



**MURRAY STATE**  
UNIVERSITY

**Murray State's Digital Commons**

---

Scholars Week

2016 - Fall Scholars Week

---

Nov 18th, 12:00 AM - Apr 18th, 12:00 AM

## Kentucky Rural Development

Patrick J. Hooks  
*Murray State University*

Follow this and additional works at: <https://digitalcommons.murraystate.edu/scholarsweek>



Part of the [Landscape Architecture Commons](#), and the [Urban, Community and Regional Planning Commons](#)

---

Hooks, Patrick J, "Kentucky Rural Development" (2016). *Scholars Week*. 5.  
<https://digitalcommons.murraystate.edu/scholarsweek/Fall2016/GIS/5>

This Poster Presentation is brought to you for free and open access by the The Office of Research and Creative Activity at Murray State's Digital Commons. It has been accepted for inclusion in Scholars Week by an authorized administrator of Murray State's Digital Commons. For more information, please contact [msu.digitalcommons@murraystate.edu](mailto:msu.digitalcommons@murraystate.edu).



## INTRODUCTION

❖ This project examines the development and progress of Kentucky's urban areas within major population centers. The project uses land cover maps and surveying techniques that can be very useful for tracking development over a 10 year time period, from 2001 to 2011. The 2001 and 2011 land cover data have been downloaded from the National Land Cover Database (NLCD) of the US Geological Survey. The datasets were recoded to simplify the maps for easier interpretation.

## STUDY AREA

❖ The two study areas used for this project are Western Kentucky and the Louisville Metro area. Louisville was chosen to study more closely because it is the largest urban population in the state of Kentucky.

## PURPOSE OF STUDY

❖ The main objective of this study is to study the urban development of Western Kentucky and more closely the Louisville Metro area. Studying these areas can help us understand Kentucky's growth over the past 10 years and how we can develop urban areas, but still protect farms and other crucial infrastructure. Understanding how Kentucky has grown in the past, and how it is growing now will help predict the development in the future. In terms of future infrastructure, urban development, and population growth plans this study should provide insights to better understand how we could protect and maintain the population while still developing our infrastructure. This should help decision makers in the Commonwealth of Kentucky understand growth trends and how they can create regulations that benefit of the citizens in the region.

## METHODS

- ❖ ArcGIS software and data from the NLCD database of the USGS were used for this project.
- ❖ Land cover and surveying techniques were used to analyze the data.
- ❖ Census data were integrated with the NLCD data to examine rural and urban areas to see how the area has changed over time.
- ❖ This map was projected using the NAD 1983 projection.
- ❖ A total of 4 maps were created: western Kentucky in both 2001 and 2011 and the metro Louisville area in 2001 and 2011.

