

# REDLINING IOWA

AS BLACK POPULATIONS RISE IN AN AREA, HOW DOES THE HOUSE SALE PRICE IN AMES, IOWA CHANGE?

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# AGENDA

- Data Science Problem & Goal
  - Background
  - Investigative Process
  - Conclusions
  - Future Steps
  - Recommendations
  - Questions
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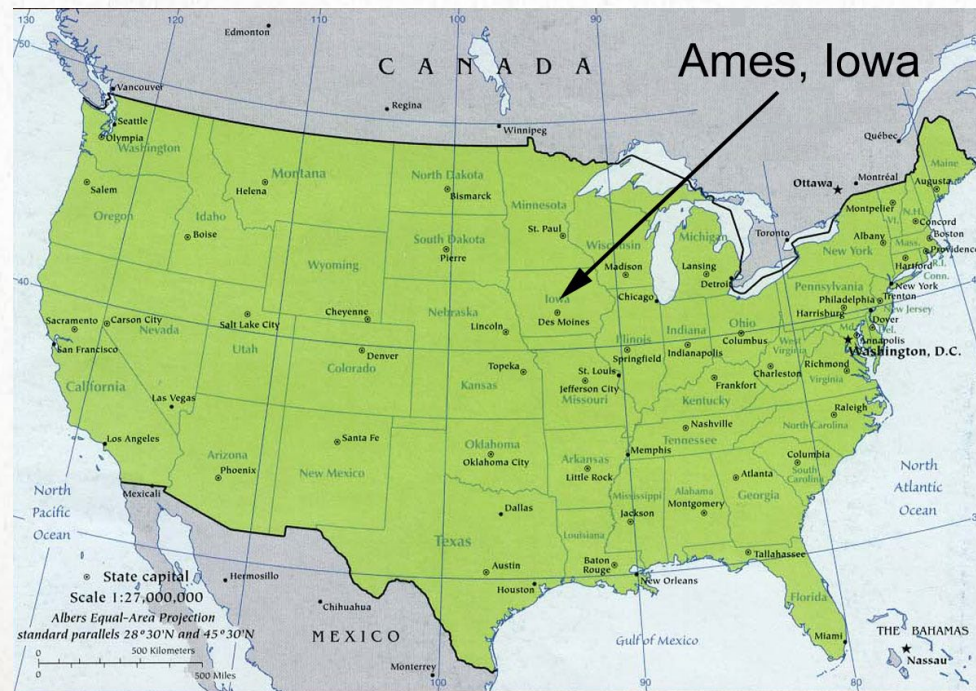
## GOAL

Create a model to predict the Sales Price of houses in certain areas of Ames, Iowa based on Census Demographic Data and Location Median Household Income.



# PROBLEM

- As the Black or African American populations rise in a particular census tract area, how does the sale price of houses in Ames, Iowa change?



# BACKGROUND: REDLINING

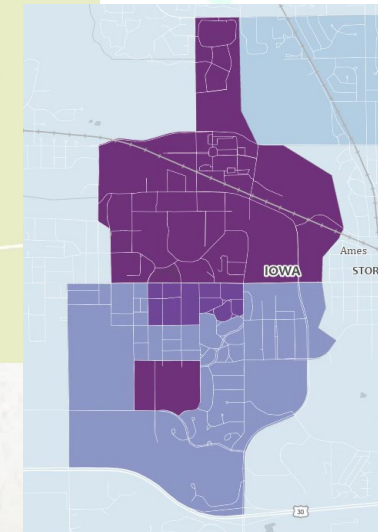
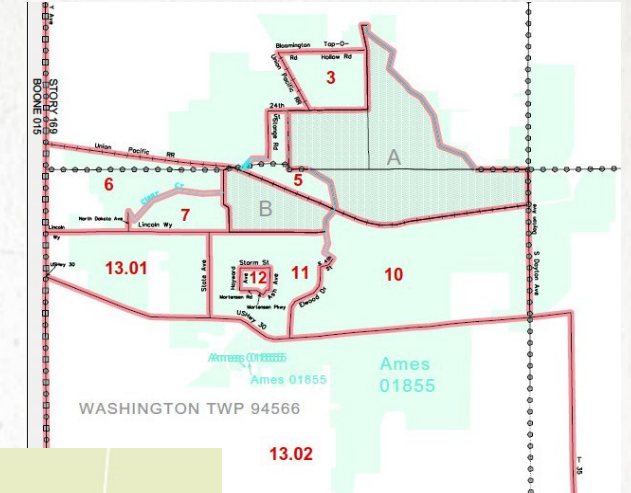
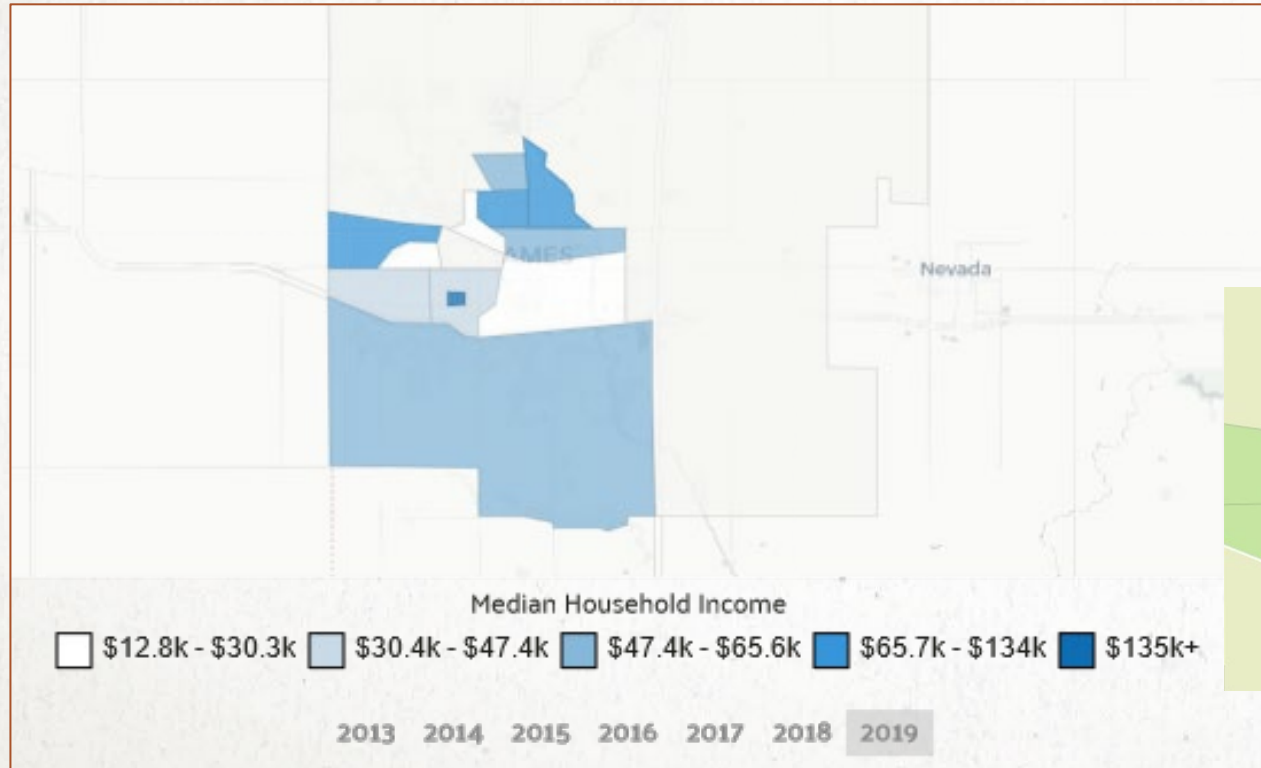
Black homeowner rates have only increased 1.2% between 1970 and 2019

