

**Strengthening  
Neighborhoods:  
Data-Driven  
Approaches to Property  
Tax Relief**





**dataworks nc**




# Quantitative Analysis of Assessment Ratios

 ASR – Assessment-to-Sales Ratio

 PRD – Price-Related Differential ( $PRD > 1$ )

 PRB – Price-Related Bias

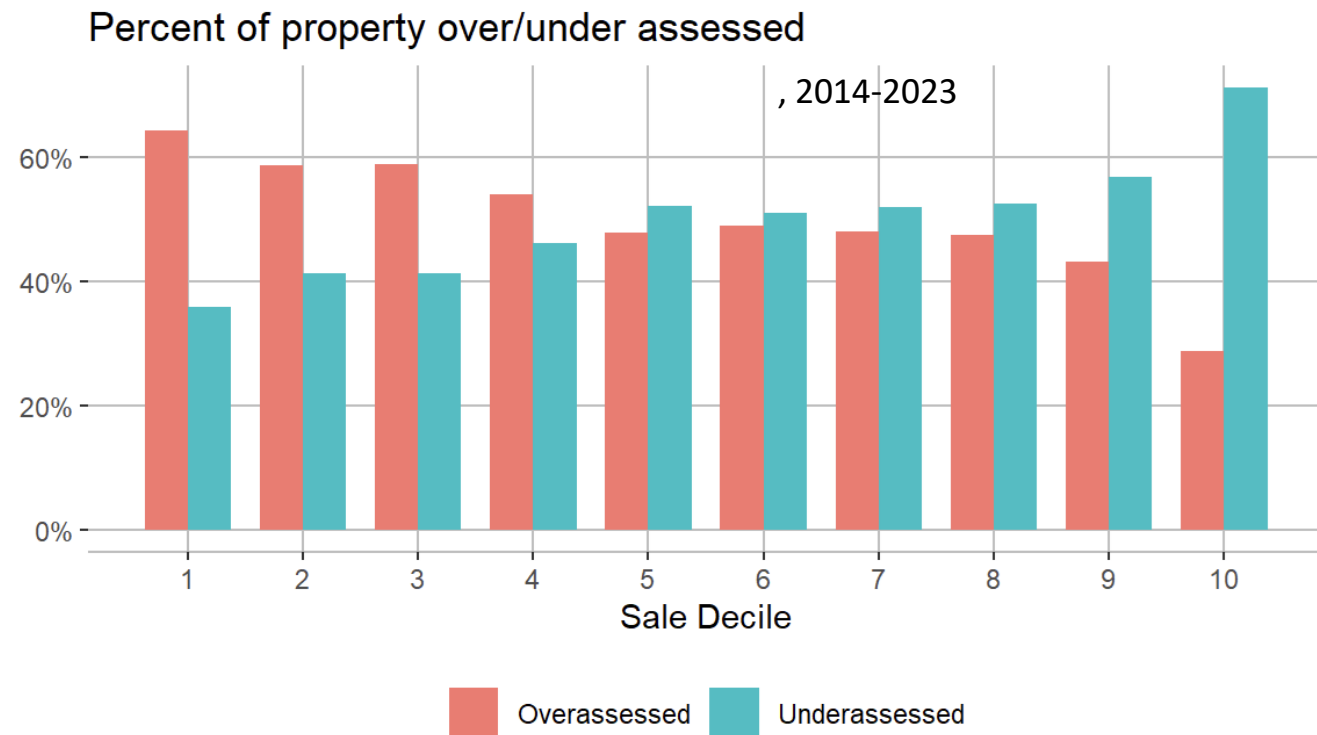
 COD – Coefficient of Dispersion

# Quality Control Metrics for Appraisal

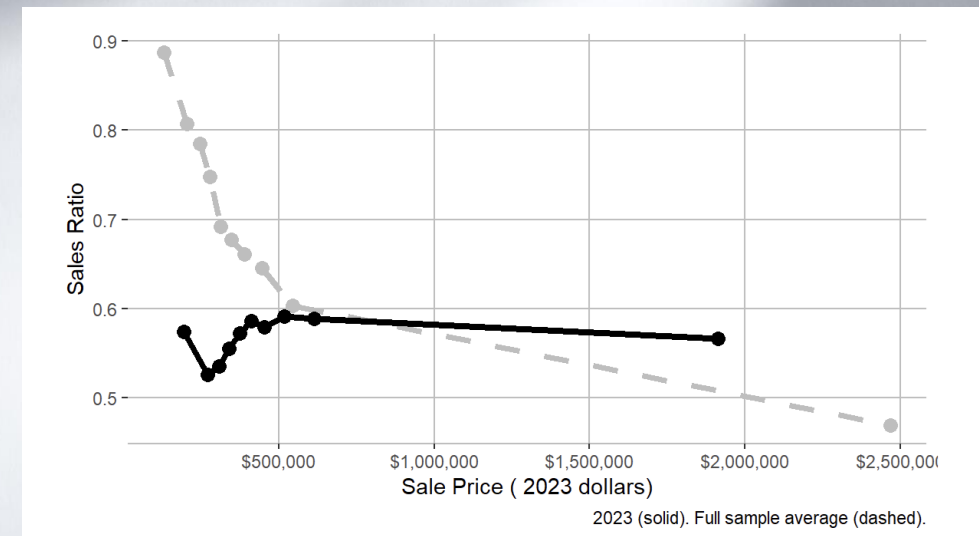
- **Median sales ratio** should be between 90% and 110%
- **PRD** should be between .98 and 1.03
- **Coefficient of Dispersion (COD)** should be
  - Below 10 for newer and homogenous residential neighborhoods
  - Under 15 for older, heterogeneous neighborhoods
  - Under 20 or 25 for vacant land in urban or rural areas
  - Under 20 for rural residential and commercial

# Durham County, NC

In Durham County, North Carolina, **64%** of the lowest value homes were over-assessed, and **29%** of the highest value homes were over-assessed from 2014 to 2023.



Sales Ratio by Sale Price, 2014-2023





0211650 04/01/2022

Neighborhood	01RA220	Acreage	0.57
Building Type/Use	SINGLFAM	Land Class	RES 10 AC
Heated Area	7,024 SqFt		
Story Height	1.75S	Land Unit Type	LOT
Baths (Full/Half)	5 / 2	Zoning	R-4
		Total Land Value	\$877,500
Design/Style	Conventional	Total Building Value	\$2,702,163
Grade	AA+60	Total Outbuilding Value	\$54,000
Depreciation	A		
Year Built	1942	Total Value	\$3,579,663
