# ArcGIS Pro

# Module 3 - Loading and Manipulating Data

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1

# Goals

- Create an ArcGIS Pro "Project"
- Add vector data "layers"
- Learn the basics about Map Projections
- Use Attribute tables (descriptive data)
- Symbolize attribute data

- Subset data
- Label data
- Formatted Layer Files
- Add Raster Data
- Group data layers
- Load Mapping Services
- Geocoding

1 - using the Windows menu search programs option, type in "ArcGIS Pro"

See more results

ArcGIS Pro

2 - Select ArcGIS Pro from the list of ´ Programs

3 - Click on "Map" under "Create a new - Project"

rograms (3)	
S ArcGIS Pro	
② ArcGIS Pro Installed Help	
ArcGIS Pro Online Help	



4 - Provide a name for your project and take note of the location of the project.

5 - Make sure you select "Create a \_\_\_\_\_\_ new folder for this project.

Name Lo	bading and Manipulating Data	
Location C:	\Users\fortinm\arcgis_projects	
> 🗸	Create a new folder for this project	

1 - your project will open with a map with no data loaded except the basemaps



1 - in the catalog "view", double-click on "Databases". You should see a "Geodatabase" with the same name as your project.

2 - Double-click on the <u>geodatabase</u> (there should be no data present)

2 - click on the word "Project" in the location part of the Catalog view to navigate back

3 - Double-Click "Folders" and double-click on the folder inside (there should be only the geodatabase and a file with the extension .tbx)





1 - In the Catalog pane, double-click

2 - double-click on the "Bike\_Rack\_Locations" folder



1 - click once on the "Bike\_Rack\_Locations\_WGS84.shp" <u>shapefile</u>\* dataset.

2 - you will now see both a description of this dataset in the metadata tab and a preview of it through the preview tab

\* Note: A shapefile is a common GIS dataset format.





1 - close the "Catalog" view by clicking on the x

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- 1 click on the "Insert" menu
- 2 click on "New Map" option
- 3 select "New Map" in the dropdown <sup>1</sup> options
- A new blank map with only a basemap should appear
- \* Map projections are methods for representing the three-dimensional sphere of the earth into a two-dimensional surface

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1 - under the Map menu, click on the "full extent" button

Note the size of Greenland vs. the size of Africa. Africa is actually 14 times bigger than greenland. Don't believe me? See

https://mapfight.appspot.com/africa-vsgl/africa-greenland-size-comparison



1 - in Windows locate the folder called "ArcGISWorkshop\data\Neighbourhoo d\_boundaries" and double-click on it

2 - with the folder open, click and drag the "NEIGHBORHOODS\_WGS84.shp" file into the map or contents area of ArcGIS pro.



This map of Toronto Neighbourhoods should display, possibly in another random colour. Pay close attention to the shape of our map.



1 - under the "Insert" menu again, select the "New Map" option and select "New Map"

A new tab will be created called "Map1" -





1 - under the "View" menu click on "Catalog Pane"

2 - in the "Catalog" click on the "Folders" area, navigate to the following location "data" → "Neighbourhood\_boundaries" → "UTM6"

3- click and drag the "NEIGHBOURHOODS\_UTM6.shp" file into your map



You will notice that your two maps look very different. This is because of two different projections being used.



Universal Transverse Mercator (UTM) Projection

WGS84 Geographic Projection

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#### 1 - in both maps, zoom out to be able to see Greenland and Canada



Universal Transverse Mercator (UTM) Projection



WGS84 Geographic Projection

### Introduction to GIS using ArcGIS Pro

We will start the session at 9:10 on page 19 of ArcGIS Pro Module 3

### 1 - Now zoom out to view the entire world



Web Mercator (UTM) Projection



#### NAD83 UTM Zone 17N Projection



1 - in your first map, right-click on the neighbourhoods layer and select "Properties"

2 - select the "Source" option in the popup

3 - examine the "Spatial Reference" information. Take note of the "WKID" and the "Datum"



