



# The Economic Impact of the North Carolina Brownfields Program

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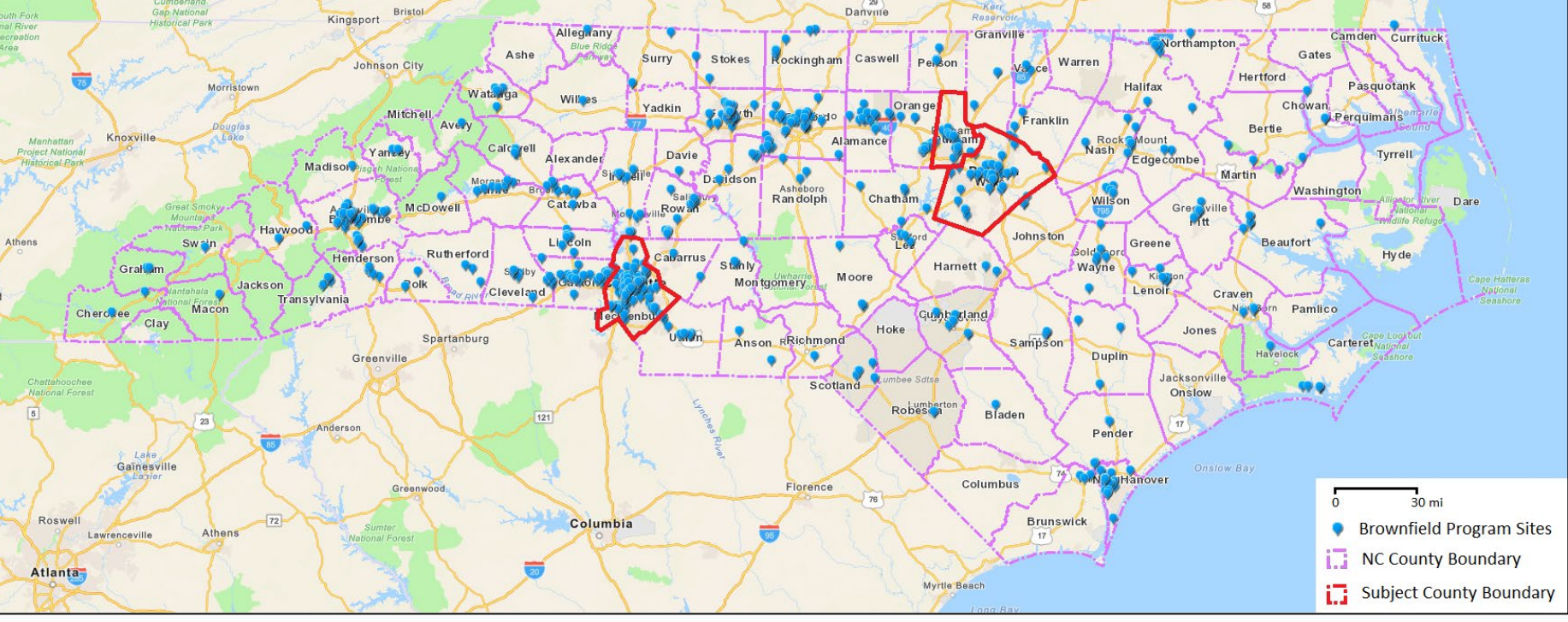


Figure 1 – North Carolina Brownfields Properties (2019). Subject counties shown in red outlines from west to east, including Mecklenburg, Durham and Wake counties.

**INTRODUCTION:** The North Carolina Brownfields Property Reuse Act was enacted in 1997 to incentivize development of contaminated properties across the state by offering liability protection and tax incentives to prospective developers. This is accomplished through the implementation of a Brownfields Agreement which serves to document existing contamination at a property, and implement necessary land use restrictions and mitigation measures to ensure the safe reuse of the property. Redevelopment of underused/contaminated properties results in an increase in property value, which can serve as a stimulant to the economy through the creation of jobs and increase of the local tax base. More than 550 Brownfields Agreements have been executed to date in North Carolina (see Figure 1).