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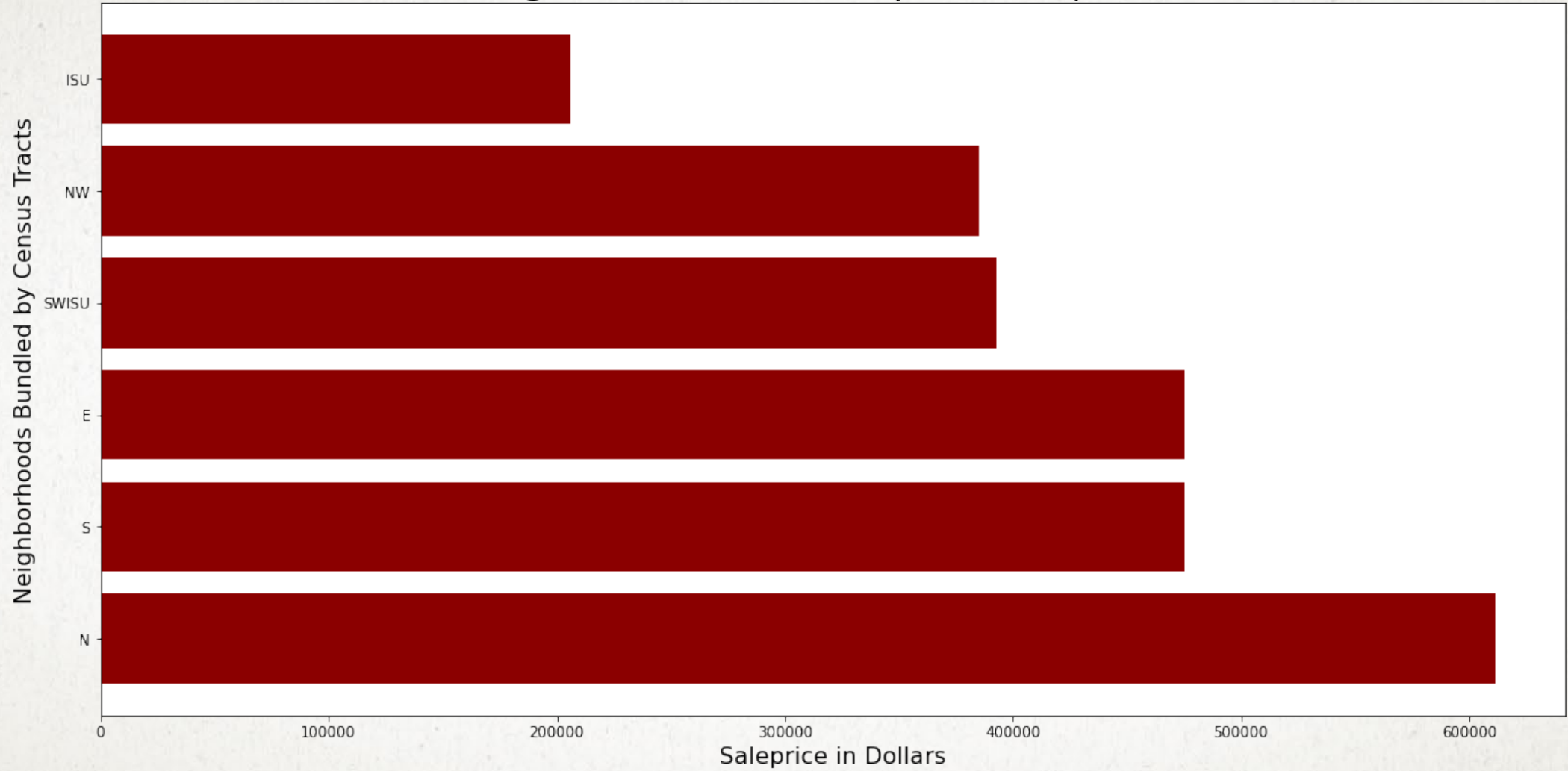
- Redlining is the historic act of deeming particular areas as excessively risky for investment.
- Many of the same neighborhoods that were redlined in the past continue to have high poverty rates, lower median household incomes, and higher levels of marginalized populations.
- Certain areas too risky for home loans
- Directing some home buyers to certain neighborhoods
- "Houses that are essentially the same with the exception of one being in a majority Black neighborhood and one in a majority white neighborhood have almost a 50 percent difference in value", Twedt-Ball said in The Gazette Iowa newspaper



