

User Guide for Forest Processing Facility LIO Data Class

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Operations Branch, Forest Industry Division,
Ministry of Natural Resources and Forests

2014-Oct-02

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Additional Information

For more information about this document, please contact lio@ontario.ca

Executive Summary

Key Words:

Forest Resources Processing Facility, Forestry, Forest Industry, Pulp Mills, Sawmills, Paper Mill, Pulp and Paper

Abstract:

A user guide to the extent and context of information stored and maintained in the Forest Processing Facility (FORPRFAC) Land Information Ontario (LIO) Data Class.

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List of Acronyms

Listing and definitions of all acronyms found in this document.

LIQ: Land Information Ontario

1. Introduction

Second to mining operations, forest industry is one of the major employers in Ontario, especially in the northern part of the province. Forest resource processing facilities are integral for converting harvested wood and fibre into everyday consumable products such as lumber, composite panels, cardboard, paper and newsprint. In Ontario, collectively these mills process in excess of 20 million cubic metres of Crown Land wood (both hardwood and softwood species) on an annual basis. All facilities that use 1,000 cubic metres or more of forest resources in one year must have a facility licence.



Figure 1: Bowater Canadian Forest Products Inc. (Pulp/Paper/Paperboard) in Thunder Bay, Ontario. Photo Credit: Larry Watkins (MNRF)

Information about Ontario's forest resources processing facilities falls under the mandated responsibility of the Timber Allocation and Licensing Section, Operations Branch, Forest Industry Division of the Ministry of Natural Resources and Forests.

2. Objectives

This user guide is intended for users with a general interest in the Forest Processing Facility (FORPRFAC) LIO data class. The remainder of this document describes the extent and context of the information collected for this GIS layer.

3. Data Class: Forest Processing Facility (FORPRFAC)

The site occupied by a facility that processes forest resources into products (e.g. pulp, paper, lumber) as defined by the Province of Ontario. Only Crown licensed facilities are featured in this layer.

Spatial Management

The spatial data for Forest Processing Facility are managed as Spatial-Single-Points (SPSPNT) in the LIO Editor by the Timber Allocation and Licensing Section, where each facility feature is represented as a “point” location along with corresponding basic attributes.

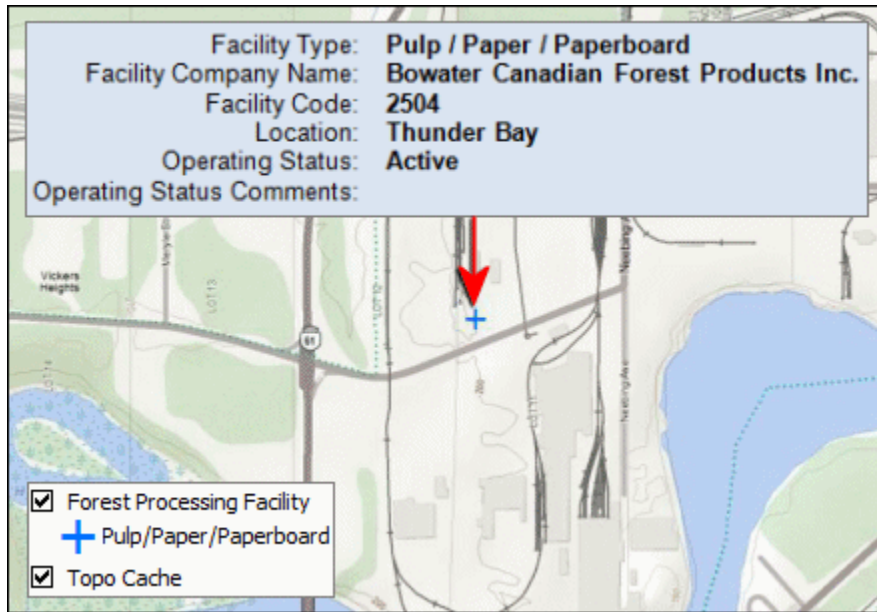


Figure 2: Thunder Bay Bowater facility (Figure 1) as featured in LIO Mapper with basic attributes

It should be noted that extensive tabular information about forest resource processing facilities are maintained and updated in the MNR’s corporate Electronic Facility Annual Return (eFAR) database which automates the process of facility license holders to submit Facility Annual Returns, and allows the MNR to monitor the capacity of these facilities and forest resource utilization. This information is a vital tool to assist in the support and promotion of a healthy forest industry in Ontario.

