Virginia Department of Emergency Management

HAZARD RISK & VULNERABLE POPULATIONS

2021 HAZARD MITIGATION ASSISTANCE GRANTS EQUITY WORKSHOPS

The Deloitte Health360 Solution informs population vulnerability and enables a data-driven approach to operationalizing equity in mitigation projects. It is broken down into two components: Population Vulnerability and Hazard Risk. Both components are added together to identify potential priority areas to support future mitigation projects.

POPULATION VULNERABILITY

Provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

HAZARD RISK

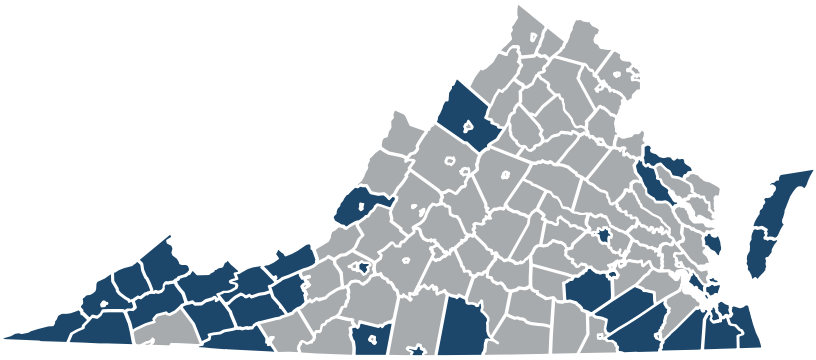
Reflects the number of households in each flood or hurricane zone weighted by risk severity to provide a people-focused risk metric.

PRIORITIZED CENSUS TRACTS

Combining population vulnerability and hazard risk at a sub-locality level can identify potential priority areas to support with future mitigation projects.

SERIES OBJECTIVES

1. Interpret data from the Deloitte Analysis and identify flooding risk in these areas.
2. Understand and explore potential solutions to hazard risk areas and vulnerable populations.
3. Educate stakeholders on funding programs such as FEMA hazard mitigation grants, CDBG grants, and the new CFP fund.
4. Discuss next steps, technical assistance needs, and training.



40 Localities Identified Scoring Over 70%

REGISTRATION https://odu.co1.qualtrics.com/jfe/form/SV_dd549WZWcIKVz3E

QUESTIONS? vdemgrants@vdem.virginia.gov

HAZARD RISK & POPULATION VULNERABILITY

Virginia Department of Emergency Management

SUBREGIONAL WORKSHOP

August 10, 2021 from 10am to 12pm

Lee
Scott
Wise

POPULATION VULNERABILITY

Provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

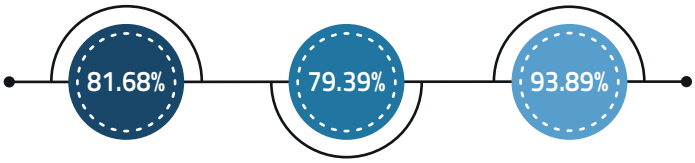
HAZARD RISK

Reflects the number of house-holds in each flood or hurricane zone weighted by risk severity to provide a people-focused risk metric.

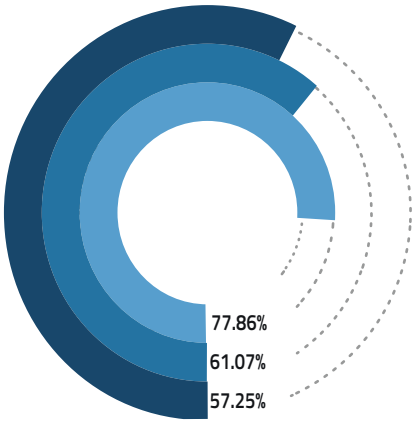
PRIORITIZED CENSUS TRACTS

Combining population vulnerability and hazard risk at a sub-locality level can identify potential priority areas to support with future mitigation projects.

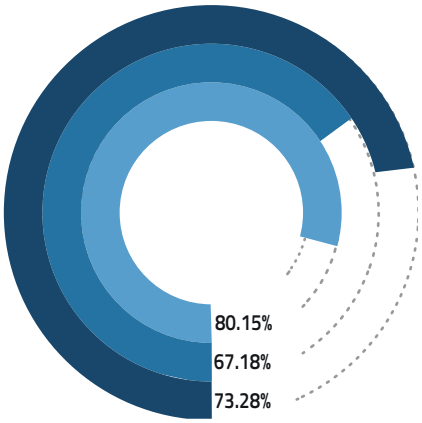
OVERALL PERCENTILE

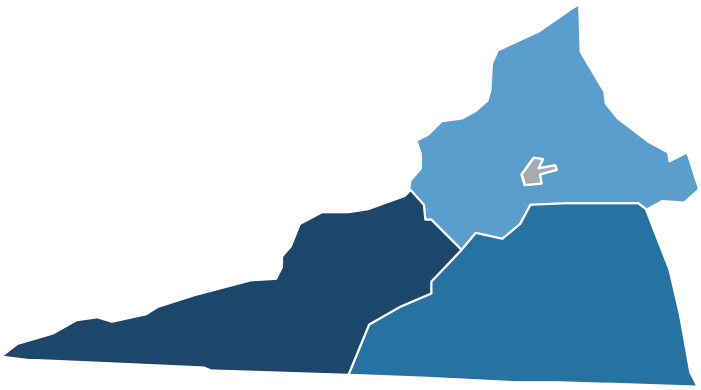


HAZARD RISK PERCENTILE



POPULATION VULNERABILITY PECENTILE





FACILITATED BY The Virginia Modeling, Analysis, and Simulation Center

COVID-19 Unified Command/VEST Health Equity Working Group

MITIGATION PROJECTS ANALYSIS
WISE COUNTY

NOVEMBER 2020

Topics

The analysis provides **Wise County** with information to support planning and preparation of projects for the Building Resilient Infrastructure and Communities (BRIC) grant application with an equity focus.

