

TAZ Delineation and Socioeconomic Data Input

By
Steven LaBedz

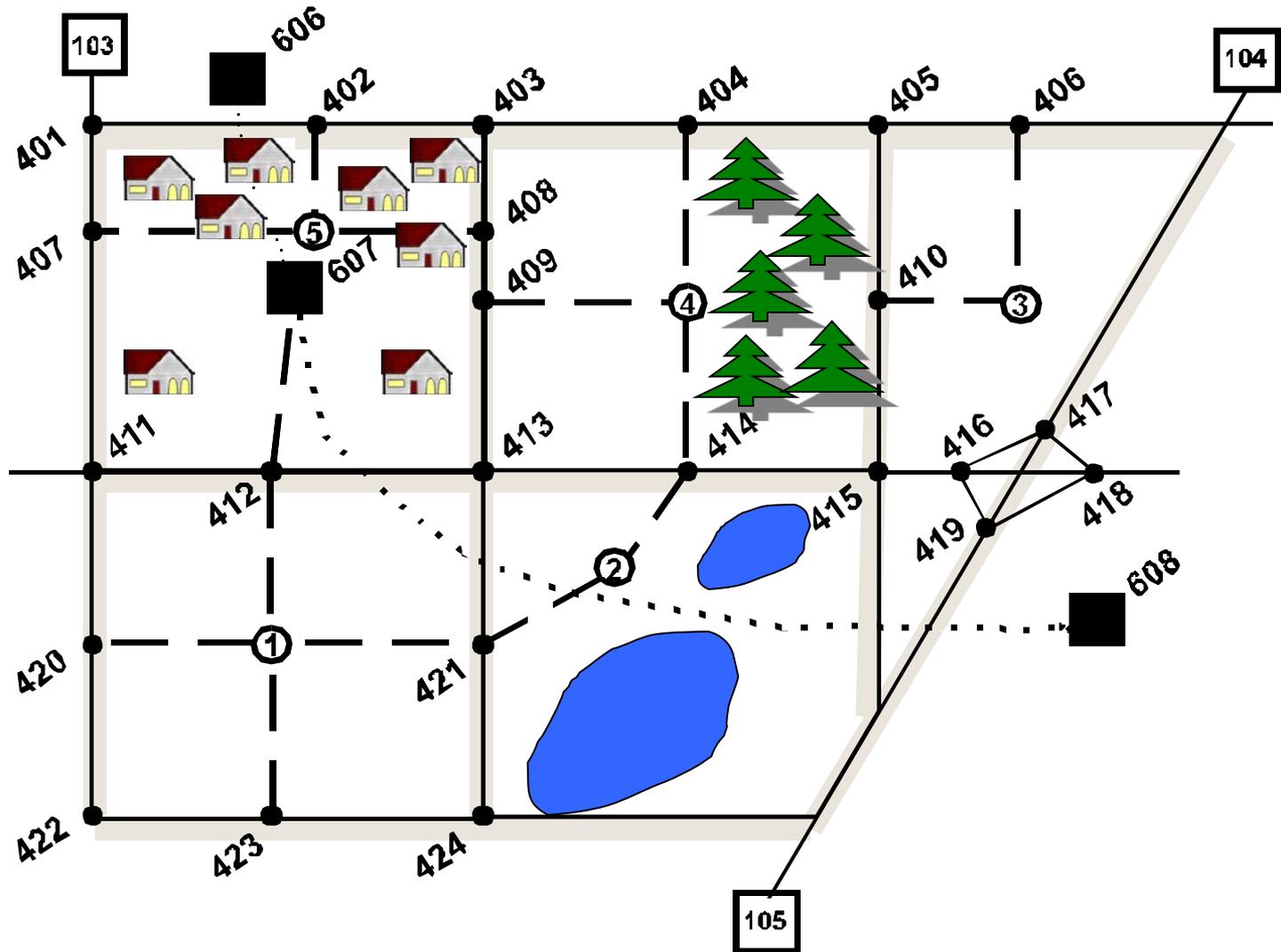
Overview

- What is a TAZ?
- Defining or Splitting a TAZ and/or Census Block
 - Data sources
 - Workspace
 - Duplexes, Multiplexes, and Apartments
- TAZ file from TAZ Block file
- TAZ Rules
- CTPP

What Is a TAZ

- TAZ: Traffic Analysis Zone
- A unit of geography in Travel Demand Models
- Bounded by:
 - Built environment (highways, railroads, etc...)
 - Natural features (bodies of water)
 - Political boundaries
 - Land use or
 - Other Special cases
- Sometimes a boundary is determined by the modeler to split different land uses up based on where the access is

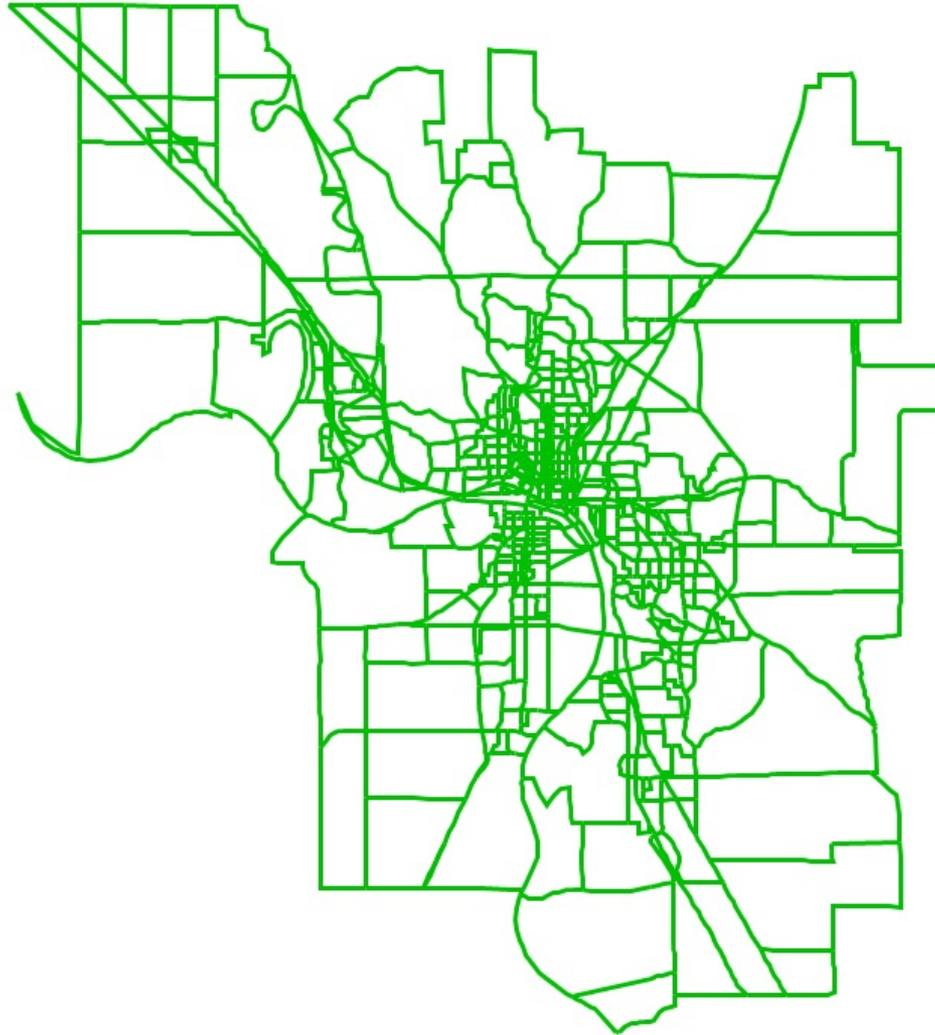
What is a TAZ



2010 TAZs Before Update

- 2007 TAZs with Jefferson, SD
 - Jefferson, SD- Community in SIMPCO MPO
- Total of 552 TAZs
- Some were deemed too large
- Some were not drawn correctly