4. Model Diagram: Forest Processing Facility (FORPRFAC)

Note: the tables shown below are hyperlinked to their respective data descriptions in this guide.

Physical Model Diagram for:
 Forest Processing Facility (FORPRFAC)
 Effective Date: 2014-JUL-29

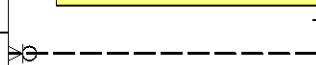
NOTE: Where applicable to this model...
 Table with a “_LIST” name suffix = Lookup Table (LUT)

FOREST_PROCESSING_FACILITY_FT

OGF_ID	NUMBER(13)	NOT NULL
FACILITY_TYPE	VARCHAR2(40)	NOT NULL (FK)
FACILITY_COMPANY_NAME	VARCHAR2(80)	NOT NULL
FACILITY_CODE	VARCHAR2(4)	NOT NULL
LOCATION	VARCHAR2(40)	NOT NULL
OPERATING_STATUS	VARCHAR2(10)	NOT NULL
OPERATING_STATUS_COMMENTS	VARCHAR2(255)	NULL
GEOMETRY_UPDATE_DATETIME	DATE	NULL
EFFECTIVE_DATETIME	DATE	NOT NULL
SYSTEM_DATETIME	DATE	NOT NULL
SHAPE	SDO_GEOMETRY	NULL

FOREST_PROC_FACILITY_TYPE_LIST

FACILITY_TYPE	VARCHAR2(40)	NOT NULL
DESCRIPTION	VARCHAR2(1000)	NULL
EFFECTIVE_DATETIME	DATE	NOT NULL
EXPIRY_DATETIME	DATE	NULL



5. Data Description

This section provides a detailed overview of the physical database table and column properties that are associated with this data class.

Main Business Area Tables

The main (or crucial) business area tables for this model are listed below. Associated lookup tables (and values) are listed in the appendices this document and are hyperlinked where referenced in this section.

FOREST_PROCESSING_FACILITY_FT

The site occupied by a facility that processes forest resources into products (e.g. pulp, paper, lumber) as defined by the Province of Ontario. Only Crown licensed facilities are featured in this layer.

#	Column Name	Column Type	Mandatory	Short Name
1	OGF_ID	NUMBER(13)	Yes	OGF_ID
	Ontario Geospatial Feature Identifier: A unique numeric provincial identifier assigned to each object. The identifier is automatically assigned by the system for every new feature created in the LIO Editor environment.			
2	FACILITY_TYPE	VARCHAR2(40)	Yes	FAC_TYPE
	Identifies the type of forest resource processing facility. <u>Permissible Values:</u> (See FOREST_PROC_FACILITY_TYPE_LIST lookup table in Appendix 1)			
3	FACILITY_COMPANY_NAME	VARCHAR2(80)	Yes	COMPANY
	The registered name of the company operating the forest resource processing facility e.g.: Domtar Inc.			
4	FACILITY_CODE	VARCHAR2(4)	Yes	FAC_CODE
	A unique numeric code assigned to each forest resource processing facility by the Province of Ontario. Interestingly, the first two digits of the assigned codes are traditionally based on the old OMNR Region and District Code values. Staff familiar with these codes could identify which MNR Region and District the facility resides was by simply looking at the first two numbers. The facility code (NNNN) is derived as follows: Digit 1: Old OMNR Region Code (there used to be 8 OMNR Regions in Ontario). Digit 2: Old OMNR District Code (within old OMNR Region above) Digits 3 + 4: Sequential number assigned facility within the Region and District. This method for assigning facility codes is expected to continue. A listing of old Region and District codes can be found in Appendix 3 .			
5	LOCATION	VARCHAR2(40)	Yes	LOCATION
	Identifies the location of the forest resource processing facility (e.g. city, town, township).			
6	OPERATING_STATUS	VARCHAR2(10)	Yes	OP_STATUS