# INVESTIGATIVE PROCESS



## Neighborhoods and Saleprice Comparison





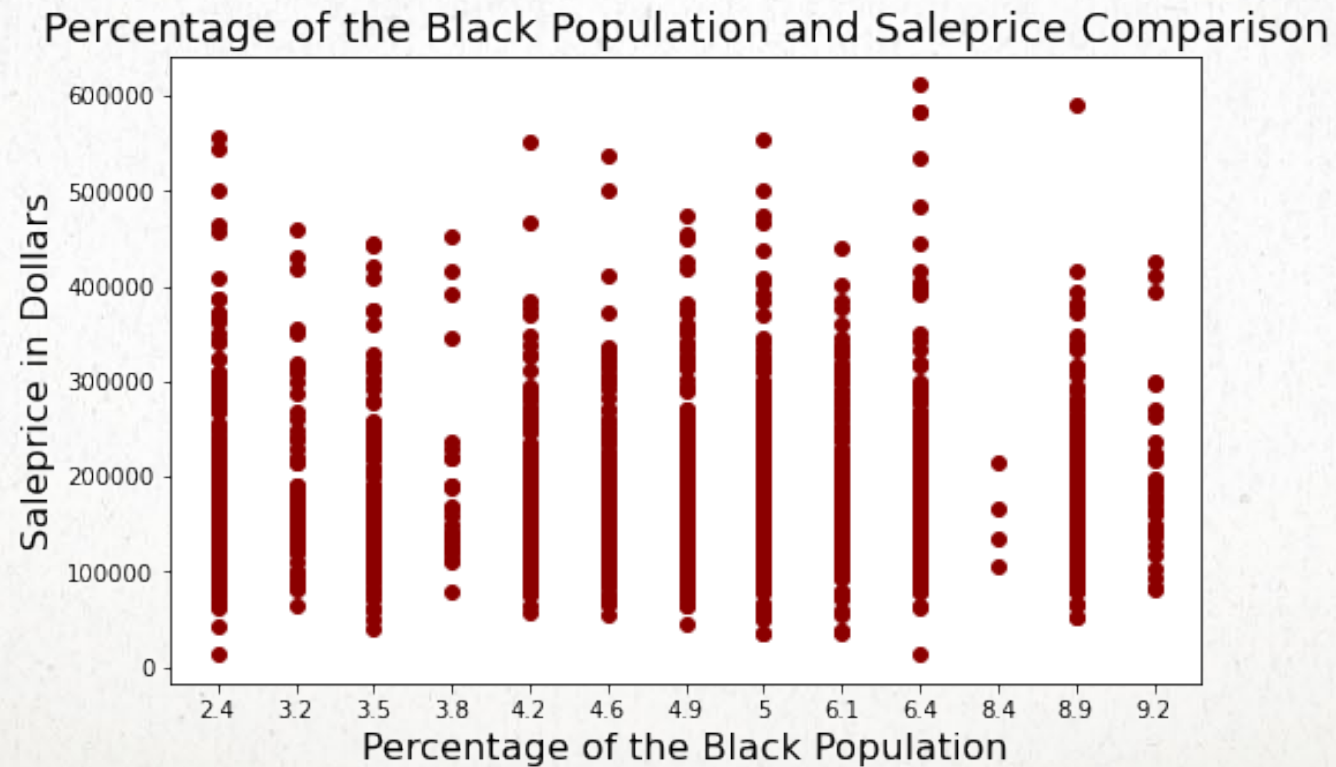
# MODEL FINDINGS

- Overall, as the model works to predict sales price
- Potential error around \$26756.00

Metric	Train	Validation
MAE	23636	26756
RMSE	33826	43176
Coefficient of Determination	0.8038	0.7679

## CONCLUSIONS

My problem was to see if there was a distinct relationship between the higher Black populations in a census tract area in connection with the house sale prices.





# CONCLUSIONS

The model that utilized the data for population density by race and the Ames, Iowa Housing data set was able to predict the sale price of houses.

The model had high bias and high variance, so it still needs some adjustments for more accurate predictions.

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# FUTURE STEPS

- Remove outliers for the year the house was built and the year the house had an addition or remodeling features.
  - Either find 2010 population census data that is closer to the Ames, IA data set (2006-2010) or find Ames, IA housing data for 2020.
  - Adding in more features to help with the high bias:
    - Sale condition; normal, abnormal, partial, between family, or adjoining land could help determine sale price.
    - Sq. Footage which is a better predictor of sale price.
  - Look at data from other Iowa cities without a large university in it.
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# RECOMMENDATIONS



- Continue to be aware of and combat against possible segregation redlining tactics.
- Consider creating learning resources for Black Iowans to educate themselves about their options for becoming homeowners.