- ❑ Introduction to Data-Driven Approach
- ❑ Hazard Risk
- ❑ Population Vulnerability
- ❑ Prioritization
- ❑ FEMA Funding and Past Projects
- ❑ Considerations for Next Steps

This analysis ***expands the scope of population vulnerability*** to provide a ***data-driven equity lens*** for disaster mitigation project design

Data-Driven Approach

The Health360 platform informs population vulnerability and enables a data-driven approach to operationalizing equity in mitigation projects.

Powered By Health360

230M+
U.S. Adults Scored

Data updated every
1 Month

Contains over
1,500+
variables on Social Determinants of Health and other metrics

150+
Advanced predictive algorithms

400+
Variables used in the mortality predictive algorithm

Provides 360° view of a person

Algorithms rebuilt every 2 years

40+
Clients served

What is hazard risk and how is it calculated?

Household Hazard risk reflects the number of households in each flood or hurricane zone, weighted by severity.

Hazard Risk

Number of households in each zone:

Flood zones
- 100 year coastal
- 100 year riverine flood way
- 100 year riverine
- 500 year riverine

Hurricane zones
- Segmented A, B, C, D

- Households that reside in the flood and hurricane zones are considered to be **at-risk for environmental disasters**
- Hazard Risk reflects **the number of households located in Flood and Hurricane Zones**
- Hazard Risk is not a measure of **infrastructure, elevation, or financial risks**, but is a measure of the number of at-risk households in an area, weighted by the severity of the risk, to **provide a people-focused risk metric**

Note: Severity of the risk per household is captured on an ordinal scale from 1 – least severe (Hurricane Zone D, 500 Year Riverine) to 4 – most severe (Hurricane Zone A, 100 Year Coastal)

Hazard Risk = (# of Households in Particular Hurricane or Flood Zones) X (Specified Zone Risk Level (1 through 4 depending on risk severity))

Hazard Risk in Your Locality

The figures below indicate how your locality's hazard risk[1] compares to others in Virginia as well as how many households reside in each flood or hurricane zone.

Hazard Risk[1] Percentile

78th

Your locality has more households in more severe flood/hurricane zones than 78% of other Virginia localities

Hazard Risk[1] Rank

30th

Your locality's Hazard Risk score is ranked 30th out of 132 Virginia localities

Households in Flood Zones & Locality Rank

← Severity			
100 Year Coastal	100 Year Riverine Floodway	100 Year Riverine	500 Year Riverine
0	131	1,009	270
N/A out of 132 Localities	8th out of 132 Localities	15th out of 132 Localities	26th out of 132 Localities

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk

Households in Hurricane Zones & Locality Rank

← Severity			
Zone A	Zone B	Zone C	Zone D
0	0	0	0
N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities

Evacuation zones designated as A through D are in place across coastal Virginia

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
2. Note that the total sum of households may be more than the households in your locality because some are located in both flood and hurricane zones

What is population vulnerability and how is it calculated?

The Population Vulnerability score provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

Population Vulnerability

Prevalence of:

1. Communities of color
2. Elevated health risk
3. Low income
4. # of people in household
5. # of children in household
6. Unemployment risk
7. Age (older adults)
8. Lack of vehicle access

- Population Vulnerability **expands upon the 2018 Virginia Hazard Mitigation plan definition** of population vulnerability (density and percentage of total population)
- Population Vulnerability **only considers localities with households in flood or hurricane zones (132 localities)**
- Population Vulnerability **identifies the locality and census tracts/census blocks** with the most vulnerable individuals/households on average
- Population Vulnerability should be interpreted as a **household's ability to safely respond** to an environmental disaster

Population Vulnerability in Your Locality

The figures below indicate how your locality's population vulnerability[1] score and composite attributes compare to other localities in Virginia.

Population Vulnerability[1] Percentile

80th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 80% of other Virginia localities

Population Vulnerability[1] Rank

27th

Your locality's Population Vulnerability score is ranked 27th out of 132 Virginia localities

How WISE COUNTY Compares to Other Localities Across the Eight Vulnerability Attributes

Low Income	Elevated Health Risk	Age	Communities of Color
98th percentile	**43rd** percentile	**39th** percentile	**24th** percentile

# of Children in Household	# of People in Household	Unemployment Risk	Lack of Vehicle Access
88th percentile	**76th** percentile	**67th** percentile	**80th** percentile

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones

Using Population Vulnerability & Hazard Risk to Prioritize Census Tracts

Combining population vulnerability and hazard risk at a sub-locality level can identify potential priority areas to support with future mitigation projects.

