



Value per acre map of  
Auckland, New Zealand

# URBAN3

Economics of Community Design



EDWARDS & BROS.

AMERICAN SERVICE CENTER



In the 70's and 80's  
our downtown died.



Asheville's de facto motto was:

**“That will never work here - don't even try.”**



Julian Price

1941 - 11/19/2001



the Alternative Reading Room

The Mountain Xpress

# Public Interest Projects

Salsa's & Zambras

City Seeds

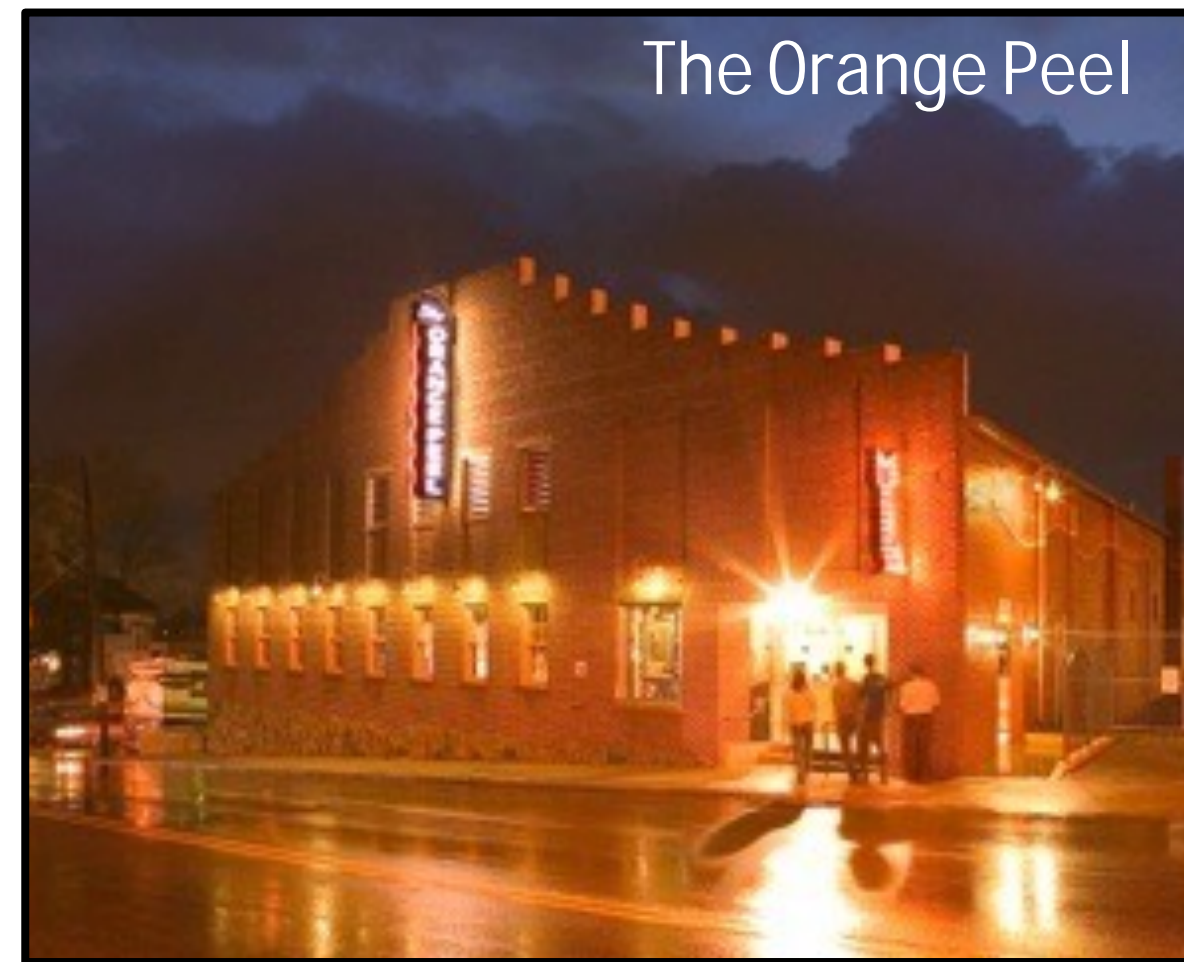


51 Biltmore

URBAN3



Downtown benches



The Orange Peel

the Dogwood Fund



YWCA

The Public Service Building



The Laughing Seed

JACK SCHULMAN

53

BUYERS MARKET





**In God we trust;  
everyone else,  
bring data.**

Mayor Michael Bloomberg







**Incorporate** (in'kôrpə,rāt)

**VERB**

Constitute (a company, city, or other organization) as a legal corporation.

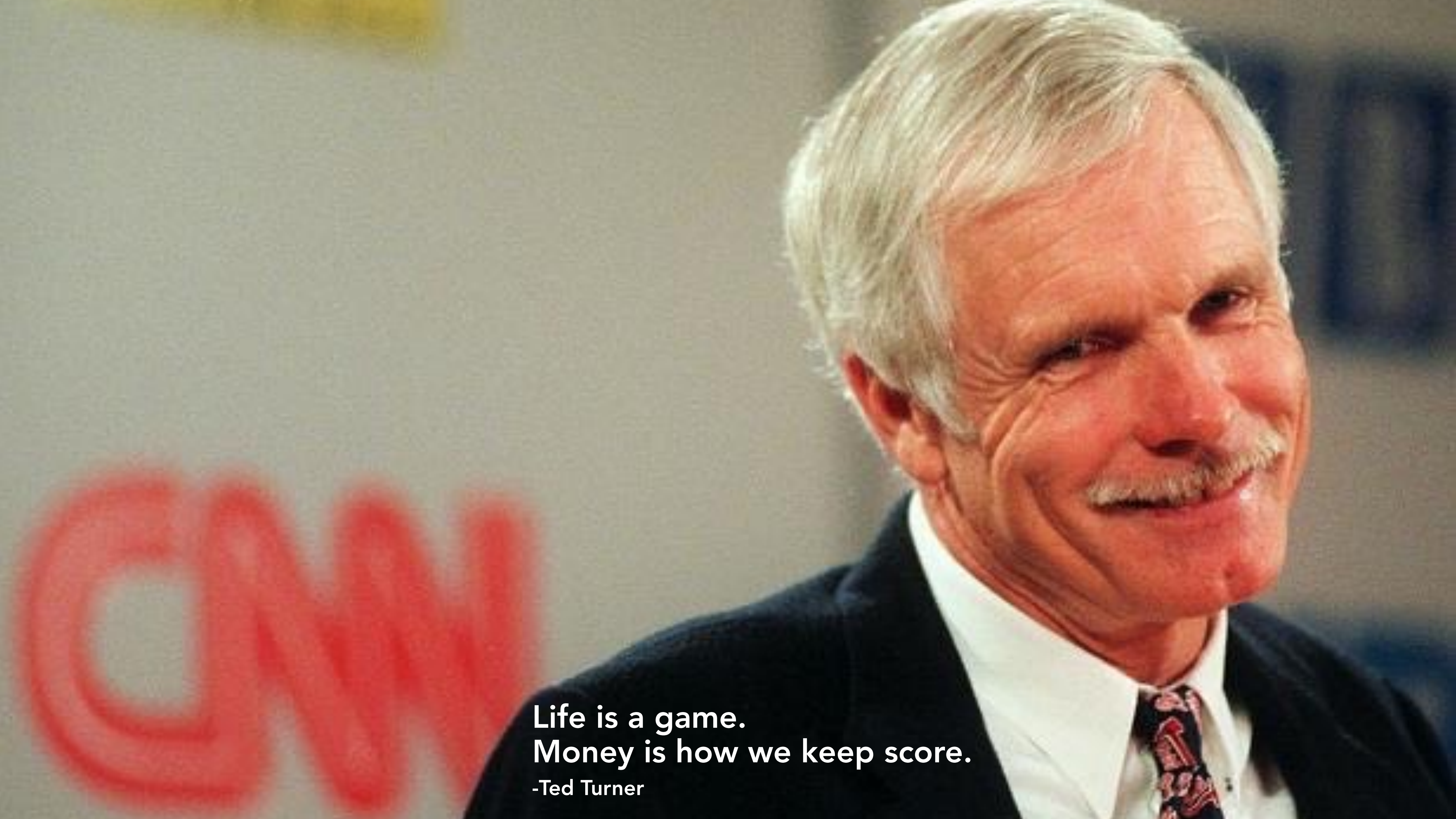
Source: Oxford Dictionary

A photograph of Joe Biden sitting on a talk show set, wearing a dark suit and a blue and white striped tie. He is looking towards the right. In the background, there is a cityscape at night with lights. A host, wearing glasses and a dark suit, is partially visible on the right side of the frame, looking towards Biden. A blue mug with the show's logo is on the table in front of them.

“The United States  
is the largest  
**corporation**  
in the world.”

**Joe Biden**

United States Vice President  
Late Show: 12/6/2016

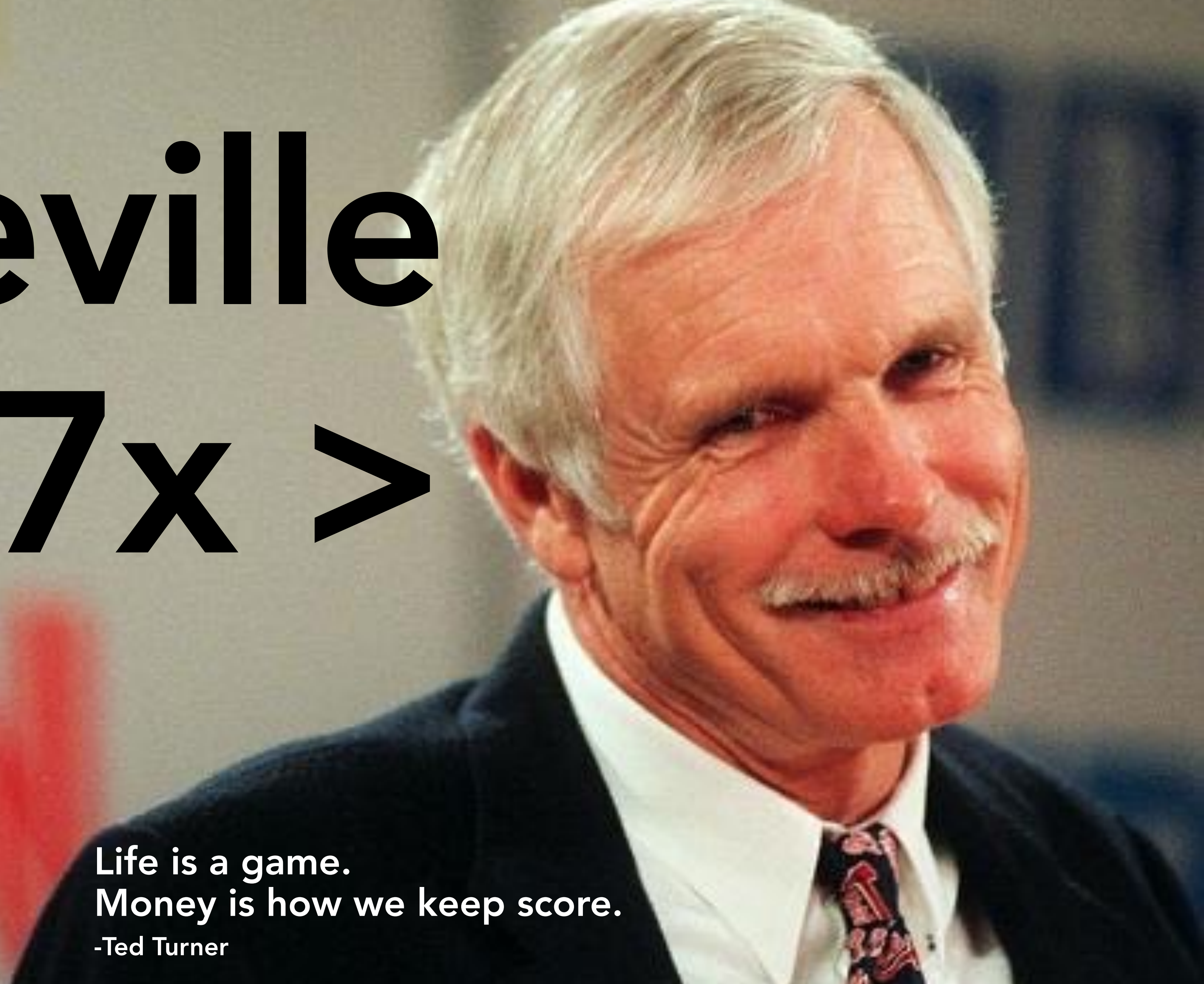


**Life is a game.  
Money is how we keep score.**  
-Ted Turner

# Asheville

# Is 7x >

Life is a game.  
Money is how we keep score.  
-Ted Turner





# What is a City?



# What is a City?

# Land Production





For 40 years this building remained vacant..... its tax value in 1991 was just over **\$300,000**



Today the building is valued at over **\$11,000,000**





For 40 years this building remained vacant..... its tax value in 1991 was just over **\$300,000**



Today the building is valued at over **\$11,000,000**





For 40 years this building remained vacant..... its tax value in 1991 was just over **\$300,000**



Today the building is valued at over **\$11,000,000**

An increase > **3500%**

in **15 years**

The lot is less than **1/5 acre**



# Asheville Walmart



# Downtown



**\$11,000,000** Tax Value

# Asheville Walmart



**\$20,000,000** Tax Value

# Downtown



**\$11,000,000** Tax Value

# Asheville Walmart

# Downtown



**\$20,000,000** Tax Value



**\$11,000,000** Tax Value



Land Consumed (acres)

# Asheville Walmart

# Downtown



\$20,000,000 Tax Value



\$11,000,000 Tax Value

34

0.2

Land Consumed (acres)

\$6.5k

\$634k

Total Property Taxes/Acre

# Asheville Walmart

# Downtown



\$20,000,000 Tax Value



\$11,000,000 Tax Value

34

0.2

Land Consumed (acres)

\$6.5k

\$634k

Total Property Taxes/Acre

\$48k

\$84k

City Sales Taxes/Acre

# Asheville Walmart

# Downtown



\$20,000,000 Tax Value



\$11,000,000 Tax Value

34

0.2

Land Consumed (acres)

\$6.5k

\$634k

Total Property Taxes/Acre

\$48k

\$84k

City Sales Taxes/Acre

0

90

Residents/Acre



# Asheville Walmart

# Downtown



\$20,000,000 Tax Value

\$11,000,000 Tax Value

34

0.2

Land Consumed (acres)

\$6.5k

\$634k

Total Property Taxes/Acre

\$48k

\$84k

City Sales Taxes/Acre

0

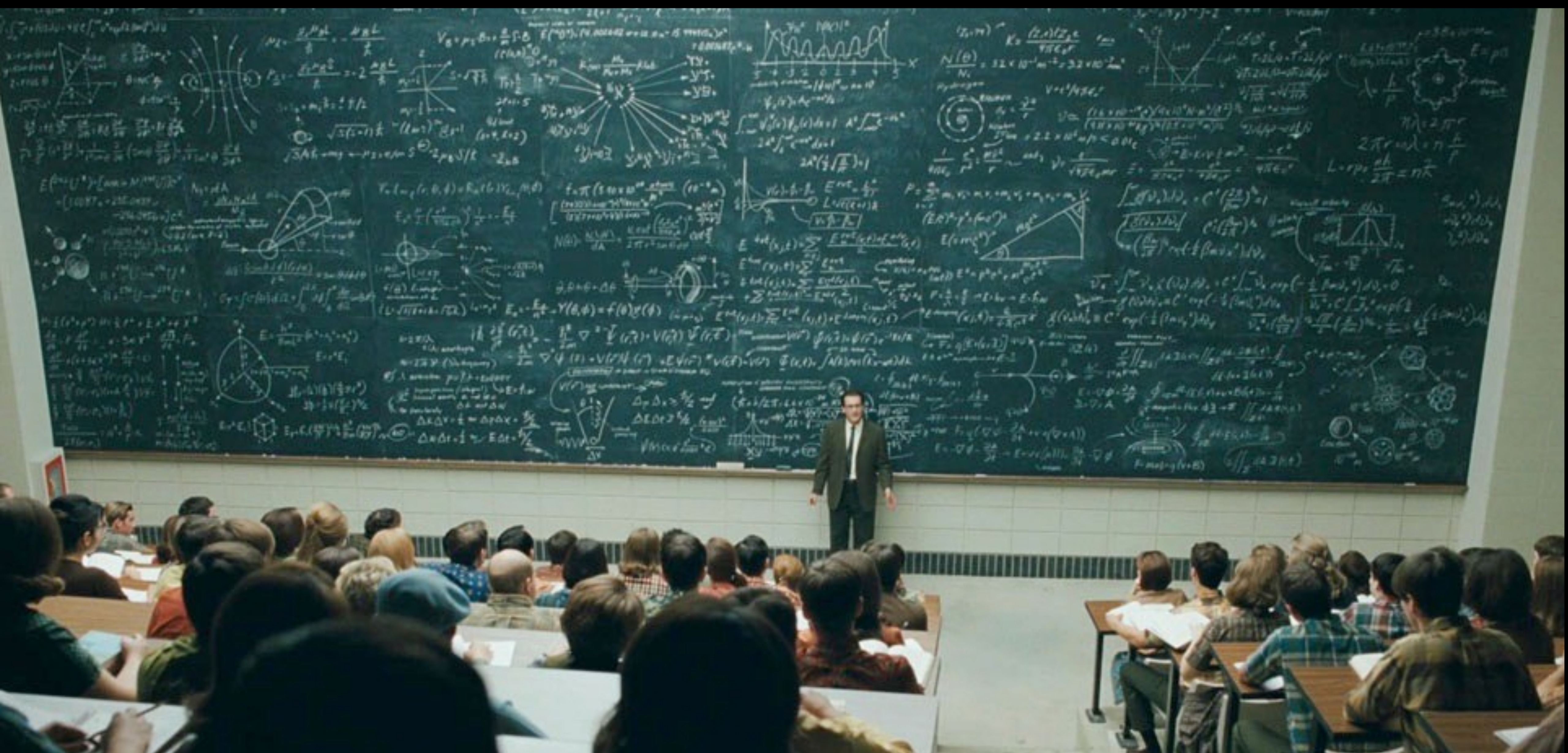
90

Residents/Acre

6

74

Jobs/Acre



Scary Math

# How do you compare cars?



**Ford F150 Lariat LTD**  
**648 miles per tank**



**Toyota Prius**  
**571 miles per tank**



**1955 BMW Isetta**  
**245 miles per tank**



**Rolls-Royce Phantom Drophead**  
**380 miles per tank**



**Bugatti Veyron SS**  
**390 miles per tank**

# How do you compare cars?



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390 miles per tank

# How do you compare cars?



**Ford F150 Lariat LTD**  
**13/18 mpg**



**Toyota Prius**  
**51/48 mpg**



**1955 BMW Isetta**  
**50/70 mpg**



**Rolls-Royce Phantom Drophead**  
**11/18 mpg**



**Bugatti Veyron SS**  
**8/14 mpg**

# How do you compare cars?



Ford F150 Lariat LTD  
13/18 mpg



Toyota Prius  
51/48 mpg



1955 BMW Isetta  
50/70 mpg



Rolls-Royce Phantom Drophead  
11/18 mpg

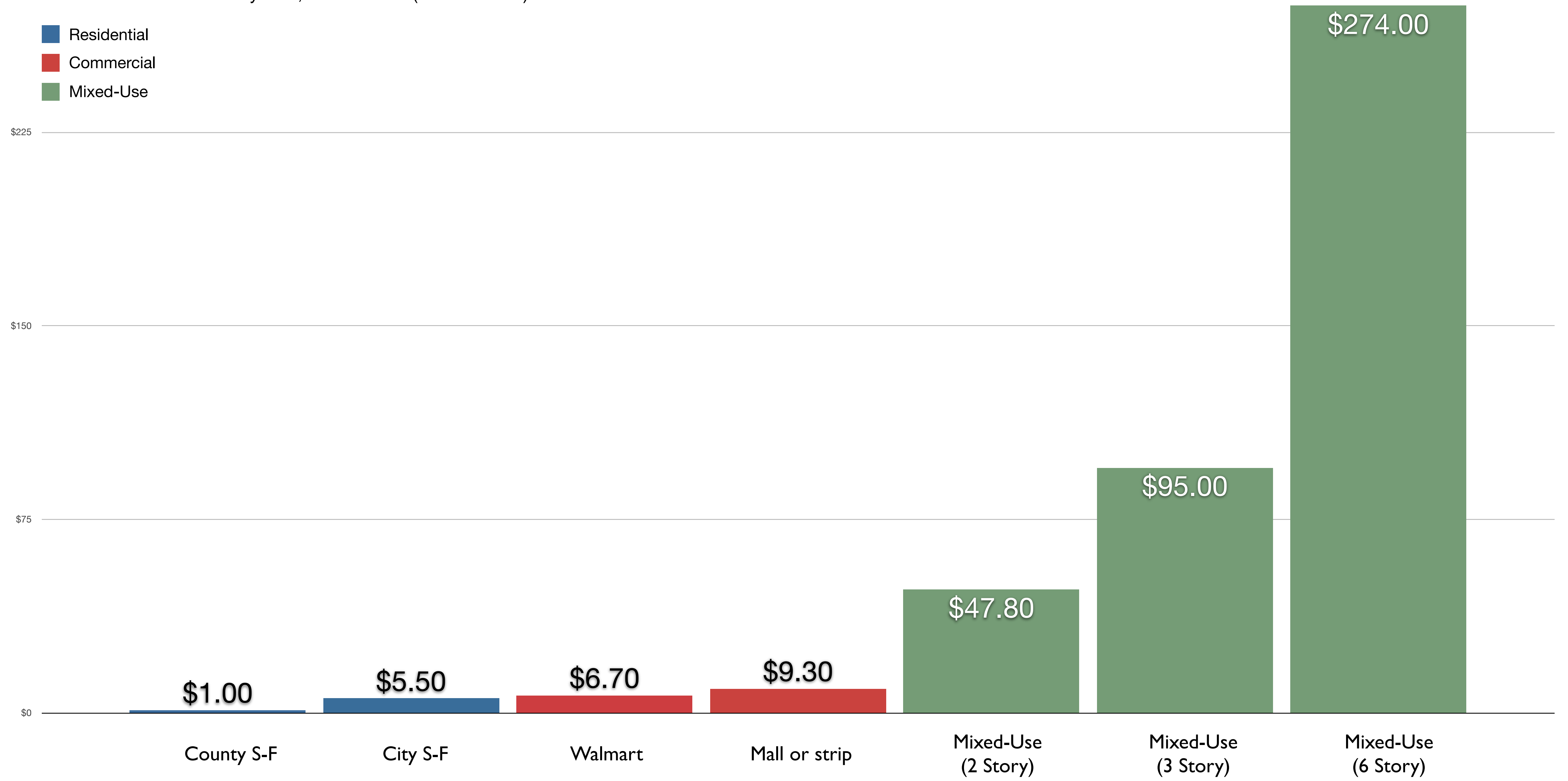


Bugatti Veyron SS  
8/14 mpg

# County Property Taxes/Acre

Ratio Difference of 60 City Set, in 21 States (+ a Province)

- Residential
- Commercial
- Mixed-Use



# International Association of Assessing Officers

80th International Conference

Sacramento, CA

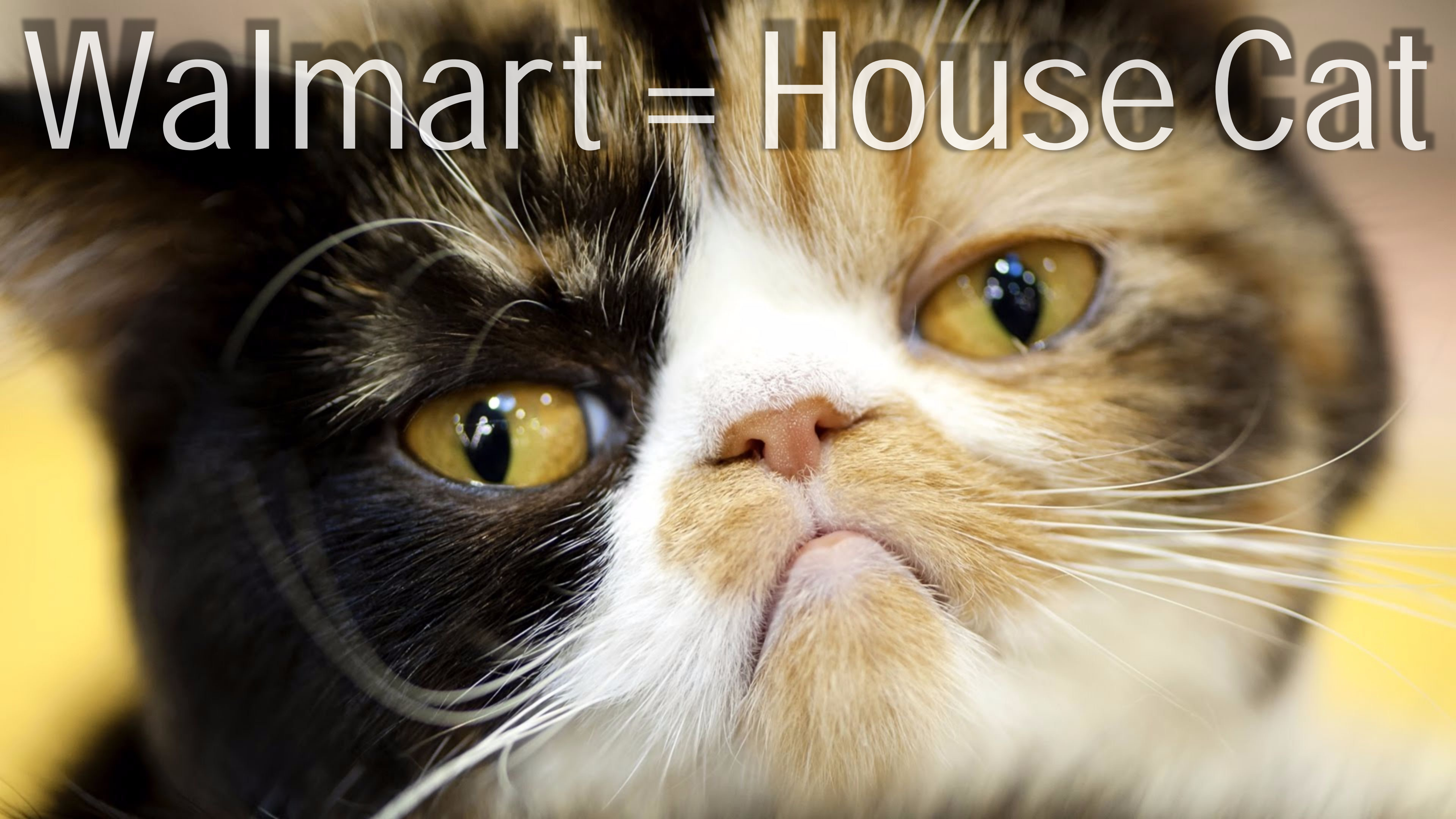
August 26, 2014



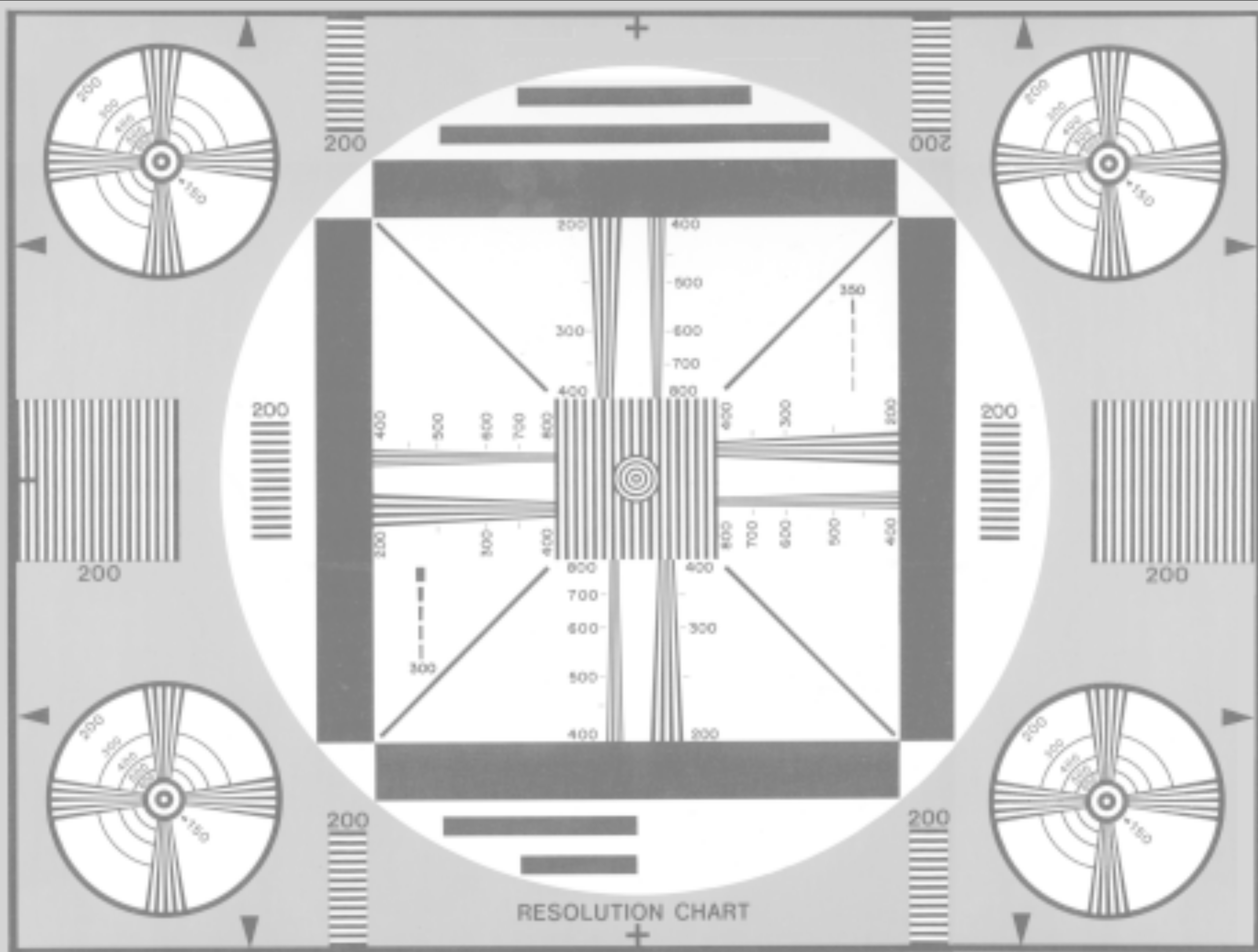
**Charles Terrell, CMI**  
Director of Property Tax







Walmart = House Cat



RESOLUTION CHART



Pictures

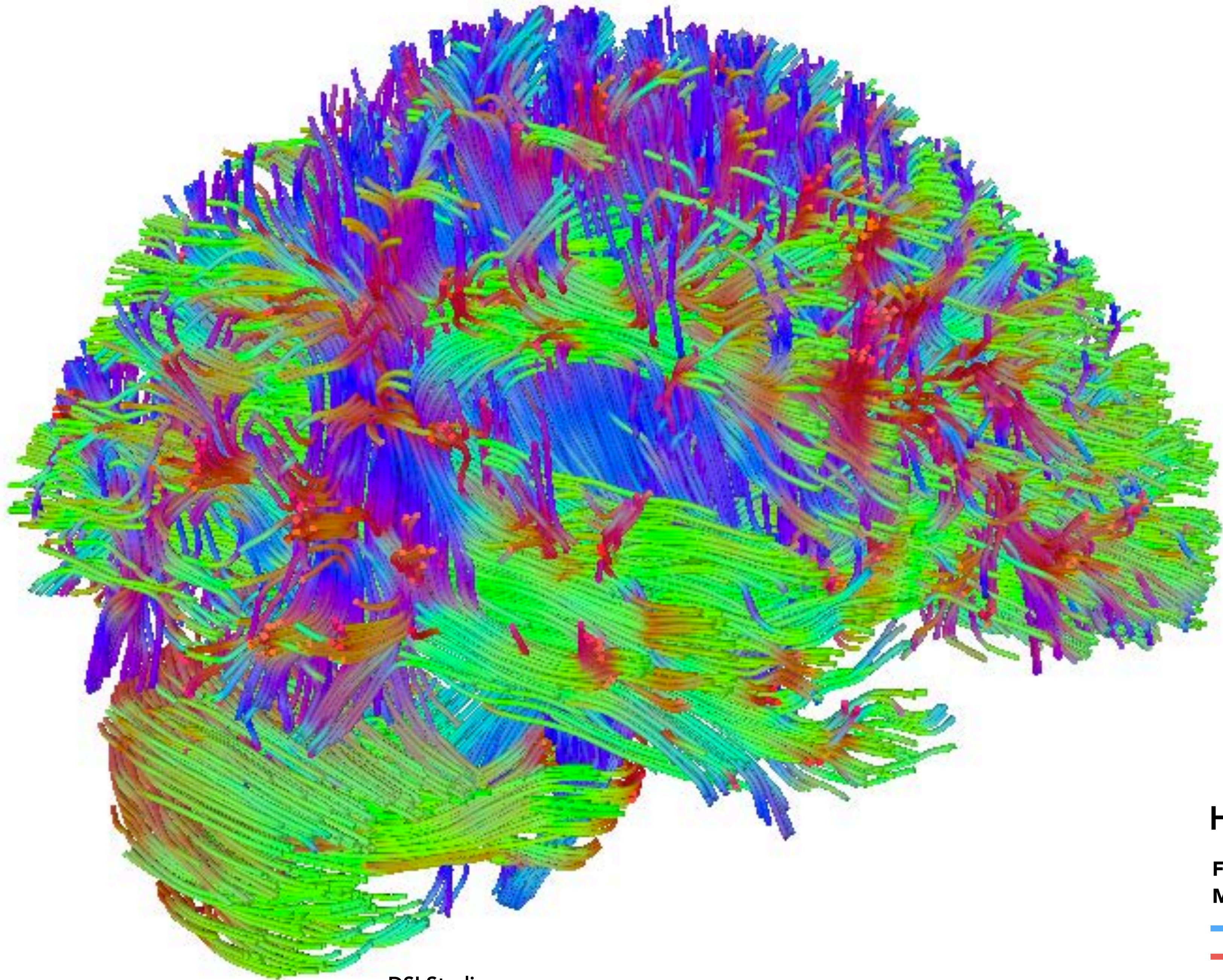
Inside Shapes

Melissa

Question:

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**But why don't people  
see that?**



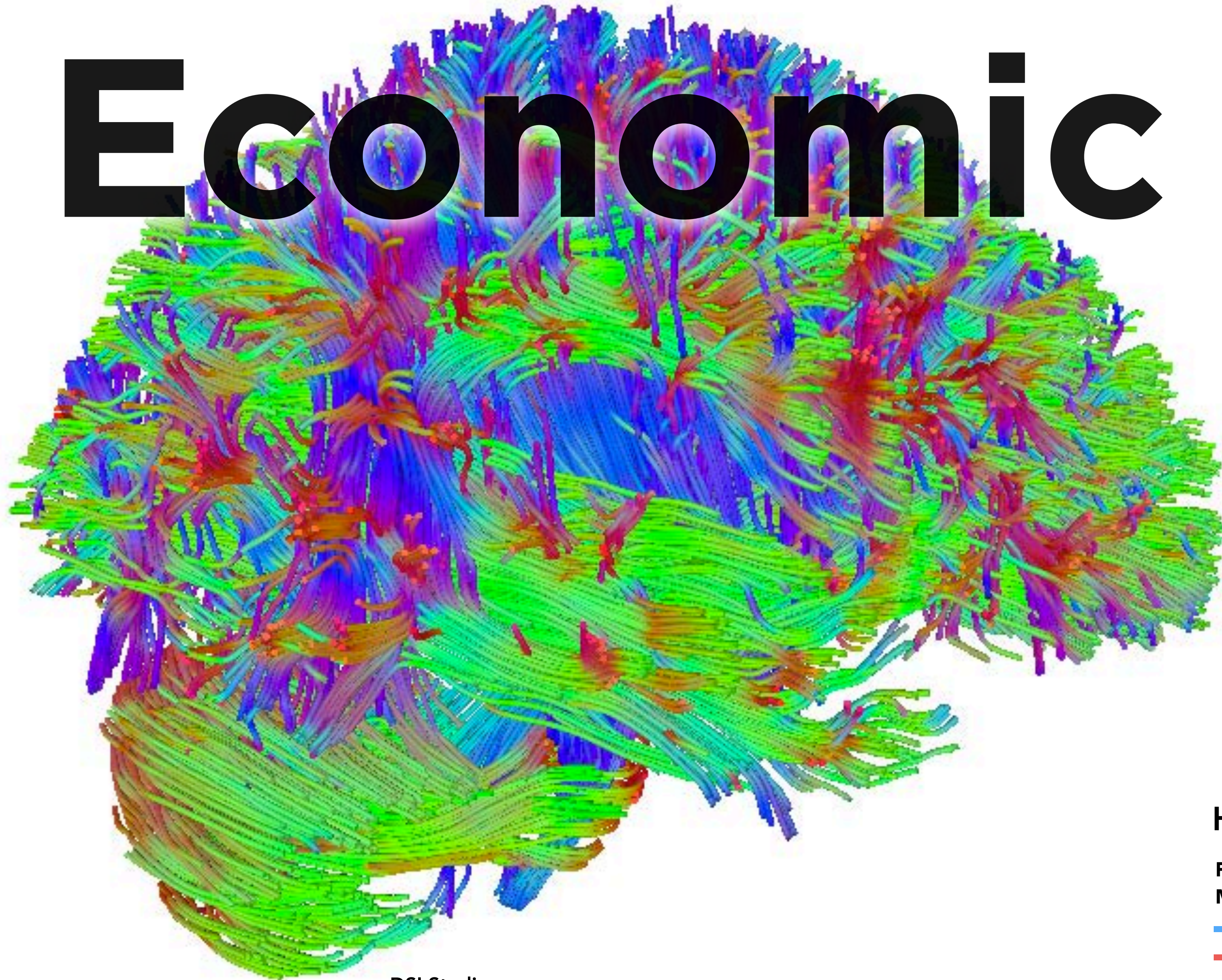
DSI Studio

# Human Connectome Project

Fiber architecture of the brain.  
Measured from diffusion spectral imaging (DSI).

- up-down
- left-right
- anterior-posterior

# Economic MRI™



DSI Studio

## Human Connectome Project

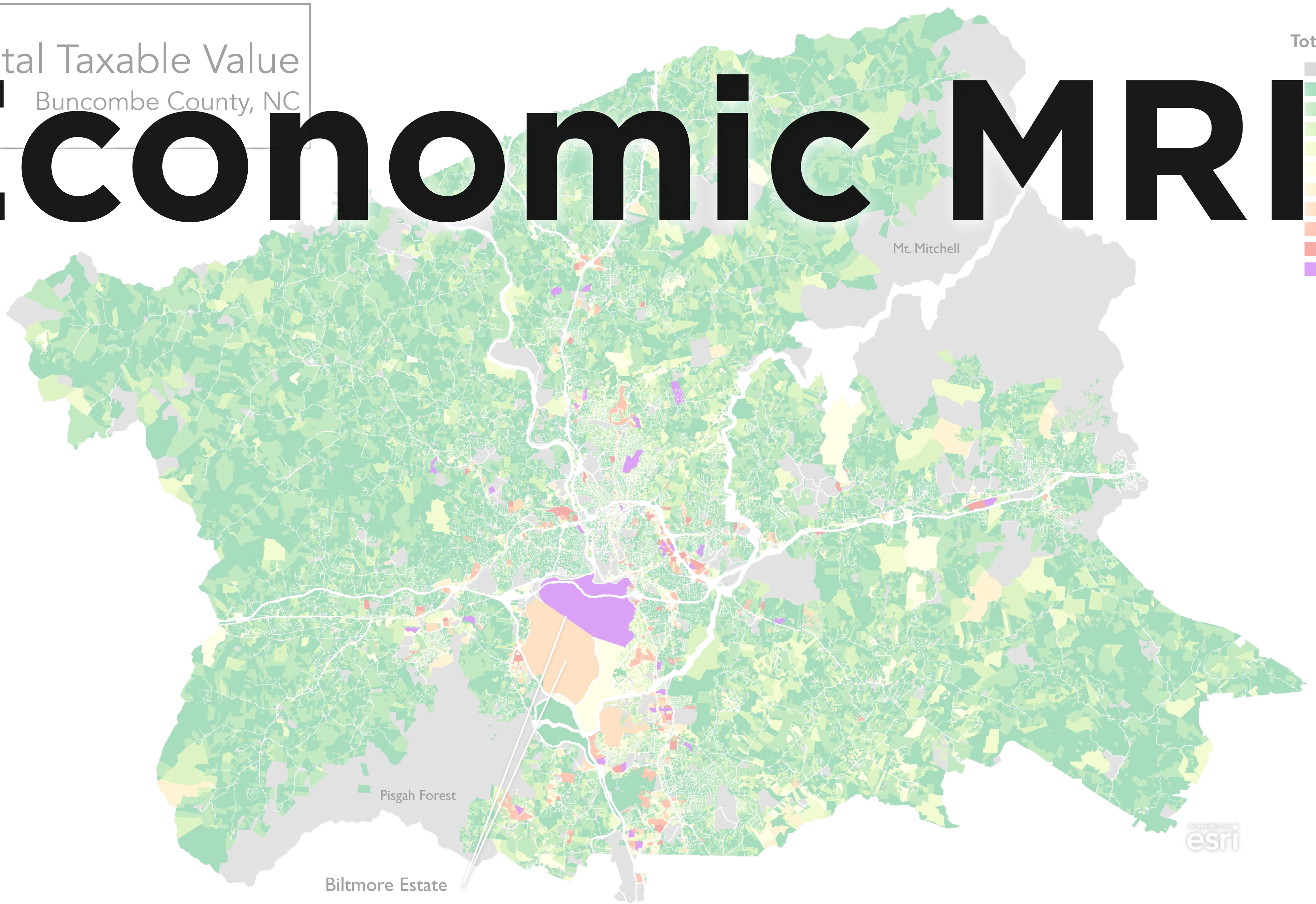
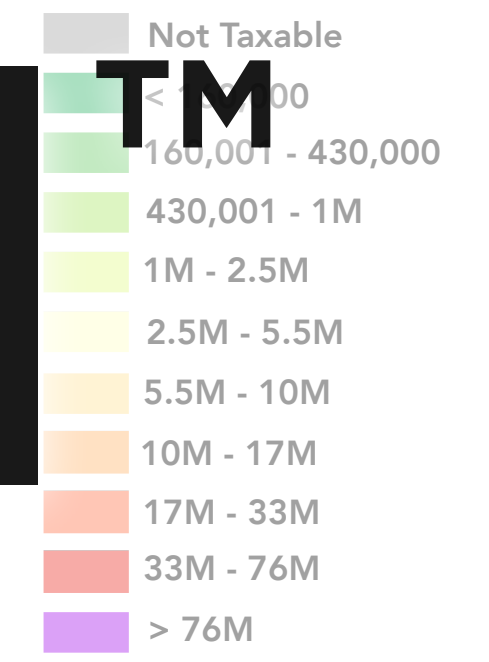
Fiber architecture of the brain.  
Measured from diffusion spectral imaging (DSI).

-  up-down
-  left-right
-  anterior-posterior

Total Taxable Value  
Buncombe County, NC

# Economic MRI™

Total Tax Value (\$)

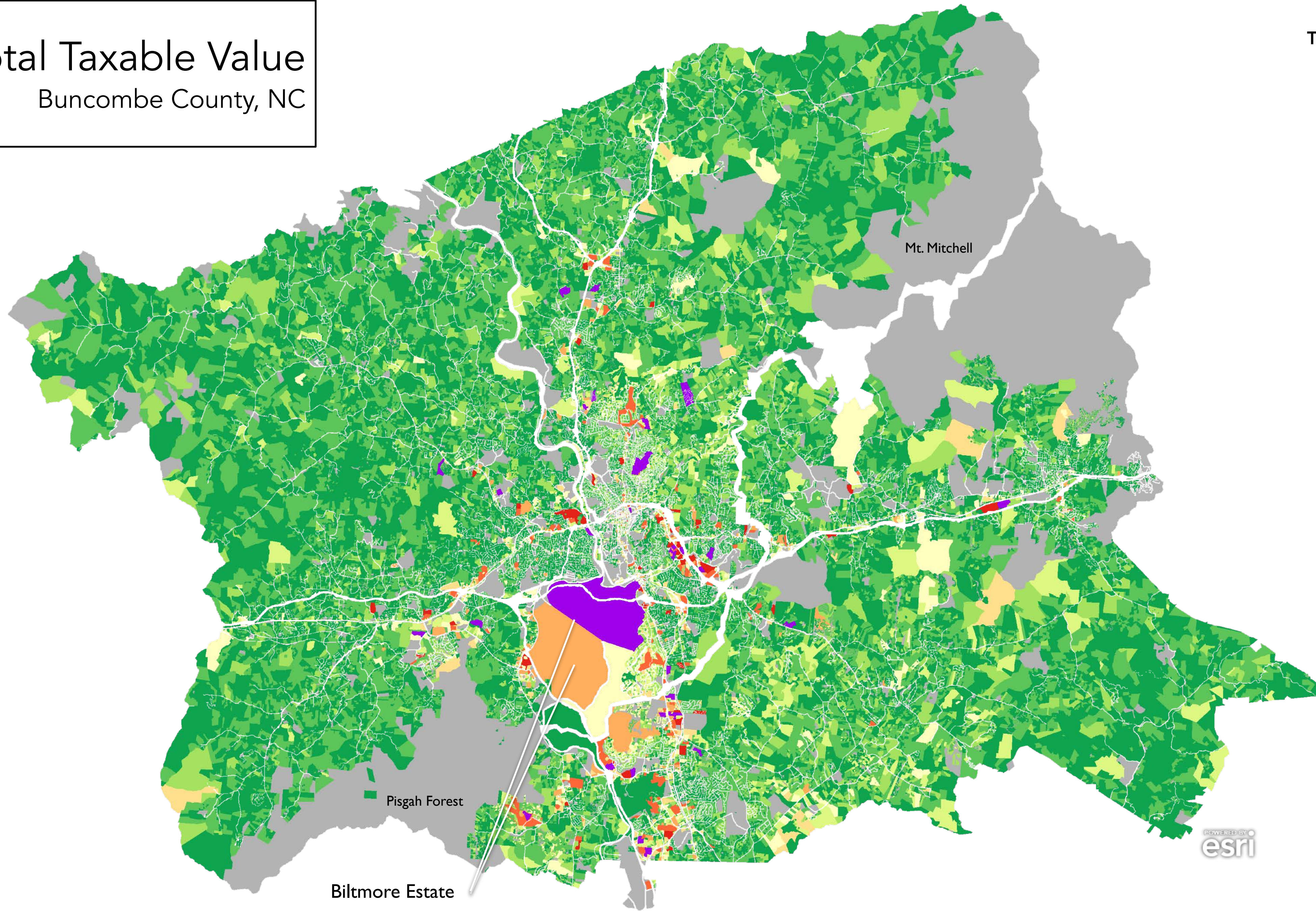


# Total Taxable Value

Buncombe County, NC

## Total Tax Value (\$)

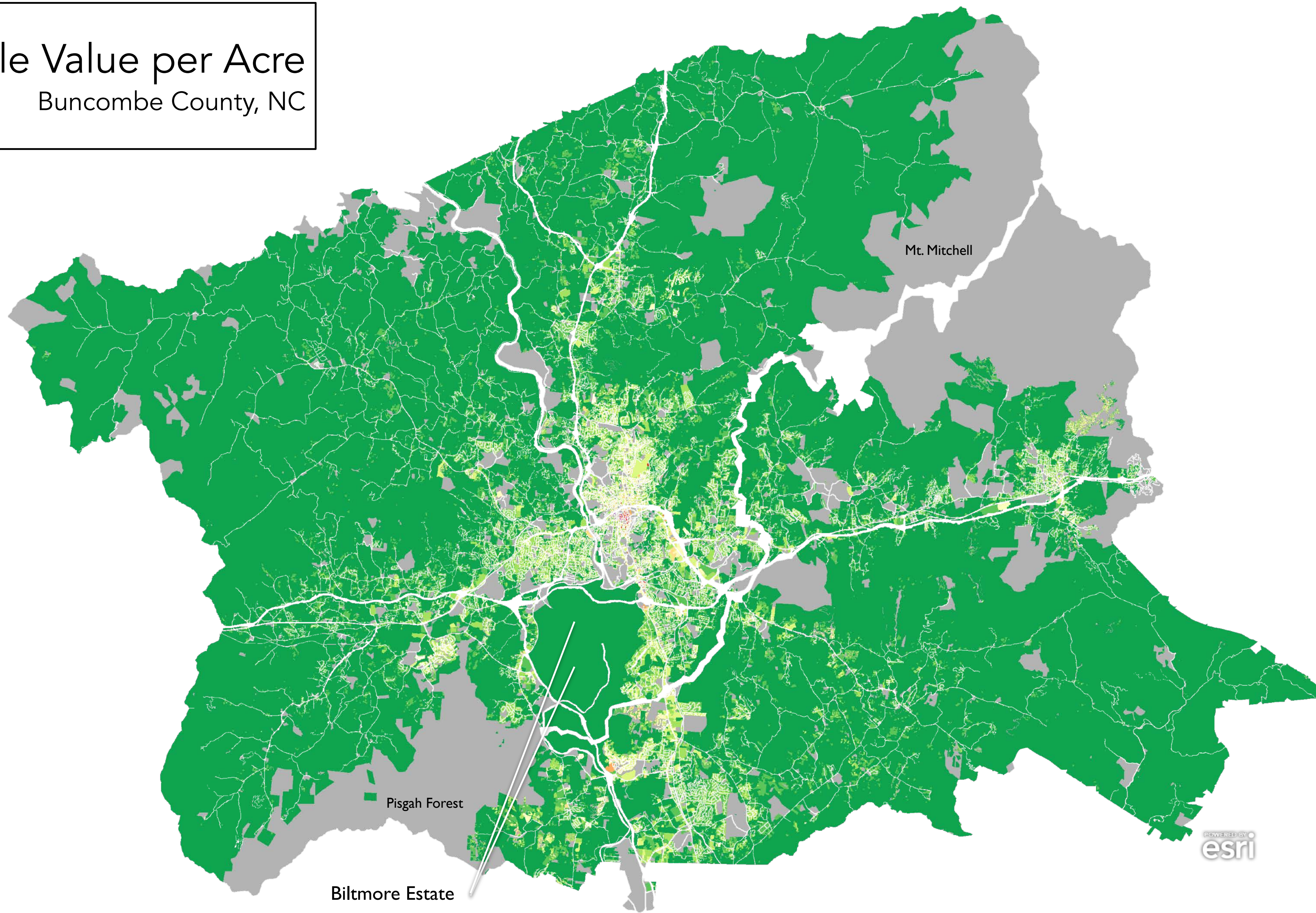
- Not Taxable
- < 160,000
- 160,001 - 430,000
- 430,001 - 1M
- 1M - 2.5M
- 2.5M - 5.5M
- 5.5M - 10M
- 10M - 17M
- 17M - 33M
- 33M - 76M
- > 76M





# Taxable Value per Acre

Buncombe County, NC



## Value Per Acre (\$)

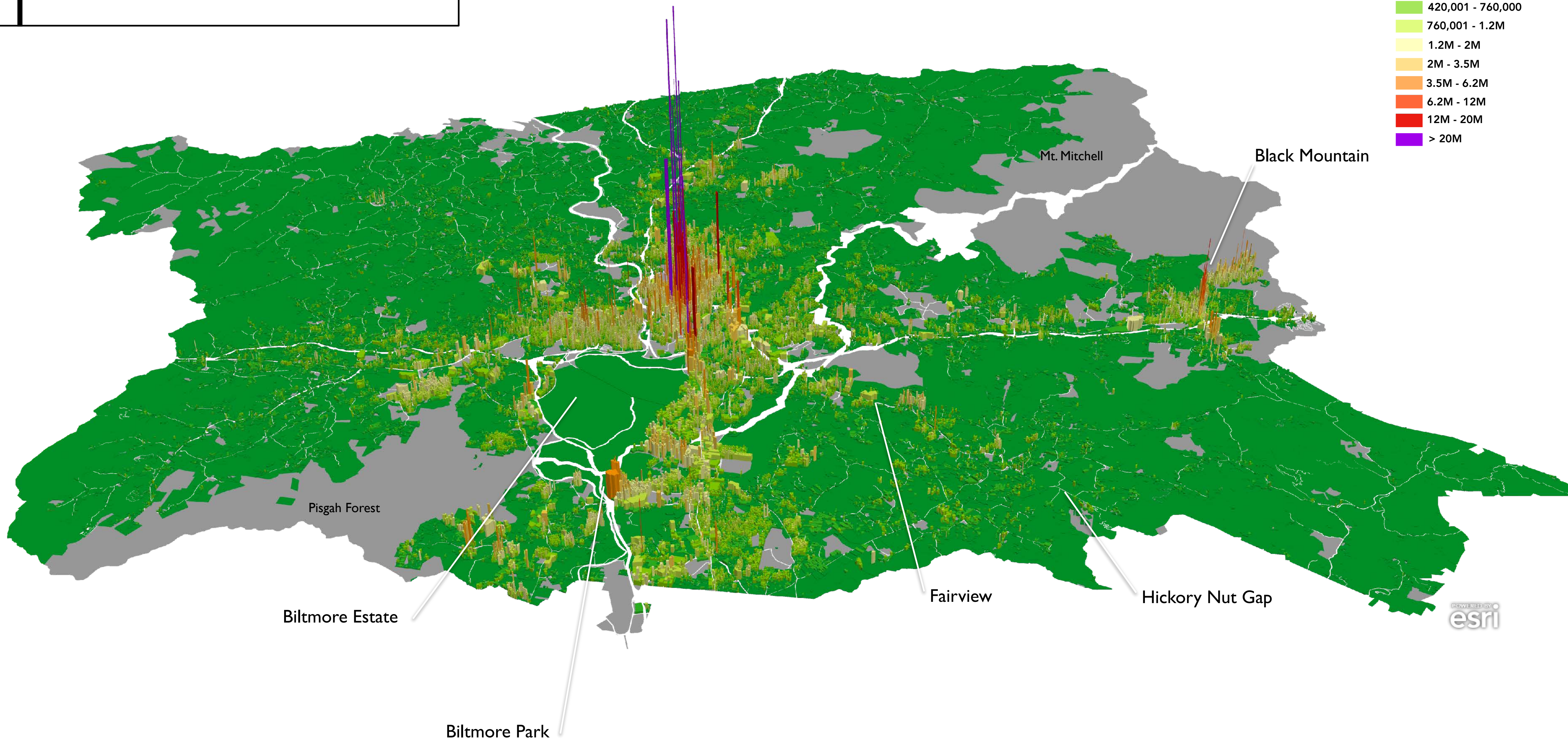
- Not Taxable
- < 170,000
- 170,001 - 420,000
- 420,001 - 760,000
- 760,001 - 1.2M
- 1.2M - 2M
- 2M - 3.5M
- 3.5M - 6.2M
- 6.2M - 12M
- 12M - 20M
- > 20M

# Taxable Value per Acre

Buncombe County, NC

## Value Per Acre (\$)

- Not Taxable
- < 170,000
- 170,001 - 420,000
- 420,001 - 760,000
- 760,001 - 1.2M
- 1.2M - 2M
- 2M - 3.5M
- 3.5M - 6.2M
- 6.2M - 12M
- 12M - 20M
- > 20M

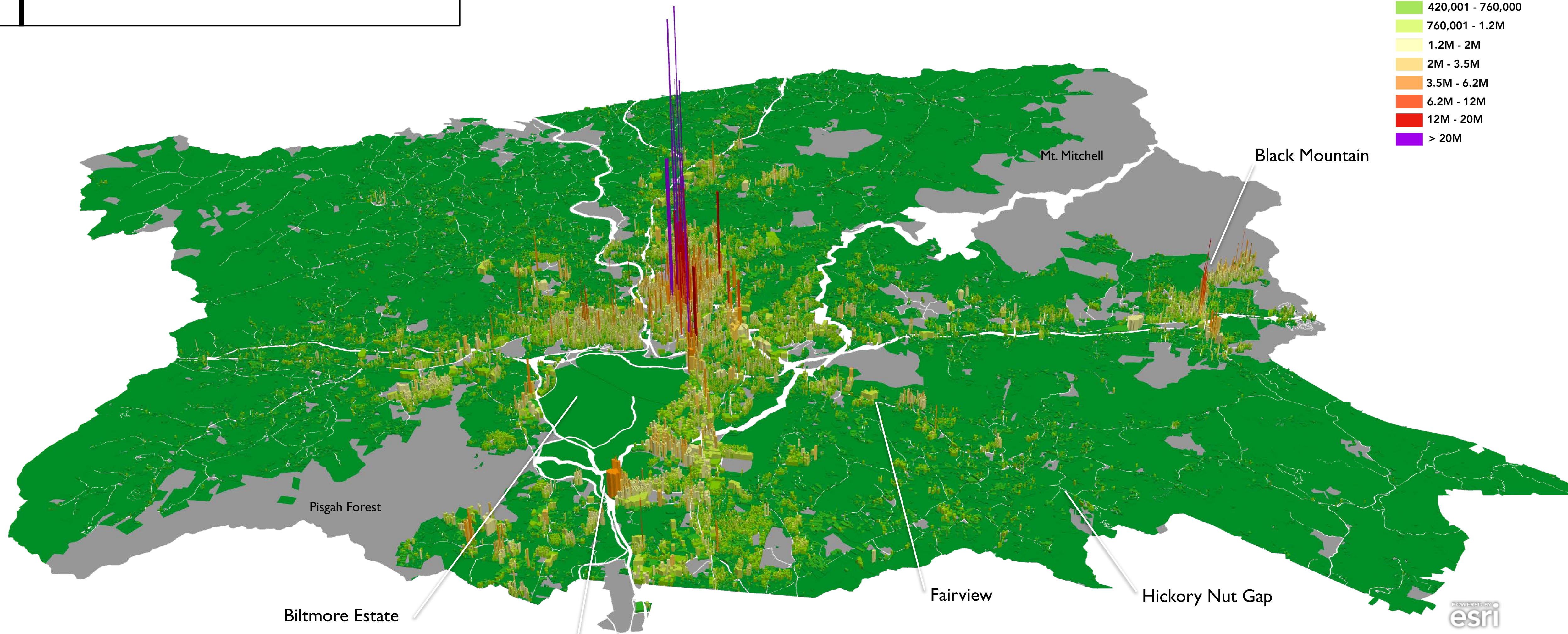


# Taxable Value per Acre

Buncombe County, NC

## Value Per Acre (\$)

- Not Taxable
- < 170,000
- 170,001 - 420,000
- 420,001 - 760,000
- 760,001 - 1.2M
- 1.2M - 2M
- 2M - 3.5M
- 3.5M - 6.2M
- 6.2M - 12M
- 12M - 20M
- > 20M



show . don't tell .

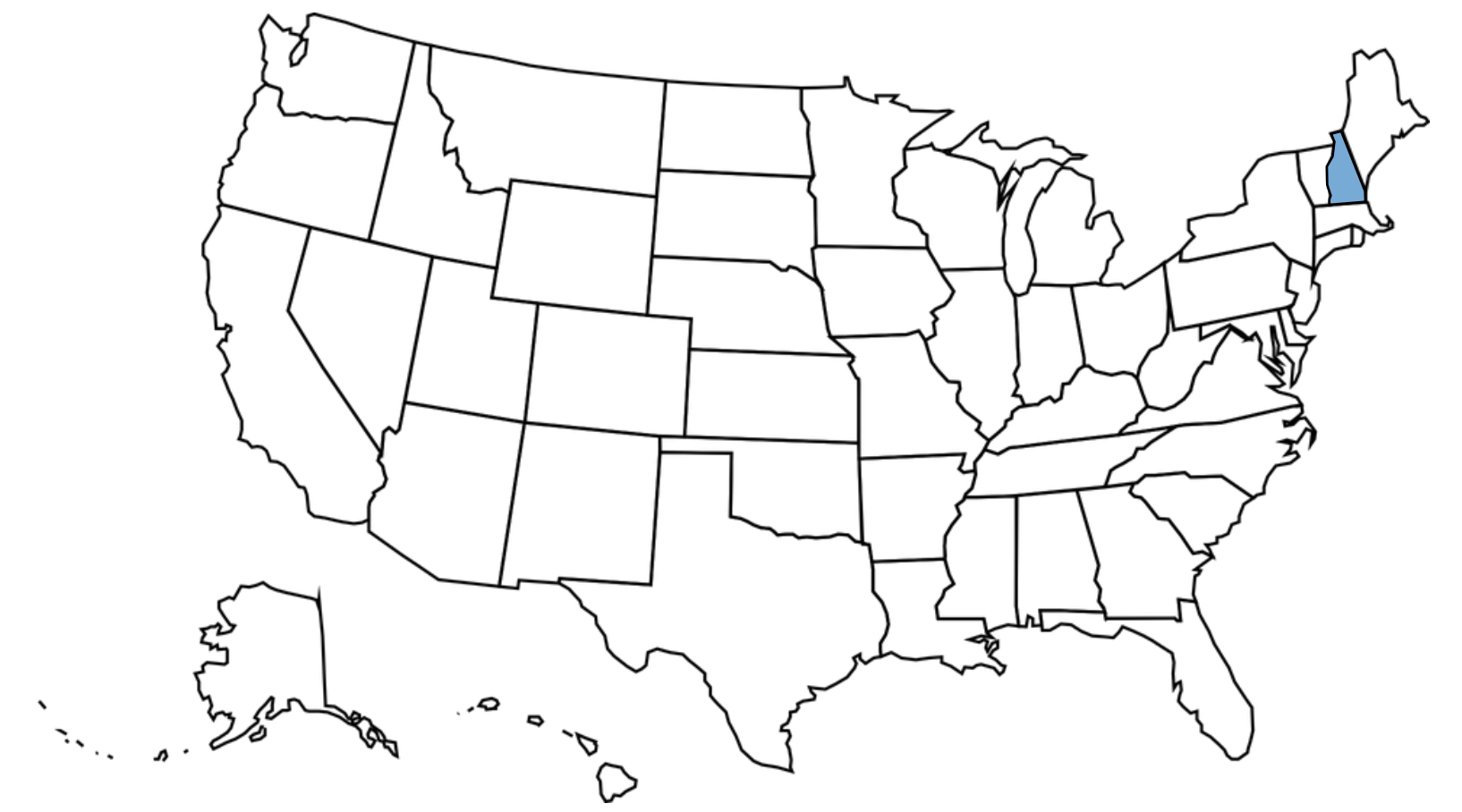
Biltmore Park

*Greetings from*

**NEW HAMPSHIRE**

The word "NEW HAMPSHIRE" is rendered in large, bold, blue-outlined letters. Each letter serves as a frame for a different scene: 'N' shows the New Hampshire State Capitol building; 'E' depicts a rocky coastline; 'W' features a boat on the water; 'H' shows a scenic view of a lake or river; 'A' contains a view of a town; 'M' shows a boat on the water; 'P' depicts fireworks; 'S' shows a town street with vintage cars; 'H' shows a town street with vintage cars; 'I' shows a town street with vintage cars; 'R' shows a town street with vintage cars; 'E' shows a town street with vintage cars.

*The Granite State*

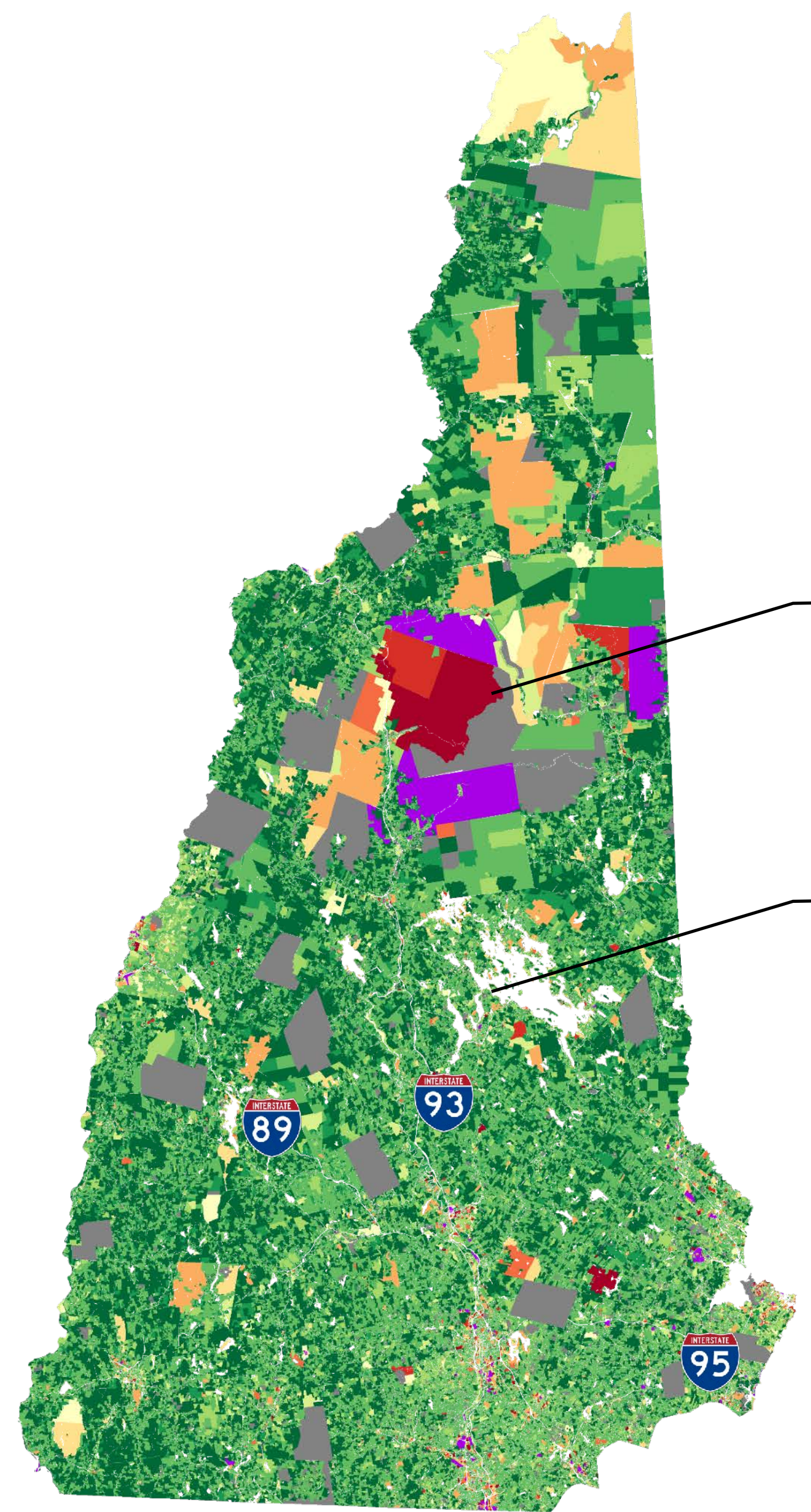
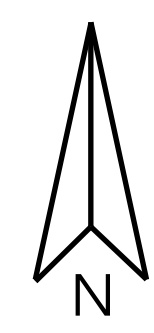
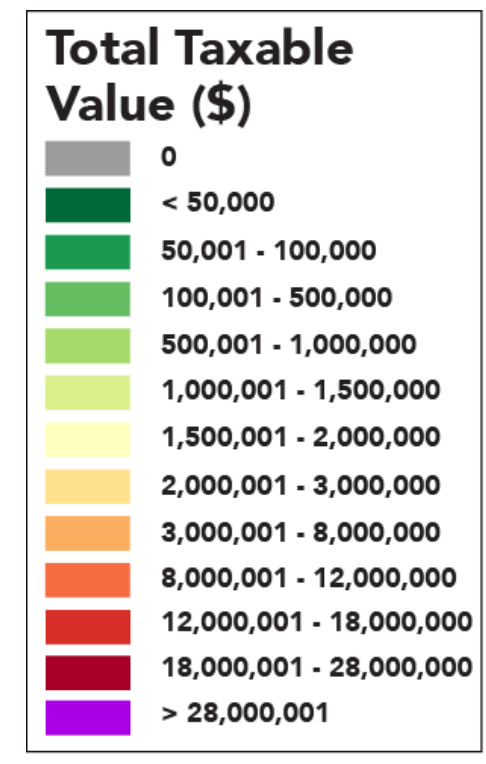


Case Study: Economic MRI®  
2022

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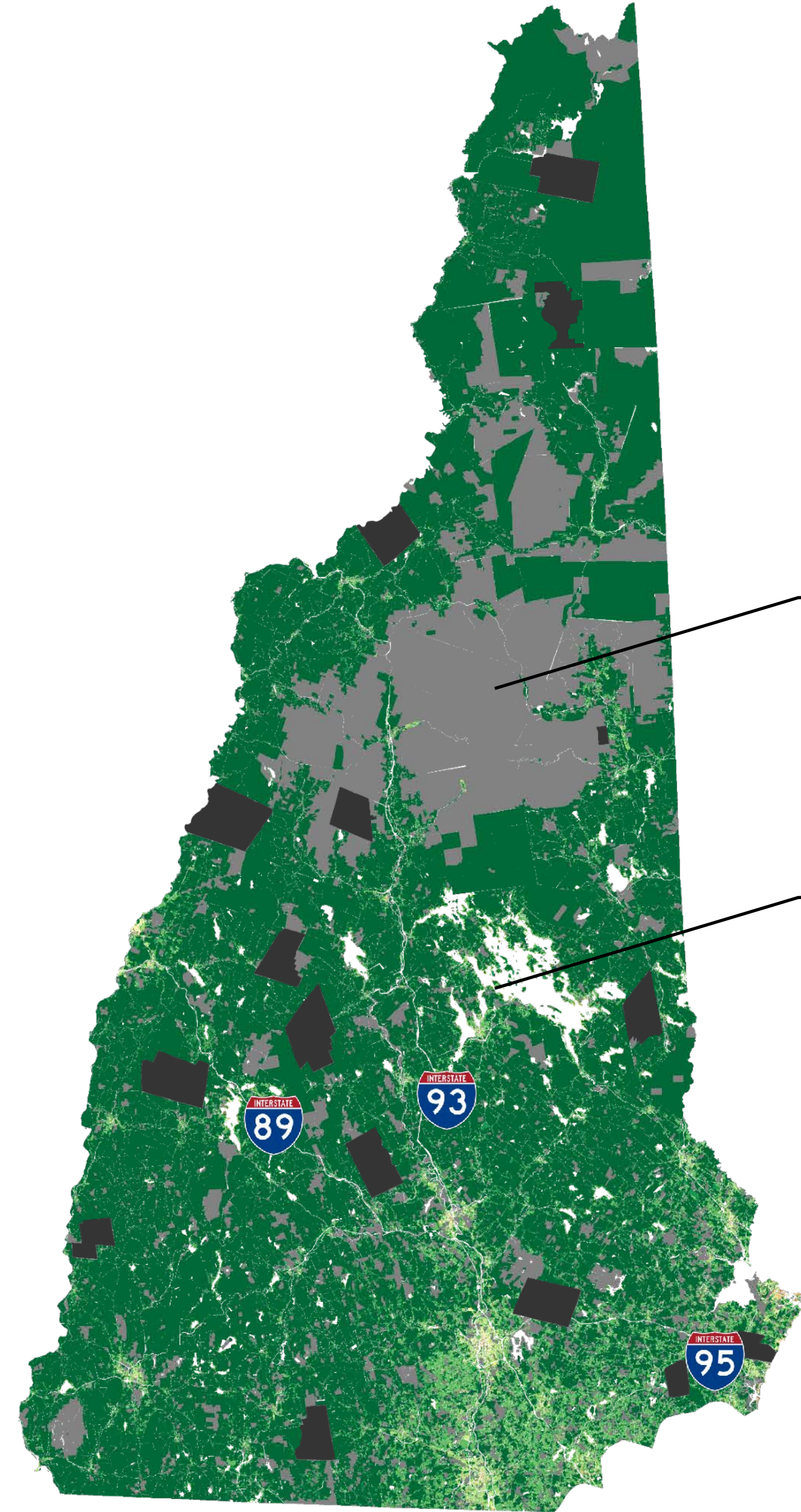
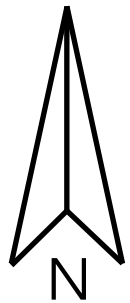
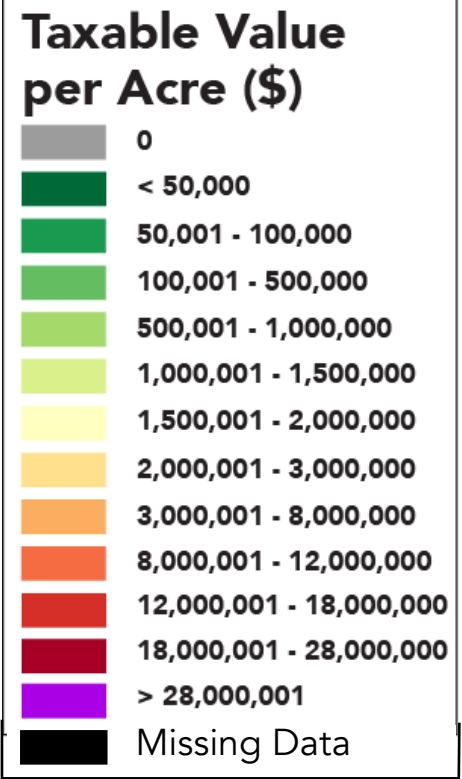
# New Hampshire

# Total Value New Hampshire



White Mountain

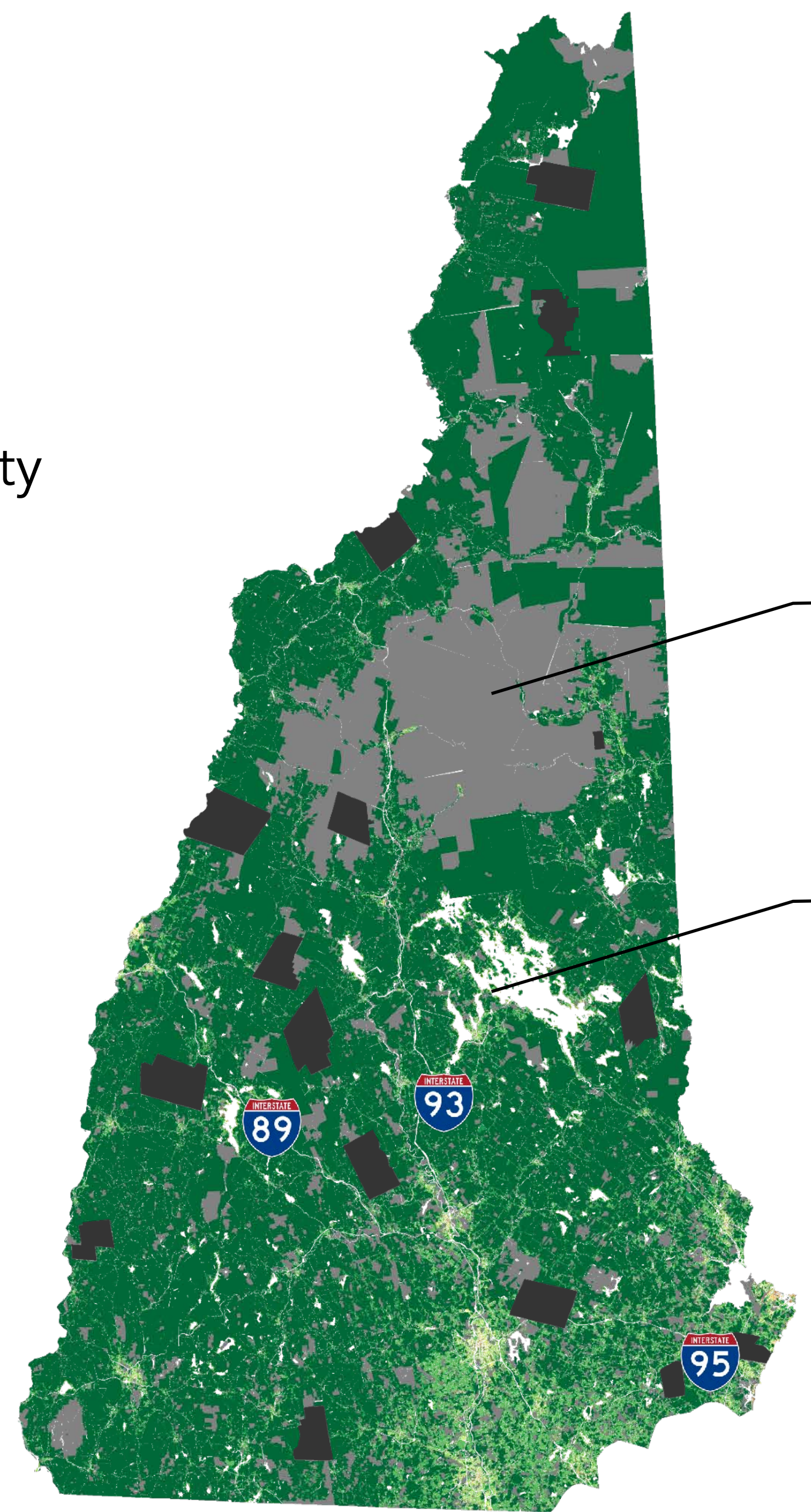
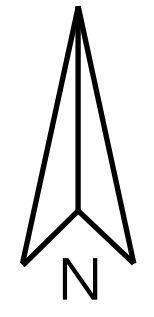
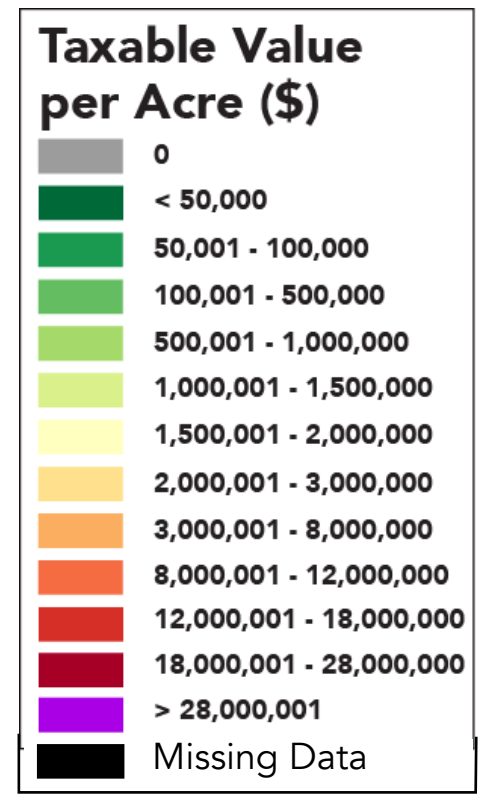
Lake Winnepesaukee



White Mountain

Lake Winnepesaukee

■ Missing Data: the property is there and paying taxes but isn't mapped. Significantly rural and undeveloped.



White Mountain

Lake Winnepesaukee

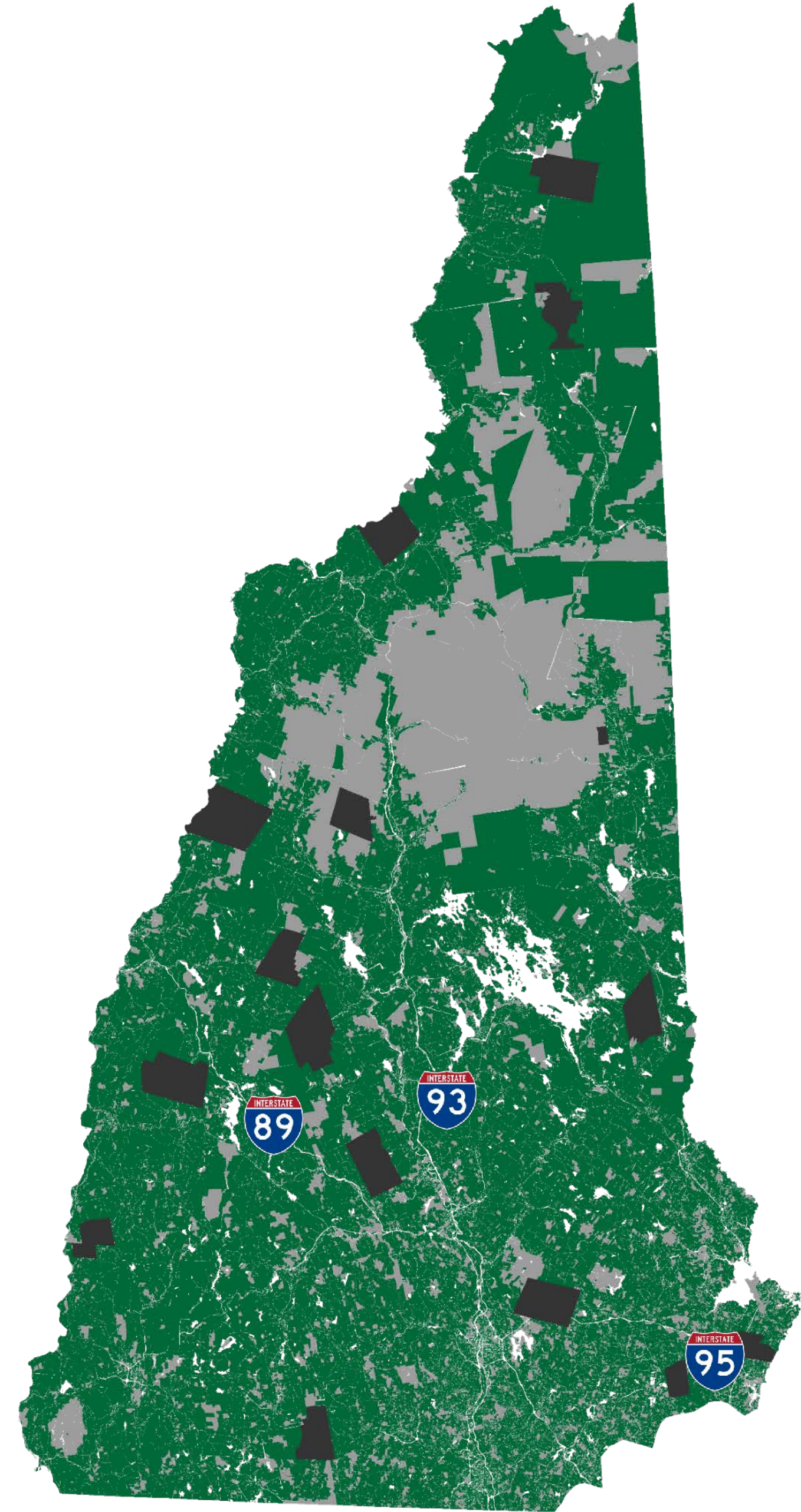
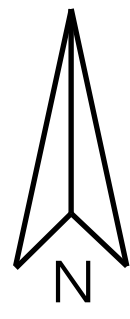


# Taxable Area

New Hampshire

**Taxable Status**

- Non Taxable
- Taxable
- No Data



\*Missing Data Accounts for 5.25% of Total Land Area

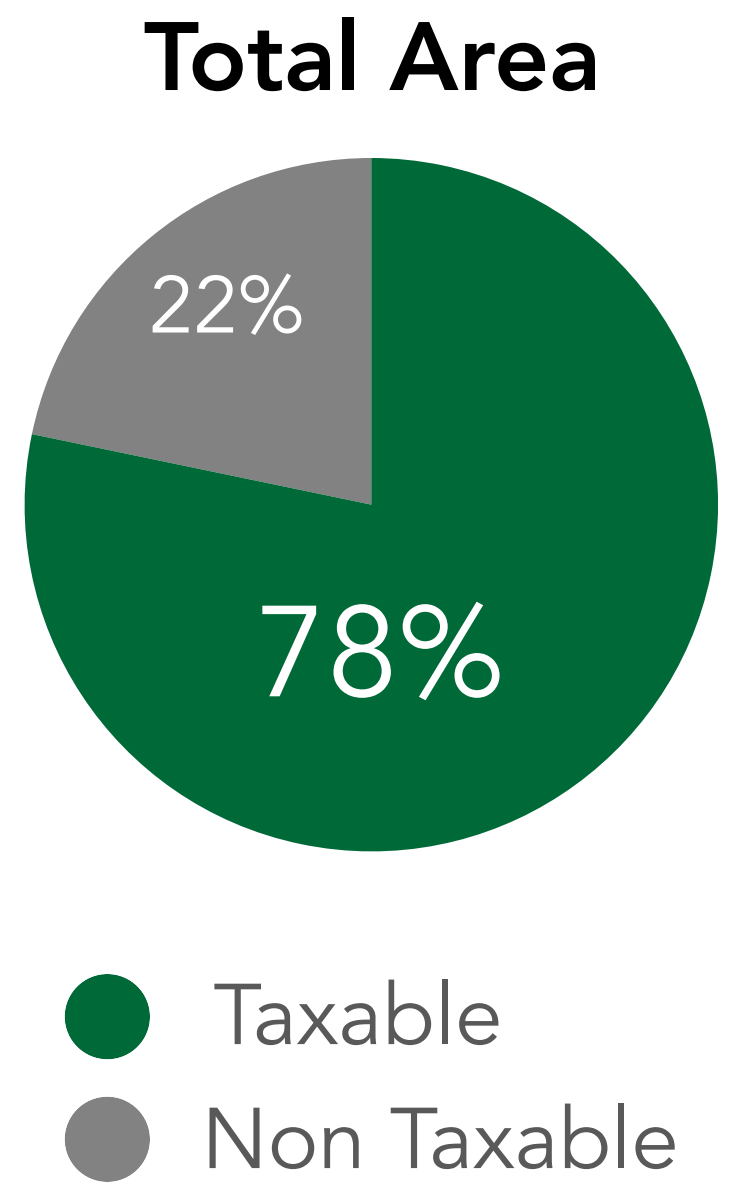
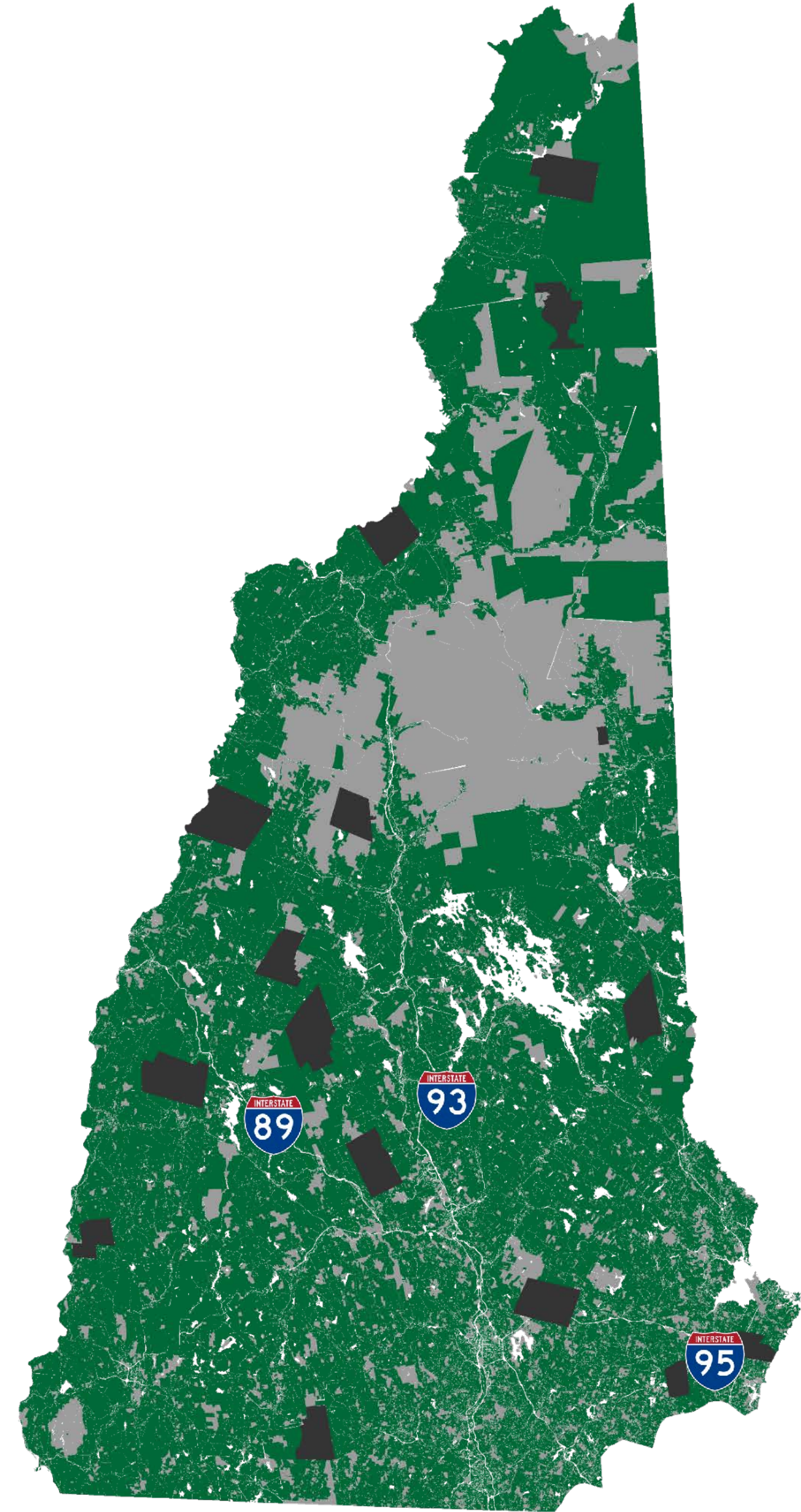
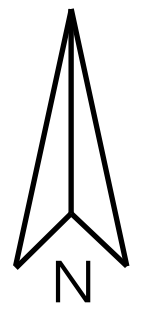
Source: New Hampshire Department of Revenue Administration 2019

# Taxable Area

New Hampshire

**Taxable Status**

- Non Taxable
- Taxable
- No Data



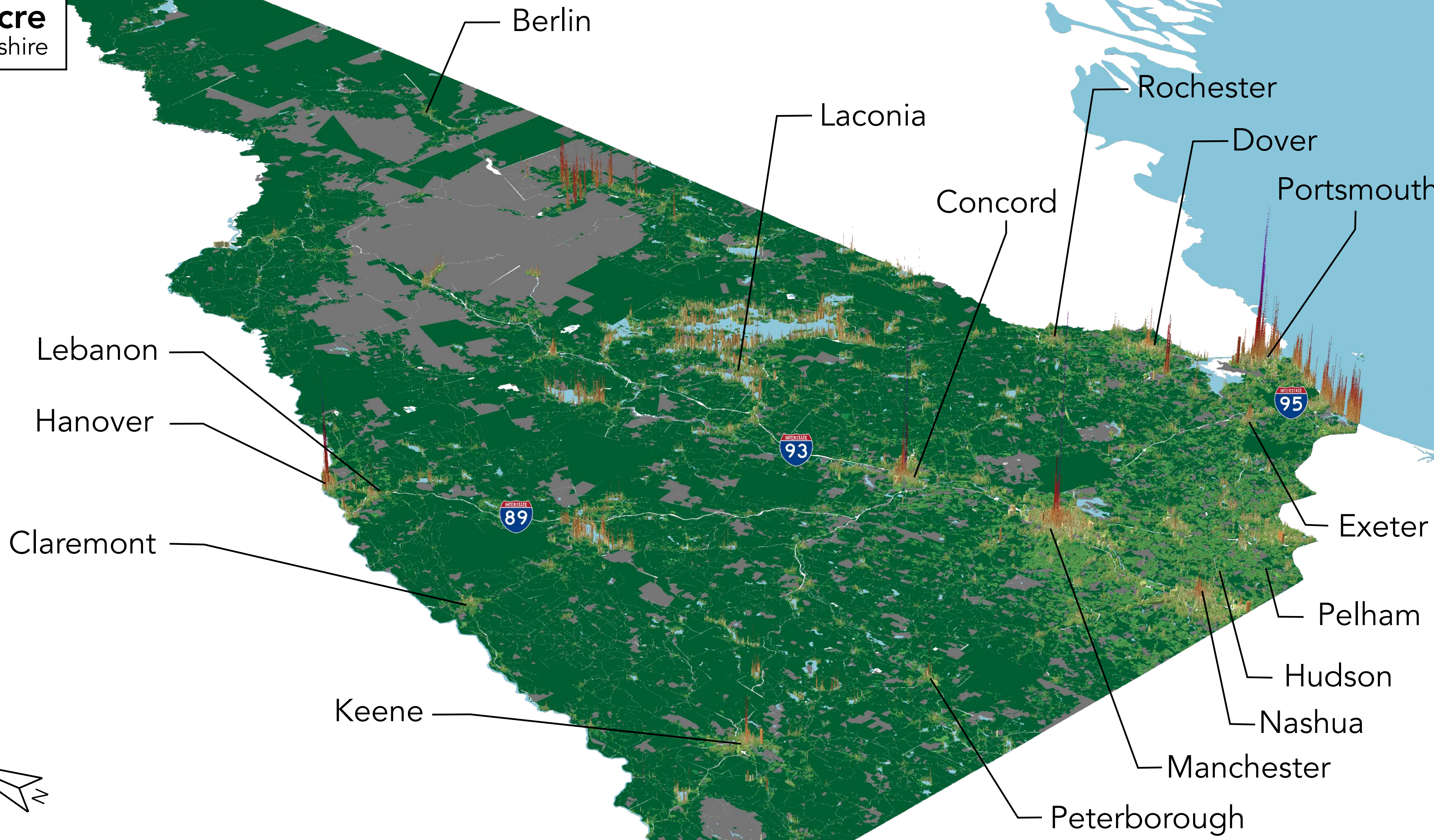
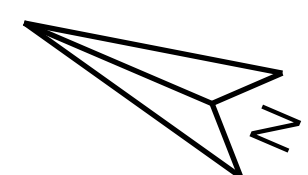
\*Missing Data Accounts for 5.25% of Total Land Area

Source: New Hampshire Department of Revenue Administration 2019

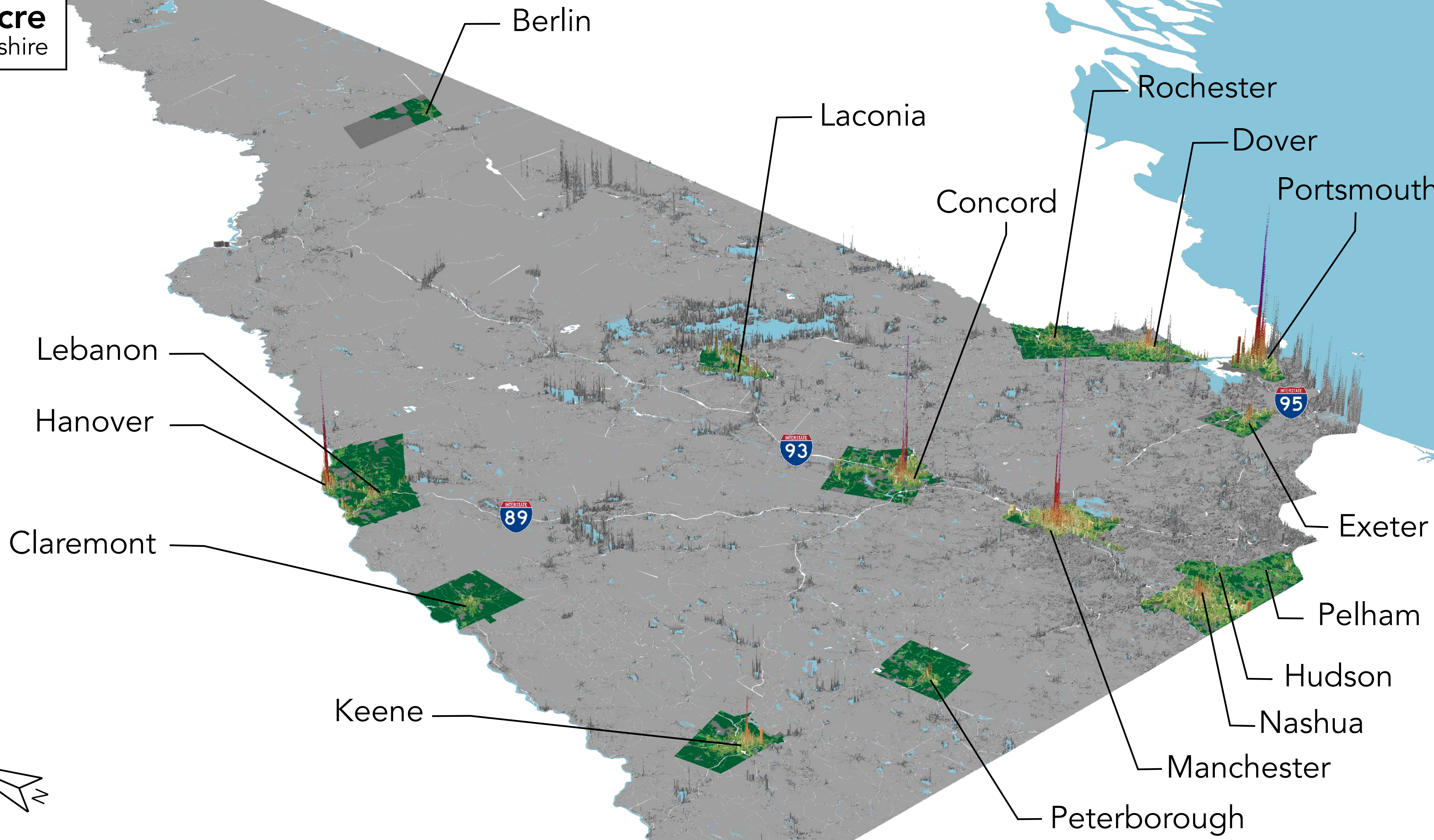
URBAN3  
**Value Per Acre**  
 New Hampshire

**Taxable Value per Acre (\$)**

0
< 50,000
50,001 - 100,000
100,001 - 500,000
500,001 - 1,000,000
1,000,001 - 1,500,000
1,500,001 - 2,000,000
2,000,001 - 3,000,000
3,000,001 - 8,000,000
8,000,001 - 12,000,000
12,000,001 - 18,000,000
18,000,001 - 28,000,000
> 28,000,001

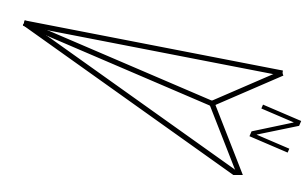


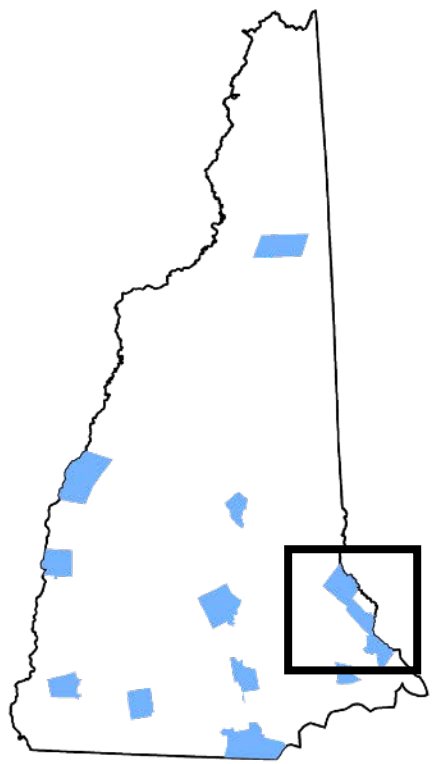
URBAN3  
**Value Per Acre**  
 New Hampshire



**Taxable Value per Acre (\$)**

0
< 50,000
50,001 - 100,000
100,001 - 500,000
500,001 - 1,000,000
1,000,001 - 1,500,000
1,500,001 - 2,000,000
2,000,001 - 3,000,000
3,000,001 - 8,000,000
8,000,001 - 12,000,000
12,000,001 - 18,000,000
18,000,001 - 28,000,000
> 28,000,001





Case Study: Economic MRI®  
2022

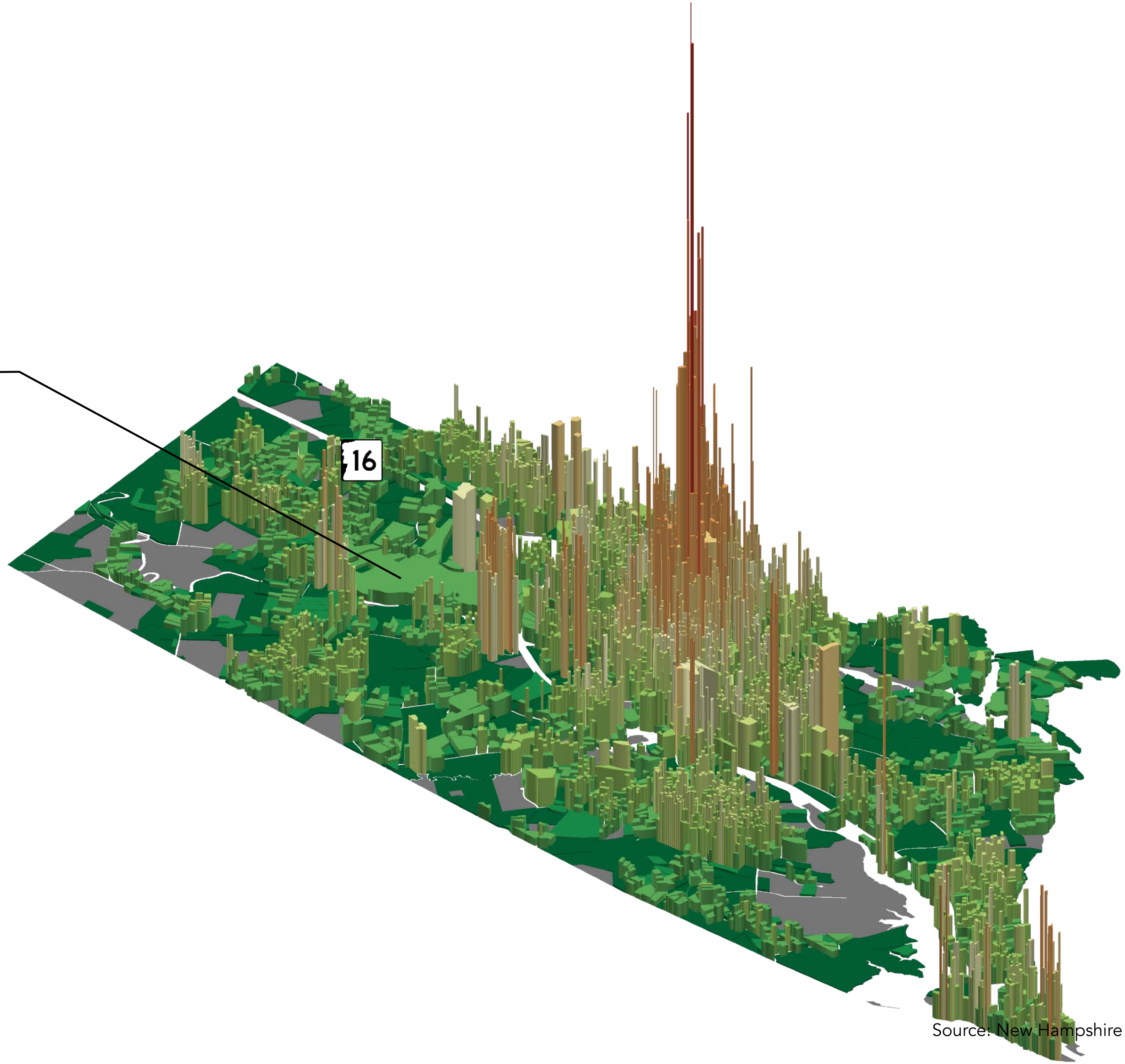
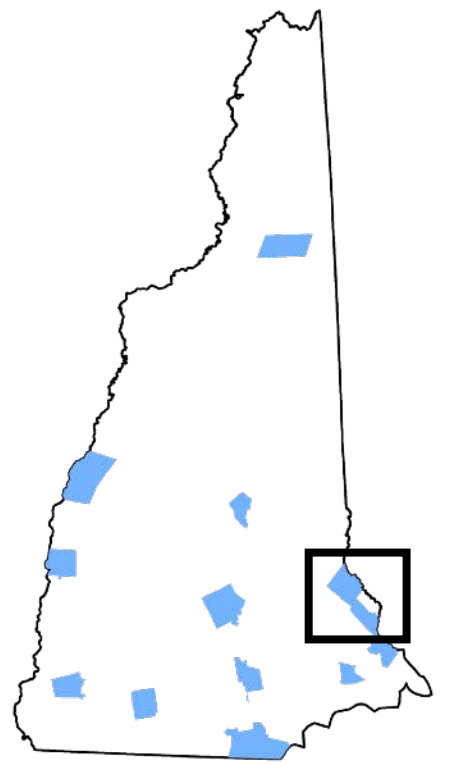
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# Dover



# Value Per Acre

Dover, NH



**Taxable Value per Acre (\$)**

0
< 50,000
50,001 - 100,000
100,001 - 500,000
500,001 - 1,000,000
1,000,001 - 1,500,000
1,500,001 - 2,000,000
2,000,001 - 3,000,000
3,000,001 - 8,000,000
8,000,001 - 12,000,000
12,000,001 - 18,000,000
18,000,001 - 28,000,000
> 28,000,001
Missing Data



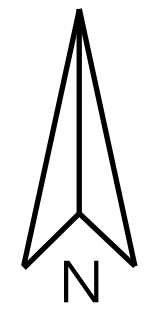
# Value Per Acre

Strafford County, NH



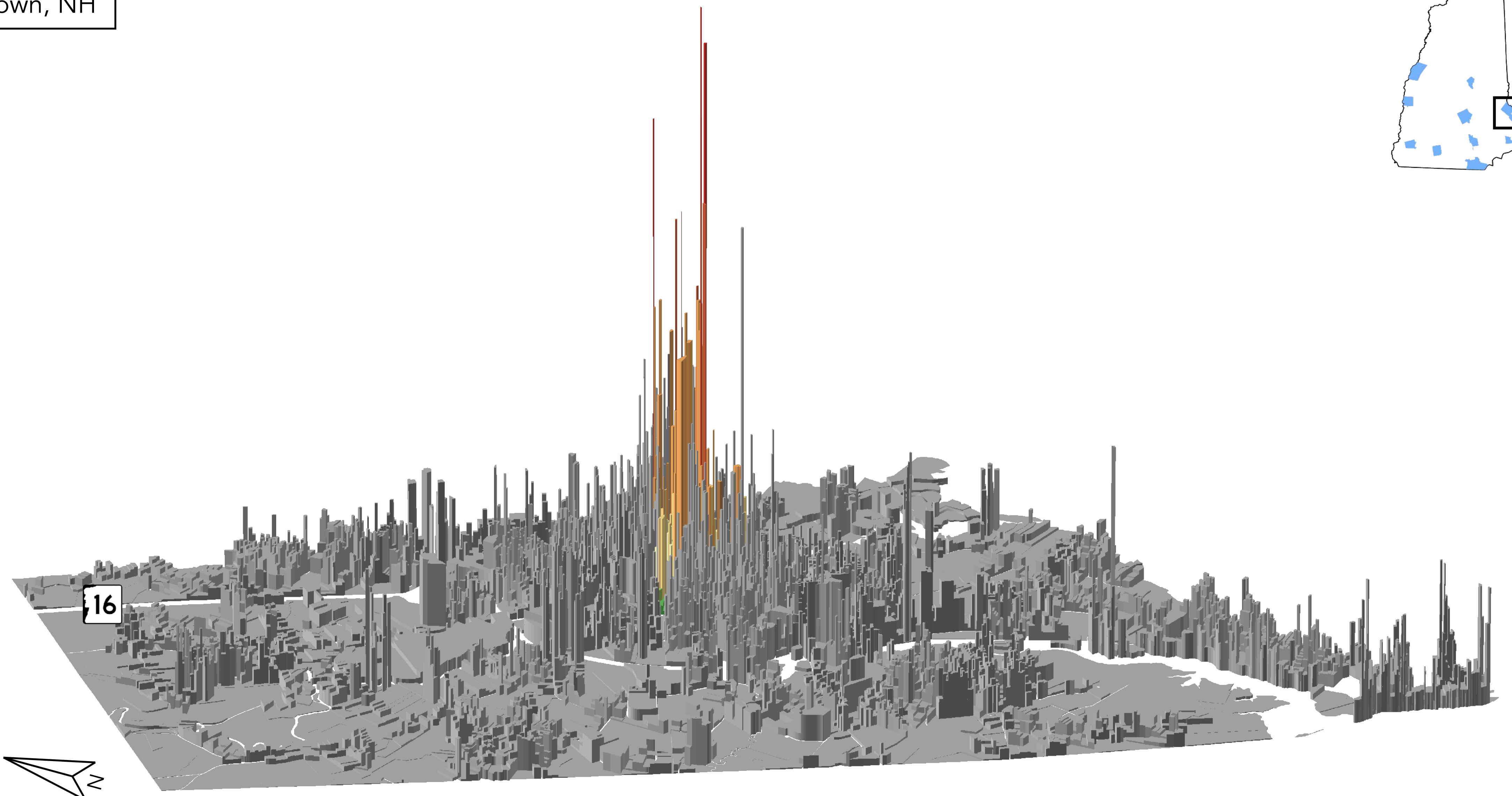
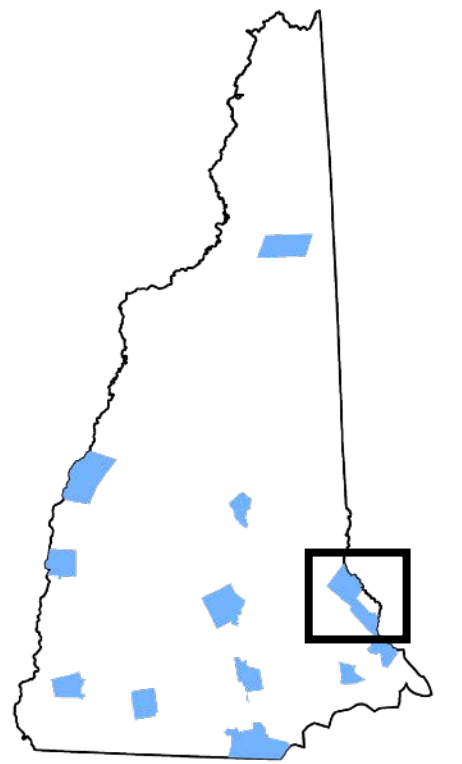
**Taxable Value per Acre (\$)**

0
< 50,000
50,001 - 100,000
100,001 - 500,000
500,001 - 1,000,000
1,000,001 - 1,500,000
1,500,001 - 2,000,000
2,000,001 - 3,000,000
3,000,001 - 8,000,000
8,000,001 - 12,000,000
12,000,001 - 18,000,000
18,000,001 - 28,000,000
> 28,000,001
Missing Data

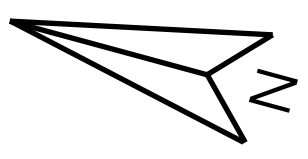


# Value Per Acre

Dover Downtown, NH



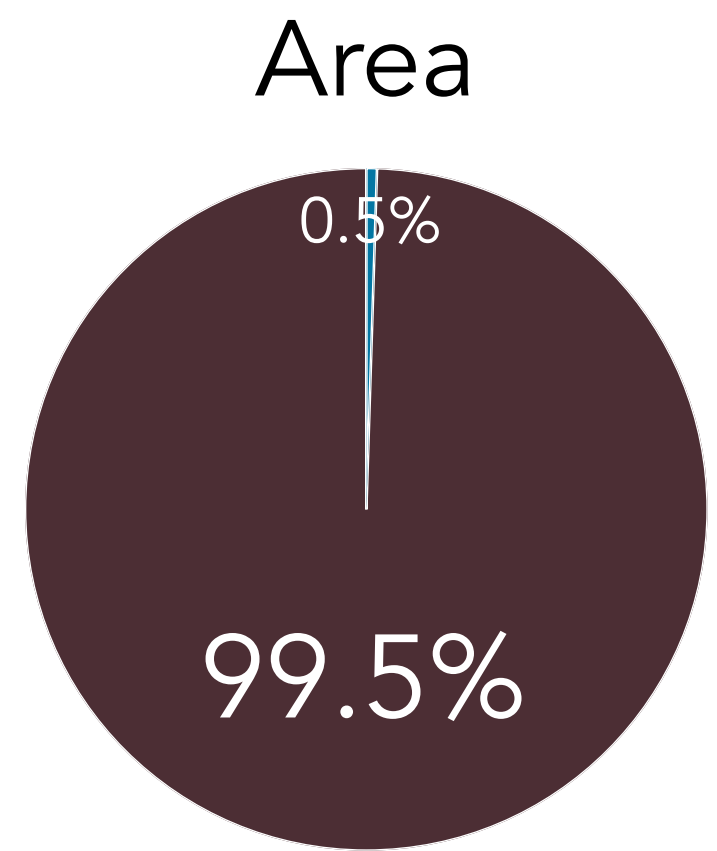
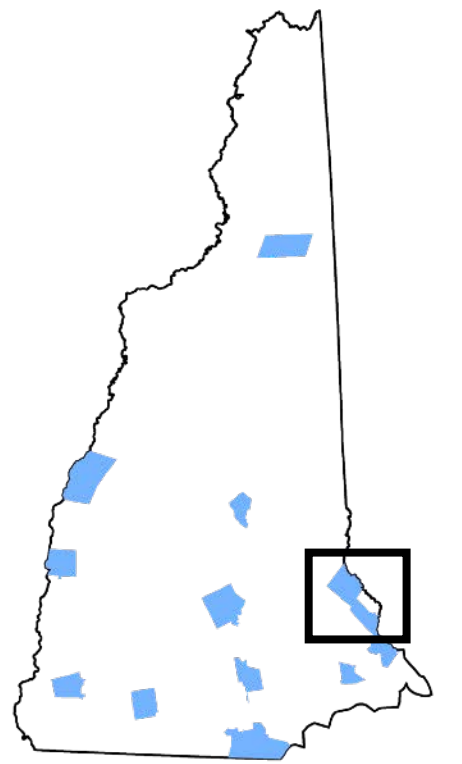
Taxable Value per Acre (\$)	
0	Grey
< 50,000	Dark Green
50,001 - 100,000	Medium Green
100,001 - 500,000	Light Green
500,001 - 1,000,000	Yellow-Green
1,000,001 - 1,500,000	Yellow
1,500,001 - 2,000,000	Light Orange
2,000,001 - 3,000,000	Orange
3,000,001 - 8,000,000	Dark Orange
8,000,001 - 12,000,000	Red-Orange
12,000,001 - 18,000,000	Red
18,000,001 - 28,000,000	Dark Red
> 28,000,001	Purple
Missing Data	Black



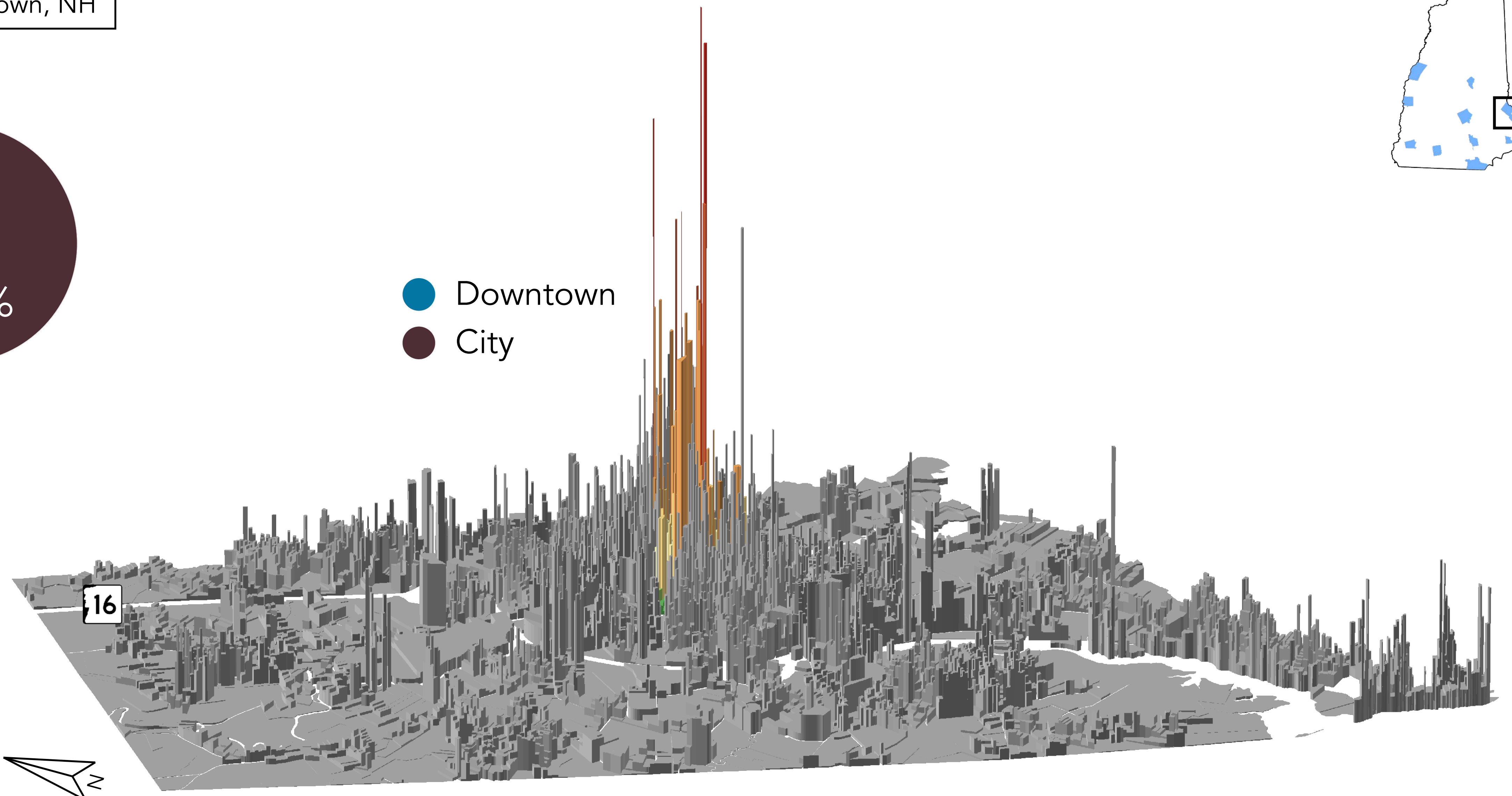
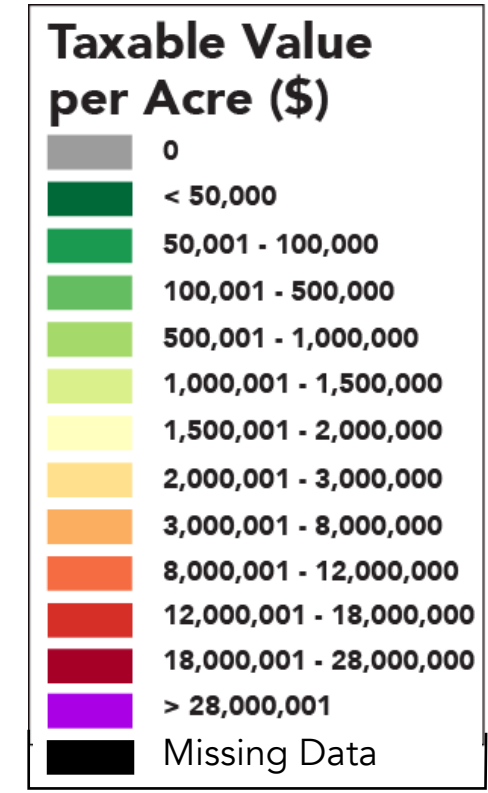


# Value Per Acre

Dover Downtown, NH

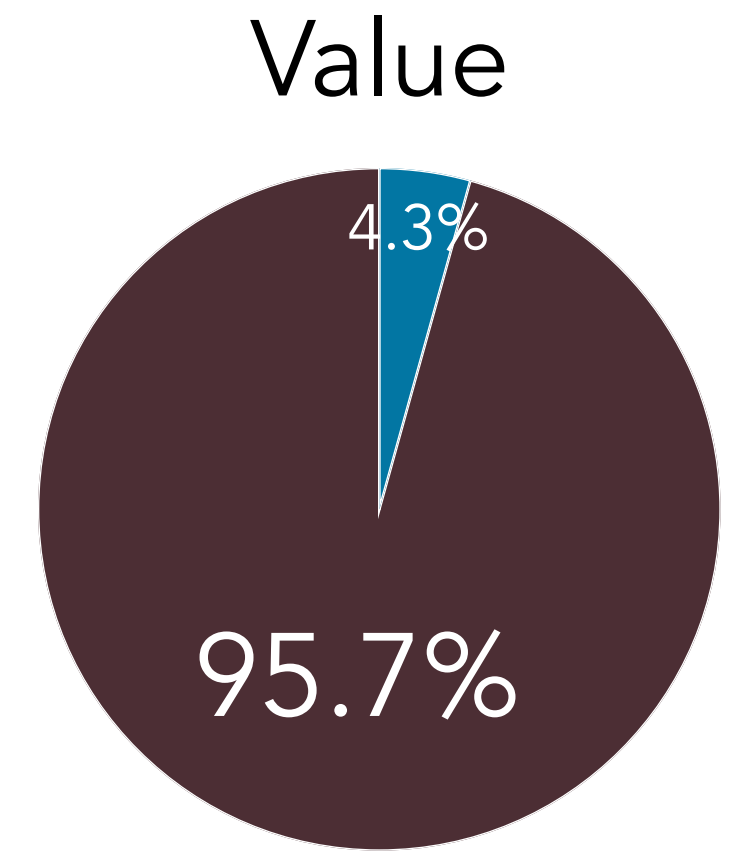
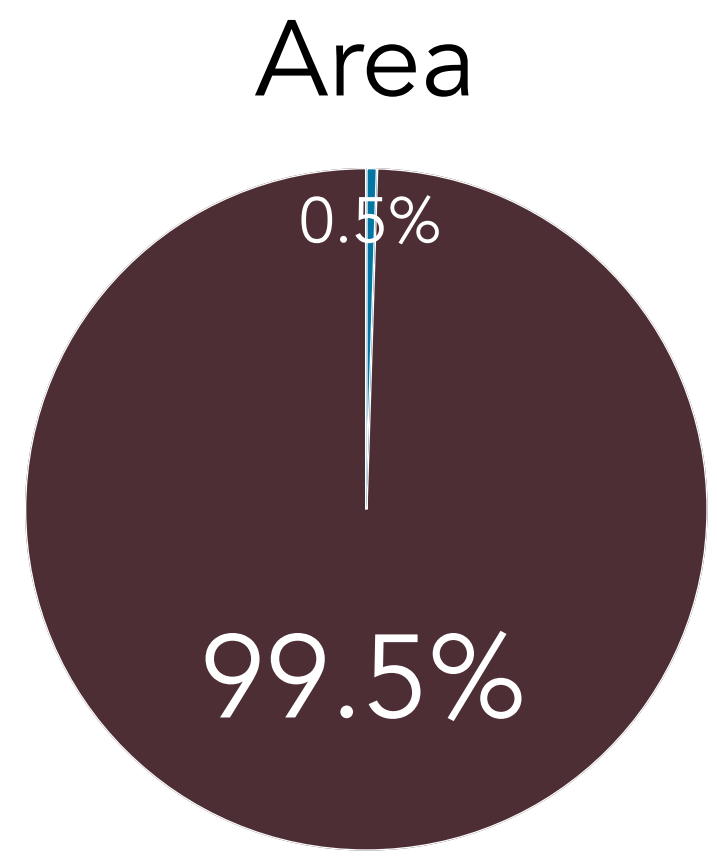
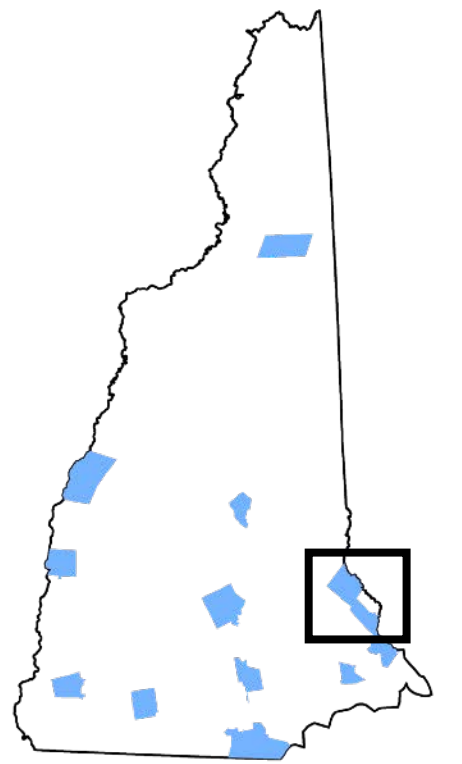


- Downtown
- City

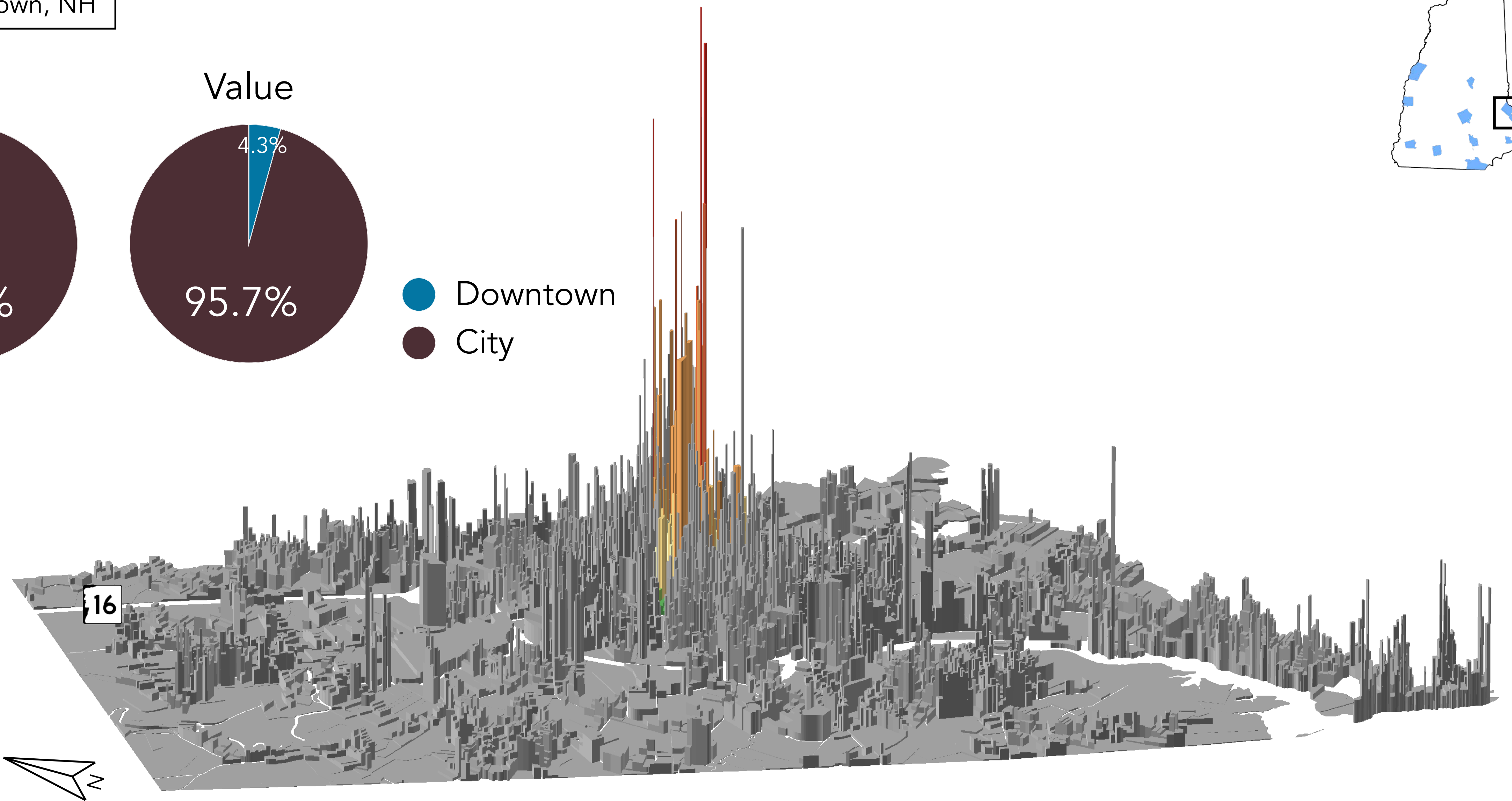
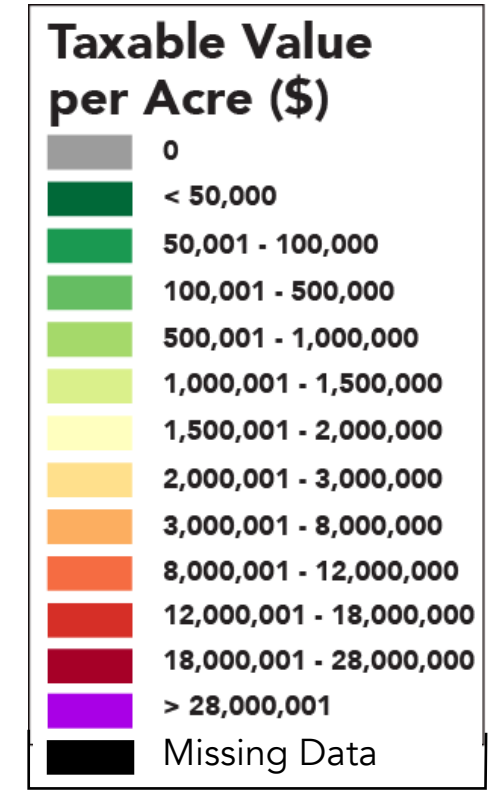


# Value Per Acre

Dover Downtown, NH



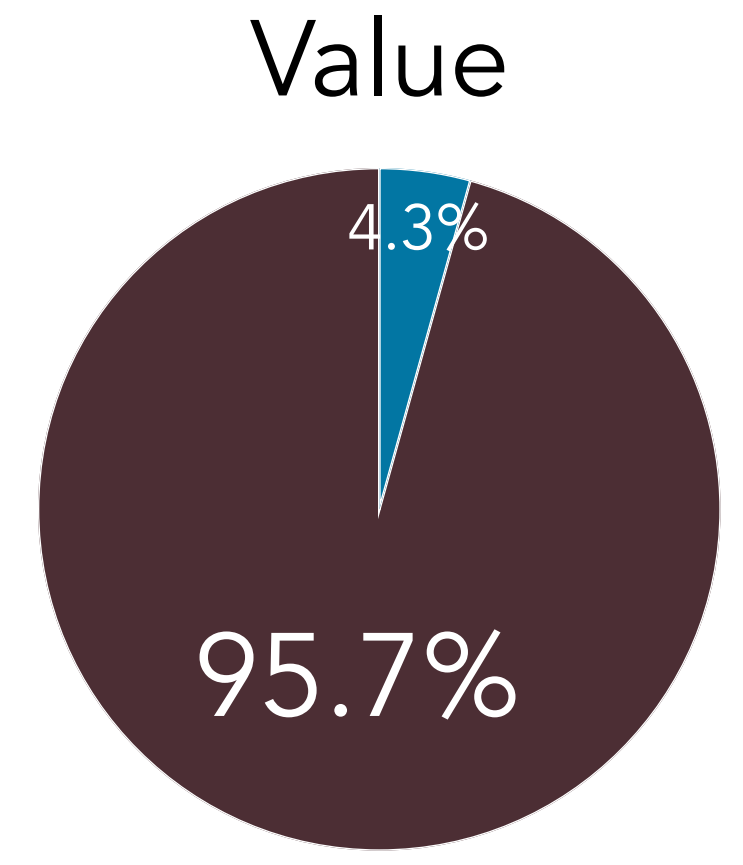
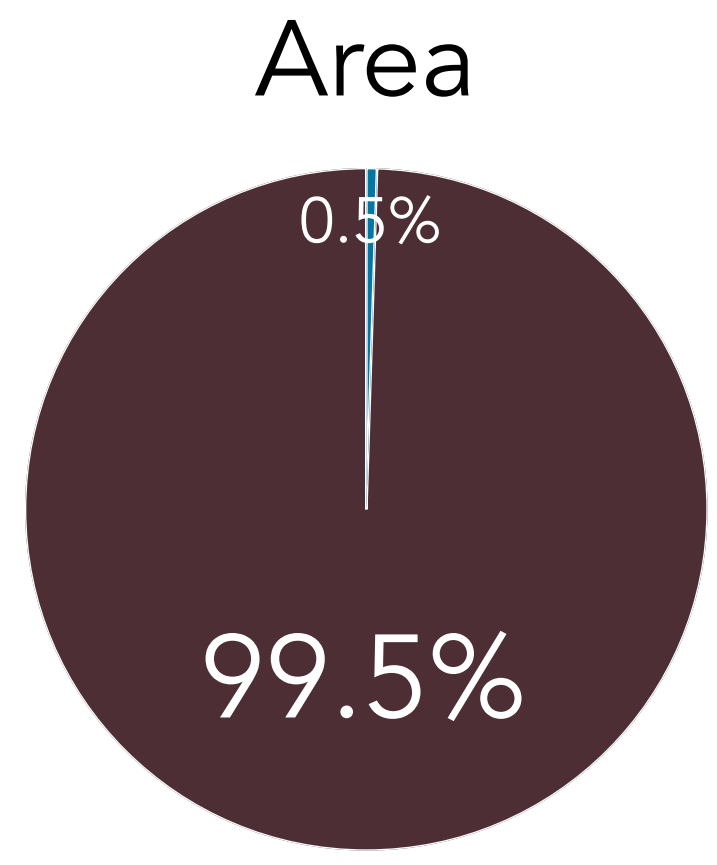
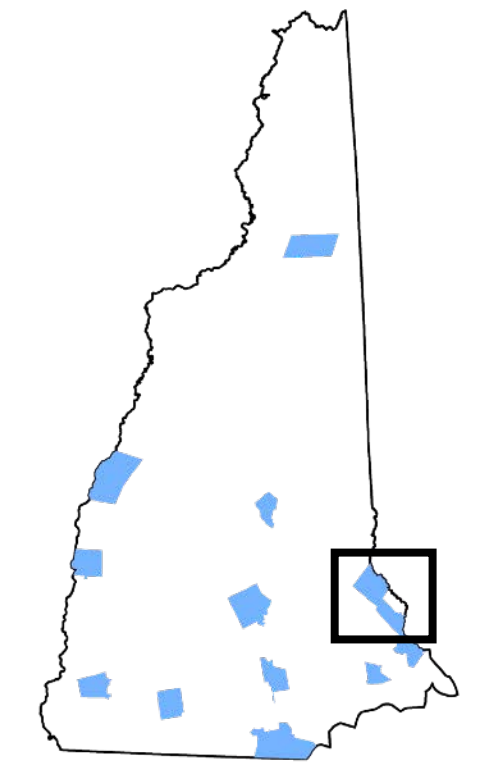
- Downtown
- City



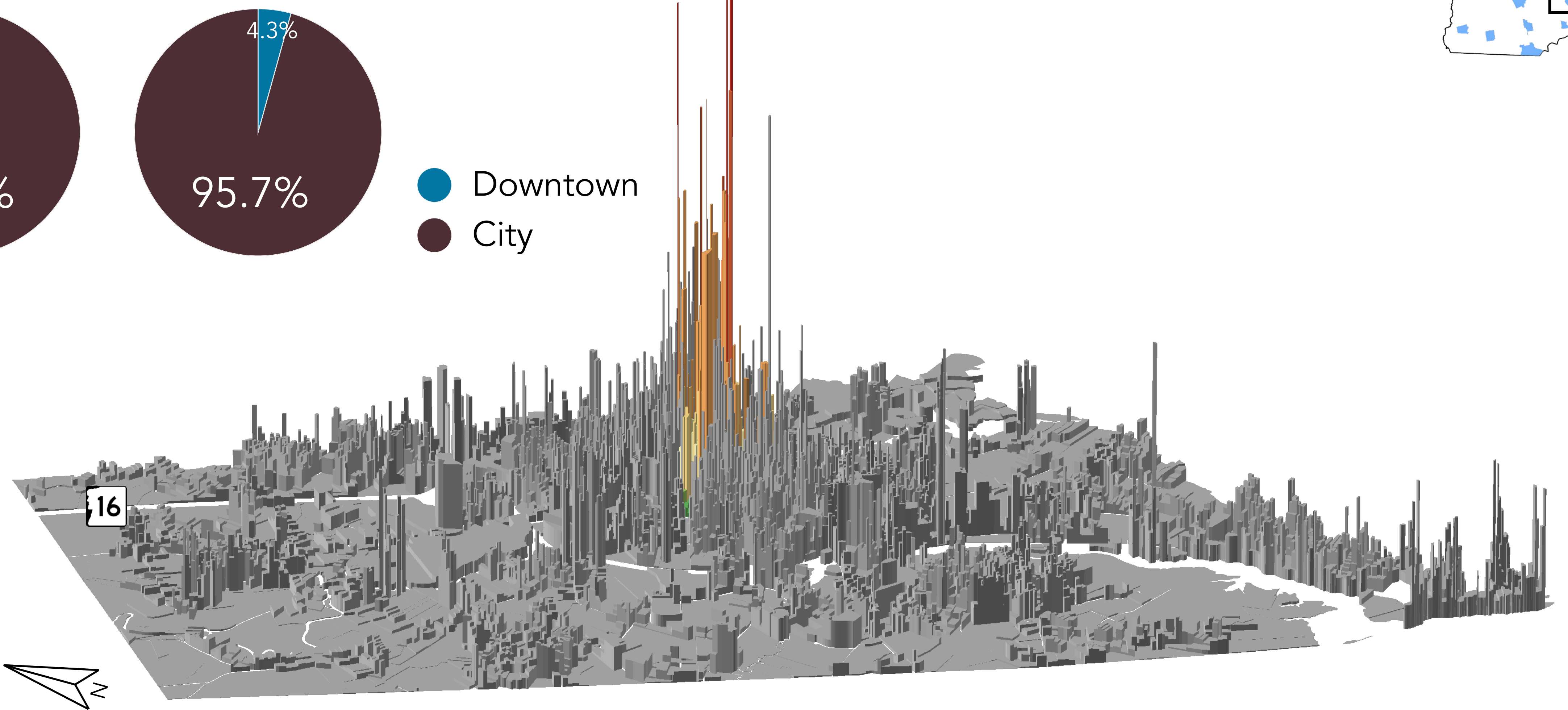
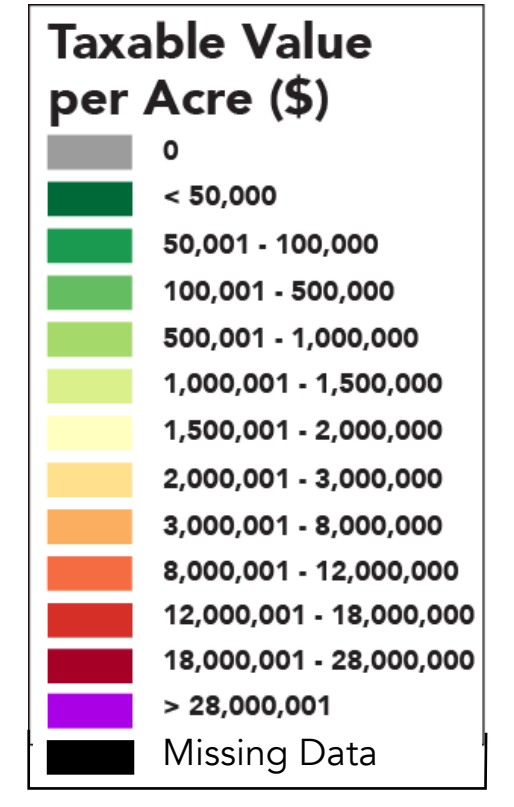
# Value Per Acre

Dover Downtown, NH

# 1:9.4



- Downtown
- City



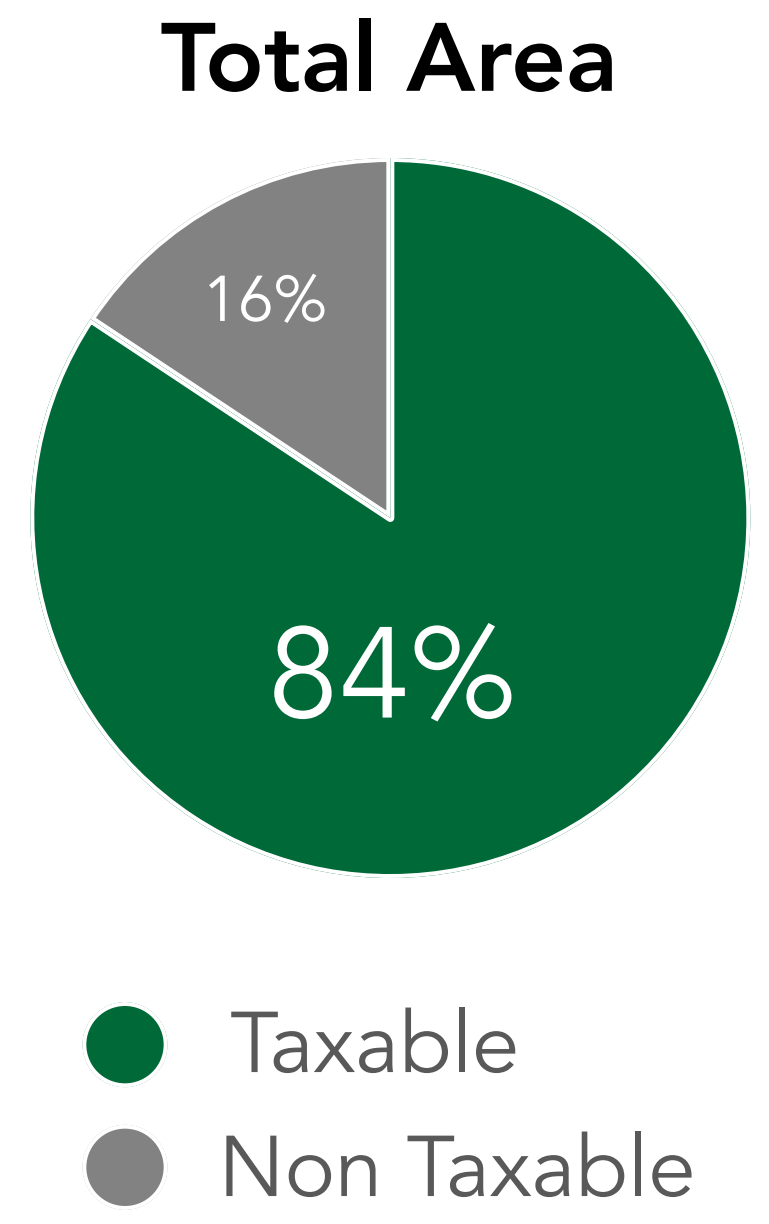
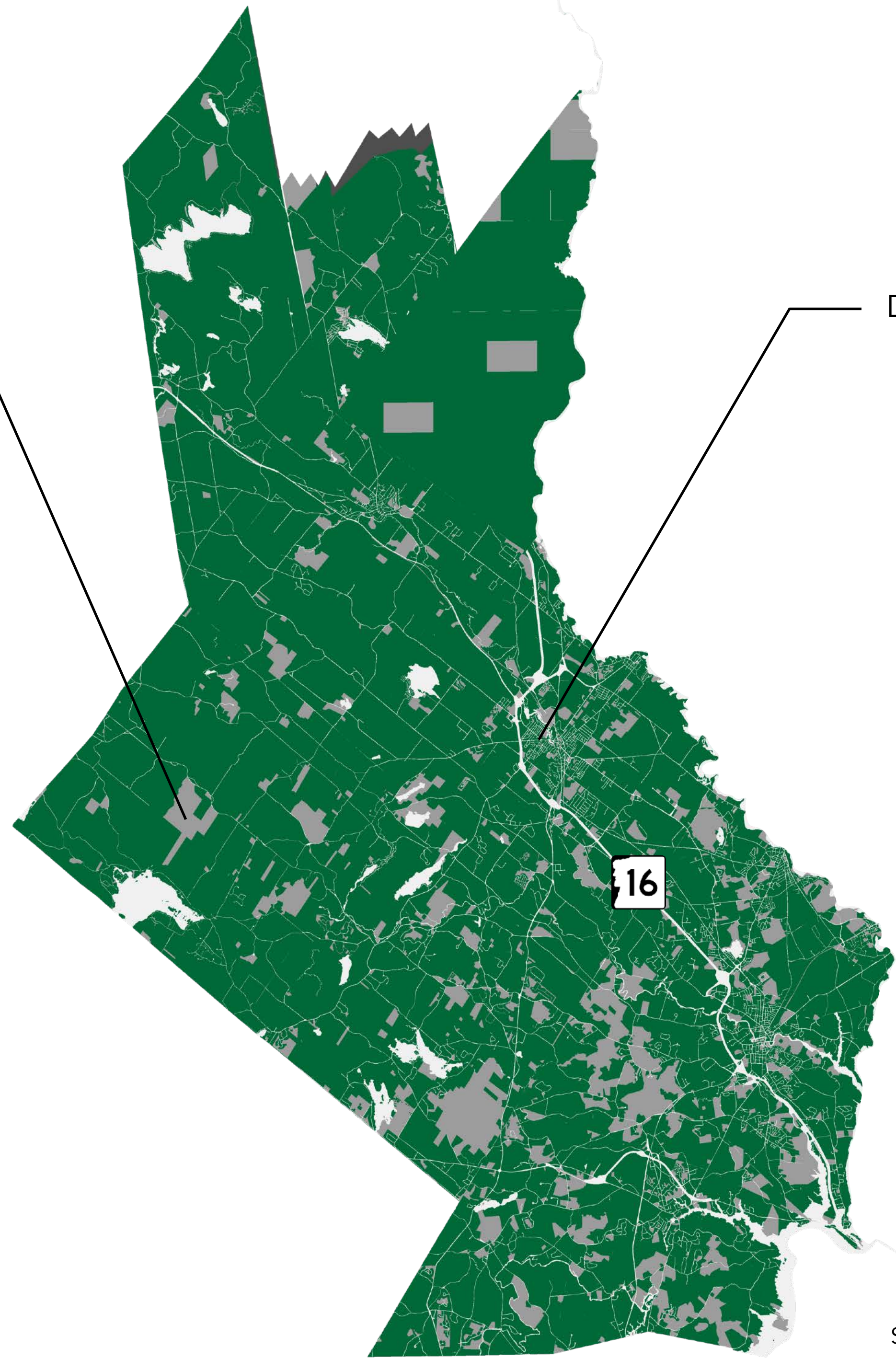
URBAN3

# Taxable Area

Strafford County, NH

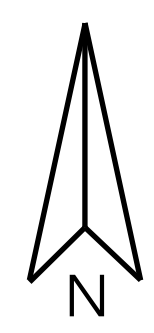
Strafford Town Forest

Dover

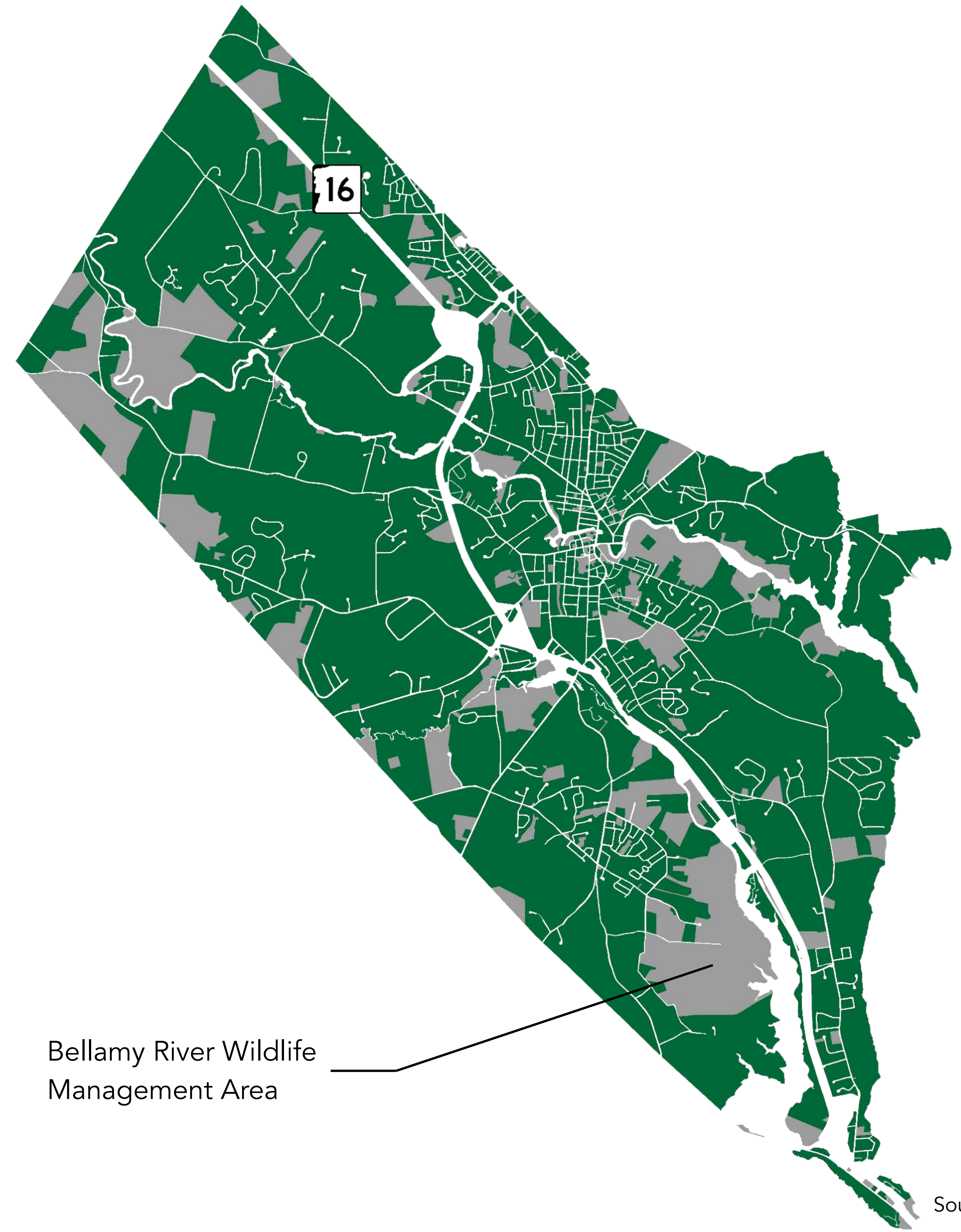


#### Taxable Status

- Non Taxable
- Taxable
- No Data

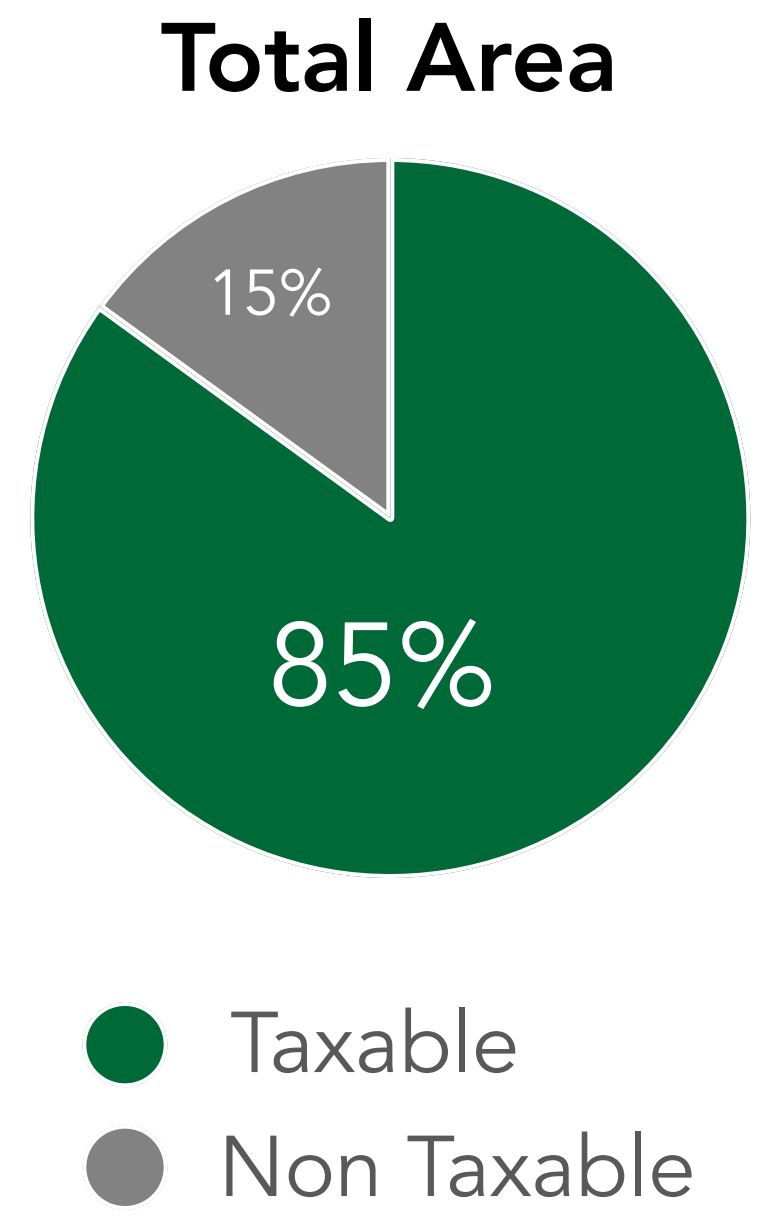
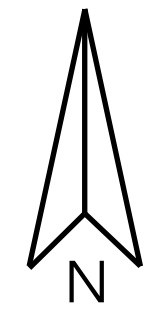


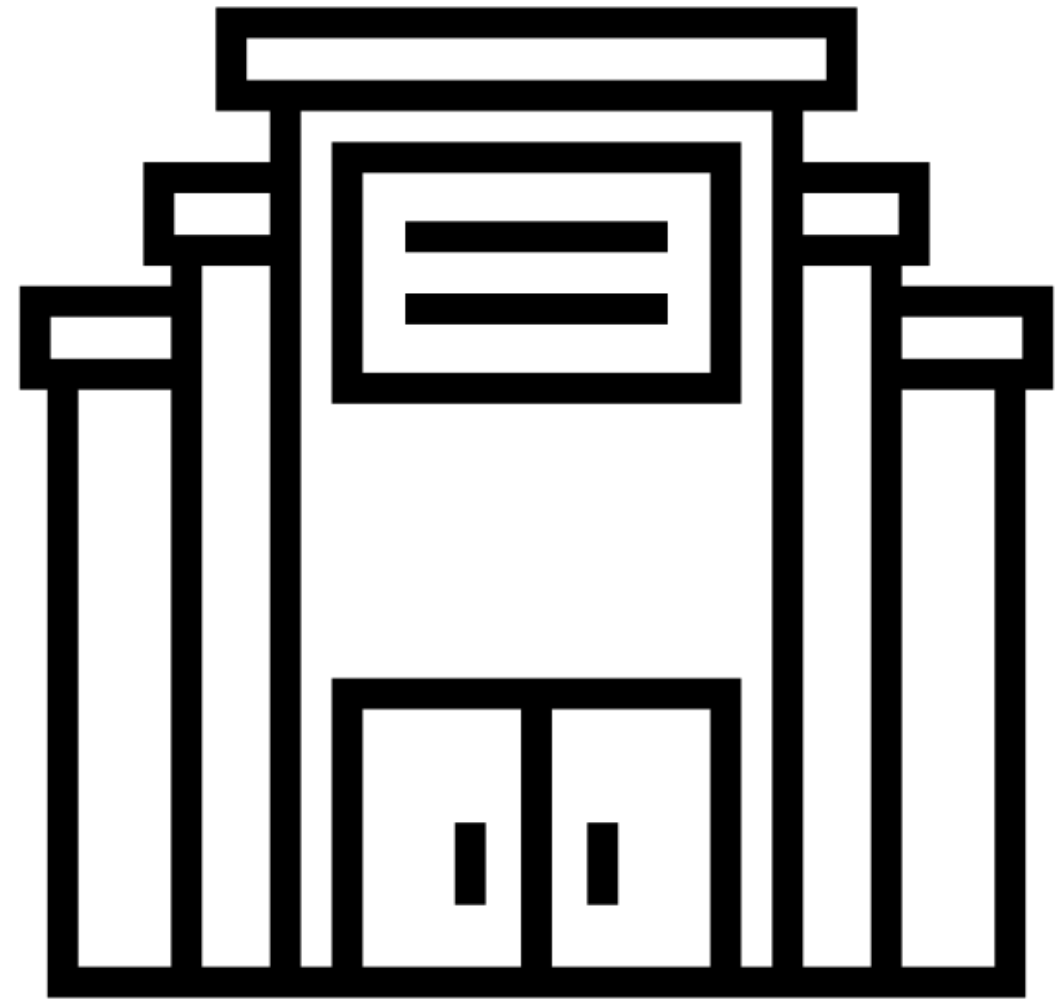
Source: New Hampshire Department of Revenue Administration 2019



**Taxable Status**

- Non Taxable
- Taxable
- No Data



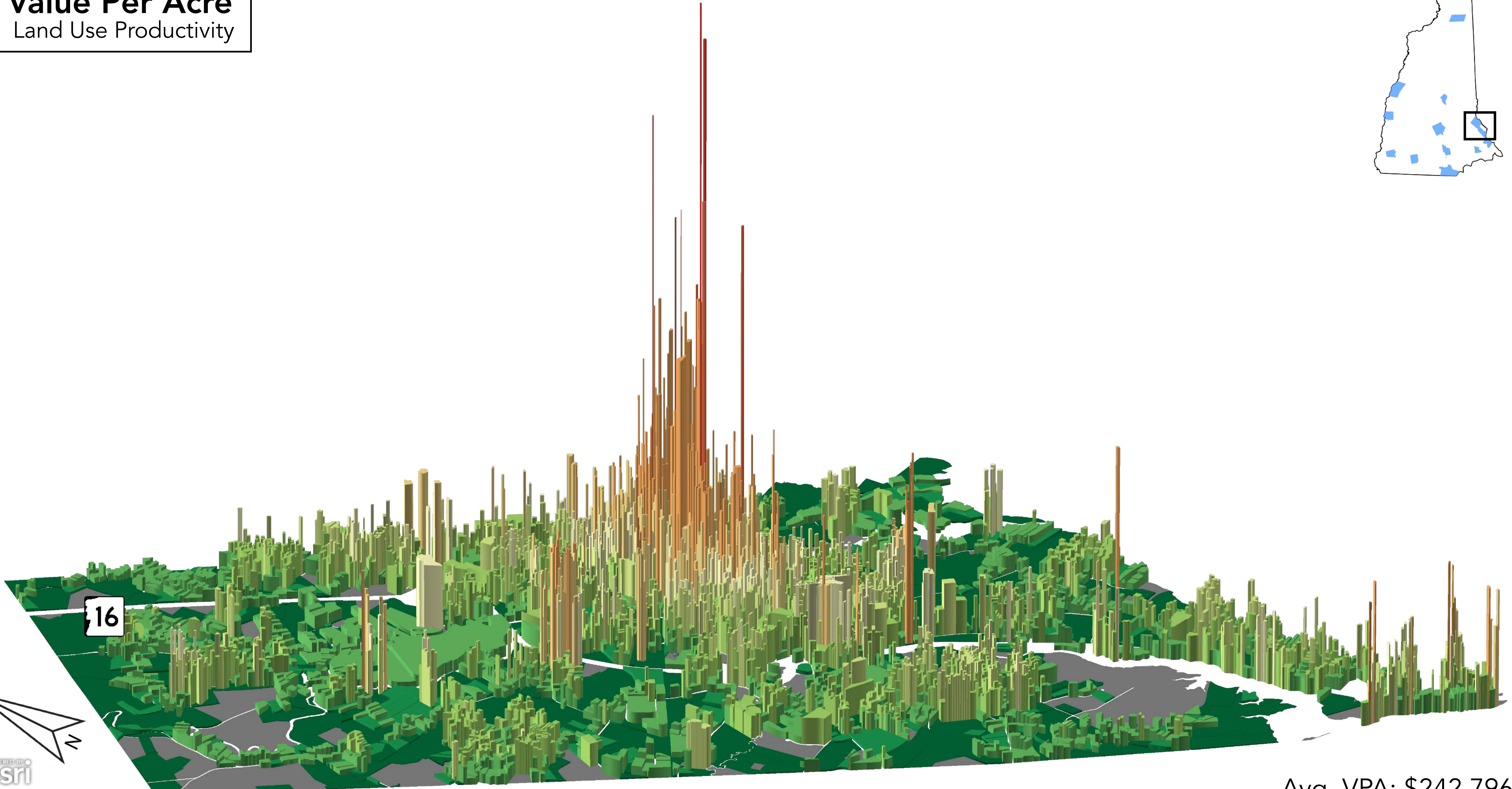
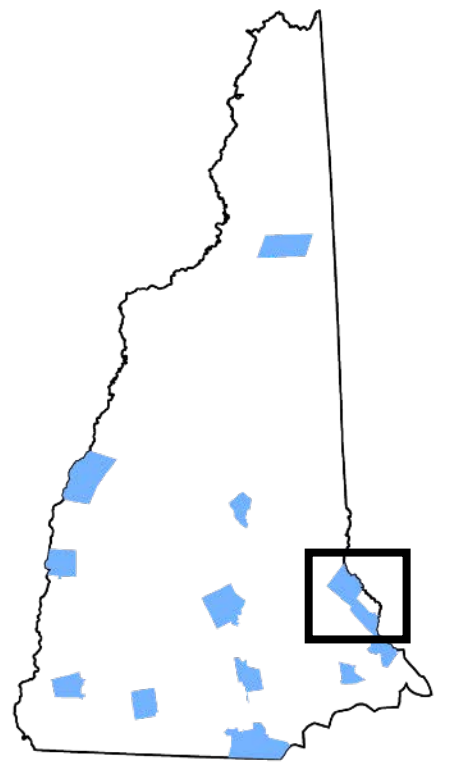


# Land Use Types

Local samples of buildings and development types

# Value Per Acre

Land Use Productivity

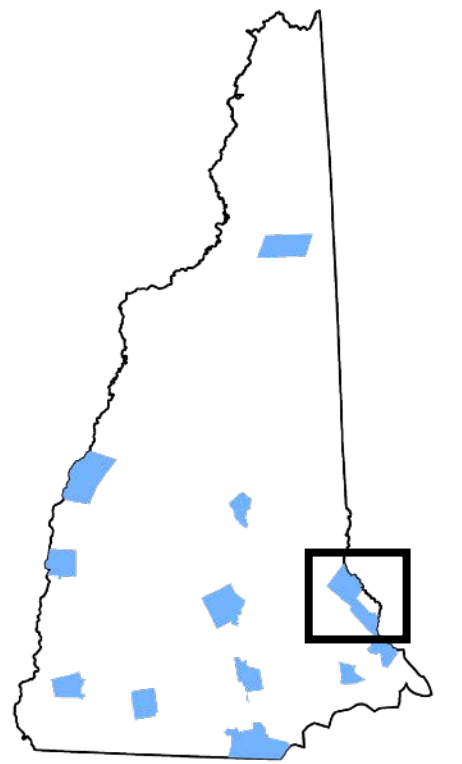


Avg. VPA: \$242,796

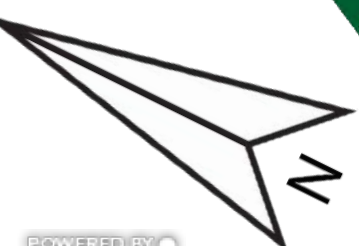
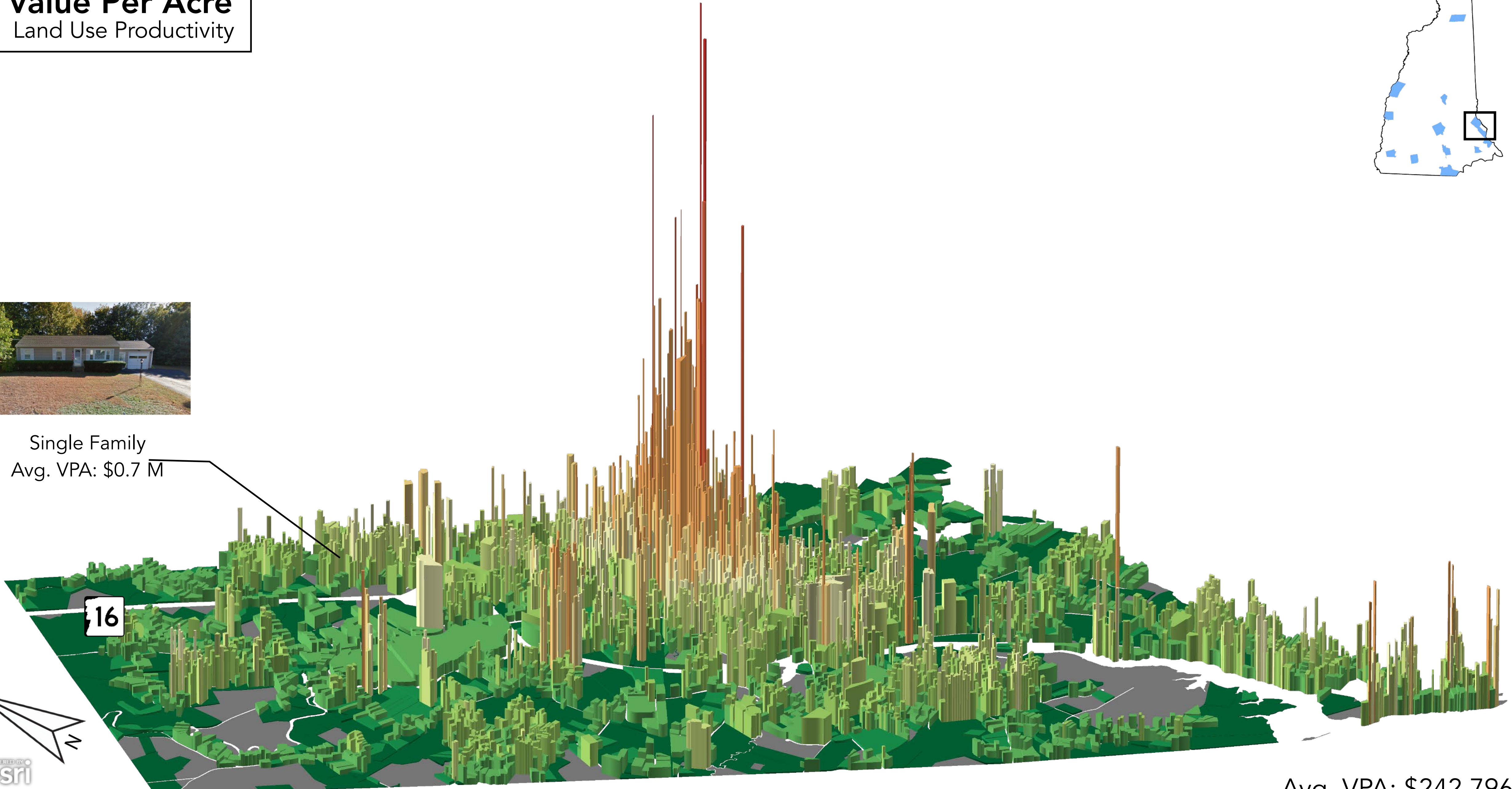


