Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

CMD 23-M36.14

Date: 2023-10-30
File / dossier : 6.02.04
Edocs pdf : 7157952

Oral Presentation

Written submission from
Barry Pettit and Chris Hill

Exposé oral

Mémoire de
Barry Pettit et Chris Hill

Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2022 and Mid-term update for Ontario Power Generation's Pickering Nuclear Generating Station

Rapport de surveillance réglementaire des sites de centrales nucléaires au Canada : 2022 et Rapport de mi-parcours d'Ontario Power Generation pour la centrale nucléaire de Pickering

Commission Meeting

Réunion de la Commission

December 13 and 14, 2023

13 et 14 décembre 2023

Canada

a.p.strom
& ASSOCIATES

October 30, 2023

The Registrar
Canadian Nuclear Safety Commission
280 Slater St
PO Box 1046 Stn B
Ottawa ON K1P 5S9

Re. Request to intervene—mid-term update
OPG Pickering Nuclear Generating Station
December 13-14, 2023

Dear Mr. Saumure:

I have been engaged by partial owners of the Pickering Harbour Company to intervene before the Canadian Nuclear Safety Commission regarding the Pickering Nuclear Generating Station's mid-term update.

By this letter, I request leave from the Commission to intervene in the above-noted matter. We request leave to intervene by way of oral and written submissions.

Please find the interveners' submissions enclosed. We have produced submissions with supporting documents annexed, for ease of reference. If the Commission would like this document to be broken into its constituent parts, we are happy to oblige.

Pursuant to rules 18 and 19 of SOR/2000-211, we provide the following information regarding the intervenors:

Mr. Barry Pettit

[redacted]

Mr. Chris Hill

[redacted]

As I say, these gentlemen are partial owners of the Pickering Harbour Company ("PHC"). The PHC owns land immediately adjacent to and within the Pickering Nuclear Generating Station's

exclusion zone. As shareholders in PHC, the interveners have an interest in the station's operations, for the station's presence affects the PHC's business valuation, which valuation translates to the interveners' monetary share in the business.

Pursuant to rule 20, my clients also request a ruling from the Commission regarding the issues detailed in the enclosed written submissions.

Should you require anything further in connection with this letter and the attached submissions, please do not hesitate to be in touch.

Sincerely,

Adam P. Strombergsson-DeNora.

Encl. Written submissions
Exhibits

Submissions and exhibits

CANADA

CANADIAN NUCLEAR SAFETY COMMISSION

IN THE MATTER OF

Ontario Power Generation and the mid-term review of
the Pickering Nuclear Generating Station's operating license

INTERVENERS' SUBMISSIONS

PART I – OVERVIEW

1. The Pickering Nuclear Generating Station's current operating license creates an exclusion zone that extends in a radius of 914 meters from the reactor walls. Pursuant to SOR/2000-204, the property that falls within this zone cannot contain residential housing. The licensee that obtains such an exclusion zone must possess "the legal authority to exercise control" over the property in an exclusion zone.
2. When the Pickering Nuclear Generating station was established in the 1960s and 1970s, Ontario Power Generation did not acquire the legal authority to exercise control over a parcel of land that is now known municipally as 591 Liverpool Road and legally described as

> PT LT 22, RANGE 3, CON BROKEN FRONT, PICKERING PT 1, 40R9398; PTS 1-5,40R9066; PTS 6-38, 40R5947 EXCEPT PTS 3, 4, 7, 8, 11 & 14, 40R8967 ANDPT 6 PL 40R9066 SAVE AND EXCEPT PTS 1 & 2 PL 40R21769; S/T D210221, D210222; T/W EASE OVER PT BED OF LAKE ONTARIO LYING IN FRONT OF LT 23,RANGE 3, BF CON, PTS 1 & 2, 40R18120 AS IN LT937238; S/T EASE PT 1, PL40R21256 IN FAVOUR OF THE REGIONAL

MUNICIPALITY OF DURHAM AS IN DR172497; PICKERING,

REGIONAL MUNICIPALITY OF DURHAM (exhibits A-C).

3. Absent this legal control, the Pickering Nuclear Generating Station entered the twenty-first century in breach of its license conditions. A portion of the exclusion zone transects the property at 591 Liverpool Road.
4. This breach directly impacts the owner of 591 Liverpool Road, for it limits the owner's ability to dispose of the property at 591 Liverpool. It further represents an unregistered encumbrance on the title to the property.
5. The interveners are shareholders of the corporation that owns the land at 591 Liverpool Road. They make submissions in this matter as stakeholders, but they do not purport to speak on behalf of the Pickering Habour Company.
6. The interveners submit this intervention to flag the issue to the Canadian Nuclear Safety Commission and to obtain rulings pursuant to rule 20 regarding the following questions:
    a. Does Ontario Power Generation have the legal authority to operate the Pickering Station's westernmost reactors?
    b. What is the effective relief for the interveners?

PART II – FACTS

7. PHC purchased 591 Liverpool Road (591) at auction in 2001. The company was, at that time, developing part of its property fronting onto Liverpool Road and Wharf Street in Pickering, Ontario, into medium-density housing. The company acquired 591 with a view to developing further residential housing in the coming years. The Company's proposed development aligns with the City's land use policy of intensified housing in and around Frenchman's Bay (exhibit D, p. 101).
8. Unbeknownst to PHC, some thirty percent of the 591 property falls within the Pickering Nuclear Power Generating Station's nuclear exclusion zone. The exclusion zone extends in a 914-meter radius around all active nuclear reactors, of which there are six.

9. Exclusion zones have traditionally run to 914 meters.
10. Ontario Power Generation (OPG), the owner of the Pickering Station, does not have legal authority to exercise control over any part of 591 (exhibits A-C, E). It does not possess an interest in the land. The Habour Company nor any of the previous owners ever consented to the land's use by OPG.
11. OPG never obtained permission from past owners to use the land. The Hydro-Electric Power Commission of Ontario was the original owner of the Pickering Station. It did begin purchasing land in the area as of 1965, but these purchases did not encompass the site of what became 591 Liverpool Road (exhibit E).
12. When 591's legal description was converted to the Land Titles System, the only instruments from the registry system to which it was subject were registered easements to the Regional Municipality of Durham granted in 1985 (exhibits A-C).
13. On November 8, 2016, the City of Pickering asked the Commission to reduce the western radius of the Pickering Station exclusion zone by 165 meters (exhibit F). Had this request been acted upon, 591 lands would have been removed from the exclusion zone. The City noted that the Pickering Station exclusion zone was the only zone in Canada to encroach on land not owned by the station's licensed operator.
14. This letter effectively alleged that OPG did not meet the general licensing requirement set out at paragraph (c) of section 3 in SOR/2000-204: the applicant for an operating license must show "evidence that the applicant is the owner of the site or has authority from the owner of the site to carry on the activity to be licensed".
15. On July 25, 2017, the Commission responded to the City's request by stating that OPG would have to initiate all requests to alter the exclusion zone (exhibit G). The Commission's response did not address OPG's failure to conform to the terms of its operating license or to the potential breach of SOR/2000-204.
16. OPG knew well before 2018 about this property issue. It was further aware of its obligation to have legal control over all land that falls in the Pickering Station's exclusion zone.

17. The interveners and the Pickering Harbour Company have brought this matter to OPG's attention on several occasions. OPG has not been interested in negotiating for the legal authority to control land use within its exclusion zone with the interveners or the Pickering Harbour Company.
18. Agents for the Pickering Harbour Company discussed the prospect of reducing the size of the exclusion zone with OPG before the CNSC's 2018 licensing deliberations and decision. OPG personnel indicated that OPG could complete the required review process to reduce the exclusion zone, but that this process would be expensive. OPG refused to undertake the process until it received its renewed operating license.
19. Once OPG received its renewed operating license, it refused to discuss the matter.
20. OPG's renewal application dated August 28, 2017, does not disclose that OPG does not have legal control over the entire Pickering exclusion zone. The application instead states that "the Pickering site is owned by Ontario Power Generation Inc, and owned by the Province of Ontario; the title/deed is available upon request" (exhibit H, p. 33). This statement is the only evidence tendered by OPG in support of the requirement that it is the owner of the site or has authority from the owner of the site to carry on the activity to be licensed (exhibit H, p. 8).
21. This statement is false, and OPG had been made aware of this fact before it made this submission to the Commission, as evidenced by the City of Pickering's letter dated November 8, 2016. This letter was copied to Kamyar Dehdashtian, then OPG's manager of regulatory affairs.
22. Unaware of the OPG's omission, the Commission issued a renewed operating license for the Pickering Station valid between September 1, 2018, and August 31, 2028. This license anticipated the Station's decommissioning, which was set for 2024.
23. At a time as-yet unknown to the interveners, the City of Pickering refused to zone the subject property residential because OPG refused to amend the exclusion zone.

Changing standards with respect to exclusion zones

24. Exclusion zones must be established for all nuclear generating facilities in Canada; these zones have extended to a 914-meter radius from the external wall of a generating facility. Research conducted in

part by the Commission, however, suggests that this universal standard is no longer appropriate (exhibit I, p. 3).

25. The Commission has, moreover, created regulatory documents that provide for a case-by-case approach to exclusion zone size (RD-337, s. 6.5; RD-367, s. 3.2.2). The five areas of focus identified by these documents are: dose acceptance criteria; security requirements; environmental factors; evacuation needs; and land use.
26. Even before these standards were implemented, the Commission has shown flexibility with respect to land use requirements.
27. In 2009, OPG requested and received a 500-meter exclusion zone from the Commission for its new reactor at the Darlington Nuclear Power Generation Station (CNSC report no. NK054-REP-01210-00003). One of the reasons for OPG's requested exclusion zone was that it did not possess legal authority over the property beyond 500 meters from the closest reactor wall. The CNSC agreed to this request. The CNSC has since renewed the reactor's operating license with the same exclusion zone.
28. The existence of a 914-meter exclusion zone is therefore not necessarily connected to a legitimate safety concern. A case-by-case analysis is required to determine whether the exclusion zone at Pickering needs to extend to 914 meters.
29. OPG has been prompted to make this determination and to make the Commission aware of the issue and a proposed solution. OPG has failed to undertake this work.
30. As a result of this failure, the intervers and the Pickering Harbour Company have been unable to freely dispose of the property at 591 Liverpool.

PART III – ISSUES

31. The interveners submit the following questions with a view to obtaining a ruling from the Commission on each point:

a. Does Ontario Power Generation have the legal authority to operate the Pickering Station's westernmost reactors?

b. What is the effective relief for the interveners?

32. The intervers propose the following responses to these questions:

a. not at present, for the breach of the regulatory and license requirement to have control over the entirety of the Pickering Station's exclusion zone voids OPG's operating license; and

b. the effective relief for the interveners is an order issued by the Commission that requires OPG to obtain the requisite legal authority over the subject property within six months.

PART IV – LAW & ARGUMENT

33. The Commission has broad statutory authority to impose license conditions on applicants (2022 FC 849, paras. 58-9). That authority, however, does not allow the Commission to license derogation from regulations. Nor can the Commission's authority lead to a refusal to enforce its license conditions, the regulations, or the *Nuclear Safety and Control Act*.

34. The CNSC imposes conditions on licensees by virtue of sub-section 24(5) of the Act.

35. One of the conditions imposed on licensees is the establishment of exclusion zones.

36. This condition stems directly from the regulations enacted under the *Nuclear Safety and Control Act*, namely the *Class I Nuclear Facilities Regulations* (SOR/2000-204). These regulations provide generate and specific conditions for the issuance of licenses. A general condition of a license is that the operator must provide evidence that its controls the site on which it will operate: "evidence that the applicant is the owner of the site or has authority from the owner of the site to carry on the activity to be licensed" (s. 3[c]).

37. The word "site" is nowhere defined in the regulations or the Act. The regulations and the Act do not define how a nuclear facility occupies a site for the purposes of the regulation. The Commission's REGDOC-3.6 similarly does not define the word such that it obviously captures an exclusion zone: "With respect to nuclear facilities, the area where one or more nuclear facilities and all associated

support structures and systems are located. See also exclusion zone". This cross-reference to the definition of "exlcusion zone" is, however, suggestive of the concepts being of a piece

38. An exclusion zone is defined in the *Class I Nuclear Facilities Regulation* as "a parcel of land within or surrounding a nuclear facility on which there is no permanent dwelling and over which a licensee has the legal authority to exercise control" (s. 1). This definition contains language similar to that of the general license condition (see para. 36).
39. The exclusion zone attached to a nuclear facility forms part of the "site" for regulatory purposes.
40. The term "site" is a broad one that refers to a location in which an activity takes place or on which a building or enterprise stands. The phrase "exclusion zone" refers to a more particular area established with reference to the nuclear facility. The nuclear facility operates within the site; the exclusion zone is attached to the nuclear facility and must therefore also form part of the site in order for the regulations to properly operate.
41. This interpretation is further supported by the presumption of consistent expression when interpreting statutory instruments. The regulator is presumed to use similar modes of expression to impart similar meaning (2010 SCC 28, para. 37). In this case, the regulator imposed the same requirement on operators with respect to their sites and to the exclusion zone: operators must have legal authority over the land that falls within the site and the exclusion zone.
42. These zones are now established on a case-by-case basis. The operator is required to define the zone; the CNSC reviews the operator's proposed zone when the facility is established. Based on a review of the Pickering Station's regulatory history, the 914-meter exclusion zone was established when the station was created. It has never changed since, nor has OPG sought such a change.
43. The CNSC's *Regulatory Document 337: Design of Nuclear Power Plants* indicates that the size of an exclusion zone may vary based on local considerations, which include "land usage needs". This need relates to the land actually required for the reactor facility to operate now and into the future (REGDOC-2.5.2, s. 4.5).

44. New reactor facilities are subject to stringent standards with respect to evaluating land use in a licensing application. These standards are instructive in the present case. The operator should review local planning priorities and current and future land use as part of its site evaluation (REGDOC-1.1.1, s. C.9).
45. An application for a renewed license contains the same information as an application for a new license, but the applicant must advise the Commission of any new information that may affect the licensing decision since the previous license was issued (SOR/2000-202, s. 5).

Does Ontario Power Generation have the legal authority to operate the Pickering Station's westernmost reactors?

46. OPG is an experienced and long-standing operator that is familiar with the regulations and licensing requirements. Indeed, in 2009, when it was confronted with a claim that it did not have full control over its proposed exclusion zone at the Darlington Station, it informed the Commission and sought a reduction in the exclusion zone. OPG is aware of its licensing conditions and has complied with them in other circumstances.
47. In the present case, however, despite being informed of imperfect compliance with its licensing conditions, OPG ignored its licensing conditions. It also failed to inform the condition of new circumstances at the most recent license renewal hearings for the Pickering Station in 2018.
48. These failures demonstrate that OPG does not currently have the requisite authority to operate the westernmost reactors at the Pickering Station. Failure to comply with license conditions is an offence under the *Nuclear Safety and Control Act* (s. 48[c]).
49. The operation of a nuclear facility may only be conducted in Canada "in accordance with a license" (s. 26).
50. OPG is currently not operating its facility in accordance with the terms of its license; it therefore does not have the statutory authority to operate the facility.

What is the effective relief for the interveners?

51. Pursuant to section 7 of the Act, the Commission may temporarily exempt OPG from the effects of its failure to comply with licensing conditions.

52. The interveners propose that the most effective form of relief is the following:

    a. an order that suspends the Pickering Station's operating license;

    b. a six-month temporary exemption from the requirement to possess legal control over the property within the Pickering Station's exclusion zone;

    c. a new license requirement for the Pickering Station that requires OPG to obtain legal control over the property or propose a reduction of the exclusion zone within six months; and

    d. an order that requires OPG to report to the Commission when it completes the requirement set out in item c.

53. The proposed relief sets a clear timeline for OPG to remedy its breach of license conditions while temporarily maintaining the *status quo*. This timeline is necessary because OPG has not been forthcoming with the Commission in its most recent licensing submissions, nor has it been willing to deal with the parties affected by this issue.

ALL OF WHICH IS RESPECTFULLY SUBMITTED: October 30, 2023.

Adam P. Strombergsson-DeNora
Solicitor for the interveners
P.O. Box 74035. Ottawa RPO Beechwood
K1M 1M2
t. 613 699 2127
e. adam@apstrom.ca

EXHIBIT A

* CERTIFIED IN ACCORDANCE WITH THE LAND TITLES ACT * SUBJECT TO RESERVATIONS IN CROWN GRANT *

PROPERTY DESCRIPTION: PT LT 22, RANGE 3, CON BROKEN FRONT, PICKERING PT 1, 40R9398; PTS 1-5, 40R9066; PTS 6-38, 40R5947 EXCEPT PTS 3, 4, 7, 8, 11 & 14, 40R8967 ** ; S/T D210221, *D210222* ; PICKERING. *AMENDED 99 12 1 0 BY T.CUTLER. T/W EASE OVER PT BED OF LAKE ONTARIO LYING IN FRONT OF LT 23, RANGE 3, BF CON, PTS 1 & 2, 40R18120 AS IN LT937238. **& PT 6 40R9066**. **ADDED 2001 10 12 BY T.CUTLER S/T EASE PT 1, PL 40R21256 IN FAVOUR OF THE REGIONAL MUNICIPALITY OF DURHAM AS IN DR172497

PROPERTY REMARKS:

ESTATE/QUALIFIER:
FEE SIMPLE
LT CONVERSION QUALIFIED

RECENTLY:
FIRST CONVERSION FROM BOOK

PIN CREATION DATE:
1998/12/21

OWNERS' NAMES
PICKERING HARBOUR COMPANY, (LIMITED)

CAPACITY SHARE
BENO

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
EFFECTIVE 2000/07/29 THE NOTATION OF THE "BLOCK IMPLEMENTATION DATE" OF 1998/12/21 ON THIS PIN						
WAS REPLACED WITH THE "PIN CREATION DATE" OF 1998/12/21						
*** PRINTOUT INCLUDES ALL DOCUMENT TYPES AND DELETED INSTRUMENTS SINCE 1998/12/18 ***						
***SUBJECT, ON FIRST REGISTRATION UNDER THE LAND TITLES ACT, TO:*						
*** SUBSECTION 44(1) OF THE LAND TITLES ACT, EXCEPT PARAGRAPH 11, PARAGRAPH 14, PROVINCIAL SUCCESSION DUTIES **						
*** AND ESCHEATS OR FORFEITURE TO THE CROWN.*						
*** THE RIGHTS OF ANY PERSON WHO WOULD, BUT FOR THE LAND TITLES ACT, BE ENTITLED TO THE LAND OR ANY PART OF*						
*** IT THROUGH LENGTH OF ADVERSE POSSESSION, PRESCRIPTION, MISDESCRIPTION OR BOUNDARIES SETTLED BY*						
*** CONVENTION.*						
*** ANY LEASE TO WHICH THE SUBSECTION 70(2) OF THE REGISTRY ACT APPLIES.*						
***DATE OF CONVERSION TO LAND TITLES: 1998/12/21 ***						
NOTE: THIS PROPERTY WAS RETIRED ON 2003/07/16. THIS PROPERTY IS NOW DIVIDED INTO THE FOLLOWING PROPERTIES: 26326-0158 TO 26326-0159						
CO94360	1961/05/17	BYLAW *REMARKS: PLANNING ACT FOR SUBDIVISION CONTROL DELETED UNDER DR116972 *AS TO PIN 26409-0006 *ADDED 2003 01 06 BY DONNA WARREN*				C
40R5592	1980/01/30	PLAN REFERENCE				C
40R5947	1980/09/18	PLAN REFERENCE				C
40R8967	1985/09/10	PLAN REFERENCE				C
40R9066	1985/11/04	PLAN REFERENCE				C

NOTE: ADJOINING PROPERTIES SHOULD BE INVESTIGATED TO ASCERTAIN DESCRIPTIVE INCONSISTENCIES, IF ANY, WITH DESCRIPTION REPRESENTED FOR THIS PROPERTY.
NOTE: ENSURE THAT YOUR PRINTOUT STATES THE TOTAL NUMBER OF PAGES AND THAT YOU HAVE PICKED THEM ALL UP.

* CERTIFIED IN ACCORDANCE WITH THE LAND TITLES ACT * SUBJECT TO RESERVATIONS IN CROWN GRANT *

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
D210224	1985/12/06	LEASE		*** COMPLETELY DELETED ***	THE CORP. OF THE TOWN OF PICKERING	
D210225	1985/12/06	AGREEMENT			THE CORP. OF THE TOWN OF PICKERING	C
40R9398	1986/04/22	PLAN REFERENCE				C
D237708	1986/12/18	AGREEMENT			THE CORPORATION OF THE TOWN OF PICKERING	C
D300886	1989/01/10	ASSIGNMENT GENERAL				C
	REMARKS: D210221, D210222					
D507605ERR	1997/12/22	AGREEMENT		*** COMPLETELY DELETED ***		
	REMARKS: D507605 -ERROR ENTRY, CANCELLED BYTOM CUTLER ON 1999/12/13					
D513428	1998/04/17	ORDER		*** COMPLETELY DELETED *** ONTARIO COURT OF JUSTICE (GENERAL DIVISION)	NUTRECO CANADA INC.	
	REMARKS: ADDED TO PIN 26326-0140 2000 12 21 BY T.CUTLER					
D513431	1998/04/17	TRANSFER		*** COMPLETELY DELETED ***	3444309 CANADA INC.	
D514811	1998/05/13	CHARGE		*** COMPLETELY DELETED ***	BUSINESS DEVELOPMENT BANK OF CANADA	
D514812	1998/05/13	CHARGE		*** COMPLETELY DELETED ***	FARM CREDIT CORPORATION	
DR27602	2001/10/11	TRANSFER	$675,000	3444309 CANADA INC.	PICKERING HARBOUR COMPANY (LIMITED)	C
DR28935	2001/10/17	DISCH OF CHARGE		*** COMPLETELY DELETED *** FARM CREDIT CANADA		
	REMARKS: RE: D514812					
DR31949	2001/10/30	DISCH OF CHARGE		*** COMPLETELY DELETED *** BUSINESS DEVELOPMENT BANK OF CANADA		
	REMARKS: RE: D514811					
DR41780	2001/12/11	APL (GENERAL)		*** COMPLETELY DELETED *** THE REGIONAL MUNICIPALITY OF DURHAM		
40R21256	2002/06/19	PLAN REFERENCE				C

NOTE: ADJOINING PROPERTIES SHOULD BE INVESTIGATED TO ASCERTAIN DESCRIPTIVE INCONSISTENCIES, IF ANY, WITH DESCRIPTION REPRESENTED FOR THIS PROPERTY.
NOTE: ENSURE THAT YOUR PRINTOUT STATES THE TOTAL NUMBER OF PAGES AND THAT YOU HAVE PICKED THEM ALL UP.

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
40R21769	2003/02/18	PLAN REFERENCE				C
DR165693	2003/04/17	APL CH NAME OWNER		PICKERING HARBOUR COMPANY (LIMITED)	PICKERING HARBOUR COMPANY, (LIMITED)	C
	REMARKS: RE: DR27602					
DR165694	2003/04/17	APL (GENERAL)		*** COMPLETELY DELETED *** PICKERING HARBOUR COMPANY, (LIMITED)		
	REMARKS: D210224 DELETING LEASE					
DR172497	2003/05/15	TRANSFER EASEMENT	$2	PICKERING HARBOUR COMPANY (LIMITED)	THE REGIONAL MUNICIPALITY OF DURHAM	C
DR175273	2003/05/28	CHARGE	$650,000	PICKERING HARBOUR COMPANY, (LIMITED)	BANK OF MONTREAL	C
DR175567	2003/05/29	TRANSFER		PICKERING HARBOUR COMPANY, (LIMITED)	THE CORPORATION OF THE CITY OF PICKERING	C
DR175580	2003/05/29	DISCH OF CHARGE		BANK OF MONTREAL		C
	REMARKS: RE: DR175273					

EXHIBIT B

* CERTIFIED IN ACCORDANCE WITH THE LAND TITLES ACT * SUBJECT TO RESERVATIONS IN CROWN GRANT *

PROPERTY DESCRIPTION: PT LT 22, RANGE 3, CON BROKEN FRONT, PICKERING, PTS 1 & 2 PL 40R21769;T/W EASE OVER PT BED OF LAKE ONTARIO LYING IN FRONT OF LT 23, RANGE 3,BF CON, PTS 1 & 2, 40R18120 AS IN LT937238; PICKERING, REGIONAL MUNICIPALITY OF DURHAM

PROPERTY REMARKS:

ESTATE/QUALIFIER:
FEE SIMPLE
LT CONVERSION QUALIFIED

RECENTLY:
DIVISION FROM 26326-0140

PIN CREATION DATE:
2003/07/16

OWNERS' NAMES
THE CORPORATION OF THE CITY OF PICKERING

CAPACITY SHARE
BENO

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
*** PRINTOUT INCLUDES ALL DOCUMENT TYPES AND DELETED INSTRUMENTS SINCE 2003/07/16 ****						
***SUBJECT, ON FIRST REGISTRATION UNDER THE LAND TITLES ACT, TO:*						
** SUBSECTION 44(1) OF THE LAND TITLES ACT, EXCEPT PARAGRAPH 11, PARAGRAPH 14, PROVINCIAL SUCCESSION DUTIES *						
** AND ESCHEATS OR FORFEITURE TO THE CROWN.						
** THE RIGHTS OF ANY PERSON WHO WOULD, BUT FOR THE LAND TITLES ACT, BE ENTITLED TO THE LAND OR ANY PART OF						
** IT THROUGH LENGTH OF ADVERSE POSSESSION, PRESCRIPTION, MISDESCRIPTION OR BOUNDARIES SETTLED BY						
** CONVENTION.						
** ANY LEASE TO WHICH THE SUBSECTION 70(2) OF THE REGISTRY ACT APPLIES.						
DATE OF CONVERSION TO LAND TITLES: 1998/12/21 *						
CO94360	1961/05/17	BYLAW				C
REMARKS: PLANNING ACT FOR SUBDIVISION CONTROL DELETED UNDER DR116972 *AS TO PIN 26409-0006 *ADDED 2003 01 06 BY DONNA WARREN						
D237708	1986/12/18	AGREEMENT			THE CORPORATION OF THE TOWN OF PICKERING	C
40R21769	2003/02/18	PLAN REFERENCE				C
DR175567	2003/05/29	TRANSFER		PICKERING HARBOUR COMPANY, (LIMITED)	THE CORPORATION OF THE CITY OF PICKERING	C

NOTE: ADJOINING PROPERTIES SHOULD BE INVESTIGATED TO ASCERTAIN DESCRIPTIVE INCONSISTENCIES, IF ANY, WITH DESCRIPTION REPRESENTED FOR THIS PROPERTY.
NOTE: ENSURE THAT YOUR PRINTOUT STATES THE TOTAL NUMBER OF PAGES AND THAT YOU HAVE PICKED THEM ALL UP.

EXHIBIT C

* CERTIFIED IN ACCORDANCE WITH THE LAND TITLES ACT * SUBJECT TO RESERVATIONS IN CROWN GRANT *

PROPERTY DESCRIPTION: PT LT 22, RANGE 3, CON BROKEN FRONT, PICKERING PT 1, 40R9398; PTS 1-5,40R9066; PTS 6-38, 40R5947 EXCEPT PTS 3, 4, 7, 8, 11 & 14, 40R8967 ANDPT 6 PL 40R9066 SAVE AND EXCEPT PTS 1 & 2 PL 40R21769; S/T D210221, D210222; T/W EASE OVER PT BED OF LAKE ONTARIO LYING IN FRONT OF LT 23,RANGE 3, BF CON, PTS 1 & 2, 40R18120 AS IN LT937238; S/T EASE PT 1, PL40R21256 IN FAVOUR OF THE REGIONAL MUNICIPALITY OF DURHAM AS IN DR172497; PICKERING, REGIONAL MUNICIPALITY OF DURHAM

PROPERTY REMARKS:

ESTATE/QUALIFIER:
FEE SIMPLE
LT CONVERSION QUALIFIED

RECENTLY:
DIVISION FROM 26326-0140

PIN CREATION DATE:
2003/07/16

OWNERS' NAMES
PICKERING HARBOUR COMPANY LIMITED

CAPACITY SHARE
BENO

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
** PRINTOUT INCLUDES ALL DOCUMENT TYPES AND DELETED INSTRUMENTS SINCE 2003/07/16 **						
**SUBJECT, ON FIRST REGISTRATION UNDER THE LAND TITLES ACT, TO:						
** SUBSECTION 44(1) OF THE LAND TITLES ACT, EXCEPT PARAGRAPH 11, PARAGRAPH 14, PROVINCIAL SUCCESSION DUTIES *						
** AND ESCHEATS OR FORFEITURE TO THE CROWN.						
** THE RIGHTS OF ANY PERSON WHO WOULD, BUT FOR THE LAND TITLES ACT, BE ENTITLED TO THE LAND OR ANY PART OF						
** IT THROUGH LENGTH OF ADVERSE POSSESSION, PRESCRIPTION, MISDESCRIPTION OR BOUNDARIES SETTLED BY						
** CONVENTION.						
** ANY LEASE TO WHICH THE SUBSECTION 70(2) OF THE REGISTRY ACT APPLIES.						
**DATE OF CONVERSION TO LAND TITLES: 1998/12/21 **						
CO94360	1961/05/17	BYLAW				C
REMARKS: PLANNING ACT FOR SUBDIVISION CONTROL DELETED UNDER DR116972 *AS TO PIN 26409-0006 *ADDED 2003 01 06 BY DONNA WARREN						
40R5592	1980/01/30	PLAN REFERENCE				C
40R5947	1980/09/18	PLAN REFERENCE				C
40R8967	1985/09/10	PLAN REFERENCE				C
40R9066	1985/11/04	PLAN REFERENCE				C
D210225	1985/12/06	AGREEMENT			THE CORP. OF THE TOWN OF PICKERING	C
40R9398	1986/04/22	PLAN REFERENCE				C
D237708	1986/12/18	AGREEMENT			THE CORPORATION OF THE TOWN OF PICKERING	C

NOTE: ADJOINING PROPERTIES SHOULD BE INVESTIGATED TO ASCERTAIN DESCRIPTIVE INCONSISTENCIES, IF ANY, WITH DESCRIPTION REPRESENTED FOR THIS PROPERTY.
NOTE: ENSURE THAT YOUR PRINTOUT STATES THE TOTAL NUMBER OF PAGES AND THAT YOU HAVE PICKED THEM ALL UP.

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
D300886	1989/01/10	ASSIGNMENT GENERAL				C
	REMARKS: D210221, D210222					
DR27602	2001/10/11	TRANSFER	$675,000	3444309 CANADA INC.	PICKERING HARBOUR COMPANY (LIMITED)	C
40R21256	2002/06/19	PLAN REFERENCE				C
DR165693	2003/04/17	APL CH NAME OWNER		PICKERING HARBOUR COMPANY (LIMITED)	PICKERING HARBOUR COMPANY, (LIMITED)	C
	REMARKS: RE: DR27602					
DR172497	2003/05/15	TRANSFER EASEMENT	$2	PICKERING HARBOUR COMPANY (LIMITED)	THE REGIONAL MUNICIPALITY OF DURHAM	C
DR175273	2003/05/28	CHARGE		*** DELETED AGAINST THIS PROPERTY *** PICKERING HARBOUR COMPANY, (LIMITED)	BANK OF MONTREAL	
DR256330	2004/03/01	CHARGE		*** COMPLETELY DELETED *** PICKERING HARBOUR COMPANY, (LIMITED)	SHOBRIDGE, JOHN	
DR383049	2005/04/27	DISCH OF CHARGE		*** COMPLETELY DELETED *** SHOBRIDGE, JOHN		
	REMARKS: RE: DR256330					
DR681275	2008/01/18	CHARGE		*** COMPLETELY DELETED *** PICKERING HARBOUR COMPANY, (LIMITED)	DIVERSIFIED CAPITAL INC.	
DR681276	2008/01/18	NO ASSGN RENT GEN		*** COMPLETELY DELETED *** PICKERING HARBOUR COMPANY, (LIMITED)	DIVERSIFIED CAPITAL INC.	
	REMARKS: DR681275					
40R25317	2008/02/15	PLAN REFERENCE				C
DR765969	2008/11/12	NOTICE OF LEASE	$2	PICKERING HARBOUR COMPANY, (LIMITED)	BELL MOBILITY INC.	C
	REMARKS: PART 1 PLAN 40R25317					
DR869670	2010/01/14	APL CH NAME OWNER		PICKERING HARBOUR COMPANY, (LIMITED)	PICKERING HARBOUR COMPANY LIMITED	C
DR869815	2010/01/15	CHARGE		*** COMPLETELY DELETED *** PICKERING HARBOUR COMPANY LIMITED	BUSINESS DEVELOPMENT BANK OF CANADA	
DR870256	2010/01/18	DISCH OF CHARGE		*** COMPLETELY DELETED *** DIVERSIFIED CAPITAL INC.		
	REMARKS: DR681275.					

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
DR872015	2010/01/26	DISCH OF CHARGE		*** COMPLETELY DELETED *** BANK OF MONTREAL		
	REMARKS: DR175273.					
DR1432839	2015/12/16	CHARGE		*** COMPLETELY DELETED *** PICKERING HARBOUR COMPANY LIMITED	DANAN INVESTMENTS INC.	
DR1432840	2015/12/16	NO ASSGN RENT GEN		*** COMPLETELY DELETED *** PICKERING HARBOUR COMPANY LIMITED	DANAN INVESTMENTS INC.	
	REMARKS: DR1432839					
DR1453186	2016/03/02	DISCH OF CHARGE		*** COMPLETELY DELETED *** BUSINESS DEVELOPMENT BANK OF CANADA		
	REMARKS: DR869815.					
DR1737362	2018/09/24	TRANSFER OF CHARGE		*** COMPLETELY DELETED *** DANAN INVESTMENTS INC.	BOULDER VIEW HOLDINGS INC.	
	REMARKS: DR1432839.					
DR1737432	2018/09/24	NO ASSGN RENT GEN		*** COMPLETELY DELETED *** DANAN INVESTMENTS INC.	BOULDER VIEW HOLDINGS INC.	
	REMARKS: DR1432839.					
DR1737623	2018/09/24	TRANSFER OF CHARGE		*** COMPLETELY DELETED *** BOULDER VIEW HOLDINGS INC.	CASTELLI, MATTHEW	
	REMARKS: DR1432839.					
DR1737628	2018/09/24	NO ASSGN RENT GEN		*** COMPLETELY DELETED *** BOULDER VIEW HOLDINGS INC.	CASTELLI, MATTHEW	
	REMARKS: DR1432839					
DR1867812	2020/01/29	CHARGE		*** COMPLETELY DELETED *** PICKERING HARBOUR COMPANY LIMITED	FIRM CAPITAL MORTGAGE FUND INC.	
DR1867813	2020/01/29	NO ASSGN RENT GEN		*** COMPLETELY DELETED *** PICKERING HARBOUR COMPANY LIMITED	FIRM CAPITAL MORTGAGE FUND INC.	
	REMARKS: DR1867812					
DR1868020	2020/01/30	DISCH OF CHARGE		*** COMPLETELY DELETED *** CASTELLI, MATTHEW		
	REMARKS: DR1432839.					
DR1909909	2020/07/15	CHARGE	$4,000,000	PICKERING HARBOUR COMPANY LIMITED	ADEL CAPITAL INC.	C

NOTE: ADJOINING PROPERTIES SHOULD BE INVESTIGATED TO ASCERTAIN DESCRIPTIVE INCONSISTENCIES, IF ANY, WITH DESCRIPTION REPRESENTED FOR THIS PROPERTY.
NOTE: ENSURE THAT YOUR PRINTOUT STATES THE TOTAL NUMBER OF PAGES AND THAT YOU HAVE PICKED THEM ALL UP.

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/ CHKD
					LAMA HOLDING INC.	
DR1909910	2020/07/15	NO ASSGN RENT GEN		PICKERING HARBOUR COMPANY LIMITED	ADEL CAPITAL INC. LAMA HOLDING INC.	C
	REMARKS: DR1909909.					
DR1910389	2020/07/17	DISCH OF CHARGE		*** COMPLETELY DELETED *** FIRM CAPITAL MORTGAGE FUND INC.		
	REMARKS: DR1867812.					
DR1961160	2021/01/06	TRANSFER OF CHARGE		ADEL CAPITAL INC. LAMA HOLDING INC.	LAMA HOLDING INC. ADEL, ERICA ADEL, JUSTIN	C
	REMARKS: DR1909909.					
DR2067199	2021/11/02	NOTICE	$2	PICKERING HARBOUR COMPANY LIMITED	LAMA HOLDING INC. ADEL, ERICA ADEL, JUSTIN	C
	REMARKS: DR1909909					
DR2072696	2021/11/19	TRANSFER OF CHARGE		LAMA HOLDING INC. ADEL, ERICA ADEL, JUSTIN	ADEL, ERICA ADEL, JUSTIN	C
	REMARKS: DR1909909.					
DR2138224	2022/05/31	NOTICE OF LEASE		PICKERING HARBOUR COMPANY LIMITED	BELL MOBILITY INC.	C

EXHIBIT D

City of PICKERING

Pickering Official Plan
Edition 9



Office Consolidation of the Pickering Official Plan

Date	Status of the Pickering Official Plan
March 2022	Edition 9 consolidated, incorporating Amendments 31, 34, 36, 37, 39, 41, 42 and 43; and Informational Revisions 24 and 27
October 2018	Edition 8 consolidated, incorporating Amendments 27, 32 and 33; Informational Revision 22; and incorporating resolution of Deferrals D5, D6, D11, D12, D20, D22, D35, D44 and D48
September 2017	Edition 7 consolidated, incorporating Amendments 22, 23, 24, 25, 26, 28, 29 and 30; Informational Revisions 17, 18, 19, 20 and 21; and incorporating resolution of Deferrals D3, D8, D14, D24, D31, D32, D38, D39 and D42
February 2010	Edition 6 consolidated, incorporating Amendments 17, 18, 19, 20 and 21; and Informational Revisions 14, 15, and 16
June 2008	Edition 5 consolidated, incorporating Amendments 15 and 16; Deferral 54; and Informational Revision 13
December 2005	Edition 4 consolidated,incorporating resolution of: Deferrals D16; D21, D31 (part), D36 and D39 (part); Appeals 1 (part), 13, and 14; Amendments 10, 12 and Revision 1 to Modification 1; and Informational Revisions 9(a), 12, and 12(a)
June 2003	Edition 3 consolidated, incorporating Appeals A12, A13, and A14; Amendments 6, 7, 8, 9, and 11; and Informational Revisions 8, 10, and 11
September 2000	Edition 2 consolidated, incorporating resolution of: Deferrals D1, D2, D4, D7, D9, D10, D11 (part), D13, D23, D25, D26, D27, D29, D30, D33, D36 (part), D37, D41, D43, D44 (part), D46, D47, D49, D51, D52, and D53; Appeals A1 (part), A2 (part), A3, A4, A5, A6, A7, A8, A9, A10, and A11; Amendments 1 to 5; and Informational Revisions 3, 4, 5, 6, 7 and 9
February 1998	Edition 1 consolidated, as modified by the Region, with deferrals and appeals as noted in the Plan; and incorporating Informational Revision 1, 1(a), and 2

Date	Status of the Pickering Official Plan
October 21, 1997	Came into effect save and except those parts deferred, or appealed to the Ontario Municipal Board
September 24, 1997	Approved by the Council of the Regional Municipality of Durham, with modifications and deferrals
March 3, 1997	Adopted by the Council of the Corporation of the Town of Pickering by By-law 4948/97

Director, City Development & CBO	Chief Planner
Kyle Bentley, P. Eng.	Catherine L. Rose, MCIP, RPP

Pickering Council at Time of 9th Consolidation
March 2022

Mayor

Dave Ryan

Regional Councillors	City Councillors
Kevin Ashe	Maurice Brenner
Bill McLean	Christine Doody-Hamilton
David Pickles	Shaheen Butt

Pickering Council at Time of 8th Consolidation
October 2018

Mayor

Dave Ryan

Regional Councillors	City Councillors
Kevin Ashe	Maurice Brenner
Bill McLean	Ian Cumming
David Pickles	Shaheen Butt

Pickering Council at Time of 7th Consolidation
September 2017

Mayor

Dave Ryan

Regional Councillors	City Councillors
Kevin Ashe	Maurice Brenner
Bill McLean	Ian Cumming
David Pickles	Shaheen Butt

Pickering Council at Time of 6th Consolidation
February 2010

Mayor

Dave Ryan

Regional Councillors	City Councillors
Bonnie Littley	Doug Dickerson
Bill McLean	Jennifer O'Connell
Rick Johnson	David Pickles

Pickering Council at Time of 5th Consolidation
December 2007

Mayor

Dave Ryan

Regional Councillors	City Councillors
Bonnie Littley	Doug Dickerson
Bill McLean	Jennifer O'Connell
Rick Johnson	David Pickles

Pickering Council at Time of 4th Consolidation
December 2005

Mayor

Dave Ryan

Regional Councillors	City Councillors
Maurice Brenner	Doug Dickerson
Bill McLean	Kevin Ashe
Rick Johnson	David Pickles

Pickering Council at Time of 3rd Consolidation
June 2003

Mayor

Wayne Arthurs

Regional Councillors	City Councillors
Maurice Brenner	Dave Ryan
Mark Holland	Bill McLean
Rick Johnson	David Pickles

Pickering Council at Time of 2nd Consolidation
September 2000

Mayor

Wayne Arthurs

Regional Councillors	City Councillors
Maurice Brenner	Dave Ryan
Doug Dickerson	Mark Holland
Rick Johnson	David Pickles

Pickering Council at Time of Adoption
March 1997

Mayor

Wayne Arthurs

Regional Councillors	City Councillors
Maurice Brenner	Dave Ryan
Doug Dickerson	Sherry Senis
Rick Johnson	Enrico Pistritto

This page intentionally left blank.

Pickering Official Plan

Deferred Parts of Edition 9

The Council of the Region of Durham, as the approval authority for the City's Official Plan, deferred certain policies and designations of the Pickering Official Plan, for a decision at a later date. The deferrals are noted in the text and on the schedules of the Plan, and are listed on the chart that follows for reference. The deferred portions of the Plan are not in effect, thus, for those lands or policy matters affected by a deferral, the provisions of the City's previous official plan, the Pickering District Plan, remain in effect.

The process to resolve specific deferrals will vary, as will the timing, depending on the reason for the deferral. As deferrals are resolved, notice of a decision will be given. The notice will be subject to a 20-day appeal period during which appeals to the Ontario Land Tribunal may be made. A copy of the decision will be sent to any person or agency who has requested that the Regional Clerk send a copy of the notice of the decision on a specific issue. For further information, contact the City of Pickering City Development Department and the Region of Durham, Planning & Economic Development Department.

Outstanding Deferrals as of the Completion of Edition 9 of the Pickering Official Plan			
Deferral #	**Affected Policy/Schedule**	**Explanation**	**Status**
D15	4.15(c)	Deferred reference "**re-examine and if necessary amend the proposed arterial road network around the Potential Airport Site**", subject to further study	**Unresolved**
D19	11.13(b) - now 12.13(b)	Deferred policy "**respecting possible high school site in Amberlea Neighbourhood**", pending further review by Region	**Unresolved:** City Council passed Resolution 69/98, Item 4, Part 3.(b), on March 24, 1998, requesting this deferral be resolved by deleting the policy
D40	Schedule II	Deferred "**road designations relating to the Airport**", pending further study of matters related to the transportation services of Seaton and the Airport	**Unresolved**
D54	Schedule I	Deferred "**Oak Ridges Moraine Natural Linkage Areas designation**" related to the northern portion of the existing Heather Glen Golf and Country Club	**Unresolved**
D55	Schedules I, IIIA, IIIB and IIIC	Deferred portion of the **"Natural Areas"** designation (Schedule I), and the identification of a portion of the **"Natural Heritage System"**, **"Significant Woodlands"**, and **"Wetlands"** on Schedules IIIA, IIIB and IIC respectively, in relation to lands located west of Church Street and north of Bayly Street (Roll Number 180102002201100), pending further discussion between the land owner, the Ministry of Natural Resources and Forestry, the Toronto and Region Conservation Authority, the Region of Durham, and the City of Pickering	**Unresolved**

Pickering Official Plan

Amended Parts of Edition 9

This 9th edition of the Pickering Official Plan incorporates 8 amendments that have been approved since the 8th edition of the Plan, dated October 2018.

Amendments to the Pickering Official Plan Edition 9			
Amendment #	**Affected Policy/ Schedule**	**Explanation**	**Effective Date**
31	7.11, 7.12 and 7.13 16.5A(xxxvii) 16.5B(xxvii)	Add new policies and revise existing Official Plan policies with regard to the City's Information and Communication Technology Network and Dig Once Standard.	June 28, 2019
34	Schedule I	Amending Schedule I – Land Use Structure by replacing the "Urban Residential Areas – Low Density Areas" designation with "Urban Residential Areas – Medium Density Areas" designation for lands located on the north west corner Finch Avenue and Altona Road.	June 20, 2019
36	10.2, 10.8, 10.13, 10.17, 10.27, 10.28, 10.29, 13.1, 16.5A, and 16.5B Schedule lllF – Wellhead Protection Areas	Add new policies and schedule to bring the Official Plan into conformity with the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Plan and the Toronto and Region Assessment Report.	October 27, 2020

Amendments to the Pickering Official Plan Edition 9			
Amendment #	**Affected Policy/ Schedule**	**Explanation**	**Effective Date**
37	12.17(q) Schedule I	Amending Schedule I – Land Use Structure by replacing the “Urban Residential Areas – Medium Density Areas” designation with “Urban Residential Areas – High Density Areas” designation for lands located southeast corner of William Jackson Drive and Earl Grey Avenue.	July 25, 2019
39	12.11(h) Schedule I	Reduce minimum net residential density on lands on the northwest corner of Pickering Parkway and Notion Road, and re-designate the easterly portions of the subject lands from “Mixed Use Areas – Specialty Retailing Node” to “Open Space System – Natural Areas” to facilitate the conveyance of lands to the Toronto and Region Conservation Authority.	December 29, 2020
41	Schedule I	Amending Schedule I – Land Use Structure by replacing the “Urban Residential Areas – Low Density Areas” designation with “Urban Residential Areas – Medium Density Areas” designation for lands located on the south east corner Eyer Drive and Oklahoma Drive.	February 26, 2021
42	12,18(j)(iii), 12.18(j)(v), 12.22(a)(i)(A), 12.22(d), 12.22(d)(i), Schedule VII, Schedule XII	Amending existing policies and schedule within the Lamoreaux Neighbourhood to facilitate a residential townhouse condominium development, and within the Thompson’s Corners Neighbourhood to ensure population and density targets are met while providing for a mix of housing forms and tenure.	May 27, 2021

Amendments to the Pickering Official Plan Edition 9			
Amendment #	**Affected Policy/ Schedule**	**Explanation**	**Effective Date**
43	12.11 Schedule I	Amending Schedule I – Land Use Structure by replacing the “Urban Residential Areas – Medium Density Areas” designation with “Mixed Use Area – Mixed Corridors” designation for lands located at 1964 Guild Road. And to permit a maximum residential density of 350 units per net hectare and maximum floorspace index of 2.53.	September 16, 2021

Informational Revisions

This 9th edition of the Pickering Official Plan, 2 informational revisions have been approved since the 8th edition of the Plan, dated October 2018.

Informational Revisions to the Pickering Official Plan Edition 9		
Amendment #	**Explanation**	**Effective Date**
24	Revision to the informational text to provide clarity to the policies introduced as part of the Official Plan Amendment 36 to bring it into conformity with the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Plan, and the Toronto and Region Assessment Report.	October 26, 2020
27	Revision to delete road connection from Dunn Crescent to Gillmoss Road from Map 11 Neighbourhood 1: Rosebank.	November 23, 2020

Table of Contents

Introduction to the Official Plan

Part 1: Principles and Framework

Part 2: Strategic Policies

Part 4: Detailed Design Considerations

Part 5: Implementation, Development Review and Monitoring

Appendix

Index

Other Schedules

Introduction to the Official Plan

This page intentionally left blank.

Introduction

The Official Plan - A Foundation for Community Building

The official plan lays the “foundation” for building a good community. As a foundation, it provides a vision of the City, identifies how the vision can be reached, and establishes a monitoring program for checking progress and making necessary adjustments. All development in the City must conform to the Council approved official plan.

In the 1970s, Pickering (at that time, a Town) prepared its first official plan, the “Pickering District Plan” (before that, there had been an official plan for the previous Township of Pickering). The District Plan served the Town well for many years, but by the late 1980s it had become dated, and needed to be replaced. Work on the new official plan began in late 1992.

The City of Pickering is located within the Region of Durham. The Region also has an official plan (the Durham Regional Official Plan), the most recent version of which was approved in 1993. The Regional Plan provides the overall direction and framework for local plans. The City’s official plan must fit within and conform to the Regional official plan.

How the Official Plan is Organized

To be effective, an official plan should be clear, concise and complete. It should provide those that read it with a good picture of where the municipality wants to be in the future, how it intends to get there, and how it will make decisions and check results along the way.

This Plan, the “Pickering Official Plan” is divided into five parts and two appendices, as shown below. For convenience, an index of official plan policies is provided at the back of the Plan.

Part 1:	Principles and Framework
Part 2:	Strategic Policies
Part 3:	Neighbourhoods and Settlements
Part 4:	Detailed Design Considerations
Part 5:	Implementation, Development Review and Monitoring
Appendix:	Quality of Life Indicators and Performance Targets

What Parts of the Plan are "Official"?

The Plan contains a combination of official policy and other information. The "official policy" includes: the city policies (which for ease of reference are bolded and numbered); the numbered tables; and the schedules (land use structure, transportation system, resource management and the various rural settlement plans).

Background, contextual and illustrative information is also provided. It may be in several forms: introductory and explanatory text (such as this); sidebar notes, examples, illustrations, statistics and charts; maps (as opposed to "schedules"); and contextual and symbolic information appearing on the schedules. More detailed information about what's official is provided in the interpretation section in Chapter 15.

How to Use the Plan

All policies, tables and schedules of the Plan must be read in the context of all other policies, tables and schedules of the Plan. Therefore, users must become familiar with the entire document.

Reading the Plan from cover to cover is one approach. However, if you are interested in a particular area or site in the City, you may wish to start by looking at the schedules and maps in the Plan. First locate the area on the various schedules and maps (the land use schedule, the transportation system schedule, the resource management schedule, the appropriate urban neighbourhood or rural settlement map, as well as the other maps in the Plan), then note the relevant designations or information provided on the schedules and maps. After that, using the index and/or table of contents, look up the relevant policies and sections of the Plan.

The remainder of the introduction is a backdrop to the Plan. It provides important background information and helps explain the underlying philosophy of the Plan.

Pickering's Natural Setting

Five times the area was hidden by ice. During the last glacial period, which ended about 12,500 years ago, two separate ice sheets covered the land, one centred on Lake Ontario, the other further to the north. In between the two sheets was a moraine (the "Oak Ridges Moraine"), shaped by the accumulation of debris and material trapped in the ice. The moraine lies at Pickering's northern boundary, and is the source of many of the City's streams.

The Oak Ridges Moraine is a prominent east-west ridge of land spanning about 160 kilometers (100 miles) from the Niagara Escarpment to east of Cobourg. It contains some of the most scenic landscapes of southern Ontario, and is of great ecological importance to the health of people, plants and animals in the area.

As the southern ice sheet retreated, a much larger lake, known as Lake Iroquois, formed in the Lake Ontario basin. Remnants of the shoreline of Lake Iroquois can still be seen today across central Pickering. When the ice jam in the St. Lawrence Valley finally melted, Lake Iroquois receded to form present day Lake Ontario.

Meanwhile, the streams flowing out of the Oak Ridges Moraine and the old shoreline began to cut their valleys. Eventually, portions of six major watersheds traversed the City (the Rouge, Petticoat, Frenchman's Bay, Duffins, Carruther's, and Lynde systems). Pickering's landscape as we know it today, is the product of many years of geologic evolution, and a much briefer period of human settlement.

Pickering lies in a larger geographic area known as the "Greater Toronto Bioregion", a region that shares similar physical and biological features. This wedge-shaped area is defined by the Niagara Escarpment to the west, the Oak Ridges Moraine to the north and east, and the Lake Ontario shoreline to the south.

Early Settlement

Evidence has been found of native occupation dating to at least 4,000 years ago, although it is believed that people lived in the area much earlier than that (possibly soon after the ice sheets receded). In the mid-seventeenth century, the Huron were driven from the region by the Five Nations Iroquois who established a number of villages. One they called "Ganatsekwyagon." It was located on the east bank of the Rouge River.

In the late 1600s, French traders, missionaries, and explorers came to the area. A number of local place names are a reminder of our early French history.

Years of warring between the French and English ultimately resulted in the acquisition of Pickering Township by England in 1785.

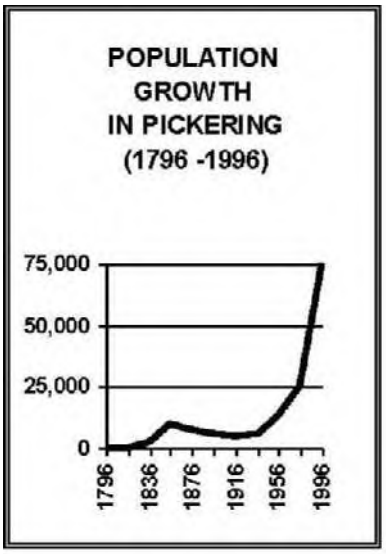
A few years later, a township survey was started (the township was known as Edinburgh at that time). By the end of the century, the first settlers had begun to arrive and the township's name had been changed to Pickering.

In the early 1800s, dense forests extended from Lake Ontario to the Oak Ridges Moraine, and thousands of salmon could be caught in the Duffins Creek and other streams that flowed into the Lake. Early settlers survived mostly on wild game, fish and berries. However, as land was cleared, people turned to farming and the raising of animals. As this occurred, millers, innkeepers and businessmen also came into the area.

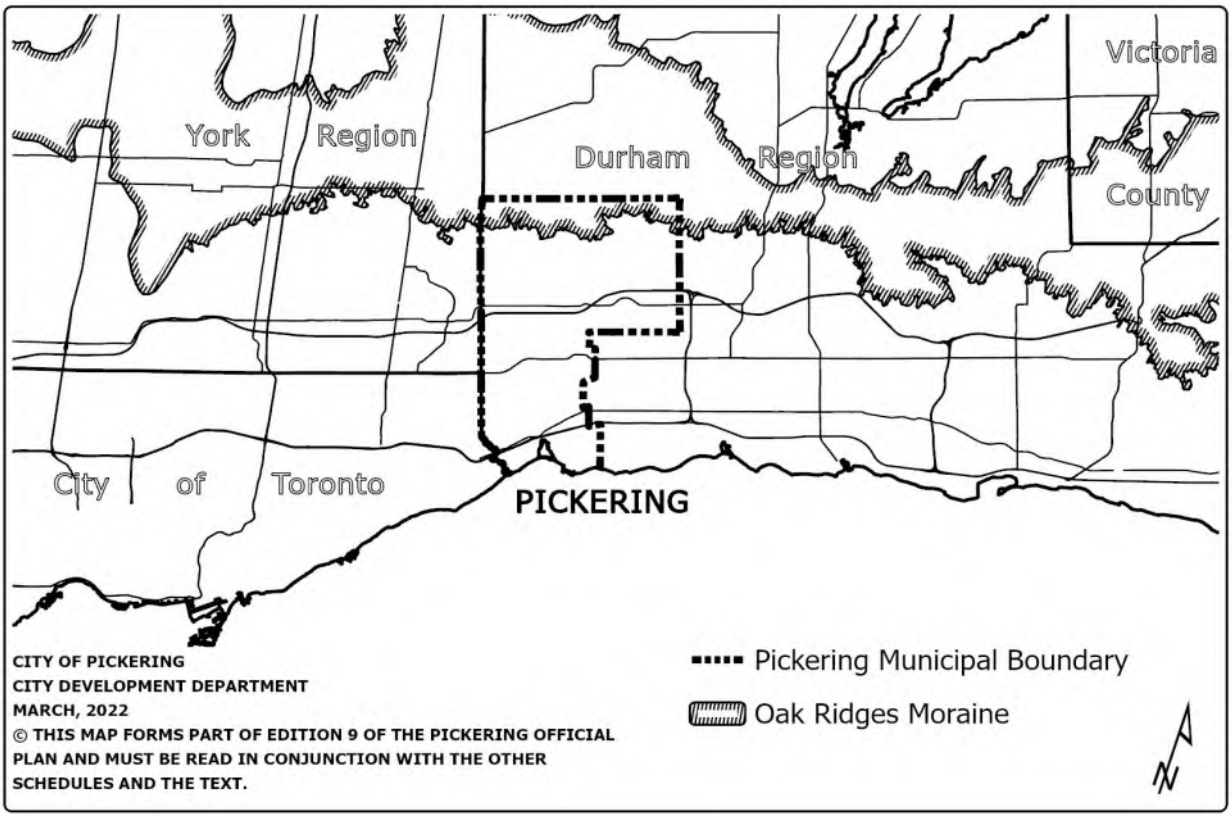
"Frenchman's Bay" is likely named after François de Salignac de Fenelon, the first French missionary to the area. He worked among the Indians of the village of Ganatsekwyagon through one of the worst winters on record. "Petticoat Creek" was originally known as "Petite Côte" Creek, since one bank of the inlet is quite high, while the other is nearly flat near its mouth. Duffins Creek was called Rivière au Saumon by the French (but owes its name to an early Irish trader who lived in the area, occasionally took in travelers, and was reputedly murdered by one of them).

As early as 1816, stage coaches criss-crossed Pickering along Kingston Road, Brock Road, and the Sixth and Ninth Concession Roads into Markham. Harbours existed at the Rouge River and Frenchman's Bay, and the Duffins Creek was navigable for small ships as far as Kingston Road.

In 1825, Pickering had three small mills and a population of 830 people. The population had swollen to 2,642 people by 1835, and pressure mounted on governments to provide roads, bridges, land titles and needed social reforms. Peter Matthews, a Pickering farmer and father of 15 was hanged for his part in the 1837 Rebellion lead by W.L. Mackenzie. By 1850, a number of important villages had appeared in the area, including Fairport, Dunbarton, Majorville (now Whitevale), and Duffins Creek (now Pickering Village and located in Ajax).



Map 1: Regional Context



A number of other villages and hamlets were also established, usually surrounding a mill, church or school, or located at important crossroads. Timber was the most important export product of the time (some of the world's finest lumber came from the area). By 1848, there were 26 sawmills operating in Pickering so that by 1851, over half of the township was cleared of its trees.

The mid-1800s brought prosperity to Pickering. However, wheat and lumber prices eventually fell, and with increased industrialization and railroad expansion, the importance of Frenchman's Bay as a harbour declined. Population dropped, and did not begin to increase again until about 1915. It was not until 1952 that Pickering's population was the same as it was in 1860.

Recent Settlement

The City of Toronto was growing rapidly as the nineteenth century drew to a close. In outlying areas such as Pickering, summer cottages were being constructed.

In time, many of these cottages were converted to year round residences. As well, more and more permanent residences were being built along existing township roads (such as Fairport Road, Rosebank Road and Woodview Avenue).

After the second world war, the first "fully-planned" new communities began to appear in the Toronto area. These communities had a striking new land use and transportation pattern. Rather than arranging a mix of uses along grid like street patterns, the new communities were organized around curvilinear streets that both divided and connected people, (by car) to centrally located shopping areas, and peripherally located industrial parks.

This low density suburban development pattern soon spread to outlying areas, and by the early 1960s, the first "planned communities" came to Pickering, (first with Bay Ridges, then West Shore). Over the next 30 years, similar low density, automobile-dependent developments appeared across most of south Pickering.

Don Mills is perhaps the best known example in the Toronto area of a "fully-planned" postwar community. Privately developed in the late 1950s and early 1960s on 800 hectares of rolling farmland in North York, it was designed to attract 35,000 people and 20,000 jobs. The numerous suburban developers who later tried to emulate Don Mills failed to recognize that the unique characteristics and features of the site contributed greatly to its success.

A New Planning Direction

As the first of the new "planned" communities were being completed, questions were being raised about many of the fundamental principles upon which they were based. It had become obvious that none of the new communities could be totally isolated from the overall growth of the metropolitan area. In addition, the hoped for live work relationships were not being achieved. Therefore, there was a need to construct an extensive network of expressways, arterial roads and commuter rail lines that connected the new communities with downtown Toronto (and to a lesser extent with each other).

Widespread, low density suburban development also created serious environmental impacts in parts of the region, and disrupted or displaced once thriving agricultural communities. Design concerns also began to surface. Parts of Scarborough, Mississauga, Markham, Pickering and other municipalities began to look remarkably similar.

As well, as high-speed automobile travel became (of necessity) the preferred mode of transportation, less attention began to be paid to design details that provide visual variety and interest, and appeal to pedestrians. Significant stretches of many suburban arterial roads either became lined with unappealing automobile-oriented commercial developments (characterized by their extensive parking areas and signage), or were flanked on both sides by stark noise attenuation fencing (to "protect" abutting neighbourhood residents).

Thankfully, municipalities across the Greater Toronto Area (and elsewhere) are beginning to realize that this type of "planned" growth is both unsustainable and inappropriate. As with the Don Mills example, new planning models are once again being developed.

Today, community planning is starting to recognize the vital importance of protecting and restoring the natural systems upon which communities are based. Moreover, it is becoming aware of global connections, while respecting and nurturing local culture and heritage. Community planning is also more actively focusing on the product of its efforts; the building of safe, healthy, attractive and sustainable urban and rural communities that coexist in harmony with each other and with natural ecosystems.

We must seriously begin to embrace and unite the principles of sustainability and livability, and in so doing, start to concern ourselves both with local and global systems. What needs to emerge is a perspective that focuses on a longer and broader "systems" view of the world; a view that emphasizes the wide diversity and intricate relationship of all things in space and time, and recognizes ecological carrying capacity as a fundamental principle. In embracing this view, people must accept that they have a very important role to play in the functioning of the entire system. We must all begin to recognize our connection to the total system and the way we affect and are affected by it.

Because community planning ultimately is for people, one of the best measures of the success of a community planning effort is the extent to which people are actively and constructively involved in the process of community building. To build better communities, you need effective and ongoing community involvement.

In building a better Pickering, we need to recognize and understand as best we can the complex relationships between the various components of the City; the land, the history, the climate, the plants and animals, and the people. We also need to understand our local "bioregion", and the progressively larger bioregions that surround us, up to a global context.

Of course, perfect information is not possible. No matter how great our abilities, it is not possible to know exactly how Pickering is evolving, or precisely how it will react to future changes.

A fair amount of humility is therefore needed in planning and building our community. We must proceed carefully and cautiously, and involve as many people as practical in our planning and decision-making processes. The City's residents, landowners, and business-people can all make valuable contributions, from identifying opportunities and problems, to proposing and implementing solutions, to monitoring results and taking corrective action.

A Vision for Pickering

To help focus and coordinate people's efforts during the official plan review process, a preliminary "vision" for the City was identified for discussion purposes. In a document entitled **"Evolving Needs, Healthy Settings - A Vision for Pickering"** (which was released for public discussion and comment in June 1994) the following vision was proposed:

> **"To build Pickering in a manner that meets the evolving needs of its people, that sustains healthy urban and rural settings, and that creates a unique community interconnected with all other places and people."**

This "vision" dealt with five interrelated themes:

- ◊ evolving needs
- ◊ healthy settings
- ◊ urban and rural sustainability
- ◊ unique community
- ◊ global connectivity

Evolving needs recognizes evolution as a fact of life. It acknowledges that as time goes on, people change, communities change and needs change.

Healthy settings are a prerequisite to healthy communities. They also make it easier for people to meet their needs, and fulfill their aspirations. Healthy settings also need to be maintained for future generations so that the needs and aspirations of those that will come after us can also be addressed.

Urban and rural sustainability acknowledges the City's fundamental duality as both an urban and a rural place. The City's urban area and rural area both contribute to the well-being of the community, and both must be sustained and enhanced over the long term.

Unique community recognizes the City's distinctive landscape, history, location and settlement pattern as valuable assets. Properly nurtured, these assets can set Pickering apart from other municipalities. The City's unique identity must be fostered and promoted.

Global connectivity recognizes that Pickering, no matter how unique, is also part of a larger evolving region, surrounded by a larger and evolving area (the Greater Toronto Area), within a changing world. What happens within the City's borders can be significantly influenced by larger social, economic and environmental events.

In June 1996, Pickering Council adopted a vision statement for the City (at that time, a Town). The statement is as follows:

Council's vision statement contains a number of important directions and messages. This official plan supports the Council vision statement and indeed further enhances it. The Plan provides strategies and tools that will assist the City as it moves forward into the next century to become an increasingly vibrant and complete community, where residents and business-people are encouraged to contribute to the City in meaningful and productive ways.

On January 1, 2000, Pickering was granted City status.

Part 1:
Principles and Framework

This page intentionally left blank.

Chapter 1 - The Guiding Principles

The Groundwork for Planning

While this Official Plan provides a foundation for local community building, it is done with the recognition that the City of Pickering is located in the Region of Durham and the Province of Ontario. Both the Region and Province have a role in planning. Consequently, the foundation provided by the Pickering Official Plan sits on footings established by the Durham Regional Official Plan, and groundwork provided by the Province of Ontario.

The Province's directions for land use planning is expressed mainly by a "Provincial Policy Statement". This Statement promotes:

- establishing efficient, cost-effective development and land use patterns by developing strong communities, providing a full range of housing types and densities, establishing infrastructure, and focusing growth in urban areas and in hamlets
- conserving resources related to agriculture, mineral aggregates, natural heritage, water quality and quantity, and cultural heritage and archaeological resources
- directing development outside of areas that may pose a danger to public safety or public health

The Region of Durham, through its official plan, establishes a regional framework for growth and development. The goals of the Regional Plan are to be achieved through a number of directions as follows:

- providing distinct urban areas
- encouraging developments that utilize land efficiently
- protecting significant features of the natural environment
- encouraging development that will not have adverse cumulative impacts on the natural, built and cultural environments
- increasing employment opportunities and balancing growth in population with growth in employment
- encouraging the production of an increased mixture of housing by type, size and tenure
- creating urban areas that are people-oriented
- protecting agricultural lands
- encouraging stewardship of land
- improving transportation linkages both within the Region and between the Region and adjacent areas
- developing the Region in a fiscally responsible manner
- coordinating and managing development of the Region in a manner which has regard for the policies of upper tier governments
- identifying and protecting resources in the Region

The two-tier planning system that exists in Durham Region means that both the Durham Regional Official Plan and the Pickering Official Plan guide decisions and actions. It is important that both plans be consulted. Each plan may contain policies relevant to a particular decision or action. This Plan has been prepared having regard to the Provincial Policy Statement. When approved by the Regional Municipality of Durham, this plan will conform to the provisions of the Durham Regional Official Plan.

City Policy
Provincial Policy Statement

1.1 City Council shall, in making decisions and undertaking actions on land use planning, be consistent with the Provincial Policy Statement, as amended from time to time.

City Policy
Durham Regional Official Plan

1.2 City Council, in respecting the two-tier planning system in the Region of Durham, shall,

(a) ensure conformity with the purpose and intent of the Durham Regional Official Plan, as amended from time to time, in making decisions and undertaking actions; and

(b) instruct others in using this Plan to also consult and have regard for the policies and procedures of the Region of Durham including the Durham Regional Official Plan, which may provide additional guidance and detail on development matters.

Principles for Growth and Development

In the Introduction, a preliminary "vision" for Pickering is described. This vision can be translated into a set of guiding principles for Pickering's future growth and development.

City Policy
Guiding Principles

1.3 City Council recognizes the following as its guiding principles in planning Pickering's future growth and development,

(a) to meet people's needs while ensuring environmentally appropriate actions;

(b) to become more self-sufficient while seeking broader connections;

(c) to support individual rights while upholding community goals;

(d) to welcome diversity while respecting local context; and

(e) to manage change while recognizing uncertainty.

Principle 1:
To meet people's needs while ensuring environmentally appropriate actions.

Community development in Pickering (as elsewhere) is aimed at meeting people's needs, and attempting to fulfill their aspirations. Needs are complex and often intertwined. For instance, economic development is an important objective. However, our economic prosperity is ultimately tied to our ability to maintain healthy ecological and social systems.

In general, needs fall into four broad categories:

- **survival** (food, shelter, security, clean air and water, and a healthy natural environment)
- **integration** (belonging, participation and affection)
- **access** (to activities, places, resources, information and meaningful work)
- **autonomy** (identity, self-esteem, personal freedom, self-expression and creativity)

Clearly, people's needs and aspirations should only be met in environmentally responsible ways. To do this requires:

- using resources wisely (especially non-renewable resources), and reducing, reusing and recycling waste
- encouraging durable, quality development, and the creative reuse of existing buildings, structures and landscapes
- promoting a mixture of land uses, and urban design in support of development that is sustainable, transit supportive, pedestrian-oriented, and accessible to persons with disabilities
- respecting ecological carrying capacity, maintaining and enhancing ecological functions, and promoting ecological diversity
- encouraging the development of durable, energy efficient and useful products
- conserving and rehabilitating natural systems, landscapes and features
- preventing and protecting people from pollution and other hazards
- practicing careful land stewardship to maintain healthy natural environments for current and future generations

Principle 2:
To become more self-sufficient while seeking broader connections.

The City must become more complete and self-sufficient. Yet, it must also recognize, respect and nurture broader connections with others, in time and space. Increasingly, it must think globally while acting locally. To do this requires:

- a more holistic "systems" view of the world, one that accepts that our needs have to be balanced against the needs of others, including future generations
- enhancing local economic opportunities while building global trading partnerships
- supporting and seeking out responsible economic activities and investments
- providing local cultural, leisure and other opportunities that complement and support regional objectives and interests

- involving members of the community in local planning and decision-making, as well as seeking out and considering the interests, ideas and concerns of others outside the community
- establishing a clear “sense of place” that instills in people a feeling of community pride
- improving our understanding of, respect for, and connections with our heritage, landscape, and evolving culture

In using the term **evolving culture**, “culture” refers to the collective knowledge, customs and arts of the wide and growing diversity of cultures that exist in Pickering.

Principle 3:
To support individual rights while upholding community goals.

People have both rights as individuals, and responsibilities as members of a community. For a community to function effectively and equitably over the long term, a perceived “right” of an individual or group cannot take precedence over a legitimate, identified need of the community. An appropriate balance must be struck between supporting individual rights and upholding community interests. To do this requires:

- defining the City’s goals and objectives clearly, and in consultation with concerned and interested members of the community
- encouraging and ensuring that individuals and groups manage their affairs consistent with the community’s goals and objectives
- protecting the rights of all members of the community to safety, security, privacy, and freedom of expression
- equitably sharing community benefits, costs, obligations and responsibilities
- promoting opportunities for people of the community to interact in positive, mutually-supportive ways

Principle 4:
To welcome diversity while respecting local context.

As multi-cultural societies such as ours evolve, there is an increasing need to broaden the range of choices and opportunities available to people. Yet, as change occurs, and choices and opportunities diversify, there is also an increasing need to ensure that the City’s local context is respected, and is potentially enhanced, as it evolves over time. Pickering’s “local context” includes its history, physical setting, and development pattern. To protect and enhance local context requires:

- creating a legible and lasting framework for community development that provides a sense of permanence and certainty, yet allows for ongoing change and evolution
- encouraging a broad range of uses and activities within this framework to meet the changing needs of the residents, and continually re-examining these needs
- improving our knowledge and understanding of the community’s diverse groups, elements and systems (social, environmental and economic), their relationships and interdependencies

Principle 5:
To manage change while recognizing uncertainty.

In a rapidly changing world, people are often more concerned with crisis management than long-range planning. Events that are unforeseen (and which may not be foreseeable) cause people to have less confidence in future predictions, forecasts and goal-setting exercises.

Yet, when uncertainty about the future is high, rather than becoming less important, long-range planning can increase the likelihood that positive changes will occur in a community. This requires a long-range planning process that maintains a future-oriented, visionary focus, yet is sufficiently flexible and adaptable to respond quickly to change. To do this requires:

- establishing an appropriate planning system for dealing with change and uncertainty, while avoiding “overplanning”
- thinking long-term, but operating incrementally, so that community planning decisions can be evaluated regularly, and adjustments can be made on an ongoing basis
- maintaining and applying valid, up-to-date analytical techniques, but not being trapped into inaction on important issues because of imperfect information, or “analysis paralysis”
- viewing the occurrence of unrelated, seemingly chaotic events as normal, recognizing them for the contribution they make to the community’s evolution

This page intentionally left blank.

Chapter 2 - The Planning Framework

Three Interrelated Systems

Meeting needs, being environmentally responsible, becoming more self-sufficient, seeking broader connections, supporting individual rights, upholding community goals, welcoming diversity, respecting local context, managing change and recognizing uncertainty are all important guiding principles. But, principles by themselves, will not suffice. Effective community building also needs an appropriate planning framework in which to operate.

The City's planning framework reflects and builds on its guiding principles. In addition, it provides a logical basis for developing both long-term policy, and short-term operational strategies.

Moreover, the City's planning framework takes a holistic view of Pickering, acknowledging that the whole is greater than the sum of the parts. It considers Pickering and the people that live, work, visit and play here as a "community" with three distinct, yet interrelated systems: an ecological system, an urban system and a rural system.

The **ecological system** flows between and within the other two systems, and is part of a larger ecological system that extends well beyond the City's boundaries (indeed is global in nature). The system comprises the air, landform, water, soil, plants and animals of the City, including its people. It is the biotic and abiotic template upon which the functions and activities of both the urban and rural systems take place. It is also the lifeblood of the community. Without a healthy, properly functioning ecological system, neither the urban system nor the rural system could remain healthy for very long.

"Biotic" means living organisms, while "abiotic" means non-living materials and substances.

The City's **urban system** exists primarily to serve people; their needs, goals, aspirations, and desires, in all their complexity. An important characteristic of a healthy urban system is the ease with which it is able to facilitate ongoing, beneficial transactions, economic and otherwise, between and amongst people.

The **rural system** also exists to serve people. However, it does so in a slightly different way than the urban system. Transactions between and amongst people in the rural area usually stem from or revolve around land as a finite resource. To have a healthy rural system you must therefore have a healthy rural countryside.

In Pickering, municipal planning must recognize the importance of sustaining healthy urban, rural and ecological systems, and must promote mutually beneficial interactions amongst them.

City Policy
Purpose of the Official Plan

2.1 City Council establishes the purpose of the Pickering Official Plan as:

To promote a complete community by sustaining healthy urban, rural and ecological systems, and facilitating beneficial and supportive interactions amongst these systems.

City Policy
Interconnectedness of Ecological,
Urban and Rural Systems

2.2 In promoting a complete community, City Council:

(a) recognizes the interconnectedness of the ecological, urban and rural systems; and

(b) shall consider the potential effects of its decisions and actions in relation to all three systems.

Pickering's Ecological System

Ecological systems are driven by the sun. The sun, in turn, drives four basic cycles vital to the continued well-being of human and non-human life: the food cycle, the oxygen/carbon dioxide cycle, the hydrologic cycle, and the nitrogen cycle.

People both influence and are influenced by the ecological system. Over time, as it evolves (which it does, even without people intervening), the ecological system will remain healthy so long as it continues to operate within certain limits or thresholds defined by its carrying capacity.

Problems usually arise when the ecological carrying capacity of the system is exceeded, and resources are used faster than they can naturally replenish themselves.

The ecological system, or "ecosystem", may be defined as an interacting system of living organisms (including humans) and their environment. As in most parts of southern Ontario, the "ecosystem" of Pickering is a complex mosaic of forests, fields, wetlands, farms, hedgerows, streams, rivers, valleys and shorelines.

City Policy
Ecological Goals

2.3 City Council adopts the following as its goals for its ecological system:

- **(a) to conserve natural resources, especially non-renewable resources;**
- **(b) to respect ecological carrying capacity, and sustain renewable resources;**
- **(c) to protect the health and integrity of Pickering's ecological processes, functions, cycles and systems;**
- **(d) to promote ecosystem diversity, stability, equilibrium and exchanges; and**
- **(e) to involve residents, business-people, landowners, relevant public agencies, and other interested groups and individuals in making decisions concerning the ecological system.**

A healthy ecological system requires mutually beneficial interactions between and amongst the various components of the system (i.e., the air, landform, water, soil, plants and animals). This is the basis for ecosystem planning, which is often done on a watershed basis (a watershed comprises the land drained by a river and its tributaries).

In support of a healthy **ecological system**, it is an important goal to protect key natural heritage and key hydrologic features for the long term. Achieving a healthy, self-sustaining, connected Natural Heritage System is integral to ensuring a healthy and resilient watershed. The systems based approach establishes a connected and integrated system of natural core areas and linkages. Such a system has a greater ability to sustain itself, particularly in urban and agricultural areas, compared with an approach which only protects individual features. At the same time, the Natural Heritage System, shown on Schedule IIIA, provides a range of habitats, so it may include areas which are not significant natural features.

The key natural heritage and hydrologically sensitive features, which form the basis for the City's Natural Heritage System, are shown on Schedules IIIB, IIIC and IIID, and reflect information from available sources including the Ministry of Natural Resources and Forestry, Region of Durham, Toronto Region Conservation Authority (TRCA), Central Lake Ontario Conservation Authority (CLOCA) and the City.

The system reflects the results of this analysis. It incorporates all key natural heritage and key hydrologic features and reflects:

- the Greenbelt Natural Heritage System as identified in the Greenbelt Plan;
- the Natural Heritage System as identified in the Central Pickering Development Plan;
- updated information on watersheds from TRCA and CLOCA;
- the current identification of wetlands and other features from a range of sources;
- the results of the Duffin Heights Neighbourhood Review; and,
- adjustments to the boundary to better identify existing and approved development.

City Policy
Core Areas, Corridors and Linkages

2.4 City Council recognizes the important role its Natural Heritage System plays in defining Pickering's natural landscape, and in sustaining a healthy ecological system; accordingly, Council shall endeavour to protect, conserve and enhance its Natural Heritage System.

Pickering's (present) natural landscape has resulted from thousands of years of geologic evolution and only a few hundred years of human activity. This landscape has been greatly influenced by people in an ongoing effort to improve productivity, protect life and property, and create a higher standard of living.

For people, the natural landscape provides **basic substances** (such as air and water), **raw materials** (such as wood, sand and gravel), **energy** (such as natural gas), and various **amenities** (including picturesque views). It is also expected to handle people's **wastes** (on land, in the air and in water). What cannot be assimilated organically, usually comes back in the form of **pollution**.

The City plays a role in protecting its natural landscape where it owns or manages property, and where it can influence or regulate the actions of others. The City also has a role to play in protecting people from environmentally hazardous situations.

City Policy
Ecological System

2.5 City Council will endeavour to:

(a) protect the City's critical ecological functions and components from inappropriate human uses and activities, including its stream corridors and significant valleylands, forests, significant woodlands, shorelines, wetlands, areas of natural and scientific interest, rare species, and fish and wildlife habitat, within and outside the City`s Natural Heritage System;

(b) protect people from environmentally hazardous situations by prohibiting development where site conditions or location pose a danger to public safety, health or property;

(c) require the restoration and rehabilitation of degraded and damaged ecosystems, including polluted and contaminated sites;

(d) encourage energy and water conservation, and the reduction, re-use and recycling of waste;

(e) plan, design and manage communities, both urban and rural, in harmony with natural processes and functions by:

(i) **improving the quality of surface water runoff;**

(ii) **managing changes in the quantity and rate of surface water runoff so that these changes do not adversely affect the environment;**

(iii) **promoting the naturalization of valleylands and stream corridors;**

(iv) **enhancing groundwater recharge and discharge;**

(v) **protecting, restoring and where possible creating large contiguous natural areas and linkages in order to provide more and better aquatic and terrestrial habitat and corridors for wildlife movement; and**

(vi) **promoting the use of ecological design techniques through the development review process to strengthen the sense of connection between the built and natural environment, which may include the provision of gateways and trailheads to natural areas, designing buildings to provide view corridors and passive enjoyment of adjacent natural spaces, and integrating green infrastructure and low impact development techniques in development;**

(f) **educate and involve residents, business people and landowners in protecting and enhancing ecological cycles and systems, and in making environmentally responsible choices; and**

(g) **in cooperation with others, regularly monitor and report on the health of the City's ecological system, and where warranted, take and encourage others to take necessary corrective action.**

Pickering's Urban System

Urban systems involve people doing a variety of things (trading, communicating, learning, playing, raising families, or interacting in some other meaningful way). As a result, healthy and successful urban systems have a diversity of buildings, uses, facilities, experiences and opportunities. They also tend to be active, accessible and attractive places.

In looking at the City's urban system, it would be beneficial to take a broad and integrated perspective. Important interrelationships between local economy, local culture and local identity should be uncovered and respected.

City Policy
Urban Goals

2.6 City Council adopts the following as its goals for its urban system:

- **(a) to establish and encourage a "complete" urban area with a wide mix and diversity of uses, activities, experiences and opportunities;**
- **(b) to recognize and nurture important interrelationships between local culture, local identity and the local economy;**
- **(c) to provide an adaptable, durable, safe and accessible urban environment; and**
- **(d) to involve residents, business-people, landowners, relevant public agencies, and other interested groups and individuals in making decisions concerning the urban system.**

Urban Pickering is relatively young, much of it having been developed only over the last 30 years or so. As time goes on, additional elements and services will need to be added to urban Pickering if it is to evolve into a more "complete" and liveable community; a community that offers a wide variety of opportunities and activities to meet the evolving and increasingly diverse needs of its people.

City Policy
Urban System

2.7 City Council shall:

- **(a) encourage a variety of uses in close proximity to one another through a well designed, compact urban form;**
- **(b) make efficient use of infrastructure, land and services, and facilitate local economic and social interactions between people;**
- **(c) increase overall the number and variety of housing, employment, educational, cultural, recreational, and other opportunities and experiences within the urban area;**
- **(d) direct new residents, jobs and activities to areas where adequate amenities, services and facilities either exist or will be provided;**
- **(e) encourage the integration of people of varied backgrounds, cultures and lifestyles into the urban system;**
- **(f) encourage alternatives to the private automobile for moving around and through the urban area; and**

(g) improve the physical design of neighbourhoods, streets and the public realm, making them safer, more attractive, more comfortable, more human in scale, and more respectful of cultural and natural heritage.

The Urban System comprises three adjoining areas in Pickering as shown on Map 2: Pickering's Urban System, at the end of this Chapter:

- The **South Pickering Urban Area**, extending from Lake Ontario northerly to the C.P. (Belleville) rail line which cuts diagonally across the City from north of Finch Avenue in the west, to north of Taunton Road in the east.
- The **Seaton Urban Area**, extending northerly from the C.P. (Belleville) rail line to Highway 7, generally between the West Duffins Creek and the 16th side road but also including lands north of Highway 7 generally between the West Duffins Creek and North Road as shown on Map 2.
- A **Proposed Airport Site**, that protects lands north of Highway 7 for a potential airport, in the event such a facility is established by others, in consultation with the City.

City Policy
Urban System Areas

2.8 For planning purposes, City Council shall consider the following areas as Pickering's urban system:

(a) lands between Lake Ontario and the C.P. (Belleville) rail line generally known as the South Pickering Urban Area;

(b) lands between the C.P. (Belleville) rail line and up to the Federal Airport lands (generally Highway 7), west of Sideline 16/Ajax-Pickering boundary, east of the West Duffins Creek, generally known as the Seaton Urban Area; and

(c) lands north of Highway 7, generally known as the Proposed Airport Site.

Neighbourhoods are the backbone of the urban system. For planning purposes, the South Pickering Urban Area is divided into 15 urban neighbourhoods (see Map 3A: South Pickering Urban Area Neighbourhoods, at the end of this Chapter). These neighbourhoods range in size, shape, and character.

For planning purposes, the Seaton Urban Area is divided into 6 urban neighbourhoods (see Map 3B: Seaton Urban Area Neighbourhoods).

The Central Pickering Development Plan identified 15 separate residential neighbourhoods and a large employment area along both sides of Highway 407 within the Seaton Urban Area. These areas have been condensed into 6 neighbourhood plan areas.

City Policy
Neighbourhoods

2.9 City Council:

(a) recognizes neighbourhoods as the fundamental building blocks of its urban system; and

(b) shall endeavour to maintain the different identities and characters of its neighbourhoods as they evolve over time.

South Pickering Urban Area

By the beginning of 1996, the South Pickering Urban Area had a population of over 70,000 people, and an estimated 25,000 jobs. At around that time, forecasts undertaken for the Greater Toronto Area (GTA) and the Region of Durham projected an increase of about 30,000 people and 24,500 jobs in South Pickering by 2021.

The time horizon for this Plan is 20 years (up to the year 2016). Over this period of time, and consistent with the GTA and Durham projections, it is estimated that an additional 31,000 people and 26,000 jobs will be accommodated in the South Pickering Urban Area. Properly planned, this increase in people and jobs will help produce a more "complete" and liveable urban area.

City Policy
South Pickering Urban Area
Population Target

2.10 City Council:

(a) adopts a population target for the South Pickering Urban Area of 100,500 people for the year 2016; and

(b) shall endeavour to accommodate this population over the time frame of the Plan generally as set out in Table 1;

(c) despite Sections 2.10(a) and (b), adopts a population target for the City Centre of 13,500 people for the year 2031.

The residential population in the City Centre was approximately 5,100 for the year 2011

City Policy
South Pickering Urban Area
Employment Target

2.11 City Council:

(a) adopts an employment target for the South Pickering Urban Area of 51,200 jobs for the year 2016;

(b) despite Section 2.11(a) adopts an employment target for the City Centre of 13,500 jobs for the year 2031; and

(c) shall endeavour to accommodate urban employment in the South Pickering Urban Area as follows:

(i) primarily in Mixed Use Areas and Employment Areas as designated on Schedule I to this Plan; and

(ii) as home occupations in Urban Residential Areas.

City Policy
Table 1: South Pickering
Urban Area Population Targets
1996-2016

Table 1						
South Pickering Urban Area		**Population Targets by Year**				
Neighbourhood		**1996**	**2001**	**2006**	**2011**	**2016**
1	**Rosebank**	**2,400**	**2,700**	**2,900**	**3,200**	**3,400**
2	**West Shore**	**7,400**	**7,500**	**7,500**	**7,600**	**7,600**
3	**Bay Ridges**	**7,800**	**8,200**	**8,600**	**9,000**	**9,500**
4	**Brock Industrial**	**150**	**100**	**100**	**100**	**100**
5	**Rougemount**	**2,700**	**2,900**	**3,100**	**3,200**	**3,400**
6	**Woodlands**	**2,100**	**2,600**	**3,100**	**3,500**	**4,000**
7	**Dunbarton**	**1,800**	**2,000**	**2,300**	**2,500**	**2,700**
8	**City Centre**	**4,900**	**6,500**	**8,100**	**9,700**	**11,300**
9	**Village East**	**4,900**	**5,000**	**6,200**	**6,800**	**7,400**
10	**Highbush**	**3,200**	**3,800**	**4,500**	**5,200**	**5,900**
11	**Amberlea**	**10,600**	**11,400**	**12,100**	**12,900**	**13,600**
12	**Liverpool**	**17,500**	**17,700**	**17,800**	**18,200**	**18,200**
13	**Brock Ridge**	**5,600**	**6,600**	**7,500**	**8,400**	**9,300**
14	**Rouge Park**	**200**	**500**	**1,000**	**1,300**	**1,600**
15	**Duffin Heights**	**100**	**100**	**100**	**500**	**2,500**
Total Population Targets: South Pickering Urban Area		**71,350**	**78,100**	**84,900**	**91,900**	**100,500**
Note: The year increments and the population targets for South Pickering Urban Area will be adjusted from 2016 to 2031 and updated through the completion of the City's Growth Plan conformity amendment.						

Seaton Urban Area

Seaton is located north of the C.P. (Belleville) rail line. The lands were acquired by the Province in the early 1970s, as part of a larger acquisition that included lands in Markham and Scarborough. A total of 8,000 hectares were either expropriated or purchased to establish a new city of 250,000 people adjacent to a proposed international airport.

This city was never built. Following the federal government's decision not to build an airport at that time, the Province re-examined its development concept. Ultimately, it was decided that only lands east of the West Duffins Creek would be considered for urban development, for a community of up to 90,000 people.

Through the 1980s, planning for Seaton proceeded slowly. Toward the end of the decade, a number of concerned citizens from Pickering and surrounding areas prepared the **Seaton Planning Guide** urging the government to build an "innovative, compact urban community". This prompted the Province to undertake a public consultation process in 1991, the result of which was the completion of a report entitled **Seaton: A Strategy for Environmentally Responsible Planning**.

The 1991 report recommended the establishment of a compact urban community on up to 1,400 hectares of land, developed in a way that would be "innovative, diverse, balanced, adaptable and workable". The report also established development principles on housing, employment, mixed uses, community services, design and heritage conservation.

In late 1993, the Province established a Seaton Advisory Committee to report on the feasibility of developing the Seaton lands. After nearly two years of work, the Committee (which included representatives from local and regional government, the development industry, the local community, as well as housing and environmental interests) submitted its report.

The Advisory Committee's report concluded that it is "not only possible but imperative that a compact, innovative community be constructed on the site, and that there is broad public support for the idea."

On April 17, 2003, the Minister of Municipal Affairs and Housing signed an order under the *Ontario Planning and Development Act, 1994* establishing a Development Planning Area covering the Pickering portion of the Duffins Rouge Agricultural Preserve and the Seaton lands. On May 3, 2006, the Province released the Central Pickering Development Plan for this area. The Plan establishes a vision for a sustainable community and sets out broad goals, objectives and policies for this area. This Official Plan conforms to and implements the Central Pickering Development Plan for the Seaton Urban Area through additional detailed policies and land use schedules.

The policies of Chapter 11 set out more detailed policies specific for the Seaton Urban Area, which implement the goals, objectives and policies of the Central Pickering Development Plan. The Central Pickering Development Plan identified 15 separate residential neighbourhoods and a larger employment area along both sides of Highway 407 in the Seaton Urban Area. These areas have been condensed into 6 Neighbourhood Plan Areas. Further detailed area and site specific policies are found in the neighbourhood plans in Part 3, Chapter 12. As well, the Sustainable Placemaking Guidelines for the neighbourhoods are found in the Compendium Document to the Pickering Official Plan.

City Policy
Sustainable Principles

2.12 City Council shall plan the Seaton Urban Area as a sustainable urban community which shall be compact, walkable and pedestrian focused and contain a mix of uses that can adapt and evolve over time. It shall be based on the following key sustainability principles:

- **(a) create walkable, transit supportive neighbourhoods through compact development; integration of mixed use development; and distribution of parks and recreational facilities;**
- **(b) create a transit, cycling and pedestrian supportive urban system with pedestrian-oriented roads, and fully integrated cycling and walking networks;**
- **(c) create opportunities for job creation particularly on the employment lands concurrent with residential growth;**
- **(d) promote environmentally sustainable building and design practices;**
- **(e) provide for a range of housing types and densities that meet the needs of a diverse population;**
- **(f) protect the Seaton Natural Heritage System and integrate it into the neighbourhoods;**
- **(g) protect cultural heritage resources and archaeological resources; and**
- **(h) create an adaptive and resilient urban community.**

City Policy
Seaton Urban Area
Population and Employment

2.13 City Council supports:

- **(a) the development of an urban community that will accommodate 61,000 people by 2031 and be planned to accommodate up to 70,000 people through long-term intensification. This population is based on the policy direction for compact development, higher densities and the direction to use land and services more efficiently. The Community Nodes and to a lesser extent the Mixed Corridors may develop first with primarily commercial uses and intensify over time with a broader mix of uses, which will contribute to long-term intensification. The 2031 population by Neighbourhood, within the Seaton Urban Area, is set out in Table 1B;**
- **(b) the development of an urban community that will accommodate 30,500 jobs by 2031 and be planned to accommodate 35,000 jobs through long-term intensification. This employment shall be provided:**
  - **(i) in office, manufacturing and service industries in the Prestige Employment designation;**
  - **(ii) in office, retail and service industries in the Community Node and Mixed Corridor designations and in small commercial stores in the neighbourhood nodes;**
  - **(iii) in institutional and recreational facilities throughout the residential designations and mixed use designations; and**
  - **(iv) as home occupations in all residential and mixed use designations.**

Table 1B		
Seaton Urban Area Neighbourhoods		**2031 Population**
16	**Lamoreaux**	**17,500**
17	**Brock-Taunton**	**5,000**
18	**Mount Pleasant**	**18,000**
19	**Wilson Meadows**	**15,000**
20	**Thompson's Corners**	**5,500**
21	**Pickering Innovation Corridor**	**0**

City Policy
Input to the Seaton Planning Exercise

2.14 As input to the planning exercise for the Seaton Urban Area, City Council supports:

(a) a compact urban area;

(b) the identification of neighbourhoods, the preparation of neighbourhood plans, and the establishment of an appropriate neighbourhood phasing strategy; and

(c) the adoption of appropriate measures, incentives and controls to ensure the community:

(i) respects natural systems and processes;

(ii) enhances local economic and employment opportunities;

(iii) reserves lands for a future university and/or Durham College campus if such lands are not already identified elsewhere in the City;

(iv) uses existing resources, facilities, services and infrastructure efficiently, effectively and in an innovative manner;

(v) meets the diverse and evolving needs of its people and the marketplace;

(vi) is appropriately linked and integrated with the rest of Pickering;

(vii) does not cause a financial burden on the City or Region;

(viii) is built in such a way that adequate flexibility is provided to accommodate ongoing community evolution and innovation;

(ix) is planned to be a sustainable community with a balance of population and jobs;

(x) is integrated with South Pickering and relies on South Pickering for a full range of commercial, institutional and government services; and

(xi) supports and does not compete with the primacy of the City Centre for a full range of retail and service commercial uses.

City Policy
Disposal of Provincial Lands

2.15 City Council shall encourage the provincial government to dispose of its lands in Seaton in an appropriate and timely manner, provided:

(a) the lands are sold for uses consistent with the policies of this Plan and the Durham Regional Official Plan; and

(b) lands that serve important public purposes, or contain significant natural or cultural resources are conveyed to the appropriate public agency.

Proposed Airport Site

In the early 1970s, the federal government expropriated approximately 7,500 hectares of land in Pickering, Markham and Uxbridge to build a new international airport for Toronto. In Pickering, these lands are located generally north of Highway 7, and west of Brock Road.

Since that time development of the airport has not proceeded, but the lands remain owned by the Federal Government and are rented out for farming purposes. In 1974 the Province enacted Minister's Zoning Orders 1 and 2. These Zoning Orders applied to the lands north of the Fifth Concession Road and east of the federal airport lands. The Zoning Orders restricted land uses in the area covered by the Orders to agricultural uses and buildings and structures accessory thereto including single dwellings used in connection with the agricultural operation and home occupations.

In 1998 the Federal Government initiated a process to protect the federal lands for future aviation needs. This process culminated in the establishment of the Pickering Airport Site Zoning Regulations in September 2005. The regulations apply to certain lands adjacent to, and in the vicinity of the federally owned lands in Pickering and adjacent municipalities. They restrict the height of buildings, structures and objects, including natural growth, on regulated lands and are designed to protect aircraft from potential hazards such as bird strikes and electronic signal interference. The Minister of Transportation also prepared N.E.F. (noise exposure forecast) contours to be applied to planning proposals to limit noise sensitive development in keeping with the Provincial Policy Statement.

In response to requests for a further due diligence/business case assessment of the need for an airport, the Greater Toronto Airport Authority completed a Pickering Airport Master Plan and released a Pickering Airport Land Needs Assessment study in July 2011. The needs assessment study recommends that the site be protected for future development of an airport based on an identified need for a new airport in the Greater Golden Horseshoe Area between 2027 and 2037. Transport Canada further indicated that the Federal Government will consider development of the airport lands as a potential future airport in Pickering, taking into account the needs of the region and stakeholders.

In 2013, the Federal Government transferred 2,023 hectares of the Federal Airport Lands to the Rouge National Urban Park, and in 2015, committed to transferring an additional 2,104 hectares to the Park. The Federal Government advised that the remainder of the lands will be protected for economic development, including an airport.

Since the Federal Government has determined that only part of the lands originally declared as an Airport Site will need to be protected for an airport, a revised Declaration Order identifying the reduced area of 3,520 hectares has been published in the July 18, 2015 edition of the Canada Gazette.

Despite the establishment of the ministerial zoning orders and regulations, and the completion of a range of studies, a final decision has not yet been made on the airport.

Recognizing that air transportation plays an important role in the GTA economy, the Plan designates the revised boundary of the Federal Airport lands and provides an overlay identifying the proposed airport site as declared by Transport Canada on Schedule I to this Plan.

The federal airport lands are shown on Schedule A of the Durham Official Plan.

The Durham Regional Official Plan identifies a large area in the centre of the Federally-owned lands as an airport site. Other Federally-owned lands surrounding this central area are designated in the Regional Plan as a Study Area.

City Policy
Protection of Lands for a Proposed Airport

2.16 City Council recognizes the economic importance of a strong air transportation network in the Greater Toronto Area, and for this reason shall protect lands for the possible development of an airport on the Federal Airport Lands as delineated on Schedule I.

City Policy
Federal Airport Lands: Land Uses

2.17 Until a decision is made to establish an airport facility on the Federal Airport lands, City Council shall only permit open space and agricultural uses that do not preclude the possibility of an airport facility.

City Policy
Cost-Benefit Analysis of Proposed Airport

2.18 Before the development of an airport in Pickering, City Council shall request the proponent of any such airport to submit, to the City's satisfaction, an analysis of the environmental, social and economic costs and benefits to the City of developing such an airport.

Pickering's Rural System

Like urban systems, rural systems involve people doing a variety of things. Yet, transactions between and amongst people of the rural area, differ somewhat from those in the urban area. They usually directly or indirectly require, stem from, or are grounded in "land" as a viable, productive and lasting resource.

Farming, forestry, golfing, bird watching, aggregate extraction, hiking and many other rural activities all require or use land as a resource. To exist, they all directly depend upon land, or upon the natural systems that support and flow from the land.

Protecting land, as a finite resource, is therefore of vital importance to ensuring a healthy rural system.

Rural Pickering comprises approximately, 15,200 hectares, which is roughly two-thirds of the City's total land area. As depicted on Map 4: Pickering's Rural System, found at the end of this Chapter, the City's rural system includes lands situated south of the Township of Uxbridge, and north of the C.P. (Belleville) rail line, excluding Seaton and the Potential Airport Site.

A vision statement for rural Pickering, developed in 1994 by residents of the City, forms an excellent starting point for the formulation of rural policy. In part, this vision statement describes rural Pickering as:

> **"...a healthy countryside working in tandem with healthy communities ... an ecosystem of farms, forests and streams, aquifers and wetlands: lands which support viable agricultural production, which maintain and enhance wildlife habitat and will provide recreational opportunities for the people of Pickering"**
>
> **"... a vibrant community: one which supports farms and preserves the history and heritage of existing hamlets, while accommodating the diverse needs of a growing population and making a significant economic contribution to the region"**

Consistent with this vision, the City's policies for its rural system seeks to:

- preserve agricultural capability for future generations
- encourage farms and related businesses
- accommodate controlled growth
- support the cultural heritage and integrity of rural lifestyles
- protect and enhance the diversity of natural areas
- minimize the degree of conflict among a diversity of interrelated uses
- provide recreational opportunities for people to enjoy the countryside
- give rural residents an active role in determining future plans for hamlets and rural lands

Rural Goals

In the past, Pickering's rural area changed relatively slowly. Today, as the Greater Toronto Area urbanizes, and increasing concerns are expressed about the economic viability of agriculture in the area, the City faces increasing pressure for rapid and more widespread rural land use changes.

Controlling both the type of change in and the speed at which it occurs is therefore extremely important to maintaining the long-term health of the City's rural system.

City Policy
Rural Goals

2.19 City Council adopts the following as its goals for its rural system:

- **(a) to protect and enhance the cultural and natural heritage of the rural area, and conserve the rural resource base, including agricultural lands, for existing and future generations;**
- **(b) to encourage a vibrant rural economy with a wide range of rural uses and activities, including:**
  - **(i) primary agricultural uses;**
  - **(ii) complementary and supportive agricultural uses;**
  - **(iii) outdoor rural recreational uses; and**
  - **(iv) other compatible rural uses that contribute to the diversity of economic activities in the area;**
- **(c) to promote improved social and economic linkages between urban and rural Pickering;**
- **(d) to encourage limited rural residential development primarily in hamlets;**
- **(e) to encourage rural residential development that is energy efficient, enhances the range of rural housing choices, and is environmentally appropriate in terms of its form, water usage and sewage disposal systems;**
- **(f) to encourage the appropriate and timely disposition of lands in rural Pickering owned by the provincial and federal governments; and**
- **(g) to involve residents, business-people, landowners, relevant public agencies, and other interested groups and individuals in making decisions concerning the rural system.**

By 2015, approximately 4,300 people lived in rural Pickering, representing about 5 percent of the total population of the City. Although the number of people living in the rural area will increase, the ratio of the number of people living in rural Pickering compared to urban Pickering will drop by 2031 to less than 3 percent of the City's total population. Most of the City's residential growth will occur in the urban area.

Still, some rural population growth is considered necessary and desirable to maintain a healthy and viable rural area. Based on a data collected in December 2014 approximately 200 additional people could be accommodated in rural Pickering over the next 15 years, through infill in rural settlements or development of vacant lots.

City Policy
Rural Population Target
and Allocation

2.20 City Council adopts an overall population forecast for rural Pickering of 4,330 to 4,525 people for the year 2031, which represents an 15 year increase of approximately 200 people; this increase in rural population shall be accommodated as follows:

(a) at least 80 people in hamlets and clusters identified by this Plan; and

(b) up to about 120 people on lots existing outside of settlements (hamlets, clusters or country residential settlements).

Rural Residential Growth*	
Total Rural Population Growth (2015 to 2031)	**approximately 200 people**
Hamlets[1] and Clusters	**at least 80 people**
Existing Lots Located Outside of Settlements	**120 people**

*Declining Rural Residential Growth is reflective of an aging population and a reduced person per unit count

[1] Growth in Hamlets does not reflect potential minor hamlet expansions

Employment opportunities in rural Pickering are currently limited. In the past, most rural jobs were in agriculture and related businesses. Today, because of a general decline in farming, rural job opportunities need to be more diverse if the City is to sustain a healthy rural economy.

Emphasis should be placed on introducing and supporting a diversity of rural enterprises including agriculture, businesses related to agriculture, and rural outdoor recreational businesses. As well, businesses related to resource conservation, energy conservation, and environmental rehabilitation could be encouraged.

Also, within certain rural settlements (where permitted by a Rural Settlement Plan), some employment could come from "population-serving" businesses, such as convenience stores, banks, restaurants, personal service establishments, and gas stations, as well as from rural home occupations, and home businesses.

City Policy
Rural Employment Target

2.21 City Council will actively encourage rural employment opportunities which support the rural community and are in accordance with the provisions of this Plan.

City Policy
Rural Employment Opportunities

2.22 City Council shall encourage rural employment opportunities primarily as follows:

(a) in food production and other agricultural and related businesses, especially those that are labour intensive and benefit from being in close proximity to urban areas;

(b) in farm businesses that benefit from close proximity to urban areas, such as, but not limited to, market gardens, pick-your-own fruit and vegetable operations, bed and breakfast establishments, and businesses offering rural farm holidays;

(c) through rural diversification, including compatible recreational uses, businesses related to environmental rehabilitation or energy and resource conservation, home occupations, and home businesses; and

(d) in small scale service, commercial and industrial operations, such as but not limited to, nurseries, garden centres, landscaping, excavating, and equipment repair and service.

As of 1996, about 50 percent of the City's rural area was publicly owned; the federal government holding about 5,600 hectares of rural land for a possible federal airport, and the provincial government holding about 2,000 hectares of rural land (beyond the roughly 3,000 hectares held for Seaton). Surplus rural lands owned by either the federal of provincial governments should eventually be returned to private ownership.

City Policy
Sale of Surplus Public Lands

2.23 City Council shall encourage the appropriate and timely disposition of rural lands that are owned by, and surplus to the needs of the federal and provincial governments, provided:

(a) the lands are sold for uses consistent with the policies of this Plan and the Durham Regional Official Plan; and

(b) lands that serve important public purposes, or contain significant natural or cultural resources are conveyed to the appropriate public agency.

In 1997, the City established a Rural Study Area on lands located west of the West Duffins Creek bounded by Green River on the north, the Townline Road on the west, the C.P. (Belleville) rail line on the south, and West Duffins Creek on the east. Subsequently, Council concurred with the conclusions of the "Pickering Rural Study: Final Report" dated April 1988, that no changes be made to the urban/rural boundary as currently identified in the Durham Regional Official Plan and the Pickering Official Plan. In 2002, the City initiated a Growth Management Study for an area of land bounded by Highway 7 to the north, Sideline 16 and the Pickering-Ajax boundary to the west, the C.P. (Belleville) rail line to the south, and the Pickering-Toronto/Markham boundary to the west.

Rural Lands

Pickering's Rural System contains 'Rural Lands' and 'Rural Settlements'. Rural Lands are very diverse, supporting a variety of uses including farming, open space, golf courses and conservation areas, as well as many large properties along sidelines and concession roads that are primarily used for residential purposes.

Although the 1994 resident-proposed vision for rural Pickering stresses the importance of conserving rural lands for future generations, it is not a no growth or anti-development vision. Rather, it allows for a diversity of uses on rural lands, especially those that provide rural economic benefits, and enhance or are compatible with the rural character of the area.

The challenge for the City's Rural Lands is to accommodate diversity while protecting the agricultural and open space resource base.

City Policy
Rural Land Uses

2.24 Within the rural area and outside of Rural Settlements, City Council shall establish appropriate land use designations to reflect the predominantly agricultural and natural open space nature of this area (see Chapter 3 - Land Use).

City Policy
Other Uses by Amendment

2.25 In addition to those uses permitted by the designations established under Section 2.24, City Council may consider permitting other uses and activities within the rural area by amendment to this Plan, subject to the relevant provisions of Chapter 16 (Development Review) of this Plan.

Rural Settlements

Most of Pickering's rural growth over the past twenty years occured in its Rural Settlements; areas where rural housing and related uses are concentrated.

There are four types of rural settlements in Pickering, generally differentiated by size, characteristics and mix of uses: rural hamlets, Oak Ridges Moraine rural hamlets, rural clusters and country residential subdivisions.

Rural Settlements

- **Rural Hamlets**
- **Oak Ridges Moraine Rural Hamlets**
- **Rural Clusters**
- **Country Residential**

Rural hamlets are existing hamlets that are generally long-established. They are the focus of rural development. They often contain a variety of land uses, including residential, commercial, community, cultural and recreational uses. The designated Rural Hamlets in Pickering are Cherrywood, Whitevale, Green River, Brougham, Greenwood, Kinsale, Balsam, and the south part of Claremont.

Oak Ridges Moraine rural hamlets are existing hamlets or similar existing small communities that are generally long-established. They often contain a variety of land uses, and provide opportunities for growth only within the existing hamlet boundary. Most of Claremont is designated Oak Ridges Moraine rural hamlet.

Rural clusters are groupings of residential dwellings, usually developed along existing rural roads. They provide minor opportunities for growth through infill development. The designated Rural clusters in Pickering are Cherrywood East, Cherrywood West, and the Greenwood Cluster. No new Rural clusters will be permitted.

Country residential settlements are large lot, rural residential subdivisions built mainly on internal roads, and cannot exceed the maximum number of residential lots approved. The designated Country residential subdivisions in Pickering are Birchwood Estates, Barclay Estates, Spring Creek, Staxton Glen, and Forest Creek Estates. No new Country residential subdivisions will be permitted.

To properly control the amount, nature and distribution of rural growth, Rural Settlement Plans have been prepared for each Rural Settlement (see Chapter 13 - Rural Settlements). No other Rural Settlements will be approved.

City Policy
Identifying Rural Settlements

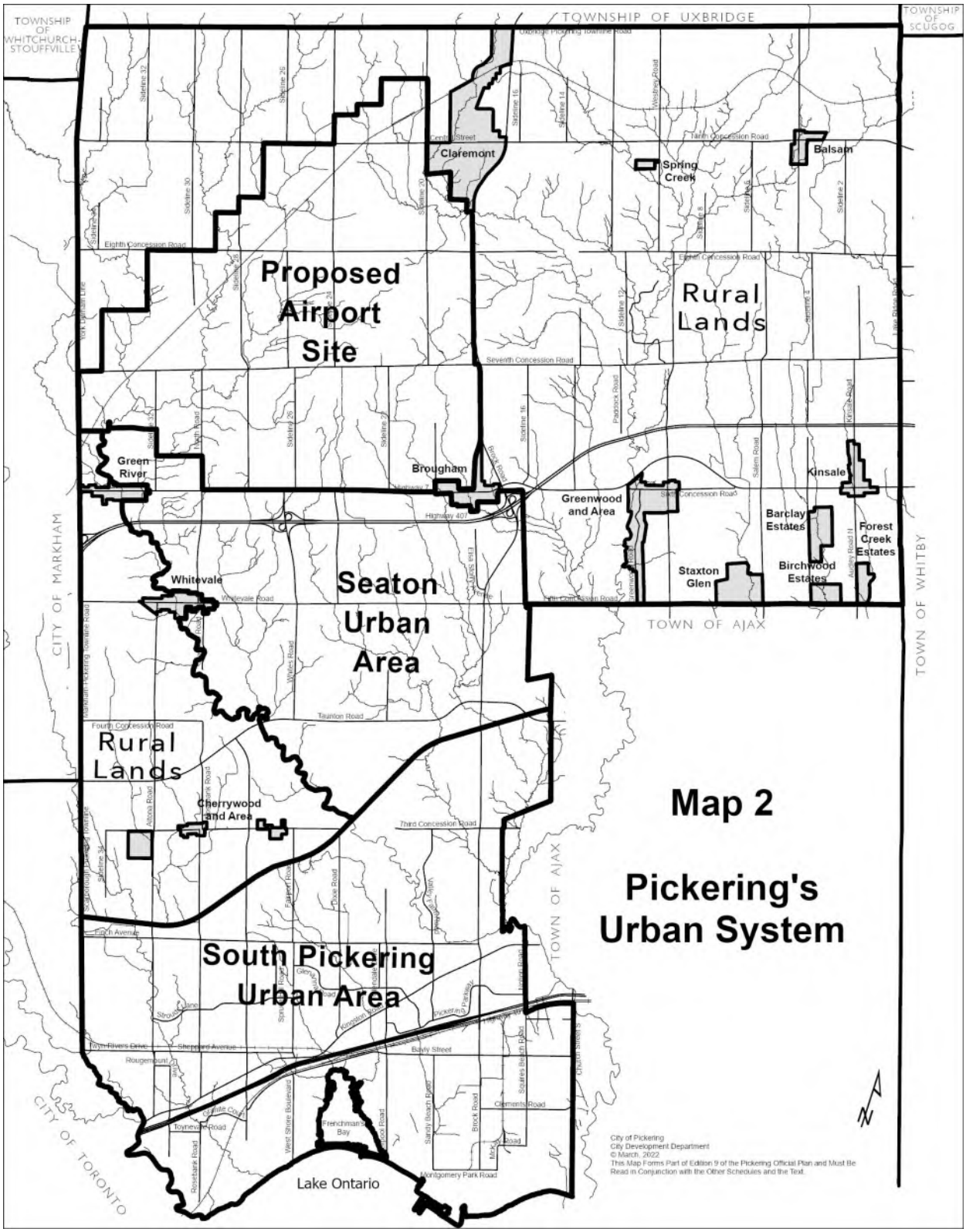
2.26 City Council shall identify within its rural area, concentrations of rural housing as either Rural Hamlets, Oak Ridges Moraine Rural Hamlets, Rural Clusters or Country Residential.

City Policy
Minor Rural Settlement Expansions
Through Comprehensive Review

2.27 City Council may consider the minor expansion of the rural settlement boundaries for the Hamlet of Greenwood through the completion of a municipally led rural study, in accordance with the provisions of Sections 3.19, 15.8 and Chapters 13 and 16 of this Plan, the Provincial Policy Statement, and Provincial Land Use Plans, where applicable.

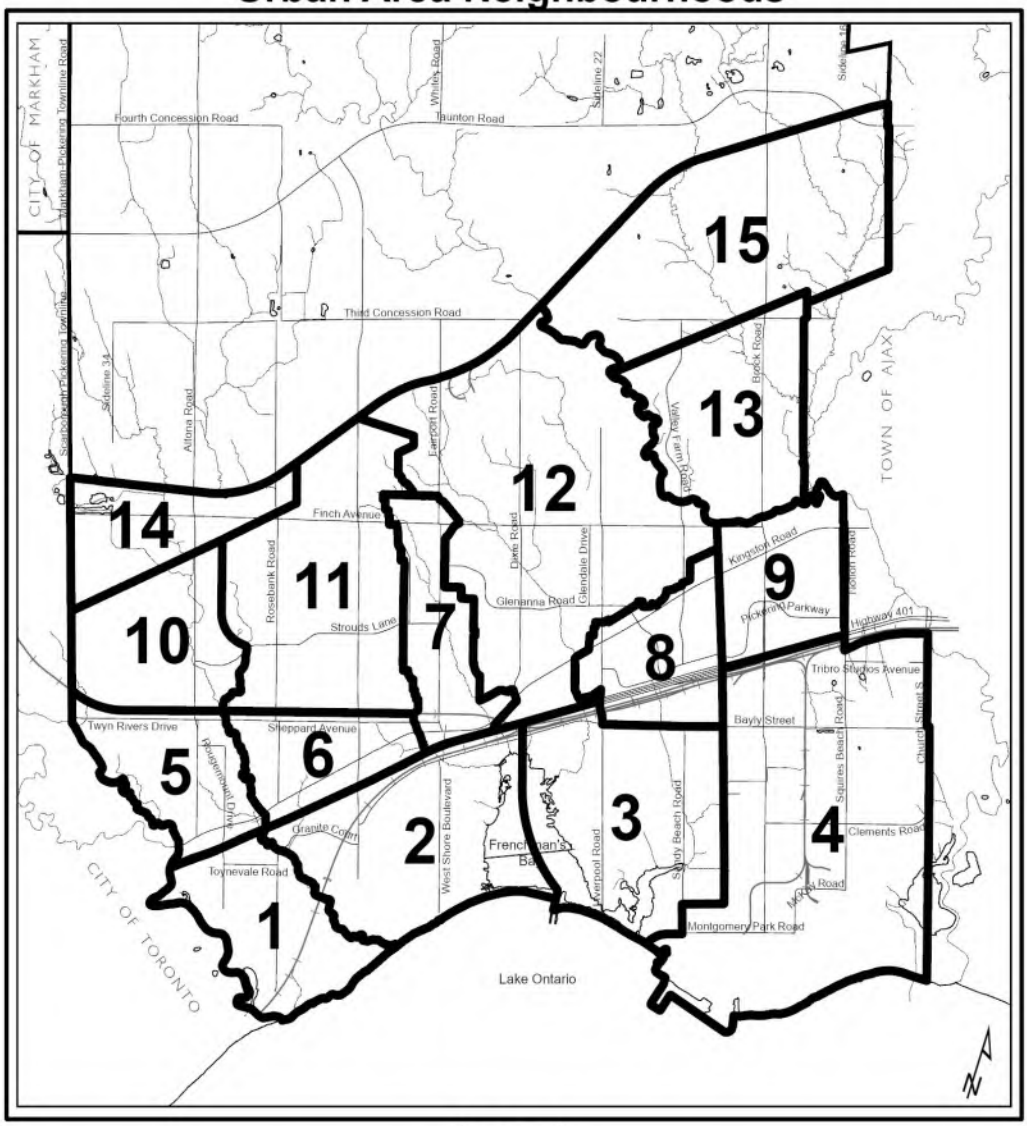
City Policy
No New Rural Settlements

2.28 City Council shall not designate any new Rural Settlements.


TOWNSHIP OF UXBRIDGE
TOWNSHIP OF WHITCHURCH-STOUFFVILLE
TOWNSHIP OF SCUGOG
Claremont
Spring Creek
Balsam
Proposed Airport Site
Rural Lands
Green River
Brougham
Greenwood and Area
Kinsale
Barclay Estates
Forest Creek Estates
Staxton Glen
Birchwood Estates
Whitevale
Seaton Urban Area
TOWN OF AJAX
CITY OF MARKHAM
TOWN OF WHITBY
Rural Lands
Cherrywood and Area
Map 2
Pickering's Urban System
South Pickering Urban Area
CITY OF TORONTO
Lake Ontario
City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Map 3-A

South Pickering
Urban Area Neighbourhoods

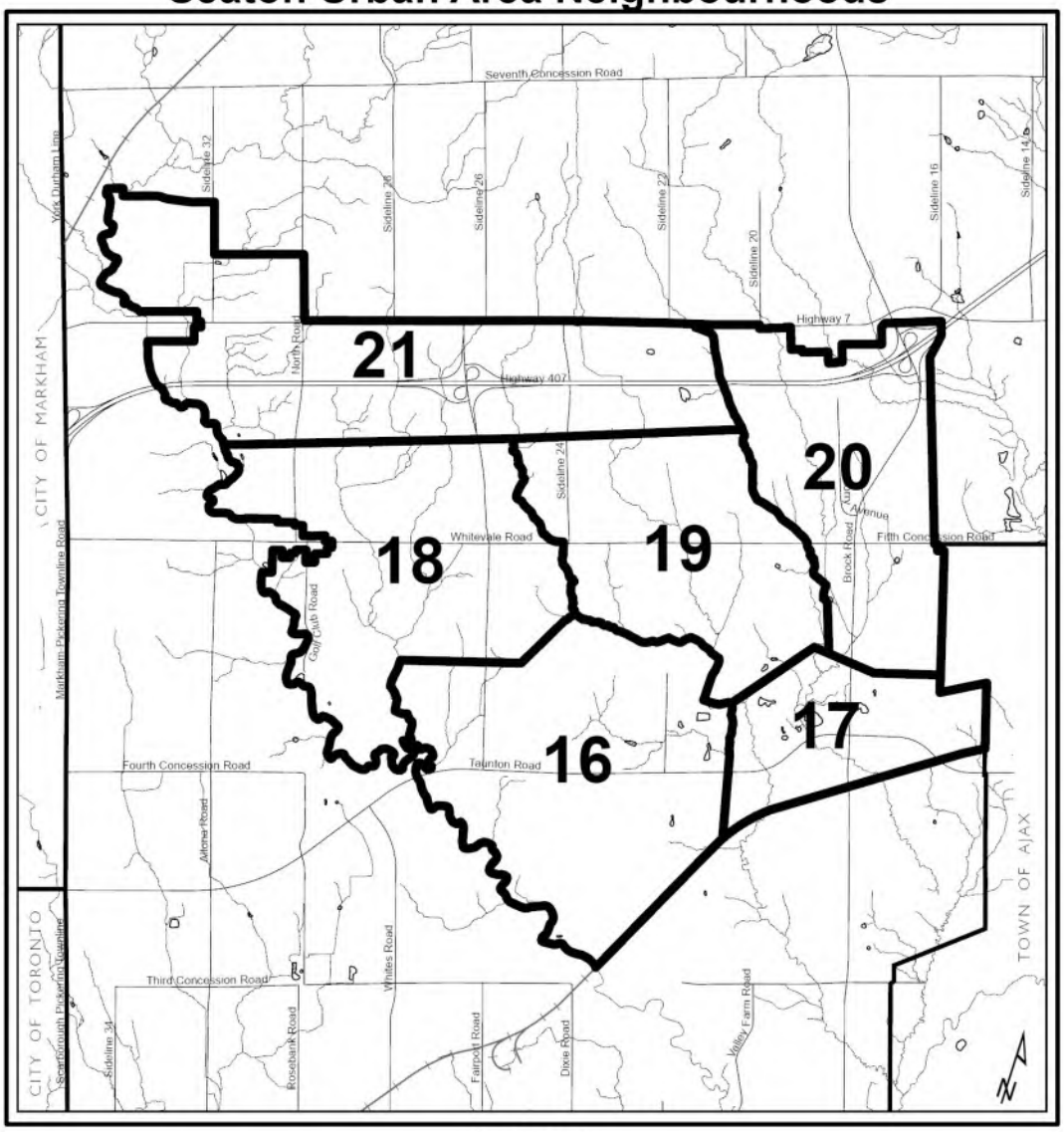


Legend

1	Rosebank	6	Woodlands	11	Amberlea
2	West Shore	7	Dunbarton	12	Liverpool
3	Bay Ridges	8	City Centre	13	Brock Ridge
4	Brock Industrial	9	Village East	14	Rouge Park
5	Rougemount	10	Highbush	15	Duffin Heights

Map 3-B

Central Pickering
Seaton Urban Area Neighbourhoods



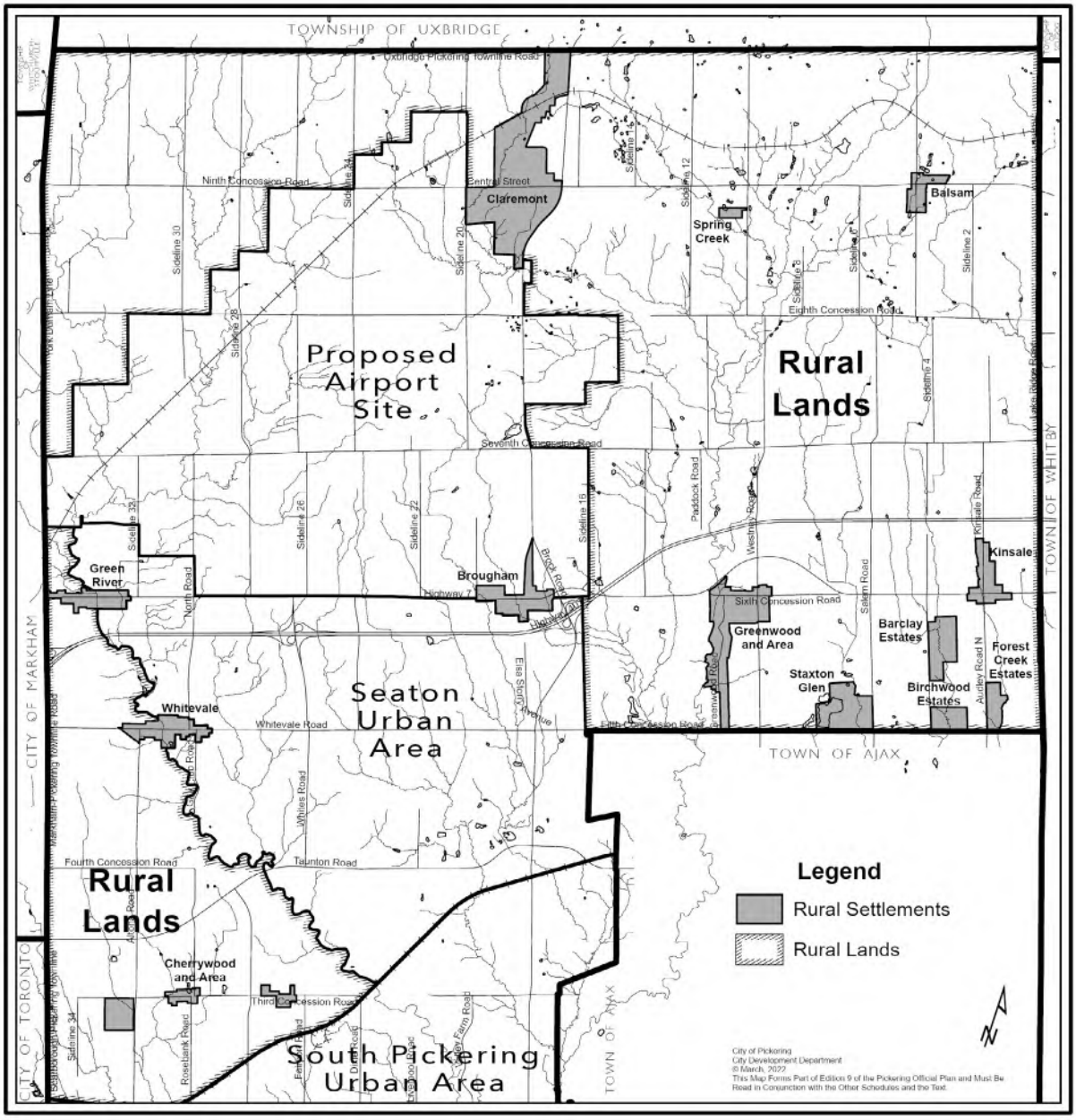
Legend

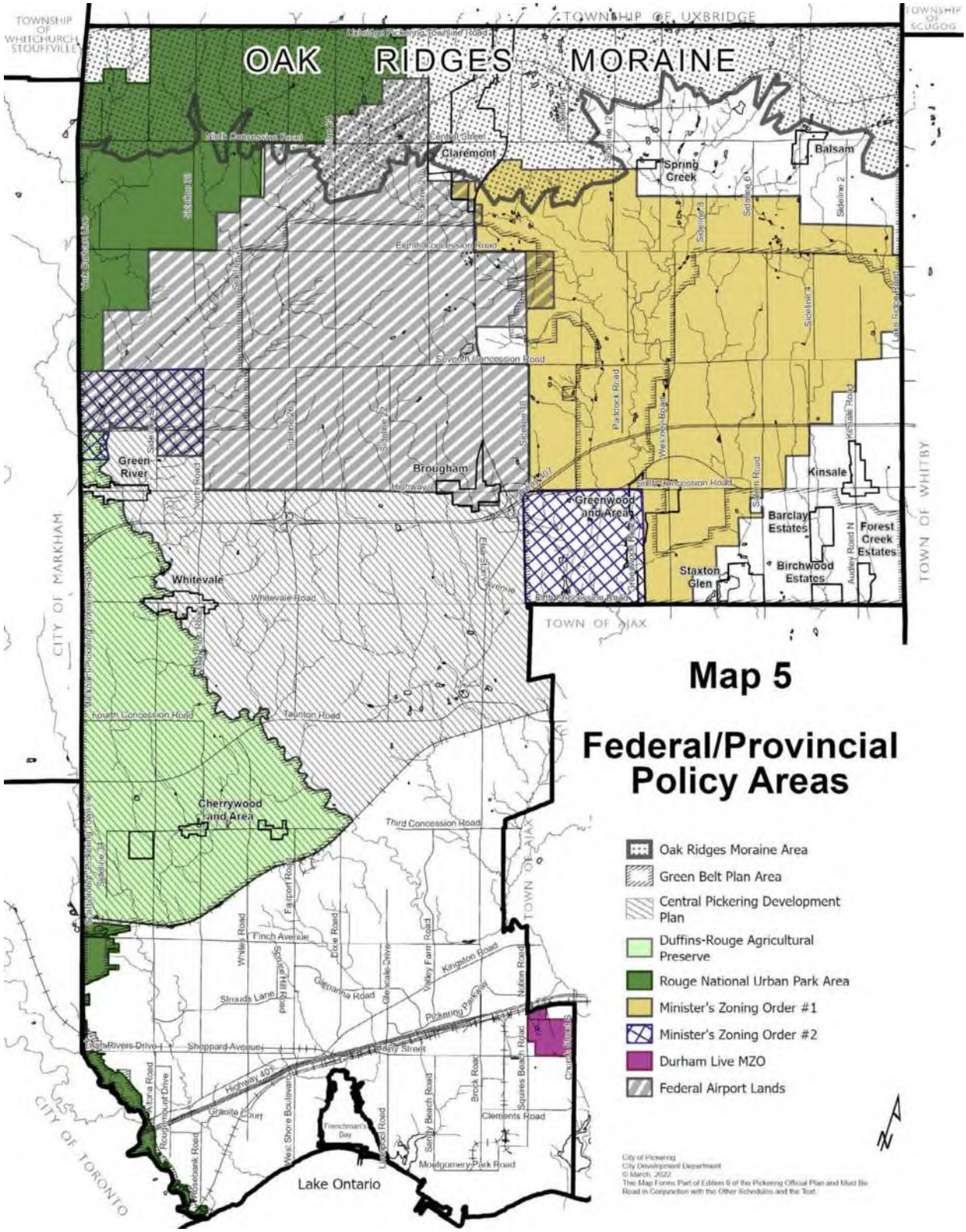
16	Lamoureaux	19	Wilson Meadows
17	Brock-Taunton	20	Thompson's Corners
18	Mount Pleasant	21	Innovation Corridor

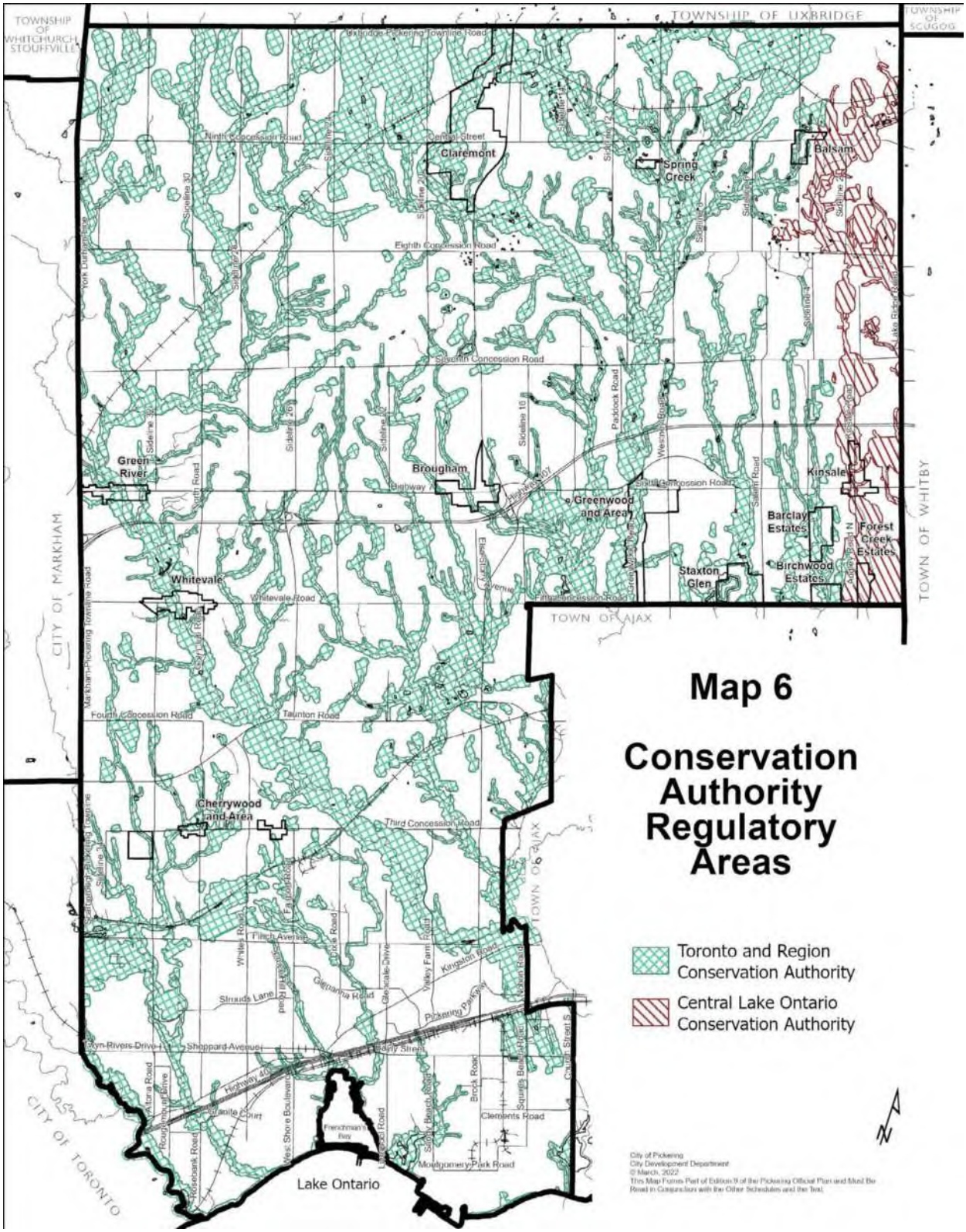
City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text

Map 4

Pickering's Rural System




OAK RIDGES MORAINE
TOWNSHIP OF UXBRIDGE
TOWNSHIP OF WHITCHURCH-STOUFFVILLE
TOWNSHIP OF SCUGOG
CITY OF MARKHAM
TOWN OF WHITBY
TOWN OF AJAX
CITY OF TORONTO
Claremont
Spring Creek
Balsam
Brougham
Green River
Whitevale
Greenwood and Area
Kinsale
Barclay Estates
Forest Creek Estates
Staxton Glen
Birchwood Estates
Cherrywood and Area
Lake Ontario
Map 5
Federal/Provincial Policy Areas
Oak Ridges Moraine Area
Green Belt Plan Area
Central Pickering Development Plan
Duffins-Rouge Agricultural Preserve
Rouge National Urban Park Area
Minister's Zoning Order #1
Minister's Zoning Order #2
Durham Live MZO
Federal Airport Lands
City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.


TOWNSHIP OF WHITCHURCH-STOUFFVILLE
TOWNSHIP OF UXBRIDGE
TOWNSHIP OF SCUGOG
Uxbridge-Pickering Townline Road
Ninth Concession Road
Central Street
Claremont
Spring Creek
Balsam
Eighth Concession Road
Seventh Concession Road
Green River
Brougham
Greenwood and Area
Kinsale
Salem Road
Barclay Estates
Forest Creek Estates
Staxton Glen
Birchwood Estates
Whitevale
Whitevale Road
Fourth Concession Road
Taunton Road
Cherrywood and Area
Third Concession Road
Finch Avenue
Kingston Road
Pickering Parkway
Glenanna Road
Struuds Lane
Sheppard Avenue
Highway 401
Bayly Street
Clements Road
Montgomery Park Road
Lake Ontario
CITY OF MARKHAM
CITY OF TORONTO
TOWN OF AJAX
TOWN OF WHITBY
Map 6
Conservation Authority Regulatory Areas
Toronto and Region Conservation Authority
Central Lake Ontario Conservation Authority
City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Part 2:
Strategic Policies

This page intentionally left blank.

Chapter 3 - Land Use

The land use strategy set out in this Chapter is derived from the planning principles, goals and policies of Part 1. An integrated set of land use designations are established that address the existing and future needs of the City's urban, rural and ecological systems in a balanced way.

The land use strategy involves 12 primary land use categories. Subcategories are established where more detailed land use classification is needed. Subcategories are distinguished primarily on the basis of the level or intensity to which an area is designed or intended to be used (i.e., the "intensity of use" expected in an area). As well, some subcategories are determined on the basis of location and/or function.

Primary Land Use Categories

- **Open Space System**
- **Mixed Use Areas**
- **Regional Nodes**
- **Employment Areas**
- **Urban Residential Areas**
- **Rural Settlements**
- **Freeways and Major Utilities**
- **Prime Agricultural Areas**
- **Oak Ridges Moraine Countryside Areas**
- **Hamlet Heritage Open Space**
- **Proposed Airport Site**
- **Study Areas**

Where required, additional land use policies for the urban neighbourhoods and rural settlements are provided in Part 3 of this Plan (see Chapters 12 and 13).

The City's land use strategy provides for a compact urban area in southern Pickering and in Seaton and a large rural and open space area in west-central and northern Pickering as well as lands owned by the federal government for a proposed airport if one is developed or other alternative uses if no airport is developed. This strategy is intended to promote land and resource conservation; enhance community diversity; minimize long-term infrastructure, transportation, energy and servicing costs, promote development that is designed to be sustainable, and improve the overall quality of life in the community. The land use strategy is supported by various transportation, economic, housing, community services, heritage, community design and resource management strategies (see Chapters 4 through 10).

The Land Use Structure is illustrated on Schedule I and is provided at the back of this Plan. For convenience and legibility, the Land Use Structure is shown in colour on three separate sheets covering south, northwest and northeast Pickering.

City Policy
Land Use Goal

3.1 City Council shall promote an efficient and integrated land use strategy that protects and enhances Pickering's rural and ecological systems for existing and future generations, and leads to a more complete, compact and liveable urban system.

City Policy
Land Use Objectives

3.2 City Council shall:

(a) establish appropriate land use designations and policies for all lands in the City;

(b) promote Kingston Road as the City's "mainstreet";

(c) promote the City Centre as the City's main focus for business, employment, entertainment, shopping, major community and cultural uses, major indoor recreational facilities, high density residential accommodation, and as an Anchor Mobility Hub for integrated transit service including GO transit, regional rapid transit and local bus service;

(d) promote a land use pattern in urban areas in support of compact urban form, active transportation, placemaking, public transit and energy conservation;

(e) while maintaining the character of stable residential neighbourhoods, increase the variety and intensity of land uses and activities in the urban area, particularly on lands designated Mixed Use Areas, and Employment Areas;

Metrolinx's Regional Transportation Plan identifies the City Centre as an Anchor Mobility Hub - a major transit station area that includes the Pickering GO Station and bus bays for Durham Transit, and which is recognized and planned as a place of connectivity between regional and rapid transit services and where different modes of transportation come together.

(f) while maintaining rural character and preserving agricultural land, increase the variety and intensity of land uses and activities in the rural area, particularly in Rural Hamlets;

(g) protect the significant and sensitive natural resources within and outside the City's Natural Heritage System from inappropriate land uses and activities; and

(h) involve residents, business-people, landowners, relevant public agencies, and other interested groups and individuals in land use decisions affecting the City.

City Policy
Land Use Categories and Policies

3.3 City Council shall use the land use categories and criteria set out in Table 2 to this Plan for designating land uses and establishing land use policies, and where appropriate may establish additional land use policies for neighbourhoods and settlements in Part 3 of this Plan.

City Policy
Land Use Definitions

3.4 For the purpose of this Plan, City Council shall define:

(a) "net residential density" as the total number of dwellings per hectare of net residential site area, and shall not consider accessory dwelling units as dwelling units for the purpose of calculating density;

(b) "net residential site area" as the total area of land within a development proposal that is designated for residential and ancillary purposes by this Plan, which:

(i) for draft plans of subdivision, includes the total residentially-designated area of all residential lots in the plan, but excludes public roads and widenings, public parks, non-developable land, school sites and similar public land areas;

(c) "floorspace index (FSI)" as the total floorspace of all buildings on a lot divided by the total area of the lot; and

(d) "gross leasable floorspace for the retailing of goods and services" as the total floorspace leased for all retail land uses, including retail stores, department stores, food stores and supermarkets, professional offices, financial institutions, restaurants and taverns, furniture and major appliance sales, special purpose commercial uses, and storage areas.

City Policy
Table 2: Land Use Categories
and Subcategories

Table 2		
Land Use Category	**Criteria for Determining Subcategories**	**Land Use Subcategories**
Open Space System	**The area's ability to withstand human activity without impairing significant ecological functions or endangering human life/property and locations within the Oak Ridges Moraine** **Natural Linkage and Core Areas and the Greenbelt Natural Heritage System, and the Natural Heritage System outside the Oak Ridges Moraine and the Greenbelt Plan.**	**Natural Areas** **Active Recreational Areas** **Marina Areas** **Oak Ridges Moraine Natural Core Areas** **Oak Ridges Moraine Natural Linkage Areas** **Seaton Natural Heritage System**
Mixed Use Areas	**The location, scale and relative number of people served by the Mixed Use Area**	**Local Nodes** **Community Nodes** **Mixed Corridors** **Specialty Retailing Node** **City Centre**
Employment Areas	**The intended mix of uses, operational requirements, and design/performance standards of the area**	**General Employment** **Prestige Employment** **Mixed Employment**
Urban Residential Areas	**The minimum and maximum number of residential dwellings permissible in the area**	**Low Density Areas** **Medium Density Areas** **High Density Areas**
Rural Settlements	**The relative size, mix of uses, and character of the settlement and locations within the Oak Ridges Moraine**	**Country Residential** **Rural Clusters** **Rural Hamlets** **Oak Ridges Moraine Rural Hamlets**
Freeways and Major Utilities	**The opportunity to accommodate additional uses or activities in the area**	**Potential Multi-Use Areas** **Controlled Access Areas**

Table 2		
Land Use Category	**Criteria for Determining Subcategories**	**Land Use Subcategories**
Prime Agricultural Areas	**Areas where prime agricultural lands predominate. Prime agricultural lands include specialty crop areas and/or Canada Land Inventory Classes 1, 2 and 3 lands, in this order of priority for protection. Prime Agricultural Areas also include Canada Land Inventory Class 4 through 7 lands, and additional areas where there is a local concentration of farms which exhibit characteristics of ongoing agriculture.**	**Prime Agricultural Areas**
Oak Ridges Moraine Countryside Areas	**not applicable**	**no subcategories**
Hamlet Heritage Open Space	**not applicable**	**no subcategories**
Proposed Airport Site	**not applicable**	**no subcategories**
Study Areas	**The location of the area, either urban or rural**	**Urban Study Areas** **Rural Study Areas**

Open Space System

The Open Space System is Pickering's "greenspace", important not only for its role in maintaining ecological health, including maintaining and, where possible, improving the ecological and hydrological integrity of the Natural Heritage System, but also in promoting physical, spiritual and mental health for the City's residents.

The Open Space System is derived from an analysis of the linked Open Space System established in the City's 1996 Official Plan. The analysis focused on an examination of information from available sources. The Open Space System includes a variety of key natural heritage and key hydrologic features including the Rouge-Duffins Wildlife Corridor, the Lake Iroquois shoreline, significant habitat of endangered species, threatened species and special concern species, the City's significant valleylands and stream corridors, shorelines, areas of natural and scientific interest, wetlands, significant woodlands, and significant wildlife and fish habitat. The Open Space System also includes major parks, recreational and conservation areas, and other major blocks of land that make up the City's natural core areas, corridors and linkages.

Certain lands designated as Open Space System may be privately owned, and therefore may not necessarily be open and accessible to the public.

Lands designated as part of the Open Space System are intended to be used primarily for conservation, restoration, environmental education, recreation, and ancillary purposes.

City Policy
Open Space System

3.5 City Council:

(a) shall recognize as Open Space System on Schedule I, a connected and integrated natural heritage system of significant valleylands and stream corridors; shorelines; areas of natural and scientific interest; wetlands; significant woodlands; major parks, recreational and conservation areas; marina areas, and other major blocks of land comprising natural core areas, corridors; Natural Core Areas and Natural Linkage Areas on the Oak Ridges Moraine; and the Seaton Natural Heritage System within the Central Pickering Development Plan;

(b) may zone lands designated Open Space System, for one or more purposes as set out in Table 3, in accordance with the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan where applicable, and in so doing will apply appropriate performance standards, restrictions and provisions;

(c) shall recognize that the Open Space System includes key natural heritage and key hydrologic features which have related minimum areas of influence and minimum vegetation protection zones (see Sections 16.42 and 16.51);

Areas designated as Oak Ridges Moraine Natural Core Areas on Schedule I are lands designated Natural Core Areas in the Oak Ridges Moraine Conservation Plan.

(d) shall recognize as Oak Ridges Moraine Natural Core Areas on Schedule I, in accordance with the Oak Ridges Moraine Conservation Plan, lands with a high concentration of key natural heritage features, key hydrologic features or landform conservation areas;

(e) shall recognize that the primary purpose of the Oak Ridges Moraine Natural Core Areas is to maintain and where possible, improve or restore the ecological integrity of the Moraine, and where possible, improve or restore the health, diversity and size of key natural heritage features, key hydrologic features and the related ecological functions;

(f) shall recognize that additional purposes and objectives for the Oak Ridges Moraine Natural Core Areas are also found in Sections 11(1) and (2) of the Oak Ridges Moraine Conservation Plan;

(g) within the Oak Ridges Moraine Natural Core Areas:

(i) every application for development or site alteration shall require permitted uses to be compatible with their surroundings and shall be subject to the Oak Ridges Moraine policies as set out in Chapter 16; and

(ii) shall require studies in accordance with the Oak Ridges Moraine Conservation Plan to support applications for development or site alteration, which identify planning, design and construction practices that ensure that no buildings or other site alterations impede the movement of plants and animals among key natural heritage features, key hydrologic features and adjacent lands within Natural Core Areas and Natural Linkage Areas;

"Ecological Integrity", which includes hydrological integrity, means the condition of the ecosystems in which:

(i) the structure, composition and function of the ecosystems are unimpaired by stresses from human activity;

(ii) natural ecological processes are intact and self-sustaining; and

(iii) the ecosystems evolve naturally.

(h) shall recognize as Oak Ridges Moraine Natural Linkage Areas on Schedule I, in accordance with the Oak Ridges Moraine Conservation Plan, lands identified as being part of a regional-scale open space corridor system that support or have the potential to support the movement of plants and animals among the Natural Core Areas, river valleys and stream corridors;

Areas designated as Oak Ridges Moraine Natural Linkage Areas on Schedule I are lands designated as Natural Linkage Areas in the Oak Ridges Moraine Conservation Plan.

(i) shall recognize that the primary purpose of the Oak Ridges Moraine Natural Linkage Areas is to maintain, and where possible, to improve or restore, the ecological integrity of the Moraine, and where possible, to improve or restore the open space linkages between Natural Core Areas and along river valleys and stream corridors;

(j) shall recognize additional purposes and objectives for the Oak Ridges Moraine Natural Linkage Areas are also found in Sections 12(1) and (2) of the Oak Ridges Moraine Conservation Plan;

(k) within the Oak Ridges Moraine Natural Linkage Areas:

(i) shall require permitted uses be compatible with their surroundings; and

(ii) will require that, within the Oak Ridges Moraine Natural Linkage Areas, every application for development or site alteration shall be supported by information which identifies planning, design and construction practices that ensure that no buildings or other site alterations impede the movement of plants and animals among key natural heritage features, key hydrologic features and adjacent lands within Natural Core Areas and Natural Linkage Areas; and

(l) shall recognize as part of the Open Space System the Seaton Natural Heritage System, additional policies for which are further set out under Sections 11.50 through 11.59.

City Policy
Table 3: Open Space System:
Permissible Uses by Subcategory

Table 3	
Open Space System Subcategory	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Natural Areas	**Conservation, environmental protection, restoration, education, passive recreation, and similar uses, subject to the provisions of the Regional Official Plan related to non-agricultural uses, and provided that development or site alteration may only be permitted in key natural heritage and/or key hydrologic features for the following purposes:** **(i) forest, fish and wildlife management;** **(ii) conservation and flood and erosion control and other similar environmental protection and restoration projects demonstrated to be necessary in the public interest and after all alternatives have been considered; and,** **(iii) minor recreational and education uses such as non-motorized trails, footbridges and picnic facilities;** **Existing lawful agricultural uses, agricultural-related uses, and on-farm diversified uses, new agricultural uses, agricultural-related uses and on-farm diversified uses outside key natural heritage and/or key hydrologic features, subject to the provisions in Section 16.51(f) of this Plan and outside Natural Areas in the Duffins-Rouge Agricultural Preserve Area;** **Agricultural uses that assist in the function of linkage corridors and their associated minimum vegetation protection zones, and the protection and restoration of Natural Areas;** **Existing lawful residential dwellings; a new residential dwelling on a vacant lot;** **Community gardens outside key natural heritage and/or key hydrologic features and their associated minimum vegetation protection zones;** **Existing, expanded or new infrastructure subject to and approved under the *Canadian Environmental Assessment Act*, the *Environmental Assessment Act*, the *Planning Act*, the *Telecommunications Act* or by the National or Ontario Energy Boards, or which receives similar environmental approval, and provided that the requirements of the Greenbelt Plan or the Central Pickering Development Plan be complied, where applicable;**

Table 3	
Open Space System Subcategory	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
	Stormwater management facilities and related works outside key natural heritage and/or key hydrologic features including any associated minimum vegetation protection zone, except for outfalls and related Low Impact Development (LID) works which may be in key natural heritage and/or key hydrologic features; **Small scale landscape industries, excluding the following:** • **mixing of paper bio-solids or sewage sludge for the purposes of manufacturing a product;** • **the manufacturing of garden supplies;** • **on-site retailing;** • **large-scale modification of terrain, vegetation or both; and** • **large-scale buildings or structures, and** **Small scale landscape industries shall only be considered by site specific amendment to the zoning by-law, in accordance with the applicable provisions of the Durham Regional Official Plan;** **Commercial Kennels, subject to the provisions of the Durham Regional Official Plan.**
Active Recreational Areas	**All uses permissible in Natural Areas;** **Active recreational, community and cultural uses, and other related uses, provided that where such uses are located within the Greenbelt Plan such uses adhere to the relevant Natural Heritage System and Recreational Use policies of the Greenbelt Plan.**
Marina Areas	**All uses permissible in Natural Areas and Active Recreational Areas;** **Marinas, yacht clubs and ancillary uses;** **Marina supportive uses, restaurants, limited retail uses; limited residential uses in conjunction with marinas and yacht clubs;** **Aquaculture and other related uses.**

Table 3	
Open Space System Subcategory	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Oak Ridges Moraine Natural Core Areas	**Fish, wildlife, and forest management;** **Conservation, environmental protection, restoration, low intensity recreational uses, and similar uses;** **Unserviced parks;** **Agricultural uses, including farm vacation homes, outside of valley and stream corridors, wetlands, environmentally significant areas, and areas of natural and scientific interest and the related minimum vegetation protection zone;** **Transportation, infrastructure, and utilities (but only if the need for the project has been demonstrated and there is no reasonable alternative);** **Existing lawful residential dwellings; a new residential dwelling on a vacant lot that was zoned as of November 15, 2001;** **Home businesses, home industries, and bed and breakfast establishments.**
Oak Ridges Moraine Natural Linkage Areas	**All uses permissible in the Oak Ridges Moraine Natural Core Areas;** **Mineral aggregate operations and wayside pits.**
Seaton Natural Heritage System	**Passive recreational uses including:** **(i) non-motorized trails, including chipped wood walking trails, boardwalks, cross-country skiing/snowshoeing trails, and paved, accessible multi-use trails;** **(ii) associated with trails and trailheads such as rest areas, benches, and play equipment, where they do not negatively impact on the natural hazards and natural features or functions of the Natural Heritage System;** **(iii) "fringe" lands associated with active recreational uses where the active use is located outside but immediately adjacent to the NHS such as lands associated with an actual soccer field, provided such "fringe" lands do not involve any structural facilities and do not impact on the natural hazards and natural features or functions of the Natural Heritage System; and** **(iv) lands that serve as unorganized play or picnicking areas or defined "off leash" dog areas, where they do not impact on the natural hazards and natural features and functions of the Natural Heritage System.** **Community gardens;** **Restorative, scientific and educational uses, including forest, fish and wildlife management activities, conservation projects and flood or erosion control projects, undertaken by or under the supervision of the appropriate public authority, provided such activities respect the sensitivity of these lands and environmental integrity is maintained or enhanced;**

Table 3	
Open Space System Subcategory	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
	Residential use of existing dwellings and built heritage resources; **Stormwater management facilities and related works provided they are not located in environmental features, such as wetlands and woodlots, and natural hazards and are set back a minimum of 10 metres (or greater as determined by the Master Environmental Servicing Plan (MESP)) from all natural heritage features and natural hazards except for outfalls or related Low Impact Development (LID) works;** **Minor grading to accommodate development adjacent to the Natural Heritage System provided that:** **(i) the extent of the grading in the Natural Heritage System is as minimal as possible to the satisfaction of the City in consultation with the owner of the Natural Heritage System;** **(ii) no grading occurs within any natural heritage features, and grading that does occur does not have significant negative impacts on the natural heritage features or functions within the Natural Heritage System;** **(iii) appropriate erosion and sediment control measures are installed prior to the commencement of any grading and are inspected regularly and are continuously maintained; and** **(iv) the duration of the grading activity in the Natural Heritage System is as limited as possible, and areas that are disturbed by grading are restored with appropriate planting similar to that existing prior to the grading activity.** **Infrastructure where required to serve the urban community, where the location is logical or no reasonable alternative exists. Efforts are to be made to minimize the footprint of the infrastructure use, to the extent possible, and demonstrate that there will be no significant negative impacts on the natural features within the Seaton Natural Heritage System or their ecological functions.**
Note: Where Prime Agricultural Areas are identified on lands designated Oak Ridges Moraine Natural Core Areas and Oak Ridges Moraine Natural Linkage Areas on Schedule I – Land Use Structure, all agricultural uses within the Prime Agricultural Areas designation listed in Table 11, are permissible.	