Population Vulnerability

Prevalence of:

1. Communities of color
2. Elevated health risk
3. Low income
4. # of people in household
5. # of children in household
6. Unemployment risk
7. Age (older adults)
8. Lack of vehicle access

+

Hazard Risk

Number of households in each zone:

Flood zones

- 100 year coastal
- 100 year riverine floodway
- 100 year riverine
- 500 year riverine

Hurricane zones

- Segmented A, B, C, D

=

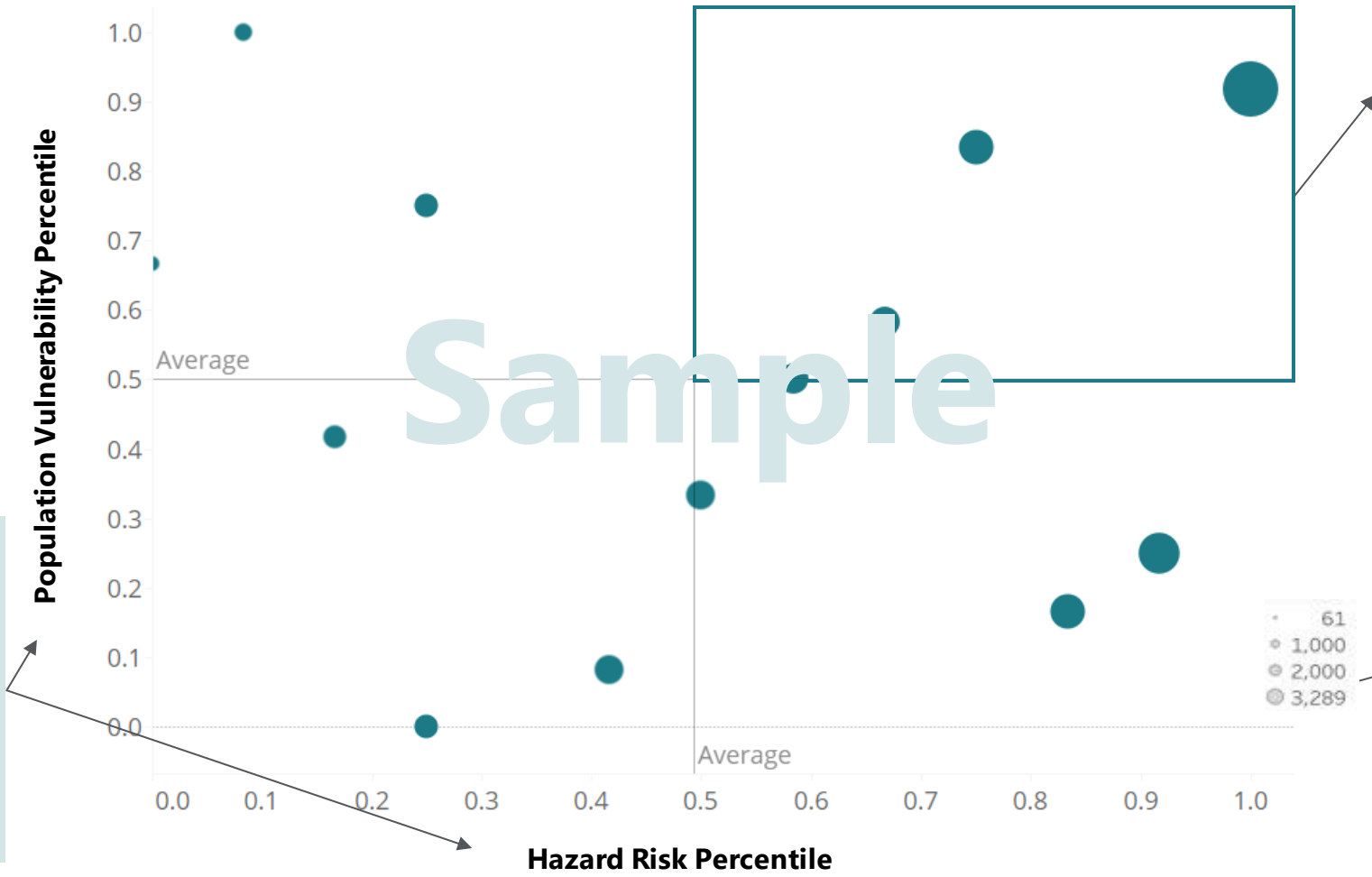
Prioritized Census Tracts

- High Population Vulnerability
- High Hazard Risk

Census tracts with both more households in severe flood/hurricane zones AND households with more vulnerable occupants

How to interpret the Census Tract plots

The chart below represents a *sample* locality and offers guidance on how to interpret the information when planning mitigation efforts.



