

Drawing the Grid

Article IV, Part 2, Section 1:

14) The commencement of the mapping process for both the congressional and legislative districts shall be the creation of districts of equal population in a grid-like pattern across the state.

Goal of the Grid

2011 Commission quote:

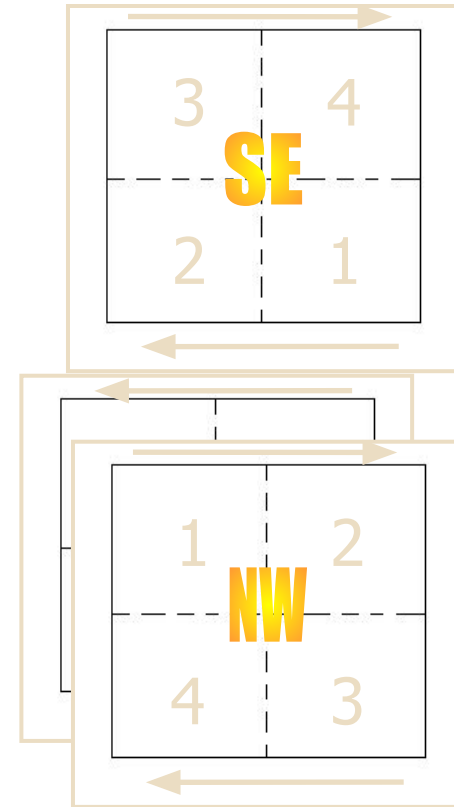
“The purpose of the grid map is really to make clear that we're starting over, that we're not taking the existing districts and moving them around. We're wiping the slate clean, and we're starting over.”

2001 Grid Maps

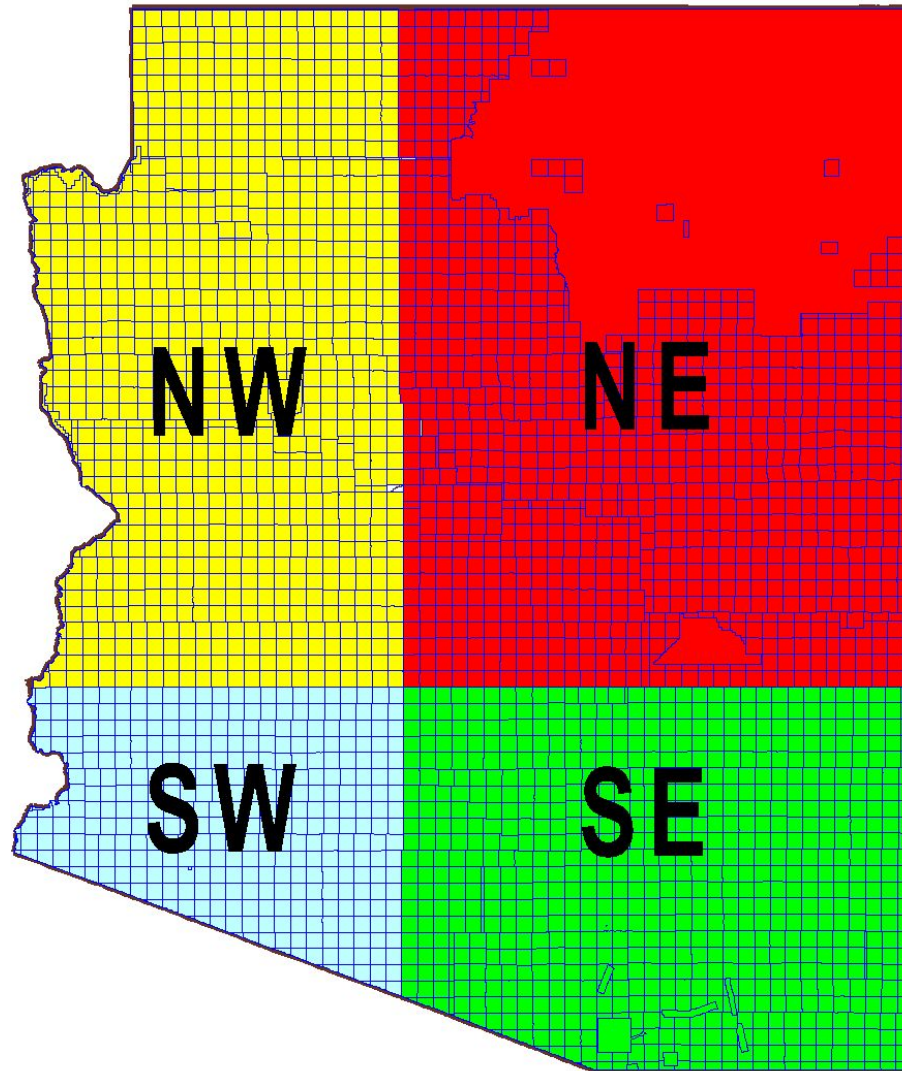
2001 IRC Approach

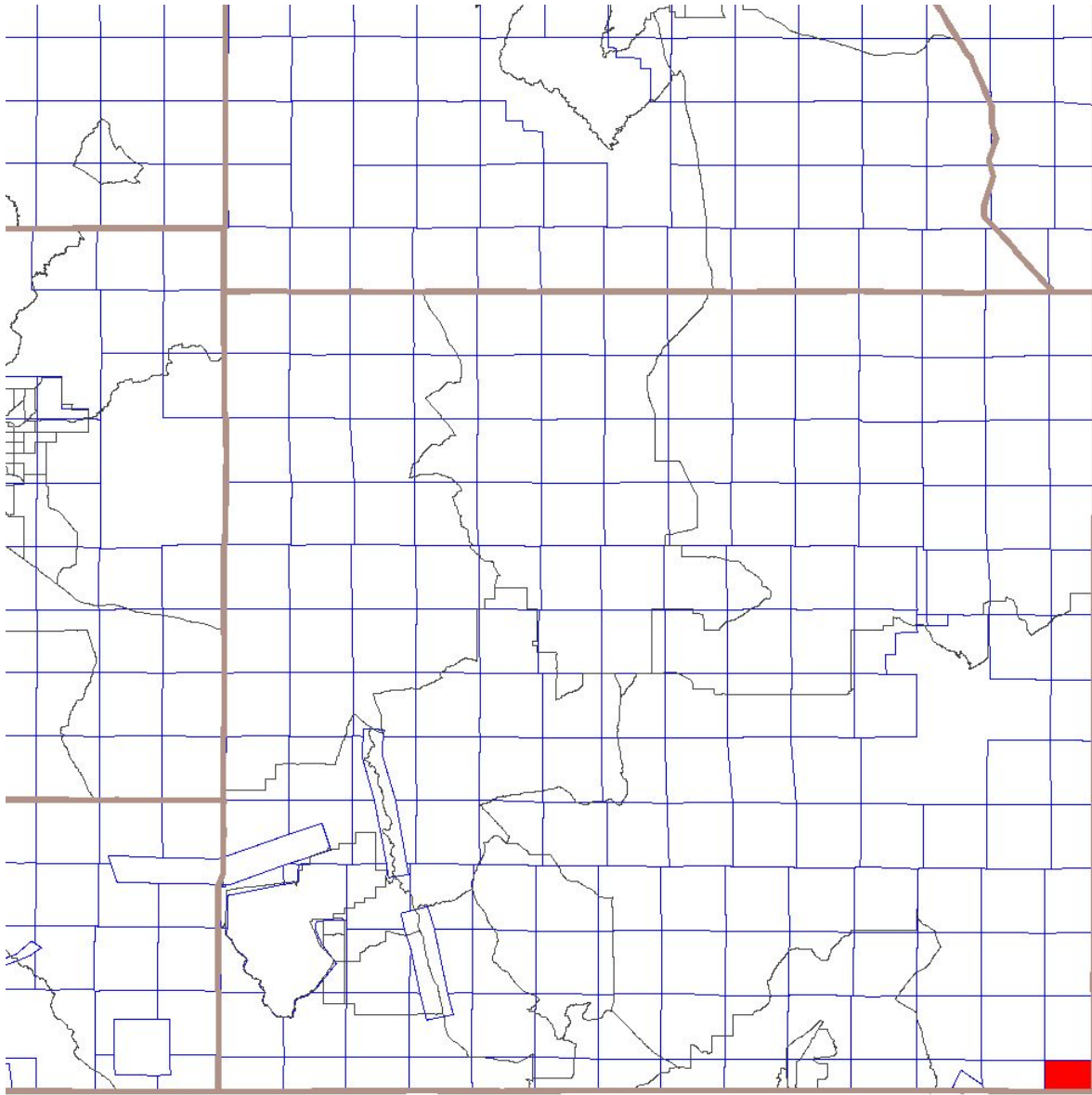
□ Townships + Census Tracts (County by County)

1. Grid the state according to its townships, as defined by the U.S. Geological Survey.
2. Divide the State into quadrants defined by the Gila Meridian and the Salt River Baseline.
3. Commence districting in the Northwest quadrant at the axis point. (*randomly chosen quadrant and direction*)
4. Move in a counter-clockwise motion through the quadrants.
5. Commence aggregation of census tracts in each quadrant at the axis point.
6. Move in a counter-clockwise motion through the townships, township grids, intermediate grids, and super grids to aggregate population by census tract. This motion may be reversed as necessary to comply with the controlling principles.



