

## Accessibility to Walmart Distribution Center Tutorial

This tutorial uses Walmart retailer stores and Walmart distribution center data to practice locating points, calculating influencing area, managing attribute table, tagging attribute, choosing subset, calculating distance matrix.

### 1. Locate Walmart distribution centers

(1) File -> Open -> Change file type as “Excel Worksheet” -> Open “Walmart Distribution Center.xlsx”



ID/Address	PostalCode
1 2200 7th Avenue SW, Callman, AL, 35055, USA	35055
2 5801 Southwest Regional Airport Boulevard, Bentonville, AR, 72712-9431, USA	72712-9431
3 405 E Booth Rd, Searcy, AR, 72143-8854, USA	72143-8854
4 24701 West Southern Avenue, Buckeye, AZ, 85326-4928, USA	85326-4928
5 21101 Johnson Road, Apple Valley, CA, 92307, USA	92307
6 1300 South F Street, Porterville, CA, 93257-5968, USA	93257-5968
7 10015 State Highway 99W, Red Bluff, CA, 96088, USA	96088
8 7500 East Crossroads Blvd, Loveland, CO, 80538, USA	80538
9 4860 Wheatley's Pond Rd, Smyrna, DE, 19877, USA	19877
10 10015 NW 115th Ave, Alachua, FL, 32615-6056, USA	32615-6056
11 5100 Kettering Road, Brooksville, FL, 34602-8311, USA	34602-8311
12 4001 S Jenkins Rd, Fort Pierce (St Lucie County), FL, 34981-4629, USA	34981-4629
13 1401 Baker Hwy W, Douglas, GA, 31533, USA	31533
14 305 Calloway Church Rd, LaGrange, GA, 30241, USA	30241
15 1501 E Mapleleaf Dr, Mt Pleasant, IA, 52641, USA	52641
16 3100 Illinois Highway 89, Spring Valley, IL, 61362, USA	61362
17 2100 East Tipton Street, Seymour, IN, 47274, USA	47274
18 3300 Highway K 68, Ottawa, KS, 66867, USA	66867
19 680 Crenshaw Blvd, Hopkinsville, KY, 42240, USA	42240
20 3160 Highway 743m Opelousas, LA, 70570, USA	70570
21 510 Jonesville Rd, Coldwater, MI, 49036, USA	49036
22 1100 Matlock Dr., St. James, MO, 65559, USA	65559
23 2200 & 2210 Manufacturers Blvd., Brookhaven, MS, 39601, USA	39601
24 1057 Sand Hill Road, Hope Mills, NC, 28348-9467, USA	28348-9467

(2) Tools -> Locate -> Locate by Address

Locate by Address (View: Walmart Distrib... ? x)

Data To Locate: Address | Postal Codes

Create Layer

Name: Walmart Distribution Center Layer

By locating: All Records

In Region: USA (HERE) - 2016 Quarter 4

Streets/Index: HERE Streets (USA, October 2016)

Input Fields

Record ID: ID

Address Fields: Address

(continued):

ZIP Code: PostalCode

Mode:  Automatic  Ask if Uncertain

OK Cancel

Only 27 out of 42 distribution centers are located by address.

Locate by Address Results ? x

Results	Number of Records
Total Records Examined	42
Records Located	27
Records Not Located	15
Records with Invalid IDs	0
Street Addresses	42
Intersections	0

OK

### (3) Tools -> Locate -> Locate by ZIP Code

Locate By ZIP Code (View: Walmart Distribution) ? x

Create Layer

Name: Walmart Distribution

Region: USA (HERE) - 2016 Quarter 4 ...

