

VERMONT OPPORTUNITY ZONES WORKSHOP

Telling your story with data.

John E. Adams
Director

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vcgi.vermont.gov

06.27.2019



opportunity.mapvt.com

OPPORTUNITY ZONES

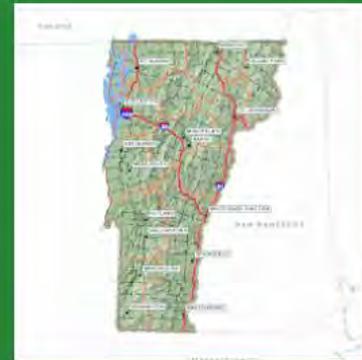
MAPPING & DATA RESOURCES



OPPORTUNITY
ZONES MAP



CENSUS
REPORTER



INTERACTIVE MAP
VIEWER



PRESENTATION
SLIDES FROM
JOHN

What happened on January 28, 1986?

What happened on January 28, 1986?



EDWARD R. TUFTE

VISUAL AND STATISTICAL THINKING:

DISPLAYS OF EVIDENCE FOR MAKING DECISIONS

TEMPERATURE CONCERN ON

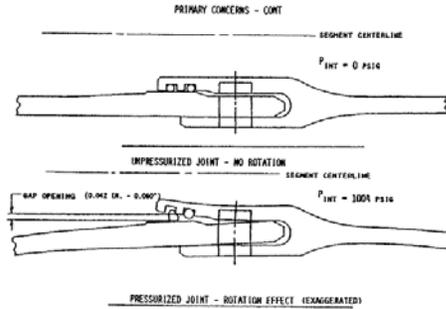
SRM JOINTS

27 JAN 1986

PRIMARY CONCERNS -

FIELD JOINT - HIGHEST CONCERN

- EROSION PENETRATION OF PRIMARY SEAL REQUIRES RELIABLE SECONDARY SEAL FOR PRESSURE INTEGRITY
 - IGNITION TRANSIENT - (0-600 MS)
 - (0-170 MS) HIGH PROBABILITY OF RELIABLE SECONDARY SEAL
 - (170-330 MS) REDUCED PROBABILITY OF RELIABLE SECONDARY SEAL
 - (330-600 MS) HIGH PROBABILITY OF NO SECONDARY SEAL CAPABILITY
- STEADY STATE - (600 MS - 2 MINUTES)
 - IF EROSION PENETRATES PRIMARY O-RING SEAL - HIGH PROBABILITY OF NO SECONDARY SEAL CAPABILITY
 - BENCH TESTING SHOWED O-RING NOT CAPABLE OF MAINTAINING CONTACT WITH METAL PARTS GAP OPENING RATE TO NEOP
 - BENCH TESTING SHOWED CAPABILITY TO MAINTAIN O-RING CONTACT DURING INITIAL PHASE (0-170 MS) OF TRANSIENT



HISTORY OF O-RING DAMAGE ON SRM FIELD JOINTS

SRM No.	Cross Sectional View			Top View		Clocking Location (deg)
	Erosion Depth (in.)	Perimeter Affected (deg)	Nominal Dia. (in.)	Length Of Max Erosion (in.)	Total Heat Affected Length (in.)	
61A LH Center Field**	22A	None	None	0.280	None	36° - 66°
61A LH CENTER FIELD**	22A	NONE	NONE	0.280	NONE	338° - 18°
51C LH Forward Field**	15A	0.010	154.0	0.280	4.25	163
51C RH Center Field (prim)***	15B	0.038	130.0	0.280	12.50	354
51C RH Center Field (sec)***	15B	None	45.0	0.280	None	29.50
41D RH Forward Field	13B	0.028	110.0	0.280	3.00	None
41C LH Aft Field*	11A	None	None	0.280	None	--
41B LH Forward Field	10A	0.040	217.0	0.280	3.00	14.50
31S-2 RH Aft Field	2B	0.053	116.0	0.280	--	90

*Hot gas path detected in putty. Indication of heat on O-ring, but no damage.
 **Soot behind primary O-ring.
 ***Soot behind primary O-ring, heat affected secondary O-ring.

Clocking location of leak check port - 0 deg.

OTHER SRM-15 FIELD JOINTS HAD NO BLOWHOLES IN PUTTY AND NO SOOT NEAR OR BEYOND THE PRIMARY O-RING.

SRM-22 FORWARD FIELD JOINT HAD PUTTY PATH TO PRIMARY O-RING, BUT NO O-RING EROSION AND NO SOOT BLOWBY. OTHER SRM-22 FIELD JOINTS HAD NO BLOWHOLES IN PUTTY.

BLOW BY HISTORY

- SRM-15 WORST BLOW-BY
 - 2 CASE JOINTS (80°), (110°) ARC
 - MUCH WORSE VISUALLY THAN SRM-22

SRM 22 BLOW-BY

- 2 CASE JOINTS (30-40°)

SRM-13A, 15, 16A, 18, 23A 24A

- NOZZLE BLOW-BY

HISTORY OF O-RING TEMPERATURES (DEGREES - F)

MOTOR	MBT	AMB	O-RING	WIND
DM-1	68	36	47	10 MPH
DM-2	76	45	52	10 MPH
QM-3	72.5	40	48	10 MPH
QM-4	76	48	51	10 MPH
SRM-15	52	64	53	10 MPH
SRM-22	77	78	75	10 MPH
SRM-25	55	26	29	10 MPH
			27	25 MPH

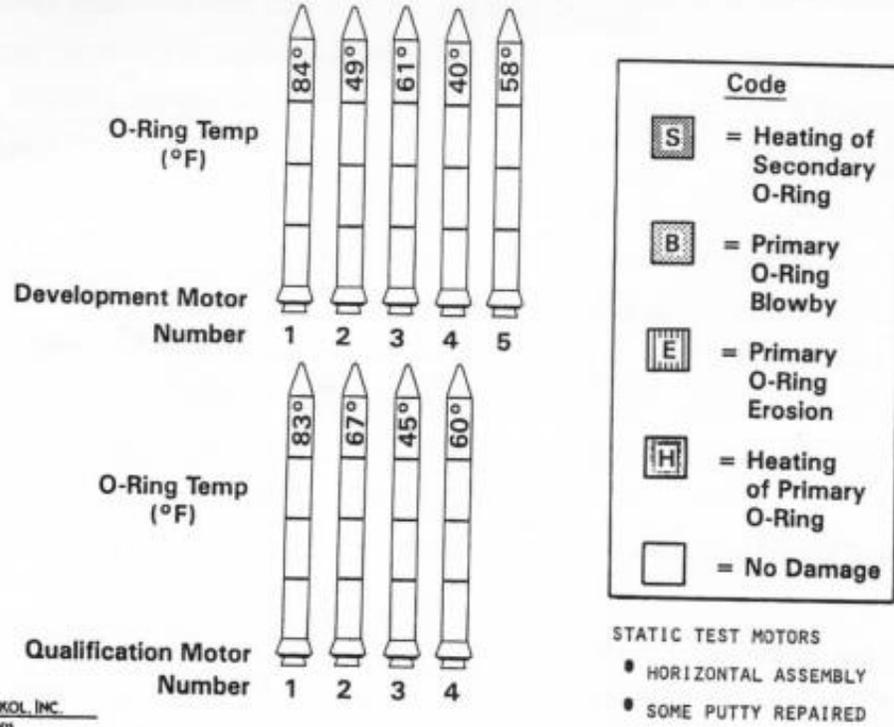
CONCLUSIONS :

- TEMPERATURE OF O-RING IS NOT ONLY PARAMETER CONTROLLING BLOW-BY
 - SRM 15 WITH BLOW-BY HAD AN O-RING TEMP AT 53°F
 - SRM 22 WITH BLOW-BY HAD AN O-RING TEMP AT 75°F
 - FOUR DEVELOPMENT MOTORS WITH NO BLOW-BY WERE TESTED AT O-RING TEMP OF 47° TO 52°F
- DEVELOPMENT MOTORS HAD PUTTY PACKING WHICH RESULTED IN BETTER PERFORMANCE
- AT ABOUT 50°F BLOW-BY COULD BE EXPERIENCED IN CASE JOINTS
- TEMP FOR SRM 25 ON 1-28-86 LAUNCH WILL BE 29°F 9 AM
38°F 2 PM
- HAVE NO DATA THAT WOULD INDICATE SRM 25 IS DIFFERENT THAN SRM 15 OTHER THAN TEMP

RECOMMENDATIONS :

- O-RING TEMP MUST BE $\geq 53^\circ\text{F}$ AT LAUNCH
 - DEVELOPMENT MOTORS AT 47° TO 52°F WITH PUTTY PACKING HAD NO BLOW-BY
 - SRM 15 (THE BEST SIMULATION) WORKED AT 53°F
- PROJECT AMBIENT CONDITIONS (TEMP & WIND) TO DETERMINE LAUNCH TIME

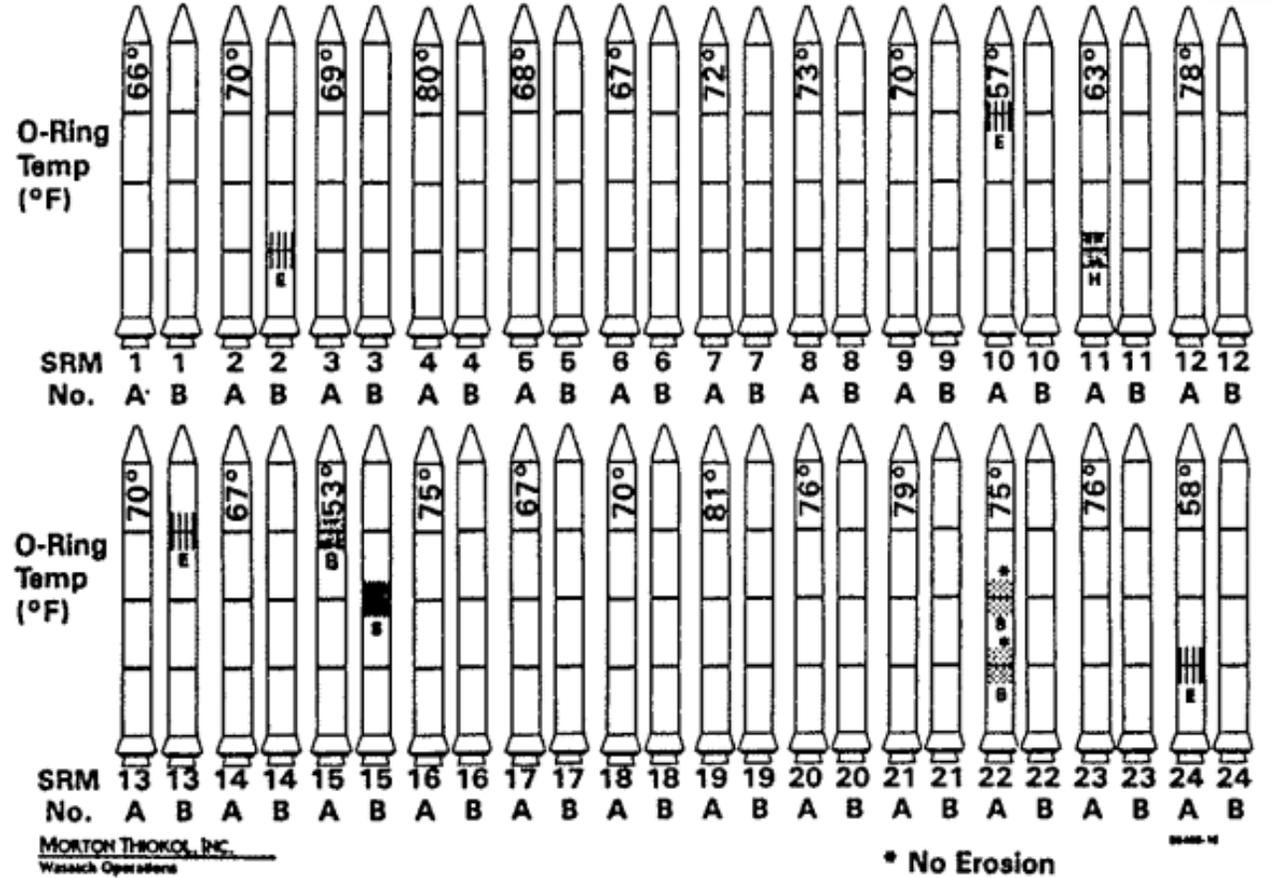
History of O-Ring Damage in Field Joints



MORTON THICKOL, INC.
Wasatch Operations

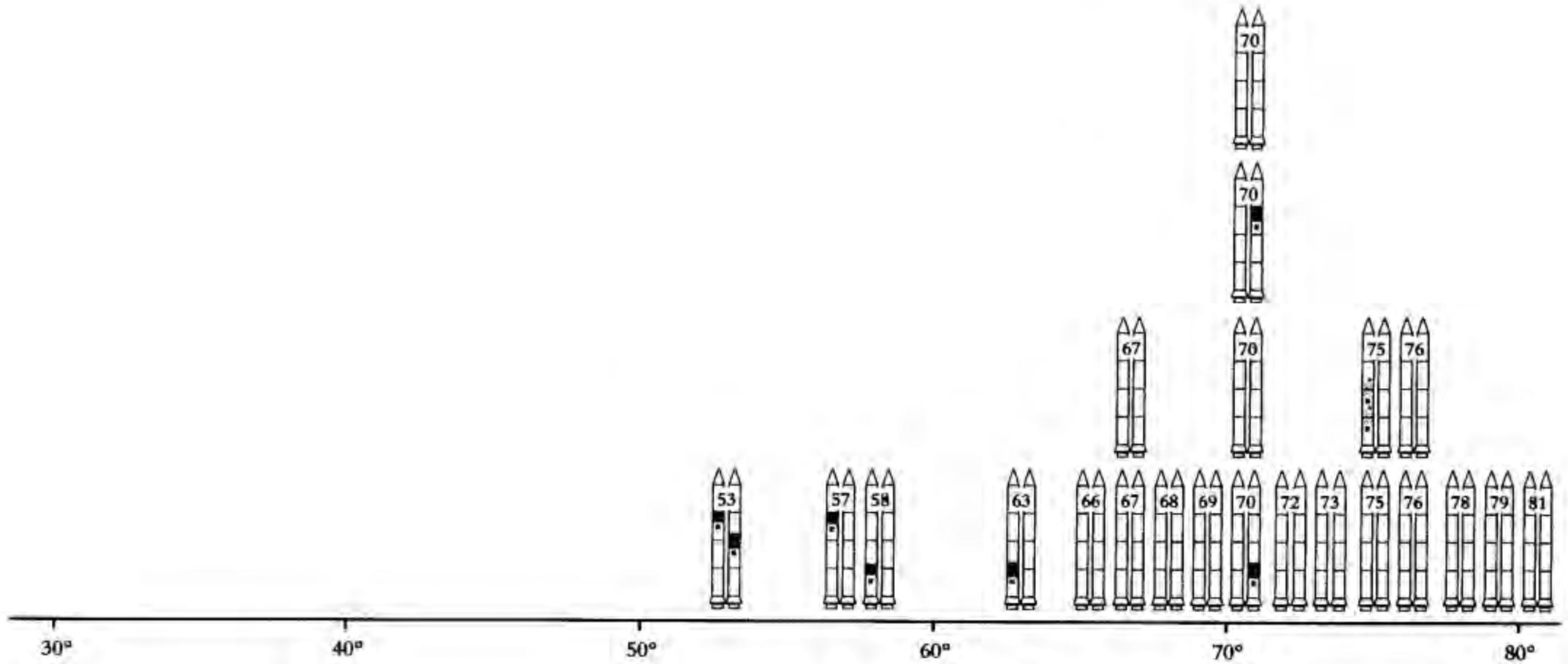
INFORMATION ON THIS PAGE WAS PREPARED TO SUPPORT AN ORAL PRESENTATION AND CANNOT BE CONSIDERED COMPLETE WITHOUT THE ORAL DISCUSSION

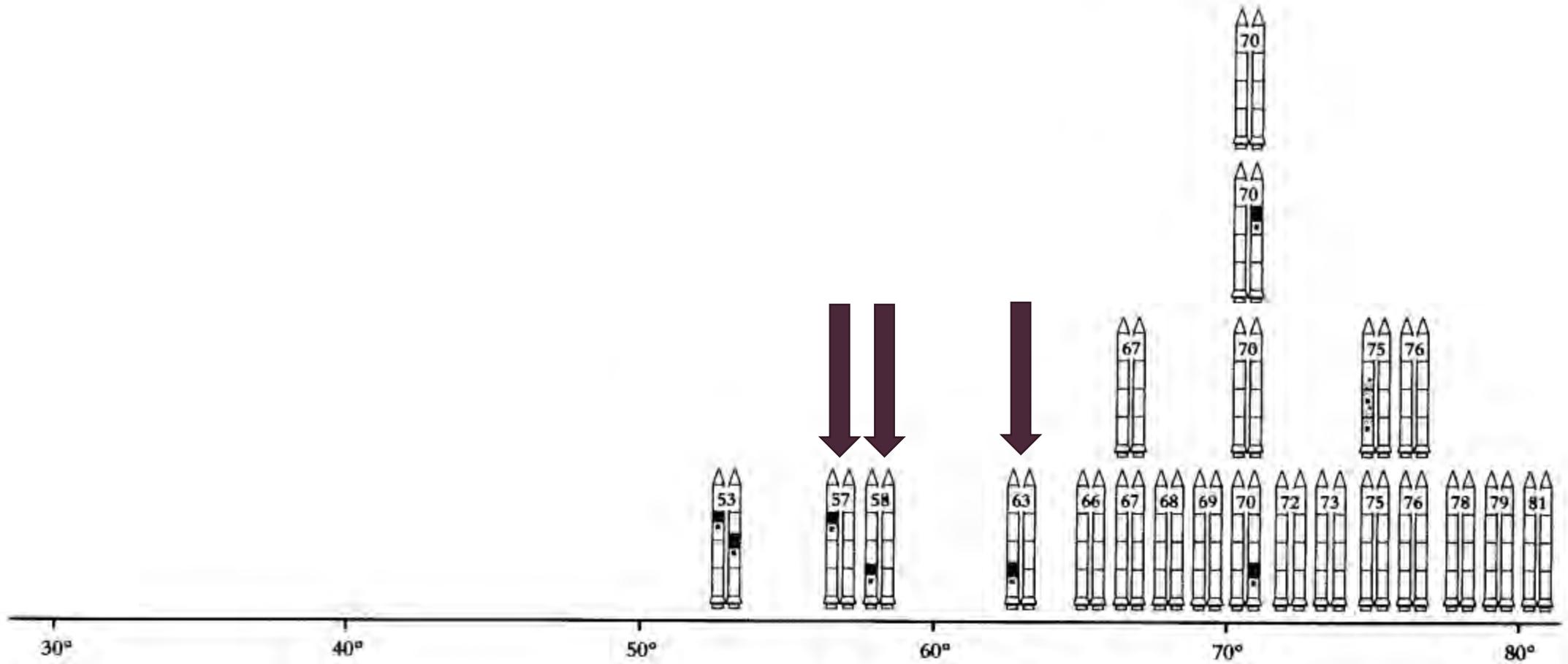
History of O-Ring Damage in Field Joints (Cont)