# Value Per Acre

Land Use Productivity



Single Family  
Avg. VPA: \$0.7 M

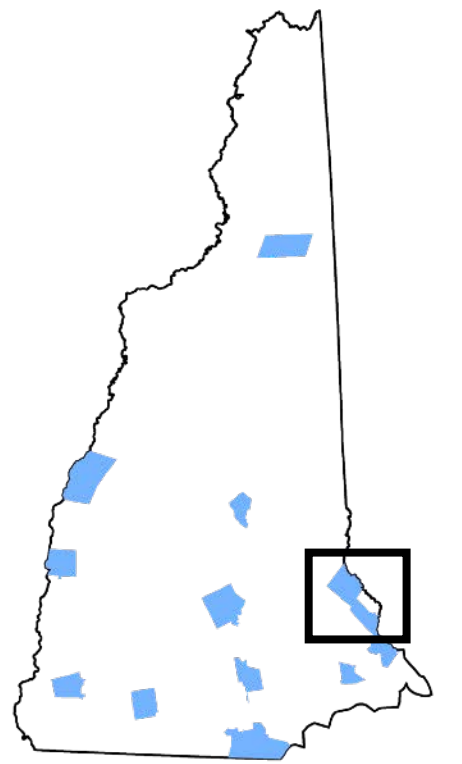


Avg. VPA: \$242,796



# Value Per Acre

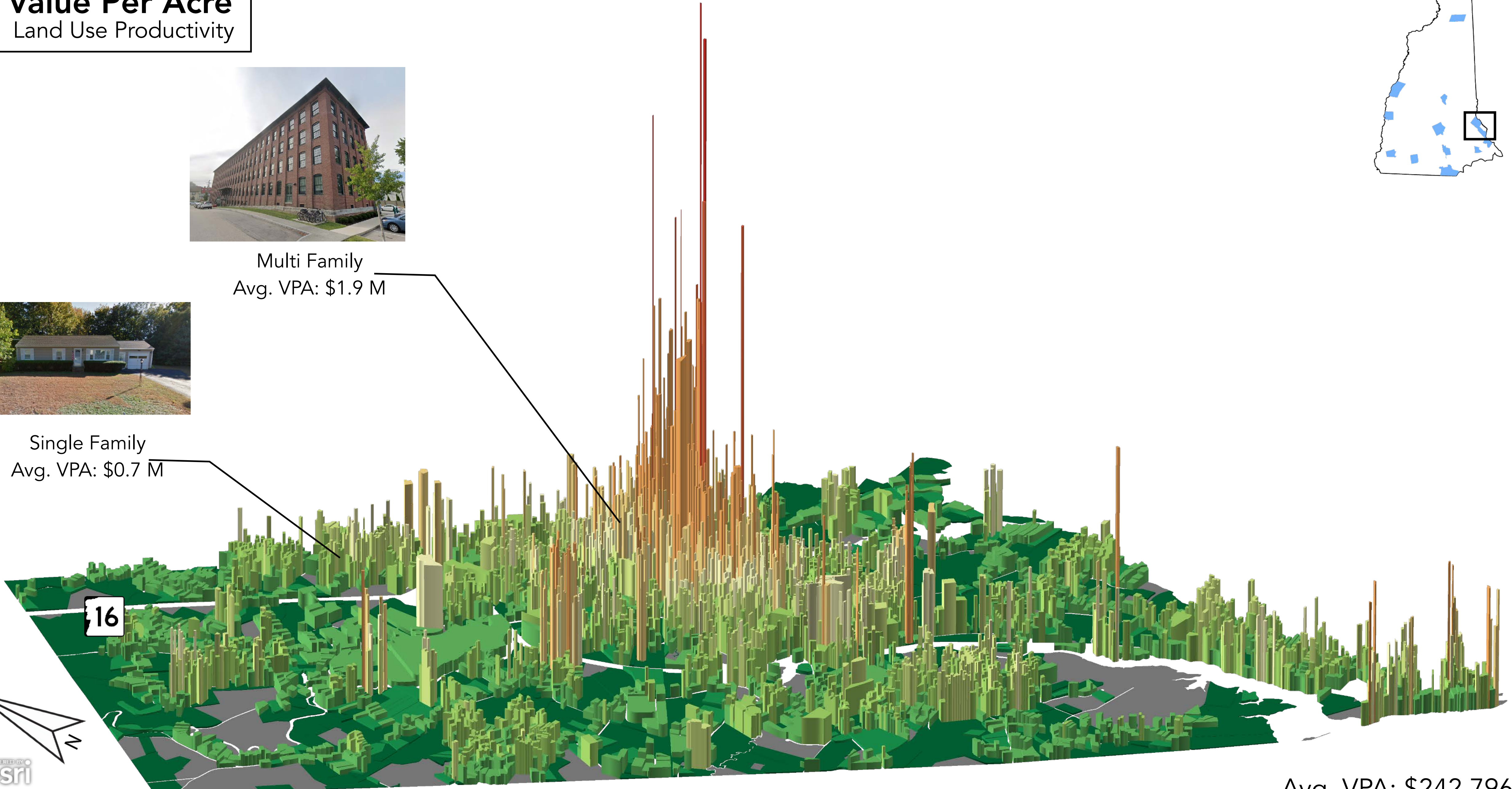
Land Use Productivity



Multi Family  
Avg. VPA: \$1.9 M



Single Family  
Avg. VPA: \$0.7 M

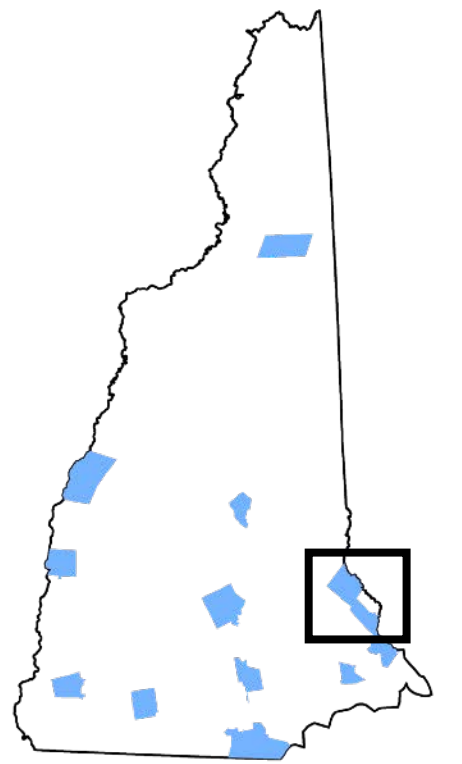


Avg. VPA: \$242,796



# Value Per Acre

Land Use Productivity



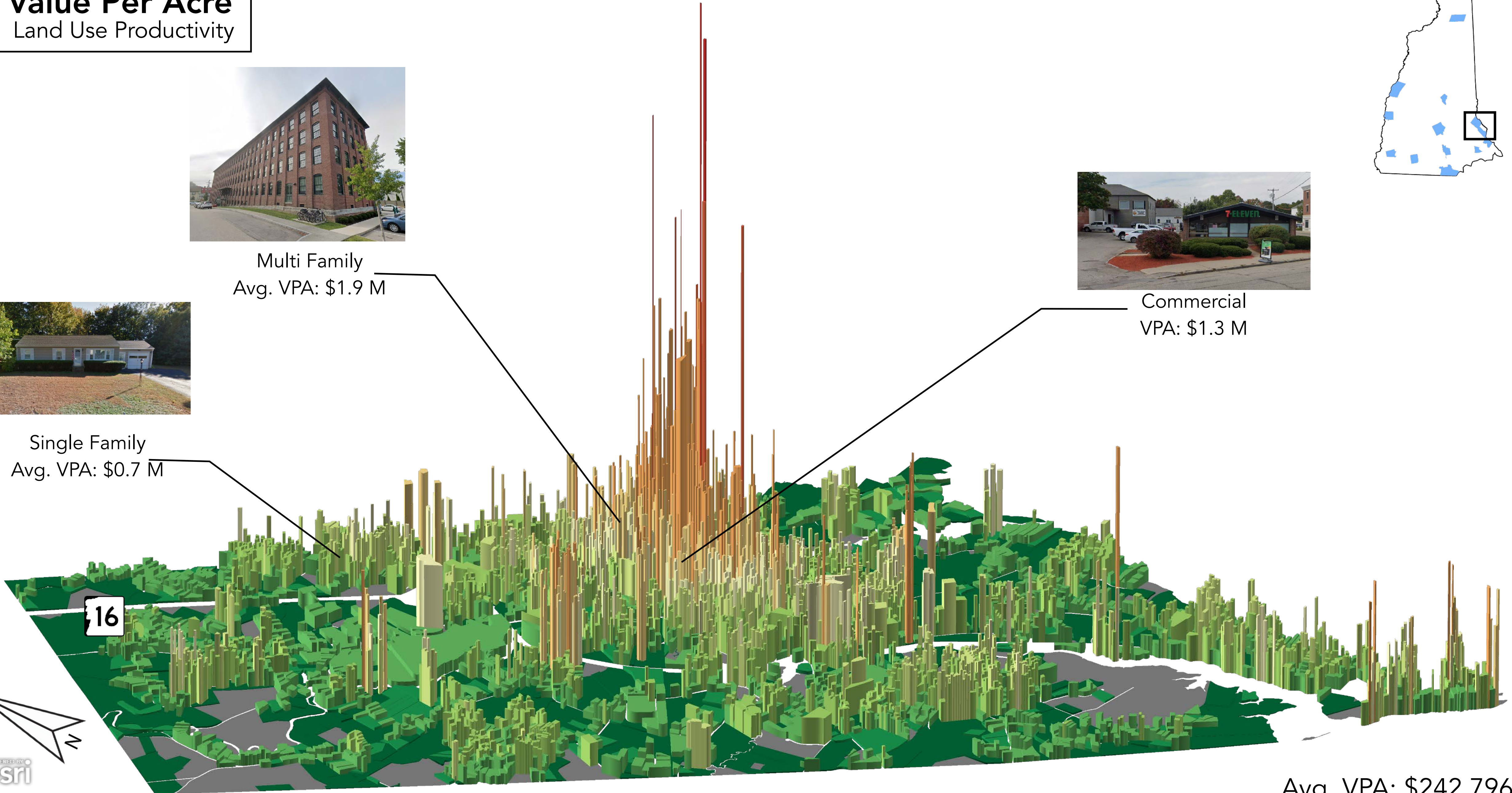
Multi Family  
Avg. VPA: \$1.9 M



Commercial  
VPA: \$1.3 M



Single Family  
Avg. VPA: \$0.7 M

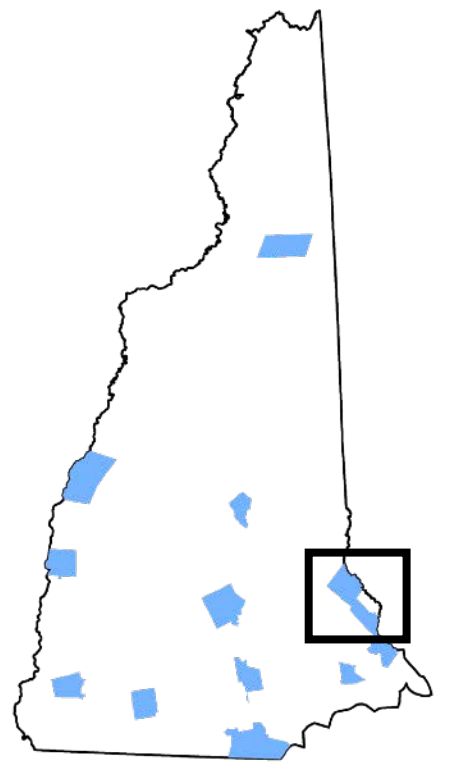


Avg. VPA: \$242,796



# Value Per Acre

Land Use Productivity



Multi Family  
Avg. VPA: \$1.9 M



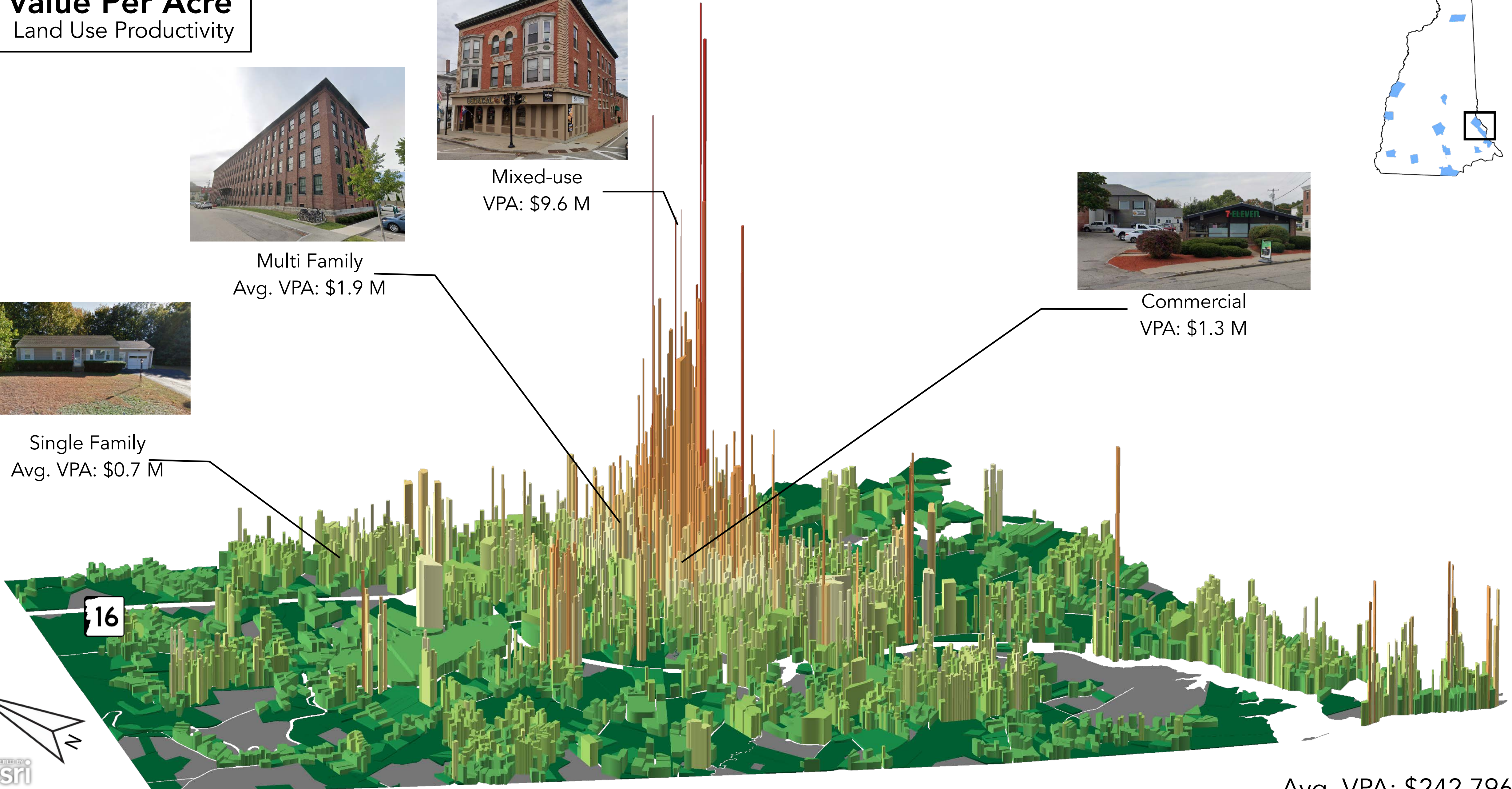
Mixed-use  
VPA: \$9.6 M



Commercial  
VPA: \$1.3 M



Single Family  
Avg. VPA: \$0.7 M



Avg. VPA: \$242,796



# Value Per Acre

Land Use Productivity



Multi Family  
Avg. VPA: \$1.9 M



Mixed-use  
VPA: \$9.6 M



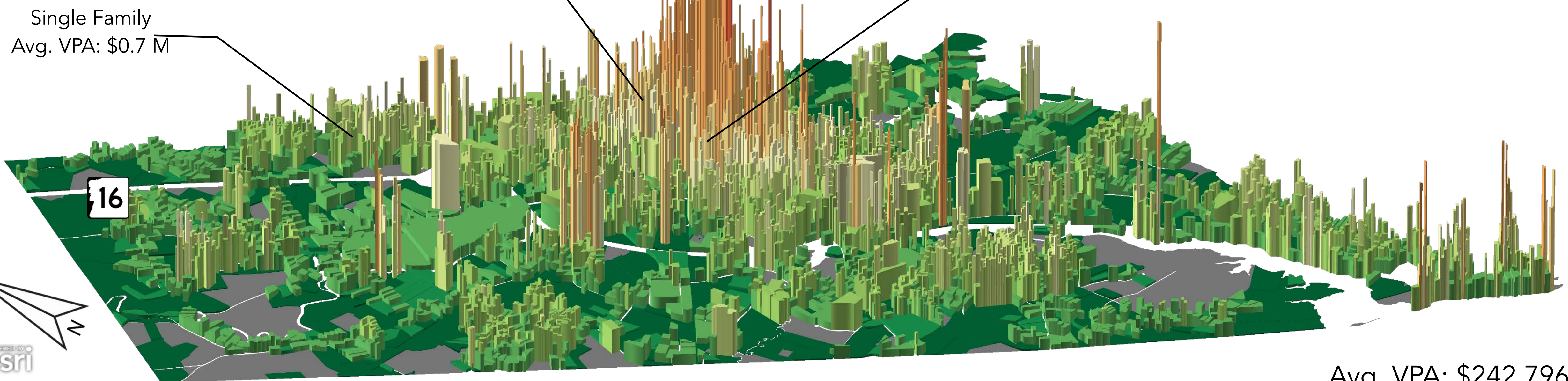
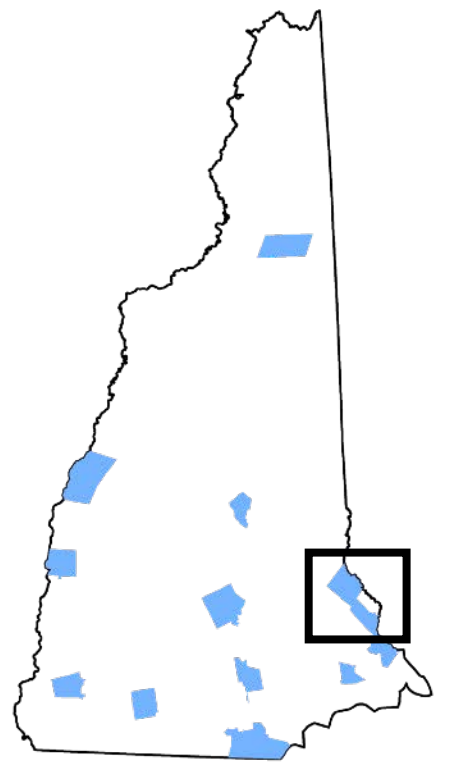
Top VPA  
VPA: \$15.3 M



Commercial  
VPA: \$1.3 M



Single Family  
Avg. VPA: \$0.7 M



Avg. VPA: \$242,796





# By the Numbers

City Revenue and Expenses

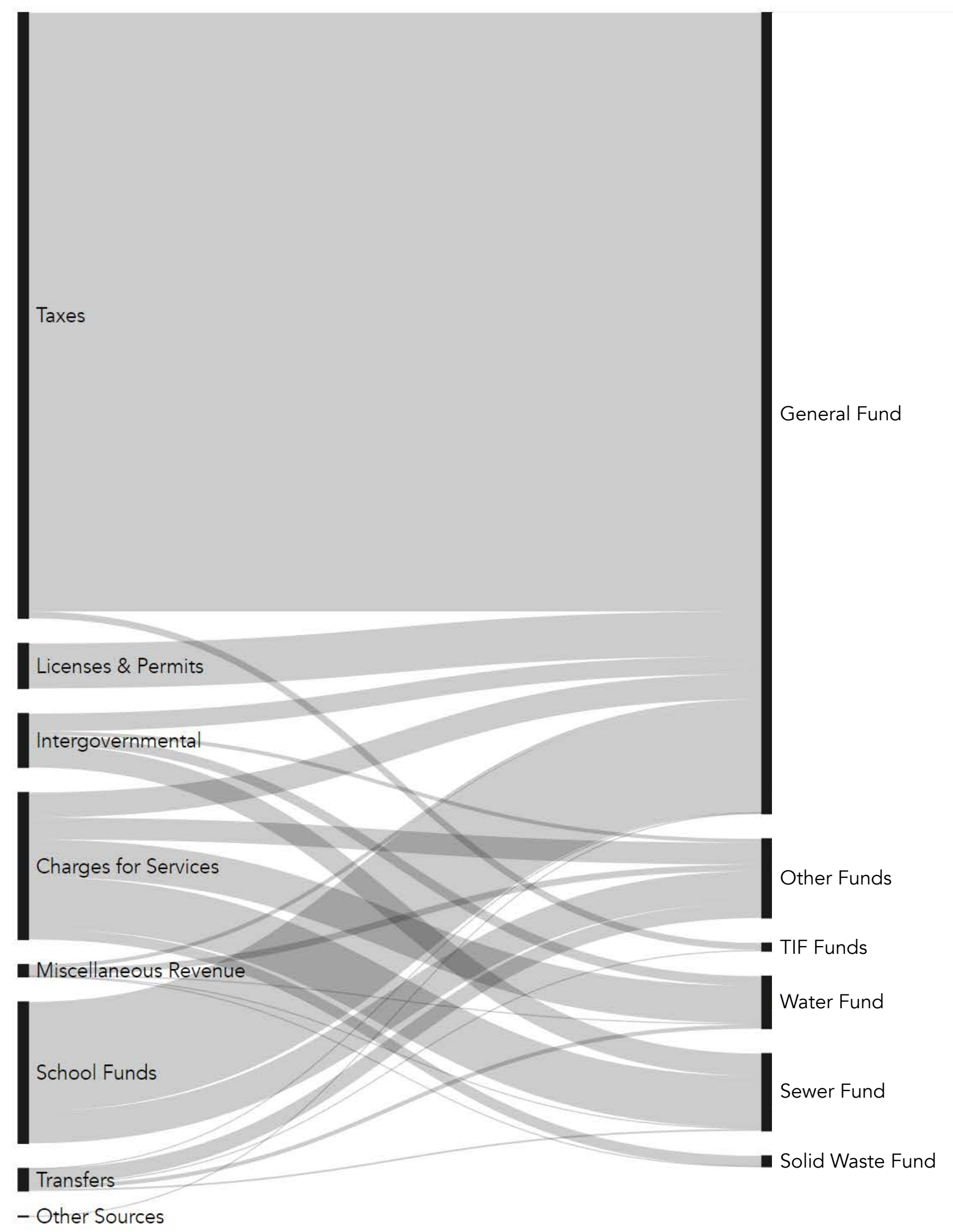
# 2022 Budget

Dover, NH

## Revenues

## Fund

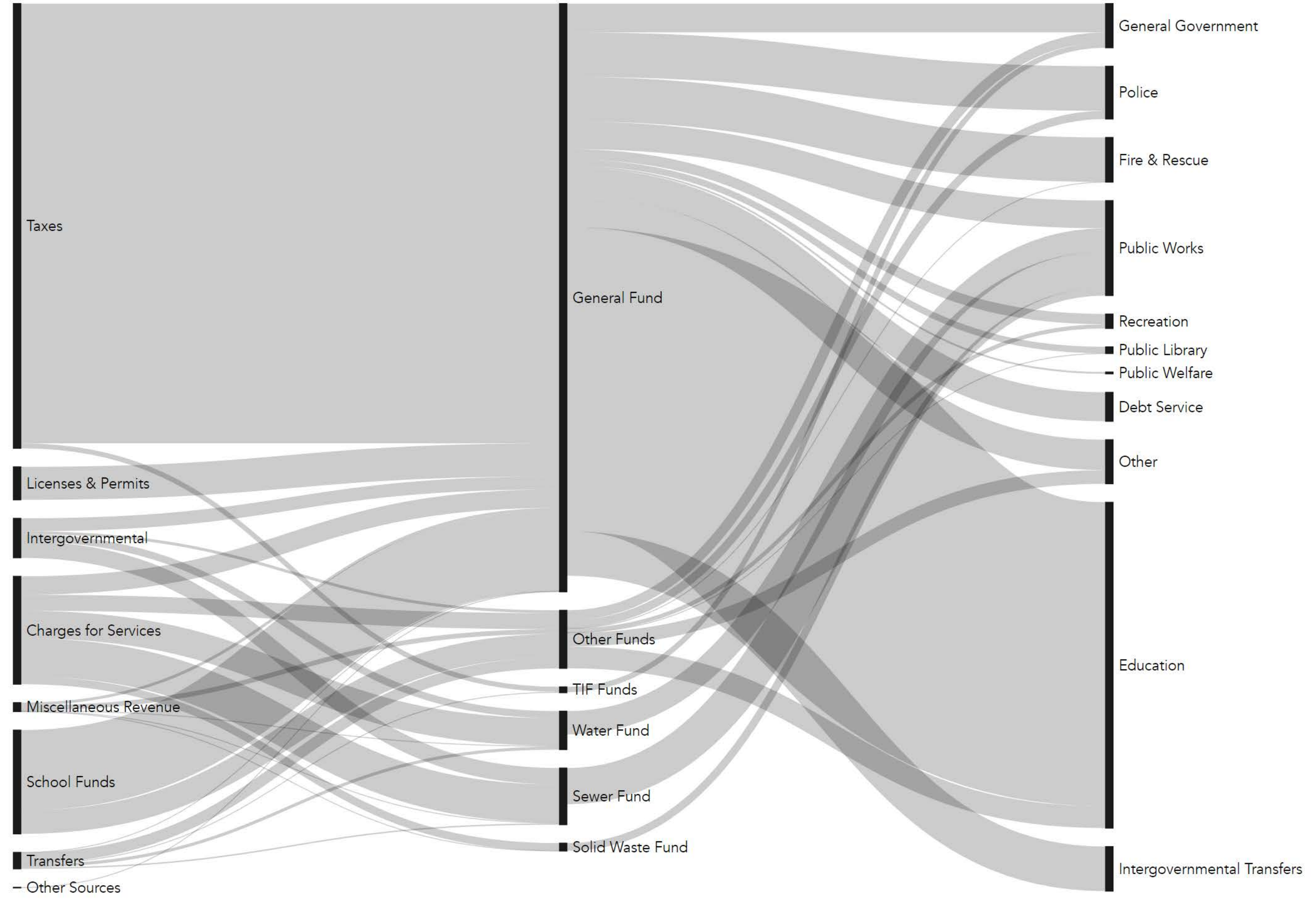
## Expenditures



# 2022 Budget

Dover, NH

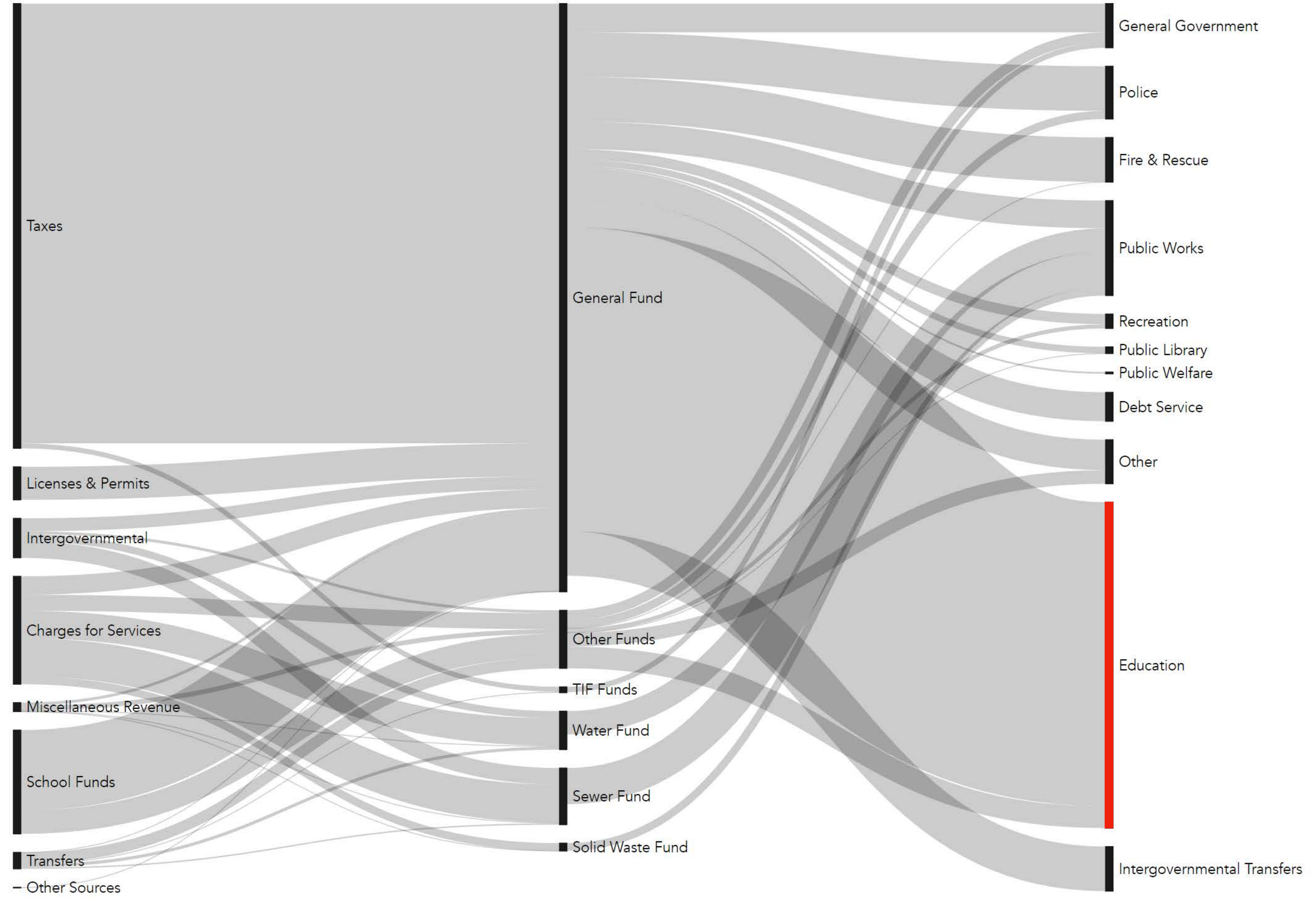
## Revenues



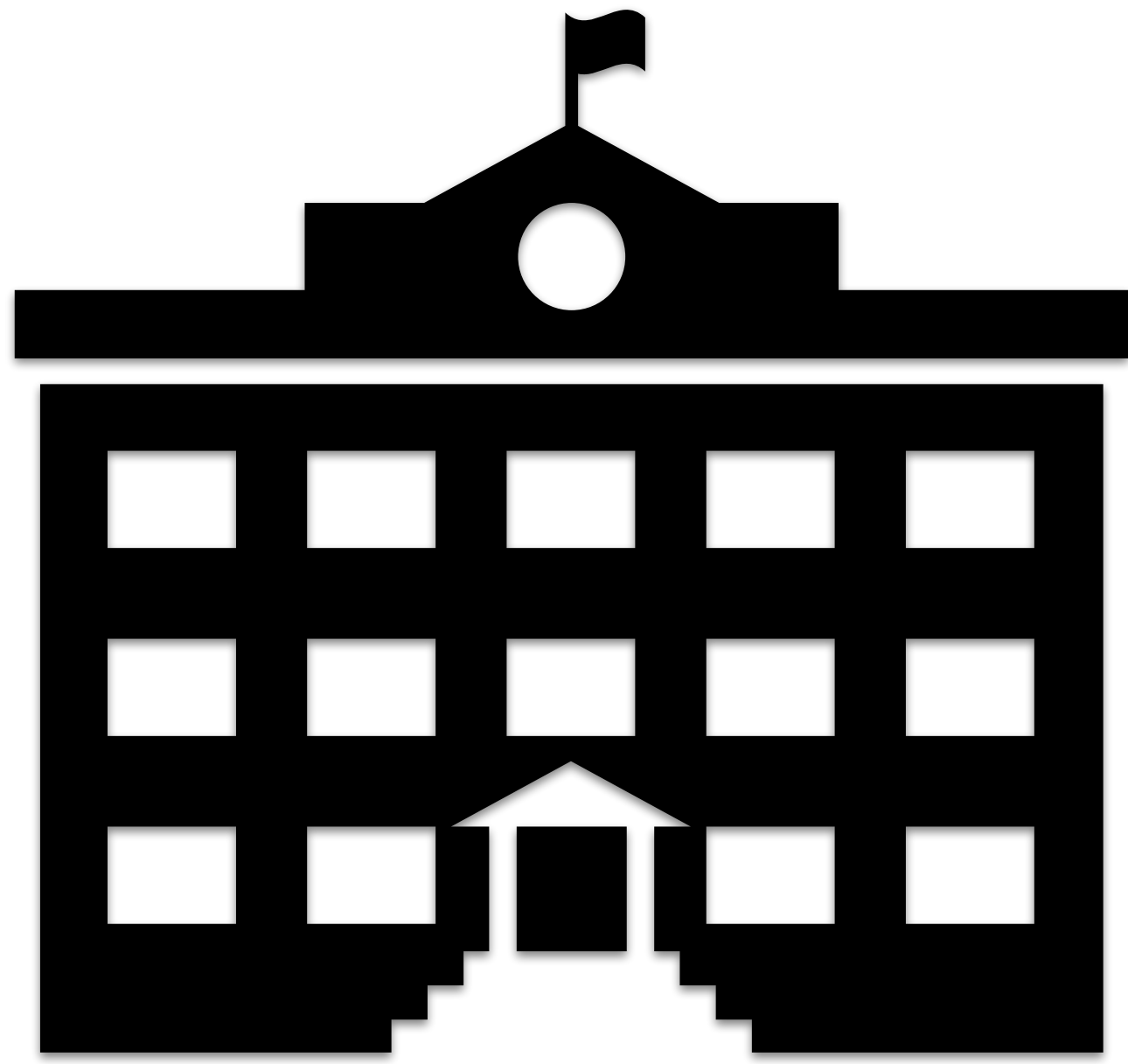
# 2022 Budget

Dover, NH

## Revenues

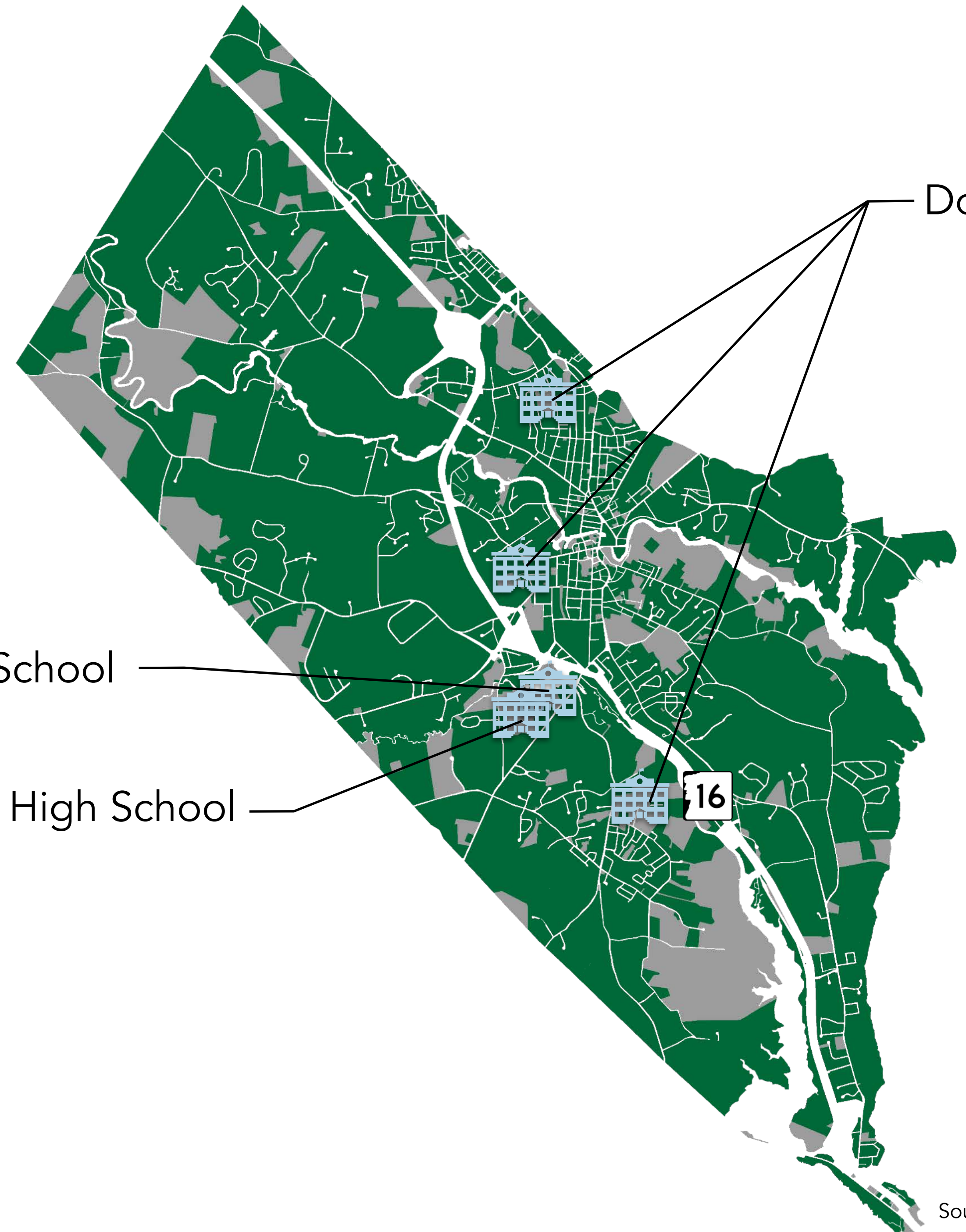






# Schools

Dover, NH






Dover Elementary Schools

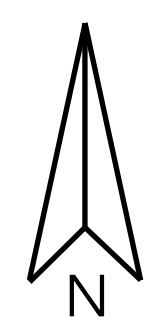
Dover Middle School

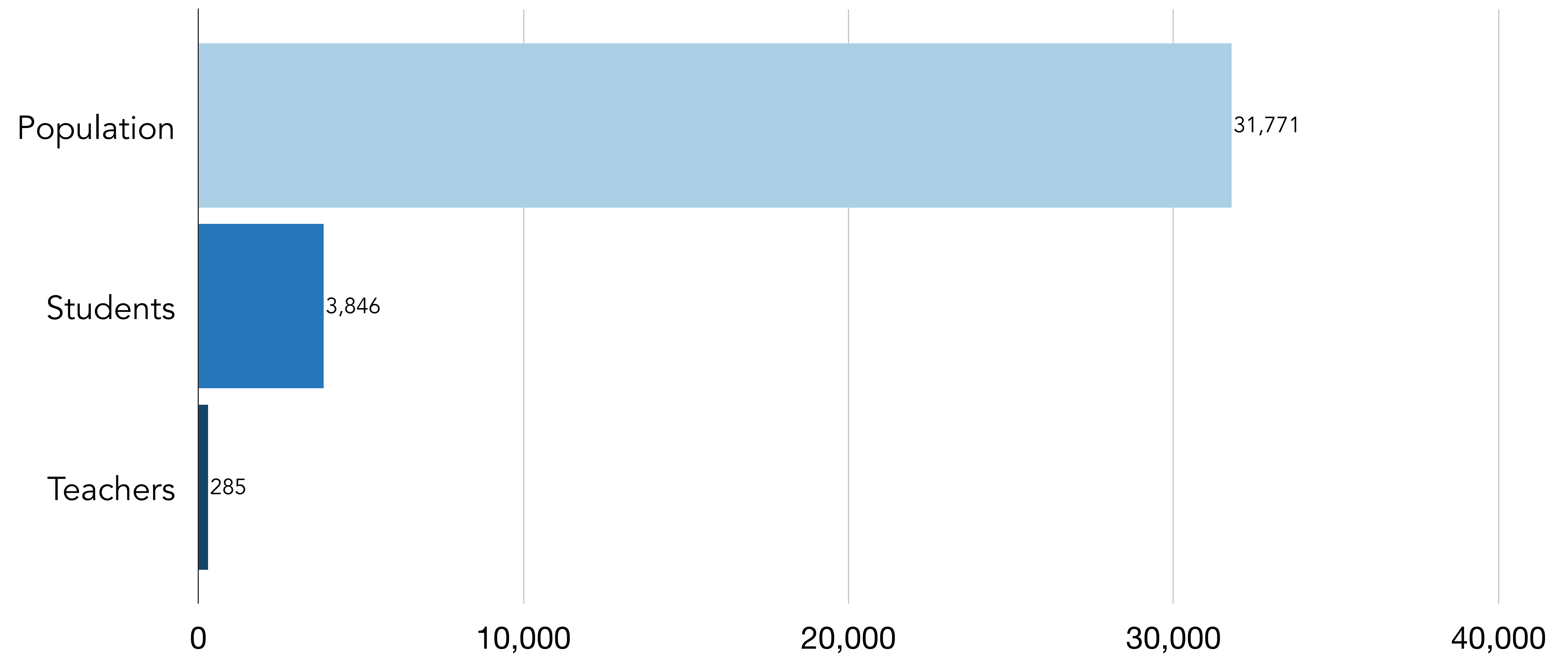
Dover High School

 Dover City School

**Taxable Status**

-  Non Taxable
-  Taxable
-  No Data







*Housing and School  
Enrollment  
In New Hampshire:  
A Decade of Dramatic Change*



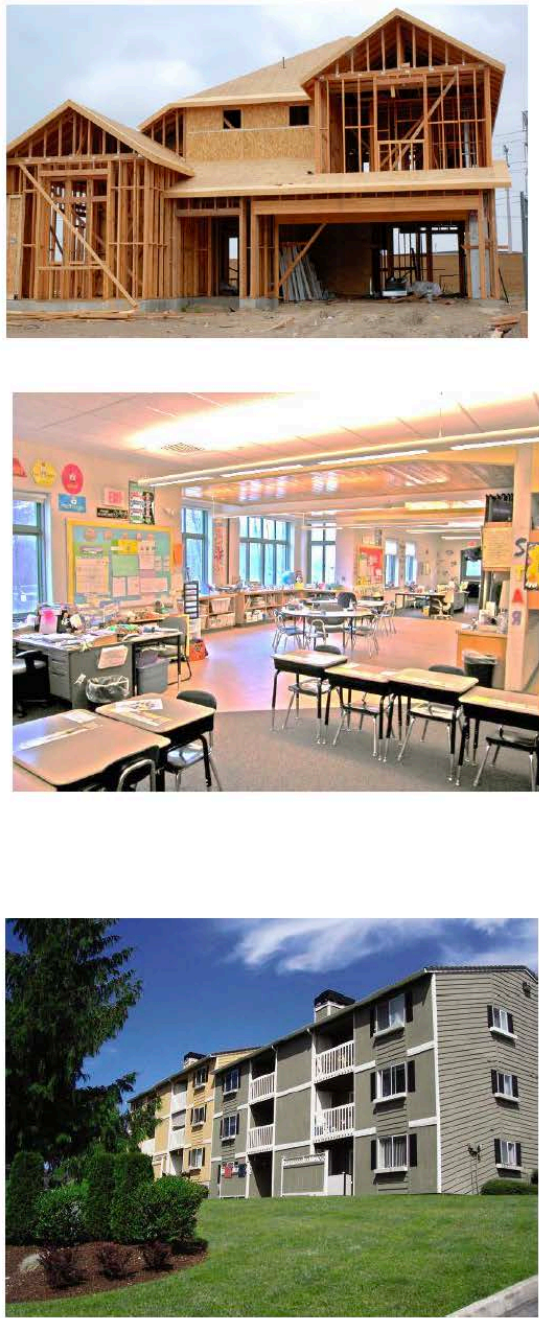
*June 2012*



*Prepared For: New Hampshire  
Housing Finance Authority*

*Prepared By: Applied  
Economic Research  
Laconia, New Hampshire*

# New Hampshire Public Schools



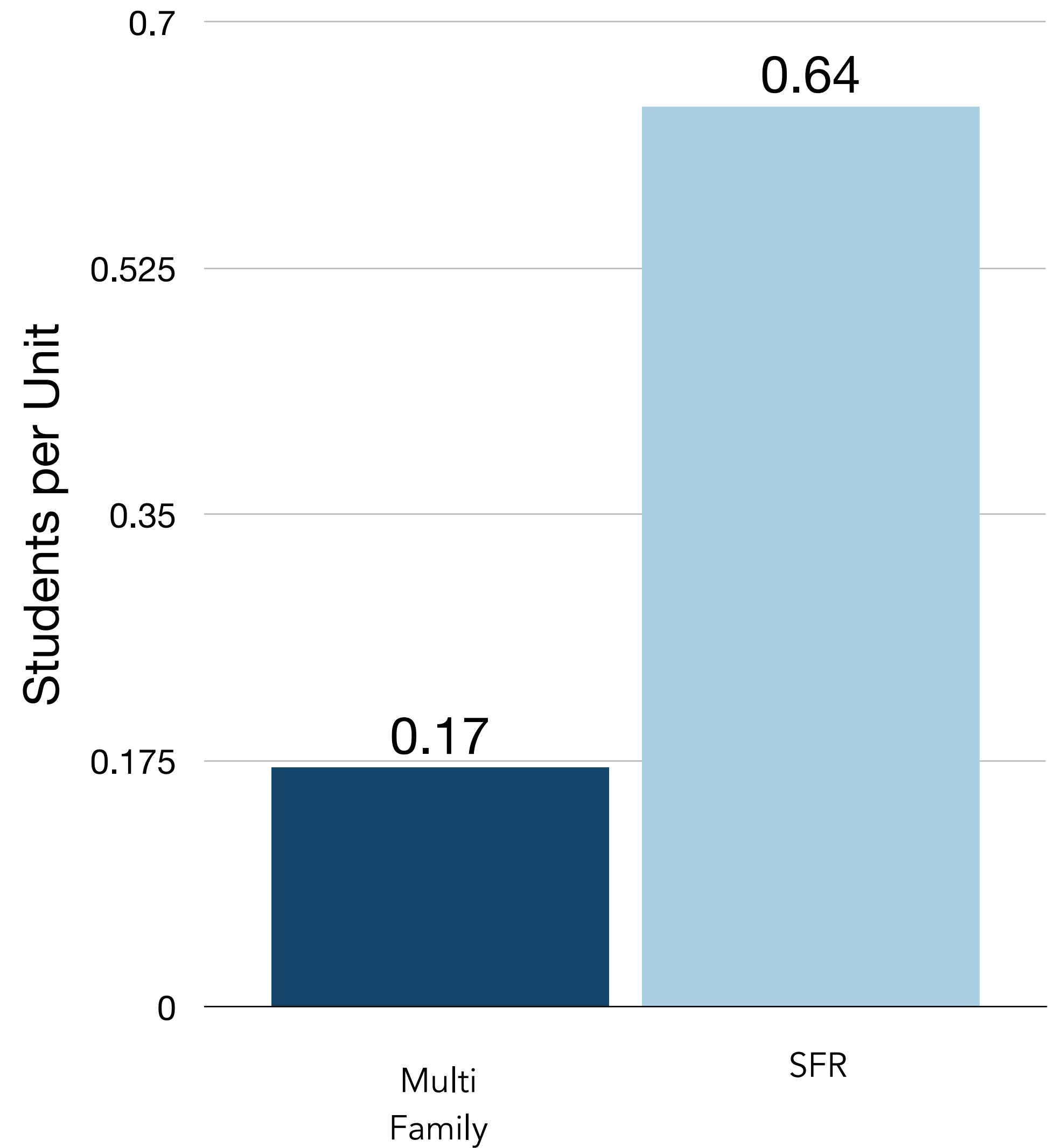
*Housing and School Enrollment  
In New Hampshire:  
A Decade of Dramatic Change*

*June 2012*

*Prepared For: New Hampshire  
Housing Finance Authority*

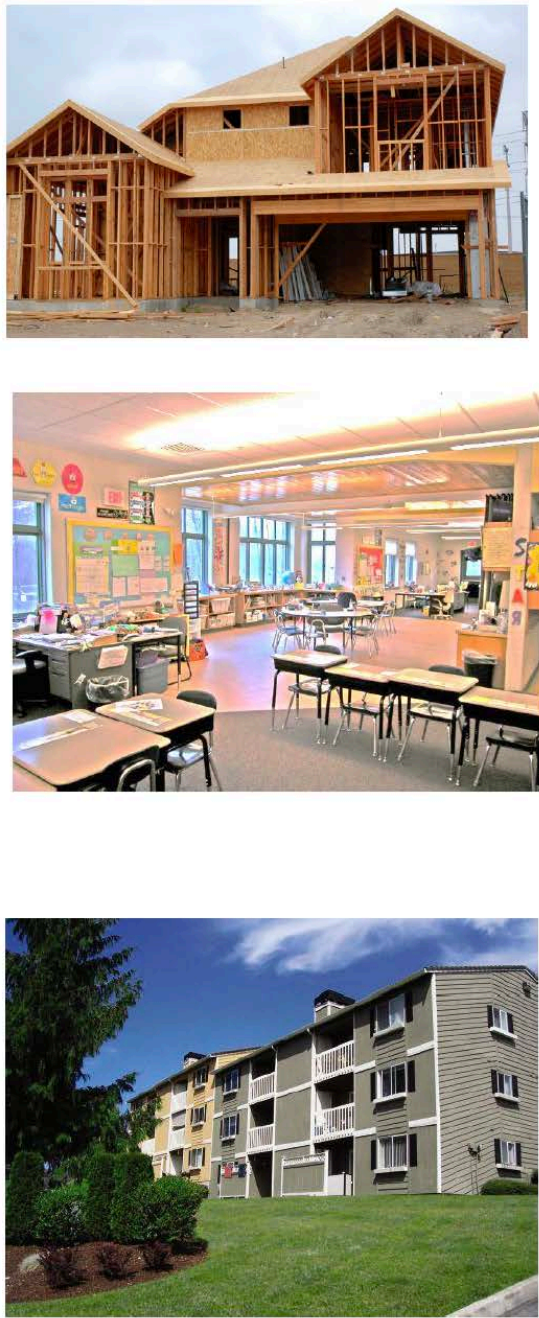
*Prepared By: Applied  
Economic Research  
Laconia, New Hampshire*

## 2012 School Enrollment Study



\*Student density based on 2012 School Enrollment Study

# New Hampshire Public Schools



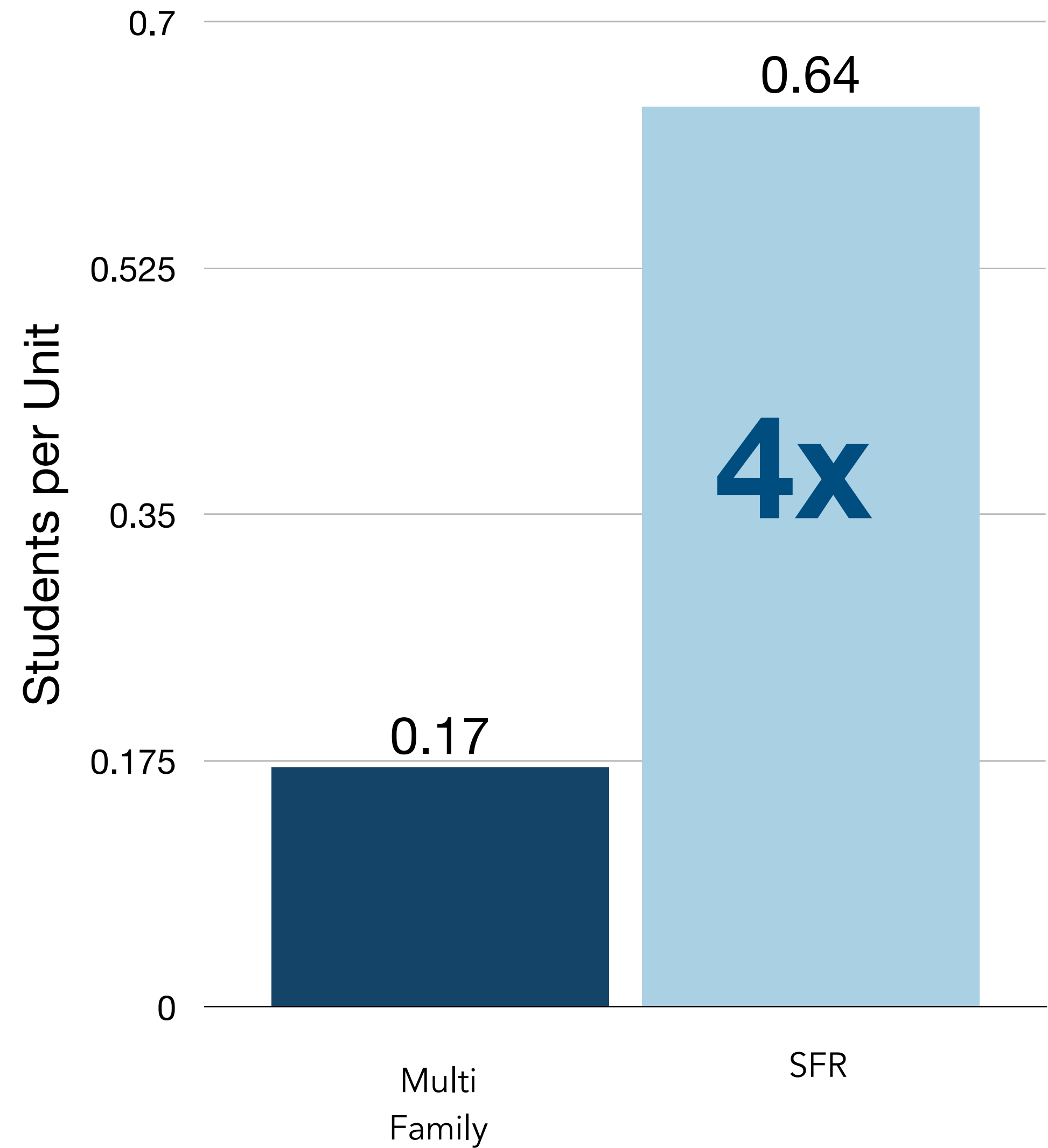
*Housing and School Enrollment  
In New Hampshire:  
A Decade of Dramatic Change*

*June 2012*

*Prepared For: New Hampshire  
Housing Finance Authority*

*Prepared By: Applied  
Economic Research  
Laconia, New Hampshire*

## 2012 School Enrollment Study



\*Student density based on 2012 School Enrollment Study

# New Hampshire

Public Schools

**Redden Garden Apartments**  
- 150 units

**Single Family Res. Neighborhood**  
- 17 units

Durham Rd

Pondview Dr

Mast Rd



**Redden Garden Apartments**  
- 150 units

**Single Family Res. Neighborhood**  
- 17 units  
- **10.88 students**

Durham Rd

Pondview Dr

Mast Rd





**Redden Garden Apartments**  
- 150 units

**Single Family Res. Neighborhood**  
- 17 units  
- **10.88 students**  
- **10.73 acres**

Durham Rd

Pondview Dr

Mast Rd



# New Hampshire

Public Schools

**Redden Garden Apartments**  
- 150 units

**Single Family Res. Neighborhood**  
- 17 units  
- 10.88 students  
- 10.73 acres  
- \$518,210 VPA

Durham Rd

Pondview Dr

Mast Rd



**Redden Garden Apartments**

- 150 units
- **25.5 students**

**Single Family Res. Neighborhood**

- 17 units
- **10.88 students**
- **10.73 acres**
- **\$518,210 VPA**

Durham Rd

Pondview Dr

Mast Rd



# New Hampshire

Public Schools

## Redden Garden Apartments

- 150 units
- **25.5 students**
- **10.83 acres**

## Single Family Res. Neighborhood

- 17 units
- **10.88 students**
- **10.73 acres**
- **\$518,210 VPA**

Durham Rd

Pondview Dr

Mast Rd



# New Hampshire

Public Schools

## Redden Garden Apartments

- 150 units
- 25.5 students
- 10.83 acres
- \$743,692 VPA

## Single Family Res. Neighborhood

- 17 units
- 10.88 students
- 10.73 acres
- \$518,210 VPA

Durham Rd

Pondview Dr

Mast Rd



# New Hampshire

Public Schools

Durham Rd



## Redden Garden Apartments

- 150 units
- 25.5 students
- 10.83 acres
- \$743,692 VPA



# Pointe Place Mixed-Use Development

- 156 units



# New Hampshire

Public Schools

Durham Rd



## Redden Garden Apartments

- 150 units
- 25.5 students
- 10.83 acres
- \$743,692 VPA



## Pointe Place Mixed-Use Development

- 156 units
- 26.5 Students



# New Hampshire

Public Schools

Durham Rd



## Redden Garden Apartments

- 150 units
- 25.5 students
- 10.83 acres
- \$743,692 VPA



## Pointe Place Mixed-Use Development

- 156 units
- 26.5 Students
- 3.66 acres



Artisan Way

Pointe Pl



# New Hampshire

Public Schools

Durham Rd



## Redden Garden Apartments

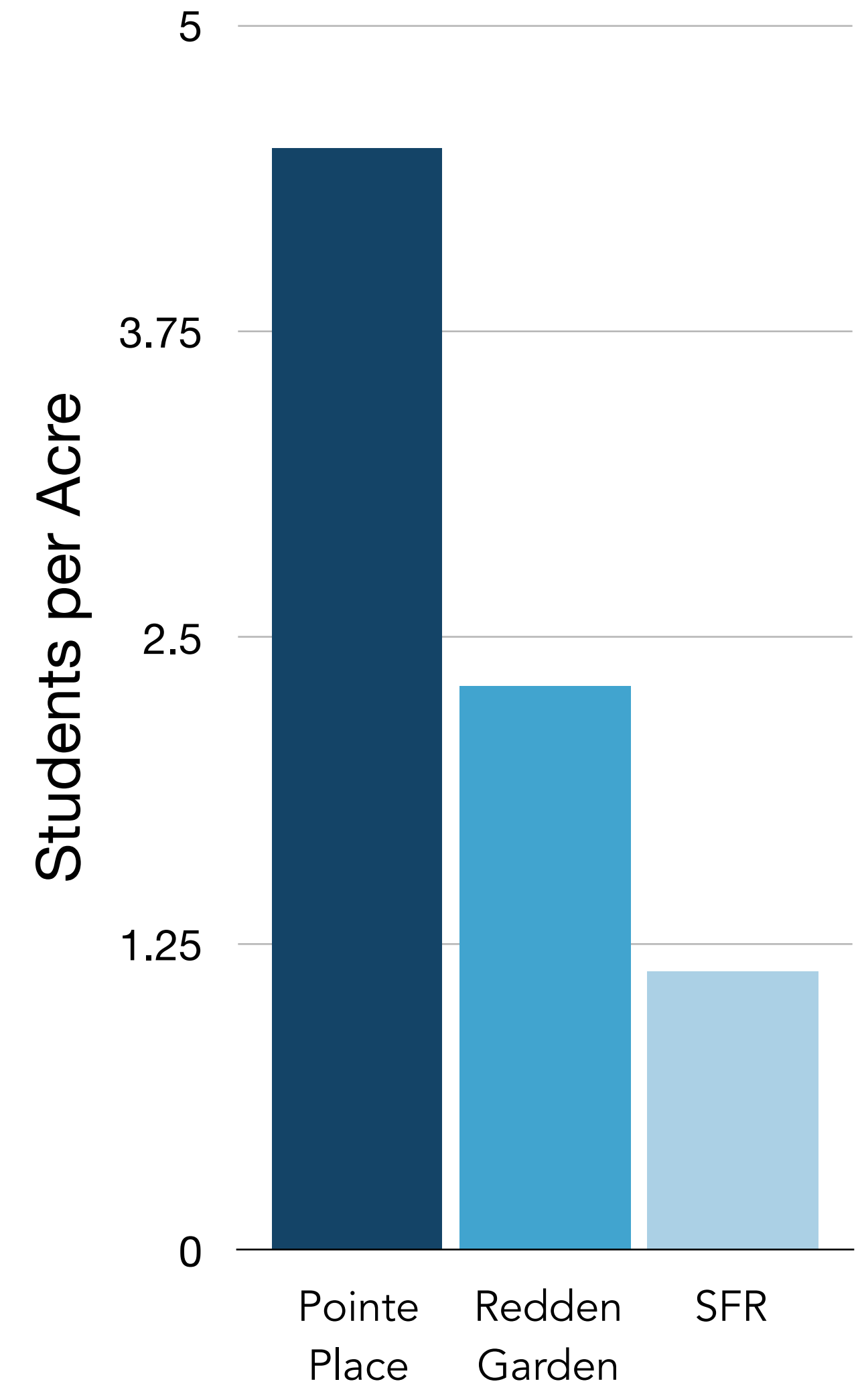
- 150 units
- 25.5 students
- 10.83 acres
- \$743,692 VPA



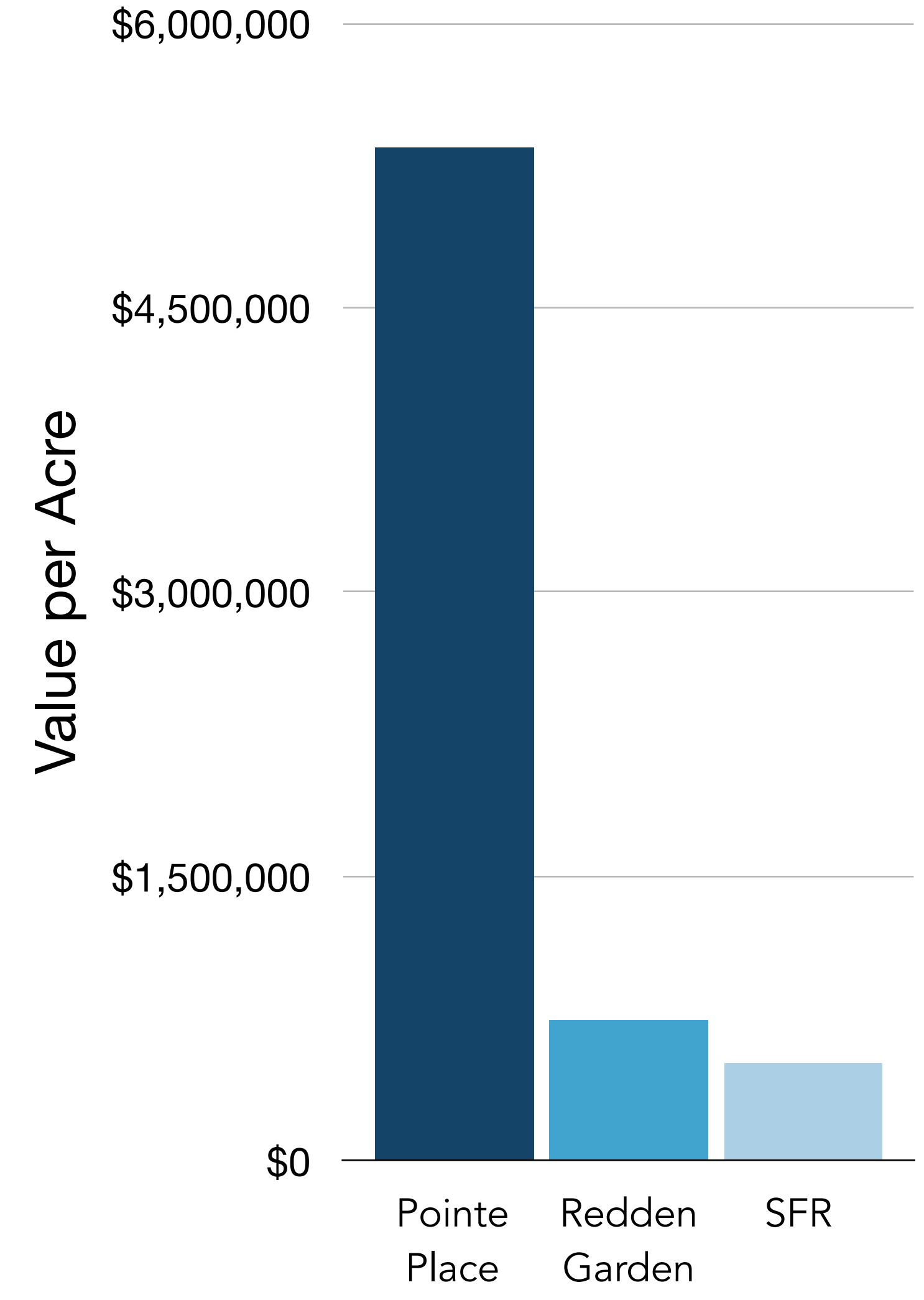
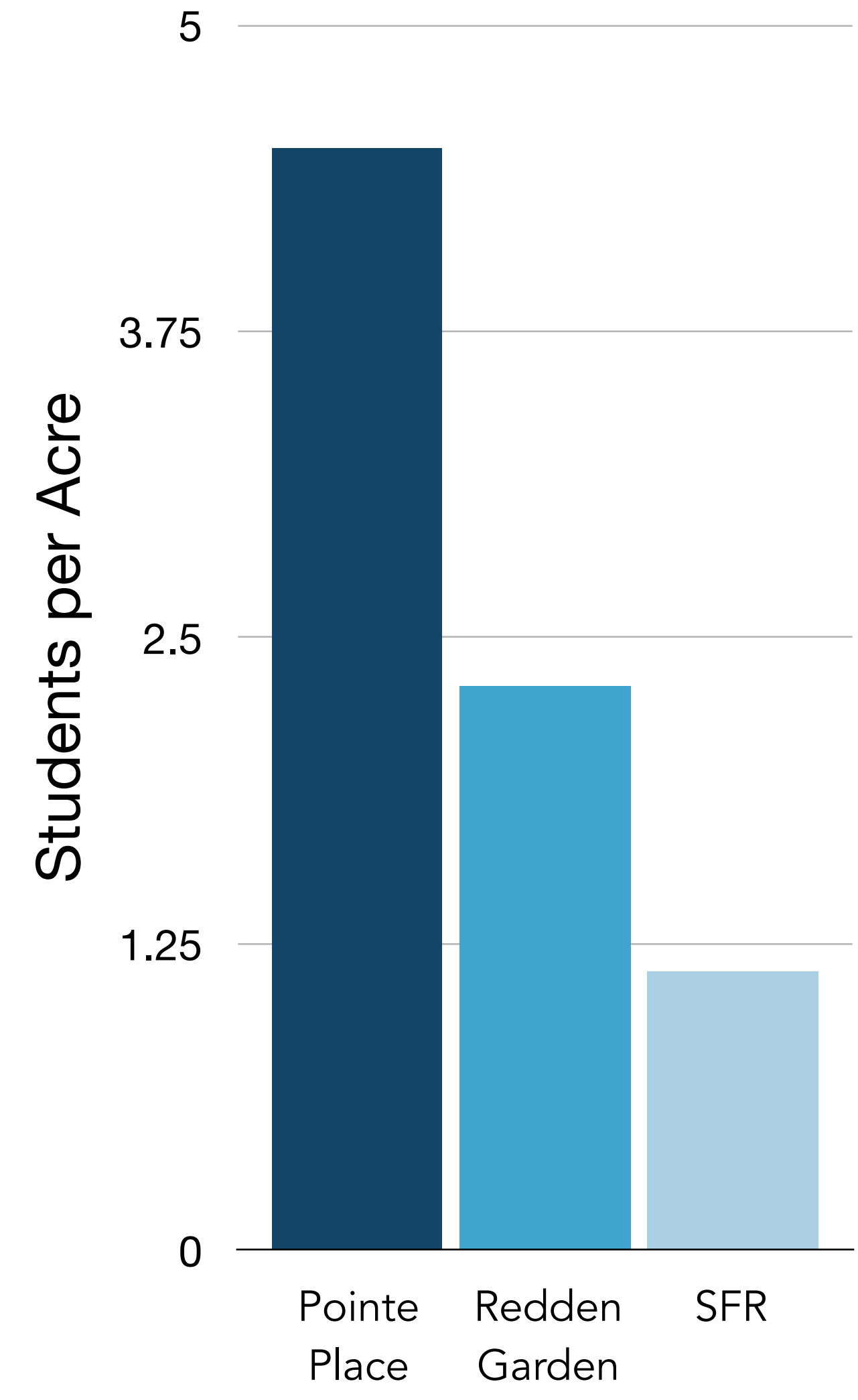
## Pointe Place Mixed-Use Development

- 156 units
- 26.5 Students
- 3.66 acres
- \$5,345,574 VPA

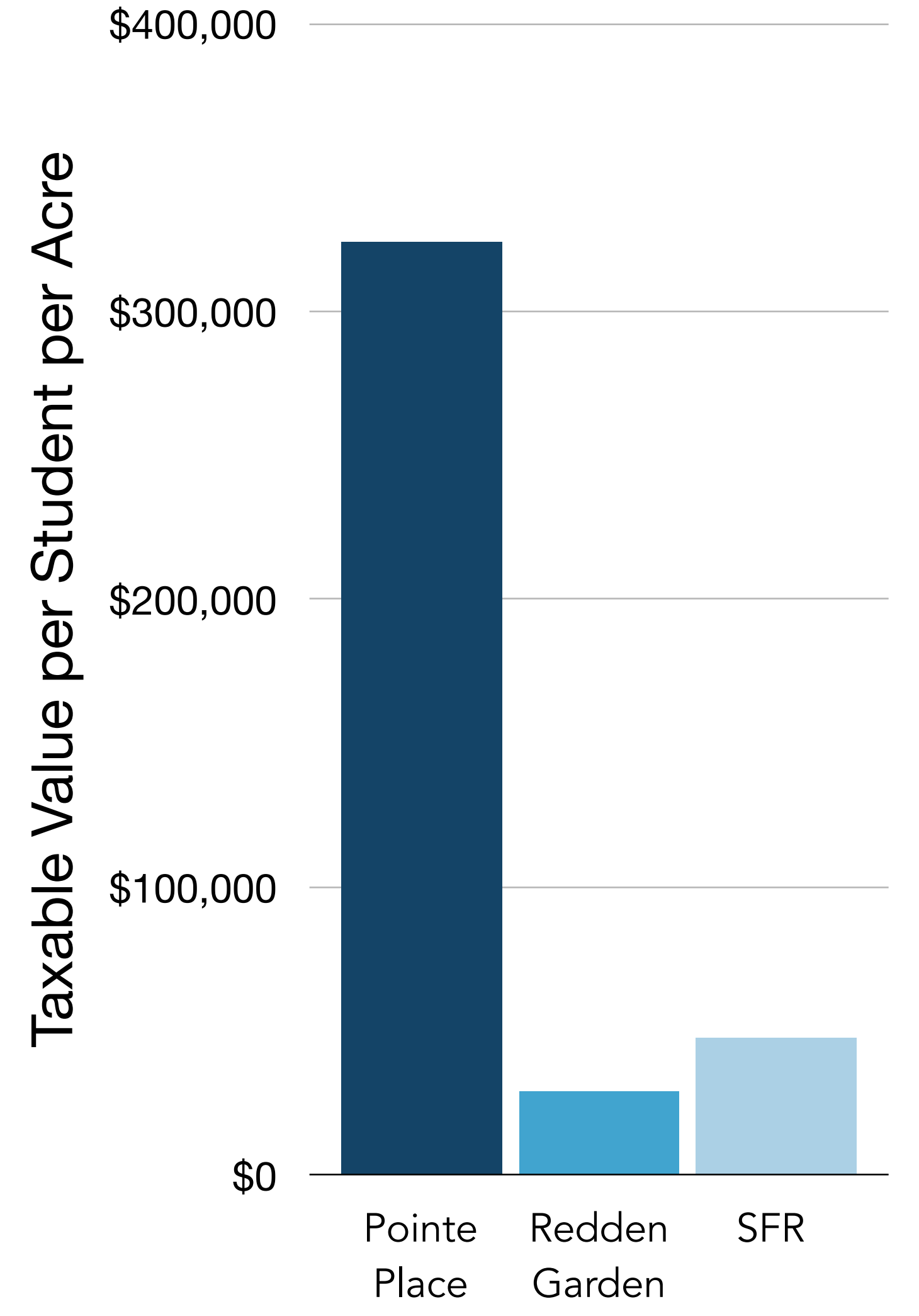
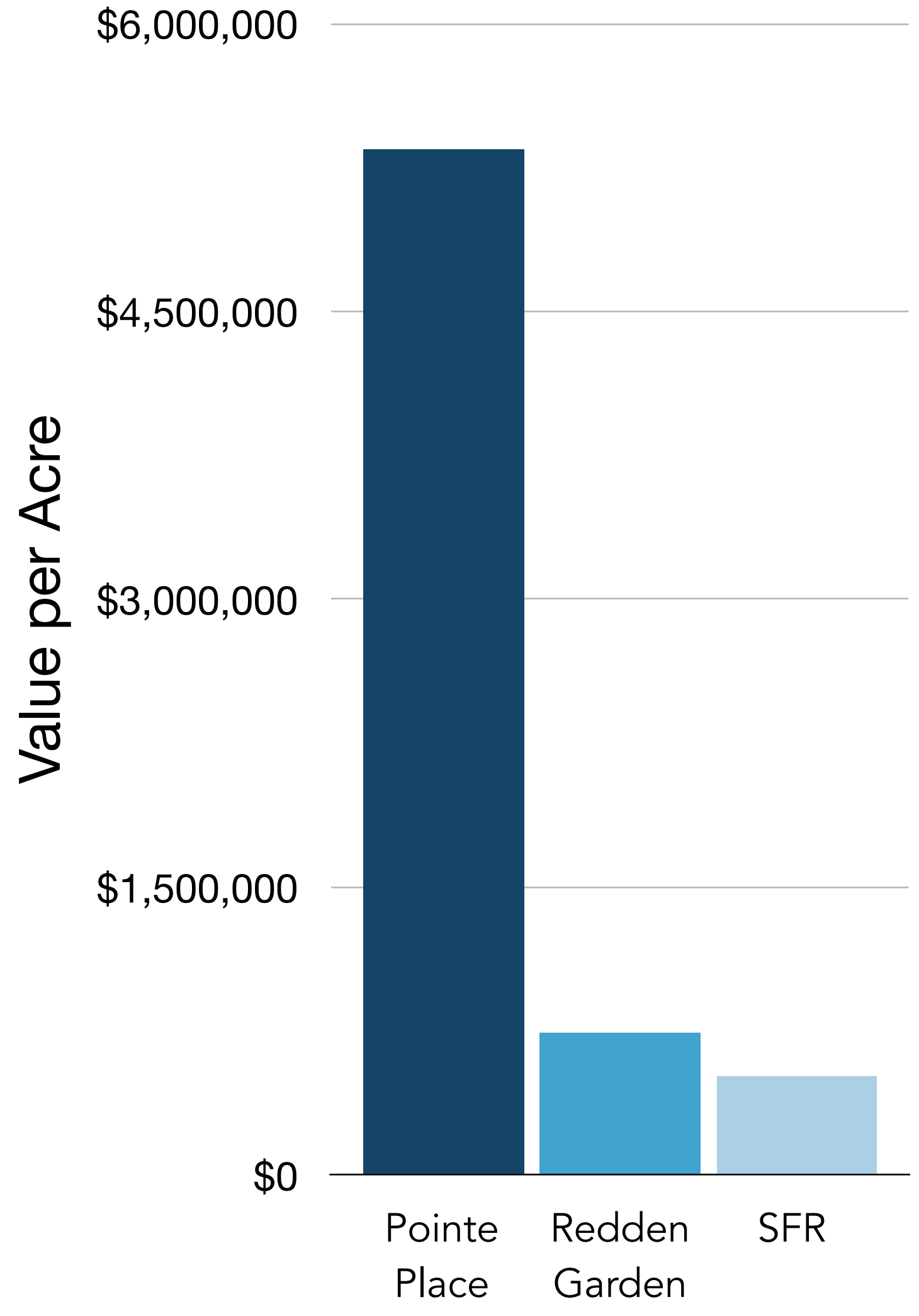
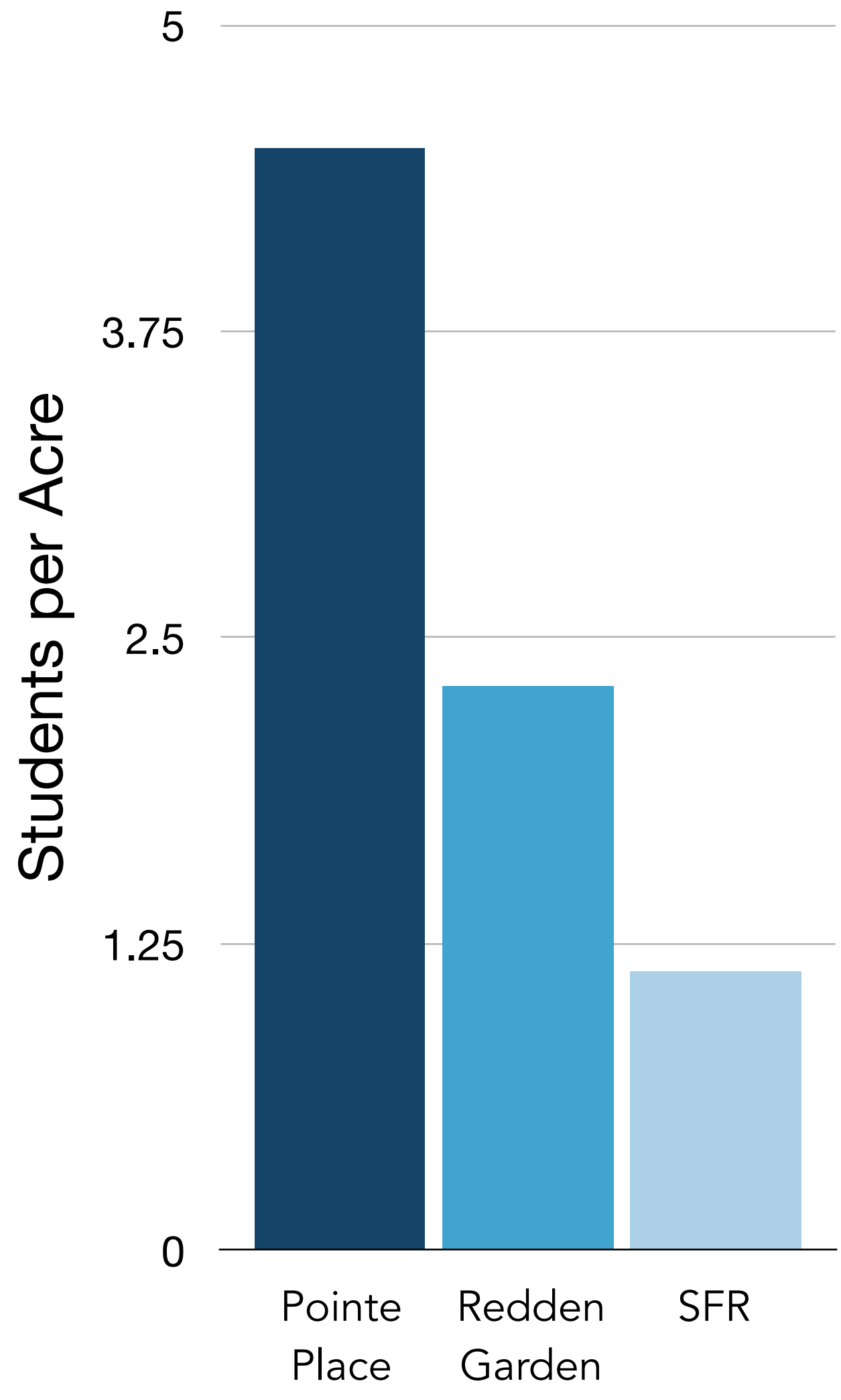




\*Student density based on 2012 School Enrollment Study



\*Student density based on 2012 School Enrollment Study

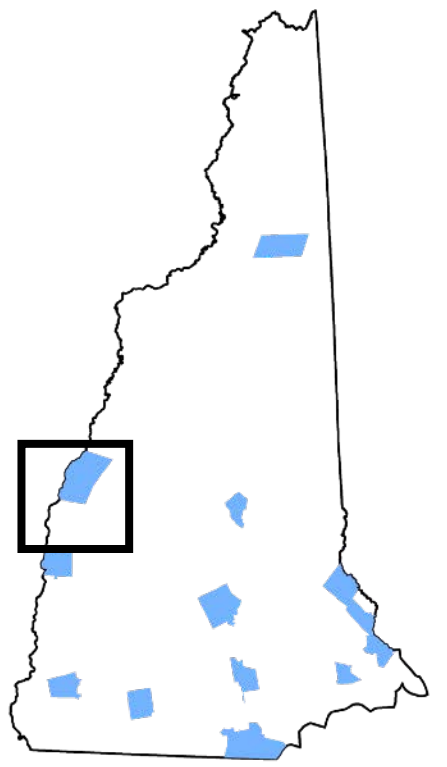


\*Student density based on 2012 School Enrollment Study

# New Hampshire Public Schools



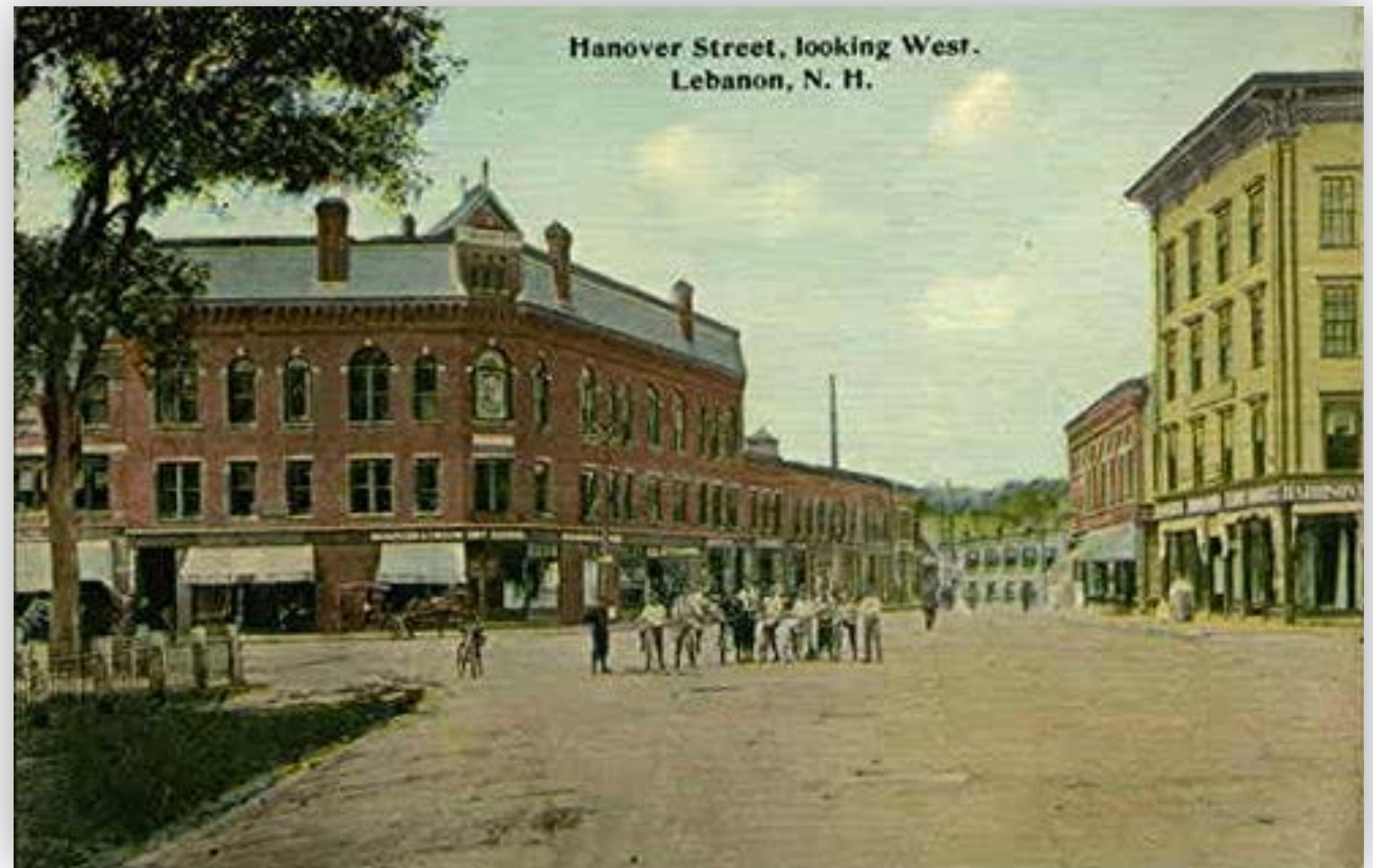
\*Student density based on 2012 School Enrollment Study



Case Study: Economic MRI®  
2020

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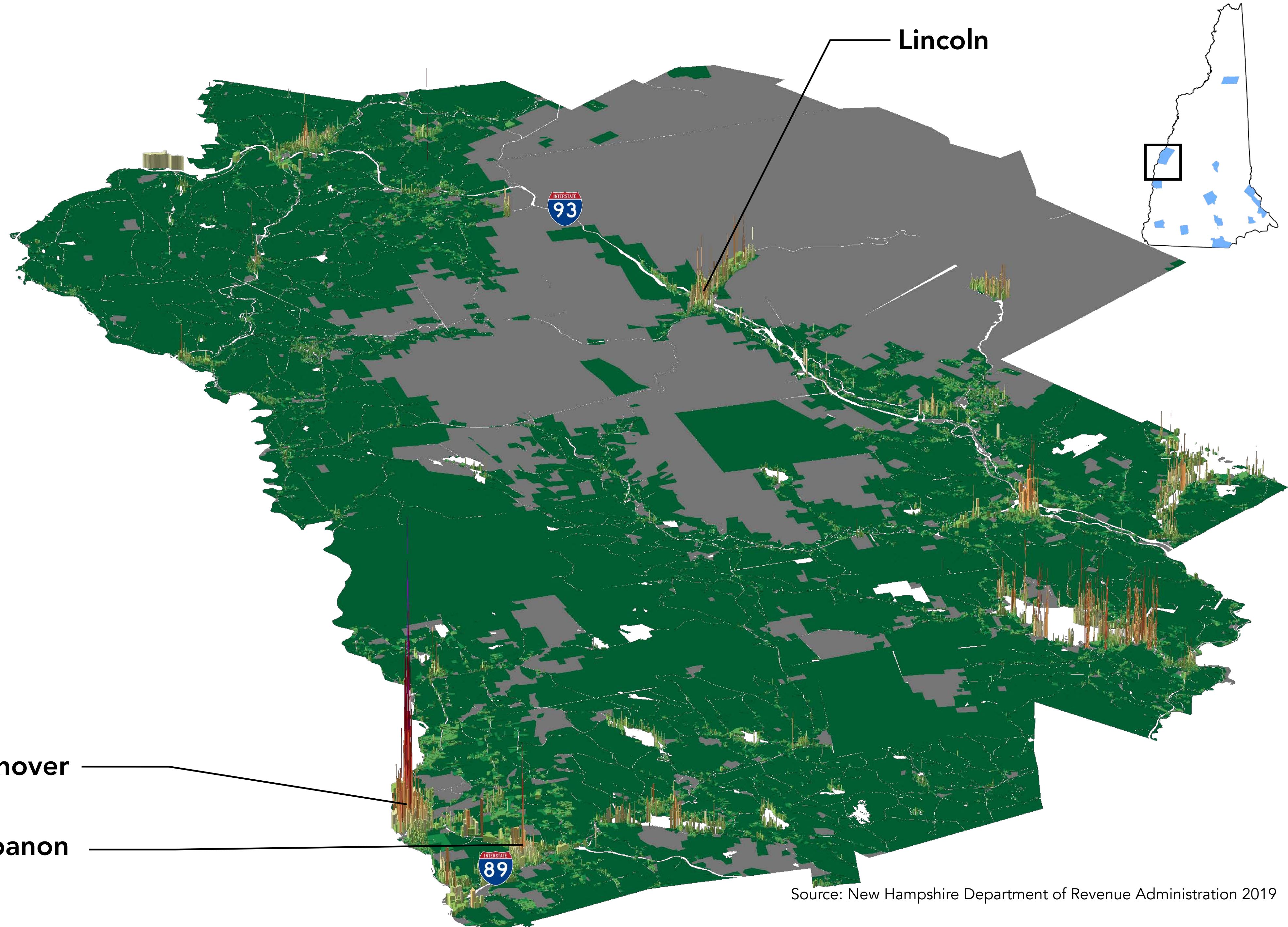
# Lebanon



URBAN3

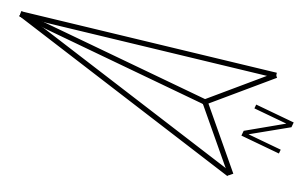
# Value Per Acre

Grafton County



**Total Taxable Value (\$)**

0
< 50,000
50,001 - 100,000
100,001 - 500,000
500,001 - 1,000,000
1,000,001 - 1,500,000
1,500,001 - 2,000,000
2,000,001 - 3,000,000
3,000,001 - 8,000,000
8,000,001 - 12,000,000
12,000,001 - 18,000,000
18,000,001 - 28,000,000
> 28,000,001

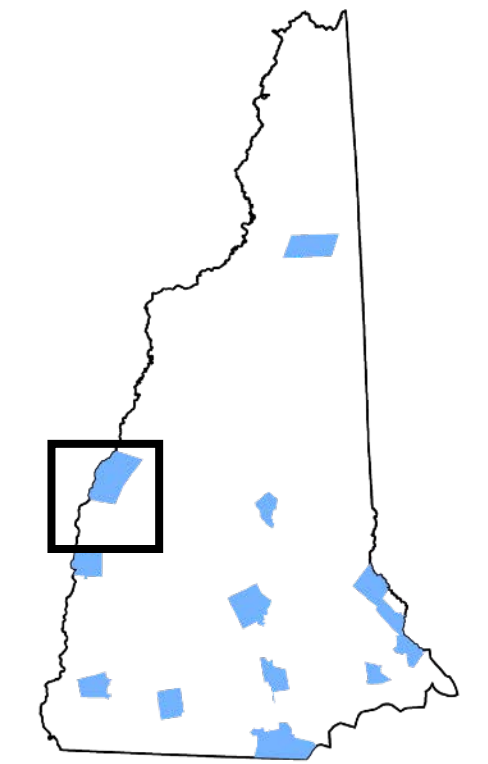


Hanover

Lebanon

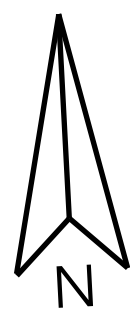
Lincoln

URBAN3  
**Value Per Acre**  
 Lebanon

**Total Taxable Value (\$)**

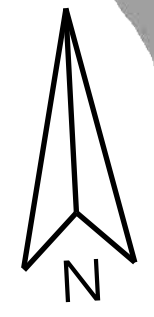
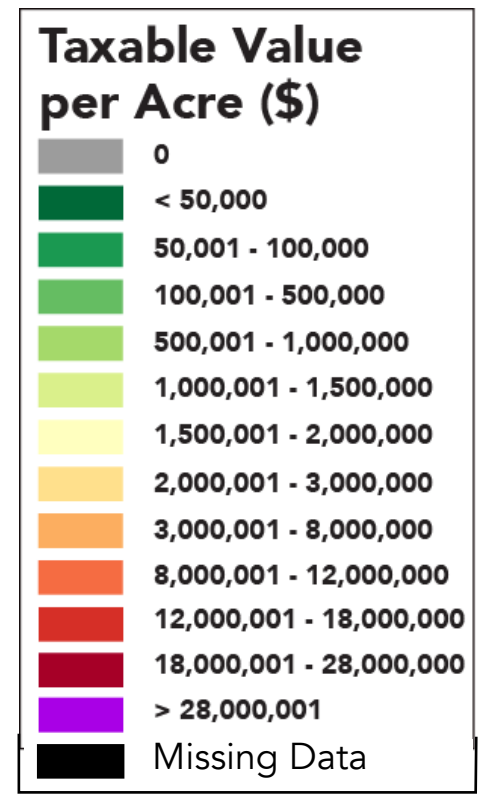
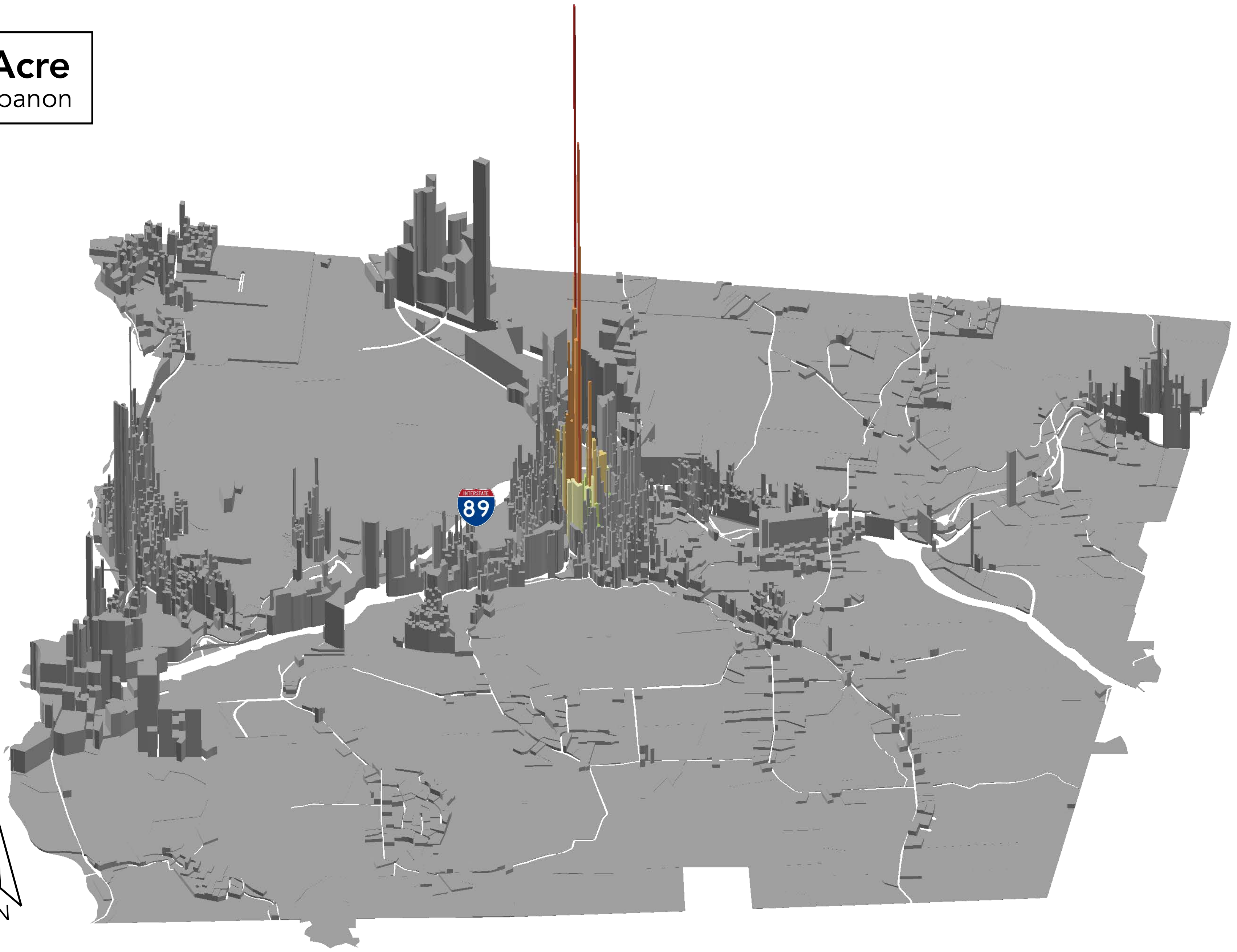
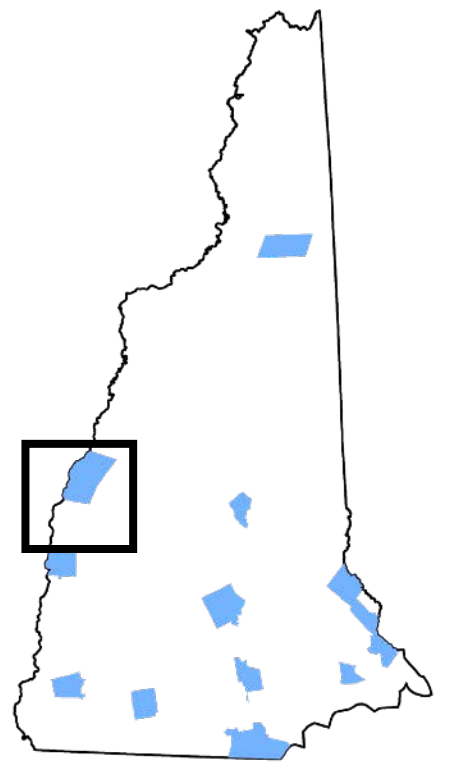
0
< 50,000
50,001 - 100,000
100,001 - 500,000
500,001 - 1,000,000
1,000,001 - 1,500,000
1,500,001 - 2,000,000
2,000,001 - 3,000,000
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12,000,001 - 18,000,000
18,000,001 - 28,000,000
> 28,000,001





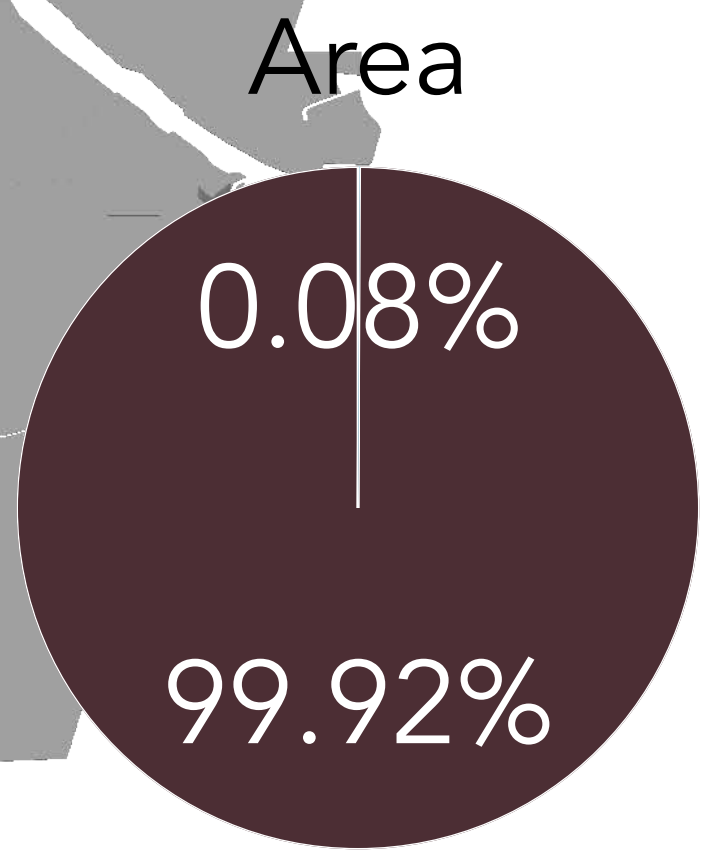
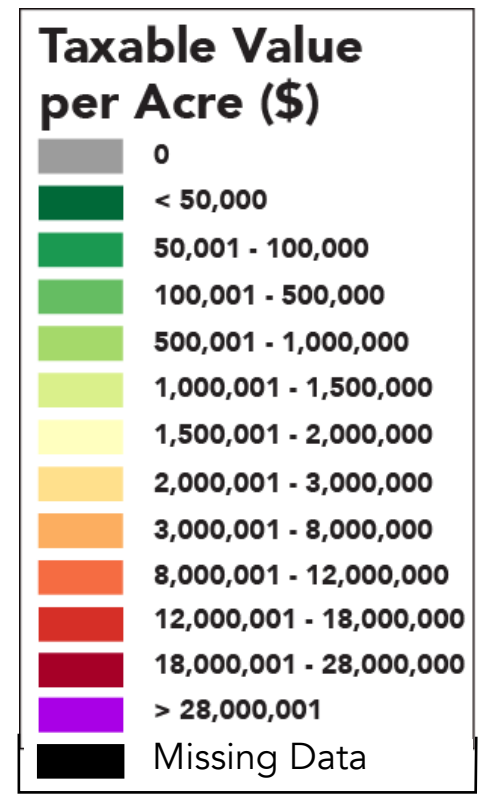
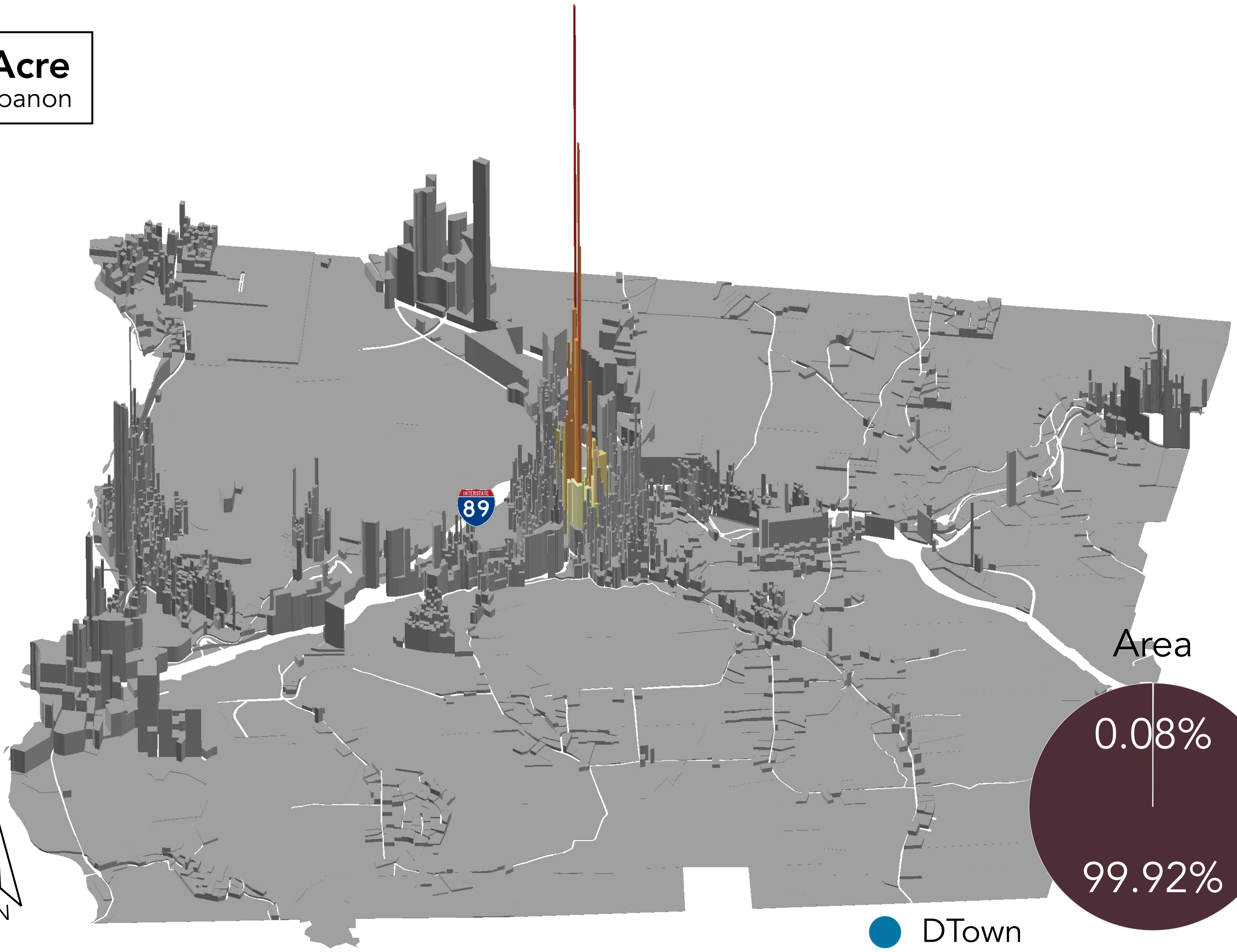
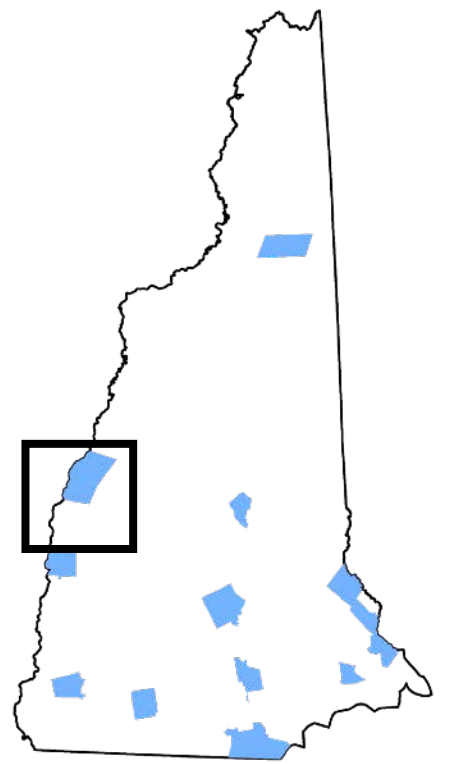
# Value Per Acre

Downtown Lebanon



# Value Per Acre

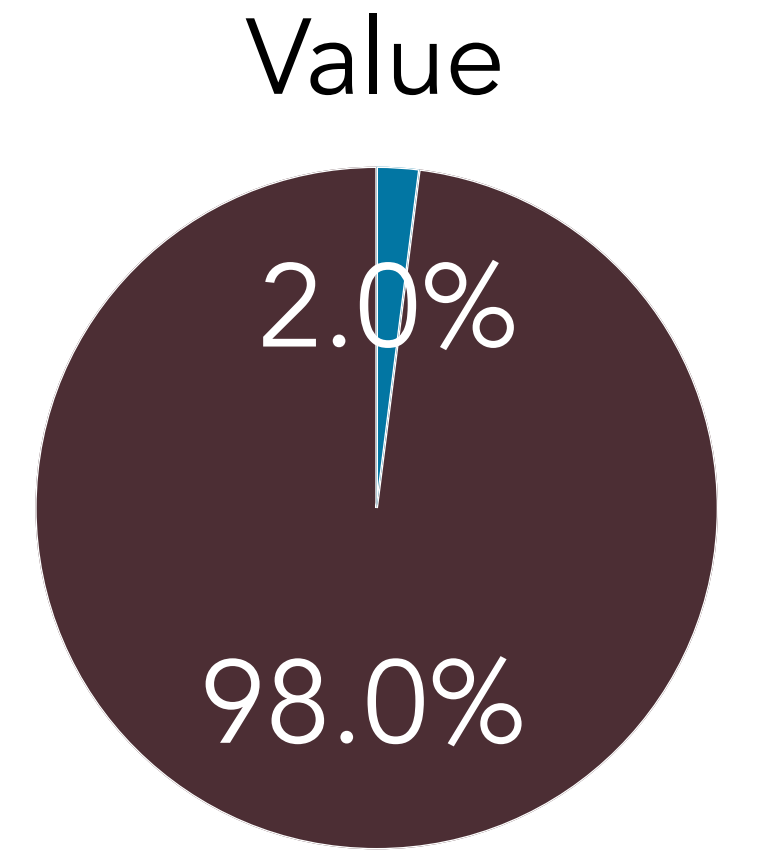
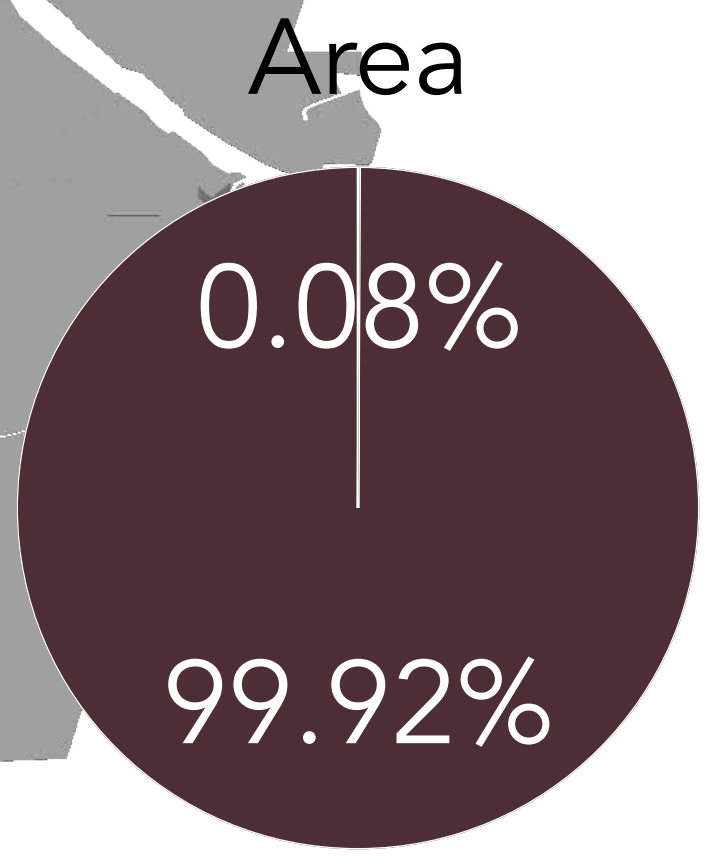
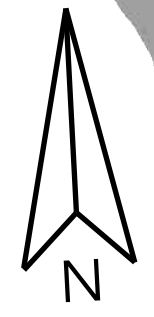
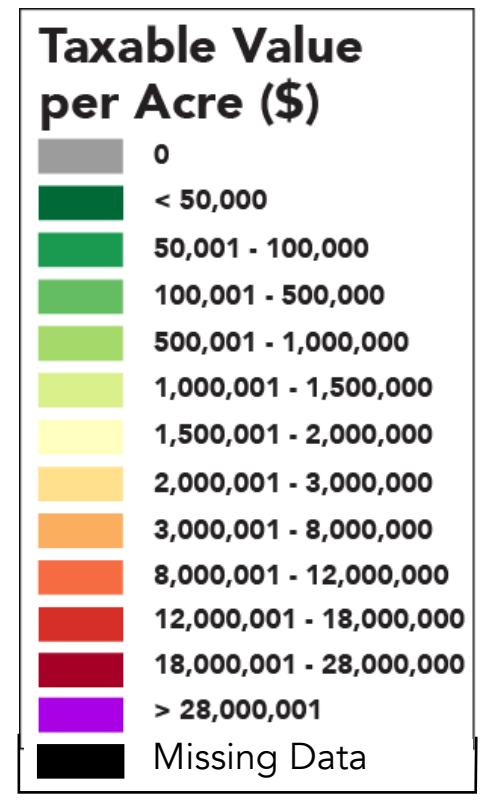
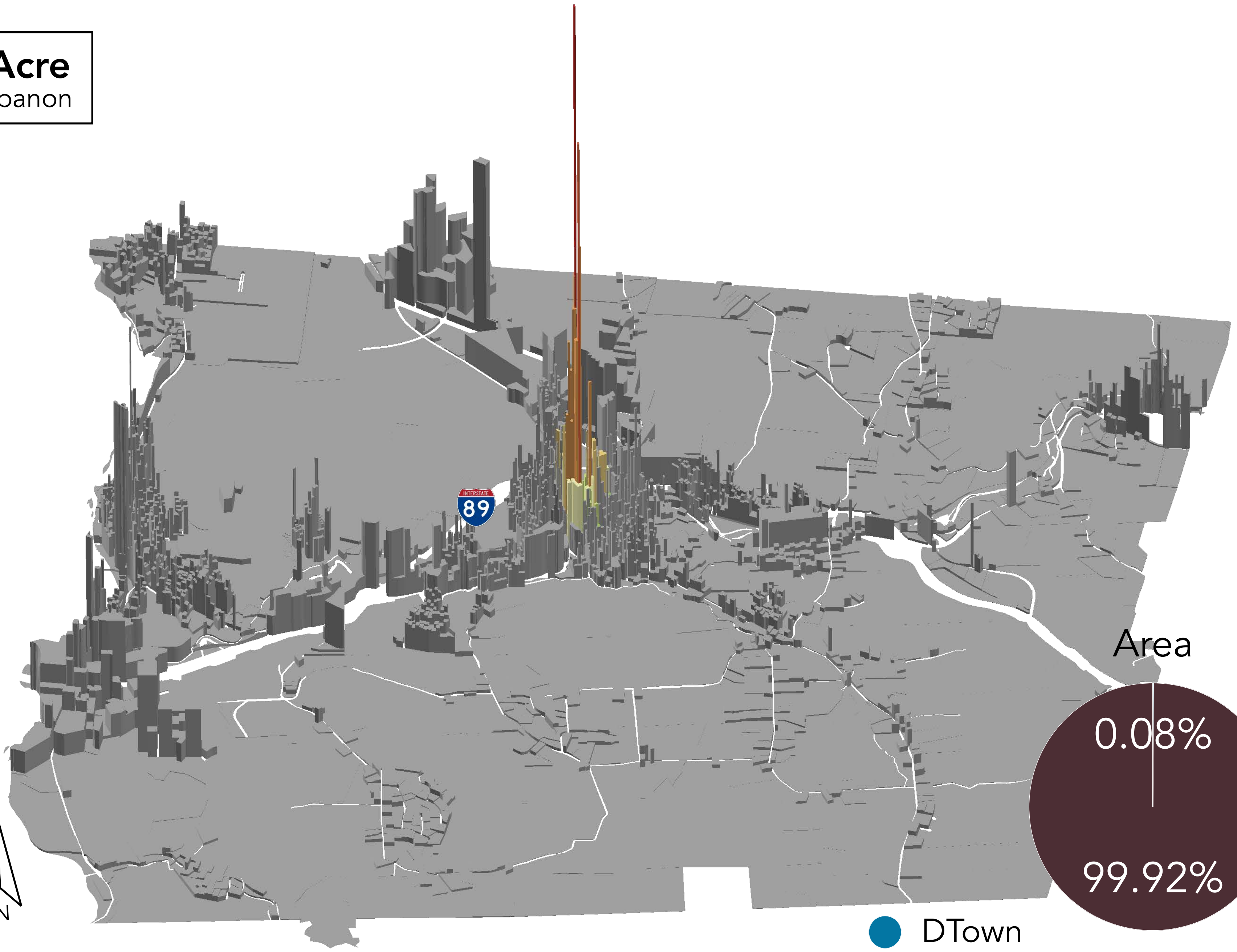
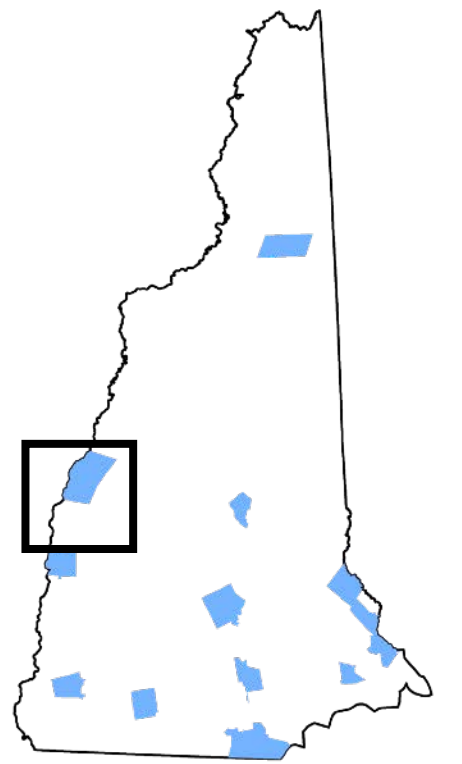
## Downtown Lebanon



- DTown
- City

# Value Per Acre

Downtown Lebanon

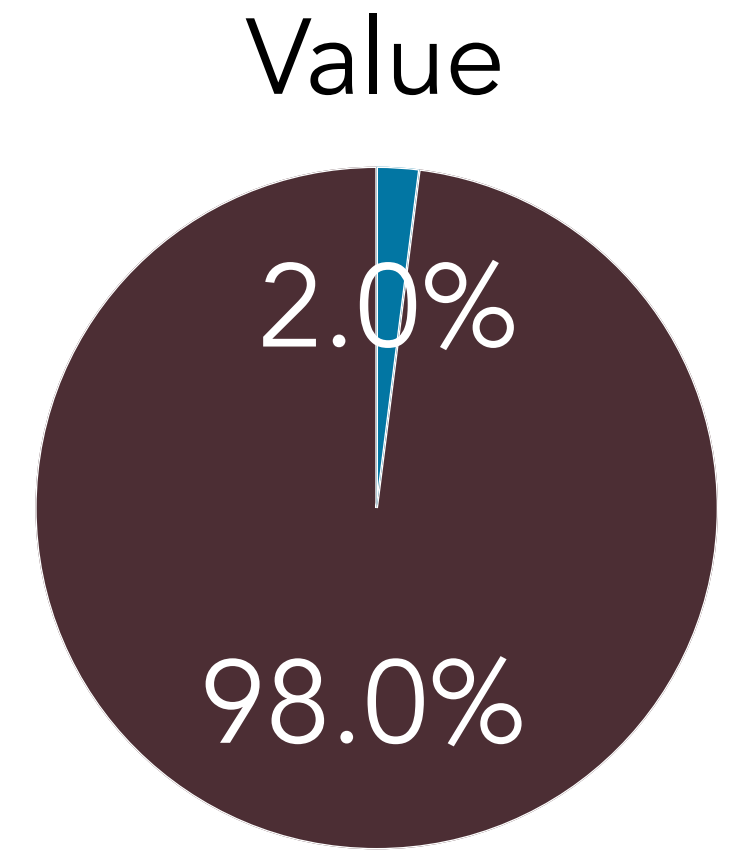
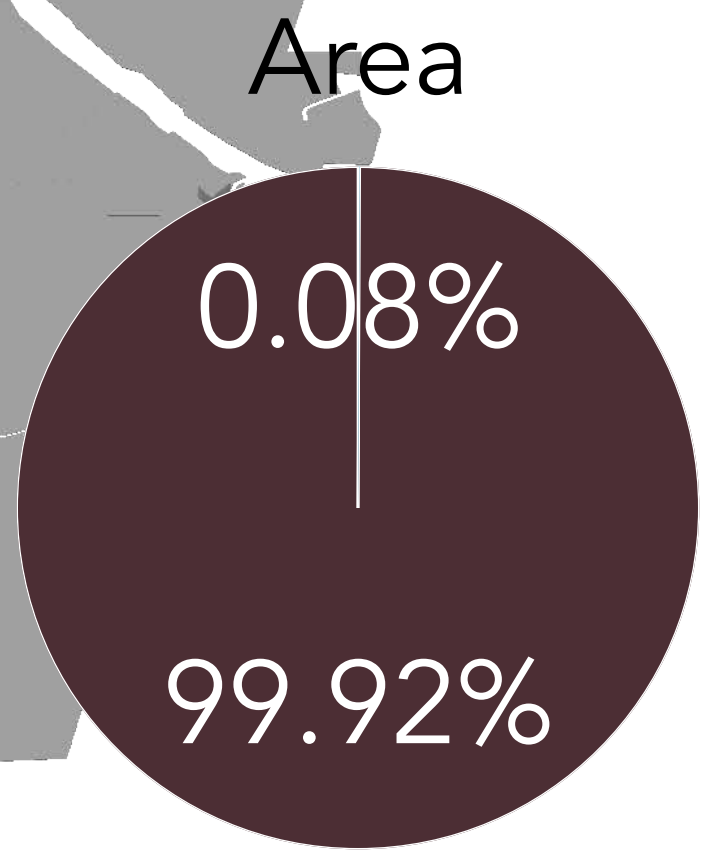
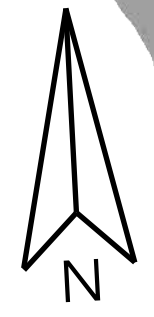
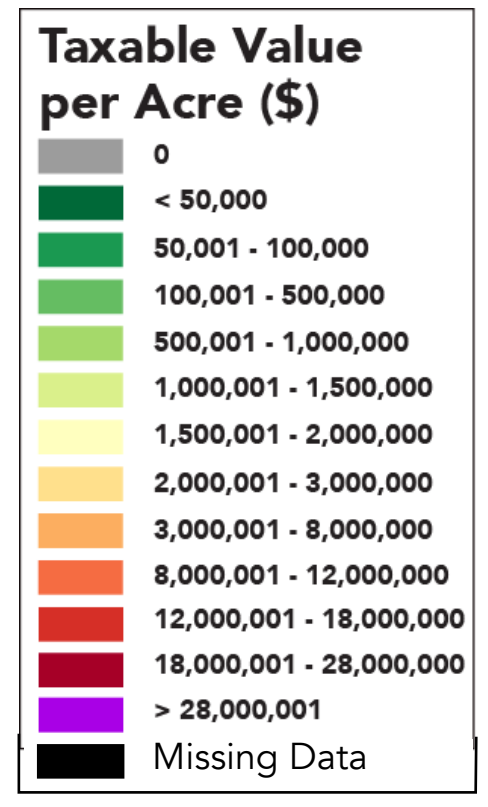
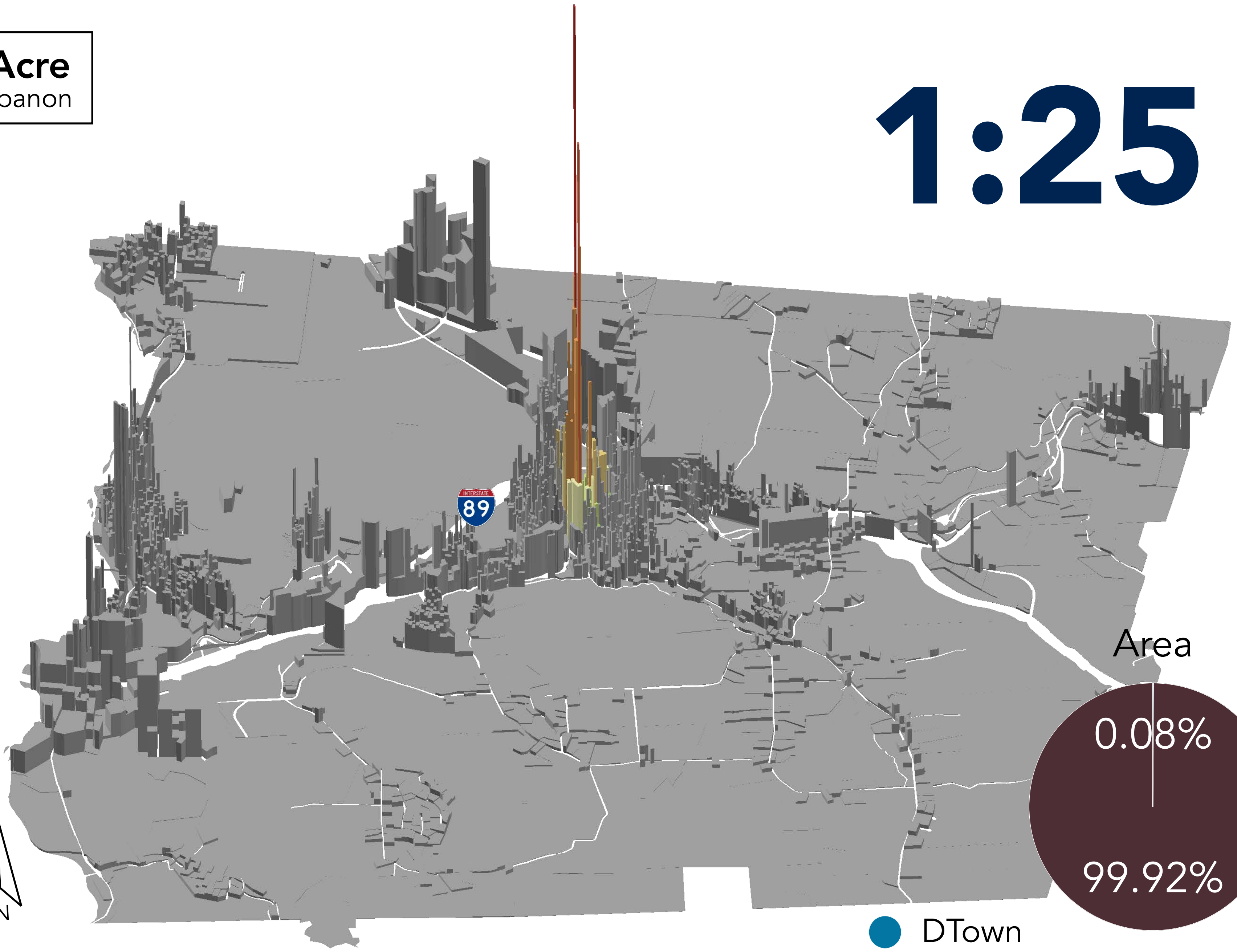
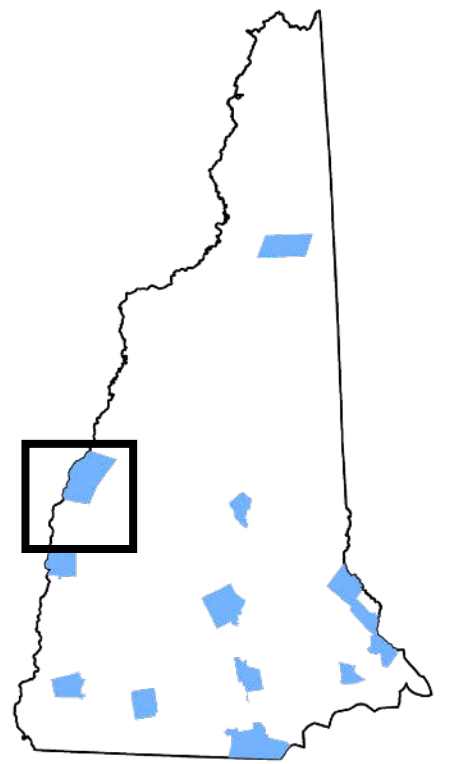


- DTown
- City

# Value Per Acre

Downtown Lebanon

# 1:25



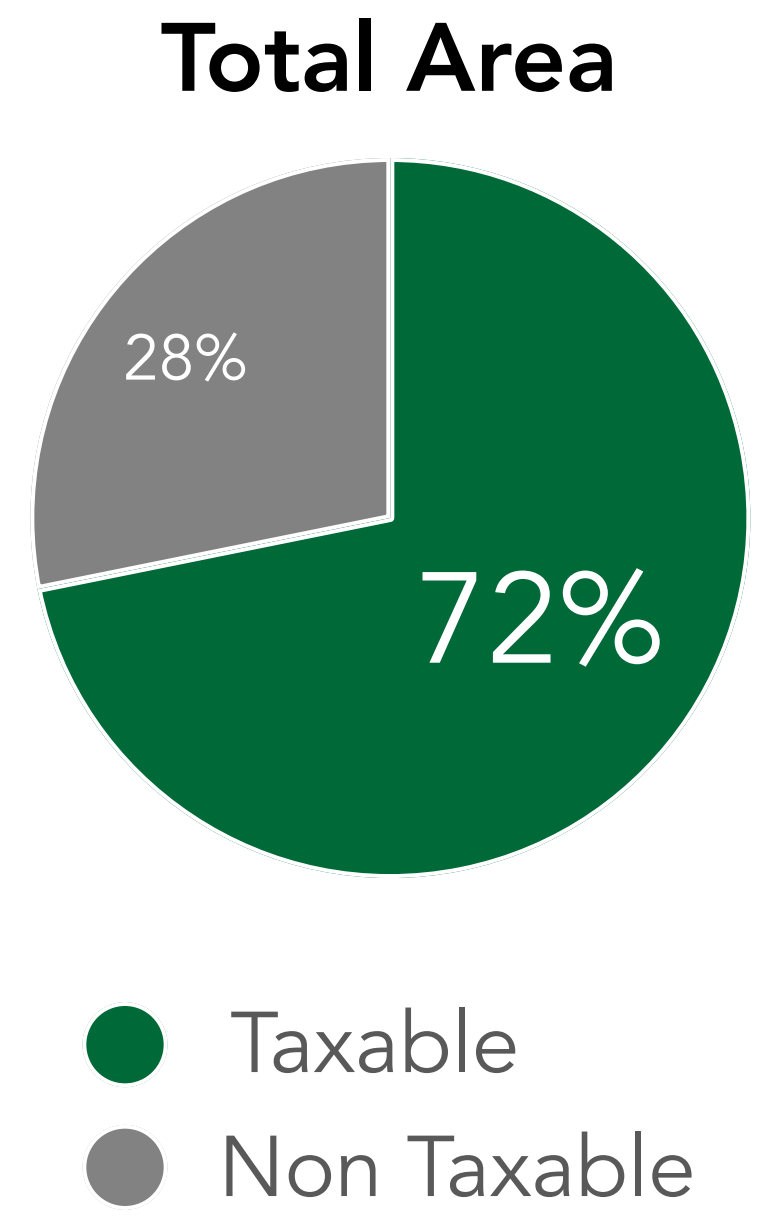
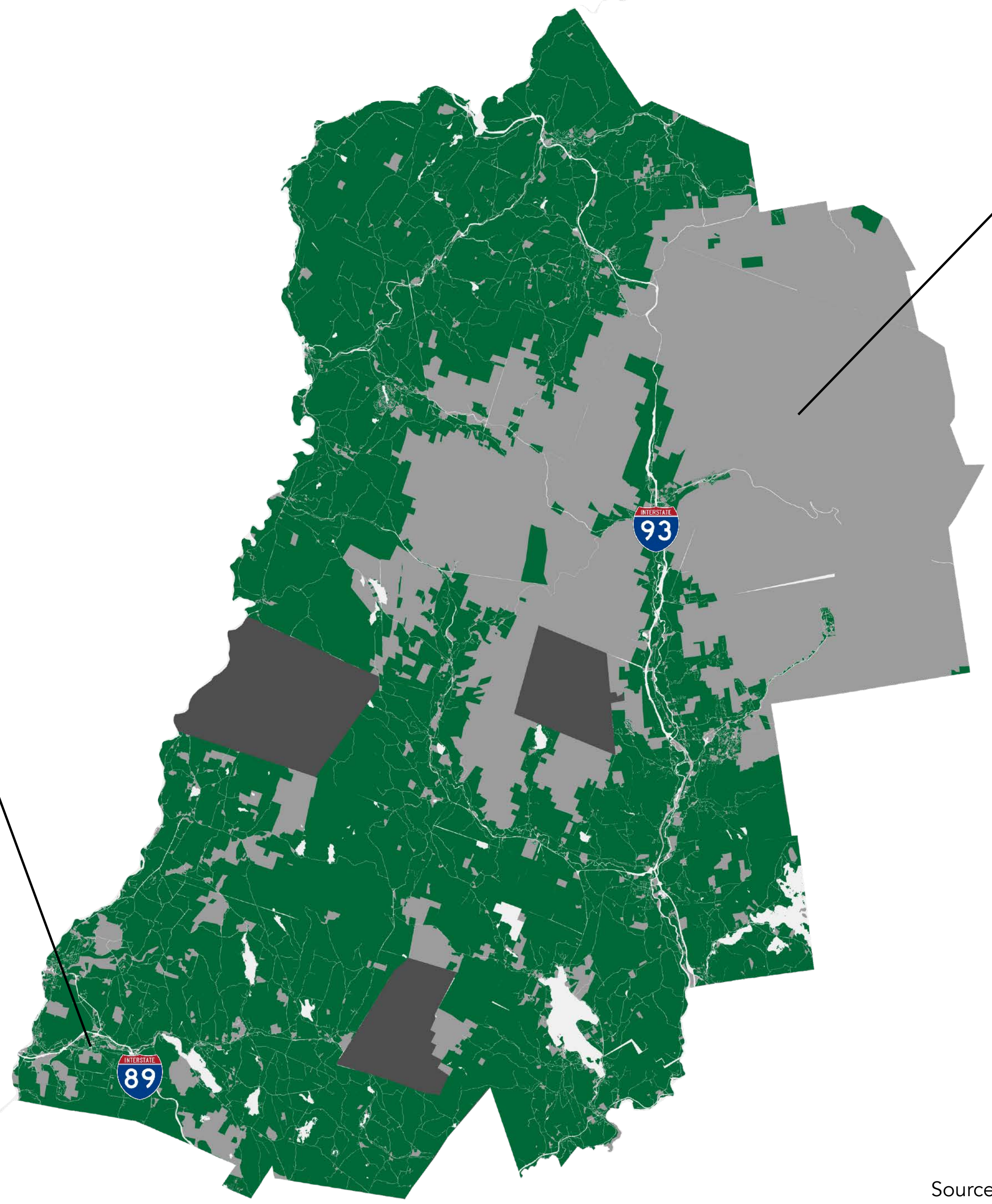
- DTown
- City

# Taxable Area

Grafton County

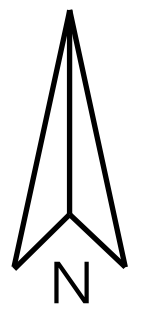
Lebanon

White Mountain National Forest



#### Taxable Status

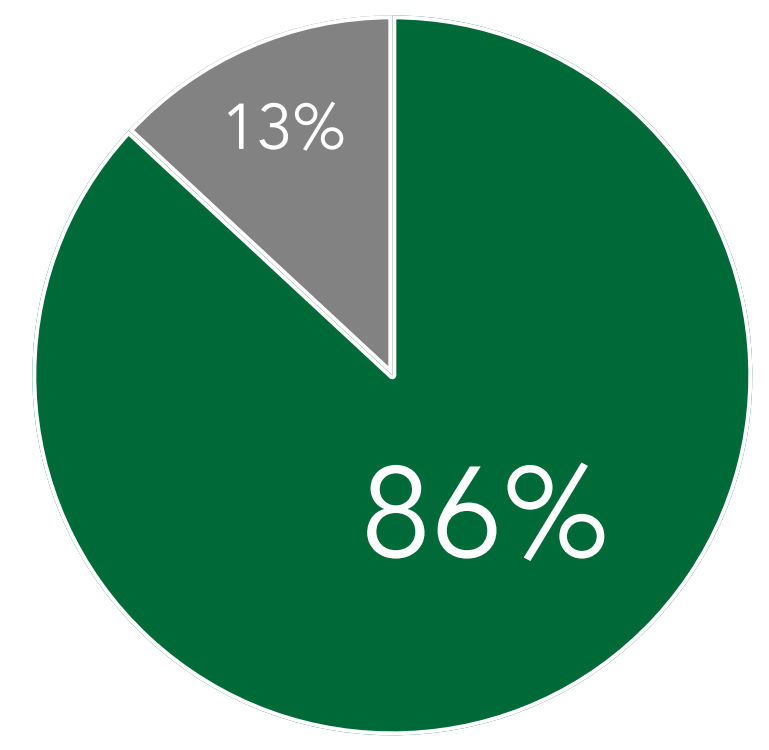
- Non Taxable
- Taxable
- No Data



# Taxable Area

Lebanon

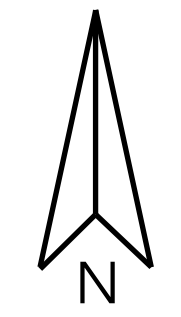
## Total Area



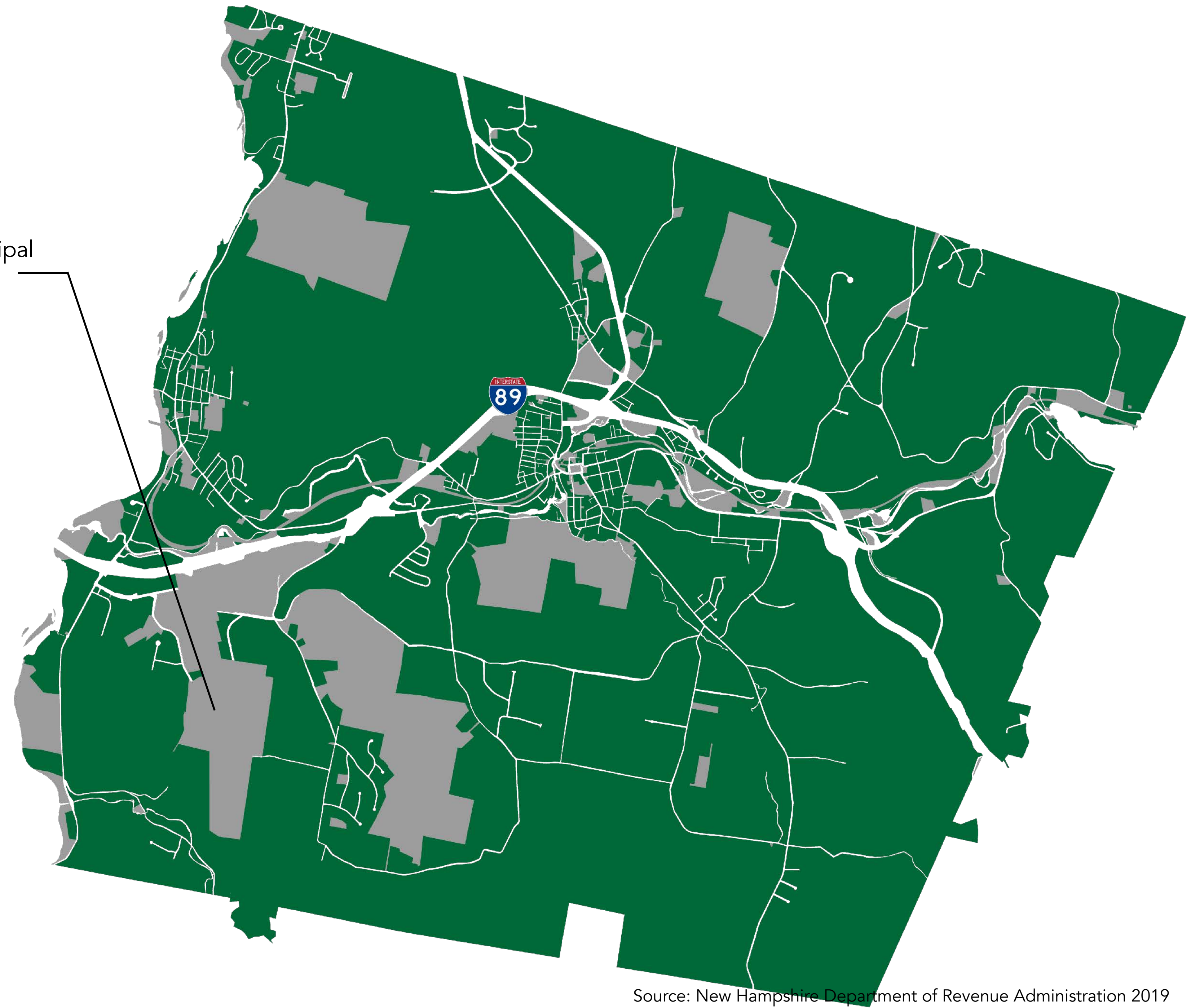
- Taxable
- Nontaxable

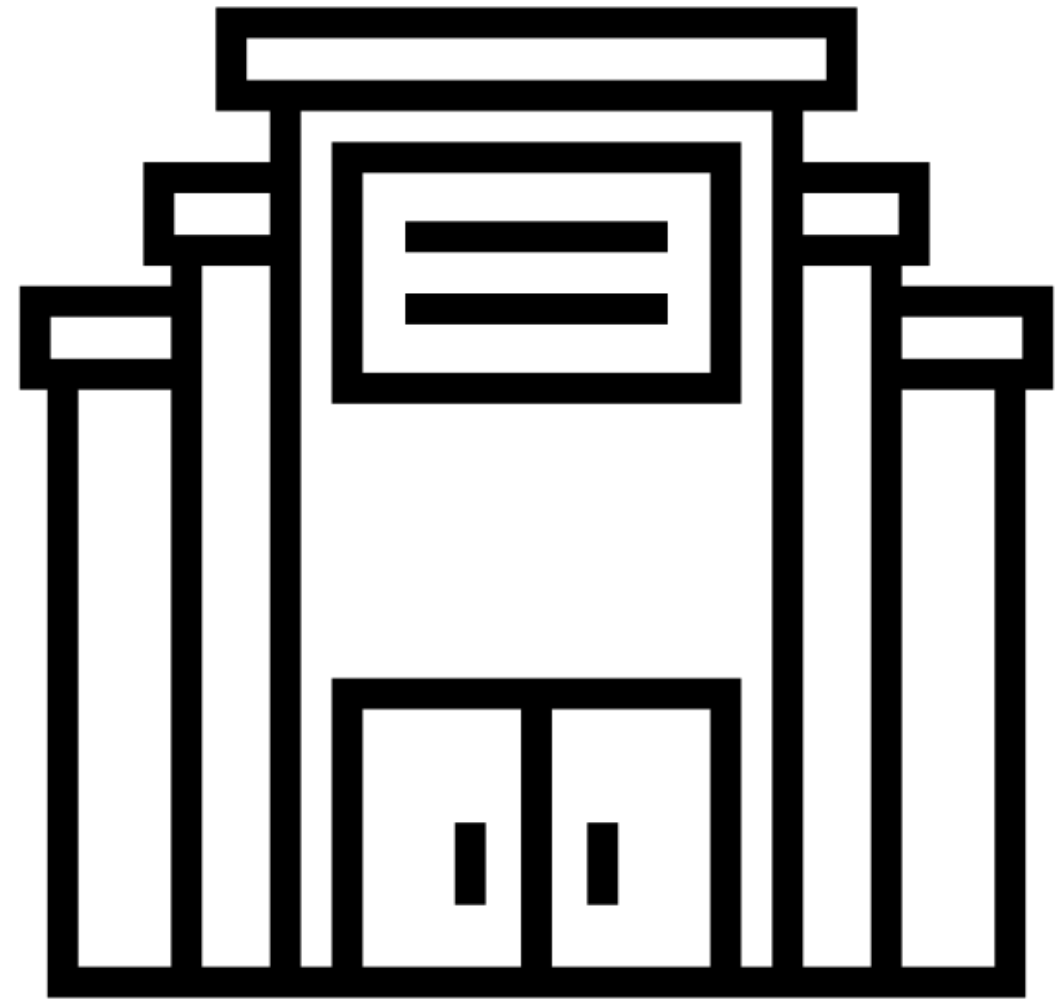
### Taxable Status

- Non Taxable
- Taxable
- No Data



Lebanon Municipal Airport

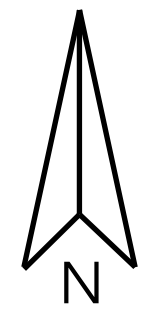
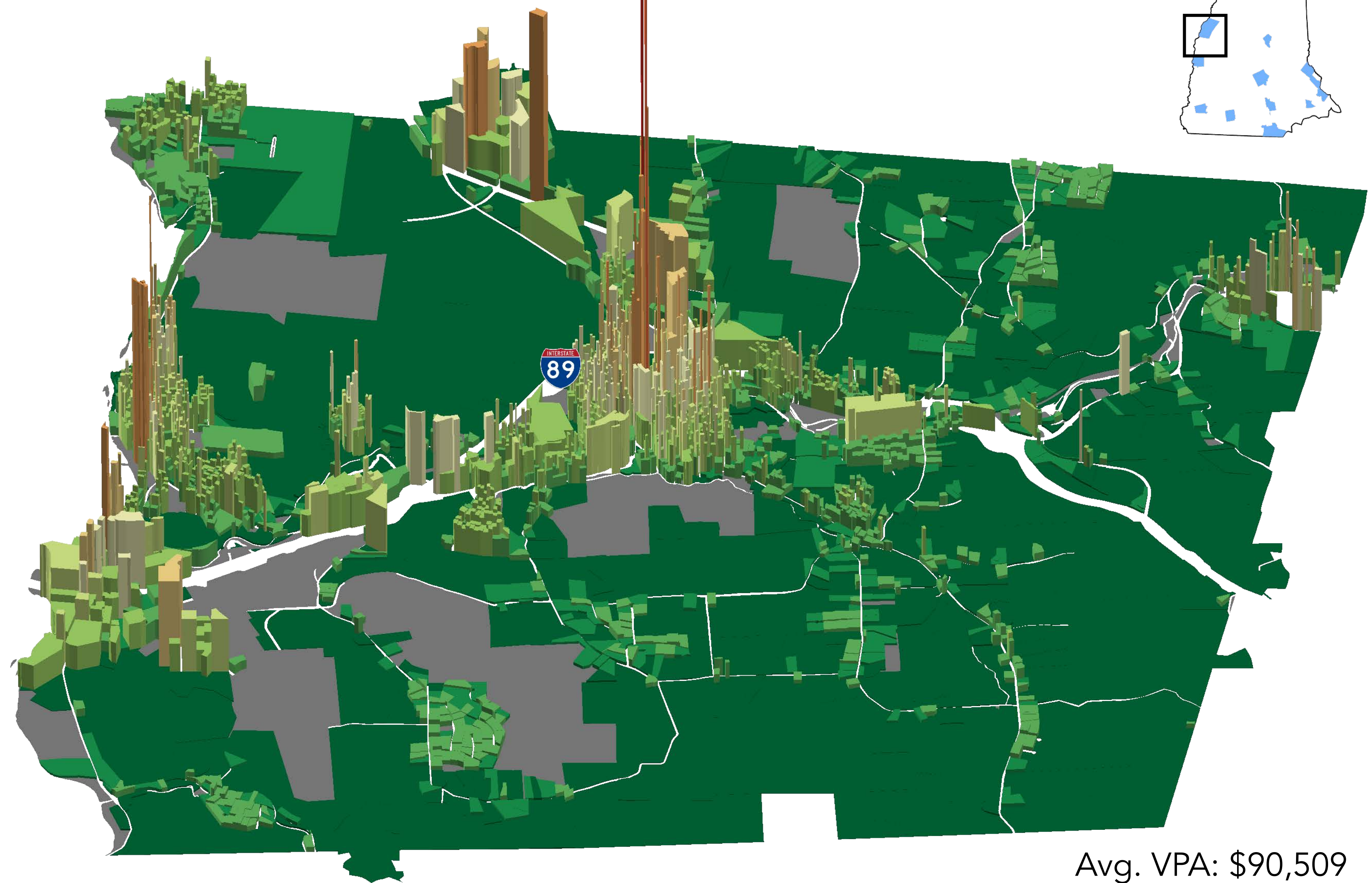
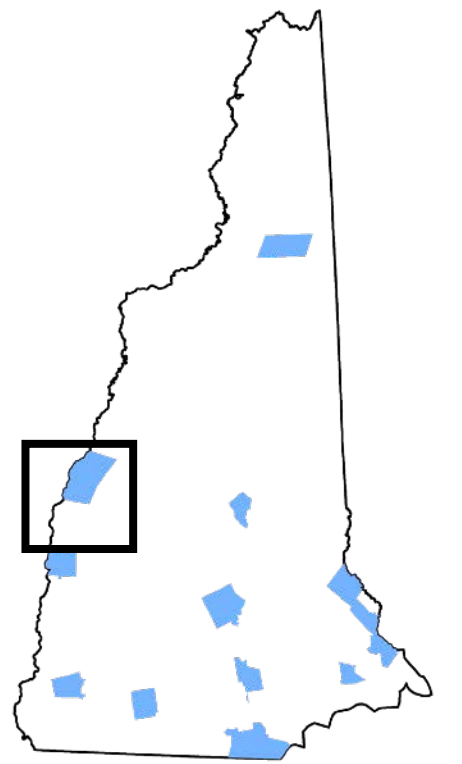




# Land Use Types

Local samples of buildings and development types

URBAN3  
**Value Per Acre**  
Land Use Productivity



Avg. VPA: \$90,509

Source: New Hampshire Department of Revenue Administration 2019



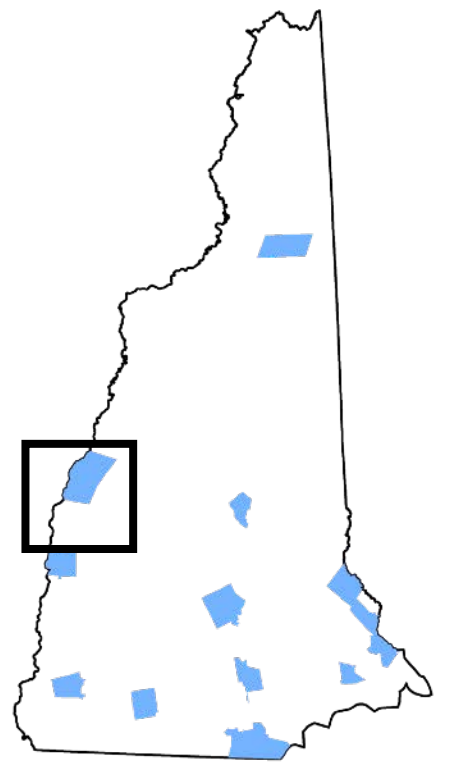
URBAN3  
**Value Per Acre**  
Land Use Productivity



Top VPA  
VPA: \$14.4 M



Mixed-use  
VPA: \$6.2 M



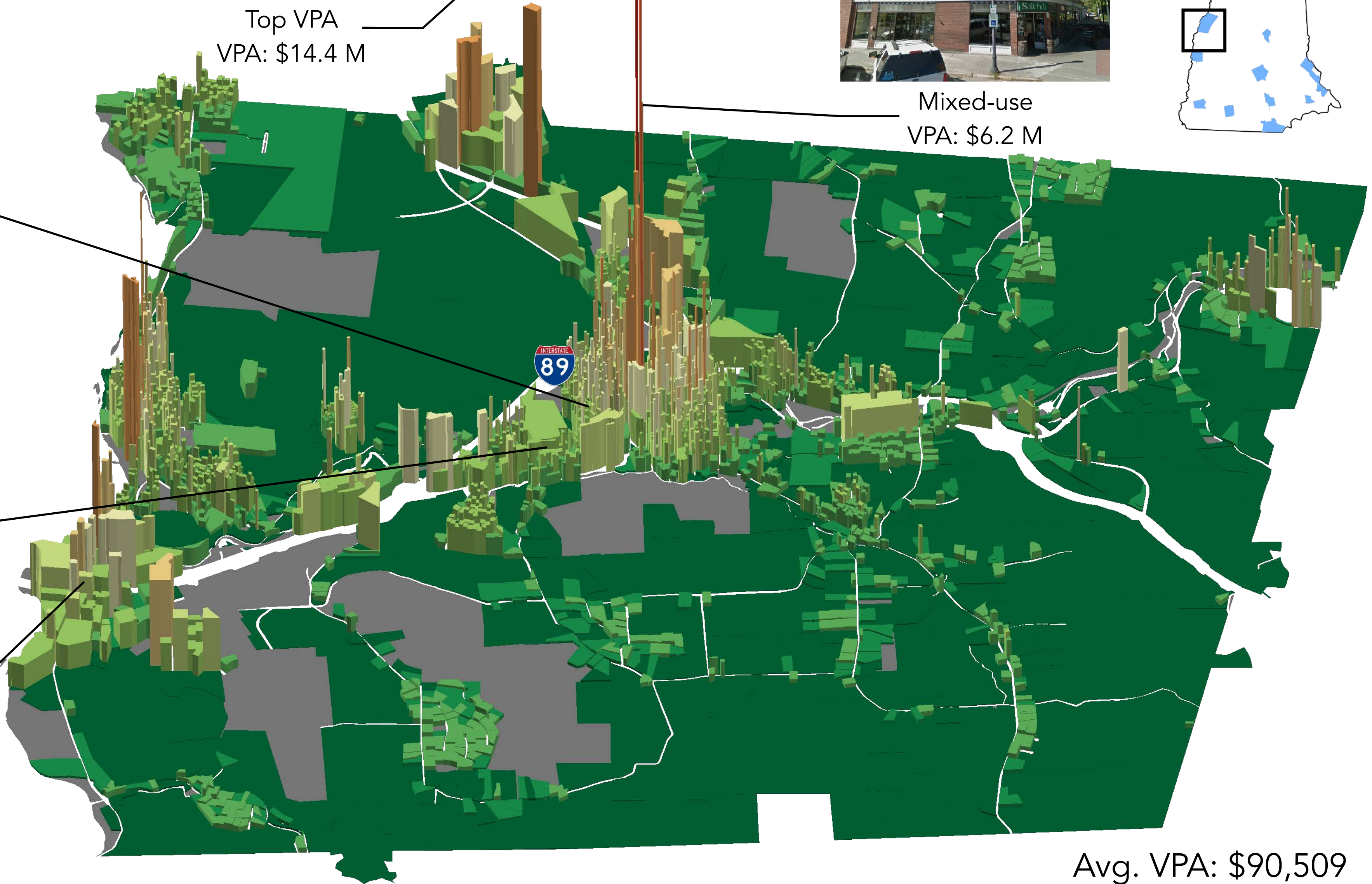
Multi Family  
Avg. VPA: \$1.2 M



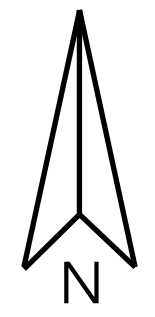
Single Family  
Avg. VPA: \$0.51 M



Commercial  
VPA: \$1.1 M



Avg. VPA: \$90,509



Question:

---

**But what about costs?**

# Geographically Relevant Expenses

VS.



Shaun Mulholland



Kirstin Kenniston

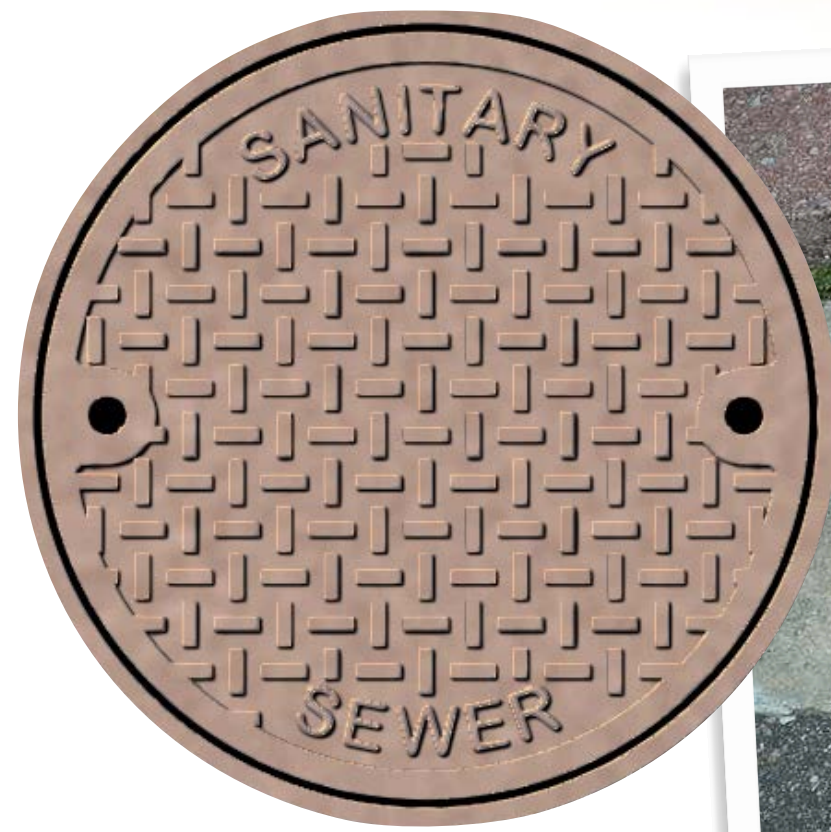
Location and Density Dependent

Not Location and Density Dependent

# Geographically Relevant Expenses



VS.



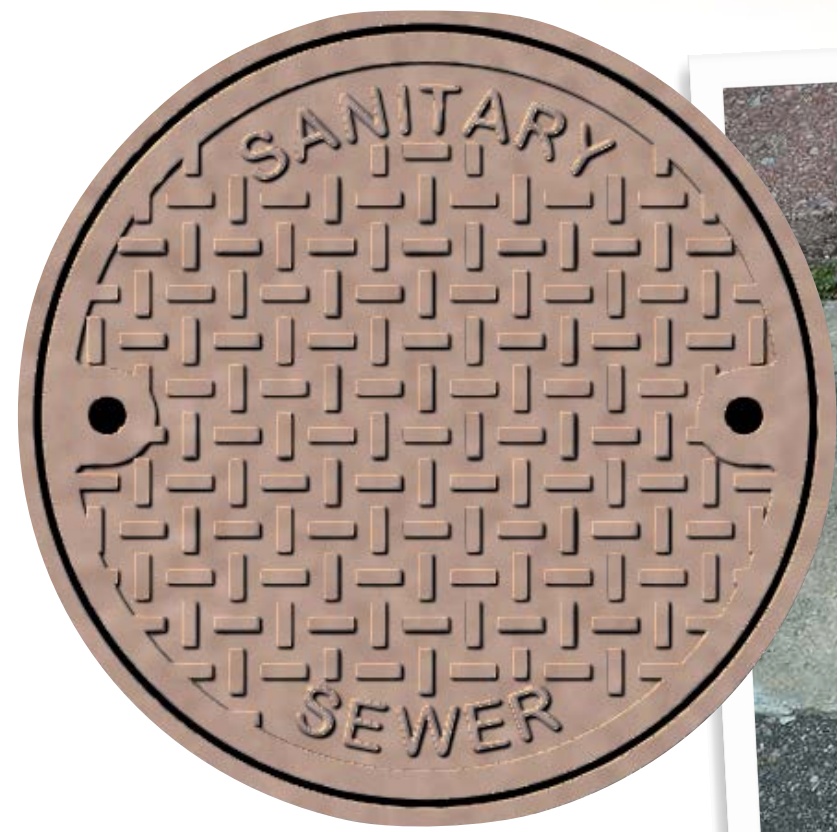
Location and Density Dependent



Not Location and Density Dependent



# Geographically Relevant Expenses



Location and Density Dependent

VS.



City Parks



Shaun Mulholland



Kirstin Kenniston

Not Location and Density Dependent

# Assets\*

\* According to the Municipal Finance Standards (CAFR)

# Assets\*



\* According to the Municipal Finance Standards (CAFR)

# Assets\*



\* According to the Municipal Finance Standards (CAFR)



# Assets\*



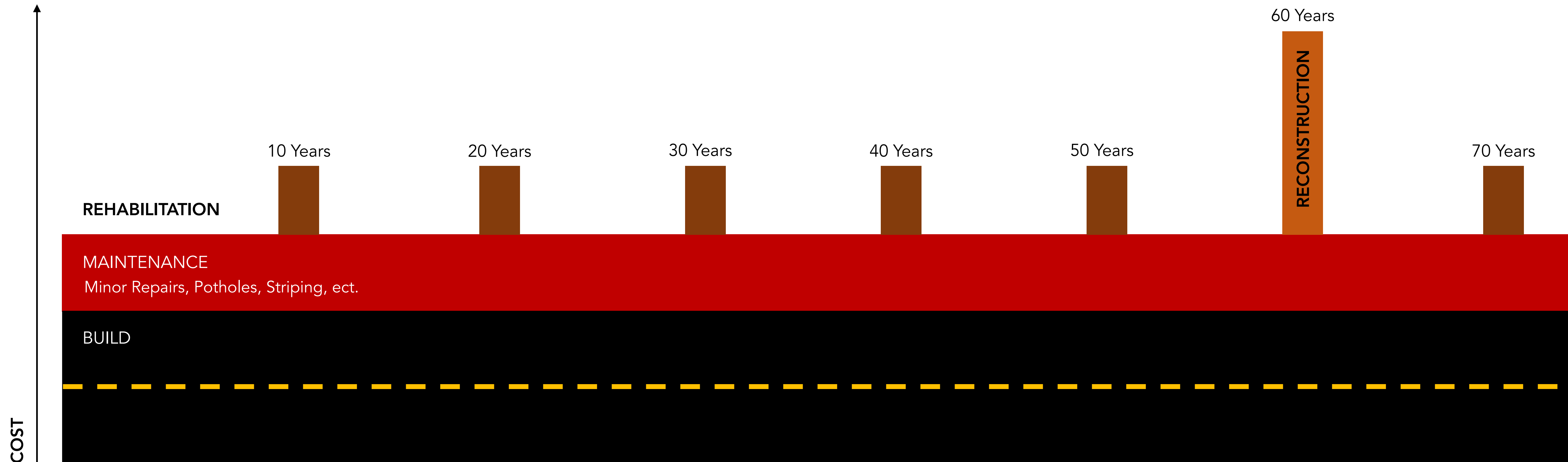
\* According to the Municipal Finance Standards (CAFR)

# Assets\*



\* According to the Municipal Finance Standards (CAFR)

# What Happens to a Road Over Time?



\* For illustration purposes as an 'average", and may fluctuate due to level of service, usage, scale of road, substrate, local cost of labor, etc.