Projections - NAD 1927 UTM Zone 17 (EPSG 26717)

1 - in your second map, right-click on the neighbourhoods layer and select "Properties"

2 - select the "Source" option in the popup

3 - examine the "Spatial Reference" information. Take note of the "WKID" and the "Datum". You will notice there is also "Projection" information



#### Map Projections http://spatialreference.org



You can compare and get information about thousands of projections at spatialreference.org

1 - open the "Catalog" pane

2 - locate the Centreline folder and right-click on the "CENTRELINE\_WGS84.shp" shapefile

3 - look under the "Spatial Reference" area

4 - judging by the WKID and Geographic Coordinate System, should you load this dataset in the first or second map?



#### Attribute Data

1 - go back to your first map by clicking on its tab

2 - drag the "CENTRELINE\_WGS84.shp" shapefile into this map



#### Attribute data

1 - right-click the "CENTRELINE\_WGS84" layer in the "Contents" area and select "Attribute Table"



#### Attribute data

1 - Unanchor the attribute table tab outside of the map by hold-clicking on the tab and moving it anywhere on the screen

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#### Attribute data

1 - locate the column/field "FCOD\_DESC"

2 - right-click on the column header and select "Sort Ascending"

3 - examine the records by scrolling to the bottom of the table and examine the entries

Notice that the entries are in categories. We can symbolize our entries based on those categories.

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		E	N	2	2	0	0	13469695	30008181	201803	Access Road	-	Fields	131
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		N	N	0	0	0	0	13468515	13468503	201803	Access Road		CITY OF TORONTO	13
		N	N	0	0	0	0	30056177	30056181	201803	Access Road		CITY OF TORONTO	147
			-	0	0		0	20055557	20056177	201002	A		CITY OF TOBONITO	



1 - select the "FCODE\_DESC" variable for "Field1" in the Symbology popup window

2 - click on "Color scheme"

3 - click the "Show names" and "Show all" option

4 - select the "Basic Random" colour scheme

Symbology	- CENTRELINE_WGS84	·	
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		Heat Map 1 - Semitransparent	
		Format color scheme	<u> </u>
		✓ Show names ✓ Show all	

1 - once your centreline layer has drawn, click once in the contents area on the line left of the variable "Expressway Ramp"

2 - in the "Symbology" popup window, click on the "Highway" option



1 - repeat the same operation as on the previous page for the "Expressway" variable



1 - repeat the operation for the "Major Railway" and "Minor Railway" layers but select the "Railroad" option in the "Symbology" popup



- 1 click on the "River" variable
- 2 in the "Symbology" popup type in the word "river" in the search box
- 3 select the "Water (line)" option -





2 - rename the layer "Toronto Roads"

3 - click once on the word "FCODE\_DESC" under "Toronto Roads" and rename the variable "Streets"



1 - right-click on the "Toronto Roads" layer and select "Symbology"

2 - right-click on the "Access Road" option and select "Remove"


### Symbolizing data

1 - remove the following variables in the same fashion as in the the last operation on page 35:

"Ferry Route", "Geostatistical line", "Hydro Line", "Minor Shoreline", "Other", "Other Ramp" and "Pending"

NOTE: you can select several variables by control-click selecting several at one time, then right-clicking and selecting "Remove"



# Symbolizing data

1 - in the "Symbology" pop up, select the "More" option tool and unclick "Show all other values" to unselect the option to display <u>all unformatted</u> options (the ones we deleted)

▲ 🗸 Toronto Roads	✓ Toronto Roads
Streets	Streets
- Busway	- Busway
- Collector	- Collector
- Collector Ramp	- Collector Ramp
- Creek/Tributary	- Creek/Tributary
Expressway	Expressway
Expressway Ramp	Expressway Ramp
- Laneway	
- Local	
- Major Arterial	Local
- Major Arterial Ramp	- Major Arterial
-+ Major Railway	<ul> <li>Major Arterial Ramp</li> </ul>
- Major Shoreline	Major Railway
- Minor Arterial	Major Shoreline
- Minor Arterial Ramp	- Minor Arterial
- Minor Railway	- Minor Arterial Ramp
- Minor Shoreline (Land locked)	Minor Railway
- River	- Minor Shoreline (Land lock
— Trail	- River
— Walkway	- Trail
<all other="" values=""></all>	- Walkway

