

# Lab 9: Preparing and Joining Your Brick Map Data Files

## Introduction

-This lab will focus on editing two excel files which contain information related to your Brick Map Project. Once the edits are made you will Join the two files in order to display the correct brick factories for your region in ArcMap. Once you have the files joined and displaying in ArcMap, you can move onto the next step of finding additional layers to display with your Brick Data. Jim Graves provided the Brick Data and the USGS provided the coordinates for each city for this project, so be sure to **list these in your data source credits when making your final map.** The steps you will be doing in this week's lab is:

- 1) Condense the data in both tables to only your region (make 2 new tables).
- 2) Compare the cities in both of the condensed tables, delete cities that are not listed in BOTH tables (**see red section on page 5 for exceptions**).
- 3) Concatenate the CITY and STATE columns in the condensed Marked Brick Manufacturers table using the command in Excel.
- 4) Save finalized condensed tables as CSVs. Open both in ArcMap.
- 5) In ArcMap, display XY data of condensed USGS table, specify “X-field” (lon) and “Y-field” (lat), and choose a Geographic Coordinate System.
- 6) Export the new “USGS events” layer as a shapefile, import it into ArcMap.
- 7) Join the attribute table of the shapefile to the condensed Marked Brick Manufacturers table.
- 8) Save the ArcMap document, then move the .mxd file(s), all of the table files (original and condensed), and the USGS shapefile (and its supporting files) to your USB or external device.

**\*This lab is due by the end of lab on Monday Nov. 5. You should have at the minimum up to step 4 completed, since the first four steps take the longest to complete. Your TA can help assist you with steps 5-8 during next week's lab so you don't fall too behind on your project.**

## Data

-The two files you will be working with are:

### Marked\_Brick\_Manufacturers.csv

-This file has ~4000 records. Each row indicates a Brick Manufacturer that identified through a 'marked' brick (bad manufacturers name). Courtesy of Jim Graves. See screenshot below:

A	B	C	D	E	F	G	H
ID	Name	City	State	Marked	Bib	Frst	Lst
2177	COPELAND-INGLIS SHALE BRICK CO.	ALTON	AL	Y	475	1923	
1729	ANNISTON BRICK WKS.	ANNISTON	AL	Y	19	1894	1901
35663	EICHELBERGER,G.W. & SONS CO.	ANNISTON	AL	Y	475	1915	1921
13260	FRAME BRICK & TILE CO.	ANNISTON	AL	Y	455	1968	1980
2163	ALABAMA CLAY PRODUCTS CO.	BESSEMER	AL	Y	25	1922	1946
1728	BICKERSTAFF CLAY PRODUCTS CO.	BESSEMER	AL	Y	15	1963	1995
6251	HARBISON-WALKER REF.CO.	BESSEMER	AL	Y	25	1927	1968
30802	LACLEDE-CHRISTY CO. (Alabama Clay Products Co.)	BESSEMER	AL	Y	573	1946	1954
30868	PORTER,H.K. CO. (LACLEDE-CHRISTY WORKS)	BESSEMER	AL	Y	574	1958	1973
30758	PORTER,H.K. CO.,INC. REFRactories DIV.	BESSEMER	AL	Y	487	1961	1972
1706	BIBBY COAL,SHALE & CLAY CO.	BIBBY	AL	Y	25	1922	1954
2148	BIRMINGHAM CLAY PRODUCTS CO.	BIRMINGHAM	AL	Y	475	1920	1985
1727	BIRMINGHAM FIRE BRICK WORKS	BIRMINGHAM	AL	Y	15	1886	1900
25020	BRICK & TILE MFG.CO.	BIRMINGHAM	AL	Y	415	1932	
1890	COPELAND-INGLIS SHALE BRICK CO.	BIRMINGHAM	AL	Y	343	1899	1920
2180	DICKEY,W.S. CLAY MFG. CO.	BIRMINGHAM	AL	Y	475	1924	1943
21618	DIXIE FIRE BRICK CO.	BIRMINGHAM	AL	Y	16	1930	1954
2010	GRAVES SHALE PAVING BRICK CO.	BIRMINGHAM	AL	Y	343	1900	1916
23610	GREEN,A.P. REFRactories CO. (DIXIE F.B.)	BIRMINGHAM	AL	Y			
10562	STEPHENSON BRICK & TILE CO.(L.L.)	BIRMINGHAM	AL	Y	477	1912	1970
1812	BICKERSTAFF BRICK CO.	BRICKYARD	AL	Y	474	1902	1938
28312	STEPHENSON BRICK COMPANY (L.L.)	CHILDERSBURG	AL	Y	474	1937	1939
10433	SOUTHERN CLAY MFG. CO.	COALDALE	AL	Y	475	1906	1924
2162	BRICK & TILE MFG.CO.	CORDOVA	AL	Y	25	1935	
28212	STEPHENSON BRICK COMPANY (L.L.)	CORDOVA	AL	Y	474	1927	1929

### USGS\_Populated\_Places.csv

-This file has ~200,0000 records. Each row is a specific location with certain lat/long coordinates. These coordinates will be used to display your Brick Manufacturer locations. Courtesy of the USGS. See screenshot below:

FEATURE_ID	CITY_NAME	STATE	STATE_NUMERIC	COUNTY_NAME	COUNTY_NUMERIC	PRIM_LAT	PRIM_DEC	LONGITUDE	ELEV_IN_FT	CITY_ST
112879	Atlanta	AL	1	Chambers	17	33.109554	-85.5296753	646		ABERDALE, AL
112880	Abbeville	AL	1	Henry	67	31.5718352	-85.2504933	449		ABBEVILLE, AL
155974	Abbot Springs	AL	1	Shelby	117	31.3609433	-86.4816481	541		ABBOY SPRINGS, AL
159044	Abel	AL	1	Cleburne	29	33.5487187	-85.7124608	568		ABEL, AL
159779	Abercorn	AL	1	Bibb	7	32.5476174	-87.1650301	300		ABERCORN, AL
122981	Aberfoyle	AL	1	Bullock	11	32.0794236	-87.7198757	364		ABERFOYLE, AL
122982	Abernant	AL	1	Tuscaloosa	125	32.2902129	-87.1398023	466		ABERNANT, AL
140782	Abernathy (historical)	AL	1	Calhoun	15	33.2967995	-85.5655147	1220		ABERNATHY (HISTORICAL), AL
155975	Abernathy	AL	1	Cleburne	29	31.6506027	-85.4074538	1024		ABERNATHY, AL
158185	Abihka (historical)	AL	1	Talladega	121	33.0001125	-86.1610384	574		ABIHKA (HISTORICAL), AL
1700249	Abington Green	AL	1	Jefferson	73	33.4578845	-86.7569327	817		ABINGTON GREEN, AL
159556	Abiotic (historical)	AL	1	Clay	27	33.2201174	-87.1650301	1027		ABIOTIC (HISTORICAL), AL
147793	Academy Drive	AL	1	Tuscaloosa	125	33.234844	-87.5480817	235		ACADEMY DRIVE, AL
155953	Academy Park	AL	1	Bibb	7	33.200117	-87.1556629	571		ACADEMY PARK, AL
2579189	Acres Traiter Park	AL	1	Mobil	97	30.710713	-88.130907	92		ACES TRAILER PARK, AL
112902	Acipcoville	AL	1	Jefferson	73	33.5562162	-86.8430471	610		ACIPCOVILLE, AL
154959	Arkevillle	AL	1	Wilcox	131	32.0295905	-87.0663746	285		ACKERFVILLE, AL
104335	Acmar	AL	1	St. Clair	113	33.6214915	-89.4960958	804		ACMAR, AL
158394	Acrostic Heights	AL	1	Madison	97	33.2201174	-86.1610384	909		ACROSTIC HEIGHTS, AL
15947	Actix	AL	1	Bibb	7	33.0679034	-86.5769589	440		ACTIVE, AL
112906	Acton	AL	1	Shelby	117	31.3762129	-86.8005133	505		ACTON, AL
112907	Acton	AL	1	Jefferson	73	33.209745	-86.7552655	488		ACTON, AL
112911	Ada	AL	1	Montgomery	101	32.1004238	-86.2765347	322		ADA, AL
155978	Adams Crossroads	AL	1	Cherokee	19	34.0775979	-85.4877362	735		ADAMS CROSSROADS, AL
155977	Adams	AL	1	Chilton	21	32.1395731	-86.8327047	367		ADAMS, AL
100081	Adairburg	AL	1	El Dorado	97	33.109554	-86.5296753	707		ADAIRBURG, AL
112890	Adamsville	AL	1	Jefferson	73	33.6409589	-86.5561059	517		ADAMSVILLE, AL
159051	Addison	AL	1	Winston	133	34.2022343	-87.1814012	784		ADDISON, AL
166216	Adelia (historical)	AL	1	Calhoun	15	33.9121116	-85.7777436	712		ADELIA (HISTORICAL), AL
155979	Aden	AL	1	Shelby	117	31.1587287	-86.9566091	381		ADEN, AL
1921223	Adger	AL	1	Jefferson	73	33.3705651	-87.0936098	472		ADGER, AL
112934	Adger Hill	AL	1	Elmore	51	32.0295905	-86.1100006	262		ADGER HILL, AL
105241	Adler	AL	1	Perry	105	32.271884	-86.8327047	400		ADLER, AL
112888	Adenville	AL	1	Robert	9	33.8839585	-86.6471735	525		ADVILLE, AL
145914	Agricola	AL	1	Elowah	55	34.0298188	-86.0166371	794		AGRICOLA, AL
155980	Agricola	AL	1	Tallapoosa	123	32.786462	-85.7385846	728		AGRICOLA, AL
166184	Ai	AL	1	Cleburne	29	33.0501069	-85.4471769	574		AI, AL
112946	Almowell	AL	1	Marengo	91	32.1215366	-87.9051227	262		AIRPORT HIGHLANDS, AL
112950	Airport Highlands	AL	1	Jefferson	73	33.5201069	-86.1100006	267		AIRPORT HIGHLANDS, AL
155981	Almenorte	AL	1	Barbour	5	31.0537211	-85.6110155	403		AHMESVILLE, AL
155982	Akka	AL	1	Mobile	97	30.7740499	-86.023034	3		AKKA, AL
112903	Akron	AL	1	Hale	65	32.8705105	-87.7425105	131		AKRON, AL
112955	Alabama City	AL	1	Etowah	55	34.0223194	-86.0465528	551		ALABAMA CITY, AL
155983	Alabama Fork	AL	1	Umatone	83	34.8514761	-86.9738962	778		ALABAMA FORK, AL
154960	Alabama Port	AL	1	Mobile	97	30.3629775	-86.1147216	7		ALABAMA PORT, AL

Save Frequently 2

## Instructions

-After looking through the two files, you can see that there is a lot of information to sift through. Luckily, you will only be using the portion that is within your state(s) or region.

