Geocoding by Postal Code Using ArcMap

These procedures outline:

- 1. Creating the Input Table
 - a. Inputting the Data
 - b. Exporting the Data
- 2. Geocoding by Postal Code

Definition of Geocoding: Taking an address or postal code and giving it an x and y co-ordinate that accurately positions it on a map of the earths surface (such as a digital map of the City of Toronto).

In order to use these instructions, you must have Microsoft Excel and ArcMap 9.0 or higher. In this example a data table will be created in Microsoft Excel, exported as a .dbf file and then geocoded in ArcMap. These instructions will explain how to use a DMTI postal code file to geocode by postal code.

A. Creating the Input Table

In order to geocode, ArcMap requires a table containing address information. If the user wishes to geocode by postal code then this table must have a six digit postal code.

If the user wishes to geocode by address, then this table must contain the street name, number, and if applicable, the street's prefix direction, prefix type, street type, or suffix direction.

- 1. Open Microsoft Excel: Click Start > Programs > Microsoft Office > Microsoft Excel
- 2. Create column headings: In cell **A1**, type **P_code** (this will be the column heading for postal codes).
- 3. Below the **P_code** column heading, type in the appropriate postal code. For this example make sure there are no spaces between the six digit postal code. Example A2B1C3.

л	A	В
Ч	P_Code	
2	M9W5J5	
3	M5B2K3	
4	M5S1X1	
5	M5R1V9	
6	M6G1A2	
7	L5L1C6	
8	M1C1A4	
9	M5S3G7	

4. In order to open the table in ArcMap it must be saved as a .dbf file. Prior to saving, make sure that an active cell is selected. *Click* on one of the postal codes that you have entered (in order to save the file as a .dbf, an item in the list must be clicked or else an error message will be return when the user attempts to save). From the main menu bar, *click* File > Save As. In the File Name text box give the table an appropriate name (in this example we will name it test.dbf). In the Save as type drop down menu, select DBF4.

Save As		? ×
∏zave in:	🔁 Geocoding 💽 🔄 🔁 🔯 🛪 Tools 🗸	
History My Documents Desktop	p_code geocode_test.dbf Geocoding_Result1.dbf Geocoding_Result.dbf Geocoding_Result_2.dbf Geocoding_Result_3.dbf Geocoding_Result_arror.dbf M Geocoding_Result_error.dbf M mistake.dbf M test.dbf	
Favorites		
My Network	File name: test.dbf	
Places	Save as type: DBF 4 (dBASE IV) (*.dbf) Cancel	

- a. *Click* **Ok** when the "**selected file type does not support workbooks that contain multiple sheets**" message appears.
- b. *Click* YES when the "... may contain features that are not compatible with DBF4 " message appears.
- 5. Close Microsoft Excel.
 - a. When prompted to save changes *click* Yes.
 - b. *Click* **Save** in the **Save As** window.
 - c. *Click* **Yes** when asked to replace the existing file.
 - d. *Click* **YES** when the "... may contain features that are not compatible with **DBF4** " message appears.

B. Downloading the Address Locator (postal code file)

In order to geocode by postal code, ArcMap requires an address locator file that is used to match postal codes from the .dbf file to the postal code file. This file can be downloaded from the Ryerson University Library website.

Note – These data are for use by Ryerson University faculty, students and staff only. These data products are provided for the exclusive purposes of teaching and academic research. Read the appropriate licensing agreement for further information. 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.

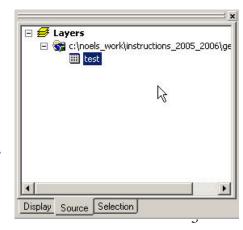
- 1. Navigate to the **Ryerson University Library Website** (http://www.ryerson.ca/library/)
- 2. On the main page *click* Map & Data Resources
- 3. In the main menu on the left *click* **Geospatial Data**
- 4. In the main menu on the left *click* Search Geospatial Resources
- 5. In the search input box, type in **CanMap Enhanced Canadian Postal Geography 2005.3,** then *click* **Search**
- Scroll down to the search result with the title CanMap Enhanced Canadian Postal Geography 2005.3 and *click* on the title
- 7. In the ensuing screen *click* Link to Data. Enter your user name and password (this is the same as your Ryerson E-Mail user name and password). Read over and agree to the licence agreement.
- 8. Scroll down and click **ONuep.zip**. Select a suitable location and save the .zip file.
- 9. When prompted to save, browse to an appropriate location and then *click* **Save**.
- 10. In order to extract the file, browse to its location, uncompress the file and follow the instructions provided by the Extraction Wizard. As shown below:

CTtorontoAV	lame _{KB}	File Folder Microsoft Word Doc	3/23/2006 12:47 PM 3/16/2006 5:19 PM
ONmer zin Open Search Explore	—24,705 KB	Compressed (zippe	4/26/2006 10:23 AM
Extract All			
👹 Scan for viruses			
Upload using WS_FTP Upload Wizard Open With			
Send To	F .		
Cut Copy			
Create Shortcut Delete Rename			
Properties			

C. Geocoding by Postal Code

 Double-Click on the ArcMap 9.0 icon or Select Start > Programs > ArcGIS > ArcMap. ArcMap should automatically prompt the option to Add Data.