Mixed Use Areas

Mixed Use Areas are areas and corridors of development having the highest concentration of activity in the City and the broadest diversity of community services and facilities. Mixed Use Areas permit a wide variety of uses for residents, business-people and visitors, including residential, retail, commercial, business, office, service, recreational, community and cultural uses.

The Mixed Use Areas designation incorporates the hierarchy, function and design considerations specified for “centres and corridors” in the Durham Regional Official Plan, as indicated on Table 4. The broadest diversity of use, greatest levels of activity, and highest quality of design shall be directed to two Mixed Use Areas: the City Centre; and the Mixed Corridor along Kingston Road, the City’s mainstreet.

City Policy
Table 4: Relationship Between Regional Official Plan and Pickering Official Plan - Mixed Use Areas

Table 4	
Regional Plan Categorization	**Pickering Plan Designation**
Urban Growth Centres	**City Centre**
Community Centres	**Community Nodes**
Neighbourhood Centres	**Local Nodes**
Corridors	**Mixed Corridors**
	Specialty Retailing Nodes

The same uses would generally be permissible in all Mixed Use Areas, although some exceptions may apply. However, the scale and extent to which a use may be allowed, and the performance characteristics it may be required to meet, could differ between Local Nodes, Community Nodes, Mixed Corridors, and the City Centre.

To ensure the Mixed Use Areas are appropriately sized relative to the people and area intended to be served, minimum and maximum residential densities, maximum floorspace limits for the retailing of goods and services, and maximum building floor space indices are established for each of the subcategories.

City Policy
Mixed Use Areas

3.6 City Council:

(a) shall recognize as Mixed Use Areas on Schedule I, lands that have or are intended to have the widest variety of uses and highest levels of activities in the City;

(b) may zone lands designated Mixed Use Areas for one or more purposes as set out in Table 5, and in so doing will apply appropriate performance standards, restrictions and provisions, including those set out in Table 6;

(c) in establishing performance standards, restrictions and provisions for Mixed Use Areas, shall have particular regard to the following:

  (i) encouraging development in an integrated manner for a wide variety of uses and purposes; and
  (ii) encouraging intensification over time, up to the maximum net residential densities and maximum floorspace indices;

(d) despite Section 3.6(c)(ii) and Table 6, may limit net residential densities, floorspace indices, and gross leasable floorspace for the retailing of goods and services below the maximums set out in the Table:

  (i) to address concerns related to such matters as design, compatibility and scale of development; and
  (ii) in response to provisions specified in a Part 3 Neighbourhood Plan (Chapter 12);

(e) despite Section 3.6(c)(ii) and Table 6, may permit net residential densities and floorspace indices below the minimums set out in the Table, if it can be demonstrated to the City's satisfaction that the design, site layout, blocking, and/or phasing of the project can be intensified over time to achieve at least the minimum levels of intensity set out in the Table;

Development is controlled through the use of performance standards, restrictions and other provisions. Development controls generally fall into two categories:

(i) **specification controls** that spell out precisely how a property may be used or developed (e.g., a zoning by-law); and

(ii) **performance controls** that provide information on how a property must function or "perform" regardless of use (e.g., a noise by-law).

Both types of controls are needed to effectively regulate development.

(f) shall ensure Mixed Use Areas are designed and developed consistent with the community design provisions of this Plan (Chapters 9 and 14), and any development guidelines that may be established in a Part 3 Neighbourhood Plan (Chapter 12);

(g) within the Specialty Retailing Node:

  (i) prior to zoning for significant retail floor space, shall require the submission of a retail impact study justifying, to the City's satisfaction in consultation with the Region of Durham, that the addition of such floor space will not adversely affect the planned function of the City Centre, the Community Nodes, and nearby Main Central Areas in other municipalities in the Region;

  (ii) for lands north of Pickering Parkway, shall establish a minimum gross leasable floor area of 500 square metres for any permitted individual retail unit, except that up to an aggregate of 1,400 square metres of gross leasable floor area may be devoted for any permitted individual retail unit of less than 500 square metres of gross leasable floor area, but not less than 300 square metres of gross leasable floor area;

  (iii) for lands north of Pickering Parkway, shall establish a maximum aggregate gross leasable floor area of 55,000 square metres for all special purpose commercial uses permitted by Table 5;

  (iv) shall not permit an enclosed shopping centre or pedestrian mall; and

(h) for the purposes of Table 5, shall define "large format discount stores" to include a discount department store as defined by Statistics Canada, such as but not limited to Zellers and Walmart, engaged in general merchandising of a wide range of commodities and services which may include, but is not limited to, apparel, hardware and household goods, garden supplies, automotive supplies, leisure, pet and drug items and toys, but shall not include a major department store as defined by Statistics Canada, such as but not limited to, Eatons, Sears, and The Bay.

City Policy

Table 5: Mixed Use Areas:
Permissible Uses by Subcategory

Table 5	
Mixed Use Areas Subcategory	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Local Nodes	**Residential;** **Retailing of goods and services generally serving the needs of the surrounding neighbourhoods;** **Offices and restaurants;** **Community, cultural and recreational uses;** **Community gardens;** **Farmers' markets.**
Community Nodes	**Community gardens;** **Farmers' markets;** **All uses permissible in Local Nodes, at a larger scale and intensity, and serving a broader area.**
Mixed Corridors	**Community gardens;** **Farmers' markets;** **All uses permissible in Local Nodes and Community Nodes, at a scale and intensity equivalent to Community Nodes;** **Special purpose commercial uses.**

Table 5	
Mixed Use Areas Subcategory	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Specialty Retailing	**Hotels;** **Special Purpose Commercial uses such as: large format retailers (including large format food stores and large format discount stores); retail warehouses; membership clubs; theme and/or specialty retailers; automotive uses; and, ancillary retailing of other goods and services including restaurants;** **Limited offices;** **Community, cultural and recreational uses;** **Community gardens;** **Farmers' markets;** **Limited residential development at higher densities as an integral part of an overall development scheme.**
City Centre	**High density residential;** **Retailing of goods and services;** **Offices and restaurants;** **Hotels;** **Convention Centres;** **Community, cultural and recreational uses** **Community gardens;** **Farmers' markets.**

City Policy
Table 6: Mixed Use Areas: Densities and Floor Areas by Subcategory

Table 6			
Mixed Use Areas Subcategory	**Maximum and Minimum Net Residential Density (in dwellings per hectare)**	**Maximum Gross Leasable Floorspace for the Retailing of Goods and Services (in square metres)**	**Maximum Floorspace Index (total building floorspace divided by total lot area)**
Local Nodes	**over 30 and up to and including 80**	**up to and including 10,000**	**up to and including 2.0 FSI**
Community Nodes	**over 80 and up to and including 140**	**up to and including 20,000**	**up to and including 2.5 FSI**
Mixed Corridors	**over 30 and up to and including 140**	**determined by site-specific zoning**	**up to and including 2.5 FSI**
Specialty Retailing Node	**over 80 and up to and including 180**	**determined by site-specific zoning**	**up to and including 2.5 FSI**
City Centre	**over 80**	**up to and including 300,000**	**over 0.75 and up to and including 5.75**

City Policy
Regional Nodes

3.7 Section Revoked by Amendment 26

Employment Areas

Employment opportunities exist within most land use designations in Pickering. Nevertheless, areas with **significant concentrations** of manufacturing, assembly and warehousing uses, and related employment opportunities, are identified as Employment Areas. Two such areas are identified, one in western Pickering and one in eastern Pickering. Both are adjacent to and directly accessible from Highway 401.

Employment areas are classified according to their mix of uses, their operational characteristics, their design, and their performance requirements. Three employment subcategories are distinguished: general, prestige, and mixed employment.

City Policy
Employment Areas

3.8 City Council:

(a) shall recognize as Employment Areas on Schedule I, those areas in Pickering having a significant concentration of manufacturing, assembly, warehousing and/or related employment opportunities;

(b) may zone lands designated Employment Areas for one or more purposes as set out in Table 7, and in so doing will apply appropriate performance standards, restrictions and provisions; and

(c) shall require performance standards for site operation and appearance as follows:

(i) the highest standards in Mixed Employment areas, recognizing their highly visible and accessible locations along main arterial roads;

(ii) the next highest standards in Prestige Employment areas, recognizing their high visibility from major freeways and their proximity to residential areas; and

(iii) the next highest standards in General Employment areas.

City Policy
Table 7: Employment Areas:
Permissible Uses by Subcategory

Table 7	
Employment Areas Subcategory	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
General Employment	**Manufacturing, assembly, processing of goods, service industries, research and development facilities, warehousing, storage of goods and materials, waste transfer and recycling, waste processing, freight transfer, transportation facilities, automotive and vehicle sales and repair;** **Offices as a minor component of an industrial operation or serving the area, limited personal service uses serving the area, restaurants serving the area, retail sales as a minor component of an industrial operation;** **Community, cultural and recreational uses, and other uses with similar performance characteristics that are more appropriately located in the employment area.**
Prestige Employment	**Light manufacturing, assembly and processing of goods, light service industries, research and development facilities, warehousing, equipment and vehicle suppliers, automotive and vehicle sales and repair;** **Offices, corporate office business parks, limited personal service uses serving the area, restaurants serving the area, retail sales as a minor component of an industrial operation, hotels, financial institutions serving the area;** **Community, cultural and recreational uses, and other uses with similar performance characteristics that are more appropriately located in the employment area.**
Mixed Employment	**All uses permissible in prestige employment areas;** **Limited retailing of goods and services serving the area.**

Urban Residential Areas

Urban residential areas are to be used primarily for housing and related uses, including home occupations and group homes. To ensure that these areas provide an appropriate degree of neighbourhood and community services, other uses are also permissible, including, schools, parks, libraries, places of worship, limited office development, limited retailing of goods and services, limited employment uses, and limited special purpose commercial uses.

Urban residential areas are differentiated on the basis of net residential density (the number of residential dwellings per net residential hectare). Low, medium and high density areas are distinguished. Most of the residential areas in south Pickering are designated low density. Medium and high density areas are established in selected locations, usually close to Mixed Use Areas.

Density is calculated by dividing the total number of dwellings on the lot by the area of the lot (only that portion of the lot which has a designation that permits residential development may be included). Therefore, on a given parcel of land, so long as the same number of units are proposed, the density would be the same regardless of whether those units are stacked vertically in a high-rise, or attached horizontally in a low-rise. High density therefore does not necessarily mean high-rise.

City Policy
Urban Residential Areas

3.9 City Council:

(a) shall recognize as Urban Residential Areas on Schedule I, those areas in the City intended primarily for housing and related uses and activities, including group homes and home occupations;

(b) may zone lands designated Urban Residential Areas for one or more purposes as set out in Table 8, and in so doing will apply appropriate performance standards, restrictions and provisions, including those set out in Table 9;

(c) in establishing performance standards, restrictions and provisions for Urban Residential Areas, shall have particular regard to the following:

(i) protecting and enhancing the character of established neighbourhoods, considering such matters as building height, yard setback, lot coverage, access to sunlight, parking provisions and traffic implications;

(ii) restricting net residential densities to less than the maximums set out in Table 9 in response to provisions specified in a Part 3 Neighbourhood Plan (Chapter 12), or where neighbourhood character and/or environmental constraints warrant; and

Density, by itself, does not control housing form. Housing form is controlled by other land use and design policies of this Plan, including the adjacent policy requiring that City Council establish performance standards, restrictions and provisions to protect and enhance the "character of established neighbourhoods". Other policies that will act to influence housing form are found throughout the Plan, particularly in Chapters 14 and 16.

(iii) **restricting the size, height and/or floorspace of non-residential developments in response to provisions specified in a Part 3 Neighbourhood Plan (Chapter 12), to prevent excessive commercial development, or where neighbourhood character and/or environmental constraints warrant;**

(d) **despite Section 3.9(b) and Table 9, may limit residential densities below the minimums set out in the Table, if it can be demonstrated to the City's satisfaction that the design, site layout, blocking, and/or phasing of the project can be intensified over time to achieve at least the minimum levels of intensity set out in the Table; and**

City Policy
Table 8: Urban Residential Areas:
Permissible Uses

Table 8	
Designation	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Urban Residential Areas	**Residential uses, home occupations, limited offices serving the area, and limited retailing of goods and services serving the area;** **Community, cultural and recreational uses;** **Community gardens;** **Farmers' markets;** **Compatible employment uses, and compatible special purpose commercial uses serving the area.**

City Policy
Table 9: Urban Residential Areas:
Residential Density Ranges
By Subcategory

Table 9	
Residential Area Subcategory	**Maximum and Minimum Net Residential Density (in dwellings per net hectare)**
Low Density Area	**up to and including 30**
Medium Density Area	**over 30 and up to and including 80**
High Density Area	**over 80 and up to and including 140**

(e) prior to zoning those Low Density Residential lands located west of Valley Farm Road but above the floodline, between the two hydro corridors, for permissible uses set out in Table 8, shall in consultation with relevant agencies, be satisfied with the proposal's:

- **(i) compatibility with the adjacent open space valley;**
- **(ii) protection of the ecological features and functions of the stream corridor and the environmentally significant area;**
- **(iii) protection of life and property from flood risk;**
- **(iv) servicing of the lands;**
- **(v) access to the lands; and**
- **(vi) compliance with any other relevant matters specified in this Plan.**

Rural Settlements

Rural settlements are recognized concentrations of rural housing and related uses. In Pickering, there are four types of rural settlements, differentiated by their size, characteristics, and location: country residential, rural clusters, rural hamlets and Oak Ridges Moraine rural hamlets.

Typically, country residential developments are large lot residential subdivisions with an internal road network. They are relatively new developments with large dwellings and large building setbacks. Once established, they cannot exceed the maximum number of residential lots approved. No new country residential settlements will be permitted.

Rural clusters are groupings of residential dwellings developed along or beside existing rural roads. They are usually visible from these roads, and may contain some non-residential uses. Rural clusters vary in size and are often either beside or adjacent to rural hamlets. Once established, rural clusters usually provide only very minor opportunity for additional residential development through infill development. No new residential clusters will be permitted.

Rural hamlets and Oak Ridges Moraine rural hamlets are historic settlements, and they are usually much more diversified than either country residential subdivisions or rural clusters. Although they are predominantly residential, they often contain a number of other land uses and activities, including commercial, community, cultural and recreational opportunities. Rural hamlets are often the service and social centres of the surrounding rural area, and the primary focus for limited new rural growth and development (both for residential and other complementary and support facilities).

Pickering's Hamlets

- **Cherrywood**
- **Whitevale**
- **Green River**
- **Brougham**
- **Greenwood**
- **Kinsale**
- **Claremont**
- **Balsam**

Pickering's Clusters

- **Cherrywood East**
- **Cherrywood West**
- **Greenwood Cluster**

Pickering's Country Residential Subdivisions

- **Staxton Glen**
- **Barclay Estates**
- **Birchwood Estates**
- **Spring Creek**
- **Forest Creek Estates**

City Policy
Rural Settlements

3.10 City Council:

(a) shall recognize as Rural Settlements on Schedule I, those areas in the City having or intended to have significant concentrations of rural housing;

(b) shall distinguish different types of Rural Settlements on Schedule I based on the development and growth characteristics set out in Table 10; and

(c) shall zone lands designated Rural Settlements in accordance with the provisions specified in a respective Part 3 Rural Settlement Plan (Chapter 13).

City Policy
Table 10: Rural Settlements: Development and Growth Characteristics by Subcategory

Table 10	
Rural Settlements Subcategory	**Development and Growth Characteristics**
Country Residential	**Large lot residential subdivisions located mainly on an internal road which do not exceed the maximum approved number of residential lots. No new country residential settlements will be permitted.**
Rural Clusters	**Distinct groupings of non-farm residential development, usually along or beside an existing road, which may also include existing community, cultural and recreational uses;** **Growth potential limited to infilling within the established cluster boundary, subject to the provisions of the Regional Official Plan, except that for Rural Clusters within the Duffins-Rouge Agricultural Preserve growth potential is limited to development on existing vacant lots. No new residential clusters will be permitted.**
Rural Hamlets	**Settlements with historic roots as social and service centres for the surrounding area, permitting a variety of uses including residential, employment, commercial, community, cultural and recreational uses;** **Primary focus for limited growth and development in the rural area (both residential and other complementary and support facilities) within the existing hamlet boundary.**
Oak Ridges Moraine Rural Hamlets	**Settlements located on the Oak Ridges Moraine with historic roots as social and service centres for the surrounding area, permitting a variety of uses including residential, employment, commercial, community, cultural and recreational uses;** **Growth potential limited to redevelopment and infilling.**

Prime Agricultural Areas and Oak Ridges Moraine Countryside Areas

Prime Agricultural Areas and Oak Ridges Moraine Countryside Areas recognize those lands in Pickering where the agricultural land base is intended for long-term protection, for existing and future generations. These lands generally contain Classes 1 - 3 soils as defined by the Canada Land Inventory Soil Capability for Agriculture. They also include areas of lesser agricultural significance (Canada Land Inventory Classes 4-7 soils) and additional areas where there is a local concentration of farms which exhibit characteristics of ongoing agriculture.

In these areas, primary agricultural uses are permissible, such as the growing of crops and the raising of animals. On-farm diversified uses such as home occupations and agri-tourism uses such as bed and breakfast establishments and farm tours that are directly related and devoted to the existing farm operation, are also permissible.

Agricultural-related uses that are complementary and supportive a farming operation, such as cottage wineries, riding schools and horse shows are also permissible.

Non-agricultural uses will be limited to forest, fish and wildlife management, conservation, infrastructure and existing uses.

Prime Agricultural Areas within the Duffins-Rouge Agricultural Preserve Area may be used by colleges and universities for agricultural research purposes.

City Policy
Prime Agricultural Areas and Oak Ridges Moraine
Countryside Areas: Permissible Uses

3.11 City Council:

(a) shall recognize as Prime Agricultural Areas on Schedule I, those areas in the City where agricultural land is intended for long-term protection for existing and future generations. These consist of areas where prime agricultural lands predominate. They also include areas of lesser agricultural significance and additional areas where there is a local concentration of farms which exhibit characteristics of ongoing agriculture; accordingly, City Council:

(i) discourages fragmentation of the agricultural land base;

(ii) encourages the consolidation of agricultural parcels; and

(iii) prohibits the intrusion of urban land uses into Prime Agricultural Areas;

(b) shall zone lands designated Prime Agricultural Areas to permit primary agricultural uses as set out in Table 11, in accordance with the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan where applicable, and in so doing will apply appropriate performance standards, restrictions and provisions including, where applicable, compliance with the Minimum Distance Separation Formulae as amended from time to time in accordance with Sections 16.6 and 16.40;

(c) may also zone lands designated Prime Agricultural Areas for certain agriculture-related uses, on-farm diversified agricultural uses and limited non-agricultural uses as set out in Table 11, in accordance with the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan where applicable, and in so doing will apply additional appropriate performance standards, restrictions and provisions including, where applicable, compliance with the Minimum Distance Separation Formulae as amended from time to time in accordance with Sections 16.6 and 16.40;

(d) notwithstanding Subsections 3.11 (b) and (c), shall for Prime Agricultural Lands within the Duffins Rouge Agricultural Preserve Area, require conformity with the relevant policies of the Central Pickering Development Plan;

(e) shall recognize the Oak Ridges Moraine Countryside Areas on Schedule I, in accordance with the Oak Ridges Moraine Conservation Plan, by:

- **(i) protecting prime agricultural areas;**
- **(ii) providing for the continuation of agricultural and other rural land uses and normal farm practices;**
- **(iii) maintaining the rural character of the Oak Ridges Moraine rural hamlets; and**
- **(iv) accommodating a trail system through the Oak Ridges Moraine with connections to other trail systems and additional objectives as identified in Section 13(2) of the Oak Ridges Moraine Conservation Plan;**

(f) despite Table 11, on lands designated Oak Ridges Moraine Countryside Areas may permit a second dwelling that is temporary, mobile or portable unit provided the applicant demonstrates that:

- **(i) the dwelling is required to house help that is needed on the farm operation on a seasonal or full-time basis;**
- **(ii) the dwelling does not require a consent under Section 50 or 53 of the *Planning Act*;**
- **(iii) the dwelling will not adversely affect the ecological integrity of the Oak Ridges Moraine; and**
- **(iv) the severance of such a dwelling shall not be permitted;**

Lands designated as Oak Ridges Moraine Countryside Areas on Schedule I are prime agricultural lands within the Oak Ridges Moraine Conservation Plan.

(g) despite Table 11, on lands, designated Oak Ridges Moraine Countryside Areas, shall not permit unserviced parks on prime agricultural areas as set out in the Durham Regional Official Plan;

(h) prohibit major recreational uses on areas designated for agricultural use in accordance with the policies of the Oak Ridges Moraine Conservation Plan;

(i) shall consider lot creation in the Oak Ridges Moraine Countryside Areas designation in accordance with Section 16.26 of this Plan; and

(j) for lands within the Prime Agricultural Area, consider a severance in accordance with the policies of the Durham Regional Official Plan.

City Policy
Table 11: Prime Agricultural Areas and
Oak Ridges Moraine Countryside Areas:
Permissible Uses

Table 11	
Designation	**Permissible Uses** **(Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Prime Agricultural Areas	**Primary agricultural uses** such as: Growing crops, including nursery, biomass, and horticultural crops, normal farm practices and community gardens; Raising livestock; Value-retaining facilities that involve a minimal amount of processing to make product saleable, but not including facilities for wholesale product transformation or retail-oriented packaging; Raising animals for food, fur or fibre, including poultry and fish; Aquaculture, apiaries, agro-forestry, horse riding and boarding stables, sod farms, and maple syrup production; Associated on-farm buildings and structures; Farm related residential dwellings, provided that it be used to accommodate labourers within the farm building cluster when the size and nature of the operation requires additional employment; Existing lawful residential dwellings; A new residential dwelling on a vacant lot, provided that within the Greenbelt Plan Area the lot was zoned as of December 16, 2004, and within the Duffins Rouge Agricultural Preserve Area the vacant lot existed on May 3, 2006. **Agricultural – related uses** that are exclusively devoted to the farm operation and to serving the farm operations in the area, support agriculture, benefit from being in close proximity to farm operations, and provide direct products and/or service to farm operations as a primary activity, such as: Grain drying, storage of farm produce, and processing and packing operations for agricultural products; Cottage wineries; Farmers' markets or farm gate sales and retail stands for the sale of agricultural products produced from the farm upon which the sales is operated; Horse shows and riding schools; and Auctions of farm produce, livestock and equipment.

Table 11	
Designation	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
	On-Farm Diversified uses, that are secondary to the principal agricultural use of the property, and are limited in area and scale, such as: Home businesses/occupations; Home Industries; Agri-tourism uses such as bed and breakfast establishments, farm vacation homes, and farm tours, provided such uses are directly related and exclusively devoted to the existing farm operation. **Non-agricultural uses**, subject to the provisions of the Durham Regional Official Plan related to non-agricultural uses, and limited to: Forest, fish and wildlife management; Conservation; Extraction of mineral aggregate resources, subject to the provisions of the Provincial Policy Statement, 2014; Infrastructure, subject to Section 16.6 of this Plan, provided that in the Duffins-Rouge Agricultural Preserve Area infrastructure shall be subject to the policies of the Central Pickering Development Plan, and infrastructure within the Greenbelt Plan shall be subject to the relevant policies of this Plan and the Greenbelt Plan; Existing, lawful uses; For lands within the Duffins-Rouge Agricultural Preserve Area (see Map 5) agricultural research by colleges and universities, provided that the research use does not jeopardize the integrity of the agricultural lands.

Table 11	
Designation	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Oak Ridges Moraine Countryside Areas	**Primary agricultural uses** such as: Growing crops, including nursery and horticultural crops; Raising livestock and other animals, including poultry and fish; Aquaculture, agro-forestry, maple syrup production; Animal agriculture; Farm-related residential dwellings, existing lawful residential dwellings, a new residential dwelling on a vacant lot that was zoned as of November 15, 2001; **Complementary and supportive agricultural uses** such as: Home businesses; Farm-related businesses producing agricultural products from farm operations, such as value-added processing and packing operations of agricultural products, roadside produce stands retailing products from the farming operation, farm vacations as part of a farming operation, and cottage wineries producing produce from local farming operations; Other agriculture-related uses. **Other uses** such as: Fish, wildlife and forest management; Conservation, environmental protection, restoration, low intensity recreational uses, and similar uses; Transportation, infrastructure, and utilities (but only if the need for the project has been demonstrated and there is no reasonable alternative); Home industries; Bed and breakfast establishments; Low-intensity recreational uses; Mineral aggregate operations and wayside pits.
Note: Where Prime Agricultural Areas are identified on lands designated "Oak Ridges Moraine Countryside Areas" on Schedule I – Land Use Structure, all agricultural uses within the "Prime Agricultural Areas" designation, are permissible.	

Freeways and Major Utilities

The Freeways and Major Utilities category recognizes those areas in Pickering where significant, above-ground public infrastructure either exists or is planned, including controlled access freeways, major public facilities, and high voltage hydro transmission corridors.

In addition, there are a great number of other public facilities and utilities in the City that may be located as ancillary and supportive uses within any land use category, including roads (other than controlled access areas), rail lines, pipelines, low voltage hydro transmission corridors and substations, telecommunications facilities, and municipal buildings and facilities (such as civic and recreation centres, libraries, fire halls, police stations, ambulance stations, post offices, works depots, stormwater management facilities and structures, and other public buildings and facilities).

Because of their nature and extent, some lands within the Freeways and Major Utilities category may be used only for freeway or major utility purposes. These lands are identified as “Controlled Access Areas”. However, some Freeways and Major Utilities lands (identified as “Potential Multi-Use Areas”) may also be used in certain circumstances for certain non-utility purposes.

Potential Multi-Use Areas are associated with the City’s high voltage hydro transmission corridors, and the Brock West Landfill site (which currently also supports an electrical power generating plant using recovered methane). The landfill site has reached its capacity for accepting waste, is closed and is to be rehabilitated for community open space and/or recreational purposes.

City Policy
Freeways and Major Utilities

3.12 City Council:

(a) shall recognize as Freeways and Major Utilities on Schedule I, those areas in the City where significant, above-ground public infrastructure either exists or is planned;

(b) may zone lands designated Freeways and Major Utilities for appropriate utility and related purposes and activities as set out in Table 12;

(c) despite (b), shall recognize that provincial highways are not subject to municipal zoning controls;

(d) despite the permissible uses set out in Table 12, shall require the rehabilitation of the Brock West Landfill site for appropriate community open space and/or recreational purposes;

(e) shall encourage the expansion or construction of Freeways and Major Utilities to avoid key natural heritage or key hydrologic features in order to preserve the Natural Heritage System, whenever possible;

(f) shall require that the expansion or construction of Freeways and Major Utilities within or through key natural heritage or hydrologic features:

(i) outside the Oak Ridges Moraine identified on Schedule IIIB or IIIC, adhere to the policies of the Greenbelt Plan and the policies of this Plan, where applicable; and

(ii) inside the Oak Ridges Moraine identified on Schedule IIIB or IIIC, adhere to the policies of the Oak Ridges Moraine Conservation Plan and the policies of this plan (see Section 16.46); and

(g) notwithstanding Section 3.12 (f)(i), shall where infrastructure does cross the Natural Heritage System or intrude into or result in the loss of key natural heritage or key hydrologic features, encourage planning, design, and construction practices to minimize negative impacts and disturbance on the features or their related functions, and where reasonable, maintain or improve connectivity and wildlife movement through mitigation and compensation measures.

City Policy

Table 12: Freeways and Major Utilities:
Permissible Uses by Subcategory

Table 12	
Freeways and Major Utilities Subcategory	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Potential Multi-Use Areas	**Community gardens;** **Farmers' markets;** **Utility[1] and ancillary uses, provided that the design of such uses shall be encouraged to assist in the function of linkage corridors, particular within the Rouge-Duffins Wildlife Corridor, and protect and restore the Natural Heritage System where feasible;** **Public or private uses that are compatible with adjacent land uses, comply with the goals, policies and general intent of this Plan, and do not adversely affect the operation or use of the utility.**
Controlled Access Areas	**Community gardens;** **Farmers' markets;** **Freeways and utility uses, ancillary uses, and similar or related public or private uses.**
[1] The term "utility" includes hydro corridors and electricity generation facilities and transmission and distribution systems	

Hamlet Heritage Open Space

The Hamlet Heritage Open Space is a designation within the Seaton Urban Area, which partially surrounds the hamlets of Whitevale and Green River. It is intended to provide a buffer between urban development and the hamlets.

City Policy
Hamlet Heritage Open Space

3.13 City Council:

(a) recognizes the Whitevale Hamlet as a significant cultural heritage asset to the City and recognizes Green River as a rural hamlet and permits a range of uses, as set out in Table 13, that can serve as a buffer and transition to these Hamlets;

(b) shall require the land uses within the Hamlet Heritage Open Space designation to demonstrate appropriate traditional design and compatibility with the area's existing character, where appropriate; and

(c) shall, where illuminated outdoor recreational facilities are located in the Hamlet Heritage Open Space, require adequate buffering to adjacent homes and require lighting to be directed downwards and away from the Hamlet.

The Hamlet of Whitevale shall be buffered through a heritage open space transition area, but it should also be integrated with and not "walled off" from the surrounding new neighbourhood of Mount Pleasant. The Hamlet Heritage Open Space Area can provide for social and recreational facilities and programs, which can integrate residents of Whitevale and Neighbourhood 18: Mount Pleasant.

City Policy
Table 13: Hamlet Heritage Open Space: Permissible Uses

Table 13	
Designation	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Hamlet Heritage Open Space	**A range of social, institutional, open space and recreational uses that demonstrate appropriate transitional design and compatibility with the area's existing character;** **Renewable energy systems; and** **Community gardens.**

Proposed Airport Site

A Proposed Airport Site is identified as an overlay on Schedule I to this Plan in order to protect for a possible airport, should it be determined by others, in consultation with the City, that such an airport is required in the future.

Until a decision is made on developing an airport, uses permissible in this area include primary agricultural, on-farm diversified uses, agricultural-related uses that are complementary and supportive to a farm operation, conservation, environmental protection, restoration, passive recreation, and existing lawful uses.

City Policy
Proposed Airport Site

3.14 City Council:

(a) shall recognize as Proposed Airport Site on Schedule I, lands immediately north of the Seaton Urban Area; and

(b) until a decision is made on developing an airport, may zone lands identified as Proposed Airport Site for one or more purposes as set out in Table 14.

City Policy
Table 14: Proposed Airport Site:
Permissible Uses

Table 14	
Freeways and Major Utilities Subcategory	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Proposed Airport Site	**Conservation, environmental protection, passive recreation, restoration, education, and similar uses;** **Agricultural uses, and accessory buildings and structures, including one single detached dwelling used in connection with the agricultural operation;** **Existing lawful uses.**

Study Areas

The Urban Study Areas category recognizes lands in the City where further study is required before land uses can be designated. Only interim uses are permissible, until completion of the required studies.

Rural Study Areas are to consider the possibility of minor hamlet expansion or to confirm the appropriateness of the land use designations. Until the studies are done, uses are permissible as outlined by the respective land use designations.

City Policy
Study Areas

3.15 City Council:

(a) shall recognize as Study Areas on Schedule I:

(i) those areas in urban Pickering where further study is needed prior to determining specific land use designations and policies; and

(ii) those areas in rural Pickering where further study is needed to confirm the appropriateness of the land use designations or minor expansions to hamlets;

(b) shall undertake the required studies cooperatively with relevant landowners and agencies, in consultation with area residents and other relevant groups; and

(c) may zone lands designated Urban Study Areas, or lands located within the boundaries of the Rural Study Areas, for one or more purposes as set out in Table 15.

City Policy
Table 15: Study Areas:
Permissible Uses by Subcategory

Table 15	
Study Areas Subcategory	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Urban Study Areas	**Conservation, environmental protection, restoration, education, passive recreation, and similar uses;** **Community gardens and farmers' markets;** **Existing lawful uses.**
Rural Study Areas	**Inside the Settlement Boundary: Uses permissible as set out in the respective Part 3 Rural Settlement Plan (Chapter 13);** **Outside the Settlement Boundary: Uses permissible as set out by the respective land use designations on Schedule I.**

City Policy
Urban Study Areas:
Old Dunbarton School

3.16 Section Revoked by Amendment 10

City Policy
Urban Study Areas:
Notion Road Industrial Area

3.17 Section Revoked by Amendment 7

City Policy
Urban Study Areas:
Whites Road North Area

3.18 Section Revoked by Amendment 27

City Policy
Rural Study Areas
(Hamlet Expansions)

3.19 City Council shall recognize a Rural Study Area on Schedule I, lands surrounding the Hamlet of Greenwood, and:

(a) may, in accordance with Section 2.27, consider eliminating the Study Area boundary and amending the land use designations on Schedule I to identify an expanded rural settlement area, following completion of a hamlet expansion review by the municipality;

(b) in undertaking the hamlet expansion review, the municipality shall:

(i) recognize the Hamlet of Greenwood as a location for potential minor expansion;

(ii) establish the amount of additional growth to be accommodated within the hamlets;

(iii) recognize the appropriateness of developing hamlets sequentially in phases, in a compact form, in depth rather than in strips, using a grid system of local roads, and with respect for historic characteristics;

(iv) address the requirements for settlement capacity studies in the Durham Regional Official Plan; and

(v) address any other required municipal matters, including tree preservation and stormwater management; and

(c) considering the results of the above study, may establish, by amendment to this Plan, expanded Rural Settlement designations on Schedule I and revise the respective Part 3 Rural Settlement Plans (Chapter 13) incorporating any required new policies and updating rural population forecasts.

Exceptions

Certain uses may be permissible by exception, as amendments to this Plan. These uses are described in this section. The lands where the uses are permissible are identified on Schedule I for reference with a dashed line around the property and the letter “E” followed by a number.

Section Revoked and Renumbered by Amendment 2

City Policy
Exceptions to Land Use Designations

3.20 In addition to the primary agricultural uses set out in Table 11 and open space uses set out in Table 3, as an exception, City Council shall permit the following:

(a) on lands identified by the symbol “E2” on Schedule I, a truck haulage business in accordance with the Durham Regional Official Plan;

Truck Haulage Business

(b) on lands identified by the symbol “E3” on Schedule I, a cemetery and related uses including an office, chapel, crematorium, mausoleum, columbarium, and maintenance yard, other than on those portions of the lands that may be required for the proposed Westney Road By-pass and its intersection with the proposed Highway 407/Transitway; and

Cemetery

(c) on lands identified by the symbol “E4” on Schedule I, a golf course located on the west side of Regional Road 23, north of Regional Road 5 on the portion of the subject lands designated Oak Ridges Moraine Countryside Areas.

Golf Course

This page intentionally left blank.

Chapter 4 - Transportation

The transportation strategy set out in this Chapter is derived from the planning principles, goals and policies of Part 1. The Chapter contains the City's general transportation policies, and refers to the Transportation System Schedule (Schedule II) included at the back of this Plan. Additional transportation policies may be contained in Part 3 and Part 4 of this Plan.

The City's transportation policies encourage a well connected network of corridors (roads, rails, sidewalks, trails and bikeways), designed as desirable places to be, with Kingston Road as the City's mainstreet. A variety of modes of travel are accommodated, including driving, walking, cycling and using transit. The transportation policies also promote a gradual shift in focus from a predominantly east west orientation, to both east west and north south orientations.

The transportation strategy supports, and is supported by various land use, economic, housing, community services, cultural heritage, community design and resource management strategies contained elsewhere in Part 2.

As Pickering continues to develop, connections from south Pickering to activities in the central areas such as Seaton, and a regional airport (if one is proceeded with) will require a changing emphasis from predominantly east west transportation movements, to more of a balance between east west and north south movements.

City Policy
Transportation Goal

4.1 City Council shall establish and promote a transportation system for people and goods movement, that offers a range of travel choices, and comprises an integrated and accessible network of transportation corridors.

City Policy
Transportation Objectives

4.2 City Council shall:

(a) participate in the design and operation of a transportation system that enables the year-round movement of people, goods, and services, within and through the City, in a manner that is safe, convenient, reliable, efficient, aesthetically pleasing, and recognizes the local context;

(b) use existing and future transportation infrastructure efficiently;

(c) balance the need to accommodate private automobiles with the need to accommodate pedestrians, cyclists, the disabled, public transit, taxis, and the movement of goods and services;

(d) find ways of reducing the amount of commuting from and through the City, while maintaining an appropriate grid of roads and transit connections to adjacent municipalities;

(e) gradually shift the City's transportation focus to an increased north south orientation while recognizing a strong east west orientation will continue;

(f) **establish a logical network of roads that, where warranted, facilitate connections within and between neighbourhoods, using Kingston Road as the City's mainstreet;**

(g) **involve residents, business-people, landowners, relevant public agencies, and other interested groups and individuals in transportation decisions; and**

(h) **ensure that required transportation infrastructure projects that impact the Natural Heritage System or key natural heritage or key hydrologic features are planned, designed and implemented in accordance with the environmental protection policies of the Greenbelt Plan, Section 16.46 of this Plan, and the Open Space System policies of this Plan, where applicable.**

City Policy
Transportation Involvement and Coordination

4.3 City Council shall:

(a) **ensure transportation, land use and community design plans and actions complement each other;**

(b) **ensure appropriate cooperation between the City, relevant agencies (including the conservation authorities), and other levels of government, on transportation and related matters, and to this end shall:**

(i) **prepare, or assist in preparing guidelines that show how land use, community design and transportation concerns can be integrated; and**

(ii) **establish and/or participate jointly with others in examining transportation and related issues, including route selection studies, road design studies, and construction and engineering studies;**

(c) **regularly consult with various groups and individuals interested in or dependent on specific modes of transportation, including transit users, the trucking industry, the elderly, the disabled and students; and**

(d) **participate in or initiate programs that provide residents with information on alternative modes of transportation, and available transportation options.**

City Policy
Integrated Transportation System

4.4 City Council, through its own actions, and by working with and encouraging others, especially the Region of Durham and the Province of Ontario, shall:

(a) **plan and protect for an integrated transportation system as shown on Schedule II to this Plan and on the Part 3 Neighbourhood and Settlement Plans, recognizing interrelationships between:**

(i) **freeways, freeway interchanges and freeway over/underpasses;**

(ii) **GO Transit lines and stations;**

(iii) **arterial and collector roads;**

(iv) **transit spines and transit feeder service; and**

(v) **local roads, pedestrian and bicycle connections, and trails;**

(b) **encourage commuters traveling through Pickering to use freeways and Type A arterial roads;**

(c) **endeavour to enhance the quality, safety and convenience of the transportation system by requiring neighbourhood, site and road designs that support pedestrians, permit cycling and encourage local transit use, while accommodating vehicular traffic;**

(d) **examine the need for a signed network of truck routes to facilitate the efficient movement of goods and services within and across the City; and**

(e) **where appropriate, provide for local road, bikeway and trail connections in the urban and rural areas to link people, places and activities.**

City Policy
Optimize Use of Infrastructure

4.5 City Council shall optimize the use of its transportation infrastructure by:

(a) **promoting the design of road corridors and the road system as multi-use public facilities that respond to the sometimes conflicting needs of pedestrians, cyclists, transit, taxis, high occupancy vehicles, automobiles, and trucks;**

(b) **promoting ways to reduce traffic peaks and shift modes away from single occupancy vehicles, where appropriate through travel demand management initiatives including ride sharing, telecommuting, trip chaining, and bus priority or high occupancy vehicle lanes; and**

(c) **making operational improvements through traffic management practices such as traffic signal coordination.**

Travel demand management has to do with planning to reduce the need and distance for travel, and encouraging and supporting transit, cycling and walking as viable alternatives to the automobile.

City Policy
Transit

4.6 City Council shall:

(a) **provide and/or cooperate with others in providing an adequately high level of local transit service to the City Centre, Mixed Use Areas, Employment Areas, and other important public destinations, to meet existing and anticipated demand;**

(b) **support improved fare and service integration between Pickering and adjacent municipalities;**

(c) **recognize corridors for:**

  (i) **transit spines where a higher level of transit service is to be encouraged within the City's urban area; and**

  (ii) **transit feeder service where a higher level of transit service is to be encouraged connecting the City with other areas;**

(d) **when warranted, support the introduction of transit priority lanes, wherever possible using existing lanes and/or existing rights-of-way (rather than adding new lanes or widening road rights-of-way for this purpose), giving priority to:**

  (i) **for east west travel, Bayly Street, Highway 401, Kingston Road, Taunton Road, Highway 7, and/or Highway 407/ Transitway;**

  (ii) **for north south travel, Brock Road and Whites Road; and**

  (iii) **other planned or potential transit routes within the City Centre;**

(e) **encourage the following:**

  (i) **continued frequent transit service along the Lakeshore GO Transit line;**

Transit routes should connect people to the places they most often want to go (that is, the high activity areas), and the service should be designed, built, and operated such that it is attractive, convenient and easy for people to use.

(ii) **the provision of GO Transit or other similar service on the C.P. (Havelock) and/or C.P. (Belleville) rail lines;**

(iii) **appropriate regional transit connections with other parts of Durham Region, York Region, and Metropolitan Toronto, including a link with the Intermediate Capacity Transit system in Scarborough; and**

(iv) **the consideration of regular transit service within Pickering using Brock Road, Whites Road, Kingston Road and Bayly Street and/or Finch Avenue in the short-term, and extending to Taunton Road and Highway 7 in the longer term;**

(f) **in conjunction with Section 12.10 of this Plan, support the planning and development of the Anchor Mobility Hub and City Centre to become a place where regional rapid transit services connect, where other modes of transportation merge, and where employment and residential development are concentrated to form an attractive and intensive transit gateway into the City; and**

(g) **prioritize transit stops and key transit transfer points as priority areas for bicycle parking, wide sidewalks, paths, weather-protected seating and other similar facilities to promote an integrated and connected active transportation network.**

City Policy
Sidewalks, Walkways,
Trails and Bikeways

4.7 City Council shall endeavour to:

(a) **maintain an interconnected system of sidewalks and walkways within the urban area; and**

(b) **pursue and maintain an interconnected system of trails and bikeways within the urban and rural areas, consistent with the approved Pickering Trails and Bikeway Master Plan, including connections to the Lake Ontario Waterfront Trail, the Seaton Hiking Trail, the Oak Ridges Moraine, the City Centre, the GO Transit station, abutting municipalities and other important destinations.**

Over time, reliance on private automobiles needs to be reduced in favour of other modes of travel, including walking, cycling and using public transit.

City Policy
Physically Challenged

4.8 City Council shall consider the needs of the physically challenged in the design and operation of its transportation system.

City Policy
Priority Pedestrian/Cyclist Connections

4.9 City Council shall consider the following as priority connections, and shall endeavour to ensure their early implementation:

(a) **a continuous Pickering Waterfront Trail adjacent, wherever feasible, to Lake Ontario, as part of the Lake Ontario Waterfront Trail system; and**

(b) **a continuous bikeway across Pickering along the south side of the proposed Highway 407/Transitway.**

City Policy
Road Categories

4.10 City Council shall:

(a) recognize Freeways as controlled access roads designed to carry the highest volumes of traffic at high speeds within and beyond the City and Region;

(b) recognize Type A, Type B and Type C Arterial Roads as described in the Durham Regional Official Plan, wherein:

(i) Type A Arterial Roads: are the highest order arterial road; are designed to carry large volumes of traffic at moderate to high speeds, over relatively long distances; have access restrictions; and generally have a right-of-way width ranging from 36 to 50 metres;

(ii) Type B Arterial Roads: are designed to carry moderate volumes of traffic at moderate speeds, within a municipality; have some access restrictions; and generally have a right-of-way width ranging from 30 to 36 metres; and

(iii) Type C Arterial Roads: are designed to carry lower volumes of traffic, at slower speeds; provide access to properties; and generally have a right-of-way width ranging from 26 to 30 metres;

(c) recognize the following municipal road categories, wherein:

(i) Collector Roads: generally provide access to individual properties, to local roads, to other collector roads and to Type C arterial roads; carry greater volumes of traffic than local roads, including automobiles, pedestrians, bicycles and transit; and generally have a right-of-way width ranging from 20 to 22 metres; and

(ii) Local Roads: generally provide access to individual properties, to other local roads and to collector roads; carry local traffic; and generally have a right-of-way of up to 20 metres, with the exception of local roads serving industrial properties which may have a right-of-way width of up to 23 metres.

Highway 401 is an example of a freeway.

Bayly Street, Brock Road, Highway 7 and Taunton Road are examples of Type A Arterial Roads.

Kingston Road, and Liverpool Road between Highway 401 and Finch Avenue are examples of Type B Arterial Roads.

Pickering Parkway and Glenanna Road are examples of Type C Arterial Roads.

Major Oaks Drive, Oklahoma Drive and Amberlea Road are examples of Collector Roads.

City Policy
Alternative Road Rights-of-Way

4.11 Despite Section 4.10, City Council may:

(a) vary road right-of-way widths, and related road category intersection criteria, for roads under its jurisdiction and which are not designated on Schedule C - Map C1 of the Durham Regional Official Plan, either upward or downward, without amendment to this Plan, where circumstances warrant such action, including:

(i) at intersections to improve sight-lines, accommodate turning movements, and provide for transit stops;

(ii) or traffic calming purposes, and to provide for the installation, where warranted, of traffic circles and other similar features;

(iii) **where rear yard lanes are provided;**

(iv) **to avoid providing excessively wide roads or boulevards; and**

(v) **to improve streetscapes and/or reduce the crossing distance between buildings and activities on opposite sides of a street; and**

(b) **seek variances in road right-of-way widths and road category intersection criteria for arterial roads designated on Map C1 of the Durham Regional Official Plan in accordance with the requirements of Sections 11.3.3 and 11.3.4 of the Durham Regional Official Plan.**

City Policy
Environmental Considerations

4.12 City Council shall:

(a) **consider converting, where necessary and feasible, municipal vehicles to low emission and energy efficient vehicles;**

(b) **participate in regular emission monitoring and testing programs;**

(c) **review the location of stop signs, and consider removing unnecessary ones to reduce noise, fuel consumption and vehicular emissions;**

Vehicular stopping and starting leads to significant increases in noise, emissions and fuel consumption from engine exhaust, brake lining particles and tire particles.

(d) **consider passing by-laws to restrict the unnecessary or prolonged idling of motor vehicles and buses;**

(e) **encourage the early consideration of environmental matters in route selection, road design, road construction and traffic operational studies; and**

(f) **examine, on a regular basis the City's current road infrastructure, and prioritize needed road maintenance, modification and rehabilitation.**

City Policy
Parking Supply/Demand

4.13 City Council shall consider preparing a comprehensive parking strategy for the urban area to determine and provide recommendations on current and future parking supply and demand, recognizing the opportunity to reduce parking supply in areas well-served by public transit.

City Policy
Provincial Assistance

4.14 City Council shall request assistance from the Province of Ontario as follows:

(a) **to assist financially and otherwise in constructing:**

(i) **a multi-modal bridge over Highway 401 within the Hydro Corridor between Bayly Street and Pickering Parkway;**

(ii) **a bridge overpass for pedestrians and cyclists near the foot of Dixie Road to link Frenchman's Bay with the Dunbarton Neighbourhood; and**

(iii) **a bridge overpass or underpass for vehicles, pedestrians, and cyclists to link Notion Road with Squires Beach Road;**

(b) **to assist, financially and otherwise, in constructing an additional pedestrian/cyclist bridge over Highway 401 to support the Anchor Mobility Hub;**

(c) to minimize the potential barrier effect of the proposed Highway 407/Transitway by providing for appropriate vehicular, cyclist and pedestrian crossings at all existing north south roads in Pickering;

(d) to complete the route planning study of the proposed freeway link between Highway 401 and Highway 407/Transitway in the vicinity of Durham Regional Road 23, and to ensure the expeditious construction of that link; and

(e) as an immediate priority, fund the completion of an Environmental Assessment to determine the technically preferred alignment for a freeway connection between Highways 401 and 407, west of the Rouge River.

City Policy
Regional Assistance

4.15 City Council requests the Region of Durham to implement the following:

(a) a reexamination of its proposed arterial road system as shown in the Durham Regional Official Plan:

(i) Subsection Revoked by Amendment 22;

(ii) to eliminate the proposed Rossland Road connection to Finch Avenue in Pickering, and link to Finch Avenue in Scarborough;

(iii) to eliminate the proposed Bayly Street extension west of Whites Road in Pickering to link with Lawrence Avenue in Scarborough;

(iv) to eliminate the proposed northerly and southeasterly extensions of Dixie Road;

(v) to downgrade the Type B Arterial Road designation on the existing Dixie Road to a Type C Arterial Road; and

(vi) to eliminate the Dixie Road Transit Spine designation, including its proposed northerly and southeasterly extensions; and replace it with a Transit Spine designation on Whites Road;

(b) Subsection Revoked by Amendment 22; and

(c) in consultation with the City, the Province, the Federal Government and the relevant airport authority, to re-examine, and if necessary amend, its designated arterial road system in and around the Potential Airport Site, should a decision be made to establish an airport on the lands. (D15)

(D15) Deferral 15: Policy 4.15(c) deferred for further study

City Policy
Scarborough Initiatives

4.16 City Council shall request the assistance of the City of Scarborough as follows:

(a) in continuing to oppose a road connection between Lawrence Avenue in Scarborough and Bayly Street in Pickering;

(b) in continuing to oppose a road connection between Finch Avenue in Scarborough and Finch Avenue-Rossland Road in Pickering; and

(c) in maintaining Twyn Rivers Drive and Finch Avenue as local roads in Scarborough through the Rouge National Urban Park, and encouraging that any required road or bridge improvements along these roads be done within the existing rights of way and on the existing alignments.

City Policy
Environmental Assessments to
Determine Alignments of Proposed Roads

4.17 City Council recognizes that the alignments of proposed new roads, the upgrading of roads to match identified classifications, and the locations of other proposed transportation features (such as freeway interchanges, underpasses or overpasses, Go Rail service and Go Transit Stations) shown on Schedule II to this Plan may require approvals under other legislation including the *Environmental Assessment Act*; to this end, Council shall:

(a) undertake or request the others having jurisdiction to undertake the required Environmental Assessment in an appropriate and timely manner; and

(b) if necessary, revise Schedule II to reflect approved alignments, classifications and facility locations following completion of the required Environmental Assessment.

City Policy
Provincial Highways

4.18 City Council recognizes that the Ministry of Transportation has jurisdiction over the provincial highways through the City, and as such, acknowledges that the Ministry has the responsibility for standards, design criteria (including intersection/ interchange spacing and locations) and widening requirements respecting those highways.

In Pickering, the provincial Ministry of Transportation has jurisdiction over Highways 401 and 7 and the Highway 407/Transitway.

City Policy
Railway - Road Crossings

4.19 At level railway crossings with roads in the urban area, City Council shall, in cooperation with the appropriate railway and other relevant agencies:

(a) monitor the need for additional safety measures, such as automatic safety gates or grade separations; and

(b) encourage the installation of appropriate safety measures in a timely manner as development occurs.

City Policy
Municipal Roadways - Oak Ridges Moraine

4.20 City Council shall:

(a) be satisfied that where new municipal roadways or major reconstruction of municipal roadways are proposed within the Oak Ridges Moraine, as shown on Schedule II, there are no reasonable alternatives that would not impact the Moraine and, once satisfied that such alternatives do not exist, shall ensure that the road is designed and constructed in such a manner so as not to adversely affect the ecological integrity of the natural heritage features and significant landform features of the Moraine by demonstrating that:

(i) the area of construction disturbance will be kept to a minimum;

(ii) right-of-ways widths will be kept to the minimum that is consistent with meeting other objectives such as stormwater management and with locating as many transportation, infrastructure, and utility uses within a single corridor as possible;

(iii) the roadway project will allow for wildlife movement;

(iv) lighting will be focused downwards and away from Natural Core Areas; and

(v) the planning design and construction practices adopted will keep any adverse effects on the ecological integrity of the Oak Ridges Moraine to a minimum.

This page intentionally left blank.

Chapter 5 - Economic Development

The economic strategy set out in this Chapter is consistent with the planning principles, goals and policies of Part 1. A framework for stimulating economic activity is established that addresses the existing and future needs of the City's urban, rural and ecological systems.

The economic strategy supports, and is supported by appropriate land use, transportation, housing, community services, cultural heritage, community design and resource management strategies.

This Chapter contains the City's economic policies. Additional economic policies may appear in other Parts of this Plan.

Economic Development Strategy

Pickering's economy is inextricably linked with other economies and can be affected by regional, national and international events. While some of these broader influences may be positive (for instance, the opening of a new market for a product or service), they may also have negative affects, particularly on jobs and wages.

The result is that the nature of work in industrial nations such as Canada must change from resource based to knowledge-based. As a result, fewer people will be working directly in manufacturing, although manufacturing production and productivity should remain high.

In 1996, jobs available in Pickering, like Durham Region, had a higher proportion of employees in the transportation, communications and utilities categories (mainly because of the influence of Ontario Hydro) and a relative under representation of jobs in business service, government service, finance, insurance and real estate categories. Manufacturing continues to play an important role in the City.

Pickering's economic development strategy should focus on increasing the number and quality of local jobs. It should not, however, promote job creation at any cost. New businesses should be encouraged to be ecologically responsible, and respectful of the local context. And, where businesses are located in close proximity to other uses (such as residential), their scale and performance characteristics should be compatible with the scale and performance characteristics of other uses in the area.

The City's economic strategy is therefore directed at promoting Pickering as a major business and employment centre for Durham Region, increasing the number, diversity and quality of local jobs, building on existing businesses, and embracing positive opportunities arising from regional, national and global interconnections.

While virtually all sectors of the economy have components with the potential to be knowledge-based sectors, some of the key growing ones are pharmaceutical, health products, biotechnology, telecommunications, project engineering, environmental protection, banking, insurance, business services, and computers and software.

City Policy
Economic Goals

5.1 City Council shall:

(a) strengthen Pickering's economic health and self-sufficiency by encouraging existing businesses and entrepreneurs within the City, and by taking advantage of positive opportunities that arise from the City's interdependency with regional, national and global economies;

(b) encourage Pickering as a major business and employment destination for Durham Region and eastern Metropolitan Toronto; and

(c) increase the number, diversity and quality of local jobs, to help balance the residential to commercial/industrial tax assessment ratio, and reduce out-commuting.

Key transportation initiatives that would make Pickering more attractive to business and industry include the widening of Highway 401, early construction of Highway 407, and construction of a pedestrian/cycling bridge between the existing GO Station and the City Centre.

City Policy
Economic Objectives

5.2 City Council shall:

(a) support local businesses, create more local jobs, and diversify the City's economic base;

(b) identify, attract and support businesses that can provide local employment opportunities that are socially and ecologically responsible, and that operate in a global economic setting;

(c) provide a wide range of locations for economic activities;

(d) improve the balance between the City's residential and commercial-industrial tax base; and

(e) create a major node of corporate offices in the City Centre.

City Policy
Job Creation and Diversification

5.3 City Council shall establish a balanced, long-term program of local job creation with particular emphasis on the following:

(a) emphasizing skilled, capital-intensive, value-added jobs;

(b) targeting specific economic growth sectors;

(c) building on existing energy producing, conservation and environmental businesses;

(d) supporting the development of major economic and employment catalysts;

(e) encourage a university or community college to locate in the City;

(f) fostering rural economic and agricultural activities through various initiatives including:

(i) supporting cooperative farm businesses, marketing groups, joint marketing of produce, producer sourcing directories, farm fairs and related promotions which promote the availability of local food and value-added products;

An Economic Development Strategic Plan completed for Pickering in 1991, identified five potential growth sectors:

- **aerospace**
- **environmental industries**
- **marine service companies**
- **pharmaceuticals**
- **telecommunications**

(ii) encouraging the investigation of non-traditional crops, and small-scale, organic and other specialized farming methods which will assist in diversifying agricultural products;

(iii) preparing an economic development strategy for agricultural areas, , including a local food policy which implements the values and priorities in the Durham Region Food Charter particularly related to the issue of food security, and encouraging the establishment of institutional, industrial and commercial local food procurement policies; and

(iv) zoning to permit home occupations, home industries and small scale agri-tourism uses in all Prime Agricultural Areas and home occupations in all rural settlements;

(g) investigating tourism opportunities including, but not limited to the following: Pickering Museum Village; Frenchman's Bay and Lake Ontario; hiking and conservation; farm vacations; shopping and entertainment; and cultural and heritage features, including scenic roads;

(h) strengthening existing businesses, and supporting new start up businesses and other business incubators; and

(i) zoning to permit home occupations in all residential areas.

Many home occupations act as incubators for new businesses. Also, because the business is operated by the occupant of the dwelling unit, home occupations help reduce commuting.

City Policy
Supporting Local Businesses

5.4 City Council shall support the local business community, and encourage locally-owned and controlled businesses, by improving municipal assistance through mechanisms such as the following:

(a) creating a resource centre offering assistance on business start-up, and providing information on zoning, permits, business licenses, grant applications and other relevant materials;

(b) using the services of the Pickering Public Library to provide information and programs to business, and access for businesses to electronic business registration systems and related information;

(c) maintaining a business database in cooperation with other partners;

(d) maintaining a registry of existing available built space and land; and

(e) consider extending municipal government office hours beyond normal business hours.

City Policy
Cooperation with Others

5.5 City Council shall coordinate its economic development efforts with the efforts of others having similar interests, and in so doing shall:

(a) participate with regional and other area-wide joint economic development promotion activities;

(b) consider establishing an ongoing "task force" of business and community representatives to assist in devising strategies to assist in economic development;

(c) consider establishing an ongoing liaison with banking, financial and real estate representatives;

(d) support partnerships with business schools, skills training committees, and educational institutions such as Durham College and Trent University;

(e) **encourage businesses to offer their employees continuous educational skills and training programs; and**

(f) **in recognition of the City Centre's significance as a major employment node with excellent access to higher order transit, collaborate with partners and consider strategies and tools to advance employment growth within the City Centre.**

City Policy
Economic Strategic Plan

5.6 City Council shall maintain an up-to-date Economic Strategic Plan, and in so doing shall:

(a) **identify emerging trends in business and industry (including the agricultural industry) and assessing the implications on Pickering;**

(b) **monitor the results, initiatives and actions recommended by the Plan and making revisions where necessary; and**

(c) **amend the provisions of the official plan, zoning by-laws, and other corporate documents in accordance with the Strategic Plan.**

City Policy
Wiring for Telecommunications

5.7 City Council shall encourage, and where possible assist utility companies, the Province, the development industry and others to establish a high speed, broad band telecommunications network that links, over time, all homes, businesses, institutions and facilities across the City and the Greater Toronto Area, and allows for information, knowledge and skills to be widely shared and disseminated.

The installation of a high speed, broad band telecommunications network helps promote home occupations, teleworking, telecommuting, and improved community networking and information dissemination.

City Policy
Financial Incentives

5.8 City Council shall consider an incentive program to encourage green building design in any new development in the City Centre, which may include density bonuses, loans, development charge reduction, Community Improvement Plan grants or an expedited development application review process.

Chapter 6 - Housing

The housing strategy set out in this Chapter is derived from the planning principles, goals and policies of Part 1. An integrated approach to housing is established that addresses the existing and future needs of the City's urban, rural and ecological systems.

The City's housing strategy promotes opportunities for a wide variety of housing forms, tenure and types to meet the evolving needs of Pickering's residents. The strategy recognizes that Pickering's housing needs will evolve as part of the changing nature of housing needs in the Greater Toronto Area. The City's housing strategy supports and is supported by appropriate land use, economic, community services, cultural heritage, community design and resource management strategies.

This Chapter contains the City's strategic housing policies. Additional policies may be contained in other Parts of this Plan.

City Policy
Housing Goal

6.1 City Council shall encourage a broad diversity of housing by form, location, size, tenure, and cost within the neighbourhoods and villages of the City, so that the housing needs of existing and future residents can be met as they evolve over time.

City Policy
Housing Objectives

6.2 City Council shall:

(a) encourage housing opportunities that respond to the existing and future needs and characteristics of the population;

(b) ensure that a sufficient supply of designated and serviceable residential land is available to meet the existing and future housing needs of the City;

(c) encourage the provision of an adequate range of housing and tenure types to be available and integrated within the City's neighbourhoods and villages to meet the needs of existing and future populations; and

(d) encourage the provision of an adequate supply of housing throughout the City in terms of quantity, quality and diversity, including the provision of an adequate supply of affordable, rental, assisted and special needs housing.

City Policy
Housing Mix and Supply

6.3 City Council shall promote an adequate supply and mix of housing by:

(a) maintaining a minimum 10 year supply of residentially designated lands to meet anticipated long-term housing demands;

(b) maintaining a minimum 3 year supply of residential land in the form of draft approved plans and/or registered plans, to meet anticipated short-term housing demands;

(c) encouraging the production of new residential dwelling units in accordance with housing targets for average annual production, unit mix, and location, as established in Appendix I - Quality of Life Indicators and Performance Targets; and

(d) obtaining the following distribution of housing forms throughout the municipality during the timeframe of this Plan:

(i) 57 percent single detached homes;

(ii) 12 percent semi-detached homes;

(iii) 19 percent attached homes; and

(iv) 12 percent apartments.

City Policy
Affordable and Special Needs Housing

6.4 City Council shall:

(a) require that a minimum 25 percent of new residential construction, on a City-wide basis, be of forms that would be affordable to households of low or moderate income, reflecting affordable housing forms identified in Appendix I - Quality of Life Indicators and Performance Targets;

For the purposes of this Plan, affordable means annual housing costs (rent or mortgage payments) that do not exceed 30 percent of gross household income.

(b) encourage the affordable component of new residential construction to be in the early phases of a development;

(c) encourage the provision of housing for people with special needs, including assisted housing for low income people, seniors, emergency accommodation, and other forms of supportive housing;

(d) zone to permit the operation of group homes within all residential areas;

(e) zone to permit accessory apartments, garden suites, and rooming homes where appropriate; and

(f) support providers of assisted and special needs housing, including the Durham Region Non-Profit Housing Corporation, in the provision and integration of assisted and special needs housing in the City.

City Policy
Infill, Intensification and
Redevelopment

6.5 City Council shall maximize the efficiency of existing infrastructure and minimize the consumption of vacant land by establishing a target of approximately 11,500 additional residential units within the South Pickering Urban Area by the year 2016, accommodated by encouraging:

(a) major intensification in Mixed Use Areas as designated on Schedule I;

(b) infill development of vacant or under utilized blocks of land;

(c) in Mixed Use Areas and Residential Areas, redevelopment and conversion of non-residential uses to residential uses, including the addition of residential uses in mixed use forms; and

(d) methods for the provision of compact housing form, with regard to housing type, architectural design and cost-effective development standards, where technically feasible.

Intensification provides an opportunity to both increase and diversify the housing stock in the City. Almost all intensification activity occurring in Pickering over the next twenty years will be on those lands designated as Mixed Use Areas, not low density residential areas. Infilling occurs in low density areas on vacant or underutilized parcels of land. The effect of this will be to improve the level and range of services available to most residents, without changing the character of their neighbourhoods.

City Policy
Housing Targets and
Monitoring Policies

6.6 City Council shall:

(a) prepare as a priority, housing targets which reflect the objectives of this Chapter and incorporate them within Appendix I - Quality of Life Indicators and Performance Targets;

(b) prepare an annual housing monitoring report to assist in the regular review and monitoring of the City's achievement of its housing objectives, including such indicators as:

(i) total number of dwelling units by type;

(ii) total number and type of housing units produced in Urban Residential Areas, in Mixed Use Areas, and in the rural area;

(iii) housing prices and rent by housing type;

(iv) production of special needs housing;

(v) amount of housing produced in accordance with provincial guidelines on housing affordability; and

(vi) progress in meeting established targets; and

(c) adopt alternative housing strategies if monitoring determines the housing objectives of this Chapter are not being achieved.

This page intentionally left blank.

Chapter 7 - Community Services

The community services strategy set out in this Chapter is derived from the planning principles, goals and policies of Part 1. An approach to community services is established that addresses the existing and future needs of the City's urban, rural and ecological systems. Changes in the City's demographics and in the way services are delivered will affect the provision of community uses, facilities, services and programs.

Community services include both "hard" and "soft" services that are provided for the City's residents, workers and visitors, including library, health, educational, religious, community, cultural, recreational, social, institutional, infrastructure, and emergency and protective services.

The community services strategy recognizes the need for an ongoing identification and timely, cost-efficient response to individual and community needs as they evolve over time. The strategy recognizes that people will be active in articulating and determining needs, that everyone's needs will not be the same, and that the needs of an individual may on occasion conflict with the needs of the community.

Further, the strategy recognizes that all needs cannot (and should not) be met by the municipality. Individuals, community groups, agencies, and other levels of government all share responsibility in identifying and addressing community service needs. The City's strategy recognizes that the effective provision of community services requires cooperation and coordination among the many service providers and amongst people.

The community services strategy supports, and is supported by, land use, transportation, economic, housing, cultural heritage, community design and resource management strategies outlined elsewhere in this Plan. This Chapter contains the key community services policies, although additional community services policies may appear in other Chapters of this Plan.

Community services refer to the uses, facilities, programs and services addressing the broad range of human, social and infrastructure needs integral to the community's quality of life. The services are provided by various levels of government, non-government organizations, and private groups and individuals.

Facilities often associated with community services include the following:

- **ambulance depots**
- **cemeteries and related facilities**
- **child care facilities**
- **cultural facilities and theatres**
- **fire halls**
- **government offices**
- **hospitals and medical clinics**
- **libraries**
- **parks**
- **places of religious assembly**
- **police stations**
- **post offices**
- **recreation centres and arenas**
- **schools, colleges and universities**
- **works depots**

City Policy
Community Services Goal

7.1 City Council, in partnership with individuals, the community, and other service providers, shall provide a flexible, cost-effective and responsive community service delivery system.

City Policy
Community Services Objectives

7.2 City Council shall:

(a) recognize the important role community services, programs, parks and other facilities play in meeting the evolving needs of the community;

(b) promote a suitable distribution of community services, programs and facilities across the City to serve residents, workers and visitors;

(c) cooperate with other community service providers in assessing and providing needed community services, programs and facilities;

(d) optimize the use of infrastructure in meeting the evolving needs of the community, and encourage other community service providers to do the same;

Although the Plan refers to "the community", it is recognized that there are many "communities" within the City, having different needs, backgrounds, experiences, resources, abilities and interests.

(e) promote the use of green technologies and renewable energy systems in the design of community facilities and associated infrastructure, including the retrofit of facilities to reduce greenhouse gas emissions and to assist in addressing the potential adverse environmental impacts of climate change;

(f) ensure new infrastructure, when needed, is provided in an efficient, cost-effective, equitable and environmentally-responsible manner; and

(g) involve the public, business-people, landowners, relevant public agencies, and other interested groups and individuals in decisions affecting community services and facilities.

City Policy
Cooperation with Others

7.3 Recognizing the need for cooperative arrangements in the supply and delivery of community services, City Council shall:

(a) support and encourage the provision of cultural, athletic and recreational programs, and related fundraising, by volunteer groups, service organizations and the private sector;

(b) support cooperative strategies for providing and maintaining community services, programs and facilities, including "adopt-a-park" programs and the appointment of community service advisory groups;

(c) encourage all municipal departments, boards, and commissions to consult and cooperate with one another in the provision of community services, programs and facilities; and

A number of the City's parks are in part being cared for by concerned and interested neighbourhood associations, groups and other community organizations.

(d) **encourage other service providers, including social development councils, district health councils and interfaith organizations, as well as other boards, agencies, departments and utility companies, to consult and cooperate with one another and the City in the provision of community services, programs and facilities across the City.**

City Policy
Integrating Community Services
and Land Use Planning

7.4 To help ensure community services planning is properly integrated and coordinated with municipal land use planning, City Council, when preparing Development Guidelines for Detailed Review Areas, and/or as part of the detailed planning for the Seaton Urban Study Area, shall consider:

(a) **the required community uses and services, parks and other facilities for the area, and required service levels;**

(b) **the preferred mode of service delivery;**

(c) **the potential sites and locations of required community uses and services, parks and other facilities; and**

(d) **the anticipated timing and phasing of community uses and services, parks and other facilities relative to the timing of development.**

City Policy
Community Services Planning

7.5 To help ensure community services are planned and delivered in a timely, equitable and coordinated manner, City Council shall:

(a) **consider establishing a comprehensive cultural policy to assess needs, address priorities and examine financing options for cultural facilities;**

(b) **review on a regular basis its Recreation Master Plan to establish priorities for the development and funding of cultural, athletic and recreational services and facilities for the short and long-term;**

(c) **review on a regular basis its Library Five Year Plan to establish priorities for the development and funding of library services and facilities;**

(d) **consider preparing a Fire Protection Services Plan to establish priorities for the development and funding of fire protection services and facilities, including related public education respecting fire and other safety needs;**

(e) **maintain a local emergency plan, and cooperate with others in developing and maintaining regional or other emergency plans; and**

(f) **consider developing an infrastructure plan prioritizing the provision and maintenance of new and existing infrastructure.**

City Policy
Accommodating Services Needs

7.6 City Council shall:

(a) **consider tailoring facilities, services and programs to favour broad community participation;**

(b) despite Section 7.6(a) above, consider identifying and providing leisure and recreational services and programs to special and priority needs groups as identified over time;

(c) in determining which services and programs to offer, consider:

(i) the adequacy of the supply of the facility, service or program relative to its demand;

(ii) the level of affordability of the service or program for the intended users; and

(iii) the location of the service or program relative to the distribution of the users and the ability of the users to conveniently access the service or program; and

(d) promote environmentally sustainable forms of recreation including non-motorized passive uses, and unstructured and informal activities.

Teenagers are a special needs group. Other special needs groups include: children, youth, senior citizens, the disabled, visible minorities, unemployed and underemployed persons, working families, and single parent families.

City Policy
Connected System of Parks,
Trails and Greenspaces

7.7 Recognizing the importance that parks and green space have in providing healthy settings and opportunity for healthy lifestyles for residents, employees and visitors, City Council shall promote the establishment of an accessible, publicly-owned, connected system of parks, trails and greenspaces, providing within that system activities for people of different ages and different abilities.

City Policy
Location of Major
Community Facilities

7.8 City Council shall:

(a) encourage the location of major indoor community, cultural, athletic and recreational uses and facilities in or close to the City Centre;

(b) encourage major outdoor community, cultural, athletic and recreational uses and facilities;

(c) encourage other community, cultural, athletic and recreational uses and facilities to locate in mixed use areas, in areas with a high degree of accessibility by public transit, and/or in locations conveniently located relative to the area they will serve;

(d) encourage the development of a university or college campus in Pickering;

(e) cooperate with the arts and cultural organizations to locate and develop an arts centre containing a theatre, gallery, studio and offices for arts organizations;

(f) encourage the location of an arts centre in a prominent location, in proximity to other civic and community facilities; and

(g) encourage the location of a new senior citizens centre on the recreation complex lands within the City Centre in a location that can share facilities, such as parking, with other civic institutions.

City Policy
Multi-Use and Joint-Use Facilities

7.9 City Council shall:

(a) support the design, development and operation of community facilities as multi-use and joint-use facilities, in cooperation with public bodies, social service agencies, and/or other potential partners;

(b) where an existing community facility is no longer required for its original purpose, examine the reuse of that facility for another community use;

(c) in the event that another community use cannot be found for a redundant community facility, consider the incorporation of an equivalent amount of community space within any new development built on the site; and

(d) where stand-alone schools cannot be constructed because of land availability or funding constraints, pursue with the area school boards the provision of space for schools in other existing or proposed buildings in the neighbourhood.

If community facilities are designed as multi-purpose facilities, various uses could be provided in a single facility over its lifetime (e.g., day care centre, youth centre, seniors centre).

City Policy
Infrastructure

7.10 City Council shall:

(a) encourage appropriate intensification and use of existing municipal infrastructure, including roads and storm sewers;

(b) encourage appropriate intensification and use of existing regional infrastructure, including roads, piped water and sanitary sewers;

(c) provide required municipal infrastructure in a manner that is ecologically-sensitive and respectful of the cultural and natural heritage of the area, and encourage other jurisdictions to do the same;

(d) consider developing a financial plan for the provision and maintenance of new and existing municipal infrastructure under which:

(i) infrastructure in newer areas will be funded from development charges, other available infrastructure programs, from a scheduled capital works program, or paid for by a benefiting landowner;

(ii) infrastructure in older areas will be funded as local or community improvements, or under other available infrastructure programs, or an approved capital works program;

(iii) full advantage will be taken of the availability of subsidy or contribution from other agencies and levels of government; and

(iv) innovative arrangements respecting the joint funding and cost-sharing of infrastructure projects with other partners will be explored;

(e) consider a comprehensive set of performance standards for the provision of municipal infrastructure that:

(i) encourages flexibility and cost effectiveness in design to meet the different needs of different areas of the City;

(ii) **encourages alternative development standards that promote greater land use efficiency, and address risk management and liability concerns; and**

(iii) **encourages the use of green technologies in support of energy efficiency, waste reduction and improved air quality; and**

(f) **provide a standard of infrastructure suitable to the neighbourhood in which the infrastructure is located.**

City Policy
ICT Network

7.11 City Council shall provide clear direction for collaboration, facilitation, investment, infrastructure advancement, skills development, and other initiatives necessary to implement an Information and Communication Technology (ICT) network throughout the City, by:

(a) **identifying locations, in addition to the City Centre and Pickering Innovation Corridor, where a more robust ICT infrastructure will be offered;**

(b) **prioritizing the implementation of ICT infrastructure to public facilities and spaces;**

(c) **identifying measures that will be necessary to implement a city-wide ICT network within, and outside, the existing built-up urban area;**

(d) **identifying measures which will minimize the impact of ICT infrastructure on the community and natural environment; and**

(e) **identifying measures which will ensure that the City's ICT infrastructure is resilient and adaptable to change and next-generation technologies.**

City Policy
"Dig Once" Standard

7.12 City Council shall require, subject to the approval of the applicable jurisdiction with responsibility for the road, and any requirements of any other applicable agencies, the inclusion of conduit for fiber optic cable in all public rights-of-way, where such conduits or trenches do not already exist or where a need is identified, through new development, redevelopment, road construction and reconstruction, in accordance with the City's "Dig Once" Standard, and shall:

(a) **ensure that all new development or redevelopment is designed to provide the infrastructure for the delivery of, current or future, leading edge information and communication technologies, to the building(s); and**

(b) **require applications for development to provide an ICT Implementation Plan which demonstrates how ICT technologies are to be designed and implemented, including information regarding conduit construction and ownership, and demonstrates that the associated conduit and wiring meets or exceeds the minimum industry standard.**

City Policy
"Dig Once" Standard - Seaton
Urban Area

7.13 Notwithstanding Section 7.12, within the Seaton Urban Area, City Council shall require the inclusion of conduit for fiber optic cable where such conduits or trenches do not already exist or where a need is identified only within Type C arterial roads and collector roads.

Chapter 8 - Cultural Heritage

The cultural heritage strategy set out in this Chapter is derived from the planning principles, goals and policies of Part 1. A comprehensive cultural heritage framework is established that addresses the existing and future needs of the City's urban, rural and ecological systems.

As Pickering evolves over the next twenty years, it is important that people maintain a sense of continuity with the past. People, in making decisions and undertaking actions, should recognize, respect and nurture Pickering's cultural heritage. This celebration of local heritage will contribute to the enrichment of the City's urban, rural and ecological systems. Pickering's resulting patterns of diversity and character, integrating old with new, and natural with built, will give the City a unique identity.

Cultural heritage is much more than features or attributes from the distant past (such as the City's many natural features resulting from glaciation) or more recent past (such as archaeological resources, century-old heritage homes and the Civic Complex). Each period in time is important for its contribution to cultural heritage. As well, the features and resources of today will be Pickering's cultural heritage of the future.

Cultural heritage should be viewed, therefore, as a continuum; with a past, a present and a future. Like a community, cultural heritage evolves slowly over time. The cultural heritage strategy for Pickering acknowledges this "living heritage".

This Chapter contains the cultural heritage strategy policies. Additional cultural heritage policies may be provided elsewhere in this Plan. Further, the cultural heritage strategy supports, and is supported by, appropriate land use, transportation, economic, housing, community services, community design and resource management policies.

Cultural heritage includes: archaeological sites and resources; buildings and structural remains of historical, architectural, natural and contextual value; shipwreck sites; traditional use areas; rural districts and settlements; urban neighbourhoods; cultural landscapes of historic interest; and significant views, vistas and ridge lines.

More broadly, cultural heritage comprises everything produced and left by the people of a given time and geographic area, the sum of which represents their cultural identity. This includes their folklore, rituals, art, handicrafts, equipment, tools, communications, transportation, buildings, furnishings and dwellings.

City Policy
Cultural Heritage Goal

8.1 City Council shall respect its cultural heritage, and conserve and integrate important cultural heritage resources from all time periods into the community.

City Policy
Cultural Heritage Objectives

8.2 City Council shall:

(a) identify important cultural heritage resources from all time periods, so that they can be appropriately conserved and integrated into the community fabric, including:

(i) significant heritage structures, features and sites;

(ii) buildings, sites, and artifacts of historical, archaeological and architectural significance including modern or recent architecture;

(iii) significant landscape features and characteristics, including vistas and ridge lines; and

(iv) other locally important cultural heritage resources;

(b) foster public awareness and appreciation of the City's cultural heritage;

(c) prevent the demolition, destruction or inappropriate alteration of important cultural heritage resources to the extent possible;

(d) where possible, restore, rehabilitate, maintain and enhance important cultural heritage resources owned by the City, and encourage the same for those owned by others;

(e) where possible, ensure development, infrastructure, capital works and other private and public projects conserve, protect and enhance important cultural heritage resources; and

(f) involve the public, business-people, landowners, local heritage experts, heritage committees, relevant public agencies, and other interested groups and individuals in cultural heritage decisions affecting the City.

Heritage resources may be adversely affected by planned change, incremental and unintentional occurrences, and neglect. Potential concerns include:

- **large scale changes such as road widenings; infrastructure projects; development proposals; highways and other new road construction**
- **small scale initiatives including residential infill; restorations to safe condition; and vandalism**
- **mismanagement including lack of maintenance; lack of long-term commitment and funding; and lack of priority given to heritage values**

City Policy
Cooperation with Others

8.3 City Council shall:

(a) assist in identifying, protecting and promoting cultural heritage resources in the municipality, in cooperation with Federal, Provincial and Regional levels of government, as well as private agencies and individuals;

(b) consult with its local architectural conservation advisory committee and other heritage committees, and participate with these committees and others in protecting important heritage resources, as necessary, through assembling, resale, public-private partnerships, acquisition or other forms of involvement;

(c) ensure that plans, programs and strategies prepared by or for the City and its boards or commissions, shall respect the character and significance of the City's heritage resources; and

City Council has appointed a heritage committee, known locally as Heritage Pickering. Under the *Ontario Heritage Act*, the committee is known as a Local Architectural Conservation Advisory Committee (LACAC).

(d) use and encourage the use of available government and non-government funding and programs to assist in cultural heritage resource conservation.

City Policy
Ontario Heritage Act

8.4 City Council, in consultation with its heritage committee, where warranted shall implement the provisions of the *Ontario Heritage Act*, including the designation under the Act of heritage sites and heritage districts.

City Policy
Heritage Education and
Promotion Policies

8.5 City Council, in association with its heritage committee, shall:

(a) develop programs for promoting public awareness and appreciation of cultural heritage resources, and in doing so shall consider:

(i) preparing and distributing heritage information through libraries, schools, displays, information booths and local events;

(ii) supporting Heritage Week, and other community, regional and provincial activities involving cultural heritage activities;

(iii) establishing urban and rural heritage trails and promoting heritage walking tours;

(iv) identifying scenic roads and promoting scenic driving tours;

(v) recognizing and commemorating designated heritage buildings, structures, sites and landscapes; and

(vi) recognizing, with plaques and/or certificates, buildings of outstanding heritage value, and people involved in heritage restoration and conservation; and

(b) support and promote the Pickering Museum Village.

Some of important cultural heritage structures in Pickering include:

- **the individually designated properties in the City**
- **the Bentley House in Brougham**
- **Brougham Hall**
- **the Claremont library building**
- **the City's churches and cemeteries**

City Policy
Heritage Master Plan

8.6 City Council, in association with its heritage committee, shall prepare a municipal heritage master plan that identifies cultural heritage resources and outlines programs and strategies to protect, interpret and responsibly use cultural heritage resources.

City Policy
Cultural Heritage Inventory

8.7 City Council, in association with its heritage committee, shall:

(a) conduct an inventory of heritage resources owned by the City, its boards and commissions, and establish an overall program for the maintenance, use, reuse or, if warranted, disposal of these resources;

(b) maintain an inventory of heritage resources designated or worthy of designation under the *Ontario Heritage Act*; and

(c) store and disseminate cultural heritage resource inventories and databases in convenient and publicly accessible locations and formats, and maintain an archive of heritage conservation information.

Some of the important areas in Pickering having cultural heritage value include:

- **the Whitevale Heritage Conservation District**
- **the City's rural hamlets**
- **Pickering Museum Village**
- **the Oak Ridges Moraine**
- **river valleys**
- **the Former Lake Ontario Shoreline**
- **Frenchman's Bay and area**
- **views from Whitevale Road and other scenic roads**

City Policy
Cultural Heritage Alteration and Demolition

8.8 City Council, in consultation with its heritage committee, shall:

(a) allow alterations, additions or repairs to buildings designated under the *Ontario Heritage Act*, provided the changes to the building do not detrimentally affect the heritage value;

(b) allow new buildings, or alterations, additions or repairs to existing buildings within a Heritage Conservation District that are consistent with the District Conservation Guidelines;

(c) discourage or prevent the demolition or inappropriate alteration of a heritage resource, but where demolition or inappropriate alteration is unavoidable:

(i) consider the acquisition and conservation of the resource; and

(ii) if acquisition is not possible, conduct a thorough review and documentation of the resource for archival purposes; and

In 1995, Town Council received approval from the Ontario Municipal Board of its by-law designating a Whitevale Heritage Conservation District.

To assist landowners and residents of the District in maintaining their properties, a document entitled "A Guide: Whitevale Heritage Conservation District" was prepared giving information on compatible development and outlining the heritage building permit process.

(d) ensure that designated cultural heritage buildings, and other important cultural heritage resources that are vacant for an extended period of time are inspected regularly to discourage vandalism and monitor conformity with the City's Maintenance and Occupancy By-law.

City Policy
Guidelines for Use and Reuse

8.9 City Council shall consider the following guidelines on the use and reuse of heritage resources:

(a) maintain, if possible, the original use of heritage structures and sites, and if possible, retain the original location and orientation of such structures;

(b) where original uses cannot be maintained, support the adaptive reuse of heritage structures and sites to encourage resource conservation; and

(c) where no other alternative exists for maintaining heritage structures in their original locations, allow the relocation of the structure to appropriate sites or areas.

City Policy

Archaeological Resources

8.10 City Council shall encourage the preservation or excavation of important archaeological sites, and in doing so shall:

(a) require an archaeological assessment, as a condition of development, on sites having the potential of containing significant archaeological resources, which assessment shall be undertaken in consultation with the Province, the Region and/or the City;

(b) require that any significant archaeological remains discovered by the archaeological assessment be conserved by removal and documentation or preservation on-site to the satisfaction of the Province, the Region and/or the City, and donated to an appropriate authority; and

(c) utilize, where appropriate, zoning by-law provisions to preserve archaeological resources on-site.

This page intentionally left blank.

Chapter 9 - Community Design

The City recognizes the value and benefits of ensuring for its residents, business-people and visitors, the creation of high quality built and natural environments. In addition to achieving a distinctive physical form that expresses the City's image as the western anchor of Durham Region, many social, economic and environmental benefits are realized by achieving well designed environments.

As Pickering continues to grow and evolve, design excellence must be promoted when the basic community building blocks are constructed, including the streets, parks, public squares, shops and residential neighbourhoods. Community design should focus on the relationships between, as well as the visual character and aesthetic qualities of, the City's basic community building blocks.

This Chapter sets out a strategy for addressing community design over the next twenty years of Pickering's evolution. It is derived from the planning principles, goals and policies contained in Part 1, and addresses the existing and future needs of the City's urban, rural and ecological systems. The strategy supports and is supported by the other strategies and policies of this Plan, including land use, transportation, economic, housing, community services, cultural heritage and resource management.

Pickering's Ten Community Design Concerns

- **Human Scale**
- **Pedestrian Comfort**
- **Mixed Uses**
- **Permeability**
- **Context**
- **Building Adaptability**
- **Places versus Buildings**
- **Attractive Public Spaces**
- **Legibility**
- **Natural Heritage**

In general, the strategy focuses on ten community design concerns important to the creation of high quality built and natural environments. These concerns have been translated into objectives which set out the City's overall approach to community design, and provide a means of identifying the strategic areas which Pickering must focus on in order to achieve design excellence.

The community design strategy also involves fifteen specific detailed design considerations that are important in defining and establishing the City's image and form. Detailed policies are given for each of these design considerations in Chapter 14 (Detailed Design Considerations) of this Plan. These detailed policies apply to the entire City (both the rural and urban area).

Other design-related policies may appear elsewhere in this Plan.

City Policy
Community Design Goal

9.1 City Council shall promote developments at various scales which, through their adherence to principles of good, high quality community design, will produce built and natural environments in Pickering that offer enjoyment, comfort and safety for all users, and evoke a desirable image and sense of place for the City.

City Policy
Community Design Objectives

9.2 To achieve the community design goal, City Council shall:

(a) encourage the creation of an overall physical form for Pickering that is related to the scale and pace of pedestrians;

(b) **encourage private and public developments that offer pedestrians and users a high level of comfort, enjoyment and personal protection;**

(c) **encourage private and public developments that provide an integrated mix of uses, activities and experiences;**

(d) **encourage the design of road patterns, buildings and the spaces between them in a manner that supports an efficient public transit system and makes it easy for both pedestrians and vehicles to move about in a variety of directions;**

(e) **encourage developments that are designed to fit their contexts by considering the mix of uses, and the massing, height, scale, architectural style and details of existing, adjacent buildings;**

(f) **encourage developments that create spaces between and along buildings that are of high architectural and landscape quality, and contribute to and enhance the overall quality of Pickering's public realm;**

(g) **encourage, where appropriate, the creation of landmarks and other distinctive elements including buildings, open spaces, landscapes and natural features that make it easy for people to understand where they are, and how they get to the various places, amenities and facilities they require;**

(h) **encourage the design of buildings and places that can be used for a variety of purposes, and are capable of adapting over time to changing circumstances and opportunities;**

(i) **encourage the use of colour, decoration and variation in material to create buildings, and the spaces around buildings, that are attractive for people to look at and use; and**

(j) **encourage developments that establish appropriate relationships between built and natural environments, that ensure sensitive natural systems are protected and where possible enhanced, and celebrate significant aspects of the natural and cultural landscape.**

City Policy

Implementing Community Design

9.3 To implement Pickering's community design strategy, City Council shall require development at all scales (community-wide, neighbourhood, street, block and lot) to be designed and built in accordance with the Part 4 Detailed Design Considerations (Chapter 14) of this Plan.

Chapter 10 - Resource Management

The resource management strategy set out in this Chapter is derived from the planning principles, goals and policies of Part 1. A resource management strategy is established that addresses the existing and future needs of the City's urban, rural and ecological systems.

This Chapter provides the City's key policies on resource management. Additional policies related to resource management may be provided in other sections of this Plan.

In general, the City's resource management strategy promotes stewardship of resources for existing and future generations through public actions, private actions and encouraging individuals to make environmentally responsible choices. The rehabilitation of degraded ecosystems, reduction of waste, and protection of diverse and important natural species and systems is strongly encouraged. In addition, risk management strategies address the protection of people from environmentally hazardous conditions or locations that pose a danger to public safety, health or property. The Resource Management Schedule identifies the various resource features and areas (see Schedules IIIA to IIIF to this Plan, found at the end of the Plan).

The resource management strategy supports, and is supported by, the other planning strategies outlined in Part 2: land use, transportation, economic development, housing, community services, cultural heritage and community design.

City Policy
Resource Management Goal

10.1 City Council shall, in partnership with other agencies and individuals, ensure the protection, conservation and enhancement of the City's natural heritage features and functions, water, air, energy and other resources, as well as ensure the protection of people and property from environmental hazards.

City Policy
Resource Management Objectives

10.2 City Council shall:

(a) identify key natural heritage and key hydrologic features and areas to be protected and enhanced, and risk areas requiring special attention;

(b) protect and enhance important key natural heritage and key hydrologic features and areas as part of the Natural Heritage System;

(c) protect people and property from environmental hazards;

(d) encourage the managed use and conservation of natural resources, and encourage public and private conservation efforts;

(e) promote the use of renewable energy sources and encourage reduced consumption of non-renewable energy sources;

(f) coordinate with other levels of government, public and private agencies, and other groups to identify, research, protect, and manage the City's natural resources, and institute regular environmental monitoring and reporting;

(g) **involve the public, business-people, landowners, relevant public agencies, and other interested groups and individuals in resource management decisions affecting the City; and**

(h) **protect water quality and water quantity for municipal drinking water systems.**

City Policy
Land Stewardship

10.3 City Council shall encourage public and private practices that protect important key natural heritage features and landscapes in their natural state, including:

(a) **assisting conservation authorities in the preparation and implementation of watershed plans;**

(b) **promoting and, where appropriate, assisting in the rehabilitation and restoration of degraded landscapes;**

(c) **requiring where development is proposed, restoration planting and encouraging in other areas naturalized vegetation protection zones adjacent to key natural heritage and key hydrologic features;**

(d) **implementing soil erosion controls such as: Topsoil and Fill By-laws; construction practices which minimize the exposure of soil to the elements; and soil conserving agricultural practices;**

(e) **encouraging cooperation with private land owners in the management of their lands through education, conservation easements and/or public acquisition, where warranted; and**

(f) **promoting, through education, research and collaboration with conservation authorities and farm organizations, agricultural land management practices that reduce and minimize the amount of nutrients and pesticides used on the lands that have the potential to enter ground and surface water systems.**

City Policy
Resource Management Standards,
Guidelines and Studies

10.4 City Council shall:

(a) **review and revise, where appropriate, its municipal development standards, guidelines, and maintenance and operating procedures to ensure they are environmentally sensitive;**

(b) **encourage environmentally responsible practices, such as natural methods of weed and pest control;**

(c) **assist, where warranted, relevant authorities in the preparation and implementation of resource management plans for key natural heritage and key hydrologic features; and**

(d) **endeavour to support the overall goal and related objectives of the Lake Ontario Greenway Strategy in decisions affecting the future of the Pickering waterfront.**

Resource Protection and Enhancement

The City's resource protection and enhancement policies provide direction on specific features of natural significance, from stream corridors to the Oak Ridges Moraine, as well as resources such as aggregates. Collectively, these resources present unique attributes that are of benefit to the community.

City Policy
Watershed Planning

10.5 City Council shall cooperate with the relevant Conservation Authorities, the Regional Municipality of Durham, the relevant Provincial Ministry, Parks Canada, and other partners in the preparation and update of the Rouge River, Duffins Creek, Carruthers Creek, Lynde Creek, Petticoat Creek, Bella Vista, and Frenchman's Bay and Lake Ontario Waterfront watershed plans and sub-watershed plans where required; accordingly Council shall:

(a) implement the applicable objectives and requirements of completed watershed and sub watershed plans into planning documents as appropriate, in order to achieve sustainable and healthy watersheds through an integrated water conservation approach and the protection of local surface water and groundwater resources;

(b) prior to considering the inclusion of lands in northeast Pickering for urban area expansion, require an update to the East Duffins Creek and Carruthers Creek watershed plans; and

(c) ensure that cumulative effects on the Lynde Creek watershed, including hydrology and natural heritage are assessed, avoided to the extent possible, and mitigated as part of any proposed urban area expansion in that watershed.

Watershed boundaries are defined by nature and, as a result, watershed plans often overlap a number of municipal boundaries. Watershed and sub-watershed plans provide direction for the improved and effective management and restoration of a watershed and sub-watershed. Such plans are intended to:

- **serve as a guide to improve water quality, reduce flood damage and protect natural resources in a watershed**
- **prevent existing watershed problems from worsening as a result of land development, infrastructure activities and other activities**
- **provide an opportunity for multiple jurisdictions to coordinate their efforts and accept their relevant responsibilities in terms of the impact their actions and decisions have on upstream and downstream areas**

City Policy
Natural Heritage System

10.6 City Council acknowledges that achieving an integrated Natural Heritage System is vital to ensuring healthy and resilient watersheds; accordingly the Natural Heritage System is identified on Schedule IIIA. Protection of this system is encouraged to support ecological integrity, including healthy terrestrial and aquatic ecosystems. Lands with the highest concentration of the most sensitive and/or key natural heritage and key hydrologic features and functions, are identified on Schedules IIIB, IIIC and IIID.

City Policy
Stream Corridors

10.7 City Council recognizes the importance of its stream corridors, and acknowledges the health of its significant valleylands and corridors can be affected by uses and activities anywhere in the watershed; accordingly, Council shall, in coordination with the relevant conservation authority:

(a) identify permanent and intermittent streams on Schedule IIIC to increase awareness of these features;

(b) protect watercourses and significant valleylands and stream corridors in an open and natural state as a key component of the Open Space System;

(c) regard significant valleylands and stream corridors to be important wildlife corridors, and encourage land owners adjacent to, and permitted activities within the corridors to implement best management and stewardship practices;

(d) incorporate watercourses into the Open Space System, and encourage public ownership of these resources where appropriate and feasible;

(e) where significant valleylands and stream corridors cannot be secured in public ownership, encourage stewardship practices (see Section 10.3);

Best management and stewardship practices on lands adjacent to or within stream corridors may include:

- **keeping pets on a leash to avoid disturbing wildlife**
- **staying on established trails to prevent soil compaction and erosion**
- **avoiding using pesticides or herbicides near natural areas**
- **being aware of invasive garden plants and avoiding introducing them to natural areas**

(f) require conveyance of significant valleylands and associated vegetation, and/or buffers to the City or other public agency as a condition of development approval, where appropriate;

(g) where eroded and degraded stream corridors are restored for the purpose of protecting infrastructure or restoring natural form and function, encourage the restoration of natural riparian vegetation and removal of barriers to fish migration, where appropriate;

(h) promote stream rehabilitation, through the principles of natural channel design and use of bio-engineering techniques in the final design and construction, to the satisfaction of the City and the Conservation Authority; and

(i) require, where appropriate, the recommendations of an Environmental Report to be implemented (see Section 16.8).

City Policy
Stormwater Management

10.8 City Council recognizes the importance of stormwater management in addressing water quality, quantity, temperature, erosion control and water balance for groundwater and key natural heritage and key hydrologic features; accordingly, Council shall, in coordination with the relevant conservation authority:

(a) manage the quality and quantity of stormwater runoff being released, as well as erosion control and water balance for groundwater recharge and natural features in the City by:

(i) preparing and updating, as required, subwatershed plans, master drainage plans and stormwater management guidelines that include natural features and fisheries preservation and enhancement strategies, in consultation with relevant authorities and agencies;

(ii) **requiring a stormwater management plan that implements a management concept endorsed by a watershed, subwatershed or master drainage plan, where applicable, prior to the approval of any site-specific development proposal;**

(iii) **require that designated areas for snow storage are located where melting snow cannot carry contaminants and salt loads directly into Significant Groundwater Recharge Areas and/or Highly Vulnerable Aquifers; and**

(b) **consider alterations or enclosures of limited portions of watercourses within existing, urbanized areas if supported by an approved subwatershed plan or environmental master servicing plan;**

(c) **promote the use of stormwater management practices such as:**

(i) **naturalized methods to mitigate the effects of stormwater runoff within valley systems;**

(ii) **integration of stormwater quality and quantity features into the open space network; and**

(d) **for any application for development or site alteratioin within the Oak Ridges Moraine, require stormwater management plans in accordance with Sections 10.8 and 16.44, and for lands within the Greenbelt in accordance with the Stormwater Management Infrastructure Policies of the Greenbelt Plan.**

City Policy
Waste Management

10.9 **City Council recognizes that industrial and post-consumer waste is a resource to be managed; accordingly, Council shall:**

(a) **support and promote reduction, reuse and recycling of waste in all households, businesses and municipal operations;**

(b) **focus more on the reduction and elimination of waste than on the management of waste generated;**

(c) **encourage businesses to develop safe, cost-effective and innovative ways of recycling or reusing waste materials in order to divert them from landfill;**

(d) **prepare an appropriate waste management strategy for the City's facilities, as well as for households, institutions and businesses within the City; and**

(e) **review development proposals to ensure waste management and waste reduction is accommodated.**

City Policy
Aggregate Resources

10.10 **City Council, in acknowledging that mineral aggregates are an important resource, recognizes that there are some areas of high potential mineral aggregate reserves remaining in the City; accordingly, Council shall:**

(a) **identify Areas of High Potential Mineral Aggregate Resources to increase awareness of this area (see Schedule IIIE);**

(b) **require proponents of development within or adjacent to Areas of High Potential Mineral Aggregate Resources that could preclude or hinder existing or future aggregate extraction, to submit a study that assesses the potential aggregate reserves on the site and the impact of the proposal on the ability of lands within the area of high potential to be utilized for extraction purposes, and for such development to be permitted the required study must demonstrate that:**

(i) **the extraction of the resource would not be feasible; or**

(ii) **the proposed land uses would serve a greater long-term public benefit; and**

(iii) **issues of public health, public safety and environmental impact are addressed; and**

(c) **require new sites for aggregate extraction, including new sites for aggregate extraction or expansions to existing aggregate operations within or outside the Oak Ridges Moraine or the Greenbelt Plan to be established by amendment to this Plan and to the Durham Regional Official Plan (see Section 16.34);**

(d) **require, where appropriate, the recommendations of the required studies be implemented (see (b) above and Section 16.34); and**

(e) **encourage the rehabilitation of abandoned pits and quarries in a manner that is compatible with surrounding land uses.**

City Policy
Water and Energy Conservation

10.11 City Council recognizes the importance of water and energy conservation; accordingly, Council shall:

(a) **encourage the construction of water conserving and energy efficient buildings;**

(b) **encourage the maintenance or establishment of tree cover which provides winter shelter and summer shading, reduces the heat island effect, and reduces stormwater run-off;**

(c) **encourage the placement of buildings to optimize passive solar energy gain to the building site and adjacent lands;**

(d) **encourage water and energy conservation in all facilities owned and operated by the City;**

(e) **encourage the central production and distribution of heating or cooling, such as district energy, in order to reduce greenhouse gas emissions and to improve the efficiency of energy generation and transportation;**

(f) **encourage the use of renewable energy systems in accordance with federal and provincial requirements and in a manner that is compatible with the natural environment and surrounding land uses; and**

(g) **support efforts to protect: healthy aquatic and terrestrial ecosystems and ecological systems within watersheds; clean drinking water for watershed residents; sustainable human use of groundwater resources for non-drinking water purposes; and Lake Ontario as a drinking source.**

City Policy
Key Natural Heritage and
Key Hydrologic Features

10.12 City Council recognizes the significance and sensitivity of key natural heritage and key hydrologic features and their inter-related systems of water resources, biotic habitat, natural and cultural heritage, and landform; accordingly, Council shall:

(a) **identify key natural heritage and key hydrologic features outside the Oak Ridges Moraine in cooperation with appropriate agencies (see Schedules IIIB and IIIC);**

(b) **identify key natural heritage features and key hydrologic features within the Oak Ridges Moraine (see Section 16.42 and Schedules IIIB and IIIC);**

(c) **ensure the protection of these areas from development;**

(d) encourage stewardship practices where key natural heritage and key hydrologic features are located on lands held in private ownership; and

(e) require, where appropriate, the recommendations of an Environmental Report to be implemented (see Section 16.8).

City Policy

Areas of Groundwater Protection

10.13 City Council recognizes that areas of groundwater recharge and Highly Vulnerable Aquifer make significant contributions to the quality and quantity of groundwater and surface water, and acknowledges that land uses and activities hold implications for this quality and quantity, both in the short-term and cumulatively over time; accordingly, Council shall:

(a) identify known areas of groundwater recharge and Highly Vulnerable Aquifer to increase awareness of these areas (see Schedule IIID);

(b) require, where development is proposed within or adjacent to a sensitive Significant Groundwater Recharge Area, the preparation of a hydrogeology and water budget study to the satisfaction of the City, the relevant conservation authority and the relevant Provincial Ministry, and a mitigation strategy to ensure no loss of water recharge quantity or quality;

(c) identify areas of Highly Vulnerable Aquifer on Schedule IIID, and prohibit uses considered to be a high risk to groundwater as identified in the Durham Regional Official Plan within the identified areas of Highly Vulnerable Aquifer, except within the Urban Area where an application to permit such high risk uses shall be accompanied by a Contaminant Management Plan that defines the approach to protect water resources;

(d) encourage existing land uses considered to be a high risk to groundwater that are located within Highly Vulnerable Aquifer areas to implement best management practices;

(e) require, where appropriate, the recommendations of a hydrogeology and water budget/balance study, groundwater impact study, environmental report (see Sections 16.8 and 16.10), and any evaluation reports referenced in Section 16.14, as applicable, to be implemented;

Contaminant Management Plan means a nutrient management strategy or plan if, and as required by the *Nutrient Management Act*, 2002, or a municipal nutrient management by-law, or a comparable management and contingency plan for the management of contaminants stored or discharged from the subject lands that are not nutrients as defined by the *Nutrient Management Act*, 2002.

(f) despite Sections 10.13(b), (c) and (e), not require further studies addressing groundwater recharge or Highly Vulnerable Aquifers, for proposed development that was addressed through the Master Environmental Servicing Plan for the Seaton Community; and

(g) where development is proposed within a Significant Groundwater Recharge Area and/or a Highly Vulnerable Aquifer where the application of road salt would be a moderate or low drinking water threat, require the submission of a salt management plan as part of a complete development application to address the:

(i) design of roads, sidewalks and parking lots in order to minimize the need for repeat applications of road salt, while maintaining public safety; and

(ii) location of snow storage so that contaminants and salt loads from snow melt are not carried into Significant Groundwater Recharge Areas and/or Highly Vulnerable Aquifers.

City Policy
Forests, Fields and Hedgerows

10.14 City Council recognizes the importance that fields and hedgerows have for linkages among natural areas, diversity of landscape and opportunities for various species to forage, nest and breed; accordingly, Council shall:

(a) encourage stewardship practices where fields and hedgerows are held in private ownership (see Section 10.3);

(b) encourage the protection of these areas from development;

(c) consider all tools available to assist with tree preservation, and implement such tools where appropriate, including the Region of Durham By-law regulating the cutting of trees; and

(d) require, where appropriate, the recommendations of an Environmental Report to be implemented (see Sections 16.8 and 16.10).

City Policy
Urban Forest

10.15 City Council recognizes the importance of the urban forest in maintaining a healthy ecosystem, managing stormwater, providing wildlife habitat and community aesthetics, reducing the urban heat island effect and improving air quality; accordingly Council shall:

(a) develop and implement an Urban Forest Management Plan to protect, restore, manage, and expand the urban forest, which Plan shall contain goals and strategies that include as a minimum the following:

(i) develop and implement, in collaboration with conservation authorities, an invasive species management strategy to address threats posed by invasive pests, diseases and plants;

(ii) identify where tree planting efforts should be prioritized by conducting a thermal mapping analysis of "hot spots";

(iii) require the planting of native or non-native non-invasive tree species and vegetation that are resilient to climate change and provide high levels of carbon sequestration;

(iv) protect against the removal of mature and undamaged trees that are worthy of preservation; unless the removal is approved through an application under the *Planning Act*, or other applicable legislation, subject to the submission and approval of all required studies; and

(v) require compensation in the form of on site or off-site tree planting or alternative methods of compensation, where trees are removed, provided that such compensation will not be required where removal without compensation is authorized as part of a previously approved application under the *Planning Act*, or other applicable legislation.

City Policy
Oak Ridges Moraine

10.16 City Council recognizes that the Oak Ridges Moraine provides a wide range of environmental functions critical to the maintenance of healthy water resources and natural heritage values in the City and beyond; accordingly, Council shall:

(a) designate the Oak Ridges Moraine boundary in accordance with Ontario Regulation 01/02;

(b) implement the Oak Ridges Moraine Conservation Plan, (Ontario Regulation 140/02) through this Plan as required by the *Oak Ridges Moraine Conservation Act,* 2001;

(c) where questions of interpretation arise, regard shall be given to the Oak Ridges Moraine Conservation Plan;

(d) implement a development control strategy that requires all development on the Oak Ridges Moraine to maintain the ecological integrity of the key natural heritage features, preserves the sensitive hydrologic features and maintains the significant landform features of the Moraine in accordance with Chapter 16; and

(e) where the policies of this Plan contradict the Oak Ridges Moraine Conservation Plan, the more restrictive policies shall prevail with the exception of policies that apply to agricultural uses, mineral aggregate operations and wayside pits.

The Oak Ridges Moraine was formed approximately 12,500 years ago when material gathered between two separate lobes of glacial ice creating an interlobate moraine. The moraine is significant for its unique concentration of geological, hydrogeological, landform and special attributes. Only a small portion of the moraine extends into the City. Nevertheless, it is the source of many of the City's streams, and provides important local ecological and aesthetic values.

City Policy
Lake Ontario Waterfront and
Frenchman's Bay

10.17 City Council recognizes the ecological, cultural, recreational and economic significance of Frenchman's Bay and the Lake Ontario Waterfront; accordingly, Council shall:

(a) protect the shoreline of Frenchman's Bay and the Lake Ontario Waterfront using all available resources including identifying the major portion of these areas as part of the Natural Heritage System (see Schedule IIIC);

(b) permit uses and activities along and adjacent to Frenchman's Bay and the Lake Ontario Waterfront that promote the area as attractive, healthy and accessible, while protecting and/or enhancing ecological systems and the character of abutting neighbourhoods;

(c) prepare, in association with the Region of Durham, Waterfront Regeneration Trust, Toronto and Region Conservation Authority and interested others, a Waterfront Management Strategy for Frenchman's Bay, the Lake Ontario waterfront and their related lands, which shall take into consideration the conclusions and recommendations of:

Frenchman's Bay is the largest natural bay along the north shore of Lake Ontario between Hamilton and Trenton. It is also a highly valued ecological community with provincially rare plants, regionally rare breeding birds, important fish habitat, and it is an important stopover for migrating waterfowl and shorebirds.

(i) the Durham Region Lake Ontario Waterfront Report;

(ii) the Lake Ontario Greenway Strategy;

(iii) integrated shoreline management plans; and

(iv) other relevant reports;

(d) require that the Waterfront Management Strategy explore opportunities for the waterfront to serve a local and regional role in recreation, tourism and economic development, and address, where necessary:

(i) refined land uses and scale of development;

(ii) design guidelines for built form;

(iii) scale, location and type of recreational opportunities;

(iv) increased public access;

(v) natural habitat restoration and expansion;

(vi) expanded trail links and connections; and

(vii) any other matters City Council deems necessary;

(e) implement the City of Pickering Frenchman's Bay Stormwater Management Master Plan, which identifies a number of projects, programs and policies designed to address issues related to flooding, erosion and poor water quality in Frenchman's Bay and its tributary sub-watersheds;

(f) encourage and support actions by public agencies and others to improve and restore the quality of Lake Ontario, including programs to address concerns regarding nutrient loads and the proliferation of invasive species, chemical contaminants and algae growth;

As early as the mid 1800s, Frenchman's Bay was a bustling centre for trade, transport and the lumber industry. Over time, the focus of activity in the area has shifted to recreation, with parks, marinas and yacht clubs.

The significant ecological communities for which Frenchman's Bay is renowned, are in jeopardy because of this past activity and the diminished quality of freshwater streams which feed the bay. It is vital that this course be reversed, so that the bay and entire waterfront lands continue to be a model of nature co-existing with community.

(g) require, where appropriate, that the recommendations of an environmental report to be implemented (see Sections 16.8 and 16.10); and

(h) require that designated areas for snow storage are located where melting snow cannot carry contaminants and salt loads directly into a Significant Groundwater Recharge Area and/or Highly Vulnerable Aquifers.

City Policy

Former Lake Iroquois Shoreline

10.18 City Council recognizes that the Former Lake Iroquois Shoreline is an important geological and geomorphological feature that is generally associated with significant natural areas comprising groundwater discharge, recharge and storage areas, significant woodlands and wildlife habitats; accordingly, Council shall:

(a) designate the approximate location of the Former Lake Iroquois Shoreline to increase awareness of this feature (see Schedule IIIB); and

(b) require, where appropriate, the recommendations of an Environmental Report to be implemented (see Section 16.8).

When the last glacier covering this area receded, Pickering was beneath a body of water known as Lake Iroquois. The former shoreline is most apparent where it appears as a hill such as on Rosebank Road, just north of Finch Avenue.

City Policy
Rouge National Urban Park

10.19 City Council recognizes that the Rouge National Urban Park is a special place of outstanding natural features and diverse cultural heritage; accordingly, Council shall:

(a) support the key strategies, objectives, and actions of Parks Canada's Rouge National Urban Park Management Plan to protect the natural and cultural heritage, and promote a vibrant farming community, manage change, forge physical connections, advance shared objectives, and facilitate the transition of the park to the Rouge National Urban Park;

(b) promote public responsibility, understanding, appreciation and enjoyment of the Park; and

(c) protect and enhance the environmental integrity of this feature by:

(i) identifying the boundary of that portion of the Rouge National Urban Park that is situated in Pickering to increase awareness of this area (see Map 5);

(ii) furthering the key and transitional strategies and objectives of the Rouge National Urban Park Management Plan by assisting and cooperating with Parks Canada;

(iii) encouraging, where appropriate, the conveyance of publicly owned lands within the Park to Parks Canada; and

(iv) require, where appropriate, the recommendations of an Environmental Report to be implemented (see Section 16.8).

The Rouge National Urban Park is the first national urban park in Canada, with over 1,700 hectares of the park situated within the City of Pickering. More than 1,700 species of plants, animals and birds make thier home in the park.

The Park was established to protect the ecological integrity of the valley system of the Rouge River and its key tributaries in an area stretching from Lake Ontario in the south, to the Oak Ridges Moraine in the north.

City Policy
Rouge-Duffins Wildlife Corridor

10.20 City Council recognizes that the Rouge-Duffins Wildlife Corridor is intended to function as a significant vegetated connector providing for species migration between the Rouge and Duffins valley systems; accordingly, Council shall:

(a) identify the Rouge-Duffins Wildlife Corridor as a Key Natural Heritage Feature on Schedule IIIB, while recognizing that any interpretation of the boundaries of the Open Space System on Schedule I, through an Environmental Report, in accordance with Section 15.4 of this Plan, shall result in coincident interpretation of the boundaries of the Corridor shown on Schedule IIIB;

(b) require, where appropriate, that the recommendations of any Environmental Report required by Section 16.8 and the development guidelines resulting from Section 12.16(a) be implemented;

The corridor is intended to function as a natural linkage between the Rouge and Duffins valleys which provides nearly uninterrupted passage for various species. This broadens their habitat and can lead to greater species survival.

(c) require that the development guidelines and Environmental Report(s) referred to in (b) above address the relationship of such matters as appropriate setbacks and/or buffers, edge management and stormwater management to the Rouge-Duffins Wildlife Corridor;

(d) recognize that any uses permissible within the Open Space System - Natural Areas designation (see Table 3) are permissible within the Rouge-Duffins Wildlife Corridor as identified on Schedule IIIB;

(e) despite the permissible uses listed in Table 12, permit utility and ancillary uses, as well as any uses permissible within the Open Space System – Natural Area designation (see Table 3) on lands designated both Freeways and Major Utilities – Potential Multi-Use Area on Schedule I and also Rouge-Duffins Wildlife Corridor on Schedule IIIB;

(f) encourage best management practices and land stewardship for lands adjacent to and within the wildlife corridor in order to maintain and improve corridor quality; and

(g) encourage the relevant Provincial Ministry, Toronto and Region Conservation Authority, Region of Durham, Hydro Ontario Networks Inc., and interested others to prepare a "Rouge-Duffins Wildlife Corridor Management Plan" and establish funding for ongoing maintenance and restoration of the Corridor.

City Policy
Altona Forest

10.21 City Council recognizes that the Altona Forest provides an integral linkage to the Rouge-Duffins Wildlife Corridor and is an area of significant vegetation and diverse wildlife; accordingly, Council shall:

(a) designate an Altona Forest Policy Area and institute various development controls in this area (see Schedule IIIB and Section 16.31);

(b) support the goals and objectives of the Altona Forest Environmental Management Plan, prepared by the Toronto and Region Conservation Authority, and recognize that this Plan will serve as the primary guide in the management of the Altona Forest; and

(c) consider supporting the establishment of a Community Advisory Council to assist City Council and the Toronto and Region Conservation Authority in matters related to the management of the Altona Forest.

The Altona Forest Policy Area is bounded by the C.N. rail line in the south, Altona Road in the west, Rosebank Road in the east, and the Ontario Hydro Corridor in the north. Within this area lies the Altona Forest. The Altona Forest consists of a healthy and diverse ecosystem within the urban centre of Pickering, featuring a mixed coniferous and deciduous forest providing important habitat for a large number of plants and animals.

Environmental Risk Management

The City's risk management policies emphasize the need to manage flood plains, areas prone to erosion and slope instability, contaminated soils, abandoned oil and gas wells, and noise, odour, and other emissions in a manner that protects people and property from potentially hazardous conditions and situations, while protecting environmental resources and systems. A key component of the City's approach shall be to direct development away from areas of natural or human-made hazards where there is an unacceptable risk to public health, safety or property.

City Policy
Shorelines, Significant Valleylands,
Stream Corridors, and Hazardous Lands

10.22 City Council recognizes that hazardous lands and hazardous sites could be unsafe for development due to naturally occurring processes and climate change, including flooding hazards, erosion hazards, dynamic beach hazards, and unstable soils or bedrock; accordingly, Council:

- **(a) shall identify shorelines, significant valleylands, and stream corridors (which may include hazardous lands) to increase awareness of these features (see Schedule IIIC);**
- **(b) shall adhere to provincial standards and conservation authority regulations and standards for identifying the limits of hazardous lands and hazardous sites;**
- **(c) shall protect the safety of the public by directing development or site alteration to locations outside of hazardous lands and hazardous sites and their associated minimum vegetation protection zones, with the exception of:**
  - **(i) development permitted in accordance with the Flood Plain Special Policy Areas provisions (see Section 10.23);**
  - **(ii) development and site alteration in certain areas associated with a flooding hazard along watercourse or stream corridors where the development is limited to uses which by their nature must locate within the flood plain, including flood and/or erosion control works or non structural uses such as trails, limited recreational and educational uses, and limited sports fields, subject to the requirements of the conservation authorities and the City; and**
  - **(iii) instances where safe entry and exit ways need to be established during times of flooding, erosion and other emergencies, subject to the approval of the conservation authorities and the City; and**

The areas identified as Shorelines, Significant Valleylands, and Stream Corridors (which may include hazardous lands) on Schedule IIIC are based on regulations and mapping prepared by conservation authorities. A regulated area may include lands that feature valley corridors, stream corridors or water bodies, and associated natural heritage features. Permits are required to alter land within these areas because if left unchecked, the alterations could lead to erosion, flooding or loss of natural habitat.

Conservation Authorities and the Province possess the legal responsibility to administer physical changes to water courses and lake shores, pursuant to applicable Ontario Regulations, the *Lakes and Rivers Improvement Act* and the *Federal Fisheries Act*.

(d) **may permit alterations to a watercourse or stream corridor, including the placement or removal of fill, or placement of the necessary stabilization materials for erosion protection, or the provision of access to a valley, only following the appropriate approval of the relevant Conservation Authority and the relevant Provincial Ministry, where necessary.**

City Policy
Flood Plain Special Policy Areas

10.23 City Council recognizes that certain communities within the City have developed on lands susceptible to flooding, and acknowledges the continued viability of these areas; accordingly, Council:

(a) **designated a Flood Plain Special Policy Area near Brock Road and Kingston Road (see Schedule IIIC), and this designation shall be maintained and development permitted in accordance with Section 16.32 of this Plan until such time as a detailed study can be carried out to update the designation and related policies in accordance with the Provincial Ministry's Procedures for the approval of New Special Policy Areas (SPAs) and Modifications to Existing SPAs under Provincial Policy Statement, 2014; and**

(b) **may, despite Section 10.22, permit development, including the rehabilitation of, and extension to, existing buildings and structures within Flood Plain Special Policy Area (see Schedule IIIC), provided appropriate flood protection measures are instituted (see Section 16.32).**

City Policy
Pollution, Contamination, Waste Disposal Sites,
Abandoned Oil and Gas Wells and
Other Human-Made Hazards

10.24 City Council recognizes the potentially serious impacts of pollution, contamination, waste disposal sites, abandoned oil and gas wells and other human-made hazards on the community; accordingly, Council shall:

(a) **oppose the establishment of any new landfill sites in Pickering serving the needs of people and businesses living or operating outside of the City;**

(b) **prohibit new or expanded waste disposal sites without amendment to this Plan;**

(c) **prohibit development on lands that are environmentally unsuitable for the proposed use, considering the safety and health of the user, and potential negative effects on the natural environment;**

(d) **where contaminated lands are suspected, require proponents to undertake investigative and restorative actions (see Section 16.11);**

(e) **encourage practices that have beneficial effects on aquatic and terrestrial ecosystems and reduce the potential to pollute air, soil, and water;**

(f) **assist, where possible, in preventing environmentally hazardous emissions and spills, and promoting the restoration of environmentally hazardous sites;**

(g) **participate in programs controlling invasive, alien or noxious species in the environment;**

(h) **identify general locations of known active and former waste disposal sites and abandoned oil and gas wells to increase awareness of these areas (see Schedule IIIE);**

(i) **for proponents with lands:**

  (i) **which include or are adjacent to abandoned oil and gas wells or other human made hazards, or**

(ii) which include or are within 500 metres of a known or suspected former waste disposal site,

require the recommendations of an Environmental Report to be implemented (see Section 16.8), and permit development only if necessary measures to address and mitigate known hazards are implemented;

(j) in considering any proposal for the reuse of a former waste disposal site, require written approval from the relevant Provincial Ministry that the development satisfies provincial legislation and guidelines; and

(k) in considering any proposal for a site affected by mine hazards; oil, gas and shale hazards; or former mineral aggregate operations or petroleum resource operations, require written confirmation from the applicant that rehabilitation or other measures to address and mitigate known or suspected hazards are underway or have been addressed.

City Policy
Noise, Vibration, Dust, Light, Safety and Odour

10.25 City Council recognizes that people's normal use and enjoyment of property may be affected by unacceptable levels of noise, vibration, dust, light spillage, odours or safety concerns in proximity to railway lines; accordingly, Council shall require proponents of affected developments to adequately address noise, vibration, dust, light, odour or safety concerns, and where necessary, to incorporate into such developments, appropriate mitigation measures as may be specified in a required analysis (see Section 16.12).

City Policy
Climate Change

10.26 City Council recognizes that energy conservation and efficiency efforts, the adaptation of buildings, infrastructure and site development to be more resilient to severe weather, and the reduction of greenhouse gas emissions will assist in addressing potential adverse environmental impacts of climate change; accordingly, Council shall identify, evaluate and introduce appropriate mitigation and adaptation strategies to reduce the environmental, social and economic effects of predicted climate change and severe weather events on the community, which may include the preparation of a Climate Change Management Plan. Such strategies will be established in consultation with the public, business people, landowners, relevant public agencies and other interested groups.

Adaptation will increase the City's ability to reduce, and effectively manage disruptions to critical community infrastructure and minimize risks to public health and safety over time.

Source Protection Plans

Source Protection Plans identify threats to the quality and quantity of municipal drinking water sources (drinking water wells and surface water intakes) and their associated vulnerable areas. The City of Pickering is subject to the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Plan (SPP).

The Lake Ontario based Ajax Water Supply Plant, which is operated by the Region of Durham, is the City's source of municipal drinking water. Implementation of policies within the Credit Valley, Toronto and Region, and Central Lake Ontario SPP addressing drinking water threats to the Ajax Water Supply Plant is the responsibility of the Ministry of Environment, Conservation and Parks and the Region of Durham. However, the City of Pickering is committed to working with other municipalities and the Lake Ontario Collaborative Group to undertake actions that protect Lake Ontario as a source of drinking water.

The City of Pickering does not have any municipal drinking water wells. However, there are portions of the City that are within Wellhead Protection Areas for water quality for two municipal drinking water wells located in the Town of Whitchurch-Stouffville. The City is also within Wellhead Protection Areas, in terms of water quantity. The Wellhead Protection Areas are identified on Schedule IIIF: Resource Management: Vulnerable Areas of the Official Plan.

A Wellhead Protection Area (WHPA) is a vulnerable area on the land around a municipal drinking water well that is delineated to protect water quality or water quantity.

City Policy
Wellhead Protection Areas
for Water Quality

10.27 City Council recognizes that, in Vulnerable Areas around municipal drinking water wells, certain land use activities may pose a threat to water quality; accordingly, Council shall:

(a) identify Wellhead Protection Areas (WHPA) on Schedule IIIF – Resource Management: Vulnerable Areas, which are intended to function as an overlay to the primary land use designations;

(b) prohibit or restrict land uses within a WHPA-A, B and/or C which pose significant drinking water quality threat activities as identified in the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Plan;

(c) where the application of road salt would be a moderate or low drinking water threat within a WHPA-B, C, D, require that the proponent submit a salt management plan as part of a complete application to address the:

(i) design of roads, sidewalks and parking lots in order to minimize the need for repeat applications of road salt, while maintaining public safety; and

The size and shape of each Wellhead Protection Area (WHPA) (B, C, D or E) is a function of how water travels underground. Time of travel is important because it is an indication of how quickly a contaminant can move through the WHPA to a municipal well. Time of travel can be influenced by a number of factors such as the slope of land, and the type of soil (for example, water travels faster through sand than it does through clay). Wellhead Protection Areas were drawn based on scientific research that took all these factors into consideration.

(ii) **location of snow storage so that contaminants and salt loads from snow melt are not carried into Significant Groundwater Recharge Areas and/or Highly Vulnerable Aquifers.**

City Policy
Review of Applications within a
Wellhead Protection Area for Water Quality

10.28 City Council recognizes that the Region of York, through an agreement with the Region of Durham, has assumed enforcement related to activities that may be a threat to water quality within any WHPA, associated with a municipal drinking water well in the Region of York; accordingly, Council shall:

(a) require all applications made under the *Planning Act*, *Condominium Act* and *Building Code Act* within a WHPA-A, B and C in the City of Pickering to be circulated to the Region of Durham for submission to and review by the Region of York's Risk Management Official.

The size and shape of each Wellhead Protection Area (WHPA) (B, C, D or E) is a function of how water travels underground. Time of travel is important because it is an indication of how quickly a contaminant can move through the WHPA to a municipal well. Time of travel can be influenced by a number of factors such as the slope of land, and the type of soil (for example, water travels faster through sand than it does through clay). Wellhead Protection Areas were drawn based on scientific research that took all these factors into consideration.

City Policy
Wellhead Protection Areas
for Water Quantity

10.29 City Council recognizes that, in Vulnerable Areas around municipal drinking water wells, certain land use activities that take water without returning it to the same source, or which reduce recharge to an aquifer in the York-Durham Wellhead Protection Area – Water Quantity (York Durham WHPA-Q1/Q2) may be a threat to water quantity; accordingly, Council shall:

(a) identify the York-Durham WHPA-Q1/Q2 on Schedule IIIF – Resource Management: Vulnerable Areas, which are intended to function as an overlay to the primary land use designations;

(b) for lands within the York-Durham WHPA-Q1/Q2, deem the policies in this section to prevail in the event of a conflict with any other policy of this Plan;

(c) only permit development within the York-Durham WHPA-Q1/Q2 with a significant risk level, as identified in the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Plan, if it does not require a new or amended Permit To Take Water;

(d) notwithstanding Section 10.29 (c), permit new development within the York-Durham WHPA-Q1/Q2 that requires a new or amended Permit To Take Water if the relevant provincial ministry determines that the activity will not have a negative impact on the municipal water wells;

A Permit to Take Water is a provincial permit issued by the relevant provincial ministry.

(e) require a water balance study for major development which poses a significant threat to drinking water quantity, as identified in the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Plan, on lands north of the Downgradient Line within the York-Durham WHPA-Q1/Q2;

(f) require major development which poses a significant threat to drinking water quantity, as identified in the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Plan, on lands north of the Downgradient Line within the York-Durham WHPA-Q1/Q2, to maintain pre-development recharge to the greatest extent feasible, based on a water balance study;

(g) require major development which poses a significant threat to drinking water quantity, as identified in the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Plan, on lands north of the Downgradient Line within the York-Durham WHPA-Q1/Q2, to implement and maximize off-site recharge, within another site within the York-Durham WHPA-Q1/Q2 to compensate for any predicted loss of recharge from the development, based on a water balance study;

(h) require major development on lands south of the Downgradient Line within the York-Durham WHPA-Q1/Q2, to implement best management practices with the goal to maintain pre-development recharge rates, based on a water balance study;

(i) encourage agricultural uses, agriculture-related uses and on-farm diversified uses with total impervious surfaces that do not exceed 10 percent of the total lot area, to implement best management practices such as low impact development methods with the goal to maintain pre-development recharge rates;

(j) require small-scale development and agricultural uses, agriculture-related uses and on-farm diversified uses within the York-Durham WHPA-Q1/Q2, other than those identified in Section 10.29 (i), to implement best management practices with the goal to maintain pre-development recharge rates; and

(k) require that a water balance study, as referred to in Sections 10.29 (e), 10.29 (f), 10.29 (g), and 10.29 (h), at a minimum, identifies recharge characteristics of the site, and anticipated long-term and short-term impacts of the proposed development; recommends measures to maintain pre-development recharge on site to the greatest extent feasible through best management practices; and, where pre-development recharge cannot be maintained on site, recommends measures to locate compensating recharge on another site within the York-Durham WHPA-Q1/Q2.

City Policy
Intake Protection Zones and
Event Based Areas

10.30 City Council recognizes that, in Vulnerable Areas around municipal surface water intakes, certain land use activities may pose a threat to water quality; accordingly, Council shall:

(a) identify Intake Protection Zones and Event Based Areas on Schedule IIIF, Resource Management: Vulnerable Areas, which are intended to function as an overlay to the primary land use designations; and

(b) encourage the protection of these areas to support safe and clean drinking water sources.

In addition to the WHPAs, Pickering also has Intake Protection Zones with Event Based Areas (EBAs). EBAs are areas within Intake Protection Zones located in one of the Great Lakes, where modelling scenarios have shown that the release and transport of contaminants to a surface water intake under extreme weather events pose a risk to a drinking water system. In Pickering, the EBAs were modelled for Nuclear Generating Station Tritium Spills, Pipelines Fuel/Oil spills and Wastewater Treatment Plant disinfection failures / Sanitary Sewer breaks.

City Policy
Dense Non-aqueous Phase
Liquids and Organic Solvents

10.31 City Council recognizes that within Highly Vulnerable Aquifers and Significant Groundwater Recharge Areas the handling and storage of dense non-aqueous phase liquid and organic solvent are considered a moderate and/or low drinking water threat; accordingly, Council shall encourage industrial, commercial and institutional land uses to follow best management practices to prevent their release into the environment.

City Policy
Relationship with the Durham Regional
Official Plan and the Source Protection Plan

10.32 Where there is a conflict between the policies of the Pickering Official Plan, Durham Regional Official Plan and the Source Protection Plan, the more restrictive policy shall apply.

This page intentionally left blank.

Chapter 11 - Seaton Urban Area

The Seaton Urban Area objectives and policies implement and conform to the Central Pickering Development Plan. The goals, objectives and policies in this section provide additional policy guidance to the other policies of Chapter 3 and are intended to be read as a whole. This additional policy guidance provides the necessary direction to implement and conform to the Central Pickering Development Plan and to achieve the key sustainability principles for Seaton outlined in Chapter 2.

In addition to those sustainability principles, development of the Seaton portion of Central Pickering is guided by seven goals set out in the Central Pickering Development Plan as follows:

Natural Heritage: The protection, maintenance and enhancement of natural features, functions and systems intended to sustain a viable and permanent natural ecosystem. The Natural Heritage System is a key element to be functionally integrated into the community and to provide opportunities for certain recreational and educational activities, while remaining cognizant of the proposed urban setting.

Cultural Heritage: The integration of cultural heritage into the new community fabric by drawing on the physical legacies of original aboriginal and European occupations.

Social, Institutional, Open Space and Recreational Facilities: The provision of an appropriate distribution of facilities to serve residents, workers and visitors, linked by a network of parks and open spaces that complement the Natural Heritage System. This network of facilities is to be connected by trails, walkways and roads, and integrated with individual residential neighbourhoods, mixed use corridors and employment areas.

Transportation and Transit: The provision of a transportation system that provides for choices in transportation mode, including ensuring that the community is designed in a manner that supports public transit.

Servicing: Ensuring that the network of utilities required to serve the new urban community minimizes impacts on the environment, maximizes efficiency and use of existing infrastructure, and minimizes lifecycle costs.

Employment: The provision of high-quality employment opportunities that reflect the needs of the community, with the identification of sufficient employment lands to generate approximately one job for every two residents with 30,500 jobs by 2031 and up to 35,000 jobs through long-term intensification.

Housing and Mixed Use: The provision of a range of housing types and densities that meets the needs of a diverse population, complements surrounding communities, and accommodates a population of 61,000 residents by 2031 and up to 70,000 residents through long-term intensification at a density that is transit supportive.

The Central Pickering Development Plan identified 15 separate residential neighbourhoods and a large employment area along both sides of Highway 407 within the Seaton Urban Area. These areas have been condensed into 6 neighbourhood plan areas as shown on Map 3-B and listed in Table 1B.

Create Walkable, Transit Supportive Neighbourhoods Through Compact Development, Integration of Mixed Use Development and Distribution of Parks and Recreational Facilities

The Seaton Urban Area is intended to be a walkable, pedestrian oriented community built at a relatively compact density. As stated in the Central Pickering Development Plan, while the built forms are anticipated to be modest in scale, densities should be significant enough to support an active community and street life including neighbourhood shops, social facilities and parks as well as public transit.

City Policy
Walkable, Transit Supportive Neighbourhoods

11.1 It is the objective of City Council to:

(a) develop urban neighbourhoods that create a sense of community, promote social interaction, and create an attractive destination for residents of the surrounding neighbourhood;

(b) develop mixed use areas, which support a mix of higher density residential uses in association with commercial and institutional uses, which can be intensified over time and which cater to pedestrian comfort and encourage pedestrian activity through the orientation of buildings and uses;

(c) create a walkable and transit-supportive community from the earliest stages of development by establishing a minimum density for residential development and through the creation of a vibrant and safe street life;

(d) ensure that Neighbourhood Plans define a street network based on a modified grid that provides a high degree of connectivity, permeability and access to key locations (parks, natural features, public facilities, landmarks), and supports pedestrian and bicycle movement;

(e) provide an appropriate number of facilities and potential locations to meet open space and recreational needs;

(f) ensure that facility locations are accessible by a variety of modes of transportation;

(g) ensure that facility locations are centrally located to the populations they are serving, wherever possible;

(h) use public facilities as gateways into the Natural Heritage System, wherever possible and appropriate, thereby linking the community with the Natural Heritage System, by providing trailheads, shared services such as parking, and other amenities for community residents;

(i) establish physical connections and associations with the Natural Heritage System to provide education and recreational opportunities;

(j) use public facilities as a means to protect and incorporate cultural heritage resources into the neighbourhood; and

(k) encourage the provision of joint use or multi-use facilities.

City Policy
Residential Density

11.2 City Council:

(a) despite the policies of 3.9 and Table 9, shall require the following residential densities (in units per net hectare) to apply within the Seaton Urban Area neighbourhoods:

(i) Low Density Area: over 25 and up to and including 40;

(ii) Medium Density Area: over 40 and up to and including 80; and,

(iii) High Density Area: over 140 and up to and including 250;

(b) despite the Low Density Area density range, may establish, through the neighbourhood plans, a land use subcategory with a residential density of over 35 and up to and including 50 units per net hectare, provided the overall maximum density for the Low Density Area in Subsection (a) is not exceeded; and

(c) may establish, through the neighbourhood plans, minimum and maximum proportions of various housing types in each designation.

City Policy
Minor Commercial Clusters

11.3 City Council shall permit small scale commercial uses in nodal locations within the Medium Density Area designation, which shall be identified in the Neighbourhood Plans as minor commercial clusters. These minor commercial clusters shall:

(a) accommodate small-scale retail, service and institutional uses as permitted under Table 8 in addition to medium density residential housing;

(b) be located in stand alone or mixed use buildings including the ground floor of free-hold townhouses and generally within a 5 to 10 minute walking distance of patrons;

(c) be designed with buildings oriented to face the street with a minimal consistent setback and with the principal public entrance and primary windows facing the street and providing direct access onto the public sidewalk;

(d) locate at the intersection of an arterial and collector road or other locations, which maximize the opportunity for pedestrian access from adjacent neighbourhoods;

(e) prohibit drive-throughs or motor vehicle service stations;

(f) permit on-street parking on the adjacent collector roads; and

(g) be implemented through zoning which shall:

(i) establish a maximum floor area for small scale commercial uses in recognition of the limited retail function of this designation;

(ii) establish a maximum building height of 4 storeys;

(iii) give consideration to lower on-site parking standards which take into account the intended pedestrian nature of these uses, shared parking opportunities within live-work buildings, and the contribution of on-street parking to meet parking demand; and

(iv) not permit off-street parking in front of the buildings.

City Policy
Community Nodes

11.4 City Council:

(a) shall require Community Nodes to be mixed use nodes containing commercial and residential uses that will intensify over time. The Community Nodes are located so that the majority of future patrons are within a 10 to 20 minute walk of a Community Node;

(b) shall establish as the planned function of Community Nodes the ability to cater to the daily and weekly shopping needs of the residents in the adjacent neighbourhoods. In comparison, the City Centre will continue to provide for higher order City-wide and regional serving retail uses to all residents in the City including Seaton;

(c) despite the policies of Table 6, shall permit a minimum of 10,000 square metres and a maximum of 20,000 square metres of gross leaseable floor space for the retailing of goods and services within the Community Nodes within the Seaton Urban Area. The minimum retail space requirement shall not be interpreted as requiring the full minimum floor area at initial development provided the land is available to realize the minimum space requirement;

(d) despite the policies of Table 6, shall permit the Community Node on Taunton Road to be larger and contain a broader range of retail goods including large format retailers up to a total maximum gross leaseable floor space of 60,000 square metres for the retailing of goods and services subject to the built form policies set out in Sections 11.7 and 11.8; and

(e) despite the policies of Table 5, shall prohibit the following uses in Community Nodes:

(i) single-detached and semi-detached dwelling units; and

(ii) automotive and vehicle sales.

Four Community Nodes are planned within the Seaton Urban Area. The function of the Community Nodes is not to compete with the City Centre

City Policy
Mixed Corridors

11.5 City Council shall:

(a) shall require Mixed Corridors to be developed with a mix of multiple unit housing types. Retail uses are permitted at grade and encouraged at entrances to the adjacent residential neighbourhoods;

(b) may permit interim sole commercial uses, where current market conditions are not conducive to high density residential development, subject to the policies on interim uses in Section 11.8. It is City Council's intent that these sole commercial uses intensify to mixed use development at or above the minimum densities as the Seaton Urban Area matures;

(c) despite the policies of Table 6, shall require the minimum residential density for Mixed Corridors within the Seaton Urban Area to be 40 units per net hectare and one FSI except as set out in Section 11.8;

(d) despite the Mixed Corridor density range, may establish, through the neighbourhood plans, a land use subcategory with a residential density of over 60 and up to and including 180 units per net hectare, provided the overall maximum density for the Mixed Corridors in Table 6 is not exceeded;

(e) despite the policies of Table 5, shall prohibit single-detached and semi-detached dwelling units in Mixed Corridors; and

(f) shall direct the clustering of office, retail and service commercial development at intersections with collector roads and other key locations along the adjacent arterial roads.

City Policy
Mixed Corridor Intensification Over Time

11.6 City Council:

(a) recognizes that the Mixed Corridors may not be fully built out in the first wave of development;

(b) acknowledges that the Mixed Corridor lands around the GO Transit Station and along the primary transit corridors are key intensification areas;

(c) shall require Neighbourhood Plans to consider and allow for the potential for more intensive land use activities and higher densities to develop over time as the Seaton Urban Area matures; and

(d) shall require Neighbourhood Plans to identify gateway sites which will be reserved for future higher density intensification or if initially developed with interim uses at lower density, will be planned or phased so as to not inhibit future intensification.

City Policy
Built Form and Urban Design of Mixed Corridors, and Community Nodes

11.7 City Council shall require a strong pedestrian focus be created within the Community Nodes and Mixed Corridors. To achieve this focus, development shall adhere to the following built form and urban design principles which shall be further illustrated in the Sustainable Placemaking Guidelines for the Seaton Urban Area:

(a) Pedestrian Focus of Community Nodes & Mixed Corridors:

(i) development should be designed to be pedestrian and transit friendly from the outset, even though these areas are intended to intensify over time;

(ii) development should generally be oriented to the street and designed to promote a vibrant and safe street-life and to support the early provision of transit;

(iii) high activity uses that animate the streetscape and encourage foot traffic, like retail uses, are encouraged at grade and up to the street, with uses such as offices and residential uses on second floors and above;

(iv) public and private streets and sidewalks shall be designed to create comfortable, enjoyable pedestrian movement in a vibrant public realm through wide sidewalks, street furniture and on-street parking where feasible;

(v) small scale urban squares will be encouraged in appropriate places; and

(vi) drive-throughs and stacking lanes are to be oriented to the interior of a site and not located between a building and the public sidewalk;

(b) Pedestrian Predominant Streets:

To achieve a strong street presence, each Community Node shall contain a Pedestrian Predominant Street, which may be public or private and shall be identified in relevant Neighbourhood Plans. These Pedestrian Predominant Streets shall be incorporated into the initial development of the Community Nodes but are intended to be intensified and fully realized over time. The design criteria are as follows:

(i) store fronts should face onto the Pedestrian Predominant Street with the principal public entrance of each store and substantial fenestration facing on to the street;

(ii) buildings shall generally be built up to the streetline and no parking, driveways or lanes should be located between the buildings and the street;

(iii) drive–throughs and service stations shall not be permitted;

(iv) residential units shall not be permitted on the ground floor of the portion of a building facing the Pedestrian Predominant Street;

(v) on-street parking shall be provided where feasible and appropriate;

(vi) a minimum height of 2 storeys for sole commercial buildings shall be encouraged;

(vii) single use buildings exceeding a ground floor area of 5,000 square metres should generally be directed to the interior of a property with smaller stores oriented onto the Pedestrian Predominant Street in front of the larger stores. Alternatively, larger stores could be located up to the streetline provided they are lined with smaller stores, multiple entrances or other similar means to animate the streetscape;

(viii) sidewalks should be of sufficient width to:

(1) accommodate anticipated pedestrian volumes;

(2) comfortably and safely accommodate the needs of persons with disabilities and the elderly;

(3) ensure sufficient space for coordinated street furnishings, public utilities, tree plantings and transit shelters; and

(4) accommodate sidewalk cafes, kiosks, and street vendors where possible;

(ix) buildings and spaces should be designed to reflect a human scale of development; contribute to public safety and security; and create a significantly enhanced pedestrian environment;

(x) buildings should be encouraged to have awnings, canopies, arcades or front porches to provide weather protection; and

(xi) buildings should have a consistent setback;

(c) Enhancing the Public Realm:

(i) In order to promote street activity/animation and other building and streetscape elements that improve the comfort of the pedestrian environment, the following encroachments into the public realm be allowed:

(1) awnings or canopies realm;

(2) outdoor cafes and seating for restaurants; and

(3) semi-permanent structures over the sidewalk, including entry features, arcades and perpendicular signage and/or lighting fixtures attached to the building; and

(ii) establish the amount of any permitted encroachment, whether temporary or semi-permanent, on a site-by-site basis, and in consideration of the following criteria:

(1) the encroachment enhances pedestrian comfort by providing shade and/or protection from the rain and elements;

(2) the encroachment does not impede pedestrian and/or vehicular access, movement or safety, or impede any public maintenance activities; and

(3) the encroachment does not impede sight lines to important views and vistas;

(d) Building Heights:

(i) building heights for residential and mixed use buildings shall range from 3 storeys to up to 20 storeys at gateway sites;

(ii) stand-alone commercial uses shall have a minimum height generally of 5.0 metres subject to the policies on interim uses in Section 11.8;

(iii) buildings taller than 4 storeys shall be designed with a stepback, at an appropriate height, for all building facades that front onto a public or private road; and

(iv) buildings taller than 4 storeys immediately abutting an existing or planned Low or Medium Density residential designation shall be designed, where necessary, to create a transition of heights and minimize compatibility issues.

City Policy
Interim Uses within Community Nodes
& Mixed Corridors

11.8 Where sole commercial uses at lower minimum density and heights are proposed in the initial phases of development, City Council shall require applicants, for site plan approval, to submit a development concept and intensification plan demonstrating how the ultimate density and other objectives for the site can be achieved. The intensification plan shall address and illustrate:

(a) how the design criteria for a pedestrian predominant street in each Community Node and the creation of vibrant streetscapes in other locations can be achieved;

(b) how the public and private realm can be improved to enhance the pedestrian experience;

(c) how the property may accommodate a mix of uses and how it will intensify over time including addressing and illustrating such matters as:

(i) the provision of public roads and small blocks;

(ii) the siting and orientation of buildings, which do not preclude future intensification;

(iii) the ability to achieve both short-term and longer term intensification;

(iv) the location of parking for the initial development and potential changes to parking to accommodate the intensification process; and

(v) the phasing of the intensification of the site to realize the ultimate built form;

(d) how blocks will be further subdivided and how the intent of this Plan can be met in the interim through private roads that will convert to public roads in the future; and

(e) minimum and maximum setbacks as well as minimum block face requirements which may vary by street, but which achieve a 75 percent of the block face along the Pedestrian Predominant Street.

City Policy
Development Blocks within Community Nodes
& Mixed Corridors

11.9 City Council:

(a) shall require development within the Community Nodes and Mixed Corridors to establish a pattern of streets and blocks that are conducive to pedestrian oriented streetscapes and which encourage pedestrian circulation to, from and within these mixed use designations. Within these designations, residential and mixed use blocks shall generally be in the range of 10,000 to 20,000 square metres; and

(b) may, subject to an Intensification Plan as per Section 11.8, consider larger development blocks in the interim in order to accommodate large scale retail and mixed use developments provided the Intensification Plan illustrates how the pattern of streets and smaller blocks can be realized through intensification.

City Policy
Street Grid Permeability, Connectivity,
& Block Length

11.10 City Council shall:

(a) require Neighbourhoods to be designed with a modified grid street pattern that provides for a high degree of permeability and connectivity, and which directs pedestrians out to collector and arterial roads through a fine grid of local streets and frequent local street connections along the collector and arterial roadways;

(b) permit variations in block and street orientation around natural elements such as woodlots, creeks and topography in order to enhance views and achieve a distinctive neighbourhood character;

(c) require block lengths to generally be in the range of 150 to 250 metres to promote walkability and also to address fire department requirements for blocks with rear lanes; and

(d) require draft plans of subdivision to provide for a range of lot sizes to encourage a variety of housing types and sizes.

City Policy
Garages

11.11 City Council shall:

(a) require development to adhere to the following built form and urban design principles for garages:

(i) design attached garages, in ground related housing, as a subordinate element of the building;

(ii) minimize garage projections;

(iii) establish the maximum width of a garage door(s), that faces a street, proportional to the width of the lot so that it does not dominate the building façade; and

(iv) not restrict the width of a garage door facing onto a laneway;

(b) address and illustrate these principles in the Sustainable Placemaking Guidelines; and

(c) implement these principles in the Zoning By-law.

City Policy
Interconnected Street Network

11.12 City Council shall require Neighbourhood Plans to create an interconnected network of sidewalks, off-street pedestrian trails, on and off-road bicycle routes and multi-use trails, through the arrangements of streets, blocks, open space features and trailheads, which:

(a) links each neighbourhood with other neighbourhoods;

(b) links every portion of a neighbourhood with elementary schools, parks, community facilities and commercial locations within the neighbourhood;

(c) **provides safe, comfortable and direct linkages between each neighbourhood and the mixed use shopping areas within the broader neighbourhood;**

(d) **provides safe, comfortable and direct linkages between the neighbourhoods and the employment areas within Neighbourhoods 20 and 21: Thompson's Corners and Pickering Innovation Corridor;**

(e) **locates trailheads in highly visible and accessible locations in each neighbourhood including where feasible in conjunction with parks, recreation centres, transit, schools and stormwater management ponds;**

(f) **reduces, wherever possible, the length of pedestrian travel through efficient block arrangements and network connections; and**

(g) **provides safe, comfortable access to public transit.**

City Policy
Parks Hierarchy

11.13 City Council shall require the Seaton Urban Area to contain a hierarchy and distribution of parks and recreational facilities that promotes walkability and pedestrian access from the surrounding residential neighbourhoods. The hierarchy is as follows:

(a) **District Park – One district park of approximately 50 hectares in the Hamlet Heritage Open Space Designation north of Green River as shown on Schedule I;**

District Parks are intended to provide for a range of illuminated recreational facilities, which will serve all of the residents of Seaton.

(b) **Community Parks and Recreation Centre - Three community parks are shown on Schedule I and two recreation centres are shown on Schedules XI and XII. The community parks and recreation centres shall be located near frequent transit services. It is intended that the adjacent Seaton Natural Heritage System be an integral part of each community park providing for passive recreational areas and buffer areas adjacent to the recreational fields;**

Community Parks are intended to provide for a range of illuminated recreational facilities as well as some non-illuminated mini-baseball and soccer fields servicing the adjacent residents. Combining community parks with recreation centres and libraries can reduce land needs through shared parking. It is anticipated that approximately 28 hectares of land for community parks and recreational centres will be required.

(c) **Neighbourhood Parks – Neighbourhood Parks as identified in the Neighbourhood Plans which shall:**

(i) **be easily accessible and generally centrally located for residents within a 400 to 800 metre radius (5 to 10 minute walk);**

(ii) **have a size of approximately 1.5 hectares to 1.8 hectares;**

(iii) **have road frontage on a minimum of two sides, where possible; and**

(iv) **be supported by on-street parking.**

Neighbourhood Parks are intended to perform an array of functions and accommodate play structures as well as one non-illuminated mini-recreational field and possibly tennis or bocce courts, community mailboxes and passive areas.

(d) Village Greens – Village Greens are smaller components of the open space system, which shall be identified in the Neighbourhood Plans and shall:

(i) have a size of approximately 0.3 to 0.6 hectares subject to demonstration of the functionality of the village green configuration;

(ii) be easily accessible for residents within a 200 to 400 metre radius (3 to 5 minute walk) without the need to cross arterial roads; and

(iii) have road frontage on three sides, but may be less where other design alternatives are used to achieve public view and access;

Village Greens are intended to provide greenspace for each neighbourhood and accommodate play structures, open informal play areas and community mail boxes and information boards.

(e) Trailheads – Trailheads accessing the Natural Heritage trail system shall be incorporated with parks, village greens and stormwater management ponds wherever possible;

Where a separate trailhead is required, it shall be situated in a visible location with adequate frontage onto an adjacent local or collector road. These additional public open space blocks shall contribute to the required parkland dedication, when the land is dedicated to the City; and

(f) Urban Squares – Urban Squares shall be provided within the commercial and mixed use components of the Community Nodes and Mixed Corridors and shall:

(i) be located to provide easy access and multiple opportunities for rest, relaxation and visual interest;

(ii) be provided in a location determined in consultation with City staff at site plan approval;

Urban squares are intended as formal pedestrian spaces, in support of the adjacent higher density, mixed use development. Within sole residential components of the Mixed Corridors, village greens will be provided in lieu of urban squares.

(iii) generally have a minimum frontage on the abutting sidewalk of 5.0 metres, and a minimum depth of 5.0 metres;

(iv) on large development parcels include a single, large-scale urban square and/or a series of smaller urban squares;

(v) count as part of the block face in calculating the minimum block face requirement as per Section 11.8(e);

(vi) contribute to the required parkland dedication, whether or not the land is dedicated to the City, provided an agreement is executed between the City and landowner which ensures that:

(1) the urban square is designed and built by the landowner to the satisfaction of the City;

(2) the urban square is maintained by the landowner to the satisfaction of the City; and

(3) the owner(s) and/or the condominium corporation is made aware that the urban square is to be considered as a public space and is to be open and accessible to the public at all times.

City Policy
Central Open Space Campus

11.14 City Council requires a central open space campus shall be created along Sideline 24 south of the Whitevale Road By-pass incorporating a community park, recreational centre and secondary school site. The natural heritage system in between shall be used for passive recreational purposes, permitted in Table 3, as part of a coordinated central open space campus including the provision of trails for hiking, walking and nature viewing where they do not impact on the natural features or functions of the Natural Heritage System.

City Policy
Community Facilities to contribute
to compact nature of Seaton

11.15 City Council requires that all community and education facilities contribute to the creation of compact neighbourhoods through multi-storey buildings, joint use of buildings, joint use of parking areas, joint use of open space, use of adjacent roads for visitor parking and other means to reduce land requirements. School and park locations adjacent to the Seaton Natural Heritage System could benefit through the use of the Seaton Natural Heritage System for passive open space uses permitted in Table 3 and reduced setbacks to recreational facilities thereby reducing land requirements for the school and park sites.

City Policy
Places of Worship

11.16 City Council shall:

(a) recognize the important role faith groups play, and the contribution places of worship make, to building sustainable, complete communities;

(b) to reflect this role, permit and encourage places of worship to locate throughout the Seaton Urban Area in the Low, Medium and High Density Areas, Mixed Corridors, and Community Nodes provided that:

(i) the size, height, massing and scale of the use is compatible with the character of the adjacent development;

(ii) in Low and Medium Density Areas the site size shall generally be a maximum of 0.8 hectares and larger sites may be considered in the Mixed Use Areas; and

(iii) sites are generally on arterial and collector roads, with public transit routes;

(c) encourage opportunities for joint use of parking areas in order to reduce land requirements; and

(d) work actively with faith communities and landowners to facilitate the establishment of places of worship in these designations through the plan of subdivision and site plan process. In particular, the City shall:

(i) maintain an inventory of potential vacant sites for new places of worship and existing facilities which are available for lease or purchase by faith communities wishing to identify potential sites or facilities for a place of worship;

(ii) establish policies for City owned facilities which will make them accessible for faith communities;

(iii) encourage landowners to make sites available for places of worship;

(iv) encourage other public agencies to make their facilities accessible for faith communities;

(v) **review the City's current regulations and standards to ensure that possible impediments to the establishment of places of worship are minimized while still ensuring appropriate development; and**

(vi) **provide technical assistance to faith communities throughout the planning process.**

Create a Transit, Cycling and Pedestrian Supportive Urban System with Pedestrian-Oriented Roads, and fully integrated Cycling and Walking Networks

The Seaton Urban Area is intended to develop with a connected transportation network that not only facilitates efficient automobile traffic but also supports transit, cycling and a comfortable walking environment for pedestrians. In addition, an extensive off road trail network is envisioned throughout Seaton.

