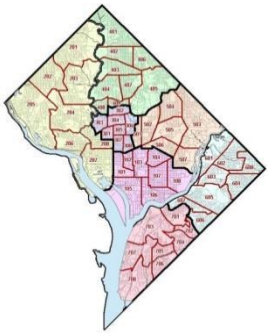
OFFICE OF RESEARCH AND ANALYTICAL SERVICES
EXECUTIVE OFFICE OF THE CHIEF OF POLICE
METROPOLITAN POLICE DEPARTMENT

Geocoding Addresses in ArcGIS



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One City, One Government, One Voice

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Geocoding Addresses in ArcGIS

Geocoding: The process of converting addresses (street addresses) into geographic coordinates (X, Y longitude, latitude) which can be displayed on a map.

Explanation: Not all addresses are written in a way that the ArcGIS software can recognize and geocode. If ArcGIS cannot recognize the address, the address must be cleaned and geocoded so that the point can be displayed on the map.

Example: There may be a time when you receive a large list of addresses. These addresses may represent a list of all the new CCTV locations throughout the city. Your job is to geocode the list of addresses into a shape file so that it can be displayed and used by various units at MPD.

Step by Step Instructions

1. Ensure that addresses are written within a column in Microsoft Excel with a column header. (This can be named "address" so that it can be easily found within ArcGIS)

PSA	Camera Type	Address	Date
101	MPD Photo Enforcement	12th St @ Constitution Ave, NW	11/5/2015
101	MPD Photo Enforcement	14th St n/b @ K St, NW	11/5/2015
101	MPD Photo Enforcement	Independence Ave e/b @ 3rd St, SW	11/5/2015
101	MPD (Homeland Security)	HS 1000 bo Jefferson Dr SW Smithsonian	9/10/2016
101	MPD (DBID)	DBID 11 1D 11th and H NW	9/10/2016
101	MPD (DBID)	DBID 12 1D 9th and G NW	9/10/2016
101	MPD (DBID)	DBID 13 1D 9th and NY AVE NW	9/10/2016
101	MPD (DBID)	DBID 8 12th and G St NW (SW Corner)	9/10/2016
101	MPD (Central Cell Block)	CCB 300 Indiana Avenue, NW	11/5/2015
101	DDOT	12th St & Constitution Ave, NW	11/5/2015
101	DDOT	13th St - H St - New York Ave, NW	11/5/2015
101	DDOT	13th St & I St, NW	11/5/2015

*As you can see, the addresses are not written in a simple format that ArcGIS would be able to recognize. These addresses must be cleaned in order to be at least an 85% match in ArcGIS. It is easiest to clean the addresses as much as possible in Excel before adding it to ArcGIS. Once in ArcGIS any addresses that need additional cleaning will appear as no match (this step will be discussed later in the instructions) Please see next page.

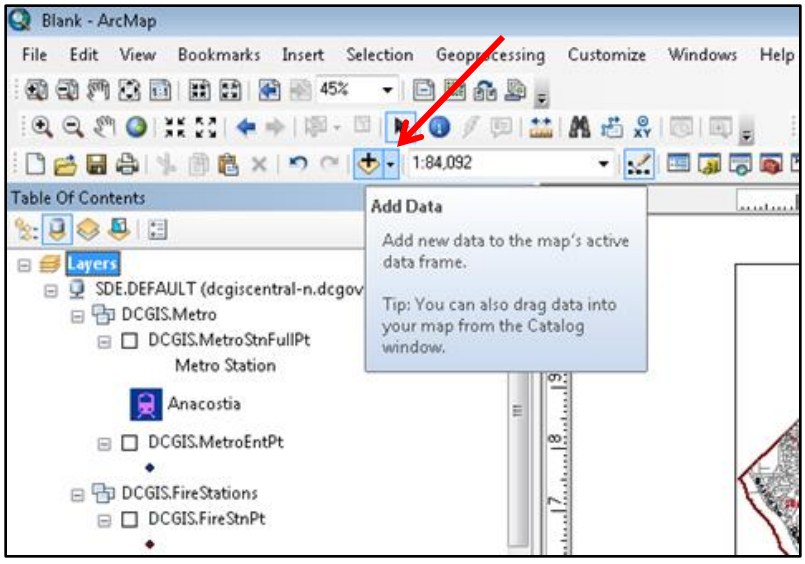
2. Addresses can be cleaned within Excel prior to adding into ArcGIS.