Using

Records: Address Not Found v

ID Field: v

ZIP Code Field: PostalCode v

Locate Records

Centered at the ZIP Code point

Scattered Evenly inside the ZIP Code area

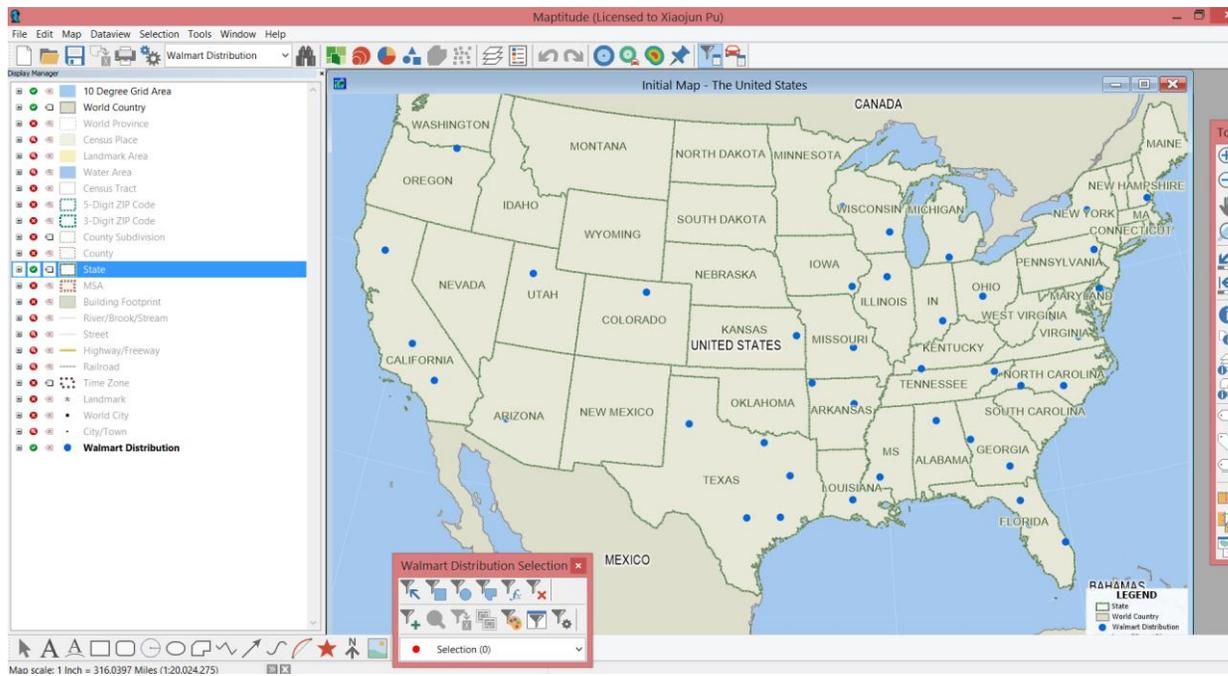
Scattered within 1 Miles v of the ZIP Code

OK Cancel

Locate By ZIP Code (View: Walmart Distribution) Results ? x

Results	Number of Records
Total Records Examined	15
Records Located	15
Records Not Located	0
Records with Invalid IDs	0

OK



## 2. Calculate area of influence around Walmart distribution centers

### (1) Tools -> Analysis -> Straight Line Influence Areas

**Straight Line Influence Areas (Layer... ?)**

Create Areas

Around: All Features (42)

Layer Name: Area of Influence

Options

Area Names From: ID

and: None

and:

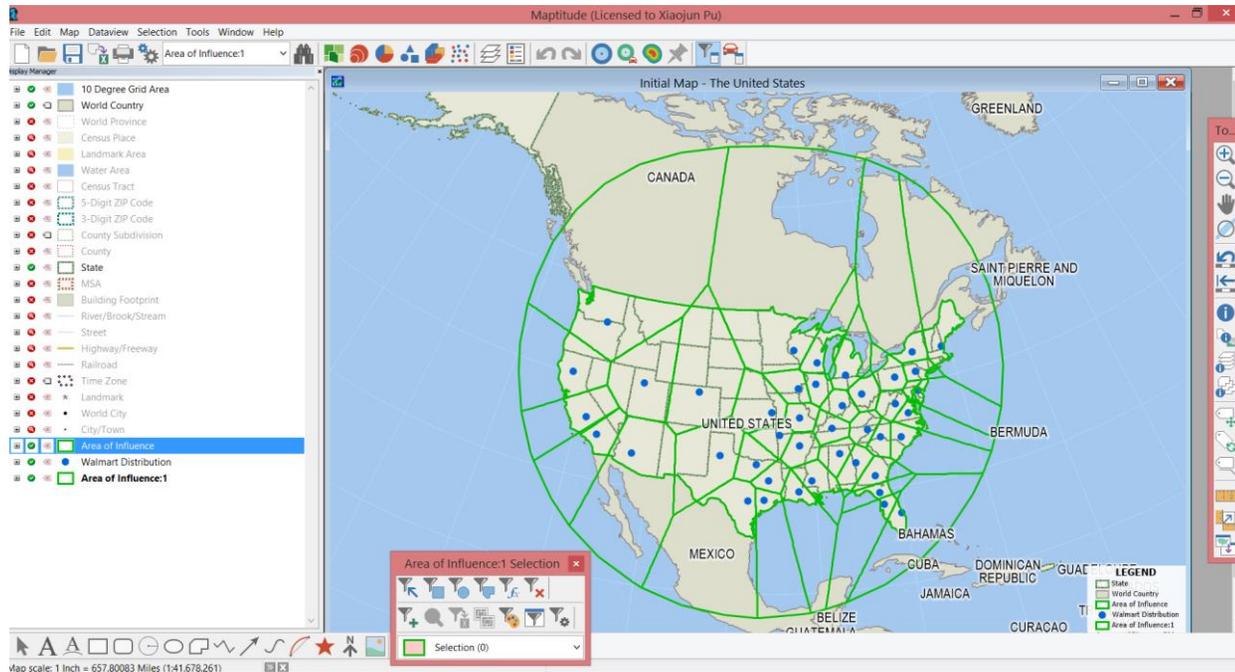
Calculate Demographics

Create Report Title: Influence Areas Report

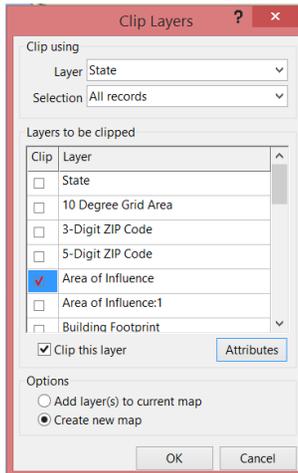
OK Cancel

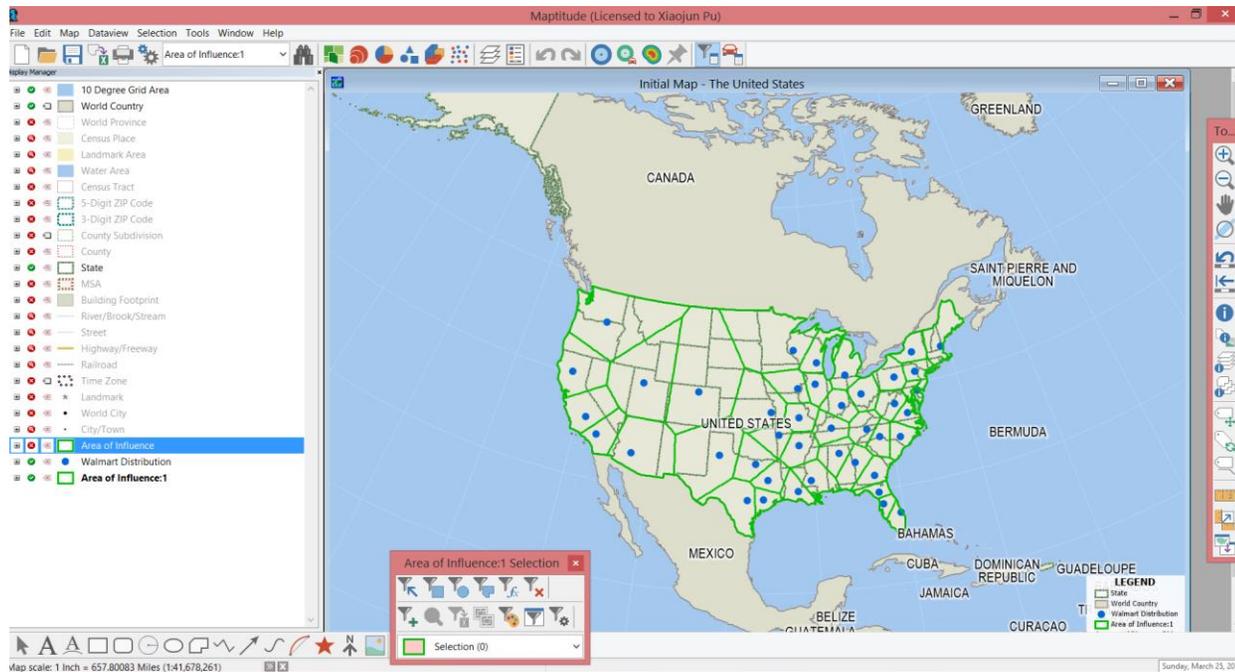
**Dataview3 - Area of Influence and Counts**