### Step 1

-Your first task is to condense the number of records to only those that fall within the state(s) or region you will be mapping (I will be using Maryland in my examples). **Copy and Paste** all the rows that are within your area from both tables into 2 new tables. See screenshots below:

A	B	C	D	E	F	G	H
30907 PRESBYREY FIRE BRICK WORKS		WIER BRANCH	MA	Y	570	1922	1930
5682 NORTHLAND CO.		WORCESTER	MA	Y	23	1918	1968
1040 BIG SAVAGE FIRE BRICK CO.		ALLEGANY	MD	Y	23	1909	1925
23599 AMERICAN REFRactories CO.		BALTIMORE	MD	Y	28	1917	1923
13371 BALTIMORE BRICK CO. (BALTIMORE HIGH GRADE BRICK CO.)		BALTIMORE	MD	Y	415	1899	1980
24765 BALTIMORE RETORT & FIRE BRICK CO.		BALTIMORE	MD	Y	343	1868	1920
1050 GENERAL REFRACTORIES CO. (AMERICAN REFRACTORIES)		BALTIMORE	MD	Y	23	1923	1968
30736 HARRISON-WALKER REF. CO.		BALTIMORE	MD	Y	487	1950	1968
10451 WESTPORT PAVING BRICK CO. (BALTIMORE VIT.CLAY CO.)		BALTIMORE	MD	Y	15	1909	1916
1852 CAMBRIDGE BRICK CO.		CAMBRIDGE	MD	Y	343	1917	1926
13729 QUEEN CITY BRICK & TILE CO.		CUMBERLAND	MD	Y	14	1888	1921
26408 WELSH, GLOWNINGER & MAXWELL (WELCH?)		CUMBERLAND	MD	Y	450	1950	1954
5719 HOWARD REFRactories CO. (HOWARD FIRE CLAY CO.)		DORSEY	MD	Y	23	1917	1935
1080 BIG SAVAGE FIRE BRICK CO.		FROSTBURG	MD	Y	570	1909	1925
30747 BOTHELL REFRactories		FROSTBURG	MD	Y	573	1954	
30750 KAISER REFRactories		FROSTBURG	MD	Y	487	1968	
30884 KAISER REFRactories & CHEM. - DIV. KAISER ALUMINUM & CHEM.		FROSTBURG	MD	Y	575	1959	1961
30860 MEXICO REFRactories CO.		FROSTBURG	MD	Y	573	1958	1959
30814 NATIONAL REFRactories CO.		FROSTBURG	MD	Y	573	1954	
23577 NORTH AMERICAN REFRactories CO.(SAVAGE F.B.CO.)		FROSTBURG	MD	Y	25	1830	1935
9933 SAVAGE MOUNTAIN FIRE BRICK CO. (L.M. GORSUCH WORKS)		FROSTBURG	MD	Y	23	1902	1930
30743 HARRISON-WALKER REF. CO.		GRANTSVILLE	MD	Y	487	1958	
6462 NORTH EAST FIRE BRICK CO.		GRANTSVILLE	MD	Y	218	1909	1961
14303 BALTIMORE BRICK CO.		ORANGEVILLE	MD	Y	218	1884	1909
21594 BALTIMORE BRICK CO.		ROCKY RIDGE	MD	Y	455	1899	1980
9955 SALISBURY BRICK CO. INC.		SALSBURY	MD	Y	23	1902	1981
1075 CUSHAW/VICTOR & SONS		WILLIAMSPORT	MD	Y	474	1906	1990
1082 BIG SAVAGE REFRactories CO. (bought UNION MINING CO.)		MT. SAVAGE	MD	Y	658	1848	1922
5625 MT.SAVAGE REFRactories CO. (bought UNION MINING CO.)		MT. SAVAGE	MD	Y	487	1904	1987
23585 NORTH AMERICAN REFRactories CO.(SAVAGE F.B.CO.)		MT. SAVAGE	MD	Y	369	1890	
9934 UNION MINING CO.(MT.SAVAGE F.B. WORKS)		MT. SAVAGE	MD	Y	23	1911	1935
30792 HARRISON-WALKER REF. CO.		NEW SAVAGE	MD	Y	573	1954	1963
6462 NORTH EAST FIRE BRICK CO.		NORTH EAST	MD	Y	218	1909	1961
14303 BALTIMORE BRICK CO.		ORANGEVILLE	MD	Y	218	1884	1909
21594 BALTIMORE BRICK CO.		ROCKY RIDGE	MD	Y	455	1899	1980
9955 SALISBURY BRICK CO. INC.		SALSBURY	MD	Y	23	1902	1981
1075 CUSHAW/VICTOR & SONS		WILLIAMSPORT	MD	Y	474	1906	1990
1082 BIG SAVAGE REFRactories CO. (bought UNION MINING CO.)		ZILHMAN (FROSTBURG)	MD	Y	573	1954	1958
1767 BREWER BRICK COMPANY		BANGOR	ME	Y	254	1860	1904
2538 BREWER BRICK COMPANY		BREWER	ME	Y	260	1885	1888

A	B	C	D	E	F	G	H
1049 BIG SAVAGE FIRE BRICK CO.		ALLEGANY	MD	Y	23	1909	1935
23599 AMERICAN REFRactories CO.		BALTIMORE	MD	Y	28	1917	1923
13357 BALTIMORE BRICK CO. (BALTIMORE HIGH GRADE BRICK CO.)		BALTIMORE	MD	Y	415	1899	1980
24765 BALTIMORE RETORT & FIRE BRICK CO.		BALTIMORE	MD	Y	343	1868	1920
1050 GENERAL REFRACTORIES CO. (AMERICAN REFRACTORIES)		BALTIMORE	MD	Y	23	1923	1968
30736 HARRISON-WALKER REF. CO.		BALTIMORE	MD	Y	487	1950	1968
10451 WESTPORT PAVING BRICK CO. (BALTIMORE VIT.CLAY CO.)		BALTIMORE	MD	Y	15	1909	1916
1852 CAMBRIDGE BRICK CO.		CAMBRIDGE	MD	Y	343	1917	1926
13729 QUEEN CITY BRICK & TILE CO.		CUMBERLAND	MD	Y	14	1888	1921
26408 WELSH, GLOWNINGER & MAXWELL (WELCH?)		CUMBERLAND	MD	Y	450	1950	1954
5719 HOWARD REFRactories CO. (HOWARD FIRE CLAY CO.)		DORSEY	MD	Y	23	1917	1935
1080 BIG SAVAGE FIRE BRICK CO.		FROSTBURG	MD	Y	570	1909	1925
30747 BOTHELL REFRactories		FROSTBURG	MD	Y	573	1954	
30750 KAISER REFRactories		FROSTBURG	MD	Y	487	1968	
30884 KAISER REFRactories & CHEM. - DIV. KAISER ALUMINUM & CHEM.		FROSTBURG	MD	Y	575	1959	1961
30860 MEXICO REFRactories CO.		FROSTBURG	MD	Y	574	1958	1959
30814 NATIONAL REFRactories CO.		FROSTBURG	MD	Y	573	1954	
23577 NORTH AMERICAN REFRactories CO.(SAVAGE F.B.CO.)		FROSTBURG	MD	Y	25	1930	1935
9933 SAVAGE MOUNTAIN FIRE BRICK CO. (L.M. GORSUCH WORKS)		FROSTBURG	MD	Y	23	1902	1930
30741 HARRISON-WALKER REF. CO.		GRANTSVII	MD	Y	487	1958	
30743 HARRISON-WALKER REF. CO.		LEMLEY	MD	Y	487	1954	
5538 MARYLAND CLAY PRODUCTS CO. (owned by MARYLAND COAL CO.)		LONACONING	MD	Y	570	1917	1924
5684 MARYLAND FIRE BRICK CO.		MT. SAVAGE	MD	Y	25	1913	1945
5718 MT.SAVAGE FIRE BRICK WORKS (operated by UNION MINING CO.)		MT. SAVAGE	MD	Y	658	1848	1922
5625 MT.SAVAGE REFRactories CO. (bought UNION MINING CO.)		MT. SAVAGE	MD	Y	487	1904	1987
23585 NORTH AMERICAN REFRactories CO.(SAVAGE F.B.CO.)		MT. SAVAK	MD	Y	369	1930	
9934 UNION MINING CO.(MT.SAVAGE F.B. WORKS)		MT. SAVAK	MD	Y	23	1911	1935
30792 HARRISON-WALKER REF. CO.		NEW SAVADA	MD	Y	573	1954	1963
6462 NORTH EAST FIRE BRICK CO.		NORTH EA	MD	Y	218	1909	1961
14310 BALTIMORE BRICK CO.		ORANGEVILLE	MD	Y	216	1884	1909
21594 BALTIMORE BRICK CO.		ROCKY RID	MD	Y	455	1899	1980
9935 SALISBURY BRICK CO. INC.		SALISBURY	MD	Y	23	1902	1981
1075 CUSHAW/VICTOR & SONS		WILLIAMS	MD	Y	474	1906	1990
1081 BIG SAVAGE REFRactories CO.		ZILHMAN (MD)	MD	Y	573	1954	1958

The figure on the left shows all of the Marked Brick Manufacturing rows that are in the state of Maryland in the original table. The figure on the right is the new excel table for the **Pasted** Marked Brick Manufacturing rows in Maryland only. Be sure to Copy and Paste the column names over as well. Repeat this procedure for the USGS table. See screenshots below:

