitive Policy Areas are regionally *significant* natural areas that comprise:

(a) Provincially ~~significant~~ *significant* Life Science *Areas of Natural and Scientific Interest*, regionally *significant* Life Science *Areas of Natural and Scientific Interest*, or provincially ~~significant~~ *significant* Earth Science *Areas of Natural and Scientific Interest*; or

Mod. No. 34

(b) At least two of the following criteria:

i) comprise ecological communities deemed unusual, of outstanding quality or particularly representative regionally, provincially or nationally;

ii) contain critical habitats which are uncommon or remnants of once extensive habitats such as old growth forest, forest interior habitat, Carolinian forest, prairie-savanna, alvars, cliffs, bogs, fens, marl meadows, and cold water streams;

iii) provide a large area of natural habitat of at least 20 hectares which affords habitat to species intolerant of human intrusion; or

iv) provide habitat for organisms native to the region recognized as regionally, provincially or nationally *significant*; or

(c) fulfill one of the criteria in Policy 7.C.5(b) and any two of the following:

i) contain an unusual diversity of native life forms due to varied topography, microclimates, soils and/or drainage regimes;

ii) perform a vital *ecological function* such as maintaining the hydrological balance over a widespread area by acting as a natural water storage, discharge or recharge area;

iii) provide a linking system of relatively undisturbed forest or other natural habitat for the movement of wildlife over a considerable distance;

iv) serve as major migratory stop-over or significant over-wintering habitat; or

v) contain landforms deemed unusual or particularly representative at the regional scale.

~~Regionally~~ Significant Woodlands

Mod. No. 35

7.C.6 ~~Regionally~~ Significant Woodlands are areas that meet all of the following criteria:

(a) greater than four hectares in size, excluding any adjoining hedgerows;

(b) consisting primarily of native species of trees; and

(c) meets the criteria of a *woodland* in accordance with the provisions of the Regional Woodland Conservation By-law.

Environmentally Significant Valley Features

7.C.7 Environmentally Significant Valley Features are natural features within a Significant Valley that consist of:

(a) at least one of the following:

i) river channel; or

ii) *Environmentally Significant Discharge Areas* or *Environmentally Significant Recharge Areas*; or

(b) both of the following ecological features:

i) habitat of regionally *significant* species of flora or fauna;

ii) natural area, such as a *woodland* of one to four hectares in extent, *floodplain* meadow or *wetland*, which consists primarily of native species; or;

(c) any one of Policy 7.C.7(b) above plus any one of the following Earth Science features:

i) river terrace;

ii) esker;

iii) cliff or steep slopes;

iv) oxbow;

v) confluence with significant watercourse draining a watershed greater than five square kilometres;

vi) regionally *significant* Earth Science *Area of Natural and Scientific Interest*; or

vii) fossil bed.

Core Environmental Features Policies

7.C.8 *Development* or *site alteration* will not be permitted within Core Environmental Features, except for:

(a) forest, fish or wildlife management and conservation;

(b) flood or erosion control projects demonstrated to be in the public interest and for which no other alternative is feasible; ~~or~~

Mod. No. 36

(c) minor alterations to legal non-conforming land uses within Core Environmental Features;

(d) infrastructure projects in accordance with Policies 7.C.11 and 7.C.12; or

(e) new mineral aggregate operations in accordance with Policy 9.C.6.

Mod. No. 36

Any application for *development* or *site alteration* for the above uses will require the submission of an *Environmental Impact Statement*, to the satisfaction of the Region, to determine the mitigation measures to be implemented, as appropriate, through the *development* review process.

7.C.9 *Development* or *site alteration* will only be permitted on lands *contiguous* to a Core Environmental Feature where an *Environmental Impact Statement*, or similar study, submitted in accordance with the policies in Section 7.G has determined to the satisfaction of the Region, Area Municipalities, the Grand River Conservation Authority and/or the *Province*, as appropriate, that approval of the proposed *development* or *site alteration* would not result in *adverse environmental impacts* on the features and *ecological functions* of the Core Environmental Feature. The Region may require conditions of approval to implement such recommendations.

7.C.10 An *Environmental Impact Statement* submitted in accordance with Policies 7.C.8 or 7.C.9 will identify appropriate buffers to Core Environmental Features, to the satisfaction of the Region, in consultation with Area Municipalities and the Grand River Conservation Authority. Such buffers will not only serve to protect Core Environmental Features from *adverse environmental impacts* but will also provide opportunities for net *habitat enhancement* to enhance or, wherever feasible, restore the *ecological functions* of the Core Environmental Feature. The location, width, composition and use of buffers will be in accordance with the approved *Environmental Impact Statement*, with buffers being a minimum of 10 metres as measured from the outside boundary of the Core Environmental Feature and established and maintained as appropriate self-sustaining native vegetation

7.C.11 Where construction of a road on a new right-of-way, widening or upgrading of an existing roadway, construction or upgrading of a trunk sewer, trunk watermain, gas pipeline or electrical transmission line, wastewater treatment facility, waste management facility or groundwater taking project is proposed within or *contiguous* to a Core Environmental Feature, the submission of an *Environmental Impact Statement*, or other appropriate study, in accordance with the policies in Section 7.G will be required.

7.C.12 Where a study completed in accordance with Policy 7.C.11 demonstrates to the satisfaction of the Region that the construction of the *infrastructure* project will:

(a) result in localized and/or reversible impacts to the features and *ecological functions* of the Core Environmental Feature, and that other alternatives are less feasible from a technical, environmental and/or financial perspective, the Region and Area Municipalities will, without amendment to this Plan;

i) require that appropriate mitigation measures be implemented; and

ii) approve the undertaking; or

iii) support the undertaking in comments, submissions or recommendations; or

(b) result in widespread *adverse environmental impacts* to the features and *ecological functions* of the Core Environmental Feature or result in long-term damage to its *significant* features and functions, and that other technically and financially feasible alternatives exist that would have fewer *adverse environmental impacts*, the Region and Area Municipalities will:

i) not approve the undertaking; or

ii) not support the undertaking in comments, submissions or recommendations; or

(c) result in widespread *adverse environmental impacts* to the features and *ecological functions* of the Core Environmental Feature, or result in long-term damage to its *significant* features and functions, but that there is a clearly demonstrated need for the undertaking, and that all other alternatives to the recommended undertaking are substantially less feasible from a technical, environmental, and/or financial perspective, the Region and Area Municipalities will, without amendment to this Plan:

i) require that appropriate mitigation measures be implemented to reduce the impact of the undertaking to greatest extent feasible; and

ii) approve the undertaking; or

iii) support the undertaking in comments, submissions or recommendations.

7.D Fisheries

7.D.1 *Development* or *site alteration* will not be permitted within *fish habitat,* except in accordance with *Provincial and Federal requirements* to the satisfaction of the Federal Department of Fisheries and Oceans, or its delegate.

7.E Supporting Environmental Features

7.E.1 Supporting Environmental Features are those *environmental features* not meeting the criteria for recognition as being regionally *significant*. Supporting Environmental Features play an important role in maintaining the *ecological functions* provided by the Greenlands Network and will be maintained, enhanced or, wherever feasible, restored.

7.E.2 Area Municipalities are encouraged, in consultation with the *Province*, the Region and the Grand River Conservation Authority to identify maintain, enhance or, wherever feasible, restore *environmental features* not identified as Core Environmental Features within this Plan.

7.E.3 Area Municipalities, in consultation with the *Province*, the Region, the Grand River Conservation Authority and affected landowners, will establish policies in their official plans to provide for the protection, enhancement or, wherever feasible, restoration of *Environmentally Significant Recharge Areas* and *Environmentally Significant Discharge Areas*, not fulfilling the criteria for designation as Regional Recharge Areas in accordance with Policy 7.B.22.

7.E.4 Where *Environmentally Significant Discharge Areas* and/or *Environmentally Significant Recharge Areas* sustain a Core Environmental Feature as documented through a *watershed study*, Greenlands Habitat Inventory, *Environmental Impact Statement* or other such study prepared in accordance with the policies in Section 7.G, the Region and Area Municipalities will:

(a) not permit d*evelopment* or *site alteration* within or *contiguous* to the *Environmentally Significant Discharge Areas* and/or *Environmentally Significant Recharge Areas*, except where it has been determined to the satisfaction of the Region and/or other applicable agencies that the *development* or *site alteration* would not result in *adverse environmental impacts* on the features and *ecological functions* of the Core Environmental Feature; and

(b) ensure that any proposed public *infrastructure* projects will avoid *Environmentally Significant Discharge Areas* and *Environmentally Significant Recharge Areas,* wherever feasible. Where it is not feasible to avoid these areas, the construction of the *infrastructure* project will be

designed to maintain the *hydrologic functions* that sustain Core Environmental Features.

7.E.5 Lands within river or stream valleys, *floodplains*, *wetlands*, watercourses, lakes or *hazardous lands*, or lands within 120 metres of Provincially Significant Wetlands and *wetlands* greater than or equal to two hectares, or lands within 30 metres of *wetlands* less than two hectares, ~~but greater than or equal to 0.5 hectares,~~ are regulated by the Grand River Conservation Authority. *Development* or *site alteration* within these Regulated Areas will require a permit from the Grand River Conservation Authority in accordance with the applicable regulations approved under the Conservation Authorities Act.

Mod. No. 37

Linkages

7.E.6 The Region, Area Municipalities, Grand River Conservation Authority and other stakeholders will identify *linkages* through *watershed studies*, Natural Heritage Inventories, *Environmental Impact Statements* or other appropriate studies. These areas are intended to provide opportunities for plant and animal movement among *environmental features*, support hydrological and nutrient cycling, and contribute to the overall *ecological integrity* of the Greenlands Network.

7.E.7 Area Municipalities will require the incorporation of any *linkages*, identified in accordance with Policy 7.E.6, into the design of new *development* to maintain, enhance or, wherever feasible, restore *linkages* among *environmental features*.

7.E.8 The Region will enhance *linkages,* where appropriate, by restoring natural habitat on lands owned by the Region. The Region encourages the naturalization of inactive sections of parks and open space areas under the jurisdiction of other agencies and in private ownership, wherever appropriate, to enhance *linkages*.

7.F Watershed Planning

7.F.1 The Region recognizes the watershed as the regionally ecologically meaningful scale for planning and, in collaboration with the *Province*, Area Municipalities and the Grand River Conservation Authority, will undertake *watershed studies* both to minimize *adverse environmental impacts*, including cross-jurisdictional and cross-watershed impacts, and to maintain, enhance or, wherever feasible, restore the Greenlands Network. Such studies will also be used to direct enhancement of the water system, maintenance or improvement of the health of watercourses and to identify natural hazards.

7.F.2 The priorities and process for undertaking and updating *watershed studies* will be jointly determined by the *Province*, the Region, Area Municipalities and the Grand River Conservation Authority.

7.F.3 Area Municipalities will require the finalization of a *watershed study* prior to the adoption of Area Municipal official plan amendments, community plans or secondary plans, which permit significant areas of development within the watershed.

7.F.4 The *Province*, the Region, affected Area Municipalities and the Grand River Conservation Authority, in consultation with affected landowners and the general public, will jointly determine the terms of reference for *watershed studies*. At a minimum, the terms of reference for *watershed studies* will: include:

(a) identification, maintenance, restoration and, wherever feasible, enhancement of *environmental features*, *groundwater features*, surface water features and *ecological functions* which are necessary for the ecological and hydrological integrity of the watershed;

(b) identification, maintenance, enhancement and, wherever feasible, restoration of *linkages* among *environmental features and ecological functions, groundwater features* and surface water features;

(c) determination of areas where *development* or *site alteration* will be prohibited to:

i) protect actual and potential municipal drinking-water supplies and identified *vulnerable* areas; and

ii) maintain, enhance or, wherever feasible, restore sensitive and *vulnerable* surface water and *groundwater features*, and their *hydrologic functions*, and *floodplains*;

(d) protection of the quality, quantity, distribution and direction of flow of existing surface and groundwater processes;

(e) identification of stormwater management practices that maintain or enhance the quality, quantity and distribution of stormwater including infiltration measures, and minimize stormwater volumes and contaminant loads;

(f) identification of areas where site specific *Environmental Impact Statements* may be required for the review of *development applications* in accordance with the policies in Section 7.G. Wherever feasible, *watershed*

studies should partially fulfill the *Environmental Assessment* requirements for major *infrastructure* works to be located within that watershed, and/or Comprehensive *Environmental Impact Statements* for all or part of the watershed; and

(g) develop a monitoring plan and define roles and responsibilities for pre-, during- and post-construction monitoring to determine and address the impact of *development* on the Greenlands Network and surface and groundwater resources.

7.F.5 Regional participation in *watershed studies* will focus upon the preparation of recommendations relating to Regional interests, including:

(a) *sustainable* management of the quality and quantity of groundwater resources;

(b) surface water quality with reference to Regional water-taking requirements and the capability of receiving watercourses to cumulatively assimilate effluent from wastewater treatment plants to ensure the ecological integrity of the river system;

(c) identification, protection and management of Landscape Level Systems and Core Environmental Features; and

(d) implications of proposed *development* on the provision and upgrading of Regional *infrastructure*.

7.F.6 Portions of *watershed studies* that deal with Regional interests will be approved by the Region prior to the adoption of Area Municipal official plan amendments, community plans or secondary plans that implement the recommendations of the studies. The Region will amend this Plan as appropriate to implement recommendations that pertain to Regional interests.

7.F.7 Area Municipalities will amend their official plans to implement appropriate recommendations from *watershed studies*. The Region and Area Municipalities will also implement the recommendations of *watershed studies* as part of the *development* review process.

7.G Environmental Impact Statements

7.G.1 An *Environmental Impact Statement* may be required to identify and evaluate the potential effects of a proposed *development* or *site alteration* on elements of the Greenlands Network, and recommend means of preventing, minimizing or mitigating these impacts, as well as enhancing or restoring the quality and

connectivity of elements of the Greenlands Network. An *Environmental Impact Statement* may also be used to identify and evaluate elements of the Greenlands Network and interpret the boundaries of these elements. The *Province*, Region, Area Municipalities and the Grand River Conservation Authority will co-ordinate the requirements for the preparation of *Environmental Impact Statements*.

Mod. No. 38

7.G.2 The Region, in consultation with the *Province*, Area Municipalities and the Grand River Conservation Authority may require the completion of a single comprehensive *Environmental Impact Statement* where:

(a) *development* or *site alteration* is proposed on multiple contiguous properties containing elements of the Greenlands Network;

(b) a comprehensive community planning process is being undertaken;

(c) environmental studies are required to support the proposed expansion of the Urban Area or a Township Urban Area; or

(d) the extent of a *development application* and its anticipated impacts on the Greenlands Network are anticipated by the relevant agency(ies) to be substantial.

7.G.3 The need for, and scope of *Environmental Impact Statements,* will be determined in collaboration with affected Area Municipalities, the Province, the Grand River Conservation Authority by:

Mod. No. 39

(a) the *Province,* for *development* or *site alteration* potentially affecting Significant Habitat of Endangered or Threatened Species, or;

(b) the Region, for *development* or *site alteration* potentially affecting:

i) Landscape Level Systems, not including Significant Valleys;

ii) Core Environmental Features; or

iii) *Environmentally Significant Discharge Areas* and/or *Environmentally Significant Recharge Areas* that sustain Core Environmental Features.

(c) the Grand River Conservation Authority for Significant Valleys, Provincially Significant Wetlands located outside Environmentally Sensitive Policy Areas and *wetlands* not identified as provincially ~~significant~~ *significant*, including unevaluated *wetlands*;

Mod. No. 40

(d) the affected Area Municipality for *development applications* potentially affecting other elements of the Greenlands Network; and

(e) the Federal Department of Fisheries and Oceans, or its delegate, for *fish habitat;*

7.G.4 The following provisions will apply to *Environmental Impact Statements* required by the Region under Policy 7.G.3(b):

(a) the *Environmental Impact Statement* will be prepared in accordance with the provisions of the Regional Greenlands Network Implementation Guideline;

(b) the Region may reduce the scope and/or content of the *Environmental Impact Statement* where the impacts of the proposed *development* or *site alteration* upon an element of the Greenlands Network are expected to be limited in area and/or scope, or where other environmental studies fulfilling the requirements of an *Environmental Impact Statement* have been previously been prepared;

(c) the Region may waive the requirement for the *Environmental Impact Statement* where consultation with other agencies or site investigation by the Region indicate that there are not likely to be *adverse environmental impacts* upon the Greenlands Network; and

(d) the submission of an *Environmental Impact Statement* will not be required by the Region where an *Environmental Assessment* or alternative environmental reviews are being undertaken as part of a comprehensive planning process required under Provincial or Federal Legislation, provided the *Environmental Assessment* or alternative environmental review fulfills all the requirements for site specific, and/or landscape level *Environmental Impact Statements* that would otherwise be required by this Plan.

7.H Natural Hazards

7.H.1 *Hazardous lands* and *hazardous sites* as identified by the Grand River Conservation Authority will be given an appropriate land use designation within Area Municipal official plans. Development or *site alteration* on *hazardous lands* and *hazardous sites* may also be subject to the regulations administered by the Grand River Conservation Authority. Amendments to Area Municipal official plans will not be required for minor revisions to the boundaries of *hazardous lands* and *hazardous sites*, where such revisions are supported by technical studies approved by the Grand River Conservation Authority.

7.H.2 *Development* will not be permitted within areas of natural or human-made hazards where there is an unacceptable risk to public health or safety, or of property damage. Except where otherwise permitted by the policies in Section 7.H, *development* will not be permitted within:

(a) *hazardous lands* adjacent to river, stream and small inland lake systems which are impacted by *flooding hazards* and/or *erosion hazards*, in addition to an erosion access allowance of not less than six metres; and

(b) *hazardous sites*.

7.H.3 In areas designated for development within Area Municipal official plans, *hazardous lands* and *hazardous sites* will be placed in a separate zoning category or identified by the addition of a zone suffix or prefix as an area where land use and structural regulations are applied by the Grand River Conservation Authority and the Area Municipality to minimize hazards.

7.H.4 *Development* or *site alteration* will not be permitted within:

(a) areas that would be rendered inaccessible to people and vehicles during times of *flooding hazards* and/or *erosion hazards*, unless it has been demonstrated that the site has safe access appropriate for the nature of the *development* or *site alteration* and the natural hazard; and

(b) a *floodway* regardless of whether the area of inundation contains high points of land not subject to flooding, other than as provided for in Policy 7.H.9(b).

Mod. No. 41

7.H.5 For the purposes of this Plan, *floodplains* will be considered as *one-zone policy areas* unless otherwise designated in an Area Municipal official plan. Where a *one-zone policy area* is applied, the entire *floodplain* is considered the *floodway*.

7.H.6 Area Municipalities, in collaboration with the Grand River Conservation Authority, may designate *two-zone policy areas* in their official plans where significant urban uses currently exist within the *floodplain*, and where there is significant potential for further infilling and redevelopment with no *adverse effects* on flood flows. *Flood fringe* and *floodway* designations within the *two-zone policy areas* will be in conformity with mapping approved by the Grand River Conservation Authority.

7.H.7 Where a *two-zone policy area* has been designated in accordance with Policy 7.H.6, Area Municipalities will establish policies in their official plans to permit *development* in the *flood fringe* subject to appropriate *floodproofing standards*. *Development* within the *floodway* of a *two-zone policy area* will not be permitted, except in accordance with Policy 7.H.9(b).

~~7.H.8 Where strict adherence to the *one-zone policy area* or *two-zone policy area* approaches would result in serious *adverse effects* on the social and economic health and viability of an Area Municipality, a *special policy area* may be established by the *Province* in collaboration with the Region, Area Municipalities and the Grand River Conservation Authority. *Special policy areas* are not intended to allow for new or intensified *development* or *site alteration* if an Area Municipality has feasible opportunities for development outside the *floodplain* otherwise in conformity with the policies in this Plan.~~

~~7.H.9 Where a *special policy area* has been approved by the *Province*:~~

~~(a) the designation and approval of a *special policy area* and site-specific policies and boundaries, and any changes or modifications to the site-specific policies or boundaries applying to a *special policy area*, must be approved by the *Province* prior to the Region or Area Municipality approving such changes or modifications in collaboration with the Grand River Conservation Authority; or~~

~~(b) the *development* is limited to land uses that, by their nature, must locate within the *floodway*, including flood and/or erosion control works, structures necessary for conservation, water supply, wastewater management, or minor additions or passive non-structural uses which do not affect flood flows.~~

Mod. No. 41

~~7.H.10 Area Municipalities will designate *special policy areas* and establish policies in their official plan in accordance with Policies 7.H.8 and 7.H.9.~~

~~7.H.11 *Development* will not be permitted to locate in *hazardous lands* and *hazardous sites* where the proposed use is:~~

~~(a) an institutional land use associated with hospitals, nursing homes, pre-school, school nurseries, day care and schools, where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of *floodproofing standards* or *protection works standards*, or erosion;~~

~~(b) an essential emergency service such as that provided by fire, police and ambulance stations and electrical substations, which would be unacceptably impaired during an emergency as a result of flooding, the failure of *floodproofing standards* or *protection works standards*, or erosion; and~~

~~(c) land uses associated with the disposal, manufacture, treatment or storage of *hazardous chemicals and/or substances*.~~

~~7.H.12 Notwithstanding Policies 7.H.4 and 7.H.11, *development* or *site alteration* may be permitted in those portions of *hazardous lands* and *hazardous sites* where the effects and risk to public safety are minor so as to be managed or mitigated in accordance with the *Province's* standards, as determined by the demonstration and achievement of all of the following:~~

~~(a) *development* or *site alteration* is carried out in accordance with *floodproofing standards*, *protection works standards*, and *access standards*;~~

~~(b) vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies;~~

~~(c) new hazards are not created and existing hazards are not aggravated; and~~

~~(d) no *adverse environmental impacts* will result.~~

~~7.H.13 The Region will consider funding requests for inclusion in the Regional Capital Forecast for stream bank stabilization, dam, dyke and reservoir construction projects, or land acquisition for any of these projects by Area Municipalities and/or the Grand River Conservation Authority, based on appropriate studies. Priority will be given to projects that are to be effective in reducing the hazards to life and property caused by flooding within *special policy areas*.~~

Mod. No. 41

~~7.H.14 Area Municipalities will include policies in their official plans to require detailed hydrogeological and/or geotechnical studies to assess potential risks to persons, buildings, structures, or public *infrastructure* occasioned by groundwater discharge or high water tables prior to *development*. Such studies should demonstrate that engineering solutions designed to protect structures from the effects of groundwater discharge and high water tables will be effective, will not require significant on-going maintenance to remain effective, and will not divert or impede natural groundwater flows so as to create hazards or annoyances to adjacent lands and buildings. *Discharge Constraint Areas* should be identified in community plans and/or the Area Municipal official plan where they have been identified.~~

7.H.2 In areas designated for development within Area Municipal official plans, *hazardous lands* and *hazardous sites* will be placed in a separate zoning category or identified by the addition of a zone suffix or prefix as an area where regulations are applied by the Grand River Conservation Authority and the Area Municipality to minimize hazards.

7.H.3 For the purposes of this Plan, *floodplains* will be considered as *one-zone policy areas* unless otherwise designated in an Area Municipal official plan. Where a *one-zone policy area* is applied, the entire *floodplain* is considered the *floodway*.

7.H.4 Area Municipalities, in collaboration with the Grand River Conservation Authority, may designate *two-zone* policy *areas* in their official plans where significant urban uses currently exist within the *floodplain*, and where there is significant potential for further infilling and redevelopment with no *adverse effects* on flood flows. Flood fringe and *floodway* designations within the *two-zone policy areas* will be in conformity with mapping approved by the Grand River Conservation Authority.

7.H.5 Where strict adherence to the *one-zone policy area* or *two-zone policy area* approaches would result in serious *adverse effects* on the social and economic health and viability of an Area Municipality, a special policy area may be established by the *Province* in collaboration with the Region, Area Municipalities and the Grand River Conservation Authority.

7.H.6 Where a *special policy area* has been approved by the Province, the affected Area Municipality will designate the *special policy area* and establish appropriate policies in its official plan. Any change or modification to the policies or boundaries applying to the *special policy area* must be approved by the *Province* prior to the approval of any official plan amendment or zone change application implementing such changes or modifications.

Mod. No. 41

7.H.7 *Development* or *site alteration* will not be permitted within:

(a) *hazardous lands* which are impacted by *flooding hazards* and/or *erosion hazards*;

(b) *erosion* access allowances, which will not be less than six metres; and

(c) *hazardous sites*.

7.H.8 Notwithstanding Policy 7.H.7, *development* or *site alteration* may be permitted in *hazardous lands* and *hazardous sites* where;

(a) a *special policy area* has been approved by the *Province*; or

(b) the *development* is limited to land uses that, by their nature, must locate within the *floodway*, including flood and/or erosion control works, structures necessary for conservation, water supply, wastewater

management, or minor additions or passive non-structural uses which do not affect flood flows; or

(c) a *two-zone policy area* has been designated in accordance with Policy 7.H.6 to permit *development or site alteration* in the *flood fringe*, and the effects and risk to public safety are minor so as to be managed or mitigated in accordance with the *Province's* standards, as determined by the demonstration and achievement of all of the following:

(i) *development or site alteration* is carried out in accordance with *floodproofing standards, protection works standards, and access standards;*

(ii) vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies;

(iii) new hazards are not created and existing hazards are not aggravated; and

(v) no *adverse environmental impacts* will result.

Mod. No. 41

7.H.9 Notwithstanding Policy 7.H.8, *development* proposing the following land uses will not be permitted within *hazardous lands* and *hazardous sites*:

(a) an institutional land use associated with hospitals, nursing homes, pre-school, school nurseries, day care and schools, where there is a threat to the safe evacuation of the sick, the elderly, persons with disabilities or the young during an emergency as a result of flooding, failure of *floodproofing standards* or *protection works standards*, or erosion;

(b) an essential emergency service such as that provided by fire, police and ambulance stations and electrical substations, which would be unacceptably impaired during an emergency as a result of flooding, the failure of *floodproofing standards* or *protection works standards*, or erosion; and

(c) land uses associated with the disposal, manufacture, treatment or storage of *hazardous chemicals and/or substances*.

7.H.10 The Region will consider funding requests for inclusion in the Regional Capital Forecast for stream bank stabilization, dam, dyke and reservoir construction projects, or land acquisition for any of these projects by Area Municipalities and/or the Grand River Conservation Authority, based on appropriate studies.

Priority will be given to projects that are to be effective in reducing the hazards to life and property caused by flooding within *special policy areas*.

7.H.11 Area Municipalities will include policies in their official plans to require detailed hydrogeological and/or geotechnical studies to assess potential risks to persons, buildings, structures, or public *infrastructure* occasioned by groundwater discharge or high water tables prior to *development*. Such studies should demonstrate that engineering solutions designed to protect structures from the effects of groundwater discharge and high water tables will be effective, will not require significant on-going maintenance to remain effective, and will not divert or impede natural groundwater flows so as to create hazards or annoyances to adjacent lands and buildings. *Discharge Constraint Areas* should be identified in community plans and/or the Area Municipal official plan where they have been identified.

7.I Environmental Stewardship

7.I.1 The Region will continue to acquire *woodlands* and associated natural features such as *wetlands*, savannas, meadows and prairies as finances permit, or to accept donations of *woodland* tracts to be managed as *Regional Forests*.

Mod. No. 41

Managing Woodland Resources

7.I.2 The Region encourages good stewardship practices to manage public and private *woodlands* through the development and implementation of forest management plans. Such plans will not only recognize the economic value of timber, but also maintain, enhance or, wherever feasible, restore the important *ecological functions* of *woodlands*.

7.I.3 Regional Forest Management Plans, capital operating budgets and shorter term operating and management plans for *Regional Forests* and other Regional *woodlands* will accord management objectives in the following order of priority:

(a) the maintenance, or wherever feasible, enhancement of the *woodlands ecological functions*, particularly where *Regional Forests* exhibit Carolinian forest, old growth, or interior habitat attributes;

(b) passive recreation including trails for nature appreciation, hiking and cross-country skiing;

(c) outdoor education and research;

(d) timber production according to ecologically *sustainable* forest management practices; and

(e) hunting, fishing, horse-back riding and mountain biking where expressly permitted.

7.I.4 Trees and other vegetation within *Regional Forests* may be removed or destroyed by authorized cutting or burning to achieve the objectives of Policy 7.I.3.

7.I.5 The Region, in collaboration with Area Municipalities, will minimize the impact of *development* on *woodlands* by selecting alternative locations for proposed land uses and/or through the implementation of appropriate mitigation measures.

7.I.6 Area Municipalities will consider the importance of *woodlands* during the *development* review process. Consideration during the review of *development applications* will be given to:

(a) the potential impact of the proposed land use on the *ecological functions*, productivity or potential productivity of the *woodland* for commercial timber production;

(b) the impact of the proposed land use on the extent and distribution of *woodland* cover in the watershed in which the subject land is situated; and

(c) opportunities to restore or re-establish productive forest habitats consisting of native species following the completion of the proposed *development.*

7.I.7 Area Municipalities are encouraged to adopt a Tree Preservation By-law to prohibit or regulate the destruction or injuring of trees in *woodlands* less than four hectares in area.

Land Stewardship

7.I.8 The Region encourages landowners to maintain, enhance or, wherever feasible, restore *environmental features* on their property through measures including conservation easements, buffers and wherever appropriate, fencing.

7.I.9 The Region, in collaboration with the *Province*, Area Municipalities, the Grand River Conservation Authority and other stakeholders, will provide advice and information on other land stewardship programs to landowners wishing to exercise good stewardship of lands within the Greenlands Network.

7.I.10 Area Municipalities are encouraged to secure ownership of elements of the Greenlands Network and to prepare management plans for these lands to maintain, enhance or, wherever feasible, restore their *ecological functions*.

7.I.11 The Region will consider the establishment of a Land Trust to hold, purchase and manage elements of the Greenlands Network, or to hold conservation easements.

7.I.12 The Region encourages individuals and agencies to use native species appropriate to the locality when planting within or *contiguous* to elements of the Greenlands Network. To provide guidance in maintaining the native *biodiversity* of the Greenlands Network, the Region will maintain a list of native trees and shrubs suitable for such use.

7.I.13 The Region discourages individuals and agencies from using non-native species considered invasive and unsuitable for planting within or *contiguous* to elements of the Greenlands Network. To provide guidance, the Region will prepare a list of non-native species considered invasive and unsuitable for such use.

7.I.14 Wherever feasible and appropriate, species native to the region will be used in plantings along Regional Roads and on the grounds of Regional facilities. Area Municipalities are similarly encouraged to use native species in roadside plantings, stormwater management facilities and park naturalization projects.

7.I.15 The Region may create and administer a Greenlands Network Stewardship financial incentives program to assist private landowners with stewardship initiatives and provide funds for the public acquisition of lands within the Greenlands Network.

8. Source Water Protection

Waterloo Region is unique in Ontario in that it is the largest urban municipality to rely almost exclusively on groundwater supplies for its drinking-water. Approximately three quarters of all the region's drinking-water comes from the over one hundred municipal wells, many of which tap into rich aquifers sustained by the Waterloo Moraine. The remaining quarter of the region's drinking-water is drawn from the Grand River. Protecting these valuable water resources from contamination and from land uses that could hinder groundwater recharge is essential to maintaining human health, economic prosperity and a high quality of life in the region.

The *Province* has recently emphasized the importance of protecting the *municipal drinking-water supply system* by way of land use planning decisions, through changes to the Provincial Policy Statement. The importance of protecting the *municipal drinking-water supply system* is also underscored by the enactment of the Safe Drinking Water Act and the Clean Water Act. The Region's role in implementing Provincial policy, places an obligation on the Region to make land use planning decisions consistent with the Provincial Policy Statement's direction to protect the quality and quantity of drinking-water resources in the region, and to limit *development* and *site alteration* that could adversely affect drinking-water supplies drawn from both the Grand River and groundwater resources. Waterloo Region's continued long-term reliance on groundwater resources necessitates a high priority be placed on protecting this valuable resource through land use management.

This Chapter contains policies for the protection and conservation of the Region's drinking-water resources. These policies form an important component of the Region's Water Resource Protection Strategy, and play a critical role in the Region's multi-barrier approach to providing safe drinking-water. By safeguarding drinking-water at the source, this Plan seeks to prevent unnecessary environmental, economic, social and health costs associated with the loss and/or clean up of drinking-water resources due to contamination or over use. This proactive approach will help ensure that the region's municipal drinking-water supply remains clean and plentiful to support current and future generations.

The policies in this Chapter will be carried out by managing land use activities within designated Source Water Protection Areas. These *vulnerable* areas are located throughout the region, including residential neighbourhoods, *employment areas*, rural settlements, agricultural areas, mineral aggregate resource areas and in areas where future urban development may occur. The Source Water Protection Areas designated in this Plan include: Wellhead Protection Sensitivity Areas; wells that obtain their water from Groundwater Under the Direct Influence of surface water (GUDI wells); Surface Water Intake Protection Zones; and Regional Recharge Areas.

In addition to managing land uses to prevent contamination from *hazardous chemicals and/or substances* and disease causing organisms, this Chapter contains policies to help reduce the impact of de-icing salts on the *municipal drinking-water supply system*. The policies in this Chapter promote the balance between the use of de-icing salts and the need to mitigate impacts through best management practices. Significant reductions in the need for de-icing salt application to sidewalks, parking lots and roads can be achieved through sound management practices and innovative road and property designs.

Overall Goal – Protect, maintain and, wherever feasible, enhance surface water and groundwater resources to ensure that a *municipal drinking-water supply system* continues to provide a sufficient quantity and quality of drinking-water.