2010 SIMPCO Model TAZs Before Update



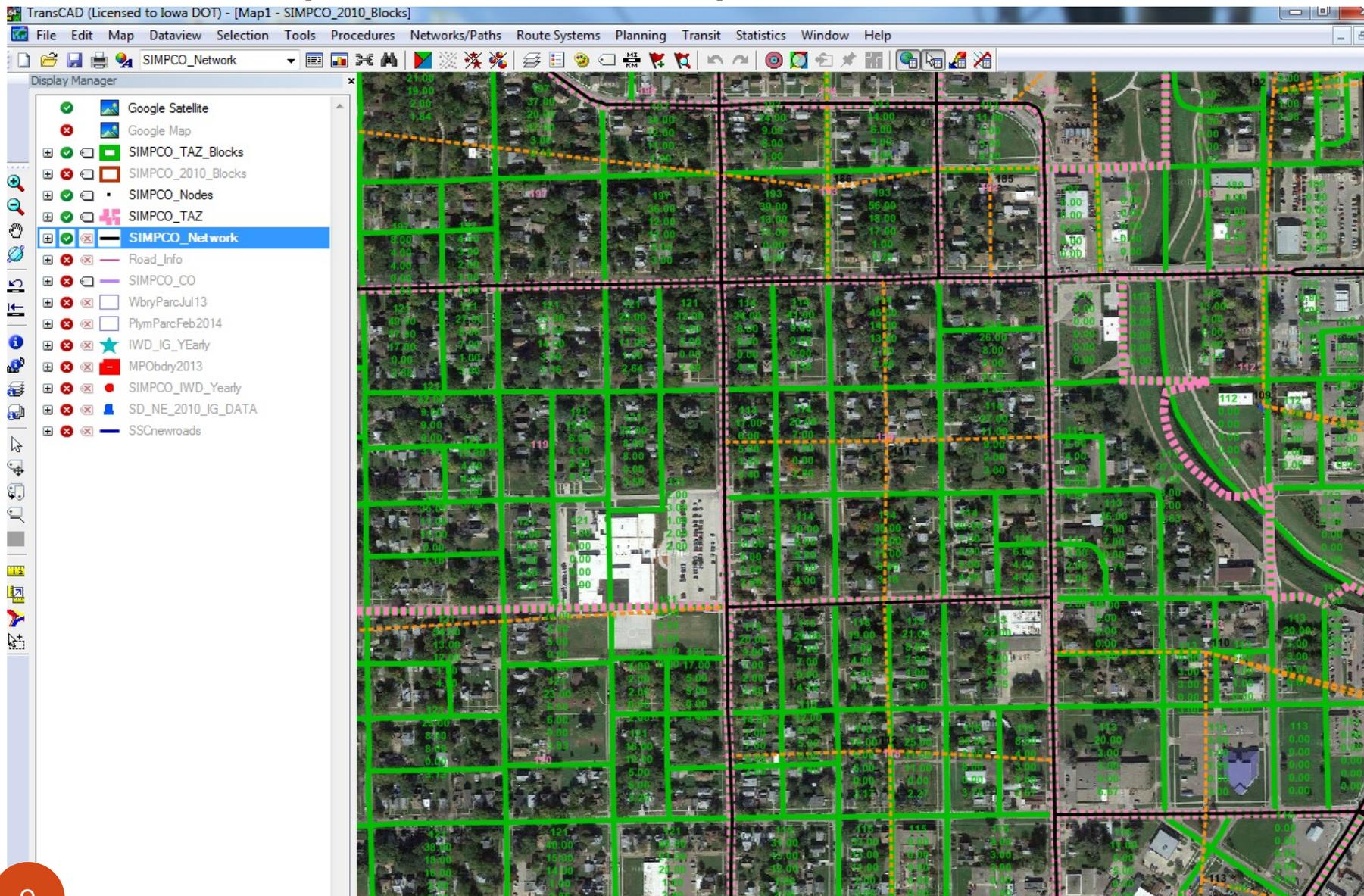
Where to Begin

- Import a Census Block file
 - That includes the entire model study area
 - This makes it easier to split a TAZ
 - Save as a standard geographic file, so you can edit it (SIMPCO_TAZ_Blocks)
- Import Your network
 - Existing and planned roads
 - Other Road related files with FFC, AADT, etc...
- Import other supplemental files:
 - Employment Data
 - Parcel Data
 - Land Use Data
 - MPO Boundary
 - Aerial imagery (Google Maps/Satellite in TransCAD)
 - Building footprint data

TAZ Blocks

- Labeled with
 - TAZ Number
 - Manual input (add field)
 - Population
 - Households
 - Occupied Households
 - Vacant Households
 - People Per Household

TAZ Update Work Space



TAZ_BLOCK

TransCAD (Licensed to Iowa DOT)

File Edit Dataview Selection Tools Procedures Networks/Paths Route Systems Planning Transit Statistics Window Help

All Records

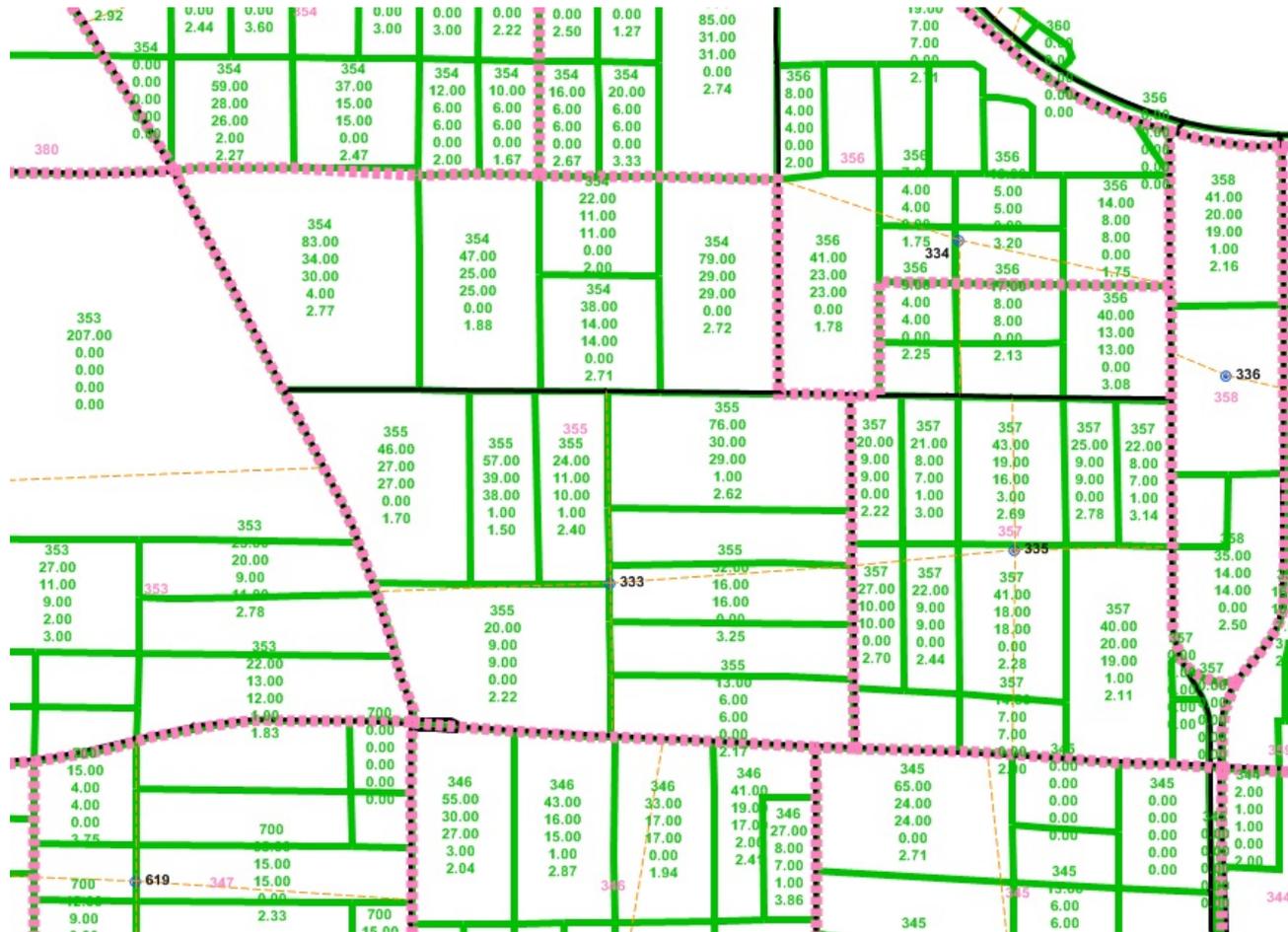
Map1 - SIMPCO_2010_Blocks

O_TAZ_Blocks

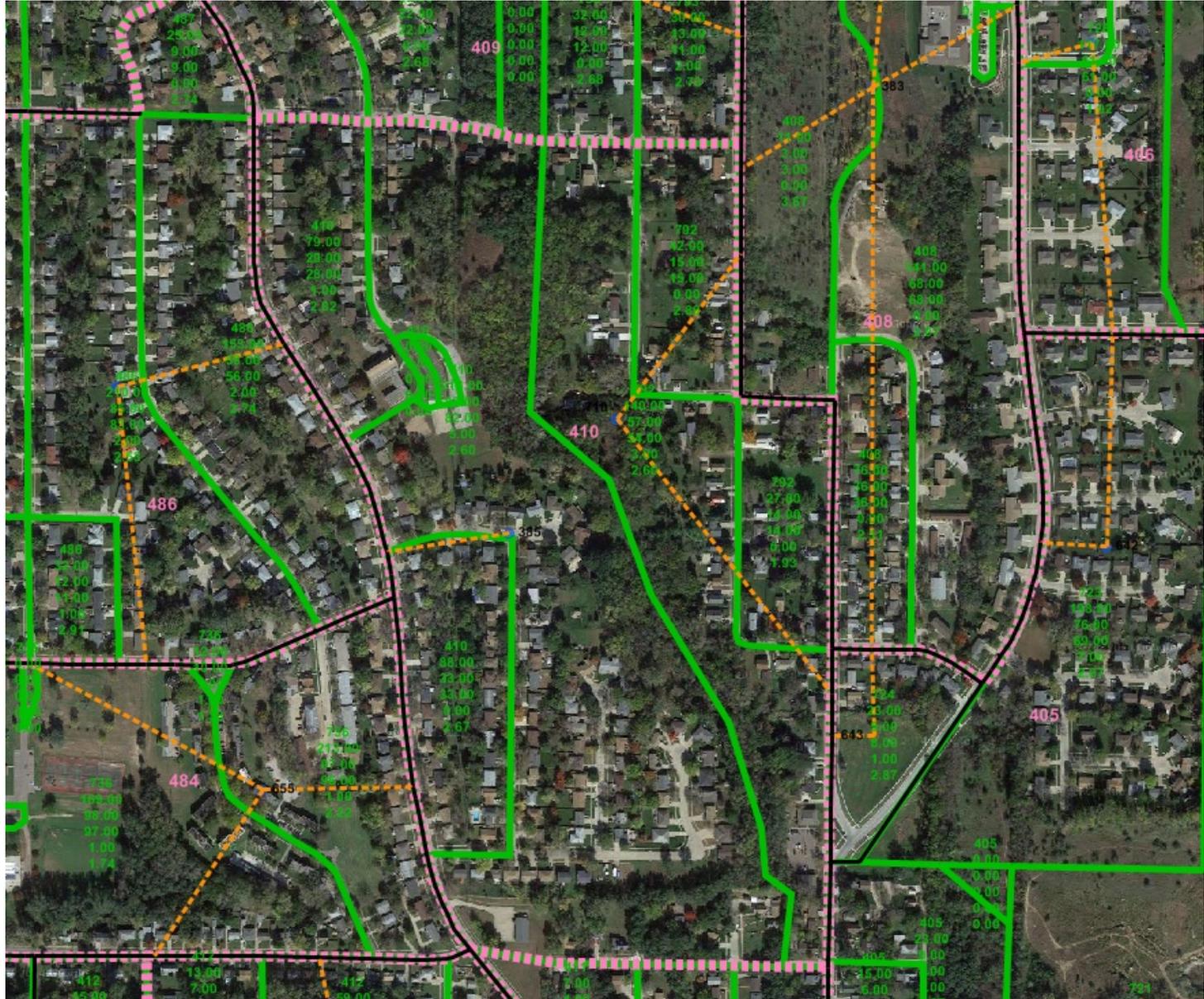
POP1WHT	POP1BLK	POP1NAMR	POP0THR	POPLATIN	POPPLATN	PCTBLACK	PCTLATIN	POPOVR18	POPUDR18	[2010_TAZNUM]	TAZ_UPDATE	TAZ_FLAG	TAZ_UPDATE_SHELL	TEMP_FLAG	EDIT_LOG
70.00	0.00	0.00	0.00	0.00	70.00	0.00	0.00	56.00	14.00	472	472	0	0	0	
37.00	0.00	0.00	0.00	0.00	37.00	0.00	0.00	30.00	7.00	472	823	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	429	822	0	0	0	
--	--	--	--	--	--	--	--	--	--	401	402	0	0	0	
5.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	2.00	3.00	472	823	0	0	0	
83.00	0.00	0.00	4.00	1.00	86.00	0.00	1.15	70.00	17.00	473	811	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	209	209	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	209	209	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	209	209	0	0	0	Split was do
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	209	209	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	206	206	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	206	206	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	206	206	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	206	206	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	206	206	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	436	436	0	0	0	
--	--	--	--	--	--	--	--	--	--	429	826	0	0	0	
--	--	--	--	--	--	--	--	--	--	479	479	0	0	0	
14.00	0.00	0.00	0.00	0.00	14.00	0.00	0.00	11.00	3.00	429	825	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17	17	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	209	209	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	429	822	0	0	0	
43.00	0.00	0.00	1.00	1.00	43.00	0.00	2.27	35.00	9.00	429	820	0	0	0	
6.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	2.00	4.00	429	822	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	429	822	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	206	206	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	206	206	0	0	0	
11.00	0.00	0.00	0.00	0.00	11.00	0.00	0.00	11.00	0.00	199	199	0	0	0	
6.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	3.00	3.00	199	199	0	0	0	
62.00	0.00	0.00	3.00	0.00	65.00	0.00	0.00	52.00	13.00	202	202	0	0	0	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	200	200	0	0	0	
54.00	1.00	1.00	3.00	8.00	51.00	1.69	13.56	47.00	12.00	200	200	0	0	0	