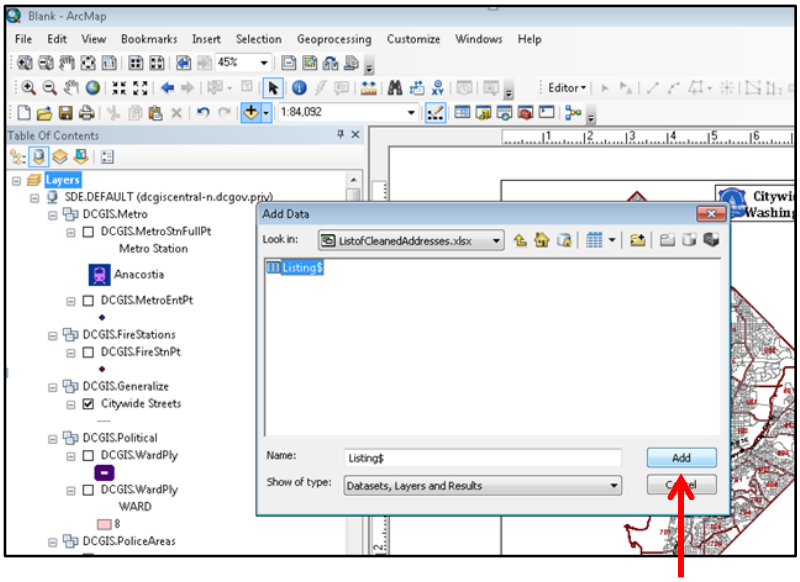
PSA	Camera Type	Address	Cleaned Address	Date
101	MPD Photo Enforcement	12th St @ Constitution Ave, NW	12th St NW & Constitution Ave NW	11/5/2015
101	MPD Photo Enforcement	14th St & K St NW	14th St NW & K St NW	11/5/2015
101	MPD Photo Enforcement	Independence Ave e/b @ 3rd St, SW	Independence Ave NW & 3rd St SW	11/5/2015
101	MPD (Homeland Security)	HS 1000 bo Jefferson Dr SW Smithsonian	1000 Jefferson Dr SW	9/10/2016
101	MPD (DBID)	DBID 11 1D 11th and H NW	11th St NW & H St NW	9/10/2016
101	MPD (DBID)	DBID 12 1D 9th and G NW	9th St NW & G St NW	9/10/2016
101	MPD (DBID)	DBID 13 1D 9th and NY AVE NW	9th St NW & New York Ave NW	9/10/2016
101	MPD (DBID)	DBID 8 12th and G St NW (SW Corner)	12th St NW & G St NW	9/10/2016
101	MPD (Central Cell Block)	CCB 300 Indiana Avenue, NW	300 Indiana Ave NW	11/5/2015
101	DDOT	12th St & Constitution Ave, NW	12th St NW & Consitution Ave NW	11/5/2015
101	DDOT	13th St - H St - New York Ave, NW	H St NW & New York Ave NW	11/5/2015
101	DDOT	13th St & I St, NW	13th St NW & I St NW	11/5/2015

3. Rules for cleaning addresses:
    a. Intersections must be represented with an ampersand symbol &
    b. Include appropriate quadrant
    c. Do not use acronyms (NY must be New York)
    d. Remove punctuation such as commas, hyphens, and slashes from the address
    e. Remove any identifiers such as "e/b, DBID, 1D, (SW Corner), CCB, Smithsonian" etc.

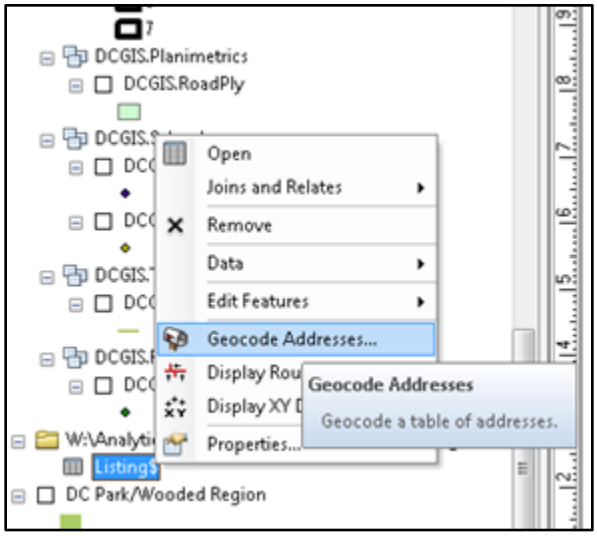
4. Once you have cleaned addresses, it is now time to geocode them in ArcGIS. Please note, all of the addresses might not be 100% cleaned, however there is a matching tool within ArcGIS that will assist in finding the most accurate address.

