HUMAN INFLUENCED LAND USE TRANSFORMATIONS

BURLINGTON COUNTY, NJ

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URBANIZATIONS POWER OF TRANSFORMATION

The United States is portrayed as a melting pot, in relation to human population and sprawl. The rate is almost mind blowing when you really analyze the facts. Because of this, urban sprawl is drastically changing the landscape before our eyes. Known as urbanization, humans are repeatedly finding new ways to develop and alter the world we live in today.

Urbanization is very powerful human influence. It's a transformation based on human preference that, if not sustainably planned, can threaten qualities of a healthy future needed to support life. By life I mean all organisms in the ecological system, as well as the natural resources needed to energize that system. Humans are significantly correlated with the determination and quality of life on this earth. Urbanization today, especially in NJ which is often considered a mini America because of how densely populated and developed it is, exposes interesting signs of destruction when not planned properly. We notice these trends by carefully piecing together human impaction through trial and error. By looking into the recent past we can still learn to improve and efficiently restore the landscape we are fragmenting for our own needs. As humans move further in time, adaptations and smarter growth management strategies evolve in order to mitigate this challenging issue.

Specifically, urbanization has a direct effect on the landscape of Burlington County, NJ. Most influentially urban development displays trends of decreasing forest areas, agricultural areas, and wetland areas. Analyzing the power of urban land is essential to managing and protecting the future quality of all life in the very complex; Burlington County, NJ.

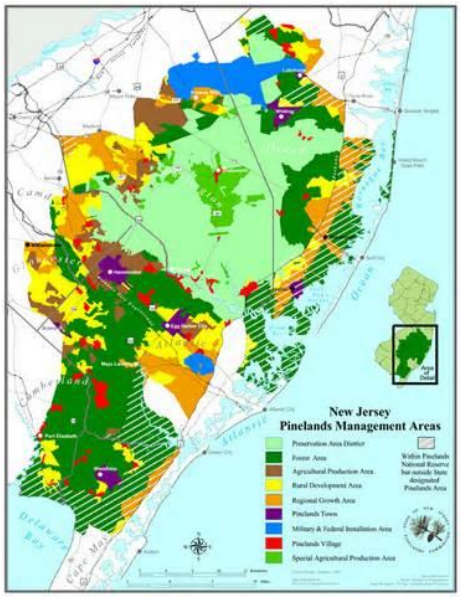

Figure 1: Pinelands Management Areas

COMPLEXITY OF BURLINGTON CO.

Burlington County is very unique and diversified, in respect to management areas adopted by the Pinelands Comprehensive Management Plan in 1981. These areas are designed to meet ecological and land use development goals which, with all 40 municipalities' cooperation, can weaken the future threats of urbanization. How many management areas does Burlington County contain? The answer is all of them, and they are listed in figure 1 and as followed...

Preservation District Area
Forest Areas
Agricultural Production Areas
Special Agricultural Production Areas
Regional Growth Areas
Rural Development Areas
Military and Federal Installation Areas
Pineland Villages
Pineland Towns

COMBINED LAND USE MAP VISUALS

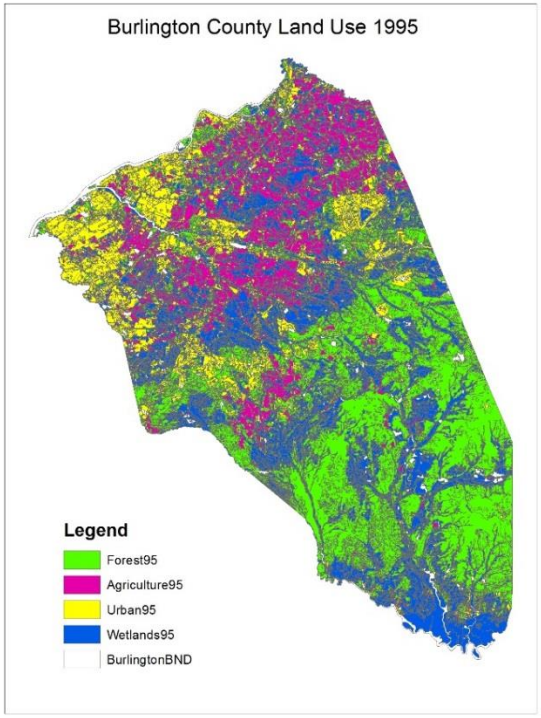

Figure 2: 1995 NJDEP Data ArcGIS BC LU Map Creation (KC Hanscom)