#	Column Name	Column Type	Mandatory	Short Name
	<p>The current operational status of the forest resource processing facility. The operational status can be further described in the "Operating Status Comments" field. Valid operating status values are as follows</p> <ul style="list-style-type: none"> • Active: Fully operational. • Inactive: Operation has been temporarily disrupted or permanently closed. • Proposed: Proposed location for a new facility. • Unknown: the current operational status of the facility is unknown. 			
7	OPERATING_STATUS_COMMENTS	VARCHAR2(254)	No	STATUS_COM
	Additional comments regarding the operating status of the forest resource processing facility.			
8	GEOMETRY_UPDATE_DATETIME	DATE	No	GEO_UPD_DT
	Date/time the geometry was created or last modified in the source database.			
9	EFFECTIVE_DATETIME	DATE	Yes	EFF_DATE
	Date/time the record was created or last modified in the source database.			
10	SYSTEM_DATETIME	DATE	Yes	SYS_DATE
	Date/time the record was loaded into or last modified in the LIO database. <u>Default:</u> System Date			
11	SHAPE	SDO_GEOMETRY	No	SHAPE
	Geometry attribute.			

6. Links to Additional Information

- Official [LIO Metadata Record](#) for the Forest Processing Facility data class.
- Electronic Facility Annual Return [website](#) (eFAR).
- [Crown Forest Sustainability Act](#) (1994).
- Ontario Forest Industry Association (OFIA) [website](#).

Appendix 1: Business Area Lookup Tables and Values

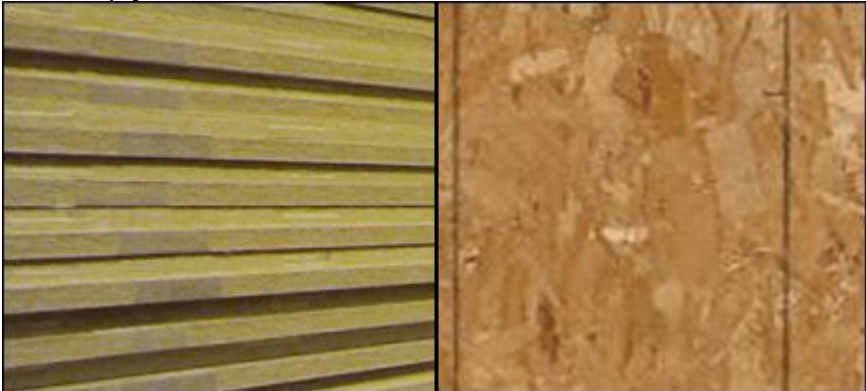
Lookup Tables and associated values used by the Forest Processing Facility data class.




FOREST_PROC_FACILITY_TYPE_LIST




Lookup table of permissible forest processing facility types used to populate
FOREST_PROCESSING_FACILITY_FT.FACILITY_TYPE



#	Column Name	Column Type	Mandatory	Short Name
1	FACILITY_TYPE	VARCHAR2(40)	Yes	FAC_TYPE
	Identifies the type of forest processing facility.			
2	DESCRIPTION	VARCHAR2(1000)	No	DESCR
	Context description of Facility Type.			
3	EFFECTIVE_DATETIME	DATE	Yes	EFF_DATE
	Date/time the record was created or last modified in the source database. <u>Default:</u> System Date			
4	EXPIRY_DATETIME	DATE	No	EXP_DATE
	Date/time that the record was expired from use.			

FOREST_PROC_FACILITY_TYPE_LIST Lookup Table Values

FACILITY_TYPE	DESCRIPTION
Composite	<p>A facility that produces oriented strand board, waferboard, medium density fibreboard, particle board, hardboard, laminated veneer lumber, plywood, etc.</p>  <p>Figure 3: (Left) Particleboard product produced by G.P. Flakeboard, Sault Ste. Marie, Photo credit - John Stephens, MNRF. (Right) waferboard, photo credit: James Gratton, MNRF.</p>

<p>Energy</p>	<p>A facility that produces electricity and/or heat from wood waste biomass.</p>  <p>Figure 4: Calstock Biomass Co-Generation Plant 40 km west of Hearst, Ontario. Photo credit - Joe Maure, MNRF</p>
<p>Fuelwood</p>	<p>A facility where wood is processed into fuelwood (firewood) for commercial retail.</p>  <p>Figure 5: Example of unsplit fuelwood - photo credit Larry Watkins (MNRF)</p>
<p>Other Facility</p>	<p>General category used to identify facilities not in the listing of available facility types. For example, posts, poles, specialty wood products, etc.</p>  <p>Figure 6: Example of other facility products, posts (left) and log home timbers (right) - photo credit MNRF</p>

