Using 2001 Census Data in ArcView 3.3 with Census Data from the CHASS Census Analyzer and Statistics Canada Digital Cartographic Files

These procedures outline:

1. Downloading and opening the Cartographic Boundary Files (CBF)
2. Downloading and joining the attribute (data) files with the CBF

A. Importing an Arc Export File

Digital Cartographic Files are available for download from the **University of Toronto Data Library Services: Census 2001 Spatial Data Files**, located at the University of Toronto URL below:

http://0-www.chass.utoronto.ca.innopac.lib.ryerson.ca/datalib/cc01/geospat01.htm

This site provides the option to download either **Digital Boundary Files** (DBF) or **Digital Cartographic Files** (DCF) in Arc/Info or MapInfo formats. In this example, the Arc/Info digital cartographic file at the census tract level is used. Often Arc/Info Cartographic files(.e00 extension) are found in Arc Export File formats (.exe extension). In order to view a desired Arc Export file in ArcMap 9.0, follow the steps below.

***Note** – To access the files from a computer located off the Ryerson campus, you must be a Ryerson University student (full-time or continuing education), staff or faculty member and have a matrix (e-mail) account.

Example:

1. Scroll down to Hamilton (537) and *Download* the ***.exe file (gct_537b02a_e.exe) for Arc/Info to your disk.** (the file size of gct_535b02a_e should be 297KB)

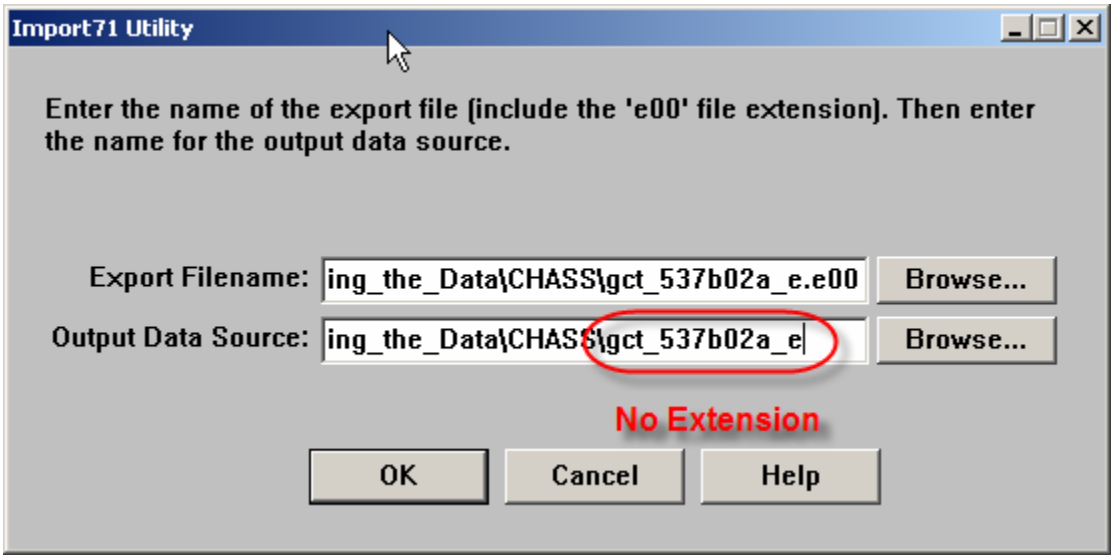
2. Once this file has been downloaded, locate the file and unzip it in order to extract the file.

3. In order to convert the Arc/Info export file for use in ArcView, you will use **ArcView Import 71.** *Double-Click* on the **Import71** icon or *select* **Start > Programs > ESRI > ArcView GIS 3.3 > Import71**

4 (a). The **Import71 Utility** window will *open*.

4 (b). **(Figure 1)** In the **Export Filename** *select* **Browse** then locate the ***.e00** file in the directory you downloaded it to, *select* it, then *select* **Open.**
(Eg. C:\esri\tordcf\gct_537b02a_e.e00).