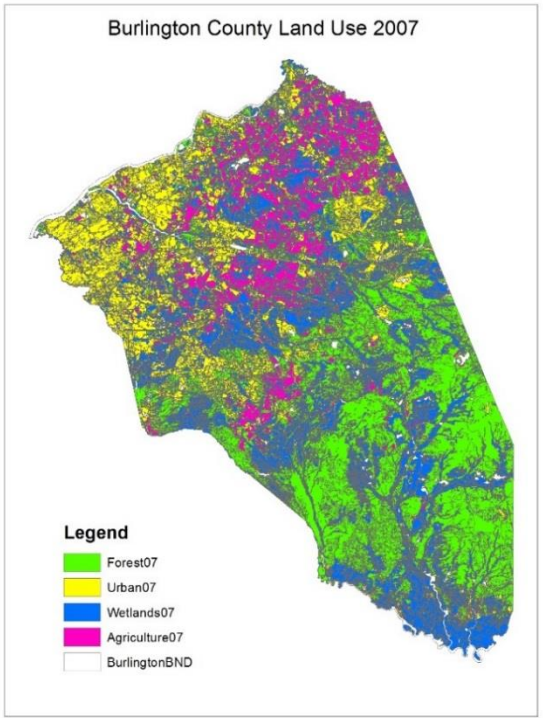

Figure 3: 2007 NJDEP Data ArcGIS BC LU Map Creation (KC Hanscom)

Visually analyzing Figure 2 compared to Figure 3, you can get an idea of how the landscape is transforming. For example, if you notice the Urban95 compared to Urban07 you can see a significant increase over time mostly in the northwestern region of Burlington County. The reason urbanization is spreading much faster in this portion of Burlington County is because it's out of jurisdiction of the Pinelands CMP, so development is occurring at a much faster rate, and also its more convenient for NJ citizens that work in Philadelphia. Secondly, by keeping a good eye on the NW region of both Figure 2 and 3, you notice patches of agriculture decreasing. The increasing demand for development of residential or industrial infrastructure, essentially raises farmers' property values and gives farm land owners the incentive to sell their land at much greater price than ever before. After the Farm Assessment Act of 1964, farms under 5 acres were encouraged to sell due incentives from the acts criteria, like rollback taxes for non-agricultural land use. This majority of the time, strengthens and increases urbanization. In concern with Agriculture in the Pinelands jurisdiction or southern regions of Burlington County, TDRs or Transfer of Development Rights that are used to give up land owners rights to land for a price in order to preserve agriculture, historical, or cultural areas, may have another effect on decreasing Agriculture as well.