**QUESTION:** Few studies exist that attempt to quantify and measure the economic impact of the North Carolina Brownfields Program. **Can county tax revaluation data and the Hedonic Pricing Method be used to quantify the economic impact of a Brownfields Program?**

**METHODOLOGY:** Property is assessed “ad valorem” or according to value using several methods, which allow a tax assessor to assign an appropriate value that considers the fair value of the land and all the improvements made upon it. As such, changes in assessed property values make for a convenient tool for measuring economic development. Mecklenburg (Charlotte), Wake (Raleigh) and Durham (Durham) counties were chosen for this study because they make up approximately 49 percent of all completed Brownfields Agreements in North Carolina (Figure 1). **This study uses property values from two revaluation years to assess the impact of the North Carolina Brownfields Program for parcels both within and adjacent to brownfields properties.**

**HEDONIC PRICING METHOD:**

- Uses the value of a surrogate good to measure the implicit price of a non-market amenity.
- **Property values used to determine the value of brownfields redevelopment.**
- Requires abundant and accurate data.
- Assess value based on real consumer decisions.

**DATA ANALYSIS/GIS:**

- Data acquired from county tax assessor offices for the most recent revaluation year and a preceding revaluation year:
  - Mecklenburg: 2004 and 2019,
  - Wake: 2008 and 2016, and
  - Durham: 2008 and 2019.
- ArcGIS® used to perform spatial joins for parcels within and adjacent to brownfields boundaries.
- Data filtered to include only parcels associated with completed Brownfields Agreements.

**INFLATION ADJUSTMENT:**

- Earliest revaluation year data normalized to most recent revaluation year to **account for inflation:** using Consumer Price Index data:

$$\text{Normalized Value} = \frac{CPI_{\text{Recent Revaluation}}}{CPI_{\text{Previous Revaluation}}} \times \text{Previous Value}$$

**STATISTICAL COMPARISON:** statistics and data distribution are compared for the two revaluation years for each county (see visual representation in Figure 2).