Objectives:

8.1 Protect existing and future sources of drinking-water from incompatible land uses.

8.2 Maintain and, wherever feasible, enhance the quantity and quality of water infiltration and recharge to groundwater aquifers.

8.3 Minimize the potential for contamination, including potential contamination from de-icing salts, on sources of municipal drinking-water.

8.4 Promote informed stewardship of Source Water Protection Areas in collaboration with the *Province*, Area Municipalities and Grand River Conservation Authority.

8.A Source Water Protection Areas

Source Water Protection Areas are identified in this Plan to protect the current and future *municipal drinking-water supply system*. These protection areas are significant in that they contribute water, or are in close proximity, to municipal drinking-water supply wells and surface water intakes that are *vulnerable* to contamination and or depletion from incompatible land uses. Source Water Protection Areas consist of: Wellhead Protection Sensitivity Areas; High Microbial Risk Management Zones; Surface Water Intake Protection Zones; and Regional Recharge Areas.

General Policies

8.A.1 Source Water Protection Areas are designated as shown on Maps 6a through 6g.

8.A.2 Area Municipalities will designate Source Water Protection Areas and establish associated policies within their official plans to ensure that *development applications* are in conformity with the policies in this Plan.

8.A.3 The Region, in consultation with the Province, will prepare and update a Regional Implementation Guideline for Source Water Protection Studies to inform and implement the policies in this Plan.

Mod No. 42

8.A.4 Where the policies in this Chapter require one or more studies to be submitted in support of a *development application*, such studies will be completed in accordance with the Regional Implementation Guideline for Source Water Protection Studies to the satisfaction of the Region. The studies requested will vary based on the location of the *development application* relative to the sensitivity of the Source Water Protection Area and its proximity to a municipal drinking-water supply well or surface water intake. Studies submitted by the owner/applicant will demonstrate that the proposed use will not negatively impact the quantity and/or quality of drinking-water resources in Source Water Protection Areas for the *development application* to receive approval.

8.A.5 *Development applications* within all Source Water Protection Area designations will comply with the following:

(a) employment uses that would direct infiltration of stormwater run-off without pre-treatment through the use of drywells or artificial/enhanced recharge will not be permitted; and

(b) employment uses that would require new water taking for industrial/commercial purposes and/or for irrigation purposes, except for water taking associated with *mineral aggregate operations* will not be permitted.

8.A.6 New water taking will not be permitted for any new or expanding uses within the Urban Area and Township Urban Area designations.

8.A.7 New water taking in quantities greater than 50,000 litres per day may be permitted outside of the Urban Area, Township Urban Area and Source Water Protection Area designations through a site specific amendment to the applicable zoning by-law, provided that the application is substantiated by further study in accordance with Policy 8.A.4.

Source Water Protection Land Use Categories

The quantity and quality of drinking-water is affected by land uses found within Source Water Protection Areas. Not all land uses pose the same level of risk to drinking-water;

therefore, this Plan identifies four categories of land uses based on their associated level of risk.

8.A.8 For the purposes of implementing the policies in this Chapter, land uses that may pose a risk to the quantity and/or quality of municipal drinking-water supplies are divided into the following four categories according to the level of risk:

(a) Category 'A' (Very High Risk Uses);

(b) Category 'B' (High Risk Uses);

(c) Category 'C' (Moderate Risk Uses); and

(d) Category 'D' (represents *preferential pathways*, or other land uses that involve soil excavation and/or the creation of subsurface facilities, that contribute to the risk to municipal drinking-water supplies by increasing *vulnerability*).

8.A.9 Land uses typically associated with each of the land use categories identified in Policy 8.A.8 include, but are not limited to, the uses listed in Schedule 'B' to this Plan.

Time of Travel Capture Zones

This Plan makes reference to two and ten year *time of travel* capture zones surrounding each municipal drinking-water supply well. These capture zones reflect the length of time groundwater within the zone will take to reach the municipal drinking-water supply well. The size and shape of the capture zones is influenced by many factors including the well pumping rate, the topography of the land, the nature of the subsurface materials, and the rate and direction of groundwater flow.

Wellhead Protection Areas

This Plan designates Wellhead Protection Areas around each municipal drinking-water supply well. Wellhead Protection Areas are the total area of land which contributes water to a municipal drinking-water supply well. Within each Wellhead Protection Area, one or more Wellhead Protection Sensitivity Areas (WPSA) may be delineated. The purpose of these designations is to prevent land uses involving *hazardous chemicals and/or substances*, disease causing organisms and land uses that increase the *vulnerability* of groundwater from becoming water quantity and/or quality risks to municipal drinking-water supply wells.

8.A.10 Wellhead Protection Sensitivity Areas (WPSA) are classified from 1 to 8. This classification allows for varying degrees of management relative to the *vulnerability* of the underlying groundwater to contamination, the importance of the well to the capacity of the *municipal drinking-water supply systems*, as well as the length of time groundwater within the WPSA will take to reach the municipal drinking-water supply well. WPSAs are designated as shown on Maps 6a through 6e and are described below:

(a) WPSA 1 - delineates areas within a 100 meter radius of each municipal drinking-water supply well. It represents the highest sensitivity area with respect to the potential movement of disease causing organisms and groundwater infiltration. This area requires the most restrictive management, including the consideration of land purchase or establishment of conservation easements, given its close proximity to the drinking-water supply wells;

(b) WPSA 2 - delineates high sensitivity areas found within the two year *time of travel* to a municipal drinking-water supply well;

(c) WPSA 3 - delineates high sensitivity areas found outside of the two year, but within the ten year *time of travel* to a municipal drinking-water supply well;

(d) WPSA 4 - delineates medium sensitivity areas found within the two year *time of travel* to a municipal drinking-water supply well;

(e) WPSA 5 - delineates medium sensitivity areas found outside of the two year, but within the ten year *time of travel* to a municipal drinking-water supply well;

(f) WPSA 6 - delineates low sensitivity areas found within the two year *time of travel* to a municipal drinking-water supply well;

(g) WPSA 7 - delineates low sensitivity areas found outside of the two year, but within the ten year *time of travel* to a municipal drinking-water supply well; and

(h) WPSA 8 - delineates the area outside of the ten year *time of travel* to the limit of the total land area contributing water to a municipal drinking-water supply well.

8.A.11 Within the WPSA 1 designation:

(a) Category ‘A’, ‘B’, ‘C’ and ‘D’ uses will not be permitted;

(b) new individual wastewater treatment systems, private wells, pipelines sewers, stormwater management ponds (or other ponds) and the direct infiltration of stormwater run-off without pre-treatment will not be permitted; and

(c) new impermeable surfaces of any kind will be restricted or minimized to the greatest extent feasible.

8.A.12 *Development applications* within the WPSA 2 designation will comply with the following:

(a) Until such time as this Official Plan is amended to incorporate approved Source Protection Plans under the Clean Water Act, 2006, Category 'A' uses, *geothermal wells*, *mineral aggregate operations* and *wayside pits and quarries* will not be permitted;

Mod No. 43

(b) Category 'B' and 'C' uses and underground parking garages will not be permitted outside of the Built-Up Area as shown on Maps 3a to 3e;

(c) Category 'B' and 'C' uses and underground parking garages already permitted by existing Area Municipal official plans may be permitted within the Built-Up Area subject to further study in accordance with Policy 8.A.4; and

(d) individual wastewater treatment systems, private wells, pipelines, sewers, stormwater management ponds (or other ponds) and plans of subdivision or vacant land condominiums may be permitted subject to further study in accordance with Policy 8.A.4.

8.A.13 *Development applications* within the WPSA 3 designation will comply with the following:

(a) Category 'A' uses will not be permitted;

(b) Category 'B' and 'C' uses will not be permitted outside of the Built-Up Area;

(c) Category 'B' and 'C' uses already permitted by existing Area Municipal official plans may be permitted within the Built-Up Area subject to further study in accordance with Policy 8.A.4; and

(d) Category 'D' uses, individual wastewater treatment systems, private wells, pipelines, sewers, stormwater management ponds (or other ponds), and

plans of subdivision or vacant land condominiums may be permitted subject to further study in accordance with Policy 8.A.4.

8.A.14 *Development applications* within the WPSA 4 designation will comply with the following:

(a) Until such time as this Official Plan is amended to incorporate approved Source Protection Plans under the Clean Water Act, 2006, Category 'A' uses, geothermal wells, *mineral aggregate operations* and *wayside pits and quarries* will not be permitted;

Mod No. 43

(b) Category 'B' and 'C' uses will not be permitted outside of the Built-Up Area;

(c) Category 'B' and 'C' uses already permitted by existing Area Municipal official plans may be permitted within the Built-Up Area subject to further study in accordance with Policy 8.A.4; and

(d) underground parking garages, individual wastewater treatment systems, private wells, pipelines, sewers, stormwater management ponds (or other ponds) and plans of subdivision or vacant land condominiums may be permitted subject to further study in accordance with Policy 8.A.4.

8.A.15 *Development applications* within the WPSA 5 designation will comply with the following:

(a) Category 'A' uses will not be permitted;

(b) Category 'B' and 'C' uses will not be permitted outside of the Built-Up Area;

(c) Category 'B' and 'C' uses already permitted by existing Area Municipal official plans may be permitted subject to further study within the Built-Up Area in accordance with Policy 8.A.4; and

(d) Category 'D' uses and plans of subdivision or vacant land condominiums may be permitted subject to further study in accordance with Policy 8.A.4.

8.A.16 *Development applications* within the WPSA 6 designation will comply with the following:

(a) Until such time as this Official Plan is amended to incorporate approved Source Protection Plans under the Clean Water Act, 2006, Category 'A'

Mod No. 43

uses, *geothermal wells*, *mineral aggregate operations* and *wayside pits and quarries* will not be permitted;

(b) Category 'B' and 'C' uses will not be permitted outside of the Built-Up Area;

(c) Category 'B' and 'C' uses may be permitted within the Built-Up Area subject to further study in accordance with Policy 8.A.4; and

(d) underground parking garages and plans of subdivision or vacant land condominiums may be permitted subject to further study in accordance with Policy 8.A.4.

8.A.17 *Development applications* within the WPSA 7 designation will comply with the following:

(a) Category 'A' uses will not be permitted;

(b) Category 'B' and 'C' uses will not be permitted outside of the Built-Up Area;

(c) Category 'B' and 'C' uses already permitted by existing Area Municipal official plans may be permitted within the Built-Up Area subject to further study in accordance with Policy 8.A.4; and

(d) Category 'D' uses and plans of subdivision or vacant land condominiums may be permitted subject to further study in accordance with Policy 8.A.4.

8.A.18 *Development applications* within the WPSA 8 designation will comply with the following:

(a) Category 'A' uses will not be permitted; and

(b) g*eothermal wells, mineral aggregate operations* and *wayside pits and quarries* may be permitted subject to further study in accordance with Policy 8.A.4.

GUDI Wells and High Microbial Risk Management Zones

This Plan designates municipal drinking-water supply wells supplied by Groundwater Under the Direct Influence of Surface Water (GUDI) as shown on Maps 6a, 6b and 6c. These GUDI wells are classified separately under the Safe Drinking Water Act in that they require a higher level of protection and treatment than other municipal drinking-water supply wells. GUDI wells draw groundwater that is directly connected to, and

dependant upon, surface water in locations where contaminants in the surface water may not be filtered adequately by the overlying soil or subsurface before entering the well. Areas of high microbial risk have been delineated immediately surrounding GUDI wells to minimize the risk of contamination to these drinking-water supply wells.

8.A.19 High Microbial Risk Management Zones surrounding each GUDI well are designated as shown on Map 6f. These zones identify areas where the underlying groundwater is the most vulnerable to disease causing organisms. In addition to the policies in this Chapter that apply to any Wellhead Protection Sensitivity Areas, *development applications* proposing individual wastewater treatment systems and/or private wells will not be permitted within High Microbial Risk Management Zones.

Surface Water Intake Protection Zones

A portion of the Region's drinking-water supply comes from surface water through a municipal intake located in the Grand River. Similar to Wellhead Protection Areas, Surface Water Intake Protection Zones represent geographic areas (land and water) that contribute water to the surface water intake of the Region's *municipal drinking-water supply system*. Surface Water Intake Protection Zones are delineated to protect the quality and quantity of the surface water entering the intake, mainly by protecting the surface water upstream of the intake from hazardous spills.

8.A.20 Surface Water Intake Protection Zones 1 and 2 are designated as shown on Map 6g. Surface Water Intake Protection Zone 1 delineates an area of land within a 200 metre radius upstream of the municipal intake, while Surface Water Intake Protection Zone 2 delineates the area of land over which a hazardous spill could reach a municipal surface water intake within a two hour travel time.

8.A.21 Within Surface Water Intake Protection Zone 1, *development applications* proposing Category 'A', 'B', 'C' and 'D' uses, individual wastewater treatment systems, private wells, pipelines, sewers and stormwater management ponds (or other ponds) will not be permitted.

8.A.22 Within Surface Water Intake Protection Zone 2, *development applications* will comply with the following:

(a) Category 'A' uses will not be permitted; and

(b) Category 'B', 'C' and 'D' uses and stormwater management ponds (or other ponds) may be permitted subject to further study in accordance with Policy 8.A.4.

Regional Recharge Areas (Source Water Protection)

Regional Recharge Areas play a crucial role in providing clean water to the Region's *municipal drinking-water supply system*. This designation identifies portions of the Waterloo Moraine where considerable deposits of sand and gravel found in the ground allow for the natural infiltration of large quantities of rainfall, snowmelt, and in some cases, seepage from creeks and streams into a series of deep and shallow aquifers. The deep aquifers are a significant source of the Region's existing and future municipal drinking-water supply, and the protection of these aquifers is vital to the region's health and economic prosperity.

8.A.23 Regional Recharge Areas are designated as shown on Map 6g. This designation identifies areas that will be protected from land use practices, *hazardous chemicals and/or substances* that could negatively impact the quality and quantity of water within and available to the aquifers that contribute to the *Region's municipal drinking-water supply system*.

8.A.24 *Development applications* proposed within Regional Recharge Areas will be regulated in accordance with the policies in Section 6.B, and Policies 7.B.23, 7.B.24 and 7.B.25.

8.B De-icing Salts

The use of de-icing salts is an important component of Regional and Area Municipal efforts to keep transportation corridors open and safe during icy and snowy conditions. However, the impact of de-icing salts on the quality of municipal drinking-water supplies has become a concern. This Plan includes policies that encourage a more balanced approach to the use of de-icing salts through sound salt management practices and strategic urban design as methods to reduce the need for de-icing salt application to sidewalks, parking lots and roads.

8.B.1 Applications for a new plan of subdivision, or vacant land condominium, will only be approved where the owner/applicant has submitted a Salt Impact Assessment in accordance with the Regional Salt Impact Assessment Protocol Implementation Guideline to the satisfaction of the Region. This assessment is required to address the potential impacts of de-icing salts of the *development* on the Region's municipal drinking-water supply wells and to recommend ways to minimize such impacts.

8.B.2 Prior to the approval of any modifications to existing draft approved plans of subdivision, or vacant land condominiums, the Region may require the owner/applicant to submit a Salt Impact Assessment in accordance with Policy 8.B.1, where the scope of the modification would necessitate such an assessment.

8.B.3 The Region may require the owner/applicant to submit and implement Salt Management Plans in accordance with the Regional Salt Management Planning Implementation Guideline to the satisfaction of the Region for the following types of *development applications*:

(a) plans of subdivision and zoning by-laws proposing new employment land uses and multiple unit residential *development*;

(b) plans of condominium for new development;

(c) plans of condominium in previously constructed buildings; or

(d) consent to create a lot for a multi-unit residential or employment land use.

8.C Stewardship

8.C.1 The Region, in collaboration with the *Province*, Grand River Conservation Area, and Area Municipalities, will provide advice to land owners to promote good stewardship practices for lands and water within Source Water Protection Areas.

8.C.2 The Region will encourage the design of drainage systems and lot grading in new plans of subdivision to include consideration for cold weather stormwater flows and winter maintenance, and will promote and may require the strategic design of new road networks to reduce the need for road salt application.

8.C.3 The Region may consider the use of alternative protection measures within highly *vulnerable* Source Water Protection Areas, including but not limited to, the establishment of a Land Trust for acquiring, holding and managing Source Water Protection Areas, and/or entering into conservation easements, agreements, and development of stakeholder partnership programs to encourage changes in land use or land management practices.

9. Managing Aggregate Resources

Mod. No. 44

~~Mineral aggregates are a valuable non-renewable resource essential to the region's growth and economic prosperity. *Mineral aggregate resources* within the region include naturally occurring sand and gravel deposits. These resources have a finite supply and provide significant material used in the construction of buildings and *infrastructure*. They also support many secondary industries that provide employment opportunities and produce a wide range of manufactured items, including blocks, bricks and pre-cast concrete products. As such, making mineral aggregates available close to markets is important both for economic and environmental reasons.~~

Mineral aggregates are a valuable non-renewable resource essential to both the Region's and *Province's* growth and economic prosperity. *Mineral aggregate resources* within the region include naturally occurring sand and gravel deposits and bedrock resource areas. These resources have a finite supply and provide significant material used in the construction of buildings and *infrastructure.* They also support many secondary industries that provide employment opportunities and produce a wide range of manufactured items, including blocks, bricks and pre-cast concrete products. As such, the long-term protection of mineral aggregate resources and making them available close to markets is important both for economic and environmental reasons.

Waterloo Region is one of the largest aggregate producers in southwestern Ontario, providing several million tonnes of aggregates annually to local and provincial markets. As the region's population continues to grow, so too will the demand for aggregate products to support building and construction needs. The challenge facing the Region and Area Municipalities will be to address the growing demand for aggregates while preventing or minimizing the potential impacts of *mineral aggregate operations* on surface water and groundwater resources, surrounding communities, *cultural heritage resources*, *environmental features* and *ecological functions*, and agricultural resources and operations.

Within the Prime Agricultural Area, Provincial policy generally treats *mineral aggregate operations* as interim land uses that will return to an *agricultural use* once the aggregate resources have been extracted. However, the duration of any given aggregate operation will depend on the scale and nature of the operation. Some operations may cease to operate after a few years, while others may continue to exist for several decades. In addition*, mineral aggregate operations* that extract resources from below the water table result in permanent changes to the landscape as well as surface water and groundwater regimes. For these reasons, this Plan places a high priority on identifying and addressing, in conjunction with Area Municipal official plans, the potential long-term social and environmental effects of *mineral aggregate operations* throughout the region.

A large share of the region's mineral aggregate areas overlaps with some of the region's best groundwater aquifers and recharge areas. These water resources are the

primary sources of the municipal drinking-water supply. *Mineral aggregate operations* can create *preferential pathways* or increase the *vulnerability* of these aquifers through the removal of the protective overburden. The removal of this overburden increases the risk of groundwater contamination through spills during the extraction operation and in the establishment of post-extractive uses. Accordingly, this Chapter includes policies related to the siting of *mineral aggregate operations*, best management practices, conditions or restrictions on aggregate activities and rehabilitation plans.

All policies in this Plan should be read together. However, in light of the interrelationships between the region's *mineral aggregate resources* and its groundwater recharge areas, the policies in this Chapter should be read particularly in conjunction with the policies in Chapter 8.

Overall Goal – Plan for the availability of *mineral aggregate resources* to support the region's economic and growth needs, while preventing or minimizing any potential impacts of *mineral aggregate operations* on surface water and groundwater resources, surrounding communities, *cultural heritage resources*, *environmental features* and *ecological functions*, and agriculture resources and operations.

Objectives:

9.1 Identify and protect Mineral Aggregate Resource Areas for current and future needs.

9.2 Prevent any changes in land use that could conflict with *existing* or future *mineral aggregate operations.*

9.3 Ensure that *mineral aggregate operations* proceed as expeditiously as possible and in logical sequence so that depleted areas can be restored while extraction continues in other areas of the pit.

9.4 Ensure potential impacts of new *mineral aggregate operations* are prevented or minimized through the *development application* and *site plan* review processes.

9.A Resource Protection

9.A.1 Mineral Aggregate Resource Areas are designated as shown on Map 8. These areas have been identified by the *Province* as having a high potential to contain *mineral aggregate resources*. The identification of these resources in this Plan does not presume that all lands located within these areas are suitable for the establishment of new, or expansions to existing, *mineral aggregate operations.* The Region will update the boundaries of the Mineral Aggregate Resource Areas as necessary as part of the five-year *municipal comprehensive review* of

this Plan, or the completion of a *municipal comprehensive review* as otherwise initiated by Regional Council.

9.A.2 Area Municipalities will designate Mineral Aggregate Resource Areas in their official plans in conformity with Map 8. The boundaries of these areas may be further refined within Area Municipal official plans without an amendment to this Plan.

9.A.3 Extraction of *mineral aggregate resources* may be permitted outside the Mineral Aggregate Resource Areas as shown on Map 8 where there is a sufficient quantity and quality of resources to warrant extraction as demonstrated to the satisfaction of the *Province*, the Region and the Area Municipality, subject to the policies in this Plan and Area Municipal official plans.

9.A.4 Area Municipalities will establish policies in their official plans to:

(a) prohibit *development* in areas located within or adjacent to Mineral Aggregate Resource Areas, which would preclude or hinder the establishment of *mineral aggregate operations* or access to the resources, except where:

i) extraction of the resource would not be feasible; or

ii) the proposed land use or *development* serves a greater long-term public interest; and

iii) issues of public health, safety and environmental impact are appropriately addressed.

(b) minimize the amount of land required for any new *development* proposed under Policy 9.A.4(a) to retain as much of the *mineral aggregate resource* potential as possible;

(c) encourage the recovery of *mineral aggregate resources* through the sequential use of developable land, whereby *mineral aggregate resources* are extracted prior to, or in conjunction with, development of the land;

(d) permit accessory uses associated with *mineral aggregate operations*;

(e) require a site-specific zoning by-law amendment to permit ancillary land uses, including asphalt plants, concrete plants and aggregate depots that blend and stockpile aggregate materials with salt, except where such uses

are identified as a prohibited use in accordance with the policies in Chapter 8;

(f) ensure that *mineral aggregate operations* are provided with adequate buffering, screening and other mitigation measures to prevent or minimize any potential *adverse effects* on surrounding *sensitive land uses*; and

(g) plan for and regulate the subsequent use of rehabilitated *mineral aggregate operations* in accordance with the policies in this Plan.

9.A.5 The Region will promote the conservation of *mineral aggregate resources* by making provision for the recovery of these resources, wherever feasible.

9.B Existing Mineral Aggregate Operations

9.B.1 Existing licensed *mineral aggregate operations* are recognized as legal uses of land and will be permitted to continue without the need for an official plan amendment or rezoning under the Planning Act. Area Municipalities will establish policies in their official plans to protect these operations from new *development* that would preclude or hinder their expansion or continued use, or which would be incompatible for reasons of public health, public safety or environmental concerns.

9.B.2 Where a *development application* is required to expand the boundary of the licensed area of an existing *mineral aggregate operation*, ~~or to increase the depth of extraction,~~ the *development application* will be subject to all policies in this Plan that would apply to an application for a new *mineral aggregate operation* in addition to any requirements under the Aggregate Resources Act.

Mod. No. 45

9.B.3 Where the licensee has circulated an application to expand an existing licensed *mineral aggregate operation* or increase the depth of extraction which does not require the approval of a *development application,* the Region will review and provide comments on the application to the *Province* in the context of all policies in this Plan that would apply to an application for a new *mineral aggregate operation.*

9.B.4 A *development application* to expand an existing *mineral aggregate operation* located on lands designated as Environmentally Sensitive Landscapes as shown on Map 4 will only be supported where:

(a) it can be demonstrated to the satisfaction of the Region and the *Province* that substantial progress has been made in the rehabilitation to viable after-use of the disturbed area within the existing licensed area; and

(b) the total active extraction area of the original licensed area and the proposed expansion area is not increasing over the long term. A lesser standard may be considered where it can be demonstrated that the overall rehabilitation goals of the site can be more effectively achieved by deferring rehabilitation until a later stage of the pit's operation.

9.C New Mineral Aggregate Operations

9.C.1 New *mineral aggregate operations* will require a site-specific amendment to the Area Municipal zoning by-law, the approval of which will be subject to all applicable policies in this Plan, in addition to the requirements for a license under the Aggregate Resources Act. Any zoning by-law amendments approved under this policy will apply only to the boundary of the licensed area, ~~and will limit the depth of extraction to that which is specified on the proposed *site plan*~~.

Mod. No. 46

~~9.C.2 Within the Prime Agricultural Area designation as shown on Map 7, new *mineral aggregate operations* proposing extraction below the water table will require an amendment to this Plan to identify the area of extraction below the water table on Map 8. Such amendment will be subject to the policies in Section 9.D and all other applicable policies in this Plan. An amendment to the Area Municipal official plan will also be required to identify the area of extraction below the water table.~~

Mod. No. 47

Required Technical Information

9.C.3 *Development applications* to permit a new *mineral aggregate operation*, expand an *existing* operation, ~~or increase the depth of extraction,~~ will only be permitted where the following studies have been submitted to the satisfaction of the Region or agency with jurisdiction over the issue addressed by the study:

Mod. No. 45

(a) noise, dust and vibration studies demonstrating that the proposed operation is appropriately designed, buffered and/or separated from any surrounding *sensitive land uses* to prevent any *adverse effects*;

(b) a hydrogeological study in accordance with the provisions of the Regional Implementation Guideline for Source Water Protection Studies, demonstrating that the proposed operation will have no negative impacts on the quality and quantity of any surface water or groundwater resources;

(c) a Transportation Impact Study in accordance with Policy 5.A.25 indicating how the proposed operation will address any potential impacts on Regional roads and Provincial Highways;

Mod. No. 48

(d) an *Environmental Impact Statement* in accordance with the policies in Section 7.G, where the proposed *mineral aggregate operation* is *contiguous* to a Core Environmental Feature, or within or contiguous to a Supporting Environmental Feature;

(e) an *archaeological assessment* and/or *Cultural Heritage Impact Assessment* in accordance with the policies in Section 3.G;

(f) information on the estimated lifespan of the *mineral aggregate operation* and demonstration that the final rehabilitation plan is consistent with the policies in this Plan and the Area Municipal official plan; and

(g) any other studies identified by the Area Municipality to meet requirements of a complete application under the provisions of the Planning Act.

9.C.4 The studies noted in Policy 9.C.3 will take into account the potential *cumulative impacts* that may result from a proposed new *mineral aggregate operation* when added to other past, present and foreseeable future *mineral aggregate operations* in the vicinity of the proposed new operation. The appropriate level of detail, analysis boundaries and baseline data to be used in the cumulative impact assessment will be determined by the Region, Area Municipalities, the Grand River Conservation Authority and the owner/applicant as part of the *pre-submission consultation meeting*.

9.C.5 To avoid potential overlap among the studies required under Policy 9.C.3 and similar studies that may be required by the *Province*, Area Municipalities or the Grand River Conservation Authority, the Region will require the owner/applicant to participate in a *pre-submission consultation meeting* with each of these agencies prior to the submission of any supporting studies. The purpose of this *pre-submission consultation meeting* will be to identify the specific policy requirements of each of the agencies in each of the substantive areas being studied under ~~Policy 9.C.3~~ Policies 9.C.3 and 9.D.1 such that a single study can satisfy all of the requirements identified by the agencies. Following the *pre-submission consultation meeting*, the Region to the extent of its jurisdiction, may scope, waive, or establish a peer review or other suitable evaluation process for any requirements reflected in these studies.

Mod. No. 49

Review Criteria

9.C.6 New *mineral aggregate operations* will not be permitted on lands designated as Core Environmental Features, except in accordance with the following:

Mod. No. 50

~~(a) within Regionally Significant Woodlands, new *mineral aggregate operations* may be permitted where the *woodland* consists of habitats that~~

~~can be effectively replaced or restored in a short to medium time scale, such as a young plantation, small areas of non-provincially significant marsh or thicket *wetland*, or early successional *woodland*; or~~

~~(b) within Environmentally Significant Valley Features, new *mineral aggregate operations* may be permitted where the feature consists of habitats that can be effectively replaced or restored in a short to medium time scale, such as areas of crop or pasture, young plantation, early successional *woodland*, small areas of non-provincially significant marsh or thicket *wetland*, old field meadow, hedgerows and drainage swales; and~~

(a) within Significant Woodlands, Environmentally Significant Valley Features and Environmentally Sensitive Policy Areas, new *mineral aggregate operations* may be permitted where the feature consists of habitats that can be effectively replaced or restored, such as areas of crop or pasture, young plantation, early successional *woodland*, small areas of non-provincially significant marsh or thicket *wetland*, old field meadow, hedgerows and drainage swales; and

~~(c)~~ (b) the owner/applicant must demonstrate to the satisfaction of the Region that:

Mod. No. 51

~~i) the area of the Regionally Significant Woodland or Environmentally Significant Valley Feature will be replaced with habitat of greater extent and/or ecological value as part of the rehabilitation plans to promote a net ecological gain;~~

~~ii) there will be no significant *adverse environmental impacts* to the *environmental features* or *ecological functions* and connectivity of the residual areas of the Regionally Significant Woodland or Environmentally Significant Valley Feature;~~

i) the area of the Significant Woodland, Environmentally Significant Valley Feature or Environmentally Sensitive Policy Area will be replaced with habitat of greater extent and/or ecological value as part of the rehabilitation plans to promote a net ecological gain;

ii) there will be no *significant adverse environmental impacts* to the *environmental features* or *ecological functions* and connectivity of the residual areas of the Significant Woodland, Environmentally Significant Valley Feature or Environmentally Sensitive Policy Area;

iii) the quantity, quality and direction of local surface water and groundwater will be maintained or enhanced; and

iv) the extraction of *mineral aggregate resources* will be completed, and the area will be rehabilitated, as early as possible in the life of the operation.

9.C.7 New *mineral aggregate operations* proposed within a Source Water Protection Area designated as shown on Maps 6a to 6g may be permitted, except where such uses are prohibited in accordance with the source water protection policies in Chapter 8.

9.C.8 New *mineral aggregate operations* proposed *contiguous* to Core Environmental Features may be permitted, provided that there will be no significant *adverse environmental impacts* to their features or *ecological functions* and connectivity/*linkages*.

~~9.C.9 Area Municipalities will include site-specific regulations within their zoning by-laws to restrict extraction below the water table where subwatershed-scale hydrogeological studies, prepared in accordance with Policy 9.D.1(b), have not demonstrated to the Region's satisfaction the acceptability of such extraction from a surface water and groundwater perspective.~~

Mod. No. 52

9.C.10 New *mineral aggregate operations*, or *wayside pits and quarries*, may be permitted within Environmentally Sensitive Landscapes where it can be demonstrated to the satisfaction of the Region, in consultation with the *Province*, Area Municipalities and the Grand River Conservation Authority that:

a) where extraction is proposed *contiguous* to a Core Environmental Feature, there will be no significant *adverse environmental impacts* to their features or landscape level *ecological functions* and connectivity;

b) where extraction is proposed within or *contiguous* to the following features, which are not included within a Core Environmental Feature:

i) rivers, stream valleys, *floodplains*, or associated *hazardous lands* or *hazardous sites*;

ii) *fish habitat;*

iii) meromictic and kettle lakes;

iv) *significant* wildlife habitat; or

v) savannas, tallgrass prairies, rare *woodland* types, cliffs, alvars, sand barrens, marl seeps, bogs and fens;

there will be no significant *adverse environmental impacts* to their features or landscape level *ecological functions* and connectivity, although extraction may be considered in habitats which can be effectively replaced or restored in a short to medium time scale such as areas of crop or pasture land, young plantation, early successional *woodland*, small areas of non-provincially significant marsh or thicket wetland, old field meadow, hedgerows and drainage swales; and

c) the quantity and quality of local surface water and groundwater regimes can be maintained or enhanced.

9.C.11 Where a new *mineral aggregate operation* is proposed on lands designated as an Environmentally Sensitive Landscape as shown on Map 4, the Region will recommend to the *Province* that the ~~*Environmental Impact Statement*~~ Natural Environment Report required under the Aggregate Resources Act also address the following objectives:

Mod. No. 53

(a) natural habitat that would be lost from the site will be replaced with equivalent habitat on the property or on adjacent lands, and no less than 35 per cent of the licensed area remaining after extraction will be rehabilitated to natural self-sustaining *woodland* habitat representative of the landscape in which it is located;

(b) the quantity and quality of surface water and groundwater regimes and aquatic ecosystems remaining after, or created by, extraction will be rehabilitated to self-sustaining natural aquatic ecosystems representative of the landscape in which they are located;

(c) the health, diversity, size, *ecological function* and connectivity of major natural features remaining on and *contiguous* to the proposed extraction area will be maintained and, where possible, enhanced before, during and after the extraction of aggregate resources;

(d) the rehabilitated area will be maximized and the disturbed area minimized on an ongoing basis during the life-cycle of the pit operation; and

(e) rehabilitation of any area once occupied by natural features or identified as potential enhancement/restoration and/or corridor/*linkage* areas is completed as early as possible in the life of the extraction operation.

9.C.12 Development applications that would establish an ancillary use to a mineral aggregate operation will only be permitted where applicable studies identified in Policy 9.C.3 demonstrate to the satisfaction of the Region and/or Area Municipality that the proposed use will mitigate any potential adverse effects.