4 (c). In the **Output Data Source** *select* **Browse** and the destination location where you want the file to be extracted to. After the last **back slash (\)**, *type* in the **output file name with no extension (Eg. C:\esri\tordcf\ gct_537b02a_e.** *Select* **OK**. *Click* **OK** when the **Import Complete** appears**.**



(Figure 1)

B. Opening the ArcInfo Coverage in ArcView 3.3

1. *Double-Click* on the **ArcView GIS 3.3** icon or *select* **Start > Programs > ESRI > ArcView GIS 3.3 > ArcView GIS 3.3**.

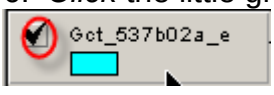
2. In the **Welcome to ArcView GIS window** *click* **with a new View**, then *click* **OK**.

3. In the **Add data window**, it asks you: "**Would you like to add data to the View now?"**, *click* **Yes**.

4. In the **Add Theme window**, browse to the boundary file **(Example C:\esri\tordcf\ gct_537b02a_e)**. *Click* **OK**.

5. *Maximize* the window titled **View1**, and *maximize* the window titled **ArcView GIS 3.3.**

6. *Click* the little grey box (a check mark will appear) left of the word **gct_537b02a_e**.



You now have a layer showing the Hamilton CMA with census tract boundaries. In ArcView this layer is called a **theme.**

C. Converting From a Coverage to a Shape-file

1. Make sure that **gct_537b02a_e** is *active* (by clicking on the file name). From the main menu *click* **Theme > Convert to Shapefile** and give it a name **(Eg. Hamct.shp).** *Select* **Yes**, when asked to **Add shapefile as theme to the view**.

2. Make **gct_537b02a_e** *active*, and from the main menu *select* **Edit > Delete Themes > Yes To All**.

3. Now display **Hamct.shp** and make it active by *clicking* on the file name and putting a **check** in the **little grey box** beside the **Hamct.shp** name.

D. Downloading Census 2001 Attribute Data

To map data variables, the data table must be joined with the .dcf or .dbf file.

1. *Download* the data from the **Canadian 2001 Census Profile (Census Tract Level)** located at the URL below:

http://datacentre.chass.utoronto.ca/census/2001_ct_all.html

2a) *Select* the **Census Metropolitan Area** = **Hamilton**

2b) To **Select the Data Category**: *Use* the **Ctrl** or **Shift** keys for multi-criteria selections. (When using 2001 Census Data, Chass automatically selects the **CTName**. If using 1996 Census Data, be sure to *Select* **CTName** as one of the **Data Categories** because this field is used to link to the spatial data).