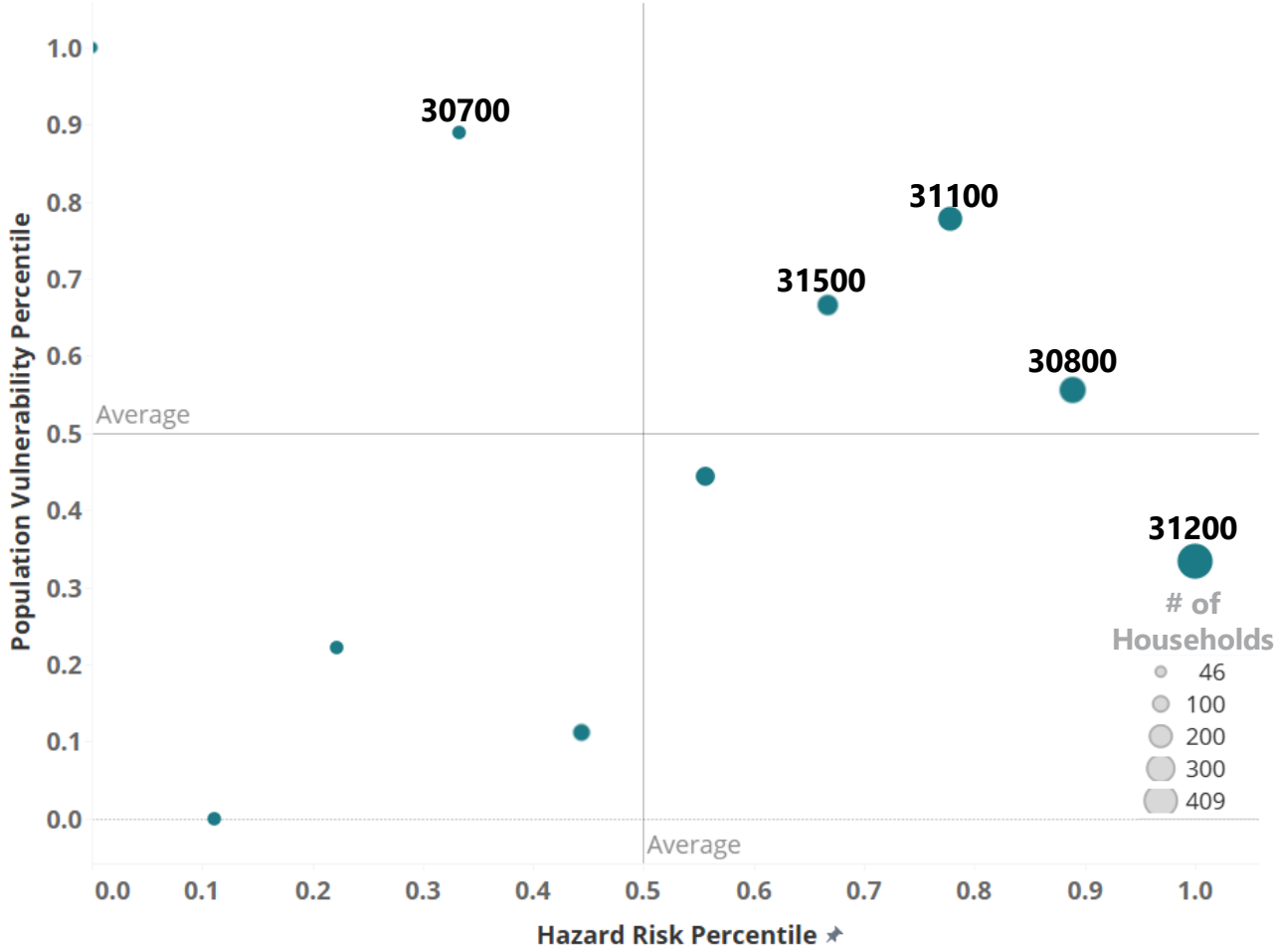
Circles in the upper right quadrant represent areas that you might consider prioritizing due to high population vulnerability and hazard risk

The x- and y-axes measure the percentiles of hazard risk and population vulnerability for each area

Size of the circle indicates the number of households in each area

Prioritizing Census Tracts in Wise County

Areas with the most vulnerable populations and households in severe flood and hurricane zones present prioritization opportunities for mitigation projects.



Priority Areas in Flood and Hurricane Zones

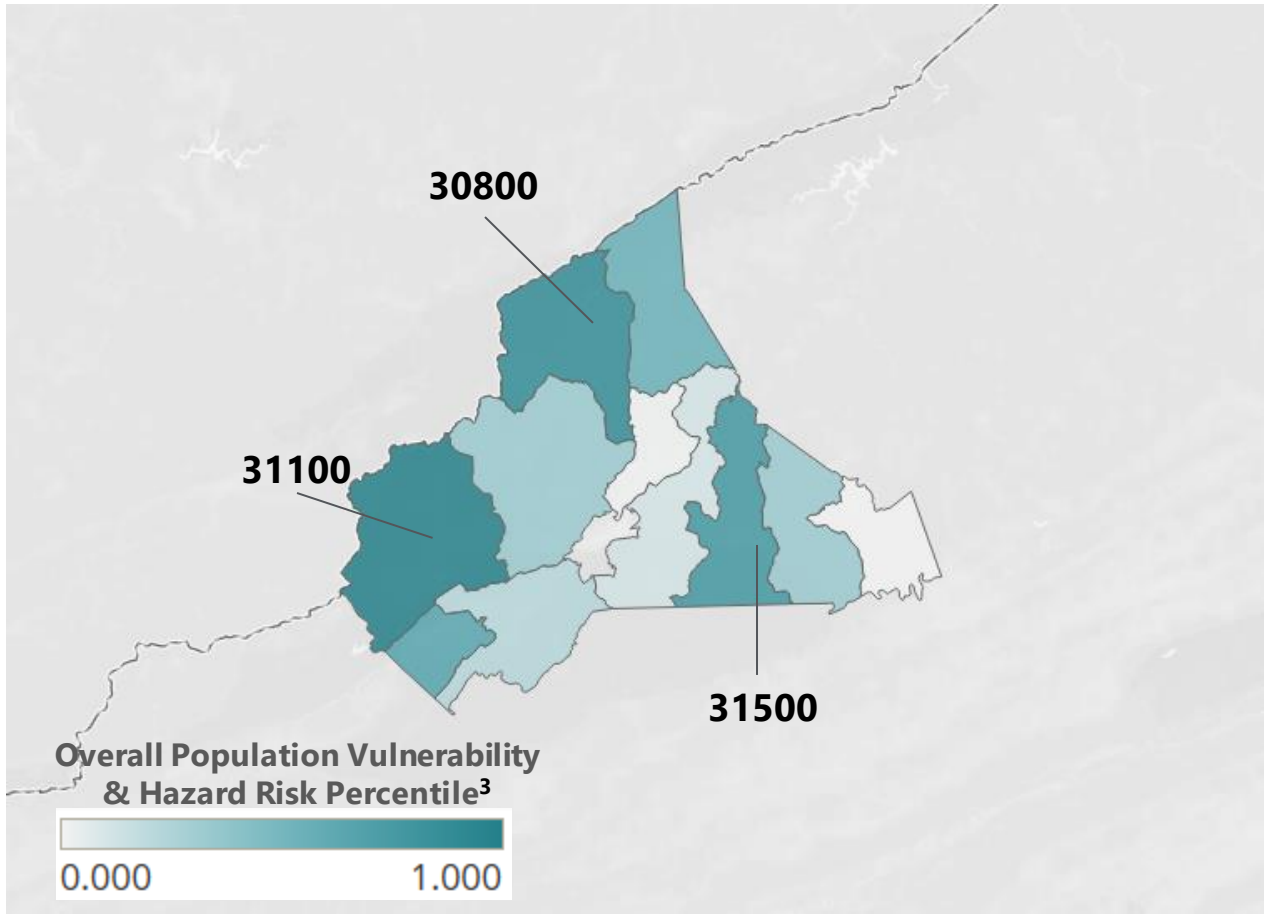
#	Area	# of Households	Within-Wise County Percentiles: Overall Percentile	Within-Wise County Percentiles: Population Vulnerability[1] Percentile	Within-Wise County Percentiles: Hazard Risk[2] Percentile
1	31100	192	100th	78th	78th
2	30800	228	89th	56th	89th
3	31500	140	78th	67th	67th
4	31200	409	67th	33rd	100th
5	30700	64	56th	89th	33rd
6	31000	121	33rd	44th	56th
7	31600	46	33rd	100th	0th
8	31300	95	22nd	11st	44th

