# 2021 WATERLOO, IOWA COMMUNITY RISK ASSESSMENT

**Completed by: Coy Kirkpatrick, Nathan Mitchell, Hailey Quinn, Kaleb Streepy-Wheeler with contributions from Associate Professor Travis Kraus**

May 2021

# ACKNOWLEDGEMENTS

This project was completed through a partnership between the City of Waterloo and the Iowa Initiative for Sustainable Communities (IISC), a program at the University of Iowa.

The University of Iowa team working on the project were members of the Iowa Community Integrated Geography Organization (ICIGO) student organization within the Department of Geographical and Sustainability Sciences. The faculty advisor for ICIGO and this project is Adam Skibbe. Travis Kraus, IISC Director, also served as an advisor and contributor.

We sincerely thank our project partners at the City of Waterloo for their assistance on this project: Waterloo Fire Rescue, City of Waterloo, Waterloo Police Department. A special thanks to Fire Chief Pat Treloar for serving as the community project lead.

The University of Iowa
IOWA INITIATIVE
FOR SUSTAINABLE COMMUNITIES

The University of Iowa
ICIGO
Department of Geographical and Sustainability Sciences

Waterloo Iowa

# INTRODUCTION

Community Risk Reduction is defined as "a process to identify and prioritize local risks, followed by the integrated and strategic investment of resources (emergency response and prevention) to reduce their occurrence and impact" (Vision 20/20).

In order to develop their own local community risk reduction strategy, the Waterloo Fire Rescue department sought the services of ICIGO to complete a key part of the overall risk reduction strategy- a Community Risk Assessment.

This community risk assessment study will help identify opportunities for emergency management interventions to reduce the potential for hazards and risks in the community. This information could then be used to assist in providing proactive prevention activities and to help with decisions on further community funding for certain areas or activities.

The study is not without limitations. Countless variables exist that contribute to risk for any one person or area. Furthermore, certain policies, behaviors, and actions may skew actual risk. For example, crime incidents are likely to be higher in areas that are heavily policed. This assessment is not necessarily a predictor of future events, but can be used as a tool for identifying opportunities for targeted interventions.

Using best practices and resources, the project team developed a process for evaluating risk in Waterloo. It is worth noting that no one single way for assessing risk exists- the process for the project was developed through collaboration and consultation with the community partners.

The **objective** for this project was to assess risk in order to determine areas of concern in Waterloo, Iowa based on historical occurrences, the built environment, and social vulnerability.

This analysis primarily focuses on spatial relationships (visualized as maps) that community partners can use to identify areas where intervention and resources can be introduced to mitigate that risk.

For this project, historical occurrences includes a snapshot of crime, EMS, and fire incidents from 2018-2020. Various service organizations in Waterloo use different database methods, which is a limitation for any on-going risk assessment process.

In addition to this report, a GIS geodatabase was created and shared with the community partners. Opportunities for further study and recommendations for improved local practices are included in this report.

# DATA

Data of historical occurrences was provided by representatives from Waterloo and Black Hawk County (see figure on the right).

Data management took considerable time, particularly as the Waterloo agencies do not use a uniform data collection/management method for incidents. Some datasets were provided as excel files, while others were in PDF format, which required tedious and manual reformatting. Incidents from different datasets with matching Incident ID numbers were merged to avoid double-counting.

The study included three years of historical incident occurrences, 2018, 2019, and 2020. This date range provides a snapshot in time and does not necessarily reflect risk prior to 2018 and after 2020.

Maintaining the privacy of the data was a high priority, as it contains sensitive information that should not be manipulated or utilized out of the scope of the project. Access to data was restricted only to those conducting the analysis.

| Data | Source | Format |
|---|---|---|
| Assessor for Waterloo Parcels (including year built) 2020 | Black Hawk County IT Department | GIS Shapefile |
| Social Vulnerability Indicators | Center for Disease Control | GIS Shapefile |
| Crime Incidents by Offense 2018-2020 | Waterloo Police Department | Excel spreadsheet |
| Fire Incident by Street Address 2018-2020 | Waterloo Fire Rescue | PDF |
| 911 Incidents 2018-2020 | Waterloo Fire Rescue | Excel spreadsheet |
| EMT calls 2018-2020 (Cardiac Arrest, Falls, Narcan Usage, Self Harm) | Waterloo Fire Rescue | Excel spreadsheet |

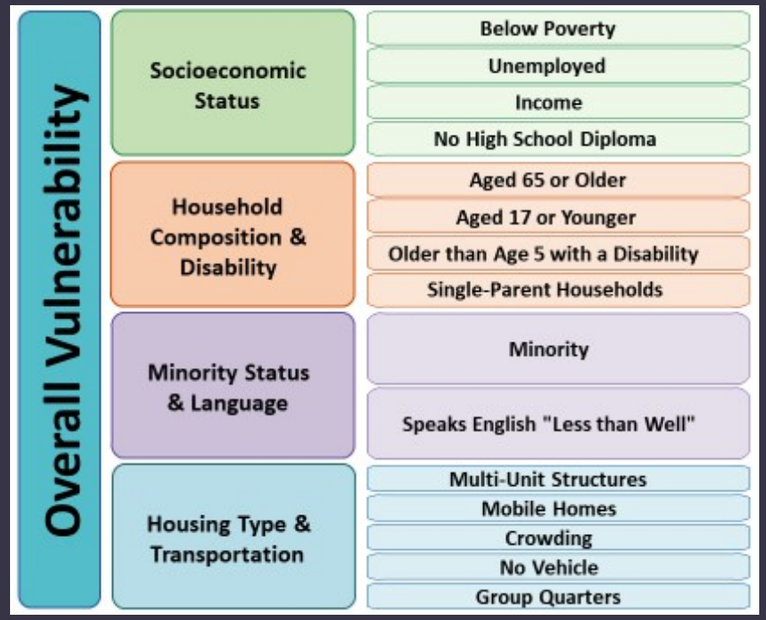
# SOCIAL VULNERABILITY

Social vulnerability can be defined as the potential for harm to individuals and communities following disaster and related scenarios.

Many different factors affect the degree to which a person's life and lifestyle will be impacted by risk, including race, gender, age, income level, and more. Increased susceptibility to injury, dislocation, recovery difficulties, and even death occur due to the social processes supporting poverty and marginalization.

The combination of factors that contribute to social vulnerability are not directly observable or measurable. However, an assessment of social vulnerability is critical to understanding factors of risk and developing response strategies that will meet the needs of underserved populations. Both human suffering and economic loss can be diminished by reducing social vulnerability, which makes it a relevant consideration in this project.

Social Vulnerability indicators were retrieved from the Centers for Disease Control and Prevention Social Vulnerability Index (CDC SVI). Detailed descriptions of the methodology and factors can be found in the CDC SVI Documentation 2018.




Source: Centers for Disease Control and Prevention Social Vulnerability Index

# METHODS & PROCESS

The project team consulted serval online resources and example reports to understand best practices and methods for conducting a community risk assessment. ESRI's Vision 20/20 Community Risk Assessment guidebook proved to be an invaluable resource for developing a framework.

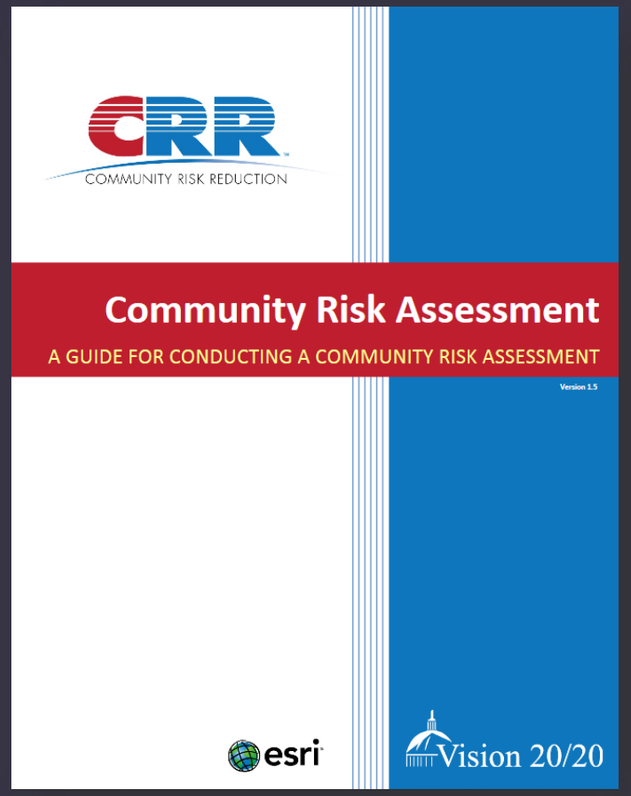
Vision 20/20 offers this definition for risk: "human behavior, systems malfunctions, or an event that results in an ignition or other detrimental incident leading to a negative impact to life, property and/or natural resources." Another simple definition for risk is "the potential or likelihood of an emergency to occur" (Vision 20/20).

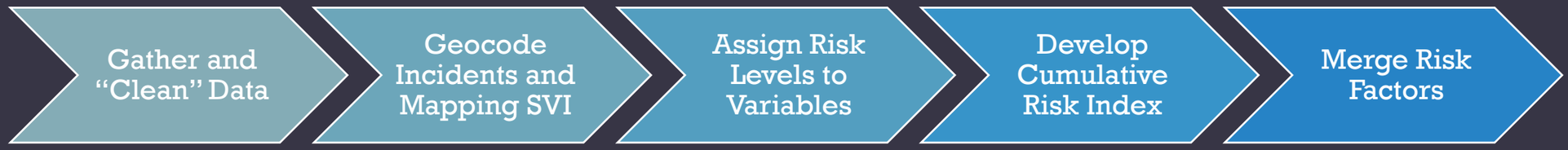
Following guidance from these resources, the project team identified the three broad categories that contribute to the risk assessment:

**Historical Incidents** – Past incidents (particularly related to fire, crime, and medical emergencies) could potentially indicate relatively high-risk behaviors or environments.

**Social Vulnerability** – Certain individuals and groups have relatively lower ability to withstand the impacts of stressors.

**Built Environment** – Our physical surroundings, particularly dangerous areas, can impact our susceptibility to risk.






## 1. GATHER AND "CLEAN" DATA

The project team first identified the type of data common to risk assessment by consulting online resources, including ESRI's Vision 20/20 Community Risk Assessment guidebook. Based on that research, the team requested incident data from Waterloo community partners. The datasets are Fire Incidents, Medical/EMT incidents, Crime Incidents for 2018-2020 and Year Built for Waterloo Homes.

Before any mapping or spatial analysis could occur, the incident data had to be cleaned and prepared for use in a GIS application. Some of the data was shared in a pdf format and had to be converted into an excel spreadsheet. Some datasets contained matching incidents. Those were joined together to form a single entry. All incident data was compiled into a single worksheet.

## 2. GEOCODE INCIDENTS AND MAPPING SOCIAL VULNERABILITY

Once the incident data was prepared, the incident addresses could be plotted on a map of Waterloo using a geolocation tool. This provided a visual reference for the location of incidents as well as the ability to conduct spatial analyses.

Incident heat maps were also created using the Kernel Density analysis tool and sorted using the quantile method into 10 classes.

Social Vulnerability data obtained Centers for Disease Control and Prevention Social Vulnerability Index was added to the geodatabase and GIS map. Data is available at the census tract level and uses the American Community Survey 2014-2018 estimates.

Individual variables, social vulnerability themes, and overall vulnerability were mapped using the natural break method into 5 classes.

# 3. ASSIGN RISK LEVELS TO VARIABLES

Following guidance on ranking incidents (see "Qualitative Measures of Risk Consequence or Impact" table to the right), the project team assigned scores of 1 to 5 (or "ranks") to types of fire, crime, and medical incidents. A rank of 5 indicates the most severe type of incident.

For example, murder ranks as a 5 among crime incidents, while drug violation ranks as a 1; for fire incidents, an explosion ranks as a 5, while a grass fire ranks as a 2; and for medical incidents, a death ranks as a 5, while a headache ranks as a 1.

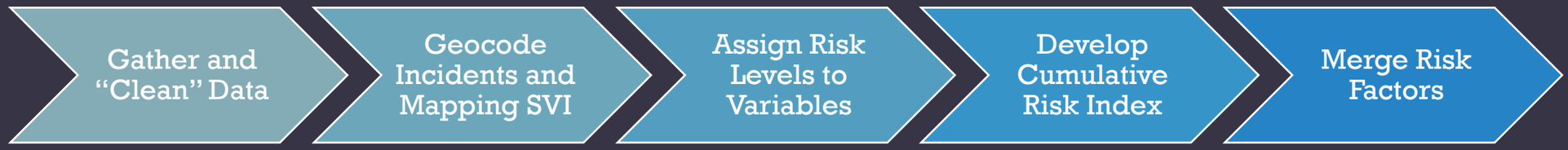
The project team used their best judgement to assign ranks for Waterloo incidents, since clear guidance on this process was not found. Ranks for each incident type can be found in Appendix I.

For the purposes of creating a single factor index, social vulnerability variables were also assigned ranks (1 through 5) using natural breaks for the CDC SVI overall census track rankings (i.e. the sum of the four social vulnerability themes).

**Qualitative Measures of Risk Consequence or Impact**

| Level | Description | Characteristics |
|---|---|---|
| 1 | Insignificant | • No injuries or fatalities. Small number or no people displaced, and only for short duration. Little or no personal support required (support not financial or material).<br>• Inconsequential or no damage. Little or no disruption to community.<br>• No measurable impact on environment.<br>• Little or no financial loss. |
| 2 | Minor | • Small number of injuries, but no fatalities. Minor medical treatment required. Some displacement of people (less than 24 hours). Some personal support required.<br>• Some damage. Some disruption (less than 24 hours).<br>• Small impact on environment with no lasting effects.<br>• Some financial loss. |
| 3 | Moderate | • Medical treatment required, but no fatalities. Some hospitalization. Localized displacement of people who return within 24 hours. Personal support satisfied through local arrangements.<br>• Localized damage, which is rectified by routine arrangements. Normal community functioning with some inconvenience.<br>• Some impact on the environment with no long-term effects, or small impact on environment with long-term effect.<br>• Significant financial loss. |
| 4 | Major | • Extensive injuries, significant hospitalization, large number displaced (more than 24 hours duration). Fatalities. External resources required for personal support.<br>• Significant damage that requires external resources. Community only partially functioning, some services unavailable.<br>• Some impact on environment with long-term effects.<br>• Significant financial loss—some financial assistance required. |
| 5 | Catastrophic | • Large number of severe injuries requiring hospitalization. Significant fatalities. General displacement for extended duration. Extensive personal support.<br>• Extensive damage. Community unable to function without significant support.<br>• Significant impact on environment and/or permanent damage.<br>• Huge financial loss—unable to function without significant support. |

Source: City of Manningham (Victoria, Australia) Community Emergency Risk Management Plan (2009) Table 2




## 4. DEVELOP CUMULATIVE RISK ASSESSMENT

The project team considered areas with greatest risk by adding together each of the three focus areas: Social Vulnerability, Built Environment, and Historical Incidents.

The formula for risk for the purposes of this study is:

> Overall Social Vulnerability Rank (1-5) by census tract + Frequency and Severity (1-5) of Historical Incidents (Fire, EMT, Crime) + Presence of an older home (built before 1978) = Total Risk.

A neighborhood or block with high risk would potentially have a relatively large proportion of vulnerable residents, a high density of older homes, and a high number of emergency or crime related incidents.

The formula gives equal weighting to each of the three categories. Weighting could be adjusted if one or two categories was deemed more concerning.

## 5. MERGE RISK FACTORS INTO COMBINED RISK MAPS

The risk factors were analyzed two ways- by creating a single heat/point maps and by summing data into fire grids.

Raster files were created for Overall Social Vulnerability (SV), Incidents, and Year Built. Incidents and Year Built are point files, so the were created using the Kernel Density tool. The SV layer was turned into a raster by using the Feature to Raster Function. The Weighted Overlay tool was used to combine the three raster inputs, representing the three broad categories, while incorporating weights or relative importance (in this case, equal weights).