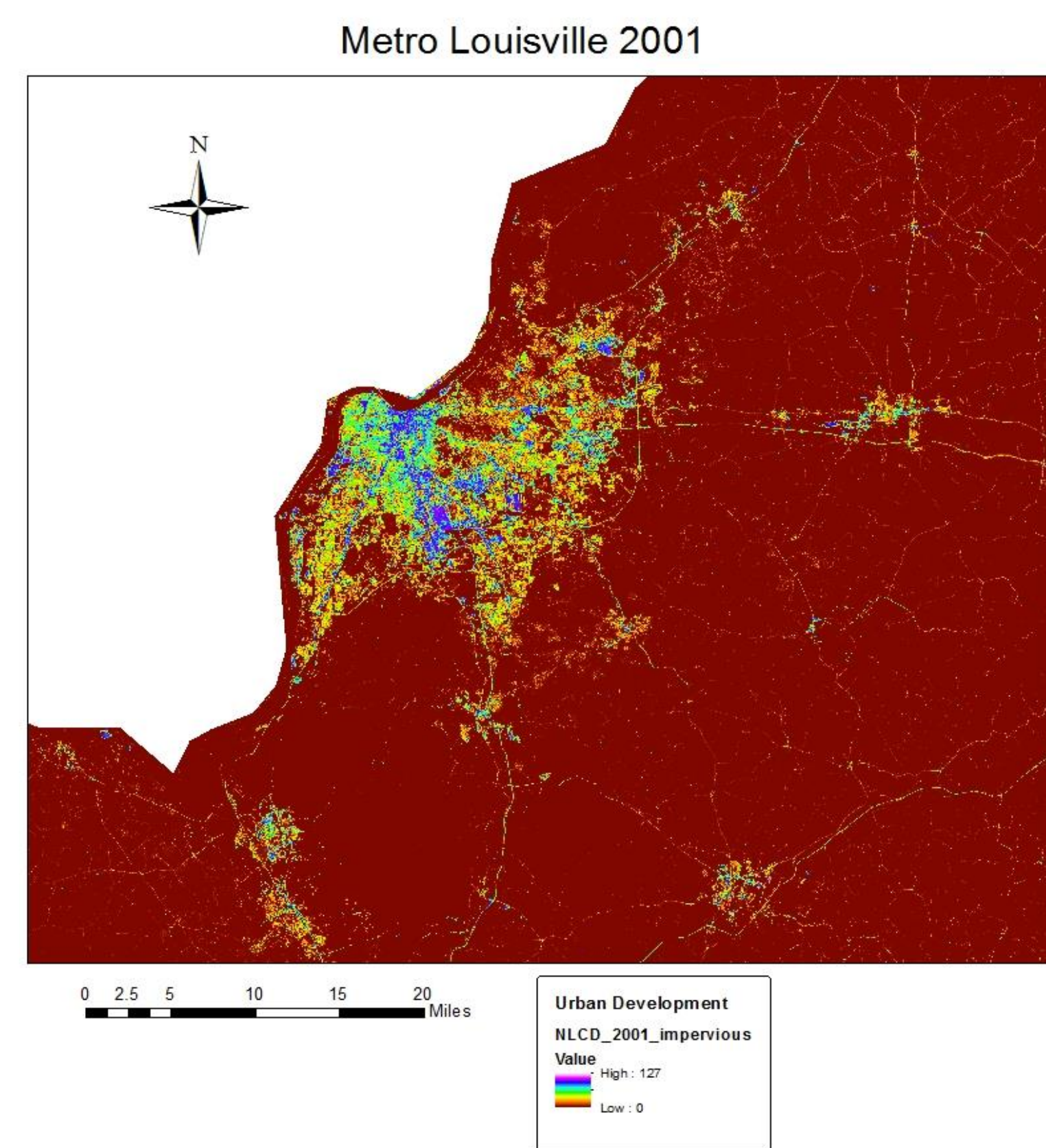


Figure 1. 2001 NLCD land cover image. This image illustrates the land cover for the Louisville as they were in 2001..