Arizona Townships Map



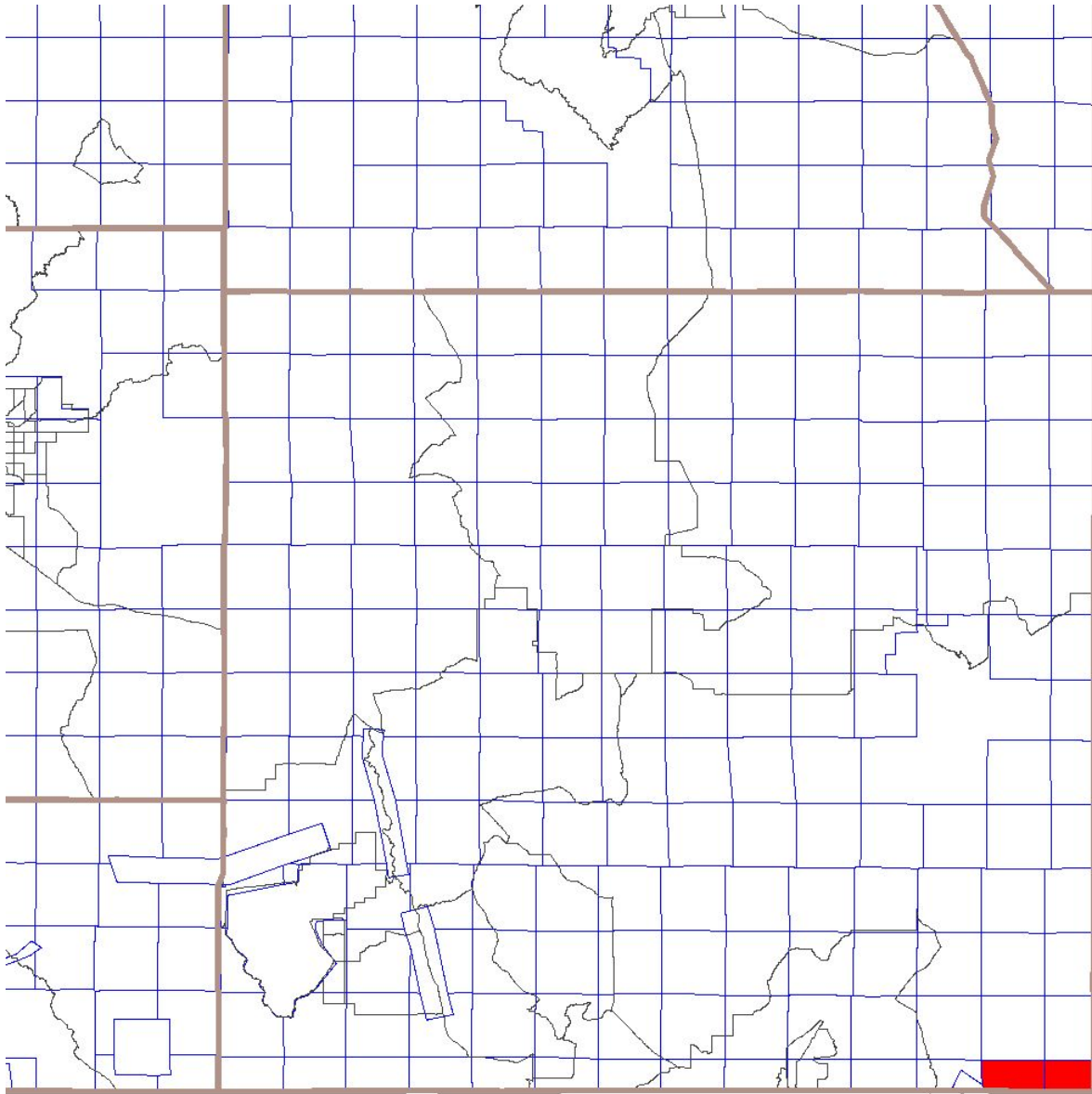


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

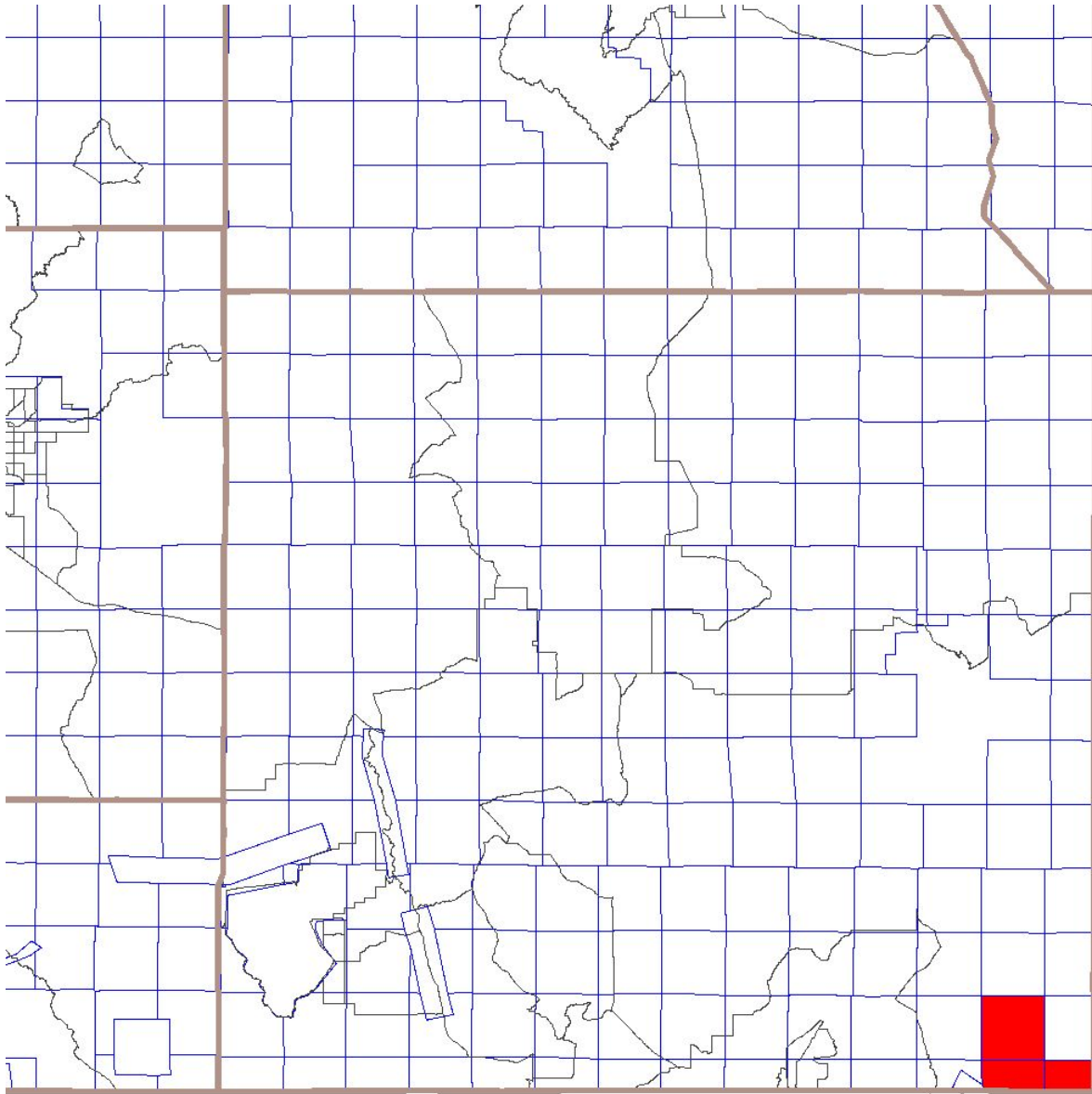


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

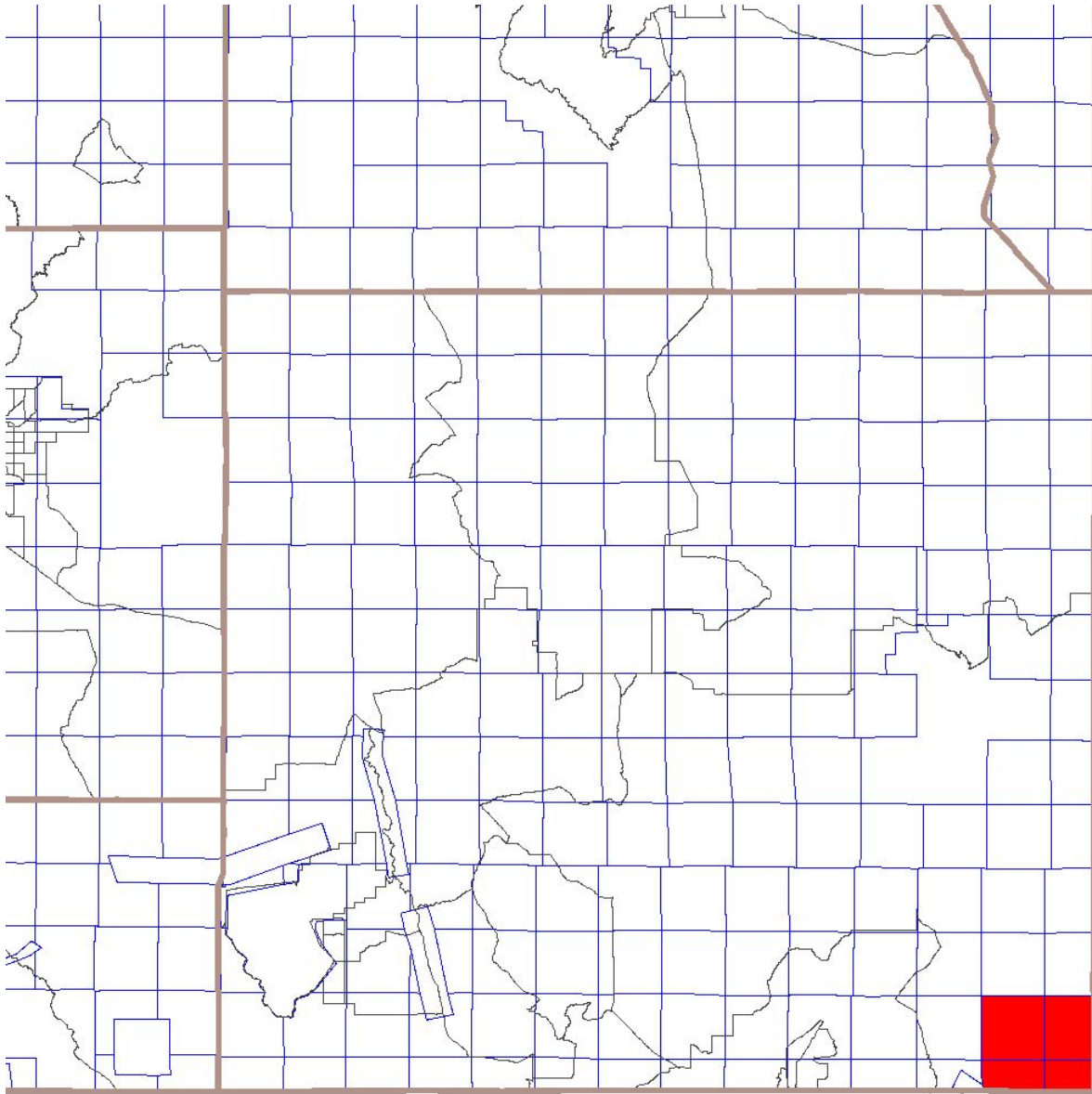


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

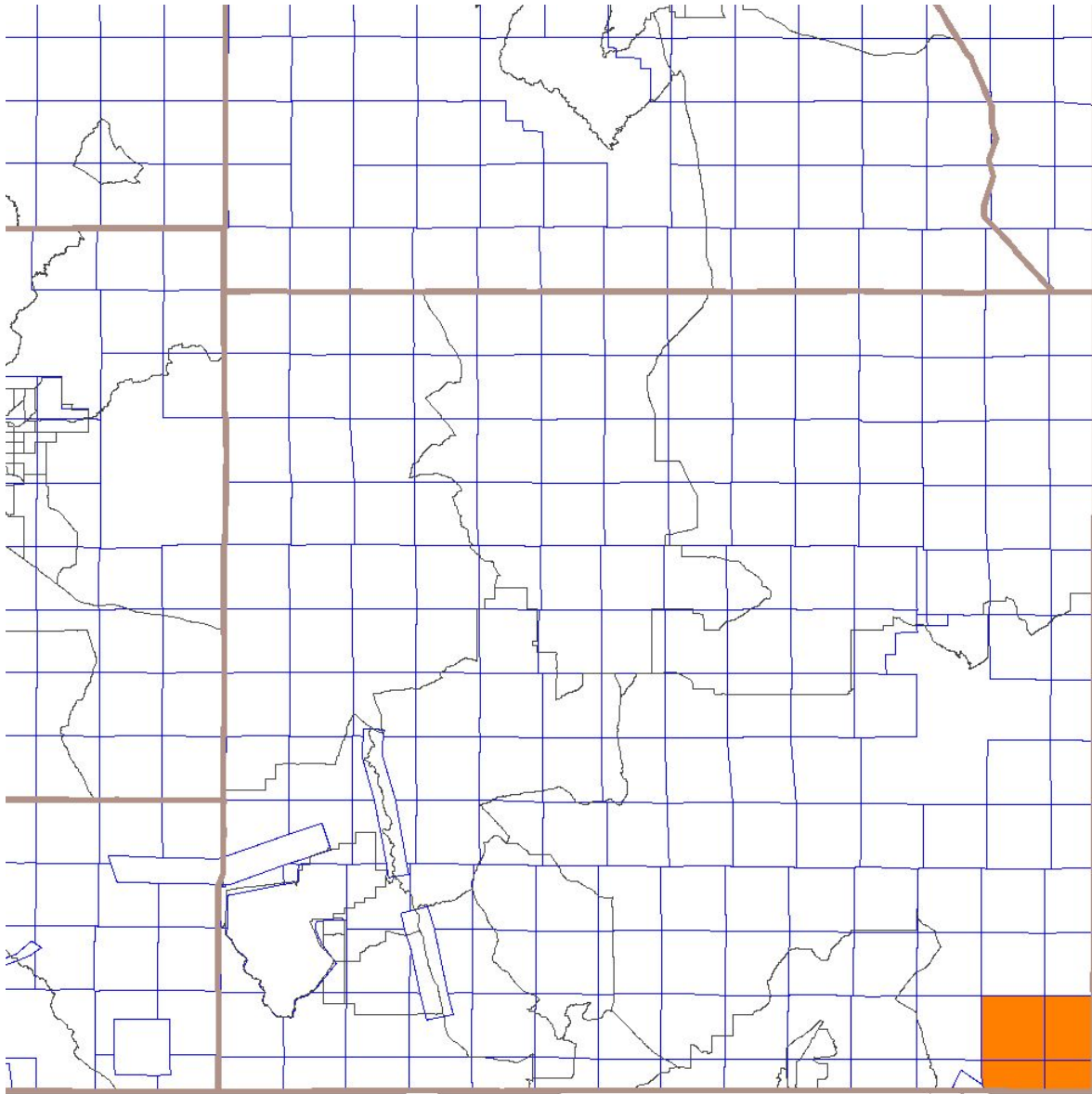


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

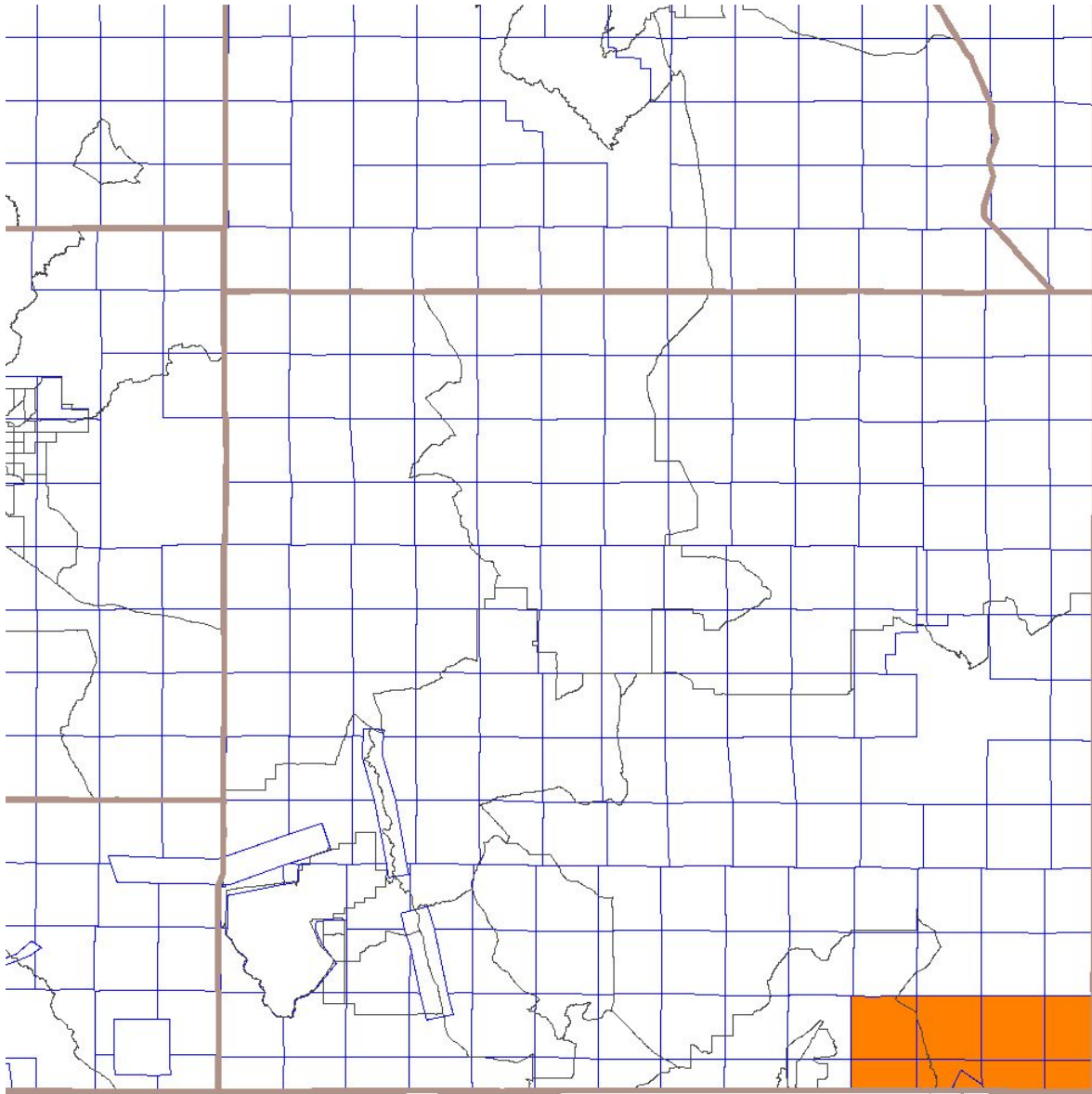


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

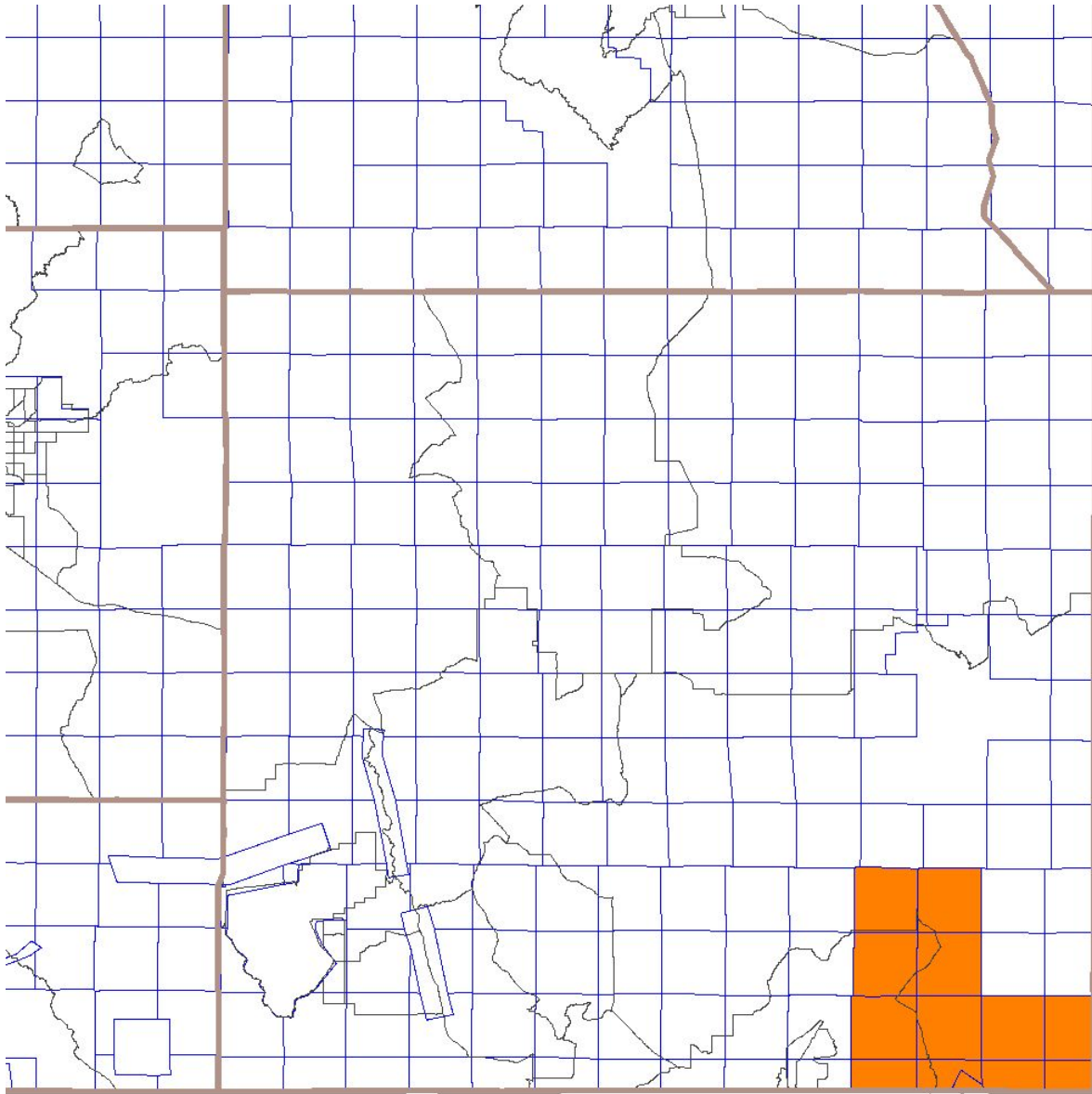