Aggregating Blocks or Splitting Old TAZs

- Sometimes splitting a TAZ requires a road to be added
- No blocks were split in this example



Splitting a Block



Splitting a Block

TAZ_Blocks_Control_Totals.xlsx - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Add-Ins ProjectWise

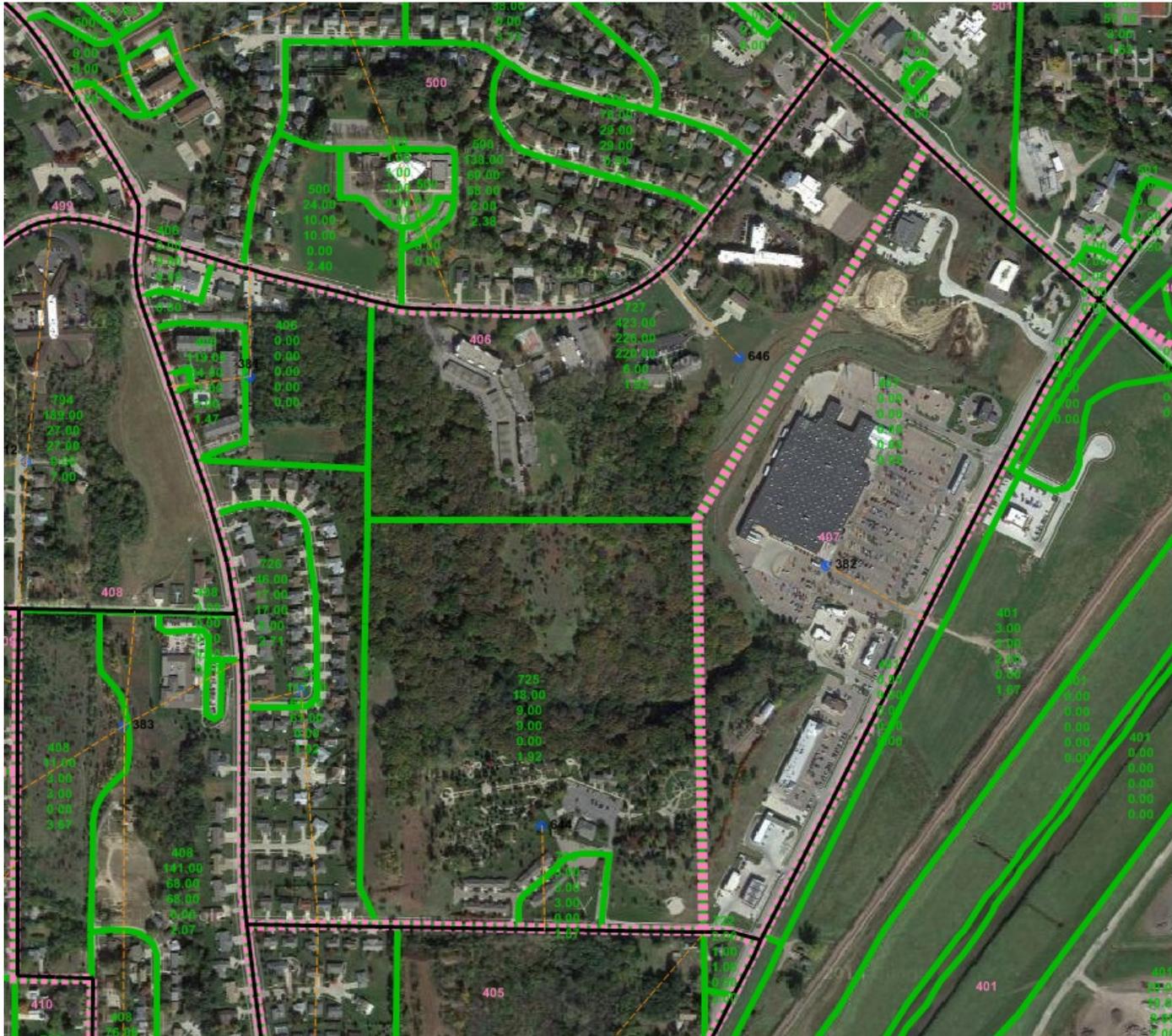
Clipboard Font Alignment Number Styles Cells Editing

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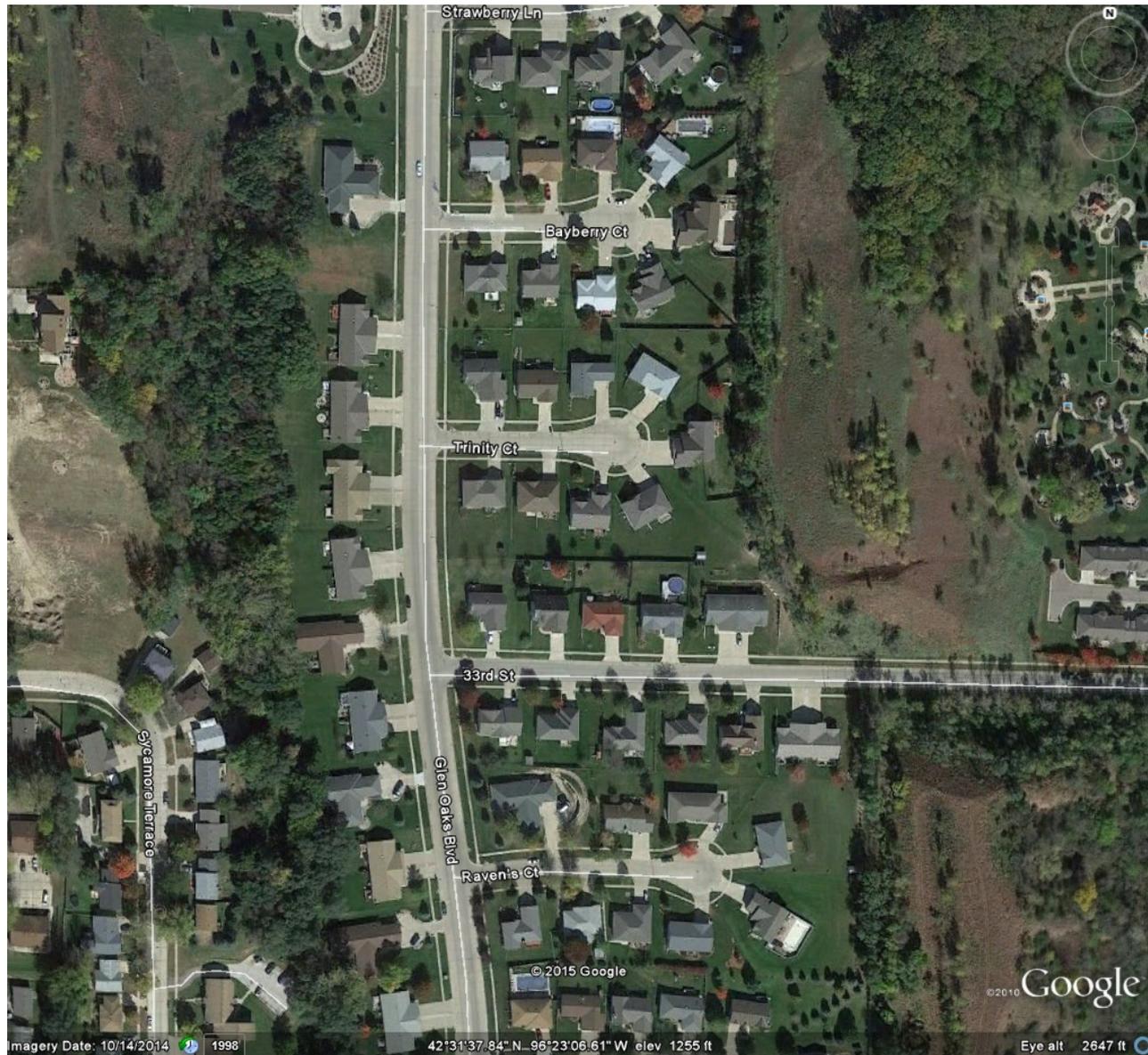
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		POPTOTAL	HHTOTAL	HHOCC	HHVAC	POPOCDU				Adjustment Table Key								
2	Iowa	91376.26	36582.72	34627.82	1954.89	7007.48				Input from TAZ_Block File in TransCAD								
3	Nebraska	17902	6358	6045	313	1523.98				Manual Adjustment based off counting households from aerials and verification with parcel data								
4	South Dakota	7286	3075	2874	201	370.64				Calculation or reference fields								
5	Total	116564.26	46015.72	43546.82	2468.89	8902.1												
6																		
7																		
8																		
9		Initial Block	Adiust 1	Adiust 2	Adiust 3	Adiust 4	Adiust 5	Remainder	Difference	Checksum								
767																		
768																		
769	Block 1007	TAZ 410																
770																		
771	354	144	136	8	2.6													
772																		
773	POPTOTAL	354	140	214				0	354	0								
774	HHTOTAL	144	57	87				0	144	0								
775	HHOCC	136	54	82				0	136	0								
776	HHVAC	8	3	5				0	8	0								
777	POPOCDU	2.6	2.6	2.6				2.6	5.2	-2.6								
778																		
779	Avg HH Size	2.602941176																
780																		
781																		
782																		
783	Block 1001	TAZ 409																
784																		
785	72	30	30	0	2.4													
786																		
787	POPTOTAL	72	31	41				0	72	0								
788	HHTOTAL	30	13	17				0	30	0								
789	HHOCC	30	13	17				0	30	0								
790	HHVAC	0	0	0				0	0	0								
791	POPOCDU	2.4	2.4	2.4				2.4	4.8	-2.4								
792																		
793	Avg HH Size	2.4																
794																		
795																		