Note: *In this example we will download* ***Population, 2001 – 100% Data***

2c) *Set* **Data categories to be listed as = Columns**

2d) *Set* **Select the output format = dBASE**

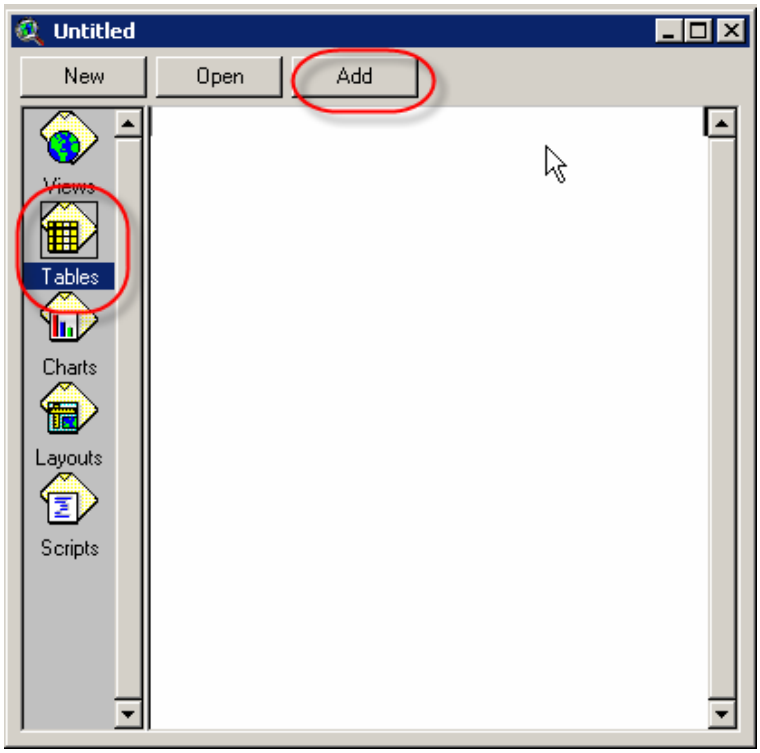
2e) *Click* **Submit Query**

A new page with the heading “Canadian Census 2001 Profile Tables” should appear. Scroll to the bottom of this page and Select the first link next to the words **.dbf file (dBase binary format**). (The second link is the name of the variables; save the second link as a .**txt** file).

3. Once the link is selected, save the file. Select a desired location and save the database as **Ham01.dbf**.

E. Opening the Data File in ArcView 3.3

1. From the main menu, select **Window**. *Click* **Untitled.**



(Figure 2)

2. **(Figure 2)** In the **Untitled** window, *click* **Tables** from the left menu, then *click* **Add** from the top menu. In the **Add Table** window browse to **Ham01.dbf**, select it, then *click* **OK**.

F. Joining the Files

Explanation of what occurs when two tables are joined:

You can join a database table to an ArcView table (e.g., a shapefile theme's attribute table), if they share common fields of values. All of the rows selected by the database table's query can be joined to the ArcView table.

The contents of the ArcView table changes to include the joined attributes from the database table while the database table remains open and unchanged.
The joined attributes are not permanently part of the ArcView table. ArcView gets the joined attributes from the database using a join query taken from the database table's query at the time of the join. If the values in the database change you can see those changes by refreshing the joined table. When you open a saved project, ArcView will recreate the join and retrieve the appropriate values into the local table.

The join query is not linked to the database table's query. After joining a database table and a local table, if you change the database table's query in a way that affects which rows are joined, the rows joined to the local table won't change when you refresh its

values. To update which records are joined, you need to remove the join from the local table then join the tables again following the steps above.