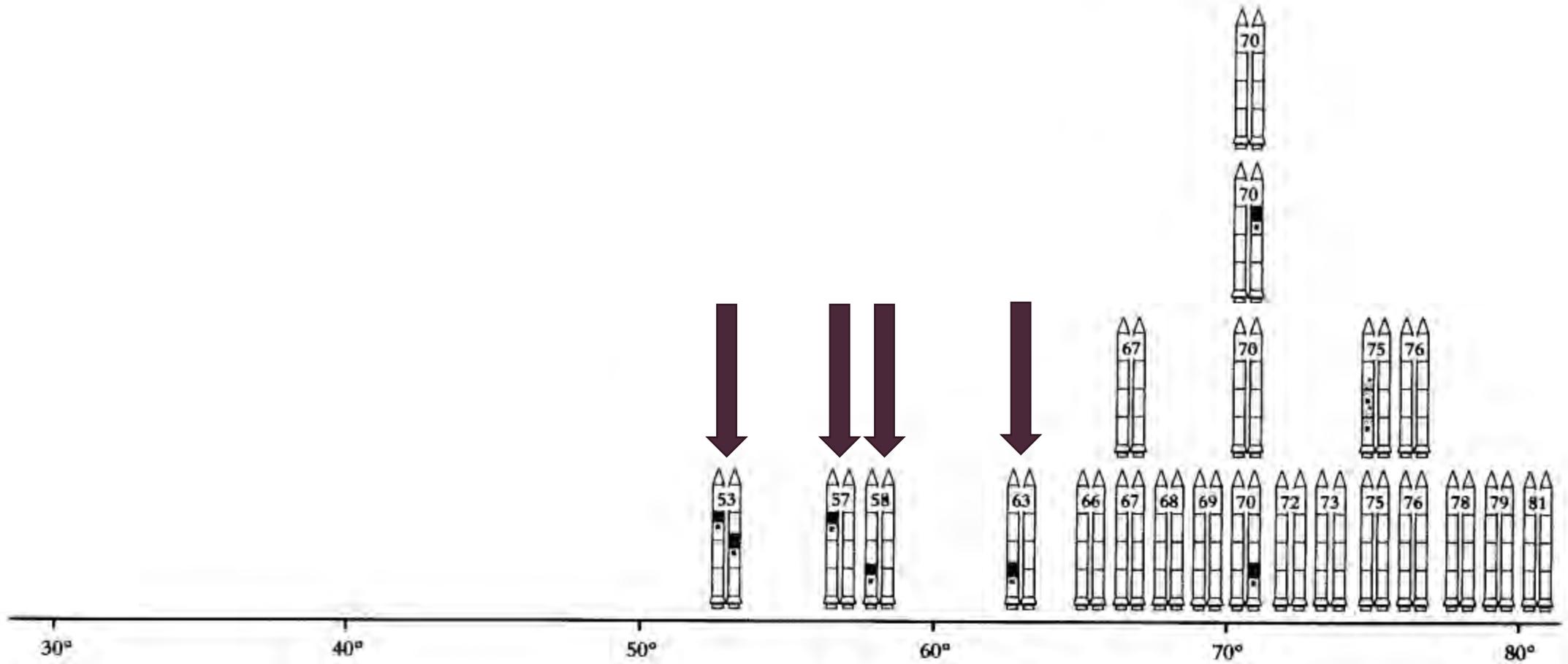


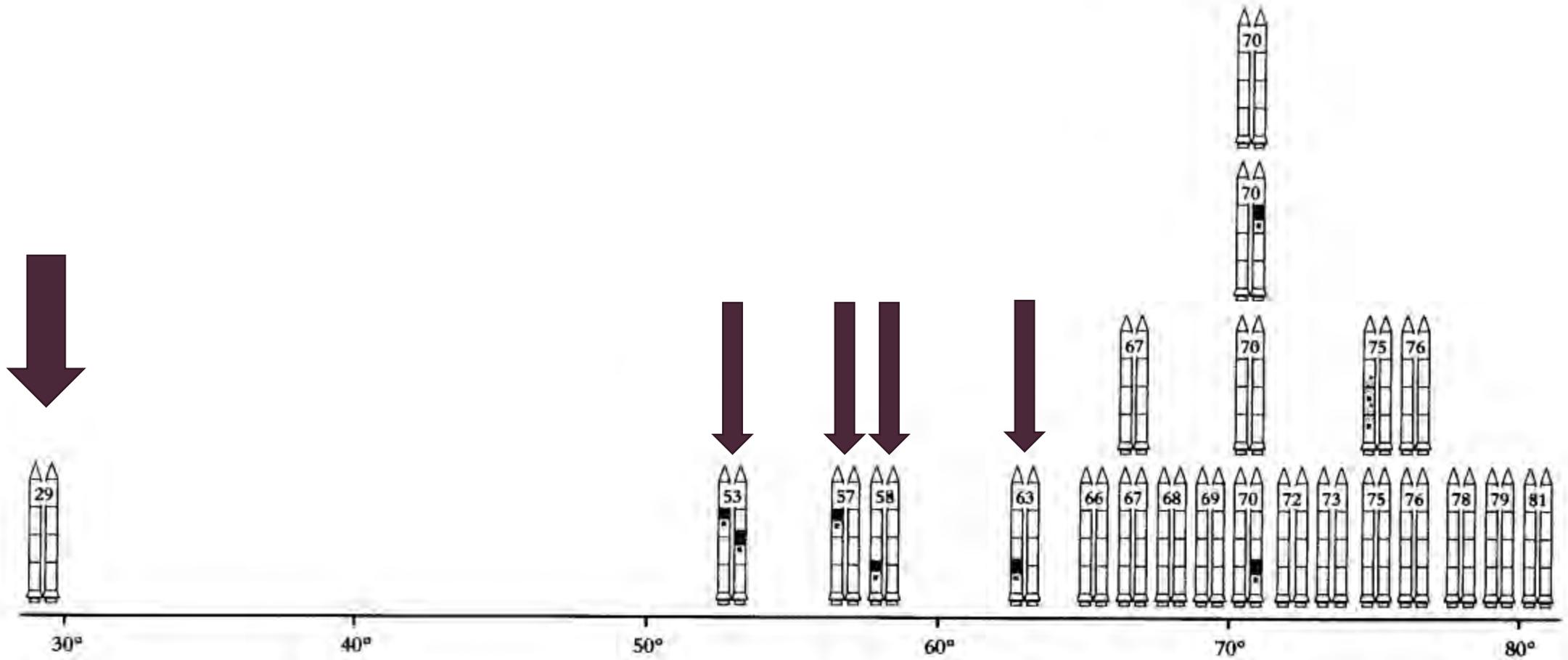
MORTON THICKOL, INC.
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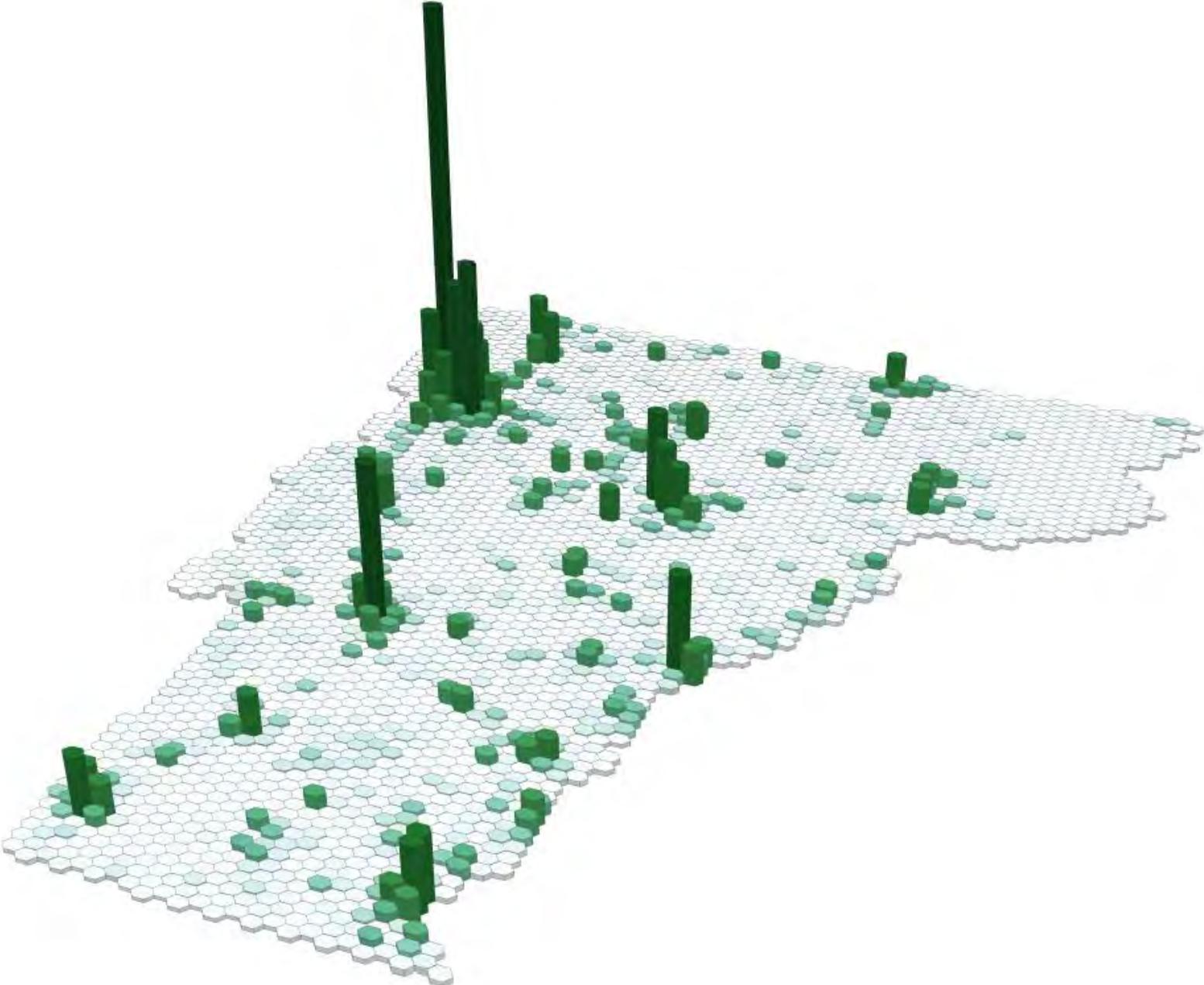


“Don’t bring data to a story fight.”



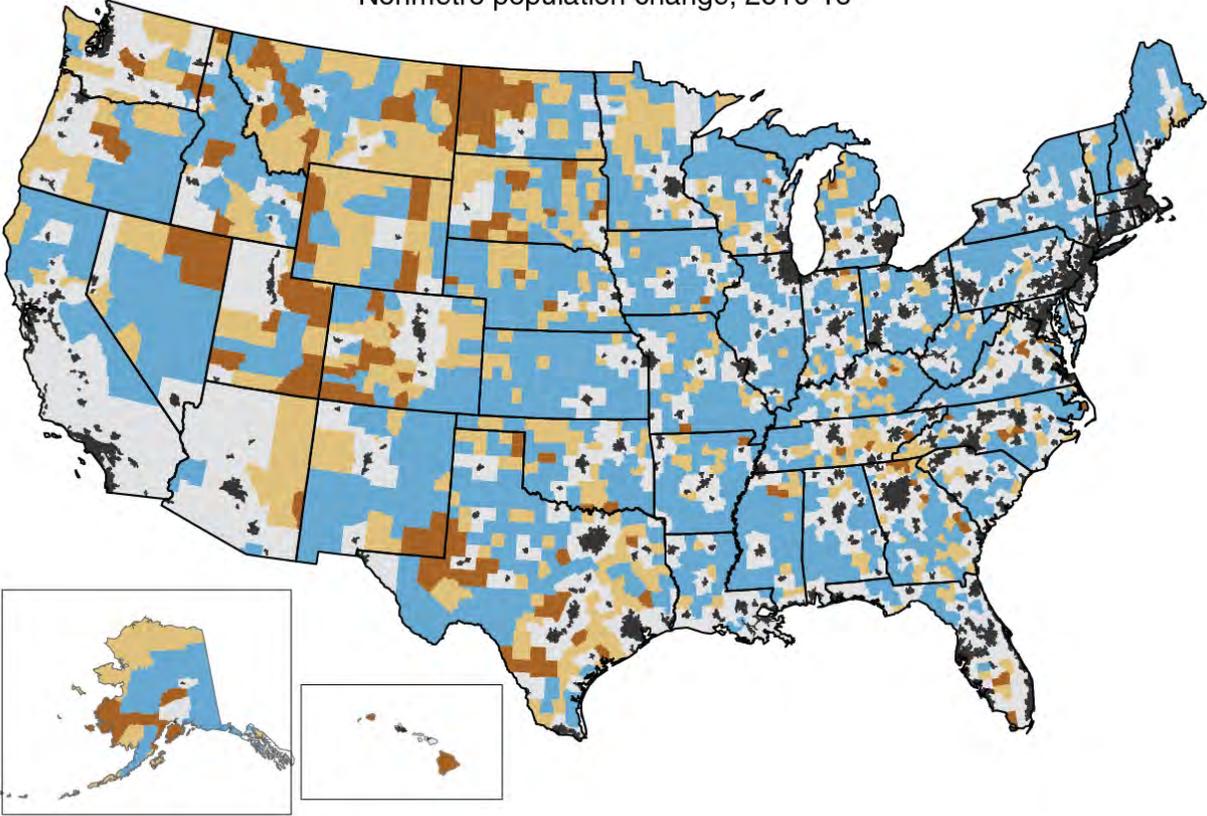
JOBS

(2015 LEHD)



Population loss now widespread in the Eastern United States

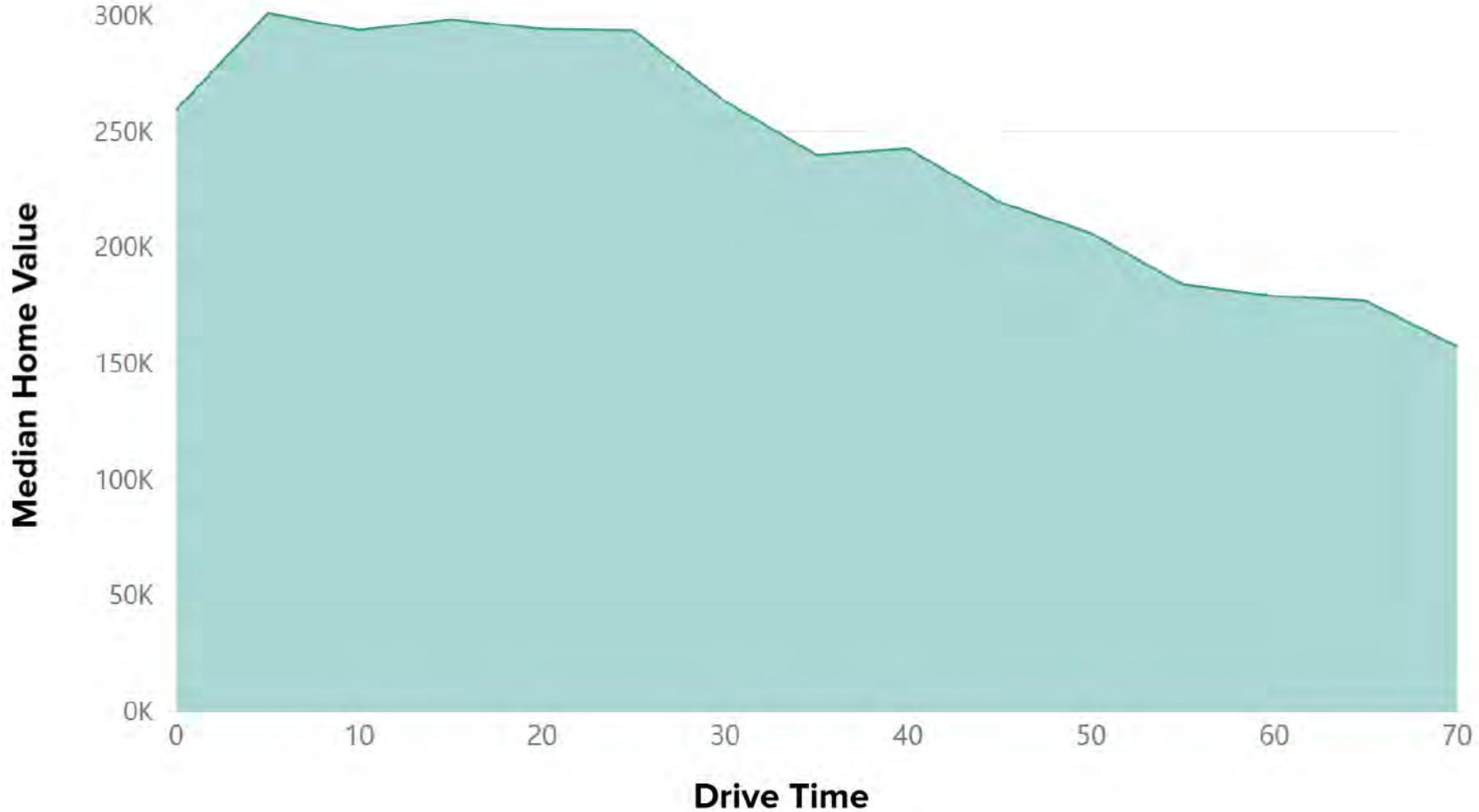
Nonmetro population change, 2010-16

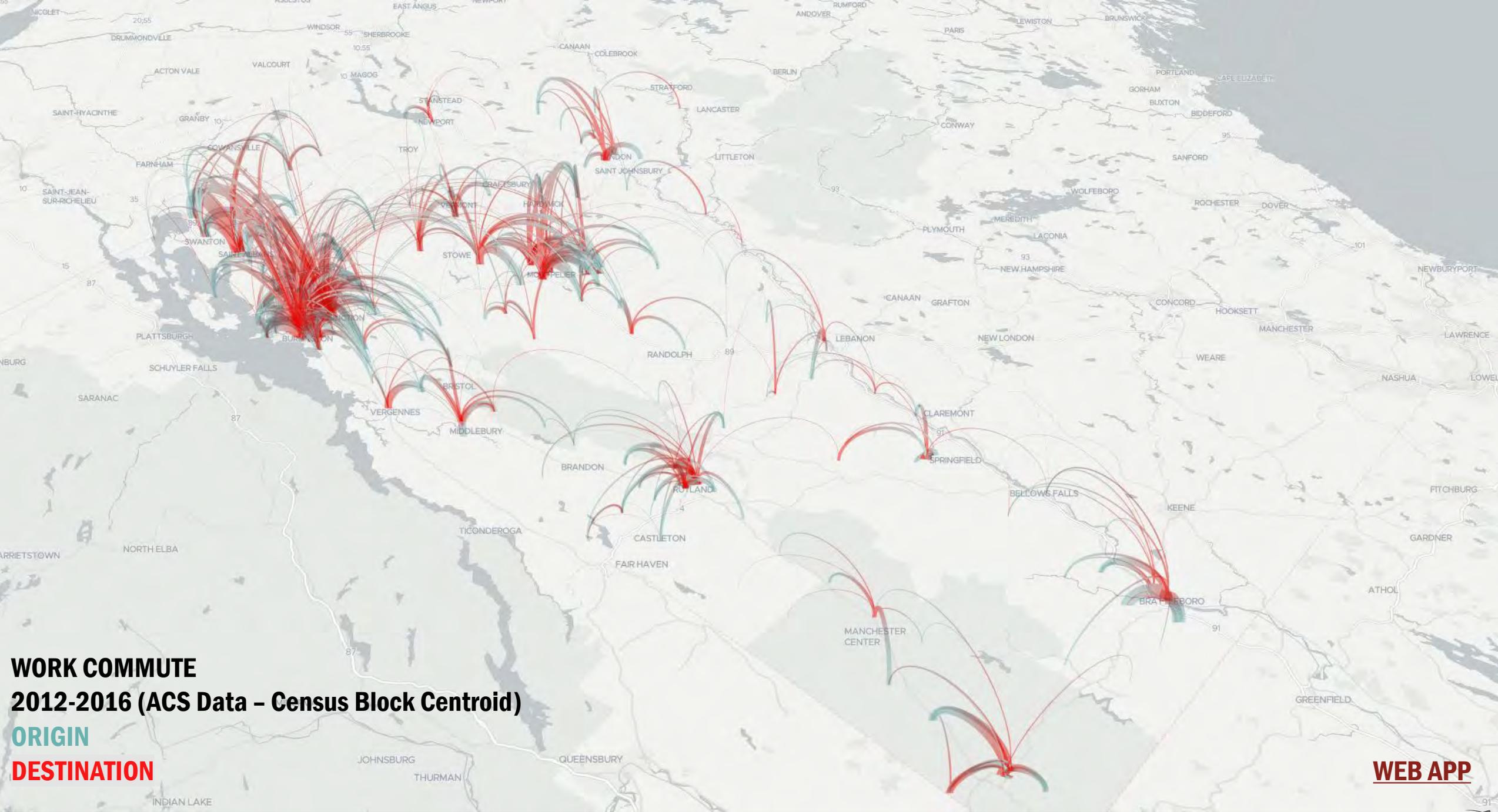


- Population loss (1,351 counties)
- Population growth below 5 percent (487 counties)
- Population growth, 5 percent or higher (138 counties)
- Metro areas (1,166 counties)
- Urbanized areas

Source: USDA, Economic Research Service using data from the U.S. Census Bureau.