5. Open ArcGIS displaying the map you are using. Proceeded to add the data set with the cleaned addresses.

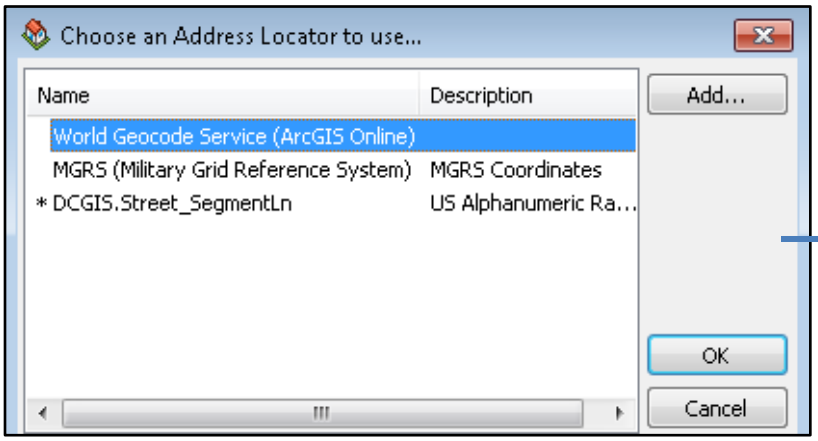


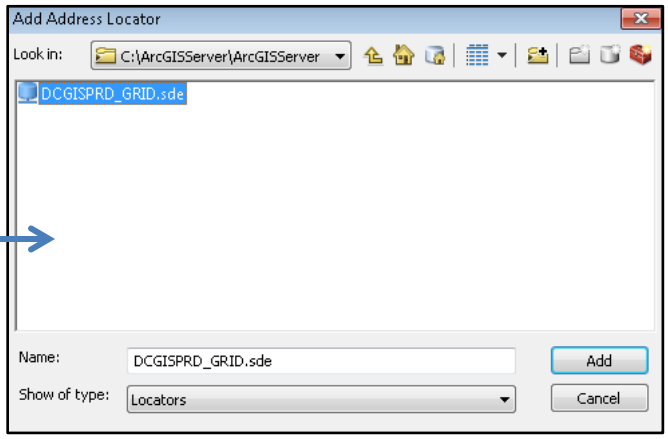


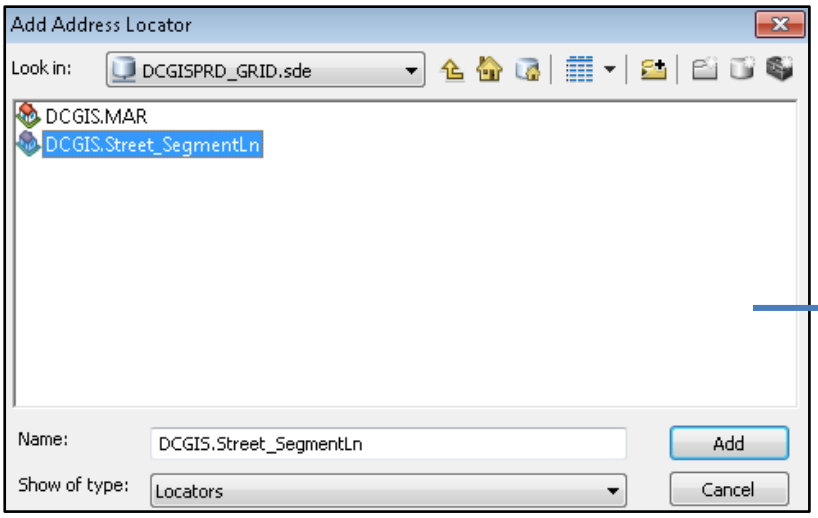
6. Right click the listing in the table of contents then click “geocode addresses”