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity

Prioritizing Census Tracts in Wise County continued

Areas with the most vulnerable populations and households in severe flood and hurricane zones present prioritization opportunities for mitigation projects.

Potential Priority Areas in Wise County



Priority Areas in Flood and Hurricane Zones

			Within-Wise County Percentiles		
#	Area	# of Households	Overall Percentile	Population Vulnerability[1] Percentile	Hazard Risk[2] Percentile
1	31100	192	100th	78th	78th
2	30800	228	89th	56th	89th
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1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
3. Sub-localities at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

Priority Census Tracts Summary

When evaluating future mitigation project opportunities, it may be helpful to consider the underlying attributes of population vulnerability and the number of houses in each flood/hurricane zone.

			Within-Wise County Percentiles										
#	Census Tract	# of Households	Overall	Population Vulnerability[1]	Communities of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unemployment Risk	Age	Lack of Vehicle Access
1	**31100**	**192**	**100th**	**78th**	22nd	100th	67th	22nd	67th	67th	11st	89th
2	**30800**	**228**	**89th**	**56th**	44th	78th	44th	67th	44th	22nd	78th	0th
3	**31500**	**140**	**78th**	**67th**	0th	67th	89th	44th	33rd	100th	67th	22nd

			W/I-Wise County Percentiles		Wise County Household Counts[3]							
#	Census Tract	# of Households	Overall	Hazard Risk[2]	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr Zone D
1	**31100**	**192**	**100th**	**78th**	0	15	149	28	0	0	0	0
2	**30800**	**228**	**89th**	**89th**	0	10	198	20	0	0	0	0
3	**31500**	**140**	**78th**	**67th**	0	21	82	37	0	0	0	0

1. Population Vulnerability should be interpreted as an average household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
3. Note that the total sum of households may be more than the households in your locality because some are located in both flood and hurricane zones

Review of FEMA Funding & Past Mitigation Projects

Review of Mitigation Projects In Your Locality

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.

Total Exclusive Project Funding[1]

$2,155,212

This is the total amount of federal funding alloted to migration projects solely owned by your locality from 1990-2019

Total Shared Project Funding[1]

$448,905

This is the total amount of federal funding allotted to mitigation projects owned by your locality and at least 1 other from 1990-2019