<p>Pellets</p>	<p>A facility that produces wood pellets or briquettes.</p>  <p>Figure 7: Examples of wood pellets (left) - photo credit Jim Campbell (MNRF) and briquette (right) - photo credit Karry-Anne Campbell (MNRF) circa 1991</p>
<p>Pulp / Paper / Paperboard</p>	<p>Facility which produces pulp, paper, newsprint, paperboard, linerboard, corrugating medium, etc.</p>  <p>Figure 8: Large roll of paper - Photo credit Erik Wainio (MNRF)</p>
<p>Sawmill - Large</p>	<p>Facility at which logs are sawn into lumber, specialty solid wood products. By-products include chips, shavings, sawdust, bark & hog fuel, etc. Large - capacity is greater than 200 cubic metres per 8 hour shift.</p>  <p>Figure 9: Milled lumber at unknown facility. Photo credit MNRF</p>

<p>Sawmill - Medium</p>	<p>Facility at which logs are sawn into lumber, specialty solid wood products. By-products include chips, shavings, sawdust, bark & hog fuel, etc. Medium - capacity is between 25 to 200 cubic metres per 8 hour shift.</p>
<p>Sawmill - Small</p>	<p>Facility at which logs are sawn into lumber, specialty solid wood products. By-products include chips, shavings, sawdust, bark & hog fuel, etc. Small - capacity is less than 25 cubic metres per 8 hour shift.</p>
<p>Veneer</p>	<p>A facility dedicated to the manufacture of veneer or laminated veneer wood products.</p>  <p>Figure 10: Nobord Plywood Mill, Cochrane. Photo credit: Brian Fox (MNRF)</p>
<p>Whole Tree Chipper</p>	<p>Whole tree chippers are large mobile (can also be stationary) machines that produce wood chips from whole trees (tree stump and roots not included). Whole tree chippers typically de-bark the tree as it is processed, and usually provide the chips to pulp and paper mills.</p>  <p>Figure 11: Example of a mobile whole tree chipper (left) and rendering drum (right) - photo credit Dave McGowan (MNRF)</p>

Appendix 2: Table Key Dependency and Relationship Index

Keys are used to link or make relationships between tables through one or more columns. A **Parent Table** is the source of unique key columns used by a **Child Table**. The main key types are described below.

Primary Key (PK):

A Primary Key (PK) is a column that uniquely identifies each record in a table. There can be more than one PK defined for a table when additional rules for record uniqueness are needed. Primary Keys cannot contain null values.

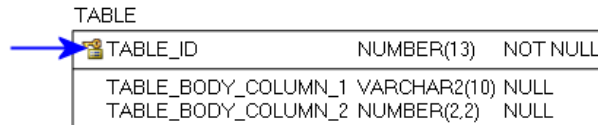


Figure 12: Primary Key example

Foreign Key (FK):

When a Primary Key from a Parent Table appears as a column in the Child Table it is referred to as a Foreign Key (FK). The FK may retain the same name of the Parent Table column, or it may be renamed.

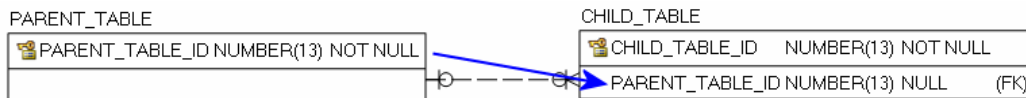


Figure 13: Foreign Key example

Alternate Key (AK):

Alternate Keys (AK) are secondary unique identifiers in a Parent Table. A Child Table can link to a Parent Table AK and use it as a Foreign Key (FK). The FK may retain the same name of the Parent Table column, or it may be renamed. Alternate Keys allow null values.

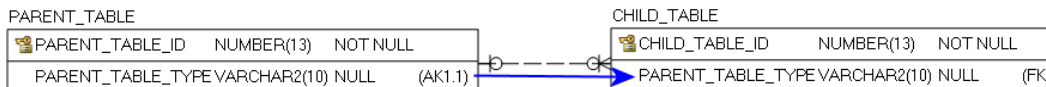


Figure 14: Alternate Key example

There are two relationship type options, identifying and non-identifying, which are described below.

An **Identifying Relationship** occurs when a column from the Parent Table is added to the key section of the Child Table. Though technically a Foreign Key (FK) in the child table, it now forms part of the Primary Key (PK). Identifying Relationships are symbolized with a solid line.