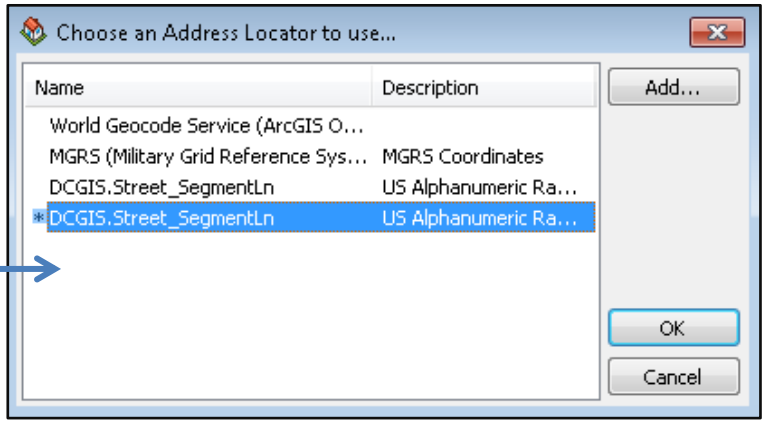


7. You must add the street segment locator by adding the DCGIS Server







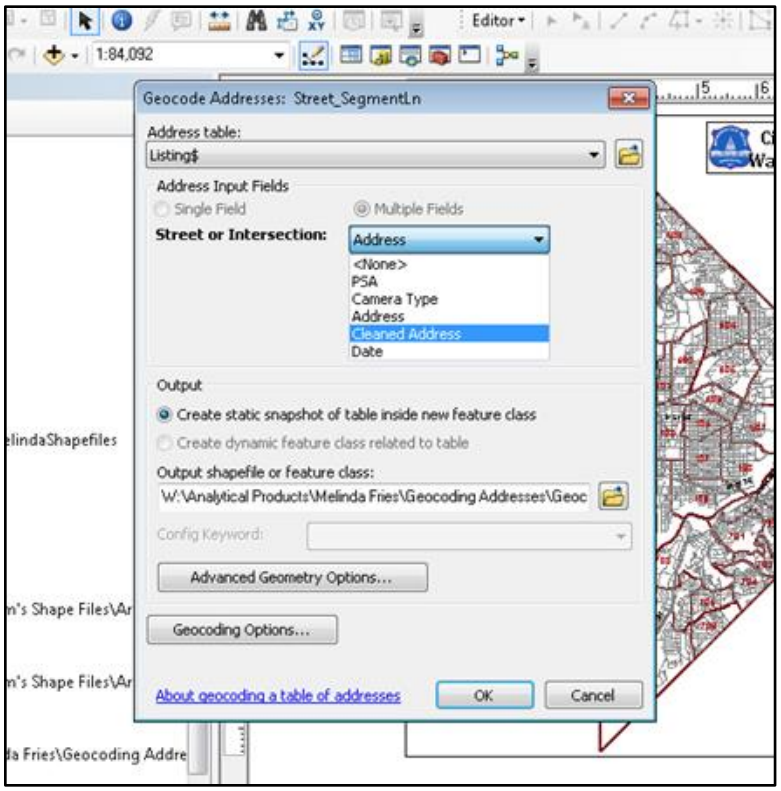


8. Once you add the DCGIS.Street_SegmentLn, the below geocoding pop up will appear.

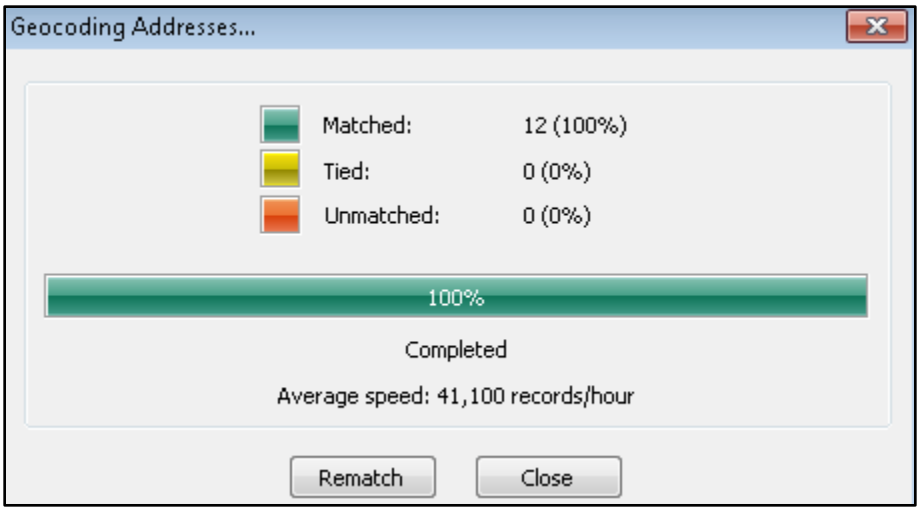
Make sure you choose the column with the cleaned addresses on the "street or intersection" drop down menu.

In the Output portion, choose the appropriate folder in which you want to save the shapefile.