City Policy
Transit, Cycling and Pedestrian
Supportive Urban System

11.17 It is the objective of City Council to:

(a) **enable the year-round movement of people, goods and services within the Seaton Urban Area in a manner that is safe, convenient, reliable, and efficient;**

(b) **create an integrated transportation system, recognizing the inter-relationships among all types of roads and modes of transportation including active transportation;**

(c) **ensure adequate inter-regional transportation infrastructure through connections with Highway 407/ETR, the potential future airport, if developed, and transit corridors;**

(d) **integrate the Seaton Urban Area with south Pickering and adjacent communities by, among other means, supporting transit service delivery that links the Seaton Urban Area to the City Centre, other Urban Growth Centres and major transit stations;**

(e) **link roads with trails to create an integrated pedestrian system and promote pedestrian use;**

(f) **create streets that are safe and comfortable for pedestrians and bicyclists;**

(g) **create transportation choices for residents by providing facilities and corridors for alternative modes of travel, including public transit, walking and bicycling;**

(h) **provide a series of transit corridors throughout the Seaton Urban Area, such that the majority of residents are within a 5 minute walk of a transit route;**

(i) **provide a road network that is designed to accommodate transit service on designated transit spines and through the neighbourhoods in order to meet anticipated demand;**

(j) **protect for transit stations at key nodes to facilitate local transit and inter-regional transit, as well as inter-modal transportation;**

(k) **promote the development of a liveable, transit-oriented community with mixed use and higher density development along designated transit spines;**

(l) **develop a street structure based on a modified grid that provides for a high degree of permeability, access to key open space, community and commercial locations and supports pedestrian and bicycle movements;**

(m) **design roads to meet operational and safety requirements, with right-of-way dimensions reduced wherever possible to promote intimate streetscapes and neighbourhoods with a sense of place;**

(n) **recognize in the Neighbourhood Planning process that streets are valuable open spaces that should be designed to link the open space system;**

(o) **locate street trees and boulevard landscaping through conditions of plan of subdivision to provide shade, reduce heat island effect, contribute to neighbourhood character, and help reduce water runoff; and**

(p) **promote coordinated public and private utility planning and infrastructure design.**

City Policy
GO Transit Station

11.18 City Council recognizes that a GO Transit Station is conceptually located on Schedule II at the intersection of Brock Road and the C.P. Rail line. City Council encourages the early provision of the GO Transit Station and shall require the planning and design of the GO Transit Station and the adjacent land uses to consider the following:

(a) **the precise location of the GO Transit Station shall be determined through an Environmental Assessment coordinated by Metrolinx and its location can be moved without an amendment to this Plan;**

(b) **transit corridors and facilities are permitted within the Seaton Natural Heritage System provided the location is logical or no reasonable alternative exists. Efforts are to be made to minimize the footprint of the use, to the extent possible, and to ensure no significant negative impacts on the Natural Heritage System or natural features and functions occur. Where a portion of the GO Transit Station is located outside of the Seaton Natural Heritage System, within the Mixed Corridor designation, it shall be developed in a compact form and encouraged to provide for a mixed of uses in a dense form consistent with the intent of the designation;**

(c) **Metrolinx shall be encouraged to reduce the overall footprint of the commuter parking lots by considering structured parking; and**

(d) **when an Environmental Assessment is completed and a site is identified for the GO Transit Station, the Neighbourhood Plan for Neighbourhood 17: Brock-Taunton may need to be revised to ensure that the Neighbourhood Plan is responsive in terms of the mix and intensity of land uses on and adjacent to the final station location.**

City Policy
407 Bus-rapid Transitway

11.19 City Council shall require the Highway 407/ETR transitway to be shown in Neighbourhood Plans 20 and 21 along with transitway stations at each of the planned interchanges. Provision shall also be made in Neighbourhood Plans 20 and 21 for commuter parking areas, park and ride and car-pooling areas located adjacent to the transit stations.

A bus-rapid transitway is planned for the south side of Highway 407 ETR.

City Policy
Maximizing Transit Usage

11.20 City Council shall require Neighbourhood Plans and implementing draft plans of subdivision and site plans to be designed so as to encourage and maximize public transit usage in the Seaton Urban Area from the earliest stage of development through:

(a) **the accommodation of dedicated transit lanes on Type A arterial roads as the arterial roads are rebuilt or widened;**

(b) **the efficient arrangement of collector roads and Type B and Type C arterial roads to maximize the integration of transit through the neighbourhoods;**

(c) **a system of streets as per Section 11.10;**

(d) **the creation of safe and comfortable streets for pedestrians on their walk to the transit corridors;**

(e) **the incorporation of park and ride and car-pooling facilities at each of the Highway 407/ETR transitway stations;**

(f) **the location of transit stop pads in accessible, safe and comfortable locations, which maximize pedestrian accessibility from surrounding residential neighbourhoods, and the identification of such locations on the engineering drawings as a condition of draft plan approval in consultation with Durham Transit; and**

(g) **the arrangement of higher density housing in the vicinity of arterial roads and collector roads that also serve as the transit spines as shown on Schedule II.**

City Policy
Early Introduction of Transit

11.21 City Council shall promote the early introduction of transit service as development occurs by:

(a) **encouraging the Region and Metrolinx to deliver a Regional transit system linking the Seaton Urban Area to the City Centre, the GO Transit Station on the Lakeshore Line, Peel Region and York Region.**

Achieving the early introduction of transit requires assistance from all levels of government as well as the City and landowners in the way development is phased.

City Policy
Highway Interchanges

11.22 City Council anticipates that the Brock Road interchange will be constructed concurrent with the extension of Highway 407/ETR east. Of the other two interchanges, Council shall request Highway 407/ETR to construct the Sideline 26/Whites Road interchange as the first priority coincidental with the first phase of development of the Seaton Urban Area in order to serve Neighbourhood 21: the Pickering Innovation Corridor.

Schedule II shows three future interchanges along Highway 407 at Sideline 26/Whites Road, Sideline 22 and Brock Road.

City Policy
Whitevale Road By-pass

11.23 City Council encourages York Region, in cooperation with the City of Markham and the governing body of the Rouge National Urban Park, to improve 14th Avenue between Donald Cousens Parkway and the York-Durham boundary in order to connect to the Whitevale Road By-pass.

Schedule II shows the future construction of a by-pass south of the Whitevale Hamlet connecting Concession 5 with 14th Avenue in Markham.

City Policy
Minimizing Traffic through Whitevale

11.24 City Council shall require the Neighbourhood Plans and subsequent draft plans of subdivision for Neighbourhood 18: Mount Pleasant Neighbourhood to:

(a) direct north-south and east-west arterial road alignments away from the Hamlet of Whitevale while providing for local road access and integration; and

(b) identify means of traffic calming along Whitevale Road.

It is important that traffic be minimized through Whitevale Hamlet, but additional pedestrian, cyclist and auto oriented patrons can help invigorate the retail stores in the Hamlet. The Hamlet can also assist in creating a sense of place for the surrounding new Neighbourhood 18: Mount Pleasant.

City Policy
Traffic Sensitivity Analysis

11.25 City Council shall require, in support of draft plans of subdivision, an assessment of intersection and road capacity/level of service which shall be undertaken for the neighbourhood within which the draft plan is situated and which shall address travel demand sensitivity and demonstrate that the capacity of the transportation network and community design objectives of this Plan will be achieved.

City Policy
Streetscape Design to Promote Walking

11.26 City Council shall:

(a) require sidewalks on both sides of all arterial, collector and local roads, except:

(i) where an open space feature such as a park, stormwater management pond or Seaton Natural Heritage System designation abuts the road, and provides a pedestrian connection in the open space feature to the street sidewalk;

(ii) where a window street or slip lane abuts an arterial road which also provides a sidewalk;

(iii) on short cul-de-sacs; and

(iv) on character roads, where a rural cross-section is being maintained and where sidewalks may not be required and where on-street pedestrian travel is safe, or other off-street pedestrian alternatives are provided;

(b) require all roads be designed to promote pedestrian comfort through traffic calming measures including narrower lanes, on-street parking, traffic islands, and central medians to encourage slow-moving traffic through residential areas, Minor Commercial Clusters, and Community Nodes;

(c) require the design of roads to include, where feasible, wide sidewalks on collector and arterial roads, street trees, sidewalk furniture, transit stops, on-street parking, and encourage all Arterial Roads to have posted speeds of 50 km/h; and

(d) require the Neighbourhood Plans to be based on a modified grid street pattern that supports pedestrian and bicycle movements and provides for a high degree of permeability and connectivity to collector and arterial roads, schools, open space, community facilities and commercial locations.

City Policy
Bikeway Network

11.27 City Council shall:

(a) in addition to Section 4.7, adopt a Bikeway Network consisting of primary and secondary bikeways as illustrated on Schedule VII;

(b) require the Bikeway Network to be constructed as part of the construction of new roads and the upgrading of existing roads in the Seaton Urban Area;

(c) require the Bikeway Network to:

(i) allow for connections to the existing system of trails and bikeways in other parts of Pickering, and of surrounding municipalities, as set out in the Pickering Trails and Bikeway Master Plan;

(ii) provide primary bikeways as dedicated off-road bike routes located along Type A arterial roads but may also consider locating bikeways within the traveled surface of the road in Mixed Use Areas where appropriate;

(iii) provide secondary bikeways within the traveled surface of the road, in both directions of Type B and C arterial roads and collector roads; and

(d) require bicycle parking and/or storage areas in all commercial, office, industrial, mixed use, multiple unit residential without individual garages and apartment developments, which shall be secured through conditions of draft plan and/or site plan approval as applicable.

City Policy
Trail Network

11.28 City Council shall:

(a) adopt a Seaton Urban Area Trail Network which shall be comprised of a hierarchy of off-road trails as delineated in Schedule VII;

(b) strongly request the Province to implement the trail system through the Seaton Natural Heritage System in each neighbourhood concurrent with the servicing of that neighbourhood;

(c) require the Seaton Urban Area Trail Network to reflect the design criteria set out in the Seaton Natural Heritage System Management Plan and Master Trails Plan (2008) and be designed to:

(i) provide for a safe, well-used transportation system;

(ii) provide accessible linkages between the neighbourhoods and between the neighbourhoods and the Natural Heritage System;

(iii) link with stormwater management facilities and neighbourhood, community and district parks where they are located adjacent to the Seaton Natural Heritage System and use these facilities as key trailheads;

(iv) link with sidewalks and bikeways in the road allowances to create an integrated pedestrian and bicycle network; and

Primary neighbourhood connecting trails are intended to function as principal linkages between adjacent neighbourhoods that traverse the Seaton Natural Heritage System and shall generally be comprised of a 3.0 metre wide hard surface.

Primary recreational trails are intended to function as the north-south and east-west spine of the recreational trail network and shall generally be comprised of a 2.4 metre wide hard surface.

(v) provide for a hierarchy of primary neighbourhood connecting trails, primary recreational trails and secondary recreational trails with the priority for construction in order of this hierarchy; and

(d) the trail system through the Natural Heritage System shall be maintained by the appropriate public authority in such a manner that the environmental integrity of the lands is maintained or enhanced.

Secondary recreational trails are intended to function as multi-use trails that support both destination and recreational use and shall generally be comprised of a 2.4 metre wide hard surface

City Policy

Alternative Right-of-way Width Standards

11.29 Notwithstanding Section 4.10, City Council shall require the design of all arterial, collector and local roads in the Seaton Urban Area to incorporate reduced right-of-way widths, where feasible, in order to achieve a compact development pattern, an efficient use of land, a pedestrian-oriented streetscape and which limits impacts on the Natural Heritage System and significant cultural heritage features. The road rights-of-way shall be established as follows:

(a) the width of the Type A and Type B arterials shall be determined during the Region's Environmental Assessment for these roads but shall consider a width at the lower end of the range where feasible, taking into account the necessity on transit spines to protect for a six-lane cross-section, including two dedicated transit lanes on Type A arterials and to protect for a four-lane cross-section, including two lanes for high occupancy vehicle use or transit priority measures on Type B arterials. In the design of these roads, sufficient design and landscape detail shall be provided on the road cross-sections to achieve the creation of a high quality public realm, with particular emphasis on ease and comfort of pedestrian movement along and across these roads;

(b) Type C arterial roads shall have a right-of-way width of 24 metres, but may be varied in accordance with Section 4.11;

(c) Collector roads shall have a right-of-way width of 21.5 metres, but may be varied in accordance with Section 4.11. A narrower right-of-way width of 20.1 metres may be permitted where parallel rear lanes are provided and where utilities are accommodated in the rear lane or where development is located on only one side of the road;

(d) Local roads shall have a right-of-way width of 17.0 metres, but may be varied in accordance with Section 4.11. A narrower minimum right-of-way width may be permitted in the following circumstances:

(i) 15.5 metres where parallel rear lanes are provided and where utilities are accommodated in the rear lane;

(ii) 15.5 metres where only one sidewalk is required as per Section 11.26;

(iii) 15.35 metres where development is located on only one side of the road; and

(iv) 12.85 metres for short one-way streets where development is located on only one side of the road;

(e) public lanes shall have a minimum right-of-way width of 8.5 metres and shall be designed to accommodate hydro, cable and phone utilities;

(f) **public connector lanes shall have a minimum right-of-way width of 10.0 metres and shall be designed to accommodate hydro, cable and phone utilities, looped water mains and two travel lanes. Public connector lanes are encouraged as an alternative to facilitate the direct frontage of residential units onto an Arterial Road while providing rear lane access and allowing two local roads to terminate at the public connector lane; and**

(g) **where roads cross the Seaton Natural Heritage System, the right-of-way widths may be further reduced provided a pedestrian connection is maintained adjacent to the roadway through the Natural Heritage System.**

City Policy
Public Lanes

11.30 City Council shall:

(a) **encourage the use of public laneways and rear yard garages where traffic volumes warrant in order to reduce the number of driveways on the street and to locate buildings closer to the street and in locations across from elementary school frontages; but**

(b) **also consider other alternatives such as slip lanes, hybrid local roads (serving both a laneway and local road function), mutual drives, flankage lots or other alternatives that address the design intent indicated in (a).**

Create Opportunities for Job Creation Particularly on the Employment Lands Concurrent with Residential Growth

Balanced residential and employment growth in the Seaton Urban Area is intended to create an economically and fiscally sustainable community in the long term. Employment will be provided in the prestige employment lands along Highway 407/ETR as well as within the neighbourhoods as population-serving jobs that include personal services, retailers, education, health care and the government sectors. To be a truly sustainable community, the jobs need to be provided concurrent with residential growth. The major portion of job creation depends on the development of the employment lands.

City Policy
Objectives

11.31 It is the objective of City Council to:

(a) **attract and sustain high quality employment opportunities that reflect the needs of the City of Pickering and the Regional Municipality of Durham;**

(b) **provide sufficient opportunity for employment in the Seaton Urban Area to be balanced with population, with a ratio of approximately one job for every two residents by making employment lands available to permit an appropriate balance of employment opportunities in conjunction with the development of the residential neighbourhoods;**

(c) **designate suitable employment lands for prestige employment uses in areas of high highway exposure and in proximity to the potential future airport, if developed;**

(d) **facilitate entrepreneurial employment and home-based employment by providing a range of opportunities for small businesses to grow and expand in appropriate settings within the Seaton Urban Area;**

(e) **ensure that employment areas are easily accessible by vehicle, transit, bicycle and on foot;**

(f) **ensure that large employment uses adjacent to residential uses are adequately screened and/or separated by appropriate buffers to provide a visual barrier;**

(g) **separate employment uses generating substantial truck movements from residential uses, in order to minimize truck traffic through residential neighbourhoods; and**

(h) **plan for a community that will accommodate 30,500 jobs by 2031 and be planned to accommodate 35,000 jobs through long-term intensification.**

City Policy
Prohibited Uses

11.32 Despite the permitted uses in Table 7, City Council shall prohibit the following uses within the Prestige Employment designation in the Seaton Urban Area:

(a) **retail stores including large format retail uses except for convenience commercial, and retail sales as a minor component of an industrial operation;**

(b) **outdoor storage;**

(c) **waste processing, waste transfer and recycling facilities;**

(d) **freight transfer and similar trucking facilities;**

(e) **automotive and vehicle sales and repair; and**

(f) **places of worship and elementary and secondary schools.**

City Policy
Locational Criteria for
Commercial Services

11.33 City Council shall within the Prestige Employment designation permit limited personal service uses, convenience commercial, restaurants and financial institutions which are ancillary to and serve the employment area and shall be located according to the following criteria:

(a) **clustered in nodal locations or on the ground floor of office buildings;**

(b) **on arterial roads at a signalized intersection;**

(c) **adjacent to a transit stop; and**

(d) **for service stations, despite Section 16.39(d), at signalized intersections provided that only one such use is located within 100 metres of an intersection.**

City Policy
Concurrent Job Growth

11.34 City Council shall require that the opportunities for jobs are provided in the first phase of development of the Seaton Urban Area by:

(a) **ensuring that the first phase of the Prestige Employment designation, consisting of a minimum of 80 hectares of employment land between Sideline 26/Whites Road and Sideline 22, is serviced with trunk water and sanitary servicing concurrent with servicing Neighbourhood 16: Lamoreaux and shall be set out in the "Staged Servicing and Implementation Strategy";**

Serviced Employment Area Land is to be available for job creation in the first phase of development of the Seaton Urban Area.

(b) **encouraging Highway 407/ETR to construct the Sideline 26/Whites Road interchange concurrent with servicing the first phase of the Prestige Employment designation;**

(c) **encouraging Metrolinx to provide for bus-rapid transit along Highway 407/ETR concurrent with servicing the first phase of the Prestige Employment designation; and**

(d) **ensuring that subsequent phases of employment lands are available for development in conjunction with the development of the other residential neighbourhoods.**

City Policy
Higher Intensity Nodes

11.35 City Council shall require Neighbourhood Plans for Neighbourhoods 20 and 21 to identify and protect for higher intensity employment uses in the vicinity of the Highway 407/ETR Transitway stations in the Prestige Employment designation. These nodes including the transit stations shall be considered as long-term intensification areas, and City Council shall encourage increased office development through intensification of commuter parking lots over time and on other sites around the interchanges.

City Policy
Performance Standards

11.36 In addition to Section 3.8, City Council shall require the following matters be addressed in the Sustainable Placemaking Guidelines for Neighbourhoods 20: Thompson's Corners and 21: Pickering Innovation Corridor and in the implementing Draft Plans of Subdivision:

(a) **sensitive site planning and orientation of buildings, parking and loading docks adjacent to the Seaton Natural Heritage System;**

(b) **requirements for a high quality built form and materials to create a distinct and prestigious image;**

(c) **flexibility of lot sizes and patterns that allows for a variety of lot sizes to parallel market demands;**

(d) **sustainable site and building design to reduce energy and encourage water conservation;**

(e) **minimizing the creation of heat islands, and light, air, and noise pollution;**

(f) **social sustainability through the provision of social support services and facilities such as day cares and cultural institutions within proximity to places of employment; and**

(g) **buffering requirements adjacent to the hamlets of Brougham and Green River.**

In addition to the policies of Section 3.8, high performance design and sustainability standards will be required for development in the employment areas.

Promote Environmentally Sustainable Building and Design Practices

While all of the policies of this section serve to create a sustainable community in Seaton through the design of the neighbourhood and the land use arrangement, sustainability is also achieved through the design of individual buildings and lots.

City Policy
Sustainable Building and Design Practices

11.37 It is the objective of City Council that development:

(a) **promote leadership in sustainable forms of development and green technologies;**

(b) **ensure the efficient use of land, infrastructure and energy through neighbourhood layout, compact urban form and energy efficient building design;**

(c) **reduce consumption of energy and water, and the emissions of greenhouse gases on a per household basis;**

(d) **reduce generation of waste water and solid and hazardous waste on a per household basis;**

(e) **increase alternative energy generation;**

(f) **control and, to the extent practical, eliminate water, soil, noise and air pollution to safeguard the natural and human environment;**

(g) **protect groundwater quality and quantity;**

(h) **protect and improve surface water quality, wherever possible;**

(i) **provide stormwater management facilities that are efficient, and minimize lifecycle costs;**

(j) **maintain the natural hydrologic cycle and function of the watersheds through a range of mechanisms including implementation of LID stormwater management practices and principles; and**

(k) **prevent increased risk of flooding and stream erosion.**

City Policy
Standards and Benchmarks

11.38 City Council shall:

(a) **promote innovative technology to reduce energy and water consumption in buildings, and to reduce waste;**

(b) **require the Seaton Sustainable Placemaking Guidelines to set out minimum standards and benchmarks to be achieved in the Seaton Urban Area;**

(c) **identify, where appropriate, additional measures, beyond the minimum mandatory buildings standards set out in the Ontario Building Code, which will be encouraged through a variety of means including possible incentives; and**

(d) **require the Guidelines to address:**

(i) **design standards and benchmarks to maximize solar gains and facilitate future solar installations (i.e. solar ready);**

(ii) **design measures to facilitate future on-site renewable energy and/or energy recovery systems including the suitable orientation of streets;**

(iii) **benchmarks for the amount of buildings to be pre-wired for photovoltaic systems;**

(iv) **minimum standards and benchmarks for water conservation, including rainwater harvesting, in all buildings and landscaping and the encouragement of re-circulation/ reuse systems;**

(v) **minimum green building material standards and benchmarks to promote durability, resource reuse and renewable resource use;**

(vi) **benchmarks for incorporation of green and/or white roofs into building design;**

(vii) **minimum standards and benchmarks for energy efficiency in new buildings;**

(viii) **minimum standards and benchmarks for waste reduction and diversion in the construction process;**

(ix) **landscape design standards and benchmarks to promote water efficient, drought resistant landscaping and the elimination of pesticide/herbicide use, including the use of native plants and xeriscaping; and**

(x) **owner/tenant education, at the time of house purchase or rental, regarding household activities to improve energy efficiency.**

City Policy
Third-party Certification

11.39 City Council shall promote and encourage the use of recognized and accredited third-party certification for all new development, including LEED and EnergyStar, or equivalent standard.

City Policy
LEED Silver for Municipal Buildings

11.40 City Council shall commit to targeting at least LEED Silver certification, or equivalent standard, for all new municipal buildings and projects.

City Policy
On-site Renewable Energy
and Green Energy Systems

11.41 City Council shall permit and encourage on-site renewable energy systems as well as innovative clean energy technologies including:

(a) **alternative renewable energy for any large building with an indoor community swimming pool, and for institutional, industrial or commercial building with above average hot water usage;**

(b) **photovoltaics on larger commercial, recreational and industrial buildings;**

(c) **solar lighting for park pathway lighting or nature trail lighting;**

(d) **sewer heat recovery systems near commercial, mixed use and high density residential areas;**

(e) **inter-seasonal thermal energy storage in employment and high density areas, especially those that have higher than average summer cooling requirements such as office towers, retail, or computer data centres; and**

(f) **gas-fuelled combined heat and power systems for any building or collection of buildings that require emergency power systems in excess of 250 kilowatts of electricity.**

City Policy
Updating Green Building Requirements

11.42 City Council shall periodically review and revise the Seaton Sustainable Placemaking Guidelines, in consultation with landowners and other interested stakeholders, as sustainability initiatives, design innovations, building technologies, and other regulatory standards evolve.

City Policy
District Energy

11.43 City Council shall require consideration be given to District Energy being supplied at an appropriate location within the Seaton Urban Area subject to a feasibility assessment for lands in Neighbourhood 20: Thompson's Corners and also when future infill and redevelopment is contemplated in the Community Node in Neighbourhood 16: Lamoreaux.

City Policy
Sustainable Water Management

11.44 City Council shall:

(a) require proponents of new developments to explore the use of sustainable technologies to determine if or where they are appropriate in the capture, conveyance and treatment of storm runoff; and

(b) require the treatment train approach to reduce runoff volume and to treat stormwater runoff on-site through the use of source, conveyance and end of pipe controls.

City Policy
Stormwater Facility Considerations

11.45 City Council shall permit required stormwater management facilities in all designations, except as set out in Table 3, subject to the following:

(a) demonstration that the need for and size of stormwater management ponds has been minimized through a comprehensive LID analysis including full lifecycle costs;

(b) stormwater facilities should be off line;

(c) stormwater management should avoid subwatershed drainage diversion to the extent practical;

(d) stormwater ponds shall be naturalized using native species except where combined with recreation or other facilities;

(e) the design of stormwater facilities shall accommodate groundwater infiltration for their catchment areas to the greatest degree possible;

(f) stormwater facilities should treat stormwater runoff from urban roads;

(g) non-urban road design/cross-section standards should be considered to treat water run-off locally;

(h) stormwater facilities shall be located so as to not negatively impact on cultural heritage resources;

(i) consider combining stormwater management facilities with other uses such as parks; and

(j) stormwater management methods proposed for development within the Seaton Urban Area shall satisfy the City's, the Toronto and Region Conservation Authority's (TRCA), and the Ministry of Environment's and Climate Change (MOECC) Stormwater Management Criteria for water quantity (flood flow) control, water quality ("Enhanced" Level 1) control, erosion control, groundwater recharge and water balance for the protection of hydrologically sensitive features in accordance with the completed MESP.

Provide for a Range of Housing Types and Densities that Meet the Needs of a Diverse Population

Providing for a mix of housing types including affordable home ownership and rental housing helps to create a sustainable community. As well, the Central Pickering Development Plan calls for a strategy to achieve a target of 25 percent of new housing in forms considered affordable to low and moderate-income households.

City Policy
Housing Types and Densities

11.46 It is the objective of City Council to:

(a) provide for an adequate range of housing opportunities that respond to existing and future needs and characteristics of the anticipated population in terms of form, location, size, cost, and tenure; and

(b) provide for affordable ownership housing and the opportunities for affordable rental housing in specific designations.

City Policy
Mix of Housing

11.47 City Council shall require a mix of housing be planned for the Seaton Urban Area with Neighbourhoods 16, 18, 19 and 20 providing for a mix of housing types and densities but with the higher densities oriented along the Transit Spines and at a lesser scale along the minor transit corridors along the collector and Type B and C arterial roads. The Seaton Urban Area shall be planned overall to achieve a target of approximately 40 percent of the housing in single and semi-detached housing forms, approximately 40 percent in townhouse and similar low rise multiple unit housing and 20 percent in apartments, stacked townhouses and other innovative multi-unit housing forms with additional apartments being added through long-term intensification.

City Policy
Affordable Housing Strategy

11.48 City Council shall require the Seaton Urban Area be planned to achieve 25 percent of new residential units in housing forms considered affordable to low and moderate-income households based on the definition in the Provincial Policy Statement. This target shall be achieved primarily through home ownership in multiple unit, ground related housing and in small apartment units. Rental housing will be provided through the rental of condominium apartment units, secondary suites and purpose-built rental housing. It is anticipated that the majority of this affordable housing will be developed in the Medium Density and Mixed Corridor designations.

City Policy
Affordable Strategies for Lower Income
Tenants and Owners

11.49 City Council recognizes that most new affordable rental housing and some new affordable ownership housing directed at larger owner households in the bottom 30th percentile of owner households, will require some type of subsidy or incentive to reach required ownership or rent levels affordable to low income households. Such assistance could include:

(a) the public sector setting aside land for non-profit housing providers;

(b) **using density bonusing at selected sites where a builder provides a certain proportion of rental or subsidized ownership units as affordable;**

(c) **providing financial incentives for affordable housing providers such as waiving of development charges, cash-in-lieu of parkland and other development application fees;**

(d) **using other government housing programs;**

(e) **encouraging builders to construct single and semi-detached units containing accessory dwelling units;**

(f) **reducing parking requirements and/or by encouraging the elimination of garages in ground related housing; and**

(g) **establishing a revolving capital loan fund.**

Protect the Seaton Natural Heritage System and Integrate it into the Neighbourhoods

The Seaton Natural Heritage System is guided by the policies of the Central Pickering Development Plan. In addition the Province commissioned the Seaton Natural Heritage System Management Plan as called for by the Central Pickering Development Plan. It provided additional policy recommendations that are addressed in the policies of this Plan.

City Policy
Natural Heritage Objectives

11.50 It is the objective of City Council to:

(a) **protect, maintain and, where possible, enhance all environmentally significant features and functions within the Seaton Natural Heritage System, all significant connections to regional natural systems including the Oak Ridges Moraine, Rouge National Urban Park, Duffins Creek, Lake Ontario, and the Greenbelt Area, as well as all key hydrological features in Seaton;**

(b) **promote active linkages between the Seaton Natural Heritage System and surrounding urban and rural areas;**

(c) **facilitate the inclusion of the Seaton Natural Heritage System into the overall fabric of the Seaton neighbourhoods by permitting a range of low-impact uses and activities within the Seaton Natural Heritage System that are compatible with its protection;**

(d) **allow the specific infrastructure required for the new community, including renewable energy systems, to locate in the Seaton Natural Heritage System in an environmentally acceptable manner while minimizing impacts;**

(e) **create a safe and secure Seaton Natural Heritage System by encouraging public use of those Natural Heritage System lands in public ownership; and**

(f) **work with the Toronto and Region Conservation Authority to monitor the effects of the new development in Seaton.**

City Policy
Seaton Natural Heritage Ownership

11.51 City Council shall recognize that lands within the Seaton Natural Heritage System shall remain in public ownership. However, City Council shall seek easement or other similar mechanisms of those portions of the Seaton Natural Heritage System adjacent to its municipal parks for purposes of open space and passive recreational use and for stormwater management facilities and related works.

City Policy
Community Gardens

11.52 City Council:

(a) shall require organic community gardens, permitted by this plan, be administered by the agency responsible for managing the portion of the Natural Heritage System in which the community gardens are located;

(b) shall recognize that community gardens may involve the small-scale cultivation of food, herbs and flowers;

(c) shall consider the following principles in the planning, operation and design of such community gardens:

(i) minimizing fencing that may pose a barrier to the migration of flora and fauna;

(ii) locating community gardens including grading a minimum of 10 metres from the greater of the regional storm floodplain, top of bank, long-term stable top of bank, and natural features such as wetlands, woodlots, habitat of Species of Concern and Species at Risk, and the Lake Iroquois shoreline granular sediments; and

(iii) avoiding locations immediately adjacent to residential lots in order to avoid potential user/resident conflicts; and

(d) shall require the appropriate locations for organic community gardens to be identified through an assessment of site specific conditions that consider:

(i) the potential impact on natural features and ecological functions within the Natural Heritage System;

(ii) the availability of adequate parking nearby;

(iii) direct vehicular access via a primary connector trail to facilitate the delivery of suppliers, removal of compostable waste and transport of harvested products; and

(iv) access to potable water supply.

City Policy
Infrastructure Crossings

11.53 Council shall ensure that permitted Infrastructure is developed in accordance with the following criteria:

(a) Infrastructure within the valley corridors parallel to the watercourse shall be avoided where possible;

(b) where infrastructure crosses the Natural Heritage System, it should be combined with road and trail crossings where possible; and

(c) the importance of groundwater movement and the potential impact to the watercourses, wetlands, and forests shall be recognized in the design and installation of underground infrastructure.

City Policy
Road Crossings

11.54 City Council shall, where the Seaton Natural Heritage System is traversed by existing roads and where new roads are proposed through the Seaton Natural Heritage System, require an assessment of the following items as part of any required Environmental Assessment to identify appropriate road crossing locations and conditions for ongoing wildlife movement. The following items shall be considered:

(a) **road conditions including right-of-way, traffic volumes and lane capacity, posted speed limit, road grade, road side slopes, road barriers, width of road at anticipated road crossings and road lighting;**

(b) **movement patterns of wildlife, daily and seasonally, and the types of species most likely to cross;**

(c) **natural heritage habitat types and width at the road crossing;**

(d) **proposed land use adjacent to the Seaton Natural Heritage System at the road crossing;**

(e) **topography in the vicinity of the road crossing;**

(f) **where nesting habitat(s) and basking sites for cold blooded species are impacted by the proposed road location, alternative sites and habitats away from the roads shall be provided;**

(g) **opportunities for restoration with native trees and shrubs, where roads traverse significant natural heritage features; and**

(h) **appropriate mitigation measures such as traffic calming, temporary road closures, and crossing and funneling structures where demonstrated necessary in order to achieve the appropriate conditions for ongoing wildlife movement.**

City Policy
Restoration

11.55 City Council shall require the identification of the agency responsible for and the means to undertake restoration within the buffer of the Seaton Natural Heritage System adjacent to the lands proposed for development. The restoration shall have regard for restoration criteria described in Section 4.3.1.2 of the Seaton Natural Heritage System Management Plan and Master Trails Plan (2008).

City Policy
Development Adjacent to the
Seaton Natural Heritage System

11.56 City Council shall require development on lands adjacent to the Seaton Natural Heritage System to minimize impacts on the Seaton Natural Heritage System but also to integrate the Seaton Natural Heritage System as a key structural element of each neighbourhood through consideration of the following principles:

(a) **the Seaton Natural Heritage System should be a strong design element for each neighbourhood and form part of everyday life in the neighbourhood;**

(b) **neighbourhood design shall provide appropriate views, vistas, and connections to the Seaton Natural Heritage System;**

(c) **the road pattern shall utilize terminal views at the ends of prominent streets, and where appropriate, window streets to reinforce the importance of the Seaton Natural Heritage System. Trailheads and other public open spaces should be positioned at the ends of streets that terminate at the Seaton Natural Heritage System;**

(d) **neighbourhood design shall provide for a range of development interfaces with the adjacent Natural Heritage System in order to provide opportunities for public visual and physical access from the neighbourhoods while also limiting access where necessary and restricting encroachments; and**

(e) **where lots back onto the Seaton Natural Heritage System, fencing and other optional measures such as homeowner education shall be used to restrict access and encroachment.**

City Policy
Stewardship

11.57 City Council shall encourage stewardship amongst homeowners, which may include planting of locally occurring native plants within rear lots, disconnecting rainwater downspouts, avoiding organic waste dumping within the Seaton Natural Heritage System, and participation in indigenous wildlife protection programs such as providing nesting areas and birdhouses.

Homeowner stewardship is encouraged.

City Policy
Rear Lot Interface on
Non-Residential Lots

11.58 City Council shall require uses that are typically located at the rear of non-residential buildings such as open storage, loading and parking areas be carefully considered and designed to ensure that the Seaton Natural Heritage System edge is not degraded.

City Policy
Trailheads

11.59 City Council shall require trailheads to be identified through Neighbourhood Planning. Such trailheads shall provide access to and from the Seaton Natural Heritage System in accordance with the trailhead locations identified on Schedule VII Seaton Urban Area Trail Network.

Protect Cultural Heritage Resources and Archaeological Resources

The Seaton Urban Area uniquely contains a large number of cultural heritage and archaeological resources. A large number of the built resources are clustered along Whitevale Road. The Central Pickering Development Plan requires particular attention and respect to cultural heritage and archaeological resources.

City Policy
Heritage and Archaeological Resources

11.60 It is the objective of City Council to:

(a) identify the range of cultural heritage resources from all time periods, including archaeological sites, cultural heritage landscapes, and built heritage resources;

(b) reflect First Nations' historical cultural affiliation with the Seaton Urban Area;

(c) protect and conserve significant cultural heritage features and integrate them into the new urban neighbourhoods and the Seaton Natural Heritage System;

(d) restore, rehabilitate, protect and conserve significant cultural heritage resources;

(e) record and salvage all built heritage resources and/or archaeological resources that cannot be conserved in place and document all displaced cultural heritage landscapes;

(f) foster public awareness and appreciation of Seaton's cultural heritage through promotion, interpretation, education and commemoration;

(g) ensure that cultural heritage resources and artifacts are protected and passed on for care by future generations;

(h) **involve First Nations, the public, landowners, local heritage experts, heritage committees, relevant public agencies, and other interested groups and individuals in cultural heritage decisions affecting the Seaton Urban Area;**

(i) **encourage urban development on or adjacent to protected significant cultural heritage resource properties to be of an appropriate scale and character, where the heritage attributes of such properties are conserved; and**

(j) **protect significant archaeological sites from development.**

City Policy
Cultural Heritage Landscapes

11.61 City Council shall require Neighbourhood Plans to identify and, to the extent practical, protect significant cultural heritage landscapes through incorporation into the neighbourhood pattern by:

(a) **creating a block pattern that reflects, where possible and feasible, the historic concession grid;**

(b) **maintaining significant hedgerows in the Seaton Natural Heritage System and public open spaces where possible and feasible;**

(c) **incorporating existing roads and rights-of-way, which are not planned as arterial roads or collector roads, as lower order roads and/or trails;**

(d) **maintaining to the extent practical the rolling topography;**

(e) **maintaining, to the extent practical, where not precluded by grading or other servicing constraints, the rural cross-section of the historic concession roads where such roads cross the Seaton Natural Heritage System; and**

(f) **protecting significant views through the location of parks and village greens.**

City Policy
Built Heritage Resources

11.62 City Council shall require Neighbourhood Plans and the implementing Sustainable Placemaking Guidelines to identify, protect and incorporate significant built heritage resources into the lot pattern of the new residential and mixed-use neighbourhoods by:

(a) **giving direction to draft plans of subdivision to provide appropriate uses, lot sizes, setbacks, built form and massing adjacent to the built heritage resources that complements and respects the resource so that the resource appears to be integrated into the neighbourhood;**

(b) **permitting new uses including residential, guest accommodation, personal services, restaurants, offices and retail use within the built heritage resource so as to ensure its ongoing use; and**

(c) **incorporating built heritage resources into neighbourhood parks, schools and other institutional sites where feasible to maintain their open space setting and to provide for future community use.**

City Policy
Design Considerations

11.63 City Council shall require development adjacent to built cultural heritage resources to reflect the design parameters set out in the Seaton Sustainable Placemaking Guidelines.

City Policy
Documenting Former Built
Heritage Resources

11.64 City Council requires that where preservation of a built heritage resource is not possible, new development shall document the historical context of the built heritage resource through one or more of the following techniques:

- **(a) the preservation and display of fragments of former buildings, structures and landscaping in their historic context;**
- **(b) marking the traces of former locations, shapes and circulation lines of buildings, structures, travel routes and spaces;**
- **(c) the display of graphic material describing the former structures and landscape complex;**
- **(d) recall the former architecture, plan and landscaping in the new development; and**
- **(e) the salvage of information through archaeological exploration and recording of buildings, structures and landscape through measured drawings and photogrammetry.**

City Policy
Public Works

11.65 City Council shall ensure, to the extent practical, where not precluded by grading or other servicing constraints, that site alteration including road widenings, road re-alignments, and slope or bank stabilization, among other works, shall be undertaken in a manner that does not destroy or adversely affect known archaeological sites, built heritage properties and cultural heritage landscape features. All works of public agencies shall consider their impacts upon built heritage resources and cultural heritage landscape with a presumption against any work that would detrimentally affect a valued built heritage resource, cultural heritage landscape or its attributes.

City Policy
Whitevale Road Design

11.66 City Council:

- **(a) recognizes that Whitevale Road from the Whitevale Hamlet to Sideline 22 encompasses a unique cultural heritage landscape with a significant number of built heritage resources located adjacent to the road;**
- **(b) shall identify the portion of Whitevale Road between Golf Club Road and just west of Sideline 22 as a Character Road in the Neighbourhood Plans which shall be subject to the provisions of the following Subsections (c) through (j) inclusive;**
- **(c) shall maintain the existing character of the roadway, to the extent practical, where not precluded by grading, construction of road intersections or other servicing constraints, including:**
  - **(i) the existing rural cross-section;**
  - **(ii) the existing mature road side vegetation;**
  - **(iii) the undulating topography of the road;**
  - **(iv) the general road surface width, and**
  - **(v) existing fencing where it contributes to the heritage character of the road;**

There is an opportunity to not only protect the character of Whitevale Road, but also to create an executive style residential neighbourhood along its length.

(d) **shall ensure that lot sizes, setbacks, built form and massing are provided which form a transition to higher density development located north and south of Whitevale Road;**

(e) **shall require Neighbourhood Plans to identify the appropriate access treatments to individual lots, but shall not permit back-lotting onto Whitevale Road, and houses flanking the road shall be designed to appear as the front façade;**

(f) **shall require the design and built form of housing along Whitevale Road to take design cues from the existing houses and farmhouses;**

(g) **shall direct, where possible, parks and school yards to be locate along Whitevale Road to maintain the open space character of the road;**

(h) **shall direct, where possible, stormwater management facilities to be located along Whitevale Road to maintain the open space character of the road but shall not be located so as to negatively impact on cultural heritage resources;**

(i) **shall require new below ground infrastructure to be constructed so as to minimize disturbance to the rural character of the roadway, to the extent practical; and**

(j) **shall require traffic calming measures to be incorporated into the design of the road including among other possible measures frequent stop signs, reduced pavement widths at intersections, and raised pedestrian crossings.**

City Policy
Cultural Heritage Recognition

11.67 City Council shall implement a themed recognition/signage program to recognize cultural heritage buildings in the Seaton Urban Area, in consultation with Heritage Pickering. The City shall also celebrate former noted inhabitants of the area through the use of their names for specific roads, trails, parks and facilities.

City Policy
Respecting First Nations

11.68 City Council recognizes First Nations' cultural and spiritual connection to the Seaton Urban Area and shall require the development process be undertaken in a respectful manner. Applicants of development are encouraged to actively seek the input and advice of First Nations in considering the most appropriate actions to take with respect to the protection, commemoration, long-term management and/or mitigative excavation of archaeological sites.

City Policy
Archaeology Monitor

11.69 City Council shall require, as a condition of draft plan or site plan approval, that an archaeology monitor, preferably of First Nations' ancestry, if available, be retained and funded by the applicant for any significant mitigative excavation activities, on known pre-contact archaeological sites. The purpose of this monitor would be to work co-operatively with the applicant's licensed professional archaeologist in order to report back on the results of the mitigative excavation activities to interested First Nations.

City Policy
In-situ Protection of Archaeological Resources

11.70 City Council shall require significant known archaeological resources be protected in-situ where possible. Stage 3 archaeological assessments shall delineate the boundaries of significant archeological sites, and these sites shall be protected through such means as:

(a) **inclusion within the Seaton Natural Heritage System;**

(b) **inclusion within public parks;**

(c) **use of zoning that prohibits any future land use activities that might result in soil disturbance on such sites; and**

(d) **use of other protective tools, such as heritage easements, subdivision agreements or covenants.**

Create an Adaptive and Resilient Urban Community

The Central Pickering Development Plan recognizes that urban communities should be capable of growing and changing over time. This evolution is typical of any urban area but is often ignored in short term planning perspectives.

City Policy
Evolution of Urban Areas
and Sustainability

11.71 City Council:

(a) **recognizes that certain areas of the Seaton Urban Area may remain vacant or developed for interim uses until the markets for higher density housing begin to emerge;**

(b) **recognizes that areas built as primarily commercial areas will evolve and intensify into mixed use areas provided the block structure and streetscape is designed in recognition of that evolution;**

(c) **recognizes that sustainability targets and benchmarks will need to be adjusted and enhanced as technologies for building products and energy efficiency evolve; and**

(d) **recognizes that the environment will continue to change and approaches and standards to address such environmental change will need to be updated and refined as needed.**

Neighbourhood Plan Implementation and Phasing

City Policy
Neighbourhood Plan Requirements

11.72 City Council shall require the policies of this Plan to be addressed in the design of the Neighbourhood Plans. The Neighbourhood Plans shall:

(a) **provide a block plan level of detail on the intended block and pattern of development;**

(b) **further detail the boundaries of the residential and mixed use designations and identify any variations in minimum densities, minimum and maximum heights, and proportions of certain housing as well as identification of key gateway sites as per Sections 11.2, 11.5, 11.6, and 11.7;**

(c) **identify the location and arrangement of Pedestrian Predominant Streets in each Community Node as per Section 11.7;**

(d) **identify the location and arrangement of minor commercial clusters as per Section 11.3;**

(e) **identify the location of Neighbourhood Parks, Village Greens and trailheads;**

(f) **identify the location of elementary and secondary schools;**

(g) **identify the general location and approximate boundaries of stormwater management ponds;**

(h) **delineate the boundary and policies respecting higher intensity employment nodes in the Prestige Employment designation in Neighbourhood Plans 20 and 21 as per Section 11.35;**

(i) **identify significant built cultural heritage resources and cultural heritage landscapes and the means to incorporate them into the neighbourhoods as per Sections 11.61 and 11.62;**

(j) **identify the treatment of Whitevale Road and adjacent residential lands as per Section 11.66;**

(k) **consider the recommendations of completed archaeological and heritage assessments; and**

(l) **further delineate the pedestrian and bikeway network through the Neighbourhood and adjacent Natural Heritage System.**

City Policy
Neighbourhood Functional Services
and Stormwater Report

11.73 City Council shall require a Neighbourhood Functional Servicing and Stormwater Report (NFSSR) to be submitted to the satisfaction of the City in consultation with TRCA in support of draft plan of subdivision approval or site plan approval as applicable and such report shall generally be consistent with the recommendations of the MESP. TRCA shall be satisfied with respect to meeting Provincial hazard standards. The NFSSR shall address:

(a) **the size and location of the required sanitary sewage collection system including pumping stations and connection to existing sewers in accordance with Durham Region's Class Environmental Assessment for Regional Services for the Central Pickering Development Plan;**

(b) **works required to extend the water distribution system and, if required, pressurization systems including the size and location of all reservoirs and pumping stations in accordance with Durham Region's Class Environmental Assessment for Regional Services for the Central Pickering Development Plan;**

(c) **the geology, hydrogeologic and natural conditions, where services will cross the Natural Heritage System, not along existing or future roads, in order to confirm construction practices and mitigative measures;**

(d) **the type and location of other existing and proposed utilities;**

(e) **the location of collector and arterial roads, transit systems and trails along with preliminary stream crossing designs and conceptual road grades and road cross-sections consistent with the policies of this plan and the cross-sections within the Sustainable Placemaking Guidelines. This work shall follow and fulfill Phases 3 and 4 of the Class EA process;**

(f) **an overall conceptual grading plan and cross-sections that outlines the general grading and post-development flow patterns within sites and onto adjacent lands, and which identifies where minor grading is required within the Seaton Natural Heritage System as permitted in Table 3;**

(g) **the restoration of the Seaton Natural Heritage System where grading has been permitted;**

(h) **functional details of proposed major and minor storm drainage systems;**

A Master Environmental Servicing Plan (MESP) referred to in Section 11.73 is required by the CPDP to be completed prior to or concurrent with the Neighbourhood Plans in consultation with the City of Pickering, the Regional Municipalities of Durham and York and the Toronto and Region Conservation Authority (TRCA). The MESP was undertaken by the landowners within Seaton and the recommendations were reviewed by the City and the TRCA to ensure it satisfied their requirements at an overall Seaton level. More detailed analysis is to be undertaken on a Neighbourhood basis to deal with levels of detail not possible at the overall Seaton study level.

(i) a hydrological, hydraulic and hydrogeological study which demonstrates that negative impacts to recharge, erosion, water quantity and quality are minimized, and a detailed water balance for the watercourses, wetlands and woodlots which demonstrates that negative impacts are minimized;

(j) a fluvial geomorphic and hydraulic study which demonstrates that crossings are of sufficient size to prevent negative impacts to natural hazards and aquatic and terrestrial systems;

(k) a detailed stormwater management plan, which addresses the recommended study requirements of the MESP and Section 11.45;

(l) an identification of the location and protection of where LID measures can be implemented along with specificity on the size, nature and design on the recommended LID measures following consideration of:

  (i) LID Site Design Strategies;

  (ii) Rainwater Harvesting;

  (iii) Green Roofs;

  (iv) Downspout Disconnection;

  (v) Soakaways, Infiltration Chambers, Trenches;

  (vi) Bioretention;

  (vii) Vegetated Filter Strips;

  (viii) Permeable Pavement in parking areas, laneways and sidewalks;

  (ix) Enhanced Grass Swales;

  (x) Dry Swales;

  (xi) Perforated Pipe Systems; and

  (xii) Other technologies as yet identified that achieve the same purpose;

(m) the required timing, phasing and preliminary cost estimate of infrastructure including both internal infrastructure and external infrastructure required to service the development of the Seaton Urban Area. Any interim or temporary infrastructure required prior to, or in lieu of, permanent infrastructure shall also be identified;

(n) site specific inventory of the locations of all new infrastructure to confirm that there are no species at risk identified under the *Ontario Endangered Species Act* (2007);

(o) a fisheries habitat assessment for any watercourse crossing to determine whether any fish habitat will be subject to harmful alteration, disruption or destruction and if so providing details of the compensation plan to provide a net gain to the productive capacity of the fish habitat as determined by Fisheries and Oceans Canada or its designate under the *Federal Fisheries Act*;

(p) an overall erosion sediment and topsoil management control strategy which addresses the required timing and phasing of site stripping, and grading within and between neighbourhoods except for Regional Infrastructure, in order to minimize collective site disturbance and to avoid construction sediments entering the watercourses to the extent practical prior to any stripping taking place;

(q) pre, during and post-construction watershed and site specific level monitoring requirements and costs as generally outlined in the MESP; and

(r) other matters may be recommended by City Council that are consistent with the Central Pickering Development Plan (CPDP) and the MESP.

11.74 City Council shall:

(a) require that a "Staged Servicing and Implementation Strategy" be prepared by the landowners to the satisfaction of the City and Region for the entirety of the Seaton Urban Area which provides a description of the anticipated timing, sequencing and costs of the delivery of major infrastructure and services including but not limited to:

(i) trunk water and sanitary services;

(ii) collector and arterial roads internal to the Seaton Urban Area;

(iii) road linkages external to the Seaton Urban Area, including road linkages internal and external to Durham Region;

(iv) interchanges with Highway 407 ETR;

(v) transit;

(vi) the Seaton Trail network;

(vii) fire, EMS and police stations, recreational centres, libraries and community parks;

(viii) hydro;

(ix) all infrastructure necessary to make lands available for employment uses for the first phase of the Prestige Employment designation as per Section 11.34; and

(x) the infrastructure necessary to service the remaining lands designated Prestige Employment concurrent with remaining residential development;

(b) require the completion of a future transportation planning study to determine the need and, if warranted, the extent and timing of additional transportation improvements referenced in (a)(ii), (a)(iii) and (a)(iv) above that may be required to support development beyond the first phase of development as defined in the Staged Servicing and Implementation Strategy (not to exceed residential development equal to 9,800 single detached equivalent units), such transportation planning study to be undertaken by the landowners in consultation with the City of Pickering, Region of Durham, Region of York and the City of Toronto and completed prior to development (i.e., building permit issuance) proceeding beyond such first phase of development;

(c) if the Whitevale Road By-pass bridge crossing of Duffins Creek is delayed, require the infrastructure staging plan to identify how traffic will be directed to restrict traffic flow through the Whitevale Hamlet;

(d) set out appropriate conditions of draft plan approval to implement the Staged Servicing and Implementation Strategy including:

(i) identification of the services necessary to service that draft plan;

(ii) "No Presales Agreements" with the Owners of Draft Plans in order to ensure that housing sales do not outpace the timing of delivery of the major infrastructure components; and

(iii) the use of (H) Holding provisions in the implementing Zoning By-laws to require, prior to development (i.e., building permit issuance) proceeding beyond the first phase of development as defined in the Staged Servicing and Implementation Strategy, that the City of Pickering and the Region of Durham, in consultation with the Region of York, be satisfied with respect to:

A. **the completion of the transportation planning study described in Section 11.74 (b) and implementation of transportation improvements recommended by the study that are required to support such development, if any; and**

B. **the implementation of the trunk water and sanitary services that are required to support such development;**

provided that such (H) Holding symbol shall not apply to the first phase of development referenced in Section 11.74(b), and in the event a dispute arises regarding this policy or the scope of the transportation planning study referenced in Section 11.74(b), the matter will be adjudicated by the Ontario Municipal Board, if necessary;

(e) **recognize that, in order to make the funding of the major infrastructure components feasible, it is necessary to provide Draft Plan Approval to all of the residential development;**

(f) **require that the phasing of development in the neighbourhoods occurs in a logical progression along transit corridors, and which allows for the efficient provision of schools, parks and other services where possible;**

(g) **require that the phasing of development in the neighbourhoods delivers an interconnected road network, including the early construction of the arterial and collector roads, to accommodate transit; and**

(h) **as per Section 11.34(a) require the Staged Servicing and Implementation Strategy to provide for the extension of Regional spine services required to facilitate the development of 80 hectares of employment lands between Sideline 26/Whites Road and Sideline 22.**

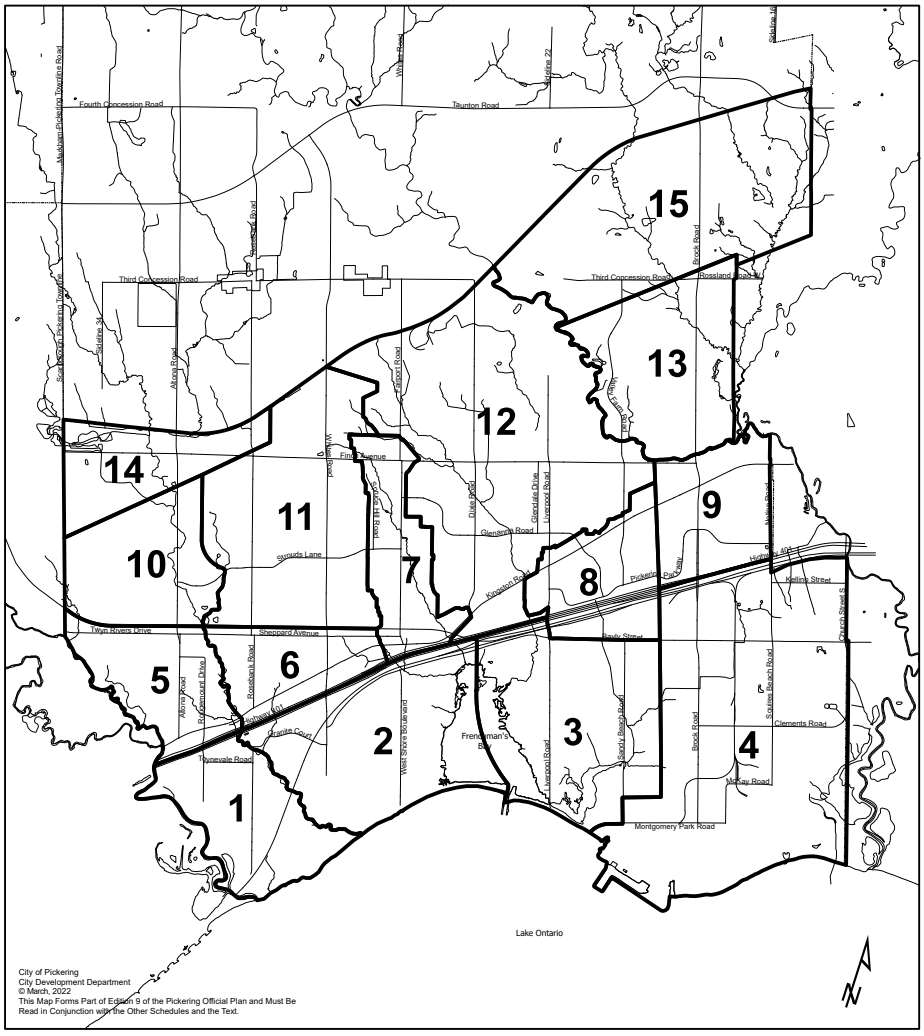
Part 3:
Neighbourhoods and Settlements

This page intentionally left blank.

Chapter 12 - Urban Neighbourhoods

The information contained in this chapter is supplementary to the land use information provided in Chapter 3 of this Plan. It provides detailed neighbourhood policies for each of the City's urban neighbourhoods. Additional neighbourhood policies may be added as required, by amendment to this Plan.

For planning purposes, the South Pickering Urban Area is divided into 15 neighbourhoods. Each neighbourhood is described in terms of its boundaries, overall characteristics, and land use mix. As well, neighbourhood population forecasts are provided to the year 2016. Maps 11 to 25 illustrate the boundaries of neighbourhoods, as well as other information as described in the next section.



Map 3-B (Chapter 2) illustrates Urban Neighbourhoods 16 - 21 in the Seaton Urban Area

Urban Neighbourhoods

1. **Rosebank**
2. **West Shore**
3. **Bay Ridges**
4. **Brock Industrial**
5. **Rougemount**
6. **Woodlands**
7. **Dunbarton**
8. **City Centre**
9. **Village East**
10. **Highbush**
11. **Amberlea**
12. **Liverpool**
13. **Brock Ridge**
14. **Rouge Park**
15. **Duffin Heights**
16. **Lamoreaux**
17. **Brock-Taunton**
18. **Mount Pleasant**
19. **Wilson Meadows**
20. **Thompson's Corner**
21. **Pickering Innovation Corridor**

General Information

The maps contained in this Chapter:

- indicate neighbourhood boundaries
- indicate the general location of existing and proposed community facilities such as schools, parks, libraries, community centres, cemeteries and places of worship
- indicate the location of existing public roads and new public road connections ("through-roads" are shown; "dead ends" and "cul-de-sacs" are not)
- indicate the general location and extent of Detailed Review Areas, which are areas that have been identified as priorities for the preparation of detailed land use, transportation, design or other development guidelines; these areas include Mixed Use Areas, Regional Nodes, Mixed Employment Areas, and Marina Areas, as shown on Schedule I, as well as other lands requiring detailed development guidelines
- indicate those lands for which detailed land use, transportation, design and/or other development guidelines have been adopted

City Policy
Preparation of Urban Neighbourhood Plans

12.1 In preparing urban neighbourhood plans, City Council shall:

(a) involve residents, business-people, landowners, relevant public agencies, and other interested groups and individuals;

(b) identify the general location and extent of Detailed Review Areas for which development guidelines may be adopted (see Section 12.2);

(c) identify the general location and extent of lands for which development guidelines have been adopted;

(d) indicate the location of new public road connections, where known, and endeavour to ensure the construction of such road connections;

(e) indicate the location of new community facilities, where known, and endeavour to ensure the construction of such facilities;

(f) include other site, area, or neighbourhood specific policies that may be warranted; and

(g) incorporate new urban neighbourhood plans into this Plan by amendment.

City Policy
Development Guidelines

12.2 City Council:

(a) may adopt development guidelines for any Detailed Review Area, or part of an Area, identified on a neighbourhood map;

(b) may, in undertaking a detailed review, examine the specific land use mix and arrangement, the scale and intensity of use, the transportation network, community design requirements, environmental considerations, servicing arrangements, stormwater management, and any other matter Council deems necessary;

(c) **shall, in undertaking a review, require appropriate public and agency participation considering the scale and location of the Detailed Review Area;**

(d) **shall endeavour to complete detailed reviews for all or part of a Detailed Review Area prior to approving major development within the Area;**

(e) **once development guidelines for a Detailed Review Area are adopted, shall ensure that any development proposal complies with the adopted guidelines (adopted guidelines are included in the Compendium Document to this Plan); and**

(f) **following the adoption of the development guidelines for a Detailed Review Area, may incorporate necessary provisions in the Zoning By-law for that Area, and shall amend this Plan if necessary, to implement the development guidelines.**

The Detailed Reviews help bridge the gap between official plan policy and zoning by-laws.

The Council-adopted Development Guidelines assist Council in the review of development proposals and the preparation of zoning by-laws.

Neighbourhood 1: Rosebank

Description

Neighbourhood Population Projection

Rosebank	
1996 Population	2,400
Projected Growth	1,000
Percent Increase	41.6
2016 Population	3,400

- Is bounded by the Rouge River, Highway 401, Petticoat Creek, and Lake Ontario.
- Includes a portion of the Rouge National Urban Park, and most of the Petticoat Creek Conservation Area within its boundaries.
- Iroquois village existed near the mouth of the Rouge River.
- Initial housing development occurred between 1900 and 1940; more recent subdivision activity began in the 1970s.
- Consists of primarily detached dwellings on large lots; also includes an elementary school, neighbourhood park and seniors' apartments (on Rodd Avenue); does not contain any neighbourhood shopping facilities.
- Has environmentally sensitive areas associated with the Rouge River, Petticoat Creek and the Lake Ontario Waterfront.
- Is traversed from southwest to northeast by the C.N. rail line (along which GO Rail Transit service runs).
- Has two Detailed Review Areas within its boundary: (i) residential lands north and west of the C.N. rail line; and (ii) lands in the Rodd Avenue - Bella Vista Drive area.
- City Council has adopted development guidelines as follows:
  * The "Rosebank Neighbourhood Development Guidelines" (for lands north and west of the C.N. rail line).

City Policy
Rosebank Neighbourhood Policies

12.3 City Council shall:

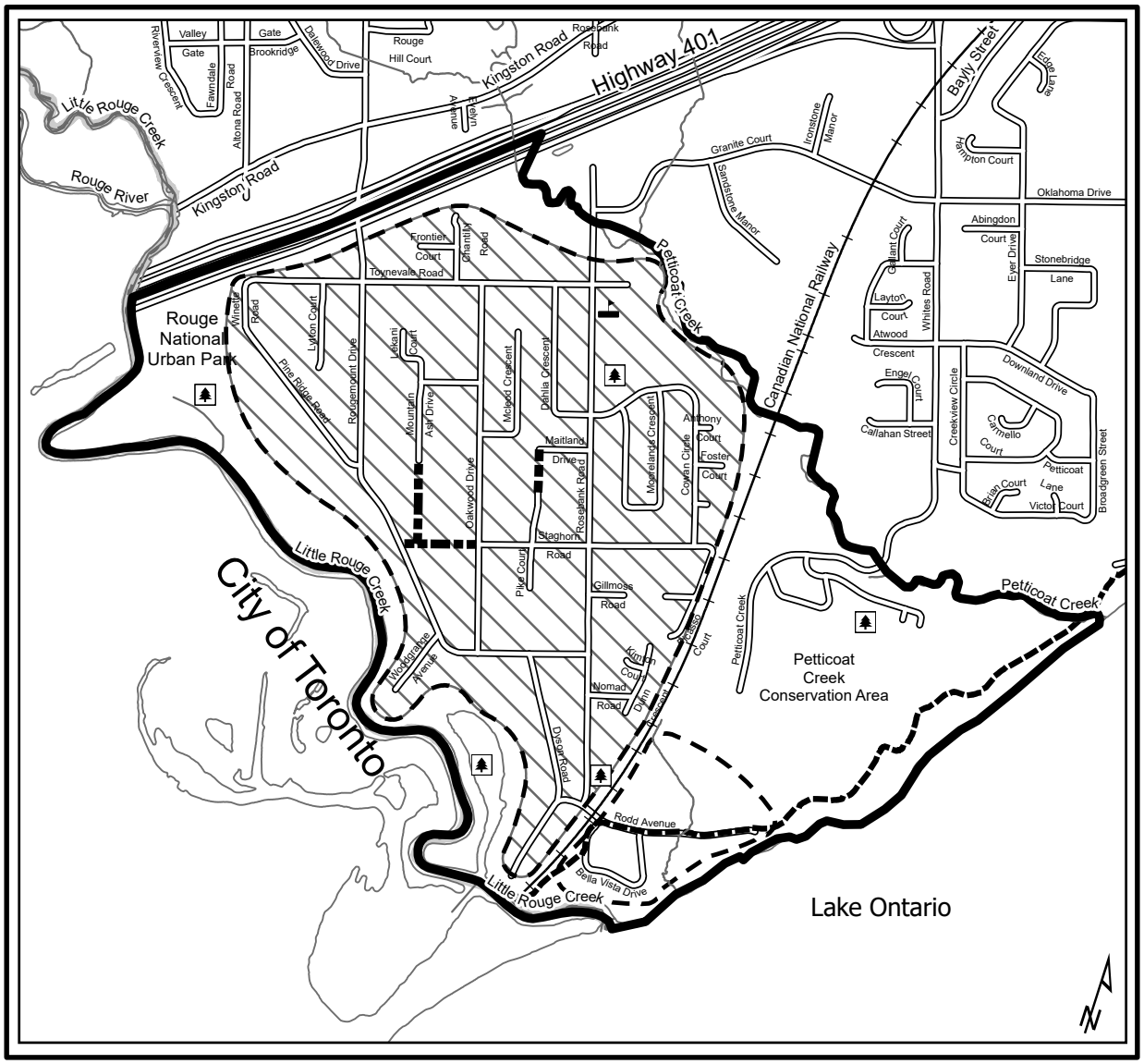
(a) in the established residential areas along Bella Vista Drive, Dyson Road, Pine Ridge Road, Rodd Avenue, Rosebank Road, Rougemount Drive, Toynevale Road and Woodgrange Avenue, encourage and where possible require new development to be compatible with the character of existing development;

(b) restrict lands west of Rosebank Road and lands along Rodd Avenue to the development and infilling of single detached dwellings, and despite Table 9 of Chapter 3, establish a maximum residential density for these lands of 17 units per net hectare;

(c) despite 12.3(a), permit the convalescent home on the north side of Rodd Avenue;

(d) for developments east of Rosebank Road and west of the C.N. rail line, permit a maximum of approximately 50 percent of the lots proposed for residential development to be used for semi-detached dwellings and require the remaining lots proposed to be used for single detached dwellings;

Map 11: Neighbourhood 1: Rosebank



Legend Symbols

- New Road Connections (Proposed)
- Detailed Review Area
- Lands for which Council has adopted Development Guidelines (Refer to Compendium Document)
- Neighbourhood Boundary
- Waterfront Trail
- Public Elementary School
- Park

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(e) establish another neighbourhood park in an appropriate location to serve development generally west of Rosebank Road;

(f) prohibit vehicular access from the neighbourhood to the Petticoat Creek Conservation Area, and discourage vehicular parking within the neighbourhood for users of the Petticoat Creek Conservation Area;

(g) encourage the use and operation of the Lake Ontario Waterfront Trail in a manner sensitive to the interests of the neighbouring residents, and provide local trail connections with the Waterfront Trail in appropriate locations;

(h) encourage the conservation authority and other interest groups to enhance the vegetative linkages between Petticoat Creek Conservation Area and the Rouge National Urban Park; and

(i) require new development to have regard for the Rouge National Urban Park Management Plan.

This page intentionally left blank.

Neighbourhood 2: West Shore

Description

Neighbourhood Population Projection

West Shore	
1996 Population	7,400
Projected Growth	200
Percent Increase	2.7
2016 Population	7,600

- Is bounded by Petticoat Creek, Highway 401, the mid-line of Frenchman's Bay, and Lake Ontario.
- Includes the northern portion of the Petticoat Creek Conservation Area, and a conservation area south of Sunrise Avenue (Rotary Frenchman's Bay West Park).
- Iroquois village may have existed on Frenchman's Bay.
- Initial housing development occurred between 1900 and 1940; more recent subdivision activity began in the 1960s.
- Consists of a mix of detached, semi-detached and townhouse dwellings; also includes three elementary schools, four neighbourhood parks, two places of worship, a community centre, and a yacht club.
- Has a prestige employment area located adjacent to Highway 401, west of Whites Road and north of the C.N. rail line (along which GO Rail Transit service runs).
- Has neighbourhood shopping located on Oklahoma Drive near Whites Road, on Bayly Street at West Shore, and on Marksbury Road.
- Has environmentally sensitive areas associated with Petticoat Creek, Frenchman's Bay and the Lake Ontario Waterfront.
- Has two Detailed Review Areas identified within its boundary: (i) lands on the north side of Granite Court and Oklahoma Drive, at Whites Road; and (ii) lands and waters in and around Rotary Frenchman's Bay West Park.

City Policy

West Shore Neighbourhood Policies

12.4 City Council shall:

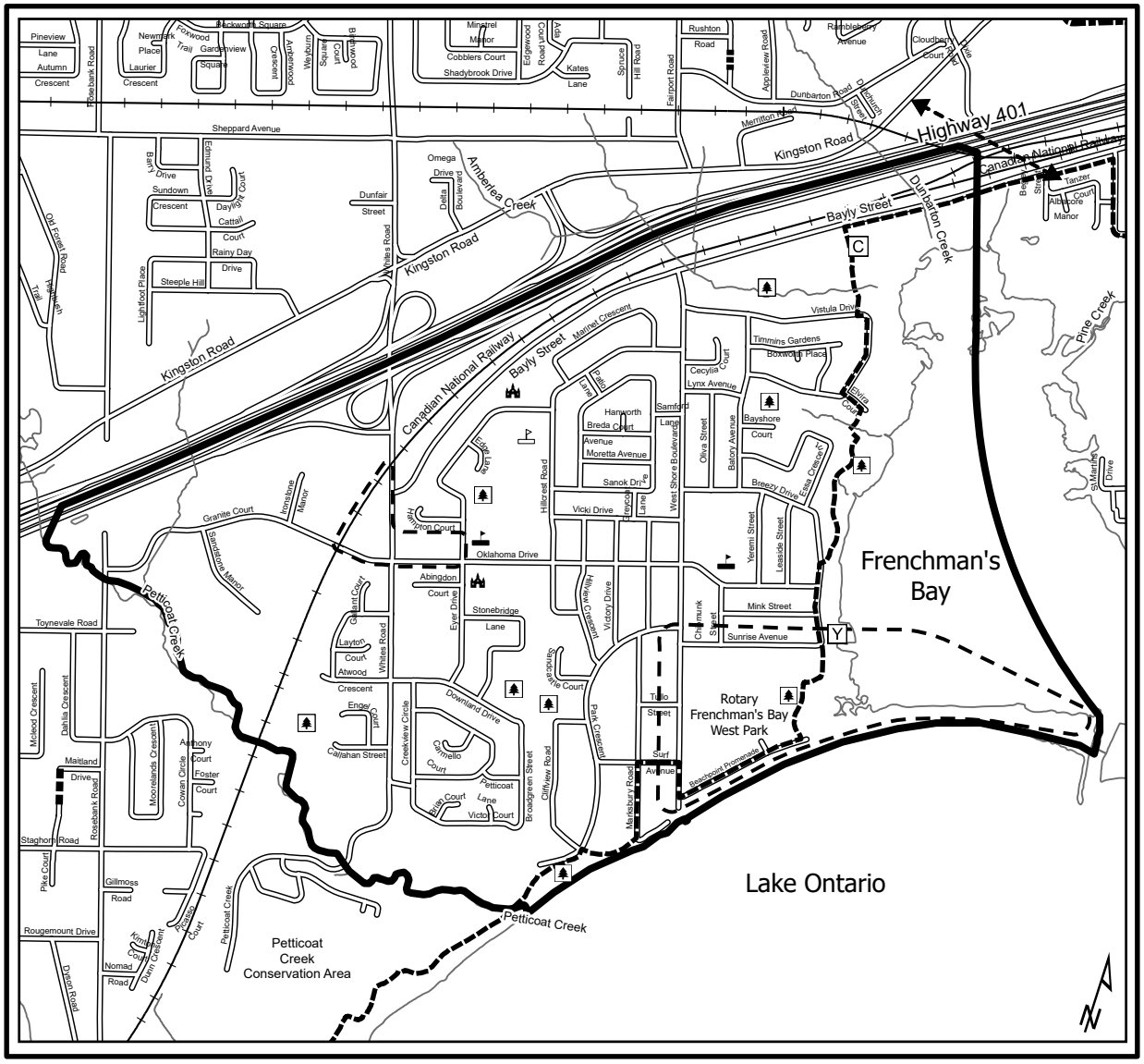
(a) encourage the Toronto and Region Conservation Authority to ensure that the design and operation of the proposed Frenchman's Bay West Park respects the interests of neighbourhood residents;

(b) in cooperation with the Toronto and Region Conservation Authority, promote the location and design of vehicular access routes to the Frenchman's Bay West Park to have as minimal impact as possible on residents, and to appropriately sign the access routes;

(c) on the western half of Frenchman's Bay, permit boat anchorage but prohibit boat docking, except in association with the Frenchman's Bay Yacht Club; and

(d) encourage the use and operation of the Lake Ontario Waterfront Trail in a manner sensitive to the interests of the neighbouring residents, and provide local trail connections with the Waterfront Trail in appropriate locations.

Map 12: Neighbourhood 2: West Shore



Legend Symbols

- New Road Connections (Proposed)
- Detailed Review Area
- Pedestrian/Bicycle Connection (Proposed)
- Neighbourhood Boundary
- Waterfront Trail
- Place Of Worship
- Public Elementary School
- Separate Elementary School
- C — Community Centre
- Park
- Y — Yacht Club

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Neighbourhood 3: Bay Ridges

Description

Neighbourhood Population Projection

Bay Ridges	
1996 Population	7,800
Projected Growth	1,700
Percent Increase	21.8
2016 Population	9,500

- Is bounded by the mid-line of Frenchman's Bay, Highway 401 west of Liverpool Road, Bayly Street east of Liverpool Road, the hydro transmission corridor, and Lake Ontario.
- Includes significant parkland adjacent to Lake Ontario and at the south end of Sandy Beach Road.
- Consists of a mix of 1960s (and later) detached, semi-detached, townhouse and apartment dwellings; older village development near the Bay from early 1900s; also includes three elementary schools, four neighbourhood parks, three places of worship, a community/seniors' centre, a lawn bowling facility, a library, and marinas.
- Has neighbourhood and community shopping located on Bayly Street west of Liverpool Road; neighbourhood shopping on Krosno Boulevard near Liverpool Road, and on Bayly Street at Sandy Beach Road.
- Has general and prestige employment areas located south of Bayly Street, east of Sandy Beach Road.
- Has environmentally sensitive areas associated with Frenchman's Bay and the Lake Ontario waterfront.
- Has three Detailed Review Areas within its boundary: (i) lands and water surrounding the existing marinas; (ii) the lands around Liverpool Road, Old Orchard Road and Krosno Boulevard; and (iii) lands around the Bay Ridges Plaza, west of Liverpool Road.
- City Council has adopted development guidelines as follows:
  * The "Liverpool Road Waterfront Node Development Guidelines" (for lands surrounding the existing marinas).
  * The "Bay Ridges Plaza Redevelopment Guidelines".

City Policy

Bay Ridges Neighbourhood Policies

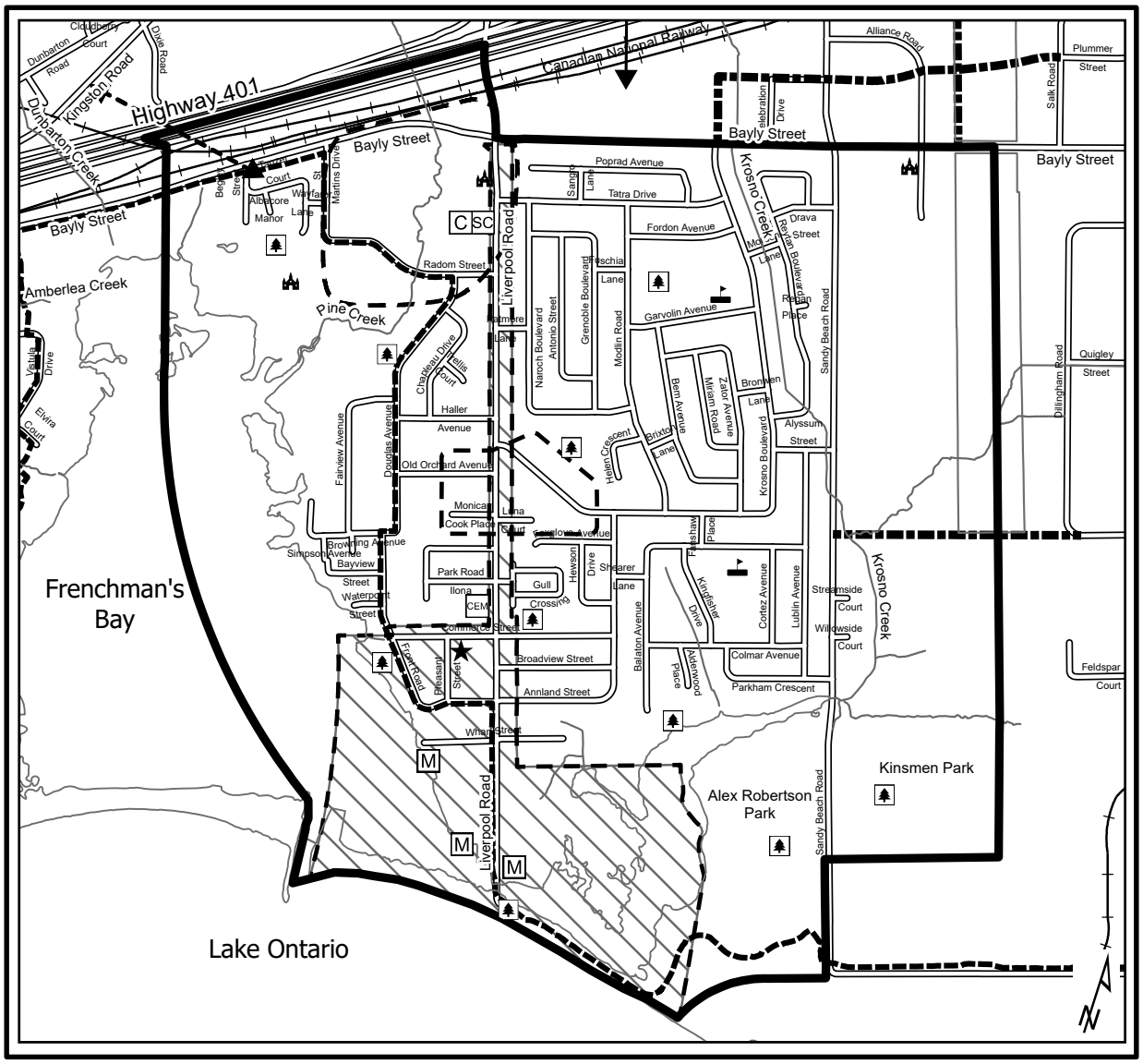
12.5 City Council shall:

(a) recognize that the area generally situated from Commerce Street stretching south to the Lake Ontario shoreline, on either side of Liverpool Road, exhibits a unique mix of built and natural attributes that establishes the area as the 'Liverpool Road Waterfront Node';

(b) promote the Waterfront Node as a boating, tourism and recreational area;

(c) require that future development within the Waterfront Node capitalize upon these unique attributes, which include Frenchman's Bay, Lake Ontario, the Hydro Marsh, City parks, Millennium Square, marine activities, and the historic Village of Fairport;

Map 13: Neighbourhood 3: Bay Ridges



Legend Symbols

- New Road Connections (Proposed)
- Detailed Review Area
- Lands for which Council has adopted Development Guidelines (Refer to Compendium Document)
- Pedestrian/Bicycle Connection (Existing)
- Pedestrian/Bicycle Connection (Proposed)
- Neighbourhood Boundary
- Waterfront Trail
- Place Of Worship
- Public Elementary School
- C — Community Centre
- Park
- SC — Senior's Centre
- CEM — Cemetery
- Historic Village
- M — Marina

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(d) for lands within the Waterfront Node, require building forms and public space to be of high quality design with a Great Lakes Nautical Village theme as detailed in the Council-adopted Liverpool Road Waterfront Node Development Guidelines, to create a vibrant pedestrian environment;

(e) for lands within the Waterfront Node, further identify, as Marina Mixed Use Area, those lands that:

(i) constitute the primary marina precinct within the Waterfront Node;

(ii) are located as follows: the northern two-thirds of the former 'Coolwater Farms' property, extending west across Liverpool Road to Frenchman's Bay, and stretching north to Annland Street excluding the Liverpool Road frontage; and

(iii) are illustrated for reference on the Tertiary Plan contained within the Council-adopted Liverpool Road Waterfront Node Development Guidelines;

(f) for lands identified as the Marina Mixed Use Area, and despite Table 3 of Chapter 3:

(i) restrict the variety of permissible uses to those that strengthen and complement the existing working marinas and cater to the Pickering community and boating public, as follows: marinas, yacht clubs, and mooring facilities; marina supportive uses; restaurants; limited retail and office uses; and those uses permissible in Open Space System – Natural Areas and Active Recreational Areas;

(ii) further identify a sub-area of land located south of Wharf Street, 31 metres from the edge of Frenchman's Bay, wherein despite (i) above, residential uses, up to a maximum density of 55 units per net hectare, are permitted provided that:

- **a functional marina operation can be maintained on the remaining lands;**
- **a publicly-accessible space to the water's edge of Frenchman's Bay is provided; and**
- **other applicable policies of the Plan are complied with;**

(g) for lands within the Waterfront Node, further identify, as the Liverpool Road Corridor, those lands that:

(i) represent a tourism and service commercial use area to complement the marina and recreational uses;

(ii) are located on the east side of Liverpool Road on the former 'Hilts' lands, and extending west across Liverpool Road to a depth of approximately 30 metres west of Liverpool Road, and stretching north to Annland Street; and

(iii) are illustrated for reference on the Tertiary Plan contained within the Council-adopted Liverpool Road Waterfront Node Development Guidelines;

(h) for lands identified as the Liverpool Road Corridor, and despite Table 3 of Chapter 3:

(i) restrict the permissible uses to retailing of goods and services, restaurants, offices, and community, cultural and recreational uses, to serve the tourist, recreational, boating and other community needs;

(ii) further permit, despite (i) above, the establishment of residential uses, up to a maximum density of 55 units per net hectare, subject to conditions; accordingly, City Council, in considering rezoning applications for residential development for lands in the Liverpool Road Corridor, shall be satisfied that:

(A) a significant public benefit is achieved through the design and construction of the dwellings to allow the ground floors facing the street to be easily converted to accommodate a range of uses including the retailing of good and services, and offices by incorporating the Ontario Building Code construction requirements applicable to commercial uses, including:

- **roughed-in washroom facilities that meet barrier-free standards for the commercial component;**
- **provisions for a fire alarm system, if the building is four storeys including basement;**
- **one hour fire separation between residential and commercial occupancy;**
- **100 psf live load floor design for commercial use;**
- **provision for separate mechanical systems to service the ground floor;**
- **separate exits to the exterior for each use;**
- **provisions for emergency lighting in an enclosed exit;**
- **in addition, other elements to be incorporated in the design of the ground floor of conversion units include higher ceilings, kitchen and dining facilities on the second or third floor, doors generally at grade access, and window/door openings that would make the buildings more readily adaptable to future commercial uses; and**
- **other applicable polices of the Plan are complied with;**

(B) despite Section 12.5 (h)(ii)(A), only eight dwellings fronting on the west side of Liverpool Road, south of Wharf Street, shall be required to be conversion units and shall be required to incorporate the conversion features outlined above;

(i) for lands within the Waterfront Node, further identify, as the Public Use/Parking and Boat Storage Area, those lands that:

(i) are intended for public uses, parking and boat storage areas;

(ii) are located east of Liverpool Road but west of the Hydro Marsh, including the City-owned parking lot, and extending east to the edge of the Hydro Marsh, stretching north to include the Durham Region Sewage Pumping Station, and lands behind the former 'Hilts' property; and

(iii) are illustrated for reference on the Tertiary Plan contained within the Council-adopted Liverpool Road Waterfront Node Development Guidelines;

(j) for lands identified as the Public Use/Parking and Boat Storage Area, and despite Table 3 of Chapter 3:

(i) permit conservation, environmental protection, restoration, education, and passive recreation uses; and

(ii) also permit parking and boat storage on the southern third of the former 'Coolwater Farms' property, and the lands behind the former 'Hilts' property, in consultation with the Toronto and Region Conservation Authority;

(k) prohibit boat storage within 3.0 metres of Liverpool Road except for boat display and sales;

(l) require new buildings along Liverpool Road south of Wharf Street to have a minimum building height of two storeys and to reflect the Great Lakes Nautical Village theme by incorporating design details such as balconies, decks, front porches, wider doorways, street level access, awnings and window boxes;

(m) through the use of the holding provisions of the *Planning Act*, require where necessary, proponents to enter into agreements with the City, Region and other agencies as appropriate;

(n) with respect to the provision of parking within the Waterfront Node, consider:

(i) permitting landowners to enter into long-term agreements with other landowners respecting the provision of required parking;

(ii) accepting cash-in-lieu for required parking where appropriate and having considered the adequacy of alternate parking supply; and

(iii) securing lands for public parking to serve the area;

(o) encourage opportunities to rejuvenate the historic Village of Fairport as a "lakefront village", and to this end, shall consider site specific rezoning applications to permit in conjunction with the residential use, activities such as tea rooms, craft shops, art studios, and professional offices, provided that:

(i) the scale of the proposed use is compatible with surrounding uses;

(ii) appropriate off-street parking is available either on the lot or in nearby public parking areas;

(iii) the exterior of the home retains its residential character;

(iv) signage is discretely accommodated; and

(v) any other matters identified by Council are addressed appropriately;

(p) when considering proposals for bay-fill, ensure the proposal does not adversely affect the aquatic environment, is limited in scale, improves environmental conditions of Frenchman's Bay and its shoreline, and is supported by an environmental report addressing the requirements of Section 15 of this Plan and any other requirements of public review agencies;

(q) through the review of development proposals and in consultation with landowners and surrounding residents, endeavour to provide publicly accessible spaces, adjacent to the water's edge, where feasible and appropriate;

(r) encourage the use and operation of the Lake Ontario Waterfront Trail in a manner sensitive to the interests of the neighbouring residents, and provide local trail connections with the Waterfront Trail in appropriate locations; and

(s) for lands on the south side of Bayly Street between St. Martins Drive and Pine Creek designated Mixed Use Areas – Mixed Corridors, despite Table 6 of Chapter 3, establish maximum and minimum net residential density of over 140 and up to and including 225 units per hectare and a maximum floor index of up to and including 2.6 FSI.

Neighbourhood 4: Brock Industrial

Description

Neighbourhood Population Projection

Brock Industrial	
1996 Population	150
Projected Growth	n/a
Percent Increase	n/a
2016 Population	100

- Is bounded by the hydro transmission corridor, Highway 401, the Ajax-Pickering boundary, and the Lake Ontario shoreline.
- Iroquois village existed near the mouth of the Duffins Creek.
- Industrial development commenced in the 1960s, coincident with the construction of the Pickering Generating Station.
- Future conservation area to be established on Lake Ontario at the mouth of Duffins Creek where a pedestrian-cycling bridge over the Creek opened in 1996.
- Has a mix of retail, personal service, warehousing, trucking and manufacturing uses; also includes a fire station, an arena and some detached dwellings; neighbourhood and community shopping located primarily around the intersection of Brock Road and Bayly Street.
- Has environmentally sensitive areas associated with Duffins Creek, the Lake Ontario waterfront, and wetlands on Bayly Street west of Squires Beach Road.
- Has two Detailed Review Areas within its boundary: (i) lands around the intersection of Brock Road and Bayly Street; and (ii) lands along Bayly Street east of the C.N. rail spur line.

City Policy

Brock Industrial Neighbourhood Policies

12.6 City Council shall:

(a) facilitate vehicular traffic movement through the neighbourhood through the following:

(i) the extension of Squires Beach Road over Highway 401 to connect with Notion Road;

(ii) the extension of Clements Road westerly to Sandy Beach Road, and easterly to the Church Street road allowance; and

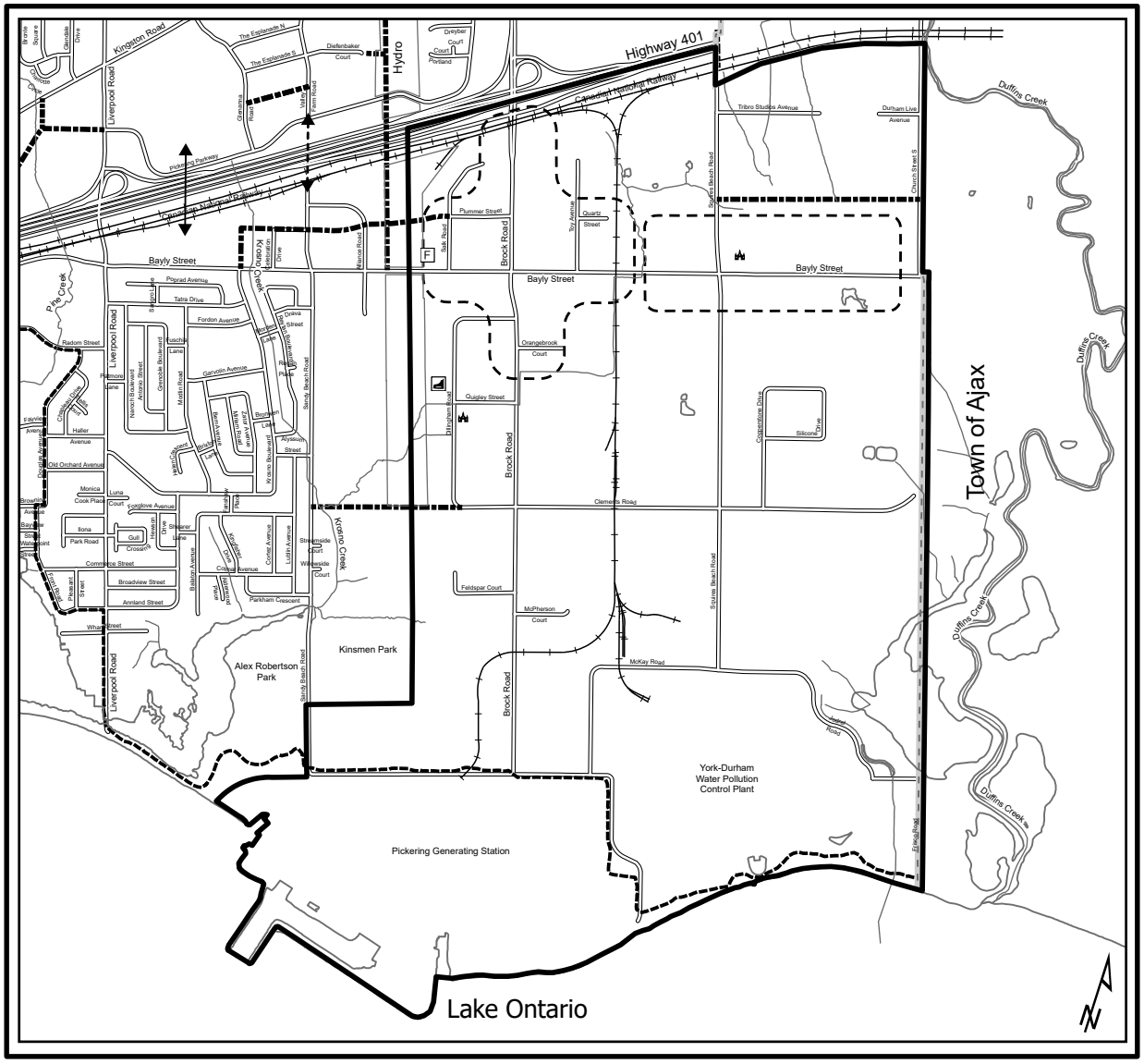
(iii) the extension of Church Street southerly to the Clements Road extension;

(b) give consideration to providing a municipal boat launch on Lake Ontario either at the foot of Montgomery Park Road, or in the future conservation area at the mouth of Duffins Creek;

(c) encourage the use and operation of the Lake Ontario Waterfront Trail in a manner sensitive to the interests of the neighbouring properties, and provide local trail connections with the Waterfront Trail in appropriate locations; and

(d) ensure that the proposed new road intersection with Church Street, north of Bayly Street, is provided to the satisfaction of the Region.

Map 14: Neighbourhood 4: Brock Industrial



Legend Symbols

- New Road Connections (Proposed)
- Detailed Review Area
- Pedestrian/Bicycle Connection (Existing)
- Pedestrian/Bicycle Connection (Proposed)
- Neighbourhood Boundary
- Waterfront Trail
- Place Of Worship
- F — Fire Station
- Arena

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Neighbourhood 5: Rougemount

Description

Neighbourhood Population Projection

Rougemount	
1996 Population	2,700
Projected Growth	700
Percent Increase	25.9
2016 Population	3,400

- Is bounded by the Rouge River, the C.N. rail line, Petticoat Creek, and Highway 401.
- Includes a portion of the Rouge National Urban Park within its boundaries.
- Area around Rougemount Drive originally settled between 1900 and 1940; more recent subdivision activity occurred after 1970, particularly on the west side of Altona Road; apartments and townhouses were built along the north side of Kingston Road in the 1990s.
- Consists of primarily detached dwellings on large lots; also includes two elementary schools, a neighbourhood park, two places of worship and a library.
- Has neighbourhood and community shopping located along Kingston Road.
- Has environmentally sensitive areas associated with the Rouge River and Petticoat Creek.
- Has one Detailed Review Area within its boundary: lands along Kingston Road between the Rouge River and Petticoat Creek.
- City Council has adopted “Kingston Road Corridor Development Guidelines”, which guidelines apply to the Kingston Road Corridor through this Neighbourhood.

City Policy
Rougemount Neighbourhood Policies

12.7 City Council shall:

(a) in the established residential areas along Woodview Drive, Twyn Rivers Drive, Sheppard Avenue and Rougemount Drive, encourage and where possible require new development to be compatible with the character of existing development;

(b) accommodate future improvements to Sheppard Avenue and Twyn Rivers Drive within the existing 20 metre road allowance, except at intersections, where additional road allowance width may be needed to provide vehicular turning lanes;

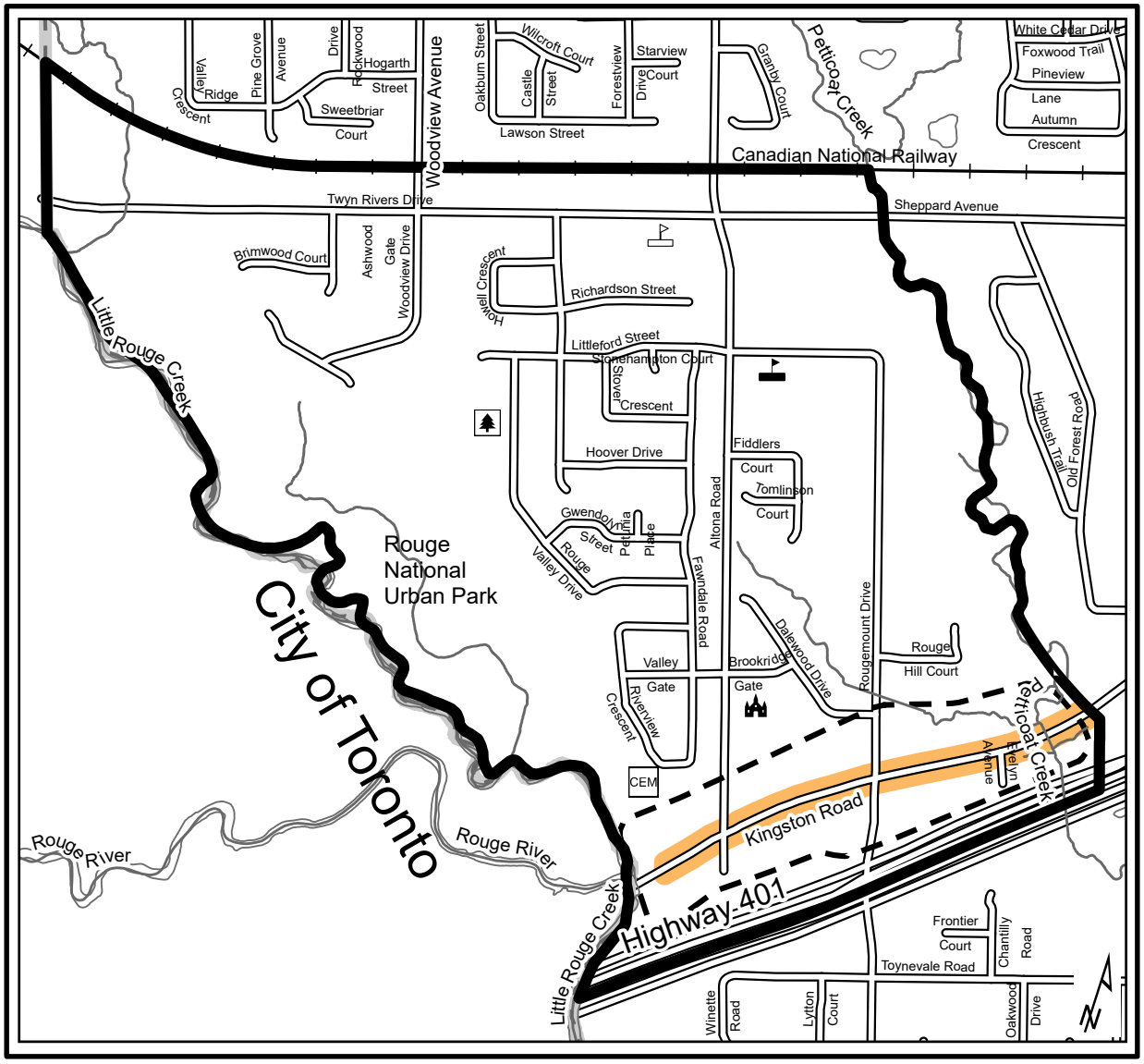
(c) despite Table 6 of Chapter 3, establish a maximum residential density of 55 units per net hectare for lands located on the north side of Kingston Road that are designated Mixed Use Areas and abut lands developed as low density development;

(d) require new development to have regard for the Rouge National Urban Park Management Plan;

(e) ensure that the proposed new road intersection at Altona Road and Rougemount Drive is provided to the satisfaction of the Region; and

(f) despite Table 6 of Chapter 3 - Land Use, permit a maximum of 22 residential units on the lands located at the southwest corner of Altona Road and Twyn Rivers Drive that are designated Urban Residential Areas - Medium Density Areas.

Map 15: Neighbourhood 5: Rougemount



Legend Symbols

- Detailed Review Area
- Kingston Road Corridor Development Guidelines (Refer to Compendium Document)
- Neighbourhood Boundary
- Place Of Worship
- Public Elementary School
- Separate Elementary School
- Park
- CEM Cemetery

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Neighbourhood 6: Woodlands

Description

Neighbourhood Population Projection

Woodlands	
1996 Population	2,100
Projected Growth	1,900
Percent Increase	90.4
2016 Population	4,000

- Is bounded by Petticoat Creek, the C.N. rail line, an open space area associated with the Amberlea Farms Watercourse east of the Highway 401 ramps to Kingston Road, and Highway 401.
- Old Forest Road, Highbush Trail and Rosebank Road originally settled between 1900 and 1940; more recent subdivision activity occurred east of Rosebank Road in the 1980s; an apartment building was constructed at the northeast corner of Whites Road and Kingston Road in the 1990s.
- Consists of primarily detached dwellings on large lots; also includes a secondary school, an elementary school, a seniors/community centre; two neighbourhood parks, two places of worship, and a firehall.
- Has neighbourhood and community shopping located along Kingston Road; and a medical centre at Sheppard Avenue and Whites Road.
- Has environmentally sensitive areas associated with Petticoat Creek.
- Has one Detailed Review Area within its boundary: lands along Kingston Road and Whites Road, extending to Sheppard Avenue.
- City Council has adopted development guidelines as follows:
  * The “Northeast Quadrant Development Guidelines” (for the lands generally located between Kingston Road and Sheppard Avenue, east of Whites Road, and for the lands located at the southwest corner of Dunfair Street and Whites Road).
- City Council has adopted “Kingston Road Corridor Development Guidelines”, which guidelines apply to the Kingston Road Corridor through this Neighbourhood.

City Policy

Woodlands Neighbourhood Policies

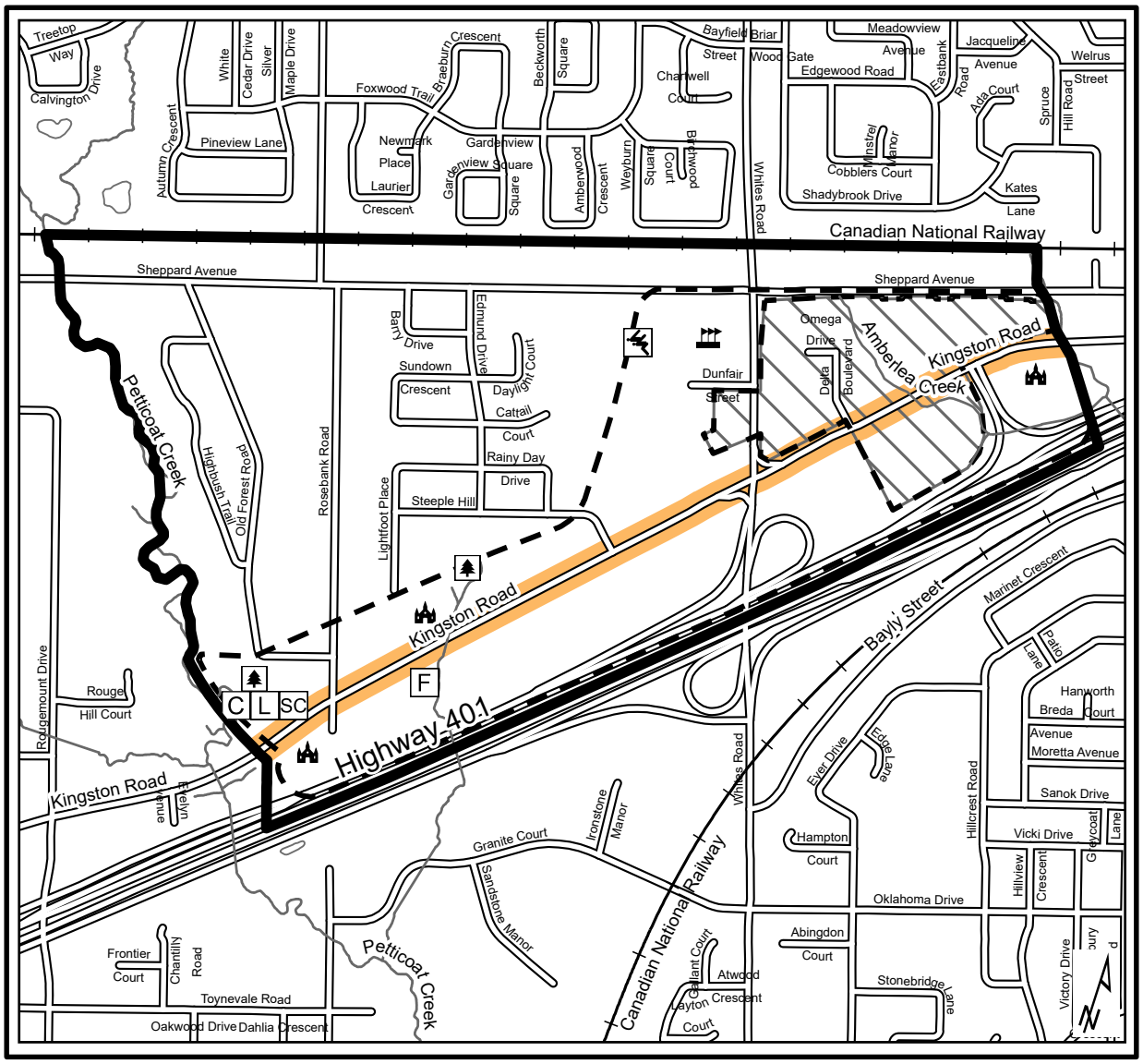
12.8 City Council shall:

(a) in the established residential areas along Highbush Trail, Old Forest Road, Rosebank Road and Sheppard Avenue, encourage and where possible require new development to be compatible with the character of existing development;

(b) encourage the introduction of uses and facilities into the neighbourhood that complement and support secondary school students and activities;

(c) despite Table 6 of Chapter 3, establish a maximum residential density of 55 units per net hectare for lands located on the north side of Kingston Road that are designated Mixed Use Areas and abut lands developed as low density development;

Map 16: Neighbourhood 6: Woodlands



Legend Symbols

- Detailed Review Area
- Kingston Road Corridor Development Guidelines (Refer to Compendium Document)
- Lands for which Council has adopted Development Guidelines (Refer to Compendium Document)
- Neighbourhood Boundary
- Place Of Worship
- Public Secondary School
- C — Community Centre
- L — Library
- F — Fire Station
- Park
- Swimming Pool
- SC — Senior's Centre

(d) accommodate future improvements to Sheppard Avenue and Rosebank Road within the existing 20 metre road allowance, except at intersections where additional road allowance width may be needed to provide vehicular turning lanes;

(e) to provide direction for land use within the lands covered by the Northeast Quadrant Development Guidelines:

(i) further its objective of transforming Kingston Road into a "mainstreet" for Pickering by requiring the placement of buildings to provide a strong and identifiable urban edge, the construction of some multi-storey buildings, and the provision of safe and convenient pedestrian access; accordingly, for the lands designated Mixed Use Areas - Mixed Corridor, City Council shall require:

(A) buildings to be located close to the street edge, with the minimum specified percentage of their front walls required to be located within build-to-zones to be established in the implementing zoning by-laws for each site;

(B) all buildings to be a minimum of two storeys in height, and require maximum building heights to be established in the implementing zoning by-law considering compatibility matters such as yard setbacks, building orientation and massing, adequate access to sunlight and privacy for existing residential development;

(C) commercial development to provide second storey functional floor space, with the minimum percentage of their gross floor area to be provided in second (or higher) storeys to be established in the implementing zoning by-laws for each project;

(ii) require new development to establish buildings on Whites Road and Sheppard Avenue close to the street edge, with the front doors facing the street, with a specified percentage of their front walls required to be located within build-to-zones to be established in the implementing zoning by-law for this site;

(iii) restrict the height of the Sheppard Avenue elevation of new dwellings fronting Sheppard Avenue to a maximum of two storeys;

(iv) require a minimum of four functional storeys for the Whites Road elevations of new dwellings fronting Whites Road;

(v) recognize the existing low density development on Sheppard Avenue, and to this end, require the design of new residential or commercial development to be compatible with existing development with respect to such matters as building heights, yard setbacks, building orientation and massing, access to sunlight, and privacy;

(vi) despite Table 9 of Chapter 3, establish a maximum residential density of 55 units per net hectare for lands located within the area governed by the Northeast Quadrant Development Guidelines that are designated Urban Residential - Medium Density, in light of their location abutting lands developed as low density development;

(vii) despite 12.8(e)(vi) above, and Table 9 of Chapter 3, permit residential development below the minimum residential density of 30 units per net hectare for lands on the south side of Sheppard Avenue;

(viii) despite Table 6 of Chapter 3, establish a maximum residential density of 228 units per net hectare for lands located on the east side of Whites Road, north of Kingston Road described as Part Lots 1, 2 and 3, Registered Plan 456;

(ix) despite Sections 3.6(b), 3.9(b) and 16.39, and Tables 5 and 8 of Chapter 3, prohibit the development of any new gas bars, automobile service stations, or car washes for lands designated Mixed Used Area - Mixed Corridors or Urban Residential – Medium Density; and

(x) despite Section 12.8(e)(i)(C), the requirement for second storey functional floor space is not mandatory for existing or future vehicle dealerships and on the Hayes Line Properties Inc. lands, being Part of Lot 28, Range 3, Broke Front Concession, City of Pickering;

(f) to provide direction for transportation matters within and around the lands covered by the Northeast Quadrant Development Guidelines:

(i) support shared access points between properties along Kingston Road, in consultation with the Region of Durham;

(ii) promote the reduction of traffic speeds and improvement of pedestrian safety along Sheppard Avenue by implementing pavement markings and other measures, and considering "traffic-calming" techniques following the adoption of a City policy;

(iii) require vehicular access, by means of easements from Delta Boulevard to Whites Road, and from Delta Boulevard easterly across the Mixed Corridor lands located east of the 'old' Dunbarton School site; and

(iv) require pedestrian access, by means of easements or public walkways, from Delta Boulevard through the 'old' Dunbarton School site with connections to Sheppard Avenue and Kingston Road, where appropriate;

(g) to provide direction for environmental and stormwater management matters respecting the Amberlea Creek tributary that flows through lands covered by the Northeast Quadrant Development Guidelines:

(i) support the principle of piping the Amberlea Creek tributary that flows through the Northeast Quadrant lands, and recognizing the interests of landowners within the Northeast Quadrant on whose lands Amberlea Creek tributary flows to pipe that tributary, and the position of the Toronto and Region Conservation Authority to work with the City and landowners to implement a stormwater management strategy, which will ultimately result in the piping of the Amberlea Creek tributary through the Northeast Quadrant lands;

(ii) require any developer of lands within the Northeast Quadrant proposing to pipe or relocate the Amberlea Creek tributary to:

(A) submit an environmental/stormwater management report, to the satisfaction of the City and the Toronto and Region Conservation Authority, which must demonstrate how the proposal is consistent with the broader stormwater management strategy resulting in a significant net environmental benefit to the watershed;

(B) obtain appropriate approvals and permits from public review agencies; and

(C) satisfy any required compensation under the *Fisheries Act*; and

(iii) ensure that development proposals are undertaken in a manner that does not adversely impact downstream water quality and quantity through the use of on-site controls and/or financial contributions to a downstream stormwater facility if necessary; and

(h) to provide additional direction on implementation matters for lands covered by the Northeast Quadrant Development Guidelines:

(i) through the use of the holding provisions of the *Planning Act*, require where necessary, proponents to enter into agreements with the City, Region and other agencies as appropriate, respecting various development related matters including but not limited to: entering into cost sharing agreements between each other where mutual shared access is necessary; providing or exchanging easements over lands where necessary; payment of study costs; and providing contributions to the cost of a downstream stormwater management facility, if necessary.

This page intentionally left blank.

Neighbourhood 7: Dunbarton

Description

Neighbourhood Population Projection

Dunbarton	
1996 Population	1,800
Projected Growth	900
Percent Increase	50.0
2016 Population	2,700

- Is bounded by the rear lot lines of properties fronting Spruce Hill Road, the Pine Creek valley north of Finch Avenue, the rear lot lines of properties fronting Fairport Road and Appleview Road, and Highway 401.
- Is traversed by Dunbarton Creek.
- Encompasses the former Village of Dunbarton, which was established in the mid-1800s; development along Fairport Road, Bonita Avenue and Appleview Road occurred between 1900 and 1940; recent subdivision activity located in the north end of the neighbourhood occurred in the 1980s.
- Consists of primarily detached dwellings on large lots; and also includes three places of worship and two cemeteries.
- Has neighbourhood and community shopping located along Kingston Road.
- Has three Detailed Review Areas within its boundary: (i) lands along the Kingston Road frontage; (ii) lands surrounding the old Dunbarton Village area; and (iii) lands central to the neighbourhood on both sides of Fairport Road.
- City Council has adopted development guidelines as follows:
  * The “Dunbarton Neighbourhood Development Guidelines” (for the lands central to the neighbourhood).
- City Council has adopted “Kingston Road Corridor Development Guidelines”, which guidelines apply to the Kingston Road Corridor through this Neighbourhood.

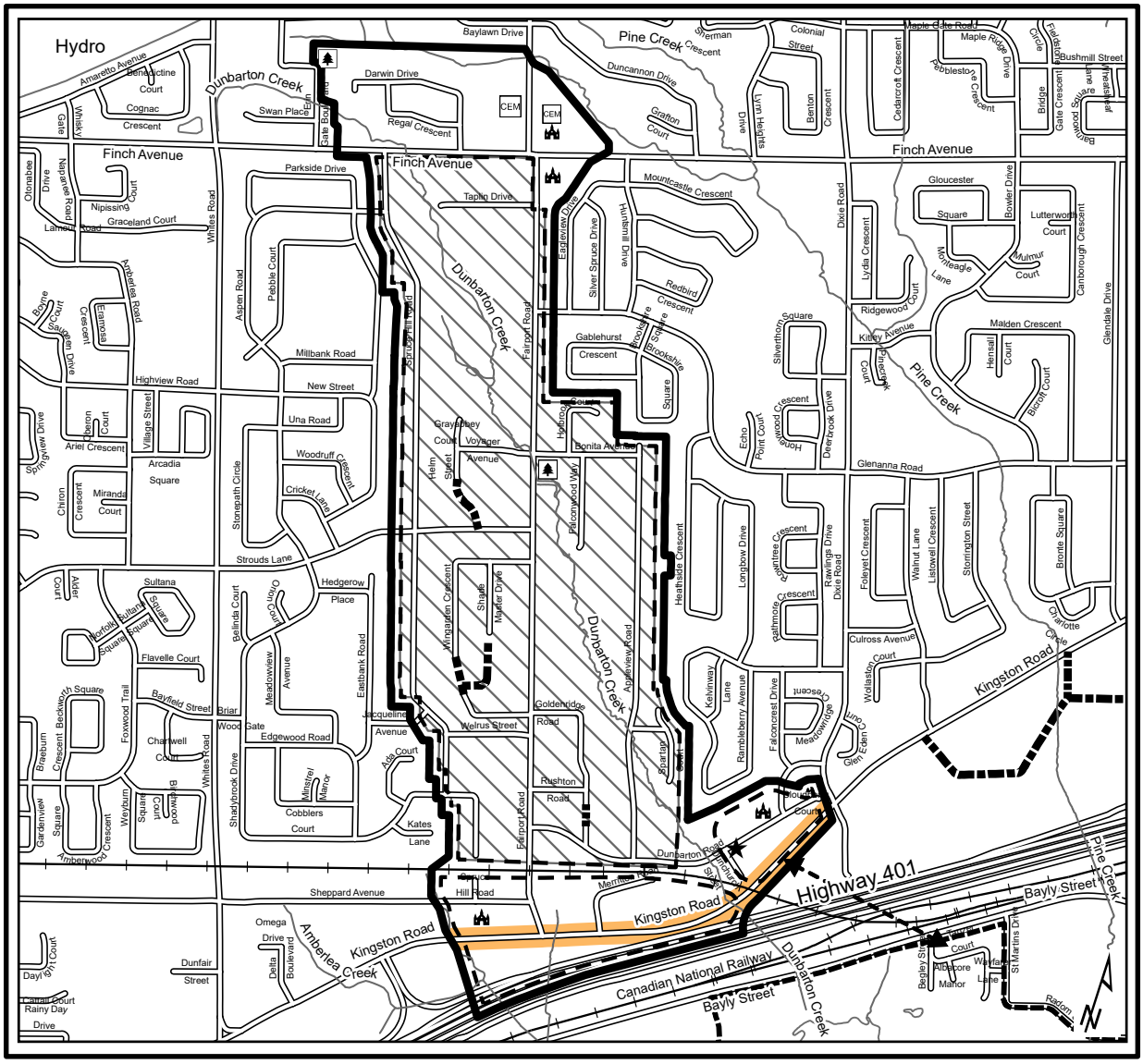
City Policy
Dunbarton Neighbourhood Policies

12.9 City Council shall:

(a) in the established residential areas between Spruce Hill Road and Appleview Road, including Fairport Road and Dunbarton Road, encourage and where possible require new development to be compatible with the character of existing development; and

(b) encourage opportunities to rejuvenate the historic Village of Dunbarton, including considering permitting the introduction of small-scale commercial enterprises on suitable sites, provided the historic character of the area and the interests of neighbouring residents are respected, and considering undertaking a Community Improvement Plan or Project in accordance with Section 16.33 of this Plan; and

Map 17: Neighbourhood 7: Dunbarton



Legend Symbols

- New Road Connections (Proposed)
- Detailed Review Area
- Kingston Road Corridor Development Guidelines (Refer to Compendium Document)
- Lands for which Council has adopted Development Guidelines (Refer to Compendium Document)
- Pedestrian/Bicycle Connection (Proposed)
- Neighbourhood Boundary
- Waterfront Trail
- Place Of Worship
- Park
- CEM Cemetery
- Historic Village

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(c) despite Table 6 of Chapter 3, establish a minimum density range of over 80 units per net hectare up to and including 260 units per net hectare for lands located on the south side of Kingston Road being Parts 1, 2 & Part of 3, 40R8710 and West Shore Boulevard (aka Fairport Road) being Kings Highway 2 and Kings Highway 401 being road allowance between Lots 26 and 27, Concession Broken Front.

This page intentionally left blank.

Neighbourhood 8: City Centre

Description

- Is bounded by Bayly Street, the rear lot lines of properties fronting Kingston Road (inclusive of 1848, 1852 and 1854 Liverpool Road and 1298 Kingston Road), the hydro transmission corridor, Liverpool Road south of Highway 401 and Pine Creek north of Highway 401.
- Is traversed by Highway 401, to the south of Pickering Parkway.
- A shopping mall initially developed in the early 1970s, and has since undergone substantial expansion; higher density development has occurred in the 1980s and 1990s.
- As Pickering's "City Centre", it has the highest diversity and intensity of uses of all City neighbourhoods.
- Consists of a mix of shopping, offices, civic, recreational, entertainment and higher density residential uses; includes the Pickering Civic Complex and Central Library, the Pickering Recreation Complex, the Esplanade Park, and part of the 'Diana, Princess of Wales Park'.
- A GO Transit Station forms the centre of a public transit mobility hub designated in accordance with the Regional Transportation Plan for the Greater Toronto and Hamilton area.

Neighbourhood Population Projection

City Centre	
2011 Population	5,100
Projected Growth	8,400
Percent Increase	164
2031 Population	13,500

Neighbourhood Employment Projection

City Centre	
2011 Population	4,700
Projected Growth	8,800
Percent Increase	187
2031 Population	13,500

City Policy
City Centre Neighbourhood Policies

12.10 City Council shall:

(a) encourage the highest mix and intensity of uses and activities in the City to be in this neighbourhood;

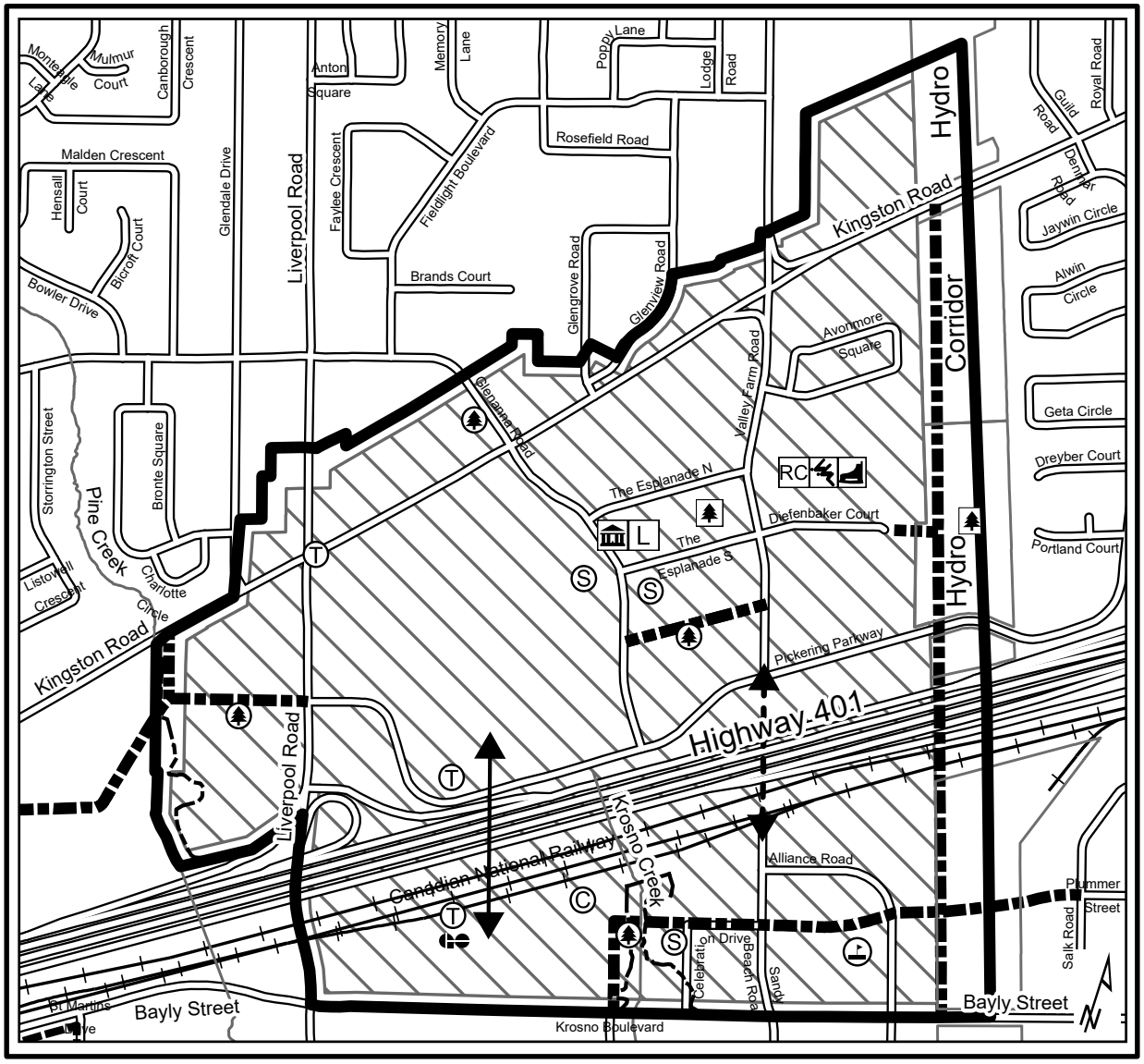
(b) encourage schools that may be needed in the neighbourhood to accommodate future population growth, to be integrated with other uses, buildings and/or sites within the neighbourhood;

(c) promote the design of compatible and attractive built forms, streetscapes and site works by requiring new development in the City Centre to have regard to the following:

(i) the Detailed Design Considerations of this Plan; and

(ii) the City Centre Urban Design Guidelines.

Map 18: Neighbourhood 8: City Centre



Legend Symbols

- New Road Connections (Proposed)
- Detailed Review Area
- Lands for which Council has adopted Urban Design Guidelines
- Pedestrian/Bicycle Connection (Existing)
- Pedestrian/Bicycle Connection (Proposed)
- Neighbourhood Boundary
- Waterfront Trail
- Regional Flood Line
- RC Recreation Complex
- Civic Centre
- L Library
- Park
- Swimming Pool
- Arena
- GO Station
- Ⓒ Proposed Community Centre
- Proposed Public Elementary School
- Proposed Park
- Ⓢ Proposed Square
- Ⓣ Proposed Transit Junction

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

City Policy
City Centre Placemaking

12.10A City Council shall:

(a) encourage the transformation of the City Centre into a more liveable, walkable and human-scaled neighbourhood with inviting public spaces such as parks, squares and streets;

(b) encourage development proponents to locate and integrate commercial uses such as cafes and bistros into development adjacent to the public realm to create social gathering places and vibrant street life;

(c) encourage the development of streetscapes, public spaces and pedestrian routes that are safe and comfortable for all genders and ages, accessible and easy to navigate regardless of physical ability;

(d) encourage street-facing façades to have adequate entrances and windows facing the street;

(e) encourage publicly accessible outdoor and indoor spaces where people can gather;

(f) encourage new development to be designed, located and massed in such a way that it limits any shadowing on the public realm, parks and public spaces in order to achieve adequate sunlight and comfort in the public realm through all four seasons;

(g) implement street standards that balance the needs of vehicles and pedestrians and support adjacent land uses through their design;

(h) encourage the transformation of existing strip-commercial development into mixed use development to bring conveniences closer to residents and public transit, and to provide additional housing;

(i) recognize the intersection of Kingston and Liverpool Roads as a gateway to the City Centre and consider public squares, transit waiting areas and tall buildings to be appropriate uses for lands fronting all four corners of the gateway;

(j) in the design of the planned public library expansion create a stronger relationship between the library and Esplanade Park, and enhance the relationship between the existing library and the public realm along Esplanade Street South and Glenanna Street through the use of transparent glazing and street related entrances; and

(k) prioritize placemaking opportunities on public lands for capital funding, and seek opportunities to partner with the private sector to incorporate designs that advance the placemaking opportunities in development plans on private lands;

City Policy
City Centre District Energy

12.10B City Council shall:

(a) support the siting and construction of small district energy systems such as a cogeneration facility or geothermal plant in suitable locations, as a method of generating heat, cooling and electricity to buildings and reducing greenhouse emissions;

(b) examine opportunities to work with the development industry and other partners to prepare district energy feasibility studies in support of large scale development proposals; and

(c) pursue funding partnerships with other government and non-government agencies to advance the establishment of district energy services to high intensification development areas in the City Centre.

City Policy
City Centre Public Realm

12.10C City Council:

(a) despite the location of new parks and squares as identified on Map 18 of Neighbourhood 8: City Centre may permit modifications as long as the general intent of these spaces meet the City's requirements;

(b) shall strive to locate either a park or square, within a 5 minute walk of all residences and places to work located within the City Centre;

(c) in accordance with the public art policies of Section 14.13, shall encourage opportunities for public art contributions and/or the integration of public art with development and infrastructure;

(d) in consultation with the Toronto and Region Conservation Authority, shall require the proponents of new development to prepare a plan to rehabilitate Krosno Creek by enhancing the natural heritage features and incorporating passive recreational uses such as walking paths and seating areas;

(e) in consultation with the Toronto and Region Conservation Authority, shall require the proponents of new development to assess the regulatory flood plain risks associated with lands proposed for redevelopment within the Krosno Creek and Pine Creek flood plains; and implement, where appropriate, a revised flood plain boundary for Krosno Creek and Pine Creek;

(f) in consultation with the Toronto and Region Conservation Authority, shall require the preparation of a plan to rehabilitate Pine Creek, to enhance the natural heritage features and to design, align and construct a multi-modal bridge across Pine Creek; and

(g) may accept privately constructed squares and publicly accessible open spaces as part of a development as fulfilling in whole or in part, the parkland conveyance requirements if all of the following conditions are met:

(i) the square or publicly accessible open space is designed and maintained to the standards of the City;

(ii) the square or publicly accessible open space is visible, open and accessible to the public at all times; and

(iii) the owner enters into an agreement with the City to ensure that the previous conditions are met, to the satisfaction of the City.

12.10D City Council shall:

(a) encourage the development of buildings with active frontages at grade in appropriate locations to promote a vibrant and safe street life;

(b) encourage the placement and design of new buildings on lots along the future Kingston-Bayly Connector, Kingston Road, Liverpool Road, Glenanna Road, Pickering Parkway, Bayly Street and the newly proposed east/west local collector road south of the 401 Highway to address these streets edges and prohibit back lotting or surface parking between the building and the street;

Active Frontages at Grade refers to the ground floor of a building that is designed to allow interaction between people within the building and people on the adjacent sidewalk through transparent glazing, animated façade treatment and street related entrances, but shall not include grade related residential units.

(c) require active frontages at grade on the following streets in the City Centre:

- **(i) Kingston Road;**
- **(ii) Liverpool Road;**
- **(iii) Bayly Street; and**
- **(iv) the proposed Kingston-Bayly Connector;**

(d) in areas of significant new development, zone to permit the location of neighbourhood-supportive services such as grocery stores to be strategically located to ensure as many residents within the City Centre are within a 5 minute walk of these services;

(e) despite Table 5 of Chapter 3 and Section 12.10D(d), not permit the following land uses within the City Centre:

- **(i) new vehicle sales and service uses including but not limited to motor vehicle service centres, motor vehicle gas bars and motor vehicle washing establishments;**
- **(ii) the outdoor storage of goods and equipment with the exception of seasonal outdoor display of goods and merchandise;**
- **(iii) new stand alone large format retail stores; and**
- **(iv) new low density employment uses such as self storage and warehousing; and**

Large Format Retail Stores is a term applied to large floor plate, one-storey retail outlets, usually operated as part of a chain, that locate on individual sites or that cluster on a large site, sometimes adjacent to each other. A Large Format Retail Store is commonly referred to as a "big-box" store.

(f) consider permitting new drive-through facilities within the City Centre through a zoning by-law amendment application, provided it has been demonstrated that the facility does not:

- **(i) preclude the planned function, placemaking objectives and intensification for a site; and**
- **(ii) compromise traffic operations and the safe and efficient movement of pedestrians and cyclists.**

12.10E City Council shall

(a) require new development in close proximity to established low density residential areas to be gradually transitioned in height;

(b) promote the highest buildings to locate on sites at key gateways along the Kingston Road and Liverpool Road corridors, along or in proximity to Highway 401 or in proximity to higher order transit stations;

(c) consider in the review of development applications for buildings taller than 5 storeys, the following performance criteria:

(i) that buildings be massed in response to the scale of surrounding buildings, nearby streets and public open spaces;

(ii) that upper levels of buildings be set back or a podium and point tower form be introduced to help create a human scale at street level;

(iii) that shadowing impacts on surrounding development, publicly accessible open spaces and sidewalks be mitigated/minimized to the extent feasible;

(iv) that sufficient spacing be provided between the building face of building towers to provide views, privacy for residents and to minimize any shadowing and wind tunnel impacts on surrounding development, streets and public spaces;

(v) that buildings be oriented to optimize sunlight and amenity for dwellings, private open spaces, adjoining public open spaces and sidewalks;

(vi) that living areas, windows and private open spaces be located to minimize the potential for overlooking adjoining residential properties;

(vii) that informal or passive surveillance of streets and other public open spaces be maximized by providing windows to overlook street and public spaces and using level changes, floor and balcony spaces elevated above the street level to allow views from residential units into adjacent public spaces whilst controlling views into these units; and

(viii) that protection be provided for pedestrians in public and private spaces from wind down drafts;

(d) despite Sections 3.6(d) and 3.6(e) and Table 6, require all new buildings in the City Centre to be at least 3 functional storeys except for municipal uses in the Civic Centre and in the Open Space System – Natural Areas designation;

(e) despite Section 12.10E(d), permit expansions or additions to existing buildings in the City Centre to be less than 3 functional storeys, if it can be demonstrated to the City's satisfaction that the design, site layout, blocking, and/or phasing of the project can be intensified over time to achieve at least the minimum levels of intensity set out in Table 6 of this Plan;

(f) require any retail pad development on the Pickering Town Centre lands bounded by Liverpool Road, Kingston Road, Pickering Parkway and Glenanna Road to comply with the following:

(i) the placement of buildings shall not preclude future redevelopment;

(ii) **despite Section 12.10E(d), buildings may be designed with a minimum of only 2 functional storeys with a 3 storey massing; and**

(g) **despite Section 12.10E(d), permit new buildings located on lands south of Kingston Road and west of Liverpool Road, known municipally as 1792 Liverpool Road and 1271 and 1275 - 1279 Kingston Road, and identified in the 2013 Assessment Roll as 18-01-020-017-30200, 18-01-020-017-29100 and 18-01-020-017-29000 respectively, to be designed with a minimum of 2 functional storeys with a 3 storey massing.**

City Policy
City Centre Street Network
& Design

12.10F City Council shall:

(a) **in accordance with the policies of Section 4.11, require the design of new streets and the design and extension of streets identified on Map 18: Neighbourhood 8: City Centre to have regard for the following:**

(i) **be connected to existing streets, and have block lengths generally no longer than 150 metres and block depths generally not less than 60 metres to provide for full urban development potential over time; and**

(ii) **be public or publicly accessible and constructed to public street design standards;**

(b) **require all new or re-designed streets to include a pedestrian zone generally no less than 2.0 metres on both sides;**

(c) **work with the Region of Durham to implement, where possible, new signalized crossings on Kingston Road and Bayly Street in order to provide opportunities for efficient transportation and safe pedestrian movement;**

(d) **protect for, and implement, a new north-south arterial road from Kingston Road to Bayly Street to accommodate future growth subject to: the hydro corridor being deemed surplus by Ontario Hydro; the necessary Environmental Assessment studies being completed; the lands being acquired by the City; and, funding being made available to move forward with the project; and**

(e) **protect for, and implement, the extension of Plummer Street east/west through the hydro corridor to a new City Centre south collector road to accommodate future growth subject to: permission being provided by Ontario Hydro to cross the hydro corridor, or the hydro corridor being deemed surplus by Ontario Hydro; the necessary Environmental Assessment studies being completed; and, funding being made available to move forward with the project.**

City Policy
City Centre Transit

12.10G City Council shall:

(a) **cooperate with Durham Region Transit and Metrolinx in order that the alignment and location of future transit routes considers access to the greatest concentration of people and jobs and minimizes the distance between transit connections within the City Centre;**

(b) **select transit junctions and related pedestrian connections as priority areas for design excellence and capital improvements including landscaping, public seating, weather protection and public art; and**

(c) **require new development adjacent to the transit junctions to be designed to frame the junctions with active uses at grade and entrances oriented towards them.**

Transit Junctions represent the connection of two or more transit facilities and are welcoming points to the City Centre and waiting areas for transit riders. The design of Transit Junctions will give special attention to matters such as weather protection, seating, landscaping and other pedestrian amenities.

City Policy
City Centre Pedestrian and Cycling Network

12.10H City Council shall:

(a) **require the design of a pedestrian network to be a safe and visually interesting environment for pedestrians;**

(b) **require the pedestrian network to be integrated with public space elements such as squares, parks and transit junctions;**

(c) **where a development proposal is situated in an area where mid-block connections or pathways are required, these pedestrian connections are to be included and approved through the site plan control process, subject to the following provisions:**

(i) **the pedestrian connection(s) shall be designed to be publicly accessible; and**

(ii) **if a proposed development plan is unable to implement a pedestrian trail or mid-block connection, the applicant must demonstrate an alternative connection on their site to the satisfaction of the City;**

(d) **accommodate safe and dedicated cycling routes as part of the future reconstruction of streets in the City Centre;**

(e) **require the redevelopment of properties fronting Bayly Street to dedicate lands for future road widening that includes a minimum 3.0 metres wide multi-use path; and**

(f) **explore educational and way-finding opportunities as part of the streetscape design.**

City Policy
City Centre Parking

12.10I City Council shall:

(a) **consider in the review of development applications, the following performance criteria with regard to on-site parking and access drives/aisles,**

(i) **that parking be situated either in parking areas located at the rear or side of the building or on-street, where the development fronts on a collector or local road;**

(ii) **that the parking format be structured or below grade parking;**

(iii) **in phased development, that surface parking may be permitted if the proponent has demonstrated how parking will be accommodated in structures at full build out;**

(iv) **that where active uses at grade are required, parking structures feature active uses at grade to contribute to an animated street environment;**

(v) **that parking structures be treated architecturally as building fronts with no blank walls;**

(vi) **that shared parking be encouraged in mixed use areas to minimize land devoted to parking;**

(vii) **that the implementing zoning by-law may permit a reduction of customer parking for ground floor commercial uses through the provision of on-street parking;**

(viii) **that surface parking areas be well landscaped and lit to provide a safe and comfortable pedestrian environment; and**

(ix) **that access driveways to side and rear parking areas be consolidated where practical, and be accessible by a public laneway or drive aisle;**

(b) through the implementing zoning by-law, consider the provision of secure bicycle parking facilities in suitable locations;

(c) consider a reduction in the number of required car parking spaces where bicycle parking facilities or transportation demand management measures are provided;

(d) consider shared on-site parking areas for two or more uses where the maximum demand of such parking areas by the individual uses occurs at different periods of the day; and

(e) consider underground parking beneath the City's municipal roads and parks provided the property owner enters into an agreement subject to the terms and conditions acceptable to the City, in consultation with the Region.

Transportation Demand Management means a coordinated series of actions aimed at maximizing the people-moving capability of the transportation system, through means such as encouraging individuals to reduce the number of trips they make, travel more often by non-driving alternatives, travel outside peak periods, and shorten the length of their trips.

City Policy
City Centre Stormwater Management

12.10J City Council:

(a) recognizes the need to implement stringent stormwater management criteria to assist with downstream erosion control, water quality control and flooding; accordingly Council shall require stormwater management reports in support of new development to demonstrate achievement of the objectives of the City Centre Stormwater Management Strategy.

The City Centre Stormwater Management Strategy establishes the following criteria for new development within the City Centre:

(i) minimum on-site retention of 5 mm;
(ii) on-site water quantity targets of 2-100 year post to pre-control;
(iii) pre-development flows to be based on a run-off coefficient of 0.5; and
(iv) on-site water quality treatment to achieve the Ministry of Environment's enhanced level water quality control (80% removal of total suspended solids).

12.10K City Council supports:

(a) a balance of opportunities to live, work and play in the City Centre by adopting a resident to job ratio of 1:1;

(b) growth in all portions of the City Centre and restricts new residential development in City Centre South to 6,300 people or 3,400 units by 2031 until at least an additional 2,000 people or 1,100 new units have been developed on lands north of Highway 401 in the City Centre; and

(c) the use of the Holding provisions in the *Planning Act* and require where necessary, proponents to enter into agreements with the City, Region and other agencies as appropriate, respecting various development related matters including but not limited to:

(i) requiring a multi-modal transportation study for proposed developments that are anticipated to generate 100 or more vehicle peak hour trips (two-way), or where site and design characteristics may result in traffic or transportation concerns, to assess the impact on the transportation system and the timing and need for future improvements;

(ii) entering into cost sharing agreements between each other;

(iii) ensuring that development shall not take place on lands within the defined Krosno Creek and Pine Creek corridors;

(iv) providing or exchanging easements over lands where necessary;

(v) providing contributions to the cost of rehabilitating Krosno Creek and Pine Creek, if necessary; and

(vi) requiring a comprehensive functional servicing and stormwater management plan that addresses stormwater management and replacement flood storage on the Pickering Town Centre lands.

Neighbourhood 9: Village East

Description

Neighbourhood Population Projection

Village East	
1996 Population	4,900
Projected Growth	2,500
Percent Increase	51.0
2016 Population	7,400

- Is bounded by the hydro transmission corridor, the West Duffin Creek, the Ajax-Pickering boundary, and Highway 401.
- Has established residential areas fronting Guild Road, Royal Road and Southview Drive; recent subdivision activity at the western and eastern ends of the neighbourhood occurred since 1970s.
- Consists of a mix of detached, semi-detached, townhouse and apartment dwellings; also includes four neighbourhood parks plus part of the 'Diana, Princess of Wales Park', a cemetery and a police station.
- Has neighbourhood and community shopping around the intersection of Brock Road and Kingston Road, and the First Simcha Shopping Centre, located on the east side of Brock Road.
- Has environmentally sensitive areas associated with the West Duffins Creek.
- Has three Detailed Review Areas within its boundary: (i) lands along the Kingston Road frontage; (ii) lands containing and surrounding the First Simcha Shopping Centre and the Home and Leisure Centre; and (iii) lands along the west side of Notion Road.
- Council has adopted development guidelines as follows:
  * The "Specialty Retailing Node Development Guidelines" (for lands at the northeast corner of the Highway 401/Brock Road interchange).
  * The "Notion Road Area Development Guidelines" (for lands on the west side of Notion Road).

City Policy
Village East Neighbourhood Policies

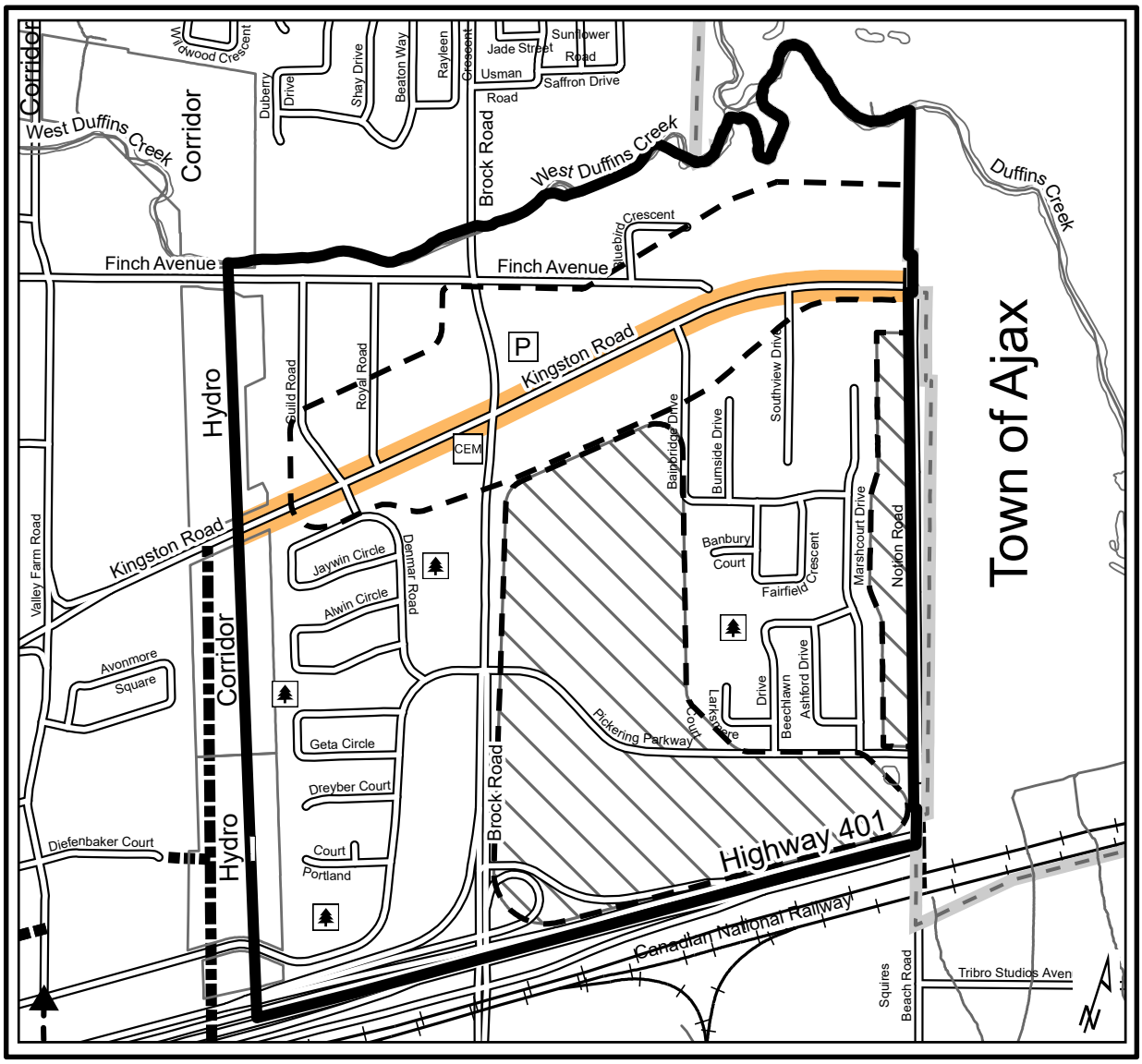
12.11 City Council shall:

(a) consider allowing the redevelopment of properties fronting Southview Drive for business and professional offices, clinics and studios, and where such redevelopment occurs, Council shall require the design of redevelopments to respect the residential character of the area, the interests of neighbouring residents, and the transportation limitations of the area;

(b) encourage schools that may be needed in the neighbourhood to accommodate future population growth, to be integrated with other uses, buildings and/or sites within the neighbourhood;

(c) encourage new development on the north side of Kingston Road east of Finch Avenue to recognize the significant cultural heritage of these lands as a historic stopping point on Kingston Road and Duffins Creek, and now the eastern gateway to Pickering;

Map 19: Neighbourhood 9: Village East



Legend Symbols

- New Road Connections (Proposed)
- Detailed Review Area
- Kingston Road Corridor Development Guidelines (Refer to Compendium Document)
- Lands for which Council has adopted Development Guidelines (Refer to Compendium Document)
- Pedestrian/Bicycle Connection (Proposed)
- Neighbourhood Boundary
- P — Police Station
- Park
- CEM — Cemetery

(d) despite Section 12.2(a) of this Plan, shall require the completion of development guidelines for the Detailed Review Area east of Brock Road at Pickering Parkway prior to permitting residential development within these lands;

(e) recognize the transitional location of the lands on the west side of Notion Road between low and medium density residential land uses to the west and existing heavy industry to the east in the Town of Ajax, and further recognize the efforts of the Town of Ajax to upgrade the industrial areas to the east. Accordingly, City Council shall endeavour to:

  (i) improve the compatibility and design interface between existing residential, and existing and new employment uses established in Pickering adjacent to Notion Road;

  (ii) provide more direct accessibility for pedestrians from the residential areas west of Notion Road to the Duffins Creek valley to the east; and

  (iii) generally upgrade the quality of the area by:

    - supporting improved public infrastructure such as upgraded urban standard paving, sidewalks, street planting, boulevard treatments, gateway treatments, transit facilities and burying electrical wiring; and
    - supporting an improved stormwater treatment pond in Ajax;

(f) despite Table 7 of Chapter 3, not permit the establishment of any new automotive and vehicle sales and repair uses within the lands designated Mixed Employment Area adjacent to Notion Road, after the date this amendment comes into force;

(g) in order to ensure that development within the Mixed Employment Area on the west side of Notion Road is compatible with residential lands in Pickering and industrial lands in Ajax, require that the following design criteria be met in the development or redevelopment of properties:

  (i) consider protection for pedestrian pathways to the satisfaction of the City, to connect Marshcourt Drive to Notion Road at Beechlawn Drive and Bainbridge Drive, as a condition of development for abutting properties on the west side of Notion Road;

  (ii) provision of a continuous landscaped strip along the west property lines to contain fencing, plantings and/or berms in order to provide adequate visual screening for the existing residential dwellings;

  (iii) provision of loading and service areas at the side of buildings, not in the rear yards, unless suitable acoustical buffering and/or screening is provided for the existing residential dwellings;

  (iv) prohibition of outside operations or storage;

  (v) provision of a landscaped treatment along Notion Road to screen parking areas, loading areas and service areas from Notion Road in order to establish an attractive Notion Road streetscape; and

  (vi) provision of screening for rooftop mechanical equipment so that it is not visible from residential dwellings to the west or from Notion Road;

(h) despite Table 6: Mixed Use Areas: Densities and Floor Area by Subcategory, permit a minimum residential density of 58 units per net hectare on the "Metropia" lands located on the south side of Pickering Parkway, west of Notion Road; and

(i) despite Table 6 of Chapter 3, establish a maximum residential density of 350 units per net hectare and maximum floor space index of 2.53 for lands located on the northwest corner of Kingston Road and Guild Road, described as Lots 1, 2 and 43, Plan 316.

Neighbourhood 10: Highbush

Description

Neighbourhood Population Projection

Highbush	
1996 Population	3,200
Projected Growth	2,700
Percent Increase	84.3
2016 Population	5,900

- Is bounded by the Toronto-Pickering boundary, the Ontario Hydro transmission corridor, the Altona Forest, and the C.N. rail line.
- Is traversed by Petticoat Creek and contains most of the Altona Forest.
- Residences on Pine Grove Avenue and Woodview Avenue established between 1900 and 1940; more recent subdivision activity occurred in the 1980s and 1990s.
- Consists of primarily detached dwellings on large-lots; some townhouse and quattroplex dwellings; also includes three neighbourhood parks.
- Currently, does not contain any neighbourhood shopping facilities, although future shopping facilities are anticipated at Pine Grove Avenue and Altona Road.
- Has environmentally sensitive areas associated with the Rouge National Urban Park, the Altona Forest, and the Rouge-Duffins Wildlife Corridor to the north.
- Has one Detailed Review Area within its boundary: lands southwest of the Pine Grove Avenue and Altona Road intersection.
- City Council has adopted development guidelines as follows:
  * The “Highbush Local Node Development Guidelines” (for lands at the southwest corner of Pine Grove Avenue and Altona Road).

City Policy
Highbush Neighbourhood Policies

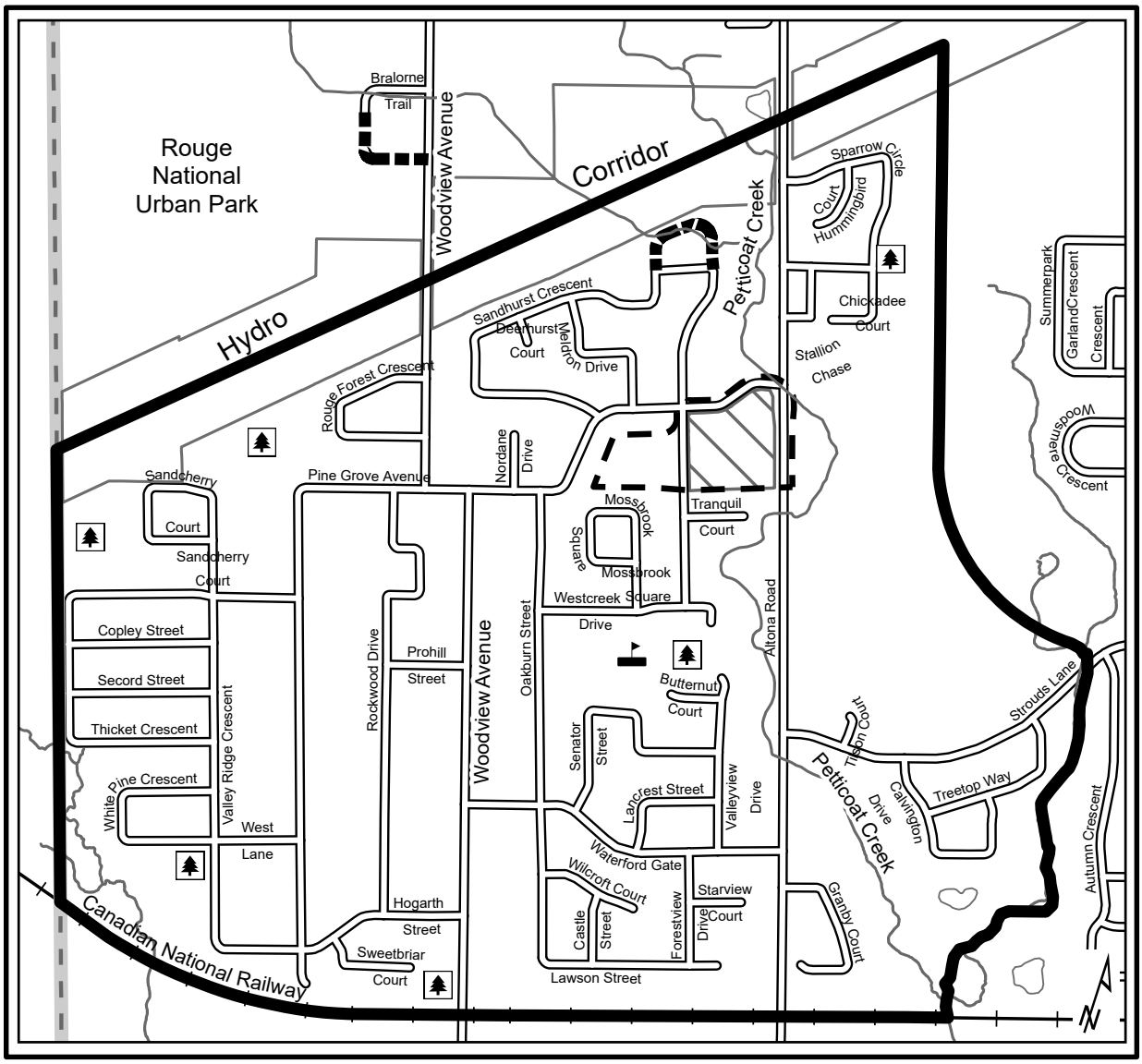
12.12 City Council shall:

(a) in the established residential areas along Pine Grove Avenue and Woodview Avenue, encourage and where possible require development to be compatible with the character of existing development and preserve to the greatest extent possible significant vegetation:

(i) which character is reflected by features including but not limited to: lots with low lot coverage; the existing lotting pattern; style and siting of dwellings; and the significant mature vegetation; and

(ii) to this end, City Council shall, in the introduction of new dwellings and creation of new lots, use strategies including but not limited to: lower lot coverages, wider lot frontages, deeper lot depths, wider side yards, deeper front yards, lower building heights and lower densities, along the existing older roads; density and lot frontage gradients between development fronting the existing older roads and development fronting new internal streets; buffering between new development and existing older development; careful establishment of lot lines, and siting of new dwellings to reflect existing building setbacks and yard depths, to assist in protection of significant vegetation; and tree preservation plans;

Map 20: Neighbourhood 10: Highbush



Legend Symbols

- New Road Connections (Proposed)
- Detailed Review Area
- Lands for which Council has adopted Development Guidelines (Refer to Compendium Document)
- Neighbourhood Boundary
- Public Elementary School
- Park

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(b) through the review of development proposals and in consultation with landowners and surrounding residents, endeavour to provide a new local road connection between Woodview Avenue and Pine Grove Avenue;

(c) despite Table 6 of Chapter 3, establish a maximum residential density of 63 units per net hectare for lands located at the southwest corner of Pine Grove Avenue and Altona Road that are designated Mixed Use Areas - Local Node and abut lands developed as low density development;

(d) require new development to have regard for the Rouge National Urban Park Management Plan; and

(e) ensure that the proposed new road intersection at Altona Road north of Sparrow Circle is provided to the satisfaction of the Region.

This page intentionally left blank.

Neighbourhood 11: Amberlea

Description

Neighbourhood Population Projection

Amberlea	
1996 Population	10,600
Projected Growth	2,800
Percent Increase	26.4
2016 Population	13,400

- Is bounded by the Altona Forest, the Ontario Hydro transmission corridor and C.P. rail line, the Pine Creek valley north of Finch Avenue and the rear lot lines of properties fronting Spruce Hill Road, and the C.N. rail line.
- Includes the easterly portion of the Altona Forest area.
- Most development in the area occurred since the 1970s.
- Consists of primarily detached and semi-detached housing with some townhouse and apartment dwellings; also includes one secondary school, four elementary schools, five neighbourhood parks, and one place of worship.
- Has neighbourhood and community shopping located on the west side of Whites Road north of Strouds Lane.
- Has environmentally sensitive areas associated with the Altona Forest, and the Rouge-Duffins Wildlife Corridor to the north.
- Has one Detailed Review Area within its boundary: (i) lands west of Whites Road, north of Strouds Lane.