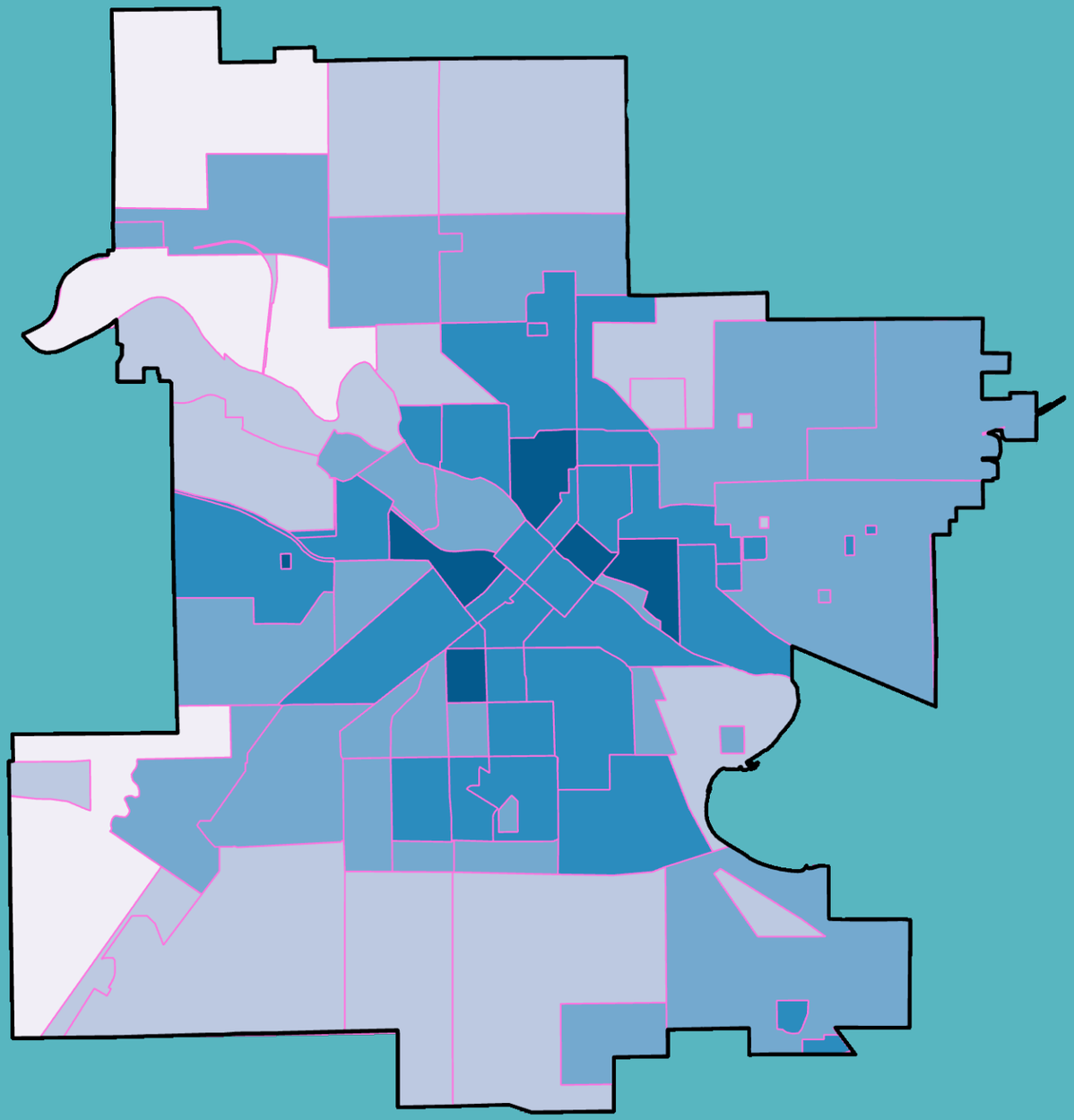
To produce the fire grid map, each grid includes the sum of all incidents by rank (# of incidents ranked 5 x 5, # of incidents ranked 4 x 4, etc.) plus the number of homes built before 1978, plus the SV rank for each datapoint.

# OVERALL RISK SUMMED TO FIRE GRID

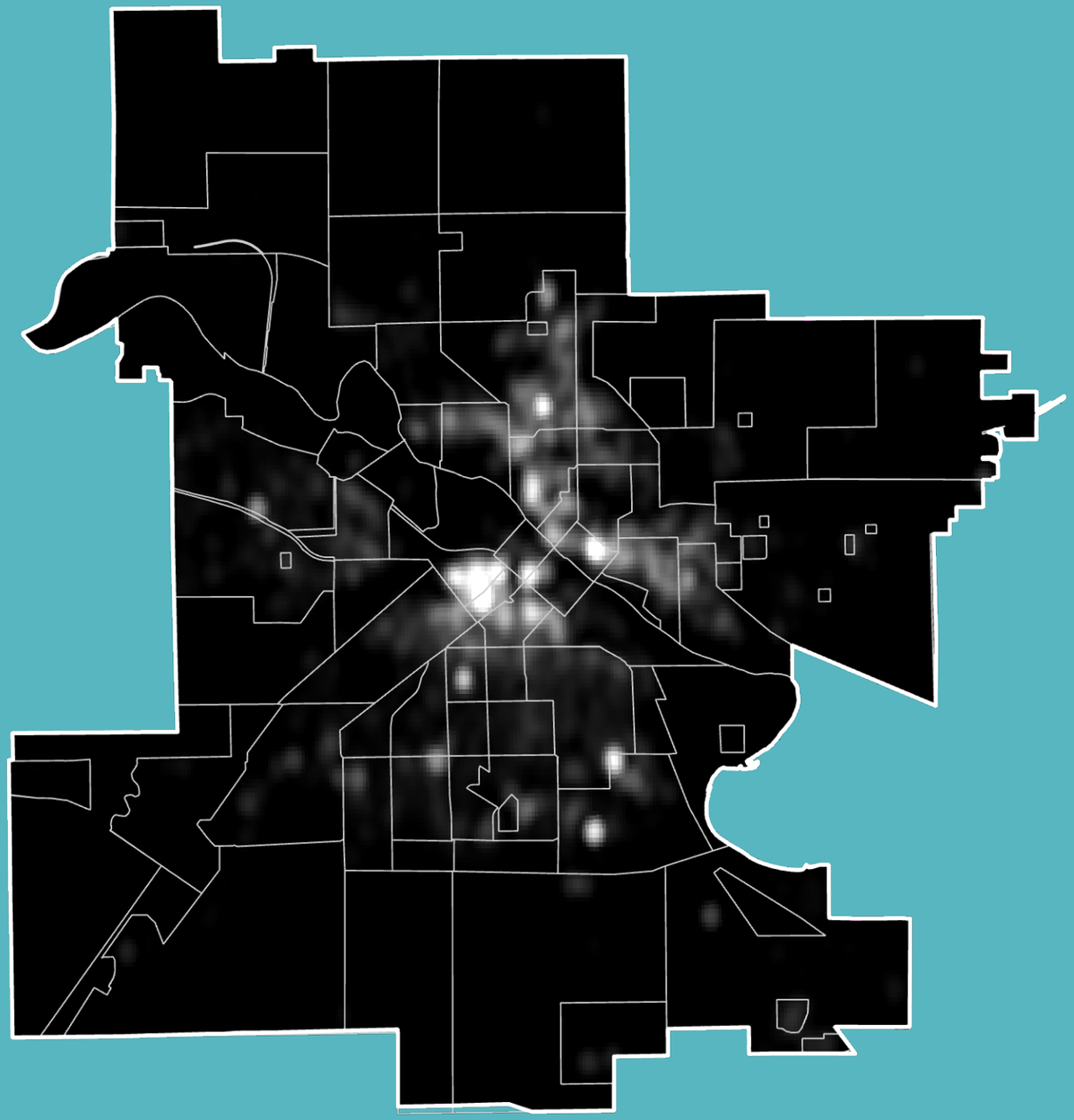
**Fire Grids Ranked 5 are:**

- 97
- 44
- 80
- 101
- 65

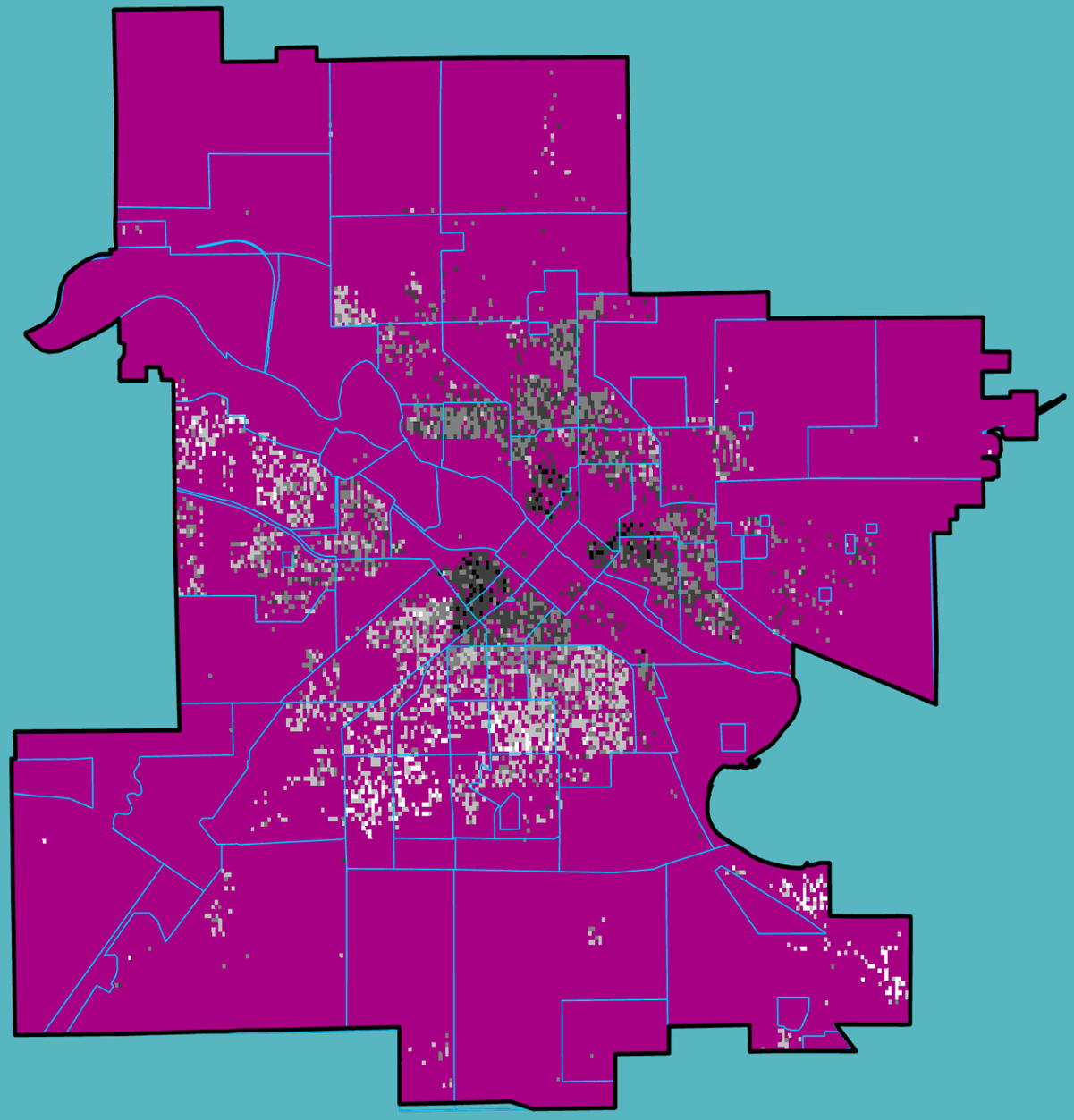
**Rank 1 = Least Overall Risk**
**Rank 5 = Most Overall Risk**



# OVERALL RISK HEAT MAP WITH FIRE GRID



# OVERALL RISK POINT MAP WITH FIRE GRID



# ANALYSIS

Not surprisingly, social vulnerability, frequency/severity of historical incidents, and older housing stock seem to converge around the city center. Population density, while not analyzed in this study, likely contributes to overall risk since the highest density neighborhoods (such as the Church Row neighborhood) are among the highest overall risk areas. "Socioeconomic vulnerability" and "housing type / transportation vulnerability" are closely aligned with overall risk.

As risk reduction planning continues in Waterloo, addressing inequity and barriers to access for vulnerable residents will be an important consideration for mitigating risk.

Refining and improving the data used in this study would help better understand risks and prioritization. In particular, the fire rescue incidents could be further analyzed if fire codes for incidents were available and incorporated into the dataset.

Esri's Vision 20/20 Community Risk Reduction Planning Guide proposes six steps for a community risk reduction strategy (see image to the right). This study primarily helps to accomplish the first step of the process.

# OPPORTUNITIES FOR FURTHER RESEARCH / DATA COLLECTION RECOMMENDATIONS

The three year's worth of Waterloo fire, crime, and EMT incidents presents many opportunities for further research and refining of the process started in this study. Examples include:

- **Explore other individual variables –** the appendix includes many maps of individual variables and combinations. Any individual type of incident can be similarly mapped for visualizing spatial relationships.
- **Layer other boundaries over risk maps –** this study layered fire grids over risk maps. Other boundary shapefiles, such as neighborhood boundaries, can be similarly mapped.
- **Adjusting weights based on local priorities** – this analysis gave equal weight to the three broad categories. Adjusting weights based on local knowledge could produce different results.
- **Household or Block level risk assessment** – the incident point data provides opportunities to identify specific areas with the most recurring events. For example, the data could show individual properties or city block where the most frequent or sever incidents have occurred.
- **Aggregating risk factors to different geographic extents** – this study summed risk factors to fire grids. A similar process could be used for any chosen geographic extent - such as city blocks – to show overall risk.
- **Code enforcement** – Risk assessment examples from other communities include code enforcement violations to identify opportunities for targeted intervention. For example, one community analyzed areas with high numbers of homes without proper smoke detectors. Mapping and analyzing code enforcement violations by type could help with a community risk reduction strategy.

The process of conducting this study made apparent opportunities for improving data collection in the future. In particular, the project team recommends these changes to improve risk assessment and spatial analysis:

- **Uniform data collection and management** – the datasets provided to the project team came in different formats that required significant work to make them compatible. Waterloo's emergency response agencies should explore uniform data collection and management systems.
- **Better coding of fire incidents** – analysis of fire incident data in this study was limited due to the small proportion of incidents with corresponding fire incident codes. The project team recommends adopting the practice of entering a code for each incident so that future analysis can produce better results.

# REFERENCES


ATSDR, Agency for Toxic Substances and Disease Registry. *CDC SVI Documentation 2018*. (2020, August 12). Retrieved May 02, 2021, from https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI_documentation_2018.html

City of Waterloo, Iowa. Demographics. (n.d.). Retrieved April 28, 2021, from https://www.cityofwaterlooiowa.com/visitors/economic_development/demographics.php

ESRI. "GIS for Community Risk Reduction: Integrated solutions for community risk reduction" (n.d.). Retrieved May 03, 2021, from https://www.esri.com/en-us/industries/fire-rescue-ems/solutions/community-risk-reduction

Tate, Eric. (2012). Social vulnerability indices: A comparative assessment using uncertainty and sensitivity analysis. Natural Hazards. 63. 10.1007/s11069-012-0152-2.