Median Home Value & Drive Time to Burlington

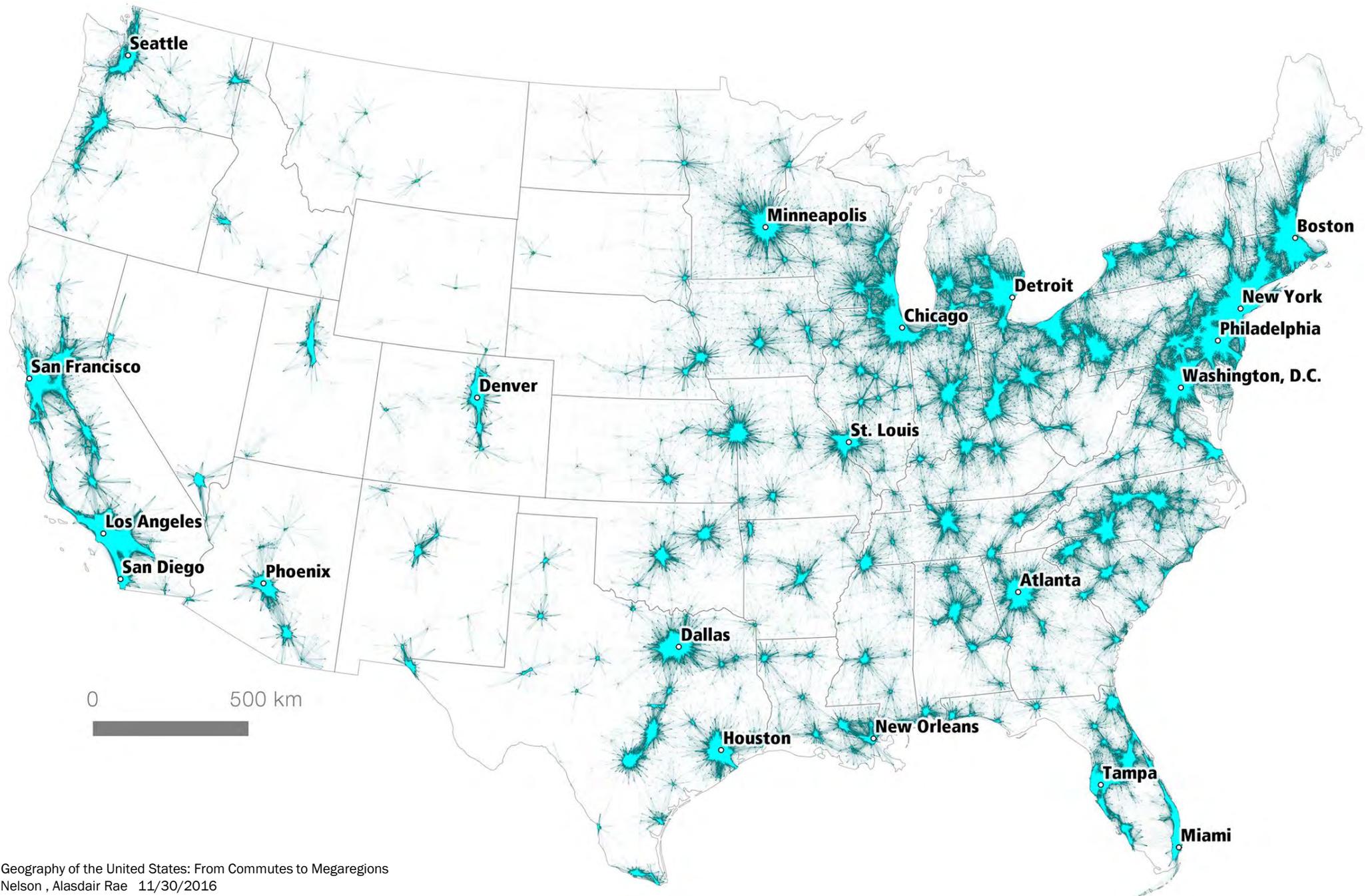


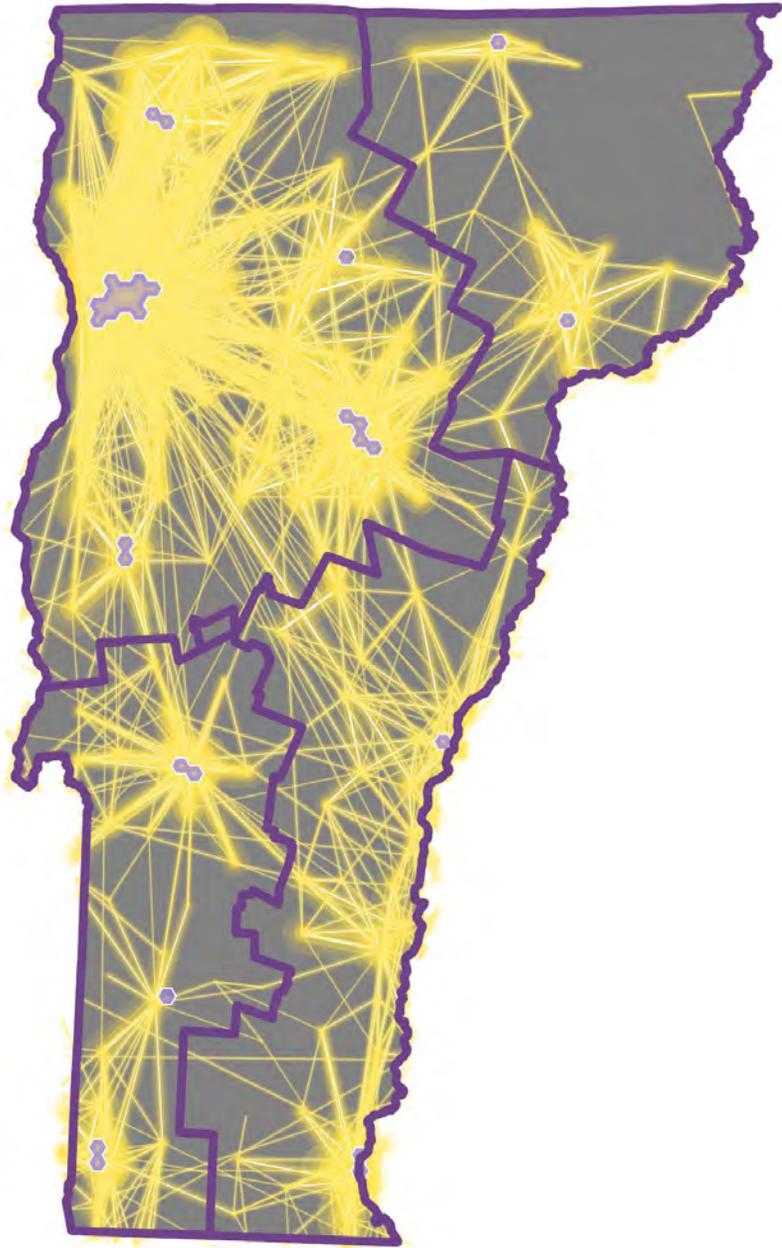


WORK COMMUTE
2012-2016 (ACS Data - Census Block Centroid)

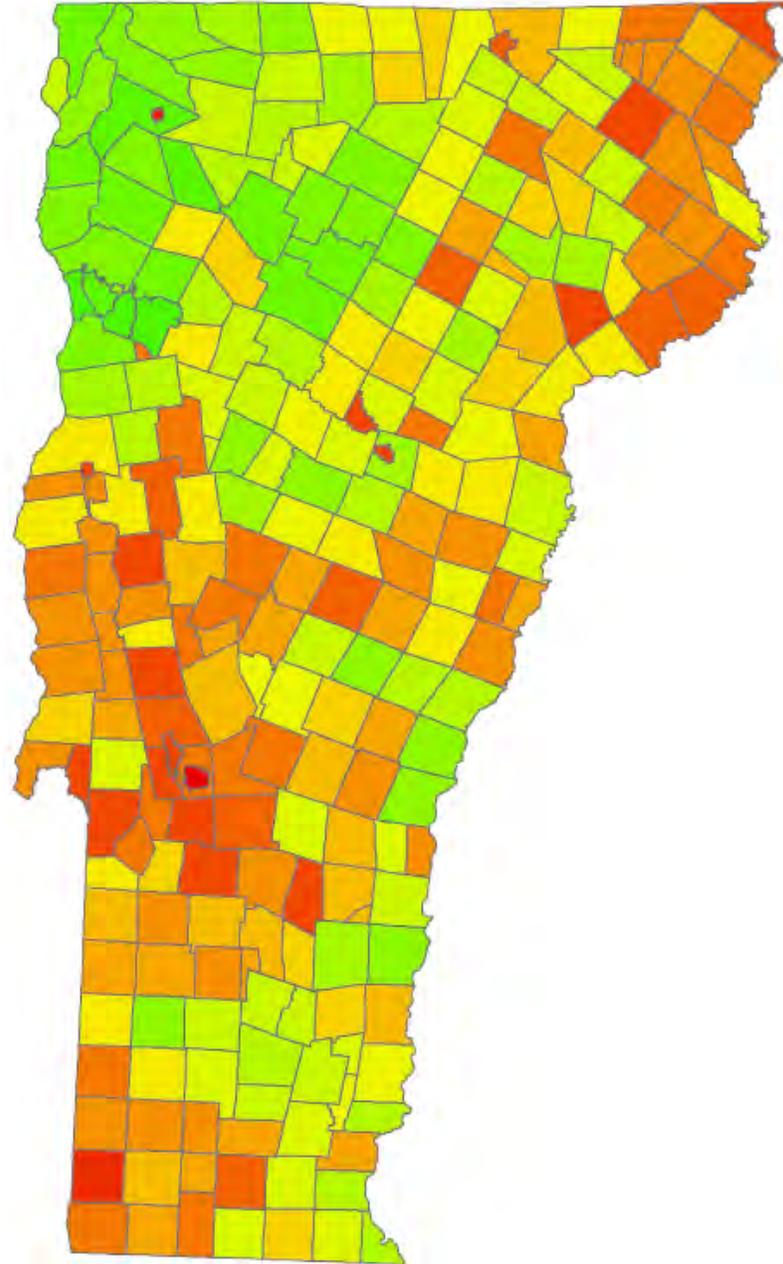
ORIGIN
DESTINATION

WEB APP



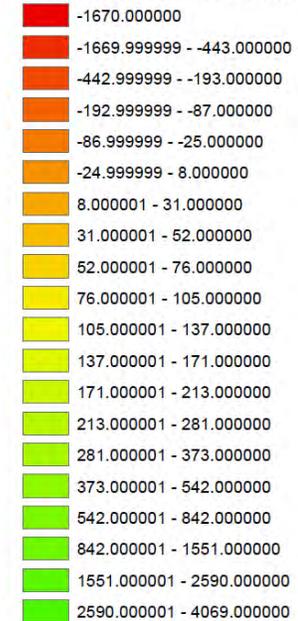


Projected Population Changes 2010-2030



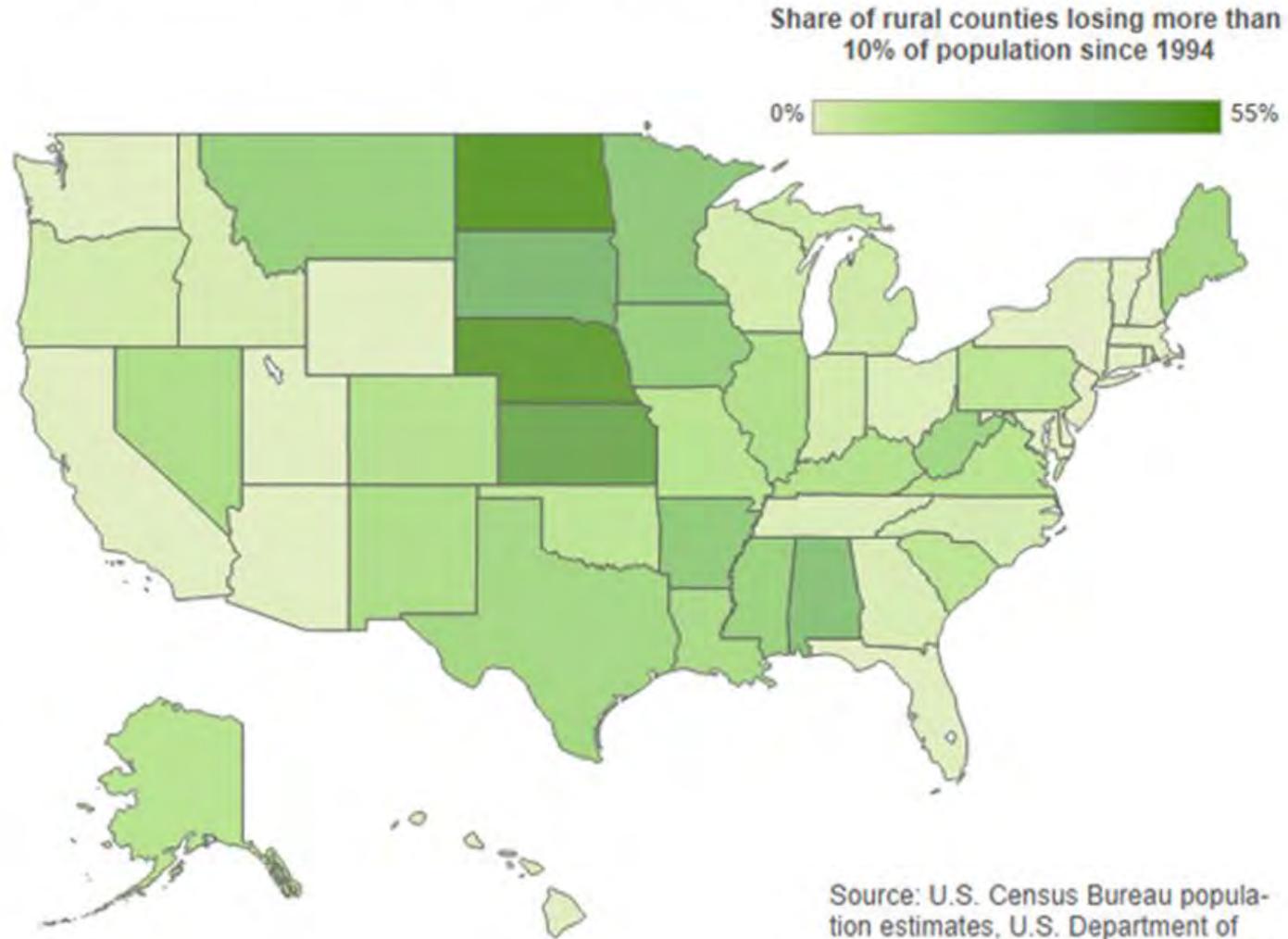
Legend

Absolute Population Growth 2010-2030



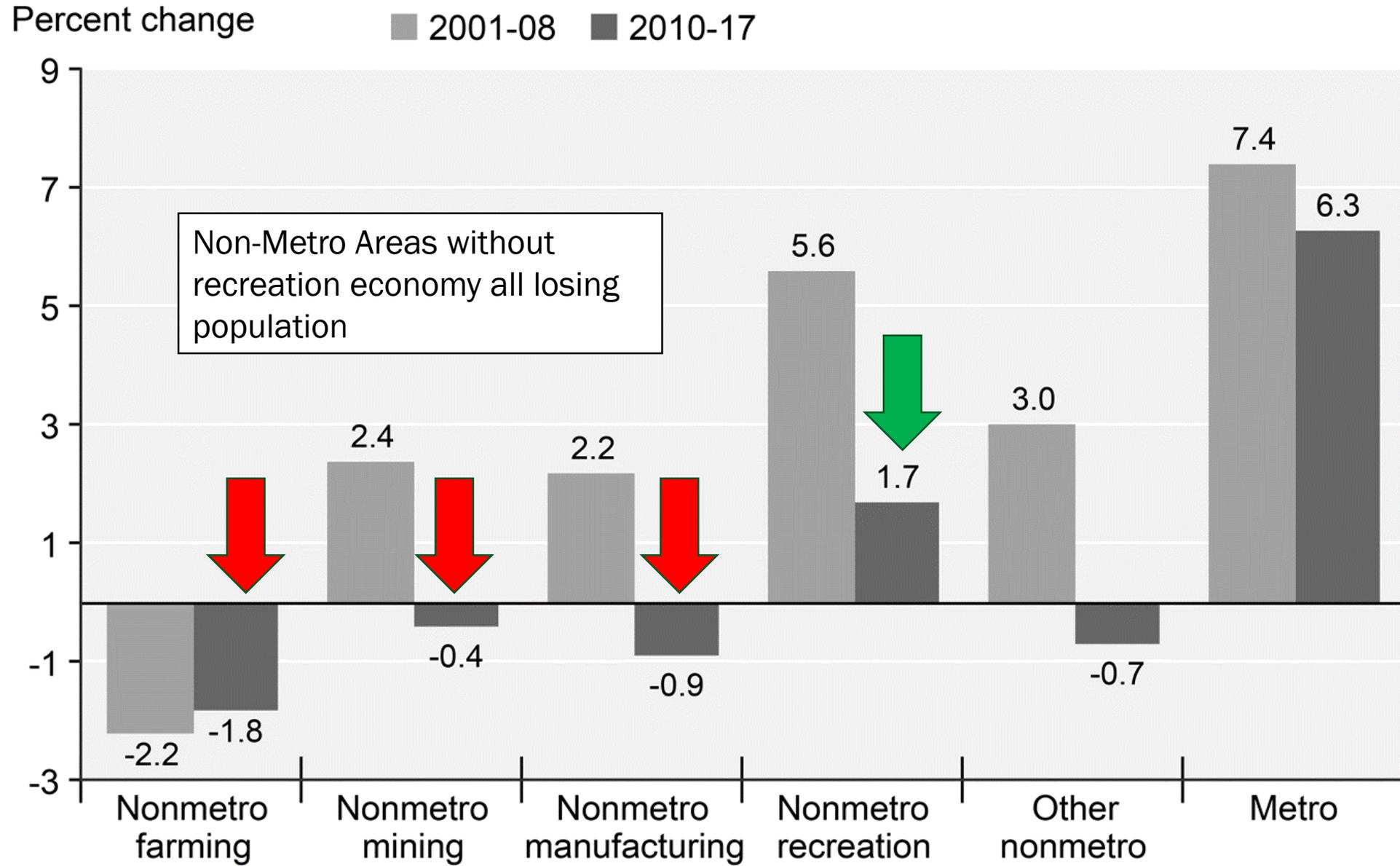
Rural Population Loss

Population loss has accelerated in recent years for much of rural America. Twenty-nine states saw a drop in population in their rural counties this decade. About half the rural counties in Kansas, Nebraska and North Dakota lost more than 1 in 10 of their residents since 1994. Delaware, New Jersey and Rhode Island have no counties classified as rural by the U.S. Department of Agriculture. Hover over states for details. ...



Source: U.S. Census Bureau population estimates, U.S. Department of Agriculture rural county classifications, *Stateline* analysis.