9.C.13 The Region will collaborate with the *Province* and Area Municipalities to ensure that all appropriate requirements resulting from the review of an application for a *mineral aggregate operation* are imposed and enforced as:

(a) conditions on the license or notes on the *site plan* required under the Aggregate Resources Act, including but not limited to spill protection measures to prevent discharges to surface water and groundwater resources from on-site fuel storage, vehicle or equipment repair and equipment operation, and spills from salt storage, use and transfer; and other best management practices; and

(b) ~~regulations in Area Municipal zoning by-laws, development agreements and~~ conservation easements as may be applicable.

Mod. No. 54

9.C.14 A new *mineral aggregate operation* proposing to establish or expand a *quarry operation* may only be permitted by way of an amendment to this Plan. Such amendment will be reviewed in the context of the policies of this Plan, the applicable Area Municipal Official Plan and the Provincial Standards approved under the Aggregate Resources Act.

Mod. No. 55

9.D. Extraction Below the Water Table

9.D.1 In addition to all other applicable policies in this Plan, ~~including the requirement for an amendment to this Plan in accordance with Policy 9.C.2,~~ mineral aggregate extraction below the water table will only be permitted where:

Mod. No. 56

(a) on lands identified as prime agricultural lands it is demonstrated to the satisfaction of the Region and Area Municipality that there is a substantial quantity of ~~high quality~~ *mineral aggregate resources* below the water table warranting extraction;

Mod. No. 57

~~(b) the completion of a subwatershed-scale hydrogeological study, which includes an evaluation of any potential *cumulative impacts* from past, present and reasonably foreseeable future *mineral aggregate operations* has demonstrated to the satisfaction of the Region, and the Grand River Conservation Authority that the removal of the resource and the subsequent rehabilitation of the lands will not negatively impact the quantity and quality of surface or groundwater resources;~~

Mod. No. 58

(b) the completion of a hydrogeological cumulative impacts assessment in accordance with best practice guidelines established by the Grand River Conservation Authority, Ontario Stone Sand and Gravel Association, and the Ministry of Natural Resources, which includes an evaluation of any

potential *cumulative impacts* from past, present and reasonably foreseeable future *mineral aggregate operations* in a subwatershed context, has demonstrated to the satisfaction of the Region, the Province and the Grand River Conservation Authority that the removal of the resource and the subsequent rehabilitation of the lands will not negatively impact the quantity and quality of surface or groundwater resources;

(c) if necessary to protect groundwater quality, post-extractive drainage is directed away from the resulting pond, the slopes of the pond are stabilized with appropriate native species, and a pond planting plan is prepared and implemented to the satisfaction of the Region;

(d) on lands identified as *prime agricultural lands,* other alternatives have been considered by the owner/applicant and found unsuitable, and agricultural rehabilitation in remaining areas will be maximized. The consideration of other alternatives will include investigation as to the availability of alternative resources on lands identified as Canada Land Inventory Class 4 to 7 soils, resources on lands committed to future urban uses, and resources on *prime agricultural lands* where rehabilitation to agriculture is feasible; and

(e) it is demonstrated to the satisfaction of the Region and the applicable Area Municipality that the site will be rehabilitated in accordance with the policies in Section 9.F.

~~9.D.2 Where the results of an individual or sub-watershed scale hydrogeological study indicate that mineral aggregate extraction below the water table may have a negative impact on the quantity or quality of groundwater in an area, the Area Municipality will restrict extraction below the water table by means of a site-specific regulation in the zoning by-law in accordance with Policy 9.C.1. The purpose of this restriction is to maintain the depth of residual over burden necessary to protect the quality and quantity of groundwater.~~

Mod. No. 59

9.D.3 Where the extraction of a proven significant quantity of ~~high quality~~ *mineral aggregate resources* located below the water table is not permitted in accordance with Policy 9.D.1 and 9.D.2, this resource will continue to be protected from land uses incompatible with its future extraction.

Mod. No. 60

9.E. Wayside Pits and Quarries, Portable Asphalt and Concrete Plants

9.E.1 Area Municipal official plans will include policies related to *wayside pits and quarries*, *portable asphalt plants* and *portable concrete plants* used for public road authority contracts. Such uses will be permitted on a temporary basis in all

land use designations, without the need for an official plan amendment or rezoning, except where:

(a) the use would be located within or adjacent to an existing Built-Up Area that would be incompatible with aggregate extraction and associated activities;

(b) the use would be located within a Core Environmental Feature designated as shown on Map 4; and

(c) the use is identified as a prohibited use by the policies in Chapter 8.

9.E.2 *Portable asphalt plants* and *portable concrete plants* will be discouraged on lands containing active agricultural operations. If asphalt or concrete for a public road project cannot be obtained from an existing asphalt or concrete plant, attempts should be made to locate the portable plant in *wayside pits and quarries*, vacant industrial sites, or on inactive or less productive agricultural lands.

9.E.3 *Portable asphalt plants* and *portable concrete plants* will obtain a Certificate of Approval from the *Province* pursuant to the Environmental Protection Act and will include provisions to prevent spills of petroleum chemicals to surface and groundwater resources.

9.F Rehabilitation of Aggregate Operations

9.F.1 All proposals for new *mineral aggregate operations*, including *wayside pits and quarries*, will include a rehabilitation plan to the satisfaction of the Region and Area Municipalities that will ensure that:

(a) progressive rehabilitation will be carried out whenever feasible so that depleted areas are restored while extraction continues in other areas of the site;

(b) final rehabilitation will comply with the land use designations contained in this Plan and Area Municipal official plan, and be compatible with the character of surrounding land uses;

(c) within the Prime Agricultural Area and Rural Areas designations, rehabilitation to agriculture will be the first priority, as follows:

i) within the Prime Agricultural Area, substantially the same land area will be rehabilitated back to an agricultural condition to allow for the same range and productivity of crops common in the area; and

ii) within Rural Areas, rehabilitation of the site will be carried out so that substantially the same land area and same average soil quality for agriculture are restored.

(d) where mineral aggregate extraction has occurred below the water table, rehabilitation will be in accordance with Policy 9.D.1(c) to protect groundwater quality.

9.F.2 ~~Notwithstanding Policy 9.F.1(c), complete agricultural rehabilitation will not be required where~~ In the prime agricultural area designation, rehabilitation to agriculture will be the first priority. Notwithstanding this, complete agricultural rehabilitation within the Prime Agricultural Area and Rural Areas designations may not be required where:

Mod. No. 61

(a) the depth of the planned extraction makes restoration of pre-extraction agricultural capability impractical;

(b) hydrogeological investigations completed in accordance with the policies in this Plan have demonstrated to the satisfaction of the Region that agricultural rehabilitation is not desirable due to groundwater protection requirements;

(c) the Region, in collaboration with the *Province,* Area Municipalities and the Grand River Conservation Authority, have determined a suitable alternative post-extractive use in conformity with the policies in this Plan and the Area Municipal official plan; or

(d) aggregate extraction would remove natural features such as *woodlands*, *wetlands* and watercourses on lands not otherwise protected by the Greenlands Network policies in this Plan, in which case these natural features will be restored and, where possible, enhanced consistent with the intent of Policy 9.C.11.

9.F.3 Where multiple *mineral aggregate operations* are located in close proximity to one another, the Region will collaborate with the *Province*, Area Municipalities, the Grand River Conservation Authority and the affected owners/applicants to jointly develop comprehensive rehabilitation plans for multiple properties.

10. Fulfilling Consultation and Implementation Roles

Establishing an effective implementation framework is an essential component of any plan if its goals and objectives are to be realized. This Chapter outlines a variety of tools that will be used to implement the policies in this Plan, including the traditional tools that govern the review and approval of *development applications*. This Chapter also addresses the key roles of Area Municipalities in achieving this Plan's objectives.

Partnerships and collaboration are critical when it comes to implementation, and the Region relies upon the strong relationships that have been developed with the *Province*, Area Municipalities, the Grand River Conservation Authority, other government agencies, the private sector and the broader community. The Region's goal in the public consultation process is to collaborate with individuals, groups and agencies to achieve, whenever possible, mutually satisfactory solutions to planning issues. Collaboration and participation are encouraged as part of the planning process in order to find alternative points of view and solutions, build trust and accountability, recognize diverse interests and to ultimately make better decisions. To assist in this process, the Region will undertake research on emerging planning issues and monitor the effectiveness of policies in this Plan.

The planning tools and resources that aid implementation are also described in this Chapter. *Community Improvement Plans*, fiscal tools, Provincial legislation and policy and implementation guidelines are all mechanisms that the Region may either use or require. In addition, this Chapter contains policies related to plan interpretation, boundary interpretation and the process for amending this Plan.

Regional Implementation Guidelines are used to support the objectives of this Plan. These guidelines detail the manner in which certain policies will be implemented.

Finally, this Chapter establishes a framework for ongoing monitoring that will ensure that the policies in this Plan remain effective in achieving the stated goals and objectives. Only through monitoring can the Region assess the success of specific policies and subsequently make targeted amendments to ensure these overall goals and objectives of this Plan are realized, or adjusted as required.

Overall Goal – Foster participation and collaboration in the effective implementation of the goals and objectives of this Plan.

Objectives:

10.1 Help educate and engage members of the community about the importance of planning and to encourage participation in the planning process.

10.2 Provide a variety of enhanced opportunities for input and continue to explore innovative processes for citizen engagement.

10.3 Continue to partner with Area Municipalities, the Grand River Conservation Authority and other stakeholders to successfully implement this Plan.

10.4 Continue to provide regular, streamlined and timely communication with partners and the broader community.

10.5 Monitor, evaluate and report on implementation progress.

10.6 Continue to develop and/or participate in financial incentive programs.

10.A Public Consultation

Partnerships and Collaboration

10.A.1 The Region will provide opportunities for public participation in the development, implementation and monitoring of Regional planning policies in accordance with this Plan, the Planning Act, the Environmental Assessment Act and other relevant legislation and policy.

10.A.2 The Region will co-operate with Area Municipalities in public participation programs, including the holding of joint public meetings, where appropriate, during the processing of amendments to this Plan and Area Municipal official plans, and for other initiatives where interests are common.

10.A.3 In public participation programs associated with a *municipal comprehensive review* of this Plan, or major amendments hereto, the Region will endeavour to:

(a) establish realistic objectives and timelines for public participation programs;

(b) solicit public input through a variety of enhanced public participation programs;

(c) demonstrate how comments from the public have been considered in the planning policy and development decisions; and

(d) ensure appropriate opportunities exist for public input into the development and approval of planning policies and programs.

10.B. Planning Tools and Resources

Corporate Strategic and Fiscal Planning

10.B.1 The Region will prepare and regularly update a Regional Corporate Strategic Plan that:

(a) identifies emerging opportunities that are key to the maintenance and enhancement of the quality of life in the region, and to the achievement of the goals and objectives of this Plan; and

(b) recommends priorities among various programs and services of the Region, and organizational and other changes needed to maintain and improve efficient and effective program and service delivery.

10.B.2 The Regional Capital Forecast will be prepared and periodically updated to reflect the stated goals and objectives of this Plan. The Region will give priority to *infrastructure* investments that support the Planned Community Structure of this Plan.

10.B.3 The Region may impose user fees as a means of recovering appropriate operating and capital costs associated with the delivery of Regional services.

10.B.4 The Region will periodically examine the implications of Regional efforts to develop cost recovery mechanisms for its services and programs on the various sectors of the community. Where these impacts prove onerous, alternative approaches may be implemented.

10.B.5 The Region will establish and maintain a Regional Development Charges By-law, in accordance with the provisions of the Development Charges Act, as a means of recovering eligible growth-related capital costs associated with the delivery of Regional services. The Region may provide for exemptions from the collection of such charges within the Regional Development Charges By-law, where such exemptions support the Planned Community Structure of this Plan.

Community Improvement Plans

10.B.6 For the purposes of promoting a *sustainable* and *liveable* community, the Region may support *community improvement* through the designation of Community Improvement Project Areas and the adoption of Regional C*ommunity Improvement Plans* in relation to the following:

(a) *affordable housing*;

(b) *infrastructure* that is within the Region's jurisdiction;

(c) land and buildings within and adjacent to Existing or Planned Transit Corridors that have the potential to provide for higher density *reurbanization*; or

(d) other matters as the *Province* may prescribe in accordance with the Planning Act.

10.B.7 The Region may provide grants, loans or other assistance under its own *Community Improvement Plans*. The corporate boundaries of the Region of Waterloo constitute the boundaries of the Community Improvement Project Area under the Planning Act.

10.B.8 The Region may provide grants, loans or other assistance as Regional Council deems appropriate for the purposes of carrying out programs as described in Area Municipal *Community Improvement Plans*.

Implementation Guidelines

10.B.9 Regional Implementation Guidelines are recognized as statements adopted by resolution of Regional Council which detail the manner in which policies established in this Plan will be implemented. The content and scope of these Implementation Guidelines will be determined by the Region, in consultation with Area Municipalities and the Grand River Conservation Authority as appropriate, will be updated from time-to-time and will be in conformity with the policies in this Plan.

10.B.10 Regional Implementation Guidelines will not be used as instruments to introduce new policy provisions that could be the basis for denying *development applications* under the Planning Act, or for interfering with the natural justice rights of landowners and the public.

10.B.11 The Region will provide public and agency notification at least 20 days prior to Regional Council consideration of any new or revised Regional Implementation Guidelines. Such notification will include the following information:

(a) the general nature, purpose or content of the proposed Implementation Guideline;

(b) the time, date and place at which the proposed Implementation Guideline will be considered for approval by Regional Council or a Committee of Regional Council; and

(c) the means by which interested persons may obtain further information or may submit comments on the proposed Implementation Guideline prior to its adoption.

10.B.12 Public and agency notification of the proposed adoption of a Regional Implementation Guideline will be provided by:

(a) publication in a newspaper of sufficiently general circulation as to give reasonable public notice of the meeting;

(b) personal service or prepaid first class mail to every person or agency who has made a request to receive such notification or who the Region has determined is likely to have a significant interest in the matter which is the subject of the proposed Implementation Guideline;

(c) posting on the Region's website; and

(d) other means of notification as may be deemed appropriate by Regional Council.

10.B.13 Copies of the proposed Regional Implementation Guideline will be available at the time public notification is given in accordance with Policy 10.B.11.

10.B.14 A reasonable opportunity will be provided to all persons and agencies having an interest in a proposed Regional Implementation Guideline to make representations to Regional Council or to a Committee of Regional Council. A fair hearing will be provided to such deputations or to written comments submitted to the Regional Clerk, prior to its consideration for adoption.

10.C Policy and Mapping Interpretations

Policy Interpretation

10.C.1 The text, tables, maps, schedule and glossary of terms contained in this Plan constitute the Regional Municipality of Waterloo's Official Plan. Any graphics or text contained in the margins of the Plan are intended to be illustrative and are provided for information only.

10.C.2 The policies contained in this Plan provide a statement of the intentions of Regional Council. If clarification of any policy is necessary, reference should be first made to the introductory text, and then to the overall goals and objectives of this Plan. Maps 1 to 8 must be read in the context of the related policies.

10.C.3 Where new mapping information is provided by the *Province*, any affected maps in this Plan will be reviewed and updated as part of the five-year *municipal comprehensive review* process, or the completion of a *municipal comprehensive review* as otherwise initiated by Regional Council.

10.C.4 In the case of a discrepancy between the policies and the related map, the policies will take precedence.

10.C.5 Where differences of opinion arise as to the meaning of any part of this Plan, an interpretation may be made by Regional Council after hearing all interested parties. Where such interpretation is not accepted by the Council of an Area Municipality or by any other interested party, such Council or party may apply to the Courts or other Body having jurisdiction over such matters.

10.C.6 Where a parcel of land is subject to one or more designations shown on a map in this Plan, *development applications* will be reviewed in accordance with all the policies of the applicable designations. Where conflict exists between such policies, the more restrictive policies will prevail to the extent of the conflict except where application of the more restrictive policy would result in an outcome not consistent with the goals and objectives of this Plan.

Boundary Interpretation

10.C.7 The boundaries shown on maps in this Plan will be interpreted as follows:

(a) the urban land use designations as shown on Maps 3a to 3e inclusive will be interpreted as being definitive, except for Urban Growth Centres, Township Urban Growth Centres and Major Transit Stations Areas, the boundaries of which are conceptual. The precise boundaries of these three designations will be delineated in the applicable Area Municipal official plan;

(b) where the boundaries of the Urban Area, Township Urban Areas and the Highway 401/Regional Road 97 Employment Area as shown on Maps 3a to 3e inclusive coincide with such physical features as roadways, rivers and other defined geographical features, the boundaries will be deemed to be the centre line of that feature.

(c) the environmental land use designations as shown on Map 4, except for the Provincial Greenbelt Natural Heritage System, are based on more detailed mapping contained in the Technical Appendix for Landscape Level Systems and Core Environmental Features. The interpretation of these boundaries will be in accordance with the provisions set out in Chapter 7. The boundary of the Provincial Greenbelt Natural Heritage

System will be interpreted in accordance with the provisions of the Provincial Greenbelt Plan; and

(d) the boundaries of the various natural resource areas as shown on Maps 6a to 6g, Map 7 and Map 8 will be interpreted through the *development* review process.

10.D Development Review Process

10.D.1 The Region will provide comments to Area Municipalities or other applicable agencies with respect to matters of Regional significance or interest relating to applications submitted in accordance with the Planning Act or other Provincial or Federal legislation and policy. These comments will be provided in accordance with the procedures established by the *Province*, the Ontario Municipal Board or other legal authority.

10.D.2 The Region, in its role as a delegate of various Provincial agencies as established through legislative regulation or agreements with these agencies, will implement this mandate through the review and approval of *development applications*.

10.D.3 Where the Region is the approval authority as assigned under the provisions of the Planning Act, Regional Council may by by-law, subject to any terms and conditions contained therein, delegate authority to persons or bodies as described in the by-law.

10.D.4 Applications to amend this Plan will not be accepted by the Region for processing in the absence of a complete application in accordance with the policies in this Section.

10.D.5 The Region will only accept and process complete applications for plans of subdivision or plans of condominium for which the Region is the approval authority, and/or for amendments to this Plan. To be deemed complete, an application must satisfy all applicable statutory requirements, all requirements set out in the applicable Area Municipal official plan and be accompanied by all the *other information and materials* listed in Schedule 'C' except where some of these study requirements have been scoped or waived through a *pre-submission consultation meeting* as set out in a Record of Pre-submission Consultation issued by the Regional Commissioner of Planning, Housing & Community Services pursuant to the Region's Pre-submission Consultation By-Law.

10.D.6 *Other information and materials* submitted in accordance with Policy 10.D.5 are subject to the following stipulations in order to be deemed complete:

(a) the content and necessity of the *other information and materials* will be determined through a *pre-submission consultation meeting* with the Region, the applicable Area Municipality and other agencies as required and will be in keeping with the scope and complexity of the application(s);

(b) the *other information and materials* submitted must be prepared by a qualified professional (as defined in applicable legislation or alternatively to the satisfaction of the Region) retained by and at the expense of the owner/applicant; and

(c) the *other information and materials* submitted must be in accordance with any applicable Provincial or Regional guidelines.

10.D.7 The Region may refuse *other information and materials* submitted if it considers the quality of the submission unsatisfactory.

10.D.8 The Region may request electronic versions of all *other information and materials* submitted and stipulate the format of the digital submission.

10.D.9 The Region may require additional information or reports as part of the complete application, in addition to the *other information and materials* listed in Schedule 'C', where circumstances necessitate such information in the decision-making process.

10.D.10 Through the course of the review process for a *development application* that has otherwise been deemed a complete application, the Region may require additional reports, studies, or information from the owner/applicant to address specific issues to enable Regional Council to make informed decisions.

10.D.11 Where this Plan requires a study to be completed in support of a *development application*, such studies will be submitted and approved to the satisfaction of the appropriate agency. If an appropriate agency is not stated as an approval authority, the required studies must be completed to the satisfaction of the Region and the results of such studies will be used to structure conditions of approval.

10.D.12 Where this Plan requires a study to be completed in support of a *development application* and the study has been submitted to the satisfaction of the Region or the appropriate agency, the resultant recommendations from the study or studies must be implemented, or secured through appropriate legal agreements, prior to final approval of the *development application*.

10.D.13 The Region may conduct a peer review of any *other information and materials* submitted where necessary to determine whether the quality of the submission is satisfactory. Such peer reviews will be completed by an appropriate agency

or professional consultant retained by the Region at the owner/applicant's expense; and

10.D.14 The Region will continue to review the *development* review process in consultation with Area Municipalities, the Grand River Conservation Authority, the development industry and other stakeholders to:

(a) establish and monitor general time frames and procedures for the review of *development applications*;

(b) identify means of increasing the efficiency and effectiveness of the development review process;

(c) update development review procedures based on the review; and

(d) periodically prepare a report for Regional Council on the results of the review.

10.D.15. The Region, or any delegate thereof responsible for the approval of plans of subdivision, will, in consultation with the applicable municipality and other appropriate agencies, review draft approved plans of subdivision every three years in accordance with the provisions of the Planning Act.

10.E Plan Conformity

10.E.1 This Plan is a legal document prepared in accordance with the statutory powers and responsibilities vested in the Region by the *Province*. All public works carried out in the region must be in conformity with this Plan, and no by-laws will be passed for any purposes that are not in conformity with this Plan.

10.E.2 The effect of Provincial and Federal legislation in granting exemptions from compliance under this Plan for specified undertakings is acknowledged. However, the Region will strive through consultation to gain the full support of Federal and Provincial agencies in working toward the objectives of this Plan.

10.E.3 Other government agencies will have regard to this Plan in preparing and administering plans and programs which may affect the region.

10.E.4 The Region considers the policies in this Plan to be consistent with the Provincial Policy Statements adopted by the *Province* under the Planning Act.

10.E.5 Although the scope and content of respective Area Municipal official plans may differ in recognition of the unique circumstances within each municipality, Area Municipal official plans and official plan amendments:

(a) will be in conformity with this Plan; and

(b) may contain policies which are more restrictive than the policies in this Plan on the same subject, but may not be more permissive than the policy direction established in this Plan.

10.E.6 Where this Plan designates lands on a map or establishes a policy on a particular matter, it may not be necessary for Area Municipal official plans to address the issue further unless this Plan requires companion actions by the Area Municipality, or the Area Municipality wishes to apply the policy in greater detail.

10.E.7 Area Municipalities will bring their respective official plans and zoning by-laws into conformity with the policies in this Plan in accordance with the timelines set out in the Planning Act.

10.E.8 In the event that an Area Municipality fails to bring its official plan into conformity with this Plan within two years of the date of approval of this Plan, the Region will require the Area Municipality to amend its official plan to achieve such conformity in accordance with the provisions of the Planning Act.

10.E.9 Where an Area Municipality has not brought their official plan into conformity with the policies required to be established by policies in this Plan, the Region will provide interpretation of these policies as part of the *development* review process.

10.E.10 Notwithstanding any other policies in this Plan, public service facilities and systems owned and operated by, or on behalf of, the Federal or Provincial governments, the Region or any Area Municipality, or the Grand River Conservation Authority may be permitted in any Area Municipal Plan land use designation.

Mod. No. 62

10.E.11 The policies in this Plan will apply to any *development applications* or *site plans*, matters or proceedings commenced on or after the date this Plan, or any applicable part of this Plan, comes into effect.

10.F Amendments to the Plan

10.F.1 Notice of amendments to this Plan will be given in accordance with the procedures as provided for in the Planning Act.

10.F.2 Copies of the proposed amendment will be available to the public at the time notification is given.

10.F.3 In considering amendments to this Plan, the Region will be guided by the following:

(a) the need for the proposed change;

(b) the effect of the proposed change on the demand for Regional and Area Municipal services and facilities;

(c) the implications the amendment may have on other policies in this Plan;

(d) the implications of the proposed change on the Region's ability to achieve the overall goals, objectives, and policies expressed in this Plan, or on other Regional policies, programs or interests;

(e) the implications of the proposed change on the ability of Area Municipalities to achieve the principles and policies expressed in their official plans, or on other Area Municipal policies, programs or interests;

(f) the conformity of the amendment with the Growth Plan and other applicable Provincial policies and legislation; and

(g) the consistency of the amendment with the Provincial Policy Statement.

10.F.4 The Region will undertake a review of the policies in this Plan where judicial decisions, Ontario Municipal Board decisions, and/or changes to legislation or the Provincial Policy Statements warrant such a review. The Region will consider amendments to this Plan as appropriate to implement the results of this review.

10.F.5 The Region will review the policies in this Plan as part of a five-year *municipal comprehensive review*, or the completion of a *municipal comprehensive review* as otherwise initiated by Regional Council. These reviews will be completed in conjunction with updates to the Regional Land Budget which will help determine whether there is sufficient justification to consider expanding the Urban Area and/or Township Urban Area boundaries to accommodate projected population and employment growth within the time horizon of the Plan.

10.F.6 The Region will conduct a major review of the overall goals and objectives of this Plan every ten years.

10.G Monitoring, Plan Review and Updating

10.G.1 To provide information for the on-going evaluation of the policies in this Plan, the Region will continue to carry out a program of research, in collaboration with the *Province*, Area Municipalities, the Grand River Conservation Authority and other stakeholders, as appropriate, to identify the changing social, economic and physical needs of the residents of the region and the consequences of technological improvements that may affect the programs and policies of the Region.

10.G.2 The Region will continue to develop financial and/or information collection and sharing arrangements with the *Province*, Area Municipalities, the Grand River Conservation Authority and other stakeholders to provide for the development and maintenance of comprehensive and integrated region-wide demographic, environmental, economic, land use, housing and social databases. These databases will be used to monitor the effectiveness of the policies in this Plan, and where feasible, information from these databases will be made available to the public.

10.G.3 Data collected in accordance with Policy 10.G.2 for inclusion in the cultural, demographic, environmental, economic, land use and social databases will be used for monitoring and to support future amendments and *comprehensive reviews* of the Plan.

10.G.4 A report will be presented periodically to Regional Council and community stakeholders with the results of the monitoring process.

Schedule A: DESIGNATED ROAD ALLOWANCES

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE (up to the maximum)	
				metres	feet
1	Wilmot-Easthope Road	Oxford County/Perth County boundary	Highway 7 & 8	30.480	100.00
1	Wilmot-Easthope Road/Huron Street	Highway 7 & 8	Centennial Crescent (New Hamburg)	26.213	86.00
1	Huron Street/ Waterloo Street (New Hamburg)	Centennial Crescent	Victoria Street	20.117	66.00
1	Waterloo Street/ Snyder's Road W	Victoria Street	Lane to Regional Water Tower (Baden)	30.480	100.00
1	Snyder's Road W (Baden)	Water Tower	Schneller Drive	20.117	66.00
1	Snyder's Road W	Schneller Drive	Gingrich Road (6)	30.480	100.00
3	Oxford-Waterloo Road	Oxford County Road 22	Walker Road (3)	30.480	100.00
3	Walker Road	Region of Waterloo/ Oxford County boundary	Highway 7 & 8	30.480	100.00
4	Ottawa Street	Fountain Street (17)	180 m east of the Grand River	35.0	114.80
4	Ottawa Street	180 m east of the Grand River	Otterbien Road	75.0	246.10
4	Ottawa Street	Otterbien Road	Heritage Drive	35.000	114.80
4	Ottawa Street	Heritage Drive	Conestoga Parkway	30.480	100.00
4	Ottawa Street	Conestoga Parkway	Fischer-Hallman Road (58)	30.480	100.00
4	Ottawa Street	Fischer-Hallman Road (58)	Bleams Road (4)	30.480	100.00
4	Bleams Road (Mannheim)	Ottawa Street (4)	Alder Creek	20.117	66.00
4	Bleams Road	Alder Creek	Old Bleams Road & Diversion to Highway 7 & 8	30.480	100.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet
4	Bleams Road(Diversion to Highway 7 & 8)	Old Bleams Road	Highway 7 & 8	26.213	86.00
4	Peel Street (New Hamburg)	Highway 7 & 8	Huron Street (1)	20.117	66.00
4	Huron Street (New Hamburg)	Peel Street (4)	Waterloo Street (1)	20.117	66.00
5	Nafziger Road	Highway 7 & 8	Gerber Road (12)	30.480	100.00
5	Nafziger Road (Wellesley Settlement)	Gerber Road (12)	Queen's Bush Road (5)	20.117	66.00
5	Queen's Bush Road (Wellesley Settlement)	Nafziger Road (5)	500 m west of David Street (formerly Amesbury Court)	20.117	66.00
5	Queen's Bush Road	500 m west of David Street (formerly Amesbury Court)	Hutchison Road (5)/ Perth Line (7)	26.213	86.00
5	Hutchison Road	Queen's Bush Road (5)/ Perth Line (7)	Lobsinger Line (15)	30.480	100.00
5	Hutchinson Road/ William Hastings Line (Crosshill)	Lobsinger Line (15)	West limit of old section of Crosshill	20.117	66.00
5	William Hastings Line/ Manser Road	West Limit of Old Section of Crosshill	Lorraine Drive (Linwood)	30.480	100.00
5	Manser Road (Linwood)	Lorraine Drive	Former CPR Tracks	20.117	66.00
5	Manser Road	Former CPR Tracks	Line 86 (86)	30.480	100.00
6	Frederick Street (Kitchener)	Bruce Street (61)	East Avenue	26.313	86.00
6	Frederick Street	East Avenue	Duke Street	20.117	66.00
6	Frederick Street	Duke Street	Benton Street (6)	26.213	86.00
6	Benton Street	Frederick Street (6)	Courtland Avenue (53)	26.213	86.00
6	Queen Street	Courtland Avenue (53)	Schneider Avenue	20.117	66.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet (up to the maximum)
6	Queen Street	Schneider Avenue	Highland Road (6)	26.213	86.00
6	Queen/Benton Diversion	Benton Street (6)	Queen Street (6)	30.000	98.43
6	Highland Road	Queen Street (6)	Westmount Road (50)	26.213	86.00
6	Highland Road	Westmount Road (50)	Approximately 150 m west of Ira Needles Boulevard	36.576	120.00
6	Highland Road/Snyder's Road E	Approximately 150 m west of Ira Needles Boulevard (70)	Approximately 200 m east of Notre Dame Drive (12)	30.480	100.00
6	Snyder's Road E (Petersburg)	Approximately 200 m east of Notre Dame Drive (12)	Notre Dame Drive (12)	20.117	66.00
6	Snyder's Road E	Notre Dame Drive (12)	Gingrich Road (6)	30.480	100.00
6	Gingrich Road	Snyder's Road (1)	Foundry Street (51)	30.480	100.00
7	Hutchison Road/ Perth Line	Queen's Bush Road (5)	Road 116 (Region Waterloo/Perth County boundary)	30.480	100.00
8	Dundas Street (Cambridge)	Branchton Road (43)	Main Street (97)	30.480	100.00
8	Dundas Street	Main Street (97)	Hespeler Road (24)	26.213	86.00
8	Coronation Boulevard	Hespeler Road (24)	Concession Road	36.576	120.00
8	King Street E	Concession Road	Eagle Street (39)	20.117	66.00
8	King Street E	Eagle Street (39)	Fountain Street S (8)	26.213	86.00
8	Fountain Street S	King Street (8)	Shantz Hill Road (8)	26.213	86.00
8	Shantz Hill Road	Fountain Street S (8)	Highway 401 Ramps	26.213	86.00
8	King Street E (Kitchener)	Highway 401 Ramps	Sportsworld Drive (38)	36.576	120.00
8	King Street E	Sportsworld Drive (38)	Highway 8	45.000	147.60