Vision 20/20. "Community risk reduction guides ". Retrieved May 03, 2021, from https://strategicfire.org/community-risk-reduction/guides

# APPENDIX I
# INCIDENT RANKINGS

## FIRE INCIDENTS

| Rank | Incident Type |
|---|---|
| 5 | Utility Fire |
| 5 | Industrial Fire |
| 5 | Garage Fire |
| 5 | Fire in Barn/Shed/Silo |
| 5 | Explosion |
| 4 | Chemical Exposure |
| 4 | Fire in Motor Home Camper |
| 3 | Rescue from Residence |
| 3 | Water Rescue |
| 3 | Rescue Commercial Building |
| 3 | Rescue from High/Low Level |
| 3 | Rescue Construction Site |
| 3 | Vehicular/Train Fire |
| 2 | Field Rescue |
| 2 | Tree Fire |
| 2 | Grass Fire |
| 1 | Burn Complaint |
| 1 | Trash-Rubbish Fire/Complain |
| 1 | Smoke Smell |
| 1 | False Alarm |
| 1 | Assist-Resident |
| 1 | Lightning Strike/Structure |
| 1 | Cooking Fire |
| 1 | Chimney Flue Fire |
| 1 | Outside Equipment Fire |
| 1 | No NFIRS code* |

## CRIME INCIDENTS

| Rank | Incident Type |
|---|---|
| 5 | Sex Assault, Rape |
| 5 | Murder |
| 5 | Kidnapping |
| 5 | Suicide** |
| 4 | Aggravated Assault, Simple Assault |
| 4 | Porno/Obscene Material |
| 4 | Arson |
| 3 | Burglary/B&E |
| 3 | Intimidation |
| 3 | Motor Vehicle or Building Theft |
| 3 | Pocket-Picking, Purse Snatching |
| 3 | Robbery |
| 2 | Counterfeit/Forgery, Swindling |
| 2 | Credit/ATM Fraud, Wire Fraud |
| 2 | Embezzlement |
| 2 | Impersonation or Welfare Fraud |
| 2 | Shoplifting, Other Larceny |
| 2 | Stolen Property Offense |
| 2 | Weapon Law Violation |
| 1 | Drug Equipment Violation |
| 1 | Drug/Narc Violation |
| 1 | Vandalism |

## MEDICAL/EMT INCIDENTS

| Category | Incident Type |
|---|---|
| 5 | Death |
| 4 | Breathing, Choking |
| 4 | Chest, Cardiac, Heart |
| 4 | Hemorrhage |
| 4 | Stroke |
| 4 | Stabbing, Shooting, Assault*** |
| 4 | Drowning |
| 4 | Trauma |
| 3 | Electrical, Eye |
| 3 | Abdominal |
| 3 | Convulsion, Seizure |
| 3 | Mental, Psychological |
| 3 | Burns |
| 3 | Carbon Monoxide |
| 3 | Unconscious |
| 2 | Fall |
| 2 | Life Alert Activation |
| 2 | Overdose |
| 1 | Allergy, Headache, Sick |
| 1 | Animal |
| 1 | Assistance, Mutual Aid |
| 1 | Back Pain |
| 1 | Diabetes |
| 1 | Transport, Equipment Call |
| 1 | Heat |
| 1 | Pregnancy |
| 1 | Unknown |

* Fire Incident Rankings were determined by NFIRS codes. Most incidents provided by the Waterloo Fire Rescue department did not have an NFIRS code and severity could therefore not be assessed. These incidents are ranked as 1 so they can still be calculated in the overall risk assessment.

** Suicide is included in the crime database.

*** Some stabbing, shooting, and assault incidents from the EMT database did not match Incident IDs from the police crime records and were therefore counted as crimes.

# APPENDIX II
# SOCIAL VULNERABILITY THEMES

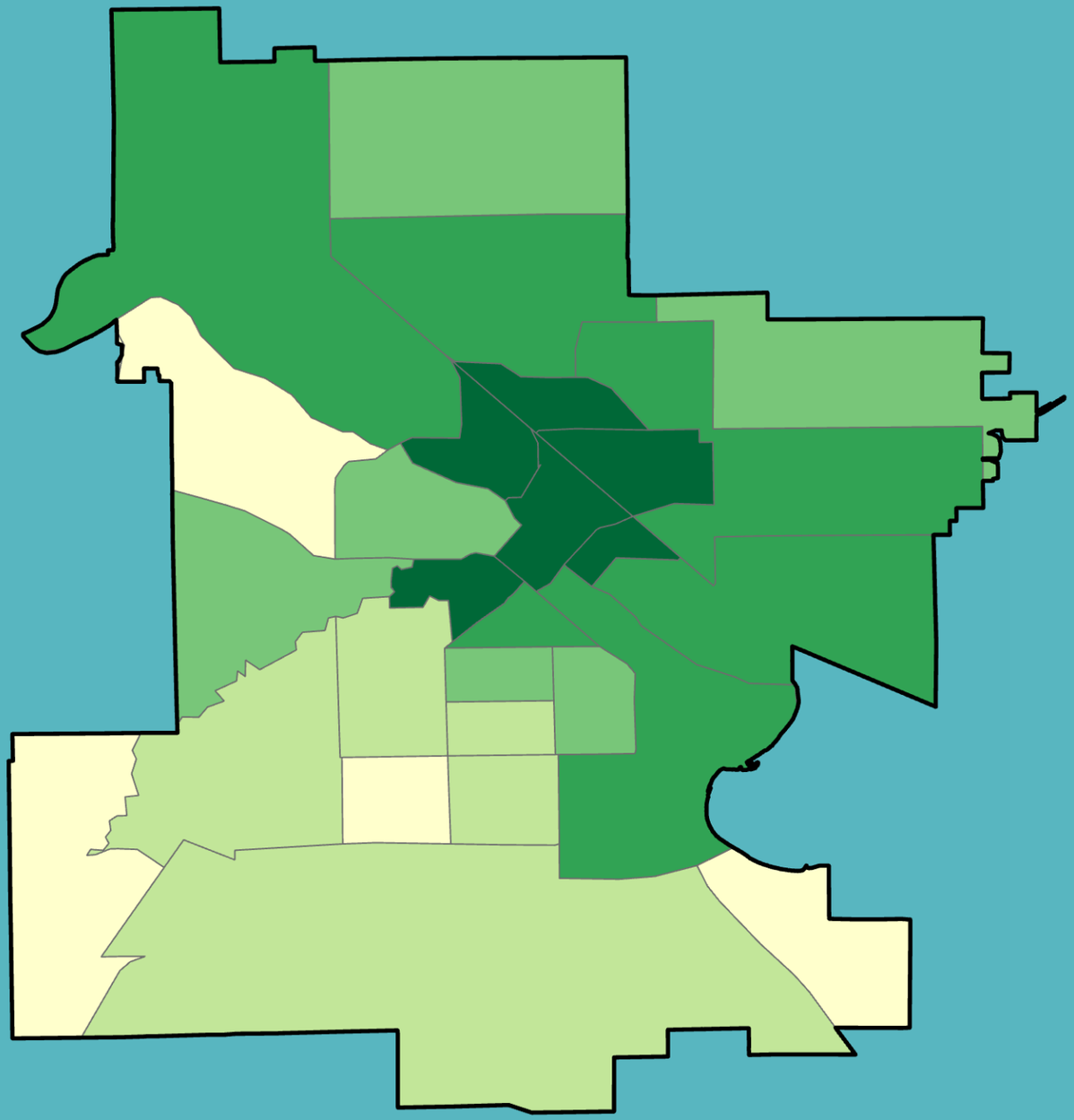
# SOCIOECONOMIC VULNERABILITY

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index (ACS 2014-2018)

**Socioeconomic Status v**ariables include:

- Below Poverty
- Unemployed
- Income
- No High School Diploma

**Rank 1 = Least Vulnerable**
**Rank 5 = Most Vulnerable**



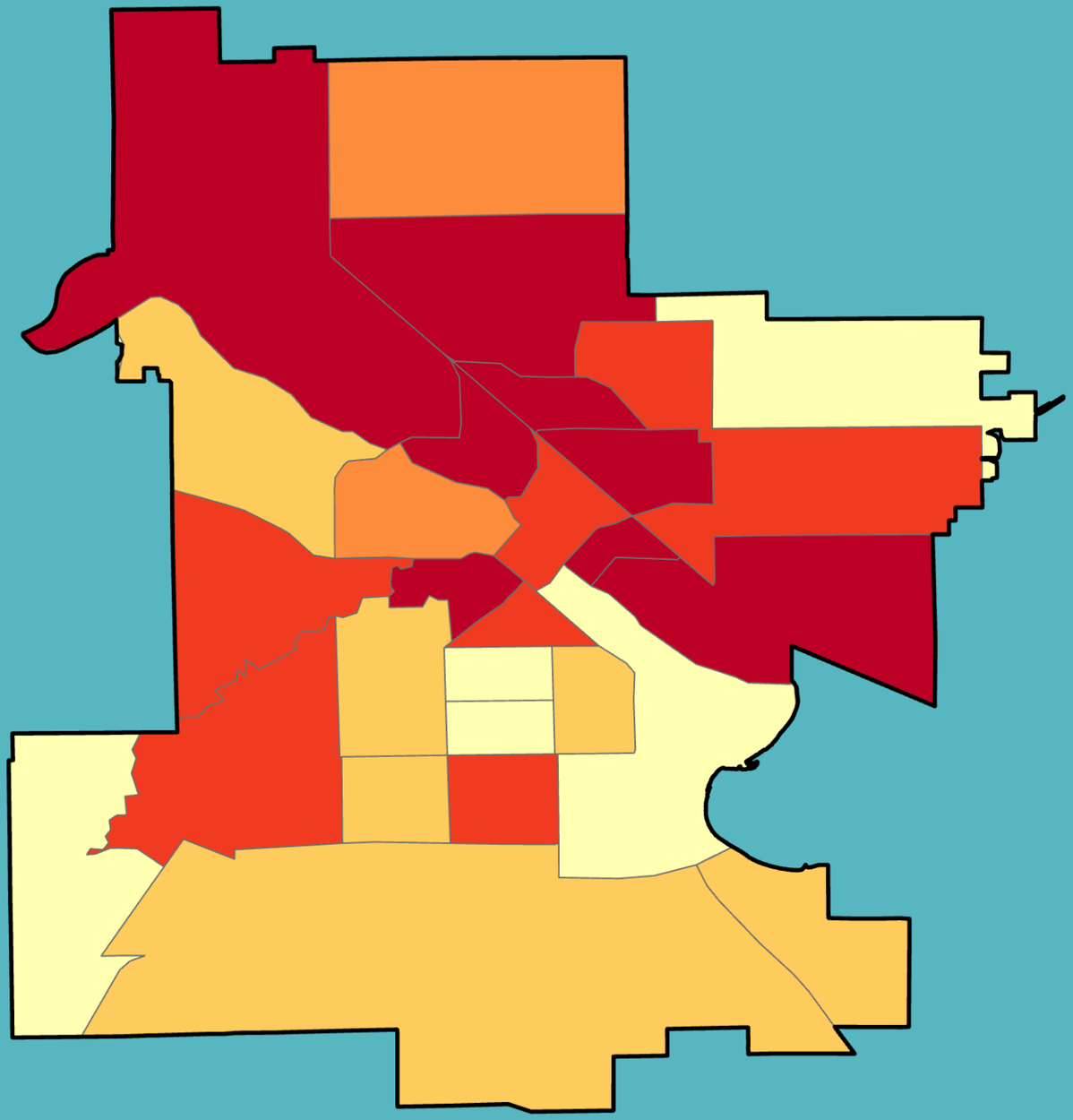
# HOUSEHOLD COMPOSITION & DISABILITY VULNERABILITY

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index (ACS 2014-2018)

**HH Composition & Disability v**ariables include:

- Aged 65 or Older
- Aged 17 or Younger
- Older than Age 5 with a Disability
- Single-Parent Households

**Rank 1 = Least Vulnerable**
**Rank 5 = Most Vulnerable**



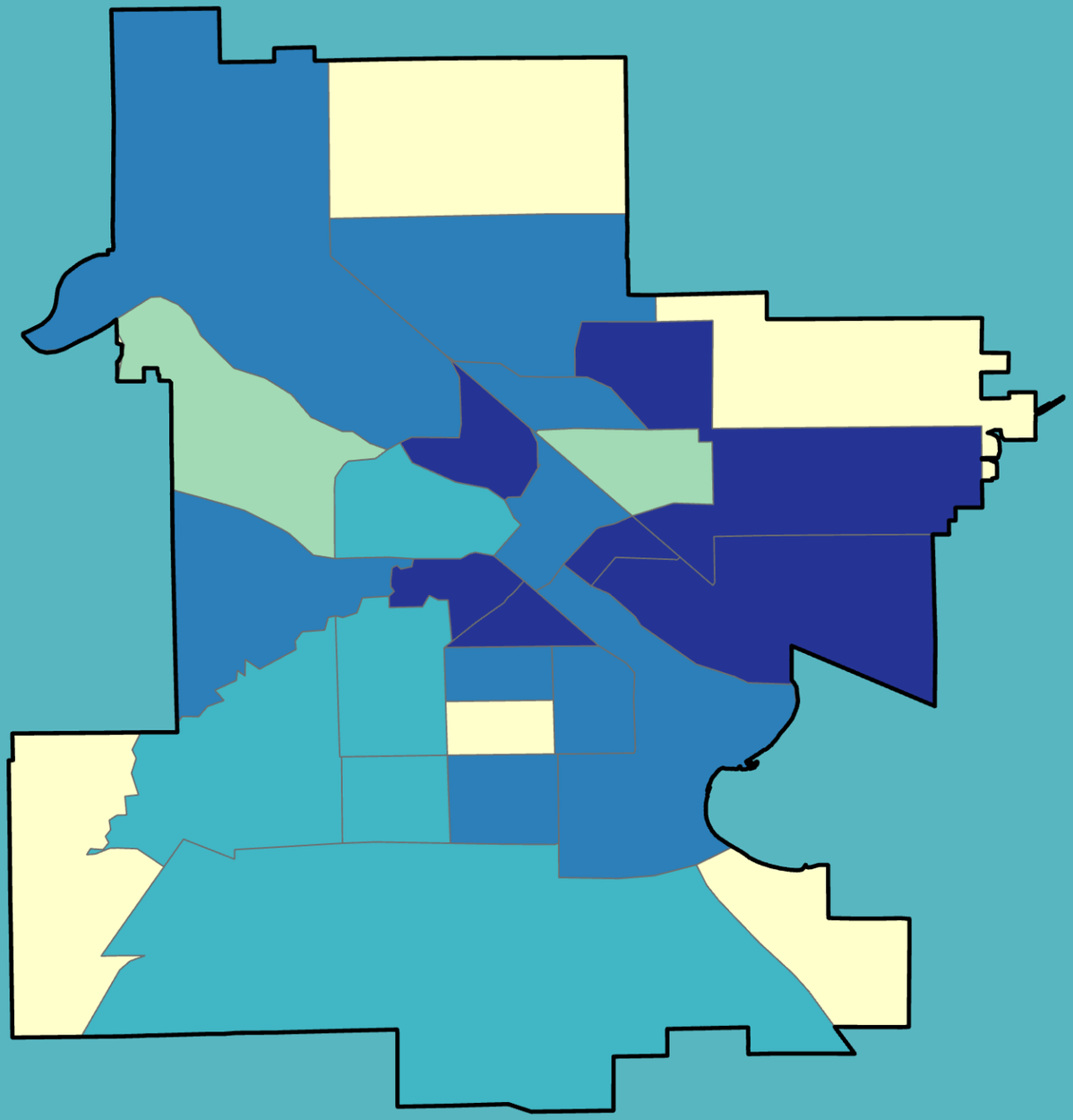
# MINORITY STATUS AND LANGUAGE VULNERABILITY

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index (ACS 2014-2018)

**Minority Status and Language** variables include:

- Minority
- Speaks English "Less than Well"

**Rank 1 = Least Vulnerable**
**Rank 5 = Most Vulnerable**



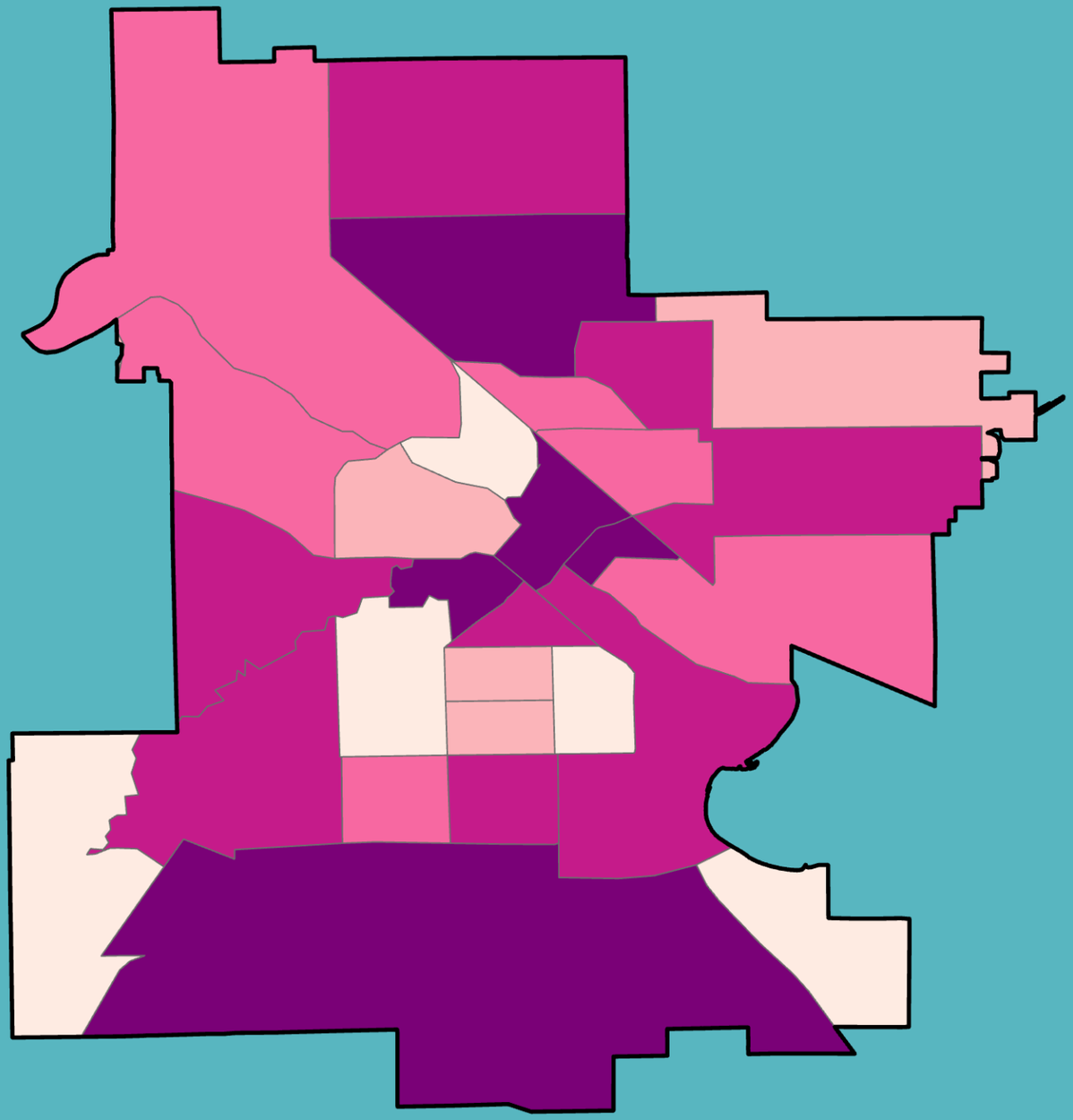
# HOUSING TYPE & TRANSPORTATION VULNERABILITY