ID	Area	[ID:1][N US Census Overlay]	[Estimated Median HH_Income < \$10K]	[HH_Income < \$10K]	[HH_Income \$10K-14,999]	[HH_Income \$15K-2	
25	33064.73	25	1703	50122.70	219203.11	170297.84	3306
32	33659.05	32	1013	39962.19	161109.83	124750.60	2290
39	34580.60	39	1019	68274.33	99068.29	70137.83	1405
28	43782.34	28	2548	53062.57	312436.63	219556.91	4501
29	1310645.38	29	2581	60474.75	302367.10	213214.68	4501
30	235540.89	30	876	60375.42	68009.05	54447.32	1211
7	299451.06	7	2521	72302.57	233626.76	211166.97	3801
4	563158.75	4	1599	54237.08	194599.23	130480.90	2751
5	228317.67	5	5049	65805.33	469011.30	303484.62	7491
26	642739.94	26	2953	69206.06	296224.25	245909.81	4431
30	31482.61	30	6071	73734.20	641015.10	426725.57	8211
27	47742.81	27	1170	56146.63	115356.72	90385.12	1771
2	43939.22	2	848	46518.91	107207.23	87835.81	1711
22	41474.34	22	984	54346.76	125452.71	88958.67	1854
3	50650.23	3	913	45760.83	133128.67	98228.83	1831
19	43634.10	19	1143	49065.00	142792.45	104730.16	2071
34	38195.11	34	685	44802.99	83603.10	60560.66	1211
1	42995.36	1	1077	46713.33	158170.00	119129.14	2211
23	80105.96	23	1250	45033.00	192243.52	126980.74	2361
9	151464.50	9	3777	75233.84	347106.50	221725.82	4501
14	47250.16	14	1004	55074.46	250715.95	172336.74	3401
8	364519.30	8	1673	63087.31	152294.15	112172.40	2391
35	223447.44	35	1074	49035.01	120129.50	94567.33	1891



(2) Tools -> Editing -> Clip Layers

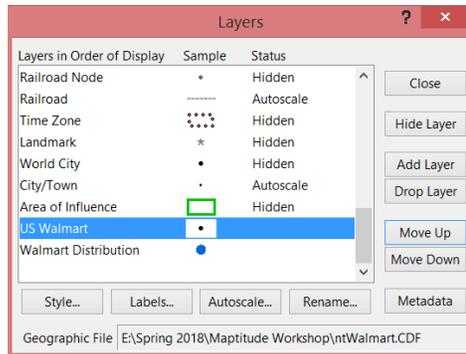




### 3. Import Walmart retailer stores

(1) File -> Open -> Change file type as "Geographic File" -> Open "nWalmart.Cdf"

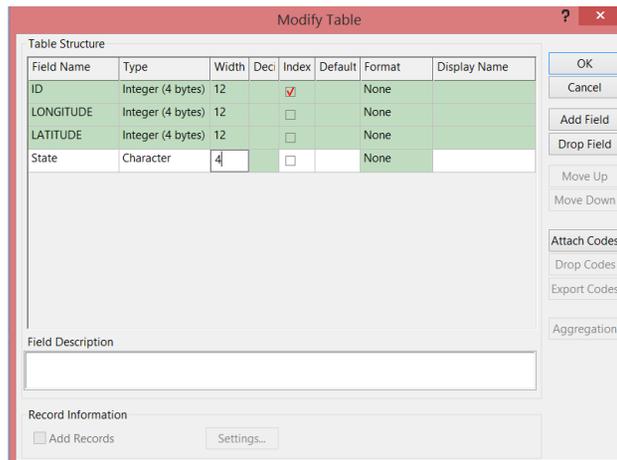
(2) Map Layers  -> choose "US Walmart" layer -> click "Move Up" to display Walmart distribution centers layer above Walmart retailer stores layer