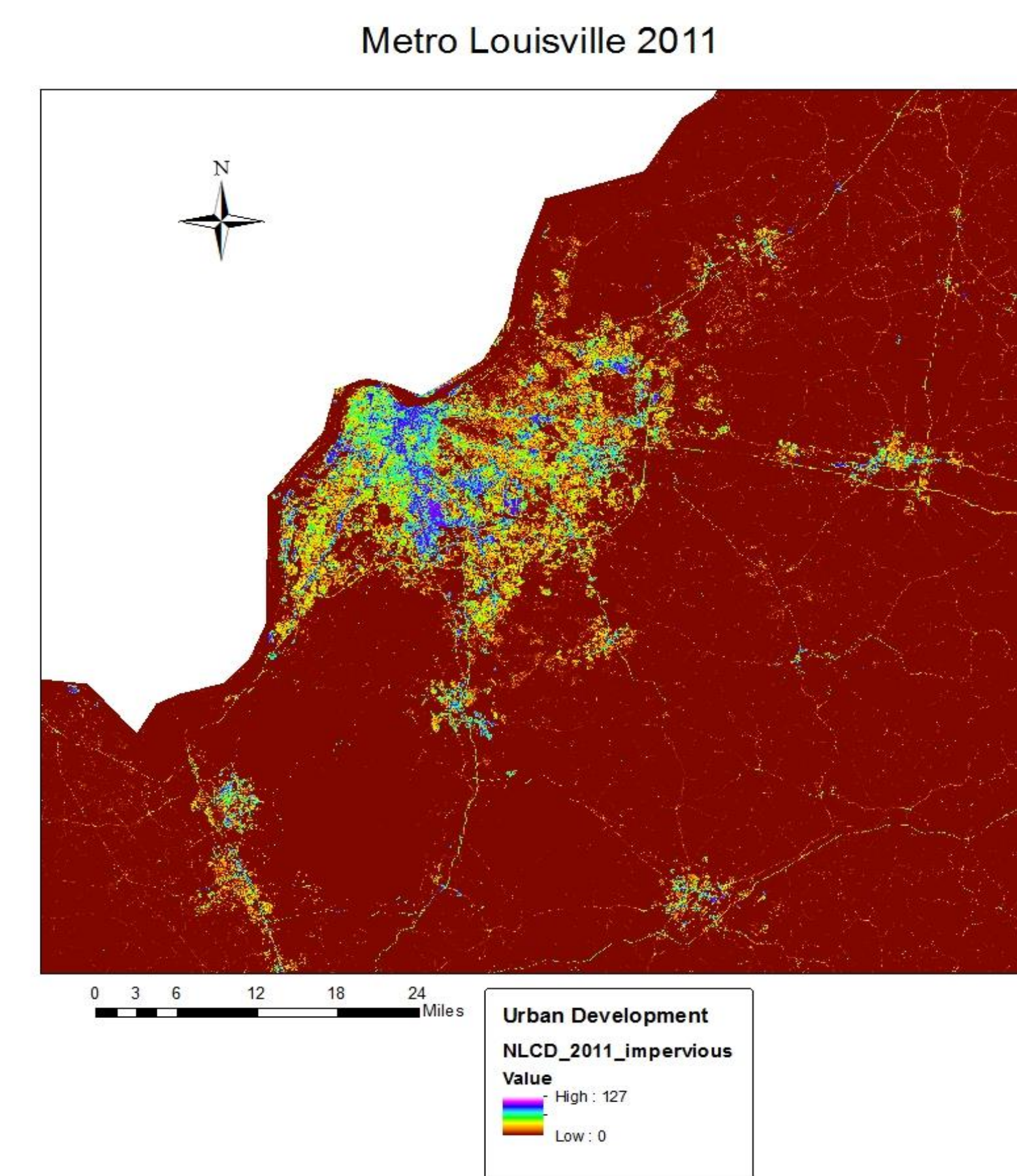


Figure 2. 2011 NLCD land cover image. The data were recoded to illustrate land cover classes.