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

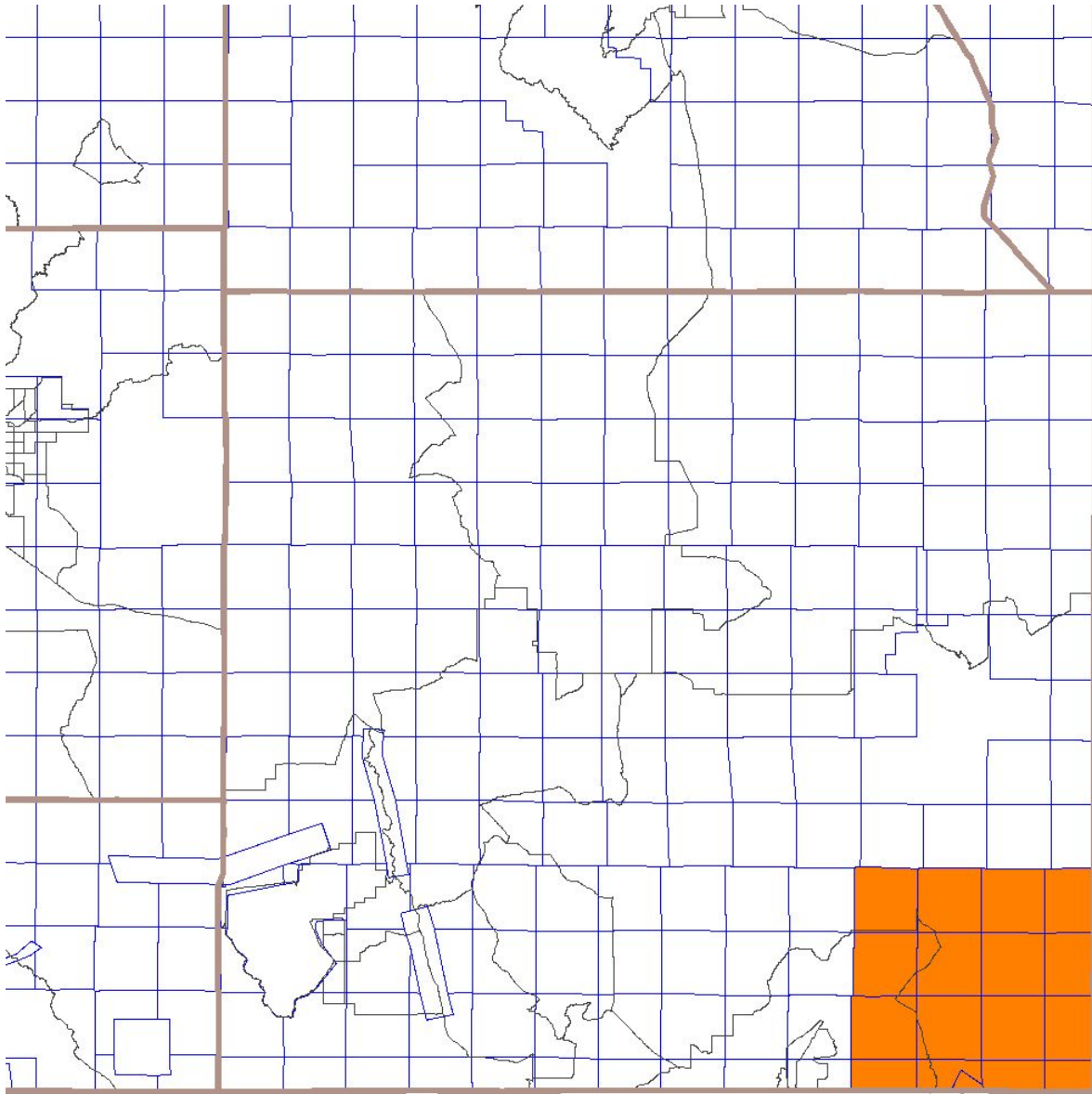


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

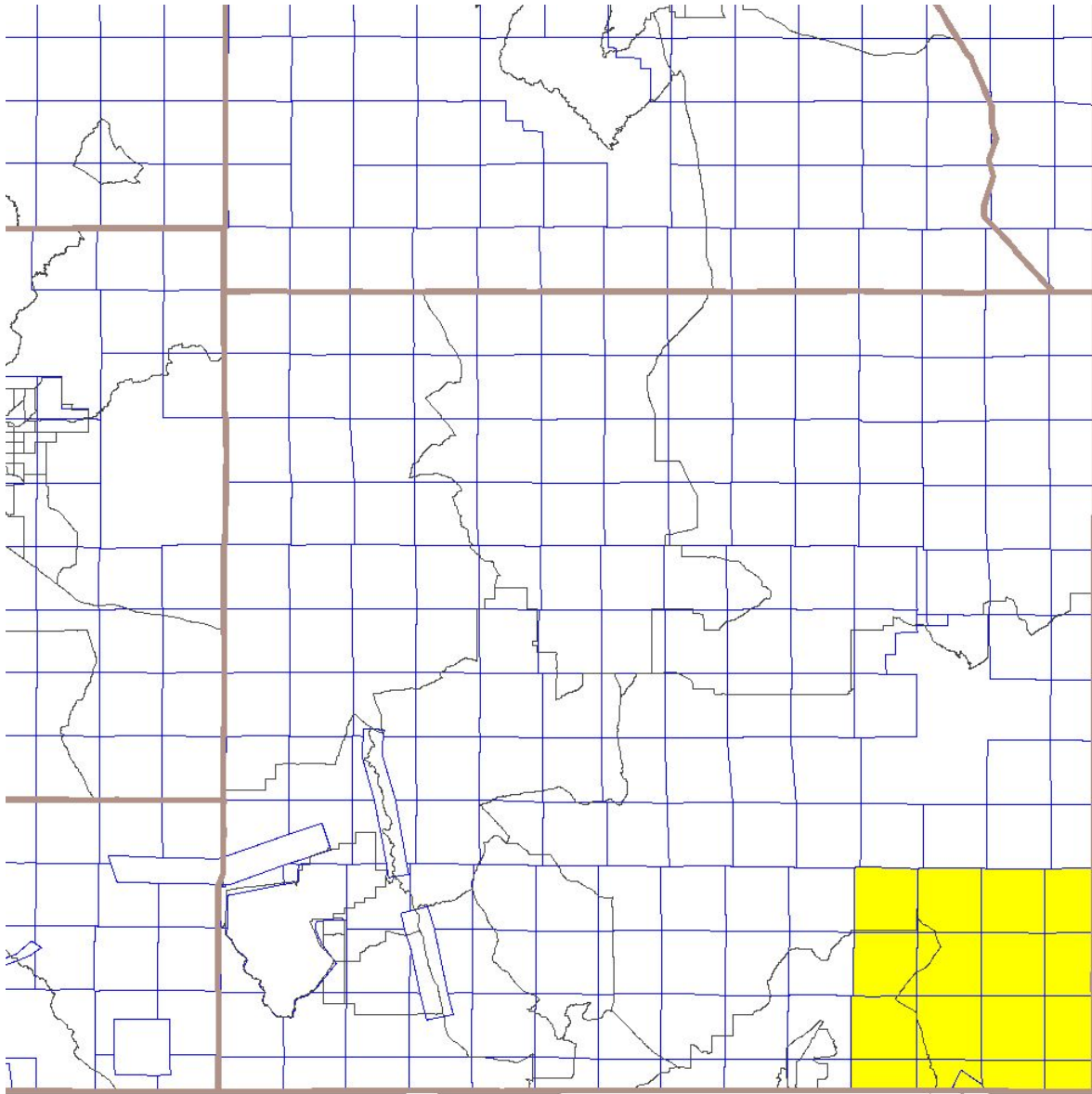


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

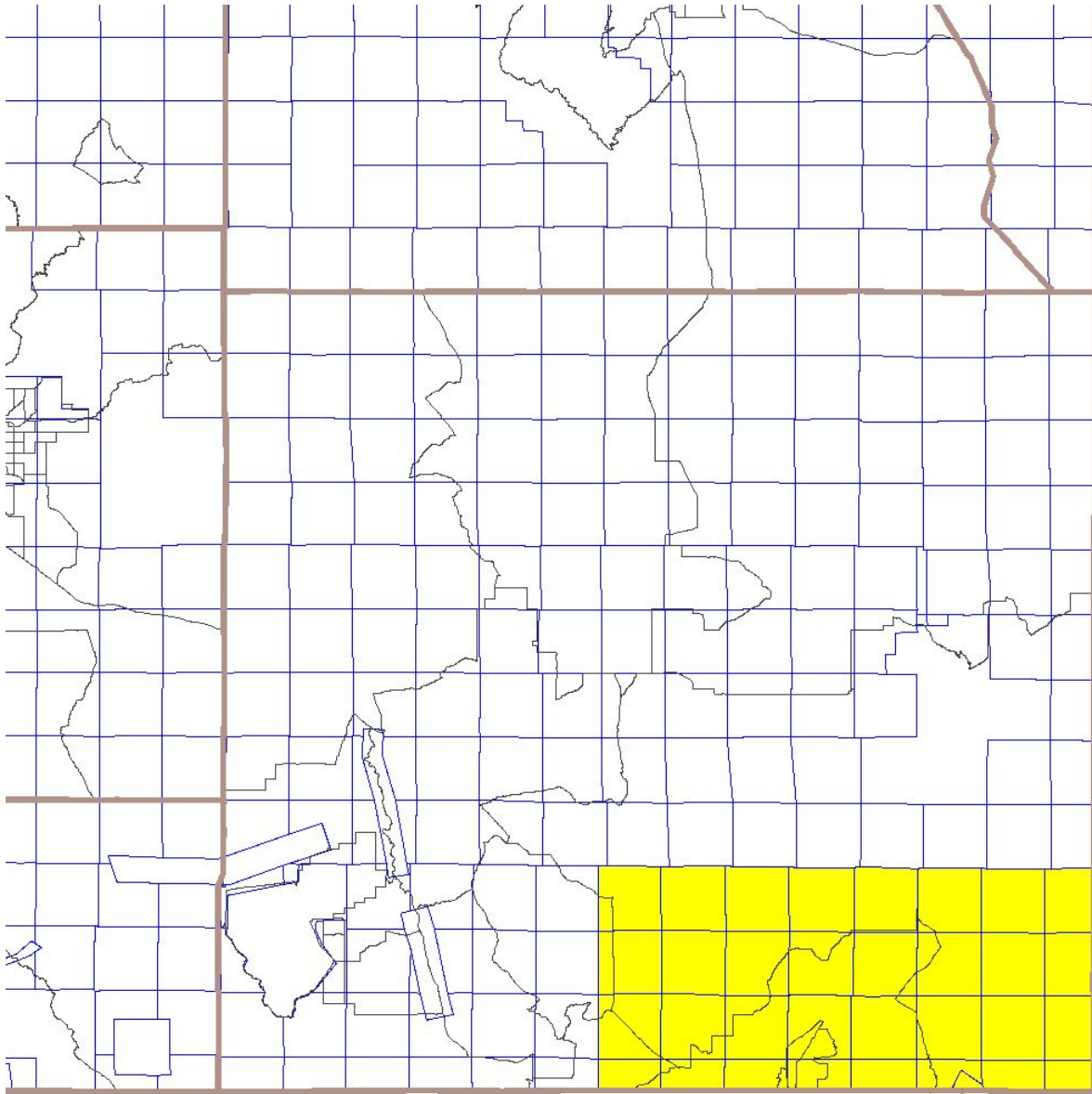


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

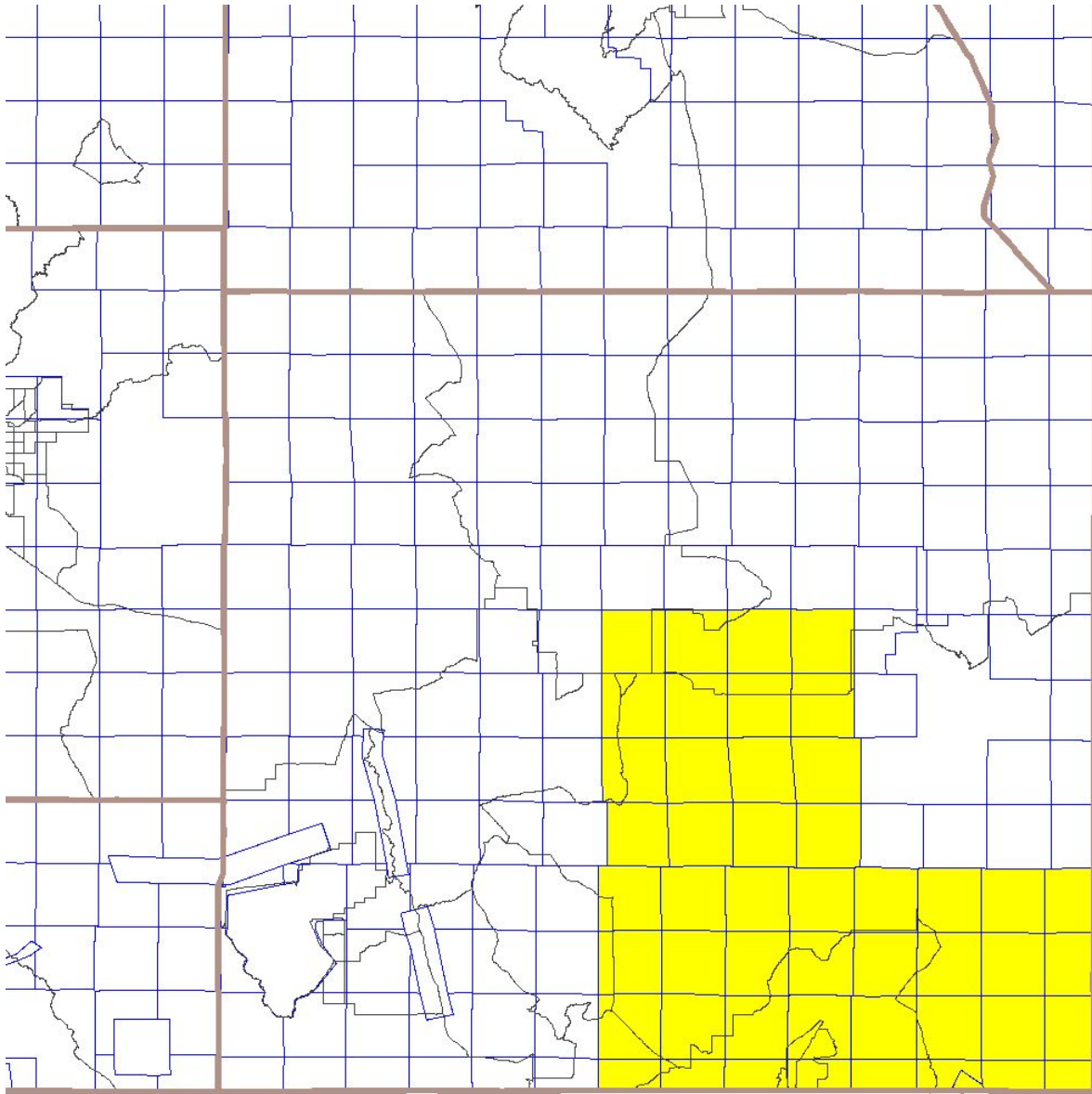


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

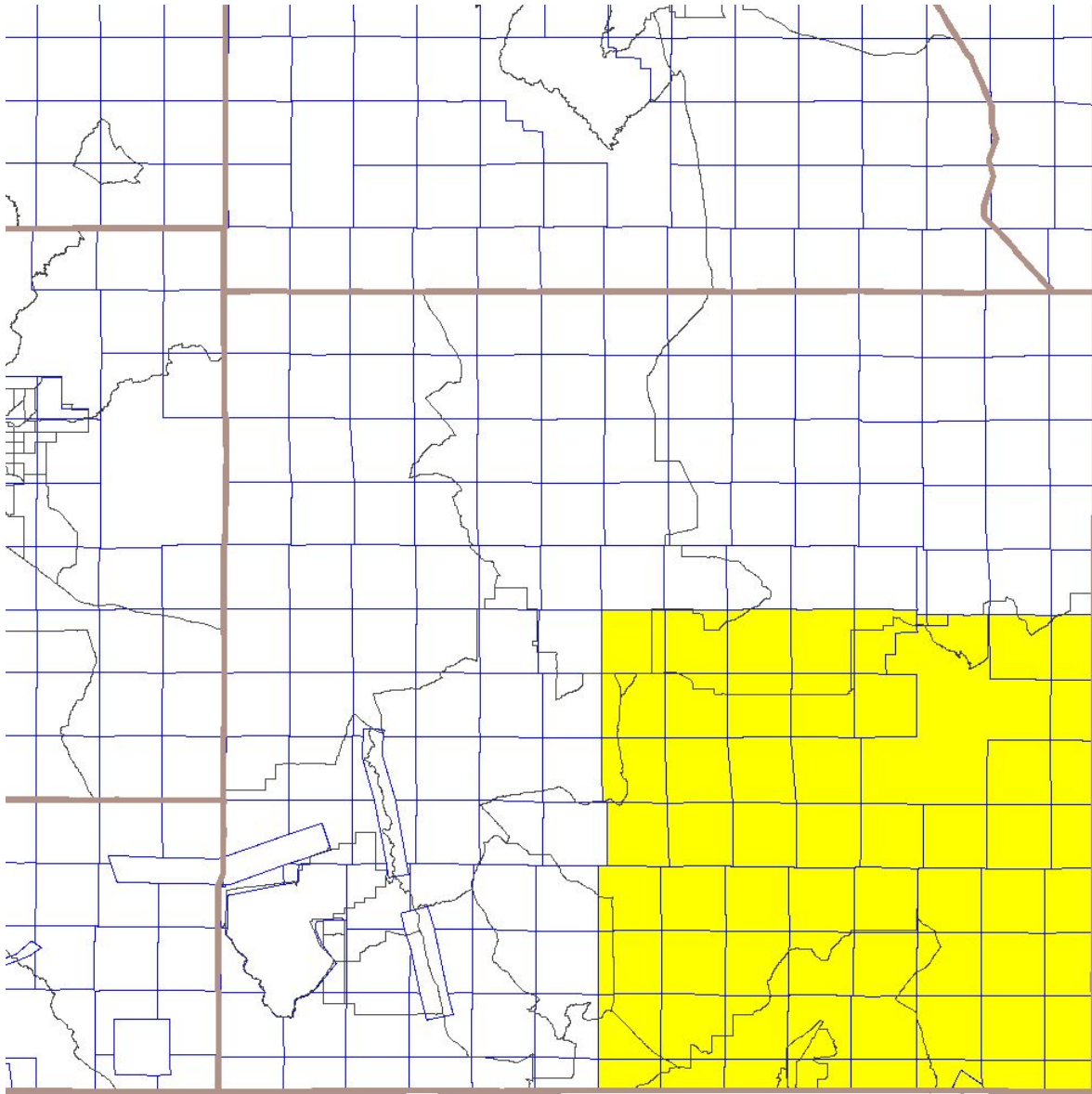


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

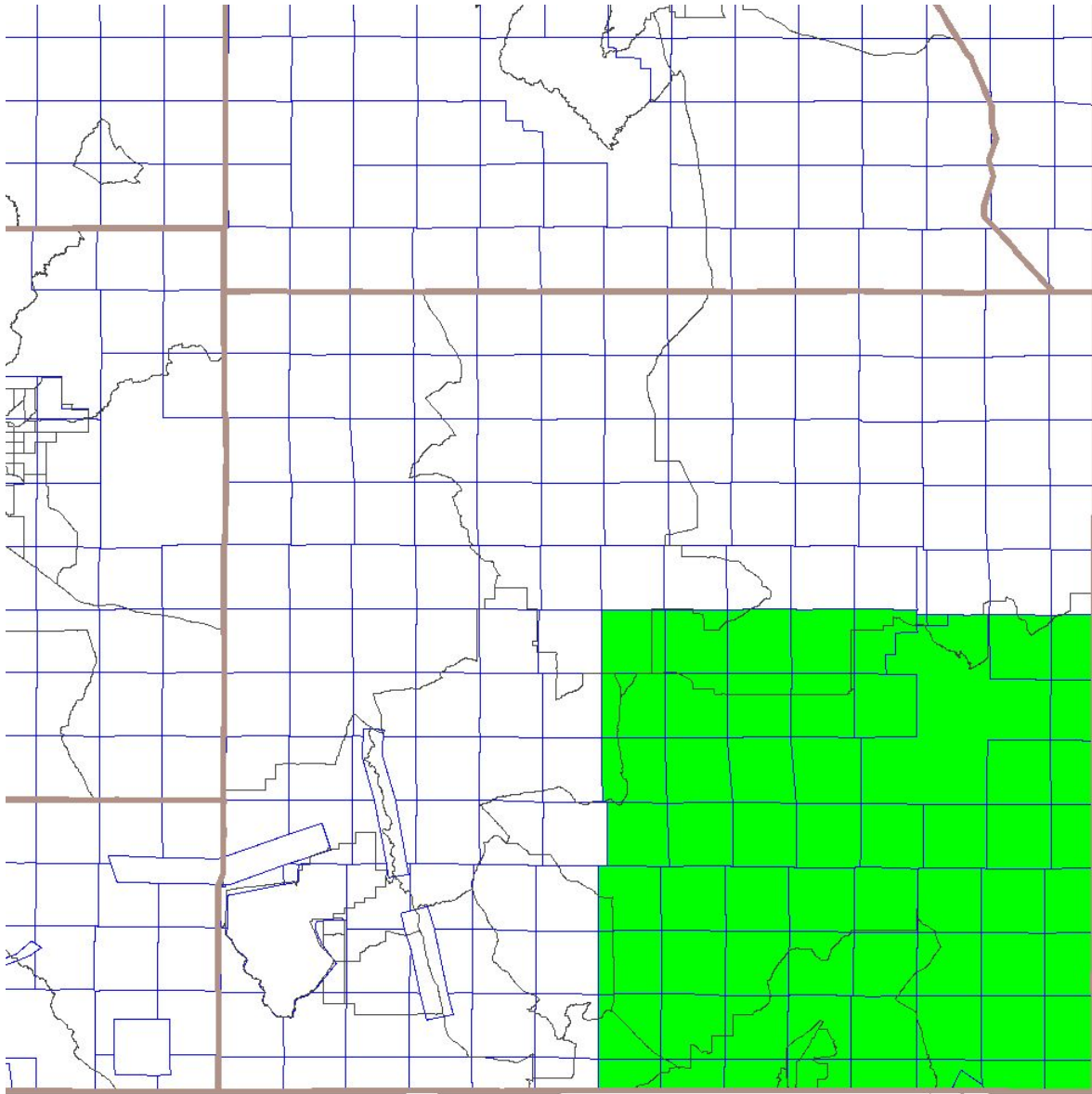