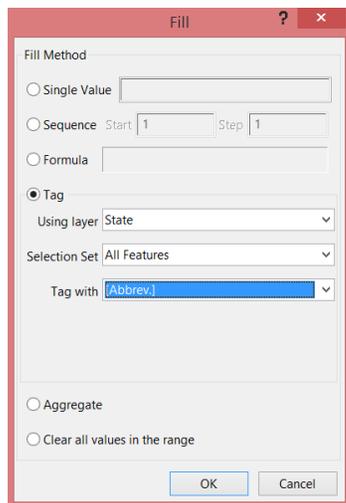
#### 4. Choose Walmart located in TX

(1) Choose “US Walmart” as the active layer from the drop-down list.

(2) Dataview -> Table -> Modify Table -> Add Field



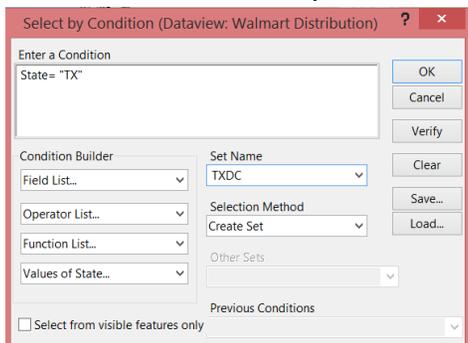
(3) Datiview -> New Datiview -> choose "state" column -> right click -> Fill -> Tag



(4) Choose "Walmart Distribution Center" as the active layer -> Tag state abbreviations to the layer