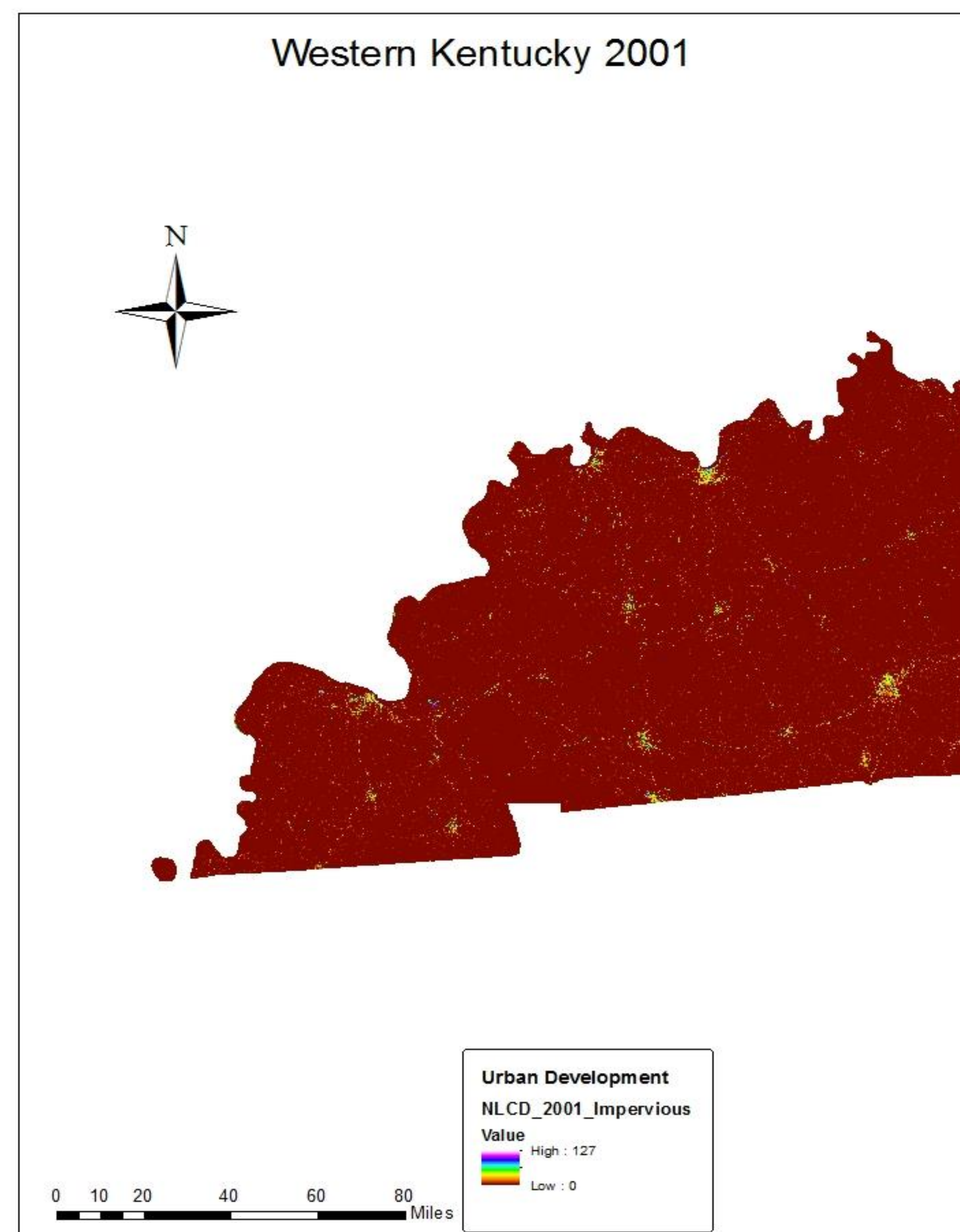


Figure 3. Conductivity: Ledbetter Western Kentucky. changes from to Urban (red),Populations Pasture (pink). Conductivity in the Western Kentucky land cover from years 2001.

