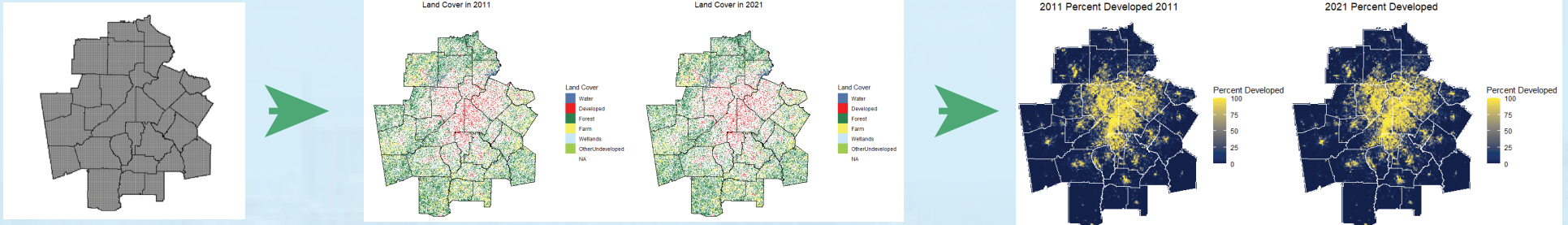


Jarred Randall & Sylvanus Duamor

This poster outlines the findings from a comprehensive analysis conducted to forecast urban development in Atlanta for the year 2031. Leveraging historical land use data, demographic changes, and transportation dynamics from 2011 to 2021, we employed a binary logistic regression model to predict future development patterns. Our analysis aims to aid the Metropolitan Planning Organization (MPO) in strategic decision-making for sustainable urban growth, accommodating future population increases and infrastructural demands while considering environmental impacts.

After loading in the Atlanta MSA boundary we create a 2500 x 2500 fishnet area for analysis

after we calculate the percent of each grid square that is developed in 2011 and 2021.

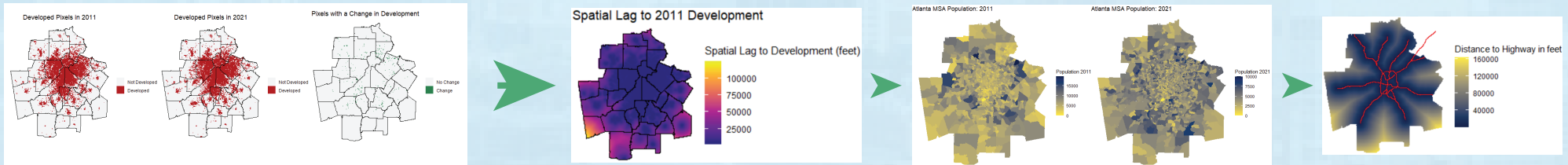


Then we determine which grid squares that were greater than 25% developed in 2011 and 2021

spatial Lag to nearest 5 developed
grid squares and 10 developed

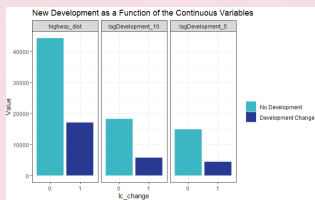
2011 and 2021 census data

Distance from Road to Fishnet Centroid

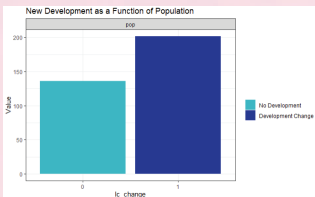


Our analysis of land cover types reveals that while developed lands and wetlands remained largely unchanged, forest areas experienced a development rate of 0.66%, highlighting their susceptibility to urban expansion.

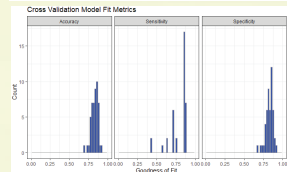
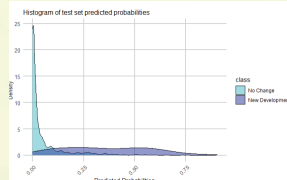
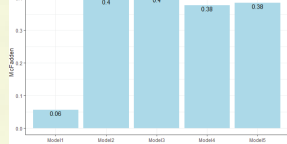
Furthermore, our data clearly shows that proximity to highways and higher population densities are significant factors in increasing the likelihood of land development, emphasizing the influence of accessibility and demographic pressures on land use changes.



Land_Cover_Type	Conversion_Rate
developed	0%
farm	0.15%
forest	0.66%
otherundeveloped	0.06%
water	0%
wetlands	0%



McFadden R-Squared by Model



```
Call:
glm(formula = "lc_change ~ pct_wetlands + pct_forest + pct_farm +
  pct_other + lagdevelopment_10 + pop + highway_dist + county",
  family = binomial(link = "logit"), data = dattrain)

Coefficients:
              Estimate Std. Error z value
```

[illegible]

```
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(Dispersion parameter for binomial family taken to be 1)
```

Specificity by County

Type of Land Cover Grid Squares Predicted to Change

