

Expanding Agricultural Activity in Acushnet, MA: A Site Suitability Analysis

Background

The New Entry Sustainable Farming Project's Farmland Matching program strives to increase opportunities for local food production through increasing access to farmland for beginning farmers in Massachusetts. By combining information regarding soil, wetlands, land use, and open space with local assessor's parcel data, New Entry is able to identify parcels that are best suited for agriculture. By connecting with the owners of these parcels, New Entry has facilitated matches between landowners with arable farmland with beginning farmers looking to lease land.

This project is focused on the town of Acushnet, located in Bristol County, MA. The goal of this analysis is to combine parcel data with soil, land use and wetlands data (Fig. 4) to find parcels that contain deforested prime farmland soil greater than 2 acres, and occurring outside of wetlands protected by the Department of Environmental Protection (DEP) under the Wetlands Protection Act.

Figure 1: Land

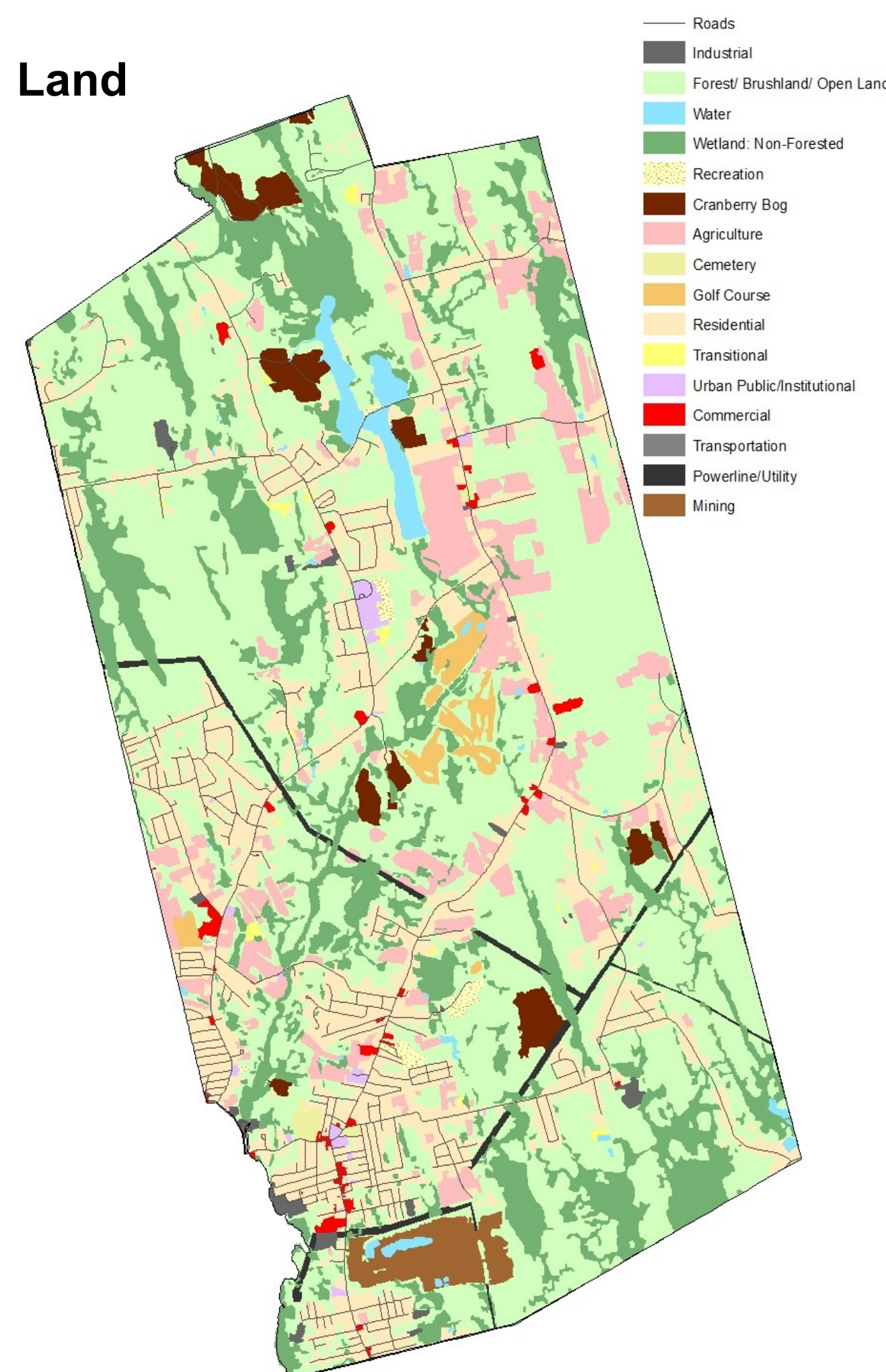
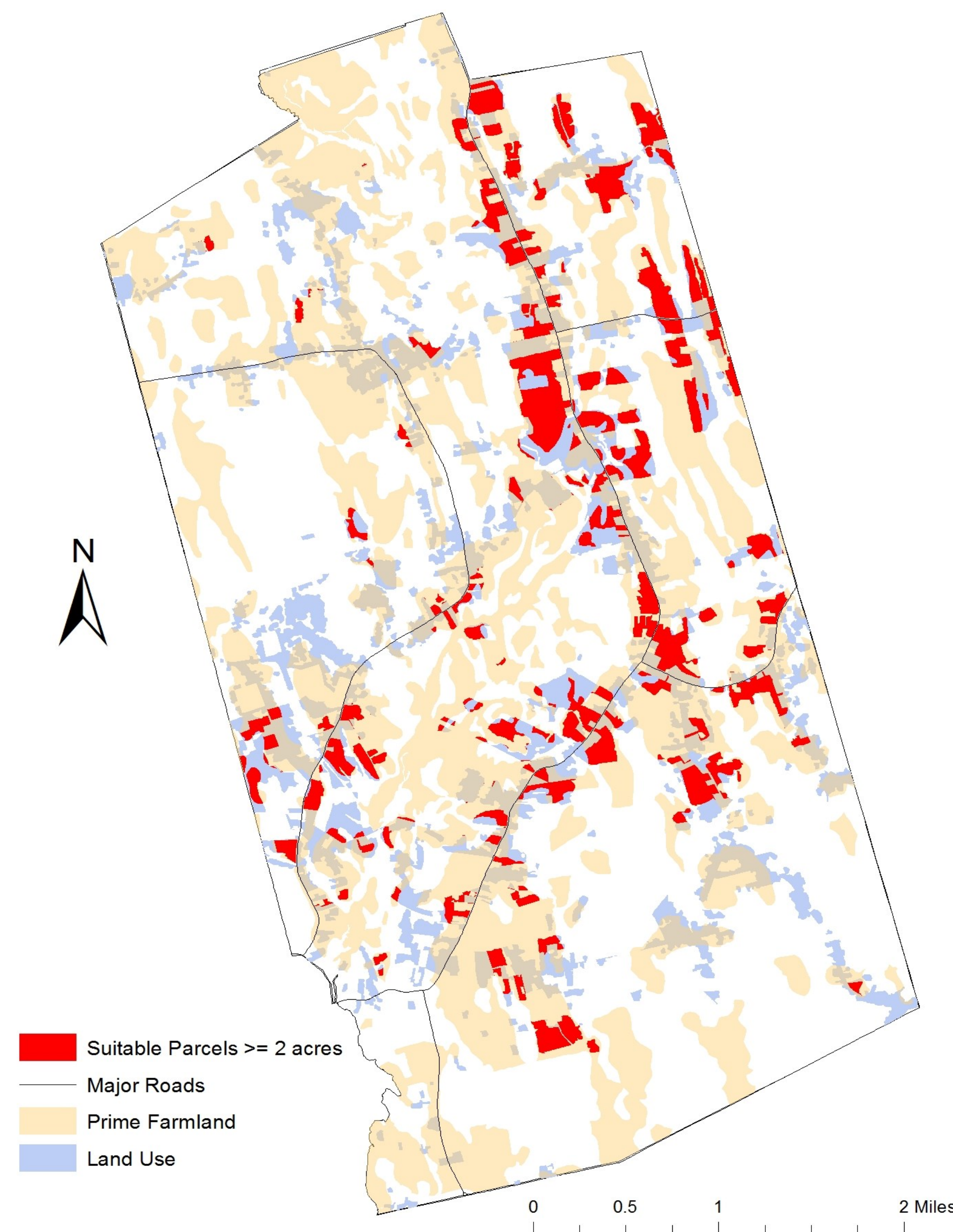