Effective Year Built	2017	Sale Date	06/01/2022
		Sale Price	\$4,200,000



0211586 04/17/2021

Neighborhood	01RA724	Acreage	0.27
Building Type/Use	SINGLFAM	Land Class	RES 10 AC
Heated Area	898 SqFt		
Story Height	1S	Land Unit Type	LOT
Baths (Full/Half)	1 / 0	Zoning	R-6
		Total Land Value	\$193,500
Design/Style	Conventional	Total Building Value	\$13,112
Grade	D-10	Total Outbuilding Value	\$9,560
Depreciation	C		
Year Built	1945	Total Value	\$206,612
Effective Year Built	1945	Sale Date	09/12/2022
		Sale Price	\$130,000



0078605 2022-03-21



0031533 2022-03-21

Neighborhood	01RA550	Acreage	0.1
Building Type/Use	SINGLFAM	Land Class	RES 10 AC
Heated Area	1,428 SqFt		
Story Height	2S	Land Unit Type	LOT
Baths (Full/Half)	2 / 1	Zoning	DX-3
		Total Land Value	\$300,000
Design/Style	Conventional	Total Building Value	\$93,673
Grade	C	Total Outbuilding Value	\$0
Depreciation	C		
Year Built	1950	Total Value	\$393,673
Effective Year Built	1990	Sale Date	04/13/2023
		Sale Price	\$375,000

Neighborhood	01RA550	Acreage	0.12
Building Type/Use	SINGLFAM	Land Class	RES 10 AC
Heated Area	1,638 SqFt		
Story Height	1S	Land Unit Type	LOT
Baths (Full/Half)	2 / 0	Zoning	RX-3
		Total Land Value	\$300,000
Design/Style	Conventional	Total Building Value	\$374,569
Grade	B-10	Total Outbuilding Value	\$0
Depreciation	C		
Year Built	1915	Total Value	\$674,569
Effective Year Built	2015	Sale Date	03/03/2022
		Sale Price	\$737,500

