Executive Summary

This report summarizes the efforts to attempt to classify the tree canopy for the City of Modesto. Tasks completed as part of this project included:

- Downloading Color Infrared images from the State of California Cal-Atlas Geospatial Clearinghouse
- Preparing a mosaic of the four images downloaded
- Extracting the area covered by the City boundaries
- Further extracting a subset of this data for testing the classification process and saving time
- Creating a Microsoft Access database of tree data provided by the City and querying the data to determine the number of different species of trees identified by the City
- Creating a file geodatabase and feature classes for the classification work
- Creating spectral signature polygons for a variety of feature classes in ArcGIS
- Creating spectral signatures from the polygons in ArcGIS
- Evaluating the spectral signatures using the Dendrogram routine in ArcGIS
- Running the Maximum Likelihood Classifier in ArcGIS
- Evaluating the results of the classification process

The work resulted in new image that showed the tree canopy but did not identify the tree species. A portion of the image is shown below. This portion of the overall image is enlarged to show the tree canopy at the neighborhood level for an area selected at random. Examination of the image will reveal that the tree canopy shows multiple tree species for individual trees, so this part of the classification did not work as desired.

Tree Canopy
Modesto, 2010

Trees
- <all other values>

Species ID
- All Others
- 1
- 19
- 28
- 29
- 31
- 32
- 33
- 34
- 91

- 1
- Grass
- Ground
- Open field
- Street
- Parking
- Water
- 19
- 28
- 29
- 32
- 33
- 34
- 91