Figure 2: Suitable Parcels



Methodology

This analysis was conducted using ArcGIS, and all data layers were obtained from the MassGIS database. In order to determine suitable agriculture units that meet the New Entry criteria, the "select by attribute" tool was used to select the cropland, pasture, low density residential, brushland/successional, orchard, nursery, and open land categories from the land use data. Next, the "union" tool was used to combine the selected land use data with the wetlands, prime farmland, and parcel data, and a new shapefile was created from this combined data. Lastly, the "select by attribute tool" was used to identify suitable agriculture units that were greater than or equal to 2 acres and not located on a wetland (Fig. 2).

Project Findings & Discussion

While there are 5,257 acres of prime farmland in Acushnet, only 738 acres meet the New Entry criteria (Fig. 2). This is due to prime farmland overlapping with protected wetlands as well as small parcel size (<2 acres) as demonstrated by Fig. 3., which shows the parcel outlines in white overlaying prime farmland. Further, only a few categories (cropland, pasture, low density residential, brushland/successional, orchard, nursery, and open land) of land use meet the New Entry criteria (Fig. 2).

While this GIS analysis will assist New Entry in identifying parcels of arable farmland in Acushnet, it is likely that some promising parcels have been left out of this analysis. For example, some parcels that are not classified as "prime farmland" may still meet the needs of livestock or poultry farmers who do not need prime farmland soil. Alternatively, some of the suitable parcels identified through this analysis may not be suitable for farming due to slope restrictions. Further research and analysis using GIS might include an elevation overlay in order to exclude parcels that are too steep for production purposes.