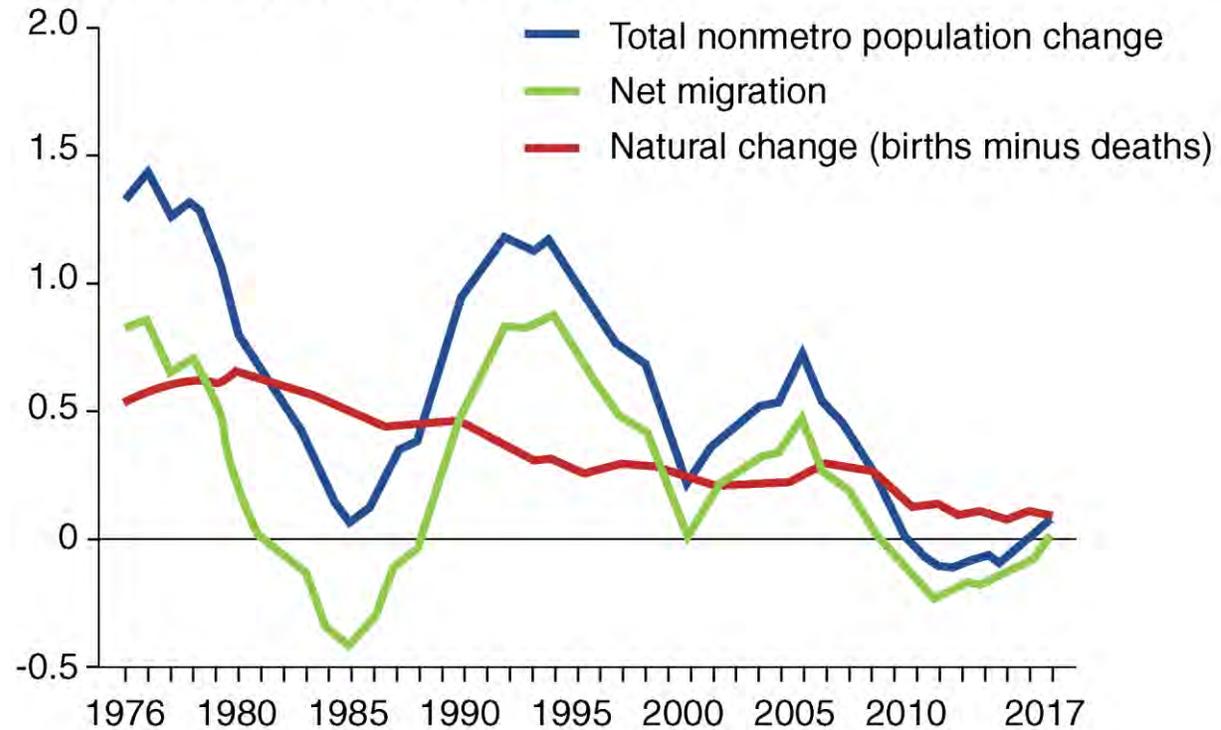
Population change by county type, 2001-08 and 2010-17



Note: County types are described in the ERS County Typology Codes data product: <http://www.ers.usda.gov/data-products/county-typology-codes.aspx>
Source: USDA, Economic Research Service using data from the U.S. Census Bureau.

Net migration has driven growth in the rural (nonmetro) population since 2011-12

Percent change from previous year

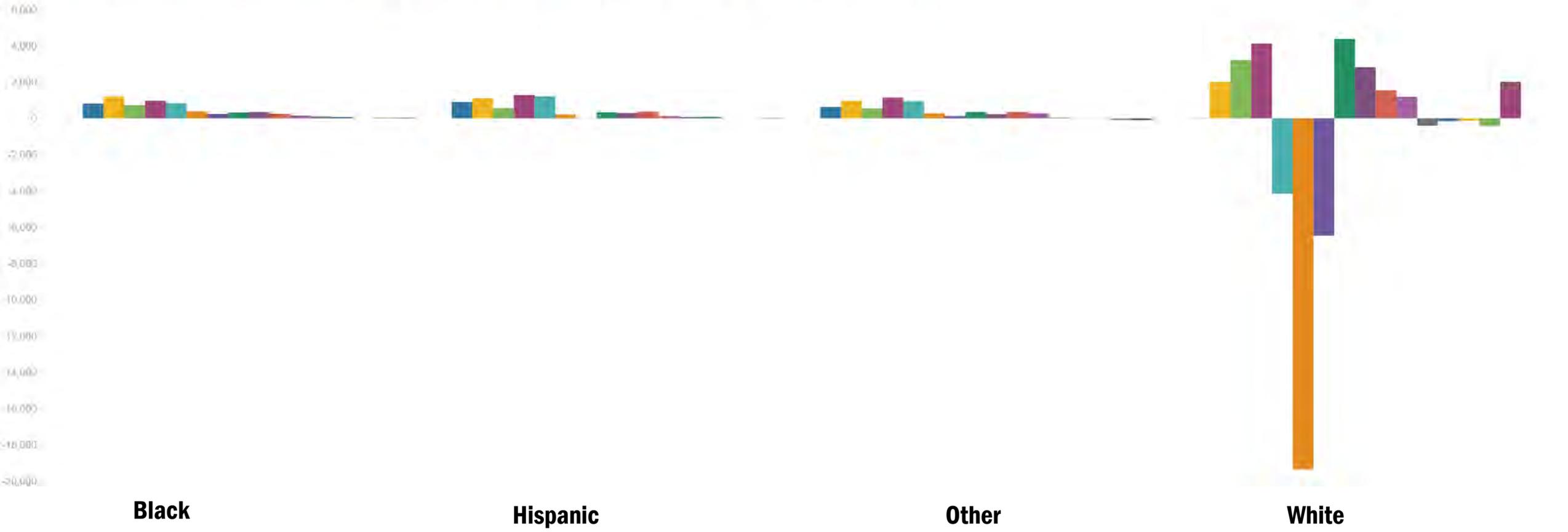


Note: Nonmetro is determined by the Office of Management and Budget, 2013 metro/nonmetro area definitions. Nonmetro status changed for some countries in 1980, 1990, 2000, and 2010.

Source: USDA, Economic Research Service using data from the U.S. Census Bureau.

Net Migration Estimates in Vermont by Age Cohort & Race 2000-2010

0-5 5-10 10-15 15-20 20-25 25-30 30-35 35-40 40-45 45-50 50-55 55-60 60-65 65-70 70-75 75+

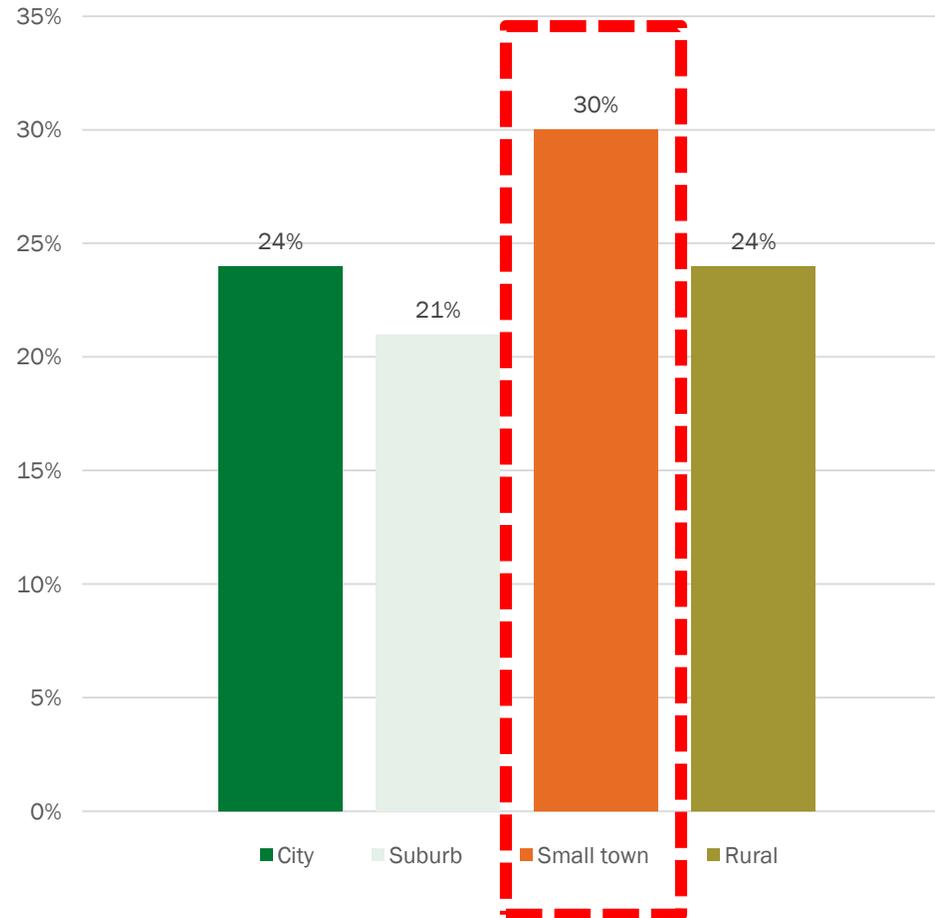


Source: Winkler, Richelle, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis. Age-Specific Net Migration Estimates for US Counties, 1950-2010. Applied Population Laboratory, University of Wisconsin- Madison, 2013.

People want to live in small towns

If you could live anywhere in the United States that you wanted to, would you prefer a city, a suburban area, a small town or a rural area?

n: 3,341



Source: Pew Research Center 2014



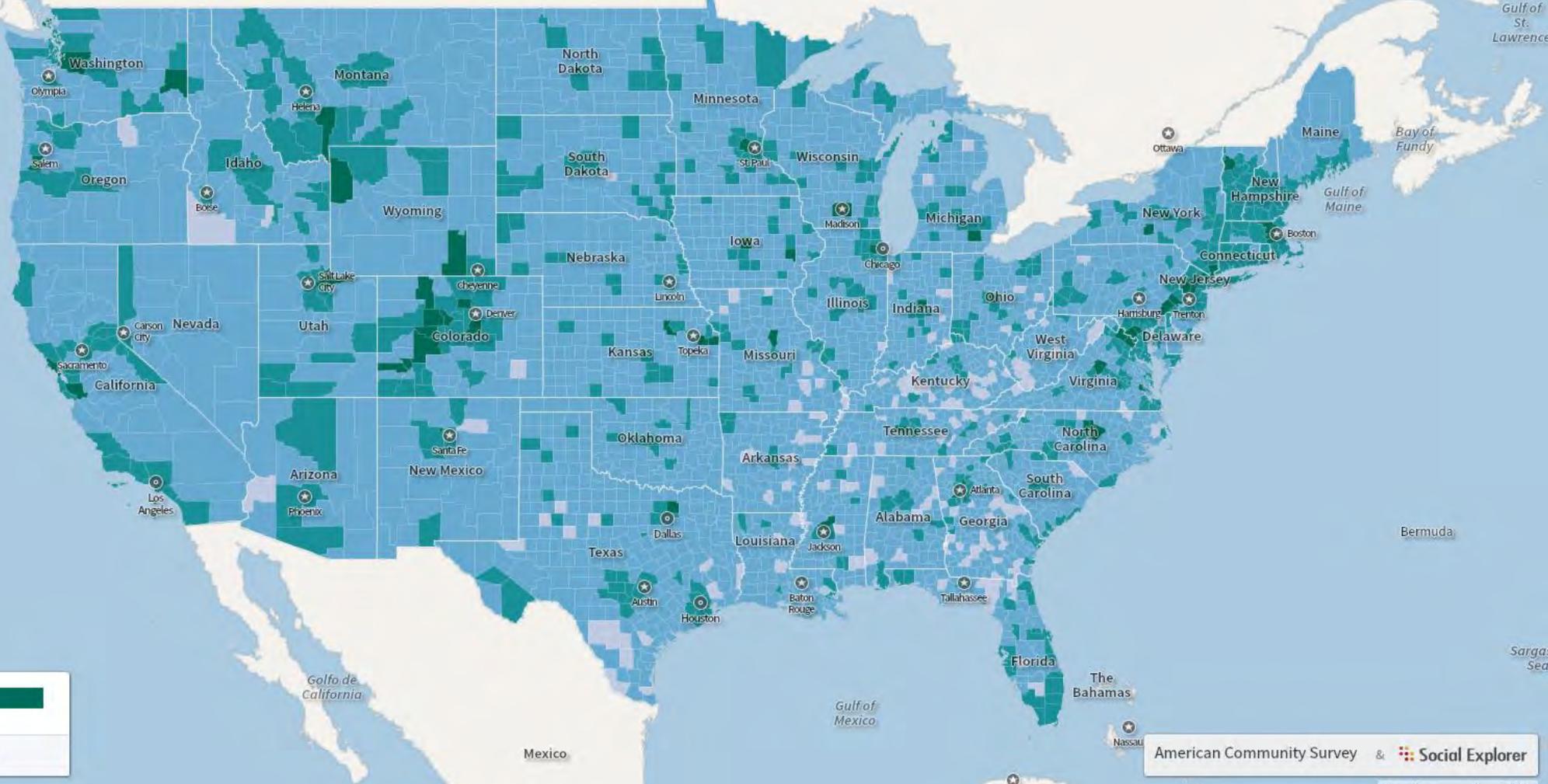
Enter address or geography



Vermont has smart people.

Select a Measure
Bachelor's degree or more

Show by
County



Pacific Ocean

< 5 5 10 25 > 45

Shaded Area

Bubbles



VERMONT



EVERYWHERE USA



**That's nice. I sort of already
knew that.**

**What are some helpful tools
available to me?**



About

Opportunity Zones

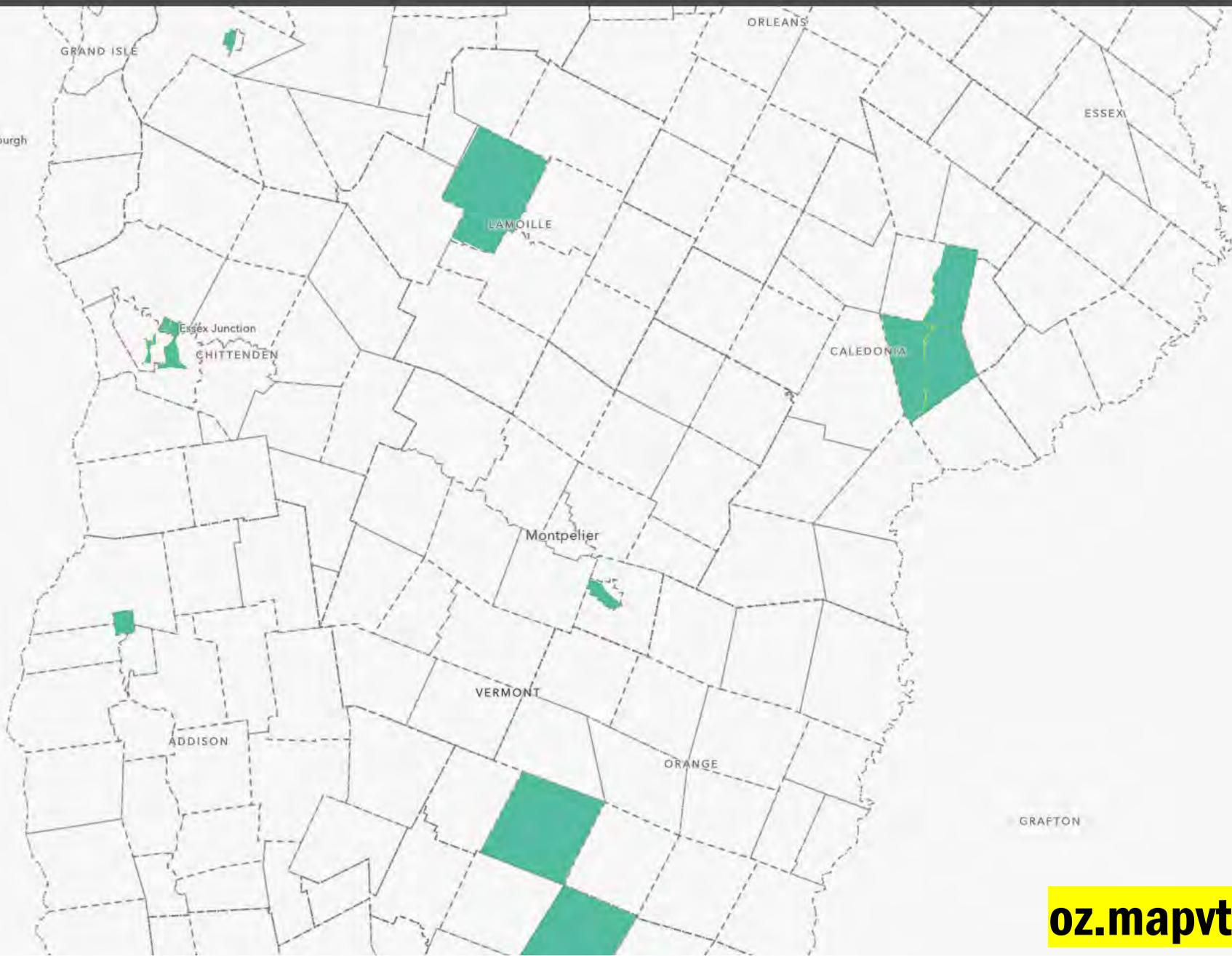
This map depicts the 25 census tracts designated as 'Opportunity Zones' by the U.S. Department of the Treasury and the Internal Revenue Service on April 9th, 2018. The official list of designated tracts can be found on the Community Development Financial Institutions Fund website.