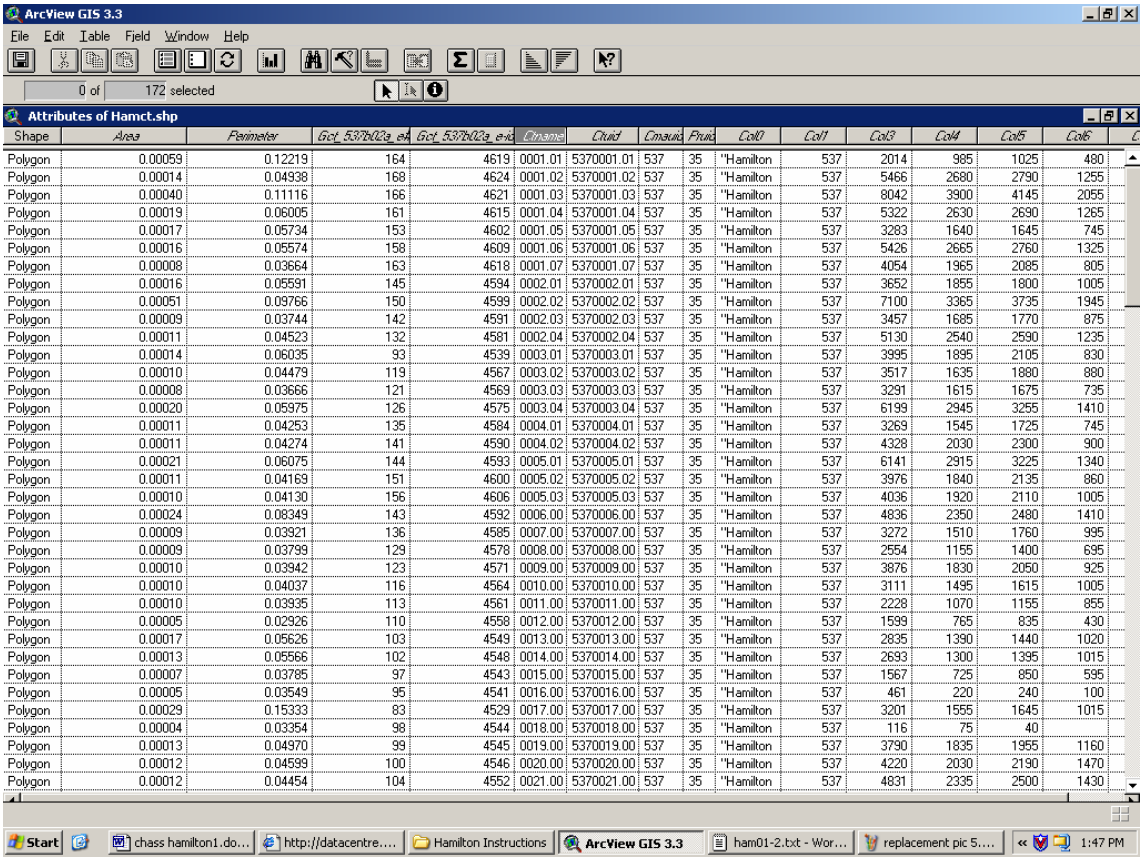
1. *Click* on the field labelled **Col2** (this is the census tract name column which is needed in order to join the database file to the attribute table)**.** Now sort datafile records in ascending order (3rd last button in the middle row). *Minimize* (***DO NOT CLOSE***) the **Ham01.dbf** table however ***REMEMBER*** to leave the **Col2** field *highlighted*.

2. Select **Window** from the main menu and *click* **View1**. *Click* **Hamct.shp** to make it active (do not double click). *Click* the **Open Theme Table** button .

3. *Click* on the field labelled **Ctname,** to which the datafile will be joined. Sort boundary file records in ascending order .

4. Make sure that **Attributes of Hamct.shp** is *active* (meaning, this is the current window that you are looking at). From the **Main Menu** *select* **Table > Join**. The **Ham01.dbf file** should *disappear*. *Scroll* along the *boundary file* to see if the ***.dbf file** data fields are present.

If the procedure was carried out correctly the new table should look like **(Figure 3)**. You have now completed the process of getting census data. In addition, the Hamilton census data is now joined to the Hamilton CMA shapefile.