Block Split Check Road Add Pivot Census Blocks TAZ Blocks Census Blocks_SIMPCO

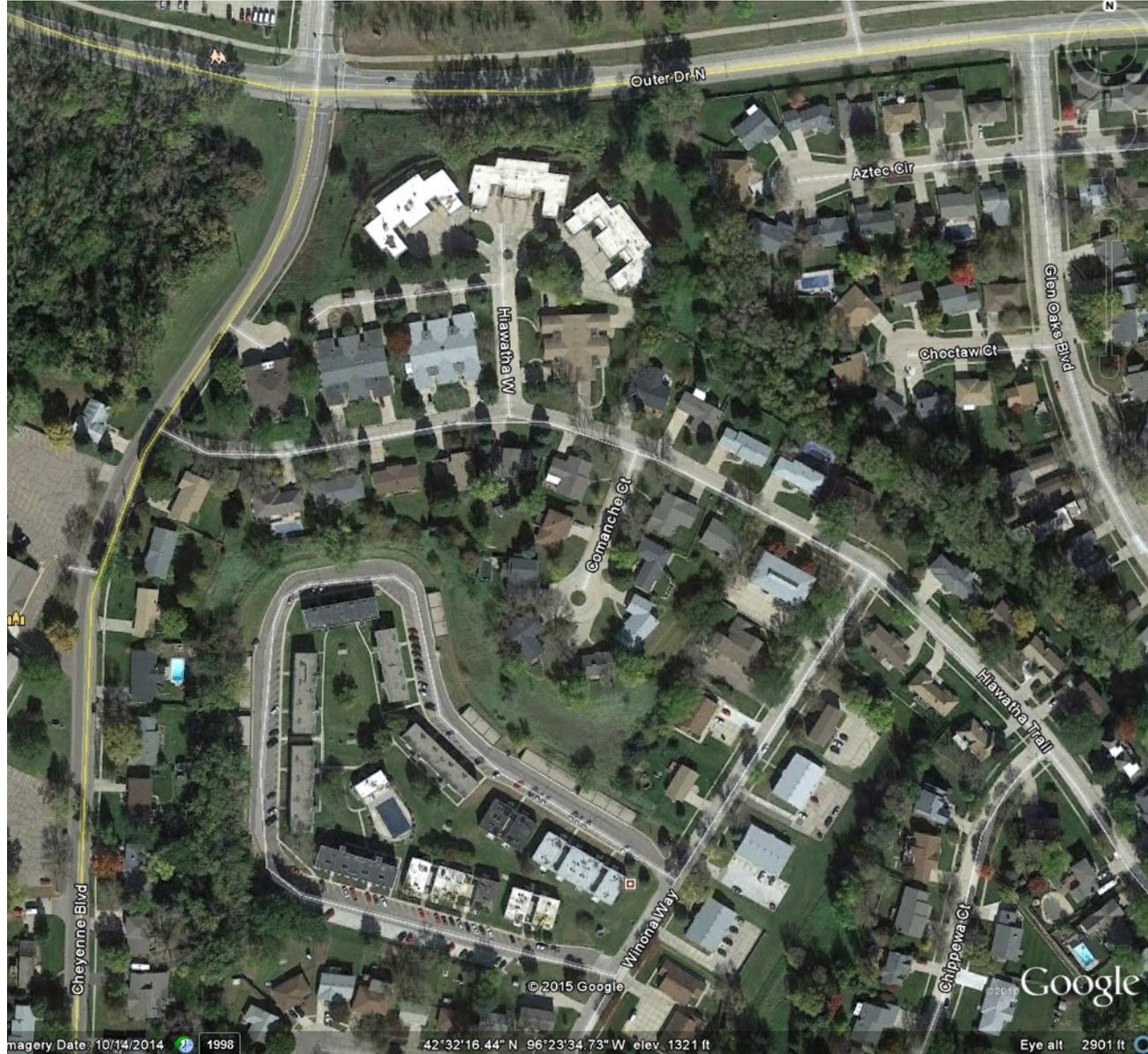
Splitting a Block



Beware of Duplexes!



Beware of Multiplexes!



Multiplex Streetview



How To Estimate Households in an Apartment Complex

- Google Maps or Streetview
- Google Earth Satellite
- Bing Maps Birds Eye View
- Apartment complex website
- Can Count:
 - Garages
 - Decks/Patios
 - A/C Units
 - Mailboxes (if applicable)
- Can't Count
 - Windows