Exclusive Projects

4

Average Exclusive Project Size

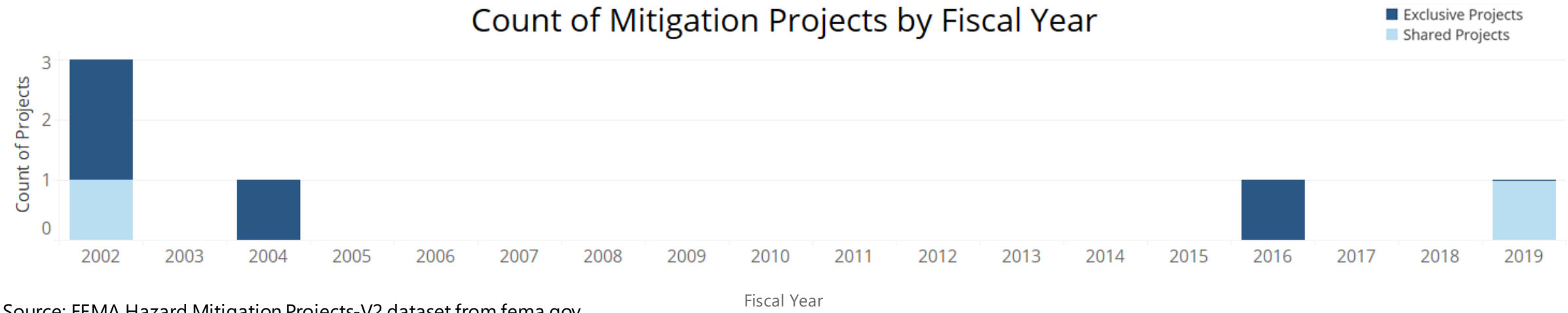
$539K

Shared Projects

2

Average Counties Per Shared Project

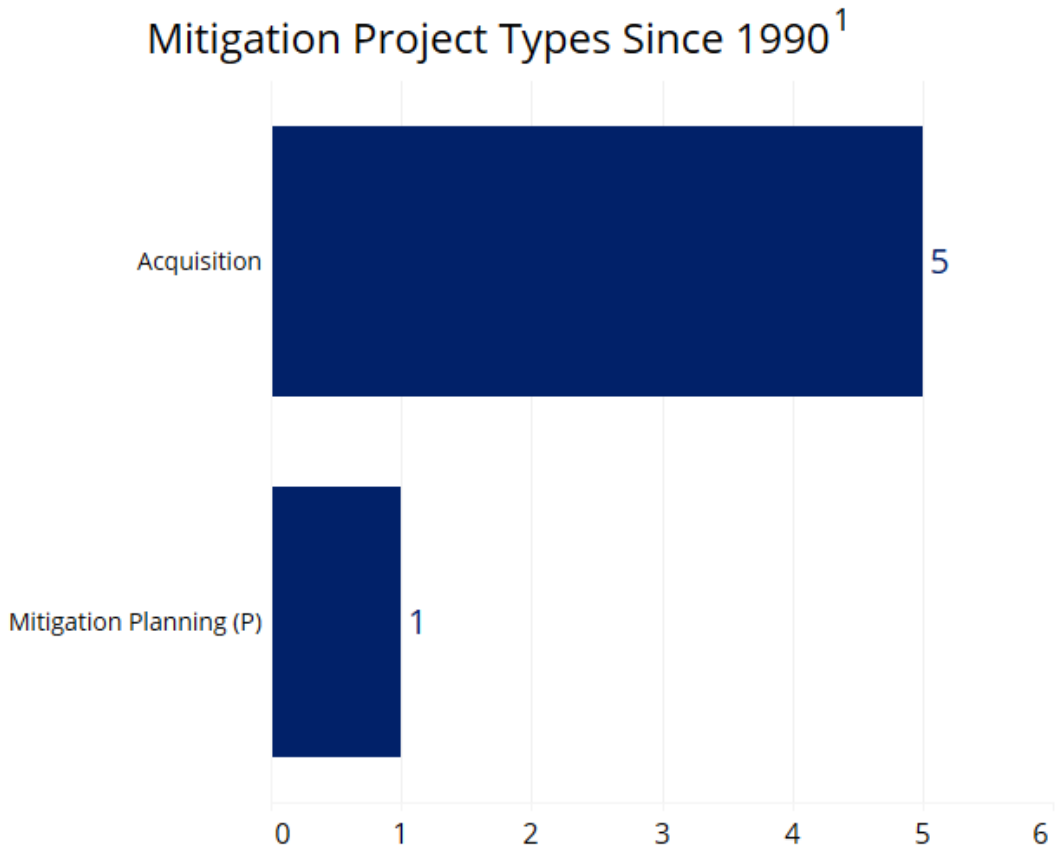
3.0

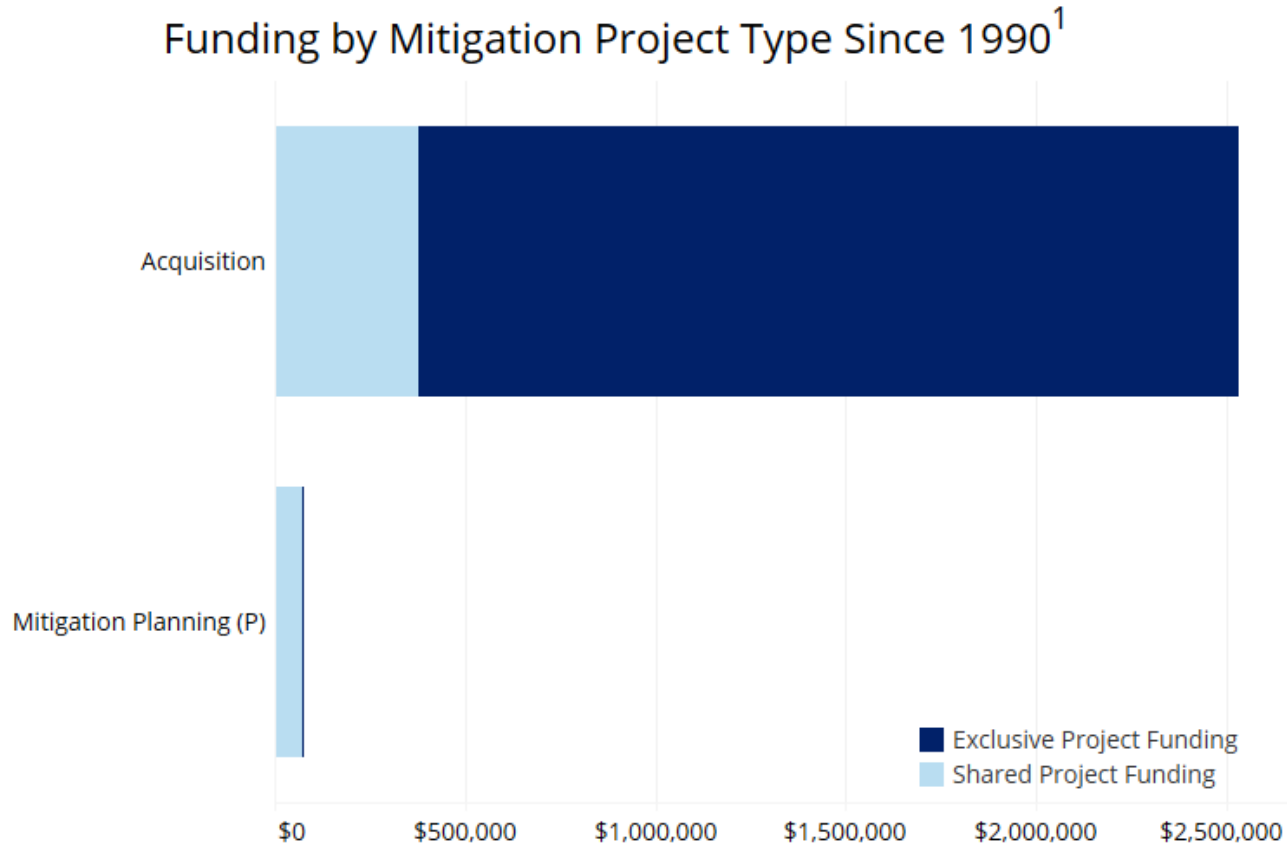


1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Past Mitigation Projects – Top Project Types

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.





1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

COVID-19 Impacts

COVID-19 In Your Locality

Since the beginning of the COVID-19 Pandemic, Wise County has experienced the following:

Cases[1]

Total	Per 100k
609	**1,561**
55th out of 133 localities[2]	**80th** out of 133 localities

Hospitalizations[1]

Total	Per 100k
42	**108**
49th out of 133 localities	**68th** out of 133 localities

Deaths[1]

Total	Per 100k
10	**26**
62nd out of 133 localities	**80th** out of 133 localities

1. COVID-19 case, hospitalization, and death figures are sourced from the Virginia Department of Health as of **10/26/2020**