Shape	Area	Perimeter	Gct_537b02a_e#	Gct_537b02a_e-id	Ctname	Ctuid	Cmauid	Pruid	Col0	Col1	Col3	Col4	Col5	Col6
Polygon	0.00059	0.12219	164	4619	0001.01	5370001.01	537	35	"Hamilton	537	2014	985	1025	480
Polygon	0.00014	0.04938	168	4624	0001.02	5370001.02	537	35	"Hamilton	537	5466	2680	2790	1255
Polygon	0.00040	0.11116	166	4621	0001.03	5370001.03	537	35	"Hamilton	537	8042	3900	4145	2055
Polygon	0.00019	0.06005	161	4615	0001.04	5370001.04	537	35	"Hamilton	537	5322	2630	2690	1265
Polygon	0.00017	0.05734	153	4602	0001.05	5370001.05	537	35	"Hamilton	537	3283	1640	1645	745
Polygon	0.00016	0.05574	158	4609	0001.06	5370001.06	537	35	"Hamilton	537	5426	2665	2760	1325
Polygon	0.00008	0.03664	163	4618	0001.07	5370001.07	537	35	"Hamilton	537	4054	1965	2085	805
Polygon	0.00016	0.05591	145	4594	0002.01	5370002.01	537	35	"Hamilton	537	3652	1855	1800	1005
Polygon	0.00051	0.09766	150	4599	0002.02	5370002.02	537	35	"Hamilton	537	7100	3365	3735	1945
Polygon	0.00009	0.03744	142	4591	0002.03	5370002.03	537	35	"Hamilton	537	3457	1685	1770	875
Polygon	0.00011	0.04523	132	4581	0002.04	5370002.04	537	35	"Hamilton	537	5130	2540	2590	1235
Polygon	0.00014	0.06035	93	4539	0003.01	5370003.01	537	35	"Hamilton	537	3995	1895	2105	830
Polygon	0.00010	0.04479	119	4567	0003.02	5370003.02	537	35	"Hamilton	537	3517	1635	1880	880
Polygon	0.00008	0.03666	121	4569	0003.03	5370003.03	537	35	"Hamilton	537	3291	1615	1675	735
Polygon	0.00020	0.05975	126	4575	0003.04	5370003.04	537	35	"Hamilton	537	6199	2945	3255	1410
Polygon	0.00011	0.04253	135	4584	0004.01	5370004.01	537	35	"Hamilton	537	3269	1545	1725	745
Polygon	0.00011	0.04274	141	4590	0004.02	5370004.02	537	35	"Hamilton	537	4328	2030	2300	900
Polygon	0.00021	0.06075	144	4593	0005.01	5370005.01	537	35	"Hamilton	537	6141	2915	3225	1340
Polygon	0.00011	0.04169	151	4600	0005.02	5370005.02	537	35	"Hamilton	537	3976	1840	2135	860
Polygon	0.00010	0.04130	156	4606	0005.03	5370005.03	537	35	"Hamilton	537	4036	1920	2110	1005
Polygon	0.00024	0.08349	143	4592	0006.00	5370006.00	537	35	"Hamilton	537	4836	2350	2480	1410
Polygon	0.00009	0.03921	136	4585	0007.00	5370007.00	537	35	"Hamilton	537	3272	1510	1760	995
Polygon	0.00009	0.03799	129	4578	0008.00	5370008.00	537	35	"Hamilton	537	2554	1155	1400	695
Polygon	0.00010	0.03942	123	4571	0009.00	5370009.00	537	35	"Hamilton	537	3876	1830	2050	925
Polygon	0.00010	0.04037	116	4564	0010.00	5370010.00	537	35	"Hamilton	537	3111	1495	1615	1005
Polygon	0.00010	0.03935	113	4561	0011.00	5370011.00	537	35	"Hamilton	537	2228	1070	1155	855
Polygon	0.00005	0.02926	110	4558	0012.00	5370012.00	537	35	"Hamilton	537	1599	765	835	430
Polygon	0.00017	0.05626	103	4549	0013.00	5370013.00	537	35	"Hamilton	537	2835	1390	1440	1020
Polygon	0.00013	0.05566	102	4548	0014.00	5370014.00	537	35	"Hamilton	537	2693	1300	1395	1015
Polygon	0.00007	0.03785	97	4543	0015.00	5370015.00	537	35	"Hamilton	537	1567	725	850	595
Polygon	0.00005	0.03549	95	4541	0016.00	5370016.00	537	35	"Hamilton	537	461	220	240	100
Polygon	0.00029	0.15333	83	4529	0017.00	5370017.00	537	35	"Hamilton	537	3201	1555	1645	1015
Polygon	0.00004	0.03354	98	4544	0018.00	5370018.00	537	35	"Hamilton	537	116	75	40	
Polygon	0.00013	0.04970	99	4545	0019.00	5370019.00	537	35	"Hamilton	537	3790	1835	1955	1160
Polygon	0.00012	0.04599	100	4546	0020.00	5370020.00	537	35	"Hamilton	537	4220	2030	2190	1470
Polygon	0.00012	0.04454	104	4552	0021.00	5370021.00	537	35	"Hamilton	537	4831	2335	2500	1430