Appendix 4-O

Quality Assurance Edge Effects Analysis of County Boundaries and Model Cells

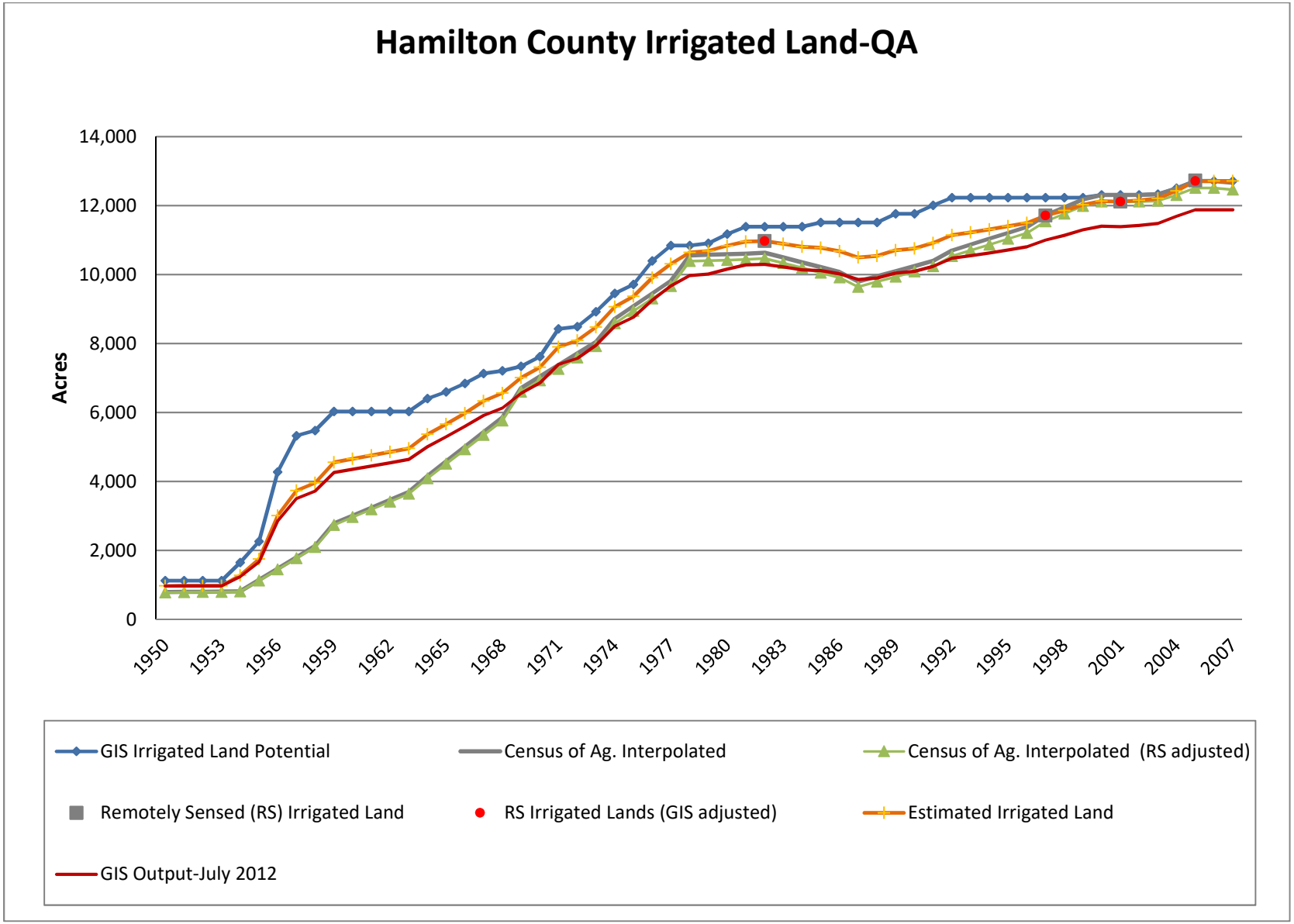
Quality Assurance Edge Effects Analysis of County Boundaries and Model Cells