# THANK YOU

- Brandie Hatch
- <http://brandiehatch.com/>
- </in/brandiehatch/>





# SOURCES

- Median Household Income Ames, IA: [https://datausa.io/profile/geo/ames-ia#income\\_geo](https://datausa.io/profile/geo/ames-ia#income_geo)
- 2020 Census Demographic Data Map Viewer, Population Density, Race Alone or In Combination, Hispanic Origin, and Group Quarters: <https://mtgis-portal.geo.census.gov/arcgis/apps/MapSeries/index.html?appid=2566121a73de463995ed2b2fd7ff6eb7>
- Past Housing Policies, Practices Contribute To Iowa's Racial Homeownership, Wealth Gaps | Iowa Public Radio | by Katarina Sostaric | <https://www.iowapublicradio.org/racial-justice/2020-12-18/past-housing-policies-practices-contribute-to-iowas-racial-homeownership-wealth-gaps>
- Racial Disparities in Home Appreciation | Jul 15, 2019 | Michela Zonta | <https://www.americanprogress.org/article/racial-disparities-home-appreciation/>
- Why the homeownership gap between White and Black Americans is larger today than it was over 50 years ago | <https://www.cnbc.com/2020/08/21/why-the-homeownership-gap-between-white-and-black-americans-is-larger-today-than-it-was-over-50-years-ago.html>
- The American Dream While Black: "Locked in a Vicious Cycle" | <https://www.nbcnews.com/specials/american-dream-while-black-homeownership/>
- Black Americans And The Racist Architecture Of Homeownership | NPR Code Switch | May 8, 2021 11:20 AM ET | By Ailsa Chang, Christopher Intagliata, Jonaki Mehta | <https://www.npr.org/sections/codeswitch/2021/05/08/991535564/black-americans-and-the-racist-architecture-of-homeownership>
- Research: More oil and gas wells in redlined neighborhoods Historically marginalized communities are exposed to more wells with their accompanying pollution | By Dylan Svoboda | April 13, 2022 | <https://publichealth.berkeley.edu/news-media/research-highlights/research-more-oil-and-gas-wells-in-redlined-neighborhoods/>
- City of Ames: <https://www.cityofames.org/>
- Neighborhoods of Ames, IA from Prediction Model of Ames Real Estate Prices: [https://rstudio-pubs-static.s3.amazonaws.com/337439\\_24918eaefe724411be93e41ede48b256.html](https://rstudio-pubs-static.s3.amazonaws.com/337439_24918eaefe724411be93e41ede48b256.html)

# INDEX



**Table 1. Ames population by race, 2017**

	<b>Ames</b>	<b>Iowa</b>
<b>White</b>	83.0%	90.6%
Black or African American	2.7%	3.4%
American Indian and Alaska Native	0.2%	0.3%
Asian	10.2%	2.3%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%
Some other race alone	0.5%	1.3%
Two or more races	3.3%	2.0%
Hispanic or Latino (of any race)	3.5%	5.7%

Source: U.S. Census Bureau, 2013-2017 American Community Survey

Table DP05 for Ames and State of Iowa.

1

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STORY 169  
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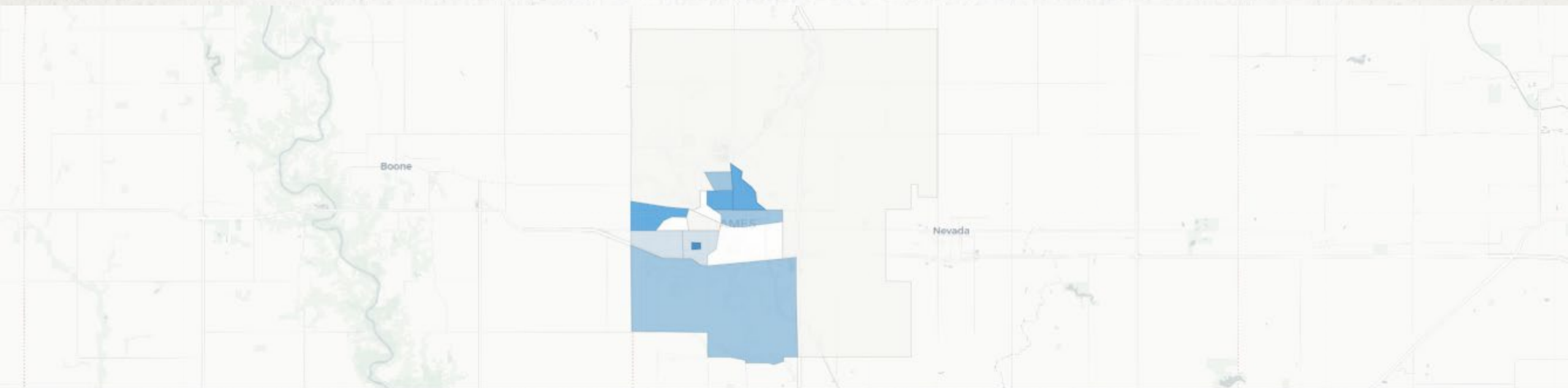
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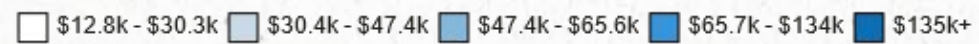
Ames  
01855

1. **Introduction**

1-35



Median Household Income



2013 2014 2015 2016 2017 2018 2019



# 2020 Census Demographic Data Map Viewer

Population

Race alone

Race alone or in combination

Hispanic Origin

Housing

Group Quarters

White

Black or African American

American Indian and Alaska Native

Asian

Native Hawaiian and Other Pacific Islander

Some Other Race

This map shows the percentage of the total population that reported their race as Black or African American alone or in combination in the 2020 Census at the state, county, and census tract levels. Zoom in to see county- and tract-level data. Click on the map to learn more.