Apartments Google Earth



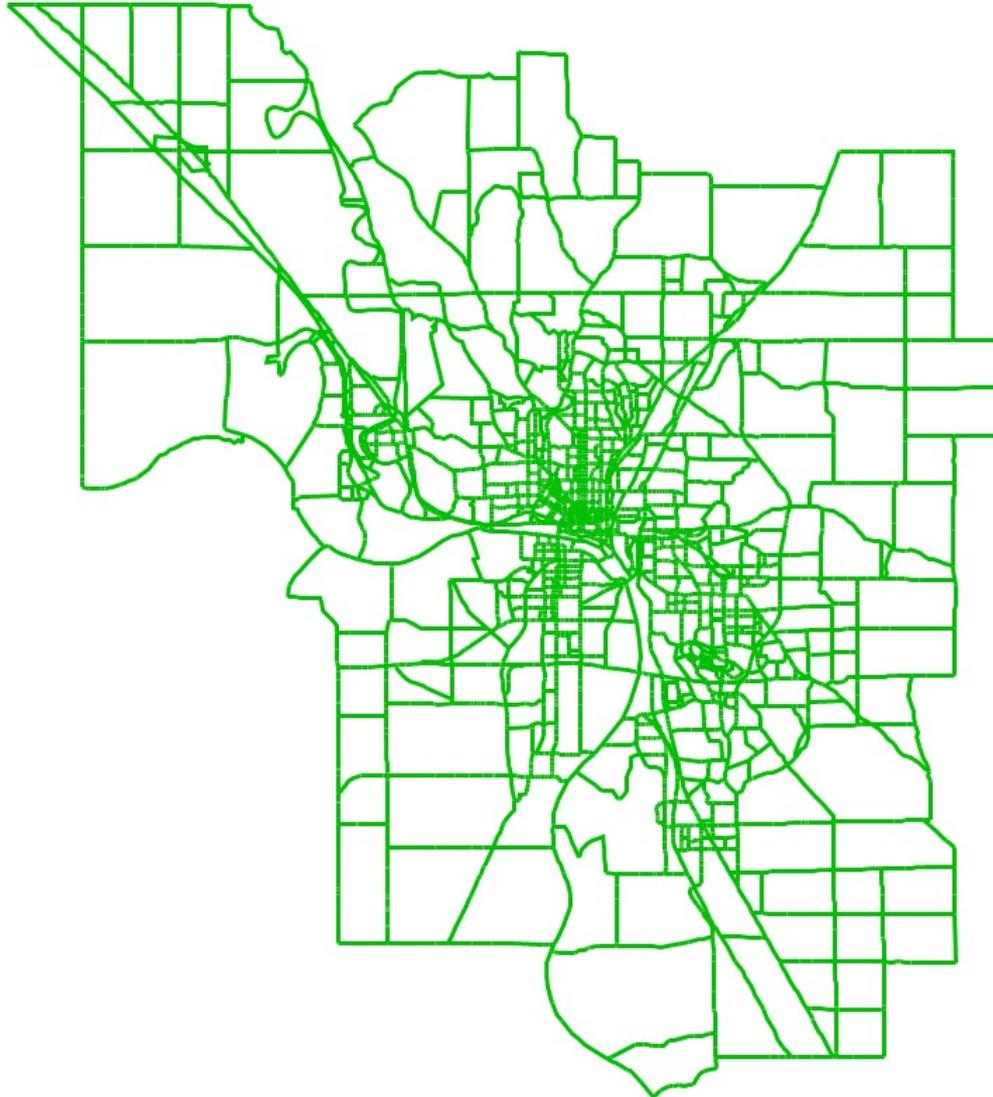
Apartments Bing Bird's Eye



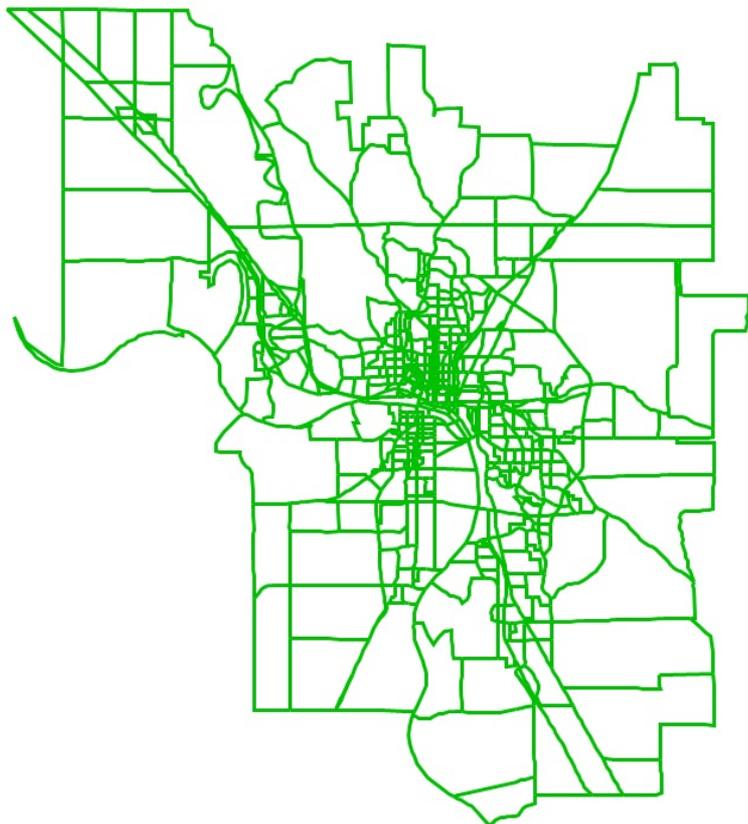
TAZ Block File

- After all the TAZs and Census blocks have been vetted, time to create the new TAZ file
- Objective: Aggregate Census Blocks by TAZ Number
 - Using the Merge by value tool in TransCAD
- This will create a new TAZ file based off of the new TAZ numbers defined in the TAZ Block file