Otherwise, *Click* the **Add Data** button \mathbb{X} . In the **Add data** window, browse to the location of the saved .dbf file. (In this example we will use **test.dbf**). **test.dbf** should appear in the **Layers** window.



- 2. From the main menu *click* **Tools** > **Geocode** > **Geocode** Addresses... This will open the **Choose an address locator to use** window.
- 3. Click Add. In the Add Address Locator window browse to the location where ONuep is saved, then double click the ONuep folder. Select ONuep.mxs, then click Add. Note: If an error message appears asking you to repair the file, click No. Open My Computer and make sure that none of the folders that ONuep is in contains a space. Be sure that the selected name or any of the folders in the file directories do not have spaces (use letters or numbers and use the underscore key rather than a space). Once this has been corrected, repeat step 3.
 - Name
 Description
 Add...

 Nuep.mxs
 Single Field (ArcView Style)
 OK
 - a. Click Ok in the Choose an address locator to use window.

- 4. In the **Geocode Addresses** window select the name of the .dbf table (in this example **test.dbf** will be used) in the **Address Table** scroll down menu.
 - a. In the **Key Field** scroll down menu select **P_Code**.
 - b. In the output shapefile or feature class text box, type in or use the solution open folder button to browse to an appropriate location to save the file (in this example the name will be test.shp). Once an appropriate name has been selected, *click* Save. Be sure that the selected name or any of the folders in the file directories do not have spaces (use letters or numbers and use the underscore key rather than a space).
 - c. Then *click* **Ok**.

	ks 🤶 🤶
Address table:	
test	I 🖻
Address Input Fields	
KeyField: P_CODE	
- Output	
 Create static snapshot of table 	inside new feature class
C Create dynamic feature class r	elated to table
Dutput shapefile or feature class:	
Dutput shapefile or feature class:	
Dutput shapefile or feature class: C:\Noels_Work\Instructions_200	
Dutput shapefile or feature class: C:\Noels_Work\Instructions_200 Config Keyword:	

5. The Review/Rematch window allows the user to see the success rate of the geocoding process. If all of the postal codes were geocoded, then the number next to the **Unmatched** title should be 0 and 0%. If this is the case, *click* **Done**. The file containing the geocoded points will appear in the **Layers** window and the geocoded points will appear in the **Data View**. Note: The newly geocoded points will be displayed in the same projection (GCS North American 1983) as the file used as the address locator (ONuep.mxs).

x	Review/Rematch Addresses	? ×	
Image: Control of the second seco	Statistics Matched with score 80 - 100: 8 (100%) Matched with score <80: 0 (0%) Unmatched: 0 (0%)	0 unmatched results, therefore all postal codes were geocoded	•
New Shane File	Matched with candidates tied: 0 (0%) Unmatched with candidates tied: 0 (0%)		
New Shape File Containing Geocoded Results	Rematch Criteria		
	C Addresses with score < 60		
Display Source Selection	Addresses with candidates tied All addresses	•	
ArcToolbox O Analyst Tools Analysis Tools Analysis Tools	in this query		
Cartography Tools	Geocoding Options		
Coverage Tools Data Management Tools Geocoding Tools	Match Interactively Match Automatically	Done	
 Geostatistical Analyst Tools Main and the second seco	•		
Favorites Index Search	0 ∂ 4		

- a. If there are any postal codes that were not geocoded, *click* Match Interactively.
- b. In the **Interactive Review** window make sure that the postal code is typed correctly, if not then change it in the **KeyField** text box.
- c. Click Modify
- d. Click Match
- e. *Click* the right pointing triangle to **P**advance to the next record (if any) and repeat step b.

	Interactive F	leview							<u>_ </u>
Г	FID	Shape	Status	Score	ARC_KeyFie	ADDRESS	POSTAL_COD	INSTITITUT	
F		0 Point	U	0	m9w5ja	123 Fake Street	m9vv5ja	Apartment	
		1 Point	U	0	m5b2ka	350 victoria	m5b2ka	Ryerson	
	Candidates	ess: W5JA Click M	\exists	this ex	ielected Records (of 2) t postal code (in ample, the "A" be changed to a				
9	core KeyFie	d							
							lick Match		
	Geocoding Opti	ons Zoo	om to: Can	didates	Original Extent	Sea	irch Match	Unmatch	Close

- f. Once all of the postal codes have been correctly adjusted *click* **Close**.
- g. Click Done.

D. Adding Additional Data

At this point the geocoding process is complete. The file containing the geocoded points will appear in the **Layers** window and the geocoded points will appear in the **Data View**. In order to add additional data layers (such as a streets file or boundary file) to the data view:

- 1. *Click* the **Add Data** button
- 2. In the Add Data window browse to the location of the desired files
- 3. Click Add.