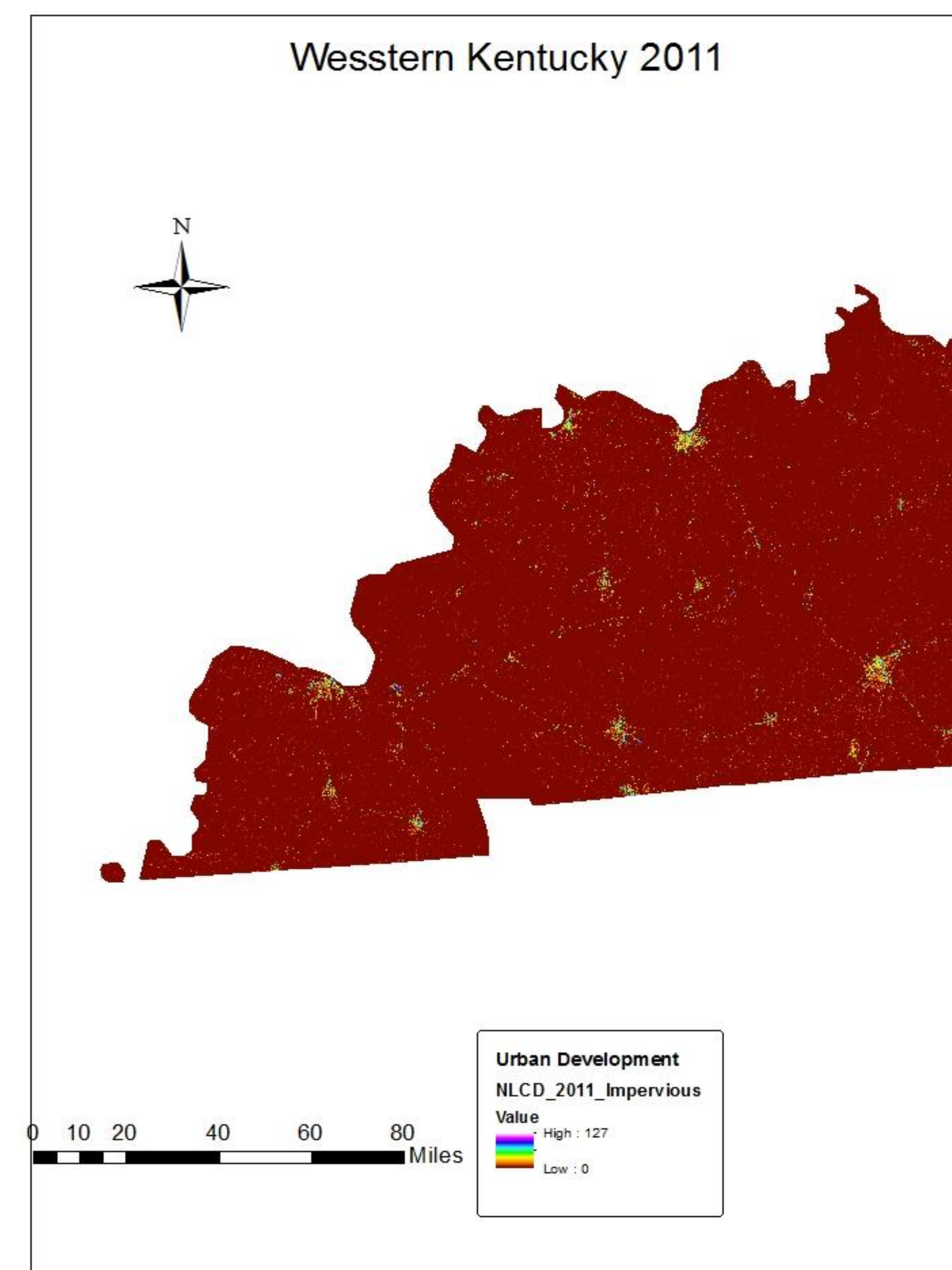


Figure 4. Change Detection Image. This image highlights changes from Fig. 2 to Urban (red),Populations Pasture (pink). This image shows an overall trend of populations development for this study area.

## RESULTS

- ❖ In 2011, urban and rural populations have grown since 2001.
- ❖ The development of Western Kentucky can be seen over 10 years.
- ❖ The pink and blue colors represent increase in population and development of buildings and infrastructure.
- ❖ This shows how urban development has grown over the past 10 years.
- ❖ Louisville Metro has slowly grown. This area is a great example of urban development in Kentucky because it is one of the largest populated areas in Kentucky.

## CONCLUSIONS

- ❖ In conclusion, as a state we need to make sure that we plan for future expansion so that important infrastructure and farmland does not get neglected.
- ❖ We also need to make an effort to make sure that expansion does not effect conservation efforts.

## REFERENCES

- ❖ United States Geological Survey (USGS) Earth Explorer
- ❖ NLCD Data from the USGS (2001/2011)
- ❖ United States Census Bureau (2000/2010)