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

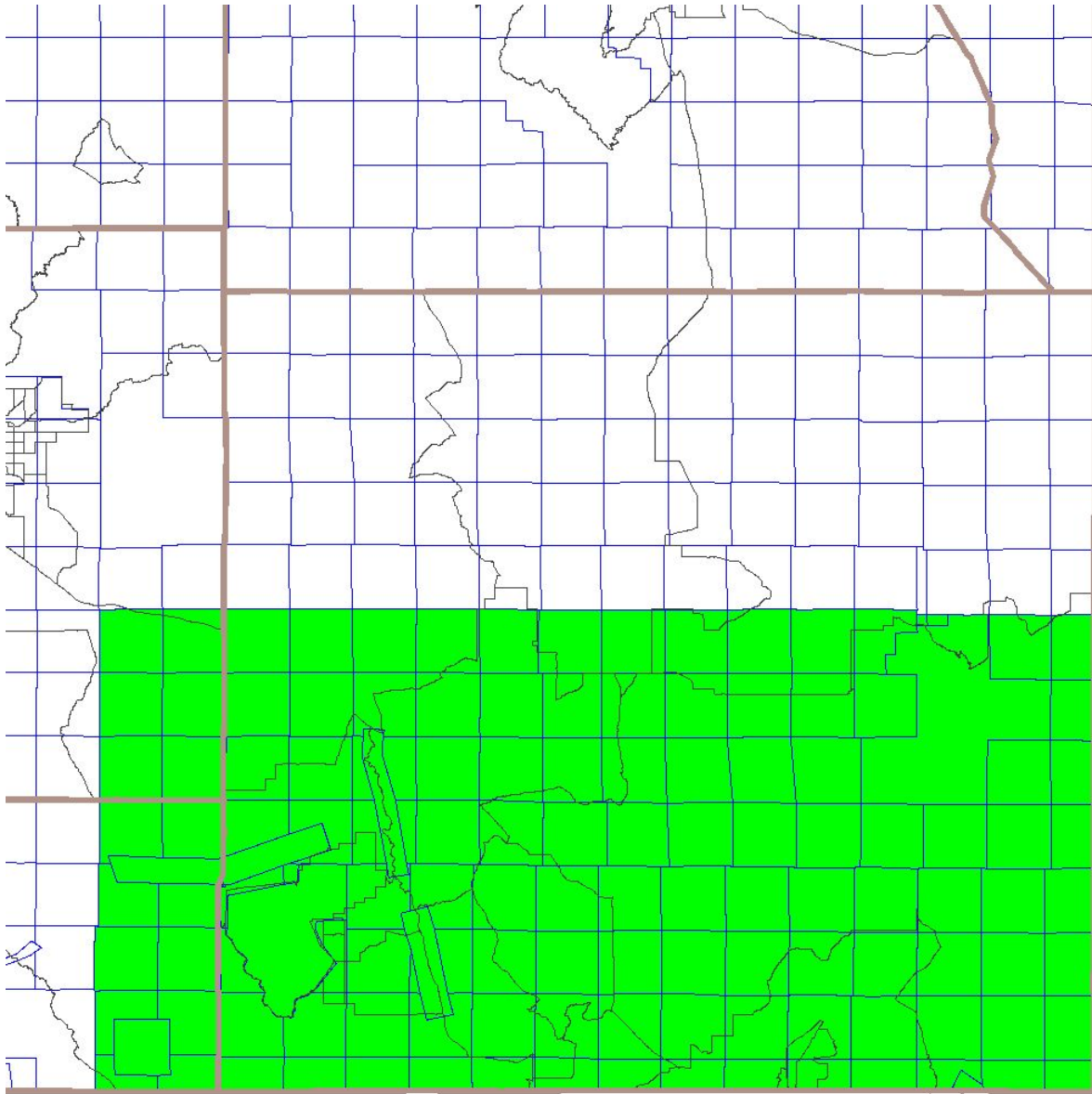


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

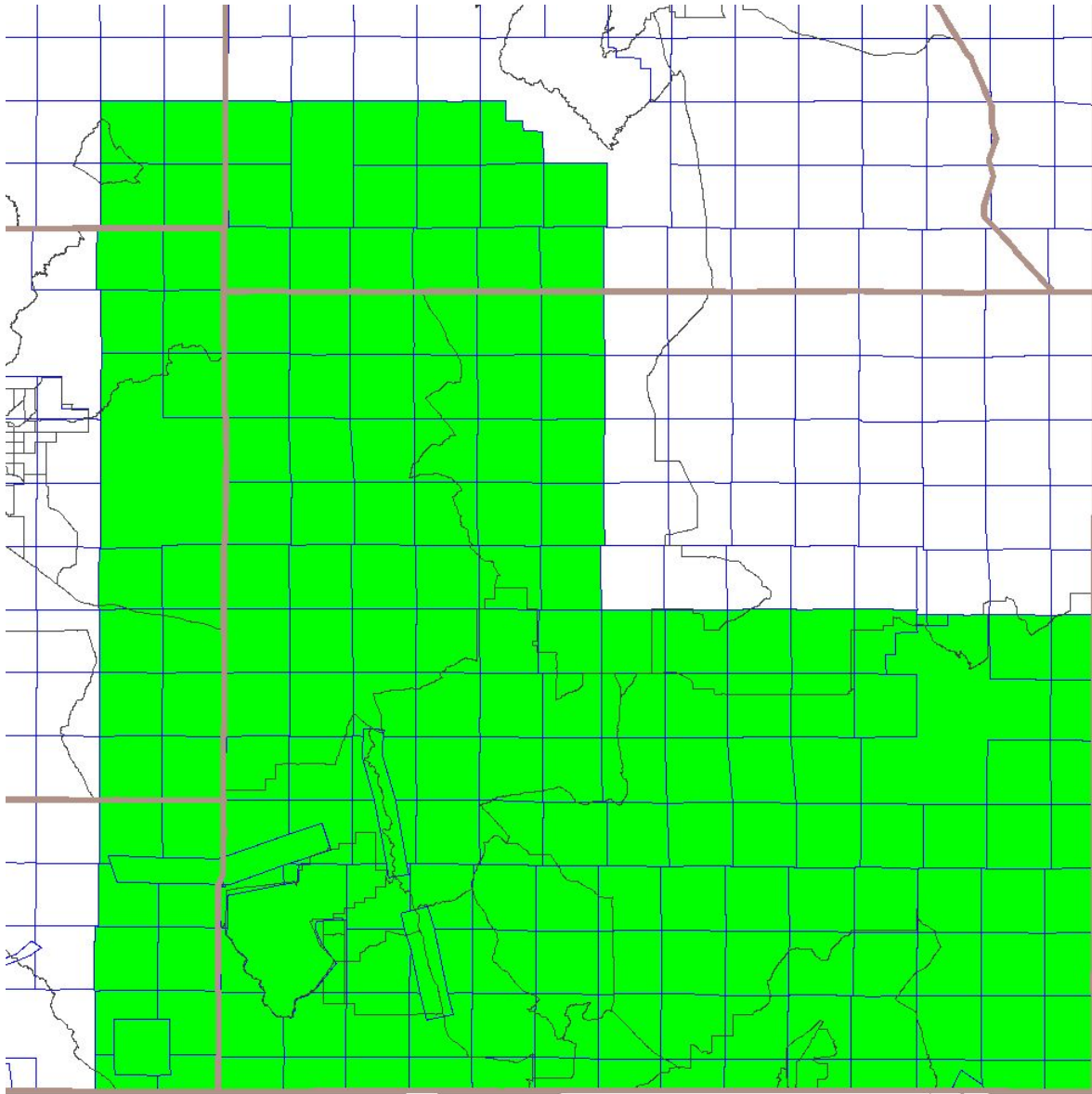


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

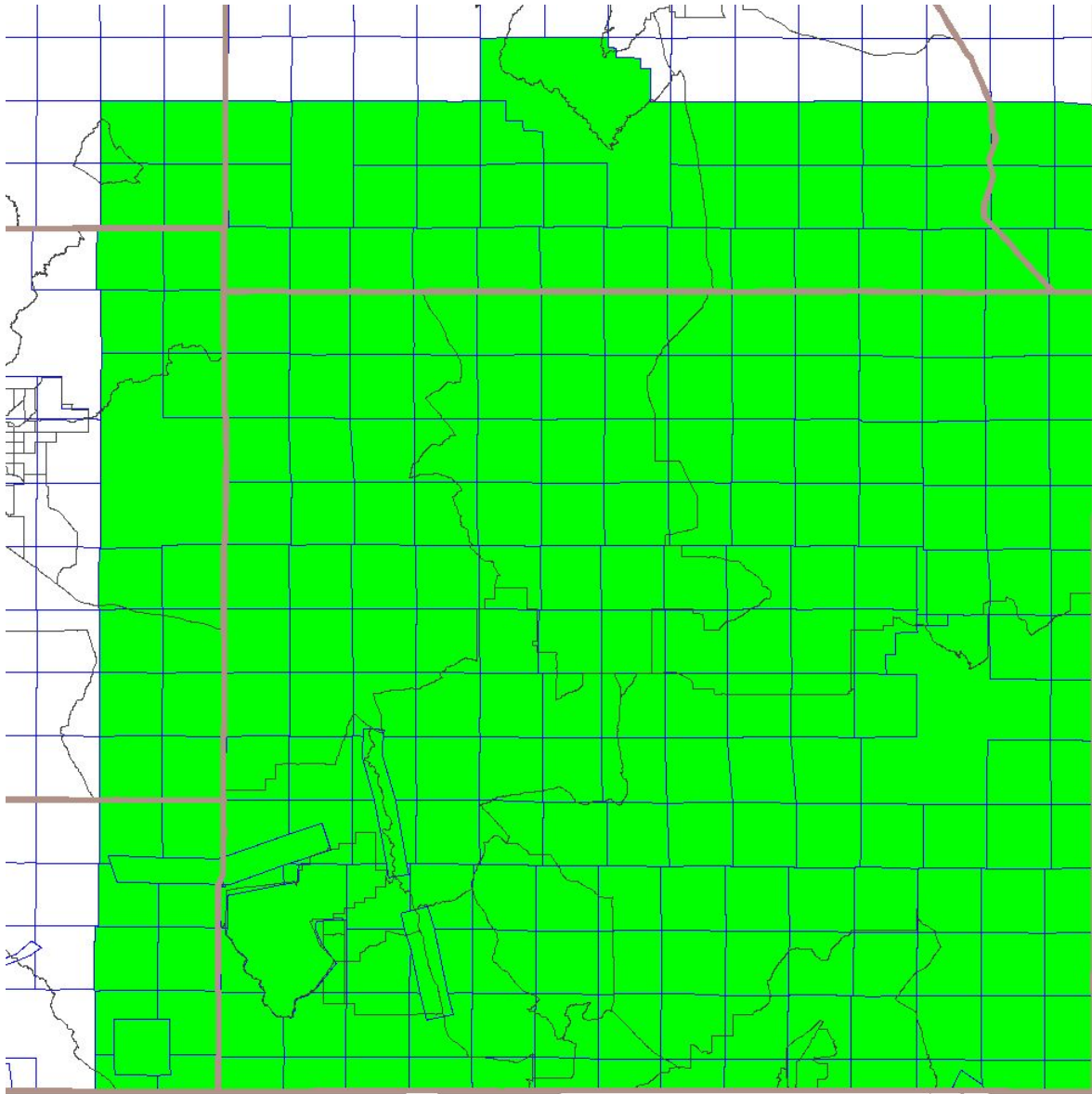


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

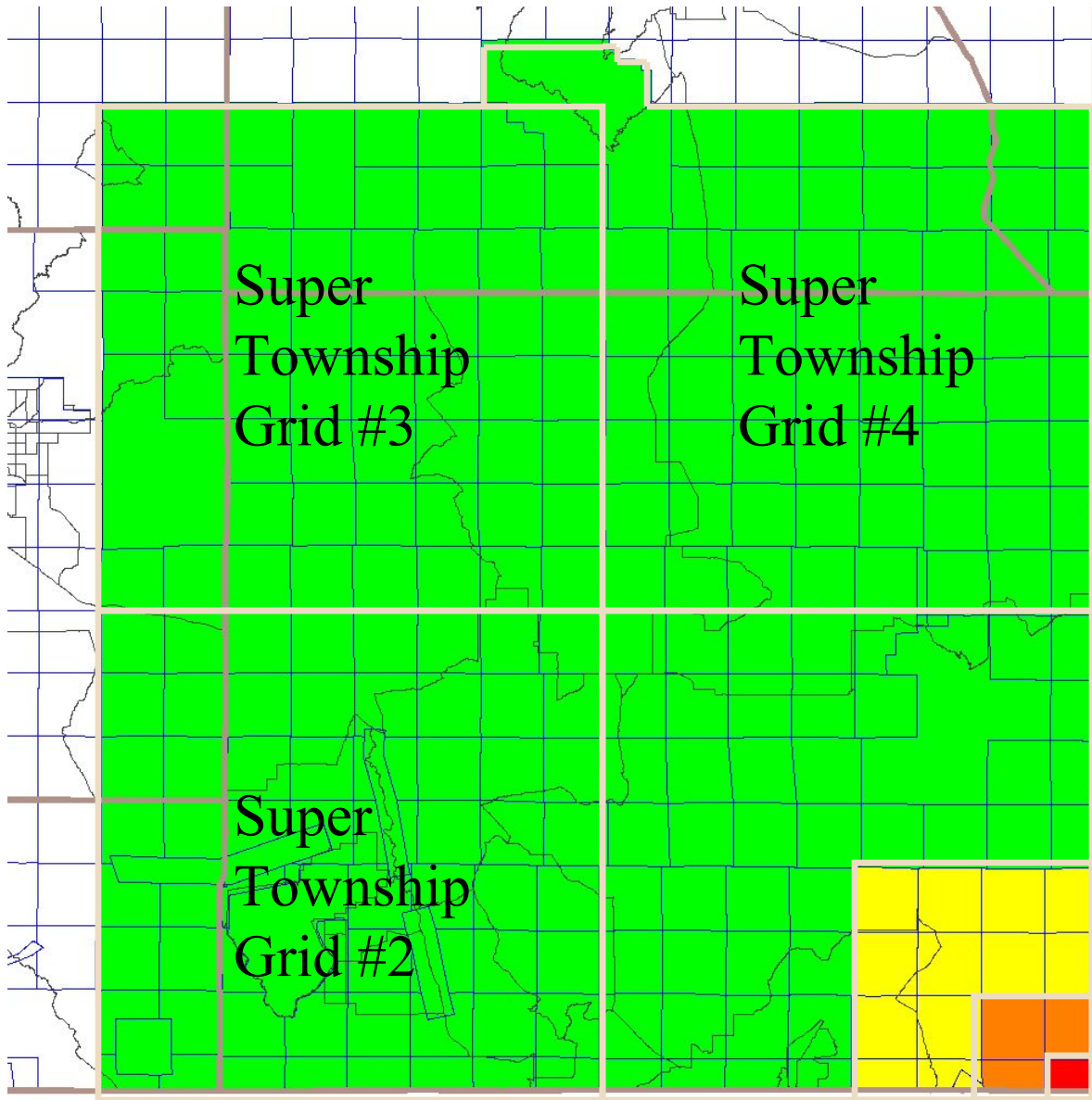


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

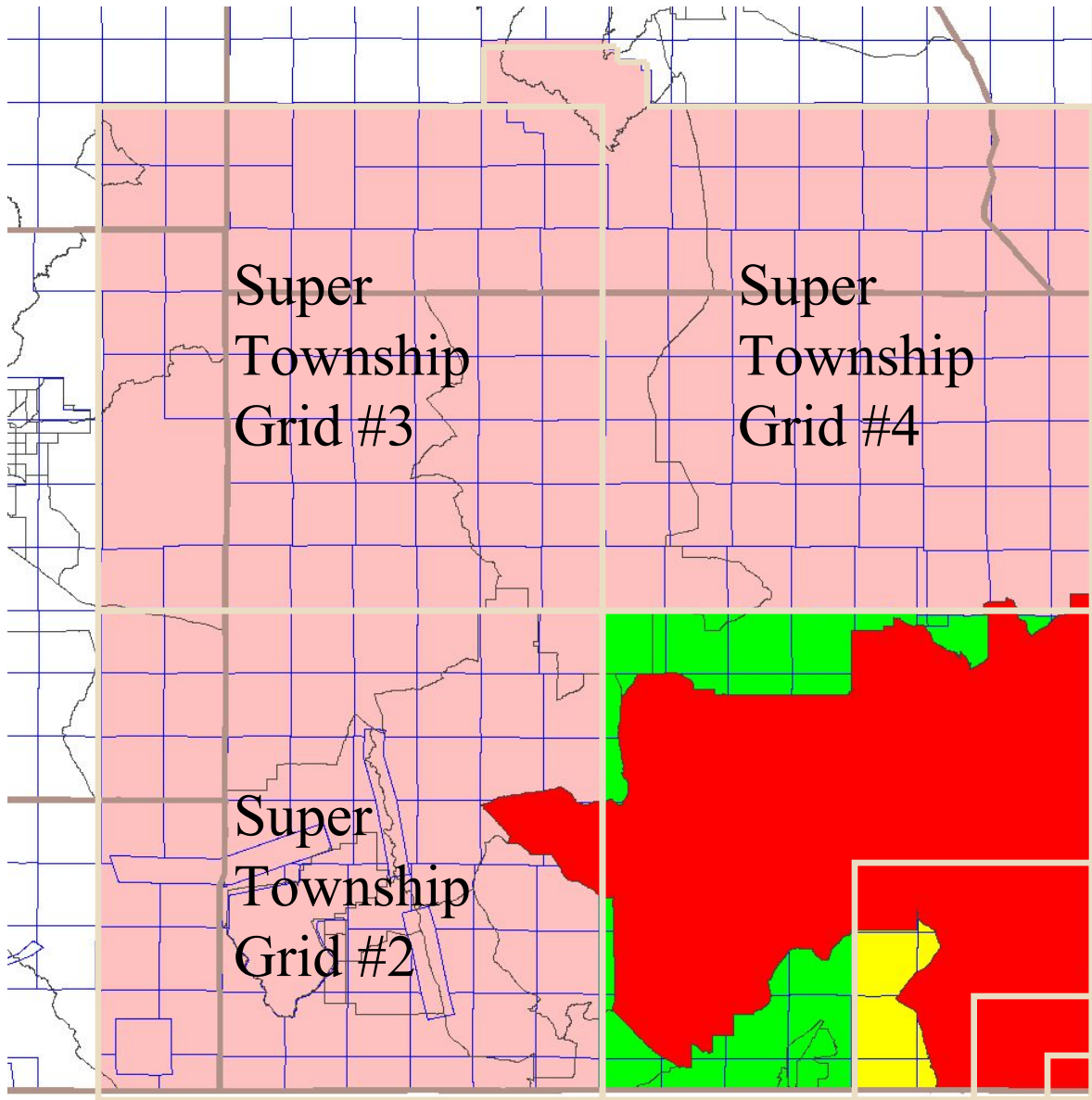


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

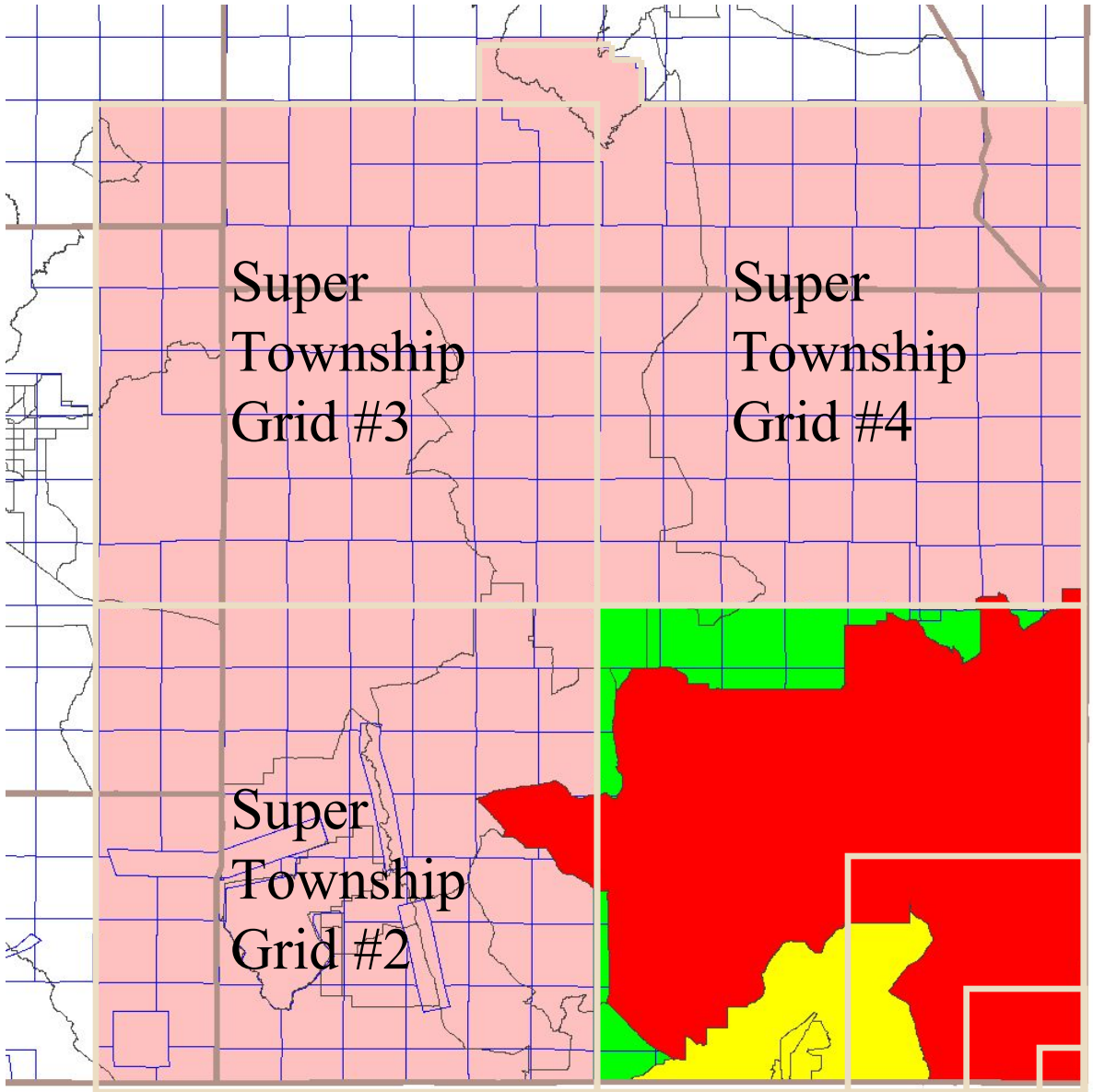