## Legend

State (or state equivalent) boundary



County (or county equivalent) boundary



Minor civil division boundary



Census tract boundary



Percent Black or African American alone or in combination by census tract

50.0 or more

25.0 to 49.9

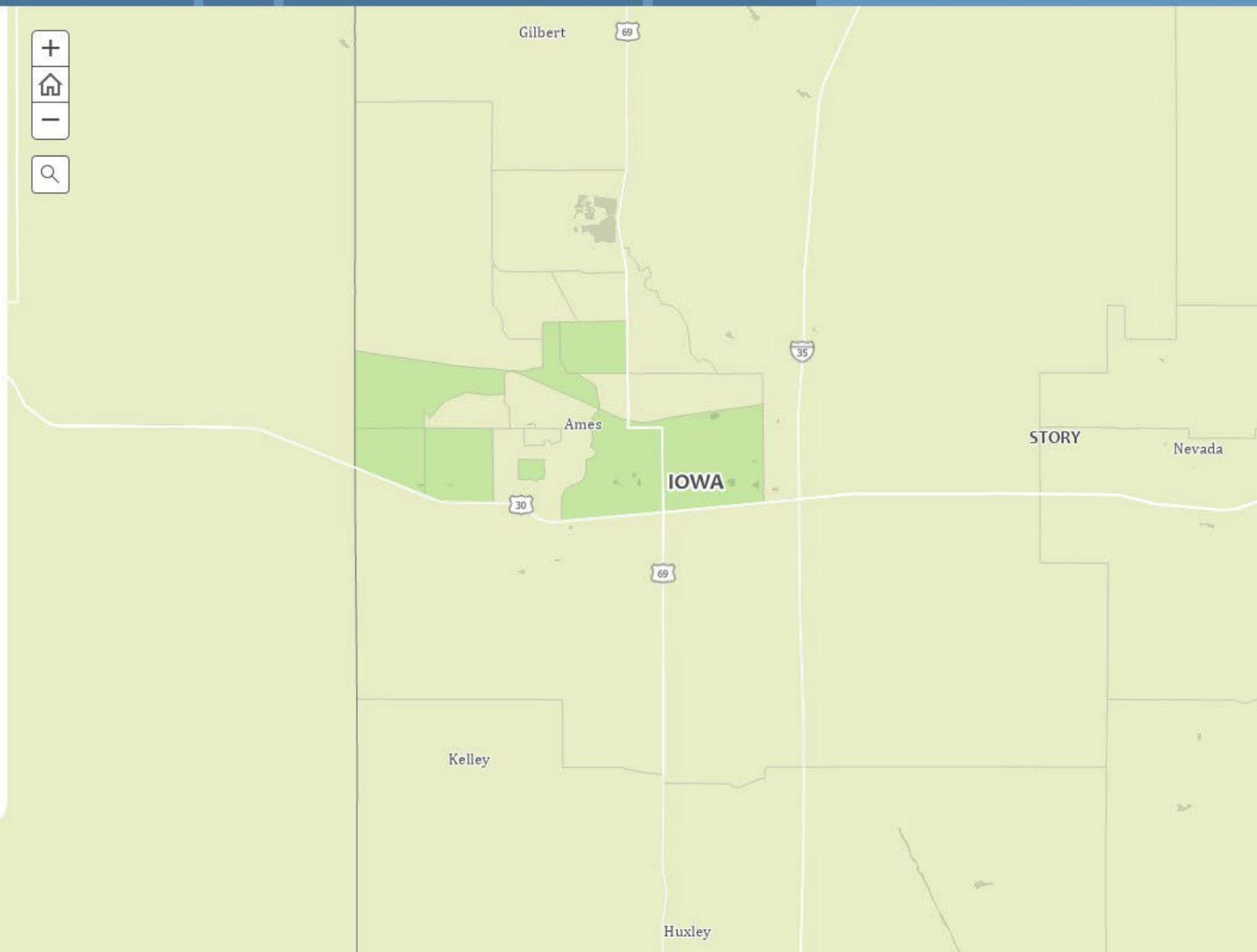
10.0 to 24.9

5.0 to 9.9

Less than 5.0

No population

U.S. percent = 14.2



# 2020 Census Demographic Data Map Viewer

Population

Race alone

Race alone or in combination

Hispanic Origin

Housing

Group Quarters

White

Black or African American

American Indian and Alaska Native

Asian

Native Hawaiian and Other Pacific Islander

Some Other Race

This map shows the percentage of the total population that reported their race as White alone or in combination in the 2020 Census at the state, county, and census tract levels. Zoom in to see county- and tract-level data. Click on the map to learn more.