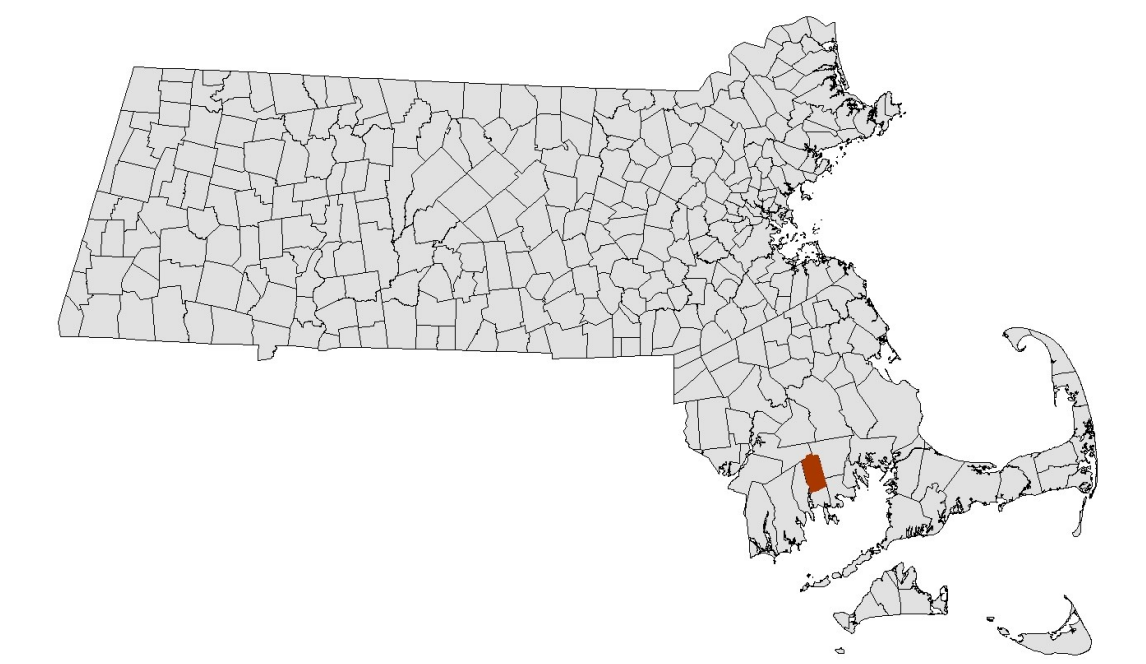


Figure 3: Prime Farmland and Hydrology with Parcel Data

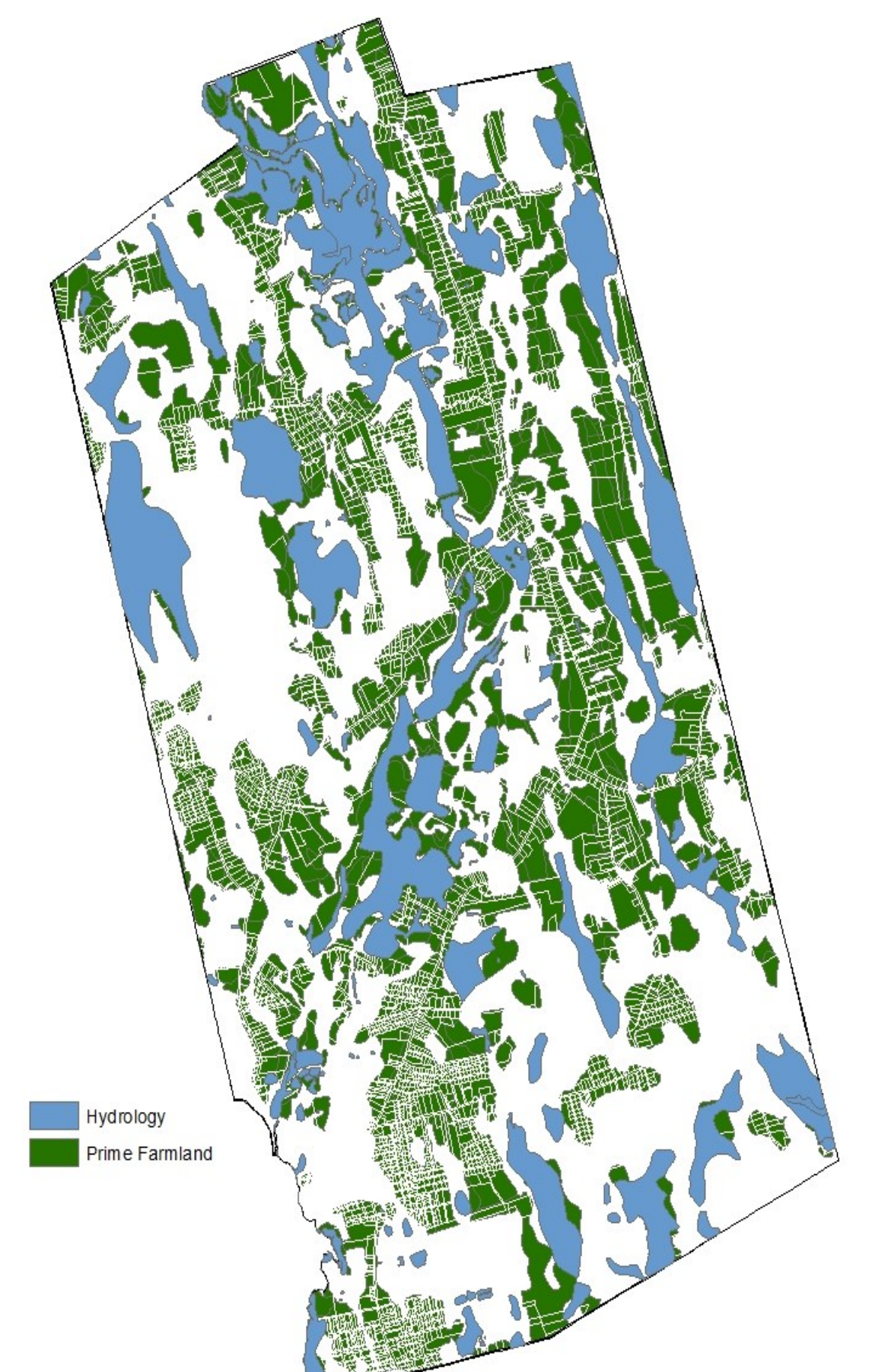
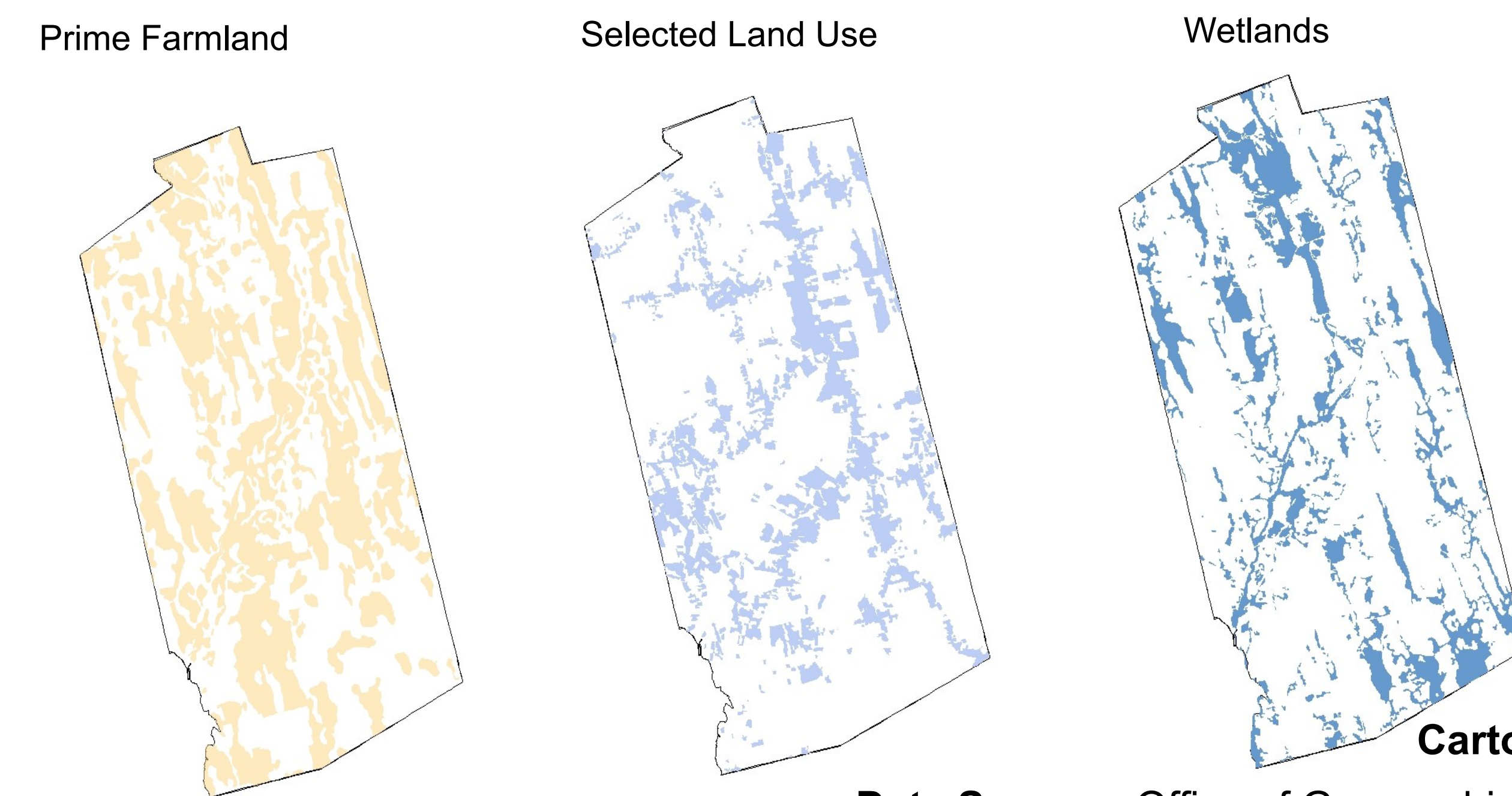


Figure 4: Individual Data Layers



Cartographer: Emma Kravet

Data Source: Office of Geographic Information (MassGIS), Commonwealth of MA, Information Technology Division

Projection Coordinates:

May, 2013 NAD_1983_StatePlaneMassachusetts_Mainland_FIPS_2001