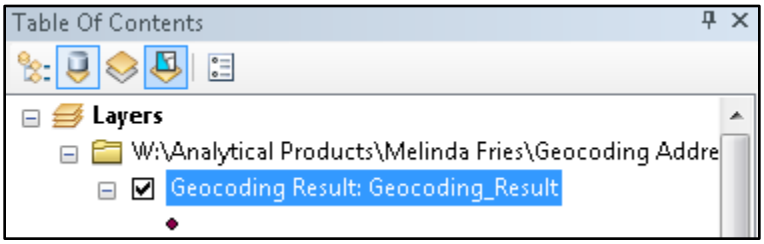
Once you have the right Input and Output Fields, click OK



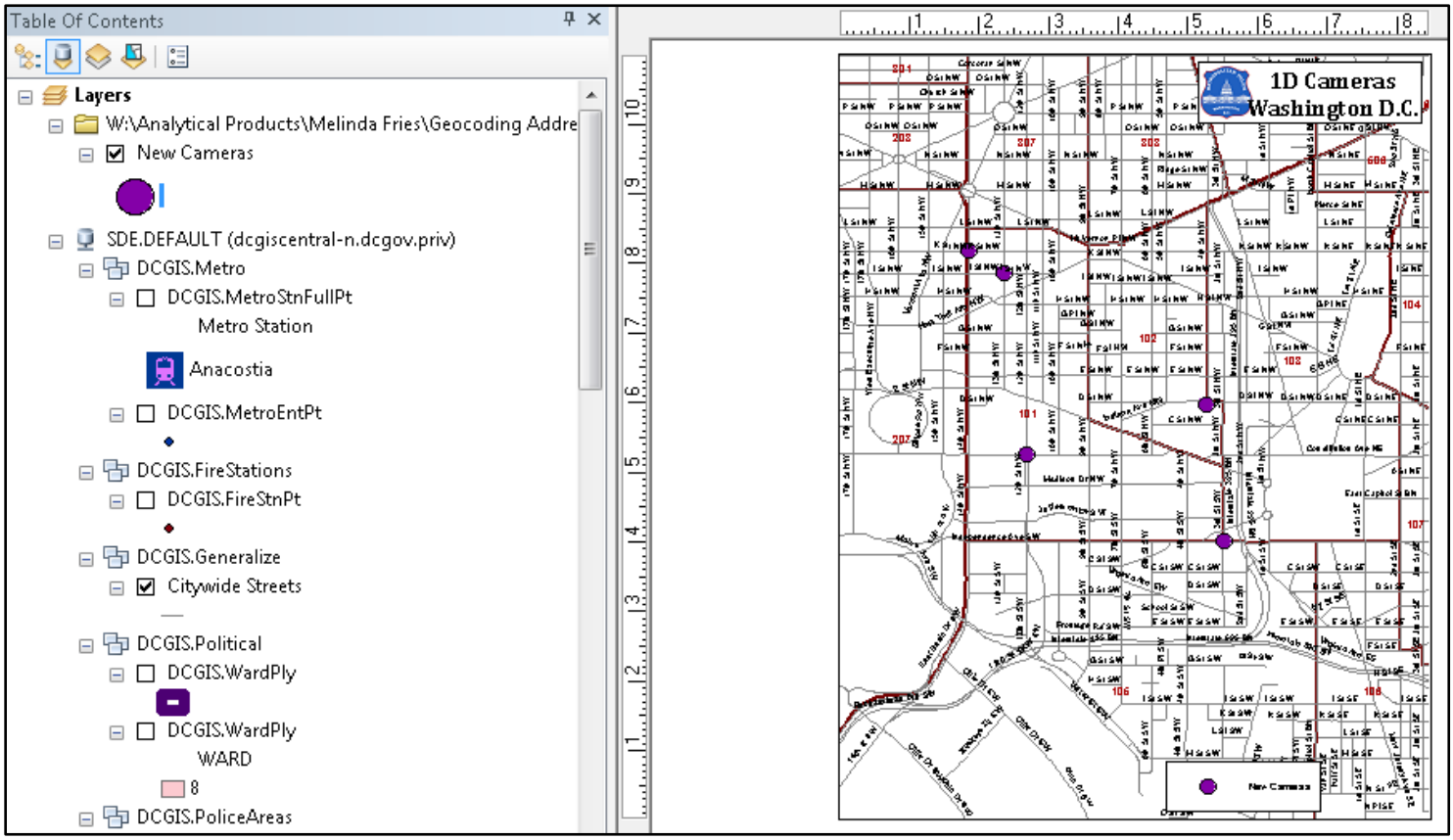
9. After you click OK, the addresses will geocode. As you can see below, 100% of the addresses resulted in a match. (Please see "How to Rematch Addresses" on page 7 of the instructions if some of your addresses are "Unmatched")



10. If there is a 100% match, you can then click “close” and the new address layer will appear in your table of contents and be added to the map.