City Policy
Amberlea Neighbourhood Policies

12.13 City Council shall:

(a) endeavour to ensure that lands on the west side of Whites Road between Strouds Lane and Highview Road are developed as a fully integrated mixed use area including a combination of retail facilities, personal and business services, multiple unit residential development, offices, community, cultural and recreational uses;

(b) in the event elementary schools are not required on the lands north and east of the intersection of Whites Road and Finch Avenue, consider in conjunction with the relevant school board, a high school in this area; (D19)

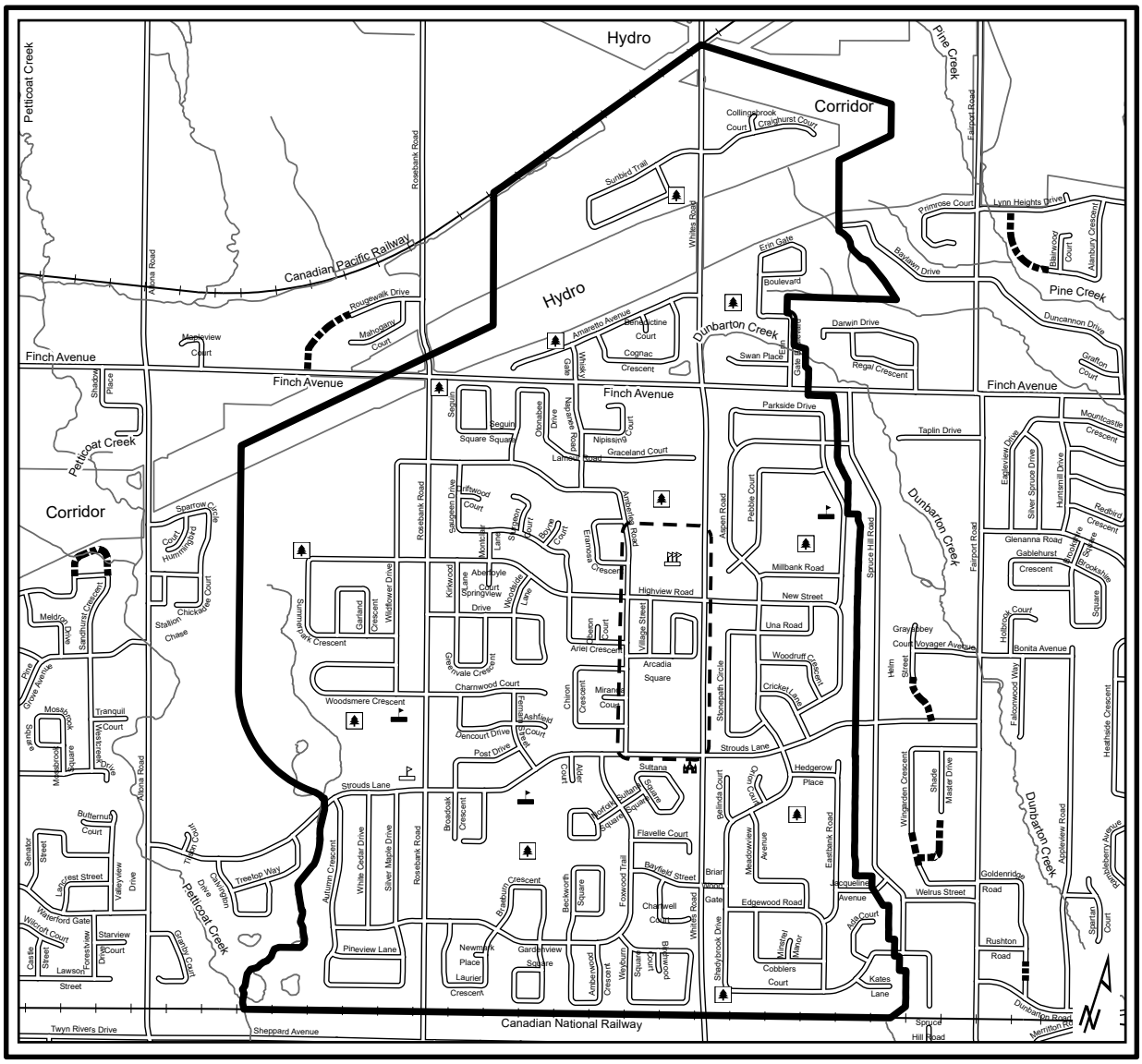
(D19) Deferral 19: Policy 12.13(b) deferred for further review by Region

(c) ensure that the proposed new road intersections on Whites Road north of the Ontario Hydro corridor is provided to the satisfaction of the Region; and

(d) on lands designated Urban Residential Areas - Low Density Areas east and west of Whites Road, north of the Ontario Hydro Gatineau Corridor:

(i) encourage a development form that takes advantage of the small, isolated pockets of land in close proximity to a Type 'A' arterial road, and minimizes the impact of development on the area's natural features and functions;

Map 21: Neighbourhood 11: Amberlea



Legend Symbols

- ▪▪▪ New Road Connections (Proposed)
- ⌐ ¬ Detailed Review Area
- ▭ Neighbourhood Boundary
- ⛪ Place Of Worship
- ⚑ Public Elementary School
- ⚐ Separate Elementary School
- ⚐ Separate Secondary School
- 🌲 Park

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(ii) further to Section 12.13(c) above, ensure that new roads connecting to Whites Road are designed in a manner that minimizes impacts on the area's natural features and functions, and intersect with Whites Road at locations that do not prejudice the future construction of a Whites Road/C.P. rail line overpass; and

(iii) despite the Low Density Residential Areas provision of Table 9 of Chapter 3, City Council may permit development at a residential density of up to 80 units per hectare on these lands if the resulting development form demonstrates that the size characteristics and constraints are better addressed.

This page intentionally left blank.

Neighbourhood 12: Liverpool

Description

Neighbourhood Population Projection

Liverpool	
1996 Population	17,500
Projected Growth	700
Percent Increase	4.0
2016 Population	18,200

- Is bounded by the rear lot lines of properties fronting Fairport Road and Appleview Road and the Pine Creek valley north of Finch Avenue, the C.P. rail line, the West Duffins Creek, and the rear lot lines of properties fronting Kingston Road west of Dixie Road, and Highway 401 east of Dixie Road.
- Includes significant open space areas associated with the West Duffins Creek and Pine Creek.
- Most of the neighbourhood developed since the 1970s.
- The area north of Kingston Road consists of a mix of detached, semi-detached, and townhouse dwellings; also includes one secondary school, five elementary schools, seven neighbourhood parks, two places of worship and a fire hall.
- The area south of Kingston Road consists of a mix of large format retailers, specialty retailers, automotive uses, offices and services including restaurants.
- Has the Canadian Jesuits Manresa Retreat property (a place of spiritual retreat and worship known as the Manresa Centre) at the north end of Liverpool Road.
- Has the Ontario Hydro Cherrywood Transformer station located in the northern portion of the neighbourhood.
- Has neighbourhood shopping located at the intersection of Dixie Road and Finch Avenue, at Bushmill Street and Liverpool Road, and at Rosefield Road and Finch Avenue.
- Has environmentally sensitive areas associated with the West Duffins Creek and the Rouge-Duffins Wildlife Corridor to the north.
- Has one Detailed Review Area within its boundary: lands on the west side of Liverpool Road south of Glenanna Road.
- City Council has adopted development guidelines as follows:
  * The “Walnut Lane Area Development Guidelines” (for lands on the north side of Kingston Road, east of Walnut Lane).
  * The “Town Centre West Development Guidelines” (for lands generally west of Pine Creek, between Kingston Road and Highway 401).
- City Council has adopted “Kingston Road Corridor Development Guidelines”, which guidelines apply to the Kingston Road Corridor through this Neighbourhood.

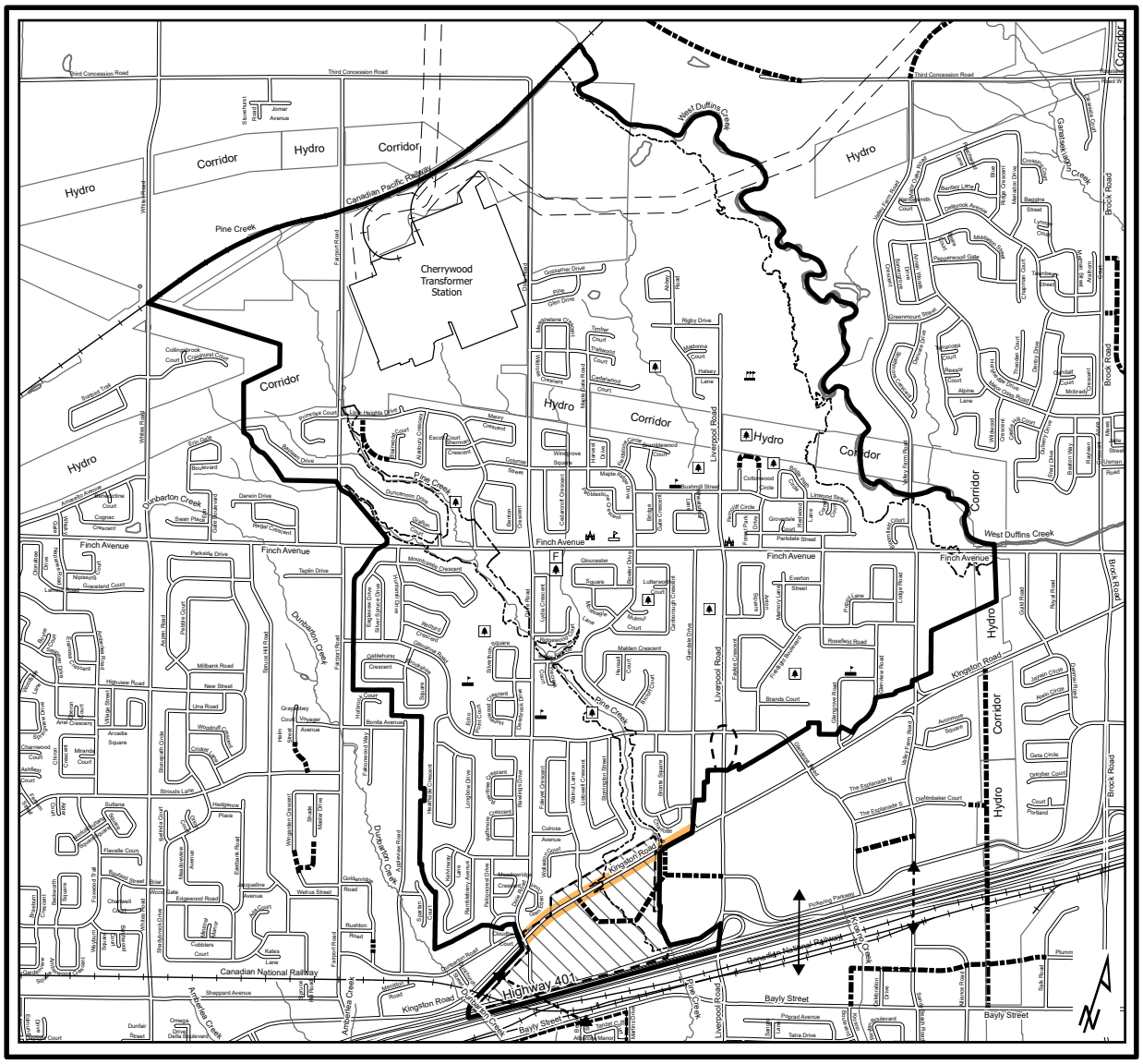
City Policy

Liverpool Neighbourhood Policies

12.14 City Council shall:

(a) recognize the proximity of low intensity development in the Liverpool Neighbourhood to the high intensity development in the Town Centre Neighbourhood and accordingly, shall consider the concerns of the nearby residents in Liverpool when preparing plans or development guidelines, and when considering development proposals, for lands in the Town Centre;

Map 22: Neighbourhood 12: Liverpool



Legend Symbols

- New Road Connections (Proposed)
- Detailed Review Area
- Kingston Road Corridor Development Guidelines (Refer to Compendium Document)
- Lands for which Council has adopted Development Guidelines (Refer to Compendium Document)
- Pedestrian/Bicycle Connection (Existing)
- Pedestrian/Bicycle Connection (Proposed)
- Neighbourhood Boundary
- Waterfront Trail
- Regional Flood Line
- Place Of Worship
- Public Elementary School
- Separate Elementary School
- Public Secondary School
- Fire Station
- Park

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(b) promote the reduction of traffic speeds along Dixie Road and the improvement of pedestrian safety by considering where appropriate "traffic calming" techniques, pavement markings and signalization;

(c) recognize and protect the Manresa Centre as a spiritual retreat and place of worship requiring a setting offering seclusion and isolation, and to this end:

(i) shall require abutting development or redevelopment to be compatible with the Manresa Centre; and

(ii) may permit residential and other supplementary uses which are an integral part of the Centre without amendment to this Plan;

(d) consider the use in part, or reuse, of existing dwellings on the west side of Liverpool Road, south of Glenanna Road, for business and professional offices, studios, custom workshops, personal service uses and limited retail shops;

(e) support improvements to the level crossings of the C.P. rail line at Fairport Road and Dixie Road, such as the installation of appropriate safety measures including automatic safety gates; and

(f) despite Table 9 of Chapter 3, establish a maximum residential density of 55 units per net hectare for lands located on the east side of Glendale Drive, south of Glenanna Road that are designated Urban Residential Areas - Medium Density Areas.

This page intentionally left blank.

Neighbourhood 13: Brock Ridge

Description

Neighbourhood Population Projection

Brock Ridge	
1996 Population	5,600
Projected Growth	3,700
Percent Increase	66.1
2016 Population	9,300

- Is bounded by the West Duffins Creek, the Ontario Hydro transmission corridor, and the Ajax-Pickering boundary.
- Includes significant open space lands associated with the West Duffins Creek and the East Duffins Creek.
- Most of the area developed since the 1970s.
- Consists of primarily detached dwellings; also includes three elementary schools, two neighbourhood parks, and one place of worship.
- Has neighbourhood and community shopping located at the intersection of Brock Road and Dellbrook Avenue; future neighbourhood shopping facility anticipated at Valley Farm Road and Greenmount Street.
- Has environmentally sensitive areas associated with the West Duffins Creek, the Ganatsekiagon Creek and the East Duffins Creek.
- Has one Detailed Review Area within its boundary: lands east of Brock Road south of Ganatsekiagon Creek, and including the southwest corner of Brock Road and Dellbrook Avenue.
- Town Council has adopted development guidelines as follows:
  * The “Duffins Precinct Development Guidelines” (for lands generally east of Brock Road, and the southwest corner of Dellbrook Avenue and Brock Road).

City Policy
Brock Ridge Neighbourhood Policies

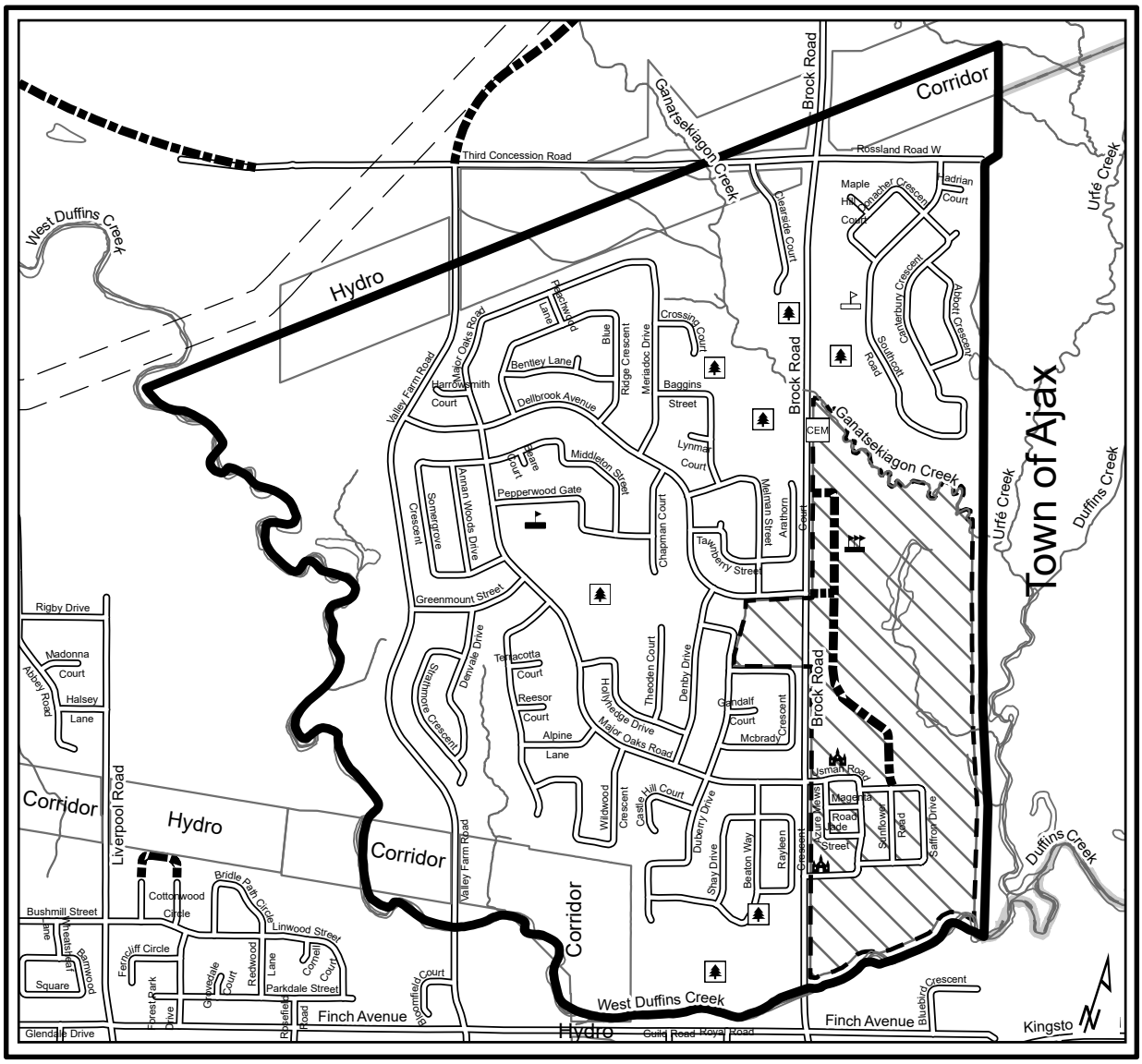
12.15 City Council shall:

(a) encourage within the Detailed Review Area, the use of density transfers (in accordance with Section 16.18 of this Plan) to assist in achieving community design objectives, encourage a variety of housing forms, and within the lands designated Community Node on Schedule I, to encourage increased intensity of development;

(b) despite Section 12.2(a) of this Plan, require the completion of development guidelines for the Detailed Review Area prior to permitting major development within the Area, and in undertaking the review, determine appropriate intersection and entrance ways on to Brock Road in conjunction with the Region; and

(c) in the review of development applications for the property situated north of the West Duffins Creek, east of Brock Road:

Map 23: Neighbourhood 13: Brock Ridge



Legend Symbols

- New Road Connections (Proposed)
- Detailed Review Area
- Lands for which Council has adopted Development Guidelines (Refer to Compendium Document)
- Neighbourhood Boundary
- Place Of Worship
- Public Elementary School
- Separate Elementary School
- Public Secondary School
- Park
- CEM Cemetery

(i) acknowledge the landowners' interest in maximizing the developable area of the property and to this end, recognizes that the precise limits of development shall be determined in field in consultation with the landowner, the City and the conservation authority; and

(ii) acknowledge the landowners' interest in developing higher density development and to this end, shall consider the use of density bonuses to achieve community design and other municipal objectives (in accordance with Section 16.17 of this Plan), in addition to density transfers as set out in Section 12.15(a) above.

This page intentionally left blank.

Neighbourhood 14: Rouge Park

Description

Neighbourhood Population Projection

Rouge Park	
1996 Population	200
Projected Growth	1,400
Percent Increase	700
2016 Population	1,600

- Is bounded by the Pickering-Toronto boundary, the C.P. rail line, an open space area east of Rosebank Road, and the Ontario Hydro transmission corridor.
- Includes part of the Rouge National Urban Park, and has significant open space lands associated with the Rouge-Duffins Wildlife Corridor.
- Most of the neighbourhood developed prior to the 1970s.
- Consists of primarily detached dwellings; commercial building is located at the southeast corner of Altona Road and Finch Avenue.
- Has environmentally sensitive areas associated with the Rouge River and Park, Petticoat Creek, and various wooded areas within and adjacent to the neighbourhood.
- Has one Detailed Review Area within its boundary: lands central to the neighbourhood.
- Council has adopted development guidelines for this neighbourhood.

City Policy
Rouge Park Neighbourhood Policies

12.16 City Council shall:

(a) in the consideration of development proposed within the neighbourhood:

(i) discourage designs which require the use of reverse frontages, berms and significant noise attenuation fencing adjacent to Finch Avenue and Altona Road, unless justified for a limited proportion of street frontage within any proposed development by unique site configuration, road access or proximity considerations and mitigated by special design and/or landscaping features;

(ii) encourage a "neighbourhood focus" at the intersection of Finch Avenue and Altona Road through the utilization of structural massing, architectural elements, and landscaping that establishes a strong relationship with the intersection;

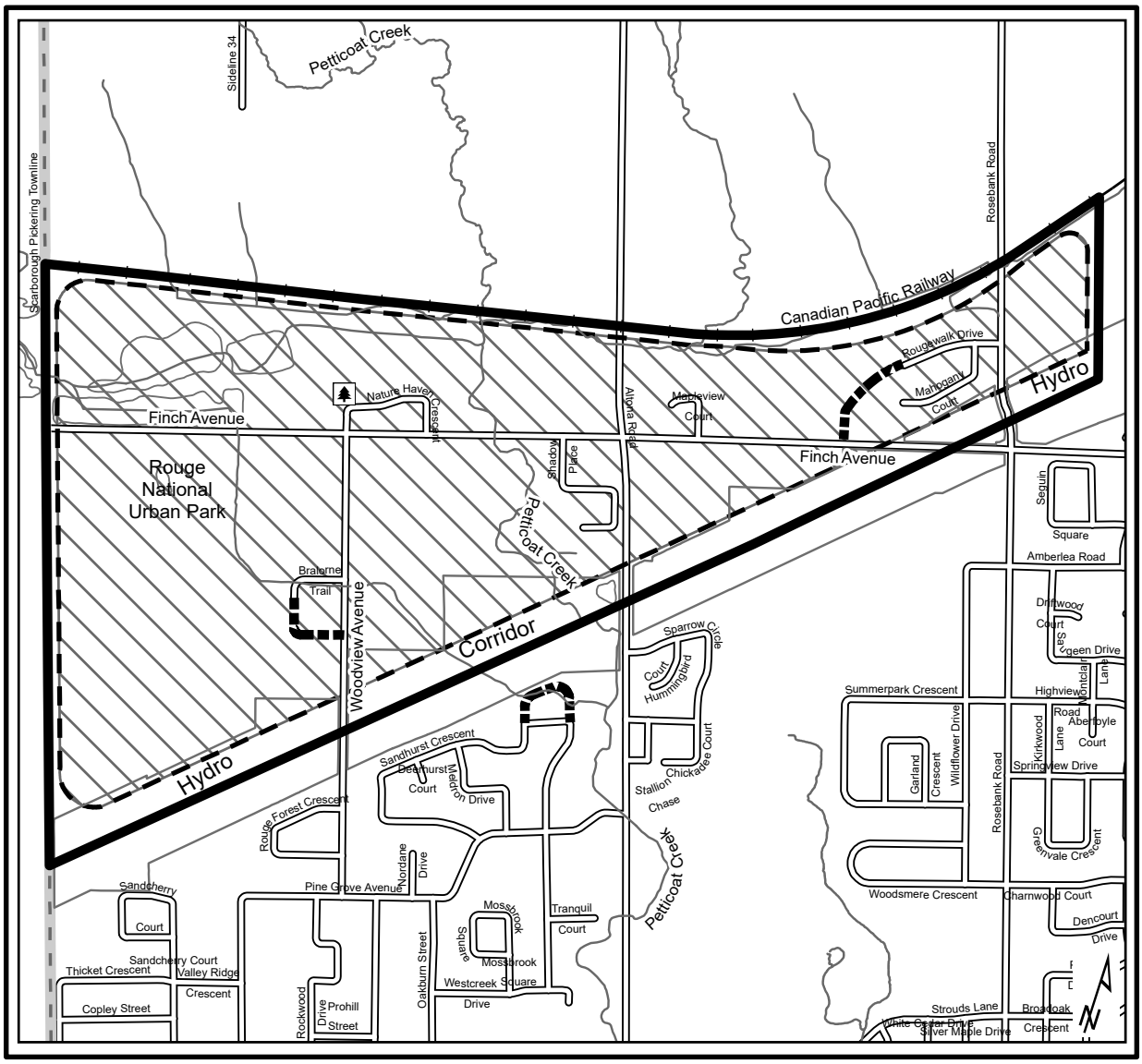
(iii) despite the permissible uses listed in Tables 5 and 9, not permit the establishment of automobile service stations and drive-through facilities such as restaurants, banks and convenience stores within the neighbourhood;

(iv) in accordance with Sections 16.17 and 16.18, permit the use of density transfers and bonuses, as further detailed in the Rouge Park Neighbourhood Development Guidelines;

(v) require a road connection running from the north side of Finch Avenue to the west side of Rosebank Road; and

(vi) require new development to have regard for the Rouge National Urban Park Management Plan;

Map 24: Neighbourhood 14: Rouge Park



Legend Symbols

- New Road Connections (Proposed)
- Detailed Review Area
- Lands for which Council has adopted Development Guidelines (Refer to Compendium Document)
- Neighbourhood Boundary
- Park

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(b) encourage the retention of environmentally sensitive Provincially-owned lands within public ownership and the appropriate and timely disposition of Provincially-owned lands outside of the Rouge National Urban Park that are not environmentally sensitive;

(c) endeavour to eliminate the "jog" at the Rosebank Road and Finch Avenue intersection;

(d) support improvements to the level crossings of the C.P. rail line at the Scarborough Pickering Townline Road and Rosebank Road, such as the installation of appropriate safety measures including automatic safety gates; and

(e) for the northeast corner of the Beare Estate/Map Realty lands, located on the north side of Finch Avenue, opposite Woodview Avenue, interpret the minimum extent of the "Open Space System – Natural Areas" designation to be the southerly drip line of the existing hedgerow plus 1.0 metre, with the maximum extent to be determined during the review of the related development applications.

.

This page intentionally left blank.

Neighbourhood 15: Duffin Heights

Description

Neighbourhood Population Projection

Duffin Heights	
1996 Population	100
Projected Growth	9,400
Percent Increase	9,400
2016 Population	9,500

- Is bounded by the West Duffins Creek, the C.P. rail line, the Ajax-Pickering boundary, and the Ontario Hydro transmission corridor.
- Includes significant open space lands associated with the various tributaries of the East Duffins Creek; and includes the Grand Valley Park, and the southerly limit of the Seaton Hiking Trail.
- Has various land extensive commercial, community and cultural uses (primarily along Brock Road), including a cemetery, a farmers market, a landscape supplier, a golf course, a driving range, an auction barn, a place of worship/cultural centre, a contractors yard, and a gas station.
- The Brock West Landfill is located in the west end of the neighbourhood; an electric power generating facility is adjacent to the landfill site.
- Has environmentally sensitive areas associated with the West Duffins Creek, Ganatsekiagon Creek and Urfe Creek.
- Has two Detailed Review Areas within its boundary: (i) lands on both sides of Brock Road; and (ii) the Brock West Landfill site.
- Council has adopted “Duffin Heights Neighbourhood Development Guidelines”, which apply to lands on both sides of Brock Road.

City Policy
Duffin Heights Neighbourhood Policies

12.17 City Council shall:

(a) encourage the appropriate and timely disposition of Provincially-owned lands that are not environmentally sensitive;

(b) consider establishing, by amendment to this Plan, alternate land uses for tablelands in the vicinity of Valley Farm Road and the Third Concession Road, so long as these lands are not used for the receipt of disposal of waste, and providing an appropriate study is done to the satisfaction of the City, which shall include:

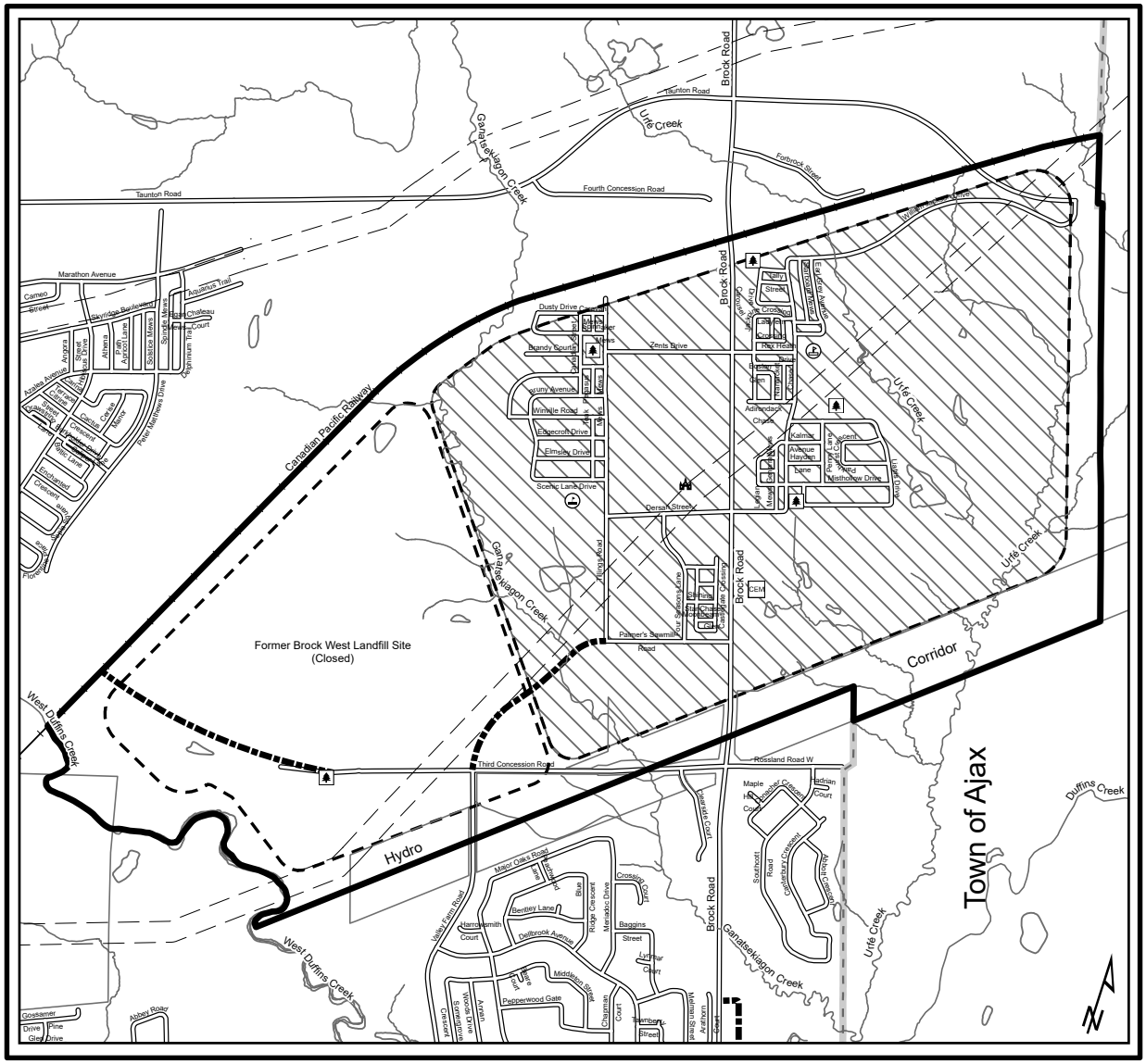
(i) a planning/design review that addresses the compatibility of the proposed alternate land uses with abutting land uses, both existing and proposed;

(ii) an environmental review that identifies significant natural features and functions, and defines developable limits;

(iii) an archaeological assessment that identifies whether any significant archaeological resources are present on the land, and recommends appropriate measures to protect, excavate, or otherwise deal with these resources; and

(iv) any other matters Council deems appropriate;

Map 25: Neighbourhood 15: Duffin Heights



Legend Symbols

- ▪▪▬▪▪ New Road Connections (Proposed)
- ┌ ─ ┐ Detailed Review Area
- ▨ Lands for which Council has adopted Development Guidelines (Refer to Compendium Document)
- ▭ Neighbourhood Boundary
- ⛪ Place Of Worship
- 🌲 Park
- CEM Cemetery
- ⚑ Proposed Public Elementary School
- ⚐ Proposed Separate Elementary School

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(c) despite Section 12.2 (a) of this Plan, require the completion of development guidelines for the westerly Detailed Review Area prior to permitting new uses within the Area;

(d) require that an appropriate right-of-way be protected to accommodate a future continuous (free-flow) east-west traffic movement for Third Concession/ Rossland Extension west from Brock Road over the West Duffins Creek;

(e) require a broad mix of housing by form, location, size, and affordability within the neighbourhood;

(f) require road designs to be consistent with the road profiles identified in the Duffin Heights Neighbourhood Development Guidelines;

(g) prohibit individual private driveway access from lands on either side of collector roads in the neighbourhood, and from local roads adjacent to the Mixed Corridor for grade-related dwelling units;

(h) for lands designated Mixed Use Areas – Mixed Corridor:

  (i) require new development to provide a strong and identifiable urban image by establishing buildings closer to the street, providing safe and convenient pedestrian access, and requiring all buildings to be multi-storey;

  (ii) require commercial development to provide a second storey functional floor space with three storey massing;

  (iii) require higher intensity multi-unit housing forms on lands adjacent to Brock Road and restrict grade related residential development to lands adjacent to collector or local roads;

  (iv) support shared access points between properties along Brock Road in order to minimize access points along Brock Road, in consultation with the Region of Durham;

  (v) may require a Trip Generation Study, an Internal Traffic Flow Plan and Access Management Plan subject to the satisfaction of the Region of Durham and City;

  (vi) despite Section (h)(iii) above, provisions for higher intensity residential development do not apply to lands adjacent to the C.P. Railway underpass;

  (vii) require applicants of new development to submit a Development Concept Report illustrating interim and final plans to accommodate intensification over time and ultimate build-out;

  (viii) despite Section 3.6(a) and Table 5 of Chapter 3, not permit the establishment of:

    - single or semi detached dwelling units; and
    - drive-through facilities, either stand-alone or in combination with other uses;

  (ix) despite Sections 3.6(b), 12.17(h)(ii) and 16.39, and Table 5 of Chapter 3, in addition to the existing zoned vacant Petro-Canada lands, being Plan 40R6962, Part 2, permit the establishment of only one retail gasoline outlet inclusive of gas bars and associated car washes for lands designated Mixed Use Area – Mixed Corridor;

(x) require development within the Focal Points as identified on the Tertiary Plan contained within the Council-adopted Duffin Heights Neighbourhood Development Guidelines to contribute to the prominence of the intersection; in order to achieve this, Council shall require:

- initial development on each property to occur at the corner of the intersection;
- the inclusion of appropriate provisions in the implementing zoning by-laws to address such matters as the location and extent of build-to-zones, mix of permitted uses, and required building articulation;
- the use of other site development features such as building design, building material, architectural features or structures, landscaping, public art and public realm enhancements such as squares or landscaped seating areas to help achieve focal point prominence; and
- despite Section (h)(ii), all buildings to be minimum of three functional storeys with four storey massing;

(xi) require the development of future roads adjacent to the Mixed Corridor designation on both sides of Brock Road to provide alternative access, potential transit routes, and boundaries for the land use designations and; on the east side of Brock Road this will consist of a Collector Road (William Jackson Drive) between Taunton Road and Brock Road; and on the west side of Brock Road, this will consist of a local road between the new northerly east/west Collector Road and the extension of Valley Farm Road; and

(xii) despite Sections 12.17(h)(ii) and 12.17(h)(viii), the establishment of a single storey commercial building with a drive-through facility is permitted on lands located on the west side of Brock Road, being Part of Lot 19, Concession 3, Now Part 1, 40R-2548, and Part 1, 40R-26764;

(i) require proponents of new development abutting or containing existing naturalized open space features designated Natural Areas, to submit an Edge Management Plan to the satisfaction of the City, in consultation with the Toronto and Region Conservation Authority, that:

(i) addresses the protection of the natural heritage features and functions from the impacts of any new development through such mechanisms as tree management, tree preservation, invasive species management, construction management, and stormwater management; and

(ii) identifies road and engineering designs that maintain the ecological integrity of the tableland coniferous and mixed forest;

(j) in the design of stormwater management facilities include where feasible:

(i) walking and cycling facilities;

(ii) rest areas;

(iii) wildlife passages; and

(iv) innovative design features such as wetland forebays and outlets;

(k) in the consideration of development proposals within the neighbourhood:

(i) where development proposals abut existing uses expected to remain in the long-term, the following matters shall be addressed:

- **mitigation measures such as grading, tree preservation and edge protection;**
- **implementation of the above measures through conditions of draft plan approval, zoning by-law amendments, site plan approvals and other *Planning Act* tools; and**
- **consultation with the adjacent landowner(s) prior to approval of the implementation measures set out above;**

(ii) require conveyance to the City of lands for active transportation uses (e.g., sidewalks, walkways, bike lanes), and shall not consider such conveyance as parkland dedication;

(iii) encourage rear lanes for residential units at appropriate locations such as major streets to provide streetscapes uninterrupted by garages, driveways and improved safety for multi-use trail users;

(iv) require residential lots with frontages of 6.0 metres or less to be accessed from rear lanes;

(v) require a fine-grain mix of housing types, forms and tenures on a variety of lot frontages to prevent concentrations of lots with small frontages and private driveways in order to create opportunities for improved streetscapes, massing and on-street visitor parking;

(vi) may reduce local street right-of-way widths to less than 20 metres provided the following matters are addressed:

- **the proposed right-of-way and pavement width accommodates vehicular needs, services and utilities;**
- **the street width is appropriate for the use and form of adjacent development; and**
- **the street width accommodates the appropriate number of sidewalks (i.e., on either one side or both sides of the street) based upon the design of the plan, street function and abutting development;**

(vii) require the submission of a Sustainability Report that demonstrates how the proposal is consistent with the City's Sustainable Development Guidelines;

(viii) design the local street pattern and walkway connections to enable residents to be within 400 metres walking distance of an existing transit stop/planned transit stop;

(ix) require the submission of a Functional Servicing and Stormwater Management Report that demonstrates how the proposal is consistent with the Duffin Heights Environmental Servicing Plan to the satisfaction of the Region, City and the Toronto and Region Conservation Authority;

(x) ensure that adequate utility networks are/will be established to serve the anticipated development and phased in a way that is cost-effective and efficient; and

(xi) determine appropriate locations for larger, above-ground utility locations and require utilities to be clustered, grouped or imported within streetscape features where possible to minimize visual impact;

(l) require applicants to submit a Compensation Report that demonstrates how compensation for areas identified in the Duffin Heights Environmental Servicing Plan has been addressed and how any environmental impacts can be mitigated through the use of best management practices and other appropriate sustainable measures to the satisfaction of the City, in consultation with the Toronto and Region Conservation Authority;

(m) despite Section 3.5(a) and Table 3 of Chapter 3, permit only a golf course use or Natural Area use on lands identified as Active Recreational Areas;

(n) require the preparation of a Golf Course Environmental Management Plan prior to changing the configuration of the existing golf course that describes the use of best management practices and other appropriate measures to enhance the natural environment to the satisfaction of the City, in consultation with the Toronto and Region Conservation Authority;

(o) despite Section 3.5(a) and Table 3 of Chapter 3, permit the establishment of a cemetery, mausoleum, columbarium, visitation centre, chapel and reception facility, funeral establishment, crematorium, and related buildings and structures for the existing zoned Duffin Meadows Cemetery located east of Brock Road that is designated Open Space System – Natural Areas; and

(p) require, as a condition of site plan, subdivision or any other development approval, that landowners:

(i) provide contributions calculated on a per hectare basis of the developable lands to a Fish Habitat Restoration Fund administered by the City for restoring fish habitat as identified in the Duffin Heights Environmental Servicing Plan, in consultation with the Toronto and Region Conservation Authority;

(ii) enter into an agreement with the City committing to undertake a monitoring program as outlined in the Duffin Heights Environmental Servicing Plan; and

(iii) become a party to the cost sharing agreement for Duffin Heights or receive an acknowledgement from the Trustee of the Duffin Heights Landowners Group Inc. that the benefitting landowner has made satisfactory arrangements to pay its proportion of the shared development cost

(q) despite Table 9 of Chapter 3, establish a maximum net residential density of 161 units per net hectare on lands located on the southeast corner of William Jackson Drive and Earl Grey Avenue described as Part of Lot 18, Concession 3, Part 1, 40R-29457.

Neighbourhood 16: Lamoreaux

Description

Neighbourhood Population Projection

Lamoreaux	
2031 Population	17,500

- Is bound by the Duffins Creek to the west, the Seaton Natural Heritage System to the north and east, and the C.P.R. railway to the south.
- Is the southern most neighbourhood in the Seaton Urban Area.
- Is surrounded by the Seaton Natural Heritage System on all four sides of the neighbourhood.
- Is planned to have a broad range of uses and land use densities, including commercial, and a variety of residential built-forms with densities ranging from low density to mixed use and high density.
- Taunton Road and Sideline 26/Whites Road will be the main spines running through the neighbourhood.
- The Community Node on Taunton Road is planned to be the heart of the neighbourhood. The Community Node is to be a compact, walkable area, with a mix of commercial and residential uses. This node shall serve the day-to-day commercial needs of nearby residents, and of travelers who pass through along Taunton Road, and along the north-south arterial roads.

City Policy

Lamoreaux Neighbourhood Policies

12.18 City Council:

(a) shall, as per Section 11.2(b), provide greater direction on housing types and densities in the Low Density Area designation by applying two additional subcategories to those set out in Tables 2 and 9 in the Low Density Area subcategory as follows:

(i) Low Density Area Type 1 with:

(A) a full range of unit types within the permitted density range for Low Density Area as per Section 11.2, but consisting predominantly of single and semi-detached housing forms;

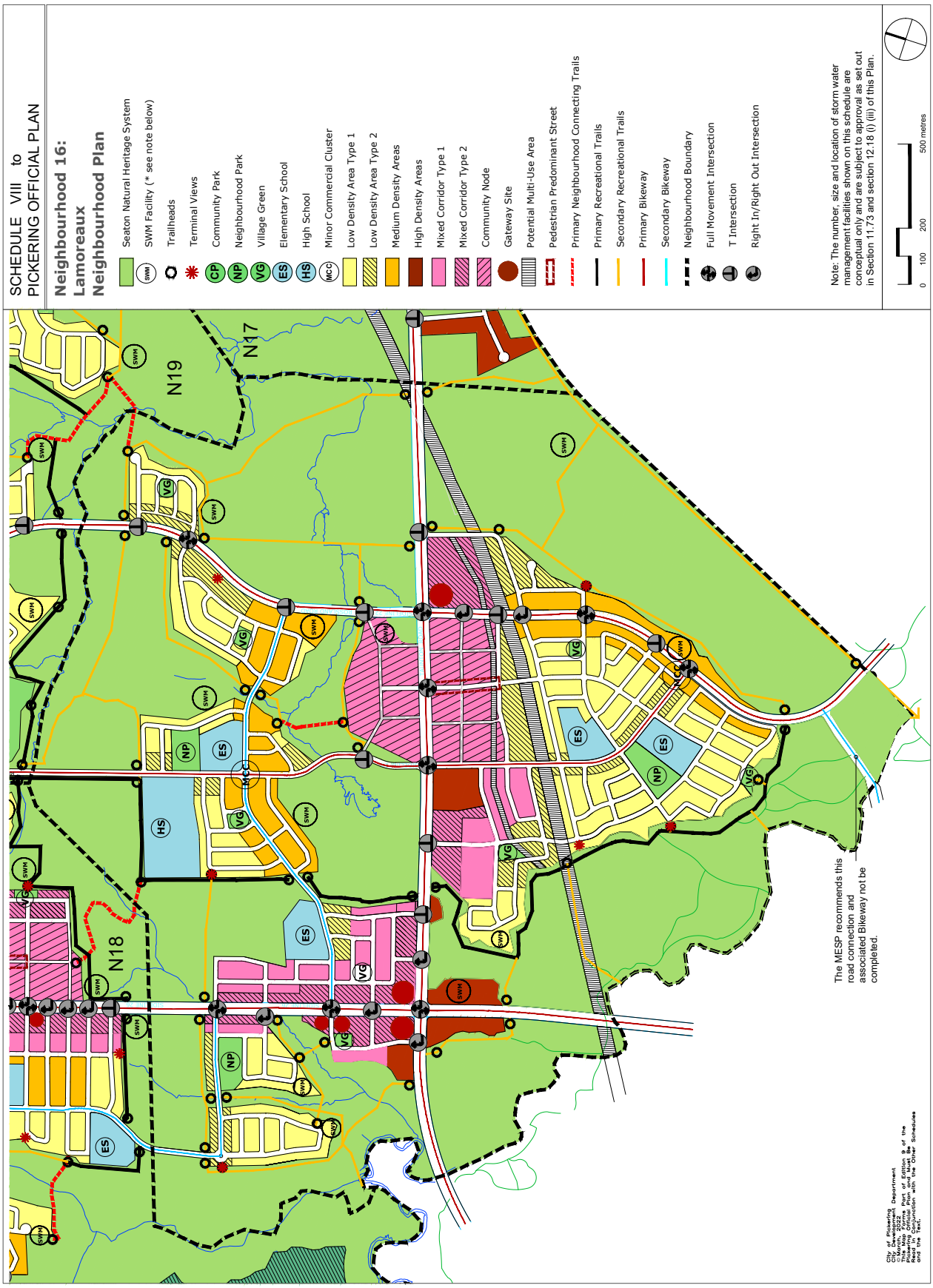
(ii) Low Density Area Type 2 with:

(A) a minimum density of 35 units per net hectare and a maximum density of up to and including 50 units per net hectare provided the overall density of lands within Low Density Area Type 1 and Type 2 designations combined, within each draft plan of subdivision, is no more than 40 units per net hectare; and

(B) single detached and semi-detached dwellings comprising no more than 50 percent of all unit types within the subcategory designation;

(b) shall provide greater direction on housing types within Medium Density Area designation by permitting single detached and semi-detached dwellings to comprise no more than 25 percent of all unit types within the designation;

Schedule VIII - Neighbourhood 16: Lamoreaux



(c) shall, as per Section 11.5, establish two additional subcategories to those set out in Tables 2 and 6 in the Mixed Corridor subcategory as follows:

(i) Mixed Corridors Type 1 with a full range of unit types as established by Table 5 and Section 11.5 within the permitted density range for Mixed Corridors as per Section 11.5(c), but consisting predominantly of ground related multi-residential housing forms; and

(ii) Mixed Corridors Type 2 with a minimum density of 60 units per net hectare and a maximum density of 180 units per net hectare provided the overall density of lands within Mixed Corridors Type 1 and Type 2 designations, within each draft plan of subdivision, is no more than 140 units per net hectare;

(d) shall, as per Section 11.6, identify Gateway Sites within the Mixed Corridor Type 2 subcategory which shall:

(i) be reserved for apartment buildings at or near the highest density and height permission;

(ii) have the maximum height and density determined at the site plan approval stage after submission of appropriate massing and sun-shadow drawings to demonstrate compatibility with adjacent housing;

(iii) permit interim uses as per Section 11.8;

(iv) require applicants to submit a development concept and intensification plan illustrating interim and final plans to accommodate intensification over time and ultimate build-out, in accordance to Section 11.8; and

(v) require the size of Gateway sites to be determined at the draft plan stage;

(e) shall require applicants for draft plan of subdivision approval to identify and reserve a location for a future fire station to the satisfaction of the fire chief and which is located on Taunton Road at a future signalized intersection;

(f) shall, along Type A and Type B Arterial Roads, as shown on Schedule II, not permit direct access to lots but will encourage the Region to allow for full movement intersections at the locations shown on Schedule VIII Neighbourhood 16: Lamoreaux and allow for right-in/right-out intersections at a shorter intersection spacing in order to promote walkability and connectivity;

(g) shall along Type C Arterial Roads and may along Collector Roads require direct access to be minimized, due to traffic volumes and built forms, through a range of alternatives including rear lanes, slip lanes, shared drives, hybrid local roads, connector lanes or other means to limit direct access to individual lots. Where direct access is proposed, Council shall require applicants to demonstrate through appropriate transportation studies that direct access can be supported;

(h) shall establish a pedestrian and bicycle systems plan for the neighbourhood which is illustrated on Schedule VIII - Neighbourhood 16: Lamoreaux and consists of the road network, bikeways, trails and trailheads. Further detail on how pedestrians and cyclists will be accommodated in the road network shall be set out in the Sustainable Placemaking Guidelines;

(i) recognizes that the locations of:

(i) Type A and Type B arterial roads are currently the subject of an Environmental Assessment and the road alignments will be confirmed through that process which may require further refinements to Schedule VIII Neighbourhood 16: Lamoreaux;

(ii) local roads, school sites, parks and village greens may be refined through the draft plans of subdivision without an amendment to this Plan provided the location, size and layout are consistent with the design intent shown on Schedule VIII Neighbourhood 16: Lamoreaux and the policies of this Plan; and

(iii) the number, size and location of stormwater management facilities will be confirmed through the Neighbourhood Functional Servicing and Stormwater Report and may change without an amendment to this Plan;

(j) shall, despite the permitted uses and densities in the Mixed Corridor Type 1 designation located west of Sideline 24 and south of the gas pipeline, permit single detached dwellings in this area without a unit mix cap subject to the density permissions of the Low Density Type 2 designation provided:

(i) there is no net loss in units required to achieve the 61,000 population set out in Section 2.13(a);

(ii) the difference in density between the Mixed Corridor Type 1 designation and the Low Density Type 2 designation for the Mixed Corridor Type 1 lands located south of the gas pipeline, west of Sideline 24 be transferred to the Mixed Corridor Type 1 and Mixed Corridor Type 2 designations located north of the pipeline, west of Sideline 24 and south of Taunton Road;

(iii) the minimum total number of units in the Mixed Corridor Type 1 and Mixed Corridor Type 2 designations located west of Sideline 24, north of the hydro corridor, and south of Taunton Road shall not be less than 385 units;

(iv) only townhouse units shall be constructed on the lots fronting and flanking onto Sideline 24 within the Mixed Corridor Type 1 designation; and

(v) the single detached dwellings in the Mixed Corridor Type 1 designation located south of the gas pipeline will not be constructed until related zoning for a detailed development proposal has been approved by the City which will establish a requirement for a minimum of 323 units within the Mixed Corridor Type 1 and Mixed Corridor Type 2 designations located north of the pipeline, west of Sideline 24 and south of Taunton Road; and

(k) shall require applicants for draft plan of subdivision, rezoning or site plan approval to submit to the satisfaction of the City:

(i) a Sustainability Brief that demonstrates how the proposal ranks against the sustainable checklist in the Sustainable Placemaking Guidelines; and

(ii) a Design Brief that demonstrates how the proposal is consistent with the urban design components of the Sustainable Placemaking Guidelines.

Neighbourhood 17: Brock-Taunton

Description

Neighbourhood Population Projection

Brock-Taunton	
2031 Population	**5,000**

- Is bound by the Seaton Natural Heritage System to the north, west and east, and the C.P.R. railway to the south.
- Is in the southeast corner of the Seaton Urban Area.
- Is planned to have a range of uses and land use densities, including the potential for commercial, and a variety of residential built-forms with densities ranging from mixed use to high density.
- Taunton Road and Brock Road are the main spines running through the neighbourhood.
- A future GO Train Station, on the Belleville C.P. rail line, is proposed to be integrated into the Neighbourhood.
- The Mixed Corridor at Taunton Road and Brock Road is planned to be the heart of the neighbourhood. This intersection is to be designed as a compact, dense area comprised of gateway residential sites on three of the four corners of the intersection, with at grade commercial uses. This area shall serve the day-to-day commercial needs of nearby residents, and of travelers who pass along Taunton Road and Brock Road.

City Policy
Brock-Taunton Neighbourhood Policies

12.19 City Council:

(a) recognizes that the precise location of the GO Train Station has yet to be finalized through an Environmental Assessment. As such, City Council shall encourage development in the Mixed Corridor blocks south of Taunton Road to proceed in consultation with Metrolinx and be coordinated with the Environmental Assessment;

(b) shall, as per Section 11.5, establish and apply one of two additional subcategories (Mixed Corridors Type 2) to those set out in Tables 2 and 6 in the Mixed Corridor subcategory as follows:

(i) Mixed Corridors Type 2 with a minimum density of 60 units per net hectare and a maximum density of 180 units per net hectare provided the overall density of lands within the Mixed Corridors Type 2, within each draft plan of subdivision, is no more than 140 units per net hectare;

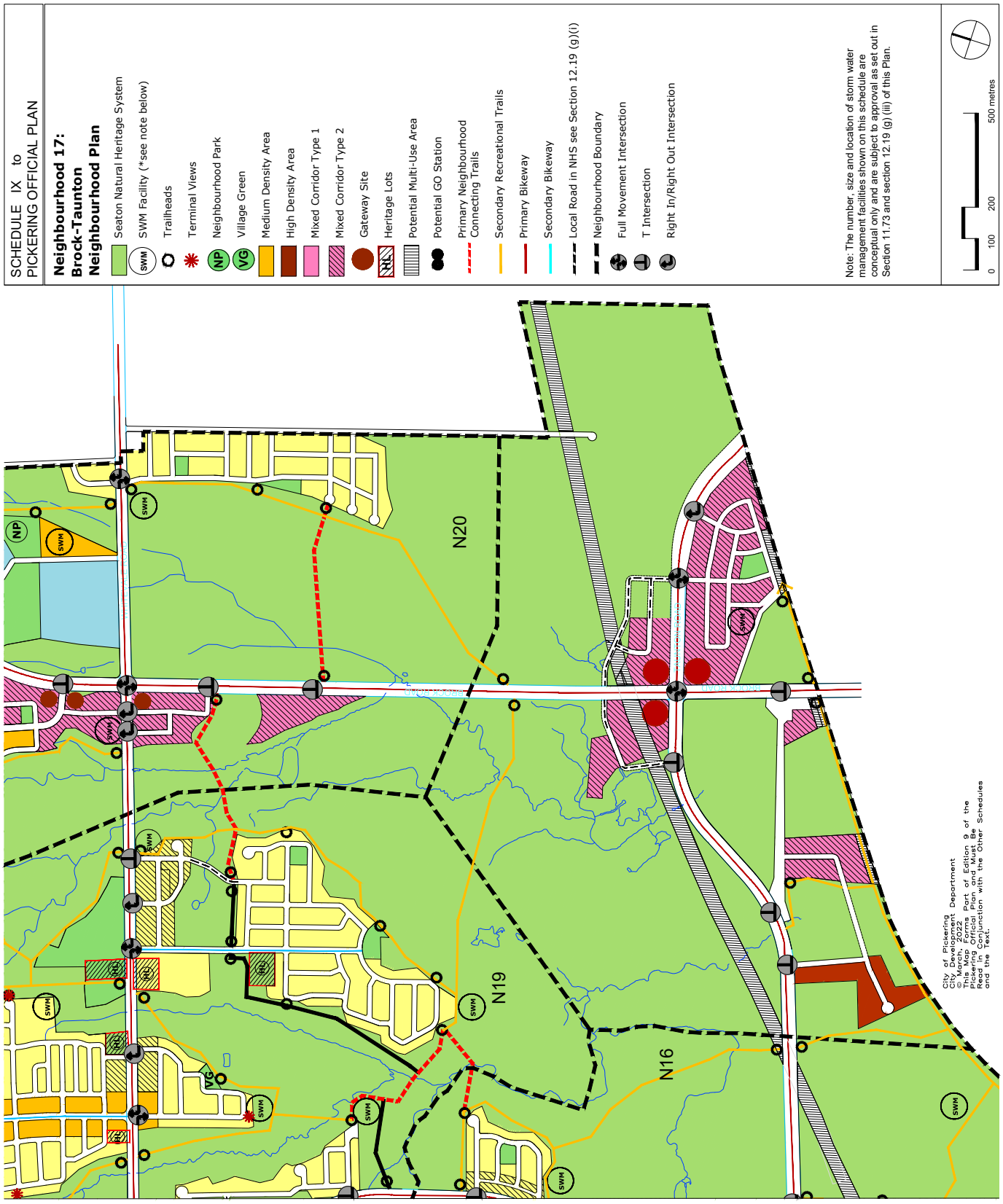
(c) shall, as per Section 11.6, identify Gateway Sites within the Mixed Corridors Type 2 subcategory, which shall:

(i) be reserved for apartment buildings at or near the highest density and height permission;

(ii) have the maximum height and density determined at the site plan approval stage after submission of appropriate massing and sun-shadow drawings to demonstrate compatibility with adjacent housing;

(iii) permit interim uses as per Section 11.8;

Schedule IX - Neighbourhood 17: Brock-Taunton



(iv) require applicants to submit a development concept and intensification plan illustrating interim and final plans to accommodate intensification over time and ultimate build-out, in accordance to Section 11.8; and

(v) require the size of Gateway sites to be determined at the draft plan stage;

(d) shall, along Taunton Road and Brock Roads which are both Type A Arterial roads, not permit direct access to lots but will encourage the Region to allow for full movement intersections at the locations shown on Schedule IX - Neighbourhood 17: Brock-Taunton and allow for right-in/ right-out intersections at a shorter intersection spacing in order to promote walkability and connectivity;

(e) shall require applicants for draft plan of subdivision approval to identify and integrate appropriate setbacks from buildings to utility and rail corridors;

(f) shall establish a pedestrian and bicycle systems plan for the neighbourhood which is illustrated on Schedule IX - Neighbourhood 17: Brock-Taunton and consists of the road network, bikeways, trails and trailheads. Further detail on how cyclists will be accommodated in the road network shall be set out in the Sustainable Placemaking Guidelines;

(g) shall recognize that the locations of:

(i) local roads constructed through the Seaton Natural Heritage System will be subject to satisfying the Environmental Assessment process;

(ii) local roads and village greens may be refined through the draft plans of subdivision without an amendment to this Plan provided the location, size and layout are consistent with the design intent shown on Schedule IX - Neighbourhood 17: Brock-Taunton and the policies of this Plan; and

(iii) the number, size and location of stormwater management facilities will be confirmed though the Neighbourhood Functional Servicing and Stormwater Report and may change without an amendment to this Plan; and

(h) shall require applicants for draft plan of subdivision, rezoning or site plan approval to submit to the satisfaction of the City:

(i) a Sustainability Report that demonstrates how the proposal ranks against the sustainable checklist in the Sustainable Placemaking Guidelines; and

(ii) a Design Brief that demonstrates how the proposal is consistent with the urban design components of the Sustainable Placemaking Guidelines.

This page intentionally left blank.

Neighbourhood 18: Mount Pleasant

Description

Neighbourhood Population Projection

Mount Pleasant	
2031 Population	18,000

- Is bound by the Duffins Creek to the west but excluding the Hamlet of Whitevale, the Seaton Natural Heritage System corridor separating Neighbourhoods 18 and 21 to the north, the Seaton Natural Heritage System corridor separating Neighbourhoods 16 and 18 to the south and a tributary of Ganatsekiagon Creek to the east.
- Is the western most neighbourhood in the Seaton Urban Area.
- Is generally surrounded by the Seaton Natural Heritage System on all four sides of the neighbourhood.
- Is planned to have a broad range of land uses and densities, including commercial and mixed use, and a variety of residential and mixed use built-forms.
- Sideline 26/Whites Road and the proposed Whitevale By-pass will be the main spines running through the neighbourhood.
- The Community Node on Sideline 26/Whites Road is planned to be the heart of the neighbourhood. The Community Node is to be a compact, walkable area, with a mix of commercial and residential uses. This node shall serve the day-to-day commercial needs of nearby residents.

City Policy
Mount Pleasant Neighbourhood Policies

12.20 City Council:

(a) shall, as per Section 11.2(b), establish two additional subcategories to those set out in Tables 2 and 9 in the Low Density Area subcategory as follows:

(i) Low Density Area Type 1 with:

(A) a full range of unit types within the permitted density range for Low Density Area as per Section 11.2, but consisting predominantly of single and semi-detached housing forms;

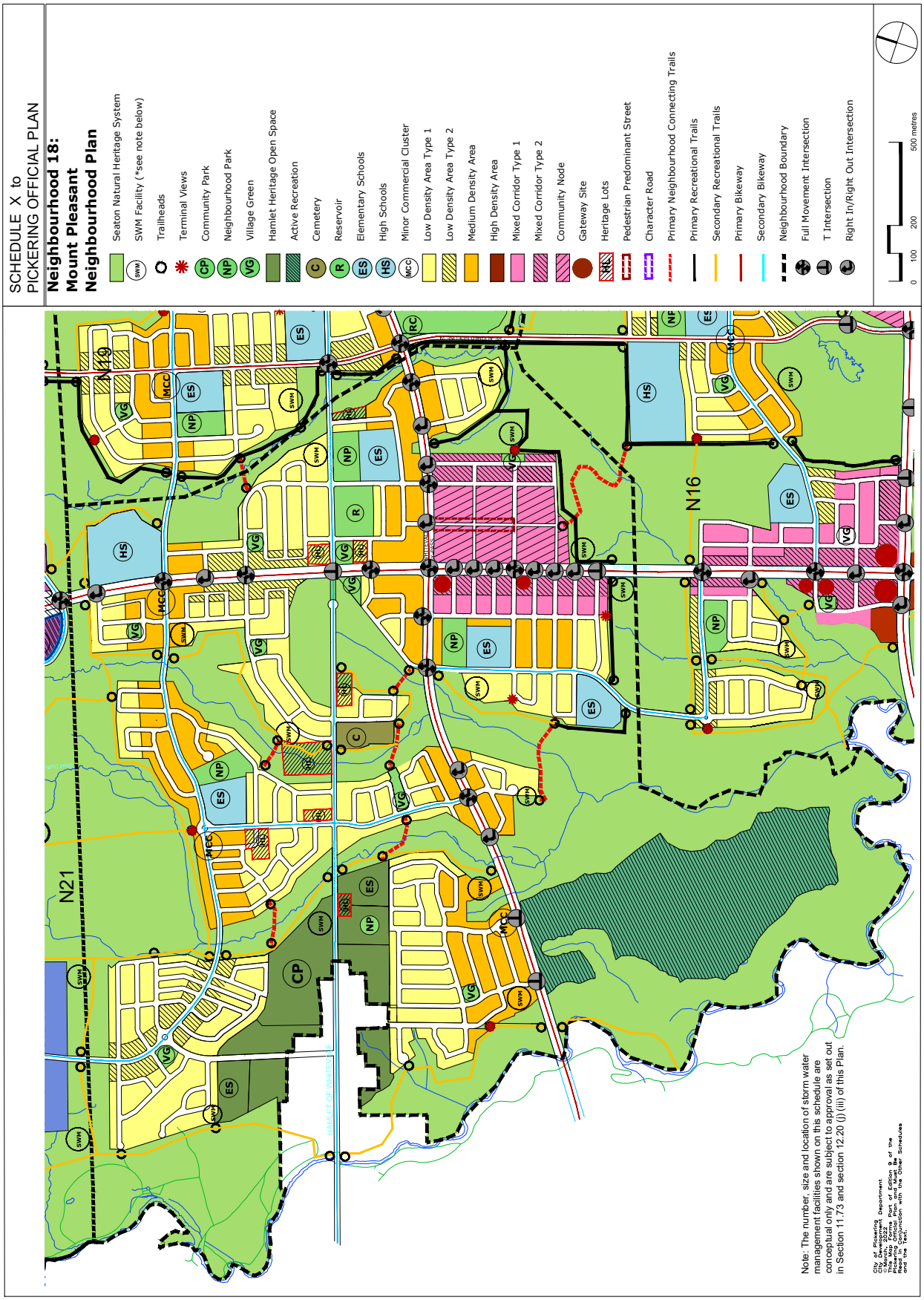
(ii) Low Density Area Type 2 with:

(A) a minimum density of 35 units per net hectare and a maximum density of up to and including 50 units per net hectare provided the overall density of lands within Low Density Area Type 1 and Type 2 designations combined, within each draft plan of subdivision, is no more than 40 units per net hectare; and

(B) single detached and semi-detached dwellings comprising no more than 50 percent of all unit types within the subcategory designation;

(b) shall provide greater direction on housing types within Medium Density Area designation by permitting single detached and semi-detached dwellings to comprise no more than 25 percent of all unit types within the designation;

Schedule X - Neighbourhood 18: Mount Pleasant



(c) shall, as per Section 11.5, establish two additional subcategories to those set out in Tables 2 and 6 in the Mixed Corridor subcategory as follows:

(i) Mixed Corridors Type 1 with a full range of unit types as established by Table 5 and Section 11.5 within the permitted density range for Mixed Corridors as per Section 11.5(c), but consisting predominantly of ground related multi-residential housing forms; and

(ii) Mixed Corridors Type 2 with a minimum density of 60 units per net hectare and a maximum density of 180 units per net hectare provided the overall density of lands within Mixed Corridors Type 1 and Type 2 designations, within each draft plan of subdivision, is no more than 140 units per net hectare;

(d) shall, as per Section 11.6, identify Gateway Sites within the Mixed Corridor Type 2 subcategory which shall:

(i) be reserved for apartment buildings at or near the highest density and height permission;

(ii) have the maximum height and density determined at the site plan approval stage after submission of appropriate massing and sun-shadow drawings to demonstrate compatibility with adjacent housing;

(iii) permit interim uses as per Section 11.8;

(iv) require applicants to submit a development concept and intensification plan illustrating interim and final plans to accommodate intensification over time and ultimate build-out, in accordance to Section 11.8; and

(v) require the size of Gateway sites to be determined at the draft plan stage;

(e) shall along existing Whitevale Road:

(i) consider closing Whitevale Road where it approaches Sideline 26/Whites Road. Access to the portion west of Sideline 26/Whites Road shall be via a local road connection;

(ii) require the eastern portion to be connected in a "T" intersection with Sideline 26/Whites Road;

(iii) institute a differing character for the portions east and west of the realigned Sideline 26/Whites Road with:

(A) the western portion maintaining a rural cross-section, as per Section 11.66(c), with a multi-use trail on one side as set out in the Sustainable Placemaking Guidelines; and

(B) the eastern portion having an urban cross-section, but existing mature trees shall be maintained and protected where feasible;

(iv) require houses along the western portion to face directly onto Whitevale Road with individual access provided directly to the street or where not possible due to grades from rear lanes or abutting rear local roads;

(v) permit and encourage houses along the eastern portion to have direct access to the road;

(vi) require, along the western portion, identification of appropriate traffic calming measures in draft plans of subdivision; and

(vii) ensure other design matters in Section 11.66 are considered in the draft plans of subdivision;

(f) shall, along Type A and Type B Arterial Roads, as shown on Schedule II, not permit direct access to lots but will encourage the Region to allow for full movement intersections at the locations shown on Schedule X - Neighbourhood 18: Mount Pleasant and allow for right-in/ right-out intersections at a shorter intersection spacing in order to promote walkability and connectivity;

(g) shall along Type C Arterial Roads and may along Collector Roads require direct access to be minimized, due to traffic volumes and built forms, through a range of alternatives including rear lanes, slip lanes, shared drives, hybrid local roads, connector lanes or other means to limit direct access to individual lots. Where direct access is proposed, Council shall require applicants to demonstrate through appropriate transportation studies that direct access can be supported;

(h) shall establish a pedestrian and bicycle systems plan for the neighbourhood which is illustrated on Schedule X - Neighbourhood 18: Mount Pleasant and consists of the road network, bikeways, trails and trailheads. Further detail on how pedestrians and cyclists will be accommodated in the road network shall be set out in the Sustainable Placemaking Guidelines;

(i) shall identify the location of significant built heritage resources on Schedule X - Neighbourhood 18: Mount Pleasant with the notation "Heritage Lots" and shall require development adjacent to such Heritage Lots to address the policies of Sections 11.62, 11.63, and 11.64;

(j) recognizes that the locations of:

- **(i) Type A and Type B Arterial Roads are currently the subject of an Environmental Assessment and the road alignments will be confirmed through that process which may require further refinements to Schedule X - Neighbourhood 18: Mount Pleasant;**
- **(ii) local roads, school sites, parks and village greens may be refined through the draft plans of subdivision without an amendment to this Plan provided the location, size and layout are consistent with the design intent shown on Schedule X - Neighbourhood 18: Mount Pleasant and the policies of this Plan; and**
- **(iii) the number, size and location of stormwater management facilities will be confirmed through the Neighbourhood Functional Servicing and Stormwater Report and may change without an amendment to this Plan; and**

(k) shall require applicants for draft plan of subdivision, rezoning or site plan approval to submit to the satisfaction of the City:

- **(i) a Sustainability Brief that demonstrates how the proposal ranks against the sustainable checklist in the Sustainable Placemaking Guidelines; and**
- **(ii) a Design Brief that demonstrates how the proposal is consistent with the urban design components of the Sustainable Placemaking Guidelines.**

Neighbourhood 19: Wilson Meadows

Description

Neighbourhood Population Projection

Wilson Meadows	
2031 Population	15,000

- Is bound by a tributary of the Ganatsekiagon Creek to the west, the Seaton Natural Heritage System corridor separating Neighbourhoods 19 and 21 to the north, the Seaton Natural Heritage System corridor separating Neighbourhoods 16 and 19 to the south and a tributary of Urfe Creek to the east.
- Is the central most neighbourhood in the Seaton Urban Area.
- Is generally surrounded by the Seaton Natural Heritage System on all four sides of the neighbourhood.
- Is planned to have a broad range of land uses and densities, including commercial and mixed use, and a variety of residential and mixed use built-forms.
- Two new roads, Sideline 22 and the Whitevale By-pass will be the main spines running through the neighbourhood.
- The proposed Community Node on the Whitevale By-pass at Sideline 22 is planned to be the heart of the neighbourhood. The Community Node is to be a compact, walkable area, with a mix of commercial and residential uses. This node shall serve the day-to-day commercial needs of nearby residents.

City Policy
Wilson Meadows Neighbourhood Policies

12.21 City Council:

(a) shall, as per Section 11.2(b), establish two additional subcategories to those set out in Tables 2 and 9 in the Low Density Area subcategory as follows:

(i) Low Density Area Type 1 with:

(A) a full range of unit types within the permitted density range for Low Density Area as per Section 11.2, but consisting predominantly of single and semi-detached housing forms;

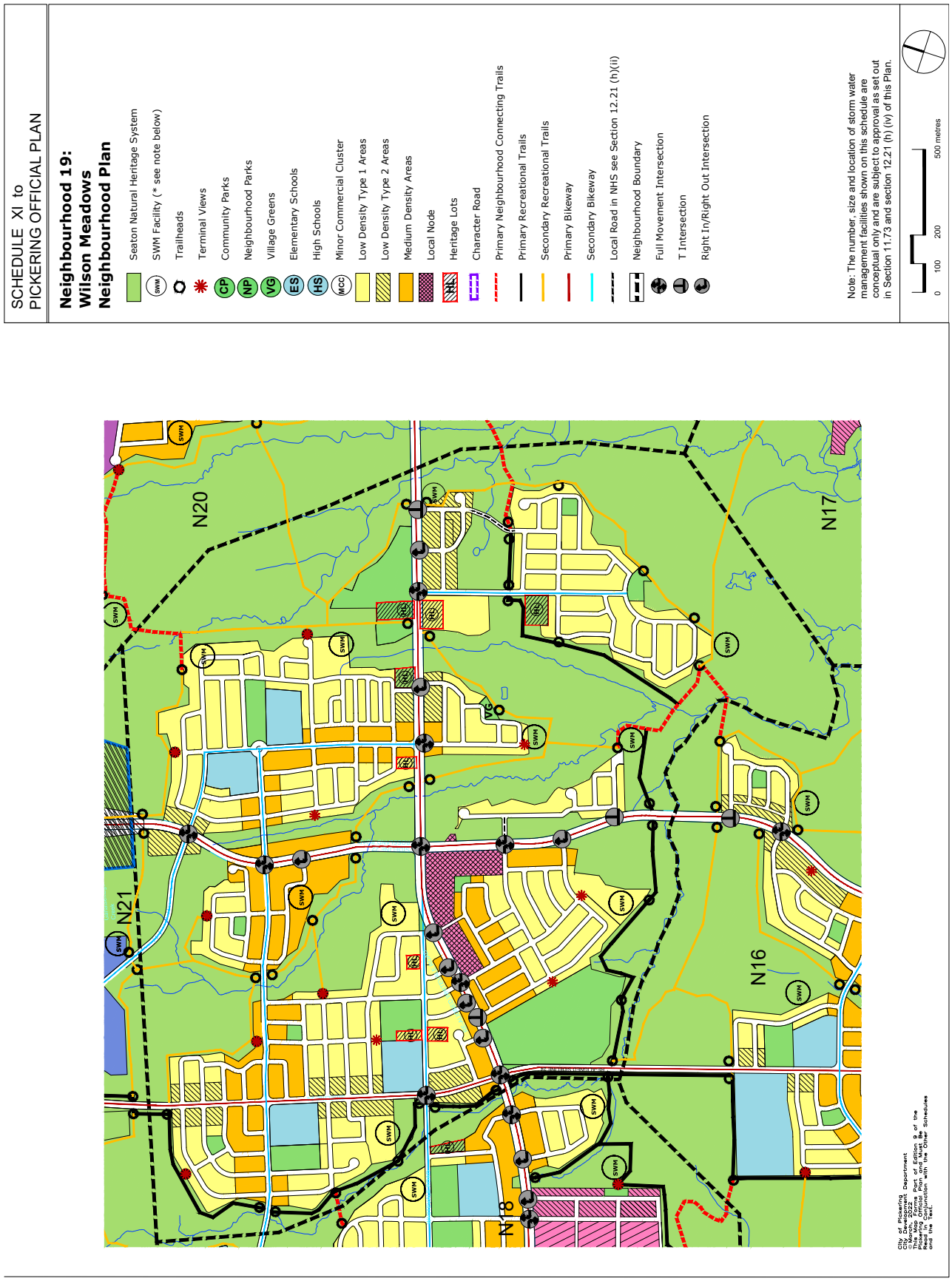
(ii) Low Density Area Type 2 with:

(A) a minimum density of 35 units per net hectare and a maximum density of up to and including 50 units per net hectare provided the overall density of lands within Low Density Area Type 1 and Type 2 designations combined, within each draft plan of subdivision, is no more than 40 units per net hectare; and

(B) single detached and semi-detached dwellings comprising no more than 50 percent of all unit types within the subcategory designation;

(b) shall provide greater direction on housing types within Medium Density Area designation by permitting single detached and semi-detached dwellings to comprise no more than 25 percent of all unit types within the designation;

Schedule XI - Neighbourhood 19: Wilson Meadows



(c) shall along existing Whitevale Road west of Sideline 22:

(i) require access to the eastern end of the road to be via a local road which connects south to the Whitevale By-pass;

(ii) permit an urban cross-section, but existing mature trees shall be maintained and protected where feasible;

(iii) permit and encourage houses to have direct access to the road; and

(iv) ensure other design matters in Section 11.66 are considered in the draft plans of subdivision;

(d) shall, along Type B Arterial Roads, as shown on Schedule II, not permit direct access to lots but will encourage the Region to allow for full movement intersections at the locations shown on Schedule XI - Neighbourhood 19: Wilson Meadows and allow for right-in/right-out intersections at a shorter intersection spacing in order to promote walkability and connectivity;

(e) shall along Type C Arterial Roads and may along Collector Roads require direct access to be minimized, due to traffic volumes and built forms, through a range of alternatives including rear lanes, slip lanes, shared drives, hybrid local roads, connector lanes or other means to limit direct access to individual lots. Where direct access is proposed, Council shall require applicants to demonstrate through appropriate transportation studies that direct access can be supported;

(f) shall establish a pedestrian and bicycle systems plan for the neighbourhood which is illustrated on Schedule XI - Neighbourhood 19: Wilson Meadows and consists of the road network, bikeways, trails and trailheads. Further detail on how pedestrians and cyclists will be accommodated in the road network shall be set out in the Sustainable Placemaking Guidelines;

(g) shall identify the location of significant built heritage resources on Schedule XI - Neighbourhood 19: Wilson Meadows with the notation "Heritage Lots" and shall require development adjacent to such Heritage Lots to address the policies of Sections 11.62, 11.63, and 11.64;

(h) recognizes that the locations of:

(i) local roads constructed through the Seaton Natural Heritage System will be subject to satisfying the Environmental Assessment process;

(ii) Type B Arterial Roads are currently the subject of an Environmental Assessment and the road alignments will be confirmed through that process which may require further refinements to Schedule XI - Neighbourhood 19: Wilson Meadows;

(iii) local roads, school sites, parks and village greens may be refined through the draft plans of subdivision without an amendment to this Plan provided the location, size and layout are consistent with the design intent shown on Schedule XI - Neighbourhood 19: Wilson Meadows and the policies of this Plan; and

(iv) the number, size and location of stormwater management facilities will be confirmed through the Neighbourhood Functional Servicing and Stormwater Report and may change without an amendment to this Plan;

(i) shall consider the provision of an urban square in the Community Node in Neighbourhood 19: Wilson Meadows in lieu of the provision of the village green shown on Schedule XI west of Sideline 22 and south of the Whitevale Road By-pass provided that the functions of a village green can be provided in the urban square including appropriate play structures. The precise location of the urban square, facility requirements and the timing of its provision shall be addressed in draft plan of subdivision conditions and agreements; and

(j) shall require applicants for draft plan of subdivision, rezoning or site plan approval to submit to the satisfaction of the City:

(i) a Sustainability Brief that demonstrates how the proposal ranks against the sustainable checklist in the Sustainable Placemaking Guidelines; and

(ii) a Design Brief that demonstrates how the proposal is consistent with the urban design components of the Sustainable Placemaking Guidelines.

Neighbourhood 20: Thompson's Corners

Description

Neighbourhood Population and Employment Projection

Thompson's Corners	
2031 Population	5,500
2031 Employment Lands	5,400

- Is bound by the Seaton Natural Heritage System to the west, including Urfe Creek, Sideline 16 and the Town of Ajax to the east, Highway 7, Hamlet of Brougham and Federal lands to the north and the Seaton Natural Heritage system to the south.
- Is the eastern most neighbourhood in the Seaton Urban Area.
- Is adjacent to the existing Hamlet of Brougham including the Brougham Pioneer Christian Cemetery.
- Is planned to have a broad range of uses and land use densities, including commercial, and a variety of residential built-forms with densities ranging from low density to mixed use.
- Brock Road, Whitevale Road and Highway 7 are the main spines running through the neighbourhood.
- Highway 407 ETR/Transitway bisects the prestige employment lands portion of the neighbourhood.
- The Community Node on Brock Road is planned to be the heart of the neighbourhood. The neighbourhood centre is a compact, walkable area, with a mix of commercial and residential uses. This central area shall serve the day-to-day commercial needs of nearby residents, and of travelers who pass through along Brock Road. The Community Node shall also connect the residential areas on the east and west sides of Brock Road and shall provide a transition from the prestige employment designation to the north.

City Policy
Thompson's Corners Neighbourhood Policies

12.22 City Council:

(a) shall, as per Section 11.2(b), establish and apply one of two additional subcategories (Low Density Area Type 1) to those set out in Tables 2 and 9 in the Low Density Area subcategory as follows:

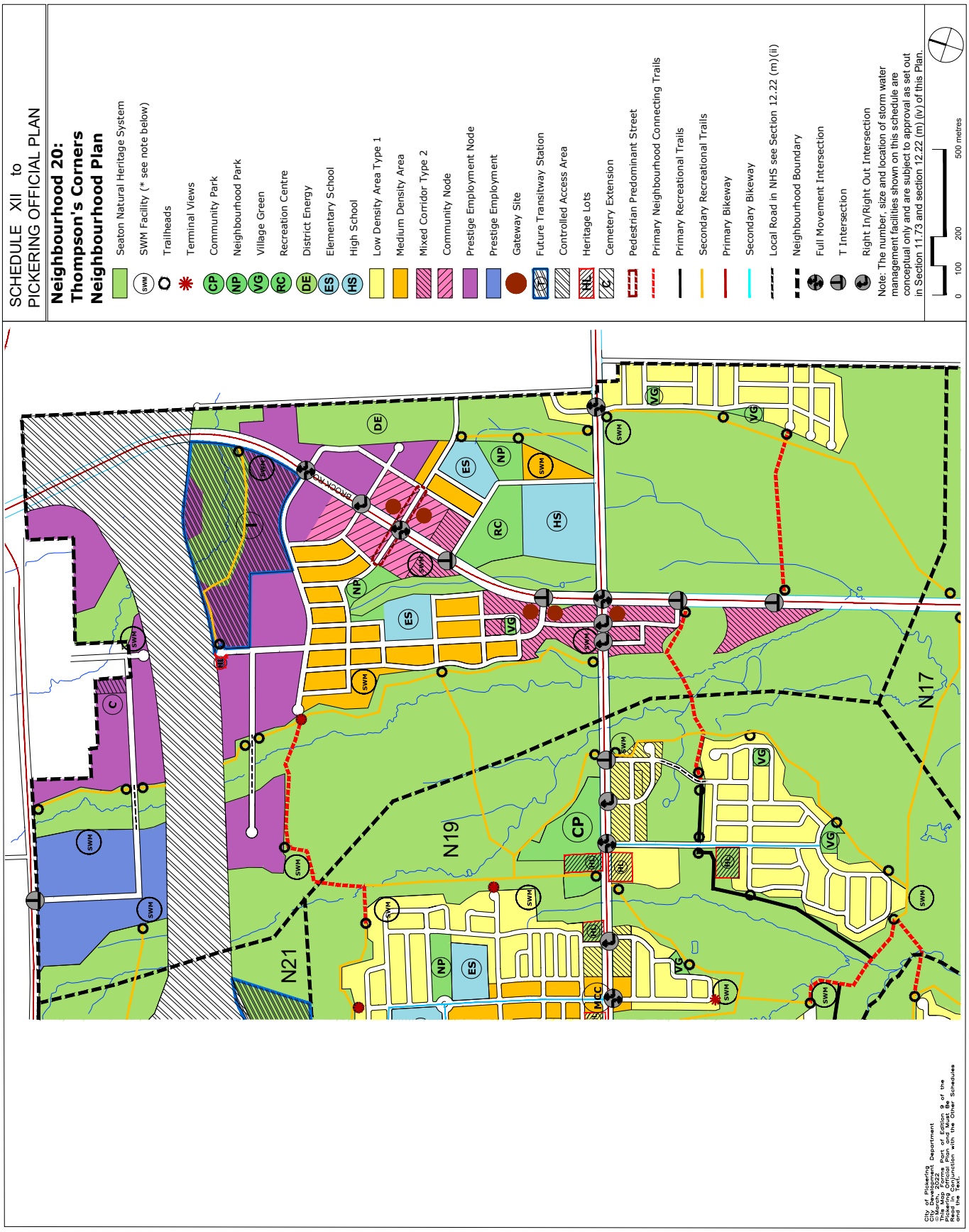
(i) Low Density Area Type 1 with:

(A) a full range of unit types within the permitted density range for Low Density Area as per Section 11.2, but consisting predominantly of single, semi-detached, and townhouse housing forms;

(b) shall provide greater direction on housing types within Medium Density Area designation by permitting single detached and semi-detached dwellings to comprise no more than 25 percent of all unit types within the designation;

(c) shall, as per Section 11.5, establish and apply one of two additional subcategories (Mixed Corridors Type 2) to those set out in Tables 2 and 6 in the Mixed Corridor subcategory as follows:

Schedule XII - Neighbourhood 20: Thompson's Corners



(i) Mixed Corridors Type 2 with a minimum density of 60 units per net hectare and a maximum density of 180 units per hectare provided that the overall density of the lands within Mixed Corridors Type 2, within each draft plan of subdivision, is no more than 140 units per net hectare;

(d) shall, as per Section 11.6, identify Gateway Sites within the Mixed Corridors Type 2 and Community Node, which shall:

(i) despite the underlying densities in Mixed Corridor Type 2 and Community Node, the minimum density of 170 units per hectare and maximum density of 250 units per hectare;

(ii) have the maximum height and density determined at the site plan approval stage after submission of appropriate massing and sun-shadow drawings to demonstrate compatibility with adjacent housing;

(iii) permit interim uses as per Section 11.8;

(iv) require applicants to submit a development concept and intensification plan illustrating interim and final plans to accommodate intensification over time and ultimate build-out, in accordance to Section 11.8; and

(v) require the size of Gateway sites to be determined at the draft plan stage;

(e) shall provide greater direction on employment uses and densities in the Prestige Employment designation by applying two subcategories to the Prestige Employment land use category set out in Tables 2 and 7 as follows:

(i) Prestige Employment General:

(A) in addition to the prohibited uses in Section 11.32, warehousing shall be prohibited except for warehousing accessory to a permitted use;

(ii) Prestige Employment Node:

(A) in addition to the prohibited uses in Section 11.32, warehousing, and light manufacturing, assembly and processing of goods shall be prohibited except in combination with a permitted use in the same building; and

(B) a minimum density of 2.0 FSI shall be required for freestanding office buildings which shall be directed to locations close to the interchanges within the Prestige Employment Node. However interim development of no less than 0.5 FSI may be permitted provided a development concept and intensification plan is submitted demonstrating how the property can be intensified including:

(1) the siting and orientation of buildings which do not preclude future intensification;

(2) the location of parking for the initial development and changes to parking to accommodate the intensification process; and

(3) the phasing of the intensification of the site to realize the ultimate built form;

(f) shall require appropriate transitional design, compatibility and buffering from the Prestige Employment designation to the Hamlet of Brougham and its existing character through the implementing draft plan of subdivision, zoning by-law and site plan approval. The implementing draft plan of subdivision shall also provide for adequate road and pedestrian connections between Brougham and the surrounding Prestige Employment lands;

(g) shall facilitate the long-term intensification of Highway 407 ETR/Transitway station located at Brock Road and Highway 407 ETR/Transitway based on the underlying land use of Prestige Employment Node;

(h) shall require the proponent prior to submission of draft plans of subdivision for development adjacent to the Brougham Pioneer Christian Cemetery to seek confirmation from the Brougham United Church to acquire additional lands in the area of the current cemetery, or not, as described in the CPDP;

(i) shall, along Type A and Type B Arterial Roads, as shown on Schedule II, not permit direct access to lots but will encourage the Region to allow for full movement intersections at the locations shown on Schedule XII Neighbourhood 20: Thompson's Corners and allow for right-in/right-out intersections at a shorter intersection spacing in order to promote walkability and connectivity;

(j) shall along Collector Roads require direct access to be minimized, due to traffic volumes and built forms, through a range of alternatives including rear lanes, slip lanes, shared drives, hybrid local roads, connector lanes or other means to limit direct access to individual lots. Where direct access is proposed, Council shall require applicants to demonstrate through appropriate transportation studies that direct access can be supported;

(k) shall establish a pedestrian and bicycle systems plan for the neighbourhood which is illustrated on Schedule XII - Neighbourhood 20: Thompson's Corners and consists of the road network, bikeways, trails and trailheads. Further detail on how cyclists will be accommodated in the road network shall be set out in the Sustainable Placemaking Guidelines;

(l) shall identify the location of existing Heritage Lots on Schedule XII - Neighbourhood 20: Thompson's Corners and require Heritage Lots to be integrated into the design of the surrounding employment area through appropriate landscaping and built form transition as per the polices set out in Sections 11.62, 11.63 and 11.64 where applicable;

(m) shall recognize that the locations of:

  (i) local roads constructed through the Seaton Natural Heritage System will be subject to satisfying the Environmental Assessment process;

  (ii) Type A and Type B Arterial Roads are currently the subject of an Environmental Assessment and the road alignments will be confirmed through that process which may require further refinements to Schedule XII - Neighbourhood 20: Thompson's Corners;

  (iii) local roads, school sites, parks and village greens may be refined though the draft plans of subdivision without an amendment to this Plan provided the location, size and layout are consistent with the design intent shown on Schedule XII - Neighbourhood 20: Thompson's Corners and the policies of this Plan;

(iv) **the number, size and location of stormwater management facilities will be confirmed through the Neighbourhood Functional Servicing and Stormwater Report and may change without an amendment to this Plan; and**

(v) **a district energy facility on Schedule XII - Neighbourhood 20: Thompson's Corners is conceptually shown and its location is to be determined by a feasibility study that demonstrates such a facility can be successfully operated and integrated into the community in consultation with the landowners and utility providers; and**

(n) **shall require applicants for draft plan of subdivision, rezoning or site plan approval to submit to the satisfaction of the City:**

(i) **a Sustainability Report that demonstrates how the proposal ranks against the sustainable checklist in the Sustainable Placemaking Guidelines; and**

(ii) **a Design Brief that demonstrates how the proposal is consistent with the urban design components of the Sustainable Placemaking Guidelines.**

This page intentionally left blank.

Neighbourhood 21: Pickering Innovation Corridor

Description

- Is bound by Duffins Creek to the west, the Federal lands (generally Highway 7) to the north, the Seaton Natural Heritage System east of Sideline 22 to the east, and the Seaton Natural Heritage System to the south.

Neighbourhood Employment Projection

Pickering Innovation Corridor	
2031 Employment Lands	13,400

- Is planned to contain a broad range of employment uses as well as Hamlet Heritage Open Space, adjacent to Green River.
- Highway 407 ETR/Transitway runs through the middle of the neighbourhood with two interchanges planned at Sideline 22 and Sideline 26.
- The two proposed transitway stations at Sideline 22 and Sideline 26 will be located south of Highway 407.

City Policy
Pickering Innovation Corridor
Neighbourhood Policies

12.23 City Council:

(a) shall provide greater direction on employment uses and densities in the Prestige Employment designation by applying two subcategories to the Prestige Employment land use category set out in Tables 2 and 7 as follows:

(i) Prestige Employment General:

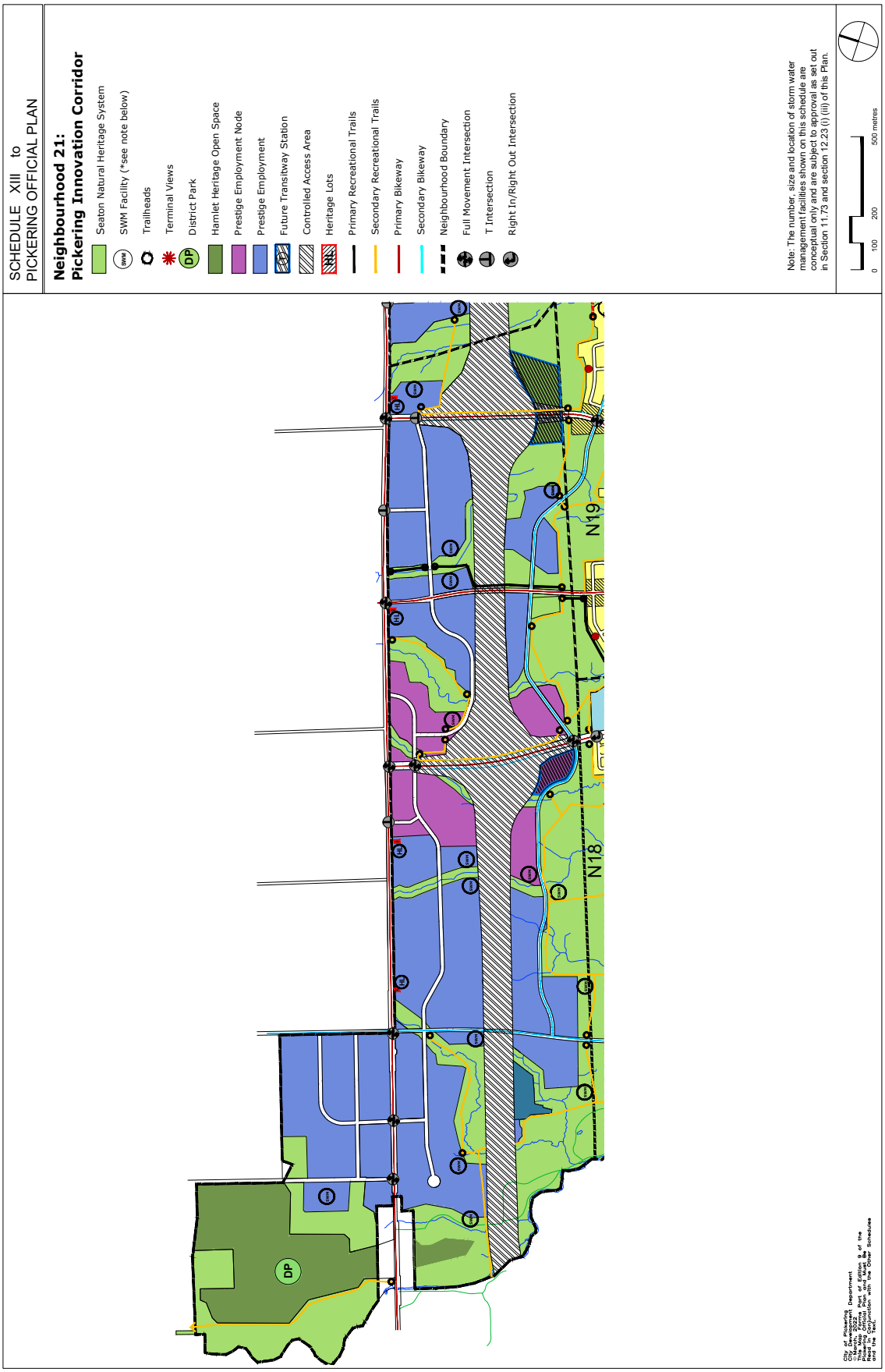
(A) in addition to the prohibited uses in Section 11.32, warehousing shall be prohibited except for warehousing accessory to a permitted use; and

(B) despite the prohibition of outdoor storage in Section 11.32(b), controlled outdoor storage may be permitted as an exception, on lands being as Part of Lots 23 and 24, Concession 5, now Part 1, 40R-29998 and Part of Part 7, 40R-25010, providing the outdoor storage is accessory and incidental to the principal permitted use being Kubota Canada Ltd.'s manufacturing/assembly plant; and further that limited outdoor display of finished equipment may be permitted;

(ii) Prestige Employment Node:

(A) in addition to the prohibited uses in Section 11.32, warehousing, light manufacturing, assembly and processing of goods shall be prohibited except in combination with a permitted use in the same building;

Schedule XIII - Neighbourhood 21: Pickering Innovation Corridor



(B) a minimum density of 2.0 FSI shall be required for freestanding office buildings which shall be directed to locations close to the interchanges within the Prestige Employment Node. However interim development of no less than 0.5 FSI may be permitted provided a development concept and intensification plan is submitted demonstrating how the property can be intensified including:

(1) the siting and orientation of buildings which do not preclude future intensification;

(2) the location of parking for the initial development and changes to parking to accommodate the intensification process; and

(3) the phasing of the intensification of the site to realize the ultimate built form;

(b) in addition to the uses as set out in Table 13, shall identify a District Park within the Hamlet Heritage Open Space designation north of Green River, and allow the use of the buffer within the adjacent Seaton Natural Heritage System for associated passive recreational uses. As per Section 11.17, adequate buffering and transition shall be incorporated into the design of the park adjacent to the existing residential homes along Highway 7 including directing lighting downwards and away from residential properties;

(c) shall facilitate the long-term intensification of future transitway stations located at Sideline 26 and Sideline 22 based on the underlying land use of Prestige Employment Node;

(d) shall require applicants for draft plan of subdivision approval to identify and reserve a location for a future fire station to the satisfaction of the fire chief generally along Highway 7 in the vicinity of the District Park;

(e) shall identify the location of existing Heritage Lots on Schedule XIII - Neighbourhood 21: Pickering Innovation Corridor and require Heritage Lots to be integrated into the design of the surrounding employment area through appropriate landscaping and built form transition as per the polices set out in Sections 11.62, 11.63 and 11.64 where applicable;

(f) shall cooperate with the Province and the Region of Durham to identify appropriate sites for a future regional works depot and transit depot outside of the Phase 1 Prestige Employment lands as identified in the Stage Servicing and Implementation Strategy;

(g) shall, along Type A and Type B Arterial Roads, as shown on Schedule II, generally discourage direct access to parcels but will encourage the Region to allow for full turning movement intersections at the locations shown on Schedule XIII - Neighbourhood 21: Pickering Innovation Corridor and allow for right-in/right-out intersections at a shorter intersection spacing in order to promote walkability and connectivity;

(h) shall establish a pedestrian and bicycle systems plan for the neighbourhood which is illustrated on Schedule XIII - Neighbourhood 21: Pickering Innovation Corridor and consists of the road network, bikeways, trails and trailheads. Further detail on how cyclists will be accommodated in the road network shall be set out in the Sustainable Placemaking Guidelines;

(i) recognizes that the locations of:

(i) Type A and Type B Arterial Roads are currently the subject of an Environmental Assessment and the road alignments will be confirmed through that process which may require further refinements to Schedule XIII - Neighbourhood 21: Pickering Innovation Corridor;

(ii) local roads may be refined through the draft plans of subdivision without an amendment to this Plan provided the location, size and layout are consistent with the design intent shown on Schedule XIII - Neighbourhood 21: Pickering Innovation Corridor and the policies of this Plan; and

(iii) the number, size and location of stormwater management facilities will be confirmed though the Neighbourhood Functional Servicing and Stormwater Report and may change without an amendment to this Plan; and

(j) shall require applicants for draft plan of subdivision, rezoning or site plan approval to submit to the satisfaction of the City:

(i) a Sustainability Report that demonstrates how the proposal ranks against the sustainable checklist in the Sustainable Placemaking Guidelines; and

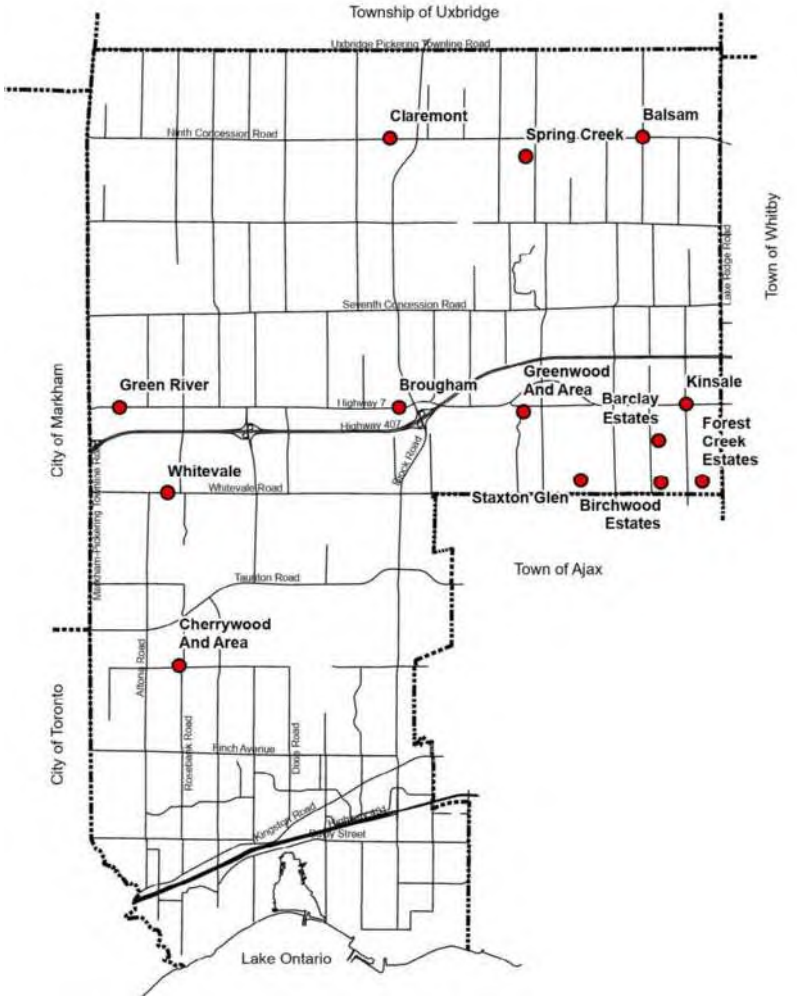
(ii) a Design Brief that demonstrates how the proposal is consistent with the urban design components of the Sustainable Placemaking Guidelines.

This page intentionally left blank.

Chapter 13 - Rural Settlements

Thirteen rural settlement areas have been identified in Pickering. Rural Settlement Plans for each settlement are included in this Chapter. Settlement population forecasts (to the year 2031) and supplementary policies for each of the rural settlements are provided. Schedules IV-1 to IV-13 contained in this Chapter designate the settlement boundaries and land uses. The Schedules also indicate the following:

- the location of existing roads, as well as the general location of existing community, cultural and recreational facilities, such as schools, parks, libraries, community centres, cemeteries and places of worship
- lot lines for reference
- possible new community facility locations, as well as proposed new road connections



Rural Settlements

1. **Cherrywood and Area**
2. **Whitevale**
3. **Green River**
4. **Brougham**
5. **Greenwood and Area**
6. **Staxton Glen**
7. **Birchwood Estates**
8. **Barclay Estates**
9. **Kinsale**
10. **Claremont**
11. **Spring Creek**
12. **Balsam**
13. **Forest Creek Estates**

General Information

City Policy
Updating or Amending Rural
Settlement Plans

13.1 In updating or amending rural settlement plans, City Council shall:

(a) involve residents, business-people, landowners, relevant public agencies, and other interested groups and individuals;

(b) amend the settlement boundary only where the necessary permissions have been granted by the Province of Ontario and the Region of Durham, and consider land uses changes within that boundary shown on Schedules IV-1 to IV-13 in accordance with the description and permissible uses set out in Table 16, and the provisions of the Durham Regional Official Plan;

(c) indicate the location of new public road connections, where known, and endeavour to ensure the construction of such road connections through development proposals and government initiatives;

(d) indicate the general location of existing and new community facilities, where known, and endeavour to ensure the construction of such facilities through development proposals and government initiatives; and

(e) in addition to subsection (b), only consider amendments to rural settlement area boundaries that would result in an expansion into the York-Durham WHPA Q1/Q2 as part of a Regional municipal comprehensive review, where it has been demonstrated that recharge functions will be maintained on lands identified as Significant Groundwater Recharge Areas on Schedule IIID – Resource Management: Highly Vulnerable Aquifers, Significant Groundwater Recharge Areas.

City Policy
Rural Settlements

13.2 For development in Rural Settlements, City Council shall:

(a) require development to occur along existing roads, and along new roads introduced in locations identified either on the rural settlement maps or through the review of development proposals;

(b) in order to guide the preservation, cultural attributes and historic heritage of the community, encourage and where possible require, the scale, character and relationships of new development (including lots, buildings, structures, roads, services and utilities) to be compatible with scale, character and relationships of existing development, considering features such as the size and shape of lots, lot coverage, building heights, building setbacks, building floor area, building material and design, road widths, street patterns and vegetation, and views and vistas of the countryside;

(c) encourage new development to enhance the range of housing choice in the settlement and to be innovative in relation to compact form, water usage and sewage disposal;

(d) require all new development, whether on individual or communal water and sanitary services, to be based on appropriate technical review to ensure the adequate provision of services, protection of the natural environment, the protection of nearby property owners, and compliance with Provincial and Regional standards;

(e) protect for road connections to adjacent lands; and

(f) require that the provisions of the Durham Regional Official Plan with regard to matters to be considered in term of the delineation of the hamlet boundary and the details of the permitted land uses, be complied with."

City Policy
Table 16: Rural Settlement Plans:
Permissible Uses by Land Use Categories

Table 16	
Category	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
Hamlet Residential	**Residential uses, home occupations;** **Community, cultural and recreational uses including community gardens and farmers' markets;** **Limited retail, office, business, personal service and employment uses.**
Cluster Residential	**Residential uses, home occupations;** **Community, cultural and recreational uses including community gardens.**
Country Residential	**Residential uses, home occupations;** **Community gardens.**
Hamlet Commercial	**Retail, office, business, personal service and employment uses;** **Residential uses, home occupations;** **Community, cultural and recreational uses including community gardens and farmers' markets.**
Hamlet Employment	**Manufacturing, assembly, processing of goods, service industries, research and development facilities, warehousing, storage of goods and materials;** **Offices, limited retailing associated with an industrial operation;** **Automotive uses;** **Existing residential uses, home occupations.**
Open Space System - Natural Areas	**Conservation, environmental protection, restoration, education, passive recreation and similar uses, subject to the provisions of Durham Regional Official Plan related to non-agricultural uses, and provided that development or site alteration is only permitted in key natural heritage and/or key hydrologic features for the following purposes:** **(i) forest, fish and wildlife management;** **(ii) conservation and flood and erosion control and other similar environmental protection and restoration projects demonstrated to be necessary in the public interest and after all alternatives have been considered; and,** **(iii) minor recreational and education uses such as non-motorized trails, footbridges and picnic facilities;**

Table 16	
Category	**Permissible Uses (Restrictions and limitations on the uses permissible, arising from other policies of this Plan, will be detailed in zoning by-laws.)**
	Existing lawful agricultural uses, agriculture-related uses, and on-farm diversified uses and new agricultural uses, agriculture-related uses and on-farm diversified uses outside key natural heritage and/or key hydrologic features; **Existing lawful residential dwellings; a new residential dwelling on a vacant lot;** **Community gardens outside key natural heritage and/or key hydrologic features and their associated minimum vegetation protection zones;** **Existing, expanded or new infrastructure subject to and approved under the *Canadian Environmental Assessment Act*, the *Environmental Assessment Act*, the *Planning Act*, the *Aggregate Resources Act*, the *Telecommunications Act* or by the National or Ontario Energy Boards, or which receives similar environmental approval and provided where such infrastructure is proposed to be located in the:** • **the Open Space System – Natural Areas designation within the Greenbelt Plan Area, it meets the requirements of the Greenbelt Plan and the provisions of Durham Regional Official Plan related to non-agricultural uses; and** • **the Open Space System – Natural Areas designation within the Duffins-Rouge Agricultural Preserve Area, it meets the requirements of the Central Pickering Development Plan;** **Stormwater management facilities and related works outside key natural heritage and/or key hydrologic features and their associated minimum vegetation protection zones, except for outfalls and related Low Impact Development works which are permitted in key natural heritage and/or key hydrologic features, subject to the provisions of Durham Regional Official Plan related to non-agricultural uses.**
Open Space - Active Recreational Areas	**All uses permissible in Open Space System - Natural Area;** **Active recreational, community and cultural uses, and other related uses including community gardens and farmers' markets.**

Settlement 1: Cherrywood and Area

Description

- Comprises three distinct areas along the Third Concession Road: the Hamlet of Cherrywood at Rosebank Road, a larger Cherrywood West Cluster on the west side of Altona Road, and a small Cherrywood East Cluster east of Whites Road; all within the Duffins-Rouge Agricultural Preserve
- Small tributaries of Petticoat Creek run through Cherrywood and Cherrywood West; a locally important marshy area is located in Cherrywood
- Cherrywood was settled in the early 1800s; evidence of the blacksmith's shop still remains at the southwest corner of the Third Concession Road and Rosebank Road, and is a designated heritage property; the former place of worship, on the north side of the Third Concession Road west of Rosebank Road, is made of bricks from the original brick yard; Cherrywood West and East are newer subdivisions developed in the 1950s and 1960s
- In Cherrywood, the former place of worship is now used as a residential dwelling; a school building has been converted to a place of worship; a tot lot exists in Cherrywood West

Settlement Population Projection

Cherrywood*	
2015 Population	55
2031 Population	60

Cherrywood West*	
2015 Population	225
2031 Population	210

Cherrywood East*	
2015 Population	70
2031 Population	65

*Note: population projection reflects aging population and reduced persons per unit count

City Policy
Cherrywood and Area Settlement Policies

13.3 City Council shall:

(a) encourage opportunities for enhancing the historic village of Cherrywood through general or site specific zoning that allows the introduction of arts and craft studios, custom workshops and small-scale commercial enterprises on suitable sites, providing the historic character of the village and the interests of neighbouring residents are respected;

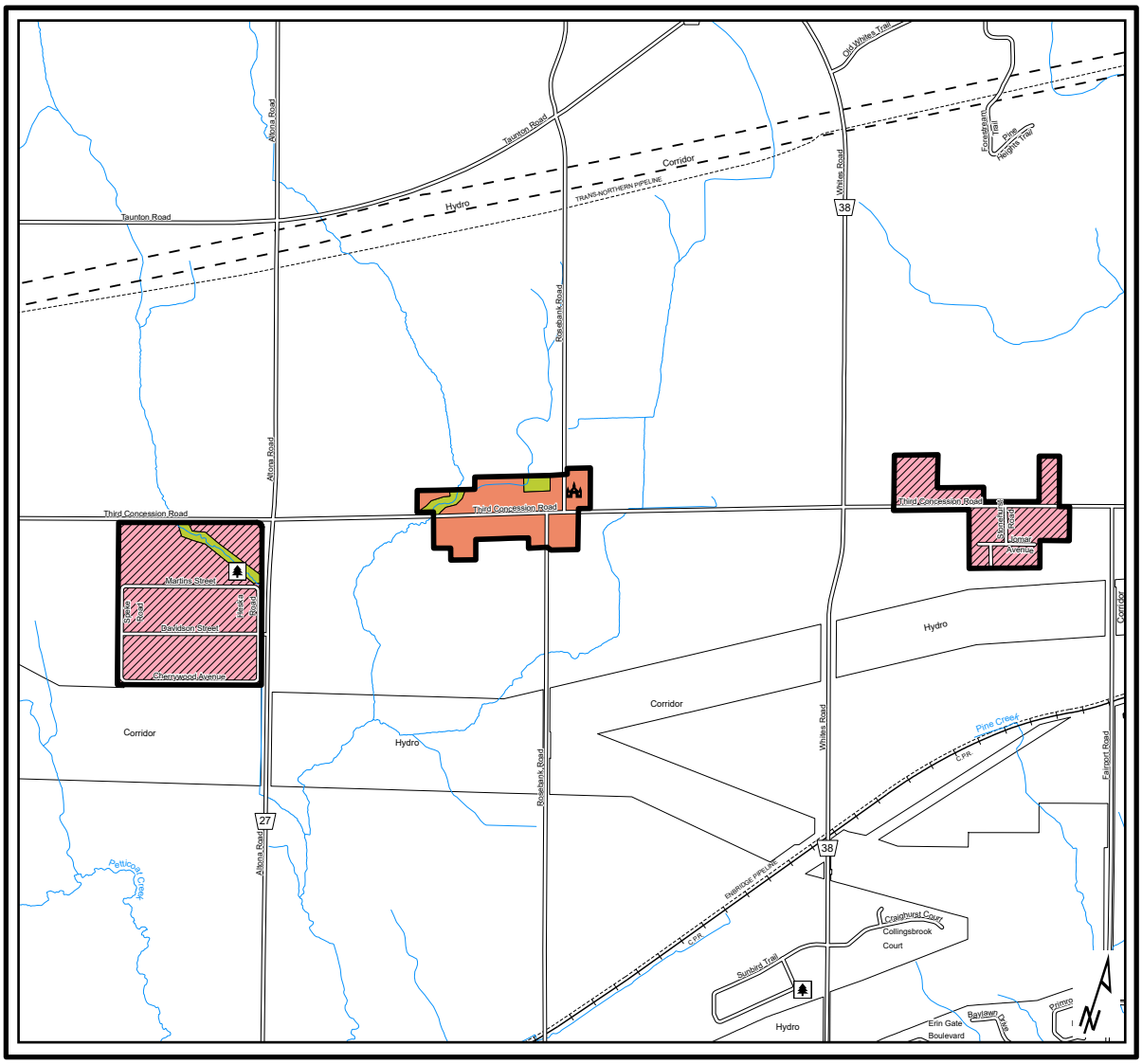
(b) endeavour to ensure that development on lands containing or adjacent to the locally important marshy area, where possible, enhances the wetland functions, and to this end, shall require any zoning amendment application on such lands to be accompanied by an Environmental Report as outlined in Section 16.10 of this Plan;

Settlement Population Projection

Cherrywood and Area*	
2015 Population	350
2031 Population	335

*Note: population projection reflects aging population and reduced persons per unit count

Schedule IV - 1: Settlement 1: Cherrywood and Area



Legend Symbols

- Hamlet Residential
- Cluster Residential
- Open Space System - Natural Areas
- Rural Settlement Boundary
- Park
- Place Of Worship

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(c) as a high priority, prepare a traffic-calming implementation plan for Cherrywood in consultation with the village residents, and the Region of Durham where necessary, and undertake a staged program of traffic calming measures in keeping with the intended function of the roads; and

(d) require development within the Hamlet of Cherrywood and the Cherrywood West and East Clusters to be consistent with the goals, objectives and policies of the Central Pickering Development Plan.

This page intentionally left blank.

Settlement 2: Whitevale

Description

- Located in the valley of the West Duffins Creek along Whitevale Road; lands to the west of the creek are adjacent to the Duffins-Rouge Agricultural Preserve; lands to the east of the creek are adjacent to the Seaton Urban Area
- Includes open space and environmentally significant areas associated with the valley of the West Duffins Creek
- Originally planned in the 1820s as "Majorville"; development flourished as an industrial mill village during 1850s to 1870s; exhibits 19th century village characteristics including small scale streets in a rectilinear pattern and modest wood frame houses; a Heritage Conservation District has been designated including most lands within the settlement boundary and surrounding rural lands to the east along Whitevale Road

Settlement Population Projection

Whitevale*	
2015 Population	225
2031 Population	220

*Note: population projection reflects aging population and reduced persons per unit count

- Existing businesses include a craft shop, an interior design centre, and offices; existing community facilities include a community centre, a park, a place of worship, and an arts and culture centre; the Seaton Hiking Trail follows the creek valley to both the north and the south
- The old mill pond, located north of the Hamlet, is now a regionally-significant wetland; former mill buildings remain along Whitevale Road

City Policy
Whitevale Settlement Policies

13.4 City Council shall:

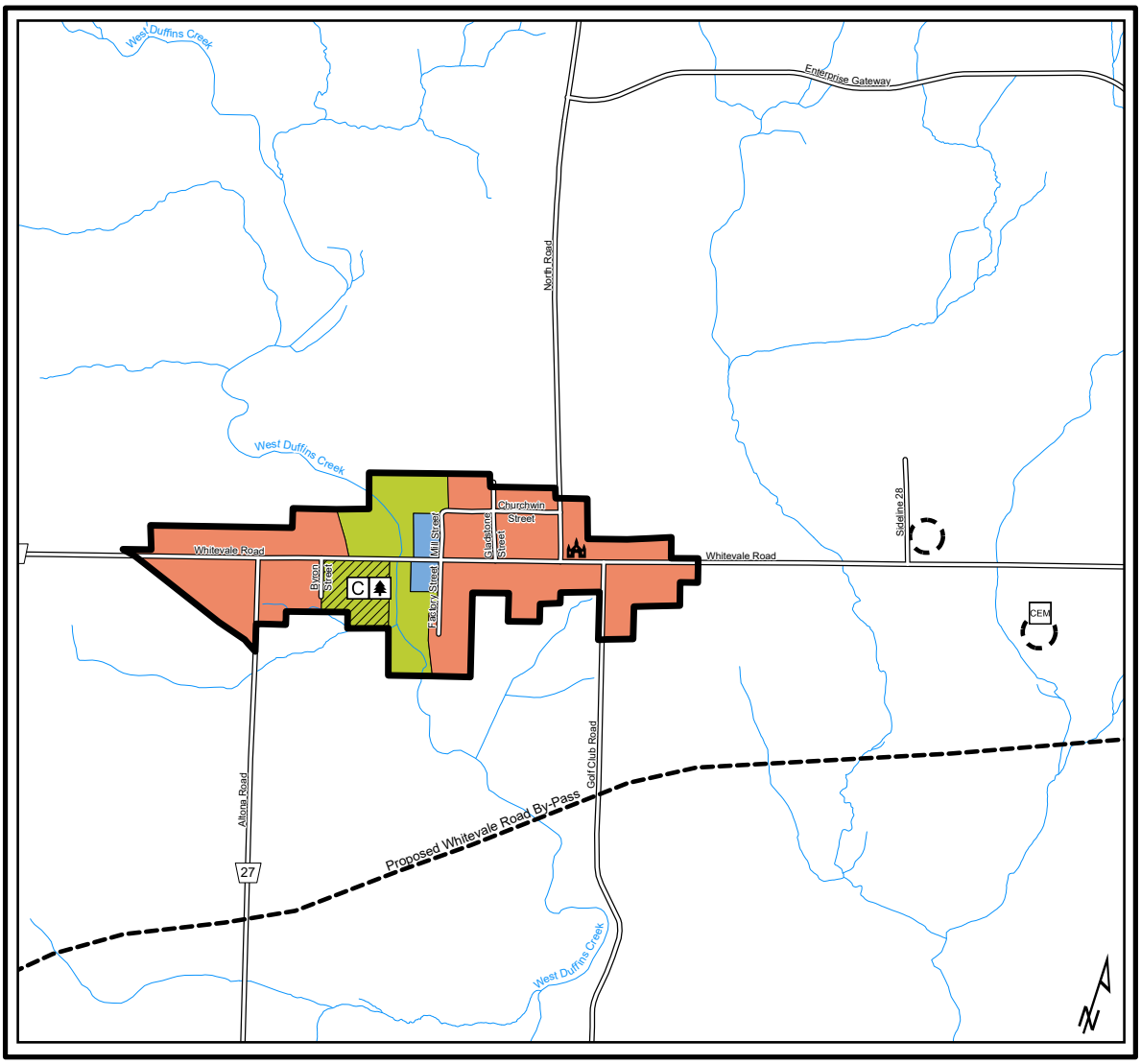
(a) encourage opportunities for enhancing the historic village of Whitevale through general or site-specific zoning that allows the introduction of arts and craft studios, custom workshops and small-scale commercial enterprises on suitable sites, providing the historic character of the village and the interests of neighbouring residents are respected;

(b) endeavour to ensure that development within the Whitevale Heritage Conservation District complies with the adopted heritage district guidelines and heritage district permit process;

(c) recognize the former school house and cemetery as two locally significant properties east of the village by identifying them as Special Interest Sites on Schedule IV-2;

(d) as a high priority, prepare a traffic-calming implementation plan for Whitevale in consultation with the village residents, and the Region of Durham where necessary, and undertake a staged program of traffic calming measures in keeping with the intended function of the roads;

Schedule IV - 2: Settlement 2: Whitevale



Legend Symbols

- Hamlet Residential
- Hamlet Commercial
- Open Space System - Recreational Areas
- Open Space System - Natural Areas
- Rural Settlement Boundary
- Special Interest Sites
- C — Community Centre
- Park
- Place Of Worship
- CEM — Cemetery

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(e) request the Region of Durham to construct an arterial by-pass to the south of Whitevale, and to realign the road to connect to 14th Avenue in the City of Markham;

(f) consider the sale of the unopened Centre Street road allowance for uses in accordance with the designation on Schedule IV-2; and

(g) require development within the Hamlet of Whitevale to be consistent with the goals, objectives and policies of the Central Pickering Development Plan.

This page intentionally left blank.

Settlement 3: Green River

Description

- Located along Highway 7 at the West Duffins Creek; lands to the west of the creek are adjacent to the Duffins-Rouge Agricultural Preserve; lands generally to the north and east of the creek are adjacent to Seaton Urban Area; further north and east are Federally-owned lands acquired in the 1970s as a site for a proposed airport
- Includes significant open space lands associated with the West Duffins Creek and a tributary of this Creek
- Settled in 1840s and known then as “Smithville” after the owner of the mill; by the late 1880s, it was a busy village with community facilities
- Existing businesses in the Hamlet include a book and hobby shop, and a contractor/heavy equipment storage yard; the former place of worship is now a community centre
- The Seaton Hiking Trail follows the West Duffins Creek tributary from the south side of Highway 7

Settlement Population Projection

Green River*	
2015 Population	110
2031 Population	110

*Note: population projection reflects aging population and reduced persons per unit count

City Policy
Green River Settlement Policies

13.5 City Council shall:

(a) encourage opportunities for enhancing the historic village of Green River through general or site-specific zoning that allows the introduction of arts and craft studios, custom workshops and small-scale commercial enterprises on suitable sites, providing the historic character of the village and the interests of neighbouring residents are respected;

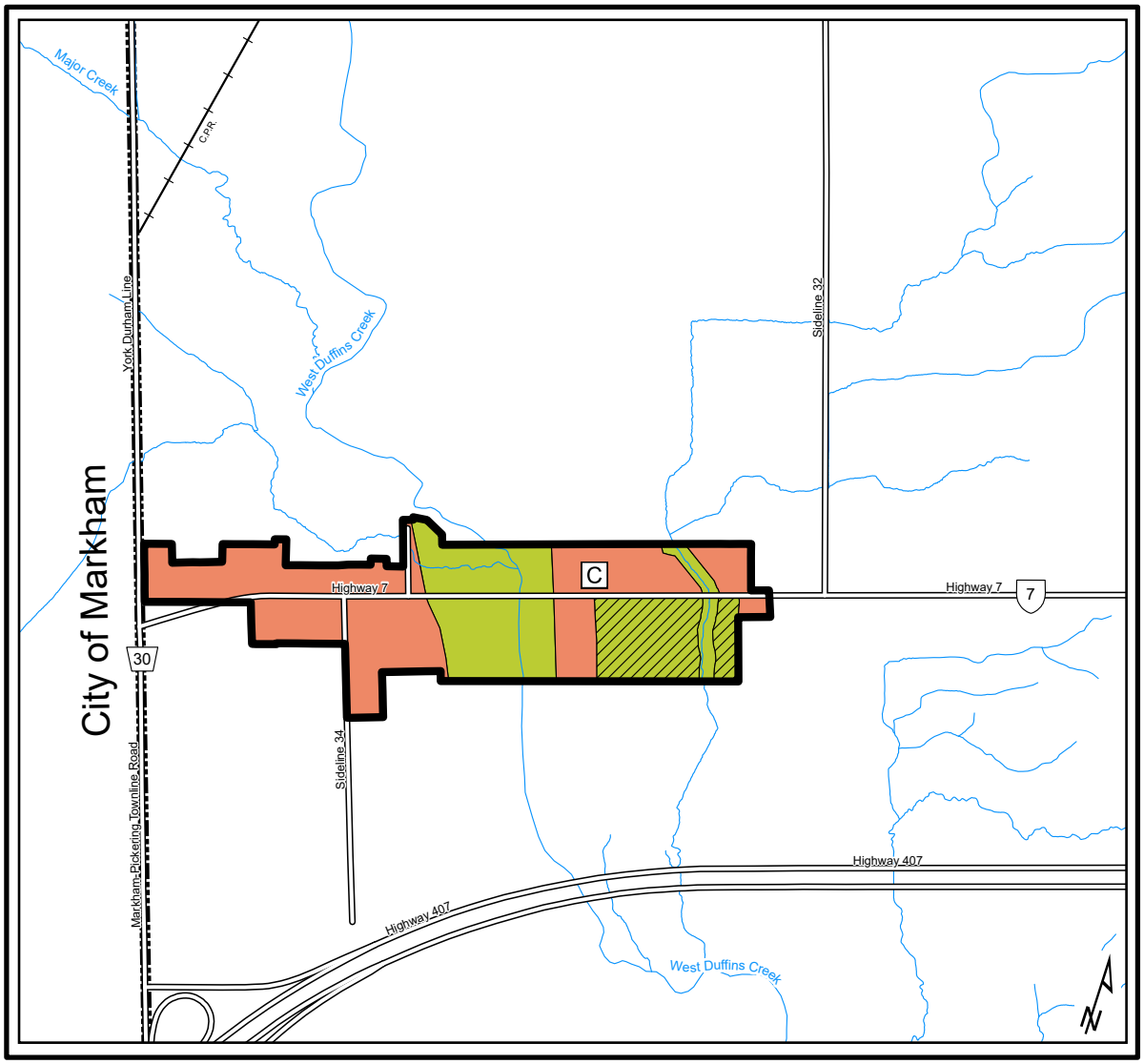
(b) encourage the Province, in cooperation with the City and the conservation authority, to develop the lands designated Open Space System - Active Recreational Areas as a recreational node, providing recreational uses and facilities that are compatible with and complement the Seaton Hiking Trail;

(c) in establishing the recreational node, encourage a site design and architectural treatment that provides a prominent focal point readily visible from Highway 7 to help signify the arrival into Green River;

(d) request the authority having jurisdiction over Highway 7 to examine measures to reduce impacts through Green River; and

(e) require development within the Hamlet of Green River to be consistent with the goals, objectives and policies of the Central Pickering Development Plan.

Schedule IV - 3: Settlement 3: Green River



Legend Symbols

- Hamlet Residential
- Open Space System - Recreational Areas
- Open Space System - Natural Areas
- Municipal Boundary
- Rural Settlement Boundary
- C — Community Centre

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Settlement 4: Brougham

Description

- Located around the intersection of Brock Road and Highway 7; most lands within and north of Brougham are part of the Federally-owned lands acquired in the 1970s as a site for a proposed airport
- Urfe Creek, Brougham Creek and Spring Creek traverse Brougham
- Settled in the early 1800s as “Bentleys Corners”; later renamed Brougham; the “Bentley House” at the southwest corner of Brock Road and Highway 7 was designated as a Recognized Federal Heritage Building in 1992
- Brougham exhibits a rectilinear street pattern, clustered development around the intersection, and predominantly brick construction

Settlement Population Projection

Brougham*	
2015 Population	105
2031 Population	95

*Note: population projection reflects aging population and reduced persons per unit count

- Past development includes a fairground, hotels, and the Township offices; today, it continues to maintain a small commercial core and businesses along Highway 7 including a hardware store, furniture finishing and antique store, and business offices
- Existing community services and facilities include an animal shelter, a park, a community centre, a place of worship and a cemetery
- Many of the original dwellings have been demolished

City Policy
Brougham Settlement Policies

13.6 City Council shall:

(a) encourage opportunities for enhancing the historic village of Brougham through general or site specific zoning that allows the introduction of arts and craft studios, custom workshops and small-scale commercial enterprises on suitable sites, providing the historic character of the village and the interests of neighbouring residents are respected;

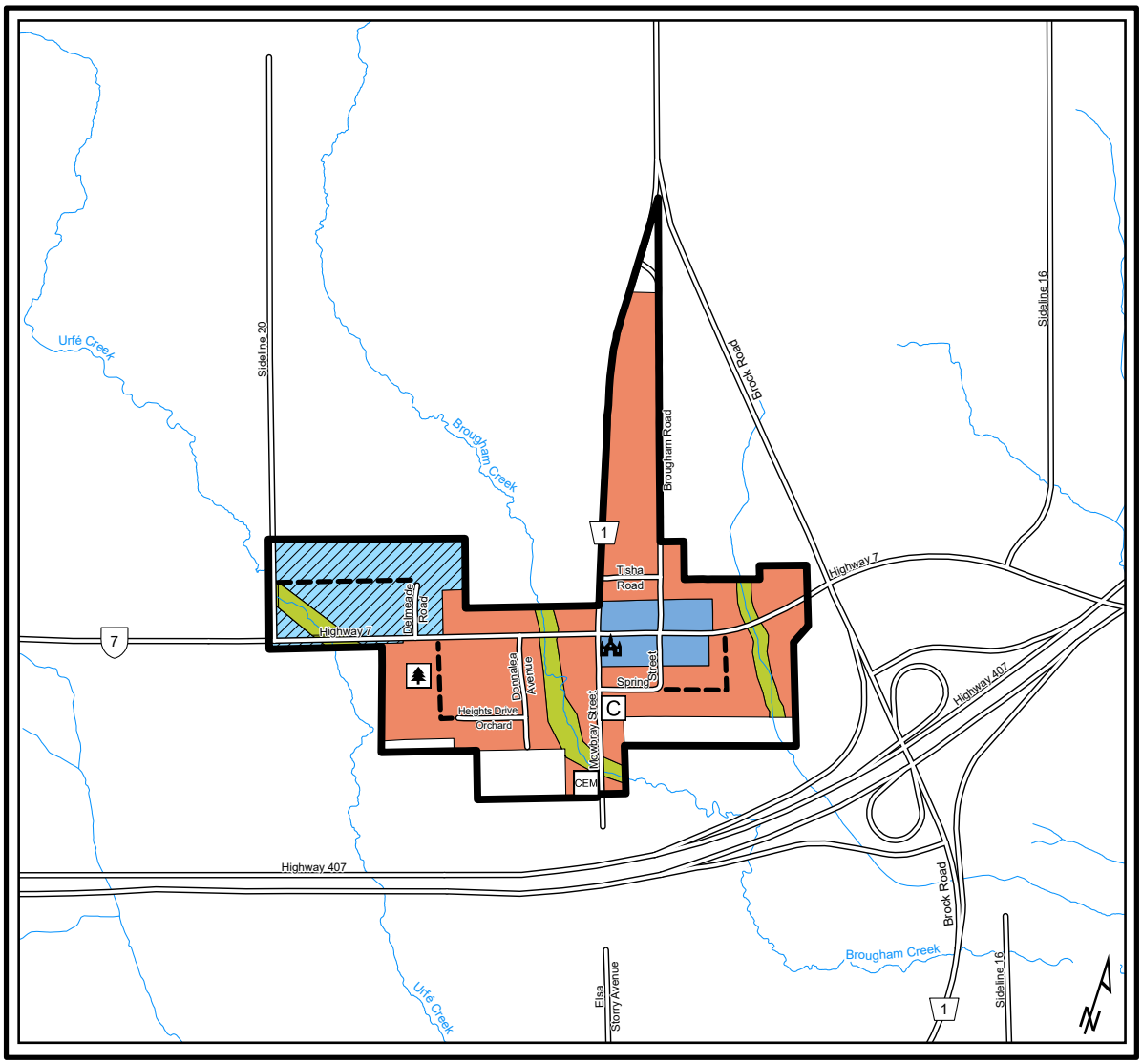
(b) encourage retail, shopping, office and other business uses, with the exception of automobile sales and service, to continue to locate in the commercial core;

(c) in accordance with Section 16.38 of this Plan, permit the expansion of the existing cemetery on the west side of Brock Road;

(d) request the Region of Durham and the authority having jurisdiction over Highway 7 to examine measures to reduce impacts through Brougham; and

(e) encourage the appropriate and timely disposition of Federally and Provincially-owned lands within the rural settlement boundary.

Schedule IV - 4: Settlement 4: Brougham



Legend Symbols

- Hamlet Residential
- Hamlet Commercial
- Hamlet Employment
- Open Space System - Natural Areas
- Rural Settlement Boundary
- New Road Connections (Proposed)
- C — Community Centre
- Park
- Place Of Worship
- CEM — Cemetery

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Settlement 5: Greenwood and Area

Description

- Comprises two adjoining areas of settlement on a drumlin: the Hamlet of Greenwood located along the Sixth Concession Road generally between the East Duffins Creek and Westney Road; and the Greenwood Cluster, located along Greenwood Road
- Originally known as "Norwood", the settlement developed around mills operating from the early 1840s; the last remaining saw mill closed in the 1930s; just east of the settlement boundary lies a designated heritage property (the "Phillips" residence)
- Development of the cluster along Greenwood Road occurred primarily in the 1960s and 1970s; during the 1980s, new residential development on large lots occurred in the village on Trimble's Lane and on the east side of Westney Road
- Businesses in the Hamlet today include an antique shop, a pottery studio, and the office of a chiropractor
- Community services and facilities in the settlement include an elementary school, a community centre, a park, a library, a place of worship and the Pickering Museum Village
- A by-pass for Westney Road is proposed east of the settlement

Settlement Population Projection

Greenwood*	
2015 Population	225
2031 Population	210

Greenwood Cluster*	
2015 Population	95
2031 Population	90

Greenwood and Area*	
2015 Population	320
2031 Population	300

*Note: population projection reflects aging population and reduced persons per unit count

City Policy
Greenwood and Area Settlement Policies

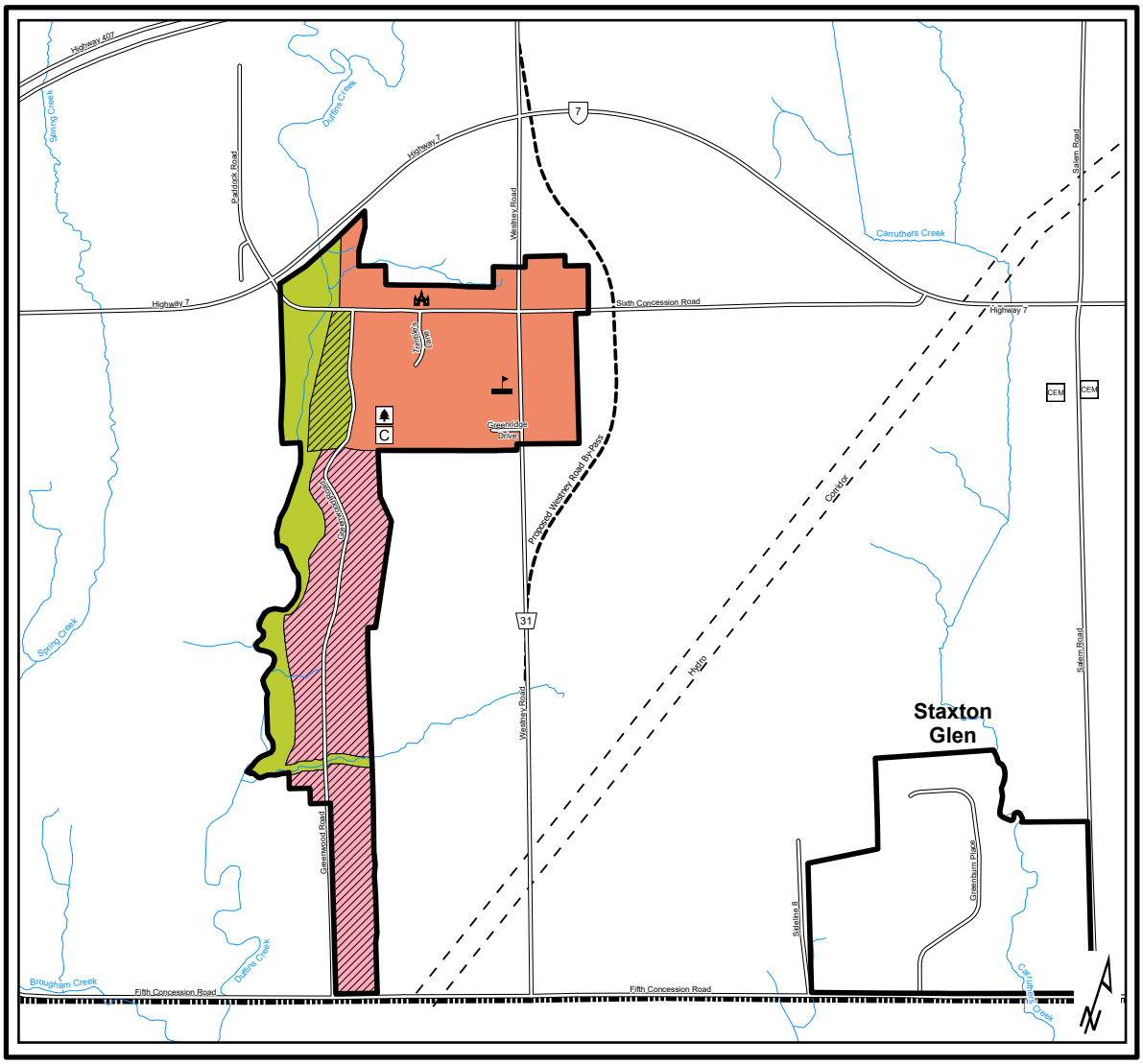
13.7 City Council:

(a) shall encourage opportunities for enhancing the historic village of Greenwood through general or site specific zoning that allows the introduction of arts and craft studios, custom workshops and small-scale commercial enterprises on suitable sites, providing the historic character of the village and the interests of neighbouring residents are respected;

(b) shall encourage the establishment of uses and activities in Greenwood which complement the recreational, cultural and educational opportunities offered by the Pickering Museum Village;

(c) shall, as a high priority, prepare a traffic-calming implementation plan for Greenwood in consultation with the village residents, and the Region of Durham where necessary, and continue to implement appropriate traffic calming measures in keeping with the intended function of the roads;

Schedule IV - 5: Settlement 5: Greenwood and Area



Legend Symbols

- Hamlet Residential
- Cluster Residential
- Open Space System - Recreational Areas
- Open Space System - Natural Areas
- Municipal Boundary
- Rural Settlement Boundary
- New Road Connections (Proposed)
- Public Elementary School
- C — Community Centre
- Park
- Place Of Worship
- CEM — Cemetery

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(d) in accordance with Section 2.27, may consider a minor expansion of the settlement boundaries of the Hamlet of Greenwood after completion of a Rural Study in accordance with Sections 2.27 and 3.19, and the provisions of the Durham Regional Official Plan, and having consideration of the following,

- **(i) the unique opportunities and constraints created by the drumlin upon which Greenwood sits;**
- **(ii) the Westney Road By-pass as the maximum possible eastern limit to the Hamlet; and**
- **(iii) the Highway 7 By-pass as the maximum possible northern limit to the Hamlet; and**

(e) encourage any design for the Westney Road By-pass to have particular regard for the unique topographic qualities created by the drumlin upon which Greenwood sits and the potential visual intrusion of the proposed road.

This page intentionally left blank.

Settlement 6: Staxton Glen

Description

- Located on the north side of the Fifth Concession Road, between Salem Road and Sideline 8
- Original phase, consisting of 30 residential lots, is located on Greenburn Place, and was established as a "country residential" subdivision in the mid-1980s
- Development rehabilitated a former gravel pit, and included an open space associated with a tributary of Carruther's Creek and a pond retained as a private recreational feature

Settlement Population Projection

Staxton Glen*	
2015 Population	95
2031 Population	120

*Note: population projection reflects aging population and reduced persons per unit count

- Second phase, east of Carruther's Creek, received subdivision and zoning approval in 2008 for 8 residential lots
- Only residential uses within the settlement; no stores, community or cultural facilities

City Policy
Staxton Glen Settlement Policies

13.8 City Council shall:

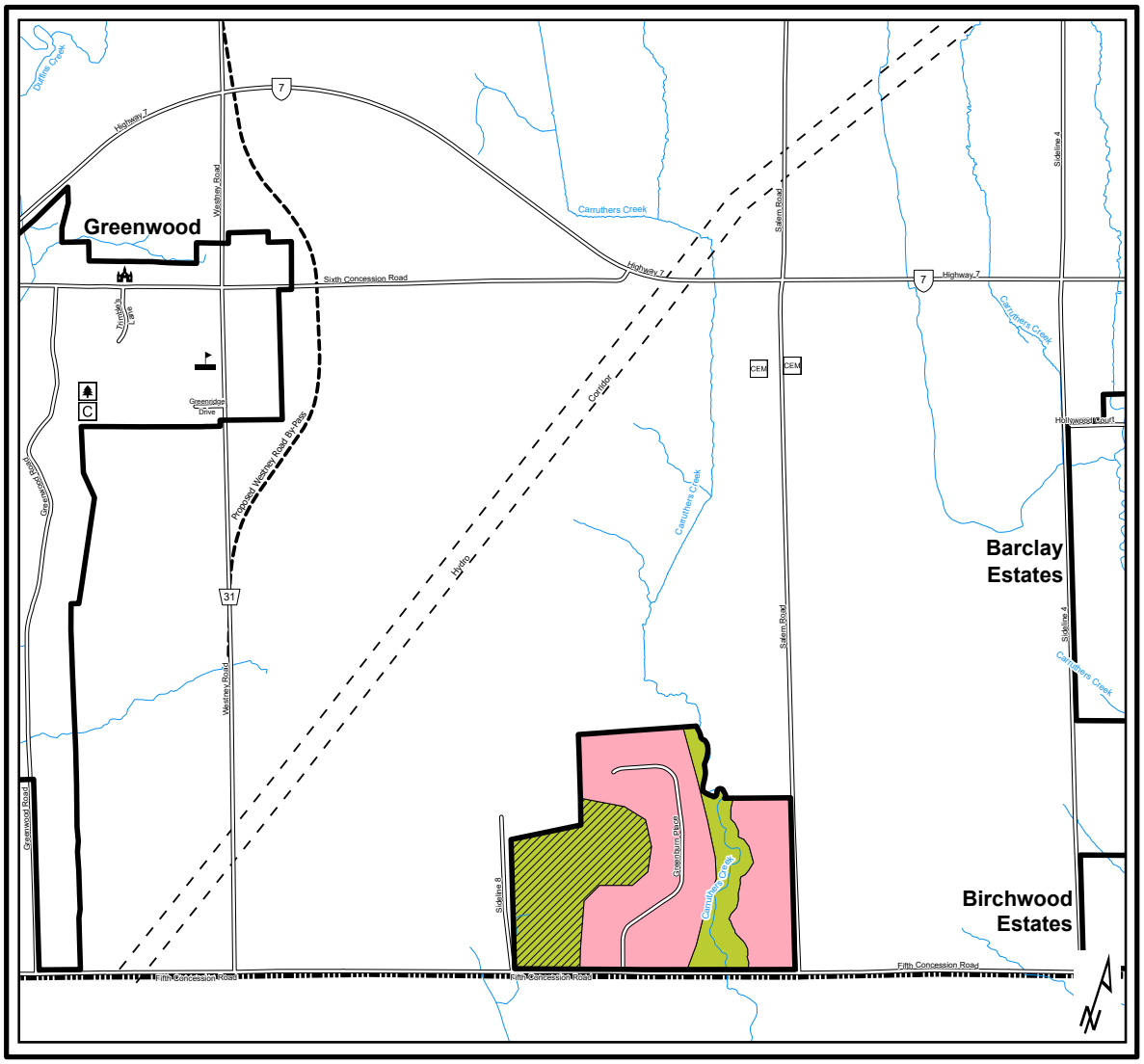
(a) recognize the existing dwelling on the east side of Carruther's Creek;

(b) ensure that the development of phase two, located on the east side of Carruther's Creek, is undertaken in a manner that respects the environmental features of the Carruther's Creek to the satisfaction of the City and the conservation authority;

(c) recognize, as an exception, the creation of the lots associated with phase two directly fronting on the existing roads (Salem Road and Fifth Concession Road); and

(d) endeavour to ensure the country residential environment of the settlement is maintained.

Schedule IV - 6: Settlement 6: Staxton Glen



Legend Symbols

- Country Residential
- Open Space System - Recreational Areas
- Open Space System - Natural Areas
- Municipal Boundary
- Rural Settlement Boundary
- New Road Connections (Proposed)
- Public Elementary School
- C — Community Centre
- Park
- Place Of Worship
- CEM — Cemetery

City of Pickering
City Development Department

This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Settlement 7: Birchwood Estates

Description

- Located on the east side of Sideline 4, at the Fifth Concession Road road allowance
- Includes open space lands associated with a tributary of Carruther's Creek
- Lands identified as Birchwood Estates were approved for a "country residential" development in 1998 for a maximum of 23 residential lots; the detailed development concept is still awaiting subdivision approval and zoning
- Development proposes that siting and layout of development is to avoid environmental features such as the valleys of Carruther's Creek and its tributaries

Settlement Population Projection

Birchwood Estates*	
2015 Population	**5**
2031 Population	**75**

*Note: population projection reflects aging population and reduced persons per unit count

- Country residential developments typically comprise large modern homes on large lots on a public street with private individual water supply and sewage disposal services
- Country residential subdivisions typically build out over a relatively long period of time
- Only residential uses are anticipated within the settlement; no stores, community or cultural facilities

City Policy
Birchwood Estates Settlement Policies

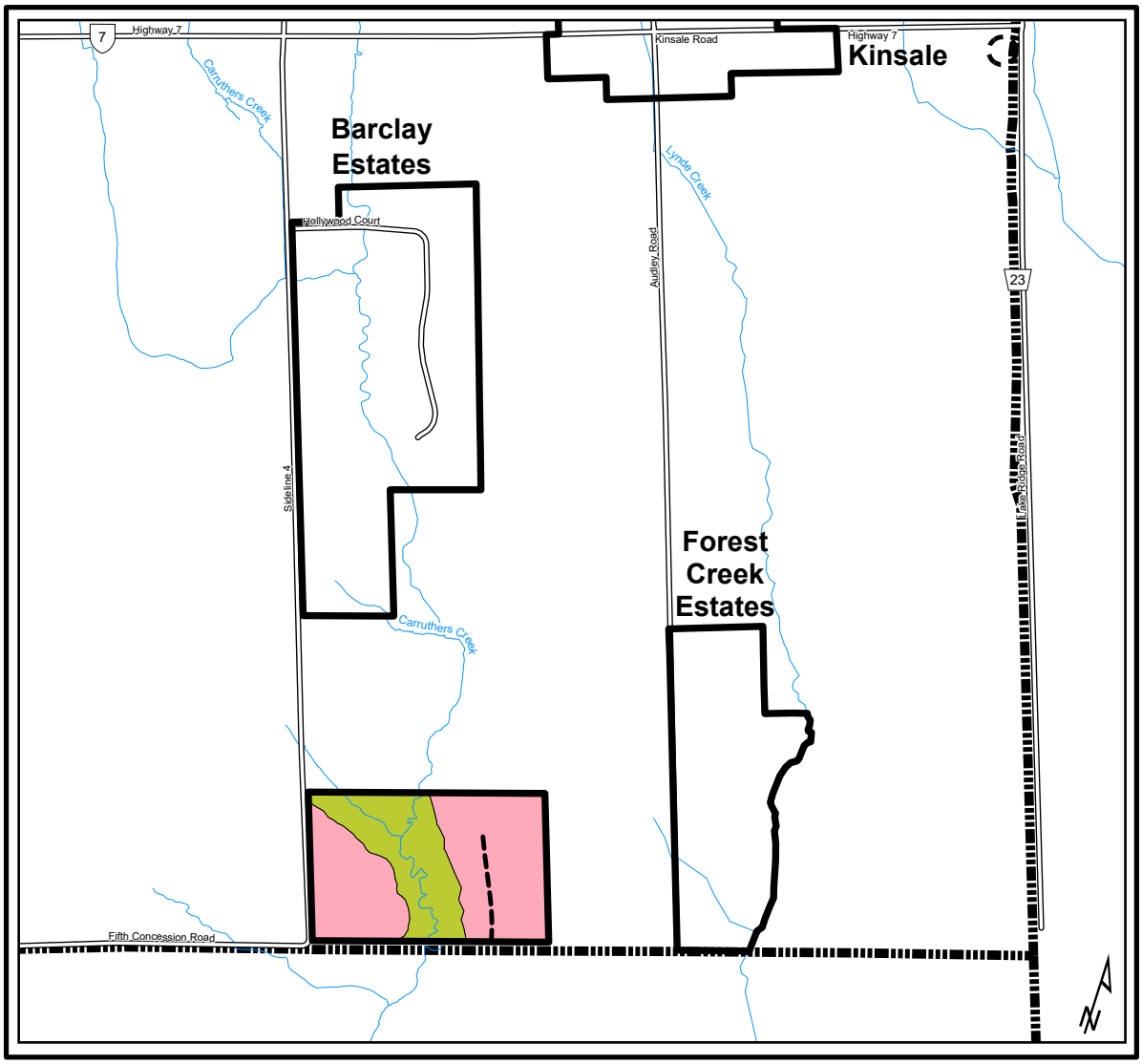
13.9 City Council shall:

(a) recognize the existing dwelling on the Birchwood Estates lands;

(b) ensure that development is undertaken in a manner that respects environmental features such as Carruther's Creek and its tributaries to the satisfaction of the City and the conservation authority; and

(c) endeavour to ensure the country residential environment of the settlement is maintained once developed.

Schedule IV - 7: Settlement 7: Birchwood Estates



Legend Symbols

- Country Residential
- Open Space System - Natural Areas
- Municipal Boundary
- Rural Settlement Boundary
- New Road Connections (Proposed)

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Settlement 8: Barclay Estates

Description

- Located on the east side of Sideline 4, north of the Fifth Concession Road road allowance
- Includes open space lands associated with a tributary of Carruther's Creek
- Lands identified as Barclay Estates were approved for a "country residential" development in 1995 for 35 residential lots; subdivision approval and zoning were granted in 2006
- Development included rehabilitation of a sand/gravel pit; and the restoration of the creek channel
- Country residential developments typically comprise large modern homes on large lots on a public street with private individual water supply and sewage disposal services
- Country residential subdivisions typically build out over a relatively long period of time
- Only residential uses are anticipated within the settlement; no stores, community or cultural facilities

Settlement Population Projection

Barclay Estates*	
2015 Population	**80**
2031 Population	**100**

*Note: population projection reflects aging population and reduced persons per unit count

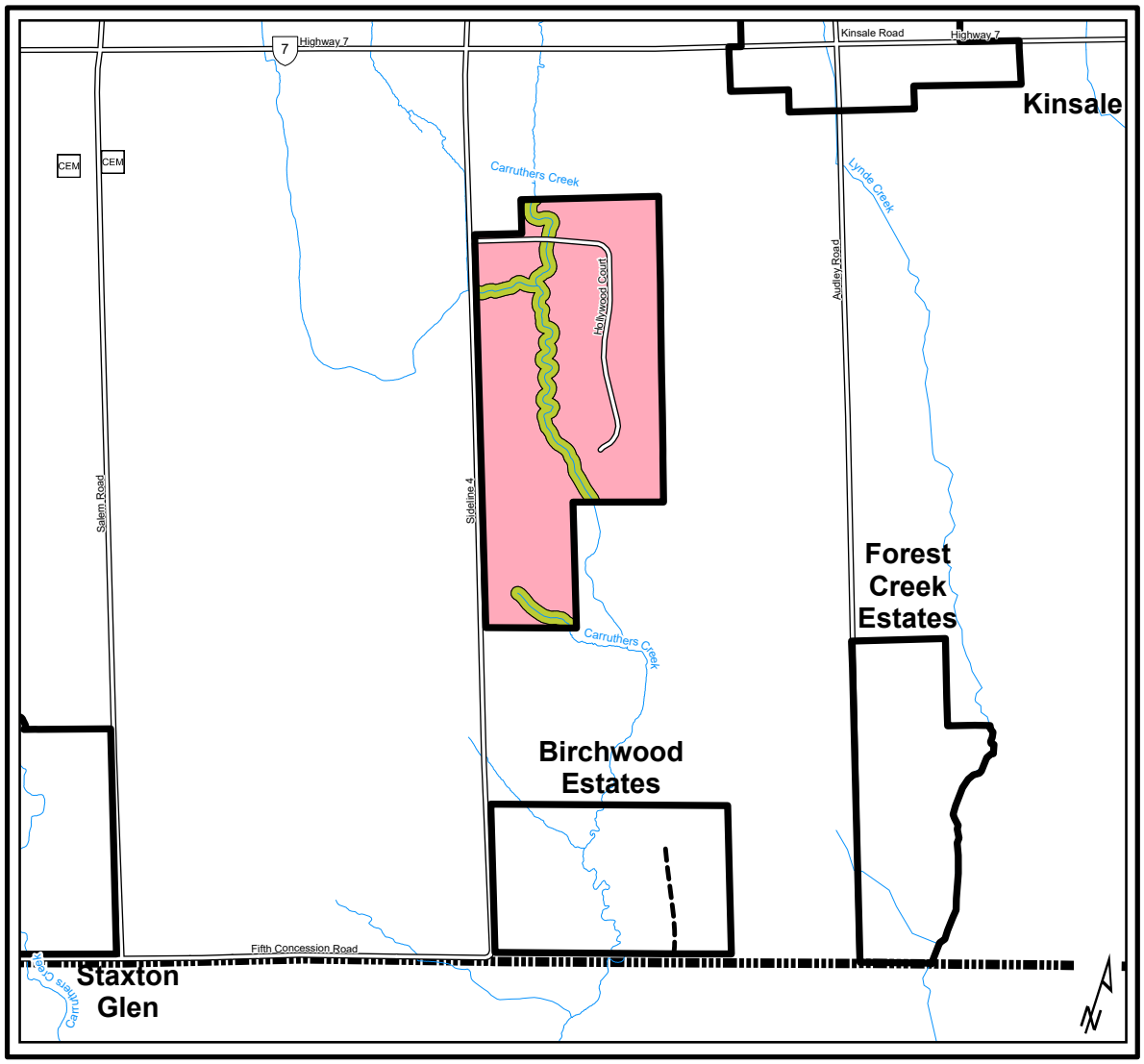
City Policy

Barclay Estates Settlement Policies

13.10 City Council shall:

(a) endeavour to ensure the country residential character of the settlement is maintained.