Source: <https://indusinc.com/pavement-preservation/why-preservation-works/the-true-life-cycle-cost/>



# Debt Financing

How Infrastructure Costs are Funded

# The Cycle of Debt

Lebanon, NH

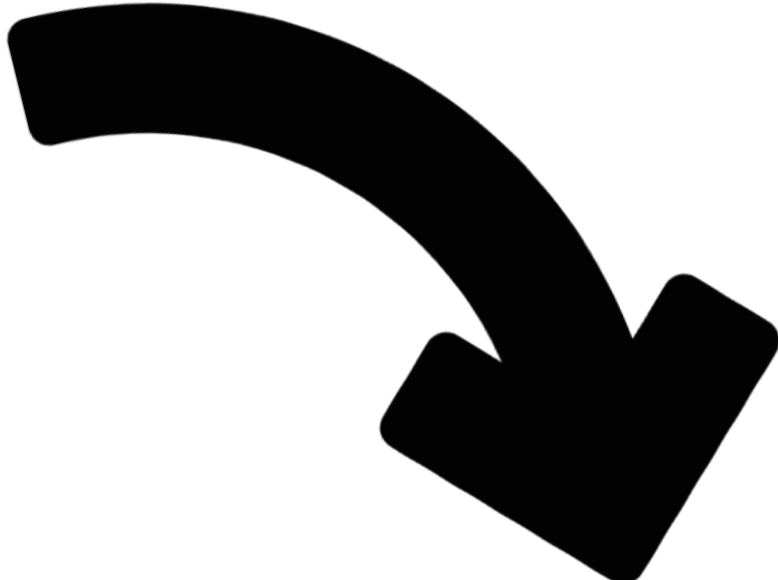
## Bad Roads



# The Cycle of Debt

Lebanon, NH

**Bad Roads**



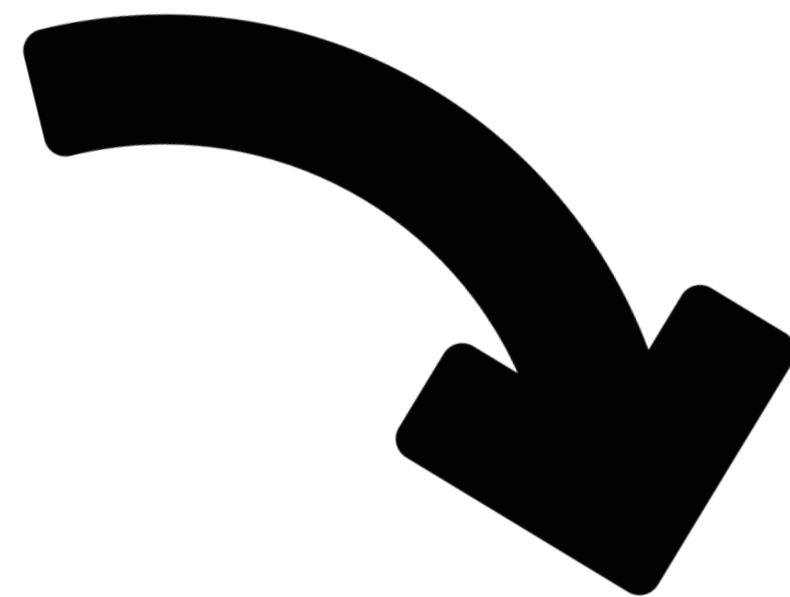
**Take out  
\$10M Bond**



# The Cycle of Debt

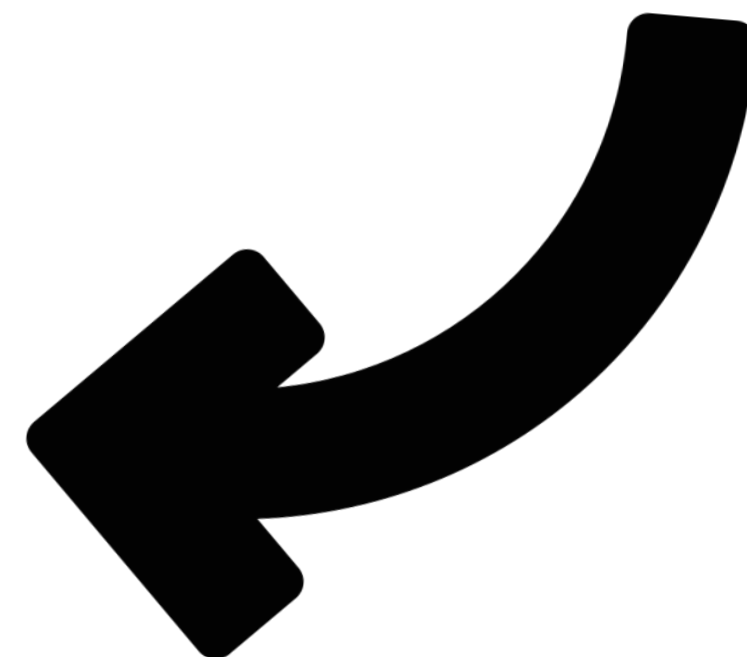
Lebanon, NH

**Bad Roads**



**Take out  
\$10M Bond**

**Pay ~\$500,000  
every year for  
20 years**



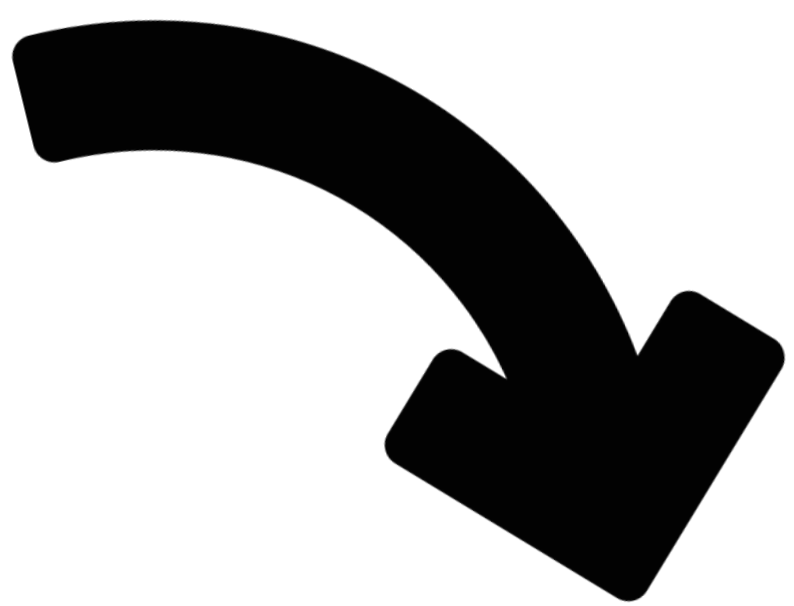
**2017 - 2022 CAPITAL IMPROVEMENT PROGRAM**  
**PROJECT: STREETS REHABILITATION AND RECONSTRUCTION**  
**ESTIMATED DEBT SERVICE:**

Year	Principal	General Fund Interest	Total
2021	\$315,000	\$201,075	\$516,075
2022	\$422,500	\$248,171	\$670,671
2023	\$492,500	\$276,058	\$768,558
2024	\$492,500	\$258,600	\$751,100
2025	\$492,500	\$243,825	\$736,325
2026	\$492,500	\$229,050	\$721,550
2027	\$492,500	\$214,275	\$706,775
2028	\$492,500	\$199,500	\$692,000
2029	\$492,500	\$184,725	\$677,225
2030	\$492,500	\$169,950	\$662,450
2031	\$492,500	\$155,175	\$647,675
2032	\$492,500	\$140,400	\$632,900
2033	\$492,500	\$125,625	\$618,125
2034	\$492,500	\$110,850	\$603,350
2035	\$492,500	\$96,075	\$588,575
2036	\$492,500	\$81,300	\$573,800
2037	\$492,500	\$66,525	\$559,025
2038	\$492,500	\$51,750	\$544,250
2039	\$492,500	\$36,975	\$529,475
2040	\$492,500	\$22,200	\$514,700
2041	\$177,500	\$7,425	\$184,925
2042	\$70,000	\$2,100	\$72,100
<b>Total</b>	<b>\$9,850,000</b>	<b>\$3,121,629</b>	<b>\$12,971,629</b>

# The Cycle of Debt

Lebanon, NH

## Bad Roads



## Take out \$10M Bond

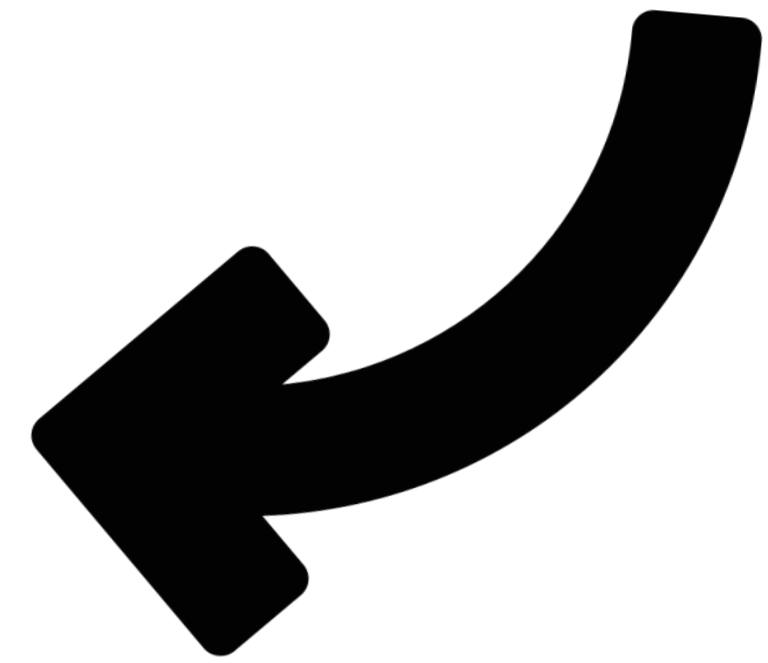
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<b>Total</b>	<b>\$9,850,000</b>	<b>\$3,121,629</b>	<b>\$12,971,629</b>

...while also paying an additional \$3M in Interest



Pay ~\$500,000 every year for 20 years





# The Cycle of Debt

Lebanon, NH

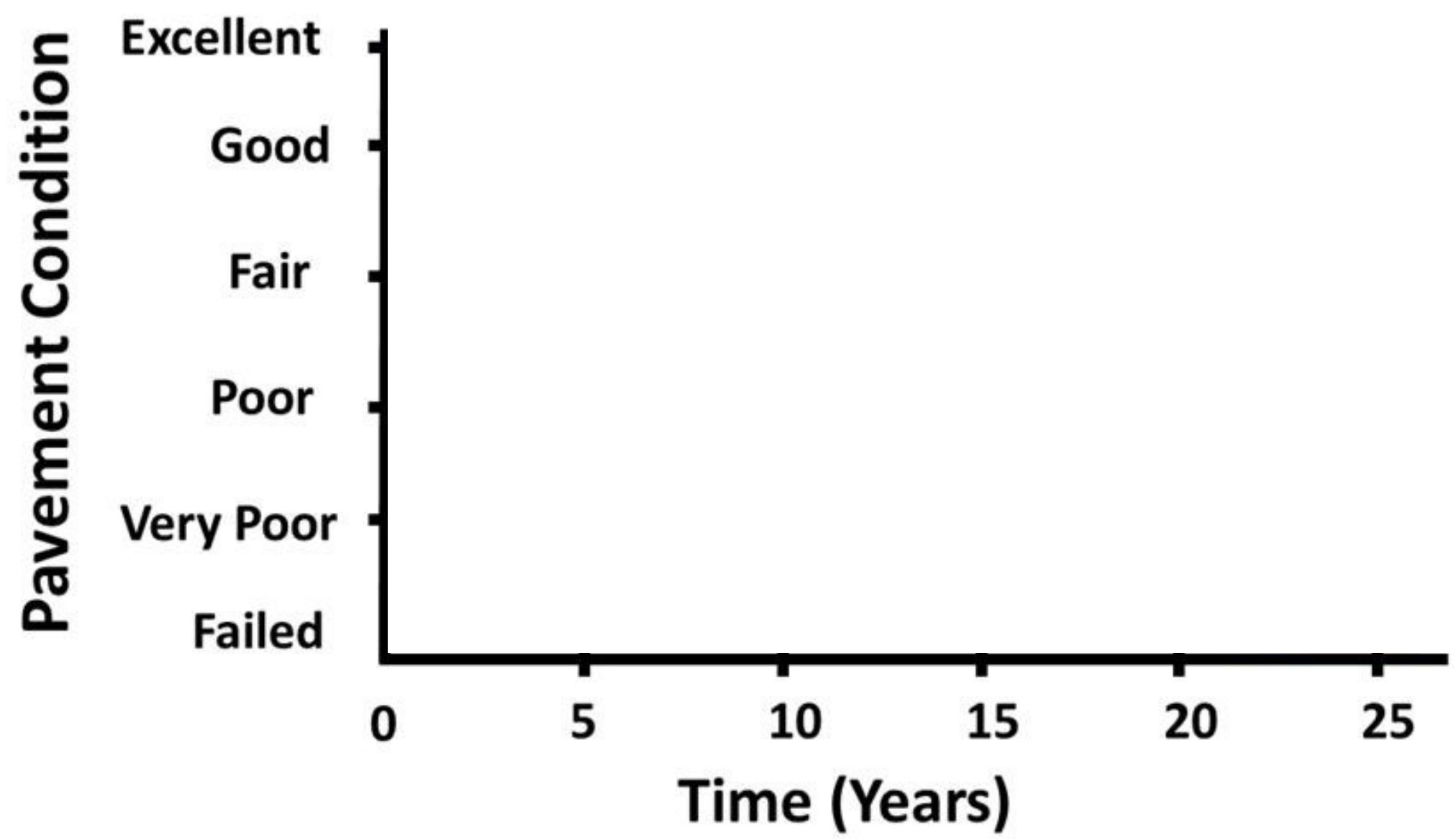
## Bad Roads



## Take out \$10M Bond

...while also paying an additional \$3M in Interest

## Pay ~\$500,000 every year for 20 years



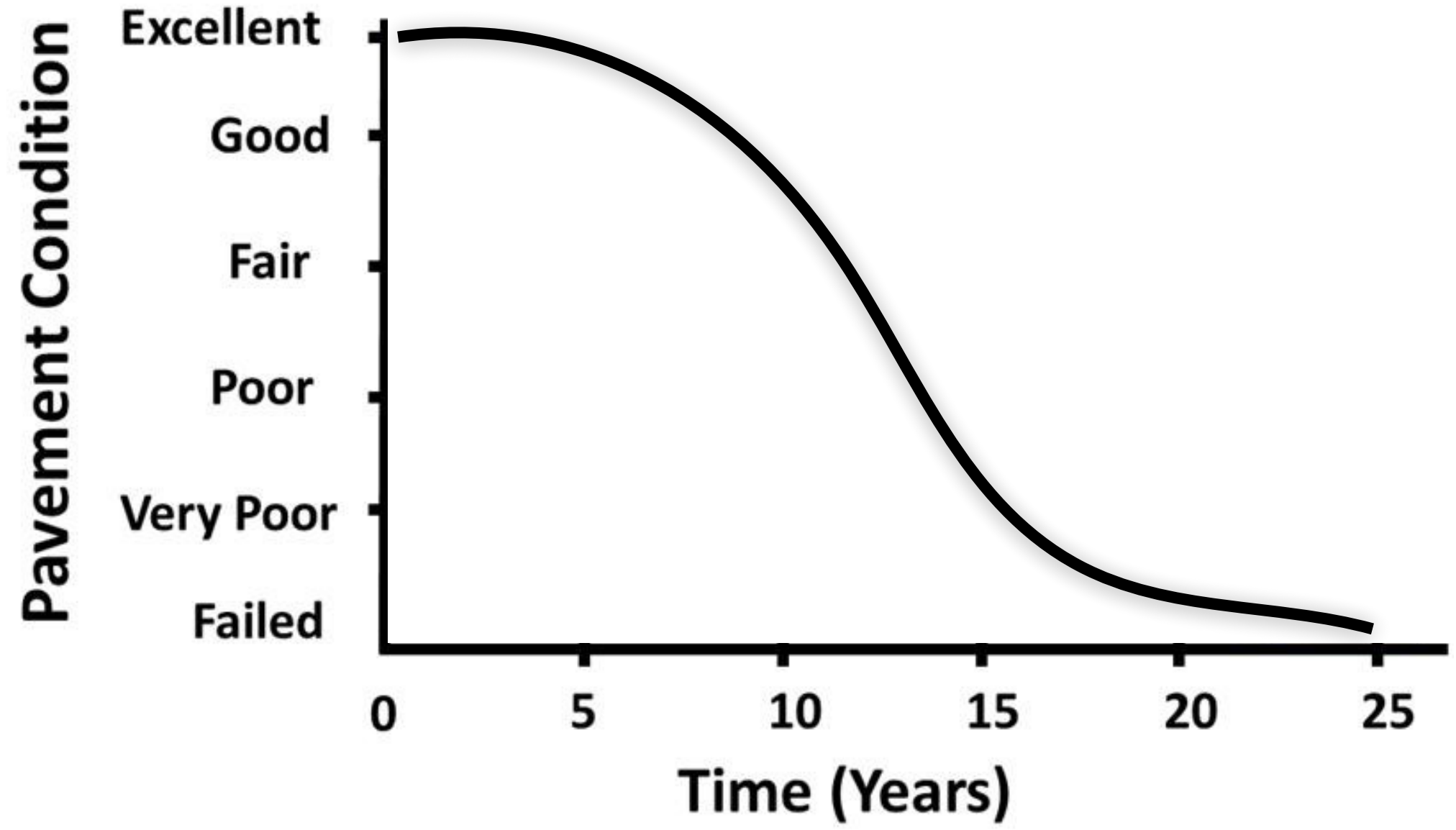
**Bad Roads**



**Take out  
\$10M Bond**

**...while also paying  
an additional \$3M  
in Interest**

**Pay ~\$500,000  
every year for  
20 years**



# The Cycle of Debt

Lebanon, NH

**Bad Roads**



**Take out  
\$10M Bond**



**Pay ~\$500,000  
every year for  
20 years**

**...while also paying  
an additional \$3M  
in Interest**

# The Cycle of Debt

Lebanon, NH

**Bad Roads**



**Take out  
\$10M Bond**



**Pay ~\$500,000  
every year for  
20 years**

**...while also paying  
an additional \$3M  
in Interest**

Dollars (\$)

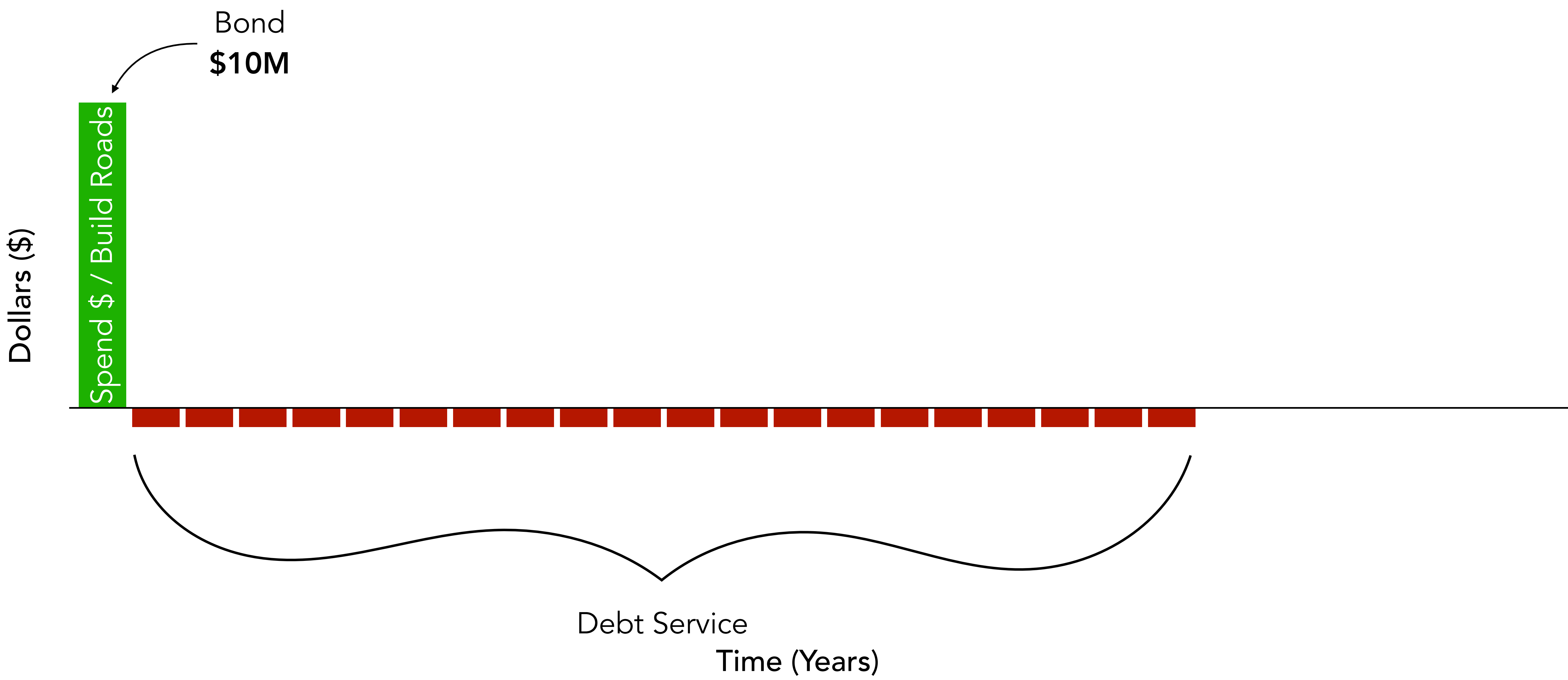


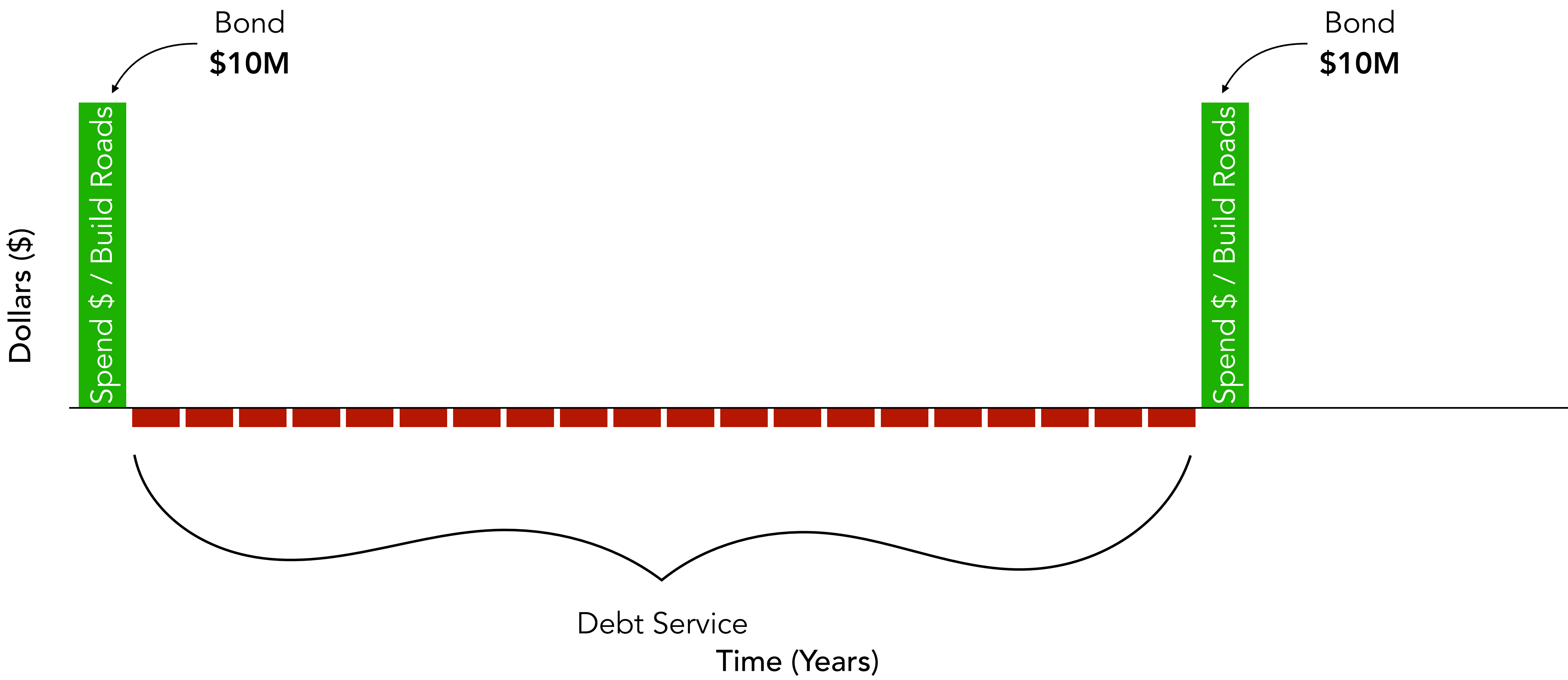
Time (Years)

Dollars (\$)

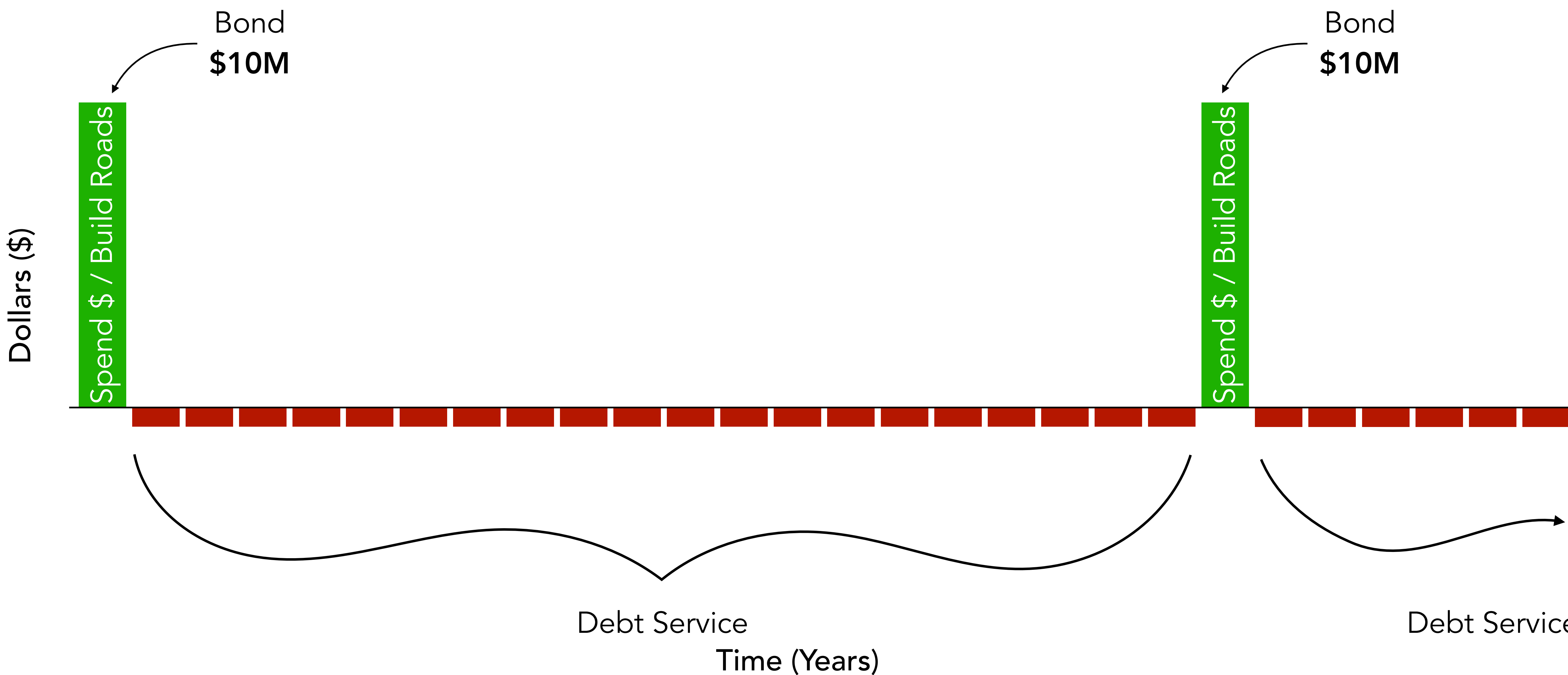


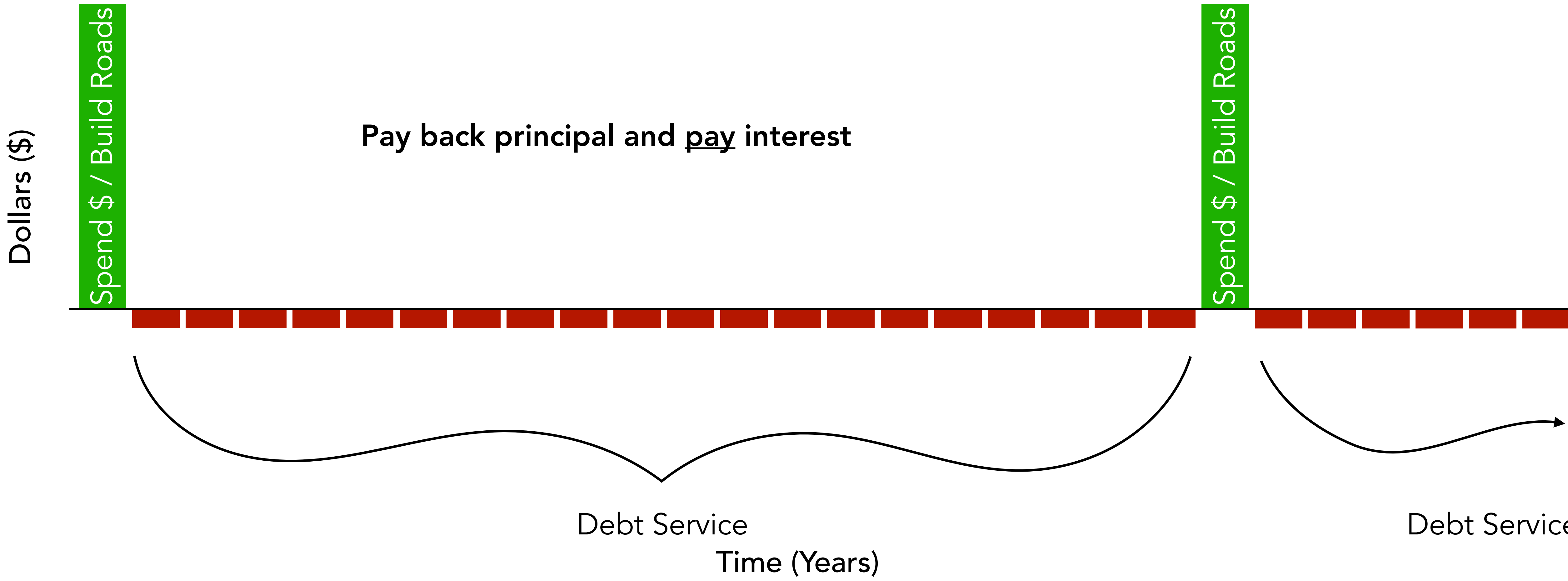
Time (Years)

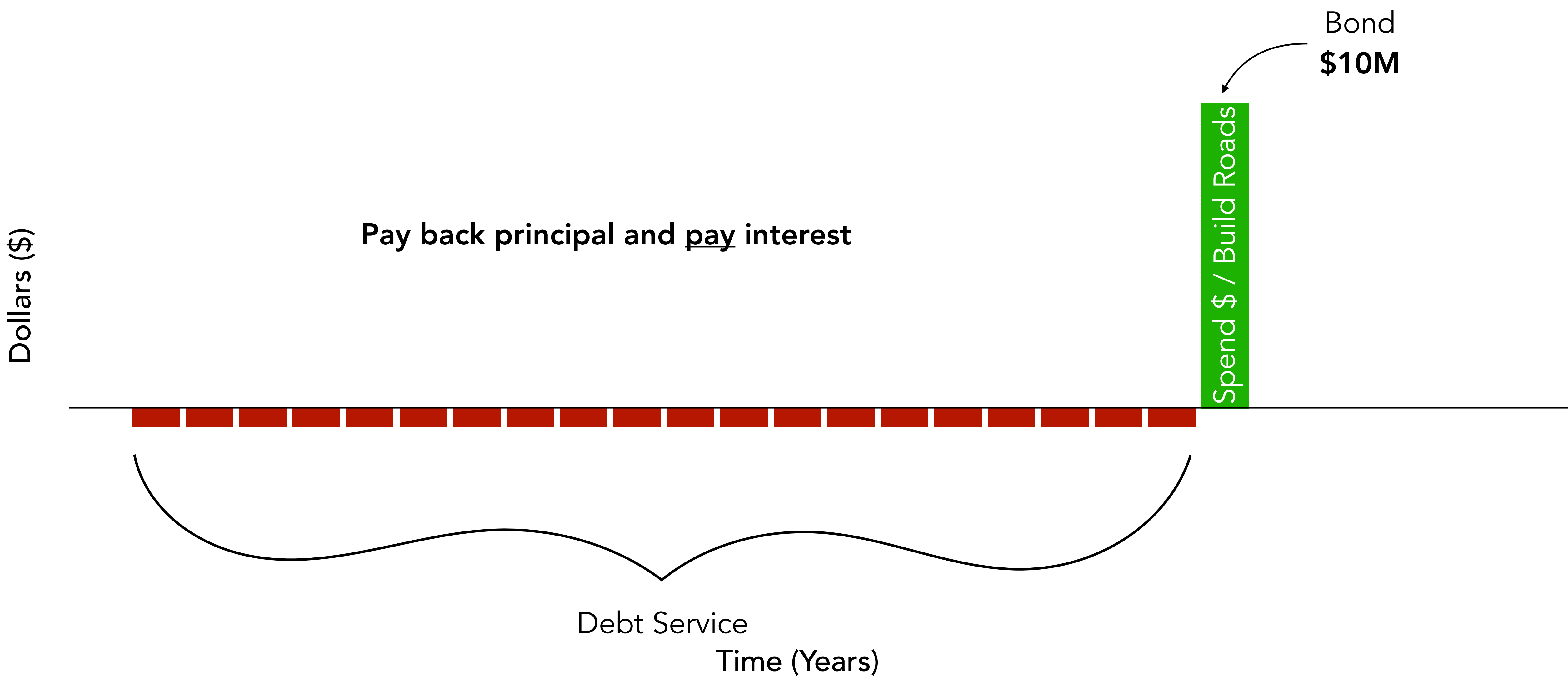












Dollars (\$)

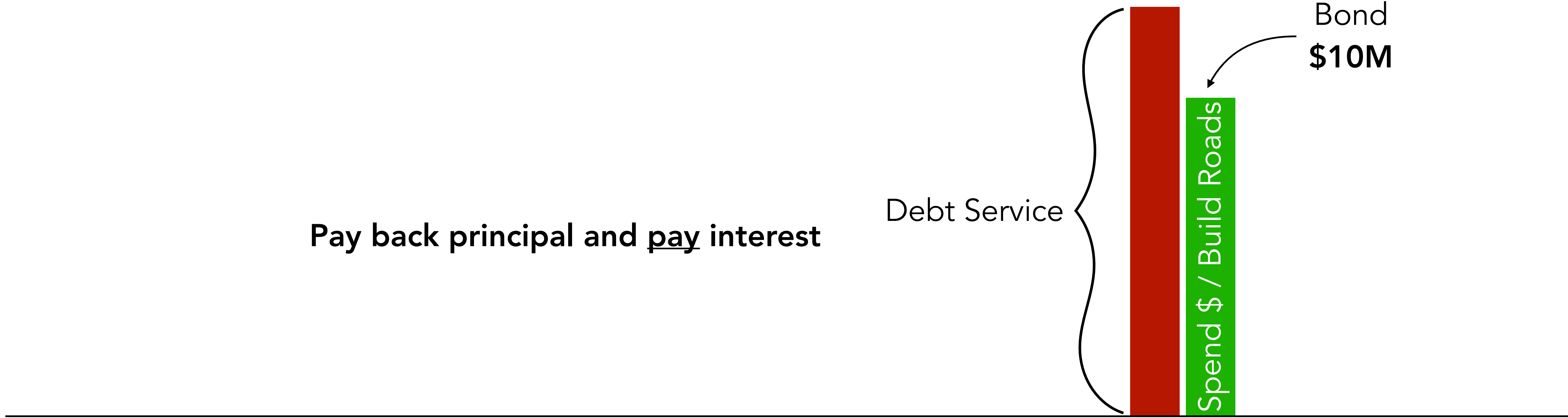
Pay back principal and pay interest

Debt Service

Spend \$ / Build Roads

Bond  
**\$10M**

Time (Years)



Dollars (\$)

Pay back principal and pay interest

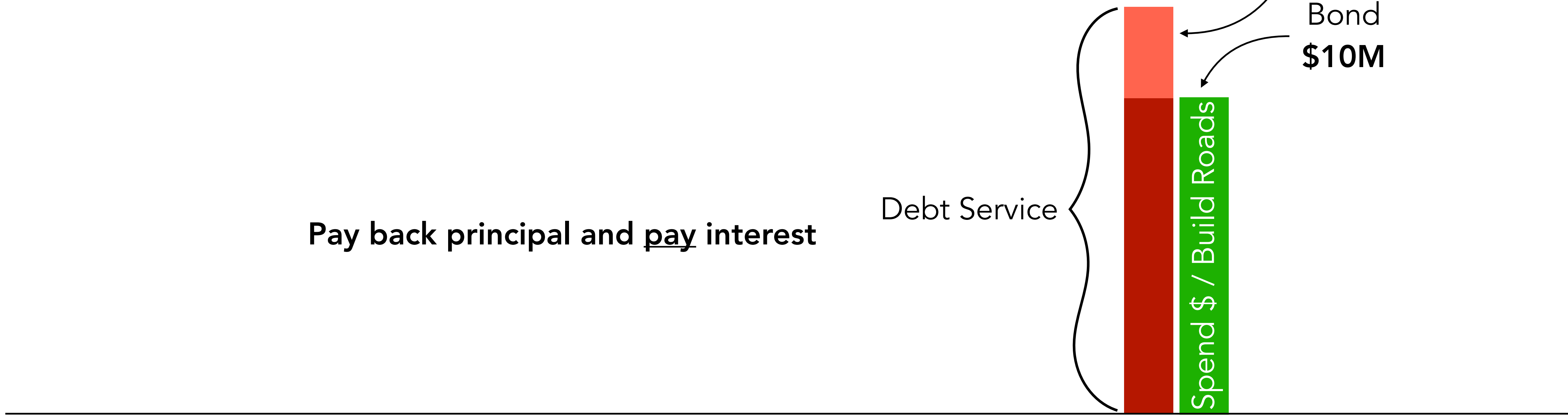
Debt Service

Interest paid  
**\$3M**

Bond  
**\$10M**

Spend \$ / Build Roads

Time (Years)



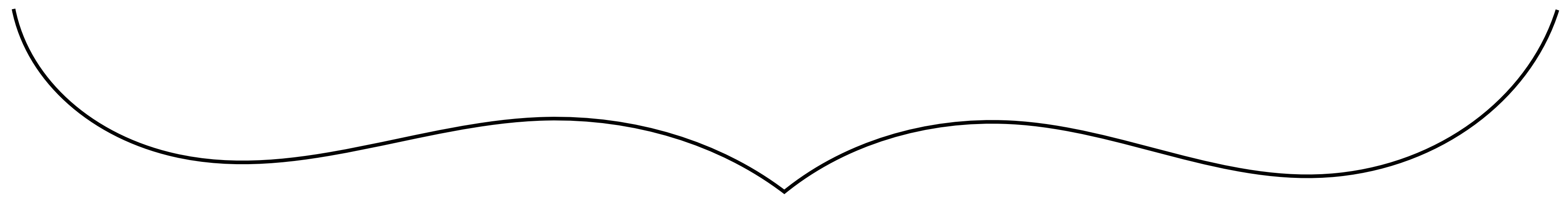
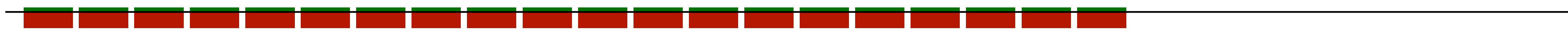
Dollars (\$)

Build fund and collect interest

Time (Years)

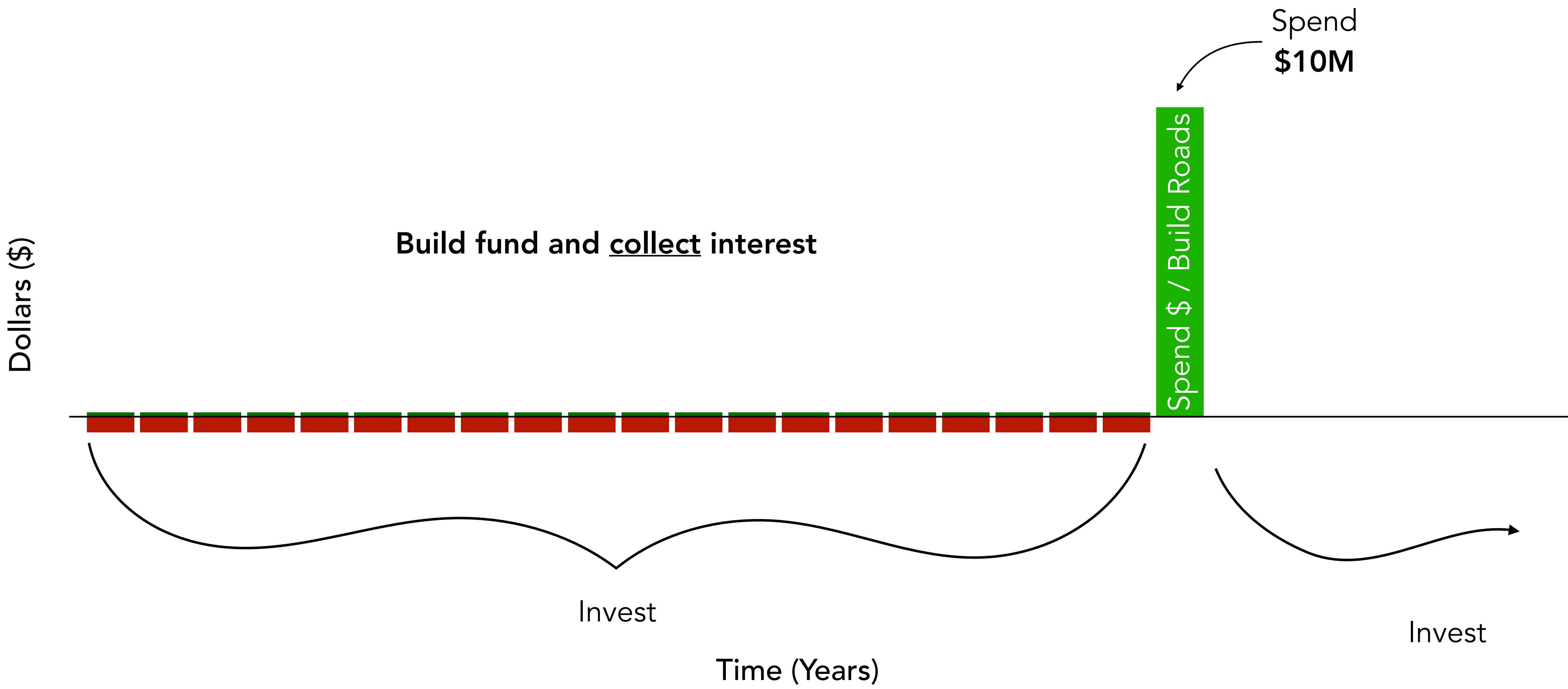
Dollars (\$)

Build fund and collect interest

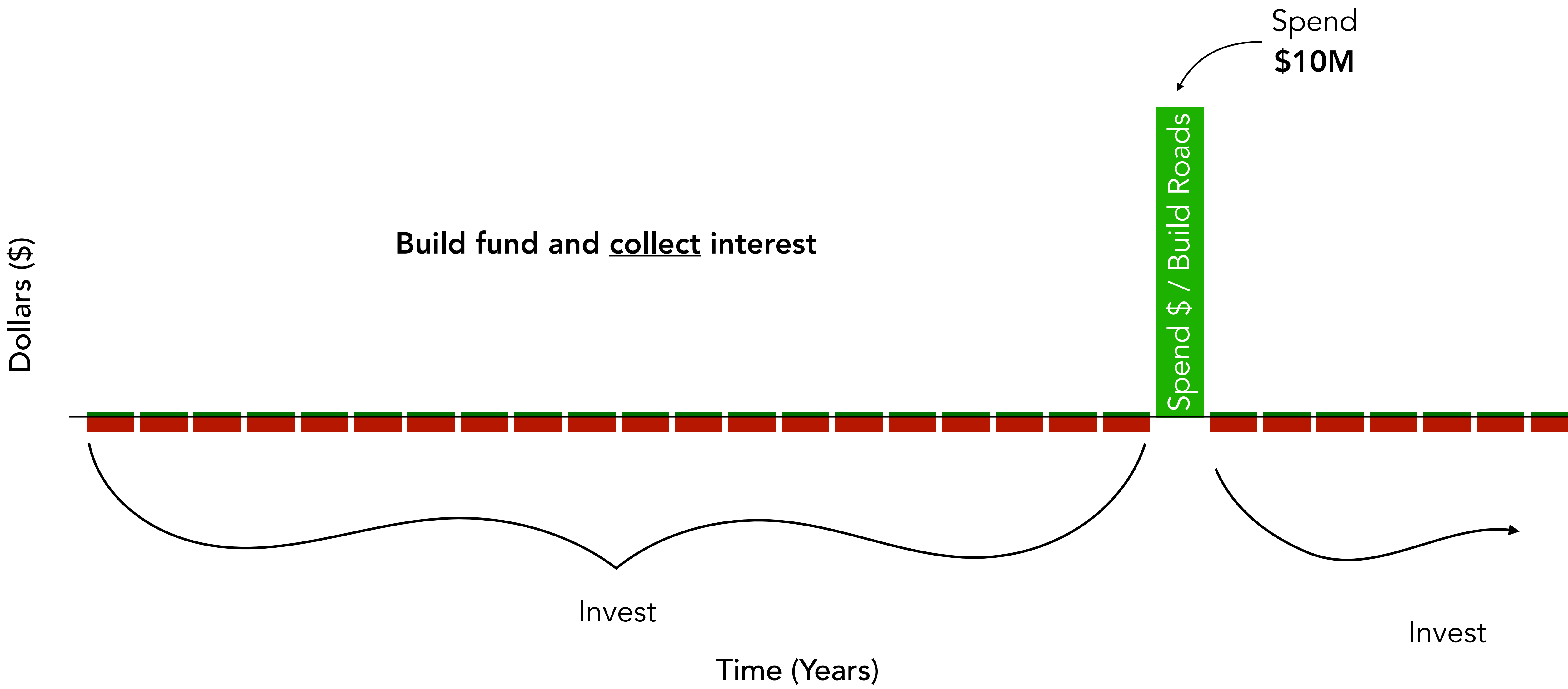


Invest

Time (Years)







Dollars (\$)

Build fund and collect interest

Spend \$ / Build Roads



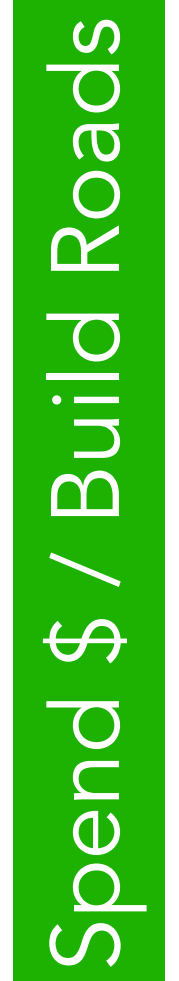
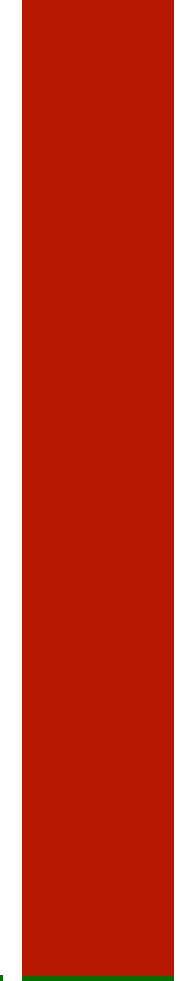
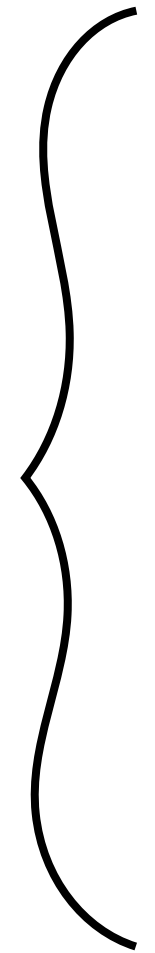
Invest

Time (Years)

Dollars (\$)

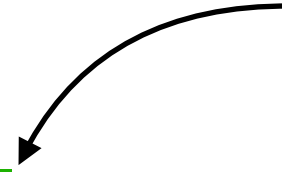
Build fund and collect interest

Invest



Spend \$ / Build Roads

Spend  
**\$10M**



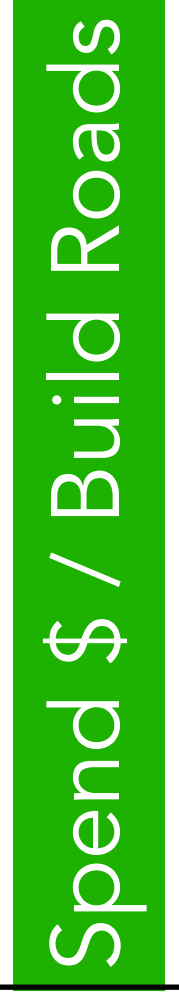
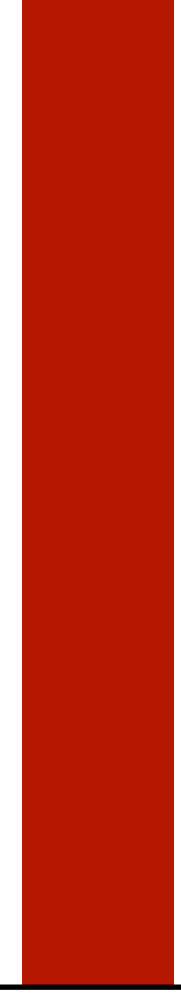
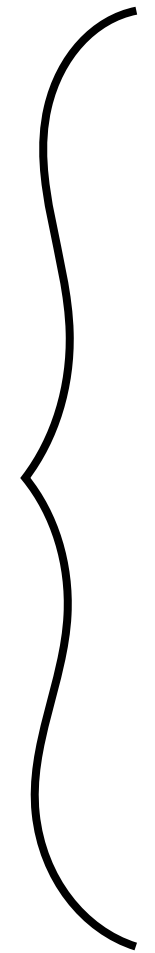
Time (Years)



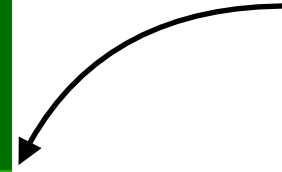
Dollars (\$)

Build fund and collect interest

Invest



Spend  
**\$10M**

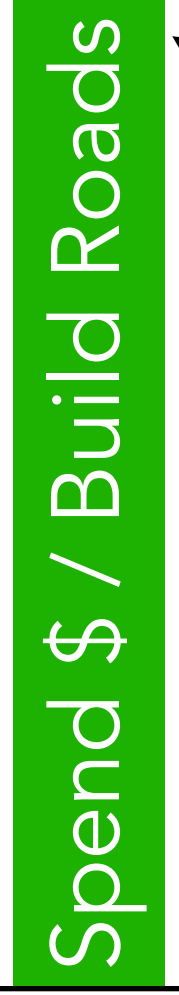
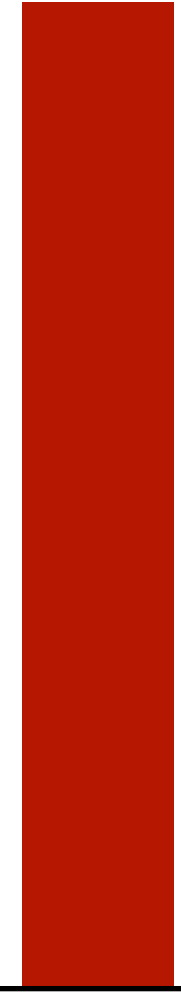
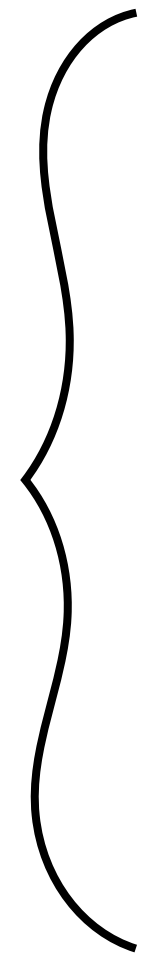


Time (Years)

Dollars (\$)

Build fund and collect interest

Invest



Spend  
**\$10M**

Interest gained

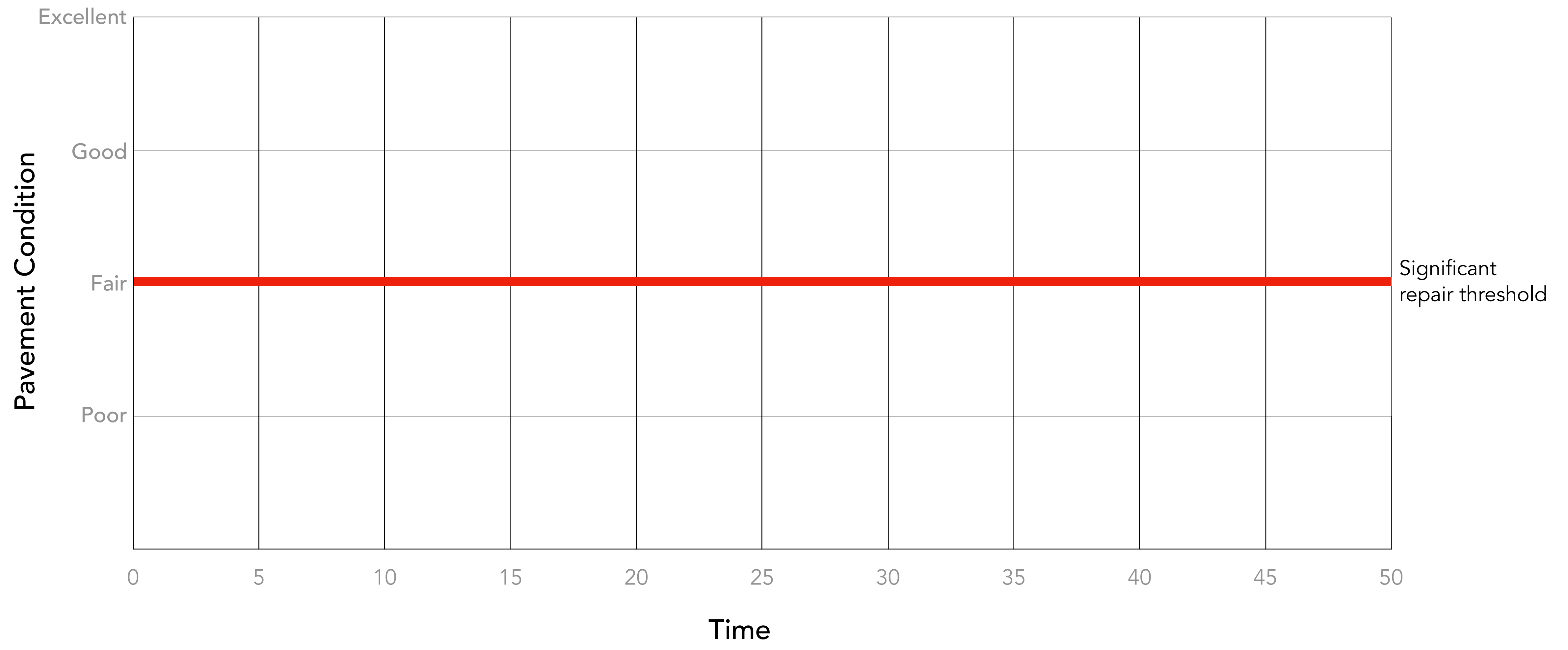
Time (Years)





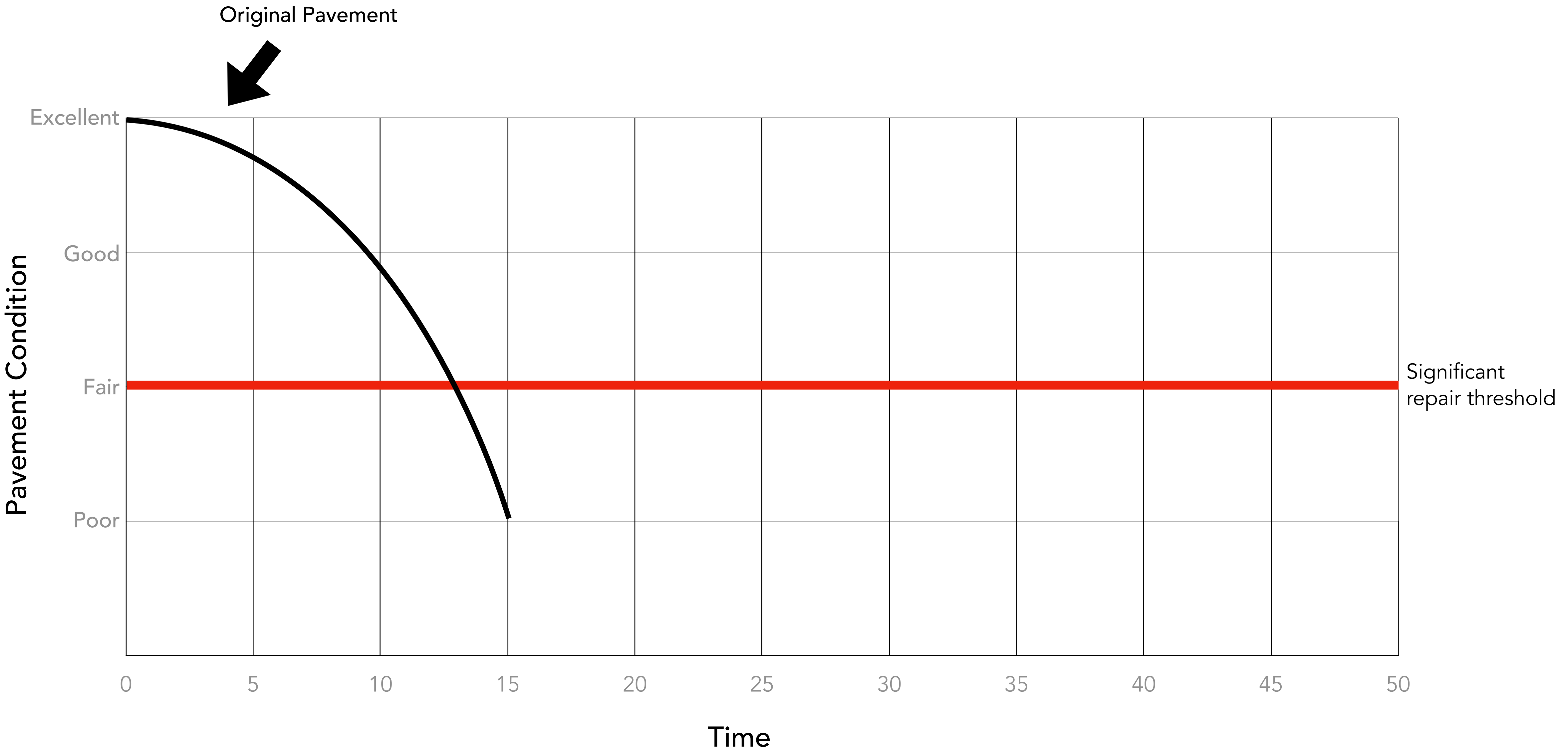
# Road Maintenance Strategies

Rehabilitation vs Preservation maintenance.



# Rehabilitation Maintenance

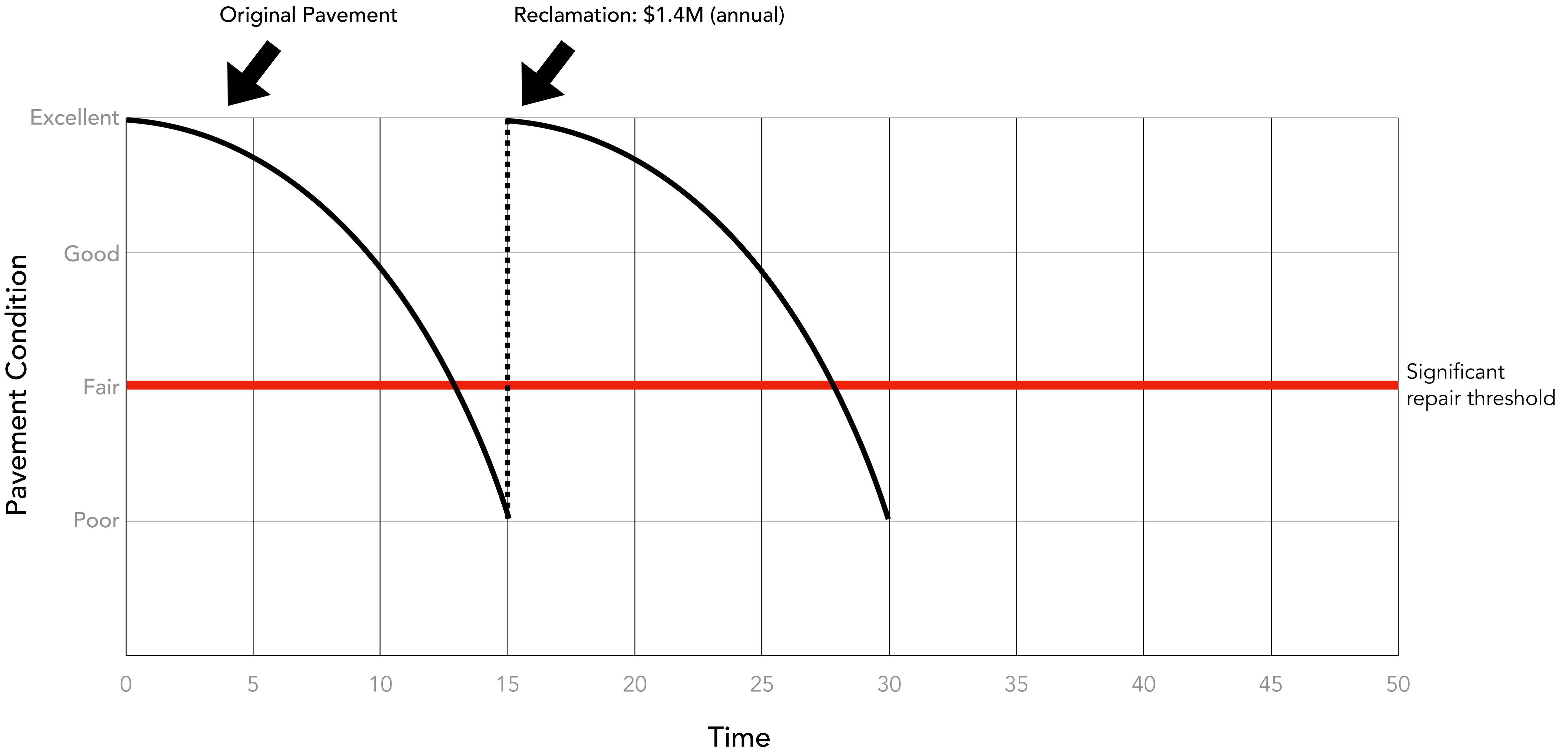
Lebanon, NH





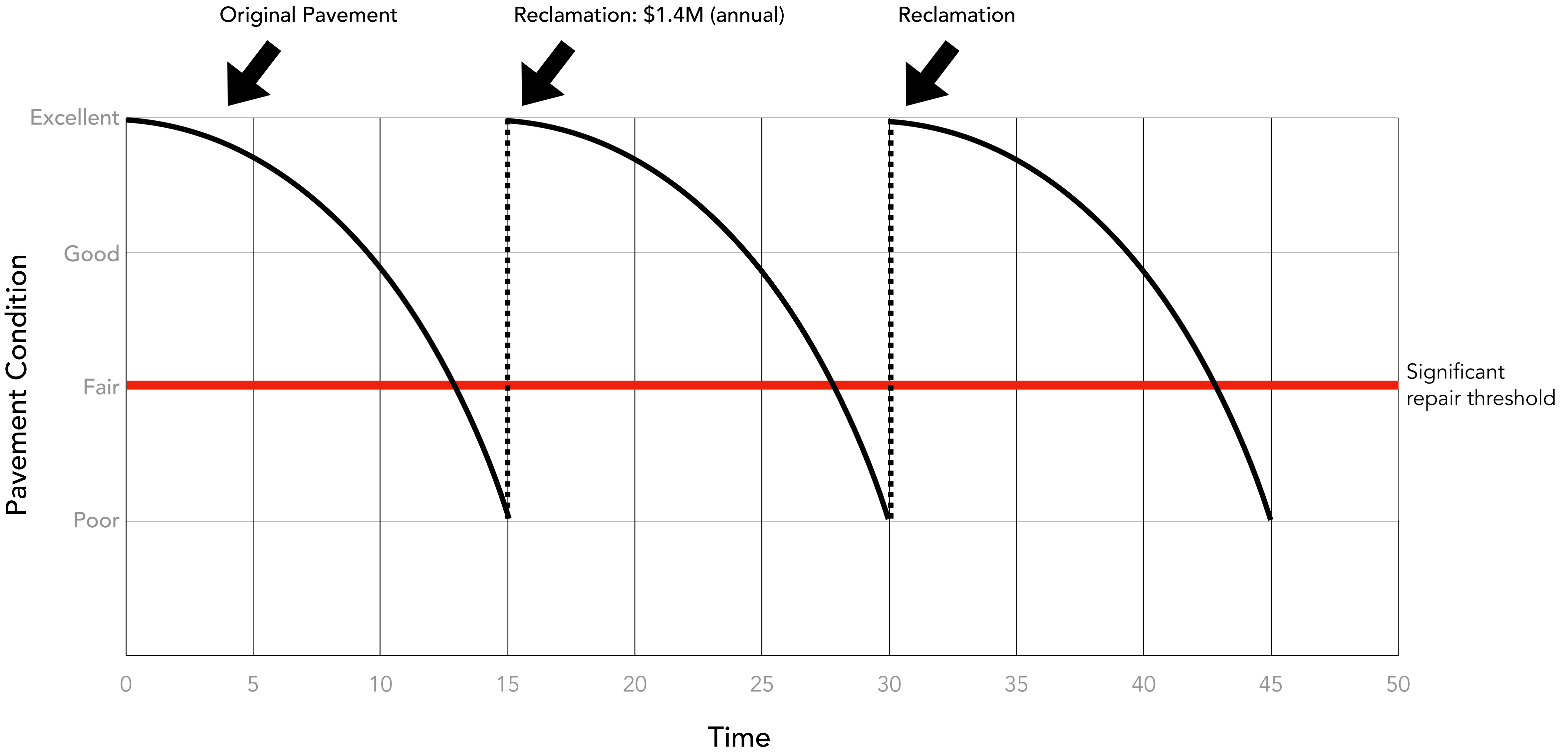
# Rehabilitation Maintenance

Lebanon, NH



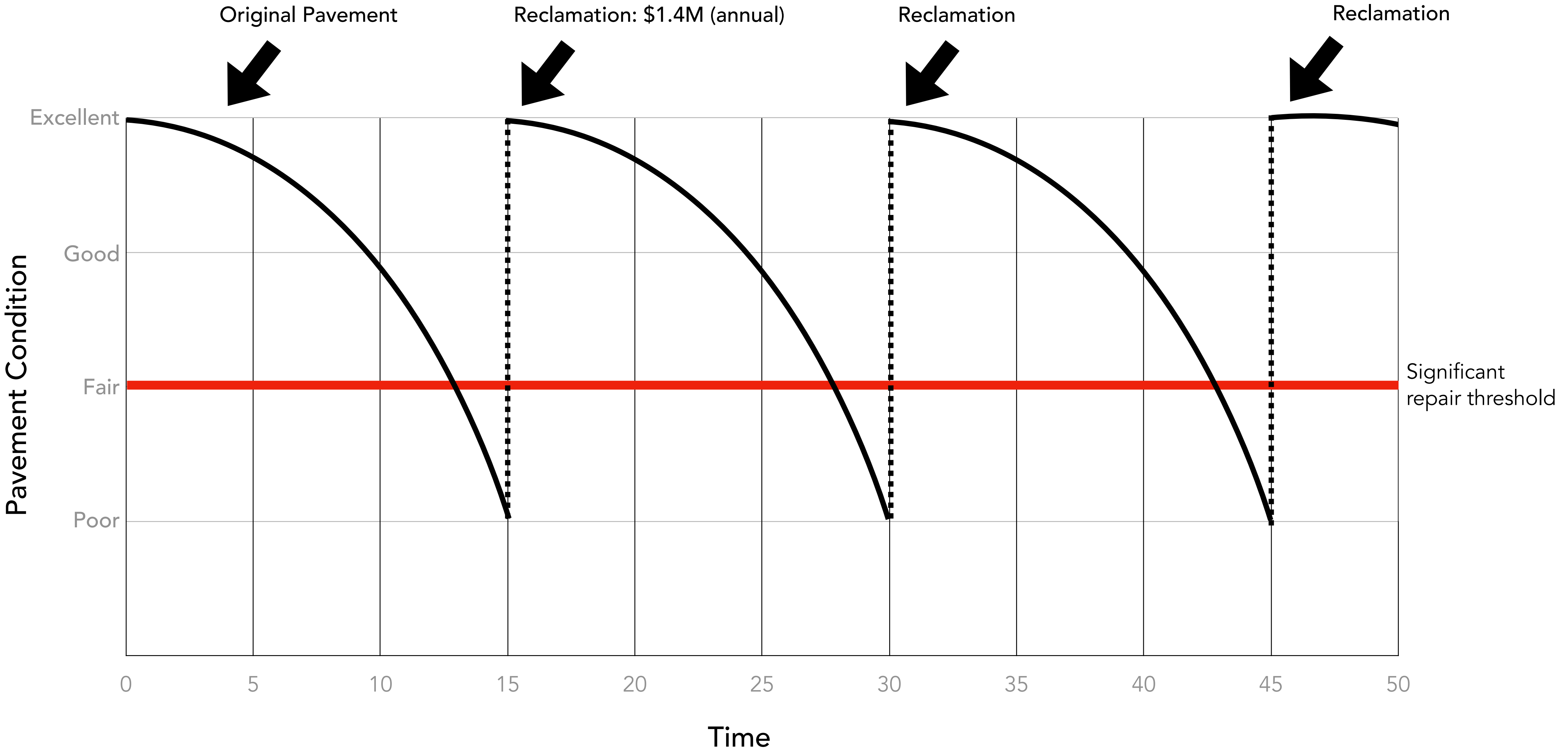
# Rehabilitation Maintenance

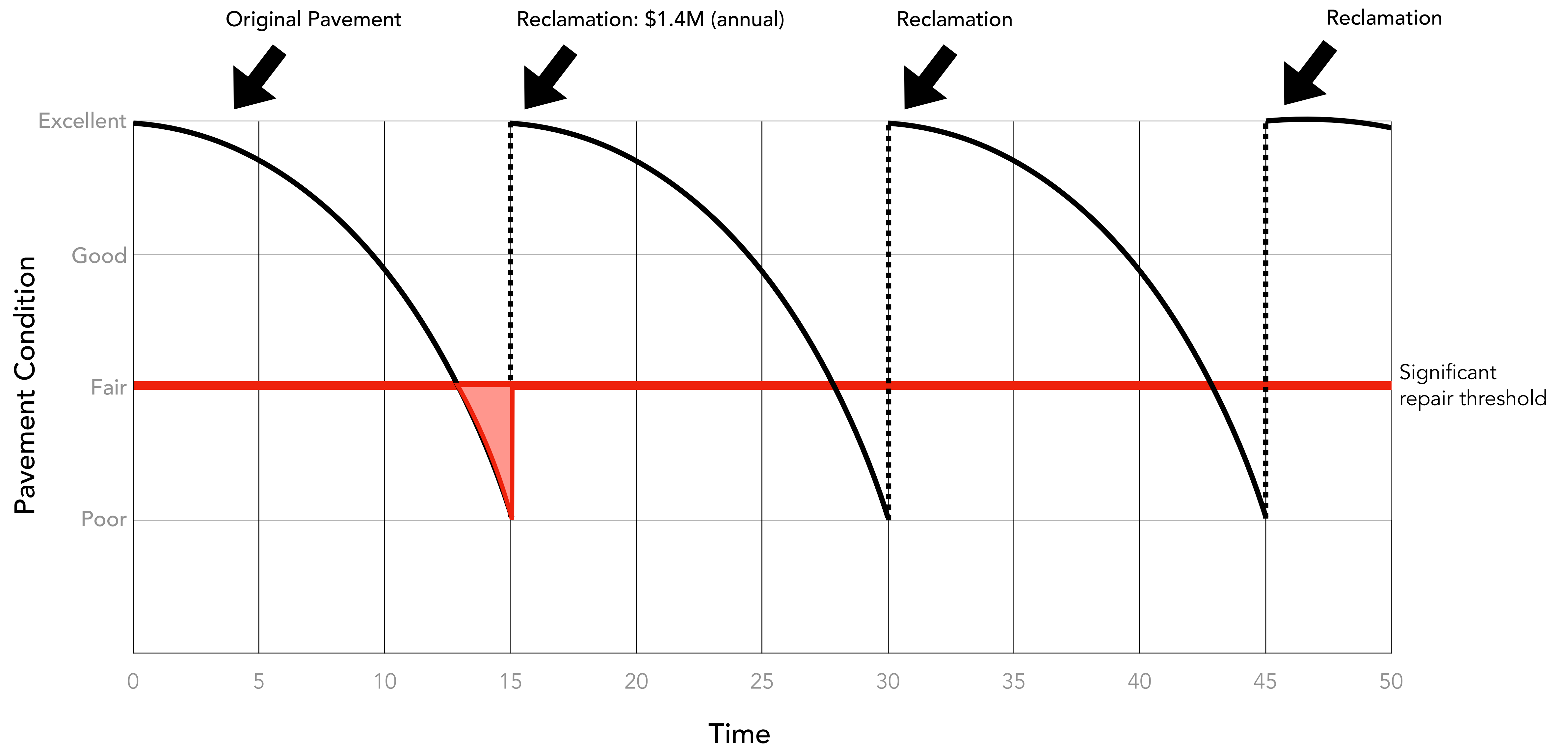
Lebanon, NH



# Rehabilitation Maintenance

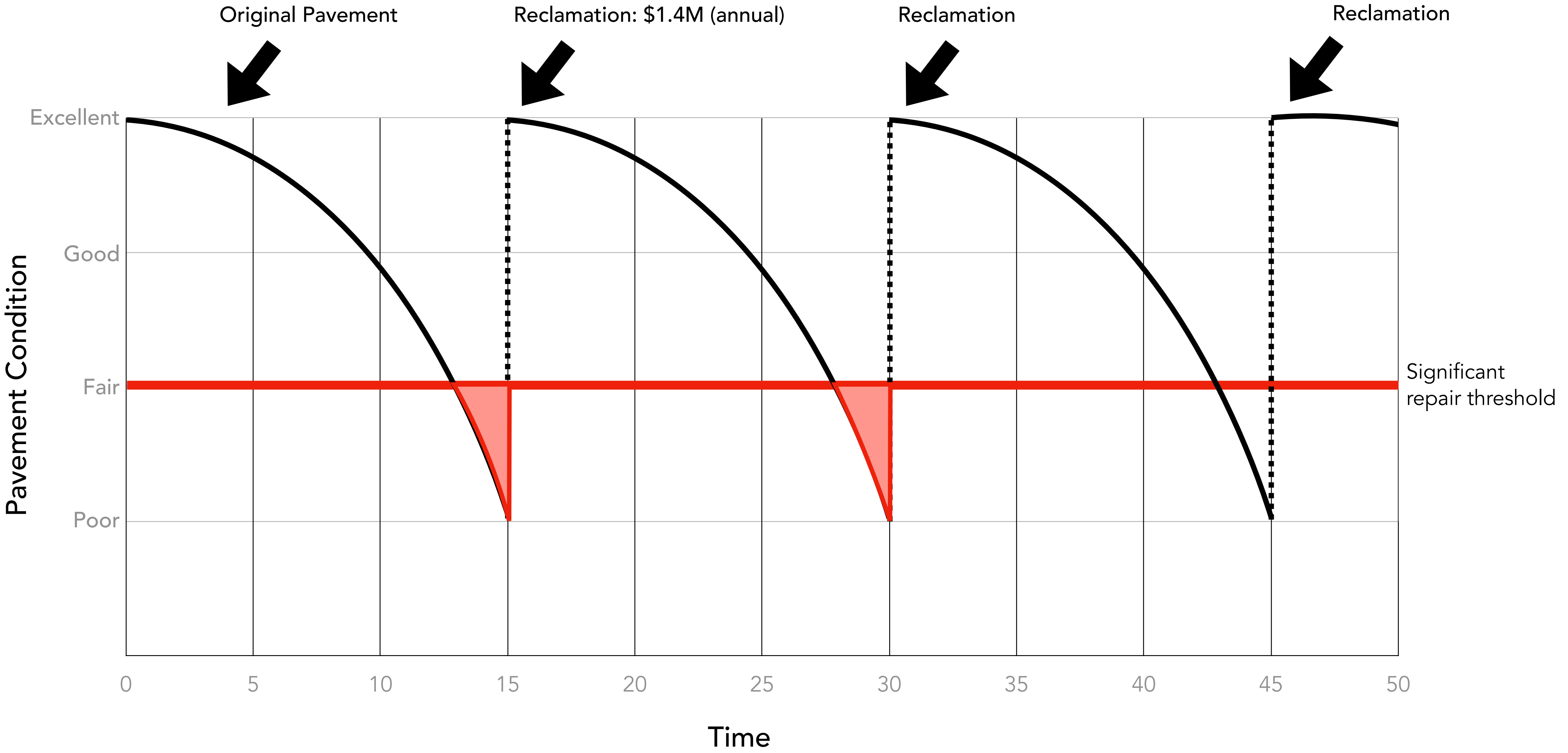
Lebanon, NH



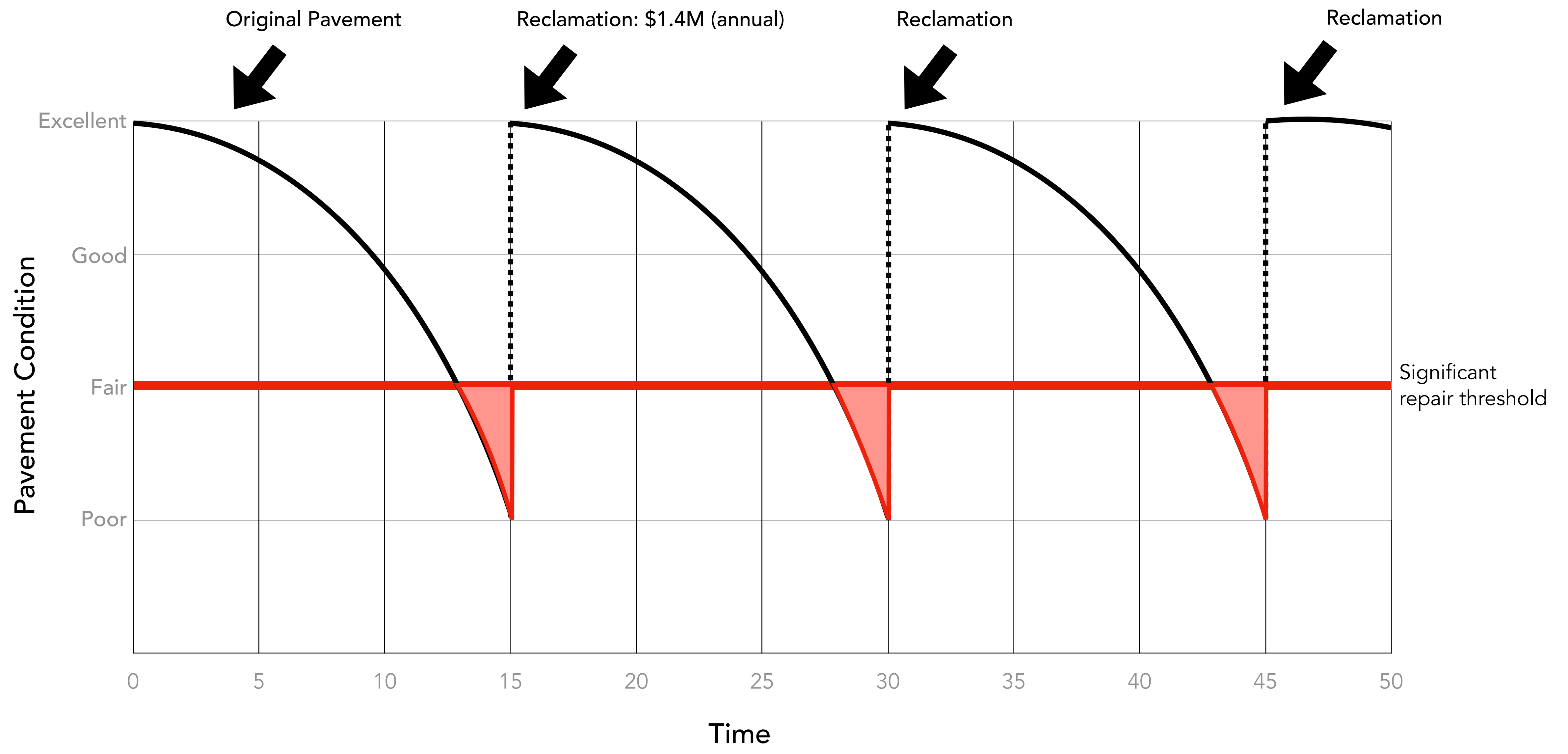


# Rehabilitation Maintenance

Lebanon, NH

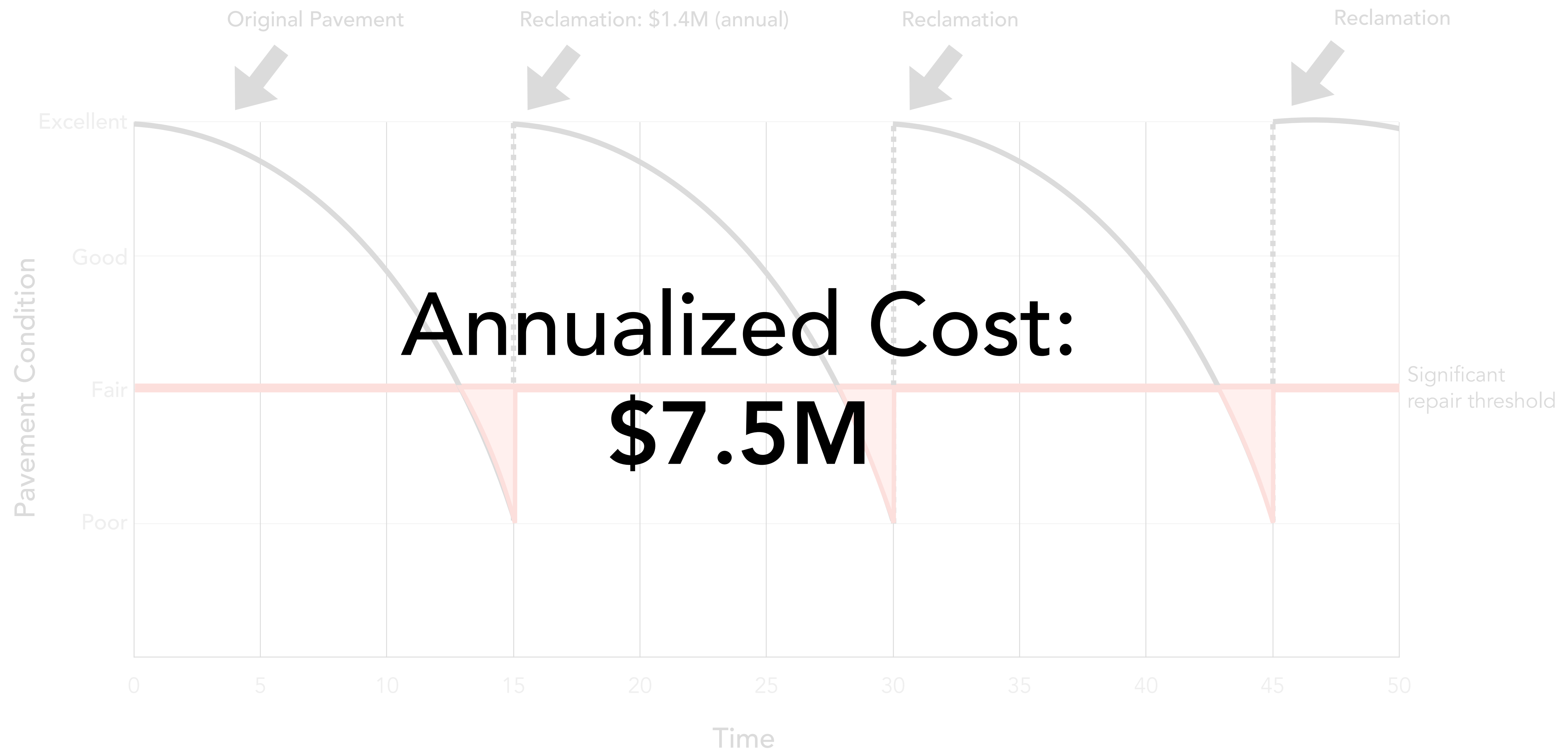


URBAN3  
**Rehabilitation Maintenance**  
Lebanon, NH



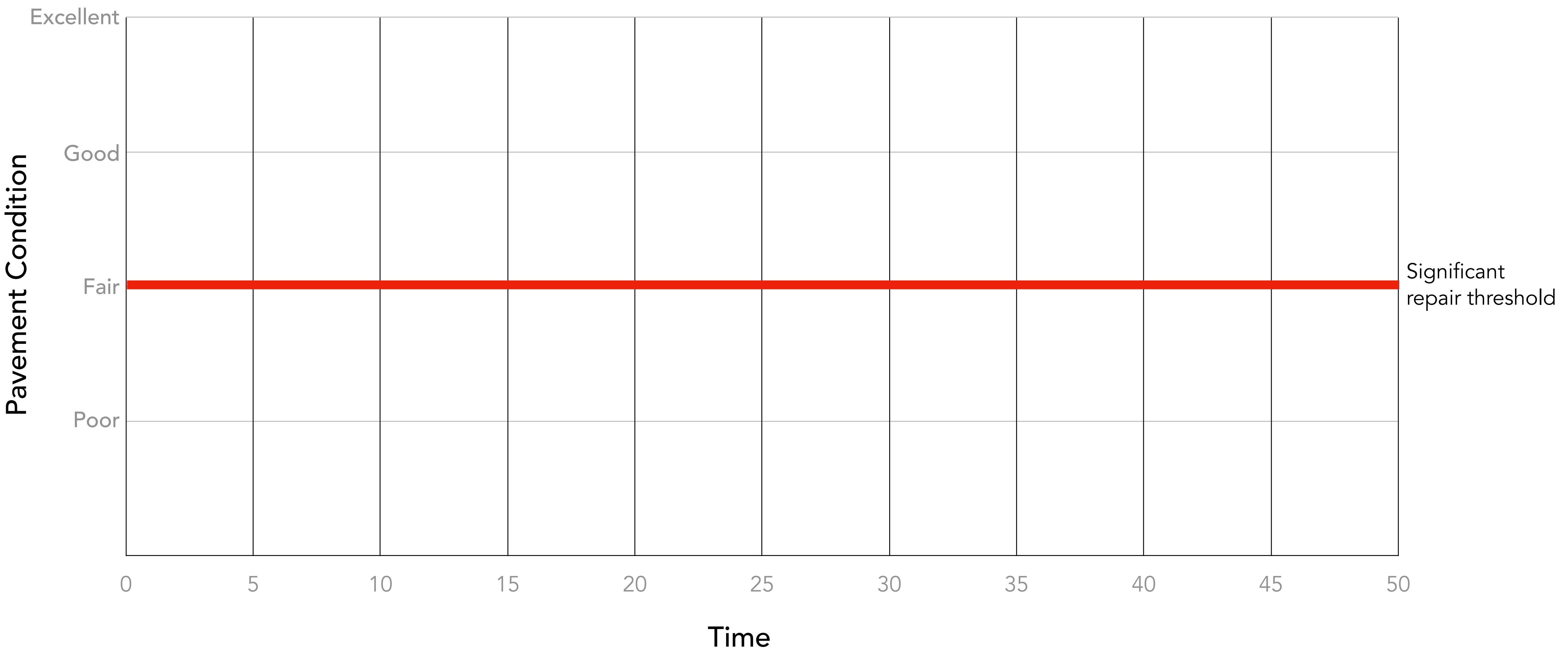
# Rehabilitation Maintenance

Lebanon, NH



# Preservation Maintenance

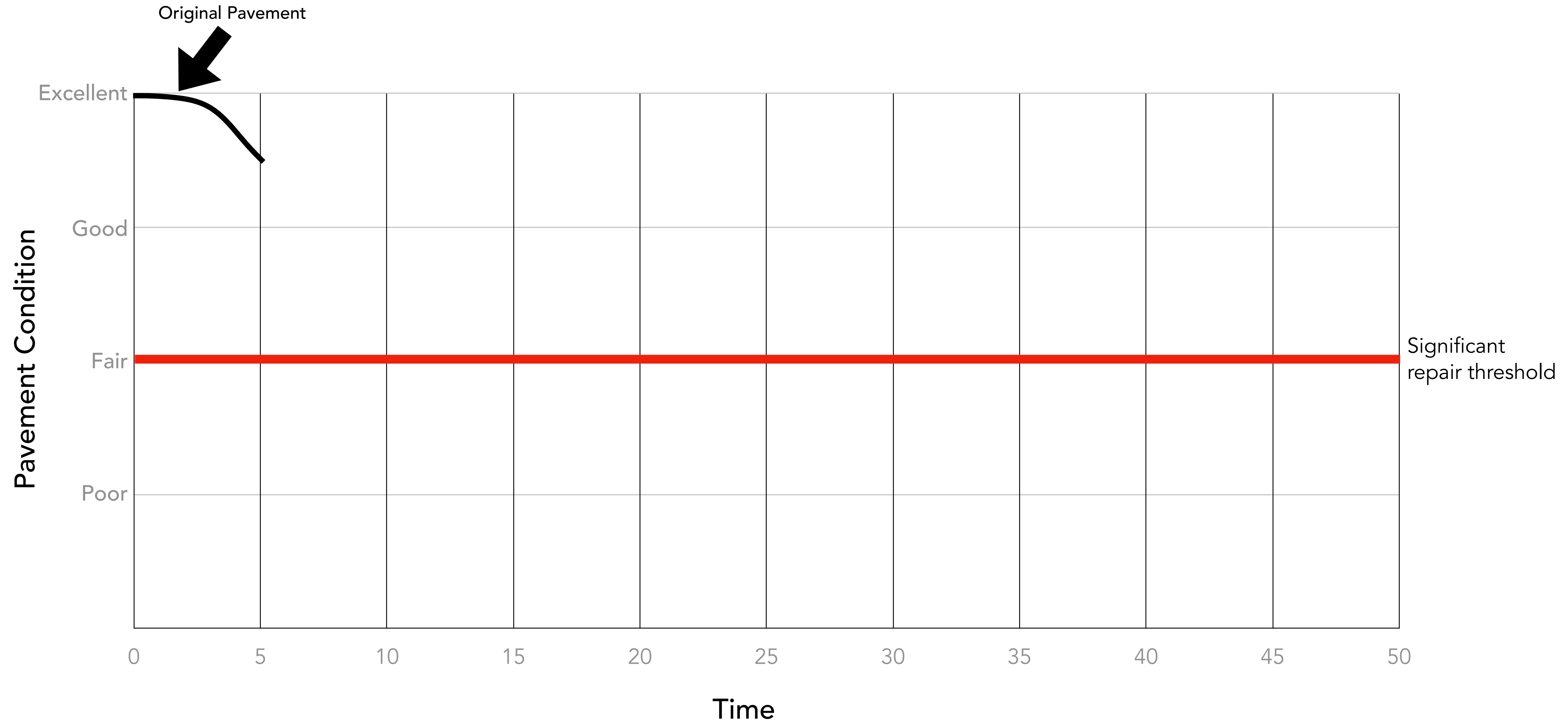
Lebanon, NH





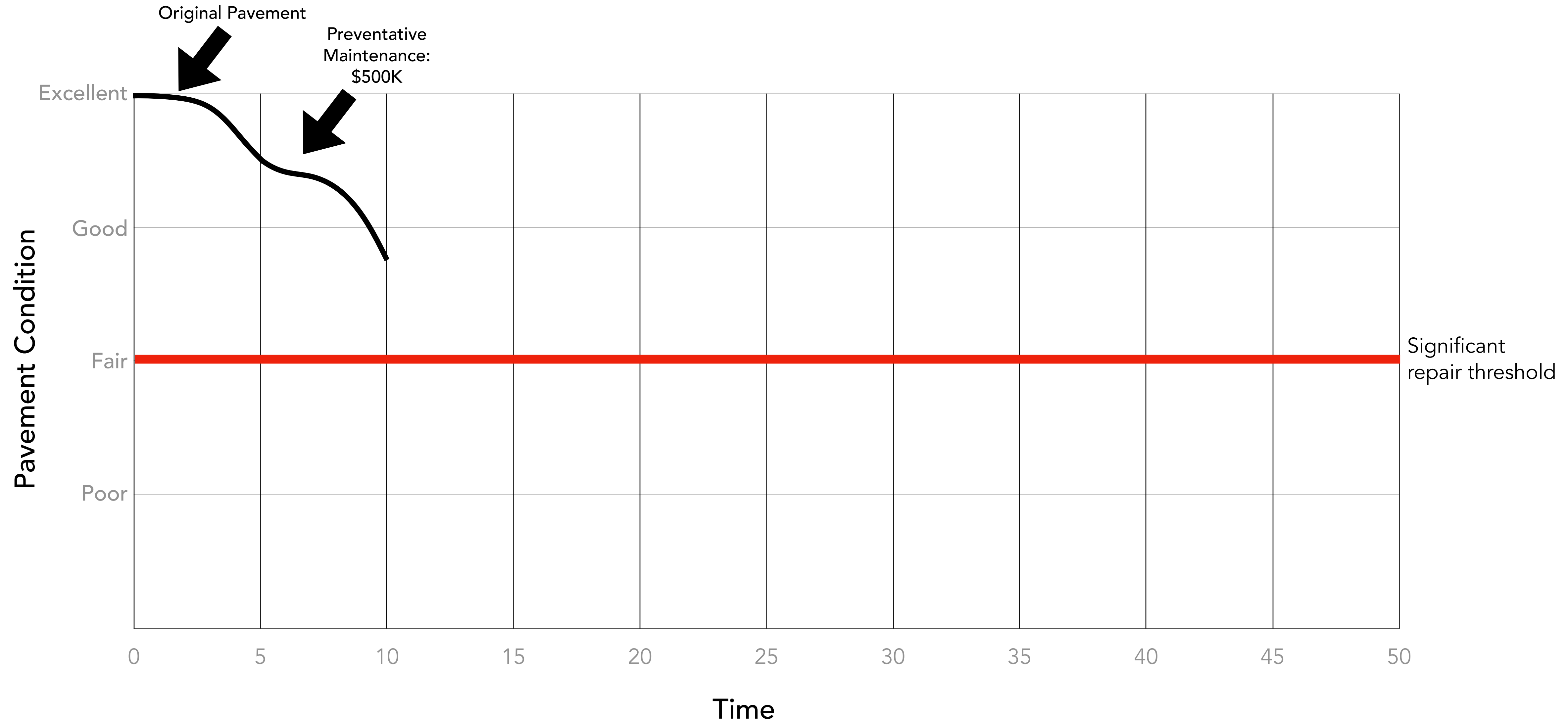
# Preservation Maintenance

Lebanon, NH

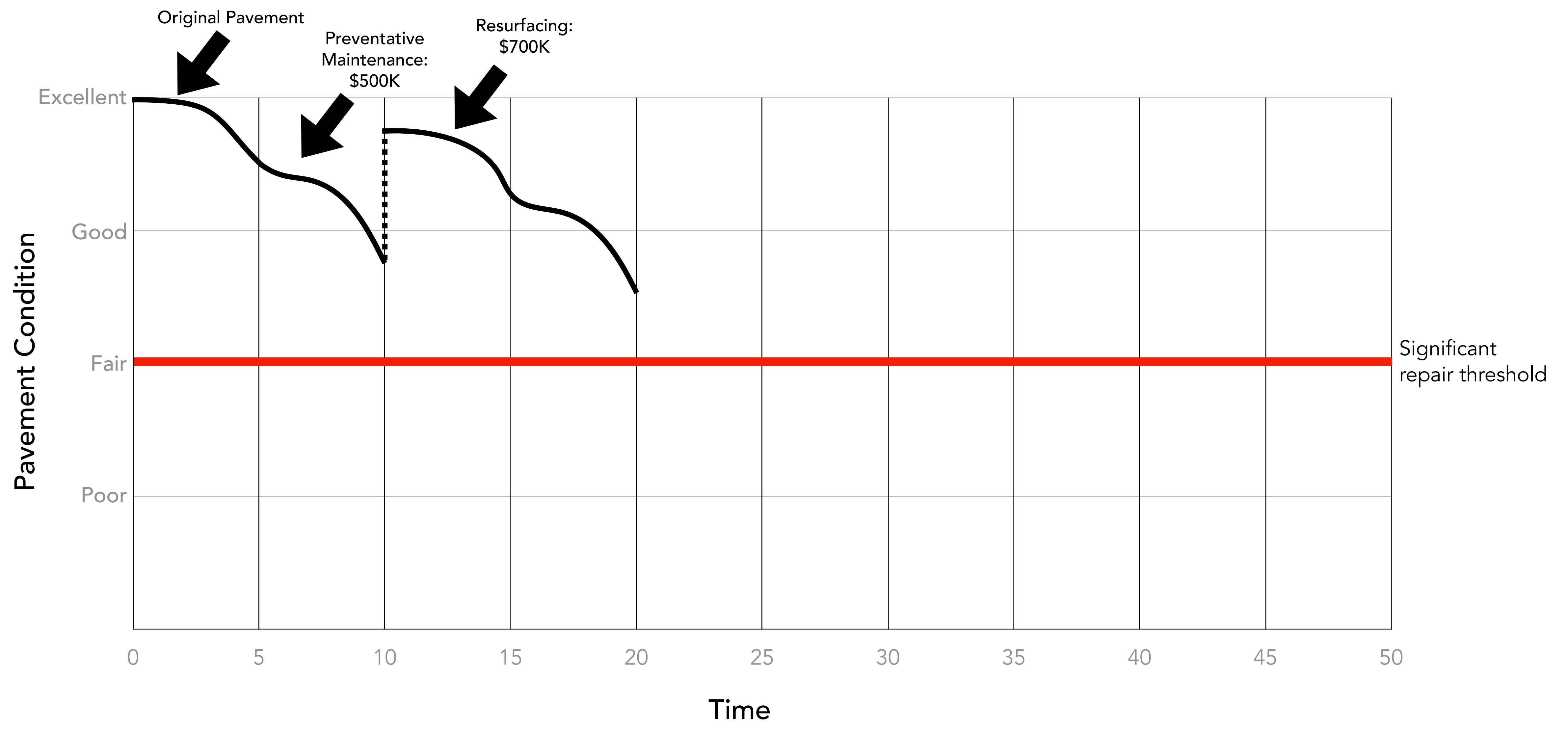


# Preservation Maintenance

Lebanon, NH

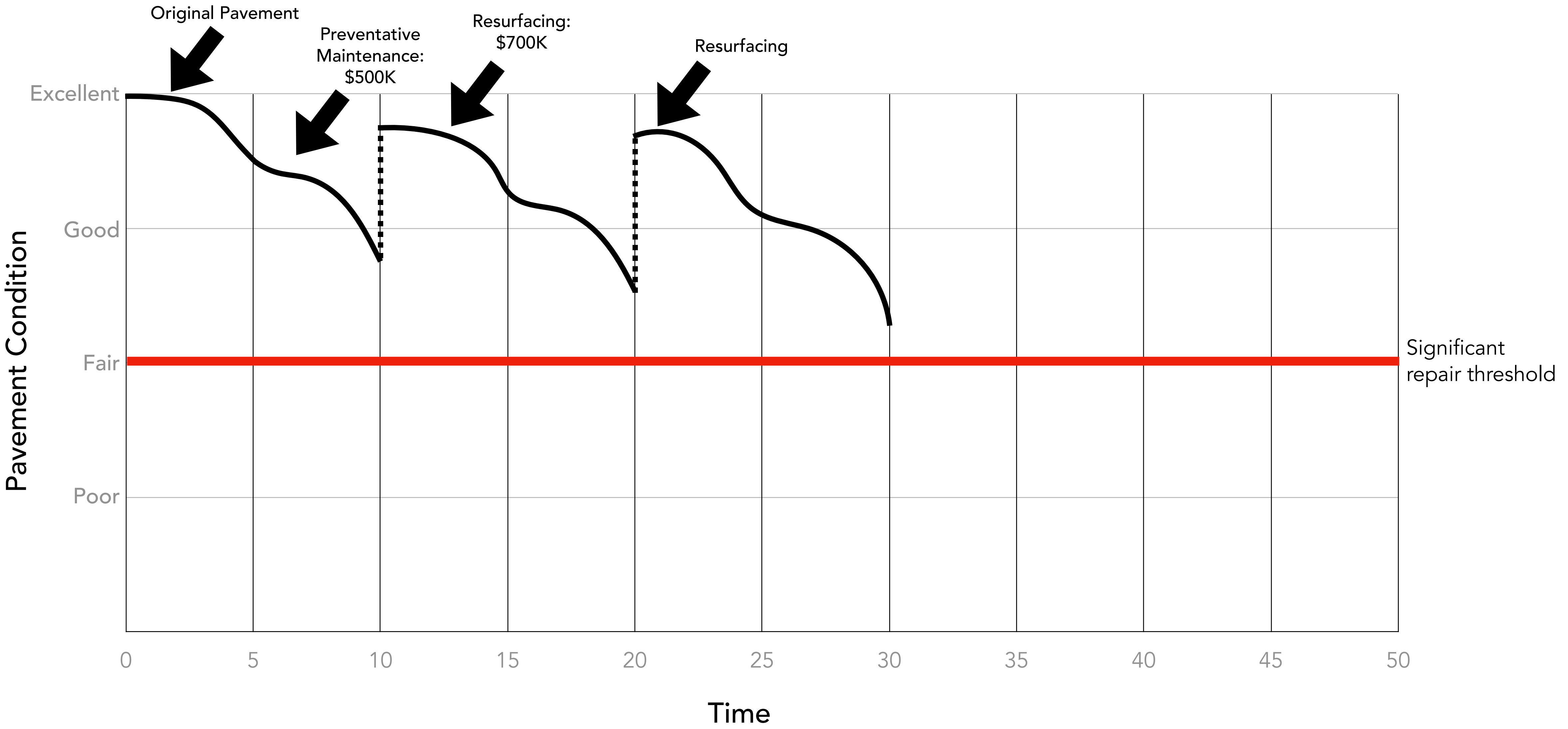


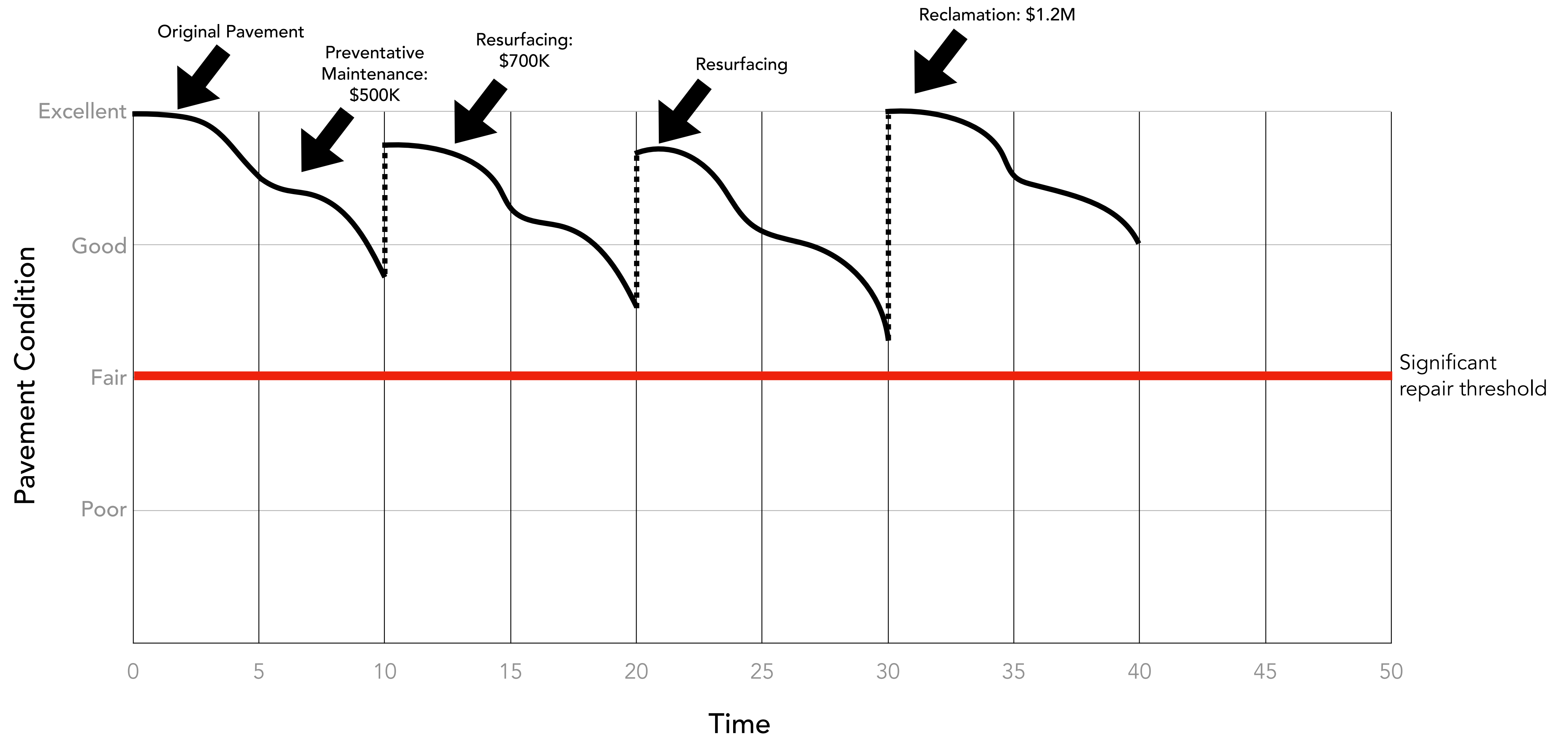
URBAN3  
**Preservation Maintenance**  
Lebanon, NH

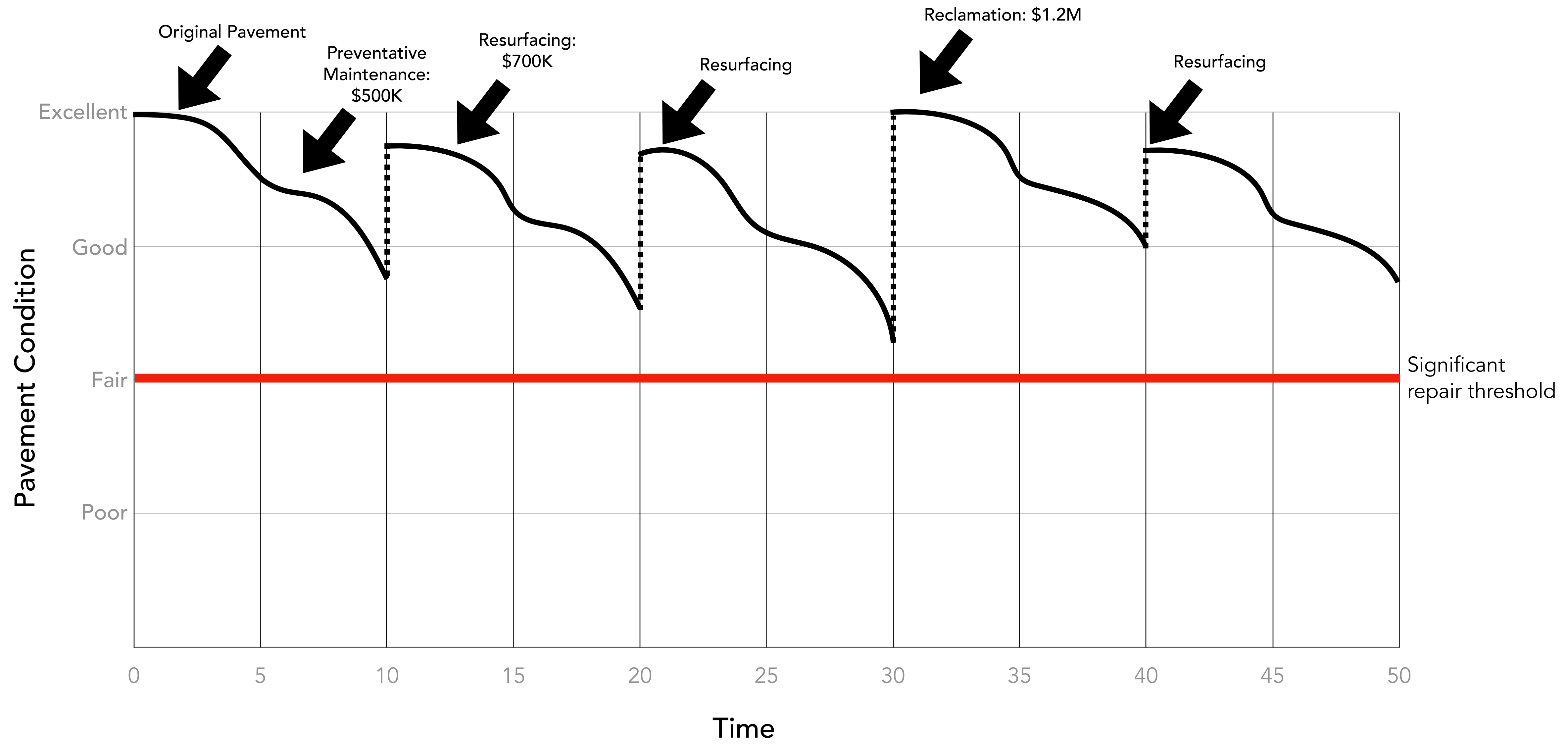


# Preservation Maintenance

Lebanon, NH

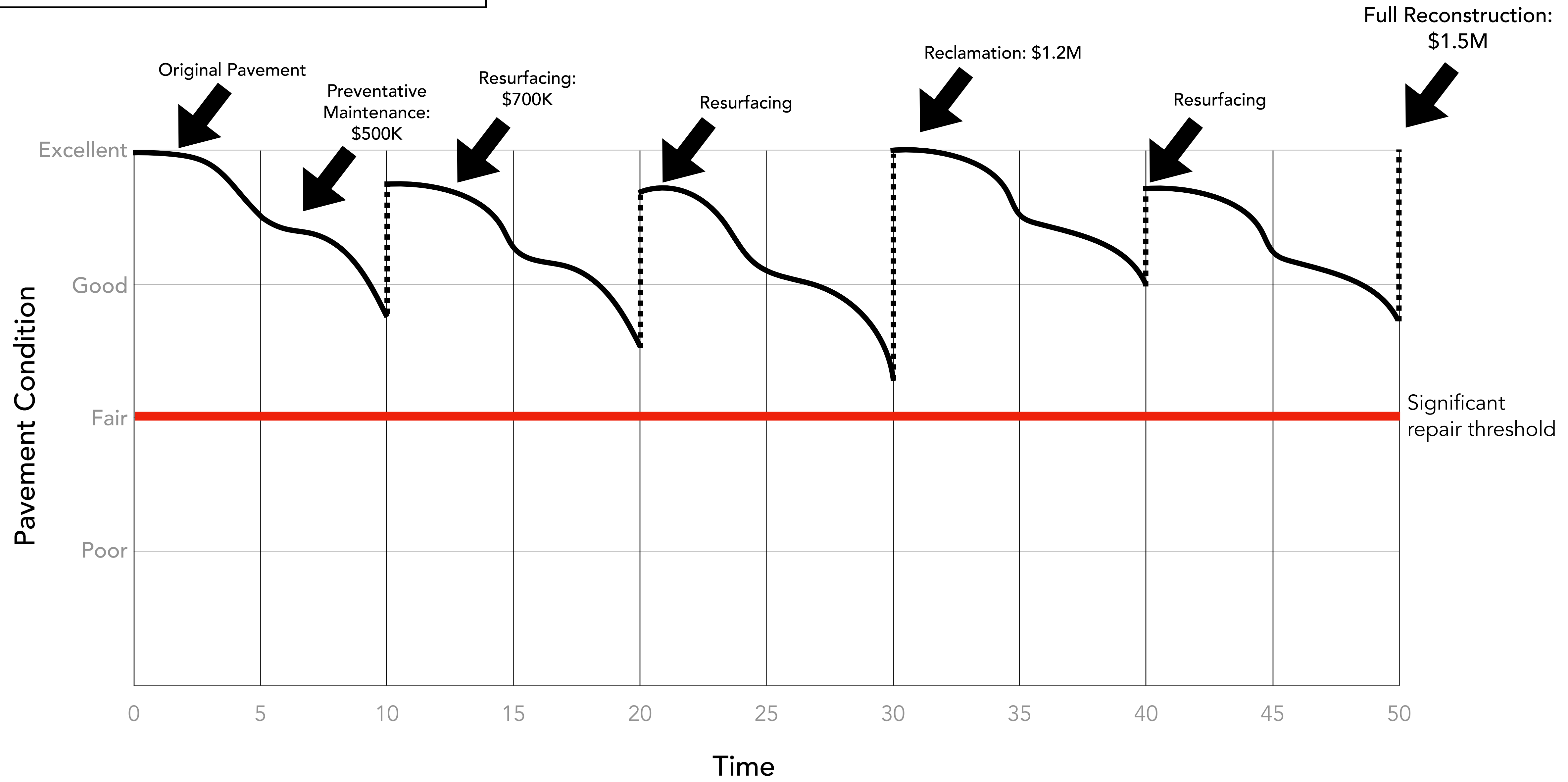






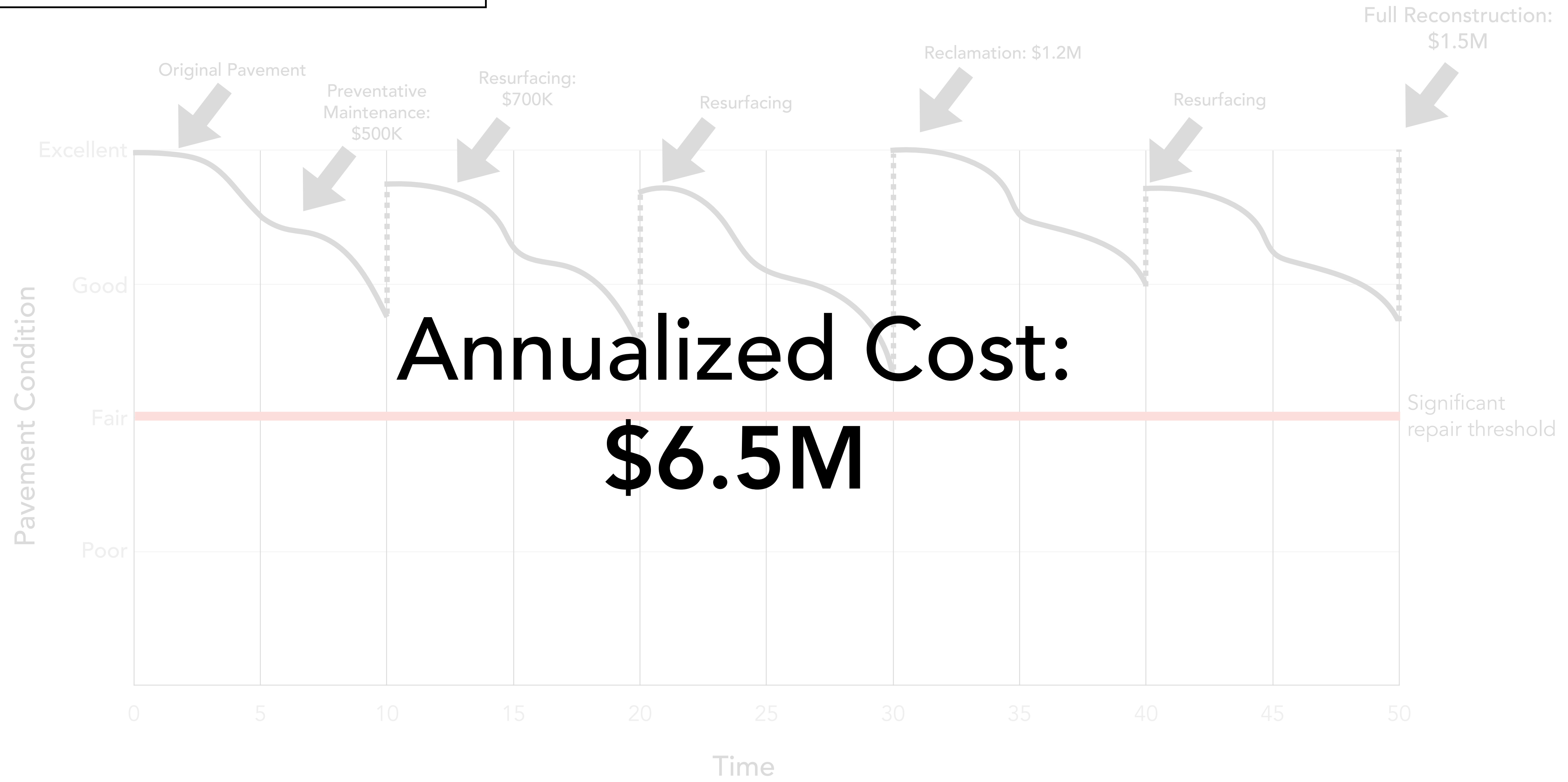
# Preservation Maintenance

Lebanon, NH



# Preservation Maintenance

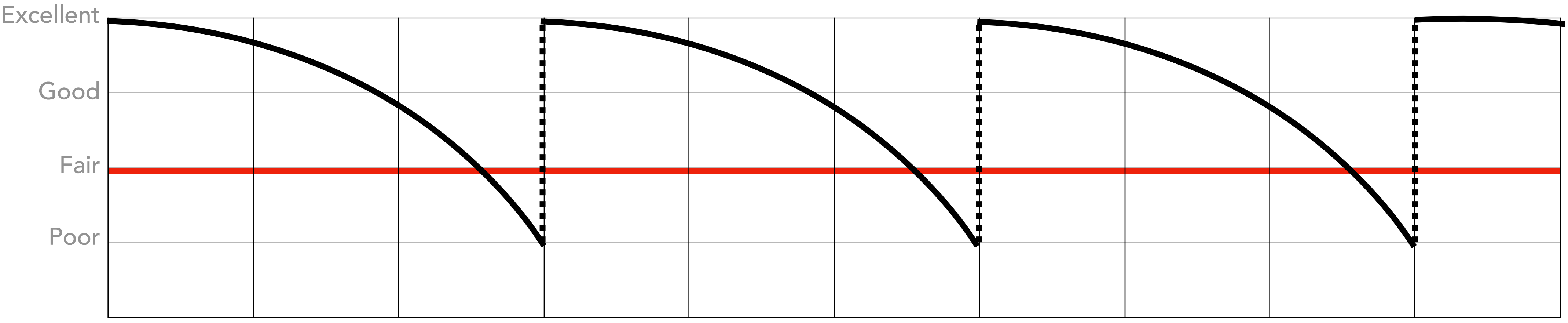
Lebanon, NH



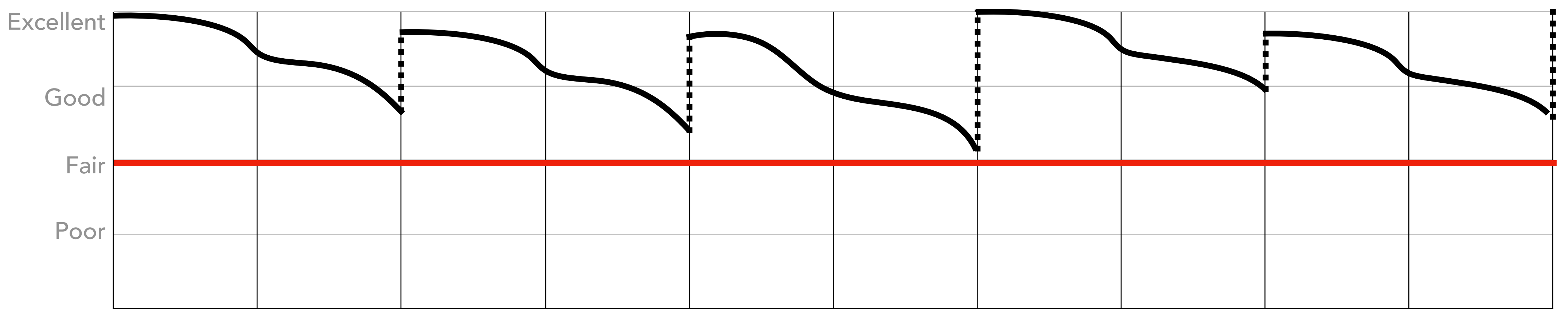


■ ■ ■ ■ ■ Average road quality  
— Significant repair threshold

### Rehabilitation



### Preservation

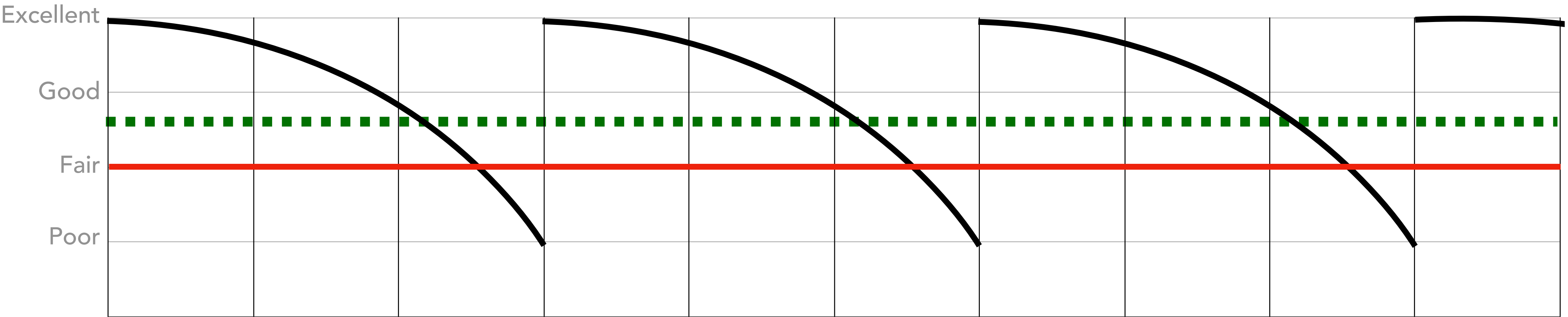


# Maintenance Comparison

Lebanon, NH

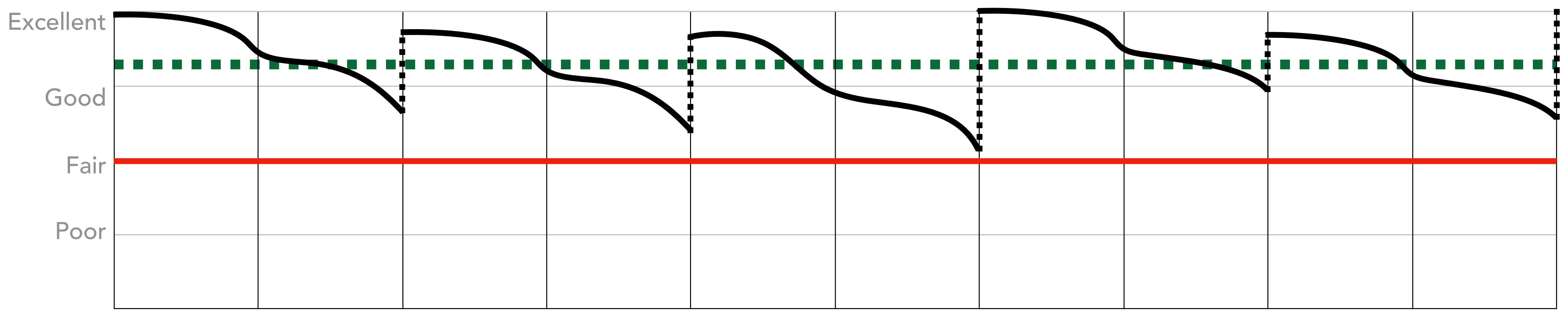
Average road quality  
Significant repair threshold

## Rehabilitation



\$7.5M

## Preservation



Preservation      Rehabilitative

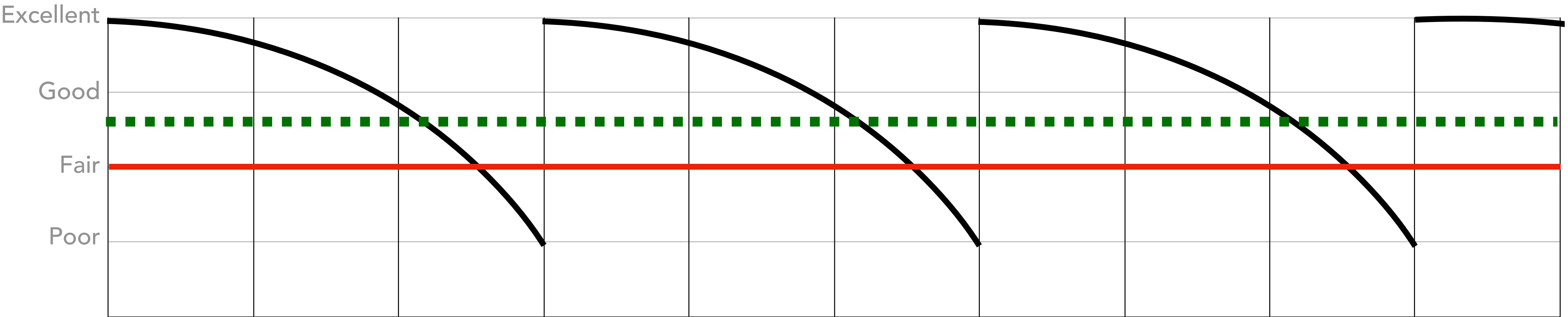
Time

# Maintenance Comparison

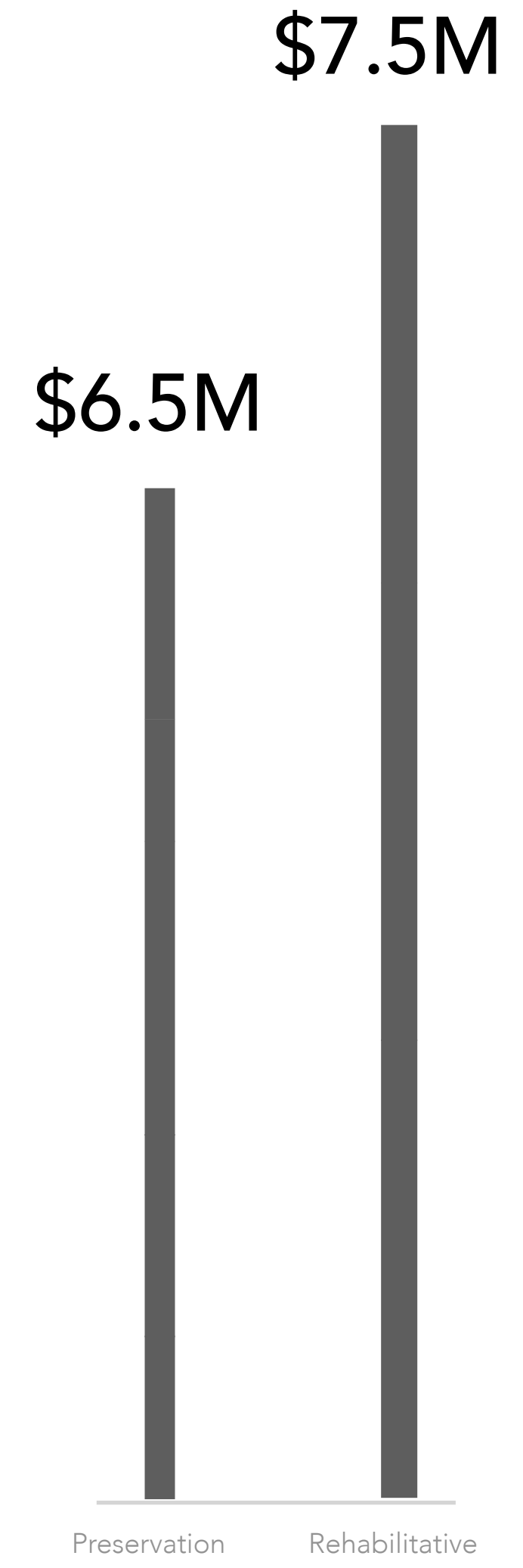
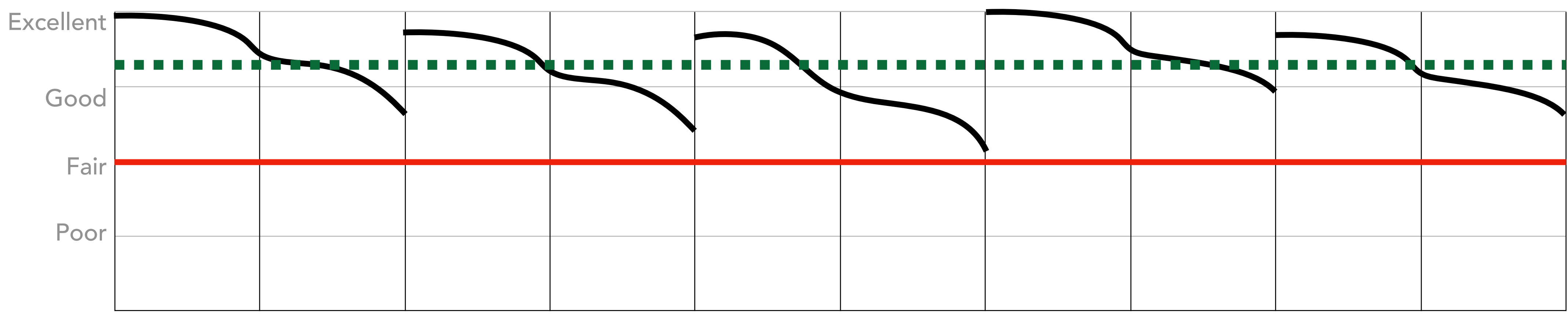
Lebanon, NH

Average road quality  
Significant repair threshold

## Rehabilitation



## Preservation



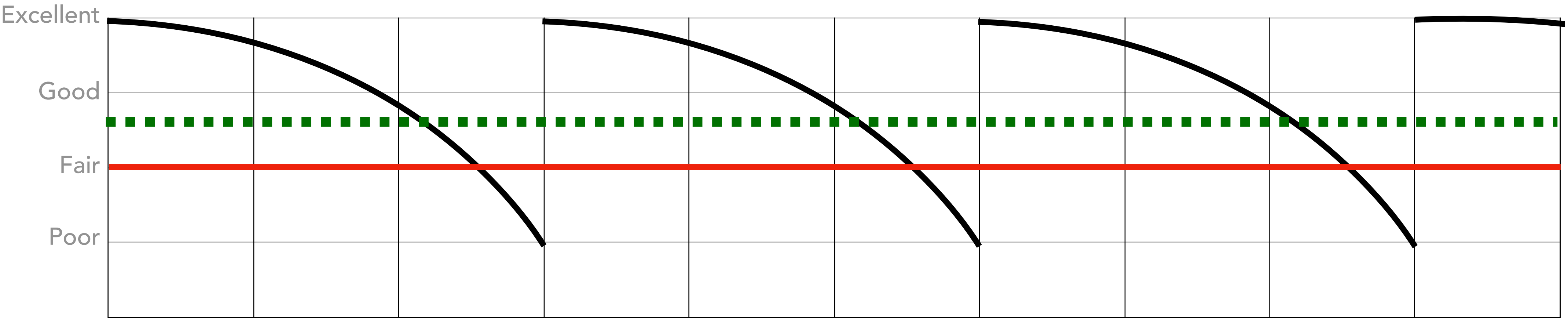
0 5 10 15 20 25 30 35 40 45 50

Time

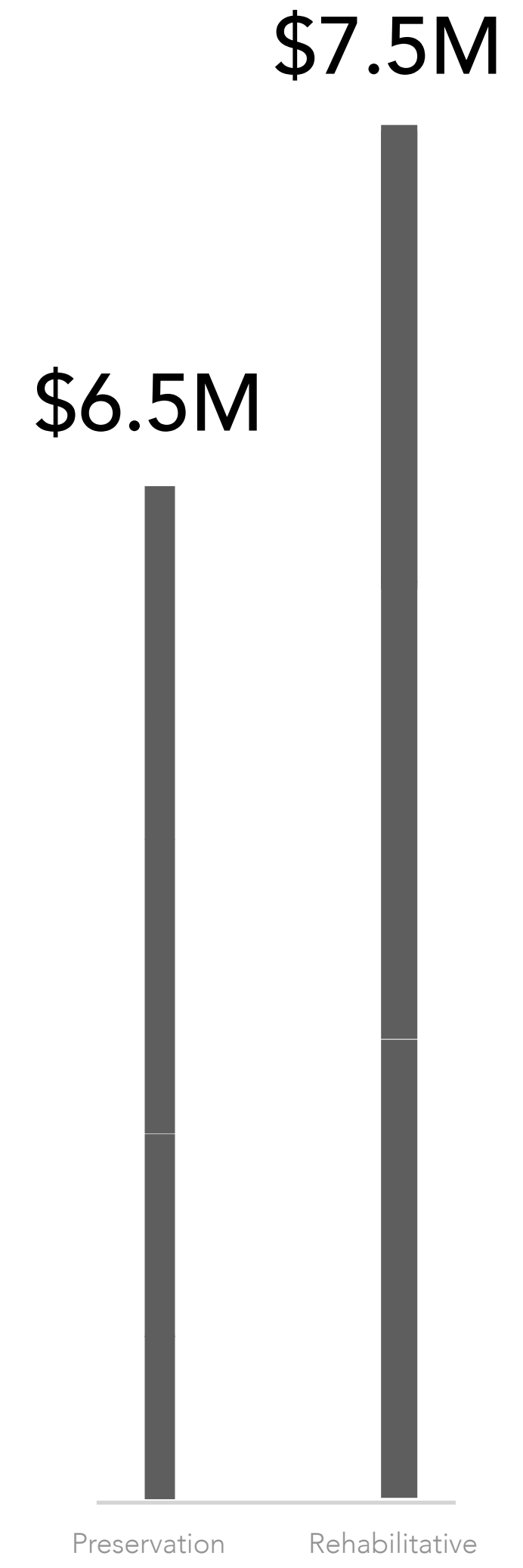
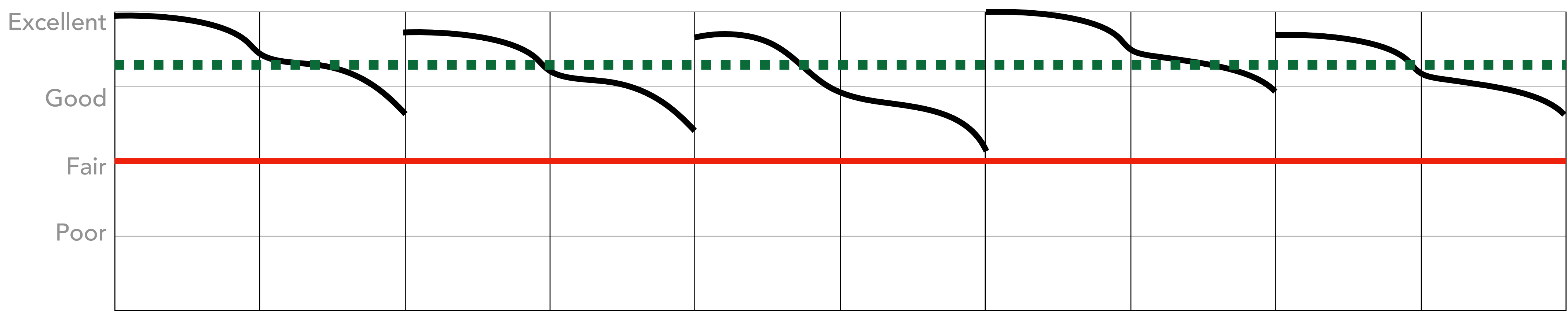
Preservation Rehabilitative

■ ■ ■ ■ ■ Average road quality  
— Significant repair threshold

### Rehabilitation



### Preservation



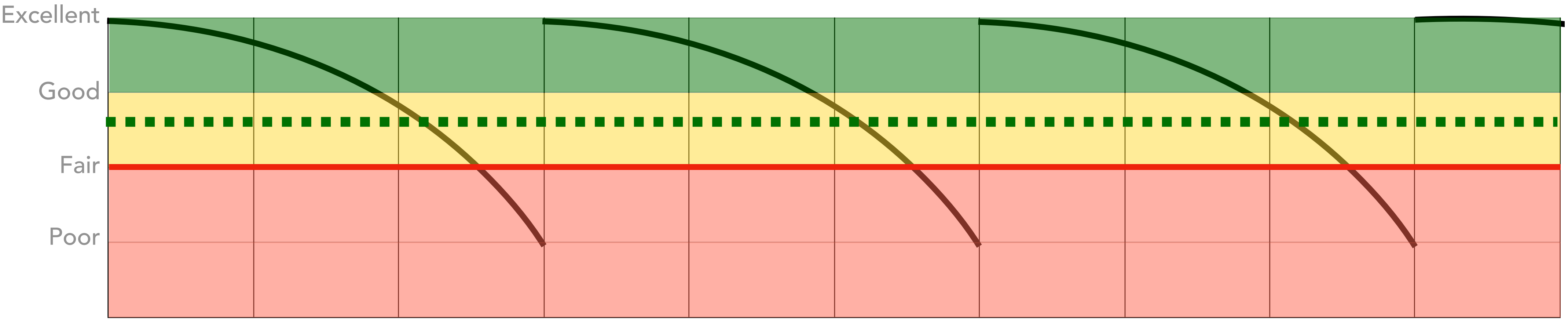
0 5 10 15 20 25 30 35 40 45 50 Time

# Maintenance Comparison

Lebanon, NH

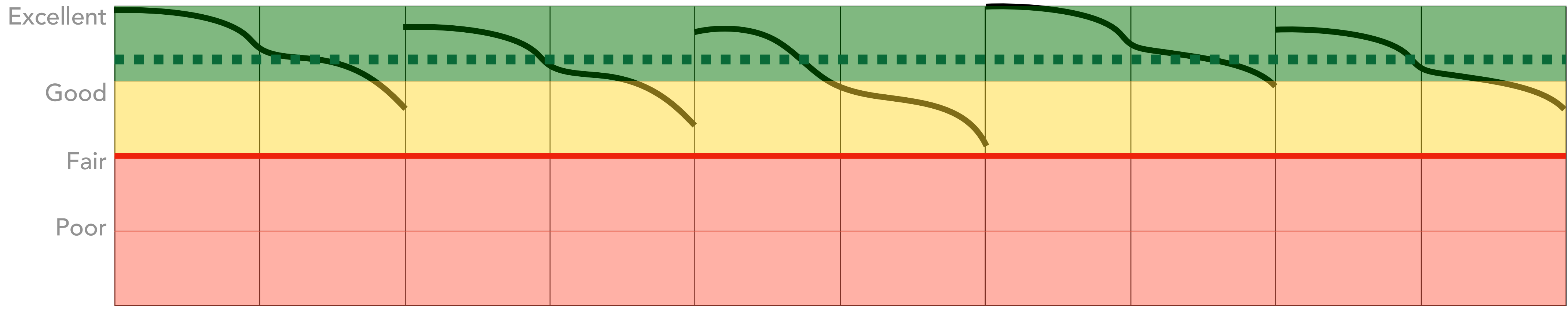
..... Average road quality  
—— Significant repair threshold

## Rehabilitation



\$7.5M

## Preservation



\$6.5M

Preservation      Rehabilitative

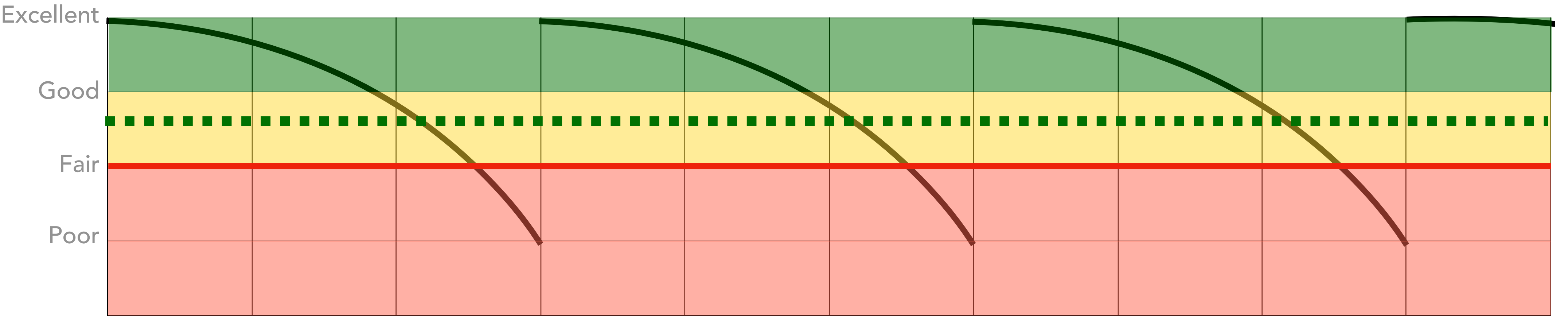
Time

# Maintenance Comparison

Lebanon, NH

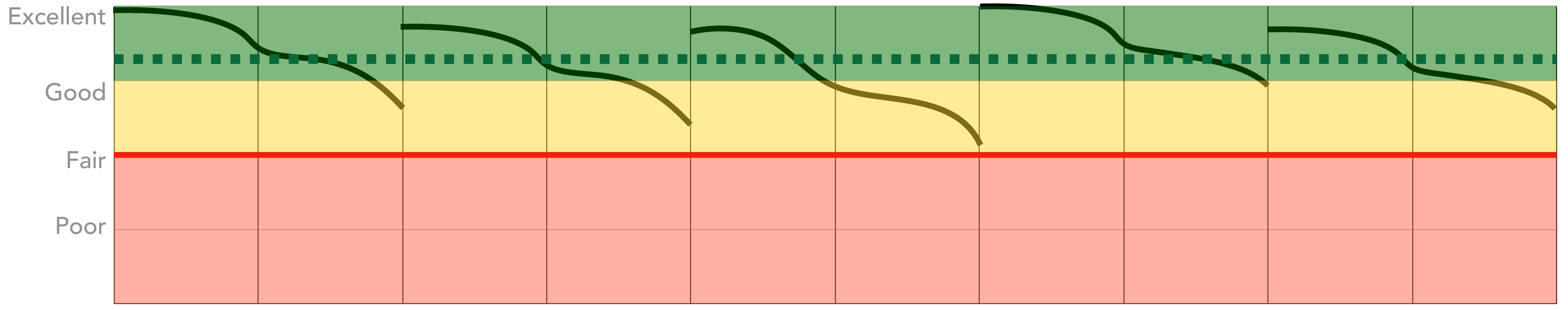
Average road quality  
Significant repair threshold

## Rehabilitation



\$7.5M

## Preservation



\$6.5M

Preservation      Rehabilitative

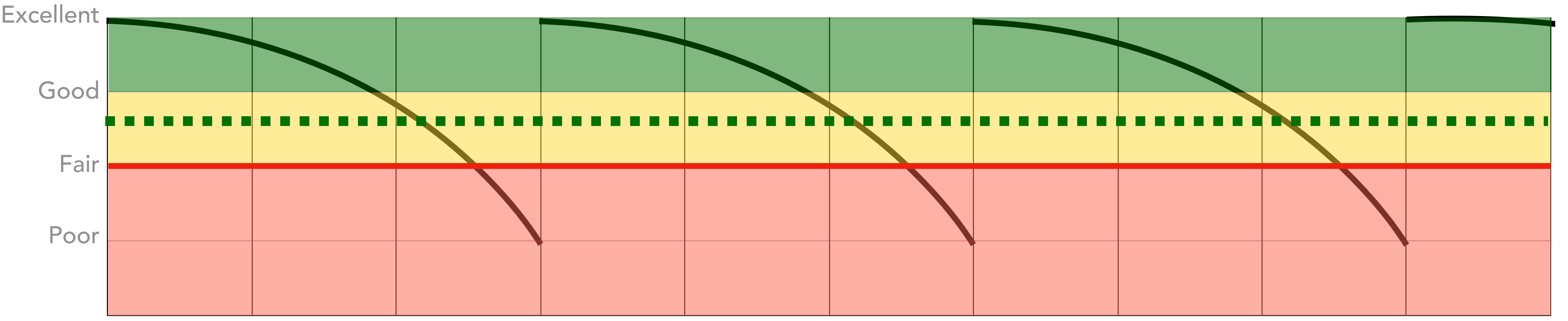
Time

# Maintenance Comparison

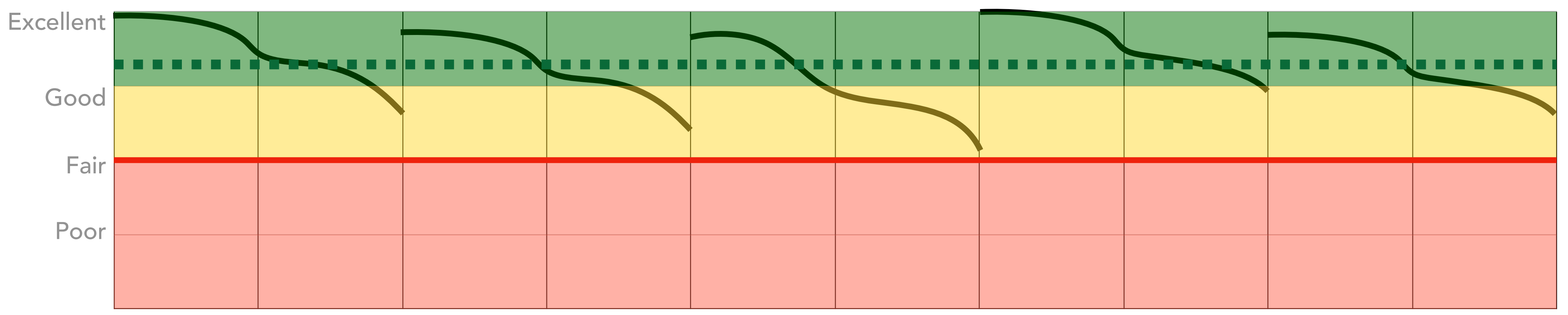
Lebanon, NH

..... Average road quality  
—— Significant repair threshold

## Rehabilitation

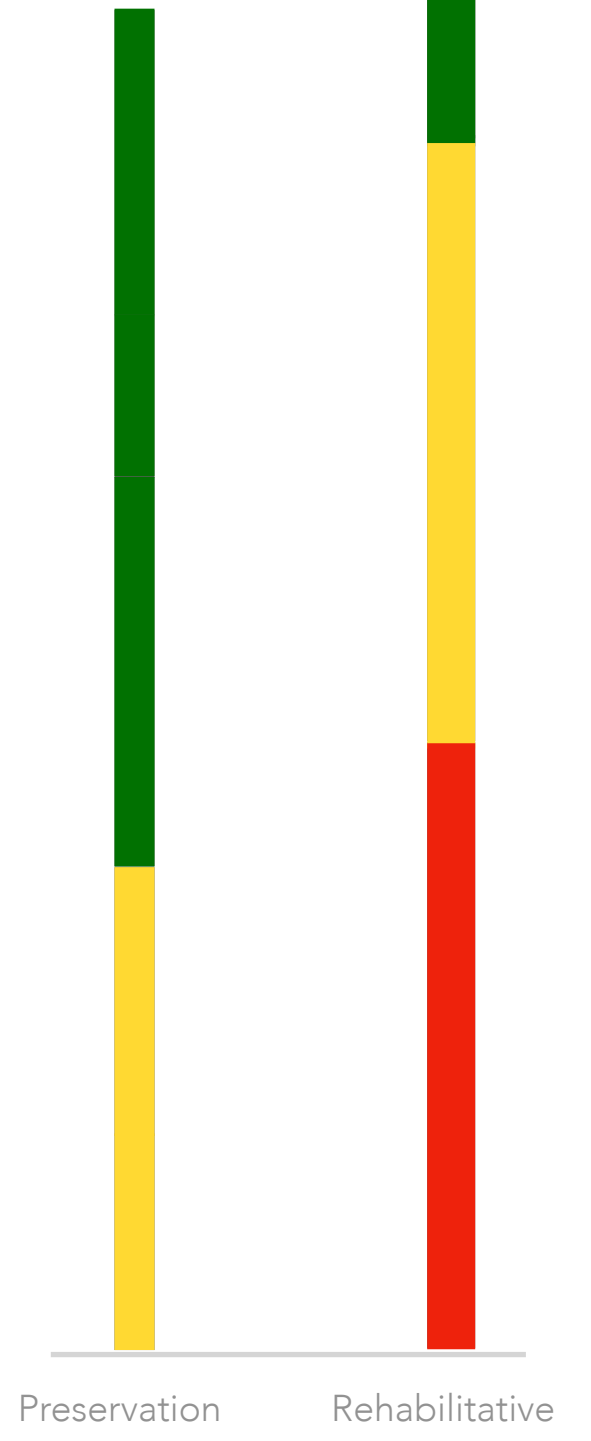


## Preservation



**\$7.5M**

**\$6.5M**



0 5 10 15 20 25 30 35 40 45 50

Time

Preservation Rehabilitative



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Units: Index Dec 1984=100, Not Seasonally Adjusted

Frequency: Monthly

1Y | 5Y | 10Y | Max

1984-12-01 to 2022-04-01

EDIT GRAPH

FRED — Producer Price Index by Industry: Asphalt Paving and Roofing Materials Manufacturing



Shaded areas indicate U.S. recessions.

Source: U.S. Bureau of Labor Statistics

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2021 = **280** index



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### ☆ Producer Price Index by Industry: Asphalt Paving and Roofing Materials Manufacturing (PCU3241232412)

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Units: Index Dec 1984=100, Not Seasonally Adjusted

Frequency: Monthly

1Y | 5Y | 10Y | Max

1984-12-01 to 2022-04-01

EDIT GRAPH

FRED — Producer Price Index by Industry: Asphalt Paving and Roofing Materials Manufacturing



Shaded areas indicate U.S. recessions.

Source: U.S. Bureau of Labor Statistics

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Source: <https://fred.stlouisfed.org/series/PCU3241232412>

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Updated: May 12, 2022

Units: Index Dec 1984=100, Not Seasonally Adjusted

Frequency: Monthly

1Y | 5Y | 10Y | Max

1984-12-01 to 2022-04-01

EDIT GRAPH

#### FRED — Producer Price Index by Industry: Asphalt Paving and Roofing Materials Manufacturing



2022 = **360** index.

2021 = **280** index

Shaded areas indicate U.S. recessions.

Source: U.S. Bureau of Labor Statistics

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(PCU3241232412)

DOWNLOAD

Observation: Apr 2022: **322.206** (+ more)  
Updated: May 12, 2022

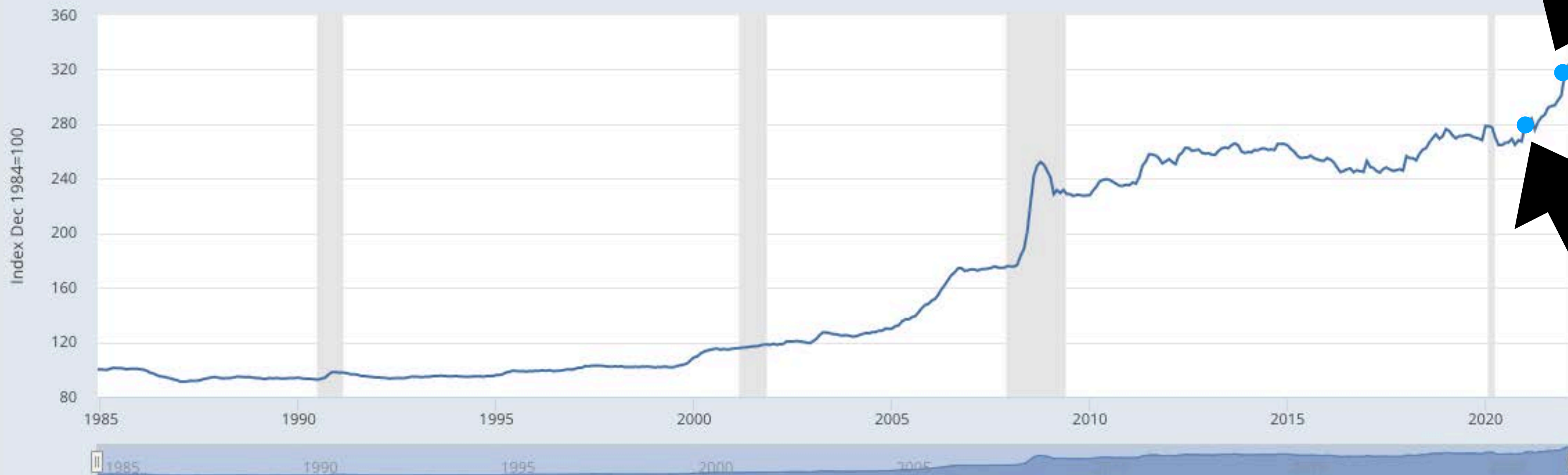
Units: Index Dec 1984=100,  
Not Seasonally Adjusted

Frequency: Monthly

1Y | 5Y | 10Y | Max 1984-12-01 to 2022-04-01

EDIT GRAPH

#### FRED — Producer Price Index by Industry: Asphalt Paving and Roofing Materials Manufacturing



Shaded areas indicate U.S. recessions.

Source: U.S. Bureau of Labor Statistics

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This is a **29%** increase one year.

2022 = **360** index.