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index (ACS 2014-2018)

**Housing Type & Transportation** variables include:

- Multi-Unit Structures
- Mobile Homes
- Crowding
- No Vehicle
- Group Quarters

**Rank 1 = Least Vulnerable**
**Rank 5 = Most Vulnerable**



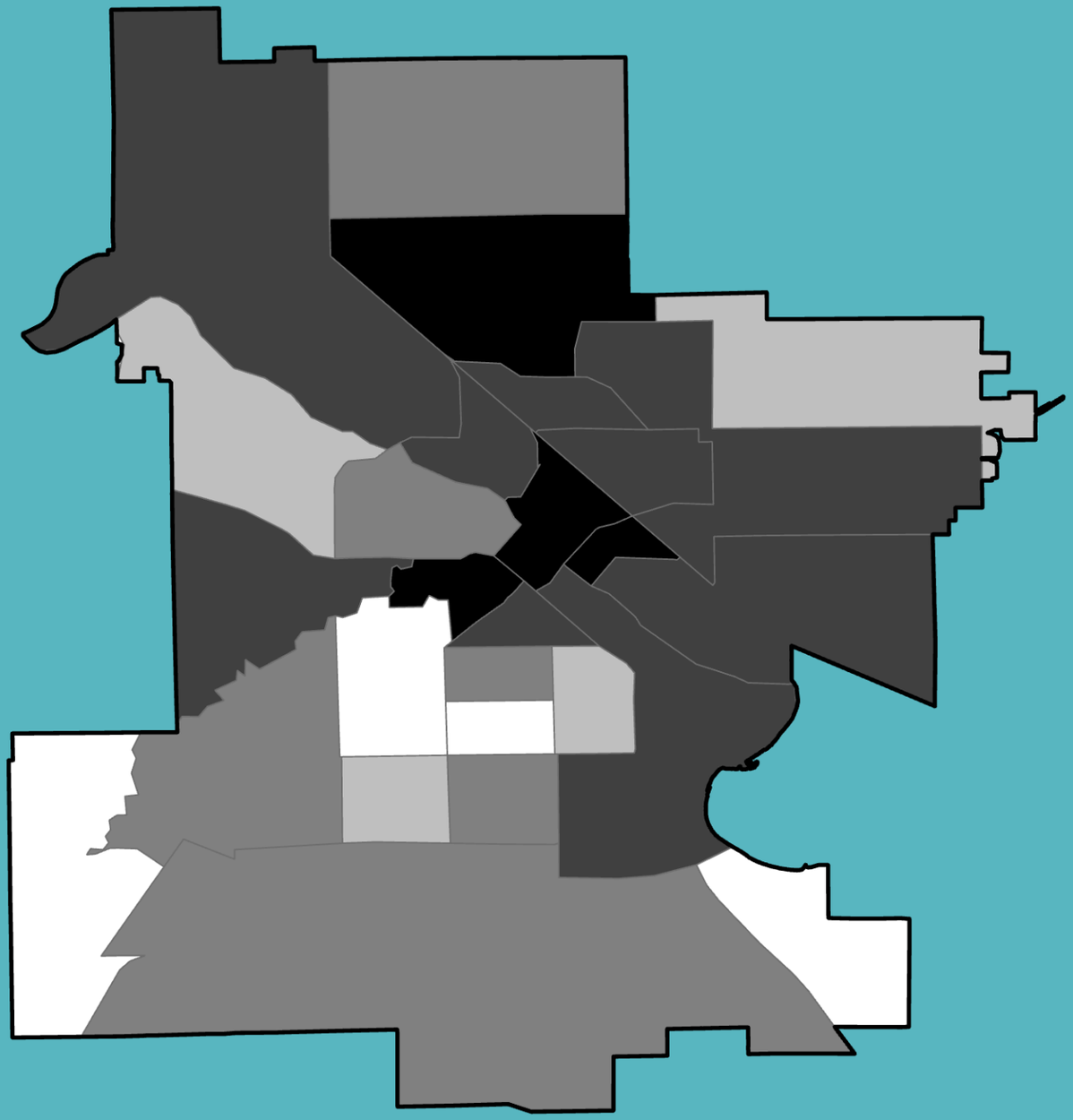
# OVERALL SOCIAL VULNERABILITY

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index (ACS 2014-2018)

**Overall Social Vulnerability** is the sum of the sums for each social vulnerability theme:

- Socioeconomic Theme
- Household Composition & Disability Theme
- Minority Status & Language Theme
- Housing Type & Transportation Theme

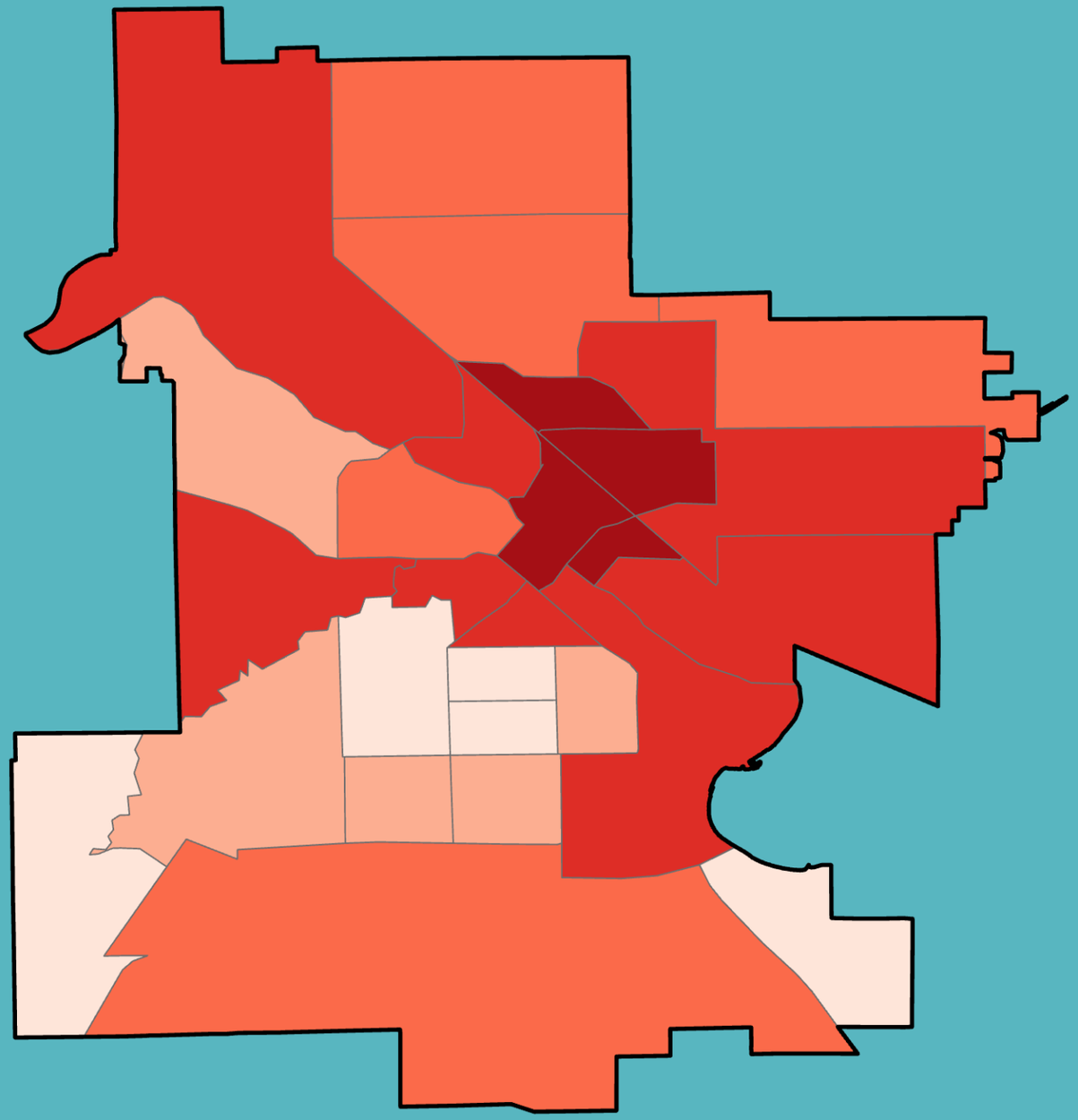
**Rank 1 = Least Vulnerable**
**Rank 5 = Most Vulnerable**