A71562	594566
404	Wormington
405	Wormington Manor
40592	Wormington Meadows
40592	Worthington
405940	Worthington Park
405941	Worthington Park South
405942	Worthington Ridge
405943	Worthington Ridge
405944	Worthington Ridge
405945	Worthington Ridge
405946	Worthington Ridge
405947	Worthington Ridge
405948	Worthington Ridge
405949	Worthington Ridge
405950	Worthington Ridge
405951	Worthington Ridge
405952	Worthington Ridge
405953	Worthington Ridge
405954	Worthington Ridge
405955	Worthington Ridge
405956	Worthington Ridge
405957	Worthington Ridge
405958	Worthington Ridge
405959	Worthington Ridge
405960	Worthington Ridge
405961	Worthington Ridge
405962	Worthington Ridge
405963	Worthington Ridge
405964	Worthington Ridge
405965	Worthington Ridge
405966	Worthington Ridge
405967	Worthington Ridge
405968	Worthington Ridge
405969	Worthington Ridge
405970	Worthington Ridge
405971	Worthington Ridge
405972	Wrights Mobile Home Village
405973	Wrights Mobile Home Village
405974	Wrights Mobile Home Village
405975	Wrights Mobile Home Village
405976	Wrights Mobile Home Village
405977	Wrights Mobile Home Village
405978	Wrights Mobile Home Village
405979	Wrights Mobile Home Village
405980	Wrights Mobile Home Village
405981	Wrights Mobile Home Village
405982	Wrights Mobile Home Village
405983	Wrights Mobile Home Village
405984	Wrights Mobile Home Village
405985	Wrights Mobile Home Village
405986	Wrights Mobile Home Village
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405988	Wrights Mobile Home Village
405989	Wrights Mobile Home Village
405990	Wrights Mobile Home Village
405991	Wrights Mobile Home Village
405992	Wrights Mobile Home Village
405993	Wrights Mobile Home Village
405994	Wrights Mobile Home Village
405995	Wrights Mobile Home Village
405996	Wrights Mobile Home Village
405997	Wrights Mobile Home Village
405998	Wrights Mobile Home Village
405999	Wrights Mobile Home Village
406000	Wrights Mobile Home Village
406001	Wrights Mobile Home Village
406002	Wrights Mobile Home Village
406003	Wrights Mobile Home Village
406004	Wrights Mobile Home Village
406005	Wrights Mobile Home Village
406006	Wrights Mobile Home Village
406007	Wrights Mobile Home Village
406008	Wrights Mobile Home Village
406009	Wrights Mobile Home Village
406010	Wrights Mobile Home Village
406011	Wrights Mobile Home Village
406012	Wrights Mobile Home Village
406013	Wrights Mobile Home Village
406014	Wrights Mobile Home Village
406015	Wrights Mobile Home Village
406016	Wrights Mobile Home Village
406017	Wrights Mobile Home Village
406018	Wrights Mobile Home Village
406019	Wrights Mobile Home Village
406020	Wrights Mobile Home Village
406021	Wrights Mobile Home Village
406022	Wrights Mobile Home Village
406023	Wrights Mobile Home Village
406024	Wrights Mobile Home Village
406025	Wrights Mobile Home Village
406026	Wrights Mobile Home Village
406027	Wrights Mobile Home Village
406028	Wrights Mobile Home Village
406029	Wrights Mobile Home Village
406030	Wrights Mobile Home Village
406031	Wrights Mobile Home Village
406032	Wrights Mobile Home Village
406033	Wrights Mobile Home Village
406034	Wrights Mobile Home Village
406035	Wrights Mobile Home Village
406036	Wrights Mobile Home Village
406037	Wrights Mobile Home Village
406038	Wrights Mobile Home Village
406039	Wrights Mobile Home Village
406040	Wrights Mobile Home Village
406041	Wrights Mobile Home Village
406042	Wrights Mobile Home Village
406043	Wrights Mobile Home Village
406044	Wrights Mobile Home Village
406045	Wrights Mobile Home Village
406046	Wrights Mobile Home Village
406047	Wrights Mobile Home Village
406048	Wrights Mobile Home Village
406049	Wrights Mobile Home Village
406050	Wrights Mobile Home Village
406051	Wrights Mobile Home Village
406052	Wrights Mobile Home Village
406053	Wrights Mobile Home Village
406054	Wrights Mobile Home Village
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406056	Wrights Mobile Home Village
406057	Wrights Mobile Home Village
406058	Wrights Mobile Home Village
406059	Wrights Mobile Home Village
406060	Wrights Mobile Home Village
406061	Wrights Mobile Home Village
406062	Wrights Mobile Home Village
406063	Wrights Mobile Home Village
406064	Wrights Mobile Home Village
406065	Wrights Mobile Home Village
406066	Wrights Mobile Home Village
406067	Wrights Mobile Home Village
406068	Wrights Mobile Home Village
406069	Wrights Mobile Home Village
406070	Wrights Mobile Home Village
406071	Wrights Mobile Home Village
406072	Wrights Mobile Home Village
406073	Wrights Mobile Home Village
406074	Wrights Mobile Home Village
406075	Wrights Mobile Home Village
406076	Wrights Mobile Home Village
406077	Wrights Mobile Home Village
406078	Wrights Mobile Home Village
406079	Wrights Mobile Home Village
406080	Wrights Mobile Home Village
406081	Wrights Mobile Home Village
406082	Wrights Mobile Home Village
406083	Wrights Mobile Home Village
406084	Wrights Mobile Home Village
406085	Wrights Mobile Home Village
406086	Wrights Mobile Home Village
406087	Wrights Mobile Home Village
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406089	Wrights Mobile Home Village
406090	Wrights Mobile Home Village
406091	Wrights Mobile Home Village
406092	Wrights Mobile Home Village
406093	Wrights Mobile Home Village
406094	Wrights Mobile Home Village
406095	Wrights Mobile Home Village
406096	Wrights Mobile Home Village
406097	Wrights Mobile Home Village
406098	Wrights Mobile Home Village
406099	Wrights Mobile Home Village
406100	Wrights Mobile Home Village
406101	Wrights Mobile Home Village
406102	Wrights Mobile Home Village
406103	Wrights Mobile Home Village
406104	Wrights Mobile Home Village
406105	Wrights Mobile Home Village
406106	Wrights Mobile Home Village
406107	Wrights Mobile Home Village
406108	Wrights Mobile Home Village
406109	Wrights Mobile Home Village
406110	Wrights Mobile Home Village
406111	Wrights Mobile Home Village
406112	Wrights Mobile Home Village
406113	Wrights Mobile Home Village
406114	Wrights Mobile Home Village
406115	Wrights Mobile Home Village
406116	Wrights Mobile Home Village
406117	Wrights Mobile Home Village
406118	Wrights Mobile Home Village
406119	Wrights Mobile Home Village
406120	Wrights Mobile Home Village
406121	Wrights Mobile Home Village
406122	Wrights Mobile Home Village
406123	Wrights Mobile Home Village
406124	Wrights Mobile Home Village
406125	Wrights Mobile Home Village
406126	Wrights Mobile Home Village
406127	Wrights Mobile Home Village
406128	Wrights Mobile Home Village
406129	Wrights Mobile Home Village
406130	Wrights Mobile Home Village
406131	Wrights Mobile Home Village
406132	Wrights Mobile Home Village
406133	Wrights Mobile Home Village
406134	Wrights Mobile Home Village
406135	Wrights Mobile Home Village
406136	Wrights Mobile Home Village
406137	Wrights Mobile Home Village
406138	Wrights Mobile Home Village

A	B	C	D	E	F	G	H	I	J
STATE_ID	CITY_NAME	STATE	STATE_NUMERIC	COUNTY	COUNTY_NAME	COUNTY_NUMERIC	PRIM_LAT	DEC_PRIM_LNG	CITY_ST
								DECEEVLN_IN_FT	
594566	Ahell	MD	24	St. Mary's	37	38.254296	76.7435779	13	ABELL, MD
1698553	Aberdeen Hills	MD	24	Harford	25	39.5259437	76.1678979	190	ABERDEEN HILLS, MD
582854	Aberdeen	MD	24	Harford	25	39.5095556	76.1641197	79	ABERDEEN, MD
1698516	Abingdon Reserve	MD	24	Harford	25	39.4659416	76.2830126	174	ABINGDON RESERVE, MD
589586	Abingdon	MD	24	Harford	25	39.4636305	76.2785187	158	ABINGDON, MD
1676136	Abington Shores	MD	24	Calvert	25	38.5803983	76.7773739	30	ABINGTON SHORES, MD
2458850	Abrams	MD	24	Montgomery	31	39.1911	77.047	404	ABRAMS, MD
593918	Academy Acres	MD	24	Baltimore	5	39.4481606	76.8019204	627	ACADEMY ACRES, MD
1696002	Academy Acres	MD	24	Carroll	13	39.4595465	77.0341478	778	ACADEMY ACRES, MD
592026	Academy Heights	MD	24	Baltimore	5	39.2820509	76.7227493	440	ACADEMY HEIGHTS, MD
1676137	Academy Hill	MD	24	Calvert	9	38.6598408	76.6616292	138	ACADEMY HILL, MD
589058	Academy Hills	MD	24	Cecil	15	39.6567847	76.8552175	220	ACADEMY HILLS, MD
1071528	Academy Junction	MD	24	Anne Arundel	3	39.0895353	76.6983017	139	ACADEMY JUNCTION, MD
582810	Academy Lane	MD	24	Calvert	9	39.4010009	76.9000003	504	ACADEMY LANE, MD
582858	Accident	MD	24	Garrett	23	39.628096	79.3157950	2385	ACCIDENT, MD
1657841	Acco Park	MD	24	Prince George's	33	38.6740056	76.9999975	210	ACCO PARK, MD
569694	Accokeek Acres	MD	24	Prince George's	33	38.668728	76.9933081	200	ACCOKEEK ACRES, MD
1957787	Accokeek Lawn	MD	24	Prince George's	33	38.6695611	77.0385873	180	ACCOKEEK LAWN, MD
569693	Accokeek	MD	24	Prince George's	33	38.6676168	77.0283092	194	ACCOKEEK, MD
1697471	Acquasack (historical)	MD	24	St. Mary's	37	0	0	0	ACQUASACK (HISTORICAL), MD
1697472	Acquintanacuaak (historical)	MD	24	St. Mary's	37	0	0	0	ACQUINTANACUAAK (HISTORICAL), MD
569695	Acredale	MD	24	Prince George's	33	39.0028878	76.9427525	98	ACREDALE, MD
173350	Acreside	MD	24	Anne Arundel	3	39.1710001	76.9999951	431	ACRESIDE, MD
1676844	Action Village	MD	24	Carroll	17	38.6406735	76.9052498	200	ACTION VILLAGE, MD
1665236	Adams Chance	MD	24	Carroll	13	39.5959362	76.8916495	718	ADAMS CHANCE, MD
1688401	Adams Heights	MD	24	Harford	25	39.5378879	76.1802314	266	ADAMS HEIGHTS, MD
1712236	Adamstown Village	MD	24	Frederick	21	39.3167687	77.5063767	341	ADAMSTOWN VILLAGE, MD
589624	Adamstown	MD	24	Frederick	21	39.3109356	77.4747088	305	ADAMSTOWN, MD
589625	Adelina	MD	24	Calvert	9	38.4806787	76.6213478	128	ADELINA, MD
569699	Adelphi Park	MD	24	Prince George's	33	38.9864992	76.9803039	79	ADELPHI PARK, MD
569697	Adelphi	MD	24	Prince George's	33	39.0031656	76.9791792	174	ADELPHI, MD
569702	Adelphie Farms	MD	24	Baltimore	5	39.0900001	76.9999997	452	ADELPHIE FARMS, MD
1710830	Admiral (historical)	MD	24	Anne Arundel	3	39.0901089	76.7344414	138	ADMIRAL (HISTORICAL), MD
589626	Admiral Heights	MD	24	Anne Arundel	3	39.0948939	76.5185723	36	ADMIRAL HEIGHTS, MD
1710837	Admirals Walk	MD	24	Anne Arundel	3	39.0345555	76.4471822	26	ADMIRALS WALK, MD
1698332	Advocate Hill Farms	MD	24	Harford	25	39.5995501	76.4610749	604	ADVOCATE HILL FARMS, MD
1695461	Advocates Choice	MD	24	Carroll	13	39.6417679	76.9830367	699	ADVOCATES CHOICE, MD

The figure at the bottom of the previous page shows copying all of the rows in the original USGS table for Maryland. The figure on the top of this page shows the selected rows pasted into the new USGS table. Be sure to **Copy** and **Paste** the column names to the new USGS table.

## **Step 2**

-Now that you have condensed your data to two new tables, you now have to remove all of the cities in your condensed USGS table that are not listed in your condensed Marked Brick Manufacturers table.