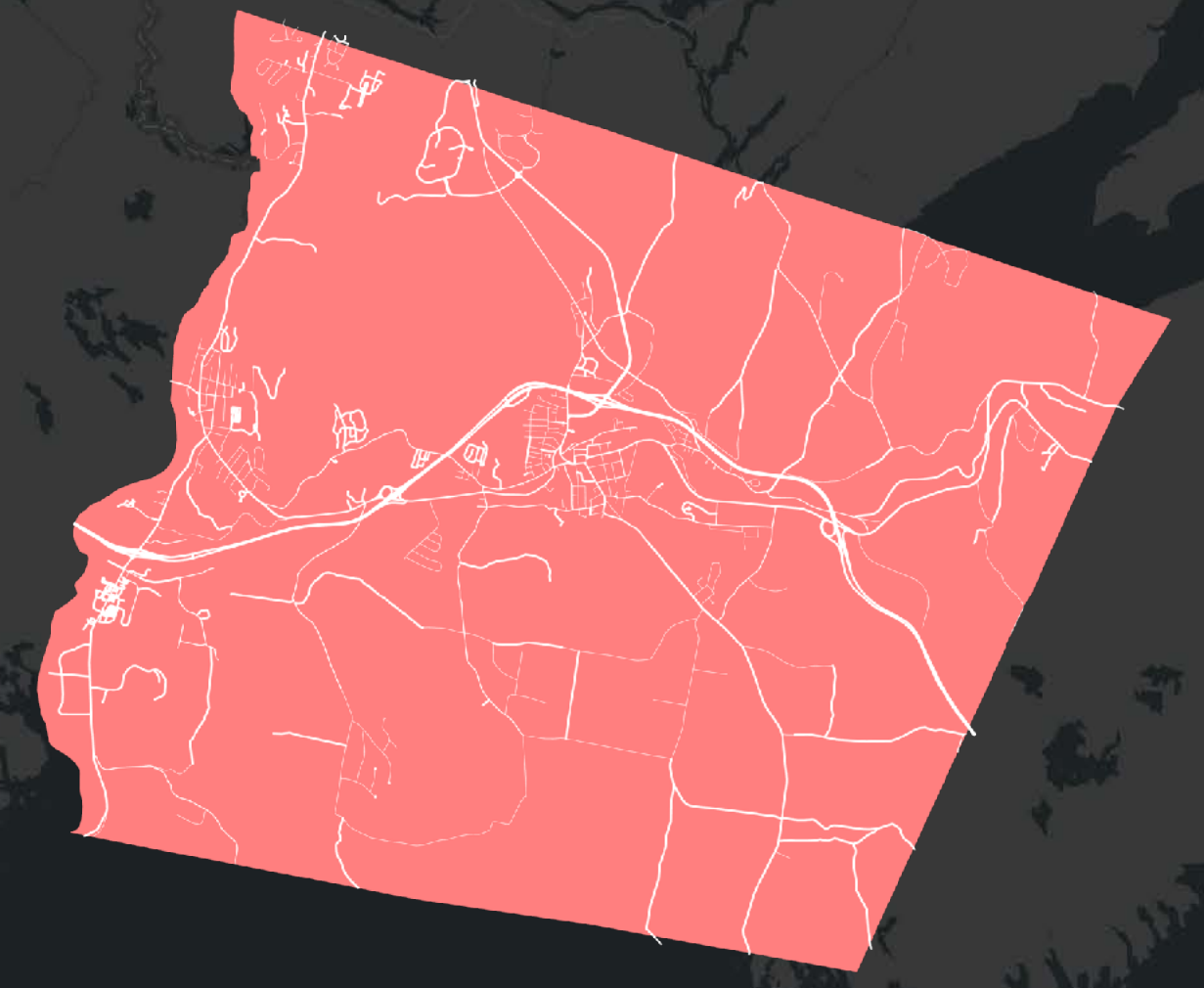
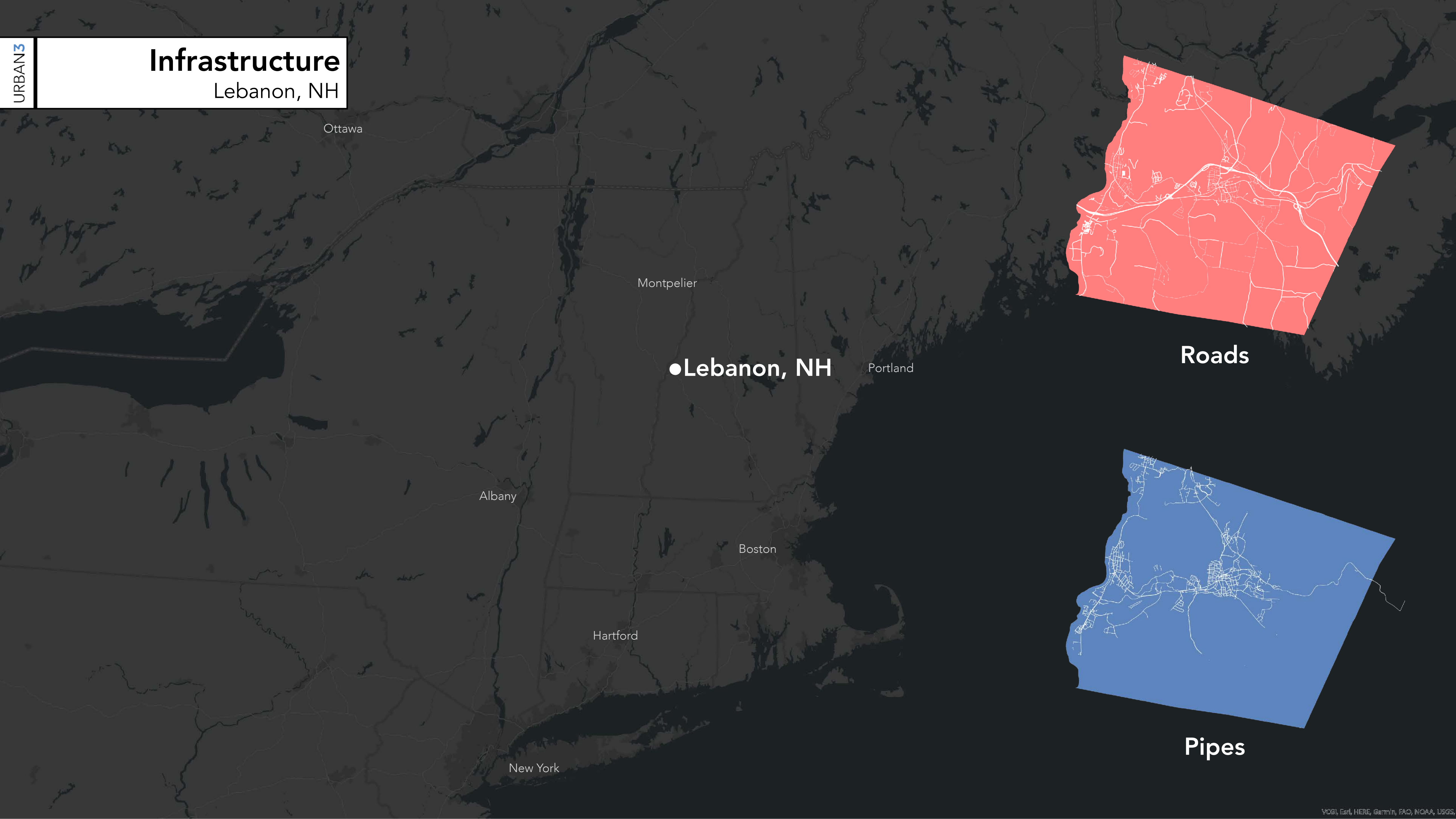
2021 = **280** index



## Costs Estimated Over Time and on the Map

# Infrastructure

Lebanon, NH



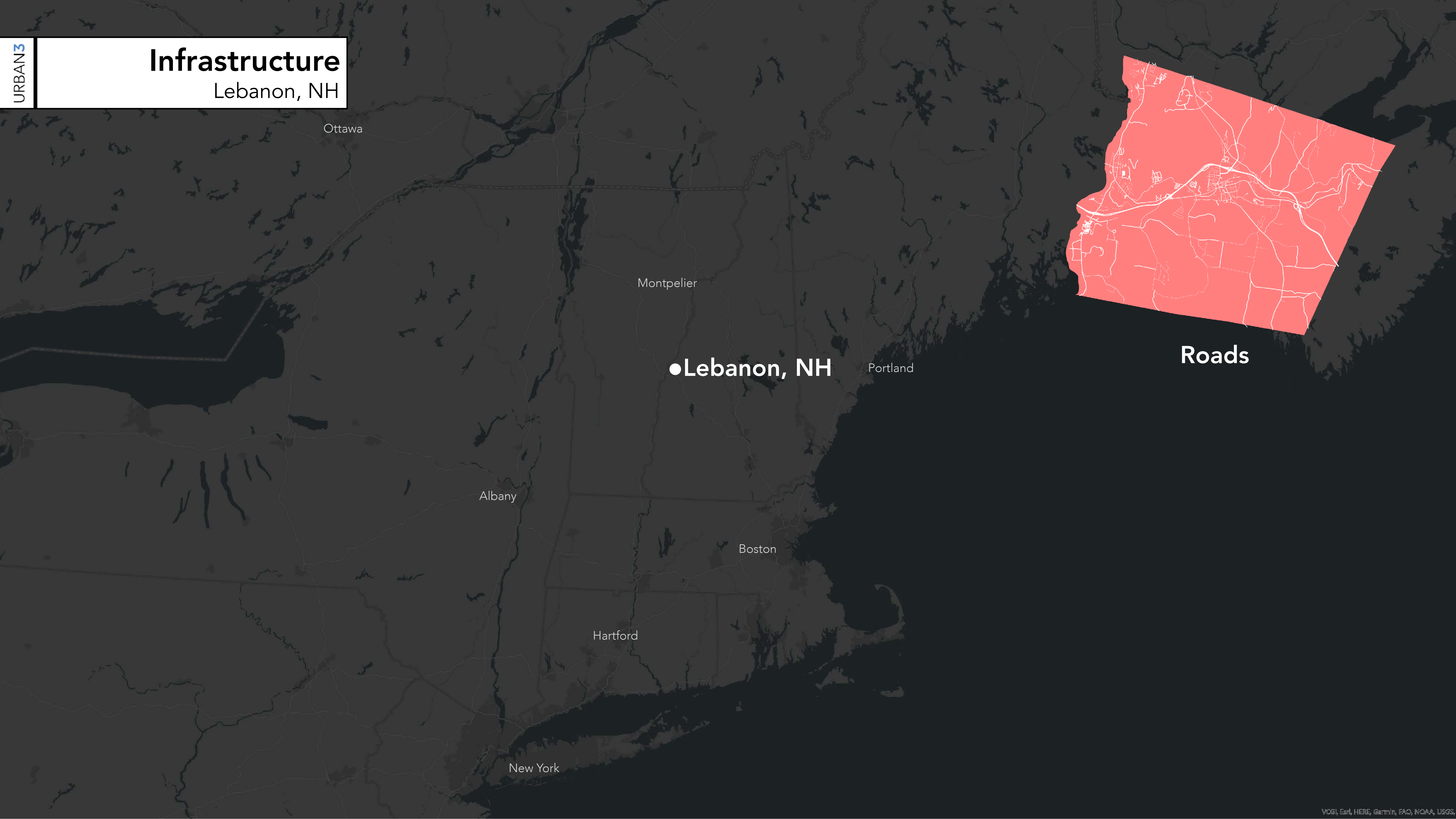
Roads



Pipes

# Infrastructure

Lebanon, NH



Ottawa

Montpelier

● Lebanon, NH

Portland

Roads

Albany

Boston

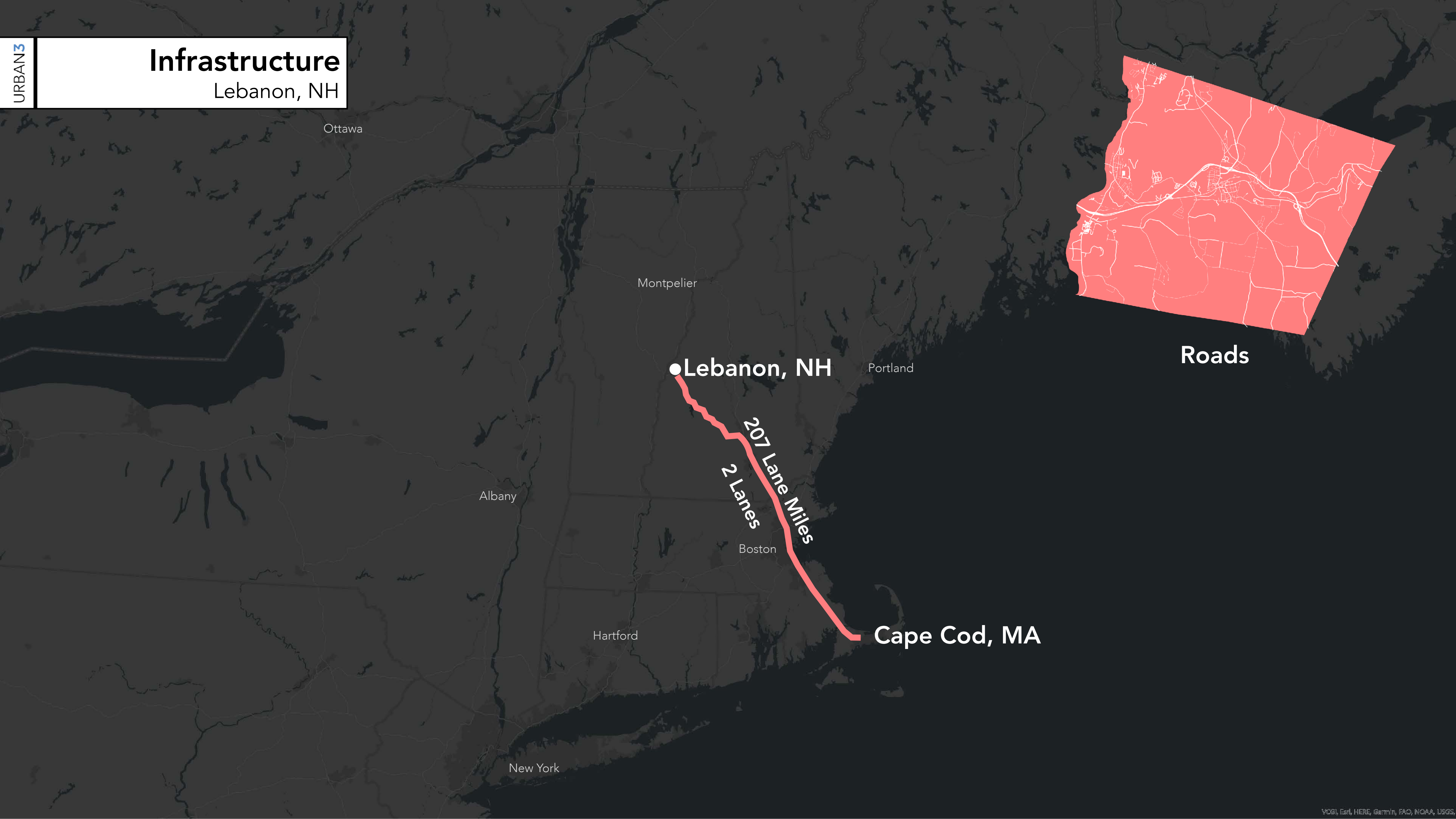
Hartford

New York



# Infrastructure

Lebanon, NH



● Lebanon, NH

Portland

Roads

207 Lane Miles  
2 Lanes

Cape Cod, MA

Albany

Boston

Hartford

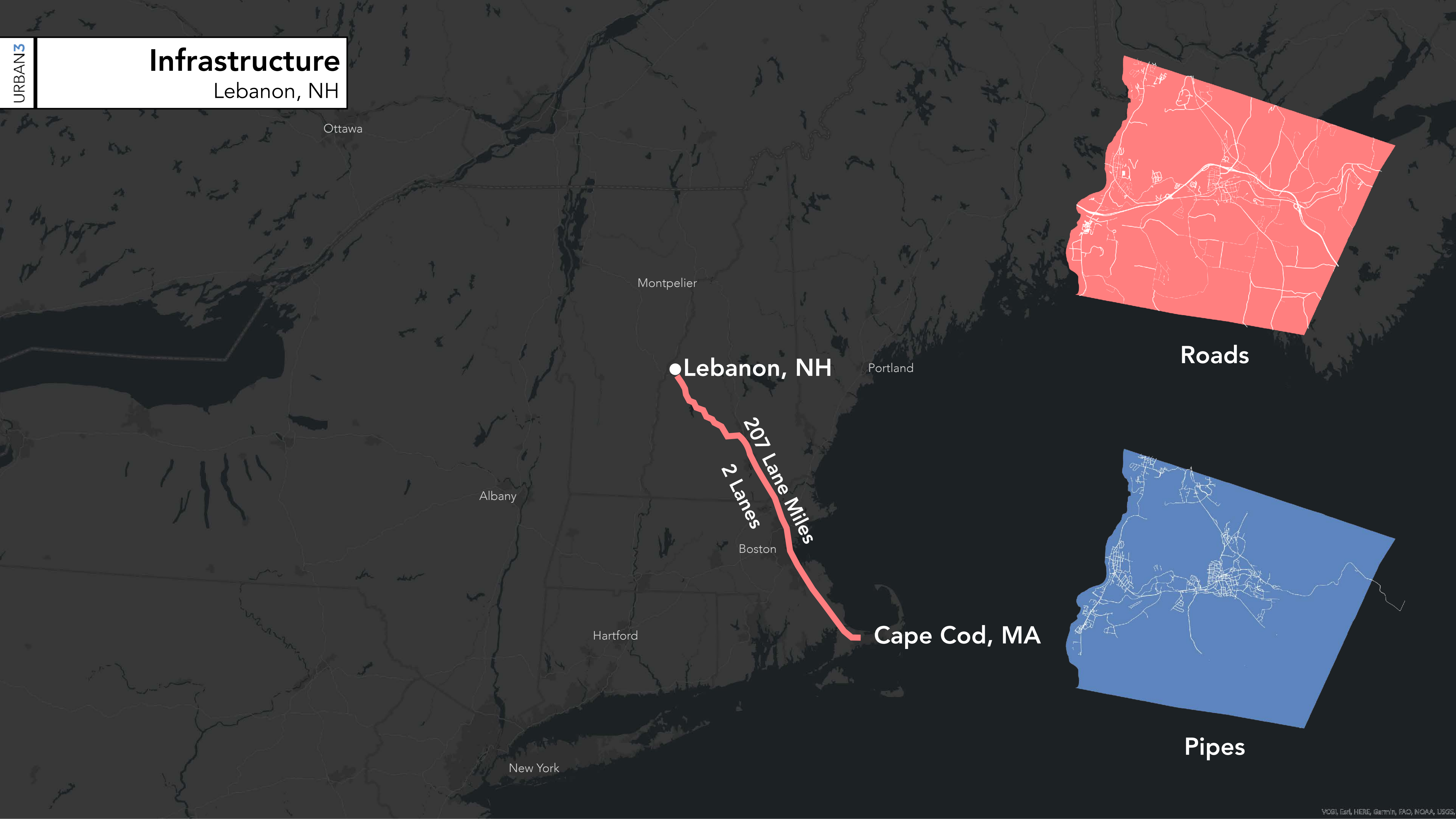
New York

Ottawa

Montpelier

# Infrastructure

Lebanon, NH

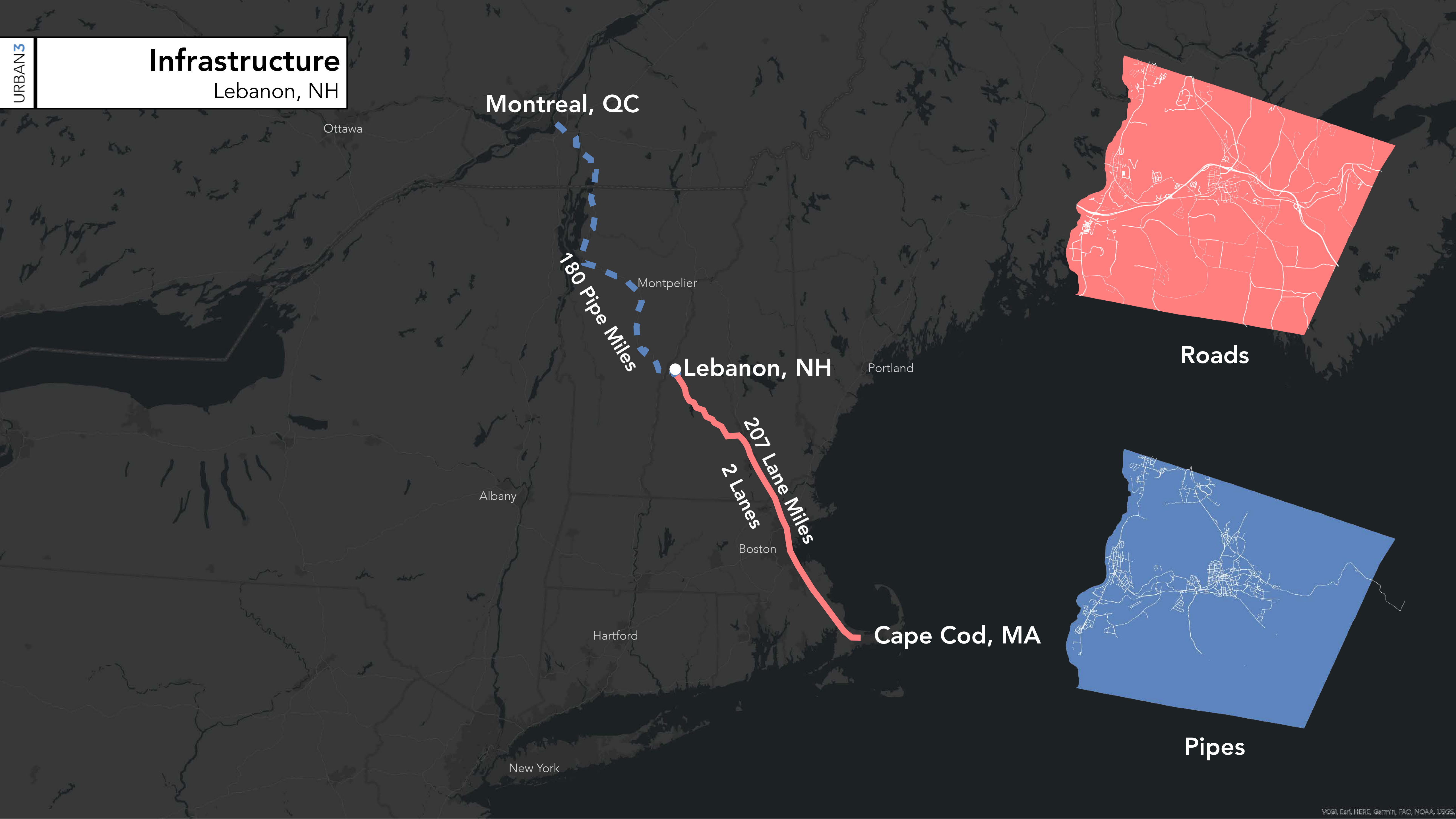


Roads

Pipes

# Infrastructure

Lebanon, NH



Montreal, QC

Ottawa

180 Pipe Miles

Montpelier

Lebanon, NH

Portland

Roads

Albany

207 Lane Miles  
2 Lanes

Boston

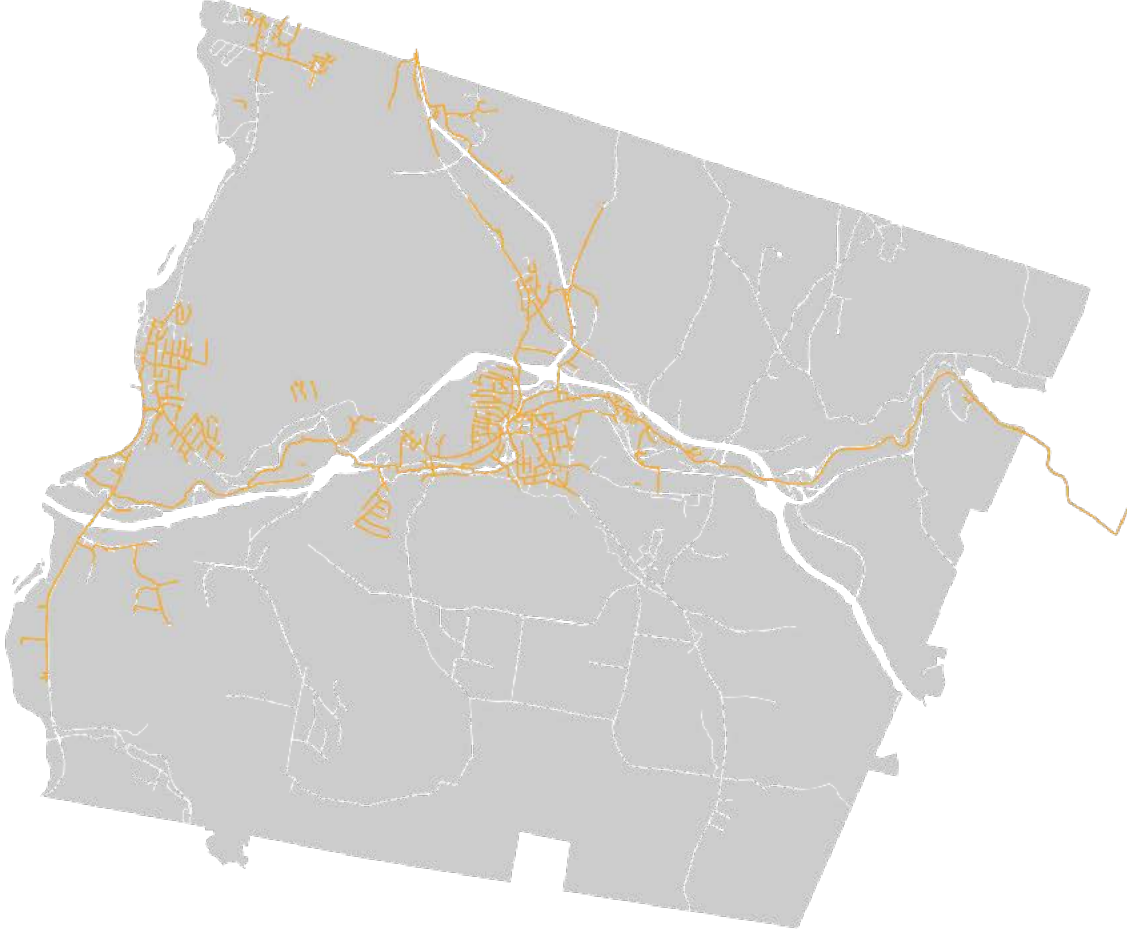
Hartford

Cape Cod, MA

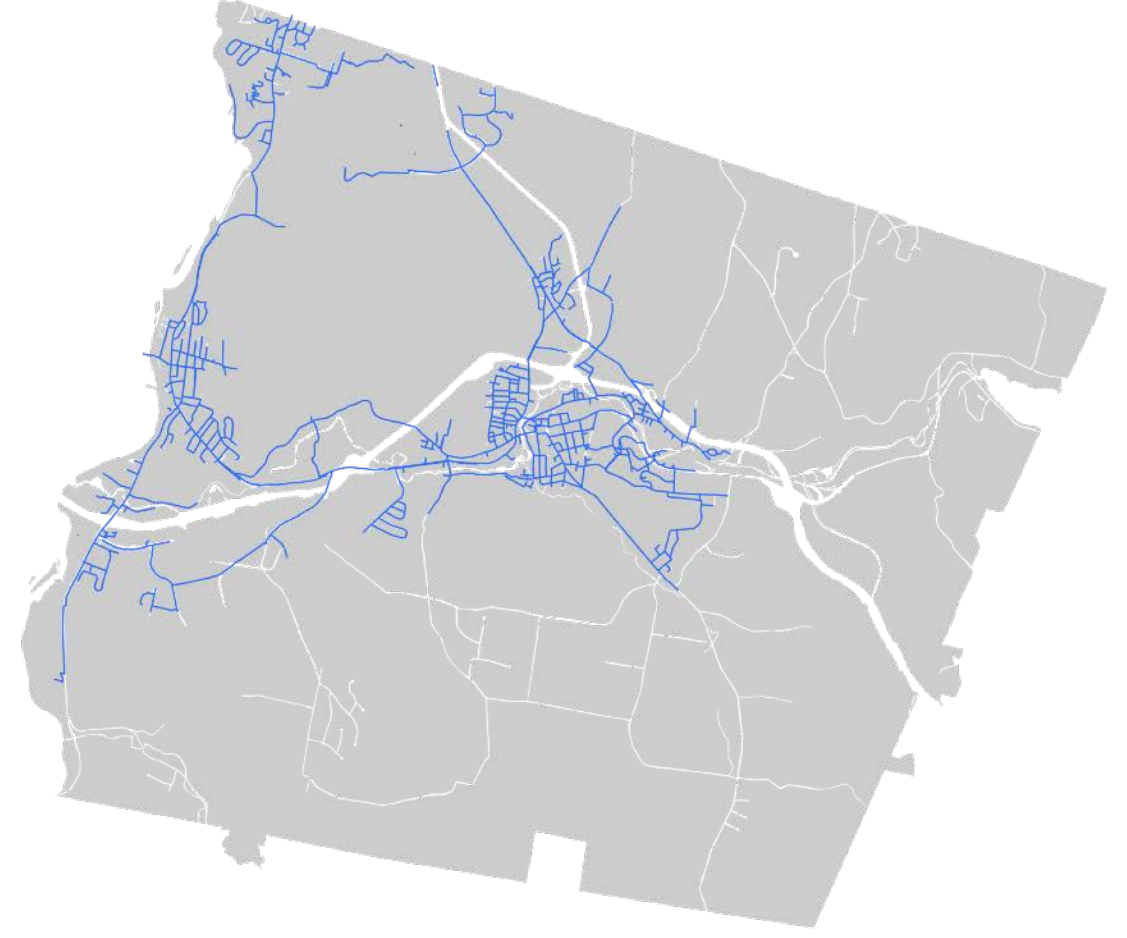
Pipes

New York

City of Lebanon  
41.3 sq mi



Sewer  
63.4 miles



Water  
78.7 miles



Roads + Sidewalks  
99 + 36 miles



Storm Water  
35.6 miles

# Capital Spending 2022

Lebanon, NH

## Capital Spending

\$30M

\$24M

\$18M

\$12M

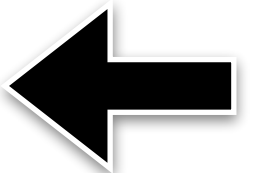
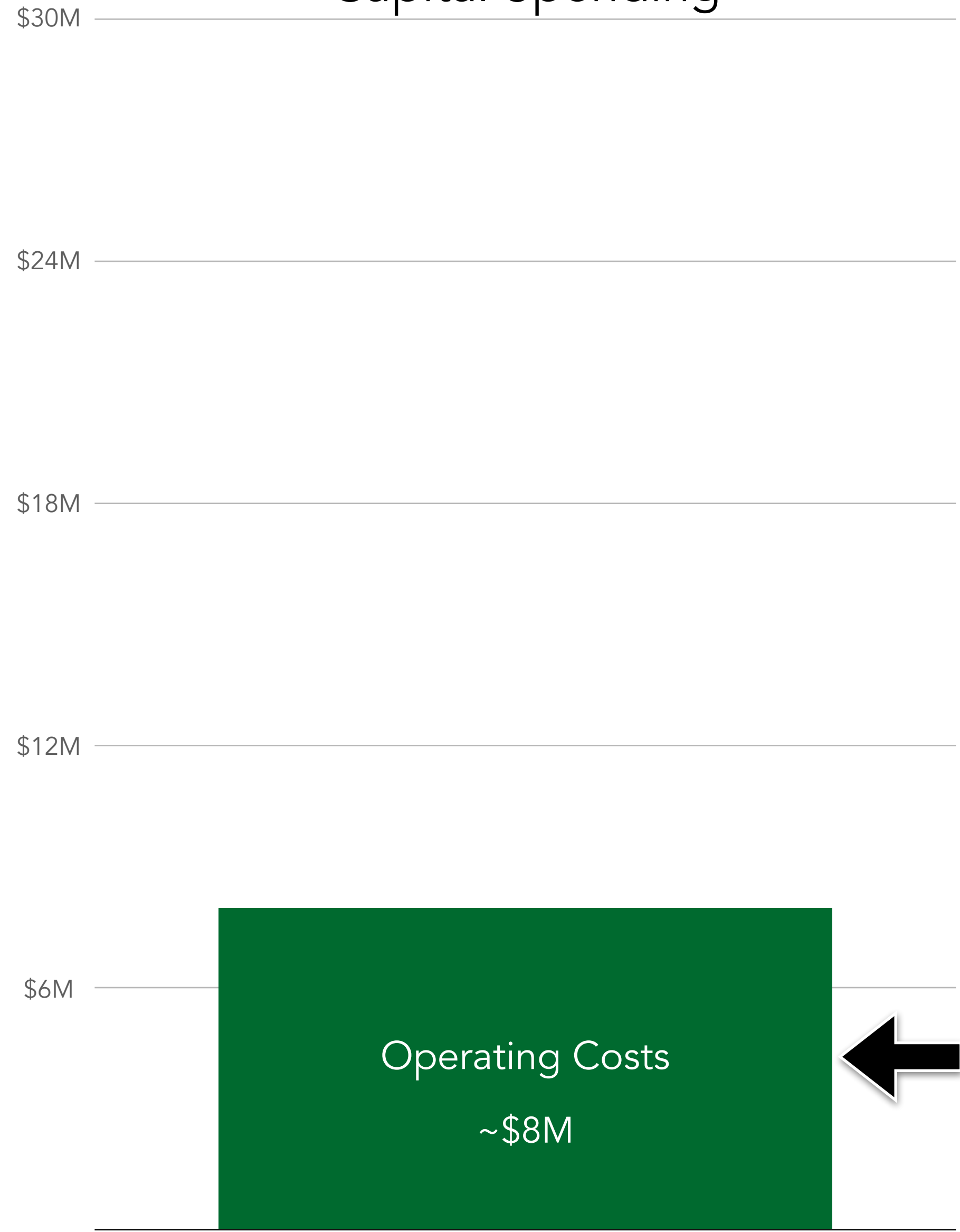
\$6M



Operating Costs

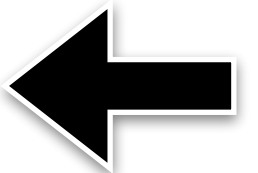
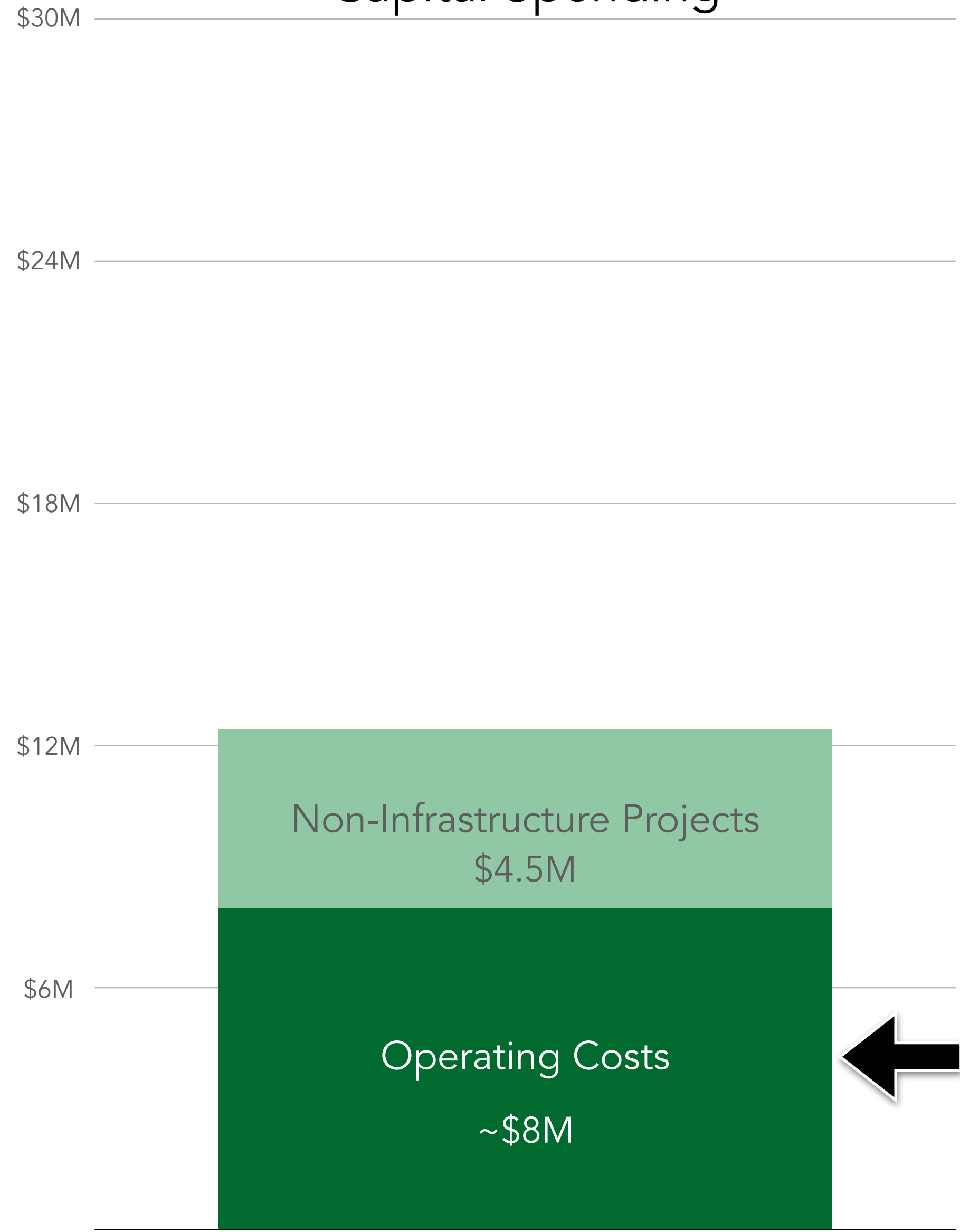
~\$8M

# Capital Spending



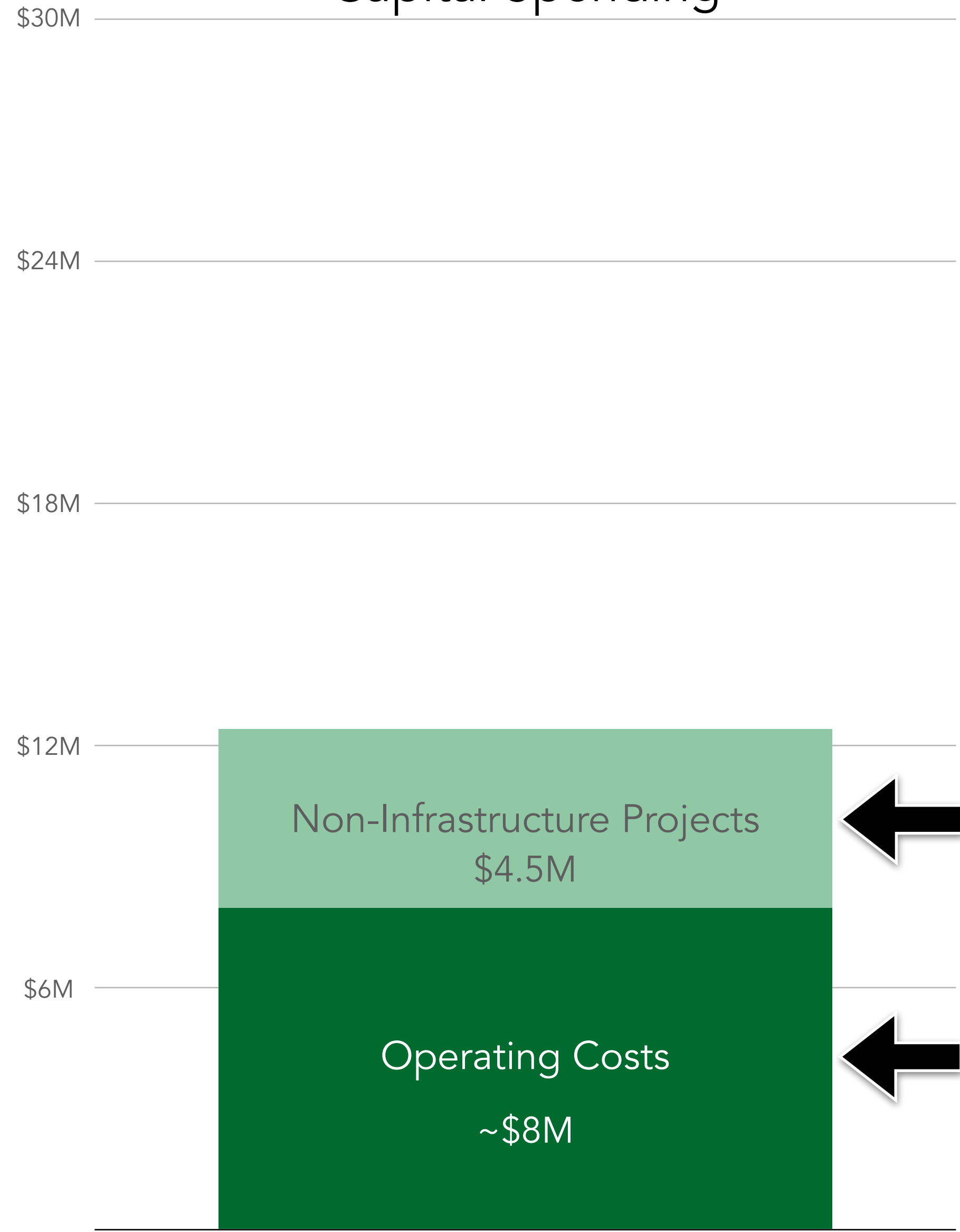
- Administrative Costs
- Operations & Maintenance

# Capital Spending



- Administrative Costs
- Operations & Maintenance

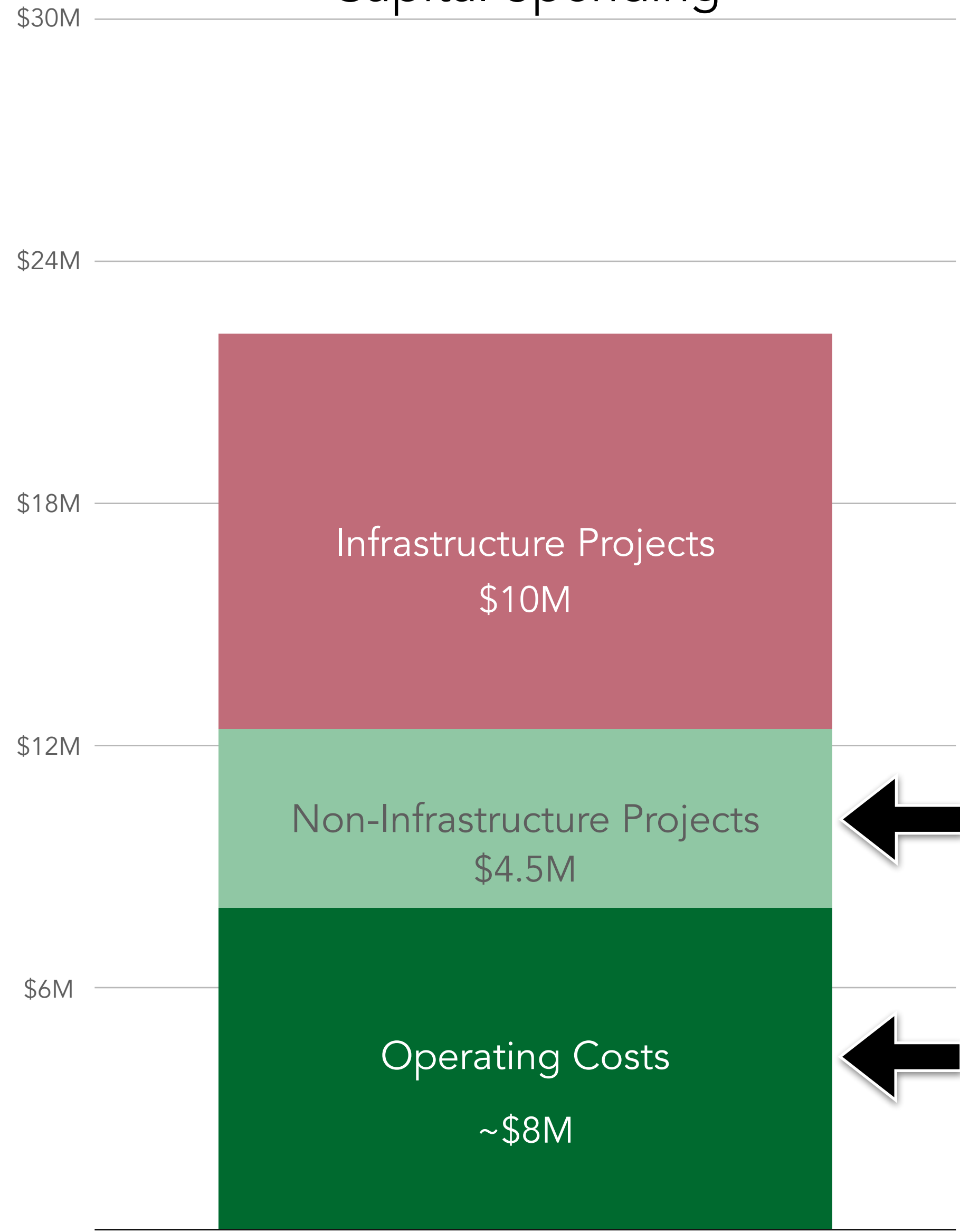
# Capital Spending



- Building Improvements
- Plans & Studies
- Administrative Costs
- Operations & Maintenance



# Capital Spending



- Building Improvements
- Plans & Studies
- Administrative Costs
- Operations & Maintenance

# Capital Spending

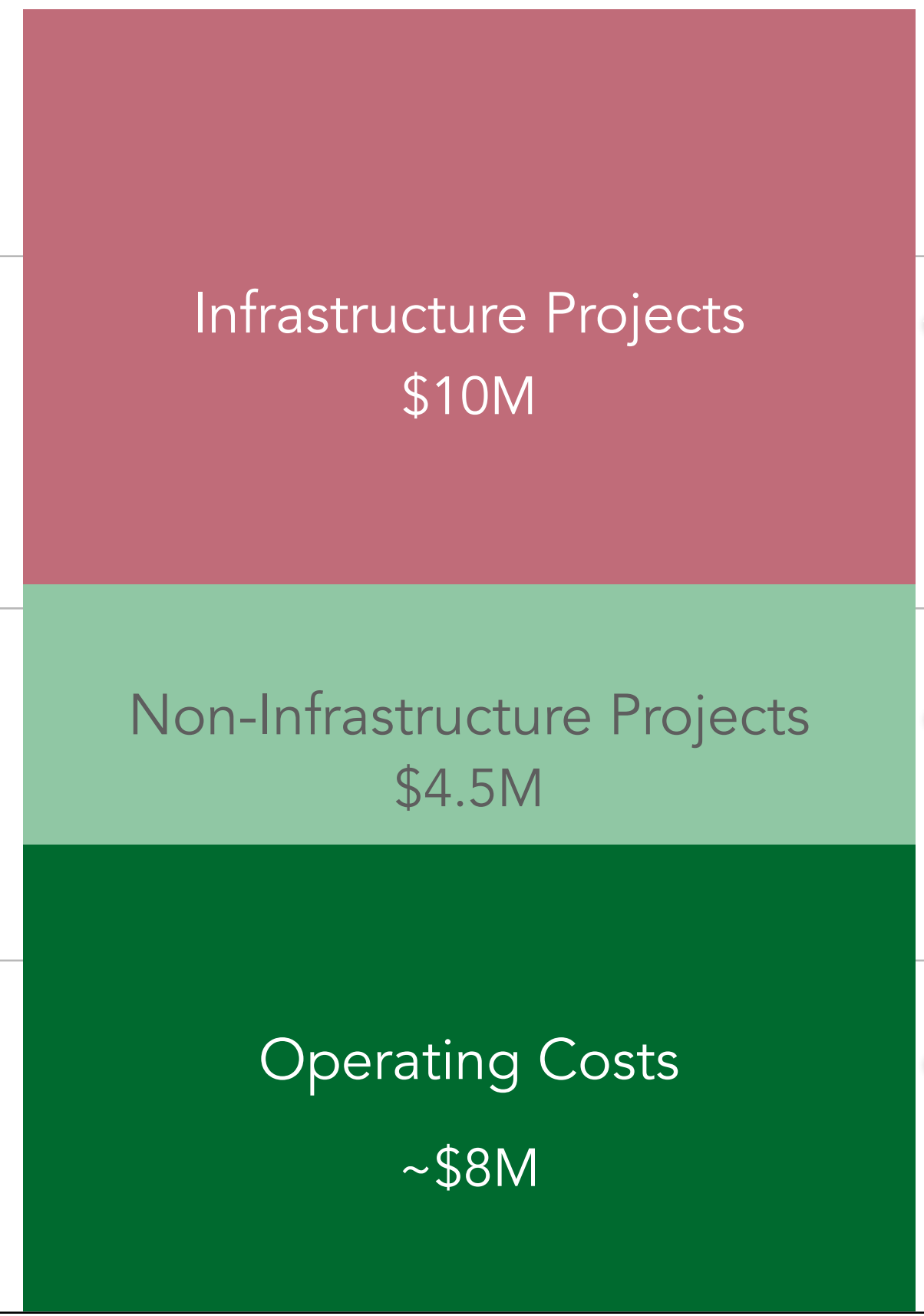
\$30M

\$24M

\$18M

\$12M

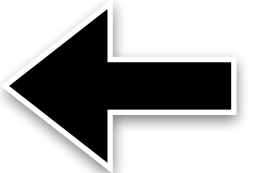
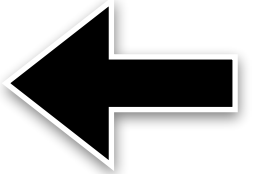
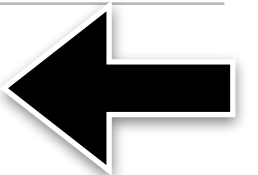
\$6M



Infrastructure Projects  
\$10M

Non-Infrastructure Projects  
\$4.5M

Operating Costs  
~\$8M

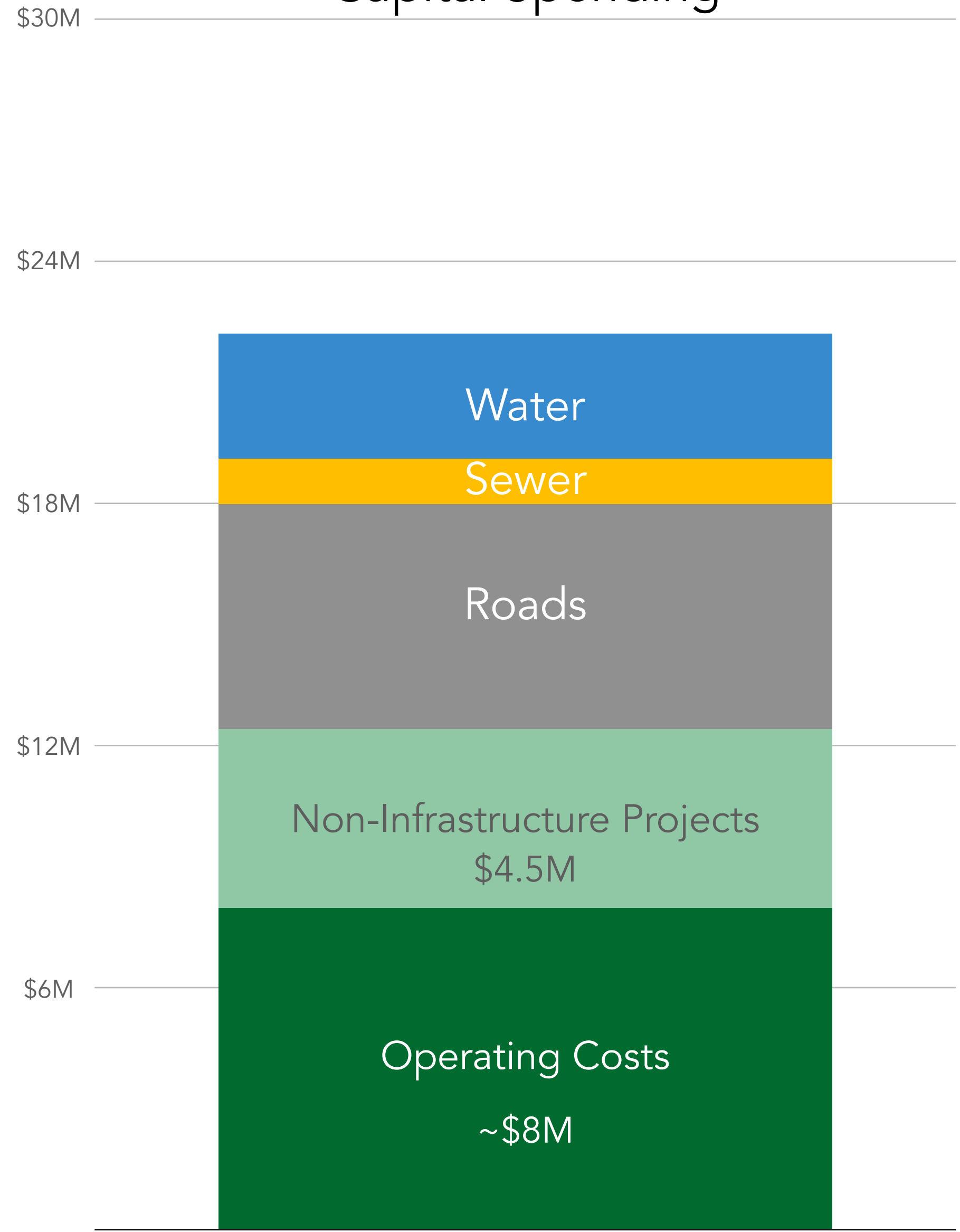


- Roads & Pipe Infrastructure Maintenance

- Building Improvements
- Plans & Studies

- Administrative Costs
- Operations & Maintenance

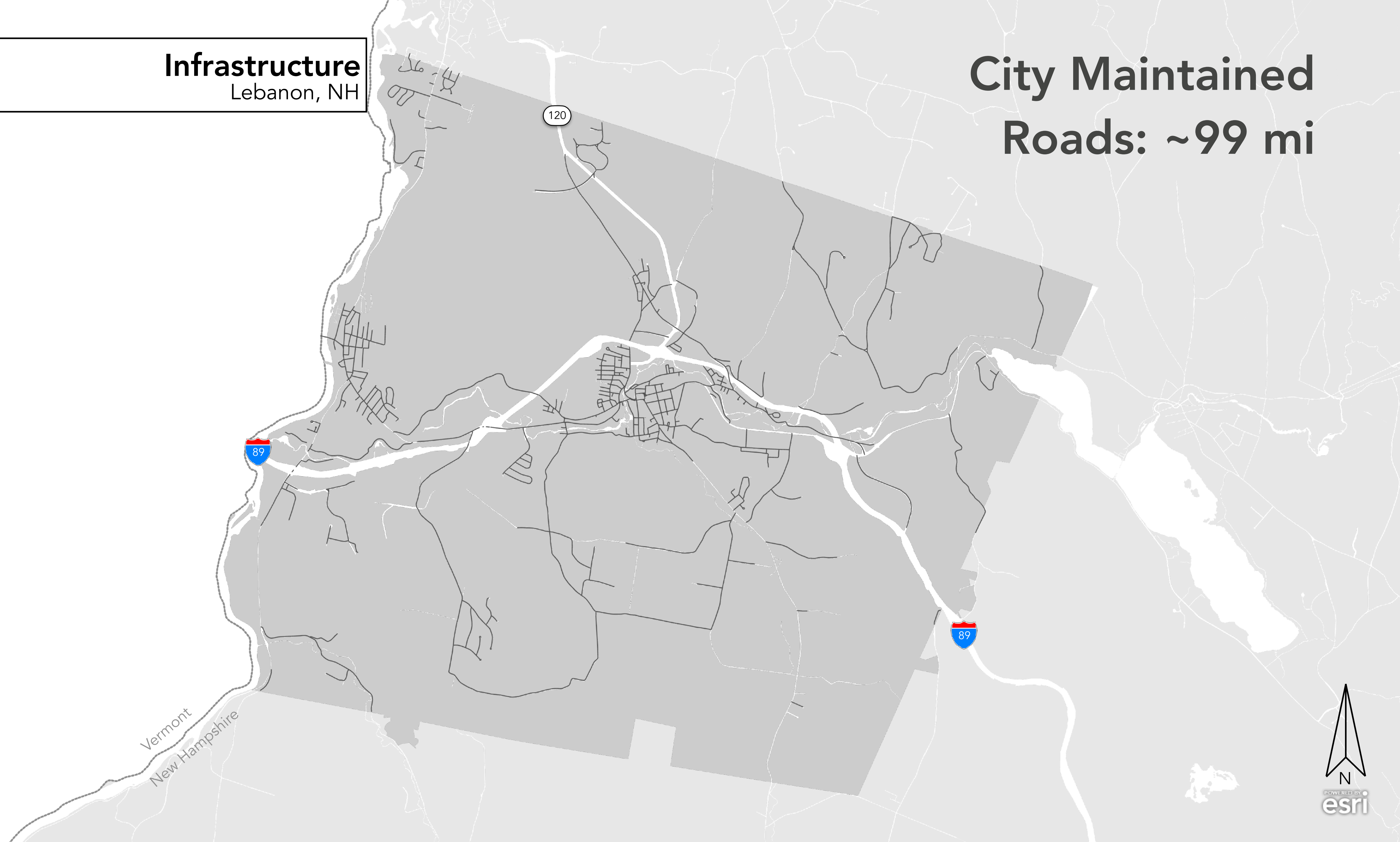
# Capital Spending



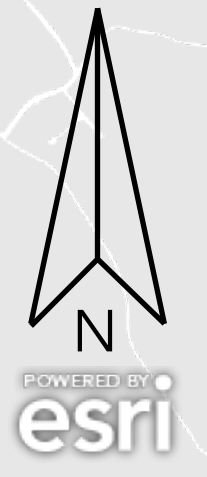
# Infrastructure

Lebanon, NH

# City Maintained Roads: ~99 mi



Vermont  
New Hampshire

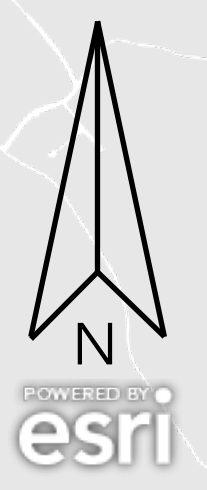
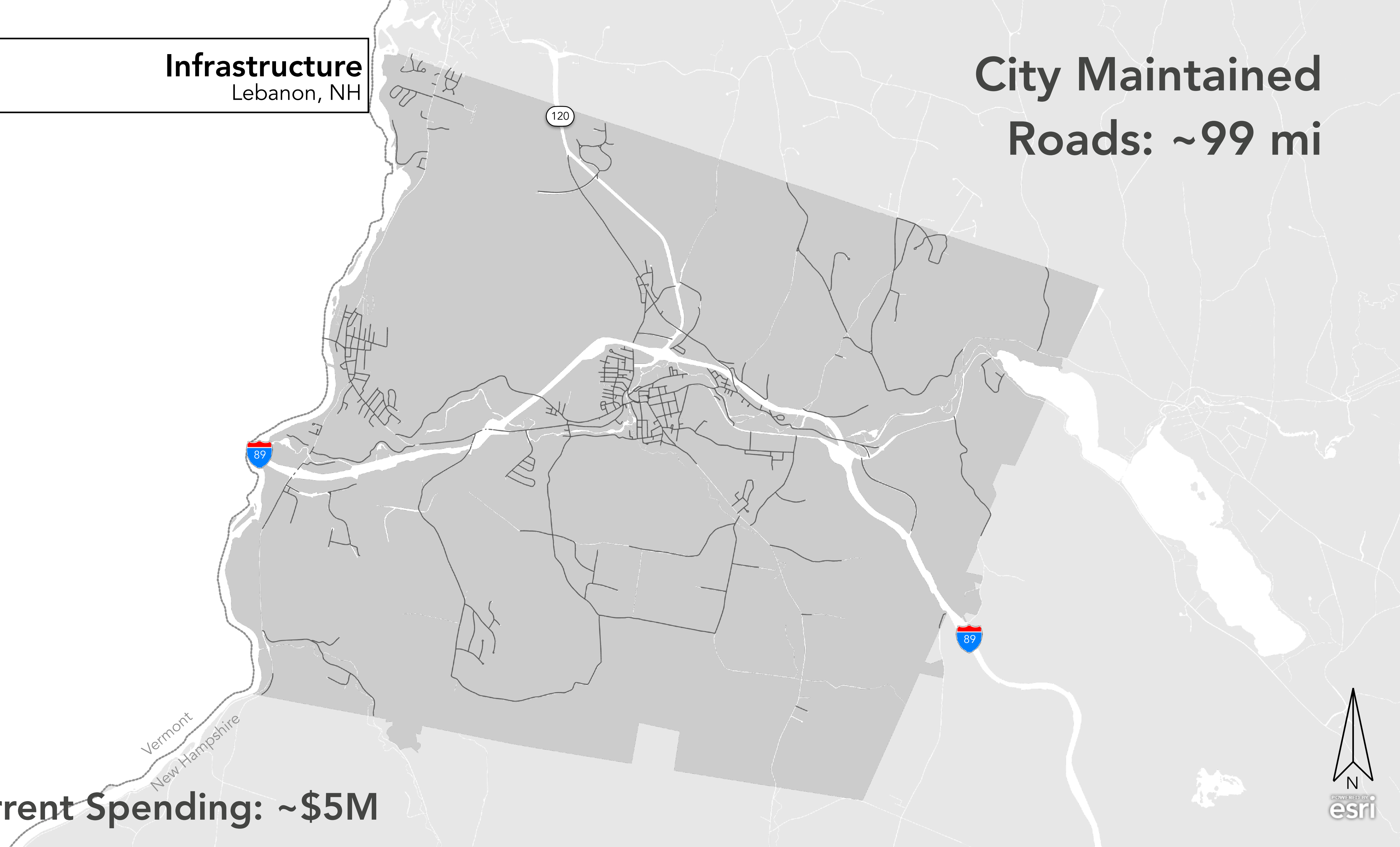


# Infrastructure

Lebanon, NH

# City Maintained Roads: ~99 mi

# Current Spending: ~\$5M



# Infrastructure

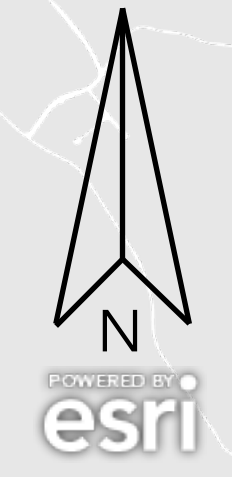
Lebanon, NH

## City Maintained Roads: ~99 mi

**Current Spending: ~\$5M**

**Annualized Lifecycle Cost: \$7.5M**

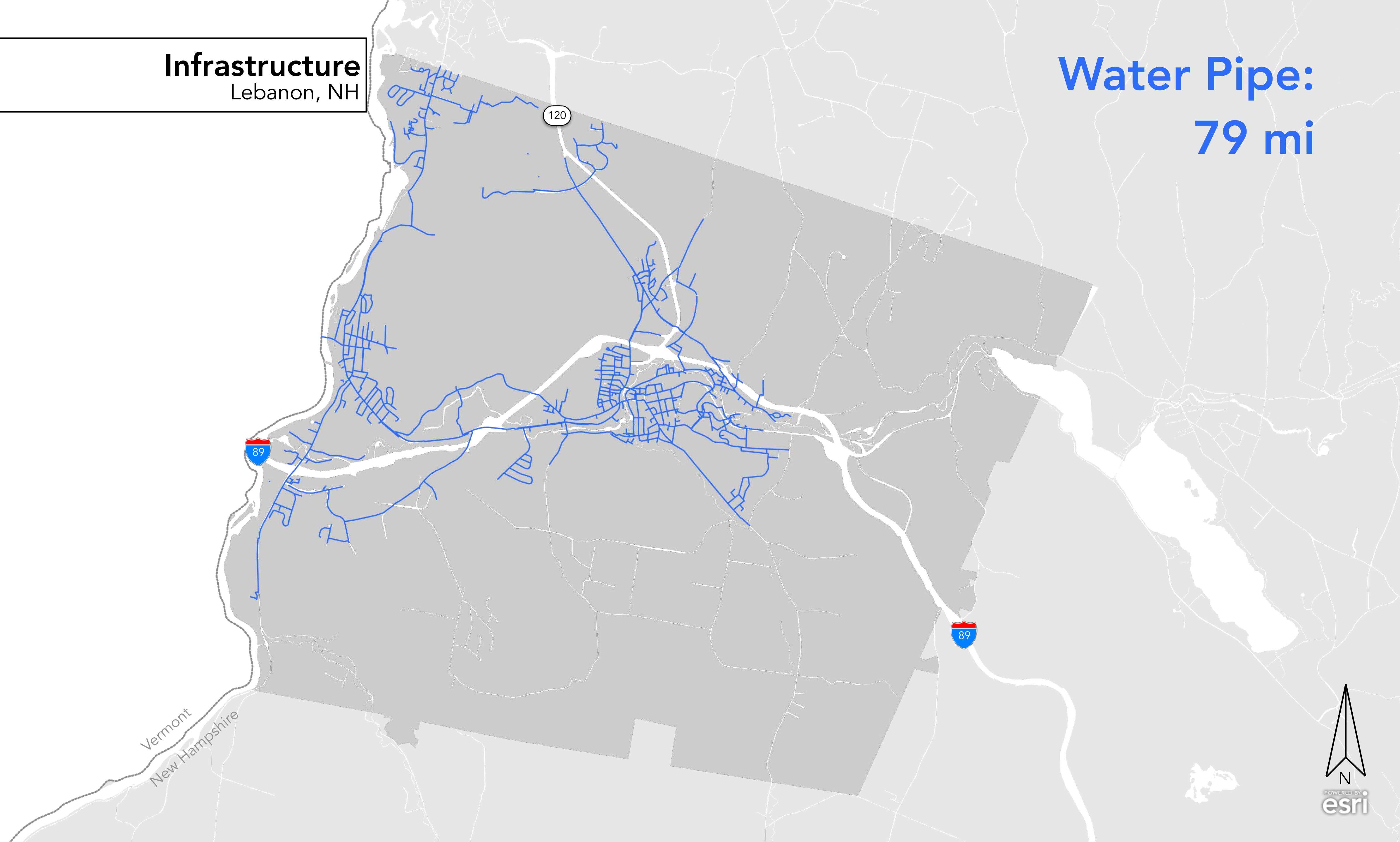
Vermont  
New Hampshire



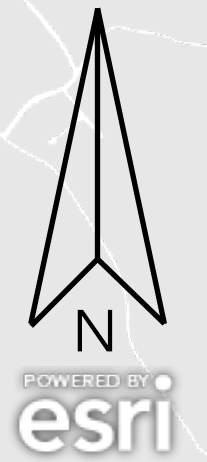
# Infrastructure

Lebanon, NH

Water Pipe:  
79 mi



Vermont  
New Hampshire

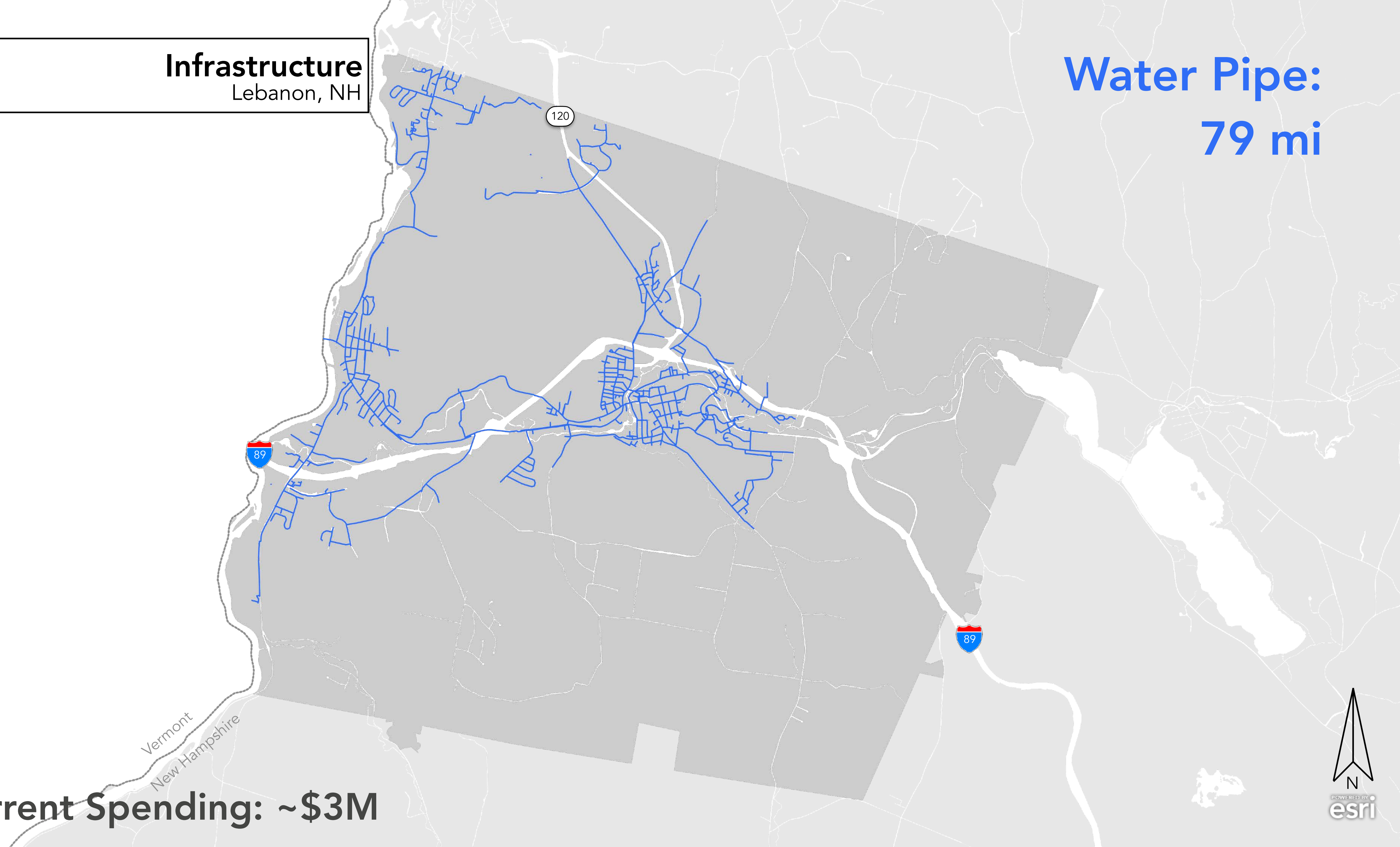


# Infrastructure

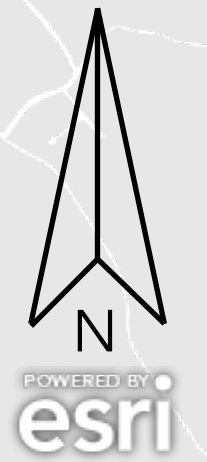
Lebanon, NH

Water Pipe:  
79 mi

Current Spending: ~\$3M



Vermont  
New Hampshire





# Infrastructure

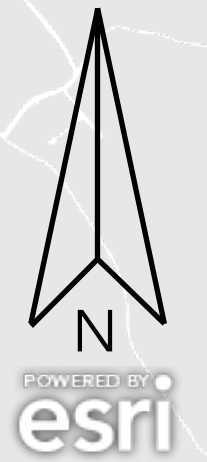
Lebanon, NH

**Water Pipe:**  
**79 mi**

**Current Spending: ~\$3M**

**Annualized Lifecycle Cost: \$3.5M**

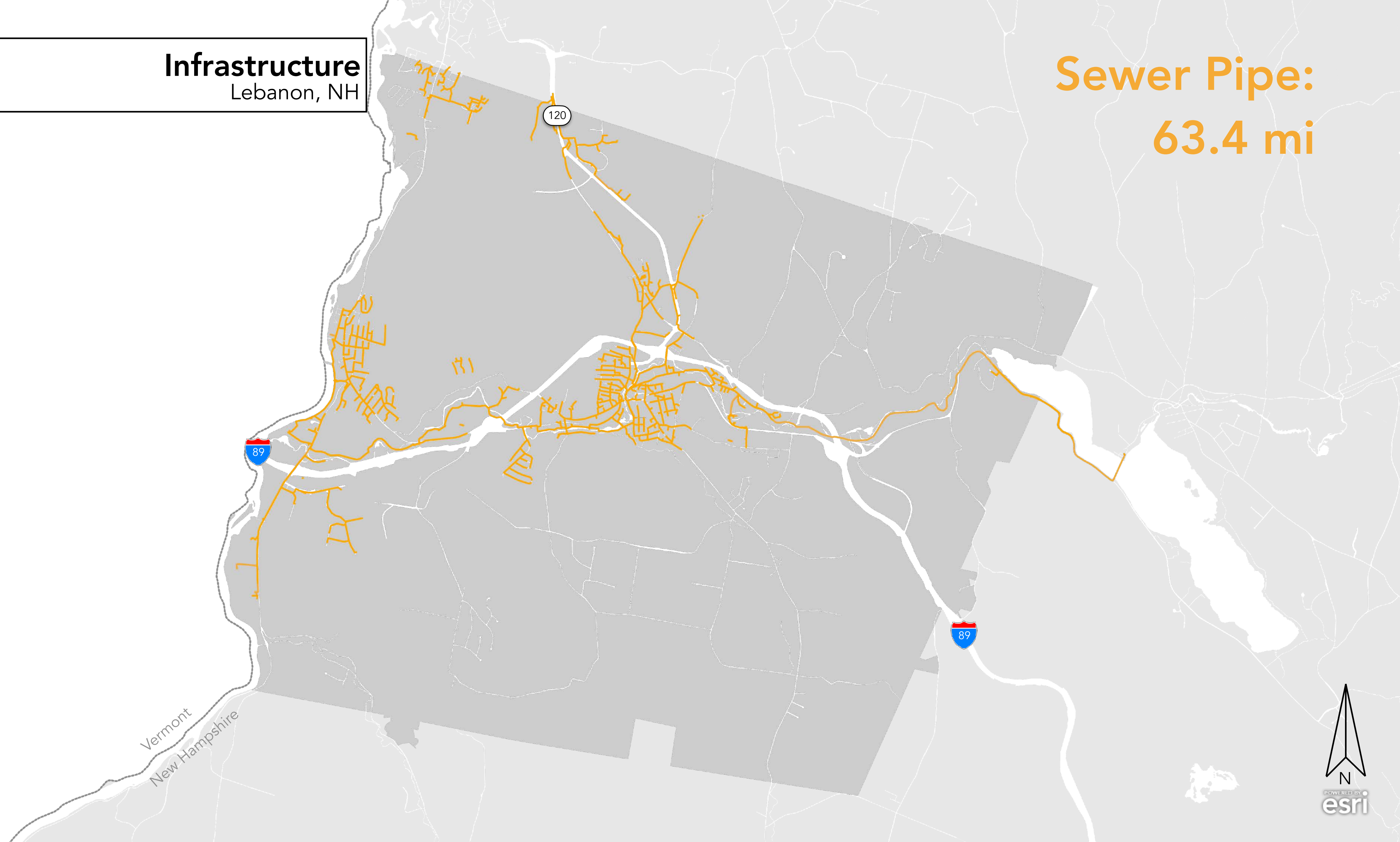
Vermont  
New Hampshire



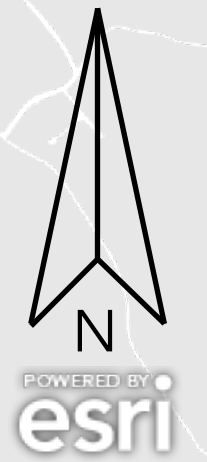
# Infrastructure

Lebanon, NH

Sewer Pipe:  
63.4 mi



Vermont  
New Hampshire

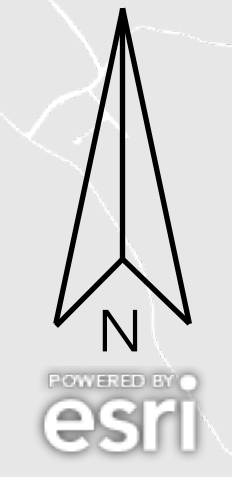
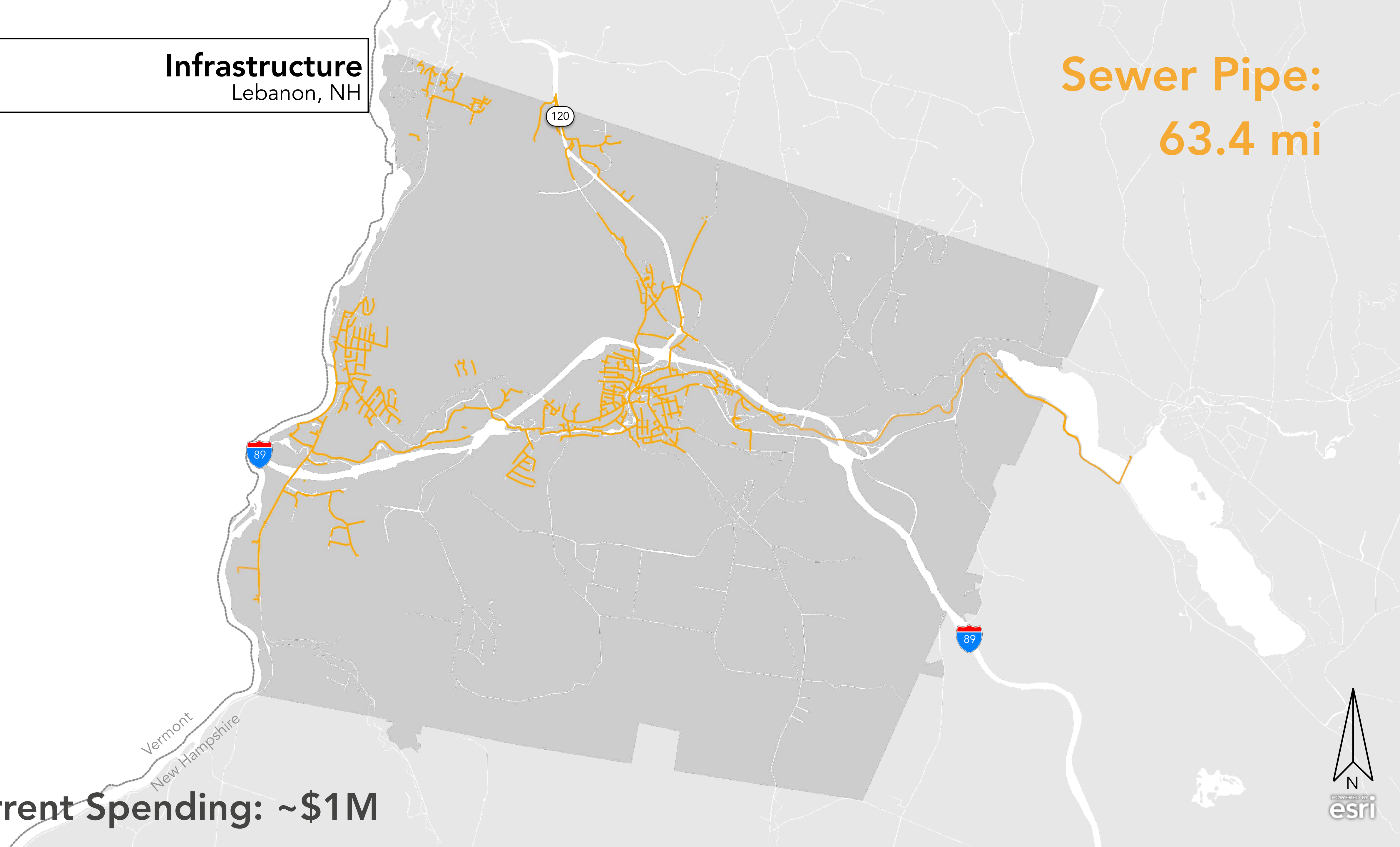


# Infrastructure

Lebanon, NH

Sewer Pipe:  
63.4 mi

Current Spending: ~\$1M



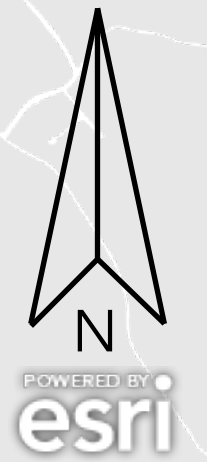
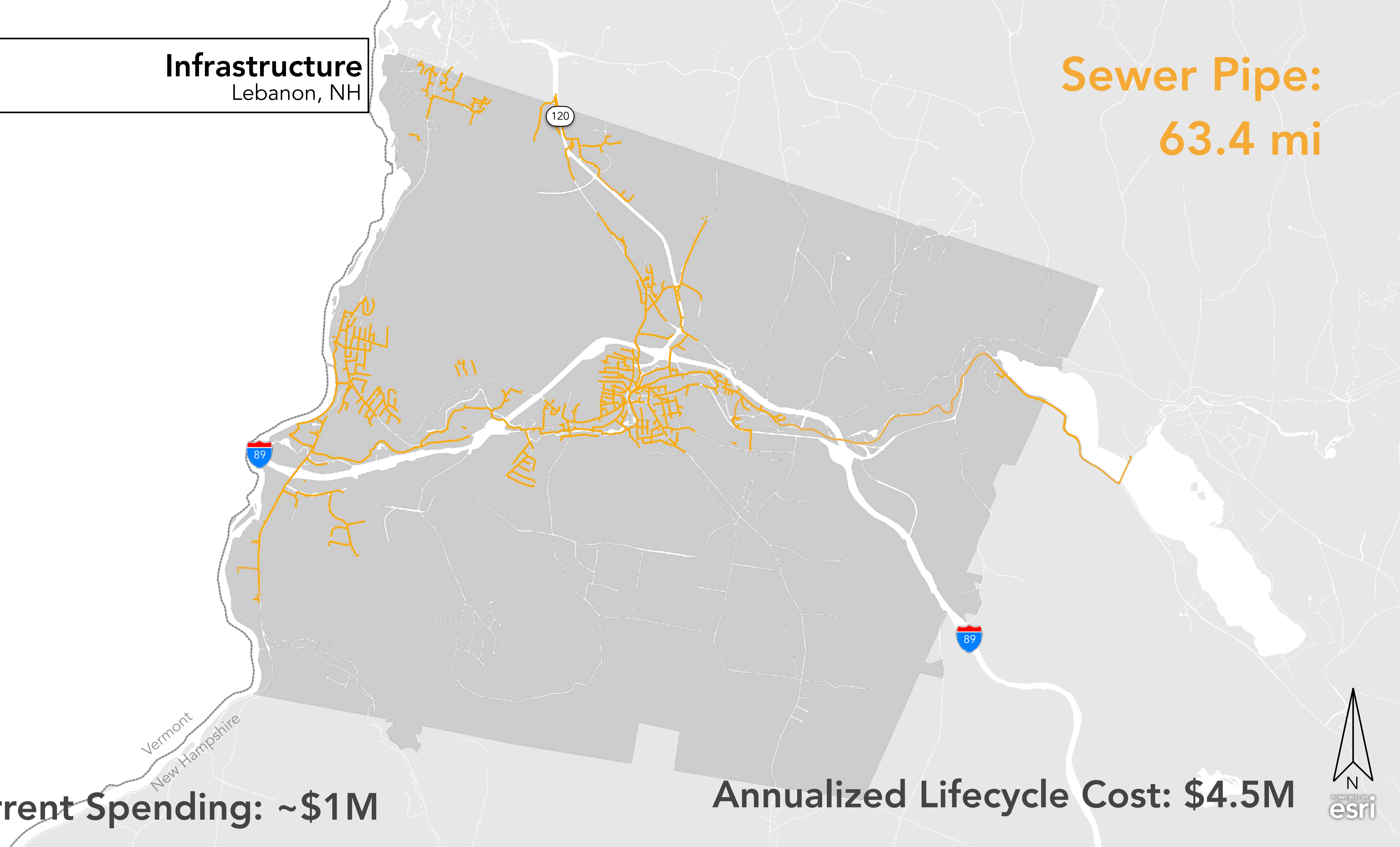
# Infrastructure

Lebanon, NH

Sewer Pipe:  
63.4 mi

Current Spending: ~\$1M

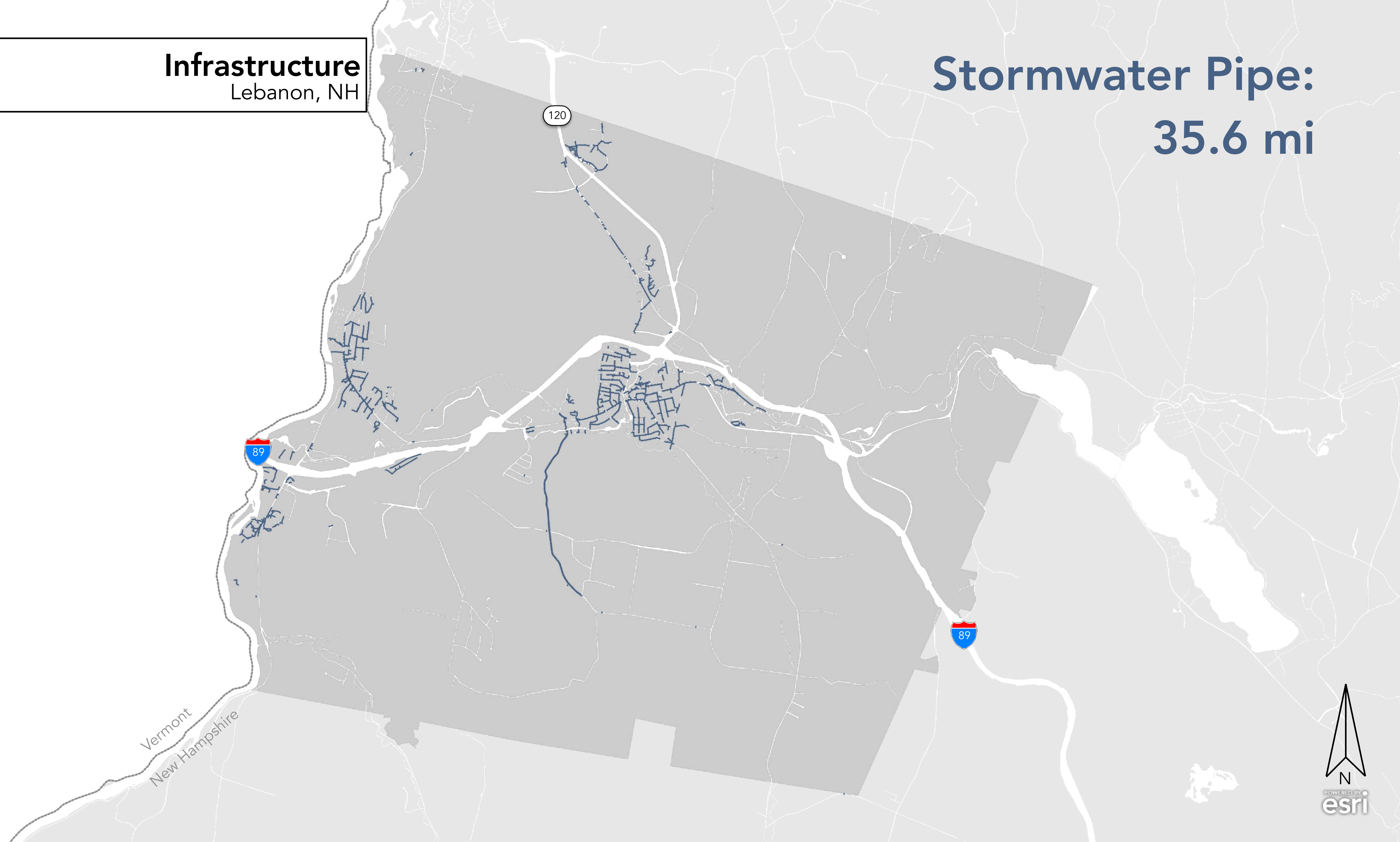
Annualized Lifecycle Cost: \$4.5M



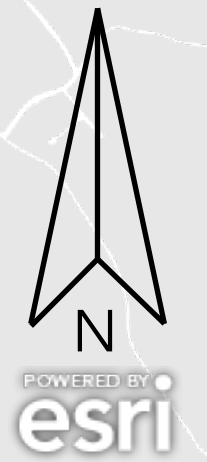
# Infrastructure

Lebanon, NH

# Stormwater Pipe: 35.6 mi



Vermont  
New Hampshire

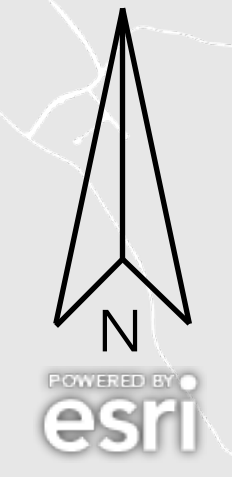
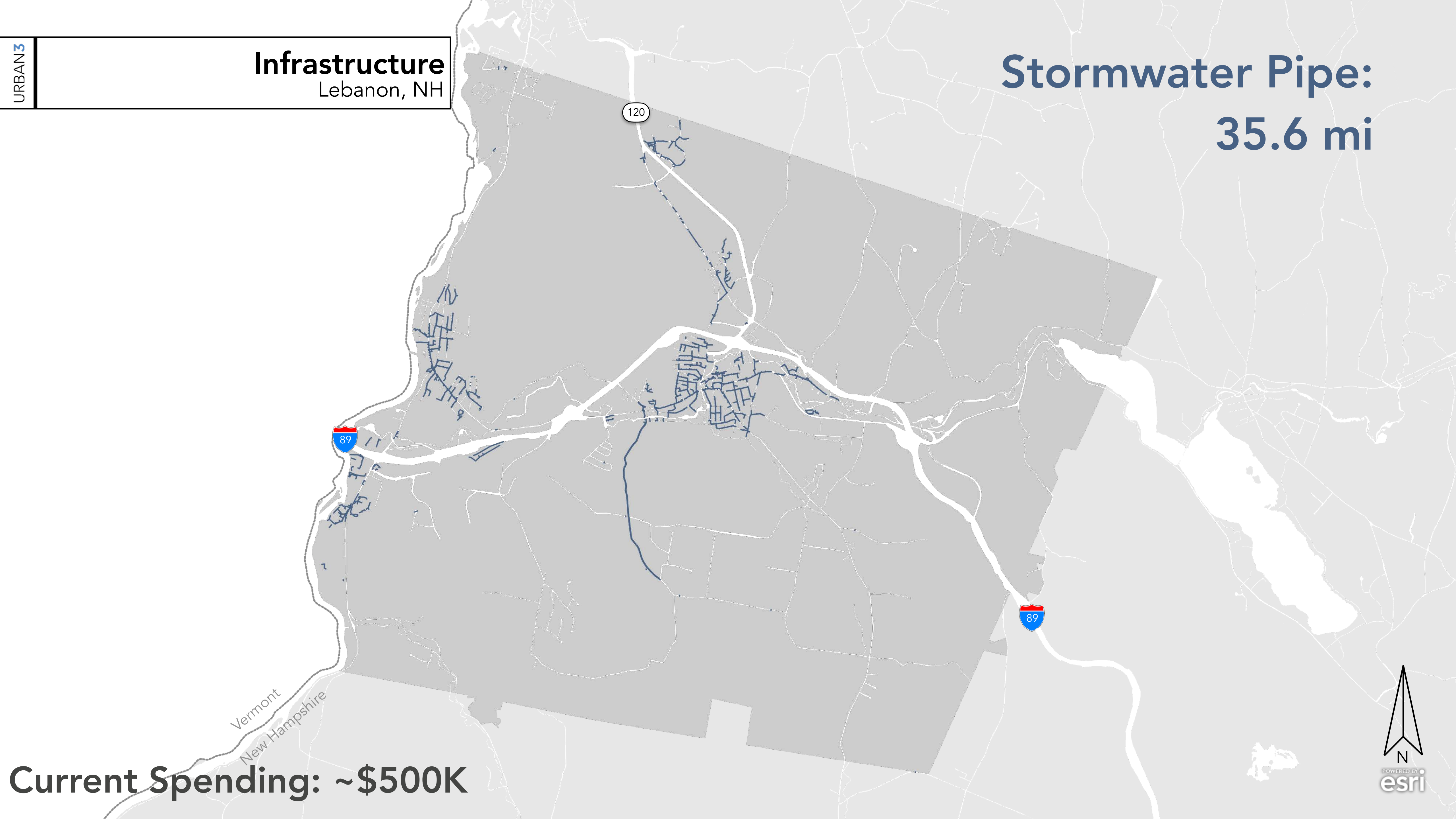


# Infrastructure

Lebanon, NH

# Stormwater Pipe: 35.6 mi

# Current Spending: ~\$500K



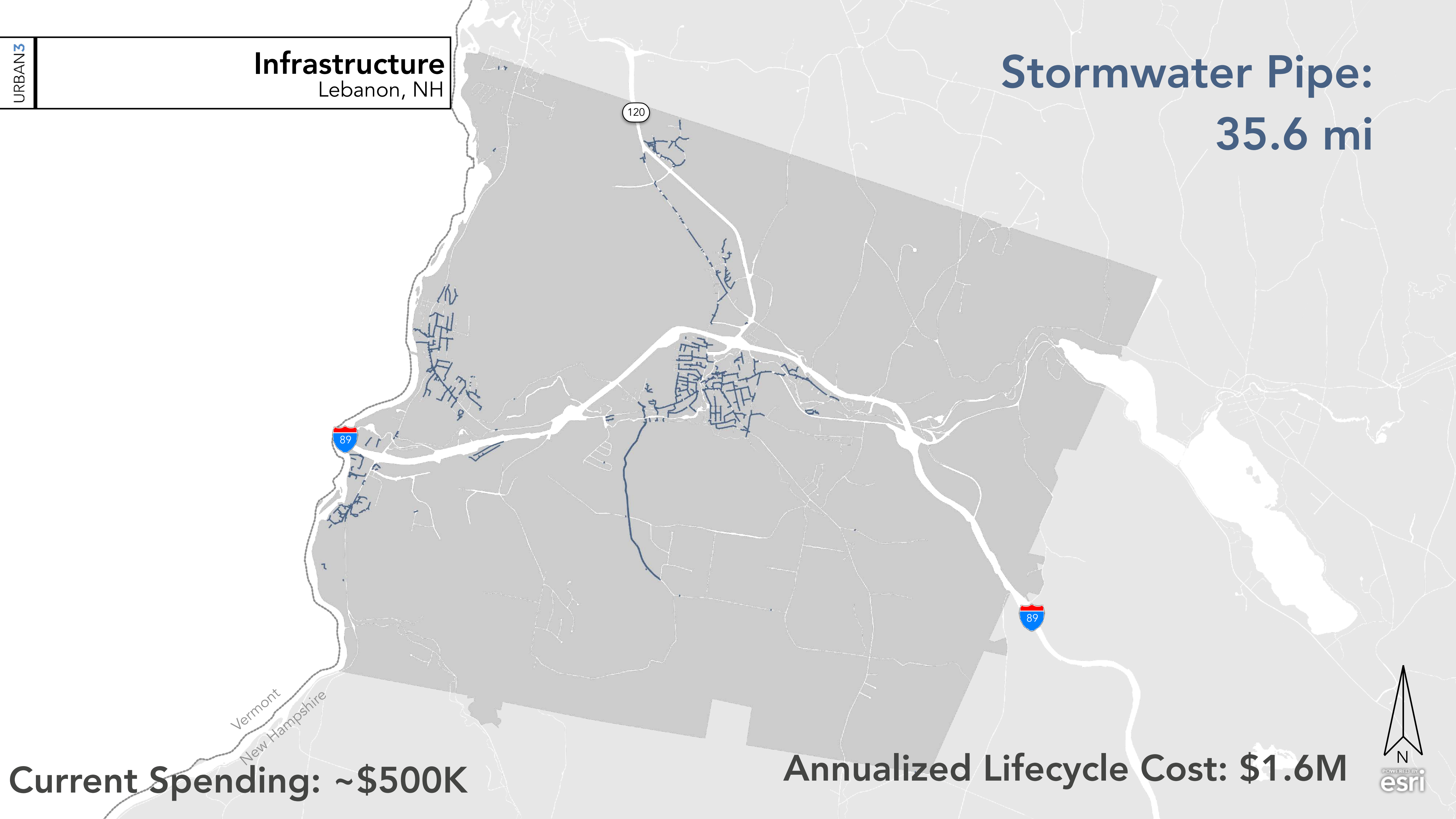
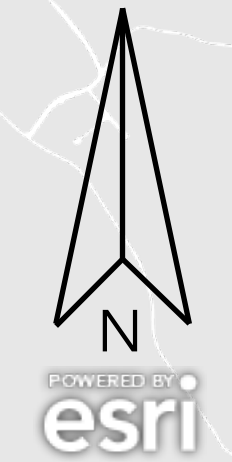
# Infrastructure

Lebanon, NH

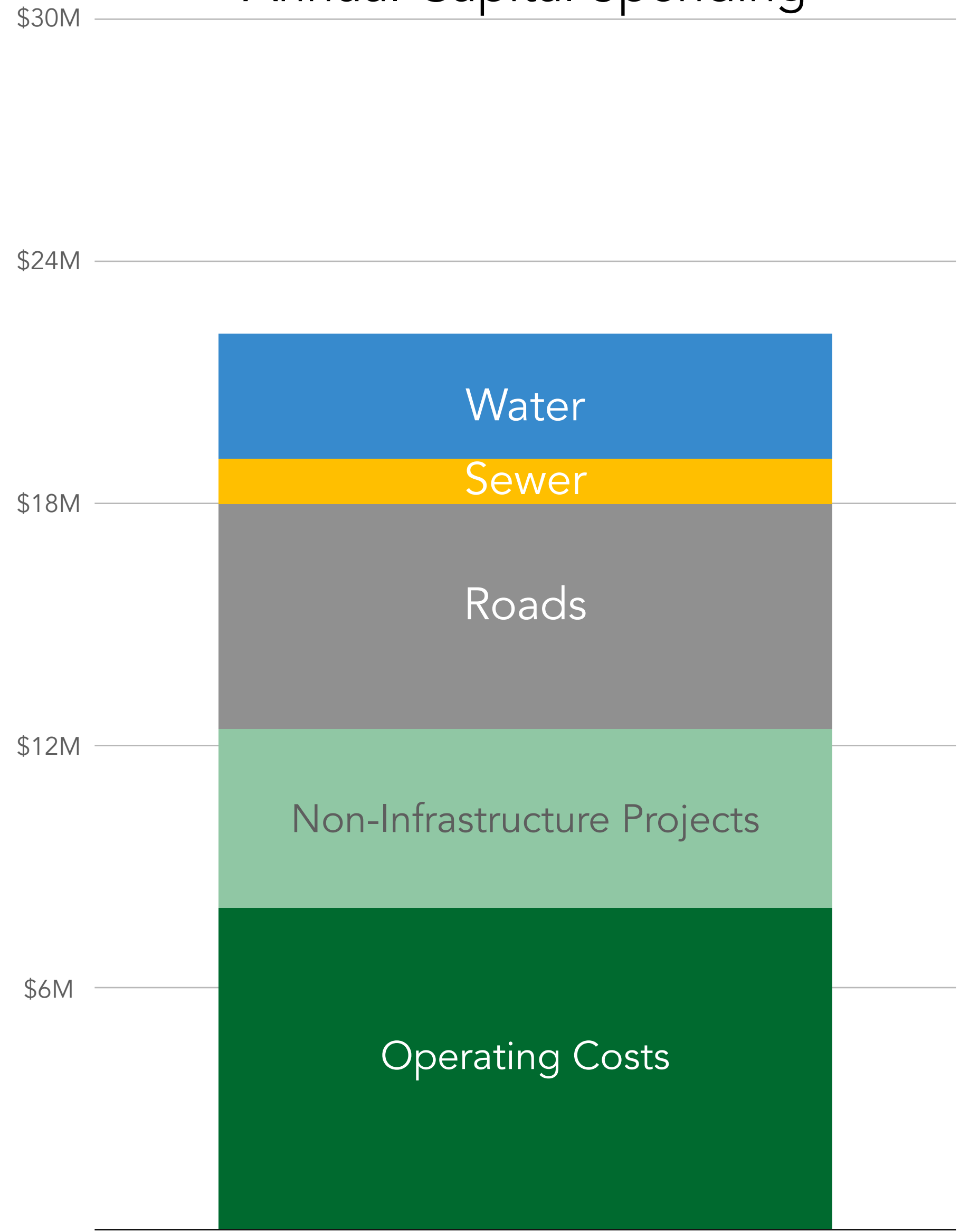
## Stormwater Pipe: 35.6 mi

Current Spending: ~\$500K

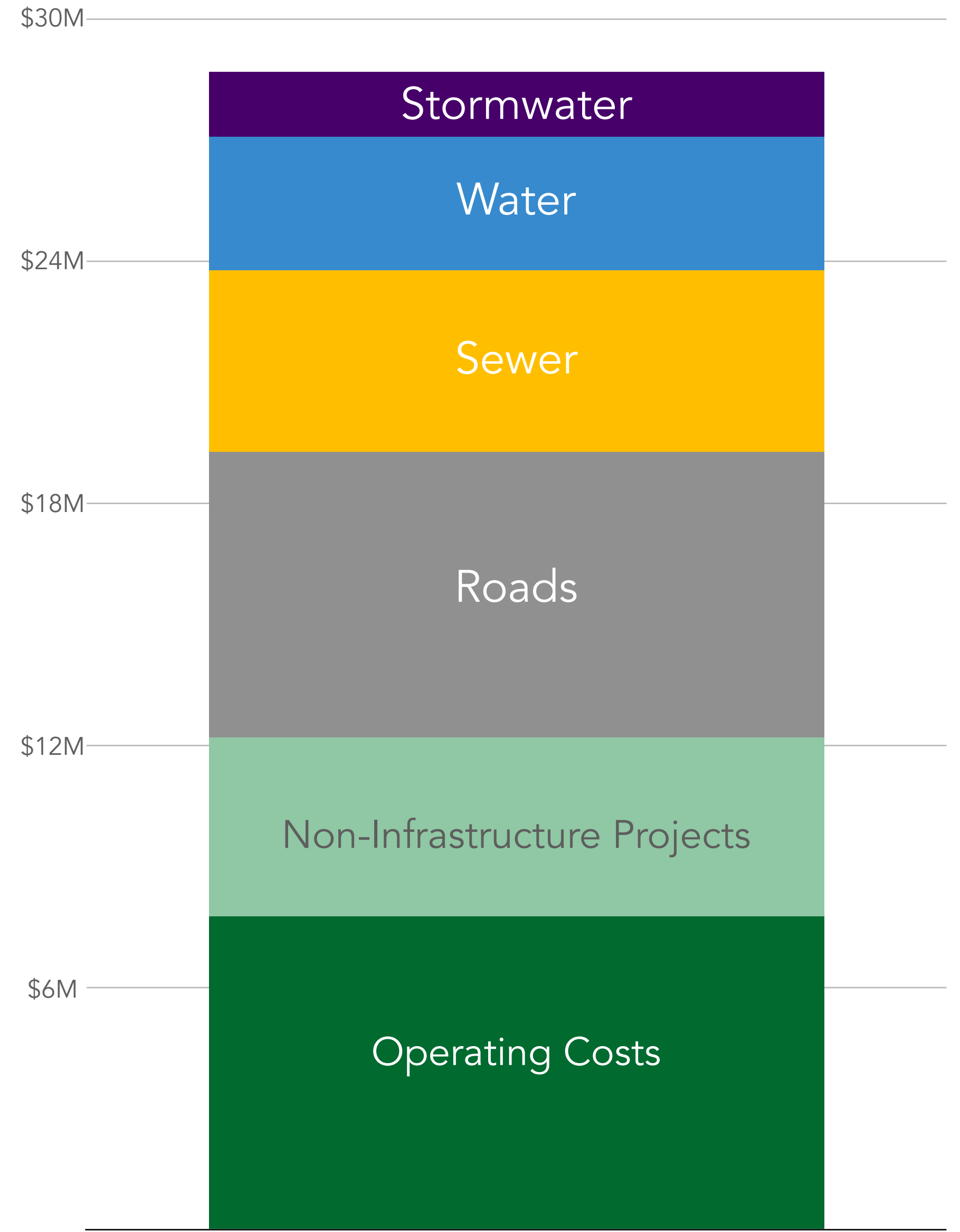
Annualized Lifecycle Cost: \$1.6M



### Annual Capital Spending

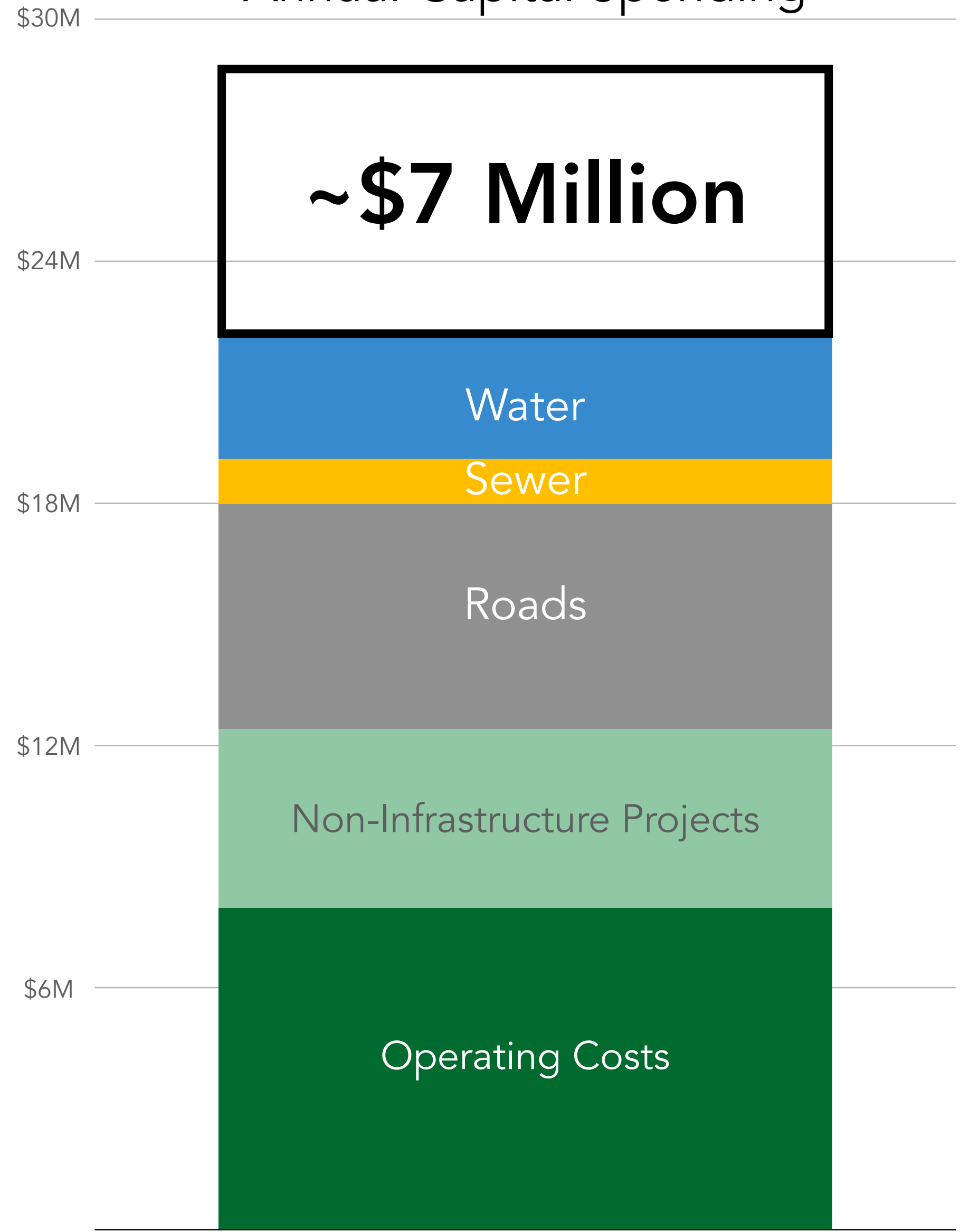


### Annualized Lifecycle Cost

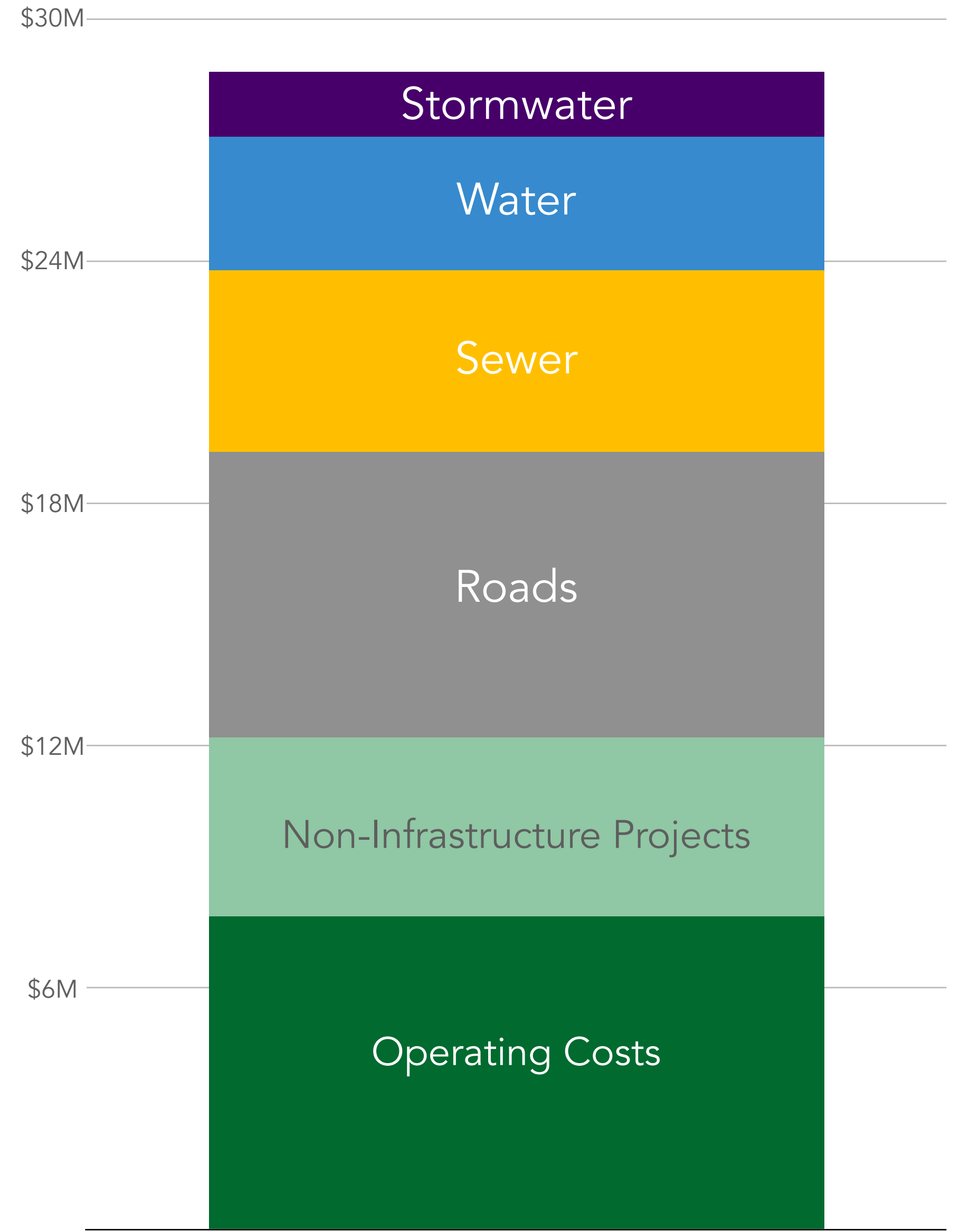




Annual Capital Spending

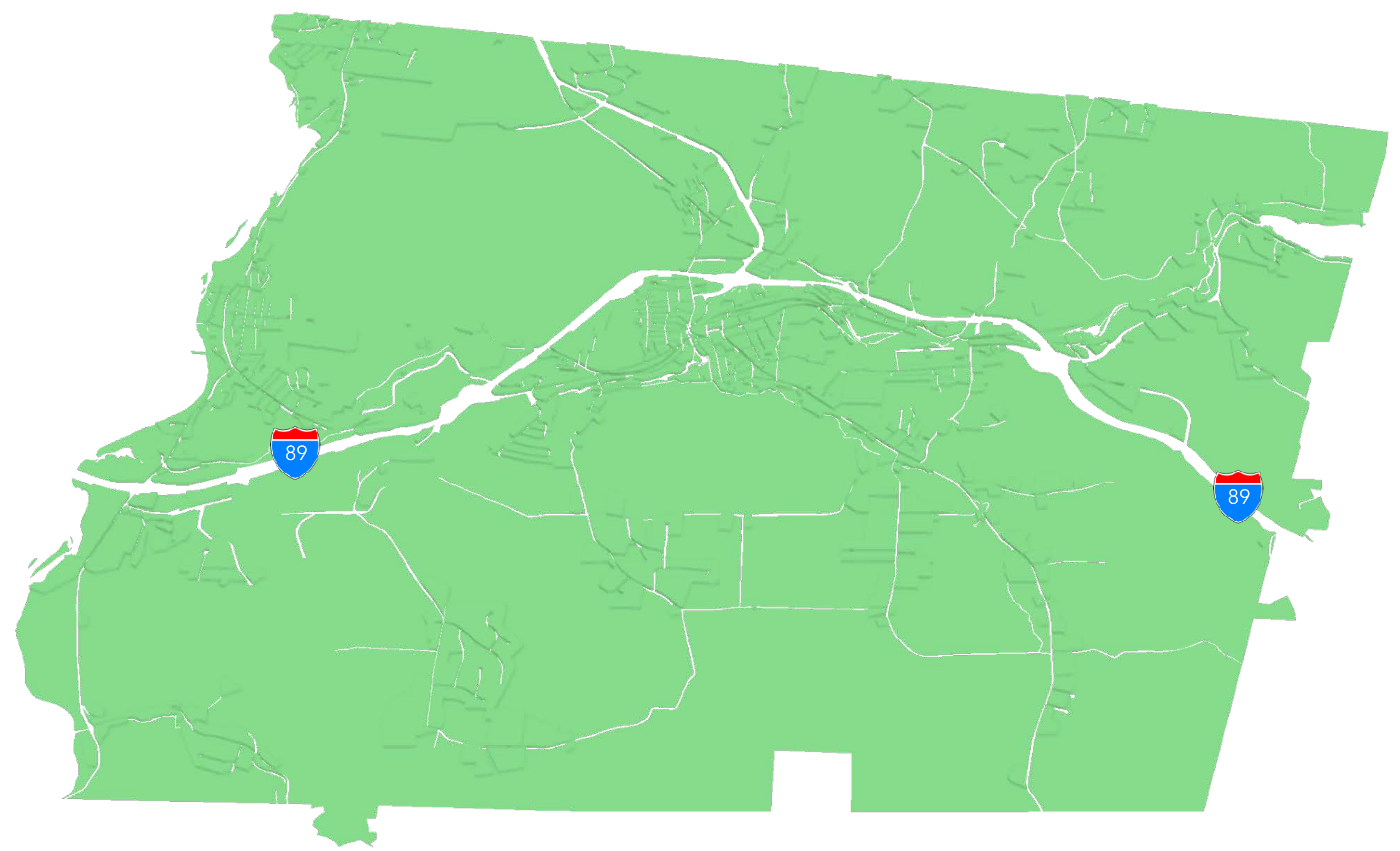


Annualized Lifecycle Cost



# Mapping Budget Revenues & Expenses

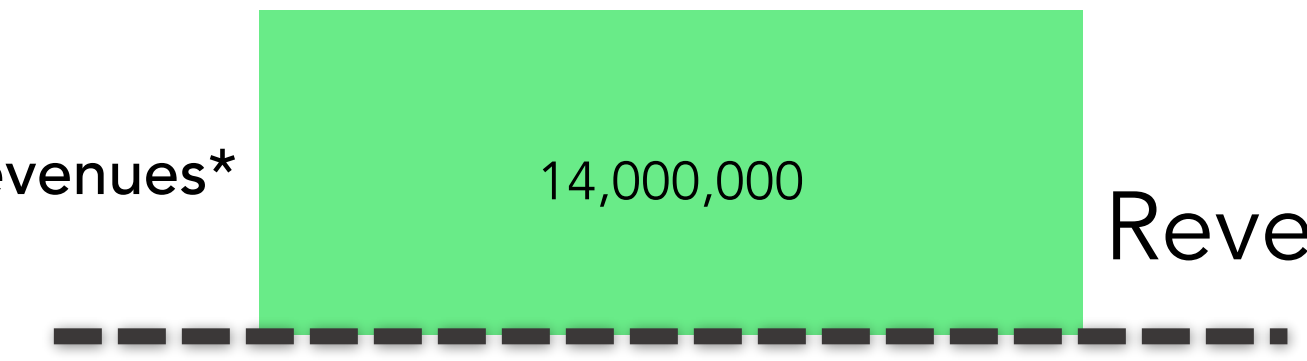
Lebanon, NH



Operating Revenues\*

14,000,000

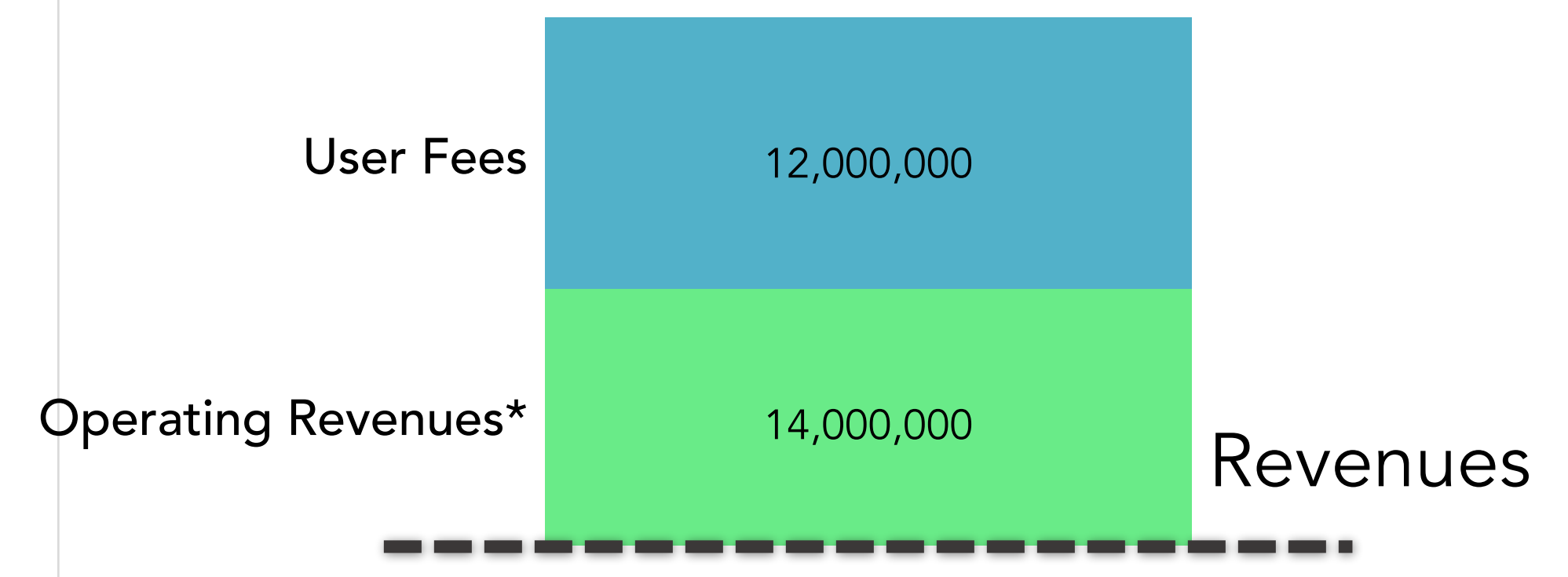
Revenues



\*Operating Revenues & Expenses divided among served parcels

# Mapping Budget Revenues & Expenses

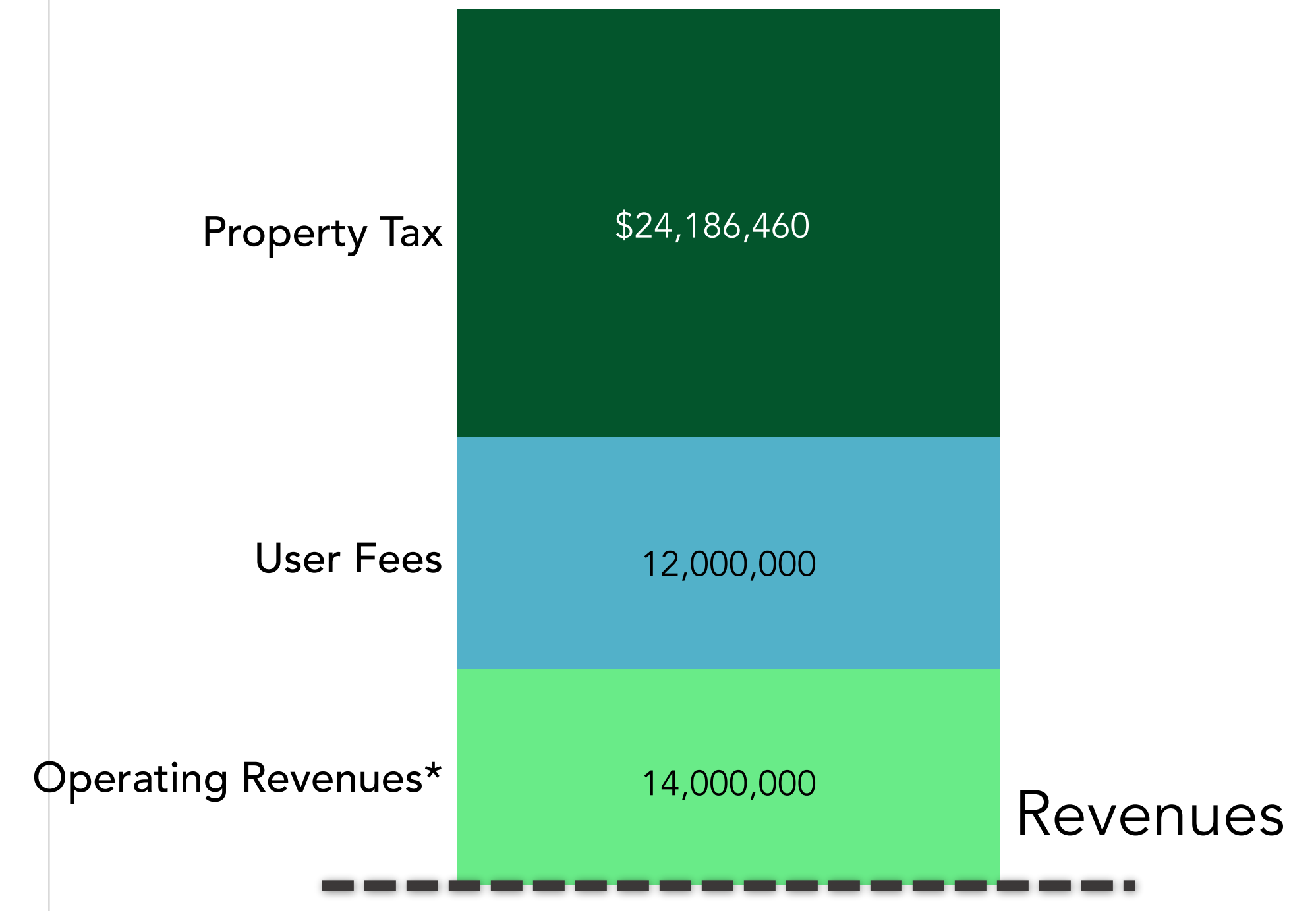
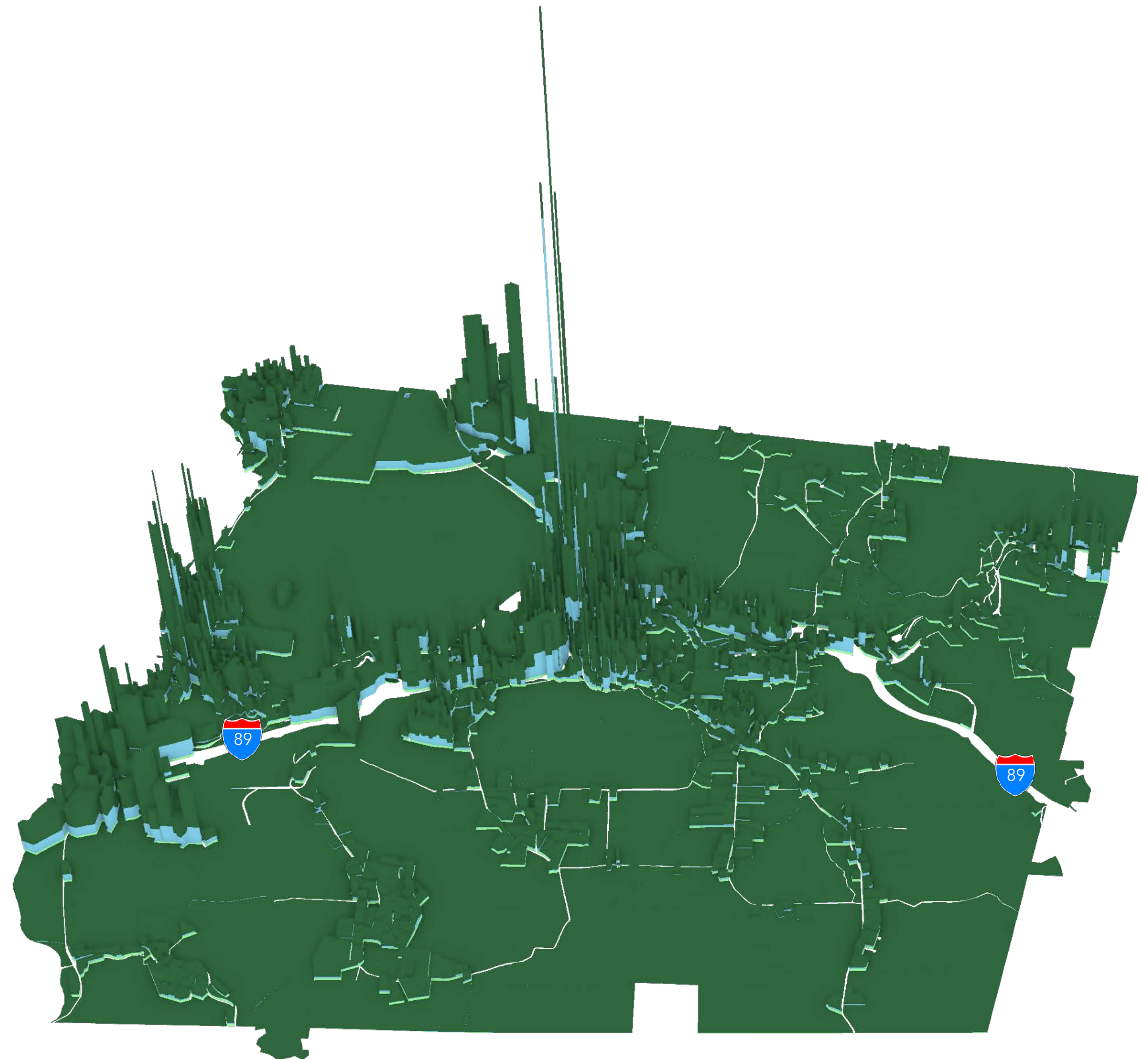
Lebanon, NH



\*Operating Revenues & Expenses divided among served parcels

# Mapping Budget Revenues & Expenses

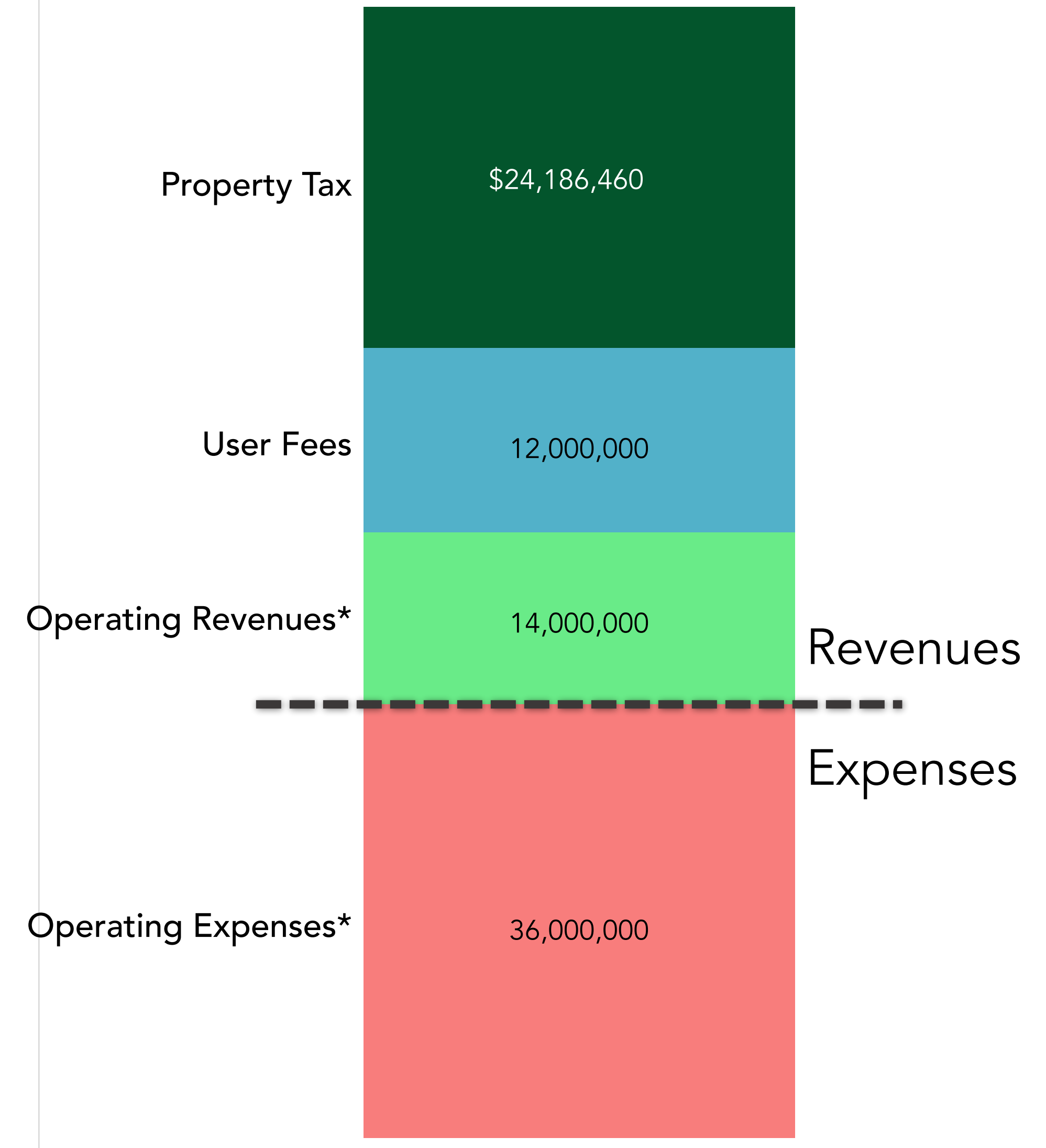
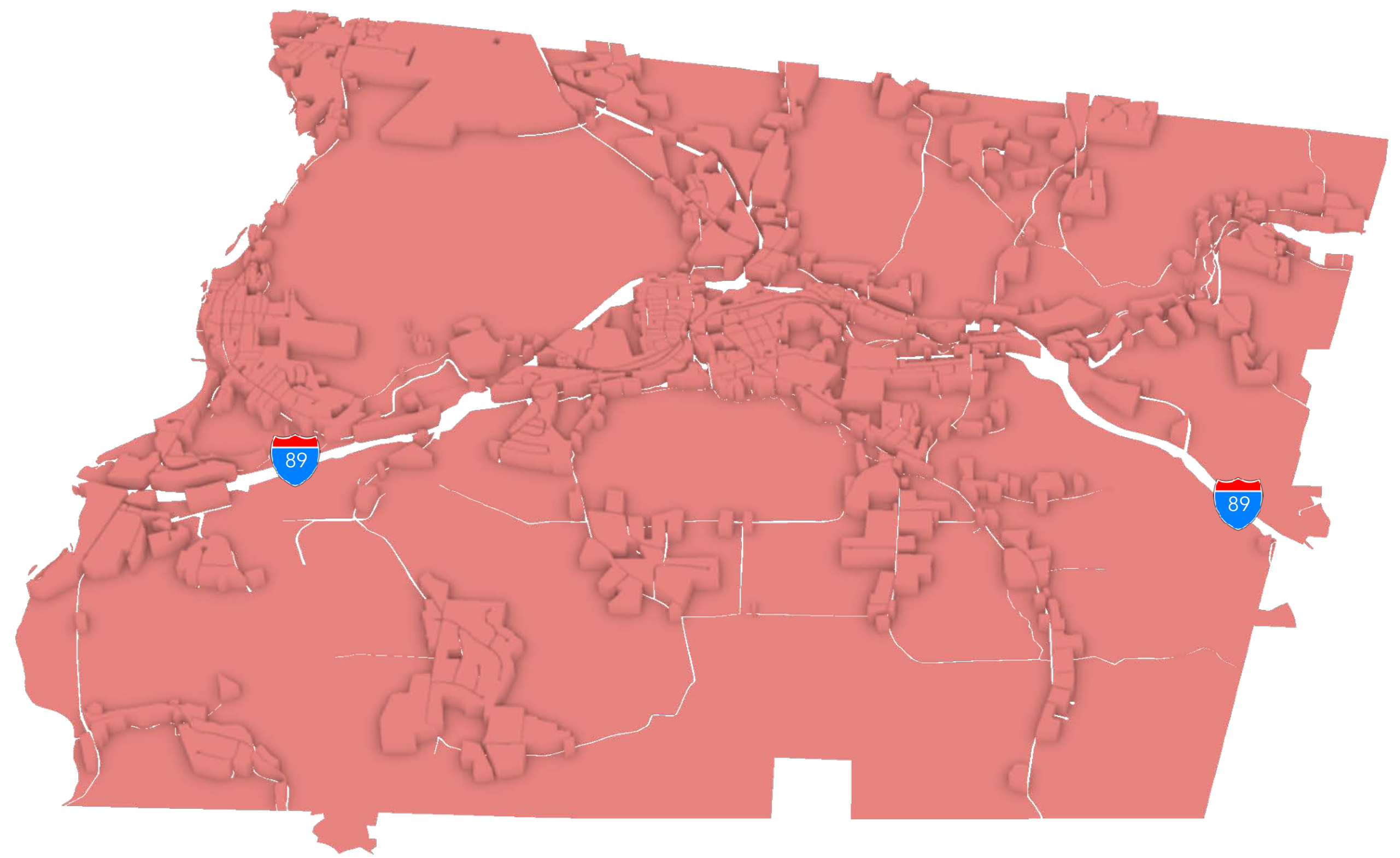
Lebanon, NH



\*Operating Revenues & Expenses divided among served parcels

# Mapping Budget Revenues & Expenses

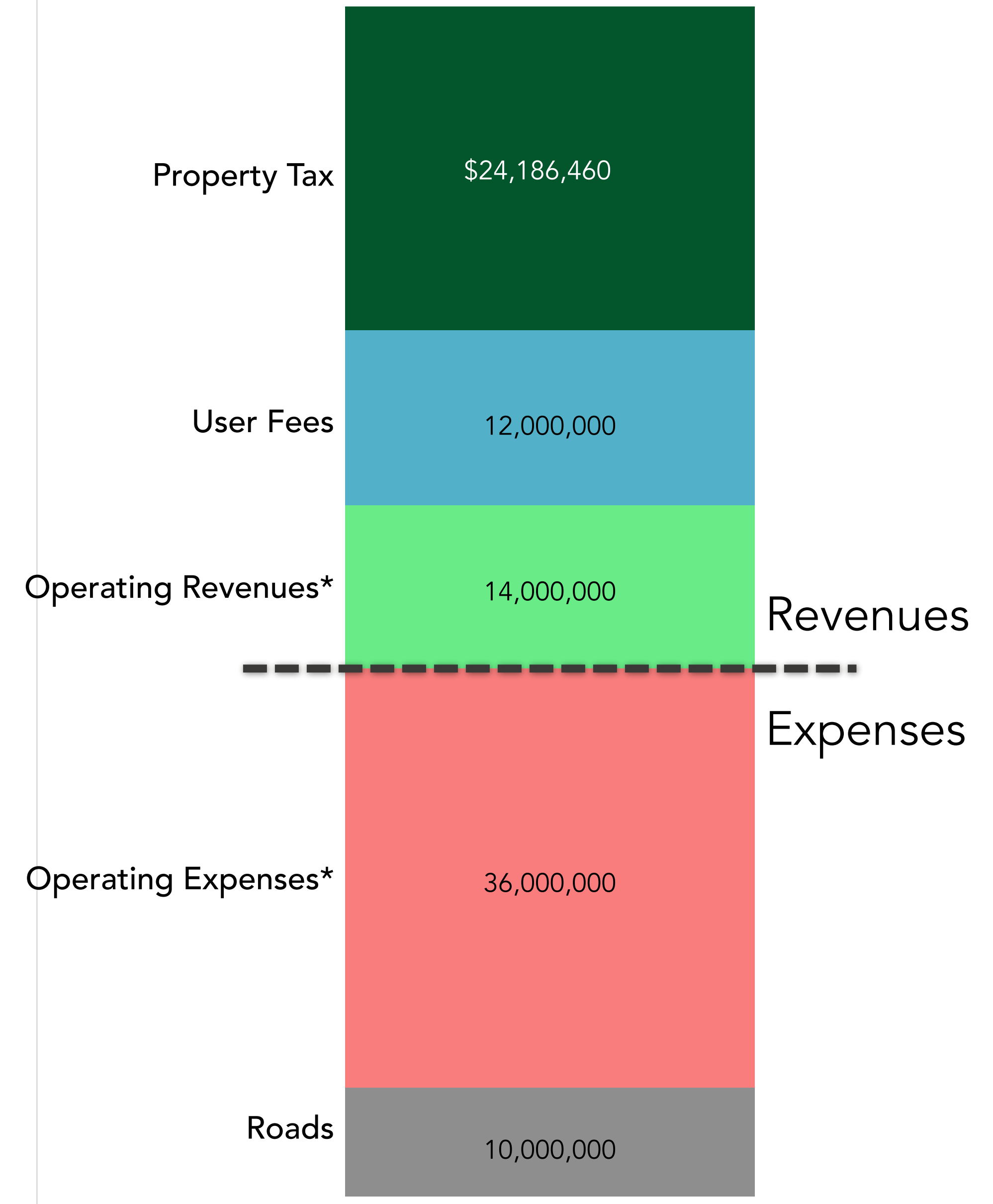
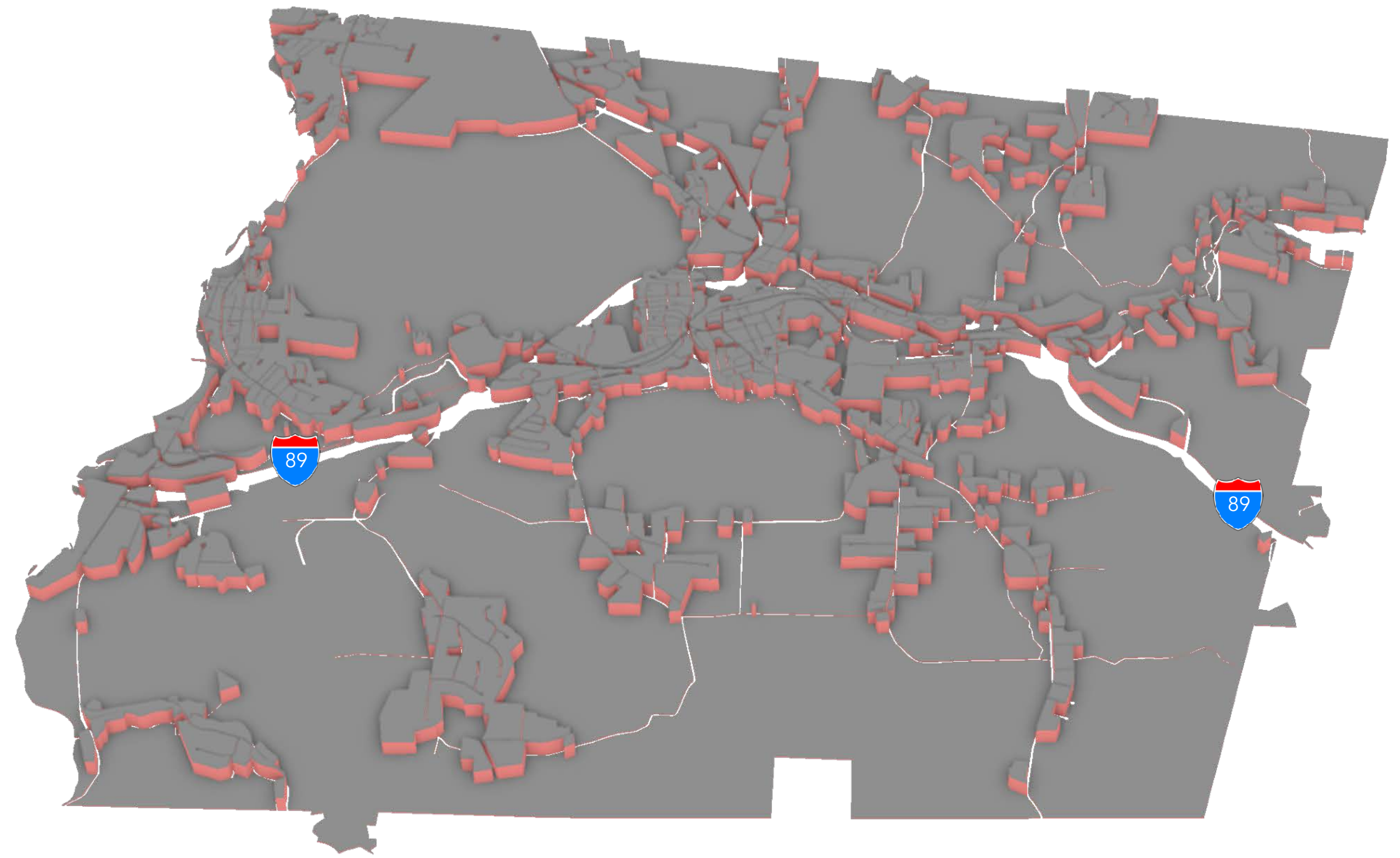
Lebanon, NH



\*Operating Revenues & Expenses divided among served parcels

# Mapping Budget Revenues & Expenses

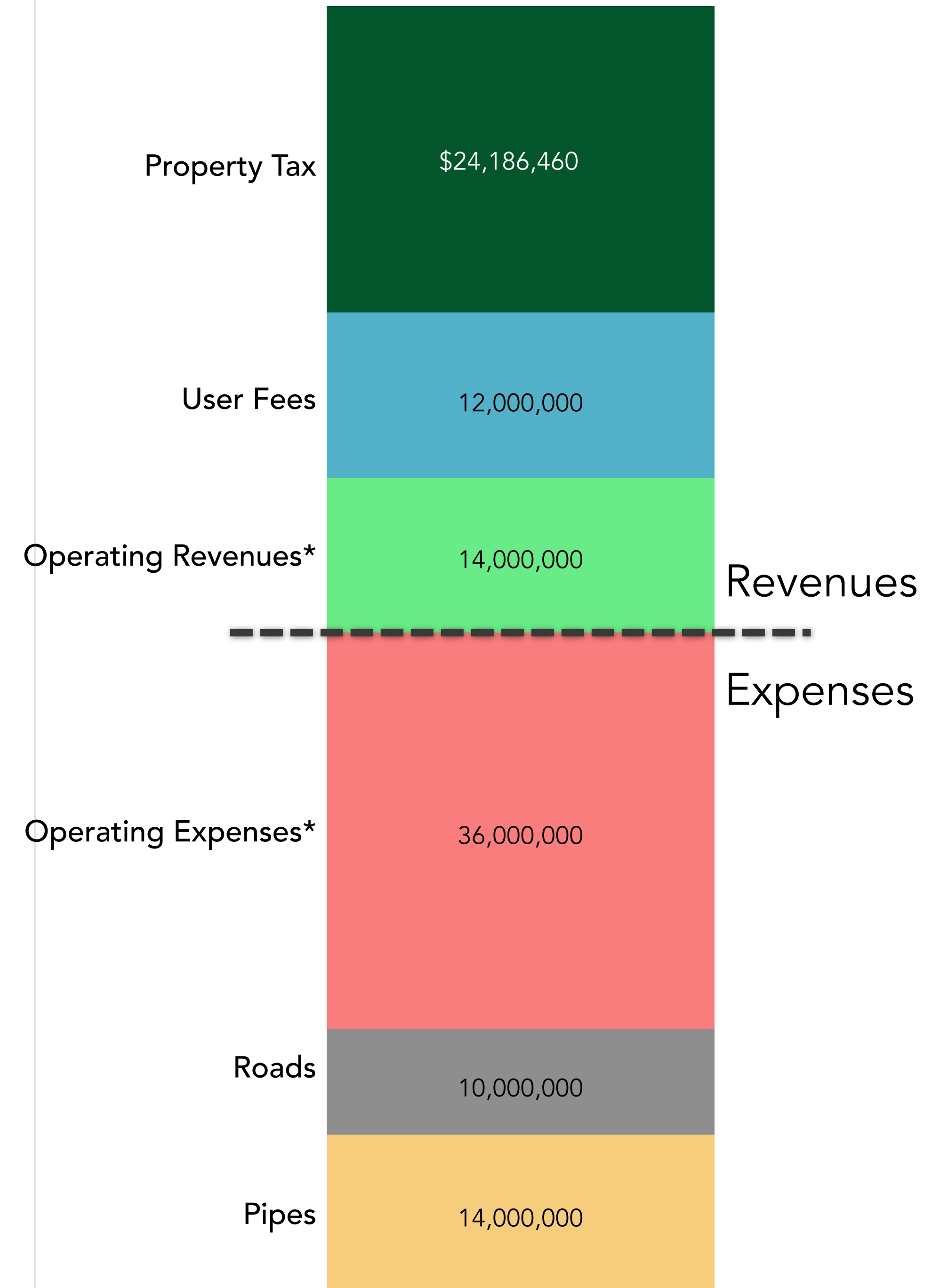
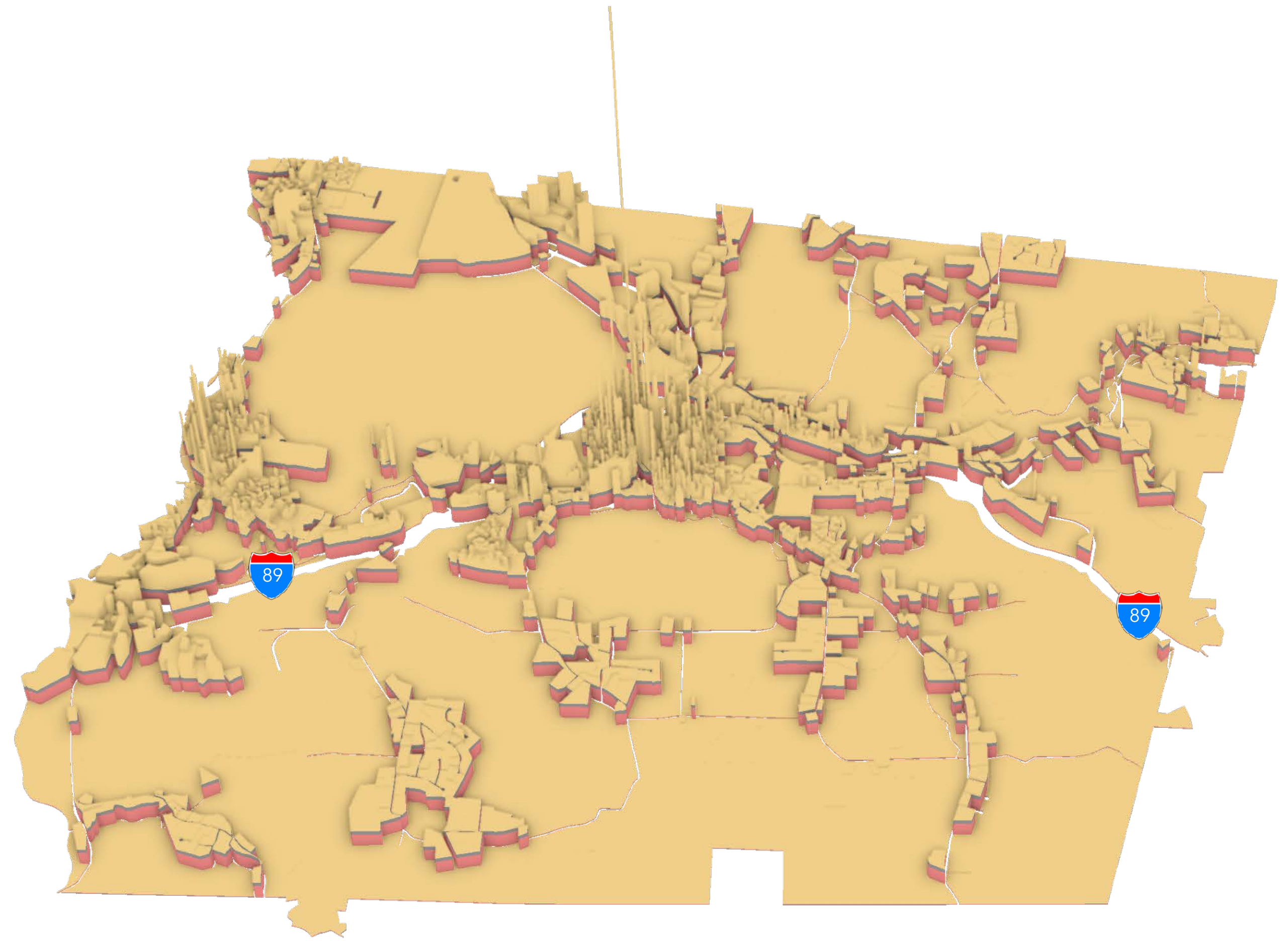
Lebanon, NH



\*Operating Revenues & Expenses divided among served parcels

# Mapping Budget Revenues & Expenses

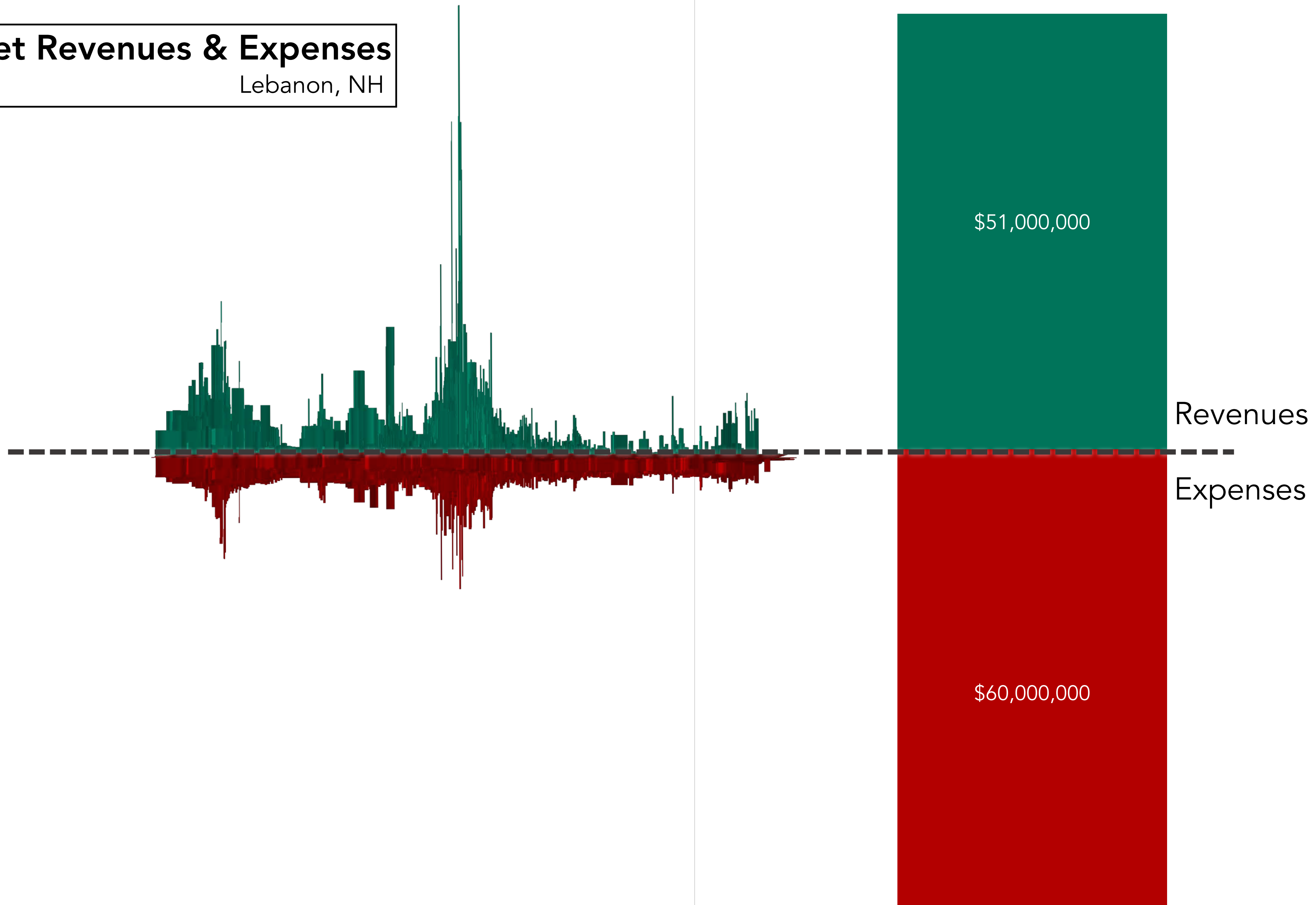
Lebanon, NH



\*Operating Revenues & Expenses divided among served parcels

# Mapping Budget Revenues & Expenses

Lebanon, NH





# Mapping Budget Revenues & Expenses

Lebanon, NH

West Lebanon

Downtown

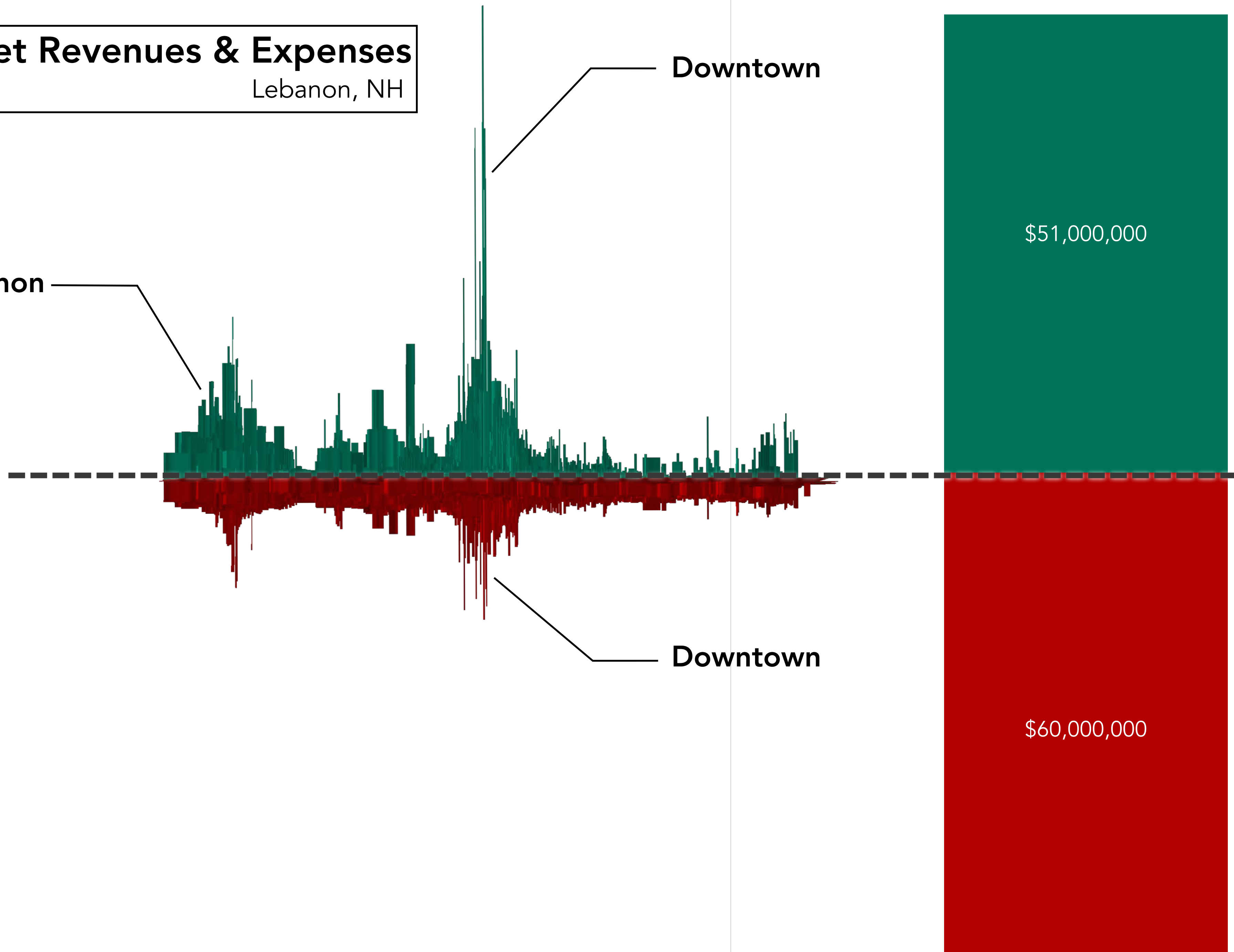
Downtown

\$51,000,000

\$60,000,000

Revenues

Expenses



# Mapping Budget Revenues & Expenses

Lebanon, NH

West Lebanon

Downtown

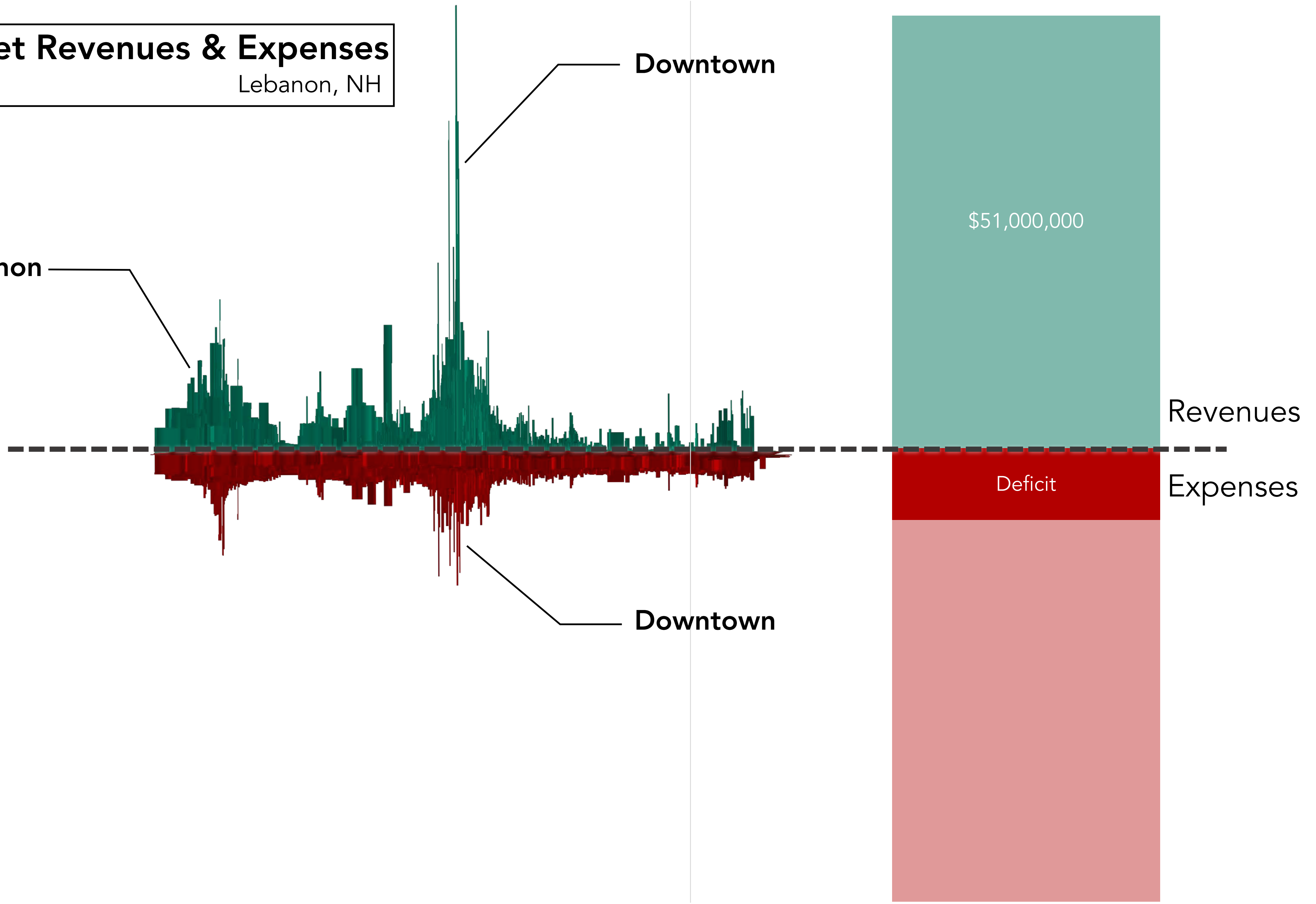
Downtown

\$51,000,000

Revenues

Expenses

Deficit



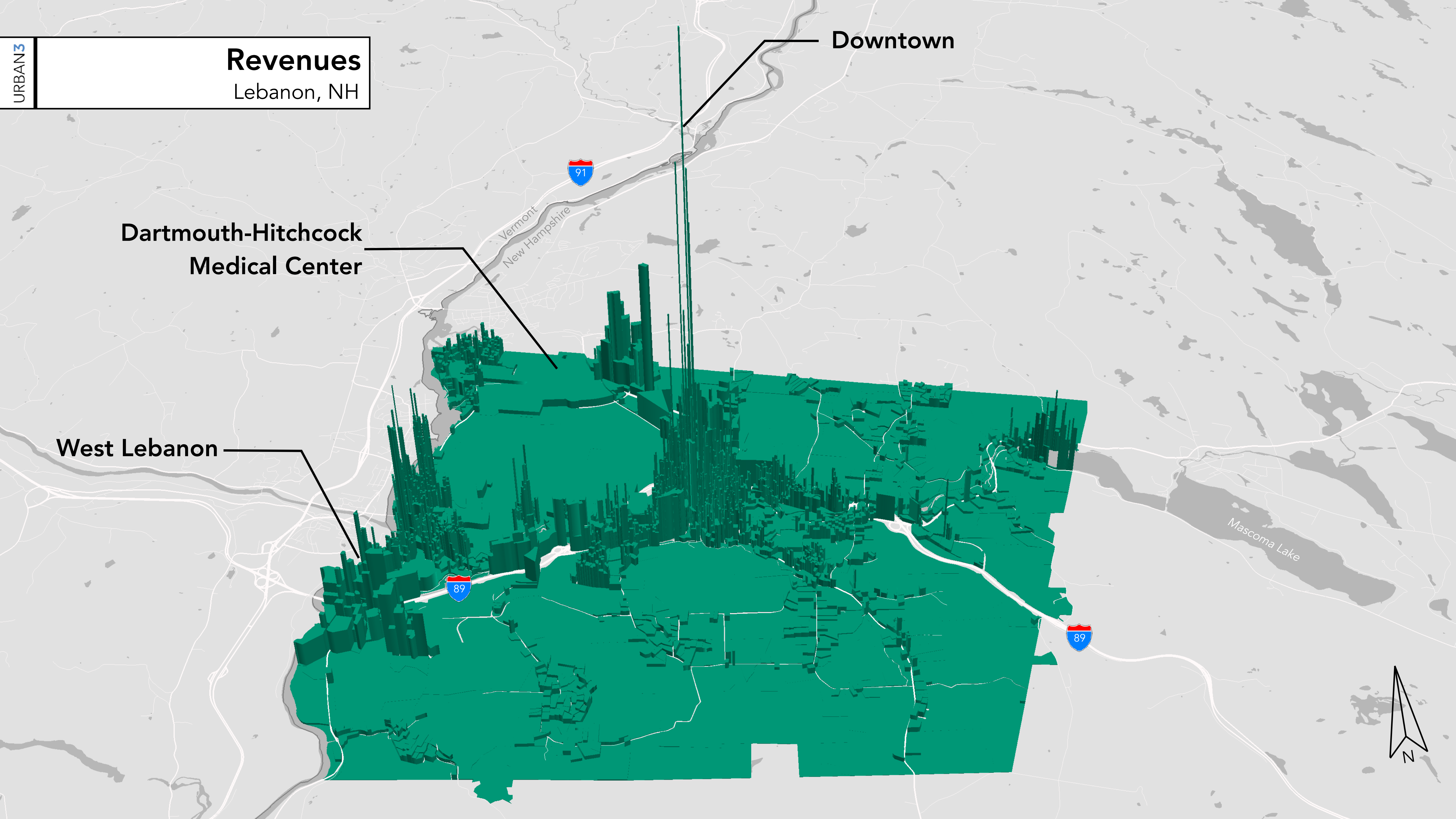
# Revenues

Lebanon, NH

Downtown

Dartmouth-Hitchcock  
Medical Center

West Lebanon



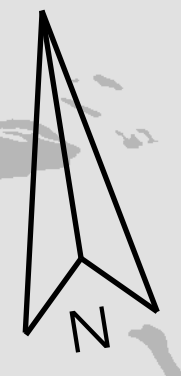
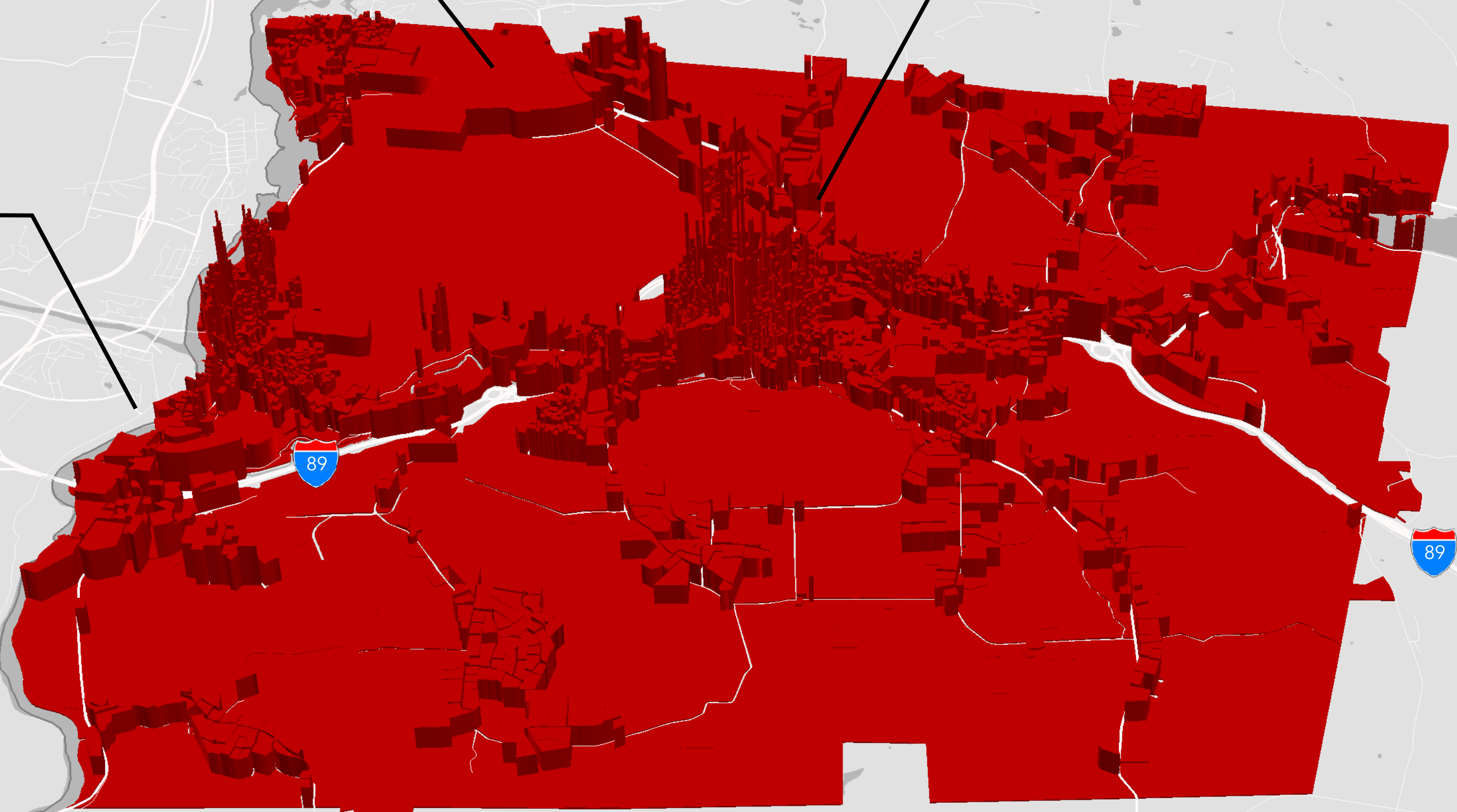
# Expenses

Lebanon, NH

Dartmouth-Hitchcock  
Medical Center

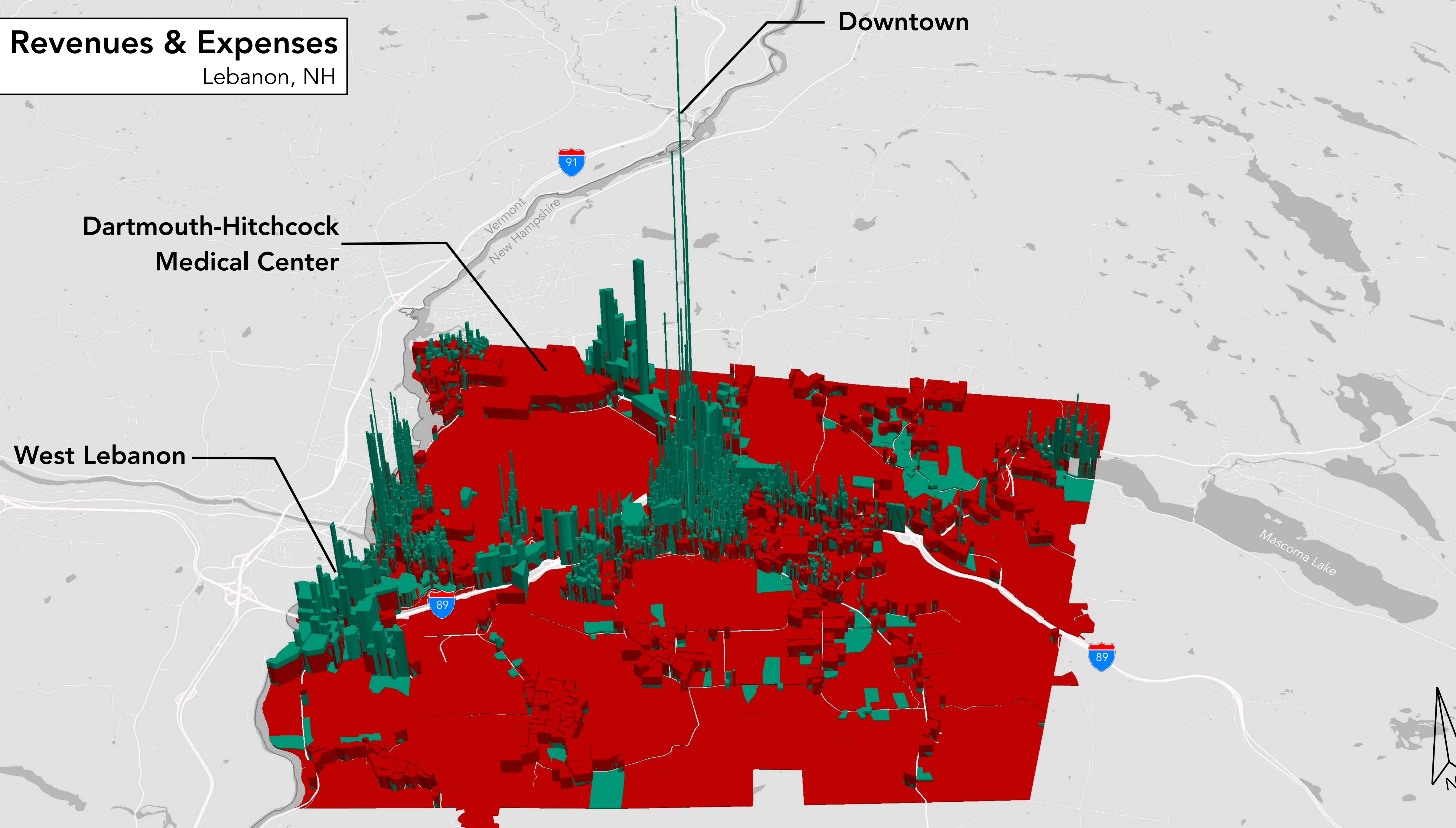
Downtown

West Lebanon



# Revenues & Expenses

Lebanon, NH



Downtown

Dartmouth-Hitchcock  
Medical Center

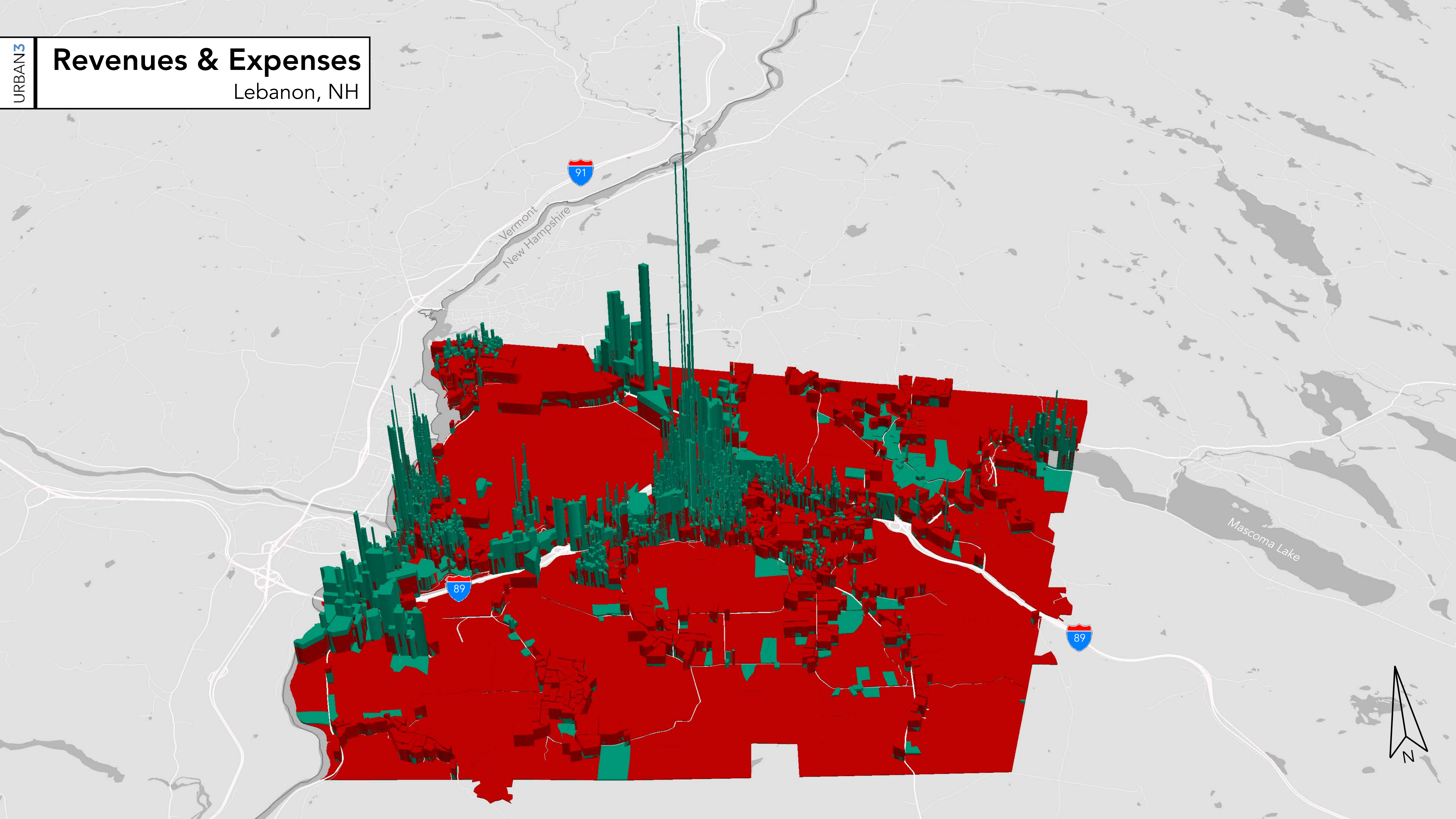
West Lebanon

Mascoma Lake



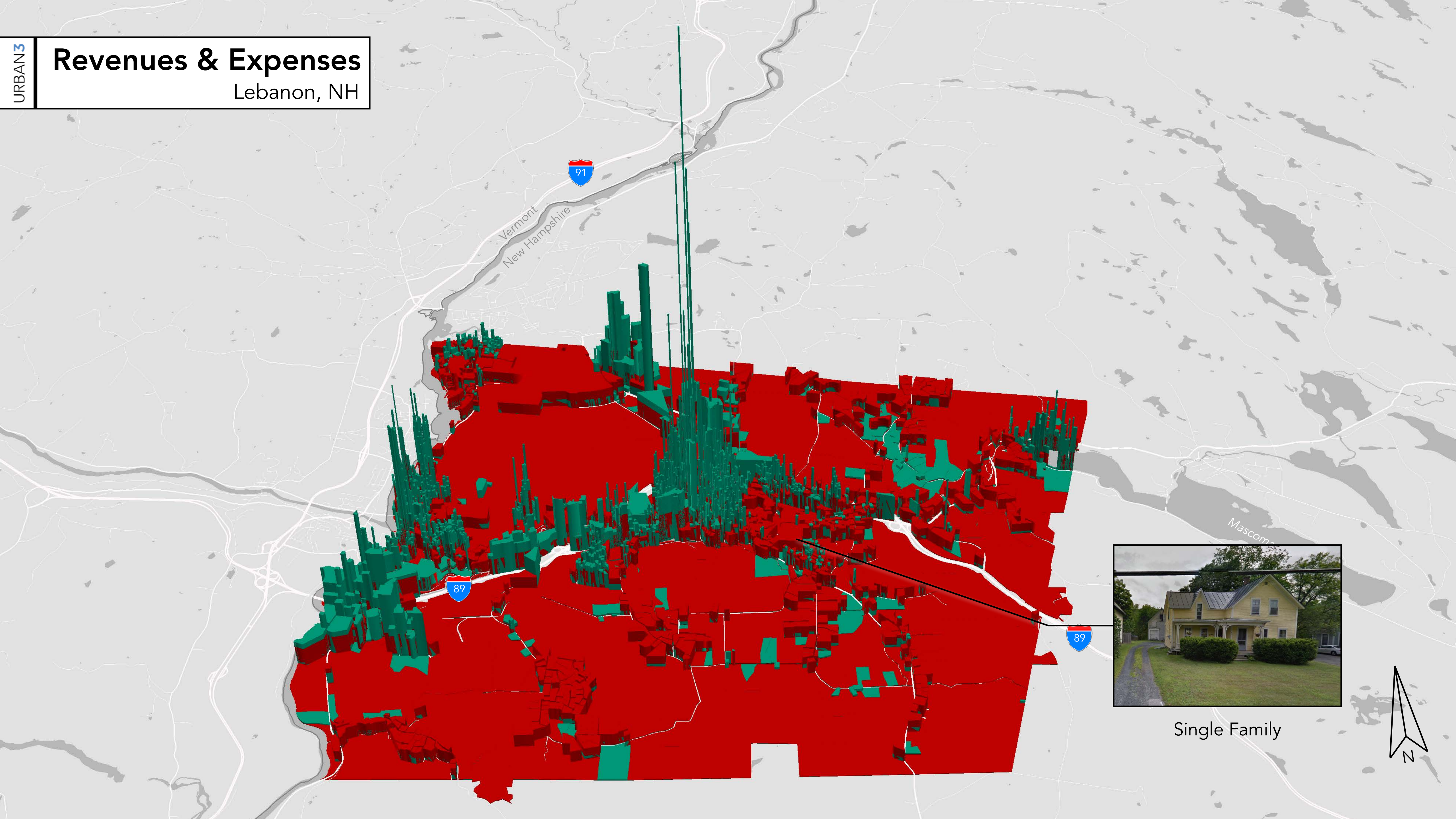
# Revenues & Expenses

Lebanon, NH



# Revenues & Expenses

Lebanon, NH



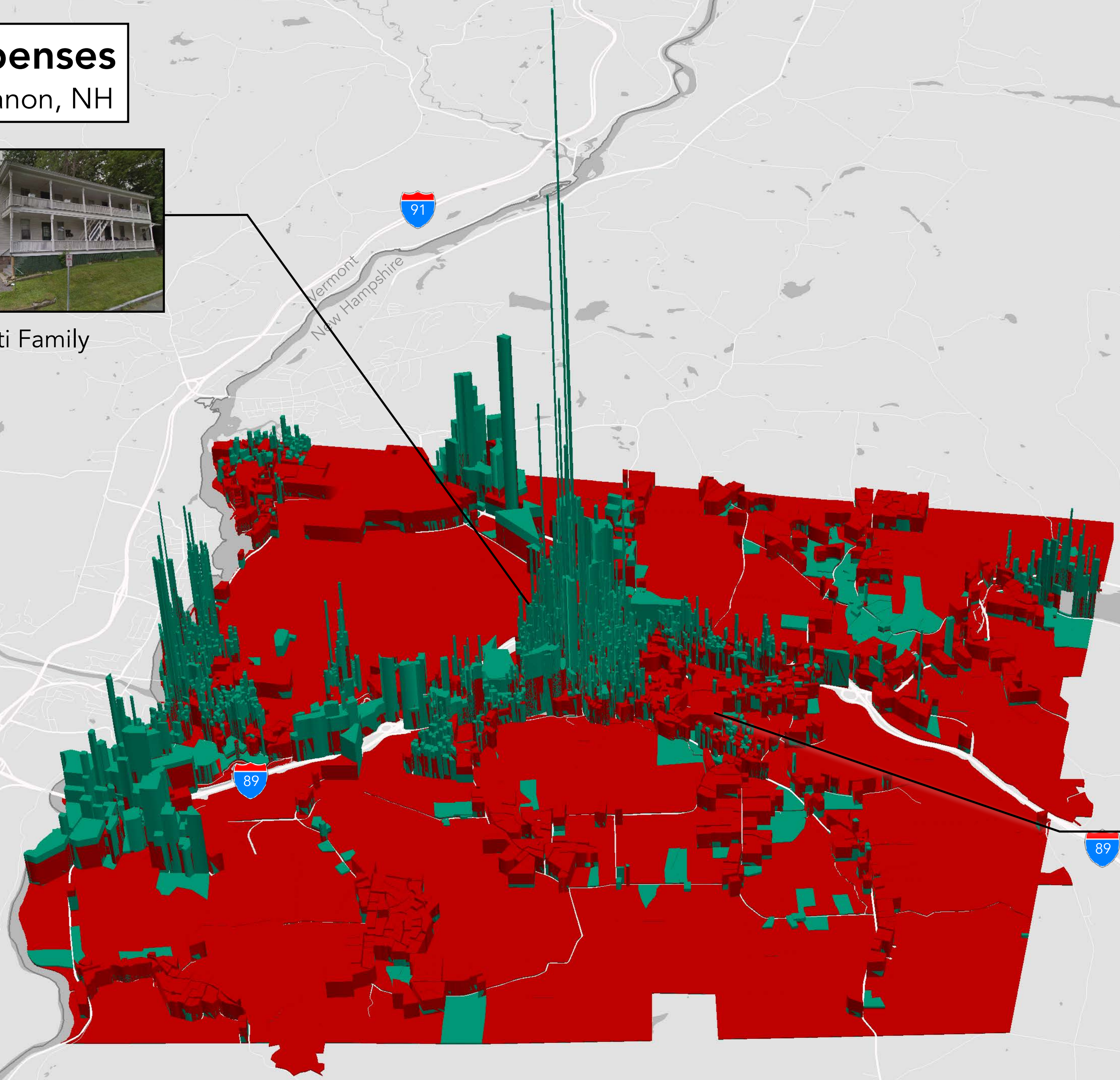
Single Family

# Revenues & Expenses

Lebanon, NH



Multi Family



Single Family



# Revenues & Expenses

Lebanon, NH



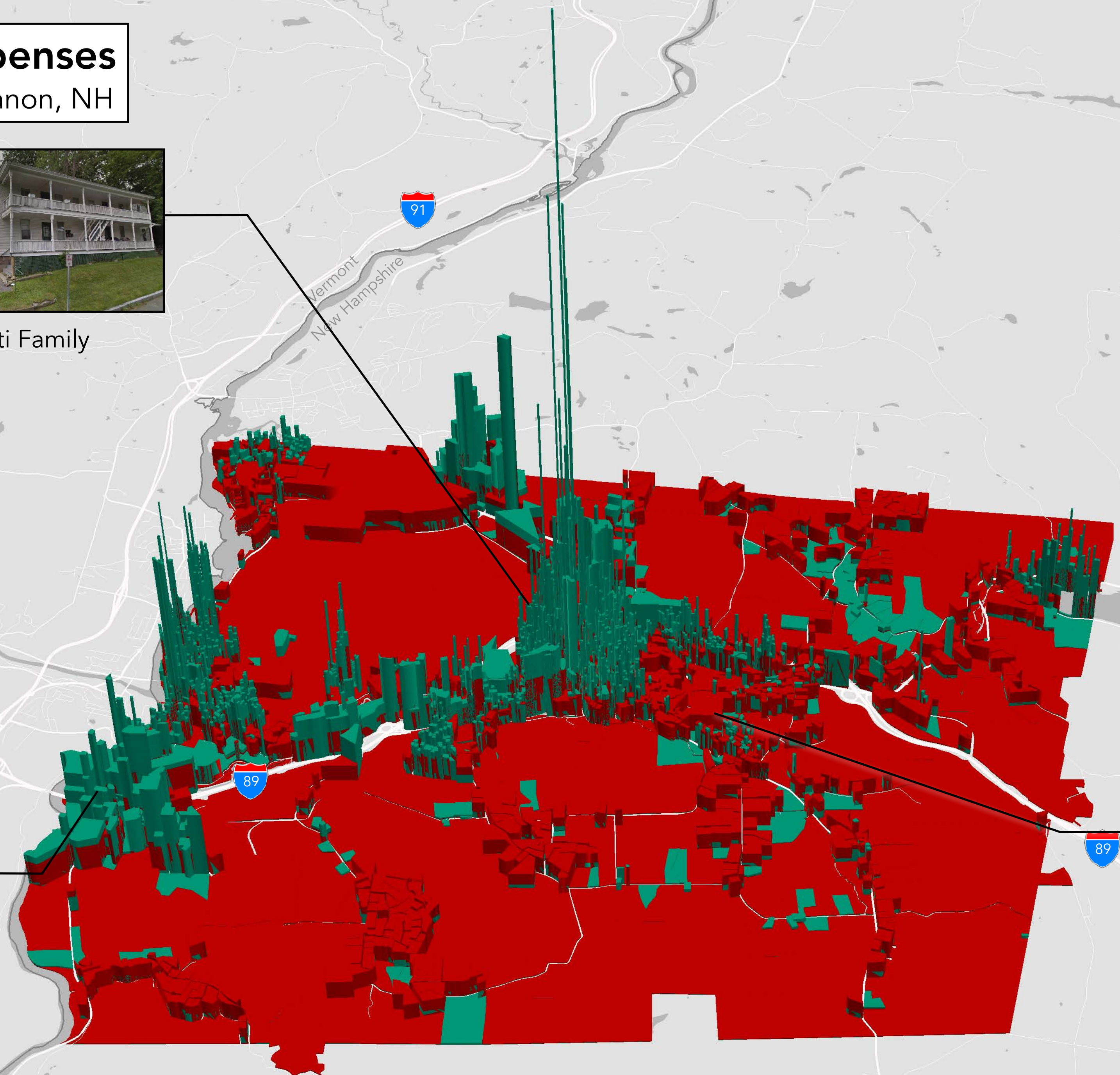
Multi Family



Commercial



Single Family



# Revenues & Expenses

Lebanon, NH



Multi Family



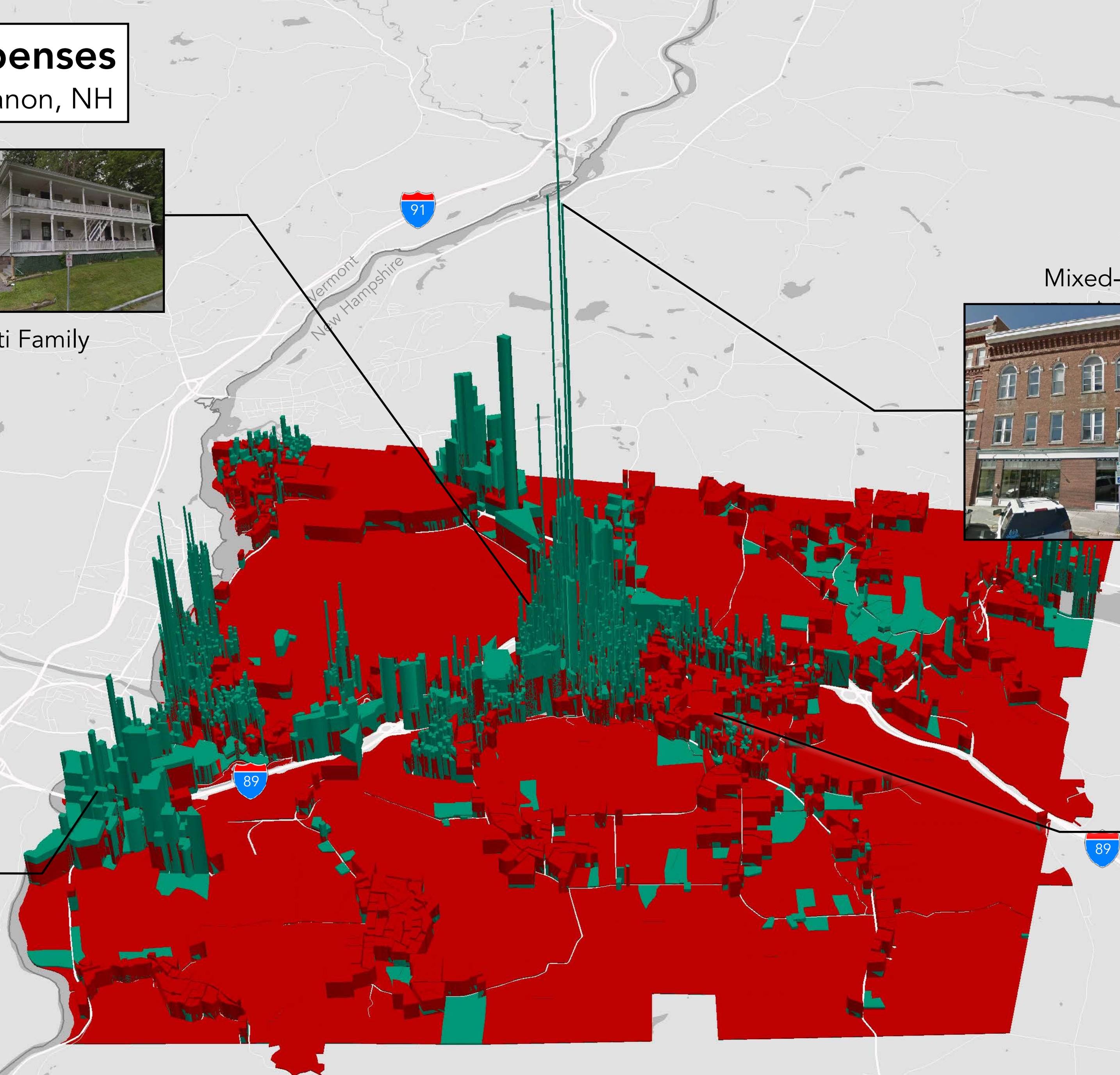
Mixed-use



Commercial



Single Family



URBAN3  
**Revenues & Expenses**  
Lebanon, NH



Multi Family



Downtown Office



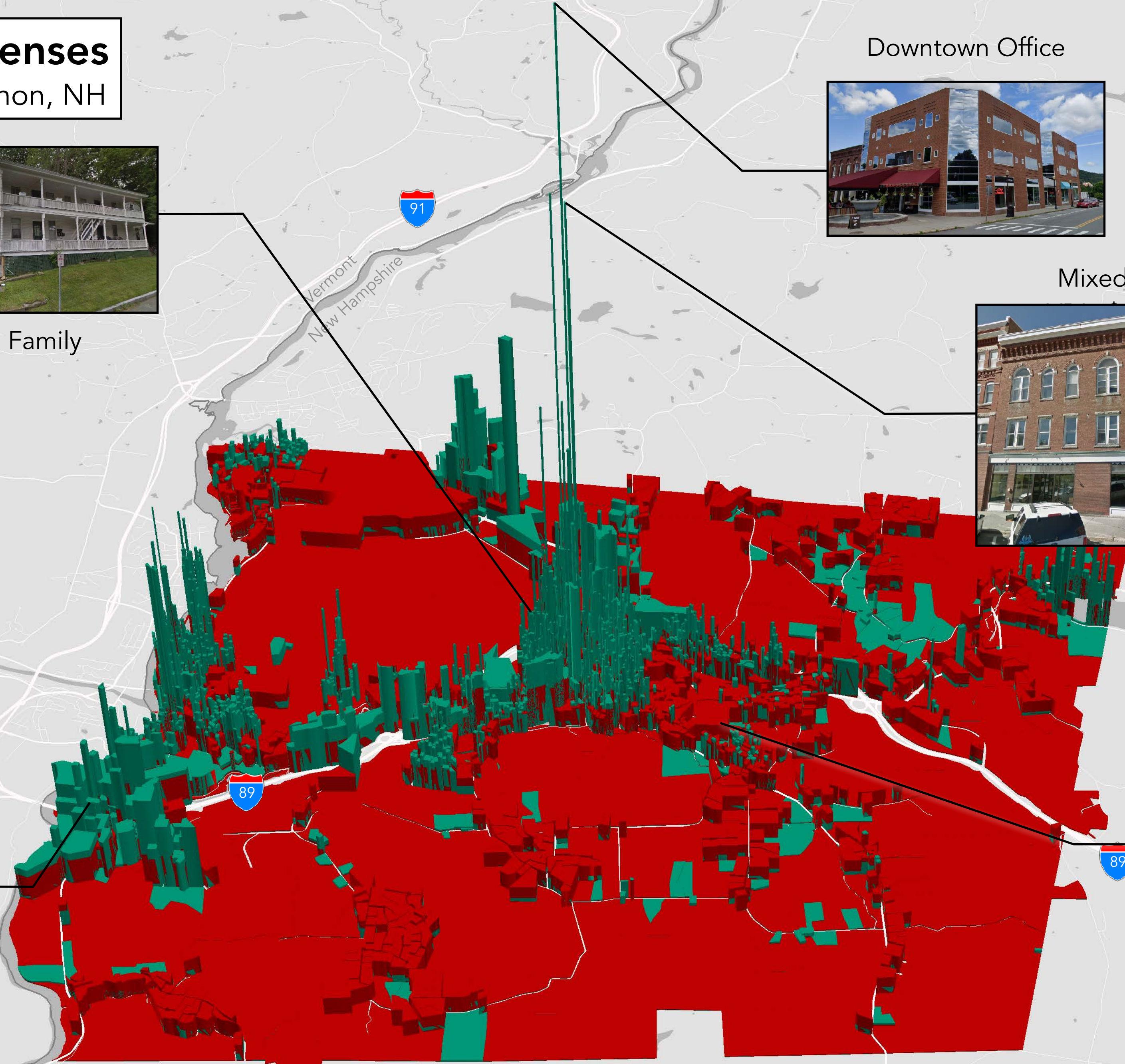
Mixed-use



Commercial

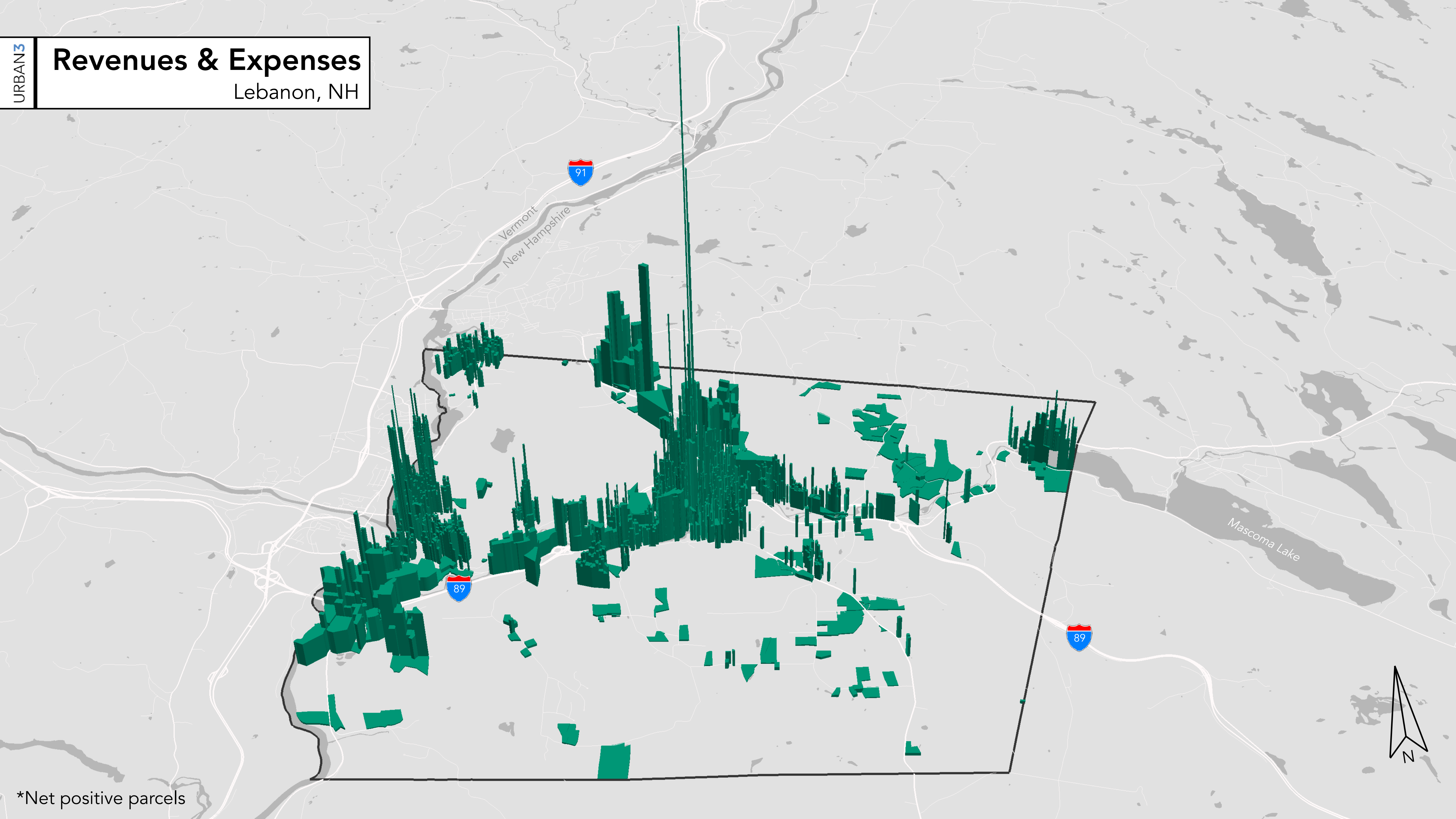


Single Family



# Revenues & Expenses

Lebanon, NH



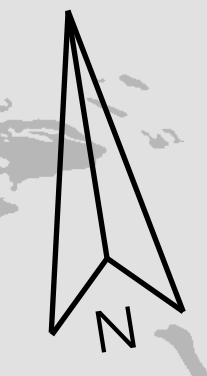
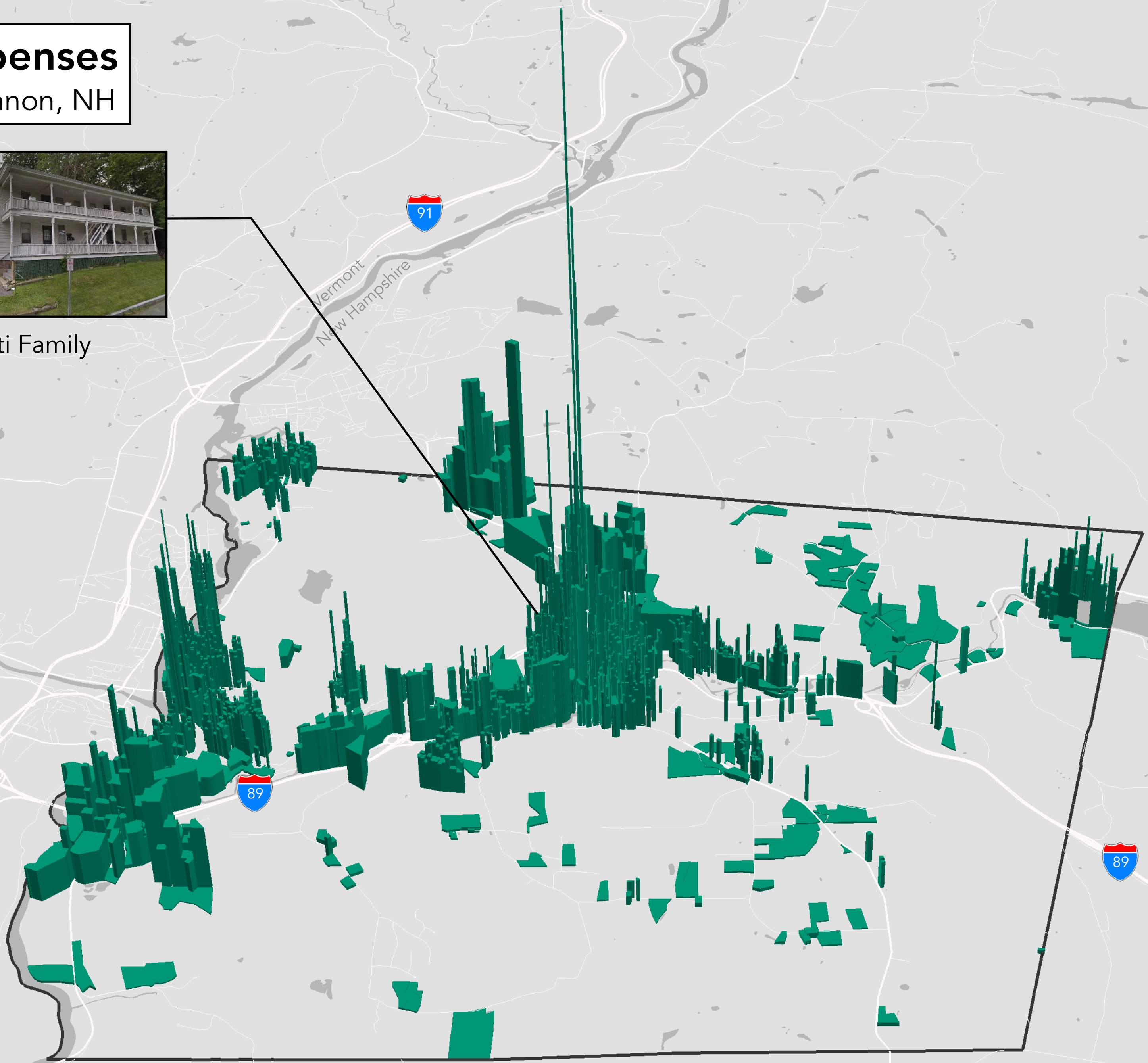
\*Net positive parcels