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-	Major Arterial R	Major Arterial R	Refre	esh count
-+-	Major Railway	Major Railway	Shov	v description
—	Major Shoreline	Major Shoreline	Reve	rse symbol order
-	Minor Arterial	Minor Arterial	Form	nat all symbols
_	Minor Arterial R	Minor Arterial R	Rem	ove all
-+	Minor Railway	Minor Railway		
	Divor	Divor		

1 - using the "Catalog" pane, click on the "BikeWays" folder and drag the "CENTRELINE\_BIKEWAY\_OD\_WGS 84.shp" layer from that folder into your map

2 - in the contents area, right-click the "CENTRELINE\_BIKEWAY\_OD\_WGS 84.shp" layer and select "Attribute Table"



- Loc

1 - in the attribute table, locate the "CP\_TYPE" column/variable

2 - right-click on the "CP\_TYPE" \_ column and select "Sort Descending"

3 - scroll down and examine the different possible entries for this field

4 - notice the many empty entries?

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5	30008733	0	Not One-Way	201500	Local	CITY OF TORONTO	55300	Suggested On-S 🗛 S	ort <u>D</u> escending
1	13470649	0	Not One-Way	201500	Local	CITY OF TORONTO	185276	Suggested On-S 🤹 🧕	<u>D</u> ustom Sort
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7	13470497	0	Not One-Way	201400	Collector	CITY OF TORONTO	464	Suggested On-Street	82.
9	13470487	0	Not One-Way	201400	Collector	CITY OF TORONTO	463	Suggested On-Street	82:

1 - turn the "Toronto Roads" layer off in the contents pane

2 - In the attribute table, notice the "Bike Lanes" entries in "CP\_TYPE" column



1 - under the "Map" menu option, click \_\_\_\_\_ on "Select By Attributes"

- 2 a "Geoprocessing" popup will open
- 3 make sure you are selecting attributes from the "CENTRELINE\_BIKEWAY\_OD\_WGS -84" layer
- 2 "Selection Type" should be set to ----"New selection"

3 - click on "Add Clause" -----

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1 - using the boolean operator "Or", select the field "CP\_TYPE" that "is Equal to"  $\rightarrow$  "Suggested On-Street Routes"

2 - click on "Add" —

CP_TYPE is Eq	wal to Bike Laner .	
	Geoprocessing	* □ ×
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	Layer Name or Table View CENTRELINE_BIKEWAY_OD_WGS84	•
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	Select Layer By Attribute Completed successfully	
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1 - click on "Run" in the Geoprocessing popup

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2 - there should now be 2313 selected road segments from the attribute table \

3 - your map should show the selected entries in pale blue like in your attribute table

413	Geoprocessing	+ □ ×	<	
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463	Parameters   Environments	0		
470	Layer Name or Table View		þ	
471	CENTRELINE_BIKEWAY_OD_WGS84		P	
497	Selection type		P	
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190 190	CP_TYPE is Equal to Bike Lanes			
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1 - right-click on the bikeways layer in ' the contents pane and select "Data  $\rightarrow$ Export Features"

2 - in the "Geoprocessing" popup, type in the name "bikeways" for the new dataset within the projects "geodatabase"

3 - click on "Run"



E	Copy Features	
Parameters   Environm	ents	
Input Features		
CENTRELINE_BIKEWAY_	OD_WGS84	- 🧁 /
Output Feature Class		
rcgis_projects\Loading a	nd Manipulating Data\Loading and Manipulating	Data.gdb\bikeways

Your map should now include your data subset

1 - if your "Catalog" pane is closed, open it again by going to the "View" menu and clicking on "Catalog Pane"

2 - navigate to the geodatabase by \_ going to the "Folders" area of the "Catalog"

3 - navigate to "Loading and Manipulating Data.gdb" or whatever name you called your project

3 - expand the geodatabase, and you should see your "bikeways" layer listed



1 - turn off the original"CENTRELINE\_BIKEWAY\_OD\_WGS84" layer, but keep the new "bikeways"layer on



1 - click on the coloured line underneath the "bikeways" layer in the "Contents" pane.