The figure above shows the two condensed tables side-by-side. The red rectangles are the columns where cities are found. You may notice that there are multiple rows with the same city name in the condensed Marked Brick Manufacturers table screenshot, this is okay, leave all of the cities in this table, even if there are duplicates! As you compare names between tables, you may come across two cities with similar names (i.e. for Maryland there's a city called "ALLEGANY" found the condensed Marked Brick Manufacturers table but there's only an "ALLEGANY GROVE" in the condensed

USGS table. A quick Google search led to finding out that “ALLEGANY” is a county, not a city, which was inputted incorrectly. You will have to do the same to ensure you have the correct cities. Lastly, it is possible that some of the cities listed may have been the previous name of a current city.

**\*Depending on your state(s) or region, this process could take an hour or several hours. Be patient with this part and save frequently, it is the most important step of this lab! The data in both files are filled with typos and special characters. To undo press Ctrl + Z, to search for a word in the table press Ctrl + F.**

\*If you have multiple rows in both tables with the same city names, look at the counties for each of them, you may have to uniquely identify

**\*If you have to remove one or multiple rows due to inability to interpret the information, then write down the information regarding those features in the table and possibly insert them as supplemental text in your map or in your write-up so your audience is aware of other Marked Brick Manufacturing sites existing in your area.**

**\*If a city in your condensed Marked Brick Manufacturers table is not found on the condensed USGS table, look up that city name on Google and see if that city is actually another city. For example, in the condensed Marked Brick Manufacturers table screenshot above there's a town called “NEW SAVAGE” however it does not appear on the condensed USGS table. Googling “NEW SAVAGE, MARYLAND” brings up a city called “SAVAGE, MARYLAND”. Therefore, it could just be a typo or perhaps it was the original name of the city. If you come across this situation, you may choose to delete the city, but you have to mention this in your write-up or uniquely symbolize it on your map. Your audience (Jim Graves and Dr. Patzewitsch) need to know of the limitations and errors of the data.**

-Using Maryland as an example, the condensed tables look like this (red rectangles are the cities I updated to correctly reflect their names in the condensed USGS table):

\*Remember, the two condensed tables will be unique for every state(s) or region and how you decide to delete/edit cities.

\*Double-check your condensed tables one last time and save them.

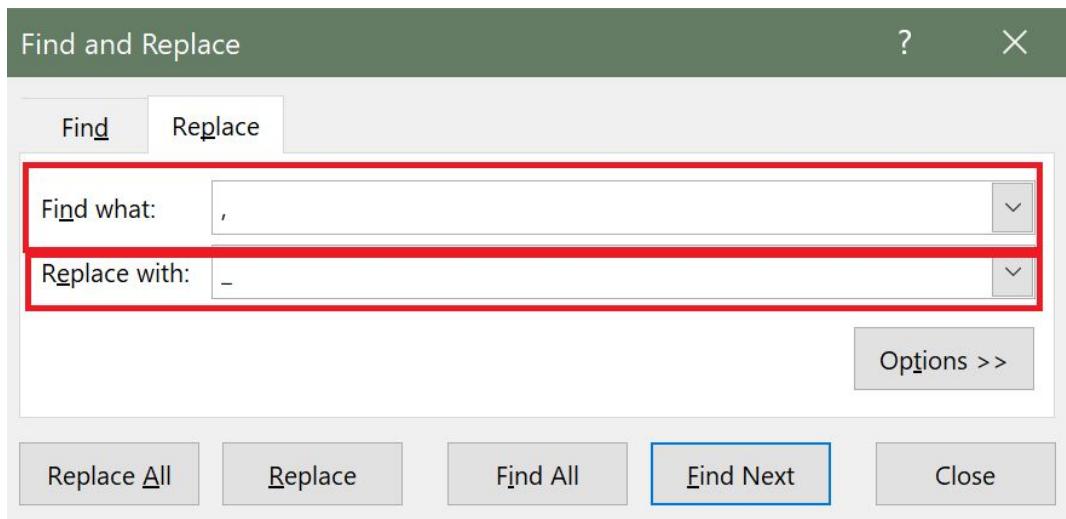
### Step 3

-Before we go into ArcMap, we have one last thing to do to the condensed tables. First, we need to reformat the “CITY\_ST” column in the condensed USGS table so that they are separated with an underscore instead of a comma. This is necessary because when we attempt to join the two files, commas will cause it to fail.

-First, click on Column J in the USGS table to select it. Then go to **Find and Select > Replace**.

The screenshot shows a Microsoft Excel spreadsheet titled "USGS\_Populated\_Places\_MD\_ONLY". The "Replace" dialog box is open, overlaid on the spreadsheet. The "Replace" tab is selected. The "Find what:" field contains a comma (,), and the "Replace with:" field contains a hyphen (-). The "Replace" button in the dialog box is highlighted with a red box.

FEATURE_ID	CITY_NAME	STATE	STATE_NUMERIC	COUNTY	COUNTY_NUMERIC	PRIM_LAT	DECPHIM	PRIM_LONG	DECELEV_IN_FT	CITY_ST
589612	Allegheny Grove	MD	24	Allegheny	1	39.640077		-78.8280761	961	ALLEGANY GROVE, MD
597040	Baltimore	MD	24	Baltimore City	510	39.290388		-76.6121389	33	BALTIMORE CITY, MD
597079	Cambridge	MD	24	Dorchester	19	38.520244		-76.2402302	29	CAMBRIDGE, MD
590557	Cumberland	MD	24	Allegany	1	39.6529654		-78.7625385	623	CUMBERLAND, MD
590103	Dorsey	MD	24	Anne Arundel	3	39.1773298		-76.7430205	105	DORSEY, MD
170085	Frostburg	MD	24	Anne Arundel	3	39.9700297		-78.0000000	69	FROSTBURG, MD
584826	Frostburg	MD	24	Allegany	1	39.6581825		-78.9282572	2964	FROSTBURG, MD
584612	Grantsville	MD	24	Garrett	23	39.6950833		-79.1511413	2303	GRANTSVILLE, MD
590655	Grantsville	MD	24	Cecil	15	39.6195572		-75.9510300	177	LESLIE, MD
590541	Lonaconing	MD	24	Allegany	1	39.531279		-78.0000000	1589	LONACONING, MD
586039	Mt Savage	MD	24	Allegany	1	39.696417		-78.8797442	1247	MOUNT SAVAGE, MD
586223	North East	MD	24	Cecil	15	39.6001132		-75.9413327	16	NORTH EAST, MD
597843	Orangleville	MD	24	Baltimore City	510	39.2987184		-76.5498689	69	ORANGEVILLE, MD
591223	Salisbury	MD	24	Wicomico	45	38.5000000		-76.3400000	26	SALISBURY, MD
591233	Savage	MD	24	Howard	27	39.1798958		-76.8238615	210	SAVAGE, MD
591561	Williamsport	MD	24	Washington	43	39.6006523		-77.8205058	410	WILLIAMSPORT, MD
591621	Zihlman	MD	24	Allegany	1	39.6681423		-78.9150022	1601	ZIHLMAN, MD



Save Frequently 6

-When the **Find and Replace box** appears, in the **Find What box** type a single comma and a single space after it. In the **Replace With box** type an underscore “\_” and click **Replace All**. You should now see the commas between every city and state in Column J separated with an underscore. See figure below for an example. \*Note: Some versions of Excel on campus computers do not have this feature, if you experience this you can just manually delete each comma and put an underscore in its place. See screenshot below for example.

J
CITY_ST
ALLEGANY GROVE_MD
BALTIMORE_MD
CAMBRIDGE_MD
CUMBERLAND_MD
DORSEY_MD
FROSTBURG_MD
GRANTSVILLE_MD
LESLIE_MD
LONACONING_MD
MOUNT SAVAGE_MD
NORTH EAST_MD
ORANGEVILLE_MD
SALISBURY_MD
SAVAGE_MD
WILLIAMSPORT_MD
ZIHLMAN_MD

-Save your USGS table, click Yes and leave it open. Now we need to concatenate information in the “City” and “State” columns in the condensed Marked Brick Manufacturers table. In cell I1, double-click it and type “CITY\_ST”. In cell I2, type “=concatenate(C2,”\_”,D2)”. This is the concatenate command in Excel.

A	B	C	D	E	F	G	H	I	J	K
ID	Name	City	State	Marked	Bib	Frst	Lst	CITY_ST		
1049	BIG SAVAGE FIRE BRICK CO.	ALLEGANY GROVE	MD	Y		23	1909	1935	ALLEGANY GROVE_MD	=concatenate(C2," ",D2)
23599	AMERICAN REFRactories CO.	BALTIMORE	MD	Y		28	1917	1923		
13357	BALTIMORE BRICK CO. (BALTIMORE HIGH GRADE BRICK CO.)	BALTIMORE	MD	Y	415	1899	1980			
24765	BALTIMORE RETORT & FIRE BRICK CO.	BALTIMORE	MD	Y	343	1868	1920			
1050	GENERAL REFRactories CO. (AMERICAN REFRactories)	BALTIMORE	MD	Y	23	1923	1968			
30736	HARBISON-WALKER REF.CO.	BALTIMORE	MD	Y	487	1950	1968			
10451	WESTPORT PAVING BRICK CO. (BALTIMORE VIT.CLAY CO.)	BALTIMORE	MD	Y	15	1909	1916			
1852	CAMBRIDGE BRICK CO.	CAMBRIDGE	MD	Y	343	1917	1926			
13729	QUEEN CITY BRICK & TILE CO.	CUMBERLAND	MD	Y	14	1888	1921			
26408	WELSH, GLOININGER & MAXWELL (WELCH?)	CUMBERLAND	MD	Y	450	1905				
5719	HOWARD REFRactories CO. (HOWARD FIRE CLAY CO.)	DORSEY	MD	Y	23	1917	1935			
1080	BIG SAVAGE FIRE BRICK CO.	FROSTBURG	MD	Y	575	1959	1961			
30774	BOTTFIELD REFRactories	FROSTBURG	MD	Y	574	1958	1959			
30814	NATIONAL REFRactories CO.	FROSTBURG	MD	Y	573	1954				
23577	NORTH AMERICAN REFRactories CO. (SAVAGE F.B.CO.)	FROSTBURG	MD	Y	25	1930	1935			
9933	SAVAGE MOUNTAIN FIRE BRICK CO. (L.M. GORSUCH WORKS)	FROSTBURG	MD	Y	23	1902	1930			
30741	HARBISON-WALKER REF.CO.	GRANTSVILLE	MD	Y	487	1958	1968			
30743	HARBISON-WALKER REF.CO.	LESLIE	MD	Y	487	1954	1968			
5538	MARYLAND CLAY PRODUCTS CO. (owned by MARYLAND COAL CO.)	LONACONING	MD	Y	570	1917	1924			
5684	MARYLAND FIRE BRICK CO.	MT. SAVAGE	MD	Y	25	1913	1945			
5684	MARYLAND FIRE BRICK CO.	MT. SAVAGE	MD	Y	25	1913	1945			
5719	HOWARD REFRactories CO. (HOWARD FIRE CLAY CO.)	MT. SAVAGE	MD	Y	23	1917	1935			
1080	BIG SAVAGE FIRE BRICK CO.	FROSTBURG	MD	Y	570	1909	1925			
30774	BOTTFIELD REFRactories	FROSTBURG	MD	Y	573	1954				
30750	KAISER REFRactories	FROSTBURG	MD	Y	487	1968				
30886	KAISER REFRactories & CHEM. - DIV. KAISER ALUMINUM & CHEM.	FROSTBURG	MD	Y	575	1959	1961			
30860	MEXICO REFRactories CO.	FROSTBURG	MD	Y	574	1958	1959			
30814	NATIONAL REFRactories CO.	FROSTBURG	MD	Y	573	1954				
23577	NORTH AMERICAN REFRactories CO. (SAVAGE F.B.CO.)	FROSTBURG	MD	Y	23	1930	1935			
9933	SAVAGE MOUNTAIN FIRE BRICK CO. (L.M. GORSUCH WORKS)	FROSTBURG	MD	Y	23	1902	1930			
30741	HARBISON-WALKER REF.CO.	GRANTSVILLE	MD	Y	487	1958	1968			
30743	HARBISON-WALKER REF.CO.	LESLIE	MD	Y	487	1954	1968			
5538	MARYLAND CLAY PRODUCTS CO. (owned by MARYLAND COAL CO.)	LONACONING	MD	Y	570	1917	1924			
5684	MARYLAND FIRE BRICK CO.	MT. SAVAGE	MD	Y	25	1913	1945			
5719	MT.SAVAGE FIRE BRICK WORKS (operated by UNION MINING CO.)	MT. SAVAGE	MD	Y	658	1846	1922			
5625	MT.SAVAGE REFRactories CO. (bought UNION MINING CO.)	MT. SAVAGE	MD	Y	487	1944	1987			
23585	NORTH AMERICAN REFRactories CO. (SAVAGE F.B.CO.)	MT. SAVAGE	MD	Y	369	1930				
9934	UNION MINING CO. (MT.SAVAGE F.B.WORKS)	MT. SAVAGE	MD	Y	23	1911	1935			
30792	HARBISON-WALKER REF.CO.	SAVAGE	MD	Y	573	1954	1963			
6462	NORTH EAST FIRE BRICK CO.	NORTH EAST	MD	Y	218	1909	1961			
14810	BALTIMORE BRICK CO.	ORANGEVILLE	MD	Y	216	1884	1909			
21594	BALTIMORE BRICK CO.	ROCKY RIDGE	MD	Y	455	1899	1980			
9935	SALISBURY BRICK CO. INC.	SALISBURY	MD	Y	23	1902	1981			
1075	CUSHWA, VICTOR & SONS	WILLIAMSPT	MD	Y	474	1906	1990			
1081	BIG SAVAGE REFRactories CO.	ZIHLMAN	MD	Y	573	1954	1958			