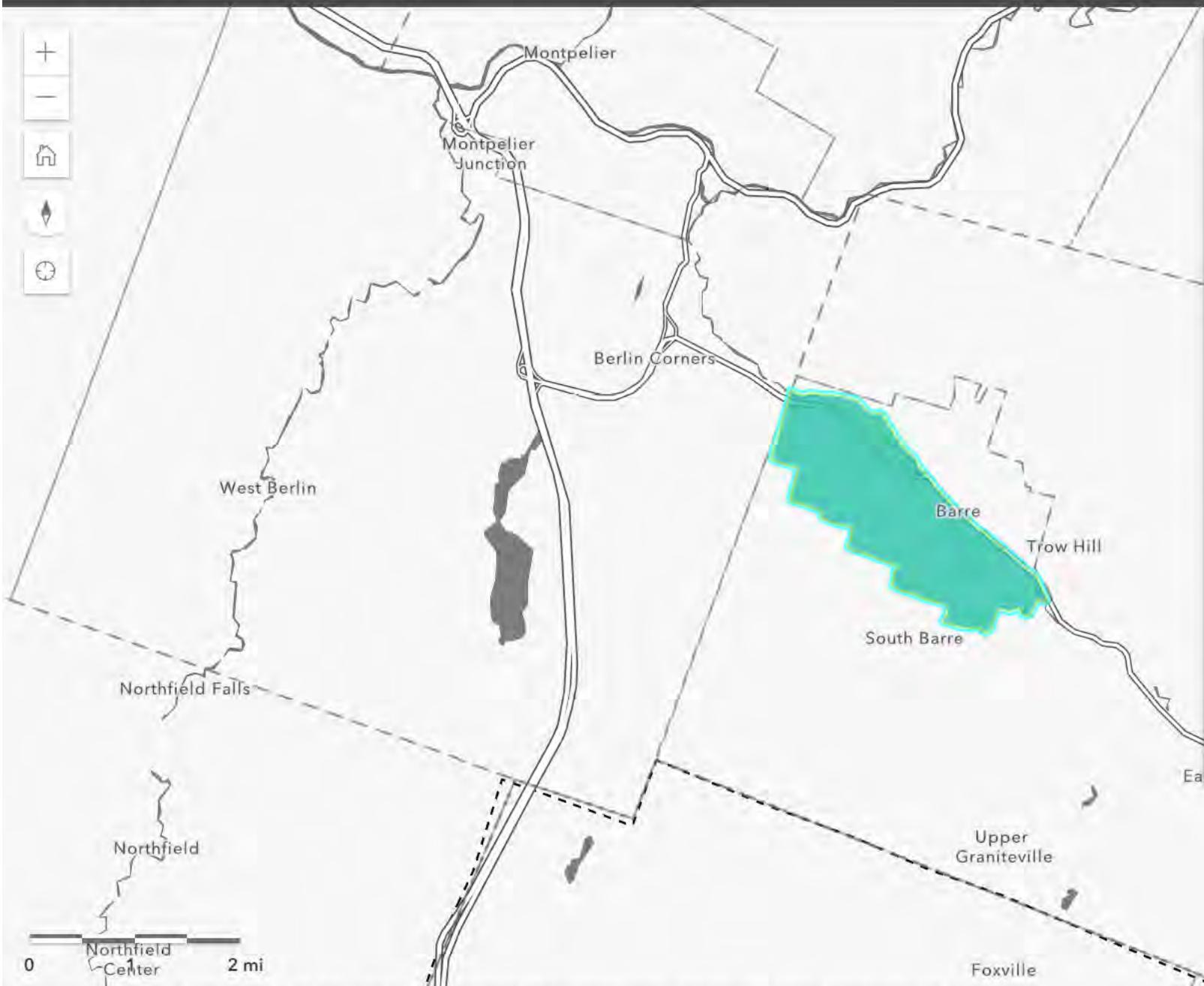
Learn more about Opportunity Zones:

Last update: 6/25/2019

vccgi.vermont.gov

oz.mapvt.com

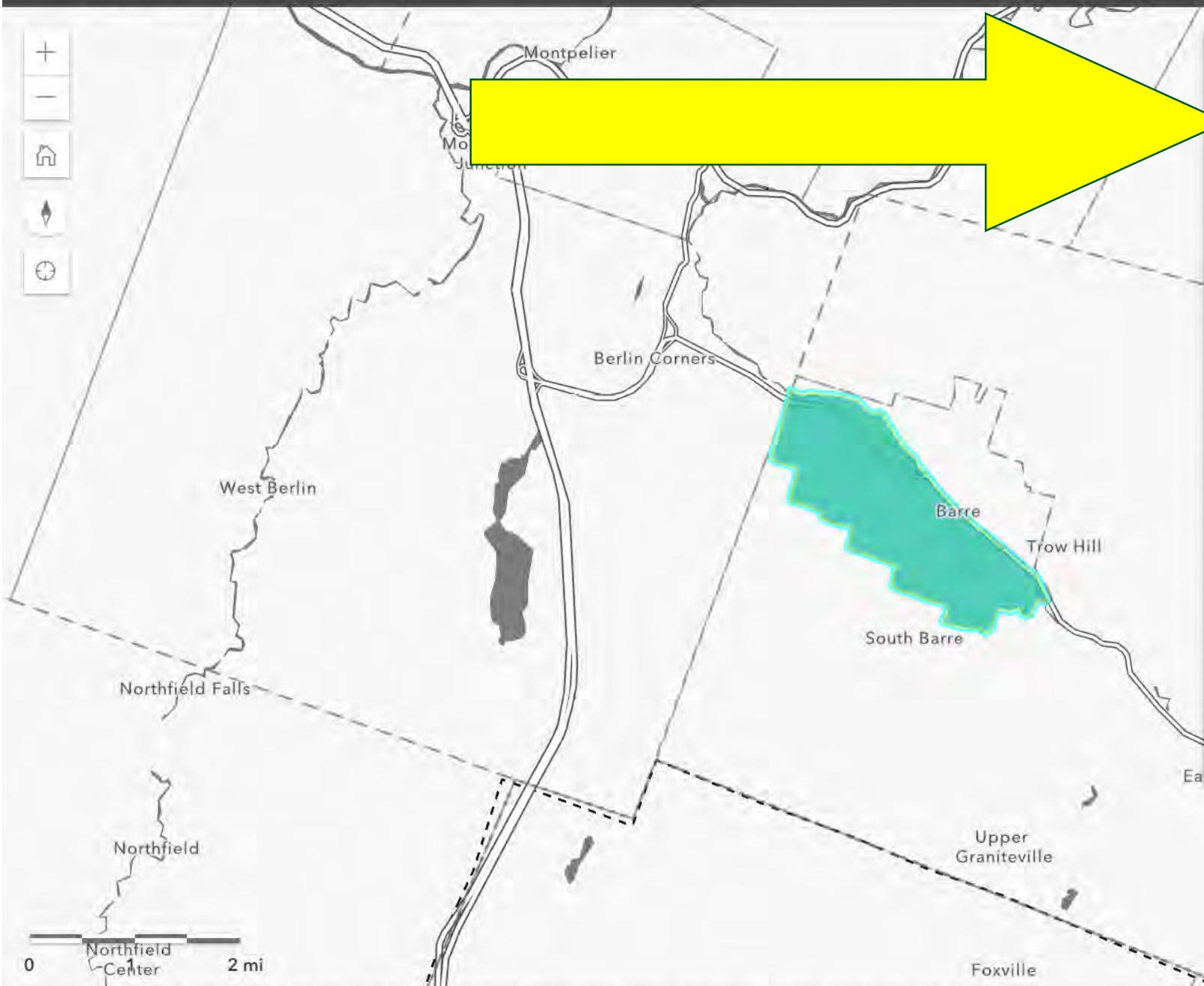




Zoom to

Barre City: Census Tract 9552, Washington, VT Profile

GEOID10	50023955200
County	Washington
Municipality	Barre City
Tract	Census Tract 9552, Washington, VT
Population	4,496
Population Under Federal Poverty Level	1,308
Number of Businesses	339
Total number of Private Sector Jobs	2,127
Unemployment Rate	7.80
HUB Qualified	No
Downtown	Yes
Growth Center	No



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Census Tract 9552, Washington, VT

Census Tract in: [Barre, VT](#), [Washington County, VT](#), [Vermont](#), [United States](#)

4,360 Population

2.5 square miles

1,712.5 people per square mile

Census data: ACS 2017 5-year unless noted



Find data for this place

Interact with charts and statistics for [margins of error](#) and additional information.

Demographics

† Margin of error is at least 10 percent of the total value. Take care with this statistic.

Age

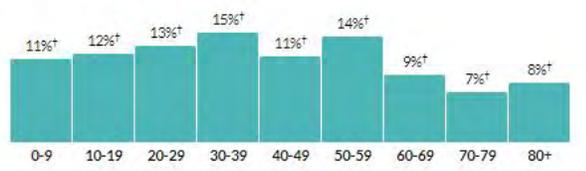
39.2

Median age

a little higher than the figure in Barre: 38.1

about 90 percent of the figure in Washington County: 43.5

Population by age range



Show data / Embed

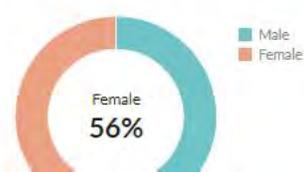
Population by age category



Show data / Embed

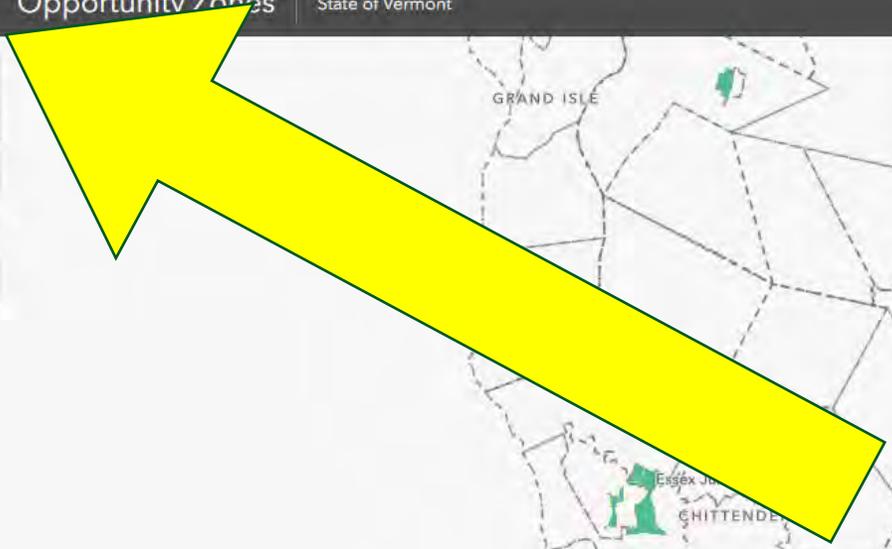
† Margin of error is at least 10 percent of the total value. Take care with this statistic.