# APPENDIX III
# SOCIAL VULNERABILITY VARIABLES

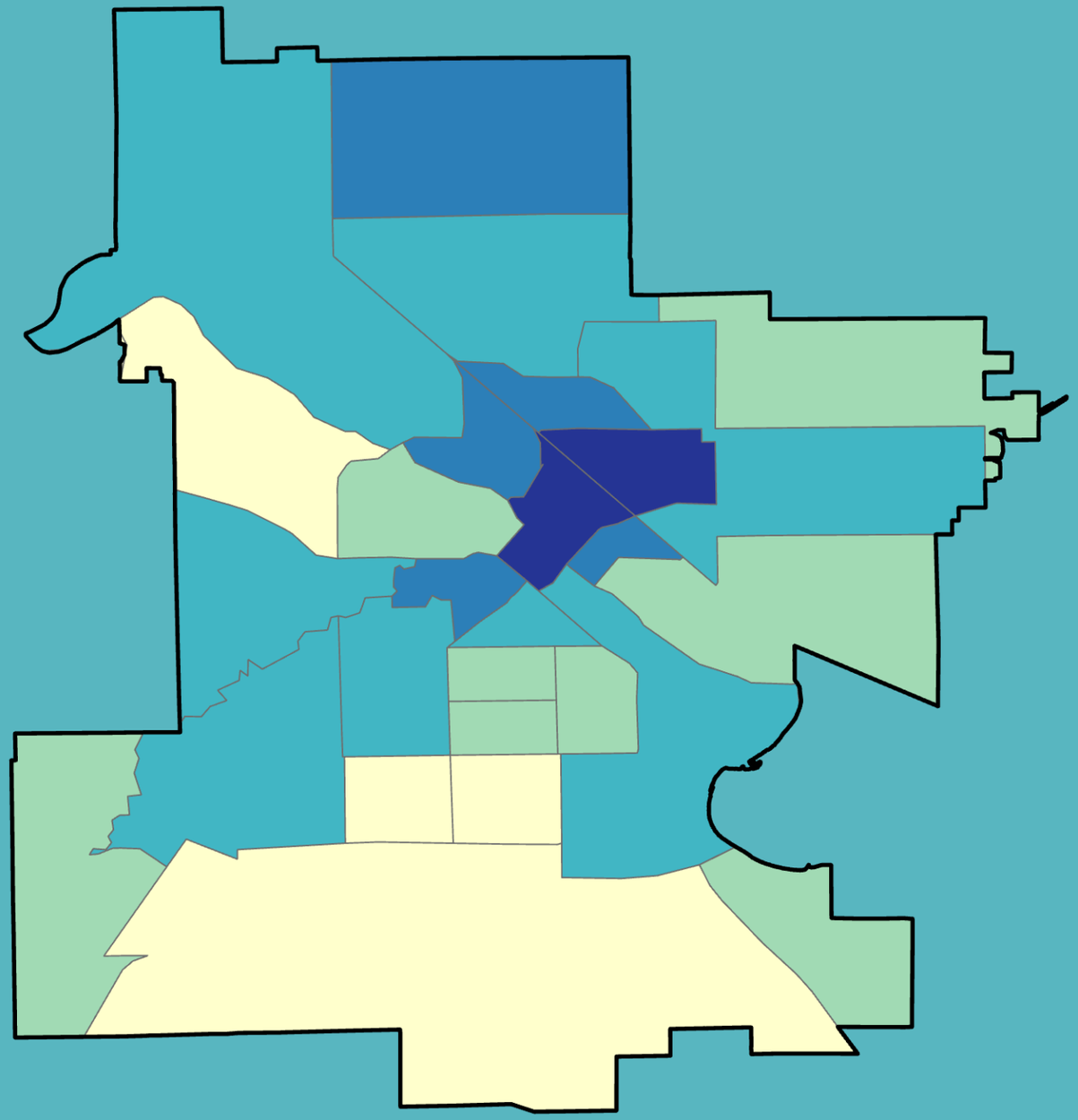
# PERCENT IN POVERTY

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index



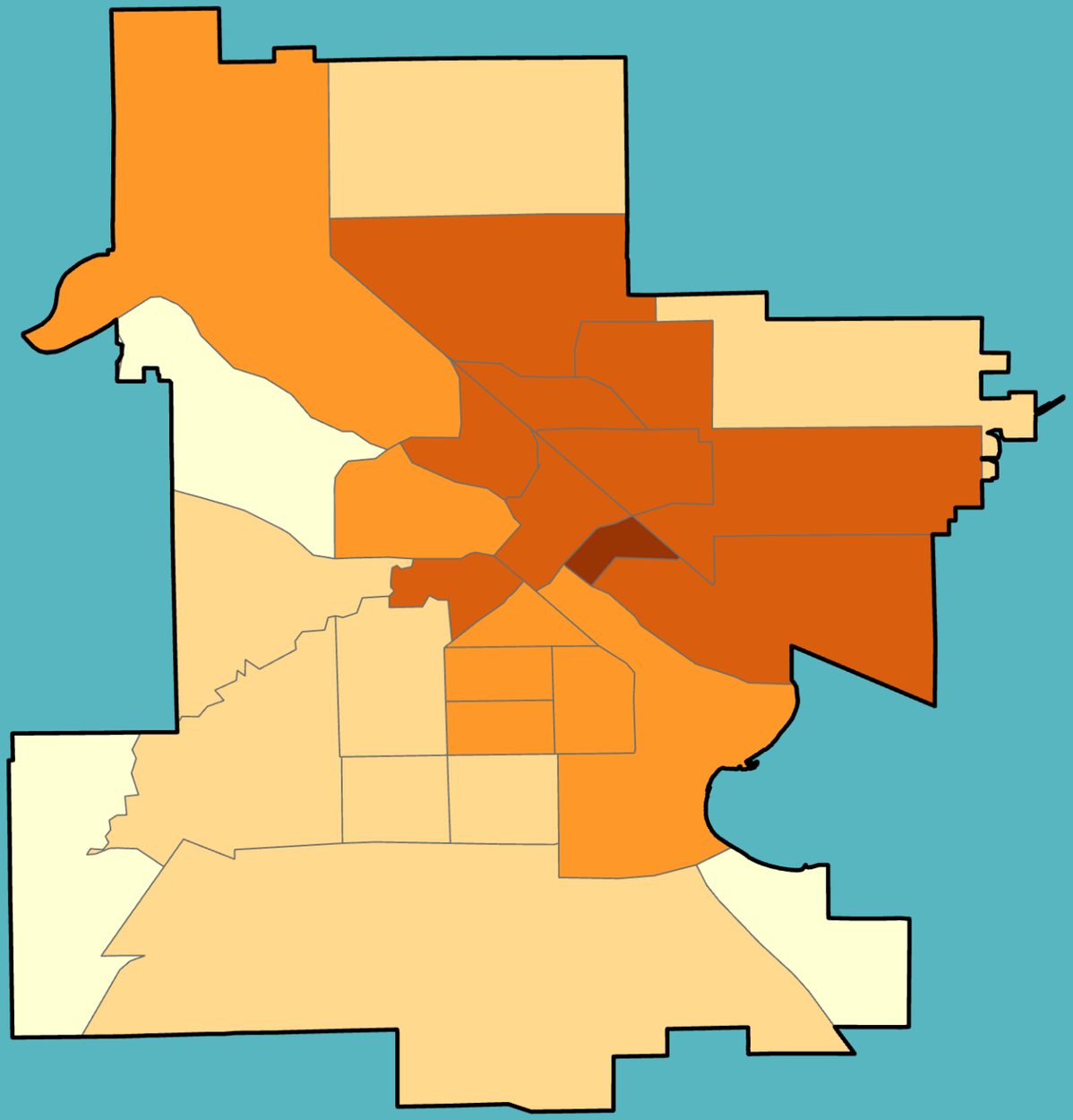
# PERCENT UNEMPLOYED

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index



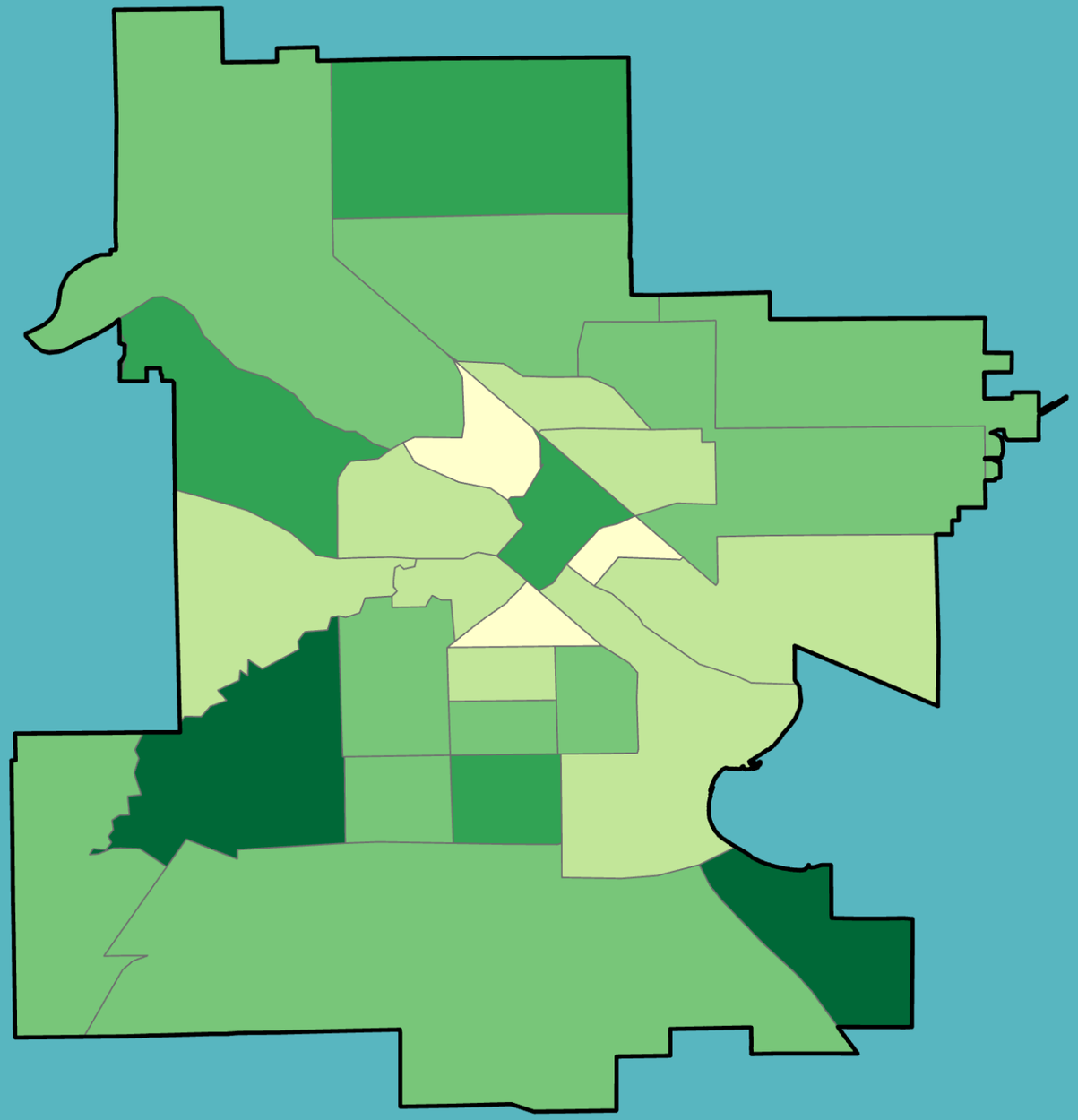
# PERCENT NO HIGH SCHOOL DIPLOMA

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index (ACS 2014-2018)



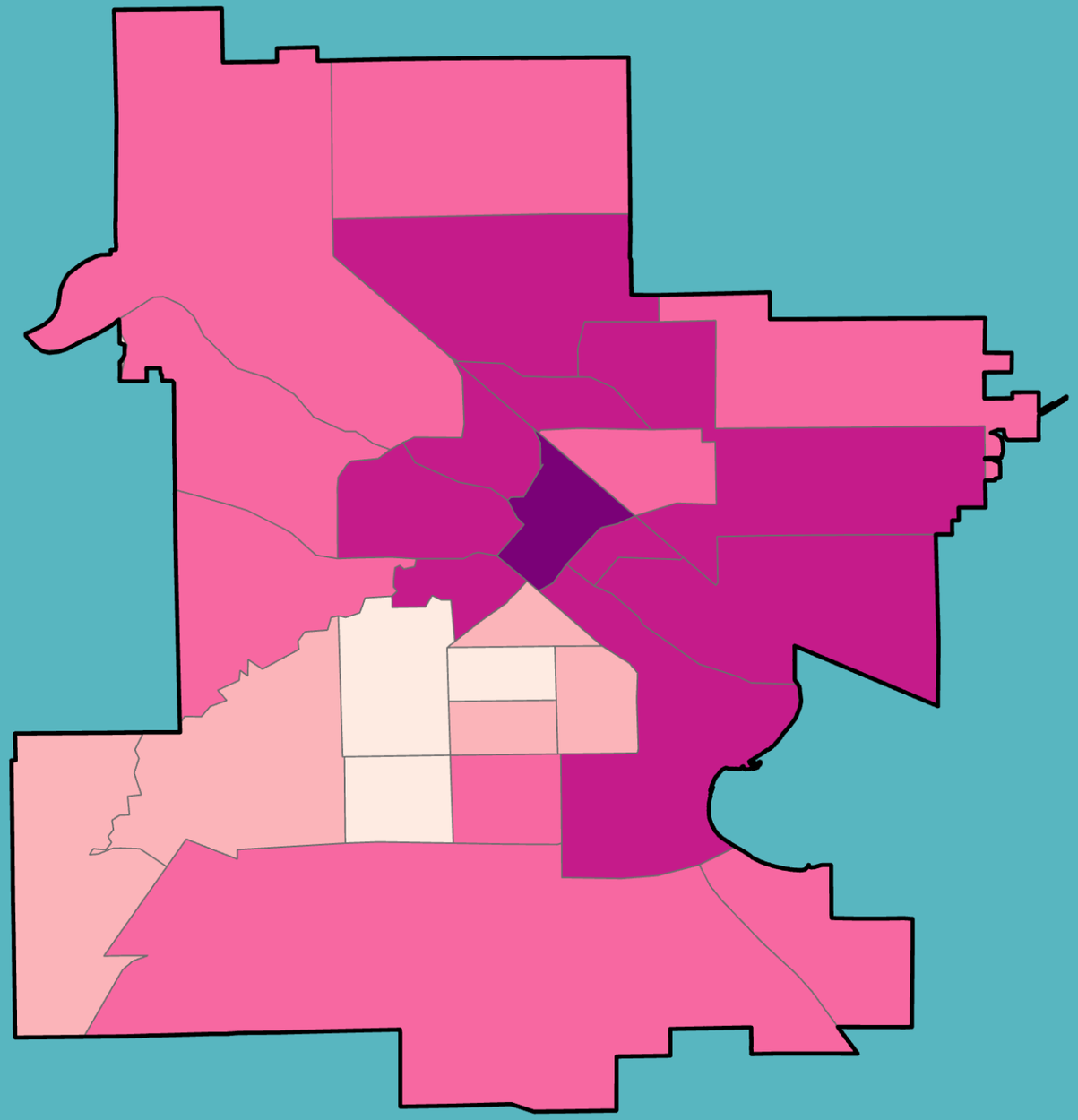
# PERCENT AGE 65+

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index (ACS 2014-2018)



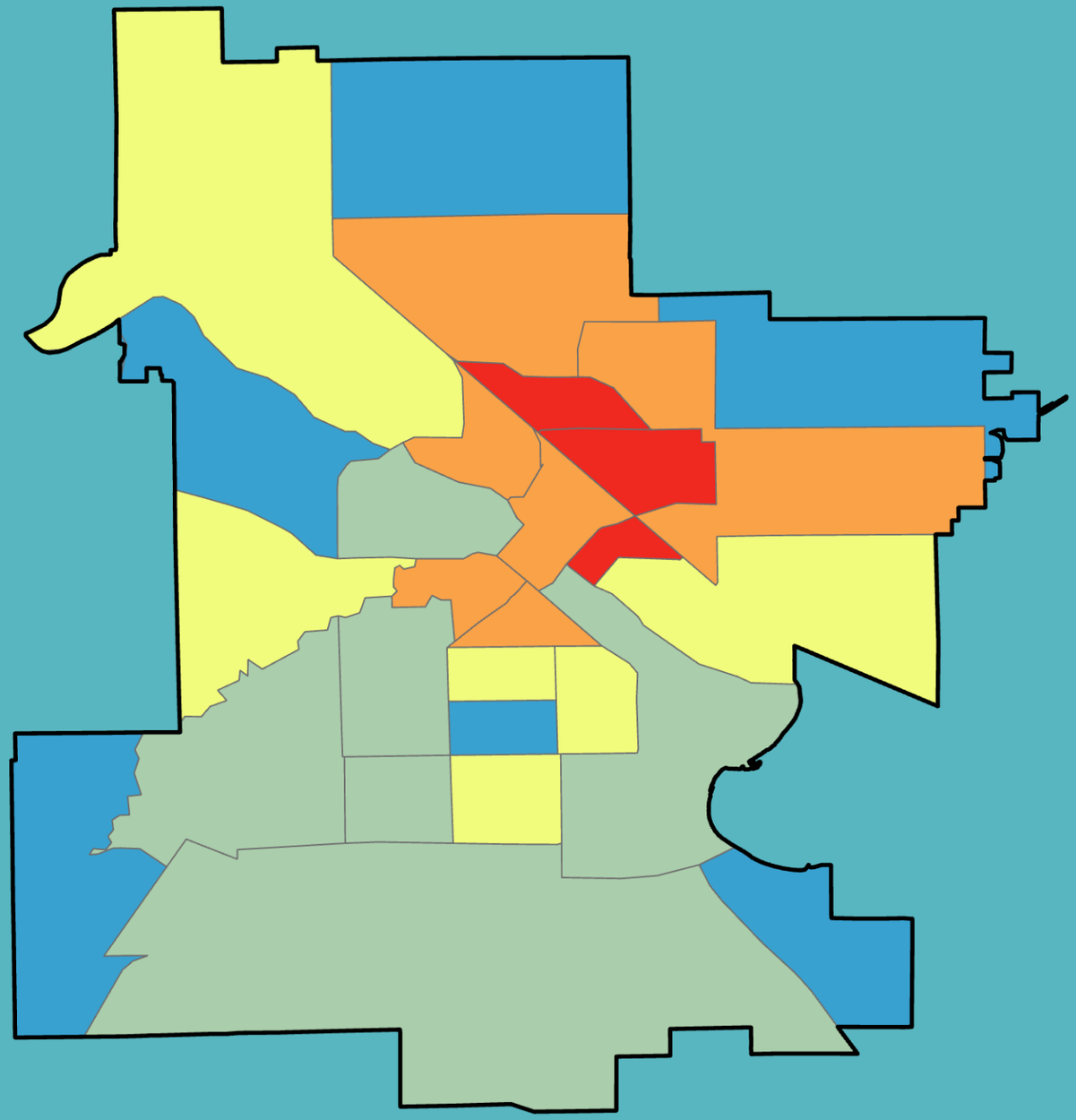
# PERCENT WITH A DISABILITY

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index (ACS 2014-2018)



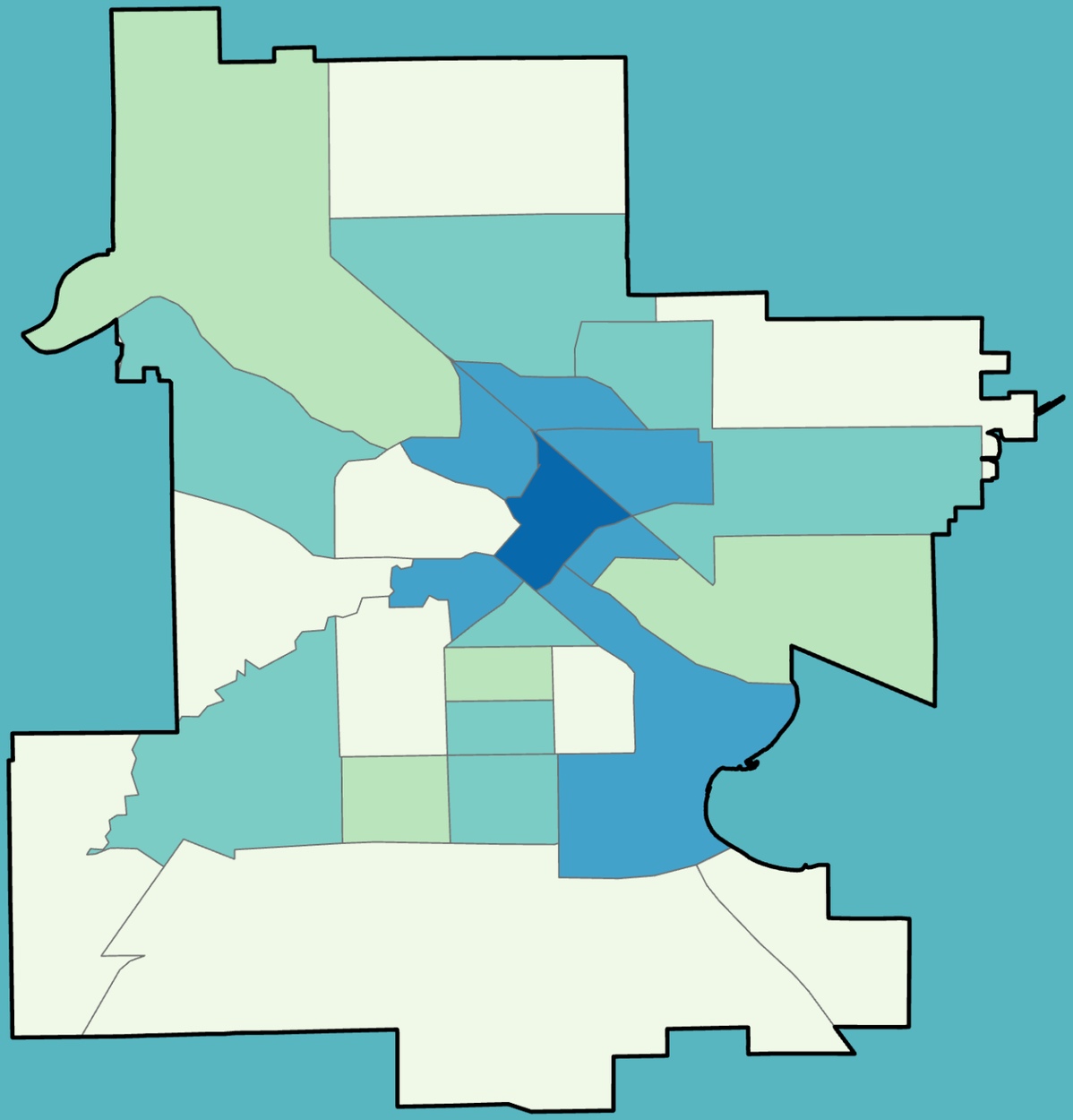
# PERCENT MINORITY

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index (ACS 2014-2018)