2. COVID-19 Impact rankings are for all 133 Virginia localities, rather than the 132 included in the BRIC analysis for having at least one household in a flood or hurricane zone

Considerations for Next Steps

Considerations for Next Steps

When evaluating future mitigation project opportunities, the population vulnerability and hazard risk metrics can supplement existing measures to design mitigation projects with an equity lens.

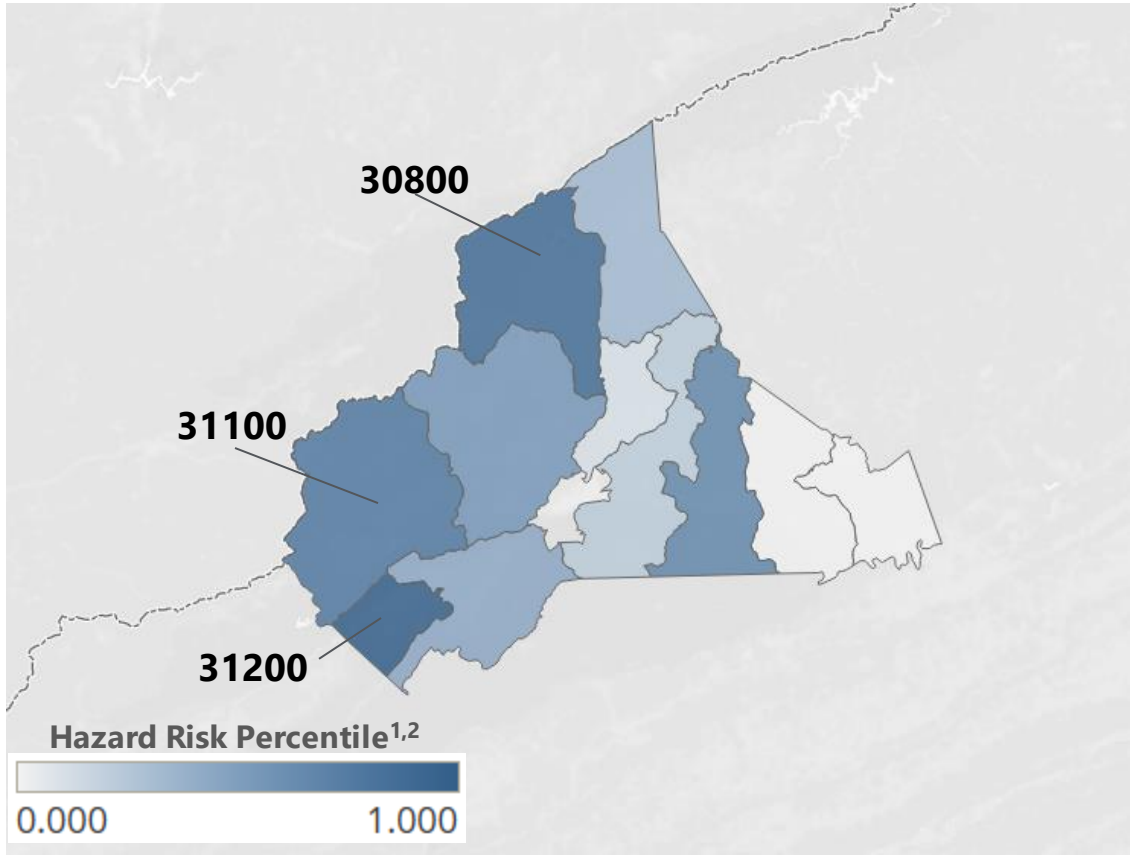
- Consider targeting **priority areas** when designing future mitigation projects
- Consider analysis at the **census tract/block level** to understand population vulnerability and hazard risks at a granular level to support decisions on mitigation projects
- Consider **supplementing these people-focused metrics** with existing infrastructure, elevation, and financial analysis for a holistic mitigation planning approach that includes equity considerations
- Consider **past project types** and **prior funding** in the overall mitigation strategy

Appendix

What areas in your locality have the greatest hazard risk?