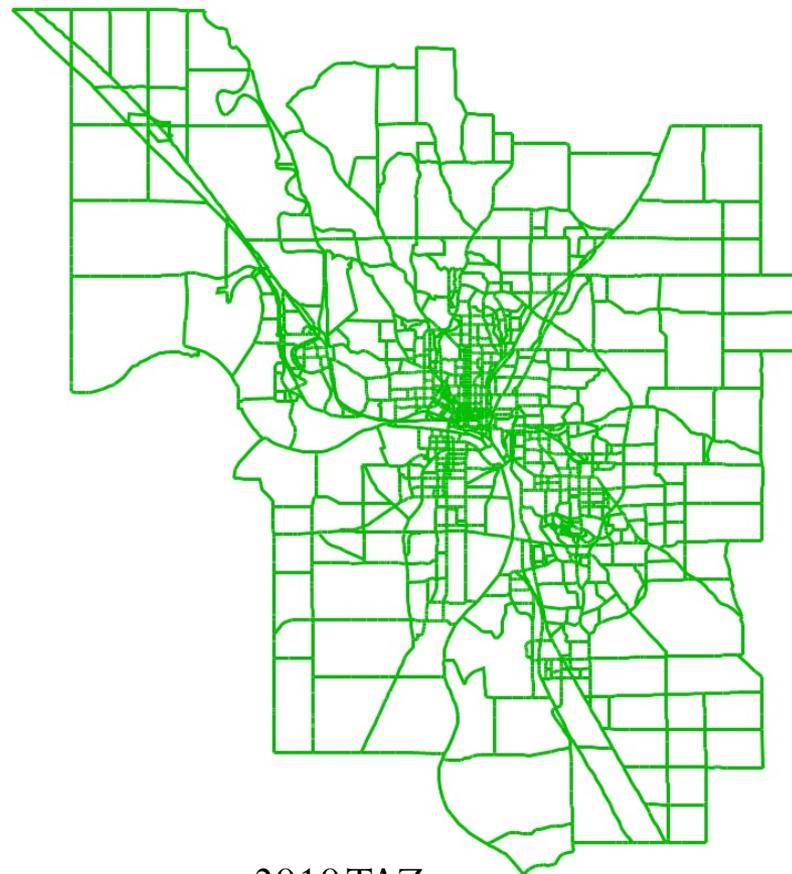
New TAZ File



2007 vs 2010 TAZ Files



2007-Based TAZs
Total TAZs= 552

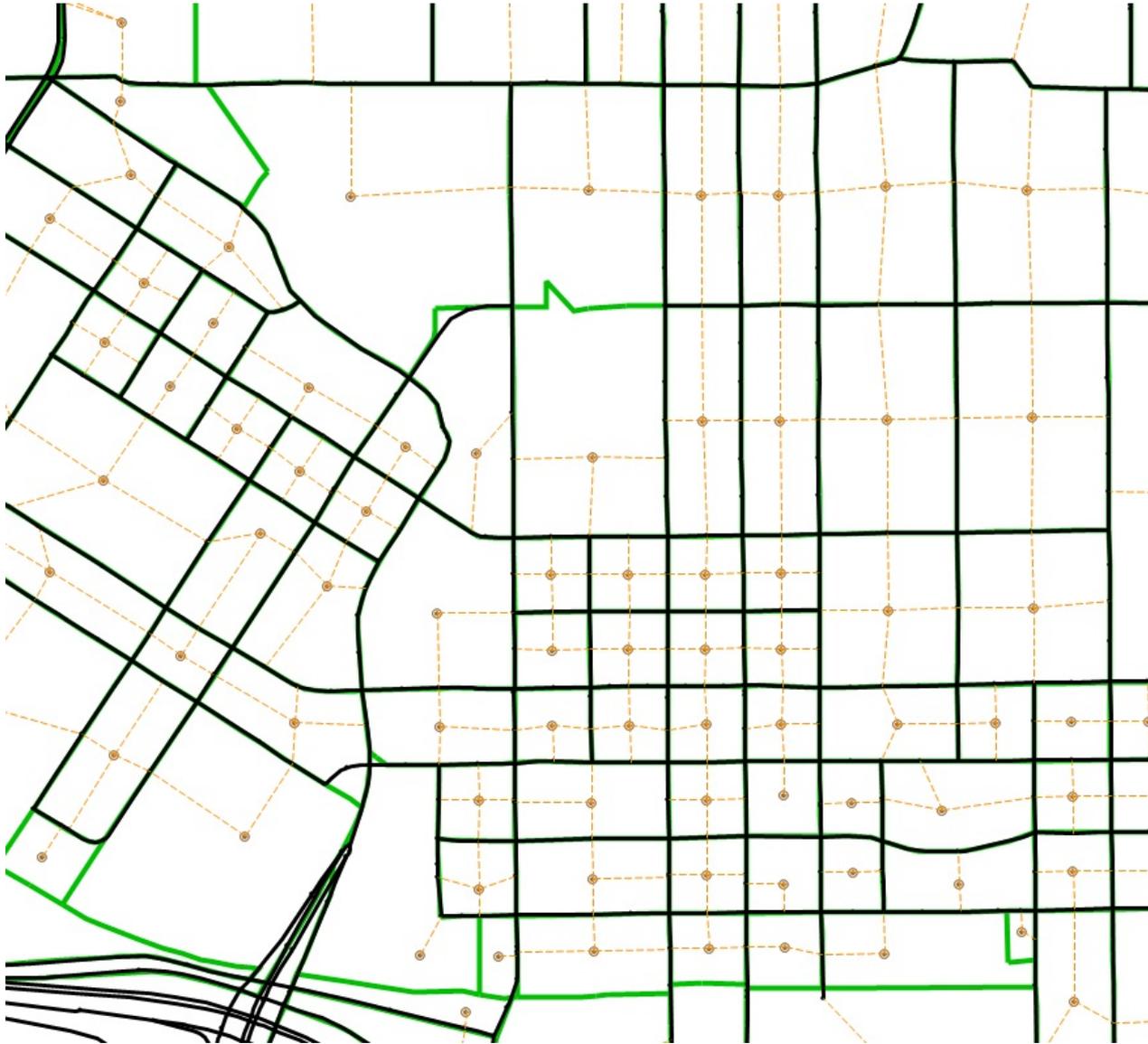


2010 TAZs
Total TAZs= 788

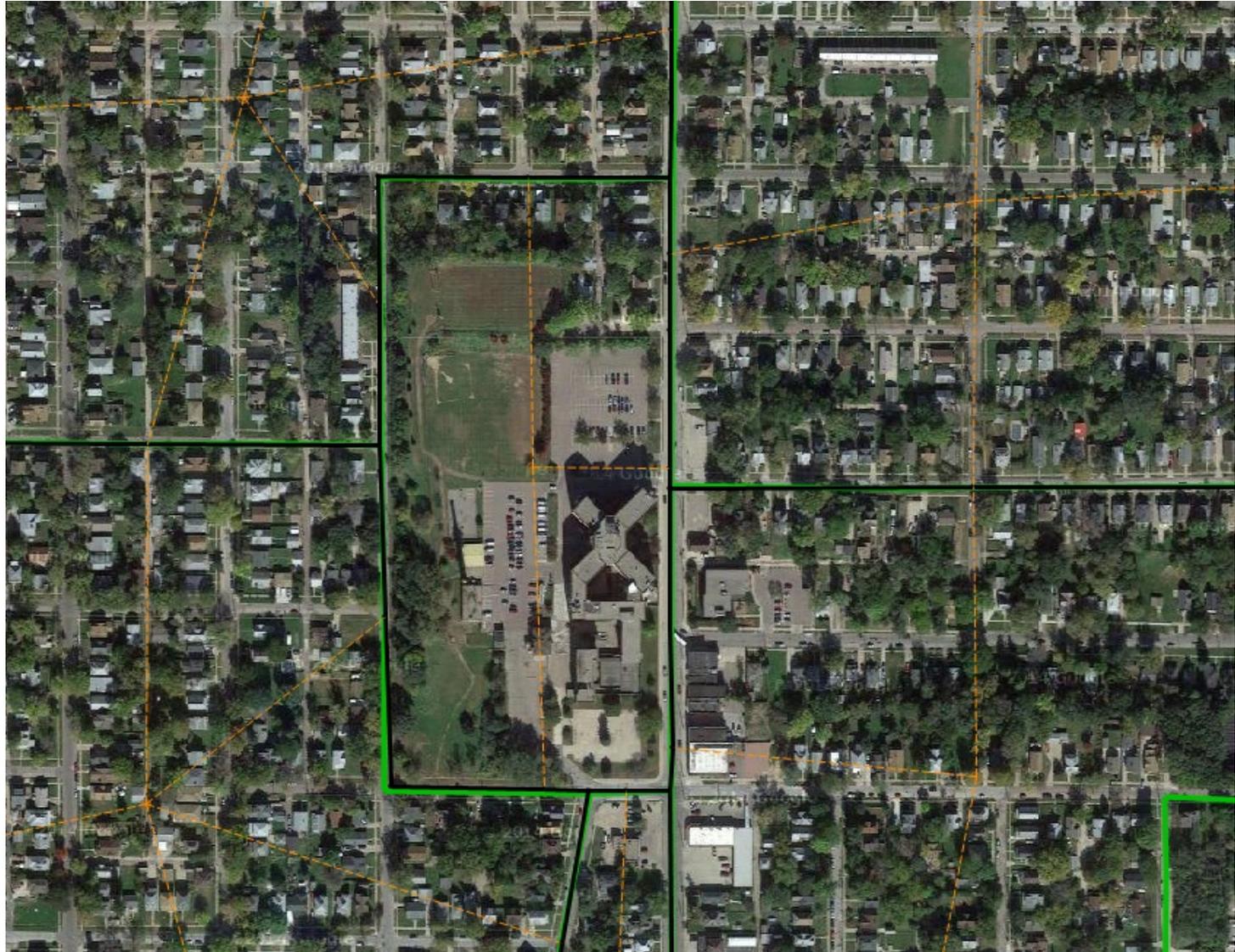
TAZ Rules To Adhere By:

- Should not have a road going through it
- In an MPO model, centroid connectors should not cross a TAZ boundary
- Should be bounded by roads on all sides, when applicable
- Best to be a square shape as opposed to rectangle or some other elongated object
- Use common sense when delineating a TAZ boundary
 - Where should it load from?

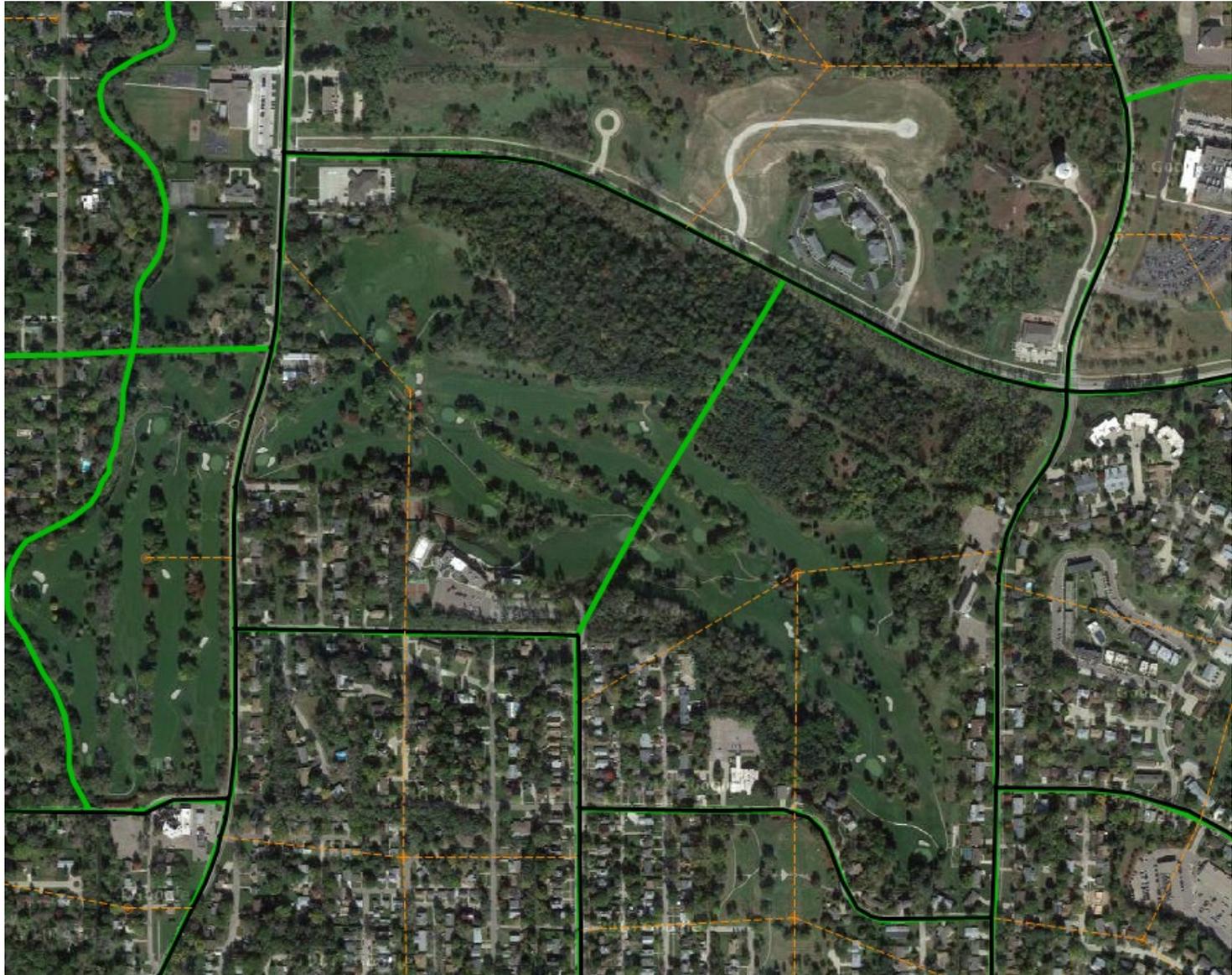
Hip to be Square!