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

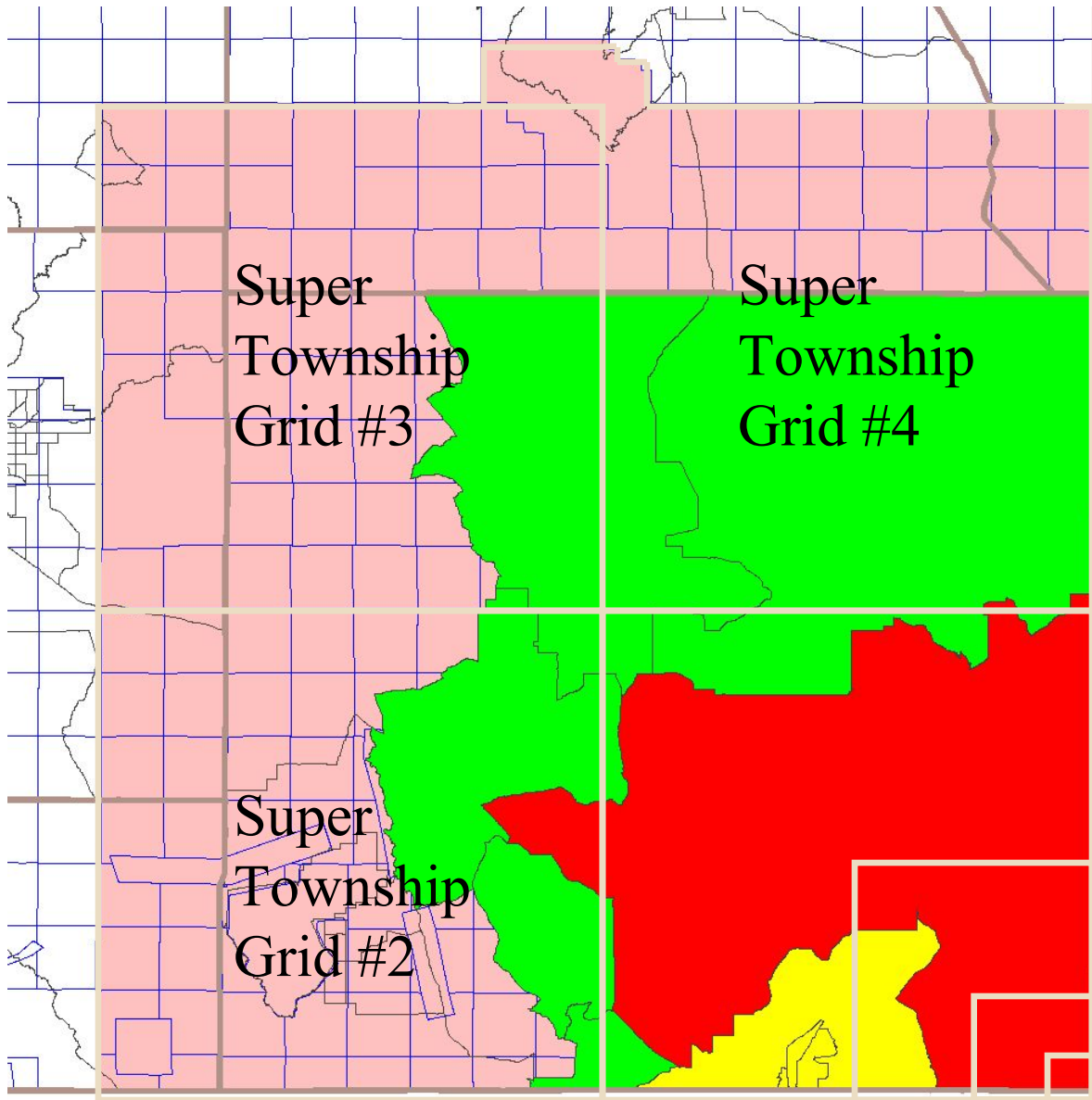


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township

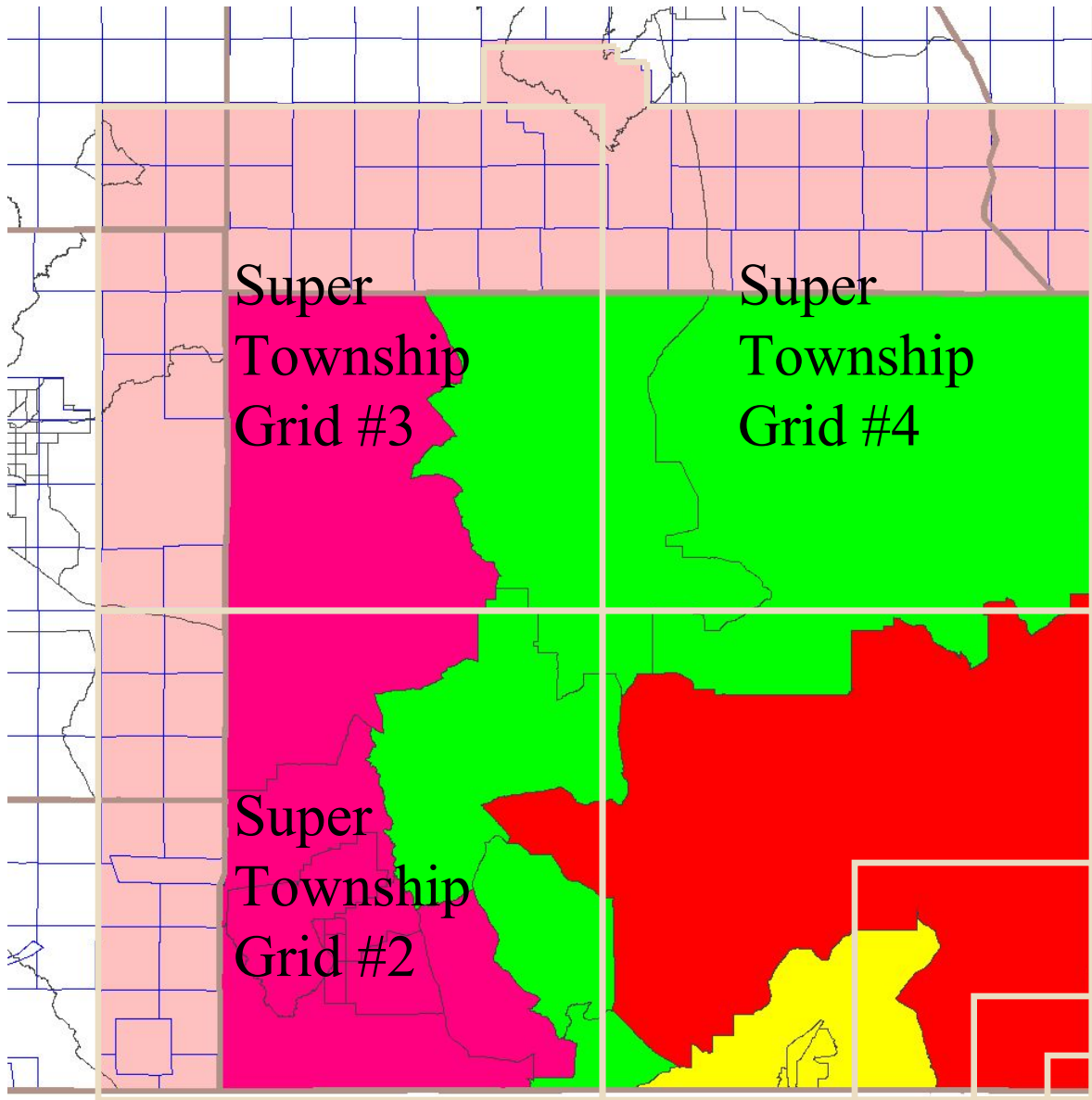


Super
Township
Grid

Intermediate
Township
Grid

Township
Grid

Township



Super
Township
Grid

Intermediate
Township
Grid

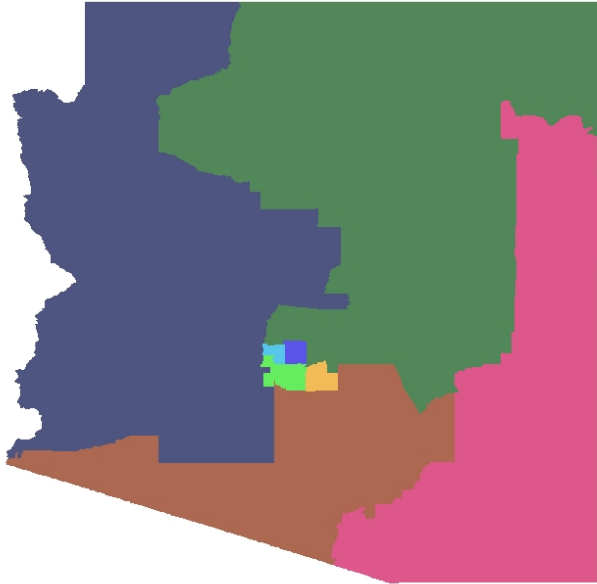
Township
Grid

Township

2001 Grid Maps

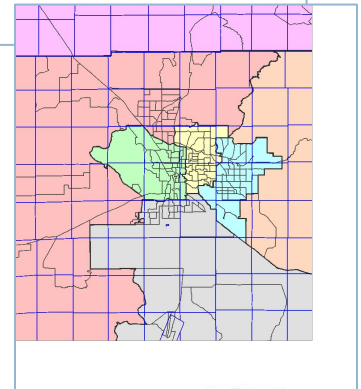
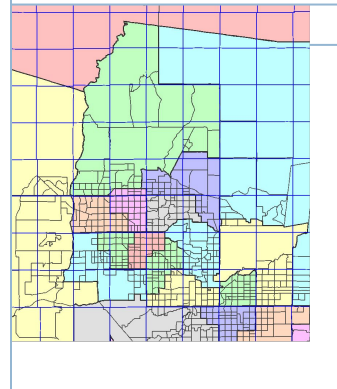
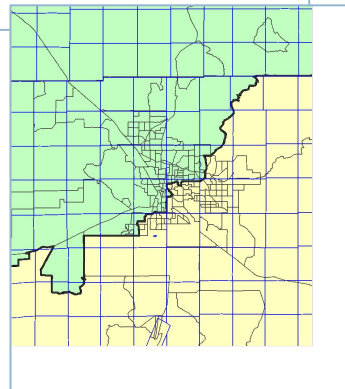
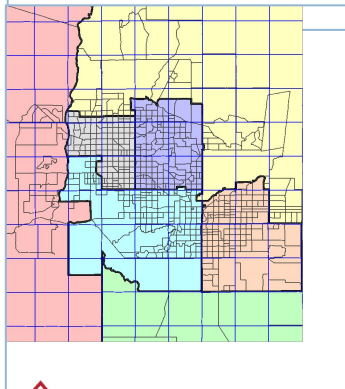