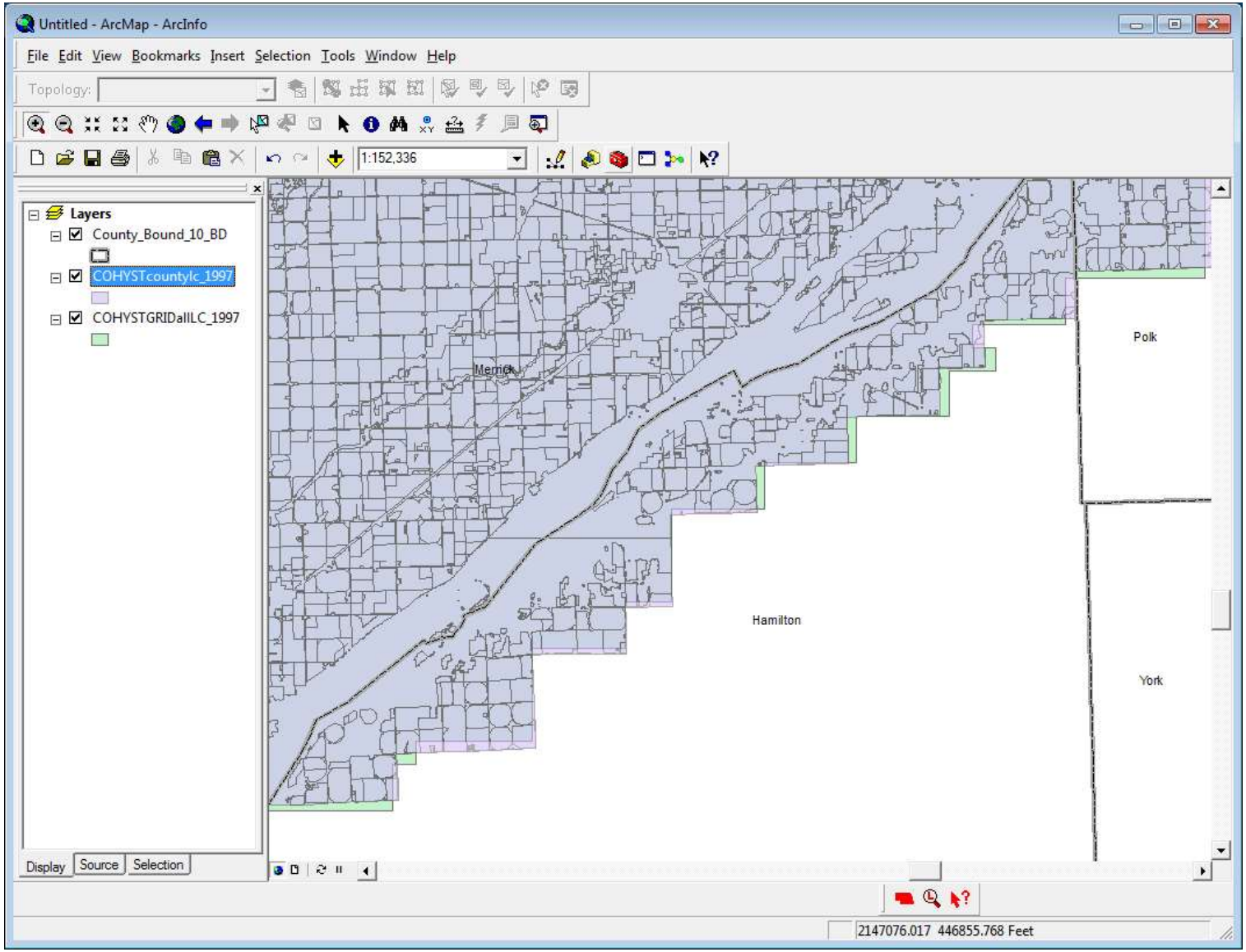
The outputs from GIS processing were summed by county and plotted against the original dryland/irrigated land curves where adjustment factors were derived. This was a QA that was intended to ensure that no errors were made when applying adjustment factors on a cell by cell basis. Discrepancies were noted between the GIS curve and the estimated irrigated lands for Platte, Hamilton and Frontier Counties, where the GIS curve was slightly under or over the desired location.

The GIS data were pulled for a single year (1997) to view the layers. It was noted that model cell layer has stair-step features and does not line up exactly with county boundaries. This county data was used in the county plots (Appendix 5.2-D) to derive the adjustment factors. However, when the GIS layer was divided into model cells a stair-step feature occurred along the edges. In most counties, this was undetectable when all areas were summed; however, in counties where only a small portion of the area resided within the study area, the discrepancy was large enough to be detected on the QA plots.