## Legend

State (or state equivalent) boundary



County (or county equivalent) boundary



Minor civil division boundary



Census tract boundary



Percent White alone or in combination by census tract

95.0 or more

90.0 to 94.9

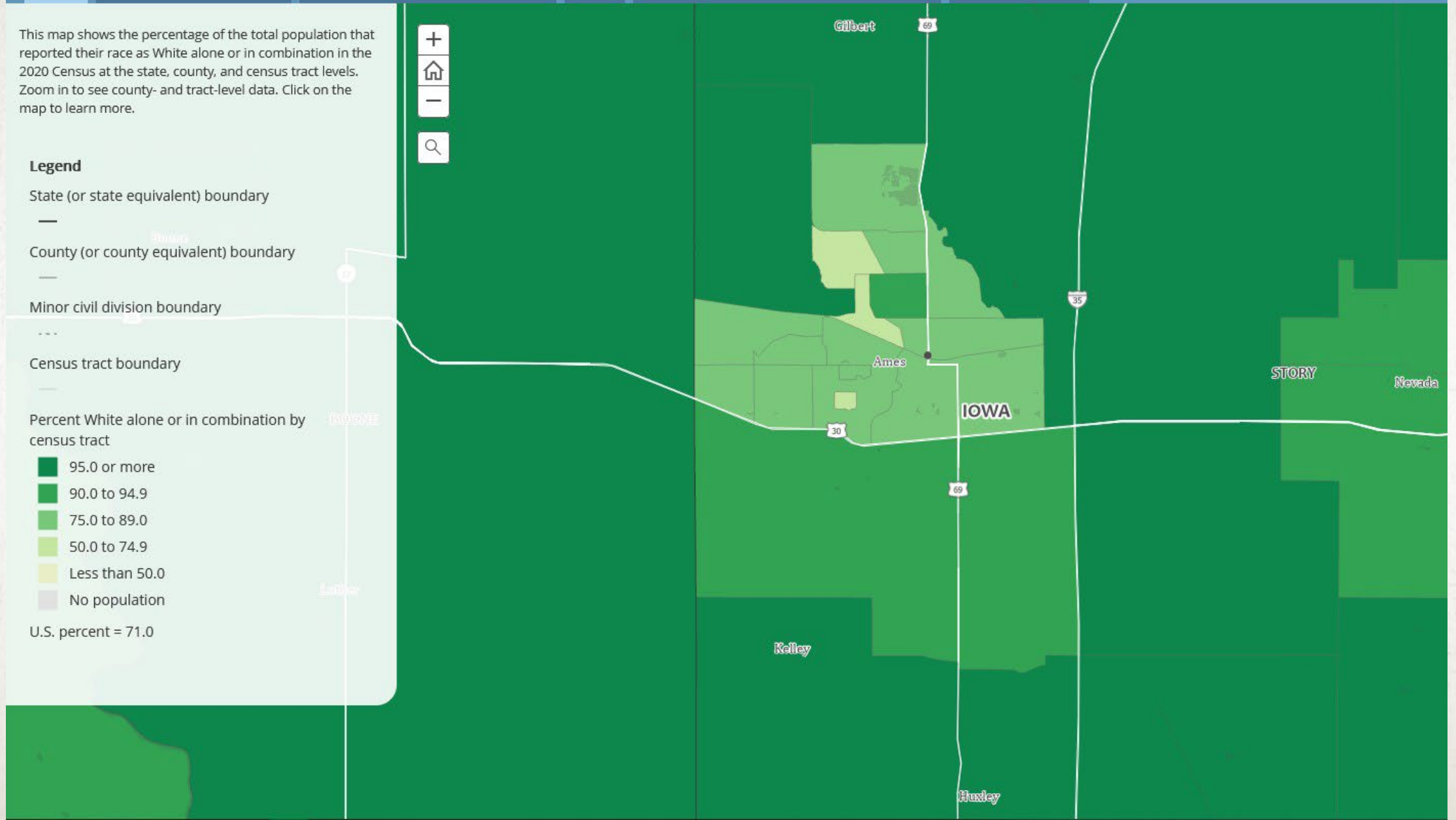
75.0 to 89.0

50.0 to 74.9

Less than 50.0

No population

U.S. percent = 71.0



# 2020 Census Demographic Data Map Viewer

- Population
- Race alone
- Race alone or in combination
- Hispanic Origin
- Housing
- Group Quarters

- Population Density
- Population Change
- Population Age 18 and Over

This map shows the population density—expressed as persons per square mile—from the 2020 Census at the state, county, and census tract levels. Zoom in to see county- and tract-level data. Click on the map to learn more.

### Legend

- State (or state equivalent) boundary
- County (or county equivalent) boundary
- Minor civil division boundary
- Census tract boundary

### Persons per square mile by census tract

- 10,000.0 or more
- 5,000.0 to 9,999.9
- 2,000.0 to 4,999.9
- 1,000.0 to 1,999.9
- 500.0 to 999.9
- 100.0 to 499.9
- 50.0 to 99.9
- Less than 50.0
- Water only