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet (up to the maximum)
8	King Street E (Kitchener)	Highway 8	Fairway Road (53)	24.384	80.00
8	King Street E	Fairway Road (53)	Weber Street (8)	26.213	86.00
8	Weber Street	King Street E (8)	Victoria Street (55)	26.213	86.00
8	Weber Street	Victoria Street (55)	Louisa Street	30.480	100.00
8	Weber Street	Louisa Street	K-W boundary	26.213	86.00
8	Weber Street	K-W boundary	King Street N (15)	30.480	100.00
8	Weber Street	King Street N (15)	Northfield Drive (50)	30.480	100.00
8	Weber Street	Northfield Drive (50)	Benjamin Road (Waterloo/Woolwich boundary)	30.480	100.00
8	Weber Street	Benjamin Road (Waterloo/Woolwich boundary)	King Street N (15)	30.480	100.00
8	King Street N	Lobsinger Line (15) (Woolwich)	Henry Street (St. Jacobs)	30.480	100.00
8	King Street N (St. Jacobs)	Henry Street	Conestoga River	20.117	66.00
8	King Street N	Conestoga River	Sawmill Road (17)	30.480 - 71.628	100.00 - 235.00
9E	Erb Street (Waterloo)	Bridgeport Road (9W)	Weber Street (8)	24.384	80.00
9E	Erb Street	Weber Street (8)	King Street (15)	24.384	80.00
9E	Erb Street	King Street (15)	Caroline Street (9)	26.213	86.00
9	Erb Street	Caroline Street (9)	Westmount Road (50)	24.384	80.00
9	Erb Street	Westmount Road (50)	Fischer-Hallman Road (58)	30.480	100.00
9	Erb Street	Fischer-Hallman Road (58)	Waterloo/Wilmot boundary	30.480	100.00
9	Erb's Road (Wilmot)	Waterloo/Wilmot boundary	Strauss Court	30.480	100.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet (up to the maximum)
9	Erb's Road (St. Agatha)	Strauss Court	Wilma Street	20.117	66.00
9	Erb's Road	Wilma Street	Approximately 150 m east of Nafziger Road (5)	30.480	100.00
9	Erb's Road (Philipsburg)	Approximately 150 m east of Nafziger Road (5)	150 m west of Nafziger Road (5)	20.117	66.00
9	Erb's Road	Approximately 150 m west of Nafziger Road (5)	Wilmot - Easthope Road (Waterloo/ Perth boundary)	30.480	100.00
9W	Bridgeport Road	Lancaster Street (29)	Conestoga Parkway	30.480	100.00
9W	Bridgeport Road	Conestoga Parkway	Weber Street (8)	26.213	86.00
9W	Bridgeport Road	Weber Street (8)	Moore Street	30.480	100.00
9W	Bridgeport Road	Moore Street	Albert Street	20.117	66.00
9W	Caroline Street	Albert Street	Erb Street (9)	20.117	66.00
10	Herrgott Road (St. Clements)	Lobsinger Line (15)	Maple Street	26.213	86.00
10	Herrgott Road	Maple Street	Approximately 90 m south of Line 86 (86)	30.480	100.00
10	Herrgott Road (Wallenstein)	Approximately 90 m south of Line 86 (86)	Line 86 (86)	20.117	66.00
11	William Hastings Line	Manser Road (5)	Road 116 (Region of Waterloo/Perth County boundary)	30.480	100.00
12	New Dundee Road/Bridge Street (Kitchener/Wilmot)	Homer Watson Boulevard (28)	Main Street (New Dundee)	30.480	100.00
12	Queen Street/ Bridge Street (New Dundee)	Main Street	Water Street	20.117	66.00
12	Queen Street/Notre Dame Drive	Water Street	0.15 km south of Snyder's Road E (6)	30.480	100.00
12	Notre Dame Drive (Petersburg)	0.15 km south of Snyder's Road E (6)	.05 km north of Snyder's Road (6)	20.117	66.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet (up to the maximum)
12	Notre Dame Drive	0.05 km north of Snyder's Road (6)	.049 km south of Erb's Road (9)	30.480	100.00
12	Notre Dame Drive (St. Agatha)	0.49 km south of Erb's Road (9)	St. Ann Avenue	26.213	86.00
12	Notre Dame Drive/ Gerber Road	St. Ann Avenue	Nafziger Road (5)	30.480	100.00
14	Moser-Young Road	Gerber Road/Notre Dame Drive (12)	Weimar Line (14)	30.480	100.00
14	Weimar Line (Bamberg)	Moser-Young Road (14)	0.48 km east of Moser-Young Road (10)	26.213	86.00
14	Weimar Line	0.48 km east of Moser-Young Road (10)	Kressler Road (16)	30.480	100.00
14	Kressler Road	Weimer Line (14)	Erbsville Road (70)	30.480	100.00
15	King Street E (Kitchener)	Montgomery Road	Charles Street (64)	45.720	150.00
15	King Street E	Charles Street (64)	Sheldon Street	30.480	100.00
15	King Street E	Sheldon Street	Ottawa Street (4)	26.213	86.00
15	King Street E	Francis Street (64)	Victoria Street (55)	26.213	86.00
15	King Street W	Victoria Street (55)	Louisa Street	26.213	86.00
15	King Street W	Louisa Street	Union Street (K-W City boundary)	26.213	86.00
15	King Street W (Waterloo)	Union Street (K-W City boundary)	William Street	26.213	86.00
15	King Street N	William Street	Erb Street (9)	26.213	86.00
15	King Street N	Erb Street (9)	University Avenue (57)	24.384	80.00
15	King Street N	University Avenue (57)	Columbia Street (59)	26.213	86.00
15	King Street N/ Lobsinger Line	Columbia Street (59)	Heidelberg Cemetery (Woolwich)	30.480	100.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet
15	Lobsinger Line (Heidelberg)	Heidelberg Cemetery	.96 km west of Kressler Road (16)	20.117	66.00
15	Lobsinger Line (15)	.96 km west of Kressler Road (16)	Park Street	30.480	100.00
15	Lobsinger Line (St. Clements)	Park Street	.80 km west of Herrgott Road (10)	20.117	66.00
15	Lobsinger Line	.80 km west of Herrgott Road (10)	Hutchison Road (5)	30.480	100.00
16	Kressler Road	Erbsville Road (70)	Rocky Lane	30.480	100.00
16	Kressler Road (Heidelberg)	Rocky Lane	Apollo Drive	20.117	66.00
16	Kressler Road	Apollo Drive	Hawkesville Road (17)	30.480	100.00
17	Fountain Street N (Cambridge)	King Street (8)	Highway 401	26.213	86.00
17	Fountain Street N	Highway 401	Woolwich Street S	30.480	100.00
17	Fountain Street N	Woolwich Street S	Victoria Street N (55)	35.00	114.80
17	Ebycrest Road	Victoria Street N (55)	Bloomingdale Road (20)	30.480	100.00
17	Saw Mill Road	Bloomingdale Road (20)	River Street	30.480	100.00
17	Saw Mill Road (Bloomingdale)	River Street	Snyder's Flats Road	20.117	66.00
17	Saw Mill Road	Snyder's Flats Road	Grand River	30.480	100.00
17	Saw Mill Road (Conestogo)	Grand River	Northfield Drive E (22)	20.117	66.00
17	Saw Mill Road	Northfield Drive E (22)	Northside Drive	30.480	100.00
17	Northside Drive (St. Jacobs)	Sawmill Road (17)	Hawkesville Road (17)	26.213	86.00
17	Hawkesville Road	Northside Drive	West end of Cemetery	26.213	86.00
17	Hawkesville Road/ Ament Line	West end of cemetery	Knarr Street (Linwood)	30.480	100.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet
17	Ament Line (Linwood)	Knarr Street	Manser Road (5)	20.117	66.00
19	Floradale Road	Church Street/Line 86 (86)	Eldon Place	30.480	100.00
19	Floradale Road (Floradale)	Eldon Place	Florapine Road	20.117	66.00
20	Bloomingdale Road N (Kitchener)	Bridge Street	Kraft Drive	26.213	86.00
20	Bloomingdale Road N	Kraft Drive	Ebycrest Road/ Sawmill Road (17)	30.480	100.00
21	Arthur Street S (Elmira)	Listowel Road (85)	First Street	30.480	100.00
21	Arthur Street S/Arthur Street N	First Street	Reid Woods Drive	20.117	66.00
21	Arthur Street N	Reid Woods Drive	Floradale Road (Region of Waterloo/ Wellington County boundary)	30.480	100.00
22	Northfield Drive E (Waterloo/Twp. of Woolwich)	King Street N (15)	Elgin Street W (Conestogo)	30.480	100.00
22	Northfield Drive E (Conestogo)	Elgin Street W	Ferland Street	20.117	66.00
22	Northfield Drive E (Woolwich)	Ferland Street	Region of Waterloo/ Wellington County boundary	30.480	100.00
23	Katherine Street S	Sawmill Road (17)/Crows Foot Road	Peel Street (Winterbourne)	30.480	100.00
23	Katherine Street S (Winterbourne)	Peel Street	Lanphier Street (unopened)	20.117	66.00
23	Katherine Street N	Lanphier Street (unopened)	Region of Waterloo/ Wellington County boundary	30.480	100.00
24	Water Street (Cambridge)	Myers Road (43)	Future Ainslie Street Extension	26.213	86.00
24	Water Street (Cambridge)	Ainslie Street S (24)	Bruce Street	20.117	66.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet (up to the maximum)
24	Water Street	Bruce Street	Augusta Street	26.213	86.00
24	Ainslie Street	Water Street S (24)	Bruce Street	20.117	66.00
24	Ainslie Street	Bruce Street	Main Street	26.213	86.00
24	Ainslie Street	Main Street	Water Street N (24)	20.117	66.00
24	Hespeler Road	Augusta Street	Dunbar Road	36.576	120.00
24	Hespeler Road	Dunbar Road	200 m north of Pinebush Road (39) (Highway 401)	38.00	124.64
24	Hespeler Road	Highway 401	Region of Waterloo/ Wellington County boundary	70.841 to 122.968	232.42 to 403.44
25	Maryhill Road	Woolwich/Guelph Line Road (Region of Waterloo/ Wellington County boundary)	Hopewell Creek	30.480	100.00
25	Maryhill Road (Maryhill)	Hopewell Creek	Lot 3, Brohman Survey	26.213	86.00
25	Maryhill Road	Lot 3, Brohman Survey	St. Charles Street (26)	20.117	66.00
26	St. Charles Street	Sawmill Road (17)	0.64 km west of Maryhill Road (25)	30.480	100.00
26	St. Charles Street (Maryhill)	0.64 km west of Maryhill Road	Maryhill Road (25)	20.117	66.00
27	Clyde Road (Clyde)	Village Road	Langford Drive	26.213	86.00
27	Clyde Road	Langford Drive	CPR Tracks	30.480	100.00
27	Clyde Road/ Samuelson Street	CPR Tracks	Beverly Street (27)	26.213	86.00
27	Beverly Street	Samuelson Street (27)	Dundas Street (8)	20.117	66.00
27	Main Street	Waterloo Street (24)	Queen’s Square (27)	20.117	66.00
27	Queen’s Square	Main Street (27)	Grand Avenue	20.117	66.00
27	North Square	Grand Avenue	George Street (42)	20.117	66.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet
27	South Square	Grand Avenue	George Street (42)	20.117	66.00
28	Fountain Street (Cambridge)	Shantz Hill Road (8)	Preston Parkway	20.117	66.00
28	Fountain Street	Preston Parkway	Highway 401	30.480	100.00
28	Homer Watson Boulevard (Kitchener)	Highway 401	Ottawa Street (4)	45.720	150.00
29	Lancaster Street	Victoria Street (55)	Shirk Place	26.213	86.00
29	Lancaster Street	Shirk Place	Bridge Street (52)	20.117	66.00
30	Shantz Station Road	Kossuth Road (31)	St. Charles Street W (26)	30.480	100.00
31	Kossuth Road (Cambridge)	Hespeler Road (24)	Fountain Street (17)	30.480	100.00
33	Townline Road (Cambridge)	Avenue Road	Wellington County Road 34	30.480	100.00
36	Franklin Boulevard (Cambridge)	South Boundary Road	Myers Road (43)	30.480	100.00
36	Franklin Boulevard	Myers Road (43)	Moffat Creek	30.480	100.00
36	Franklin Boulevard	Moffat Creek	Dundas Street (8)	36.576	120.00
36	Franklin Boulevard	Dundas Street (8)	Main Street (97)	32.614	107.00
36	Franklin Boulevard	Main Street (97)	Clyde Road (27)	30.480	100.00
36	Franklin Boulevard	Clyde Road (27)	Mill Creek Road	36.570	120.00
36	Franklin Boulevard	Mill Creek Road	Avenue Road	30.480	100.00
36	Franklin Boulevard	Avenue Road	Highway 401	36.576	120.00
38	Sportsworld Drive (Kitchener)	King Street E (8)	Highway 8	35.000	114.82
38	Sportsworld Drive/Maple Grove Road	Highway 8	Hespeler Road (24)	35.000	114.82
39	Pinebush Road (Cambridge)	Townline Road (Region of Waterloo/ Wellington County	Hespeler Road (24)	30.480	100.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet
		boundary)			
39	Eagle Street	Hespeler Road (24)	Concession Road	30.480	100.00
39	Eagle Street	Concession Road	King Street (8)	26.213	86.00
41	Bishop Street (Cambridge)	Franklin Boulevard (36)	Hespeler Road (24)	30.480	100.00
41	Bishop Street	Hespeler Road (24)	Concession Road	26.213	86.00
41	Bishop Street	Concession Road	King Street (8)	26.213	86.00
42	George Street (Cambridge)	St. Andrews Street (75)	Cambridge/North Dumfries boundary	20.117	66.00
42	Blair Road	Cambridge/North Dumfries boundary	Langdon Drive	20.117	66.00
42	Blair Road	Langdon Drive	Fountain Street (28)	20.117	66.00
43	Branchton Road (North Dumfries)	Lockie Road (Region of Waterloo/ Brant County boundary)	Myers Road (43)	30.480	100.00
43	Myers Road (Cambridge)	Branchton Road (43)	Water Street (24)	30.480	100.00
45	East River Road (North Dumfries)	Region of Waterloo/Brant County boundary	Highway 24	30.480	100.00
46	Roseville Road (North Dumfries)	Blenheim Road	Roseville Settlement (East Limit)	30.480	100.00
46	Roseville Road (Roseville)	Roseville Settlement (East Limit)	Fischer-Hallman Road (58)	26.213	86.00
47	Dumfries Road	Wrigley Road (49)	Roseville Road (46)	30.480	100.00
49	Wrigley Road	Spragues Road (75)	Stanley Street	30.480	100.00
49	Scott/Main/Stanley Streets (Ayr)	Stanley Street	Swan Street (58)	20.117	66.00
50	Westmount Road (Kitchener)	Fischer-Hallman Road (58)	University Avenue (57)	26.213	86.00
50	Westmount Road (Waterloo)	University Avenue (57)	Columbia Street	30.480	100.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet
50	Westmount Road	Columbia Street	Highpoint Avenue	35.000	114.82
50	Northfield Drive	Highpoint Avenue	King Street N (15)	30.480	100.00
51	Wilmot Centre Road/Foundry Street	Bleams Road (4)	Gingrich Road (6)	30.480	100.00
51	Foundry Street (Baden)	Gingrich Road (6)	Snyder's Road (1)	26.213	86.00
52	Bridge Street (Kitchener-Waterloo)	Ebycrest Road (17)	Eastbridge Boulevard	26.213	86.00
52	Bridge Street	Eastbridge Boulevard	Northfield Drive (22)	30.000	98.40
53	Fairway Road (Woolwich)	Fountain Street (17)	300 m east of the Grand River	35.000	114.80
53	Fairway Road	300 m east of the Grand River	150 m west of the Grand River	75.000	246.10
53	Fairway Road (Kitchener)	150 m west of the Grand River	260 m east of Lackner Boulevard (54)	35.000	114.80
53	Fairway Road	260 m east of Lackner Boulevard (54)	River Road (56)	35.000	114.80
53	Fairway Road	River Road (56)	Highway 8 southbound on/off ramp	30.480	100.00
53	Fairway Road/Courtland Avenue	Highway 8 southbound on/off ramp	Conestoga Parkway	36.576	120.00
53	Courtland Avenue	Conestoga Parkway	Mill Street	30.480	100.00
53	Courtland Avenue	Mill Street	Queen Street (6)	26.213	86.00
54	Lackner Boulevard (Kitchener)	Fairway Road (53)	Victoria Street (55)	36.576	120.00
55	Victoria Street (Woolwich)	192 m east of Regional Woolwich Street S/ Ebycrest Road (17)	Kitchener/Woolwich boundary	30.480	100.00
55	Victoria Street (Kitchener)	Kitchener/Woolwich boundary	Frederick Street (6)	45.720	150.00
55	Victoria Street	Frederick Street (6)	Bruce Street (61)	30.480	100.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet
55	Victoria Street	Bruce Street (61)	Westmount Road (50)	26.213	86.00
55	Victoria Street	Westmount Road (50)	Fischer-Hallman Road (58)	26.213	86.00
55	Victoria Street	Fischer-Hallman Road (58)	Ira Needles Boulevard (70)	30.480	100.00
56	River Road/Bleams Road (Kitchener)	Fairway Road (53)	Trussler Road (70)	30.480	100.00
57	University Avenue (Waterloo)	Bridge Street (52)	Westmount Road (50)	30.480	100.00
57	University Avenue	Westmount Road (50)	Fischer-Hallman Road (58)	36.576	120.00
57	University Avenue	Fischer-Hallman Road (58)	Ira Needles Boulevard (70)	35.000	114.80
58	Swan Street (Ayr)	Brant-Waterloo Road (Region of Waterloo/ Brant County boundary)	Mitchell Street (south leg)	30.480	100.00
58	Swan/Stanley/ Northumberland Streets (Ayr)	Mitchell Street (south leg)	CPR Tracks	20.117	66.00
58	Northumberland Street	CPR Tracks	Greenfield Road	26.213	86.00
58	Northumberland Street/Roseville Road	Greenfield Road	West limit of Roseville (Roseville Church)	30.480	100.00
58	Roseville Road (Roseville)	West limit of Roseville (Roseville Church)	Fischer-Hallman Road (58)	20.117	66.00
58	Fischer-Hallman Road	Roseville Road	New Dundee Road (12)	30.480	100.00
58	Fischer-Hallman Road (Kitchener)	New Dundee Road	Bleams Road (56)	36.576	120.00
58	Fischer-Hallman Road (Kitchener)	Bleams Road (56)	Westmount Road (50)	30.480	100.00
58	Fischer-Hallman Road (Kitchener)	Westmount Road (50)	Ottawa Street (4)	35.000	114.80

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet
58	Fischer-Hallman Road	Ottawa Street (4)	McGarry Drive	36.576	120.00
58	Fischer-Hallman Road	McGarry Drive	Highland Road (6)	30.480	100.00
58	Fischer-Hallman Road	Highland Road (6)	Columbia Street	45.720	150.00
58	Fischer-Hallman Road	Columbia Street	Laurelwood Drive	35.000	114.80
58	Bearinger Road	Laurelwood Drive	Westmount Road (55)	35.000	114.80
61	Bruce Street (Kitchener)	Frederick Street (6)	Victoria Street (55)	20.117	66.00
62	Edna Street (Kitchener)	Frederick Street (6)	Victoria Street (55)	20.117	66.00
64	Charles Street (Kitchener)	Ottawa Street (4)	Cedar Street	26.213	86.00
64	Charles Street	Cedar Street	Benton Street	26.213	86.00
64	Charles Street	Benton Street	Francis Street	26.213	86.00
64	Charles Street	Francis Street	Victoria Street (55)	26.213	86.00
69	Manitou Drive (Kitchener)	Homer Watson Boulevard (28)	Fairway Road (53)	30.480	100.00
70	Trussler Road	Brant-Waterloo Road (Region of Waterloo/ Brant County boundary)	Greenfield Road	30.480	100.00
70	Trussler Road	Highway 401	Cedar Creek Road (97)	30.480	100.00
70	Trussler Road (North Dumfries)	Cedar Creek Road (97)	New Dundee Road (12)	30.480	100.00
70	Trussler Road (Kitchener)	New Dundee Road (12)	Highway 7 & 8	30.480	100.00
70	Ira Needles Boulevard	Highway 7 & 8	0.64 km north of Highway 7 & 8	36.576	120.00
70	Ira Needles Boulevard	0.64 km north of Highway 7 & 8	Erb Street (9)	35.000	114.80
70	Erbsville Road	Erb Street (9)	Erbsville Court	35.000	114.80
70	Erbsville Road	Erbsville Court	.40 km south of Conservation Drive	30.480	100.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet
70	Erbsville Road	.40 km south of Conservation Drive	Conservation Drive	20.117	66.00
70	Erbsville Road	Conservation Drive	Kressler Road (16)	30.480	100.00
71	Dickie Settlement Road	Fountain Street (28)	Cedar Street (97)	30.480	100.00
71	Edworthy Side Road	Roseville Road (46)	Cedar Creek Road (97)	30.480	100.00
75	Spragues Road (North Dumfries)	Brant-Waterloo Road (Region of Waterloo/ Brant County boundary)	Southwood Drive	30.480	100.00
75	St. Andrews Street (Cambridge)	Southwood Drive	Grand Avenue (76)	20.117	66.00
76	Grand Avenue (Cambridge)	Cedar Street (97)	St. Andrews Street (75)	20.117	66.00
77	Parkhill Road (Cambridge)	Ainslie Street (24)	George Street (42)	20.117	66.00
80	Can-Amera Parkway (Cambridge)	Townline Road (33)	Franklin Boulevard (36)	45.000	147.60
80	Can-Amera Parkway	Franklin Boulevard (36)	Hespeler Road (24)	45.720	150.00
85	Arthur Street S (Woolwich)	King Street (15) (Woolwich)	1.16 km north of Sawmill Road (17)	76.000	249.28
85	Arthur Street S	1.16 km north of Sawmill Road (17)	Listowel Road (85)	38.000	124.64
85	Listowel Road (85)	Arthur Street S (85)	Line 86 (86)	38.000	124.64
86	Line 86	Region of Waterloo/ Wellington County boundary	Elmira Old Order Mennonite Church	30.480	100.00
86	Line 86	Elmira Old Order Mennonite Church	Duke Street (Elmira)	20.117	66.00
86	Line 86	Duke Street	Listowel Road (85)	30.480	100.00

RD. NO.	ROAD NAME	FROM	TO	DESIGNATED RD. ALLOWANCE metres (up to the maximum)	feet (up to the maximum)
86	Line 86	Listowel Road (85)	180 m east of Herrgott Road (10)	36.576	120.00
86	Line 86	180 m east of Herrgott Road (10)	Herrgott Road (10)	30.480	100.00
86	Line 86	Herrgott Road (10)	Conestoga River	38.000	124.64
86	Line 86	Conestoga River	Manser Road (5)	49.000	160.72
86	Line 86	Manser Road (5)	100 m west of Manser Road (5)	36.576	120.00
86	Line 86	100 m west of Manser Road (5)	East limits of Dorking	50.000	164.00
86	Line 86	East limits of Dorking	Road 116 (Waterloo/Wellington boundary)	30.480	100.00
97	Old Beverly Road (North Dumfries)	Region of Waterloo/ Hamilton Wentworth boundary	Main Street (97) City of Cambridge	30.480	100.00
97	Main Street (Cambridge)	Old Beverly Road (97)	Franklin Boulevard (36)	30.480	100.00
97	Main/Concession/Cedar Streets	Franklin Boulevard (36)	Richardson Street	26.213	86.00
97	Cedar Street	Richardson Street	St. Andrews Street (75)	20.117	66.00
97	Cedar Street	St. Andrews Street (75)	Southwood Drive	26.213	86.00
97	Cedar Street	Southwood Drive	Cambridge/North Dumfries boundary	30.480	100.00
	East-South Arterial (Cambridge)	Highway 24 S	Can-Amera Parkway	50.000	164.00
	South Boundary Road	Highway 8 S	Highway 24 S	50.000	164.00

Schedule B: SOURCE WATER PROTECTION LAND USE CATEGORIES

Category 'A'
▪ Waste treatment and disposal facilities, including lagoons, landfills, communal/municipal sewage treatment facilities and including large sewage vaults at sewage pumping stations, but not including facilities regulated under the Nutrient Management Act.
▪ Salvage yards, including automobile wrecking yards or premises
▪ Bulk storage of hazardous chemicals and hazardous substances (as listed in O.Reg. 347 under the Environmental Protection Act), including bulk storage of oil, gasoline or petroleum products, and including transportation terminals for these substances/chemicals (including truck/trailer/container parking, washing or cleaning depots)
Category 'B'
▪ Bulk storage of road salt and snow disposal sites
▪ Primary metal manufacturing, including iron and steel mills and ferro-alloy manufacturing; steel product manufacturing from purchased steel; alumina and aluminum production and processing; non-ferrous metal production and processing; and foundries
▪ Manufacturing of fabricated metal products, including manufacturing of unfinished metal products and metal finishing operations
▪ Manufacturing and assembly of transportation equipment, including motor vehicles and parts, aerospace products and parts, rail cars, ships and boats
▪ Manufacturing of machinery, including agricultural, commercial, industrial, and other machinery
▪ Chemical manufacturing including chemicals; resins; fertilizers, pesticides and other agricultural chemicals; pharmaceutical and medicines; paint, coating and adhesives; inks and other chemicals but excluding soap and cleaning compound manufacturing. Including manufacturing, packaging, repackaging, and bottling. Excludes uses involving bulk storage of hazardous materials which are included under Category 'A'
▪ Manufacturing of petroleum and coal products, including manufacturing of asphalt materials. Excludes uses involving bulk storage of hazardous materials which are included under Category 'A'
▪ Manufacturing of electronic components such as semiconductors, printed circuit boards, and cathode ray tubes
▪ Manufacturing of electrical equipment, appliances and components
▪ Commercial or industrial dry cleaning of textiles and textile products, excluding depots not performing on-site dry cleaning
▪ Manufacturing of leather and allied products including footwear
▪ Wood and wood product preservation and treatment

▪ Gasoline stations and other retail establishments with gasoline sales
▪ Wholesale/distributing of cleaning products, pesticides, herbicides, fungicides and chemicals
Category 'C'
▪ Manufacturing of rubber products
▪ Manufacturing of soap, cleaning compounds and toilet preparations
▪ Textile and fabric finishing and fabric coating
▪ Manufacturing of plastic products
▪ Manufacturing of wood products including wood furniture, and excluding wood preservation
▪ Manufacturing of glass and glass products
▪ Manufacturing of paper and paper products including newsprint and boxes
▪ Printing and related support activities, excluding business support services such as photocopy services
▪ Repair and Maintenance of automobiles and automotive machinery, electronic equipment, industrial and commercial machinery, and personal and household goods repair
▪ Golf courses
▪ Airports, train and public transit terminals, except terminals with no fuel storage or transfer of shipped goods or materials
▪ Medical, health and other laboratories (other than clinics generally associated with commercial plazas)
▪ Miscellaneous manufacturing not included elsewhere, including jewellery, silverware, medical equipment and signs
▪ Recycling, recovery, or remanufacturing of materials including the collection, processing, manufacturing, or reuse of post-consumer or post-industrial materials, not including recycling or disposal of hazardous materials, and not including salvage yards or facilities with outdoor operations which are Category 'A' uses
Category 'D'
▪ Underground parking garages
▪ *Geothermal wells*
▪ *Mineral aggregate operations* including *wayside pits and quarries*

Schedule C: OTHER INFORMATION AND MATERIALS THAT MAY BE REQUIRED TO PROCESS AN APPLICATION

Digital Plans
▪ Subdivision/Condominium Plan(s)
Cultural
▪ *Archaeological Assessment*
▪ *Cultural Heritage Impact Assessment*
Environmental
▪ Aggregate/Mineral Resource Analysis
▪ Local Air Quality Study
▪ Salt Impact Assessment
▪ Salt Management Plans
▪ Cut & Fill Analysis
▪ *Environmental Impact Statement*
▪ Comprehensive *Environmental Impact Statement*
▪ Natural Habitat Inventory
▪ Environmental Management Plan
▪ Tree Conservation and Planting Plans
▪ *Provincial and Federal Requirements* for *Fish Habitat*
▪ Slope Stability Study and Report
▪ Floodline Delineation Study/Hydraulics Study
▪ Hydrologic and Hydrogeologic Studies
▪ Source Water Protection Studies
▪ Best Management Practices for development within the Regional Recharge Area
▪ Best Management Practices (for golf courses)
▪ Environmental Site Assessment and/or Record of Site Condition
▪ *Cumulative Impact* Assessment
▪ Site Plan, Spill Protection Measures and other Best Management Practices for *Mineral Aggregate Operations*
▪ Final Rehabilitation Plan (for *mineral aggregate operations*)
Construction, Servicing and Infrastructure
▪ Preliminary Grading Plan
▪ Preliminary Stormwater Management Report/Plan and/or update to an existing Stormwater Management Plan
▪ Soils/Geotechnical Study
▪ Construction Methods and Spills Protection Measures
▪ Servicing Options Report
▪ Development Phasing Plan
▪ Water and Wastewater Servicing Plans and associated studies

▪ Hydrogeologic Studies for Privately Serviced Developments ▪ Impact on Existing Infrastructure Study
Land Use Compatibility
▪ Air Quality Assessment
▪ Dust Impact Analysis
▪ Land Use Compatibility Study
▪ Landfill Impact Study
▪ Agricultural Impact Assessment
▪ *Minimum Distance Separation*
▪ Noise Study
▪ Odour Impact Assessment
▪ Vibration Study
▪ Written Provincial approval (pursuant to the Environmental Protection Act for development within former waste management facilities)
▪ *Provincial and Federal Requirements* for *Alternative and/or Renewable Energy Systems* and *Fish Habitat*
▪ Approval from the Grand River Conservation Authority
Planning
▪ Affordable Housing Report/Rental Conversion Assessment
▪ Detailed Property Assessment of Affordable Rental Housing
▪ Farm Viability Study
▪ Planning Report
▪ Land Use Study for Retail/Commercial Land Uses in Support of the Planned Community Structure or Retail/Commercial Impact Analysis
▪ Retail Commercial Market Impact Study
▪ Urban Design Report/Brief
Transportation
▪ Transportation Impact Study
▪ Transportation System Impact Study
▪ Parking Analysis
▪ *Pedestrian* Route and Sidewalk Analysis
▪ Roundabout Feasibility Analysis
▪ Traffic Calming Options Report
▪ Transit Assessment
▪ Transportation Demand Management Options Report
▪ Provincial Requirements and Permits under the Public Transportation Act and Highway Improvements Act
▪ Environmental Assessment and Other Appropriate Studies for development adjacent to Proposed Regional and Provincial Corridors

GLOSSARY OF TERMS

Access standards – methods or procedures to ensure safe vehicular and *pedestrian* movement, and access for the maintenance and repair of protection works during times of *flooding hazards*, *erosion hazards* and/or other water-related hazards.

Adverse effects – as defined in the Environmental Protection Act; one or more of:

(a) impairment of the quality of the natural environment for any use that can be made of it;

(b) injury or damage to property or plant or animal life;

(c) harm or material discomfort to any person;

(d) an adverse effect on the health of any person;

(e) impairment of the safety of any person;

(f) rendering any property or plant or animal life unfit for human use;

(g) loss of enjoyment of normal use of property; and

(h) interference with normal conduct of business.

Adverse environmental impacts – changes likely to arise directly or indirectly from *development* or *site alteration* within or *contiguous* to an element of the Greenlands Network that result in widespread, long–term, or irreversible degradation of the significant features or impairment of the natural functions of the designated area.

Examples of adverse environmental impacts include, but are not limited to, the following:

(a) fragmentation or substantial reduction in size of an element of the Greenlands Network;

(b) significant increase in the perimeter-to-area ratio of an element of the Greenlands Network;

(c) disruption of corridors and *linkages* to other elements of the

Greenlands Network;

(d) substantial alteration of natural topography;

(e) disruption of ecological relationships among significant or representative native species;

(f) increased potential for human or domestic animal intrusion into relatively inaccessible areas;

(g) alteration of the quantity, quality, timing (hydroperiod) or direction of flow of surface water or groundwater within or *contiguous* to an element of the Greenlands Network;

(h) alteration of the structure, functions or ecological interrelationships of a natural habitat which sustain representative community associations or populations of significant species;

(i) reductions in the populations or reproductive capacity of significant species;

(j) mortality in or removal of the predominant vegetation which provides structure to an element of the Greenlands Network;

(k) erosion of soils or deposition of sediment;

(l) compaction or trampling of soils;

(m) increased potential for the introduction of invasive non-native species;

(n) disruption of ecological processes due to increased nocturnal artificial light levels; or

(o) increases in the level and quality of noise.

Affordable housing –

(a) in the case of ownership housing, the least expensive of:

i) housing for which the purchase price results in annual accommodation costs which do not exceed 30 per cent of gross

annual household income for low and moderate income households; or

ii) housing for which the purchase price is at least 10 per cent below the average purchase price of a resale unit in the regional market area;

(b) in the case of rental housing, the least expensive of:

i) a unit for which the rent does not exceed 30 per cent of gross annual household income for low and moderate income households; or

ii) a unit for which the rent is at or below the average market rent of a unit in the regional market area.

Agricultural uses – means the growing of crops, including nursery, horticultural and floricultural crops; raising of livestock; raising of other animals for food, fur or fibre, including poultry and fish; aquaculture; apiaries; agro-forestry; maple syrup production; and associated on-farm residence(s), buildings, structures and *farm greenhouses*.

Agriculture-related uses – means those farm-related commercial and farm-related industrial uses that are small-scale and directly related to the farm operation and are required in close proximity to the farm operation. Such uses may generally include abattoirs, grain drying and storage operations, feed mills, produce auctions for locally grown food and similar uses that provide a direct service to the farm community.

Agri–tourism activities – the act of visiting a working farm or any agricultural, horticultural or agri–business operation for the purpose of enjoyment, education, or active involvement in the activities of the farm where the principal activity on the property remains as farming and where products used in the activity are produced on the property or related to farming.

Alternative and/or renewable energy systems –

(a) Alternative energy systems means sources of energy or energy conversion processes that significantly reduce the amount of harmful emissions to the environment (air, earth and water) when compared to conventional energy systems;

(b) Renewable energy systems means the production of electrical power from an energy source that is renewed by natural processes, including, but not limited to, wind, water, biomass resources or products, or solar and geothermal energy.

Archaeological assessment – the combined background research and field study of a property evaluated as moderate to high on Archaeological Potential Maps approved by the *Province* that identify the presence of and interpretation of the *archaeological resources* on the property, and make recommendations for the mitigation of the impacts on the resources. Archaeological assessments must be undertaken by a Provincially–licensed archaeologist, in accordance with reporting guidelines established by the Provincial Government, and must address the entire area of the *development application*.

Archaeological resources – artifacts, archaeological sites and marine archaeological sites. The identification and evaluation of such resources are based upon archaeological fieldwork undertaken in accordance with the Ontario Heritage Act.

Archaeological potential – the likelihood to contain *archaeological resources*. Criteria for determining archaeological potential are established by the *Province*, but municipal approaches which achieve the same objectives may also be used. Archaeological potential is confirmed through archaeological fieldwork undertaken in accordance with the Ontario Heritage Act.

Areas of Natural and Scientific Interest – areas of land and water identified by the *Province* or the Region that contain natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education.

Biodiversity – the variety of life in all its forms. It includes species diversity, ecosystem diversity and genetic diversity within species.

Brownfield – underdeveloped or previously developed properties that may be contaminated. They are usually, but not exclusively, former industrial or commercial properties that may be underutilized, derelict or vacant.