Sex



Race & Ethnicity

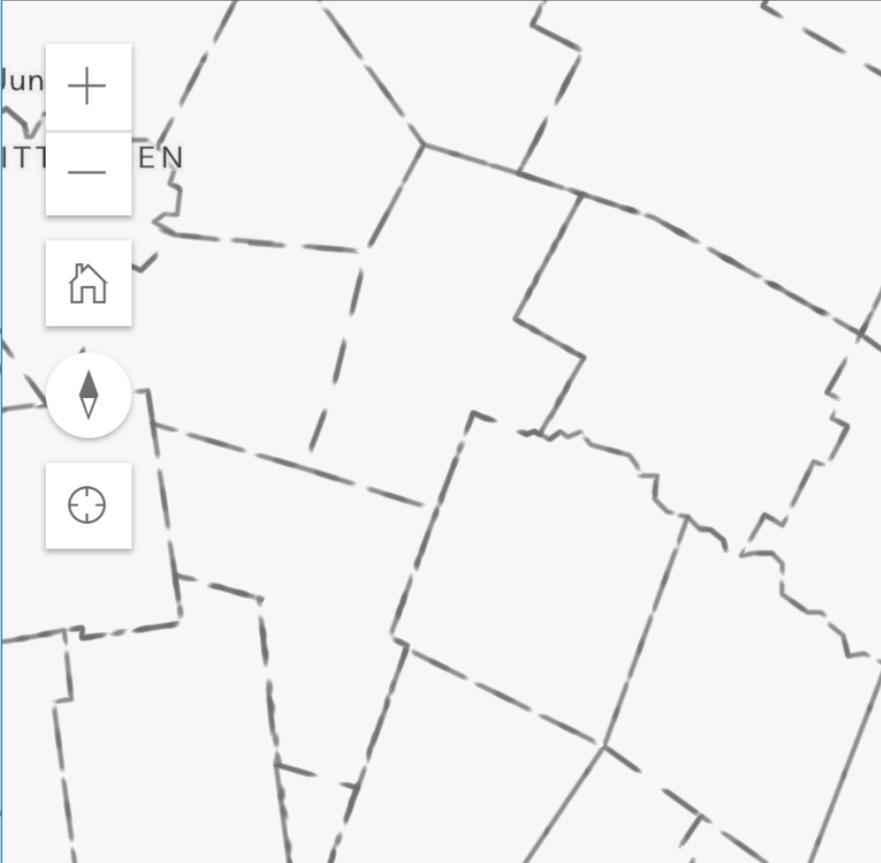




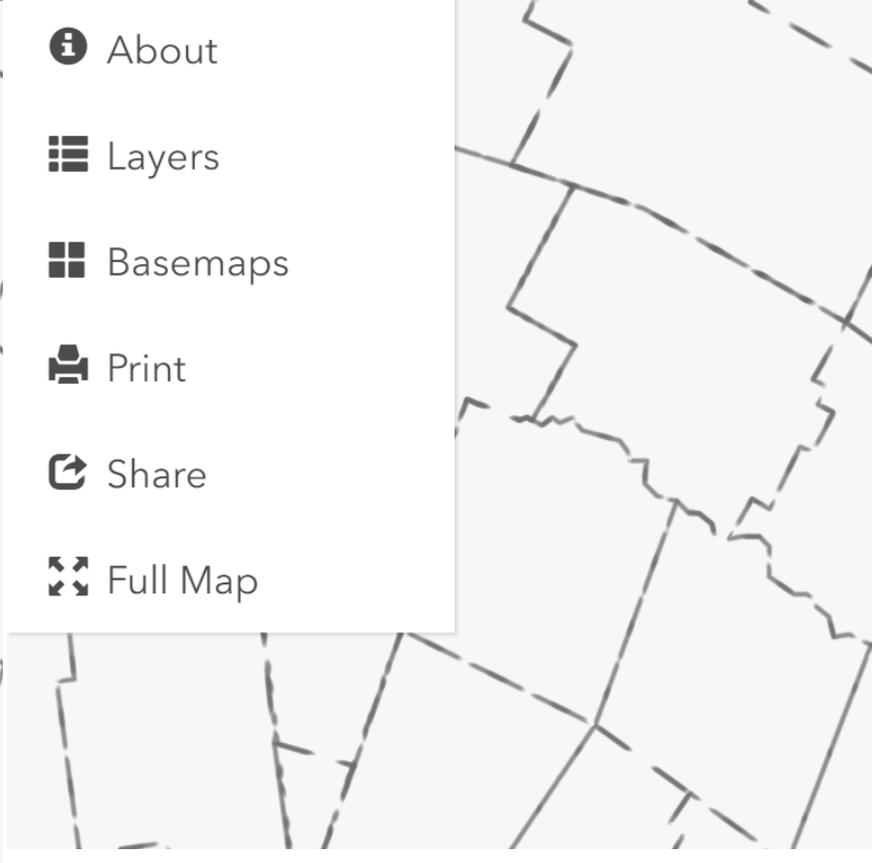
Hamburger looking thing



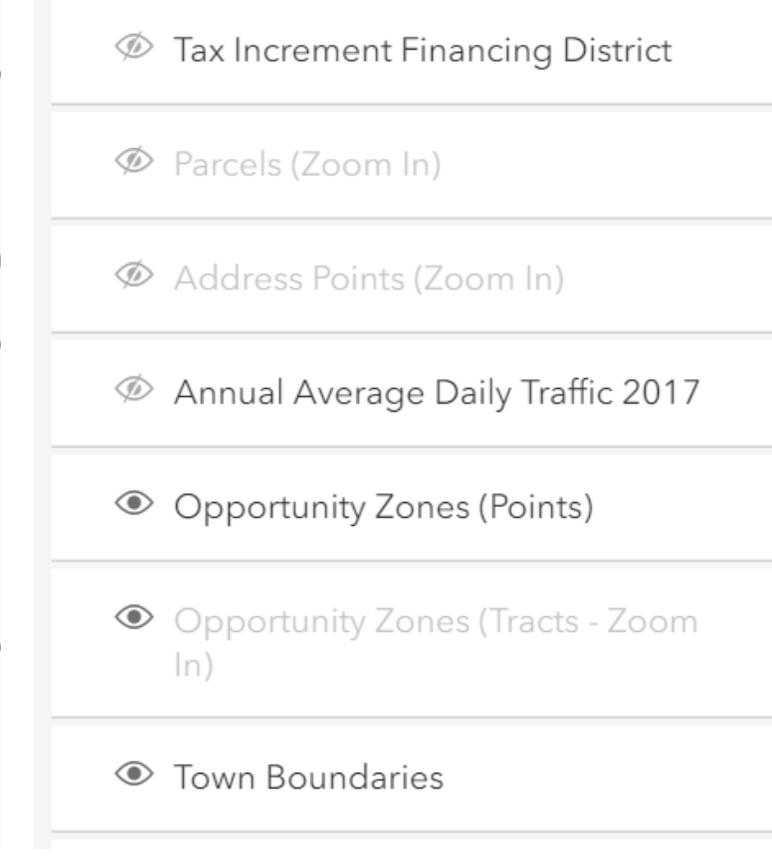
☰ Opportunity Zones

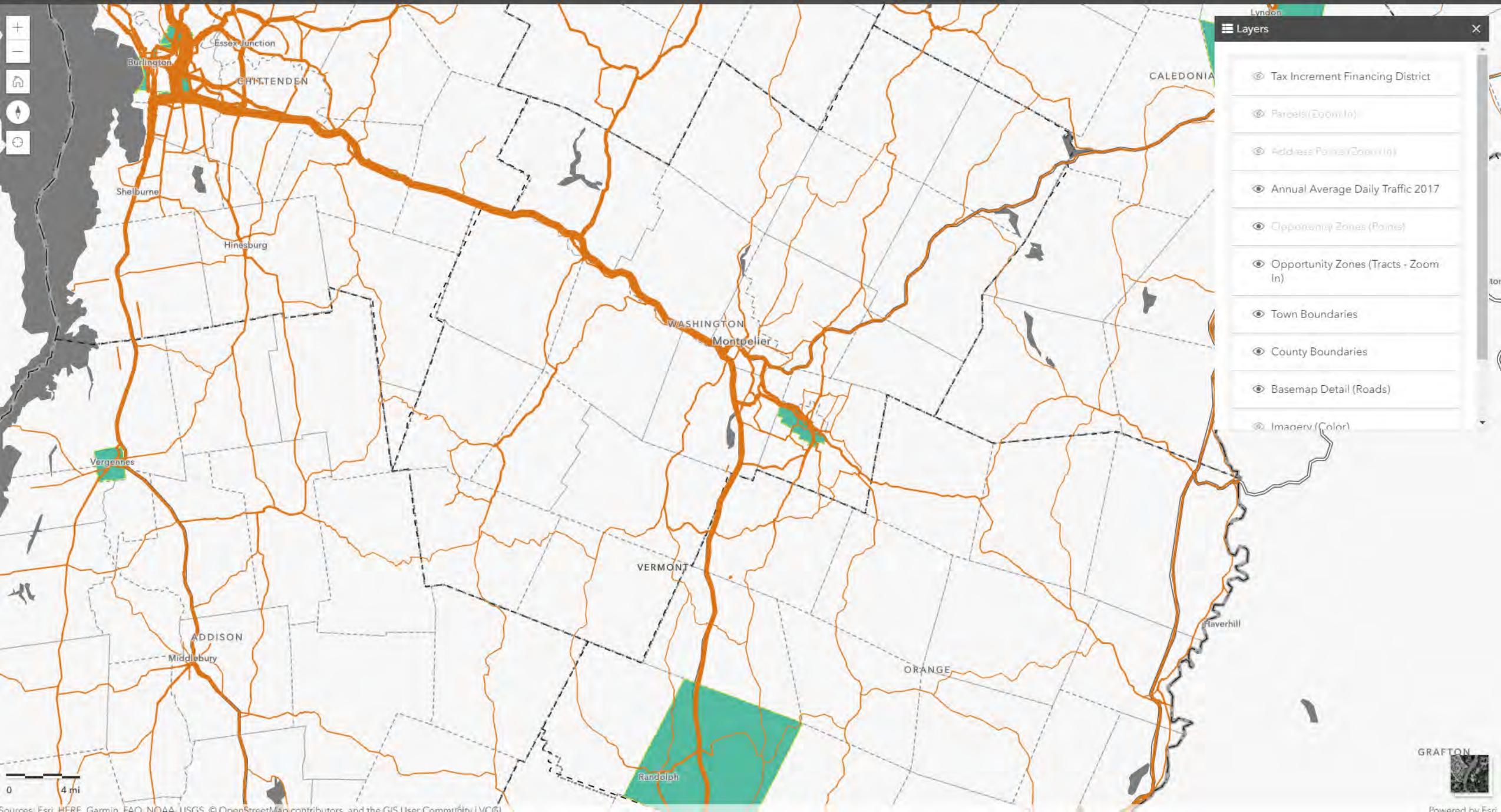


✕ Opportunity Zones



☰ Layers



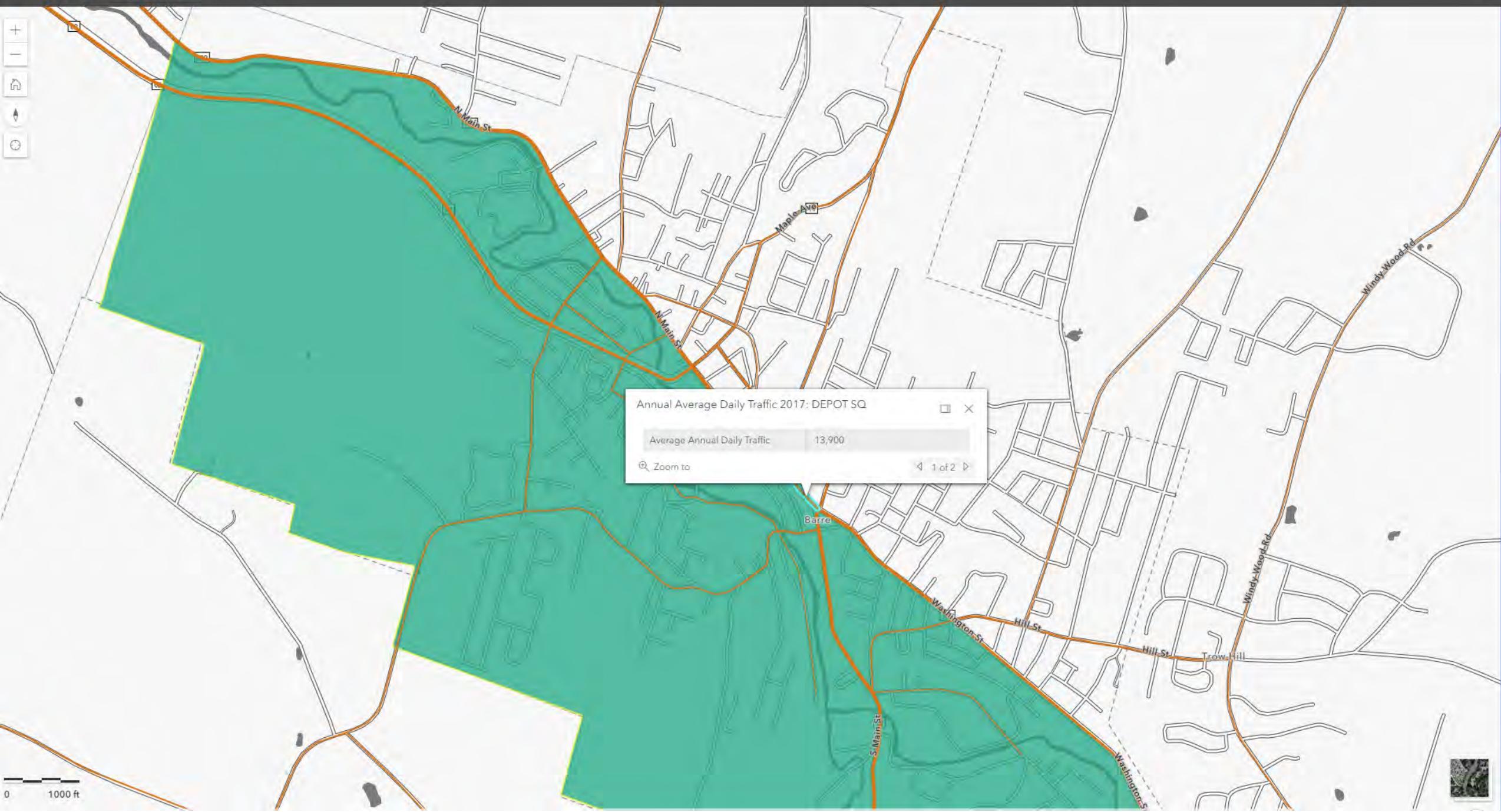


Layers

- Tax Increment Financing District
- Parcels (Zoom In)
- Address Points (Zoom In)
- Annual Average Daily Traffic 2017
- Opportunity Zones (Points)
- Opportunity Zones (Tracts - Zoom In)
- Town Boundaries
- County Boundaries
- Basemap Detail (Roads)
- Imagery (Color)

0 4 mi





Annual Average Daily Traffic 2017: DEPOT SQ

Average Annual Daily Traffic	13,900
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Zoom to 1 of 2

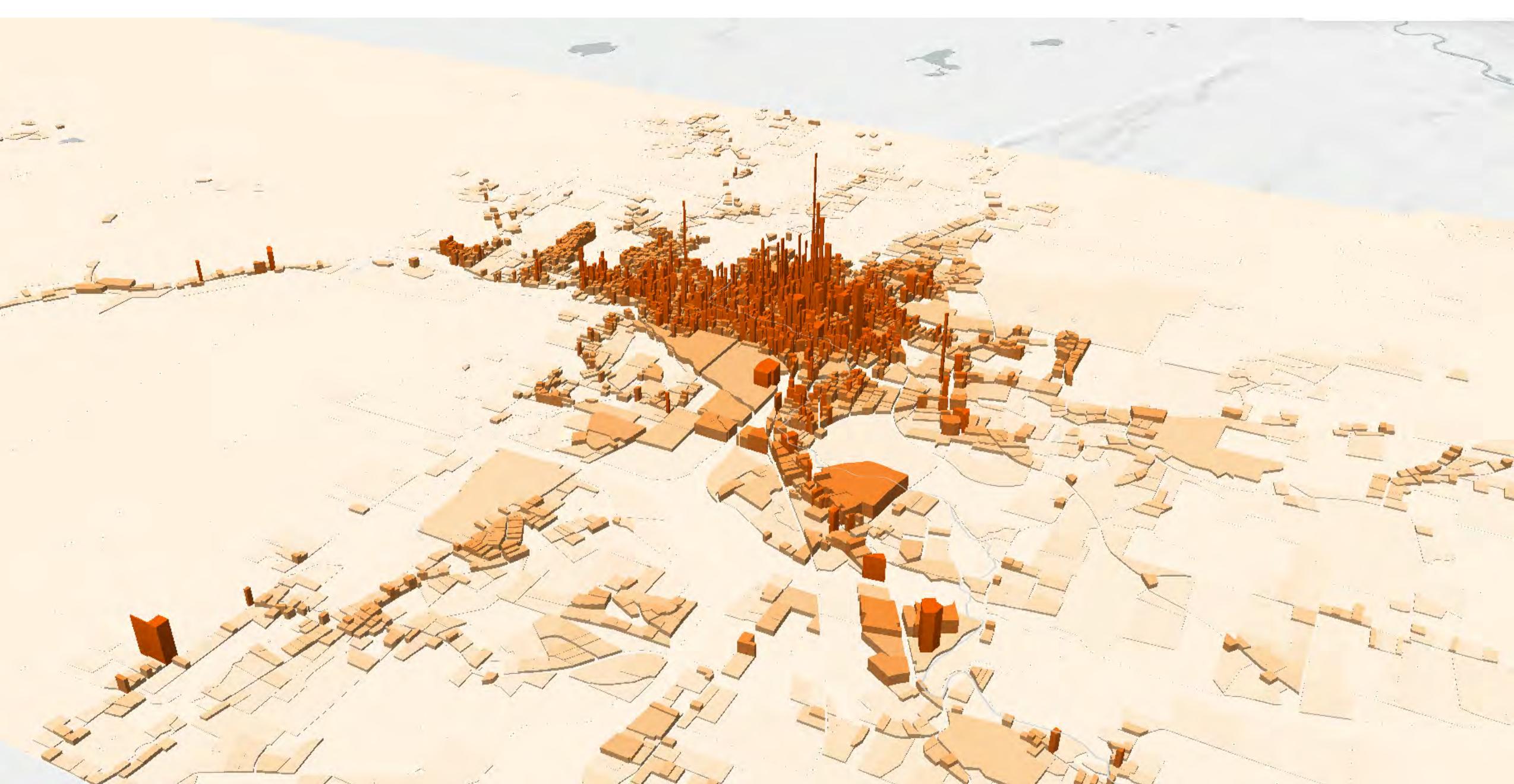


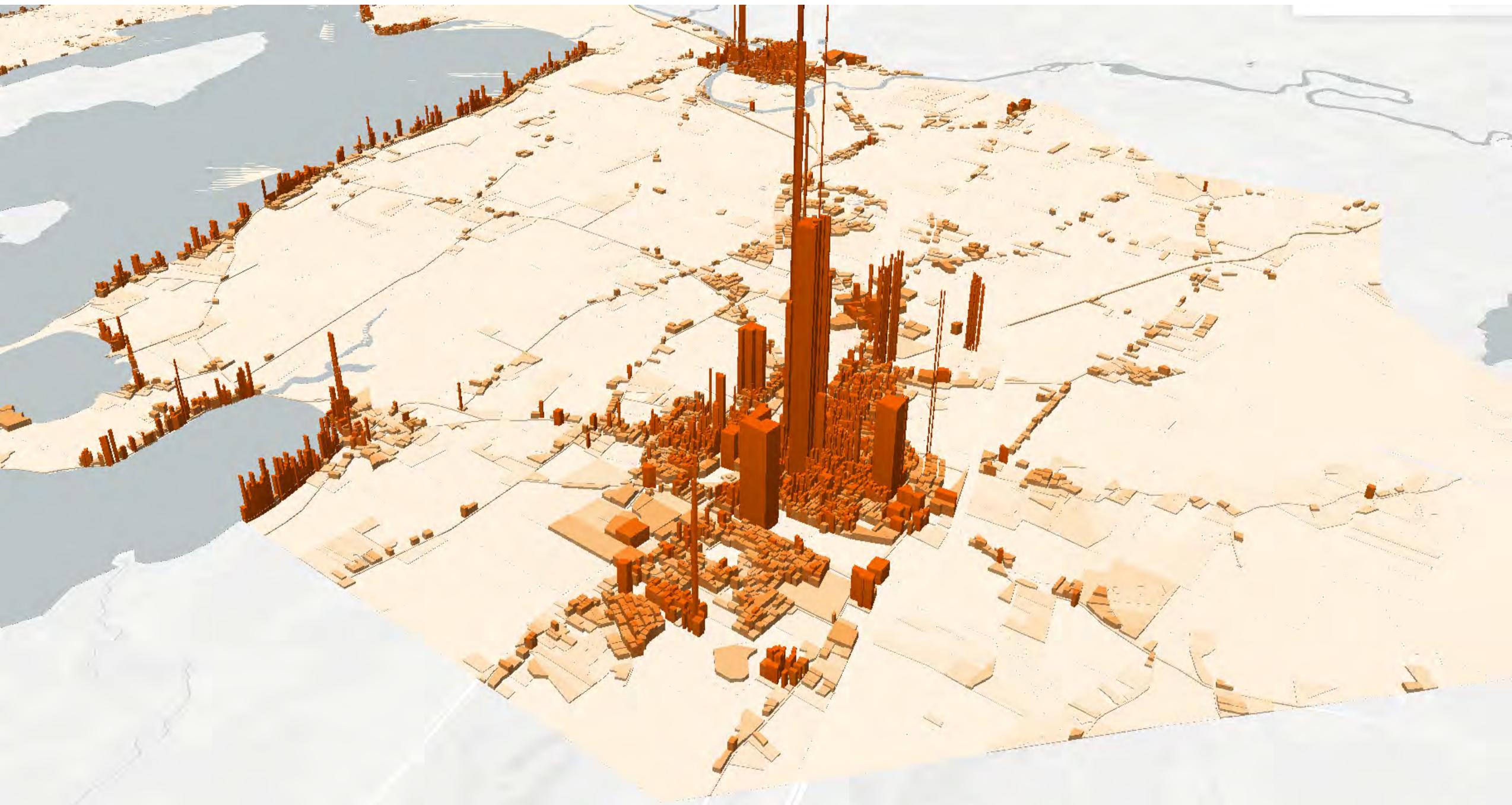


2 of 3 Zoom to

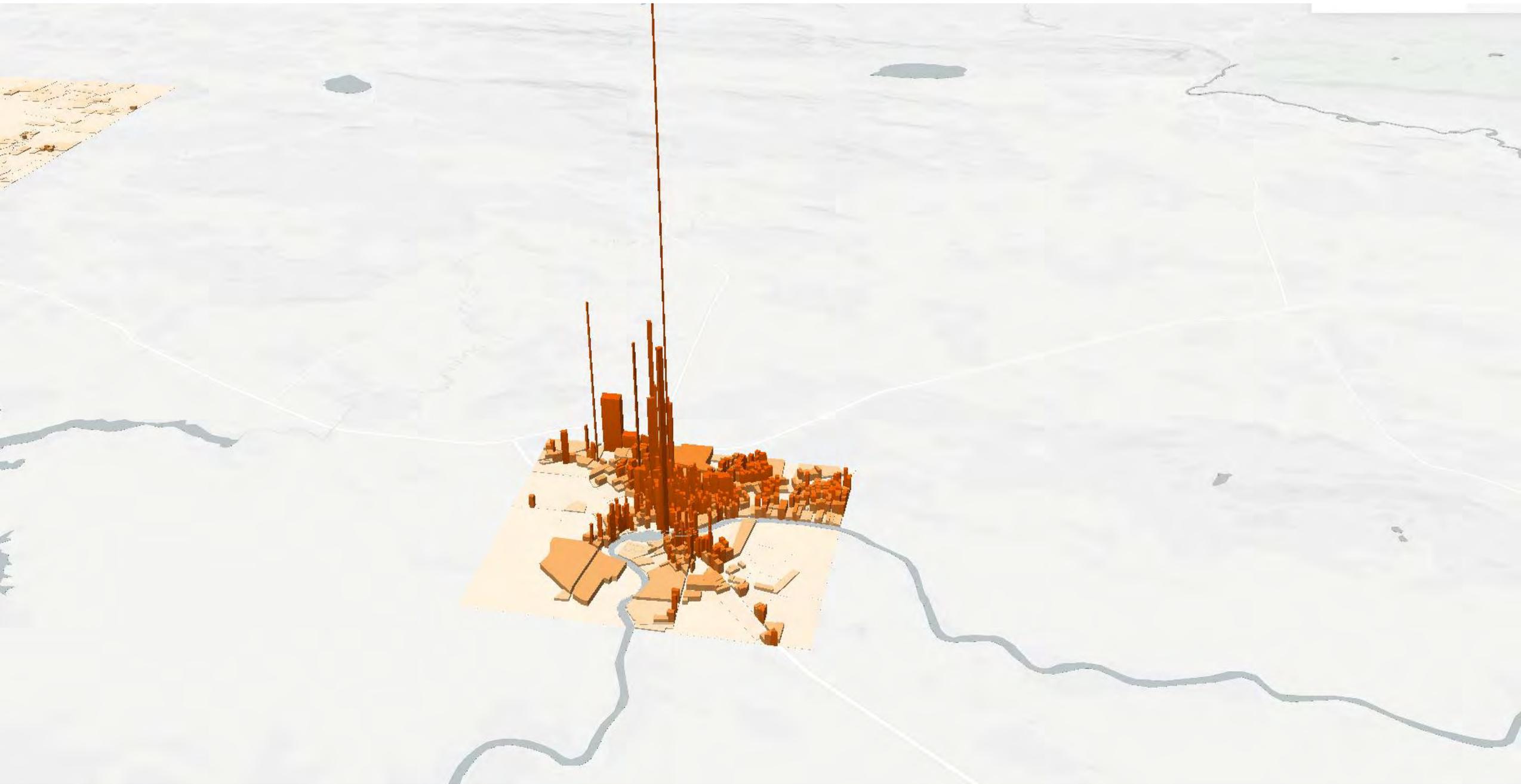
PARCEL SPAN: 036-011-10178 Copy Close

TOWN	BARRE CITY
Category (Real Estate only)	Commercial
Owner Name 1	BARRE HISTORICAL SOCIETY INC
Owner Name 2	
Mailing Address 1	PO BOX 496
Mailing Address 2	
Mailing Address City	BARRE
Mailing Address State	VT
Mailing Address Zip	05641-0496
Property Description	LABOR HALL & LIGHT INDUSTRIAL-0.45AC
Location	GRANITE ST 46 & 48
Total Acres	0.45
Listed Real Value (Full)	1,038,500