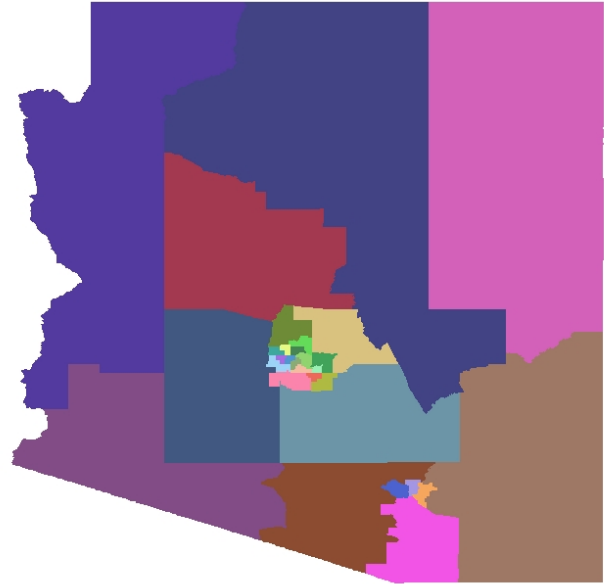
Pop. Dev. 3,974, or
0.62%

Arizona Congressional Grid



Pop. Dev. 12,743, or
7.45%

Arizona Legislative Grid



2011 Grid Maps

2011 Grid Criteria

“Using Census Geography” and “Equal population, compact and contiguous.”

Followed Counties, Census Tracts and Census Block Groups geographic units.

2011 Grid Directions

Map Option 1: start at densest central Census Block (W Montebello Ave and N 59th Ave in Glendale) and move:

- Coin Flip 1: Direction: Clockwise or **Counter-Clockwise**

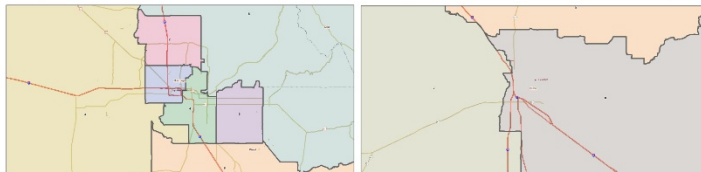