3 - click on "Apply"





"Labeling" using default settings can be messy. In this case we are lucky at least that the software chose the right field since it uses the first "text" field it found in the table.



1 - right click again on the "Toronto Roads" layer and select "Labeling Properties"

2 - click on the "Visibility Range" option of the "Label Class" popup

3 - select "1:50,000" under the "Outbeyond" drop down option. This will prevent the software from labelling our text when it is not useful at "small" scale



1 - start zooming in to a larger scale than 1:50,000 to see the labels



1 - click on the "Label expression" option in the "Label Class" popup —

2 - build the following expression in the "Expression" box:

\$feature.LF\_NAME + " (" +
\$feature.FCODE-DESC + ")"

which will create a label from the two fields containing the name of the road and the type of road.

3 - click on "Apply"



1 - click on the "Symbol" option of the \_ "Label Class" popup box

2 - expand the "Appearance" area and change the size of the font used for your label to 8pt

3 - click on "Apply" -



1 - under the "Position" area of the popup window again, expand the "Placement" option

2 - click on "Allow stacked labels to " straddle lines"

3 - select "Offset curved"



Now that we have formatted our layer the way we want it, we want to be able to reuse or share this formatting.

1 - right-click on the "Toronto Roads" layer and select "Sharing"  $\rightarrow$  "Save As Layer File"

2 - navigate to your "data" folder and into the "Centreline" folder

3 - name your layer "Toronto Roads.lyrx"

4 - click "Save"



1 - once your formatting has been saved for your "Toronto roads" layer right-click on the "Toronto Roads" layer and select "Remove"

2 - right-click on the "bikeways" layer and select "Zoom to Layer"





Let's verify that the formatting we created was saved in the layer file.

1 - under the "Map" menu, select "Add  $\checkmark$  Data"  $\rightarrow$  "Data"

2 - in the "data"  $\rightarrow$  "Centreline" folders, select the "Toronto Roads.lyrx" file

3 - click on "OK"





1 - to restore the order of our layers from before, select the "bikeways" layer and move it above the "Toronto Roads" layer in the Contents pane





#### **Saving Projects**

remember to save your project often





### **Grouping Datasets**

1 - right-click on the "1947 air photos" group and select "Zoom to Layer" —

2 - you could save the grouping of the two datasets in a "layer" file as we did previously with the "Toronto Roads" layer.





### Mapping Services/

1 - right-click and remove the "1947 air " photos" layer group

2 - in your web browser, go to the following url:

https://open.toronto.ca/dataset/web-m

<u>ap-services/</u> alternatively, go to toronto.ca/open, click on the "Open Data Catalogue" link and in the search box type "Web Map Services", click on the link and click on "Download Data"

3 - click on "VISIT PAGE"

4 - copy the URL from the XML code page that opens

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### Mapping Services

New Map \*

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1 - in ArcGIS Pro, click on the "Insert" menu and select "New WMTS Server"

2 - in the "server URL" box, paste the link obtained from the open data site: "https://gis.toronto.ca/arcgis/ rest/services/primary/cot\_ortho webm/MapServer/WMTS/"

3 - click on "OK"