St. Albans



Vergennes

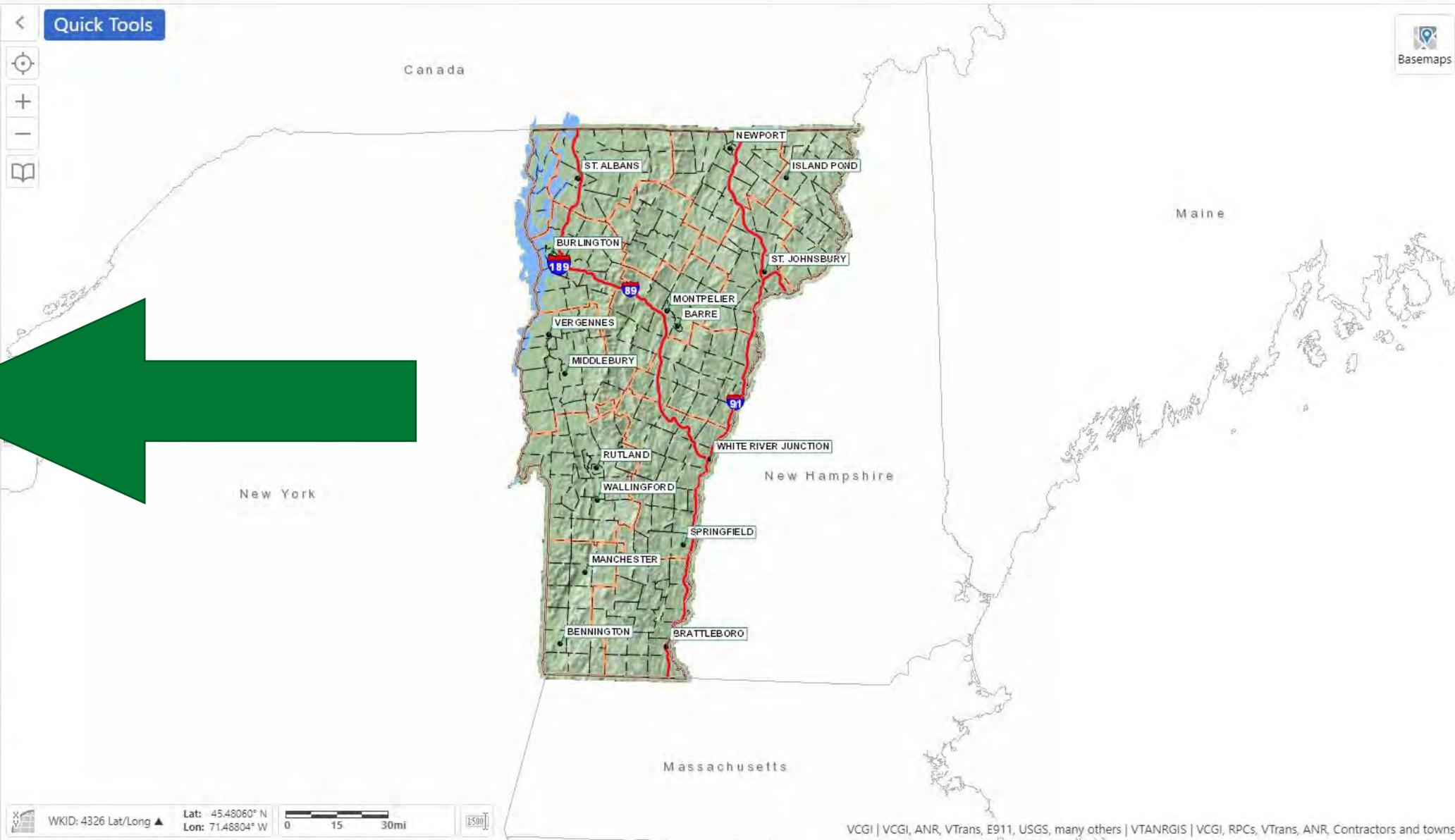


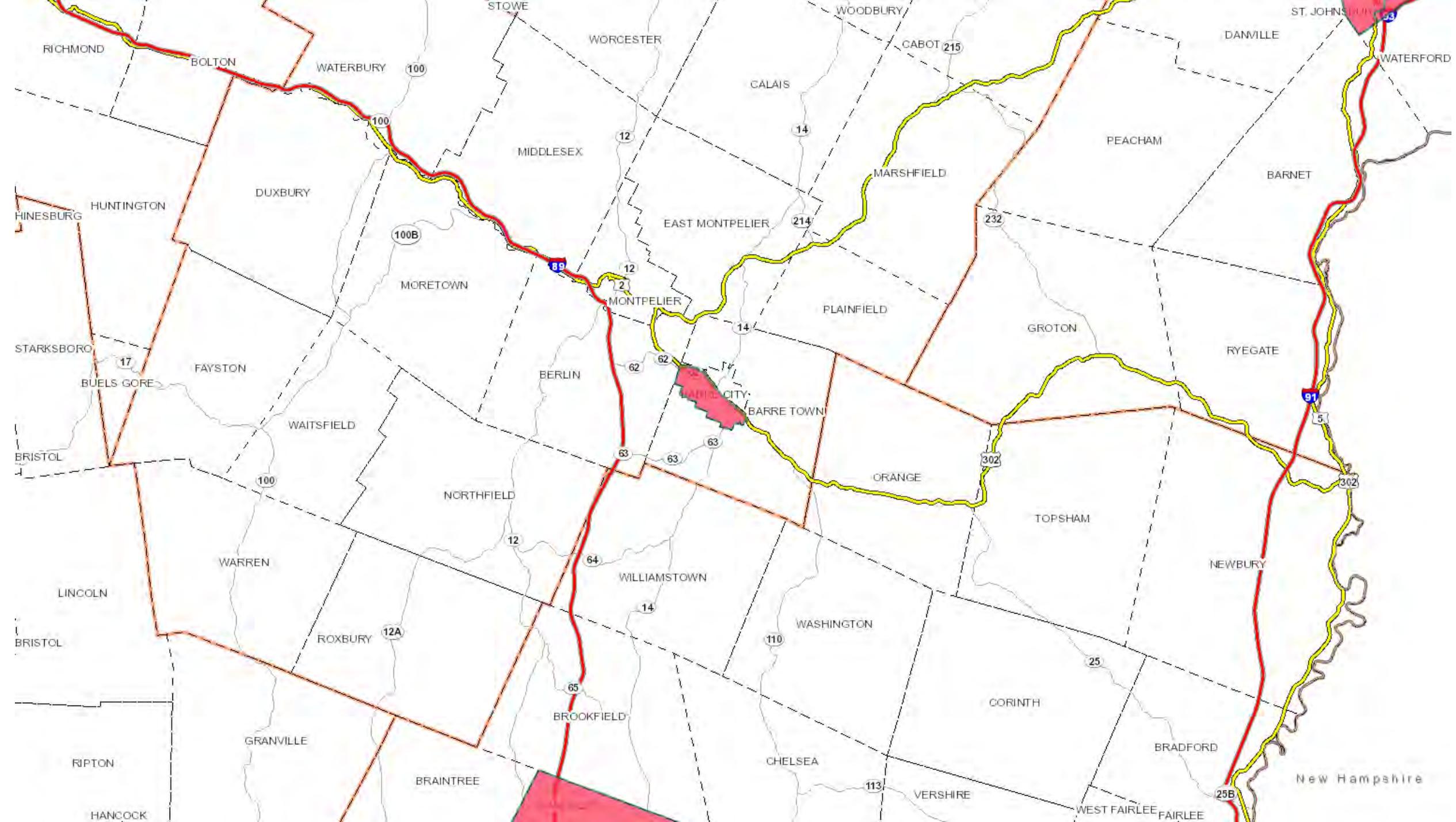
maps.vermont.gov

Layers

Filter Layers... Filter

- + Base Maps
- Operational Layers
- + Popular layers
- + Agriculture
- + Boundaries
- + Cadastral
- + Climate
- + Demographic
- + Economic
- + Elevation
- + Emergency
- + Environment
- + Facilities
- + Geologic
- + Land Cover/Use
- + Landmarks
- + Lidar
- + Recreation
- + Transportation
- + Utilities





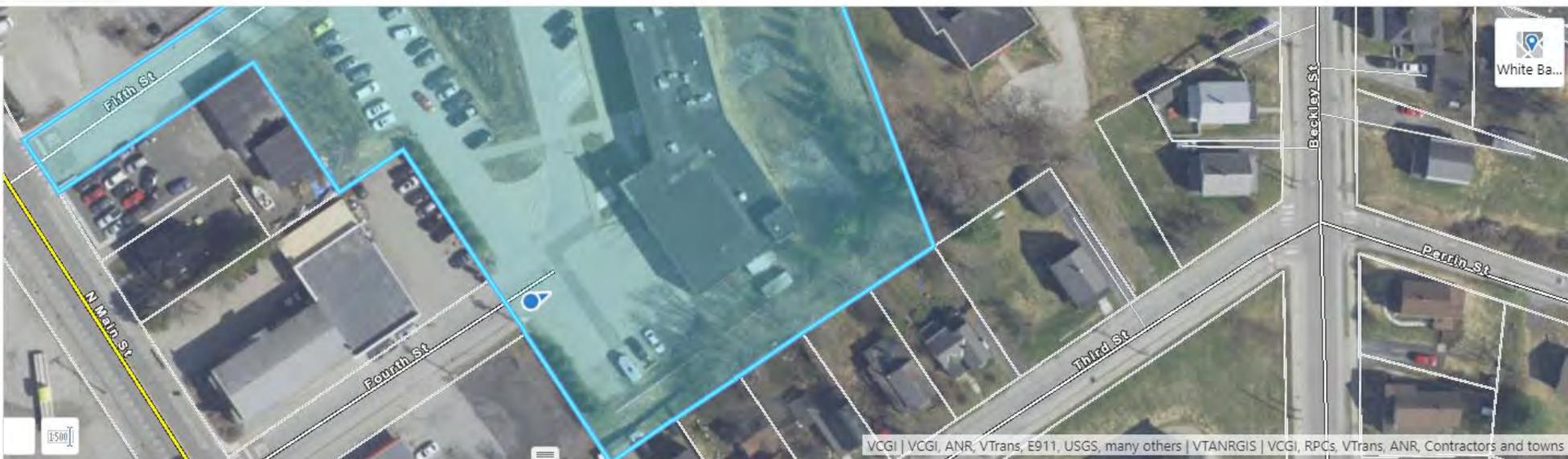
Pan Zoom In Zoom Out Zoom to Town Full Extent Previous Extent Bookmarks Google Street View

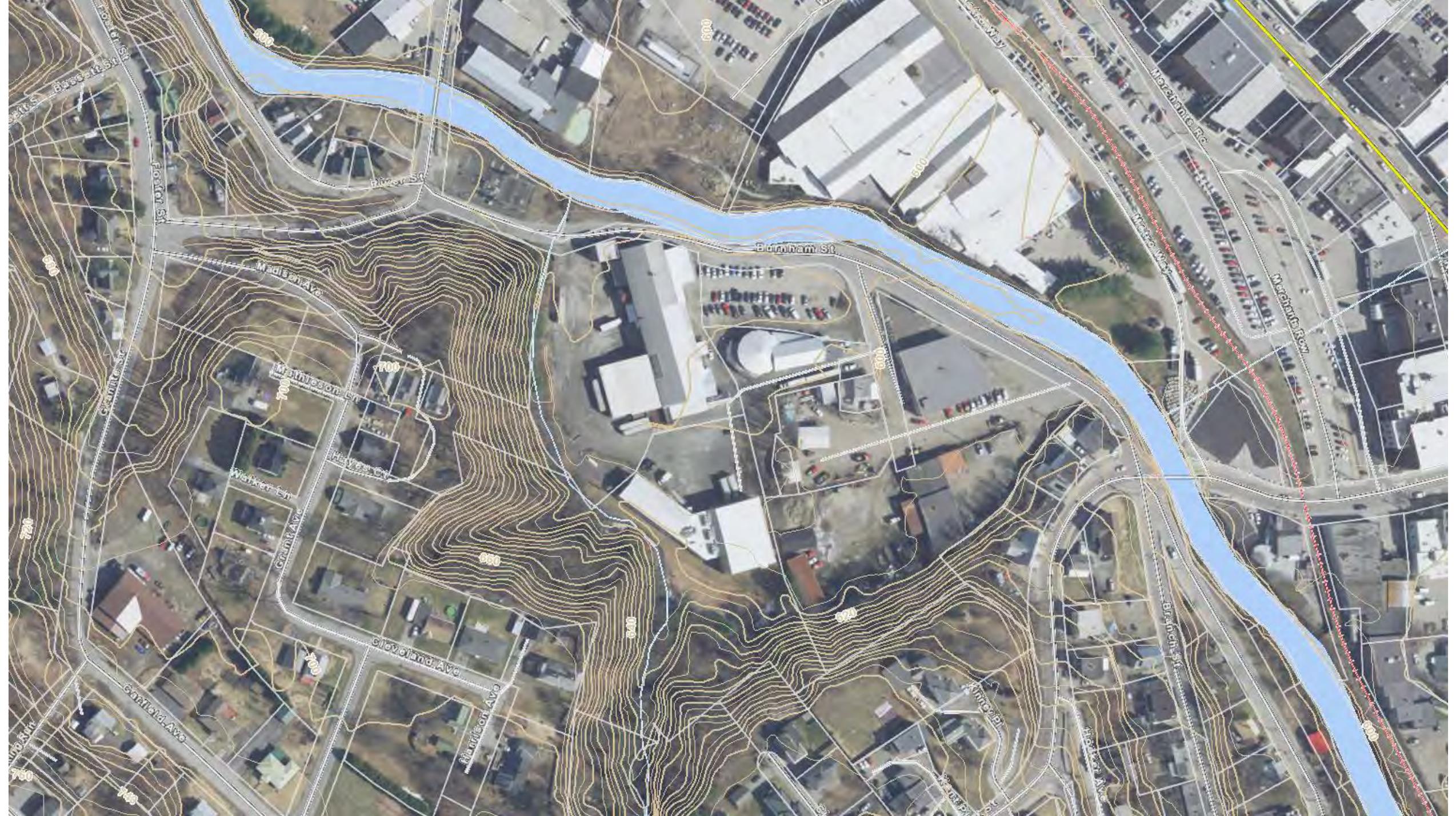
Quick Tools

★ **STANDARDIZED PARCEL DATA**
SPAN: 036-011-13336

Town	BARRE CITY
Parcel Type	PARCEL
Owner Name 1	CITY OF BARRE
Owner Name 2	
Property Description	SAFETY BLDG-4.08AC
Category (Real Estate only)	Commercial
Resident Ownership Code	C
Total Acres	4.08
Listed Real Value (Full)	5383300
Listed Value of Land	164300
Listed Value of Improvements	5219000
Last GIS Update:	2018
Last Grand List Update:	2018

NOTICE: Parcel data is general in nature and does not represent survey grade boundary information. Substantial inaccuracies in boundary lines or grand list attributes should





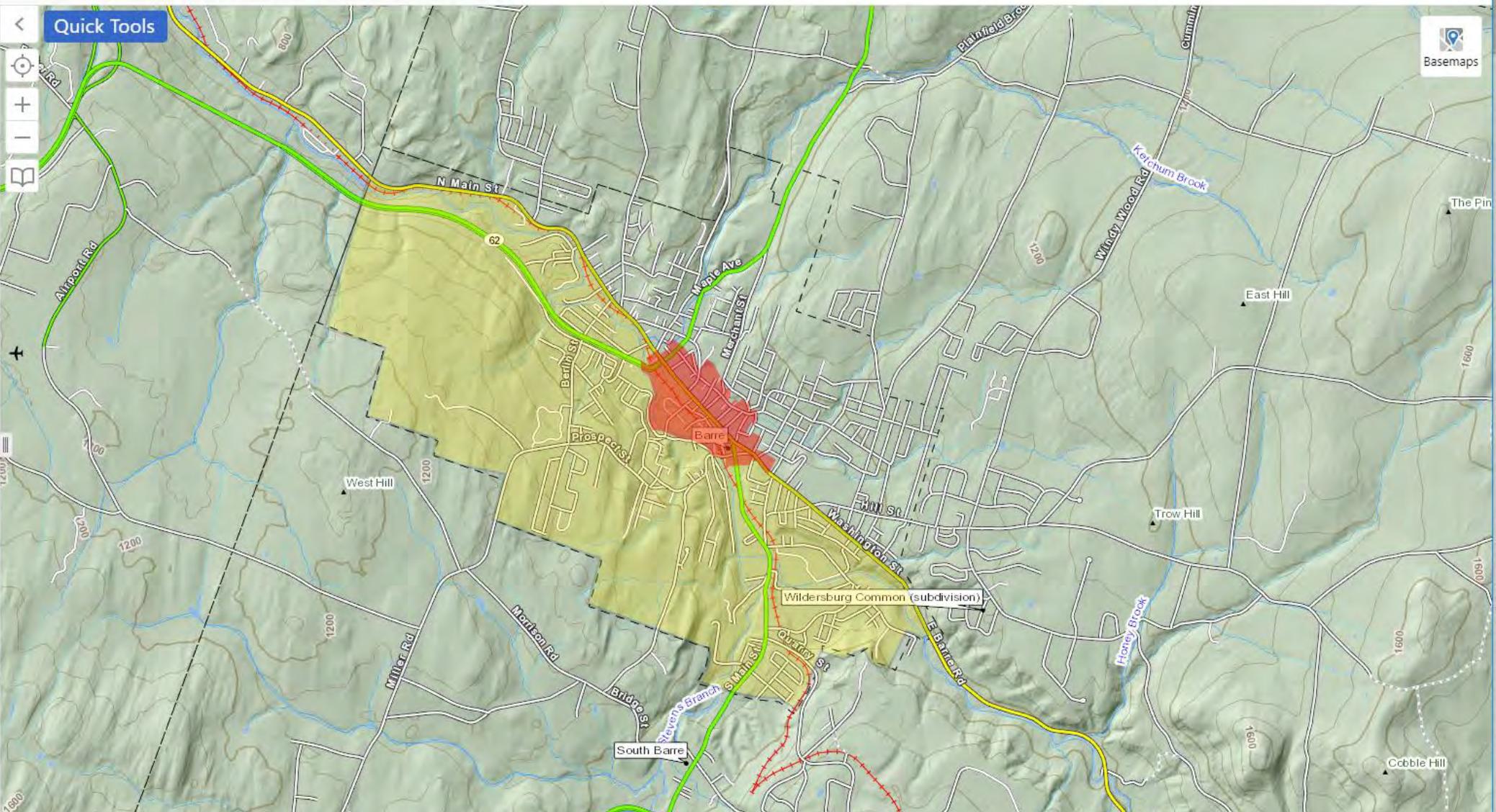


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Layers

Filter Layers... Filter

- Downtown District Boundaries
- Neighborhood Development Area
- Growth Center Boundaries
- New Town Center Boundaries
- Village Boundaries
- Opportunity Zones
- TIF District Boundary
- New Market Tax Credit
- Qualifying Tracts
- + Elevation
- + Emergency
- + Environment
- + Facilities
- + Geologic



State Designation Programs

23

designated
downtowns



124

designated
village centers



2

new town
centers



5

neighborhood
development areas



6

growth
centers



<https://accd.vermont.gov/community-development/designation-programs>



State Designation Programs Benefits Overview

	DOWNTOWN	VILLAGE CENTER	NEW TOWN CENTER	GROWTH CENTER	NEIGHBORHOOD DEVELOPMENT AREA
AUTHORITY					
Statute Section (24 V.S.A. Chapter 76A)	2793	2793a	2793b	2793c	2793e
Date Established	1998	2002	2002	2006	2013
PURPOSE					
Historic Preservation*	√	√		√	√
Economic Revitalization*	√	√		√	√
Smart Growth	√	√	√	√	√
Economic Development	√	√	√	√	√
BENEFITS					
10% State Historic Rehabilitation Tax Credit	√	√			
25% Façade Improvement Tax Credit	√	√			
50% Code Improvement Tax Credit	√	√			
50% Technology Tax Credits	√	√			
Downtown Transportation Fund	√				
Sprinkler System Rebate	√				
Special Assessment District	√	√	√		
Reallocation of Sales Tax on Construction Materials	√				
Traffic Calming Options	√				
Signage Options	√				
No appeal of decision on character of neighborhood for housing	√			√	√
Act 250 Threshold for Mixed-Income Housing & Mixed-Use Projects	√		√	√	√
Act 250 Limited Review & Criteria - "Downtown Findings"	√				
Act 250 Findings and Conclusions for Growth Centers				√	
Act 250 Master Plan Permit Application				√	
Act 250 Mitigation for Loss of Primary Agricultural Soils**	√		√	√	√
Act 250 fee reduction					√
Act 250 Existing Settlement under criterion 9(L)	√	√	√	√	√
Exemption from land gains tax	√				√
ANR Wastewater fee capped at \$50/application	√				√
PRIORITY CONSIDERATION***					
All State Agencies and Funding Programs - first priority	√	√			
Specific State Agencies and Funding Programs:					
Municipal Planning Grants	√	√		√	√
Bike/Ped and Transportation Alternatives Grants	√	√		√	√
Property Assessment Fund (Contaminated Sites / Brownfields)	√	√		√	√
Community Development Block Grants	√	√		√	√
ANR Wastewater funding	√	√		√	√
State affordable housing funds	√	√		√	√
Locating State Buildings	√	√	√	√	

*May not apply to all growth centers.

**Agricultural soil mitigation benefits apply to designated neighborhood development areas only when they are associated with a designated downtown and applies only to new town centers created before 1/1/14.

***Statute establishes that designated downtowns and village centers should have greater priority for state funding and programs than new town centers and growth centers. (24 V.S.A. §2790(d) and 24 V.S.A. §2793c(1)(2)(A))

For more information, please contact:

Chris Cochran: chris.cochran@vermont.gov or 802.595.5410

Website: <http://accd.vermont.gov/community-development/designation-programs>

The Big Dig



2011-2016



**Public Investment
\$19,936,230**

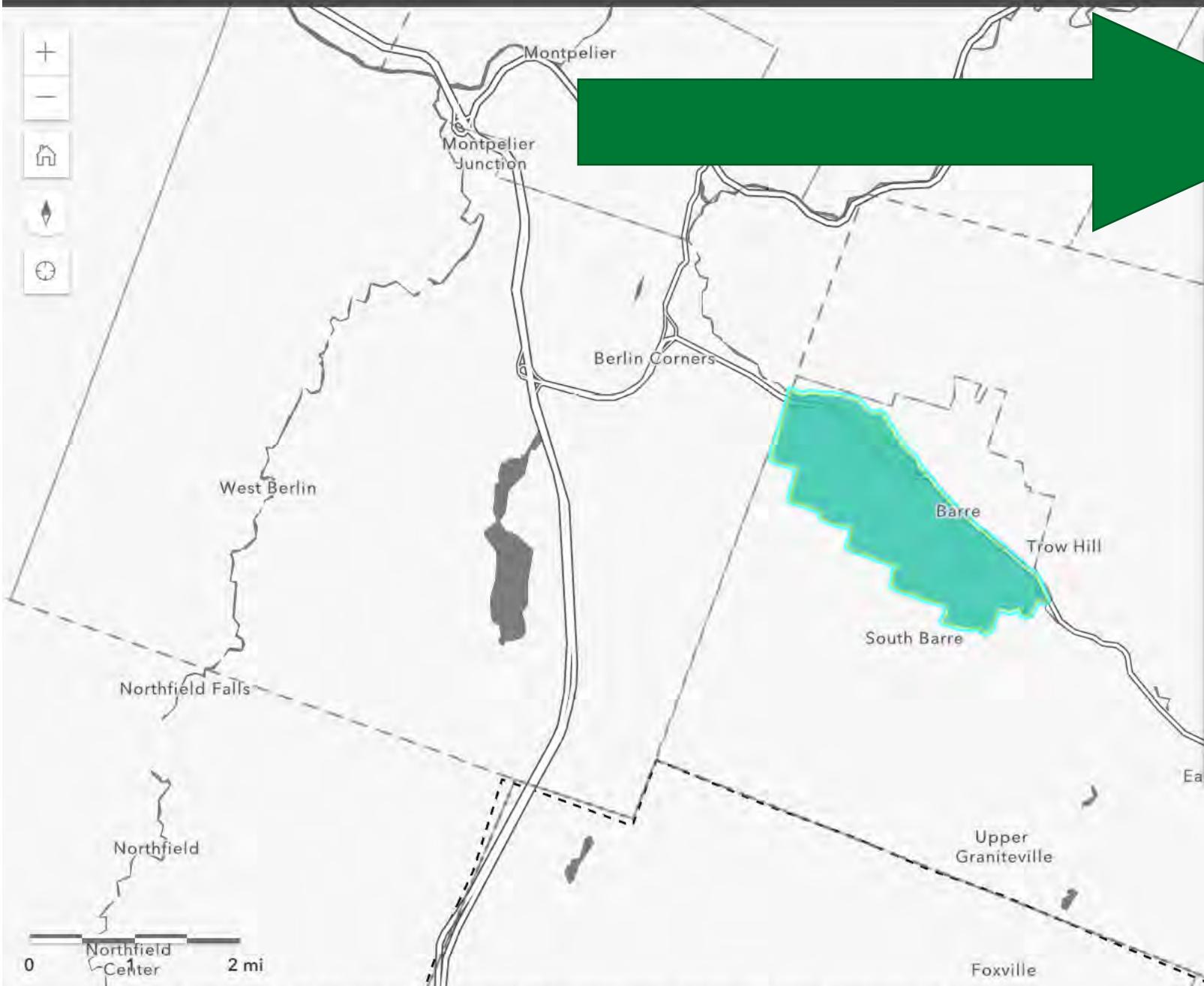


**Private Investment
\$45,122,000**

**24 New
Businesses Added**



censusreporter.org



Zoom to

Census Tract 9552, Washington, VT Profile

GEOID10	50023955200
County	Washington
Municipality	Barre City
Tract	Census Tract 9552, Washington, VT
Population	4,496
Population Under Federal Poverty Level	1,308
Number of Businesses	339
Total number of Private Sector Jobs	2,127
Unemployment Rate	7.80
HUB Qualified	No
Downtown	Yes
Growth Center	No

Census Tract 9552, Washington, VT

Census Tract in: [Barre, VT](#), [Washington County, VT](#), [Vermont](#), [United States](#)

4,360 Population

2.5 square miles

1,712.5 people per square mile

Census data: ACS 2017 5-year unless noted



Find data for this place

Interact with charts and statistics for [margins of error](#) and additional information.

