Sprawl Forecasting

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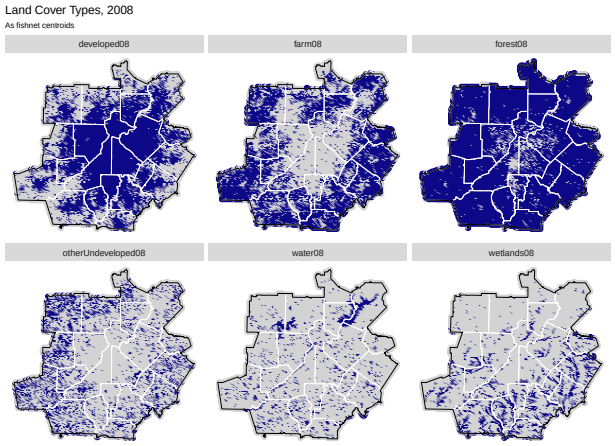
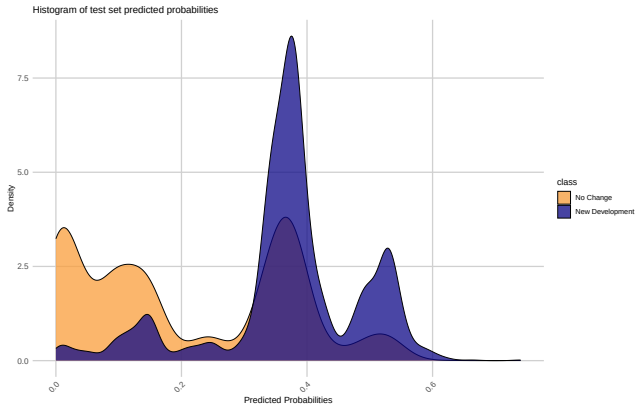
1) Data Exploration



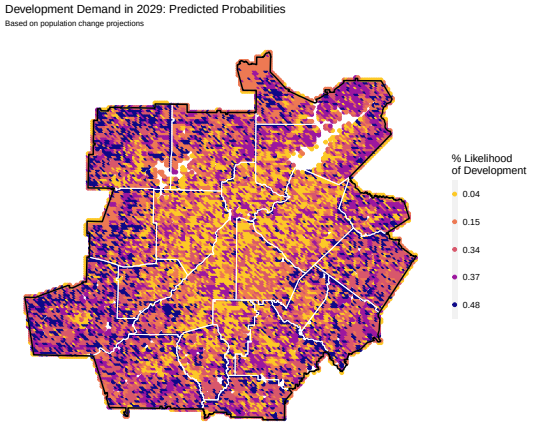
Atlanta is a heavily forested area. Development is vast, with its anchor in the center of the MSA, radiating outward. A significant amount of farmland exists in a thick band against the MSA's periphery. Undeveloped areas are scattered, also mostly near the MSA's periphery.

2) The Model



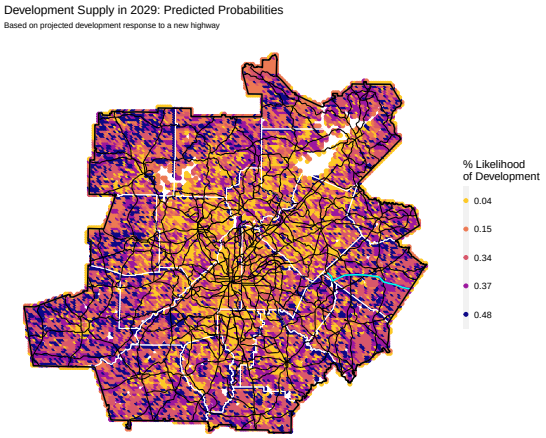
A high density of the binomial logistic regression model's cells have roughly a 40% likelihood of development. This makes sense given the sprawling nature of the Atlanta MSA's existing development patterns, which are acreage intensive.

3) Scenario A: Demand-side Change Forecast



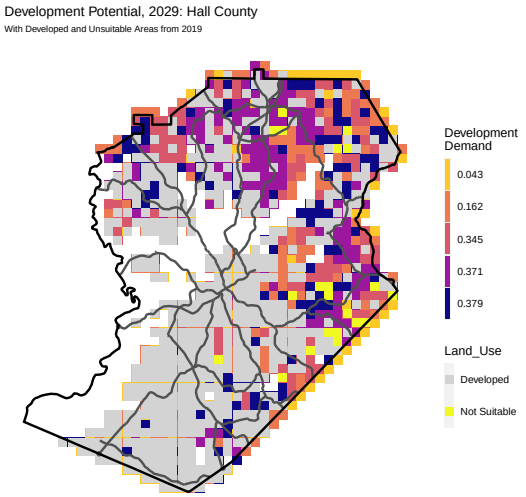
This demand-side projection uses 2029 population projections for the Atlanta MSA's counties. It doesn't show huge changes from where the model predicted development would be in 2019. Although, it is predicting increased development in the northwest and southwest.

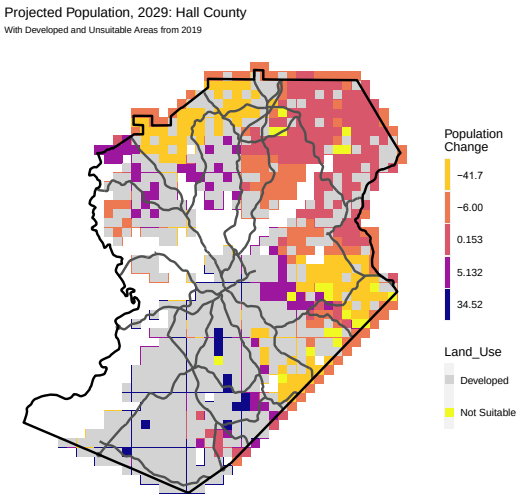
4) Scenario B: Supply-side Change Forecast



This projection predicts how adding a highway might affect development patterns in 2029, based on scenario 1. This model allows us to directly compare how adding in a supply-side factor affects the model's demand-side only predictions.

5) Development Allocation





Mapping Hall County's development potential and projected population with developed land and wetlands (the "not suitable" land) shows that the County still has a significant amount of area that is suitable for development. This county would do well to prioritize infill development between highways in its northwest and southern portions where there is predicted to be both high development demand and significant population growth. This would also help to reduce forest fragmentation and pressure on wetlands in the county's east and northeast.