Schedule IV - 8: Settlement 8: Barclay Estates



Legend Symbols

- Country Residential
- Open Space System - Natural Areas
- Municipal Boundary
- Rural Settlement Boundary
- New Road Connections (Proposed)
- CEM Cemetery

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Settlement 9: Kinsale

Description

- Located on Highway 7 at Sideline 2 (known as Audley Road south of the highway and Kinsale Road north of the highway)
- A tributary of Lynde Creek diagonally bisects the Hamlet from northwest to southeast; valley is wide and open northwest of the village, and has been relocated and channeled through much of the village
- Settled originally as a mill town, through the late 1800s it provided community facilities for the surrounding area including a school, and a place of worship/community centre

Settlement Population Projection

Kinsale*	
2015 Population	90
2031 Population	125

*Note: population projection reflects aging population and reduced persons per unit count

- Original development was in a linear arrangement primarily along Highway 7; during the 1960s, homes were built in a strip on the east side of Kinsale Road; since the late 1980s and up to 2015, a few new homes have been built on the west side of Kinsale Road
- Existing businesses include an automobile repair shop, a motorbike shop, an antique shop, a dog daycare and boarding, a retail warehouse; no community facilities remain

City Policy
Kinsale Settlement Policies

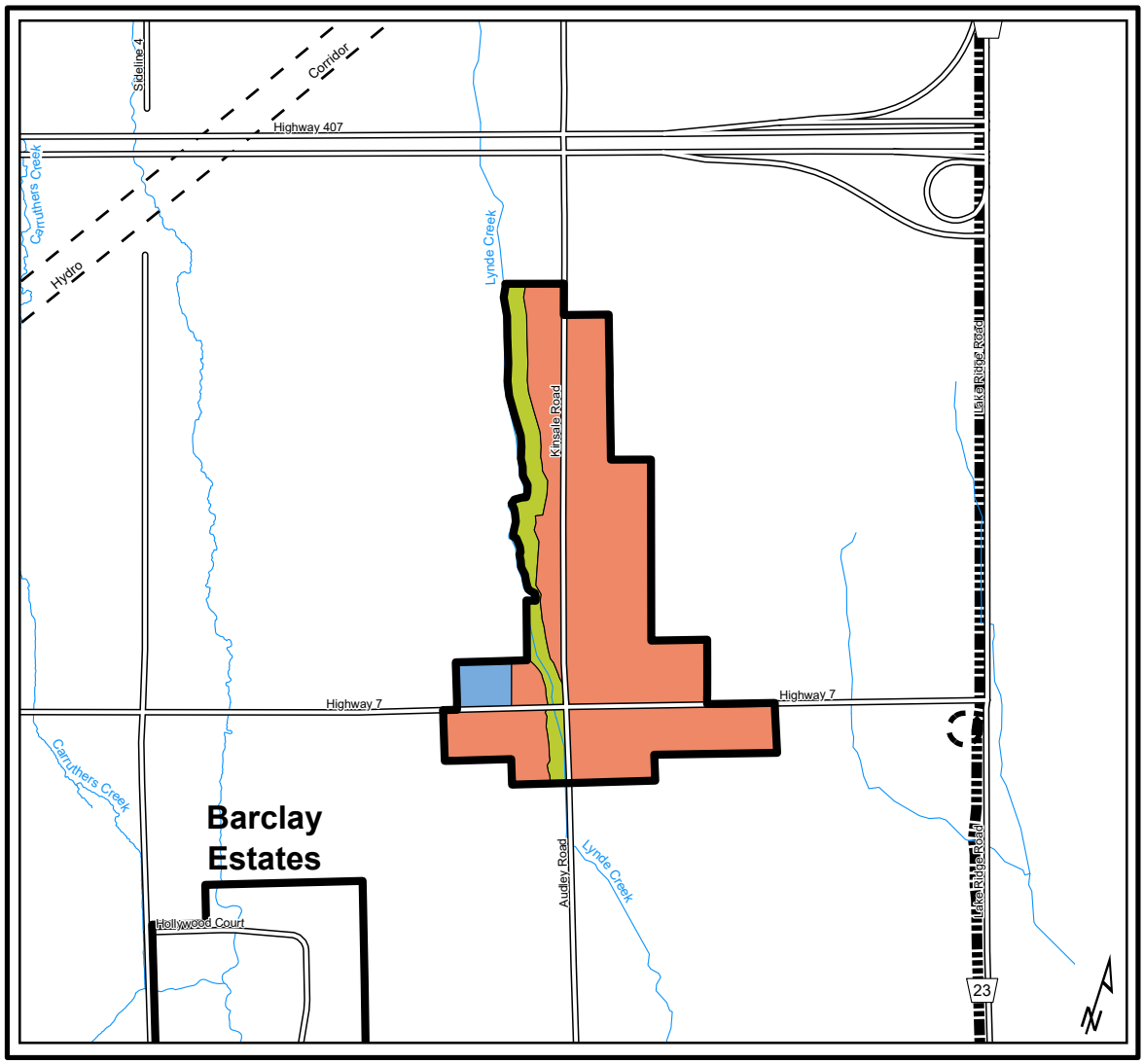
13.11 City Council shall:

(a) encourage opportunities for enhancing the historic village of Kinsale through general or site specific zoning that allows the introduction of arts and craft studios, custom workshops and small-scale commercial enterprises on suitable sites, providing the historic character of the village and the interests of neighbouring residents are respected;

(b) recognize a locally significant property located at the southwest corner of Highway 7 and Lake Ridge Road (the former school house) by identifying it as a Special Interest Site on Schedule IV-9 and encourage its continued use for a purpose consistent with its local significance and the objectives of this Plan; and

(c) encourage appropriate farm practices to occur on the surrounding agricultural lands to avoid adverse impacts on residents in the village and the quality of the Lynde Creek tributary;

Schedule IV - 9: Settlement 9: Kinsale



Legend Symbols

- Hamlet Residential
- Hamlet Commercial
- Open Space System - Natural Areas
- Municipal Boundary
- Rural Settlement Boundary
- Special Interest Sites

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Settlement 10: Claremont

Description

- The Hamlet of Claremont is located around the intersection of Brock Road and Central Street (also known as Regional Road 5 or the Ninth Concession Road)
- Lands in the southwest portion of the Hamlet, and beyond, are part of the Federally-owned lands acquired in the 1970s as a site for a possible future airport
- The Hamlet includes open space lands associated with Michell Creek (a tributary to the East Duffins Creek); most of the Hamlet and the Cluster are located on south edge of the Oak Ridges Moraine

Settlement Population Projection

Hamlet of Claremont*	
2015 Population	1,125
2031 Population	1,050

*Note: population projection reflects aging population and reduced persons per unit count

- Is the largest and most diverse rural settlement in the City; first settled in the 1820s as “Nobles Corners”; in 1851, a post office opened and the village became known as “Claremont”; it prospered with a hotel, mills and a “continuation” or secondary school; a designated heritage property is located at the south end of the village on the west side of Regional Road 1; another designated site lies southeast of Claremont
- Grid street pattern, narrow road allowances and small lots from the 1800s have been encircled by 1980s subdivision development on large lots with modern paved roads
- Existing businesses include a general store, a bank, business and professional offices, collectibles and craft shops, a restaurant, the Co-op, a gas station, a liquor store, an auto body repair shop and a heavy machinery storage yard
- Claremont continues to be a focal point for the rural area with its many community facilities including a school, a Masonic hall, a legion hall, a park, two churches, and the Claremont Centre (a combined facility containing a firehall, library, community centre and seniors centre) which opened in 1997
- A C.P. rail line runs across the north end of the Hamlet; the TransCanada Pipeline runs across the south end of the Hamlet

City Policy
Claremont Settlement Policies

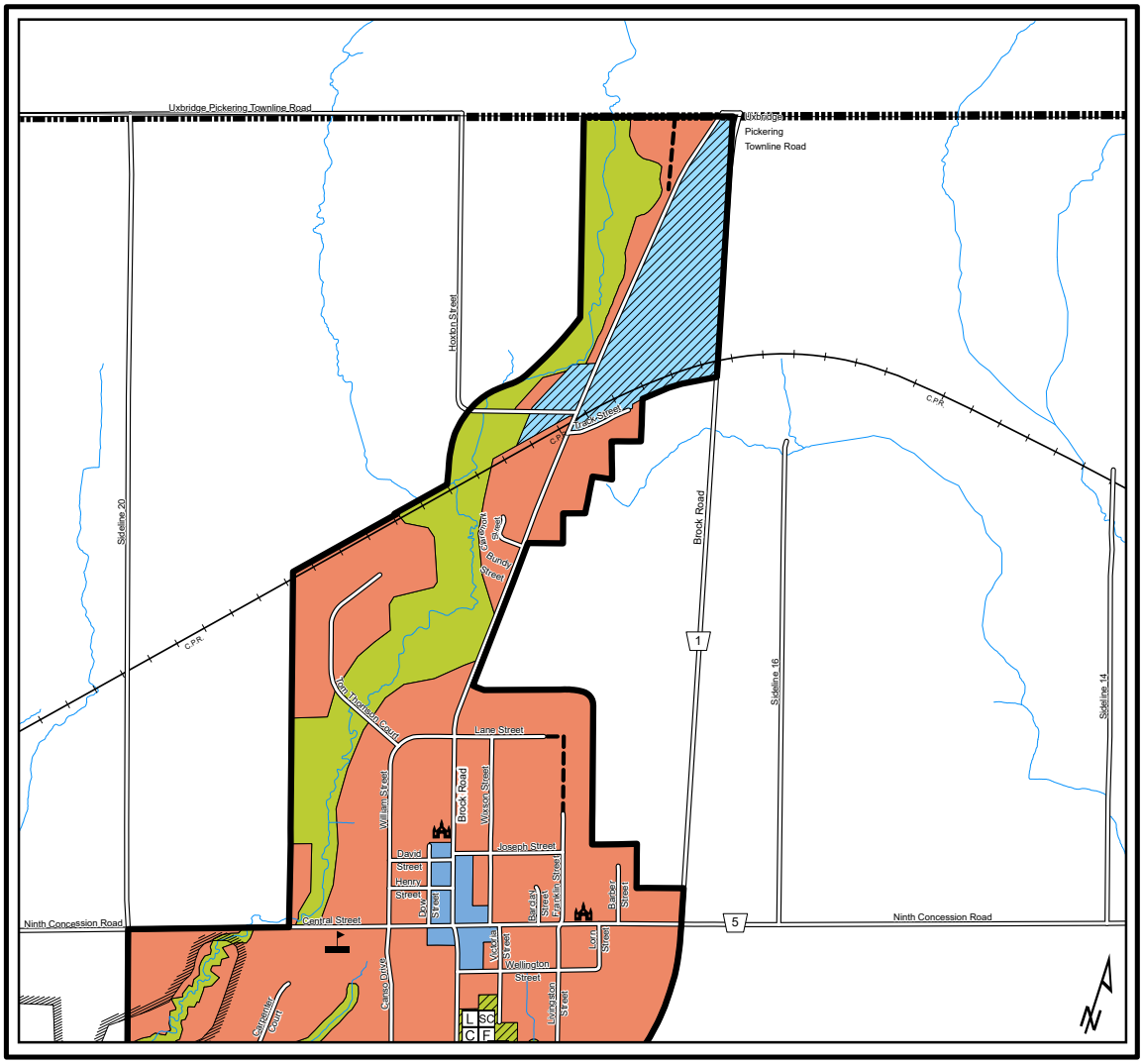
13.12 City Council shall:

(a) encourage opportunities for enhancing the historic village of Claremont through general or site specific zoning that allows the introduction of arts and craft studios, custom workshops and small-scale commercial enterprises on suitable sites, providing the historic character of the village and the interests of neighbouring residents are respected;

(b) encourage retail, shopping, office and other business uses to locate in the hamlet commercial area surrounding Central Street and Brock Road;

(c) encourage the provision of a wider variety of housing forms within the Hamlet, particularly to meet the needs of young people and senior citizens;

Schedule IV - 10: Settlement 10: Claremont - North Section



Legend Symbols

- Hamlet Residential
- Hamlet Commercial
- Hamlet Employment
- Open Space System - Recreational Areas
- Open Space System - Natural Areas
- Municipal Boundary
- Rural Settlement Boundary
- Oak Ridges Moraine Boundary
- New Road Connections (Proposed)
- Public Elementary School
- C — Community Centre
- F — Fire Station
- L — Library
- SC — Senior's Centre
- Park
- Place Of Worship
- CEM — Cemetery

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

(d) recognize that most of Claremont is designated as Oak Ridges Moraine Rural Hamlet on Schedule I, in accordance with the Oak Ridges Moraine Conservation Plan, and accordingly, City Council shall:

(i) restrict applications for lot creation to limited infilling;

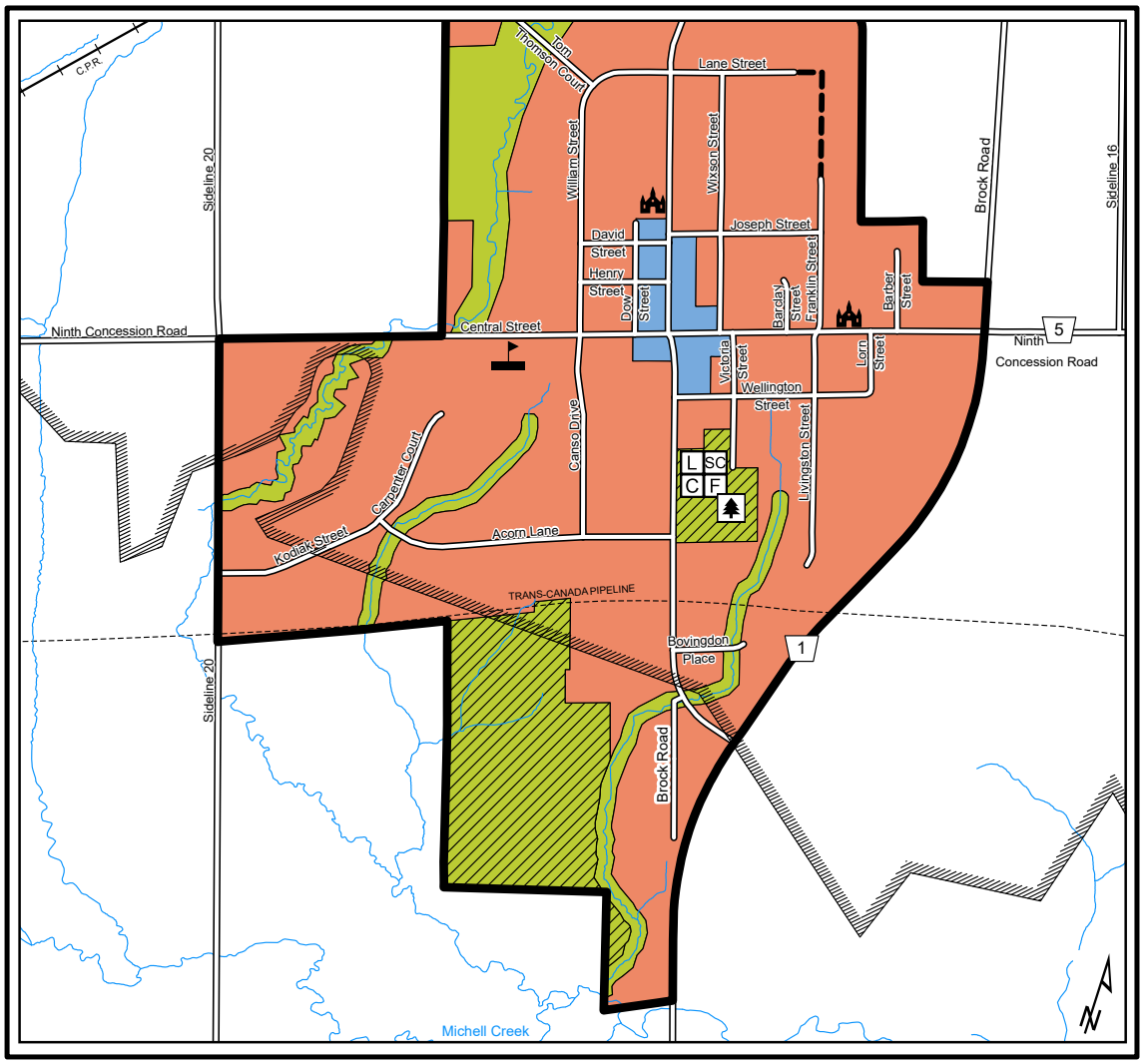
(ii) prohibit the boundary of the hamlet to be expanded unless the hamlet boundaries for Claremont established by the Oak Ridges Moraine Conservation Plan are modified by the Province; and

(iii) require development or site alteration to be subject to the Oak Ridges Moraine policies as set out in Chapter 16 in addition to the policies of the Oak Ridges Moraine Conservation Plan;

(e) despite the Open Space System - Natural Areas designation on the lands bounded on the north by the Uxbridge-Pickering Townline, on the east by Brock Road, and on the west by the line between Lot 17 and Lot 18, permit the existing house and the development of a newly created lot for residential purposes; and

(f) monitor and assess traffic conditions through Claremont over time, and determine, in consultation with the village residents and the Region of Durham where necessary, whether to prepare a traffic calming implementation plan and undertake traffic calming measures in keeping with the intended function of the roads.

Schedule IV - 10: Settlement 10: Claremont - South Section



Legend Symbols

- Hamlet Residential
- Hamlet Commercial
- Open Space System - Recreational Areas
- Open Space System - Natural Areas
- Rural Settlement Boundary
- Oak Ridges Moraine Boundary
- New Road Connections (Proposed)
- Public Elementary School
- C — Community Centre
- F — Fire Station
- L — Library
- SC — Senior's Centre
- Park
- Place Of Worship
- CEM — Cemetery

Settlement 11: Spring Creek

Description

- Located on the west side of Westney Road, south of the Regional Road 5, on the south side of Spring Creek Golf Course
- Adjacent to open space lands associated with a tributary of Duffins Creek
- Lands identified as Spring Creek were approved for a "country residential" development in 1998 for 8 residential lots
- This country residential development comprises large modern homes on large lots with private individual water supply and sewage disposal systems

Settlement Population Projection

Spring Creek*	
2015 Population	**25**
2031 Population	**25**

*Note: population projection reflects aging population and reduced persons per unit count

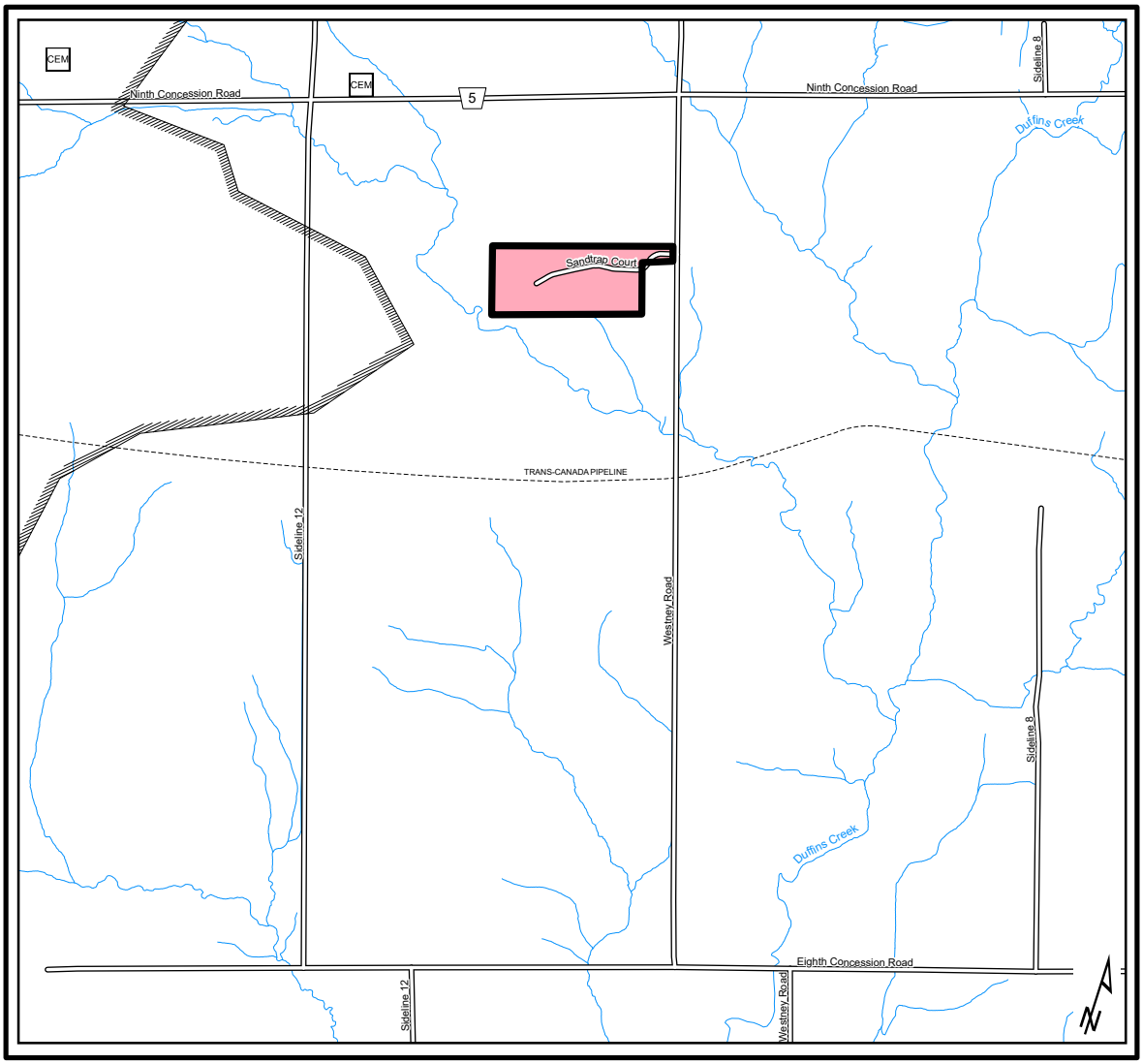
City Policy
Spring Creek Settlement Policies

13.13 City Council shall:

(a) ensure that development is undertaken in a manner that respects the rural character of surrounding lands; and

(b) endeavour to ensure the country residential environment of the settlement is maintained once developed.

Schedule IV - 11: Settlement 11: Spring Creek



Legend Symbols

Country Residential

Rural Settlement Boundary

Oak Ridges Moraine Boundary

CEM Cemetery

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Settlement 12: Balsam

Description

- Located at Regional Road 5 (the Ninth Concession Road) and Balsam Road (Sideline 4)
- Located near the south edge of the Oak Ridges Moraine between the upper tributaries of East Duffins Creek and Lynde Creek; located south of the Glen Major Environmentally Sensitive Area
- A post office was opened in the settlement in the late 1850s; by the early 1900s, Balsam had a number of businesses including a general store, a flour mill and a harness shop
- Remains as a very small settlement clustered at the crossroads of Sideline 4 and Regional Road 5; over the last 40 years, 4 new homes have been constructed, and a construction business opened

Settlement Population Projection

Balsam*	
2015 Population	**40**
2031 Population	**45**

*Note: population projection reflects aging population and reduced persons per unit count

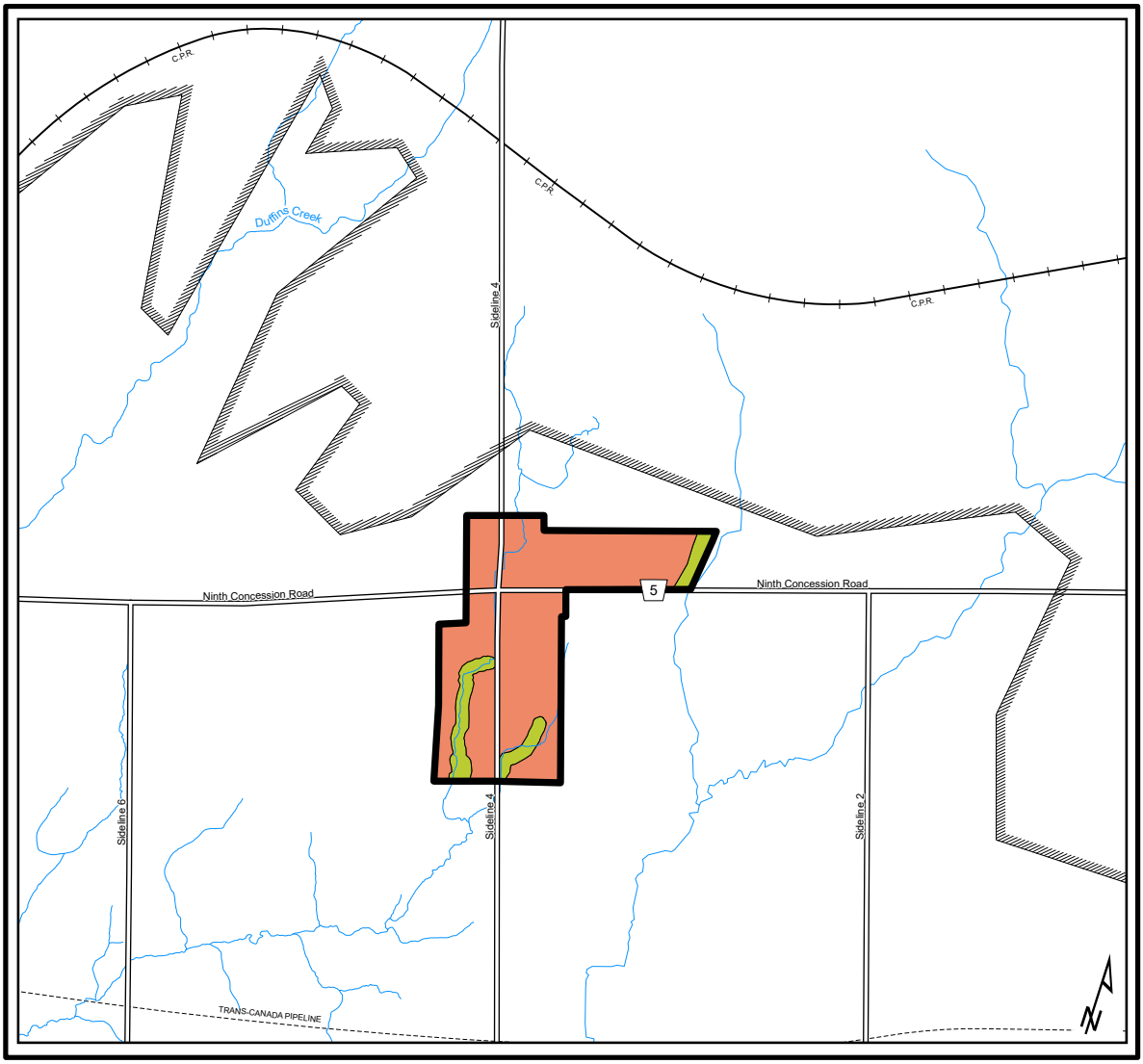
City Policy
Balsam Settlement Policies

13.14 City Council shall:

(a) encourage opportunities for enhancing the historic village of Balsam through general or site specific zoning that allows the introduction of arts and craft studios, custom workshops and small-scale commercial enterprises on suitable sites, providing the historic character of the village and the interests of neighbouring residents are respected; and

(b) request the Region of Durham to examine measures to reduce traffic speeds and volumes along Regional Road 5 through Balsam.

Schedule IV - 12: Settlement 12: Balsam



Legend Symbols

- Hamlet Residential
- Open Space System - Natural Areas
- Rural Settlement Boundary
- Oak Ridges Moraine Boundary

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Settlement 13: Forest Creek Estates

Description

- Located on the east side of Audley Road, at the Fifth Concession Road road allowance
- Adjacent to environmentally sensitive and open space lands associated with a tributary of Lynde Creek, the former Lake Iroquois Shoreline and Audley woods
- Lands identified as Forest Creek Estates were approved for a "country residential" development in 1998 for 14 residential lots; the subdivision plan has been draft approved and the lands zoned
- Country residential developments typically comprise large modern homes on large lots with private individual water supply and sewage disposal systems
- Country residential subdivisions typically build out over a relatively long period of time
- Only residential uses are anticipated within the settlement; no stores, community or cultural facilities

Settlement Population Projection

Forest Creek Estates*	
2015 Population	**0**
2031 Population	**40**

*Note: population projection reflects aging population and reduced persons per unit count

City Policy
Forest Creek Estate Settlement Policies

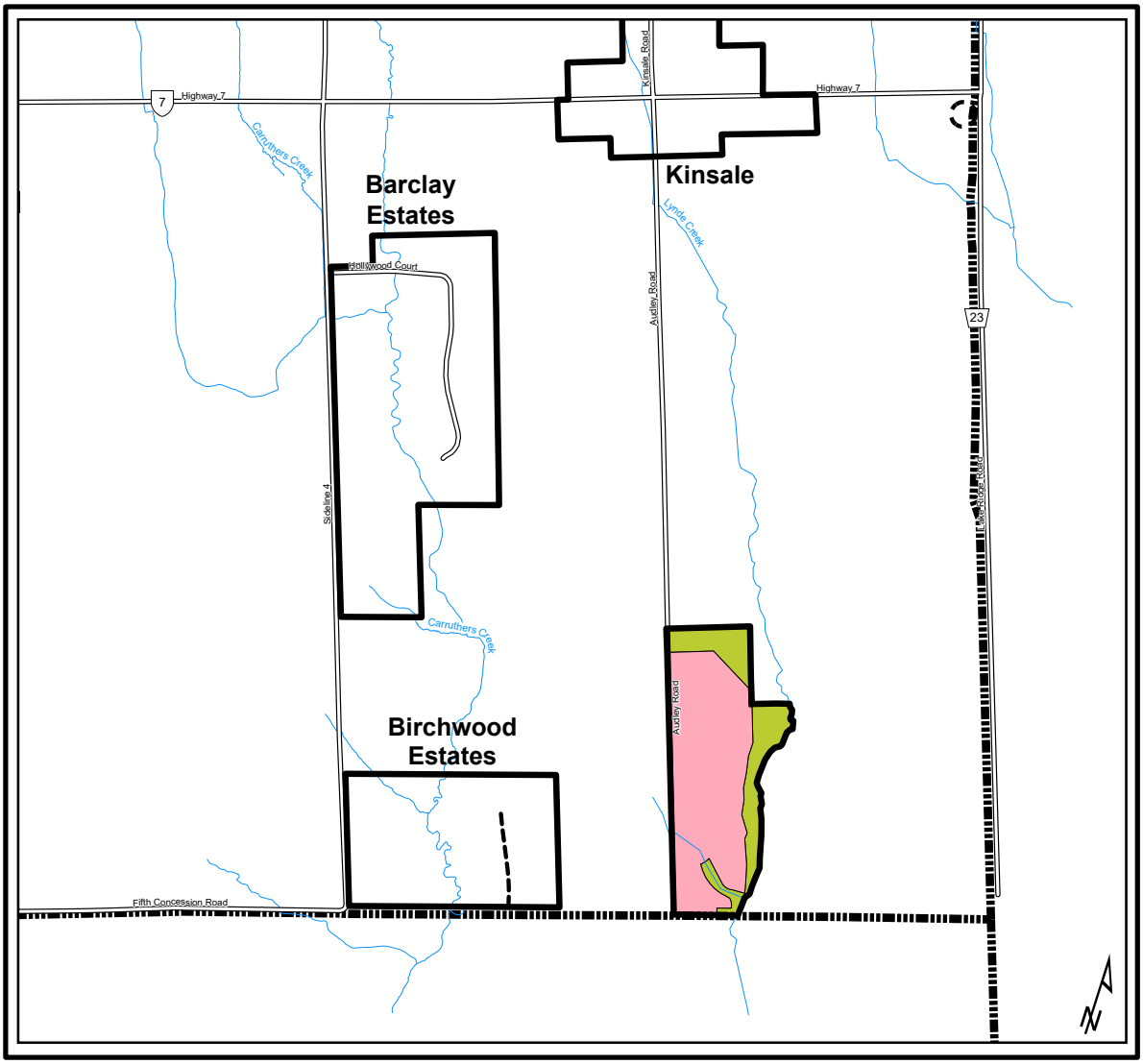
13.15 City Council shall:

(a) ensure that development is undertaken in a manner that respects the rural character of surrounding lands;

(b) ensure that development is undertaken in a manner that respects natural features within and nearby the settlement including the habitat, linkage, and corridor functions the natural features perform; and

(c) endeavour to ensure the country residential environment of the settlement is maintained once developed.

Schedule IV - 13: Settlement 13: Forest Creek Estates



Legend Symbols

- Country Residential
- Open Space System - Natural Areas
- Municipal Boundary
- Rural Settlement Boundary
- Special Interest Sites
- New Road Connections (Proposed)
- CEM Cemetery

City of Pickering
City Development Department
© March, 2022
This Map Forms Part of Edition 9 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

This page intentionally left blank.

Part 4:
Detailed Design Considerations

This page intentionally left blank.

Chapter 14 - Detailed Design Considerations

This chapter complements and expands upon the goals and policies of Chapter 9 - Community Design. It establishes the City's position on a variety of municipal concerns revolving around attractive and effective community design.

Detailed Design Considerations

1. **Community Image**
2. **Corporate Initiatives**
3. **Design with Nature**
4. **Development and Subdivision Design**
5. **Views and Vistas**
6. **Design of Public Open Spaces**
7. **Streetscapes**
8. **Human Scale**
9. **Design of Buildings**
10. **Personal Security**
11. **Barrier-Free Access**
12. **Public Art**
13. **Lighting**
14. **Signage**
15. **Pedestrian and Cycling Safety**

Detailed Design Considerations

The community design framework described in Chapter 9 establishes a strategy that is grounded in ten community design concerns: human scale, mixed uses, context, places versus buildings, legibility, pedestrian comfort, permeability, building adaptability, attractive public spaces and natural heritage.

Detailed design considerations derived from these concerns identify the range of specific design matters for which policies are formulated. Although not exhaustive (e.g., other design considerations and associated policies could be added later, if warranted, by amendment to this Plan), appropriate design policies under these considerations establish a solid approach to community design for Pickering, at this point in its development.

City Policy
Detailed Community Design Goal

14.1 City Council shall identify and establish appropriate community design policies for a range of specific design matters that warrant detailed consideration.

Community Image

Community image is an important design matter warranting detailed policy consideration. Through effective community design, the City can foster an image of Pickering that recognizes the collective perceptions residents hold of the City and of their respective neighbourhoods.

City Policy
Community Image

14.2 City Council shall:

(a) require that development at all scales creates, reinforces, and enhances distinctive neighbourhoods, nodes and corridors, and enhances the specific character of existing developments and neighbourhoods;

(b) consider identifying at certain locations in the City, gateways and landmarks and require that these locations be maintained and enhanced through community design measures;

(c) **encourage the retention and enhancement of distinctive built and natural features within the rural area, such as historic buildings, settlement areas, ridges, valley and stream corridors, and woodlots that contribute to the image of the rural area;**

(d) **encourage the siting of buildings of significant form and use (such as churches, fire halls and schools) at important locations within the City to enhance their visual status and to contribute to Pickering's image;**

(e) **provide an appropriate image for Pickering's City Centre through the distinctive form of the Civic Complex, the Esplanade Park and other key municipal symbols; and**

(f) **require all new public and private sector development at the Highway 401 and 407 interchanges to exhibit a high standard of architecture and urban design, in order to provide attractive gateways into and exits from the City and to take advantage of these locations with high visibility.**

Corporate Initiatives

The Corporation of the City of Pickering is an important role model to those building in the community. To this end, the City can demonstrate its commitment to excellence in community design, and thus image, by constructing and promoting City initiatives that exemplify good community design principles and practices.

City Policy
Corporate Initiatives

14.3 City Council shall:

(a) **endeavour to ensure that all City-owned properties, buildings, infrastructure and facilities meet the community design objectives and policies of this Plan;**

(b) **consider conducting design competitions in relation to the development of highly visible City-owned or controlled properties that are intended to be used for important community uses such as community centres, fire halls, theatres and libraries;**

(c) **consider establishing corporate identification design objectives for use on City-owned buildings;**

(d) **endeavour to ensure that development projects of other levels of government and agencies (the Region, Province, Federal government, police and school boards) comply with the community design objectives and policies of this Plan;**

(e) **in the design of city owned properties and facilities, achieve a minimum of LEED ® silver certified, or alternative equivalent through the implementation of sustainable design measures such as: the selection of energy conserving and energy efficient products for facilities; the salvaging and reuse of construction, demolition, and land clearing debris; and use of permeable surfaces and pervious pavement in areas such as parking lots and sidewalks; and**

(f) **collaborate with other levels of government, other municipalities, institutions, community groups, and local businesses to develop programs to improve air quality, to reduce greenhouse gas emissions and use energy more efficiently.**

Design with Nature

Good community design should encourage development that where possible, is properly integrated and connected to Pickering's natural features and resources, while preserving and enhancing their integrity.

City Policy
Design With Nature

14.4 City Council shall:

(a) through the review of development proposals, endeavour to ensure that significant natural features, such as watercourses, wetlands, woodlands and escarpments are protected as visual landmarks to maintain links with Pickering's cultural and historic heritage;

(b) where possible, require the maximum retention of natural features on properties proposed to be developed, and ensure that such features are permitted to regenerate with minimal intervention;

(c) encourage the protection of mature trees of aesthetic and heritage value;

(d) evaluate existing vegetation to be preserved on properties subject to development against the following criteria:

- **(i) its ability to survive construction conditions;**
- **(ii) its contribution to a larger vegetated area extending over abutting properties;**
- **(iii) its ability to provide shading, screening or noise attenuation, both on-site and for surrounding properties;**
- **(iv) its contribution to the diversity of the broader plant community;**
- **(v) its value due to species, age or ornamental qualities; and**
- **(vi) its intrinsic relation with adjacent designated heritage buildings or districts;**

(e) encourage the use of plant materials in a design capacity to define open spaces, frame desired views or focal points, direct pedestrian movement, and reinforce particular locations;

(f) encourage the use of plant materials to create visual variety on the basis of their form, colour and texture, and to satisfy functional requirements, such as providing shade, providing screening in all seasons, providing sound attenuation, buffering wind, controlling snow deposition, and stabilizing slopes;

Integrating existing natural features and landscapes within new development, or enhancing such features through substantial landscaping not only retains the features, it adds value to the development.

In other words, rather than creating sterile landscapes on which to build, incorporating features of natural significance and beauty can result in a more desirable development form - more desirable to home buyers, business tenants and other "clients" of the development industry.

(g) in certain areas of the City, encourage the use of low maintenance plant and landscape materials which enhance ecological stability; and

(h) encourage the use of native plant species which are tolerant to disease and pollutants as the dominant plant material when creating new plant communities or when adding to existing plant communities.

Development and Subdivision Design

An objective of development and subdivision design is to ensure new developments are sufficiently compact in form, and appropriately integrated with Pickering's existing built form, heritage and natural features. Appropriate development and subdivision design should also establish attractive physical settings that support a wide range of activities, have well developed pedestrian environments, and can be well served by public transit.

City Policy
Development and Subdivision Design

14.5 City Council shall:

(a) encourage designs and patterns for streets and major aisles that provide appropriate access for vehicles, public transit, pedestrians and cyclists; create view corridors and vistas where appropriate; and allow adequate space for utilities and services;

(b) encourage designs of streets, major aisles, blocks and lots that create a public realm supporting comfortable and safe pedestrian activity and movement both within and beyond the development;

(c) encourage street patterns and major aisle arrangements that respect the integrity of the City's continuous landform features such as ridges, and valley and stream corridors, in both urban and rural areas;

(d) encourage new subdivision streets and major aisles that generally align on a grid or modified grid pattern in order to create development blocks appropriately sized for their intended use and possible future uses;

(e) where necessary and appropriate, encourage the use of existing landform and vegetative features to visually hide or screen those land uses and activities that detract from the physical and visual character of an area;

(f) encourage the design of local road patterns that provide direct pedestrian access to transit stops and transfer nodes;

Views of house fronts are much more pleasant than continuous fencing associated with reverse lotting.

(g) introduce public roads into large blocks of developable land;

(h) discourage designs such as reverse lotting that require long stretches of noise attenuation or privacy fencing adjacent to major roads; and

(i) require the implementation of green development standards in development and subdivision design, in keeping with applicable City policies and guidelines, including but not limited to the following:

(i) incorporating Low Impact Development (LID) techniques such as bio-swales, rain barrels, and perforated pipe systems;

(ii) **orienting lots and homes to maximize energy efficiency and conservation; and**

(iii) **increasing the tree canopy through tree planting programs to promote biodiversity, improve air quality, and reduce the urban heat island effect.**

Views and Vistas

Another important objective of community design is to preserve and enhance existing views and vistas of Pickering's built and natural features, and identify and develop opportunities to establish new views and vistas, including intimate views that create a relationship between indoor and outdoor activities.

City Policy
Views and Vistas

14.6 City Council shall:

(a) **recognize significant views of prominent buildings and open spaces at the scales of neighbourhoods, streets, small public spaces and individual development sites;**

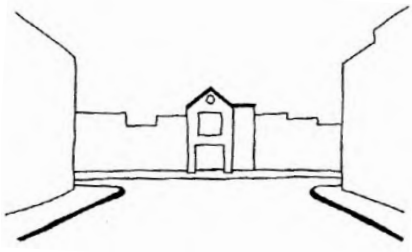
(b) **preserve "landmark" views of unique features, including the Pickering Civic Complex and Frenchman's Bay, to provide visual reference points within Pickering's urban area, and to enhance the significance of those features;**

(c) **evaluate new development proposals for their opportunity to maximize, create or enhance views and vistas;**

(d) **endeavour to maintain and enhance views of natural features, including woodlots, topographic features, bodies of water and across open spaces;**

(e) **endeavour to ensure that the design and layout of streets and pedestrian routes provide vantage points for significant views and vistas along their lengths; and**

(f) **endeavour to ensure that the design of sidewalks and other portions of buildings adjacent to public spaces provides views from exterior to interior activity areas, including stairwells, corridors, and entrance and elevator lobbies.**



A site that terminates a view corridor should be given special design consideration in order to end the view in a pleasing manner.

Design of Public Open Spaces

A network of public open spaces should be planned and designed. These open spaces should be fully integrated with, and supported by, the developments around them, and the streets and walkways that link them.

City Policy
Design of Public Open Spaces

14.7 City Council shall:

(a) **promote the design, preservation, enhancement and creation of significant public open spaces in both the urban and rural areas that contribute to the City's image;**

(b) encourage public open spaces that complement and support the uses and activities generated by surrounding buildings and uses;

(c) promote the provision of public open spaces for community uses and activities such as festivals and other public gatherings in areas that are readily accessible to people, or where demand warrants;

(d) encourage in urban areas the creation of smaller outdoor spaces such as small parks, gardens and courtyards, where appropriate, and endeavour to ensure these spaces are defined and complemented by the architectural and design features and the scale of the buildings that surround them;

(e) encourage within publicly-accessible open spaces, a high quality environment with adequate amenities such as appropriate paving, benches, bicycle racks, refuse containers, lighting and other elements that accommodate the intended users of the space;

(f) consider elevated public open spaces, both natural and built (including rooftops, bridges, hilltops and embankments) as possible vantage points that provide panoramic views of the surrounding landscape from which people may better appreciate and understand Pickering's image;

(g) encourage the design of open spaces to consider the user's sensory experiences of light, sound, smell, colour, water and temperature;

(h) encourage the design of private space adjacent to public streets and open space areas (e.g., outdoor patios) to support the function and enhance the appearance of the adjacent public streets or areas; and

(i) encourage the inclusion of water features, such as fountains, reflecting pools and spray features in the design of public and publicly-accessible open spaces.

Streetscapes

Streets in Pickering should be designed to contribute to the character of the immediate area and provide a high level of amenities for their users.

City Policy
Streetscapes

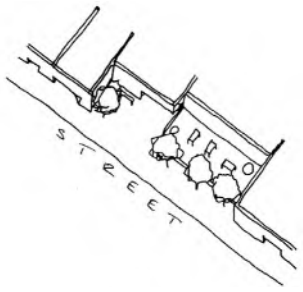
14.8 City Council shall:

(a) support the creation of specialty treatments including planted boulevards and median strips, theme lighting and street furniture, and other design features, on strategic streets in Pickering;

(b) encourage landscape design along streets to complement adjacent built forms and open spaces, to provide shade in the summer and visual interest throughout all seasons, and to accentuate the special character of particular streets;

(c) support, where appropriate, the use of sidewalks and adjacent publicly-accessible open spaces as outdoor patio restaurants;

(d) promote a unified design of decorative treatment for sidewalks within strategic areas, such as the City Centre, community nodes and other important shopping areas;



Occasional setback spaces provide opportunities for street cafes, waiting and resting areas which help to enliven street life.

(e) require the partial vertical screening of surface parking lots through the use of low fences, walls or landscape elements;

(f) encourage reducing the scale of large surface parking lots by dividing the area through the use of landscaping, fencing and walls;

(g) require the provision of adequate weather protection, seating, visibility and lighting at transit stops on major roads;

(h) endeavour to ensure that seating on public and private streets is provided for pedestrians at waiting areas, bus stops, and near public facilities and institutions, and to support leisure activities, conversation and social interaction in commercial, civic or mixed use areas;

(i) require the provision of secure bicycle parking facilities on public streets, at bus terminals, transit stations, GO stations and near entrances to buildings that are important destinations, such as retail commercial buildings, and community or cultural facilities;

(j) endeavour to ensure that the design and pattern of pavement for pedestrian paths and sidewalks enhance the character of high activity areas along the street; indicate pedestrian crossing with a continuation of the sidewalk pattern over the crosswalk; indicate points where vehicular routes cross pedestrian paths; and accommodate higher volumes of pedestrian movement by widening sidewalks at intersections;

Awnings and overhangs can enhance the appearance of the streetscape, while providing weather protection for people.

(k) require the planning and design of roads such that the placement of underground utilities supports the planting of trees and other large scale plant materials;

(l) where possible, endeavour to ensure that street accessories such as mailboxes, telephone booths, signage, vending machines, refuse containers, cycle racks and public and private above ground utilities are designed to enhance the aesthetic qualities and character of streetscapes, and located to minimize physical and visual obstruction;

(m) require the design of streetscaping elements to support on-street parking in areas of the City that are characterized by high pedestrian and commercial activity, to reduce vehicle speeds and to serve as a protective buffer between pedestrians and moving vehicles;

(n) where possible, endeavour to ensure that street fixtures such as traffic lights, traffic signs, lighting fixtures, fire hydrants, parking metres and cycle parking facilities are designed and located in a consistent and integrated manner to avoid clutter and to facilitate easy legibility and use;

(o) encourage an underground location for local utility lines and cables;

(p) where appropriate support the use of traffic calming measures to create safer environments for pedestrians and vehicles, and to maintain designated vehicle speeds and patterns of movement;

(q) support, where appropriate, the provision of cycling lanes within the paved surface of roads, which are separated from vehicular traffic by design features such as distinctive surface treatments, painted lines, symbols and signage;

(r) **encourage utility providers to provide innovative methods of containing utility services on or within streetscape features such as gateways, lamp posts and transit shelters;**

(s) **encourage utilities and infrastructure related to district energy to be considered and planned early in the development approvals process in order to minimize disruption and be cost effective; and**

(t) **require roadway lighting and other outdoor lighting be directed to eliminate or minimize, to the extent possible, direct light trespass, glare or up light.**

Human Scale

Another consideration of good community design is the degree to which a development (including buildings, landscaping, fencing and other treatment) establishes and reinforces a human scale that is comfortable and friendly to all users.

City Policy
Human Scale

14.9 City Council shall:

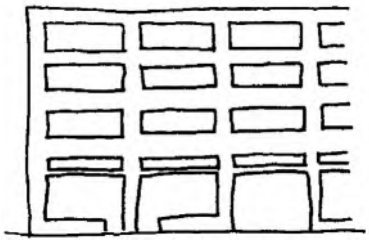
(a) **encourage the use of continuous horizontal projections such as cornices, roof overhangs or masonry courses within the first few storeys of buildings adjacent to pedestrian routes to establish human-scaled visual and physical references;**

(b) **encourage development at heights that are related to the width of the streets they front in order to establish a sense of enclosure along the public sidewalk, and to ensure reasonable sunlight on the street;**

(c) **encourage building designs that capitalize on the use of grade level windows and doors to permit visibility of human activities within the public areas of buildings;**

(d) **encourage the use of trees and shrubs in areas of more intense development or within large open spaces to create human scale; and**

(e) **promote the design of buildings, spaces, and facilities to accommodate the varied range of human dimensions, levels of mobility and strengths.**



Poor

Better

The two examples demonstrate that design emphasis on ground level details present a more comfortable, inviting building from the perspective of the pedestrian.

Design of Buildings

It is important to achieve high architectural standards in the design and construction of Pickering's built environment. Design excellence is fostered through principles and guidelines that encourage buildings and facilities to be built so that their function is understandable to the community, are adaptable over time, and relate properly to each other, their surroundings and to the street.

City Policy
Design of Buildings

14.10 City Council shall:

(a) encourage buildings that can be identified and appreciated at various scales, including up close, from the immediate area (including nearby streets that offer direct views of the building), and when appropriate, from locations beyond the immediate area;

(b) where groupings of buildings are proposed, require built forms, massing and architectural treatments that create cohesive and unified developments, and are architecturally compatible with each other and surrounding areas;

(c) where new development is proposed within an existing neighbourhood or established area, encourage building designs that reinforce and complement existing built patterns such as form, massing, height, proportion, position relative to street, and building area to site area ratios;

(d) require designs that present continuous building façades along major streets and express design elements such as floor and ceiling levels, window heights, columns and internal divisions, to assist in defining human scale and providing visual interest;

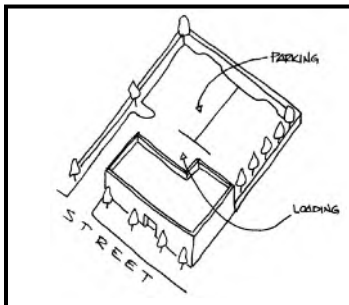
(e) discourage the placement of building functions which do not directly support public activities, such as loading bays, utility rooms and other building mechanical features (e.g., exhaust grilles), from being located on building façades adjacent to streets;

(f) require the orientation of the main front entrances to commercial, industrial, apartment and public buildings towards the street whenever possible, and to be visible from main pedestrian routes and vehicular approaches;

(g) encourage building designs that consider both the initial lifespan of the building or structure, and its potential for future adaptation;

Lack of detailing emphasizes difference in scale.

Careful treatment of the elevation and massing of a new development can bring it into scale with smaller, neighbouring buildings, even when actual height and mass are significantly different.



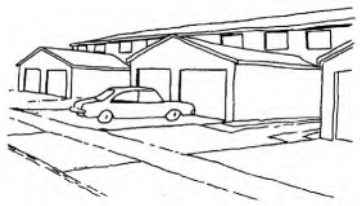
This building presents a prominent face to the street because loading bays and parking are placed to the rear.

(h) require the height, form, massing and articulation of the façade of new buildings to reflect its "position" or significance on the street (e.g., designing a commercial building that capitalizes on special opportunities provided at street corners or at the end of a view corridor);

(i) endeavour to ensure that building designs provide opportunity for protection from the elements (rain, snow, wind and sun) through the use of features such as awnings, canopies, colonnades or recessed ground floor façades;

(j) require the incorporation of bicycle storage areas in high density residential, commercial and major industrial buildings and sites;

(k) encourage the use of high quality, low maintenance building materials to help ensure an attractive appearance over time;



Garage doors make an uninteresting blank front for homes.

(l) discourage the use of corporate image building design and promote design which reflects neighbourhood character;

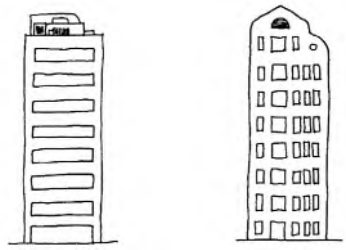
(m) encourage residential building design to minimize the impact of projecting garages on neighbourhood streetscapes;

(n) consider the following guidelines in the protection of designated heritage sites and districts:

(i) encourage the retention and repair of original building and architectural features of designated heritage sites and districts;

(ii) encourage new features and additions to designated heritage buildings that are compatible with its heritage characteristics; and

(iii) encourage development that is close to designated heritage properties does not adversely impact upon the physical quality or structural stability of nearby heritage properties;



Poor Better

Careful consideration of roof top mechanical enclosures can result in a design which enhances the whole building.

(o) encourage the implementation of green development standards in the design of buildings, including but not limited to the following:

(i) incorporating energy efficiency and alternative or renewable energy resources (such as solar panels) to reduce energy demand;

(ii) installing green or white roofs to improve energy efficiency in buildings, stormwater absorption and quality, and to reduce urban heat island effects;

(iii) installing bird-friendly glazing, particularly on new tall buildings proposed within established migratory flights paths, to prevent potentially fatal collisions with windows;

(iv) using non-toxic and recycled content building products; and

(v) orienting buildings to maximize the use of natural sunlight; and

(p) encourage development to design and certify new buildings to LEED® Silver, Gold or Platinum standards, or alternative equivalent.

Personal Security

Another important objective of community design is to achieve a high level of personal security by making developments more attractive to users, by providing better surveillance opportunities, and by reducing the opportunities for victimization. Through careful attention to design, a high level of personal security can be achieved.

City Policy
Personal Security

14.11 City Council shall:

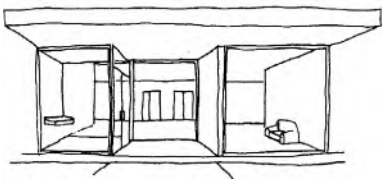
(a) endeavour to ensure that the design of developments minimize conditions that are potentially dangerous to the public without impeding functional and aesthetic characteristics;

(b) encourage the continuous occupancy and use of public spaces throughout daily, weekly and seasonal cycles by encouraging the mixing of spaces, activities and institutions which enable public presence at varied times;

(c) discourage developments from having public and publicly-accessible spaces such as parking facilities, outdoor and indoor walkways, elevators, stairs and lobbies in remote or isolated locations;

(d) endeavour to ensure publicly-accessible spaces are located near public roads, transit stops and other high activity spaces to enable public surveillance;

(e) endeavour to ensure landscaping plants and materials are used in a manner that does not obstruct views into lobbies, windows, parking facilities and pathways, or any other views needed to ensure clear surveillance and safety;



Greater visual security is provided by glazing building lobbies and opening them to views from the street.

(f) endeavour to ensure views are provided into, out-of, and through publicly-accessible interior spaces of developments through the use of transparent materials in stairways, lobbies, hallways, elevators and doors;

(g) discourage the creation of long passages or outdoor walks which cannot be adequately watched or monitored;

(h) endeavour to ensure adequate lighting, early detection (e.g., mirrors and transparency), and remote monitoring (e.g., cameras) are used in locations where personal security risks may be present;

(i) endeavour to ensure developments are designed to provide users a choice of routes between parking areas, public streets or walkway systems, and building entrances and exits; and

(j) discourage public or publicly-accessible underground pedestrian routes which do not enable adequate surveillance.

Barrier-Free Access

Barrier-free access that considers the full range of human abilities and impairments should be provided to all forms of development, public facilities and transportation modes.

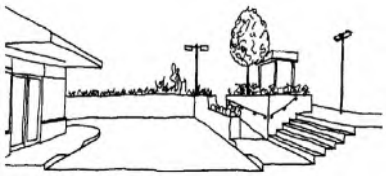
City Policy
Barrier-Free Access

14.12 City Council shall:

(a) endeavour to ensure barrier-free access is provided to all public buildings, areas and transportation facilities by using features such as level surfaces, ramps, elevators, automatic doors, curb depressions, railings and rest areas;

(b) endeavour to ensure that the main travelled portions of pedestrian routes are kept free of obstructions such as street furniture, signs or building projections; and

(c) endeavour to ensure that barrier-free features are well integrated with the functional and aesthetic design of developments to preclude the perception of segregation.



The stairs and ramp provide a safe and convenient access for all users.

Public Art

The quality of the built environment can be enhanced by promoting the integration of art in public places.

City Policy
Public Art

14.13 City Council shall:

(a) promote the placement of a range of art in publicly-accessible and visible locations such as parks, prominent street corners, plazas and on buildings;

(b) encourage public art in a broad range of media, themes and formats in order to engage the observer, foster civic identity and promote social interaction; and

(c) consider integrating public art in the early stages of the design and planning of developments.

Lighting

Another important consideration in good community design is enhancing the attractiveness and safety of the built environment by encouraging the use of lighting that is of appropriate quality, intensity and design.

City Policy
Lighting

14.14 City Council shall:

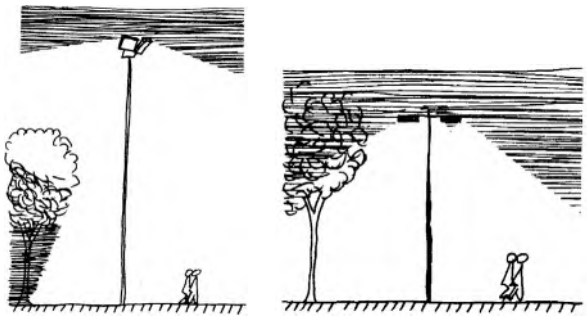
(a) promote the use of lighting to enhance and define the aesthetic and functional quality of public places such as promenades, sidewalks, squares and parks;

(b) promote the use of lighting fixtures that are compatible with the scale of pedestrian activity;

(c) promote the lighting of key buildings such as the Civic Complex, historic buildings, landmark buildings and public monuments to accentuate their architectural features and significance;

(d) encourage the use of lighting to reinforce a particular design theme or distinctive character of specific areas of Pickering such as the City Centre and the Whitevale Heritage Conservation District; and

(e) reduce the effects of light pollution on the night-time sky and on adjacent uses by requiring the use of lighting fixtures that are particularly suited to the purpose and setting in which they are to be utilized.



An intimate rather than all-inclusive approach is desirable in areas used by pedestrians.

Signage

Good community design also requires attention to signage. Signs for all types of development should contribute to the visual attractiveness of both the development and the surrounding area.

City Policy
Signage

14.15 City Council shall:

(a) require the design of signs to be used to enhance the appeal of developments, and to integrate with the architectural design of buildings, in order to contribute to the overall visual quality of the built environment;

(b) encourage the use of an appropriate variety of signage types, such as fascia signs, canopies and awnings, projecting signs, ground signs, and directory signs, which complement building designs rather than dominate them;

(c) encourage non-business related signs, such as directional signs, public information kiosks, and general identification signs, to be accommodated in the design of buildings that are adjacent to, and incorporate, public or publicly-accessible spaces; and

(d) prohibit the use of portable signs except under specific circumstances and by permit only.

Free standing and portable signs with too much information are confusing and clutter the appearance of the streetscape.

Poor

Better

Signage can be used to emphasize design features of a building, presenting a pleasing arrangement.

Pedestrian and Cycling Safety

Attention to community design can assist in making a significant difference in how easy it is for people to walk, bicycle, or use transit, as advocated by the policies of other sections in this Chapter. To further encourage this, the policies of this section endeavour to ensure that the City's streets are safe and inviting to users while recognizing the function of the road and the overall traffic movement requirements.

City Policy
Pedestrian and Cycling Safety

14.16 In the design, redesign and operational reviews of road corridors, City Council shall, in consultation with the authority having jurisdiction over the road, consider the following designs and techniques in appropriate locations to improve safety for pedestrians and cyclists:

- **(a) reducing traffic speeds by road design, instead of relying on posted speed reductions, through traffic calming techniques in appropriate circumstances, such as:**
  - **(i) narrowing the street width and/or lane widths;**
  - **(ii) reducing or eliminating visibility triangles on local roads to slow traffic and heighten awareness of potential conflicts;**
  - **(iii) reducing the design standards for horizontal and vertical curves in roads;**
  - **(iv) introducing special features such as traffic circles and roadway constrictions;**
  - **(v) reducing intersection spacing along appropriate roads; and**
  - **(vi) reducing the use of dedicated turn lanes, divided from the main intersection by islands, particularly from higher speed roads onto lower speed roads;**
- **(b) for pedestrians, provide separation from vehicular traffic and further enhance a sense of safety by:**
  - **(i) allowing greater use of on-street parking on roads, except freeways, Type A arterial roads, and some areas on Type B arterial roads, during appropriate times of the day and year to buffer pedestrians from moving vehicles;**
  - **(ii) providing medians or islands to serve as a pedestrian refuge within extremely wide road surfaces;**
  - **(iii) providing sidewalks on both sides of arterial roads, collector roads, roads through higher density residential and commercial areas, or as a minimum, on one side of all roads;**
  - **(iv) ensuring sidewalk ramps and curb cuts at intersections are level with the road;**
  - **(v) eliminating rolled or mountable curbs along streets in higher speed traffic areas where pedestrian safety could be compromised;**
  - **(vi) improving signalization timing for pedestrians;**
  - **(vii) providing pedestrian activated traffic lights; and**

(c) for cyclists, provide bikeway opportunities, as identified by the Trails and Bikeway Master Plan, that minimize the potential for conflict with vehicular traffic through such measures as:

(i) on higher volume streets, or those with on-street parking, provide bikeway lanes separated from the traveled portion of the road;

(ii) on other streets, provide dedicated bikeway lanes within the traveled portion of the road; and

(iii) for off-road multi-use trails, design and construct in a manner that is consistent with recommendations of the Trails and Bikeway Master Plan.

Part 5: Implementation, Development Review and Monitoring

This page intentionally left blank.

Chapter 15 - Implementation

The Official Plan will be implemented by a wide variety of public and private initiatives under the *Planning Act*, the *Municipal Act*, the *Heritage Act*, and other relevant provincial and/or municipal legislation. Some of the key initiatives include the following:

- capital works investment in the City's infrastructure
- subdivision control, land division approval, zoning, site plan approval, minor variances, and other development applications made under the *Planning Act*
- activities such as neighbourhood clean-up days, adopt-a-park programs, land stewardship practices and business development undertaken by community organizations, private individuals and corporations
- future discussions between City departments, boards and commissions, government agencies and stakeholders in finding satisfactory approaches to community evolution
- research on emerging issues
- monitoring procedures

The Official Plan is the City's foundation for building a good community. It sets goals, objectives and policies for our urban, rural and ecological systems. Throughout the Plan, there are many policies directing that certain actions be taken. This part of the Plan sets out the implementation framework; the means and mechanisms through which action can be taken.

Chapter 15 provides general direction and interpretation in applying the policies of this Plan. It is supported by development review policies in Chapter 16, and monitoring policies in Chapter 17.

Interpretation

The Plan contains a combination of "official" text and schedules, and other explanatory text and maps which are provided for information purposes and context. To change the "official" text and schedules, formal notice and amendments are required.

This section of the Plan helps identify which parts of the Plan are "official" and which parts are for information only. Further, it helps Council, staff and other users interpret those parts of the Plan where some guidance may be required.

City Policy
Interpretation

15.1 City Council interprets and instructs others as follows in interpreting the Pickering Official Plan:

(a) all policies, tables, maps, and schedules contained in this Plan shall be read in the context of all other policies, tables, maps and schedules of this Plan;

(b) changes to the schedules (subject to the provisions of Section 15.2), and to the goals, objectives, policies and tables in this Plan (which for ease of identification are numbered), shall require an amendment to the Plan;

(c) explanatory text, sidebars and appendices are included in this Plan for information purposes to assist users in better understanding the goals, objectives and policies of this Plan, and may be changed by Council resolution, without amendment to the Plan;

(d) where an amendment is made to the goals, objectives, policies and tables of this Plan, an appropriate corresponding change will be made as necessary to the explanatory text;

(e) changes to the goals, objectives, policies, tables and schedules of this Plan to correct grammatical or reference errors, punctuation, or to alter the formatting, numbering or arrangement of provisions may be made by the City Clerk without notice and without amendment to the Plan;

(f) for figures and quantities used in the Plan:

(i) maximum residential density figures are exact; and

(ii) all other figures used and quantities shown in this Plan, including urban and rural population and employment targets, are approximate only, and minor deviations may be made by Council provided the general purpose and intent of the Plan is maintained;

(g) permitted uses in this Plan are listed as examples of the general range and type of uses that may be allowed; specific uses not listed, but determined by Council to be similar to and generally consistent with the listed uses may also be permitted through the zoning by-law;

(h) despite the permissible uses listed in Chapter 3, public roads, utilities and other public infrastructure and facilities may be permitted in any land use designation, subject to the other relevant provisions of this Plan and any other applicable legislation; and

(i) despite Section 15.1 (h), municipal facilities such as municipal works depots, fire halls and community facilities, may be considered in Prime Agricultural Areas, through site-specific amendment to this Plan, and subject to provisions of the Durham Regional Official Plan.

City Policy
Schedule Interpretation

15.2 City Council shall be guided by the following in interpreting the Schedules to this Plan:

(a) maps (other than Schedules) are included in this Plan for information purposes to assist users in better understanding the goals, objectives and policies of this Plan, and may be changed by Council resolution without amendment to the Plan;

(b) subject to the provisions of Subsections (c) to (f) of this section, the following information contained on Schedules I, II, IIIA-F, IV-1 to IV-13, and VII to XIII to this Plan shall be changed only by amendment to the Plan except for the Greenbelt Plan boundary and the lands that are designated in accordance with the Oak Ridges Moraine Conservation Plan, which cannot be amended unless first modified by the Province:

(i) on Schedule I, the land use categories and areas designated;

(ii) on Schedule II, all existing and proposed road categories and locations of proposed roads (except local roads which are shown for information purposes), and the location of all other existing and proposed transportation facilities and services;

(iii) on Schedules IIIA-F, all resource management features, areas and boundaries;

(iv) on Schedules IV-1 to IV-13, all settlement boundaries, land use designations and proposed road by-pass locations;

(v) on Schedule VI, the Oak Ridges Moraine Boundary, and the Landform categories;

(vi) on Schedule VII, bikeways, trails and trailheads; and

(vii) on Schedule VIII to XIII, all land use categories and areas designated; all bikeways, trails and trailheads; and all symbols and their location;

(c) symbolic and contextual information provided on the Schedules to this Plan (pipelines, existing and proposed community facilities, and watercourses) are included for information purposes to assist the user and may be changed without notice and without amendment to the Plan;

(d) the boundaries and alignments of the land use designations are approximate, and provided the general purpose and intent of the Plan is maintained, minor adjustments may be made without notice and without amendment to the Plan except where such boundaries are established by fixed features such as railways, highways and roads, lot and concession lines, or property lines;

(e) the alignment of future roads, bikeways, trails and trailheads, designated on the Schedules, and the Natural Heritage System identified on Schedule IIIA, are diagrammatic and minor realignments may be made without notice and without amendment to the Plan provided the general purpose and intent of this Plan are maintained;

(f) the boundaries of Detailed Review Areas and Rural Study Areas, and the location of proposed schools, parks or other community facilities on Schedules and maps are approximate;

(g) in the event that a single parcel of land is governed by two or more separate land use designations, the policies of each of the respective designations shall apply to that portion of the parcel so designated; and

(h) for lands on the Oak Ridges Moraine, minor changes and refinements to Schedule III based on updated information from the Province or as a result of detailed studies, such as those noted above, will not require an amendment to this Plan, and, where the feature is a wetland, an area of natural and scientific interest and/or significant portions of the habitat of endangered, rare and threatened species, or their related minimum vegetation protection zones, proposed refinements to the boundary or the extent of the feature requires formal confirmation from the Province prior to any development.

City Policy
Future Facilities

15.3 City Council acknowledges that an indication of a future road, park and/or other service or facility does not constitute a commitment by the City, the Region or the Province to provide such a service or facility at such location at a particular point in time, nor assume approvals under other statutes; rather it is the City's statement of general intent and location.

City Policy
Open Space System Boundaries

15.4 Except for lands that are designated in accordance with the Oak Ridges Moraine Conservation Plan, City Council shall determine the exact boundaries of the Open Space System in consultation with relevant agencies including the appropriate conservation authority, and considering the results of any Environmental Report required by Section 16.8.

City Policy
Open Space System Boundaries

15.5 City Council recognizes that the Open Space System designations on Schedule I may include private lands that are not accessible to the general public and may not be intended for public ownership.

City Policy
Access to Open Space System Lands

15.6 Where this Plan indicates activities to be undertaken by City Council, City Council may authorize or delegate staff or others to undertake such activities on its behalf.

City Policy
Delegation of Authority

15.7 Where questions of interpretation arise regarding certain terms used in this Plan that are based on terms and definitions found in the Oak Ridges Moraine Conservation Plan, Greenbelt Plan, or the Central Pickering Development Plan, regard shall be had to the Oak Ridges Moraine Conservation Plan, the Greenbelt Plan, or the Central Pickering Development Plan, whichever is applicable.

General Implementation

This section of the Plan provides general implementation policies on how Council and others should act in administering the Plan or undertaking initiatives directed by the Plan. It also sets out Council's commitment to public notification and participation in community development.

City Policy
Official Plan Management

15.8 City Council shall:

(a) at least every five years, review its official plan as required, to ensure that it conforms with Provincial Plans, has regard to matters of Provincial interest and is consistent with the Provincial Policy Statement, and may do so at any time earlier if warranted;

(b) **following such a review and/or as a result of a regular monitoring program, make appropriate amendments to the Plan;**

(c) **undertake planning or other studies for specific areas of the City or to address specific planning issues, and where warranted, incorporate the results of such studies into the Plan;**

(d) **consider applications to amend this official plan in accordance with the provisions of the *Planning Act* and this Plan; and**

(e) **request an amendment to the Durham Regional Official Plan where it is determined that an amendment is desirable, and work closely with Durham Council in reaching a mutually satisfactory alternative position.**

City Policy
Public Participation

15.9 City Council shall:

(a) **seek the input of individuals, community and special interest groups, public boards, commissions, and agencies on planning and related matters;**

(b) **ensure that community concerns are considered in plans for development by seeking broad public participation in the planning and decision making processes;**

(c) **maintain an effective public information and communication program;**

(d) **when considering proposed amendments to the official plan and/or the zoning by-laws, make adequate information available to the public, and hold at least one public meeting at which any person in attendance may provide comments about the proposed amendment; at its discretion, Council may hold another public meeting should the proposed amendment to the official plan and/or zoning by-law be changed after the earlier public meeting;**

(e) **consider a proposed official plan and/or zoning by-law amendment at a meeting open to the public and hear comments from the public prior to making a decision on the matter; and**

(f) **establish a public notification and participation process for reviews undertaken within Detailed Review Areas, and for major amendments to Council-adopted development guidelines, identified in this Plan.**

City Policy
Review of Public Participation Procedures

15.10 City Council shall regularly review its public participation and notification procedures to ensure adequate and appropriate public involvement in community development matters, and in doing so, shall consider the following:

(a) **the structure and format of the statutory public information meetings to ensure they allow for constructive public participation and exchange of information between interested parties;**

(b) **the need for a public planning advisory committee to provide comments and assistance to staff and Council on planning and related matters;**

(c) **the effectiveness of the prevailing public notification procedures, including signage requirements, newspaper advertisements and mail notification radius and process;**

(d) **the extent to which under represented groups are involved;**

(e) **the role of community associations in providing comments, disseminating information and facilitating neighbourhood participation;**

(f) **balancing the involvement of landowners and the public in the site plan review process; and**

(g) **establishing guidelines for keeping the public aware of approved development not yet constructed.**

City Policy
Others to Assist in Implementation

15.11 City Council recognizes that the implementation of goals, objectives and policies contained within this Plan may be partially or wholly dependent on the actions of other levels of government, and accordingly, Council shall:

(a) **consult others when implementing the goals, objectives and policies of this Plan; and**

(b) **encourage others including higher levels of government, regional and provincial boards, agencies and commissions, and others to take appropriate actions to assist in implementing the goals, objectives and policies of this Plan.**

City Policy
Oak Ridges Moraine and Greenbelt Plan Lands
Subject to Other Provincial and Regional Policies

15.12 Despite the policies of this Plan, the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan, lands located on the Oak Ridges Moraine and within the Greenbelt Plan are also subject to the policies in both the Region of Durham Official Plan and the Provincial Policy Statement where there is no conflict.

City Policy
Partnership

15.13 City Council may participate, in partnership with the Province, the Region of Durham and other stakeholders within the Oak Ridges Moraine Area on the following:

(a) **the development and administration of effective and accessible data management systems for natural heritage and hydrological information; and**

(b) **the development of programs to monitor the long-term health of the Oak Ridges Moraine and assist in public education.**

City Policy
Transitional Policies

15.14 Within the Oak Ridges Moraine there are applications under the *Planning Act* and *Condominium Act*, which due to their date of commencement and decision are subject to the Transition and Further Approval provisions of the *Oak Ridges Moraine Conservation Act*, 2001 (Sections 15 and 17), and accordingly:

(a) **all applications, as defined under the *Oak Ridges Moraine Conservation Act*, 2001, which commenced on or after November 17, 2001 are required to conform to the Oak Ridges Moraine Conservation Plan;**

(b) **applications in Natural Core, Natural Linkage or Countryside Areas, that were commenced but not decided prior to November 17, 2001, as defined in the *Oak Ridges Moraine Conservation Act*, 2001, are required to conform to the prescribed provisions under Section 48 of the Oak Ridges Moraine Conservation Plan;**

(c) **applications in Natural Core, Natural Linkage or Countryside Areas, that were commenced but not decided prior to November 17, 2001, as defined in the *Oak Ridges Moraine Conservation Act*, 2001 are not subject to the provisions of the Oak Ridges Moraine Conservation Plan provided that the use, building or structure for which the application was intended, is legally existing as of the date of this Plan;**

(d) **notwithstanding policies a), b) and c) above, where a planning application is submitted after November 17, 2001 as a direct result from a condition attached to a provisional consent, a draft plan of subdivision or a draft plan of condominium, such an application shall be completed under the same system in effect as the original approval in accordance with Section 17(1) of the *Oak Ridges Moraine Conservation Act*, 2001 (as amended by the *Greenbelt Protection Act*, 2004); and**

(e) **in addition, any development permission established by such a further approval may be recognized in the local municipal official plan and zoning by-law, as appropriate.**

City Policy
Glossary

15.15 Glossary:

Adaptation **means adjustment to actual or predicted climatic changes in a manner that reduces harm. Adaptation can be proactive (take place before impacts are observed), spontaneous (triggered by ecological changes), and planned (deliberate decisions based on awareness that conditions have changed or are about to change and that action is required).**

Climate Change **refers to any change in climate over time whether due to natural variability or as a result of human activity.**

Dynamic Beach Hazard **means areas of inherently unstable accumulations of shoreline sediments along Lake Ontario, as identified by Provincial standards, as amended from time to time. The dynamic beach hazard limit consists of the flooding hazard plus a dynamic beach allowance.**

Event Based Area (EBA) **means the area delineated by a spill or "event", such as a chemical or pathogen release, which might impact the drinking water intakes for the Great Lakes.**

Green Development **refers to development that reduces growth's dependence on resource use, carbon emissions and environmental damage, and includes the incorporation of technologies and practices that maximize the natural infiltration and retention of stormwater through site development.**

Green Technologies **refers to technology that mitigates the effects of the built environment on the natural environment, and often involve energy efficiency, recycling, safety and health concerns and renewable energy resources.**

Groundwater Recharge Area means an area where an aquifer is preferentially replenished from natural processes, such as the infiltration of rainfall and snowmelt and the seepage of surface water from lakes, streams and wetlands; and from human interventions, such as the use of stormwater management systems. The Director's rules will specify the acceptable methodology to determine groundwater recharge rates i.e., what qualifies as a significant groundwater recharge area.

The term "Director" in the definition of Groundwater Recharge Area refers to the Director of the relevant provincial ministry.

Groundwater Recharge Area, Significant means an area within which it is desirable to regulate or monitor drinking water threats that may affect the recharge of an aquifer.

Hazardous Lands means property or lands that could be unsafe for development due to naturally occurring processes. Along a creek, this means the land, including that covered by water, to the furthest landward limit of the flooding hazard or erosion hazard limits. Along the Lake Ontario shoreline, this means the land, including that covered by water, between the international boundary, where applicable, and the furthest landward limit of the flooding hazard, erosion hazard, or dynamic beach hazard limits.

Hazardous Sites means property or lands that could be unsafe for development and site alteration due to naturally occurring hazards.

Heat Island means an area, such as a city or industrial site, having consistently higher temperatures than surrounding areas because of a greater retention of heat, as by buildings, concrete, and asphalt.

Highly Vulnerable Aquifer means an aquifer on which external sources have or are likely to have a significant adverse effect, due to the permeability and thickness of overlying layers. Notwithstanding the foregoing, on the Oak Ridges Moraine, Highly Vulnerable Aquifer includes areas that are prescribed as "high aquifer vulnerability" in the Oak Ridges Moraine Conservation Plan.

The methodology used to determine "areas of high aquifer vulnerability" as prescribed by the Oak Ridges Moraine Conservation Plan, differ from the methodology used to determine Highly Vulnerable Aquifers for the Credit Valley, Toronto and Region, and Central Lake Ontario Source Protection Plan.

Schedule IIID: Resource Management: Highly Vulnerable Aquifers, Significant Groundwater Recharge Areas, identifies "areas of high aquifer vulnerability" on the Oak Ridges Moraine and "Highly Vulnerable Aquifers" under the heading of Highly Vulnerable Aquifers.

Infrastructure (as used in the Seaton Urban Area) means physical structures (facilities and corridors) that form the foundation for development and includes: storm sewers, stormwater management facilities, waste water and water systems, electric power generation and transmission including renewable energy systems, communications/telecommunications, transit and transportation corridors and facilities, oil and gas pipelines and associated facilities.

Intake Protection Zone means the contiguous area of land and water immediately surrounding a surface water intake, which includes:

- the distance of a 1 kilometer radius from the intake;
- the area where a spill of a contaminant might reach the intake before the plant operator can respond;
- the area associated with potential impacts from specific modelled scenarios.

Key Hydrologic Feature includes wetlands, permanent and intermittent streams, kettle lakes, seepage areas and springs, Lake Ontario, and the Lake Ontario Shoreline.

Key Natural Heritage Feature includes the significant habitat of endangered species, threatened species and special concern species, fish habitat, wetlands, Areas of Natural and Scientific Interest, significant woodlands, significant valleylands, significant wildlife habitat, sand barrens, savannah and tallgrass prairies, and alvars.

Landscape Industry means an operation that offers services involving the planting and caring for trees, flowers, shrubs, ground covers and grass, and may also include design and implementation services for walkways, decks, retaining walls, patios, lighting and other landscape design elements. Small scale landscape industries shall not:

- include retail sales on site, the mixing of paper bio-solids or sewage sludge for the purposes of manufacturing a product, or the manufacturing of garden supplies and landscape design products;
- require large-scale modification of terrain, vegetation or both;
- exceed a site area of 1 hectare, inclusive of structures, facilities and outside storage associated with the landscape industry.

Low Impact Development (LID) Stormwater Management Practices means a stormwater management strategy that seeks to mitigate the impacts of increased urban runoff and stormwater pollution by managing it as close to its source as possible. It comprises a set of site design approaches and small scale stormwater management practices that promote the use of natural systems for infiltration and evapotranspiration, and rainwater harvesting.

Placemaking is an urban design process aimed at creating communities that offer a distinct character, a strong sense of community, a context for healthy lifestyles and a high quality of life.

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, a biomass resource or product, or solar and geothermal energy.

Significant Other features and areas means those other features and areas referred to in Policy 2.1 (Natural Heritage) of the Provincial Policy Statement and Section 3.2.4 of the Greenbelt Plan that are ecologically important in terms of features, functions, representation, or amount, and contribute to the quality and diversity of an identifiable geographic area or natural heritage system. While some significant resources may already be identified and inventoried, the significance of others can only be determined after evaluation.

Significant Valleylands means a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year, which is ecologically important in terms of features, functions, representation or amount, and contribute to the quality and diversity of the natural heritage system.

Significant Wildlife Habitat means areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations, which are ecologically important in terms of their features, functions, representation or amount, and contribute to the quality and diversity of the natural heritage system. 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.

Significant Woodlands (off the Oak Ridges Moraine) means an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size, or due to site quality, species composition, or past management history. In the Oak Ridges Moraine, significant woodlands are further defined by the Province in the Oak Ridges Moraine Conservation Plan and the associated technical guidelines.

Sustainable Design involves the practices, processes and principles of designing, constructing and operating buildings, objects, sites and areas incorporating the values of ecological, social, cultural and economic sustainability.

Urban Forest refers to the total collection of trees and associated vegetation within the urban boundary of the City of Pickering.

Vegetation Protection Zone means a buffer area adjacent to a key natural heritage feature or a key hydrologic feature that is intended to protect the feature and its ecological function from adjacent land use impacts.

Vulnerable Area means an area defined as vulnerable, in accordance with provincial standards, by virtue of their importance as a drinking water source and includes; a groundwater recharge area, a highly vulnerable aquifer, a surface water intake protection zone, or a wellhead protection area.

Water-related Hazards means water-associated phenomena other than flooding hazards and wave uprush which act on shorelines. This includes, but is not limited to ship generated waves, ice piling, and ice jamming.

Watershed means an area that is drained by a river and its tributaries.

Wave Uprush means the rush of water up onto a shoreline or structure following the breaking of a wave, with the limit of wave uprush being the point of furthest landward rush of water onto the shoreline.

Wellhead Protection Area (WHPA) means the surface and subsurface area surrounding a water well or well field that supplies a municipal residential system or other designated system through which contaminants are reasonably likely to move so as to eventually reach the water well or well field.

> The size and shape of each Wellhead Protection Area (WHPA) (B, C, D or E) is a function of how water travels underground. Time of travel is important because it is an indication of how quickly a contaminant can move through the WHPA to a municipal well. Time of travel can be influenced by a number of factors such as the slope of land, and the type of soil (for example, water travels faster through sand than it does through clay). Wellhead Protection Areas were drawn based on scientific research that took all these factors into consideration.

Wetlands means 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.

This page intentionally left blank.

Chapter 16 - Development Review

The review and consideration of development proposals by staff and Council, in consultation with the public and relevant agencies is a primary activity that enables implementation of the goals, objectives and policies of this Plan.

This Chapter of the Plan provides guidance on the types of matters that should be examined in the review of development applications. Some of these matters include: provincial and regional policies; the goals, objectives and policies of this Plan; the results of any supporting studies; the results of agency consultation; and the results of public consultation.

This Chapter also outlines the various reports that are required to be submitted in conjunction with a development application to constitute a complete application. An application would be deemed to be complete when all required information as set out in this Chapter has been submitted to the City. A standard list of required studies is provided for all development applications. However, during the pre-submission consultation with the applicant, staff will identify the studies from the standard list that will not be required or may be scoped in extent, or may request additional information depending on the complexity of the application.

Further, this Chapter describes some of the various tools that can be used under the *Planning Act* (such as interim control, holding and temporary use by-laws), and provides some enabling policies so the City can require certain matters as conditions of development approvals (such as dedication of parkland and securing road widenings).

Review of All Applications

All applications for development are reviewed against a variety of matters including the relevant plans, programs and policies of the Province, the Region of Durham, the City of Pickering and other relevant boards and agencies.

City Policy
Matters to be Considered in Review of All Applications

16.1 In the review of all development applications, City Council shall consider the following to a level of detail commensurate with the scale and scope of the application:

- **(a) the policies of the Federal Government, the Province of Ontario, the Durham Regional Official Plan, other policies and programs of the Region, this official plan, development guidelines adopted by Council, and any other applicable plans, policies, programs, regulations and guidelines;**
- **(b) potential positive and negative impacts on the ecological, urban and rural systems (considering where appropriate, short-term, long-term and cumulative effects);**
- **(c) public and agency consultation, both formal and informal;**
- **(d) the results of any required supporting reports; and**
- **(e) any other matters Council deems appropriate.**

Supporting Reports

An application is deemed complete when all of the required items and supporting reports provided in Sections 16.2 to 16.14 are submitted. The policies in this section detail specific requirements for the submission of various supporting reports. Other reports may be required by other sections of this Plan.

Some reports are required with the submission of an application, and others may be required to be submitted to fulfill conditions of approval. The reports may also recommend various management plans or programs that must be implemented by the proponent of a development as a condition of approval.

City Policy
Pre-submission Consultation

16.2 City Council shall require applicants to consult with the municipality prior to submitting an application for an official plan amendment, zoning by-law amendment, draft plan of subdivision, draft plan of condominium or site plan approval. The pre-submission consultation meeting will be held with the applicant, City staff and any other government agency or public authority that the City determines appropriate. At the pre-submission consultation meeting:

- **(a) the list of required studies set out in Sections 16.5A or 16.5B will be scoped to only require studies related to the application. The City, in consultation with applicable agencies, may also prepare terms of reference/guidelines for any of the required studies which would set out the required study information, analysis and recommendations necessary to address the scope and complexity of the application; and**
- **(b) additional studies may be determined necessary for submission with the application based on the nature of the application.**

City Policy
Complete Application

16.3 City Council shall not accept an application for an official plan amendment, zoning by-law amendment, draft plan of subdivision, draft plan of condominium, or site plan approval until the following has been submitted to the City:

- **(a) a complete application form, including an acknowledgement by the applicant of the obligation to pay required peer review costs, as referred to in Section 16.4;**
- **(b) any information or materials prescribed by statute and regulation;**
- **(c) a record of pre-submission consultation;**
- **(d) the prescribed application fee(s);**
- **(e) payment, or proof of payment of application review fees charged by commenting agencies;**
- **(f) all required studies set out in Section 16.5A for an official plan amendment, zoning by-law amendment, draft plan of subdivision and draft plan of condominium application; and**
- **(g) all required studies set out in Section 16.5B for a site plan application.**

City Policy
Peer Review at Applicant's Expense

16.4 City Council shall require all of the matters set out in Sections 16.3, 16.5A, and/or 16.5B to be completed to the satisfaction of the City respecting the scope and complexity appropriate to the application prior to the City deeming the application complete. Once an application is deemed complete, the City may retain a qualified consultant to conduct a peer review of any of the studies required in Sections 16.5A and/or 16.5B at the applicant's expense as acknowledged on the application form and as provided for in Section 16.3(a).

City Policy
Required Studies for an Official Plan Amendment,
Zoning By-law Amendment, Draft Plan of Subdivision,
and Draft Plan of Condominium Approval

16.5A City Council shall require the following materials and studies prepared by qualified experts, as scoped or expanded as a result of the pre-submission consultation required by Section 16.2, to be submitted at the time of application for an official plan amendment, zoning by-law amendment, draft plan of subdivision, and draft plan of condominium approval:

(i) **a planning rationale report which considers the overall benefit to the community and evaluates the proposal against the relevant goals, objectives, policies and general purpose and intent of this Plan, the Regional Official Plan, the Provincial Policy Statement, the Growth Plan for the Greater Golden Horseshoe, the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan, where applicable;**

(ii) **a transportation study;**

(iii) **a shadow study;**

(iv) **a wind study;**

(v) **a statement of compliance with heritage conservation designation or conservation district policies;**

(vi) **an archaeology assessment;**

(vii) **a functional servicing study addressing municipal water and wastewater servicing; for smaller site-specific applications, a site servicing study may be required in lieu of a functional servicing study;**

(viii) **a drainage and stormwater management study, including preliminary grading;**

(ix) **a flood plain impact engineering study as referred to in Subsection 16.32(f);**

(x) **an agricultural report as referred to in Section 16.6;**

(xi) **a site suitability study as referred to in Section 16.7;**

(xii) **an environmental report as referred to in Section 16.8, which may also include a natural heritage evaluation or hydrological evaluation as referred to in Subsections 16.5A (xiii) and (xiv) respectively;**

(xiii) **a natural heritage evaluation as referred to in Section 16.10(d);**

(xiv) a hydrological evaluation as referred to in Section 16.10(d)

(xv) a hydrogeology and water budget study including the study referred to in Section 16.5A for development in Highly Vulnerable Aquifer Areas;

(xvi) a watershed/subwatershed study for major development as determined on a case by case basis;

(xvii) an impact study on potential aggregate extraction as referred to in Section 10.10(b);

(xviii) an aggregate extraction assessment study as referred to in Section 10.10(b) and Sections 16.34 and 16.36;

(xix) an assessment of lands within 500 metres of a Known Waste Disposal Site as referred to in Section 16.11A;

(xx) a Phase I environmental site assessment and a Phase II environmental site assessment and Record of Site Condition if the Phase I environmental site assessment shows potential for contamination, as referred to in Section 16.11B;

(xxi) a contamination management plan for development in high aquifer vulnerable areas;

(xxii) a containment management plan for development in proximity to a wellhead protection area;

(xxiii) a waste disposal community impact study as referred to in Section 16.37;

(xxiv) a noise study as referred to in Section 16.12;

(xxv) a vibration study as referred to in Section 16.12;

(xxvi) a dust and/or odour study as referred to in Section 16.12;

(xxvii) a lighting study as referred to in Section 16.12;

(xxviii) a retail impact study as referred to in Section 16.13;

(xxix) a sustainable development report, or checklist, describing the sustainable measures being implemented in the development, including but not limited to initiatives related to energy efficiency, water efficiency, building materials, indoor air quality, landscaping, stormwater management and construction waste;

(xxx) a rental housing conversion study for the conversion of rental units to condominium tenure;

(xxxi) an urban design brief which indicates how relevant development and/or urban design guidelines and related policies of this Plan are proposed to be implemented;

(xxxii) a financial impact study;

(xxxiii) an architectural design study;

(xxxiv) a railway corridor safety study;

(xxxv) a groundwater impact study demonstrating how groundwater quantity and quality will be protected, improved or restored in areas where groundwater could be significantly impacted;

(xxxvi) a water balance study, as referred to in Sections 10.29 (e), 10.29 (f), 10.29 (g), 10.29 (h), and 10.29 (k);

(xxxvii) an Information and Communication Technologies Implementation Plan, as referred to in Section 7.12 (b); and

(xxxviii) a salt management plan as referred to in Sections 10.13 (g), and 10.27 (c).

City Policy
Required Studies for Site Plan Approval

16.5B City Council shall require the following materials and studies prepared by qualified experts, as scoped or expanded as a result of the pre-submission consultation provided for by Section 16.2, to be submitted at the time of application for site plan approval:

(i) a transportation study;

(ii) a shadow study;

(iii) a wind study;

(iv) a statement of compliance with heritage conservation designation or conservation district policies;

(v) an archaeology assessment;

(vi) a site servicing study addressing municipal water and wastewater servicing;

(vii) a drainage and stormwater management study, including preliminary grading;

(viii) a floodplain impact engineering study as referred to in Section 16.32(f);

(ix) a grading plan;

(x) a landscape plan;

(xi) an agricultural report as referred to in Section 16.6;

(xii) a site suitability study as referred to in Section 16.7;

(xiii) an environmental report as referred to in Section 16.8, which may also include a natural heritage evaluation or hydrological evaluation as referred to in Subsections 16.5A (xiii) and (xiv) respectively;

(xiv) a report demonstrating compliance with the Oak Ridges Moraine Conservation Plan;

(xv) an assessment of lands within 500 metres of a Known Waste Disposal Site as referred to in Section 16.11A;

(xvi) a Phase I environmental site assessment and a Phase II environmental site assessment and Record of Site Condition if the Phase I environmental site assessment shows potential for contamination as referred to in Section 16.11B;

(xvii) a waste disposal community impact study as referred to in Section 16.37;

(xviii) a noise study as referred to in Section 16.12;

(xix) a vibration study as referred to in Section 16.12;

(xx) a dust and/or odour study as referred to in Section 16.12;

(xxi) a lighting study as referred to in Section 16.12;

(xxii) a sustainable development report, or checklist, describing the sustainable measures being implemented in the development, including but not limited to initiatives related to energy efficiency, water efficiency, building materials, indoor air quality, landscaping, stormwater management and construction waste;

(xxiii) an urban design brief which indicates how relevant development and/or urban design guidelines and related policies of this Plan are proposed to be implemented;

(xxiv) an architectural design study;

(xxv) a construction management plan;

(xxvi) a railway corridor safety study;

(xxvii) an Information and Communication Technologies Implementation Plan, as referred to in Section 7.12(b);

(xxviii) a water balance study, as referred to in Sections 10.29 (e), 10.29 (f), 10.29 (g), 10.29 (h), and 10.29 (k); and

(xxix) a salt management plan as referred to in Sections 10.13 (g) and 10.27 (c).

City Policy
Agency Consulting on Supporting Report and Plans

16.5C City Council, in considering any supporting report or management plan, shall consult with the relevant conservation authority, provincial ministry, regional department, and other relevant group or agency on the appropriateness and approval of the report or plan.

City Policy
Agricultural Areas: Supporting Information
to Permit Non-Agricultural Uses

16.6 When considering applications for non-agricultural uses and lot creation on lands designated Prime Agricultural Areas, Open Space System or Oak Ridges Moraine Countryside Areas by this Plan, City Council shall require an Agricultural Report prepared by a qualified expert. The Agricultural Report shall demonstrate, to the City's satisfaction, that:

(a) (i) the proposal complies with the minimum distance separation formulae and guidelines policy;

(ii) the proposal both minimizes and mitigates impacts on surrounding agricultural operations and lands to the extent feasible;

(iii) the proposal identifies a need for additional lands to be designated to accommodate the proposed use within the planning horizon provided for in this plan;

(iv) the proposal is not located on lands which comprise specialty crop areas;

(v) there are no reasonable alternatives to accommodate the proposal which avoid prime agricultural areas, and

(vi) **there are no reasonable alternative locations to accommodate the proposal in prime agricultural areas with lower priority agricultural lands; and**

(b) for proposals respecting livestock facilities, that the proposal complies with the Minimum Distance Separation Formula as addressed in Section 16.40 of this Plan.

City Policy
Rural Areas: Supporting Information for Non-Agricultural Uses

16.7 When considering applications for non-agricultural uses in the Rural Area, City Council shall require a site suitability study prepared by qualified experts. The site suitability study shall demonstrate to the satisfaction of the City, in consultation with other relevant agencies, that:

(a) the development will have an adequate supply of potable water and soil conditions are satisfactory for the effective operation of a private waste sewage system on each proposed lot; and

(b) there will not be any adverse impacts on the supply of water or the soil and groundwater conditions of adjacent properties.

City Policy
Environmental Reports Required

16.8 City Council:

(a) as determined through a pre-submission consultation in Section 16.2, require the submission and approval of an Environmental Report as part of the consideration of a development application or a public infrastructure project for major development within 120 metres of the Natural Heritage System or within the minimum area of influence prescribed in Table 18 of this Plan; and

(b) despite Section 16.8(a), may, through the pre-submission consultation in Section 16.2, require the submission and approval of an Environmental Report as part of its consideration of any other development application or public infrastructure project.

Major development generally includes proposals such as those requiring the following: an official plan amendment application; a draft plan of subdivision application; and/or a rezoning application. In addition, industrial uses with significant outdoor storage and/or atmospheric emissions, golf courses, landfills, and aggregate extraction operations would be considered major development.

Minor development generally includes proposals requiring the following: a Committee of Adjustment application; and a land division application. Additions to existing structures, limited infilling, and additional structures on previously developed sites would generally also fit this category.

City Policy
Environmental Reports: Exemption for Agricultural Uses

16.9 Agricultural uses including the construction of farm related buildings are exempt from the requirements of Section 16.8, except for uses adjacent to Known Waste Disposal Sites, which shall be subject to the policies of Sections 16.8(b) and 16.11A.

City Policy
Environmental Report Contents

16.10 City Council shall require that the Environmental Report submitted in accordance with Section 16.8 include at least the following:

(a) a description of the development proposal, including the purpose, location, land area and proposed use;

(b) a description of the landforms, features and functions, of the environment that may be affected, directly or indirectly, by the proposed development;

(c) an assessment of the expected effects of the development proposal on the environment, both positive and negative;

(d) a natural heritage evaluation and/or a hydrological evaluation to identify vegetation protection zones for lands located within the Greenbelt;

(e) based on the foregoing, a determination of the site's developable limits demonstrating whether the features and functions of the site can be maintained if development also occurs on the lands;

(f) a listing of assumptions used in the assessment;

(g) recommendations regarding the actions necessary to prevent potential negative effects and enhance potential positive environmental effects of the proposed development;

(h) where potential negative effects are unavoidable, recommendations regarding the actions necessary to mitigate or remedy the negative effect; and

(i) a monitoring plan to assess significant effects of development on the key features and functions of the environment.

The Environmental Report may be scoped depending on the significance or sensitivity of the feature being studied. This means that the level of detail presented in the data and recommendations of the Report is inherent in the level of impact that the proposal may impose on the feature - the greater the potential impact, the greater the level of detail required to review the proposal.

City Policy
Supporting Information for Lands within 500 metres of a Known Waste Disposal Site

16.11A City Council shall require, for lands on or within 500 metres of a Known Waste Disposal Site, an assessment of risks from landfill gases and leachate, to the satisfaction of the City, that:

(a) is carried out by a qualified engineer;

(b) examines the potential affects of the waste disposal site on the proposed development; and

(c) makes recommendations on the construction and phasing of development to ensure the implementation of the Report's recommendations including monitoring for lands on or within 500 metres of a Known Waste Disposal Site.

City Policy
Environmental Site Assessment

16.11B On lands suspected of being contaminated (for example: sites where filling has occurred; lands used for industrial, transportation or utility purposes; certain commercial properties such as gas stations, auto repair garages and dry cleaning plants), City Council shall:

(a) require the proponents of development to complete, prior to any approvals for the site, a Phase I environmental site assessment and a Phase II environmental site assessment and Record of Site Condition if the Phase I environmental site assessment shows potential for contamination, in accordance with provincial guidelines and legislation as may be amended from time to time, to identify any on-site contamination, and following completion of the assessment, should contamination be found, require the restoration of the site to a condition suitable for the intended uses, before permitting the establishment of the uses; and

(b) prohibit residential uses on lands previously used for automobile repairs, for service stations, for fuel storage, or for the disposal of construction waste or debris unless the site is first restored in accordance with provincial guidelines and legislation as may be amended from time to time.

City Policy
Noise, Vibration, Dust, Light, Safety
and Odour Studies

16.12 For applications with impacts from noise, vibration, dust, light spillage or odours, or which may raise safety concerns, City Council shall require a proponent to complete an appropriate study, prepared by a qualified expert, as specified in Subsections (a), (b) and (c) below to the satisfaction of the City in consultation with relevant agencies, as follows:

(a) on lands affected by noise, for proposals for new sensitive land uses within 300 metres of a railway right-of-way or an arterial road or Provincial Highway, and for proposals for new land uses (including, but not limited to, commercial and industrial uses) that may introduce new sources of noise adjacent to sensitive land uses, City Council shall require the proponent to complete a noise study, and:

(i) shall require appropriate measures to mitigate any adverse effects from the noise identified by the study; and

(ii) shall only permit development if attenuation measures satisfactory to the City are undertaken to prevent or mitigate adverse impacts, which measures may include, but not limited to, berming, fencing and the imposition of building setbacks to be undertaken as a condition of approval;

(b) for proposals for new sensitive land uses in proximity to sources of dust, light spillage and/or odours, and for proposals for new land uses that may introduce or increase existing light spillage, dust or odours, City Council shall require the proponent to complete an appropriate dust, light and/or odour analysis, and

(i) shall require appropriate measures to mitigate any adverse effects from the dust, light, and/or odours identified by the study; and

(ii) shall only permit development if attenuation measures satisfactory to the City are undertaken to prevent or mitigate adverse impacts, which measures may include, but are not limited to: buffering or imposition of separation distances between the respective land uses to be undertaken as a condition of approval;

(c) for proposal that would introduce new sensitive uses on lands within 75 metres of a railway right-of-way, City Council shall require the proponent of development to complete:

(i) a vibration impact study, and shall require appropriate safety measures to mitigate any adverse effects from the vibration identified by the study; and

(ii) a railway corridor safety study and shall require that all proposed development adjacent to railways provides appropriate safety measures such as setbacks, berms and security fencing to the satisfaction of the City, in consultation with the appropriate railway.

City Policy
Retail Impact Study

16.13 Outside the City Centre, City Council, in the review of development proposals for new or expanded gross leasable floor space for the retailing of goods and services:

(a) shall for the development of 2,500 square metres or greater of floor space; and

(b) may for the development of less than 2,500 square metres of floor space;

as determined through a pre-submission consultation in Section 16.2, require a retail impact study:

(i) to justify the proposed floor space for the retailing of goods and services; and

(ii) to demonstrate that such additional floor space will not unduly affect the viability of any lands designated or developed for the retailing of goods and services.

City Policy
Evaluation Reports required
in Highly Vulnerable Aquifer Areas

16.14 City Council, for development or site alteration in Highly Vulnerable Aquifer Areas (See Schedule IIID):

(a) outside Urban Areas, may require a hydrogeological investigation to assess whether other uses that are not listed as high, moderate or low risk to groundwater in the Durham Regional Official Plan will be a potential risk to groundwater within areas of Highly Vulnerable Aquifer, to determine if potential prohibitions, restrictions and/or mitigation should be applied;

(b) within Urban Areas, shall require the submission of a contaminant management plan that defines the approach to protect water resources, as part of an application for any uses listed as high risk to groundwater in the Durham Regional Official Plan; and

(c) despite Section 16.14(b), not require further studies addressing groundwater recharge or areas of Highly Vulnerable Aquifer, for proposed development that was addressed through the Master Environmental Servicing Plan for the Seaton Community.

Planning Tools and Controls

There are a variety of planning tools and control processes that the City may use in community development. For example, the City may pass zoning by-laws, holding zone by-laws, interim control by-laws, bonus by-laws, and temporary use by-laws; may grant minor variances to the zoning by-law and exercise other powers through its Committee of Adjustment; may grant site plan approvals; and may comment on subdivision, land division and condominium applications.

While many of these tools and processes are detailed in the *Planning Act*, this section of the Plan outlines various key requirements and powers the City may use in its planning and development activities.

City Policy
Zoning By-laws

16.15 City Council may undertake a comprehensive review of its existing zoning by-laws following the adoption of this Plan, and until such time as the comprehensive review is complete, may pass amendments to its zoning by-laws pursuant to the provisions of the *Planning Act* providing the amendments conform to the policies of this Plan.

City Policy
Holding By-laws

16.16 City Council may pass zoning by-laws incorporating holding provisions as provided for in the *Planning Act* to specify the use to which lands, buildings, or structures may be put at some time in the future, providing:

- **(a) the holding symbol (H) is used only in the following instances:**
  - **(i) when certain details of development have not yet been determined, or where certain conditions of development have not yet been met such as, but not limited to, development or servicing agreements with the City or Regional Municipality of Durham;**
  - **(ii) when land assembly is required to permit orderly development;**
  - **(iii) when the level of community services and/or infrastructure is not yet adequate to support the proposed use;**
  - **(iv) where environmental conditions or constraints temporarily preclude development or redevelopment; and**
  - **(v) where required studies related to traffic, soils, protection of site features, environmental constraints, design features, or market impact analysis have not yet been approved by the City;**
- **(b) the zoning by-law containing the holding provisions specifies the interim land uses to be permitted, the conditions for removal of the holding provision, and any regulations or restrictions applying to the lands during the time the holding provision is in place; and**
- **(c) a by-law to remove the holding symbol is passed when all the conditions set out in the holding provision have been satisfied.**

City Policy
Bonus Zoning

16.17 As provided for in the *Planning Act*, City Council may pass by-laws that grant an increase in density of development not exceeding 25 percent of the density that would otherwise be permitted by this Plan, or an increase in the height of a building providing:

(a) the density or height bonus is given only in return for the provision of specific services, facilities or matters as specified in the by-law, such as but not limited to, additional open space or community facilities, assisted or special needs housing, the preservation of heritage buildings or structures, or the preservation of natural heritage features and functions;

(b) when considering an increase in density or height, and allowing the provision of benefits off-site, the positive impacts of the exchange should benefit the social/cultural, environmental and economic health of surrounding areas experiencing the increased height and/or density;

(c) the effects of the density or height bonus have been reviewed and determined by Council to be in conformity with the general intent of this Plan, by considering matters such as:

(i) the suitability of the site for the proposed increase in density and/or height in terms of parking, landscaping, and other site-specific requirements; and

(ii) the compatibility of any increase in density and/or height with the character of the surrounding neighbourhood; and

(d) as a condition of granting a density or height bonus, the City requires the benefiting landowner(s) to enter into one or more agreements, registered against the title of the lands, dealing with the provision and timing of specific facilities, services or matters to be provided in return for the bonus.

City Policy
Density Transfers

16.18 City Council shall, despite any other provision in this Plan, allow the net site density for a parcel of land within an area covered by a Council-adopted Development Guideline to exceed the maximum permitted density specified in Chapter 3 of this Plan, providing:

(a) the density is transferred from a property located within the area covered by the Development Guideline; and

(b) the guidelines and the resulting implementing zoning by-law identify both the lands receiving the additional density and the lands where the density is being transferred from.

City Policy
Interim Control By-laws

16.19 Where City Council has by by-law or resolution directed that a review or study be undertaken respecting land use planning policies for the City or any part thereof, Council may pass an interim control by-law prohibiting the use of land, buildings or structures within the City or certain areas thereof, as permitted by the *Planning Act*.

City Policy
Temporary Use By-laws

16.20 City Council:

(a) may, in accordance with the *Planning Act*, pass temporary use by-laws for periods of not more than three years which may be subsequently renewed to permit the use of land, buildings or structures on a temporary basis, whether or not that use conforms to the official plan;

(b) shall consider a by-law to permit the temporary use of any land, building or structure under one or more of the following circumstances:

(i) when a use is intended to exist for only a limited period of time;

(ii) when it is appropriate and feasible to monitor a use for a temporary period of time prior to it being considered for permanent zoning; and

(iii) when a use can exist on a specific site for a temporary period of time within an area that is undergoing a land use study, without influencing the outcome of that study; and

(c) shall, prior to enacting a temporary use by-law, be satisfied that:

(i) the site can adequately accommodate the proposed use, considering such matters as site layout, building design, parking, traffic circulation, access, landscaping and servicing;

(ii) the use will be compatible with, and not adversely affect, any surrounding land uses that currently exist; and

(iii) the use will not prejudice the future development of the lands and the surrounding area.

City Policy
Property Maintenance and
Occupancy By-laws

16.21 City Council may pass maintenance and occupancy by-laws to govern the standards of all properties within the City, in accordance with the provisions of applicable provincial legislation.

City Policy
Subdivision Approval

16.22 City Council, through participation in the subdivision approval process provided for in the *Planning Act*, shall:

(a) endeavour to ensure a high standard of logical and orderly development in accordance with the intent of this Plan and the maintenance of a sound financial position for the City;

(b) consider the architectural and siting design of all dwellings and of other proposed buildings to ensure that a satisfactory overall character and quality of streetscape is achieved; and

(c) require, as a condition of draft approval, that a subdivision agreement be entered into between the City and the owner of the lands to ensure the provision of required services, facilities and other matters as may be specified by the City, including but not limited to the following:

(i) **the submission to the satisfaction and approval of the City of an architectural statement, elevations, external building materials and siting layouts of all buildings in appropriate groupings, prior to the issuance of any building permits;**

(ii) **the installation of services, roads and facilities;**

(iii) **the payment of various fees; and**

(iv) **the dedication of lands for roads and other public uses.**

City Policy
Site Plan Control

16.23 City Council shall implement site plan control as a means of achieving well-designed, functional, attractive, safe, sustainable and accessible development in the City of Pickering; accordingly, the City Council's approach to site plan control will not be limited to the review of individual buildings, structures and exterior open spaces on a site, but to also include aspects such as the relationship of the location, massing and exterior design of buildings, structures and exterior open spaces on a site with surrounding properties and the public realm to ensure the new development is compatible and functionally integrated with the existing and/or planned context. Further, City Council recognizes the whole of the City as a proposed site plan control area and:

(a) **may, by by-law, designate the whole or any part of the City as a site plan control area;**

(b) **shall, for any proposed development within a site plan control area, require the submission of plans and drawings in accordance with the *Planning Act*;**

(c) **shall exempt the following types of development from site plan control:**

(i) **residential development of one or two dwelling units per lot, except on properties of historic or architectural value or interest, or on properties situated within a heritage conservation district, as designated pursuant to the *Ontario Heritage Act*; and**

(ii) **agricultural and farm-related buildings or structures that are used in farming operations;**

(d) **shall, as part of the site plan approval process, consider matters related to exterior architectural design, including without limitation the character, scale, materials, colours, articulation and design features of all building exteriors and their sustainable design, inclusive of wall-mounted signage and lighting fixtures;**

Exterior design and sustainable design features of a development proposal shall be consistent with any applicable design policies and guidelines approved through this Plan.

(e) **may, as a condition of site plan approval, require the inclusion of sustainable design elements on any adjoining right-of-way under the City's jurisdiction, including without limitation trees, shrubs, hedges, plantings or other ground cover, permeable paving material, street furniture, curb ramps, waste and recycling containers and bicycle parking facilities;**

(f) **shall, as a condition of site plan approval, require the provision of facilities designed for accessibility for persons with disabilities;**

(g) shall implement urban design and architectural design guidelines and policies approved through this Plan, through site plan control;

(h) shall ensure that applications for site plan approval within 120 metres of any key natural heritage feature or key hydrologic feature on the Oak Ridges Moraine but outside the key natural heritage feature or key hydrologic feature itself and the related minimum vegetation protection zone (see Schedules IIIB and C), as set out in Table 17, require an Environmental Report in accordance with Section 16.8;

(i) may require, as a condition of site plan approval, the preservation, maintenance or establishment of vegetation buffers in order to mitigate the potential impact of the development and enhance the natural features and functions of the Oak Ridges Moraine through greater setbacks, landscaped open space, less lot coverage or other limitations that exceed the minimum requirements of the zoning by-law in order to maintain or enhance the ecological integrity of the Oak Ridges Moraine;

(j) may require as a condition of site plan approval, the submission of and compliance with a Construction Management Plan and/or Landform Conservation Plan to the City's satisfaction, in support of proposed development to limit grading and the alteration of the natural landscape within the Oak Ridges Moraine; and

(k) may, as a condition of site plan approval, require:

(i) an owner of land to enter into one or more agreements with the City for the provision of road widenings, and/or the provision and maintenance of certain site-related facilities and services associated with the development;

(ii) the agreement to be financially secured; and

(iii) an owner of land to enter into one or more agreements with the Regional Municipality of Durham respecting the provision of road widenings or servicing.

City Policy
Plan of Condominium

16.24 City Council:

(a) through participation in the condominium approval process provided for in the *Planning Act*:

(i) shall ensure developments subject to an application for condominium tenure comply with the approved site plan for that site; and

(ii) may require the owner to enter into one or more agreements with the City respecting site development; and

(b) in evaluating applications for conversion of existing rental accommodation to condominium tenure with respect to the *Rental Housing Protection Act*:

(i) shall consider the goals, objectives and policies of this Plan, the Durham Regional Official Plan, and applicable provincial policies, having particular regard for the impact of the conversion on the City's ability to provide affordable housing; and

(ii) **may, as a condition of condominium conversion, require the owner of land to enter into one or more agreements with the City respecting the buildings, site development or other required matters.**

City Policy
Committee of Adjustment

16.25 City Council shall encourage its Committee of Adjustment to apply the goals, objectives and policies of this Plan, and maintain the purpose and intent of the City's zoning by-laws in making decisions regarding the granting of minor variances pursuant to the *Planning Act*.

City Policy
Land Severance

16.26 City Council, in commenting to the Regional Land Division Committee regarding the consideration of land severances pursuant to the *Planning Act*:

(a) shall be guided by the policies of the Oak Ridges Moraine Conservation Plan, the Greenbelt Plan, Durham Regional Official Plan, this Plan, and the regulations and requirements of the City's zoning by-laws;

(b) shall limit the creation of lots for residential purposes by land severance to a maximum of three, and require that an ownership of land capable of being divided into more than three additional lots be developed by a plan of subdivision, except where it is demonstrated to Council's satisfaction that a plan of subdivision is neither appropriate nor necessary in which case Council may authorize the development to proceed by land severance;

(c) may, when authorizing a development to proceed by land division, require the owner to enter into one or more agreements respecting matters that would normally have been covered by a subdivision agreement;

(d) may, for lands outside the Oak Ridges Moraine, support lot creation to facilitate conveyances of lands to public bodies or non-profit entities for natural heritage conservation;

(e) for lands within the Oak Ridges Moraine, shall also require the following:

(i) permit residential infilling and lot creation within the hamlet boundaries of Claremont subject to the provisions of Sections 13.12(d) and (e);

(ii) permit lot creation only if there is enough net developable area on both the severed lot and retained lot to accommodate the proposed buildings, structure and accessory uses without encroachment into key natural heritage features or key hydrologic features and the related minimum vegetation protection zone as shown on Schedules IIIB and IIIC or as identified by an approved environmental report;

(iii) require the applicant to enter into a site plan agreement or other agreement to establish conditions requiring that self sustaining vegetation be maintained or restored in order to ensure the long-term protection of any key natural heritage features or key hydrologic features on the lots;

(iv) prohibit new lot creation within any part of a minimum vegetation protection zone of a key natural heritage feature and/or key hydrologic features;

(v) **new estate residential subdivisions shall not be permitted within the Oak Ridges Moraine, and**

(vi) **a lot shall not be created if this would extend or promote strip development;**

(f) may, for lands within the Oak Ridges Moraine Natural Core Areas, Natural Linkage Areas, and Countryside Areas, permit lot creation under the following conditions, where applicable:

(i) **all consents granted on or after January 1, 1994 are included in the calculation of the cumulative total, and this policy applies whether the transaction takes the form of a conveyance, a lease for twenty-one years or more, or a mortgage;**

(ii) **severances from each other of two or more rural lots that have merged in title shall follow the original lot lines or original half lot lines;**

(iii) **allowing land acquisition for transportation, infrastructure and utilities, but only if the need for the project has been demonstrated and there is no reasonable alternative;**

(iv) **the addition of adjacent land to an existing lot, but only if the adjustment does not result in the creation of a lot that is undersized for the purpose for which it is being or may be used;**

(v) **facilitating conveyances to public bodies or non-profit entities for natural heritage conservation; and**

(vi) **severances from each other or parts of a lot that are devoted to different uses, but only if the uses are legally established at the time of the application for severance; and**

(g) may permit residential infilling and lot creation within the boundaries of rural settlements and rural clusters, with the exception that within rural clusters within the Duffins-Rouge Agricultural Preserve Area, no severance or land division to create a new lot is permitted.

City Policy
Minister's Zoning Order

16.27 City Council, in commenting to the Province of Ontario on applications to amend the Minister's Zoning Orders that have been placed on lands potentially restricted if an airport is developed in Pickering, shall have regard to the following Transport Canada documentation:

(a) the official airport noise contours (Noise Exposure Forecast zones);

(b) the Pickering Airport Site Zoning Regulations; and

(c) the guidelines for land use in the vicinity of airports.

City Policy
Development Permit System

16.28 City Council may establish a development permit system by passing a Development Permit By-law pursuant to the provisions of the *Planning Act*; and designate defined areas as Development Permit Areas.

Enabling Policies

This section of the Plan provides policies that outline how the City will obtain its parkland through development applications, and how road widenings will be secured.

City Policy
Parkland: Conveyance of Land for Park or
Other Public Recreational Purposes

16.29 City Council:

(a) shall as a condition of residential development, and may as a condition of other development, except for the uses described in Subsection (b):

(i) require the conveyance of land to the municipality for park or other public recreational purposes in an amount not exceeding 5 percent of the proposed land to be developed;

(ii) may, as an alternative to requiring conveyance of land as provided for in (i) above, in the High Density Residential Areas and Mixed Use Areas, require land to be conveyed for park or other public recreational purposes at a rate of up to one hectare for each 300 dwelling units proposed, whichever is greater; and

(iii) may, in lieu of a portion or all of the land conveyance stipulated by (i) or (ii) above, require the payment of money to the value of the land that would otherwise be required to be conveyed for park purposes;

(b) may, as a condition of commercial or industrial development:

(i) require the conveyance of land to the municipality for park or other public recreational purposes in an amount not exceeding 2 percent of the proposed land to be developed; and

(ii) may, in lieu of a portion or all of the land conveyance stipulated by (i) above, require the payment of money to the value of the land that would otherwise be required to be conveyed for park purposes; and

(c) shall not accept as parkland conveyance lands required for drainage; valley and stream corridor or shoreline protection purposes; lands susceptible to flooding; steep valley slopes; hazard lands; lands required to be conveyed to a public agency other than the City of Pickering; and other lands unsuitable for park development.

City Policy
Road Widenings

16.30 City Council shall secure, at no charge to the municipality, the right-of-way widths in accordance with Section 4.10 for roads shown on Schedule II, through the subdivision, land severance and/or site plan control process, and/or through development agreements, and/or by dedication or conveyance, subject to:

(a) exact right-of-way widths being determined at the time of development, considering the proposed land use, intensity of development, road function, cultural and heritage features of the area, and development guidelines prepared for Detailed Review Areas; and

(b) road widenings being taken equally from both sides of the road measured from the centreline, except in areas where special circumstances exist (such as areas containing unusual soil, topographic or other environmental features; areas where existing buildings or structures warrant protection; and where jog-eliminations are proposed at intersections), which circumstances require that more of the required road widening is taken from one side than the other.

Areas Requiring Special Policies

This section of the Plan contains special policies for certain areas where additional detailed policies apply. The Altona Forest Policy Area and Flood Plain Special Policy Areas are identified on Schedule III. The Community Improvement Areas include old Dunbarton Village, Claremont, Brougham and Frenchman's Bay. The Frenchman's Bay Community Improvement Project Area (around Bayview Street) was completed in the late 1980s.

City Policy
Altona Forest Policy Area

16.31 In its review of development proposed on lands designated Altona Forest Policy Area, on Schedule IIIB, City Council:

(a) shall encourage proponents to consult with the City and the Toronto and Region Conservation Authority prior to submitting development proposals to determine whether the lands are within the area to be acquired as part of the Altona Forest, Petticoat Creek and its tributary;

(b) may require the submission of an Environmental Report, in accordance with Section 16.10;

(c) may require the submission of a detailed stormwater report covering the site of a proposed development and entire subcatchment area to demonstrate compliance with the comprehensive stormwater management strategy prepared for the Altona Forest Policy Area, to the satisfaction of the City and relevant agencies; and

(d) may require the submission of a Construction Management Report in support of proposed development outlining site management measures to be undertaken during construction to:

(i) control construction debris;

(ii) prevent erosion and sedimentation;

(iii) direct construction traffic;

(iv) ensure public safety; and

(v) address other matters as required.

16.32 In accordance with Section 10.23(b), City Council, in its review of development proposed on lands designated Flood Plain Special Policy Area, as shown on Schedule IIIC, shall:

(a) permit limited development including extensions to and rehabilitation of buildings and structures on condition that the proposed development is flood protected to the level of the Regulatory Flood, as defined by regulations made under the C*onservation Authorities Act*, and to the satisfaction of the Toronto and Region Conservation Authority and the City;

(b) despite the provisions of Section 16.32(a), permit a lower level of flood protection, subject to review, where it is technically not feasible, or it is impractical to flood protect a building or structure, or an addition thereto, to the level of the Regulatory Flood;

(c) despite the provisions of Sections 16.32(a) and (b), prohibit development on any parcel of land that is wholly or partly designated Flood Plain Special Policy Area if:

(i) the development would be subjected to a water velocity or depth that would create an unacceptable hazard to life; or

(ii) the development would be susceptible to major structural damage as a result of a flood less than or equal to the Regulatory Flood;

(iii) the necessary flood protection measures would have a negative impact on adjacent properties;

(iv) the development would be susceptible to major structural damage from erosion; or

(v) the development would result in unacceptable environmental impacts;

(d) prohibit development within an area that is subject to a risk of flooding in excess of 25 percent over an assumed life of 100 years (a probability of occurrence once in every 350 years) when that development cannot be flood protected to the level of the 1:350 year flood;

(e) require the highest level of protection determined to be technically feasible or practical when considering reduced levels of flood protection;

(f) require the submission of engineering studies prepared by a qualified professional detailing such matters as flood frequency, the velocity and depth of storm flow, soil conditions, proposed flood damage reduction measures, flood protection measures including structural design details, stormwater management techniques, and other necessary information and studies as may be required by the City or the Toronto and Region Conservation Authority when considering applications for development approval on lands designated Flood Plain Special Policy Area;

(g) require that ingress and egress shall be "safe" pursuant to conservation authority guidelines and technical studies of site specific flooding conditions;

(h) base its requirement for floodproofing measures on the following alternatives, listed in order of priority:

(i) dry, passive floodproofing measures shall be required and implemented to the extent technically and economically feasible;

(ii) wet floodproofing measures may be permissible for non-habitable portions of new development in order to minimize flood risk and/or to meet the required level of flood protection; and

(iii) where the first two priorities cannot be achieved, dry active floodproofing measures may also be recommended to minimize flood risk in combination with the first two priorities;

(i) prohibit the following uses on any parcel of land that is wholly or partly designated Flood Plain Special Policy Area:

(i) elementary school, day care centre, hospital, nursing home, senior citizens housing, a home for the mentally handicapped, other child care or residential care facility;

(ii) an automobile service station or any development that includes the storage, handling, production or use of a chemical, flammable, explosive, toxic, corrosive, or other dangerous material and the treatment, collection or disposal of sewage; and

(iii) a building or structure directly related to the distribution and delivery of an essential or emergency public service including police, fire, ambulance and electric power transmission;

(j) require as a condition of development approval the inclusion of all floodproofing and all other requirements of the Toronto and Region Conservation Authority;

(k) at its discretion, pass zoning by-laws to show lands designated on Schedule IIIC as Flood Plain Special Policy Area and to implement the policies of Section 16.32 of this Plan;

(l) require that any zoning by-law covering any parcel of land wholly or partly designated Flood Plain Special Policy Area include provisions, where appropriate, relating to minimum building or structure setbacks, maximum lot coverage, minimum height of any building or structure opening, and other such matters as may be determined to be necessary by the Toronto and Region Conservation Authority and the City;

(m) require that prior to the issuance of a building permit, all proposals for development including external alterations to an existing building on a parcel of land, wholly or partly designated Flood Plain Special Policy Area, be approved by the Toronto and Region Conservation Authority pursuant to the Fill, Construction and Alternation of Waterways Regulations made under the *Conservation Authorities Act*;

(n) endeavour to cooperate with the Toronto and Region Conservation Authority in the establishment and operation of a flood warning and evacuation system; and

(o) seek the approval of the Ministers of Municipal Affairs, and Natural Resources and Forestry of any change or modification to Official Plan policies, land use designations or boundaries applying to Special Policy Area lands, prior to the approval authority approving such changes and modifications in accordance with the Provincial Policy Statement 2014.

16.33 City Council,

(a) shall, where warranted, provide for the replanning, redesign, re-subdivision, clearance, maintenance, rehabilitation and development or redevelopment of selected residential, commercial and industrial areas by identifying Community Improvement Project Areas, adopting Community Improvement Plans, and implementing Community Improvement Projects pursuant to the provisions of the *Planning Act*. For greater clarity, community improvement may also include the provision of such public, recreational, institutional, religious, charitable or other uses, buildings, structures, works, improvements or facilities or spaces therefore as may be appropriate or necessary;

(b) may, in undertaking Community Improvement Plans and Projects:

(i) support the provision of energy efficient uses, buildings, structures, works, improvements or facilities;

(ii) support the provision of affordable housing;

(iii) support private efforts to maintain and rehabilitate existing buildings and structures;

(iv) maximize the use of existing public infrastructure by infilling or redeveloping vacant or underused land;

(v) upgrade and improve the existing level of physical services and facilities such as roads, street lights and sidewalks, in a manner consistent with the character of the area;

(vi) upgrade and improve the quality and quantity of recreational and other community services and facilities;

(vii) make the most efficient use of all available resources, including funding from federal and provincial governments, to resolve local physical, social and economic deficiencies; and

(viii) in commercial areas, preserve and enhance the viability of existing commercial facilities;

(c) shall identify community improvement areas on the basis of general conformity with the first criterion listed below, and conformity with a significant proportion of the remaining criteria as follows:

(i) older, stable residential, commercial and industrial uses that are in need of rehabilitation, maintenance or redevelopment, including lands with potential for infill development or improvements to underused properties and buildings;

(ii) lack of, or deficient municipal sanitary or storm sewage systems, or water systems in the urban areas;

(iii) private sanitary or water services for hamlets or other significant rural residential areas that are severely deficient and where remedial measures are required;

(iv) lack of, or deficient sidewalks, curbs or roads;

(v) **lack of, or deficient parks, open space or recreational and community facilities;**

(vi) **lack of, or deficient street lighting and street furniture;**

(vii) **lack of, or deficient off-street parking facilities;**

(viii) **conflicts between existing residential development and adjacent transportation facilities or commercial, recreation, institutional, industrial, or agricultural operations in regard to such matters as odour, parking, loading and traffic circulation; and**

(ix) **minor incompatibilities between specific developments in historic, mixed use areas where improvements to site design could resolve the problems;**

(d) **shall, at this time and on the basis of these criteria, identify the Frenchman's Bay area, the Hamlet of Claremont, the Hamlet of Brougham, and the old Village of Dunbarton as Community Improvement Areas; and**

(e) **shall implement Community Improvement Plans through various measures including:**

(i) **the making of grants and loans to registered owners and tenants of lands and buildings, in conformity with the community improvement plan, of which the eligible costs may include costs related to environmental site assessment and environmental re-mediation;**

(ii) **participation in funding programs with other levels of government, which may include the provision of grants or loans to the Regional Municipality of Durham for carrying out a Regional community improvement plan in the City, or the receipt of grants or loans from the Regional Municipality of Durham for carrying out a local community improvement plan that has come into effect;**

(iii) **through the preparation and implementation of design guidelines detailing necessary streetscape improvements;**

(iv) **by application of the *Ontario Heritage Act* to preserve and enhance heritage buildings; and**

(v) **by application and enforcement of Property Standards By-laws for the maintenance and occupancy of properties within Community Improvement Areas.**

Uses Requiring Special Policies

There are a number of uses that may be permitted in any designation subject to appropriate zoning, or which are not permitted in any designation and may only be established by amendment. For these uses, and for other uses where warranted, special additional policies have been prepared. This section complements other goals, objectives and policies of the Plan.

City Policy
Aggregate Resource Extraction

16.34 In accordance with Section 10.10, should an official plan amendment application be received to permit a new or expanded aggregate extraction site or wayside pit, City Council:

(a) shall require the proponent to submit a hydrogeological study that assesses the potential impacts on water resources or the application is located on or near key hydrologic features such as wetlands, aquatic habitats, coldwater streams or aquifer recharge areas;

(b) shall require the proponent to undertake an assessment of the following impacts:

  (i) intended activities and magnitude of the operation;

  (ii) operational aspects related to noise, dust, lighting and vibration;

  (iii) effects on wildlife habitat and the natural environment;

  (iv) volume of truck traffic and haul routes;

  (v) changes in environment for residents in the vicinity;

  (vi) heritage resources and visual impacts; and

  (vii) costs to the City or Region of Durham;

(c) for lands within the Oak Ridges Moraine, shall not approve such application unless the applicant demonstrates the requirements in Section 35 of the Oak Ridges Moraine Conservation Plan as follows:

  (i) the quantity and quality of groundwater and surface water will be maintained and, where possible, improved or restored;

  (ii) that as much of the site as possible will be rehabilitated and in the case of a prime agricultural area, by restoring the land so that it can be used for agriculture and in all other cases, by establishing or restoring natural self-sustaining vegetation;

  (iii) the health, diversity, size and connectivity of key natural heritage features on the site or on adjacent land, will be maintained and, where possible, improved and restored;

  (iv) there will be no extraction within 1.5 metres of the water table within the Oak Ridges Moraine Natural Linkage Areas designation;

  (v) the extraction of mineral aggregates from the site will be completed as quickly as possible for lands within the Oak Ridges Moraine Natural Linkage Areas designation; and

  (vi) that the entire site will be rehabilitated as quickly as possible, and in the case of a prime agricultural area, by restoring land so that the average soil quality of each area is substantially returned to its previous level, and in all other cases, by establishing or restoring natural self-sustaining vegetation for lands within the Oak Ridges Moraine Natural Linkage Areas designation;

(d) shall in order to maintain connectivity, where a new or expanded mineral aggregate operation or a wayside pit is located in an Oak Ridges Moraine Natural Linkage Areas designation, require an excluded area at all times which may contain both undisturbed land and land whose rehabilitation is complete that:

  (i) is at least 1.25 kilometres wide;

  (ii) lies outside the active or unrehabilitated portions of the area being used;

  (iii) connects part of the Oak Ridges Moraine Natural Linkage Areas designation outside the mineral aggregate operation or wayside pit;

(e) notwithstanding Section 16.42(a), may for operation lands within a key natural heritage feature approve such application provided:

(i) the key natural heritage feature is occupied by young plantations or early successional habitat; and

(ii) the applicant demonstrates that:

1. the long-term ecological integrity of the site will be maintained, or where possible improved or restored,

2. the extraction of mineral aggregates from the area within the key natural heritage feature will be completed, and the area will be rehabilitated, as early as possible in the life of the operation; and

3. the area from which mineral aggregates are extracted will be rehabilitated by establishing or restoring natural self-sustaining vegetation of equal or greater ecological value;

(f) with respect to land in a Landform Conservation Area, shall not approve such application unless the applicant demonstrates that:

(i) the area from which mineral aggregates are extracted will be rehabilitated to establish a landform character that blends in with the landform patterns of the adjacent land; and

(ii) the long-term ecological integrity of the subject lands will be maintained, or where possible improved or restored; and

(g) shall work cooperatively with the aggregate industry to develop and implement comprehensive rehabilitation plans for the parts of the Oak Ridges Moraine that are affected by mineral aggregate operations;

(h) for lands which are subject to the policies of the Greenbelt Plan, including lands in the Open Space System – Natural Areas designation within the Greenbelt Plan, shall not approve such application until the applicant demonstrates the requirements of the Greenbelt Plan have been satisfied;

(i) shall not approve such application until the applicant demonstrates the requirements of the Durham Regional Official Plan have been satisfied; and

(j) shall require the proponent to demonstrate for sites within Prime Agricultural Areas, that the lands will be rehabilitated back to an agricultural condition which is substantially the same area and same average soil capacity.

City Policy

Wayside Pits and Quarries

16.35 Despite Sections 10.10 and 16.34(a) and (b), City Council shall permit wayside pits, quarries and portable asphalt plants for a temporary period for use by the City, Regional and Provincial governments in accordance with the *Aggregate Resources Act* and Sections 16.34(d) to (i) of this Plan without requiring either an amendment to this Plan or an amendment to the zoning by-law except as follows:

(a) an amendment to the Plan and zoning by-law shall be required for wayside pits and quarries in proximity to a key natural heritage or key hydrologic feature within the Open Space System - Natural Areas designation; and

(b) a zoning by-law amendment shall be required to permit a wayside pit and quarry in the urban area and within any Rural Settlement, as identified by this Plan.

City Policy
Rehabilitation of Aggregate Extraction Sites

16.36 Should an aggregate extraction site, or wayside pit or quarry be established in accordance with Sections 16.34 or 16.35, City Council shall support the rehabilitation requirements of the Ministry of Agriculture, Food and Rural Affairs as follows:

(a) by requiring, in those instances where extraction of mineral aggregates has taken place on Class I, II or III agricultural soils that are designated Agricultural Areas on Schedule I, rehabilitation of the site to be carried out whereby substantially the same areas and same average soil quality for agriculture are restored; and

(b) despite (a) above, not requiring complete agricultural rehabilitation if:

(i) there is a substantial quantity of mineral aggregates below the water table warranting extraction; or

(ii) the depth of planned extracting in a quarry makes restoration of pre-extraction agricultural capability unfeasible; and

(iii) other alternatives have been considered by the applicant and found unfeasible; and

(iv) agricultural rehabilitation in remaining areas will be maximized.

City Policy
Waste Disposal Sites

16.37 Despite Section 10.24, should an official plan amendment application be received to permit a new or expanded waste disposal site, City Council shall require that the proponent:

(a) demonstrate that the proposal would not adversely impact the community in terms of:

(i) noise;

(ii) dust;

(iii) traffic and haul routes;

(iv) odour;

(v) visual impacts;

(vi) ground and surface water; and

(vii) other social, economic and environmental impacts deemed relevant by the City; and

(b) satisfy all applicable legislation, as well as the Durham Region Official Plan, and if the amendment is approved, enter into one or more agreements with the City to deal with such matters as infrastructure improvement, landscaping and other mitigative measures.

City Policy
Cemeteries

16.38 City Council:

(a) shall permit existing and approved cemeteries in any land use designation to continue to operate and expand subject to site specific zoning and appropriate public health considerations;

(b) may permit the development of new cemeteries only by amendment to this Plan considering the policies of this Plan, the Durham Region Official Plan and provincial legislation governing cemeteries; and

(c) despite Subsection 16.38(b), shall not permit new cemeteries on lands designated Prime Agricultural Areas.

City Policy
Retail Gasoline Outlets

16.39 Within the urban area or within a rural hamlet, City Council may approve a site specific zoning by-law with appropriate provisions and restrictions, to permit a retail gasoline outlet in any land use designation except Open Space - Natural Areas, provided:

(a) the retail gasoline outlet maintains the goals, objectives and policies of this Plan;

(b) the retail gasoline outlet obtains access from an arterial road as identified on Schedule II;

(c) the retail gasoline outlet is not located adjacent to or opposite a school;

(d) the number of retail gasoline outlets is limited to a maximum of two outlets within 100 metres of any intersection; and

(e) the retail gasoline outlet will not adversely affect the safe and convenient movement of pedestrian and vehicular traffic.

City Policy
Livestock Facilities and Adjacent Development

16.40 On lands designated Prime Agricultural Areas, Open Space System and Oak Ridges Moraine Countryside Areas on Schedule I, City Council shall require any new livestock facilities, any expansions to livestock facilities, and all development adjacent to livestock facilities to comply with the provincial Minimum Distance Separation Formulae as amended from time to time.

City Policy
Landform Conservation Areas -
Oak Ridges Moraine

16.41 City Council, in recognition of the need to maintain the significant landform conservation areas (Categories 1 and 2) on the Oak Ridges Moraine as shown on Schedule VI:

(a) maintain significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form;

(b) limit the portion of the net developable area of the site that is disturbed to not more than 25 percent of the total area of the site, and limit the net developable area of the site that has impervious surfaces to not more than 15 percent of the total area of site for areas shown as Category 1 Areas with the exception of mineral aggregate operations (see Schedule VI);

(c) limit the portion of the net developable area of the site that is disturbed to not more than 50 percent of the total area of the site, and limit the net developable area of the site that has impervious surfaces to not more than 20 percent of the total area of the site for areas shown as Category 2 Areas with the exception of mineral aggregate operations (see Schedule VI);

Landform Conservation Areas on the Oak Ridges Moraine are areas consisting of steep slopes and represent landforms that shall be protected for their contribution to the ecological integrity and hydrological function of the Moraine.

(d) require proponents of an application for major development with respect to land in a landform conservation area (Categories 1 and 2) to include a landform conservation plan that:

(i) identifies elevation contours in sufficient detail to show the basic topographic character of the site, with an interval of not more than 2.0 metres;

(ii) analysis of the site by slope type;

(iii) identifies significant landform features such as kames, kettles, ravines and ridges; and

(iv) identifies all water bodies including intermittent streams and ponds;

(e) require that the landform conservation plan shall also include a development strategy that identifies appropriate planning, design and construction practices to minimize disruption to landform character, including:

(i) retention of significant landform features in an open, undisturbed form;

(ii) road alignment and building placement to minimize grading requirements;

(iii) concentration of development on portions of the site that are not significant;

(iv) use of innovative building design to minimize grading requirements; and

(v) use of selective grading techniques;

For the purpose of Section 16.41, "major development" means development consisting of the creation of four or more lots, the construction of a building or buildings with a ground floor area of 500 square metres or more, and the establishment of a major recreational use.

(f) require that proponents of an application for development or site alteration with the exception of mineral aggregate operations that does not constitute major development, with respect to land in a landform conservation area (Categories 1 and 2), shall require a site plan that:

(i) identifies the areas within which all building, grading and related construction will occur; and

(ii) demonstrates that buildings and structures will be located within the areas referred to in clause (i) so as to minimize the amount of site alteration required; and

(g) require Site Plan Control to limit grading and the alteration of the natural landscape to implement the policies of this section of the Plan.

16.42 Within the Oak Ridges Moraine, City Council shall:

(a) recognize that key natural heritage features relate to wetlands, significant portions of the habitat of endangered, rare and threatened species, fish habitat, areas of natural and scientific interest (life science), significant valleylands, significant woodlands, and significant wildlife habitat;

(b) recognize that key hydrologic features relate to permanent and intermittent streams, wetlands, seepage areas and springs;

"Key Hydrologic Features" relate to permanent and intermittent streams, wetlands, and seepage areas and springs.

(c) recognize that Table 17 identifies minimum areas of influence and minimum vegetation protection zones related to the key natural heritage features and key hydrologic features, and where features are not identified on Schedules IIIB to IIID, such as seepage areas and springs, these features shall be identified using criteria identified by the Province either on a site-by-site basis or through the appropriate study prior to undertaking any development or site alteration;

(d) for lands within the minimum area of influence that relates to a key natural heritage feature but outside the key natural feature itself and the related minimum vegetation protection zone, require a natural heritage evaluation for an application for development or site alteration that shall:

"Features" relate to wetlands, significant portions of the habitat of endangered, rare and threatened species, fish habitat, significant valleylands, significant woodlands and significant wildlife habitat.

(i) demonstrate that the development or site alteration applied for will have no adverse effects on the key natural heritage feature or on the related ecological functions;

(ii) identify planning, design and construction practices that will maintain and, where possible, improve or restore the health, diversity and size of the key natural heritage feature and its connectivity with other key natural heritage features;

(iii) in the case of an application relating to land in Natural Core Areas, Natural Linkage Areas or Countryside Areas, demonstrate how connectivity within and between key natural heritage features will be maintained and, where possible, improved or restored before, during and after construction;

(iv) if Table 17 specifies the dimensions of a minimum vegetation protection zone, determine whether it is sufficient, and if it is not sufficient, specify the dimensions of the required minimum vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it;

(v) if Table 17 does not specify the dimensions of a minimum vegetation protection zone, determine whether one is required, and if one is required, specify the dimensions of the required minimum vegetation protection zone and provide for the maintenance and, where possible,

improvement or restoration of natural self-sustaining vegetation within it, including, without limitation, an analysis of land use, soil type, slope class and vegetation type, using criteria established by the Province, as amended from time to time, and

(vi) in the case of a key natural heritage feature that is fish habitat, ensure compliance with the requirements of the Department of Fisheries and Oceans (Canada);

Fish habitats are to include, but are not limited to all key hydrologic features with surface water characteristics.

(e) for lands within the minimum area of influence that relate to a key hydrologic feature, but outside the key hydrologic feature itself and the related minimum vegetation protection zone, require a hydrological evaluation for an application for development or site alteration that shall:

(i) demonstrate that the development or site alteration will have no adverse effects on the key hydrologic features or on the related hydrological functions;

(ii) identify planning, design and construction practices that will maintain, and where possible improve or restore the health, diversity and size of the key hydrologic feature;

(iii) determine whether the minimum vegetation protection zone dimensions specified in Table 17 are sufficient, and if not sufficient, specify the dimensions of the required minimum vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it; and

(iv) in the case of permanent and intermittent streams, seepage areas and springs, determine whether the minimum vegetation protection zone dimensions specified in Table 17 are sufficient, and if not sufficient, require, without limitation, an analysis of land use, soil type and slope class, using criteria established by the Province, as amended from time to time; and

(f) for minor changes and refinements to Schedules IIIA to IIID, based on updated information from the Province or as a result of detailed studies, such as those noted above, not require an amendment to this Plan, and where the feature is a wetland, an area of natural and scientific interest and/or significant portions of the habitat of endangered, rare and threatened species, or their related minimum vegetation protection zones, proposed refinements to the boundary or the extent of the feature requires formal confirmation from the Province prior to any development.

City Policy
Table 17: Minimum Areas of Influence and
Minimum Vegetation Protection Zones - Oak Ridges Moraine

Table 17		
Key Natural Heritage Features, Key Hydrologic Features and Areas of Natural and Scientific Interest (Earth Science): Minimum Areas of Influence and Minimum Vegetation Protection Zones		
Feature	**Minimum Area of Influence**	**Minimum Vegetation Protection Zone**
Wetlands	**All land within 120 metres of any part of feature**	**All land within 30 metres of any part of feature, subject to Section 16.10 if a natural heritage evaluation is required**
Significant portions of habitat of endangered, rare and threatened species	**All land within 120 metres of any part of feature**	**As determined by a natural heritage evaluation carried out under Section 16.10**
Fish habitat	**All land within 120 metres of any part of feature**	**All land within 30 metres of any part of feature, subject to Section 16.10 if a natural heritage evaluation is required**
Significant valleylands	**All land within 120 metres of stable top of bank**	**All land within 30 metres of stable top of bank, subject to Section 16.10 if a natural heritage evaluation is required**
Significant woodlands	**All land within 120 metres of any part of feature**	**All land within 30 metres of the base of outermost tree trunks within the woodland, subject to Section 16.10 if a natural heritage evaluation is required**
Significant wildlife habitat	**All land within 120 metres of any part of feature**	**All determined by a natural heritage evaluation carried out under Section 16.10**
Permanent and intermittent streams	**All land within 120 metres of meander belt**	**All land within 30 metres of meander belt, subject to Section 16.10 and Section 16.10 if a hydrological evaluation is required**
Seepage areas and springs	**All land within 120 metres of any part of feature**	**All land within 30 metres of any part of feature, subject to Section 16.10 if a hydrological evaluation is required**

City Policy
Groundwater Vulnerability -
Oak Ridges Moraine

16.43 City Council:

(a) despite any other provision of this Plan to the contrary, on lands designated Highly Vulnerable Aquifer Area, as shown on Schedule IIID, shall prohibit the following uses:

(i) generation and storage of hazardous waste, liquid industrial waste, or any severely toxic contaminant listed in Schedule 3 to Ontario Regulation 347 RSO, 1990;

(ii) waste disposal sites and facilities, organic soil conditioning sites and snow storage and disposal facilities; and

(iii) all underground and above-ground storage tanks that are not equipped with an approved secondary containment device.

"Aquifer Vulnerability" refers to the susceptibility of the groundwater aquifer to contamination from both human and natural sources.

City Policy
Stormwater Management -
Oak Ridges Moraine

16.44 City Council, in addition to the policies in Section 10.6 of this Plan, shall maximize the use of stormwater management practices within the Oak Ridges Moraine, and shall:

(a) require that 80 percent of suspended solids shall be removed from stormwater runoff as a long-term average;

(b) prohibit new stormwater management ponds in key natural heritage features and key hydrologic features;

(c) require, for any major development proposal, the submission of a stormwater management plan that has particular regard to the following:

(i) maintaining groundwater quality and flow and stream base flow;

(ii) protecting water quality;

(iii) protecting aquatic species and their habitat;

(iv) preventing increases in stream channel erosion; and

(v) preventing any increase in flood risk;

(d) require a stormwater management plan to incorporate an integrated treatment train approach that uses a planned sequence of methods of controlling stormwater and keeping its impact to a minimum by using techniques such as:

(i) lot level controls such as devices and designs that direct roof discharge to rear yard ponding areas;

(ii) conveyance controls such as grassed swales;

For the purpose of Section 16.44, "major development" means development consisting of the creation of four or more lots, the construction of a building or buildings with a ground floor area of 500 square metres or more, and the establishment of a major recreational use.

(iii) end-of-pipe controls such as wet ponds at the final discharge stage; and

(iv) prohibit the use of new rapid infiltration basins and new rapid infiltration columns;

(e) require every application for development or site alteration to demonstrate that planning, design and construction practices to protect water resources will be used such as:

(i) keeping the removal of vegetation, grading and soil compaction to a minimum;

(ii) keeping all sediment that is eroded during construction within the site;

(iii) seeding or sodding exposed soils as soon as possible after construction; and

(iv) keeping chemical applications to suppress dust and control pests and vegetation to a minimum;

(f) require every application for development or site alteration to reduce areas with impervious areas and increase areas retained in a natural undisturbed state, in order to minimize stormwater volumes and contaminant loads;

(g) require municipal development standards to incorporate planning, design and construction practices that:

(i) reduce the portions of lots and sites that have impervious surfaces; and

(ii) provide the flexibility to use alternative stormwater management techniques such as directing roof discharge to rear yard ponding areas and using grassed swales; and

(h) Subsections (e), (f) and (g) do not apply to applications for mineral aggregate operations.

Rapid Infiltration Basins/Columns is a basin/column or system of basins at or below surface grade that is constructed in porous soil and punctures through a relatively impermeable layer to gain access to a more permeable sand or gravel layer, so as to rapidly infiltrate into the ground, at a single point or area of concentration, surface runoff collected from impervious surfaces.

City Policy
Existing Uses -
Oak Ridges Moraine

16.45 City Council shall, in order to implement policies for development on the Oak Ridges Moraine, permit, existing, legally established land uses within all land use designations within the Oak Ridges Moraine and nothing in this Plan or the Zoning By-law shall apply to prevent:

(a) the use of any land, building or structure for a purpose prohibited by this Plan, if the land, building or structure was lawfully used for that purpose on November 15, 2001 and continues to be used for that purpose;

(b) the erection or use for a purpose otherwise prohibited by this Plan of a building or structure for which a permit has been issued under Subsection 8(2) of the *Building Code Act*, 1992 on or before November 15, 2001 providing the permit has not been revoked under Subsection 8(10) of the *Building Code Act*, 1992 and the building or structure when erected is used and continues to be used for the purpose for which it was erected;

(c) nothing in this Plan shall prevent the conversion of an existing use to a similar use, if the applicant can demonstrate that:

(i) the conversion will bring the use into closer conformity with this Plan and the Oak Ridges Moraine Conservation Plan; and

(ii) the conversion will not adversely affect the ecological integrity of the Oak Ridges Moraine;

(d) where an existing use has adverse effects on the ecological integrity of the Oak Ridges Moraine, any application to expand the building structure on the same lot or use (institutional uses only) or to convert the existing use to a similar use shall be considered with the objective of bringing that use into closer conformity with this Plan and the Oak Ridges Moraine Conservation Plan;

(e) for the purposes of this section, 'existing' shall mean lawfully in existence on November 15, 2001 and for greater certainty does not include a use, building or structure that is in existence on that date without being lawful;

(f) nothing in this plan shall apply to prevent the expansion of an existing building or structure on the same lot that existed legally on November 15, 2001 if the applicant can demonstrate that:

(i) there will be no change in use; and

(ii) the expansion will not adversely affect the ecological integrity of the Oak Ridges Moraine;

(g) nothing in this plan shall apply to prevent the reconstruction, within the same location and dimensions, of an existing building or structure that is damaged or destroyed by causes beyond the owner's control, and the reconstructed building or structure shall be deemed to be an existing building or structure if there is no change in use and no intensification of the use;

"Institutional Use" includes without limitation, a long-term care facility, hospital, school, university or college.

(h) nothing in this plan shall apply to prevent the expansion of an existing institutional use if the applicant can demonstrate that:

(i) there will be no change in use; and

(ii) the expansion will not adversely affect the ecological integrity of the Oak Ridges Moraine; and

(i) nothing in this plan shall apply to prevent the use, erection or location of a single detached dwelling and accessory uses where:

(i) the use, erection and location would have been permitted by the applicable Zoning By-law on November 15, 2001; and

(ii) the applicant demonstrates to the extent possible, that the use, erection and location will not adversely affect the ecological integrity of the Oak Ridges Moraine.

16.46 City Council, in addition to the policies in Section 4.20 of this Plan, shall ensure that transportation, infrastructure and utilities are only permitted within the Oak Ridges Moraine if appropriate study has been undertaken and demonstrated both need and that there is no reasonable alternative to the undertaking, and shall:

(a) require that an undertaking for a transportation, infrastructure or utility use is required to demonstrate that the requirements of this Plan for protecting the ecological integrity and hydrological integrity of the Oak Ridges Moraine have been fulfilled and that such uses are defined to include:

(i) public highways;

(ii) transit lines, railways and related facilities;

(iii) gas and oil pipelines;

(iv) sewage and water service systems and lines and stormwater management facilities;

(v) power transmission lines;

(vi) telecommunications lines and facilities, including broadcasting towers;

(vii) bridges, interchange stations, and other structures, above and below ground, that are required for the construction, operation or use of the facilities listed in clauses (i) to (vi); and

(viii) rights-of-way required for the facilities listed in clauses (i) to (vii);

(b) require that an application for a transportation, infrastructure or utilities use with respect to land in Oak Ridges Moraine Natural Linkage Areas shall not be approved unless:

(i) the need for the project has been demonstrated and there is no reasonable alternative; and

(ii) the applicant demonstrates that the following requirements will be satisfied, to the greatest extent possible while also meeting all applicable safety standards:

1. the area of construction disturbance will be kept to a minimum;

2. right-of-way widths will be kept to the minimum that is consistent with meeting other objectives such as stormwater management and with locating as many transportation, infrastructure, and utility uses within a single corridor as possible;

3. the project will allow for wildlife movement;

4. lighting will be focused downwards and away from Oak Ridges Moraine Natural Core Areas; and

5. the planning, design and construction practices adopted will keep any adverse effects on the ecological integrity of the Oak Ridges Moraine to a minimum;

(c) require that an application for transportation, infrastructure and utilities with respect to land in Oak Ridges Moraine Natural Core Areas shall not be approved unless the applicant demonstrates that:

(i) the requirements of Subsection (b) have been met;

(ii) the project does not include and will not in the future require a highway interchange or a transit or railway station in Oak Ridges Moraine Natural Core Areas; and

(iii) the project is located as close to the edge of Oak Ridges Moraine Natural Core Areas as possible;

(d) require except as permitted in Section 16.46(e) with respect to land in a key natural heritage feature or a key hydrologic feature, all new transportation, infrastructure and utilities uses and all upgrading or extension of existing transportation, infrastructure and utilities uses, including the opening of a road within an unopened road allowance, are prohibited;

(e) despite any other provisions of the Plan to the contrary, transportation, infrastructure and utilities uses may be permitted to cross a key natural heritage feature or a key hydrologic feature if the applicant demonstrates that:

(i) the need for the project has been demonstrated and there is no reasonable alternative;

(ii) the planning, design and construction practices adopted will keep any adverse effects on the ecological integrity of the Oak Ridges Moraine to a minimum;

(iii) the design practices adopted will maintain, and where possible improve or restore, key ecological and recreational linkages;

(iv) the landscape design will be adapted to the circumstances of the site and use native plant species as much as possible, especially along rights of way; and

(v) the long-term landscape management approaches adopted will maintain, and where possible improve or restore, the health, diversity, size and connectivity of the key natural heritage feature or key hydrologic feature; and

(f) require that service and utility trenches for transportation, infrastructure and utilities shall be planned, designed and constructed so as to keep disruption of the natural groundwater flow to a minimum.

City Policy
Subwatershed and Watershed Plans -
Oak Ridges Moraine

16.47 City Council shall incorporate through an official plan amendment the applicable objectives and requirements of completed watershed and subwatershed plans, including water budgets and conservation plans prepared by the Region of Durham, as well as the results of related environmental studies and monitoring into planning documents as appropriate.