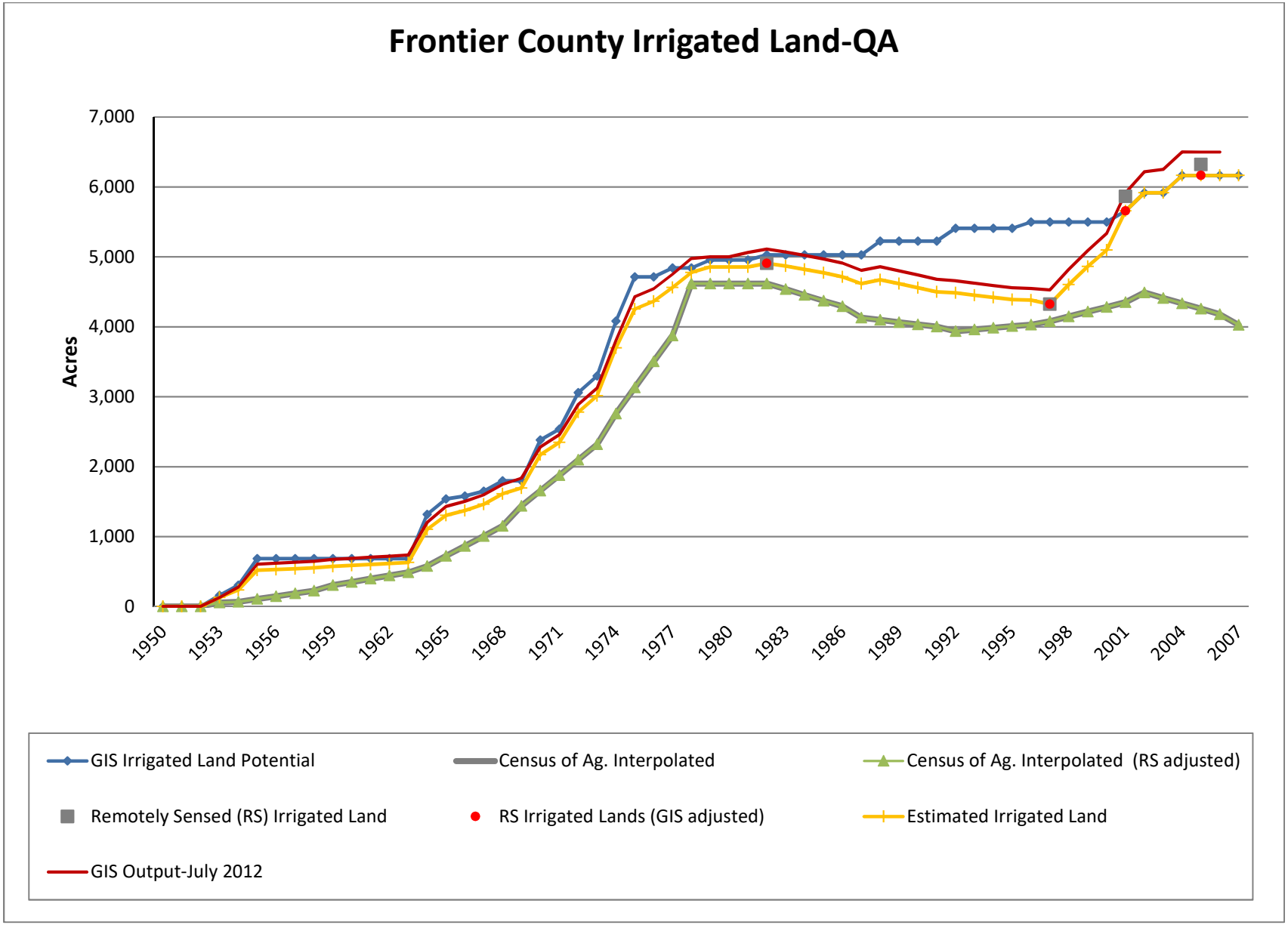
The following figures show the QA plots for Platte, Hamilton and Frontier Counties, as well as a screenshot of the overlay of the GIS layer for cells, vs. the GIS layer for counties. The difference in colors along the edges shows the scale effects of using cells vs. counties for analysis.