11. Geocoding Complete: You can now rename the layer, change the symbol, etc.

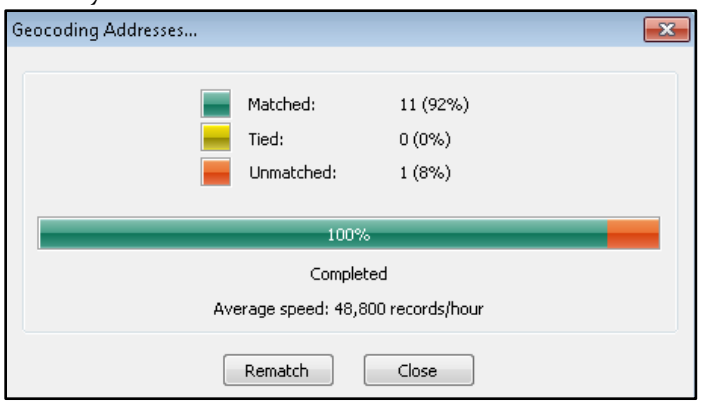


How to Re-Match Addresses

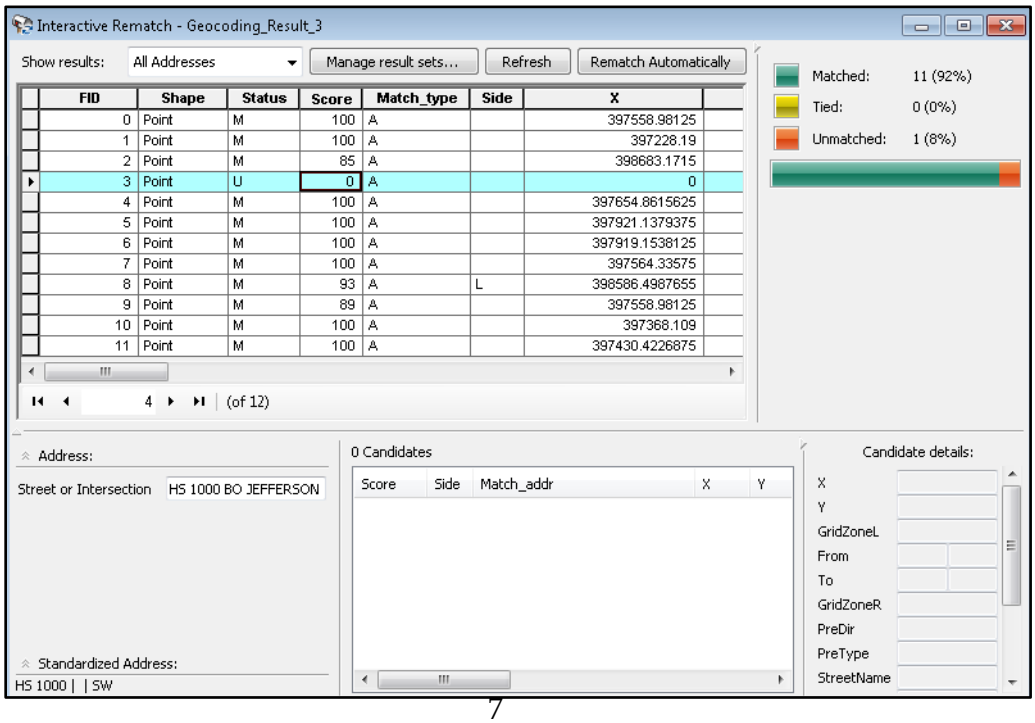
1. If your addresses do not result in a 100% match, you will have to rematch them. This is a fairly common occurrence. Even if you cleaned the addresses, in some cases ArcGIS might suggest a different way to write the address and require a different formatting. Also if you accidentally have typos, it will fix this and ask for final approval before searching for a match.