City Policy
Low-Intensity Recreational Uses -
Oak Ridges Moraine

16.48 Within the Oak Ridges Moraine, City Council shall:

(a) recognize that low-intensity recreational uses are recreational uses that have minimal impact on the natural environment, and require very little terrain or vegetation modification and few, if any, buildings or structures, including but not limited to the following:

(i) non-motorized trail uses;

(ii) natural heritage appreciation;

(iii) unserviced camping on public and institutional land; and

(iv) accessory uses; and

(b) recognize that small-scale structures accessory to low-intensity recreational uses, such as trails, boardwalks, foot bridges, fences, docks and picnic facilities, are permitted only if the applicant demonstrates that the adverse effects on the ecological integrity of the Oak Ridges Moraine will be kept to a minimum by:

(i) keeping disturbed areas to a minimum; and

(ii) avoiding the most sensitive portions of the site, such as steep slopes, organic soils and significant portions of the habitat of endangered, rare or threatened species.

City Policy
Partial Services -
Oak Ridges Moraine

16.49 Within the Oak Ridges Moraine, City Council shall prohibit the construction or expansion of partial services; however, this does not apply to prevent the construction or expansion of partial services that are necessary to address a serious health or environmental concern, or if the expansion was approved under the *Environmental Assessment Act* before November 17, 2001 and period of time during which the construction or expansion may begin has not expired. Serious health or environmental problems are to be determined by the local Medical Officer of Health, the City, Region or other designated authority.

City Policy
Major Development -
Oak Ridges Moraine

16.50 Within the Oak Ridges Moraine, City Council shall:

(a) ensure that an application for major development shall be accompanied by a sewage and water system plan that demonstrates:

(i) that the ecological integrity of hydrological features and key natural heritage features will be maintained;

(ii) **that the quantity and quality of groundwater and surface water will be maintained;**

(iii) **that stream base flows will be maintained;**

(iv) **that the project will comply with the applicable watershed plan and water budget and conservation plan; and**

(v) **that the water use projected for the development will be sustainable; and**

(b) **water and sewer trenches shall be planned, designed and constructed so as to keep disruption of the natural groundwater flow to a minimum.**

City Policy
Key Natural Heritage and Key Hydrologic Features - outside the Oak Ridges Moraine and the Seaton Urban Area

16.51 Within the Open Space System, outside the Oak Ridges Moraine and the Seaton Urban Area, City Council shall:

(a) **recognize that Table 18 identifies minimum areas of influence and minimum vegetation protection zones related to key natural heritage and key hydrologic features, and where features are not identified on Schedules IIIB to IIID, these features shall be identified using criteria identified by the Province/relevant Conservation Authority either on a site-by site basis or through the appropriate study prior to undertaking any development or site alteration;**

(b) **for lands within the minimum area of influence that relates to a key natural heritage feature but outside the key natural heritage feature itself and the related minimum vegetation protection zone, require a natural heritage evaluation for an application for development or site alteration that shall:**

(i) **demonstrate that the development or site alteration applied for will have no adverse effects on the key natural heritage feature or on the related ecological functions;**

(ii) **identify planning, design and construction practices that will maintain and, where possible, improve or restore the health, diversity and size of the key natural heritage feature and its connectivity with other key natural heritage features;**

(iii) **demonstrate how connectivity within and between key natural heritage features will be maintained and, where possible, improved or restored before, during and after construction;**

(iv) **if Table 18 specifies the dimensions of a minimum vegetation protection zone, determine whether it is sufficient, and if it is not sufficient, specify the dimensions of the required minimum vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it; and**

(v) if Table 18 does not specify the dimensions of a minimum vegetation protection zone, determine whether one is required, and if one is required, specify the dimensions of the required minimum vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it, including, without limitation, an analysis of land use, soil type, slope class and vegetation type, using criteria established by the Province, as amended from time to time;

(c) despite Section 16.51(b)(iv) and Table 18, consider vegetation protection zones smaller than those distances specified in Table 18 in the South Pickering urban area where the conservation authority determined it to be appropriate, and where it can be demonstrated that there is no increase in risk to life or property; no impact to the control of flooding, erosion, dynamic beach, or pollution; and where a net environmental benefit can be established on the property;

(d) for lands within the minimum area of influence that relate to a key hydrologic feature, but outside the key hydrologic feature itself and the related minimum vegetation protection zone, require a hydrological evaluation for an application for development or site alteration that shall:

(i) demonstrate that the development or site alteration will have no adverse effects on the key hydrologic feature or on the related hydrologic functions;

(ii) identify planning, design and construction practices that will maintain, and where possible improve or restore the health, diversity and size of the key hydrologic feature;

(iii) determine whether the minimum vegetation protection zone dimensions specified in Table 18 are sufficient, and if not sufficient, specify the dimensions of the required minimum vegetation protection zone and provide for the maintenance and, where possible, improvement or restoration of natural self-sustaining vegetation within it;

(iv) in the case of permanent and intermittent streams, seepage areas and springs, determine whether the minimum vegetation protection zone dimensions specified in Table 18 are sufficient, and if not sufficient, require, without limitation, an analysis of land use, soil type and slope class, using criteria established by the Province, as amended from time to time; and

(v) in the case of a key hydrologic feature that is fish habitat, ensure compliance with the requirements of the Department of Fisheries and Oceans (Canada);

(e) despite Section 16.51(d)(iii) and (iv), and Table 18, consider vegetation protection zones smaller than those distances specified in Table 18 in the South Pickering urban area where the conservation authority determined it to be appropriate, and where it can be demonstrated that there is no increase in risk to life or property; no impact to the control of flooding, erosion, dynamic beach, or pollution; and where a net environmental benefit can be established on the property;

(f) despite any other policies of this Plan to the contrary, require new buildings and structures used for agriculture within the Natural Heritage System of the Greenbelt Plan to provide a 30 metre vegetation protection zone from a key natural heritage or key hydrologic feature; this vegetation protection zone may consist of natural self-sustaining vegetation or agricultural crops if the land is, and will continue to be used for agricultural purposes; and

(g) despite Section 15.2(b)(iii), for minor changes and refinements to Schedules IIIA to IIID, based on updated information from the Province or as a result of detailed studies, such as those noted above, not require an amendment to this Plan, and where the feature is a provincially significant wetland, an area of natural and scientific interest and/or significant portions of the habitat of endangered, rare and threatened species, or their related minimum vegetation protection zones, proposed refinements to the boundary or the extent of the feature require formal confirmation from the Province prior to any development.

City Policy
Table 18: Minimum Areas of Influence and Minimum Vegetation Protection Zones - outside the Oak Ridges Moraine and Seaton Urban Area

Table 18		
Key Natural Heritage Features, Key Hydrologic Features and Areas of Natural and Scientific Interest (Earth Science): Minimum Areas of Influence and Minimum Vegetation Protection Zones outside the Oak Ridges Moraine and Seaton Urban Area		
Feature	**Minimum Area of Influence**	**Minimum Vegetation Protection Zone**
Wetlands	**Within 120 metres of any part of feature**	**All land within 30 metres of any part of feature, subject to Section 16.10 if a natural heritage evaluation is required**
A known location of the habitat of endangered, rare and threatened species	**Within 120 metres of any part of feature**	**Determined by a natural heritage evaluation carried out under Section 16.10**
Fish habitat	**Within 120 metres of any part of feature**	**All land within 30 metres of any part of feature, subject to Section 16.10 if a natural heritage evaluation is required**
Significant valleylands	**Within 120 metres of stable top of bank**	**All land within 30 metres of stable top of bank, subject to Section 16.10 if a natural heritage evaluation is required**
Significant woodlands	**Within 120 metres of any part of feature**	**All land within 10 metres from the dripline of woodlands, subject to Section 16.10 if a natural heritage evaluation is required** **In the Greenbelt, the minimum vegetation protection for significant woodlands is 30 metres from the drip line**
Significant wildlife habitat	**Within 120 metres of any part of feature**	**Determined by a natural heritage evaluation carried out under Section 16.10**
Permanent and intermittent streams outside the Pickering urban area	**Within 120 metres of any part of the feature**	**All land within 30 metres of the limits of the floodplain or hazard lands as defined by the relevant Conservation Authority, subject to Section 16.10 if a hydrological evaluation is required**

Table 18		
Key Natural Heritage Features, Key Hydrologic Features and Areas of Natural and Scientific Interest (Earth Science): Minimum Areas of Influence and Minimum Vegetation Protection Zones outside the Oak Ridges Moraine and Seaton Urban Area		
Feature	**Minimum Area of Influence**	**Minimum Vegetation Protection Zone**
Permanent and intermittent streams inside the Pickering urban area	Within 50 metres of any part of the feature	All land within 10 metres of the stable top of bank or the limit of the floodplain, whichever is the greater, subject to Section 16.10 if a hydrological evaluation is required
Seepage areas and springs	Within 120 metres of any part of feature	All land within 30 metres of any part of feature, subject to Section 16.10 if a hydrological evaluation is required
Shoreline along Lake Ontario	Within 120 metres of any part of feature	All lands within 30 metres of the shoreline, subject to Section 16.10 if a hydrological evaluation is required
Former Lake Iroquois Shoreline	Within 120 metres of any part of feature	Determined by a natural heritage evaluation carried out under Section 16.10
Areas of Natural and Scientific Interest (ANSI's)	Within 120 metres of any part of feature	Determined by a natural heritage evaluation carried out under Section 16.10
Rouge-Duffins Wildlife Corridor	Within 120 metres of any part of feature	Determined by a natural heritage evaluation carried out under Section 16.10

This page intentionally left blank.

Chapter 17 - Monitoring Framework

Community development is an ongoing, evolutionary process that often proceeds in ways and directions that are both unexpected and unpredictable. It is complex and poorly understood, requiring tradeoffs between a diversity of interests, and involving numerous people, agencies and jurisdictions in planning, decision-making and implementation.

With such a process, planning must be complemented by careful monitoring, feedback and corrective responses. Proper monitoring:

- allows us to observe actual changes occurring in the community
- helps measure the effectiveness of our plans and actions, and determine progress towards stated goals and objectives
- provides feedback that informs, educates and allows corrective and preventive actions to be taken

Monitoring Program

Much work needs to be done to establish an effective “quality of life” monitoring program. For instance, the City (with the help of others) will need to:

- identify a broad realm of issues and concerns that are important to people in assessing community health and livability
- identify “key indicators” of both a qualitative and quantitative nature, for the identified issues and concerns
- where possible, establish appropriate “performance targets” for these indicators, focusing on cumulative effects and considering the performance of the system as a whole, not just specific elements of the system
- find out who (if anyone) collects and/or uses information on the various indicators; establish ways of obtaining such information on an ongoing basis; and where necessary fill information gaps
- analyze, record, store and use the information that is collected to modify and improve ongoing planning, decision-making and implementation

Indicators and Targets

Appendix I is provided for information purposes as a starting point for developing the City’s monitoring program. It provides potential quality of life indicators for each of the 8 strategic policy areas described in Part 2 of this Plan, and suggests possible directions that could be taken.

The indicators and performance targets need to be established, reviewed and updated as warranted through the ongoing design and implementation of the monitoring program.

City Policy
Establishing a "Quality of Life"
Monitoring Program

17.1 City Council shall establish an effective, ongoing "quality of life" monitoring program that reflects and reports on key indicators of the health and livability of the City.

City Policy
Involving the Public in a
Monitoring Program

17.2 City Council shall seek the help and assistance of other levels of government, agencies, groups and individuals, in designing and implementing the quality of life monitoring program that:

(a) identifies, gathers and compares objective and subjective indicators of the City's quality of life, using Appendix I to this Plan as a guide; and

(b) includes a mechanism for making necessary adjustments to City policies, programs and procedures, and taking any other corrective or preventative actions that may be warranted.

Appendix

This page intentionally left blank.

Appendix I
Quality of Life Indicators and Performance Targets

Potential Livability Indicator	Possible Performance Target (by 2016)
Land Use	
• Urban population density (people per gross hectare)	• increase from 13.5% (target to be determined)
• Urban employment density (jobs per gross hectare)	• increase from 4.5 (target to be determined)
• Percent of households within 1 kilometre of greenspace	• increase (target to be determined)
• number of buildings subject to hazardous conditions (flooding, steep slopes, erosion, etc.)	• decrease (target to be determined)
• number of households subject to unacceptable noise levels	• to be determined
Transportation	
• Percent of morning work trips leaving Pickering by public transit	• increase from 11% (target to be determined)
• Percent of residents, jobs and other uses/ activities within 400 metres of a transit stop	• increase (target to be determined)
• Average number of occupants per passenger vehicle	• increase (target to be determined)
• Percent self-containment of work trips within Pickering and Durham	• increase (target to be determined)
• Total length of sidewalks and trails per capita	• to be determined
• Traffic accidents per capita	• decrease (target to be determined)
Economic	
• Ratio of local jobs to total population	• increase from 0.33 (target to be determined)
• Average household income	• to be determined
• Employment rate (for males, females and youths ages 15-24)	• to be determined
• Commercial and industrial vacancy rates	• to be determined
• Residential to industrial/commercial assessment ratio	• increase industrial/commercial proportion from 20% (target to be determined)

Potential Livability Indicator	Possible Performance Target (by 2016)
Housing	
• Production of rural housing	• to be determined
• Total production of urban area housing (excluding Seaton)	• to be determined
Housing mix	
• Singles	• decrease from 67% (target to be determined)
• Semis	• increase from 11% (target to be determined)
• Attached	• increase from 14% (target to be determined)
• Apartments	• increase from 8% (target to be determined)
Affordability level	
• Own (purchase price of home)	• $_____ (as per MMAH guidelines in 19XX)
• Rent (monthly rent)	• $_____ (as per MMAH guidelines in 19XX)
• Forms considered affordable to low moderate income	• to be determined relative to above purchase and rental levels in 19XX
• Affordable production as of total production	• at least 25% (target to be determined)
• Vacancy Rate	• to be determined
• New rental production	• to be determined
• Special needs housing production as percent of total production	• to be determined
Community Services	
• Percent of households serviced by public of communal water/sanitary systems	• increase (targets to be determined)
• Percent of households within 1 kilometre of a municipal park	• increase (target to be determined)
• Average fire response time	• to be determined
• Average student/teacher ratios (primary/ secondary levels)	• to be determined
• Percent of students obtaining university or community college degree	• to be determined
• Crime rate per capita	• to be determined
• Number of physicians per capita	• to be determined
• Number of volunteer and support organizations	• to be determined
• Availability and accessibility of recreation and cultural facilities	• to be determined

Potential Livability Indicator	Possible Performance Target (by 2016)
Heritage	
• Number of designated heritage properties	• increase (target to be determined)
• Number of archaeological investigations conducted annually	• increase (target to be determined)
Community Design	
• Number of significant urban spaces	• to be determined
• Number of significant landscape units	• to be determined
• Number of pieces of public art	• increase (to be determined)
Resource Management	
• Percent of mature forest area	• increase from 17 (target to be determined)
• Percent of wetland area (including areas designed for storm water detention)	• increase from 0.02 (target to be determined)
• Water quality (surface/sub-surface)	• improve (targets to be determined)
• Total amount of prime agricultural land	• to be determined
• Total contiguous natural areas 100 hectares or more in area	• increase (target to be determined)
• Total amount of waste generated on average (per household/business/industry) per year	• decrease (target to be determined)
• Energy consumption per capita	• decrease (target to be determined)
• Water consumption	• decrease (target to be determined)
• Air quality	• to be determined

This page intentionally left blank.

Index

This page intentionally left blank.

Index

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

R

S

T

U

V

W

This page intentionally left blank.

Other Schedules

This page intentionally left blank.

EXHIBIT E

76 B

TOWNSHIP OF PICKERING (SOUTH)

LOT No. 22 IN THE 3rd & 4th CONCESSION

NUMBER	INSTRUMENT	DATE OF INSTRUMENT	DATE OF REGISTRATION	GRANTOR (Continued from page 76)	GRANTEE	CONSIDERATION	QUANTITY OF LAND — REMARKS
85370	Certificate	May 16, 1960	May 16, 1960	Cert under "Land Titles Act" Resources Land Co-Operative	Cert to ownership of Corp. re Parcels 68		pt of pt Rd allce
V 87308	Quit Claim	July 22, 1960	July 27, 1960	Blackburn, James E. & Elizabeth Y.	McDonald, Mary	$1.00	part unit } R.O.W. } as def in No. 57793
89045	Grant	July 22, 1960	Oct 4, 1960	Hilts, Grant (Est. of Will of Oswald Hilts) Culley, Stephen Hilts, Grant (personally) Hilts, Alice E. Hilts, Jessie	Resources Land Co-operative Corp.	½ of $2.00 etc.	part { Survey parcel being 433' more or less in width Lot 13 Con 3 Pickering & 53' S from S side of Plan 287 & running S. to N. line of Allan (Planning Board consents)
89349	Easement	July 24, 1960	Oct 4, 1960	Hilts, Grant (Est. of Will of Oswald Hilts) Culley, Stephen Hilts, Grant (personally) Hilts, Alice E. Hilts, Jessie	Resources Land Co-Operative Corp.	$1.00	Planning Board consents part all usual covenants
91162	Grant	Nov. 13, 1961	Dec 21, 1961	Resources Land Co-operative Corp.	The Corp. of the Township of Pickering	½ of $2.00 etc.	part - { as in No. 53345 sketch attached
91393	Grant of Easement	Nov. 18, 1961	Jan 4, 1962	Resources Land Co-Operative Corp.	The Corp. of the Township of Pickering	½ of $1.00 etc.	part - sketch attached
94380	BY-LAW	MAR. 20, 1961	MAY 17, 1961	BY-LAW No. 2554 FOR THE TOWNSHIP OF PICKERING RE THE PLANNING ACT.			ALL
[illegible]	[illegible]	Aug 3, 1962	Aug 9, 1962	Collins, Charles & [illegible]	Laughlin, Harold & Margaret		part lot 11 Pl 287 see 25511
101751	Quit Claim	Oct 12, 1962	Oct 13, 1962	Conti, Valmore (carrying on business under name of Advanced Landscaping Co.) Reg'd (claimant)	Wm. Finley & Mc Lachlan Ltd. Resources Land Co-operative Corp. The Corp. of the City of Pickering	$1 & $2 (Pickering)	part { Subdiv in Pl 40998 dis by By-law 108538 11/3/64
101852	Grant	Oct 19, 1962	Oct 22, 1962	Hill, Helen B.	Tobija, Anna	$1.00 etc	part as in No. 25522 see lot 3 Plan 407
101853	Grant	Oct 6, 1962	Oct 26, 1962	Tobija, Anna Tobija, Tobias (Executors)	Shellow Investments Ltd.	$ 3,000.00	part as in No. 17862 see lot 3 Plan 407
101861	Grant	Oct 5, 1962	Oct 22, 1962	Tobija, Anna	Hill, Helen B.	$ 12,000.00	{ dis of Pt No. 115541 part see lot 3 Plan 407
101863	Discharge of Mortgage	Oct 22, 1962	Dec 3, 1962	Mortgage, Anna Tobija, Estelle	Hill, Helen B.		part see lot 3 Plan 407
102536	Discharge of Lease	Dec 6, 1962	Dec 24, 1962	Conti, Valmore (carrying on business under name of Advanced Landscaping Co.)	Finley & Mc Lachlan Ltd.		part dis of Pt 116734 11/3/64
104986	Mortgage	Sept 28, 1962	Sept 28, 1962	Tobija, Anna Tobija, Milan (Executor)	Hugh Orchard Investments Ltd.	$ 9,750.00	{ dis & assn No. 115542 part see lot 3 Plan 407
105231	Mortgage	Oct 1, 1962	Oct 8, 1962	Tobija, Anna Tobija, Milan (Executor)	Wolfe, Harold B. (Trustee)	$ 9,500.00	part see lot 3 Plan 407
106196	Discharge of Mortgage	Oct 17, 1962	Nov 27, 1962	Wolfe, Harold B. (in Trust)	Wolfe Holdings Ltd.	$ 2.00 etc	part - assgt of No. 115231 see lot 3 Plan 407
[illegible]	Certificate	Jan 19, 1964	Jan 8, 1965	re payment of duty re Est of Oswald Hilts			part - as in No. 16616
[illegible]	[illegible]	Feb 3, 1965	Feb 10, 1965	[illegible]	Assn'd, Shirley E. Pickering, Corp. of	$ 2.00 etc	part as def in Parcel (a) in No. 41373

TOWNSHIP OF PICKERING (SOUTH)

LOT No. 22 IN THE 3rd B.F. CONCESSION

NUMBER	INSTRUMENT	DATE OF INSTRUMENT	DATE OF REGISTRATION	GRANTOR (Continued from page 76B)	GRANTEE	CONSIDERATION	QUANTITY OF LAND	REMARKS
134945	Grant	Sept 22, 1965	Sept 28, 1965	MacDonald, Mary.	Ireland, Irene D.	$2.00 etc	Part with r.o.w.	as desc'd in No. 87808
136449	Grant & Claim	Oct 26, 1965	Nov. 17, 1965	Brundle, David E. & wife Markiewicz, Joyce E.	The Hydro-Electric Power Commission of Ontario	$42500.00	part	as desc'd in No. 128167, survey attached.
137816	Agreement	July 15, 1965	Jan 5, 1966	The Hydro-Electric Power Commission of Ontario	The Corp. of the Twp. of Pickering.	premises	part	split easement survey attached re buildings.
	See Deposit No. 138705.						part	as desc'd in No 136449 " survey attached.
139304	Grant	Nov 12, 1965	Nov 3, 1966	Hillo, Grant. Culley, Stephen (Executor of Oswald Hillo) Hillo, Alice F. Hillo, Grant Hillo, Jessie (releasors)	The Hydro-Electric Power Commission of Ont.	$25000.00	perts	subj: to easement survey attached
141304	Grant	May 11, 1966	May 13, 1966	Smith, William Wm Amy C.	The Hydro-Electric Power Commission of Ont.	$4000.00		Pt Lot all N. between Lot 20 Range 2 & Lot 20 Range 3. - survey attached. Pt Lot all N. between Lot 20 Range 2 & Lot 22 Range 3. - survey attached.
	See Deposit No 142213.						part	as desc'd in No 128878.
150810	Grant	Jan 31, 1967	Feb 22, 1967	Ireland, Irene D.	Burns, Thelma M.	$2.00 etc	part	as desc'd in No 134945 same land as in No 134945 with apparent errors in description
~~150844~~	~~mort~~	~~Feb 16, 1967~~	~~Feb 20, 1967~~	~~Burns, Thelma M~~	~~Ireland, Irene D~~	~~$5,500.00~~	~~part with r.o.w.~~	~~as desc'd in No 150810~~ 27/3/79
157354	Grant	Jan 26, 1967	Aug 17, 1967	Baledon, Robert W & wife	Garland Const Co. Ltd	$30,000.00 mort $10,100.00	part	Com 566' 1¼" N from N.W. cor of Lot from N.W. cor of Lot N 278' 11" E 681' 6½" E
~~157356~~	~~mort~~	~~Aug 1, 1967~~	~~Aug 17, 1967~~	~~Garland Const Co Ltd~~	~~Baledon, Robert W & Elma B~~	~~$30,000.00~~	~~part~~	~~For Dis. see No. 227588~~ ~~as desc'd in No 157354~~
157887	Grant	Sept 12, 1967	Sept 22, 1967	Baledon, Carl C & Betty	Methven, David J.P. & Margaret E.	$2.00 etc	part	As joint tenants as desc'd in No 158889
~~158890~~	~~mort~~	~~Sept 16, 1967~~	~~Sept 22, 1967~~	~~Methven, David J.P. Methven, Margaret E.~~	~~Victoria Mortgage Investments Ltd~~	~~$31,000.00~~	~~part~~	~~as desc'd in No 158889 For Dis. see No. 231202~~
~~158891~~	~~mort~~	~~Sept 19, 1967~~	~~Sept 22, 1967~~	~~Methven, David J.P. Methven, Margaret E.~~	~~Baledon, Carl C. Betty~~	~~$2,000.00~~	~~part~~	~~For Dis. see No. 231202 as desc'd in No 158890~~
160439	Grant	- - -	Oct 25, 1967	Ireland, Irene D	Burns, Thelma M.	$2.00 etc	part with r.o.w.	as desc'd by No 134945.
160440	Grant	Oct 20, 1967	Oct 25, 1967	Burns, Thelma M	Chard, Clifton & Velma	$2.00 etc	part with r.o.w.	as desc'd in No 160439. as joint tenants 27/3/79
~~160498~~	~~mort~~	~~Oct 19, 1967~~	~~Nov 16, 1967~~	~~Chard, Clifton & Velma~~	~~Diocesan Synod~~	~~$1,900.00~~	~~part with r.o.w.~~	~~as desc'd in No 160440~~ 27/3/79
168168	Grant	Apr 22, 1968	May 24, 1968	Garland Construction Ltd.	Alcman Clothing Ltd Mike Teicher Investments Ltd	mort & $2.00 etc	part	as desc'd in No 15-7355.
~~168169~~	~~mort~~	~~May 22, 1968~~	~~May 24, 1968~~	~~Alcman Clothing Ltd Mike Teicher Investments Ltd~~	~~Reig, Allen~~	~~$27,000.00~~	~~part~~	~~as desc'd in No 168168 desc'd by No 190214~~ 27/3/79
~~168943~~	~~Def M~~	~~June 5, 1968~~	~~June 12, 1968~~	~~Brown, Grant~~	~~Chard, Clifton & Velma~~		~~part with r.o.w.~~	~~def of No 161098~~ 27/3/79
168944	Grant	May 29, 1968	June 12, 1968	Chard, Clifton & Velma	Nicholson, John M. Nicholson, Maureen J.A.	$2.00 etc	part with r.o.w.	as desc'd in No 161088 as joint tenants
~~168945~~	~~mort~~	~~June 5, 1968~~	~~June 12, 1968~~	~~Nicholson, John M Nicholson, Maureen J.A.~~	~~Chard, Clifton & Velma~~	~~10,000.00~~	~~part with r.o.w.~~	~~For Dis. see No. 240534 as desc'd in No 168944~~

(Continued on page 76A)

LOT No. 22 IN THE 3 MBF CONCESSION

PICKERING

NUMBER	INSTRUMENT	DATE OF INSTRUMENT	DATE OF REGISTRATION	GRANTOR (Continued from page 76c)	GRANTEE	CONSIDERATION	QUANTITY OF LAND — REMARKS	
168946	Def of M	June 5, 1968	June 12, 1968	Chard, Clifton & Helene	Magee, Muriel	$ 2.00	part with R.O.W. except part of inst No 168946	new
168947	Mort	June 5, 1968	June 12, 1968	Chard, Clifton & Helene	Nicholson, John M Nicholson, Maureen J.A.	$ 5,000.00	part with R.O.W. as des'd in No 168946 For Dis. see No. 240536	new
169102	Def of M	June 12, 1968	June 14, 1968	Ireland, Irene D.	Burns, Helen [illegible]		part with R.O.W. dis of No 158811 27/3/79	
[illegible]	Def of M	June 25, 1968	June 25, 1968	Magee, Muriel	Williams, John H.	$ 2.00	part with R.O.W. except part of inst No 168946	new
172213	Grant	June 24, 1968	July 8, 1968	Mike Telekes Investments Ltd	Alman Clothing Limited	$ 2.00	part - as des'd in No 168168	
172214	Def of M	June 28, 1968	July 8, 1968	Terry, Allen	Alman Clothing Limited Mike Telekes Investments Ltd		part dis of No 168169 - 27/3/79	
172231	Grant	Aug 4, 1968	Aug 23, 1968	McIlveen, David J.R. & Margaret E.	Campbell, William R. & Arlene E.	$ 2.00 or	part as des'd in No 158589 as joint tenants For Dis. see No. 231201	
[illegible]	Mort	[illegible]	[illegible]	[illegible]	[illegible]	$ 35,000.00	part	new
172532	Def of M	Aug 21, 1968	Sept 9, 1968	Methven, David J.R. Methven, Margaret E.	Jarman, Gunter	$ 2.00	part - assgt of mort No 172042	new
179239	Certificate	Oct 16, 1968	Dec 18, 1968	Re payment of duty in Est of William Robert Baldon	Robert William Baldon Robert W. Baldon		part - as des'd in No 159355	new
[illegible]	Mort	June 2, 1969	Jan 9, 1969	Amelene Investments Ltd	Alman Clothing Ltd	$ 10,000.00	part For Dis. see No. 227590 as des'd in No 172213	new
177833	Grant	Jan 2, 1969	Jan 9, 1969	Alman Clothing Ltd	Amelene Investments Ltd	$ 2.00 or	part - as des'd in No 177833	
178823	Agmt	Jan 30, 1969	Feb 11, 1969	Alman Clothing Ltd	Amelene Investments Ltd	$ 2.00 or	part - amending provisions of agmt No 177833 part - as des'd in No 157355 Estate Lot Consent attached	
See deposit No 178982.								
204100	Grant	Sept 29, 1970	Dec 1, 1970	Nicholson, John M. Nicholson, Maureen J.A.	Carter, David J. & Joyce M.	$ 2.00 or	part - electronic as in No 1689944 as joint tenants	
209177	Agmt	Dec 30, 1970	Nov 4, 1971	Alman Clothing Limited	Amelene Investments Ltd	Nominal $ 1.00	part - amending terms of Mort No 177833	new
209178	Def of M	Jan 25, 1971	Nov 4, 1971	Alman Clothing Ltd	The Bank of Nova Scotia	$ 40.00	part - assgt of No 177833	new
227588	Def of M	Aug 22, 1972	Aug 22, 1972	Baldon, Edna B. (Life) Of Est of Robert William Baldon	Amelene Investments Ltd		part - dis of No 157355	new
227589	Def of M	Aug 14, 1972	Aug 22, 1972	The Bank of Nova Scotia	Alman Clothing Ltd	$ 40,000.00	part assgt of No 177833	new
227590	Def of M	Aug 14, 1972	Aug 22, 1972	Alman Clothing Ltd	Amelene Investments Ltd		part - dis of No 177833 as des'd in No 204100	new
227591	Grant	July 21, 1972	Aug 22, 1972	Amelene Investments Ltd	Pictown Holdings Ltd	$ 2.00 or	part as des'd in No 177834	
227592	Mort	Aug 15, 1972	Aug 22, 1972	Pictown Holdings Ltd	Amelene Investments Ltd	$ 107,000.00	part as des'd in No 227591	
227593	Def of M	Aug 21, 1972	Aug 22, 1972	Amelene Investments Ltd	Alman Clothing Ltd	Nominal $ 10.00	part assgt of mort dated Aug 15, 1972 as des'd in No 227592	
227594	Mort	Aug 18, 1972	Aug 22, 1972	Pictown Holdings Ltd Newman, Robert Matteo, Lionel each to ½ liability	Rafanoff, Paul M. Lobach, Paul (Grantees)	$ 35,000.00	part as des'd in No 227591 (see special Covenant re guarantors)	
230482	Mort	Oct 11, 1972	Oct 20, 1972	Campbell, William R. Campbell, Arlene E.	Victoria & Grey Trust Co	$ 16,670.00	part - as des'd in No 172041 For Dis. see No. D62785	

(Continued on page 76e)

PICKERING LOT 22 CONCESSION 3rd Range Br Front.

PAGE NO. 76 E

(Continued from page 76 D)

REGISTRATION NUMBER	INSTRUMENT	DATE OF INSTRUMENT	REGISTRATION DATE	GRANTOR	GRANTEE	CONSIDERATION ETC	LAND AND REMARKS
231201	Def m	Oct 25 1972	Nov 9, 1972	Laurence Gunter	Campbell, William & Ardene E	$	part dis of No 160896
231202	Def m	Oct 24, 1972	Nov 9, 1972	Victoria & Grey Trust Co	Campbell, William & Ardene		part dis of No 160896
231203	Def m	Sept 29, 1972	Nov 9, 1972	Robertson, Earl C & Betty	MacKown, David J Jr & Margaret L		part dis of No 165591 (Re: No. 139304)
Plan 40-R-1019			May 31, 1973				Part - Parts 1 & 2 Subj to easement in No. 41300. to T. C. P. C. of Ontario No. 309 To 315
DISCHARGED BY No. D139307 Form A012.							
240001	Agreement	June 6, 1973	June 22, 1973	Carter, David & Joyce	The Royal Bank of Canada	$ 10.00	Part as in No. 204100 (unit one measurement excluded.
240100	Notice						
240534	Def m	May 28, 1973	June 22, 1973	Williams, John F	Carter, David & Joyce		Part unit Row (Dis of No 160896
240535	Def m	June 1, 1973	June 22, 1973	Church, Clifton & Vilma	Pickering, John M & Margaret	$	Part unit Row Dis of No. 160896
1038 Bays	Assumption Plan	July 31, 1973	Aug 1, 1973	Crown	Ministry of Transportation & Communications		Pt. of Pt. 2 dd all as requisition of existing highways by Minister of T. & C. Under the Public Transportation & Highway Improvement Act (Plan in pt "2" - R. 9015 - 5 (32.126 acres)
249070	Agreement	July 4, 1973	Dec. 11, 1973	The Hydro Electric Power Commission of Ontario	Metropolitan Toronto & Region Conservation Authority		Part 1 - Parts 1 & 2 - Plan 40-R-1019 (Consent re Planning Act)
Plan 40R-2041			Nov 4, 1974				Part - part 1, 2 (Re: No. 139304)
D 3446	Aff M.	Feb 13, 1975	Mar 13, 1975	Alman Clothing Ltd	Amelinc Investments Ltd	$ 2.00 etc	Part - Assig't of No 227592
D 3404	Notice of Application	Apr 9 1975	Apr 24, 1975	Re: Notice of Application No PLB. 74-667. Pictorn Holdings Ltd			Part & pt rd all as survey attached.
D 7906	Certificate	May 30, 1975	May 30, 1975	Certificate under the Land Titles Act as to the ownership of Parcel Pickering BF. 3-22-1			Part & pt rd all as Survey attached
Plan 40R 2621			Aug 30, 1975				Part & pt rd all as - part 5
Plan 40R 2862			May 4, 1976	Amended Apr 24/80 M. Pettigrew (Sec 78)			Part - parts 1 & 2 (Re: No. 139304)
D39846	Easement	July 6 1976	Dec 21, 1976	Ontario Hydro	The Regional Municipality of Durham.	$ 190.00	part - part 1 plan 40R-2862
		The Metropolitan Toronto and Region Conservation Authority. (third party)					
D53550	Agreement	July 8, 1977	Aug 22, 1977	Corp. of The Town of Pickering	Shell Canada Ltd.	Nominal consideration	part - comat N.W. 1/4 of Lot 19 plan M.14 running N. 178.46' & S. 1/2 of Lot 19 plan M.14 running E. 165' dis'd by mtge to Canada.
D62775	Def M	Nov 28, 1977	Jan 19, 1978	Victoria & Grey Trust Co.	Campbell, William A. Campbell, Ardene E.		part dis of No. 230421

(Continued on page 76 F)

PAGE NO. 76F

PICKERING

LOT 22 CONCESSION 3rd B.F.

(Continued from page 76E)

REGISTRATION NUMBER	INSTRUMENT	DATE OF INSTRUMENT	REGISTRATION DATE	GRANTOR	GRANTEE	CONSIDERATION ETC.	LAND AND REMARKS
~~DISCHARGED BY No D70184~~	~~Mtge~~	~~Dec 7, 1978~~	~~June 5, 1978~~	~~Campbell, Wilfrid R. Campbell, Helene C.~~	~~The Royal Bank of Canada~~	~~$12,500.00~~	~~part - as des'd in No. 119041~~
	Plan Deposit No.		40R 4547	- a Reference Plan			Part - parts 1-8 Inc. "13,304" parts "as des'd in No. 66580" & "84642".
D77336	By-Law	Sept 20, 1978	Sept 25, 1978	By-Law 16.196-78 of the Regional Municipality of Durham to dedicate & establish certain lands as a public highway known as Regional Road 22.			
D79392	Order in Council	Oct 18, 1978	Oct 30 1978	O.C. No. 2954/78 of Ministry of Transportation & Communications			~~pt 1 of plan~~ ~~part transferring & putting part of land under the jurisdiction & control of the Regional Municipality of Durham~~
~~D79788~~	~~Notice Lien~~	~~June 12, 1979~~	~~June 14, 1979~~	~~Conrad Painting Ltd~~	~~re Hydro Electric Power Commission of Ontario~~	~~$6,432.65~~	~~part - pts 1, 2, 3 plan 40R-4547~~ Exc Dis. to Re D79304
D81918	Deed Lien	June 13, 1979	June 15, 1979	Aero Electric Limited	re The Corporation of the Town of Pickering	$29,152.00 & $150.00 costs	part - as des'd in No. 89048.
~~D93774~~	~~Mtge Lien~~	~~July 13, 1979~~	~~July 18, 1979~~	~~Peace Plastics Chemicals Limited (Lehigh)~~	~~re Ontario Hydro~~	~~$2,245.00~~	~~Pt 1 as des'd in 139304 and 141304 Exc Dis. to D95087.~~
D94688	Cert. of Action	July 30, 1979	July 30, 1979	S. CO. in re (Plaintiff) Aero Electric Ltd.	re The Corp. of the Town of Pickering & K.H. Preston Const. Ltd.	$29,153.12	part - as des'd in 89048
~~D95081~~	~~Discharge~~	~~July 31, 1979~~	~~Aug 2, 1979~~	~~Peace Plastics Chemicals Limited~~	~~Leader Structures (Ontario) Limited~~		~~part - dis. of No D93774~~
D95868	Order	Aug 16, 1979	Aug 20, 1979	S. CO. in re (Plaintiff) Aero Electric Ltd.	re The Corp. of the Town of Pickering & K.H. Preston Const. Ltd.		part - as des'd in 89048
D98447	Grant	Sept 4, 1979	Oct 4, 1979	The Corp. of the Town of Pickering	The Regional Mun. of Durham	$2.00 &c	part - as des'd in 91032
~~D99369~~	~~Discharge~~	~~Oct 5, 1979~~	~~Oct 22, 1979~~	~~Conrad Painting Ltd~~	~~Dimroc Electrical Contractors Co.~~		~~part - dis of D91780~~
	Plan Deposit No.		40R 5592	- a Reference Plan			Part - parts 1 - 9 Inc. "17234, 17235, 17236, 17258, 18531, 11768 GR"
D105337	Grant	Sept 19, 1979	Mar 19, 1980	Ontario Hydro	The Minister of the Environment	$2,010.00	part - parts 1, 2 & 3 plan 40R-4547 Sketch attached
D106496	Assign't of Easem't	Dec 6 1978	Apr 22 1980	The Regional Municipality of Durham.	Her Majesty the Queen in Right of Ontario as prepared by the Minister of the Environment.	$2.00 &c	Part-part1 plan 40R-2862, Assign't of D39846.
D106515	Grant of Easem't	Mar 6 1979	Apr 23 1980	Ontario Hydro.	Her Majesty the Queen in Right of Ontario as represented by the Minister of the Environment.	$23,841.00	Part-Part 4 plan 40R-4547, Survey attached.

(Continued in Book 2 page 76G)

PICKERING
LOT 22 PICKERING CONCESSION 3 BF

Continued from page 76F

Day/ Mon/Yr

REGISTRATION NUMBER	INSTRUMENT	DATE OF INSTRUMENT	REGISTRATION DATE	GRANTOR	GRANTEE	CONSIDERATION ETC.	LAND AND REMARKS
D106517	Grant of Easem't	Mar 14 1979	Apr 23 1980	Ontario Hydro	Her Majesty the Queen in Right of Ontario as represented by the Minister of the Environment.	$3,580.00	Part-part 5,6,7,8 plan 40R-4547.
	SEE DEPOSIT NO. 40R-5947			a reference plan			Part-Parts 1 to 38 both inclusive "Instr. No. D98447".
	MICROFILMED						
	See Deposit Plan 40R-6133			A Reference Plan			Part - Part 1 "D98447"
	See Deposit Plan 40R-6333			A Reference Plan			Part - Part 1 "D98447".
D121705	Grant of Easement		23/04/81	HILTS, Grant, in personal capacity and executor of Estate of Oswald Hilts CULLEY, Stephen, Executor of Estate of Oswald Hilts HILTS, Alice F. } Encumbrancers HILTS, Jessie }	Her Majesty The Queen In Right of Ontario As Represented By The Minister Of The Environment		Parts-Pts 2,5 & 6 Plan 40R-5592 Temporary Easement as Pts 1,3 & 4 Plan 40R-5592
D 132236	Court Order		19 11 81	S C O	Her Majesty The Queen In Right of Ontario, The Corp of the Town of Pickering K.H. Preston Construction Ltd		Discharge of Mech Lien Number 91913? Vacate Cert of Action Number D 94633.
D135201	Grant		05 02 82	The Regional Municipality of Durham	Her Majesty the Queen In Right of Ontario as represented by the Minister of the Environment		Part- Part 1 on plan 40R-6333
D157263	Grant		02 04 82	CARTER, David J. CARTER, Joyce A.	HALL, Walter L. HALL, Maureen G. as JT		Part - as des'd in No. 204100 & O.L.
~~D137264~~	~~Mort.~~	DISCHARGED BY No. D149084 RT (ROLR) 20 12 82	~~02 04 82~~	~~HALL, Walter L.~~ ~~HALL, Maureen G.~~	~~DAVIS, John H.~~ ~~DAVIS, Betty Jane~~ ~~as Jnt tent~~	~~$59,000.00~~	~~Part as des'd in Drs. D137263 & O.L.~~
~~DISCHARGED BY No. D149084 Mort~~		D231844 KH ROLR 20 12 82		~~HALL, Walter L.~~ ~~HALL, Maureen G.~~	~~The Royal Bank of Canada~~	~~$41,250.00~~	~~Part as des'd in No. D 157263~~
~~DISCHARGED BY No. D149085 Mort~~		D227640 KH ROLR 20 12 82		~~HALL, Walter L.~~ ~~HALL, Maureen G.~~	~~DAVIS, John H.~~ ~~DAVIS, Betty Jane Jnt Acct~~	~~$13,750.00~~	~~Part as des'd in No. D 149084~~

Continued on page 76H

PICKERING LOT 22 CONCESSION 3rd B.F.C.

continued from page 76G

REGISTRATION NUMBER	INSTRUMENT	DATE OF INSTRUMENT	REGISTRATION DATE	GRANTOR	GRANTEE	CONSIDERATION ETC.	LAND AND REMARKS
D 166576	Mech Lien		25 10 83	Associated Tube Industries Ltd,	Ontario Hydro	$100,160.69 plus $25,040.00 cost	Part-as des'd in No 139304. & OL.
D170332	Cert of Action		03 01 84	ASCO	Associated Tube Industries Limited		Re: Mech Lien for $100,160.69,.
D180934	Court Order		13 07 84	SCO			Dis of Mech Lien D166576. Vacate Cert of Action D170332.
40R-8967	R-Plan		10 09 85				Part & O.L. - Parts 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 and 18 - Re: "D98447".
40R-9066	R-Plan		04 11 85				Part - parts 1,2,3,4,5 and 6 Re: "No. D 98447"
D 210219	Grant		06 12 85	The Regional Municipality of Durham	Coolwater Farms Ltd.		Parts- 1)Parts 6,7,8,9,10,11,12,13,14,15, 16,17,18,19,20,21,22,23,24,25,26,27,28, 29,30,31,32,33,34,35,36,37 & 38 on 40R-5947. save & ex. Part 6 on 40R-9066. 2) Parts 1, 2, 3, 4 & 5 on 40R-9066.
D 210220	Grant of Easement		06 12 85	Coolwater Farms Ltd.	The Regional Municipality of Durham		Part-Parts 23, 24, 25, 26, 27, 28 and 29 on Plan 40R-5947.
D 210221	Grant of Easement		06 12 85	Coolwater Farms Ltd.	The Regional Municipality of Durham		Parts-1) Parts 11,13,20,21,24,26,30,31, 32 and 33 on 40R-5947. 2) Part 5 on Plan 40R-9066.
D 210222	Grant of Easement		06 12 85	Coolwater Farms Ltd.	The Regional Municipality of Durham		Parts-1) Parts 8,16,27,31 & 37 on 40R-5947 2) Part 3 on Plan 40R-9066.
D 210223	Grant		06 12 85	Coolwater Farms Ltd.	The Corp. of the Town of Pickering		Part-Parts 3,4,7,8,11 &14 on 40R-8967.
D 210224	Lease		06 12 85	The Corp. of the Town of Pickering	Coolwater Farms Ltd.		Part-Parts 16 & 18 on 40R-8967.

ABSTRACT INDEX

PICKERING LOT 22 CONCESSION 3rd B.F.C.

continued from Page 76H

REGISTRATION NUMBER	INSTRUMENT	REGISTRATION DATE DAY MONTH YEAR	GRANTOR	GRANTEE	CONSIDERATION ETC.	LAND AND REMARKS
D 210225	Licence Agreement	06 12 85	The Corp. of the Town of Pickering	Coolwater Farms Ltd.		Part-Parts 1,2,5,6,9,10,12,13,15 & 17 on Plan 40R-8967.
D 210227	Agreement	06 12 85	Coolwater Farms Ltd.	The Corp. of the Town of Pickering		Part- Parts 3,4,7,8,11 & 14 on 40R-8967.
40R-9398	R-Plan	22 04 86				Part-Part 1 Re: "D 98447".
D220459	Grant	23 05 86	The Regional Municipality of Durham	Coolwater Farms Ltd.		Part-Part 1 on Plan 40R-9398
D227638	Grant	20 08 86	HALL, Walter Laurence HALL, Maureen Gail	MORRISON, Aurele MORRISON, Suzanne as JT		Part - as des'd in D137283 & OL
~~DISCHARGED BY No. D 291860 ON 90 08 08~~ ~~D227638~~	~~Grant~~	~~20 08 86~~	~~MORRISON, Aurele~~ ~~MORRISON, Suzanne~~	~~GIBC Note Corp~~	~~$87,740.80~~	~~Part - as des'd in D227638 & OL~~
D 233864	Const. Lien	03 11 86	Ontario Hydro	WALSH, Earl Trustee for Asbestos Workers Local 95 Benefit Funds	$4,980.19	Part-as des'd in "136649, 139304, 141304" & OL.
D 235760	Release	28 11 86	DEWIT, Joe Trustee of Asbestos Workers Local 95 Benefit Fund			Construction Lien D 233864.
	Deposit	10 12 86	See Deposit No. D 236966			Part & OL - as des'd in 41352 Re: "41352"
D 237708	Agt.	18 12 86	Coolwater Farms Ltd.	The Corp. of the Town of		1stly: Part-Parts 6,7,8,9,10,11,22,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37 and 38 on Plan 40R-5947. save & except Part 6 on Plan 40R-9066 & Parts 3,4,7,8,11 & 14 on Plan 40R-8967. Part 2ndly: Parts 1,2,3,4, & 5 on Plan 40R-9066

FORM RO-3-TM

CONTINUED ON PAGE 76J

ABSTRACT INDEX

LOT 22 CONCESSION 3rd B.F.C.

Con't From Page 76I

REGISTRATION NUMBER	INSTRUMENT	REGISTRATION DATE DAY MONTH YEAR	GRANTOR	GRANTEE	CONSIDERATION ETC.	LAND AND REMARKS
D256073	Notice of Lease	29 07 87	Shell Canada Products Ltd	Southland Canada, Inc.		Part-as in 64364 with 3 paragraphs missing, 1 measurement different & 1 line different & OL
J282527	Grant	22 06 88	CAMPBELL, William Russell CAMPBELL, Arlene Eleanor	BOND, Kevin Claude BOND, Ida Lee as joint tenants		Part- as des'd in 172041
DELETED UNDER D 282528	D 367737 BADLR Mort	22 06 88	BOND, Kevin Claude BOND, Ida Lee	The Municipal Savings & Loan Corporation	$145,425.00	Part- as des'd in D 282527
DELETED UNDER J282529	D367958 BADLR Mort	22 06 88	BOND, Kevin Claud BOND, Ida Lee	CHERNENKA, Marge	$29,000.00	Part- as des'd in D 282527
DELETED UNDER D 286196	D 434148 BADLR Mort	29 07 88	Coolwater Farms Ltd.	HENDERICK, William John	$1,100,000.00	Part-Pt 1 on 40R-9398
D 289606	Grant	01 09 88	MORRISON, Aurele MORRISON, Suzanne	634673 Ontario Ltd.		Part & OL - as des'd in D 227638 with one measurement added
DELETED UNDER D 289607	D 314160 BADLR Mort	01 09 88	634673 Ontario Ltd.	Family Trust Corp.	$188,750.00	Part & OL as des'd in D 289606
D 300256	Const. Lien	30 12 88	Ontario Hydro	CEDD Buildings Division, a division of the CEDD Corp.	$15,000.00 plus interest and costs	Part & Pt. Rd. All'ce & OL- as des'd in "136449" & "139304" & "141304"
D 300886	Assignment of Easement	10 01 89	The Regional Municipality of Durham	Her Majesty the Queen in right of Ontario as represented by the Minister of the Environment		Part- Pts. 8,11,13,16,20, 21,24,26,27,30 31,32,33 & 37 on 40R-5947 & Pts. 3 & 5 on 40R-9066 Re: D 210221 & D210222
D 301701	Order	13 01 89	S.C.O.	Ontario Hydro		Re: D 300256
D 306463	Transfer	17 03 89	634673 Ontario Inc.	CUBA, Rueben	$198,000.00	Part & OL - as des'd in D 289606

FORM RD-3-TM

CONTINUED ON PAGE 76K

ABSTRACT INDEX

PICKERING LOT 22 CONCESSION 3rd B.F.C.

Continued from Page 76 J

REGISTRATION NUMBER	INSTRUMENT	REGISTRATION DATE DAY MONTH YEAR	GRANTOR	GRANTEE	CONSIDERATION ETC.	LAND AND REMARKS
D 306464	Charge	17 03 89	CURA, Rueben	The Municipal Savings & Loan Corporation	$142,500.00	Part 6 OL - as des'd in D 306463
DELETED UNDER D341711 ON MAR						
~~D 306465~~	~~Charge~~	~~17 03 89~~	~~CURA, Rueben~~	~~GILBERT, Marc~~	~~$19,500.00~~	~~Part 6 OL - as des'd in D 306463~~
DELETED UNDER D341711 ON MAR						
~~D 309812~~	~~Assignment~~	~~25 04 89~~	~~Family Trust Corp.~~	~~National Trust Company~~		~~re: D 289607~~
D 339115	Charge	03 04 90	CURA, Rueben	SWARTZ, Malcolm SWARTZ, Marjorie Jnt Acct Rt Surv	$19,500.00	Part 6 OL - as des'd in D 306463
~~D355966~~	~~Lien~~	~~04 01 90~~	~~Ontario Hydro~~	~~Stacey Electric Co. Ltd.~~	~~$98,031.30~~	~~Part as des'd in "136449, 139304, and 141304"~~
~~D 357171~~	~~Discharge~~	~~30 01 91~~	~~Stacey Electric Co. Ltd.~~			~~D 355966~~
D 358184	Lien	19 02 91		Roxul Inc.	$130,210.86	Part of Lane - as des'd in 136449
D 360178	Certificate	02 04 91		Roxul Inc.		Re: No. D 358184
D 362835	See Below					
D 364919	Lien	20 06 91	Ontario Hydro	Dafoe Floor (Toronto) Ltd.	$5,000.00	Part of Lane - as des'd in "136449"
D 366137	Lien	04 07 91	Ontario Hydro	Epworth Glass Ltd. c.o.b. Upper Canada Glass	$7,543.50	Part of Lane - as des'd in "136449"
D 366205	Certificate	05 07 91		Octagon Electric Ltd.		Re: D 362835
Found & Entered 09 07 91, Sec. 71 C.A. D 362835	Lien	17 05 91	Ontario Hydro	Octagon Electric Ltd.	$33,307.91	Part of Lane - as des'd in "136449"

continued on page 76 L

ABSTRACT INDEX

PICKERING LOT 22 CONCESSION 3RD B.F.C.

cont'd from pg. 76 K

REGISTRATION NUMBER	INSTRUMENT	REGISTRATION DATE DAY MONTH YEAR	GRANTOR	GRANTEE	CONSIDERATION ETC.	LAND AND REMARKS
D 367959	Transfer	91 08 01	BOND, Kevin Claude	FORD, Nancy Jean	$216,000.00	Part - as des'd in D 282527
			BOND, Ida Lee	MCGOWAN, Stuart		
				as JT, 50% share		
				RUSSELL, Paul		
				RUSSELL, Judy		
				as JT, 50% share		
D 367960	Charge	91 08 01	FORD, Nancy Jean	Scotia Mort. Corp.	$162,000.00	Part - as des'd in D 367959
			MCGOWAN, Stuart			
			RUSSELL, Judy			
			RUSSELL, Paul			
D 372661	Order	91 10 15	S.C.O.			Re: 41352
	Deposit	91 10 17	See Deposit No. D 372968			Re: D 306464
D 372969	Transfer	91 10 17	The Municipal Savings & Loan Corp.	POLLARD, Sonya	$125,000.00	Part -as des'd in D 306463
D 372970	Charge	91 10 17	POLLARD, Sonya	The Municipal Savings & Loan Corp.	$100,000.00	Part - as des'd in D 372969
D 375678	Lien	91 11 21	Ontario Hydro	551887 Ontario Ltd.	$17,962.63	Part - as des'd in "136449", "139304" and "141304"
D376868	Lien	91 12 05	Ontario Hydro	BOWDEN, William, operating as Independent Consultants	$4,494.37	Part-as des'd in "136449", "139304" & "141304".
D 379037	Certificate	92 01 09		551887 Ontario Ltd.		D 375678.
D381520	Order	92 02 14	Ontario Court (General Division)			D362835 & D366205

FORM RO-3-761

CONTINUED ON PAGE 76N

Abstract Index
Répertoire par lot

cont. from Page 76L — Lot 22 — Plan/Concession 3RD Broken Front — Page 76R

PICKERING

Ontario

Registration Number / Numéro d'enregistrement	Instrument Type / Type d'acte	Registration Date / Date d'enregistrement YY AA MM MM DD JJ	Parties from / Parties	Parties to / Parties	Consideration / Contrepartie	Land / Remarks / Bien-fonds / Observations
D382522	Discharge	92 02 14		Epworth Glass Limited cob as Upper Canada Glass		D366137
D381523	Discharge	92 02 14		Dafoe Floor (Toronto) Limited		D364919
D 385578	Lien	92 04 14	Ontario Hydro	The Ellis Family Partnership comprised of Saul Ellis Ltd., 948102 Ont. Inc., 948103 Ont. Inc., 948099 Ont. Inc. 948100 Ont. Inc. 948101 Ont. Inc. & The Cohen Family Partnership comprised of Sydney L. Cohen Ltd., 948104 Ont. Inc. 948105 Ont. Inc. 948106 Ont. Inc. 948107 Ont. Inc. & 948108 Ont. Inc. c.o.b. as Plan Mechanical Ltd.	$95,226.64	Part - Pts. 9-11 on 40R-3123? & Pt. 1 on 40R-6598?
D 385579	Lien	92 04 14	Ontario Hydro	The Ellis Family Partnership comprised of Saul Ellis Ltd. 948102 Ont. Inc. 948103 Ont. Inc. 948099 Ont. Inc. 948100 Ont. Inc. 948101 Ont. Inc. & The Cohen Family Partnership comprised of Sydney L. Cohen Ltd. 948104 Ont. Inc. 948105 Ont. Inc. 948106 Ont. Inc. 948107 Ont. Inc. 948108 Ont. Inc. c.o.b. as Plan Electric Co.	$16,889.29	Part - Pts. 9-11 on 40R-3123? & Pt. 1 on 40R-6598?
D 390148	Certificate	92 06 19	O.C.			D 385578
D 390149	Certificate	92 06 19	O.C.			D 385579

Continued on the next page 76N

Abstract Index
Répertoire par lot

PICKERING Lot 22 Township/Concession 3rd B.F. Page 76M

cont'd from page 76M

Ontario

Registration Number / Numéro d'enregistrement	Instrument Type / Type d'acte	Registration Date / Date d'enregistrement YY MM DD AA MM JJ	Parties from / Parties	Parties to / Parties	Consideration / Contrepartie	Land / Remarks / Tiers-fonds / Observations
D 391767	Discharge	92 07 09	551887 Ontario Ltd.			D 375678
D 391768	Discharge	92 07 09	BONDEN, William operating as Independent Consultants			D 376868
D 391769	Order	92 07 09	Ontario Court (General Division)			D 379037
D 391848	Transfer	92 07 10	GARBUTT, Victor	ROSS, William MARTEN, Jeanette each as to 50% int.	$93,000.00	Part - as des'd in 41352
~~D 391849~~	~~Charge~~	~~92 07 10~~	~~ROSS, William~~ ~~MARTEN, Jeanette~~	~~The Toronto-Dominion Bank~~	~~$62,000.00~~	~~Part - as des'd in D 391848~~
DELETED UNDER D489811 BA&R						
D 419076	Order	93 09 17	Ontario Court (General Division)			Discharge D 385578, Vacate D 390148
D 419077	Order	93 09 17	Ontario Court (General Division)			Discharge D 385579, Vacate D 390149
DELETED UNDER D434148 BL A&R						
~~D 425604~~	~~Agreement~~	~~94 01 11~~	~~Coolwater Farms Ltd.~~	~~HENDERICK, William John~~		~~Re: No. D 286196~~
DELETED UNDER D434148 BL A&R						
~~D 428160~~	~~Agreement~~	~~94 03 22~~	~~Coolwater Farms Ltd.~~	~~HENDERICK, William John~~		~~D 425604.~~
D 434064	Notice	94 06 03		The Consumers' Gas Company Ltd.		Part- Parts 6 to 38 on 40R-5947 ex Part 6 on 40R-9066 and Parts 1 to 5 on 40R-9066
D 443863	Assignment	94 11 24	The Municipal Savings & Loan Corp.	London Life Insurance Co.		D 372970
	Plan 40R-16148	95 03 22				Part - Parts 1, 2 and 3 (17234, 17235, 17236, 17258)

FORM 1

Continued on/Suite à la page

Abstract Index
Répertoire par lot

PICKERING Lot 22 Concession 3rd BEF Page 760

Continued from 76 N...

Registration Number / Numéro d'enregistrement	Instrument Type / Type d'acte	Registration Date / Date d'enregistrement YY MM DD AA MM JJ	Parties from / Parties	Parties to / Parties	Consideration / Contrepartie	Land / Remarks / Bien-fonds / Observations
D 449896	Transfer	95 03 31	MARTEN, Jeanette, as to 50% int	ROSS, Carolyn Ann, as to 50% int	$47,500.00	Part - as des'd in D 391848.
D 450515	Transfer	95 04 19	HILTS, Grant	HILTS, Grant HILTS, Alice Frances as JT	$2.00	Part - Parts 1, 2 and 3 on 40R-16148 Subj. to ROW over Part 2 on 40R-16148
D 451626	Discharge	95 05 11	The Consumers' Gas Co. Ltd.	Cool Water Farms Ltd.		Re: D 434064
DELETED UNDER D508701 AB ADLG ~~D 456617~~	~~Charge~~	~~95 09 22~~	~~ROSS, William ROSS, Carolyn Ann~~	~~The Toronto-Dominion Bank~~	~~$50,000.00~~	~~Part - as des'd in D 449896~~
D 458984	Notice of Surrender of Lease	95 09 29	Shell Canada Products Limited			D 256073
D 464404	Transfer	96 01 10	The Regional Municipality of Durham	Ontario Clean Water Agency	$2.00	1st'ly - Part - Parts 1, 2, 3, 4 & 5 on 40R-5947. 2nd'ly - Part 6 on 40R-9066, ex. Parts 1, 2, 3, 4 & 5 on 40R-9066, & ex. Part 1 on 40R-6333.
D 468998	Agreement	96 04 19	Shell Canada Ltd.	Town of Pickering		Part - as des'd in 64364.
D 468999	Release	96 04 19	Town of Pickering	Shell Canada Ltd.		Re: Agreement No. D 53550.
D 484425	Transfer	96 12 19	ROSS, William ROSS, Carolyn Ann	ROSS, William ROSS, Carolyn Ann as JT	$2.00	Part - as des'd in D 449896
D 484426	Charge	96 12 19	ROSS, William ROSS, Carolyn Ann	The Toronto-Dominion Bank	$110,000.00	Part - as des'd in D 484425

Abstract Index
Répertoire par lot

cont'd from page 76(0) Lot 22 Plan/Concession 38FC Page 76P

Pickering

Ontario

Registration Number / Numéro d'enregistrement	Instrument Type / Type d'acte	Registration Date / Date d'enregistrement YY MM DD	Parties from / Parties	Parties to / Parties	Consideration / Contrepartie	Land/Remarks / Bien-fonds/Observations
D 489942	Agreement	97 03 26	RUSSELL, Paul et al	Scotia Mortgage Corp.		amending D 367960
	Plan 40R-17518	97 05 01				Part- Parts 1 and 2 Re: D98447 and D 135201
~~D 505746~~	~~Charge~~	~~97 11 24~~	~~Coolwater Farms Limited~~	~~HENDERICK, William J.~~	~~$3,740,000.00~~	~~Part - Parts 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37 & 38 on 40R-5947, Ex. Part 5 on 40R-9066 & Ex. Parts 1, 4, 7, 9, 11 & 14 on 40R-8967. 2ndly: Part - Parts 1, 2, 3, 4 & 5 on 40R-9066.~~
DELETED UNDER D513430 PSA HOLR						
D 506250	Notice of Security Interest	97 12 01		Nutreco Canada Inc.		Part- Part 1 on 40R-9398 Parts 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37 and 38 on 40R-5947 Parts 1, 2, 3, 4 and 5 on 40R-9066.
D 507605	Security Agreement	97 12 22	Coolwater Farms Ltd.	Nutreco Canada Inc.		Part - 1stly: Part 1 on 40R-9398. 2ndly: Parts 6 to 38 incl. on 40R-5947 ex Part 5 on 40R-9066. 3rdly: Parts 1, 2, 3, 4 and 5 on 40R-9066.

FORM 1

Continued on/Suite à la page 76Q

Abstract Index
Répertoire par lot

Ontario

cont'd from page 75P — Lot 22 — Plan / Concession 3 BFC — Page 760

Pickering

Registration Number / Numéro d'enregistrement	Instrument Type / Type d'acte	Registration Date / Date d'enregistrement YY MM DD	Parties from / Parties	Parties to / Parties	Consideration / Contrepartie	Land / Remarks / Bien-fonds / Observations
D 513428	Order	98 04 17	Ontario Court (General Division)			Re: D 507605
D 513429	Certificate of Discharge	98 04 17	Nutreco Canada Inc.	Coolwater Farms Limited		Re: D 506250
D 513431	Transfer	98 04 17	Nutreco Canada Inc.	3444309 Canada Inc.	$1,100,000.00	1stly: Part - Part 1 on 40R-9398 2ndly: Part - Parts 6 to 38 incl. on 40R-5947 ex Part 6 on 40R-9066 and Parts 3, 4, 7, 8, 11, and 14 on 40R-8967 3rdly: Part - Parts 1,2,3,4 & 5 on 40R-9066
DELETED UNDER D515191 K Roff ADLR D 513432	Charge	98 04 17	3444309 Canada Inc.	Nutreco Canada Inc.	$1,000,000.00	~~1stly: Part- Part 1 on 40R-9398~~ ~~2ndly: Parts- Parts 6 to 38 incl. on 40R-5947 ex Part 6 on 40R-9066 and Parts 3, 4, 7, 8, 11, and 14 on 40R-8967~~ ~~3rdly: Part- Parts 1, 2, 3, 4, 5 on 40R-9066~~
D 514811	Charge	98 05 13	3444309 Canada Inc.	Business Development Bank of Canada	$400,000.00	1stly: Part - Part 1 on 40R-9398 2ndly: Part - Parts 6 to 38 incl. on 40R-5947 Ex - Part 6 on 40R-9066 and Parts 3,4,7,8,11 and 14 on 40R-8967 3rdly: Part - Parts 1,2,3,4,5 on 40R-9066
D 514812	Charge	98 05 13	3444309 Canada Inc.	Farm Credit Corp.	$400,000.00	1stly: Part 1 on 40R-9398 2ndly: Part - Parts 6 to 38 incl. on 40R-5947 Ex - Parts 3,4,7,8,11 & 14 on 40R-8967 Ex - Part 6 on 40R-9066 3rdly: Part - Parts 1,2,3,4,5 on 40R-9066

PART OF 99/05/06

NOTICE
the land in this abstract index is designated as of
DEC 21 1999
under part II of the L.R.R.A., 1984, and all qualified properties are registered under the Land Titles Act pursuant to Sec. 32. All registrations subsequent to that date are recorded in the parcel register set out in Subsection 141 (5) of the Land Titles Act.
REGISTRY (LTCO3)

NOTICE Continued on / Suite à la page
the land in this abstract index is designated as of
MAR 22 1999
under part II of the L.R.R.A., 1984, and all qualified properties are registered under the Land Titles Act pursuant to Sec. 32. All registrations subsequent to that date are recorded in the parcel register set out in Subsection 141 (5) of the Land Titles Act.
REGISTRY (LTCO3)

Abstract Index
Répertoire par lot

Ontario ________ Lot ________ Plan / Concession ________ Page ________

____

Registration Number Numéro d'enregistrement	Instrument Type Type d'acte	Registration Date Date d'enregistrement YY AA | MM MM | DD JJ	Parties from Parties	Parties to Parties	Consideration Contrepartie	Land / Remarks Bien-fonds / Observations

1821 (12/85)

FORM 1

Continued on / Suite à la page ________

EXHIBIT F

EXHIBIT "F"
CITY REQUEST FOR MINOR VARIANCE 2018

City of PICKERING

Office of the
Chief Administrative Officer

Sent by email (Edward.Leader@Canada.ca)

November 8, 2016

Edward Leader
(Acting) Power Reactor Site Office Supervisor
Pickering Regulatory Program Division
Canadian Nuclear Safety Commission/Government of Canada
1675 Montgomery Park Road
Pickering, ON L1V 2R5

Subject: Minor Variance Request
- Pickering Nuclear Generating Station
File: O-5260-001

This is further to our email correspondence expressing our interest in obtaining a minor variance to assist in moving forward with an exciting new development at the foot of Liverpool Road in Pickering.

Please accept this letter as a formal request for a minor variance to the Pickering Nuclea Station Exclusion Zone, to remove lands in South Pickering from the exclusion zone. More information on the specifics of this request, and the private and city-owned lands captured existing Exclusion Zone are identified throughout this letter.

It is our understanding through correspondence with the Ontario Power Generation (OPG) that the Pickering Nuclear Generating Station (PNGS) Operating Licence will expire in 2018. We understand that OPG must submit a request to the Canadian Nuclear Safety Commission (CNSC), under subsection 24(2) of the *Nuclear Safety and Control Act* (NSCA), for an amendment to the Nuclear Power Reactor Operating Licence (PROL) for its Pickering Nuclear Generating Station. The current licence, PROL 48-01/2018, expires on August 31, 2018. We have also been informed that there is a formal process for renewal which includes a public consultation process.

We are of the understanding that the Commission, the administrative tribunal of the CNSC, makes decisions on the licensing of major nuclear facilities through a two-part public hearing process. In considering OPG's application, we understand that the Commission will be required to decide pursuant to subsection 24(4) of the NSCA:

- if OPG is qualified to carry on the activity that the amended licence would authorize; and
- if in carrying on that activity, OPG will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

We have been informed that the public hearings will give involved parties, and members of the public an opportunity to be heard before the Commission. We understand that the hearing dates for the Pickering Licence Renewal will not be set until OPG submits its Licence Renewal application in August 2017. We also understand that the City of Pickering will participate as an intervener at the Pickering Licence Renewal hearings likely to be scheduled for 2018. We have been informed that following the public hearing, the Commission will deliberate and make its decision on the matter. We are aware that the final decision is expected to be rendered prior to August 31, 2018, with the decision being the sole responsibility of the CNSC.

We understand that OPG is asking for a licence that will run until 2028, as a 10-year licence is now the new standard in Canada which is aligned with the CNSC requirements for a Periodic Safety Review to be performed every 10 years. OPG informs us that a 10-year licence will enable OPG to run to 2024 as well as go through the steps to put the units into a "Safe Storage" state which takes about 3 years.

Through our discussions with the Ontario Power Generation, we have been informed that the City of Pickering has limited involvement in the extension of the Pickering Nuclear Generating Station Operating Licence. This is concerning as the City of Pickering is responsible for land use planning initiatives in the municipality. The City has the lead role in the development of the waterfront community, and will have the lead role in the redevelopment of the OPG lands when they become available in the future. That being said, we would like to request the Canadian Nuclear Safety Commission to consider the following information as it relates to the strategic development of the City of Pickering.

As you are aware, the Pickering Nuclear Generating Station Operating Licence greatly affects Land Use in the City of Pickering, particularly, the lands in close proximity to the PNGS. The Pickering Operating Licence requires that "the Licencee shall control the use and occupation of any land within the exclusion zone" (PROL LC 1.4). The Exclusion Zone, defined as 914 metres radius from the outside of the reactor buildings, is one of the design features to ensure the protection of the public in the event of a postulated accident. The Pickering "A" and "B" Safety Reports demonstrate that the radiation dose to the most susceptible individual at the exclusion zone boundary remains within regulatory limits. In the Licence Condition Handbook, the following clarification regarding this licence condition is provided, "The licensee shall not permit a permanent dwelling to be built within the exclusion zone." Here, permanent dwelling refers to housing that is meant to be fixed.

We understand that historically, the Canadian Atomic Energy Control Board, predecessor to the Canadian Nuclear Safety Commission, required that exclusion zones for all nuclear power plants in Canada since Pickering A were to be 914 m (3,000 feet) from the reactor building. From our review, it appears as though this distance was based on nuclear best practices at the time of construction of

Pickering A reactor for a safe dose distance, and is a similar distance seen elsewhere around the world.

Today, the Canadian Nuclear Safety Commission in their safety regulatory document, RD-337, lists the following factors in considering the determination of exclusion zones:

(a) Land usage needs
(b) Security requirements
(c) Evacuation needs
(d) Environmental factors

Through our review, the most recent and relevant determination of an exclusion zone was completed in 2009 for the Darlington New Nuclear Project in an OPG report (NK054-REP-01210-00003) titled "Exclusion Zone Determination for Darlington New Nuclear Project." Although the report reviews the four factors listed above, it focuses heavily on radioactive dose acceptance criteria, and the appropriate distances to maintain dose requirements to members of the public in relation to site boundaries. The Report concludes that based on the available reactor technology information, distances of 500m or greater meet the requirements and expectations in regulatory documents: RD-337 "Design of New Nuclear Power Plants", RD-346 "Site Evaluation for New Nuclear Power Plants", "Class I Nuclear Facilities Regulations," and "Radiation Protection Regulations," with respect to the site and exclusion zone boundaries.

In considering "land usage needs" within the Pickering Nuclear Generating Station Exclusion Zone, we note that there are important parcels of land in the City of Pickering Waterfront Network that are captured within the Exclusion Zone. Figure 1 shows the current Pickering Nuclear Exclusion Zone in relation to the subject area, extending 914 metres (3,000 ft.) from the exterior of each nuclear reactor. Given the current extent of the exclusion zone and the requirements outlined in the operating licence, residential development could not be approved in the subject area until the operating licence is no longer in effect. **No other Nuclear Generating Stations in Canada have exclusions zones which include land not owned directly by the operator and are available for redevelopment.**

Figure 1 – Pickering Nuclear Exclusion Zone

When considering our formal request for a minor variance to the Pickering Nuclear Generating Station Exclusion Zone, we ask Canadian Nuclear Safety Commission to consider a similar review process that was executed for Darlington. We recognize that a formal review of the Pickering Nuclear Generating Station exclusion zone could allow for a minor reduction to the exclusion zone limits around the Subject Area. This reduced distance would limit the exclusion zone to Ontario Power Generation owned lands, therefore allowing the Pickering Harbour lands (City-owned and privately-owned) to be planned and redeveloped.

The future PNGS Operating Licence Extension will have a significant impact on the City of Pickering in the years to come, and we hope that the land use potential of this waterfront community will be carefully considered now, prior to the Canadian Nuclear Safety Commission embarking on the formal Public Hearing process.

Subject Area Description and Surrounding Land Use Context

The properties of concern as they relate to the Exclusion Zone boundary are located in the Liverpool Road Waterfront Node, east and west of the point at which Liverpool Road meets Lake Ontario (Figure 2). The Region of Durham Official Plan designates the area as "Waterfront Areas" and the City of Pickering Official Plan currently designates the area as "Marina Areas".

Figure 2 - Site Location

The subject area is within the Bay Ridges Neighbourhood in the City of Pickering (Figure 3), located within the Liverpool Road Waterfront Node. The City of Pickering guiding vision for the area is that of a "Great Lakes Nautical Village" to have a mix of uses and an ambience that is inviting. The Village is meant to be an interesting place to live, work, and visit. This area represents the tourism and service commercial uses that complement the marina, recreation and waterfront trail uses within the Waterfront Node. Residential uses within the area are meant to provide public benefit with ground floor uses that are versatile to accommodate commercial uses. The City of Pickering vision for the subject area, as an extension of the Nautical Village, is that over time the area will offer a mix of uses including residential, commercial, retail, and office, which contribute to an inviting public realm.

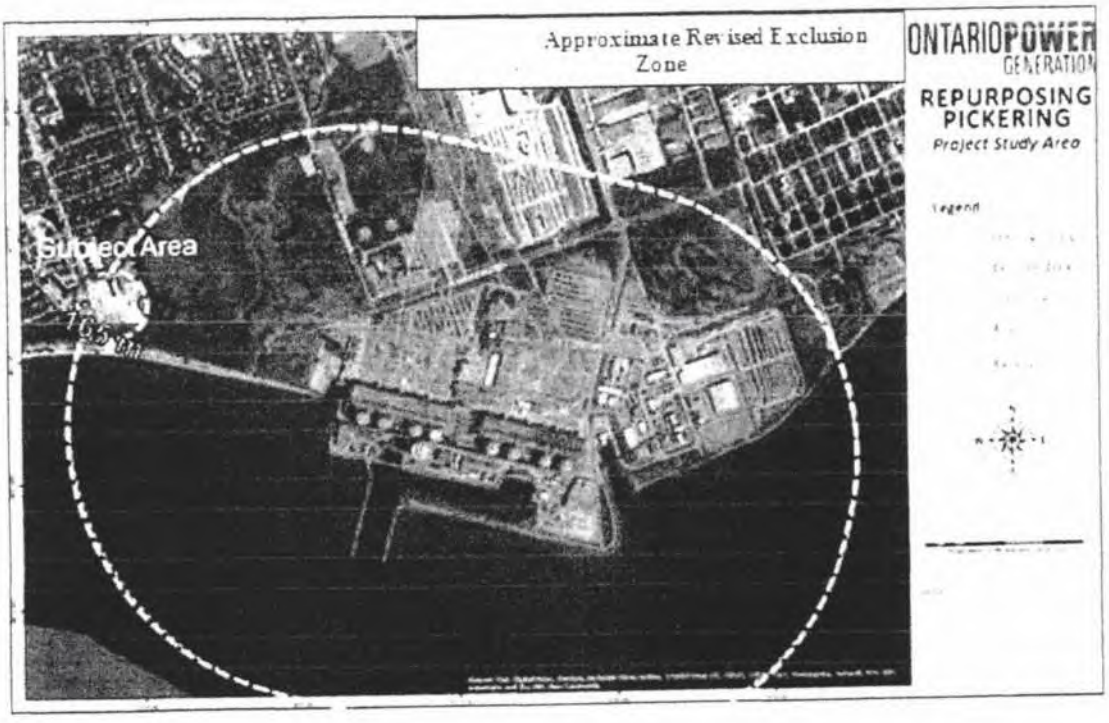
Figure 3 - Subject Area

The immediate surrounding land uses are predominantly residential with commercial. There is a public parking lot owned and operated by the City of Pickering to provide parking for residents to access the waterfront and beaches. Frenchman's Bay Marina and Waterfront Bistro Restaurant are also located within the subject area. There are boat docking facilities located along the waterfront edge privately owned and operated. Lake Ontario is immediately south of the subject area, where there is a Boardwalk along Pickering Harbour with a footbridge providing pedestrian access to the Millennium Square and beaches.

Rationale for the Removal of the Subject Area from Exclusion Zone

Further to the information provided, a Rationale for the City of Pickering's formal request for a minor variance to the Pickering Nuclear Generating Station Exclusion Zone is provided on page 7. As you will see in Figure 4, the impact of the requested minor variance to the Exclusion Zone is very minor in nature. The minor variance required to the Exclusion Zone is a total of approximately 165 metres from the western limits to the eastern limits of the Subject Area as identified in Figure 4.

Figure 4 – Pickering Nuclear Exclusion Zone With Minor Variance



The City of Pickering has a vested interest in the strategic development of our waterfront community. The South Pickering area surrounding the Pickering Harbour is valuable to the City of Pickering due to its current and historical significance as a "Waterfront Node". These lands hold significant opportunity for residential and commercial growth, currently underutilized due to the restraints inherent in the Exclusion Zone boundary. The development of these lands would provide increased jobs to aid in the diversification of the City of Pickering employment base, while also providing increased housing options to City of Pickering residents. At this point in time, we are looking to encourage development in the form of residential and commercial growth in this Waterfront Node. We would like to proceed with the Planning Approval Process for these lands in early 2017, targeting for construction in spring of 2018.

As previously stated, no other Nuclear Generating Stations in Canada have exclusions zones which include land not owned directly by the operator. The subject lands identified throughout are lands within the Exclusion Zone that are not owned by Ontario Power Generation.

The PNGS Operating Licence Extension will have a significant impact on the City of Pickering in the years to come and we hope that the land use potential of this waterfront community will be carefully considered now, prior to the Canadian Nuclear Safety Commission embarking on the formal Public Hearing process.

We therefore respectfully request that the Canadian Nuclear Safety Commission consider the information provided in this letter, and consider our formal request for a minor variance to the Pickering Nuclear Generating Station Exclusion Zone. Consideration of this request would allow the City to proceed with the Planning Approval Process for the subject lands to ensure that Pickering's waterfront meets its full potential through intensification in the form of residential and commercial development, coupled with improved public spaces.

Yours truly

Tony Prevedel, P. Eng.
Chief Administrative Officer

TP:jh

Copy: Carol Chan, Senior Power Reactor Inspector - Pickering Regulatory Program Division
Canadian Nuclear Safety Commission
Kamyar Dehdashtian, Manager, Regulatory Affairs – Ontario Power Generation
Carrie-Anne Atkins, Manager, Corporate Relations and Communications - Pickering Nuclear

Mayor Ryan
Members of Council
Directors
Chief Planner

EXHIBIT G

Canadian Nuclear Safety Commission
Commission canadienne de sûreté nucléaire

Office of the CAO			
Received	JUL 01 2017		
File #			
Follow Up			
	Mayor	✓	City Development
	Council		Corporate Services
	Directors		Clerk
	Cult & Rec		Legal & LS
	Eng & PW		Finance
	Fire Services		Human Resources
	Customer Care		Oper & Fleet
	CAO Mgt Team		

Directorate of Power Reactor Regulation

e-Doc 5266798
File 2.01

July 25, 2017

Mr. Tony Prevedel
Chief Administrative Officer
City of Pickering
One The Esplanade
Pickering, Ontario L1V 6K7

Subject: **Canadian Nuclear Safety Commission (CNSC) notification that proposed project would infringe on the Exclusion Zone of the Pickering Nuclear Generating Station**

Dear Mr. Prevedel:

This letter is further to your letter received November 8, 2016 (File O-5260-001) concerning the City of Pickering request for a minor variance of the Pickering Nuclear Generating Station Exclusion Zone to accommodate *The Biglieri Group Ltd. proposed Harbourfront Residential and Commercial Development Part of Lot 22, Range 3, in Broken Front Concession, Pickering, Ontario (TBG Project No. 15360).*

CNSC response

A part of the stated subject site for this proposed project is within the Exclusion Zone of the Pickering Nuclear Generating Station (PNGS) in relation to the operating licence issued by the CNSC under the authority of the *Nuclear Safety and Control Act* (S.C. 1997, c. 9). Exclusion Zone is defined in section 1 of the *Class I Nuclear Facilities Regulations* as a parcel of land within or surrounding a nuclear facility on which there is no permanent dwelling and over which a licensee has the legal authority to exercise control.

Any changes to the Exclusion Zone would need to be initiated by Ontario Power Generation (OPG) with submitting to the Commission appropriate information regarding the revision of the licensing safety case. Additionally, further requirements may be applicable under the Canadian Environmental Assessment Act 2012 (CEAA 2012).

280 Slater Street, Post Office Box 1046, Station B
Ottawa, Ontario K1P 5S9 Canada
Fax: 613-995-5086 nuclearsafety.gc.ca

280 rue Slater, Case postale 1046, Succursale B
Ottawa (Ontario) K1P 5S9 Canada
Télécopieur : 613-995-5086 sureteinucleaire.gc.ca

In addition, this proposed development does not appear to be in alignment with the *Provincial Policy Statement 2014 (Policy 1.2.6 Land Use Compatibility)*, requiring the buffering of Sensitive Land Uses from Major Facilities.

Yours sincerely,

Alexandre Viktorov, Ph.D
Director
Pickering Regulatory Program Division

c.c.: G. Frappier, L. Andrews (CNSC)
R. Manley, K. Dehdashtian, R. Davies (OPG)
A. Yearwood, Region of Durham
L. Miller, Ontario Provincial Ministry of Municipal Affairs
D. Shields, City of Pickering Clerk

EXHIBIT H

ONTARIO POWER GENERATION

1675 Montgomery Park Road, P.O. Box 160, Pickering, Ontario L1V 2R5

August 28, 2017

CD# P-CORR-00531-05055

MR. M. A. LEBLANC
Commission Secretary

Canadian Nuclear Safety Commission
280 Slater Street
Ottawa, Ontario
K1P 5S9

Dear Mr. Leblanc:

Application for Renewal of Pickering Nuclear Generating Station Power Reactor Operating Licence

The purpose of this letter is to submit the licence renewal application for the Pickering Nuclear Generating Station (NGS) Power Reactor Operating Licence, PROL 48.03/2018, which expires on August 31, 2018.

Ontario Power Generation (OPG) Incorporated is a Canadian corporation located at 700 University Avenue, Toronto, Ontario, M5G 1X6.

OPG requests a ten-year licence renewal, from September 1, 2018 to August 31, 2028. The Pickering facility consists of eight nuclear reactors and their associated equipment, which were designed to produce electrical power. Six of the units are operational (Units 1 and 4 and Units 5-8) and two units (Units 2 and 3) have been placed in a safe storage state.

OPG also requests Commission approval to operate beyond the current Commission approved limit of 247,000 Effective Full Power Hours (EFPH) on the Pickering 5-8 fuel channels, up to 295,000 EFPH for the lead Pickering unit which corresponds approximately to the intended end of commercial operation (December 31, 2024).

The management and control of operation of the Pickering facility and the nuclear substances, prescribed equipment, and associated prescribed information, are the overall responsibility of Mr. Randy Lockwood, Senior Vice-President of the Pickering NGS.

This licence renewal application demonstrates that Ontario Power Generation is qualified to operate the Pickering NGS and will make adequate provision for the protection of the environment, the health and safety of persons, and the maintenance

of national security and measures required to implement international obligations to which Canada has agreed.

Attachment 1 is included for convenience, to assist in locating specific information within the application corresponding to the requirements of the Nuclear Safety and Control Act and applicable regulations as well as other information that was requested in Reference 1.

Attachment 2 describes, for the 14 CNSC Safety and Control Areas (SCAs), OPG's programs, station performance during the current licence period and planned improvements. The information that is included with this application is in accordance with the requirements of the Nuclear Safety and Control Act and applicable Regulations and further requirements as provided by the CNSC in Reference 1.

This application also provides information to support the Environmental Assessment (EA) under the Nuclear Safety and Control Act (NSCA) that will be conducted by CNSC staff.

Enclosure 1 fulfils the requirements of Section 3(e) of the Class I Nuclear Facilities Regulations by providing information on non-radiological hazardous substances at the nuclear facility.

As communicated in Reference 2, OPG intends to cease commercial operation of all Pickering units on December 31, 2024. Also, note that this licence renewal application encompasses three phases of operational activities over the proposed licence term: continued commercial operation, a stabilization phase (post-shutdown defueling and dewatering), and the early period of a safe storage phase.

OPG's responses to the preliminary list of new CNSC regulatory documents and CSA standards for inclusion in the Pickering LCH under Compliance Verification Criteria (CVC) listed in Attachment 2 of Reference 1, was submitted in Reference 3.

In support of this licence renewal, OPG is undertaking a Periodic Safety Review (PSR) per the requirements of regulatory document RegDoc-2.3.3, "Periodic Safety Reviews". PSR deliverables are being submitted to CNSC staff per the mutually agreed upon schedule outlined in Reference 4.

In summary, OPG is requesting approval from the Canadian Nuclear Safety Commission for a licence renewal for a ten-year term, from September 1, 2018 to August 31, 2028, and approval for operation beyond the current operating limit of 247,000 EFPH up to 295,000 EFPH for the lead Pickering unit which corresponds approximately to the intended end of commercial operation (December 31, 2024).

The information provided within this licence application supports these requests and demonstrates that OPG is qualified to carry on the licensed activities and makes adequate provisions to protect the health, safety and security of persons, and the environment. OPG is committed to safe and reliable operation of the Pickering NGS and continues to meet or exceed all of the legal requirements of the NSCA and the associated regulations.

Consistent with OPG's approach towards open and transparent public communications, OPG will be posting this application on its external web-site www.opg.com.

If you have any questions, please contact Dr. Jack Vecchiarelli, Manager Pickering Relicensing, at (905) 839-6746 extension 5444.

Randy Lockwood
Senior Vice President
Pickering Nuclear

cc: A. Viktorov - CNSC Ottawa
CNSC Site Office - Pickering

References:

1. CNSC letter, A. Viktorov to B. McGee, "Application Requirements for Renewal of the Pickering Power Reactor Operating Licence" September 8, 2016, e-Doc #5034082, CD# P-CORR-00531-04833.
2. OPG Letter, R. Lockwood to G. Frappier, "End Date of Commercial Operations for Pickering NGS", June 28, 2017, CD# P-CORR-00531-04930.
3. OPG Letter, R. Lockwood to A. Viktorov, "Pickering Licence Renewal: Regulatory Documents and Standards Proposed for Inclusion in the Licence Conditions Handbook", August 11, 2017, CD# P-CORR-00531-05087.
4. Protocol, "OPG-CNSC Protocol for the Conduct of a Periodic Safety Review in Support of Pickering NGS Licence Renewal", January 17, 2017, e-Doc 5143721, CD# P-CORR-00531-04725 R001.

Attachments:

1. "Licence Renewal Application Matrix"

2. "Pickering Nuclear Generating Station Power Reactor Licence Application"

Enclosure:

1. OPG Report, "Pickering NGS Hazardous Substances", July 28, 2017, CD# P-REP-08965-0633695 R001

Attachment 1

Licence Renewal Application Matrix

(15 pages including this coversheet)

Table 1: Licence Application Matrix – Applicable Regulations

NOTE: Unless otherwise specified, all sections cross-referenced below refer to Attachment 2.

General Nuclear Safety and Control Regulations	
Requirement(s)	**Application Cross-Ref.**
3. (1) An application for a licence shall contain the following information: (a) the applicant's name and business address;	Cover Letter
(b) the activity to be licensed and its purpose;	Appendix A
(c) the name, maximum quantity and form of any nuclear substance to be encompassed by the licence;	Appendix A
(d) a description of any nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence;	1.2
(e) the proposed measures to ensure compliance with the *Radiation Protection Regulations* and the *Nuclear Security Regulations*;	2.7 & 2.12
(f) any proposed action level for the purpose of section 6 of the *Radiation Protection Regulations*;	2.7.5
(g) the proposed measures to control access to the site of the activity to be licensed and the nuclear substance, prescribed equipment or prescribed information;	2.12
(h) the proposed measures to prevent loss or illegal use, possession or removal of the nuclear substance, prescribed equipment or prescribed information;	2.12 & 2.13
(i) a description and the results of any test, analysis or calculation performed to substantiate the information included in the application;	1.2, 2.4.2
(j) the name, quantity, form, origin and volume of any radioactive waste or hazardous waste that may result from the activity to be licensed, including waste that may be stored, managed, processed or disposed of at the site of the activity to be licensed, and the proposed method for managing and disposing of that waste;	2.11, Appendix A, & Enclosure 1
(k) the applicant's organizational management structure insofar as it may bear on the applicant's compliance with the *Act* and the regulations made under the *Act*, including the internal allocation of functions, responsibilities and authority;	2.1.2
(l) a description of any proposed financial guarantee relating to the activity to be licensed;	Appendix B
(m) any other information required by the *Act* or the regulations made under the *Act* for the activity to be licensed and the nuclear substance, nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence; and	Throughout

General Nuclear Safety and Control Regulations (cont)	
Requirement(s)	**Application Cross-Ref.**
(1.1) The Commission or a designated officer authorized under paragraph 37(2)(*c*) of the *Act*, may require any other information that is necessary to enable the Commission or the designated officer to determine whether the applicant: (a) is qualified to carry on the activity to be licensed, or	See Tables 2 & 3 in this Attachment 1
(b) will, in carrying on that activity, make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.	2.8, 2.9, 2.10, 2.12 & 2.13
5. An application for the renewal of a licence shall contain (*a*) the information required to be contained in an application for that licence by the applicable regulations made under the *Act (i.e. in this case: General Nuclear Safety and Control Regulations section 3, Class I Nuclear Facilities Regulations sections 3 and 6, and Nuclear Security Regulations section 3)*; and	Throughout
(*b*) a statement identifying the changes in the information that was previously submitted.	Letter
15. Every applicant for a licence and every licensee shall notify the Commission of (*a*) the persons who have authority to act for them in their dealings with the Commission;	2.1.13
(*b*) the names and position titles of the persons who are responsible for the management and control of the licensed activity and the nuclear substance, nuclear facility, prescribed equipment or prescribed information encompassed by the licence; and	Letter and 2.1.13
(*c*) any change in the information referred to in paragraphs (*a*) and (*b*), within 15 days after the change occurs.	2.1.13

Class I Nuclear Facilities Regulations	
Requirement(s)	**Application Cross-Ref.**
3. An application for a licence in respect of a Class I nuclear facility, other than a licence to abandon, shall contain the following information in addition to the information required by section 3 of the *General Nuclear Safety and Control Regulations*: (*a*) a description of the site of the activity to be licensed, including the location of any exclusion zone and any structures within that zone;	1.2 & Appendix A
(*b*) plans showing the location, perimeter, areas, structures and systems of the nuclear facility;	1.2
(*c*) evidence that the applicant is the owner of the site or has authority from the owner of the site to carry on the activity to be licensed;	1.2
(*d*) the proposed quality assurance program for the activity to be licensed;	2.1
(*e*) the name, form, characteristics and quantity of any hazardous substances that may be on the site while the activity to be licensed is carried on;	Enclosure 1
(*f*) the proposed worker health and safety policies and procedures;	2.7 & 2.8
(*g*) the proposed environmental protection policies and procedures;	2.9
(*h*) the proposed effluent and environmental monitoring programs;	2.9
(*i*) if the application is in respect of a nuclear facility referred to in paragraph 2(*b*) of the *Nuclear Security Regulations*, the information required by section 3 of those Regulations;	2.12
(*j*) the proposed program to inform persons living in the vicinity of the site of the general nature and characteristics of the anticipated effects on the environment and the health and safety of persons that may result from the activity to be licensed; and	3.0
(*k*) the proposed plan for the decommissioning of the nuclear facility or of the site.	2.11.4
6. An application for a licence to operate a Class I nuclear facility shall contain the following information in addition to the information required by section 3: (*a*) a description of the structures at the nuclear facility, including their design and their design operating conditions;	1.2, 2.3.9, 2.4.1 & 2.4.2
(*b*) a description of the systems and equipment at the nuclear facility, including their design and their design operating conditions;	1.2, 2.3.9, 2.4.1 & 2.4.2

Class I Nuclear Facilities Regulations (cont)	
Requirement(s)	**Application Cross-Ref.**
(*c*) a final safety analysis report demonstrating the adequacy of the design of the nuclear facility;	2.4.2
(*d*) the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility;	Throughout
(*e*) the proposed procedures for handling, storing, loading and transporting nuclear substances and hazardous substances;	2.9, 2.11, 2.14 & 2.4.7
(*f*) the proposed measures to facilitate Canada's compliance with any applicable safeguards agreement;	2.13
(*g*) the proposed commissioning program for the systems and equipment that will be used at the nuclear facility;	2.5.2
(*h*) the effects on the environment and the health and safety of persons that may result from the operation and decommissioning of the nuclear facility, and the measures that will be taken to prevent or mitigate those effects;	1.7, 1.8, 2.7, 2.8, 2.9 & 2.11
(*i*) the proposed location of points of release, the proposed maximum quantities and concentrations, and the anticipated volume and flow rate of releases of nuclear substances and hazardous substances into the environment, including their physical, chemical and radiological characteristics;	2.9
(*j*) the proposed measures to control releases of nuclear substances and hazardous substances into the environment;	2.9
(*k*) the proposed measures to prevent or mitigate the effects of accidental releases of nuclear substances and hazardous substances on the environment, the health and safety of persons and the maintenance of security, including measures to (i) assist off-site authorities in planning and preparing to limit the effects of an accidental release,	2.10 & 2.12
(ii) notify off-site authorities of an accidental release or the imminence of an accidental release,	2.10.2
(iii) report information to off-site authorities during and after an accidental release,	2.10.2
(iv) assist off-site authorities in dealing with the effects of an accidental release, and	2.10.2 & 2.12.3
(v) test the implementation of the measures to prevent or mitigate the effects of an accidental release;	2.10.2 & 2.12.2
(*l*) the proposed measures to prevent acts of sabotage or attempted sabotage at the nuclear facility, including measures to alert the licensee to such acts;	2.12.1
(*m*) the proposed responsibilities of and qualification requirements and training program for workers, including the procedures for the requalification of workers; and	2.2.2, 2.2.3, & 2.2.4
(*n*) the results that have been achieved in implementing the program for recruiting, training and qualifying workers in respect of the operation and maintenance of the nuclear facility.	2.1.2, 2.1.3, 2.2.1, 2.2.2 & 2.2.3

Nuclear Security Regulations	
Requirement(s)	**Application Cross-Ref.**
3. An application for a licence in respect of Category I or II nuclear material, other than a licence to transport, and an application for a licence in respect of a nuclear facility referred to in paragraph 2(*b*) shall contain the following information in addition to the information required by section 3 of the *Nuclear Substances and Radiation Devices Regulations* or sections 3 to 8 of the *Class I Nuclear Facilities Regulations*, as applicable: (*a*) a copy of the written protection arrangements made with a response force, referred to in section 35;	2.12.3
(*b*) the site plan referred to in section 16;	1.2
(*c*) a description of the proposed security equipment, systems and procedures;	2.12.1
(*d*) a description of the proposed on-site and off-site communications equipment, systems and procedures;	2.12
(*e*) a description of the proposed structure and organization of the nuclear security guard service, including the duties, responsibilities and training of nuclear security guards; and	2.12.1
(*f*) the proposed plan and procedures to assess and respond to breaches of security.	2.12.1
(*g*) the current threat and risk assessment.	2.12.1

Table 2: Licence Application Matrix - Additional Information Requested by the CNSC

No.	Item	Application Cross-Ref.
1	Environmental Assessment	1.7, 1.8, 2.9.9 & 2.9.10
2	Cost Recovery	Appendix B
3	Financial Guarantees	Appendix B
4	Improvement Plans and Significant Future Activities	Throughout
5	Licensee Public Information program	3.0
6	Nuclear Liability Insurance	Appendix B
7	Aboriginal Consultation	3.2
8	Summary of OPG programs organized by SCA	See Table 3 of this Attachment 1
9	Documents describing the organizational structure	2.1.2
10	Information on the station performance	1.3
11	Current status of all open Action Items	Appendix D
12	Current status of all open CANDU Safety Issues	Appendix F
13	Current status of all open issues that were discussed during the last Pickering licence renewal	Throughout
14	Current status of all of the reassessment of the FAIs previously closed based on Pickering end of commercial operation of 2020	Appendix E.9

No.	Item	Application Cross-Ref.
15	Proposed operating strategy for Pickering including major challenges and initiatives for the next licensing period	1.1, 1.4, 1.5, 1.6 & Appendix E
16	Results of the Periodic Safety Review (PSR)	Appendix E
17	Effective dates for implementation of the CNSC regulatory documents and CSA standards	Letter (in Reference 4)
18	Information on the end of commercial operation of the facility, including the final shutdown date of each unit.	Letter (in Reference 2)
19	Decommissioning strategy for Pickering NGS, including the applicable decommissioning plans.	2.11.4
20	A plan describing the management of the impact on the organization, human performance, and fitness for service while approaching the shutdown of such units, with the expectation that the plan be implemented 3 years prior to the actual date of shutdown of any unit.	1.6.1
21	A plan describing the preparation for and implementation of the stabilization activities that will be conducted to ensure the safe transition of such units from permanent shutdown to the eventual safe storage state, including information on managing the configuration of Pickering NGS as well as the tasks and processes to implement such configuration.	1.6.2
22	Reference to any regulations by other authorities besides the CNSC, as well as any permits, certificates or licences that have been issued.	Appendix C
23	Description of any other activity to be authorized under the operating licence and the purpose of that activity.	Appendix A
24	Information regarding the receipt, handling and transfer, to an off-site commercial facility, of Cobalt-60 produced at Pickering B, as well as the receipt of spent Cobalt-60 from an off-site facility and storage in the Auxiliary Irradiation Fuel bay at Pickering A.	4.0

Table 3: Licence Application Matrix - SCA Specific Areas

Management System SCA	
Specific Areas Addressed in Application	**Section(s)**
Management System	2.1.1
Organization	2.1.2 & 2.1.3
Performance Assessment, Improvement And Management Review	2.1.6
Operating Experience (OPEX)	2.1.7
Change Management	2.3.2 & 2.5.2
Safety Culture	2.1.5
Configuration Management	2.1.8
Records Management	2.1.10
Management of Contractors	2.1.4
Business Continuity	2.1.12
Applicable OPG Programs	**Section(s)**
Nuclear Management System	2.1.1
Nuclear Safety Policy	2.1.1
Managed Systems	2.1.1
Records and Document Control	2.1.10
Business Planning	2.1.11
Nuclear Organization	2.1.2
Organizational Change Control	2.1.2
Contractor Management	2.1.4
Materials Management	2.1.9
Nuclear Safety Oversight	2.1.5
Independent Assessment	2.1.6
Nuclear Safety Culture Assessment	2.1.5

Human Performance Management SCA	
Specific Areas Addressed in Application	**Section(s)**
Human Performance Programs	2.2.1
Personnel Training	2.2.2
Initial certification examinations and requalification tests	2.2.4
Work organization and job design	2.2.5
Fitness for Duty	2.2.6
Applicable OPG Programs	**Section(s)**
Human Performance	2.2.1
Technical Procedures	2.3.4
Continuous Behaviour Observation Program	2.2.6
Limits of Hours of Work	2.2.6
Minimum Shift Complement Training	2.2.5
Leadership and Management Training	2.2.2

Operating Performance SCA	
Specific Areas Addressed in Application	**Section(s)**
Conduct of licensed activity	2.3.1
Procedures	2.3.4
Reporting and trending	2.3.10 & 2.3.11
Outage management performance	2.3.7
Safe operating envelope	2.3.9
Severe accident management and recovery	2.4.6
Accident management and recovery	2.4.6
Applicable OPG Programs	**Section(s)**
Nuclear Operations	2.3.1
OP&Ps	2.3.1
Safe Operating Envelope	2.3.9
OSRs	2.3.9
Plant Status Control	2.3.2
Chemistry	2.6.6
Operating Experience Process	2.1.7
Corrective Action	2.3.10
Reactor Safety Program	2.4.1
Reactivity Management	2.3.5
Heat Sink Management	2.3.8
Response to Transient	2.3.6

Safety Analysis SCA	
Specific Areas Addressed in Application	**Section(s)**
Deterministic Safety Analysis	2.4.2
Hazard analysis	2.4.4
Probabilistic safety analysis	2.4.4
Criticality safety	2.4.7
Severe accident analysis	2.4.6
Management of safety issues (including R&D programs)	2.4.8
Applicable OPG Programs	**Section(s)**
Reactor Safety Program	2.4.1
Risk and Reliability Program	2.4.4
Safety Report (all parts)	2.4.2
Analyses of Record	2.4.2

Physical Design SCA	
Specific Areas Addressed in Application	**Section(s)**
Design governance	2.5.1
Site characterization	1.2 & 2.9.10
Facility design	2.5.1
Structure design	2.5.1
System design	2.5.1
Component design	2.5.1
Applicable OPG Programs	**Section(s)**
Conduct of Engineering	2.5.1
Engineering Change Control	2.5.2
Procurement Engineering	2.5.3
Design Management	2.5.1
Configuration Management	2.1.8
Fuel	2.5.4
Pressure Boundary Program	2.5.5
Environmental Qualification	2.5.6
Software	2.5.7

Fitness for Service SCA	
Specific Areas Addressed in Application	**Section(s)**
Equipment fitness for service/equipment performance	2.6.1
Maintenance	2.6.7
Structural integrity	2.6.4
Aging management	2.6.3
Chemistry control	2.6.6
Periodic inspection and testing	2.6.4
Applicable OPG Programs	**Section(s)**
Conduct of Maintenance	2.6.7
Integrated Aging Management	2.6.3
Production Work Management	2.6.7
Equipment Reliability	2.6.1
Component and Equipment Surveillance	2.6.2
Reliability and Monitoring of Systems Important to Safety	2.4.3
Major Components	2.6.2
Life Cycle Management Plans	2.6.2
Non-Destructive Examination	2.6.5

Radiation Protection SCA	
Specific Areas Addressed in Application	**Section(s)**
Application of ALARA	2.7.2
Worker dose control	2.7.3
Radiation protection program performance	2.7.1 thru 2.7.4
Radiological hazard control	2.7.4
Estimated dose to public	2.9.5
Applicable OPG Programs	**Section(s)**
Radiation Protection	2.7.1
Controlling Exposure ALARA	2.7.2
Occupational Action Levels	2.7.5
Dose Limits and Exposure Control	2.7.5

Conventional Health and Safety SCA	
Specific Areas Addressed in Application	**Section(s)**
Performance	2.8.1
Practices	2.8.1
Awareness	2.8.1
Applicable OPG Programs	**Section(s)**
Health and Safety Policy	2.8.1
Conventional Safety	2.8.1
Work Protection	2.3.3

Environmental Protection SCA	
Specific Areas Addressed in Application	**Section(s)**
Effluent and emissions control (releases)	2.9.3 & 2.9.4
Environmental management system (EMS)	2.9.2
Assessment and monitoring	2.9.3
Protection of the public	2.9.3
Environmental risk assessment	1.7 & 1.8
Applicable OPG Programs	**Section(s)**
Environmental Policy	2.9.1
Environmental Management	2.9.2
Derived Release Limits and Environmental Action levels	2.9.3

Emergency Management and Fire Protection SCA	
Specific Areas Addressed in Application	**Section(s)**
Conventional emergency preparedness and response	2.10.1
Nuclear emergency preparedness and response	2.10.2
Fire emergency preparedness and response	2.10.1
Applicable OPG Programs	**Section(s)**
Emergency Management Policy	N/A*
Nuclear Pandemic Plan	2.1.12
Consolidated Nuclear Emergency Plan	2.10.2
Fire Protection	2.10.1

**OPG-POL-006, "Emergency Management Policy" no longer exists and was removed from the Pickering LCH in 2013.*

Waste Management SCA	
Specific Areas Addressed in Application	**Section(s)**
Waste characterization	2.11.1
Waste minimization	2.11.1
Waste management practices	2.11.1
Decommissioning plans	2.11.4
Applicable OPG Programs	**Section(s)**
Nuclear Waste Management Program	2.11.1
Waste Management	2.11.1
Decommissioning Planning	2.11.4
Preliminary Decommissioning Plan	2.11.4

Security SCA	
Specific Areas Addressed in Application	**Section(s)**
Facilities and equipment	2.12.1
Response arrangements	2.12.3
Security practices	2.12.1
Drills and exercises	2.12.2
Applicable OPG Programs	**Section(s)**
Nuclear Security	2.12.1
Pickering NGS Security Report	2.12.1
Cyber Security	2.12.4

Safeguards SCA	
Specific Areas Addressed in Application	**Section(s)**
Nuclear material accountancy and control	2.13.1
Access and assistance to the IAEA	2.13.1
Operational and design information	2.13.2
Safeguards equipment, containment and surveillance	2.13.3
Import and export	2.13.4
Applicable OPG Programs	**Section(s)**
Nuclear Safeguards	2.13.1

Packaging and Transport SCA	
Specific Areas Addressed in Application	**Section(s)**
Package design and maintenance	2.14.1
Packaging and transport	2.14
Registration for use	2.14.3
Applicable OPG Programs	**Section(s)**
Radioactive material Transportation	2.14.2
Transport Security Plan	2.14.4

Attachment 2

Pickering Nuclear Generating Station Power Reactor Licence Application

(163 pages including this coversheet)

Pickering Nuclear Generating Station
Power Reactor Operating Licence Application
August 2017

Randy Lockwood
Senior Vice President
Pickering

ONTARIO POWER GENERATION

This page intentionally left blank.

Executive Summary

The current Pickering Power Reactor Operating Licence (PROL) 48.03/2018 expires on August 31, 2018. OPG is applying for a 10-year licence renewal of the Pickering[1] Nuclear Generating Station (NGS) to include continued commercial operation of all reactor units until the end of 2024 as well as post-shutdown activities associated with removal of fuel and water in preparation for the safe storage of all units.

This licence application provides the information required to demonstrate that the Pickering NGS meets or exceeds all of the applicable requirements of the *Nuclear Safety and Control Act* (NSCA) and the associated regulations. The application describes the management system and the various programs, processes, and personnel that Pickering has in place to ensure that all work is performed with quality to the appropriate standard and with minimal impact to the public and the environment. Collectively, these elements ensure that safety is the overriding priority in all of the necessary activities undertaken to maintain safe and reliable operation of the station.

Pickering NGS continues to have strong safety performance with a conventional safety performance rating that is in the industry's top quartile. Operational reliability has improved significantly, with two of Pickering's units having record operational runs for Unit 5 and Unit 1 at 632 days and 622 days, respectively. Combined with the best forced loss rate performance in site history at approximately 3% and 4% in 2015 and 2016, respectively, Pickering NGS is continuing to achieve improved and more reliable operation.

Safety analyses demonstrate that the Pickering NGS design is safe, robust and that accident risk is very low. Furthermore, Pickering has strengthened its defence-in-depth by continuing to incorporate the lessons learned from the Fukushima event; by ensuring equipment and procedures are in place and incorporated into periodic drills and exercises for emergency response. Pickering has a comprehensive emergency response plan which also provides the framework for interaction with external agencies. OPG is planning a multi-agency interoperability exercise in December 2017 to test on-site and off-site capabilities to provide emergency response focused on the Pickering site.

In addition, a Periodic Safety Review (PSR) is being completed to further support the 10-year licence renewal. The PSR is a comprehensive assessment of the Pickering NGS design and operation, and it includes reviews of current standards and safety factors in determining what reasonable and practical enhancements will be made to further improve safety. The current PSR results further support the continued safe operation of the Pickering NGS until December 2024.

Moreover, the condition of the plant has been reviewed through component condition assessments, which also ensures that the appropriate maintenance, testing and monitoring is ongoing at Pickering. OPG continues to invest in the plant and continues to perform periodic component inspection to ensure that Pickering meets or exceeds industry standards.

[1] In this document, the terms "Pickering NGS", "Pickering Nuclear", and "Pickering" are used interchangeably. Unless otherwise indicated, they all refer to the Pickering nuclear power plant facility.

OPG is also requesting approval to operate Pickering NGS beyond the current Commission approved limit of 247,000 Effective Full Power Hours (EFPH) on the Unit 5-8 fuel channels, up to 295,000 EFPH for the lead Pickering unit which corresponds approximately to the intended end of commercial operation (December 31, 2024). Pickering has assessed the operation of the fuel channels on all units and assures their fitness for service to the target service life of December 2024 on the basis of sound technical reviews, the established programmatic controls within OPG for managing fuel channel aging, and the availability of mitigating measures where required.

Pickering's relationship with its host community remains strong through healthy, open relationships and sustainable partnerships with community stakeholders, including government, media, business leaders, educational institutions, interest groups, and community organizations. In addition, Pickering strives to ensure transparent disclosure of operations and their potential impacts. OPG also meets with Indigenous communities on an ongoing basis to provide details of nuclear operations and reports, and to discuss interests and any potential concerns over current and future operations of the Pickering NGS.

In support of this licence application, Pickering Nuclear has updated its Environmental Risk Assessment (ERA) which evaluated and confirmed that the risk to human and ecological receptors from exposure to contaminants and physical stressors related to the Pickering NGS and its activities is low. As well, a Predictive Effects Assessment (PEA) was completed in which the potential for adverse effects to human health and the environment from the activities associated with transitioning the station from operation to a safe storage state was evaluated. These studies support the overall conclusion that the Pickering site operates in a manner that is protective of human and ecological receptors residing in the surrounding area. The ERA and PEA reports have been provided to the CNSC staff as inputs for an Environmental Assessment under the NSCA.

As evident throughout the application, OPG asserts that:

- Nuclear safety will be assured such that plant personnel, the public and the environment are protected;
- Systems, structures and components at the plant are fit to continue commercial operation to the end of 2024, and that inspection programs will ensure fitness-for-service during the next licence period;
- Staff are qualified and competent to operate the plant, and this will be maintained through the next licence period, including sufficient staffing numbers;
- Impacts of plant operation to the public, workers, and the environment will continue to be of low risk and adequately mitigated, while continuing to provide the various societal and environment benefits of plant operation;
- Transparency and appropriate public and indigenous consultations will continue, and
- OPG continues to invest in Pickering to support the above objectives, including to improve equipment reliability, assure fitness for service until the end of commercial operations, and to further enhance nuclear safety.

In summary, this licence application contains sufficient information to demonstrate that Pickering NGS meets all of the legal requirements of the NSCA and the associated regulations, and to demonstrate that OPG is qualified to carry on the licensed activity and makes adequate provisions to protect the health, safety and security of persons, and the environment.

Table of Contents

Table of Figures

Tables

1.0 Overview

1.1 Introduction

Ontario Power Generation (OPG) is responsible for approximately half of the electricity generation in the Province of Ontario. Nuclear power from the Pickering Nuclear Generating Station (NGS) supplies 14% of Ontario's electricity needs. Its major benefits include - low operating costs and virtually no Greenhouse Gas (GHG) emissions.

The current Pickering Power Reactor Operating Licence (PROL) 48.03/2018 expires on August 31, 2018. OPG is applying for a 10-year licence renewal of the Pickering NGS, including continued commercial operation of all reactor units until December 2024 as well as post-shutdown activities associated with removal of fuel and water in preparation for the safe storage of all units.

As explained in OPG's submission to the 2017 provincial government's *Long Term Energy Plan*, continued commercial operation of Pickering until 2024 will ensure the province has a reliable source of GHG-free, baseload electricity to carry it through the refurbishment of the Darlington NGS and the initial Bruce NGS units, saving ratepayers as much as $600 million. That represents an estimated reduction of GHG emissions of 17 million tonnes, and the equivalent environmental impact of removing 3.4 million cars per year from Ontario's roads. Continuing to operate the Pickering NGS until 2024 is also associated with 4500 direct and indirect jobs across Durham Region.

This application provides the information required to demonstrate that Pickering meets or exceeds all of the requirements of the *Nuclear Safety and Control Act* (NSCA) and the associated regulations. As well, a Periodic Safety Review (PSR) will be completed to support the 10-year licence period. A PSR is a comprehensive assessment of Pickering's design and operation. Its purpose is to confirm that there is a high level of safety throughout the operating life and, through a review of current codes and standards and safety factors, determine what reasonable and practical enhancements can be made to further improve safety.

An integrated safety review was completed for Pickering Units 1-4 prior to the return to service in the early 2000's (Reference 1). At that time, extensive modifications to improve safety and reliability were installed on Units 1 and 4 (Units 2 and 3 were placed in the safe storage state).

An integrated safety review for Pickering Units 5-8 was completed in 2009 for continued operation of the station (Reference 2). OPG committed to complete safety enhancements and reliability improvements; all of which have been completed.

The objective of this subsequent PSR, referred to as PSR2, is to build on the previous assessments and to confirm that the design, operation and safety-significant structures, systems, and components support continued safe operation of the Pickering units to the end of 2024 (Reference 3). The PSR2 is a forward looking assessment focusing on changes to requirements since the last applicable assessment. The current PSR2 results confirm that the condition of Pickering NGS supports the additional years of commercial operation in consideration of new

operating experience since the last assessments. Moreover, the PSR2 seeks to identify additional practical safety enhancements to further improve the already low risk of plant operation, beyond those that have been implemented or that are committed to be implemented.

OPG is also requesting approval to operate beyond the current Commission approved limit of 247,000 Effective Full Power Hours (EFPH) for the Pickering 5-8 fuel channels, to 295,000 EFPH for the lead Pickering unit which corresponds approximately to the intended end of commercial operation (December 31, 2024). Pickering has assessed the operation of the fuel channels on all units and assures their fitness for service to the target service life of December 2024 on the basis of sound technical reviews, the established programmatic controls within OPG for managing fuel channel aging, and the availability of mitigating measures where required.

Pickering NGS Timeline

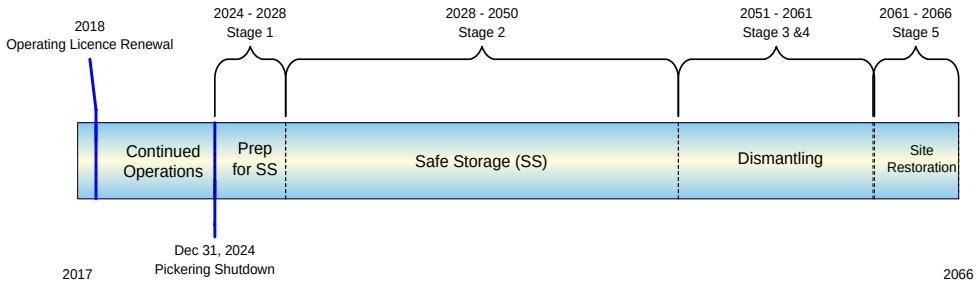


Figure 1 - Pickering NGS Timeline

Figure 1 shows the planned timeline for Pickering NGS, starting at licence renewal.

During the 10-year licence term, Pickering NGS plans to continue commercial operation and shut down all units by December 31, 2024 (Reference 4). After shutdown, the fuel and the heavy water will be removed from the reactors and the safe storage phase will begin.

The long term post-shutdown activities involve multiple stages.

Stage 1: Activities which are required to place the units in the safe storage state, as described in the Stabilization Activity Plan (SAP). These will be completed in order to place the units into a state that will be maintained until decommissioning (Reference 5).

Stages 2 – 5: These stages are covered in the Preliminary Decommissioning Plan (PDP). (Reference 6)

In support of this licence application, Pickering Nuclear has an updated Environmental Risk Assessment (ERA) which evaluated and confirmed that the risk to human and ecological receptors from exposure to contaminants and physical stressors related to the Pickering NGS and its activities is very low. As well, a Predictive Effects Assessment (PEA) was completed which evaluated the potential for adverse effects to human health and the environment from the activities associated with transitioning the station from operation to a safe storage state. These studies support the conclusion that the environment in the vicinity of the Pickering NGS is adequately protected. The ERA and PEA reports have been provided to the CNSC as inputs for an Environmental Assessment under the NSCA.

1.2 Site Description and Ownership

Pickering NGS has eight reactor units. Currently, six units are operating and two of the units are in the state of safe storage.

The Pickering nuclear facility is located on the north shore of Lake Ontario in the City of Pickering in the regional municipality of Durham, Province of Ontario. The site is approximately 32 km east-northeast of downtown Toronto and 21 km southwest of the City of Oshawa at latitude 43° 49´N and longitude 79° 04´W. The site occupies a land area of 240 ha in lots 17 to 22 inclusive in the Broken Front Concession. The total frontage of the site along the Lake Ontario shoreline is approximately 2260 m. The transmission egress right-of-way which leads north from the site boundary is 155 m in width and occupies part of lots 19 and 20 in the Broken Front Concession.

There are a number of watercourses in the vicinity of Pickering NGS. The two major ones closest to the site are Duffins Creek, 2.2 km to the east, and the Rouge River, 4 km to the west.

The Pickering A and Pickering B safety reports provide detailed and extensive information on the facility and the systems, structures and component design. This information can be found in Part 1 of the safety reports. Further information is provided below in Table 1 and Table 2.

The Pickering site is shown in the following OPG drawing, NK30-D0A-10200-0001, *Building Development Site Plan.*

The reactor units are numbered 1 to 4, from east to west, and the other reactor units are numbered 5 to 8, from west to east starting from the center of the plant.

The Pickering site is owned by Ontario Power Generation Inc, and owned by the Province of Ontario; the title/deed is available upon request.

Summary Data - Pickering NGS	
Number of Units	8
Operational Units	6
Safe Storage Units	2 (Units 2 and 3)
Net Power Output (Electrical)	2 x 515 MWe (Units 1 and 4)
Net Power Output (Electrical)	4 x 516 MWe (Units 5,6,7, and 8)
Maximum Power (Thermal) per Unit	1744 MW(t) to yield 540 MWe (gross)
Nuclear Steam Supply System	CANDU Pressurized Heavy Water Reactor
Containment Structure	Reinforced Concrete

Table 1 - Summary Data for Pickering NGS

	In-Service Dates (Operational Units)
Unit 1	July 29, 1971
Unit 4	June 17, 1973
Unit 5	May 10, 1983
Unit 6	February 1, 1984
Unit 7	January 1, 1985
Unit 8	February 26, 1986

Table 2 - Pickering In-service Dates

1.3 Station Performance

At the Pickering NGS, the safety of the employees, neighbours and the environment is the overriding priority.

OPG's drive towards achieving zero injuries remains at the forefront of the business. During the current licensing period, Pickering NGS has demonstrated excellent safety performance throughout its operations.

In 2014, Pickering reached 11 million hours without a lost time accident with an All Injury Rate of 0.22 which represented best ever performance for the station. In November 2016, OPG received the Canadian Electricity Association's President's Gold Award of Excellence for Employee Safety in recognition of the company-wide All Injury Rate and Accident Severity Rate performance for 2013, 2014 and 2015.

Pickering NGS has achieved excellent operating performance in the current licensing period with two units attaining records for continuous on-line operation for Unit 5 with 632 days and Unit 1 with 622 days. Combined with the best forced loss rate performance in site history at 3% and 4% in 2015 and 2016, respectively, this shows that Pickering NGS is continuing to achieve improved and more reliable operation.

Human Performance is a station priority at Pickering. Pickering has achieved its best ever performance in this area, with the lowest number of Site Event Free Day Resets (SEFDR). In 2016, Pickering had 1 event against a target of 2. The 2017 target is 2 SEFDR and at the end of the second quarter, Pickering has 0 SEFDR which is in the top quartile of the industry.

In the CNSC annual evaluation of industry performance, Pickering has achieved a rating of Fully Satisfactory (FS) for operating performance in 2015 and 2016 and an overall rating of FS for both years.

In 2017, Pickering achieved excellent outage performance for the Unit 5 maintenance outage. Pickering met its conventional safety, nuclear safety, radiation safety and environmental targets while executing the maintenance work and returning the unit back to service, in time to meet the committed date to the public.

In summary, Pickering NGS has maintained a strong track record of safe and reliable operation, and is qualified to carry on the activities and make adequate provisions to protect the public, workers, and the environment over the requested 10-year licence term.

1.4 Nuclear Safety and Equipment Reliability Improvements

During the previous licence renewal process for Pickering in 2013, OPG indicated that it would continue to invest in the Pickering plant to improve safety and reliability through to the end of commercial operation. At that time, in addition to the regulatory work to ensure safe operation of the fuel channels, OPG committed to including $200M in the business plan, for reliability improvements (Reference 7). Over the course of four years from 2011 - 2014, the work that was completed targeted reliability improvements to equipment, material condition improvements to the plant, and additional inspection and maintenance activities to continue to confirm fitness for service of major components in the life extension period. Additionally, 2000 reliability and material condition improvements initiatives were completed by either replacing or maintaining equipment, including 129 pumps, 106 motors, and 688 valves. Completion of this maintenance helps to ensure that the station will operate reliably to deliver the electrical generation forecast until the end of commercial operation.

Furthermore, OPG committed to finish the modifications for the quick-connections of electrical and water tie-in points to the station systems in order to streamline the deployment of the Emergency Mitigating Equipment (EME). As well, OPG committed to implement field modifications to ensure power is restored to essential station equipment in order to protect containment and post-event monitoring. The design modifications to complete all of the field installations have been completed and implementation is in progress and is expected to be completed in 2017 (Reference 8).

In addition, in 2014 at the request of the Commission, OPG committed to a risk improvement plan that encompassed a combination of physical improvements, changes to operating procedures, and improvements to analysis methodology in order to further reduce the calculated risk for Pickering, focusing on the Pickering A units. Pickering has provided an annual update to the CNSC on the risk improvement plan, and significant risk reductions have been shown (Reference 9).

The results of the fifteen safety factor reviews which were defined for the PSR process have been completed and included in the PSR2. These safety factors cover all aspects important to the safety of an operating nuclear power plant. The results have been reviewed and summarized in Safety Factor Reports that have been submitted to the CNSC. These reports conclude that there are no fundamental safety issues and that OPG has in place effective programs and processes for continued safe operation of the Pickering NGS until 2024. Also, the PSR2 seeks to identify additional practical safety enhancements to further improve the already low risk of plant operation, beyond those that have been implemented or that are committed to be implemented.

In summary, nuclear safety will continue to be assured and plant reliability maintained such that the risk of Pickering NGS operation remains low and plant safety and reliability improves during the next licence term. This is supported by continued investment for the Pickering NGS.

1.5 Continued Operations

This section substantiates that the key systems, structures, and components at Pickering are fit to continue commercial operation to the end of 2024, and that inspection and maintenance programs will ensure fitness-for-service during the next licence term.

1.5.1 Fuel Channels

Pickering has assessed the operation of the fuel channels on all units and the assessment has shown there is additional margin on fuel channel fitness-for-service limits to the original target service life of December 2020 (References 10 and 11). Therefore, safe operation is assured beyond the current operating limit of 247,000 Effective Full Power Hours (EFPH) with continued demonstration of fitness for service.

Pickering has also assessed the operation of the fuel channels on all units and assures their fitness for service to the new target service life of December 2024 on the basis of sound technical reviews, the established programmatic controls within OPG for managing fuel channel aging, and the availability of mitigating measures where required (Reference 12). Based, in part, on Reference 12, fitness for service of the fuel channels is assured up to 295,000 EFPH.

The condition of the fuel channel components is regularly monitored via inspection programs, consistent with the life cycle management approach used for all major components, ensuring that fuel channel component condition remains within the licensing basis and fitness-for-service criteria of the CSA N285.4 and N285.8

standards. OPG has robust processes in place for responding to inspection or surveillance results should they not satisfy the prescribed acceptance criteria, and to relevant OPEX that could impact fuel channel fitness-for-service or plant operability or safety.

Aging mechanisms in Pickering Unit 5-8 fuel channels have been reviewed and the results provided to CNSC staff. Observed degradation rates are consistent with predictions and no new degradation mechanisms have been identified. OPG has provided a preliminary burst test plan for CNSC staff review that covers the required range of test parameters to further validate the cohesive zone fracture toughness model and expand its validity to cover projected hydrogen equivalent concentrations at the target operating life. The plan accounts for projected conditions in inlet and outlet regions at the target operating life, operating and transition temperature conditions, inter-tube variability, and as-found states. This plan will be finalized and submitted to CNSC by the fall of 2017. It should be noted that the plan will be subject to change depending on ongoing test results and identified research requirements, and it will be adapted, if required to continually demonstrate fitness for service.

In consultation with industry, OPG will continue to discuss fuel channel-related issues with CNSC staff to ensure regulatory expectations are understood and met.

In summary, based on inspections, reviews, research and development work, confirmatory actions in the life management plans for assuring ongoing fitness-for-service, and use of mitigating actions, OPG is confident of continued demonstration of fitness for service of fuel channels for safe operation of all Pickering units to the end of 2024 and up to 295,000 EFPH for the lead Pickering unit.

1.5.2 Periodic Safety Review (PSR2)

The PSR process serves to further support continued operation over the licence renewal term. In the PSR2 for Pickering, the fifteen safety factors that have been reviewed cover all aspects important to the continued safe operation of the plant. It has been concluded that there are no fundamental safety issues and that OPG has in place effective programs and processes for continued safe operation of the Pickering NGS until 2024.

The results have been reviewed and summarized in Safety Factor Reports that have been submitted to the CNSC. Gaps identified from these safety factor reviews are currently being assessed in a global assessment. The objective of the global assessment is to provide an overall assessment of the safety of the plant, and to arrive at a judgement of the plant's suitability for continued operation on the basis of a balanced view of the results from the reviews of the separate safety factors. Consistent with the requirements of IAEA SS-25, the global assessment is being conducted by an interdisciplinary team with appropriate expertise in operations, design and plant safety, including appropriate participants from the safety factor reviews, and members who are independent from the safety factor review teams.

Preparation of the Global Assessment Report (GAR) is being conducted to summarize the assessments and document the global assessment by presenting the

results, assessing the overall defence-in-depth of the plant, and documenting the conclusions, corrective actions, and enhancements to be considered. The GAR will include a ranked list of the global issues with identified actions, and with rationale for the ranking. In accordance with Reference 13, the GAR will be submitted to the CNSC by October 31, 2017.

The enhancements resulting from the global assessment that will be implemented, will be documented in an Integrated Implementation Plan (IIP) which will provide the proposed timeline for the implementation of the enhancements. In accordance with Reference 13, the Pickering PSR2 IIP will be submitted to CNSC staff, for acceptance, by November 30, 2017.

1.6 End of Commercial Operation

The *Pickering Site Strategic Plan*, P-PLAN-09314-00003 R0, provides an overall view of Pickering's strategy, as it approaches the end of commercial operation. It references the primary documents that govern the timeline from operation to decommissioning; namely the *Sustainable Operations Plan*, the *Stabilization Activity Plan* and the *Preliminary Decommissioning Plan.*

1.6.1 Sustainable Operations Plan

OPG will continue to ensure safe, reliable operation of Pickering as it transitions to the end of commercial operation. Processes will remain in place to ensure Pickering NGS is operated and maintained using sound nuclear safety and defence-in-depth practices.

A Sustainable Operations Plan (SOP) is developed to address the challenges that arise due to the transition from an operating station to the End of Commercial Operation (ECO). The SOP is based on each of the 14 Safety and Control Areas (SCA). Pickering NGS recognizes that safe operation is based on the maintenance of both a healthy safety culture and the programs associated with each of the 14 SCAs. In the SOP, OPG will document actions and define stand-alone supplemental measures to existing programs (arrangements, activities or actions) which will be implemented as resolutions.

This plan will be submitted to the CNSC 5 years prior to the shutdown of the Pickering station. A progress update will then be provided annually, in mid-December.

The 2016 SOP (Reference 14) submitted to the CNSC, was prepared based on an assumed end of commercial operations date of 2020. There are currently stand-alone supplemental measures in three SCAs with plans in development. These are in the areas of Organizational Change, Human Performance, and Maintenance and Reliability.

For Organizational Change, OPG will develop a plan to ensure capable, competent staff remains at Pickering through the transition to ECO, safe storage and decommissioning. It will include a change management plan which will look at the

impacts of the Pickering shut down on both Pickering operations and on the broader Nuclear and OPG organization and staff. The plan will cover activities related to leadership alignment, engagement of staff, internal and external communications, training and development, assessing and managing impact on the business policies, processes and practices, assessing and managing impact on people, assessing and managing business readiness. Oversight will be provided and metrics will be established to monitor performance of the transition to the new organization and ensure continued safe operations.

The Human Performance Initiative involves maintaining continuous monitoring and improvement of human performance to minimize the likelihood of nuclear safety events throughout the transition to the end of commercial operation. This will be achieved by systematically identifying and addressing error likely situations, reducing organization vulnerability and by challenging the integrity of defenses. Initiatives within the program also include communications, field presence and surveillance to promote human performance improvement, as well as utilizing benchmarking of similar plants and internal operating experience to maintain or improve human performance while in transition to the end of commercial operations.

The Maintenance and Reliability Strategy involves determining the maintenance plans and activities to be performed prior to and after the shutdown of the units. In order to ensure safe and reliable operation of each unit at Pickering, existing programs and procedures will be used for equipment maintenance and reliability strategies during the transition to the end of commercial operation. Procedures and processes will ensure that all of the maintenance necessary to ensure safe and reliable operation up to the shutdown of each unit is identified, as well as the maintenance necessary to sustain the systems that will be relied upon during the stabilization and safe storage phases.

Any supplementary actions which are not covered under these three areas will be addressed in the SOP in order to support safe and reliable operation of Pickering.

In summary, nuclear safety will be assured through to the end of commercial operation and staffing levels and competency will be appropriately maintained, while maintaining reliable plant operation and protecting the public, workers and the environment.

1.6.2 Preparation for Safe Storage

Preparation for Safe Storage includes the period leading up to the end of commercial operations as planning activities are carried out, as well as the execution of Stabilization activities which will safely transition the station from its current electricity generating state to its Safe Storage State (SSS).

The goal of Stabilization is to defuel the reactors of spent fuel, dewater systems containing tritiated heavy water, and remove from service systems no longer required to support the operation of the station. Although the station will no longer generate power, an operational footprint will be required to continue to support operational and regulatory requirements, such as the storage and removal of fuel

from the irradiated fuel bays, storage of heavy water, and ongoing monitoring and security activities.

The Stabilization of the station from its current electricity generating state to its SSS will follow a phased approach, where the phases will be characterized by milestones in hazard reduction. The operational need for Structures, Systems and Components (SSCs) at each phase will be determined by a thorough and systematic review process, considering both regulatory and system requirements across all 14 CNSC safety and control areas. SSCs not required for the operation of the station in the SSS will be placed in a passive safe state.

OPG operating experience (particularly from Darlington Refurbishment and Pickering Units 2 and 3 Safe Storage) as well as benchmarking of local and international industry experience has been integral to informing preparations for Safe Storage and will continue to do so as planning efforts progress.

OPG will continue to provide periodic updates to the CNSC with regards to the preparations for the execution of the Stabilization of the Pickering station.

More information on OPG's planning efforts for the stabilization of station and the SSS can be found in the Stabilization Activity Plan. (Reference 5)

Information on the Safe Storage phase can be found in the Preliminary Decommissioning Plan (PDP). (Reference 6)

In summary, nuclear safety will be assured during this transitional period and staffing levels and competency will be appropriately maintained, while continuing to protect the public, workers and the environment during this phase of operation.

1.7 Environmental Risk Assessment

OPG has completed an updated Environmental Risk Assessment (ERA) for Pickering Nuclear. The ERA includes a Human Health Risk Assessment (HHRA), and an Ecological Risk Assessment (EcoRA), for radiological and non-radiological contaminants and physical stressors.

The ERA evaluated the risk to relevant human and ecological receptors from exposure to contaminants and physical stressors related to Pickering and its activities. The ERA report P-REP-07701-00001, *Environmental Risk Assessment for Pickering Nuclear* was submitted to the CNSC (Reference 15).

In summary, the studies confirm that Pickering is continuing to operate in a manner that is protective of human and ecological receptors residing in the surrounding area.

A more detailed summary of the ERA is provided in Section 2.9.9.

1.8 Predictive Effects Assessment (PEA) 2017

OPG undertook a Predictive Effects Assessment (PEA) to evaluate the potential for adverse effects to human health and the environment from the activities associated with transitioning the station from operation to a Safe Storage with Surveillance state.

The PEA encompasses both the Stabilization Phase and the Safe Storage with Surveillance Phase. The PEA report, P-REP-07701-00002, *Predictive Effects Assessment for Pickering Nuclear Safe Storage* was submitted to the CNSC (Reference 15).

Overall the change from power generation to the Stabilization and Safe Storage with Surveillance Phases will result in reductions in emissions from the Pickering NGS. Noise, atmospheric emissions, waterborne emissions and thermal discharges will all be reduced as Pickering NGS moves from the current operational condition to a safe storage state.

No interactions were identified that are predicted to pose an unacceptable risk to humans or the environment during the Stabilization and Storage with Surveillance activities proposed. Therefore, no new mitigation is required based on the conclusions of the Predictive Effects Assessment.

During both the Stabilization and Storage with Surveillance Phases, OPG's environmental programs will be maintained, and updated as needed. Emission control measures and discharge limits are specified within specific permits. These permits and in-design mitigation measures will remain in place until such a time that it can be demonstrated, in discussion with the regulator as applicable, that they are no longer required.

The PEA concludes that there are no predicted potential adverse effects from the Stabilization and Safe Storage with Surveillance activities proposed.

In summary, this supports that the impacts of the post-shutdown operational activities on people and the environment will continue to be of low risk and adequately managed. A more detailed summary of the PEA is provided in Section 2.9.10.

1.9 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook. Further applicable documents are identified in Sections 2 to 4.

Document Number	Document Title
NK30-D0A-10200-0001	Building Development Site Plan
NA44-SR-03120-00001	Pickering Nuclear 1-4 Safety Report – Facility Description
NK30-SR-03120-00001	Pickering Nuclear 5-8 Safety Report – Part 1
OPG-PROG-0001	Information Management
N-PROG-RA-0012	Fire Protection
P-LIST-71400-00001	Application of CSA N293-07 to Structures, Systems and Components for Pickering Nuclear

2.0 Safety and Control Areas (SCA)

2.1 Management System

Pickering has a fully mature and effective management system that meets or exceeds all applicable regulatory requirements and related objectives. It enables OPG to continuously monitor and manage performance against those objectives, and maintain a healthy safety culture.

The following subsections describe the objectives, key results from the current licensing period, and planned improvements over the next licensing period. These discussions also support that:

- nuclear safety will continue to be assured such that plant personnel, the public and the environment are protected (e.g., Sections 2.1.1 and 2.1.5),
- staff are qualified and competent to operate the plant, and this will be maintained though the next licence period, including staffing numbers (Sections 2.1.2 and 2.1.3)
- OPG continues to invest in Pickering NGS to improve plant safety and reliability and to assure fitness for service until the end of commercial operations (Sections 2.1.11)

2.1.1 Management System

The *Nuclear Safety Policy*, N-POL-0001 establishes guiding principles for OPG nuclear employees stating that nuclear safety shall be the overriding priority in all activities performed in support of OPG nuclear facilities and that nuclear safety shall have clear priority over schedule, cost and production. The policy requires that everyone demonstrate respect for nuclear safety and conduct themselves in a manner consistent with the traits of a healthy nuclear safety culture. In accordance with the policy, the Nuclear President and Chief Nuclear Officer (CNO) is accountable to the CEO and the Board of Directors to establish a management system that fosters nuclear safety as the overriding priority.

The charter N-CHAR-AS-0002, *Nuclear Management System* takes authority from the *Nuclear Safety Policy*, and is in compliance with Canadian Standard Association (CSA) N286-12, *Management System Requirements* for Nuclear Facilities.

OPG's nuclear management system provides the framework for programs, standards and other governing documents and processes which collectively ensure that OPG's Pickering Nuclear Generating Station operates safely and that safety is the foremost consideration in management decisions and actions (see Figure 2 - Nuclear Management System).

Every employee in the organization is responsible and held accountable for complying with the expectations of the charter and referenced programs, and for ensuring their actions are deliberate and consistent with protecting worker health and safety, the health and safety of the public, and the environment.

The *Managed Systems* program, N-PROG-AS-0001 provides direction to management to develop and implement management practices and controls. Programs and processes are created such that all applicable regulatory requirements and codes and standards are embedded and integrated within the nuclear management system including aspects of health, safety, environment, security, economics and quality.

The management system effectiveness is reviewed by the Nuclear Executive Committee (NEC) as part of ongoing oversight. Program performance is assessed in the areas of management and leadership, performance execution and continual improvement. The oversight by the NEC members ensures that problem areas are identified and corrective actions established.

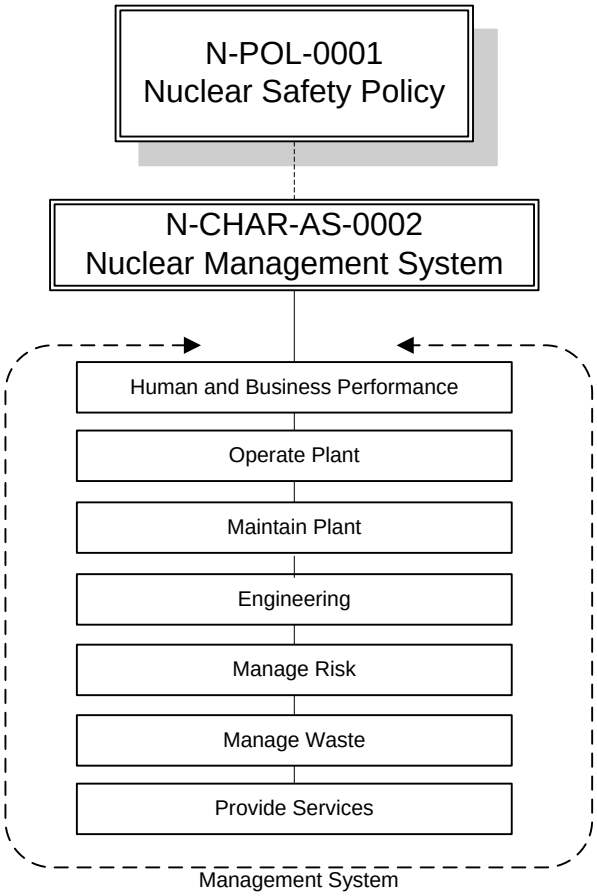


Figure 2 - Nuclear Management System

The Nuclear Management System has evolved over the past licence period, to support the OPG business model. Several programs have transitioned from being nuclear only, to being owned by corporate business units (for example, Items and Services Management, Information Management and Worker Health and Safety). The transition involved careful review and oversight of the changes by the CNO and the Nuclear Executive Committee to ensure that the roles and accountabilities under CSA N286 requirements were understood and captured in the corporate program governance and management systems. Oversight and review of the health and effectiveness of these corporate programs continue to be part of the Nuclear Management System.

For these programs, ownership and accountability for the program resides with the corporate program owner but the CNO remains accountable for the effectiveness of the implementation of these programs for the nuclear management system, and in meeting the requirements of CSA N286-12.

OPG's Nuclear Management System is reviewed through inspections, self-assessments, benchmarking, and independent audits. In 2015, OPG performed an assessment and also in 2015 an external review was performed of the overall OPG program in support of nuclear operations. Where opportunities for improvements were identified, action plans were developed and implementation is on-going.

2.1.2 Organization

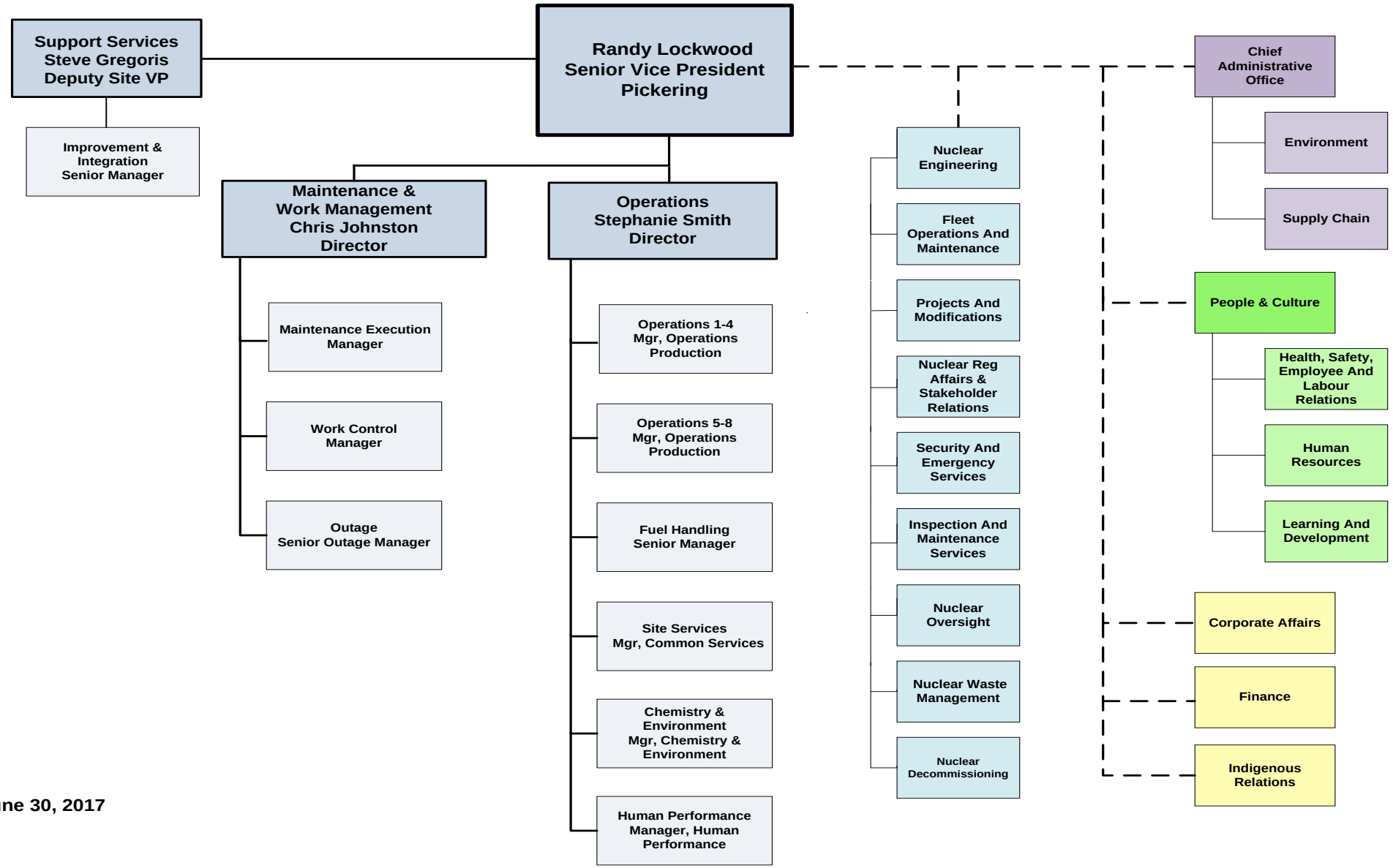
Nuclear standard, N-STD-AS-0020, *Nuclear Management Systems Organizations*, describes the organization and responsibilities of OPG in support of its nuclear management system.

The objectives are to maintain a sufficient number of qualified staff to safely operate, maintain, and support the nuclear generating stations, and to maximize the efficiency and effectiveness of its workforce.

The *Organization Design Change* procedure (OPG-PROC-0166) ensures consistent organization design change processes and alignment across OPG, which includes utilizing change management resources, tools and expertise to support the business in making effective organization design changes. The process for managing changes to the organization structure includes gated criteria to evaluate the complexity of the change; minor or material and required communications.

Stakeholder feedback indicates that the procedure has improved organization change consistency and documentation across the organization, as well as enabled the business to meet their operational needs in a more timely manner. The process ensures that the correct steps are being taken, and that records and systems are being updated accordingly.

Figure 3 provides the current Pickering organizational structure. The Pickering organizational chart information is updated each year and submitted to the CNSC (Reference 16 and Reference 17).



June 30, 2017

Figure 3 - Pickering Organizational Chart

2.1.3 Staffing Management

Workforce planning in OPG Nuclear looks at current staff and business plans and makes projections regarding hiring to ensure that sufficient qualified staff are available to operate and maintain the stations. Staff projections for continued operations of Pickering and the end of commercial operations form part of the overall people strategy for OPG.

Recruiting

OPG has a number of internal, external and student recruiting programs that are administered through the Talent Attraction team within the People and Culture organization. Talent Attraction partners work with hiring managers to attract and retain a diverse and high performing workforce.

The sourcing strategies are multi-faceted and include partnerships with educational institutions, apprenticeship programs, use of hiring halls for trades, internal and external job posting and career sites, talent pipelining, direct sourcing, retained/contingent recruitment agencies and succession planning discussions.

On-boarding is a strategic personnel process designed to support new employee integration with the goal to increase the speed to performance, engagement, retention and build a shared corporate culture. OPG has implemented an Onboarding Centre to ensure all new hires are qualified within the shortest amount of time possible, have the required systems in place and ensure new employees fully understand OPG behaviours, values and the importance of safety to OPG.

Knowledge Management

OPG has many well established methods to ensure people have the qualifications, knowledge and skills required to perform competently. The knowledge management program complements these foundational programs by providing tools and techniques to consider and share tacit knowledge.

Given OPG's demographics, employee attrition and the lengthy training and development required for specialized roles, OPG has invested in knowledge management for ongoing operations as well as the delivery of projects and initiatives to ensure that the critical knowledge and expertise of employees is sustained.

Talent and Succession Planning

The OPG talent review and succession planning program is a foundational element of OPG's strategic corporate human resources plan and business model. The talent management strategy includes the retention and knowledge transfer that is used to ensure that necessary talent and skills will be available when needed, and that essential knowledge and abilities will be maintained. Succession planning is one component of this strategy and the objective is to identify and develop future

leadership and to integrate this with the staffing needs to ensure continuity in critical roles.

The OPG succession planning process follows an annual talent review cycle that includes two succession reviews per year. Nuclear Executive Committee members are an integral part of the process.

The Nuclear organization has an additional complementary integrated succession planning process that includes identifying critical positions and determining the priority of each role. The level of management oversight of the succession planning of these critical positions is determined by the priority given to the role.

The OPG talent review and succession planning program is fully integrated into the broader human resources management programs within OPG that include performance measurement, individual development planning, leadership development, skills and capability development, diversity and inclusion, and culture.

2.1.4 Management of Contractors

Pickering NGS is using Engineer, Procure, and Construct (EPC) contractors to perform the majority of the project work at site. Contractors are pre-qualified by OPG supply chain quality services under a process that ensures the contractor has developed and implemented a management system that meets the applicable requirements outlined in the CSA Standard N286-12.

When requesting materials or services from vendors, Pickering NGS clearly specifies in the scope of work document the technical and quality requirements and selects vendors capable of satisfying these requirements.

Contractor performance is continually monitored through a robust score carding process and presented quarterly to OPG senior management. Contractors are scored on their ability to maintain good standing in safety, human performance and cost/schedule adherence.

2.1.5 Safety Culture

The nuclear standard, N-STD-AS-0023 *Nuclear Safety Oversight* summarizes the framework and accountabilities for the program as well as the external and internal processes used for oversight and assessment of nuclear safety. This standard applies to all aspects of nuclear operations, and to all work and other activities undertaken at or in support of the stations. Nuclear safety oversight is conducted in a manner consistent with the *Traits of a Healthy Nuclear Safety Culture*. A variety of oversight forums and processes are used to review, evaluate, and critique the safety culture at Pickering NGS.

In February 2015, Pickering NGS conducted a station wide nuclear safety culture assessment which consisted of both a staff survey followed by an on-site evaluation by an assessment team who conducted document reviews, staff interviews, and

observations. The assessment focused on perceptions, attitudes and behaviours of the organization.

The assessment concluded that Pickering NGS has a healthy nuclear safety culture, respect for nuclear safety is evident in the organization, and that nuclear safety is not compromised by production priorities. Station personnel feel they can challenge any decision if needed, without fear of retaliation. Areas for improvement were documented following the assessment and actions taken to address the findings are tracked. On July 15, 2015 and June 21, 2016 meetings took place with the CNSC to discuss and share the findings and actions taken.

OPG will continue to conduct these station wide assessments periodically as per N-PROC-AS-0077, *Nuclear Safety Culture Assessment*. The next assessment is scheduled for 2018.

OPG has implemented a nuclear safety culture monitoring panel to monitor the process inputs that are indicative of the health of the organization's nuclear safety culture. The panel, made up of the senior plant leadership team, meets quarterly to discuss the 10 nuclear safety culture traits.

2.1.6 Performance Assessment and Improvement

Quality management oversight of the nuclear management system is performed in accordance with the process described in N-PROG-RA-0010, *Independent Assessment.* The objective is to assess whether the station systems, equipment and activities are of the required quality throughout the plant life cycle and whether the established programs are being effectively implemented.

Nuclear Oversight has implemented a 5-year audit plan using a risk based process that identifies when programs are to be audited based on key risk areas, legal and regulatory requirements. The specific scope of the planned audits is determined through a risk assessment performed prior to audit conduct. This ensures that audits have the appropriate scope. An on-site independent assessment group has been established which provides on-going feedback to program owners. Based on the feedback received, the program owners take corrective action as required.

Nuclear Oversight performance itself has also been assessed through independent assessments such as the 2016 Nuclear Industry Evaluation Program (NIEP) evaluation. This team determined that OPG independent assessment functions for nuclear oversight are effective.

Alliances with a number of industry peer groups have enabled the participation of OPG employees on external assessments, creating opportunities for growth and benchmarking. Peers from other utilities have had similar opportunities in OPG.

2.1.7 Operating Experience (OPEX)

The objective of the Operating Experience (OPEX) program is to prevent the reoccurrence of significant internal and external events in accordance with N-PROC-RA-0035, *Operating Experience Process*.

The OPEX process is comprised of three elements: external OPEX, internal OPEX, and the use of OPEX. Combined, these elements meet the objectives by ensuring that lessons learned are reviewed and appropriate actions taken, internal lessons are shared, and lessons learned are incorporated into training and qualifications.

Over the licensing period Pickering made improvements to its OPEX process and tools, use of OPEX and the sharing of internal lessons. The process and tools improvements include revision of the program governance. The updates were made to simplify/clarify requirements, reflect organizational changes, and incorporate suggested improvements from internal/external assessments. Sharing of internal lessons learned with other OPG stations was improved by updating the evaluation process for applicability of significant lessons learned.

2.1.8 Configuration Management

Configuration Management at OPG is governed by the standard N-STD-MP-0027, *Configuration Management*. This program ensures the station physical configuration for all essential Structures, Systems and Components (SSC) match the configuration documents for all states of the plant. In addition, the program ensures configuration information is maintained accurate, consistent and readily accessible along with defining clear scope, responsibilities, authorities and interfaces among organizations.

Change control programs such as the Engineering Change Control (ECC) support configuration management by ensuring design changes, document changes and physical configuration changes that impact design and the licensing basis are tracked to completion and are traceable throughout the life of facility.

2.1.9 Materials Management

Materials management activities are performed in accordance with OPG-PROG-0009, *Items and Service Management.* This program establishes a governing document framework that meets regulatory requirements and ensures effective and efficient planning for, and procurement of, items and services.

The supply chain organization is responsible for providing the necessary services and materials in a timely manner and of the appropriate quality to the Pickering site. Supply Chain confirms all the quality aspects for receipted materials based on designated quality requirements.

Vendor quality is maintained through audits and receiving inspections. OPG has implemented a Counterfeit, Fraudulent and Suspect Items (CFSI) Program which is aligned to industry best practices. All suppliers to OPG are required to have a CFSI

program implemented and this is verified by supplier audits carried out by OPG. Enhanced purchasing clauses and receiving inspections have been in place for several years to prevent CFSI material from being supplied to or received by OPG.

Standardized training on CFSI was developed and implemented to support this program. External reviews and benchmarking has indicated that OPG's CFSI Program is an Industry leading, well established and effectively implemented program.

Supply Chain has seen improvement in the daily operational activities. Since 2013, stock-out related to critical spares has been improved from 17.3% to 8.6% in 2016. Similarly, scope removal due to unavailable parts in Pickering has also improved from 6.1% to 1.1%.

The Whitby warehouse upgrades were completed in 2016 to address the reduction of the warehouse footprint, elimination of the duplication of processes and provision of a modern facility capable of maintaining the integrity of the inventory. By the end of 2016, all inventories were moved to the Whitby facilities.

Improved performance areas include:

- Receiving backlog moved from an average of 8-10 days to 2 days, reducing congestion and moving material into the hands of the station quickly;
- Inventory accuracy is a world class 99.2% at the end of 2016, supporting the improvement in station execution.