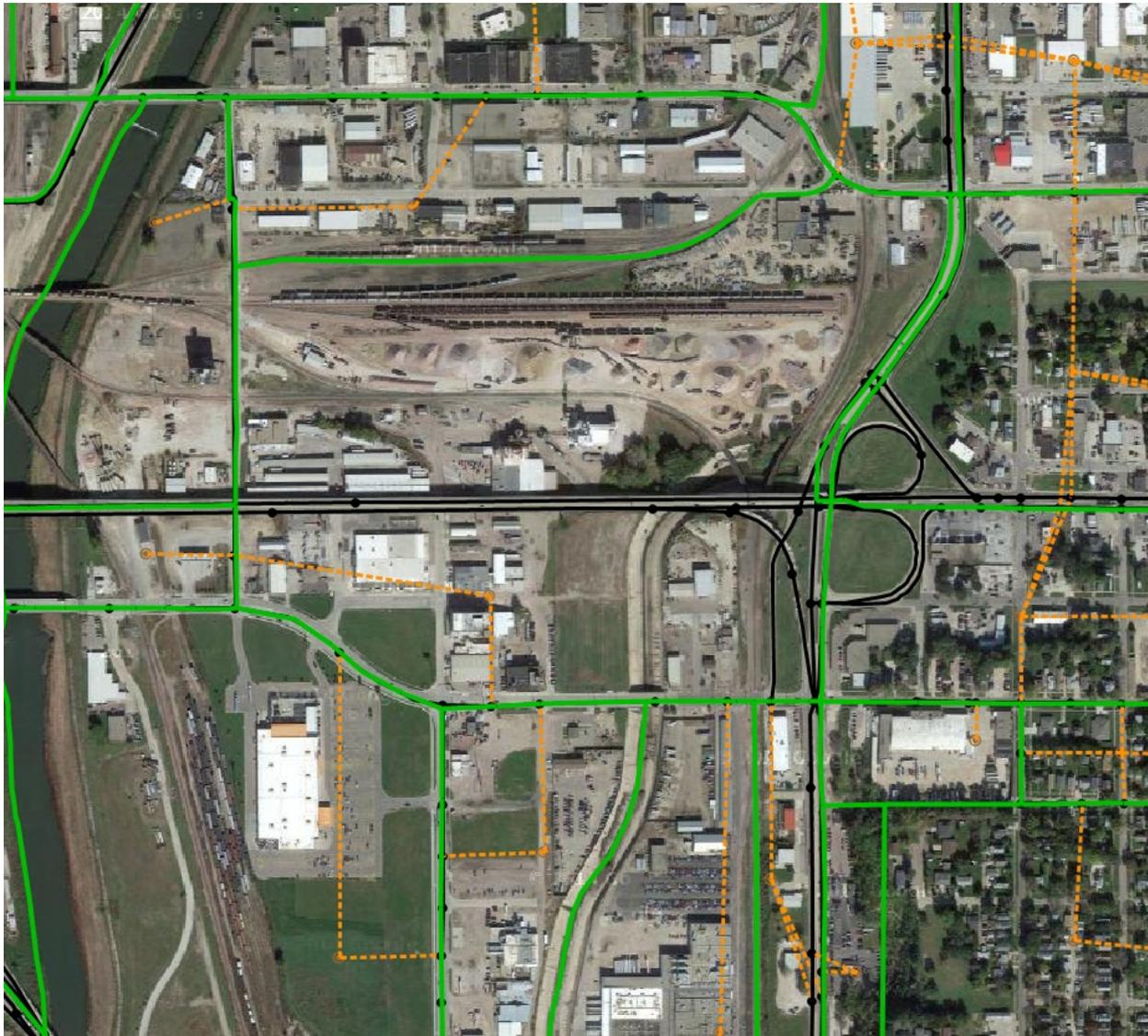
TAZ Loading



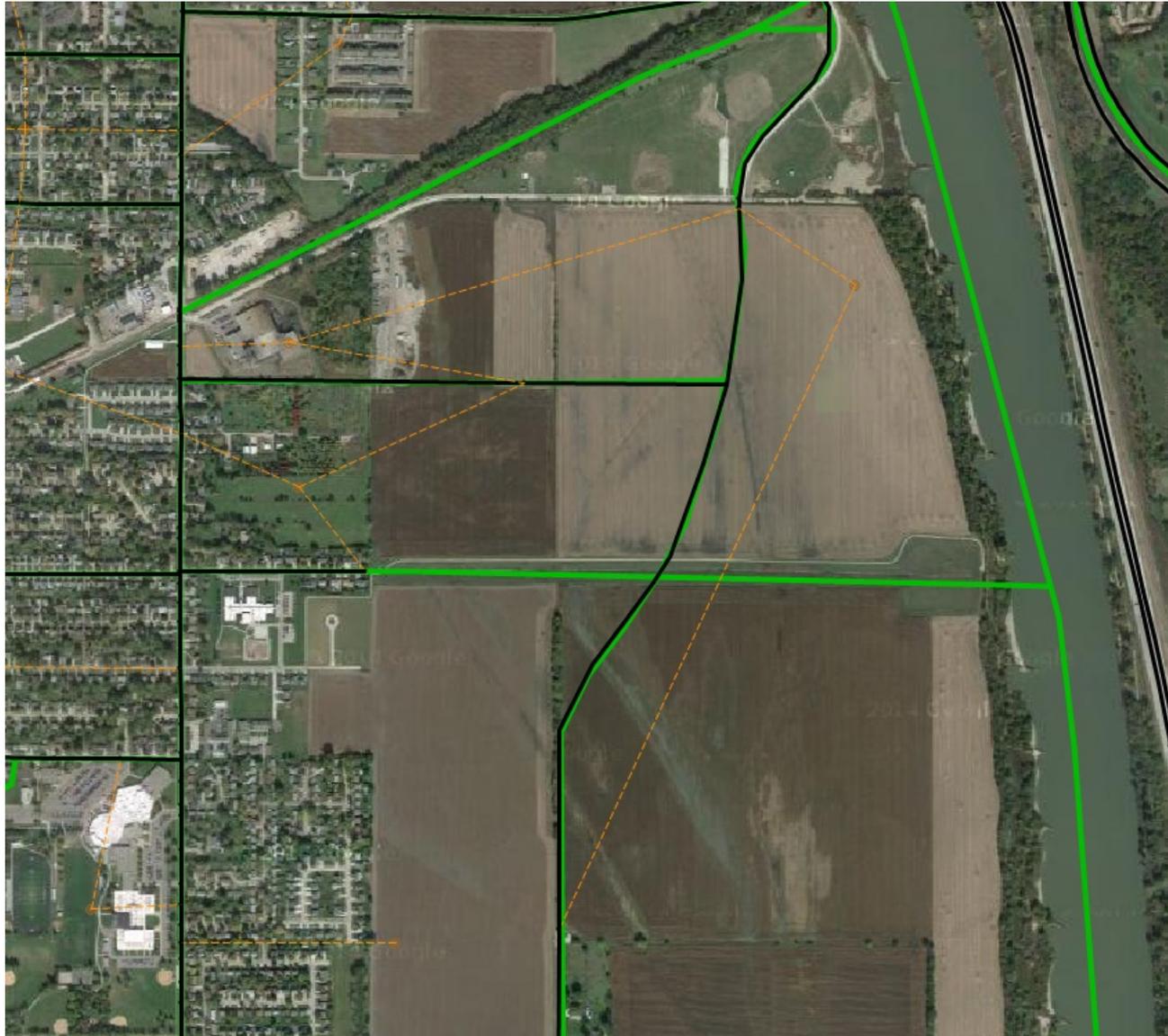
TAZ Loading



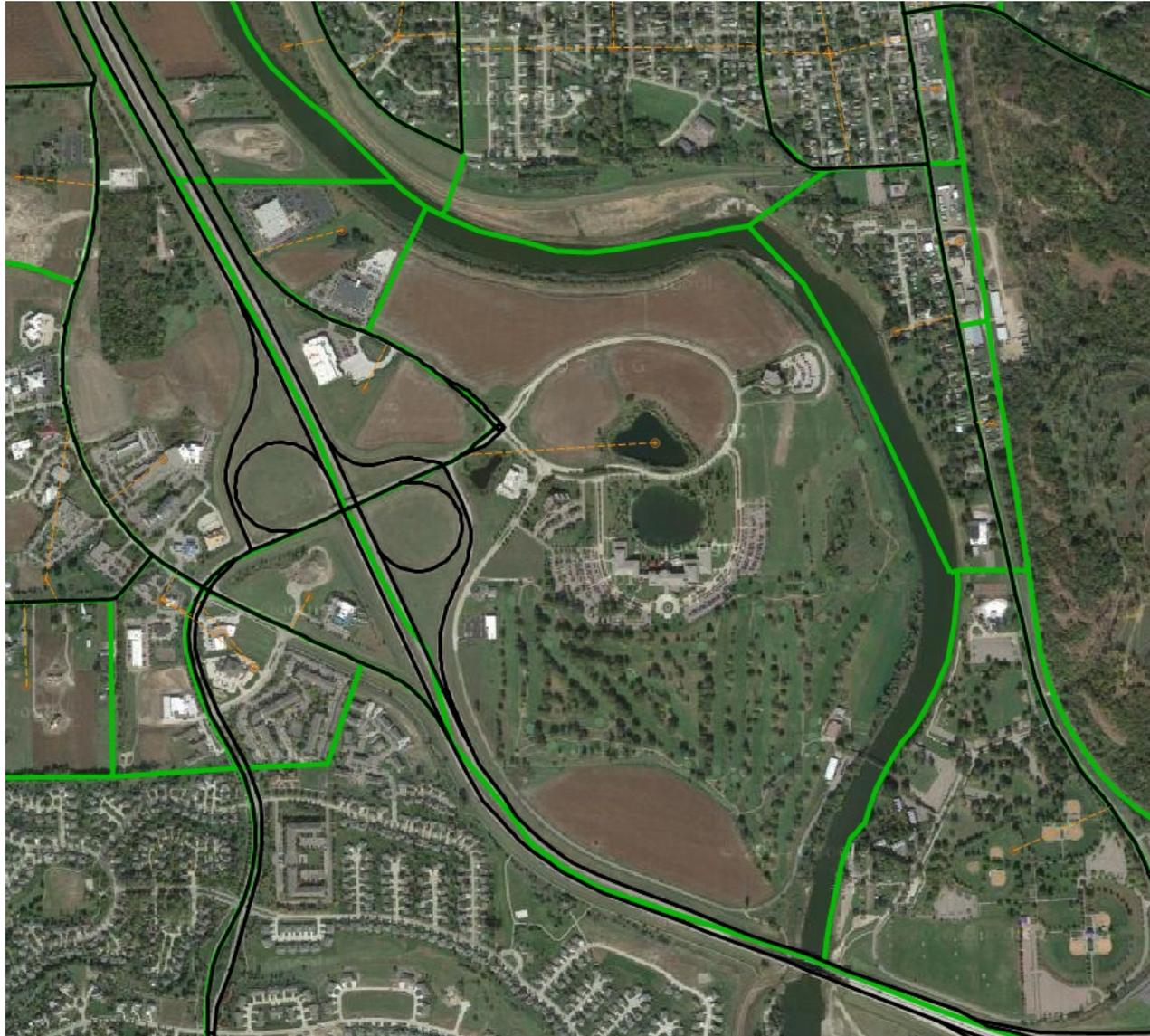
When Rules Can Be Broken



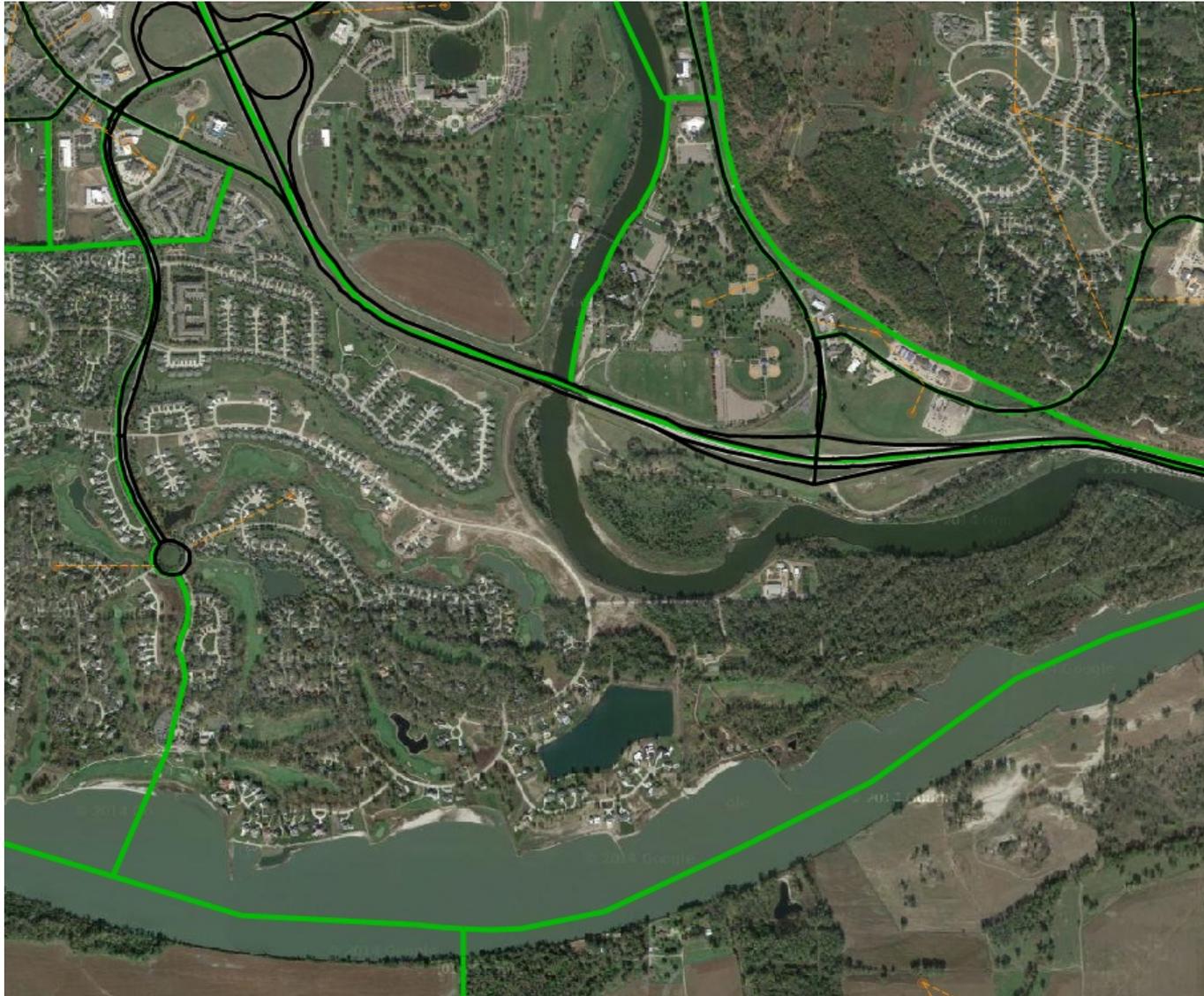
When Rules Can Be Broken



Splitting a TAZ During Calibration



Splitting a TAZ During Calibration



Cross Classification

A112211_SIMPCO_County.xlsx - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Add-Ins ProjectWise

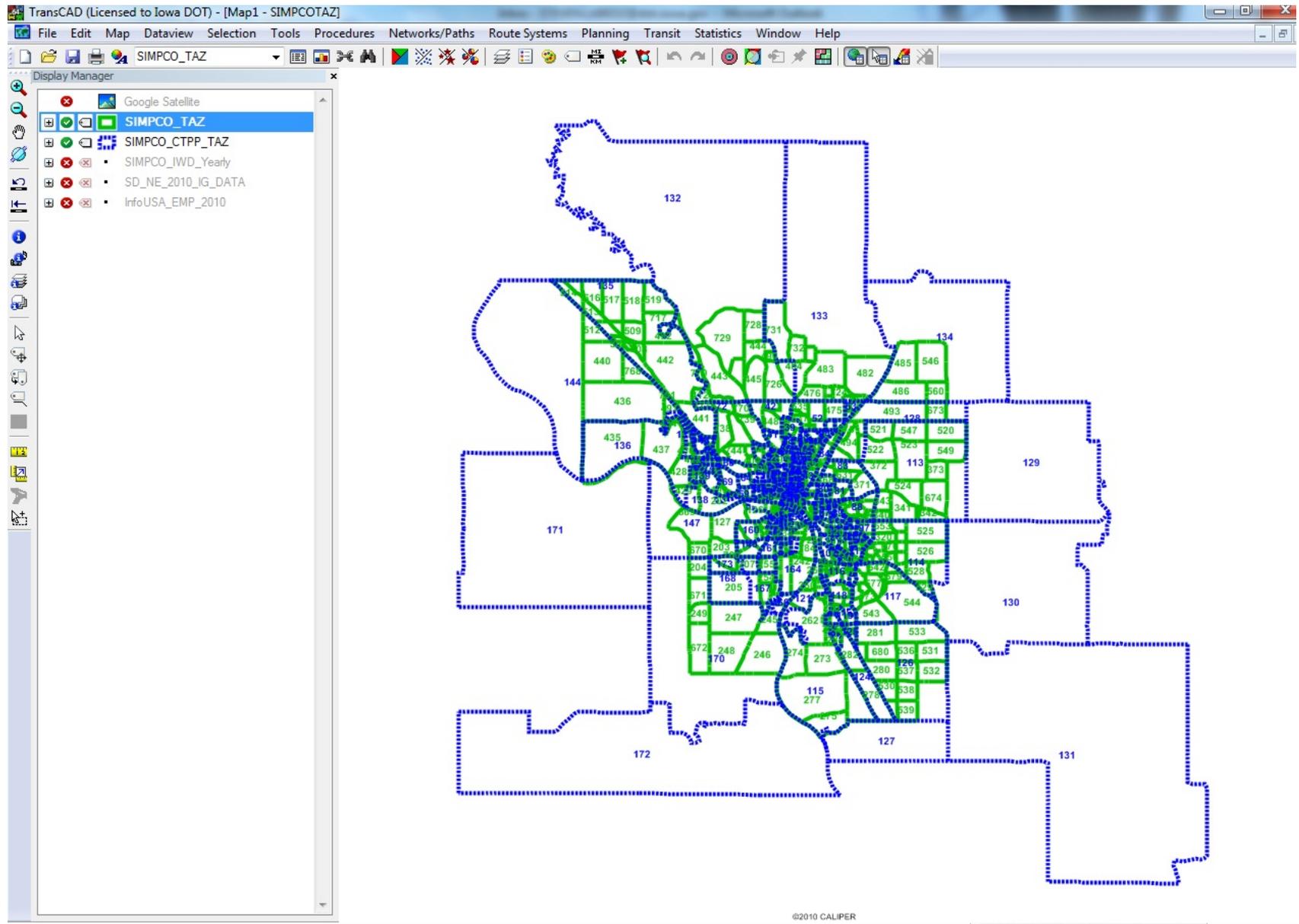
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M5 4-or-more vehicles

A112211 - Household size (5) by Vehicles available (6) (Households)
 Current date: 3/26/2014 2:15:14 PM (Eastern Daylight Time)
 Measures: Households
 Household Size 5
 Vehicles Available 6
 Output

RESIDENCE	New TAZ #	Total households		0 vehicles		1 vehicle		2 vehicles		3 vehicles	
		Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
TAZ 00000001, Woodbury County, Iowa	1	75	57	35	36	45	52	0	99	0	
TAZ 00000002, Woodbury County, Iowa	2	40	24	35	23	0	99	0	99	10	
TAZ 00000003, Woodbury County, Iowa	3	135	85	40	52	50	53	40	36	0	
TAZ 00000004, Woodbury County, Iowa	4	25	42	0	99	15	32	10	24	0	
TAZ 00000005, Woodbury County, Iowa	5	0	99	0	99	0	99	0	99	0	
TAZ 00000007, Woodbury County, Iowa	6	455	94	15	23	145	78	155	51	130	
TAZ 00000008, Woodbury County, Iowa	7	65	61	15	17	30	45	25	28	0	
TAZ 00000009, Woodbury County, Iowa	8	0	99	0	99	0	99	0	99	0	
TAZ 00000010, Woodbury County, Iowa	9	70	45	15	22	55	49	0	99	0	
TAZ 00000011, Woodbury County, Iowa	10	0	99	0	99	0	99	0	99	0	
TAZ 00000012, Woodbury County, Iowa	11	0	99	0	99	0	99	0	99	0	
TAZ 00000013, Woodbury County, Iowa	12	205	88	135	86	70	44	0	99	0	
TAZ 00000014, Woodbury County, Iowa	13	280	91	50	39	180	103	4	16	0	