Built boundary – the limits of the developed portions of the Urban Area and Township Urban Areas designations as defined by the *Province* in accordance with the provisions of the Growth Plan for the Greater Golden Horseshoe.

Built heritage resources – one or more *significant* buildings, structures, monuments, installations or remains associated with architectural, cultural,

social, political, economic or military history and identified as being important to the community. These resources may be identified through designation or *heritage conservation* easement under the Ontario Heritage Act, or listed by local, regional, provincial or federal jurisdictions.

Central Transit Corridor Environmental Assessment Study Area – the Study Area identified in the Individual Environmental Assessment Terms of Reference for the Regional Rapid Transit Initiative dated July 21, 2005, as the area within which an alignment for a proposed *rapid transit* system will be selected and the area that may be directly and indirectly affected by the system. The Corridor extends from the Mercedes Industrial Commercial Area in Woolwich, south through Uptown Waterloo and Downtown Kitchener, to the Preston Town Centre and Galt City Centre in Cambridge.

Community housing – rental housing that offers affordable market rent units and subsidized (rent–geared–to–income) units for individuals and families who are finding it difficult to afford adequate housing in the private rental market.

Community improvement – the planning, replanning, design, or redesign, resubdivision, clearance, development or redevelopment, reconstruction and/or rehabilitation of a Community Improvement Project Area, and the provision of such residential, commercial, industrial, public, recreational, institutional, religious, charitable, or other uses, buildings, works improvements or facilities, or spaces therefore, as may be appropriate or necessary.

Community Improvement Plan – a plan for the *community improvement* of a Community Improvement Project Area.

Community infrastructure – lands, buildings and structures that support the quality of life for people and communities by providing public services for health, education, recreation, socio-cultural activities, security and safety, and affordable housing.

Complete community – communities that meet people's needs for daily living throughout an entire lifetime by providing convenient access to an appropriate mix of employment, local services, a full range of housing and *community infrastructure* including affordable housing, schools, recreation and open space for their residents. Convenient access to public transportation and options for safe, non-motorized travel is also provided.

Conserve/conserved (for the purposes of Chapter 3) – the identification, protection, use and/or management of cultural heritage and *archaeological resources* in such a way that their heritage values, attributes and integrity are

retained. This may be addressed through a conservation plan or heritage impact assessment.

Contiguous – lands that are situated in sufficiently close proximity such that *development* or *site alteration* could reasonably be expected to produce one or more of the following impacts: alterations to existing hydrological or hydrogeological regimes; clearing of existing vegetation; erosion and sedimentation; or producing a substantial disruption of existing natural *linkages* or the habitat of a significant species.

Cultural Heritage Impact Assessment – a study to determine if *cultural heritage resources* will be negatively impacted by a proposed *development* or *site alteration*. It can also demonstrate how the *cultural heritage resource* will be *conserved* in the context of redevelopment or *site alteration*. Mitigative or avoidance measures or alternative *development* approaches may also be recommended.

Cultural heritage landscape – a defined geographical area of heritage significance which has been modified by human activities and is valued by a community. It involves a grouping(s) of individual heritage features such as structures, spaces, archaeological sites and natural elements, which together form a *significant* type of heritage form, distinctive from that of its constituent elements or parts.

Cultural heritage resources – the physical remains and the intangible cultural traditions of past human activities. These include, but are not limited to:

- buildings (residential, commercial, institutional, industrial and agricultural);
- cultural heritage landscapes (designed, organic/evolved);
- structures (water tower; bridge, fence and dam);
- monuments (cenotaph, statue and cairn);
- archaeological resources;
- cemeteries;
- scenic roads;
- vistas/viewsheds;
- culturally *significant* natural features (tree and landform);
- movable objects (archival records and artifacts); and
- cultural traditions (language, stories, music, dance, food, celebrations, art and crafts).

Cumulative impacts – the changes to the environment resulting from a particular activity in combination with the incremental impacts caused by other closely related past, present and reasonably foreseeable future activities. Cumulative impacts may reveal that relatively minor impacts associated with a

particular activity may contribute to more significant impacts when considered collectively with other activities taking place over a period of time.

Development – the creation of a new lot, a change in land use, or the construction of buildings and structures, requiring approval under the Planning Act.

Development application – an application for approval under the Planning Act. Development applications may include applications for approval of the following: Plans of Subdivision; Plans of Condominium; Consent; Part Lot Control Exemption By–laws; Official Plan Amendments; and Zone Change Applications. Development applications do not include *site plans*.

Discharge Constraint Areas – lands where groundwater naturally discharges to the surface of the soil or other surface water bodies and may pose a serious constraint to the construction, use and occupancy of land and buildings.

Ecological function – the natural processes, products or services that living and non–living environments provide or perform within or among species, ecosystems and landscapes, including *hydrologic functions* and biological, physical, chemical and socio–economic interactions.

Endangered or threatened species – a species that is listed or categorized as either a "Threatened Species" or an Endangered Species" appears on the *Province's* official Species at Risk in Ontario List, as updated and amended from time to time.

Employment area – areas designated in an official plan for clusters of business and economic activities including, but not limited to, manufacturing, warehousing, offices, and associated retail and ancillary facilities.

Environmental Assessment – a process for the authorization of an undertaking under legislation such as the Environmental Assessment Act, and the Ontario Energy Board Act.

Environmental features – features of the natural environment, including:

(a) Significant Habitat of Endangered or Threatened Species:
(b) *Fish habitat*;
(c) *Wetlands*;
(d) Provincially significant life science *Areas of Natural and Scientific Interest*, regionally significant life science *Areas of Natural and Scientific Interest*, or provincially significant earth science *Areas of Natural and Scientific Interest*;

(e) Environmentally Significant Valley Features;
(f) Regionally Significant Woodlands;
(g) *Significant* wildlife habitat;
(h) Sand barrens, savannas and tallgrass prairies;
(i) Alvars;
(j) Permanent and intermittent watercourses;
(k) Lakes (and their littoral zones);
(l) *Environmentally Significant Discharge Areas & Environmentally Significant Recharge Areas;* and
(m) Regional Recharge Areas.

Environmental impact statement – a study prepared in accordance with established procedures to refine the boundaries of elements of the Greenlands Network, identify the potential impacts of a d*evelopment application* on such elements, and recommend a means of preventing or minimizing these impacts through avoidance or mitigation.

Environmentally Sensitive Landscape - is a geographically and ecologically definable landscape that is distinguishable from the surrounding areas by the concentration, proximity and/overlap of:

Mod. No. 63

(a) designated natural features (such as Environmentally Sensitive Policy Areas or Provincially Significant Wetlands),

(b) associated natural features (such as stream valleys and specialized habitats), and

(c) ecological functions (such as groundwater recharge areas and ecological corridors or linkages) which together constitute a heterogeneous landscape mosaic that contributes significantly to Regional biodiversity conservation.

An Environmentally Sensitive Landscape (ESL) may include lands under active human use or management, but should be: predominantly natural, not bisected by major highways, and exclusive of areas irreversibly transformed by concentrated human settlement, or where widespread commitments to development in the form of land use designations have been made in Area Municipal Official Plans. In recognition of the cultural influences that have shared, and continue to shape, the Region's landscape, ESL's are considered compatible with a number of limited human uses such as legally permitted agricultural, residential, commercial and resource extraction areas .

In addition to protecting regional and local biodiversity, providing a wide range of ecological functions, and accommodating some human land uses, ESLs also provide continued opportunities for aesthetic enjoyment, low-impact recreation, and scientific, archaeological and/or historical study in the Region's countryside.

Environmentally Significant Discharge Areas – lands where groundwater discharges to the surface of the soil or to surface water bodies to sustain *wetlands*, fisheries, or other specialized natural habitats.

Environmentally Significant Recharge Areas – lands where water infiltrates into the ground to replenish an aquifer that sustains, in full or in part, *environmental features*.

Erosion hazard – the loss of land, due to human or natural processes, that poses a threat to life and property. The erosion hazard limit is determined using considerations that include the 100 year erosion rate (the average annual rate of recession extended over a 100 year time span), an allowance for slope stability, and an erosion access allowance.

Existing – land uses legally existing in accordance with the Area Municipal zoning by-law.

Farm greenhouse – a building used for the growing of flowers, fruits, vegetables, plants, shrubs, trees and other similar agricultural products, under glass, fiberglass or plastic, that are used as inputs on the farm or primarily sold off-site at wholesale or retail.

Farm–related residential unit – a dwelling on a farm used as the primary residence for an active and operating farmer, or a dwelling for a full–time farm employee of an active farm on which the dwelling is located.

Fish habitat – as defined in the Fisheries Act, c. F–14; the spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes.

Flood fringe – for watercourses and small inland lake systems; the outer portion of the *floodplain* between the *floodway* and the *flooding hazard* limit. Depths and velocities of flooding are generally less severe in the flood fringe than those experienced in the *floodway*.

Flooding hazard – the inundation of areas adjacent to watercourses and small inland lake systems and not ordinarily covered by water. The flooding hazard limit is the greater of:

(a) the flood resulting from the rainfall actually experienced during a major storm such as the Hurricane Hazel storm (1954) or the Timmins storm (1961), transposed over a specific watershed and

combined with the local conditions, where evidence suggests that the storm event could have potentially occurred over watersheds in the general area;

(b) the 100 year flood; and

(c) a flood which is greater than (a) or (b) which was actually experienced in a particular watershed or portion thereof as a result of ice jams and which has been approved as the standard for that specific area by the *Province*;

except where the use of the 100 year flood or the actually experienced event has been approved by the *Province* as the standard for a specific watershed (where the past history of flooding supports the lowering of the standard).

Floodplain – for watercourses and small inland lake systems; the area, usually low lands adjoining a watercourse, which has been or may be subject to *flooding hazards.*

Floodproofing standard – the combination of measures incorporated into the basic design and/or construction of buildings, structures, or properties to reduce or eliminate *flooding hazards* along watercourses and small inland lake systems.

Floodway – for watercourses and small inland lake systems; the portion of the *flood plain* where *development* and *site alteration* would cause a danger to public health and safety or property damage. Where the one-zone concept is applied, the floodway is the entire contiguous *flood plain*. Where the two-zone concept is applied, the floodway is the contiguous inner portion of the *floodplain*, representing that area required for the safe passage of flood flow and/or that area where flood depths and/or velocities are considered to be such that they pose a potential threat to life and/or property damage. Where the two-zone concept applies, the outer portion of the *floodplain* is called the *flood fringe*. In all cases, the floodway will include areas of inundation that contain high points of land not subject to flooding.

Mod. No. 64

Geothermal well – a vertical well, borehole or pipe installation used for geothermal systems, ground-source heat pump systems, geo-exchange systems or earth energy systems for heating or cooling; including open-loop and closed-loop vertical borehole systems. A geothermal well does not include a horizontal system where construction or excavation occurs to depths less than five meters unless the protective geologic layers overlaying a *vulnerable* aquifer have been removed through construction or excavation.

Greyfield – previously developed properties that are not contaminated. They are usually, but not exclusively, former commercial properties that may be underutilized, derelict or vacant.

Gross leasable area – the total floor area designed for tenant occupancy and exclusive use, including basements, upper floors and mezzanines. It is measured from the centre line of joint partitions and from outside wall faces. Gross leasable area is the area on which tenants pay rent, and which produces income for an owner.

Groundwater feature – refers to water–related features in the earth's subsurface, including recharge/discharge areas, water tables, aquifers and unsaturated zones that can be defined by surface and subsurface hydrogeologic investigations.

Habitat enhancement – an enhancement of the form and/or *ecological function* of the Greenlands Network. Refers to an overall positive contribution to the state of the natural environment as a result of rehabilitation initiatives associated with a *mineral aggregate operation*. These positive contributions may include such criteria as increased biological diversity, system function, *significant* wildlife habitat and the creation of *environmental features*, including *wetlands*, water systems and *woodlands*.

Hazardous lands – property or lands that could be unsafe for development due to naturally occurring processes. Along watercourses and small inland lake systems, this means the land, including that covered by water, to the furthest landward limit of the *flooding hazard* or *erosion hazard* limits.

Hazardous sites – property or lands that could be unsafe for *development* and *site alteration* due to naturally occurring hazards. These may include unstable soils (sensitive marine clays [leda], organic soils) or unstable bedrock (karst topography).

Hazardous chemicals and/or substances – substances that individually or in combination with other substances are normally considered to pose a danger to public health, safety and the environment. These substances generally include a wide array of materials that are toxic, ignitable, corrosive, reactive, radioactive or pathological.

Human services – those services that maintain and promote a high quality of life and allow residents to develop to their full potential, including, but not limited to,

police services, emergency services, social assistance, pre-employment services, child care, health care and cultural services.

Hydrologic function – the functions of the hydrological cycle that include the occurrence, circulation, distribution and chemical and physical properties of water on the surface of the land, in the soil, underlying rocks and in the atmosphere, and water's interaction with the environment including its relation to living things.

Infrastructure – physical structures (facilities and corridors) that form the foundation for development. Infrastructure includes: *municipal drinking-water supply systems*, *municipal wastewater* systems, septage treatment systems, storm water management systems, waste management systems, electric power generation and transmission, communications/telecommunications, transit systems and corridors, the Regional Road system, *Provincial Highways*, railways, oil and gas pipelines and associated facilities.

Linkages – areas that connect *environmental features* along which plants and animals can propagate, genetic interchange can occur, populations can move in response to environmental changes and life-cycle requirements, and species can be replenished from other *environmental features*. Linkages can also include those areas currently performing, or with the potential to perform, through restoration, linkage functions. Although linkages help to maintain and improve *environmental features*, they can also serve as important *environmental features* in their own right.

Liveable/liveability – the ability to readily satisfy the majority of one's day-to-day housing, employment, shopping, health, transportation and recreational needs and thereby sustain a high quality of life. A liveable region is one that contains integrated, compact, *mixed-use* communities with distinct senses of place and character that provide people with choices about where they live, work and play.

Major Office – a freestanding office building of 10,000 square metres or greater, or with 500 jobs or more.

Mineral aggregate operation – an operation and uses accessory thereto, other than *wayside pits and quarries*, conducted under a license or permit under the Aggregate Resources Act.

Mineral aggregate resources – gravel, sand, clay, earth, shale, stone, limestone, dolostone, sandstone, marble, granite, rock or other material prescribed under the Aggregate Resources Act suitable for construction, industrial, manufacturing and maintenance purposes but does not include

metallic ores, asbestos, graphite, kyanite, mica, nepheline syenite, salt, talc, wollastonite, mine tailings or other material prescribed under the Mining Act.

Minimum distance separation formulae – the separation distance as determined through the Minimum Distance Separation Formulae I and II or any other reduced distance satisfactory to the Area Municipality and the *Province* through an amendment to an Area Municipal zoning my-law or minor variance application.

Mixed-use – development of compatible residential and non–residential land uses within the same area or on the same parcel of land. Mixed-use facilitates the provision of a wide range of residential types within close proximity to employment, institutional, social and recreational opportunities.

Multi-modal – the availability or use of more than one form of transportation, such as walking, cycling, buses, *rapid transit* and automobiles.

Municipal comprehensive review – for the purposes of this Plan, an official plan review, or an official plan amendment, initiated by the Region and/or an Area Municipality, as appropriate, which:

a) is based on a review of the population and employment forecasts contained in this Plan and which reflect forecasts and allocations by the Region and Provincial plans;

b) utilizes opportunities to accommodate forecasted growth through reurbanization;

c) is integrated with planning for physical *infrastructure* and *community infrastructure*;

d) considers cross–jurisdictional issues; and

e) comprehensively applies the policies and schedules of Provincial plans.

Municipal drinking-water supply systems – all or part of the drinking-water supply, treatment and distribution systems owned and operated by a municipality.

Municipal wastewater systems – any sewage collection or treatment works owned or operated by a municipality.

Non–farm lot – parcel of land designated in the Area Municipal official plan and/or zoned in the Area Municipal zoning by–law for non–farm purposes.

Non–farm–related residential unit – any dwelling unit that is not in conformity with the definition of an agricultural-related residential unit.

Normal farm practices – a practice, as defined in the Farming and Food Production Protection Act, that is conducted in a manner consistent with proper and acceptable customs and standards as established and followed by similar agricultural operations under similar circumstances; or makes use of innovative technology in a manner consistent with proper advanced farm management practices. Normal farm practices shall be consistent with the Nutrient Management Act, and regulations made under that Act.

One–zone policy area – the approach whereby the entire *floodplain*, as defined by the Regulatory Floodline, is treated as one unit, and approval of all *development applications* are prohibited or restricted.

Other information and materials – the particular studies, reports, maps, plans, and other documentation that may be required of the owner/applicant in addition to the requirements of sub-sections 22(4) and 51(17) of the Planning Act to satisfy the requirements of a complete application. The study requirements will be determined on a case-by-case basis through the *pre-submission consultation meeting*.

Outdoor living area – is the part of an outdoor area which is easily accessible from the building and which is designed for the quiet enjoyment of the outdoor environment. Outdoor living areas include, but are not limited to, the following:

(a) backyards or front yards or gardens or terraces or patios;

(b) balconies, provided they are the only outdoor living area for the occupant and meet the following conditions:

  i) minimum depth of four metres;
  ii) outside the exterior building facade; and
  iii) unenclosed;

(c) common outdoor living areas associated with multi–storey apartment buildings or condominiums; and

(d) passive recreational areas such as parks if identified by the Area Municipality.

Passive noise attenuation measures – noise reducing site designs, building layouts and structural design measures that mitigate noise between *sensitive land uses* and noise generating or other potentially incompatible land uses without the use of structural mitigation measures such as noise attention walls or berms.

Pedestrian – a person moving from place to place, either by foot or by using an assistive mobility device. Pedestrians include residents and visitors of all abilities.

Portable asphalt plant – a facility:

(a) with equipment designed to heat and dry aggregate and to mix aggregate with bituminous asphalt to produce asphalt paving material, and includes stockpiling and storage of bulk materials used in the process; and

(b) which is not of permanent construction, but which is to be dismantled at the completion of the construction project.

Portable concrete plant – a building or structure:

(a) with equipment designed to mix cementing materials, aggregate, water and admixtures to produce concrete, and includes stockpiling and storage of bulk materials used in the process; and

(b) which is not of permanent construction, but which is designed to be dismantled at the completion of the construction project.

Preferential pathways – a constructed pathway or excavation to a depth greater than five meters and/or where protective geologic layers overlying an aquifer have been removed that create a direct access or conduit facilitating the transport of contaminants to a municipal drinking-water source.

Pre-submission consultation meeting – the opportunity for staff to consult with an owner/applicant prior to the owner/applicant preparing an application, in order to outline the information and materials that the owner/applicant will be required to submit concurrently with the application form and prescribed fees.

Prime agricultural land – land that includes *specialty crop areas* and/or Canada Land Inventory Classes 1, 2, and 3 soils, in this order of priority for protection.

Protection works standards – the combination of non-structural or structural works and allowances for slope stability and flooding/erosion to reduce the damage caused by *flooding hazards*, *erosion hazards* and other water-related hazards, and to allow access for their maintenance and repair.

Province – the Province of Ontario or one or more of its ministries or other agencies that exercise delegated authority on behalf of one of more ministries.

Provincial and Federal requirements (for the purposes of Chapters 3 and 6) **–** legislation and policies administered by Federal or Provincial governments for the purpose of protecting the environment from potential impacts associated with energy facilities and ensuring that the necessary approvals are obtained.

Provincial and Federal requirements (for the purposes of Chapter 7) **–** legislation and policies administered by Federal or Provincial governments for the purpose of protecting *fish habitat,* and related scientifically established standards such as water quality criteria for protecting Lake Trout populations.

Provincial Highways – roads which provide inter-regional or provincial scale service and which are under the jurisdiction of the *Province*. They provide primarily a traffic service function and may be two lane or multi-lane, divided, or undivided, with at-grade or grade-separated interchanges as per demand requirements, constructed to Provincial Highway standards.

Provincial plan – a plan approved by the Lieutenant Governor in Council or the Minister of Municipal Affairs and Housing, but does not include municipal official plans.

Provincially constrained environmental areas – landscape features where the features are both identified in any applicable official plan or *Provincial plan*, and where the applicable *Provincial plan* or Provincial Policy Statement prohibits *development* in the features: *wetlands*, *woodlands*, Significant Valleys, Environmentally Significant Valley Features, *Areas of Natural and Scientific Interest*, Significant Habitat of Endangered or Threatened Species, *significant* wildlife habitat and *fish habitat*.

Rapid transit – a public transportation system operating for its entire length primarily on an exclusive right-of-way. The definition includes systems operating at-grade and systems operating on elevated or underground facilities.

Record of Pre-Submission Consultation – the written documentation of a *pre-submission consultation meeting* as issued by the Regional Commissioner of

Planning, Housing & Community Services which outlines the information and materials identified for inclusion of the complete application.

Recreational and tourism uses – both passive and active recreational and tourism uses, such as trails, parks, golf courses, playing fields, campgrounds, outdoor paint ball facilities, butterfly conservatories and similar uses.

Regional forest – a forested property owned and managed by the Region.

Retail commercial centres – a group of stores planned and developed as a unit and having a minimum *gross leasable area* of 10,000 square metres.

Reurbanization – describes four distinct types of activity, all of which serve to increase the residential or employment density on sites located within the existing, built–up area. The four types of activity captured under the definition of reurbanization include:

(a) Infill: new *development* on formerly vacant land;

(b) Intensification: an expansion in the use of an existing structure or structures that serves to increase the density on a site;

(c) Adaptive reuse: a change in the use of a structure, typically from commercial/industrial to residential, that results in greater density; and

(d) Redevelopment: the wholesale change or conversion of an area, often involving some form of land assembly and/or demolition, which results in significantly higher density than existed previously.

Many of the key opportunities for reurbanization are associated with *brownfields* (underutilized or derelict properties believed to contain some form of contamination) and *greyfields* (previously developed sites that are not contaminated).

Rural institutional uses – institutional uses related to and directly serving the needs of the rural community, such as schools, places of worship and rural community centres.

Rural residential infilling formulae – the measurement of the 100 metre separation distance set out in Policy 6.E.10 will be determined as follows:

(a) measurement is established between two points located along the centre-line of the existing right-of-way of an open public road and which points are determined by a line drawn from the centre of such unit and perpendicular to the public road;

(b) the distance between the two points is measured along the public road through intersecting public roads; and

(c) the point of reference on an adjoining and undeveloped *non-farm lot* is determined by the mid-point along the public road.

Secondary uses – uses secondary to the principal use of the property, including but not limited to home occupations, bed and breakfasts, home industries, *agri-tourism activities* and uses that provide value-added agricultural products from the farm operation on the property.

Sensitive land uses – buildings, land uses, amenity areas, or outdoor spaces:

(a) where routine or normal activities occurring at reasonably expected times would experience one or more *adverse effects* from contaminant discharges generated by a nearby major facility. Sensitive land uses may be a part of the natural or built environment; or

(b) that may be adversely impacted by noise from transportation sources, including: residential developments; seasonal residential developments; and hospitals, nursing/retirement homes, schools, and day–care centres.

Significant –

(a) in regard to wildlife habitat, areas where plants, animals and other organisms live and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non–migratory species.

(b) in regard to regionally significant features and areas comprising the Greenlands Network, areas identified as being ecologically important to the region based on the specific criteria established by the Region and described in the associated policies in this Plan.

(c) in regard to cultural heritage and archaeology, resources that are valued for the important contribution they make to our understanding of the history of a place, an event, or a people.

Site alteration – activities, such as grading, excavation and the placement of fill that would change the landform and natural vegetative characteristics of a site.

Site plan (for use in all Chapters, except Chapter 9) – a plan prepared under Section 41 of the Planning Act which details building location and design as well as other site specific considerations such as walkways, landscaping, lighting and storage areas.

Site plan (for the purposes of Chapter 9) – a plan as defined in the licensing process for aggregate extraction operations in accordance with the provisions of the Aggregate Resources Act.

Special needs housing – any housing, including dedicated facilities, in whole or in part, that is used by people who have specific needs beyond economic needs, including but not limited to, needs such as mobility requirements or support functions required for daily living.

Special policy area – an area within a community that has historically existed in the *floodplain* and where site-specific policies, approved by the *Province,* are intended to provide for the continued viability of existing uses (which are generally on a small scale) and address the significant social and economic hardships to the community that would result from strict adherence to provincial policies concerning development. The criteria and procedures for approval are established by the *Province*. Special policy areas are not intended to allow for new or intensified development or site alteration if an Area Municipality has feasible opportunities for development outside the floodplain otherwise in conformity with the policies of the Plan.

Mod. No. 64

Specialty crop area – areas designated using evaluation procedures established by the *Province*, as amended from time to time, where specialty crops such as tender fruits (peaches, cherries, plums), grapes, other fruit crops, vegetable crops, greenhouse crops, and crops from agriculturally developed organic soil lands are predominantly grown, usually resulting from:

a) soils that have suitability to produce specialty crops, or lands that are subject to special climatic conditions, or a combination of both; and/or

b) a combination of farmers skilled in the production of specialty crops, and of capital investment in related facilities and services to produce, store, or process specialty crops.

Sustainable/sustainability – the ability to meet the needs of both current and future generations by balancing cultural, economic, environmental and social elements through thoughtful, comprehensive and inclusive decision-making. A sustainable region is one that is robust, resilient and strives to live within its natural limits.

Temporary Farmers' Markets – outdoor food stands using temporary structures to sell food products to the public. The foods sold would be primarily from local sources, and may include processed foods such as jams and preserves and other farm-made products. Stand operators could be farmers or staff or volunteers of a business or organization with a permit to operate the stand.

Time of travel – an estimate of time required for a particle of water to move in the saturated soil or rock from a specific point in an aquifer to the well intake.

Transit stops – include conventional bus transit terminals and stops and iXpress stops

Two–zone policy area – the approach that selective developed urban areas within the *floodplain*, as defined by the Regulatory Floodline, are considered to be less hazardous than others such that *development applications* could potentially safely occur. The first zone, termed the *flood fringe*, defines the portion of the *floodplain* where *development* may occur subject to appropriate *floodproofing standards*. The second zone, termed the *floodway*, defines that portion of the *floodplain* where *development* is prohibited or restricted.

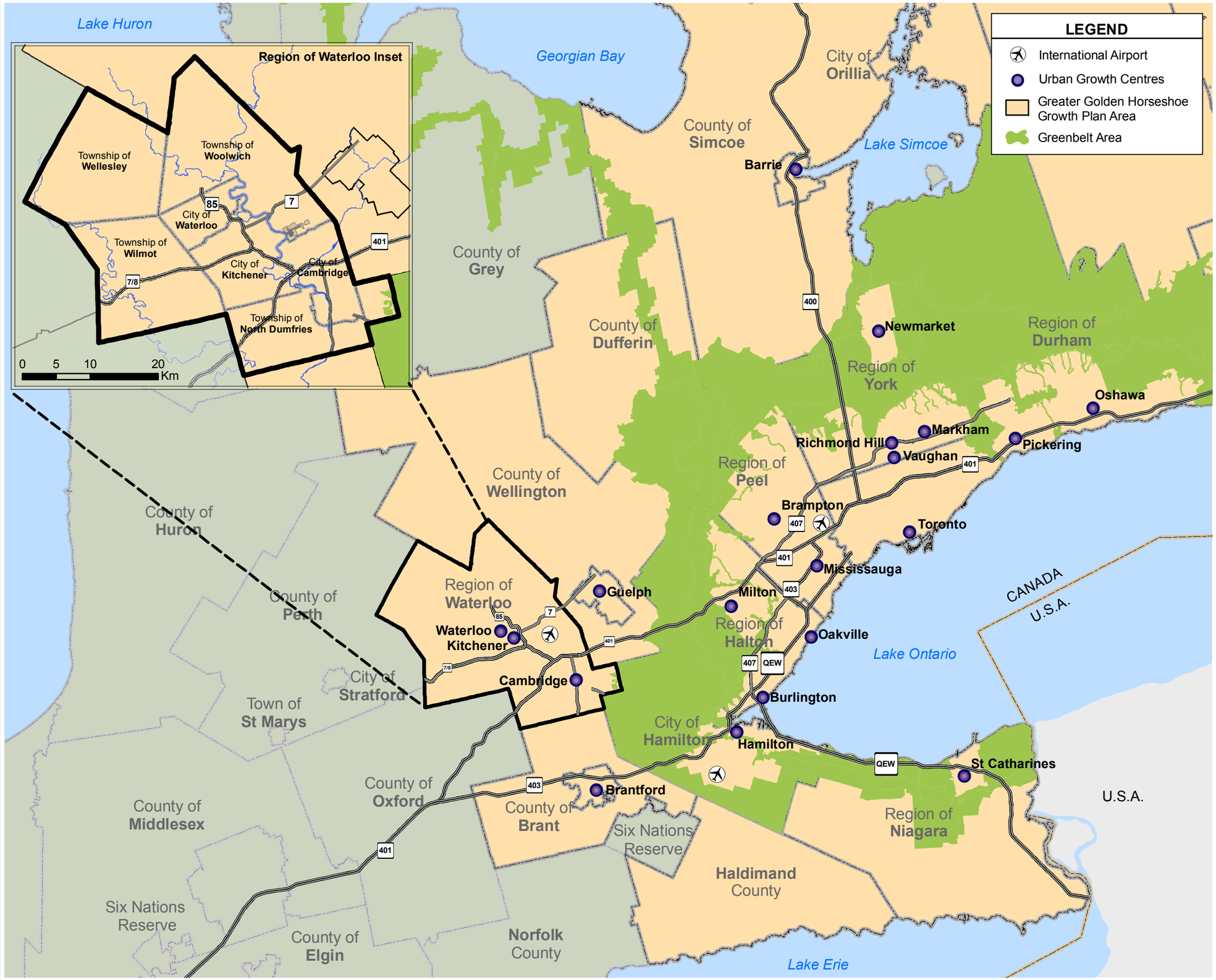
Vulnerable/vulnerability – surface water and groundwater that can be easily changed or impacted by activities or events, either by virtue of their vicinity to such activities or events or by *preferential pathways* among such activities and the surface water and/or groundwater.

Watershed studies – comprehensive scientific studies that describe how surface water and groundwater and terrestrial and aquatic ecosystems function within a defined drainage area. These investigations result in recommendations as to where and how development activity can safely occur so as to minimize flood risks, stream erosion, degradation of water quality, and negative impacts on natural systems. Recommendations may also identify opportunities for ecological enhancement and recreation.

Wayside pits and quarries – a temporary pit or quarry opened and used by or for a public authority solely for the purpose of a particular project or contract of road construction and not located on the road right-of-way.

Wetlands – lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens. Periodically soaked or wet lands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands for the purposes of this definition.

Woodlands – treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long–term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels.



Region of Waterloo

Regional Official Plan
SHAPING OUR FUTURE

MAP 1

REGIONAL CONTEXT

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

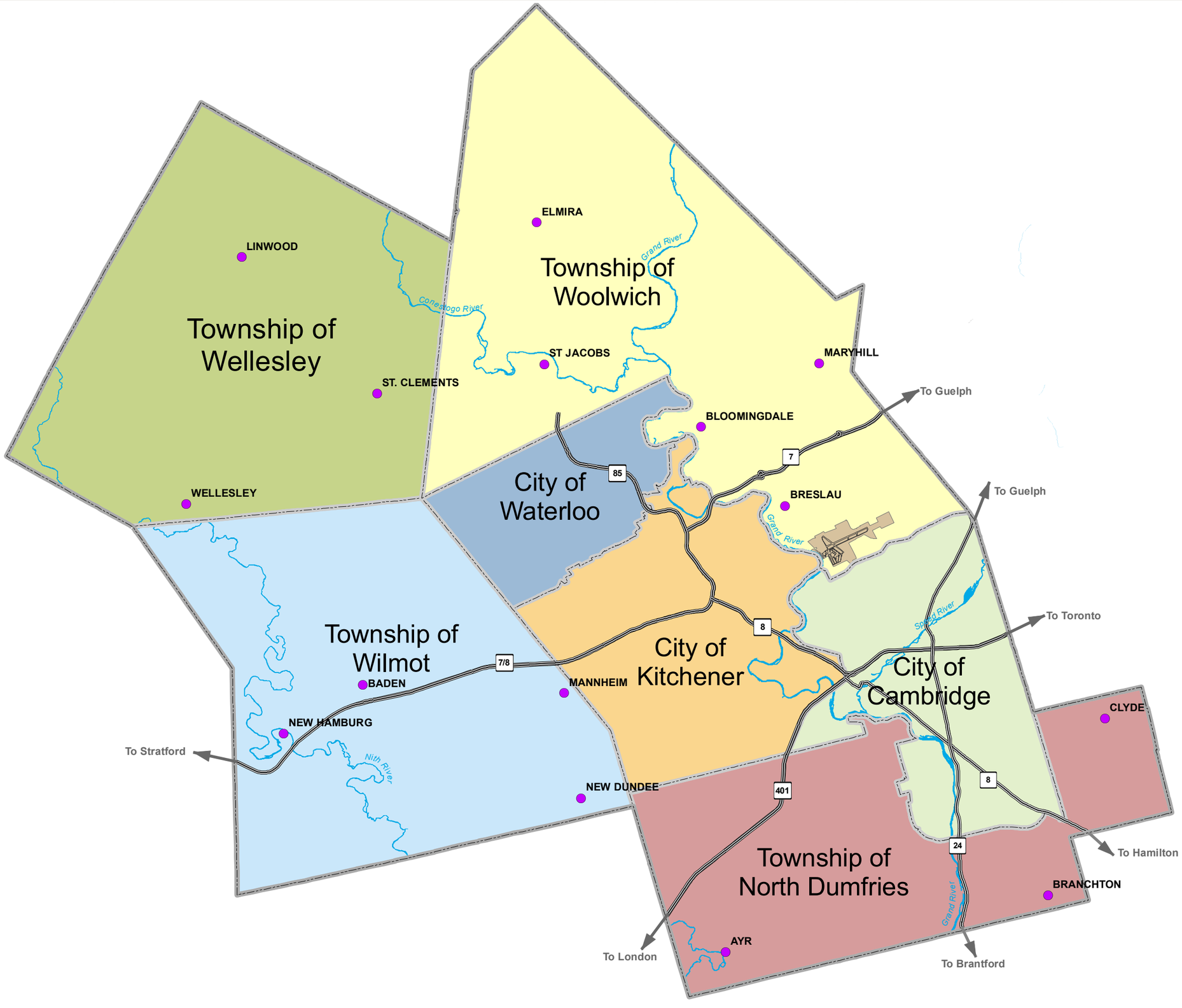
Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.