The screenshot above shows the concatenate formula written for the first cell in our new **CITY\_ST** column in the dark red rectangle. The blue rectangle indicates cell C2 (“**ALLEGANY GROVE**”) and the red rectangle indicates cell D2 (“**MD**”). If you press **Enter**, cell I2 would read “**ALLEGANY GROVE\_MD**”. Move your cursor to the bottom-right of cell I2, click and drag it down to your last row and let go, this will copy the formula to the rest of the cells. See screenshots below for example:

A	B	C	D	E	F	G	H	I	J	K
ID	Name	City	State	Marked	Bib	Frst	Lst	CITY ST		
1049	BIG SAVAGE FIRE BRICK CO.	ALLEGANY GROVE	MD	Y	23	1909	1935	ALLEGANY GROVE_MD		
23599	AMERICAN REFRactories CO.	BALTIMORE	MD	Y	28	1917	1923	BALTIMORE_MD		
13357	BALTIMORE BRICK CO. (BALTIMORE HIGH GRADE BRICK CO.)	BALTIMORE	MD	Y	415	1899	1980	BALTIMORE_MD		
24765	BALTIMORE RETORT & FIRE BRICK CO.	BALTIMORE	MD	Y	343	1868	1920	BALTIMORE_MD		
1050	GENERAL REFRactories CO. (AMERICAN REFRactories)	BALTIMORE	MD	Y	23	1923	1968	BALTIMORE_MD		
30736	HARBISON-WALKER REF.CO.	BALTIMORE	MD	Y	487	1950	1968	BALTIMORE_MD		
10451	WESTPORT PAVING BRICK CO. (BALTIMORE VIT.CLAY CO.)	BALTIMORE	MD	Y	15	1909	1916	BALTIMORE_MD		
1852	CAMBRIDGE BRICK CO.	CAMBRIDGE	MD	Y	343	1917	1926	CAMBRIDGE_MD		
13729	QUEEN CITY BRICK & TILE CO.	CUMBERLAND	MD	Y	14	1888	1921	CUMBERLAND_MD		
26408	WELSH, GLOININGER & MAXWELL (WELCH?)	CUMBERLAND	MD	Y	450	1905		CUMBERLAND_MD		
5719	HOWARD REFRactories CO. (HOWARD FIRE CLAY CO.)	DORSEY	MD	Y	573	1954	1963	DORSEY_MD		
1080	BIG SAVAGE FIRE BRICK CO.	FROSTBURG	MD	Y	570	1909	1925	FROSTBURG_MD		
30774	BOTTFIELD REFRactories	FROSTBURG	MD	Y	573	1954		FROSTBURG_MD		
30750	KAISER REFRactories	FROSTBURG	MD	Y	487	1968		FROSTBURG_MD		
30886	KAISER REFRactories & CHEM. - DIV. KAISER ALUMINUM & CHEM.	FROSTBURG	MD	Y	575	1959	1961	FROSTBURG_MD		
30860	MEXICO REFRactories CO.	FROSTBURG	MD	Y	574	1958	1959	FROSTBURG_MD		
30814	NATIONAL REFRactories CO.	FROSTBURG	MD	Y	573	1954		FROSTBURG_MD		
23577	NORTH AMERICAN REFRactories CO. (SAVAGE F.B.CO.)	FROSTBURG	MD	Y	25	1930	1935	FROSTBURG_MD		
9933	SAVAGE MOUNTAIN FIRE BRICK CO. (L.M. GORSUCH WORKS)	FROSTBURG	MD	Y	23	1902	1930	FROSTBURG_MD		
30741	HARBISON-WALKER REF.CO.	GRANTSVILLE	MD	Y	487	1958	1968	GRANTSVILLE_MD		
30743	HARBISON-WALKER REF.CO.	LESLIE	MD	Y	487	1954	1968	LESLIE_MD		
5538	MARYLAND CLAY PRODUCTS CO. (owned by MARYLAND COAL CO.)	LONACONING	MD	Y	570	1917	1924	LONACONING_MD		
5684	MARYLAND FIRE BRICK CO.	MT. SAVAGE	MD	Y	25	1913	1945	MT.SAVAGE_MD		
5719	MT.SAVAGE FIRE BRICK WORKS (operated by UNION MINING CO.)	MT. SAVAGE	MD	Y	658	1846	1922	MT.SAVAGE_MD		
5625	MT.SAVAGE REFRactories CO. (bought UNION MINING CO.)	MT. SAVAGE	MD	Y	487	1944	1987	MT.SAVAGE_MD		
23585	NORTH AMERICAN REFRactories CO. (SAVAGE F.B.CO.)	MT. SAVAGE	MD	Y	369	1930		MT.SAVAGE_MD		
9934	UNION MINING CO. (MT.SAVAGE F.B.WORKS)	MT. SAVAGE	MD	Y	23	1911	1935	MT.SAVAGE_MD		
30792	HARBISON-WALKER REF.CO.	SAVAGE	MD	Y	573	1954	1963	SAVAGE_MD		
6462	NORTH EAST FIRE BRICK CO.	NORTH EAST	MD	Y	218	1909	1961	NORTH EAST_MD		
14810	BALTIMORE BRICK CO.	ORANGEVILLE	MD	Y	216	1884	1909	ORANGEVILLE_MD		
21594	BALTIMORE BRICK CO.	ROCKY RIDGE	MD	Y	455	1899	1980	ROCKY RIDGE_MD		
9935	SALISBURY BRICK CO. INC.	SALISBURY	MD	Y	23	1902	1981	SALISBURY_MD		
1075	CUSHWA, VICTOR & SONS	WILLIAMSPT	MD	Y	474	1906	1990	WILLIAMSPT_MD		
1081	BIG SAVAGE REFRactories CO.	ZIHLMAN	MD	Y	573	1954	1958	ZIHLMAN_MD		

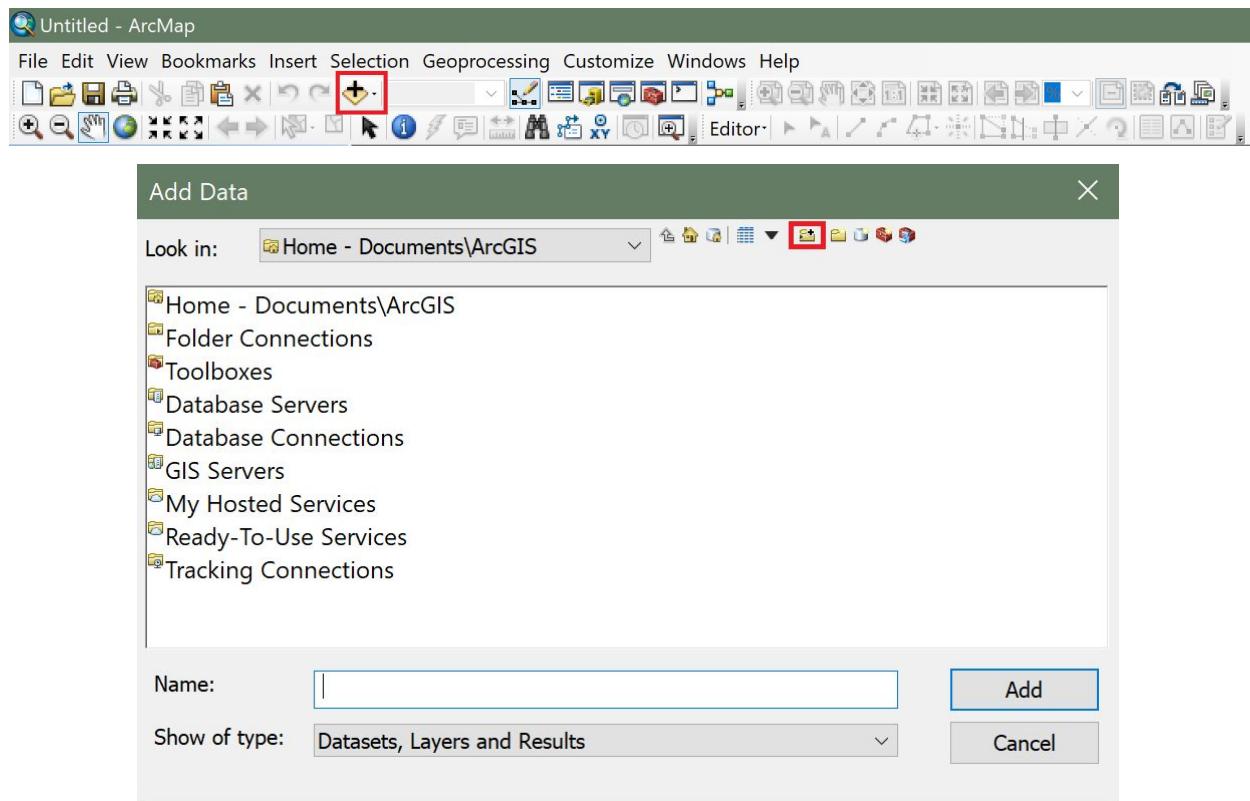
-The reason we are concatenating these columns is to create our common field with the USGS table so we can join the tables in ArcMap. Remember, the values in this column must be EXACTLY THE SAME!!!