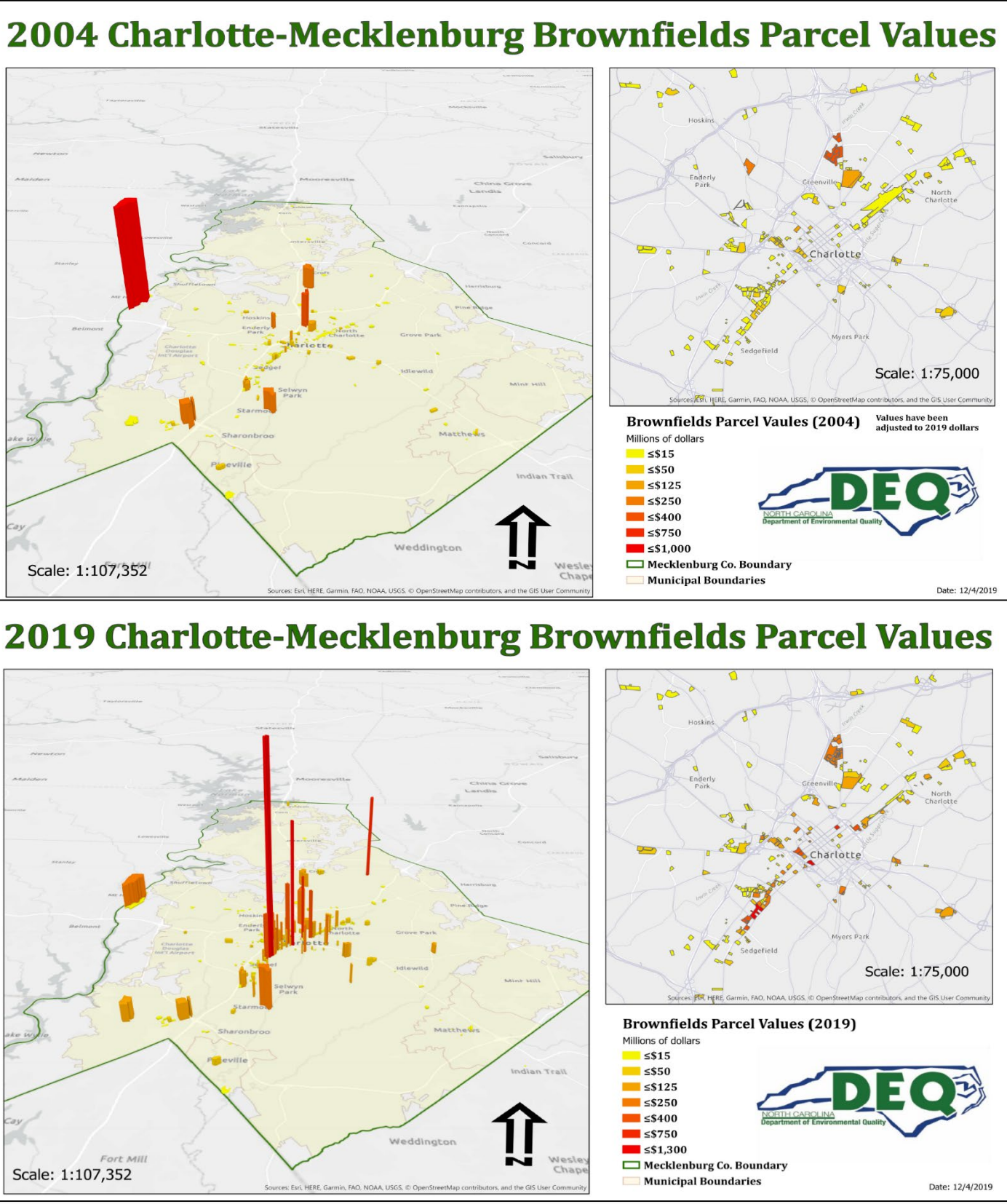


Figure 2 – Maps comparing the value of brownfields parcels in Charlotte and Mecklenburg County, NC in 2004 and 2019. All values are presented in 2019 US Dollars.