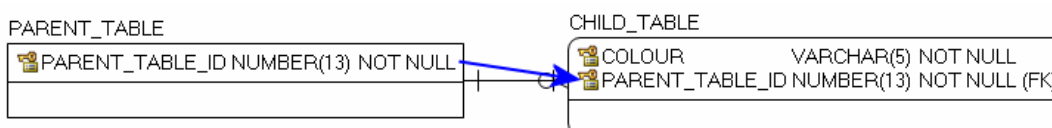


Figure 15: Example of an Identifying Relationship

A **Non-identifying Relationship** occurs when a column from the Parent Table is added to the main body of the Child Table where it is treated as a Foreign Key (FK). Non-identifying Relationships are symbolized with a dashed line.

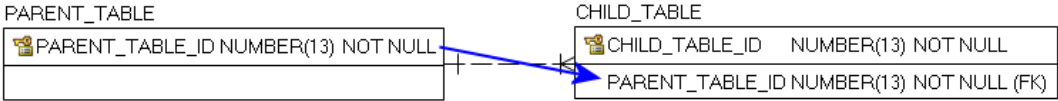


Figure 16: Example of a Non-identifying Relationship

The relationships between tables are set up with cardinality rules describing if the feature record in the Parent Table can relate to zero, one or more records in the associated Child Table and vice versa. These rules are symbolized in the model diagram as follows.

Symbol	Definition
	Zero or one (optional: 1 to 1)
	Zero, one or more (optional: one to many)
	One or more (mandatory: one to many)
	Nulls not allowed (mandatory: 1 to 1)

Table 1: Explanation of model diagram relationship symbology

The following section is an index of parent table primary keys identifying, where applicable, associated child table dependencies that have been implemented for this data class.

Main Business Area Tables

Index of main business area table primary and associated foreign keys.

Note: Relationship type reference is either Identifying (I) or Non-Identifying (NI).

Parent Table: **FOREST_PROCESSING_FACILITY_FT**

Primary Key(s): **OGF_ID**

Data Type: **NUMBER (13)**

Child Table	Migrated Foreign Key	Rel. Type	Parent to Child Relationship	Child to Parent Relationship
n/a	n/a	n/a	n/a	n/a

Lookup Tables

Lookup table primary key (PK) used as a foreign key in main business area table to control permissible values.

Note: Relationship type reference is either Identifying (I) or Non-Identifying (NI).

Parent Table: **FOREST_PROC_FACILITY_TYPE_LIST**

Primary Key(s): **FACILITY_TYPE**

Data Type: **VARCHAR2 (40)**

Child Table	Migrated Foreign Key	Rel. Type	Parent to Child Relationship	Child to Parent Relationship
FOREST_PROCESSING_FACILITY_FT	FACILITY_TYPE	NI	Optional: 1 to many	Mandatory: 1 to1

Appendix 3: Listing of old MNR Region and District Codes

The chart below identifies the codes assigned to old Ontario Ministry of Natural Resources (now renamed Ministry of Natural Resources and Forests) Districts and Regions. The codes were used operationally in the ministry's early forest industry, silvicultural and forest management databases and forms. These codes are still being used to assign facility codes to licensed forest resources processing facilities.