# Revenues & Expenses

Lebanon, NH



Multi Family



\*Net positive parcels

# Revenues & Expenses

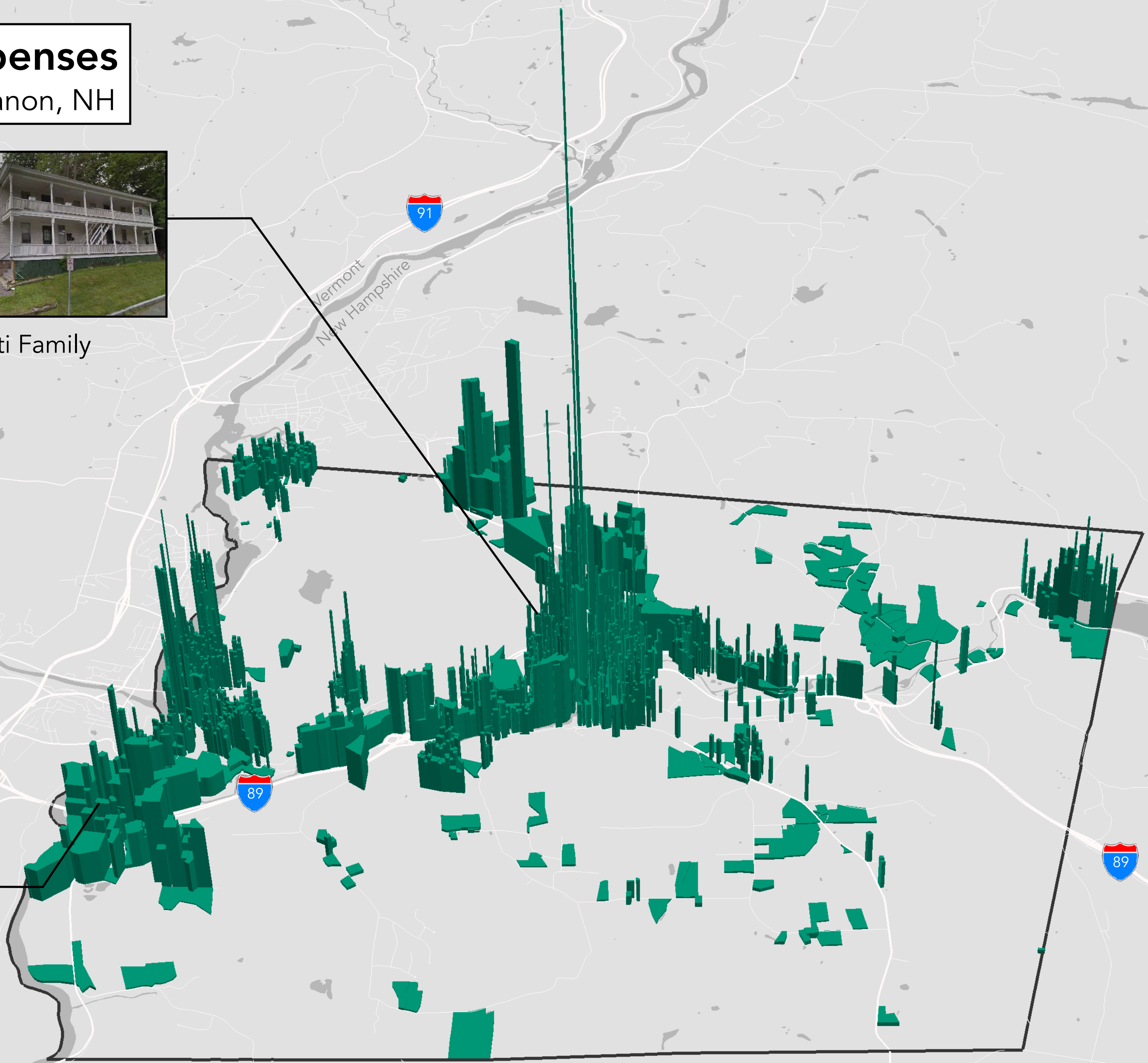
Lebanon, NH



Multi Family



Commercial



\*Net positive parcels

# Revenues & Expenses

Lebanon, NH



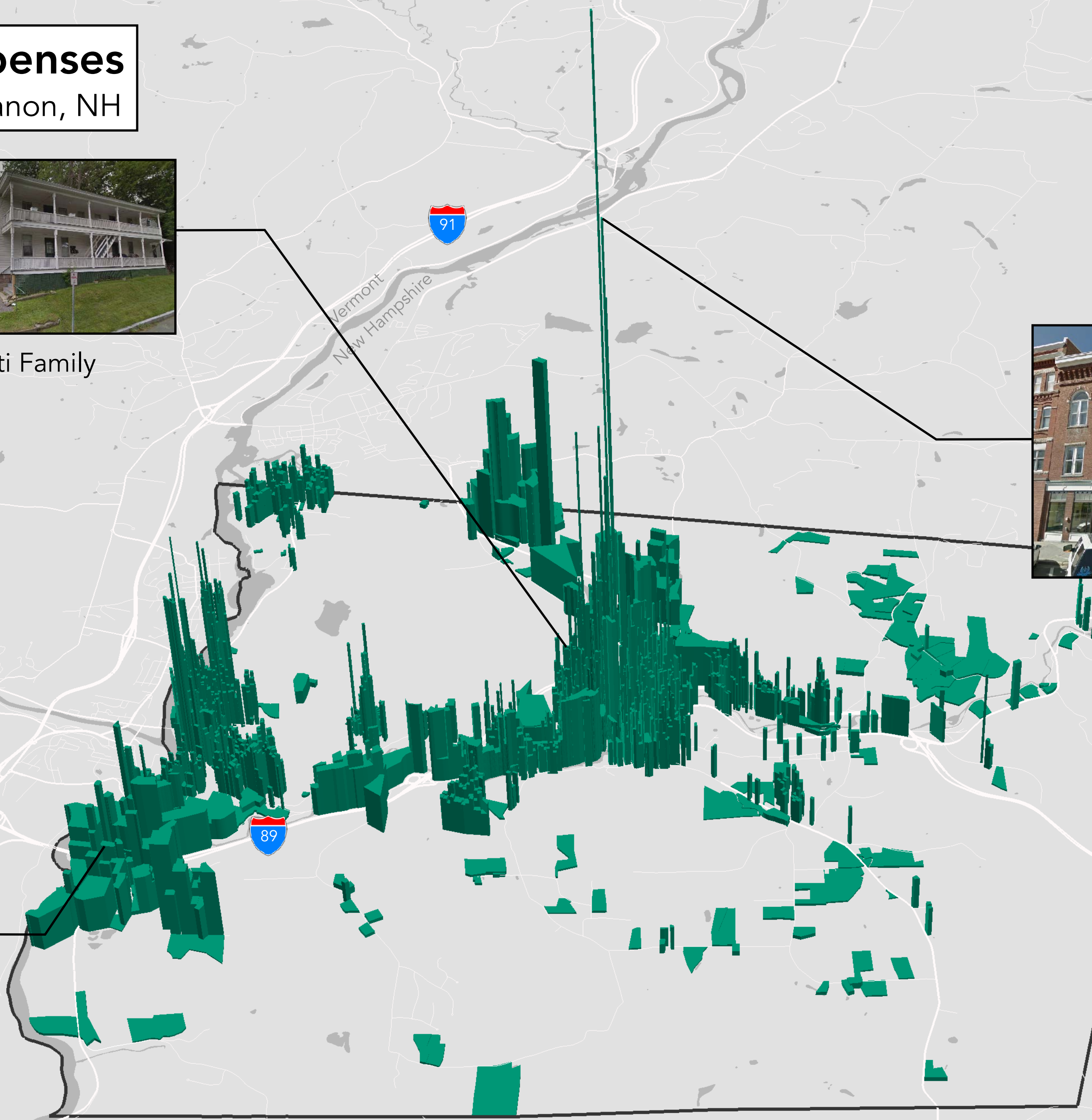
Multi Family



Mixed-use



Commercial



\*Net positive parcels



URBAN3  
**Revenues & Expenses**  
Lebanon, NH



Multi Family



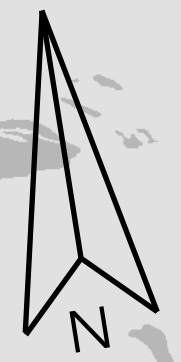
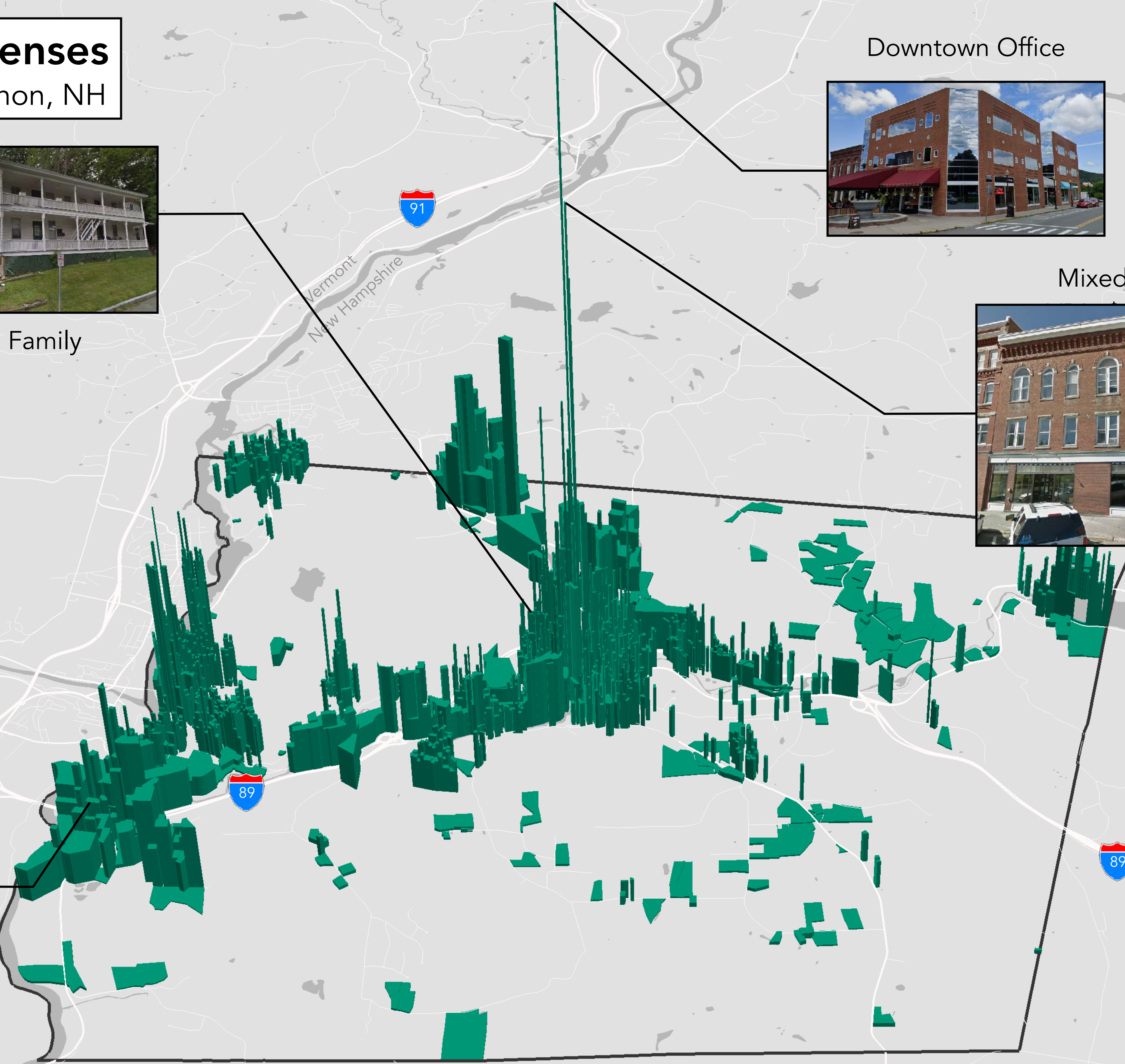
Downtown Office



Mixed-use



Commercial

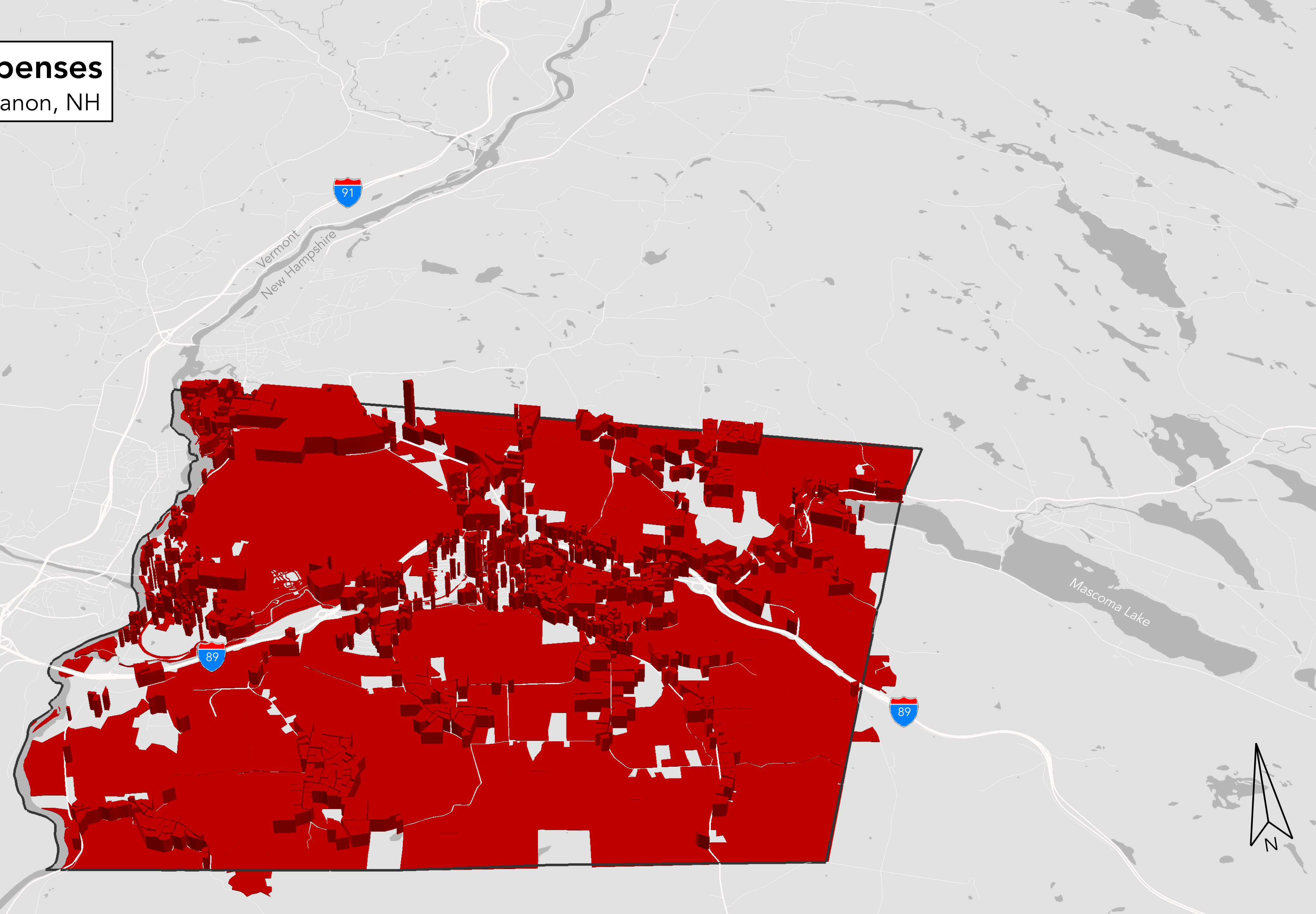


\*Net positive parcels



# Revenues & Expenses

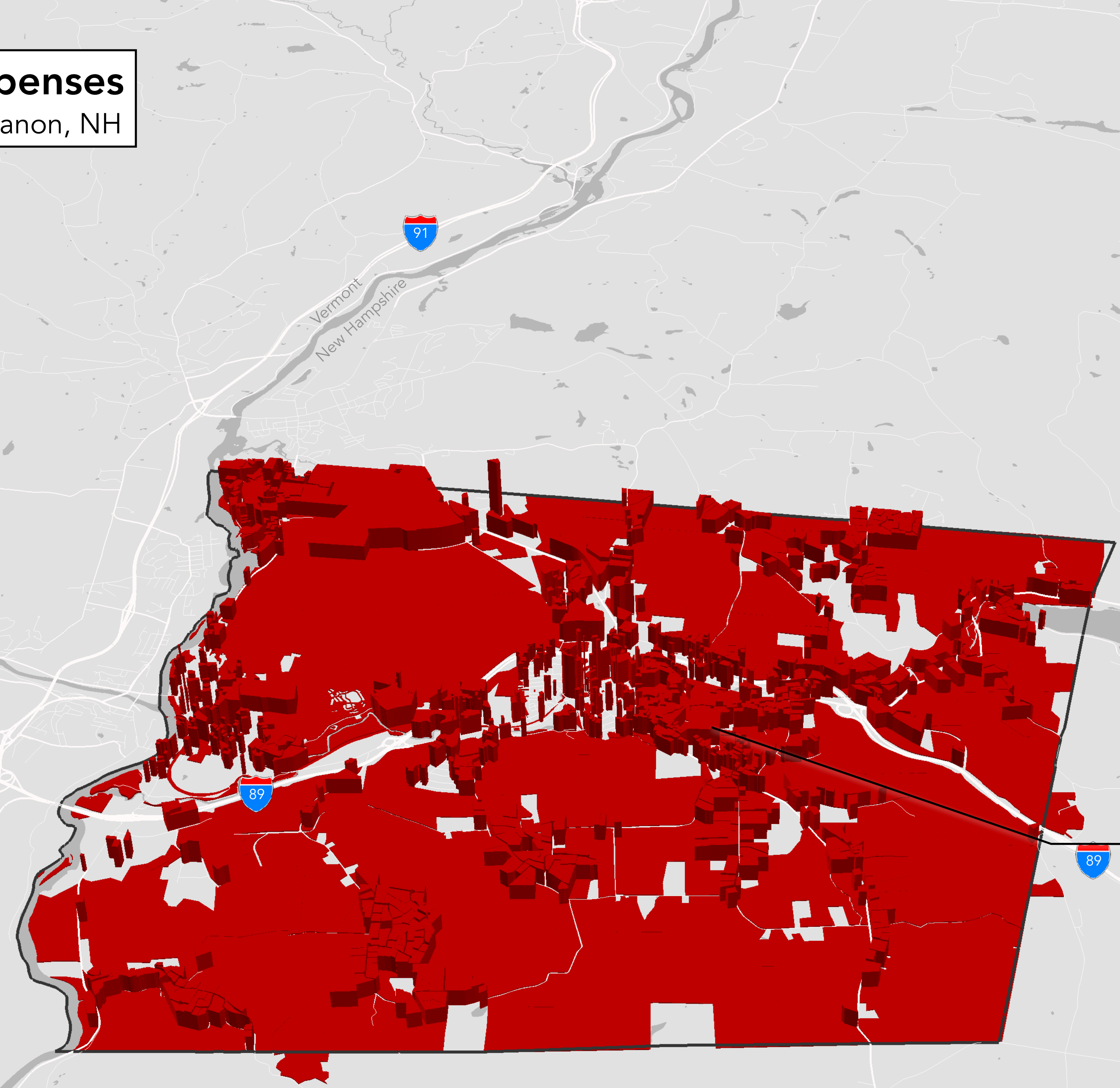
Lebanon, NH



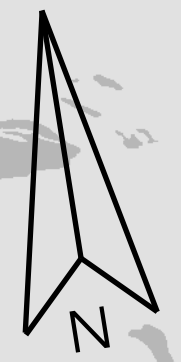
\*Net negative parcels

# Revenues & Expenses

Lebanon, NH



Single Family



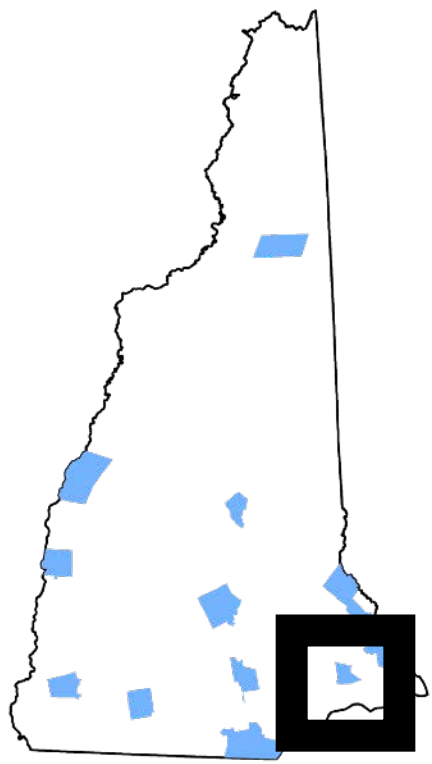
\*Net negative parcels



**Know where your money is flowing from and to.**



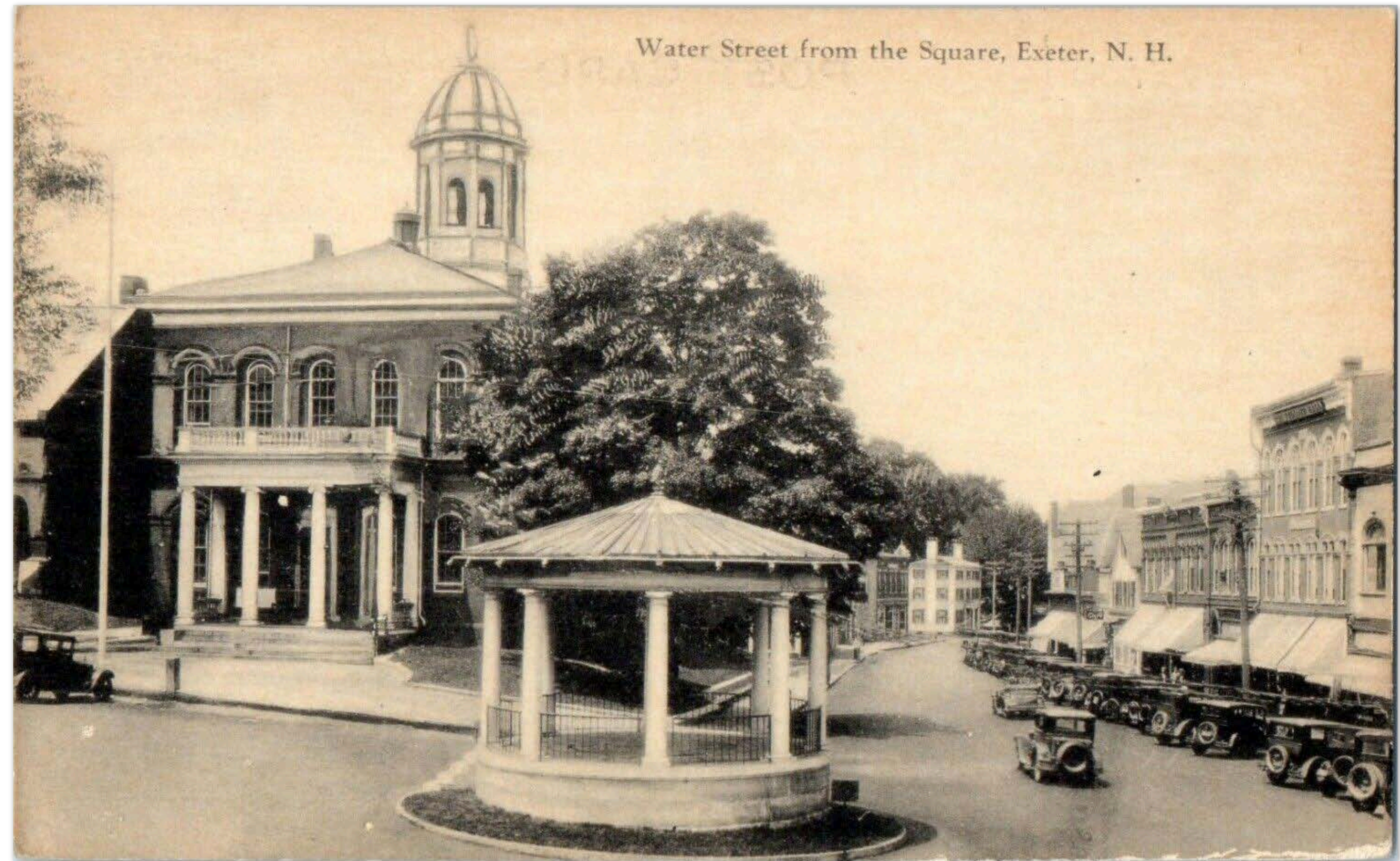
**Know where your money is flowing from and to.**



Case Study: Economic MRI®  
2022

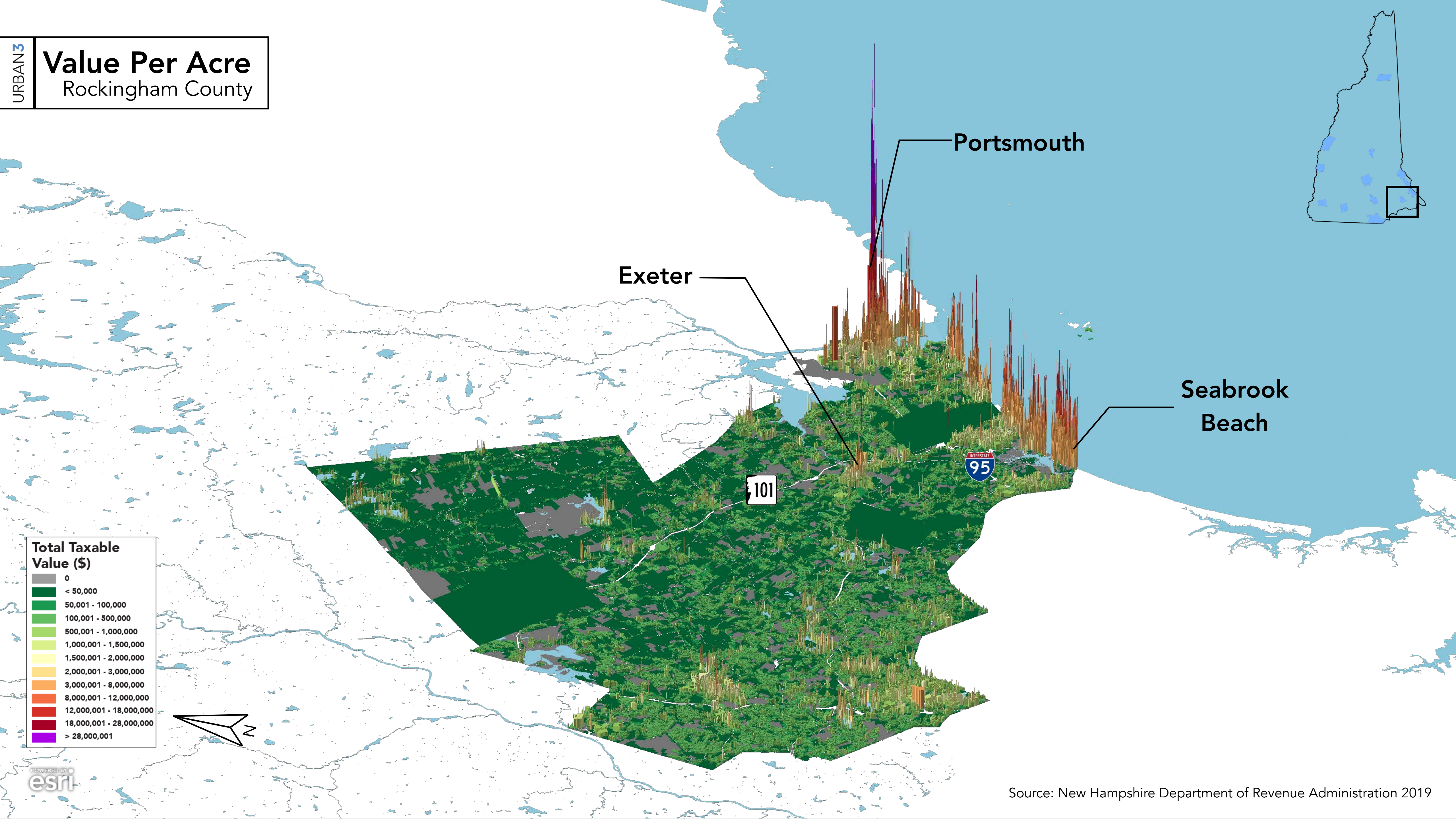
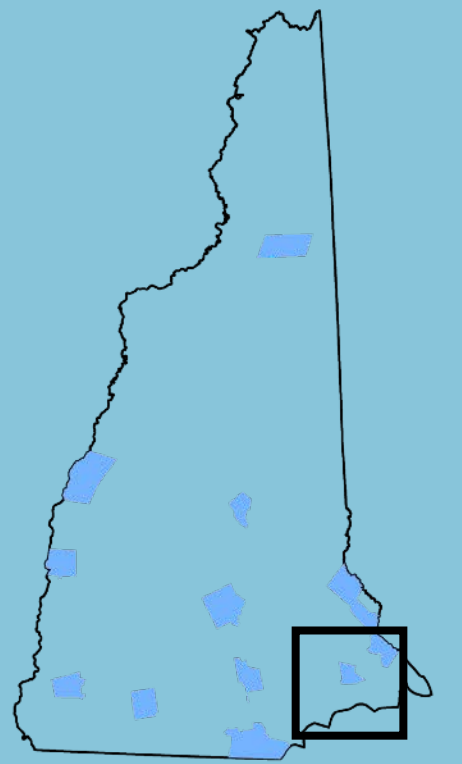
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# Exeter



# Value Per Acre

Rockingham County



**Total Taxable Value (\$)**

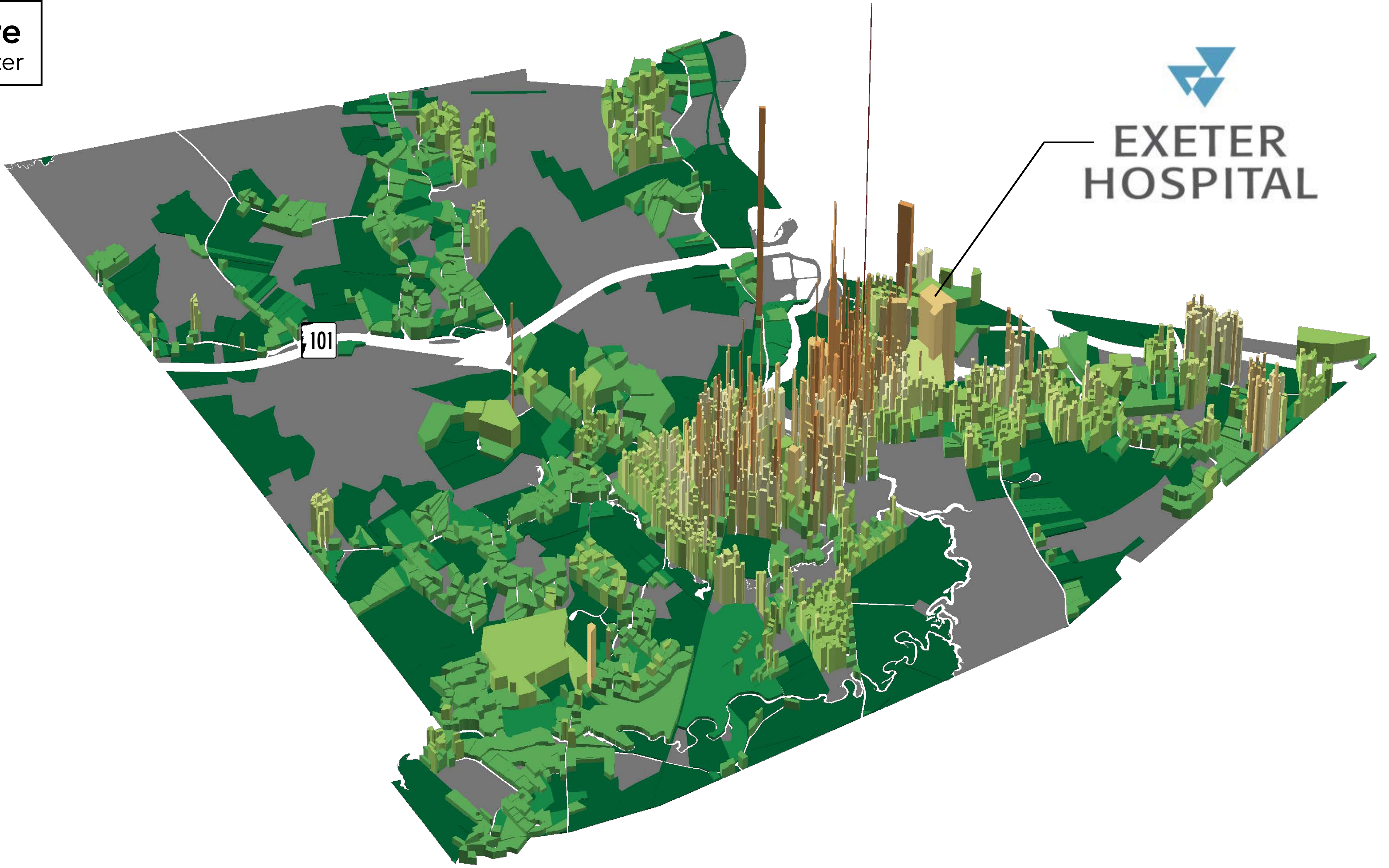
0
< 50,000
50,001 - 100,000
100,001 - 500,000
500,001 - 1,000,000
1,000,001 - 1,500,000
1,500,001 - 2,000,000
2,000,001 - 3,000,000
3,000,001 - 8,000,000
8,000,001 - 12,000,000
12,000,001 - 18,000,000
18,000,001 - 28,000,000
> 28,000,001

# Value Per Acre

Exeter

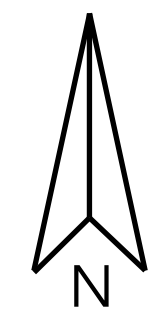


EXETER HOSPITAL



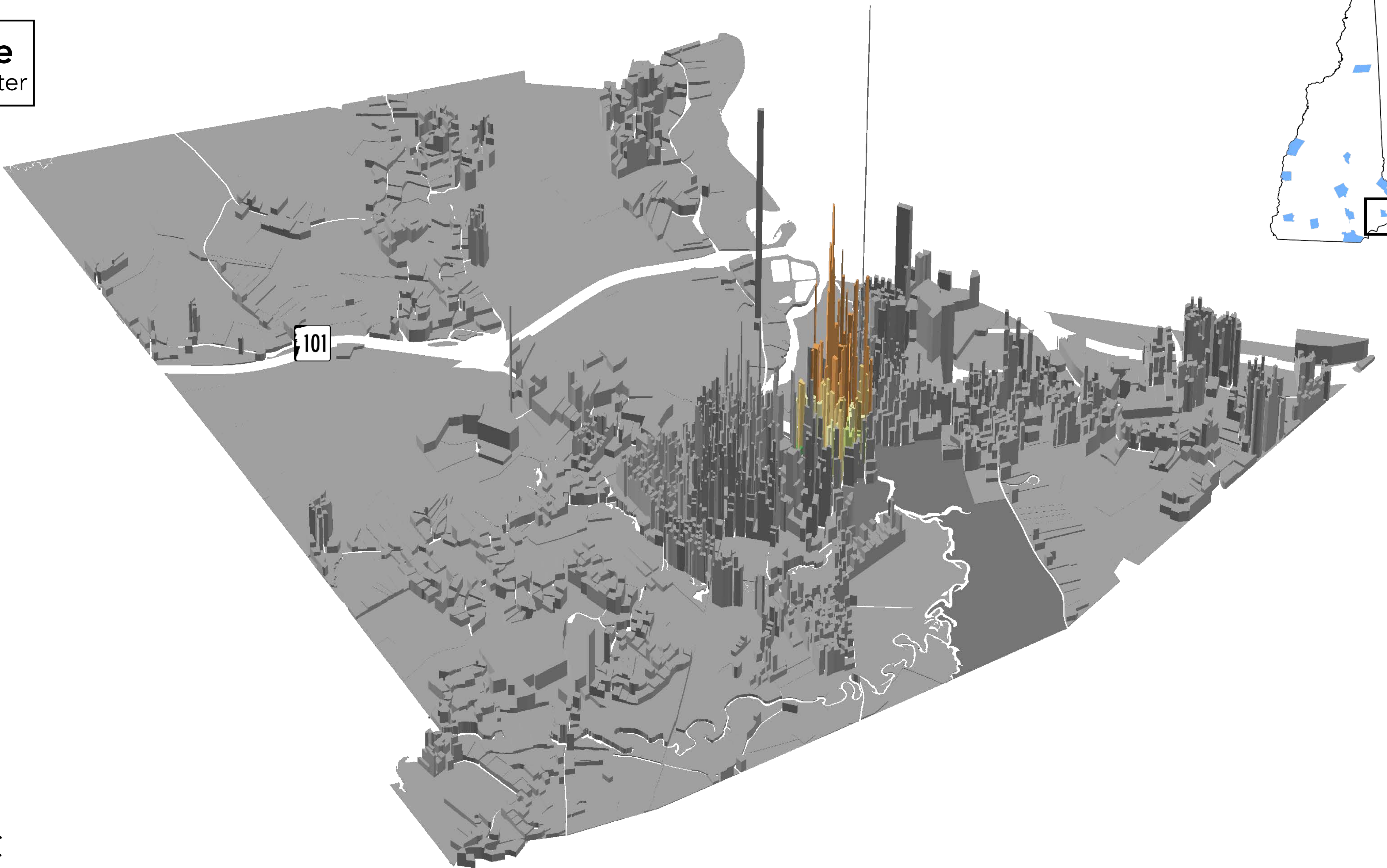
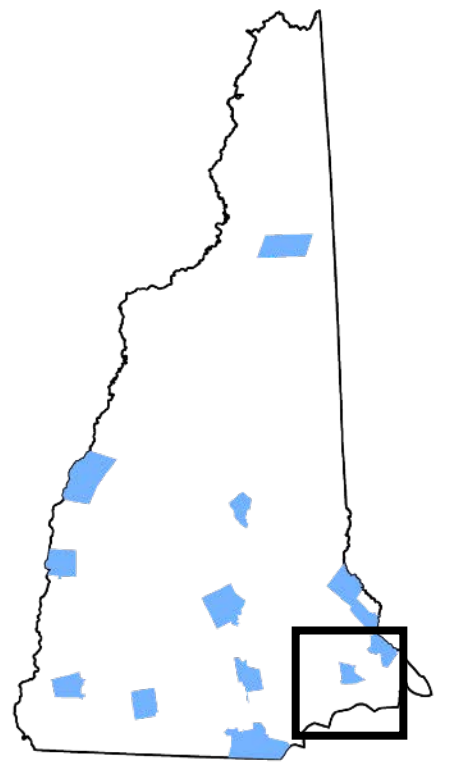
**Total Taxable Value (\$)**

0
< 50,000
50,001 - 100,000
100,001 - 500,000
500,001 - 1,000,000
1,000,001 - 1,500,000
1,500,001 - 2,000,000
2,000,001 - 3,000,000
3,000,001 - 8,000,000
8,000,001 - 12,000,000
12,000,001 - 18,000,000
18,000,001 - 28,000,000
> 28,000,001



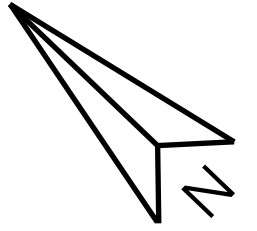
# Value Per Acre

## Downtown Exeter



**Total Taxable Value (\$)**

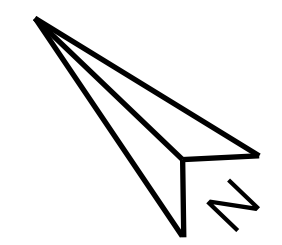
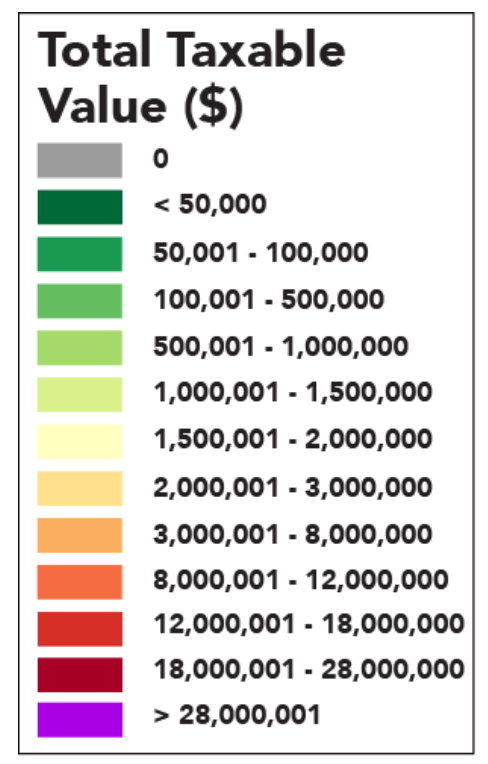
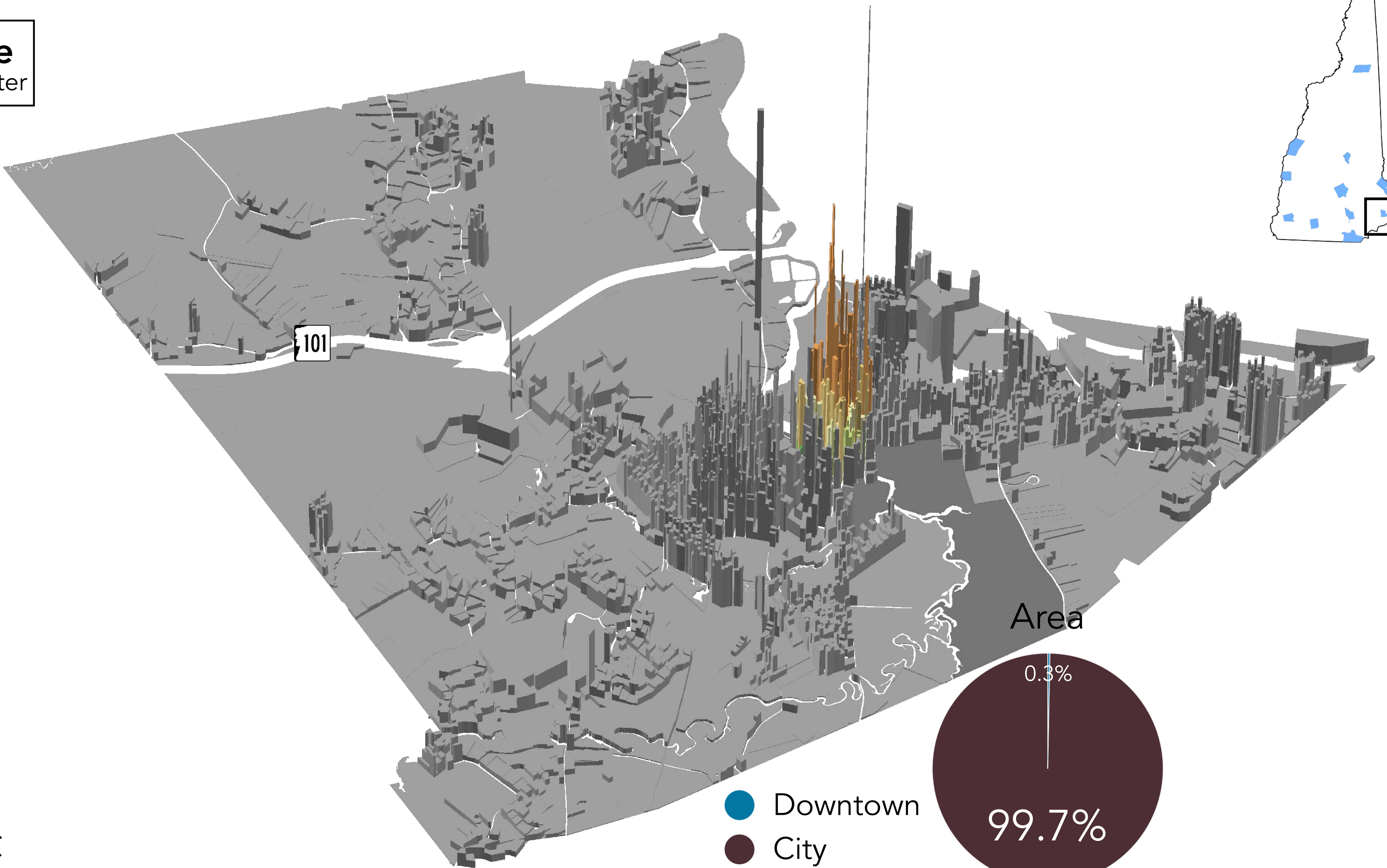
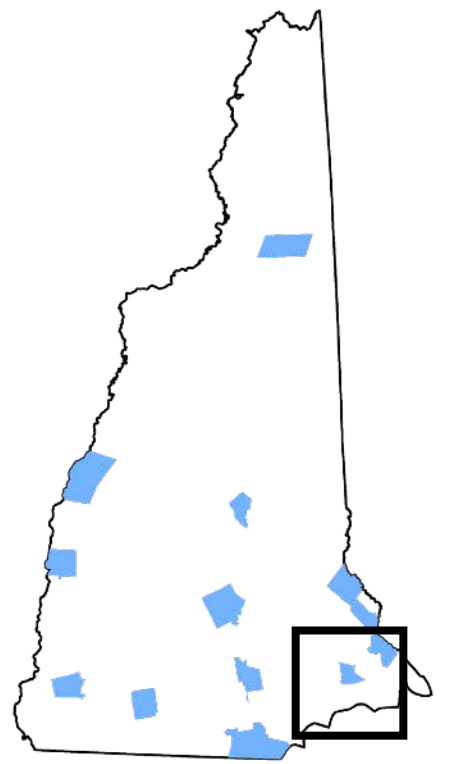
Grey	0
Dark Green	< 50,000
Green	50,001 - 100,000
Light Green	100,001 - 500,000
Yellow-Green	500,001 - 1,000,000
Yellow	1,000,001 - 1,500,000
Light Orange	1,500,001 - 2,000,000
Orange	2,000,001 - 3,000,000
Dark Orange	3,000,001 - 8,000,000
Red-Orange	8,000,001 - 12,000,000
Red	12,000,001 - 18,000,000
Dark Red	18,000,001 - 28,000,000
Purple	> 28,000,001



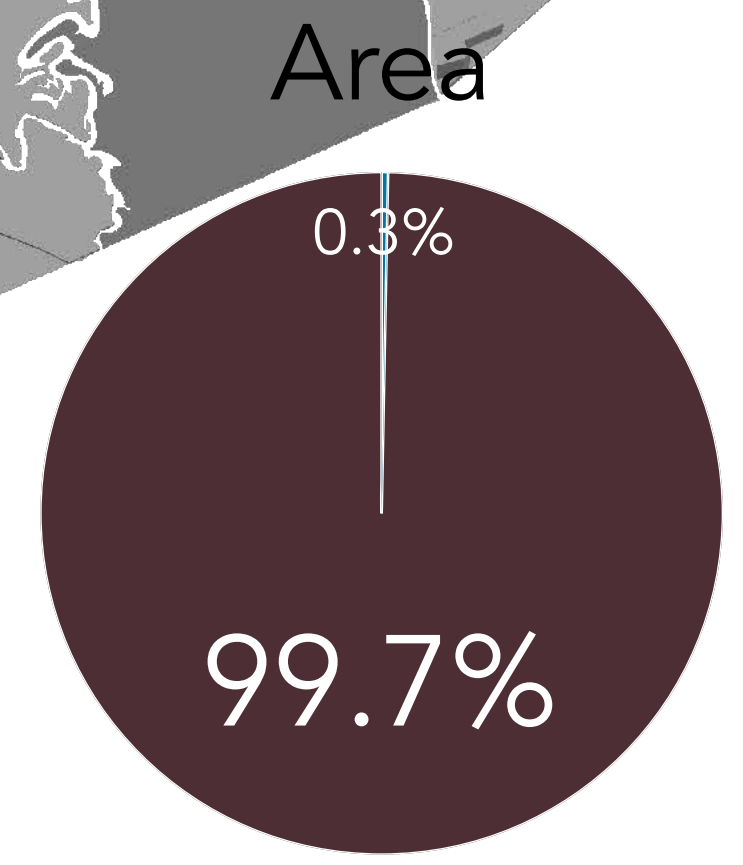


# Value Per Acre

## Downtown Exeter

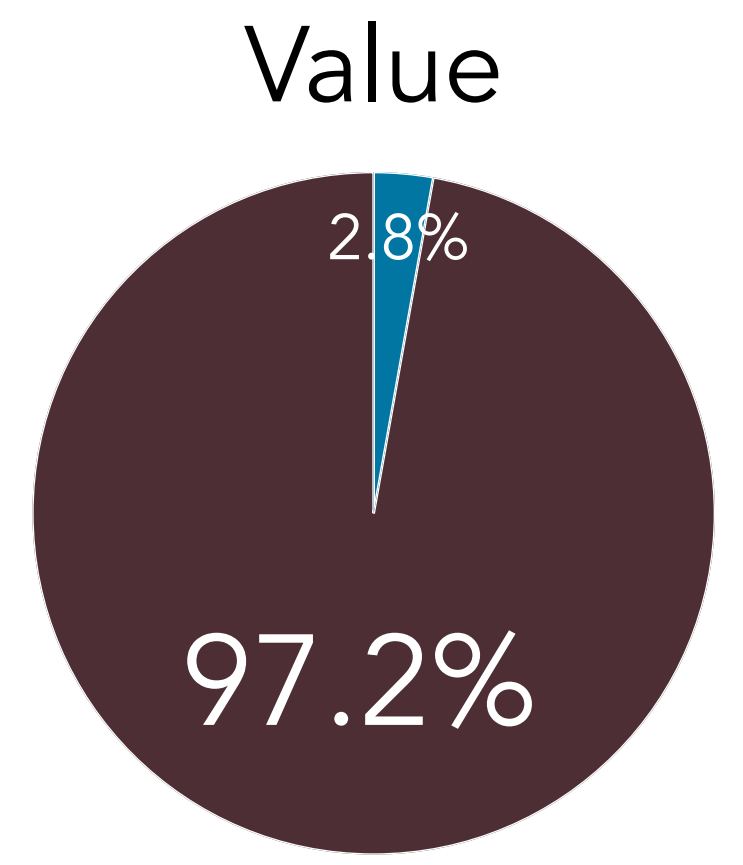
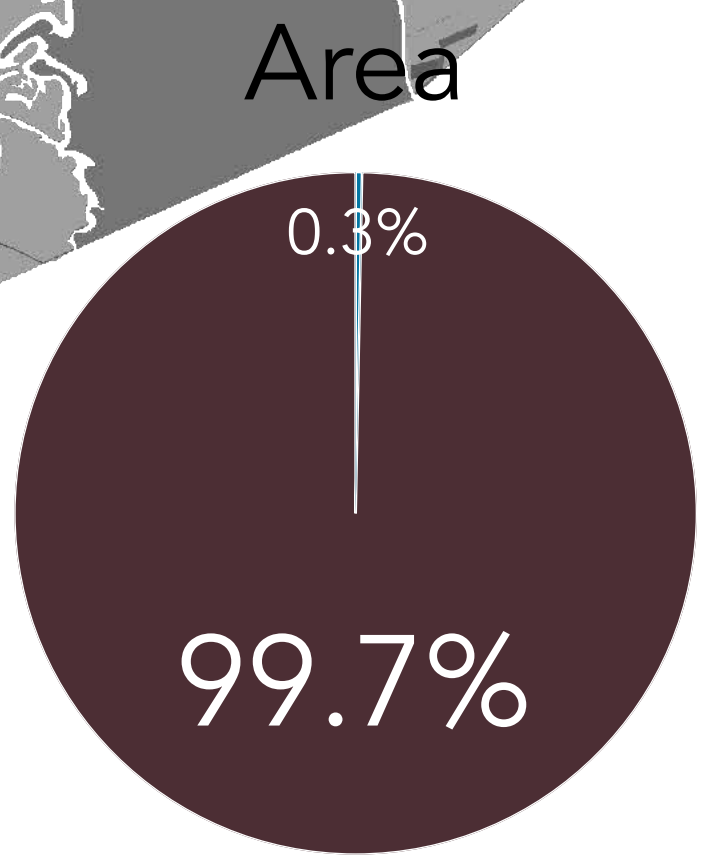
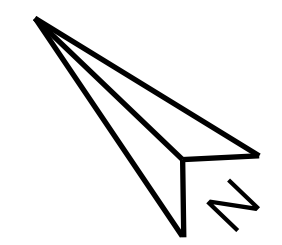
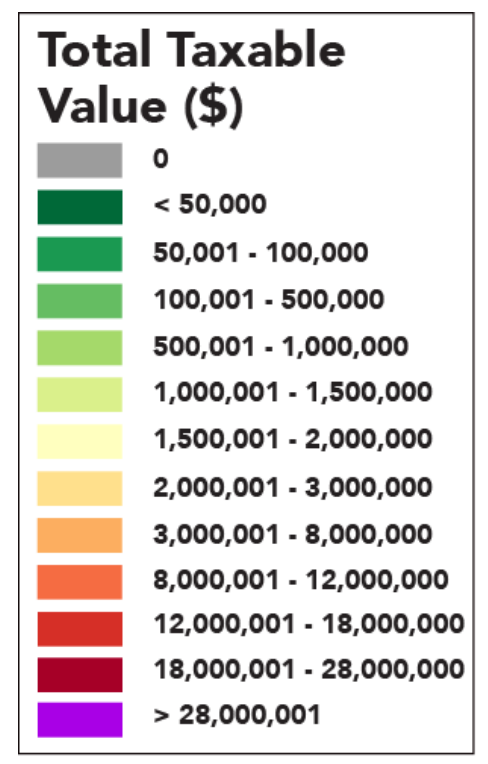
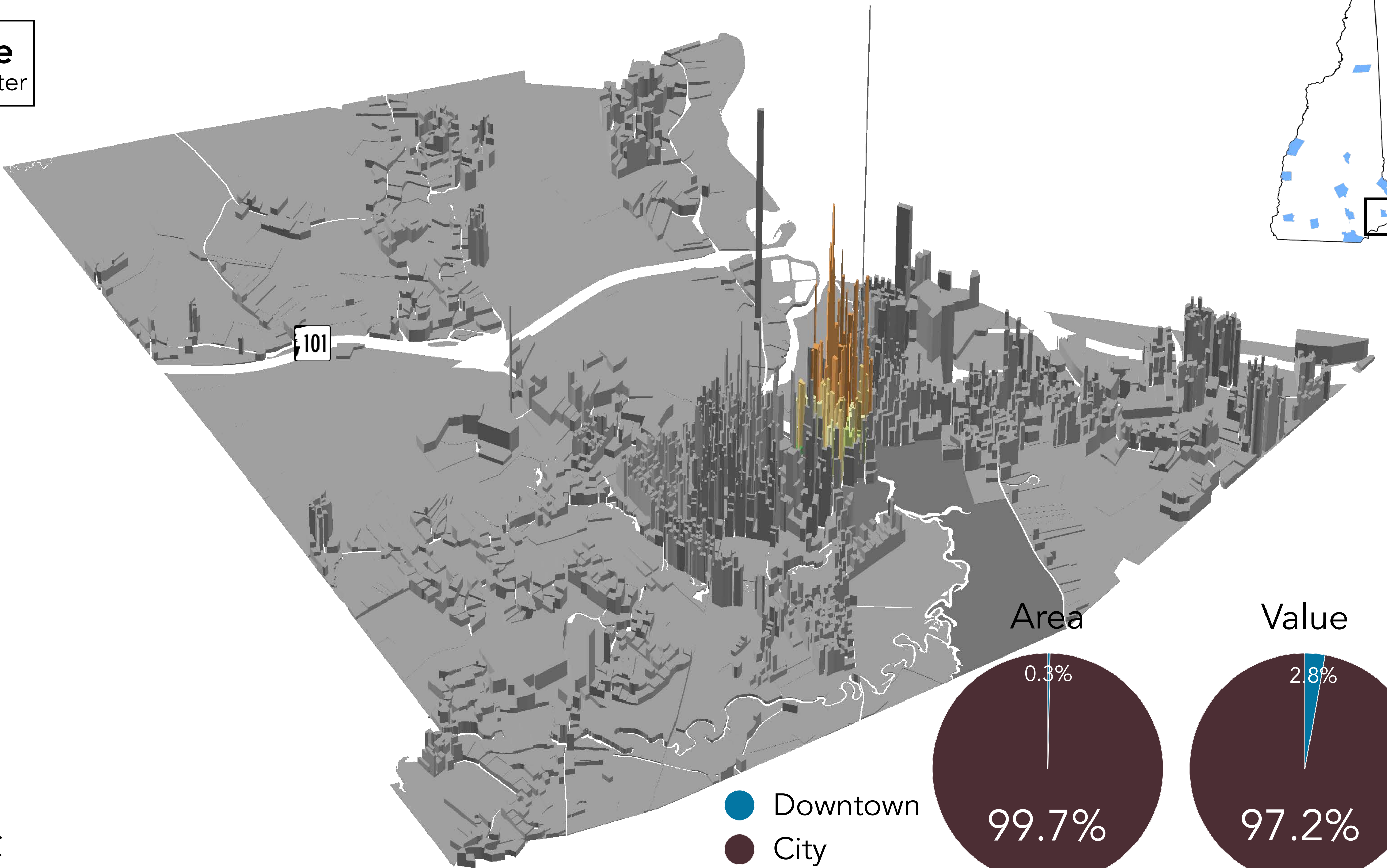
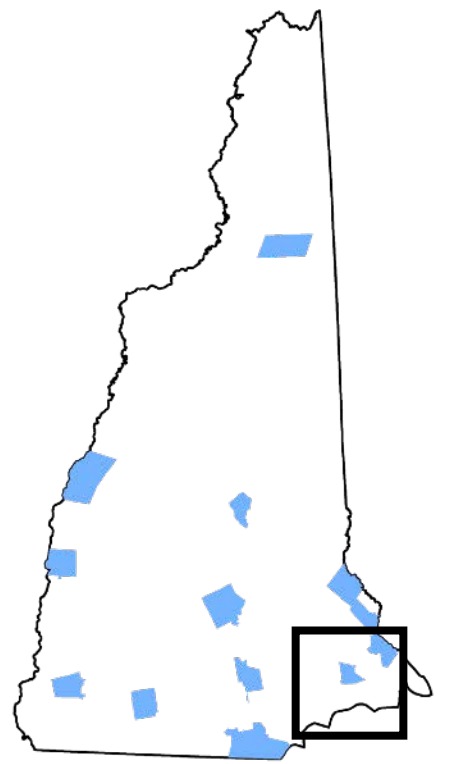


- Downtown
- City



# Value Per Acre

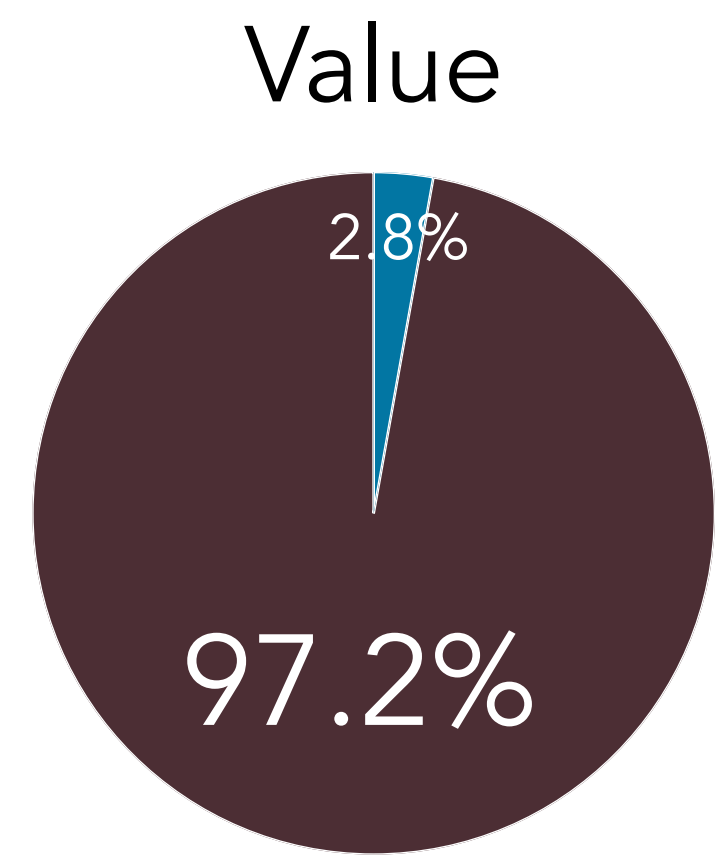
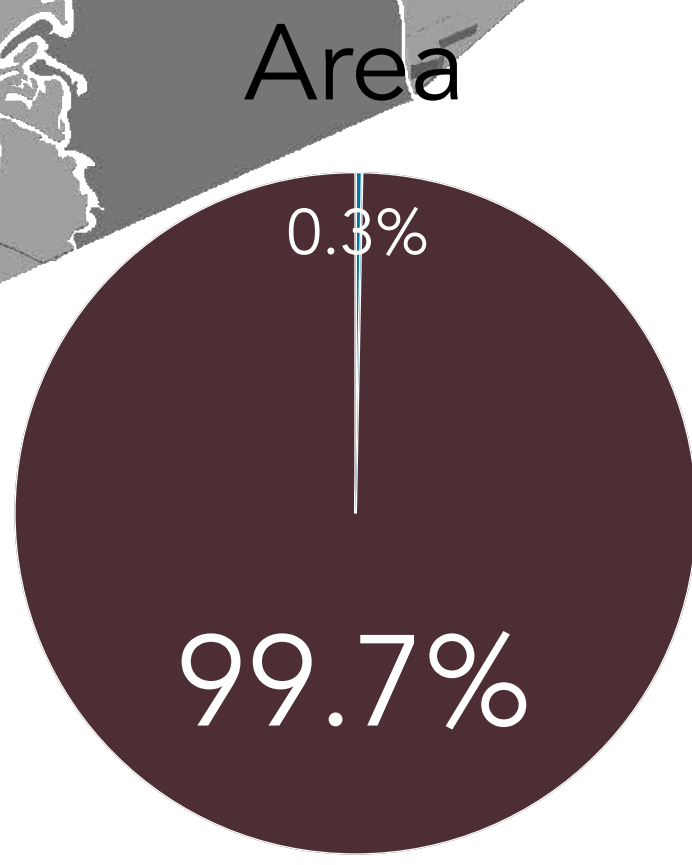
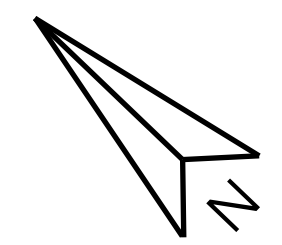
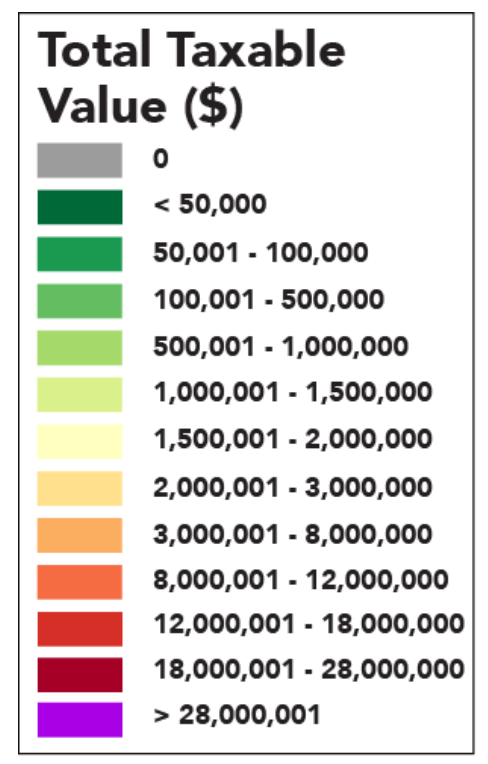
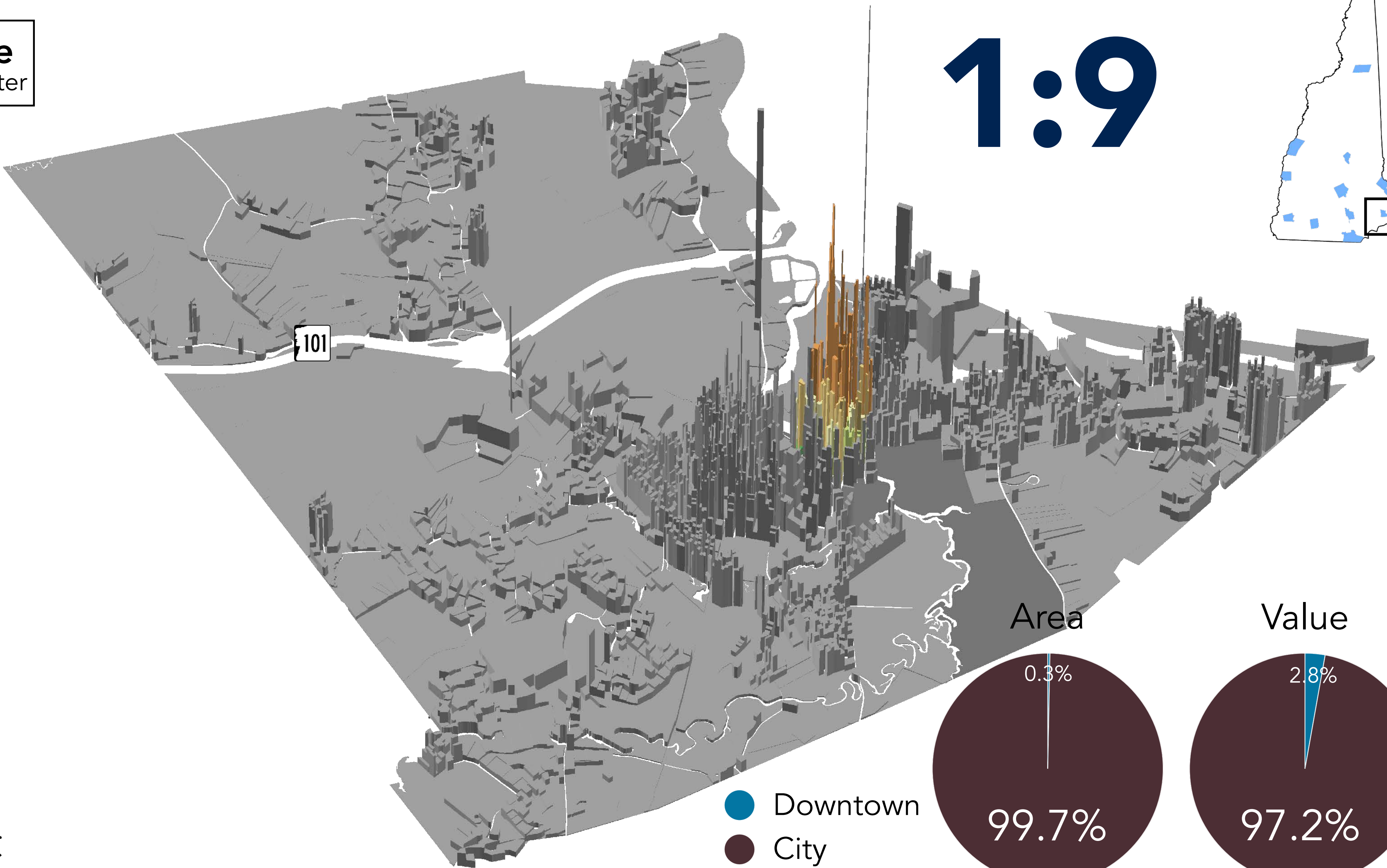
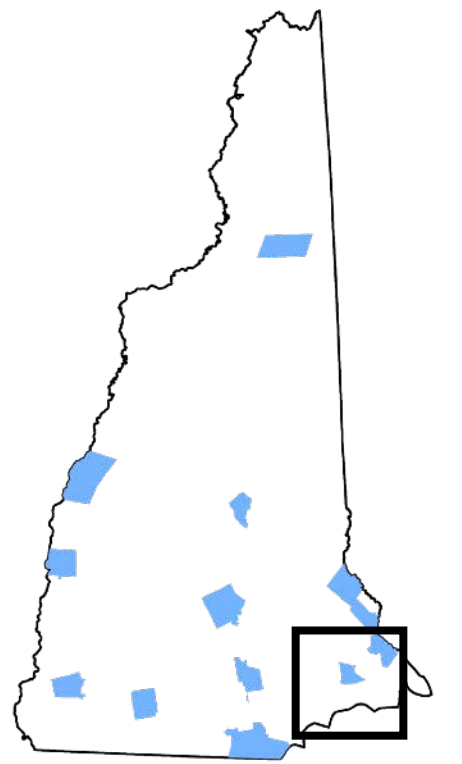
## Downtown Exeter

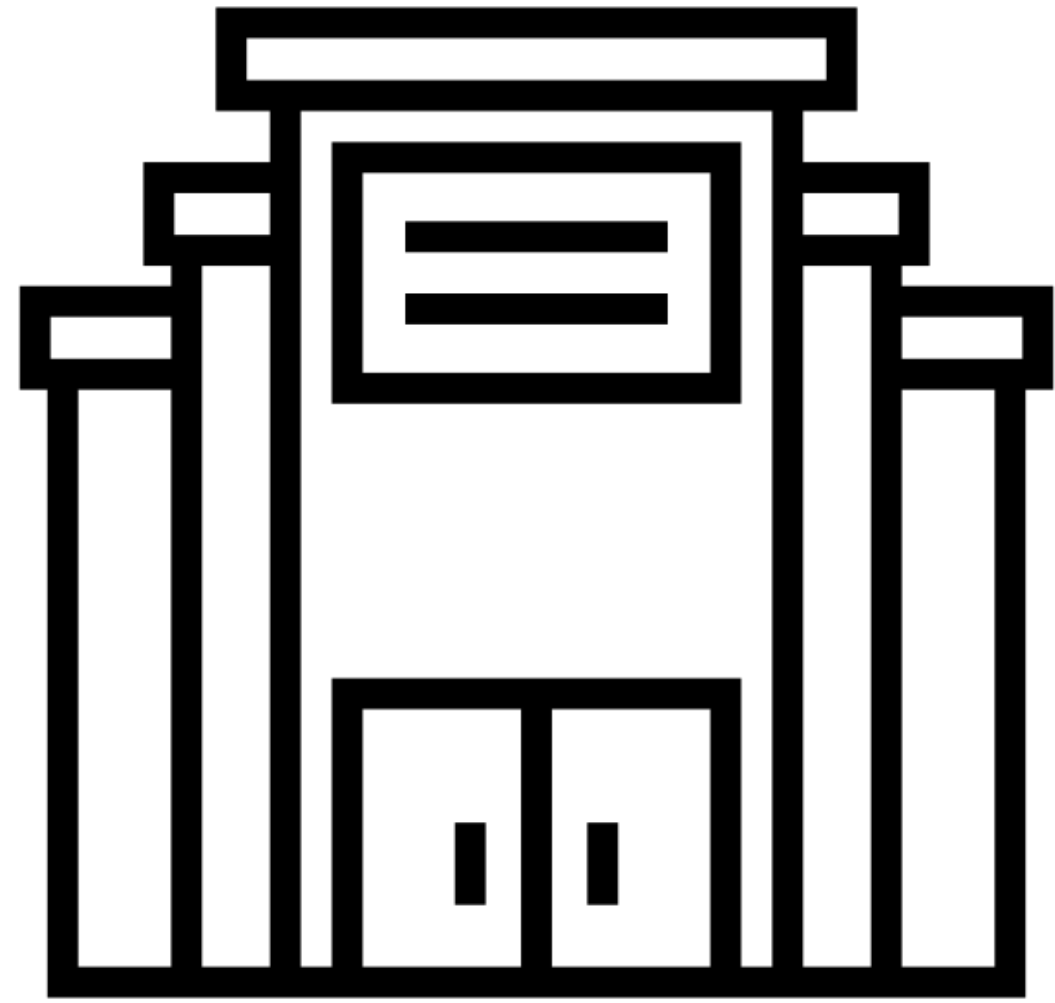


# Value Per Acre

Downtown Exeter

# 1:9



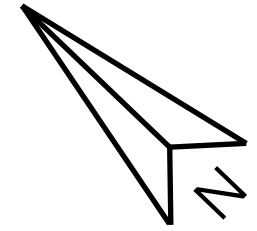
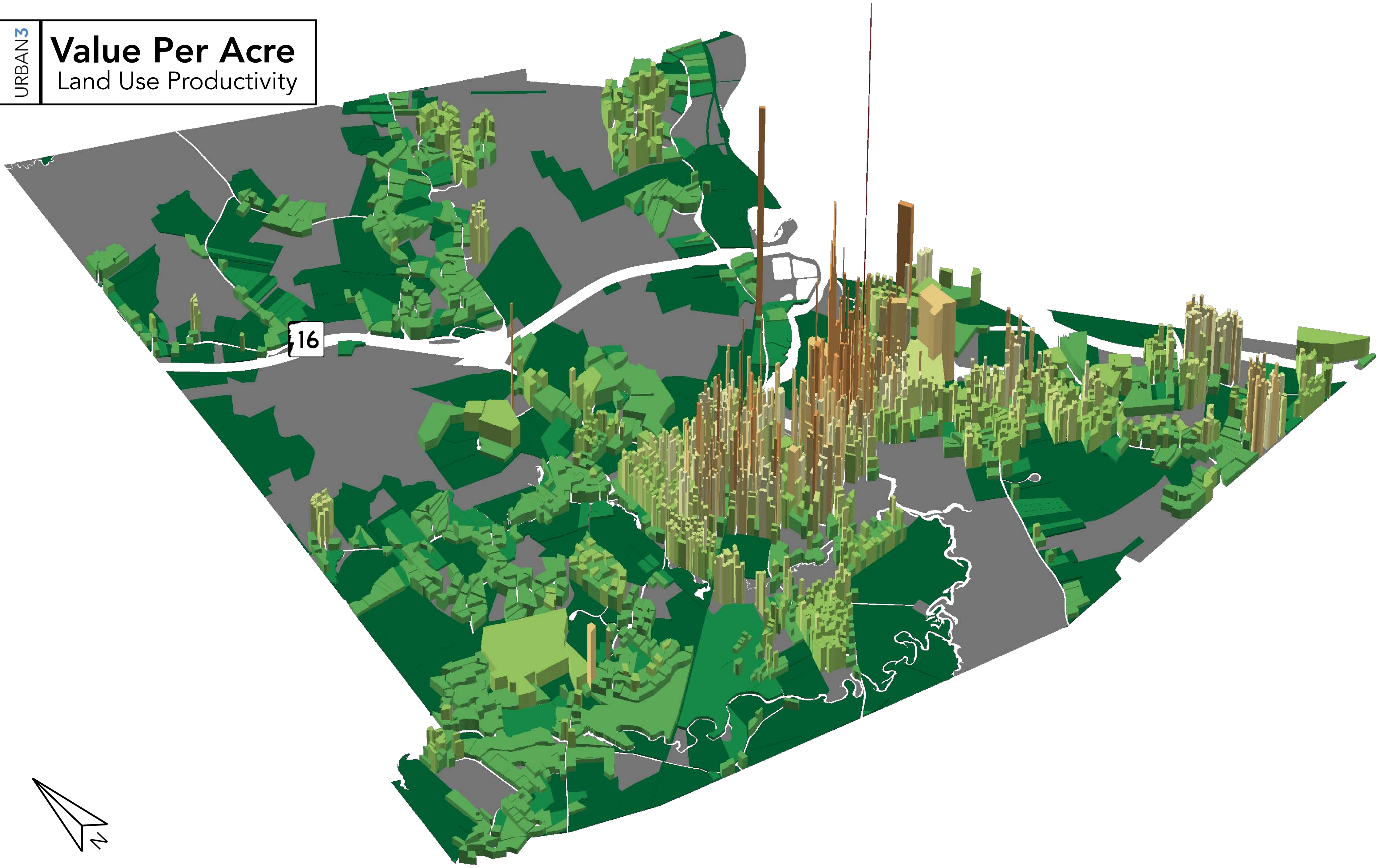
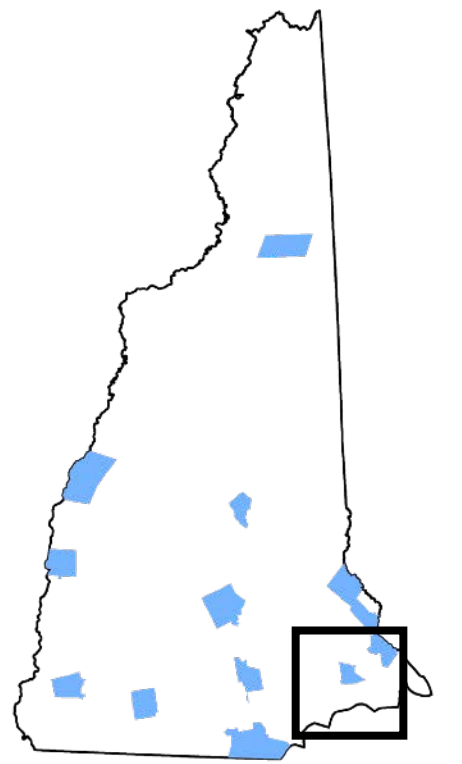


# Land Use Types

Local samples of buildings and development types

# Value Per Acre

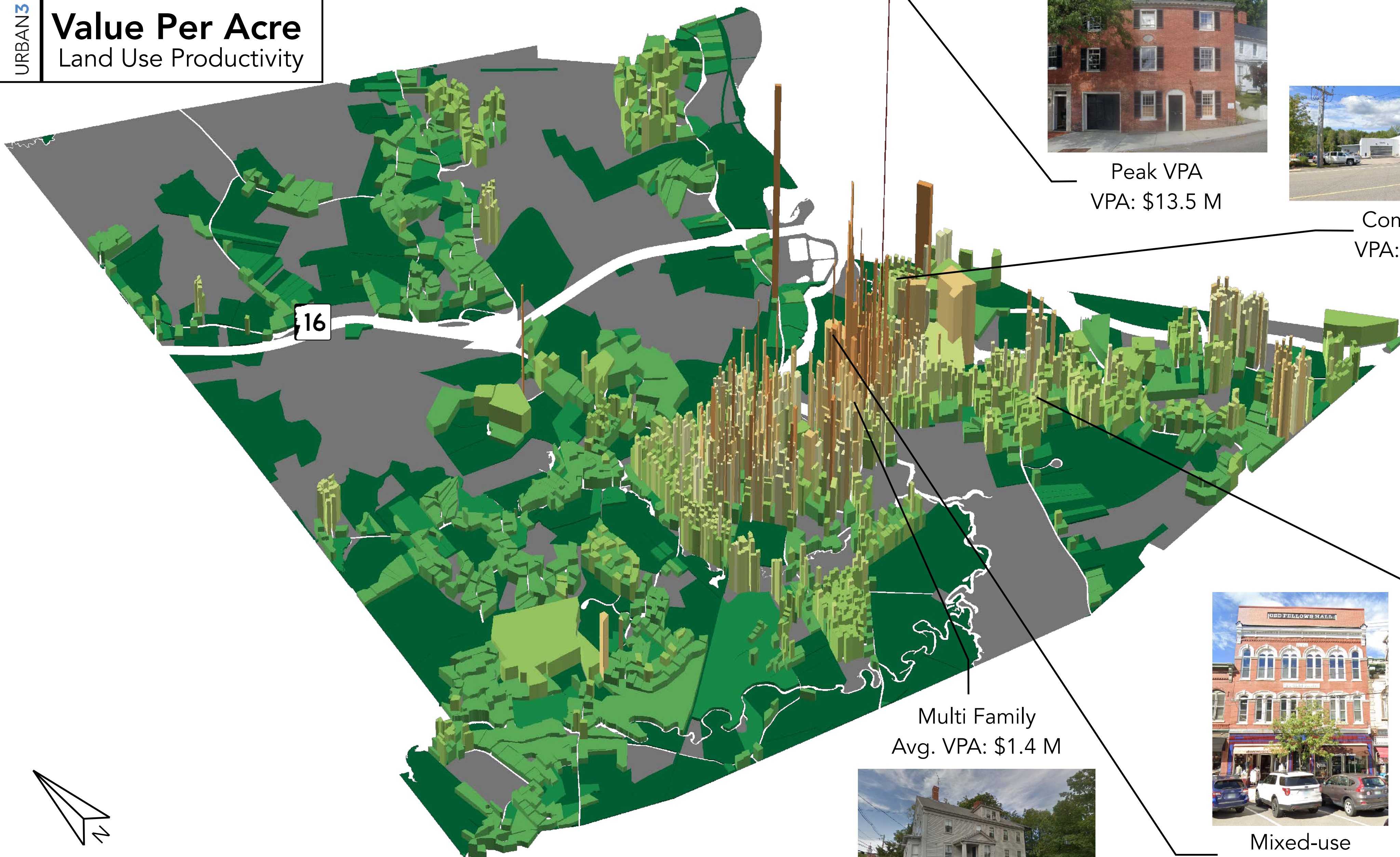
Land Use Productivity



Avg. VPA: \$197,142

# Value Per Acre

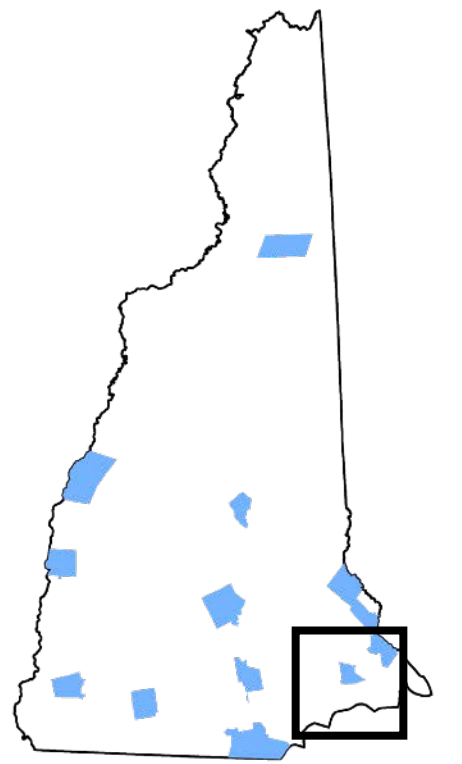
Land Use Productivity



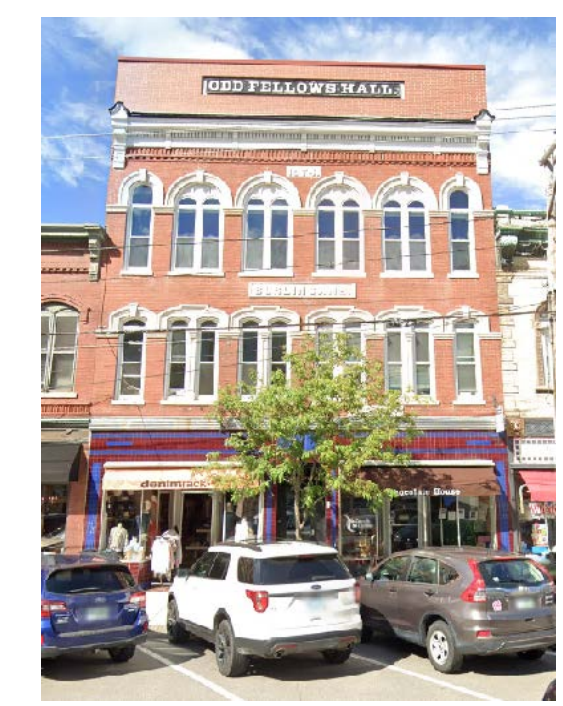
Peak VPA  
VPA: \$13.5 M



Commercial  
VPA: \$0.97 M



Single Family  
Avg. VPA: \$0.91 M

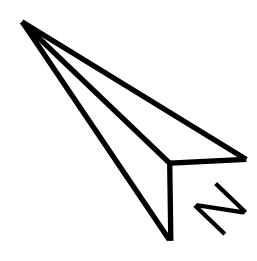


Mixed-use  
VPA: \$7.6 M



Multi Family  
Avg. VPA: \$1.4 M

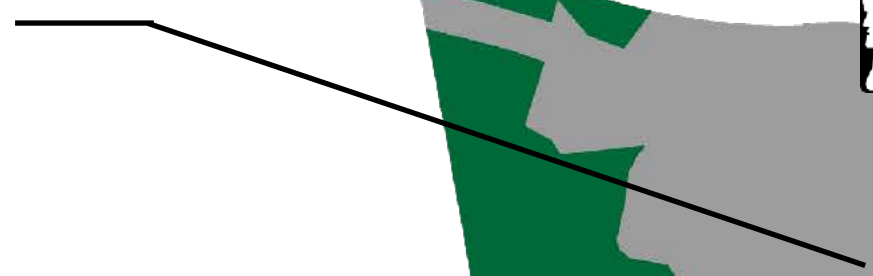
Avg. VPA: \$197,142



# Taxable Area

Exeter

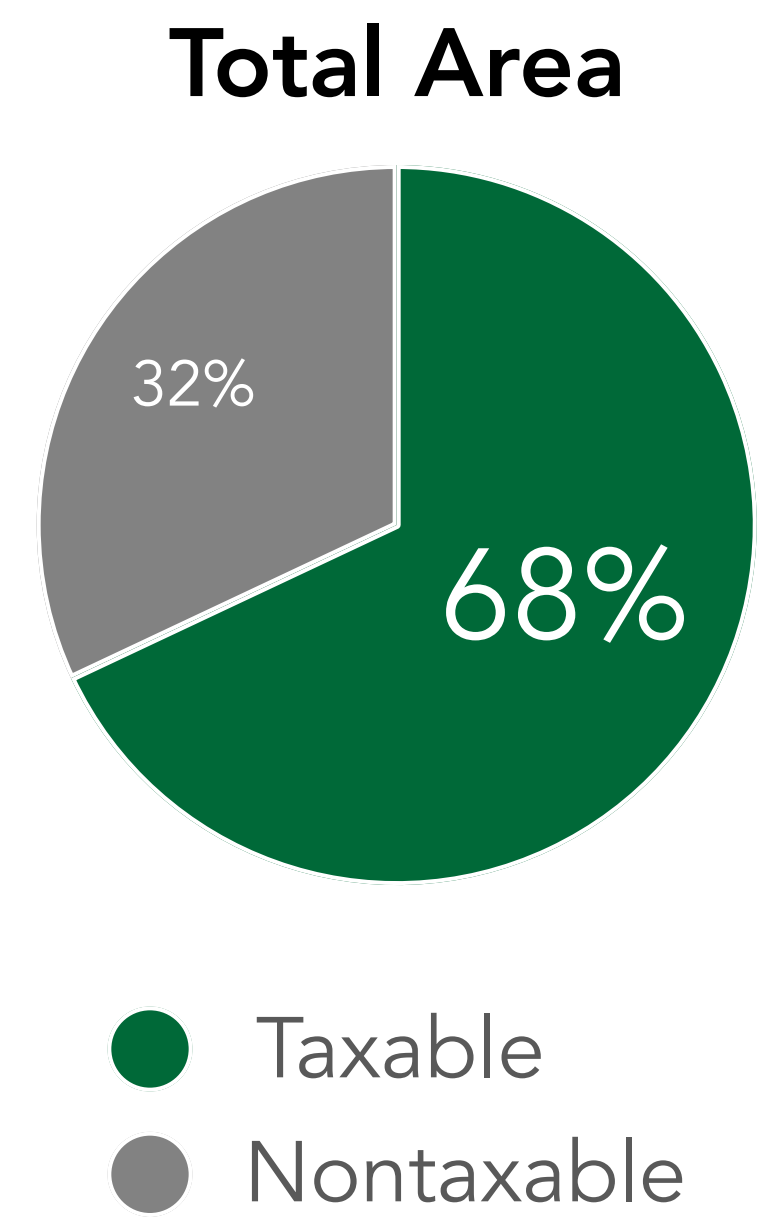
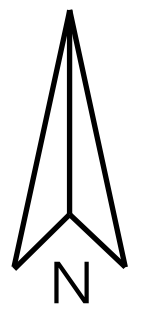
Little River  
Conservation Area



101

**Taxable Status**

- Non Taxable
- Taxable
- No Data



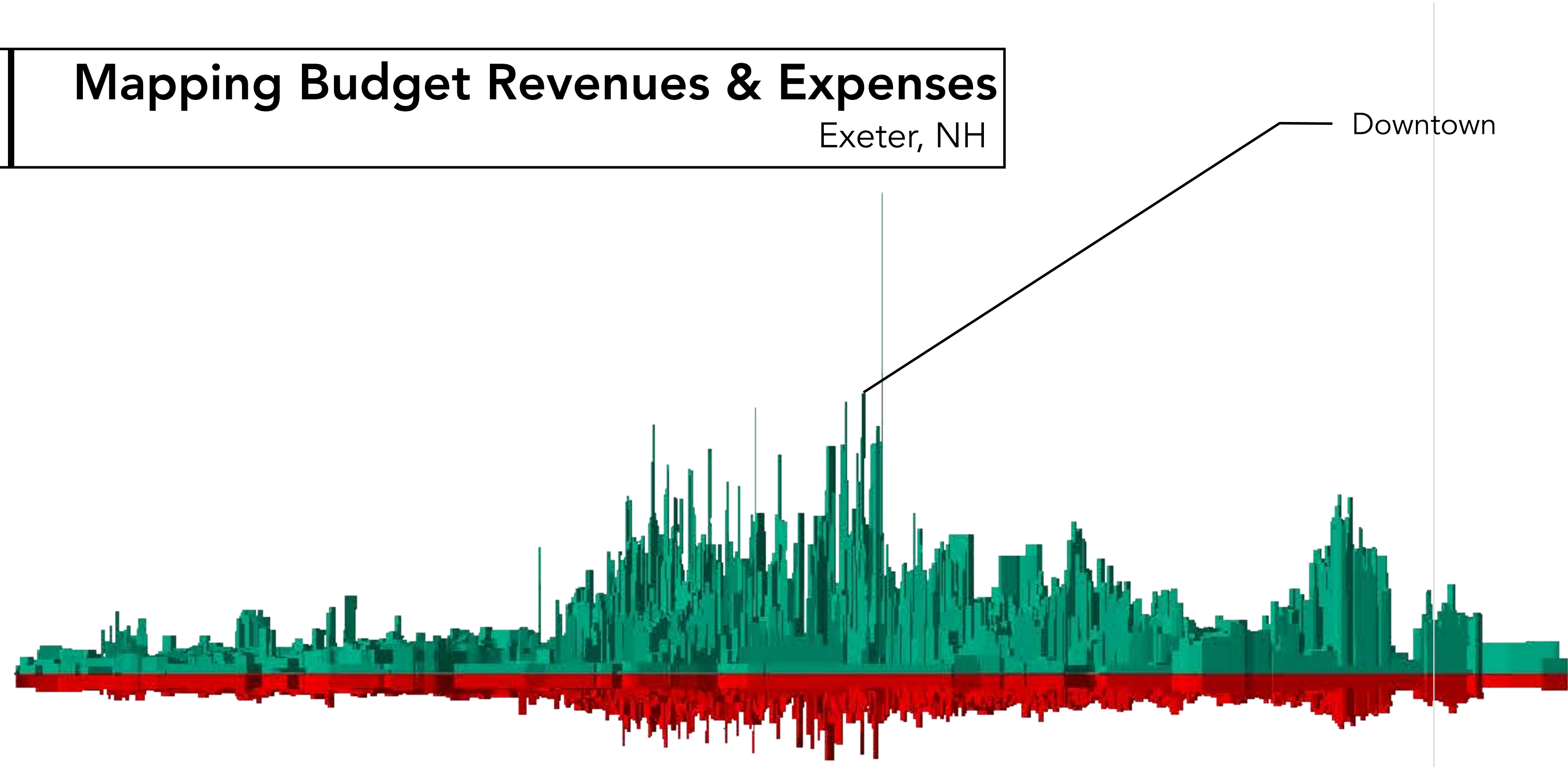


# Revenues on the Map



# Mapping Budget Revenues & Expenses

Exeter, NH

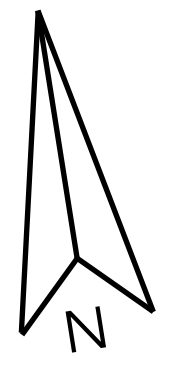


\$29,819,404

Revenues

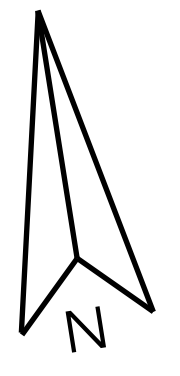
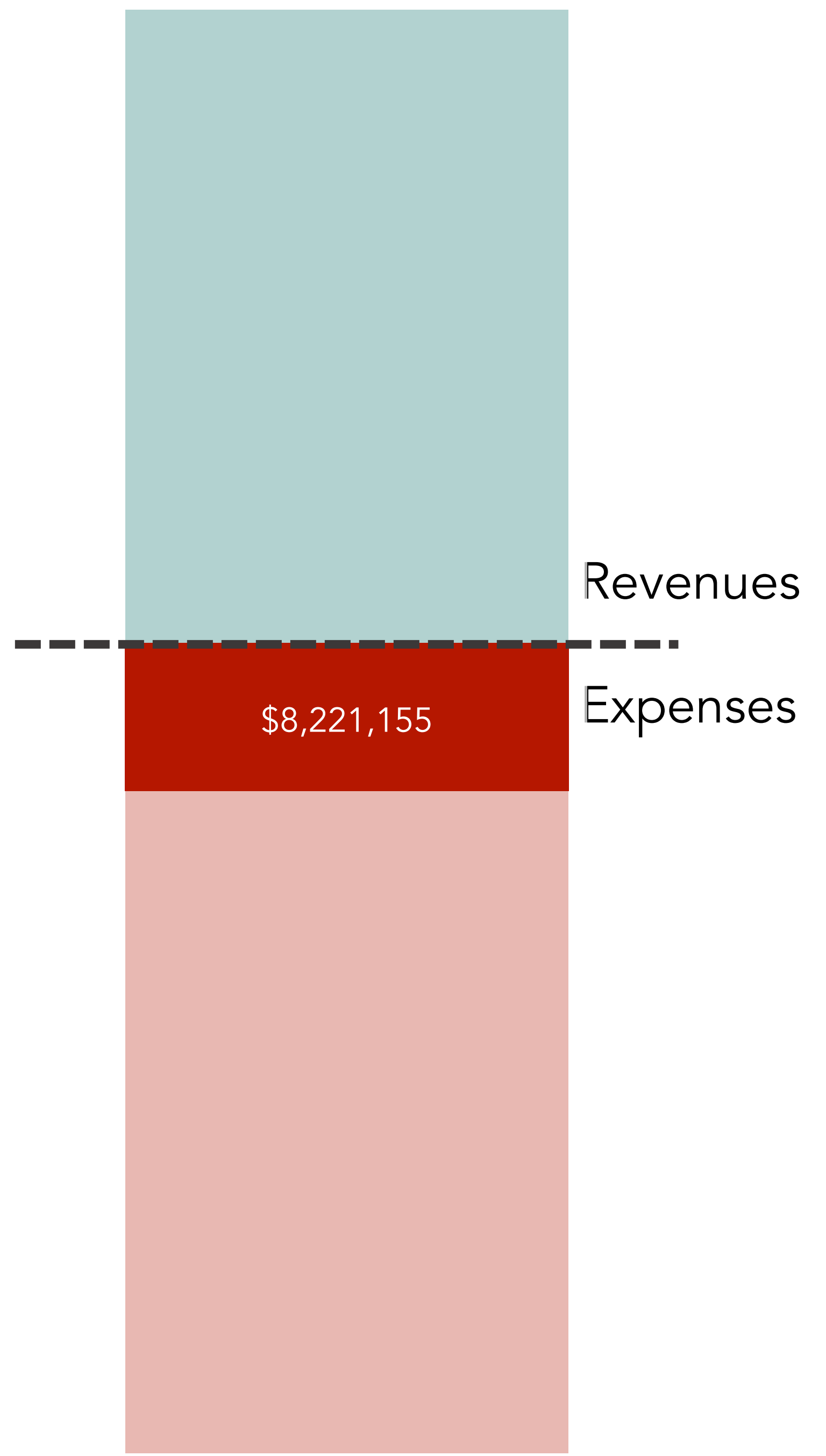
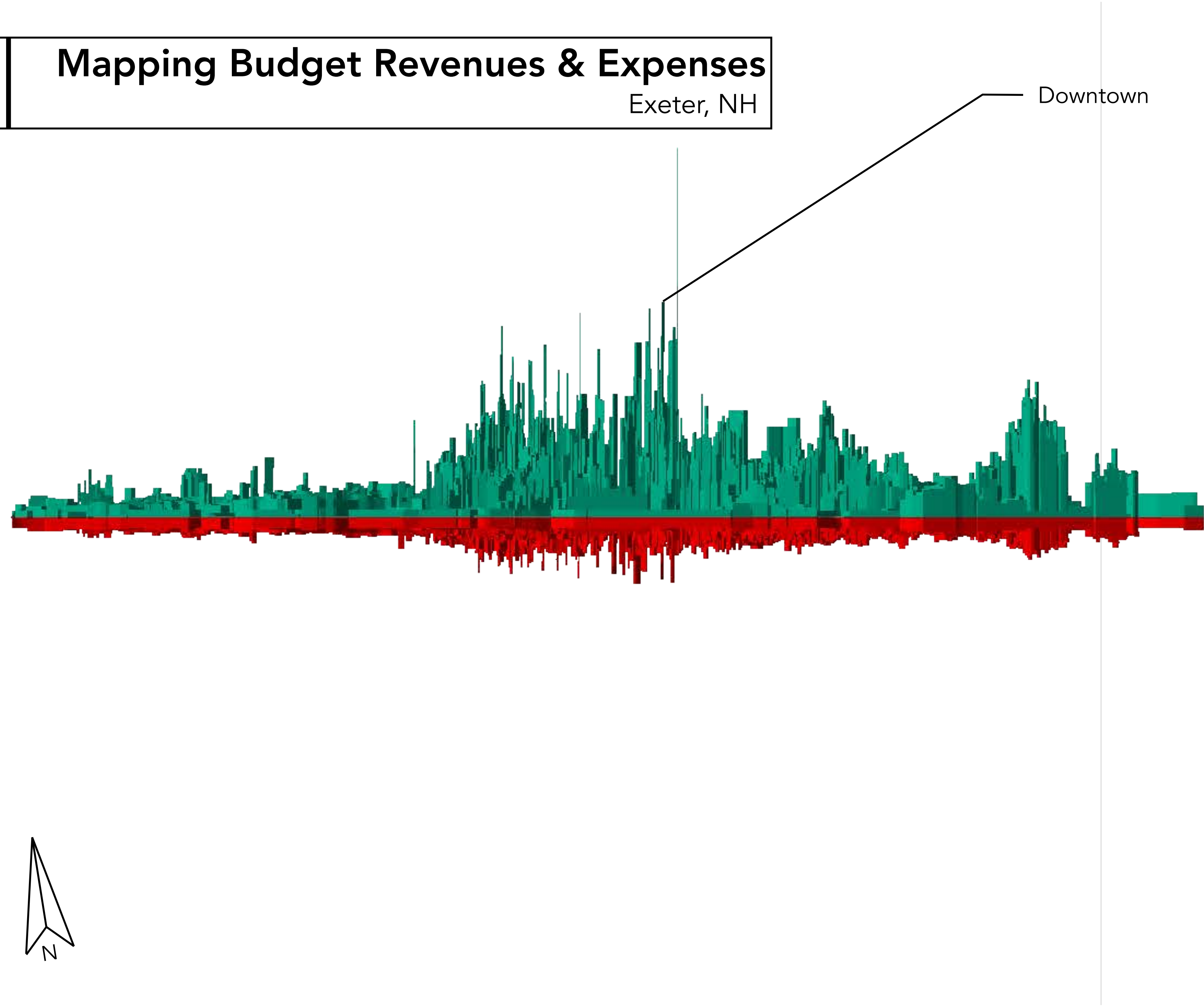
Expenses

\$38,040,559



# Mapping Budget Revenues & Expenses

Exeter, NH



# Revenues

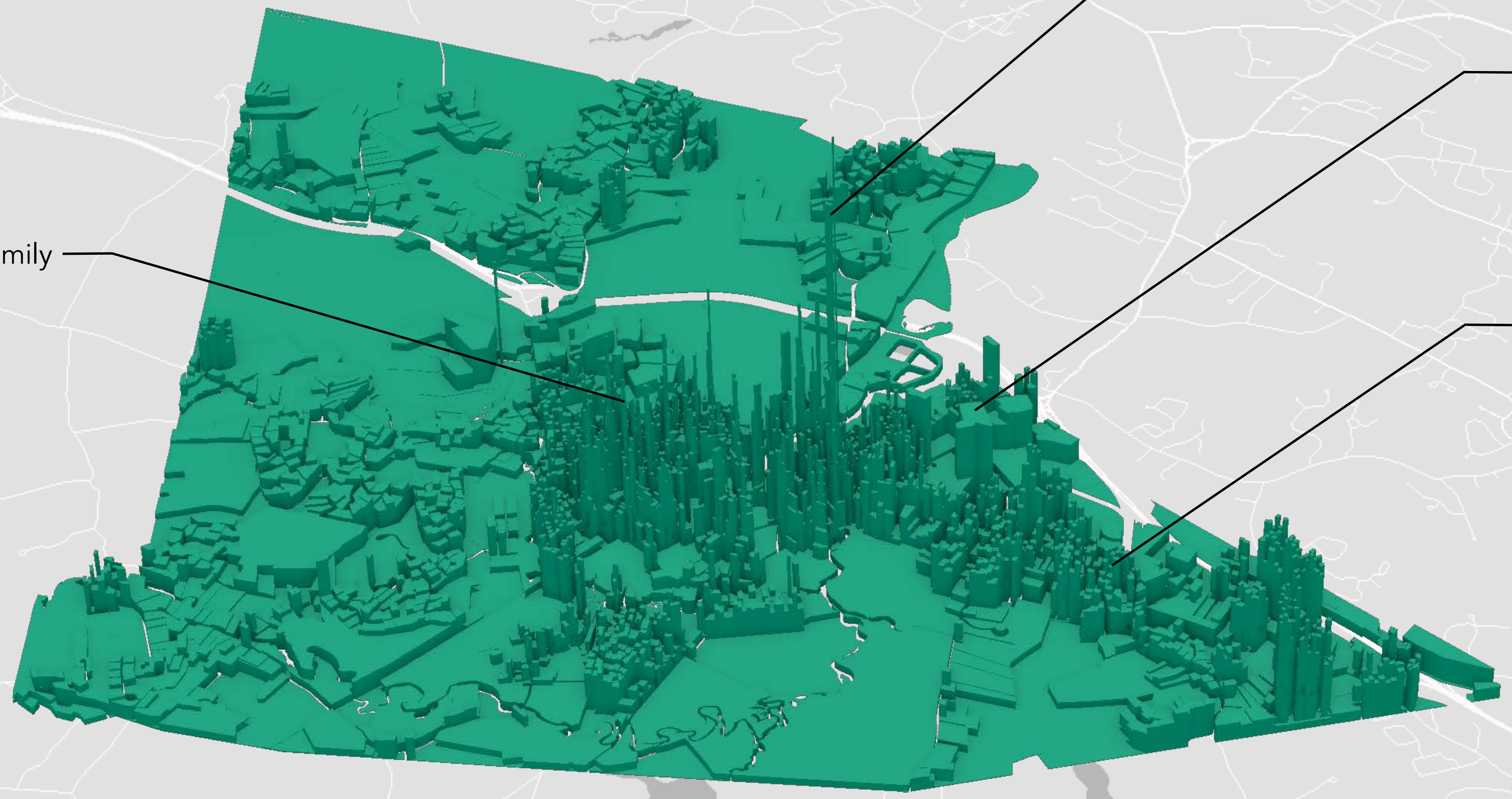
Exeter, NH

Dense Single Family

Downtown

Exeter Hospital

Single Family



# Revenues

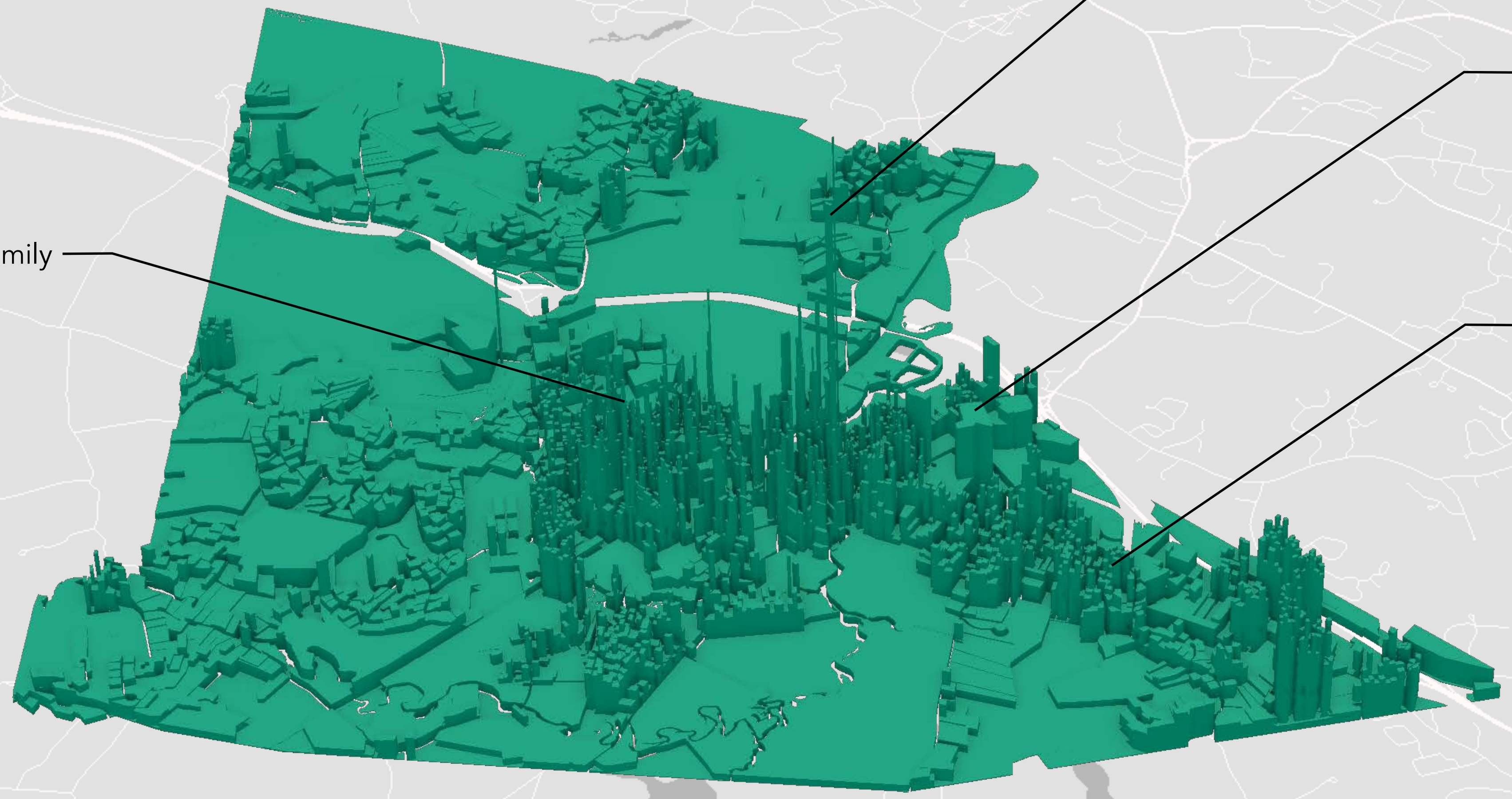
Exeter, NH

Dense Single Family

Downtown

Exeter Hospital

Single Family



# Revenues

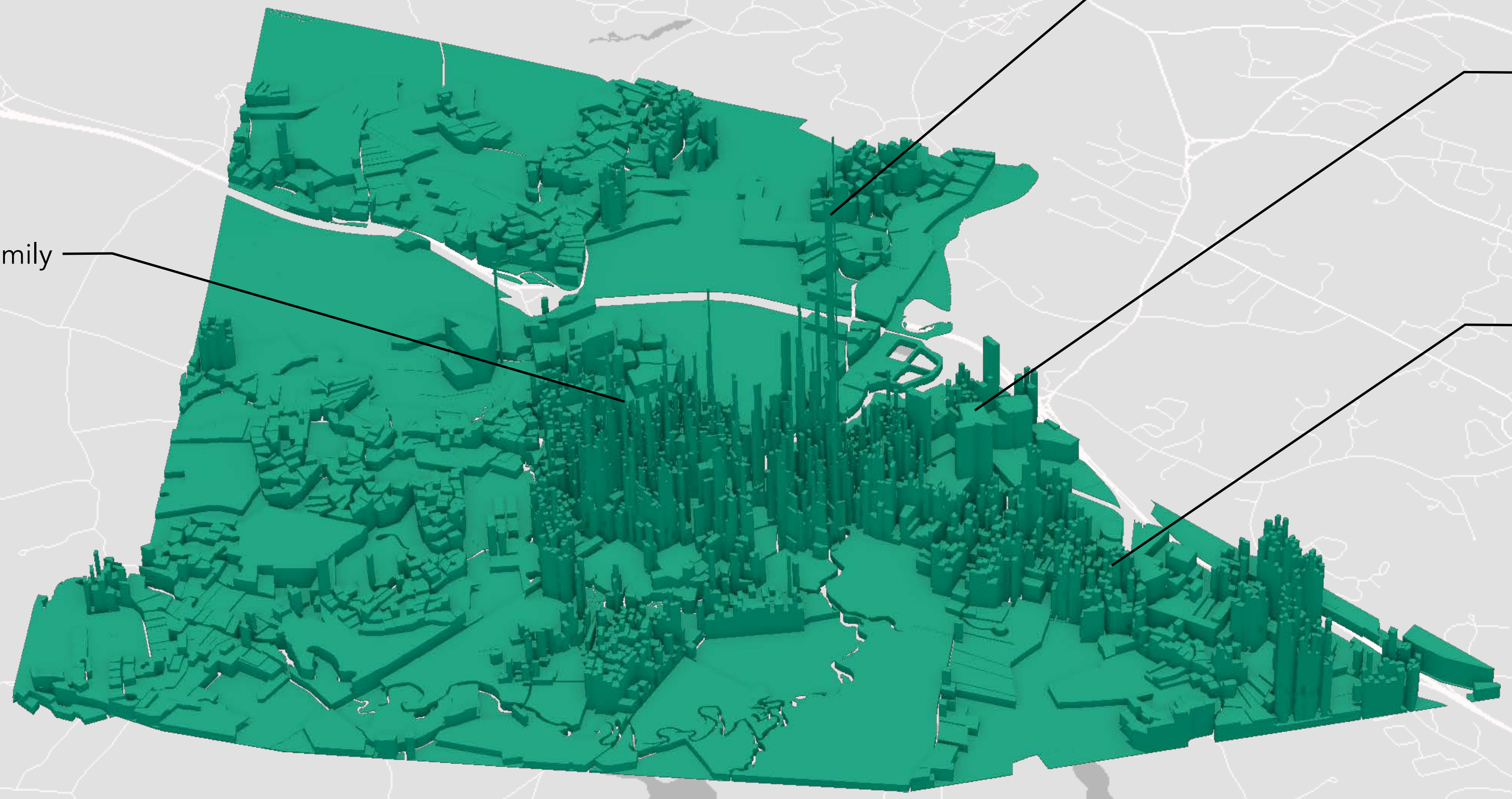
Exeter, NH

Dense Single Family

Downtown

Exeter Hospital

Single Family



# Revenues

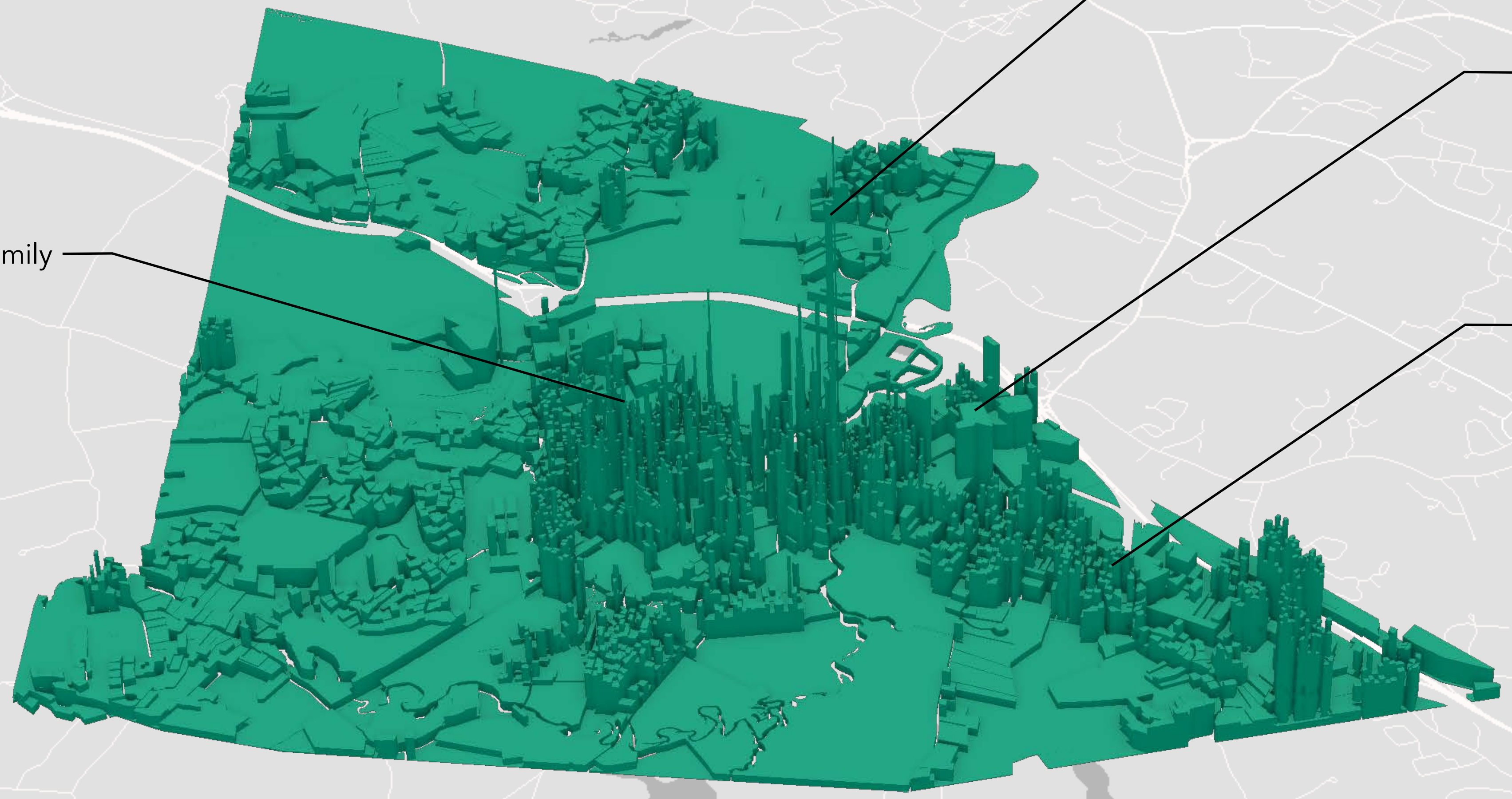
Exeter, NH

Dense Single Family

Downtown

Exeter Hospital

Single Family



# Revenues

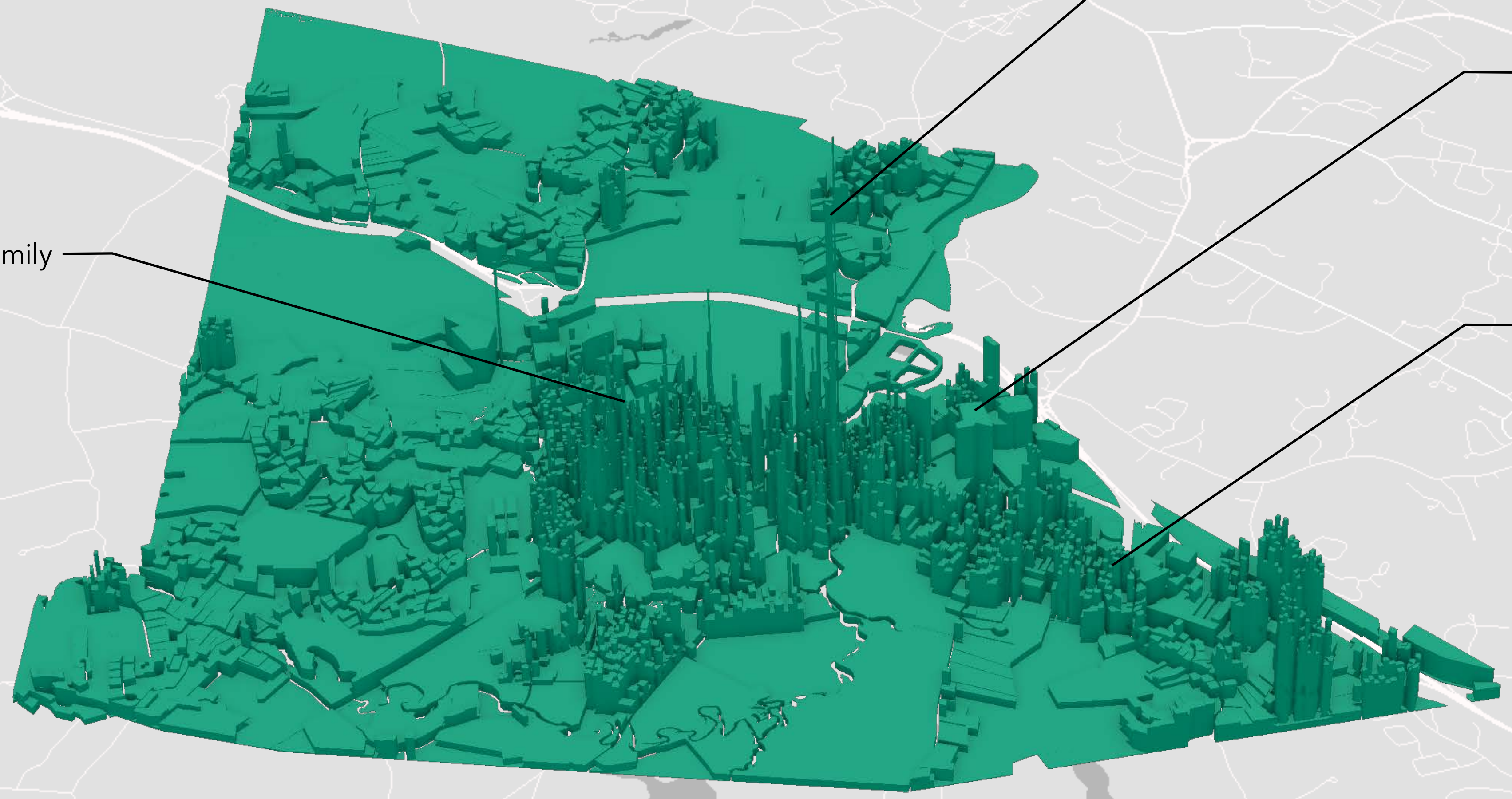
Exeter, NH

Dense Single Family

Downtown

Exeter Hospital

Single Family



# Expenses

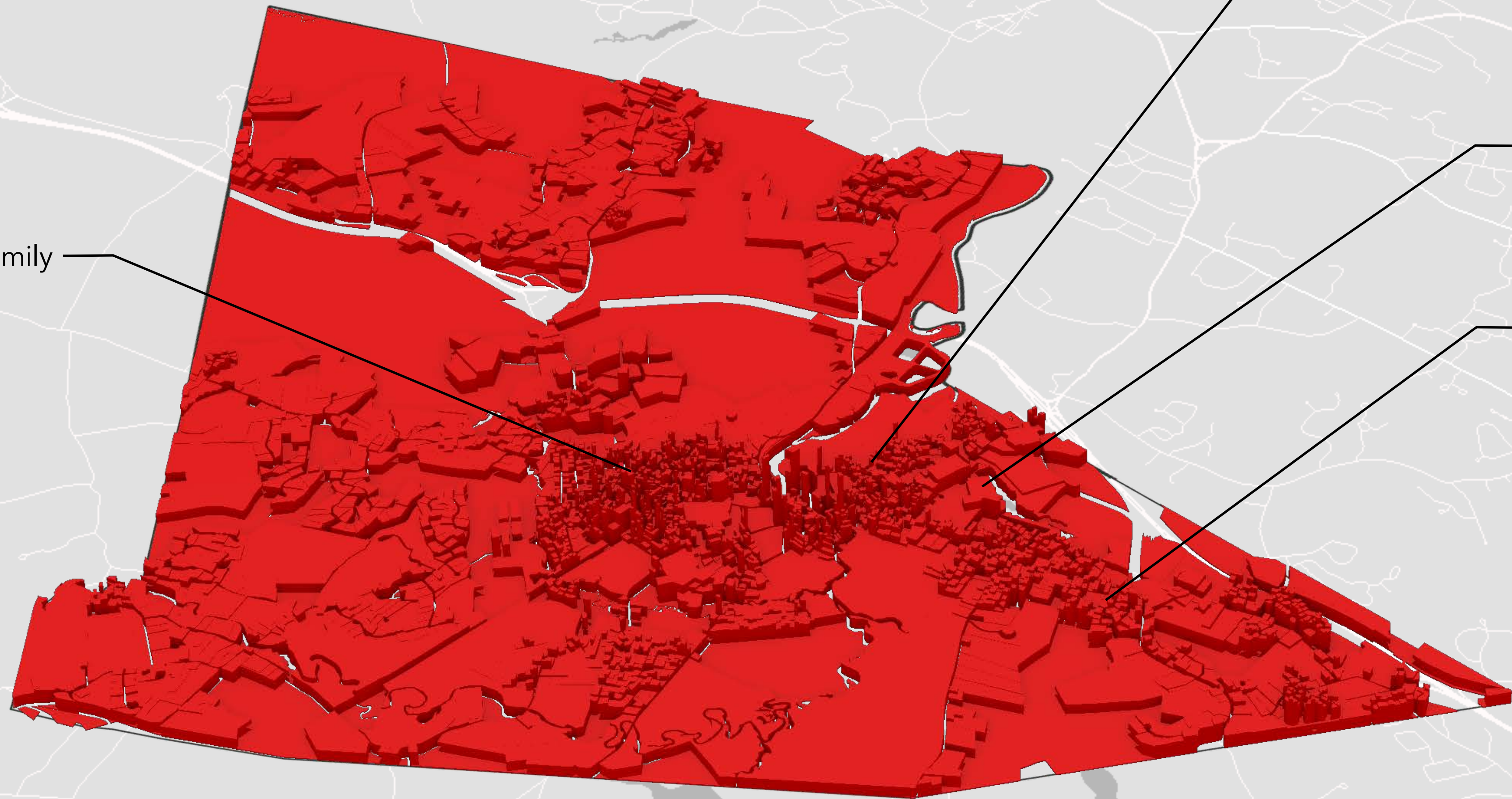
Exeter, NH

Dense Single Family

Downtown

Exeter Hospital

Single Family





URBAN3

# Revenues + Expenses

Exeter, NH



Peak VPA  
VPA: \$13.5 M



Commercial  
VPA: \$0.97 M



Multi Family  
Avg. VPA: \$1.4 M

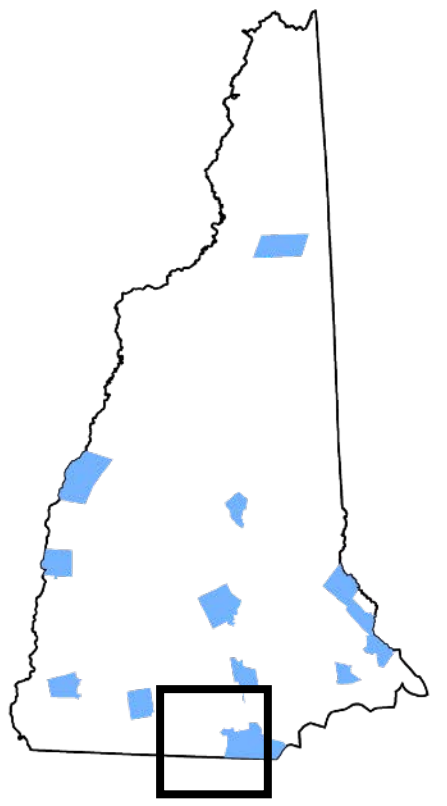


Single Family  
Avg. VPA: \$0.91 M



Mixed-use  
VPA: \$7.6 M





Case Study: Economic MRI®  
2020

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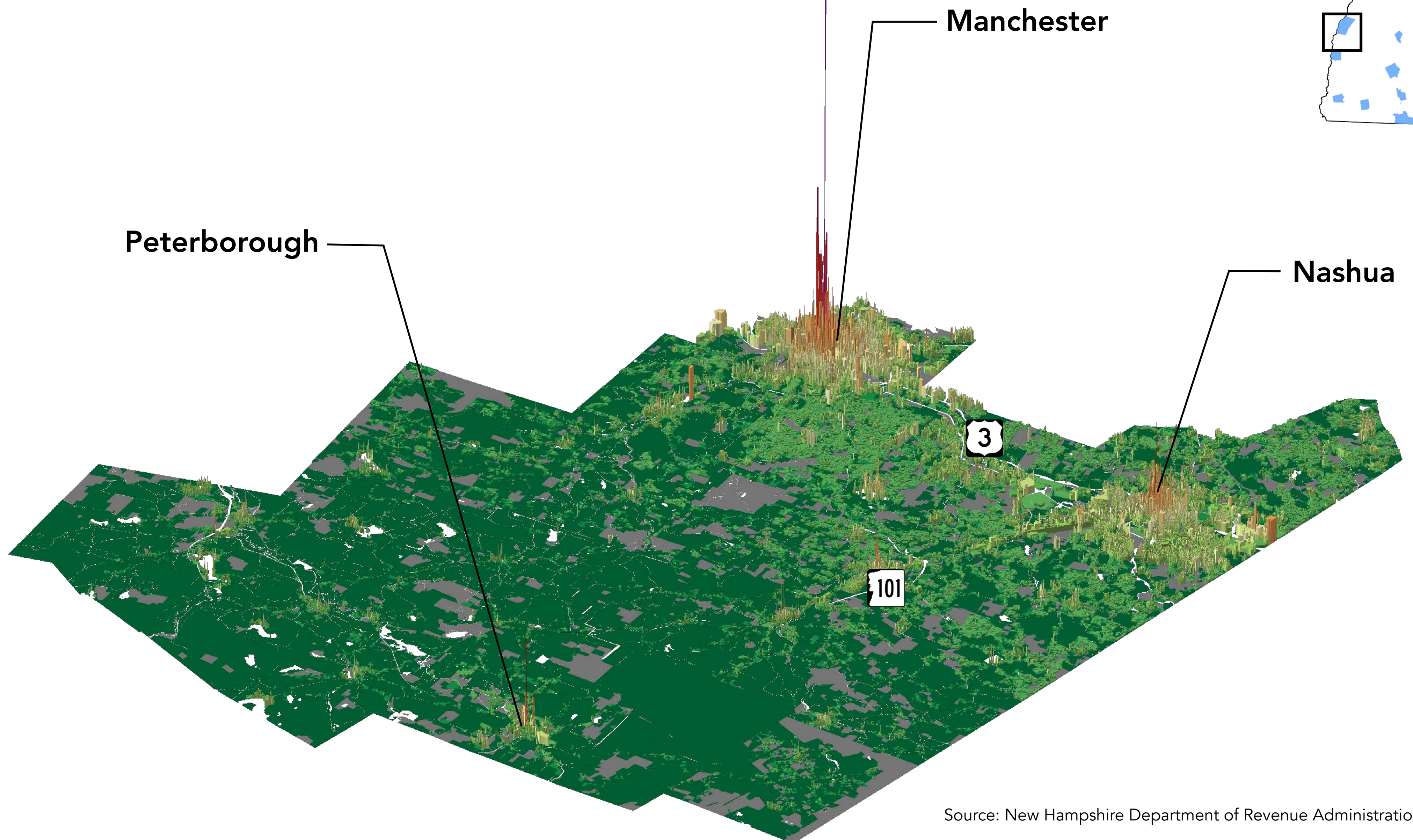
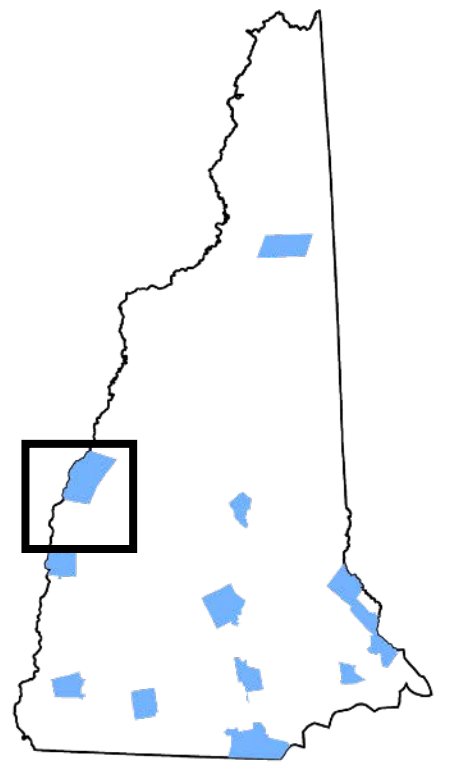
# Nashua



URBAN3

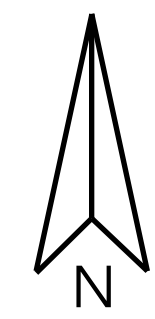
# Value Per Acre

## Hillsborough County

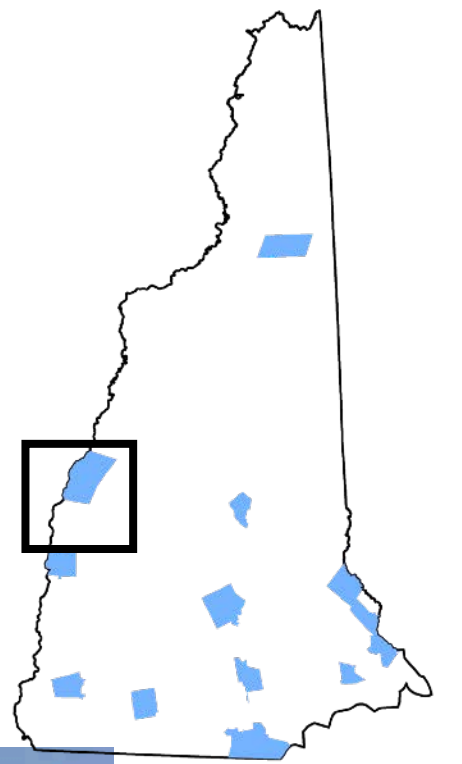
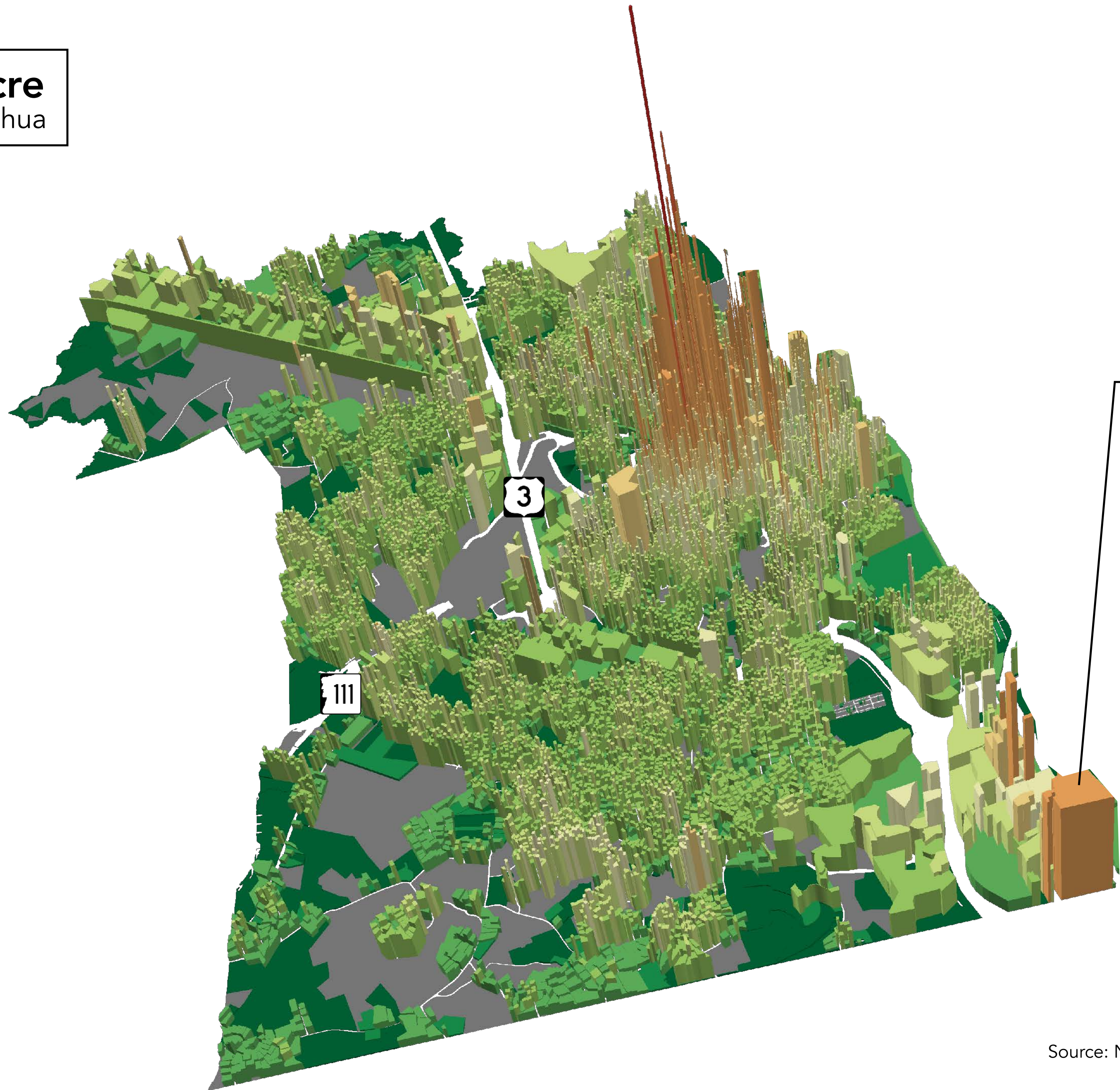


**Total Taxable Value (\$)**

0
< 50,000
50,001 - 100,000
100,001 - 500,000
500,001 - 1,000,000
1,000,001 - 1,500,000
1,500,001 - 2,000,000
2,000,001 - 3,000,000
3,000,001 - 8,000,000
8,000,001 - 12,000,000
12,000,001 - 18,000,000
18,000,001 - 28,000,000
> 28,000,001

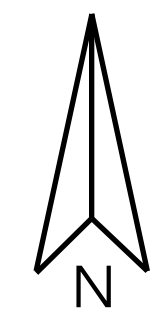


URBAN3  
**Value Per Acre**  
Nashua



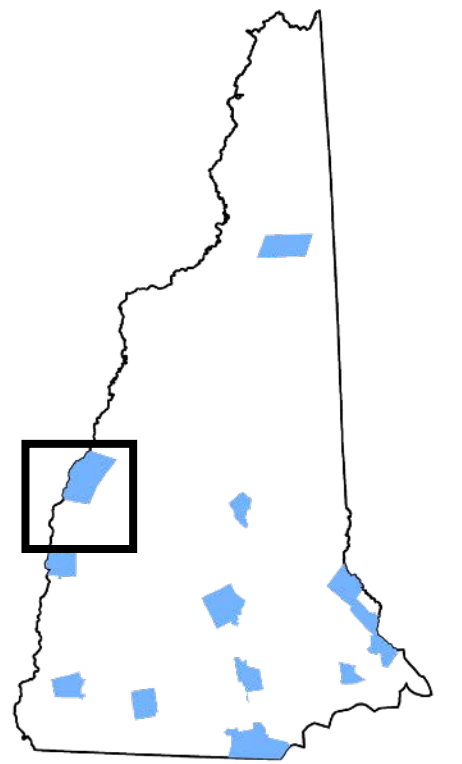
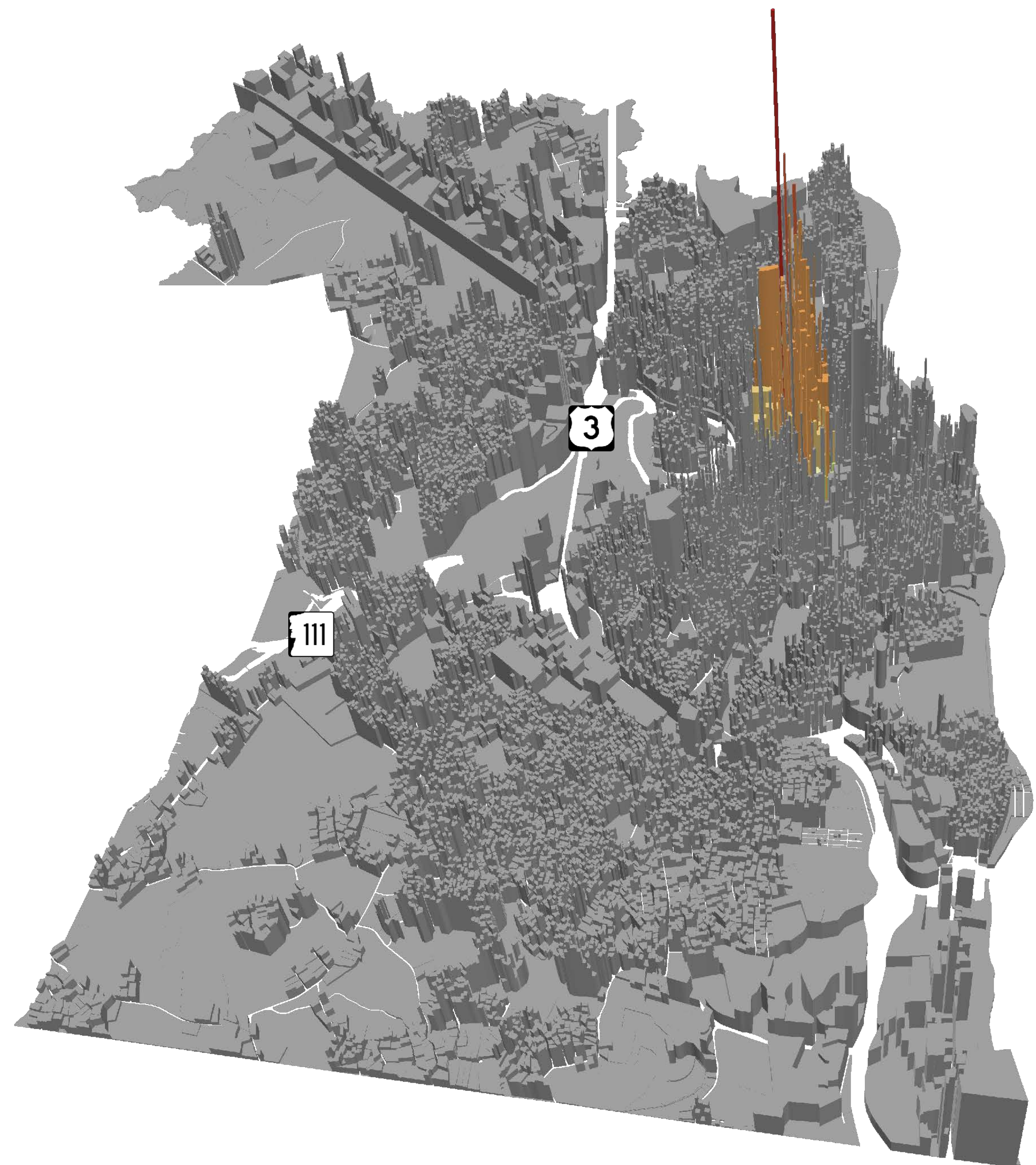
**Total Taxable Value (\$)**

0
< 50,000
50,001 - 100,000
100,001 - 500,000
500,001 - 1,000,000
1,000,001 - 1,500,000
1,500,001 - 2,000,000
2,000,001 - 3,000,000
3,000,001 - 8,000,000
8,000,001 - 12,000,000
12,000,001 - 18,000,000
18,000,001 - 28,000,000
> 28,000,001



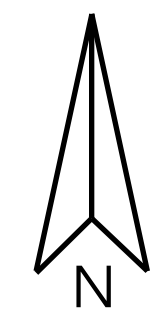
# Value Per Acre

## Downtown Nashua



**Total Taxable Value (\$)**

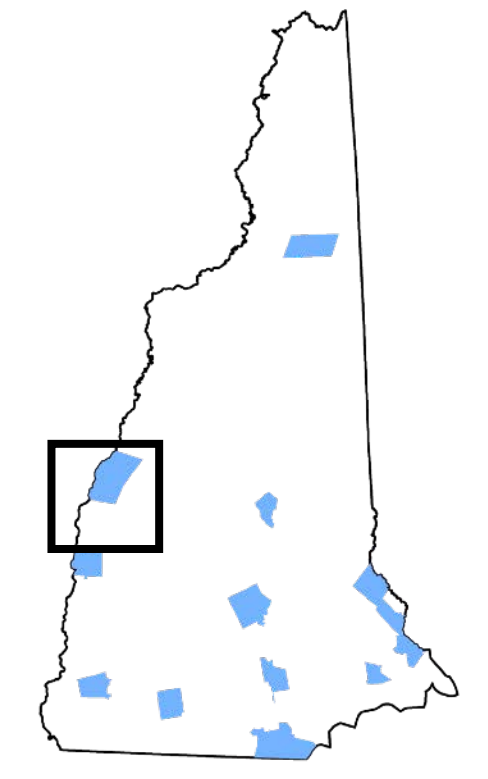
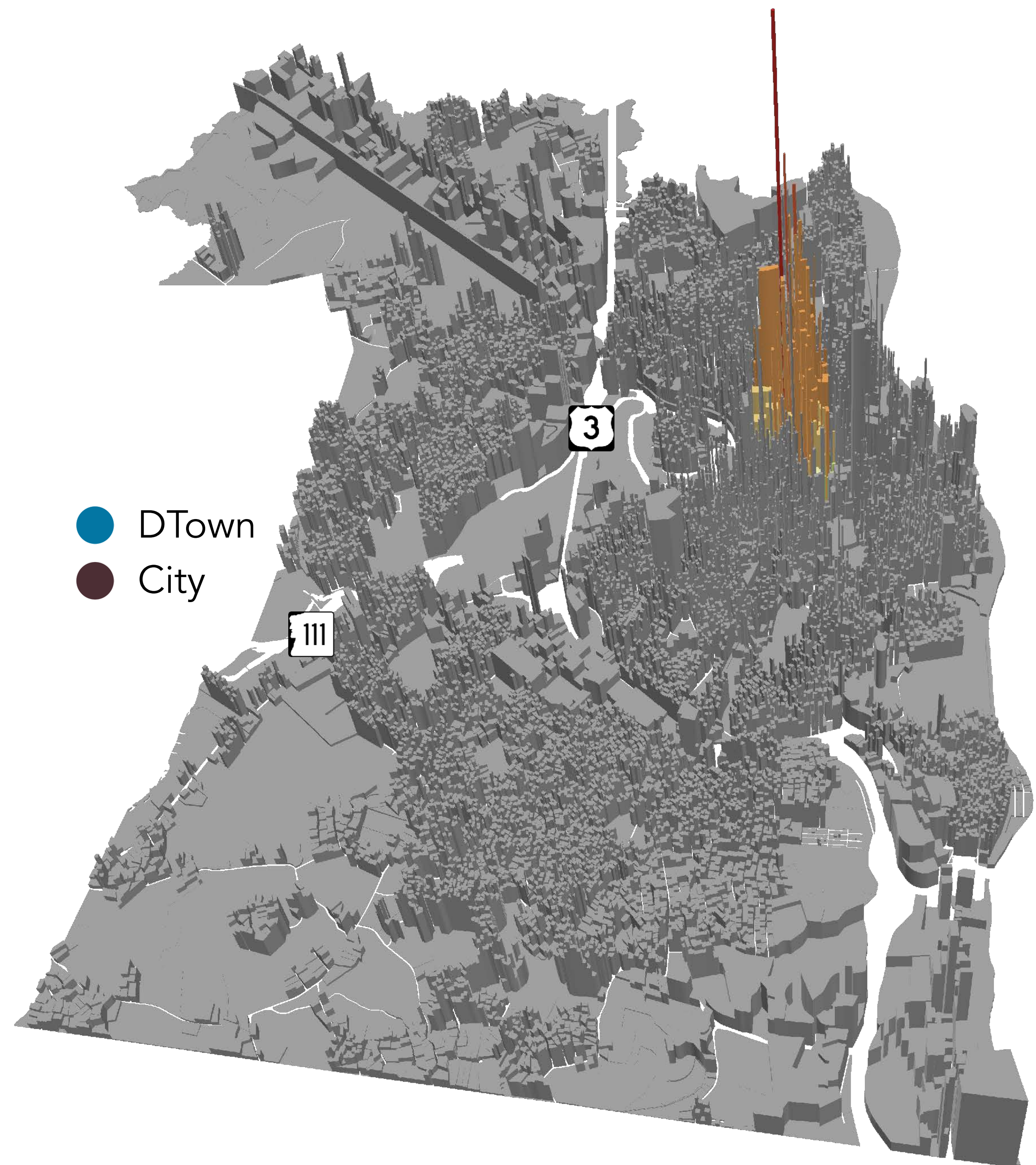
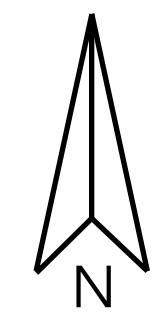
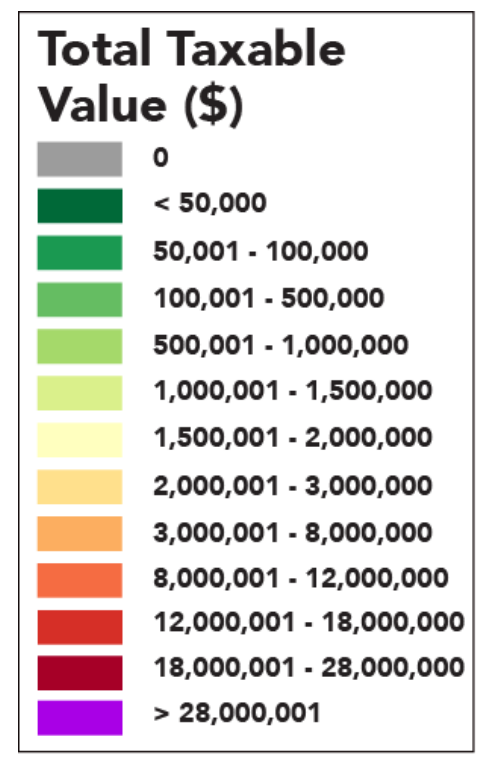
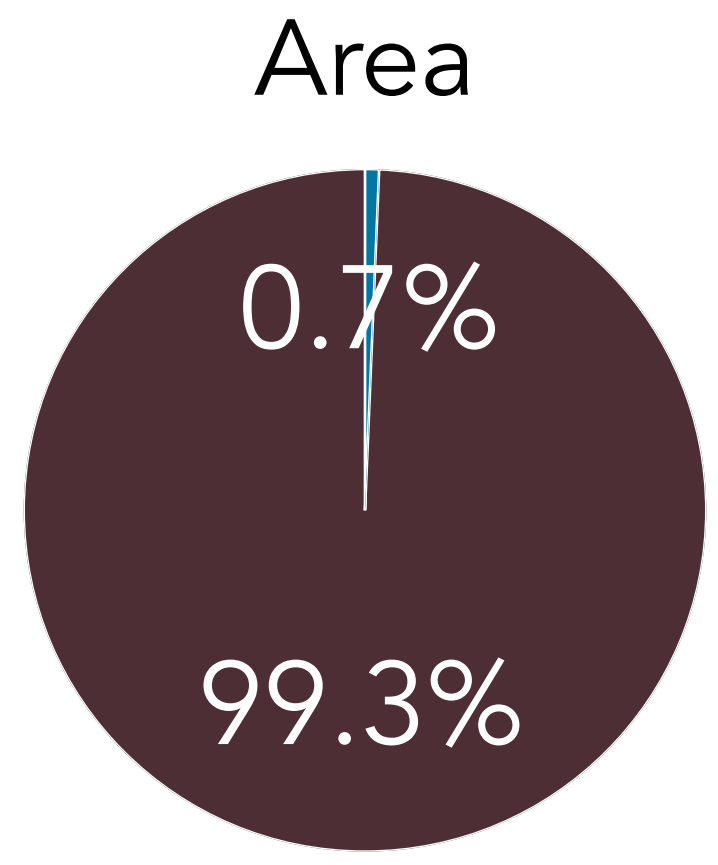
Grey	0
Dark Green	< 50,000
Green	50,001 - 100,000
Light Green	100,001 - 500,000
Yellow-Green	500,001 - 1,000,000
Yellow	1,000,001 - 1,500,000
Light Yellow	1,500,001 - 2,000,000
Orange	2,000,001 - 3,000,000
Dark Orange	3,000,001 - 8,000,000
Red-Orange	8,000,001 - 12,000,000
Red	12,000,001 - 18,000,000
Dark Red	18,000,001 - 28,000,000
Purple	> 28,000,001



URBAN3

# Value Per Acre

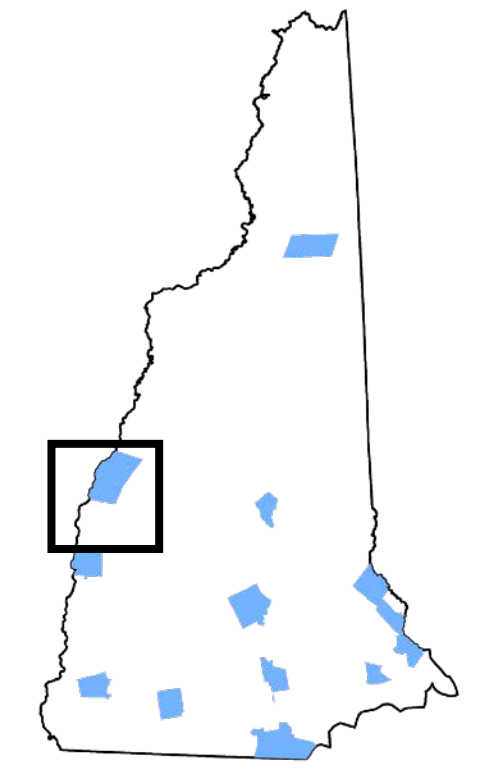
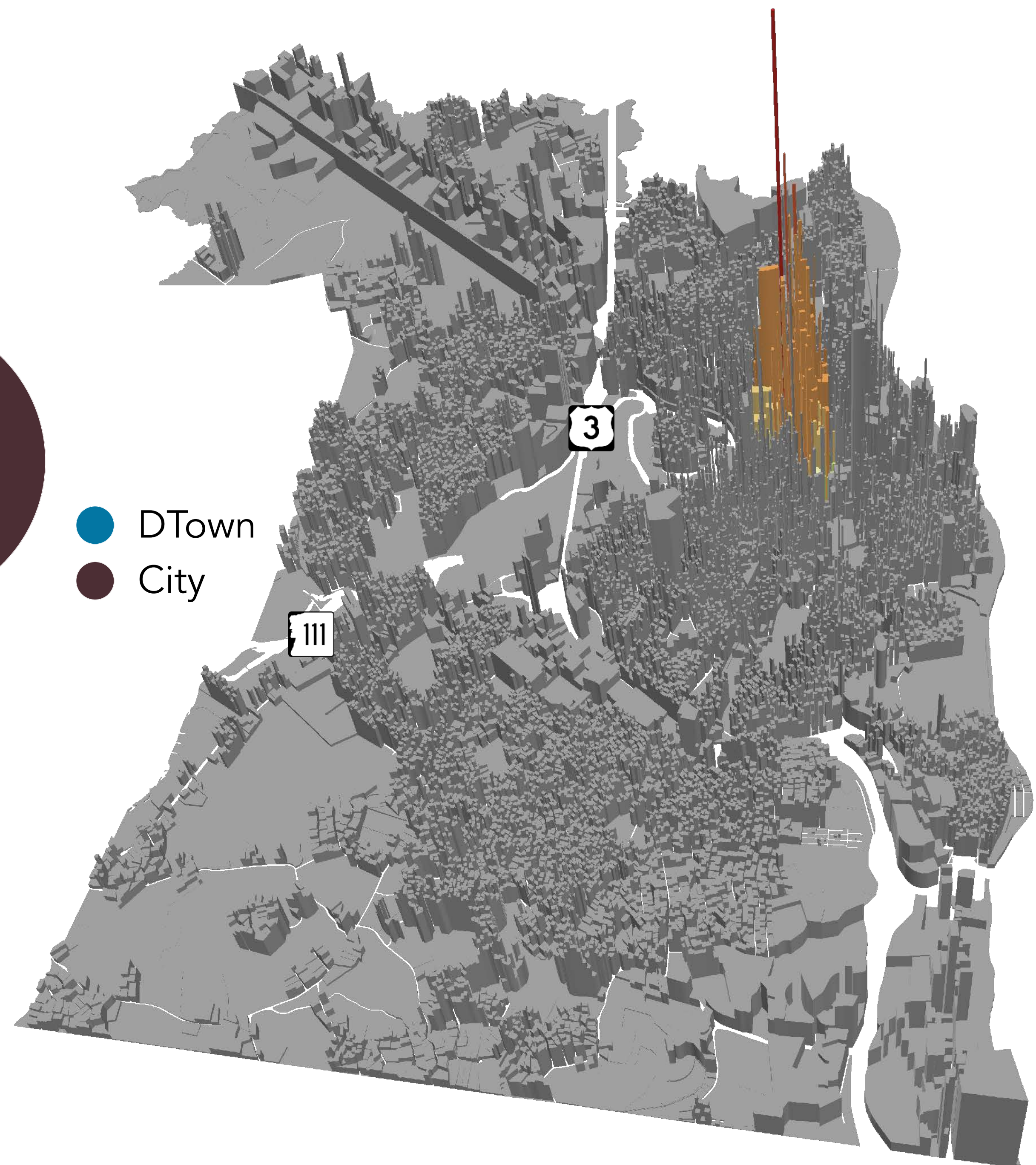
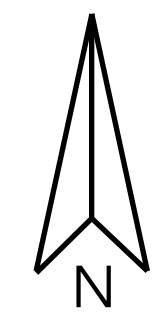
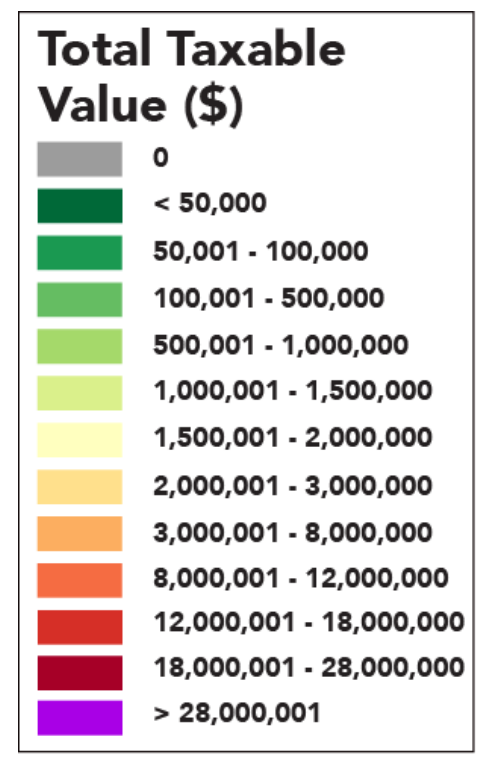
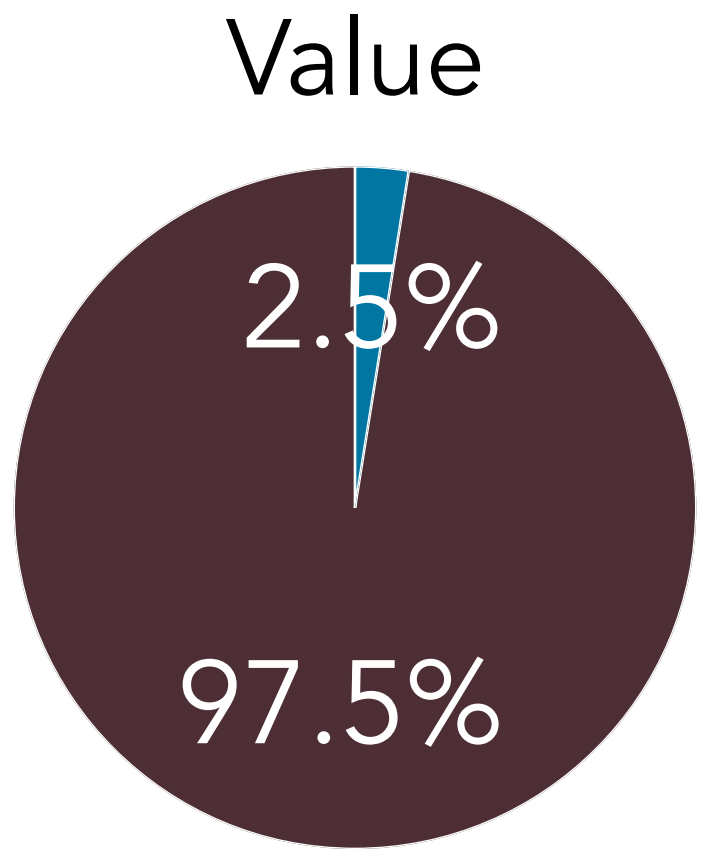
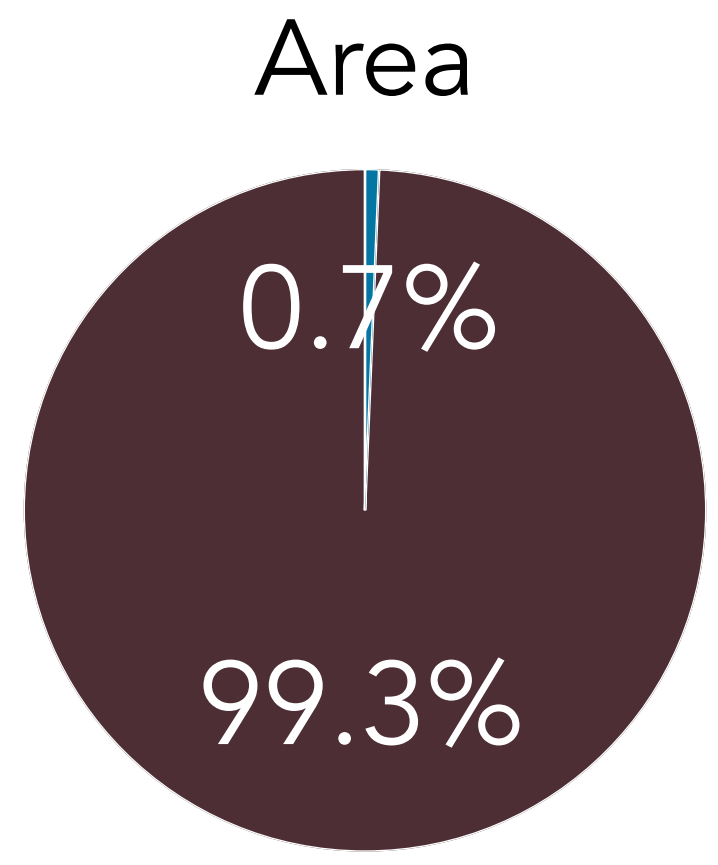
## Downtown Nashua