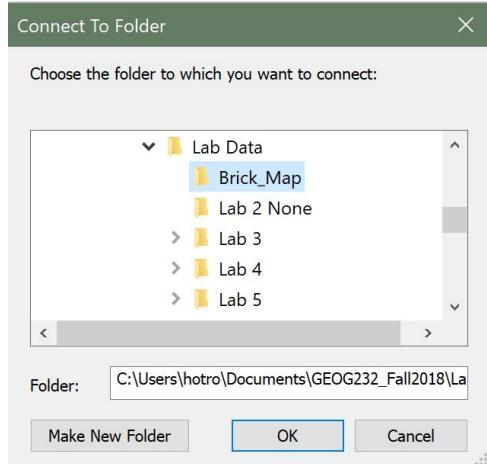
\*There may be inconsistencies with formatting between the underscores and the state abbreviations when comparing the “CITY\_ST” columns in both of tables. Be sure to double-check that the values in both column are exactly the same. If you don’t find these right away, when you go to join the files later on the rows that don’t match are the ones with the different formatting. If this happens, go back into the tables in Excel and look at those rows that didn’t match and look for these small formatting differences!

#### Step 4

-When have concatenated your two columns together in your condensed Marked Brick Manufacturers table, compare the formatting between the “CITY\_ST” columns in both tables to make sure they are exactly the same! When you complete this, save both tables, click Yes, and close them.

-Open ArcMap. Close out of the Getting Started Box. Click the **Add Data button** on the toolbar, click the **Connect to Folder icon** and navigate to where you saved your condensed tables. Add both of them to the Table of Contents. Right-click on one table and click **Open**, make sure all of the columns are correct. Do this for the other one as well. See screenshots below for an example of how to add data, and open the table.





Brick\_Manufacturers\_MD\_ONLY.csv  
Marked\_Brick\_Manufacturers.csv  
Marked\_Brick\_Manufacturers.xlsx  
USGS\_Populated\_Places.csv  
USGS\_Populated\_Places.xlsx  
USGS\_Populated\_Places\_MD\_ONLY.csv

Name: USGS\_Populated\_Places\_MD\_ONLY.csv; Brick\_Manufacturers.

Add

Table Of Contents

Layers

C:\Users\hotro\Documents\GEOG232\_Fall2018\Lab Data\Brick\_Map

- USGS\_Populated\_Places\_MD\_ONLY.csv
- Brick\_Manufacturers\_MD\_ONLY.csv

Open

Join and R  
Remove  
Data  
Edit Feature  
Geocode A  
Display Route  
Display XY Data...  
Properties...

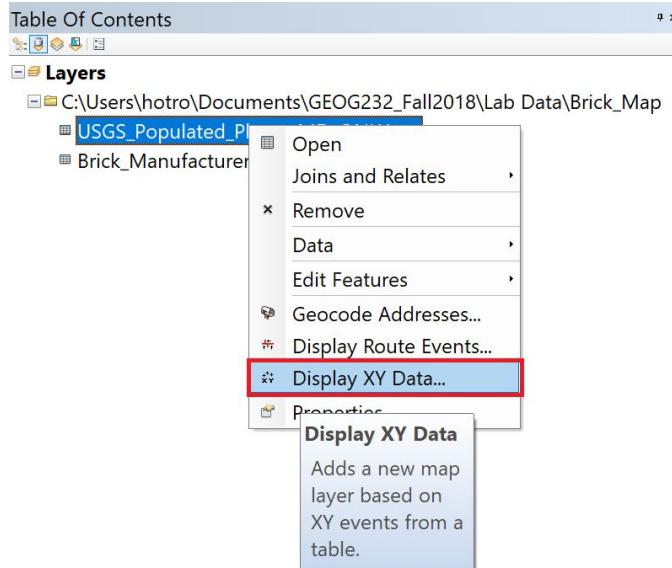
Save Frequently 10

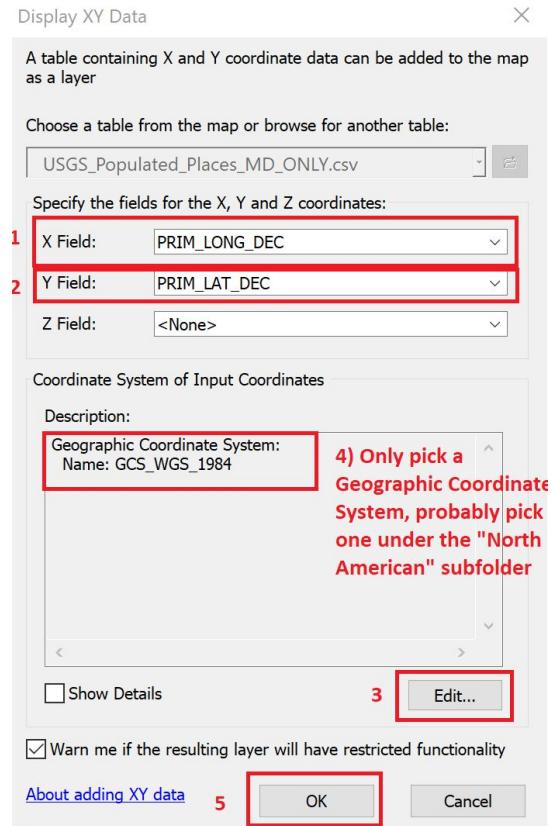
FEATURE_ID	CITY_NAME	STATE	STATE_NUMERIC	COUNTY_NAME	COUNTY_NUMERIC	PRIM_LAT_DEC	PRIM_LONG_DEC	ELEV_IN_FT	CITY_ST
589632	Allegany Grove	MD	24	Allegany	1	39.640088	-78.828076	961	ALLEGANY GROVE MD
597040	Baltimore	MD	24	Baltimore (city)	510	39.290385	-76.612189	33	BALTIMORE MD
589879	Cambridge	MD	24	Dorchester	19	38.563174	-76.078829	20	CAMBRIDGE MD
590057	Cumberland	MD	24	Allegany	1	39.652865	-78.762518	623	CUMBERLAND MD
590103	Dorsey	MD	24	Anne Arundel	3	39.17733	-76.743026	105	DORSEY MD
584526	Frostburg	MD	24	Allegany	1	39.658142	-78.928357	2064	FROSTBURG MD
584690	Grantsville	MD	24	Garrett	23	39.695083	-79.151141	2303	GRANTSVILLE MD
590655	Leslie	MD	24	Cecil	15	39.619557	-75.951055	177	LESLIE MD
590691	Lonaconing	MD	24	Allegany	1	39.565923	-78.980304	1509	LONACONING MD
586039	Mount Savage	MD	24	Allegany	1	39.695642	-78.879744	1247	MOUNT SAVAGE MD
586223	North East	MD	24	Cecil	15	39.600113	-75.941333	16	NORTH EAST MD
597843	Orangeville	MD	24	Baltimore (city)	510	39.298718	-76.549687	69	ORANGEVILLE MD
591221	Salisbury	MD	24	Wicomico	45	38.360674	-75.599369	26	SALISBURY MD
591233	Savage	MD	24	Howard	27	39.137886	-76.823862	210	SAVAGE MD
591561	Williamsport	MD	24	Washington	43	39.600652	-77.820551	410	WILLIAMSPORT MD
591621	Zihlman	MD	24	Allegany	1	39.668142	-78.915023	1601	ZIHLMAN MD

The attribute above has 16 row (unique places).

## Step 5

If both tables look good in ArcMap, then you are ready to display the coordinate data. Right-click on your USGS condensed table and select **Display XY Data**.





### Table Does Not Have Object-ID Field

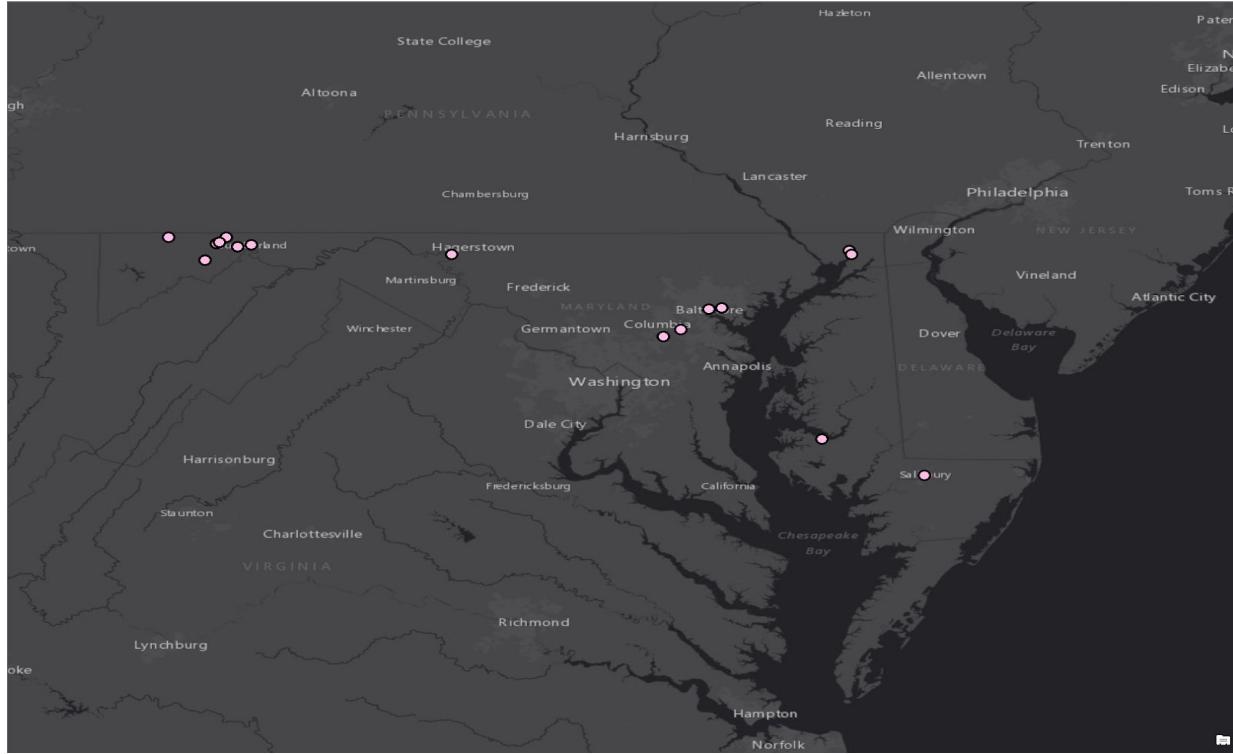
The table you specified does not have an Object-ID field so you will not be able to select, query, or edit the features in the resulting layer, or define relates for them.