TAZ 00000015, Woodbury County, Iowa	14	380	94	205	108	120	80	50	56	4	
TAZ 00000016, Woodbury County, Iowa	15	435	111	115	82	245	73	40	37	35	
TAZ 00000017, Woodbury County, Iowa	16	145	83	20	25	35	38	60	59	4	
TAZ 00000018, Woodbury County, Iowa	17	110	46	0	99	30	40	60	44	0	
TAZ 00000019, Woodbury County, Iowa	18	360	90	105	63	220	78	35	33	0	
TAZ 00000020, Woodbury County, Iowa	19	355	93	65	50	125	66	70	46	80	
TAZ 00000021, Woodbury County, Iowa	20	155	61	10	21	60	45	65	49	0	
TAZ 00000022, Woodbury County, Iowa	21	205	77	50	55	90	41	15	27	25	
TAZ 00000023, Woodbury County, Iowa	22	255	76	20	27	105	55	65	42	65	
TAZ 00000024, Woodbury County, Iowa	23	215	83	10	15	100	45	45	36	65	
TAZ 00000025, Woodbury County, Iowa	24	325	82	140	70	100	50	60	31	25	
TAZ 00000026, Woodbury County, Iowa	25	280	86	10	22	125	77	80	53	60	
TAZ 00000027, Woodbury County, Iowa	26	205	100	05	72	00	65	105	71	20	

CTPP TAZs



Final CTPP Data

Dataview1 - SIMPCO_TAZ

HH1_VEH0_2010	HH1_VEH1_2010	HH1_VEH2_2010	HH1_VEH3_2010	HH2_VEH0_2010	HH2_VEH1_2010	HH2_VEH2_2010	HH2_VEH3_2010	HH3_VEH0_2010	HH3_VEH1_2010	HH3_VEH2_2010
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
18	23	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
19	0	5	0	0	23	5	0	0	0	0
85	0	0	24	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
42	0	0	12	0	0	0	0	0	0	0
2	3	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	6	0	0	2	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
6	74	0	0	15	6	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	0	0	4	0	0	0	0
15	0	4	0	0	18	4	0	0	0	0
19	33	0	0	4	10	7	4	3	14	0
10	5	2	0	0	12	0	8	0	0	0
18	10	4	0	0	22	0	14	0	0	0
0	0	0	0	0	0	0	0	0	0	0
15	8	3	0	0	20	0	12	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1



Fin.