Code (1982)	Location Name (1982)	OMNR Location Type (1982)	Region (1982)	Location Name (2001)	OMNR Location Type (2001)	Region (2001)
10	Northwestern Region	Region	n/a	Northwestern Region	Region	n/a
11	Dryden	District	Northwestern Region	Dryden	District	Northwestern Region
12	Fort Frances	District	Northwestern Region	Fort Frances	District	Northwestern Region
13	Ignace	District	Northwestern Region	Dryden	District	Northwestern Region
14	Kenora	District	Northwestern Region	Kenora	District	Northwestern Region
15	Red Lake	District	Northwestern Region	Red Lake	District	Northwestern Region
16	Sioux Lookout	District	Northwestern Region	Sioux Lookout	District	Northwestern Region
17	Wabigoon (Dryden) Nursery	Nursery	Northwestern Region	n/a	n/a	n/a
20	North Central Region	Region	n/a	Northwestern Region	Region	n/a
21	Atikokan	District	North Central Region	Fort Frances	District	Northwestern Region
22	Geraldton	District	North Central Region	Nipigon	District	Northwestern Region
23	Nipigon	District	North Central Region	Nipigon	District	Northwestern Region
24	Terrace Bay	District	North Central Region	Nipigon	District	Northwestern Region
25	Thunder Bay	District	North Central Region	Thunder Bay	District	Northwestern Region
27	Thunder Bay Nursery	Nursery	North Central Region	n/a	n/a	n/a
30	Northern Region	Region	n/a	Northeastern Region	Region	n/a
31	Chapleau	District	Northern Region	Chapleau	District	Northeastern Region
32	Cochrane	District	Northern Region	Cochrane	District	Northeastern Region
33	Gogama	District	Northern Region	Timmins	District	Northeastern Region
34	Hearst	District	Northern Region	Hearst	District	Northeastern Region
35	Kapuskasing	District	Northern Region	Hearst	District	Northeastern Region
36	Kirkland Lake	District	Northern Region	Kirkland Lake	District	Northeastern Region
37	Moosonee	District	Northern Region	Cochrane	District	Northeastern Region
38	Timmins	District	Northern Region	Timmins	District	Northeastern Region
39	Swastika Nursery	Nursery	Northern Region	n/a	n/a	n/a
40	Northeastern Region	Region	n/a	Northeastern Region	Region	n/a
41	Blind River	District	Northeastern Region	Sault	District	Northeastern Region
42	Espanola	District	Northeastern Region	Sudbury	District	Northeastern Region
43	North Bay	District	Northeastern Region	North Bay	District	Northeastern Region
44	Sault Ste. Marie	District	Northeastern Region	Sault	District	Northeastern Region
45	Sudbury	District	Northeastern Region	Sudbury	District	Northeastern Region
46	Temagami	District	Northeastern Region	North Bay	District	Northeastern Region
47	Wawa	District	Northeastern Region	Wawa	District	Northeastern Region
50	Algonquin Region	Region	n/a	Southcentral Region	Region	n/a
51	Algonquin Park	District	Algonquin Region	Algonquin Park	District	Southcentral Region
52	Bancroft	District	Algonquin Region	Bancroft	District	Southcentral Region
53	Bracebridge	District	Algonquin Region	Parry Sound	District	Southcentral Region
54	Minden	District	Algonquin Region	Bancroft	District	Southcentral Region
55	Parry Sound	District	Algonquin Region	Parry Sound	District	Southcentral Region
56	Pembroke	District	Algonquin Region	Pembroke	District	Southcentral Region
60	Eastern Region	Region	n/a	Southcentral Region	Region	n/a
61	Brockville	District	Eastern Region	Kemptville	District	Southcentral Region
62	Cornwall	District	Eastern Region	Kemptville	District	Southcentral Region
63	Carleton Place	District	Eastern Region	Kemptville	District	Southcentral Region
64	Napanee	District	Eastern Region	Peterborough	District	Southcentral Region
66	Tweed	District	Eastern Region	Peterborough	District	Southcentral Region
67	Kemptville Nursery	Nursery	Eastern Region	n/a	n/a	n/a
70	Central Region	Region	n/a	Southcentral Region	Region	n/a
71	Huron	District	Central Region	Midhurst	District	Southcentral Region
72	Cambridge	District	Central Region	Guelph	District	Southcentral Region
73	Lindsay	District	Central Region	Peterborough	District	Southcentral Region
74	Maple	District	Central Region	Aurora	District	Southcentral Region
75	Niagara	District	Central Region	Guelph	District	Southcentral Region
76	Orono Nursery	Nursery	Central Region	n/a	n/a	n/a
77	Midhurst Nursery	Nursery	Central Region	n/a	n/a	n/a
78	Ontario Seed Plant, Angus	Seed Plant	Central Region	n/a	n/a	n/a
80	Southwestern Region	Region	n/a	Southcentral Region	Region	n/a
81	Aylmer	District	Southwestern Region	Aylmer	District	Southcentral Region
82	Chatham	District	Southwestern Region	Aylmer	District	Southcentral Region
83	Owen Sound	District	Southwestern Region	Midhurst	District	Southcentral Region
84	Simcoe	District	Southwestern Region	Aylmer	District	Southcentral Region
85	Wingham	District	Southwestern Region	Guelph	District	Southcentral Region
86	St. Williams Nursery	Nursery	Southwestern Region	n/a	n/a	n/a