After you create this layer, you can export it to a shapefile or feature class if you need these functions. To export a layer, right-click it in the Table Of Contents and choose Data>Export Data. Add the exported data to the map as a new layer.



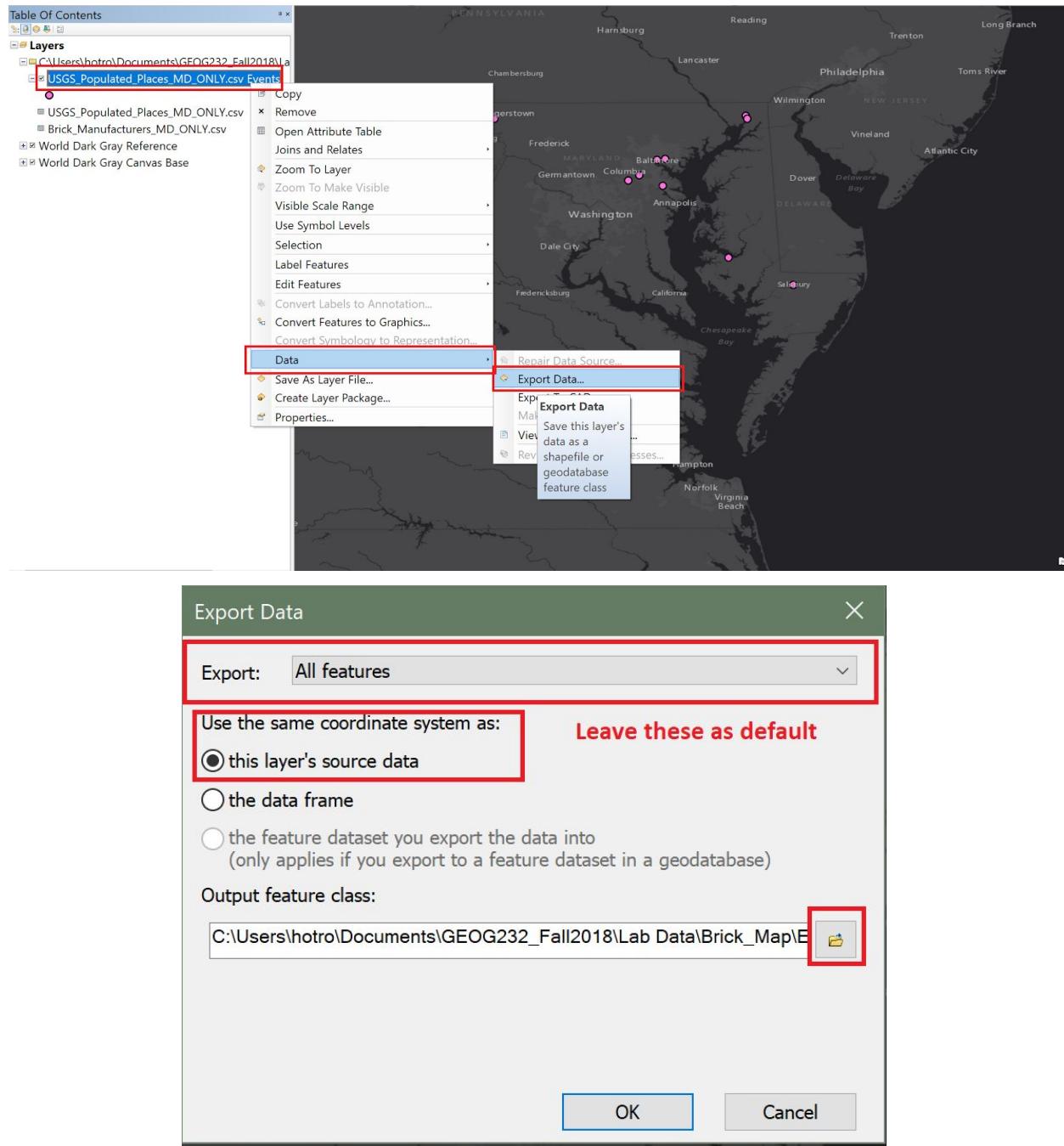
-After you click OK, a new layer will appear in the Table of Contents. It will have the same name as your USGS condensed table but have “events” added to it. You will see several points displayed in the Data View window, these will be each of the rows in your USGS condensed table being displayed.

-Once you see your points displayed, click the drop-down arrow next to the Add Data button, go to **Add Basemap** and choose one to verify that your points are in the right state(s) or region. Below is an example of displaying the XY data for the condensed USGS table for Maryland:

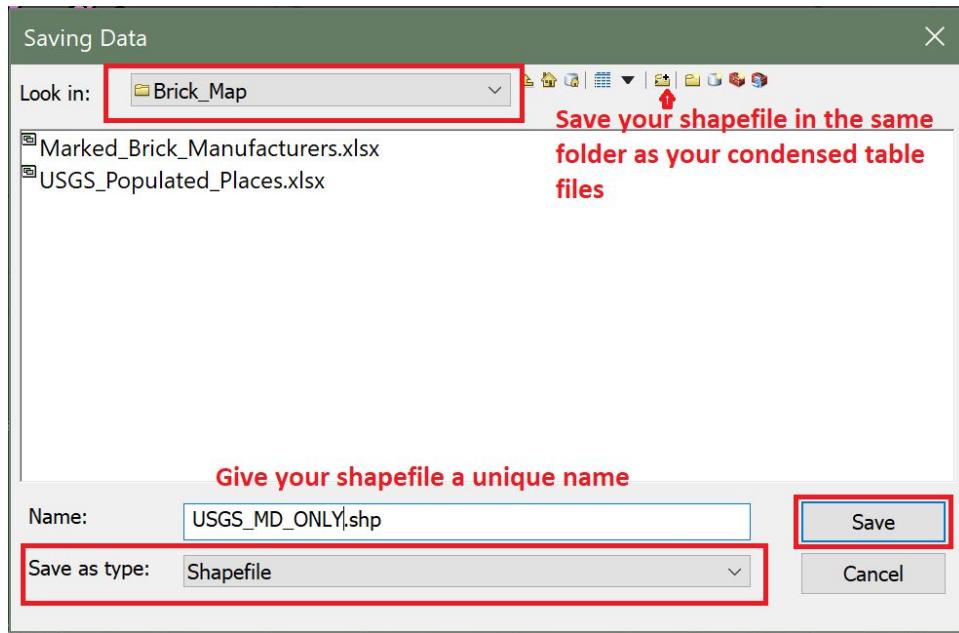


## Step 6

-Even though you can see your USGS points, we need to do a few more steps before we are done. In order to Join our two tables together, we have to convert the “USGS events” layer to a shapefile. To do this, right-click on the “USGS...events” layer, go to **Data > Export Data**



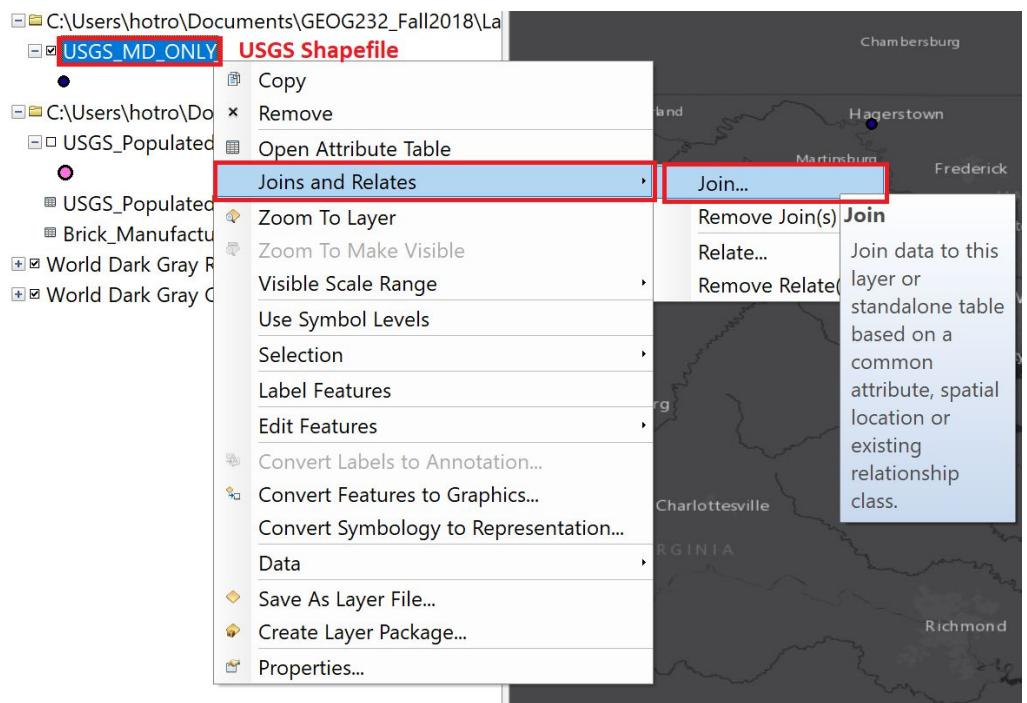
Save Frequently 14

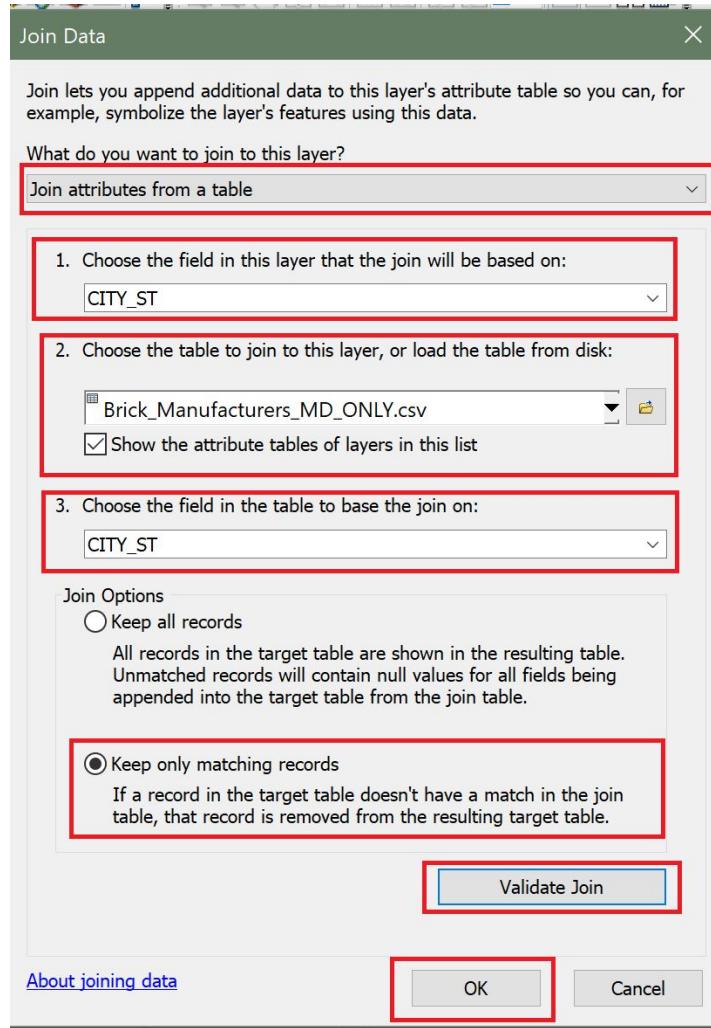


-After you click Save you will be redirected back to the **Export Data box**, click **OK**. ArcMap will prompt you if you want to add the exported data to your map as a layer, click **Yes**. You can turn off your “USGS...events” layer after your shapefile appears in the Table of Contents.