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#### Mapping Services

#### Other WMS sites

Google	natural resources canada web services								
	All News Maps Images Videos More Settings Too								
	About 158,000,000 results (0.77 seconds)								
	Web Services   Natural Resources Canada								
	https://www.nrcan.gc.ca/earth-sciences/geography/topographic/web-services/17216 ▼ Jun 14, 2018 - Site menu for NRCan internet website A wide variety of map services is available o the Open Government Portal. More information on the Map Services · Open Government API · GeoLocation API								
	Consuming CLSS Web Services   Natural Resources Canada www.nrcan.gc.ca > Home > Earth Sciences > Geomatics > Canada Lands Surveys ▼ Jul 20, 2017 - The Surveyor General Branch provides web services for users to access current and reliable legal land information. All services are also								
	Web Map Service (WMS)   Natural Resources Canada www.nrcan.gc.ca > > Geospatial Standards and Operational Policies ▼ Nov 25, 2015 - Site menu for NRCan internet website A Web Map Service (WMS) defines an								

The Atlas of Canada	NapGen (NAP XML Generator)						
Topographic Information	Map Services						
GeoBase Surface Water Program (GeEAU) Maps	Note : 1. A wide variety of map services is available on the <u>Open Government Portal</u> . 2. More information on the <u>Geospatial Standards and Operational Policies for Web Map Services (WMS</u> ) 3. Information on the <u>closing and the stopping updates of several Web Map Service (WMS</u> )						
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what's new	Service*	Description	Protocol	Language	Description		
Most Popular Products					visualization on Open Governmen Portal		
Download Directory and Documentation							
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Maps for HTML - Tutorial	CBMT / CBCT	Canada Base Map – Transportation Service (WMS) / Carte de base du Canada - Transport (WMS)	WMS	English/ French	Available Soon		
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68

1 - in the folder "ArcGISProWorkshop/data/Coffee\_Sh ops" double-click on the file, "Coffee\_TIME\_SA.csv"

Notice there are no geographic coordinates attached to this file. There are, however, address locations.

2 - close the spreadsheet

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5	2044032 O COFFEE TIME	371 OLD KINGSTON RD	Toronto	TORONTO	Ontario	M1C 1B7	Canada
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14	1226507 O COFFEE TIME DONUTS	2131 LAWRENCE AVE E SU	Toronto	SCARBOROUGH	Ontario	M1R 5G4	Canada
15	1553239 O COFFEE TIME DONUTS	1321 GERRARD ST E	Toronto	TORONTO	Ontario	M4L 1Y8	Canada
16	1692208 O COFFEE TIME DONUTS	2288 DUNDAS ST W	Toronto	TORONTO	Ontario	M6R 1X3	Canada
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20	COFFEE TI COFFEE TIME DONUTS	731 BROADVIEW AVE	Toronto	TORONTO	Ontario	M4K 2P6	Canada
21	COFFEE TI COFFEE TIME DONUTS	3701 CHESSWOOD DR SUI	Toronto	NORTH YORK	Ontario	M3J 2P6	Canada
22	COFFEE TI COFFEE TIME DONUTS	1961 KENNEDY RD	Toronto	SCARBOROUGH	Ontario	M1P 5A2	Canada
23	COFFEE TI COFFEE TIME DONUTS	3379 YONGE ST	Toronto	NORTH YORK	Ontario	M4N 2M8	Canada
24	COFFEE TI COFFEE TIME DONUTS	2146 DANFORTH AVE	Toronto	TORONTO	Ontario	M4C 1J9	Canada
25	COFFEE TI COFFEE TIME DONUTS	1577 DANFORTH AVE SUI	Toronto	TORONTO	Ontario	M4C 1H7	Canada
26	COFFEE TI COFFEE TIME DONUTS	5926 YONGE ST SUITE A	Toronto	NORTH YORK	Ontario	M2M 3V9	Canada
27	COFFEE TI COFFEE TIME DONUTS	601 SHERBOURNE ST	Toronto	TORONTO	Ontario	M4X 1K7	Canada
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20							

1 - drag the "Coffee\_TIME\_SA.csv" file into the "Contents" pane

You will notice that the table appears in the "Contents" pane, but nothing is mapped out. In order for our data to be mapped out, coordinates need to be assigned to each location. A "Geocoder" must be used to accomplish this task. There are many that exist, but ArcGIS Pro uses its own proprietary one that requires you sign into ArcGIS Online.