   For example:
   H St NW & 14th St NW may need to be switched to 14th St NW & H St NW
   1805 Bladensberg Rd NE will be corrected to 1805 Bladensburg Rd NE

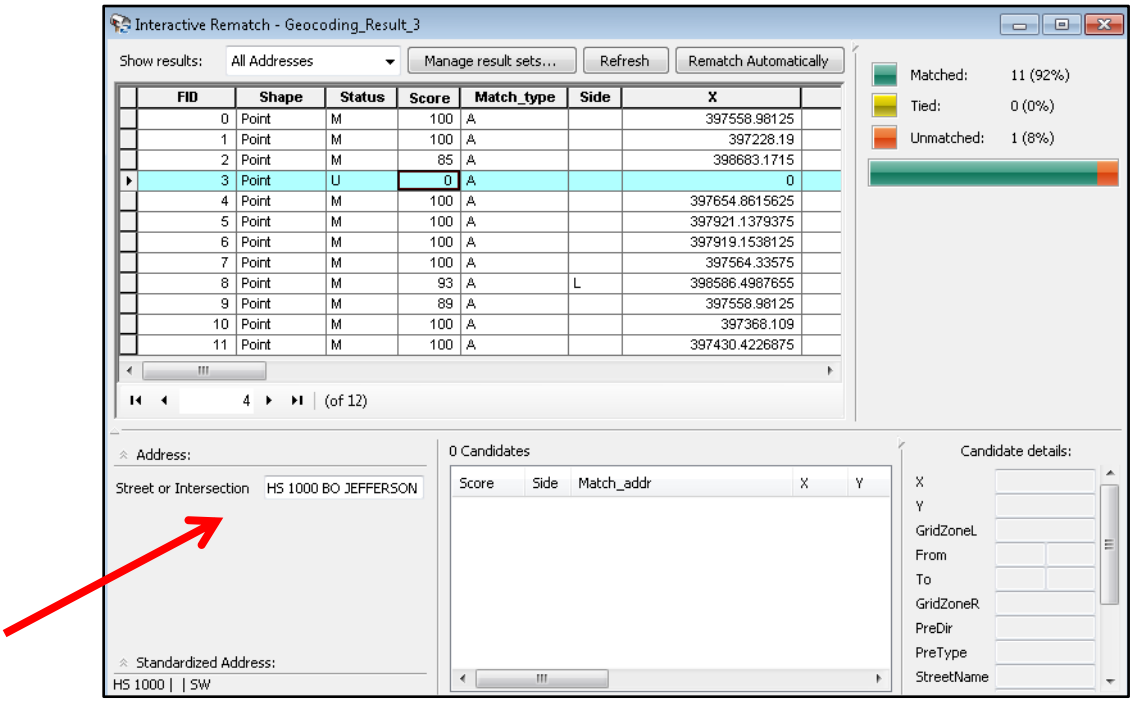
2. Click "rematch" if any of your addresses are unmatched. In this case below, one address needs to be manually rematched/cleaned



3. The interactive rematch menu will appear. From this you can click the address that resulted in a zero (0) score, or sort results from the drop down menu.

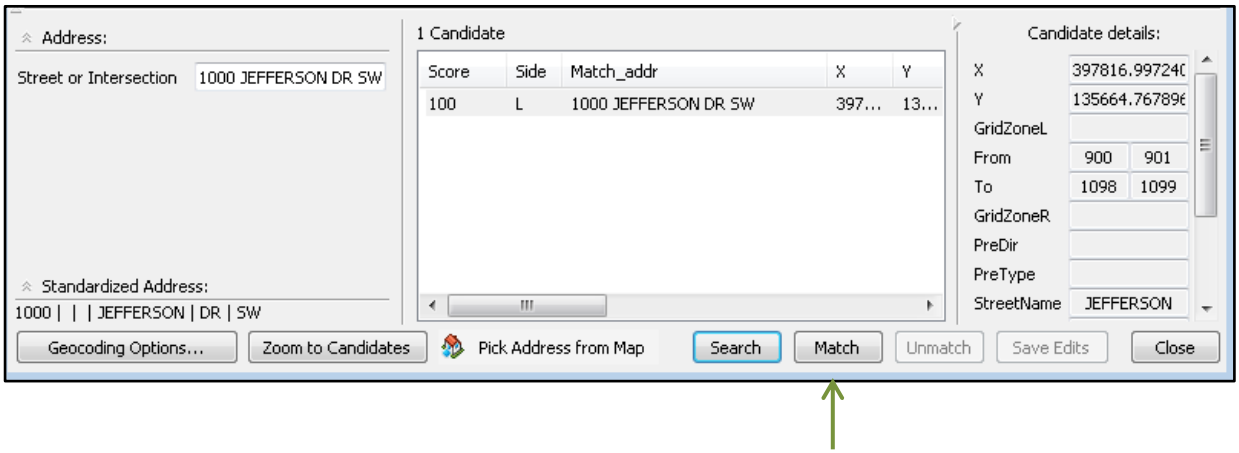


4. When you click the row with the zero (0) score the unmatched address will appear in the lower left hand portion of the menu.