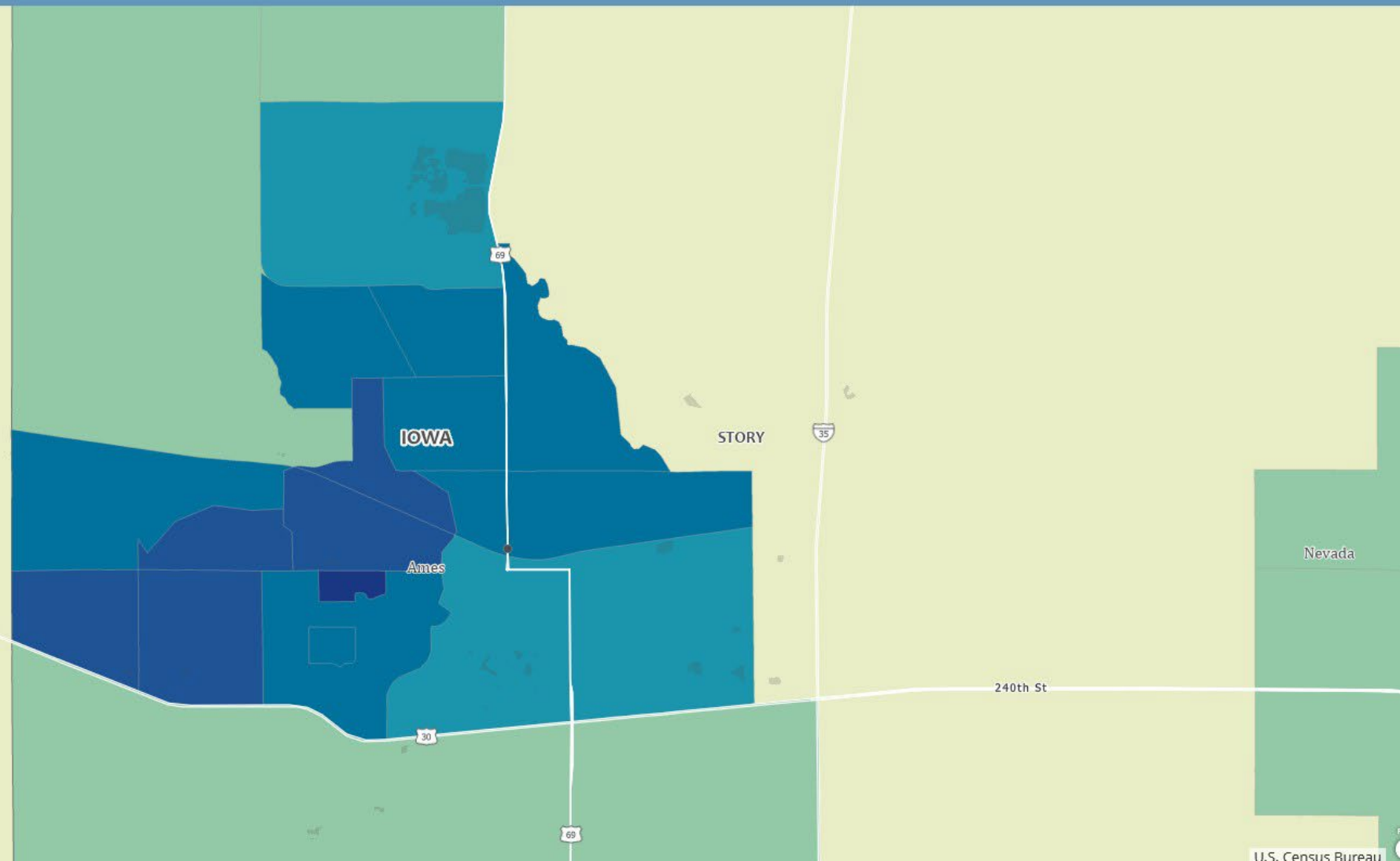
U.S. density = 93.7

+

Home icon

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Search icon





## Group Quarters Population

## Institutional Group Quarters Population

## Non-Institutional Group Quarters Population

This map shows the percentage of the total population living in group quarters from the 2020 Census at the state, county, and census tract levels. Zoom in to see county- and tract-level data. Click on the map to learn more.