2.1.10 Records Management

OPG-PROG-0001, *Information Management* establishes a set of standards and procedures for the management of OPG's information throughout its life-cycle, regardless of media. It includes electronic systems such as e-mail, central storage software, and the internal network to ensure consistent and appropriate use.

Another objective of the program is the advancement of electronic, digital, and mobility solutions that provide tools that effectively and efficiently capture, change, issue, and make content available.

Nuclear Oversight performed an audit of records and documentation in 2016 to ensure that the requirements of the program were met. This performance based audit of the records and documentation program identified that the managed system controls are fully effective.

Some key measures of information management showing that records management meets or exceeds performance targets, are shown in Table 3. (Data shown are for May 2017)

Measure	Performance	Target
Document Turnaround	Within 5 days 98.6% of time	Within 5 days 95% of time
Client Rejection Rate	1.9%	5%
Quality Check Program (Validate accuracy of controlled copies)	99.6%	95%

Table 3 - Records Management Performance

In 2015, a new application called Smart Form was introduced to nuclear facility workers to electronically submit and file their records and documents in Asset Suite/Curator rather than waiting on a Records Centre to manually index and upload images. The tool significantly reduces turnaround time on availability and cuts manual entry of key information (metadata) about the record/document by 50% or more. Average turnaround time has dropped from 30 days to less than 5 days.

Planned Improvements

An initiative for a new records repository is targeted to be in place by the end of 2020. The repository will have improved capture, retrieval, and work flow capabilities, and will expand on storage options to include various other file formats such as encrypted data, software, videos, photographs and AutoCAD.

2.1.11 Business Planning

Business planning is conducted to set strategic direction for the business and establish challenging but attainable operational and financial goals in accordance with N-PROG-AS-0005, *Business Planning*. Performance targets are established as part of the Pickering business planning process and nuclear benchmarking as outlined in N-PROC-AS-0080, *Nuclear Business Planning*.

Performance benchmarking is the process of comparing performance against industry leaders in order to identify areas of improvement and develop improvement plans to achieve targeted performance. A top-down gap-based business planning process was used to establish the 2017-2019 performance targets. A three-year horizon is assessed in detail and is supported by a complementary long term (20 years) outlook based on higher level information to better identify and react to emerging strategic shifts within the nuclear industry.

Pickering aims for continuous improvement in all areas. Where gaps in performance are identified, improvement initiatives are developed to ensure the established targets are met. These initiatives, and their associated milestones, are monitored and discussed at weekly meetings and other station oversight meetings on a routine basis. Plans address how initiatives will be implemented by the various station departments. Once implemented, results are monitored continuously through review

of the station performance metrics, and if performance gaps still exist, initiative plans are revisited or further developed as required.

The Pickering Generation Plan specifies the major outage scope and durations as well as the operational performance targets, such as Forced Loss Rate, established during the business planning process. The generation planning process is designed to incorporate outage scope requirements and changes based on major component life cycle management plans and up-to-date inspection results and unit conditions.

Major Projects

Major Projects are executed to improve plant safety and reliability, and to address regulatory requirements. Project spending is subject to ongoing review and approval by the OPGN Asset Investment Screening Committee (AISC) as directed in N-PROG-AS-0007, *Project Management*.

Major projects represent a significant investment in the continuing operation of Pickering NGS with a budget for total projects of $231M over the period 2017 - 2019.

The fuel channel life assurance project, the periodic safety review update and component condition assessments show that Pickering can be safely operated until 2024. Future work is expected to include increased critical component inspections and maintenance and safety enhancements from the IIP. This work forms part of the incremental costs that would enable the extension of Pickering operations beyond 2020. The enabling costs have been estimated at approximately $307M over the period 2016 to 2020.

2.1.12 Business Continuity

The objective of OPG-PROG-0033, *Business Continuity Program* is to establish a managed system for business continuity, and to provide direction related to business and operational continuity, and recovery planning.

The business continuity program ensures that approved response strategies and recovery guidance are in place for critical functions during incidents that threaten business continuity. Approved strategies are intended to protect employee and public health and safety, limit significant impacts to the environment and operational continuity and maintain financial viability.

OPG Nuclear has continuity plans in place for Pickering NGS which were revised in 2015 to reflect an approach which considers many different natural and technological hazards, as well as the pandemic influenza scenario. These plans will continue to be reviewed every other year for updates as required.

OPG has an enterprise-wide Infectious Disease Guideline (IDG) which replaces previous pandemic plans, making them obsolete. The updated hazard continuity plan addresses response to infectious disease.

OPG held an integrated Nuclear Continuity Plan Tabletop Exercise that engaged all Nuclear Continuity Plan procedures in November 2015 and will be testing the new Infectious Disease Guideline (IDG) in September 2017 with an OPG-wide tabletop.

The program document N-PROG-RA-0018, Nuclear Pandemic Plan was made obsolete in June 2017 and CNSC notification was completed as per Reference 18.

2.1.13 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document Number	Document Title
N-POL-0001	Nuclear Safety Policy
N-CHAR-AS-0002	Nuclear Management Systems
N-STD-AS-0020	Nuclear Management Systems Organizations
OPG-PROC-0166	Organization Design Change
N-STD-AS-0023	Nuclear Safety Oversight
N-PROC-AS-0077	Nuclear Safety Culture Assessment
N-PROG-RA-0010	Independent Assessment
N-PROG-AS-0001	Managed Systems
OPG-PROG-0001	Information Management
OPG-PROG-0009	Items and Services Management
OPG-PROG-0010	Health And Safety Management System Program
N-PROC-RA-0097	Self Assessment and Benchmarking
N-PROC-RA-0035	Operating Experience Process
OPG-PROG-0033	Business Continuity Program
N-CORR-00531-18829	Letter "Persons Authorized to Act on Behalf of OPG in Dealings with the CNSC", July 17, 2017 or the most recent version
N-GUID-09100-10000	Guideline for Maintaining Staff in Key Positions When Normal Station Access is Impeded

2.2 Human Performance Management

Pickering NGS has an effective human performance management program that meets or exceeds all applicable regulatory requirements and related objectives. It ensures that sufficient personnel numbers are maintained in all relevant job areas to safely operate the station. Human performance is managed so that all workers are qualified and have the necessary knowledge, skills, procedures, and tools to safely and competently carry out their duties.

For specific areas within this SCA, the following subsections describe the objectives, key results from the current licensing period, and planned improvements over the next licensing period. These discussions also support that:

- nuclear safety will continue to be assured (e.g., Sections 2.2.1. 2.2.5 and 2.2.6),
- staff are qualified and competent to operate the plant, and this will be maintained though the next licence period, including staffing numbers (e.g., Sections 2.2.1 to 2.2.5)

2.2.1 Human Performance Management Program

The objective of the *Human Performance* program, N-PROG-AS-0002 is to continually reduce the frequency and severity of events through the systematic reduction of human error and the management of defenses in pursuit of zero events of consequence. In support of this, the *Pickering Site Human Performance Strategic Plan*, P-PLAN-01900-00005 forms the basis for guiding Pickering Nuclear toward human performance excellence.

The current strategy for Human Performance at Pickering focuses on the topics of 'People' and 'Behaviours'. Training is being delivered to managers to provide a framework for performing field observations and engaging workers and supervisors in developing their leadership skills, knowledge and reinforcement of standards.

Also, a pilot program to reinforce peer-to-peer coaching called *Coach Me*, was completed in 2016. The results of the pilot showed an increase in employees coaching others as well as receiving coaching. The resulting self assessment recommended that the program be rolled-out station wide, which has been completed.

The measures used to evaluate overall health, reliability and robustness of the Human Performance strategic plan are Site Event Free Day Resets (SEFDR) and SEFDR rate.

As seen in Figure 4, Pickering has achieved its best ever performance in regards to SEFDR. In 2016, Pickering had 1 event against a target of 2, and a SEFDR rate of 0.0019 against a target of 0.038. The 2017 target is 2 SEFDR and at the end of the second quarter of 2017 Pickering has 0 SEFDR. The SEFDR rate for Pickering is top quartile for the nuclear industry in the last two years.

The reduction over the past licensing period speaks to the improvements implemented under the human performance strategic plan.

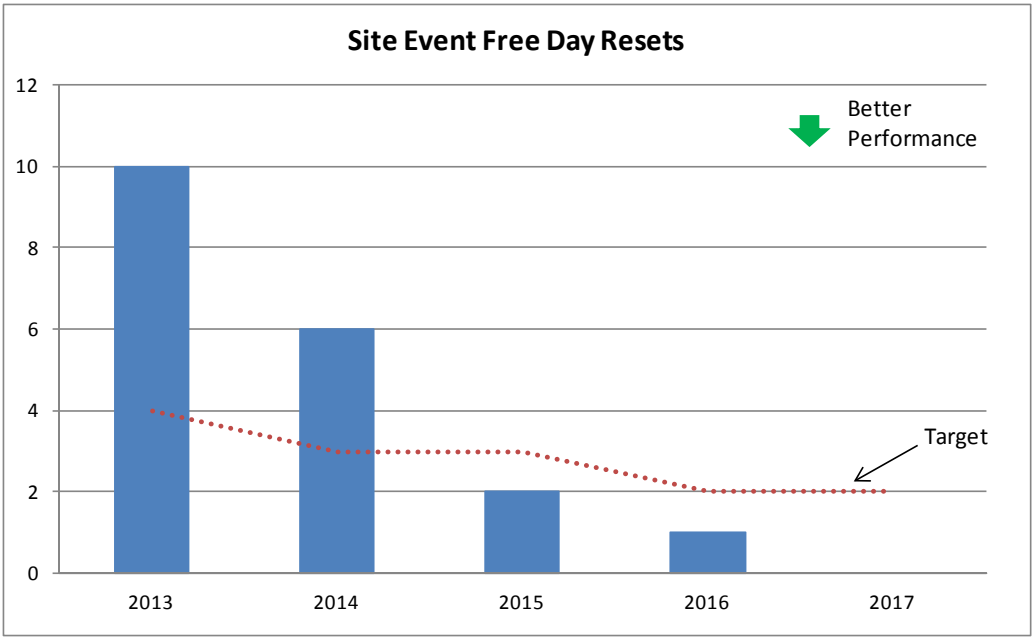


Figure 4 - Pickering Event Free Day Resets

Planned Improvements

An initiative to improve event communication and analysis is being developed in 2017 in order to improve identification of systemic issues. This will facilitate lessons learned from events to prevent event re-occurrence and foster an open reporting culture. This initiative leads to increased ability to develop leading indicators by recognizing adverse trends in low consequence events.

2.2.2 Personnel Training

The training program for regular staff, contractors, temporary personnel and other staff assigned work at OPG is defined by N-PROG-TR-0005, *Training*. The training program provides the structure, processes, and tools for defining, developing, implementing, documenting, assessing, and improving the training required to ensure staff have the appropriate knowledge, skill, and attitudes for safe and efficient plant operation.

The health of training is carefully monitored with a defined program to ensure that there is a Systematic Approach to Training (SAT) foundation for OPG's nuclear training programs upon which it continues to build and improve. Operations, maintenance and engineering departments have a robust continuing training program, and continuing training plans are revised and reissued on a 5-year cycle.

Engineering Training

Significant improvement was made in engineering training, specifically in the initial training program. To enhance the knowledge of the design basis, a one-day classroom course was added to the curriculum. This course has received substantial positive feedback not only from trainees but also from line managers who conduct observations of training.

Engineering training has a very robust continuing training program. An important component of this training program is the Conduct of Engineering Workshops. Every year senior engineering leaders select a new topic and the material is developed and delivered to approximately 1000 OPG engineers. The feedback about this element of continuing training is consistently positive.

Maintenance Training

The maintenance continuing training plan has the flexibility to focus on key performance issues tailored to the individual groups or needs. For example, continuing training topics for 2015 and 2016 were on leak management and valve assembly. Specific workshops were developed on these topics and delivered to 300 maintenance staff at Pickering.

Operations Training

The Operations training plan is a comprehensive and integrated plan that provides an overview of the current status and planned improvements. This plan is aligned and integrated with the fleet plan.

As of the end of 2016, there were 444 qualified Operators for Units 1,4 and 5-8 including 87 Supervising Nuclear Operators and 25 Field Shift Operating Supervisors. There are 88 operators in the initial training program, and all qualified operators participate in the continuing training program.

Leadership Training

In 2015, OPG re-designed and implemented new leadership development programs for First Line Managers (FLM), First Line Manager Assistants (FLMA) and middle level managers based upon international benchmarking and industry best practices. The program is a company-wide program which integrates participants from across the company to bring diverse thoughts, ideas and perspectives, to enhance the learning.

OPG has offered the International Senior Nuclear Plant Manager (ISNPM) program to senior leaders since 1996 with alumni being promoted to positions that include Chief Nuclear Officer, Chief Nuclear Engineer, Site Vice President and similar positions. Senior managers from major contract suppliers have also attended to support the pursuit of nuclear excellence. With the ISNPM program being

recognized worldwide, OPG entered into collaboration with EDF Energy in 2016 and is now also providing the program in England.

Emergency Response Organization Training

In 2016, the Emergency Response Organization Betterment Project was implemented and successfully completed. Achievements include consistent application of the systematic approach to training to all ERO role-related documentation as well as creation or revision of over 200 training documents and trial delivery of selected materials.

2.2.3 Certification

The Pickering Power Reactor Operating Licence (PROL) requires individuals who are appointed to the following positions to have a valid CNSC certification:

(i) Responsible Health Physicist;

(ii) Authorized Nuclear Operator;

(iii) Control Room Shift Supervisor; and

(iv) Shift Manager.

Table 4 contains the number of Pickering certified staff, as of May 1, 2017.

The initial training programs are in accordance with N-PROC-TR-0008, *Systematic Approach to Training*. As shown in Table 4, there are adequate numbers of individuals for each position that requires CNSC certification. As well, there are on-going training programs preparing trainees to move into these positions.

Training programs are in accordance with CNSC regulatory document RD-204, *Certifications of Persons Working at Nuclear Power Plants*.

Certified Position	Pickering 1 & 4			Pickering 5 to 8		
	# of Certified Staff	# of Trainees	Minimum Required	# of Certified Staff	# of Trainees	Minimum Required
Shift Manager and Control Room Shift Supervisor	15	16	10	19	10	10
Authorized Nuclear Operator	32	20	20	58	18	30
Responsible Health Physicist	4					1

Table 4 - Number of Pickering Certified Staff (May 1, 2017)

Continuing training includes refresher training of knowledge and skills required for the certified position, and update training based on changes to the plant and procedures. Certified Operations staff, on average, complete greater than 200 hours per year of continuing training.

Recent improvements to the initial and continuing training programs have resulted in an increased focus on operator fundamentals, reactivity management and emergency response, including response to beyond design basis events. Full-scope main control room simulators are now being used during the conduct of emergency preparedness drills and exercises in order to achieve more realism in the exercises.

2.2.4 Initial Certification and Requalification

The Initial Certification Examinations are conducted in accordance with the following documents:

N-INS-08920-10002, *Simulator-Based Initial Certification Examinations for Shift Personnel*,

N-INS-08920-10004, *Written and Oral Initial Certification Examinations for Shift Personnel*.

As per CNSC Regulatory Document RD-204, *Certification of Persons Working at Nuclear Power Plants*, the initial certification examinations and requalification tests for the Responsible Health Physicist continue to be administered by CNSC staff.

The initial certification examinations provide assurance that, at the time of their certification, candidates for certified positions have acquired the level of knowledge and skills required to work competently in their assigned position.

Requalification Testing is conducted in accordance with N-INS-08920-10001, *Requalification Testing Of Certified Shift Personnel*. Adherence to this instruction ensures requalification tests are administered in a consistent manner and in accordance with the requirements endorsed by CNSC.

OPG will continue to demonstrate its capability to administer initial examinations and requalification tests for Operations certified staff, and to ensure sufficient numbers of certified staff are available for the safe and reliable operation of the Pickering station. This includes having sufficient trained and qualified staff available to deliver the examination and testing programs throughout Pickering's continued operation.

2.2.5 Minimum Shift Complement (Work Organization and Job Design)

Pickering Minimum Shift Complement (MSC) is the minimum number of qualified workers who must be present at all times to ensure the safe operation of the Pickering facility, to respond to all station emergencies that may arise, and to ensure adequate emergency response capability for the most resource intensive conditions.

Minimum staff requirements and associated qualifications are identified in Pickering instruction P-INS-09100-00003, *Pickering Minimum Shift Complement*, and are in compliance with CNSC guidelines G-323, *Ensuring the Presence of Sufficient*

Qualified Staff at Class I Nuclear Facilities – Minimum Staff Complement and G-278, *Human Factors Verification and Validation Plans*.

Pickering instruction P-INS-09260-00008, *Duty Crew Minimum Complement Assurance*, details the MSC assurance program which is in place to ensure compliance and to maintain historical data.

During the current license period, Pickering NGS completed an assessment for the impact the stock keeper role has on the MSC while responding to the credited design basis events. The assessment concluded that there is no requirement for specialized equipment for which a stock keeper has specialist knowledge or skill that cannot be transferred to Operations, or other workgroup. Therefore the stock keeper role was removed from Pickering MSC with actions to ensure any required tools remained readily available to Operations staff.

In response to the Fukushima lessons learned, OPG completed an assessment of the Emergency Response Team complement and capabilities to respond to beyond design basis events. Based on this assessment, initiatives such as installation of Emergency Mitigating Equipment (EME) and the establishment of Severe Accident Management Guidance (SAMG) were implemented. During the aforementioned assessment, the requirements for Minimum Shift Complement at Pickering NGS were deemed adequate.

2.2.6 Fitness for Duty

N-PROC-HR-0002, *Limits of Hours of Work* identifies the expectations and the process for monitoring and controlling hours worked. This procedure documents the regulatory limits pertaining to hours of work and shift assignments in order to control the effects of fatigue of OPG staff in support of safe reactor operation.

Under this governance, supervisors are required to ensure that their employees are aware of their prescribed limit and are also responsible for monitoring their employees' hours of work. The process requires that employees are aware of their time limitations, track work hours and promptly notify the first line manager in advance of a potential violation.

Information on the limits of hours of work is provided in the Nuclear *Operations & Maintenance Handbook*. This handbook is a small carry-around guide of expectations and information written with the operations and maintenance staff in mind. The handbook describes the steps to be taken for the unlikely situation in which someone is found unfit for duty, and also has the limits for hours of work.

For certified and security staff, regulatory documents RD-204 and RD-363 also outline specific fitness for duty requirements.

The Continuous Behaviour Observation Program (CBOP) is designed to develop a supervisor's ability to recognize and respond to behaviours that may indicate a risk to the security, safety, or health of employees, facilities and the public. All OPG supervisors must complete this training during initial training and complete refresher training every 36 months. The CBOP process is to be followed if a worker reports to work and is suspected to be unfit for duty. Steps to deal with Unfit for Duty situations are covered in the CBOP training and outlined in the operations and maintenance handbook, which is updated yearly.

OPG Security monitors all personnel entering the protected area for indications of being unfit for duty or under the influence of intoxicants; if they suspect a worker is unfit they deny access to the facility. OPG is using periodic canine drug monitoring at the security monitors as an additional barrier to ensure the fitness for duty of all staff entering the protected area.

2.2.7 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document	Title
N-PROG-AS-0002	Human Performance
N-STD-AS-0002	Procedure usage and Adherence
N-STD-OP-0002	Communications
N-STD-OP-0004	Self-Check
N-STD-OP-0012	Conservative Decision Making
N-INS-09030-10004	Observation and Coaching
N-STD-RA-0014	Second Party Verification
N-PROC-OP-0005	Pre-Job Briefing and Post-Job Debriefing
N-PROC-HR-0002	Limits of Hours of Work
N-CMT-62808-00001	Continuous Behaviour Observation Program (CBOP) – Participants Materials – Workbook Components
N-TQD-601-00001	Leadership and management Training and Qualification Description
P-INS-09100-00003	Pickering Minimum Shift Complement
P-INS-09260-00008	Duty Crew Minimum Complement Assurance
N-INS-03490-10003	Minimum Shift Complement Resources, Qualifications and Procedures Required for Responding to Resource Limiting Events
N-PROG-TR-0005	Training
N-PROC-TR-0008	Systematic Approach to Training
N-LIST-08920-10001	Trained Performance Areas
N-INS-08920-10004	Written and Oral Initial certification examination for Shift Personnel
N-INS-08920-10002	Simulator-Based Initial Certification Examinations for Shift Personnel
N-INS-08920-10001	Requalification Testing of Certified Shift Personnel
N-MAN-08131-10000-CNSC-031	Responsible Health Physicist
N-MAN-08131-10000-CNSC-007	Shift Manager, Pickering Nuclear
N-MAN-08131-10000-CNSC-010	Authorized Nuclear Operator
N-MAN-08131-10000-CNSC-028	Control Room Shift Supervisor, Pickering Nuclear

2.3 Operating Performance

Pickering NGS has an effective Operations Program which meets or exceeds all applicable regulatory requirements and related objectives. The program ensures that plant operation is safe and secure, with adequate regard for health, safety, security, radiation and environmental protection, and international obligations.

For specific areas within this SCA, the following subsections describe the objectives, key results from the current licensing period, and planned improvements over the next licensing period. These discussions also support that:

- Nuclear safety will be assured such that plant personnel and the public are protected (e.g., Sections 2.3.2, 2.3.3, 2.3.5, and 2.3.9).
- The plant is reliable and programs will continue to improve reliability during the next licence period (e.g., Section 2.3.7).
- Transparency continues to be maintained through the internal corrective action program and external reporting to regulatory agencies (i.e., Sections 2.3.10 and 2.3.11 respectively).

2.3.1 Operations

The *Nuclear Operations* Program, N-PROG-OP-0001, implements a series of standards and procedures to ensure that the plant is operated safely and reliably. This program establishes safe, uniform, and efficient operating practices and processes within nuclear facilities that provide nuclear professionals the ability to ensure facilities are operated in such a manner that the reactor operating licence, Operating Policies and Principles (OP&P), and other applicable regulations and standards are followed. It also supports the alignment, prioritization and resolution of operational problems, keeping reactor safety as an overriding priority.

Plant Operational Focus is the behaviour of an organization that is necessary to achieve high levels of operational safety and reliability. Plant Operational Focus at Pickering is used to ensure Operations leaders are providing input and oversight to work management processes. This allows operations leadership to ensure risks to plant operation due to equipment deficiencies and degradation are appropriately mitigated.

Improvements in these areas have helped drive operator advocacy and are showing a reduction in operator challenges and equipment unavailability.

As well, plant operational focus has driven improvements in housekeeping, storage of transient material, the preservation of seismic routes and plant material condition.

2.3.2 Plant Status Control

Plant Status Control forms part of the managed process to operate the plant safely and within the approved design basis.

N-STD-OP-0024*, Nuclear Safety Configuration Management* defines expectations for the identification and control of systems and equipment to ensure the availability of systems needed for nuclear safety. It defines operational requirements that are used to ensure that controls are in effect when station equipment is placed or maintained in a specific position or state, for nuclear safety reasons.

As a performance metric of plant status control, a misposition is declared when a component is found in a position off its baseline position without documented approval, or a component is incorrectly operated, or the incorrect component is operated. There is an immediate follow-up to misposition events to gain an understanding of the organizational and individual drivers that contributed to the event and to establish compensatory actions to prevent reoccurrence. The human performance lessons learned process is then used to share the underlying contributors to the event to prevent other occurrences. The Plant Status Control Committee was established as an oversight body, to review and categorize all misposition occurrences, identify trends and review corrective action plans to ensure that adequate corrective actions are taken to prevent recurrences.

The results are a reduction in the number of department resets due to misposition events and fewer and less significant misposition events.

Figure 5 shows a reduction in significant misposition events which are categorized as Level 1 or 2. Level 3 misposition events are not significant themselves but are tracked for trending purposes, and as a leading indicator to help inform activities to improve plant status control.

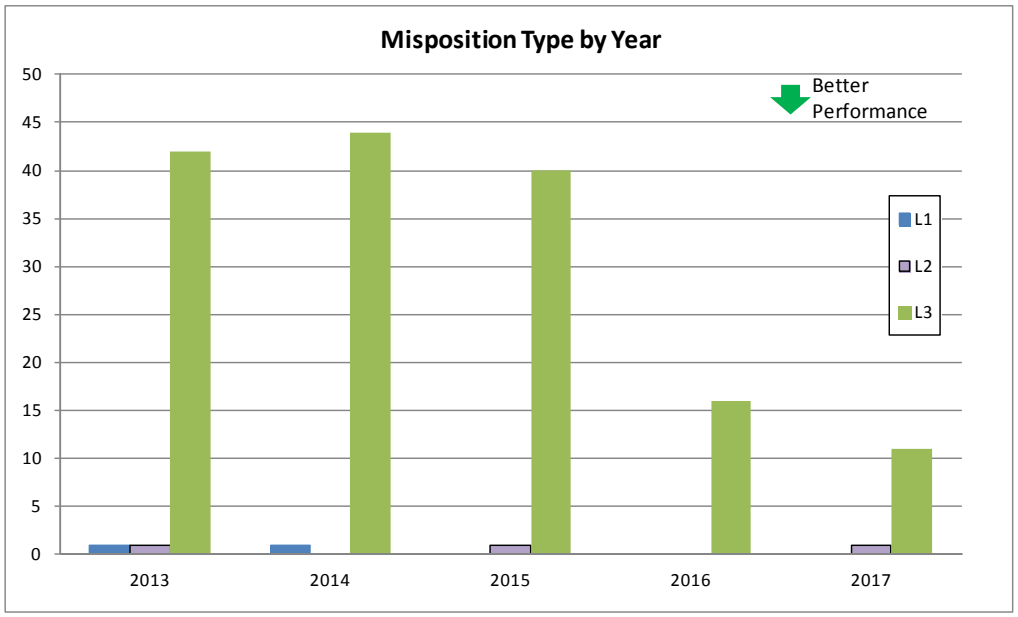


Figure 5 - Misposition Type by Year

2.3.3 Work Protection

The *Work Protection* program, N-PROG-MA-0015 describes the management processes, corporate governance, and roles and responsibilities to ensure worker safety where work on equipment requires isolation and de-energization. Worker safety is achieved through the effective application of work protection standards and procedures which ensure physical and administrative barriers are established between the energy source and the worker.

Operations provides oversight to the work protection program as follows:

- Nuclear Work Protection Review Board (NWPRB) - this group provides oversight of work protection performance at the nuclear or fleet level.
- Local Work Protection Review Board (LWPRB) – this group provides oversight of the Work Protection Performance at the site level.
- Site Work Protection Working Group (SWPWG) – this group is made up of individuals who execute work protection and provides oversight of work protection performance at the worker level.
- All 3 groups work to review events, identify trends, develop actions to improve performance and ensure that operating experience is used to inform improvement strategies.

Planned Improvements

Planned improvements include the development and use of model work protection permits and establishing an annual work protection oral review board to assess knowledge and identify gaps that require corrective actions.

2.3.4 Operating Procedures

Quality procedures are essential for maintaining safe and reliable operation. There is a dedicated group that ensures procedures are maintained current and technically correct.

A Technical Procedural Action Request (TPAR) is an approved request to change a technical procedure such as an operating procedure. High priority has been placed on completing these changes and reducing backlog.

Pickering has been successful in reducing both the number of temporary operating instructions and the backlog of operationally significant procedure change requests.

2.3.5 Reactivity Management

Reactivity Management practices are established through N-STD-OP-0009, such that reactivity of the reactor core is always respected and controlled. Reactivity management is the systematic control of activities that ensure core reactivity and

stored nuclear fuel are monitored and controlled consistent with fuel design and operating limits. It is a key factor in maintaining barriers to fuel damage and fission product release.

Reactivity Management applies to all plant operations and maintenance activities with potential to impact on core reactivity and as such, must be performed in a safe, controlled, conservative manner, following approved procedures.

A reactivity management plan is produced weekly that integrates the timing of fuelling windows for adequate core reactivity with both unit and fuel handling maintenance. It is a forward-looking plan that ensures maintenance activities are scheduled appropriately for unit conditions and fuelling machine availability and staffing.

All reactivity management events and conditions are systematically reviewed, indexed and their significance quantified. The performance measure, Reactivity Management Index (RMI) is utilized in order to identify deficiencies and communicate overall program effectiveness. RMI is consistent with industry standards. Where deficiencies are identified, corrective actions are established and tracked for effectiveness. Pre-cursor, non-consequential events are evaluated as a leading indicator in order to prevent events. Additionally, significant reactivity management operating experience is reviewed and lessons learned implemented at the station.

2.3.6 Response to Transients

Unit transients are minimized by ensuring required corrective and preventive maintenance is performed, to ensure equipment reliability and redundancy is maintained, such that operation of the station is challenged as infrequently as possible by unanticipated equipment failures. In addition, station maintenance and operations activities are conducted in a manner such that the likelihood of unanticipated impact on station operation is minimized. In the event that a unit transient does occur, staff are trained and qualified to respond to transient conditions and ensure the equipment or the unit is placed in the appropriate safe state.

Response to Transients, N-STD-OP-0017, defines the response protocols for a unit transient. In addition, this standard requires, for all unit transients, that a robust multi-disciplinary post transient review is held shortly after unit conditions are stabilized.

The intent of the post transient review is to confirm the direct cause of the event is understood, verify major process system responses are as expected, ensure the unit is placed in the appropriate end state and document any corrective actions and lessons learned. The review also provides an opportunity to assess crew response for any improvements for personnel involved and adequacy of response procedures. Lessons learned from the review are shared with the entire operations team as well as the Training department to address any training requirements.

2.3.7 Outage Management Performance

Outage management is performed in accordance with OPG procedures for *Planned Outage Management*, N-PROC-MA-0013 and *Forced Outage Management*, N-PROC-MA-0049. The overall objective of outage management is to perform event free inspections, maintenance and modifications in a shutdown state, such that plant safety and reliability are maintained at the desired levels during normal operation. During the current licence term, Pickering NGS outages have been managed in a safe and effective manner.

Planned Improvements

Pickering has an outage performance improvement plan which includes a study for a 30-month outage scheduling cycle for Pickering to improve outage performance and maximize reliability, fitness for service and operational stability. The expected benefits of the potential 30-month outage cycle would include dose reduction, improved training windows, improved resource balancing because of reduced outage overlap, improved human performance, more outage preparation time and fewer outage days.

Additionally, the outage performance improvement plan includes a focus on risk mitigation and contingency planning to support execution of planned outage work. Accurately identifying and assessing risk ensures that business planning accounts for required contingencies, and key work required for plant reliability is completed within the outage window.

2.3.8 Heat Sink Management

Heat sinks are governed by a Heat Sink Management standard, N-STD-OP-0025 and define nuclear safety principles and requirements for the management of reactor heat sinks.

This standard is applicable to all planned reactor states and plant configurations in a low-power operating condition. The standard specifies requirements for the selection of heat sinks including the required diversity such that heat sinks are physically and electrically independent. It also specifies requirements for the monitoring of heat sinks and expectations following heat sink failures.

For planned outages, heat sinks are specified in advance to account for the planned equipment outages. The available equipment is reviewed against checklists as required by the operating manuals.

For forced outages, heat sinks are initially governed by abnormal operating procedures or emergency operating procedures. Once the unit is stable, a formal heat sink is declared using the same process as that for a planned outage.

In the event of a heat sink failure due to a Beyond Design Basis Event, heat sink restoration would be supported by Emergency Mitigating Equipment Guidelines (EMEG) and/or Severe Accident Management Guidelines (SAMG).

2.3.9 Safe Operating Envelope

OPG nuclear standard N-STD-MP-0016, *Safe Operating Envelope* (SOE) defines the processes, organizational responsibilities and key program elements to ensure that the SOE is defined and documented in a correct, complete and consistent manner and reflected in the station operating documentation.

The SOE specifies the information required to ensure plant operation is in conformance with the licensing basis. The safe operating limits, conditions and surveillance requirements as well as their bases as defined by the current safety analyses are documented in station and system specific documents, Operational Safety Requirements (OSRs).

The limits and conditions defined in the OSRs, including any surveillance requirements, are specified in the applicable operations and maintenance procedures and tests, to ensure the plant is operated within the SOE.

2.3.10 Corrective Action Program

The Corrective Action Program (CAP) objectives as described in N-PROG-RA-0003, *Corrective Action*, are to ensure deficiencies, non-conformances, and weaknesses that adversely impact, or may adversely impact plant operations, personnel, nuclear safety, the environment or equipment and component reliability, are promptly identified and corrected or dispositioned. The program has two elements: identification of adverse conditions and resolution of adverse conditions.

Pickering Nuclear has a healthy SCR reporting culture; over 13,000 SCRs are generated annually. These SCRs cover a variety of adverse conditions that are promptly reviewed by supervisors to assign dispositions based on resolution category and significance.

The site managerial team reviews all of the dispositions in order to ensure the appropriate disposition is assigned to each SCR. Approximately 95% of the SCRs generated at Pickering are by themselves not significant and are dispositioned for trend analysis or closed to a previous evaluation. This distribution of the SCR population is closely aligned with industry best practices based on benchmarking with nuclear utilities.

Root cause and apparent cause investigations are conducted for significant events to improve plant reliability and human performance at Pickering Nuclear.

Reporting and Trending analysis is conducted to identify trends in performance at a lower level before they become a more significant issue. The trending includes aspects from cognitive analysis, data analysis and industry experience.

Reporting is quarterly through SCR trending and performance improvement reports. Identified adverse trends are addressed by initiating an SCR and corrected as required through the corrective action program.

2.3.11 Regulatory Reporting

Procedure N-PROC-RA-0020, *Preliminary Event Notifications* identifies the notification requirements for reporting to facility and off-site organizations, management, and external officials and agencies, after a reportable event has occurred.

Procedure N-PROC-RA-0005, *Written Reporting to Regulatory Agencies* identifies the processes and requirements for written event reports to regulatory agencies and scheduled reporting to the CNSC.

Pickering NGS has been submitting routine scheduled reports in a timely fashion throughout the licence period that are required to assess plant performance and for compliance monitoring, in accordance with REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*.

2.3.12 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document	Title
N-PROG-OP-0001	Nuclear Operations
N-STD-OP-0012	Conservative Decision-Making
N-STD-OP-0036	Operational Decision Making
N-STD-OP-0024	Nuclear Safety Configuration Management
N-STD-OP-0011	Operations Performance Monitoring
N-STD-MP-0019	Beyond Design Basis Accident Management
N-STD-OP-0025	Heat Sink Management
N-STD-OP-0017	Response to Transients
N-STD-MP-0016	Safe Operating Envelope
N-STD-OP-0009	Reactivity Management
N-STD-OP-0021	Control of Fuelling Operations
NA44-OPP-03600	Pickering NGS-A Operating Policies and Principles
NA44-OSR-08131.02-00001	Pickering NGS A Shutdown Systems
NA44-OSR-08131.02-00002	Pickering A Operational Safety Requirements: Negative Pressure Containment
NA44-OSR-08131.02-00003	Pickering A Operational Safety Requirements: Fuel and Reactor Physics
NA44-OSR-08131.02-00004	Pickering A Operational Safety Requirements: Emergency Coolant Injection System
NA44-OSR-08131.02-00005	Pickering A Operational Safety Requirements: Boiler Emergency Cooling System
NA44-OSR-08131.02-00006	Pickering A Operational Safety Requirements: Emergency Boiler Water Supply System
NA44-OSR-08131.02-00007	Pickering A Operational Safety Requirements: Feedwater System
NA44-OSR-08131.02-00008	Pickering A Operational Safety Requirements: Service Water Systems
NA44-OSR-08131.02-00009	Pickering A Operational Safety Requirements: Powerhouse Emergency Venting System

Document	Title
NA44-OSR-08131.02-00010	Pickering A Operational Safety Requirements: Main Steam Supply System
NA44-OSR-08131.02-00011	Pickering A Operational Safety Requirements: Shutdown Cooling System
NA44-OSR-08131.02-00012	Pickering A Operational Safety Requirements: Moderator System
NA44-OSR-08131.02-00013	Pickering A Operational Safety Requirements: Heat Transport System
NA44-OSR-08131.02-00014	Pickering A Operational Safety Requirements: Reactor Regulating System
NA44-OSR-08131.02-00015	Pickering A Operational Safety Requirements: Electrical Power System
NA44-OSR-08131.02-00016	Pickering Nuclear 1-4: Annulus Gas System
NA44-OSR-08131.02-00017	Pickering NGS-A Operational Safety Requirements: Fuel Handling System and Irradiated Fuel Bays
NA44-OSR-08131.02-00018	Pickering NGS-A Critical Safety Parameter Monitoring Instrumentation
NA44-OSR-08131.02-00019	Pickering NGS- A Operational Safety Requirements: Shield Cooling System
NA44-OSR-08131.02-00021	Pickering NGS-A Operational Safety Requirements: Interstation Transfer Bus (ISTB)
NA44-OSR-08131.02-00022	Pickering Nuclear 1-4 Operational Safety Requirements: Powerhouse Environmental Protection System
NK30-OPP-03600	Pickering NGS-B Operating Policies and Principles
NK30-OSR-08131.02-00001	Pickering B Operational Safety Requirements: Emergency Coolant Injection System
NK30-OSR-08131.02-00002	Pickering B Operational Safety Requirements: Fuel and Reactor Physics
NK30-OSR-08131.02-00003	Pickering B Operational Safety Requirements: Negative Pressure Containment
NK30-OSR-08131.02-00004	Pickering B Operational Safety Requirements: Shutdown Systems
NK30-OSR-08131.02-00005	Pickering B Operational Safety Requirements: Boiler Emergency Cooling System
NK30-OSR-08131.02-00006	Pickering B Operational Safety Requirements: Feedwater System
NK30-OSR-08131.02-00007	Pickering B Operational Safety Requirements: Emergency Water Supply System
NK30-OSR-08131.02-00008	Pickering B Operational Safety Requirements: Service Water Systems
NK30-OSR-08131.02-00009	Pickering B Operational Safety Requirements: Main Steam Supply System
NK30-OSR-08131.02-00010	Pickering B Operational Safety Requirements: Moderator System
NK30-OSR-08131.02-00011	Pickering B Operational Safety Requirements: Powerhouse Emergency Venting System
NK30-OSR-08131.02-00012	Pickering B Operational Safety Requirements: Shutdown Cooling System
NK30-OSR-08131.02-00013	Pickering B Operational Safety Requirements: Heat Transport System
NK30-OSR-08131.02-00014	Pickering B Operational Safety Requirements: Emergency Power Supply
NK30-OSR-08131.02-00015	Pickering B Operational Safety Requirements: Reactor Regulating System
NK30-OSR-08131.02-00017	Pickering B Operational Safety Requirements: Group 1 Electrical Power System

Document	Title
NK30-OSR-08131.02-00018	Pickering B Operational Safety Requirements: Fuel Handling and Irradiated Fuel Bays
NK30-OSR-08131.02-00019	Pickering NGS Operational Safety Requirements: HPECI Power Supplies
NK30-OSR-08131.02-00020	Pickering B Operational Safety Requirements: Annulus Gas System
NK30-OSR-08131.02-00021	Pickering B Operational Safety Requirements: Critical Safety Parameter Monitoring Instrumentation
NK30-OSR-08131.02-00022	Pickering B Operational Safety Requirements: Shield Cooling System
N-PROG-MP-0014	Reactor Safety Program
N-PROC-RA-0035	Operating Experience Process
N-PROC-RA-0022	Processing Station Condition Records
N-PROG-RA-0003	Corrective Action
N-PROC-RA-0005	Written Reporting to Regulatory Agencies
N-PROC-RA-0020	Preliminary Event Notifications

2.4 Safety Analysis

Pickering NGS has a mature safety analysis program that meets or exceeds all applicable regulatory requirements and related objectives. Safety analysis is updated in an effective manner to maintain the overall safety case and demonstrate the fundamental safety functions to control power, cool the fuel, and contain or limit any accidental releases from the plant.

For specific areas within this SCA, the following subsections describe the objectives, key results from the current licensing period, and planned improvements over the next licensing period. These discussions also support that:

- Nuclear safety will be assured such that the public is protected (e.g., Sections 2.4.1 to 2.4.8)

2.4.1 Reactor Safety Program

The OPG *Reactor Safety Program*, N-PROG-MP-0014 defines the organizational responsibilities and key program elements for the management of issues related to nuclear safety analysis and operational safety requirements.

The program, standards, and implementing procedures govern the management of issues related to the safety analysis basis, which includes analyses and assessments which ensure that Pickering design and performance remain within the licensing basis.

2.4.2 Deterministic Safety Analysis

The deterministic safety analyses documented in the Pickering Safety Reports, demonstrate compliance with licensing limits and derived acceptance criteria.

NA44-SR-01320-00001	Pickering A Safety Report
NA44-SR-01320-00002	Pickering Nuclear 1-4 Safety Report Part 3: Accident Analysis
NA44-REP-00531.7-10001	Pickering A Analysis of Record
NK30-SR-01320-00002	Pickering B Safety Report - Part 2
NK30-SR-01320-00003	Pickering Nuclear 5-8 Safety Report Part 3: Accident Analysis
NK30-REP-00531.7-00001	Pickering B Analysis of Record

Table 5 - Document Numbers for Pickering Safety Analysis

The analyses listed in Table 5 are used to identify limits on process parameters and safety system requirements, and serve as a basis to establish the safe operating envelope for the station.

The Analysis of Record is the set of documents that establishes the current reactor safety licensing basis. It consists of the latest revision of the safety report and all analyses that update or supersede analyses contained in the latest revision of the safety report.

The safety reports are periodically updated and submitted to the CNSC in accordance with regulatory requirements.

The deterministic safety analysis will be updated in compliance to REGDOC-2.4.1, *Deterministic Safety Analysis* by including an appendix for common mode events into the safety reports by the end of 2017. For Pickering, the REGDOC-2.4.1 implementation plan is to be revised for 2018-2021 and will focus on aspects for which safety margins need to be confirmed. OPG will consider the Darlington experience during implementation of REGDOC-2.4.1 when determining the analysis upgrades for Pickering and include this in the revised implementation plan which OPG plans to submit to the CNSC before the end of 2017.

2.4.3 Heat Transport System Aging

The Heat Transport System (HTS) Aging Management activities were initiated in 2000 to evaluate the impact of HTS component aging on safety margins. The objective is to provide an integrated assessment on the cumulative effects of the identified aging mechanisms, and to develop effective safety margin management strategies based on the results of the assessments.

During the 2013-2015 period, OPG completed the deterministic safety analyses for the Slow Loss Of Regulation (SLOR), Loss of Flow (LOF), and Small Break Loss of Coolant Accident (SBLOCA) for future aged conditions for all Pickering units.

Progress reports on OPG Heat Transport System Aging Safety Analysis will continue to be submitted to the CNSC annually. The most recent progress report was submitted in February 2017. (Reference 19)

Pickering NGS has adequate provisions in place by which the effects of aging are managed to ensure that safety analysis margins are being maintained through to the end of commercial operation.

2.4.4 Risk and Reliability Program

The *Risk and Reliability Program,* N-PROG-RA-0016, establishes a framework for the development and use of Probabilistic Safety Assessment (PSA) as a means to manage radiological risks and to contribute to safe reactor operation. The PSA is used to assess the magnitude and frequency of radiological risks to the public, and operational reliability monitoring and reporting ensures that systems important to safety are monitored and managed.

Program elements have been developed to meet the intent of CNSC regulatory requirements in regulatory document RD/GD-98, *Reliability Programs for Nuclear Power Plants.*

Under the Risk and Reliability Program, actual station specific component failure data are collected and added to generic industry component failure data to obtain component failure rates. This component failure rate information is updated in models to derive an annual result for system Predicted Future Unavailability (PFU) of the Systems Important to Safety (SIS). This information is reported in the *Annual Risk and Reliability Report* which allows OPG to assess the performance of the SIS against their PFU targets, as well as to identify and take corrective actions in case the PFU results do not meet the targets.

The risk assessment models are also used operationally to assess the nuclear safety risk associated with taking station equipment out of service for maintenance during normal operation or during planned maintenance outages. This tool provides insight into the risk of plant configurations, enabling the application of alternate layers of defense, where required. Based on these assessments, changes to scheduled activities are made to reduce the risk level, if required.

2.4.5 Probabilistic Safety Assessment

Probabilistic Safety Assessment (PSA) is a tool used to help demonstrate that the design and operation of a nuclear power plant poses an acceptably low level of risk to the public. The main benefits of PSA include the identification of risk insights that can be used to improve the safety of plant design and operation. The results of the PSAs are compared with OPG's safety goals as documented in N-PROG-RA-0016, *Risk and Reliability Program*.

Hazard analysis is conducted as an initial step to probabilistic safety assessments. This involves the assessment and screening of various types of hazards: internal and external hazards, naturally occurring and human-induced.

Based on the hazard screening process, PSAs are developed for internal events, internal floods, internal fires, seismic events, and high winds. All other hazards identified were screened out and dispositioned to be of very low risk.

Pickering PSAs

The purpose of a PSA is to establish whether the design and operation of the plant poses an acceptable level of risk to the public and to identify the major sources of risk. The overall conclusion of the Pickering A and the Pickering B PSA is that the public risk from Pickering NGS operation is low.

In 2014 OPG updated selected elements of the Pickering A and B PSAs to include the Fukushima Action Plan (FAP) items, namely the Phase 1 Emergency Mitigating Equipment (EME) and other enhancements. These FAP updated PSAs were submitted to the CNSC in 2014 and showed that the EME reduces the Pickering NGS risk.

For each of the Pickering NGS PSAs (Pickering A and B, Level 1 and Level 2 PSAs for internal and external events, at power and outage), the OPG safety goals were met. Where the PSA results were found to be below the OPG safety goals but above the more stringent administrative safety goals, a risk improvement plan (or action plan) was prepared and submitted to CNSC detailing physical and analytical improvements to further reduce the plant risk where practicable. An annual update to this risk improvement plan has been provided to the CNSC since 2014.

As per regulatory requirements, the PSAs for Pickering are being updated on a periodic basis to reflect changes in the station. The updated PSA for Pickering NGS B will be completed and submitted to the CNSC by the end of 2017, and the PSA for Pickering NGS A will be updated and submitted by the end of 2018; these updates will be compliant with CNSC regulatory standard S-294. In accordance with the implementation plan for REGDOC-2.4.2, the additional new PSA requirements in this regulatory document will be addressed by the end of 2020.

Whole-Site Risk

During the previous Pickering relicensing hearing, the topic of “whole-site” risk was raised (given that the current PSAs and safety goals are per-unit based). Whole-site risk refers to the characterization of the overall risk of the site due to: multiple reactor units, other on-site sources of radioactivity (such as the irradiated fuel bays), internal and external hazards, and other reactor operating modes (besides full power and outage states).

The key issues associated with this topic include: a lack of international consensus on the methodology, the appropriateness of risk aggregation, and the acceptance criteria for a site-based risk assessment. For instance, a multi-unit PSA risk result is generally not equal to the per-unit risk value multiplied by the number of units on site.

In response to this issue at the time, OPG committed to perform a whole-site risk assessment for Pickering by the end of 2017 and submitted to the CNSC a concept-level report on whole-site PSA methodology, COG-13-9034 *Development of a Whole-Site PSA Methodology*, in collaboration with the CANDU Owners Group (COG). This COG report was made publically available on OPG’s external website.

In addition, OPG supported a COG-hosted international workshop (January 2014) and participated in a CNSC-hosted international workshop (November 2014) on topics related to whole-site PSA.

Since then, a COG joint project was launched to further develop the concepts in the COG paper and to complete a Pickering whole-site risk assessment. The work has progressed in collaboration with the industry and updates have been provided to the CNSC. In addition, OPG has actively participated in and monitored international developments in the area of whole-site risk. The Pickering whole-site risk assessment will be submitted to CNSC by the end of 2017, to further substantiate that the risk of the whole Pickering site is low.

2.4.6 Severe Accident Management

OPG's *Beyond Design Basis Accident Management program* has been implemented through N-STD-MP-0019. Severe accident management provides an additional layer of defence in depth to mitigate the consequences of accidents that fall beyond the scope of events considered in the plant design basis and is supported in its execution by the Emergency Response Organization.

Severe accident analysis has been conducted to support Level 2 PSA, as part of regulatory document, S-294 compliance, and in response to the Fukushima Action Items. Extensive analysis was carried out to identify beyond design basis events with the potential (albeit highly unlikely) to result in significant core damage and large offsite releases of radioactive material (severe accidents). This work included habitability studies to evaluate the impact of such events on the ability of station personnel to carry out actions as part of the emergency response.

The program ensures the safety of the public, environment, plant personnel and the station during a Beyond Design Basis Accident (BDBA) by identifying and implementing operational strategies to terminate the event progression and mitigate the consequences in order to ensure that fuel damage is precluded or limited. Operational strategies include maintaining the containment envelope to limit radiological release and achieving a stable plant configuration as soon as possible.

BDBA operational strategies are referred to as Emergency Mitigating Equipment Guidelines (EMEGs) and Severe Accident Management Guidelines (SAMGs).

EMEGs have a primary focus on fuel cooling, and are used to mitigate accident progression when design basis equipment is unable to provide adequate core cooling. The intent of EMEG use is to prevent a BDBA sequence from progressing to a severe accident.

SAMGs have a focus on both containment integrity and fuel cooling and their use is initiated if an event has progressed to the severe accident stage. The goals of SAMGs are to terminate progression of core damage by restoring cooling, and to maintain containment integrity and minimize radioactive releases.

2.4.7 Criticality Safety

The objective of criticality safety focuses on the prevention of the criticality of fuel outside the core, for either new or irradiated fuel.

The Pickering reactors use natural uranium fuel which cannot achieve a criticality event without a heavy water moderator. New fuel is stored in such a manner that the new fuel cannot be made critical.

Irradiated natural uranium fuel is stored under light water and cannot be made critical in any configuration; therefore no criticality risk exists in the irradiated fuel bays.

2.4.8 Management of Safety Issues

The Safety and Licensing (S&L) Research and Development (R&D) program addresses issues related to the safety design basis and safe operating envelope of existing nuclear plants, in collaboration with the CANDU Owner's Group (COG). There is a strong focus on supporting the resolution of outstanding generic S&L issues and safety margin improvement initiatives. The program takes into consideration both Canadian and international operating experiences in identifying and selecting R&D work to be performed. In part, this work also supports safety assessments for new plant designs and refurbishments and assists in maintaining the core capabilities, scientific expertise, and the infrastructure necessary for an ongoing nuclear safety R&D program.

Pickering-specific safety analysis issues are also addressed via the OPG Reactor Safety Program as well as the Risk and Reliability Program (for PSA issues).

The COG Industry Standard Toolset Program is a consolidation of the maintenance and support, development and qualification activities of the computer codes used for the design, safety analysis and operational support of CANDU reactors.

The COG R&D program overview report and operational plans are submitted to the CNSC as part of annual reporting requirements in accordance with REGDOC-3.1.1. This submission provides a summary of the work completed in the previous year and the on-going R&D activities that are being performed under the COG R&D and IST program. As well, COG-CNSC R&D seminars are held bi-annually.

2.4.9 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document Number	Document Title
N-PROG-MP-0014	Reactor Safety Program
N-PROG-RA-0016	Risk and Reliability Program
N-STD-MP-0019	Beyond Design Basis Accident Management
N-PROC-MP-0086	Safety Analysis Basis and Safety Report Updates

Document Number	Document Title
N-STD-RA-0034	Preparation, Maintenance and Application of Probabilistic Risk Assessment
NA44-SR-01320-00001	Pickering A Safety Report
NA44-SR-01320-00002	Pickering Nuclear 1-4 Safety Report Part 3: Accident Analysis
NA44-REP-00531.7-10001	Pickering A Analysis of Record
NK30-SR-01320-00002	Pickering B Safety Report - Part 2
NK30-SR-01320-00003	Pickering Nuclear 5-8 Safety Report Part 3: Accident Analysis
NK30-REP-00531.7-00001	Pickering B Analysis of Record
N-PROG-MP-0006	Software
NA44-GUID-03611-00010	Pickering NGS A Probabilistic Risk Assessment Guide – Level 1 At-Power
NA44-GUID-03611-00011	Pickering A Probabilistic Risk Assessment (PRA) Guide – Level 2 (At-Power)
NA44-GUID-03611-00012	Pickering 014 Probabilistic Risk Assessment Guide – Level 1 Outage for Internal Events
NA44-GUID-03611-00013	Pickering NGS A Probabilistic Risk Assessment Guide – Fire
NA44-GUID-03611-00014	Pickering NGS Probabilistic Risk Assessment (PRA) Guide – Internal Flood
NA44-GUID-03611-00015	Pickering NGS A Probabilistic Risk Assessment Guide – Seismic
N-CORR-00531-06350	Pickering NGS A - Outage Probabilistic Risk Assessment (PRA) for Seismic Events
N-CORR-00531-06351	Pickering NGS A - Outage Probabilistic Risk assessment (PRA) for High Winds
N-CORR-00531-06432	Pickering NGS A – Outage Probabilistic Risk Assessment (PRA) for Internal Floods
N-CORR-00531-06433	Pickering NGS A – Outage Probabilistic Risk Assessment (PRA) for Internal Fires
N-CORR-00531-06439	Pickering NGS A – Level 2 At-Power Probabilistic Risk assessment (PRA) for Internal Floods
NA44-REP-03611-00011	Hazards Screening Analysis- Pickering A
NA44-REP-03611-00012	Pickering NGS A Level 1 At-Power Internal Events Risk Assessment (PARA-L1P)
NA44-REP-03611-00013	Pickering NGS A Level 2 At-Power Internal Events Risk Assessment (PARA-L2P)
NA44-REP-03611-00014	Pickering NGS A Level – 1 Outage Internal Events Risk Assessment (PARA-L1O)
NA44-REP-03611-00021	Pickering NGS A Internal Flood Probabilistic Risk Assessment (PARA Flood)
NA44-REP-03611-00022	Pickering NGS A PRA – Based Seismic Margin Assessment (PARA Seismic)
NA44-REP-03611-00023	Pickering NGS A Level 1 High Wind Probabilistic Risk Assessment
NA44-REP-03611-00038	Pickering NGS A Probabilistic Risk Assessment (PRA) – Internal Fire Report
N-GUID-03611-10001 Volume 1	OPG Probabilistic Risk Assessment (PRA) Guide-Level 1 (At Power)
N-GUID-03611-10001 Volume 2	OPG Probabilistic Risk Assessment (PRA) Guide Volume 2 – Level 2 (At Power)
N-GUID-03611-10001 Volume 4	OPG Outage Probabilistic Risk Assessment (PRA) Guide-Level 1
N-GUID-03611-10001 Volume 5	OPG Probabilistic Risk Assessment (PRA) Guide-Fire
N-GUID-03611-10001 Volume 6	OPG Probabilistic Risk Assessment (PRA) Guide-Internal Flood
N-GUID-03611-10001 Volume 7	OPG Probabilistic Risk Assessment (PRA) Guide-Seismic

Document Number	Document Title
N-GUID-03611-10001 Volume 8	OPG Probabilistic Safety Assessment (PSA) Guide-External Hazard Screening
N-GUID-03611-10001 Volume 9	OPG Probabilistic Risk Assessment (PRA) Guide-Internal Hazards Screening
N-GUID-03611-10001 Volume. 10	OPG Probabilistic Risk Assessment Guide – High Wind Hazard
NK30-REP-03611-00006	Pickering NGS B Level 1 At-Power Internal Events Risk Assessment
NK30-REP-03611-00008	Hazards Screening Analysis – Pickering B
NK30-REP-03611-00009	Pickering NGS B Level 1 Outage Internal Events Risk Assessment
NK30-REP-03611-00010	Pickering NGS B At-Power Level 2 Probabilistic Risk Assessment (PRA) for Internal Initiating Events
NK30-REP-03611-00011	Probabilistic Risk Assessment Level 2 Outage Report – Pickering B
NK30-REP-03611-00012	Pickering NGS B Probabilistic Risk Assessment – Internal Fire Final Report
NK30-REP-03611-00013	Pickering NGS B (PNGS - B) PRA Based Seismic Margin Assessment (SMA)
NK30-REP-03611-00014	Pickering NGS B Internal Flood Probabilistic Risk Assessment (PBRA Flood)
NK30-REP-03611-00020	Pickering NGS B High Wind Probabilistic Risk Assessment
N-CORR-00531-04548	Submission of OPG Probabilistic Risk Assessment (PRA) Computer Codes
N-CORR-00531-04858	Submission of OPG Accident Sequence Quantification (ASQ) Tool
N-CORR-00531-05159	Submission of OPG Sensitivity and Uncertainty MAAP4-CANDU Post-Processing and Input Generation and Analysis Scripts
N-CORR-00531-05596	Submission of MAAP4-CANDU Version 4.0.7C for CNSC Acceptance in Accordance with S-294
N-CORR-00531-05492	Acceptance of Software Packages Used in OPG's Probabilistic Risk Assessments
N-CORR-00531-06093	Submission of MAAP4-CANDU Version 4.0.7D for CNSC Acceptance in Accordance with S-294
N-CORR-00531-05491	External Hazards Screening Methodology – Outage Unit
P-CORR-00531-03780	Pickering A and B – Internal and External Hazards Screening Analysis- Single and Coincidental Outage Unit
N-CORR-00531-05928	Pickering NGS B – Methodology for a Reduced Scope At-Power Level 2 Probabilistic Risk Assessment (PRA) for Seismic Events
N-CORR-00531-05961	Pickering NGS B – Outage Probabilistic Risk Assessment (PRA) for Internal Fires
N-CORR-00531-05962	Pickering NGS 'B' – Outage Probabilistic Risk Assessment (PRA) for High Winds
N-CORR-00531-05959	Pickering NGS 'B' – Methodology for a Reduced Scope Level 2 Outage Probabilistic Risk Assessment (PRA) for Internal Events
N-CORR-00531-05960	Pickering NGS 'B' – Outage Probabilistic Risk Assessments (PRA) for Internal Floods
N-CORR-00531-05927	Pickering NGS 'B' – Level 2 At-Power Probabilistic Risk Assessment (PRA) for Internal Floods
N-CORR-00531-05930	Pickering NGS 'B' – Outage Probabilistic Risk Assessment (PRA) for Seismic Events
N-CORR-00531-05997	Pickering NGS B – Level 2 At-Power Probabilistic Risk Assessment (PRA) for High Winds

2.5 Physical Design

Pickering NGS has an effective program to maintain its design basis that meets all applicable regulatory requirements and related objectives. The structures, systems, and components at Pickering remain available, reliable, effective, and consistent with design, analysis, and quality control measures.

For specific areas within this SCA, the following subsections describe the objectives, key results from the current licensing period, and ongoing activities over the next licensing period. These discussions also support that:

- Systems, structures and components at the plant are fit to continue commercial operation and programs will ensure fitness-for-service during the next licence period (e.g., Sections 2.5.4 to 2.5.6).
- OPG continues to invest in Pickering to support the assurance of fitness for service through procurement and fuel inspections (e.g., Sections 2.5.3 and 2.5.4).
- Nuclear safety is assured by maintaining the plant's pressure boundary and ensuring key mitigating equipment is qualified (e.g., Sections 2.5.5 and 2.5.6).

2.5.1 Conduct of Engineering and Design Management

The *Conduct of Engineering* program, as defined in N-PROG-MP-0007, defines the programs and processes to ensure that engineering is performed consistently across OPG Nuclear.

The *Design Management* program, as defined in N-PROG-MP-0009, sets the overall requirement for execution and control of activities that provide design support and documentation for the nuclear facility.

These programs provide assurance that all design activities and their resulting documentation are controlled in a manner consistent with the plant's licensing basis. The program defines the minimum set of documentation that identifies and describes the design basis, design outputs and design processes.

2.5.2 Engineering Change Control

Design changes are performed in accordance with OPG's program N-PROG-MP-0001, *Engineering Change Control*. The Engineering Change Control (ECC) program ensures design changes to each OPG Nuclear facility (including systems, structures, or components; software; and engineered tooling) are planned, designed, installed, commissioned and placed into or removed from service such that the facility configuration is managed in accordance with the design and licensing bases, and remains within the safe operating envelope.

The health of the design and ECC programs is monitored using the ECC site index. The index incorporates metrics associated with quality of design ECC packages, ECC process compliance, and the timely updating of records and closeout of modifications. Pickering performance in the ECC site index was generally strong during the current licence term.

Timeliness of Engineering Change (EC) close out activities has generally improved over the licensing period, including completion of significant efforts to eliminate the backlog of records that needed updating to reflect installation of past modifications, and to reduce the number of temporary modifications installed in the Pickering facility and bring that number in line with industry best practices. Reduction of the backlog of open EC's was completed in 2016 and remains low.

2.5.3 Procurement Engineering

The Procurement Engineering (PE) process involves a technical review of items and services in order to establish purchasing and acceptance requirements. The procurement process ensures that items and services meet the design intent and also supports plant operations in resolving technical issues related to purchases.

The process is applicable to individual items, generic classes, and services. The procurement requirements include technical and quality requirements, acceptance criteria and acceptance methods, and are established in order to assure that properties and attributes of importance are imparted to the item being purchased.

2.5.4 Fuel

The primary objectives of the *Fuel* program, N-PROG-MA-0016 are to establish a formal and systematic process for ensuring the safe use of fuel in OPG's nuclear reactors.

This program specifies the requirements for monitoring, integrating and assessing fuel-related information and details the documentation requirements for issues identified by this program. It requires regular cross-discipline reviews to ensure the safe operation of the plant and to facilitate efforts to operate with zero fuel defects.

The program also incorporates the reporting requirements associated with demonstrating fuel compliance within the fuel design basis.

Radioiodine levels have remained below station shutdown limits at Pickering NGS during the licensing period. In addition, improvements have been made to the fuel defect management process.

Post-discharge fuel inspections and post-irradiation hot cell examinations of samples of the fuel discharged in the last five years of operation indicate that the fuel condition remains within the design basis compliance envelope for wear and deformation.

Mitigation measures for eliminating the black deposits which were observed on the fuel in Unit 1 from 2011 - 2015 have been successful. As a result, the number and size of deposits recorded and the total coverage continue to decline. Pickering will continue to monitor the fuel for any changes and report as required.

2.5.5 Pressure Boundary Program

The objective of the *Pressure Boundary Program*, N-PROG-MP-0004 is to manage the processes that control the quality of pressure boundary activities at OPG. The program establishes the infrastructure and defines the activities necessary to maintain a sustainable managed process that allows OPGN to perform activities associated with repairs, replacements, modifications and alterations to pressure retaining items, components and systems, including installation of new systems.

The Pressure Boundary program is a mature program that is compliant with the mandated codes and standards. Pickering NGS has implemented CSA N285.0-2008 with Update No. 2 by revising the *Pressure Boundary Program Manual*, along with associated procedures to comply with the standard.

After a successful assessment in 2017 by TSSA (Technical Standards and Safety Authority) demonstrating pressure boundary processes to be in compliance with the applicable codes and standards, Certificates of Authorization (C of A) for pressure boundary activities were renewed for three years, until April 15, 2020.

2.5.6 Environmental Qualification

The *Environmental Qualification* (EQ) program is defined in document N-PROG-RA-0006, and is compliant with standard CSA N290.13-05.

The objective of the program is to ensure that all required systems, equipment, components, protective barriers, and structures are qualified to perform their safety functions under the environmental conditions defined by the Pickering design-basis accidents.

The program includes the procedures and processes to systematically identify the equipment to be environmentally qualified, the environmental conditions to be used for qualification and the required documentation.

EQ is an on-going program ensuring that aging is managed, obsolescence is taken into account and that qualification configurations are maintained.

2.5.7 Software

The objective of the *Software* program, N-PROG-MP-0006, is to identify the processes and overall requirements for software that supports safe and efficient plant operation. This program applies to software classified as Real-Time Process Computing (RTPC) and Scientific, Engineering and Safety Analysis (SESA) Software

or Software Engineering Tools in OPGN. Software is classified in order to determine the set of applicable standards and procedures for its custom development, maintenance, acquisition, qualification, use and retirement. For each classification the detailed requirements are tailored to the significance of the software.

For the development of RTPC systems within OPGN, N-PROC-MP-0099, *Development of Real-Time Process Computing Systems* provides a systematic and uniform process for development. This procedure defines requirements on the development of RTPC systems.

The SESA portion of the software governance manages the analytical tools credited to support the design or maintenance of safety related systems with particular emphasis on the requirements of standard CSA N286.7. Software classified as SESA is extended to apply to all analytical software used within OPGN whose failure or misuse can lead to a safety (conventional, radiological or environmental), licensing or reliability impact on the facility.

2.5.8 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document	Title
N-PROG-MP-0007	Conduct of Engineering
N-PROG-MP-0001	Engineering Change Control
N-STD-MP-0027	Configuration Management
N-PROG-MP-0009	Design Management
N-PROG-MA-0016	Fuel
N-PROG-MP-0004	Pressure Boundary Program
N-PROC-MP-0040	System and Item Classification
N-PROC-MP-0082	Design Registration
N-PROG-MP-0006	Software
N-MAN-01913.11-10000	Pressure Boundary Program Manual
N-CORR-00531-06752	Authorized Inspection Agency service Agreement
N-INS-08173-10050	Procurement from Licensed Canadian Nuclear utilities
N-LIST-00531-10003	Index to OPG Pressure Boundary Program Elements
N-PROG-RA-0006	Environmental Qualification

2.6 Fitness for Service

Pickering NGS has an effective fitness for service program that meets or exceeds all applicable regulatory requirements and related objectives. The physical condition of structures, systems and components at Pickering remain available, reliable, effective and consistent with design, analysis and quality control measures.

For specific areas within this SCA, the following subsections describe the objectives, key results from the current licensing period, ongoing activities and planned improvements over the next licensing period. These discussions also support that:

- Equipment reliability is maintained and programs will continue to improve reliability during the next licence period (e.g. Sections 2.6.1, 2.6.3, 2.6.5, 2.6.7, and 2.6.8).
- Systems, structures and components at the plant are fit to continue commercial operation and inspection programs will ensure fitness-for-service during the next licence period (Sections 2.6.2 to 2.6.4).
- OPG continues to invest in Pickering to support the improvement of equipment reliability and assurance of fitness for service (e.g. Sections 2.6.4, 2.6.5, and 2.6.8).
- Nuclear safety is assured through periodic inspection, testing, and maintenance of plant systems, structures, and components (Sections 2.6.4, 2.6.5, and 2.6.7)

2.6.1 Equipment Reliability

The objective of the *Equipment Reliability Program*, N-PROG-MA-0026, is to improve station equipment reliability and reduce forced loss rate by ensuring high levels of reliable performance of components important to nuclear safety and production.

The equipment reliability process represents the integration and coordination of a broad range of equipment reliability activities into one program for plant personnel to evaluate important station equipment, develop and implement long-term equipment health plans, monitor equipment performance and condition, and make continuing adjustments to preventive maintenance tasks and frequencies based on equipment operating experience. This process includes surveillance and testing, Life Cycle Management (LCM) planning**,** and equipment performance and condition monitoring.

Pickering has performed benchmarking against other plants through participation in the Equipment Reliability Working Group (ERWG) of the CANDU Owners Group (COG). COG has established the Equipment Reliability Index (ERI) which the industry uses to assess the health of a plant's reliability program and performance and enables benchmarking against other plants. This index provides an aggregate assessment of equipment reliability and the supporting programs. See Figure 6 for the ERI data.

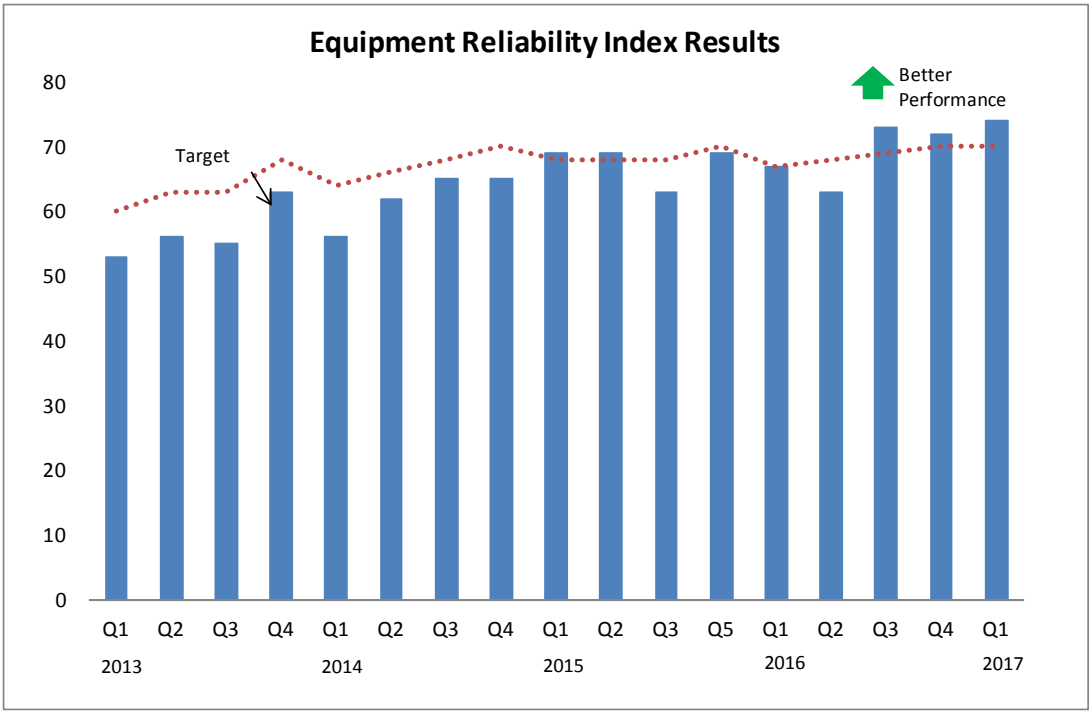


Figure 6 - Equipment Reliability Index (ERI)

The ERI score is derived from 17 key weighted sub-indicators which add up to a maximum score of 100. Pickering's ERI score has significantly improved over the course of the current licence period. This improvement is the result of various equipment reliability initiatives. At the end of 2016, the ERI was 72 versus a target of 70, and in June 2017 the ERI is 74 against a 2017 target of 72.

An increased ERI score is reflected in a reduction in Forced Loss Rate (FLR), a measure of the amount of gross unplanned production losses in a period of time. In 2015 and 2016, Pickering achieved its two best FLR values ever, 2.89% and 4.08% respectively.

2.6.2 Major Components

The *Major Components Program* is described in program document N-PROG-MA-0025. It establishes an integrated set of processes and activities to demonstrate fitness for service of Fuel Channels, Feeders, Steam Generators and Reactor Components and Structures, and develops long term life cycle management strategies for continued operation.

This program ensures that these four major components will perform safely and reliably until the end of commercial operations, maintaining design and licensing bases and operational safety requirements while optimizing production and cost-effectiveness.

Fuel Channels

The fuel channel life cycle management program facilitates the safe operation of the fuel channels to the Pickering specified targeted operating life, and is constructed based on many years of inspection, monitoring, and mitigation of known degradation mechanisms. With the implementation of the Fuel Channel Life Cycle Management Plan (LCMP), N-PLAN-01060-10002, OPG will continue to demonstrate that these degradation mechanisms are understood, and confirm that component condition remains acceptable via monitoring and inspection.

OPG's planned research and development activities continue to support demonstration of understanding of key degradation mechanisms, material properties and component fitness for service. Research and development findings, as well as inspection results and industry operating experience are incorporated into the fuel channel program to maintain adequate margins on fitness for service for the station operational life. Enhancements and improvements in engineering assessments have provided margin and incorporation of new models from the applicable standards.

Steam Generators

The goal of the steam generator life cycle management program is to maintain steam generator performance and reliability for operation until the end of commercial operation through the implementation of the LCMP, N-PLAN-33110-10009.

Steam Generators are closely monitored by an inspection program to manage active and plausible degradation mechanisms. The inspection results demonstrate that life-limiting degradation mechanisms are being monitored and mitigated. There were no boiler tube leaks detected in the current licensing period. This is due to sound inspection and maintenance strategies, which complies with standard CSA N285.4 Clause 14 requirements.

Through the inspection program, a new degradation mechanism was discovered in the steam generators on Pickering Unit 4. Based on strong technical rigor, detailed analysis, and conservative decision making, the degradation is under control and mitigating actions have been implemented.

Feeders

The goal of the feeder piping system life cycle management program is to maintain the integrity of the feeder piping system until the end of commercial operation through the implementation of LCMP, N-PLAN-01060-10001.

The Pickering feeder piping system's continuing fitness for service is demonstrated by inspection and assessment activities. Advanced stress analysis methodologies have been used to demonstrate that the required minimum wall thickness can be safely reduced in order to minimize or eliminate feeder replacement resulting from flow accelerated corrosion. Feeder fretting and contact with other components will continue to be closely monitored with visual inspections and with the incorporation of operating experience.

The COG Feeder Joint Integrity Project has produced feeder fitness for service guidelines, which are used in addition to ASME codes, as acceptance criteria for feeder degradation assessments. A feeder replacement schedule is developed from the most recent feeder thinning inspections and assessments of remaining life based on minimum required wall thickness, to demonstrate fitness for continued service. Feeder replacements will continue to be assessed for Pickering out to end of commercial operation.

Reactor Components and Structures

The Reactor Components and Structures LCMP, N-PLAN-01060-10003, is intended to establish the strategy or identify necessary actions to ensure that the effects of aging on reactor components and structures are appropriately managed for the plant operating life. The plan is updated annually and assessments are incorporated into the life cycle management strategies.

Reactor component and structures inspections and assessments continue to demonstrate fitness for service of these components. OPG expects that continued inspections and monitoring will effectively manage the degradation mechanisms to the end of commercial operation.

2.6.3 Aging Management

The *Integrated Aging Management* (IAM) Program, documented in N-PROG-MP-0008 ensures that the condition of Structures Systems and Components (SSC) and critical station equipment is understood and that required activities are in place to assure the health of the SSC's, through plant aging.

Integrated aging management is implemented with the following programs:

N-PROG-MA-0025, *Major Components* develops long-term life cycle management strategies that support continued fitness for service for major components.

The life cycle plans are established by a comprehensive Condition Assessment (CA) process. Condition assessments supplement the ongoing engineering surveillance activities in place to monitor and optimize system performance. These CA's focus on the aging mechanisms, current condition and recommended actions required to maintain the health of the component in order to reach Pickering NGS end of commercial operation.

N-PROG-MA-0026, *Equipment Reliability* establishes the process for Equipment Reliability (ER) for critical components. The ER Program and its implementing procedures ensure that critical components meet their defined or desired level of reliability for the lifespan of the station.

N-PROG-MA-0017, *Component and Equipment Surveillance* defines the requirements for the surveillance of a select set of components including inspection, maintenance, certification, and testing. Heat exchangers, check valves and power operated valves are examples of the defined component programs. Pipe wall thickness, pressure relief valves and buried piping are examples of equipment undergoing inspection and testing programs.

2.6.4 Periodic Inspection and Testing

The objective of the periodic inspection program and the in-service inspection program is to ensure pressure boundary integrity, fitness for service, and aging management of the nuclear plant systems and components in Pickering.

The program provides assurance that the likelihood of a failure that could endanger health and safety is being maintained low.

The programs are documented in specific periodic inspection program plans and associated inspection schedules and they are administered under nuclear and station governing documents.

The periodic inspection program for standard CSA N285.4, *Periodic Inspection of CANDU Nuclear Power Plant Components*, consists of approximately 300-600 inspection items for each of the six operating units. Each scheduled item is normally inspected once within each 10-year cycle. Inspected components include: piping and vessel welds, pumps, valves, pipe and component supports, heat exchangers, and mechanical couplings.

The periodic inspection program for standard CSA N285.5, *Periodic Inspection of CANDU Nuclear Power Plant Containment Components*, consists of approximately 100 inspection items for Unit 0 and 200-600 inspection items for each of the six operating units. Each item is normally inspected once within each 10-year cycle. Inspected components include: containment penetration seal welds, pipe supports, piping/ducting, valves, containment dampers and other components.

Baseline inaugural inspections are performed for newly installed equipment and components that are inspected under either the CSA N285.4 or CSA N285.5 program. These inspections are used to establish the condition of the SSC at the time it was placed into service. This ensures that when the standard inspections are performed on 10-year cycles there will be at least one previous result for each SSC, thus always allowing for comparative analysis between inspection results.

Inspections/testing of Vacuum Building (VB) and Pressure Relief Duct (PRD) containment structures were last performed during the 2010 Vacuum Building Outage under CSA N287.7, *In-Service Examination and Testing Requirement for Concrete Containment Structures for CANDU Nuclear Power Plants*. Inspection activities involved concrete components, vacuum building joint sealant, vacuum building roof seal and pressure relief duct joint seals. Pickering NGS will continue to meet regulatory requirements for VB and PRD inspections.

Structural Integrity

The station's principal structures consist of eight reactor buildings, two main control rooms (one for Pickering Units 1-4 and one for Pickering Units 5-8), two reactor auxiliary bays, two powerhouses (including the turbine hall and turbine auxiliary bay, the Vacuum Building (VB) with its associated Pressure Relief Duct (PRD), a service wing, an administration building, two irradiated fuel bays, an auxiliary irradiated fuel bay, a heavy water upgrading building, two screenhouses, a water treatment

building, a high pressure Emergency Coolant Injection (ECI) pumphouse, and an ECI water storage tank. The administration and service buildings, heavy water upgrading building, VB and ECI structures serve the entire unit station.

Pickering NGS follows the CSA standard N285.5, *Periodic Inspection of CANDU Nuclear Power Plant Containment Components* and CSA standard N287.7, *In-service Examination and Testing Requirements for Concrete Containment Structures for CANDU Nuclear Power Plants*, for reactor building integrity.

The reactor building undergoes inspection for integrity during every planned unit outage. These inspections are covered under the Periodic Inspection Plan (PIP) which is overseen by the Components Engineering group. A reactor building pressure test is performed every 6 years to check for reactor building leak tightness.

The Units 1-4 underwater concrete structure and the Units 5-8 underwater concrete structure were inspected during the station vacuum building outage in 2010, to confirm their structural integrity and operational adequacy. The topic of the condition of the underwater concrete structures was discussed at the previous Pickering licence renewal hearings, and the matter continues to be managed as part of OPG's aging management program and is being considered via the PSR process in support of continued operations.

2.6.5 Non-destructive Examination

Non-destructive Examination (NDE) has a direct bearing on the safe and reliable operation of nuclear facilities and is performed in accordance with applicable codes and standards. NDE is governed by I-STD-AS-0003, *Non-Destructive Examination*, which ensures that NDE is conducted in a planned and controlled manner using approved procedures and qualified personnel.

Inspection and Maintenance Services (IMS), a division of Ontario Power Generation Nuclear (OPGN), provides inspection, specialized maintenance, project management, and technical services to nuclear and non-nuclear facilities in accordance with program document I-PROG-AS-0001, *Conduct of Inspection and Maintenance Services*.

2.6.6 Chemistry Control

The objective of the *Chemistry* program, N-PROG-OP-0004, is to specify processes, requirements, and staff accountabilities to ensure effective control of plant chemistry, including provision of analytical services. The chemistry program covers activities associated with overall objectives of controlling plant chemistry in order to ensure safe plant operation and to protect the long term life of SSC's.

The Chemistry Performance Index (CPI) compares the concentration of selected impurities and corrosion products to corresponding limiting values, with focus on secondary system chemistry. The limiting values are periodically reviewed against industry best practices to ensure they continue to represent challenging targets. The measure is reported as a twenty-four month rolling average.

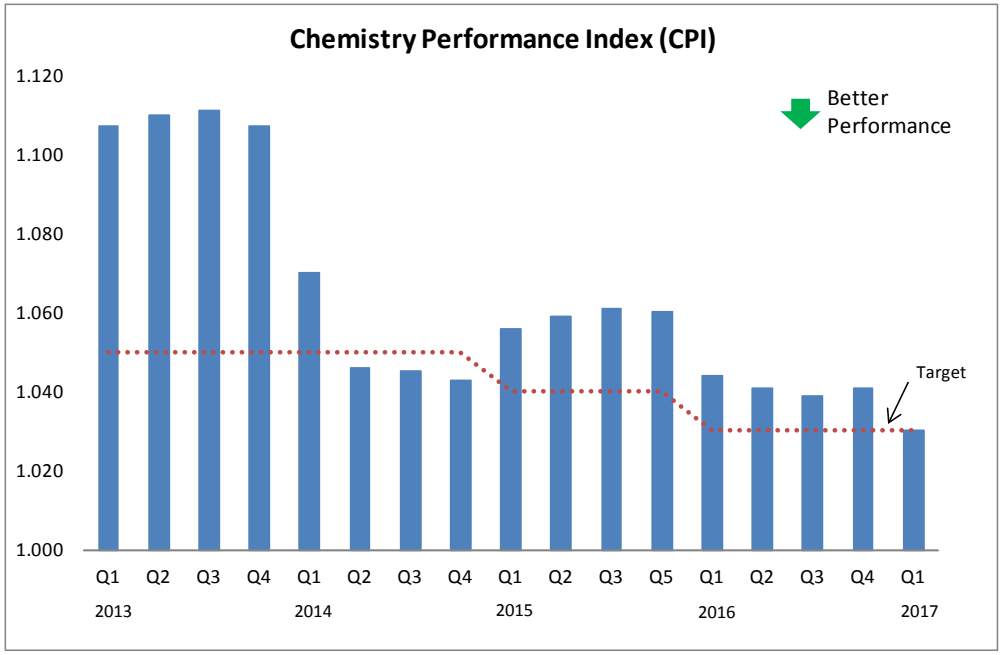


Figure 7 - Chemistry Performance Index (CPI)

As shown in Figure 7, the trend indicates improving performance. This is a reflection of combined efforts to improve the water treatment plant performance, as well as to improve start-up chemistry and outage practices, and to eliminate condenser cooling water ingress.

2.6.7 Maintenance

Program document N-PROG-MA-0004, *Conduct of Maintenance* is designed to ensure plant equipment is maintained to maximize safety and reliability through effective implementation and control of maintenance activities.

The Maintenance programs are organized to align closely with the Engineering, Work Management, Operations and Supply Chain organizations to support equipment fitness for service requirements.

The intent of the maintenance program is to ensure that safety systems remain available and that equipment failures are minimized. This is accomplished through corrective and preventive maintenance activities as well as routine inspections of system components to ensure they continue to operate as expected. N-PROG-MA-0019, *Production Work Management Program*, details the requirements for identifying, prioritizing, planning, scheduling and executing work in support of the operation, maintenance and modification of the plant.

Maintenance is a key component in equipment reliability. The Maintenance Department is focusing on improving maintenance technical skills, maintenance fundamentals and craftsmanship in order to assure the quality of the maintenance at Pickering.

2.6.8 FH Reliability

A primary focus of the Pickering NGS Fuel Handling (FH) group is to improve FH equipment reliability (ER). In 2014/2015 an Equipment Reliability Index (ERI) metric was developed specifically for FH in conjunction with the COG peer team to track ER improvement. Pickering NGS is taking the lead on various changes to the FH ERI metric indicators in order to improve its ability to accurately reflect ER condition in the station, and to aid as a predictor and tool for driving ER improvements. FH ERI has trended upwards since 2015.

Pickering NGS FH developed a reliability plan in 2012/2013 based on key performance indicators in specific equipment areas. From 2014 onwards, annual self assessments have been performed to analyze the overall effectiveness of the ER strategy. This plan has been modified over the years to best reflect the station's current needs.

The primary lagging indicator for FH ER is Forced Loss Rate due to FH equipment issues. FLR related to FH equipment was approximately 1.54% in 2016, with year to date for 2017 showing improvement from the 2016 value.

Some examples of recently completed reliability initiatives include the 014 Fuelling Machine (FM) 90 degree rotation modification, which eliminated obsolescence and reliability concerns; the D_2O and head oil supply filter element upgrades, and the FM cable catenary replacements. Progress continues on repairing the Irradiated Fuel Bay 'B' (IFB-B) liner leakage.

Planned Improvements

One of the major reliability focus areas for 2017/2018 is the upgrade to the FM ram seals, which is a joint project between OPG, COG and New Brunswick Power - Point Lepreau. This seal redesign is expected to mitigate the primary failure modes of the current seals, decrease failure rates, and extend the life of the ram seals.

2.6.9 Maintenance Backlog

Pickering Nuclear endeavours to ensure that work is prioritized, planned and executed in a manner that focuses on maintaining personnel and nuclear safety, increases plant equipment reliability and reduces the station Forced Loss Rate.

Part of the prioritization of this work is in identifying components important to safety and reliability and to ensure that where those components can no longer reliably perform their function, that the repair is executed with priority. These components receive coding per N-PROC-MA-0008 as either Corrective Critical (CC) or Corrective Non-Critical (CN), depending on component risk ranking.

It is a priority to ensure that CC and CN backlog is maintained low, which in turn allows important preventive maintenance programs to be executed and maintain system designed redundancy.

As shown in the Figure 8, the volume of corrective maintenance backlog work orders continues to steadily decrease since 2014.

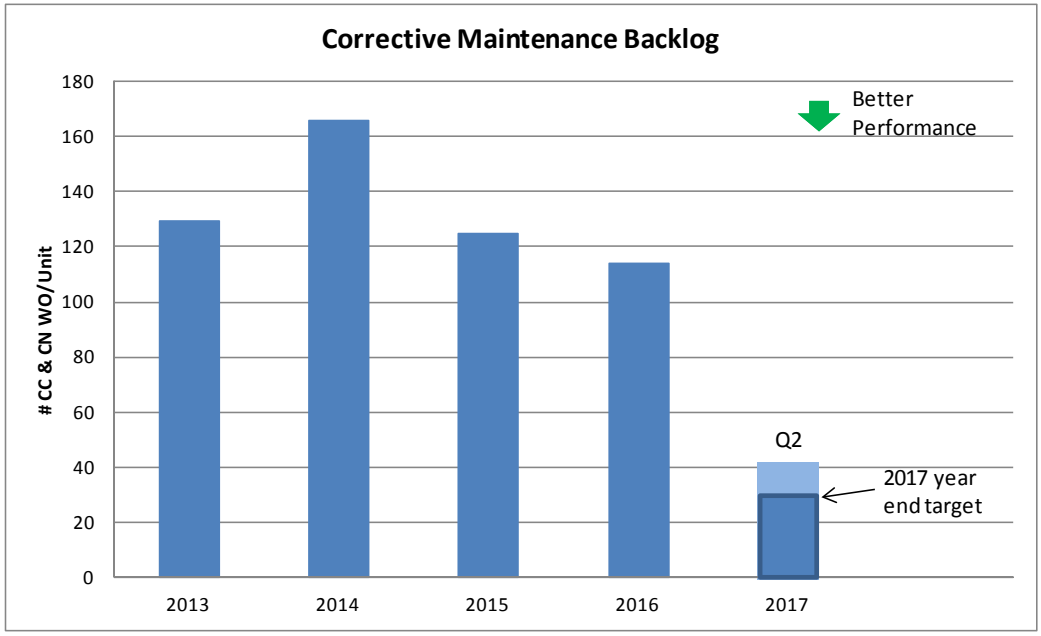


Figure 8 - Maintenance Backlog

2.6.10 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document	Title
N-PROG-MA-0004	Conduct of Maintenance
N-PROG-MA-0017	Component and Equipment Surveillance
N-PROG-MA-0019	Production Work Management
N-PROG-MP-0008	Integrated Aging management
N-PROC-MP-0060	Aging Management Process
N-PROC-MA-0013	Planned Outage Management
N-PROC-MA-0049	Forced Outage Management
N-PROG-MA-0026	Equipment Reliability
N-PROG-RA-0016	Risk and Reliability Program
N-STD-RA-0033	Reliability and Monitoring of Systems Important to Safety
NA44-REP-03611-00004	Pickering A Systems Important to Safety
NK30-REP-03611-00024	Pickering B Systems Important to Safety
P-INS-03611-00001	Pickering Reliability Instruction
P-LIST-06937-00001	Pickering A and B List of Safety Related Systems
N-PROG-OP-0004	Chemistry
N-PROG-MA-0025	Major Components
N-PLAN-01060-10001	Feeders Life Cycle Management Plan
N-PLAN-01060-10007	Feeders Life Cycle management Plan: Technical Basis Document
NA44-PIP-33126-00002	Pickering Nuclear Unit 1 Fuel Channel Feeder Pipes Periodic Inspection Program Plan
NA44-PIP-33126-00001	Pickering Nuclear Unit 4 Fuel channel Feeder Pipes Periodic Inspection Program Plan

Document	Title
NK30-PIP-33126-00001	Pickering Nuclear Unit 5 Fuel channel Feeder Pipes Periodic Inspection Program Plan
NK30-PIP-33126-00002	Pickering Nuclear Unit 6 Fuel channel Feeder Pipes Periodic Inspection Program Plan
NK30-PIP-33126-00003	Pickering Nuclear Unit 7 Fuel channel Feeder Pipes Periodic Inspection Program Plan
NK30-PIP-33126-00004	Pickering Nuclear Unit 8 Fuel channel Feeder Pipes Periodic Inspection Program Plan
COG-JP-4107-V06	Fitness-for-Service Guidelines for Feeders in CANDU Reactors
N-PLAN-33110-10009	Steam Generators Life Cycle Management Plan
NA44-PLAN-33110-10003	Picketing Units 1 and 4 Steam Generator life Cycle Management Plan (Excluding Sheet Sections 001 to 007)
NA44-PLAN-33110-10003 Sheet Sections 001 to 007	Pickering Units 1 and 4 Steam Generator Life Cycle Management Plan- Pickering Units 1 and 4 Steam Generators In-Service Inspection Plan
NK30-PLAN-33110-10008	Pickering Units 5 – 8 Steam Generator Life Cycle Management Plan (excluding Sheet Sections 001 to 007)
NK30-PLAN-33110-10008 Sheet Section 006	Pickering Units 5-8-In-Service Inspection Plan
COG Report 07-4089	Fitness-For-Service Guidelines for Steam Generator and Pre-heater Tubes
N-PLAN-01060-10002	Fuel Channels Life Cycle Management Plan
N-REP-31100-10041	Acceptance Criteria and Evaluation Procedures for Material Surveillance Pressure Tube
N-REP-31100-10055	Report on technical basis for Fuel Channel Aging and Life Cycle Management Strategy and Plan
NA44-PIP-31100-00001	Pickering Nuclear 1-4, Unit 1 Fuel Channel Pressure Tubes Periodic Inspection Program Plan
NA44-PIP-31100-00004	Pickering Nuclear 1-4, Unit 4 Fuel Channel Pressure Tubes Periodic Inspection Program Plan
NK30-PIP-31100-00001	Pickering Nuclear 5-8, Unit 5 Fuel Channel Pressure Tubes Periodic Inspection Program Plan
NK30-PIP-31100-00002	Pickering Nuclear 5-8. Unit 6 Fuel Channel Pressure Tubes Periodic Inspection Program Plan
NK30-PIP-31100-00003	Pickering Nuclear 5-8, Unit 7 Fuel Channel Pressure Tubes Periodic Inspection Program Plan
NK30-PIP-31100-00004	Pickering Nuclear 5-8, Unit 8 Fuel Channel Pressure Tubes Periodic Inspection Program Plan
NA44-CORR-00531-06621	Letter, G Jager to T.E. Schaubel, “Notification of Correction of Pickering ”A” Fuel Channel Periodic Inspection Program Plans, Attachment 1” December 23, 2010
N-REP-31100-10055	Report on Technical Basis for Fuel Channels Life Cycle Management Plan
N-PLAN-01060-10003	Reactor Components and Structures Life Cycle Management Plan
N-PLAN-01060-10008	Reactor Components and Structures Life Cycle Management Plan: Technical Basis Document
NA44-PIP-03641.2-00001	Pickering Nuclear Generating Station A Periodic Inspection Plan for Unit 1
NA44-PIP-03641.2-00007	Pickering Nuclear Generating Station A Periodic Inspection Plan for Unit 4
NK30-PIP-03641.2-00001	Pickering Nuclear Generating Station B Periodic Inspection Plan for Unit 5
NK30-PIP-03641.2-00002	Pickering Nuclear Generating Station B Periodic Inspection Plan for Unit 6

Document	Title
NK30-PIP-03641.2-00003	Pickering Nuclear Generating Station B Periodic Inspection Plan for Unit 7
NK30-PIP-03641.2-00004	Pickering Nuclear Generating Station B Periodic Inspection Plan for Unit 8
N-PLAN-01060-10004	Aging Management Plan for Containment Structures
NA44-PLAN-34220-00002	Life Cycle and Aging Management Program Plan for Fibreglass-Reinforced Plastic Components in the Pickering NGS Vacuum Building
NA44-PIP-03642.2-00001	Pickering Nuclear Generating Station A Periodic Inspection Program for Containment Components
P-PIP-03642.2-00001	Pickering Nuclear Generating Station A Periodic Inspection Program For Unit 0 Containment Components
NK30-PIP-03642.2-00001	Pickering Nuclear Generating Station B Periodic Inspection Program for Containment Components
NA44-PIP-03643.2-00001	Pickering Nuclear GSA – Reactor Building Periodic Inspection Program
NK30-PIP-03643.2-00001	Pickering Nuclear GSB – Reactor Building Periodic Inspection Program
NA44-PIP-03643.2-00002	Pickering Nuclear GS – PRD & VB Periodic Inspection Program
NA44-PIP-03643.2-00003	Pickering Nuclear GS – Vacuum Building Post Tensioning Rods Periodic Inspection Program
NA44-REP-34200-00017	Pickering NGS “A” Reactor Building and Pressure Relief Duct In-Service Leakage Rate Test Requirements in Accordance with CSA N287.7-08
NA44-REP-25100-00009	Pickering NGS Vacuum Building In-Service Leakage Rate Test Requirements in accordance with CSA N287.7-08
N-PROC-MA-0066	Administrative Requirements for In-Service Examination and testing for Concrete Containment Structures

2.7 Radiation Protection

Pickering NGS has an effective radiation protection program that meets or exceeds all applicable regulatory requirements and related objectives. The health and safety of persons is protected through the implementation of this program, which ensures that radiation doses are kept below regulatory dose limits and are optimized and maintained as low as reasonably achievable (ALARA).

For specific areas within this SCA, the following subsections describe the objectives, key results from the current licensing period, and planned improvements. These discussions also support that:

- Radiological impacts of plant operation to workers and the public will continue to be of acceptably low risk and adequately mitigated (e.g., Sections 2.7.1 to 2.7.3)

2.7.1 Radiation Protection Program

The Radiation Protection (RP) program is described in program document N-PROG-RA-0013, *Radiation Protection*. The objective of the RP Program at Pickering is to control occupational and public exposure to radiation.

For the purposes of controlling doses to workers, this program has four implementing objectives:

- Keeping individual doses below regulatory limits.
- Avoiding unplanned exposures.
- Keeping individual risk from lifetime radiation exposure to an acceptable level.
- Keeping collective doses As Low As Reasonably Achievable (ALARA), social and economic factors taken into account.

In terms of protecting the public, the RP program prevents the uncontrolled release of contamination or radioactive materials from the site by controls and monitoring of people and materials. The RP program includes a set of action levels to provide an alert before a regulatory dose limit is reached.

2.7.2 Application of ALARA

The *Radiation Protection* program, N-PROG-RA-0013, implements a series of standards and procedures for the conduct of activities within the nuclear station and with radioactive materials intended to keep radiation exposure to workers - As Low as Reasonably Achievable (ALARA).

The Pickering ALARA strategy identifies initiatives, actions and programs that support achieving these objectives. The strategy applies to all units at Pickering, whether operating, in outage or in safe storage. Equally, the strategy applies to all staff, contractors and visitors at Pickering. The strategy is updated annually to reflect the results of benchmarking, corrective action plans and industry best practices. Management of collective dose is implemented in N-STD-RA-0018, *Controlling Exposure as Low as Reasonably Achievable*.

Collective dose performance targets for Pickering are established annually by OPG. Annual targets take into account planned maintenance outage scope, past performance, and anticipated dose savings from planned initiatives and application of ALARA techniques. As work is planned in more detail, collective dose projections are reviewed and actions taken to ensure dose is ALARA. Actual performance against targets is reviewed and corrective actions taken where expectations are not met. Refer to Figure 9 for a historical summary of results over the current licence term.

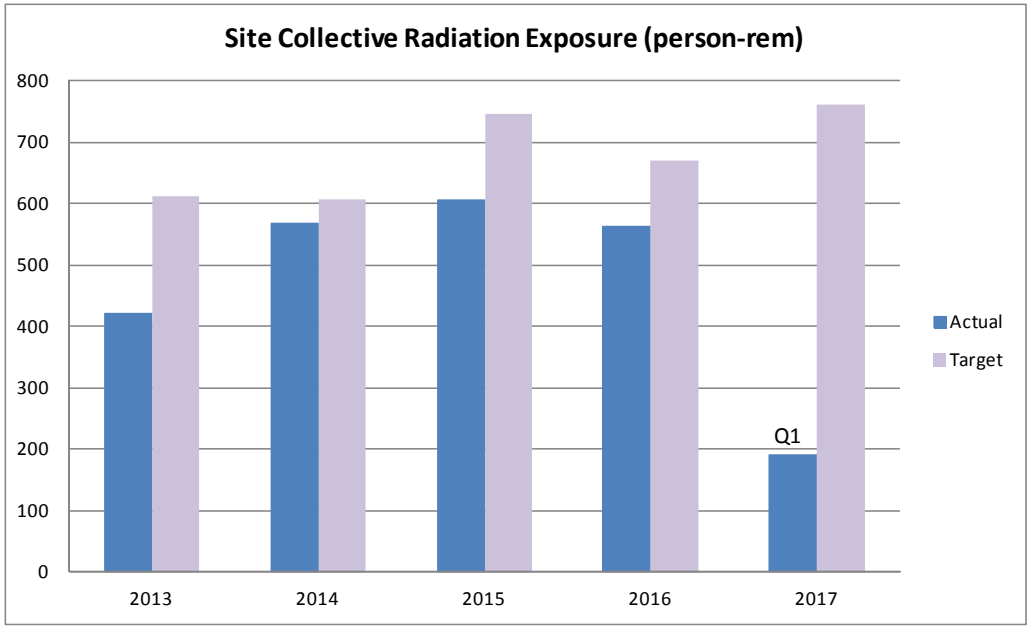


Figure 9 - Site Collective Radiation Exposure

Pickering has been successful with actual Collective Radiation Exposure (CRE) better than the targets, which was achieved through the implementation of increased line accountability for dose and improvements driven through lessons learned and OPEX. This is evidenced by continued dose performance improvement during major outage evolutions such as feeder inspections, fuel channel reconfigure, single fuel channel replacement, jigsaw installation and removal, and boiler primary side inspections.

Pickering ALARA strategy initiatives that contributed to improved dose performance include improved shielding and fine mesh heat transport filters to reduce dose rates from system equipment.

2.7.3 Worker Dose Control

Worker exposures are planned and managed to ensure doses are kept well below regulatory limits and to ensure unplanned exposures are avoided. Individual worker doses, including those for contractors and visitors, are managed to exposure control levels that are below administrative dose limits, which are in turn below the regulatory limits. This ensures individual risk from lifetime radiation exposure is kept to an acceptable level.

The worker dose control program at Pickering is managed through the assessment of hazards and maintaining knowledge of conditions in order to plan radioactive work using best practices.

During the current licence period from 2013 to date, there were no worker doses at Pickering which exceeded regulatory or OPG administrative dose limits.

Since 2013, there has been continued strong performance in the precursor indicators related to worker dose control such as the number of Electronic Personal Dosimeter (EPD) dose alarms and precursor-level tritium uptakes (see Figure 10 and Figure 11). These precursor indicators are the tracking of low level events used to identify and correct behaviours, or improve radiation work plans, thus preventing more significant events from occurring.

This level of performance is attributed to improved line accountability, planning tritium exposure, and focus on preventing alarms.

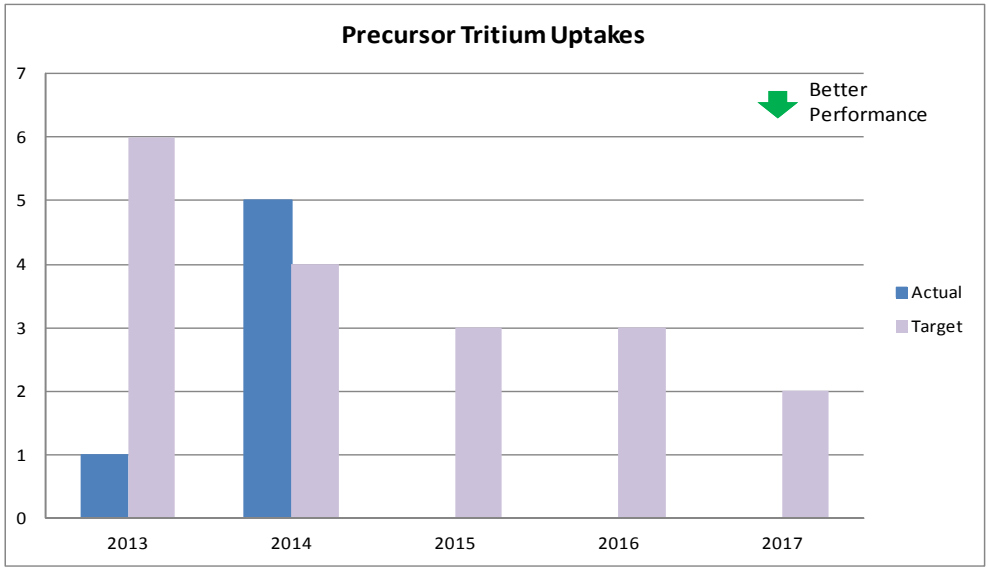


Figure 10 - Precursor Tritium Uptakes

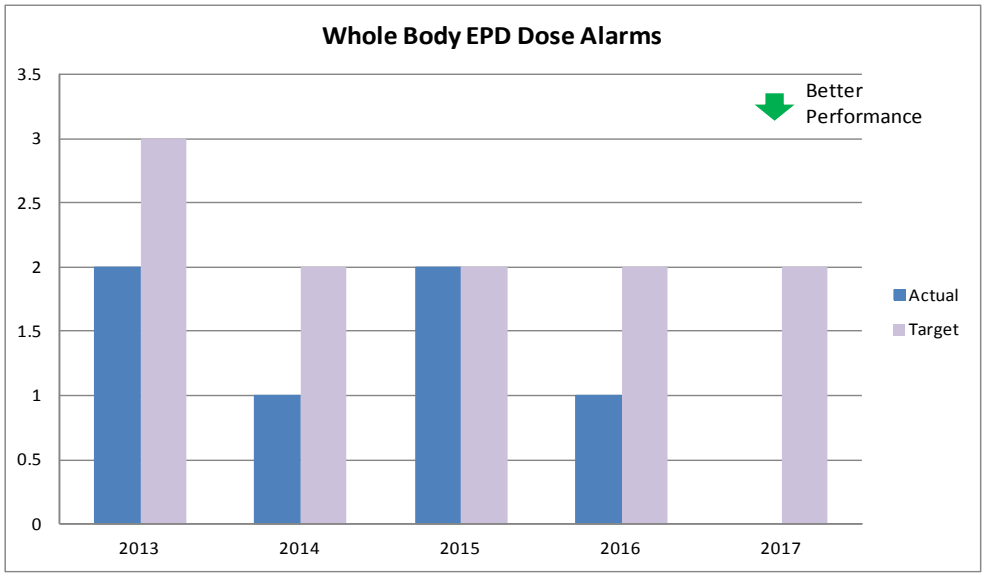


Figure 11 - Whole Body EPD Dose Alarms

A recent enhancement has been the implementation of individual dose goals for work executed in the field. These dose goals provide a platform for workers and supervisors to set challenging targets for their work each day (that are below the limits of their radiation exposure permit) and use comparison of their actual dose vs. target as an opportunity to identify and implement dose improvement initiatives.

Pickering's effective use of technology has been recognized as industry leading. Significant improvements have been made in the use of teledosimetry, remote on-line hazard monitoring and digital hazard display boards. Continuous monitoring of hazard levels and remote monitoring of worker dose reduce the risk of workers working in changing hazard conditions and ensure dose is kept ALARA.

2.7.4 Radiological Hazard Control

Radiological hazard surveys are performed using approved instruments on both a routine basis and prior to performance of radioactive work. Remote instrumentation is used to provide real-time hazard information to staff. Robotic equipment is used by Operations staff to reduce exposure during on-power entries, and allow for searches in areas previously inaccessible. In one case, robotic equipment was used to remove and contain active debris from a steam generator drain line with a high dose rate. The work was executed event free and within the dose target established for the job. This remote instrumentation and use of robotics has reduced exposure to staff.

Contamination control ensures that contamination is prevented from leaving the radiological controlled area, and the spread of contamination within this area is minimized.

The protected area (inside the inner security fence) of the station is divided into zones to facilitate contamination control. Boundaries of the zones are well marked and changes to the boundaries are approved by the Responsible Health Physicist. Workers moving through the radiological zones monitor themselves and material as required when crossing zone boundaries (depending on the direction of travel) and at other designated monitoring points. Loose surface contamination is not tolerated within the radiological zones except within established contamination control areas. Whole Body Contamination Monitor alarm setpoints have been reduced on exit and interzonal personnel contamination monitors. The lowered detection limit allows for continued improvements in detecting and monitoring for contamination.

Certain areas of the station are subject to high radiation fields as a result of normal reactor operation, irradiated fuel transfer, equipment operation or exposure of calibration sources. Accidental entry to these areas is prevented through the use of locked access points. When work is required in these areas, workers use procedures and physical controls to ensure the access hazards are not present or, if present, are strictly controlled.

2.7.5 Occupational Radiation Protection Action Levels

Section 6 of the *Radiation Protection Regulations* specifies requirements related to action levels and the timeline for notification when an action level has been reached. These action levels are precautionary levels, below the actual regulatory limits.

As required by the *General Nuclear Safety and Control Regulations,* the action levels for Pickering NGS are documented in N-REP-03420-10001, *Occupational Radiation Protection Action Levels for Power Reactor Operating Licences.*

2.7.6 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document	Title
N-PROG-RA-0013	Radiation Protection
N-STD-RA-0018	Controlling Exposure As Low As Reasonable Achievable
OPG-PROC-0132	Respiratory Protection
N-REP-03420-10001	Occupational Radiation Protection Action Levels for Power Reactor Operating Licences
N-PROC-RA-0019	Dose Limits and Exposure Control

2.8 Conventional Health and Safety

Pickering NGS has an effective Conventional health and safety program that meets or exceeds all applicable regulatory requirements and related objectives. Conventional health and safety work practices and conditions at the station result in a high degree of personnel safety.

The following describes the objectives, key results from the current licensing period, and planned improvements in this area. These discussions also support that:

- Worker safety is taken seriously at Pickering NGS and plant personnel are protected from conventional hazards such that the associated risk is low.

2.8.1 Conventional Health and Safety Program

The foundation of OPG's Health and Safety Management System is the *Employee Health and Safety Policy,* OPG-POL-0001, which describes the approach and commitments to conventional health and safety for the organization, and the requirements and accountabilities of all employees. OPG is committed to preventing

workplace injuries and to continuously improve employee health and safety performance.

OPG's *Health and Safety Management System Program*, OPG-PROG-0010 puts the Health and Safety Policy into action. The Health and Safety Management System program and supporting governing documents establish process requirements that protect employees by ensuring they are working safely in a healthy and injury-free workplace. It also outlines the responsibilities of various levels in the organization to ensure activities are performed to meet the requirements of OPG's Health and Safety Policy.

During the current licensing period, Pickering NGS has demonstrated strong safety performance throughout its operations.

In 2014, Pickering NGS reached 11 million hours without a lost time accident with an All Injury Rate of 0.22 which represented the best performance achieved for the station.

In November 2016, OPG received the Canadian Electricity Association President's Gold Award of Excellence for Employee Safety in recognition of the company-wide All Injury Rate and Accident Severity Rate performance for 2013, 2014 and 2015.

All Injury Rate

As shown in Figure 12, Pickering NGS All Injury Rate performance was better than target from 2013 through 2015. For 2016, an executive leadership decision was made to challenge the organization's All Injury Rate targets and accelerate the drive towards zero injuries. While the new target has been challenging to the organization, it has driven a sharper focus on low level safety events and injury prevention. The current rate for 2017 is zero.

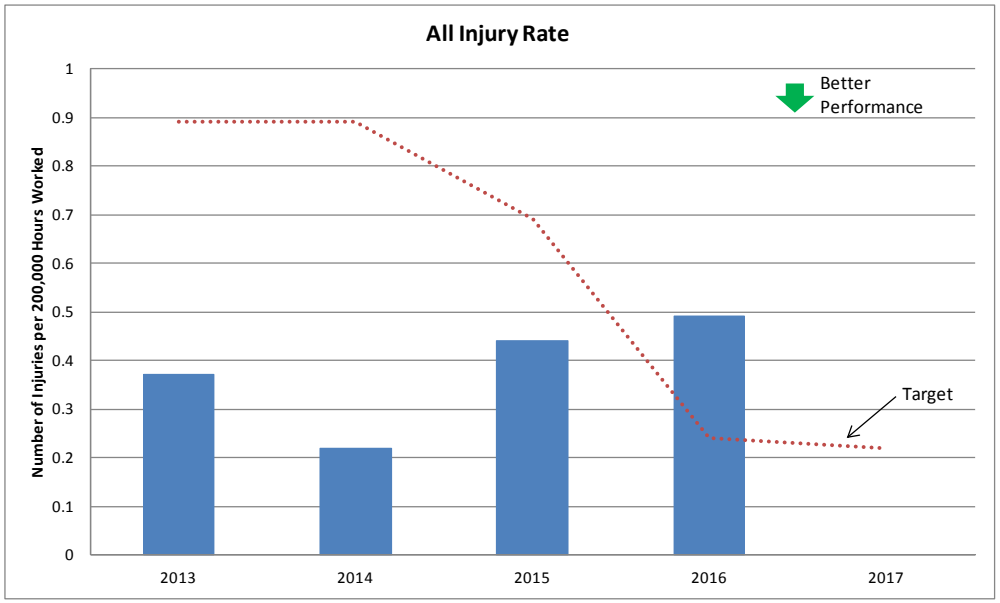


Figure 12 - Pickering All Injury Rate vs. Target

Accident Severity Rate

Pickering's Accident Severity Rate performance over the current licensing period was very good overall. However, in 2016, a slip and fall injury in a change room resulted in 120 days of lost time, which dramatically impacted Pickering's Accident Severity Rate. The incident was reviewed and lessons learned were reinforced.

Safety Enhancements

A number of health and safety enhancements have been made to the program, equipment and systems at Pickering NGS, during the current licensing period.

OPG has implemented an "iCare" safety culture initiative aimed at elevating worker safety culture where employees are self-motivated to work safely. Following established rules and procedures forms the foundation for the OPG health and safety programs, however, following rules is not enough to achieve the goal of zero injuries. OPG introduced the concept of "iCare Enough to Act for Safety" because all employees must care enough to act to protect themselves and each other. OPG cares that all employees get home safely to their families at the end of each day.

Some further safety enhancement initiatives include:

- Implementation of a Total Health initiative aimed at fostering a stronger employee health culture with a focus on enhanced support and mental health training. This initiative supports employees and their families in their efforts to achieve an optimal level of health and functioning, primarily through health education, health promotion, disease and injury prevention, and crisis intervention. Some examples include implementation of a mental health training program for people leaders, mental health stigma awareness campaign, access to confidential personal health assessments, and Employee Family Assistance Program resource awareness.
- Focused campaigns aimed at heightening and improving situational awareness in order to improve employee ability to recognize hazards by anticipating them, looking out for changing conditions in the work environment and taking action. This includes injury prevention for non-routine activities and even routine activities such as walking.

2.8.2 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document	Title
OPG-POL-0001	Employee Health and Safety Policy
OPG-PROG-0010	Health and Safety Management system Program
N-PROG-MA-0015	Work Protection

Document	Title
OPG-PROC-0132	Respiratory Protection
N-PROG-RA-0012	Fire Protection
P-LIST-71400-00001	Application of CSA N293-07 to Structures, and Components for Pickering Nuclear

2.9 Environmental Protection

Pickering NGS has an effective environmental protection program that meets or exceeds all applicable regulatory requirements and related objectives. All reasonable precautions are taken to ensure that adequate provisions for the protection of the environment are maintained.

For specific areas within this SCA, the following subsections describe the objectives, key results from the current licensing period, and planned improvements over the next licensing period. These discussions also support that:

- Impacts of plant operation to the environment and the public will continue to be of low risk and adequately mitigated (e.g., Sections 2.9.1, 2.9.3, and 2.9.7).
- Transparency and appropriate public consultations have been upheld and will continue (e.g., Section 2.9.1 regarding community engagement and Section 2.9.3 regarding external posting of effluent monitoring results).
- OPG continues to invest in Pickering to support environmental protection (e.g., Sections 2.9.4 and 2.9.7).

2.9.1 Environmental Policy

OPG's *Environmental Policy*, OPG-POL-0021, provides direction related to environmental performance and environmental management. This policy is approved by the OPG Board of Directors. It ensures that:

- OPG establishes an environmental management system registered to the ISO 14001 Environmental Management System standard;
- Adverse effects on the environment are prevented and mitigated with a long-term objective of continuous improvement in OPG's environmental management system and its environmental performance; and
- The Pickering site is managed in a manner that strives to maintain, or enhance where it makes business sense, significant natural areas and associated species of concern. This is achieved through the work with community partners to support regional ecosystems and biodiversity through science-based habitat

stewardship and by taking reasonable steps to manage any residual impact to these areas and species.

2.9.2 Environmental Management System (ISO 14001)

The OPG *Environmental Management* program, as documented in N-PROG-OP-0006, maintains an environmental management program consistent with the International Organization for Standardization (ISO) 14001 *Environmental Management System*.

OPG's environmental management program requires assessment of environmental risks associated with station activities, and to ensure that these activities are conducted such that any adverse impact on the natural environment is As Low as Reasonably Achievable (ALARA). This program includes OPG's approach to ensure compliance with applicable statutory and regulatory requirements.

The Environmental Management System (EMS) provides the structure and processes to ensure implementation and follow-up on management programs needed to deliver the environmental policy are achieved. As part of OPG's EMS, environmental performance targets and environmental compliance are reviewed annually to ensure that opportunities for continuous improvement are identified and implemented.

Annual internal environmental compliance audits are conducted, including components of the ISO 14001 EMS. Adverse conditions or opportunities for improvements are addressed following OPG's corrective action program.

2.9.3 Protecting the Public

Assessment and Monitoring

The monitoring program at Pickering is designed in accordance with CSA N288.5-11, *Effluent Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*. This monitoring program ensures that releases are ALARA and are within regulatory limits.

OPG provides the results of the Effluent Monitoring Program to the CNSC annually, and these results are also available to the public on the OPG website at www.opg.com.

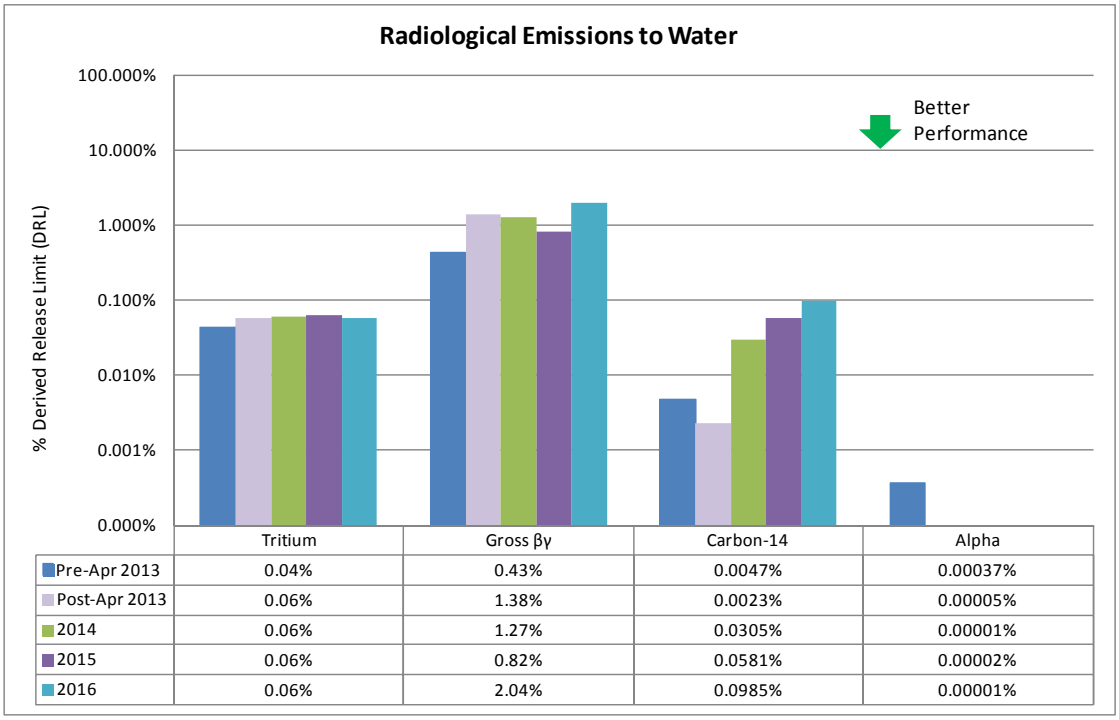
OPG began publishing quarterly environmental emissions data reports on OPG's external web-site in 2014, in response to questions asked in the 2013 Pickering licence renewal hearings. The reports include data related to radiological emissions to air and water, waste management facility monitoring results, and spills to the environment that are reportable to a regulatory authority.

Radiological Emissions to Water

During the current licence period, there were no Derived Release Limit (DRL) or action level exceedances for Tritium, Beta/Gamma, Carbon-14 or Alpha emissions to water on an annual basis. See Figure 13 for a historical summary. The DRL's were revised in 2013 which changed the historical values; therefore data are included as a percentage of the DRL before and after the revision.

Also from Figure 13, elevated waterborne Carbon-14 is a reflection of a larger amount of Spent Resin Storage Tank (SRST) water being sent and processed by Common Services (CS). This varies from year to year. CS received SRST water in January 2015 and in January/February 2016 for discharge via active liquid waste, which accounts for the higher Carbon-14 concentrations and corresponding loadings. Waterborne Carbon-14 still remains well below 1% of the DRL.

There was one reported monthly action level exceedance on Pickering 5-8 for Beta/Gamma to water in February 2016 from a routine sample. The elevated beta activity was detected in the reactor building service water from entrained lake sediment.



	Tritium	Gross βγ	Carbon-14	Alpha
Pre-Apr 2013	0.04%	0.43%	0.0047%	0.00037%
Post-Apr 2013	0.06%	1.38%	0.0023%	0.00005%
2014	0.06%	1.27%	0.0305%	0.00001%
2015	0.06%	0.82%	0.0581%	0.00002%
2016	0.06%	2.04%	0.0985%	0.00001%

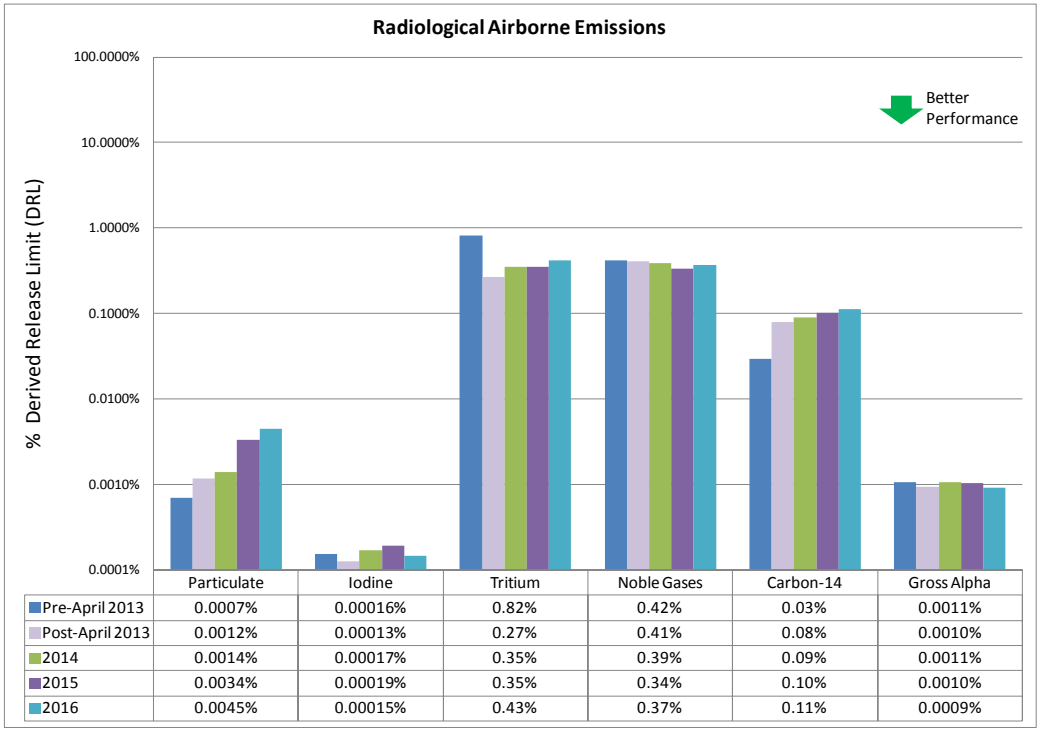
Figure 13 - Radiological Emissions to Water

Radiological Emissions to Air

During the current licensing period, Pickering Nuclear has not exceeded the Derived Release Limit (DRL) or the Action Level for any radiological emission to air on an annual basis. Details of the emissions can be found in Figure 14 - Radiological Airborne Emissions; as shown, emissions have been well below the licence limit.

Increased 2016 tritium emission values can be attributed mainly to an increase in airborne tritium releases which were as a result of tritiated water in the 056 fuel transfer conveyor tunnel, and overall dryer reliability. Actions were completed to reduce tritium emissions back to baseline values through the installation of portable dryers. A dedicated investigation team has determined the root cause of the tritiated water in the 056 fuel transfer conveyor tunnel was the construction joint seals in the floor of the Unit 5 moderator room. All of the identified degradations at the construction joints were repaired and additional sealant was applied. Post-maintenance testing confirmed the successful completion of the repairs.

A dryer reliability team is in place to improve vapour recovery equipment reliability and operating performance, to help further reduce tritium emissions.



	Particulate	Iodine	Tritium	Noble Gases	Carbon-14	Gross Alpha
Pre-April 2013	0.0007%	0.00016%	0.82%	0.42%	0.03%	0.0011%
Post-April 2013	0.0012%	0.00013%	0.27%	0.41%	0.08%	0.0010%
2014	0.0014%	0.00017%	0.35%	0.39%	0.09%	0.0011%
2015	0.0034%	0.00019%	0.35%	0.34%	0.10%	0.0010%
2016	0.0045%	0.00015%	0.43%	0.37%	0.11%	0.0009%

Figure 14 - Radiological Airborne Emissions

Conventional Emissions

Standby Generators and Emergency Power Generators are standby safety support systems designed to provide electrical power to critical nuclear systems in the event of a loss of normal supplies. As with any standby safety support system, routine testing is a regulatory requirement to confirm availability. Routine and non-routine testing of these generators results in the release of small quantities of carbon dioxide (CO_2), nitrogen oxides (NO_X), and sulphur dioxide (SO_2).

Pickering Nuclear uses some Ozone Depleting Substances (ODS) such as HydroChloroFluoroCarbons (HCFCs) and ChloroFluoroCarbons (CFCs), in water coolers, air conditioning systems and refrigerators. In accordance with continuous improvement efforts ODS emissions have been decreasing due to the installation of high efficiency purge units on the larger chillers in conjunction with post maintenance helium leak checks. In addition, Pickering 5-8 has installed and now operates R-123 containing chillers, replacing older R-11 (CFC) units. ODS emissions remain low, but variable.

The National Pollutant Release Inventory (NPRI) is an Environment Canada initiative, which provides public access to information regarding releases of specific chemicals from industrial sources. Pickering Nuclear's NPRI report includes hydrazine, nitrogen oxides (NO_X), particulate matter, and sulphuric acid.

The Ministry of the Environment and Climate Change (MOECC) regulates the use of the following chemicals which are used at Pickering NGS:

- Sodium hypochlorite is used to control zebra/quagga mussel infestation in piping systems at the station. Sodium hypochlorite is neutralized before release to the environment.
- Sodium hydroxide is used at the Water Treatment Plant (WTP). Sodium hydroxide is neutralized before release to the environment.
- Sodium metabisulphite is used to neutralize residual chlorine generated from sodium hypochlorite used to control zebra/quagga mussel infestation in piping systems at the station. Sodium metabisulphite is neutralized before release to the environment.
- Sulphuric acid is used at the WTP for regeneration of resin and neutralization. Sulphuric acid is neutralized before release to the environment.
- Ammonia and Morpholine are used as pH control.
- Hydrazine is used as an oxygen scavenger.

Pickering Nuclear controls and monitors certain waterborne discharge streams under the Municipal Industrial Strategy for Abatement (MISA) regulations, O. Reg. 215/95. The monitored discharge streams are the water treatment plant, radioactive liquid waste management system, and the inactive drainage system. Pickering Nuclear issues MISA quarterly reports to the Ministry of the Environment and Climate Change (MOECC).

All effluent streams that are monitored under O. Reg. 215/95 were discharged to the environment via approved pathways and were in compliance during the current licence period.

Groundwater Monitoring Program

The Pickering Nuclear groundwater monitoring program was established to confirm the predominant on-site groundwater flow characteristics of the Pickering Nuclear site. Monitoring is designed to detect changes to on-site groundwater quality to ensure timely detection of any inadvertent releases of nuclear and hazardous substances to groundwater. The overall objective of the program is to ensure no adverse off-site impacts from contaminants in groundwater.

In 2016, groundwater samples from 140 sampling points were collected. Collected samples were mainly analyzed for tritium, but several locations were also analyzed for petroleum hydrocarbons (PHCs), benzene, toluene, ethylbenzene, xylenes (collectively referred to as "BTEX"), and volatile organic compounds (VOCs).

Sampling points included monitoring wells, foundation drains, sumps, catch basins, and ground tubes. Based on the collected data, tritium concentrations at site-perimeter locations of Pickering Nuclear remain low and indicate that there were no adverse off-site trends. Tritium concentrations in groundwater at the Unit 1 Reactor Building area have declined substantially since 2012 as a result of corrective actions completed to mitigate the source of tritium from the foundation drainage sump.

As part of Pickering's annual groundwater monitoring program, data are collected from the site-perimeter monitoring wells and analysed statistically to identify any trends. The term "low" is descriptive and used in a qualitative fashion because there is no tritium in groundwater limits. In addition, a previous study indicated that the upper limit of expected tritium concentrations from atmospheric deposition for areas within the immediate influence of the station is 3.7×10^4 Bq/L. The concentrations at the site-perimeter locations are significantly lower than this value, as would be expected.

A source of tritium in the Unit 5 to 8 Reactor Building (RB) areas was attributed to historic releases from the RB foundation drainage sumps due to the failure of non-return valves. Pickering NGS has preventive maintenance scheduled to clean or replace the Unit 5 to 8 non-return valves.

In 2016, elevated tritium concentrations in the groundwater were identified in the vicinity of the Unit 5 and 6 RBs and a comprehensive investigation was initiated which determined the source to be the Unit 5 moderator room floor slab construction joint seals, as discussed previously. The increase in tritium concentration is due to leakage from the Unit 5 moderator sump through the floor slab joints and repairs have been completed.

Based on the groundwater migration pathway, tritium in groundwater identified in the vicinity of U5 and U6 reactor building is migrating northwards to the Inactive Drain (IAD) sumps. The combined discharge from the IAD sumps is sampled each shift and sample results are within the normal range. The monitoring of Unit 5 to 8 RB foundation drains and the RB foundation drainage sumps will continue in this area.

In this licence period (2013 - 2016) elevated tritium concentrations in groundwater were observed at the Pickering 5-8 Irradiated Fuel Bay area, with a maximum tritium concentration of 3.96×10^6 Bq/L in 2013 with a downward trend at the end of 2016. In 2013, OPG had initiated a project to repair the Pickering 5-8 Irradiated Fuel Bay liner and its collection sumps, which is expected to reduce the potential for the bay water to negatively impact site groundwater quality. The liner repair tooling has been

fabricated, tested and delivered and field repair as well as sump repair is expected to be completed by the end of 2017. Surveillance will continue to track the movement of tritium in groundwater in this area. It should be noted that this level of tritium in groundwater has no adverse environmental impact.

2.9.4 Spill Management Program

Pickering NGS has extensive programs to ensure the risk of spills to the environment is effectively assessed and managed.

Any spill that causes or is likely to cause an adverse effect must be reported to the Ontario Ministry of the Environment and Climate Change (MOECC). Within OPG, reportable spills to the MOECC have been classified as Category A (major), Category B (moderate) and Category C (minor) depending on criteria such as environmental impact and quantity of substance released.

From 2013-2017, there were no Category A or Category B spills and 12 Category C spills at Pickering Nuclear. The Category C spills are listed below. The number of Category C spills has been declining at Pickering Nuclear since 2004; this improvement is attributed to improved environmental awareness and to more stringent spill control practices.

2013	1)	4 L of ethylene glycol from an air conditioning unit
	2)	50 L of sodium hypochlorite solution from an underground pipe
	3)	536 L of generator seal oil from a heat exchanger
2014	4)	30 L of hydraulic fluid from a pump
	5)	200 L of sewage – overflow
	6)	19 L of FRF (fire resistant fluid) from the turbine govenor system
	7)	10 L of oil from a transformer temporary dike
	8)	100 L of sewage from a leak in a line
2015	9)	100 L of sewage – overflow
	10)	50 L of sewage – overflow
2016	11)	8 L of oil from a compressor
2017	12)	50 L of lube oil – spilled on the floor

The following spill mitigation initiatives have been completed driven by OPG's adherence to continuous improvement:

- Replaced all 4 sodium bisulphite solution storage tanks with one double walled stainless steel tank on Pickering 058. (Completed November 2016)

- All of the Pickering 058 seal oil drain lines to the local water tundish have been cut and capped in order to remove any flow path from the seal oil heat exchangers to the environment. (Completed December 2014)

- Installation of underflow weir system to the existing spill containment surrounding the Main Output Transformers located on all 4 units of Pickering Units 058. (Completed December 2016).

- Upgraded spill containment in the new Water Treatment Plant Chemical Addition Area. (Completed April 2014)

Planned Improvements

- A permanent concrete dike will be installed around the overflow tank associated with the Emergency Coolant Injection system, which will reduce the risk of spills to the environment. The scheduled project completion date is December 2017.

- The 012 sewage sump pumps are being replaced with more robust grinder style pumps for improved availability. An additional level switch will also be installed to prevent sump overflows. The scheduled project completion date is September 2017.

2.9.5 Environmental Monitoring Program

OPG maintains an Environmental Monitoring Program (EMP) in the vicinity of Pickering Nuclear in accordance with operating licence requirements. The EMP complies with the standard CSA N288.4-10, *Environmental Monitoring Programs at Class I Nuclear Facilities and Uranium Mines and Mills*. The program scope encompasses protection of both the public and the environment from nuclear substances, hazardous substances, and physical stressors resulting from the operation of Pickering Nuclear, including on-site waste management facilities.

Results of the Pickering Nuclear EMP are reported annually and made available on www.opg.com.

Additionally, environmental sampling and analyses for the EMPs support the calculation of annual dose to the public resulting from operation of Pickering Nuclear. The EMP routinely measures radionuclides in environmental media such as air, water, and food products. Radioactivity in the environment is measured near Pickering as well as at provincial background locations. Measured data are used together with station emissions data to determine the dose received by members of

the public, known as potential critical groups. The highest estimated potential critical group dose establishes the official public dose for the site.

During the current licensing period the dose to the public has always been less than 0.2 % of the annual legal limit of 1000 μSv. The public dose for 2016 was 1.5 μSv and was assigned to the "Urban Resident (Adult)" group, as shown in Figure 15.

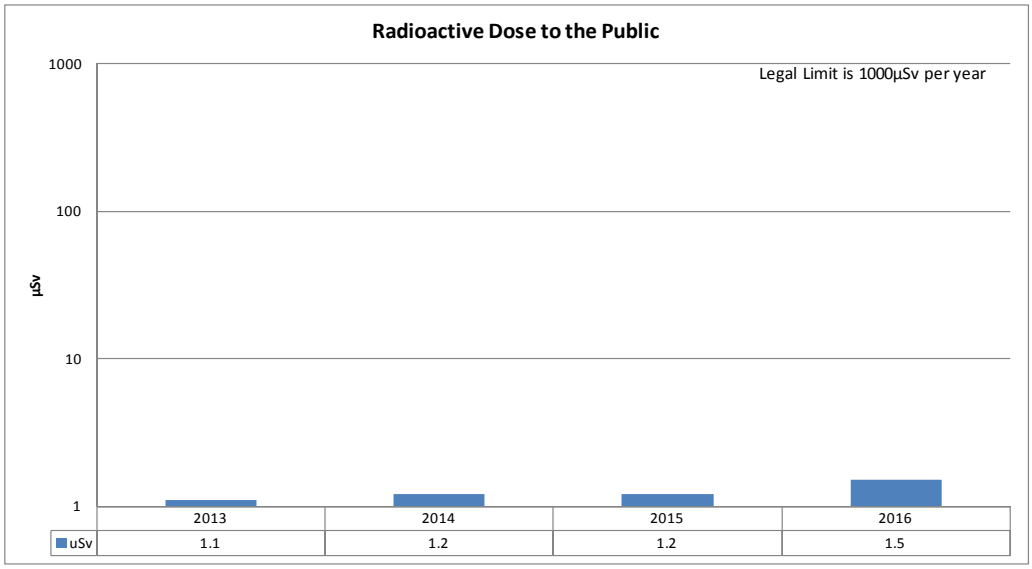


Figure 15 - Radioactive Dose to the Public

As shown in Figure 16, the radiation dose to the public resulting from the operation of the Pickering Nuclear Generating Station is a very small fraction of the estimated annual average natural background radiation dose around the station.

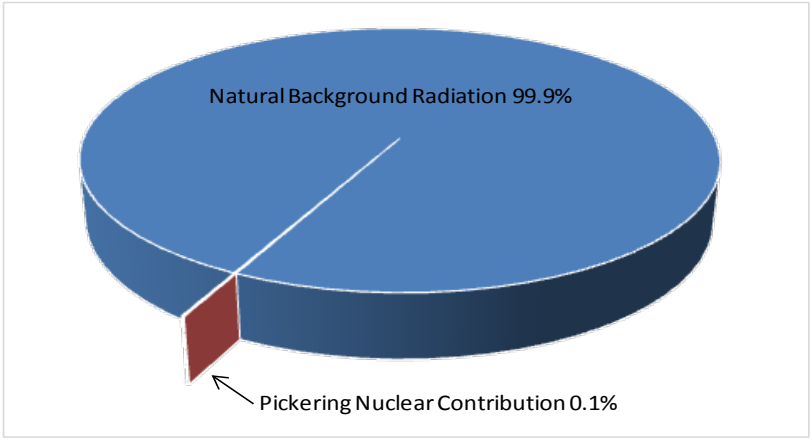


Figure 16 - Radioactive Dose Relative to Natural Background Radiation

2.9.6 Regulatory Compliance

Pickering operates under numerous environmental regulations governing plant operations. The primary regulators from an environmental perspective are the CNSC and the Ontario Ministry of Environment and Climate Change (MOECC).

During the period 2013 to 2017 there were no major infractions of environmental regulations.

Pickering Nuclear had a total of 23 other infractions over the period of 2013 – 2017 year to date (~5 year period), decreasing to only 1 infraction in 2016 and none to-date in 2017. Table 6 contains the details of these infractions.

During the period of 2013 to 2017 Pickering Nuclear had ten occurrences of exceeding the Environmental Compliance Approval (ECA) delta temperature limit. The number of events has declined each year starting in 2015, this improvement is attributed to equipment improvements and improved awareness.

	Infraction
2013	Station discharge ΔT exceeded C of A Limits (four infractions)
	Unapproved discharge to Pickering Sewer per the Durham Sewage By-Law
	Waste storage timeline exceeded
2014	Unapproved discharge to Pickering Sewer per the Durham Sewage By-Law
	Station discharge ΔT exceeded C of A Limit (five infractions)
	Upgrades to Water Treatment Plant without ECA amendment
	Exceeded allowable annual un-monitoring limit for C14 (2 infractions)
2015	Station discharge ΔT exceeded C of A Limit
	MISA Report data missing
	Contravention of both Ontario Endangered Species Act and Migratory Bird Convention Act
	Fish impingement event
	ECA Semi-Annual sample missed
	Public complaint of Noise or Odour
	Waste non-compliance due to refrigerant storage timeline
2016	CNSC Monthly Action Limit exceeded for beta gamma activity
2017	No infractions to date

Table 6 - Environmental Infractions for the Period 2013-2017

2.9.7 Fish Impingement and Entrainment

Impingement and entrainment of fish within the Pickering Nuclear Generating Station occurs from the use of lake water for condenser cooling water. A Fish Diversion System (FDS) as shown in Figure 17, is used to mitigate impingement and has been demonstrated to reduce fish losses by more than 80%.

Typically the FDS is installed in the spring, around April, and removed at the end of November each year before significant lake ice build up. During the deployment of the FDS, there is ongoing maintenance to remove algae and zebra mussels as well as complete minor repairs to the net.

A new net was installed in the FDS for the 2017 season. OPG continues to ensure fish impingement is maintained at levels consistent with CNSC targets.

Figure 17 - Fish Diversion System

During the off season, the net is inspected and repaired as necessary at its storage facility and made ready for the following year's deployment.

Monitoring of fish impinged is conducted weekly throughout the year. Fish from the screen house are collected in bins and specially trained staff identify the fish species, count them and measure representative samples of fish. The estimated biomass of impinged fish is reported annually to the CNSC. The annual reports demonstrate that the CNSC impingement target reduction has been achieved.

The FDS is not designed to prevent entrainment. Entrainment occurs when very small fish eggs and early life stages (less than 4.7mm) pass through the travelling screens and are subsequently carried through the condenser cooling water system.

OPG has proposed three offsetting measures to counterbalance losses such that a net benefit in fisheries productivity is achieved. Two of the offsetting measures are habitat creation projects; the first is in the Big Island Wetland located in the Bay of Quinte and has already been created, and the second is to be constructed in the Simcoe Point Wetland near the outlet of Duffins Creek. The third offset is associated

with OPG's stocking contribution for the Lake Ontario Atlantic Salmon Program. OPG is the lead sponsor from 2016 to 2020.

The reduction of impingement and entrainment continues to be verified through a monitoring program.

2.9.8 Thermal Plume

In 2017, OPG evaluated the lake water temperature from the thermal plume at Pickering NGS and reference sites from 2009-2010, 2010-2011 and 2011-2012 using a revised impact assessment model to predict hatch date and survival of Round Whitefish embryos. The estimated survival loss at the plume stations compared to the reference stations, were all below the survival loss of 10%, the threshold for no-effect level for round whitefish embryo survival. The average water temperature during the spawning and egg incubation period for all plume stations and each individual station in 2009-2010, 2010-2011 and 2011-2012 were below the threshold effect level of 6^0C in each year. Therefore, the thermal plume from Pickering NGS is not having an adverse effect on Round Whitefish embryo survival.

2.9.9 Environmental Risk Assessment

OPG has completed an updated Environmental Risk Assessment (ERA) for Pickering Nuclear (PN), focused on the years 2011 to 2015. The assessment meets the requirements of Canadian Standards Association (CSA) N288.6-12, *Environmental Risk Assessments at Class I Nuclear Facilities and Uranium Mines and Mills*. The ERA includes a Human Health Risk Assessment (HHRA), and an Ecological Risk Assessment (EcoRA), for radiological and non-radiological contaminants and physical stressors. The ERA evaluated the risk to relevant human and ecological receptors from exposure to contaminants and physical stressors related to Pickering and its activities; and as warranted, recommended further monitoring or assessment based on the results of the ERA. The ERA report P-REP-07701-00001, *Environmental Risk Assessment for Pickering Nuclear* was submitted to the CNSC (Reference 15).

Human Health Risk Assessment (HHRA)

Predicted exposures to PN emission sources were evaluated on the basis of potential toxicological effects from non-carcinogenic Contaminants of Potential Concern (COPCs), cancer risk from carcinogens, and radiation exposure from radionuclides. Human receptors evaluated include off-site members of the public, specifically those critical groups used for dose calculations in the annual OPG EMP reports within approximately 20 km of the PN site. Measured and modeled concentrations of COPCs were evaluated against screening benchmarks that are protective of human health. Radiological stressors were carried forward to Tier 2 because of the public interest in these emissions.

Non-radiological HHRA**:** The complete exposure pathways assessed in the non-radiological HHRA included inhalation (hydrazine) for all six human receptor groups; water ingestion (hydrazine and morpholine) for the Urban Resident, Correctional Institution, and Industrial/Commercial Worker; and game fish ingestion (hydrazine and morpholine) for the Sport Fisher.

- No increased risk to human receptors is expected from exposure to morpholine.
- No risks to the urban resident, correctional institution resident and industrial/commercial worker are expected due to exposure to modeled hydrazine in drinking water at the Ajax Water Supply Plant.
- No risks to the sport fisher are expected from fish ingestion based on mean modeled hydrazine in fish tissue.
- The estimated risks to all human receptors from inhalation of hydrazine are below the cancer risk target.

Radiological HHRA: The annual dose to the critical group (the urban resident adult) during this five-year period ranged from 0.9 to 1.2 µSv, approximately 0.1% of the regulatory public dose limit of 1 mSv/a. The sport fisher may receive a maximum dose up to 0.14 µSv/a from exposure to the Pickering Waste Management Facility (PWMF) (Phase I and Phase II) at full capacity; a small fraction of the regulatory public dose limit. Since the critical groups that receive the highest dose from Pickering are protected, other receptor groups near Pickering NGS are also protected.

Ecological Risk Assessment (EcoRA)

The assessment for the EcoRA focused on the near shore Lake Ontario (generally in the area surrounding the Pickering NGS outfalls), the Pickering site, and Frenchman's Bay. Valued Ecosystem Components (VECs) were selected for dose and risk analysis because they are known to exist on-site, and/or are representative of major taxonomic/ecological groups, major pathways of exposure, or have a special importance or value. Protection of VECs implies that other species in the same VEC category are also protected. Threatened and endangered species identified within the PN Terrestrial Site Study Area during the 2011 to 2015 time period, including the Barn Swallow, Least Bittern, Butternut, and American Eel, were assigned a representative species already selected for the EcoRA.

Non-radiological EcoRA: The potential for ecological effects was assessed by comparing exposure levels to toxicological benchmarks, and characterized quantitatively in terms of Hazard Quotients (HQ). A HQ greater than 1 indicates a need to more closely assess the risk to the concerned VEC whereas a HQ less than 1 indicates little likelihood of an adverse effect.

Maximum measured concentrations of COPCs did not exceed their respective benchmarks for the ecological receptors evaluated near the PN outfall, with the exception of measured maximum copper surface water concentrations near the PN outfall that exceeded fish and benthic invertebrate benchmarks. However, mean copper concentrations in water were acceptable. Since fish are mobile, exposure to the mean concentration is more likely. Overall, the risk to fish at the

outfall is low, and fish are not expected to experience any significant adverse effects due to non-radiological releases from PN operations.

Regarding the results of the ecological risk assessment to ecological receptors at Frenchman's Bay, the EcoRA evaluated the contribution from PN to the overall risk, and concluded that PN operations contribute a small proportion of the overall risk to aquatic receptors at Frenchman's Bay. The percent contribution from PN ranges from 0.3% to 22% of the total risk for all contaminants of potential concern.

The soil sampling program focused on areas of previously identified contamination and emphasized areas identified as potential habitat. Soils that exceed benchmark concentrations are associated with past industrial activities on site, rather than deposition from ongoing sources. HQs were not exceeded for mammals or birds exposed to average concentrations in soil, therefore, adverse effects are not expected. Although HQs were exceeded for earthworms and terrestrial plants in areas of past industrial activity, the earthworm community and terrestrial plant populations on the site as a whole, would not be significantly affected. Species at risk were also assessed and confirmed to not be at risk from PN operations.

Radiological EcoRA

At the outfall there were no exceedances of the radiation dose benchmarks for aquatic biota including fish, benthic invertebrates, and Ring-billed Gull. There were no exceedances of the radiation dose benchmarks for any aquatic receptors at Frenchman's Bay, and no exceedances of the radiation dose benchmark for terrestrial biota on the PN site. Similarly there were no radiation dose levels that approached the radiation benchmark for terrestrial biota associated with the Pickering Waste Management Facility.

Overall, these studies confirm the PN site is continuing to operate in a manner that is protective of human and ecological receptors residing in the surrounding area.

2.9.10 Predictive Effects Assessment

OPG undertook a Predictive Effects Assessment (PEA) to evaluate the potential for adverse effects to human health and the environment from the activities associated with transitioning the station from end of commercial operation to a Safe Storage with Surveillance state. The PEA encompasses both the Stabilization Phase and the Safe Storage with Surveillance Phase. The PEA report, P-REP-07701-00002, *Predictive Effects Assessment for Pickering Nuclear Safe Storage* was submitted to the CNSC (Reference 15).

Overall, the change from power generation to the Stabilization and Safe Storage with Surveillance Phases will result in reductions in emissions from the Pickering NGS. Noise, atmospheric emission, waterborne emissions and thermal discharges will all be reduced as Pickering moves from the current operational condition to a safe storage state.

Human Health Risk Assessment (HHRA)

The human health risk assessment evaluated potential radiological impacts to receptors that include: farm and dairy farm use; urban residents; area industrial/commercial occupants; a potential future industrial/commercial worker at the current Engineering Services Buildings (i.e., a new tenant); and a sport fisher (i.e., a person assumed to be fishing south of the Pickering Nuclear Generating Station). The exposure duration, exposure factors and calculations are the same as those used in the Pickering Nuclear Environmental Risk Assessment. The dose was updated based on conservative assumptions and the modelled surface water and airborne concentrations. All other exposures were considered to be bounded by the Pickering Nuclear Environmental Risk Assessment. The maximum predicted dose was estimated to be 0.002 mSv/a to a future industrial/commercial worker (i.e., a new tenant of the Engineering Services Buildings).

The public dose estimates for the human receptors for the Safe Storage with Surveillance Phase are approximately 0.2% of the regulatory public dose limit of 1 mSv/a and approximately 0.15% of the dose from Canadian background radiation. Since the dose estimates are a small fraction of the public dose limit and natural background exposure, no discernible health effects are anticipated due to exposure of potential groups to radioactive releases from Pickering Nuclear during the Safe Storage with Surveillance Phase.

Ecological Risk Assessment (EcoRA)

For the EcoRA, exposure points at receptor locations were estimated based on the Tier 1 assessment. The receptor locations of interest were the Pickering Nuclear outfall (nearshore Lake Ontario), forebay, and Frenchman's Bay. Receptors, exposure, dose and risk estimation calculations were based on the work completed in the Pickering Nuclear Environmental Risk Assessment.

Given the reduced flows into the station and assumed removal of the Fish Diversion System, the potential forebay habitat was evaluated based on the Safe Storage with Surveillance Phase assumptions. Potential impacts within the forebay were assessed for exposure to tritium, carbon-14 and cobalt-60 for radionuclides. There were no potential adverse effects identified.

Thermal effects were also evaluated as part of the Predictive Effects Assessment. In general, the lake near the discharge will be returned to a thermal condition that is more normal for the nearshore zone of Lake Ontario.

Entrainment and impingement effects were evaluated as part of the Predictive Effects Assessment. Impingement and Entrainment cease to be a concern at the low flow rates anticipated during the Safe Storage with Surveillance Phase, once the condenser cooling water pumps are not required.

No interactions were identified that are predicted to pose an unacceptable risk to humans or the environment during the Stabilization and Safe Storage with Surveillance activities proposed. Therefore, no new mitigation is required based on the conclusions of the Predictive Effects Assessment. During both the Stabilization and Safe Storage with Surveillance Phases, OPG's environmental programs will be

maintained, and updated as needed. Emission control measures and discharge limits are specified within specific permits. These permits and in-design mitigation measures will remain in place until such a time that it can be demonstrated, in discussion with the regulator as applicable, that they are no longer required.

Planning the work to define the safe storage end states of the station systems is ongoing, and waterborne emissions and cooling water flows in the Safe Storage with Surveillance Phase will be reviewed as final configurations are determined. If the surface water assumptions and the environmental interactions are substantially different than those indicated in the PEA, a reassessment of the environmental risk would be carried out and mitigation identified as required. The outcome of the review will be documented in a future Environmental Risk Assessment.

The PEA concludes that there are no predicted potential adverse effects from the Stabilization and Safe Storage with Surveillance activities proposed.

2.9.11 Biodiversity and Wildlife Habitat Council

Pickering Nuclear has a Biodiversity and Natural Areas Management Program to protect, maintain and enhance the natural environment, species and wildlife habitat on, and in the vicinity of, the Pickering Nuclear site.

On-site biodiversity initiatives include enhancement of wildlife corridors across the site, protection of species of concern like peregrine falcons (see Figure 18) and enhancement and protection of the ecological value of the Frenchman's Bay and Duffins Creek watersheds, and associated natural areas on and adjacent to the site.

Pickering's resident Peregrine Falcons have returned. This is the fifth year the falcons have joined us at Pickering and we once again have a strategy in place to help protect this species of concern while ensuring personnel safety on site

Figure 18 - Biodiversity

Program activities have focused on habitat enhancement. In the past three years, approximately 2000 trees and shrubs have been planted on Pickering OPG property by volunteers from the community and OPG staff.

Pickering Nuclear continues to enhance habitat off site through the ongoing partnership with Environmental Stewardship Pickering (ESP). Projects have included the creation of a wildflower garden at a local school, tree planting events and the creation of habitat structures for birds and pollinators. ESP also hosts

educational workshops for community members on gardening, habitat creation and environmental stewardship.

OPG submits applications for Wildlife Habitat Council certification of select sites. The Wildlife Habitat Council is an international non-profit, non-lobby group that promotes and independently certifies habitat conservation and management on corporate lands through partnerships and education.

In January 2017, Wildlife Habitat Council advised OPG that the 2014-2016 Nuclear Biodiversity Program at Pickering and Darlington Nuclear Generating Stations application successfully received Wildlife Habitat Council's new "Conservation Certification" for 2017-2019.

2.9.12 Fisheries Act Authorization

Pickering Nuclear has submitted an application for authorization from the Department of Fisheries and Oceans (DFO) under section 35 (2)(b) of the *Fisheries Act*.

Key activities to complete the application for an authorization included a quantitative assessment of residual impact from fish loss, offsets for the residual impacts, and Aboriginal engagement. The *Fisheries Act* allows offset to include habitat improvements, stocking of fish and limited funding for research.

It is expected that the authorization will be in effect prior to the 2018 Pickering NGS licensing hearings.

2.9.13 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document Number	Document Title
OPG-POL-0021	Environmental Policy
N-PROG-OP-0006	Environmental Management
OPG-PROC-0126	Hazardous Material Management
N-PROC-OP-0044	Contaminated Lands and Groundwater Management
N-PROC-OP-0025	Management of the Environmental Monitoring Programs
N-STD-OP-0031	Monitoring of Nuclear and Hazardous Substances in Effluents
N-PROC-OP-0037	Environmental Approvals
P-REP-08965-0633695	Pickering NGS Hazardous Substances
NA44-REP-03482-00001	Derived Release Limits and Environmental Action Levels for Pickering Nuclear Generating Station A
NK30-REP-03482-00001	Derived Release Limits and Environmental Action Levels for Pickering Nuclear Generating Station B
P-REP-03482-00001	Derived Release Limits and Environmental Action Levels for Pickering Nuclear Sewage Effluent
4922-5S7NFH	Dual Phase Extraction System Operation
4881- 5MHQ9F	Comprehensive Certificate of Approval (Industrial Sewage)
4881- 5MHQ9F	Station Temperature Limits Notice 5 (Industrial Sewage)

Document Number	Document Title
2460-A2NHF2	PNGS-A-Permit to Take Water
2731-8ULK95	PNGS-B Permit to Take Water
A390407	Closure of West Landfill Site (Waste Disposal)
0947-A7NM85	New Water Treatment Plant Operation
4766-A3YMB9	Pickering Site Operation Comprehensive certificated of Approval (AIR)
5683-6XAMAB	Auxiliary Power System (Industrial Sewage)
7719-5TXL94	Dual Phase Extraction System Operation
8-3056-94-006	Performance Testing of Air Filtering and Monitoring Equipment

2.10 Emergency Management and Fire Protection

Pickering NGS has an effective emergency preparedness and fire protection program that meets or exceeds all applicable regulatory requirements and related objectives. Emergency preparedness measures and fire protection response capabilities are in place at Pickering NGS to prevent and mitigate the effects of nuclear and hazardous substances releases, both onsite and offsite, and fire hazards in order to protect workers, the public and the environment.