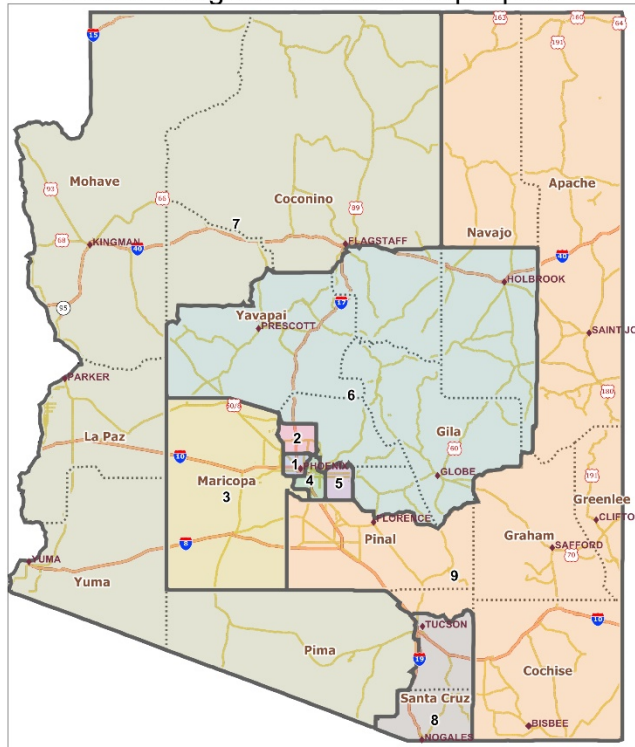
Map Option 2: start in a corner and move:

- Coin Flip 2: Beginning Corner: **East** or West
- Coin Flip 3: Beginning Corner: North or **South**
- Coin Flip 4: Direction: **Clockwise** or Counter-Clockwise

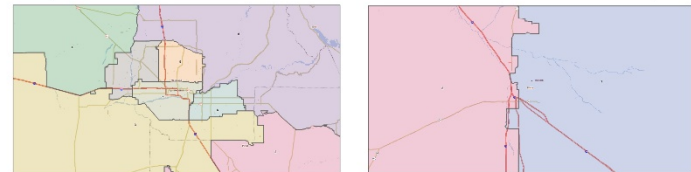
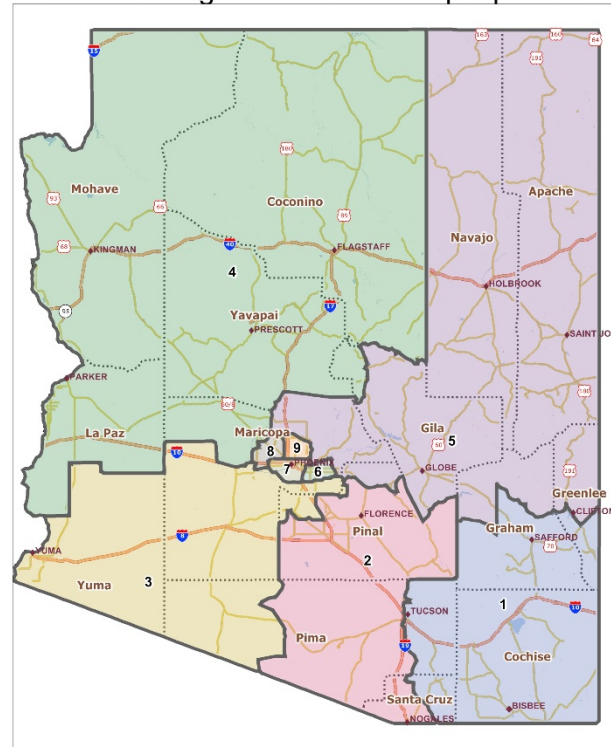
The Option 2 maps were ultimately selected in a 4 – 1 vote.

2011 Congressional Grid Maps

AIRC: Congressional Grid Map Option 1



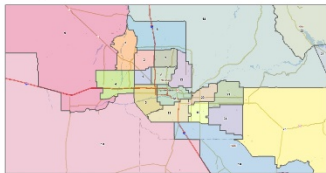
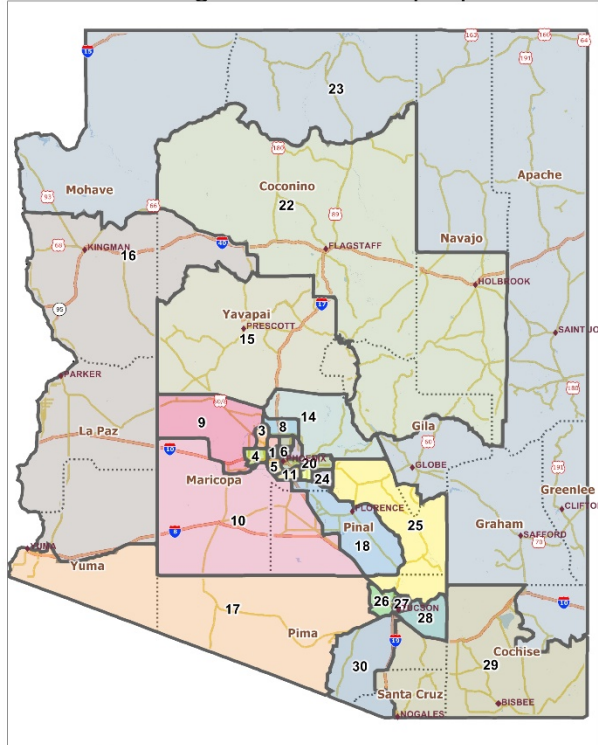
AIRC: Congressional Grid Map Option 2