### Legend

State (or state equivalent) boundary



County (or county equivalent) boundary



Minor civil division boundary



Census tract boundary



Percent living in group quarters by census tract

65.0 or more

20.0 to 64.9

6.0 to 19.9

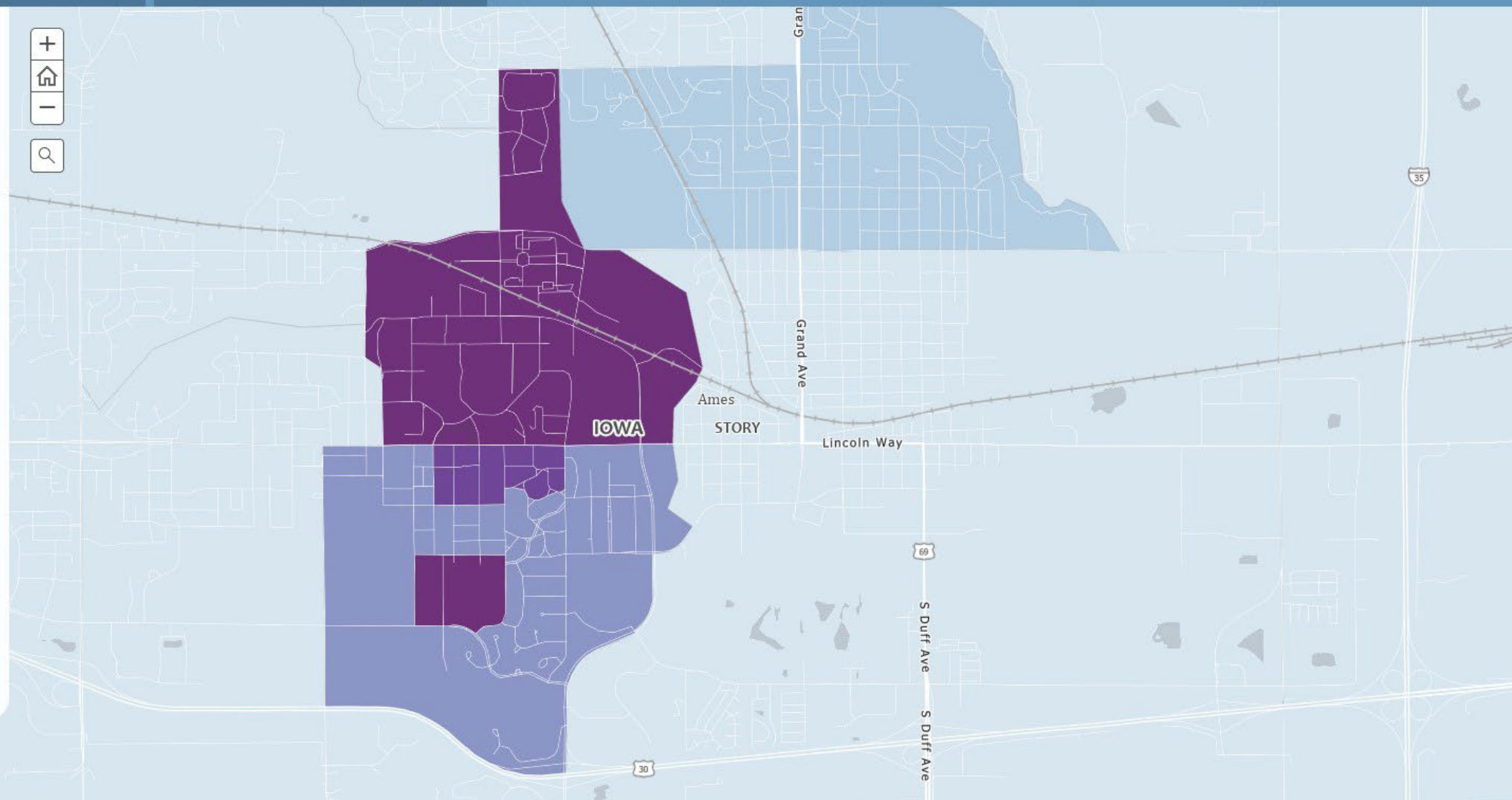
3.0 to 5.9

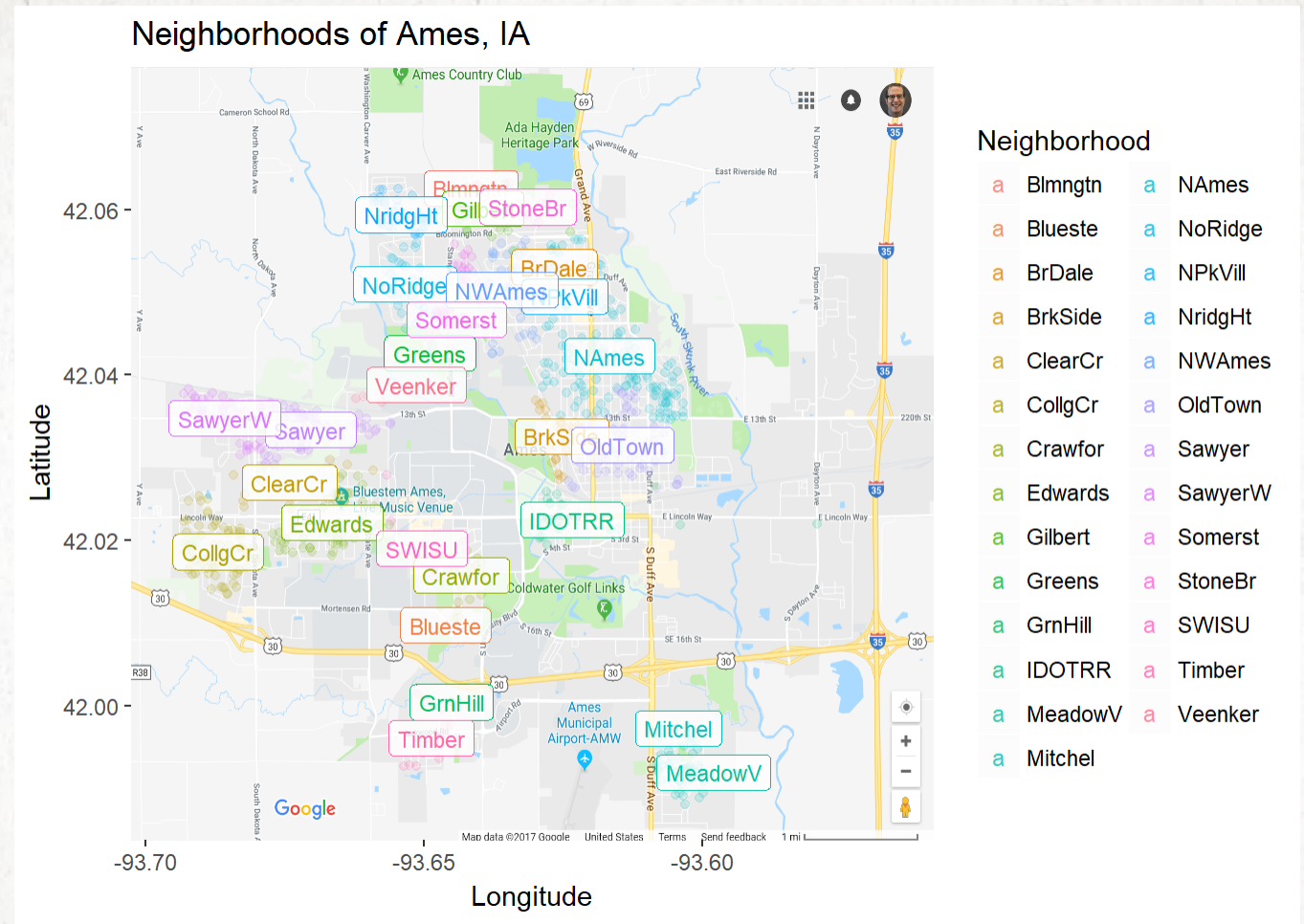
1.5 to 2.9

Less than 1.5

No population

U.S. percent = 2.5





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