# PERCENT HOUSEHOLDS WITH NO VEHICLE

Waterloo, Iowa
Source: Centers for Disease Control and Prevention Social Vulnerability Index (ACS 2014-2018)

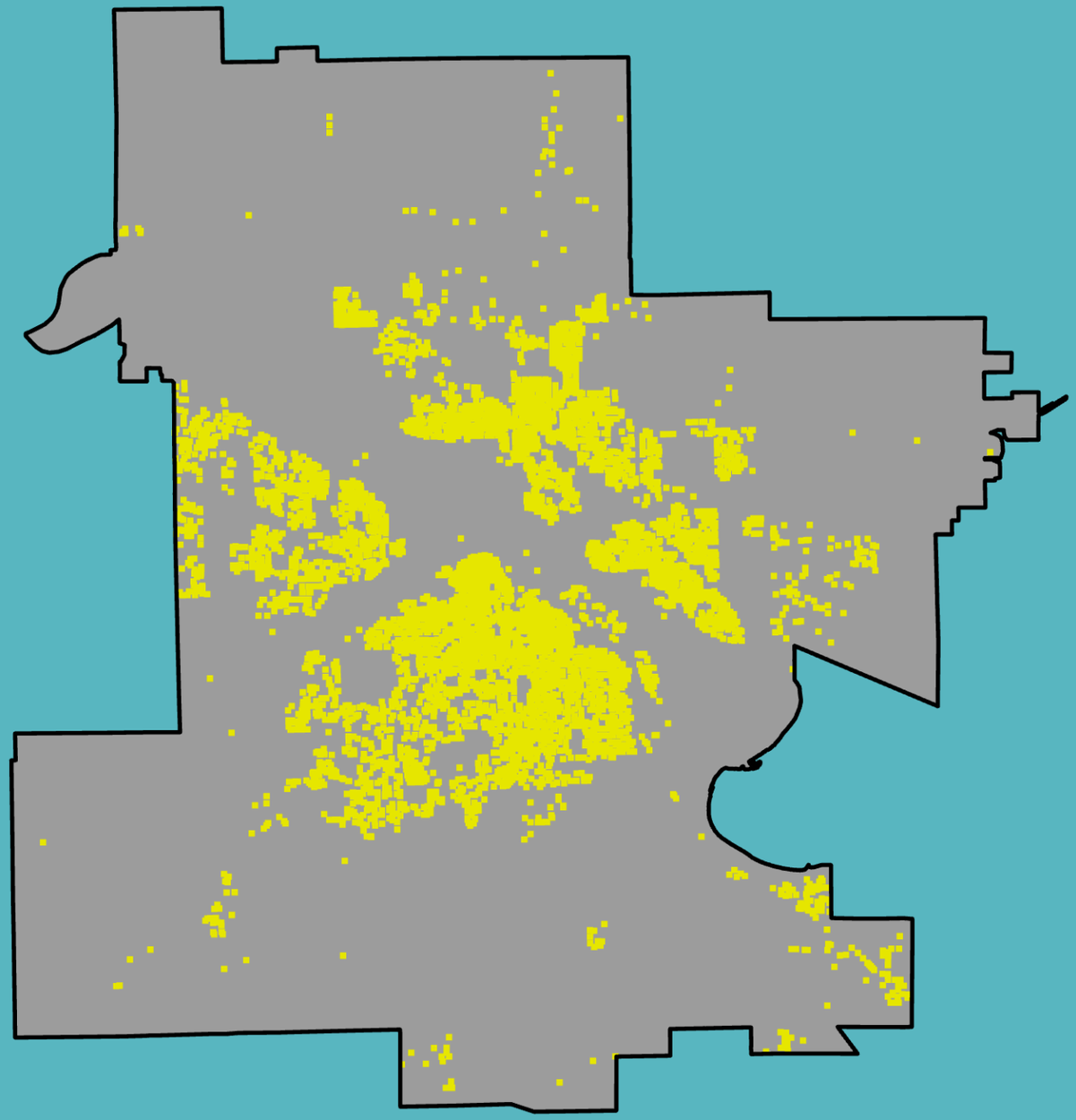


# APPENDIX IV
# BUILDING AGE

# HOMES BUILT BEFORE 1978

Waterloo, Iowa
Source: Black Hawk County Assessor

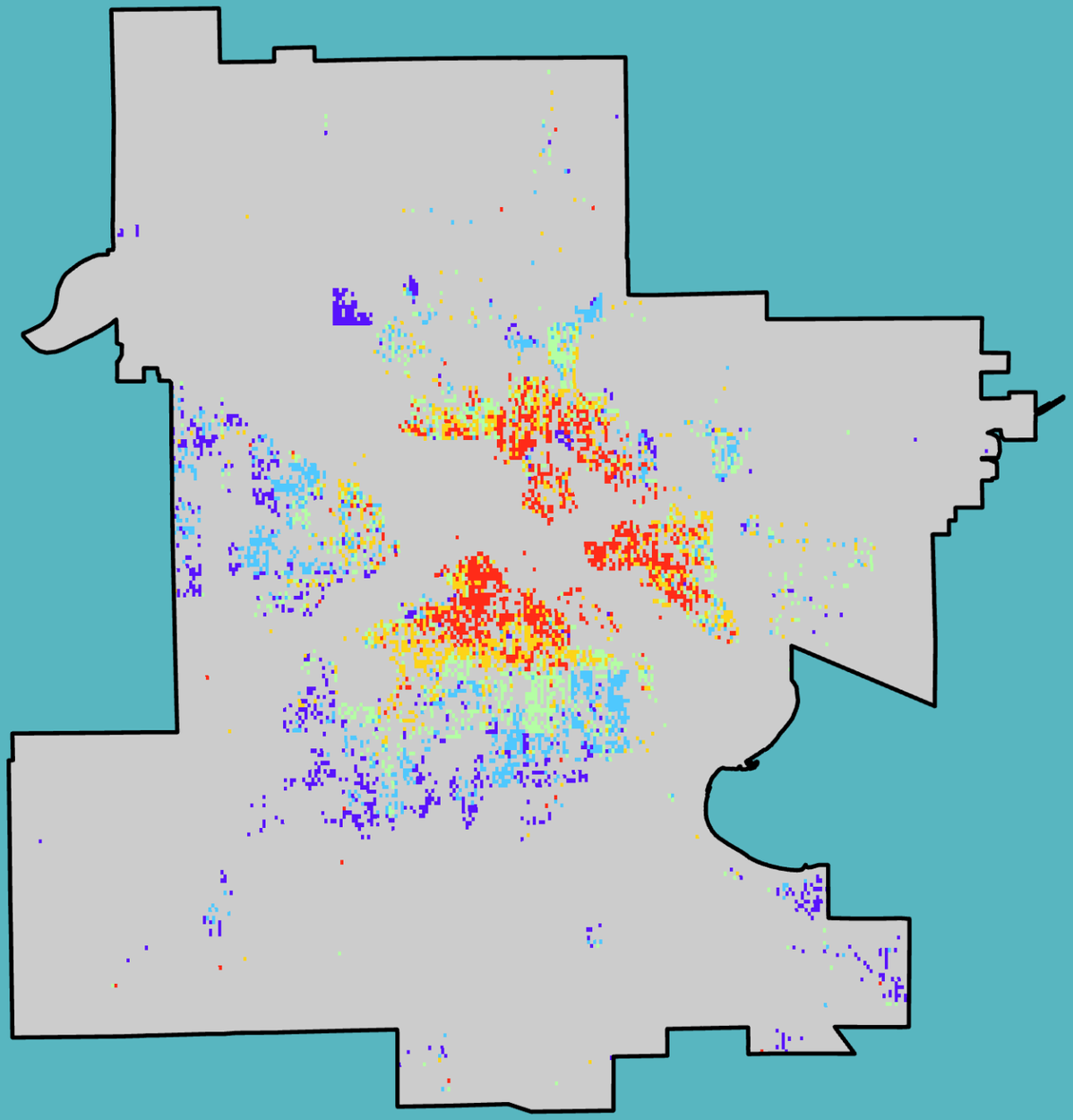
In 1978, the federal government banned consumer uses of lead-based paint. Homes built before 1978 were selected because they a) are 40+ years old and b) potential used lead paint. Inclusion in the study does not indicate, however, that the homes used lead paint.



# HOMES BUILT BEFORE 1978

Waterloo, Iowa
Source: Black Hawk County Assessor

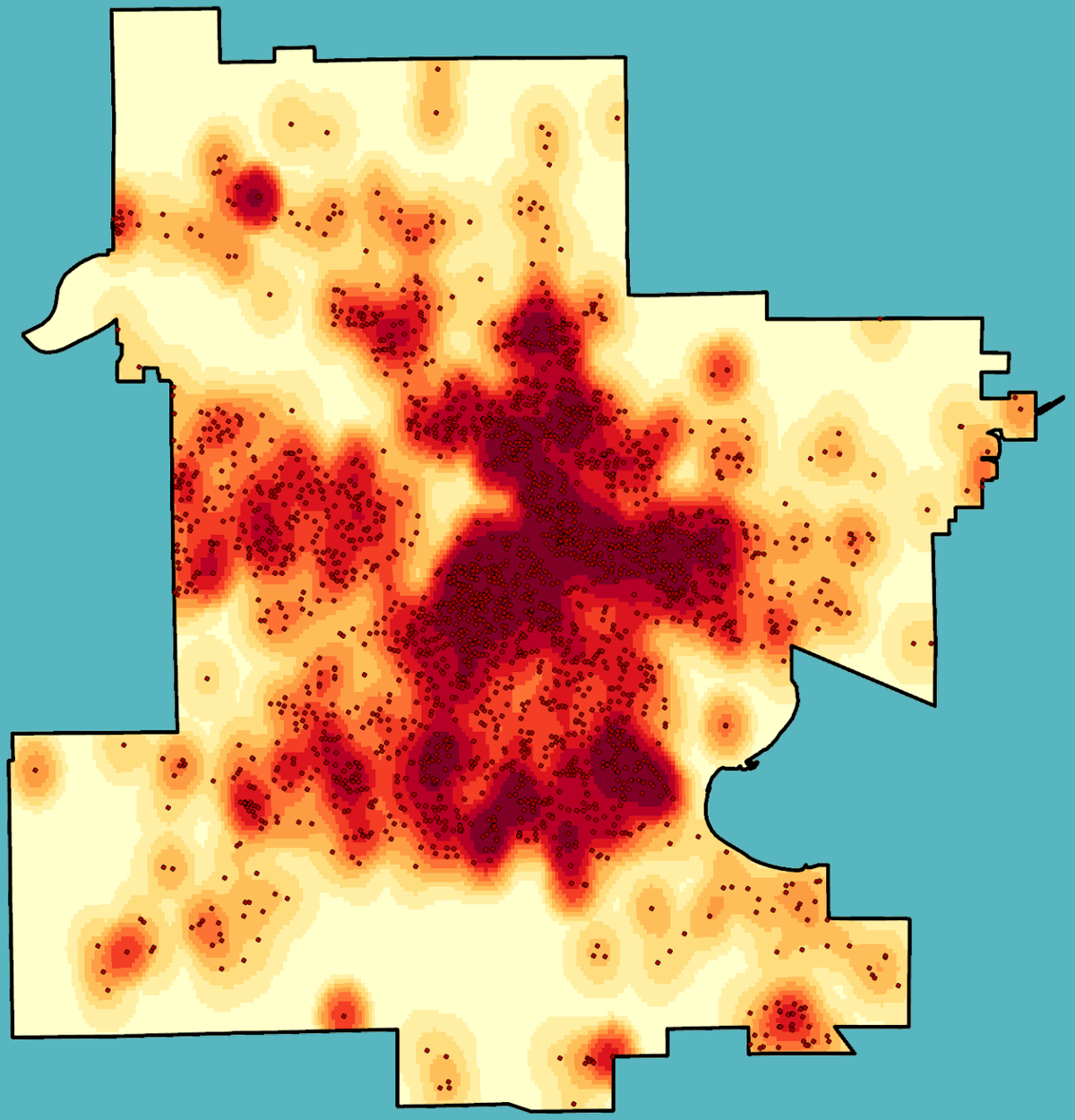
In 1978, the federal government banned consumer uses of lead-based paint. Homes built before 1978 were selected because they a) are 40+ years old and b) potential used lead paint. Inclusion in the study does not indicate, however, that the homes used lead paint.