1 - in the top right corner of the ArcGIS Pro screen, click on "Not signed in"

2 - click on "Sign in"

3 - Under, "Your ArcGIS organization's URL, click on "Utoronto"\*

\*If this option is not listed, click on "Enter another Organization", type -"utoronto" and click on "Continue, select "ArcGIS Online (University of Toronto)"

4 - sign in using your UTORid



1 - in the "Contents" pane, right-click on the "Coffee\_Time\_SA.csv" file and select "Geocode Table"

2 - in the "Geocode Table" wizard popup, click on "Start  $\rightarrow$  "

- LAPICSSWay	Capacida Tabla 2 = 🗆 X
Lan X Remove	1 Step One: About your table
— Loc 📰 Open — Maj Design	Look at your data to determine how many fields in your data you want to use for geocoding.
Maj	2 Step Two: What locator are you using?
- Maj Joins and Relates	Decide whether to use World Geocoding Service, a custom service or a custom locator.
— Mir — Mir 🕅 Display XY Data	3 Step Three: Mapping the fields in your table Look at the fields in your data and the fields in your locator to see
Mir 📇 Geocode Table	A step Four: Output
- Trai Configure Pop-ups	You can specify where you want your output feature class to be created based on the type of geocoding operation that will be performed.
Data +	5 Optional Step Five: Limit by Country
☑ World 🖹 View Metadata	If you are using a service that supports geocoding by country, you can limit your search to specific countries.
World / Edit Metadata	6 Optional Step Six: Limit by Category
Standalor Properties	If you are using a service that supports geocoding based on categories, you can limit your search to specific categories.
	e
	Go to Tool Start ->
1 - in "Step 1 of 6", your "Input Table" should be "Coffee\_Time\_SA.csv" and your selection for your data to be geocoded should be selected as "More than one field"

2 - click on "Next  $\rightarrow$ "

3 - select either of the two geocoders listed

4 - click on "Next  $\rightarrow$ "



1 - if using the "ArcGIS World Geocoding Service", match the fields as in this screen capture

2 - if using the "Canadian Geocoder", map the fields as per the second screen capture

3 - click on "Next  $\rightarrow$ "

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Step Three: Mapping the fields in your table         The tool has attempted to map the fields in your data to corresponding fields in your locator.         Does the mapping look correct?         Dinput Address Fields         Locator Field         Address or Place	Address2	<none></none>	City	/ or Placename	City	
Step Three: Mapping the fields in your table         Step Three: Mapping the fields in your table         Step Three: Mapping the fields in your table         The tool has attempted to map the fields in your data to corresponding fields in your locator.         Does the mapping look correct?         Input Address Fields         Data Field         Data Field	Address or Place	Address	• Stre	et or Intersection	Address	
The tool has attempted to map the fields in your data to corresponding fields in your locator. Does the mapping look correct?	Input Address Fields     Locator Field	Data Field	Inpi Loc	ut Address Fields ator Field	Data Field	
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Stop Three Mapping the fields in your table	Step Three: Map	oping the fields in your table		Step Three: Map	oping the fields in your table	
And because of the second se						
Geocode Table ? - 🗆 × Geocode Table ?	Geocode Table		? - 🗆 × 🛛 Geod	ode Table		? 🗕 🗖

NOTE: if using the "ArcGIS World Geocoding Service" go to the next page

1 - if using the "Canadian Geocoder", click on "Run"

Geocode Table ? - O × Geocode Table Guided Workflow Complete Review your inputs below and run the tool. 0 Input Table Coffee Time SA.csv Input Locator -Canadian Geocoder Input Address Fields Multiple Field . Locator Field Data Field Address Street or Intersection . City City or Placename • Province Province + • Postalcode PostalCode Output Coffee\_Time\_SA\_Geocoded3 Add output to map after completion