URBAN3

# Value Per Acre

## Downtown Nashua

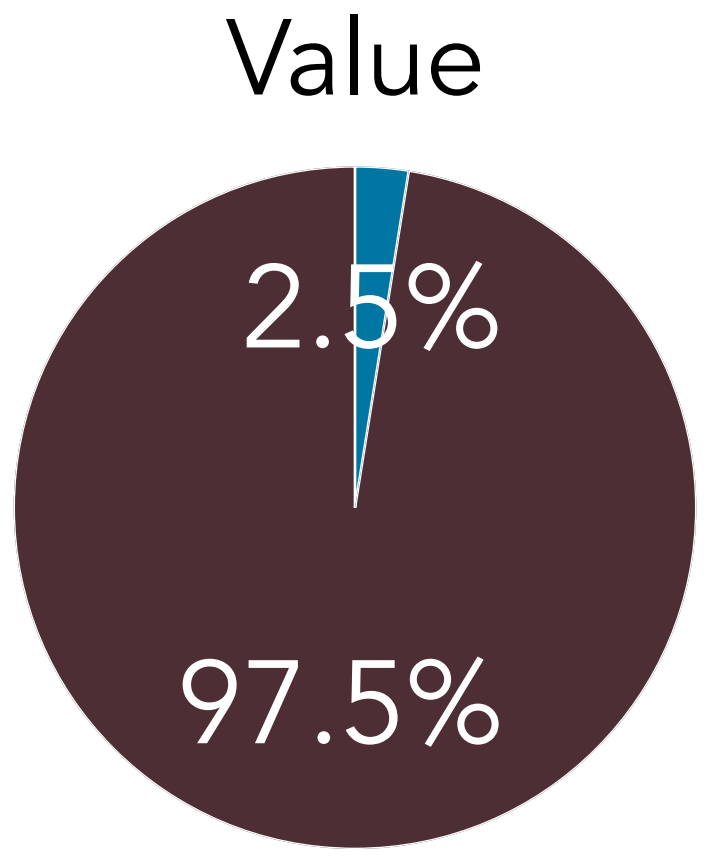
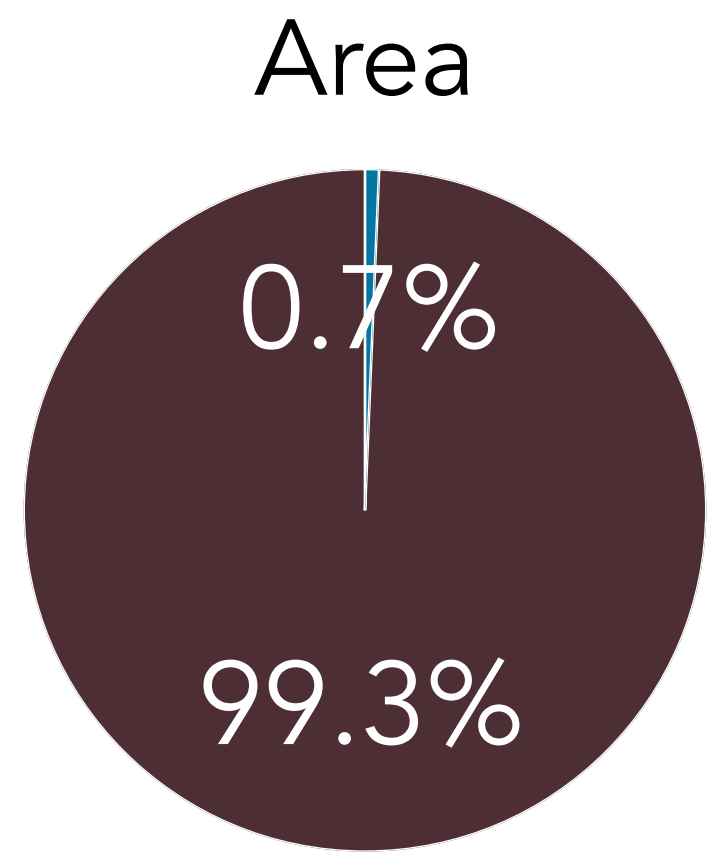
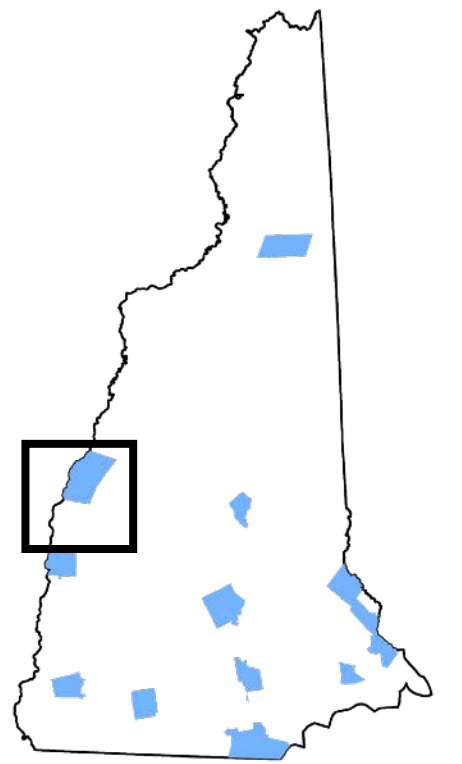


URBAN3

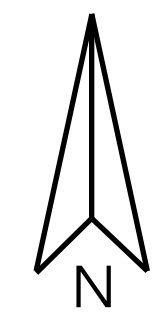
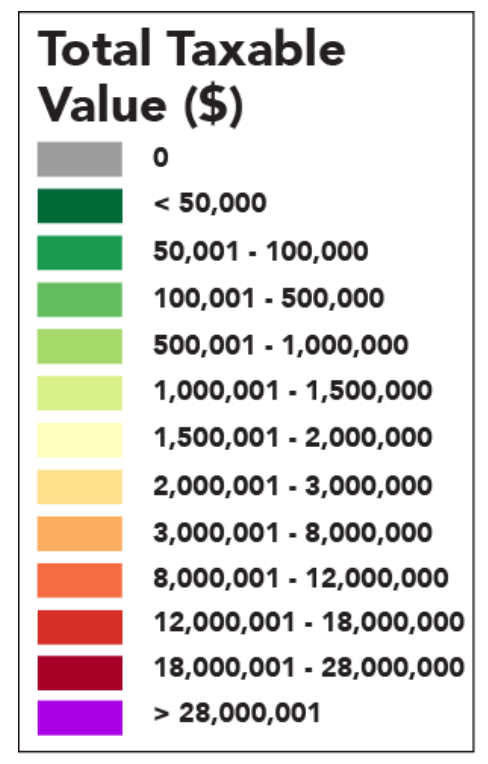
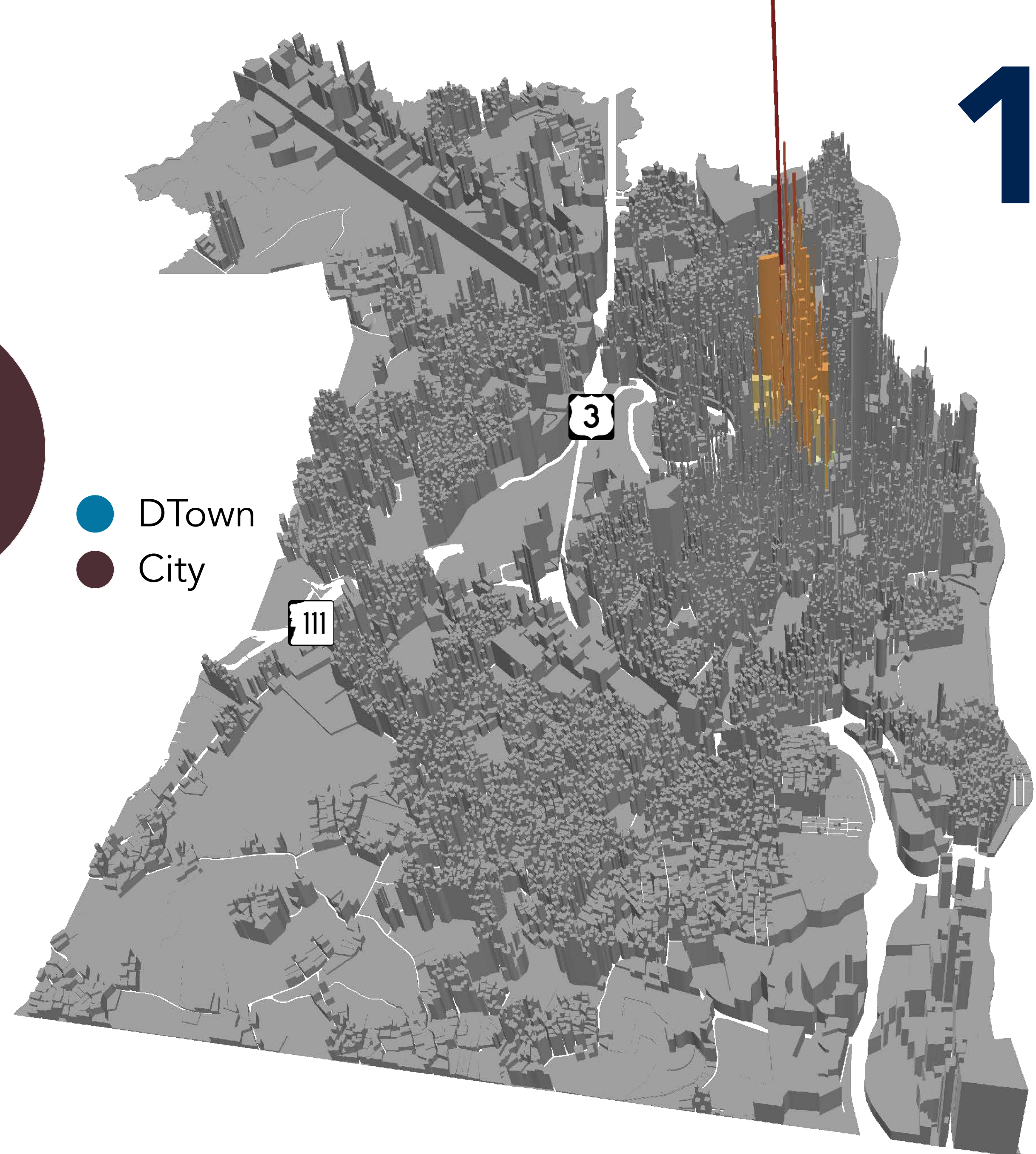
# Value Per Acre

## Downtown Nashua

# 1:4



- DTown
- City

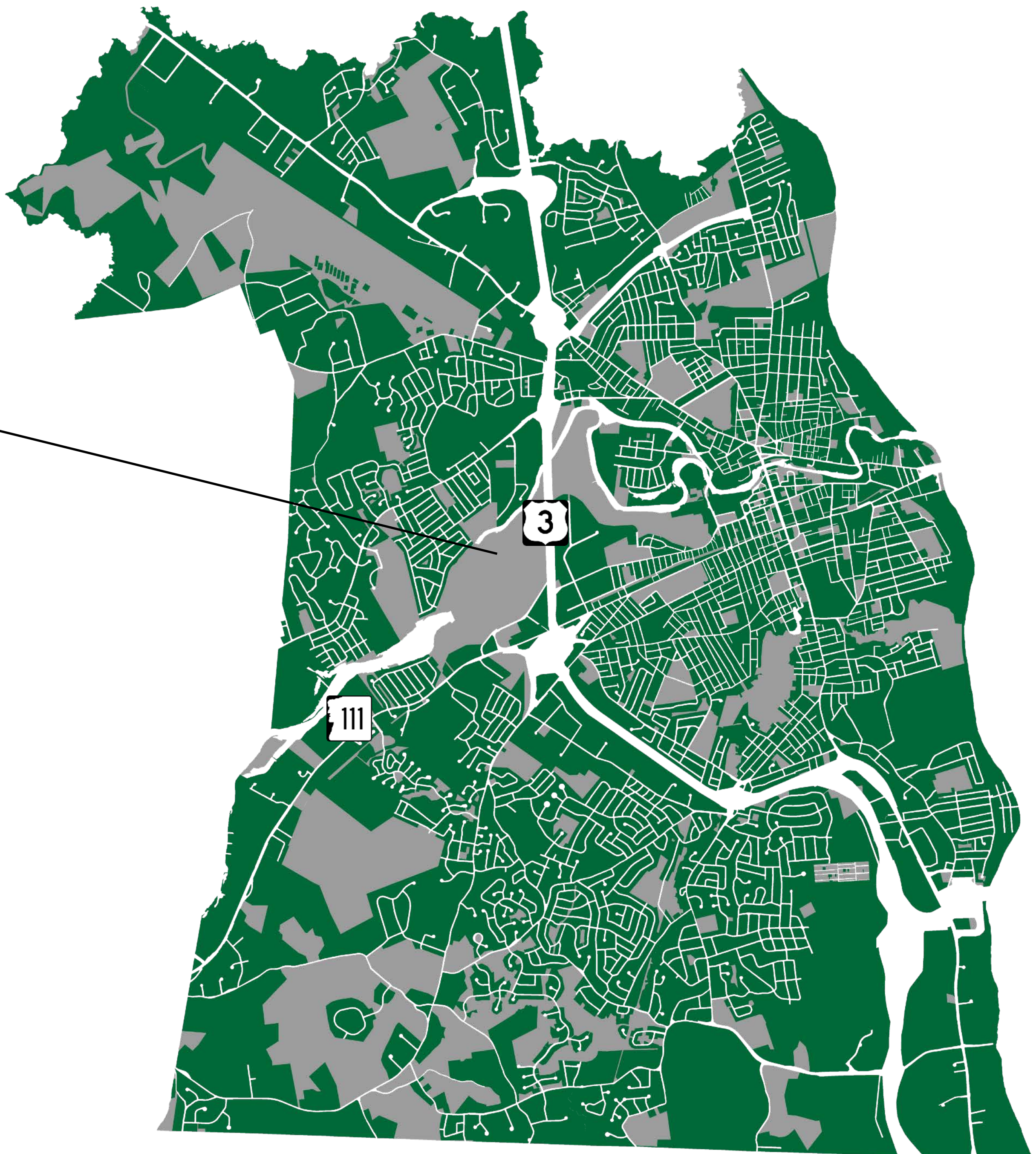
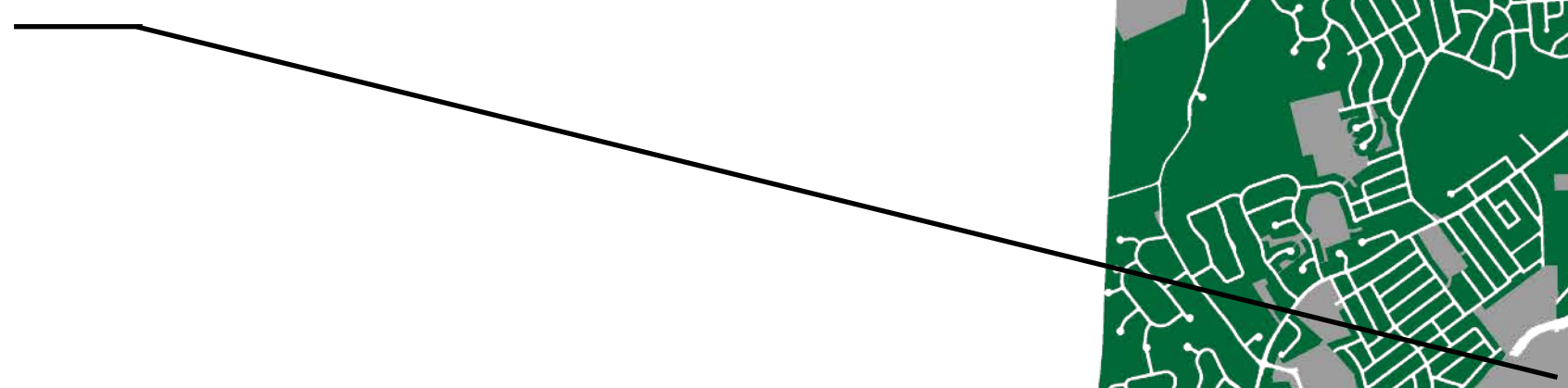




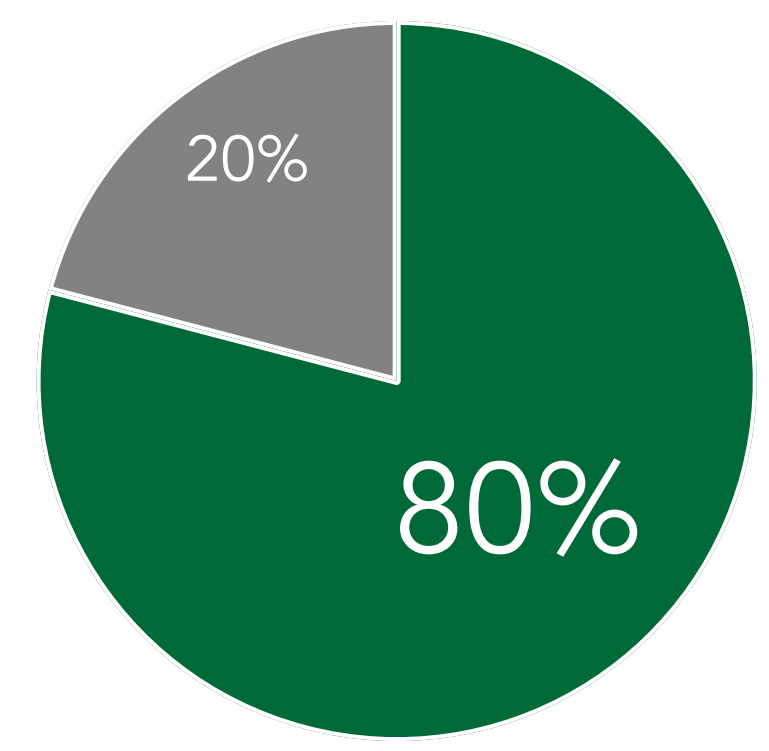
# Taxable Area

Nashua

Mine Falls Park



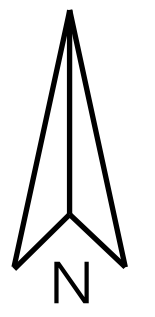
## Total Area

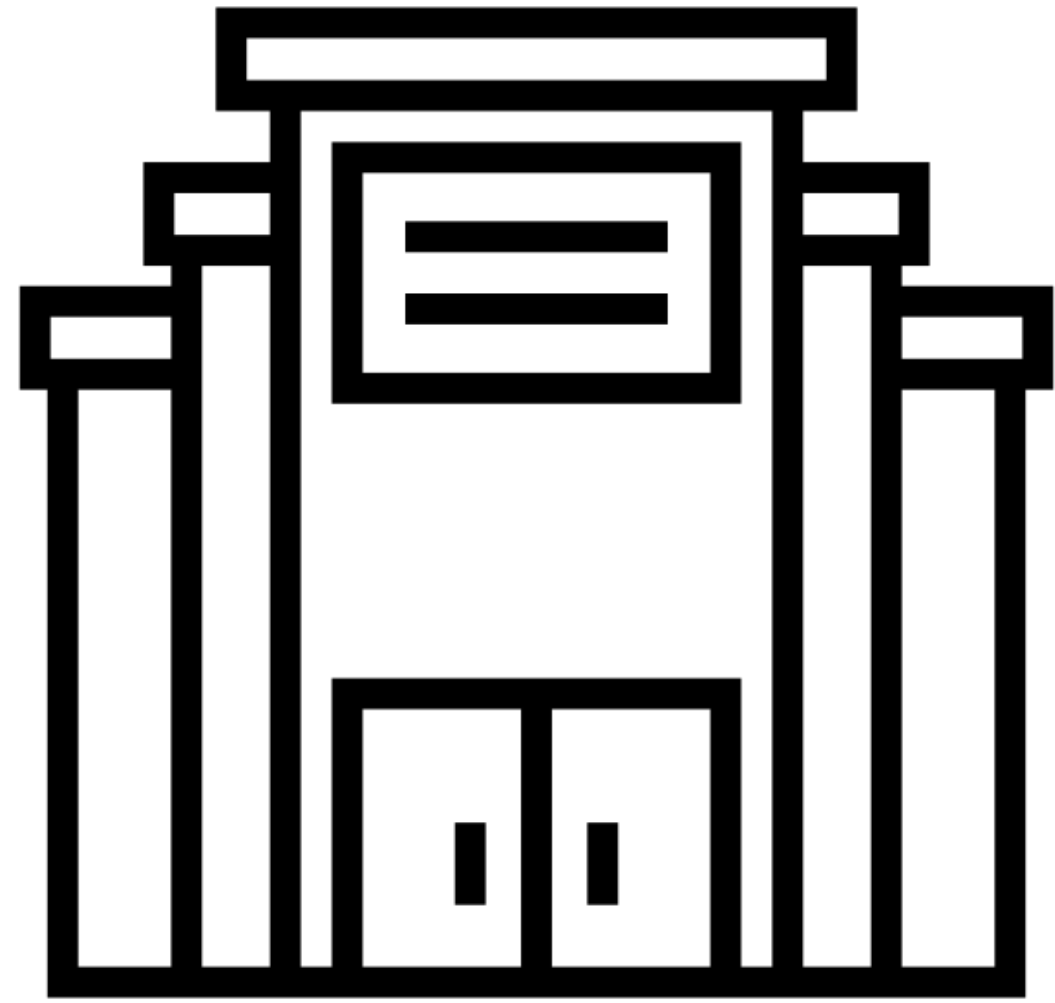


- Taxable
- Nontaxable

### Taxable Status

- Non Taxable
- Taxable
- No Data



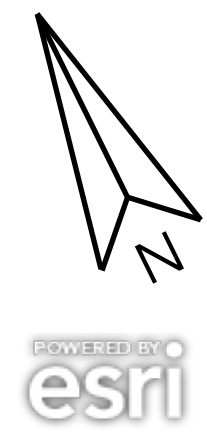
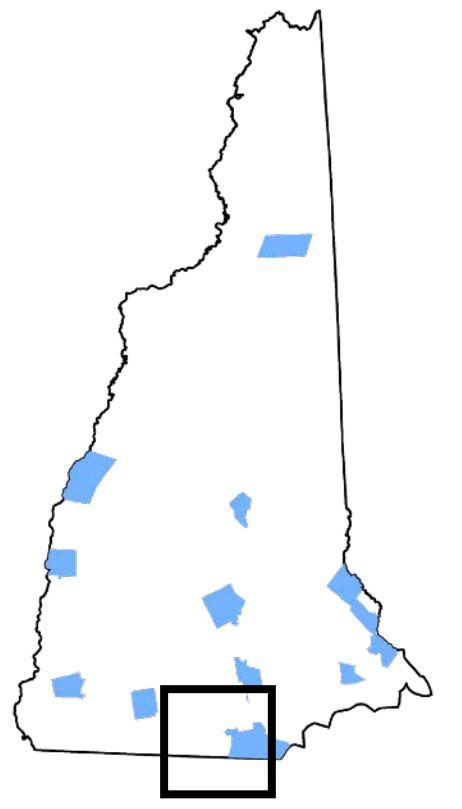


# Land Use Types

Local samples of buildings and development types

# Value Per Acre

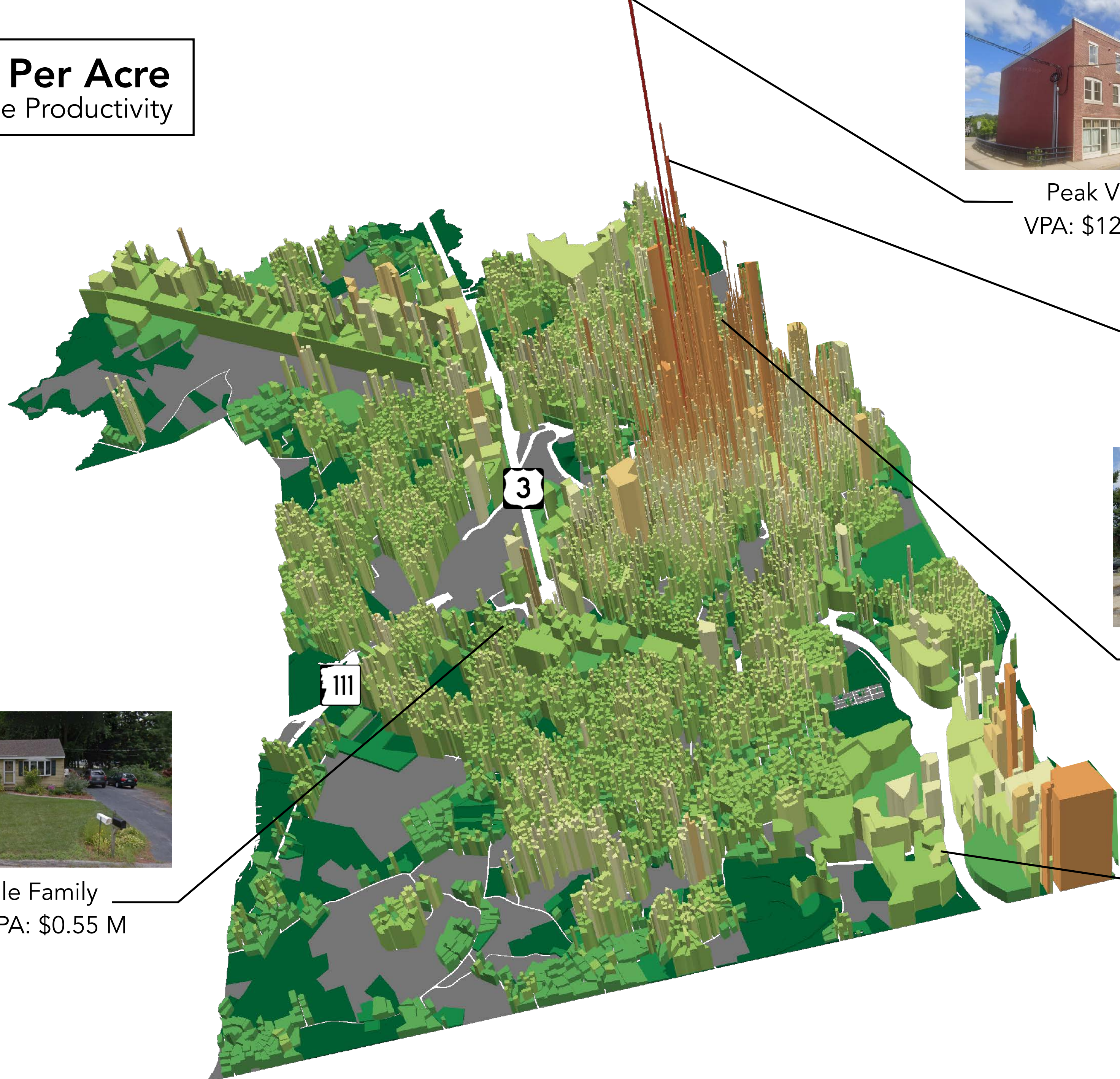
Land Use Productivity



Avg. VPA: \$539,622

Source: New Hampshire Department of Revenue Administration 2019

URBAN3  
**Value Per Acre**  
Land Use Productivity



Peak VPA  
VPA: \$12.9 M



Mixed-use  
VPA: \$10 M



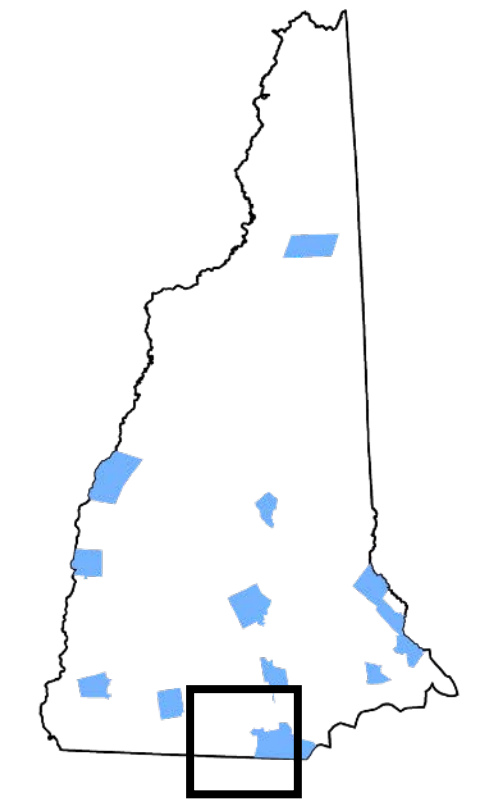
Multi Family  
Avg. VPA: \$1.7 M



Single Family  
Avg. VPA: \$0.55 M



Commercial  
VPA: \$1.3 M



**Avg. VPA: \$539,622**



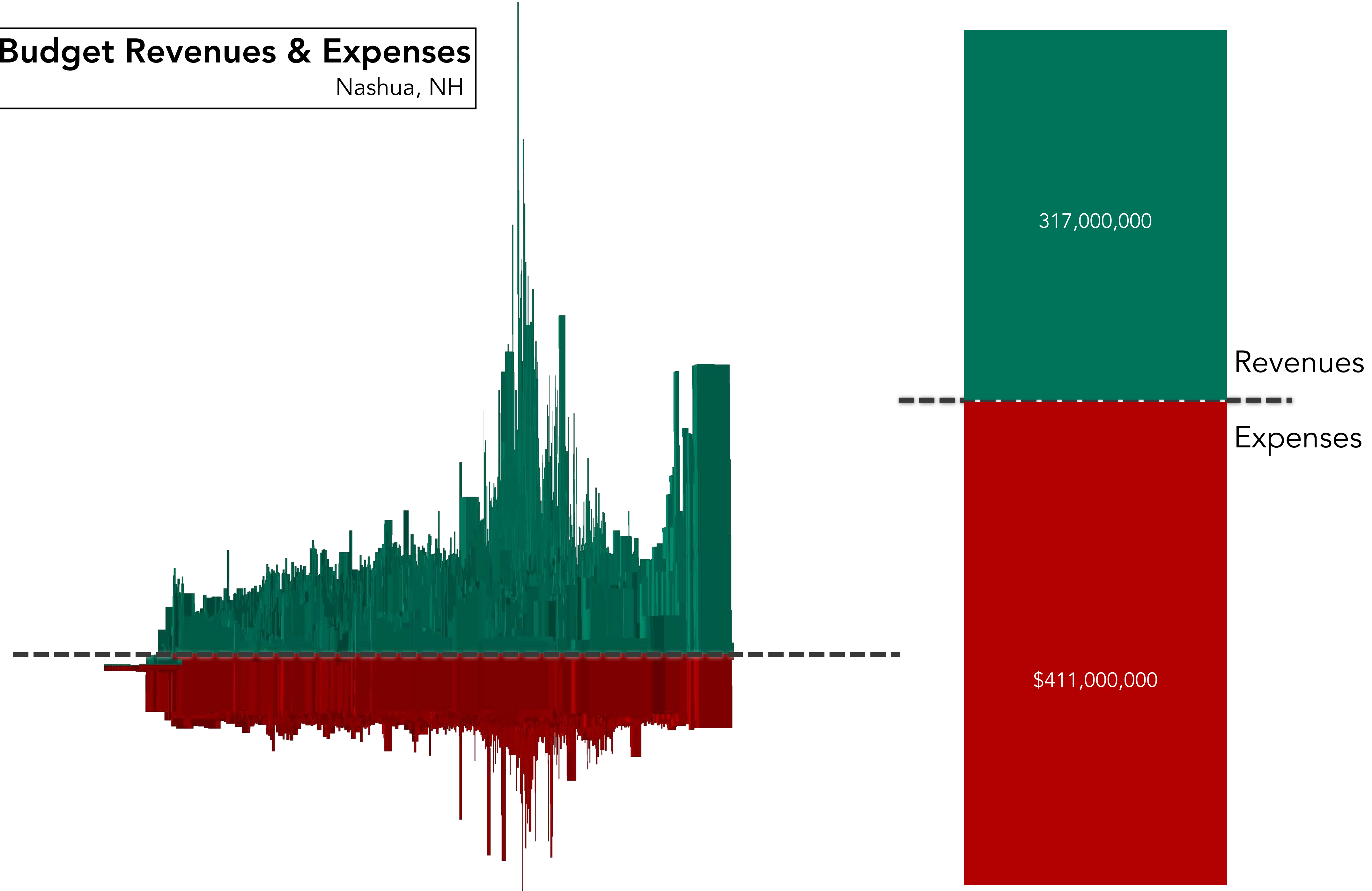
Source: New Hampshire Department of Revenue Administration 2019



## Costs Estimated Over Time and on the Map

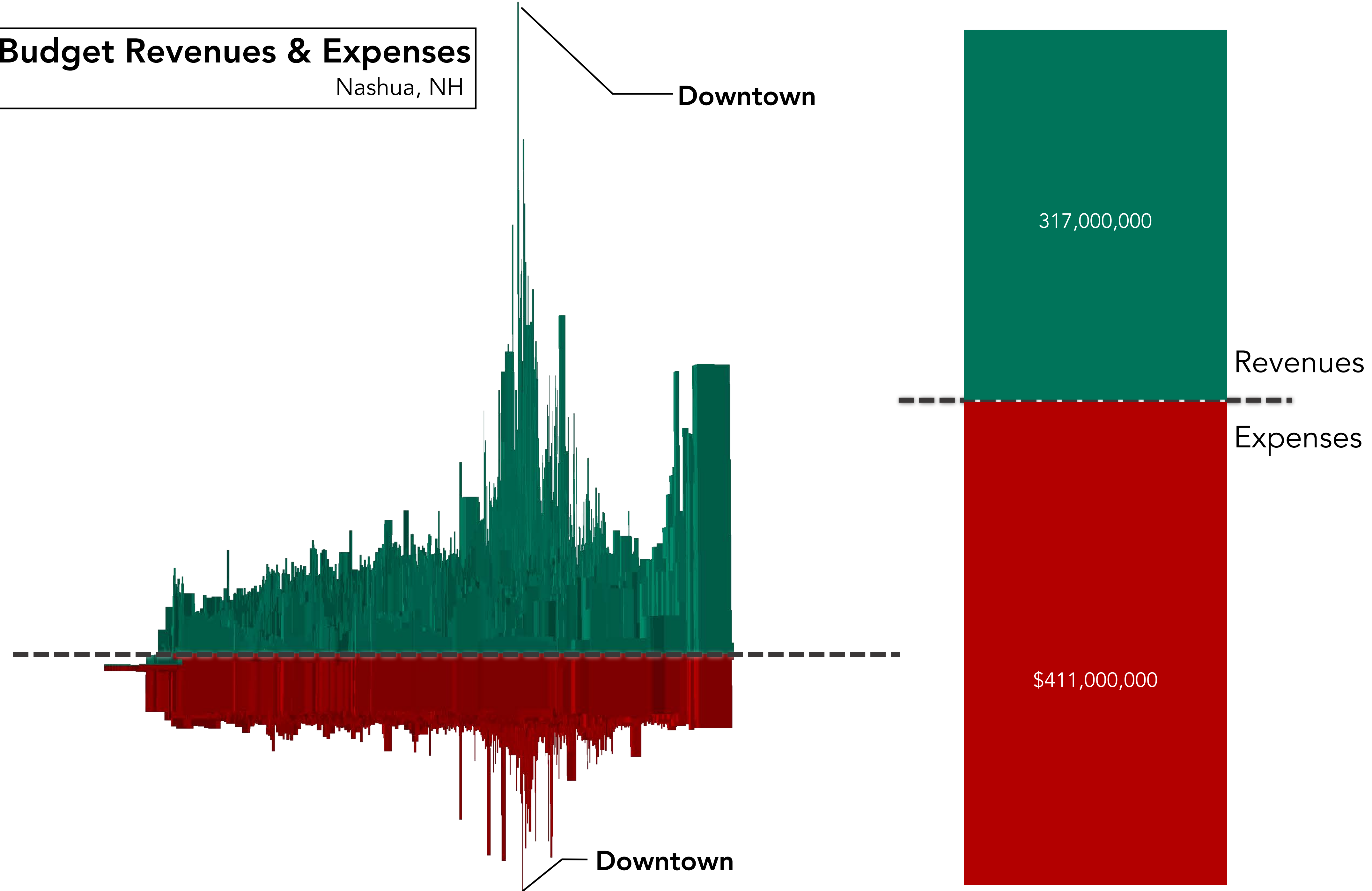
# Mapping Budget Revenues & Expenses

Nashua, NH



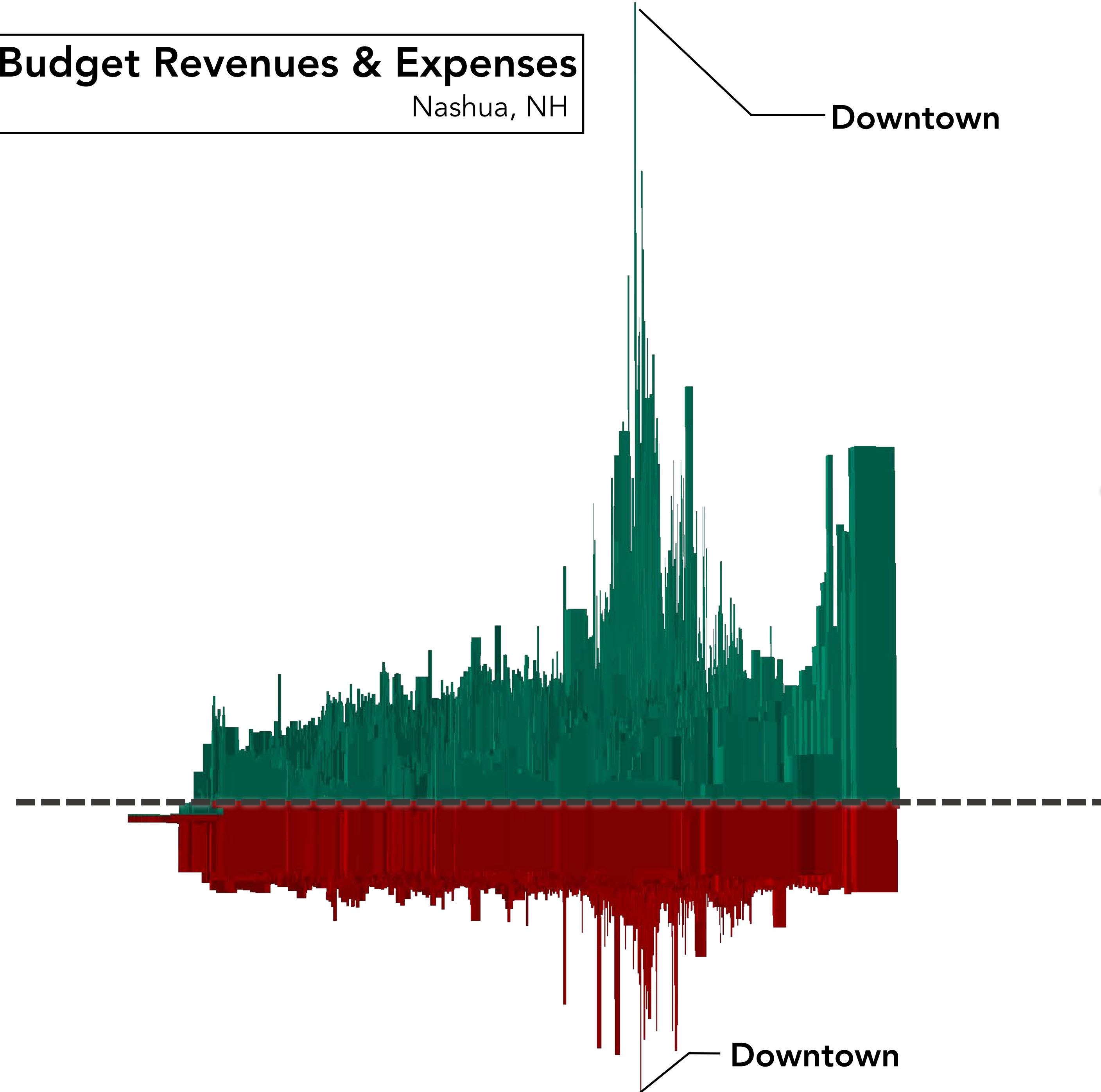
# Mapping Budget Revenues & Expenses

Nashua, NH



# Mapping Budget Revenues & Expenses

Nashua, NH



Downtown

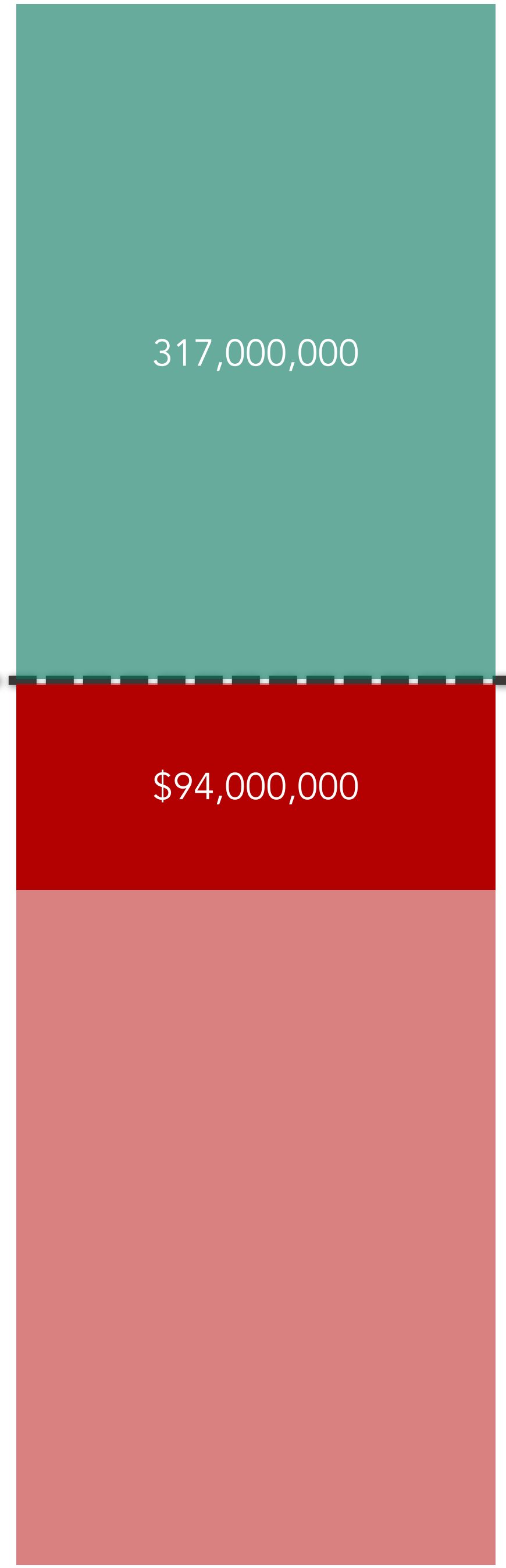
Downtown

317,000,000

\$94,000,000

Revenues

Expenses





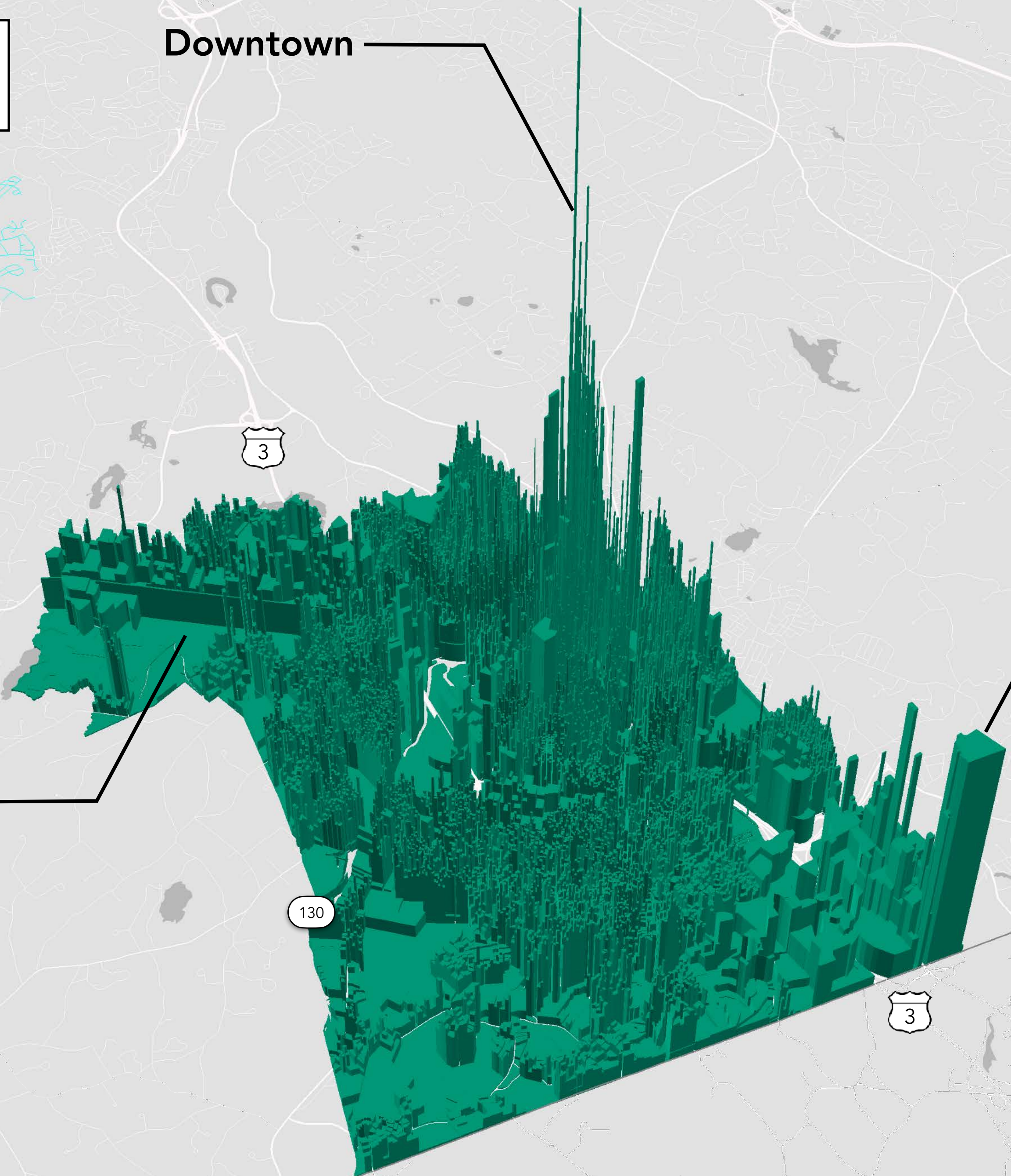
# Revenues

Nashua, NH

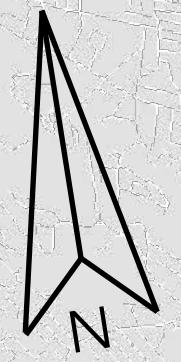
Downtown

Pheasant Lane Mall

Nashua Airport

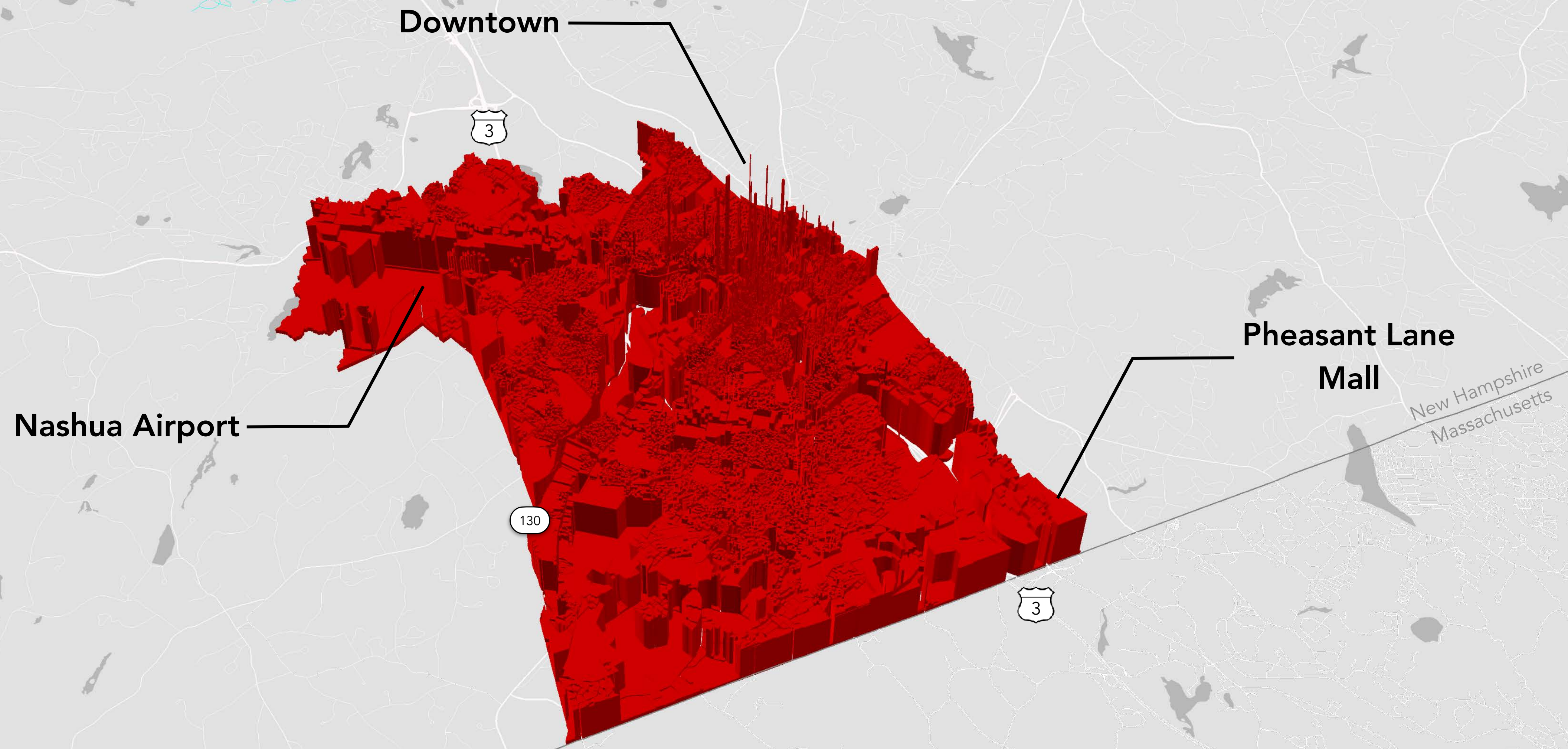


New Hampshire  
Massachusetts



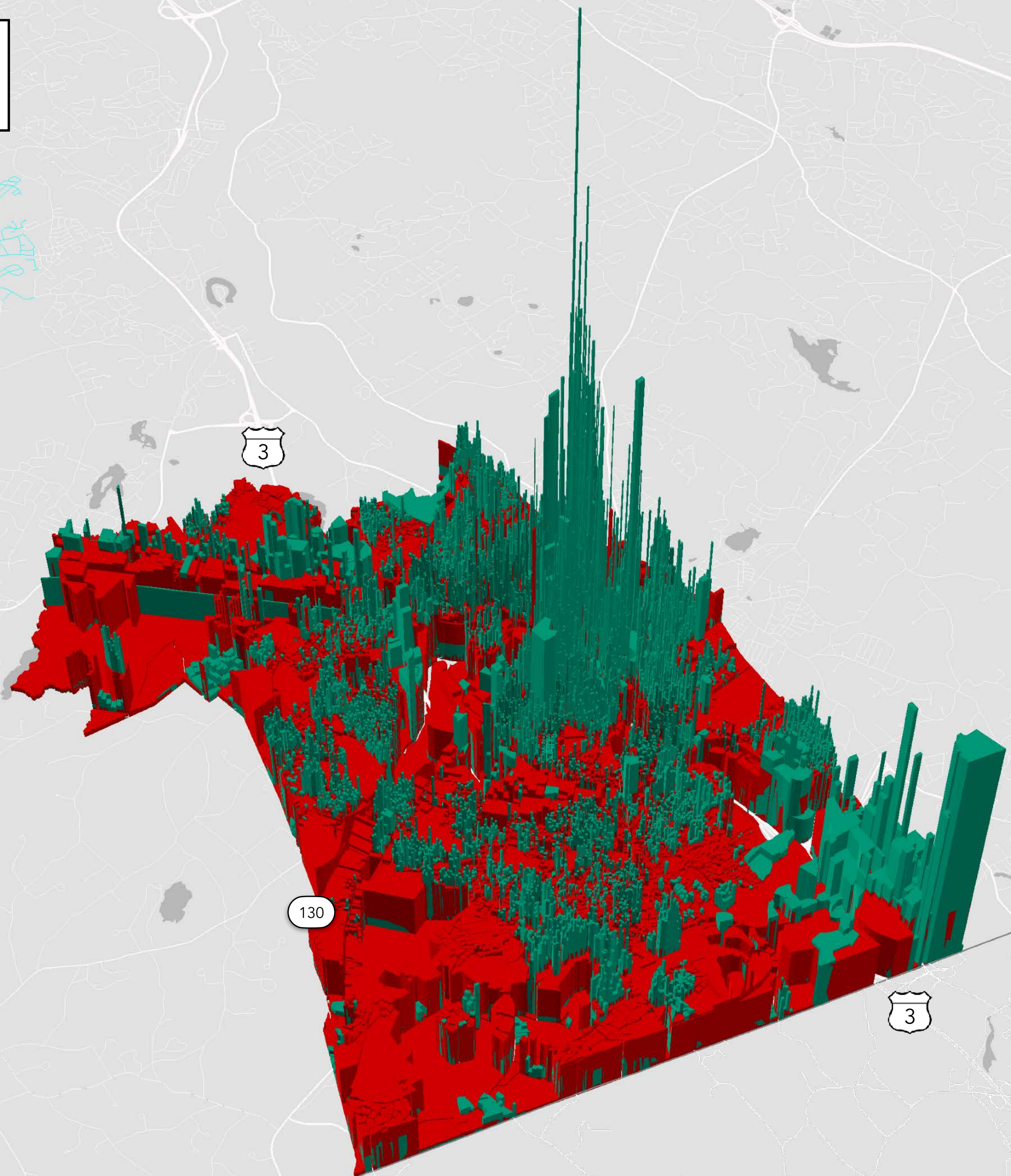
# Expenses

Nashua, NH



# Revenues & Expenses

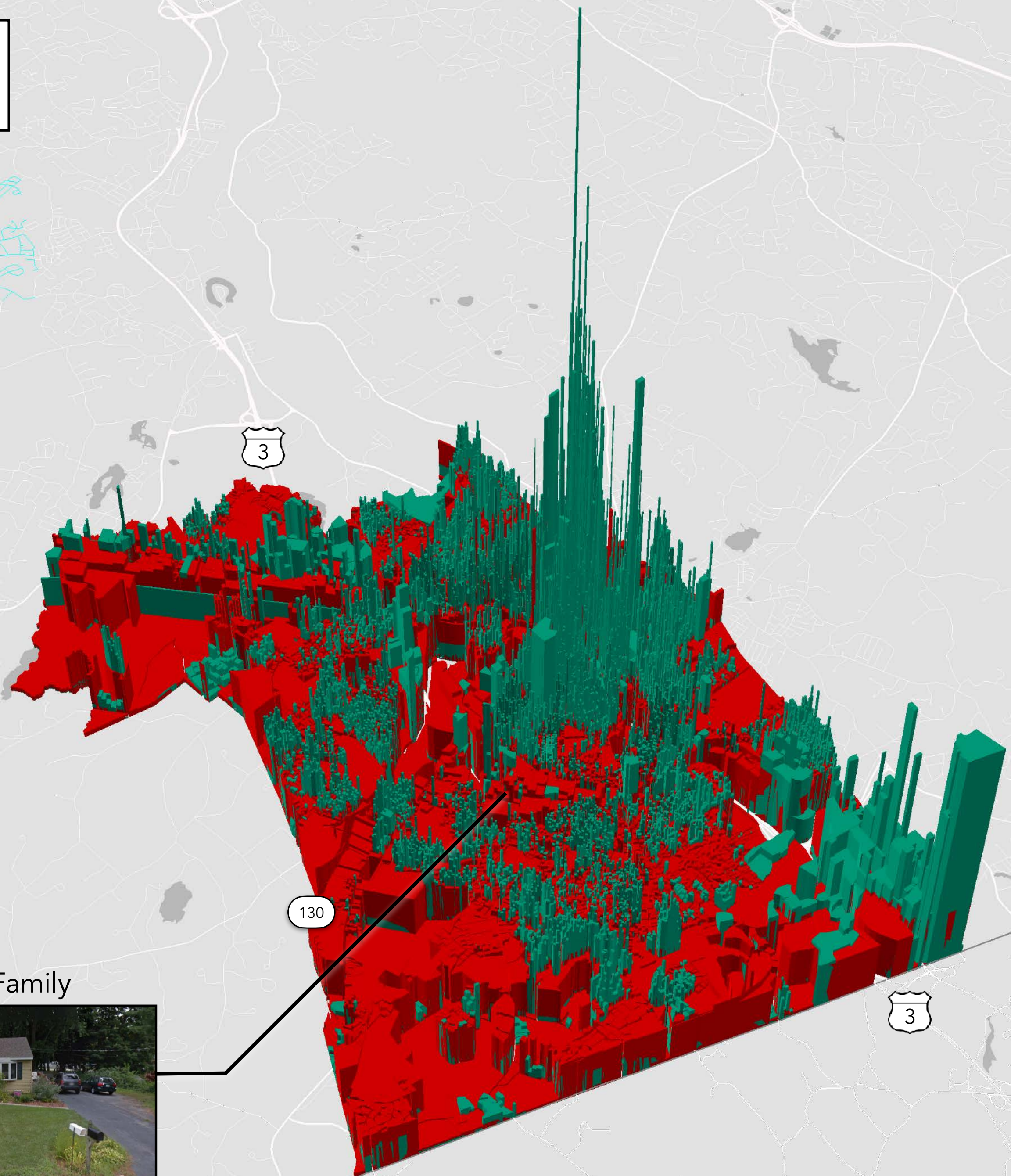
Nashua, NH



New Hampshire  
Massachusetts

# Revenues & Expenses

Nashua, NH



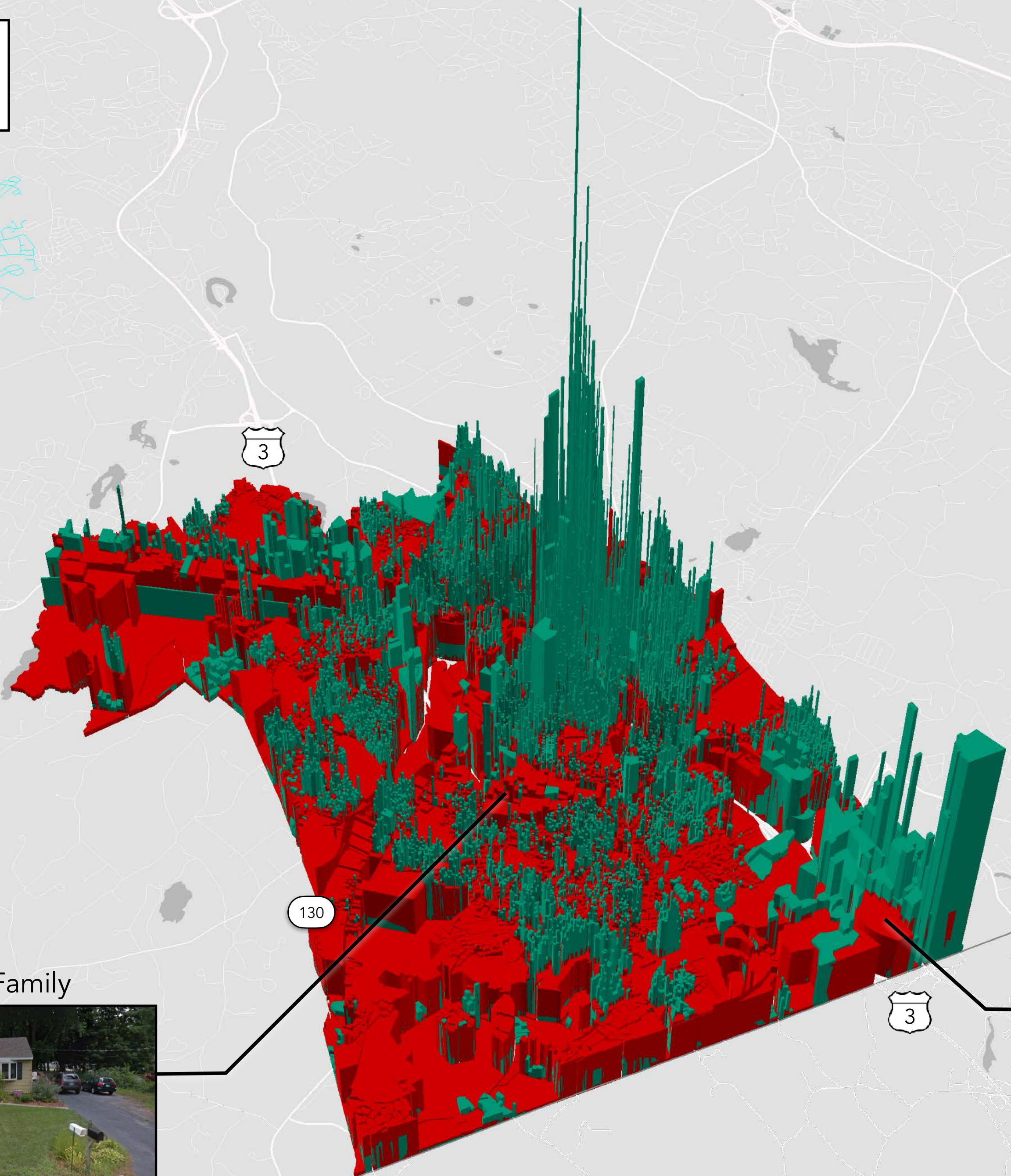
Single Family



New Hampshire  
Massachusetts

# Revenues & Expenses

Nashua, NH



New Hampshire  
Massachusetts

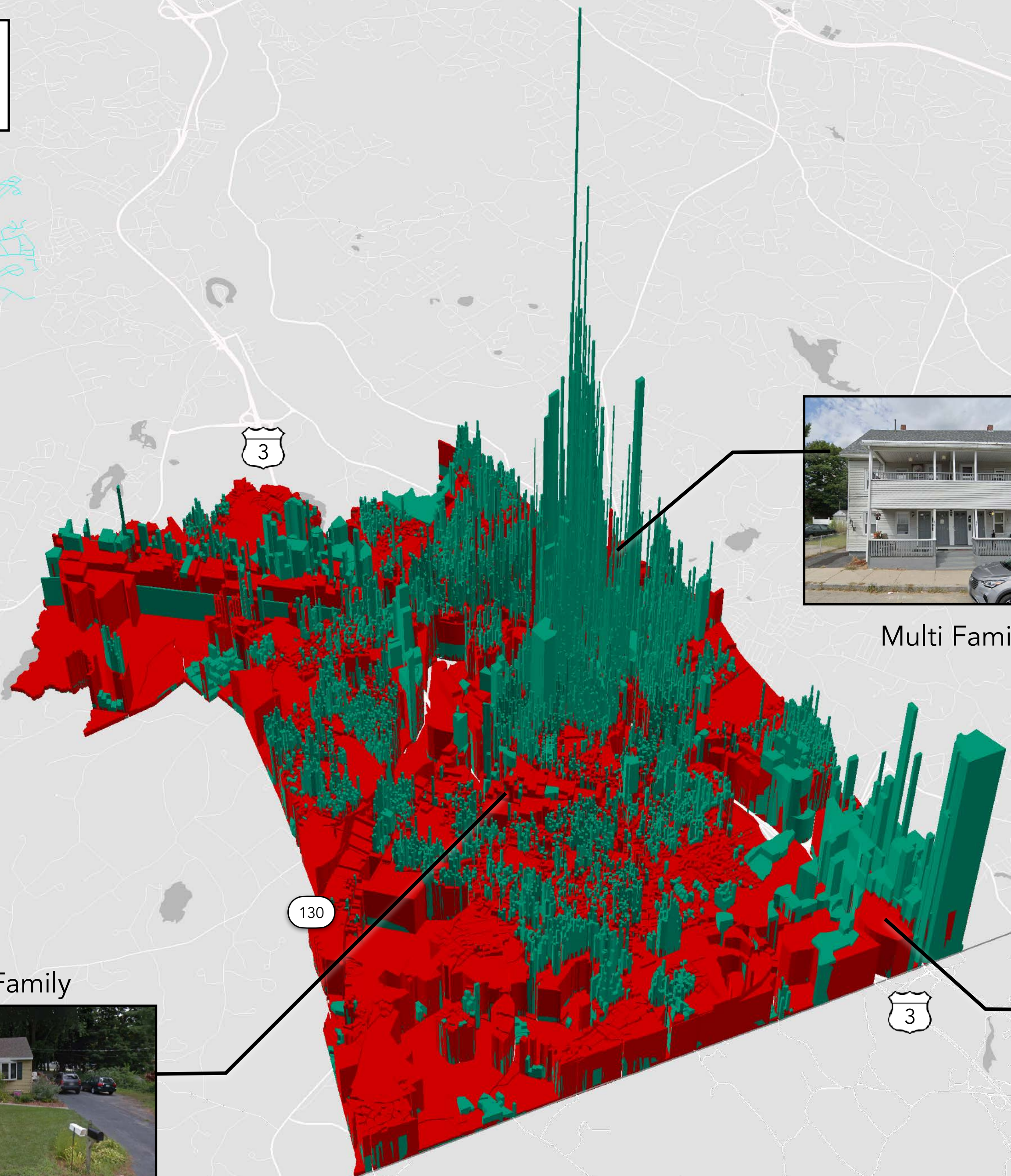
Single Family



Commercial



URBAN3  
**Revenues & Expenses**  
Nashua, NH



Multi Family



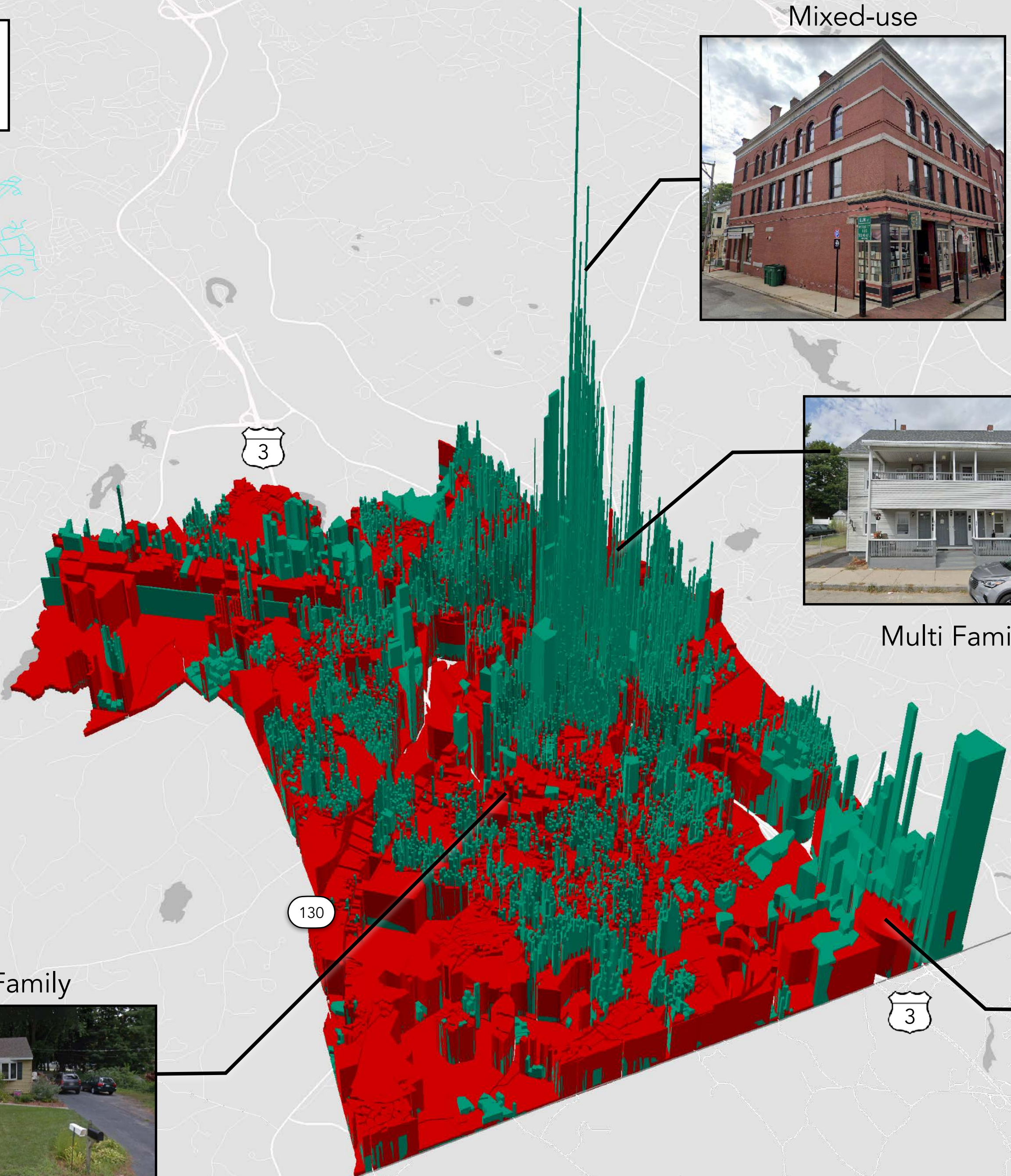
Single Family



Commercial

New Hampshire  
Massachusetts

URBAN3  
**Revenues & Expenses**  
Nashua, NH



Multi Family



Commercial

New Hampshire  
Massachusetts

URBAN3  
**Revenues & Expenses**  
Nashua, NH



Peak VPA



Mixed-use



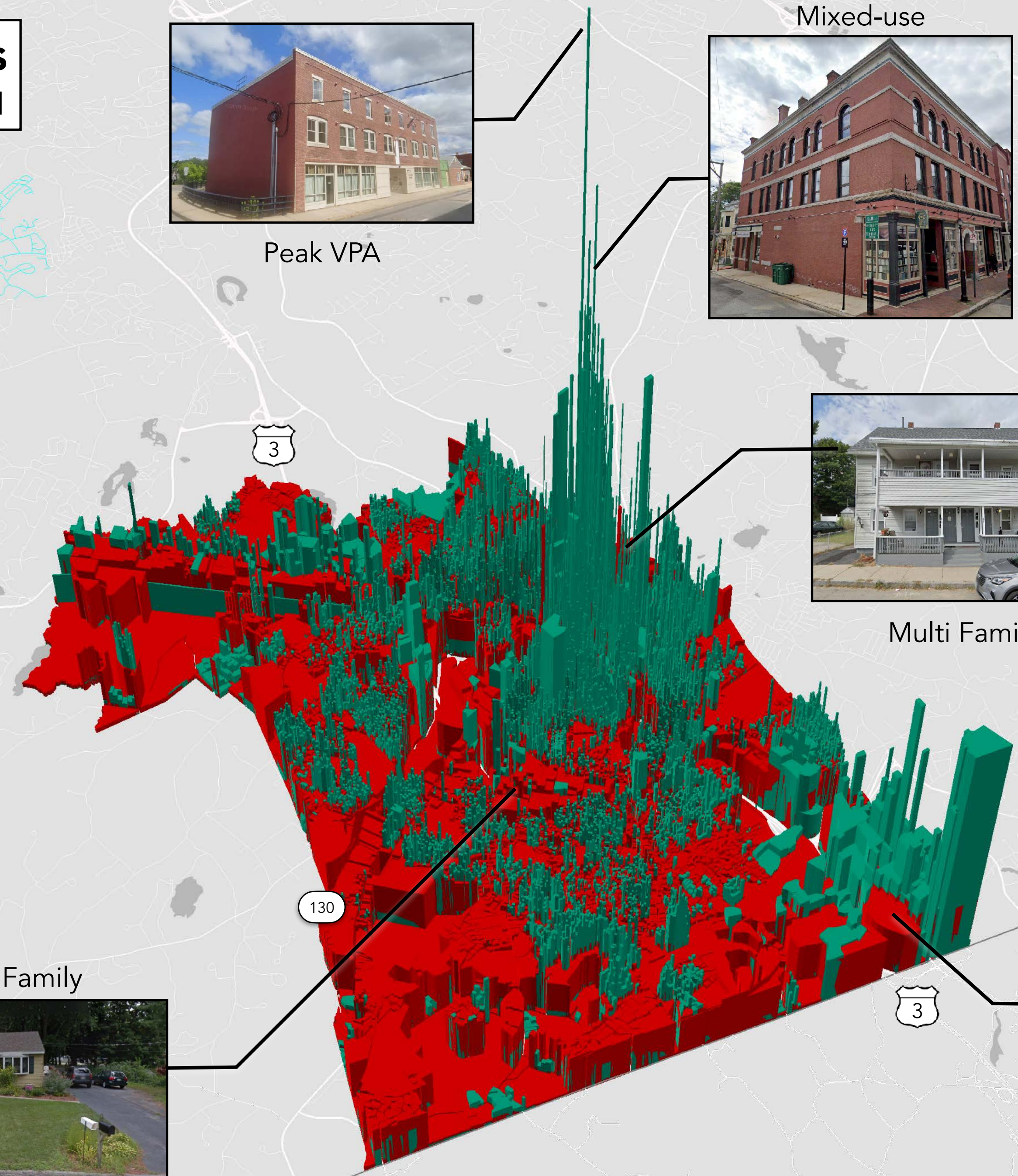
Multi Family



Single Family



Commercial



New Hampshire  
Massachusetts



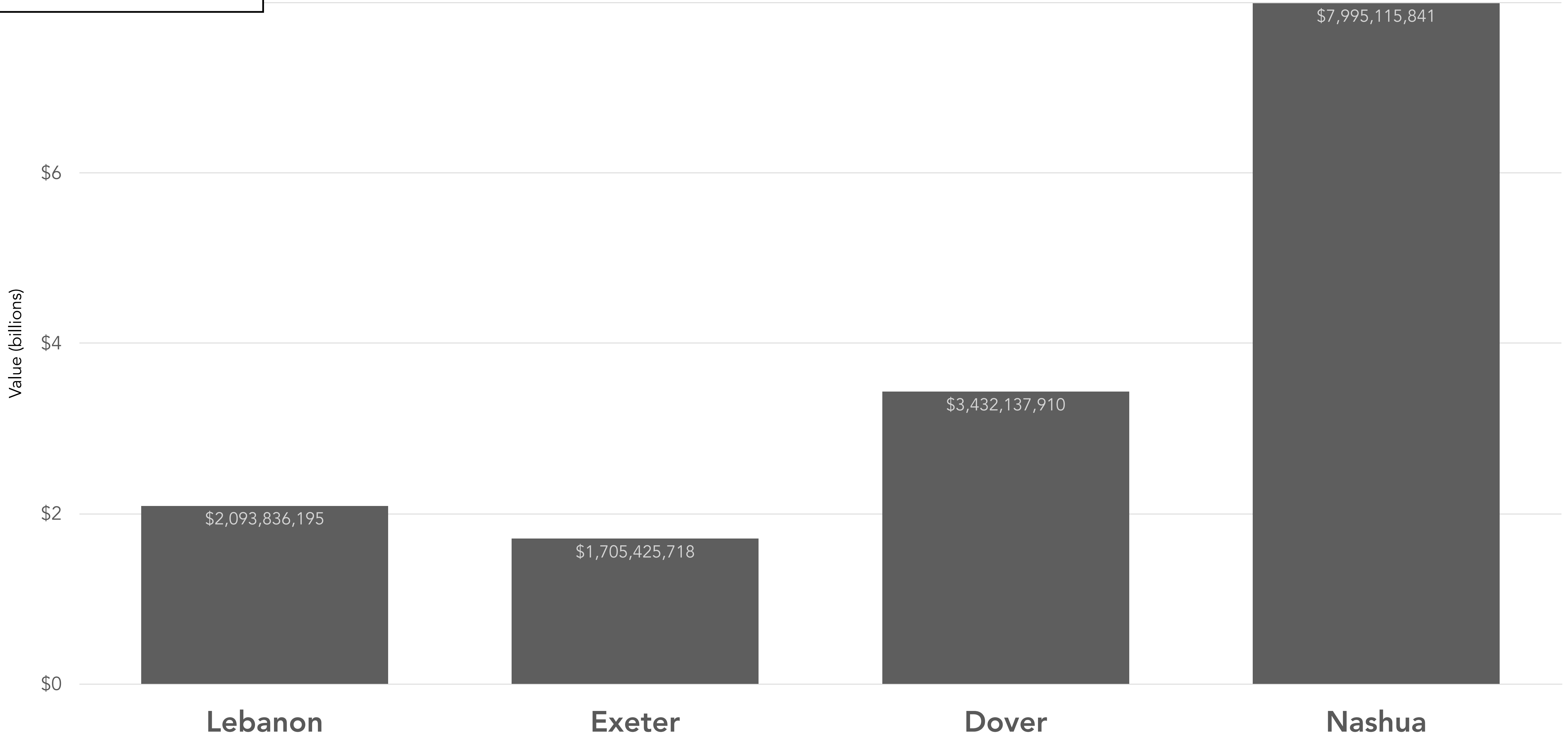
4 Cities from across New Hampshire

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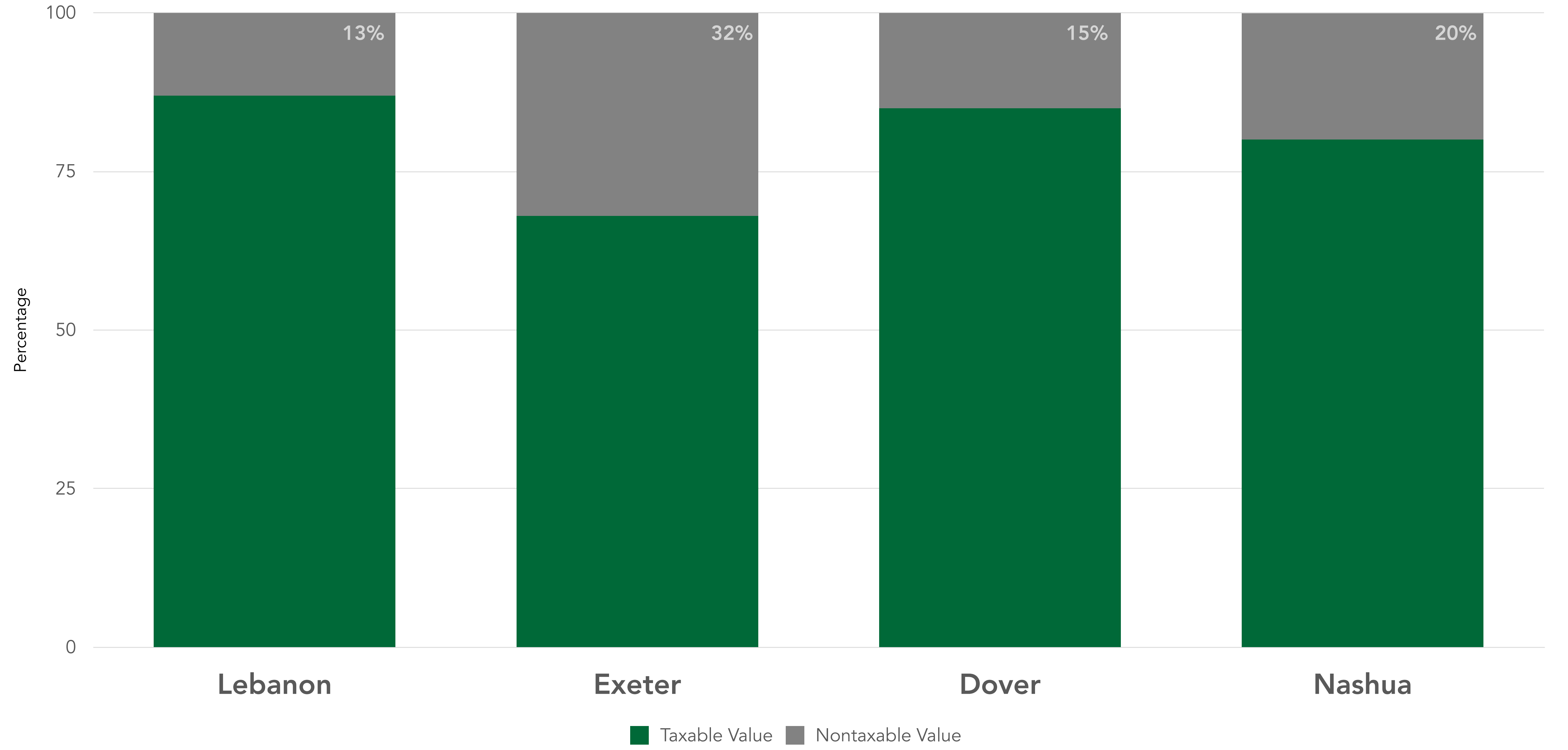
# Comparing Cities

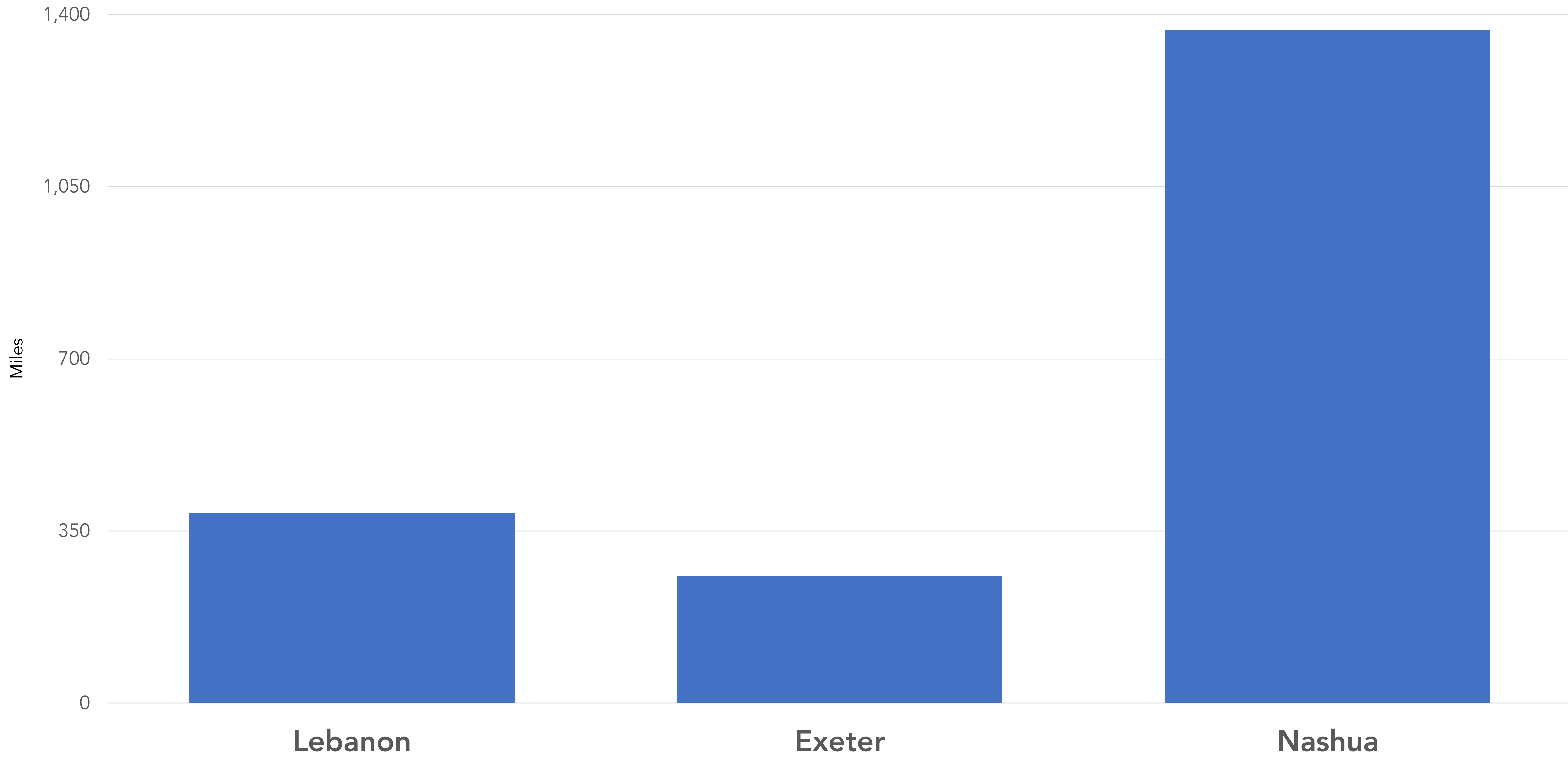
# Comparisons

Total Value



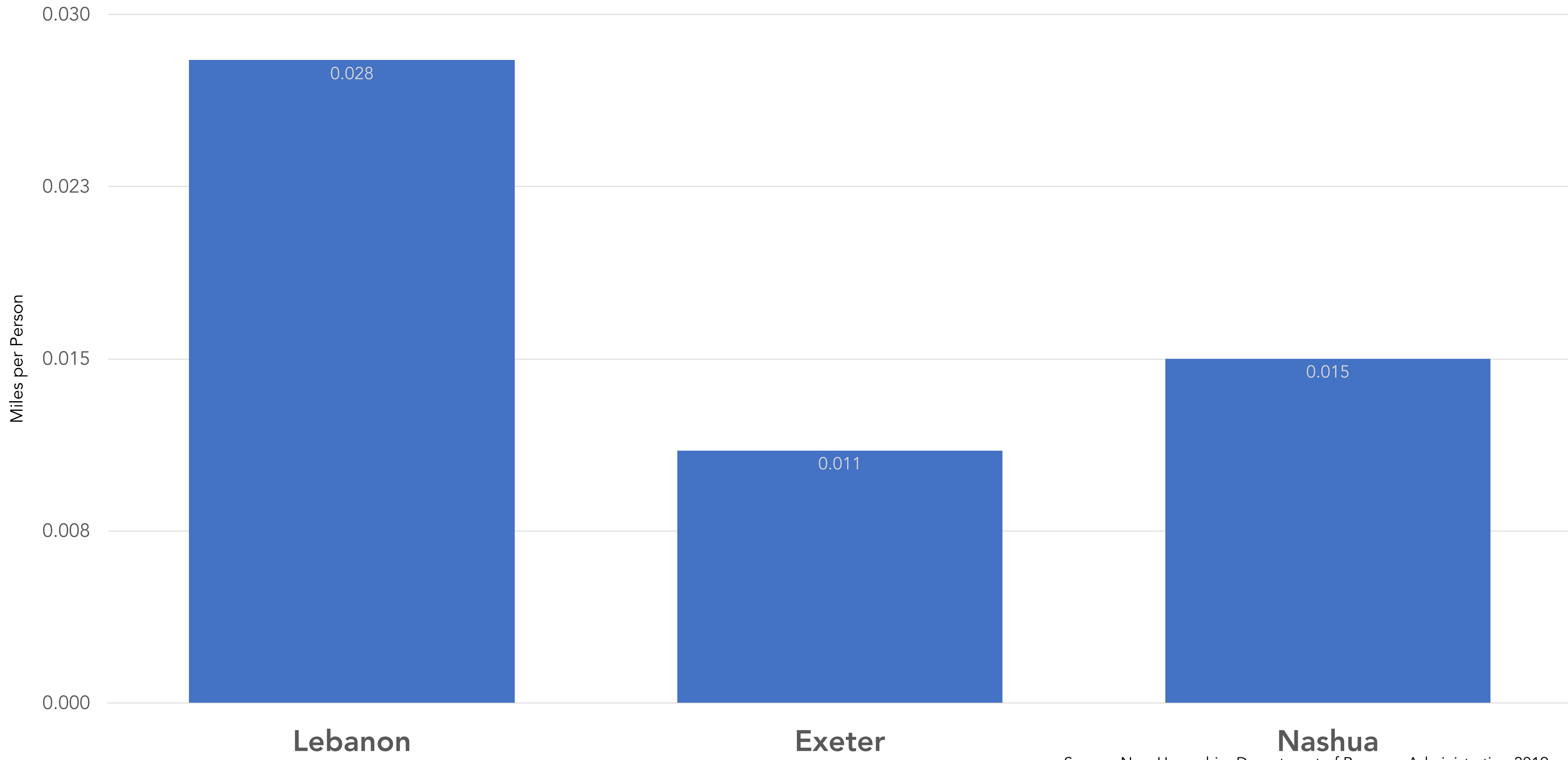
■ Total Value





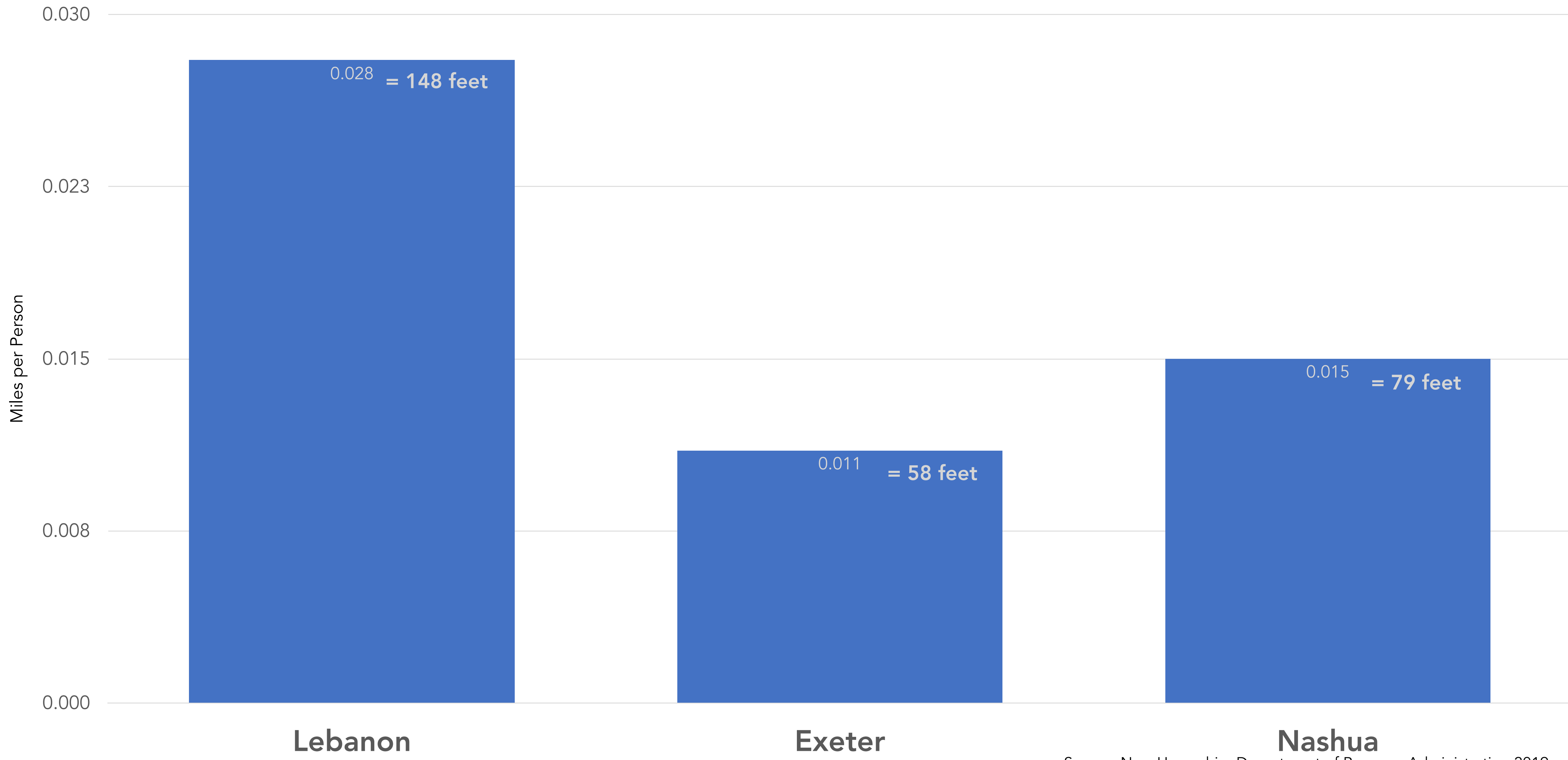
\*Road Lane Miles + Pipe Miles

Source: New Hampshire Department of Revenue Administration 2019



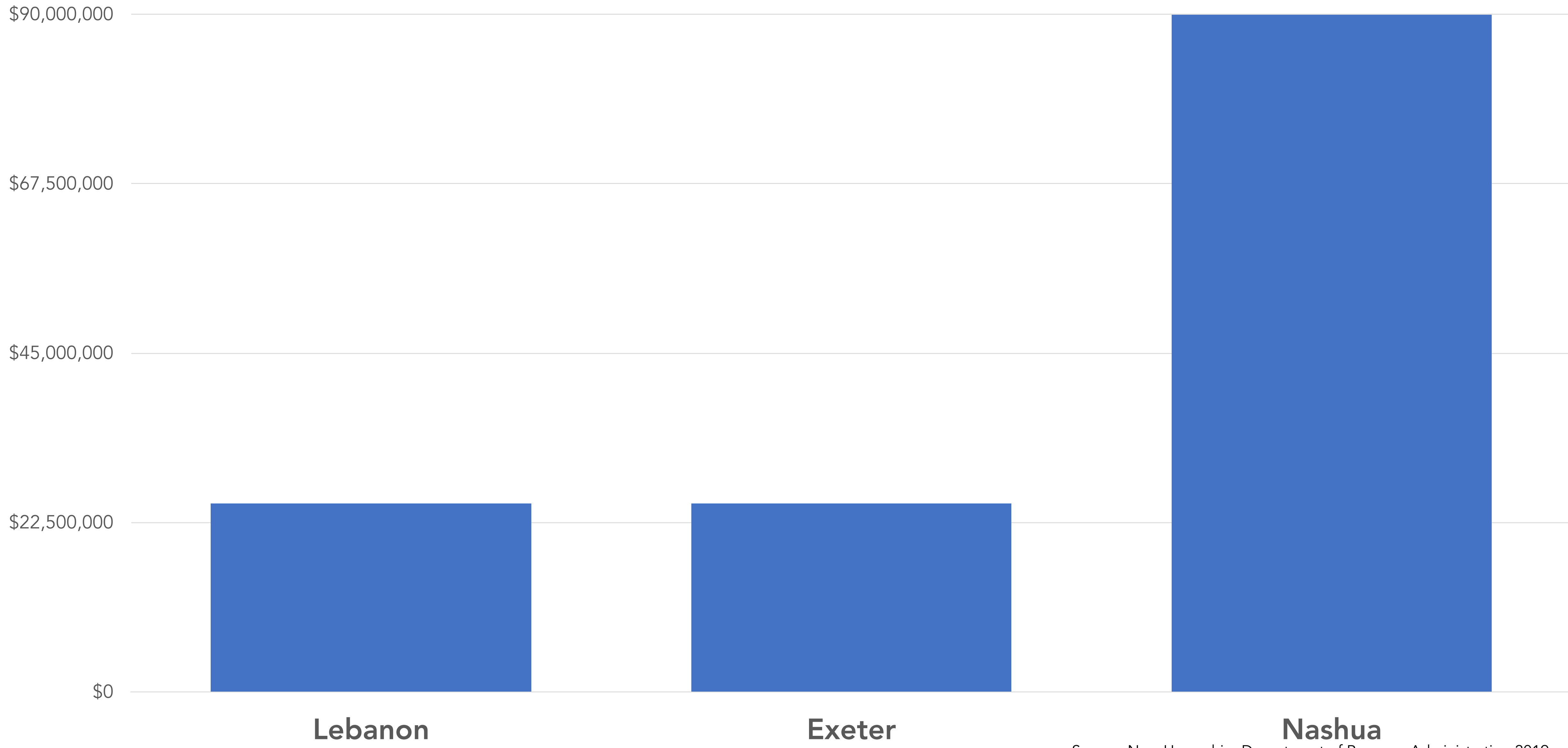
\*Road Lane Miles + Pipe Miles

Source: New Hampshire Department of Revenue Administration 2019

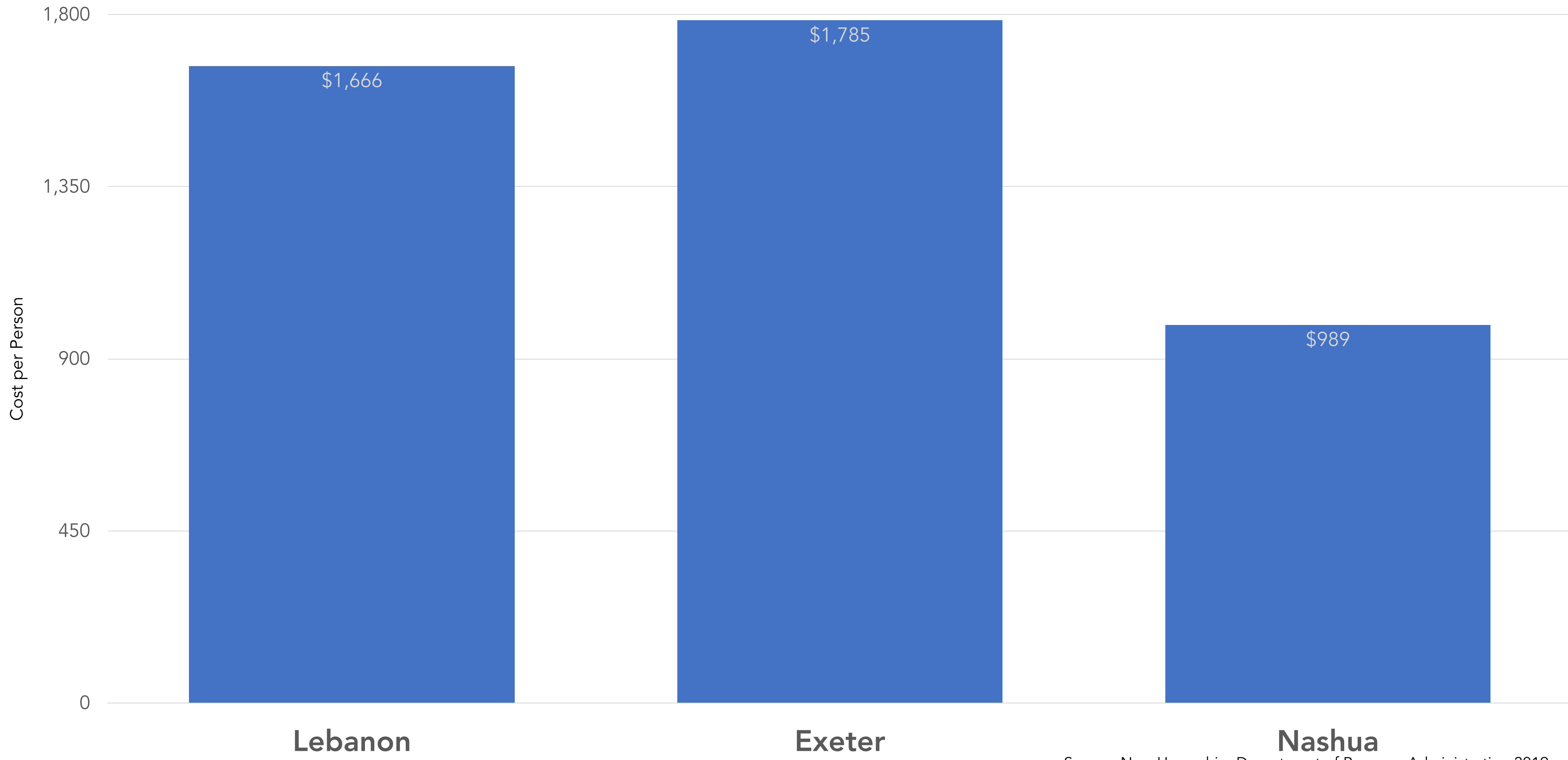


\*Road Lane Miles + Pipe Miles

Source: New Hampshire Department of Revenue Administration 2019



Source: New Hampshire Department of Revenue Administration 2019

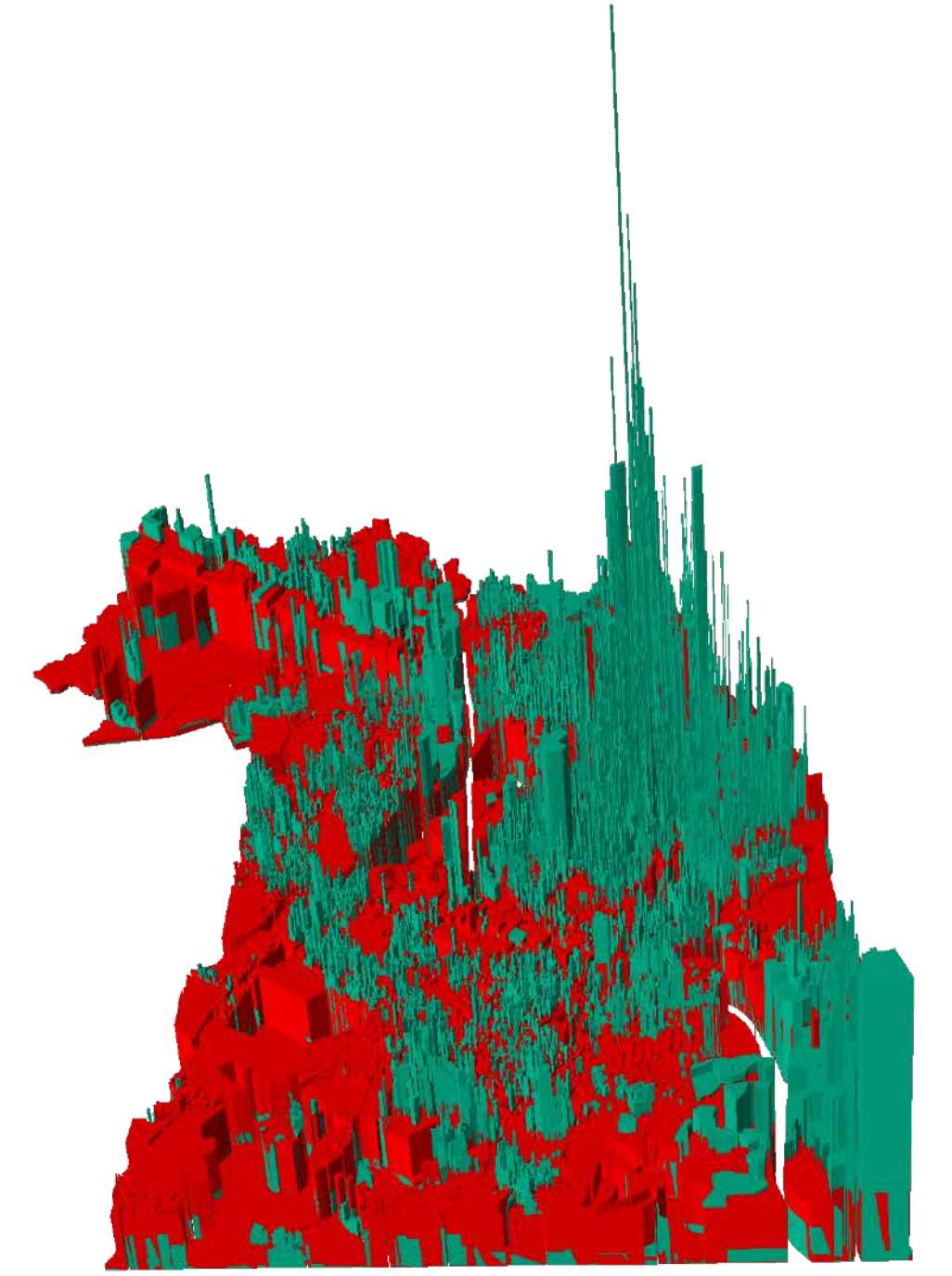
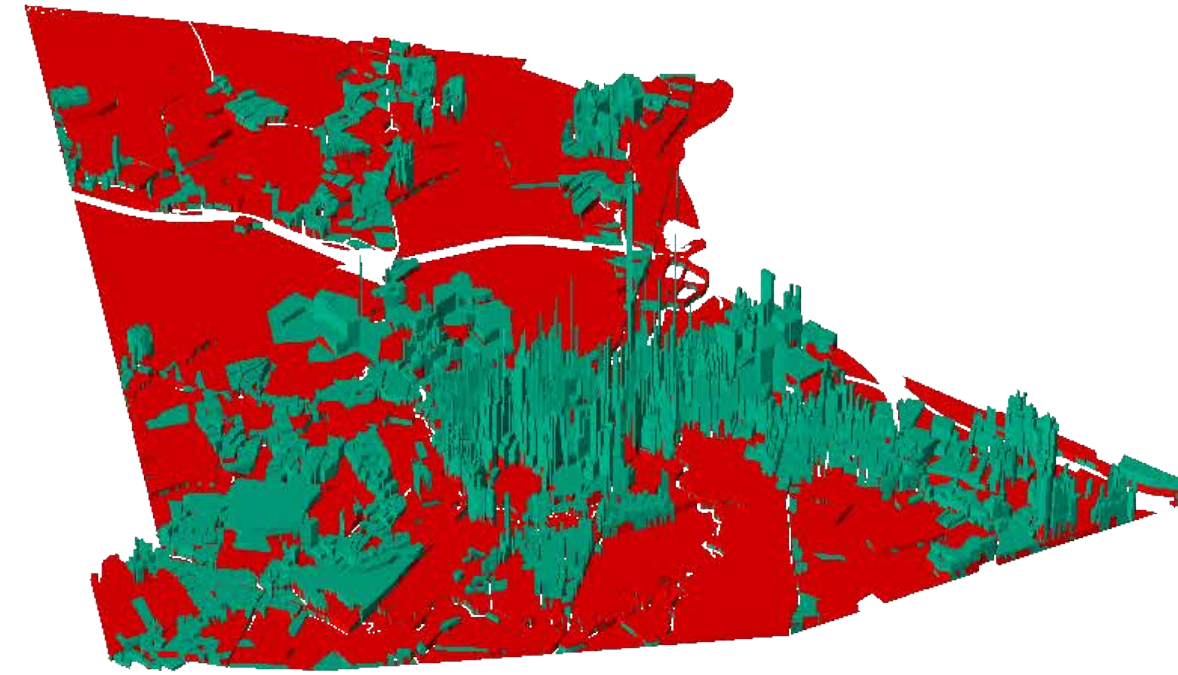
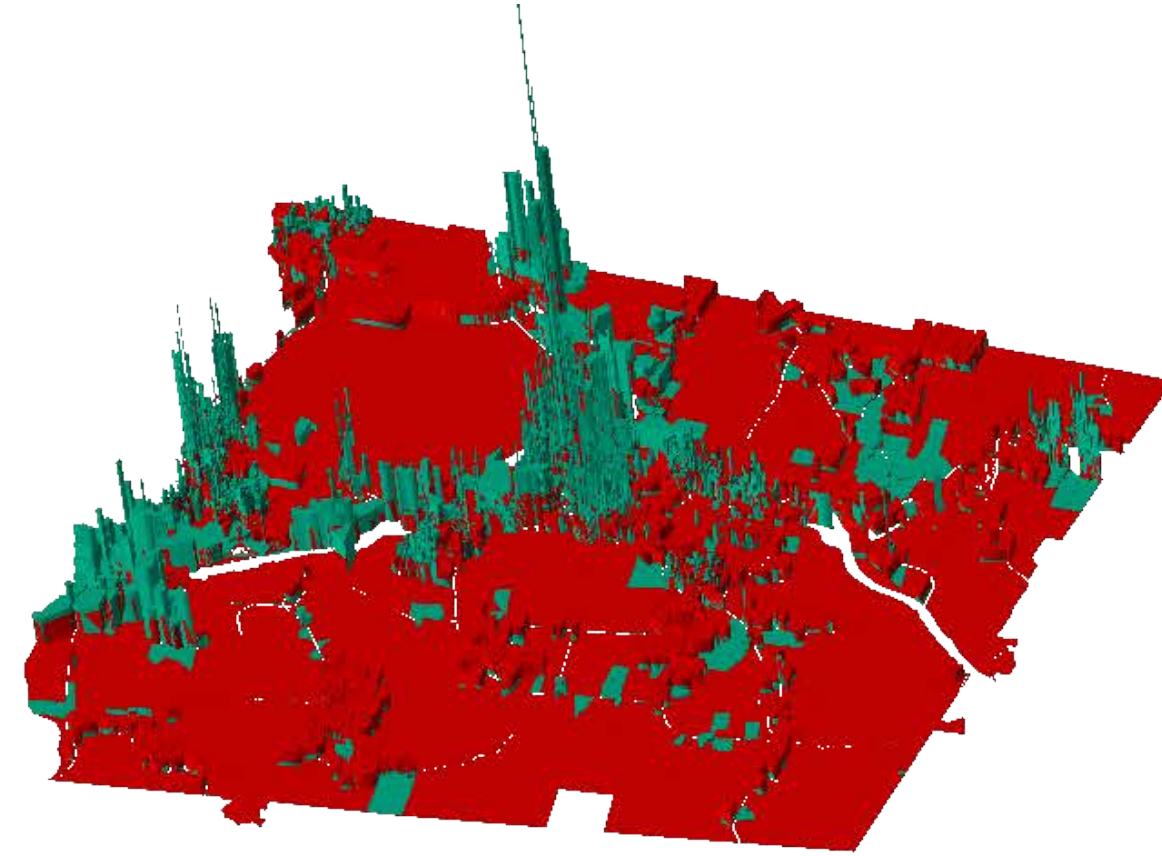


Source: New Hampshire Department of Revenue Administration 2019



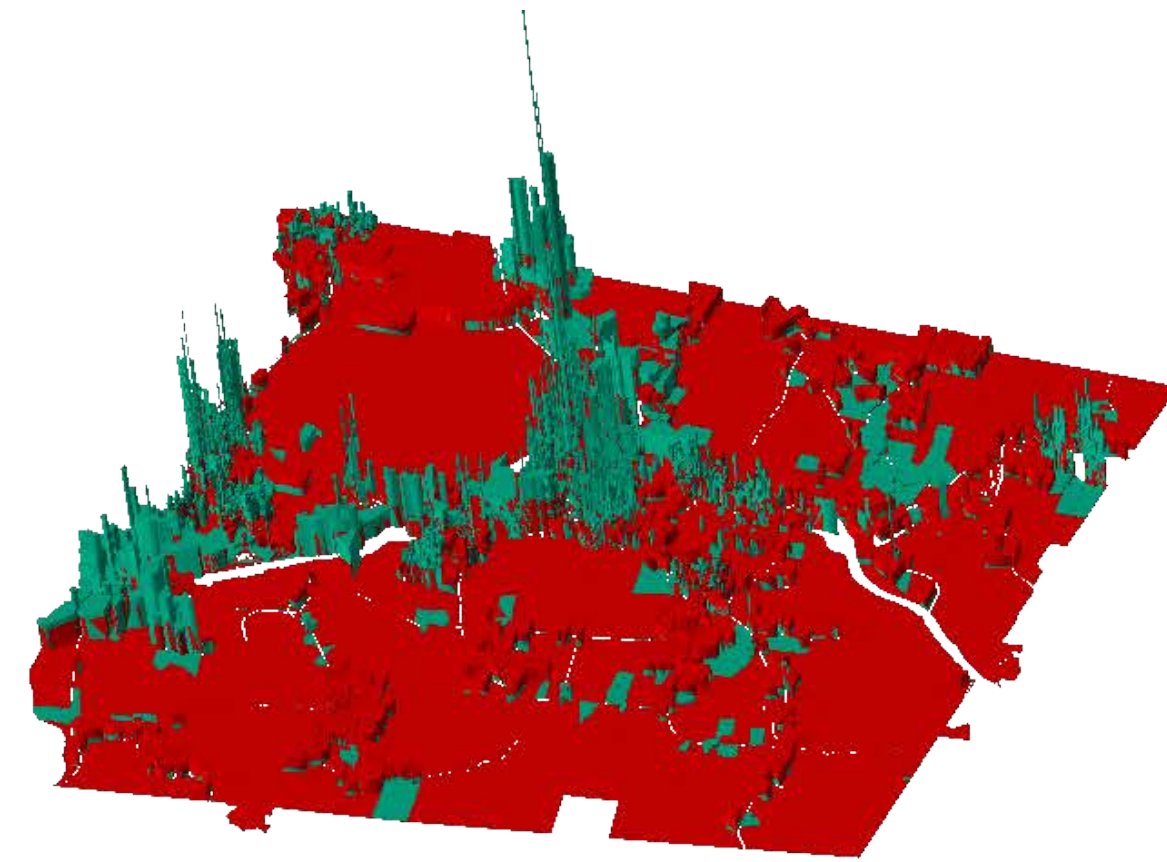
# Comparisons

Annualized Lifecycle Cost

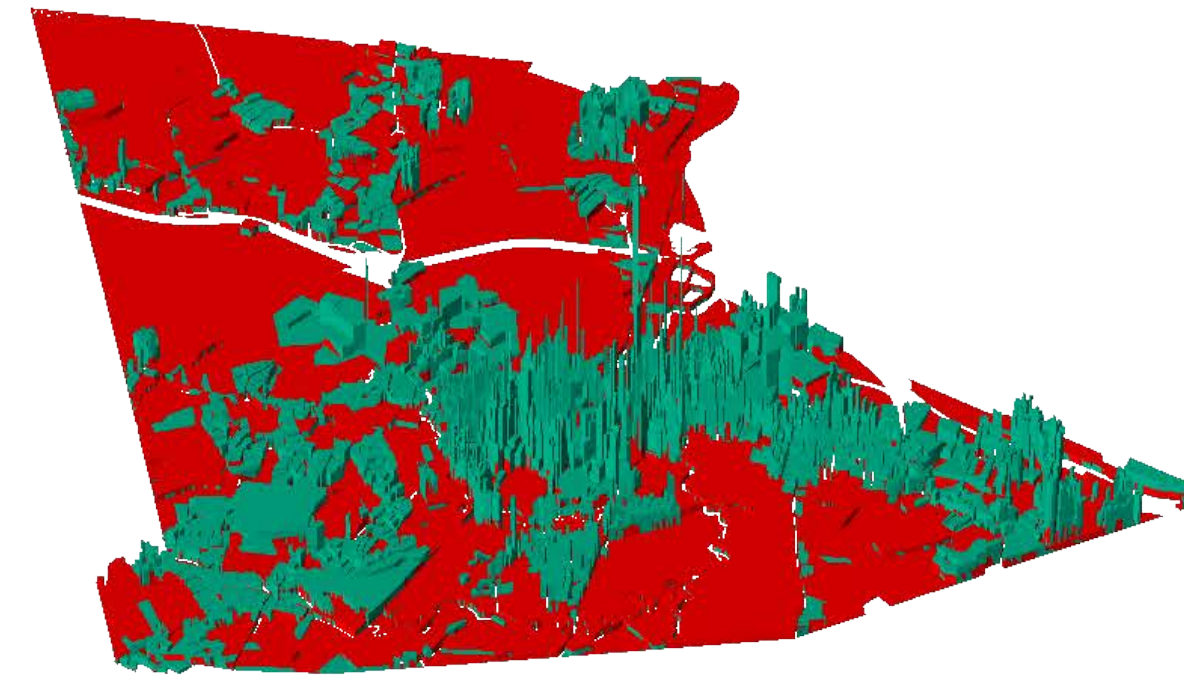


# Comparisons

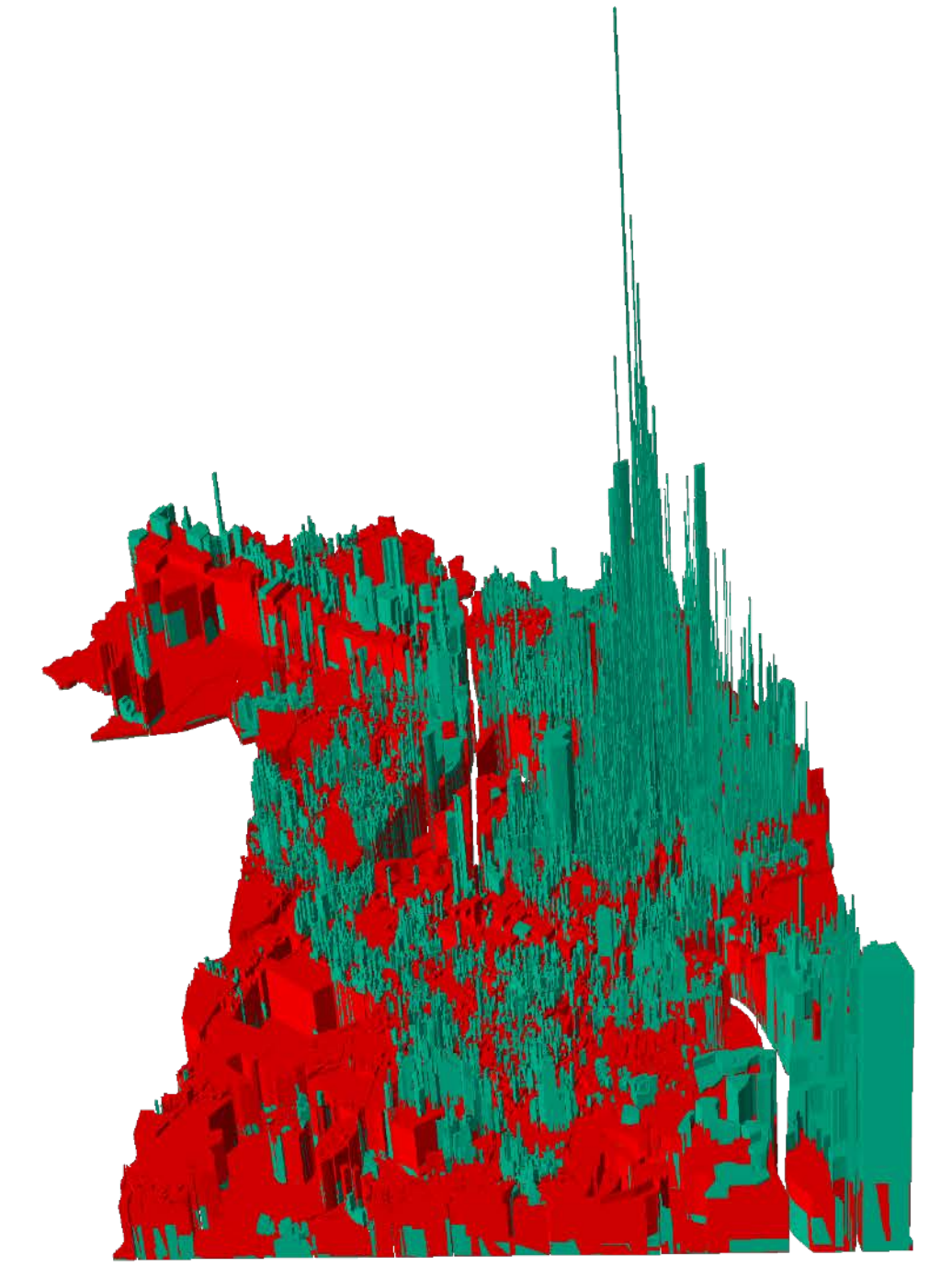
Annualized Lifecycle Cost



Lebanon



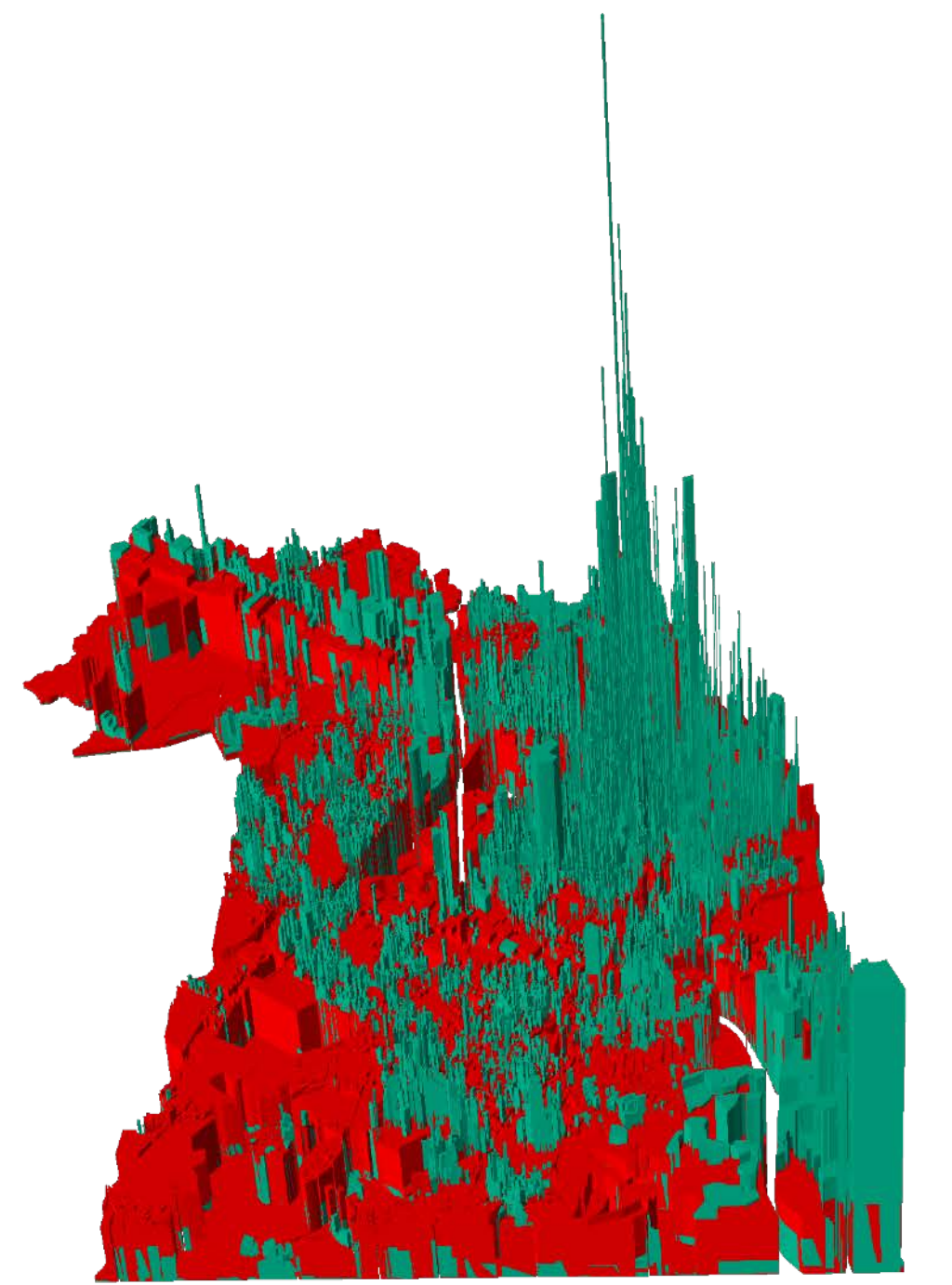
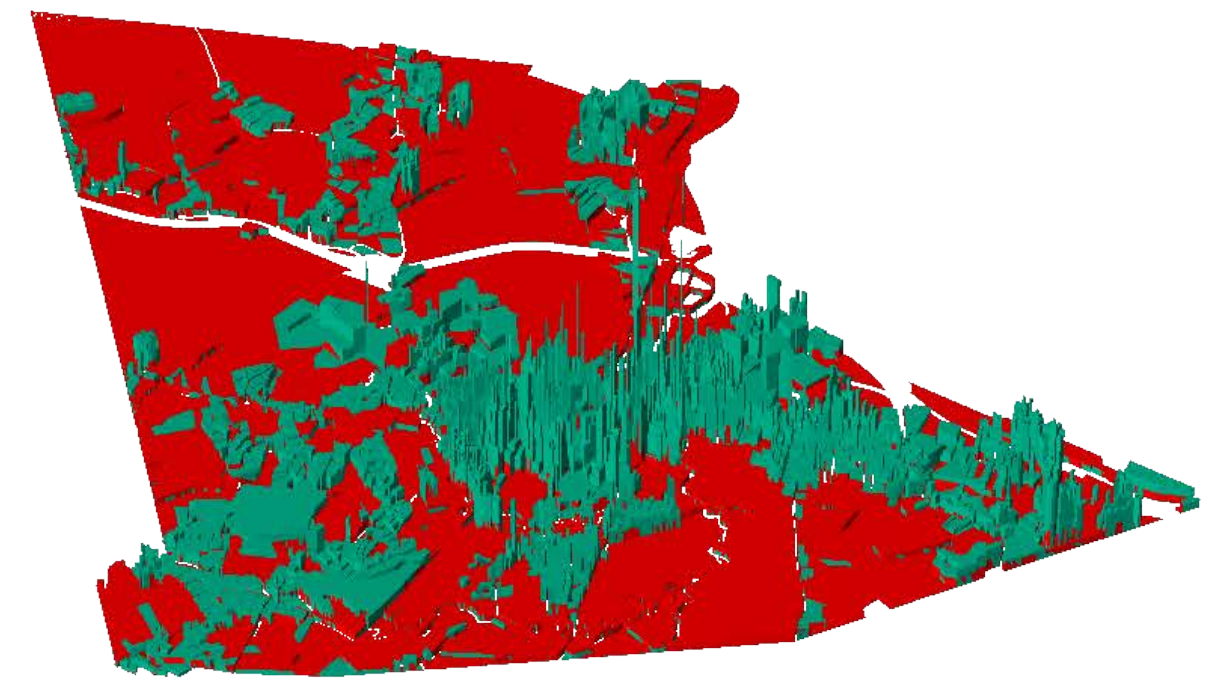
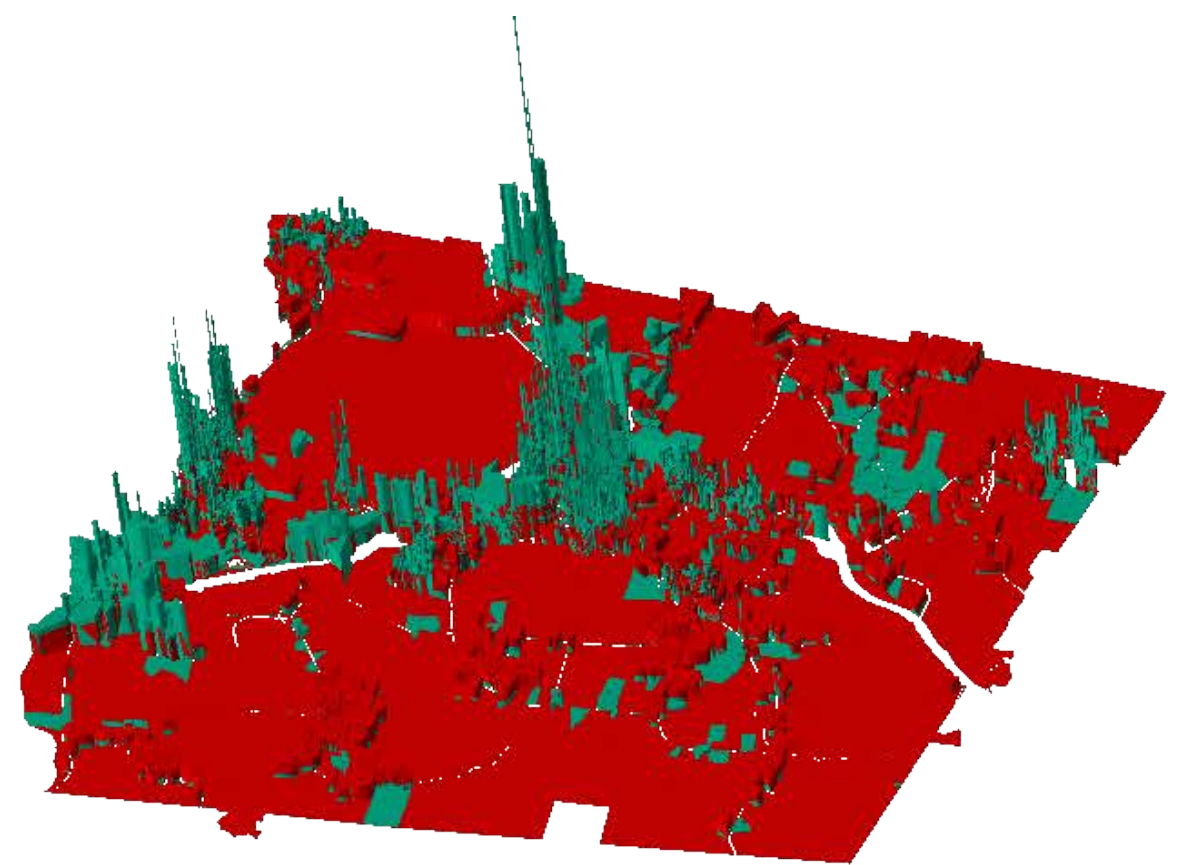
Exeter



Nashua

# Comparisons

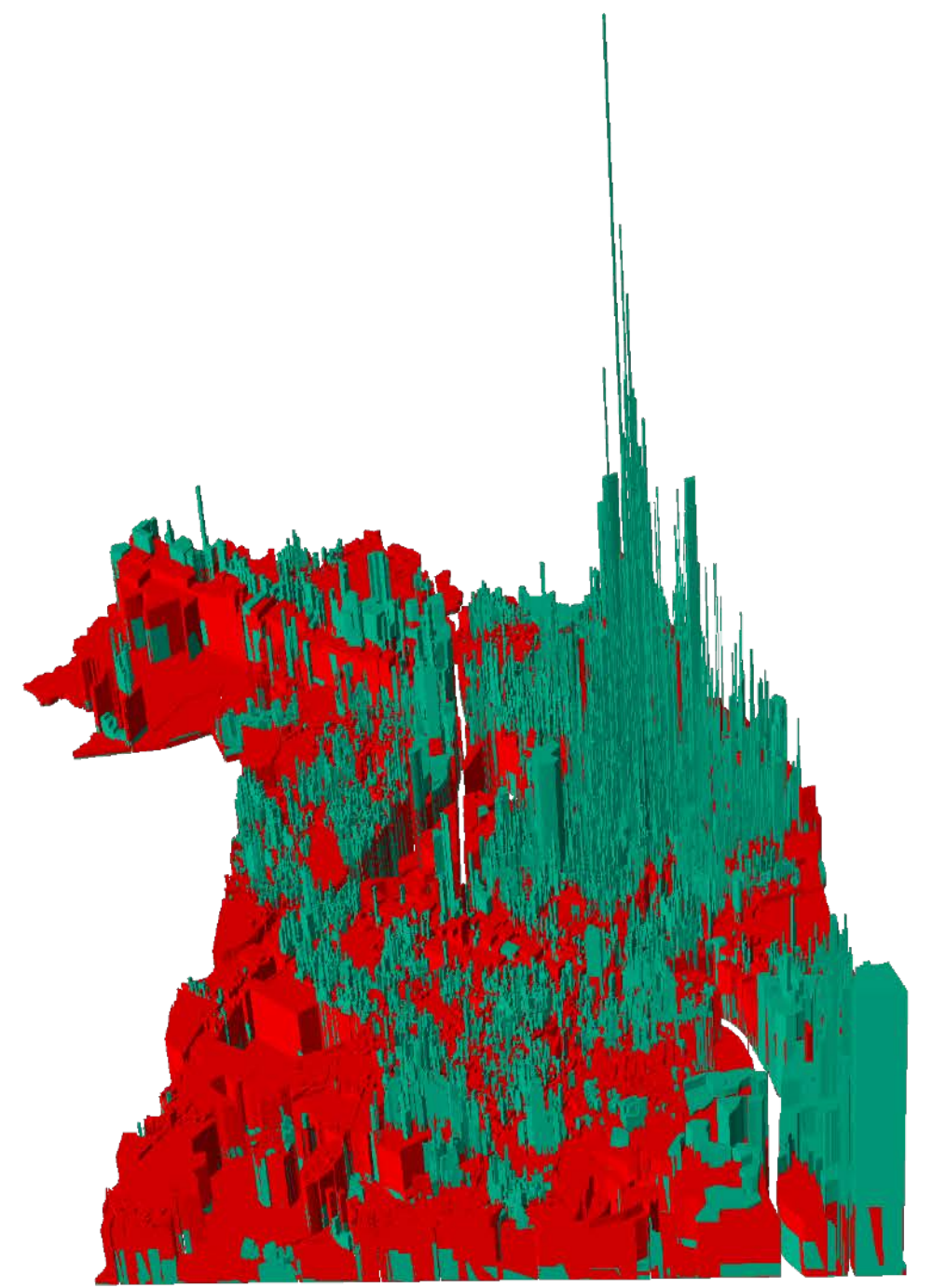
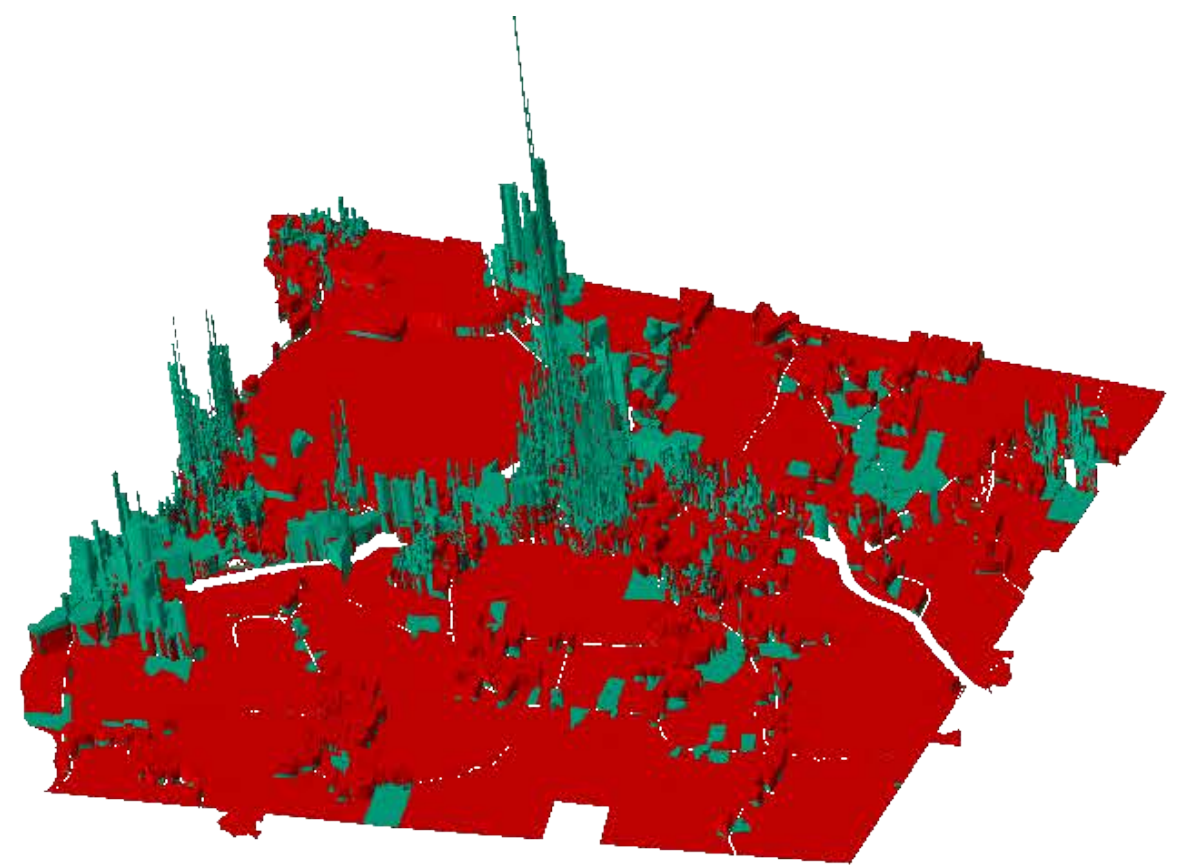
Annualized Lifecycle Cost



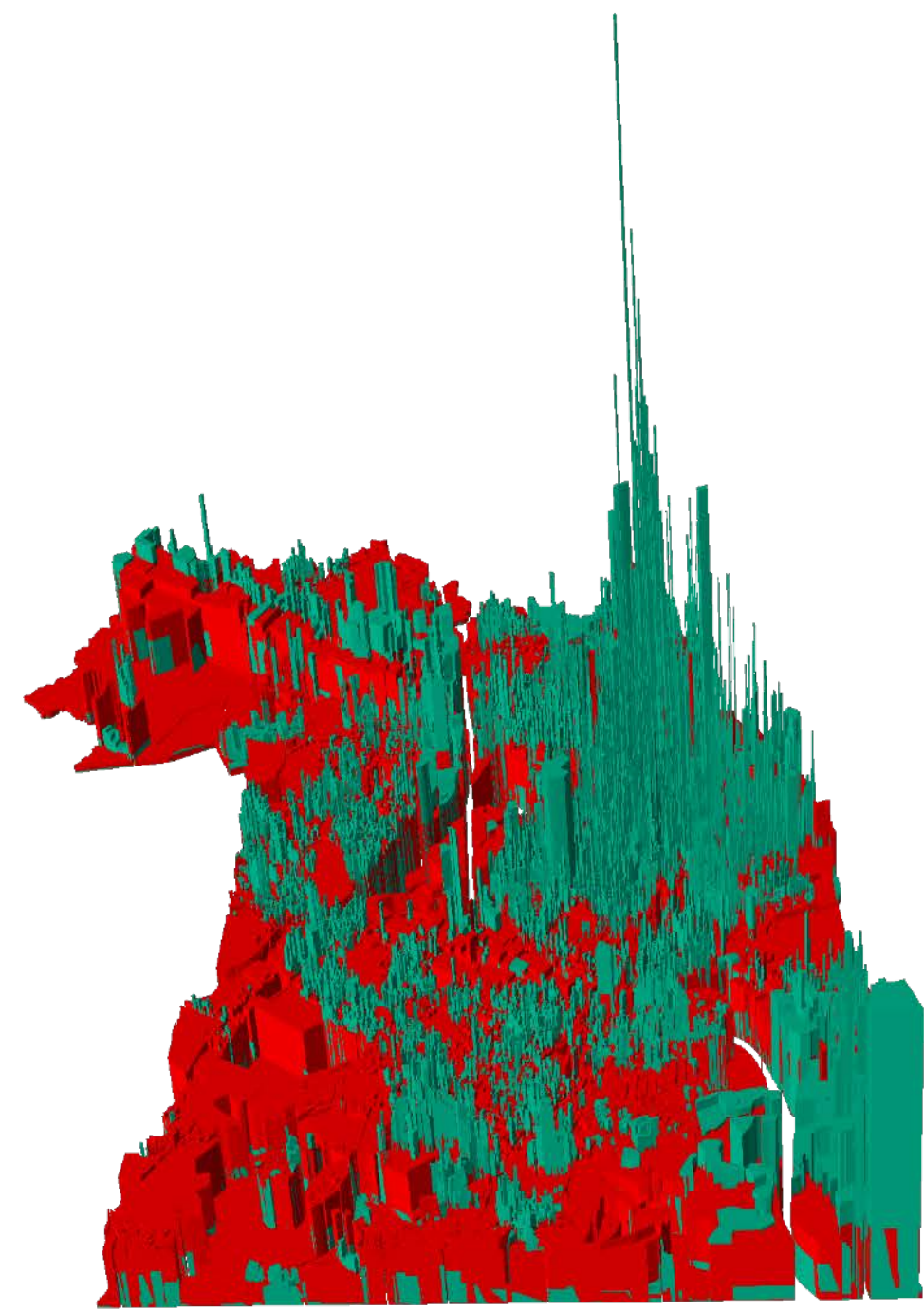
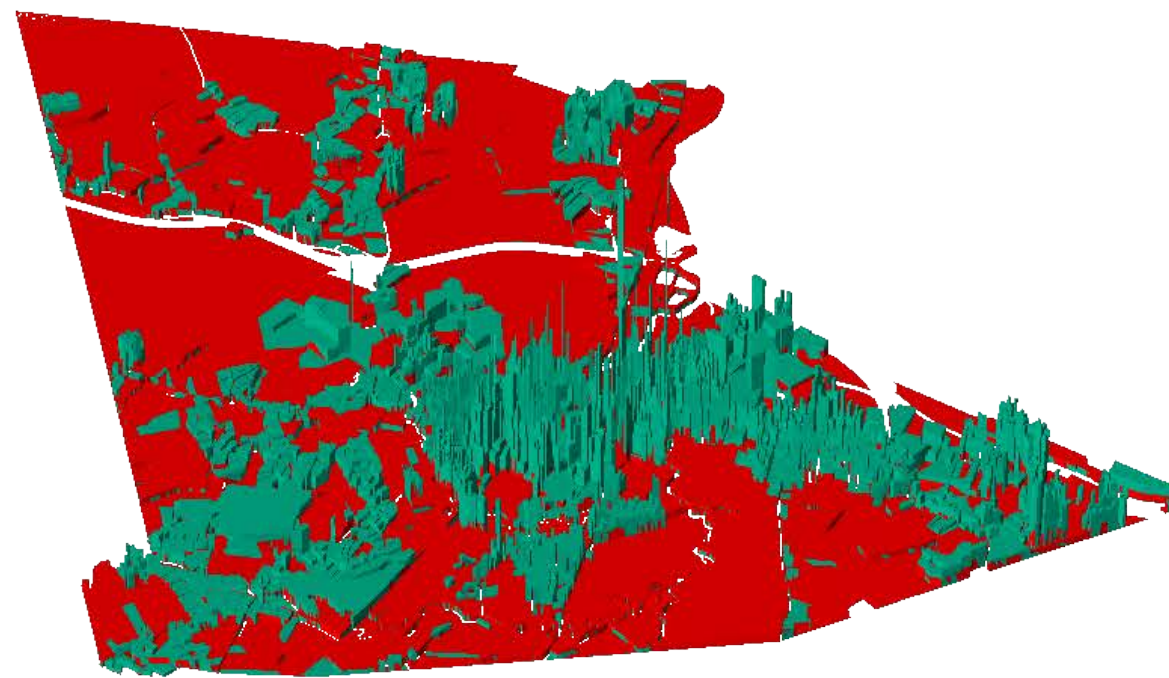
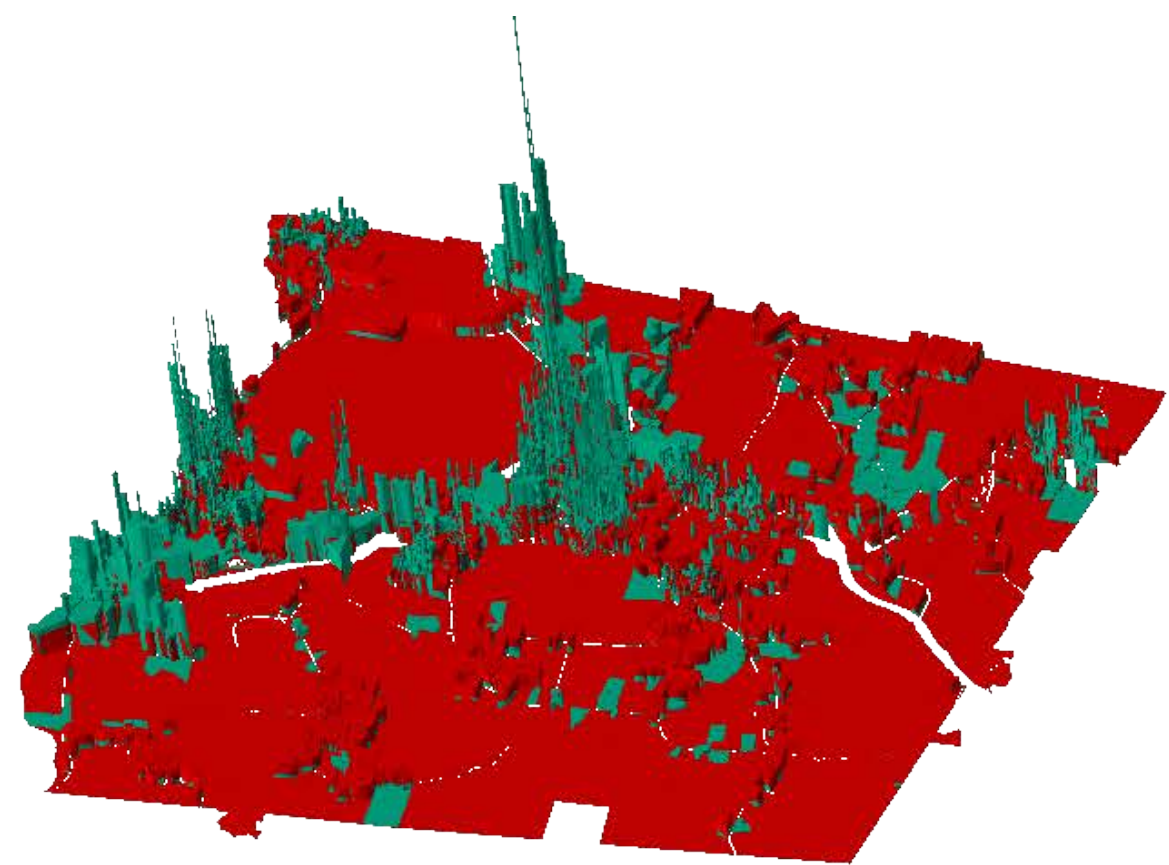
	Lebanon	Exeter	Nashua
<b>Population Density</b> People/sq mile	<b>358</b>	<b>794</b>	<b>3,305</b>

# Comparisons

Annualized Lifecycle Cost



	Lebanon	Exeter	Nashua
Population Density <small>People/sq mile</small>	358	794	3,305
Miles of Roads+Pipes	387	259	1,370



	Lebanon	Exeter	Nashua
<b>Population Density</b> People/sq mile	<b>358</b>	<b>794</b>	<b>3,305</b>
<b>Miles of Roads+Pipes</b>	<b>387</b>	<b>259</b>	<b>1,370</b>
<b>Deficit</b>	<b>\$9M</b>	<b>\$8M</b>	<b>\$94M</b>



Ahmaud Arbery

2/23/20



Breonna Taylor

3/13/20



George Floyd

5/25/20



**WHAT ABOUT EQUITY?**



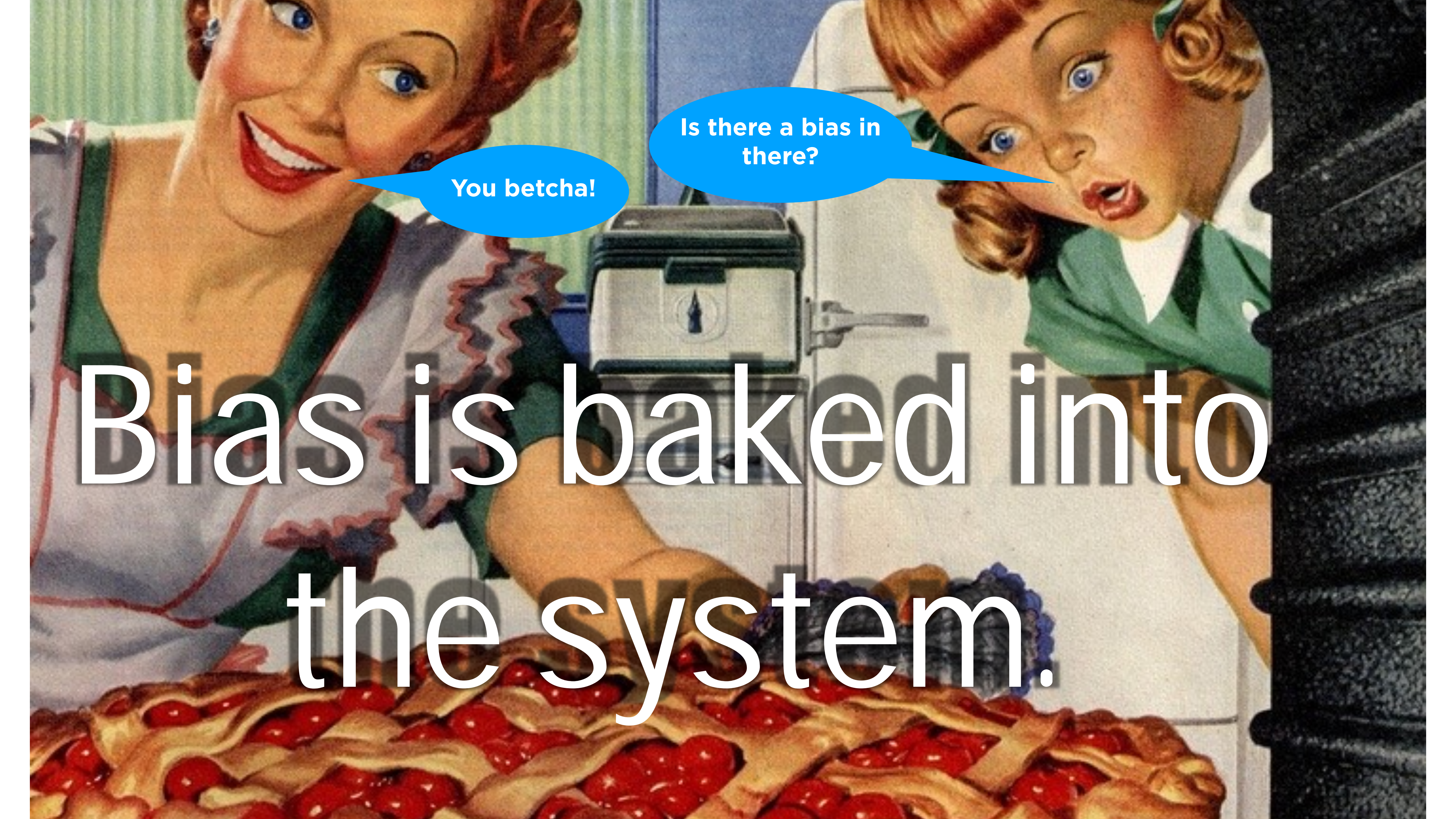
Bias is baked into  
the system.





Is there a bias in there?

Bias is baked into the system.

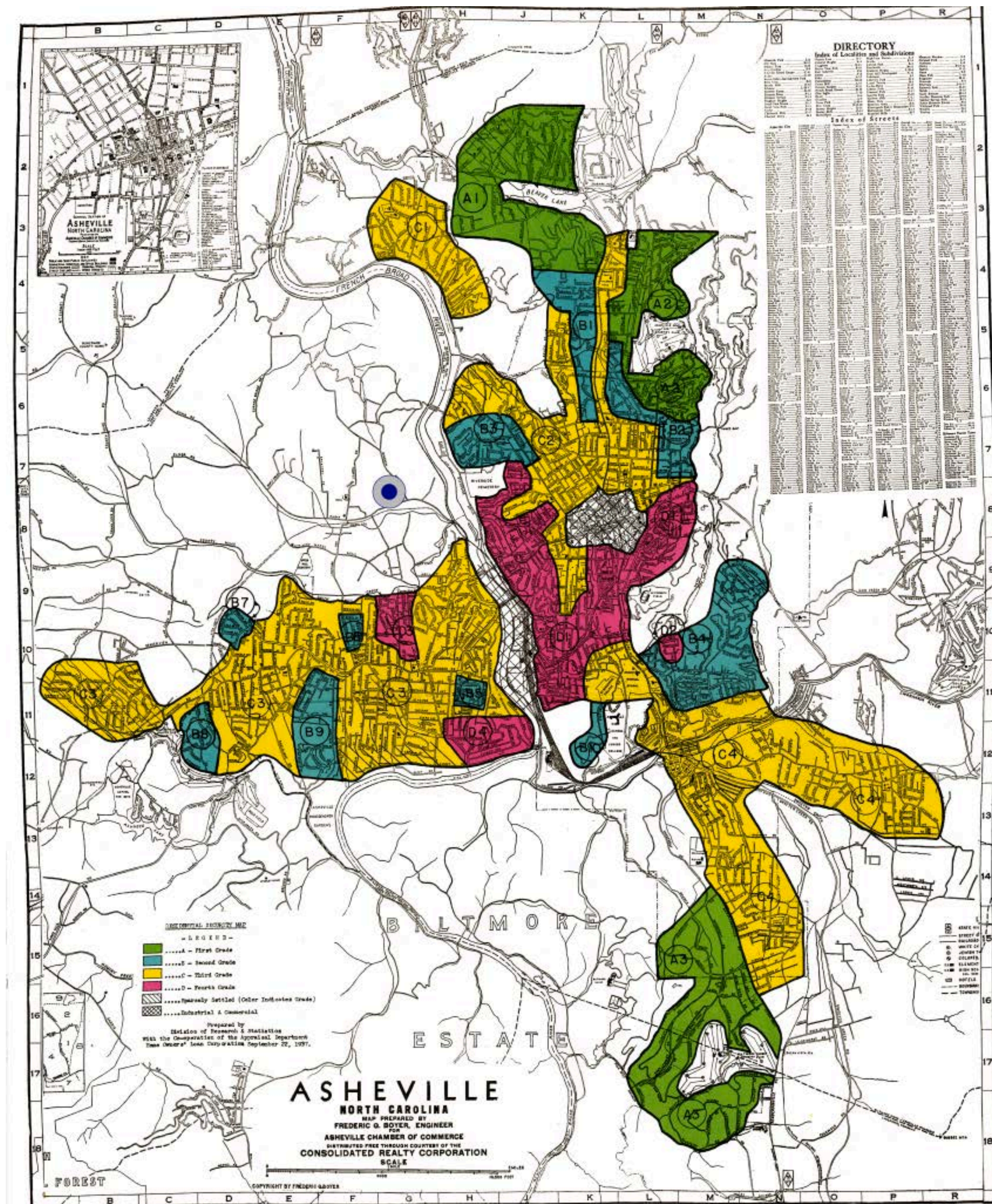


You betcha!

Is there a bias in there?

Bias is baked into the system.