Pop. Dev. 1 person, or
0.0%

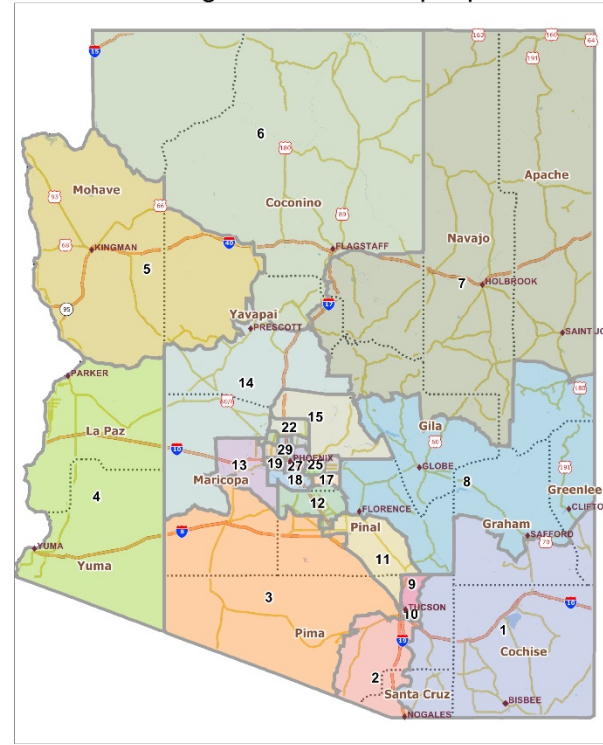
2011 Legislative Grid Maps

AIRC: Legislative Grid Map Option 1



Pop. Dev. 8,043, or
3.77%

AIRC: Legislative Grid Map Option 2



Pop. Dev. 8,674, or
4.07%

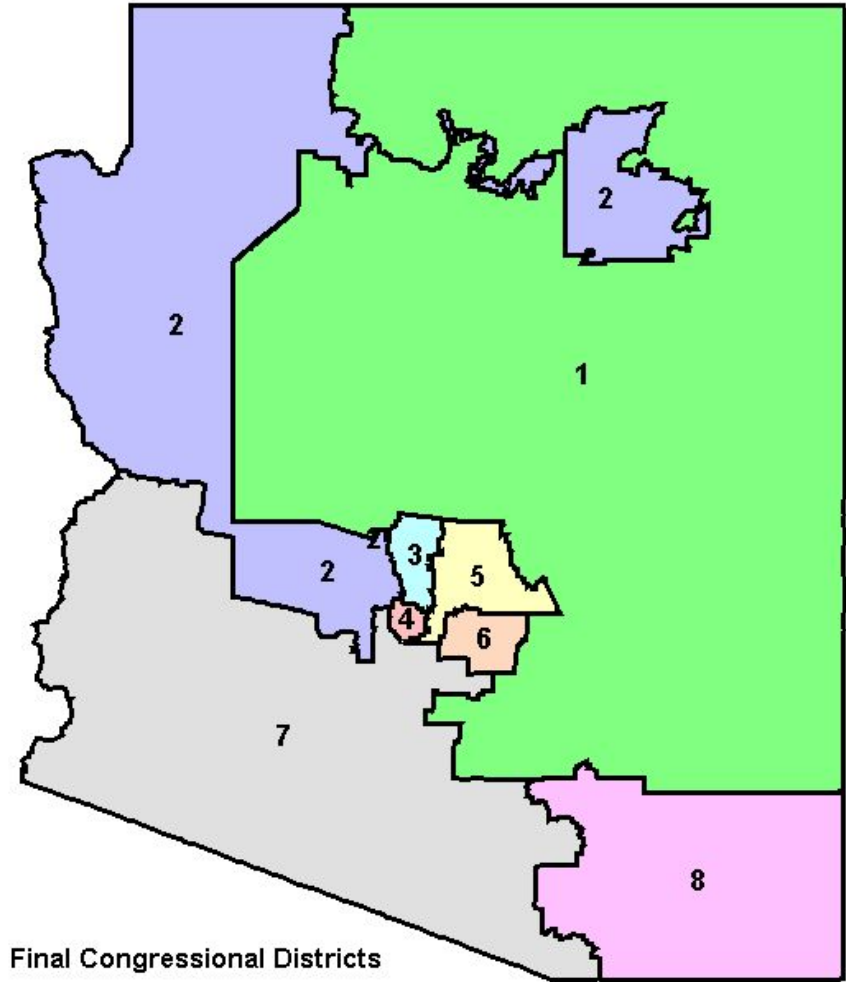
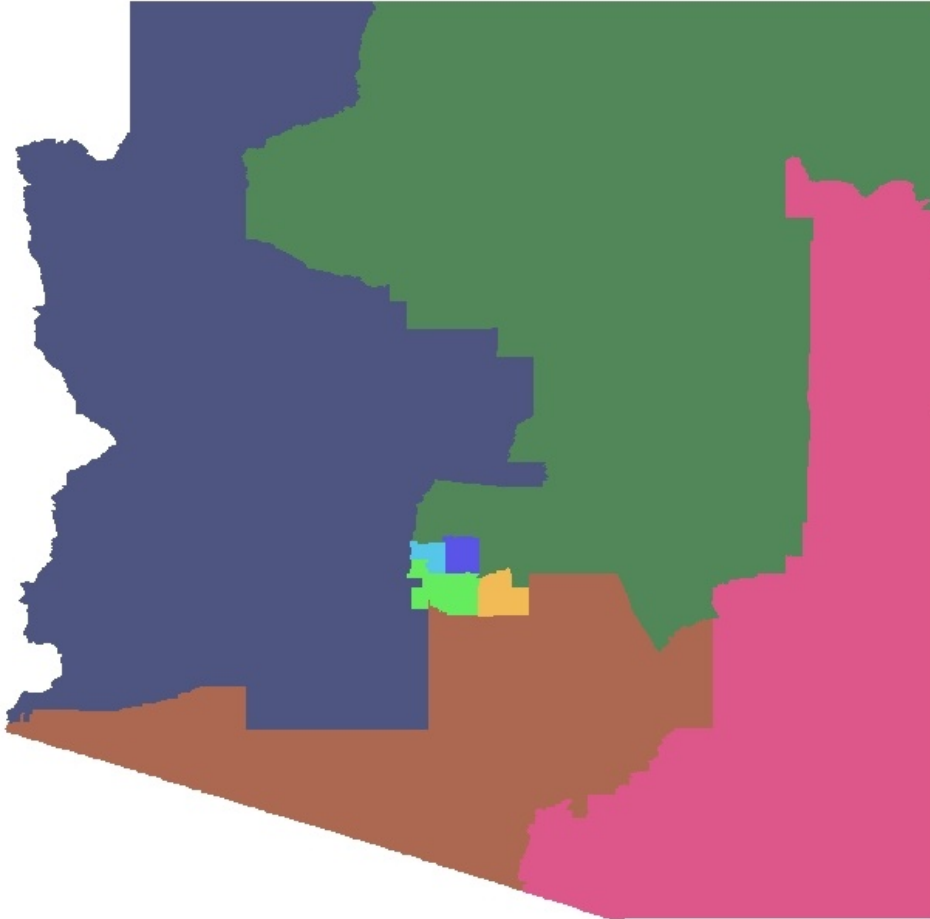
Alternatives & Conclusion

Alternative Options

- “Automated” Redistricting
 - Concern: the algorithms used and/or selection of nine or thirty “seed” starting points both influence the result
 - *2011 commission noted that the “more compact” grid varied depending on which compactness formula was chosen.*
 - But generating 100 or 1,000 maps optimized for compactness, then randomly choosing one of the 10, 20 or 100 “most compact” of those randomly-generated maps, is possible.

- Other ideas?

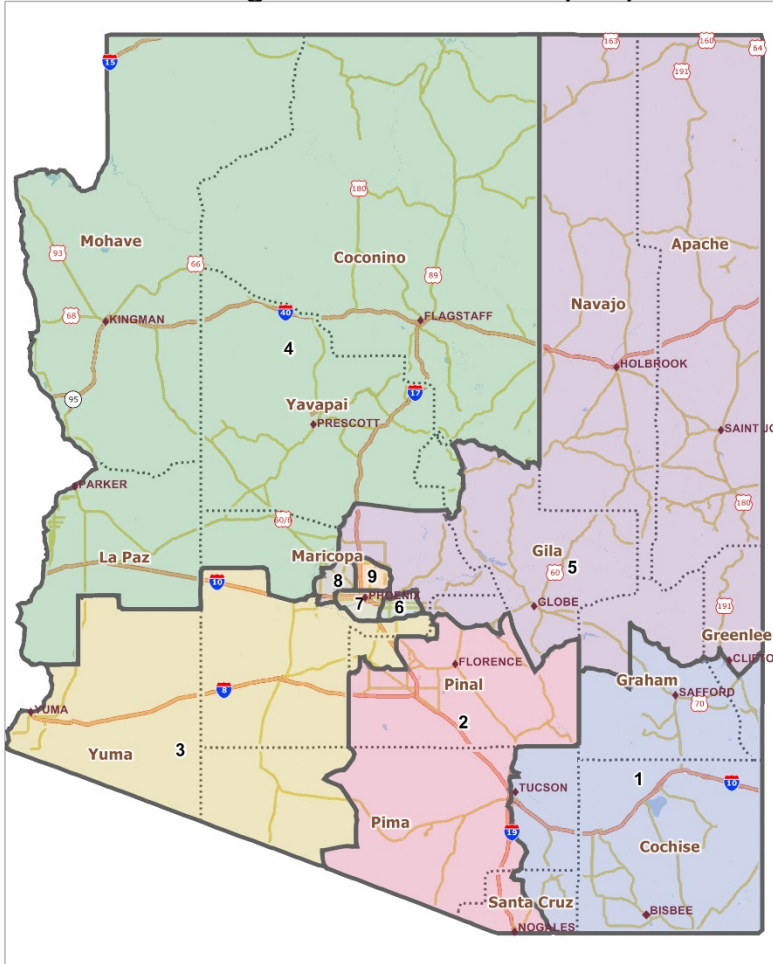
2001 Grid vs Final



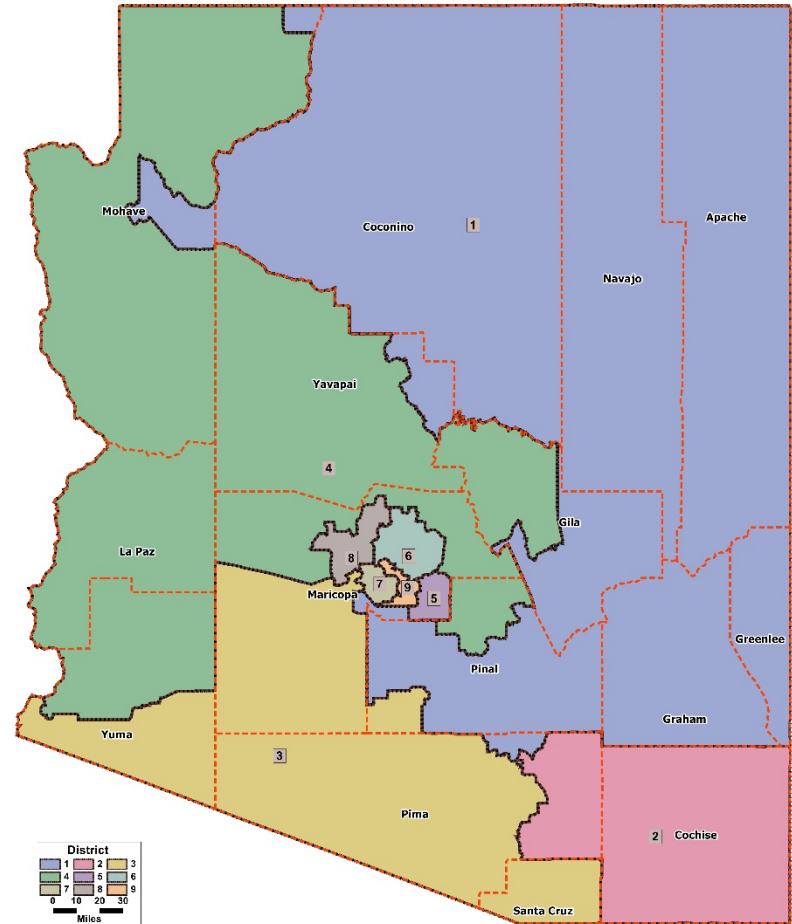
Final Congressional Districts

2011 Grid vs Final

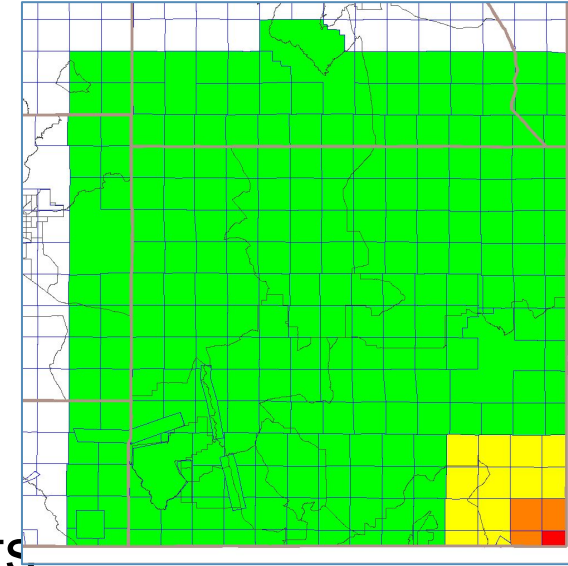
AIRC: Congressional Grid Map Option 2



Final Congressional Districts - Approved 1/17/12



Suggestions



- Randomly pick:
 1. Start: Townships Center or in a Corner?
 2. If corner, randomly pick a corner
 3. Direction: Clockwise or Counter-Clockwise

- Use Counties and whole Census Tracts
 - Accept the resulting less-than-perfect Congressional District population balance at this early stage
 - Rough miles in a “powers of two” pattern are a simpler approach to using township squares as guides
 - 1x1, 2x2, 4x4, 8x8, 16x16, to the County border

- Key Reminder:
 - HUGE changes are expected to whatever grid map is drawn