**Impact of effective year built? How did they know they were so different from outside?**



0048434 03/24/2021

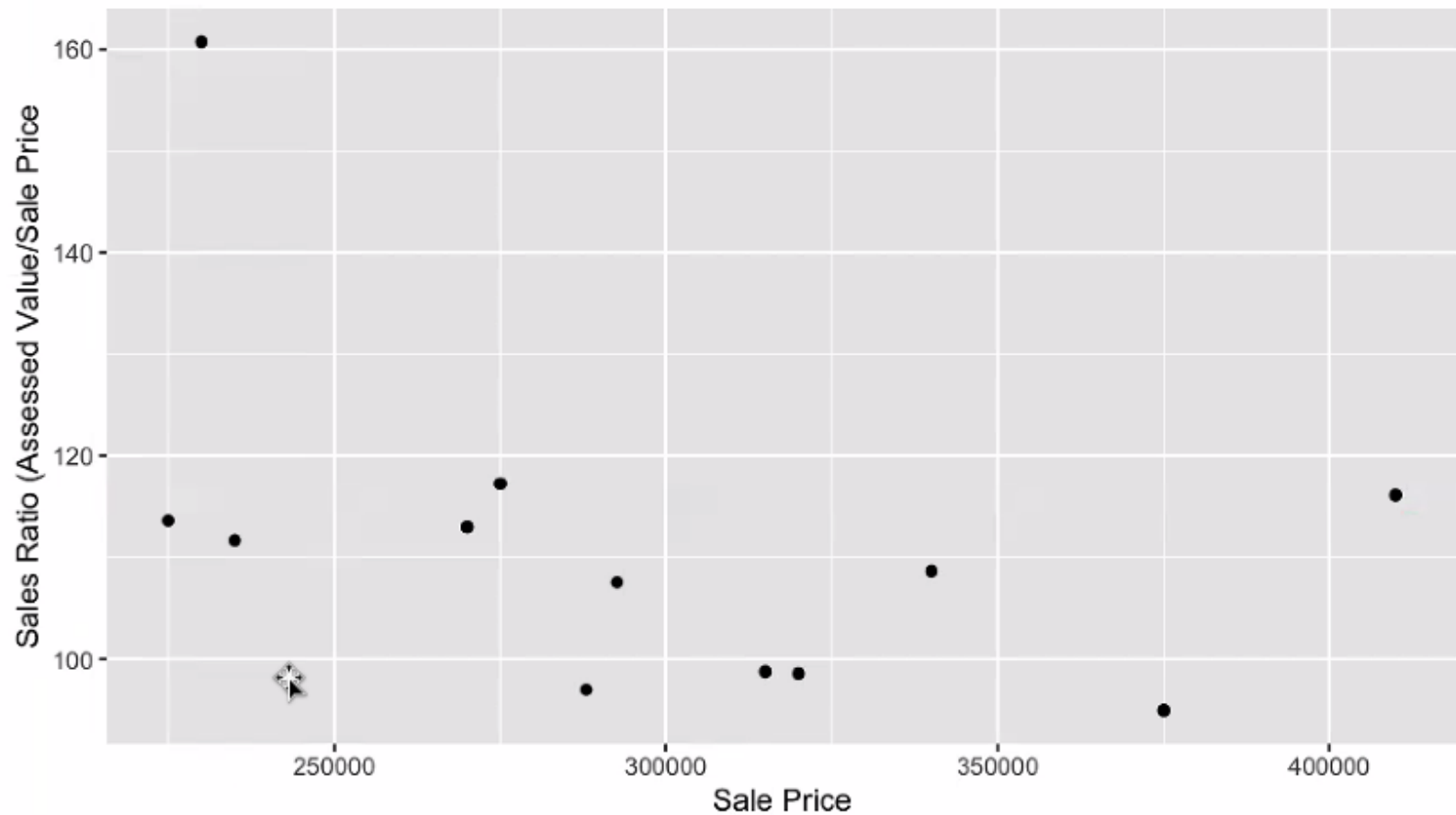


0143661 2022-04-04

Neighborhood	01RA550	Acreage	0.07
Building Type/Use	SINGLFAM	Land Class	RES 10 AC
Heated Area	828 SqFt		
Story Height	1S	Land Unit Type	LOT
Baths (Full/Half)	2 / 0	Zoning	R-10
		Total Land Value	\$285,000
Design/Style	Conventional	Total Building Value	\$130,051
Grade	C-10	Total Outbuilding Value	\$0
Depreciation	C		
Year Built	1930	Total Value	\$415,051
Effective Year Built	2005	Sale Date	04/14/2022
		Sale Price	\$380,000

Neighborhood	01RA550	Acreage	0.07
Building Type/Use	SINGLFAM	Land Class	RES 10 AC