HOLC Grade	Avg. Total Value		Average VPA	Average Land VPA	Avg. % Change in Total Value	Avg. % Change in Land Value	Average 2020 Tax Bill	Average Tax Bill per Acre
	2020	2021	2021	2021				
A	\$565,427.10	\$653,232.80	\$1,350,138.80	\$346,402.20	17.1	30.5	\$4,964.43	\$11,311.57
B	\$313,064.50	\$384,261.30	\$1,975,845.20	\$567,103.40	22.8	28.2	\$3,306.23	\$17,021.10
C	\$230,586.80	\$293,556.70	\$1,616,342.30	\$476,882.70	28.6	33.6	\$2,363.09	\$13,143.43
D	\$225,904.30	\$296,400.80	\$2,080,854.30	\$633,521.60	33.0	41.4	\$2,386.88	\$16,962.84








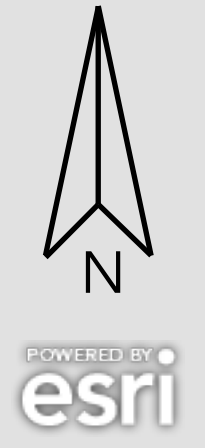
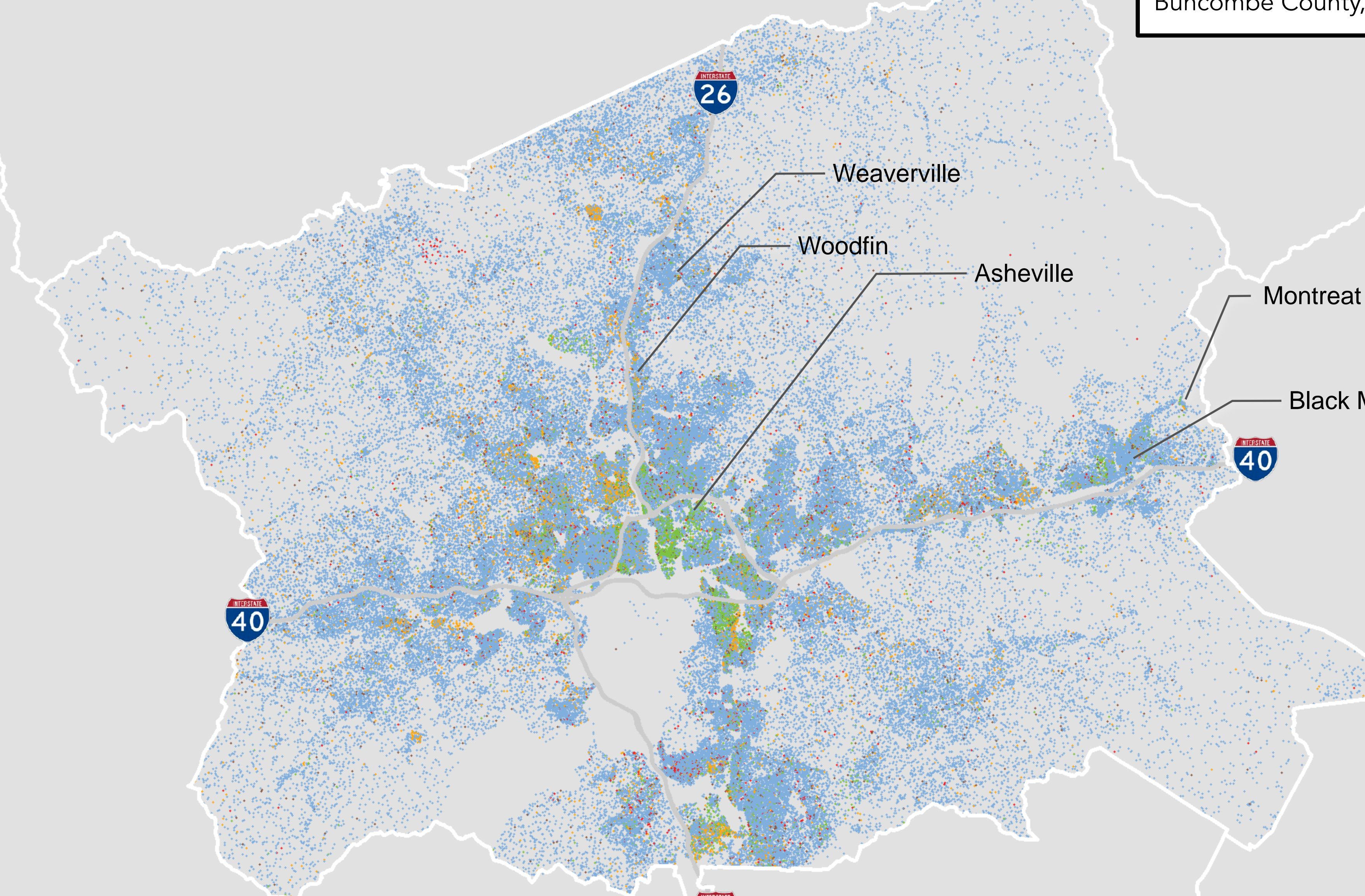
# Population Density by Race

Buncombe County, NC

### 2010 Census Block Data

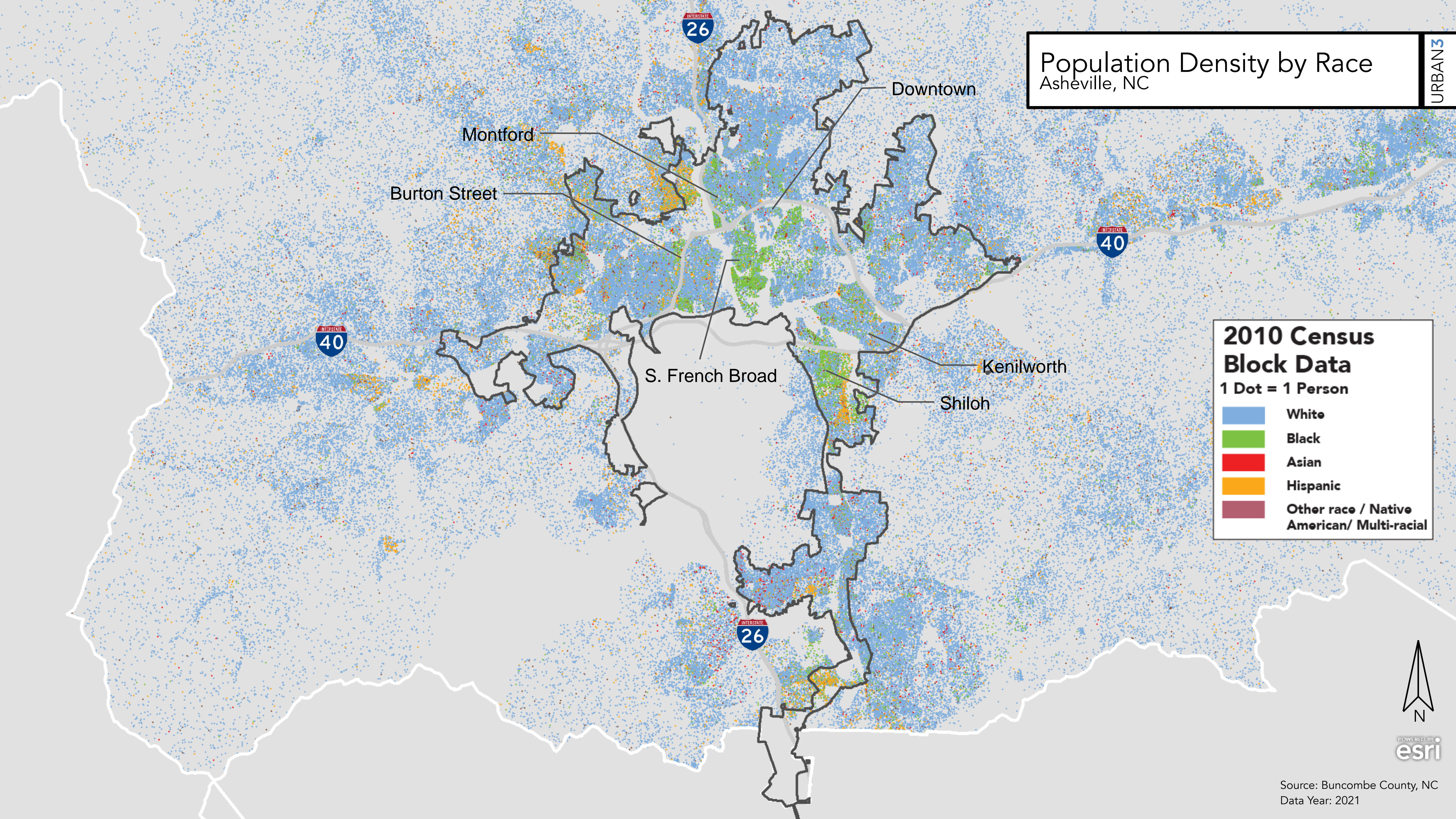
1 Dot = 1 Person

	White
	Black
	Asian
	Hispanic
	Other race / Native American / Multi-racial



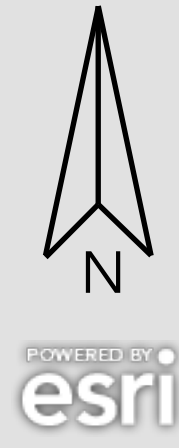
# Population Density by Race

## Asheville, NC

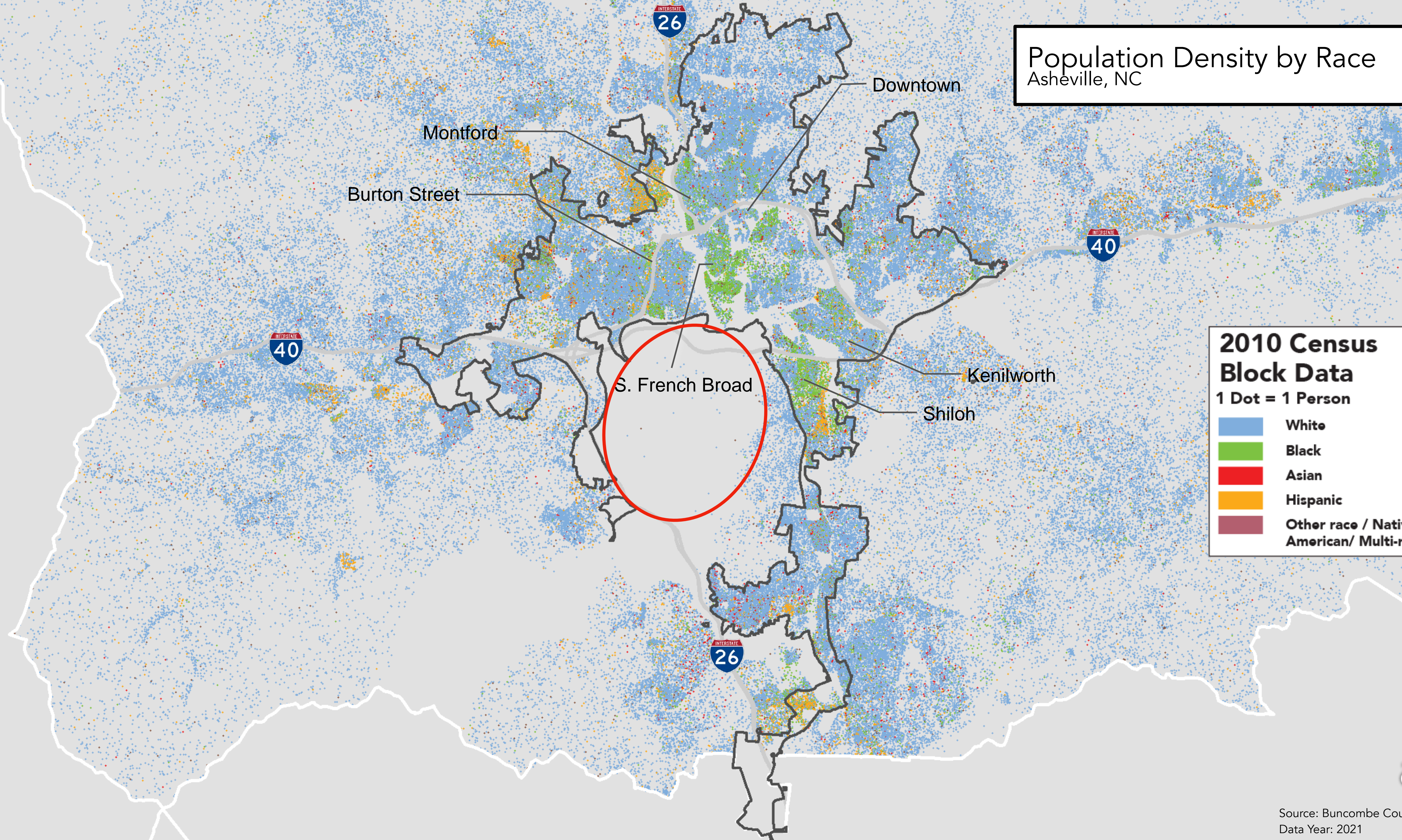


**2010 Census Block Data**  
1 Dot = 1 Person

Blue	White
Green	Black
Red	Asian
Orange	Hispanic
Purple	Other race / Native American / Multi-racial



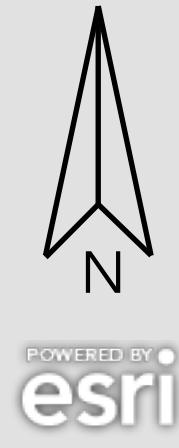
# Population Density by Race Asheville, NC



### 2010 Census Block Data

1 Dot = 1 Person

- White
- Black
- Asian
- Hispanic
- Other race / Native American / Multi-racial



# Population Density by Race Asheville, NC

URBAN3



**Biltmore Estate**

Montford  
Burton Street

S. French Broad

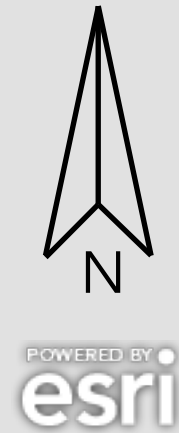
Downtown

Kenilworth  
Shiloh

### 2010 Census Block Data

1 Dot = 1 Person

Blue	White
Green	Black
Red	Asian
Yellow	Hispanic
Mauve	Other race / Native American / Multi-racial

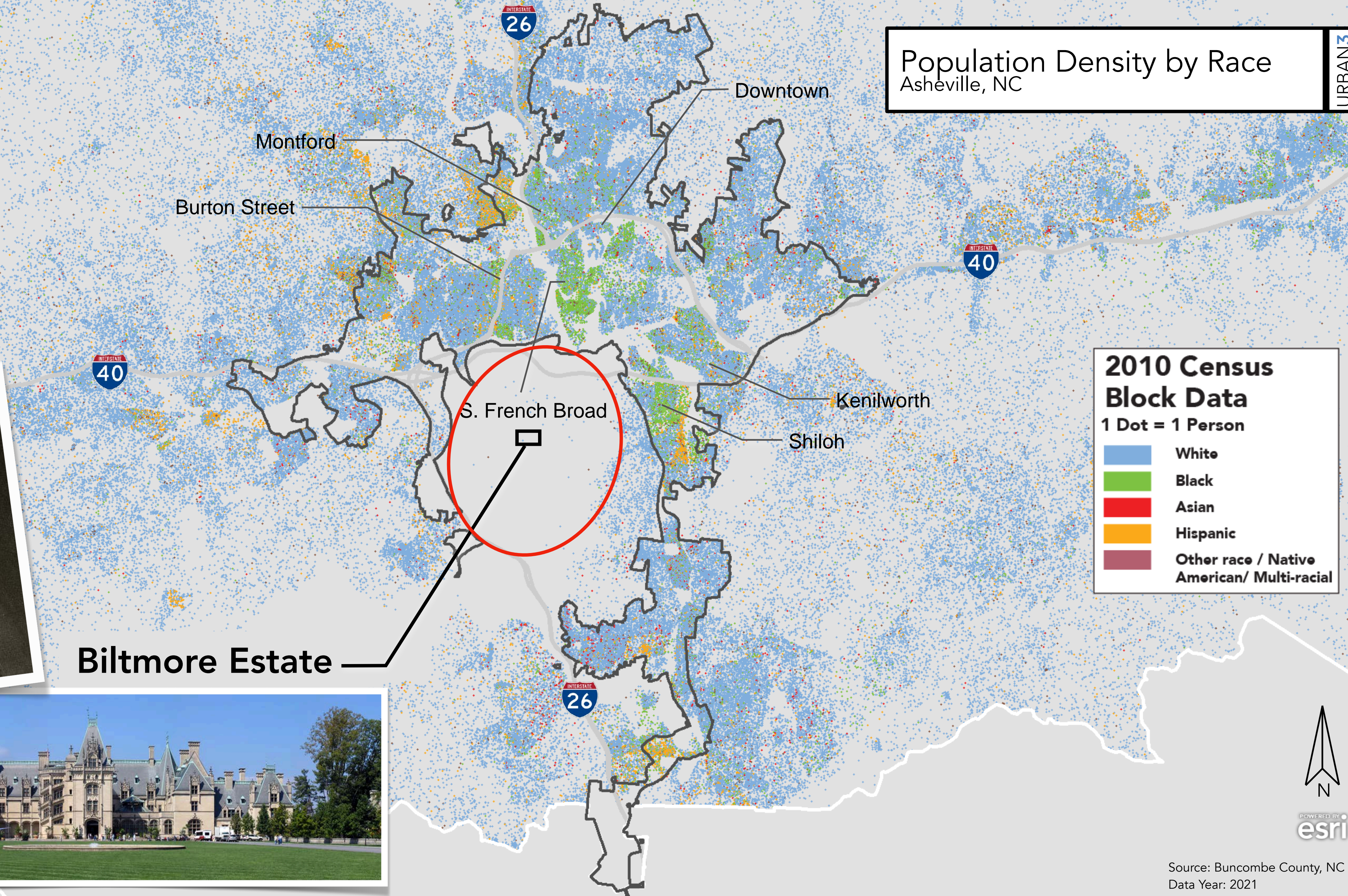


# Population Density by Race Asheville, NC

URBAN3



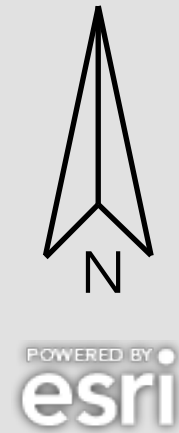
**Biltmore Estate**



Montford  
Burton Street  
Downtown  
S. French Broad  
Kenilworth  
Shiloh

**2010 Census  
Block Data**  
1 Dot = 1 Person

Blue	White
Green	Black
Red	Asian
Yellow	Hispanic
Maroon	Other race / Native American / Multi-racial



Source: Buncombe County, NC  
Data Year: 2021

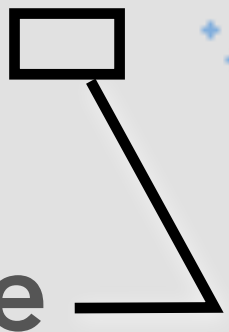
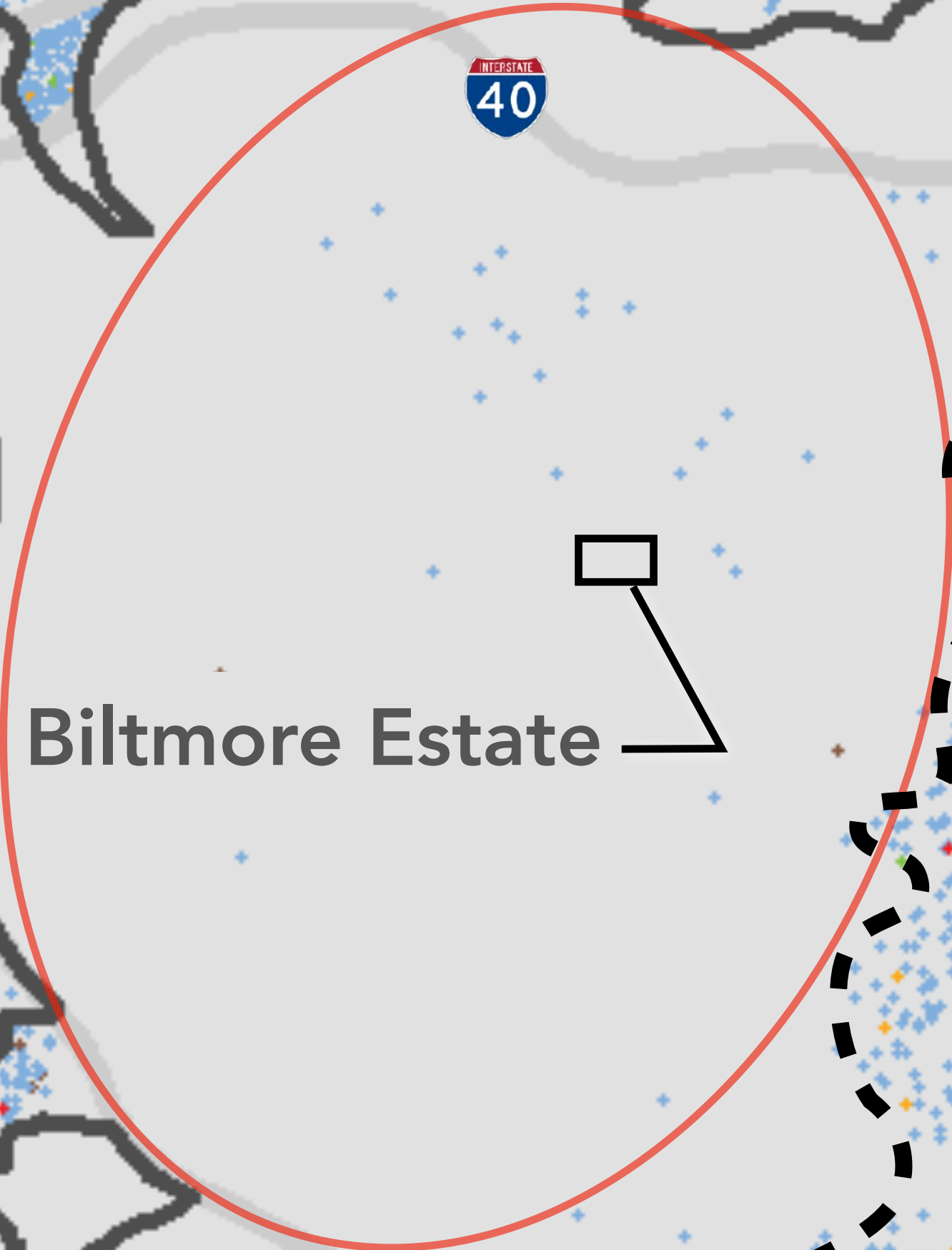


# Population Density by Race Asheville, NC

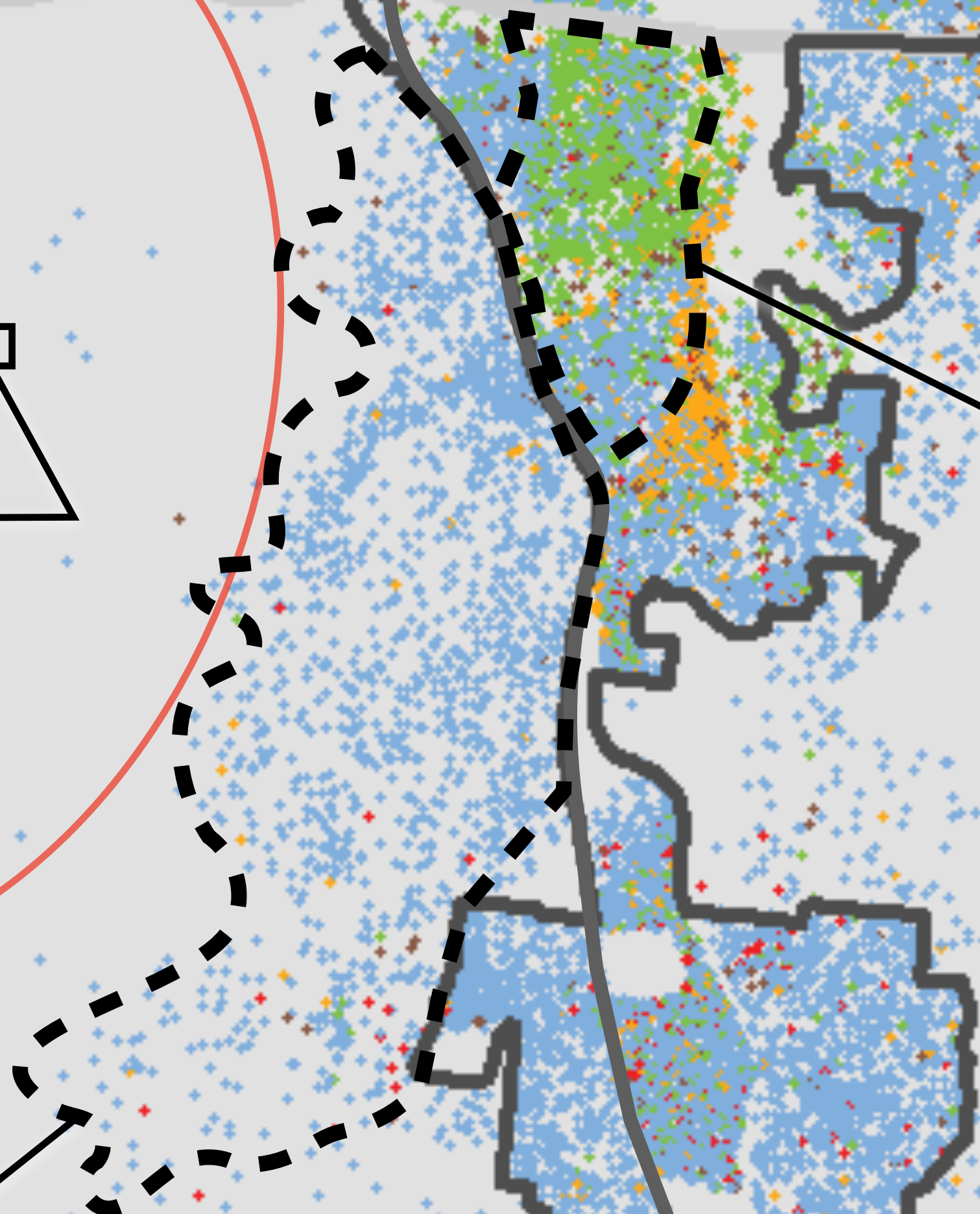
URBAN3

**2010 Census  
Block Data**  
1 Dot = 1 Person

- White
- Black
- Asian
- Hispanic
- Other race / Native American/ Multi-racial



Biltmore Estate



Shiloh

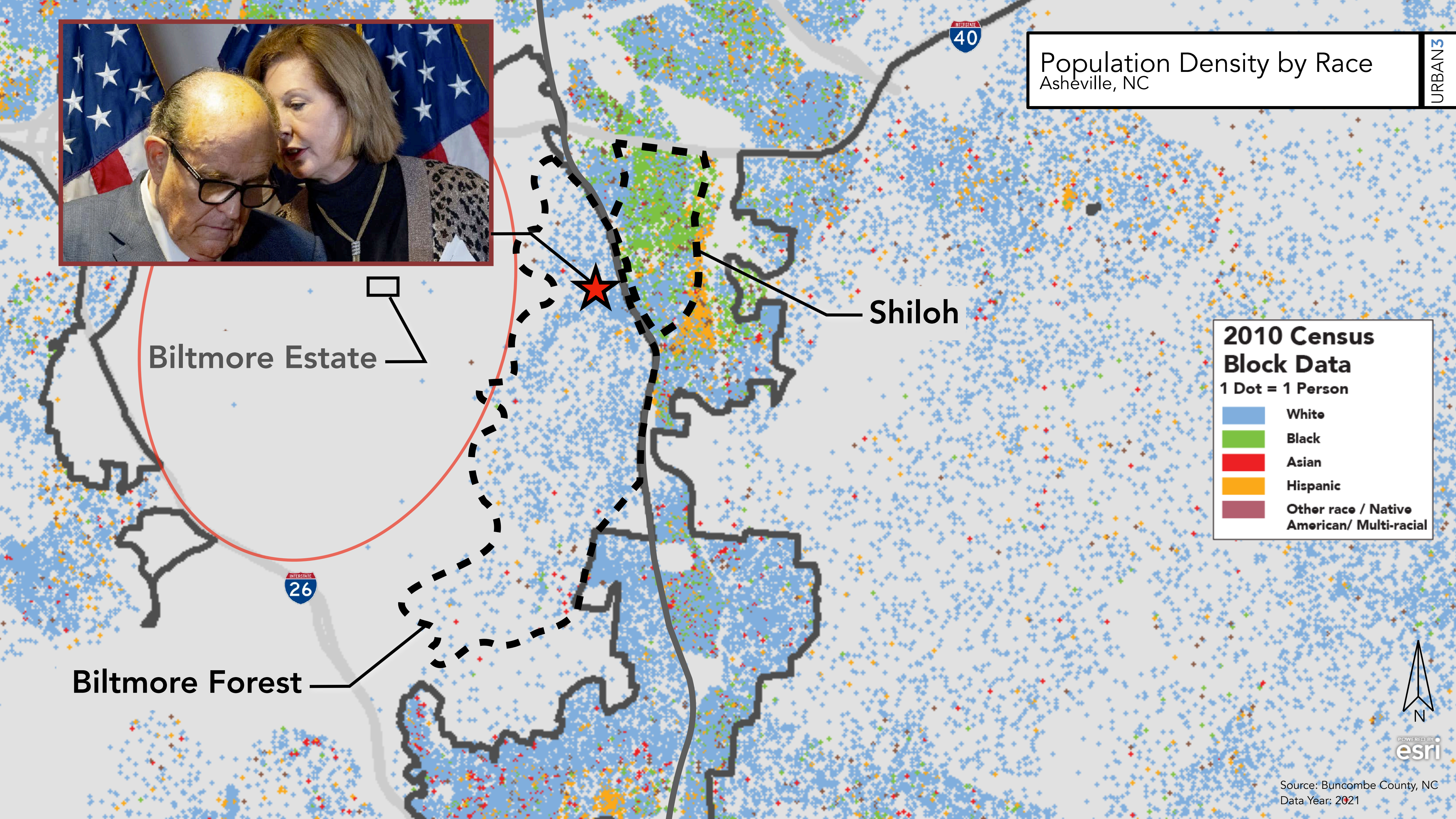
Biltmore Forest



POWERED BY  
esri

Source: Buncombe County, NC  
Data Year: 2021

# Population Density by Race Asheville, NC



**2010 Census  
Block Data**  
1 Dot = 1 Person

- White
- Black
- Asian
- Hispanic
- Other race / Native American / Multi-racial

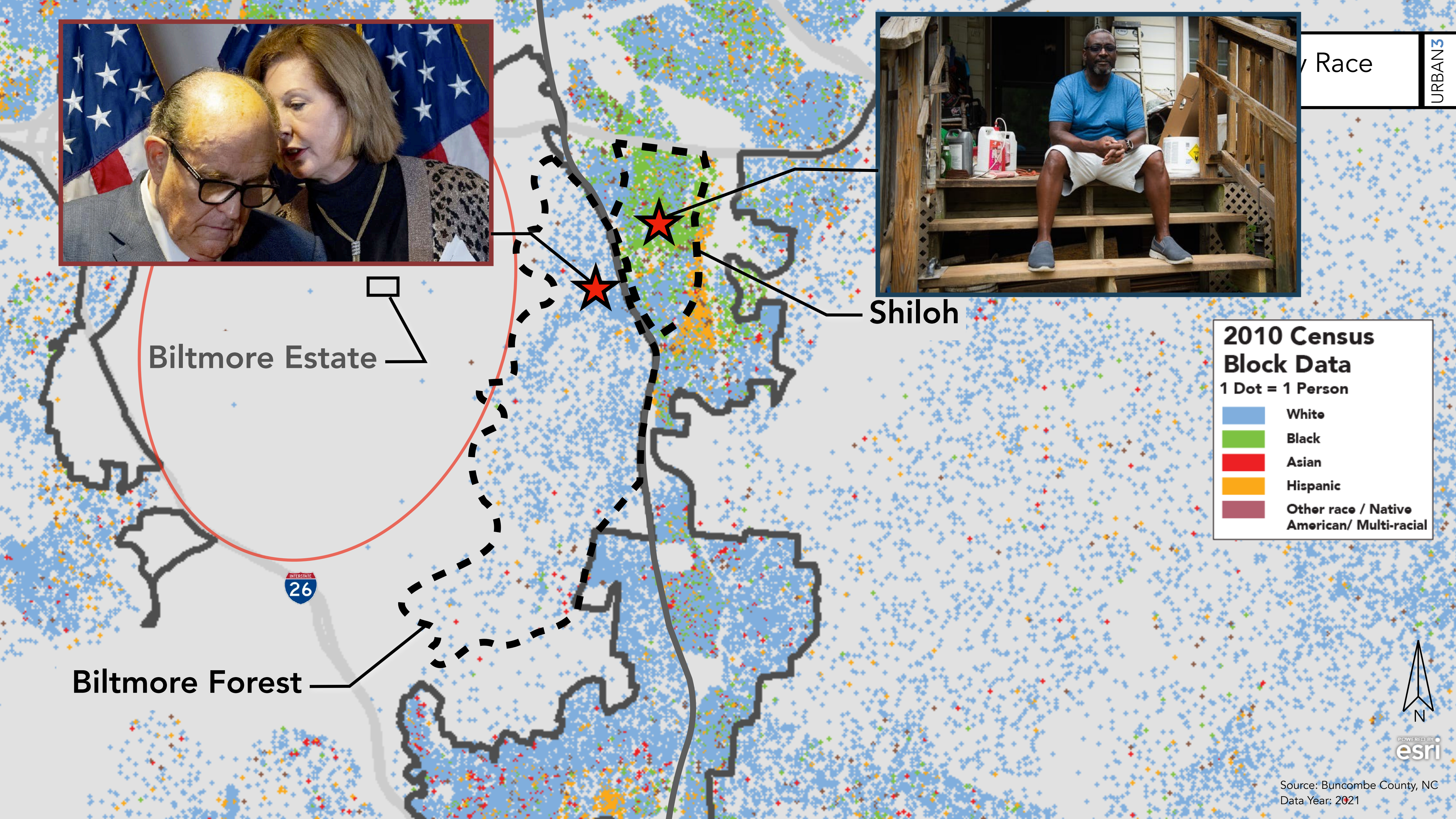


Source: Buncombe County, NC  
Data Year: 2021



by Race

URBAN3



Biltmore Estate

Shiloh

Biltmore Forest



**2010 Census Block Data**  
1 Dot = 1 Person

- White
- Black
- Asian
- Hispanic
- Other race / Native American/ Multi-racial



Source: Buncombe County, NC  
Data Year: 2021



1084 W. Chapel Road

**Reggie  
Harrell**





9 Forest Road



1084 W. Chapel Road



**Sidney  
Powell**

**Reggie  
Harrell**





**Sidney  
Powell**

**Reggie  
Harrell**





9 Forest Road

**Sidney  
Powell**

**Reggie  
Harrell**



1084 W. Chapel Road

Land Value (per acre)



9 Forest Road

**Sidney  
Powell**

**Reggie  
Harrell**



1084 W. Chapel Road



Land Value (per acre)





**Sidney  
Powell**

**Reggie  
Harrell**



Land Value (per acre)

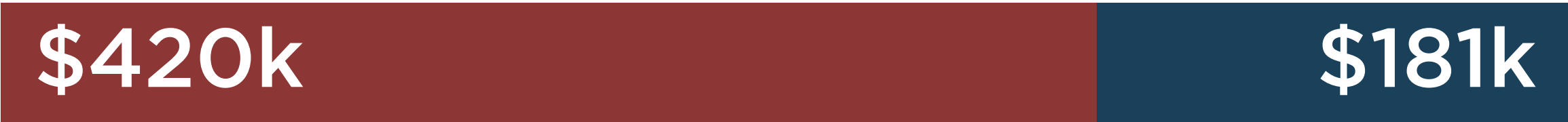


Building Value (per sq.ft.)



**Sidney  
Powell**

**Reggie  
Harrell**



Land Value (per acre)



Building Value (per sq.ft.)



County Taxes (per acre)



**Sidney  
Powell**

**Reggie  
Harrell**



Land Value (per acre)



Building Value (per sq.ft.)



County Taxes (per acre)



Value Increase (2017 to 2021)



**Sidney Powell**

**Reggie Harrell**



Land Value (per acre)



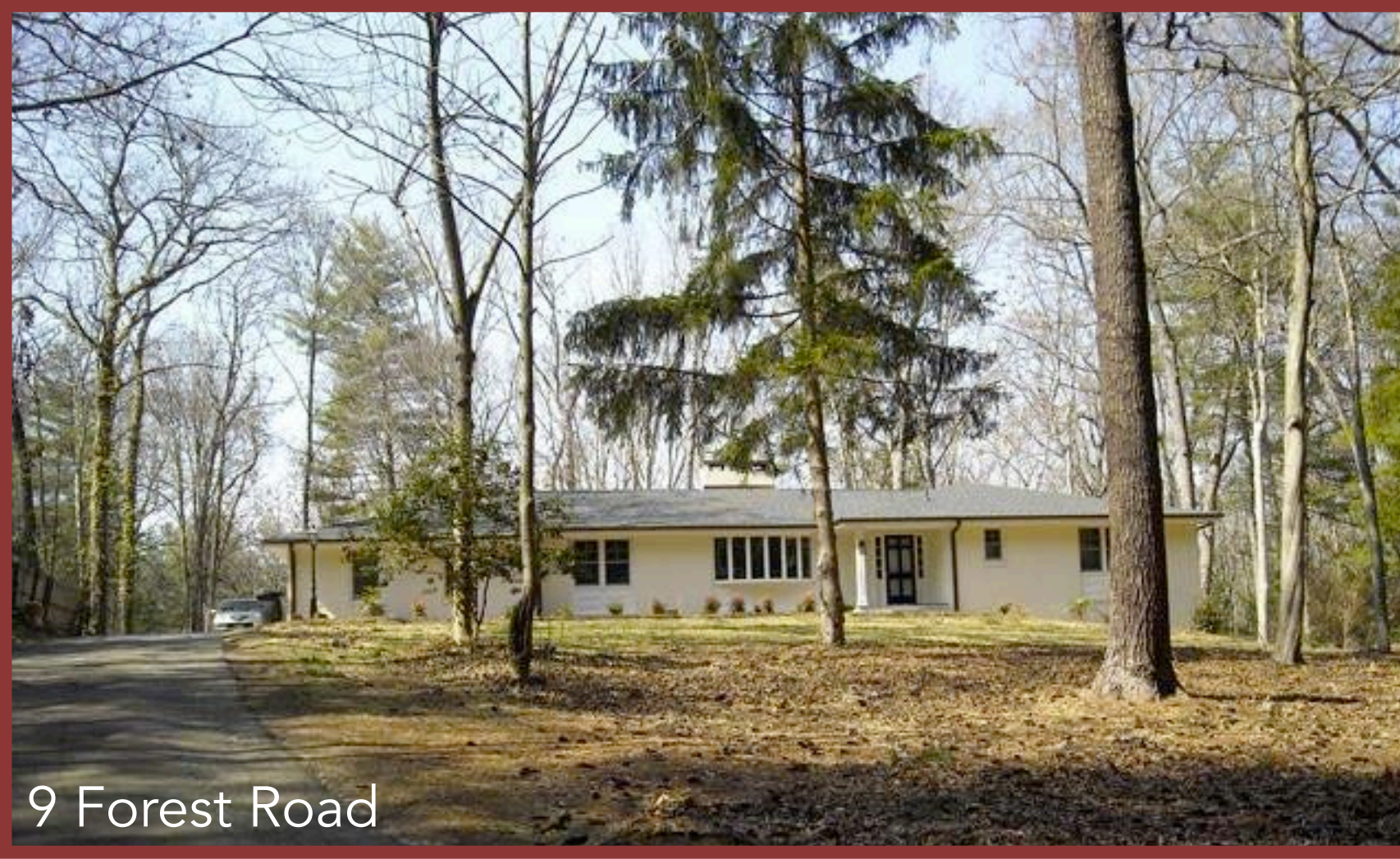
Building Value (per sq.ft.)



County Taxes (per acre)



Value Increase (2017 to 2021)



**Sidney  
Powell**

**Reggie  
Harrell**



Land Value (per acre)



Building Value (per sq.ft.)



County Taxes (per acre)



Value Increase (2017 to 2021)

# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC

Assessed Value greater than Sale Price



Assessed Value = Sale Price

Assessed Value less than Sale Price

# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC

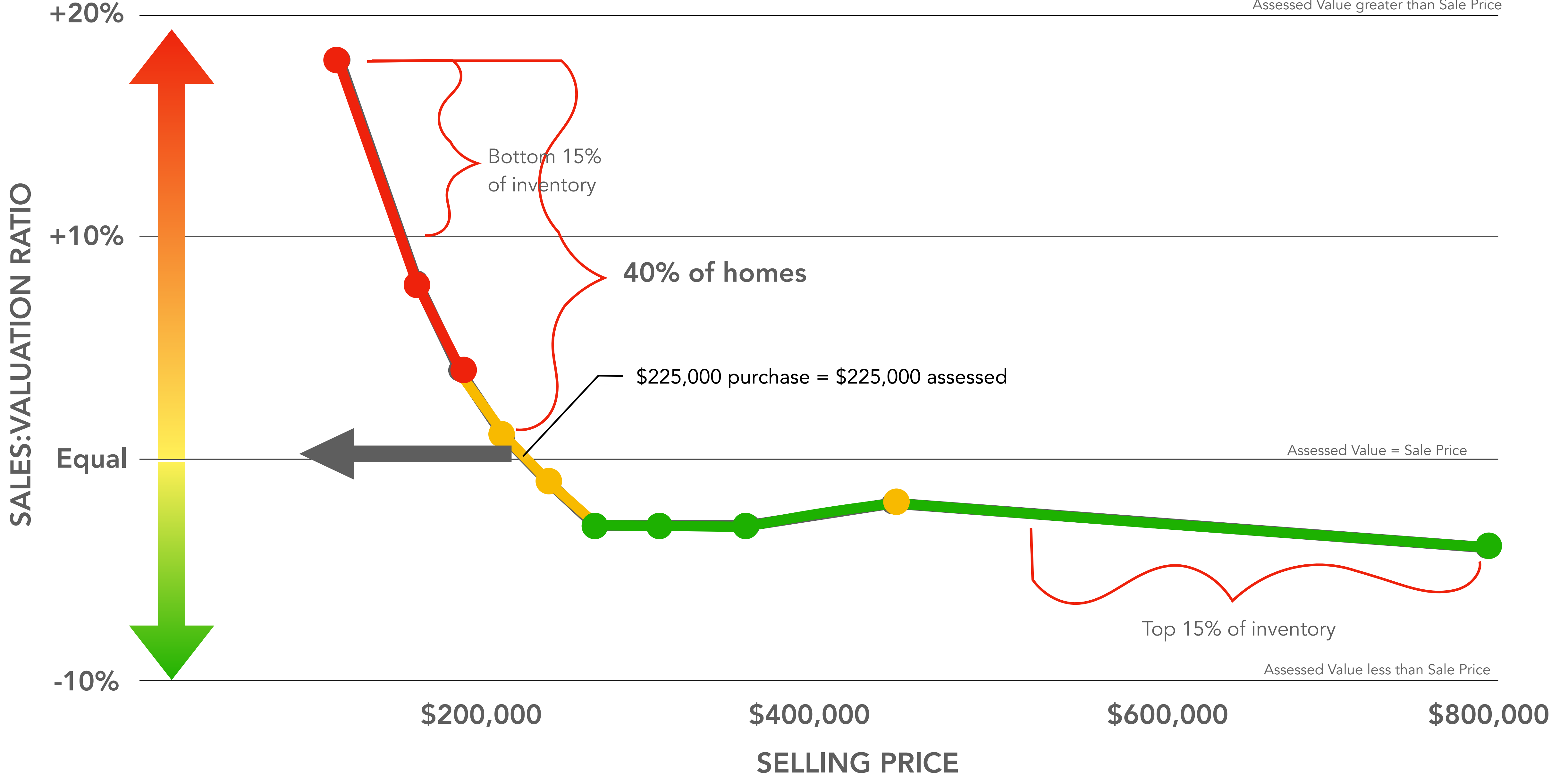
Assessed Value greater than Sale Price



# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC

Assessed Value greater than Sale Price

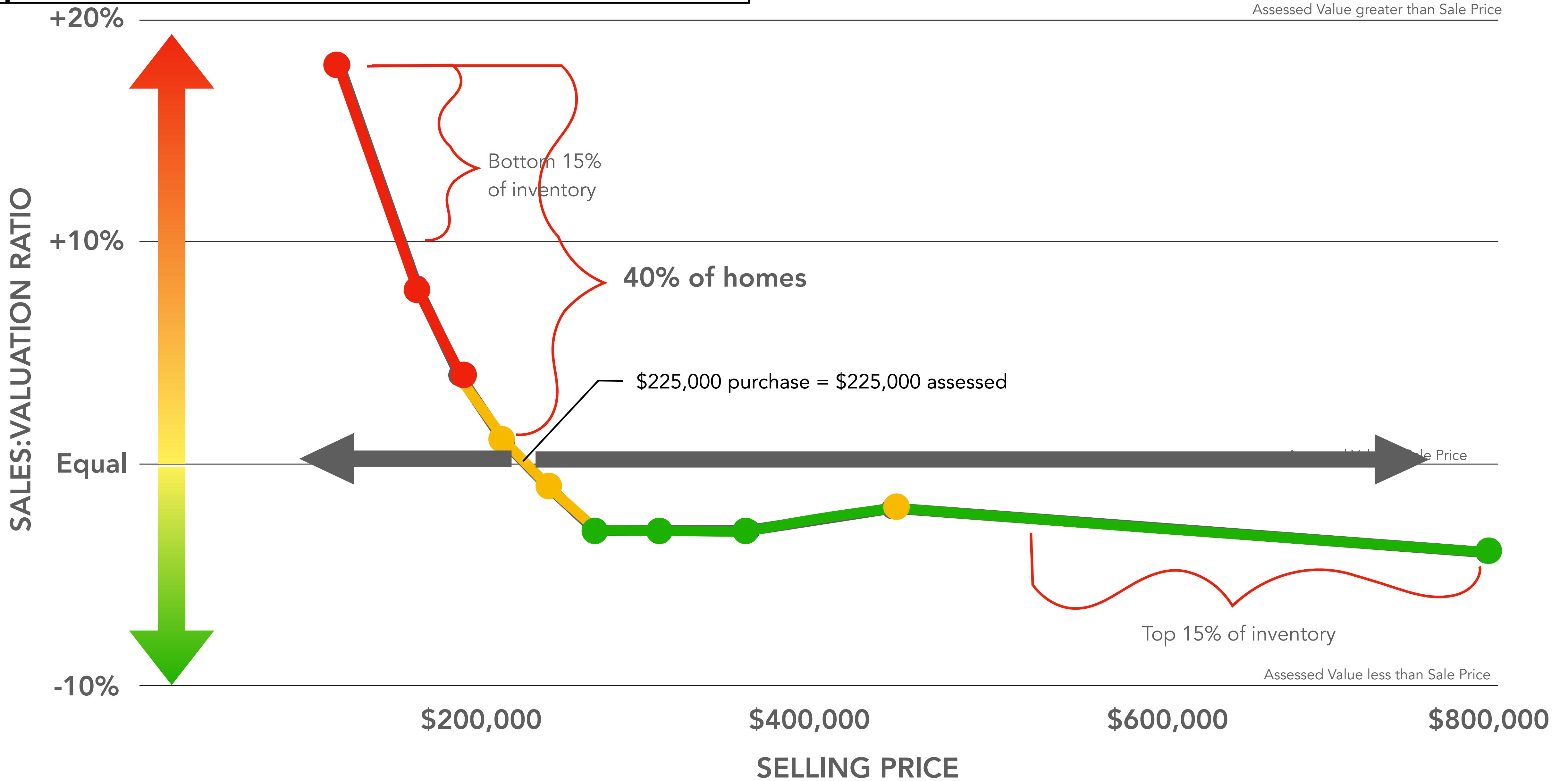




# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC

Assessed Value greater than Sale Price



# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC

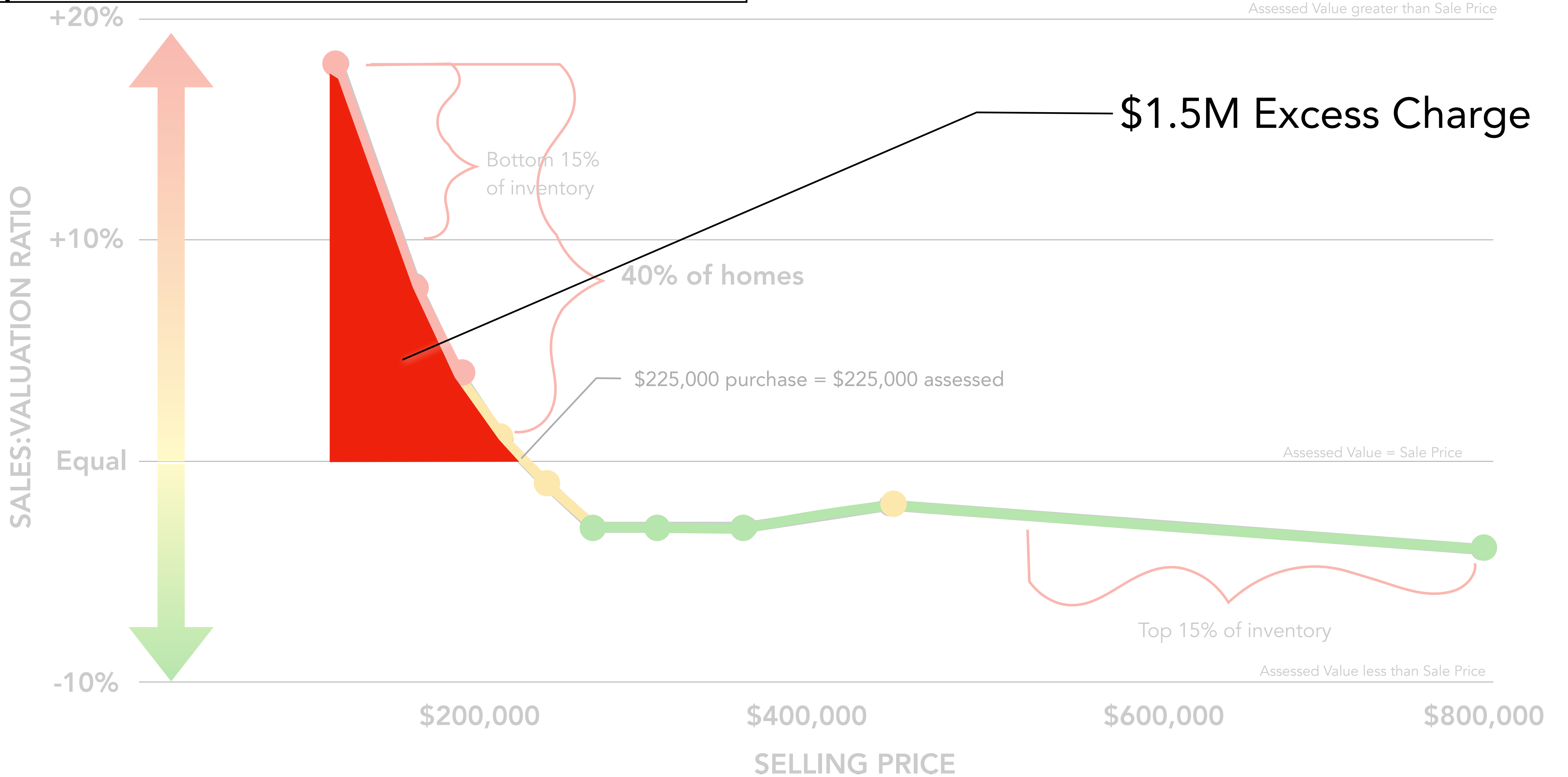
Assessed Value greater than Sale Price



# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC

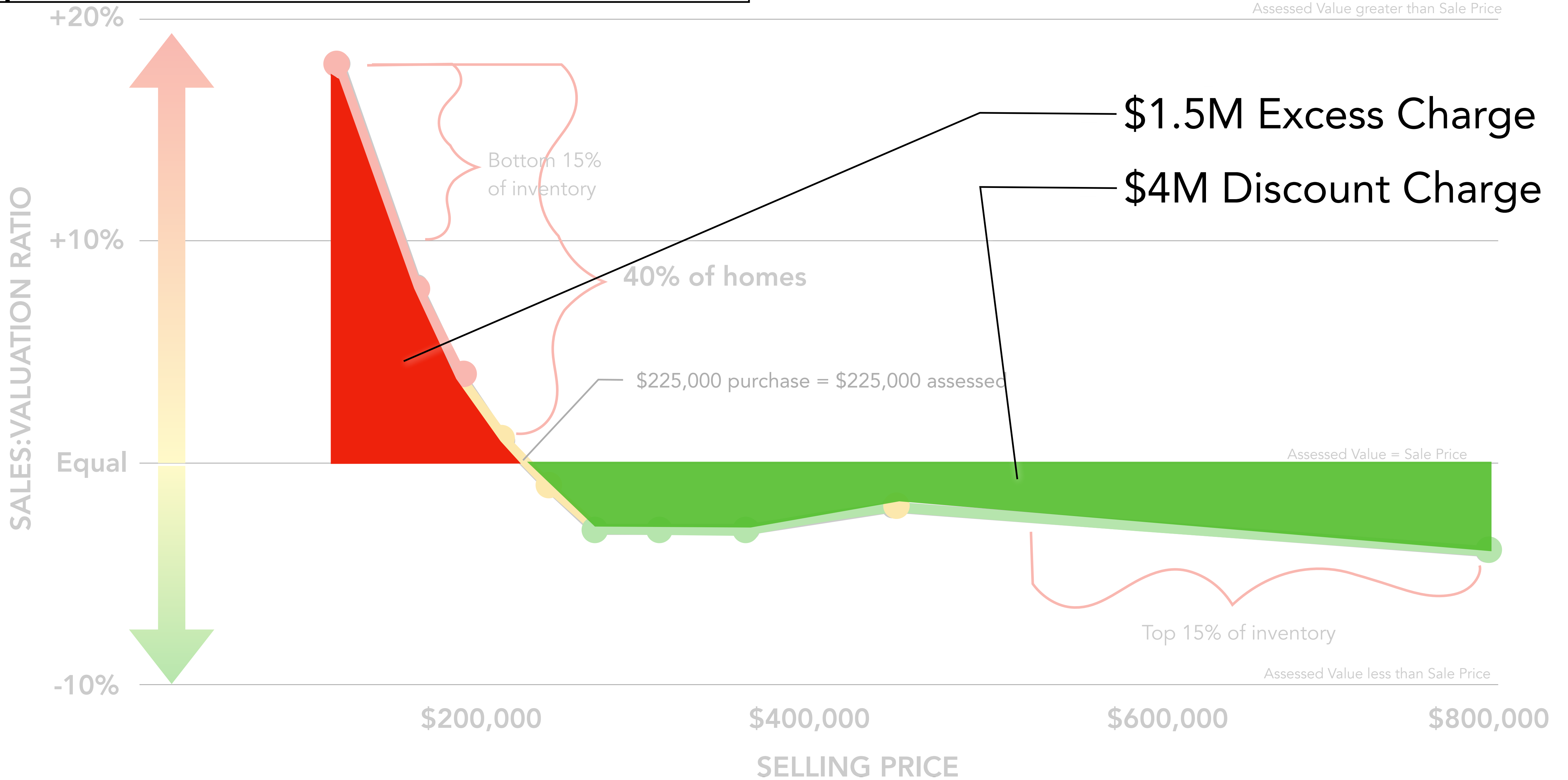
Assessed Value greater than Sale Price



# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC

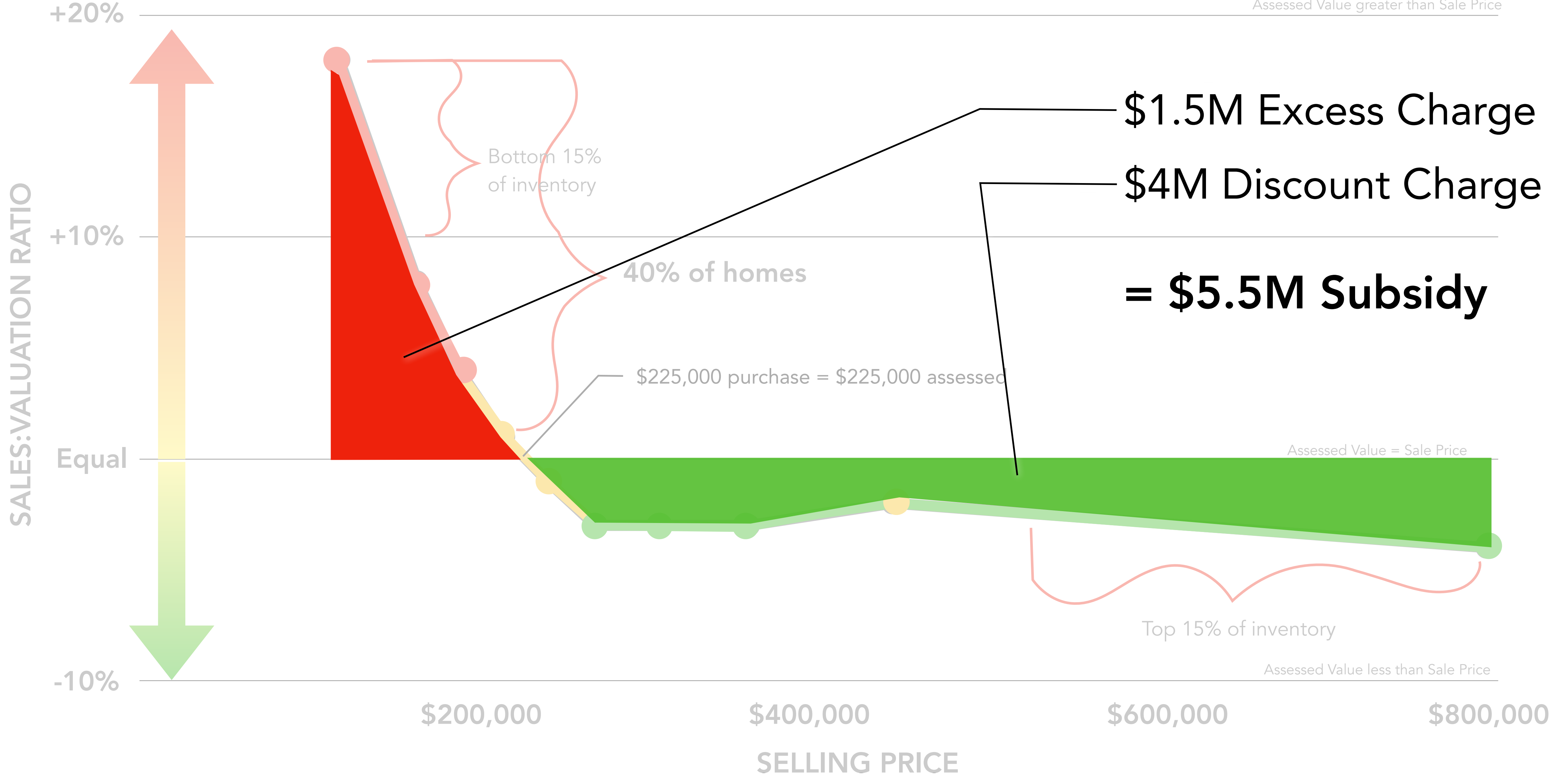
Assessed Value greater than Sale Price



# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC

Assessed Value greater than Sale Price

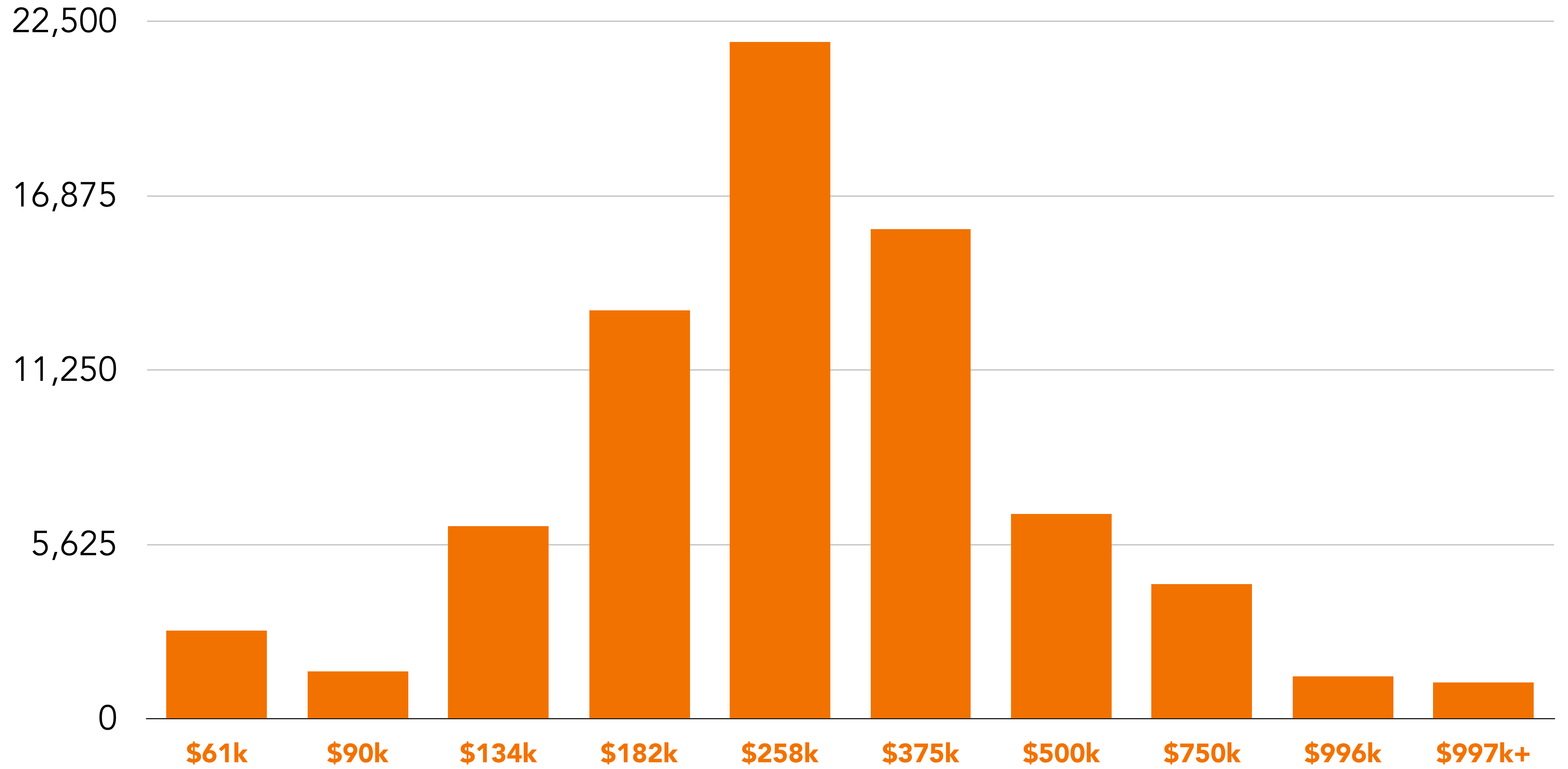


# Home Value Distribution

Buncombe County, NC

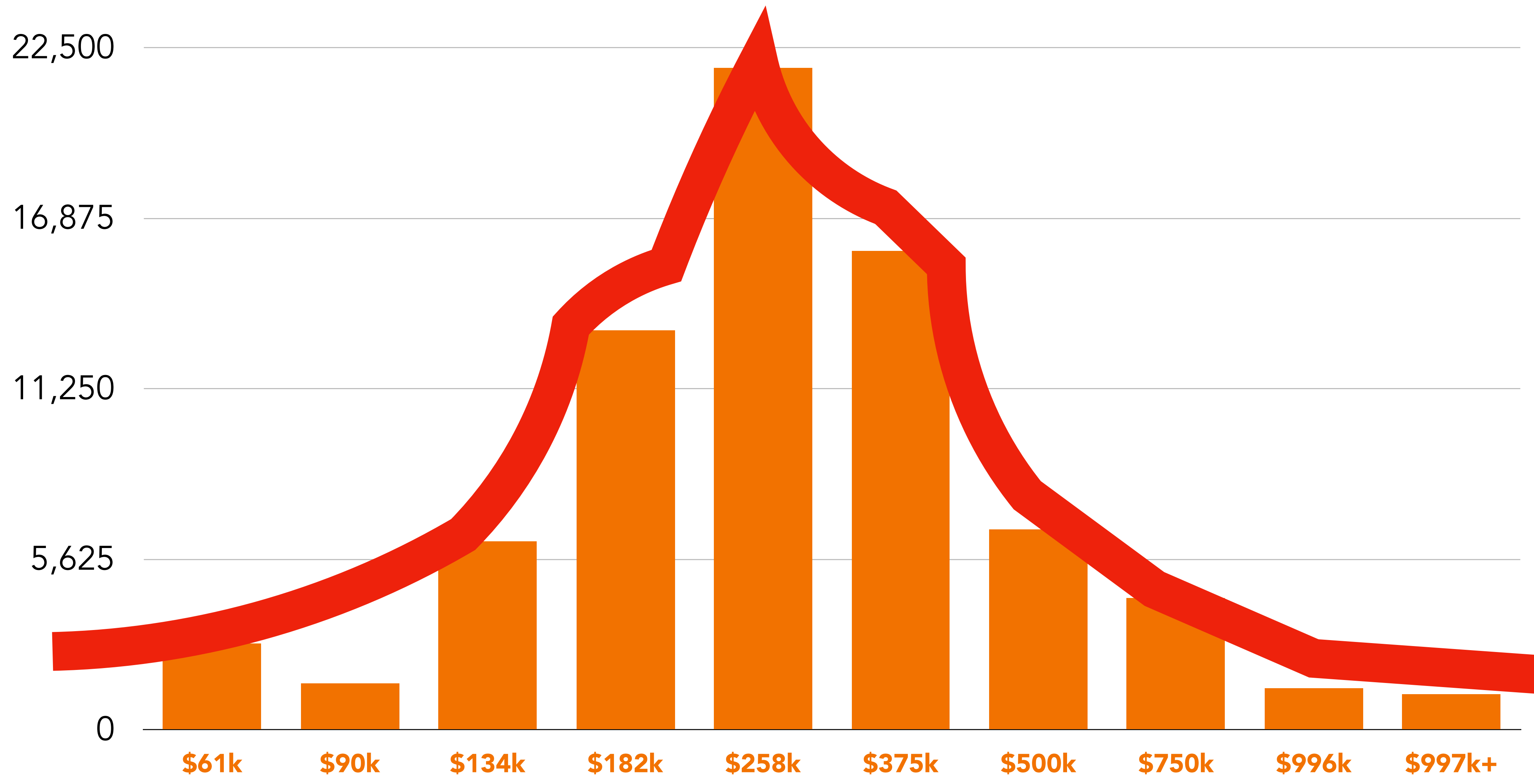


Houses (#)



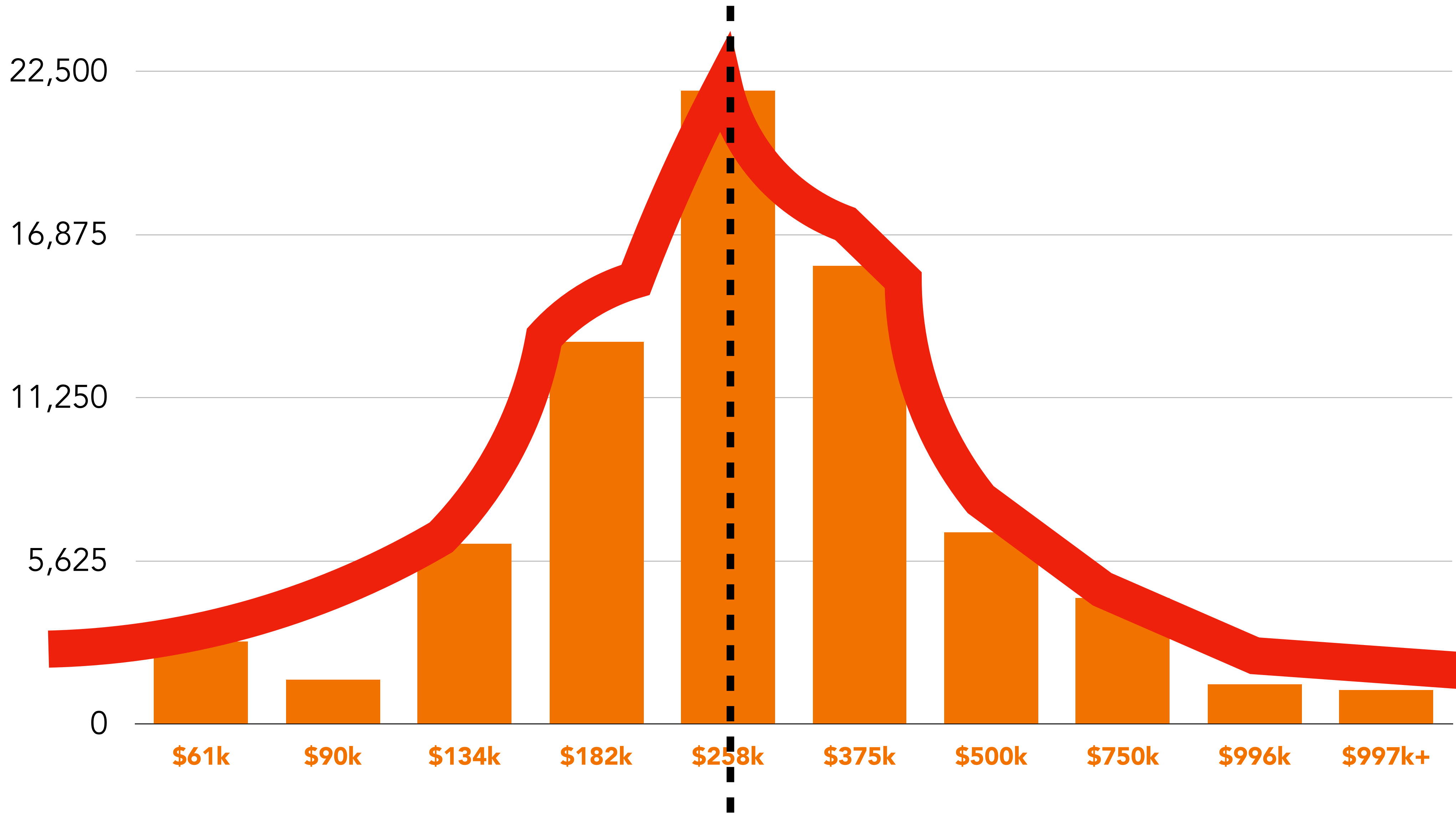
# Home Value Distribution

Buncombe County, NC



# Home Value Distribution

Buncombe County, NC



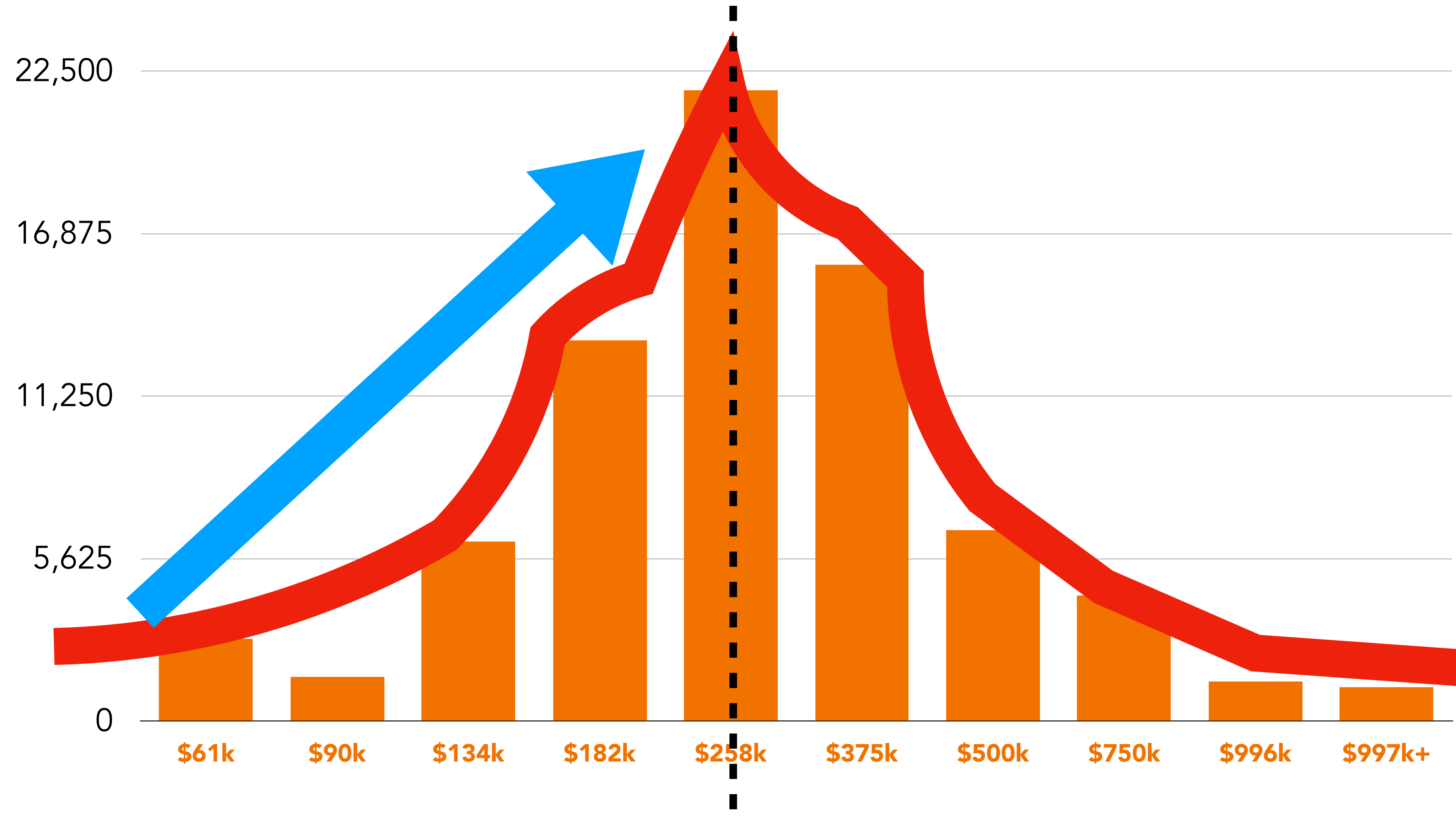


# Home Value Distribution

Buncombe County, NC

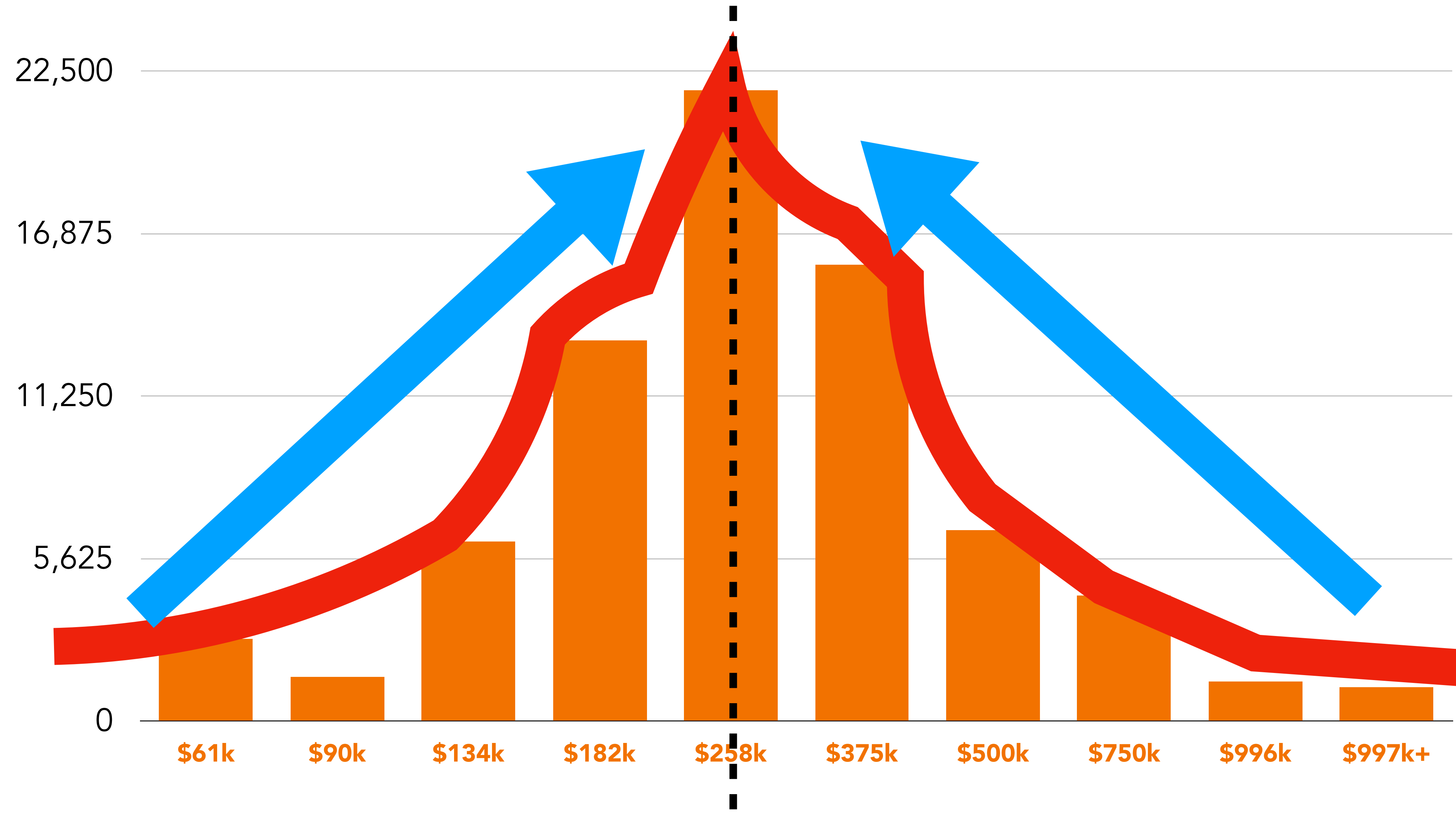


Houses (#)



# Home Value Distribution

Buncombe County, NC



# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC

Assessed Value greater than Sale Price



Assessed Value = Sale Price

Assessed Value less than Sale Price

# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC

Assessed Value greater than Sale Price



Assessed Value = Sale Price

Assessed Value less than Sale Price

# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC

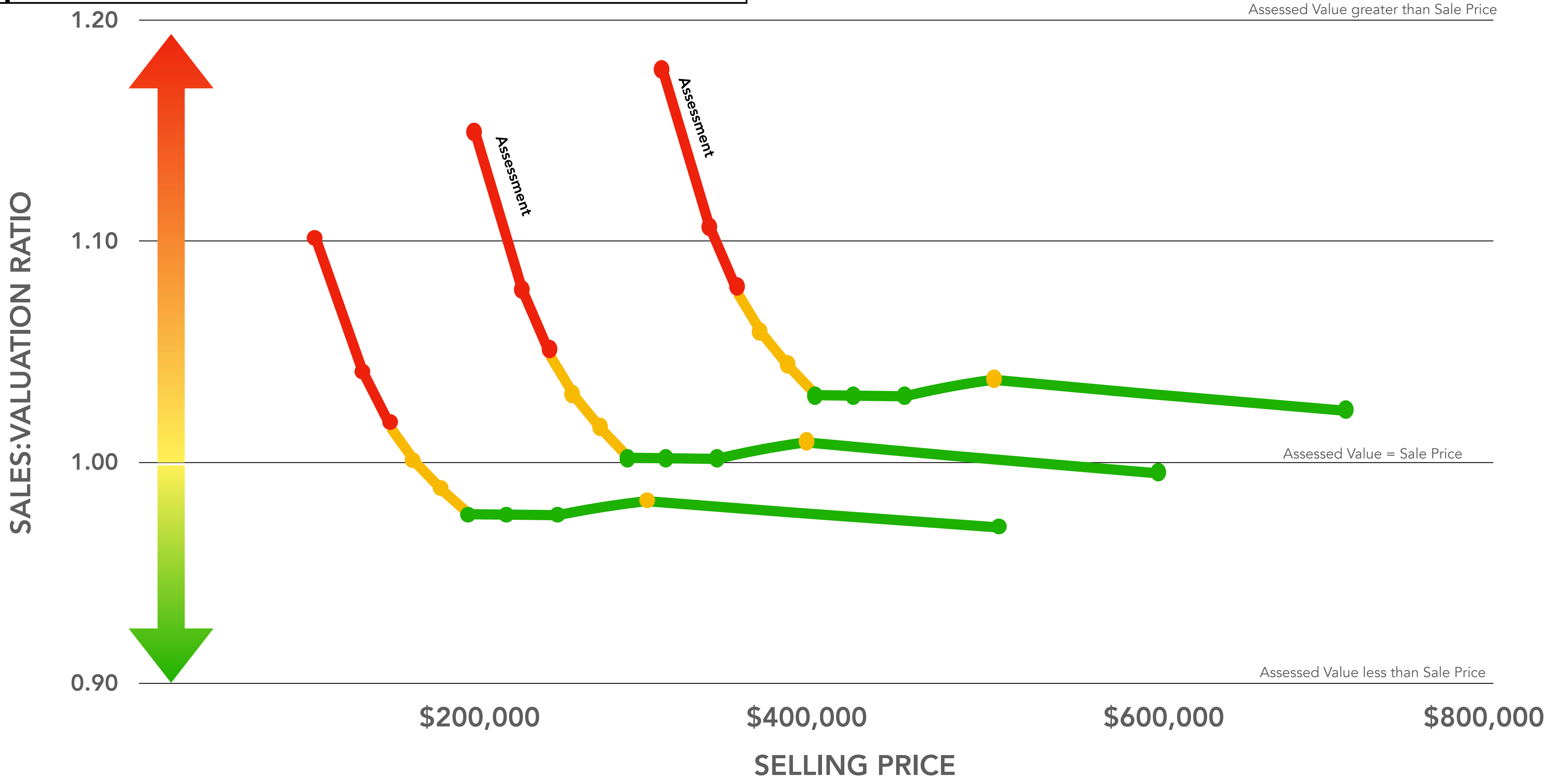
Assessed Value greater than Sale Price



# Ratio Gap of Sales Prices to Assessed Value

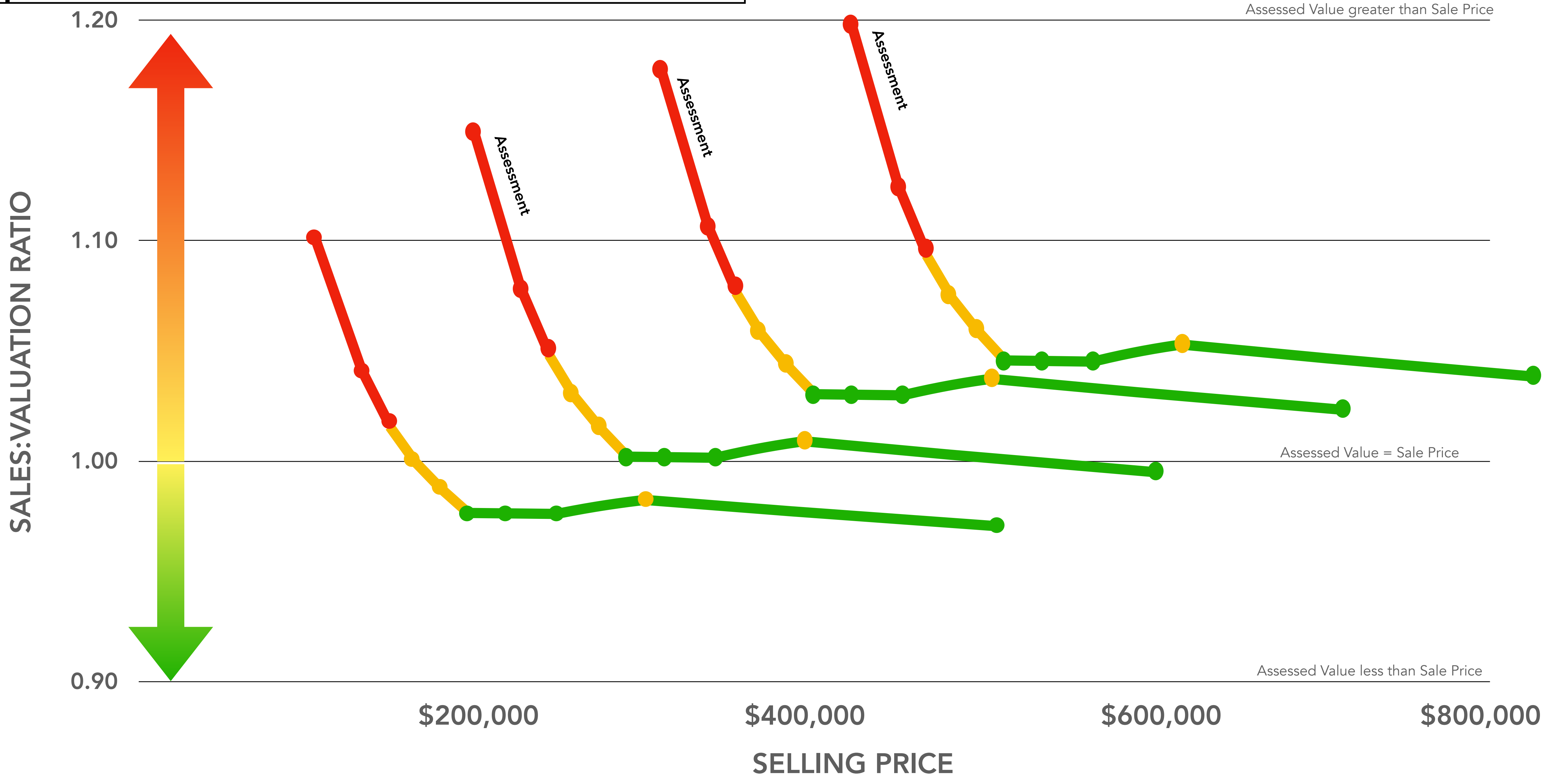
Buncombe County, NC

Assessed Value greater than Sale Price



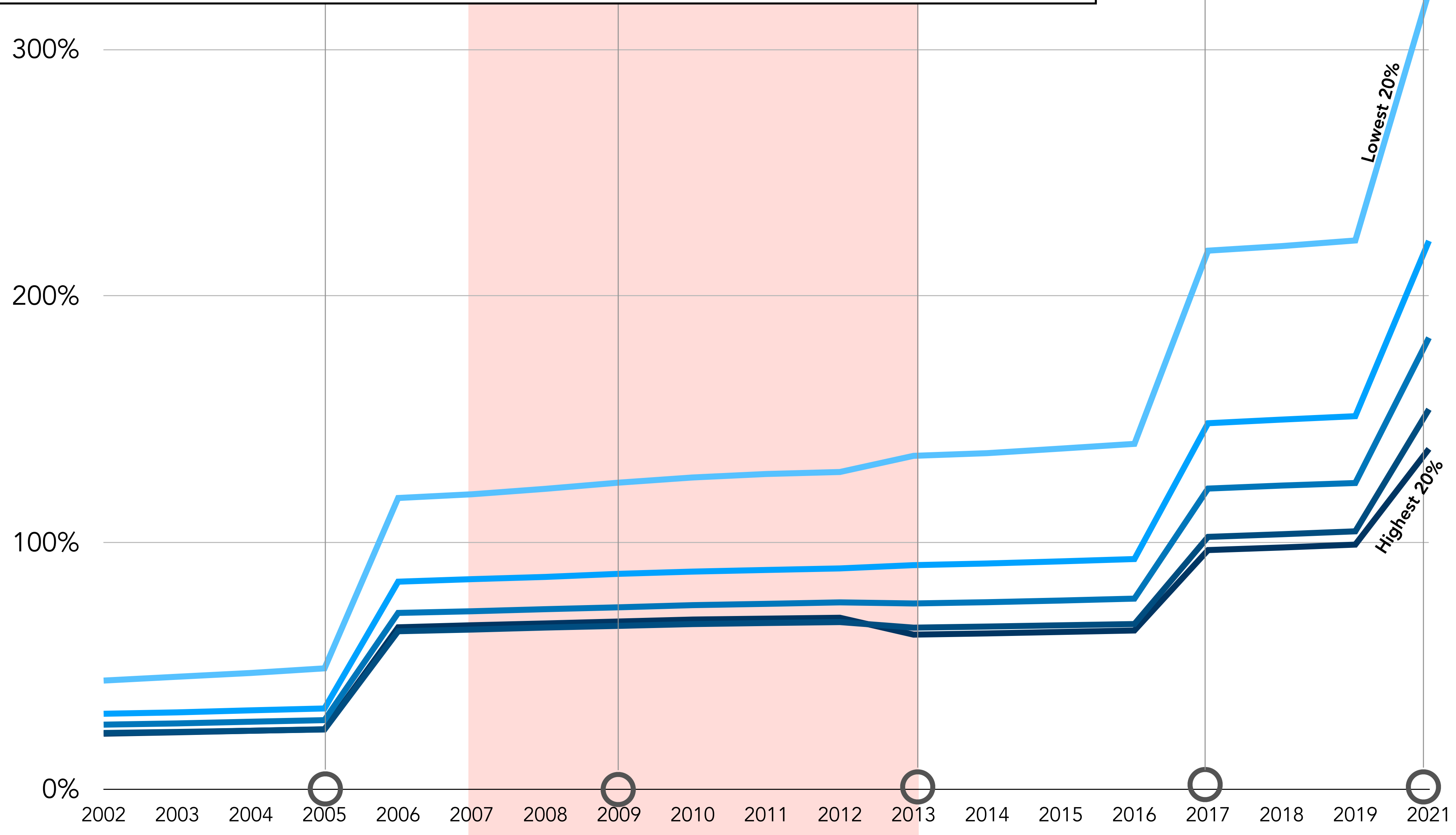
# Ratio Gap of Sales Prices to Assessed Value

Buncombe County, NC



# Average %Change in Taxable Value by Housing Quintile

Buncombe County, NC



Lowest valued homes have seen a **+323%** increase in value over the last 20 years

Highest valued homes have only increased by **138%**

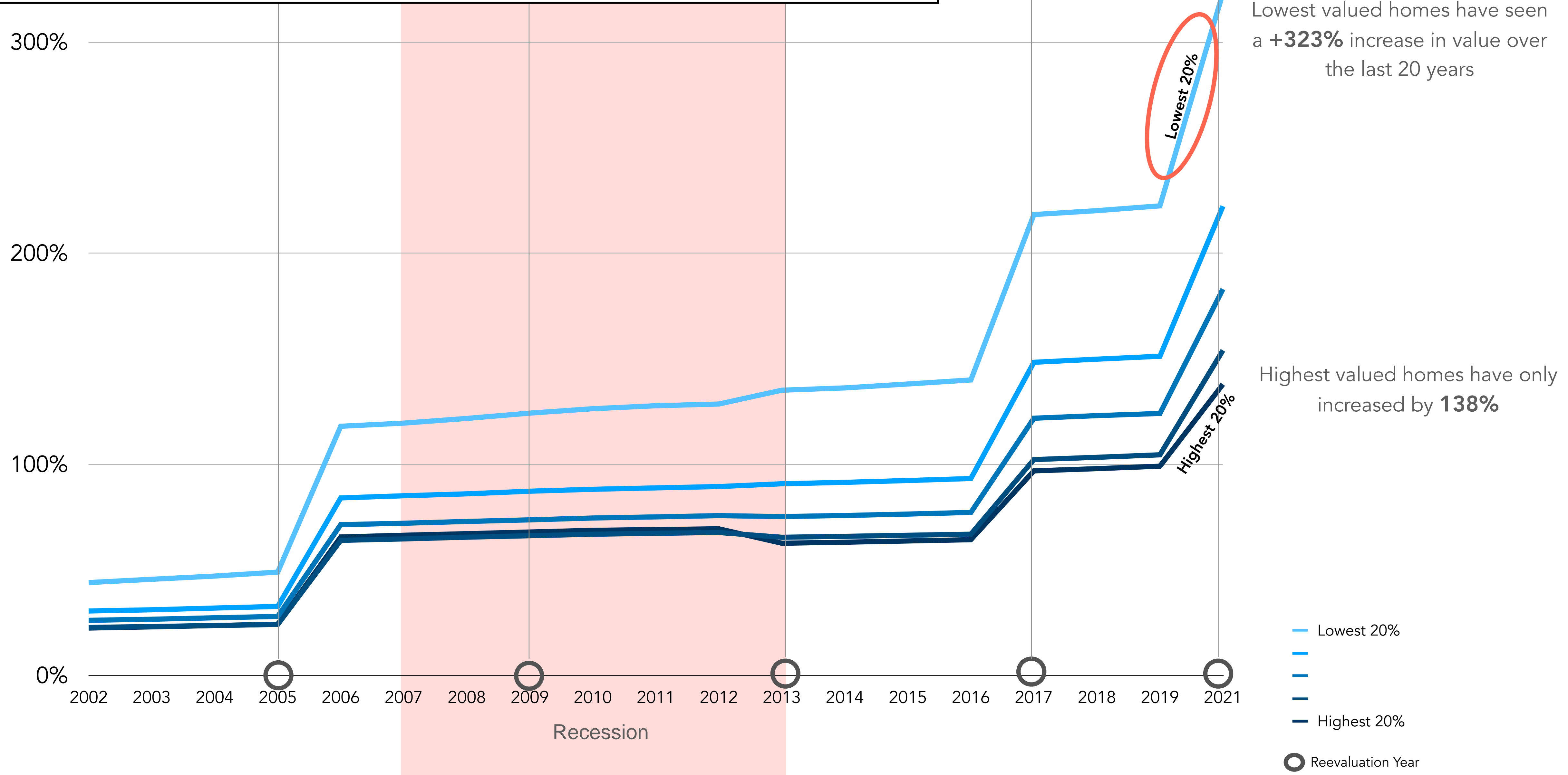
- Lowest 20%
- Quintile 2
- Quintile 3
- Quintile 4
- Highest 20%
- Reevaluation Year

Recession



# Average %Change in Taxable Value by Housing Quintile

Buncombe County, NC



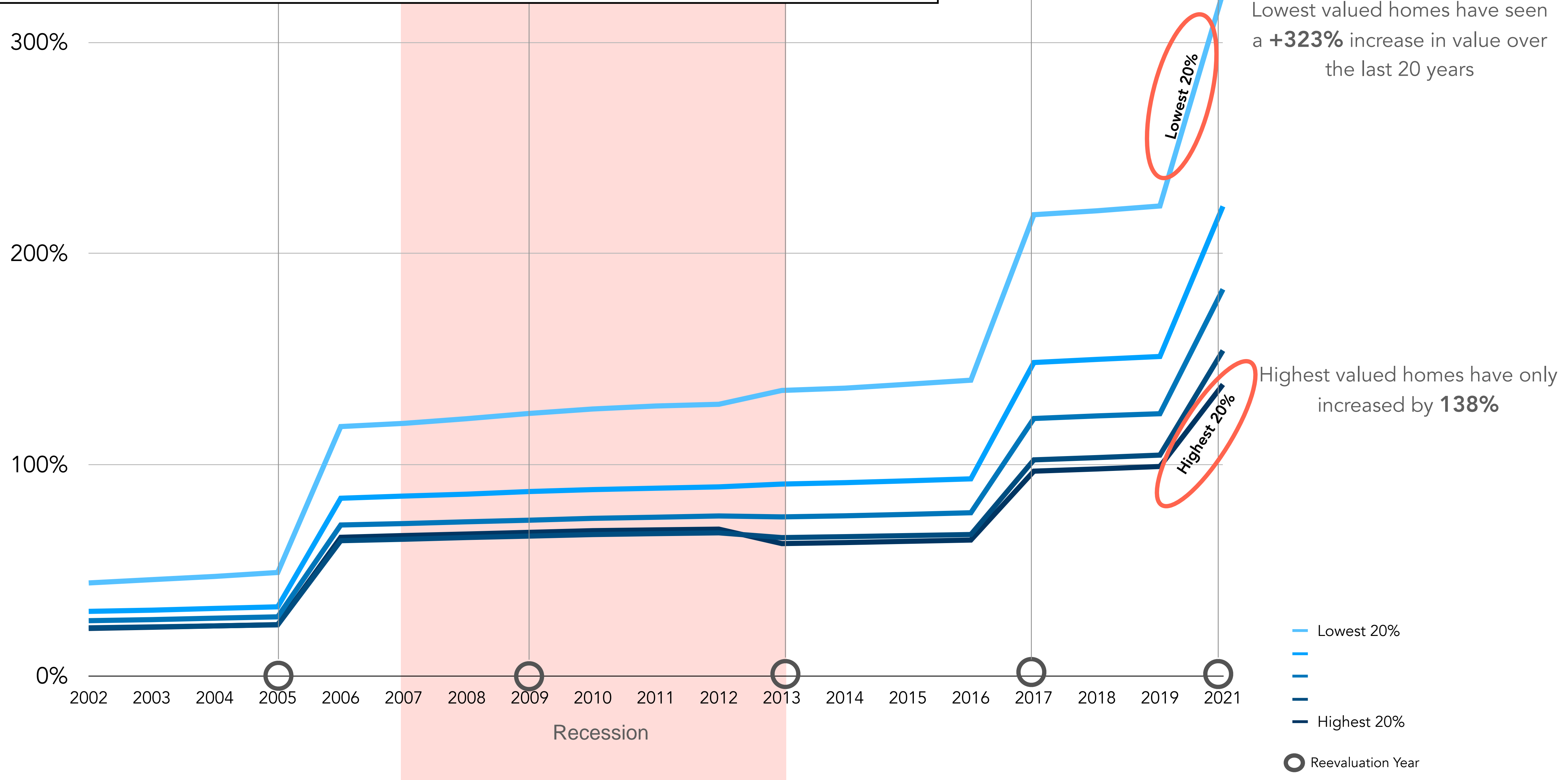
Lowest valued homes have seen a **+323%** increase in value over the last 20 years

Highest valued homes have only increased by **138%**

- Lowest 20%
- Quintile 2
- Quintile 3
- Quintile 4
- Highest 20%
- Reevaluation Year

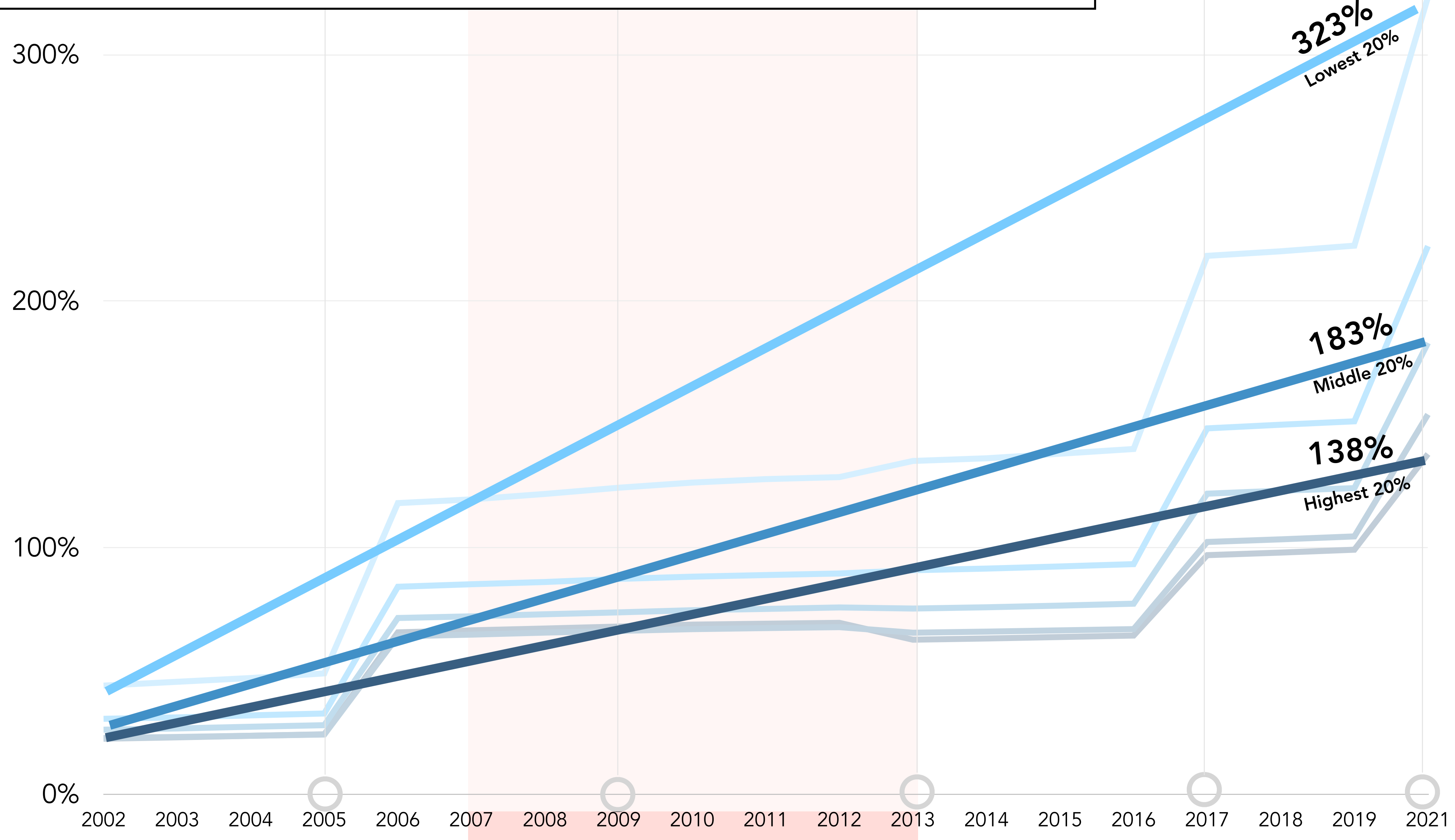
# Average %Change in Taxable Value by Housing Quintile

Buncombe County, NC



# Average %Change in Taxable Value by Housing Quintile

Buncombe County, NC



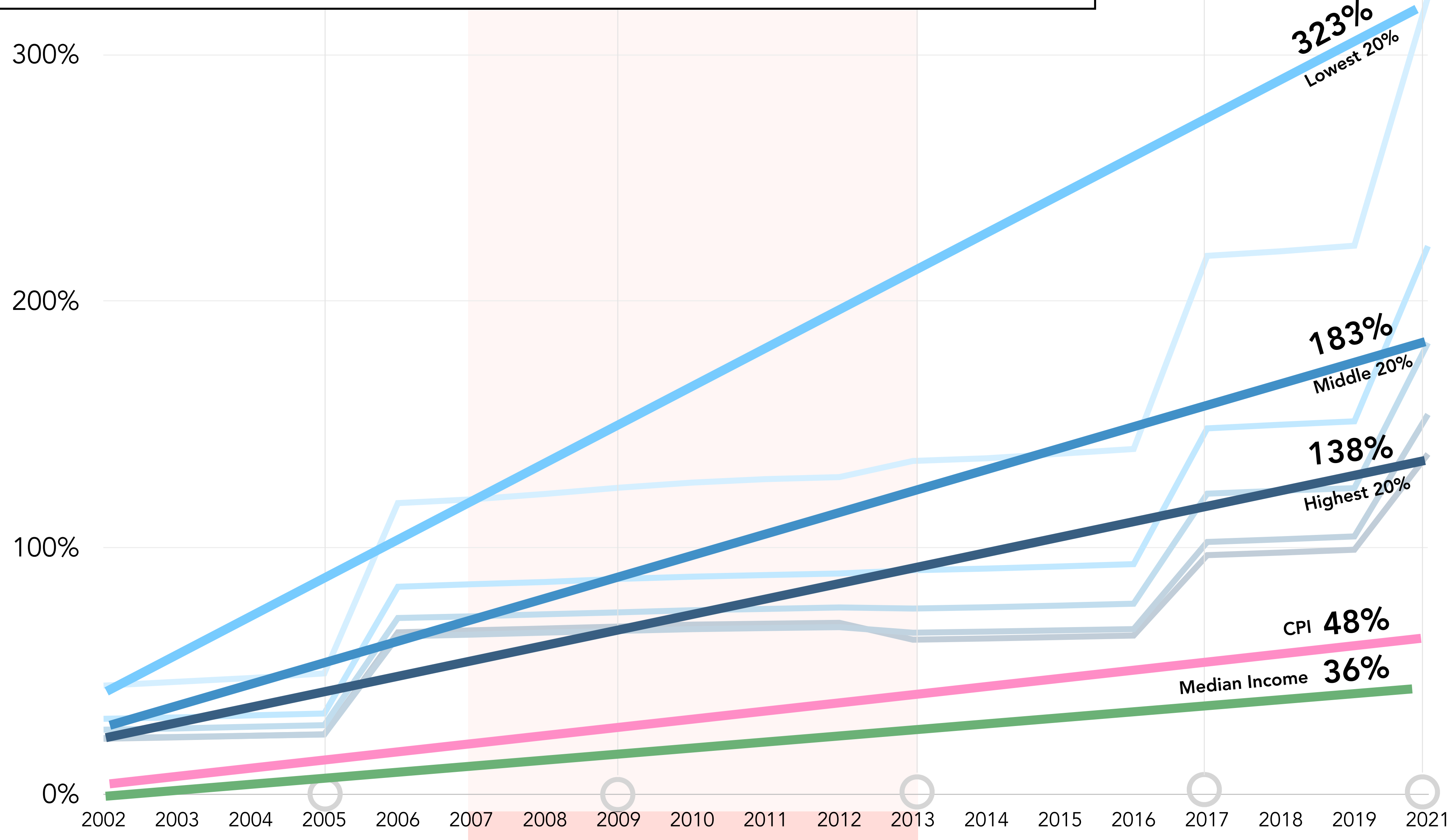
Lowest valued homes have seen a **+323%** increase in value over the last 20 years

Highest valued homes have only increased by **138%**

- Lowest 20%
- Middle 20%
- Highest 20%
- Reevaluation Year

# Average %Change in Taxable Value by Housing Quintile

Buncombe County, NC



Lowest valued homes have seen a **+323%** increase in value over the last 20 years

Highest valued homes have only increased by **138%**

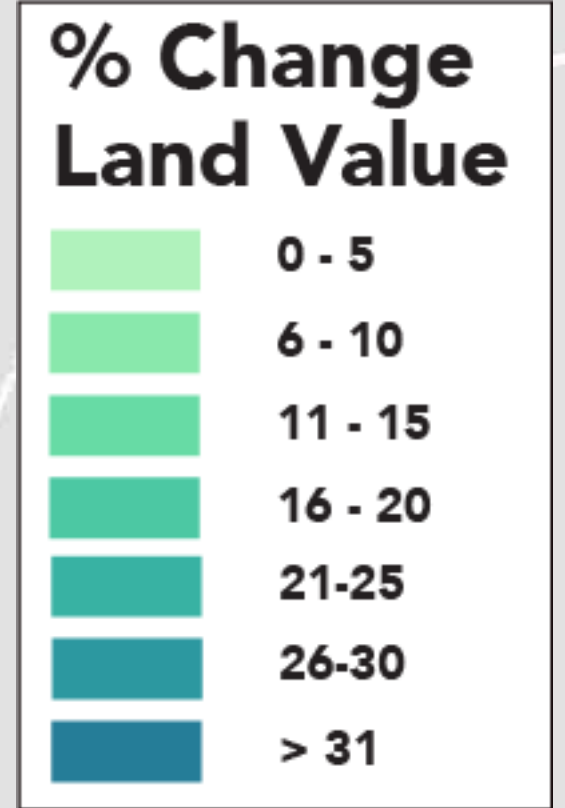
- Lowest 20%
- Middle 20%
- Highest 20%
- Reevaluation Year

Recession

Single family residential parcels within the same neighborhood demonstrate similar increases in land value, but disparities can be seen side-by-side communities.

# Land Value Change

Single Family Residential (2020-2021)

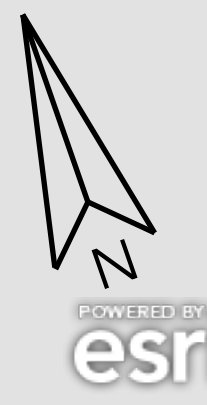


Biltmore Lake

Biltmore Forest

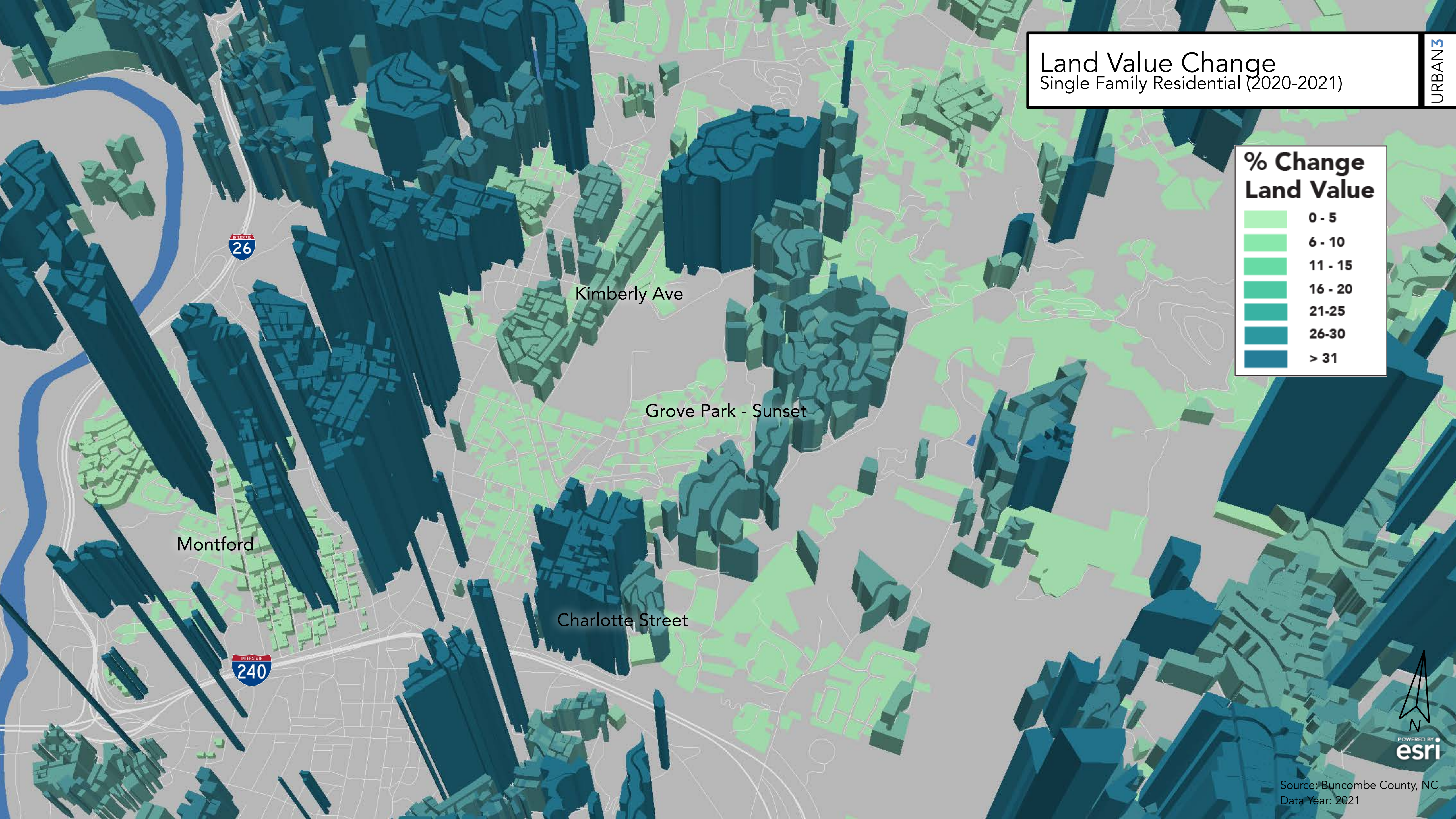
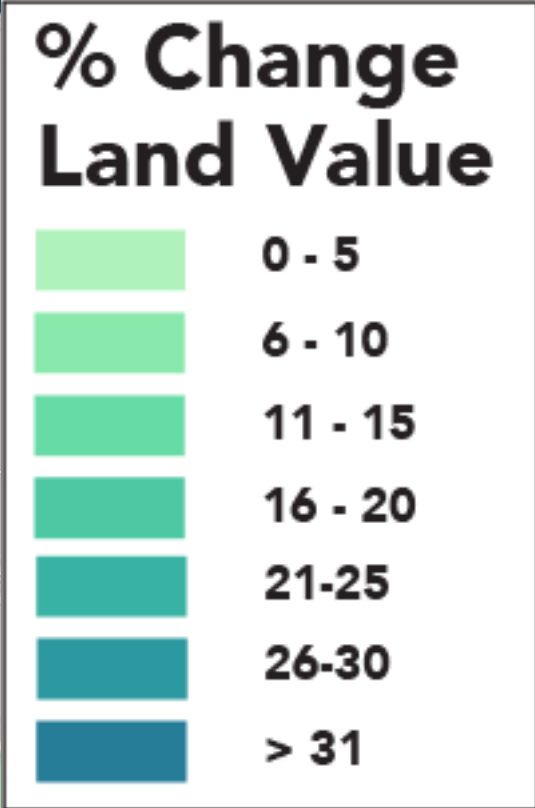
Biltmore Park

Black Mountain



# Land Value Change

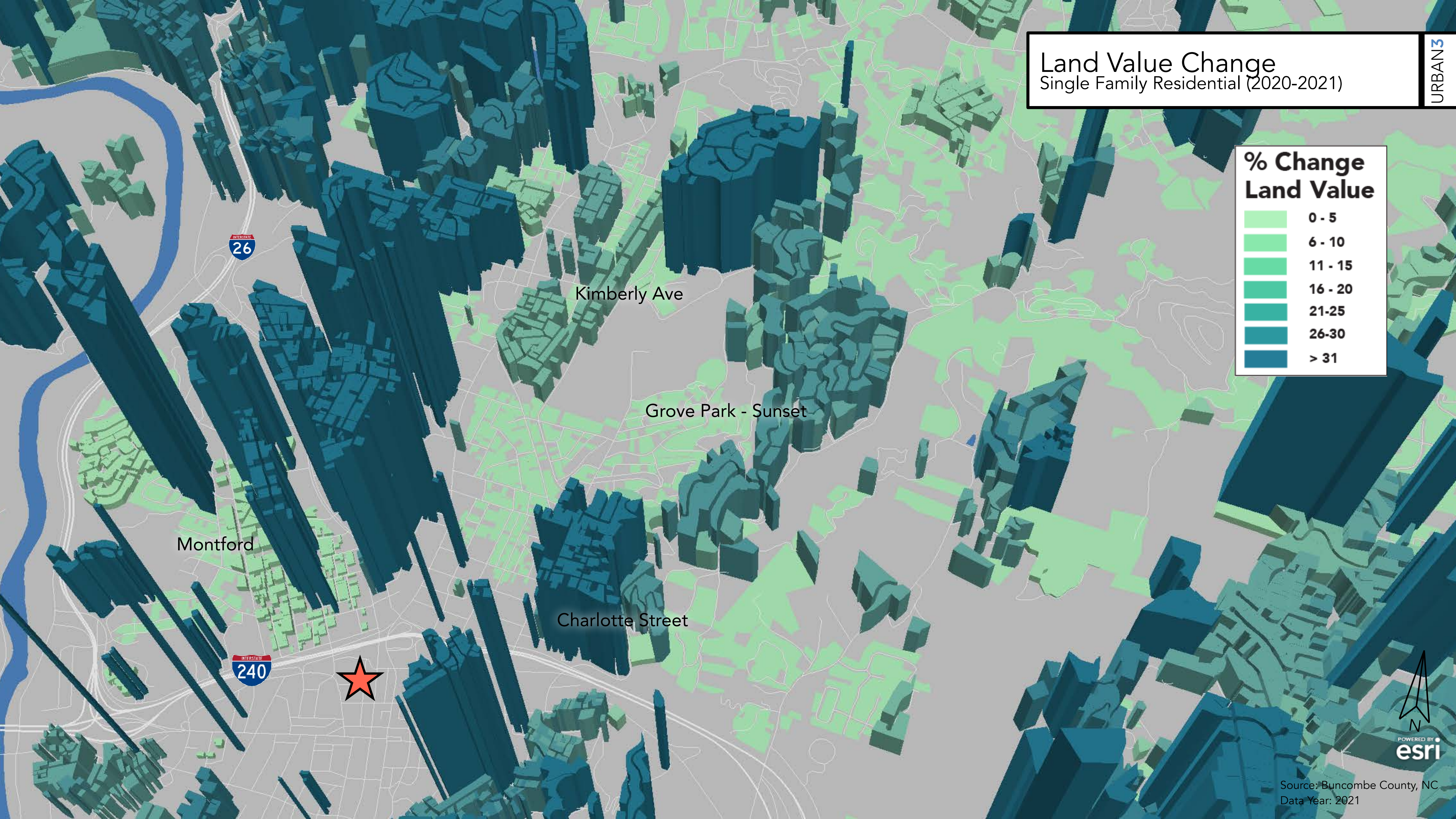
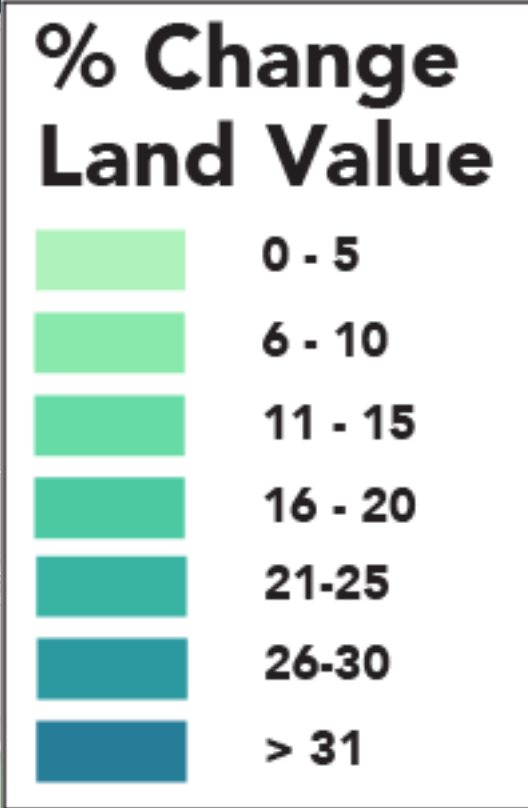
Single Family Residential (2020-2021)



Source: Buncombe County, NC  
Data Year: 2021

# Land Value Change

Single Family Residential (2020-2021)



Kimberly Ave

Grove Park - Sunset

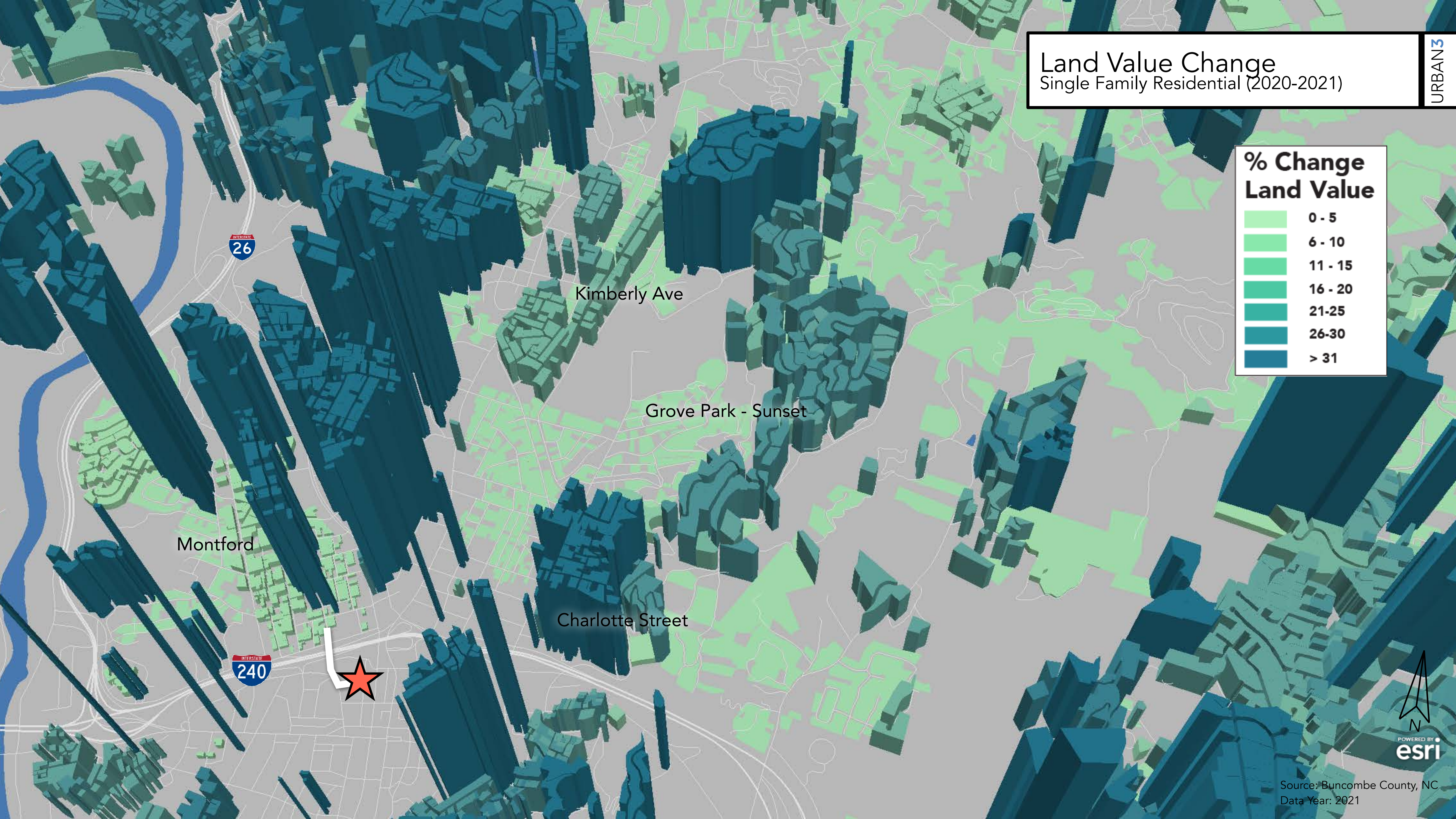
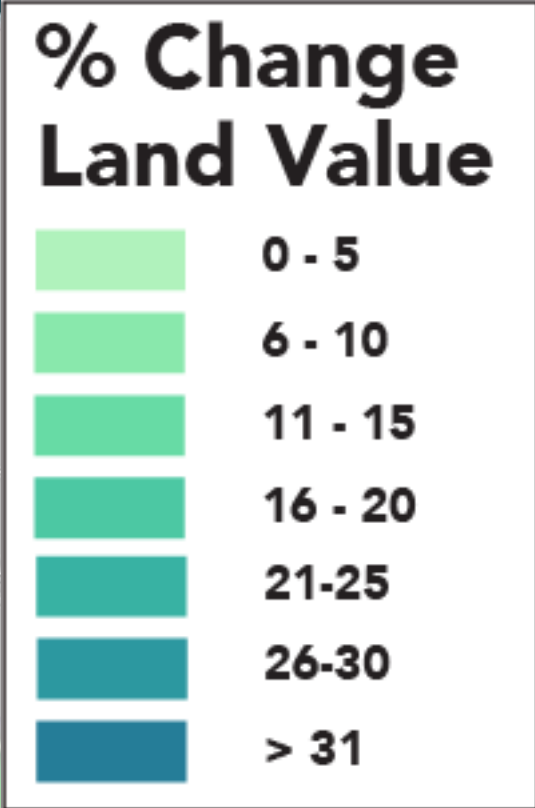
Montford

Charlotte Street



# Land Value Change

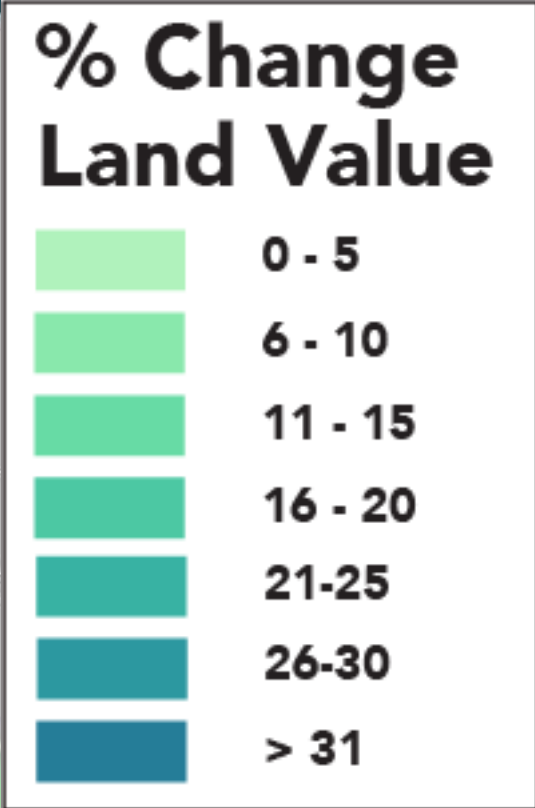
Single Family Residential (2020-2021)





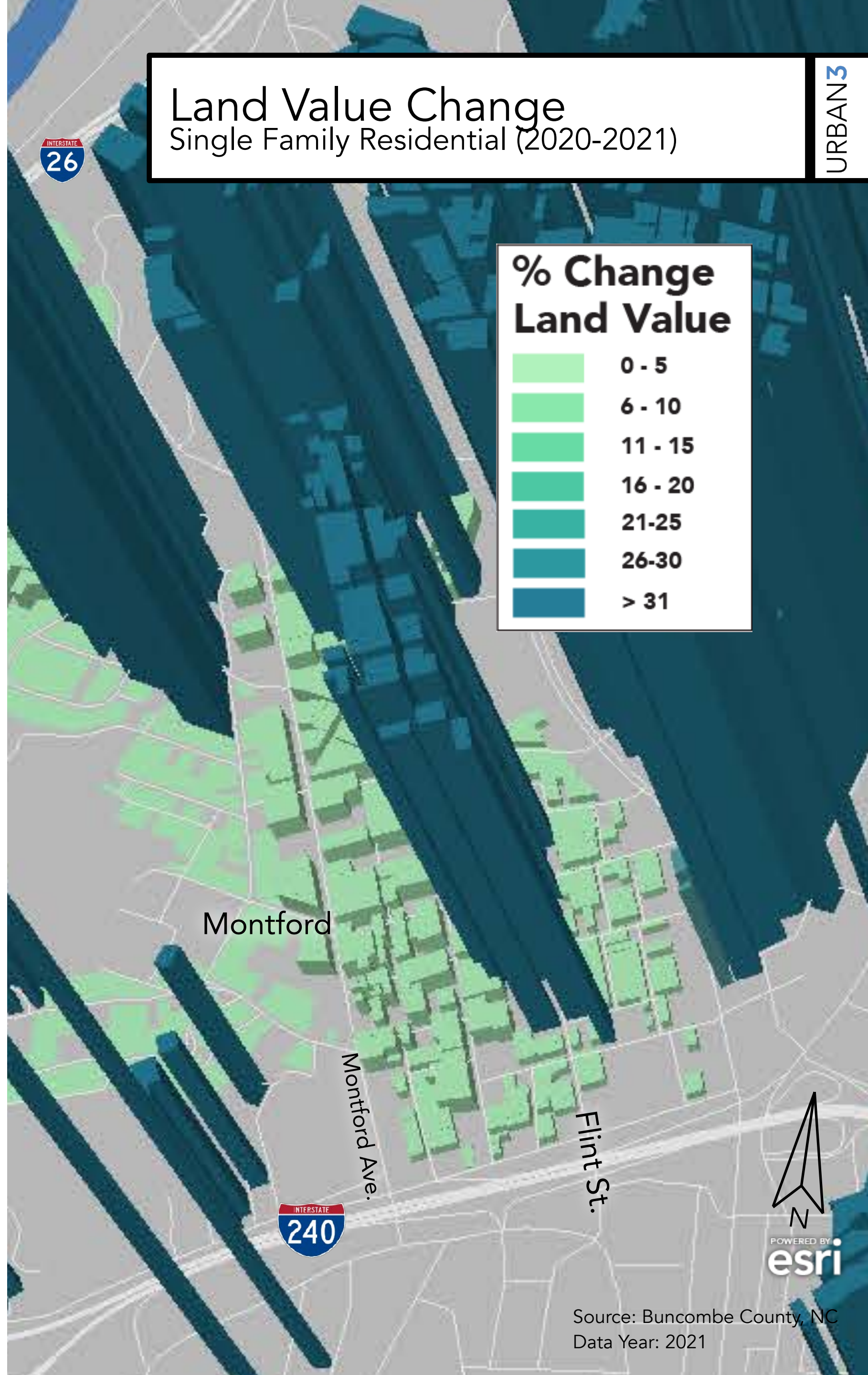
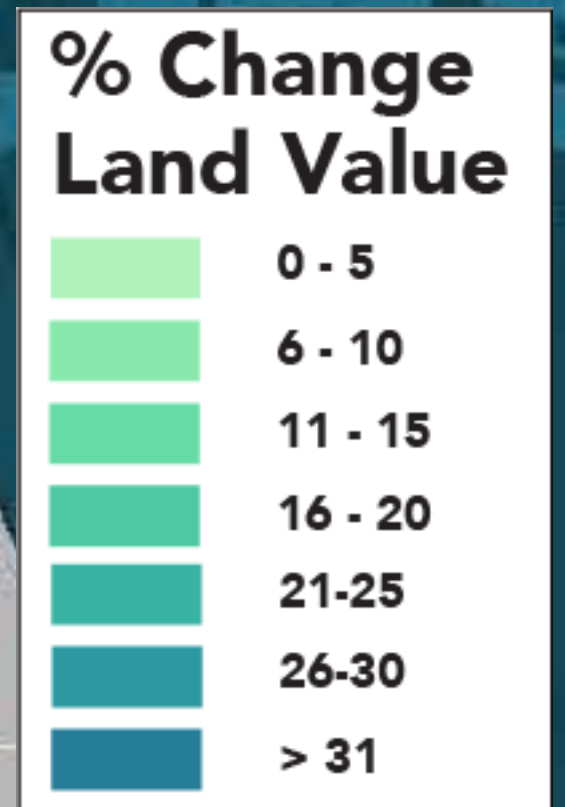
# Land Value Change

Single Family Residential (2020-2021)



# Land Value Change

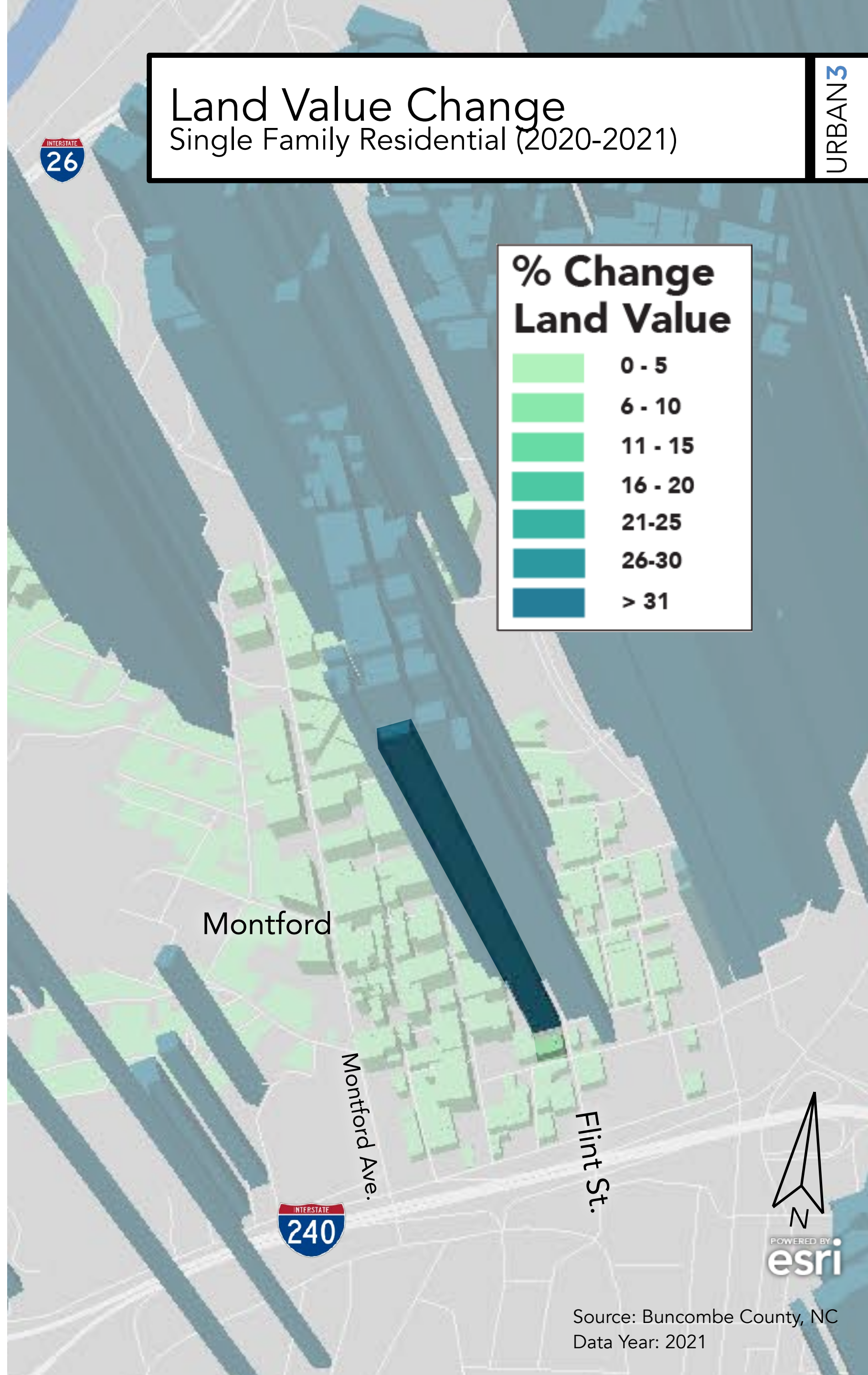
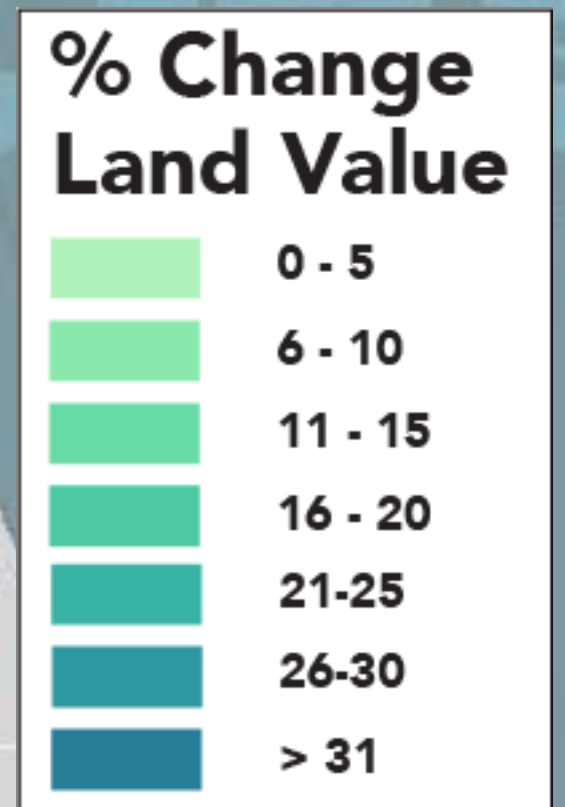
Single Family Residential (2020-2021)



Source: Buncombe County, NC  
Data Year: 2021

# Land Value Change

Single Family Residential (2020-2021)



Montford

Montford Ave.

Flint St.

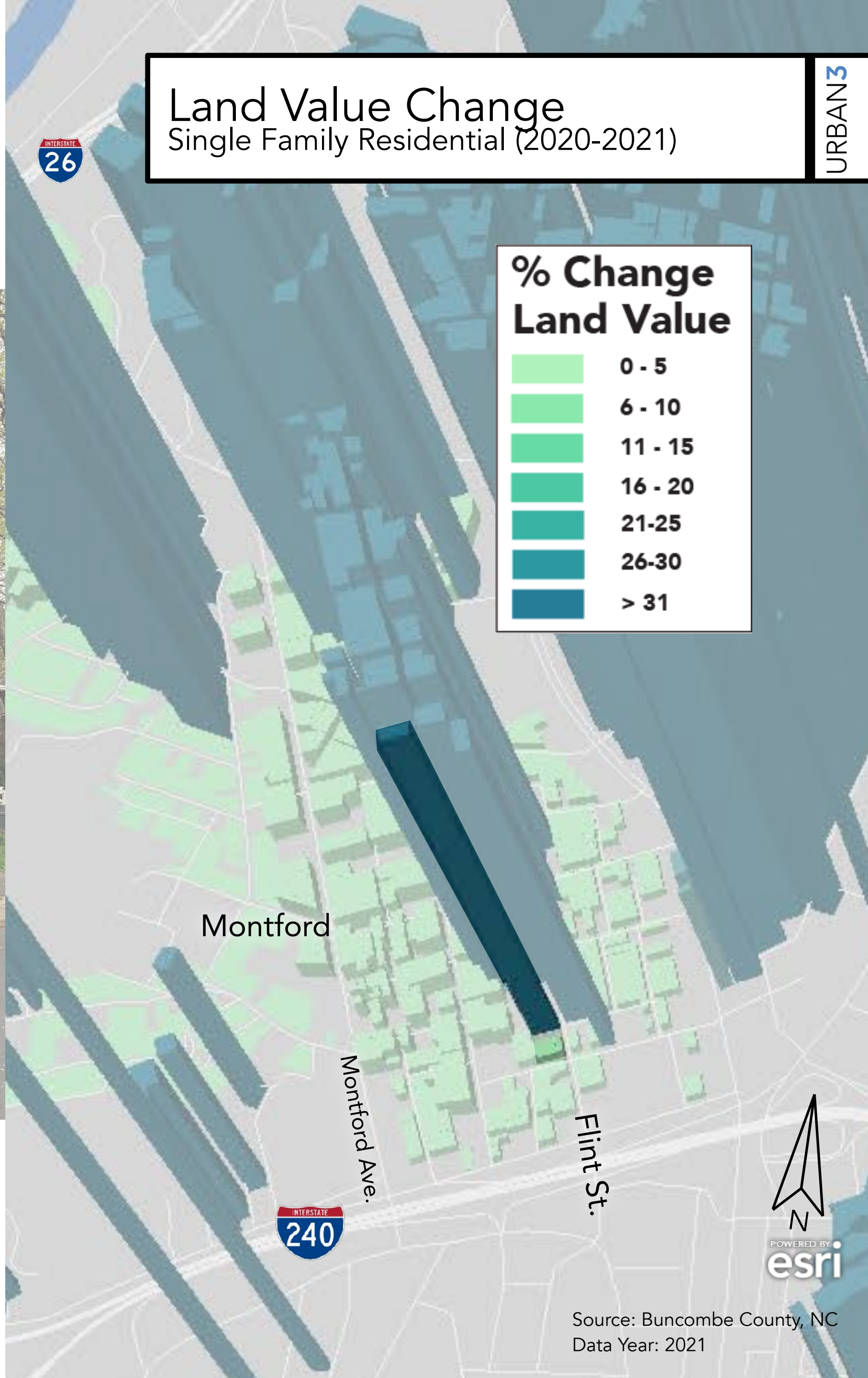


Source: Buncombe County, NC  
Data Year: 2021



96 Flint St.

98 Flint St.





96 Flint St.

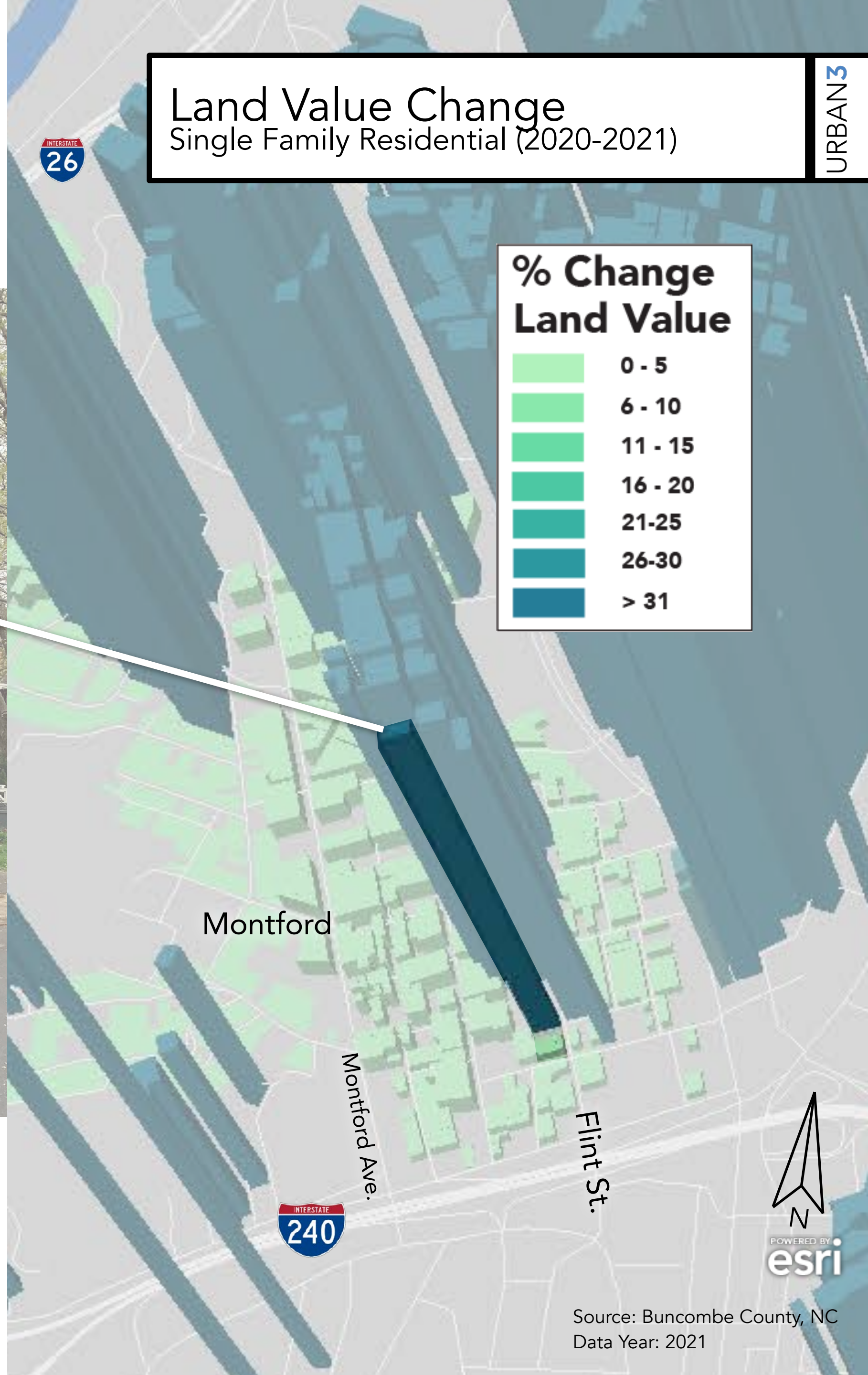
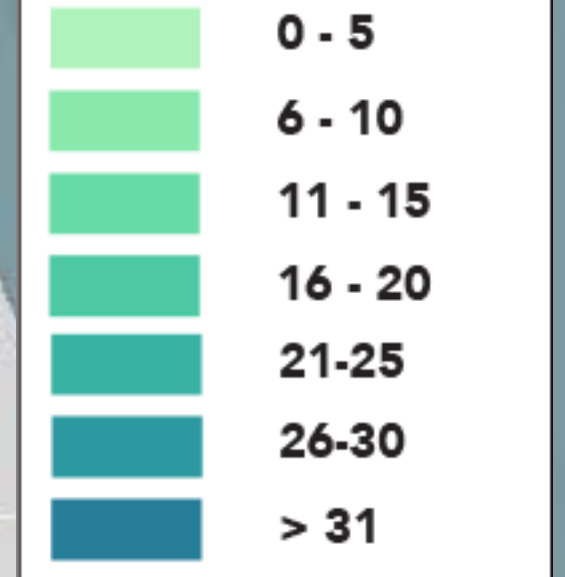
98 Flint St.

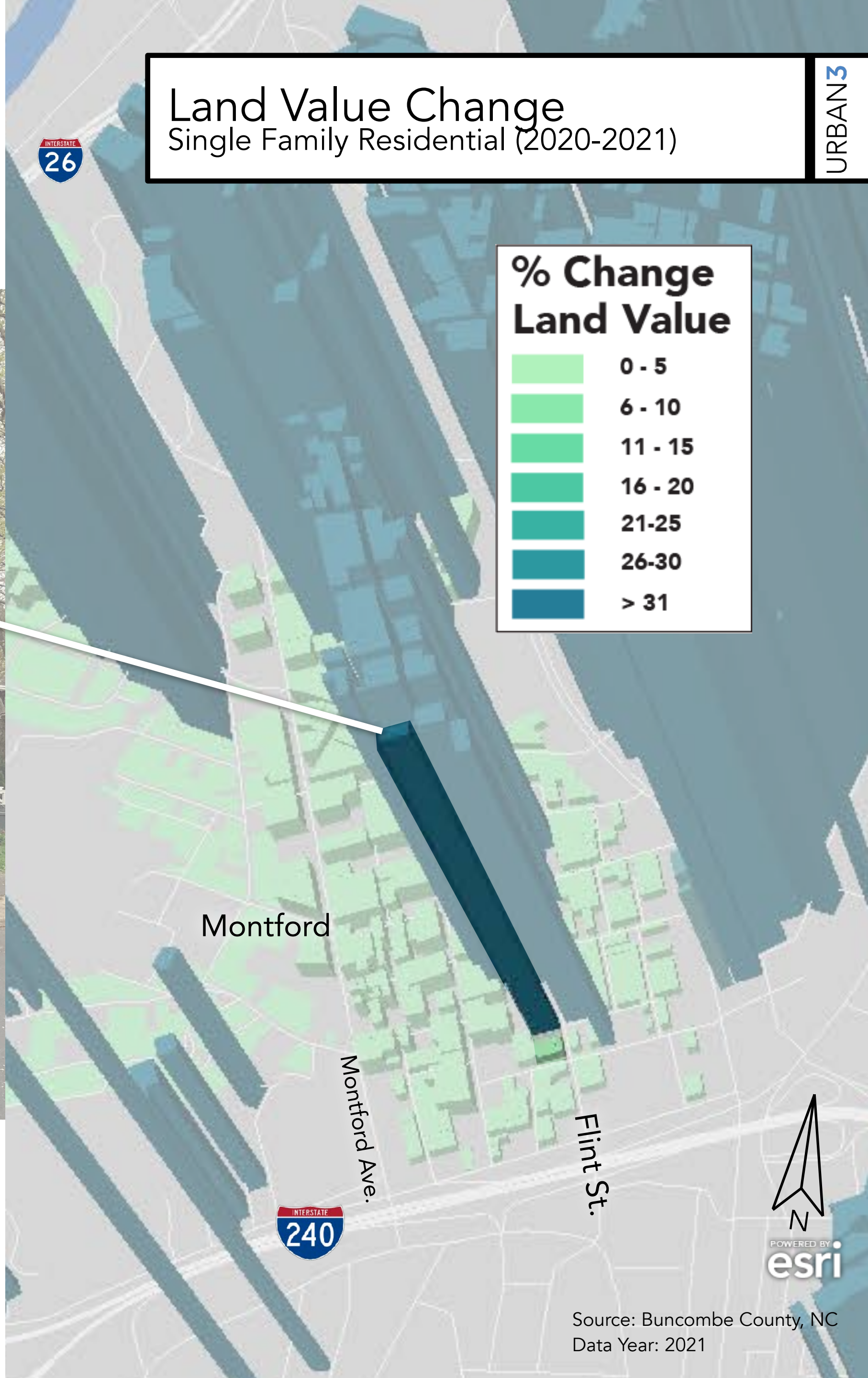
# Land Value Change

Single Family Residential (2020-2021)

URBAN3

## % Change Land Value







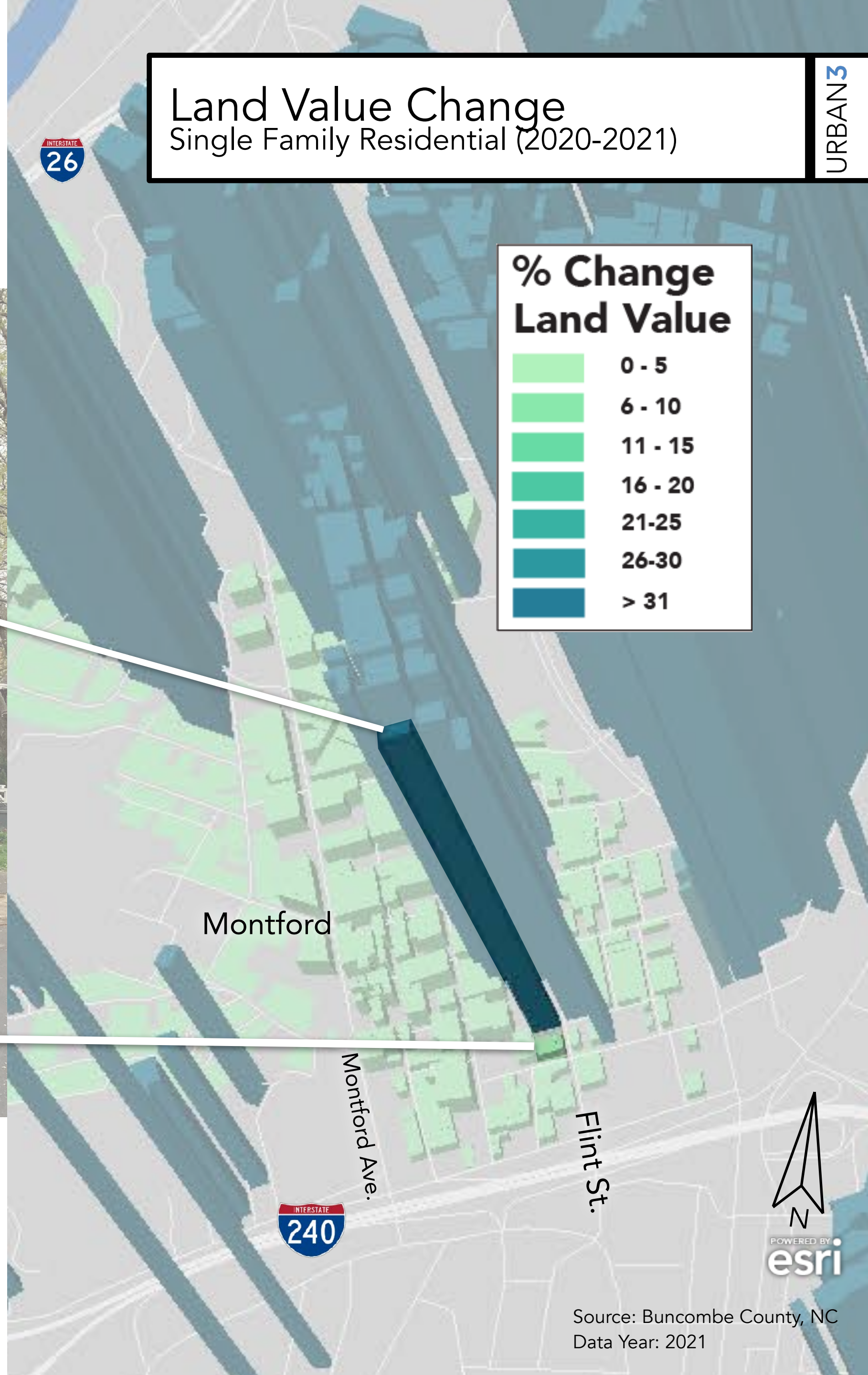
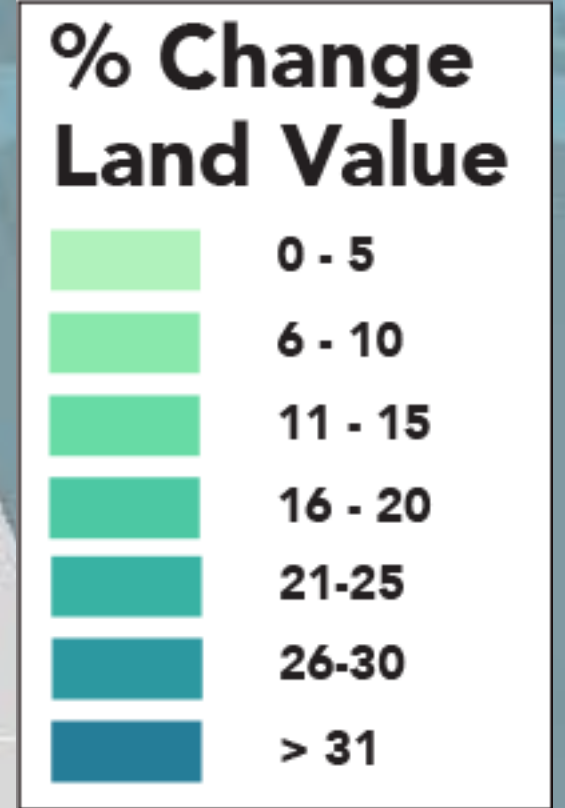
96 Flint St.

98 Flint St.

# Land Value Change

Single Family Residential (2020-2021)

URBAN3



Montford

Montford Ave.

Flint St.



Source: Buncombe County, NC  
Data Year: 2021



96 Flint St.

98 Flint St.

**102% increase**

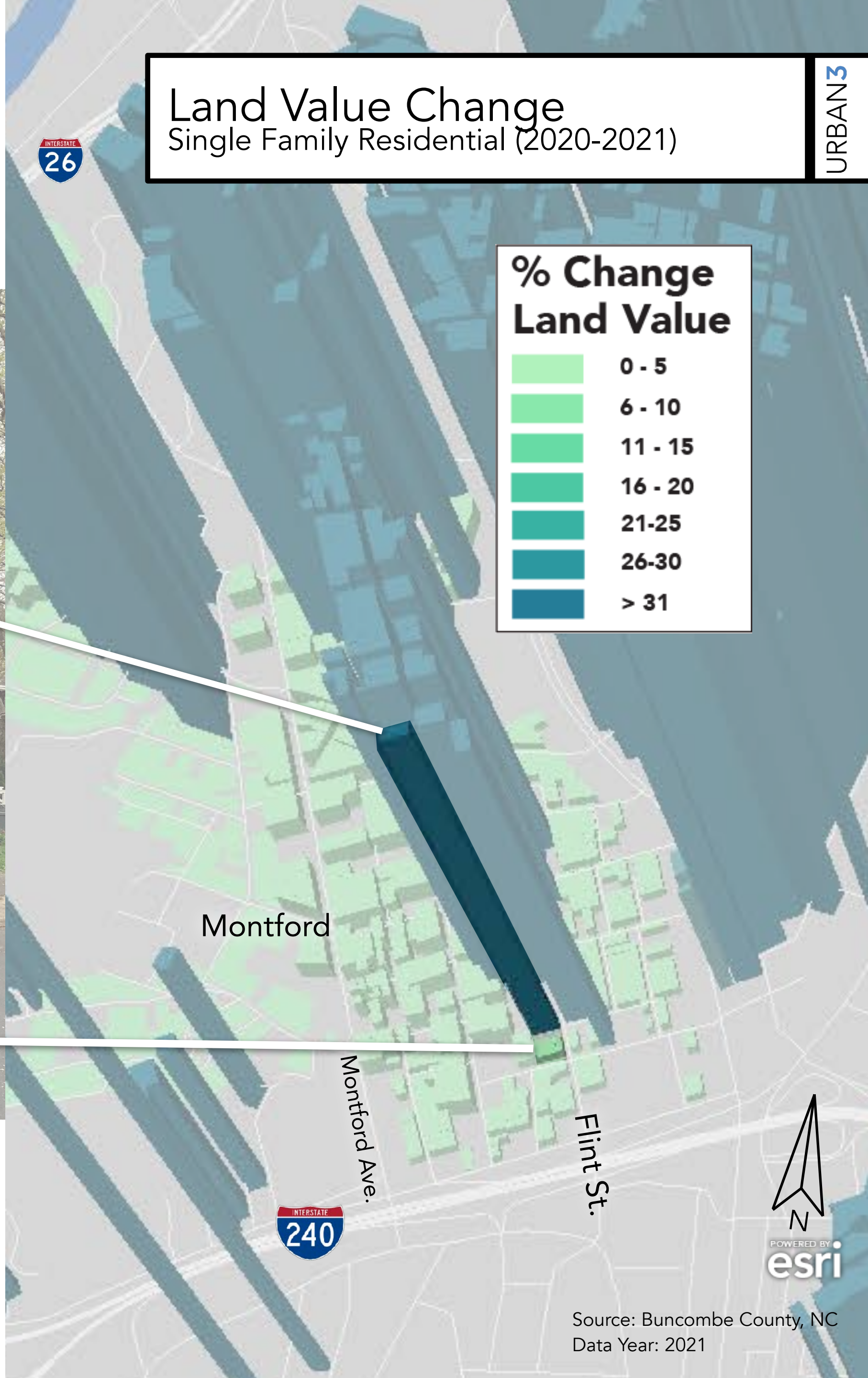
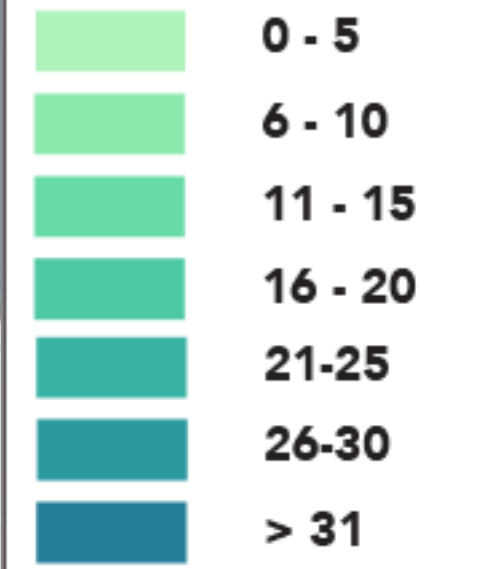
**316% increase**

# Land Value Change

Single Family Residential (2020-2021)

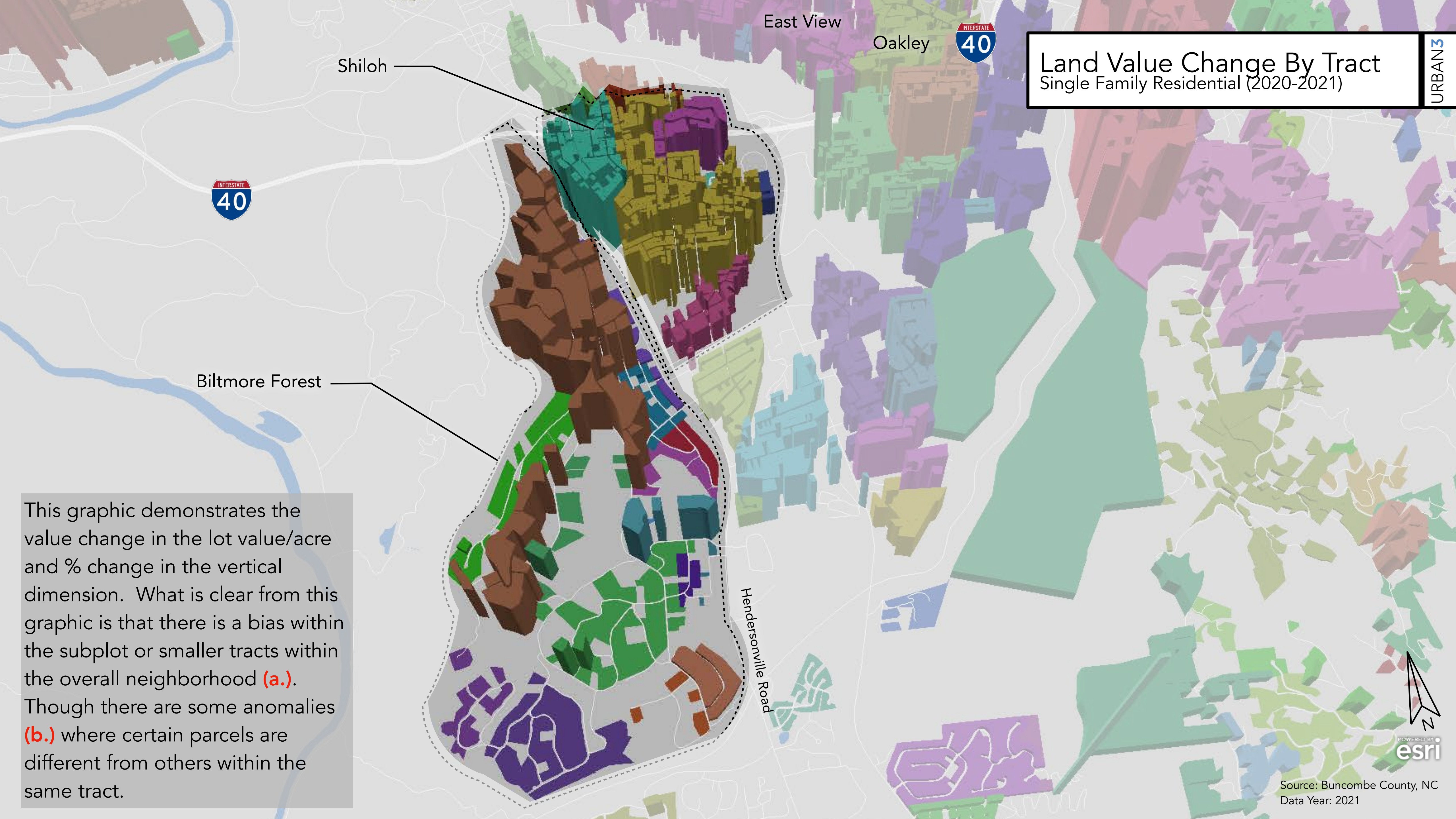
URBAN3

## % Change Land Value



Source: Buncombe County, NC  
Data Year: 2021



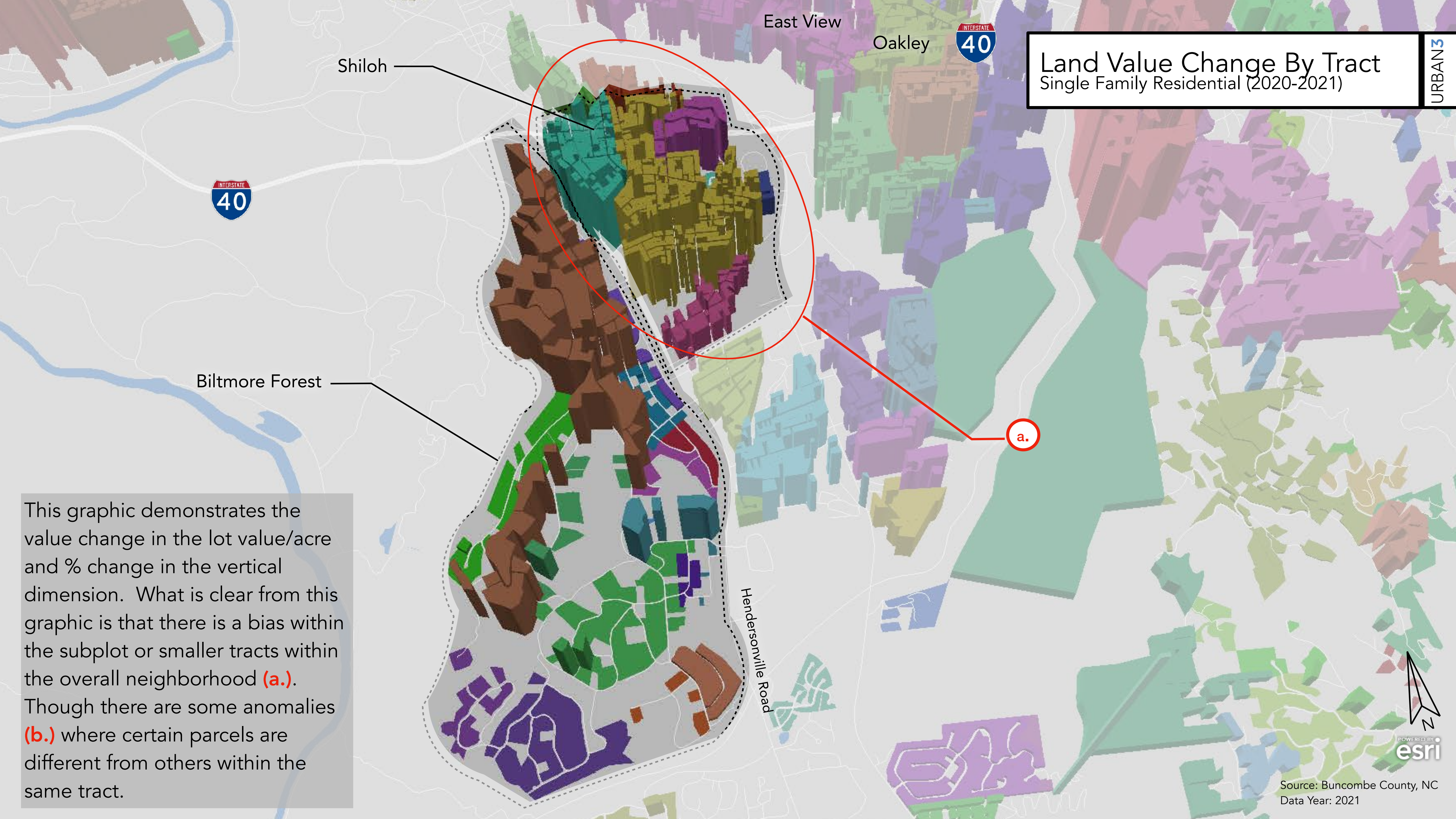


# Land Value Change By Tract

Single Family Residential (2020-2021)

URBAN3

This graphic demonstrates the value change in the lot value/acre and % change in the vertical dimension. What is clear from this graphic is that there is a bias within the subplot or smaller tracts within the overall neighborhood (a.). Though there are some anomalies (b.) where certain parcels are different from others within the same tract.