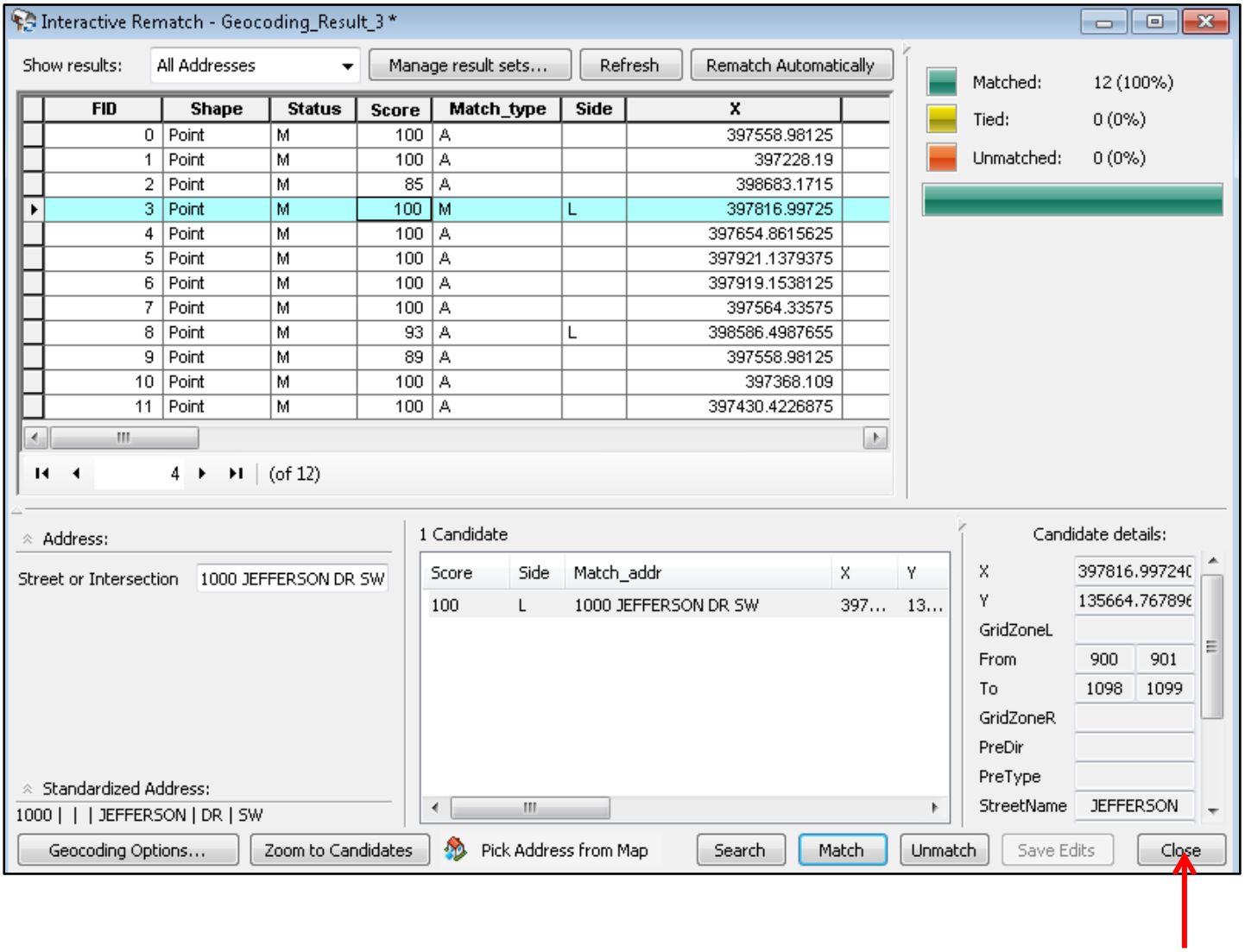


5. You can now manually change the unmatched address in the box. In this case the unmatched address was HS 1000 BO JEFFERSON DR SW SMITHSONIAN and it can be cleaned to appear as 1000 JEFFERSON DR SW

6. Once you clean the address on the left, click "Search" if the new address results in a match the score will appear on the right with the best address candidate. If you are satisfied with the newly matched address, then click "Match"



7. Once you click match the score will change to 100 and Match_type will then change to M. After this you can click “close” and the layer will appear in the table of contents.



8. Geocoding Complete.