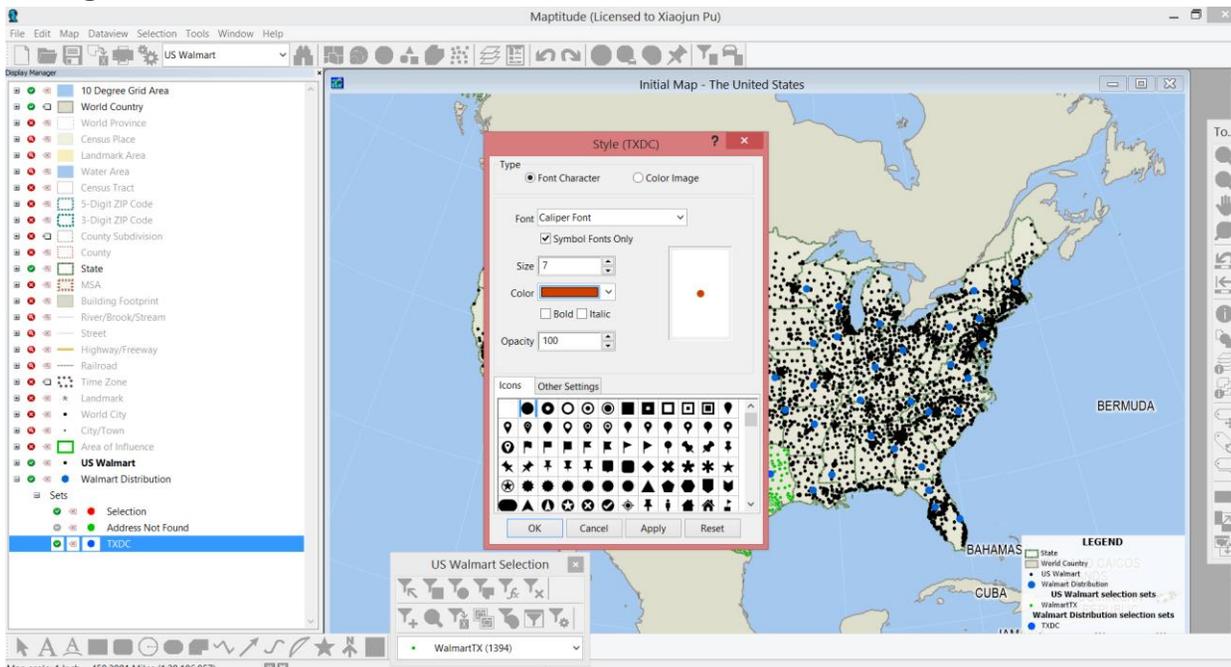
Longitude	Latitude/Address	PostalCode	State
-71163891	43035719 42 Freetown Road, Raymond, NH, 03077-2385, USA	03077-2385	NH
-75315174	43168556 0827 Old River Rd, Marcy, NY, 13403, USA	13403	NY
-78348108	41009760 100 Wal-Mart Dr. State Rte 970, Woodland, PA, 16881, USA	16881	PA
-75425101	41180919 300 Veterans Dr. Tobyhanna, PA, 18466, USA	18466	PA
-75626247	39289360 4860 Wheatley's Pond Rd, Smyrna, DE, 19977, USA	19977	DE
-78922063	38357768 6000 Walton Way, Mount Crawford, VA, 22841, USA	22841	VA
-77533653	37195147 21504 Cox Rd, Sutherland, VA, 23885, USA	23885	VA
-81533578	35309201 220 Wal-Mart Drive, Shelby, NC, 28150, USA	28150	NC
-78958483	34979282 1057 Sand Hill Road, Hope Mills, NC, 28348-9467, USA	28348-9467	NC
-84964986	33030252 385 Callaway Church Rd, LaGrange, GA, 30241, USA	30241	GA
-82862610	31500986 1401 Baker Hwy W, Douglas, GA, 31533, USA	31533	GA
-82542996	29761819 18915 NW 115th Ave, Alachua, FL, 32615-6056, USA	32615-6056	FL
-82220121	28503998 5100 Kettering Road, Brooksville, FL, 34602-8311, USA	34602-8311	FL
-80381969	27384055 4001 S Jenkins Rd, Fort Pierce (St Lucie County), FL, 34981-4629, USA	34981-4629	FL
-86845963	34142442 2200 7th Avenue SW, Cullman, AL, 35055, USA	35055	AL
-83023174	36203408 1655 Prottertown Rd, Midway, TN, 37809, USA	37809	TN
-90444531	31578650 2200 & 2210 Manufacturers Blvd., Brookhaven, MS, 39601, USA	39601	MS
-87476224	36730865 690 Crenshaw Blvd, Hopkinsville, KY, 42240, USA	42240	KY
-83103532	39892782 3880 Southwest Blvd, Grove City, OH, 43123, USA	43123	OH
-85849912	38957892 2100 East Tipton Street, Seymour, IN, 47274, USA	47274	IN
-84974569	41985599 510 Jonesville Rd, Coldwater, MI, 49036, USA	49036	MI
-91533261	40974119 1501 E Mapleleaf Dr, Mt Pleasant, IA, 52641, USA	52641	IA
-88800635	43505747 115 Distribution Way, Beaver Dam, WI, 53916, USA	53916	WI