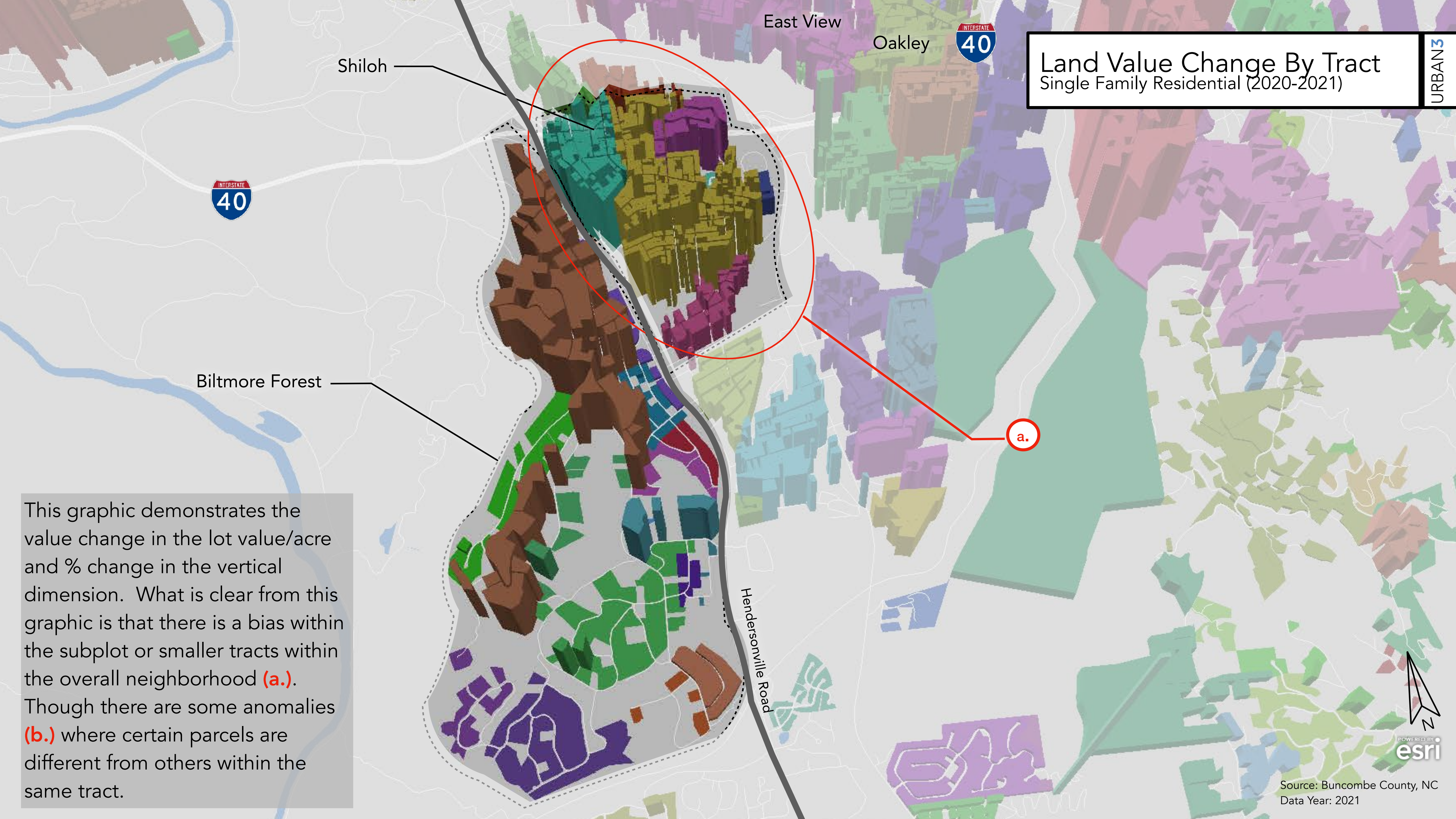
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Single Family Residential (2020-2021)

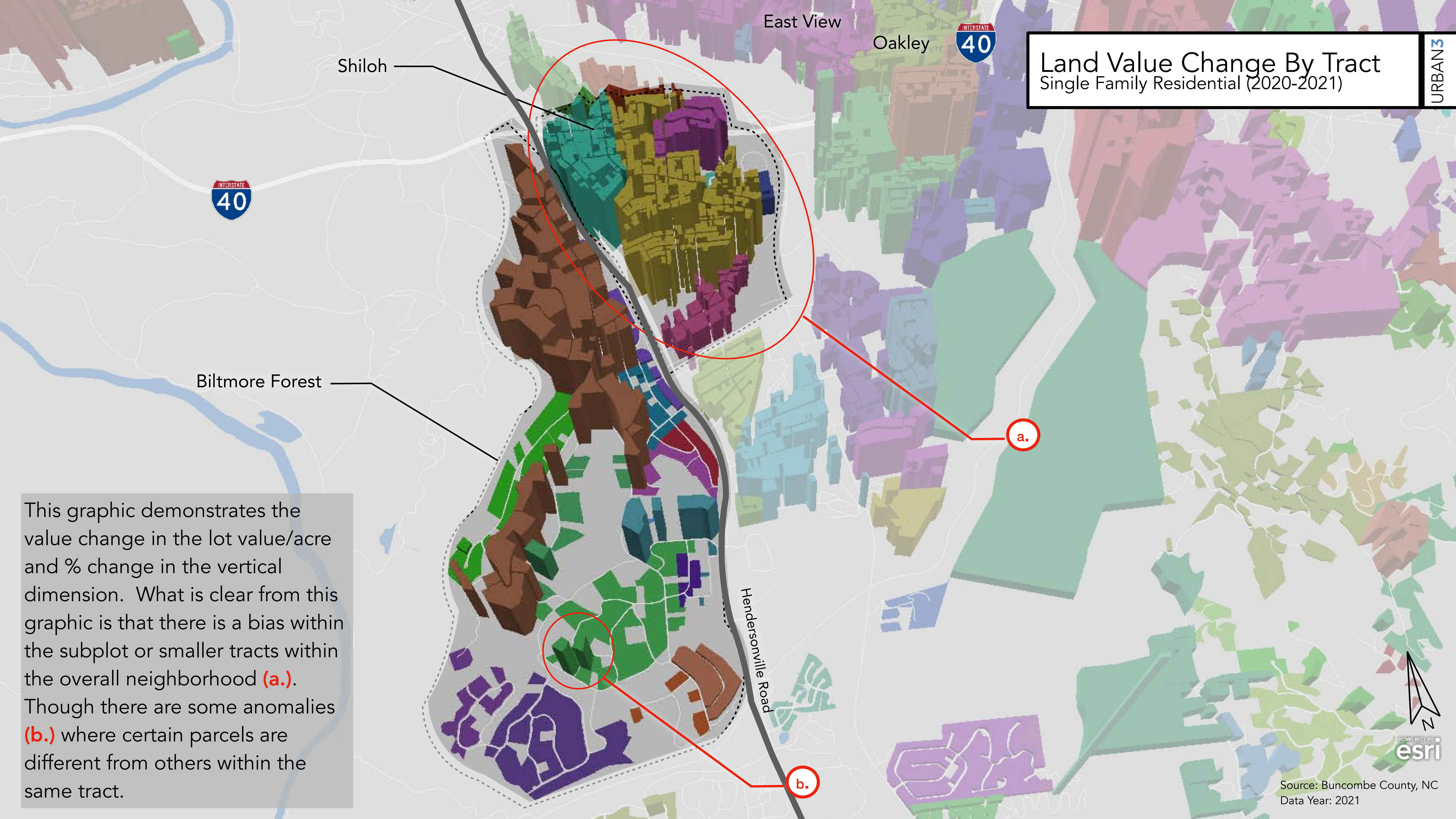


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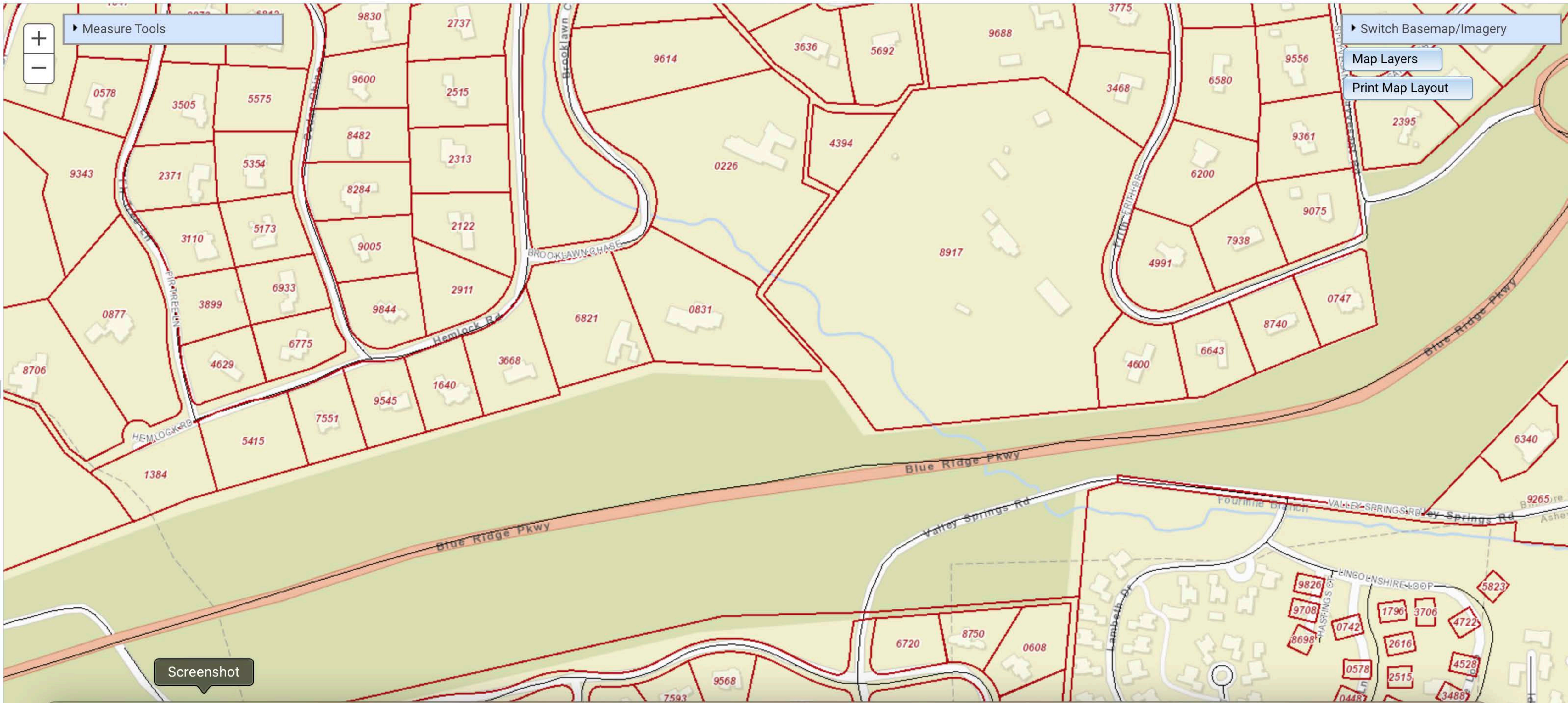
Search by: PIN, Address, Owner or Street Name

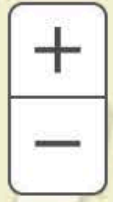
Search By Deed or Plat

-82° 32' 23.38", 35° 30' 47.99"

 Sales Report Buffer Export Map Export to Google Map

Help





Measure Tools

Switch Basemap/Imagery

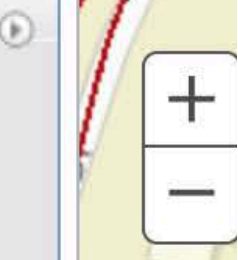
Map Layers

Print Map Layout

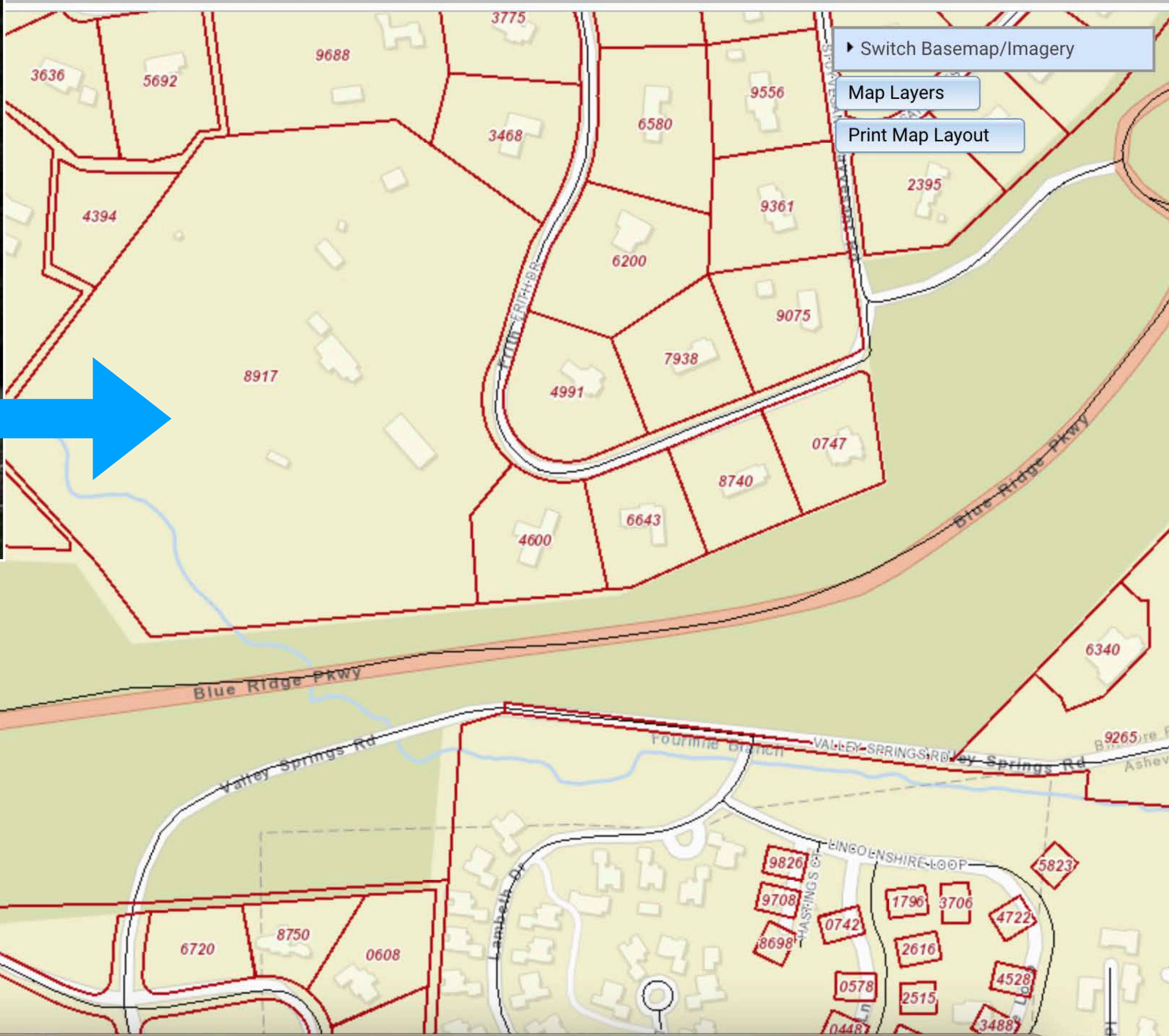
Screenshot



Search by:



16k sq.ft. Spanish Mediterranean 1926 Mansion



- Switch Basemap/Imagery
- Map Layers
- Print Map Layout

Screenshot



Search by:



16k sq.ft. Spanish Mediterranean 1926 Mansion



Screenshot

Parcel Id  Search

### Search Bills - Parcel Id: 964671891700000

Displaying 01 to 11 of 11 records

Bill	Owner Names	PIN/VIN	Value	Due
0000749490-2021-2021-0000-00	7 FRITH DRIVE LLC	9646-71-8917-00000 7 FRITH DR LAND & STRUCTURES	3,057,200	\$0.00
0000749490-2020-2020-0000-00	7 FRITH DRIVE LLC	9646-71-8917-00000 7 FRITH DR LAND & STRUCTURES	3,094,300	\$0.00
0000749490-2019-2019-0000-00	CECIL WILLIAM AMHERST JR	9646-71-8917-00000 7 FRITH DR LAND & STRUCTURES	3,094,300	\$0.00
0000749490-2018-2018-0000-00	CECIL WILLIAM AMHERST JR	9646-71-8917-00000 7 FRITH DR LAND & STRUCTURES	3,094,300	\$0.00
0000749490-2017-2017-0000-00	CECIL WILLIAM AMHERST JR	9646-71-8917-00000 7 FRITH DR LAND & STRUCTURES	3,094,300	\$0.00
0000749490-2016-2016-0000-00	CECIL WILLIAM AMHERST JR	9646-71-8917-00000 7 FRITH DR LAND & STRUCTURES	2,735,200	\$0.00
0000749490-2015-2015-0000-00	CECIL WILLIAM AMHERST JR	9646-71-8917-00000 7 FRITH DR LAND & STRUCTURES	2,735,200	\$0.00
0000749490-2014-2014-0000-00	CECIL WILLIAM AMHERST JR	9646-71-8917-00000 7 FRITH DR LAND & STRUCTURES	2,735,200	\$0.00
0000626203-2013-2013-0000-00	CECIL WILLIAM AMHERST JR	9646-71-8917-00000 7 FRITH DR Land & Structures	2,735,200	\$0.00
0000287817-2012-2012-0000-00	CECIL WILLIAM AMHERST JR	9646-71-8917-00000 7 FRITH DR Land & Structures	3,955,100	\$0.00
0000370716-2011-2011-0000-00	CECIL WILLIAM AMHERST JR	9646-71-8917-00000 7 FRITH DR Land & Structures	3,955,100	\$0.00



Search by:



16k sq.ft. Spanish Mediterranean 1926 Mansion



Screenshot

Parcel Id  Search

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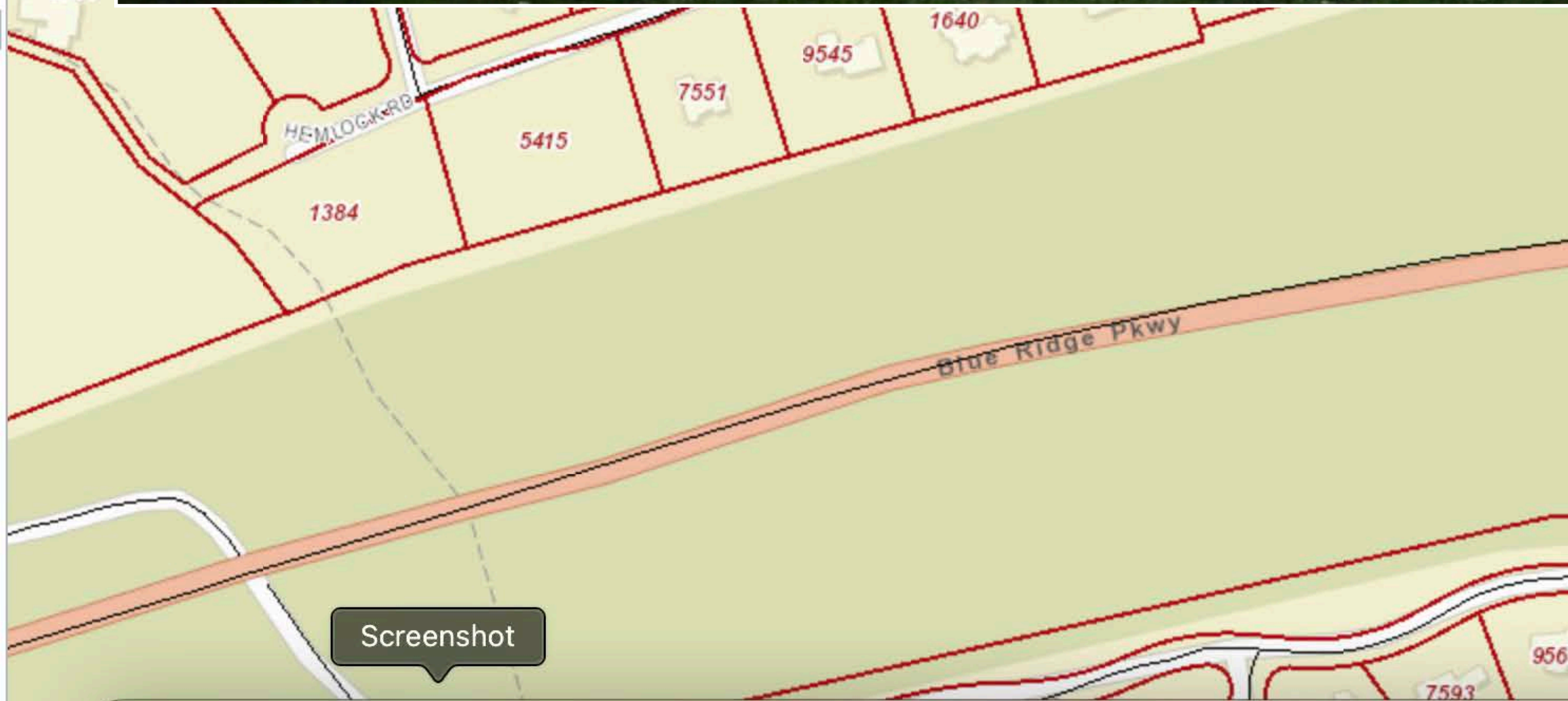




Search by:



16k sq.ft. Spanish Mediterranean 1926 Mansion



Screenshot

Parcel Id  Search

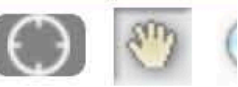
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Search by:



16k sq.ft. Spanish Mediterranean 1926 Mansion



Screenshot

Parcel Id  Search

Search Bills - Parcel Id: 964671891700000

Displaying 01 to 11 of 11 records

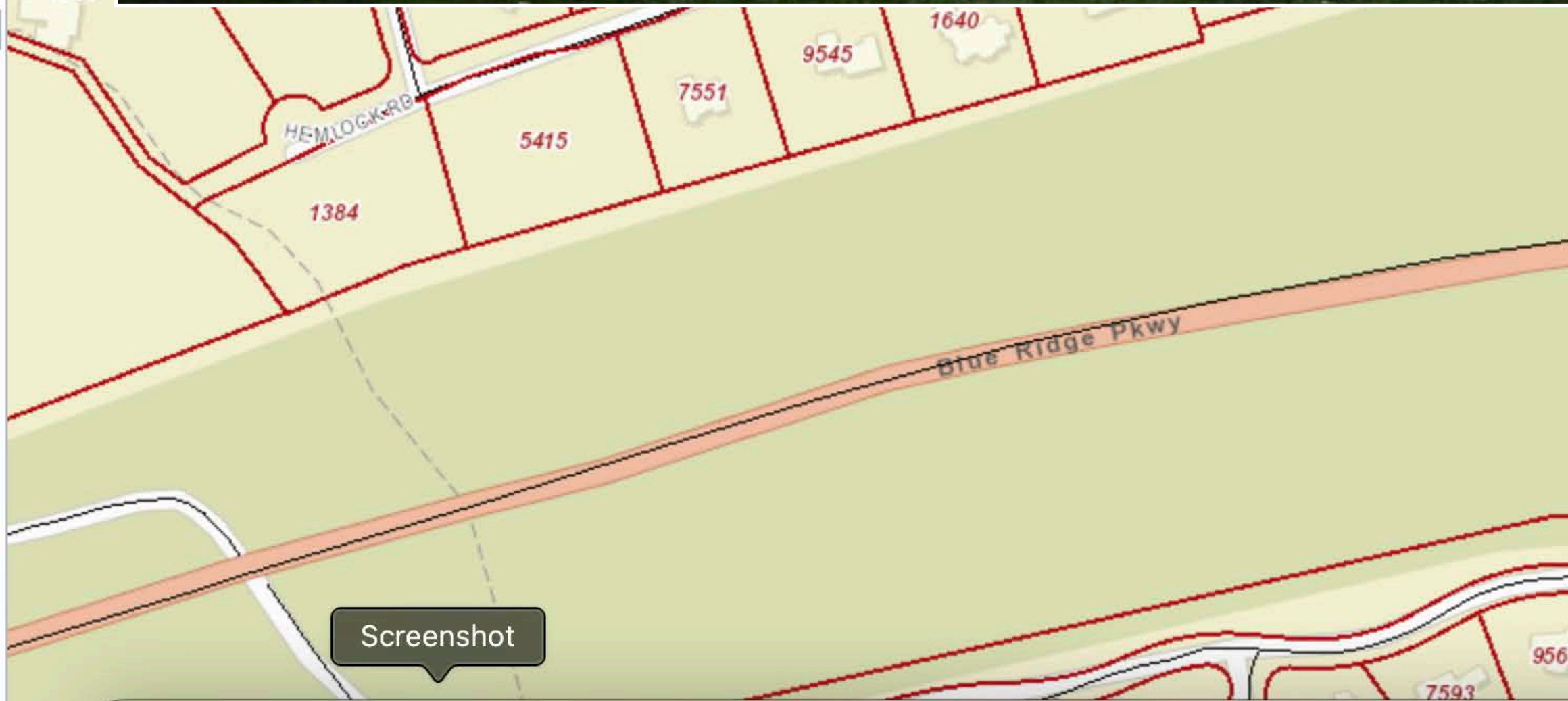
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Search by:



16k sq.ft. Spanish Mediterranean 1926 Mansion



Screenshot



Tax Department | **New Lookup** | New Download | Appeal | Extension | GIS | ROD | PIN History | Discover Buncombe

Parcel Id  Search

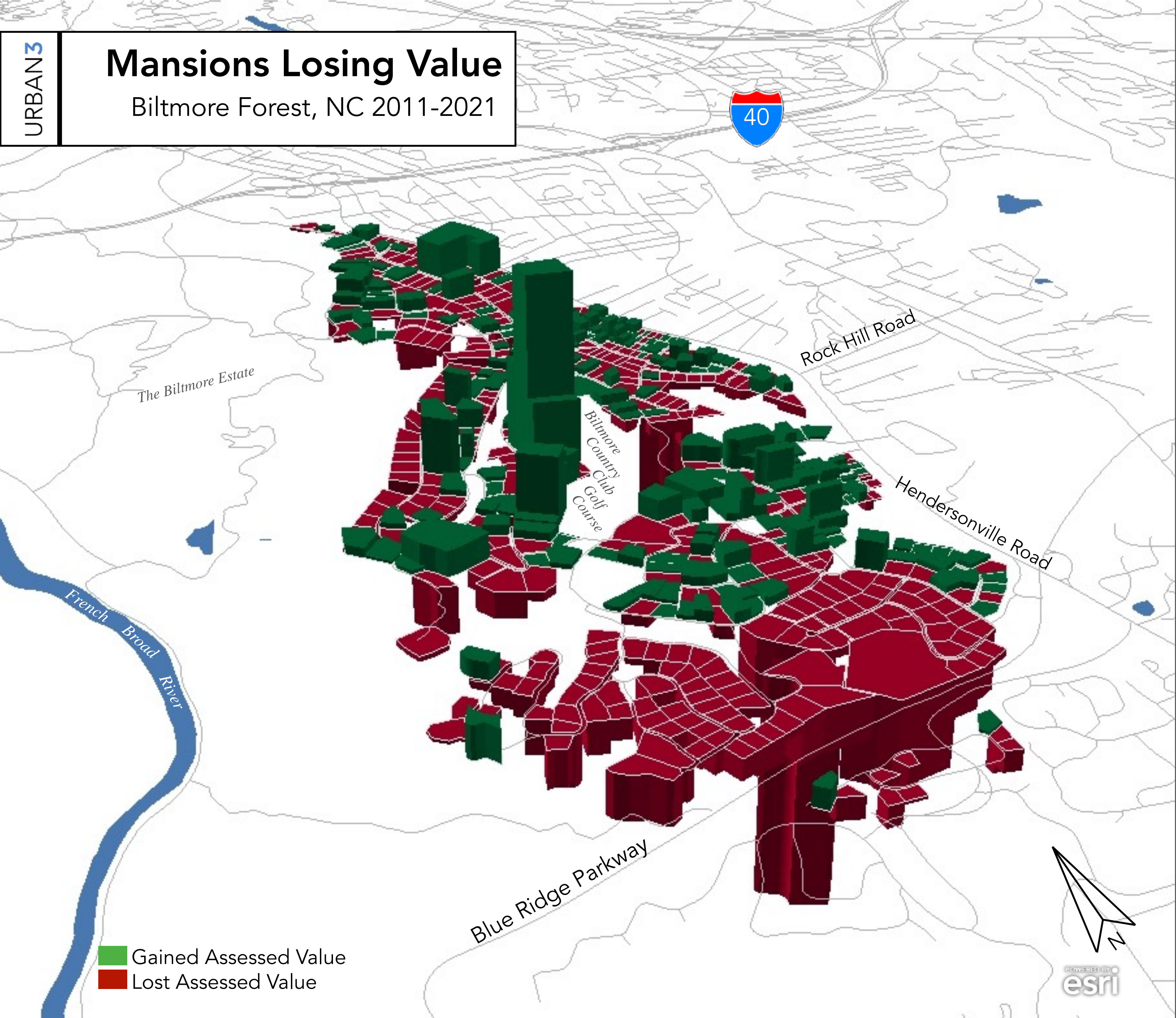
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# Mansions Losing Value

Biltmore Forest, NC 2011-2021

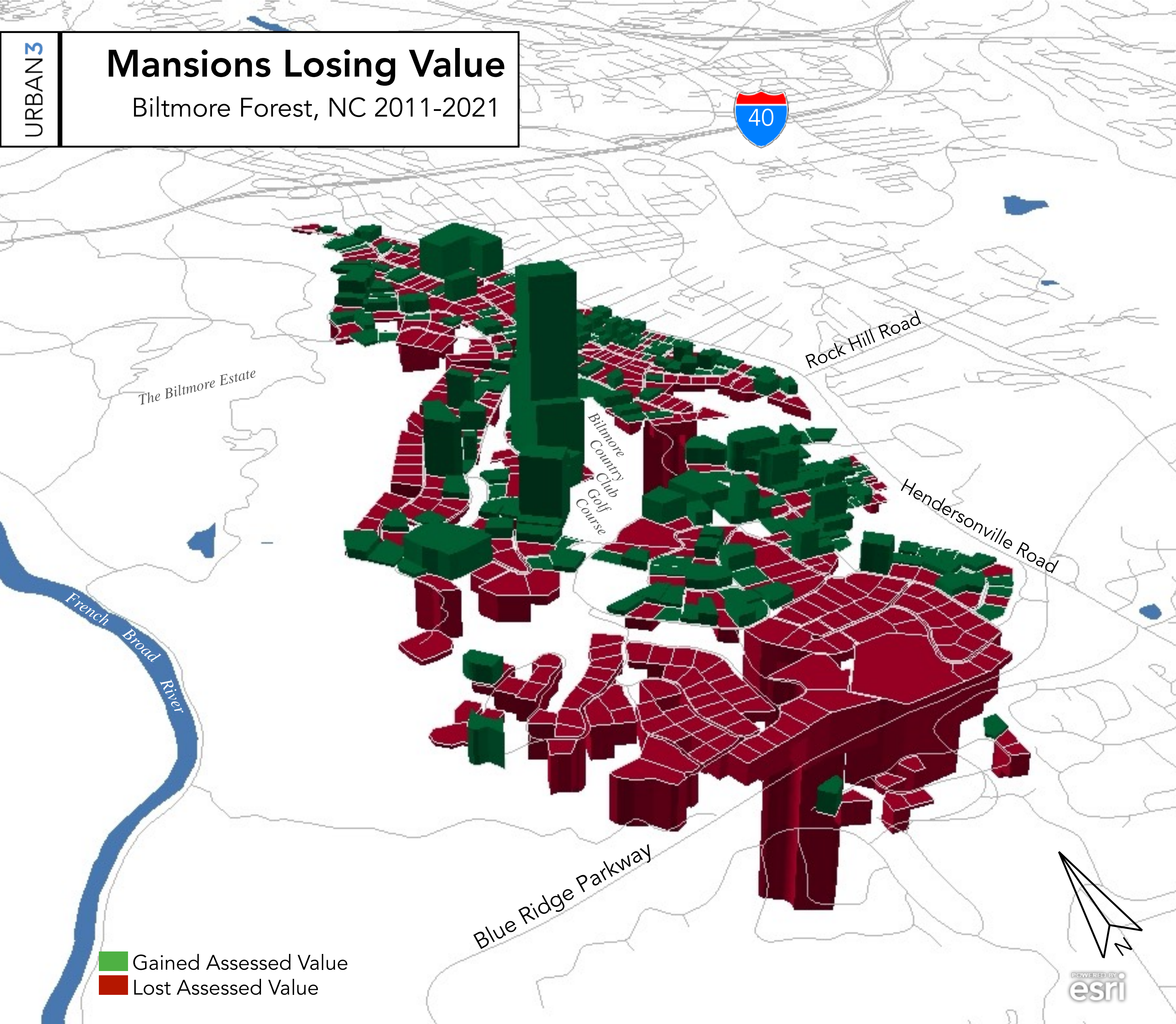


■ Gained Assessed Value  
■ Lost Assessed Value



# Mansions Losing Value

Biltmore Forest, NC 2011-2021



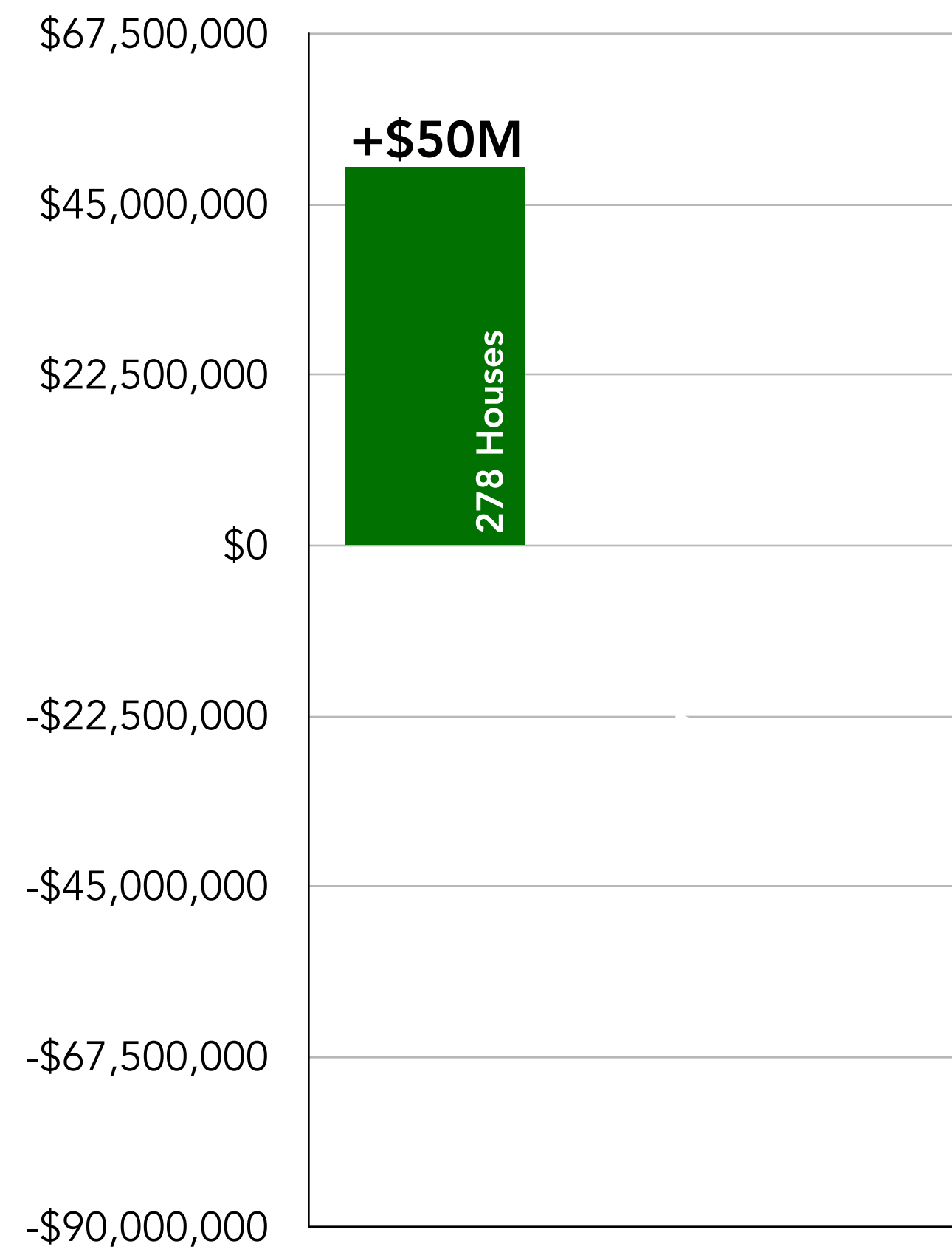
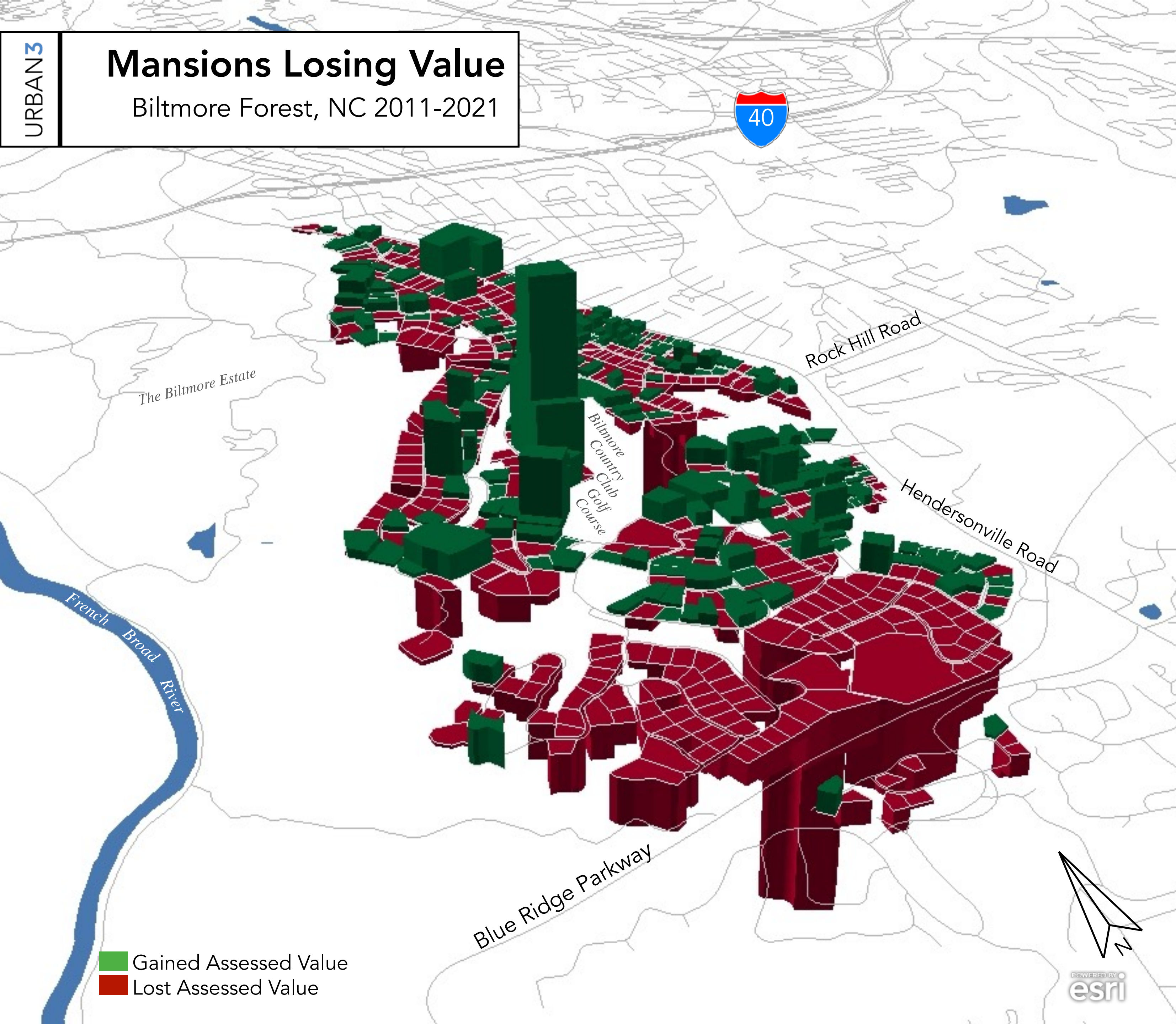
■ Gained Assessed Value  
■ Lost Assessed Value



Assessed Value

# Mansions Losing Value

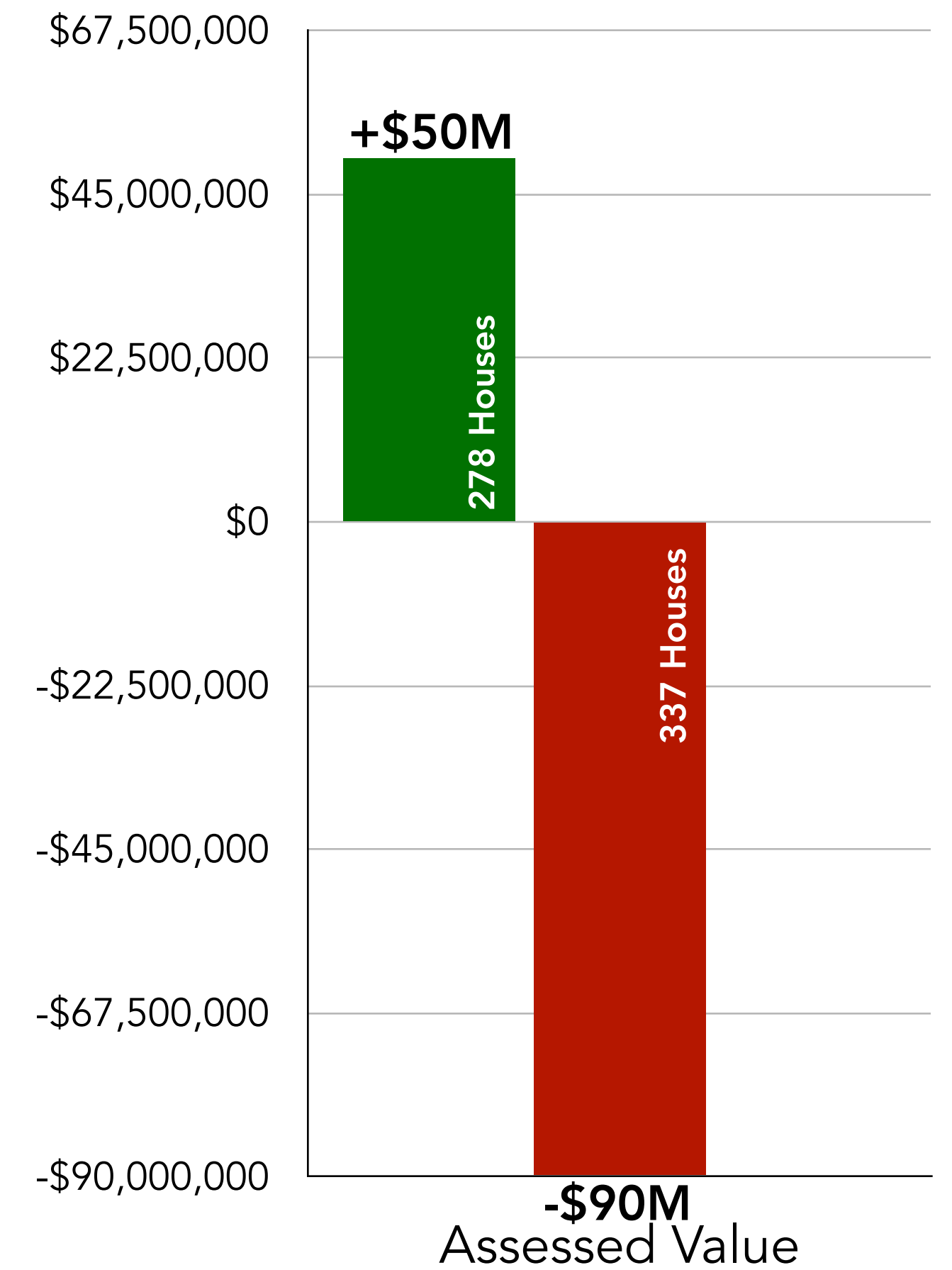
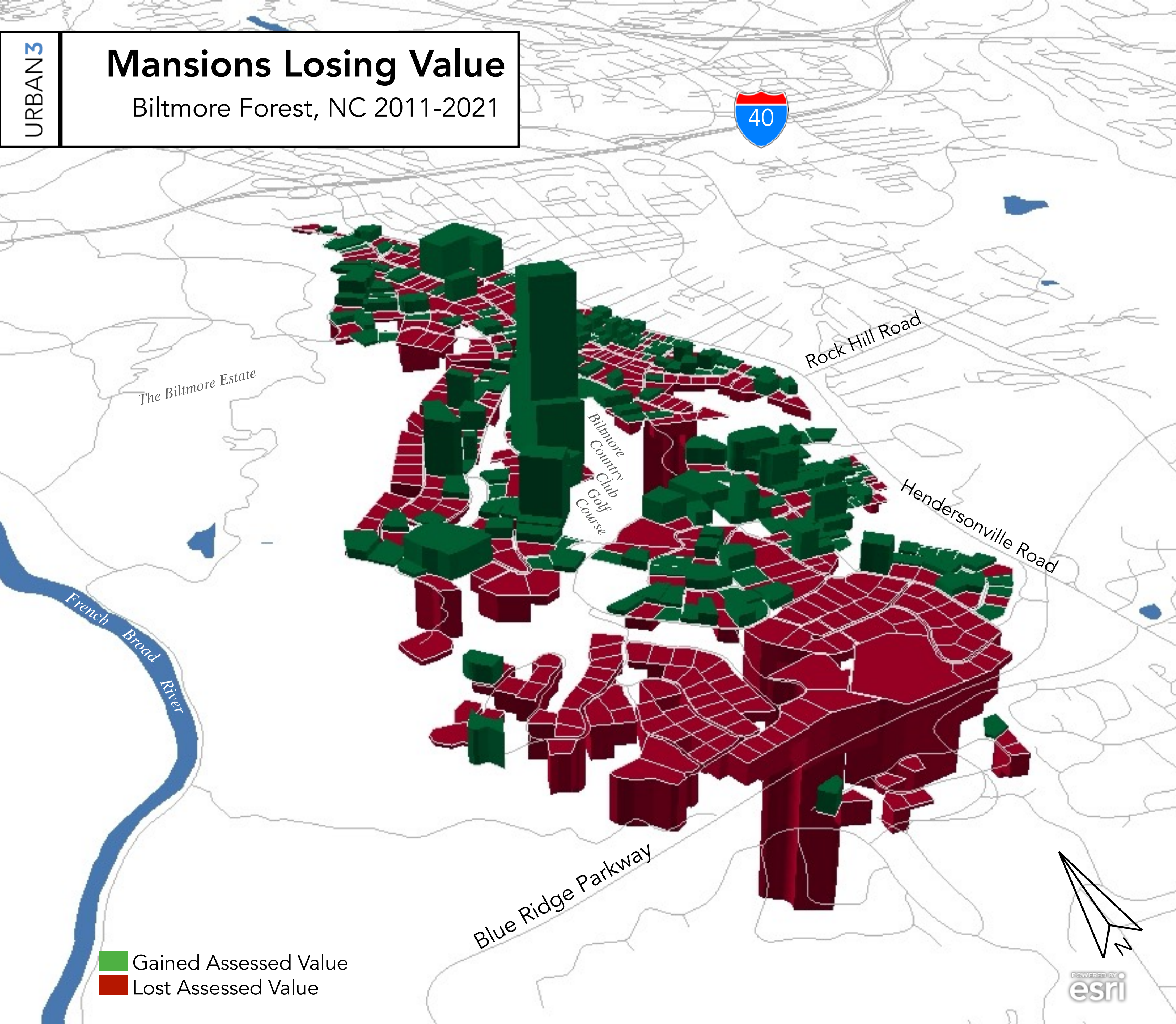
Biltmore Forest, NC 2011-2021



Assessed Value

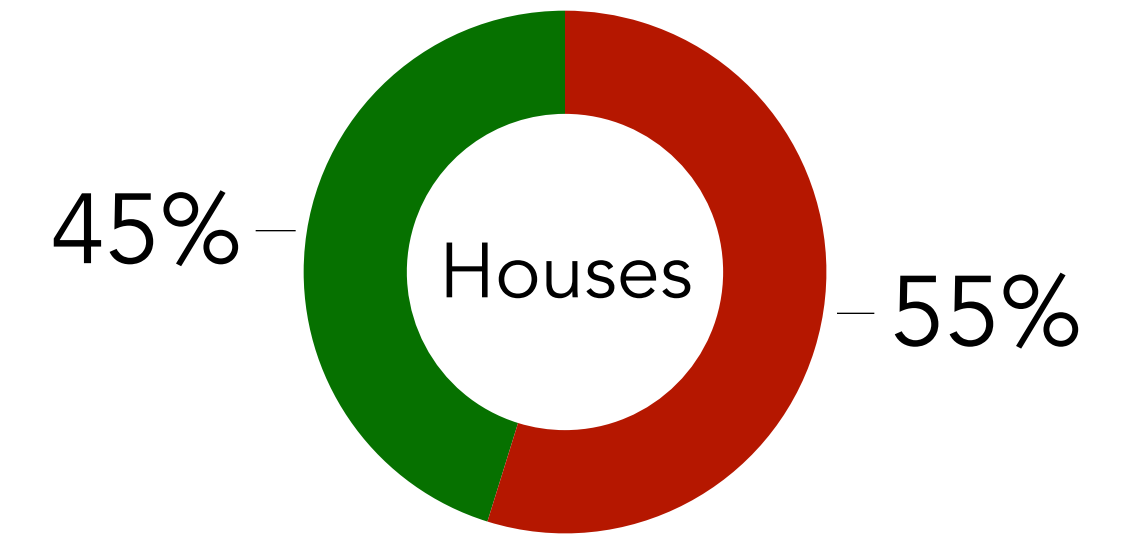
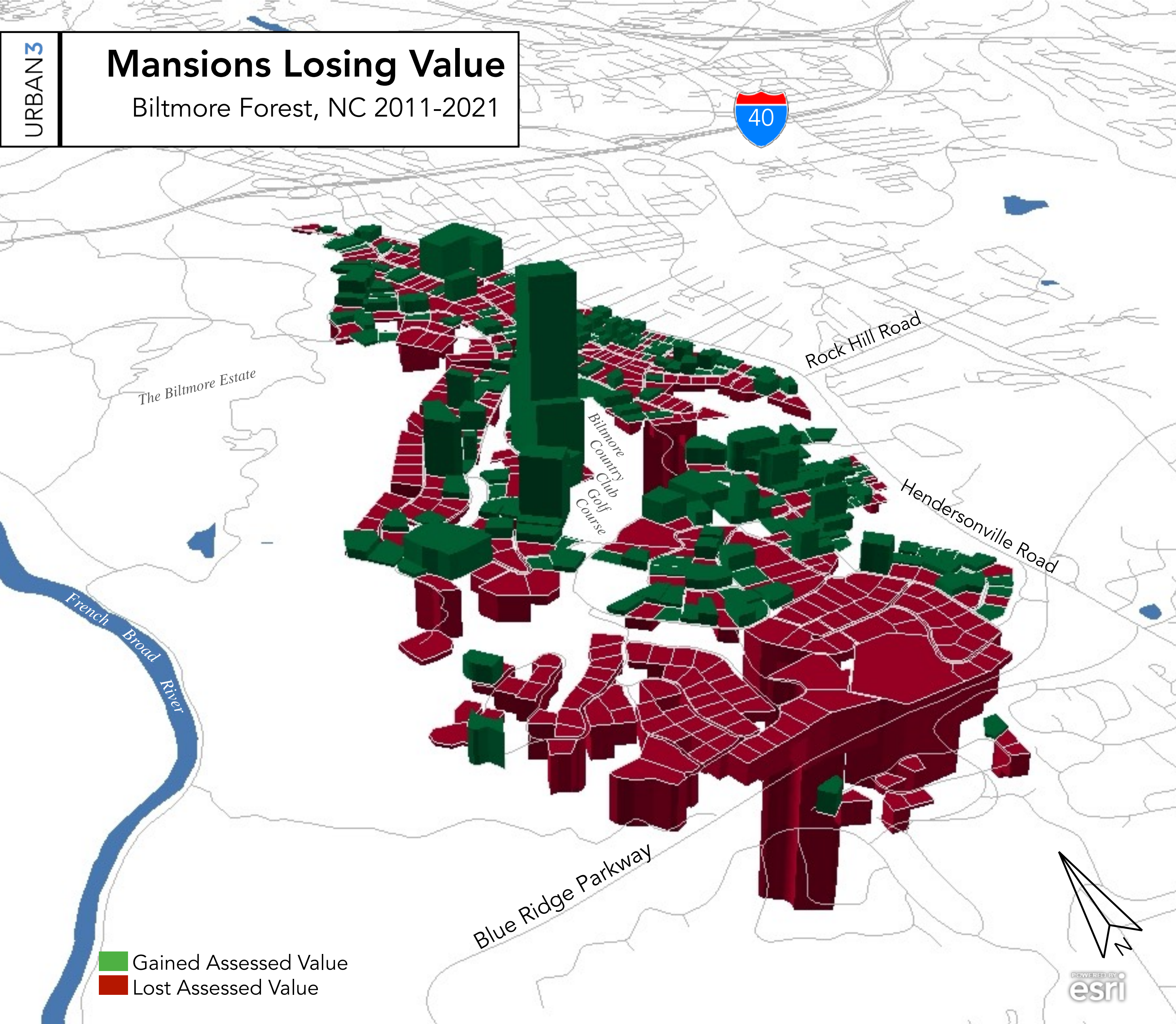
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Biltmore Forest, NC 2011-2021

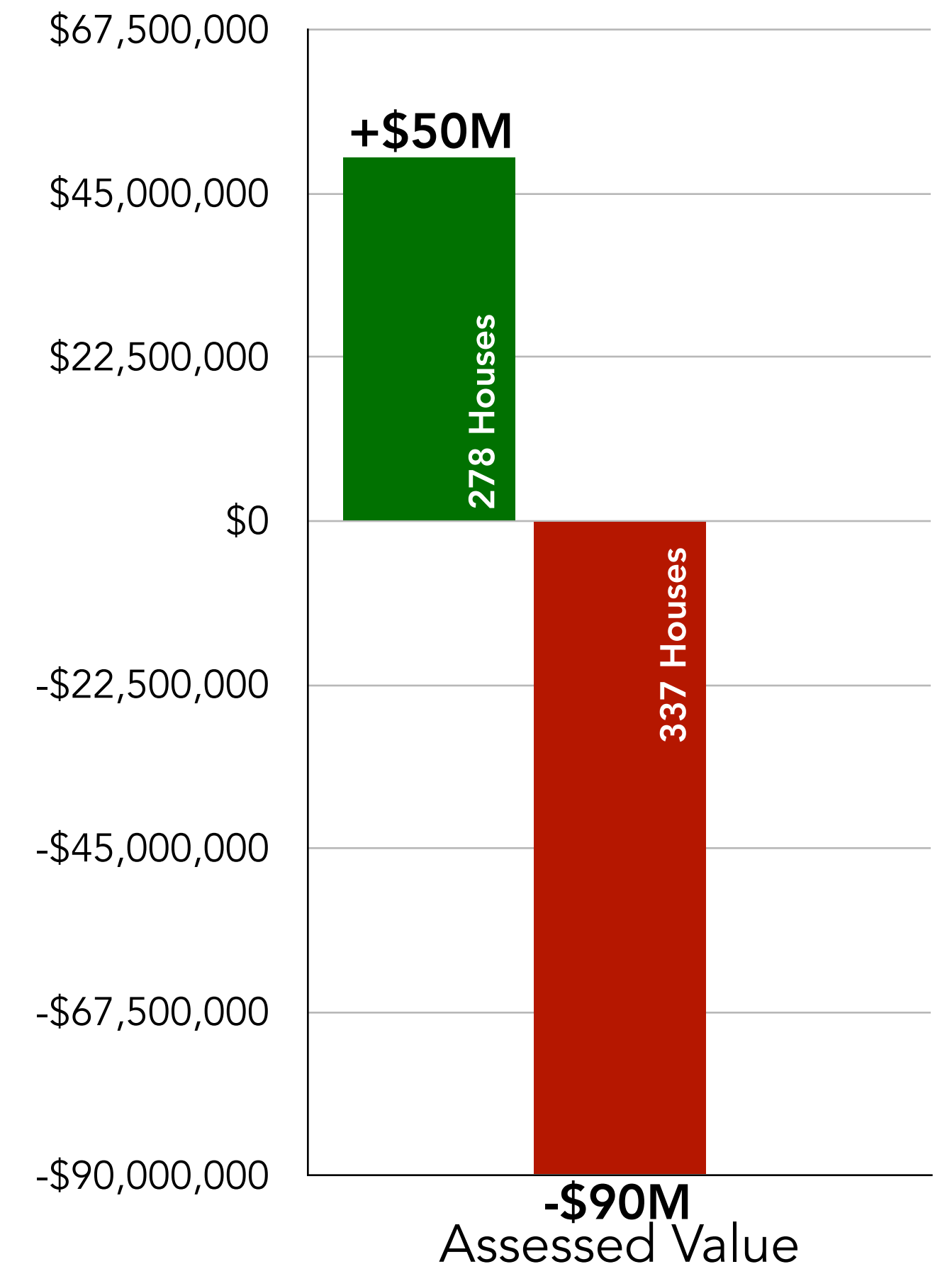


# Mansions Losing Value

Biltmore Forest, NC 2011-2021



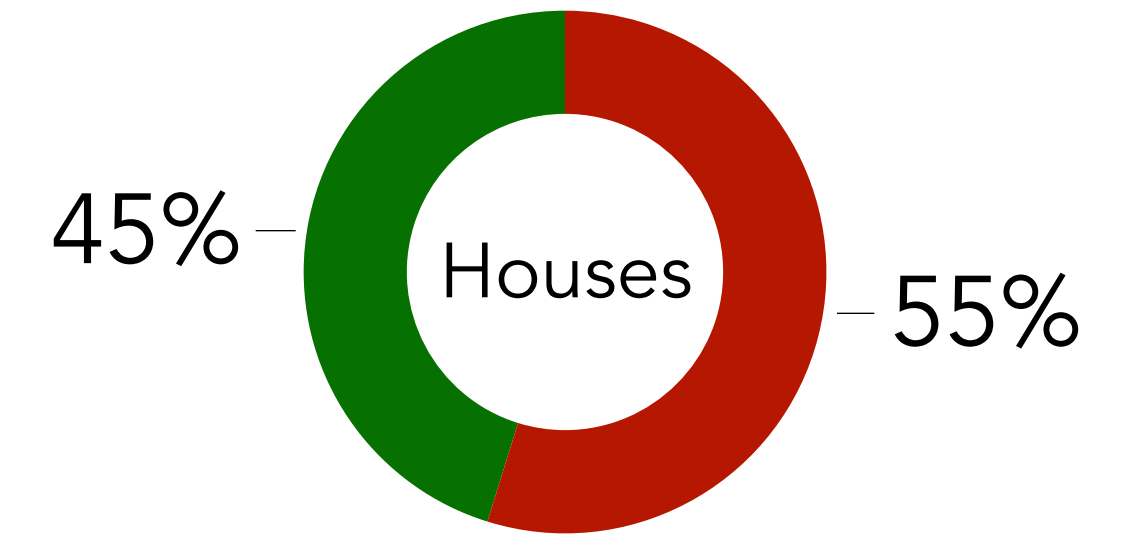
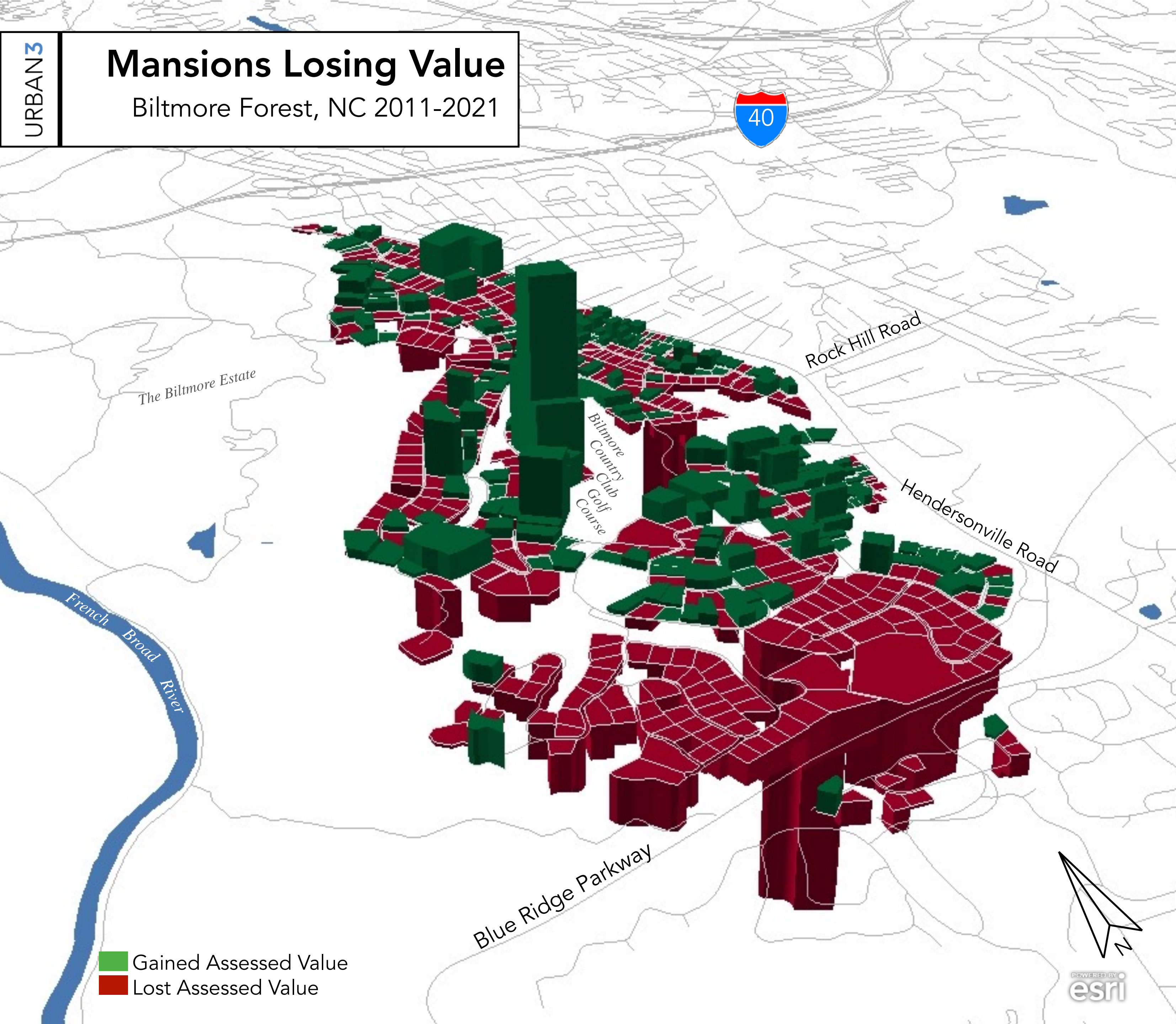
- Lost
- Gained



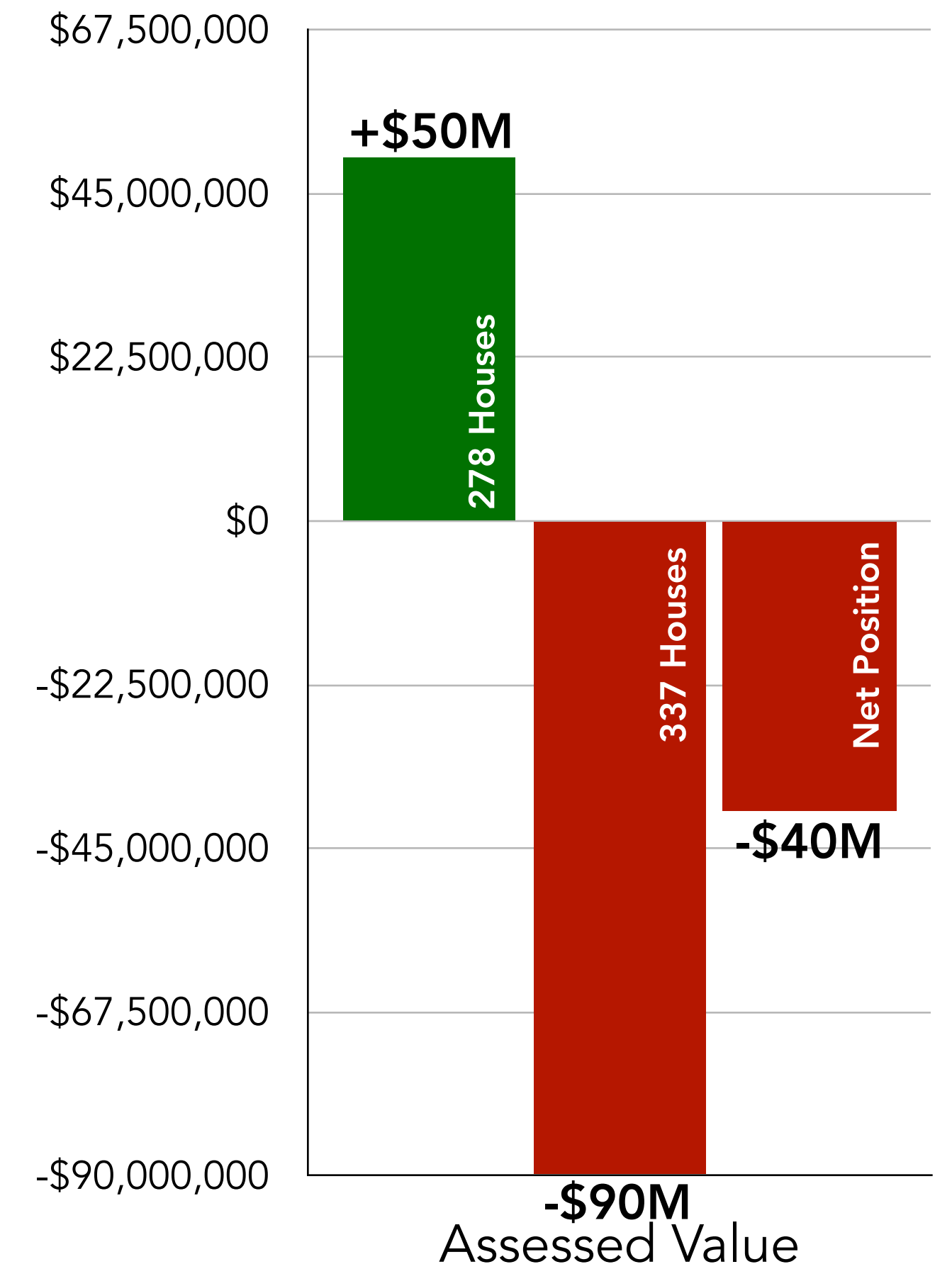


# Mansions Losing Value

Biltmore Forest, NC 2011-2021



- Lost
- Gained



# NC General Statutes: Article 13

## Standards for Appraisal and Assessment § 105-283. Uniform appraisal Standards

All property, real and personal, shall as far as practicable be appraised or valued at its true value in money. When used in this Subchapter, the words "**true value**" shall be interpreted as meaning market value, that is, **the price estimated in terms of money at which the property would change hands between a willing and financially able buyer and a willing seller, neither being under any compulsion to buy or to sell and both having reasonable knowledge of all the uses to which the property is adapted and for which it is capable of being used.** For the purposes of this section, the acquisition of an interest in land by an entity having the power of eminent domain with respect to the interest acquired shall not be considered competent evidence of the true value in money of comparable land.

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


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# Houses

URBAN3

 2021 Assessment (Computer)  
 2021 Sale Price  
 2022 Assessment (Human)

# Houses

URBAN3



A.

- 2021 Assessment (Computer)
- 2021 Sale Price
- 2022 Assessment (Human)

# Houses

URBAN3



A.



A

B

C

D

E

2021 Assessment (Computer)  
2021 Sale Price  
2022 Assessment (Human)



# Houses

URBAN3



2021 Assessment (Computer)  
 2021 Sale Price  
 2022 Assessment (Human)

# Houses

URBAN3



2021 Assessment (Computer)  
 2021 Sale Price  
 2022 Assessment (Human)

# Houses



2021 Assessment (Computer)  
2021 Sale Price  
2022 Assessment (Human)

# Houses



2021 Assessment (Computer)  
2021 Sale Price  
2022 Assessment (Human)

# Houses



2021 Assessment (Computer)  
2021 Sale Price  
2022 Assessment (Human)

A

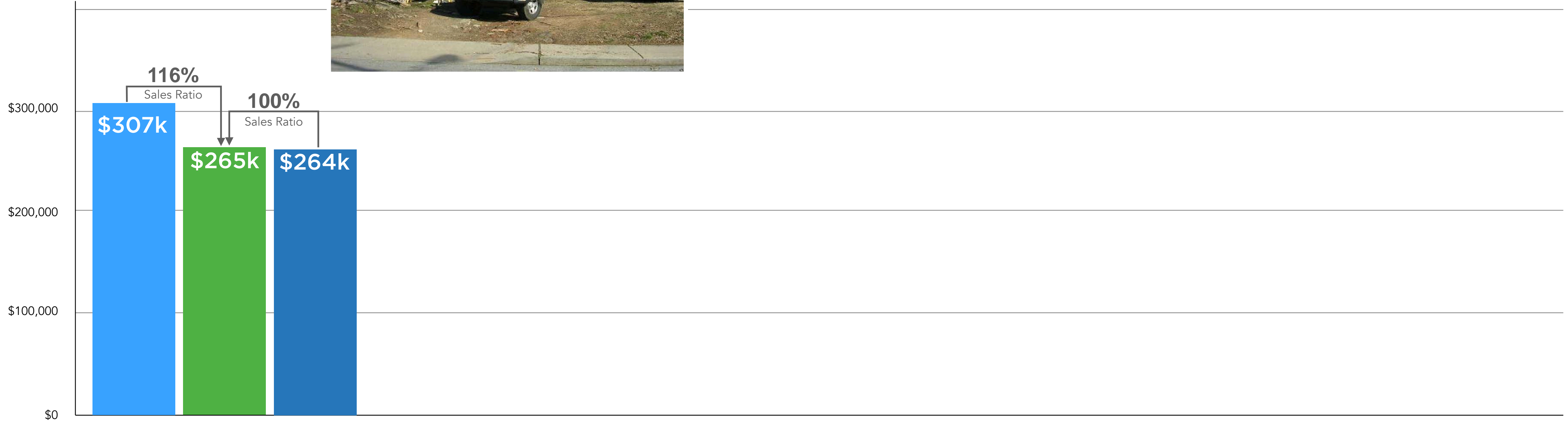
B

C

D

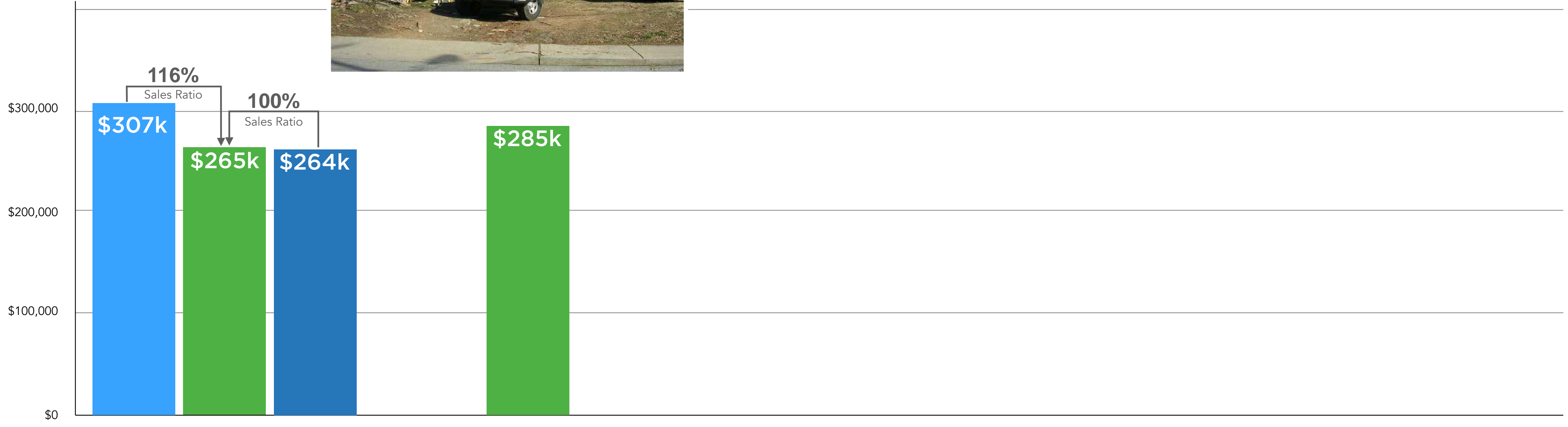
E

# Houses



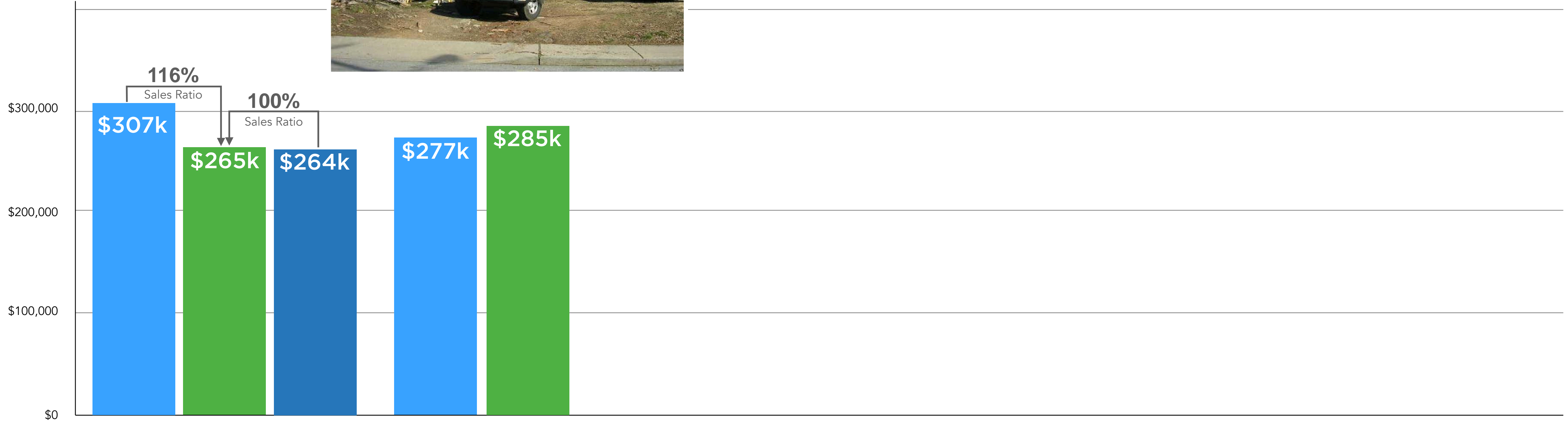
2021 Assessment (Computer)  
2021 Sale Price  
2022 Assessment (Human)

# Houses



2021 Assessment (Computer)  
2021 Sale Price  
2022 Assessment (Human)

# Houses



2021 Assessment (Computer)  
2021 Sale Price  
2022 Assessment (Human)

A

B

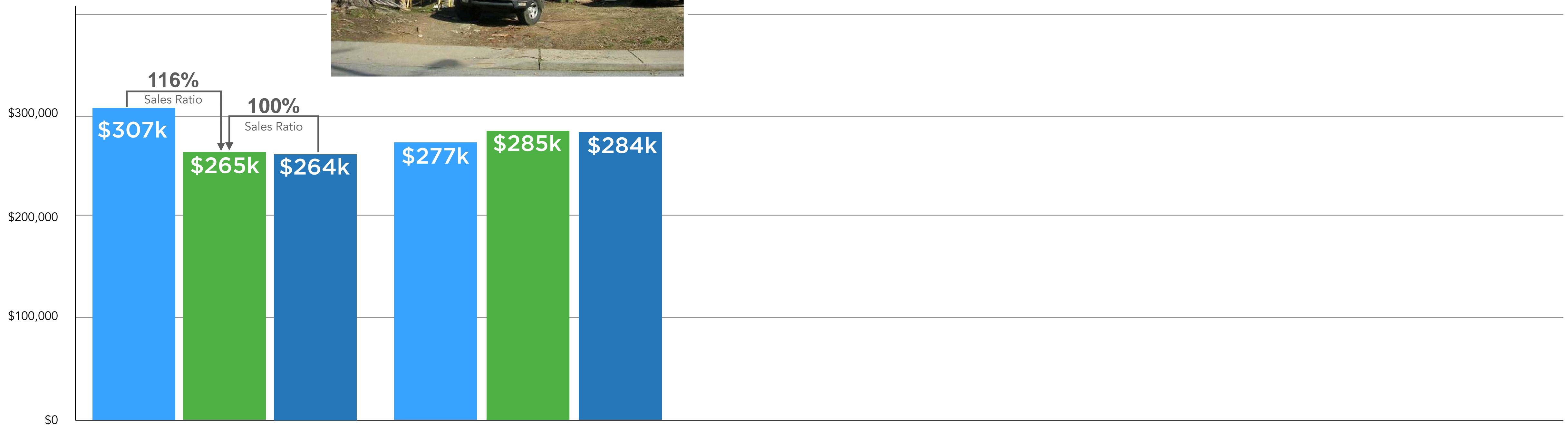
C

D

E

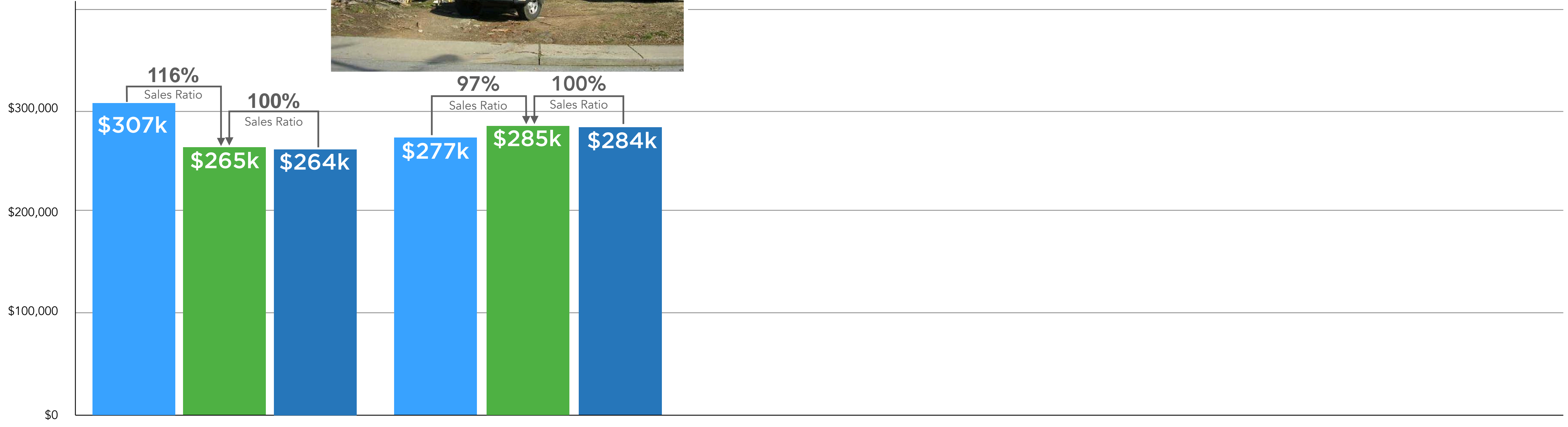


# Houses



2021 Assessment (Computer)  
2021 Sale Price  
2022 Assessment (Human)

# Houses



2021 Assessment (Computer)  
2021 Sale Price  
2022 Assessment (Human)

A

B

C

D

E

# Houses

URBAN3



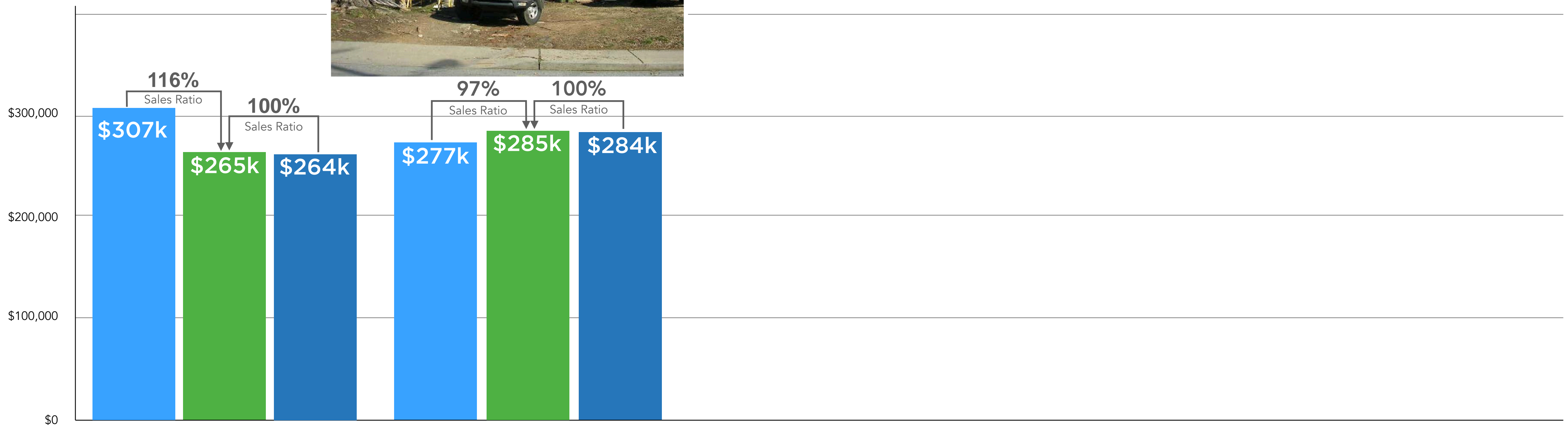
A.



C.



B.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

# Houses

URBAN3



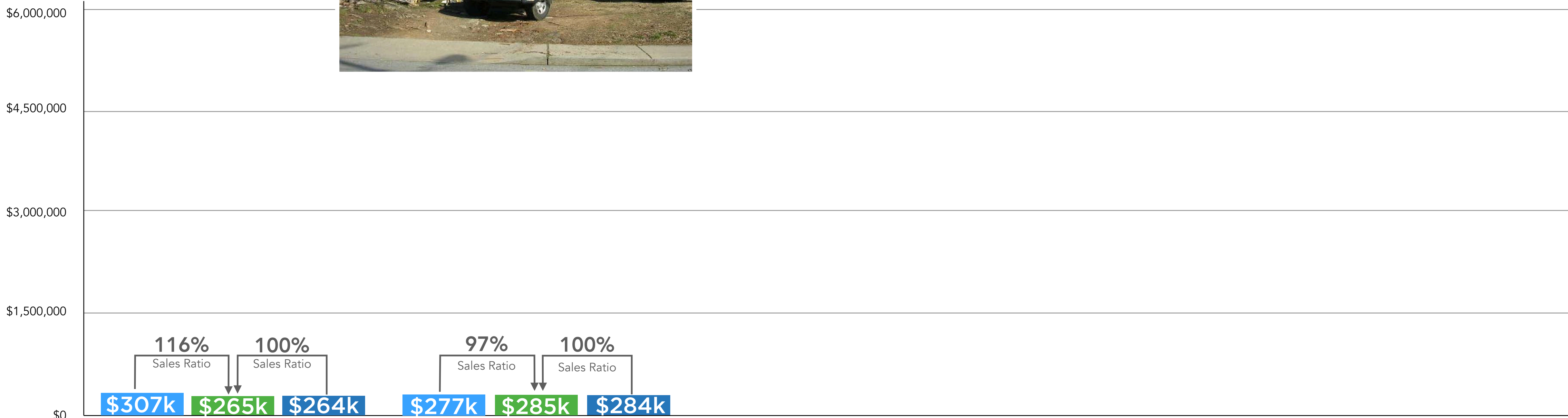
A.



C.



B.



A

B

C

D

E

■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

# Houses

URBAN3



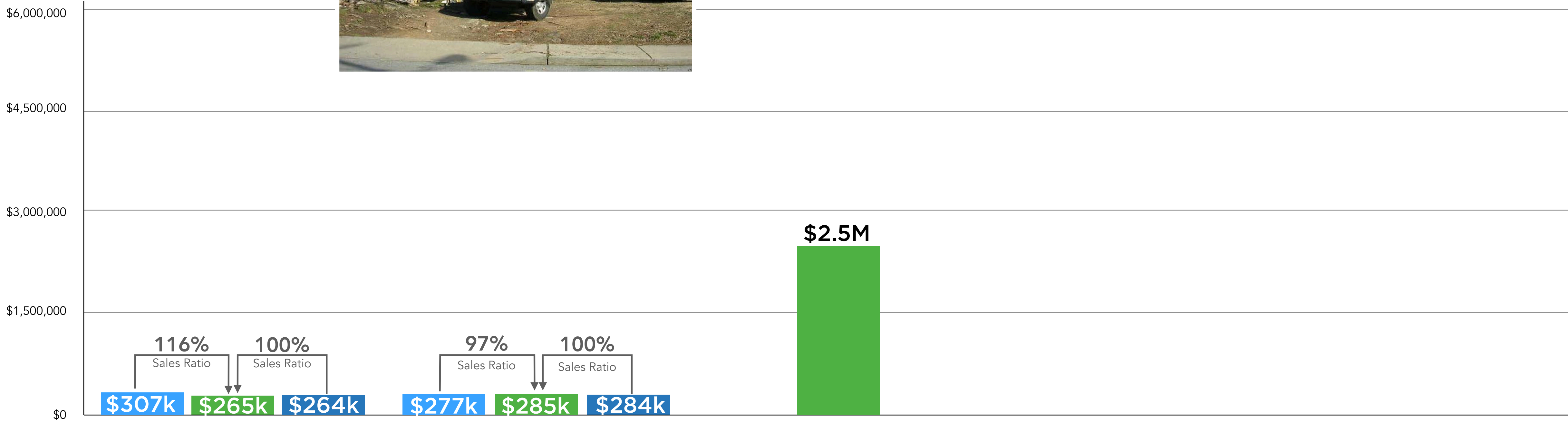
A.



C.



B.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

A

B

C

D

E

# Houses

URBAN3



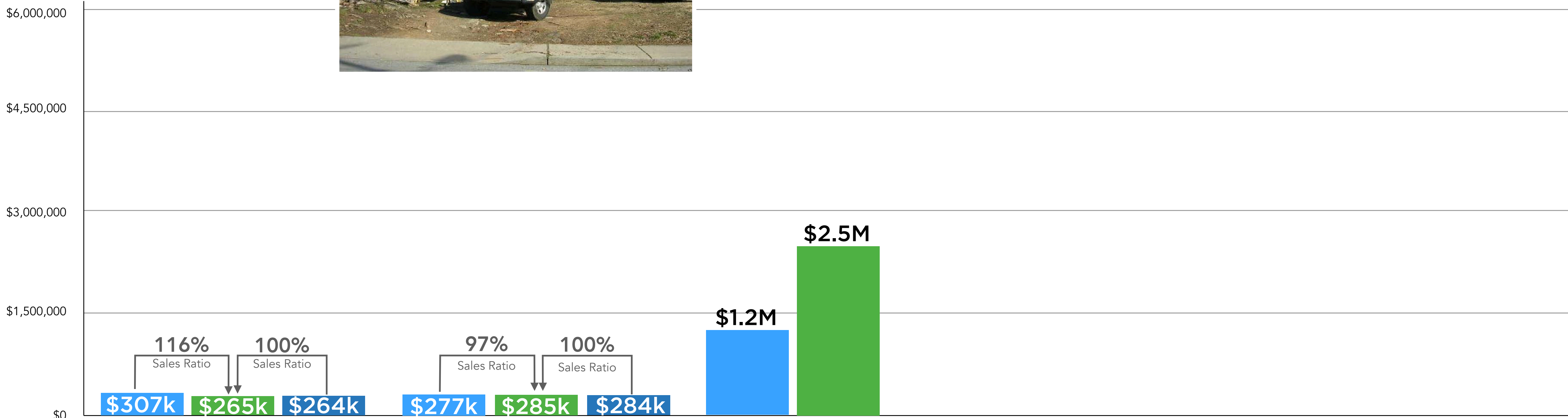
A.



B.



C.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

# Houses

URBAN3



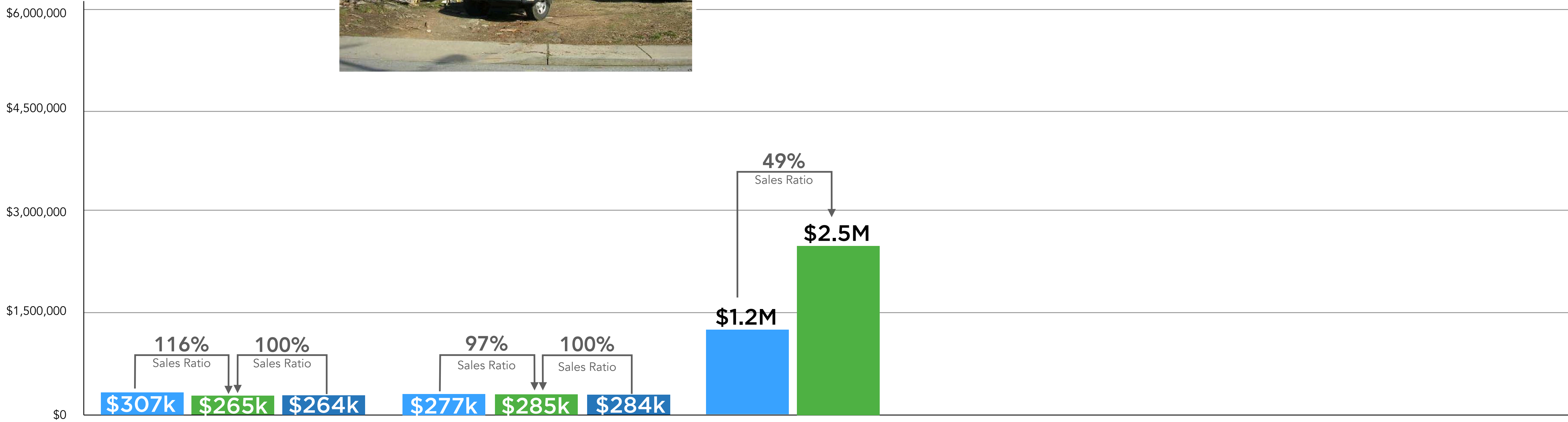
A.



B.



C.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

A

B

C

D

E

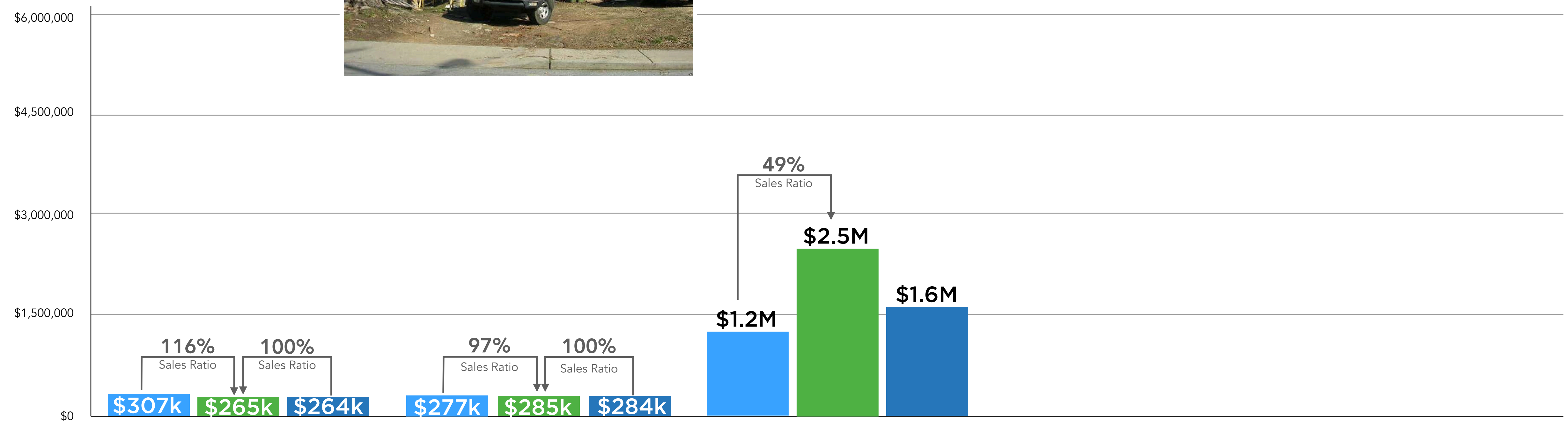
# Houses



A.

B.

C.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)



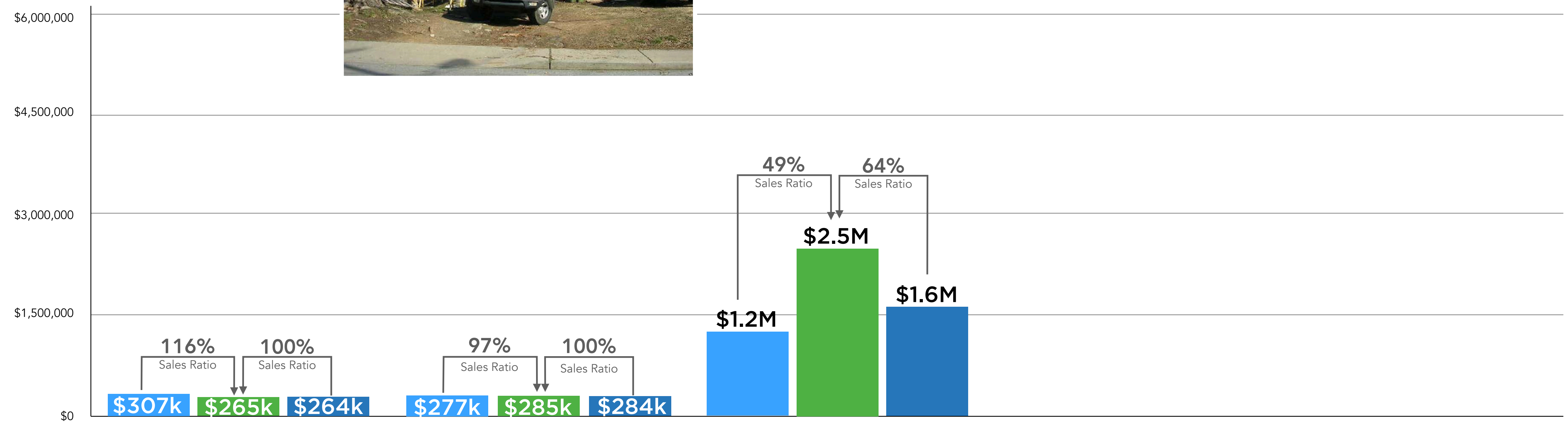
# Houses



A.

B.

C.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

# Houses

URBAN3



A.



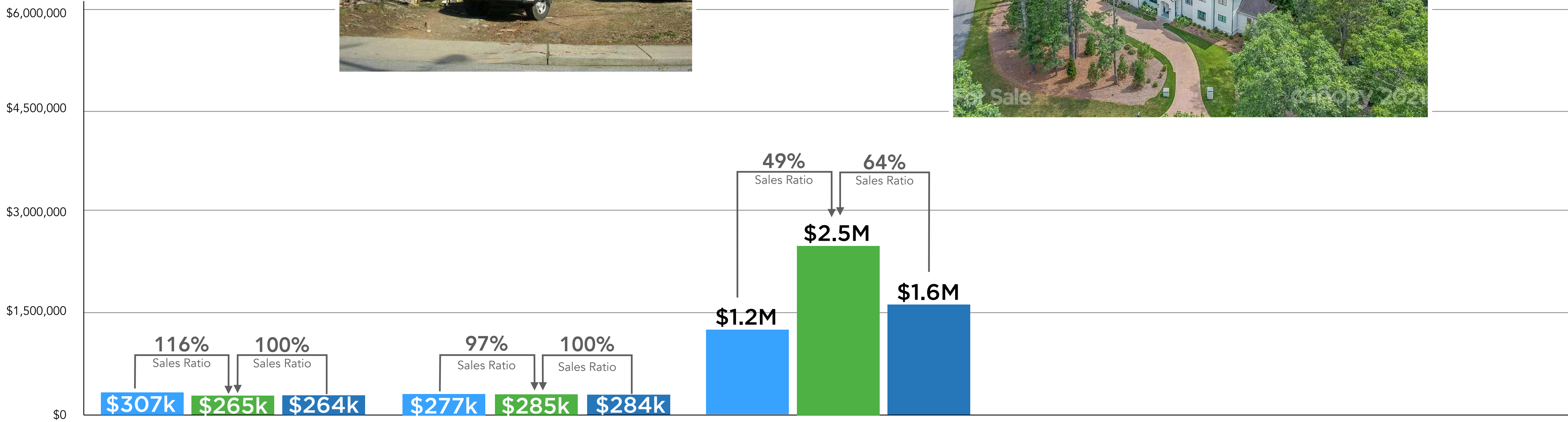
C.



B.



D.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

# Houses

URBAN3



A.



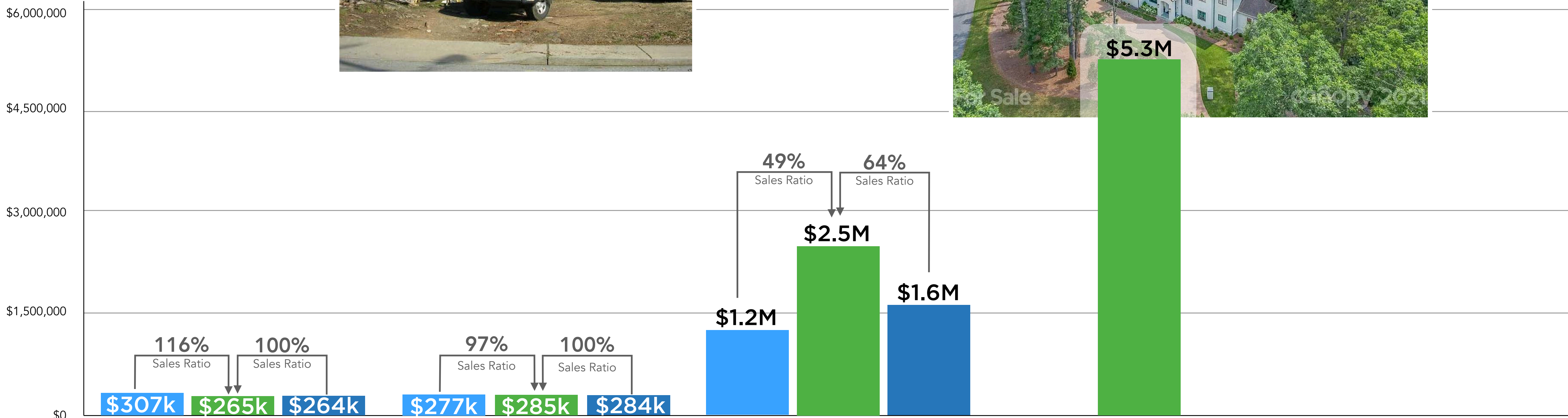
C.



B.



D.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

# Houses

URBAN3

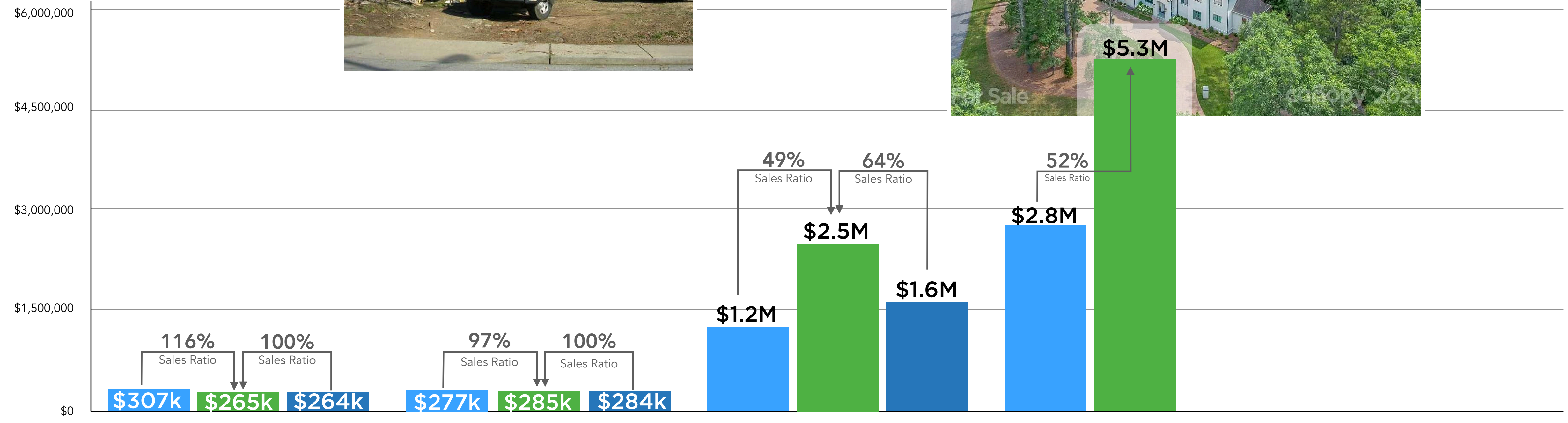


A.

B.

C.

D.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

A

B

C

D

E

# Houses

URBAN3



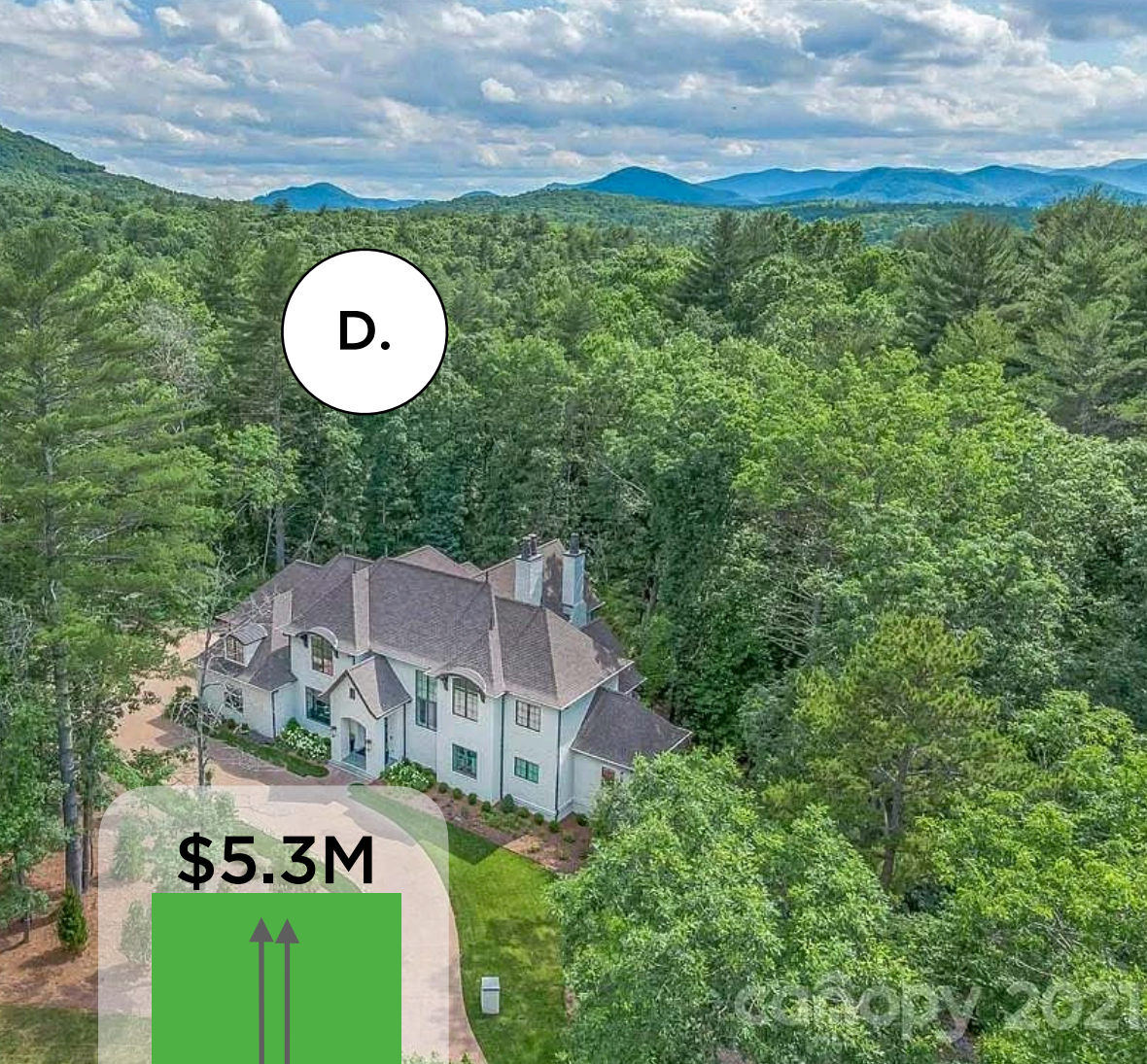
A.



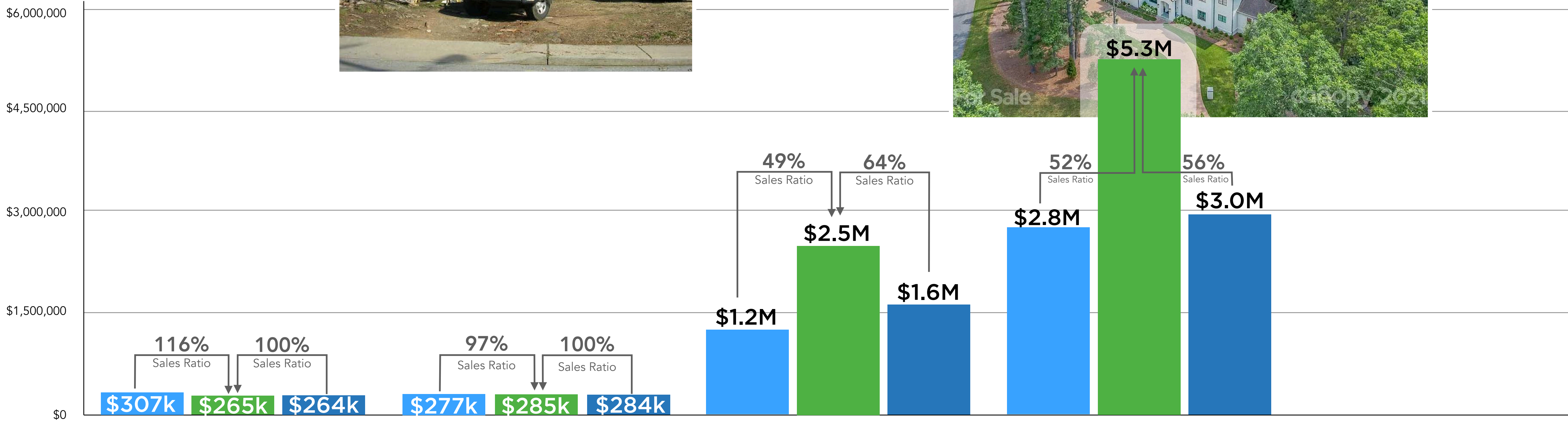
B.



C.



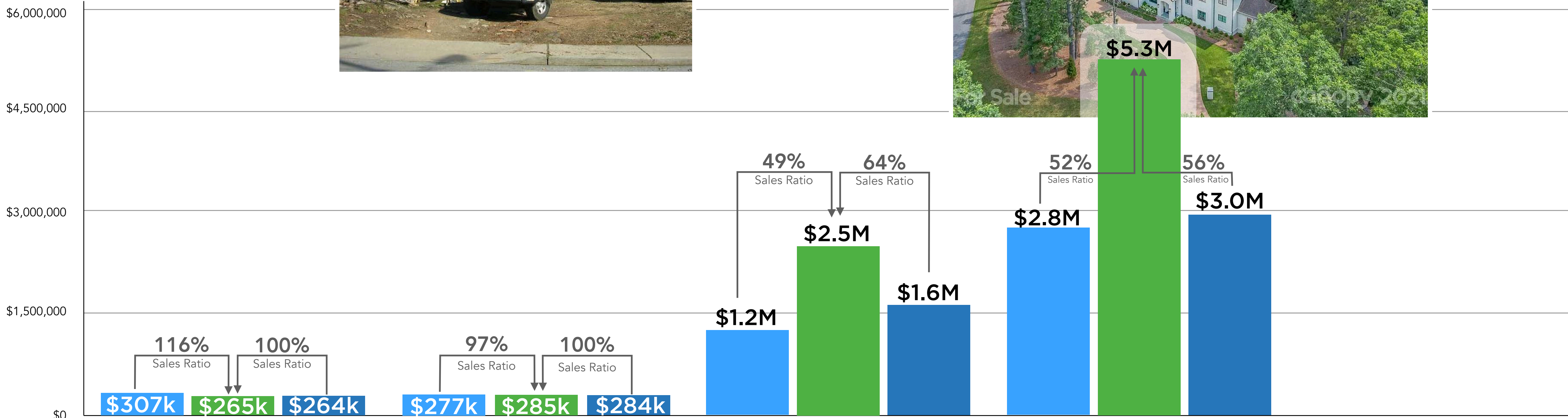
D.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

# Houses

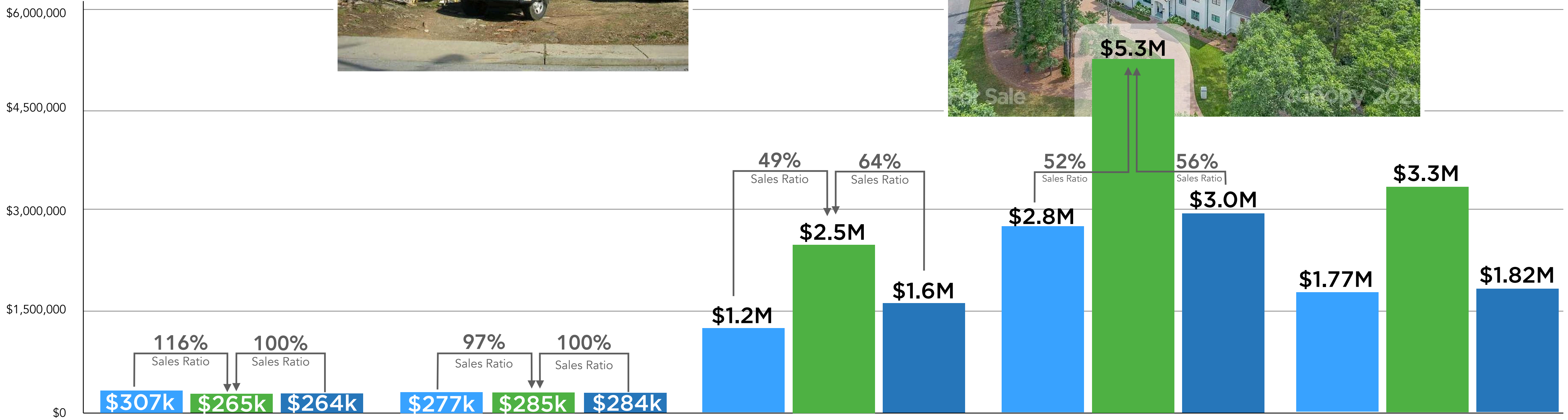
URBAN3



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

# Houses

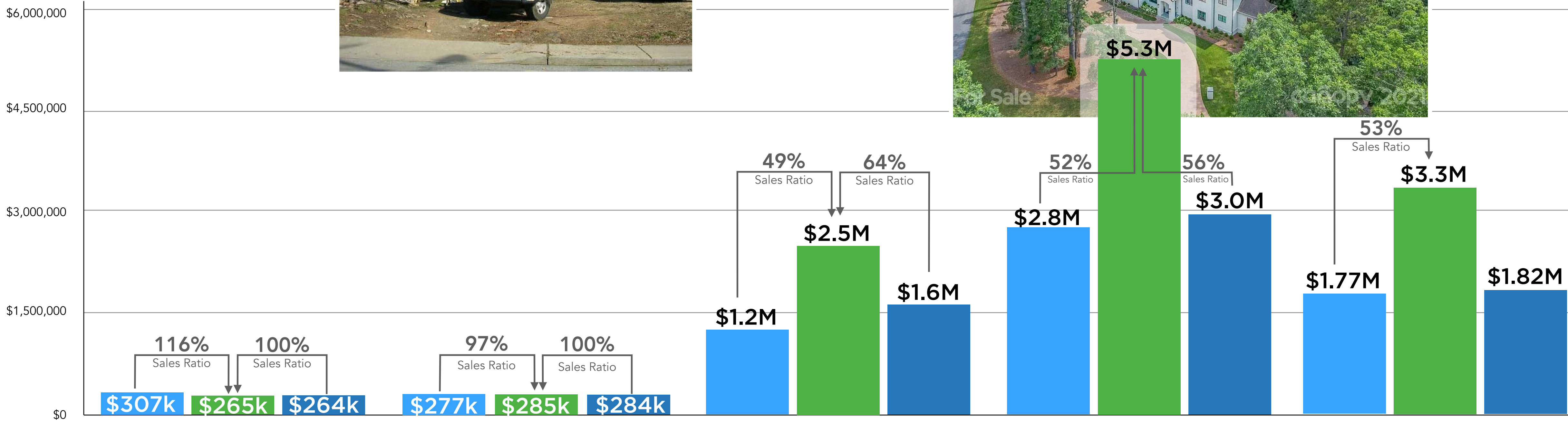
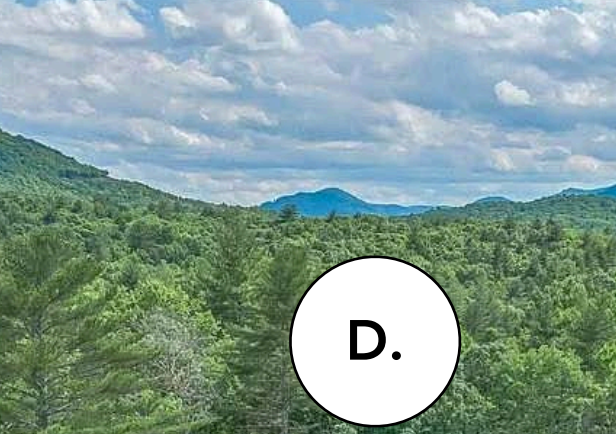
# URBAN3



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

# Houses

# URBAN3



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)



# Houses

# URBAN3



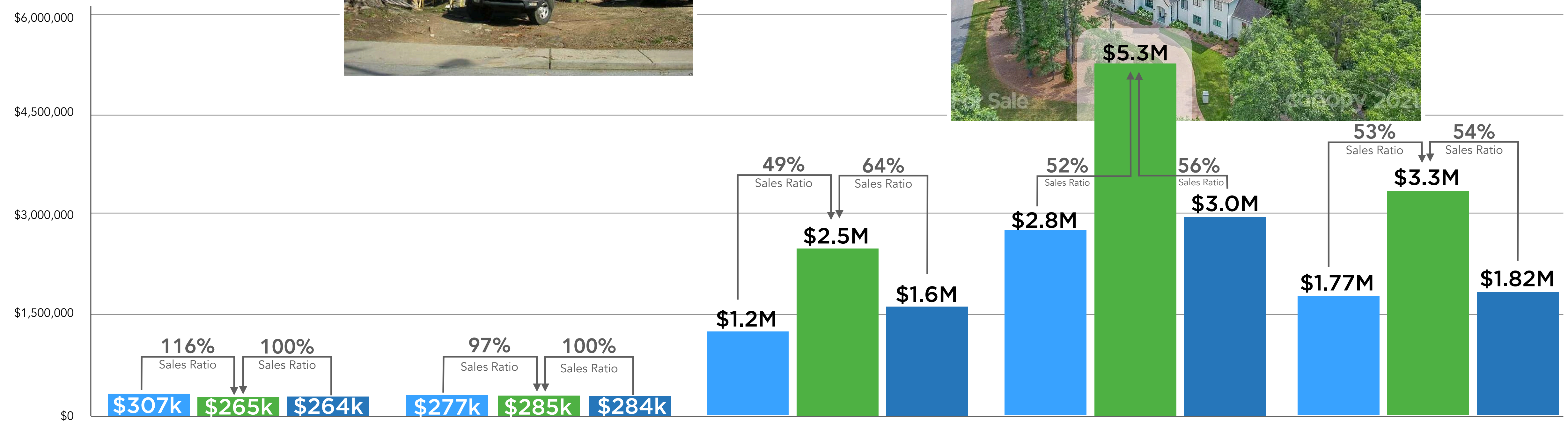
A.

B.

C.

D.

E.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

A

B

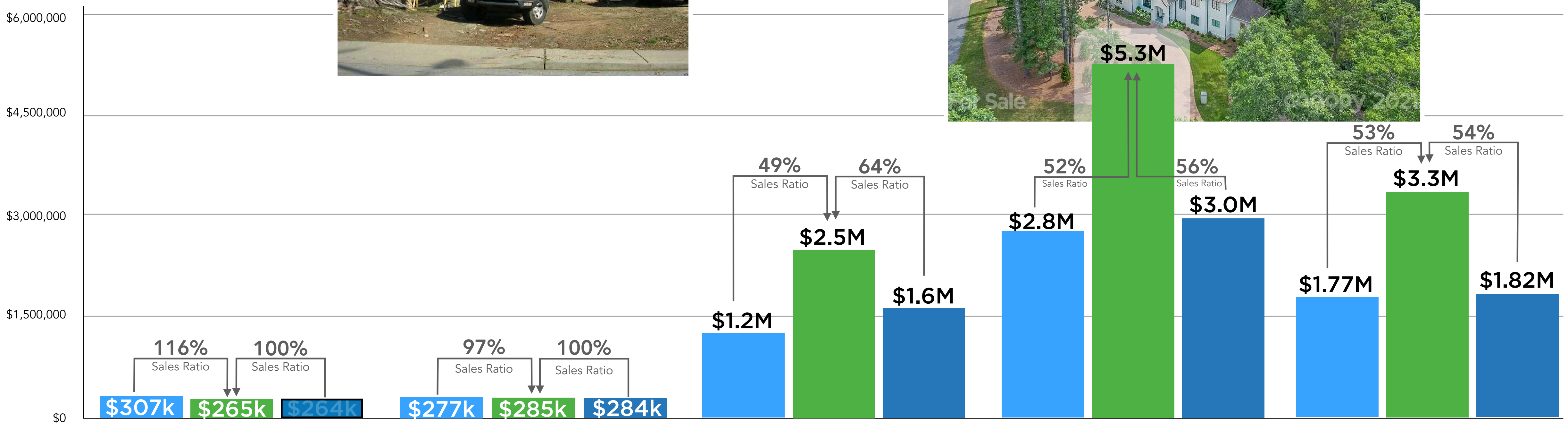
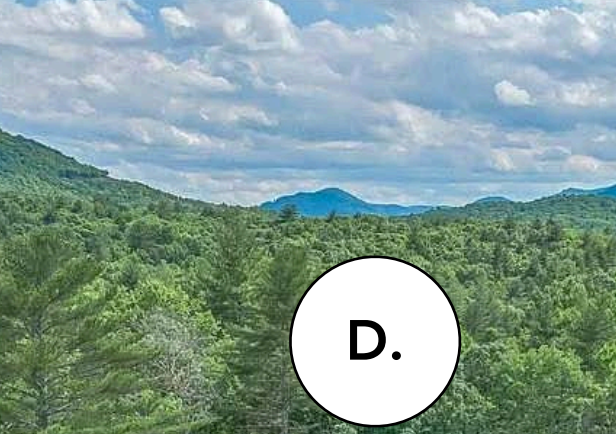
C

D

E

# Houses

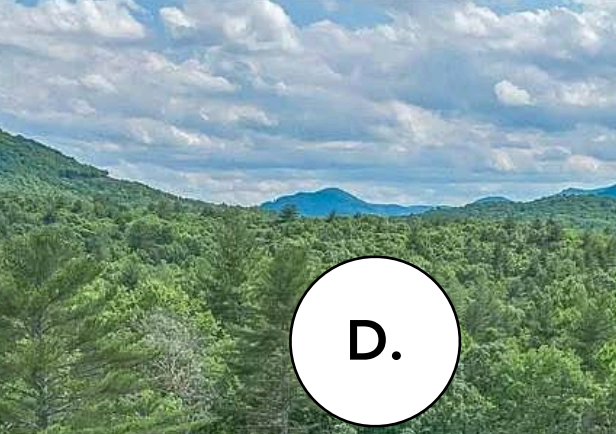
# URBAN3



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

# Houses

# URBAN3



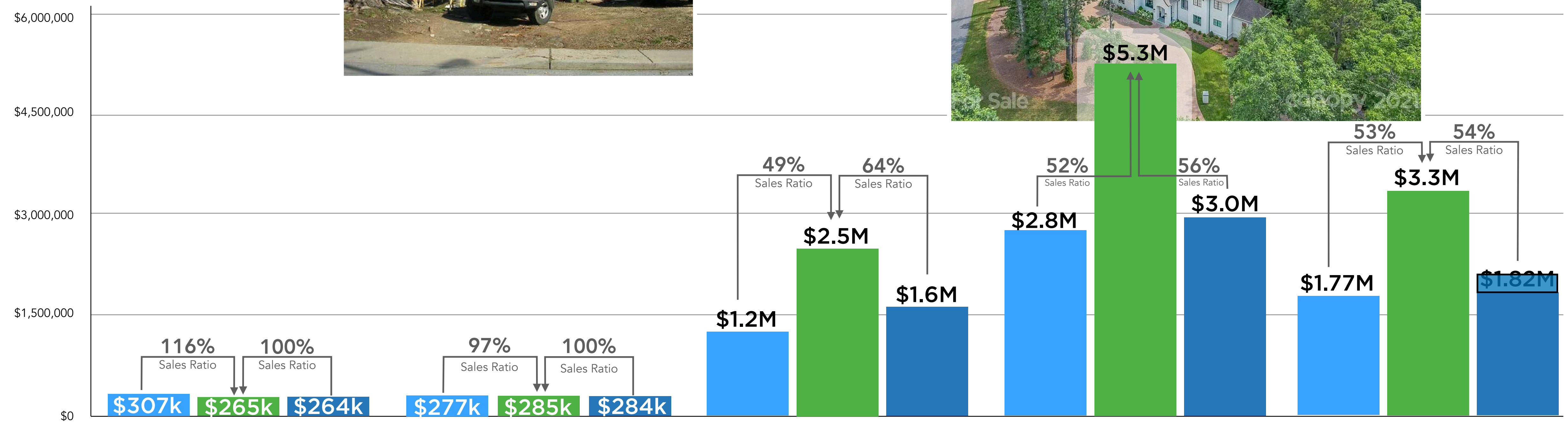
A.

B.

C.

D.

E.



■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

A

B

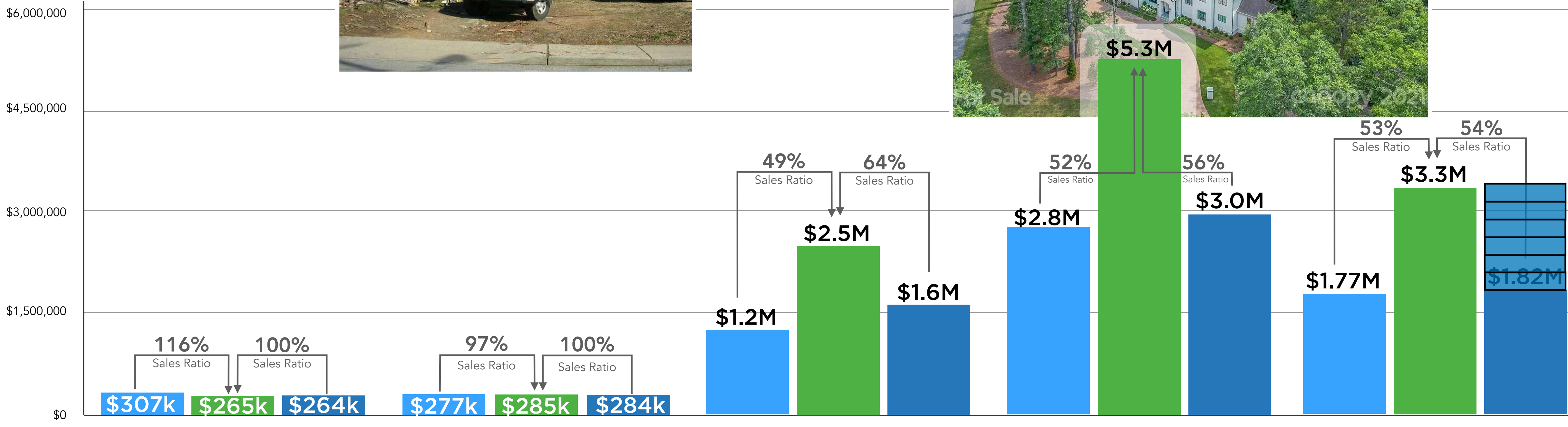
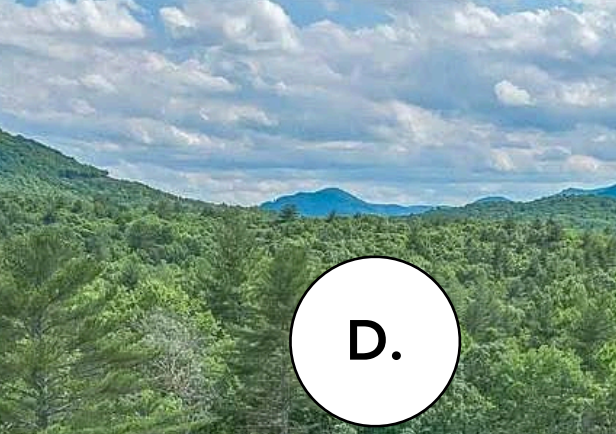
C

D

E

# Houses

# URBAN3



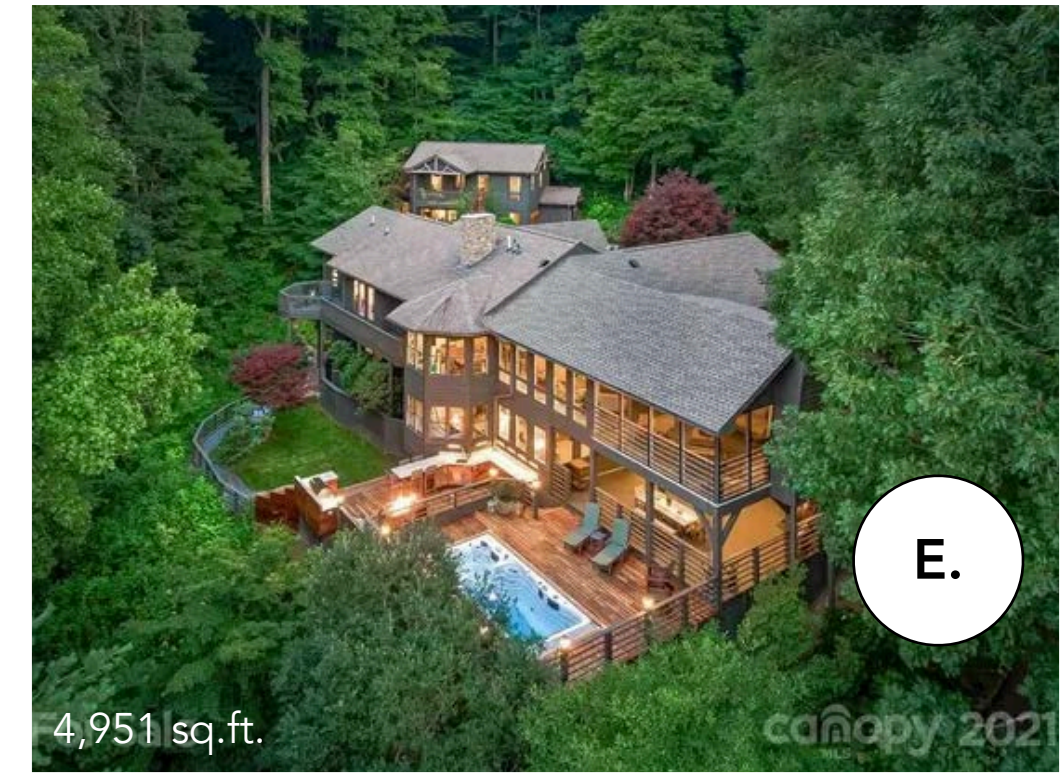
■ 2021 Assessment (Computer)  
■ 2021 Sale Price  
■ 2022 Assessment (Human)

# Houses



This house...

# URBAN3

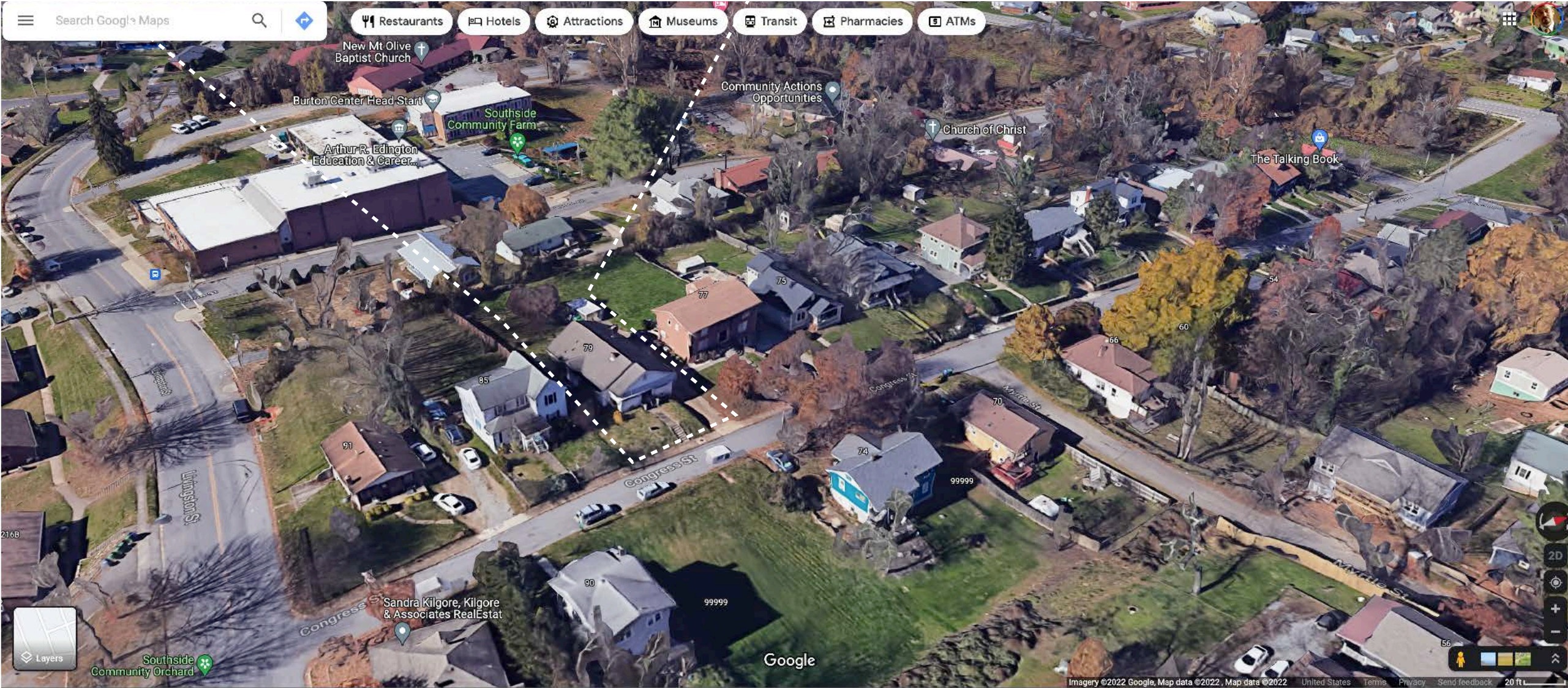


# Houses



This house...

# URBAN3

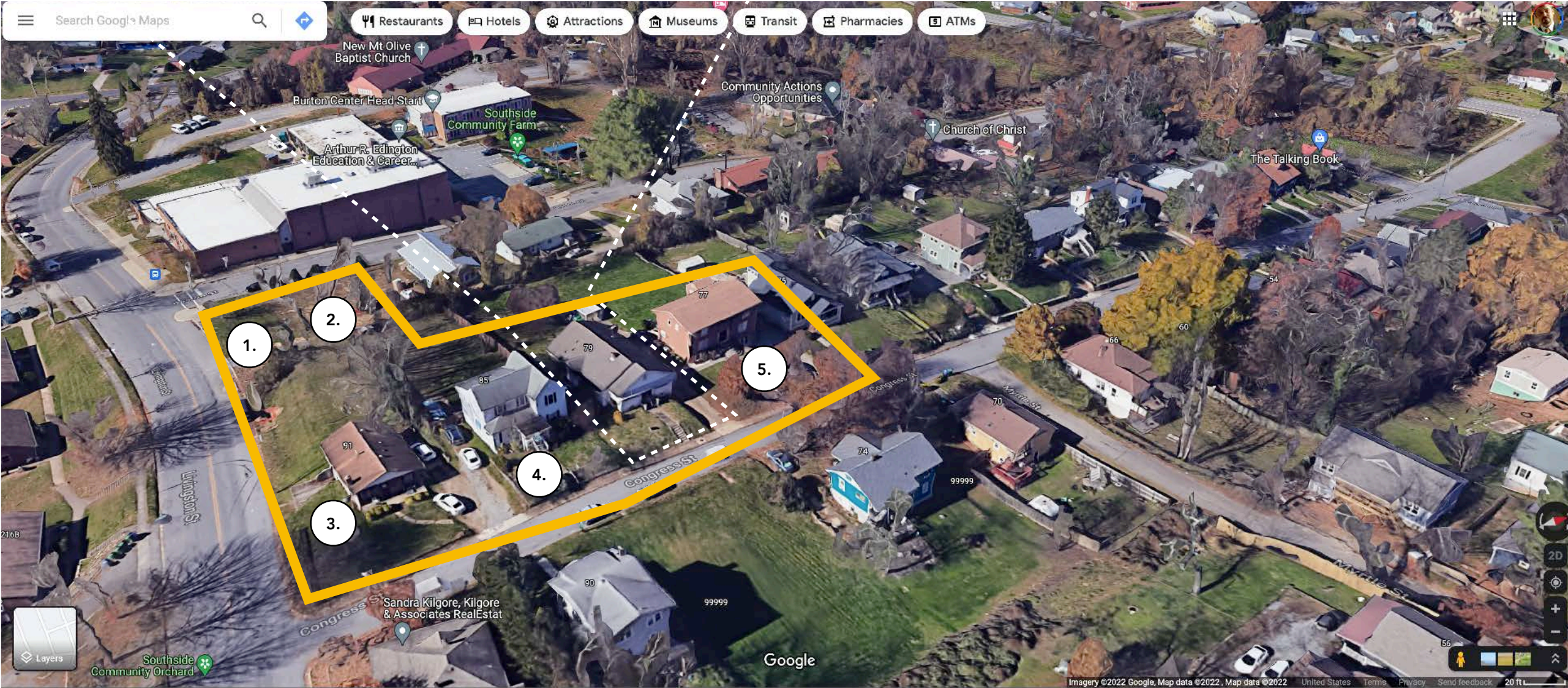
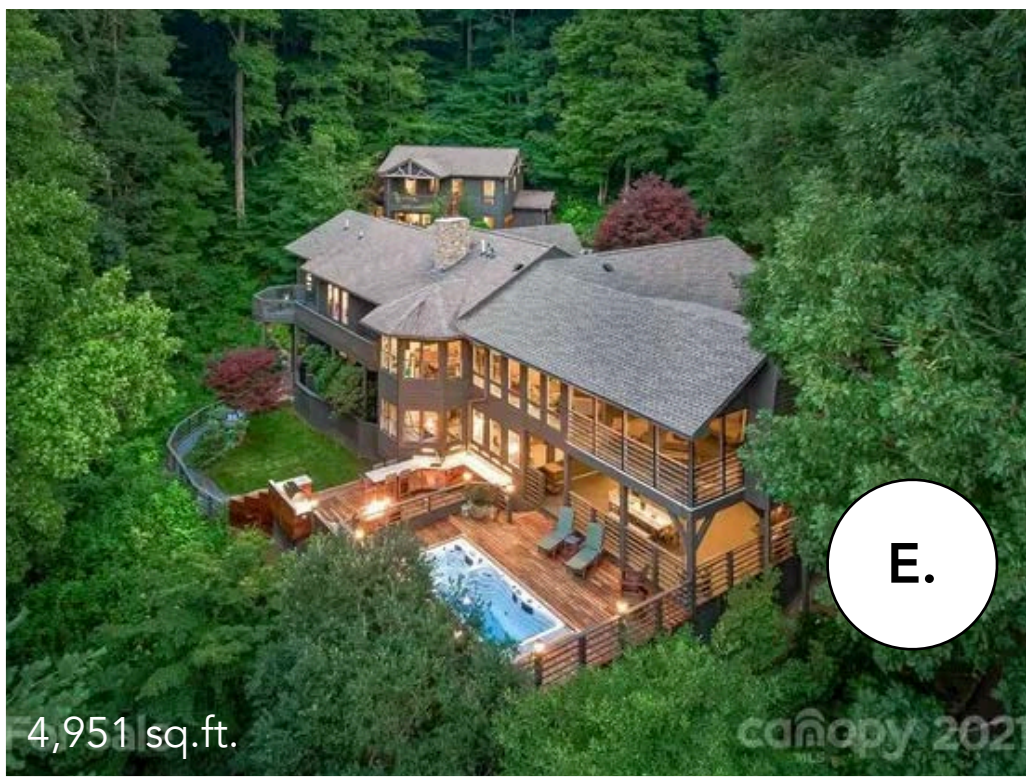


# Houses



This house...

# URBAN3



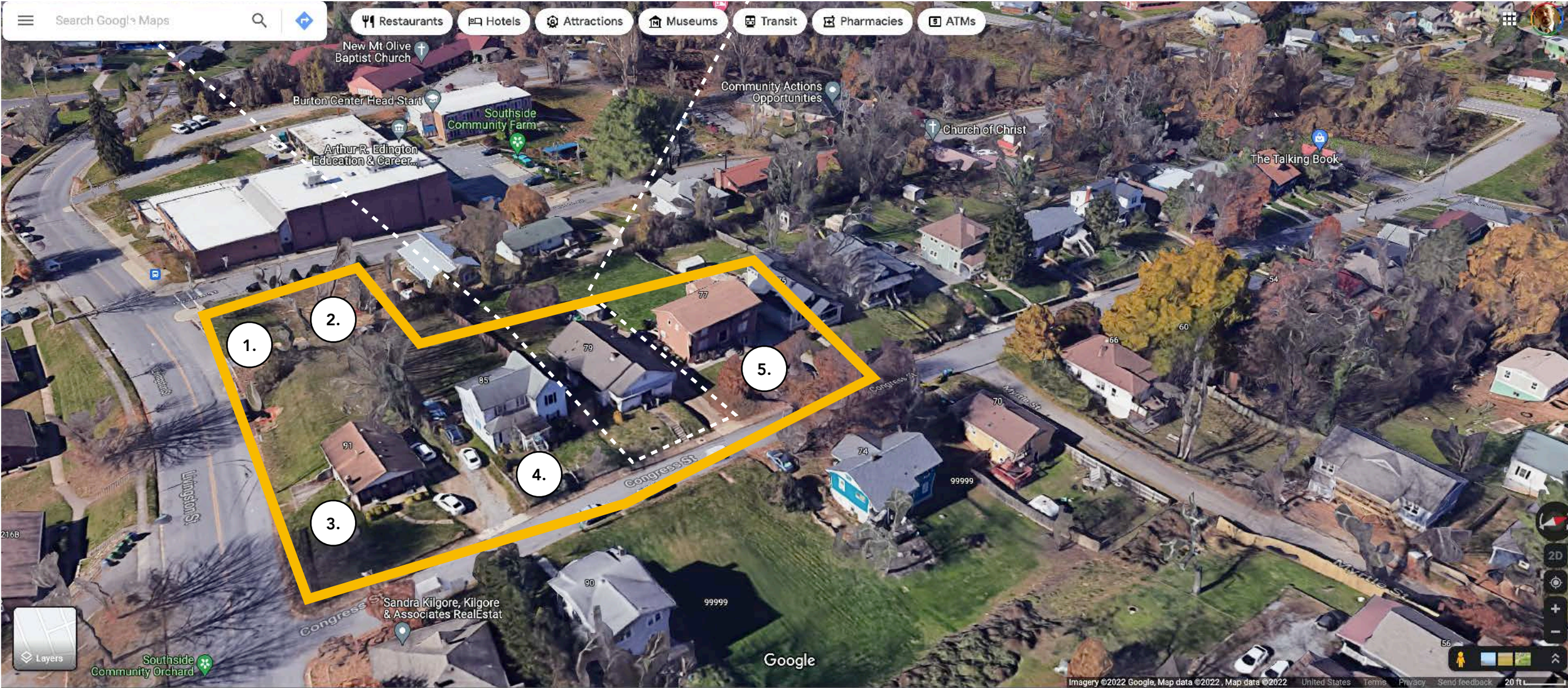
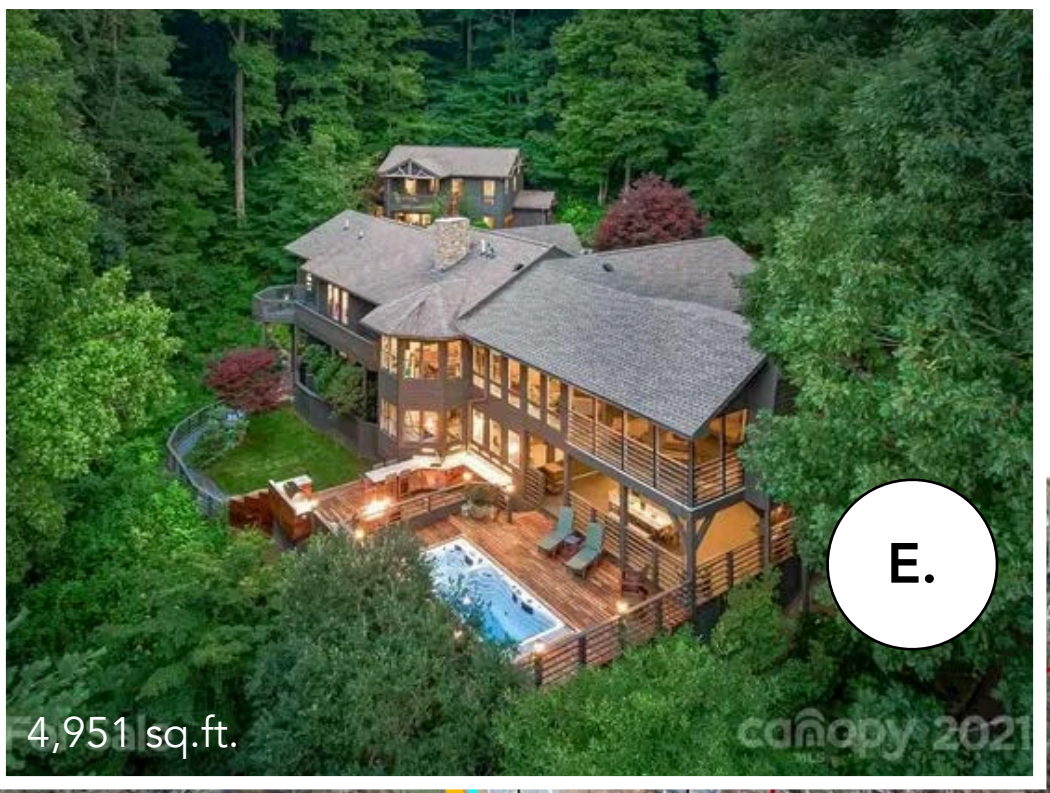
+ 5 neighboring parcels cover the tax break to ...

# Houses

# URBAN3



This house...



+ 5 neighboring parcels cover the tax break to ...



...this house out by the Blue Ridge Parkway.





Bias is baked into  
the system.

A vintage-style illustration of a woman and a young girl in a kitchen. The woman, on the left, has red hair styled in waves and is wearing a white dress with a green sash and a ruffled collar. She is smiling and looking towards the girl. The girl, on the right, has blonde hair in curls and is wearing a white dress with a green sash. She has a surprised expression. In the foreground, there is a large, round pie with a lattice crust and red fruit filling. In the background, there is a white toaster on a counter. A blue speech bubble is positioned above the girl, containing the text "And it's classist!".

And it's classist!

Bias is baked into  
the system.



You betcha!

And it's classist!

Bias is baked into  
the system.

**We're playing checkers,  
while the market is playing chess.**



# Value Change by Redline Map Asheville, NC

HOLC Mortgage Risk Maps Grading system was in place in the US from 1934 to 1968.

**GRADE**

- A - "Best"
- B - "Still Desirable"
- C - "Definitely Declining"
- D - "Hazardous"

Beaver Lake

Downtown  
(Downtowns typically were not mapped due to their commercial use)

Kenilworth

Biltmore Forest

Burton Street

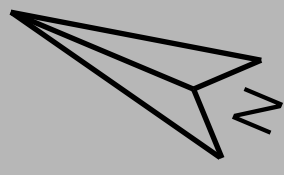
Brucemont Circle

Vermont Avenue



Average Increase % Change

- Grade A = 5%
- Grade D = 21%



Source: Buncombe County, NC  
Data Year: 2021

9%

3.7%

8.9%

11.7%

11.7%

13.9%

8.8%

12.9%

6%

20.4%

19.4%

Burton Street

26.4%

22.4%

21.4%

Brucemont Circle

5.4%

0.2%

-2.4%

16.9%

13%

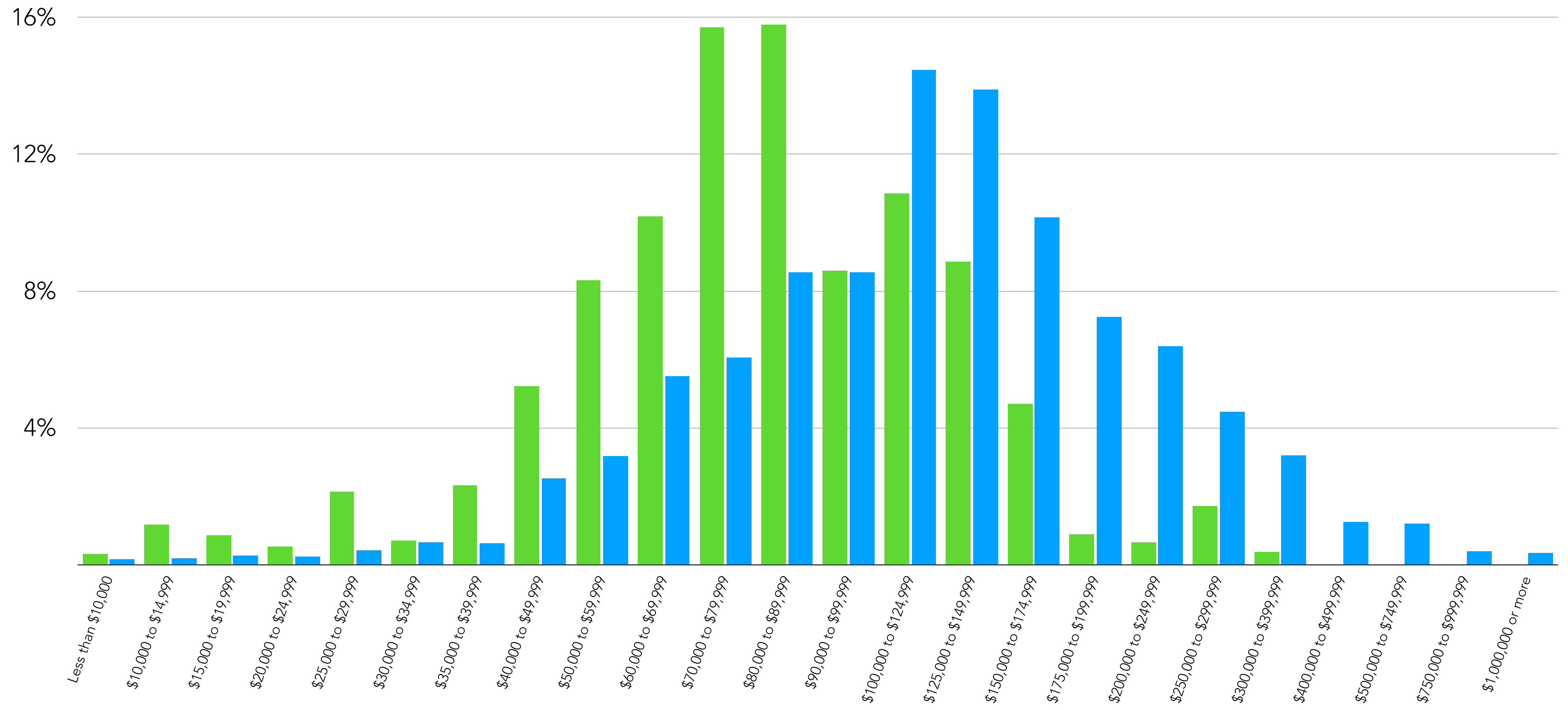
16.8%



# Value of Owned Home

Buncombe County, NC

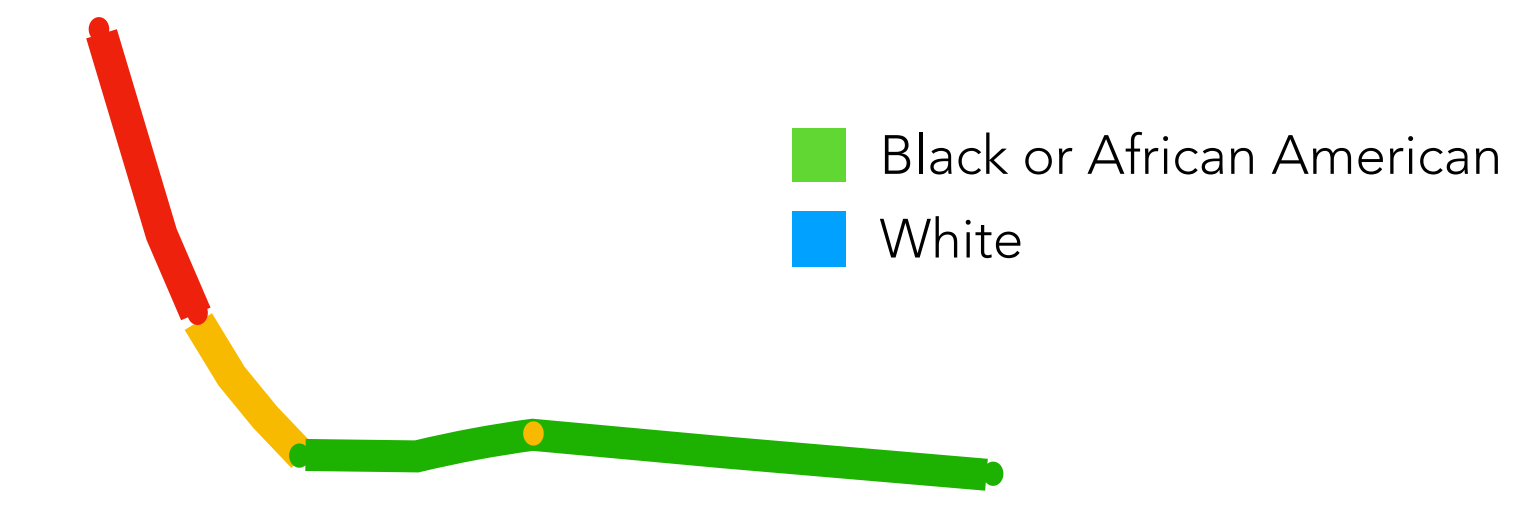
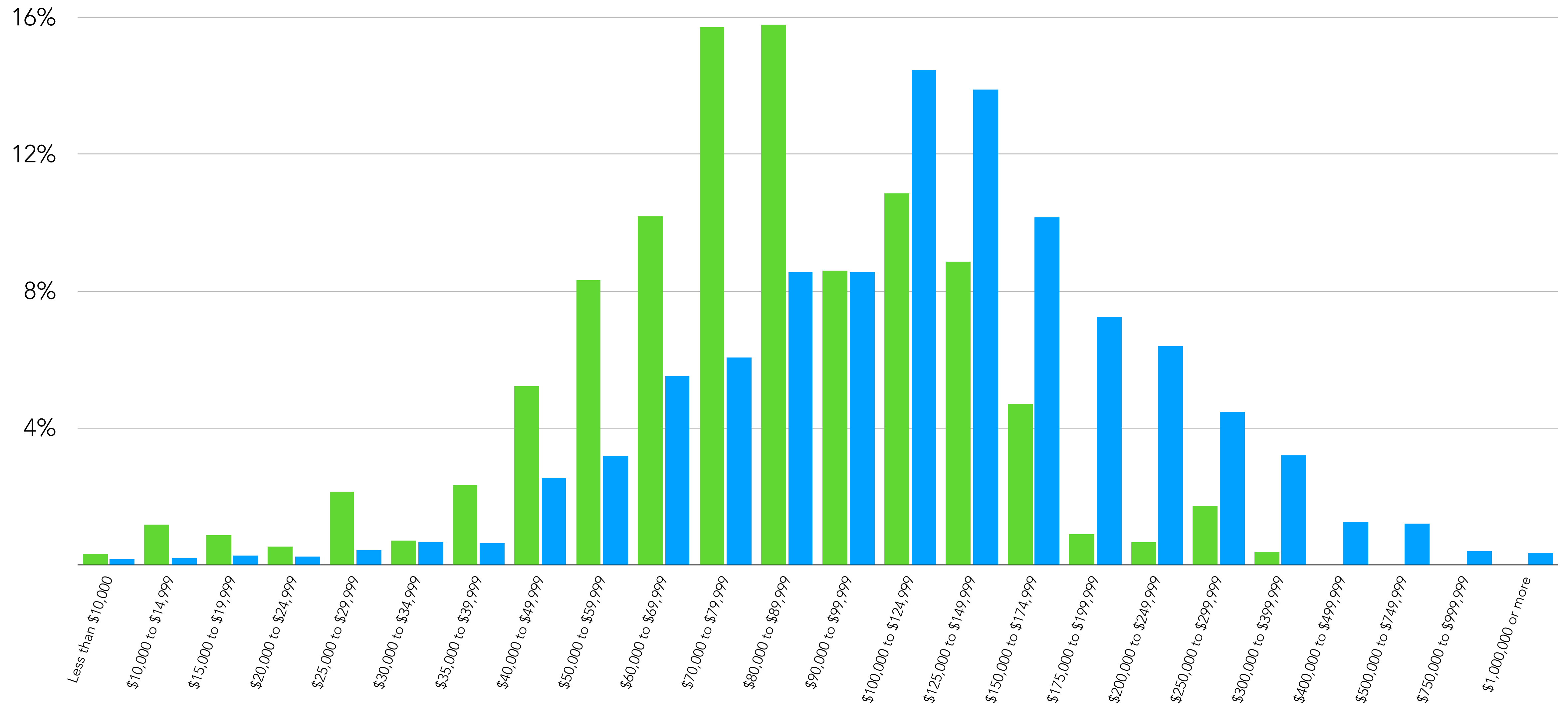
Black or African American  
White



# Value of Owned Home

Buncombe County, NC

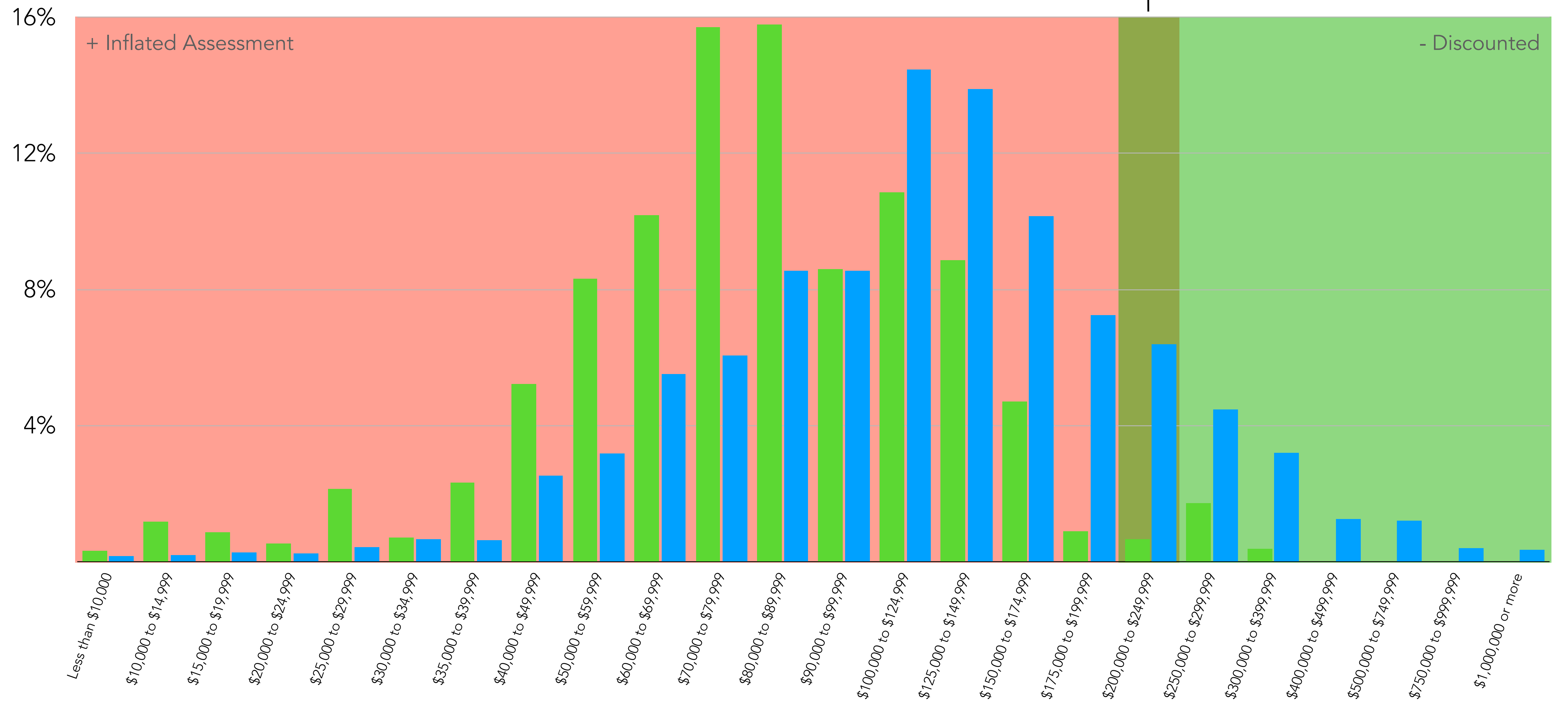
Black or African American  
White



# Value of Owned Home by Discount or Inflated

Buncombe County, NC

Black or African American  
White



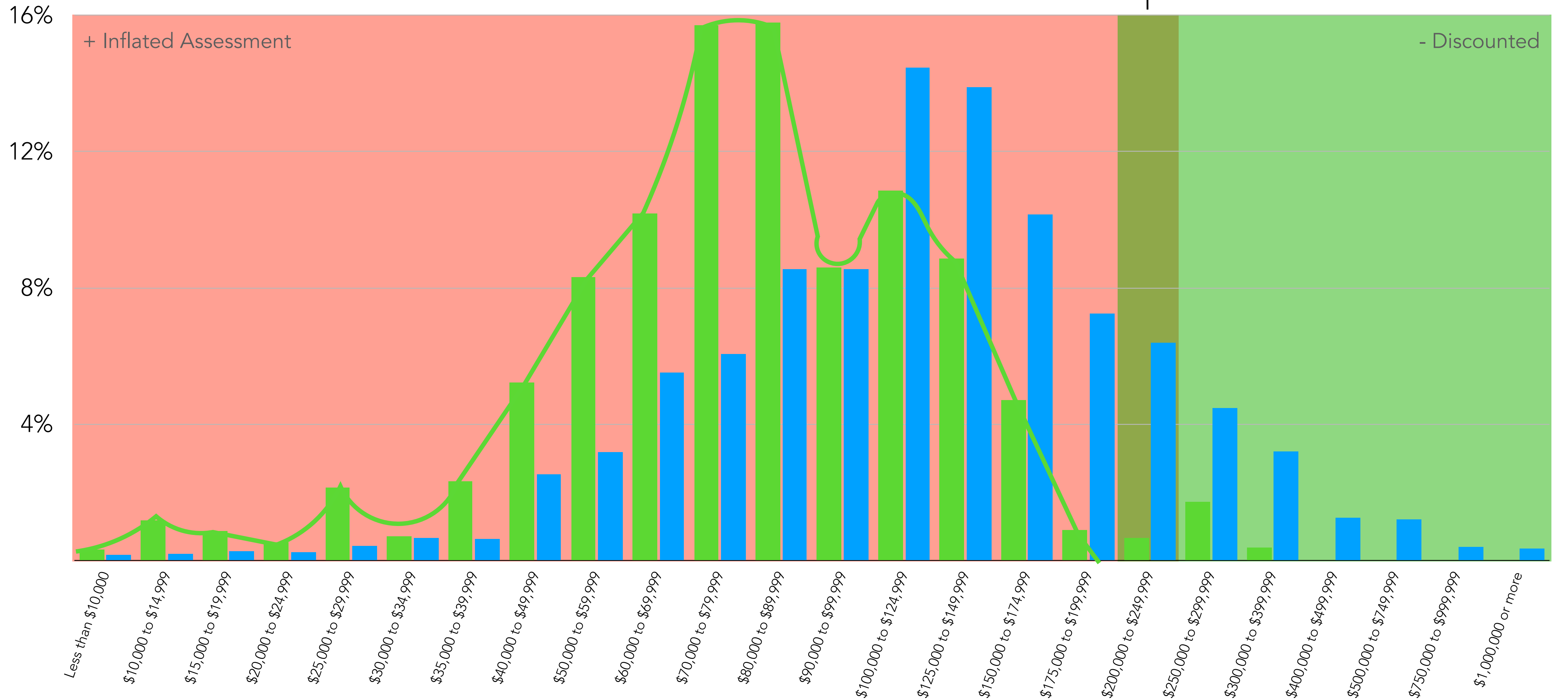
\$225,000 purchase = \$225,000 assessed



# Value of Owned Home by Discount or Inflated

Buncombe County, NC

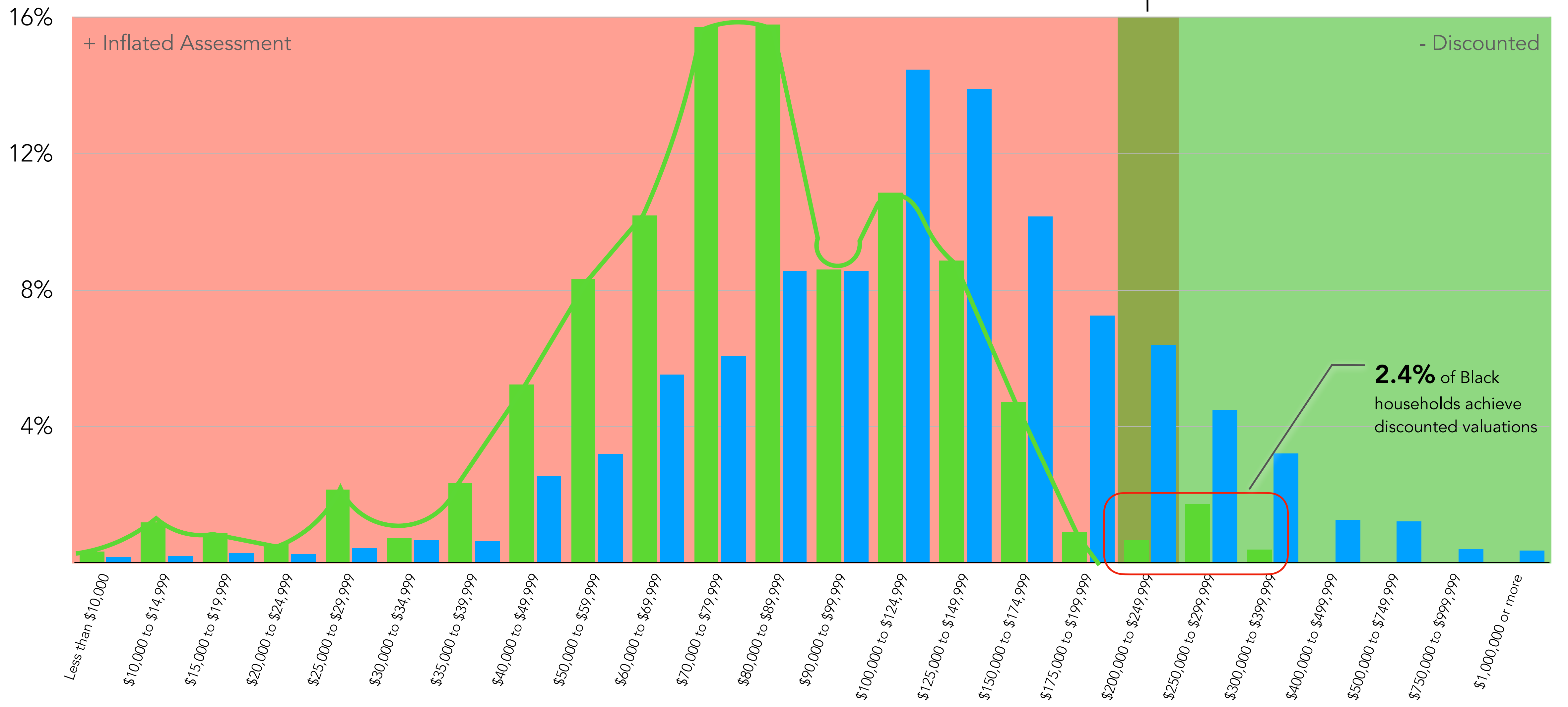
- Black or African American
- White



# Value of Owned Home by Discount or Inflated

Buncombe County, NC

Black or African American  
White



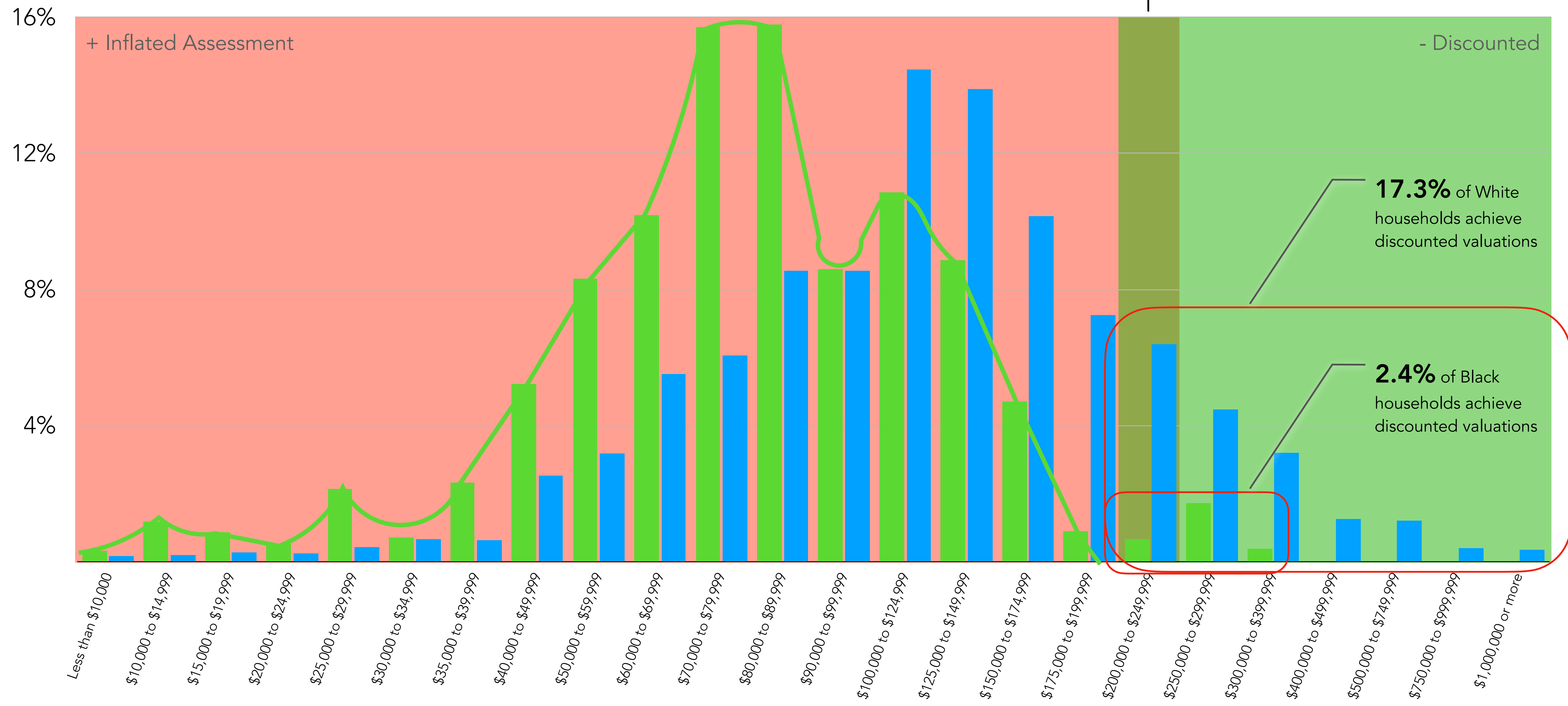
\$225,000 purchase = \$225,000 assessed

2.4% of Black households achieve discounted valuations

# Value of Owned Home by Discount or Inflated

Buncombe County, NC

Black or African American  
White





It's classist!

Bias is baked into  
the system.



It's classist!

And racist!

Bias is baked into  
the system.



You betcha!

It's classist!

And racist!

Bias is baked into  
the system.

If you can't measure it,  
you can't  
manage it.

Mayor Michael Bloomberg





**How government is set up.**





**How government is set up.**



**How we operate in cities.**

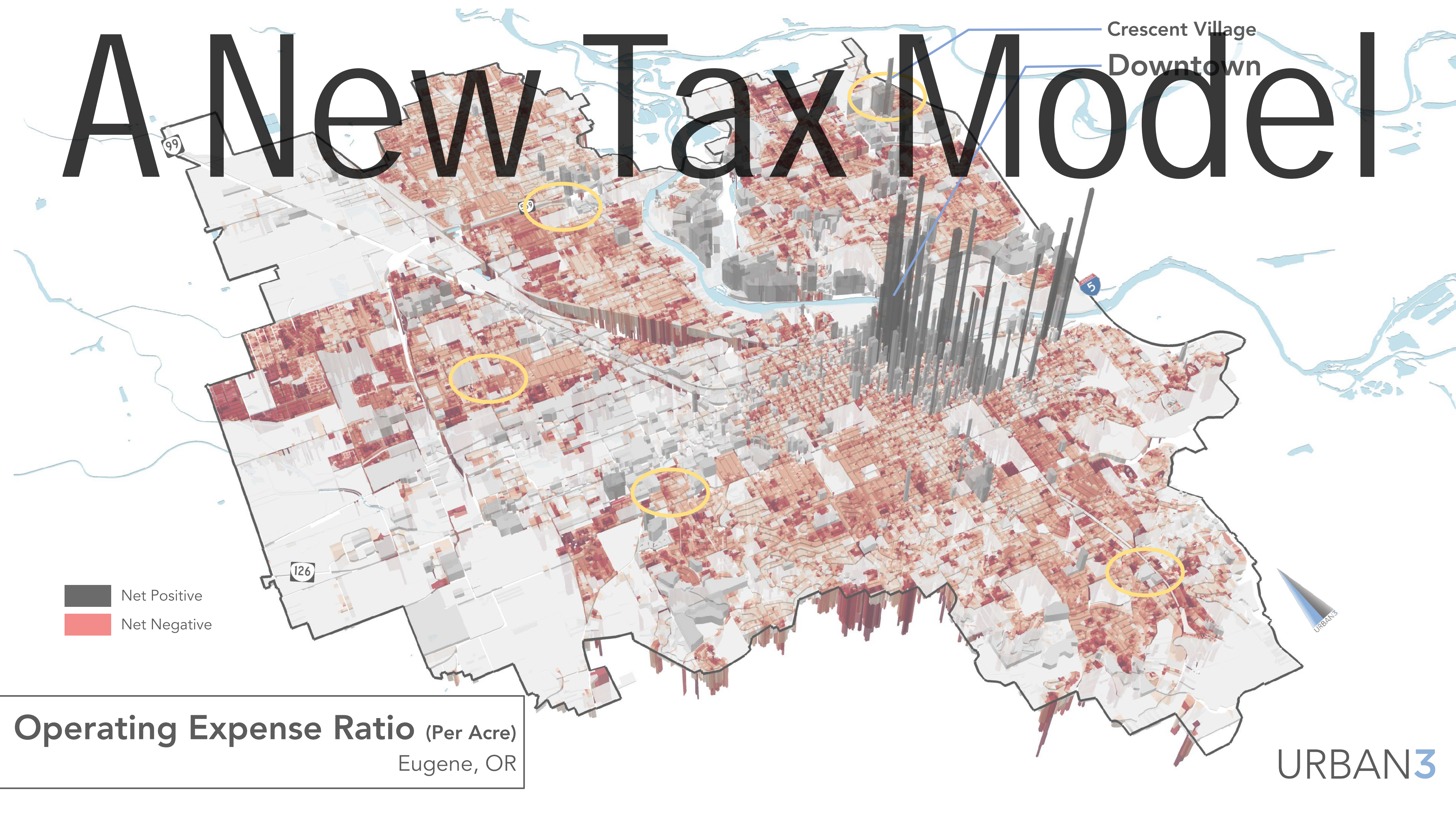
# A New Tax Model

Crescent Village  
Downtown

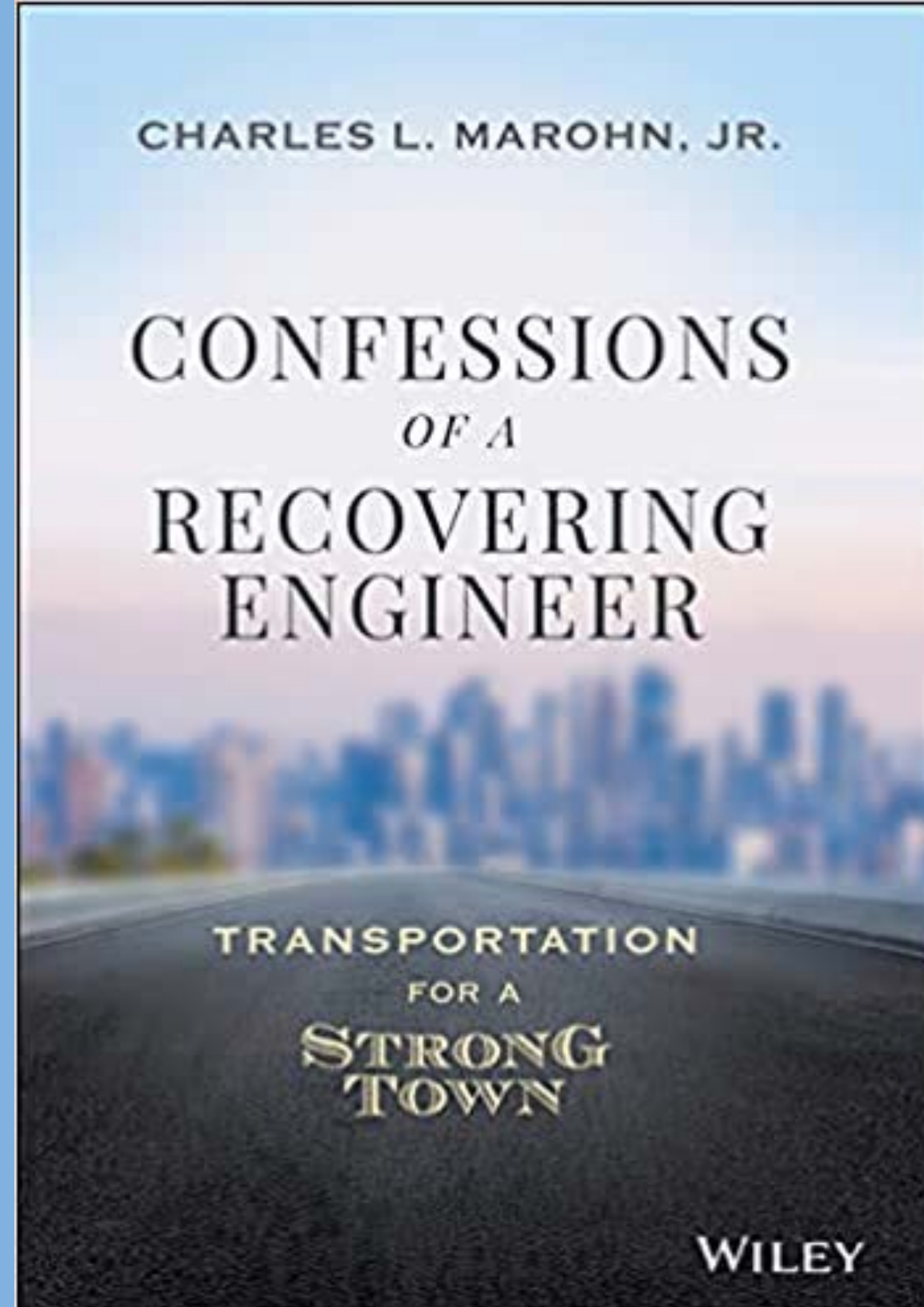
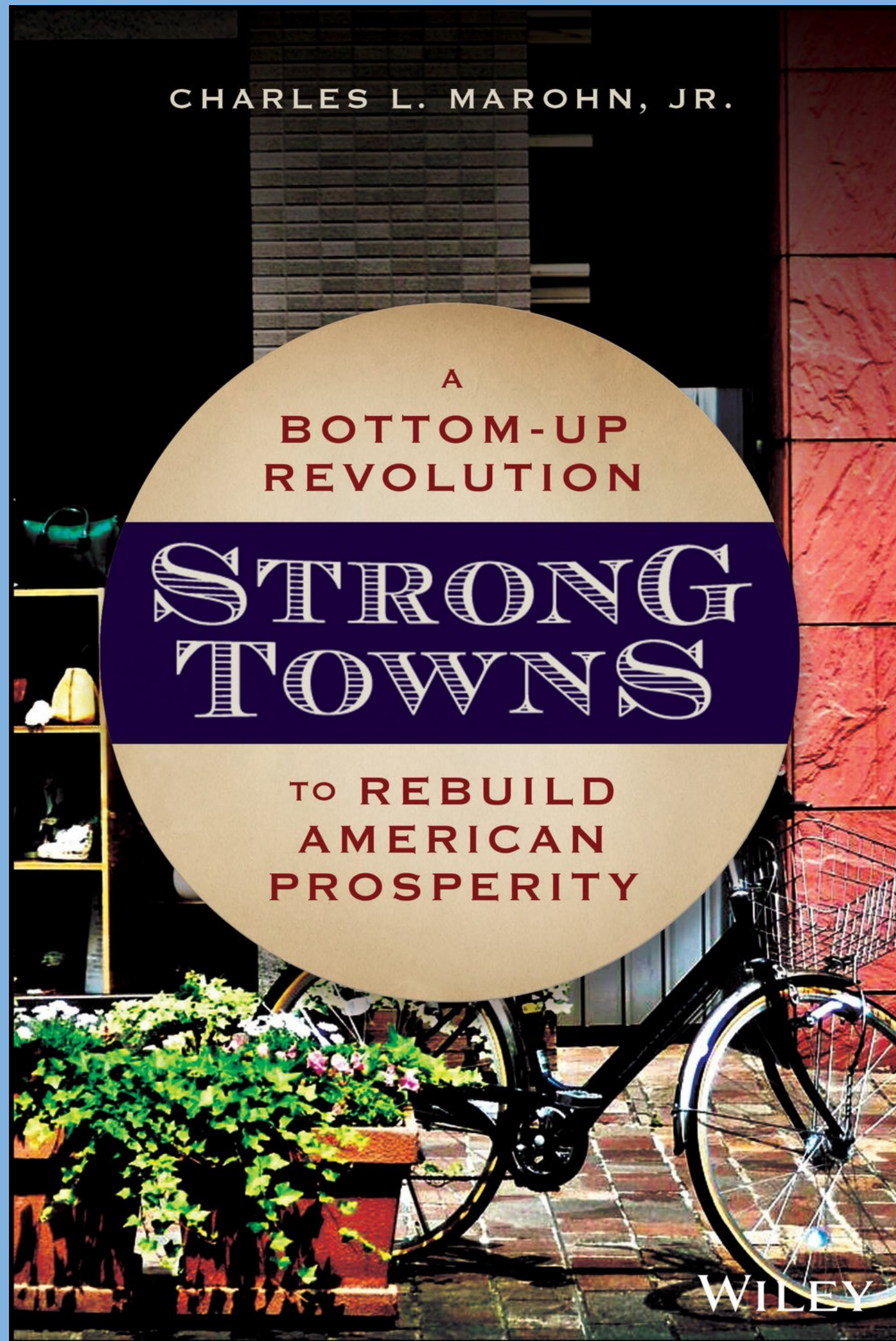
Net Positive  
Net Negative

Operating Expense Ratio (Per Acre)  
Eugene, OR

URBAN3



# Read the books!





**DO THE  
MATH**