Run ()

	Geod	oding Comp	leted	>
	28	Matched (100.00	0%)	
	OL	Inmatched (0.00	%)	
?	ОТ	ied (0.00%)		
	Average spe	ed: 44859 (recor	ds/hour)	
	Start rematcl	h process?		
			Yes	No
_	NI NEST			

2 - once completed, click on "No" to the "Geocoding Completed" popup

3 - close the "Geocode Table" popup window

NOTE: This screen is for those who are using the "ArcGIS World Geocoding Service"

1 - select "Address Location" as the "Preferred Location Type" in "Step 4"

2 - click on "Next  $\rightarrow$ "







1 - in the "Geocoding Completed" popup, click "No" to run through the "rematch" process

2 - close the "Geocode Table" popup window

	Geocoding Completed ×
	28 Matched (100.00%)
	0 Unmatched (0.00%)
?	0 Tied (0.00%)
	Average speed: 75111 (records/hour)
	Start rematch process?
	Yes No

1 - click on any of the resulting points

2 - right-click on the generated layer "Coffee\_Time\_SA\_Geocoded" and \_\_\_\_\_ select "Attribute Table"

3 - when sliding through the table to the right to view all the fields, you will notice that the longitude (X) and latitude (Y) fields for each entry will be listed



One alternative to Esri's geocoders is to use Google to geocode your addresses.

1 - In Windows Explorer, open "Google Earth Pro"

2 - drag the "Coffee\_Time\_SA.csv" file into "Google Earth"



1 - in the "Data Import Wizard", select "Delimited" for "Field Type" and "Comma" under the "Delimited" area a Data Import Wizard

2 - click on "Next >"

	ricid type								*
	Oelimited ()	Fixed width						1	
	Delimited								
	Select the delimiter check the "treat co option	that separates ea	ch field. If there can b s as <mark>one</mark> " option. You o	e more than one o can also provide y	delimiter between two our own custom delimit	fields (such as space er by checking the "o	s), other"		
	⑦ Space	eat consecutive de	lim <mark>iters as</mark> one						VER
	🔘 Tab								No.
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OAA. I

1 - make sure the option "This dataset does not contain latitude/longitude / information, but street addresses" is turned on

2 - click on "Next >"



1 - map out the "Address Fields"
according to the spreadsheet column
names "Street Field" → "Address";
"City Field" → "City", etc.

2 - click on "Finish"

This dataset of Each value can be addressed on the second seco	contains one ad	<b>dress field.</b> an address on a single l	line				
<ul> <li>Addresses are</li> <li>For example: str</li> <li>You can also spe</li> </ul>	e broken into m reet address, city, cify default value	ultiple fields state and/or zip code, s for city, zip and count	country try in case your d	ata <mark>only contains partians partia</mark>	al addresses		
elect Address Field	d(s)						
Address field	N/A	*					
Street field	Address	•					
City field	City	use common v	value				
State field	Province	vise common	value				
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Zip/postal code field Country field	PostalCode Country	use common	value				
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1 - click on "No" when asked to apply a template to the file



1 - turn on the "Coffee\_Time\_SA.csv" layer in the "Places" pane in Google Earth

2 - click on any of the points



1 - right-click on the "Coffee\_Time\_SA.csv" layer and select "Save Place As..."

2 - save your file as "Coffee\_Time\_SA.kmz" in the "ArcGISProWorkshop\data\CoffeeSho ps" folder



1 - from the

"ArcGISProWorkshop\data\CoffeeSho ps\" folder, drag and drop the "Coffee\_Time\_SA.kmz" file into your map

2 - click on any of the points



#### **Other Geocoders**

Another free geocoder is "Geocoder.ca"

To use "geocoder.ca", simply copy and paste addresses in the first screen and select an output format

Click on "Geoparse locations from text"