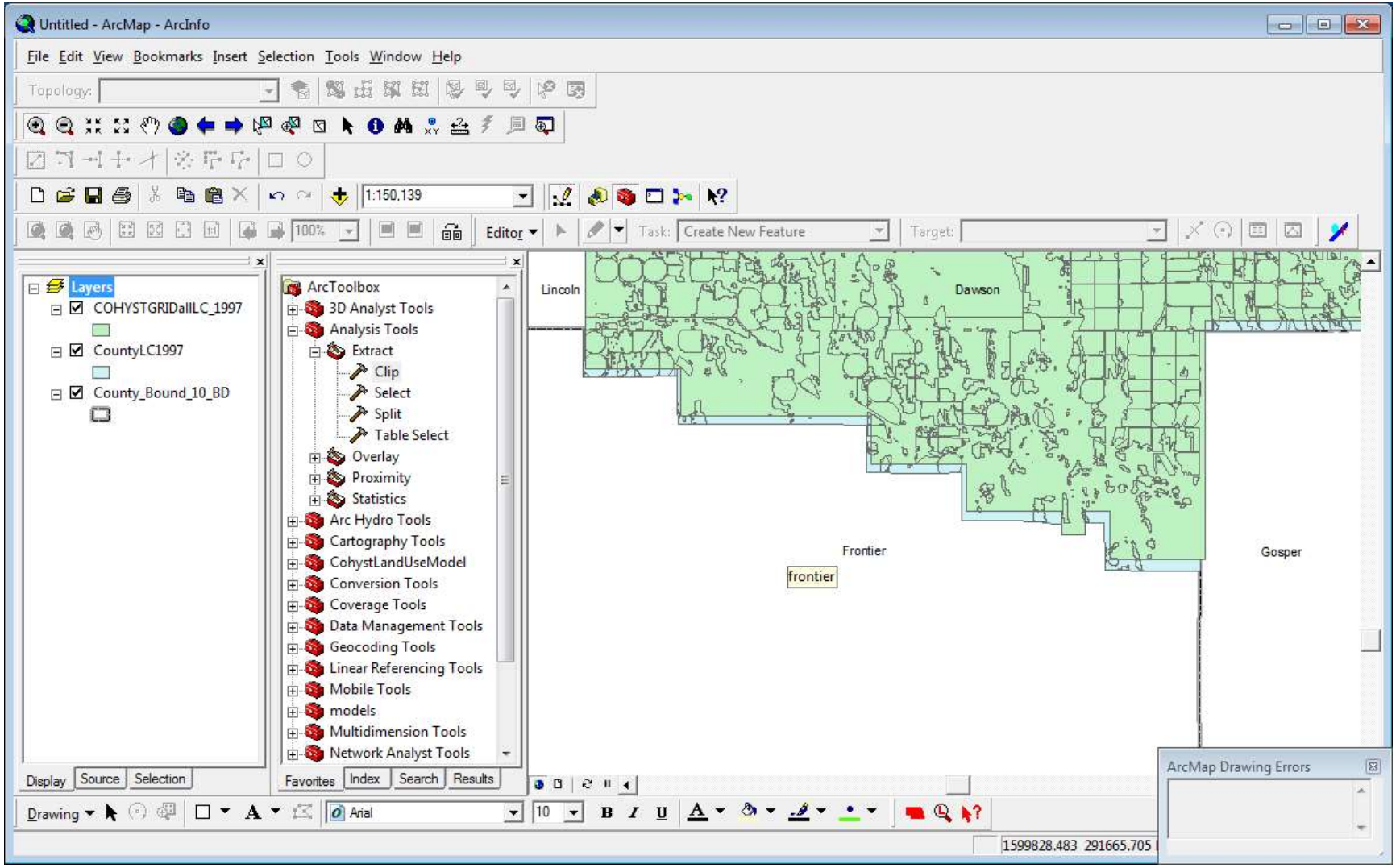
Because the discrepancies between GIS output and the desired estimated irrigation could be explained, no further action was taken to further reprocess the GIS output. It should, however, be noted that limitations occur with data, when small portions of counties are used for these types of analyses.