## RESULTS:

**MECKLENBURG COUNTY**

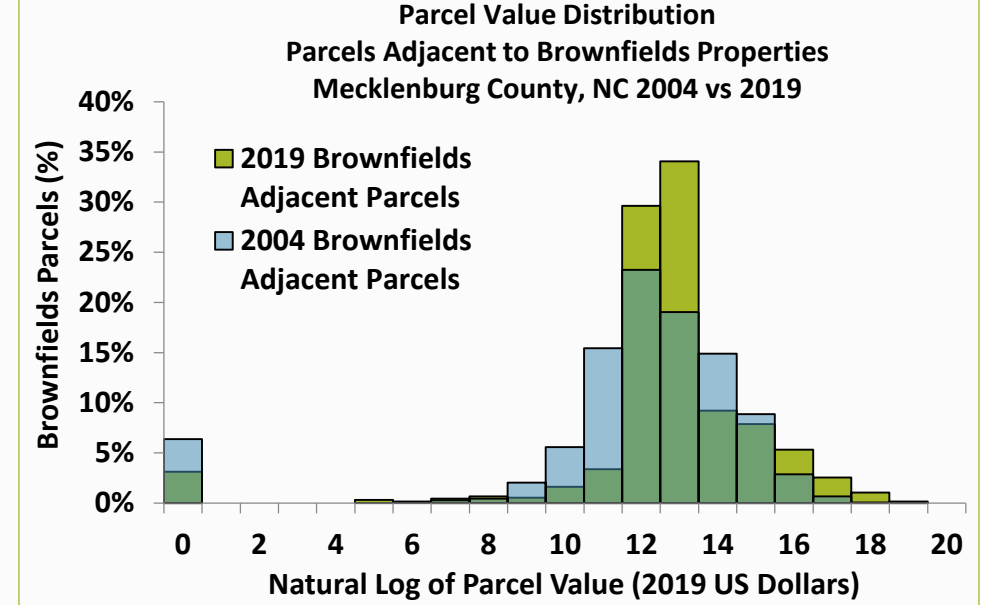
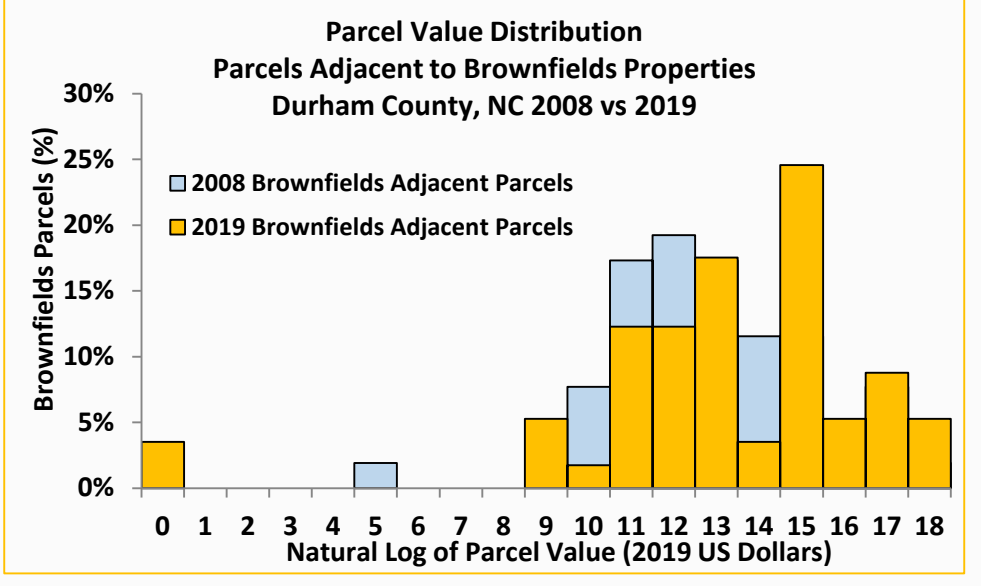
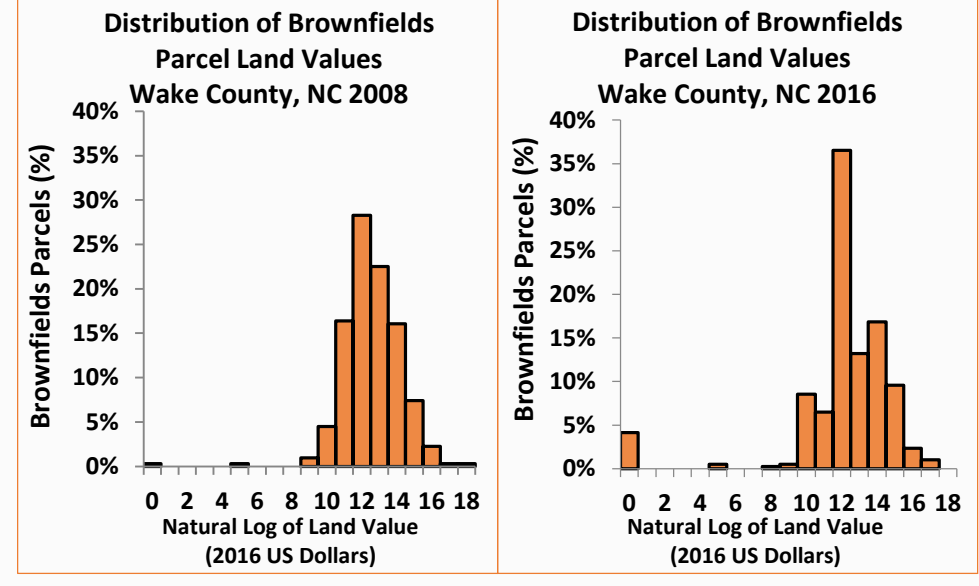
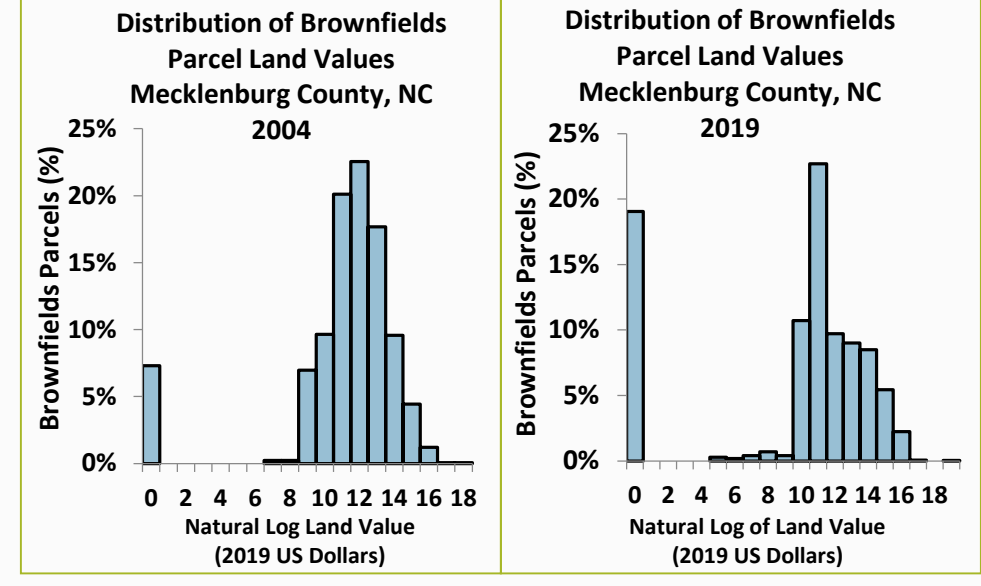
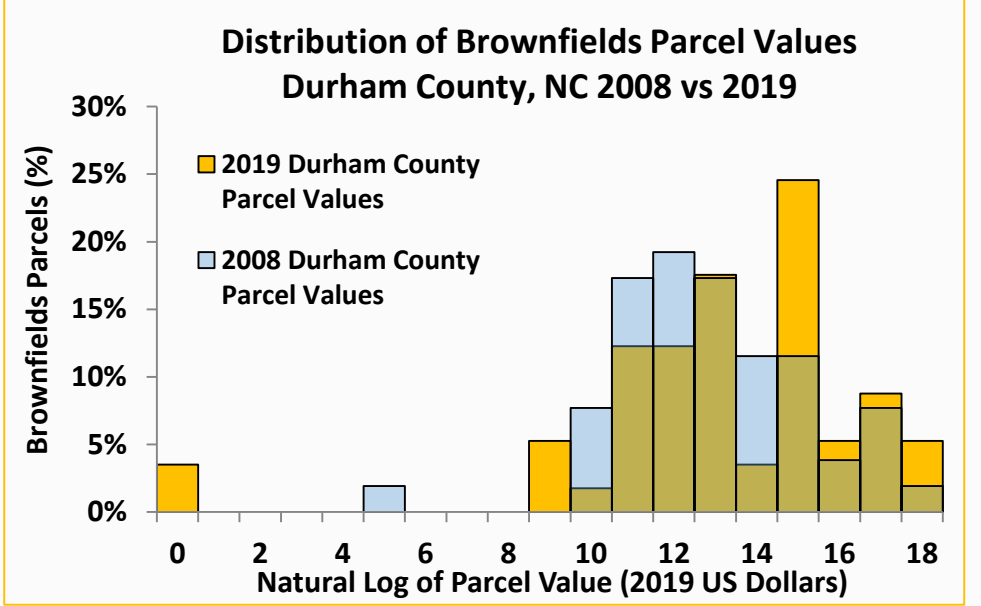
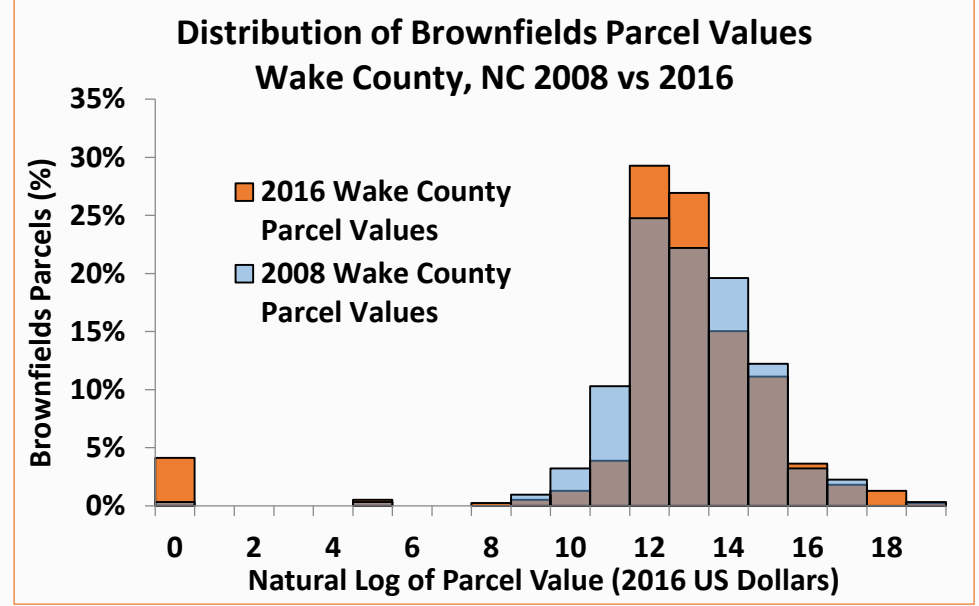
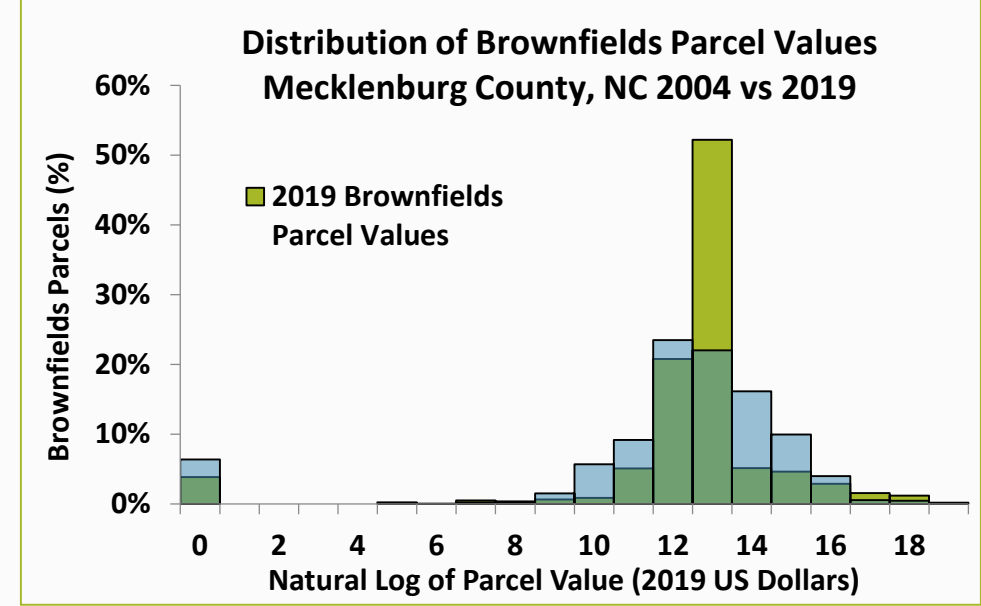
- Average Parcel Value Increased by 37% (\$492,606)
- Total Value of Brownfields Parcels Increased by \$3,471,611,840
- Average Land Value Decreased by 23%
- Average Adjacent Parcel Increased by 35% (\$614,466)

**WAKE COUNTY**

- Average Parcel Value Increased by 23% (\$508,075)
- Total Value of Brownfields Parcels Increased by \$360,713,166
- Average Land Value Decreased by 10%
- Total Value of Brownfields Land Increased by \$40,414,089

**DURHAM COUNTY**

- Average Parcel Value Increased by 85% (\$7,939,519)
- Number of Parcels Decreased from 126 to 70.
- Average Adjacent Parcel Increased by 38% (\$1,649,827)
- Total Value of Adjacent Parcels increased by \$115,563,826



## CONCLUSIONS/LIMITATIONS:

- The North Carolina Brownfields Program has had a significant impact on property values in Mecklenburg, Wake and Durham counties.
- Local Tax Valuation Data and the Hedonic Pricing Method can be used to effectively quantify the economic impact of other Brownfields Programs across the country.
- This method does not take into account parcel splitting and other factors affecting property values.
- Types of redevelopment (commercial, residential, etc.) may bias the data.
- Further investigation is warranted, and there are many case study opportunities!