(5) Selection -> Select by Condition

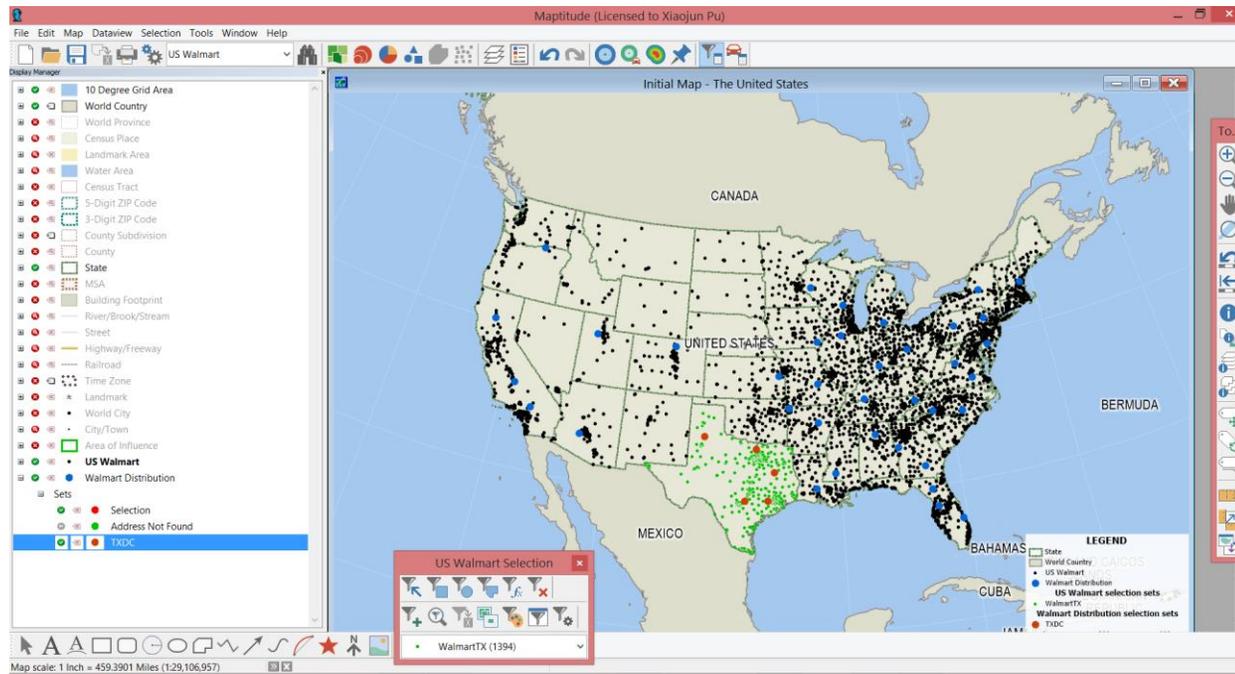


(6) Select Walmart retailer stores in TX

(7) Change color of selected sets



(8) The selected subset should be displayed as



## 5. Calculate distance matrix

(1) Tools -> Routing & Directions ->Distance and Travel Time Tables -> It takes about half hour for calculation

The dialog box 'Distance and Travel Time Tables' is shown with the following settings:

- Origins (From):** Layer: US Walmart, Selection: WalmartTX (1,394), Name: ID
- Destinations (To):** Layer: Walmart Distribution, Selection: TXDC (5), Name: ID
- Options:** Using: Distance, Skip calculation for Distance greater than: 1000 mi
- Output:** Matrix (selected), Open in Excel (checked)

The resulting distance matrix table is shown below:

ID	33	34	35	36	37
7801	184.5977	406.178	373.1634	399.2006	299.92
7809	184.5977	406.178	373.1634	399.2006	299.92
7817	184.5977	406.178	373.1634	399.2006	299.92
22833	256.0893	473.5872	643.2062	533.0977	326.5673
22841	256.0893	473.5872	643.2062	533.0977	326.5673
22849	171.3039	392.8843	430.8303	432.3895	286.6262
22857	171.3039	392.8843	430.8303	432.3895	286.6262
22865	171.3039	392.8843	430.8303	432.3895	286.6262
22873	145.2368	366.8172	456.9994	421.1243	259.5519
22881	145.235	366.8154	456.9977	421.1226	259.5501
22889	145.235	366.8154	456.9977	421.1226	259.5501
22897	110.3399	331.9203	410.3563	380.7317	225.6622
22905	110.3399	331.9203	410.3563	380.7317	225.6622
22913	110.3399	331.9203	410.3563	380.7317	225.6622
22921	189.5797	411.16	543.4244	465.4675	282.5892
22929	189.5708	411.151	543.4154	465.4585	282.5802
22937	189.5708	411.151	543.4154	465.4585	282.5802
22945	189.5708	411.151	543.4154	465.4585	282.5802
22953	186.8173	408.3976	540.662	462.705	277.037
22961	186.8173	408.3976	540.662	462.705	277.037
22969	186.8173	408.3976	540.662	462.705	277.037
22977	182.7497	404.3301	536.5945	458.6374	281.0707
22985	182.7497	404.3301	536.5945	458.6374	281.0707
22993	180.4497	402.0301	534.2946	456.3374	279.6699
23001	84.34583	305.9263	448.396	360.2333	199.258
23009	84.34583	305.9263	448.396	360.2333	199.258

(2) Use “=MATCH(MIN(B2:F2),B2:F2,0)” command in Excel to find the closest distribution center of each retailer store