Region of Waterloo

Regional Official Plan
SHAPING OUR FUTURE

MAP 2

AREA MUNICIPALITIES



LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 1.25 2.5 5 Km

Sources: Region of Waterloo

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.

Township of **Woolwich**

Township of **North Dumfries**

HAWKESVILLE RD
LOBSINGER LINE
KRESSLER RD
ARTHUR ST
KATHERINE ST
SAWMILL RD
ST CHARLES ST
HWY 7 TO GUELPH
PLANNED HWY 7
HWY 7
SHANTZ STATION RD
EBYCREST RD
FOUNTAIN ST
BLOOMINGDALE RD N
BRIDGE ST
HWY 85
NORTHFIELD DR
UNIVERSITY AVE
BRIDGEPORT RD
ERBSVILLE RD
FISCHER-HALLMAN RD
ERB ST
KING ST
VICTORIA ST
LACKNER BLVD
Grand River
KOSSUTH RD
WESTMOUNT RD
CHARLES ST
COURTLAND AVE
WEBER ST
OTTAWA ST
RIVER RD
IRA NEEDLES BLVD
VICTORIA ST
HIGHLAND RD
HOMER WATSON BLVD
FAIRWAY RD
KING ST
MAPLE GROVE RD
Speed River
HWY 401 TO TORONTO
SNYDER'S RD EAST
HWY 7/8
OTTAWA ST
BLEAMS RD
FISCHER-HALLMAN RD
HWY 401
PINEBUSH RD
EAGLE ST
KING ST
BISHOP ST
HESPELER RD
CAN-AMERA PKY
TOWNLINE RD
FOUNTAIN ST
BLAIR RD
CORONATION BLVD
FRANKLIN BLVD
CLYDE RD
OLD BEVERLY RD
TRUSSLER RD
NEW DUNDEE RD
CONCESSION ST
MAIN ST
WATER ST
DUNDAS ST
ROSEVILLE RD
CEDAR CREEK RD
MYERS RD
NORTHUMBERLAND ST
HWY 401
DUMFRIES RD
BRANCHTON RD

LEGEND

Urban Area

- Built-Up Area*
- Urban Designated Greenfield Areas
- Prime Industrial/Strategic Reserve (Serviced)
- Urban Growth Centres
- Reurbanization Corridors **
- Major Transit Station Areas **
- Central Transit Corridor Environmental Assessment Study Area
- Planned Highway 7
- Region of Waterloo International Airport
- Urban Area Boundary

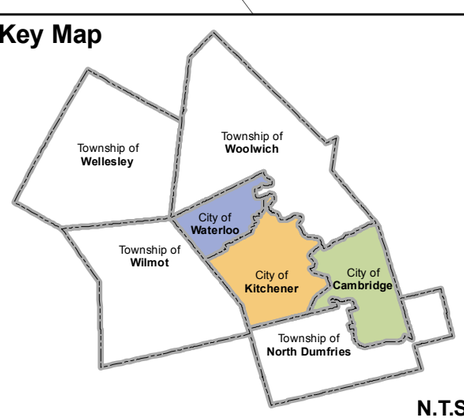
LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 0.5 1 2 Km

Sources: Region of Waterloo, Ministry of Energy and Infrastructure

Key Map



N.T.S.

Region of Waterloo

Regional Official Plan SHAPING OUR FUTURE

MAP 3a

URBAN AREA

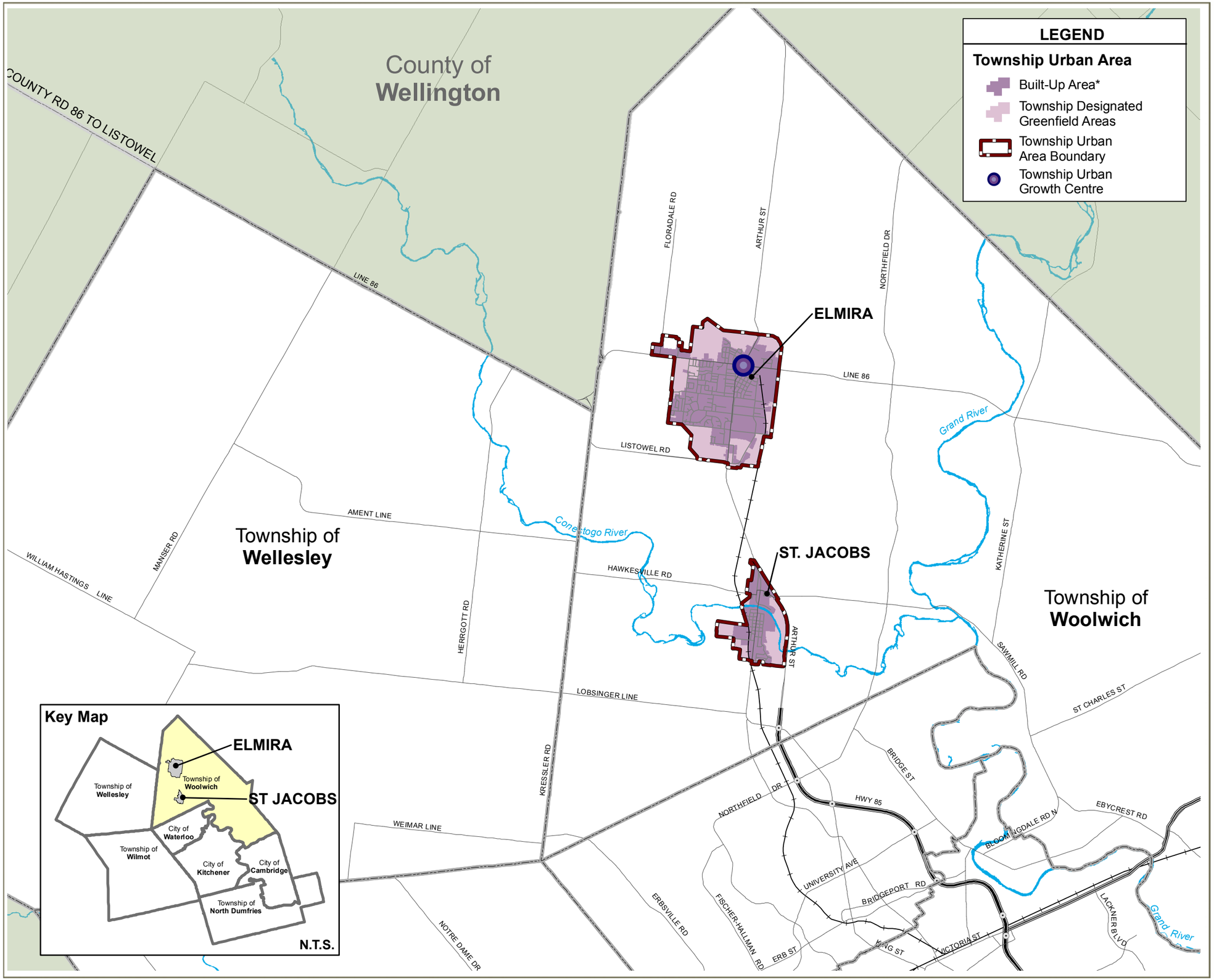
2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

* Built-Up Area includes all lands within the built boundary, as established by the Province.

** Map 3a will be amended to designate Reurbanization Corridors and Major Transit Station Areas following the completion of the Rapid Transit Environmental Assessment.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan SHAPING OUR FUTURE

MAP 3b

TOWNSHIP OF WOOLWICH TOWNSHIP URBAN AREA ELMIRA & ST. JACOBS

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 0.5 1 2 Km

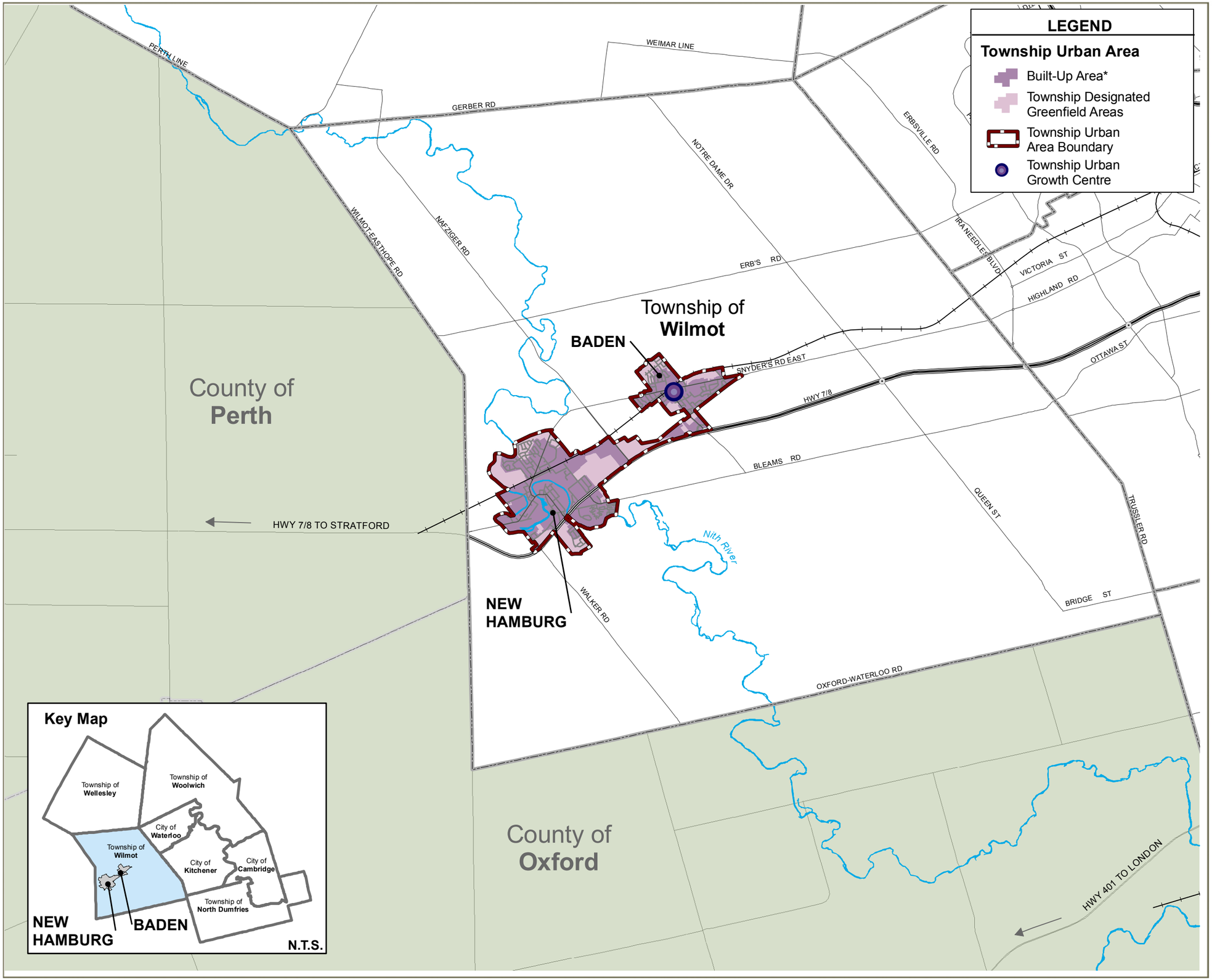
Sources: Region of Waterloo, Ministry of Energy and Infrastructure

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

* Built-Up Area includes all lands within the built boundary, as established by the Province.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan
SHAPING OUR FUTURE

MAP 3c

TOWNSHIP OF WILMOT
TOWNSHIP URBAN AREA
BADEN & NEW HAMBURG

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 0.5 1 2 Km

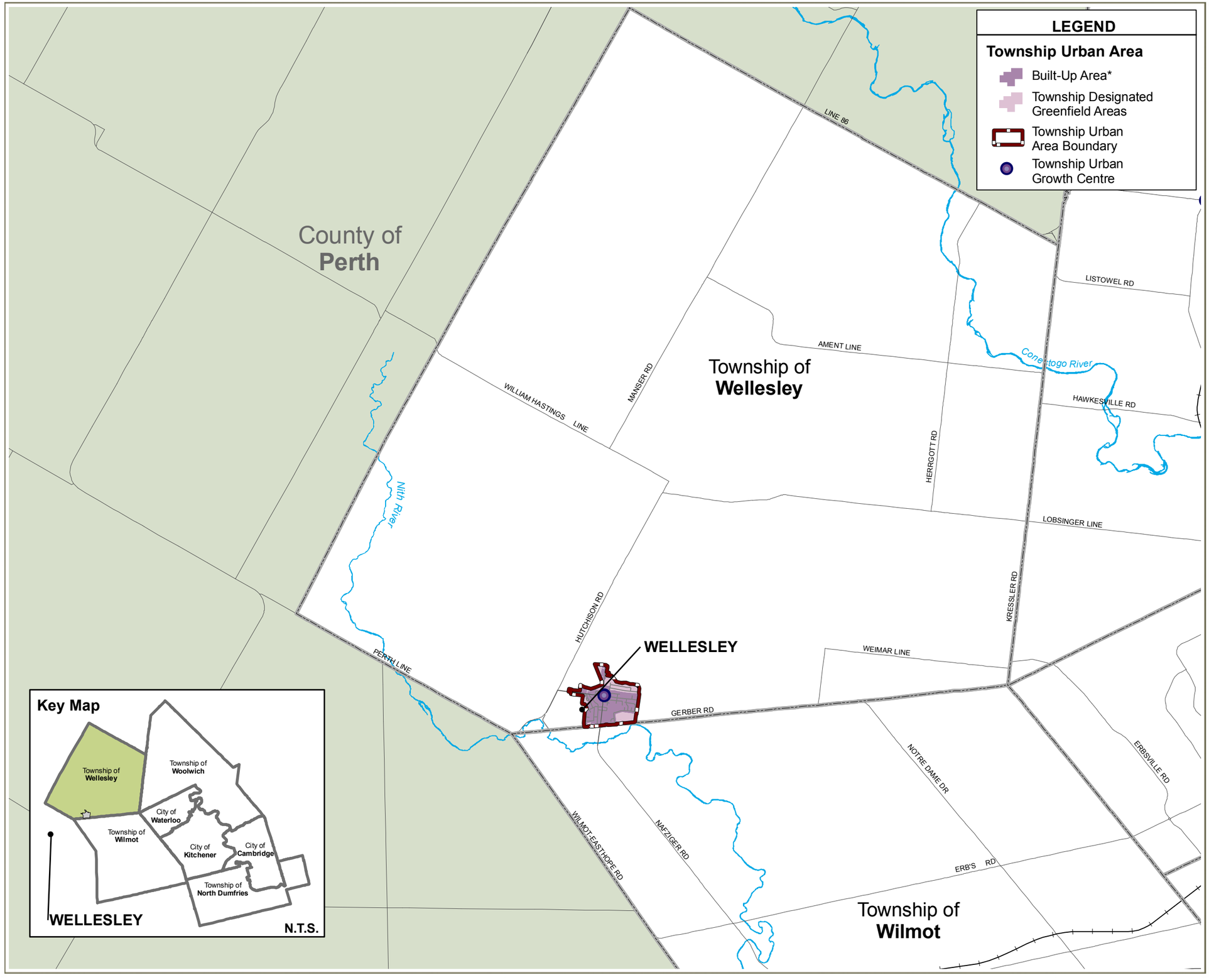
Sources: Region of Waterloo, Ministry of Energy and Infrastructure

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

* Built-Up Area includes all lands within the built boundary, as established by the Province.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan
SHAPING OUR FUTURE

MAP 3d

TOWNSHIP OF WELLESLEY
TOWNSHIP URBAN AREA
WELLESLEY

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 0.5 1 2 Km

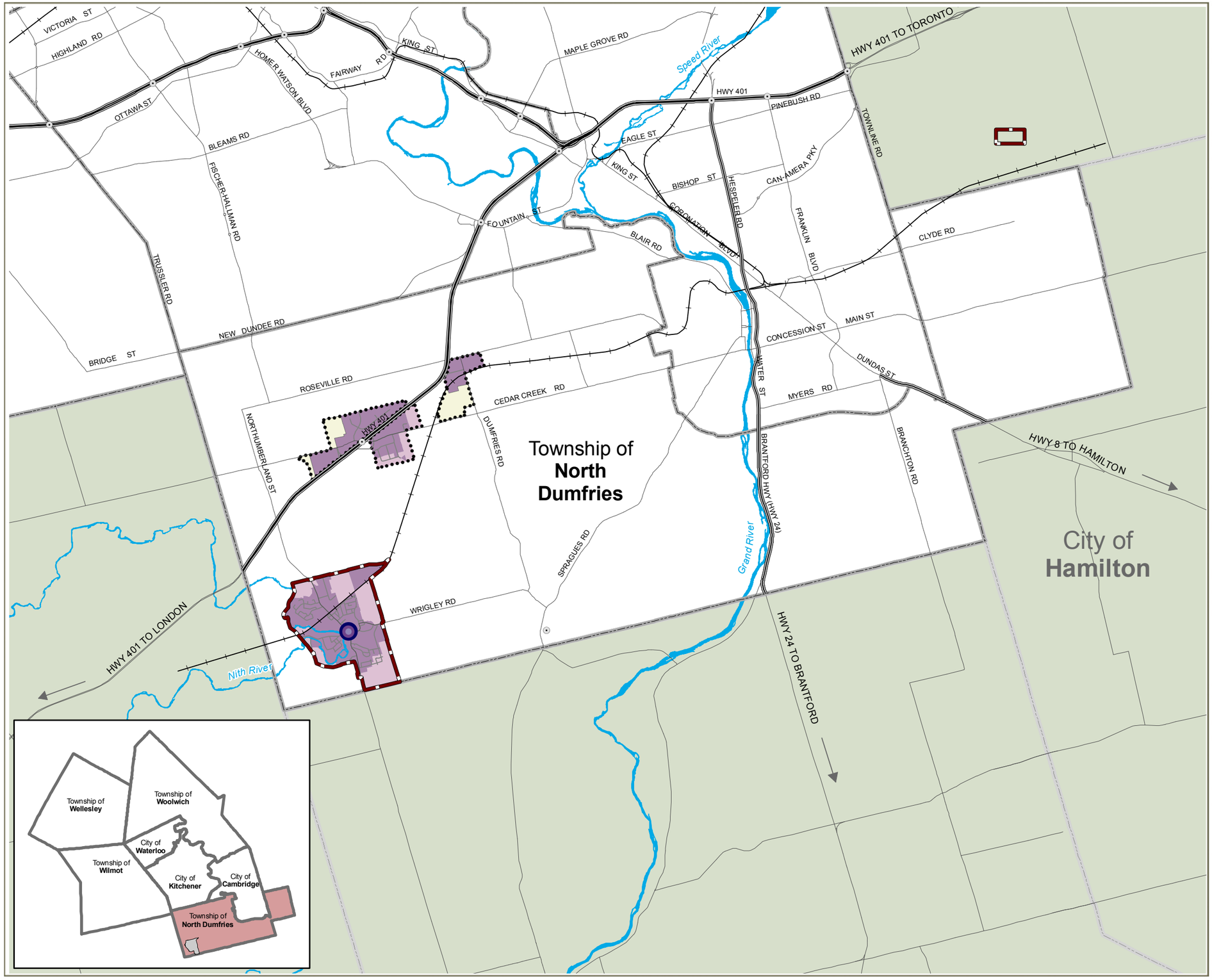
Sources: Region of Waterloo, Ministry of Energy and Infrastructure

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

* Built-Up Area includes all lands within the built boundary, as established by the Province.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan
SHAPING OUR FUTURE

MAP 3e

TOWNSHIP OF NORTH DUMFRIES TOWNSHIP URBAN AREA AYR

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 0.5 1 2 Km

Sources: Region of Waterloo, Ministry of Energy and Infrastructure

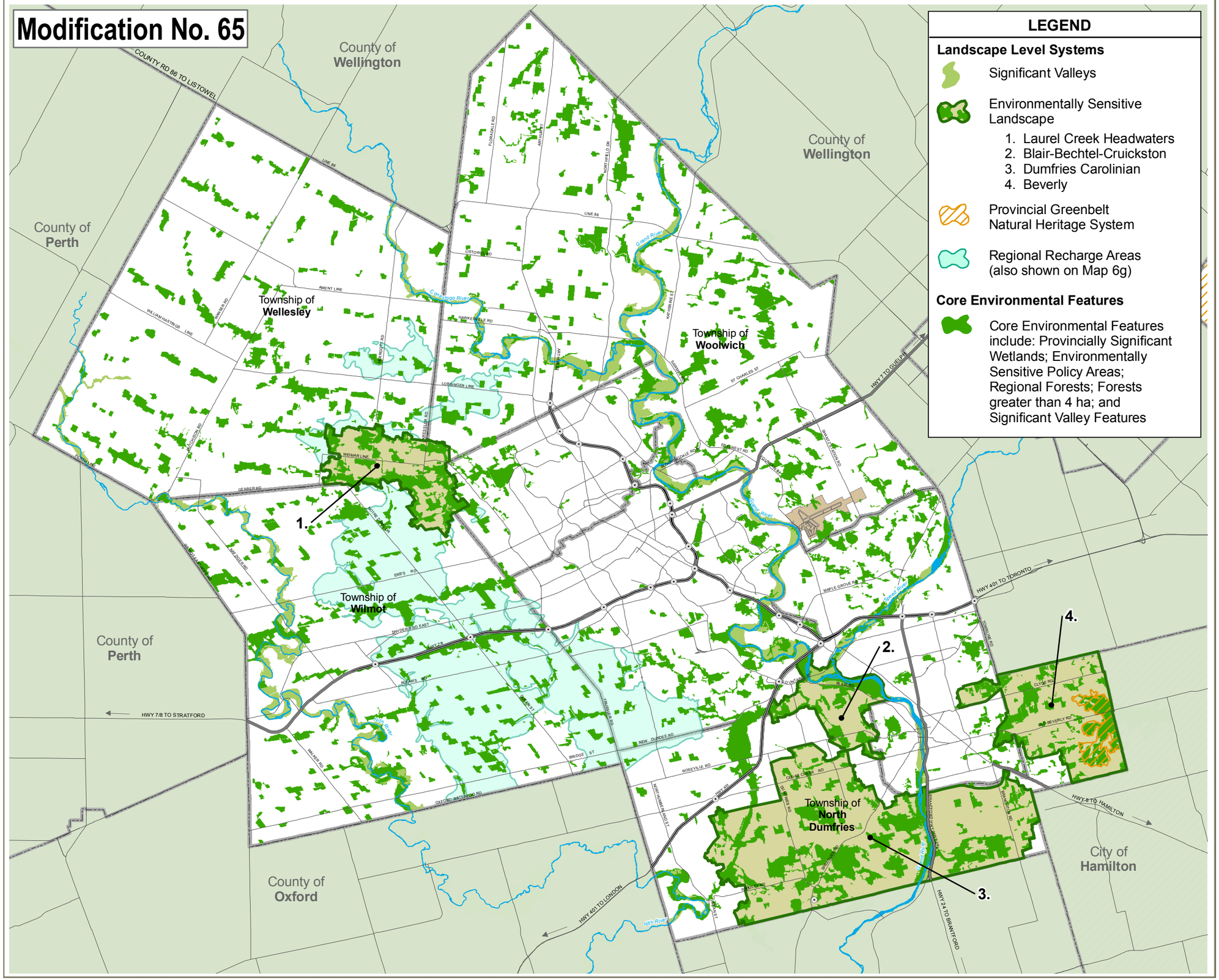
2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

* Built-Up Area includes all lands within the built boundary, as established by the Province.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.

Modification No. 65



LEGEND

Landscape Level Systems

- Significant Valleys
- Environmentally Sensitive Landscape
  1. Laurel Creek Headwaters
  2. Blair-Bechtel-Cruickston
  3. Dumfries Carolinian
  4. Beverly
- Provincial Greenbelt Natural Heritage System
- Regional Recharge Areas (also shown on Map 6g)

Core Environmental Features

- Core Environmental Features include: Provincially Significant Wetlands; Environmentally Sensitive Policy Areas; Regional Forests; Forests greater than 4 ha; and Significant Valley Features

Region of Waterloo

Regional Official Plan SHAPING OUR FUTURE

MAP 4

GREENLANDS NETWORK

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 1 2 4 Km

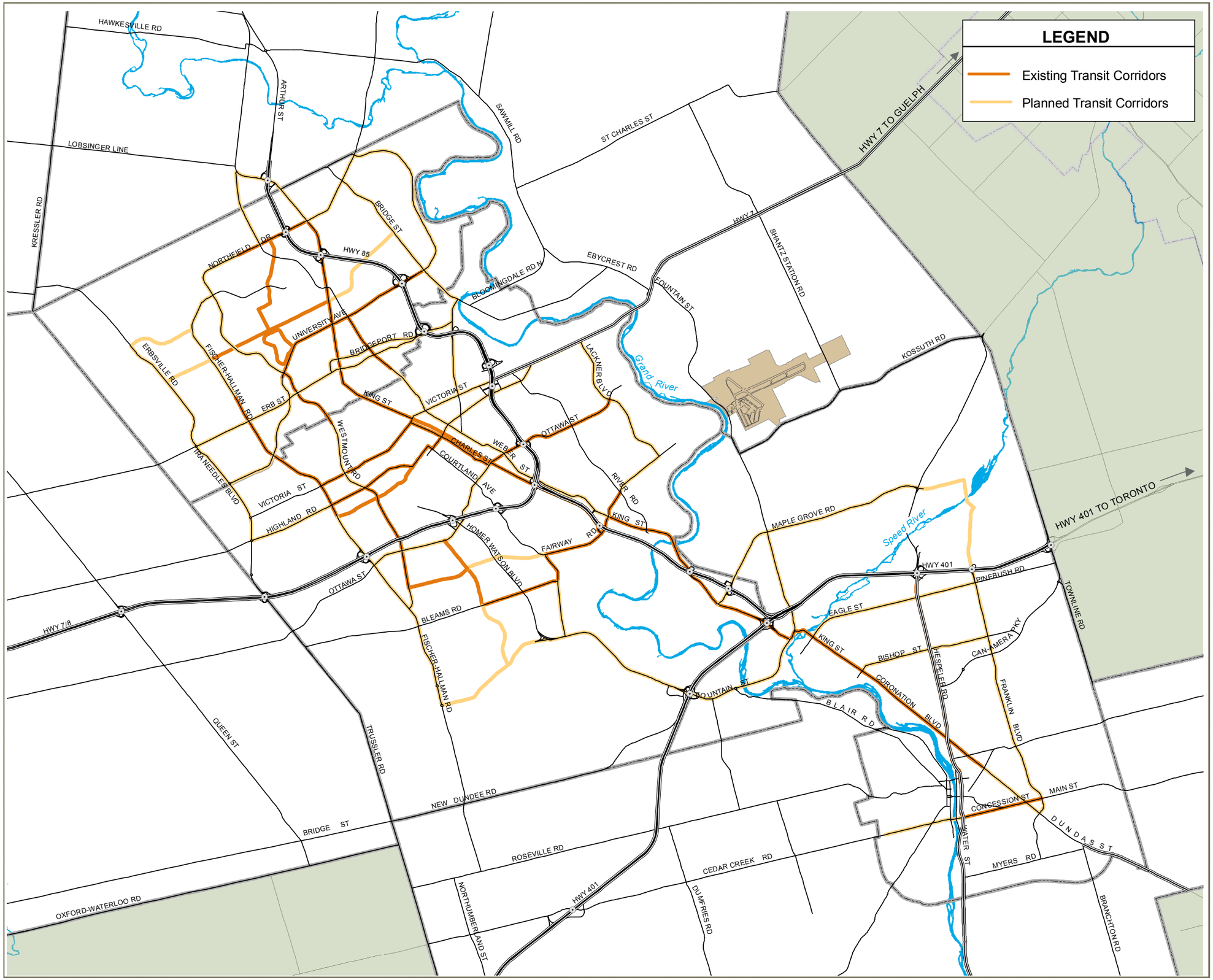
Sources: Region of Waterloo, Ministry of Natural Resources

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: Permanent and intermittent watercourses are identified in the Technical Appendix for Landscape Level Systems and Core Environmental Features.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan SHAPING OUR FUTURE

MAP 5a

REGIONAL TRANSIT NETWORK

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 0.5 1 2 Km

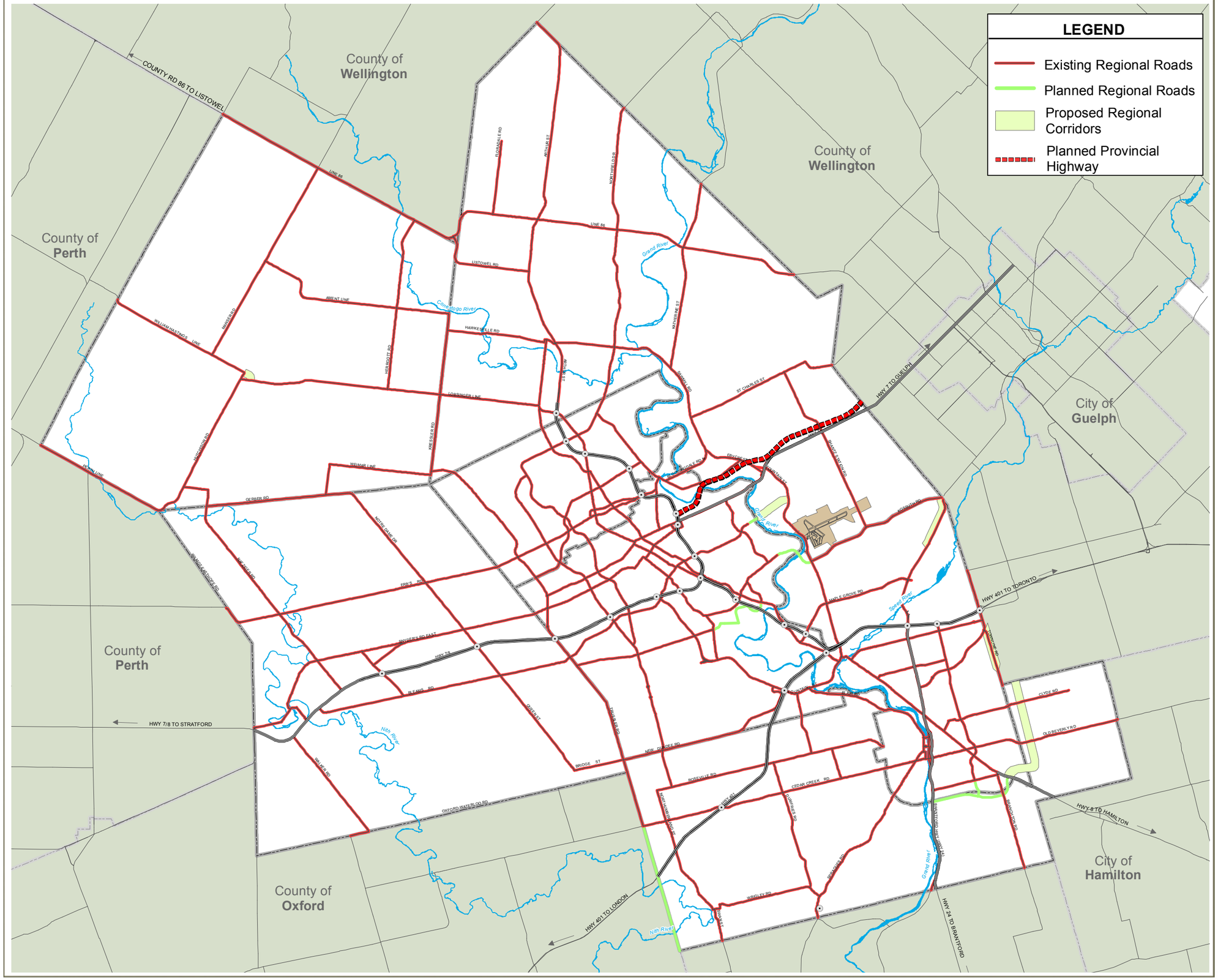
Sources: Region of Waterloo

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: The Regional transportation system is currently under review in conjunction with the Regional Transportation Master Plan (RTMP). The results of the RTMP may result in future amendments.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan
SHAPING OUR FUTURE