# APPENDIX V
# INCIDENT HEATMAPS

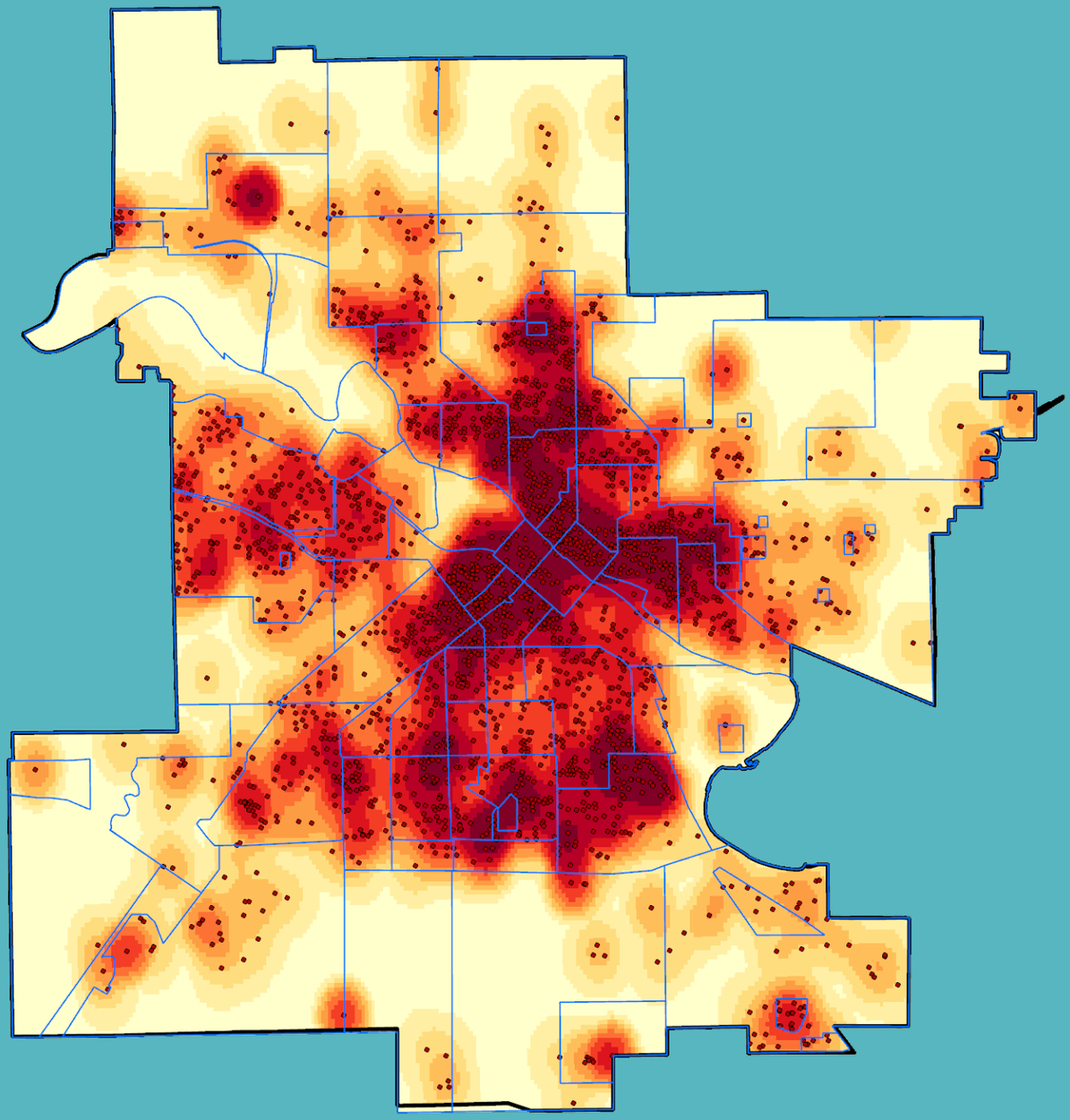
# ALL FIRE INCIDENTS

Waterloo, Iowa 2018-2020
Source: Waterloo Fire Rescue



# ALL FIRE INCIDENTS WITH FIRE GRID OVERLAY

Waterloo, Iowa 2018-2020
Source: Waterloo Fire Rescue



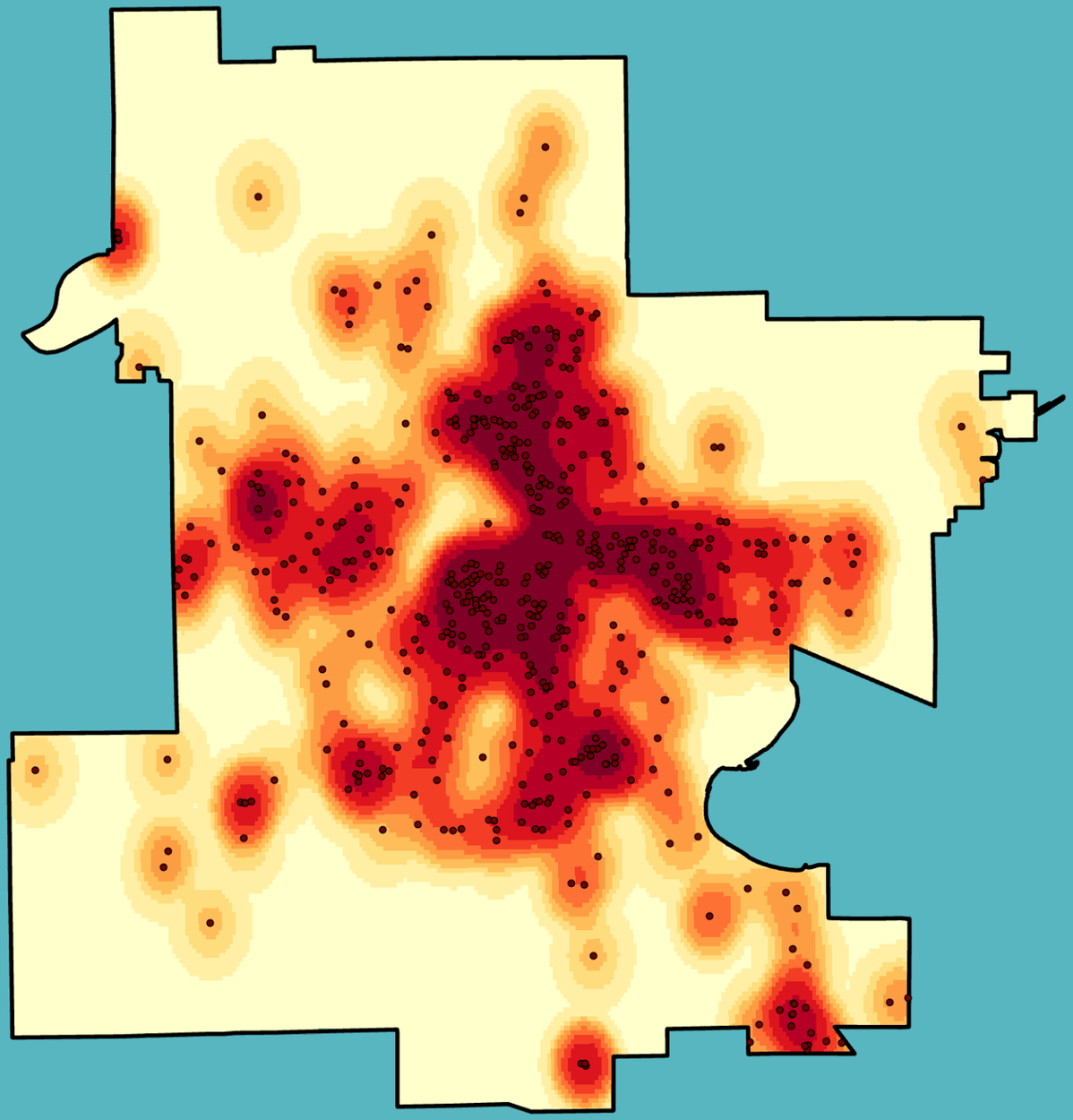
# FIRE INCIDENTS RANKED 5

Waterloo, Iowa 2018-2020
Source: Waterloo Fire Rescue

**Fire Incidents Ranked 5** includes:

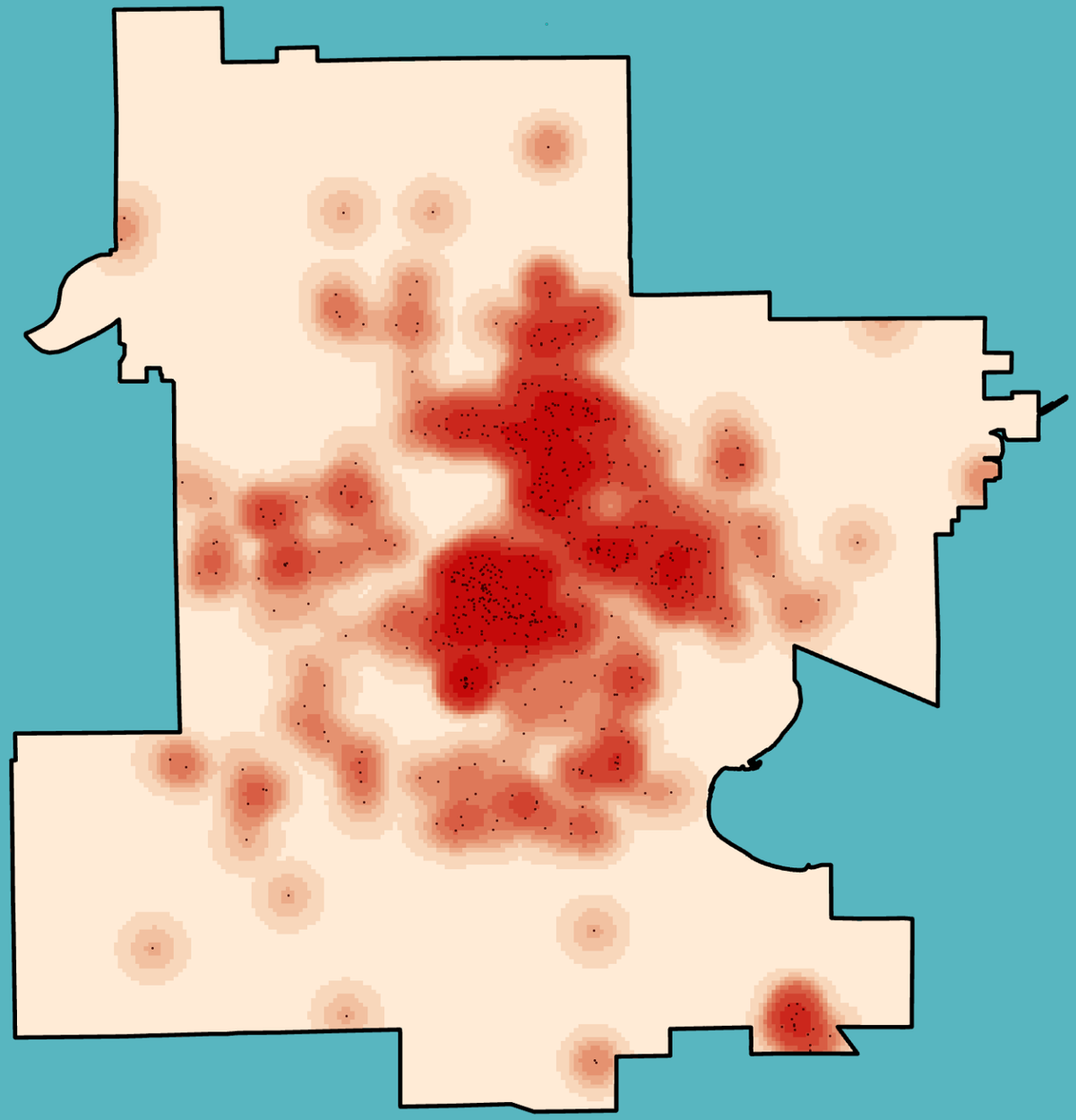
- Utility Fire
- Industrial Fire
- Garage Fire
- Fire in Barn/Shed/Silo
- Explosion

* Fire Incident Rankings were determined by NFIRS codes. Most incidents provided by the Waterloo Fire Rescue department did not have an NFIRS code and severity could therefore not be assessed. Uncoded incidents are ranked as 1 so they can still be calculated in the overall risk assessment. It is likely that many more incidents would be ranked 5.



# AGGRAVATED ASSAULT

Waterloo, Iowa 2018-2020
Source: Waterloo Police Department

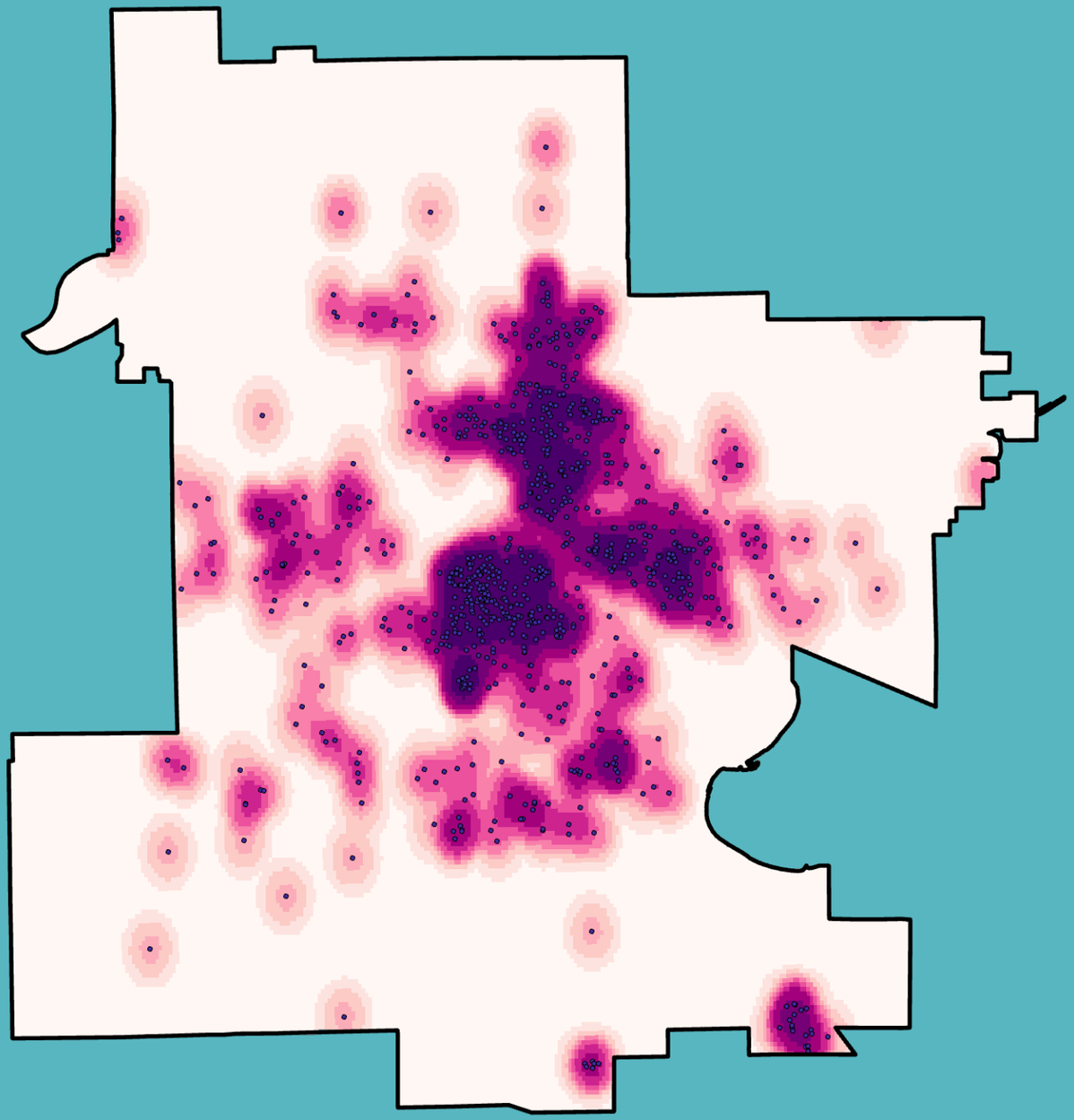


# ALL VIOLENT CRIME

Waterloo, Iowa 2018-2020
Source: Waterloo Police Department

**Violent Crime** includes:

- Aggravated Assault
- Fail to Register – Sex Offender
- Forcible Fondling
- Forcible Rape
- Forcible Sodomy
- Incest
- Murder
- Robbery