## Step 7

-Now it's time to Join the USGS shapefile's attribute table to the condensed Marked Brick Manufacturers table. Right-click on the USGS shapefile, go to **Joins and Relates > Join**.





\*Make sure in box 2, you select your condensed Marked Brick Manufacturers table.

In my example with Maryland, when I pressed **Validate Join** I had 16 records matching (the total number of rows I had in my USGS shapefile's attribute table). When you do this, be sure that you get all records matching. Remember, if **Validate Join** tells you not all of the records between the two tables join, there is a formatting difference for that row(s) and you need to fix it by opening up the table in Excel, correct the error, save the table, delete the old version from ArcMap (if it's the USGS table then delete the shapefile you created, the “events” layer, and the condensed USGS table csv file from the Table of Contents. Close out of ArcMap and reopen it and add the two tables in again. Open both tables up to see if your fixes carried over.

-After you click OK, open up the USGS table shapefile to see the join (see screenshot below for example).

Table

USGS MD\_ONLY

PRIM_LONG	ELEV_IN_FT	CITY_ST	ID	Name	City	State	Marked	Bib	Frst	Lst	CITY_ST
-78.828076	961	ALLEGANY_GROVE_MD	1049	BIG SAVAGE FIRE BRICK CO.	ALLEGANY GROV	MD	Y	23	1909	1935	ALLEGANY_GROVE_MD
-76.612169	33	BALTIMORE_MD	23599	AMERICAN REFRactories CO.	BALTIMORE	MD	Y	28	1917	1923	BALTIMORE_MD
-76.078829	20	CAMBRIDGE_MD	1852	CAMBRIDGE BRICK CO.	CAMBRIDGE	MD	Y	343	1917	1926	CAMBRIDGE_MD
-78.762518	623	CUMBERLAND_MD	13729	QUEEN CITY BRICK & TILE CO.	CUMBERLAND	MD	Y	14	1888	1921	CUMBERLAND_MD
-76.743026	105	DORSEY_MD	5719	HOWARD REFRactories CO. (HOWARD FIRE CLAY CO.)	DORSEY	MD	Y	23	1917	1935	DORSEY_MD
-78.928357	2064	FROSTBURG_MD	1080	BIG SAVAGE FIRE BRICK CO.	FROSTBURG	MD	Y	570	1909	1925	FROSTBURG_MD
-79.151141	2302	GRANTSVILLE_MD	30741	HARBISON-WALKER REF.CO.	GRANTSVILLE	MD	Y	487	1958	1968	GRANTSVILLE_MD
-75.951055	177	LESLIE_MD	30743	HARBISON-WALKER REF CO.	LESLIE	MD	Y	487	1954	1968	LESLIE_MD
-78.980304	1509	LONACONING_MD	5538	MARYLAND CLAY PRODUCTS CO. (owned by MARYLAND COAL CO.)	LONACONING	MD	Y	570	1917	1924	LONACONING_MD
-78.879744	1247	MOUNT SAVAGE_MD	5684	MARYLAND FIRE BRICK CO.	MT. SAVAGE	MD	Y	25	1913	1945	MOUNT SAVAGE_MD
-75.941333	16	NORTH EAST_MD	6462	NORTH EAST FIRE BRICK CO.	NORTH EAST	MD	Y	218	1809	1961	NORTH EAST_MD
-76.549687	69	ORANGEVILLE_MD	14810	BALTIMORE BRICK CO.	ORANGEVILLE	MD	Y	216	1884	1909	ORANGEVILLE_MD
-75.599369	26	SALISBURY_MD	9935	SALISBURY BRICK CO INC.	SALISBURY	MD	Y	23	1902	1981	SALISBURY_MD
-76.823862	210	SAVAGE_MD	30792	HARBISON-WALKER REF.CO.	SAVAGE	MD	Y	573	1954	1963	SAVAGE_MD
-77.820551	410	WILLIAMSPORT_MD	1075	CUSHWA,VICTOR & SONS	WILLIAMSPORT	MD	Y	474	1906	1990	WILLIAMSPORT_MD
-78.915023	1601	ZIHLMAN_MD	1081	BIG SAVAGE REFRactories CO.	ZIHLMAN	MD	Y	573	1954	1958	ZIHLMAN_MD

"CITY\_ST" column from USGS shapefile.

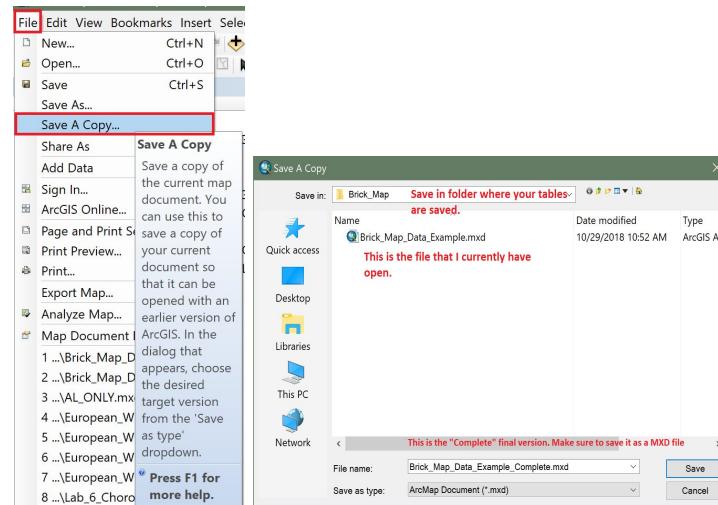
"CITY\_ST" column from condensed Marked Brick Manufacturers table.

The red rectangles show the two “CITY\_ST” columns, verifying the join was successful.

## Step 7

-After you verify the join was successful, close out of the USGS shapefile’s attribute table.

-Save the ArcMap Document one final time (click the **Floppy Disk icon**). Then save a “final” copy of your ArcMap Document (10.5 mxd extension, which should be default if you’re using ArcMap 10.5), by going to **File > Save A Copy**. Save your “final” copy in your directory where your tables are saved (in my example, all of my file are saved in a folder called **Brick\_Map**.

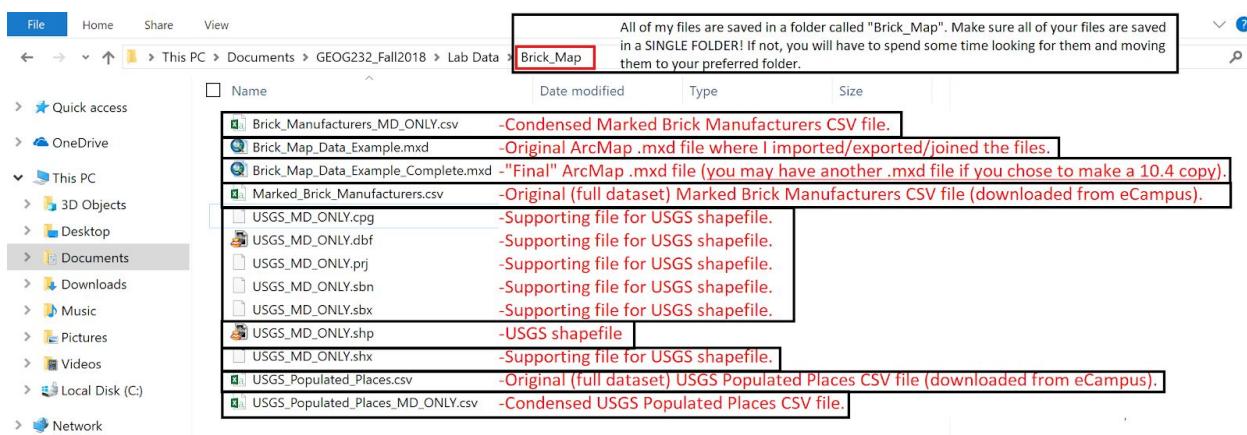


If you want to be extra cautious, you can also save a copy as an ArcMap 10.4 mxd file in case you need to work on another computer. If you need to fix any errors, delete the “final” .mxd file and update your original 10.5 file (in my example, I would delete

**Brick\_Map\_Data\_Example\_Complete.mxd** and update **Brick\_Map\_Data\_Example.mxd**, then once I update that file I would save a new “final” copy. Your table join will remain after closing out of your ArcMap document and opening it later.

## Step 8

-Once you saved and created copies of your ArcMap Document, close out of ArcMap. Finally, move all of your files to an external device or upload them to your TAMU Google Drive. This way, your files won't be tied to just one computer. If you save all of your files in one folder from the start, this procedure is much easier to do. There should be a total of 13 files you need to have saved in the same folder and moved to your External Device or Google Drive. The screenshot below shows which files you should have.



\*Your files may have different names so I provided short descriptions for each one to help you.

Here's a checklist if you want to use it:

- Your original Marked Brick Manufacturers CSV file. (1)
- Your original USGS Populated Places CSV file. (2)
- Your condensed Marked Brick Manufacturers CSV file. (3)
- Your condensed USGS Populated Places CSV file. (4)
- Your original ArcMap 10.5 .mxd file where you imported/exported/joined the files. (5)
- Your USGS shapefile (.shp) and its supporting files of the same name with these extensions:
  - cpg, .dbf, .prj, .sbn, .sbx, .shx (6-12)
- Your "final" ArcMap 10.5 .mxd file copy. (13)
- (Optional: your ArcMap 10.4 .mxd file copy). (14)

-Once you have these 13 files in a single folder, upload the folder to your Google Drive and/or copy it to your external device! **You will show your TA these files at lab next week!**

**IT IS VERY VERY IMPORTANT THAT YOU RETAIN THESE FILES! WITHOUT THEM, YOU NOT BE ABLE TO CORRECTLY DISPLAY THE DATA ON YOUR FINAL MAP.**

**Rubric:**

Your TA will use these guidelines to determine your grade.

Files: -Does student have all 13 files?	15 pts.
Joining of Files: -Did student join their USGS shapefile and their condensed Marked Brick Manufacturers table in ArcMap?	15 pts.
Displaying Data: -Did student successfully display their points in ArcMap?	10 pts.
Book questions: Are book questions correct? Are answers to book questions written in complete sentences?	5 pts.