Demographics

† Margin of error is at least 10 percent of the total value. Take care with this statistic.

Age

39.2

Median age

a little higher than the figure in Barre: 38.1

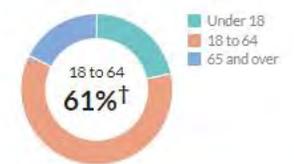
about 90 percent of the figure in Washington County: 43.5

Population by age range



Show data / Embed

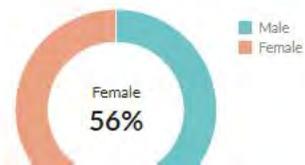
Population by age category



Show data / Embed

† Margin of error is at least 10 percent of the total value. Take care with this statistic.

Sex



Race & Ethnicity



Census Tract 9552, Washington, VT

Census Tract in: [Barre, VT](#), [Washington County, VT](#), [Vermont, United States](#)

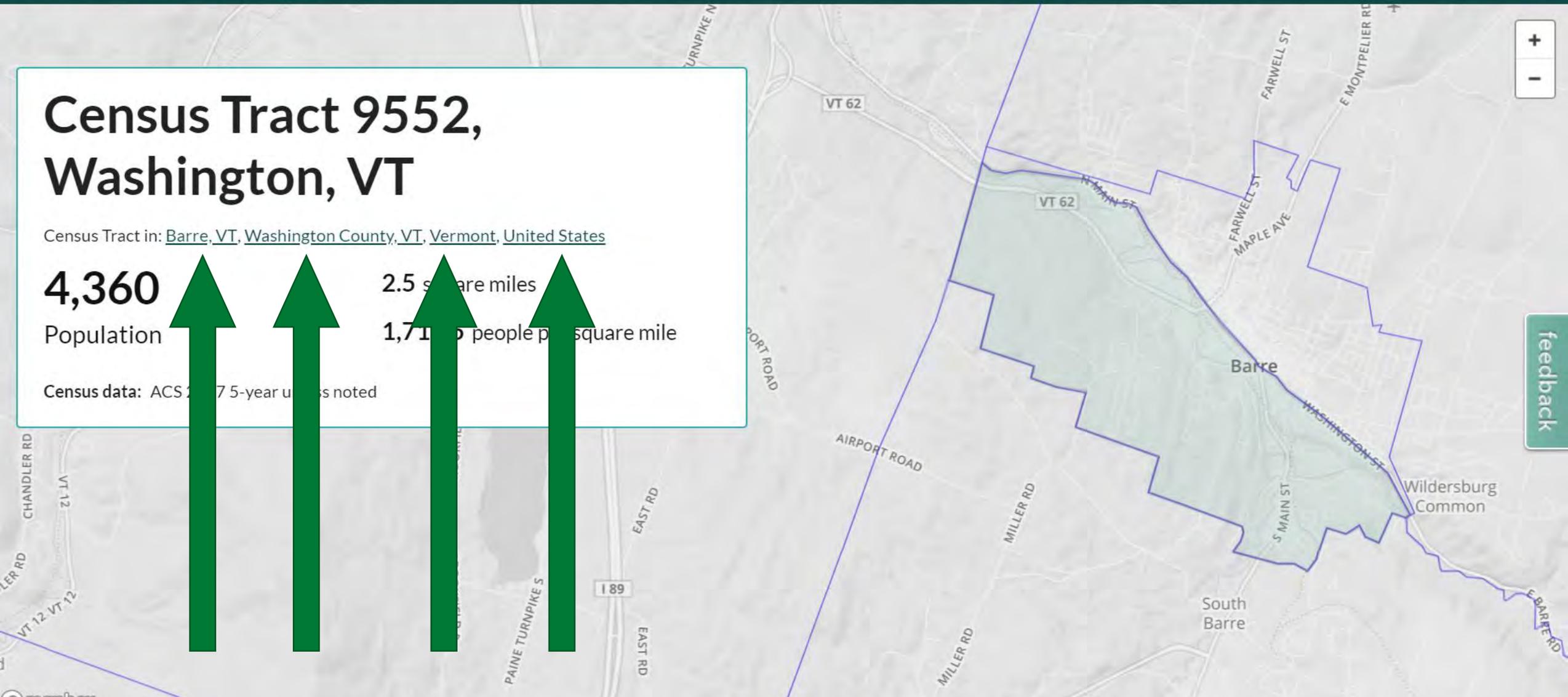
4,360

Population

2.5 square miles

1,710 people per square mile

Census data: ACS 2017 5-year universe. Notations noted



Barre, VT

Place in: [Washington County, VT](#), [Barre, VT Micro Area](#), [Vermont](#), [United States](#)

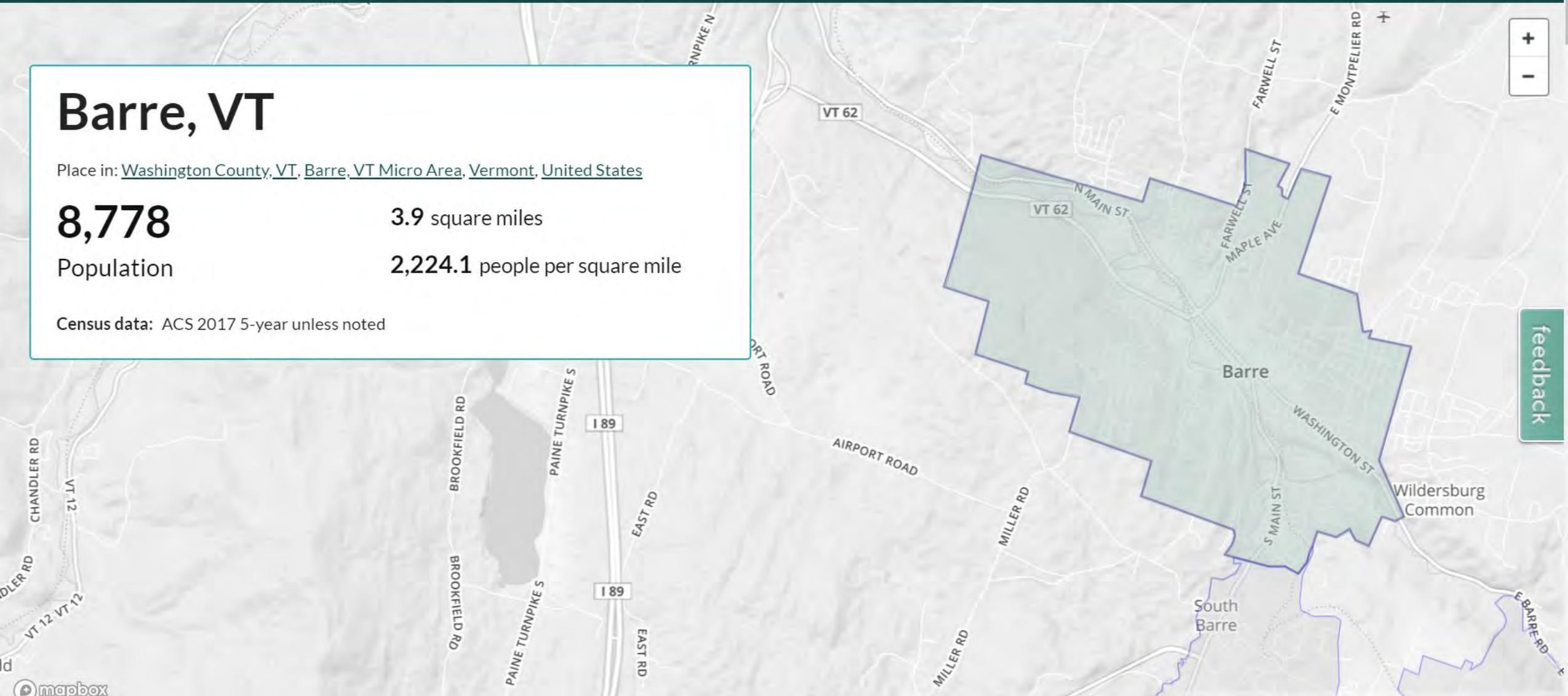
8,778

Population

3.9 square miles

2,224.1 people per square mile

Census data: ACS 2017 5-year unless noted



feedback

Washington County, VT

County in: [Vermont](#), [United States](#)

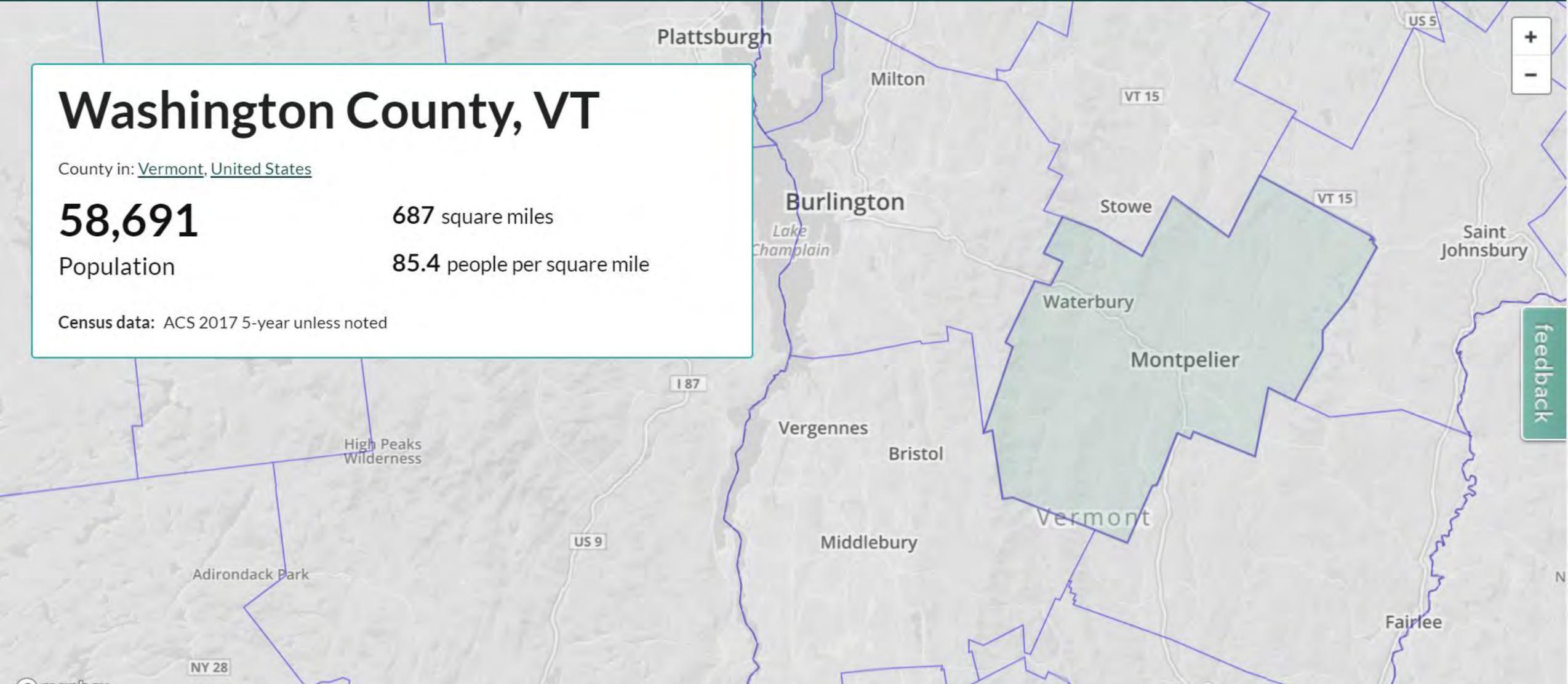
58,691

Population

687 square miles

85.4 people per square mile

Census data: ACS 2017 5-year unless noted



feedback

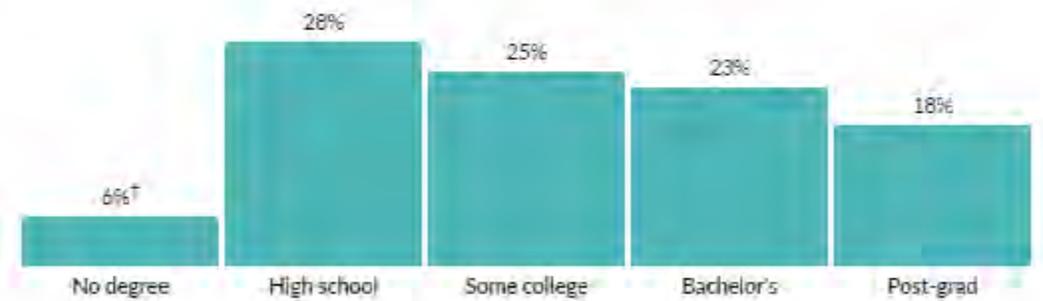
40.5%

Population with bachelor's degree or higher.

About 1.3 times the rate in United States: 30.9%

Washington County, VT

Population by minimum level of education



¹ Universe: Population 25 years and over

Census Reporter

[Make this chart](#)

Median Value (Dollars)

Table

Map

Distribution

[Download data](#)

Table B25077

[Change](#)

ACS 2017 5-year

Add data for more places below; visualize or download this data with controls at right.

Selected geographies

Barre city, Washington County, VT

Add a geography

Find a place

Add all county subdivisions in ...

- [Washington County, VT](#)
- [Vermont](#)
- [United States](#)

Divide Barre city, Washington County, VT into ...

- [census tracts](#)
- [block groups](#)
- [places](#)
- [native areas](#)
- [metro areas](#)
- [congressional districts](#)
- [state houses \(upper\)](#)
- [state houses \(lower\)](#)
- [ZIP codes](#)
- [school districts \(elementary\)](#)
- [school districts \(secondary\)](#)
- [school districts \(unified\)](#)

Table universe: Owner-Occupied Housing Units

Column → **Barre city, Washington County, VT**

Median value (dollars) \$151,500 ±\$7,677

Click a row to highlight



Median Value (Dollars)

Table

Map

Distribution

[Download data](#)

Table B25077

[Change](#)

ACS 2017 5-year

Charts show how data in this table is distributed, helping identify patterns, clusters and outliers. You can **click a point** to lock and unlock display.

Table universe: Owner-Occupied Housing Units

Find

Barre city, Washington County, VT

\$151,500 ±\$7,677

(Dollars)

Min: \$151,500

Median: \$226,100

Max: \$350,900

Selected geographies

Barre city, Washington County, VT [Remove](#)

Median Value (Dollars)

Table

Map

Distribution

Download data

Table B25077

Change

ACS 2017 5-year

Charts show how data in this table is distributed, helping identify patterns, clusters and outliers. You can click a point to locate and unlock display.

Table universe: Owner-Occupied Housing Units

Find

Barre city, Washington County, VT

\$151,500 ±\$7,677

(Dollars)

Min: \$151,500

Median: \$226,100

Max: \$350,900

Selected geographies

Barre city, Washington County, VT [Remove](#)

Median Value (Dollars)

Table

Map

Distribution

Download data

Table B25077

Change

ACS 2017 5-year

Charts show how data in this table is distributed, helping identify patterns, clusters and outliers. You can click a point to locate and unlock display.

Table universe: Owner-Occupied Housing Units

Find

Barre city, Washington County, VT

\$151,500 ±\$7,677

(Dollars)

Portsmouth, NH

\$373,000 ±\$10,639

Seattle, WA

\$537,800 ±\$5,503

NYC-Brooklyn Community District 1--Greenpoint & Williamsburg PUMA, NY

\$830,400 ±\$40,039

NYC-Brooklyn Community District 6--Park Slope, Carroll Gardens & Red Hook PUMA, NY

\$1,092,200 ±\$34,300

Min: \$151,500

Median: \$254,000

Max: \$1,092,200

Selected geographies

Boston, MA [Remove](#)

Portsmouth, NH [Remove](#)

Seattle, WA [Remove](#)

Census Reporter

Table | **Map** | Distribution | [Download data](#)

Median Value (Dollars)

Table B25077 ACS 2017 5-year [Change table](#)

Table universe: Owner-Occupied Housing Units

Show column

Median value (dollars)

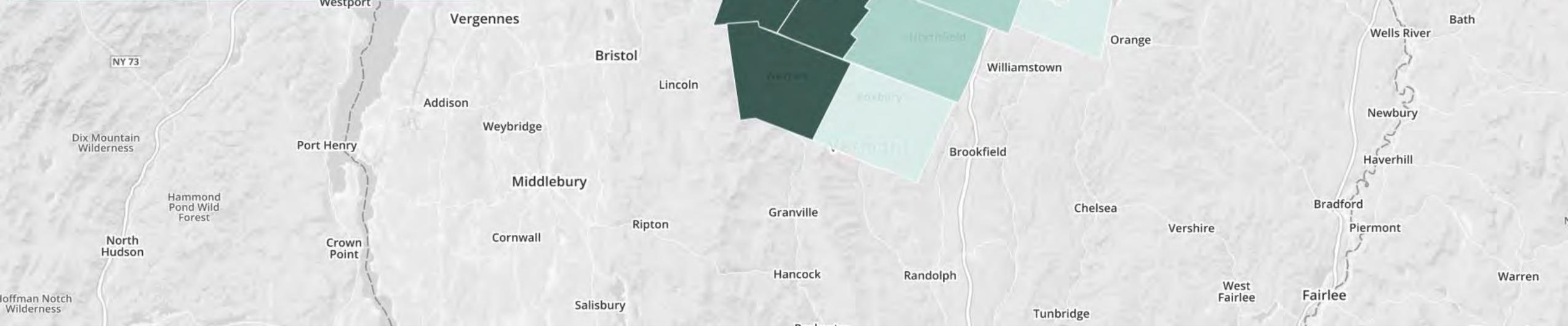
\$151,500 \$191,380 \$231,260 \$271,140 \$311,020 \$350,900

Show summary level

County subdivisions

Selected geographies

- Barre city, Washington County, VT [Remove](#)
- County subdivisions in Washington County, VT [Remove](#)



[feedback](#)

**ATLAS OF RURAL
AND SMALL-TOWN
AMERICA**

United States Department of
Agriculture Economic
Research Service

**BUREAU OF
ECONOMIC
ANALYSIS**

**LONGITUDINAL
EMPLOYER-
HOUSEHOLD
DYNAMICS**

Census Center for
Economic Studies

DATAUSA.IO

Deloitte, Datawheel,
MIT Media Lab.

**VERMONT
FUTURES
PROJECT**

Vermont Chamber
Foundation

opportunity.mapvt.com