2002 VS. 2007 NUMBERS AND GRAPHS

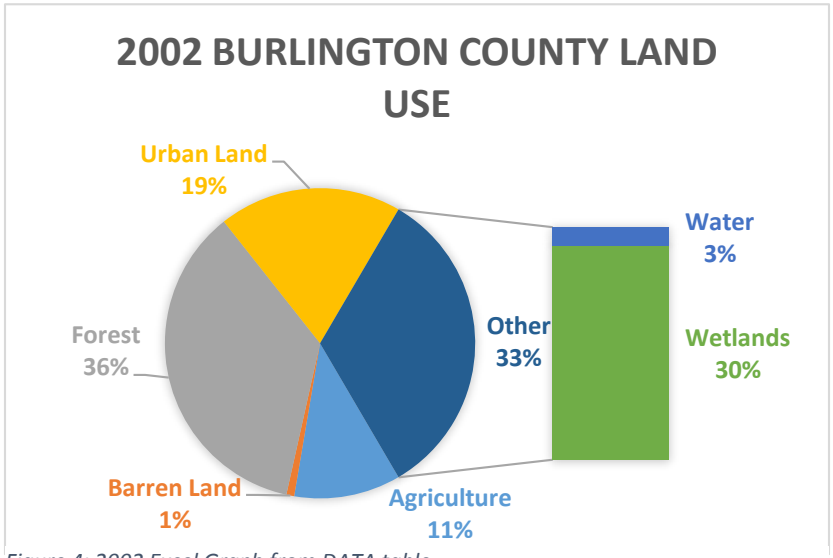

Figure 4: 2002 Excel Graph from DATA table

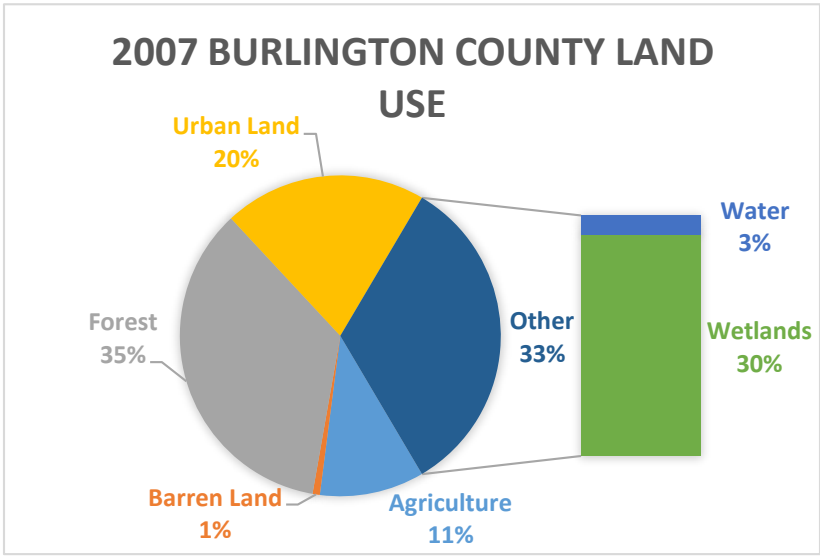

Figure 5. 2007 Excel Graph from DATA

Calculations

By looking at the Net Change acquired from the data table we can make a simple calculation to find the average yearly increase or decrease of each land use in Burlington County

Land Use Value (acres) / # of years (5)