Hamilton County Irrigated Land-QA
Acres
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1950
1953
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
1986
1989
1992
1995
1998
2001
2004
2007
GIS Irrigated Land Potential
Census of Ag. Interpolated
Census of Ag. Interpolated (RS adjusted)
Remotely Sensed (RS) Irrigated Land
RS Irrigated Lands (GIS adjusted)
Estimated Irrigated Land
GIS Output-July 2012

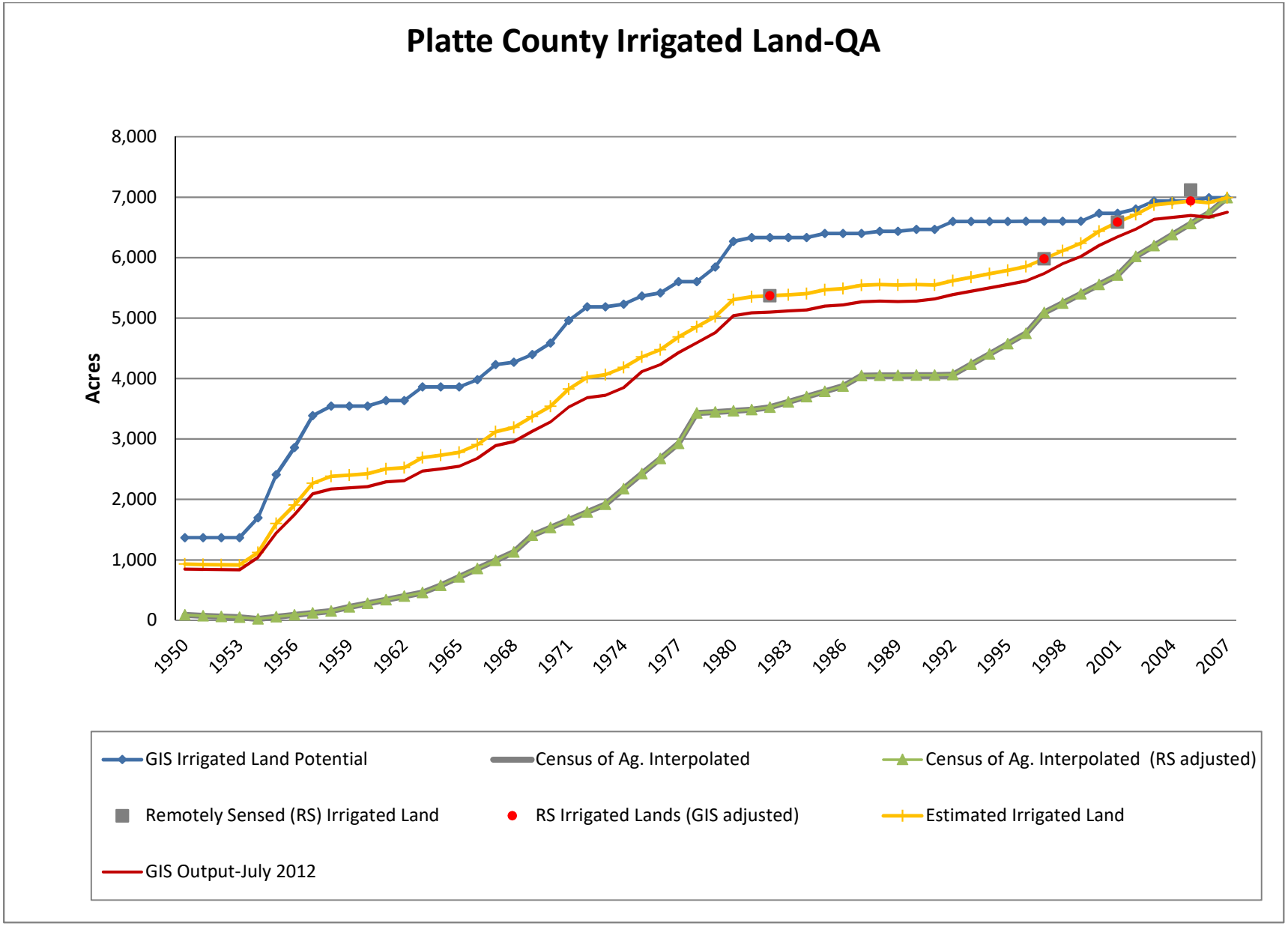


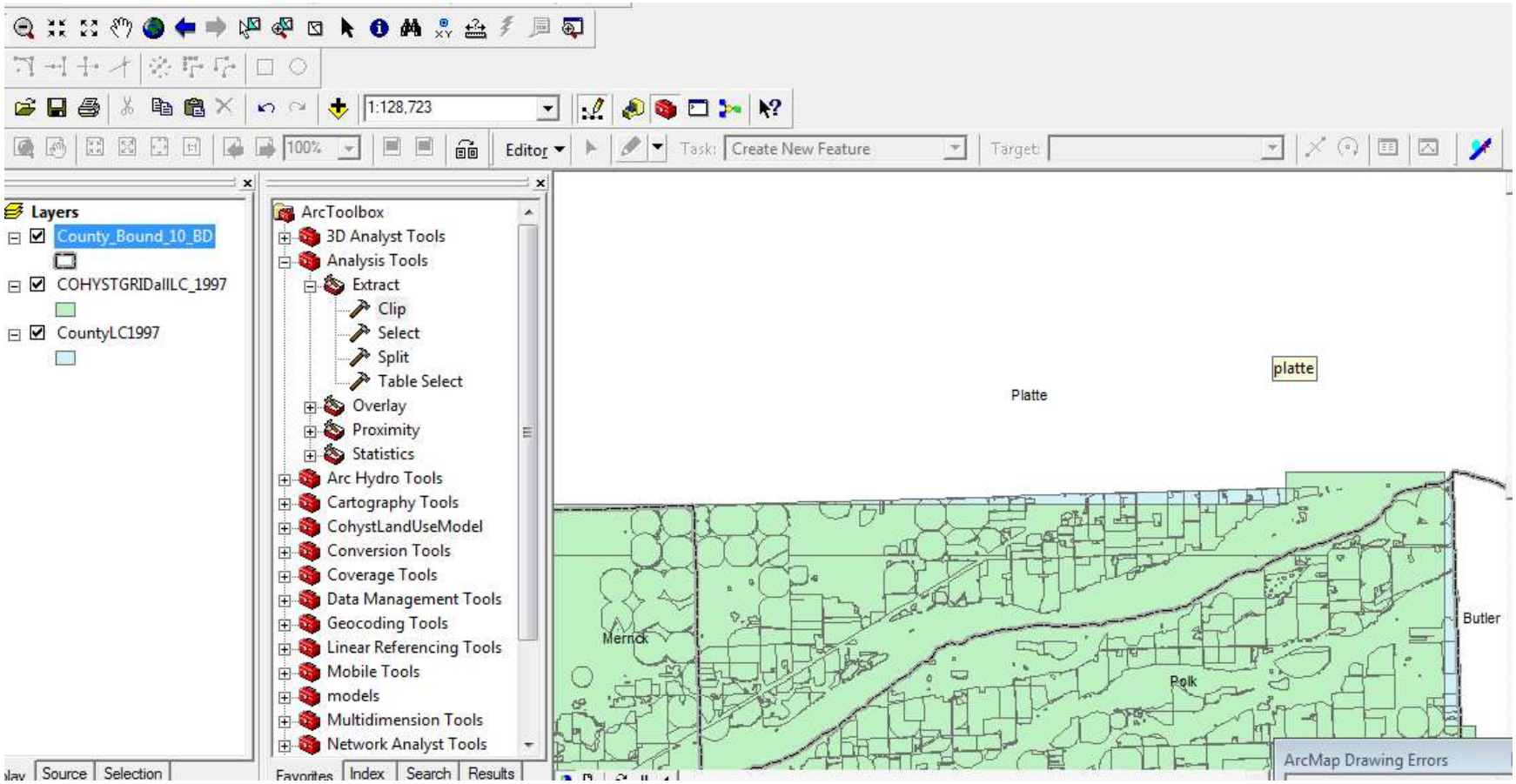
County vs. cell GIS Layers for Hamilton County


Frontier County Irrigated Land-QA
Acres
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1950
1953
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
1986
1989
1992
1995
1998
2001
2004
2007
GIS Irrigated Land Potential
Census of Ag. Interpolated
Census of Ag. Interpolated (RS adjusted)
Remotely Sensed (RS) Irrigated Land
RS Irrigated Lands (GIS adjusted)
Estimated Irrigated Land
GIS Output-July 2012



County vs. cell GIS Layers for Frontier County


Platte County Irrigated Land-QA
Acres
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1950
1953
1956
1959
1962
1965
1968
1971
1974
1977
1980
1983
1986
1989
1992
1995
1998
2001
2004
2007
GIS Irrigated Land Potential
Census of Ag. Interpolated
Census of Ag. Interpolated (RS adjusted)
Remotely Sensed (RS) Irrigated Land
RS Irrigated Lands (GIS adjusted)
Estimated Irrigated Land
GIS Output-July 2012



County vs. cell GIS Layers for Frontier County