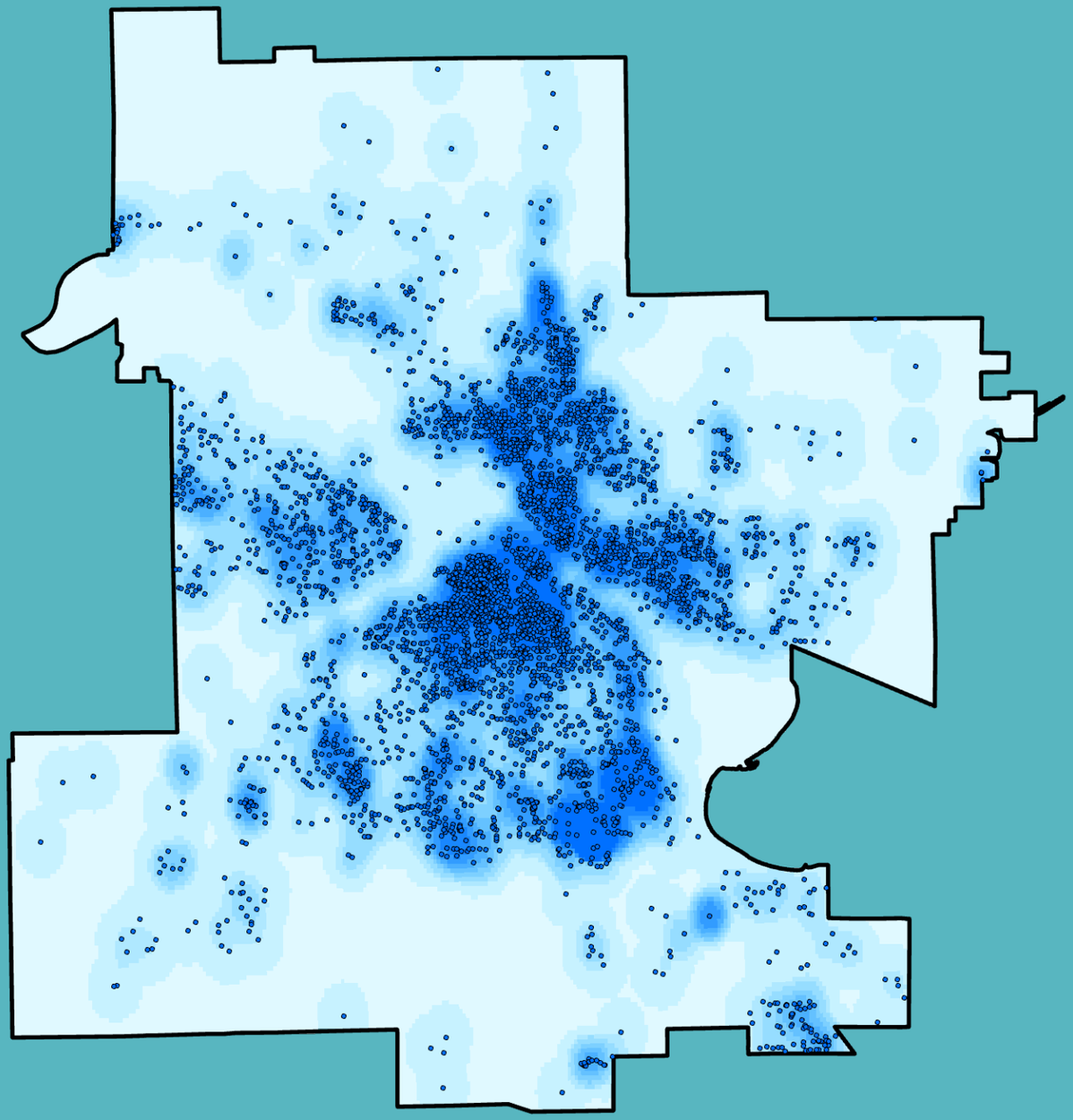


# ALL PROPERTY CRIME

Waterloo, Iowa 2018-2020
Source: Waterloo Police Department

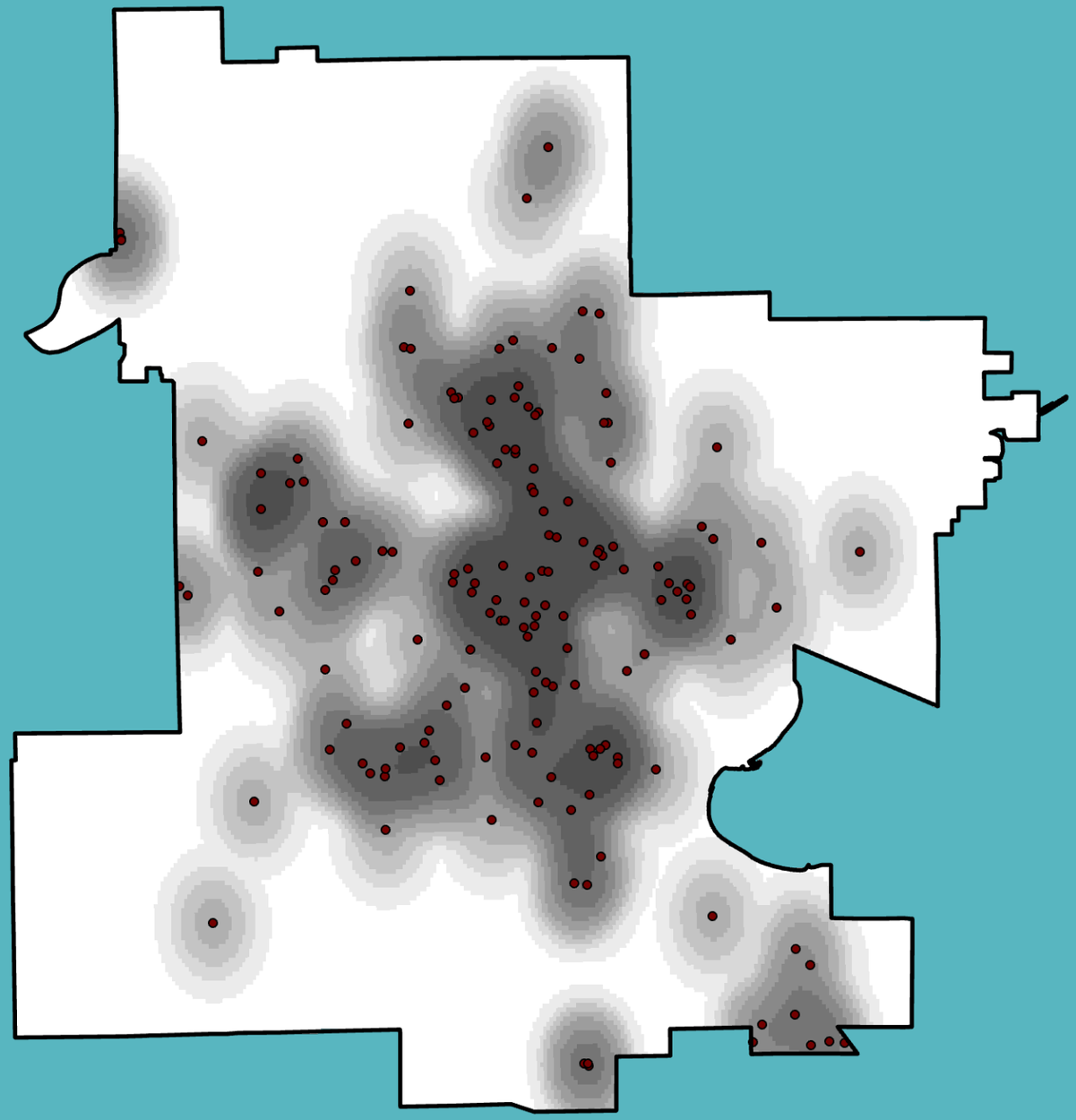
**Property Crime** includes:

- Arson
- Burglary/B&E
- Counterfeit/Forgery
- Credit/ATM Fraud
- Embezzlement
- Extortion/blackmail
- Impersonation/ Welfare/Wire Fraud
- Motor Vehicle Theft
- Other Larceny
- Pocket-Picking
- Purse Snatching
- Shoplifting
- Stolen Property Offenses
- Swindling
- Theft from Building/Vehicle/Vending
- Vandalism



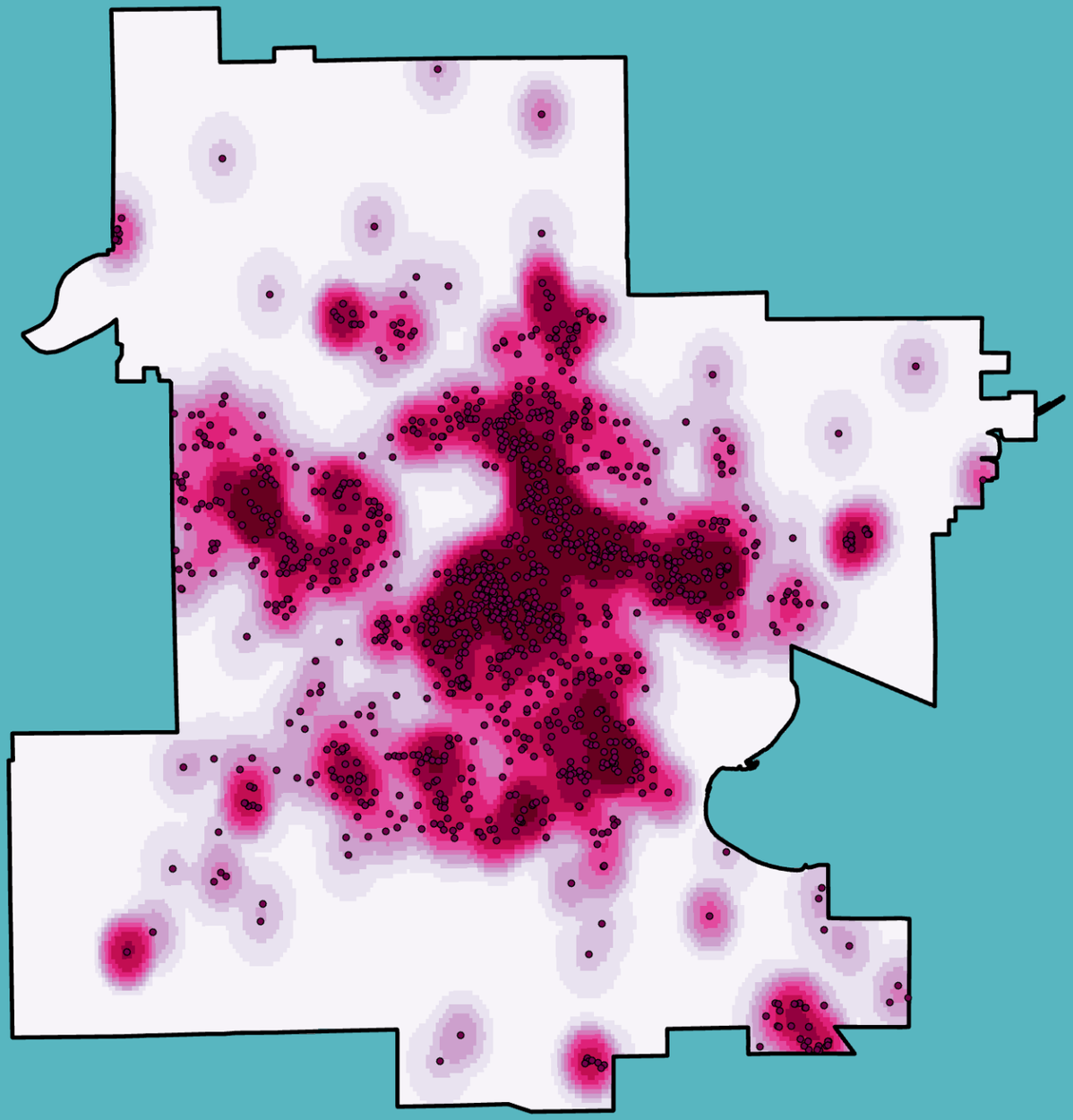
# DEATHS (from EMT DATA)

Waterloo, Iowa 2018-2020
Source: Waterloo Fire Rescue



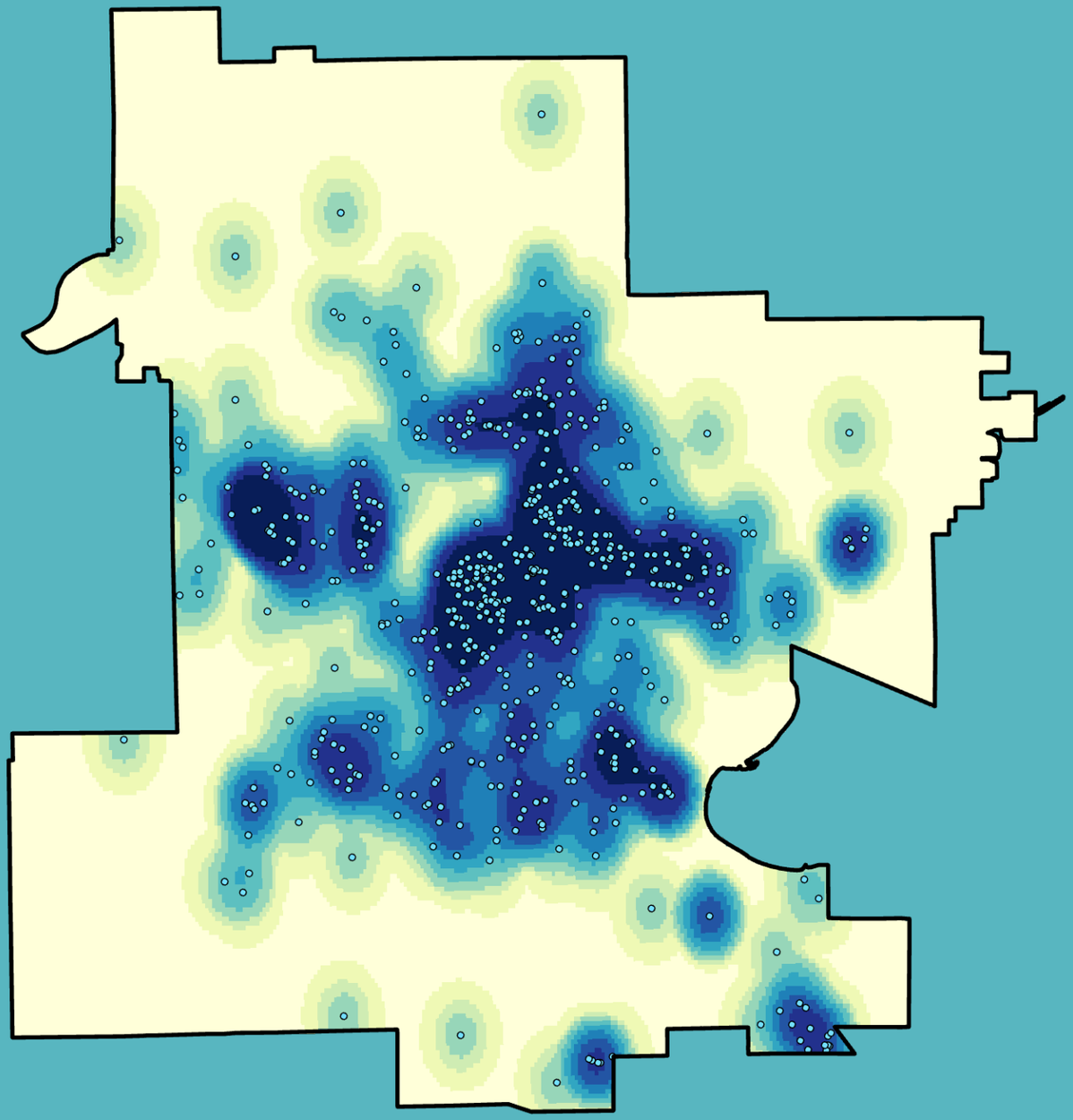
# MENTAL & PSYCH (from EMT DATA)

Waterloo, Iowa 2018-2020
Source: Waterloo Fire Rescue



# OVERDOSES

Waterloo, Iowa 2018-2020
Source: Waterloo Fire Rescue

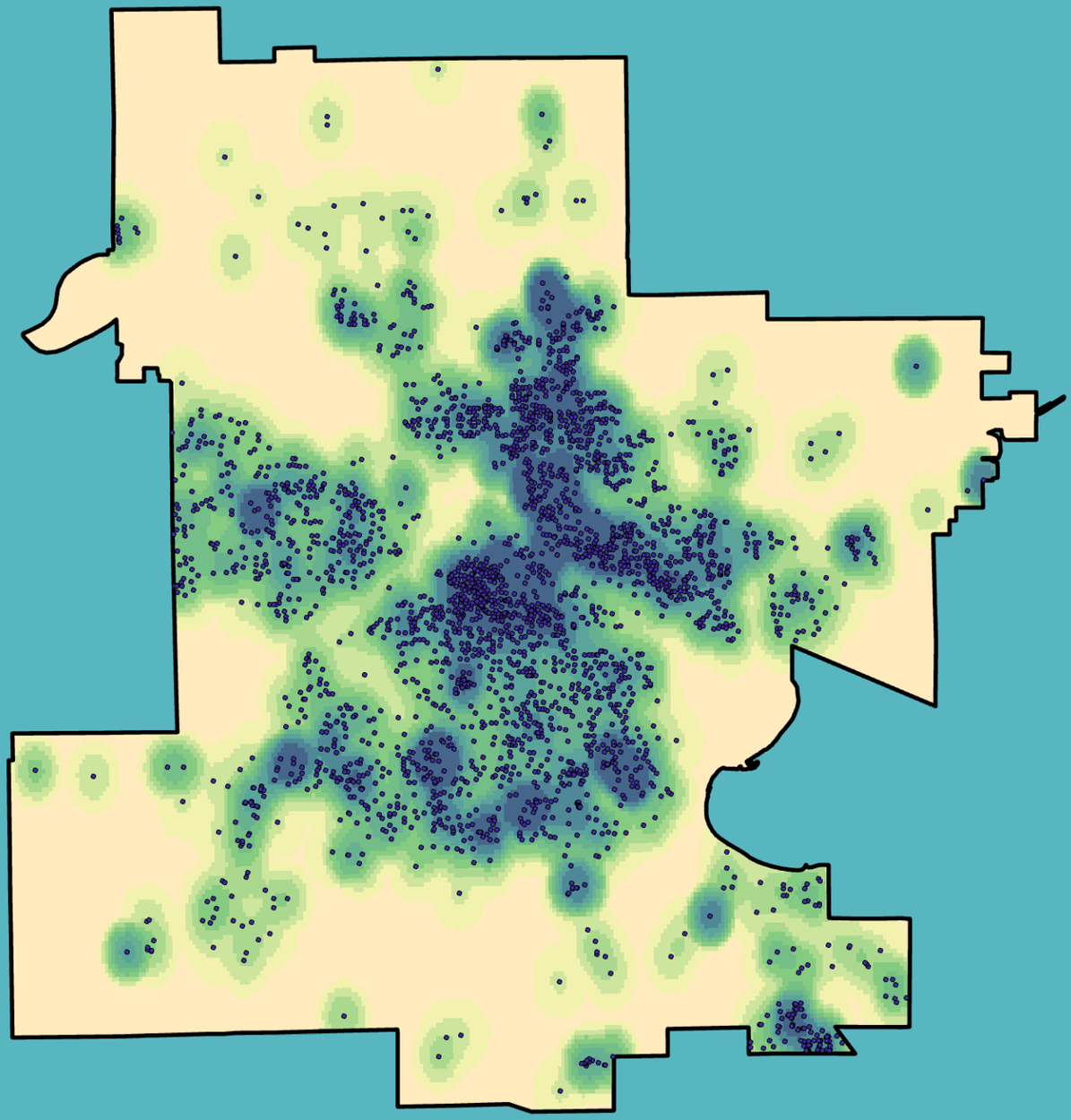


# EMT INCIDENTS RANKED 4 & 5

Waterloo, Iowa 2018-2020
Source: Waterloo Fire Rescue

**EMT Ranked 4 & 5** includes:

- Death
- Breathing
- Choking
- Chest
- Cardiac
- Heart
- Hemorrhage
- Stroke
- Stabbing
- Shooting
- Assault
- Drowning
- Trauma



# ALL INCIDENTS RANKED 5

Waterloo, Iowa 2018-2020
Source: Waterloo Police Department
Waterloo Fire Rescue

**Incidents Ranked 5** includes:

- Utility Fire
- Industrial Fire
- Garage Fire
- Fire in Barn/Shed/Silo
- Explosion
- Death
- Sexual Assault
- Rape
- Murder
- Kidnapping
- Suicide