Heated Area	828 SqFt		
Story Height	1S	Land Unit Type	LOT
Baths (Full/Half)	1 / 0	Zoning	R-10
		Total Land Value	\$255,000
Design/Style	Conventi	Total Building Value	\$5,415
Grade	C+10	Total Outbuilding Value	\$0
Depreciation	C		
Year Built	1930	Total Value	\$260,415
Effective Year Built	1930	Sale Date	05/16/2023
		Sale Price	\$267,000

Sale Ratio by Sale Price Echo Heights Neighborhood Neighborhood



**PRD:** 1.012  
**Standard Deviation:** 17.35  
**Mean Sales Ratio:** 11.52  
**Median Sales Ratio:** 110.21  
**Weighted Ratio:** 110.15



**504 Pine Ave**

**\$275,000**

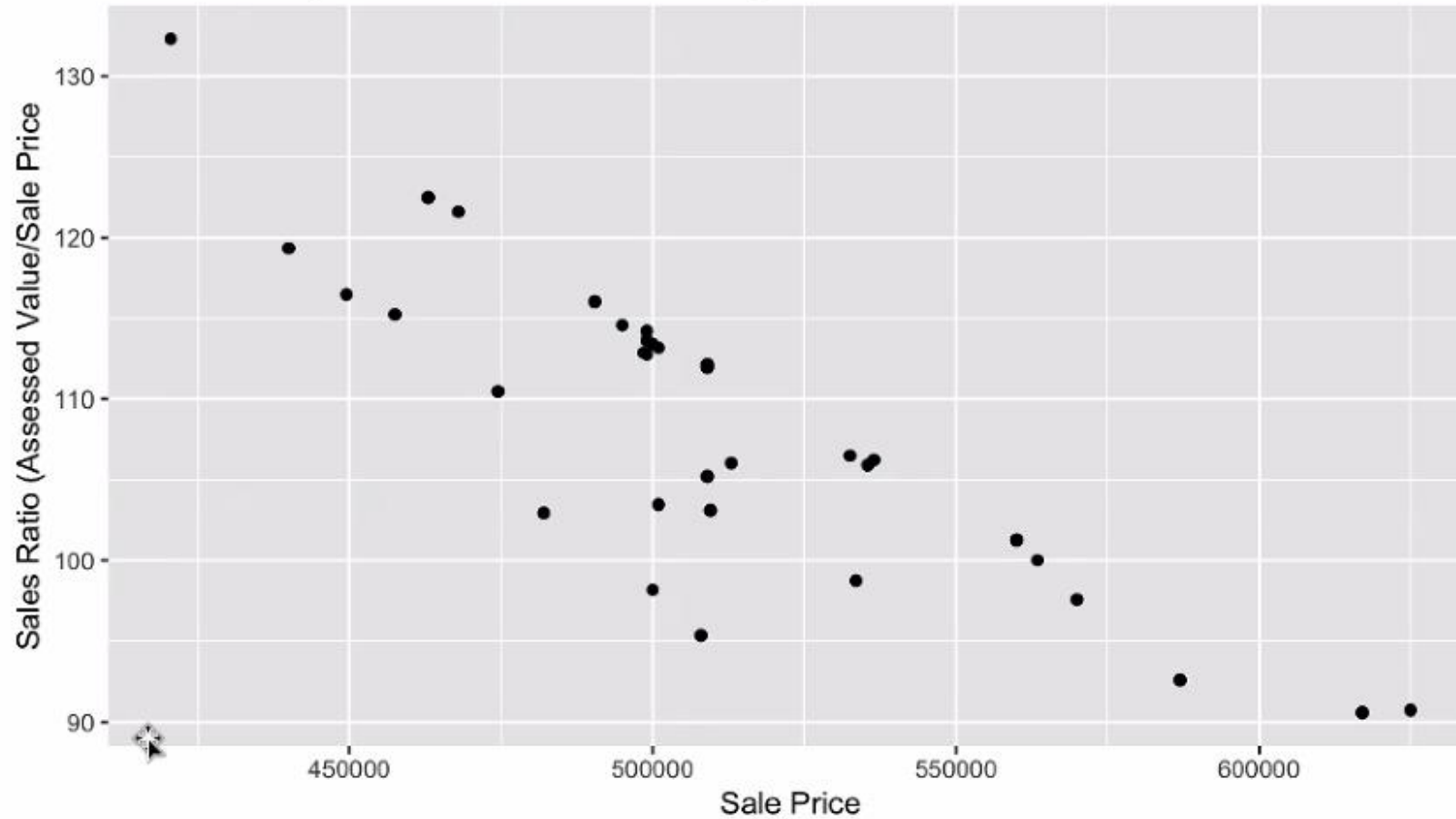
**Distance:** 1,462 ft  
**Acreage:** 1.03  
**Sale Date:** 03/17/2022