MAP 5b

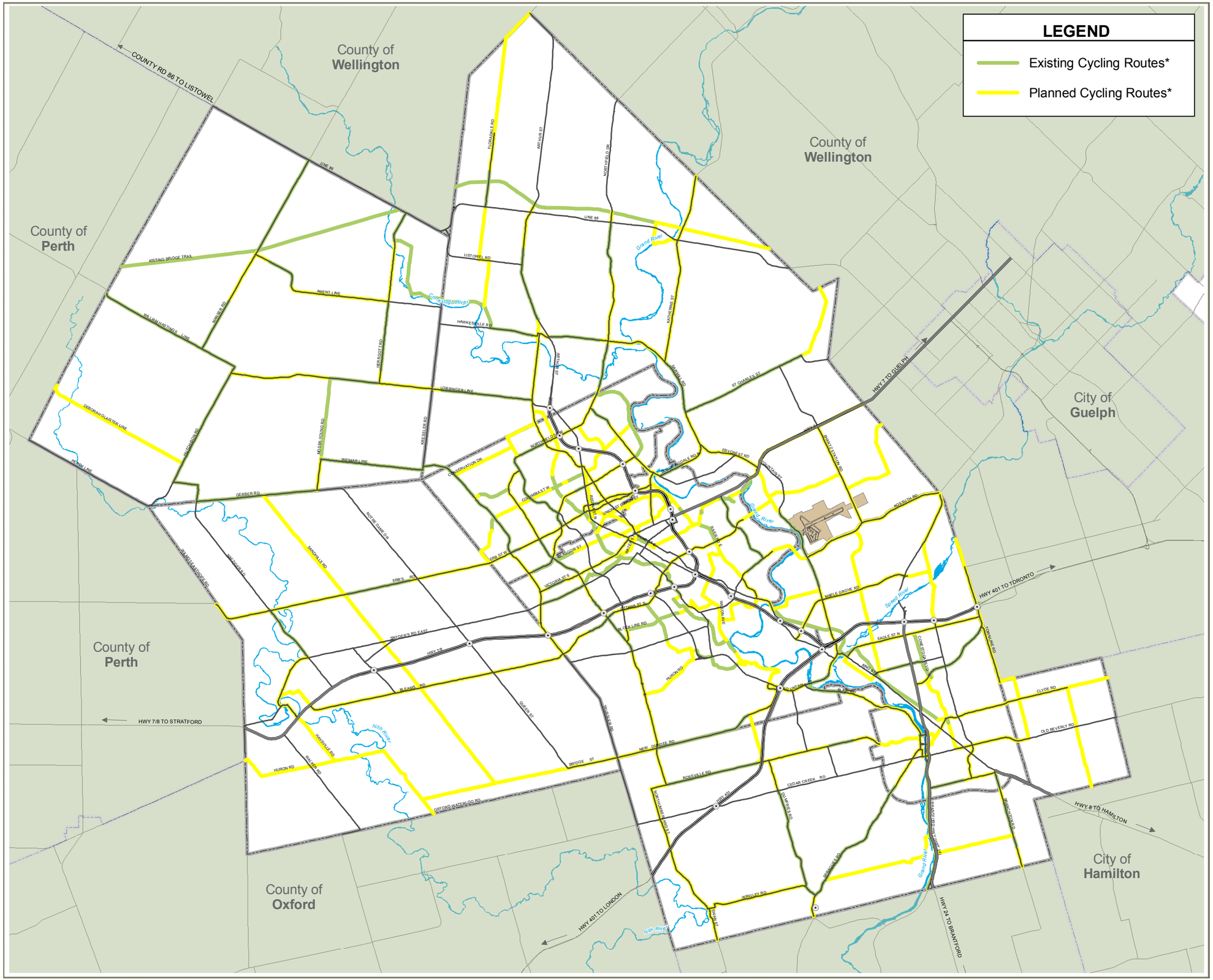
EXISTING, PLANNED AND PROPOSED ROADS AND CORRIDORS

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: The Regional transportation system is currently under review in conjunction with the Regional Transportation Master Plan (RTMP). The results of the RTMP may result in future amendments.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Regional Official Plan
SHAPING OUR FUTURE

MAP 5c

REGIONAL CYCLING ROUTES

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 1 2 4 Km

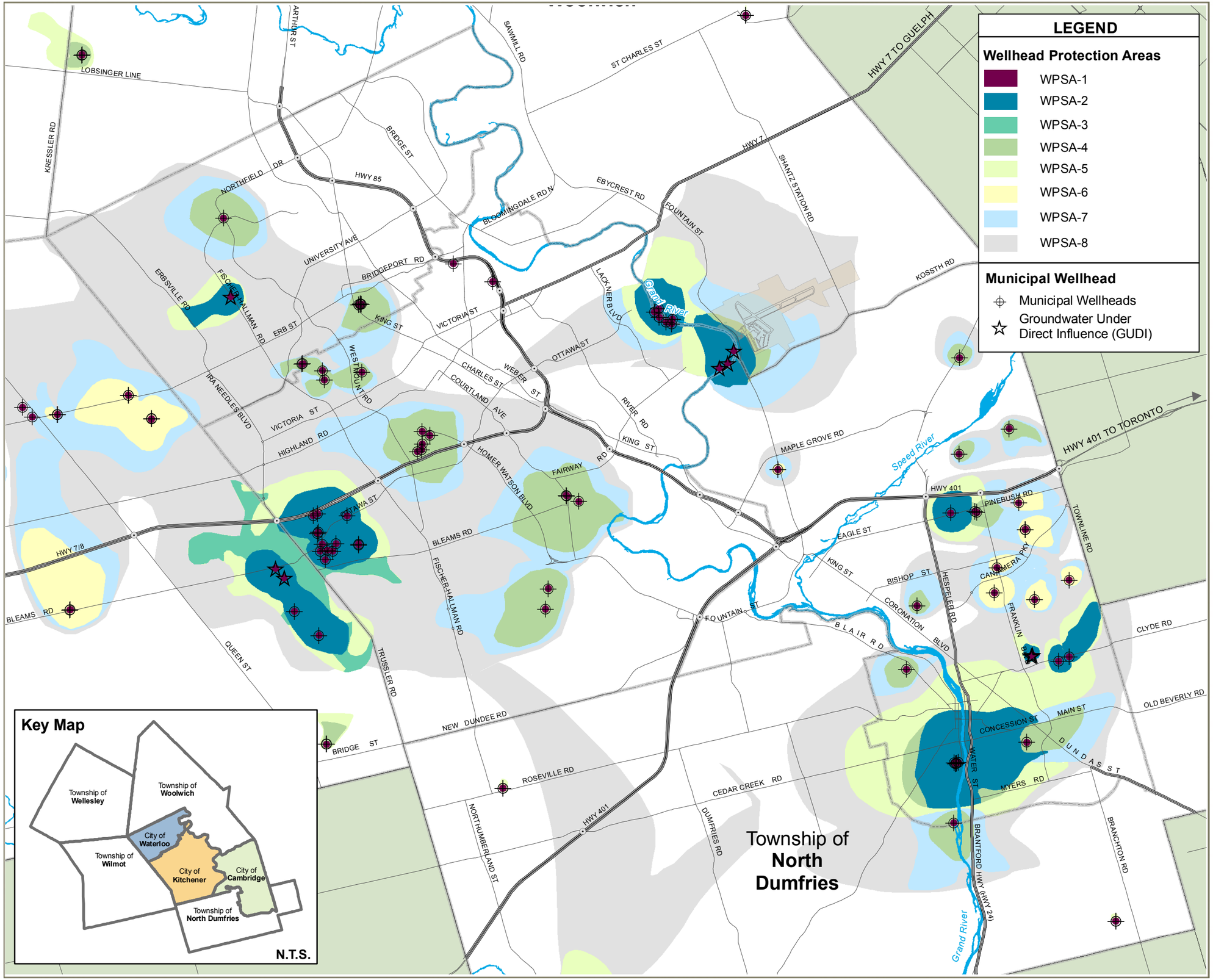
Sources: Region of Waterloo

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

*The Regional Cycling Routes shown on this map reflect the Regional Cycling Master Plan as adopted by Regional Council in 2004 and additional route construction since that time.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan SHAPING OUR FUTURE

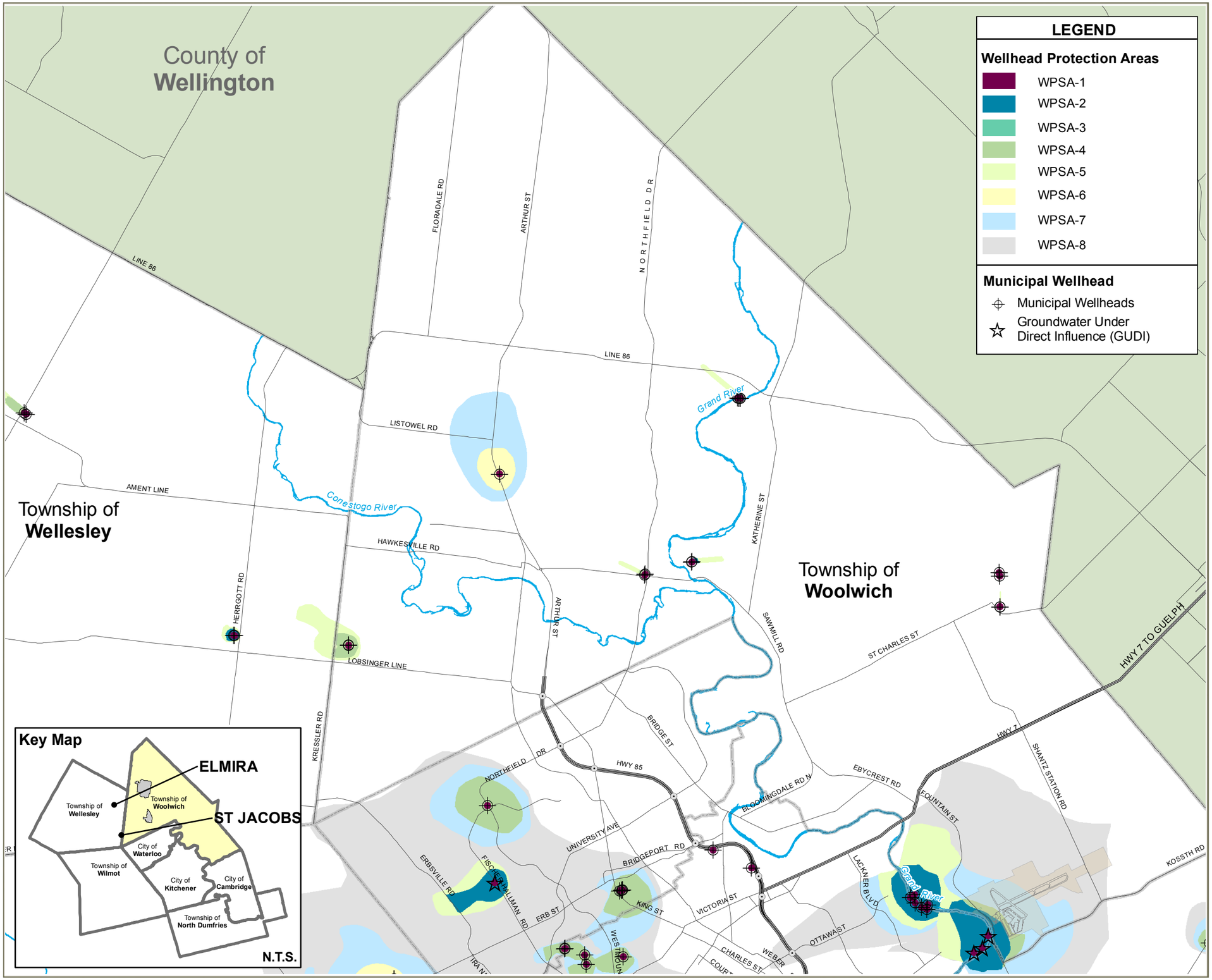
MAP 6a

URBAN AREA SOURCE WATER PROTECTION AREAS

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan
SHAPING OUR FUTURE

MAP 6b

TOWNSHIP OF WOOLWICH SOURCE WATER PROTECTION AREAS

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

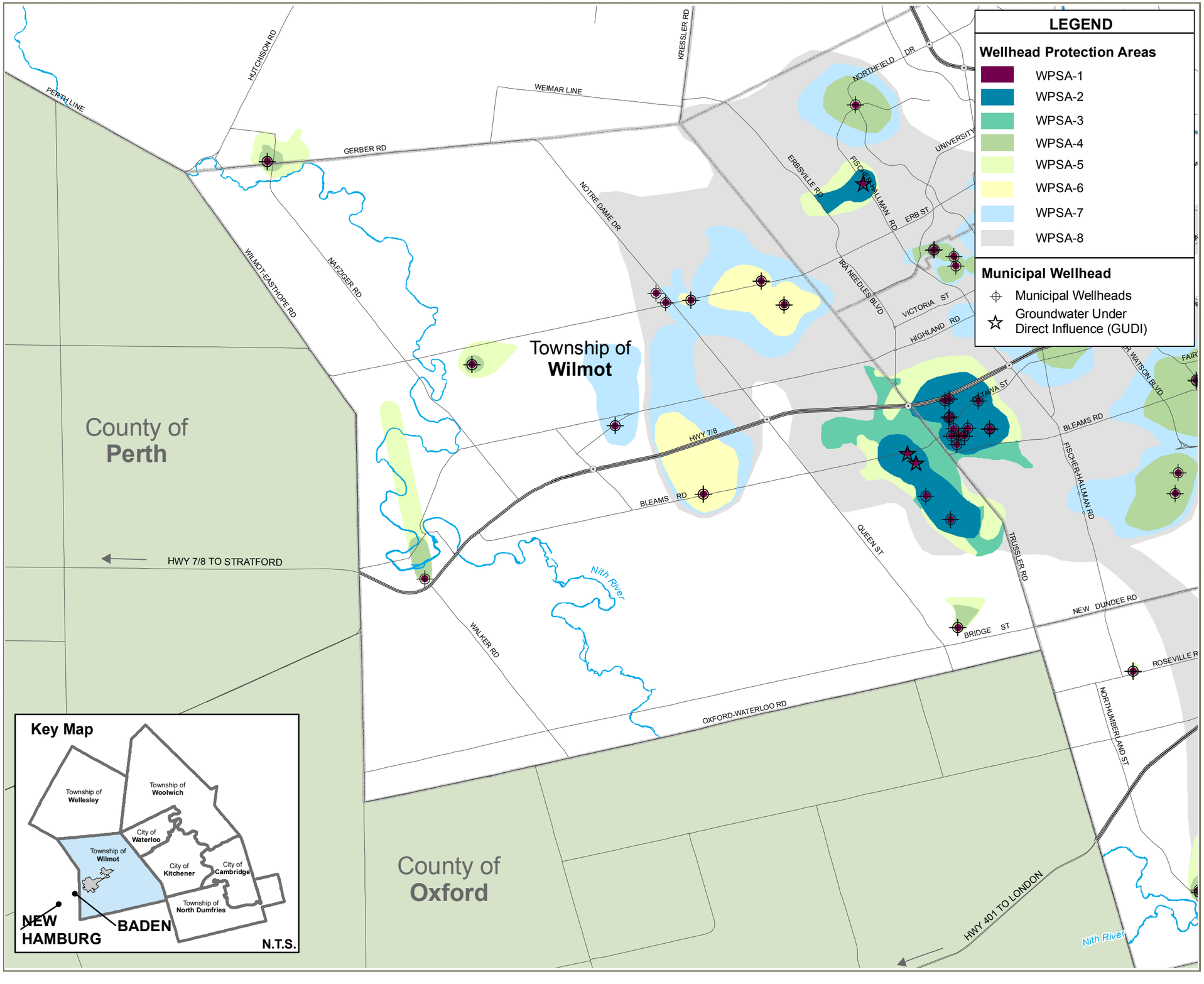
0 0.5 1 2 Km

Sources: Region of Waterloo

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan SHAPING OUR FUTURE

MAP 6c

TOWNSHIP OF WILMOT SOURCE WATER PROTECTION AREAS

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

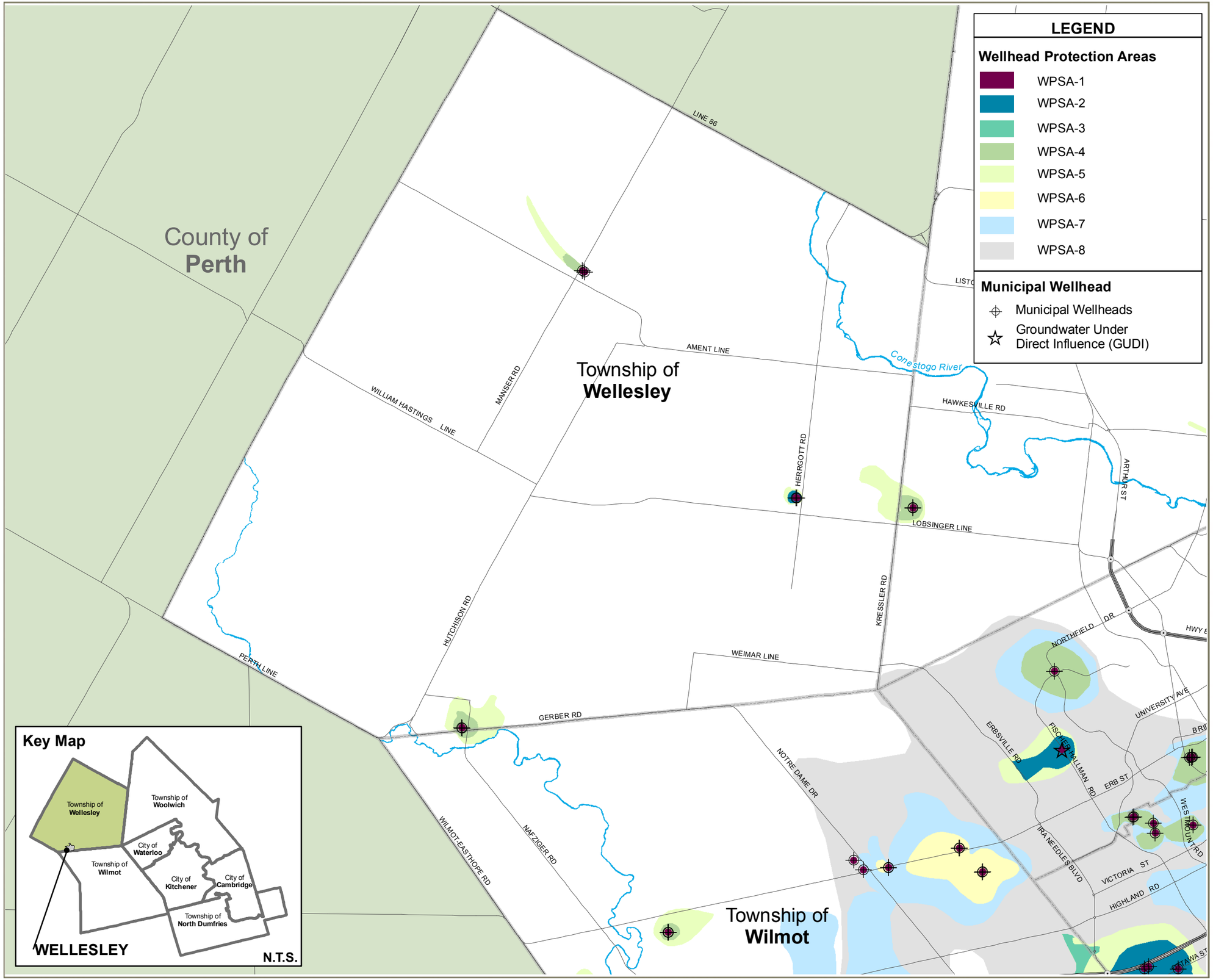
0 0.5 1 2 Km

Sources: Region of Waterloo

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan SHAPING OUR FUTURE

MAP 6d

TOWNSHIP OF WELLESLEY SOURCE WATER PROTECTION AREAS

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

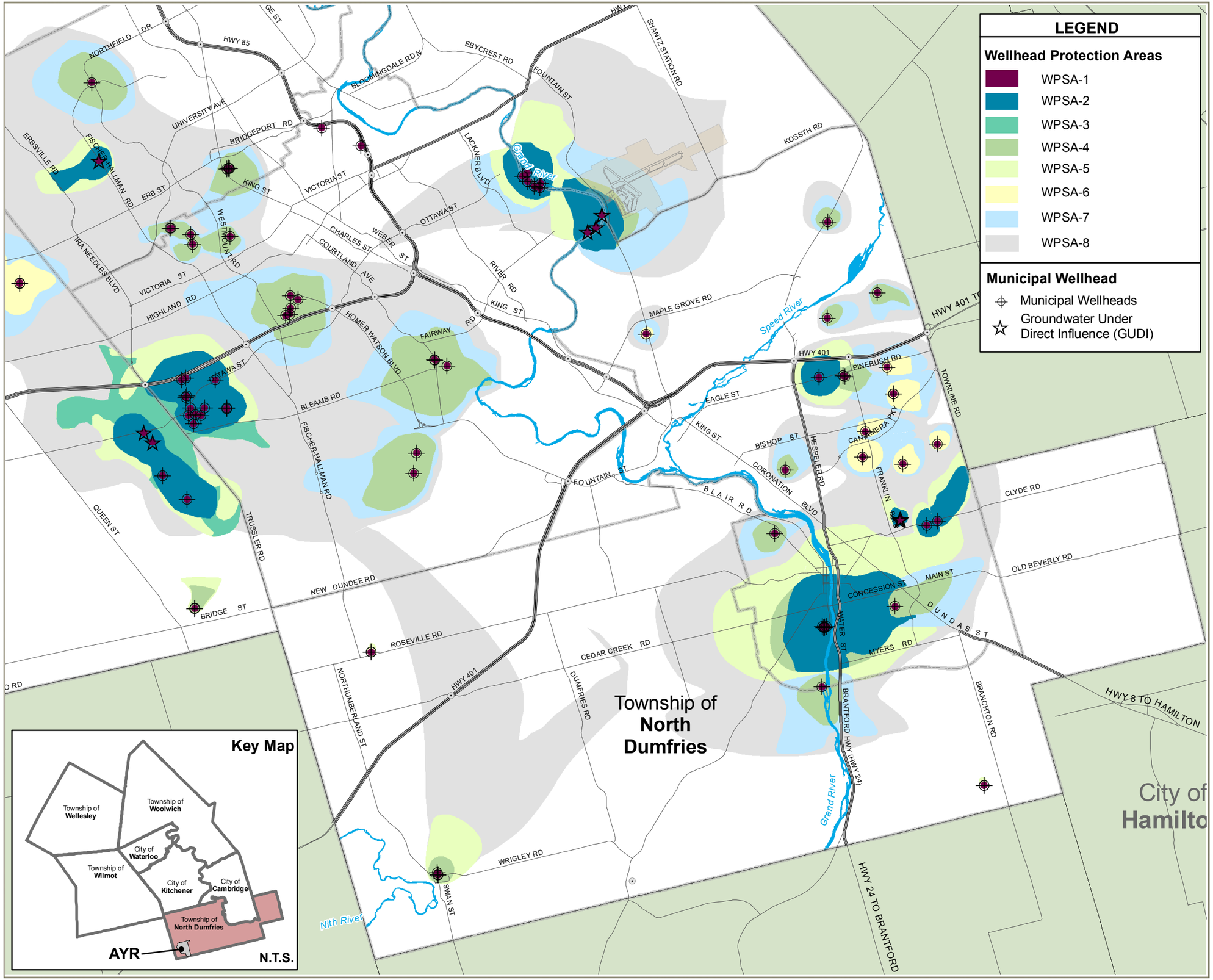
0 0.5 1 2 Km

Sources: Region of Waterloo

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan SHAPING OUR FUTURE

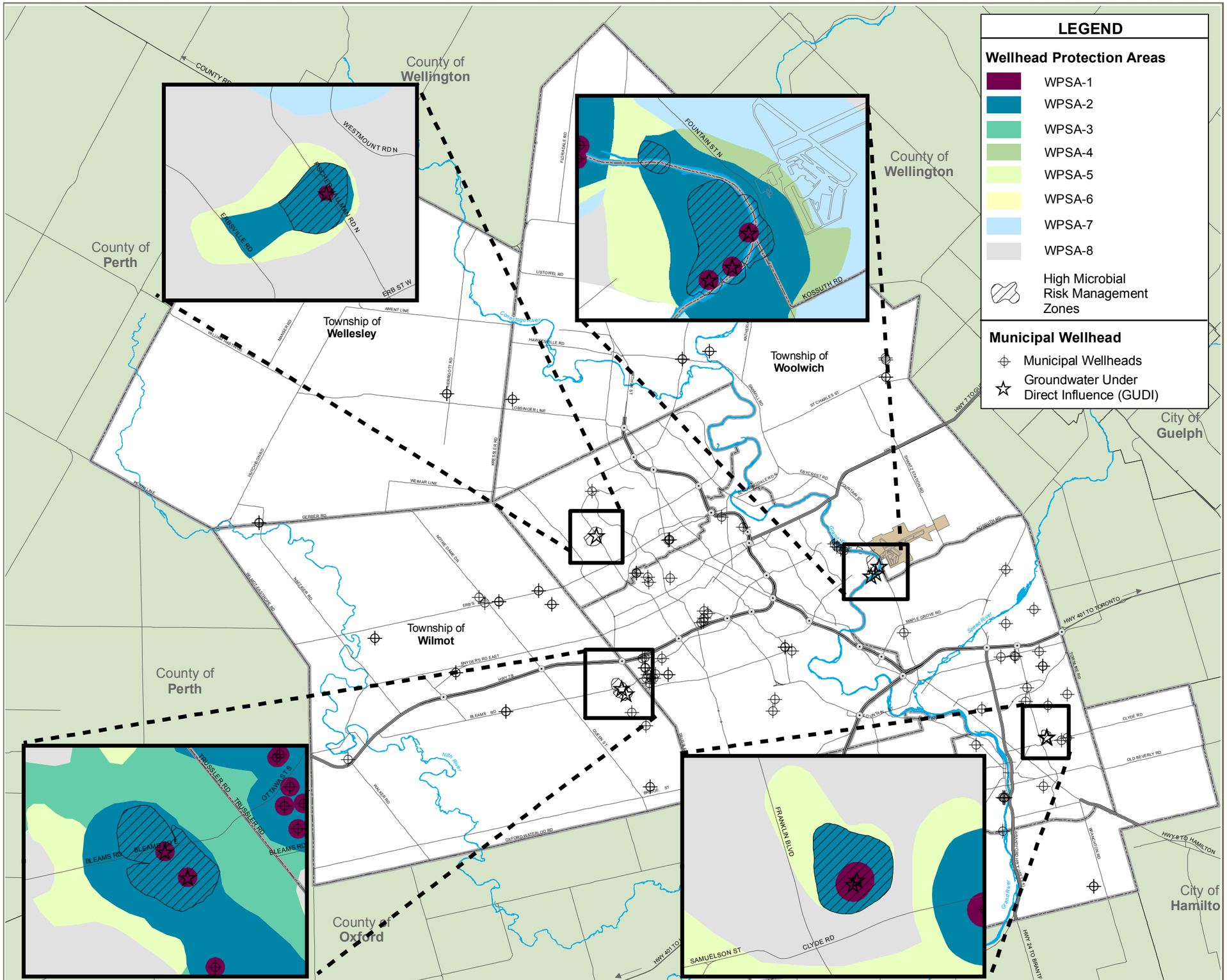
MAP 6e

TOWNSHIP OF NORTH DUMFRIES SOURCE WATER PROTECTION AREAS

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.



Region of Waterloo

Regional Official Plan SHAPING OUR FUTURE

MAP 6f

OTHER SOURCE WATER PROTECTION AREAS - HIGH MICROBIAL RISK MANAGEMENT ZONES

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 0.5 1 Km

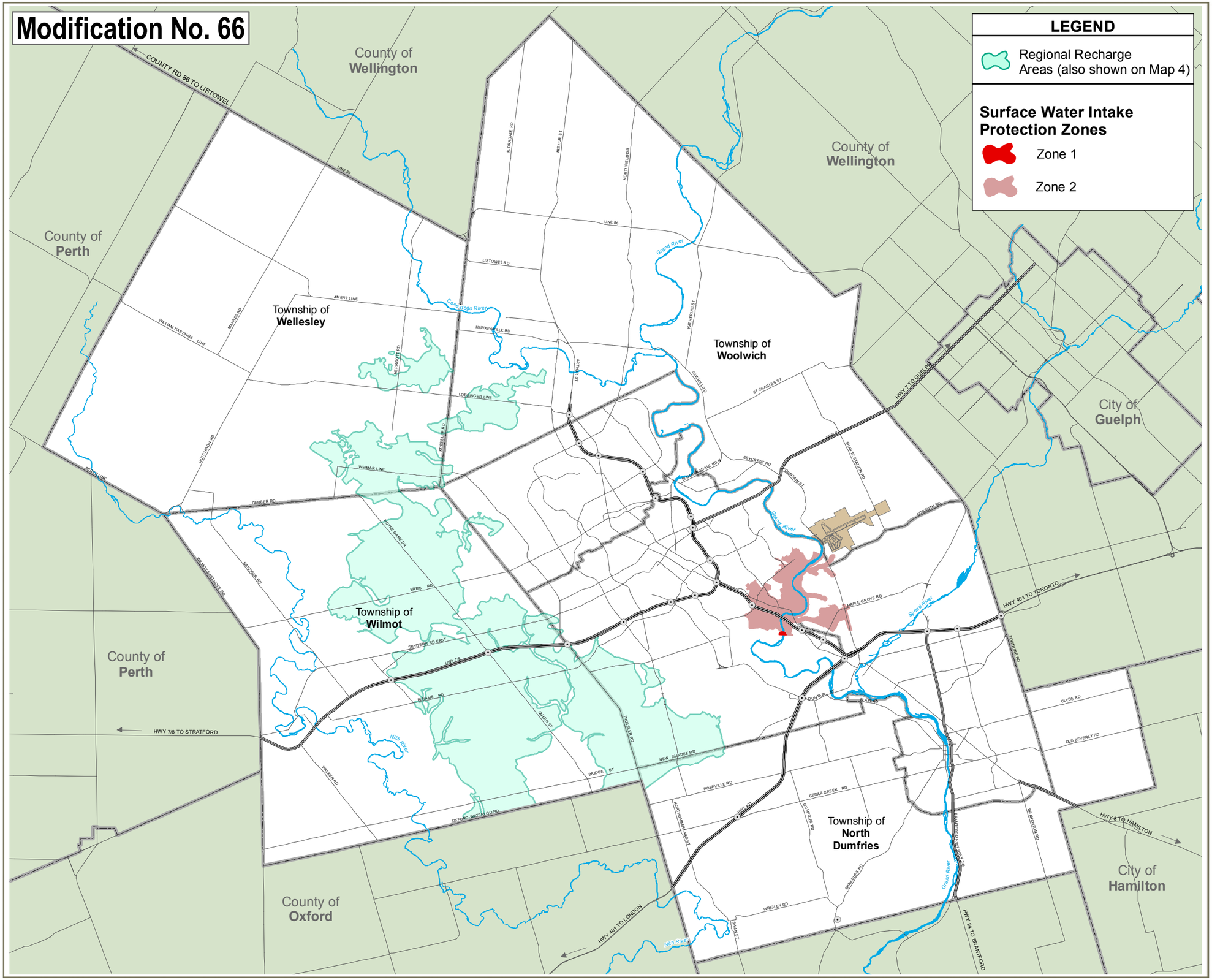
Sources: Region of Waterloo

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.

Modification No. 66



LEGEND

Regional Recharge Areas (also shown on Map 4)

Surface Water Intake Protection Zones

- Zone 1
- Zone 2

Region of Waterloo

Regional Official Plan SHAPING OUR FUTURE

MAP 6g

OTHER SOURCE WATER PROTECTION AREAS

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 1 2 4 Km

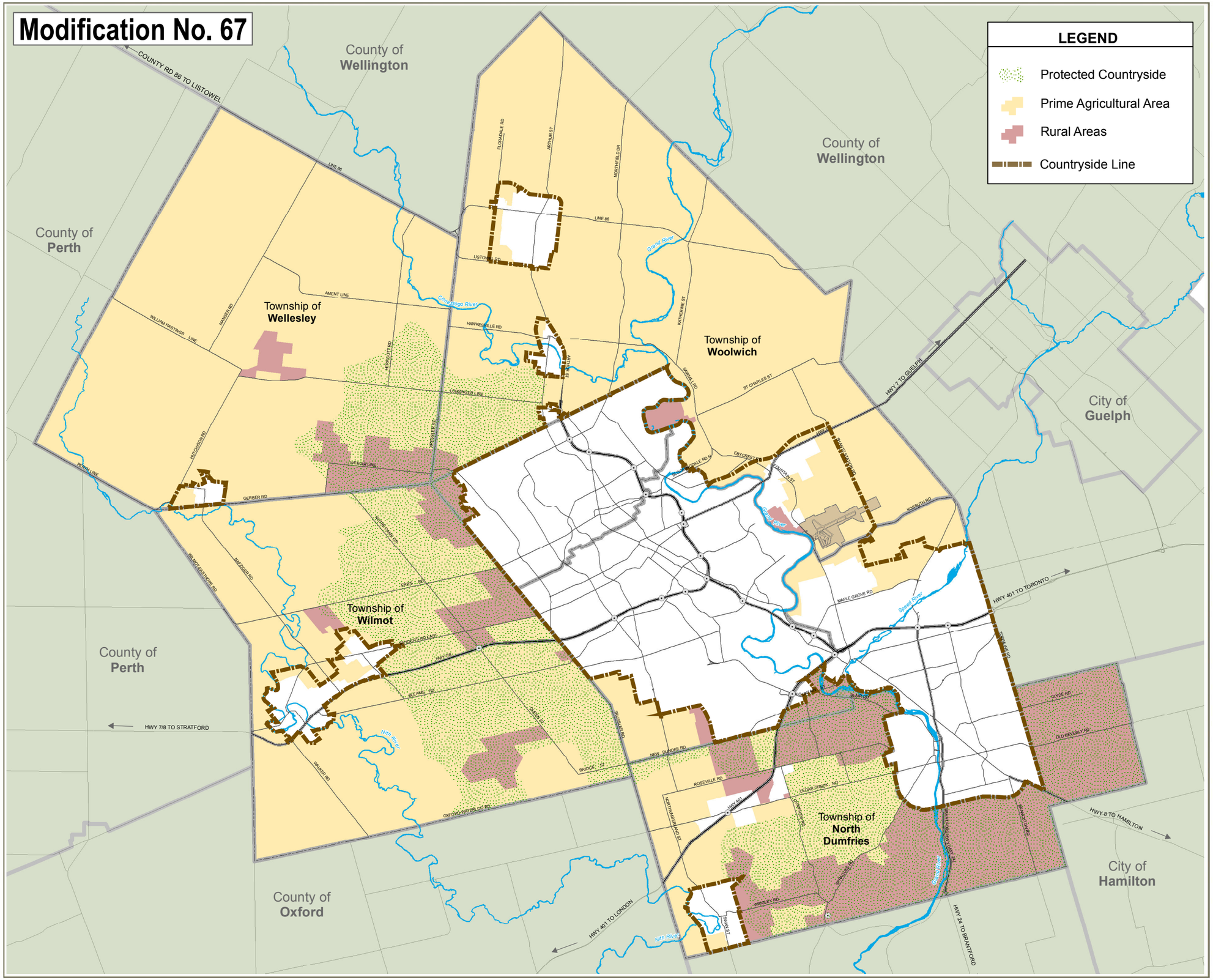
Sources: Region of Waterloo

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.