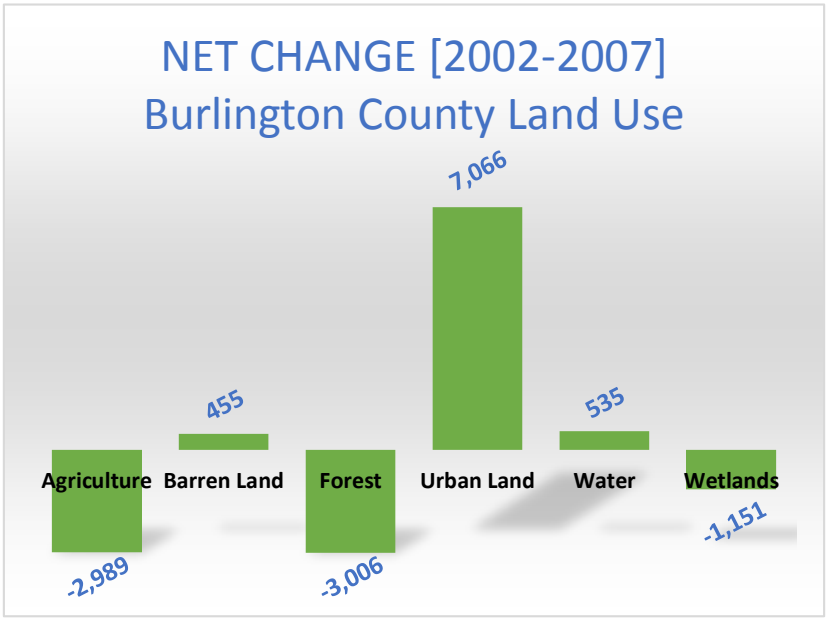

Figure 6: NET CHANGE 2002-2007

Agriculture = 597.8 acres lost/year

Barren Land = 91 acres gained/year

Forest = 601.2 acres lost/year

Urban Land = 1,413.2 acres gained/year

Water = 107 acres gained/year

Wetlands = 230.2 acres lost/year

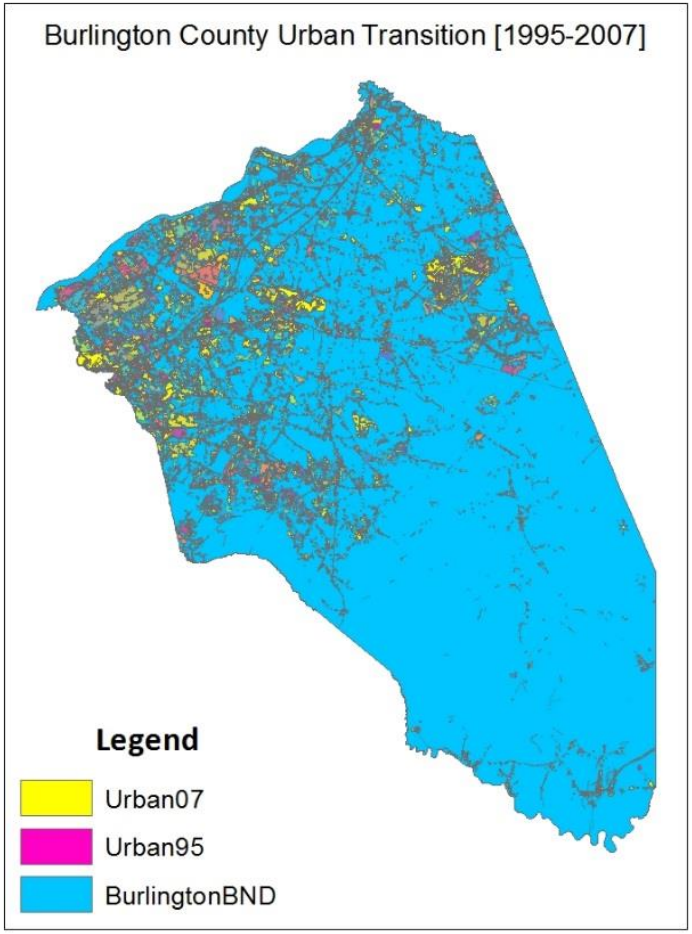

Figure 7: Urban Transition Transparency

Figure 7 displays the Urban transition from 1995-2007. By analyzing the color changes and looked at when they overlap you can see how urban development has increased over the years. The magenta and orange areas display the overlap of development that still exists from 1995 data to 2007. The yellow areas display the most recent development dating back to 2007, where land use was changed due to urbanization. Green areas show urban development in the process, but with unfinished infrastructure.

Figure 8 displays the wetland transition over the years. The blue are the areas show wetlands that used to be there in 1995 but are no longer in existence after 2007. The yellow areas are where new wetlands that were ultimately created by human influences and urbanization after 2007. The green areas contain the overlap from 1995-2007 where wetlands still remain. The orange areas show the forming of wetlands coming from the watershed areas below, which are as well from urbanization.

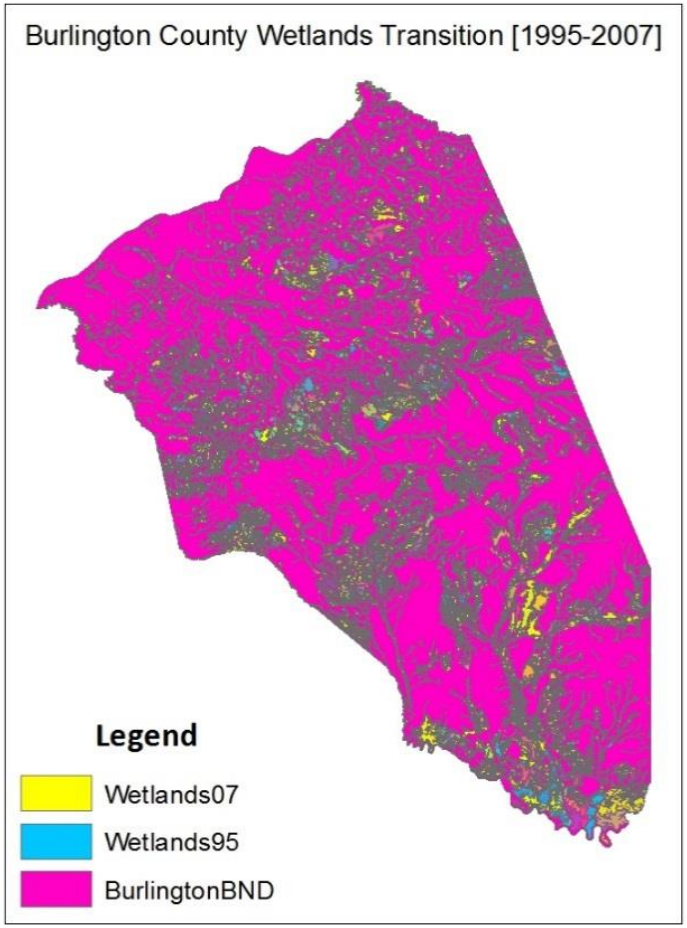

Figure 8: Wetland Transition Transparency

HUMAN INFLUENCE CONCLUSION

Urbanization has transformed the landscape all over NJ. On average, the increase of 1,413.2 acres of urban development per year directly results in 601.2 acres of Forest lost per year, 597.8 acres of Agriculture lost per year, and 230.2 acres of Wetlands lost per year. Significantly the increase of impervious surfaces, like asphalt and concrete, due to urbanization continue to transform Burlington County's wetlands and water bodies. Also considering human population is still inclining in NJ and Burlington County, the demand for water use is also inclining. Whether this be related to agriculture or residential and business taps, urbanization increasingly redirects and picks up sediments that eventually end up in our waters. Most of all, thanks to the Pinelands Commission, Burlington County has been sectioned into management areas that is proven to slow urbanization as it enters the Pinelands. With climate change raising sea-levels, the declining forest and wetlands are slowly raising the publics' attention. Managing and slowing down urbanization only prolongs things. If policies weren't made to allow more development things would be better for NJs future in many different ways. Certainly education and awareness of the environmental impacts of land use needs to spread throughout municipalities. Its humans that transform the environment and promote urbanization. Therefore, humans need to work together to not only manage the land use, but efficiently regulate for societies best interest and future prosperity.