**Total Value:** \$322,476  
**Heated Area:** 1,516 SqFt  
**Effective Year Built:** 1971



05MO32T- Hampton Place (near Morrisville); Median Sale: \$603,000

Sale Ratio by Sale Price 05MO32T Neighborhood

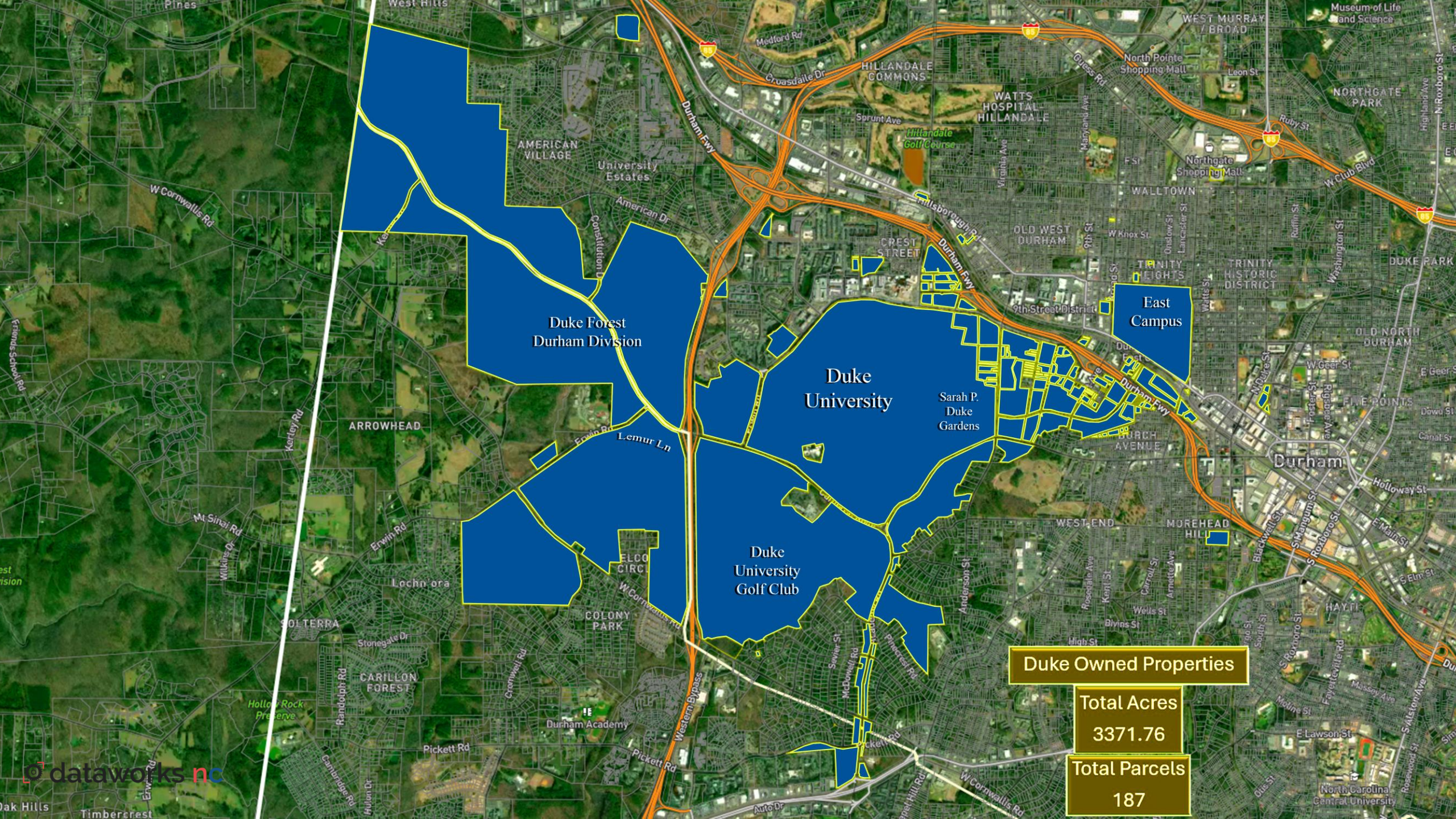


PRD:	1.006
COD:	8.68
Mean Sales Ratio:	108.68
<b>Median Sales Ratio:</b>	<b>111.20</b>
Weighted Ratio:	107.97



# Geospatial Analysis

1. Map ASRs across neighborhoods
2. Map trends in gentrifying areas



Duke Forest  
Durham Division

Duke  
University

East  
Campus

Duke  
University  
Golf Club

Sarah P.  
Duke  
Gardens

Duke Owned Properties

Total Acres  
3371.76

Total Parcels  
187

# Longitudinal Study

Property tax assessment & sales data over multiple revaluation cycles (4-5 years)





### 922 Onslow St

Changes hands several times, owned and sold by out-of-town investor



### 1118 Lancaster St

Single long-term owner

Year	Property Tax	Assessed Value <sup>i</sup>
2023	\$2,809 (+2.3%)	\$214,445
2022	\$2,745 (+0.5%)	\$214,445
2021	\$2,732 (+2.4%)	\$214,445
2020	\$2,667	\$214,445