Modification No. 67



Region of Waterloo

Regional Official Plan
SHAPING OUR FUTURE

MAP 7

THE COUNTRYSIDE

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 1 2 4 Km

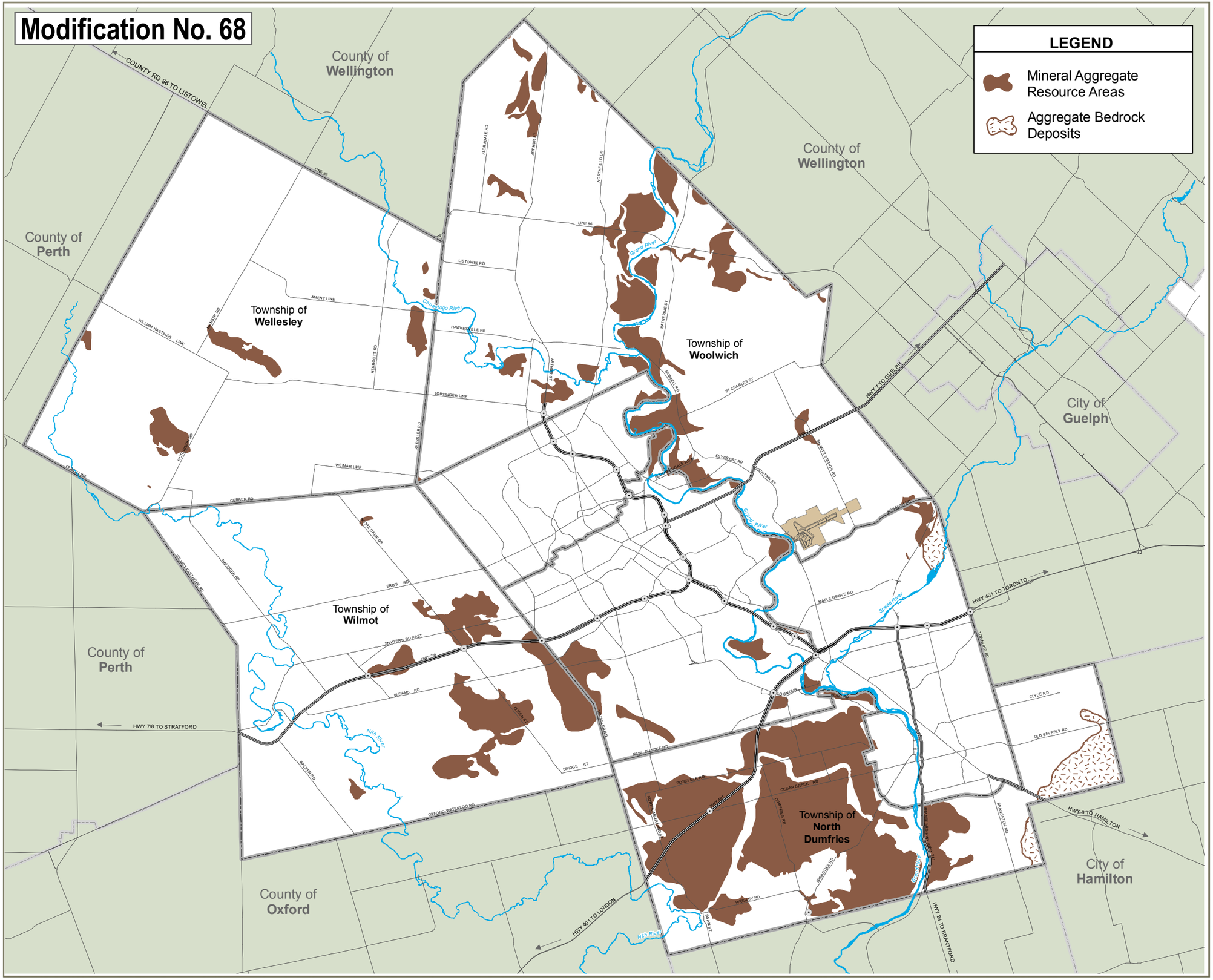
Sources: Region of Waterloo

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.

Modification No. 68



LEGEND

- Mineral Aggregate Resource Areas
- Aggregate Bedrock Deposits

Region of Waterloo

Regional Official Plan SHAPING OUR FUTURE

MAP 8

MINERAL AGGREGATE RESOURCE AREAS AND AGGREGATE BEDROCK DEPOSITS

LEGEND

- Provincial Highway
- Regional Road
- River
- Region of Waterloo International Airport
- Municipal Boundary
- Railway

0 1 2 4 Km

Sources: Region of Waterloo, Ministry of Northern Development and Mines and Forests

2010

Note: As of January 24, 2011, this Plan in its entirety, is currently under appeal before the Ontario Municipal Board (OMB). Before using this document, care should be taken to check the updated status of the appeal process on the Region of Waterloo's website.

Note: This map forms part of the Official Plan of the Regional Municipality of Waterloo and must be read in conjunction with the policies of this Plan.

Ontario Energy Board

Chapter 2 Appendices
Filing Requirements for Electricity Distribution Rate Applications

Version 2.2 (2016)

Utility Name	Waterloo North Hydro Inc.
Assigned EB Number	EB-2015-0108
Name of Contact and Title	Albert P. Singh
Phone Number	519-888-5542
Email Address	asingh@wnhydro.com
Test Year	2016
Bridge Year	2015
Last Rebasing Year	2011
Identify the accounting standard used for the test year	MIFRS
Did you update your depreciation and capitalization policies?	Yes
When did you update your depreciation and capitalization policies?	**January 1** **2013**
Identify the year that the applicant has adopted or is expected to adopt IFRS for financial reporting purposes	2015 or Later
Are you applying for cost recovery for the test and/or future year(s) for Green Energy initiatives?	No
Is Waterloo North Hydro Inc. an embedded distributor?	Yes

Notes

Pale green cells represent input cells.

Pale blue cells represent drop-down lists. The applicant should select the appropriate item from the drop-down list.

White cells contain fixed values, automatically generated values or formulae.

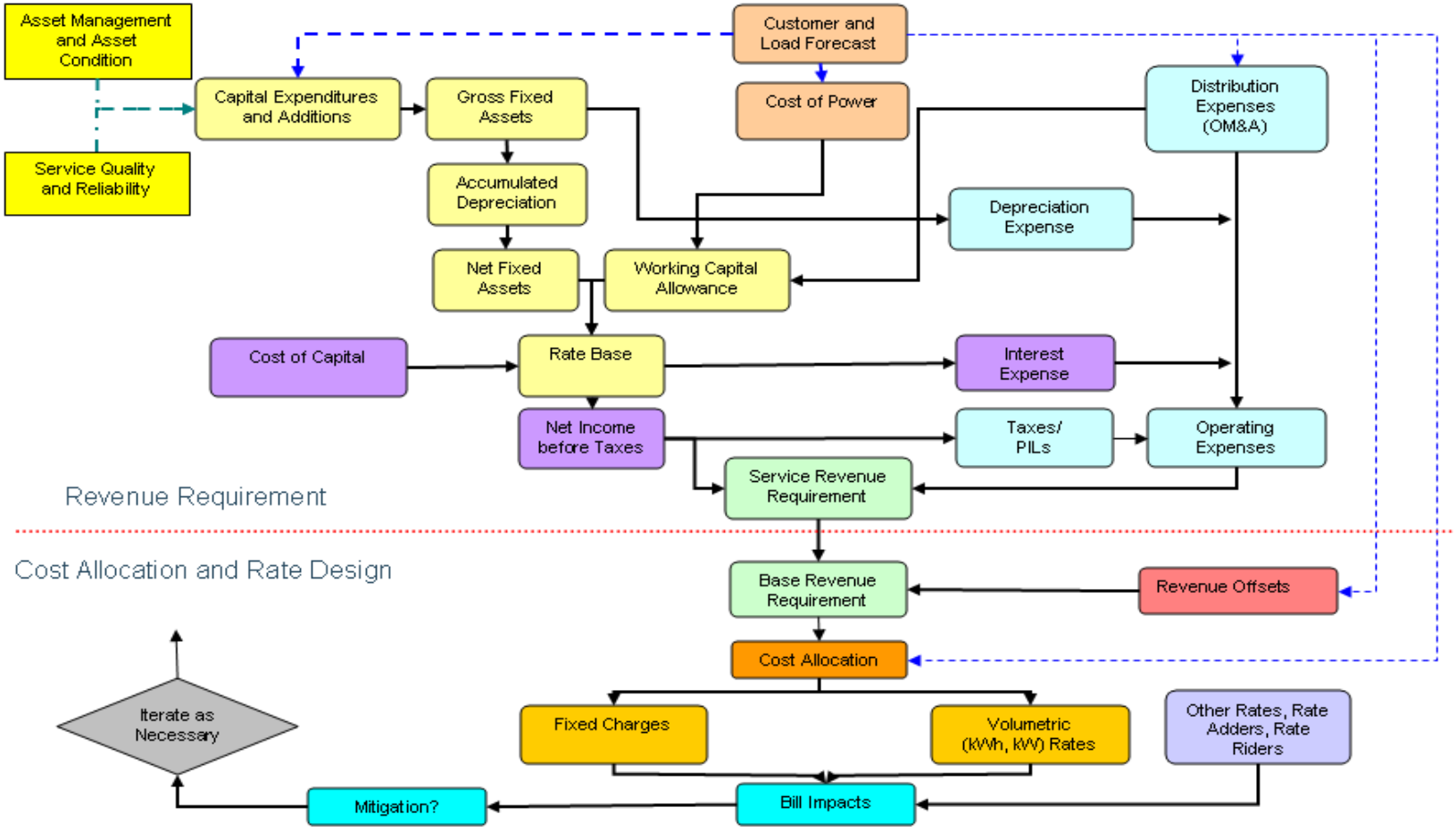
Ontario Energy Board

Chapter 2 Appendices
Filing Requirements for Electricity Distribution Rate Applications

1 LDC Information Sheet
2 Index
3 Cost of Service Application Flowchart
4 List of Key References
5 App.2-AA: Capital Projects Table
6 App.2-AB: Capital Expenditures
7 App. 2-AC: Customer Engagement Worksheet
8 App.2-B: General Accounting Instructions
9 App.2-BA: Fixed Asset Continuity Schedule
10 Appendix 2-BB: Service Life Comparison
11 App.2-CA: 2012 Depreciation and Amortization Expense (Old CGAAP)
12 App.2-CB: 2012 Depreciation and Amortization Expense (New CGAAP)
13 App.2-CC: 2013 Depreciation and Amortization Expense (New CGAAP)
14 App.2-CD: 2014 Depreciation and Amortization Expense (MIFRS)
15 App.2-CE: 2015 Depreciation and Amortization Expense (MIFRS)
16 App.2-CF: 2015 Depreciation and Amortization Expense (MIFRS)
17 App.2-CG: 2013 Depreciation and Amortization Expense (Old CGAAP)
18 App.2-CH: 2013 Depreciation and Amortization Expense (New CGAAP)
19 App.2-CI: 2014 Depreciation and Amortization Expense (MIFRS)
20 App.2-CJ: 2015 Depreciation and Amortization Expense (MIFRS)
21 App.2-CK: 2016 Depreciation and Amortization Expense (MIFRS)
22 App.2-D: Overhead Expenses
23 App.2-EA: Account 1575 PP&E Deferral Account (2015 IFRS Adopters)
24 App.2-EB: Account 1576 - Accounting Changes Under CGAAP (2012 Changes)
25 App.2-EC: Account 1576 - Accounting Changes Under CGAAP (2013 Changes)
26 App.2-FA: Renewable Generation Connection Investment Summary
27 App.2-FB: Calculation of Renewable Generation Connection Direct Benefits/Provincial Amount: Renewable Enabling Improvement Investments
28 App.2-FC: Calculation of Renewable Generation Connection Direct Benefits/Provincial Amount: Renewable Expansion Investments
28 App.2-G: Service Reliability Indicators
29 App.2-H: Other Operating Revenue
30 App.2-I: Load Forecast CDM Adjustment Workform
31 App.2-IA: Actual and Forecast Load and Customer Data
32 App.2-JA: OM&A Summary Analysis
33 App.2-JB: Recoverable OM&A Cost Driver Table
34 App.2-JC: OM&A Programs Table
35 App.2-K: Employee Costs
36 App.2-L: Recoverable OM&A Cost per Customer and per FTE
37 App.2-M: Regulatory Costs Schedule
38 App.2-N: Shared Servcies and Corporate Cost Allocation
39 App.2-OA: Capital Structure and Cost of Capital
40 App.2-OB: Debt Instruments
41 App.2-P: Cost Allocation
42 App.2-PA: New Rate Design Policy For Residential Customers
43 App.2-Q: Cost of Serving Embedded Distributor(s)
44 App.2-R: Loss Factors
45 App.2-S: Stranded Meter Treatment
46 App.2-TA: Account 1592, PILs and Tax Variances
47 App.2-TB: Account 1592, HST-OVAT Input Tax Credits
48 App.2-U: One-Time Incremental IFRS Transition Costs
49 App.2-V: Revenue Reconciliation
50 App.2-W: Bill Impacts
51 App.2-Y: Transition to MIFRS Summary Impact
52 App. 2-Z: Tariff Schedule

Cost of Service Rate Application Schematic

The Cost of Service Rate Application Schematic is a flowchart appended to Chapter 2 of the Filing Requirements as a guide for the components of an application and how demand and costs interrelate to derive the revenue requirement and then how the revenue requirement is allocated between classes and through fixed/variable splits to derive rates that will be compensatory for the annual revenue requirement, based on the the forecasted demand. There is no form to be filled out; therefore, this Schedule is not required to be filed.



List of Key References

A list of key references for understanding the Filing Requirements has been embedded in the document below. To access the list of references and associated hyperlinks double-click the icon below.



File Number:	EB-2015-0108
Exhibit:	9
Tab:	9-Staff-149
Schedule:	
Page:	
Date:	7-Aug-15

Appendix 2-FA
Renewable Generation Connection Investment Summary (past investments or over the future rate setting period)

Enter the details of the Renewable Generation Connection projects as described in the appropriate section of the Filing Requirements.
All costs entered on this page will be transferred to the appropriate cells in the appendices that follow.

For Part A, Renewable Enabling Improvements (REI), these amounts will be transferred to Appendix 2 - FB
For Part B, Expansions, these amounts will be transferred to Appendix 2 - FC

If there are more than **five** projects proposed to be in-service in a certain year, please amend the tables below and ensure that the formulae for the Total Amounts in any given rate year are updated.
Based on the current methodology and allocation, amounts allocated represent 6% for REI Connection Investments and 17% for Expansion Investments. (EB-2009-0349, 6-10-2010, p. 15, note 9)

There are two scenarios described below. Separate sets of spreadsheets (2-FA, 2-FB, 2-FC) should be submited for each scenario as required.
Scenario 1: **Past Investments with No Recovery.** The distributor has made investments in the past (during the IRM Years), but has not received approval for these projects and therefore did not receive revenue from the IESO under Regulation 330/09 and did not receive ratepayer revenue for the direct benefit portion of the investment.
The WCA percentage, debt percentages, interest rates, kWh, tax rates, amortization period, CCA Class and percentage should correspond to the distributor's last Cost of Service approval.
The Direct Benefit portion of the calculated Revenue Requirement for each year should be summed and can be applied for recovery from the distributor's ratepayers through a rate rider.
The Provincial Recovery portion of the calculated Revenue Requirement for each year should be summed and can be applied for recovery from the IESO through a separate order.

Scenario 2: **Investments in the Test Year and Beyond.** Distributor plans to make investments in 2016 and/or beyond. These investments should be added to 2-FA in the appropriate year.
The WCA percentage, debt percentages, interest rates, kWh, tax rates, amortization period, CCA Class and percentage should correspond to the distributor's current application.

Part A

	Test Year								
REI Investments (Direct Benefit at 6%)	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Project 1									
Name: REI Connection Project									
Capital Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Start-Up)	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Ongoing)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project 2									
Name: REI Connection Project									
Capital Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Start-Up)	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Ongoing)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project 3									
Name: REI Connection Project									
Capital Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Start-Up)	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Ongoing)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project 4									
Name: REI Connection Project									
Capital Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Start-Up)	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Ongoing)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project 5									
Name: REI Connection Project									
Capital Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Start-Up)	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Ongoing)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Capital Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total OM&A (Start-Up)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total OM&A (Ongoing)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Part B

	Test Year								
Expansion Investments (Direct Benefit at 17%)	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Project 1									
Name: Expansion Connection Project									
Capital Costs	$0	$117,320	$0	$0	$0	$0	$0	$0	$0
OM&A (Start-Up)	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Ongoing)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project 2									
Name: Expansion Connection Project									
Capital Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Start-Up)	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Ongoing)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project 3									
Name: Expansion Connection Project									
Capital Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Start-Up)	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Ongoing)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project 4									
Name: Expansion Connection Project									
Capital Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Start-Up)	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Ongoing)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project 5									
Name: Expansion Connection Project									
Capital Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Start-Up)	$0	$0	$0	$0	$0	$0	$0	$0	$0
OM&A (Ongoing)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Capital Costs	$ -	$ 117,320	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total OM&A (Start-Up)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total OM&A (Ongoing)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

File Number: EB-2015-0108
Exhibit:
Tab:
Schedule:
Page:

Date:

Appendix 2-FB

Calculation of Renewable Generation Connection Direct Benefits/Provincial Amount: Renewable Enabling Improvement Investments

This table will calculate the distributor/provincial shares of the investments entered in Part A of Appendix 2-FA.
Enter values in green shaded cells: WCA percentage, debt percentages, interest rates, kWh, tax rates, amortization period, CCA Class and percentage.
For historical investments, enter these variables for your last cost of service test year. For 2016 and beyond, enter variables as in the application.
Rate Riders are not calculated for Test Year as these assets and costs are already in the distributor's rate base/revenue requirement.

	2012			2013			2014			2015			2016 Test Year			2017			2018			2019			2020		
	Total	Direct Benefit 6%	Provincial 94%	Total	Direct Benefit 6%	Provincial 94%	Total	Direct Benefit 6%	Provincial 94%	Total	Direct Benefit 6%	Provincial 94%	Total	Direct Benefit 6%	Provincial 94%	Total	Direct Benefit 6%	Provincial 94%	Total	Direct Benefit 6%	Provincial 94%	Total	Direct Benefit 6%	Provincial 94%	Total	Direct Benefit 6%	Provincial 94%
Net Fixed Assets (average)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Incremental OM&A (on-going, N/A for Provincial Recovery)	$0	$ -		$0	$ -		$0	$ -		$0	$ -		$0	$ -		$0	$ -		$0	$ -		$0	$ -		$0	$ -	
Incremental OM&A (start-up, applicable for Provincial Recovery)	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -
WCA		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
Rate Base		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
Deemed ST Debt		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
Deemed LT Debt		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
Deemed Equity		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
ST Interest		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
LT Interest		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
ROE		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
Cost of Capital Total		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
OM&A		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
Amortization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grossed-up PILs		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
Revenue Requirement		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
Provincial Rate Protection			$ -			$ -			$ -			$ -			$ -			$ -			$ -			$ -			$ -	
Monthly Amount Paid by IESO			$ -			$ -			$ -			$ -			$ -			$ -			$ -			$ -			$ -	

Note 1: The difference between the actual costs of approved eligible investments and revenue received from the IESO should be recorded in a variance account. The Board may provide regulatory accounting guidance regarding a variance account either in an individual proceeding or on a generic basis.
Note 2: For the 2016 Test Year, Costs and Revenues of the Direct Benefit are to be included in the test year applicant Rate Base and Revenues.

PILs Calculation

Income Tax	2012 Direct Benefit	2012 Provincial	2013 Direct Benefit	2013 Provincial	2014 Direct Benefit	2014 Provincial	2015 Direct Benefit	2015 Provincial	2016 Direct Benefit	2016 Provincial	2017 Direct Benefit	2017 Provincial	2018 Direct Benefit	2018 Provincial	Total	2019 Direct Benefit	2019 Provincial	Total	2020 Direct Benefit	2020 Provincial
Net Income - ROE on Rate Base	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -		$ -	$ -
Amortization (6% DB and 94% P)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -		$ -	$ -
CCA (6% DB and 94% P)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -		$ -	$ -
Taxable income	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -		$ -	$ -
Tax Rate (to be entered)																				
Income Taxes Payable	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -		$ -	$ -
Gross Up																				
Income Taxes Payable	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -		$ -	$ -
Grossed Up PILs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -		$ -	$ -

Net Fixed Assets	2012	2013	2014	2015	2016	2017	2018	2019	2020
Enter applicable amortization in years: 25									
Opening Gross Fixed Assets		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Gross Capital Additions	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closing Gross Fixed Assets	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Opening Accumulated Amortization		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Current Year Amortization (before additions)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Additions (half year)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closing Accumulated Amortization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Opening Net Fixed Assets	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closing Net Fixed Assets	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Average Net Fixed Assets	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

UCC for PILs Calculation

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Opening UCC		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capital Additions (from Appendix 2-FA)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
UCC Before Half Year Rule	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Half Year Rule (1/2 Additions - Disposals)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Reduced UCC	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CCA Rate Class (to be entered) 47	47	47	47	47	47	47	47	47	47
CCA Rate (to be entered) 8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
CCA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closing UCC	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

File Number:	EB-2015-0108
Exhibit:	9
Tab:	9-Staff-149
Schedule:	
Page:	
Date:	7-Aug-15

Appendix 2-FC

Calculation of Renewable Generation Connection Direct Benefits/Provincial Amount: Renewable Expansion Investments

This table will calculate the distributor/provincial shares of the investments entered in Part B of Appendix 2-FA.
Enter values in green shaded cells: WCA percentage, debt percentages, interest rates, kWh, tax rates, amortization period, CCA Class and percentage.
For historical investments, enter these variables for your last cost of service test year. For 2016 and beyond, enter variables as in the application.
Rate Riders are not calculated for Test Year as these assets and costs are already in the distributor's rate base.

		2012			2013			2014			2015			2016 TEST YEAR			2017			2018			2019			2020		
		Total	Direct Benefi 17%	Provincial 83%	Total	Direct Benefi 17%	Provincial 83%	Total	Direct Benefi 17%	Provincial 83%	Total	Direct Benefi 17%	Provincial 83%	Total	Direct Benefit 17%	Provincial 83%	Total	Direct Benefit 17%	Provincial 83%	Total	Direct Benefit 17%	Provincial 83%	Total	Direct Benefit 17%	Provincial 83%	Total	Direct Benefit 17%	Provincial 83%
Net Fixed Assets (average)		$ -	$ -	$ -	$ 57,487	$ 9,773	$ 47,714	$ 112,627	$ 19,147	$ 93,481	$ 107,935	$ 18,349	$ 89,586	$ 103,242	$ 17,551	$ 85,691	$ 98,549	$ 16,753	$ 81,796	$ 93,856	$ 15,956	$ 77,901	$ 89,163	$ 15,158	$ 74,006	$ 84,471	$ 14,360	$ 70,111
Incremental OM&A (on-going, N/A for Provincial Recovery)		$0	$ -		$0	$ -		$0	$ -		$0	$ -		$0	$ -		$0	$ -		$0	$ -		$0	$ -		$0	$ -	
Incremental OM&A (start-up, applicable for Provincial Recovery)		$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -	$0	$ -	$ -
WCA	15%		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
Rate Base			$ -	$ -		$ 9,773	$ 47,714		$ 19,147	$ 93,481		$ 18,349	$ 89,586		$ 17,551	$ 85,691		$ 16,753	$ 81,796		$ 15,956	$ 77,901		$ 15,158	$ 74,006		$ 14,360	$ 70,111
Deemed ST Debt	4%		$ -	$ -		$ 391	$ 1,909		$ 766	$ 3,739		$ 734	$ 3,583		$ 702	$ 3,428		$ 670	$ 3,272		$ 638	$ 3,116		$ 606	$ 2,960		$ 574	$ 2,804
Deemed LT Debt	56%		$ -	$ -		$ 5,473	$ 26,720		$ 10,722	$ 52,349		$ 10,275	$ 50,168		$ 9,829	$ 47,987		$ 9,382	$ 45,806		$ 8,935	$ 43,624		$ 8,488	$ 41,443		$ 8,042	$ 39,262
Deemed Equity	40%		$ -	$ -		$ 3,909	$ 19,086		$ 7,659	$ 37,392		$ 7,340	$ 35,834		$ 7,020	$ 34,276		$ 6,701	$ 32,718		$ 6,382	$ 31,160		$ 6,063	$ 29,602		$ 5,744	$ 28,044
ST Interest	2.46%		$ -	$ -		$ 10	$ 47		$ 19	$ 92		$ 18	$ 88		$ 17	$ 84		$ 16	$ 80		$ 16	$ 77		$ 15	$ 73		$ 14	$ 69
LT Interest	5.22%		$ -	$ -		$ 285	$ 1,394		$ 559	$ 2,730		$ 536	$ 2,617		$ 513	$ 2,503		$ 489	$ 2,389		$ 466	$ 2,275		$ 443	$ 2,162		$ 419	$ 2,048
ROE	9.58%		$ -	$ -		$ 374	$ 1,828		$ 734	$ 3,582		$ 703	$ 3,433		$ 673	$ 3,284		$ 642	$ 3,134		$ 611	$ 2,985		$ 581	$ 2,836		$ 550	$ 2,687
Cost of Capital Total			$ -	$ -		$ 670	$ 3,269		$ 1,312	$ 6,405		$ 1,257	$ 6,138		$ 1,202	$ 5,871		$ 1,148	$ 5,604		$ 1,093	$ 5,337		$ 1,038	$ 5,070		$ 984	$ 4,803
OM&A			$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -	$ -
Amortization		$ -	$ -	$ -	$ 2,346	$ 399	$ 1,948	$ 7,039	$ 1,197	$ 5,843	$ 11,732	$ 1,994	$ 9,738	$ 4,693	$ 798	$ 3,895	$ 4,693	$ 798	$ 3,895	$ 4,693	$ 798	$ 3,895	$ 4,693	$ 798	$ 3,895	$ 4,693	$ 798	$ 3,895
Grossed-up PILs			$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -	$ -
Revenue Requirement			$ -	$ -		$ 1,068	$ 5,217		$ 2,508	$ 12,247		$ 3,252	$ 15,875		$ 2,000	$ 9,766		$ 1,946	$ 9,499		$ 1,891	$ 9,232		$ 1,836	$ 8,965		$ 1,782	$ 8,698
Provincial Rate Protection				$ -			$ 5,217			$ 12,247			$ 15,875			$ 9,766			$ 9,499			$ 9,232			$ 8,965			$ 8,698
Monthly Amount Paid by IESO				$ -			$ 435			$ 1,021			$ 1,323			$ 814			$ 792			$ 769			$ 747			$ 725

Note 1: The difference between the actual costs of approved eligible investments and revenue received from the IESO should be recorded in a variance account. The Board may provide regulatory accounting guidance regarding a variance account either in an individual proceeding or on a generic basis.
Note 2: For the 2016 Test Year, Costs and Revenues of the Direct Benefit are to be included in the test year applicant Rate Base and Revenues.

PILs Calculation

Income Tax	2012 Direct Benefi	2012 Provincial	2013 Direct Benefi	2013 Provincial	2014 Direct Benefi	2014 Provincial	2015 Direct Benefi	2015 Provincial	2016 TEST YEAR Direct Benefit	2016 TEST YEAR Provincial	2017 Direct Benefit	2017 Provincial	Total	2018 Direct Benefit	2018 Provincial	Total	2019 Direct Benefit	2019 Provincial	Total	2020 Direct Benefit	2020 Provincial
Net Income - ROE on Rate Base	$ -	$ -	$ 374	$ 1,828	$ 734	$ 3,582	$ 703	$ 3,433	$ 673	$ 3,284	$ 642	$ 3,134		$ 611	$ 2,985		$ 581	$ 2,836		$ 550	$ 2,687
Amortization (17% DB and 83% P)	$ -	$ -	$ 399	$ 1,948	$ 1,197	$ 5,843	$ 1,994	$ 9,738	$ 798	$ 3,895	$ 798	$ 3,895		$ 798	$ 3,895		$ 798	$ 3,895		$ 798	$ 3,895
CCA (17% DB and 83% P)	$ -	$ -	-$ 798	-$ 3,895	-$ 1,532	-$ 7,478	-$ 1,409	-$ 6,880	-$ 1,296	-$ 6,330	-$ 1,193	-$ 5,823		-$ 1,097	-$ 5,358		-$ 1,010	-$ 4,929		-$ 929	-$ 4,535
Taxable income	$ -	$ -	-$ 24	-$ 119	$ 399	$ 1,946	$ 1,288	$ 6,290	$ 174	$ 849	$ 247	$ 1,206		$ 312	$ 1,523		$ 369	$ 1,802		$ 419	$ 2,047
Tax Rate (to be entered)																					
Income Taxes Payable	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
Gross Up																					
Income Taxes Payable	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -
Grossed Up PILs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -		$ -	$ -		$ -	$ -

Net Fixed Assets		2011	2012	2013	2014	2015	2016	2017	2018	2019
Enter applicable amortization in years:	25									
Opening Gross Fixed Assets			$ -	$ 117,320	$ 117,320	$ 117,320	$ 117,320	$ 117,320	$ 117,320	$ 117,320
Gross Capital Additions		$ -	$ 117,320	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closing Gross Fixed Assets		$ -	$ 117,320	$ 117,320	$ 117,320	$ 117,320	$ 117,320	$ 117,320	$ 117,320	$ 117,320
Opening Accumulated Amortization			$ -	$ 2,346	$ 7,039	$ 11,732	$ 16,425	$ 21,118	$ 25,810	$ 30,503
Current Year Amortization (before additions)			$ -	$ 4,693	$ 4,693	$ 4,693	$ 4,693	$ 4,693	$ 4,693	$ 4,693
Additions (half year)		$ -	$ 2,346	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closing Accumulated Amortization		$ -	$ 2,346	$ 7,039	$ 11,732	$ 16,425	$ 21,118	$ 25,810	$ 30,503	$ 35,196
Opening Net Fixed Assets		$ -	$ -	$ 114,974	$ 110,281	$ 105,588	$ 100,895	$ 96,203	$ 91,510	$ 86,817
Closing Net Fixed Assets		$ -	$ 114,974	$ 110,281	$ 105,588	$ 100,895	$ 96,203	$ 91,510	$ 86,817	$ 82,124
Average Net Fixed Assets		$ -	$ 57,487	$ 112,627	$ 107,935	$ 103,242	$ 98,549	$ 93,856	$ 89,163	$ 84,471

UCC for PILs Calculation		2014	2014	2014	2014	2015	2016	2017	2018	2019
Opening UCC			$ -	$ 112,627	$ 103,617	$ 95,328	$ 87,702	$ 80,685	$ 74,231	$ 68,292
Capital Additions (from Appendix 2-FA)		$ -	$ 117,320	$ -	$ -	$ -	$ -	$ -	$ -	$ -
UCC Before Half Year Rule		$ -	$ 117,320	$ 112,627	$ 103,617	$ 95,328	$ 87,702	$ 80,685	$ 74,231	$ 68,292
Half Year Rule (1/2 Additions - Disposals)		$ -	$ 58,660	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Reduced UCC		$ -	$ 58,660	$ 112,627	$ 103,617	$ 95,328	$ 87,702	$ 80,685	$ 74,231	$ 68,292
CCA Rate Class (to be entered)	47	47	47	47	47	47	47	47	47	47
CCA Rate (to be entered)	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
CCA		$ -	$ 4,693	$ 9,010	$ 8,289	$ 7,626	$ 7,016	$ 6,455	$ 5,938	$ 5,463
Closing UCC		$ -	$ 112,627	$ 103,617	$ 95,328	$ 87,702	$ 80,685	$ 74,231	$ 68,292	$ 62,829