Geocoder.ca	Services   Products	Terms	Login	Create Account	API	Contact	Pricing
Geocoding USA &	Canada since 2005.		Ċ	Postal Code Da	tasets r	수 Premium	Batch Geocode API
Extract locations from	this text:					<b>@</b> G	eocode a single location
2282 ISLINGTON AVE 1188 KING ST W Tor 1287 BLOOR ST W 371 OLD KINGSTON F 1220 WOODBINE AVE	Toronto Ontario ronto Ontario M6K Toronto Ontario RD Toronto TORONT Toronto Ontario	M9W 3W8 1E6 M6H 1N7 O Ontari M4C 4E3	o M1C 1B	17			•
Geoparse locatio	in CSV	/ format Map		•			
This too	in XMI in JSC	L format N format		city names in No	orth Ame	rica (Canada,	USA and Mexico).

"stnumber","staddress","city","prov","latitude","longitude","confidence" "1577","Danforth Ave","Toronto","ON","43.683379432","-79.323543906","0.05" "1901","Ellesmere Rd","Toronto","ON","43.7742137","-79.2412605","0.04" "506","Ontario St","Toronto","ON","43.6649723","-79.3713276","0.04" ","Ontario St","Toronto","ON","43.6650023","-79.3712976","0.04"

#### **Other Geocoders**

The University of Toronto also purchases access to DMTI's "Location Hub" geocoder

A username and password are required for access to this service.



# Geocoding with QGIS

You can use google, esri or openstreetmap as a geocoding service to geocode in QGIS



#### Displaying XY (Coordinate or GPS) Data

1 - in Windows, navigate to the the "ArcGISProWorkshop/data/lost\_brewer ies" folder

2 - double click on the "LostBreweriesToronto.csv" file

Notice there are two columns indicating a geographic location using // latitude, "POINT\_X" and a longitude, "POINT\_Y"

3 - close the file and do not save it

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3	Henderso	17	York's first	1811	1856	southeast	43.65366	-79.3689
4	Farr's Brev	2		1820	1890	Queen Str	43.64579	-79.41
5	Helliwell	15		1820	1847	Todmorde	43.6864	-79.3603
6	Doel Hom	10		1827	1847	Bay and A	43.65004	-79.3815
7	Bloor's Bre	6	Castle Fra	1830	1843	<b>Bloor and</b>	43.67236	-79.379
8	Enoch Tur	14		1831	1855	Front and	43.65155	-79.3618
9	Copland B	7		1832	1946	311-337 Ki	43.65145	-79.3665
10	Don Brew	12	Davies Bre	1834	1907	Queen St.	43.65846	-79.356
11	Severn's B	20	aka, Yorkv	1835	1886	east side o	43.67347	-79.3864
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## **Displaying XY Data**

1 - drag the "LostBreweriesToronto.csv" file into your map

2 - right-click on "LostBreweriesToronto.csv" in the "Contents" pane and select "Display XY Data"

3 - make sure the "X Field" is set to "POINT\_X" and the "Y Field" is set to "POINT\_Y" and note the name of the "Output Feature Class"

4 - click on "Run"

Expressway R Geoprocessing × Remove - Laneway XY Table To Point 0pen - Local Parameters | Environments — Major Arteria Design Input Table — Major Arteria LostBreweriesToronto.csv Create Chart -+ Major Railwa Output Feature Class LostBreweriesToronto XYTable — Major Shorel Joins and Relates . X Field Minor Arteria POINT\_X Display XY Data - Minor Arteria Y Field POINT\_Y Geocode Table -+ Miner Railwa Z Field River Disable Pop-ups Coordinate System Trail 礘 Configure Pop-ups GCS\_WGS\_1984 ▲ NEIGHBORHO Data Vorld Topogra View Metadata Edit Metadata Vorld Hillshad ▲ Standalone Tables P Properties LostBreweriesToronto.csv

Run 🕩

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### Displaying XY data

1 - a new feature layer will be loaded into your map and saved into your geodatabase



#### End of Module 3

Workshop evaluation if you do not move onto module 4:

http://maps.library.utoronto.ca/feedbac k.html