2019	\$2,667 (+27.7%)	\$214,445
2018	\$2,089 (+0.7%)	\$154,000
2017	\$2,074 (+3.5%)	\$154,000
2016	\$2,003 (-6.5%)	\$154,000
2014	\$2,143 (+3.2%)	\$154,821
2013	\$2,078 (+2.3%)	\$154,821
2012	\$2,031 (+0.7%)	\$154,821
2011	\$2,018	\$154,821

Increased by **140%** over 12 years

Year	Property Tax	Assessed Value <sup>i</sup>
2023	\$4,023 (+2.3%)	\$307,089
2022	\$3,930 (+0.5%)	\$307,089
2021	\$3,912 (+2.4%)	\$307,089
2020	\$3,820	\$307,089
2019	\$3,820 (+152.7%)	\$307,089
2018	\$1,512 (+0.7%)	\$111,442
2017	\$1,501 (+3.6%)	\$111,442
2016	\$1,449 (+12.2%)	\$111,442
2014	\$1,291 (+3.1%)	\$93,302
2013	\$1,252 (+2.3%)	\$93,302
2012	\$1,224 (+0.7%)	\$93,302
2011	\$1,216	\$93,302

Increased by **330%** over 12 years

Property tax increases were greater for the single owner home, despite likely updates to the investor property.



# Policy Analysis Economic Impact



# Key Data Metrics

1. Assessment-to-Sales Ratio (ASR)

2. Price-Related Differential (PRD)

3. Price-Related Bias

4. Gentrification Indicators

5. Neighborhood-Level Data

6. Appeal Rates & Outcomes