For specific areas within this SCA, the following subsections describe the objectives, key results from the current licensing period, and planned improvements over the next licensing period. These discussions also support that:

- Nuclear safety will be assured such that plant personnel, the public and the environment are protected (Sections 2.10.1 and 2.10.2)
- Staff are qualified and competent to respond to nuclear and fire events at the plant, and this will be maintained though the next licence period, including staffing numbers (e.g., see Section 2.10.1 regarding Staffing, Training and Resources).
- OPG continues to invest in Pickering to support nuclear safety (e.g., via drills and exercises as described in Section 2.10.2)
- Transparency and appropriate public consultations have been upheld and will continue (e.g., via public alerting provisions and public awareness campaigns for KI pill distribution, as described in Section 2.10.2)

2.10.1 Fire Protection and Conventional Emergency Preparedness and Response

The OPG *Fire Protection* program, N-PROG-RA-0012, describes the fire protection organization and interfacing organization and processes, and their accountabilities within the fire program. The objective is to ensure that all reasonable measures are taken to prevent fires, and to promptly detect and suppress any fires that may occur at the nuclear plant.

The overall program is based on CSA N293, *Fire Protection for CANDU Nuclear Power Plants* and industry best practices.

Staffing, Training and Resources:

The Pickering Fire Protection section at Pickering NGS incorporates positions for Shift Emergency Response Managers (SERM) and Emergency Response Maintainers (ERM), who are trained to respond to emergencies that may occur on-site.

The Pickering Fire Protection section is supported by the Fire Protection Programs department. Fire Protection Program staff play a key role in standardizing emergency response procedures, equipment, and training.

Fire Protection Training has made substantial enhancements to field training simulators at Wesleyville Fire and Rescue Academy owned and operated by OPG.

Fire Protection Training has also implemented the first delivery of 2016 International Fire Service Training Association Standards in 2017. In addition, training has implemented the *Blue Card Incident Command Certification* which is an industry standard for incident command, as well as implementing the NFPA1407 Rapid Intervention/Fire Fighter Survival program.

The continuing training program at OPG requires ERMs to participate in annual continuing training and practice sessions where response skills are demonstrated and assessed. These skills require the ability to respond safely and effectively to physically demanding scenarios. ERT drills documenting team and individual performance are also evaluated annually and have demonstrated the capability of the ERT to respond effectively to realistic scenarios at the station and at the Wesleyville live fire training facility.

Integrated Response Capability:

On an annual basis, OPG reviews its Memorandum of Understanding with the City of Pickering. The memorandum defines the mutual responsibilities, provides for a high level of mutual aid between the parties, and provides a strong foundation for continued productive and integrated working relationships between Pickering Fire Services (PFS) and OPG. Equally important, it provides the local community with access to additional resources from OPG to deal with major incidents and improved training for emergency response staff.

Fire protection staff periodically meets with PFS firefighters to discuss fire safety and response at the Pickering site. PFS continues to participate in fire drills, exercises and training evolutions and site orientations with OPG staff to maintain an effective integrated response capability.

PFS officers and Pickering Nuclear Fire Protection staff participate annually in the Incident Command training at Wesleyville. Also, joint live fire training takes place at Wesleyville on an annual basis with PFS and the Emergency Response teams to maintain an effective integrated response.

Planned Improvements

OPG is partnering in the Durham Regional NextGen public safety radio system and is installing radio system infrastructure at the site. This will allow seamless integration and interoperable communications with Pickering Fire Service responders using their own radios in the plant, and is expected to be completed by the end of 2017.

Fire Safety Assessments

In 2017 an updated Pickering NGS A Fire Safe Shutdown Analysis (NA44-REP-71400-00023) and Pickering NGS A Fire Hazards Assessment (NA44-REP-71400-10003) were completed and submitted to the CNSC as per Reference 20.

An updated Pickering NGS B Fire Safe Shutdown Analysis (NK30-REP-71400-00001) and Pickering NGS B Fire Hazards Assessment (NK30-REP-71400-10002) were completed and submitted to the CNSC as per Reference 21 .

2.10.2 Nuclear Emergency Preparedness Program

The Nuclear Emergency Preparedness program is documented in OPG's *Consolidated Nuclear Emergency Plan* (CNEP), N-PROG-RA-0001. This plan describes concepts, structures, roles and processes to implement and maintain an effective OPG response in the unlikely event of a nuclear emergency that could endanger onsite staff, the public, or the environment. The CNEP provides a framework for interaction with external authorities and defines OPG commitments under the *Provincial Nuclear Emergency Response Plan* (PNERP).

The objective of the OPG Nuclear Emergency Preparedness program is to ensure OPG has adequate provisions for the preparedness and response capability that would mitigate the effects of accidental releases of radioactive material.

In order to respond effectively to an emergency, Pickering NGS practices the response capability of staff through simulated emergencies, and maintains plans and procedures to ensure that this capability is sustained.

A summary of performance is provided in Table 7 - Emergency Response Performance Indicators.

The Radiological Emergencies Performance index is an indication of the accuracy and timeliness of the station's initial notification under the PNERP.

The ERO Drill participation index provides information on how many of the ERO staff scheduled to participate in a drill complete this during the year.

The Emergency Response Resources Completion index considers the ratio of completed to scheduled work and presents an indication of the operational readiness of emergency facilities.

Performance Indicator	2013	2014	2015	2016
Radiological Emergencies Performance Index (% - 100 max)	99.2%	96.9%	92.6%	100%
ERO Drill Participation Index (% - 100 max)	100%	100%	100%	100%
Emergency Response Resources Completion Index (% - 100 max)	100%	100%	100%	100%

Table 7 - Emergency Response Performance Indicators

A new emergency accounting system was installed within Pickering's protected area, which includes emergency accounting readers at each assembly area. When assembling during a station emergency, employees account by scanning their entry card at an emergency accounting reader in their designated assembly area. This change aligns with industry best practices, and more importantly, by providing a more accurate and timely accounting process, it also enhances the safety of staff.

Formalized self-assessments are conducted to identify additional program improvement opportunities. A systematic review and assessment process has been implemented to ensure operational readiness of the emergency preparedness program to support safe and reliable operation of Pickering units.

Drills and Exercises

In order to demonstrate OPG's emergency response capability, Pickering maintains an extensive drill and exercise program. This program validates emergency plans and procedures, and provides the emergency response organization with the opportunity to improve and sustain their emergency response capability.

In the unlikely event of an emergency at the station, OPG would perform the appropriate notifications to the Province, CNSC, and local municipalities in accordance with established procedures. Pickering NGS takes actions to control and mitigate the emergency on-site and minimize off-site effects. The Province under the PNERP takes actions to notify and protect the public, including recommending protective actions such as sheltering, potassium iodide ingestion, or evacuation. The local municipalities support provincial directions, which may include such activities as guiding members of the public should an evacuation be required. OPG and a range of other organizations are integrated to ensure effective emergency measures are in place.

In May 2014 OPG executed the "Exercise Unified Response" in order to test and demonstrate the effective integration of emergency response; see Figure 19. This exercise assessed the preparedness of OPG and government agencies at federal, provincial, and municipal levels to respond to a simulated severe nuclear event with off-site releases at the Darlington station. This exercise involved over 2000 participants and 54 agencies over three days. The exercise was very successful and demonstrated the integration of nuclear response plans at all levels of government. Although the incident station in Exercise Unified Response was Darlington, a majority of the participants would fulfil a similar role in the unlikely event of a Pickering emergency.

In November 2015, Pickering conducted a station emergency exercise involving a multi-unit severe accident. The initiating events for this exercise were conducted from the Pickering Simulators, with field actions performed as permitted by exercise design. The scope of this exercise was developed to demonstrate OPG's response capability to an event which progressed into a multi-unit severe accident requiring deployment of the Emergency Mitigating Equipment; see Figure 20.

OPG has scheduled a multi-agency interoperability exercise 'Exercise Unified Control' for December 6-7, 2017, focused on Pickering NGS. This full-scale integrated exercise is designed to test the capacity of onsite and off-site agencies to respond to a significant emergency at the Pickering site. The exercise is being planned to include participation of emergency response agencies of the Province of Ontario, Durham Region, the City of Toronto, the CNSC and other federal agencies. Lessons learned from this unified exercise will be available early in 2018 and will help participating agencies to continue to improve respective emergency plans.

Figure 19 - Exercise Unified Response Montage

Figure 20 - Pickering Emergency Mitigation Equipment

Public Alerting

In the unlikely event of an emergency where the Province initiates protective actions under the PNERP, the need to shelter, evacuate or take other actions is communicated to the public as follows:

- *Sirens*: Mounted on poles, sirens emit a single tone alarm that can be heard outdoors. These sirens are located within 3 kilometres of the Pickering site.
- *Radio, Television, Social Media*: Local radio and television stations, and social media, will broadcast information on public health, safety, and welfare. Instructions on what to do in the event of a nuclear emergency will be provided.
- *Telephone Dialing System*: An automated telephone dialing system will deliver a recorded emergency message through landline home phones to a large population in a short time.

In addition, OPG has partnered with Durham Region, the Office of the Fire Marshall and Emergency Management (OFMEM), Bell Canada and the Weather Network to pilot a Wireless Public Alerting System (WPAS) project in Durham Region. Wireless Public Alerting is a system that broadcasts messages through wireless (cell phone) technology; see Figure 21, for example. This technology is used successfully in other jurisdictions outside of Canada, such as the United States, and significantly helps to make the receiving of public alerts more accessible. As part of the pilot project, approximately 80 people in Durham Region, including OPG employees, were equipped with WPAS-enabled phones. Over the course of several months, they received test messages to validate the functionality and effectiveness of the program.

This is an important step for Canada in its emergency preparedness and response, and OPG is proud to be a partner in the pilot program. The Canadian Radio-television and Telecommunications Commission (CRTC) has issued a regulatory policy (CRTC 2017-91) to direct wireless service providers to implement wireless public alerting capability on their networks by April 6, 2018.

Figure 21 - Sample Wireless Public Alerting Service

Evacuation Time Estimate

An updated Evacuation Time Estimate (ETE) was completed for Pickering and issued in 2016. This update is based on current census data, and future population growth projections on a per-decade estimation. Industry-accepted methodology was used for this study. The ETE study takes into consideration the time required to evacuate schools, hospitals and other residential institutions, and was completed with support from the Province, local municipalities, police and transit organizations.

The estimate provides off-site emergency planners with projections on how long it may take for sectors and the primary zone to evacuate if required. Variables such as time of day, day of week, road restrictions, special event assemblies and weather were assessed as to how those factors may impact the evacuation duration.

The study determined that the conservative value for the evacuation time estimate was 8 hours. This value is expected to be used by off-site emergency planners and response organizations, in alignment with the provincial strategy, when considering the need to implement access control or to commence an evacuation.

Off-Site Support

OPG provides Monitoring and Decontamination Unit capability and readiness at Emergency Worker and Reception Centres.

OPG participated in the Reception Centre Exercises in 2012 (Durham College) and 2013 (Fleming College), as well as Emergency Worker Centre Exercises in 2014 at the Orono Arena in Clarington and in 2016 at Iroquois Park in Whitby. This effort is in addition to the routine work of OPG's Emergency Response and Fire Protection staff to work with key members of the Ajax-Pickering hospital staff to review and familiarize each other with procedures and training relevant to radiological emergency situations.

To ensure emergency plans continue to support a timely and safe evacuation in the event of a nuclear emergency, OPG monitors and engages with the Province, Region of Durham, and the City of Pickering regarding land use policies and activities in associated emergency planning zones to ensure no adverse impact on implementation of nuclear emergency plans.

Equipment Important to Emergency Response

A program to manage Equipment Important to Emergency Response (EITER) has been implemented to align with industry best practices. This program identifies equipment that is required in an emergency response and its back-up equipment,

and ensures contingency actions if equipment is out of service if no acceptable back-up is available.

The EITER program is ensured through N-PROC-RA-0133 *Management of Equipment Important to Emergency Response*. EITER includes systems, structures, and components, as well as essential tools and equipment, necessary to implement the emergency *Consolidated Nuclear Emergency Plan.*

The Pickering station-specific EITER equipment and facilities and necessary actions are identified in a Pickering instruction. Corporate and OPG off-site facilities and equipment which may be required to support Pickering are identified in a corporate instruction.

The EITER program ensures that OPG has the capability to implement the emergency plan through the readiness and availability of the EITER equipment, facilities, or through enacting compensatory measures or use of designated alternate facilities where the primary means may be unavailable. The EITER requirements are integrated into the work management for planned maintenance activities.

Potassium Iodide (KI) Pills

In response to requirements in CNSC regulatory document REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*, the pre-distribution of an iodine thyroid blocking agent or potassium iodide pills was expanded to the population residing in the primary zone.

Ingestion of Potassium Iodide (KI) is one protective action that may be directed by authorities in the unlikely event of a nuclear emergency. Historically, the off-site response plan protocol for KI pill pre-distribution has been to provide them free of charge through local pharmacies. In addition, KI pills have been available in schools, child care centres, health care facilities, municipal services, and reception centers designated in nuclear emergency plans.

OPG developed a communication campaign that began in January 2015 with focus groups established in the primary zone. The campaign included a two-part communications strategy for pre-distribution and distribution, based on the results obtained from the focus groups. The pre-distribution campaign was a focused education campaign that raised public awareness of KI distribution. The distribution campaign utilized product packaging to improve the public's understanding of when and how to use the KI pills, and to reinforce the safety of OPG's nuclear facilities. KI pills were distributed in October 2015.

Branding for the distribution campaign was specifically designed; helping to ensure the packages would be easily recognized and not discarded. The KI packages included user instructions and information printed on the front. As part of the overall campaign, a website was created to provide an online site for people within 50 km of Pickering NGS to order KI pills and provide information.

KI pill fact sheets were distributed to operators at local and provincial health help lines and local physicians in order to assist in answering questions from the public. The public within 50 km can continue to order KI pills through the website.

Website FAQs are translated into the 9 most common languages spoken within 10 km (based on census data). New households and businesses are identified three times a year by Canada Post and sent information packages including KI pills. On-going public awareness campaigns by the local health department and OPG remind residents of pill availability and other preparedness information.

Planned Improvements

The provincial Office of the Fire Marshall and Emergency Management (OFMEM) are working to update the PNERP which was last revised in 2009. The review and update of the PNERP began in 2015 and is being revised to incorporate lessons learned from past nuclear exercises and adopt aspects of International Atomic Energy Agency (IAEA) guidance. The Province is conducting a public consultation process with the objective of obtaining a Cabinet approved PNERP by year end 2017 and an approved OFMEM Pickering implementing plan by March 2018. OPG has reviewed and provided comments during the public review period, and will enhance its emergency plans to align with any PNERP requirements once issued.

A new public education campaign is planned for 2017 building on the successful previous campaign designed to provide guidance on what to expect in the unlikely event of a nuclear emergency and how to prepare prior to an emergency.

2.10.3 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document	Title
N-PROG-RA-0001	Consolidated Nuclear Emergency Plan
N-STD-AS-0010	Nuclear Crisis Communications Standard
N-PROC-RA-0045	Emergency Preparedness Drills and Exercises
N-PROG-RA-0012	Fire Protection

2.11 Waste management

Pickering NGS has an effective waste management program that meets or exceeds all applicable regulatory requirements and related objectives. Pickering's facility and waste stream-specific waste management program is fully developed, implemented and audited to control and minimize the volume of nuclear waste generated by the licensed activity.

For specific areas within this SCA, the following subsections describe the objectives, key results from the current licensing period, and planned improvements over the next licensing period. These discussions also support that:

- Nuclear safety will be assured such that plant personnel, the public and the environment are protected during the various phases of activities in the next licensing period
- Impacts of plant operation to the public, workers, and the environment during these different phases will be of low risk and adequately mitigated

2.11.1 Waste Minimization, Segregation and Characterization

Procedure, *Waste Management*, N-PROC-OP-0043, provides an overview of waste processes and responsibilities and ensures that all waste at Pickering NGS is processed in accordance with federal, provincial and municipal regulations.

The objective of the procedure, *Segregation and Handling of Radioactive Waste*, N-PROC-RA-0017, is to ensure that radiological waste is properly handled, segregated and characterized.

Waste is generated at Pickering as a result of daily operations and maintenance activities and during planned and unplanned outages. Waste is characterized as either radiological or conventional depending on the radiological zone of its origin and from radiological surveys and analysis, in order to ensure that waste is safely disposed.

Low Level Radioactive Waste (LLRW)

Radioactive waste is collected from designated areas throughout the station. Waste handlers separate the solid waste into conventional and radiological and hazardous waste streams. Designated waste handlers process the waste to prepare and stage for shipment and final disposal.

In order to reduce radioactive waste generated in the Pickering NGS, OPG has reduced the amount of plastic, wood and cardboard by de-packaging materials and equipment before entering the station, thus reducing the risk of contaminating items that eventually become low level radioactive waste.

Monthly tracking of performance allows the operations and maintenance organization to assess where waste reduction strategies can be focused.

Site wide communications on waste reduction expectations will continue to improve behaviours and performance in waste reduction initiatives. Work groups are held accountable for waste reduction strategies and implement them in daily activities as well as for outage planning activities.

Conventional Solid Waste

Conventional waste is generated through maintenance activities in the Zone 2, unzoned and the public domain areas. This waste is confirmed to be free of contamination and is either processed to a waste transfer station and then onto a landfill or to a recycler for processing.

Conventional solid waste is also minimized to reduce the impact that it can have on the environment. This reduction includes implementation of the 3R's (Reuse, Reduce and Recycle). Recyclable material collected and processed at Pickering includes wood, cans, cardboard, paper, paper towels, newspaper, plastic, asphalt, concrete, compost, metal and glass.

The proportion of recycling diversion is dependent on the specific annual work as different activities generate varying forms of waste, not all of which are recyclable. Consequently the changing relative proportion between recyclable and non recyclable waste results in varying recycling diversion percentages each year.

Nevertheless, Pickering has improved in recycling methods over the years with introduction of organic waste segregation and blue box recycling, including single stream recycling, allowing all of general office recyclables to go into a single bin, simplifying the process for the users. Waste that cannot be recycled is sent to landfill.

Hazardous/Chemical Waste

Pickering NGS continues to meet federal and provincial requirements in processing and disposing of hazardous and chemical wastes.

Typical hazardous waste generated at Pickering includes chemicals and liquids such as cleaning agents, grease, oil, waste fuels, acids as well as batteries and PCBs. The liquid and chemical wastes are collected as a result of operations activities from equipment /system use or maintenance.

The volume of chemical drums on site is tracked and reported monthly with associated targets to ensure that the backlog is maintained at a low manageable level and that the waste is disposed as required by Ontario Regulation 347 requirements. These tracked drum volumes also support and impact the Environmental Index performance measure.

Environment Canada completed a site inspection of Pickering's PCB Waste Management Program in August 2015. The enforcement officers found no non-compliances and were satisfied with the program.

2.11.2 Waste Storage and Processing

There are various waste disposal paths depending on the characterization of the waste.

The waste disposal paths include:

- Solid radioactive waste shipped to Western Waste Management Facility for incineration or long term storage (compactable and non-processible);
- Radioactive oil shipped to Western Waste Management Facility for incineration;
- Radioactive liquid chemicals incinerated or solidified and stored at Western Waste Management Facility;
- Non radiological solid conventional waste shipped to public landfill or recycled;
- Non radiological chemicals/liquid industrial waste shipped to hazardous waste receiving company for incineration or disposal in hazardous landfill; and,
- PCBs shipped to Swan Hills Alberta Hazardous Waste Facility and incinerated.

All such waste will continue to be disposed safely.

2.11.3 Interim Dry Storage of Irradiated Fuel

The objective of interim dry storage of irradiated fuel is to provide safe, passive dry storage of irradiated fuel onsite until a permanent storage facility is in operation.

Fuel is moved from wet storage to dry storage in order to ensure sufficient irradiated fuel bay storage area for sustainable operation and eventual shutdown of the Pickering station.

Pickering NGS has been removing fuel from the wet irradiated fuel bays and transferring it as dry fuel to the Pickering Waste Management Facility (PWMF) since 1996. As of December 2016, a total of approximately 855 Dry Storage Containers (DSCs) containing 330,000 bundles of spent fuel have been safely processed and stored in 3 storage buildings onsite. The PWMF is licensed separately by the CNSC and considers the future needs of the Pickering station.

2.11.4 Decommissioning Plans

The objective of the Pickering Preliminary Decommissioning Plan (PDP) is to demonstrate the technical and financial feasibility of decommissioning Pickering NGS. The scope of the PDP includes all of the associated buildings and structures located inside the Pickering Protected Area, not including decommissioning of the Pickering Waste Management Facility. There is a separate PDP for the decommissioning of the Pickering Waste Management Facility, which is licensed separately.

In support of the above objective, the PDP accounts for the removal of all structures on site and of all radioactive and other (conventional) hazardous materials, their disposal at licensed facilities, and eventual restoration of the site to an end state agreed with the Regulators. As per the PDP, upon completion of the decommissioning program, the site will be in a condition that will support an application for a Licence to Abandon.

The decommissioning activities outlined in the PDP are planned in accordance with the requirements of the Canadian Standards Association (CSA) standard N294-09 "Decommissioning of Facilities Containing Nuclear Substances", CNSC guides G-206 "Financial Guarantees for the Decommissioning of Licensed Activities", and CNSC G-219 " Decommissioning Planning for Licensed Activities".

OPG's management system for decommissioning is defined under its Decommissioning Program, W-PROG-WM-0003. Lower tier supporting governing documents (W-PROC-WM-0093 Planning for Decommissioning, W-STD-WM-0003 Nuclear Liability Management – Update of Cost Estimates for the Ontario Nuclear Funds Agreement and Financial Guarantee Processes, and W-STD-WM-0005 Conduct of Decommissioning) have been prepared and issued.

Pickering's PDP demonstrates that, through the process of decommissioning, the licensed facilities can be permanently retired from service and the site restored to a predetermined end state in a manner that will ensure that the health, safety and security of workers, the public and the environment are protected. The Pickering PDP was updated and submitted to the CNSC in January 2017 (Reference 6).

2.11.5 Preparation for Management of Waste from Transition to Safe Storage State

The eventual shutdown of Pickering is expected to increase the volume and variety of waste generated in a short time period. In order to protect workers and the environment during the Safe Storage Phase, all transient hazardous substances in non-operational systems and storage will be removed, packaged and disposed through appropriate disposal channels during the Stabilization Activities Phase. Planning ahead for the influx of waste will ensure OPG has sufficient capability for the treatment of these wastes, their storage, transport and disposal.

As part of the planning for wastes in the transition to the safe storage state, a waste forecast was prepared to estimate the type, volume and schedule of wastes expected to be produced. The waste forecast identified most wastes as typical operational wastes that have established processes for removal and transport from the station.

Two forms of waste require further planning:

Intermediate Level Resin Waste: Current resin generation rates and maximum shipping capacity indicates waste resin will remain in the station for an extended period after shutdown. Further information will be required to accelerate the transport of waste resin.

Polychlorinated Biphenyl (PCB) Waste: PCB regulation SOR/2008-273 requires removal of PCBs on site by December 31, 2025. OPG is developing a phase-out plan on PCB management (including radioactive PCB), after the end of commercial operations at Pickering and is in discussions.

2.11.6 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document	Title
N-PROG-OP-0006	Environmental Management
N-PROC-OP-0043	Waste Management
N-PROC-RA-0017	Segregation and Handling of Radioactive Wastes
W-PROG-WM-0003	Decommissioning Program
P-PLAN-00960-00001	Preliminary Decommissioning Plan-Pickering Nuclear Generating Stations A and B

2.12 Security

Pickering NGS has an effective security program that meets or exceeds all applicable regulatory requirements and related objectives. It effectively prevents the loss, theft or sabotage of nuclear material and the sabotage of the licensed facility.

For specific areas within this SCA, the following subsections describe the objectives, key results from the current licensing period, and planned improvements over the next licensing period. These discussions also support that:

- Nuclear safety will be assured such that the public is protected (e.g., Sections 2.12.1 and 2.12.4).
- OPG continues to invest in additional security measures at Pickering (e.g., planned improvements mentioned in Sections 2.12.1 and 2.12.4).

2.12.1 Nuclear Security Program

The *Nuclear Security Program*, N-PROG-RA-0011 ensures the safe and secure operation of the station and compliance with the legislative requirements by maximizing protection through use of equipment, personnel, and procedures.

OPG documents the specific regulatory security requirements for the security program in the OPG report, 8690-REP-61400-10003, *Pickering Site Security Report*. This security protected report will be updated in 2017.

Pickering Security personnel consist of two roles, Nuclear Security Officers (NSO) and Armed Nuclear Security Officers (ANSO). NSO's perform all security functions for Pickering NGS, while ANSO's provide on-site armed support capable of dealing with situations as outlined in the Design Basis Threat.

OPG Nuclear Security continues to participate in the inter-utility working group that includes security representatives from all commercial nuclear reactor operators in Canada. The group ensures nuclear security programs in Canada continue to evolve to meet future requirements, through the sharing of OPEX, and the promotion of best security practices.

Planned Improvement

OPG is in the process of developing an implementation plan in 2017 to comply with new mandatory credit checks and digital fingerprinting requirements as a result of changes to the Treasury Board Secretariat Security Screening Standard and the Royal Canadian Mounted Police (RCMP) Law Enforcement Records Check.

Facilities and Equipment

The objective for Facilities and Equipment is to ensure that Pickering Security and Emergency Services possess and operate the required equipment needed to comply with the Nuclear Security Regulations.

The Pickering search facilities are equipped with dedicated equipment for conducting personnel and vehicle security searches in order to enter the protected area of the Pickering plant. Personnel are also required to perform identity checks using both a proximity card and biometric hand geometry.

All exterior doors of the Pickering powerhouse are hardened against explosive or forced entry, and the doors are equipped with a robust lock system to prevent unauthorized access. The doors are alarmed and monitored.

Exits are also monitored with portal monitors for the detection of Category I, II or III nuclear material to prevent theft of material.

Searches are conducted on all packages and equipment entering the protected area for weapons and explosive substances.

The Pickering NGS protected area is surrounded by a security fence equipped with devices intended to detect any attempt at unauthorized intrusion into the protected area, and to detect any tampering or component failures that could cause the system to malfunction. The system is monitored at all times by Nuclear Security officers in the Security Monitoring Room. Alarms within the protected area are responded to by armed Nuclear Security officers. Pickering NGS also has physical protection measures against forced land vehicle penetration of the protected area.

Planned Improvements

There are initiatives underway that will enhance the Security Monitoring Room in order to improve the overall response capability and are expected to be completed in 2019.

2.12.2 Drills and Exercises

Security Drills are regularly conducted at the Pickering site with the objectives of validating security practices, ensuring regulatory compliance, and to identify security improvements. Security Training has been recognized by the American Society for Industrial Security (ASIS) International for providing industry leading training

OPG conducts a CNSC audited security exercise at the Pickering facility every two years. Also, a security drill that tests the operation of one or more of Pickering's physical protection measures and readiness of security personnel is conducted at least once every 30 days.

In 2014 and 2016, major security CNSC exercises were conducted. These exercises involved the integrated response of the Nuclear Security personnel as well as offsite police personnel and members of the Emergency Response Team. All of the exercises were conducted in a safe manner and the lessons learned improved security efficiency.

Currently, Security Training is conducting Incident Command Training based on the systematic approach to training process developed by all of the Nuclear Security groups in Canada. This training involves the active participation of the Durham Regional Police Service and ensures a smooth incident command transfer if it is necessary, during a security event.

OPG is partnering in the Durham Regional NextGen public safety radio system and is installing radio system infrastructure at the site. This will allow an improved communication link to offsite services in Durham Region and is expected to be completed by the end of 2017.

2.12.3 Response Arrangements

OPG has a Memorandum of Understanding (MOU) with the Durham Regional Police Service (DRPS) to provide off-site armed response force support to the Pickering Nuclear Generating Station pursuant to the Nuclear Security Regulations.

An update to the Memorandum of Understanding with DRPS is currently being agreed upon between Security and Emergency Services and DRPS. An updated copy of this MOU will be included in the 2017 Site Security Report.

2.12.4 Cyber Security

OPG's cyber security program is designed to implement OPG's corporate cyber security policy OPG-POL-0035, *Cyber Security Policy.* Information technology and industrial control systems are managed in a secure, vigilant and resilient manner that minimizes cyber risks to information assets and generation facilities.

The objective of nuclear cyber security is to provide for the secure operations of computer systems governed by the nuclear software program. Cyber security is applied to plant systems including those used to ensure safe operations and those which provide for physical security of the facility. Since 2013, there have been cyber security related updates to Engineering Change Control (ECC), employee training, and various maintenance and engineering instructions, guides, procedures and standards in addition to OPG's corporate cyber security policy.

ECC ensures all modifications to OPG nuclear systems, structures, and components (SSCs), including software and engineered tooling, are planned, designed, installed, commissioned, placed into service, or removed from service within the licensing basis. Within the ECC program, the modification process is followed for all changes to the OPG Nuclear design basis. Cyber Security is initially addressed during the design scoping phase of the modification process and issues are tracked through to the in-service declaration.

Employee training has included new qualifications for the Cyber Security Subject Matter Experts and the Cyber Security Single Point of Contact to support cyber security under the nuclear software program during design scoping and cyber essential asset identification and classification. Supplementing the internal training, a number of staff participated in a National Training Course on cyber security assessments sponsored by the CNSC and delivered by the International Atomic Energy Agency. For individuals performing maintenance related work, a training course was created to reinforce expectations with regard to portable computing devices (e.g., laptops), removable media (e.g., USB keys), and virus detection. Supporting the training, new instructions and guides have been issued to improve cyber security for portable and mobile computing, removable media devices and vendor digital assets.

OPG is improving the cyber security program by continuing to address the identified gaps communicated to the CNSC in order to comply with CSA N290.7-14, *Cyber Security*. These gaps are associated with the new identification and classification scheme for cyber assets and require a different selection and implementation of risk-based controls for the expanded inventory of cyber assets. As a consequence, a new engineering standard has been produced to provide direction for the identification and classification of *Cyber Essential Assets* (*CEAs*) in alignment with CSA N290.7-14. Subsequently, all station systems were systematically reviewed to identify and classify the CEAs. In some instances, modifications to newly identified cyber assets will be required to achieve compliance with CSA N290.7-14. The need to proceed with such modifications will be evaluated using the normal engineering change request process.

2.12.5 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document	Title
N-PROG-RA-0011	Nuclear Security
8690-D0H-14100-1003	Pickering GS Site Security Taut Wire Fence Layout and Survey
8690-REP-61400-10003	Pickering Nuclear Generating Station Security Report
N-CORR-00531-04980	Attachment 1: Primary Firearm Course of Fire and Qualification
N-CORR-00531-06348	Secondary Firearms Qualification
8690-CORR-00531-00483	Addendum to Pickering NGS Security Report R008
8690-CORR-00531-00459	Addendum to Pickering NGS Security Report R008
8690-CORR-00531-00544	Addendum to Pickering NGS Security Report R008
N-PROC-MP-0103	Security for Real-Time Process Computing System
N-STI-69000-10015	Cyber Asset Identification for Real-Time Process Computer Systems
N-STI-69000-10016	Cyber Security for Real Time Process Computing System
P-LIST-69000-00001	Significant Cyber Assets
TRAN-PLAN-03450-10000	Transport Security Plan

2.13 Safeguards and Non-Proliferation

Pickering NGS has an effective safeguards and non-proliferation program that meets or exceeds all applicable regulatory requirements and related objectives. Pickering NGS takes adequate measures to meet Canada's international safeguards obligations arising from the Canada/International Atomic Energy Agency (IAEA) safeguards agreements as well as other measures arising from the Treaty on the Non-Proliferation of Nuclear Weapons.

For specific areas within this SCA, the following subsections describe the main objectives and OPG activities at Pickering NGS. These discussions also support that:

- Pickering continues to provide the required level of transparency and co-operation with IAEA and CNSC staff for this area.

2.13.1 Nuclear Safeguards Program

OPG's *Safeguards Program* N-PROG-RA-0015 is designed to establish, maintain, and verify compliance with nuclear safeguards requirements for nuclear operations and to ensure that all necessary measures are taken to facilitate Canada's

compliance with safeguards agreements as well as all other measures arising from the Treaty on the Non-Proliferation of Nuclear Weapons.

The safeguards implementing document, N-STD-RA-0024, provides direction to ensure OPG complies with its licence conditions, the Nuclear Safety and Control Act, the General Nuclear Safety and Control Regulations, and any other related regulations in support of Canada's safeguards agreements.

During the current licence period, Pickering has met all Safeguards conditions in its operating licences and the terms of the agreement between Canada and the IAEA pursuant to the Treaty on Non-Proliferation of Nuclear Weapons. Pickering staff has fully cooperated with the IAEA and facilitated achievement of IAEA Safeguards goals

Pickering's compliance with the IAEA's Fuel Verification Program is met through the following activities:

- Complying with the Safeguards Agreement and the Additional Protocol,
- Providing services and assistance for IAEA staff tasks and equipment operation,
- Disclosing any records to the IAEA upon request,
- Installing, servicing and operating safeguards equipment,
- Not interfering in any way with safeguards equipment, samples or seals,
- Making no changes to operations, equipment or procedures that would affect safeguards implementation without prior written CNSC approval, and
- Preparing and submitting nuclear material accountancy reports per CNSC regulatory document RD-336, *Accounting and Reporting of Nuclear Material*, and as required under Regulatory Document REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*.

2.13.2 Operational and Design Information

The Design Information Questionnaire (DIQ) provides the IAEA/CNSC with information pertaining to PNGS' design to ensure safeguards responsibilities are met as per the facility attachment. The DIQ is provided upon request from the IAEA/CNSC. The DIQ ensures that general information describing the Pickering NGS facility, design and operation, nuclear material descriptions, processing and flow of nuclear materials, safeguard measures, and accounting and reporting of nuclear materials are accurate and available to support a Design Information Verification (DIV) inspection.

2.13.3 Safeguards Equipment and Surveillance

Safeguards equipment is labelled and secured to prevent interference or tampering. The IAEA conducts annual inspections to ensure functionality and that no tampering of remote monitoring equipment has occurred. Surveillance systems (e.g., digital multi-camera surveillance systems, bundle counters and core discharge monitors) are installed at Pickering to provide the IAEA with continuous detailed data of

safeguards-related functions. The information is compared against Pickering's monthly declarations.

After an IAEA inspection, an accessibility issue was raised for a portion of the spent fuel bays due to the stacking of the fuel frames. This issue will be addressed to the satisfaction of IAEA and CNSC staff.

2.13.4 Import and Export

The scope of the non-proliferation program at Pickering is limited to the tracking and reporting of foreign obligations and origins of nuclear material. Import and export of controlled nuclear substances, equipment and information as identified in the *Nuclear Non-proliferation Import and Export Control Regulations,* is not currently permitted under the Pickering site licence and any application is made in accordance with applicable regulations.

2.13.5 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document Number	Document Title
N-PROG-RA-0015	Nuclear Safeguards
N-STD-RA-0024	Nuclear Safeguards Implementation

2.14 Packaging and Transport

Pickering NGS has an effective packaging and transport program that meets or exceeds all applicable regulatory requirements and related objectives. Packaging and transport of nuclear substances are conducted safely.

For specific areas within this SCA, the following subsections describe the objectives, key activities performed, and some planned improvements. These discussions also support that:

- Packaging and transport activities associated with the continued operation of the Pickering NGS will be conducted in a manner such that the risk to the public, workers, and the environment will be low.

2.14.1 Package Design and Maintenance

OPG controls the design of its radioactive materials packages and performs maintenance on the packages to ensure compliance with the Packaging and Transport of Nuclear Substances Regulations (PTNSR).

OPG owns and operates a fleet of radioactive materials packages of various types and capabilities. Some of the packages were designed by OPG and some were designed by external agencies. The engineering of new package designs (internally or externally produced) and modifications to existing packages are conducted in accordance with OPG's Engineering Change Control program and associated governance.

Each OPG radioactive materials transportation package (with the exception of one-time use packages) is subject to an annual maintenance outage. Package maintenance is performed in a dedicated facility located at the Western Waste Management Facility.

Each package is maintained in accordance with a package-specific procedure. Maintenance tasks include disassembly of major components, visual inspections of critical package features and components such as fasteners, and replacement or refurbishment of worn parts. The containment system of each package is tested to ensure its effectiveness.

Modifications to OPG's existing radioactive materials transportation packages are a rare occurrence due to the maturity of the designs.

All packages are maintained in proper condition to ensure there is no reduction in safety or operability.

Planned Improvements

OPG Nuclear Waste Management (NWM) is in the process of replacing its older transportation packages. The designs of the new packages incorporate improvements based on NWM's operating and maintenance experience, and utilize industry best practices.

2.14.2 Radioactive Material Transportation

The objective of the Radioactive Material Transportation (RMT) program is to ensure that shipments of radioactive material for which OPG is the consignor are prepared and offered for transport in a manner that is compliant with the Transportation of Dangerous Goods Regulations (TDG) and the Packaging and Transport of Nuclear Substances Regulations (PTNSR). This is done to ensure the safety of workers, the public, and the environment.

The *Radioactive Material Transportation* Program is owned by the Low and Intermediate Level Waste Operations and Radioactive Material Transportation (RMT) Department within the Nuclear Waste Management (NWM) division of OPG. The overall structure of the program is provided in W-PROG-WM-0002. OPG ensures that radioactive shipments are characterized, classified, packed, shipped, and received in accordance with approved procedures and applicable regulations. To ensure regulatory compliance, NWM issues and maintains a set of procedures and instructions that provide information on the correct means of handling, loading, and offering of radioactive material for shipment.

Table 8 below describes the various types of radioactive waste commonly shipped by Pickering Nuclear, and the packaging in which they are typically shipped.

Material	Packaging
Active Zone 2, and Zone 3 Waste	ISO-40 Trailer (IP-2 or Type A) & other Less than Type A Packaging
Filters, IX columns, hot particles	Radioactive Filter Transportation Package (Type B) & Multi-Purpose Transportation Package (Type B)
Spent Resin (in stainless steel liner)	Trillium Transportation Package (Type B)
High Active Waste (in drums)	Trillium Transportation Package (Type B)
Tritiated Heavy Water	TDO Package (Type B) Multi-Purpose Transportation Package (Type B)

Table 8 - Radioactive Material and Packaging

TDG regulations require that anyone who handles (i.e. loads, unloads, receives, classifies or ships) radioactive material in preparation for transport must be adequately trained or under the direct supervision of someone who is qualified. Within OPG, evidence that an employee is adequately trained for their function is demonstrated by holding a valid Class 7 Certificate of Training issued by RMT. To meet their responsibilities to the RMT Program, each work group maintains an adequate complement of trained Class 7 Handler/Receivers and Shippers. Each work group receives sufficient oversight from their line management to ensure compliance with RMT procedures. In addition, all Type A or Type B radioactive shipments are approved by an RMT Transportation Officer prior to leaving site.

Pickering has safely shipped hundreds of radioactive material packages, without any incident resulting in a radioactive release or serious personal injury.

2.14.3 Registration for Use

The objective of the user registration process is to ensure that OPG applies for and obtains confirmation from the CNSC that OPG's intended use of a radioactive materials transportation package of certified design has been registered. OPG has procedures in place for the registration for use of certified design packages.

OPG is currently a registered user for 12 different package designs. These packages include OPG's intermediate level waste and tritiated heavy water transportation packages, and shipping packages from external agencies and companies for used fuel, Cobalt-60, and radiation devices such as radiography cameras.

2.14.4 Transport Security Plan

The purpose of the transportation security plan is to govern security arrangements for shipments of Category III nuclear material by OPG. Specifically, it provides a description of the threat assessment of actions to be taken during the planning and execution of a Category III shipment.

There is a licensing requirement (Licence Condition 4) in the Licence to Transport (TL-S-12861-06.00/2018) to have a security plan, to ensure it is in effect during the licensing period and to review and update it annually.

The *Transport Security Plan* is documented in OPG document, TRAN-PLAN-03450-10000.

2.14.5 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document Number	Document Title
W-PROG-WM-0002	Radioactive Material Transportation
N-STD-RA-0036	Radioactive Materials Transportation Emergency Response Plan

3.0 Licensee Public Information Program

3.1 Public Information Program

OPG believes in open and transparent communication in a timely manner to maintain positive and supportive relationships and confidence of key stakeholders. OPG's Corporate Relations and Communications organization adheres to the principles and process for external communications as governed by the nuclear standard N-STD-AS -0013, *Nuclear Public Information and Disclosure*.

This document guides OPG's external community stakeholder activities, public response requirements of issues or significant events and OPG's standards to respond to concerns expressed by the public.

OPG's community relations and public information program has been recognized as a strength by national and international utility peers. OPG benchmarks current practices amongst other industries to ensure continuous performance improvement.

Each year a community engagement and consultation plan is developed to support OPG's business strategy to build community awareness and support of OPG and site operations that will result in sustained company reputation and positive community relations. The community relations program proactively provides information to stakeholders on Pickering operations and any effects on the community or environment that may result. The community information program ensures OPG continues to operate within an environment of limited public concern or intervention.

Pickering's community relations and public information program manages communications and relationships between Pickering and host communities by fostering healthy, open relationships and sustainable partnerships with community stakeholders, including government, media, business leaders, educational institutions, interest groups, and community organizations. In addition, Pickering strives to ensure transparent disclosure of operations and potential impacts, both positive and negative that may occur as a result of those operations.

OPG provides a quick response to issues and questions raised by stakeholders and the public, and tracks issues and questions to identify trends in order to further refine proactive communications. Two-way dialogue with community stakeholders and residents is facilitated through personal contact, community newsletters, speaking engagements, paid advertising and educational outreach.

3.1.1 Key Yearly Activities

OPG relies heavily on websites to provide up-to-date information that is easily accessible by the public and offers opportunities for further contact. The OPG website provides online access to information on environmental assessments and projects. It also carries regulatory information, such as relicensing hearings and event reports. Information brochures and fact sheets are also posted. OPG Nuclear and Pickering Nuclear Performance Reports are produced quarterly and published to

the OPG website. The website provides an opportunity for users to email questions, comments and concerns.

Social media continues to increase in popularity and use. OPG actively monitors and responds to activity through Tweets, Facebook, and other social media platforms. OPG maintains a Twitter account, an Instagram account, and Tweets on relevant nuclear activities and information.

3.1.2 Station reporting

OPG regularly and proactively provides information to the public on its facility activities. For operational status changes or unscheduled operations that may cause public concern or media interest, OPG follows a protocol to notify key community stakeholders in a timely manner. OPG maintains a duty on-call position 24 hours a day, seven days a week.

In conjunction with the Durham Emergency Management Organization, OPG maintains a protocol to notify key community stakeholders via faxes, e-mails and telephone (as warranted) when there are activities or events that have the potential to garner public or media interest. The purpose of the protocol is to ensure contacts in the emergency agencies (fire, police, and emergency management) and political offices are kept aware and are able to respond accurately if they receive questions from constituents.

On a quarterly basis, OPG publicly posts performance reports on station operations at www.opg.com and shares this document electronically with key stakeholders. Additionally, starting in 2014 OPG developed and began issuing a quarterly Environment report in an easy to read and understandable format. Annually, OPG posts the Environmental Monitoring Program report on www.opg.com for both Pickering and Darlington.

3.1.3 Welcoming Visitors

Pickering NGS maintains an Information Centre to host public and school visitors. Visitors receive information on current operations and issues and are provided an opportunity to have questions addressed. Students are offered curriculum-based educational presentations and self-directed use of the centre.

OPG encourages community groups to use the Information Centre for events unrelated to the industry. Its meeting room and event space were built to help build greater ties to the community. By creating a meeting space, organizations otherwise unrelated to the industry gain a comfort and familiarity with the technology.

Information about station operations and public waterfront trails is distributed to new residents in the Pickering and Ajax community via the Welcome Wagon.

3.1.4 Community Outreach

OPG hosts an annual community information session. The sessions are widely advertised in the community and in nearby Toronto. At many of the sessions, staff from OPG, the Canadian Nuclear Safety Commission (CNSC), the Region of Durham, the City of Toronto Emergency Management Office, and the Office of the Fire Marshal and Emergency Management were on hand to answer questions and provide information about safety and station operations.

Figure 22 - 2015 Pickering Nuclear Community Information Session

Figure 23 - Information Sharing Session and Station Tour

As well, Pickering Nuclear provides presentations and tours to community groups, key stakeholders, industry partners and the general public as shown in Figure 22 and Figure 23.

Quarterly ads on station performance are placed in local newspapers. Ads on station activities and community events are also run in newspapers and aired on local television stations.

120,000 copies of *Pickering Neighbours* newsletter are distributed quarterly to all residents and businesses in the City of Pickering, Town of Ajax and Toronto East.

Since 2006, Pickering Nuclear's Corporate Relations and Communications has provided a community-based program known as "Tuesdays on the Trail", reaching over 16,000 community members on Tuesdays throughout the summer months of July and August at Alex Robertson Park, which is adjacent to the Pickering Nuclear site (Figure 24). The long standing community based program has been recognized as a good practice by external reviews. This program provides a forum for the OPG staff to educate the public on plant operations while also promoting environmental awareness.

Figure 24 - Tuesdays on the Trail – Summer 2016

3.1.5 Community Committees

Pickering Nuclear manages the Pickering Community Advisory Council (CAC) which meets monthly to exchange information and provide advice to senior plant management on environmental, economic and public concern. Media attends and reports on the meetings. Figure 25 shows a CAC meeting in progress.

Figure 25 - Joint DNGS and PNGS CAC meeting June 2015

Pickering Nuclear has a representative on the Durham Nuclear Health Committee (DNHC) and OPG Nuclear staff makes regular presentations to the DNHC on a variety of environmental, community outreach and operational issues. The committee is chaired by the Durham Region Medical Officer of Health.

3.1.6 Environmental Partnerships and Programs

Pickering Nuclear is committed to biodiversity work on public lands, on OPG property and within the host community. Pickering Nuclear's biodiversity program continues to provide planting, butterfly gardens, and numerous other initiatives. More than 15,000 native trees and shrubs have been planted in the vicinity of Pickering Nuclear since 2000 by OPG staff and community volunteers.

Since 2011, OPG has been a lead partner in the Bring Back the Salmon program with the Ontario Ministry of Natural Resources, and the Ontario Federation of Anglers and Hunters. The program is designed to help restore the Atlantic salmon population in Lake Ontario by 2020 as shown in Figure 26. The success of this partnership led to a recent nomination for Wildlife Habitat Council – Partnership of the Year award.

In January 2017, OPG's Nuclear Operations successfully received "Conservation Certification" for 2017-2019 from the international Wildlife Habitat Council and Pickering Nuclear has twice been recognized as Wildlife Habitat of the Year.

Figure 26 - Students helping to raise salmon eggs in the Pickering Information Centre.

3.1.7 Employee Communications

The Corporate Relations and Communications (CRC) Department's Employee Communication division at Pickering Nuclear works to keep employees informed on station, fleet-wide company and industry issues in a timely, accurate and consistent manner by working collaboratively with station leadership and staff to develop and

implement strategic station-wide communications programs. These comprehensive programs support Pickering's vision of working together, as well as overall business objectives, work programs and goals to effectively drive improvements and support the safe and reliable operations of the plant. Additionally, the messages used within these communication programs help to foster alignment, engagement and teamwork amongst the intended audiences.

The internal CRC team develops annual communications strategies to support Pickering's business plans and vision, major on-site projects, initiatives and events. They include selected services and materials designed to achieve the communications goals. This ensures consistent communications have a positive, long-term impact on workforce alignment and engagement using a reliable two-way information exchange by way of the supervisory chain and meaningful face-to-face communication with direct reports, as well as more informal and formal online information channels. Pickering site communications anchor and reinforce key messages through multiple channels, including but not limited to face-to-face meetings, intranet websites, site-wide emails, posters and banners, in-station TV screens, and videos.

The CRC leads a number of initiatives throughout the year to measure and gauge the effectiveness of the strategies to promote a process of continual learning and improvement.

External evaluators and review teams continue to recognize the positive contributions of internal communications on the culture at Pickering.

3.1.8 Applicable OPG Documents

The following documents are the applicable OPG documents which support the licensing basis and are to be listed in the Licence Conditions Handbook.

Document Number	Document Title
N-STD-AS-0013	Nuclear Public Information and Disclosure

3.2 Aboriginal Consultation

Pickering NGS has an Indigenous Relations program in compliance with *REGDOC-3.2.2 Aboriginal Engagement.*

Under its Indigenous Relation Policy, OPG acknowledges the Aboriginal and Treaty rights of Indigenous communities as recognized in the *Constitution Act, 1982* and regularly undertakes engagement with Indigenous communities with asserted or established Aboriginal and treaty rights and/or interests proximate to Pickering NGS. These communities include:

- Members of the Williams Treaties First Nations:
    - Scugog First Nation;
    - Hiawatha First Nation;
    - Curve Lake First Nation, and
    - Alderville First Nation.
- Mississaugas of the New Credit First Nation
- Mohawks of the Bay of Quinte
- Métis Nation of Ontario, Region 8

OPG meets with these Indigenous communities on an ongoing basis to provide details of nuclear operations, reports and to discuss interests and identify concerns over current and future operations. OPG also maintains a listing of all relevant documents and notices on a designated external website for such events as the Pickering NGS licence renewal, and provides notification of site updates to communities when they occur.

Beginning in 2015, OPG began a renewed series of conversations on how communities proximate to Pickering NGS wished to be engaged; what information should be provided and discussed; frequency of meetings; and capacity support for communities to assist them in understanding potential impacts or concerns. The scope of the engagement was discussed and agreed upon; consultation protocols were reviewed; representatives were identified, and work objectives outlined.

OPG also provided community information sessions to Curve Lake and Hiawatha at their request in August 2016 (both members of the Williams Treaties First Nations), which covered the Pickering Waste Management Facility (PWMF) and Pickering site licensing processes among other topics.

As a part of OPG's overall engagement with the Indigenous community as a whole, tours have been undertaken by Indigenous communities that have rights or interests in current and planned OPG Nuclear and related operations. There were two Indigenous community specific tours in 2016 of the PWMF, with twenty-two participants. There was also a tour for Williams Treaties First Nations representatives on January 19, 2017.

Further, engagement meetings were undertaken with representatives of the Williams Treaties First Nations, Mississaugas of New Credit, Mohawks of the Bay of Quinte and the Métis Nation of Ontario Region 8 between January and March 2017 regarding OPG's fish impingement and entrainment mitigation and off-set measures. Engagement on this topic and others, with an emphasis on Pickering re-licensing, will be undertaken between September 2017 and February 2018.

Additionally, OPG participated in the second annual Aboriginal Apprenticeship Board of Ontario (AABO) *Day in the Trades* event, hosted by LiUNA Local 183 at their facility in Cobourg. Representatives from various building trades, suppliers and contractors interacted with Indigenous high school students from the communities as diverse as the Mohawks of the Bay Quinte, Curve Lake First Nation, Pikwakanagan First Nation and Durham Region Métis.

The OPG Native Circle, made up of Indigenous employees, organizes and hosts the annual National Aboriginal Day celebrations every June and oversees the John Wesley Beaver Memorial Awards for Indigenous post-secondary students. The Native Circle serves, in part, as a connection to the wider Indigenous community and participates in various Indigenous events, e.g., the annual *Indspire* career fair, where OPG is one of the sponsors.

Indigenous community representatives have expressed the following concerns and OPG has initiated or will implement the following communication sessions:

- Transportation and storage of nuclear waste - OPG continues to inform and educate communities, additional information sessions are being planned on OPG's Transportation Emergency Response Plan.

- Emergency preparedness and the ability for community members to be notified - OPG has provided information on notification protocols by OPG and appropriate authorities.

- Environment and fish impact as a result of operations - Numerous presentations on OPG's efforts to reduce fish impingement and entrainment have been provided.

- Potential outcome of an event that could impact their traditional territories given the close relationship First Nations and Métis have with the land - OPG continues to provide information on actual risks of operations and response and lessons learned that have been applied as a result of the Fukushima event in Japan.

- Desire to remain involved in future environmental monitoring opportunities - OPG commits to ongoing, participatory engagement and involvement of communities in the results and efforts to appropriately confirm environmental impacts of operations.

- An expressed interest in economic opportunities through procurement and employment through OPG's nuclear operations – as part of its Silver designation from the Canadian Council for Aboriginal Business' Progressive Aboriginal Relations (PAR) program, OPG is working to improve its business procurement and employee recruitment with local Indigenous communities.

4.0 Program for Cobalt-60

4.1 Cobalt-60

OPG produces Cobalt-60 as a commercial by-product at Pickering 5-8. Cobalt-60 is an important radioisotope with a wide range of industrial, medical, and food processing applications, and is a product that provides broad societal benefits. Cobalt production has been an important part of the Canadian nuclear industry since its inception, and Pickering NGS is a major supplier of Co-60. Pickering Units 6, 7 and 8 are fitted with adjuster elements consisting of a number of bundles strung end to end (similar in configuration to that of a fuel bundle). Each bundle is comprised of a number of pencils containing cobalt slugs. The Cobalt adjuster elements are then harvested during planned unit outages. Cobalt-60 rods are then packaged and shipped off-site.

Cobalt-60 is shipped off-site in accordance with the Transportation of Dangerous Goods Regulations and Packaging and Transport of Nuclear Substances Regulations. No spent Cobalt-60 has been received at Pickering from any off-site commercial facility.

The procedures which are used for Cobalt-60 processing and transfer are listed below. Pickering has not received any cobalt from MDS Nordion with an activity greater than 0.3 TBq in this licence period to-date, and will continue to submit the appropriate reports should any Cobalt-60 be received.

4.2 Applicable OPG Documents

Document Number	Document Title
P-OP-31985-0001	Cobalt Processing Procedure
P-OM-018-31985-01	Cobalt Processing – Table of Contents / Revision History
P-OM-018-31985-04.04.12	Cobalt Processing – Cobalt Handling

5.0 References

1 Letter, G. Carl Andognini to J. D. Harvie, “Pickering A – Request for Approval to Return to Service”, November 24, 1999, N-CORR-00531-00521.

2 Letter, P. Pasquet to T.E. Schaubel, “Pickering B:Submission of the Pickering B Continued Operations Plan – CNSC Action Item 2010-8-05”, September 29, 2010, NK30-CORR-00531-05693.

3 Letter, B. McGee to H. Overton, “Submission of Pickering NGS Periodic Safety Review 2 (PSR2) Basis Document Revision 001”, June 3, 2016, P-CORR-00531-04752.

4 Letter, R. Lockwood to G. Frappier, “End Date of Commercial Operations for Pickering NGS”, June 28, 2017, P-CORR-00531-04930.

5 Letter, B. McGee to A. Viktorov, “Pickering NGS Stabilization Activity Plan (SAP) – 2016 Annual Update”, December 2, 2016, P-CORR-00531-04880.

6 Letter, S. Granville to K. Glenn, A. Viktorov and M. Santini, “Submission of Preliminary Decommissioning Plans”, January 30, 2017, N-CORR-00531-18384.

7 Letter, G. Jager to M. Leblanc, “Notice of Participation Pursuant to Rule 18 of CNSC Rules of Procedure - Pickering NGS Licence Renewal Application Hearing - February 20, 2013”, January 21, 2013, P-CORR-00531-03860.

8 Letter, B. McGee to A. Vikorov, “Pickering NGS – CNSC Action Item 2016-48-7470 Status Update on Emergency Mitigation Equipment and Telecommunications Projects”, February 16, 2017, P-CORR-00531-04945.

9 Letter, B. McGee to A. Vikorov, “Pickering NGS – Risk Improvement Plan Update”, February 27, 2017, P-CORR-00531-04946.

10 Letter, B. McGee to M. Santini, “Pickering NGS - Assurance of Structural Fuel Channel Fitness-for-Service for the Target Service Life of Pickering Units 5-8”, June 10, 2015, P-CORR-00531-04293.

11 Letter, M. Santini to B. McGee, “Pickering NGS - Assurance of Structural Fuel Channel Fitness-for-Service for the Target Service Life of Pickering Units 5-8”, March 9, 2016, NK30-CORR-00531-07215.

12 Letter, R. Lockwood to A. Viktorov, “Pickering NGS - Assurance of Fuel Channel Fitness-for-Service for the Assumed Target Service Life of the Pickering Units”, April 4, 2017, P-CORR-00531-04953.

13 Protocol, “OPG-CNSC Protocol for the Conduct of a Periodic Safety Review in Support of Pickering NGS Licence Renewal”, January 17, 2017, e-Doc 5143721, P-CORR-00531-04725 R001.

14 Email, P. Herrera to A. Viktorov, “Pickering NGS Sustainable Operations Plan (SOP) - Revision to 2016 Update”, January 9, 2017, P-CORR-00531-04943.

15 Letter, R. Lockwood to A. Viktorov, “Environmental Risk Assessment Report for Pickering Nuclear and Predictive Effects Assessment for Pickering Nuclear Safe Storage”, April 28, 2017, P-CORR-00531-04982.

16 Letter, K. Dehdashtian to A. Viktorov, “Pickering Quarterly Report on Nuclear Power Plant Personnel - Fourth Quarter 2016”, March 30, 2017, P-CORR-00531-04986.

17 Letter, K. Dehdashtian to A. Viktorov, “Pickering Quarterly Report on Nuclear Power Plant Personnel - First Quarter 2017”, June 30, 2017, P-CORR-00531-05066.

18 Email, L. Mitchell to M. Santini and A. Viktorov, “CNSC Staff’s Written Notification of Document Change: N-PROG-RA-0018, Nuclear Pandemic Plan, R003 Superseded”, June 27, 2017, N-CORR-00531-18652.

19 Letter, W.S. Woods to A. Viktorov and M. Santini, “Progress Report on OPG Heat Transport System Aging Safety Analysis”, February 24, 2017, N-CORR-00531-18427.

20 Letter, R. Lockwood to A. Viktorov, Pickering Units 1 to 4: Updated Fire Hazard Assessment (FHA) and Fire Safe Shutdown Analysis (FSSA) Reports - CNSC Action Item 2015-48-6623 - Request for Closure”, June 30, 2017, P-CORR-00531-05062.

21 Letter, B. McGee to A. Viktorov, “Pickering Units 5 to 8: Updated Fire Hazard Assessment (FHA) and Fire Safe Shutdown Analysis (FSSA) Reports - CNSC Action Item 2015-48-6303 - Request for Closure”, March 31, 2017, NK30-CORR-00531-07407.

Appendix A – Activities and Nuclear Substances to be Encompassed by the Licence

The information below is provided to satisfy the requirements of Section 3(1)(b) of the General Nuclear Safety and Control Regulations.

Activities to be Licensed:

The application for renewal of Power Reactor Operating Licence (PROL) 48.03/2018 contains information for the activities to be licensed. These activities include those currently licensed in PROL 48.03/2018:

(i) Operate the Pickering Nuclear Generating Station units 1, 4, 5, 6, 7 and 8, for power production, and operate units 2 and 3 in the safe storage phase at a site located in the City of Pickering, in the Regional Municipality of Durham, in the Province of Ontario.

(ii) Possess, transfer, use, package, manage and store the nuclear substances that are required for, associated with, or arise from the activities described in [i].

(iii) Possess and use prescribed equipment and prescribed information that are required for, associated with, or arise from the activities described in [i].

(iv) Possess, use, manage and store enriched uranium as required for fission chambers for the Pickering Nuclear Generating Station units 1 and 4 Shutdown System Enhancement, including spares.

(v) Possess, produce, manage, transfer and store Cobalt-60.

(vi) Possess, manage and store Cobalt-60 sealed sources.

(vii) Possess, transfer, manage and store heavy water from other nuclear facilities.

Additional activities requested to be licensed include the activities associated with the Stabilization and Safe Storage with Surveillance phases described in this application, including to:

Operate the Pickering Nuclear Generating Station units 1, 4, 5, 6, 7 and 8 in the safe storage phase at a site located in the City of Pickering, in the Regional Municipality of Durham, in the Province of Ontario, following the end of commercial operation of these units.

The table below is provided to satisfy the requirements of Section 3(1)(c) of the General Nuclear Safety and Control Regulations. The data provided are current as of June 2017.

Nuclear Substance	Form	Location	Maximum Quantity
Natural Uranium	Solid Fuel Bundles[1]	New Fuel Inventory	11177 bundles
Depleted Uranium	Solid Fuel Bundles[1]	New Fuel Inventory	508 bundles
	Solid	Tooling and Shielding	~26000 kg
	Solid Spent Fuel Bundles[1]	IFB-A, AIFB & IFB-B	399703 bundles
Irradiated Uranium	Solid[1,2] Fuel Bundles	Pick A Reactor Cores - Units 1 & 4	9360 bundles
	Solid[1] Fuel Bundles	Pick B Reactor Cores - Units 5, 6, 7 & 8	18240 bundles
Heavy Water	Liquid (D_2O)	Units 1,4,5,6,7 & 8	3000 Mg
	Liquid (D_2O)[3]	Storage	2100 Mg (Note 3)
Cobalt-60	Solid	Units 6, 7 & 8	6.3 MCi
	Solid	AIFB	0 MCi
Enriched Uranium	Solid	Painted layer on the tubes of Fission Chambers[4]	24 Fission chambers

Notes:

1. A fuel bundle contains on average 20.142 kg U.
2. Pickering Unit 2 and 3 have been defueled and are in the Safe Storage State.
3. Heavy water storage is the maximum capacity of heavy water that can be stored at Pickering; the current inventory of heavy water (in the units and stored) is 3556 Mg.
4. A fission chamber contains on average 3.56 g U-235 (93% enriched). This includes Fission chamber detectors used in SDSE in PNGS 014 and in Core Discharge Monitoring System in PNGS 014 and 058.

Appendix B - Financial Guarantee, Nuclear Liability Insurance and Cost Recovery

Financial Guarantee

The objective of OPG's financial guarantee is to ensure that sufficient funds are estimated, collected and administered for the management of liabilities associated with operating and decommissioning of all its nuclear facilities. The financial guarantee is prepared for all OPG owned or leased facilities and makes specific financial provisions for the decommissioning of the Pickering Nuclear Generating Station. The Pickering *Preliminary Decommissioning Plan* (Reference B-1) forms the basis for establishing and maintaining an acceptable Financial Guarantee.

In addition to the decommissioning program, OPG's Financial Guarantee also covers financial provisions for the long-term management (storage and eventual disposal) of all operational and decommissioning wastes (Used Fuel, Low Level and Intermediate Level Wastes).

OPG's financial guarantee is prepared and maintained on a five-year cycle in accordance with the requirements set out in CSA Standard N294-09 and CNSC regulatory documents G-219 and G-206. OPG also provides an annual financial guarantee report to the CNSC detailing the status of the guarantee including the amounts accumulated in segregated funds and the value of the Provincial guarantee required. The report compares the amount of the liabilities and the financial resources available to discharge the obligations.

The financial guarantee provisions for Pickering demonstrate that the current level of funding is adequate for decommissioning the station and returning the site to an end state agreed with the Regulators. The 2013 - 2017 CNSC financial guarantee was approved by the CNSC in December 2012.

The 2018 - 2022 CNSC financial guarantee is based on the decommissioning and operational waste management cost estimates completed by OPG in 2016 as part of the five-year Ontario Nuclear Funds Agreement (ONFA) reference plan update cycle and was submitted to the CNSC in the spring of 2017 for Commission approval by Hearing, to be held before the end of 2017. The update has been previously submitted for approval to the Ontario Finance Authority (OFA) and approved in December 2016 [Reference B-2].

OPG will continue to provide annual Financial Guarantee reports to the CNSC detailing the status of the guarantee including the amounts accumulated in segregated funds and the value of the Provincial Guarantee (if required).

Nuclear Liability

OPG is required, under the Nuclear Liability and Compensation Act (NLCA), to maintain $650 million of nuclear liability insurance for its Pickering nuclear generating station in 2017. The NLCA increases OPG's nuclear liability limit from $650M to $750M, $850M and $1B in 2018, 2019 and 2020 respectively. OPG will purchase nuclear liability insurance in accordance with the requirements of the NLCA. The following certificate of insurance verifies that the insurance required by the NLCA for 2017 is in place. Insurance inspections are conducted at Pickering every 18 months by nuclear property insurers. These inspections are also attended by conventional insurers who inspect the non-nuclear side of the station.

MARSH

Certificate of Insurance

No.: **2017-2** Dated: **January 03, 2017**

This document supersedes any certificate previously issued under this number

This is to certify that the Policy(ies) of insurance listed below ("Policy" or "Policies") have been issued to the Named Insured identified below for the policy period(s) indicated. This certificate is issued as a matter of information only and confers no rights upon the Certificate Holder named below other than those provided by the Policy(ies).

Notwithstanding any requirement, term, or condition of any contract or any other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the Policy(ies) is subject to all the terms, conditions, and exclusions of such Policy(ies). This certificate does not amend, extend, or alter the coverage afforded by the Policy(ies). Limits shown are intended to address contractual obligations of the Named Insured.

Limits may have been reduced since Policy effective date(s) as a result of a claim or claims.

Certificate Holder:	Named Insured and Address:
Canadian Nuclear Safety Commission **Headquarters** **280 Slater Street P.O. Box 1046** **Station B** **Ottawa, ON K1P 5S9**	**Ontario Power Generation Inc.** **700 University Avenue, H18-J18** **Toronto, ON M5G 1X6**

This certificate is issued regarding:
Pickering NGS

Type(s) of Insurance	Insurer(s)	Policy Number(s)	Effective/ Expiry Dates	Sums Insured Or Limits of Liability	
NUCLEAR LIABILITY • Pickering	Nuclear Insurance Association of Canada	OF104	Jan 01, 2017 to Jan 01, 2018	Limit of Liability	$ 403,000,000 out of $650,000,000
NUCLEAR LIABILITY • Pickering	Lloyd's Underwriters	NCNTPL56	Jan 01, 2017 to Jan 01, 2018	Limit of Liability	$ 47,000,000 out of $650,000,000
NUCLEAR LIABILITY • Pickering	Euro Liab. Ins for the Nuc. Ind. (ELINI)	EL031CA17	Jan 01, 2017 to Jan 01, 2018	Limit of Liability	$ 25,000,000 out of $650,000,000

Additional Information:
In accordance with their rights under the Nuclear Liability and Compensation Act, Ontario Power Generation Inc. has retained $175,000,000 out of the total policy limit of $650,000,000.

Notice of cancellation:
The insurer(s) affording coverage under the policies described herein will not notify the certificate holder named herein of the cancellation of such coverage.

Marsh Canada Limited
120 Bremner Boulevard
Suite 800
Toronto, ON M5J 0A8
Telephone: 1-844-990-2378
Fax: 416-868-2526
certificaterequestscanada@marsh.com

Marsh Canada Limited

By: [redacted]

Cost Recovery

Pursuant to the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulation*, Ontario Power Generation pays the CNSC's fees on a quarterly basis.

References

B-1 OPG letter, S. Granville to K. Glenn, A. Viktorov, and M. Santini, "Submission of Preliminary Decommissioning Plans," January 30, 2017, N-CORR-00531-18384.

B-2 OFA Memorandum, R. Kwan to J. Mauti, "Ontario Nuclear Funds Agreement Reference Plan," December 20, 2016, N-CORR-00960-0634854.

Appendix C - Licences, Internal Authorizations, Certificates and Summary of Environmental Regulatory Requirements

C.1 Licences, Internal Authorizations and Certificates

The following provides a list of Licences, Authorizations and Certificates held by OPG that are relevant to the Pickering Nuclear Generating Station. Note this information is current as of February 28, 2017.

Federal (other than CNSC)

Certificates and Authorizations	
Transport Canada	
Permit	**Description**
8200-08- 7095	The Pickering Fish Diversion System (Mesh Barrier) has a permit under the *Navigation Protection Act* (formerly the *Navigable Waters Protection Act*).

Provincial

Certificates and Authorizations	
Technical Standards and Safety Authority (TSSA)	
Registration Number	**Description**
R-8261	The Pickering heating steam boiler (OIN 5.913573) has been issued an Ontario Certificate of Registration of a Plant, Registration Number R-8261 (issue date Aug. 2, 2006 for Standby Boiler and Main Security Building (MSB) HP Chiller Refrigeration unit). The boiler supports Pickering 014 and Pickering 058 (formerly referenced as Pickering A and Pickering B stations) and is physically located at Pickering 058. The chiller supports the MSB only.
Elevators	Licences to operate elevators are granted by the Technical Standards and Safety Authority (TSSA), Elevating Device Branch. The complete list of the licences for elevators at Pickering can be provided as requested.
Pressure Vessels	An electronic register is maintained at Pickering of all valid pressure vessel certificates issued by the Technical Standards and Safety Authority. This register is maintained on an on-going basis. Copies of certificates are available upon request.

Certificates of Authorization	Description
QA 00854	Repair and alteration of boilers and pressure vessels, fittings and piping.
QA 00853	Fabrication of welded and non-welded category A, B, D & H type fittings.
QA 00852	Fabrication and assembly of refrigeration piping.
QA 00851	Fabrication and assembly of process piping.
QA 00850	Fabrication and assembly of power piping.
QA 00845	Fabrication of Class 1, 2 & 3 Welded and Non-Welded category A, B, D & H type fittings.
QA 00844	Fabrication of Class 1, 2, 3 & 4 Welded and Non-Welded Supports.
QA 00843	Class 1, 2, 3 & 4 With Design Responsibility for Appurtenance and Supports; as a Material Organization Supplying Ferrous and Nonferrous Material.
QA 00842	Construction of Class 1, 2, 3 & 4 Piping Systems; Class 1, 2 & 3 Shop Assembly; as a Material Organization Supplying Ferrous and Nonferrous Material.
QA 04144	Repairs, Modifications or Replacements of Class 1, 1C, 2, 2C, 3, 3C, and 4 Nuclear Items.

Ministry of Labour (MOL)			
X-Ray Machine Registrations			
MOL Site Registration Code	**Location**	**Portable/Fixed Equipment**	**Quantity**
0243.3	Main & Aux Security Buildings	Fixed - Baggage Security	6
0243.3	East Complex Warehouse	Fixed – Large Article Security	1
0243.3	PNGS	Portable XRF	3
0243.3	PNGS	Portable Pulsed X-Ray	4
0243.3	PNGS	Portable/Bench Top Analytical XRF	1
0243.3	PNGS	Portable/Bench Top Analytical XRF Analyzer	1

Ministry of the Environment and Climate Change (MOECC)		
Environmental Compliance Approval (ECA)	**Description**	**MOE Routine Reporting Requirements**
4881-5MHQ9F (Industrial Sewage)	Pickering Site Operation Comprehensive Certificate of Approval (sewage) dealing with (but not limited to): • Outfall chemical limits • Service water chlorination and dechlorination limits • Condenser Leak Testing • Condenser Tube Cleaning • Phosphate Detergent use • Secondary Side Discharge volume and chemical limits • Standby Boiler Discharge volume and chemical limits • Spill Containment Discharge chemical limits • Yard Drainage Discharge chemical limits • Inactive Drainage Discharge chemical limits • Standby Generator Spill Containment Discharge chemical limits • Upgrader Discharge chemical limits	Annual performance report by June 1 of following calendar year summarising (but not limited to): • Compliance data • Exceedances and actions taken • Number of condenser leak tests conducted
4881-5MHQ9F Notice 5 (Industrial Sewage)	Station Temperature Limits Catering to: 1. Normal Operation 2. Electricity Supply Emergencies Algae Runs	Notification as follows (but not limited to): • Whenever Electricity Supply Emergency Declared by IESO • Whenever Algae Run results in evident fish kill • Whenever limit exceedances occurs Temperature monitoring data compiled by end of Q1 of following calendar year and provided to MOE upon request.
2460-A2NHF2	PNGS-A Permit to Take Water	Notify Director of complaints received, annual use, changes of address, ownership etc.
2731-8ULK95	PNGS-B (Pickering 058) Permit to Take Water	Notify Director of complaints received, annual use, changes of address, ownership etc.
A390401 (Waste Disposal)	Closure of East Landfill Site	None
A390407 (Waste Disposal)	Closure of West Landfill Site	None

Certificate of Approval (C of A)	Description	MOE Routine Reporting Requirements
4766-A3YMB9 (Air)	Pickering Site Operation Environmental Compliance Approval (Air) (Limited Operational Flexibility)	Annual performance report by June 1 of following calendar year summarising (but not limited to): • Changes to Point of Impingement concentrations or emission rates for Compounds of Concern • Listing of Compounds of Concern Physical changes affecting Compounds of Concern
5683-6XAMAB (Industrial Sewage)	Auxiliary Power System	Notify the District Manager if the process is not operated in accordance with limits/requirements set out in certificate.
0947-A7NM85	New Water Treatment Plant Operation-Environmental Compliance Approval (Sewage) (Limited Operational Flexibility)	OPG, on behalf of Ondeo-Nalco, to provide reports on: • Sampling results as required under MISA Regulation Part II • Sampling point or toxicity testing frequency changes • MISA reports as required under MISA Regulation part VIII. OPG to submit to District Manager no later than 45 days after end of each quarter a summary of the chlorine and anti-scalant monitoring results.

C.2 Summary of Environmental Regulatory Requirements

OPG Law Division maintains a summary list of federal, provincial and municipal environmental regulatory requirements that may be applicable to the nuclear facility. Some examples of environmental regulatory requirements included in the Registry are identified in the table below, a list of all regulations can be provided as requested.

Federal Requirements
Canada Wildlife Act
Canadian Environmental Assessment Act, 2012
Canadian Environmental Protection Act
Environmental Violations Administrative Monetary Penalties Act
Fisheries Act
Migratory Birds Convention Act
National Fire Code
Navigation Protection Act
Pest Control Products Act
Species at Risk Act
Transportation of Dangerous Goods Act

Provincial Requirements
Beds of Navigable Waters Act
Clean Water Act
Conservation Authorities Act
Dangerous Goods Transportation Act
Drainage Act
Emergency Management and Civil Protection Act
Endangered Species Act
Environmental Assessment Act
Environmental Bill of Rights
Environmental Protection Act
Fire Protection and Prevention Act
Fish and Wildlife Conservation Act
Green Energy Act
Highway Traffic Act
Municipal Act
Occupational Health and Safety Act
Ontario Building Code
Ontario Heritage Act
Ontario Water Resources Act
Pesticide Act
Planning Act
Public Lands Act
Road Access Act
Safe Drinking Water Act
Technical Standards and Safety Act
Toxics Reduction Act
Water Opportunities Act
Weed Control Act
Waste Diversion Act

Municipal and Regional Requirements: By-laws of the City of Pickering and Durham Region
Sewer Use By-law
Noise By-Law
Waste By-law
Emergency Management By-law
Tree Conservation By-law
Municipal Waste Collection By-law

Other Provincial Regulatory Requirements
Electricity Act – 1998 and Market Rules

Table of Routine Environmental Regulatory Reporting (not including the CNSC reporting)

Report Title	Frequency	Required By:
Environment Canada		
Halocarbon Release Report	Semi-Annual	Federal Halocarbon Regulations SOR/2003-289 Section 33.1
Environment Canada and Ontario Ministry of Environment and Climate Change		
National Pollutant Release Inventory (NPRI)	Annual	CEPA 99 Sect. 48.
Ontario Ministry of Environment and Climate Change		
Municipal/Industrial Strategy for Abatement (MISA) Report	Annual	O. Reg. 215/95
Municipal/Industrial Strategy for Abatement (MISA) Quarterly Report(3)	Quarterly	O. Reg. 215/95
Landfill Inspection	Biannual	C of A A390401
Registration of Wastes to MOE (hazardous wastes)	Annual	O. Reg. 347
PCB Report	Annual	Director's Instructions for site 304-86A-022 and 304-82-A-009
Waste Reduction Work Plan (Conventional)	Annual	O. Reg. 102/94
Annual Water Taking and Use Report	Annual	O. Reg. 387/04
Certificate of Approval Industrial Sewage Works Annual Performance Report	Annual	C of A Sewage Works # 4881 - 5MHQ9F
Certificate of Approval Air Written Summary	Annual	C of A Air # 9090 - 6SBGEH
Ontario Regulation 127/01 Report	Annual	O. Reg. 127 / 01

Appendix D – CNSC Action Items

(Freeze Date for New Action Items is May 2, 2017)

Action Item	Title	Status	Next Update Due
2017-OPG-9746	Darlington and Pickering NGS: CNSC Type II Compliance Inspection Report: Organization, Roles and Responsibilities	OPG to provide a progress update	13SEP2017
2017-OPG-9721	DNG and PNG: 2016 Third Party Industrial Fire Brigade Drill Audit Reports	OPG to provide a progress update	30JAN2018
2017-OPG-9657	Darlington and Pickering NGS: CNSC Calandria-tube Strain Contact Boiling Experiments	OPG to provide a progress update	15SEP2017
2017-OPG-9637	Darlington and Pickering NGS: Implementation of REGDOC-2.2.4 Human Performance Management -Worker Fatigue	OPG to provide a progress update	30SEP2017
2017-OPG-9636	Darlington and Pickering NGS: Fuel and Pressure Tube Fitness-For-Service	OPG to provide a progress update	15DEC2017
2017-OPG-8928	Darlington and Pickering NGS: Desktop Review of OPG's Procedure N-INS-61400-10008 R005	OPG requested closure of Action Item	N/A
2017-48-9902	PNGS: Morpholine Sampling At The 058 Condenser	OPG to provide a progress update	16FEB2018
2017-48-9791	PNGS: Inspection report: Planned maintenance outage	OPG requested closure of Action Item	N/A
2017-48-9745	PNGS: Type II compliance report: worker dose control	OPG to provide a progress update	01NOV2017
2017-48-9588	Pickering NGS: CNSC Type II Compliance Inspection Report: Q3, Fiscal Year 2016-2017	OPG to provide a progress update	30NOV2017
2017-48-9550	Pickering NGS: CNSC Type II System Inspection Report: Monitoring System	OPG to provide a progress update	30OCT2017
2017-48-9469	Pickering NGS: CNSC Desktop Review Report- Radiation Protection Technician Training Program	OPG requested closure of Action Item	N/A
2017-48-9430	Pickering NGS: CNSC Type II Compliance Inspection Report: Environmental	OPG to provide a progress update	13OCT2017
2017-48-9329	Pickering NGS: CNSC Type II Compliance Inspection Report: Electrical Distribution System	OPG to provide a progress update	25AUG2017
2017-48-9205	Procedures for Obtaining Material Samples with Circumferential Wet Scrape Tool (CWEST)	OPG requested closure of Action Item	N/A

Action Item	Title	Status	Next Update Due
2017-48-10956	PNGS: Accessibility for IAEA inspections	OPG to provide a progress update	08MAR2018
2016-OPG-8975	Darlington and Pickering NGS: Revised CSA N285.8 Compliance Plan	OPG requested closure of Action Item	N/A
2016-OPG-8370	Darlington and Pickering NGS: Supplemental Response Regarding Stack Effluent	OPG to provide a progress update	30SEP2017
2016-OPG-8250	Darlington and Pickering NGS: Post Closure Fuel Management and Surveillance Software Upgrade	OPG to provide a progress update	31MAY2018
2016-OPG-8187	Darlington and Pickering NGS: Engineering Training Programs	OPG to provide a progress update	27OCT2017
2016-OPG-7967	Darlington and Pickering NGS: Direct Plant Data Transfer to the CNSC Emergency Operating Centre (EOC)	OPG to provide a progress update	30NOV2017
2016-OPG-7469	Fukushima- Implementation of the ERP code upgrades	OPG requested closure of Action Item	N/A
2016-OPG-7413	Darlington and Pickering NGS: CNSC Type II Compliance Inspection Report: Environmental Monitoring	OPG to provide a progress update	29SEP2017
2016-48-8871	Pickering Unit 6: 2015 Outage Fuel Channel Inspections -	OPG requested closure of Action Item	N/A
2016-48-8142	Revision of PBRA, include Rod Based GSS	OPG to provide a progress update	15DEC2017
2016-48-8096	Pickering NGS: CNSC Type II Compliance Inspection Report: PRPD-2016-009, Fiscal Year 2015-2016	OPG requested closure of Action Item	N/A
2016-48-8028	Pickering NGS: CNSC Type II Compliance Inspection Report: Configuration management	OPG to provide a progress update	22SEP2017
2016-48-7893	PNGS REGDOC 3.1.1 Preliminary Event Report	OPG to provide a progress update	25AUG2017
2016-48-7797	Pickering NGS: CNSC Type II Compliance Inspection Report: Preservation of Seismic Design Basis	OPG to provide a progress update	16MAR2018
2016-48-7613	Pickering NGS: CNSC Type II Compliance Inspection Report: Fuel Channel Pressure Tubes Supplementary Inspections	OPG requested closure of Action Item	N/A

Action Item	Title	Status	Next Update Due
2016-48-7588	PNGS: Type II Inspection Effluent Control and Monitoring	OPG to provide a progress update	15MAR2018
2016-48-7470	Implementation of the Emergency Mitigating Equipment (EME) and Telecommunications projects	OPG to provide a progress update	07MAR2018
2016-13-7638	PNGS Changes to Site Access Security Clearance Process	OPG to provide a progress update	30SEP2017
2015-OPG-7000	Darlington and Pickering NGS: Acceptance Criterion for Method	OPG to provide a progress update	29SEP2017
2015-48-7304	Pickering NGS: CNSC Type II Compliance Inspection Report, Electrical Power System	OPG to provide a progress update	08NOV2017
2015-48-7237	PNGS: CNSC Type II Compliance Inspection Report: PRPD-2015-019, Fiscal Year 2015-2016	OPG requested closure of Action Item	N/A
2015-48-7043	Type II Compliance Inspection Report - Integrated Aging Management Program	OPG to provide a progress update	23FEB2018
2015-48-6946	Type II Compliance Inspection – Management Review – PRPD-2015-013	OPG to provide a progress update	25AUG2017
2015-48-6623	Request for Acceptance of the Fire Hazard Assessment (FHA) and Fire Shutdown Assessment (FSSA)	OPG requested closure of Action Item	N/A
2015-48-6500	Pickering NGS - Type II Compliance Inspection - System Inspection Irradiated Fuel Bays	OPG to provide a progress update	31DEC2017
2015-48-6459	Pickering NGS - Type II Compliance Inspection - Equipment Inspection	OPG to provide a progress update	24NOV2017
2015-48-6458	Pickering Units 1 &4: Revised Component Disposition – Pressure Tube to Calandria Tube Contact	OPG requested closure of Action Item	N/A
2015-48-6450	Pickering NGS - Type II Compliance Inspection - Maintenance Work Execution	OPG to provide a progress update	25AUG2017
2015-48-6381	Replacement of SDS1 Ion Chamber Amplifiers	OPG to provide a progress update	31JUL2018
2015-48-6303	Pickering Units 5-8: Fire Hazard Assessment (FHA) and Fire Safe Shutdown Assessment (FSSA)	OPG requested closure of Action Item	N/A
2014-OPG-5632	Darlington and Pickering NGS: Request for re-categorization of Safety Issue: Computer Code and Plant Model Validation	OPG requested closure of Action Item	N/A

Action Item	Title	Status	Next Update Due
2014-OPG-4862	Darlington and Pickering NGS: OPG Revised CSA N285.8 Compliance Plan	OPG requested closure of Action Item	N/A
2014-OPG-4782	Approach to Fitness for Service Assessment for Pressure Tubes	OPG to provide semi-annual progress updates	31OCT2017
2014-48-5823	Type II Compliance Inspection - Implementation of Pressure Boundary Program	OPG to provide a progress update	06OCT2017
2014-48-5658	Configuration Management Findings Related to Maintenance Outage	OPG to provide a progress update	13DEC2017
2014-48-5396	P1481 Rolled Joint Scrape Inspection Report	OPG requested closure of Action Item	N/A
2014-48-5386	CNSC Review of 2013 Pickering Nuclear Groundwater Monitoring Program Results Report	OPG to provide a progress update	22FEB2018
2014-48-5348	Pickering Units 5-8: Core Assessments Relating to Pressure Tube Integrity	OPG to provide a progress update	26JAN2018
2014-48-5032	Pickering Units 1 to 4: Type II Compliance Inspection Report - Quarterly Field Inspection Report,	OPG to provide a progress update	12OCT2017
2014-48-4629	Pickering NGS Type II Compliance Inspection - Chlorination and De-Chlorination Systems	OPG to provide a progress update	01DEC2017
2014-4-4856	CNSC Type II Compliance Inspection Report: Planned Maintenance Outage	OPG to provide a progress update	04DEC2018
2013-4-4047	Type II Compliance Inspection - Report #PRPD-PICKA-2012-165	OPG to provide a progress update	31JAN2018
2013-4-3947	Pickering A Type II Compliance Inspection Report, Q2 2012-2013, PRPD-PICKA-2012-155	OPG requested closure of Action Item	N/A
2012-4-3761	Type II Compliance Inspection Electrical Distribution System	OPG to provide a progress update	20APR2018
2012-4-3078	Pickering NGS-A Type II Compliance Inspection Report, Q2 2011-2012, EPRPD-PICKA-2011-120	OPG to provide a progress update	16MAR2018

Appendix E – Periodic Safety Review (PSR2)

E.1 Introduction

OPG is evaluating extended operation of the Pickering station beyond the year 2020. In support of this evaluation and licence renewal a subsequent Periodic Safety Review (PSR) is being conducted in accordance with CNSC Regulatory Document 2.3.3, *Periodic Safety Reviews* and International Atomic Energy Agency's (IAEA) Safety Standards Series, Specific Safety Guide No. SSG-25, *Periodic Safety Review for Nuclear Power Plants.*

CNSC REGDOC-2.3.3 and IAEA SSG-25 identify that subsequent PSRs should focus on changes in requirements, facility conditions, operating experience and new information, rather than repeating activities conducted in previous safety reviews. As such it is forward looking, focusing on: changes to requirements since the last applicable assessment, confirmation that the condition of Pickering NGS supports the additional years of commercial operation, and new operating experience since the last assessments.

The objective of Pickering's PSR is to confirm that the design, operation and safety-significant structures, systems, and components support continued safe operation and to determine reasonable and practical safety enhancements to further improve the already low risk of plant operation.

The subsequent PSR, referred to as PSR2, builds on earlier OPG PSR work (referred to as PSR1) and other associated assessments, specifically:

1. The Pickering B Integrated Safety Review (ISR), which included a comprehensive review of Codes and Standards that was completed in 2009 to support potential refurbishment and continued operation of Pickering 5-8 units for an additional 30 years.

   For economic reasons, OPG decided to not refurbish Pickering Units 5-8, instead pursuing the option of extended operation to the end of 2020 without the replacement of the major reactor components. In support of this approach, safety enhancements were identified (based on the results of the ISR) in the context of an operation timeframe extending to approximately 2025. Outstanding actions from the ISR were subsequently documented in the Continued Operations Plan (COP) for which annual updates have been submitted to the CNSC.

2. Pickering Units 1and 4 integrated safety assessments were performed during the Pickering A Return to Service (PARTS) work in support of approval to restart Units 1 and 4 following the extended shutdown of these units. (The pressure tubes on these units had previously been replaced in the late 1980's and early 1990's). Based on the results of these safety assessments, termed Systematic Review of Safety, Pickering Units 1 and 4 were restarted. Units 2 and 3 were not restarted for economic reasons and were placed in the safe storage state (fuel and water removed, systems isolated/de-energized, and separation from common containment).

3. The Darlington ISR was performed in support of refurbishment and continued operation of the Darlington units for an additional 30 years. Extensive reviews (primarily clause-by-clause reviews) of Codes and Standards were completed.

Much of the compliance assessment and evaluation of Safety Factor health for the Darlington ISR was based on programs and practices that apply across OPG's nuclear operations. As a result, Darlington ISR programmatic conclusions are applicable to the Pickering PSR2 for nuclear programs and practices that are relevant to Pickering.

Pickering PSR1 results are applicable to PSR2 if there was a PSR1 gap that was still open, or if a closed PSR1 gap could be affected by extended operation. If so, these gaps are carried forward into the PSR2 for consideration in the Global Assessment.

E.2 PSR2 Scope

The safety of Pickering NGS is regularly and thoroughly assessed, verified and assured through several processes that are part of the current licensing framework. OPG also applies routine comprehensive safety assessment and improvement programs that deal with specific safety issues, significant events and changes in standards and operating practices as they arise. These programs allow assessment of safety and plant operation to be improved on a continuous basis that can be correlated to all of the Safety Factors reviewed in PSR2. They include programs that ensure safe operations, effective configuration management, equipment reliability, life cycle management, aging management, periodic inspection and maintenance. Programs are also in place in the area of organization management and safety culture that focus on safety-related behaviours and accountability.

A protocol agreement between OPG and the CNSC staff (Reference E-1) is currently in place that documents OPG/CNSC interactions and a schedule for key submissions.

Current Laws, Regulations, Codes and Standards Applicable to PSR2

The PSR evaluates the extent to which the plant meets current laws, regulations, codes and standards. The process to identify those documents that are applicable to the PSR2 assessment basis involved first creating a broad list from multiple sources (potential candidate laws, regulations, codes and standards) and then filtering them to identify those that are most significant, and that are applicable to the PSR2 scope.

For the purpose of the performance of PSR2, OPG has defined the cut-off date for current laws, regulations, codes and standards to be January 15, 2016.

Structures, Systems and Components within the Scope of the PSR2 Review

The Structures, Systems and Components (SSC) within the scope of the PSR2 review encompass the Systems Important to Safety (SIS) and the Safe Operating Envelope (SOE) systems.

The scope of PSR2 is restricted to the facilities that are regulated under the Pickering NGS Power Reactor Operating Licence, therefore the Pickering Waste Management Facility, which has a separate operating licence, is not considered within the Pickering PSR2 scope.

E.3 PSR2 Overview

The general process overview for PSR2 is shown in Figure E.1. Pickering's PSR2 is comprised of the following four key elements which are explained in the sections that follow:

1. PSR2 Basis Document
2. Safety Factor Reviews
3. Global Assessment
4. Integrated Implementation Plan

Additional assessments (COP and Fukushima Action Items) were also performed to confirm the impact of extended operation beyond 2020. Where there are implications for extended operation, an associated gap was identified for consideration in the Global Assessment.

E.4 PSR2 Basis Document:

The Pickering PSR2 basis document, which was submitted by OPG and accepted by the CNSC in References E-2 and E-5 respectfully, defines the approach for completing the PSR2, specifically;

- The proposed operating strategy of the facility,
- Scope and methodology, including the conduct of Safety Factor reviews and identification of compliances and gaps,
- The process for categorizing, prioritizing, tracking and resolving Gaps arising from the Safety Factor reviews,
- Conduct of the Global Assessment,
- The methodology for preparing the Integrated Implementation Plan,
- Applicable current versions of Laws, Regulations, Codes and Standards,
- The major milestones, including the freeze date for document revisions, and,
- The project management and quality management processes.

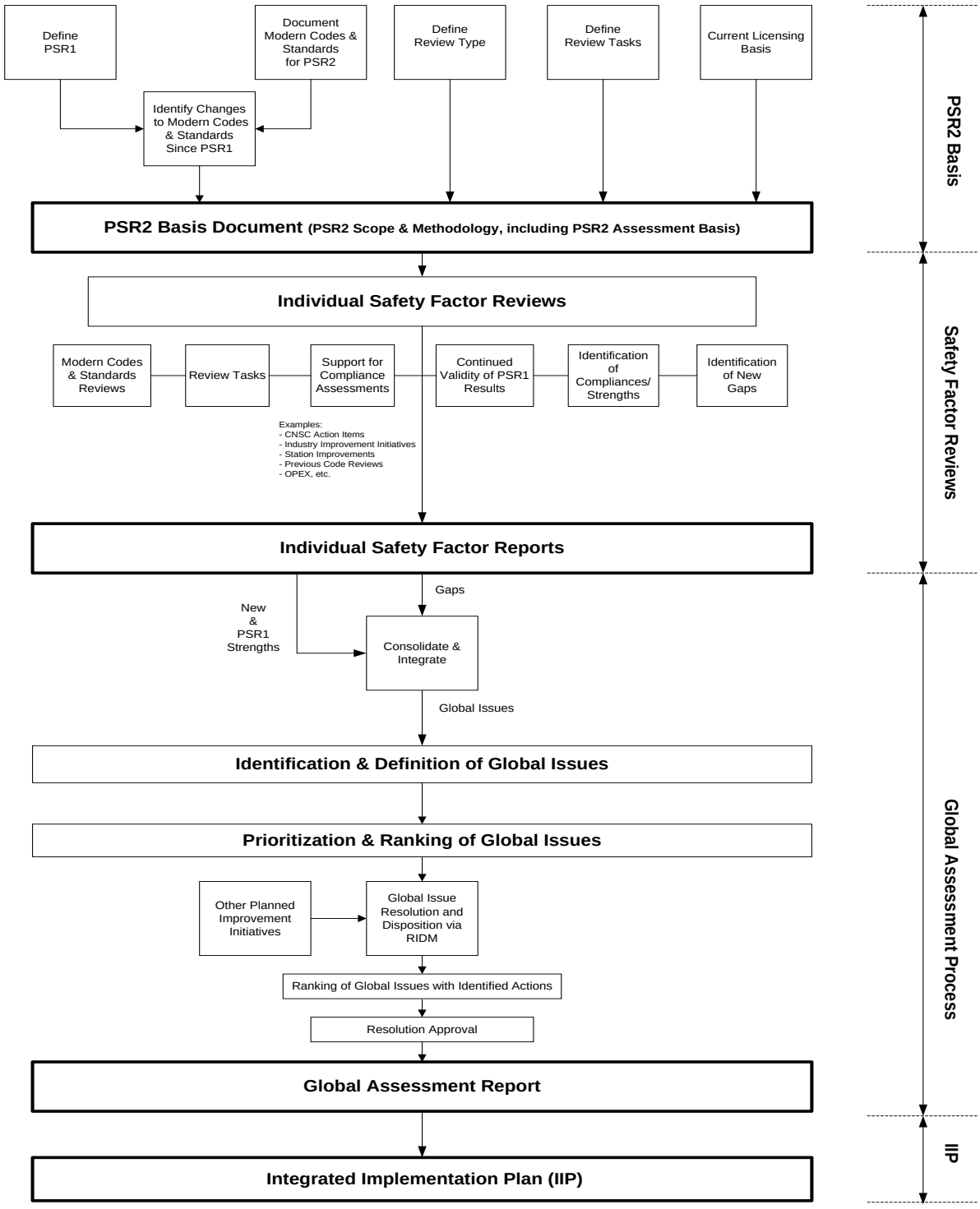


Figure E.1: Pickering PSR2 Process Flowchart

E.5 Safety Factor Reviews:

Safety Factors cover all aspects important to the safety of an operating nuclear power plant. There are 15 Safety Factors used in the PSR2 review; 14 are identified in IAEA SSG-25, and one additional Safety Factor (Radiation Protection) as identified in CNSC REGDOC-2.3.3.

OPG has submitted all 15 Safety Factor Review reports for CNSC staff review.

1. Safety Factor Report 1: Plant Design
2. Safety Factor Report 2: Actual Condition of Structures, Systems and Components Important to Safety
3. Safety Factor Report 3: Equipment Qualification (Seismic and Environmental)
4. Safety Factor Report 4: Aging
5. Safety Factor Report 5: Deterministic Safety Analysis
6. Safety Factor Report 6: Probabilistic Safety Assessment
7. Safety Factor Report 7: Hazard Analysis
8. Safety Factor Report 8: Safety Performance
9. Safety Factor Report 9: Use of Experience from Other Nuclear Power Plants and Research Findings
10. Safety Factor Report 10: Organization, Management System and Safety Culture
11. Safety Factor Report 11: Procedures
12. Safety Factor Report 12: Human Factors
13. Safety Factor Report 13: Emergency Planning
14. Safety Factor Report 14: Radiological Impact on the Environment
15. Safety Factor Report 15: Radiation Protection

These reports conclude that there are no fundamental safety issues and that OPG has in place effective programs and processes for continued safe operation of the Pickering NGS until 2024. Any identified gaps from these Safety Factor Reviews are being assessed in the Global Assessment.

As a subsequent PSR, the PSR2 Safety Factor reviews focused on changes in requirements (Laws, Regulations, Codes and Standards), updated plant conditions, operating experience and information from research, rather than repeating the activities of previous reviews. The methodology for performing the Safety Factor reviews takes full advantage of the safety assessments and Law, Regulation, Code and Standard compliance work previously completed by OPG.

This approach is in accordance with the guidance provided by the CNSC in REGDOC-2.3.3 that the effort required to undertake a subsequent PSR should require considerably less effort, subject to confirmation that previous conclusions remain valid.

Safety Factor Results and Reports

The Safety Factor reviews identified compliances and gaps with respect to the review elements in the PSR2 assessment basis. Specifically:

Compliance:

- For Clause-by-Clause reviews of current Laws, Regulations, Codes and Standards, Compliance indicates that the safety requirement is met.
- Where a High Level review has been performed, Compliance indicates that the intent of the safety requirement is met.
- Where an Incremental review has been performed, Compliance indicates that the change in the safety requirement, per the topical review, is met.
- For reviews of Safety Factor Review Tasks, Compliance indicates that either the safety requirement or the intent of the Review Task is met.

Gap:

- For Clause-by-Clause reviews of current Laws, Regulations, Codes and Standards, a gap indicates that the safety requirement is not met.
- Where a High Level review has been performed, a gap indicates that the intent of the safety requirement is not met.
- Where an Incremental review has been performed, a gap indicates that the change in the safety requirement, per the topical review, is not met.
- For reviews of Safety Factor Review Tasks, a gap indicates that the intent of the Review Task is not met.

Compliances that are equivalent to or surpass PSR2 assessment basis requirements or practices will be forwarded into the global assessment process for consideration as strengths. Gaps will be evaluated by the global assessment methodology to identify global issues and, with justification, acceptable deviations.

The results of the Safety Factor reviews have been documented in Safety Factor Reports that have been submitted to CNSC. These reports include:

- The scope of the review,
- Applicable elements of the PSR2 Assessment Basis (Review Tasks and applicable Laws, Regulations, Codes and Standards),
- Review methodology,
- Assessment of compliance with Review Tasks,
- Effectiveness review of OPG programs supporting compliance assessments,
- Review findings (Compliances and Gaps),
- Impacts on other Safety Factor reviews,
- Overall assessment of the Safety Factor.

Separate reports have been produced to document:

(a) The reviews of Laws, Regulations, Codes and Standards in the PSR2 assessment basis, and
(b) The derivation of the safety factor review tasks from IAEA SSG-25 and CNSC REGDOC-2.3.3. The Safety Factor reports have drawn on the information in these reports.

Safety factor compliance assessments will incorporate information from:

- OPG programs and procedures listed in the LCH, and any other programs and procedures which support the compliance arguments;

- Plant Condition Assessments (for Safety Factor 2);
- Commitments previously made to the CNSC, open CNSC action items, and exemptions granted by CNSC since the current operating licence was issued (safety significant issues, per the Pickering LCH) to determine if there are any impacts associated with Pickering operation past 2020.
- Previously identified ISR gaps related to each Safety Factor and the status of OPG's improvement plans or other dispositions to address these;
- Assessments and reviews performed since the PSR1 documents were completed.

E.6 Global Assessment:

The objective of the Global Assessment is to provide an overall assessment of the safety of the plant, and to arrive at a judgement of the plant's suitability for continued operation on the basis of a balanced view of the results from the reviews of the separate Safety Factors. This judgement takes into account the safety enhancements identified in the Global Assessment (plant and process modifications), strengths and residual global issues/acceptable deviations that impact on aggregate effects of the results, and consideration of existing planned safety enhancements and recent overall station safety performance.

Consistent with the requirements of IAEA SS-25, the Global Assessment is being conducted by an interdisciplinary team with appropriate expertise in Operations, Design and plant safety, including appropriate participants from the safety factor reviews, and members who are independent from the safety factor review teams.

The Global Assessment Process consists of the following elements:

1. Identification and consolidation of Strengths and Gaps from the Safety Factor Reports.
2. Identification of Global Issues.
3. Assessment of interfaces between the various Safety Factors, Aggregate Impact of Global Issues.
4. Prioritization of Global Issues.
5. Development of Resolutions / Dispositions of Global Issues (and Gaps).
6. Consideration of defence-in-depth and aggregate impact of residual Global Issues / Acceptable Deviations.
7. Ranking of Global Issues with identified actions.
8. Senior Management Scope Review Board approval of proposed modifications for the purposes of PSR2.
9. Assessment of overall acceptability of operation of the plant over the period considered in PSR2.
10. Preparation of the Global Assessment Report to summarize the assessments, and document the Global Assessment.

Global Assessment Logistics

The strengths and gaps from the 15 individual Safety Factor Reports are being consolidated and grouped by topic area to support the Global Assessment.

Recommendations from the component condition assessments conducted in support of Safety Factor 2 will also be considered as part of this review.

Identification of Global Issues:

The consolidation of gaps into global issues provides a means to assemble gaps of a common nature, facilitating the assessment of safety impact and identifying and assessing practical and effective resolutions. The global issues will be tabularized, tracking sources of the issues, to facilitate further review and assessment.

Interfaces between the Various Safety Factors, Aggregate Impact of Global Issues:

With the assembly of global issues and strengths, and considering the recommendations from component condition assessments, the aggregate impact of the global issues is being assessed. In this way, the interaction between issues can be identified. New global issues may be identified as part of this consolidation review that support the prioritization and ranking of Global Issues as described below.

Prioritization of Global Issues

PSR2 global issues will be prioritized with respect to their importance to nuclear safety. This will support the resolution evaluation method and the outcome of the resolution process. This methodology is consistent with OPG prioritization processes used in previous Integrated Safety Reviews and industry practice.

The safety significance level will consider deterministic and probabilistic safety analysis impact, as appropriate. The assignment of safety significance values for prioritization was derived based on OPG experience and takes into account the priority values from the OPG guidelines for evaluating and prioritizing Safety Report Issues, the COG benefit-cost analysis processes, and the OPG station condition record categorization process. Probability levels selected for delineation between categories are based on significance and engineering judgement, and are as used in previous Integrated Safety Reviews. These values account for overall safety impact and align, where appropriate, with requirements and limits in relevant safety standards. The relationship between safety significance level and impact on nuclear safety is shown in the table E.1.

Safety Significance Level	Impact on Nuclear Safety
1	High
2	Medium
3	Low
4	Very Low

Table E.1 Relationship between Safety Significance Level and Impact on Nuclear Safety

Development of Resolutions/Dispositions of Global Issues (and Gaps)

Resolution options are being developed and assessed using risk-informed decision making techniques utilizing the following strategy:

- In assessing potential dispositions, defence-in-depth elements will be considered.
- In developing the resolutions, consideration of overall safety significance will guide the resolution process.
- For Global Issue resolution – the process will be:
  - Evaluate the Global Issue to understand the safety basis, and intent of the requirement.
  - Consider possible options for resolution/mitigation. Consider safety significance and defence-in-depth elements.
  - Evaluate options with respect to effectiveness, cost, schedule, practicality. For potential plant modifications, this may require an evaluation of the safety impact, via both deterministic and probabilistic methods. If it is not practicable to fully resolve a Global Issue, other mitigation options will be considered for enhancements.
  - Practicality of a proposed resolution will be evaluated in terms of cost, resources, schedule, and considered in relation to the overall safety impact.
  - Propose recommended resolution/mitigation.
  - Document the decision making process.

- Items of High or Medium impact on nuclear safety (safety significance levels 1 and 2) will require more in-depth analysis to fully understand the issue and potential impact, and to develop the proposed resolution/mitigation. This may require deterministic and/or probabilistic assessments to determine the nuclear safety impact of modifications and more detailed evaluation of the cost/practicality of proposed resolutions. Insights from available probabilistic safety analyses may be used in evaluating the benefit/practicality of potential options. This will be done concurrent with the development of the Integrated Implementation Plan.

- Items of Very Low Impact on nuclear safety (safety significance level 4) will generally be deemed as acceptable deviations within the context of PSR2 (with the rationale provided). While these items will not be tracked beyond the Global Assessment, they will be shared with the accountable organizations for consideration as potential enhancement initiatives for their future work program planning purposes. This will allow the organizations to prioritize the initiatives as part of their integrated programs to ensure the focus is on the right overall priorities. A similar treatment will be applied for items of Low Impact on nuclear safety (safety significance level 3) for which a practicable solution is not readily evident.

- Proposed resolutions will be categorized as follows:
  i) Programmatic (changes to procedures and programs),
  ii) Engineering (plant modifications), or
  iii) Analytical (e.g., safety analysis)

- In some cases, the development of resolutions/dispositions to the global issues will be part of an OPG or industry initiative underway or planned. Or, the resolution and development of options may require more detailed analysis and assessment, extending beyond the timelines for submission of PSR2. In these instances, the status of the initiative and plans will be included in the disposition. The work will be included in the global assessment to facilitate continued tracking.

- The results of previous global assessments for OPG stations will be considered in the review.

- If in the assessment it is determined that a global issue/gap has been closed, due to work done in the interim or for other reasons, the rationale will be documented and the global issue/gap will be set to resolved and closed.

- At the recommendation of the senior management team, an alternate process / resolution may be utilized for a particular global issue/gap.

Consideration of Defence-in-Depth and Aggregate Impact of Residual Global Issues / Acceptable Deviations

An important element of the development of proposed recommendations will be to assess the overall defence-in-depth and aggregate impact of the residual global issues/acceptable deviations. After evaluating a range of resolutions for global issues, and determining a recommended resolution to be selected, the impact on defence-in-depth, considering both deterministic and probabilistic elements, will be evaluated to assess the aggregate impact on overall safety. It may be necessary to refine the proposed resolutions based on the results of this review. This overall assessment will be an important element in supporting the enhancement plans and the planned operational strategy over the period of PSR2.

Ranking of Global Issues with Identified Actions

All global issues whose resolution involves identified actions will be ranked from 1 through N, where N is the total number, in accordance with overall safety significance. This will be based on engineering judgement applied by the assigned Global Assessment team. The ranking process will consider factors such as the priority previously determined (safety significance level), the contribution to defence-in-depth, the significance of the source (e.g., the type of document that generated the gap(s) leading to the global issue). The ranking process will also account for the extent of impact on multiple safety factors or areas.

Senior Management Scope Review Board Approval of Proposed Modifications for the Purposes of PSR2

The enhancements identified in the PSR2 Global Assessment Report, with their priority and safety basis, will be presented to the OPG Senior Management Scope Review Board for approval. This review will ensure alignment with the resolutions proposed, their basis and context, and will be the means to obtain concurrence that

the proposed enhancements are practicable and effective. This will also allow the senior management team to consider potential realignment of overall priorities based on the insights from PSR2. Consistent with OPG project management processes, additional approval gates will be required as the resolution development continues towards full implementation.

Assessment of Overall Acceptability of Operation of the Plant Over the Period Considered in PSR2

As a final step in the assessment process, the team confirms the overall acceptability of operation of the plant over the period considered in the PSR2. This entails a review of the results of the safety factor reviews, a consideration of enhancements planned (both newly identified in PSR2 and from other station initiatives) and a consideration of plant performance.

Global Assessment Report

Preparation of the Global Assessment Report is being conducted to summarize the assessments and document the Global Assessment by presenting the results, assessing the overall defence-in-depth of the plant, and documenting the conclusions, corrective actions, and enhancements to be considered. The Global Assessment Report will include a ranked list of those global issues with identified actions, with rationale for the ranking. This will be done concurrent with the development of the Integrated Implementation Plan.

Residual global issues and acceptable deviations will be noted in the report, summarizing the assessed aggregate impact on safe operations. These items will be conveyed to the responsible organizations for their consideration as potential enhancement initiatives for their work program. These initiatives will be weighed against other important program and plant modifications as part of the base and project work within these organizations. These items will not be tracked further beyond the Global Assessment Report or carried forward into the Integrated Implementation Plan.

The Global Assessment Report will include a statement of OPG's assessment of the overall acceptability of operation of the plant. Reviews and approval of the report will be conducted as required under the OPG Management System. The Global Assessment Report will be submitted to CNSC staff for review.

As documented in Reference E-1, the Global Assessment Report is scheduled to be submitted to the CNSC by October 31, 2017.

E.7 Integrated Implementation Plan:

The proposed enhancements resulting from the Global Assessment will be documented in the Integrated Implementation Plan (IIP) which will provide the proposed timeline for the implementation of the enhancements and it will also document and confirm the resulting enhancement.

The enhancements summarized in the IIP will be mapped to the CNSC Safety and Control Areas (per Appendix B of CNSC REGDOC-2.3.3) to facilitate CNSC review.

Integrated Implementation Plan Logistics

The IIP listing of enhancements will include those resulting from the Global Assessment Report, including both new modifications proposed as part of the resolution of global issues, and also considering the existing planned station modifications that were integral to the overall assessment of safety.
A review will be conducted with program owners and appropriate managers to derive plans for implementation based on priority and resources. These plans will be developed with due consideration of the other important initiatives underway or planned at Pickering NGS as part of continual improvement.

The initiatives will be tabularized with owners assigned and planned implementation dates. Existing initiatives integral to the overall assessment of safety during the Global Assessment will also be included in this listing. The listing will include the priority and the basis for the priority. The implementation of the initiatives will be tracked and reported.

The IIP will be presented to OPG senior management to obtain support for the initiatives and plans. As the IIP will be based on initial conceptual consideration of the resolution plans (or range of plans), a change management process will be implemented to manage any IIP required changes. Senior management approval for any proposed changes to resolution scope and/or completion timeframes will be required, and documented, consistent with OPG Project Management processes. The Integrated Implementation Plan will be tracked and progress will be regularly reported throughout the implementation period.

Integrated Implementation Plan Format

The IIP will be structured to allow a reader to understand the implementation plan and the basis for the plan. The plan will begin with a summary of work completed in the Safety Factor Reports and the Global Assessment Report.
The tabularized IIP will be included in the report to facilitate understanding of the related safety enhancement initiatives, their priority, and safety basis. These will include the new initiatives that came from the Safety Factor Reviews and the Global Assessment, and the existing initiatives that were integral to the overall assessment of safety.

To facilitate the CNSC review of the IIP, the plan will be presented in a manner aligned with the CNSC Safety and Control Areas. The report will also summarize the implementation tracking and reporting process and the IIP change management

process. The processes will allow tracking of initiatives to completion or resolution in an auditable manner, consistent with OPG's management system.

Consistent with CNSC REGDOC-2.3.3 and Reference E-1, the IIP is scheduled to be submitted to CNSC staff for acceptance by November 30, 2017.

E.8 Continued Operations Plan (COP) Reassessment

In accordance with the PSR Basis Document (Reference E-2), the Pickering Units 5-8 Continued Operations Plan (COP) actions were reviewed to determine if there were implications for PSR2. Specifically, the COP actions pertaining to the Pickering Units 5-8 Integrated Safety Review from 2009 and the fitness for service actions were reassessed for implications given the intent to operate Pickering Units 5-8 beyond 2020.

In addition, implications for Pickering Units 1, 4 were also identified. Where there are implications for extended operation of Pickering Units 5-8, or for Pickering Units 1, 4, a PSR2 gap was identified that will be considered in the Global Assessment process describe above.

The COP reassessment report was submitted to the CNSC (Reference E-3).

E.9 Fukushima Action Plan Reassessment

Following the events at Fukushima Daiichi in March 2011, the CNSC issued Fukushima Action Items to the Canadian Nuclear Utilities to ensure that the lessons learned from the event were appropriately incorporated into Canadian nuclear operations.

OPG has been recognized for its achievements in operational and management excellence in its response to the Fukushima Daiichi event and has confirmed that its stations remain safe with systems and procedures in place to deal with beyond design basis events.

OPG has taken the key lessons learned from the Fukushima event and incorporated changes to further enhance the safety of OPG's nuclear facilities. In 2015, all Fukushima Action Items (FAIs) for the Darlington and Pickering units were closed (Reference E-4).

In accordance with the PSR2 Basis Document, all of the FAIs pertaining to Pickering were reassessed to determine if the basis for their closure remained valid in the context of intended extension of commercial operations of the station beyond 2020. This FAI reassessment, which was submitted to the CNSC in March 2017 did not identify any gaps for PSR2, however, two items will be carried over to the Global Assessment as additional gaps as identified by CNSC staff.

E.10 Preliminary PSR2 Results

The 15 Safety Factor Review reports conclude that there are no fundamental safety issues and that OPG has in place effective programs and processes for continued safe operation of the Pickering NGS until 2024.

1. Organization, Management Systems and Safety Culture was reviewed as a safety factor for Pickering PSR2. Specifically, this review confirmed that the Pickering NGS organization, management system and safety culture are effective.

2. Human Factors was reviewed as a safety factor for Pickering PSR2. Specifically, this review confirmed that the various human factors that may affect the safe operation of Pickering NGS have been appropriately addressed, and are effective.

3. Safety Performance was reviewed as a safety factor for Pickering PSR2. Specifically, this review confirmed that the safety performance indicators and records of operating experience, including the evaluation of root causes of plant events, exist and are utilized.

4. OPEX and Research Findings was reviewed as a safety factor for Pickering PSR2. Specifically, this review confirmed that for Pickering NGS there is adequate feedback of relevant experience from other nuclear power plants and from findings of research, and that this is used to introduce reasonable and practicable safety improvements at the plant or in the operating organization.

5. The area of Procedures was reviewed as a safety factor for Pickering PSR2. Specifically, this review confirmed that the Pickering NGS processes for managing, implementing and adhering to operating and working procedures and for maintaining compliance with operational limits and conditions and regulatory requirements are adequate and effective and ensure plant safety.

6. Deterministic Safety Analysis was reviewed as a safety factor for Pickering PSR2. Specifically, this review confirmed that the deterministic safety analysis programs and procedures at OPG are comprehensive, resulting in a systematic and disciplined approach to identifying, prioritizing and addressing any safety analysis related issues.

7. Hazard Analysis was reviewed as a safety factor for Pickering PSR2. Specifically, this review has confirmed that Pickering NGS has robust protection against internal and external hazards, taking into account the plant design, site characteristics, the actual condition of the Structures, Systems and Components (SSCs) important to safety.

8. Probabilistic Safety Assessment (PSA) was reviewed as a safety factor for Pickering PSR2. Specifically, this review has confirmed that the PSA programs and procedures at OPG are comprehensive, resulting in a systematic and disciplined approach to identifying, prioritizing and addressing safety analysis related issues.

9. Plant Design was reviewed as a safety factor for Pickering PSR2. This review confirmed, by assessment against the current licensing basis and applicable standards, requirements and practices that the physical design and documentation supports continued safe operation of Pickering NGS.

10. Equipment environmental and seismic qualifications were reviewed as a safety factor for Pickering PSR2. Specifically, this review confirmed that the Pickering NGS equipment important to safety has been properly environmentally and seismically qualified and that these qualifications are being maintained through maintenance, inspection and testing programs.

11. Actual condition of Structures, Systems and Components (SSCs) important to safety was reviewed as a safety factor for Pickering PSR2. Specifically, this review concluded that the majority of the plant's SSCs are in good condition and support safe extended station operation to 2024. Recommendations for improvement have been made when required, of which many are in progress. For this life extension period, no major concerns have been identified and the SSCs Important to Safety continue to operate as per the design basis requirements.

12. Plant aging was reviewed as a safety factor for Pickering PSR2. Specifically, this review confirmed that aging aspects affecting SSCs important to safety are being effectively managed and that an effective aging management program is in place.

13. Radiation Protection was reviewed as a safety factor for Pickering PSR2. Specifically, this review has confirmed that radiation protection has been accounted for in the design and operation of Pickering NGS, and that radiation protection provisions (including design and equipment) protect workers from radiation and ensure that contamination and radiation exposures and doses to persons are monitored and controlled and maintained As Low As Reasonably Achievable (ALARA).

14. Radiological Impact on the Environment was reviewed as a safety factor for Pickering PSR2. Specifically, this review has confirmed that Pickering NGS has in place an effective program for monitoring the radiological impact of the plant on the environment, which ensures that emissions are properly controlled and are as low as reasonably achievable.

15. Emergency Planning was reviewed as a safety factor for Pickering PSR2. Specifically, this review has confirmed that OPG Nuclear has in place adequate plans, staff, facilities and equipment for dealing with emergencies. In addition, arrangements are in place for regular emergency training and exercises, and interaction and coordination with local and national authorities.

All planned improvements identified through the PSR process will be documented in a Global Assessment Report and an Integrated Implementation Plan that will be submitted to the CNSC in October and November 2017 respectively.

E.11 References

E-1 Protocol, “OPG-CNSC Protocol for the Conduct of a Periodic Safety Review in Support of Pickering NGS Licence Renewal”, January 17, 2017, e-Doc 5143721, CD# P-CORR-00531-04725 R001.

E-2 OPG Letter, B. McGee to H. Khouaja, “Submission of Pickering NGS Periodic Safety Review 2 Basis Document Revision 002”, July 6, 2016, CD# P-CORR-00531-04780.

E-3 OPG Letter, B. McGee to A. Viktorov, "Pickering NGS Periodic Safety Review 2 - Submission of Continued Operations Plan (COP) Reassessment", February 13, 2017, CD# P-CORR-00531-04927.

E-4 OPG Letter, W.S. Woods to M. Santini and F. Rinfret, "OPG Progress Report No. 7 on CNSC Action Plan - Fukushima Action Items", November 30, 2015, CD# N-CORR-00531-06906.

E-5 CNSC Letter, H. Khouaja to B. McGee, “Pickering NGS: CNSC Staff Acceptance of Pickering NGS Periodic Safety Review 2 (PSR2) Basis Document”, July 8, 2016, e-Doc 5037314, CD# P-CORR-00531-04789.

Appendix F - CANDU Safety Issues

A safety issue is defined as an issue related to the design or analysis of a nuclear power plant that has the potential to challenge safety functions, safety barriers or both.

In 2007, the CNSC assessed the status of CANDU Safety Issues (CSIs) and, while the safety case was not in question, the CNSC identified control measures to address residual concerns on nuclear safety. The initial list of issues was developed using the IAEA TECDOC-1554 “Generic Safety Issues for Nuclear Power Plants with Pressurized Heavy Water Reactors and Measures for their Resolution”, and each issue was classified into one of the following three categories:

- Category 1: Not an issue in Canada.
- Category 2: The issue is a concern in Canada. However, the licensees have appropriate control measures in place to address the issue and to maintain safety margins.
- Category 3: The issue is a concern in Canada. Measures are in place to maintain safety margins, but further experiments and/or analysis are required to improve knowledge and understanding of the issue, and to confirm the adequacy of the measures

At present, Pickering has four Category 3 issues pending CNSC re-categorization. One issue is a Non-Large Break Loss of Coolant Accidents (LBLOCA) and three issues are related to LBLOCA.

1) Non-LBLOCA CSI – Category 3:

- IH 6 Need for systematic assessment of high energy line break effects

The methodology to assess high energy pipe breaks inside containment for Pickering was developed and presented to the CNSC. For Pickering 5-8, High Energy Line Break Assessments (HELBA) were completed and presented to the CNSC. These assessments followed the aforementioned methodology and concluded that none of the postulated line breaks would pose safety risks beyond those already documented in the Safety Report. Re-categorization of IH6 for Pickering 5-8 was requested in 2016 (Reference F1).

The results and conclusions of the Pickering 5-8 assessments could not be directly applied to Pickering 1-4 because the two stations have different design provisions for pipe supports. Consistent with the existing methodology, a leak before break (LBB) disposition strategy was adopted. LBB analyses are being completed and once the results are available, re-categorization of IH6 for Pickering 1-4 will be requested. OPG has well established programs to monitor and inspect high energy piping and to take appropriate actions when required.

2) LBLOCA CSIs – Category 3:

- AA 9 Analysis for void reactivity coefficient
- PF 9 Fuel behaviour in high temperature transients
- PF 10 Fuel behaviour in power pulse transients

OPG has requested re-categorization of these LBLOCA CSIs based on the development of the Composite Analytical Approach (CAA) (References F-2 and F-3), in collaboration with the CANDU Owners Group. More recently, OPG provided the CNSC with an update on the latest activities to address LBLOCA safety margins using the CAA as part of OPG's short-term and long-term plans to address these issues (Reference F-4). Further confirmatory research and analysis are ongoing.

References:

F-1 OPG letter, W.S. Woods to A. Viktorov, "Re-Categorization Request for CANDU Safety Issue IH6 for Pickering NGS 5-8 and Status for Pickering NGS 1-4", December 5, 2016, CD# N-CORR-00531-18288.

F-2 CNSC letter, G. Rzentkowski to W. M. Elliott, "Darlington and Pickering NGS: Large LOCA Safety Margins - Assessment of the Proposed Composite Analytical Approach," January 7, 2015, e-Doc # 4610410, CD# N-CORR-00531-07358.

F-3 CNSC letter, M. Santini, F. Rinfret to W.M. Elliott, "Darlington and Pickering NGS: Large LOCA Safety Margins - Assessment of the Proposed Composite Analytical Approach (CAA)," June 4, 2015, e-Doc # 4767575, CD# N-CORR-00531-06922.

F-4 OPG letter, W. S. Woods to M. Santini and F. Rinfret, "Resolution of Large Break LOCA (LBLOCA) Safety Margins Issues," April 25, 2016, CD# N-CORR-00531-18022.

Enclosure 1

Pickering NGS Hazardous Substances

CD# P-REP-08965-0633695 R001

(15 pages including this coversheet)

ONTARIO POWER GENERATION

Report

Internal Use Only	
Document Number: P-REP-08965-0633695	Usage Classification: N/A
Retention: P	Revision: R001

Title:

PICKERING NGS HAZARDOUS SUBSTANCES

Pickering NGS Hazardous Substances

P-REP-08965-0633695 Rev 01

2017-07-27

Order Number: N/A
Other Reference Number:

Internal Use Only

Prepared by:

July 28, 2017

Gholamali Azadi — Date
Health & Safety Advisor
PNGS Conventional Safety

Approved by:

July 28, 2017

Melissa Nikkel — Date
Acting Manager
Nuclear West, H&S Field Services

The purpose of this report is to document a list of hazardous materials at the Pickering Nuclear Generating Station with respect to a licence application requirement under Class I Nuclear Facilities Regulations SOR/2000-204.

Under Class I Nuclear Facilities Regulations SOR/2000-204, Licence Applications, General Requirements, S. 3.,

> An application for a licence in respect of a Class I Nuclear Facility, other than a licence to abandon, shall contain the following information in addition to the information required by section 3 of the *General Nuclear Safety and Control Regulations*.
>
> 3 (e) the name, form, characteristics and quantity of any hazardous substances that may be on the site while the activity to be licensed is carried on.

Table 1 contains a list of the hazardous substances.

In addition to the CNSC licensing requirement above, Ontario's Occupational Health and Safety Act Sections 37-42 and Canada Labour Code Section 125.1 require employers to identify, label and control "hazardous substances" in the workplace. These substances must be labeled and material safety data sheets made available. Pickering Nuclear tracks hazardous substances (as defined by those regulations) coming on site through its hazardous materials (HAZMAT) database, enabling the Workplace Hazardous Materials Information System (WHMIS) and Material Safety Data Sheet (MSDS) regulatory requirements. The database is fully accessible to all employees on site.

This report will be reviewed on a frequency of every two years, tracked as MGMT actions in Asset Suite. If any significant changes to the hazardous substances are made, the report will be updated.

Table 1: Pickering NGS Hazardous Substances List

Chemical	Where Used (System)	Purpose	Storage	Disposal	Inventory	In system	Form	Characteristics
Boric acid	Moderator system	Reactivity control	Mixed with D2O in the liquid poison tanks	Removed by ion exchange (IX) resin in the moderator purification system	~54 pcs of 500g bottles of Boric Oxide	Pickering 014: ~1700L Pickering 058: ~850L	Solid, made into solution for addition	Toxic, irritant
Gadolinium Nitrate	Moderator system	Reactivity control	Mixed with D2O in the liquid poison tanks	Removed by IX resin in the moderator purification system	~36 pcs of 5kg bags	Pickering 058: LISS: ~19,000 L Moderator: ~1700 L	Solid, made into solution for addition	Toxic, severe irritant
Helium gas	Cover gas for moderator; Liquid zone control;	Cover gas to prevent air ingress	Gas cylinders	Periodically purged to reactor building exhaust for chemistry control	~80 cylinders 291ft^3 per cylinder	Moderator Cover Gas: P014 and P058 combined ~6000ft^3 LZC: P014 and P058 combined: ~7000ft^3	Compressed Gas	Compressed gas, simple asphyxiant, lighter than air.

PICKERING NGS HAZARDOUS SUBSTANCES

Chemical	Where Used (System)	Purpose	Storage	Disposal	Inventory	In system	Form	Characteristics
Oxygen gas	Moderator cover gas; annulus gas	Added to recombine with D2 gas; to maintain pressure integrity	Gas cylinders	Consumed; emitted to reactor building exhaust	~2 cylinders 335ft^3 per cylinder	Moderator Cover Gas P058: ~2600ft^3 P014: none Annulus Gas P014 and P058 combined ~1000ft^3	Compressed Gas	Strong oxidizer - increases flammability of flammable or combustible material.
Hydrogen gas	Heat transport system; main generators	Remove O2 from the heat transport system; cooling for the generators	Mobile trailer and gas cylinders	Consumed in the heat transport system and vented to reactor building exhaust; periodically vented to atmosphere from the main generators	~2 cylinders @ 196ft^3; 5 cylinders @ 2.77m^3	HTS:P014 and P058 combined: ~ 6500ft^3 Main Generator: P014 and P058 combined: ~115,000ft^3 In a Mobile trailer hooked up directly to the system.	Compressed Gas	Flammable Compressed Gas, lighter than air.

Title:

PICKERING NGS HAZARDOUS SUBSTANCES

Chemical	Where Used (System)	Purpose	Storage	Disposal	Inventory	In system	Form	Characteristics
Hydrazine (35% solution)	Emergency coolant injection system; steam generator feedwater; condensate feedwater; recirculating cooling water system; end shield cooling water	Removal of O2 and pH control	Oil and Chemical Storage Building – Totes and drums – Totes in chemical addition station in turbine hall	Consumed but residual may be discharged to lake or atmosphere. A breakdown product in feedwater is ammonia.	Pickering 014 uses drums. ~ 12 drums @ 208.65kg per drums as hydrazine hydrate Pickering 058 uses totes. ~1800 L (2x 900L totes) as hydrazine hydrate	Pickering 014: typically 1 drum (205 L) connected to the system. Pickering 058: ~1800 L This is in totes connected to the system.	Liquid	Corrosive base, Toxic
Lithium hydroxide	Heat transport system; end shield cooling system; recirculating cooling water system	pH control	Station – chemical addition systems	Consumed (used when pH must be rapidly corrected; usually the pH is controlled by lithiated IX columns)	~14 pcs of 0.5kg bags	P014 and P058 combined: HTS: ~ 240g (in solution) (0.24kg) RCW: ~2.7kg (in solution)	Solid, made into solution for addition.	Corrosive base

PICKERING NGS HAZARDOUS SUBSTANCES

Chemical	Where Used (System)	Purpose	Storage	Disposal	Inventory	In system	Form	Characteristics
IX resin: Neutral Mixed Bed Resin- IX resin: Neutral Mixed Bed Resin (cont)	Moderator system; irradiated fuel bay; auxiliary fuel bay; liquid zone control Stator Cooling Water	pH control and removal of impurities	Purification IX columns	Temporary storage – spent resin tank	~45 pcs of $1ft^3$ package 2pcs of $35ft^3$ package	P014 and P-58 combined: Moderator: ~$55ft^3$ IFB: ~ $240ft^3$ AIFB ~ $200ft^3$ LZC ~ $4ft^3$ SCW ~ $14ft^3$	Solid	Toxic, irritant
IX resin: Lithiated mixed bed resin	Heat transport system; end shield cooling system; recirculating cooling water system	pH control and removal of impurities	Purification IX columns	Temporary storage – spent resin tank	~243 pcs of $0.5ft^3$ bags	All P014 and P058 combined: HTS ~$30ft^3$ RCW ~$4ft^3$ ESC ~$23ft^3$	Solid	Toxic, irritant
IX resin: Deoxygenating Resin	Stator cooling water system	Removal of O2	IX column	Industrial waste disposal	~4 pcs of $1ft^3$ packages	All P014 and P058 combined: ~$14ft^3$	Solid	Toxic, irritant

PICKERING NGS HAZARDOUS SUBSTANCES

Chemical	Where Used (System)	Purpose	Storage	Disposal	Inventory	In system	Form	Characteristics
IX resin Cation	Moderator (PB only)	Removal of cations	Purification IX columns	Industrial waste disposal	~50 pcs of 1ft^3 packages (28.32 l/bag)	Moderator (P058 only) ~1ft^3	Solid	Toxic, irritant
Carbon dioxide gas	Annulus gas system; generator	Annulus gas system – carrier gas; generator – purging gas	Outdoor tank (gas cylinder)	Annulus gas system – to reactor building exhaust; generator – vented to atmosphere	~33 pcs of 12 pack cylinders (K size container)	Annulus Gas: P014 and P058 combined: ~120ft^3	Compressed Gas	Mildly toxic, asphyxiant in high concentrations, heavier than air.
Morpholine The liquid is 45%; The drum is 50%	Steam generator feedwater; condensate feedwater	pH control and corrosion control	Totes in Oil and Chemical Storage Building and chemical addition station in turbine hall	Partly consumed; atmospheric discharge; and steam generator blowdown	Pickering 014 uses drums ~45 drums @ 441lb/drum of 50% solution. Pickering 058 uses totes ~ 1800L of 45% solution	Pickering 014: typically 1 drum (205 L) connected to the system. Pickering 058: ~ 1800L. This is in totes connected directly to the system	Liquid	Combustible liquid, toxic, corrosive base.

Title:

PICKERING NGS HAZARDOUS SUBSTANCES

Chemical	Where Used (System)	Purpose	Storage	Disposal	Inventory	In system	Form	Characteristics
Sodium Hypochlorite 7%	Low pressure service water	Zebra mussel control	Four tanks in chlorination house	Consumed and residual to Lake Ontario	Pickering 014: ~52,000L Pickering 058: ~54,000L	Tanks connected to the system directly	Liquid	Corrosive acid, oxidizer - increases flammability of flammable or combustible material.
Sodium Metabisulphite 38% aqueous	Inactive drainage; reactor building service water	Dechlorination	Outdoor tanks with secondary containment	Consumed	Pickering 014: ~ 32,000L Pickering 058: ~ 40,000L	Tanks connected to the system directly	Liquid	Corrosive acid, toxic
Sulphur hexafluoride	Condenser circulating water system	Leak detection	Gas cylinders	To lake (small volumes only)	~2 cylinders of 350 ft^3 (size 30 cylinder)	Pickering 014 and 058 combined: ~1800 ft^3	Compressed Gas	Compressed Gas, mildly toxic

PICKERING NGS HAZARDOUS SUBSTANCES

Chemical	Where Used (System)	Purpose	Storage	Disposal	Inventory	In system	Form	Characteristics
Grade B#2 oil (litres)	Standby generator; emergency power generators,	Fuel	Outdoor tanks with secondary containment	Consumed resulting in waste gases CO_2, NO_x, SO_x, etc.	Pickering 014 SG: ~1,900,000L Pickering 058 SG: ~1,900,000L Pickering 058 EPG: ~550,000L	Directly connected to the system	Liquid	Combustible Liquid, toxic
Lubricating oil and seal oil Teresso #46	Turbine lubricating oil system; generator seal oil system	Lubrication and sealing	Three tanks on the north side of the turbine hall	Reused or removed by contractor	~570drums @ 205L each	P014 and P058 combined: ~375,000L	Liquid	Non-toxic during normal use.

PICKERING NGS HAZARDOUS SUBSTANCES

Chemical	Where Used (System)	Purpose	Storage	Disposal	Inventory	In system	Form	Characteristics
Insulating oil (litres)	Main output and service transformers	Cooling for the transformers	Brought in by truck	Removed by contractor	P014 and P058 combined: ~65,000 L per transformer for six units (12 transformers in total)	Directly connected to the system	Liquid	Non-toxic during normal use.
Ethylene glycol	Various Systems	Chillers	Small head tanks in powerhouse	Removed by licensed contractor if necessary	~2 drums @ 205L	~1000L	Liquid	Toxic
Reolube Turbofluid 46XC [Fire Resistant Fluid (FRF)]	Turbine governor	Hydraulic fluid for turbine governor valves	Tanks in powerhouse	Reused or drummed for disposal	Pickering 014 and 058 combined: ~3400L	Tanks directly connected to the system	Liquid	Mildly toxic
Diesel (Fire pumps) (litres)	Diesel Fire Pumps	Operating Pumps	Tanks	Consumed resulting in waste gases CO_2, NO_x, SO_x, etc.	Pickering 014: ~ 7200 L	Directly connected to the system	Liquid	Combustible Liquid, toxic

PICKERING NGS HAZARDOUS SUBSTANCES

Chemical	Where Used (System)	Purpose	Storage	Disposal	Inventory	In system	Form	Characteristics
Hydraulic Oil Teresso 46 (litres)	Fuelling Machines	Operating Fuelling Machine	Tanks	Reused or removed by contractor	~3800 L per unit for six units	Directly connected to the system	Liquid	Non-toxic during normal use.
Gas, Mixed, 3% Nitrogen, 1.5% Oxygen	QC gas – Chemical Lab use as per chemical assessment	Quality control	gas cylinder	Vented to atmosphere	K and A size bottles	Chem Lab use	Gas	Compressed gas
GAS, Freon R134A Refrigerant	Used as a refrigerant	Maintenance - HVAC	gas cylinder	In the system	100 lb cylinder	In the station chillers on Units 0, 1,2,3,4.	Gas	Compressed gas
GAS, Argon, refrigerated liquid	Used in chem. Lab instrumentation. Also used by BTU as a cover gas for their metal analyzer	Ultra high purity ICP grade	gas cylinder	Return to empty gas bottle storage area and/or vendor as per HIS/MSDS	230 litre cylinder	Chem lab use for instrumentation	Gas	Compressed Gas
Sodium hydroxide	stator cooling water system	Alkalization	NaOH tank on 254' in the Turbine Bay	There is a plan to use this material in 2018	Not available	Dilute 2%	Liquid	Corrosive.

Title:

PICKERING NGS HAZARDOUS SUBSTANCES

Chemical	Where Used (System)	Purpose	Storage	Disposal	Inventory	In system	Form	Characteristics
Xylene	various	Solvent, thinner	Flammable cabinet	Industrial waste disposal	4IX23	Used as required	Liquid	Flammable
Refrigerant "DUPONT SUVA 123 refrigerant"	HVAC	Refrigerant	HVAC System	Re-used in the system	45.4 KG DRUM	Contained within equipment	Gas	Toxic
Desiccant	CID: 193074 Compressed Air Circuit HP & LP Instrument Air	Adsorbents	General Storage Area/ Bulk Storage as per HIS/MSDS 570	Disposed as conventional waste or active waste if active as per HIS/MSDS 570	25 kg containers (140 kg and 150 kg steel drums for molecular sieve)	Connected to the system as child CAT ID 193074 to Parent CAT ID 188684 (Inlet Filter)	Solid	Not WHMIS controlled
	CID: 328987 Boiler Vapour Recovery (72210) Reactor Vault Vapour Recovery (72230) Mod Room Vapor Recover (72220)	Adsorbent material used as moisture remover in system driers.	Requires compress gas storage as per HIS/MSDS 1440	Dispose as conventional waste or active waste if active – take to appropriate chem. Waste drop off area as per HIS/MSDS 1440		connected to the system	Beads or Pellets	Toxic
Scintillant	FOR ON LINE TRITIUM MONITORS	Monitors	Corrosive cabinet	Industrial waste disposal	5LX110 bottle	Used as required	Liquid	Corrosive

Title:

PICKERING NGS HAZARDOUS SUBSTANCES

Chemical	Where Used (System)	Purpose	Storage	Disposal	Inventory	In system	Form	Characteristics
Solvent, Degreaser	Varies	Cleaning compound, for parts washer	Flammable storage cabinet	Industrial waste disposal	45 GAL DRUM	Used as required	Liquid	Flammable

In addition to above chemicals, Designated Substance Assessments were conducted as per Ontario Regulation. The Ontario Occupational Health and Safety Act defines a designated substance as a biological, chemical or physical agent, or combination of agents to which the exposure of a worker is prohibited, regulated, restricted, limited, or controlled by a specific regulation.

Designated Substances	Assessment #	Form	Comments
Asbestos	P-REP-08965-0413252	Other than asbestos on plant system components (e.g., pipe insulation) there are gaskets in station as well.	A program is in place under direction of the Asbestos Program Administrator (APA) to control asbestos-containing materials.
Silica	P-REP-08965-0333820	Products containing crystalline silica ingredients can be classified as follows: Painting and coating materials, caulking products, sealants, cements, concrete and grouting products, sand, hardener, joint Treatment, adhesive, and construction activities (modification projects) such as drilling, grinding and chipping concrete.	
Lead	P-REP-08965-0412357	Lead could be found in product categorised below: Lead Sheets, Lead blankets, Lead wool, Hilti categories, Lead shot, Solders alloy, Lead wire, Lead batteries, Abrasive shot (copper slag with minor lead contamination), lab standards.	In addition lead also is in structural material such as lead bricks, radiation shielding and some paints.

PICKERING NGS HAZARDOUS SUBSTANCES

Isocyanates	P-REP-08965-0333818	Products are: DECOTHANE SP, SIKAFLEX PRIMER 429/202, BELZONA 2911 (ELASTOMER QD CON), 2000.35952 359B9500 DEVTHANE 3 (Two parts MSDS), STONFLEX MP7, SIKAFLEX-221	These products are Largely used by the contractor.
Arsenic	P-REP-08963.21.DSA-0463389	Most products are batteries and one Lead Alloy and one Ebony Grit.	Concentration of Arsenic in these products was very low. The highest was .2%.
Mercury	P-REP-08963.21.DSA-0468663	Mercury-containing components and equipment on site are switches, relays, manometers, hygrometers, thermometers, lighting lamps and tubes, dry-cell batteries and a blood-pressure gauge.	Since the assessment blood pressure gage has been removed from site.
Benzene	P-REP-08963.21.DSA-0466050	3 gasoline products plus paints and primers(, Loctite 7649 Primer, 4020.01000 DEVFLEX DTM INEX, 4020.07100 DVFLX DTM FLA RD 4020−710 ER, and 4308-9020H DEVGUARD 4308H (also Carbopol 941 Polymer which has not been used for years).	Regulation 490/09 does not apply to delivery of gasoline to vehicles by gasoline pump.
Acrylonitrile	P-CORR-08963.21-0461966	No product containing Acrylonitrile	
Coke Oven Emissions	P-CORR-08963.21-0461479	No Metallurgical Coke–Oven at Pickering	
Ethylene Oxide	P-CORR-08963.21-0461995	No product was found.	This search yielded no results. There was no use of Ethylene oxide or Ethylene oxide-Containing products.
Vinyl Chloride	P-CORR-08963.21.DSA-0462279	No product was found.	

EXHIBIT I

38th Annual Conference of the Canadian Nuclear Society and 42nd Annual CNS/CNA Student Conference
Sheraton Cavalier Hotel, Saskatoon, SK, Canada, 2018 June 3-6

OVERVIEW OF THE HISTORICAL AND REGULATORY BASIS FOR EXCLUSION ZONE SIZING IN CANADA

N. Allison[1], K. Cormier[2], C. Morin[2] and G. Schwarz[2]
[1] University of Ontario Institute of Technology, Ontario, Canada
(nicole.allison1@uoit.net)
[2] Canadian Nuclear Safety Commission, Ottawa, Ontario, Canada

An Undergraduate Level Submission

An exclusion zone is an area surrounding a nuclear facility which is under the control of the licensee and is generally intended to reduce individual and societal risk from nuclear power plants. Historically, exclusion zone sizing was conservatively set at 1000 yards (914 m) radially from the reactor building, reflecting dose limits and uncertainties. In Canada, recent practice in establishing the size of exclusion zones incorporates security and robustness design considerations, environmental factors, evacuation needs, land use and dose acceptance criteria. Use of this approach allows applicants to propose exclusion zone sizes different from that of existing facilities.

1. Introduction

Initially in Canada, under the regulatory oversight of the Atomic Energy Control Board (AECB), the establishment of an exclusion zone – an area which prohibits any permanent habitation and is under the legal control of the licensee – surrounding a nuclear power facility was held as a good practice. In the year 2000 through the establishment of the Canadian Nuclear Safety Commission (CNSC), the practice was also established as a regulatory requirement under the *Nuclear Safety and Control Act* (NSCA) and its associated regulations. The *Class I Nuclear Facilities Regulations* stipulate that an applicant must provide details for any exclusion zone that surrounds Class I nuclear facility for any licence application other than a Licence to Abandon. This information is needed to determine whether the chosen site will be suitable for the future construction and operation of a new reactor facility. The exclusion zone provides an important contribution to the fifth level of Defence in Depth, the aim of which is to mitigate the radiological consequences of potential releases of radioactive materials that may result from accident conditions.

In recent years, vendors and proponents for new reactor technologies have indicated their intention to establish smaller exclusion zones, which they claim are suitable for their new, innovative reactor designs. Modern criteria for exclusion zone sizing are based on the integrated consideration of security requirements, environmental factors, evacuation needs, land usage needs, and dose acceptance criteria[1]. The historical basis for the exclusion zone sizing, as well as current national and international practices in this area were reviewed to highlight the evolution of exclusion zone sizing determination.

[1] These dose acceptance criteria consider the whole-body dose for average members of the critical groups who are most at risk beyond the exclusion zone boundary for certain postulated accident scenarios [8].

2. History

2.1 Historical evolution of the exclusion zone

The 1950's and 1960's were early periods in the development of a formal safety philosophy for the design of nuclear reactors in Canada. Technical safety objectives for nuclear power plants – such as that the overall risk posed by the operation of a plant should be less than the risk from other industry – played a role in the development of measures through reactor design and siting to reduce risk to the public [1]. Included in these measures was the provision for the establishment of an exclusion zone surrounding a nuclear power plant.

One of the earliest instances of the concept of an exclusion zone in the Canadian context appeared in the 1961 paper authored by G. C. Laurence [2], who at this time had also been appointed as the president of the AECB. The 'exclusion area' in this paper was proposed to be an area surrounding the reactor which excludes the presence of non-employees for the purpose of reducing the probable number of deaths resulting from an accident in which process equipment and protective devices failed but containment provisions did not – an accident scenario later termed a 'dual-failure'. Additionally, the concept of dose acceptance criteria at the exclusion zone boundary was introduced. This ensured that the distance from the plant to the zone boundary had to be sufficient to prevent the dose resulting from the aforementioned accident scenario from exceeding the boundary dose limit.

In 1964 the dose acceptance criteria were further developed [3]. These criteria now provided that in such a dual-failure, no-one at the exclusion boundary should receive a dose greater than 250 mSv to the whole body, or 2500 mSv to the thyroid, except under extremely infrequent weather conditions. These values were chosen to align with International Commission on Radiological Protection (ICRP) recommendations current at the time, and represented a value at the lower limit of possible early somatic damage [4]. An example of the application of this principle and criteria can be seen in the exclusion zone sizing for the Douglas Point nuclear generating station, which was constructed during the 1960's. The shortest distance from the Douglas Point reactor to the boundary of its exclusion zone is approximately 900m. For this distance, it was calculated that a dose of about 2500 mSv would be incurred to the thyroid of an infant at the boundary of the exclusion zone when assuming a release of 1% of the radioiodine from the fuel, a containment ineffectiveness of 0.001 and very unfavourable weather conditions for the region [3]. Shortly following, individual whole-body dose acceptance criteria for normal operation as well as serious process system failures alone were also developed, as seen summarized in Table 1 [5].

Early in the 1970's, the definition of an exclusion zone became "*An area, specified by the Atomic Energy Control Board, immediately surrounding a nuclear facility and under control of the licensee or operator,*" with conditions stipulating that no permanent residence should fall within this zone and that "*use of the land for purposes other than the licensed activities shall require separate AECB approval*" [5]. The dose acceptance criteria were maintained at what was seen in the 1960's.

Table 1 Summary Canadian dose limits for members of the public at the exclusion zone boundary as of 1972

Situation	Assume Maximum Frequency	Maximum Individual Dose Limits (Whole-Body)
Normal Operation	N/A	5 mSv (0.5 rem) per year
Serious Process Equipment Failure	1 per 3 years	5 mSv (0.5 rem) per year
Process Equipment Failure Plus Failure of any Safety System	1 per $3x10^3$ years	250 mSv (25 rem)

During the 1980's and 1990's, historical literature reviewed showed less of a focus on the development of the definition and criteria for exclusion zone sizing and more refinement of the single/dual-failure approach and associated plant system reliability and risk targets. Overall in Canada, exclusion zones have historically been sized with a radius from the reactor building on the landward side of approximately 1000 yards, or 914 m based on these dose acceptance criteria as well as the atmospheric dispersion modelling capabilities and uncertainties of the time.

2.2 Modern regulatory basis

The establishment of the CNSC in the year 2000 marked the introduction of legal requirements regarding exclusion zones. Per Section 1 of Class I Nuclear Facilities Regulations, an exclusion zone is defined as "*...a parcel of land within or surrounding a nuclear facility on which there is no permanent dwelling and over which a licensee has the legal authority to exercise control,*" [6]. Further details and requirements for the assessment of exclusion zone criteria were provided in the regulatory guidance documents REGDOC 2.5.2, *Design of Reactor Facilities: Nuclear Power Plants* [7] published in 2014 and draft REGDOC 1.1.1, *Site Evaluation and Site Preparation for New Reactor Facilities* [8] which will be published in 2018, as well as RD-367, *Design of Small Reactor Facilities* [9] published in 2011. These three documents were developed to represent the CNSC's adoption of and, where applicable, adaption to Canadian expectations of documents within the International Atomic Energy Agency's (IAEA) Safety Standards Series, specifically NS-R-1, NS-R-3 and NS-R-4 respectively.

Rather than prescribing a particular size for the exclusion zone, the appropriateness of proposed exclusion zone sizes are based on dose acceptance criteria complemented by consideration of factors including but not limited to: security requirements, environmental factors, evacuation needs and land use [7]. Guidance for consideration of these factors is provided in REGDOC 2.5.2. REGDOC 1.1.1 complements the information presented in REGDOC 2.5.2 by explicitly tying the current dose acceptance criteria to exclusion zone sizing, as seen in Table 2 [8], [10]. The current approach proposes dose acceptance criteria for normal operation, anticipated operational occurrences and design-basis accident plant states. The values for these dose acceptance criteria are chosen to be consistent with international best practices as well as taking into account the recommendations of the IAEA and ICRP [7]. The dose acceptance criteria

provide the minimum acceptable size of an exclusion zone and the additional factors can subsequently be used to determine if the zone size needs to be increased.

Table 2 Summary of Canadian dose acceptance criteria in REGDOC 2.5.2 and draft REGDOC 1.1.1 for average members of the critical groups most at risk at the exclusion zone boundary

Plant State	Frequency (per reactor year)	Dose Acceptance Criteria	Calculation
Normal Operation	N/A	1.0 mSv	Over a 1-year calendar period
Anticipated Operational Occurrence (AOO)	$\geq 10^{-2}$	0.5 mSv	Using a deterministic safety analysis for a 30-day period following the analyzed event
Design-Basis Accident (DBA)	$\geq 10^{-5}$ and $< 10^{-2}$	20.0 mSv	

With respect to security requirements, the size of the exclusion zone plays a role in the security provisions required in order to maintain acceptable response times and site coverage. While a larger exclusion zone could be chosen to provide a greater degree of separation between the public and the facility, alternatively the burden of a larger area may be reduced by maintaining a smaller exclusion zone that is supported by engineered security measures to the site, a well-designed security program and a facility design which is highly robust against natural and human-induced external hazards [7].

Environmental factors are also taken into consideration for exclusion zone sizing for the role they play in potential dose impact. Local meteorology and landscape will affect the atmospheric dispersion of radioactive releases and therefore the radiological dose which may be received by members of the public. Environmental factors such as the physical characteristics of a site – such as geographical characteristics and proximity to elevated land – will additionally affect security requirements [7].

Emergency preparedness consideration – including evacuation needs – should take into account both onsite and offsite emergency response requirements and capabilities, in particular how these are affected by the size of the exclusion zone. Again, environmental factors should also be considered in terms of how they may affect response times [7].

Land use in the area will also reasonably affect the size of the exclusion in terms of the area required to accommodate the site for the nuclear plant for existing and postulated facilities and infrastructure. Additionally, both onsite and offsite infrastructure already present in an area may affect security requirements and evacuation needs [7].

In addition to the above guidance, REGDOC 1.1.1 provides two recommended approaches to applicants in demonstrating that variable sizes of exclusion zones can meet Canadian regulatory requirements [8]. The first approach indicates that a proposed exclusion zone size can be

predicted based on high level design information and be conservatively bound. Using this approach, alternative proposed facility designs and structure locations can be considered for a defined exclusion zone. In the second approach, a detailed case for the exclusion zone boundary is determined through a systematic process using detailed facility design information for a specific technology. This approach allows for the optimization of the site footprint from the onset of the project. These two approaches allow for greater flexibility for vendor and applicant engagement, as an applicant may use this guidance to define an exclusion zone which is appropriate for multiple potential designs on a site or optimize the exclusion zone for a known design.

3. Conclusion

In the past, little variation was seen in the sizing of exclusion zones, which were generally set by convention of using approximately 1000 yards (914 m) validated by dose acceptance criteria. Presently, Canada's regulatory documents address exclusion zone sizing through an integrated consideration of security and plant design robustness, emergency response needs, environmental factors, land use and dose acceptance criteria. This approach allows vendors and proponents for new reactor technologies to propose appropriate exclusion zone sizes relative to the safety and security needs of a specific reactor facility.

4. References

[1] E. Siddall, AECL, "Reactor Safety Standards and Their Attainment", Report, Chalk River Ontario, Canada, 1957 September 15.

[2] G. C. Laurence, AECL Reactor Research & Development Division, "Required Safety in Nuclear Reactors", Report, Chalk River, Ontario, Canada, 1961 January 25. E-docs # 5440536

[3] G. C. Laurence et al., AECB, "Reactor Safety Practice and Experience in Canada", Report, Ottawa, Ontario, Canada, 1964. E-doc # 3534749

[4] F. C. Boyd, AECB, "Containment and Siting Requirements in Canada", Presented at the IAEA Symposium on the Containment and Siting at Nuclear Power Plants, Vienna, Austria, 1967 April 3. E-doc # 3534772

[5] D. G. Hurst and F. C. Boyd, AECB, "Reactor Safety and Licensing Requirements", Presented at the annual Canadian Nuclear Association Conference, Ottawa, Ontario, Canada, 1972 June 14. E-doc # 3536884

[6] CNSC, "Class I Facilities Regulations", Regulation, Ottawa, Ontario, Canada, 2000 May.

[7] CNSC, "REGDOC 2.5.2, Design of Reactor Facilities: Nuclear Power Plants", Regulatory Document, Ottawa, Ontario, Canada, 2014 May.

[8] CNSC, "REGDOC 1.1.1, Licence to Prepare Site and Site Evaluation for New Reactor Facilities", Regulatory Document, Ottawa, Ontario, Canada, 2018 January.

[9] CNSC, "RD-367: Design of Small Reactor Facilities", Regulatory Document, Ottawa, Ontario, Canada, 2011 June.

[10] CNSC, "REGDOC 2.4.1, Deterministic Safety Analysis", Regulatory Document, Ottawa, Ontario, Canada, 2014 May.