When designing mitigation projects, it may be helpful to consider specific census tracts that have the greatest number of households residing in the more severe flood and/or hurricane zones.

Hazard Risk[1] in Wise County



Top-5 Census Tracts for Hazard Risk[1]

				Wise County Household Counts							
#	Census Tract	# of House-holds	Hazard Risk Percentile	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr. Zone D
1	31200	409	100th	0	29	263	117	0	0	0	0
2	30800	228	89th	0	10	198	20	0	0	0	0
3	31100	192	78th	0	15	149	28	0	0	0	0
4	31500	140	67th	0	21	82	37	0	0	0	0
5	31000	121	56th	0	18	74	29	0	0	0	0

Note: see the appendix for a complete data table for all Census Tracts

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
2. Census tracts at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

What is population vulnerability and how is it calculated? *continued*

The vulnerability score for each Virginia household reflects an estimate of the household's ability to safely respond in the event of an environmental disaster.

Population Vulnerability

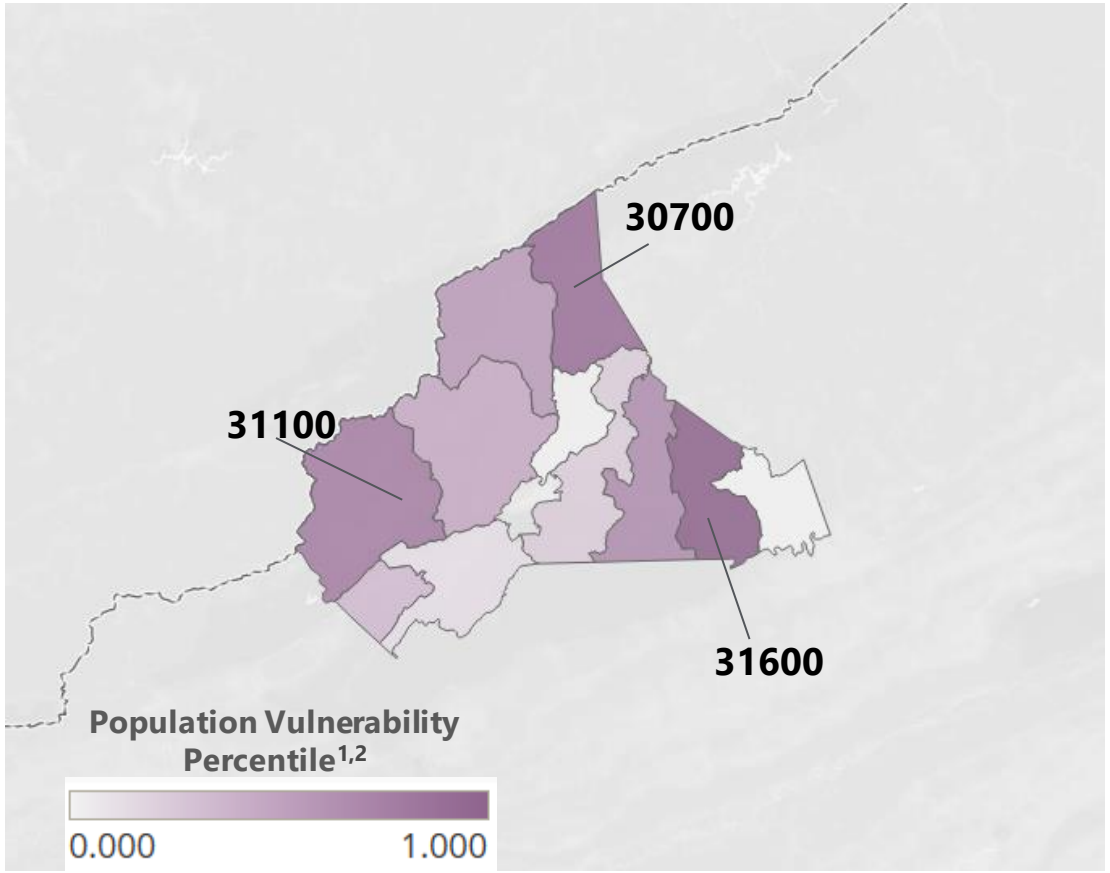
Attribute[1]	Weighting[2]	Description (in a household)
Low Income	18%	Number of adults with income less than $30,000
Elevated Health Risk	17%	Number of adults with one or more serious health conditions
Age (Older Adults)	15%	Number of adults who are age 65 and older
Communities of Color	13%	Number of Black or African American or Hispanic or Latino adults
# of Children in Household	12%	Number of children
# of People in Household	10%	Number of adults and children
Unemployment Risk	8%	Number of adults at high risk of unemployment
Lack of Vehicle Access	6%	Does the household lack access to a motor vehicle?

1. Two attributes - English as a Primary Language and Prevalence of Mobile Housing - were dropped from consideration based on the 8/20/2020 BRIC Working Group Session
2. Attribute contributions to Population Vulnerability were weighted as a result of the BRIC Working Group Session on 8/20/2020

What areas in your locality have the greatest population vulnerability?

When designing mitigation projects, it may be helpful to consider specific census tracts that are home to the most vulnerable individuals in the event of an environmental disaster.

Population Vulnerability[1] in Wise County



Top-5 Census Tracts for Population Vulnerability[1]

			Within-Wise County Percentiles								
#	Census Tract	# of House-holds	Pop. Vul.	Comm. of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unem. Risk	Age	Vehicle Access
1	**31600**	**46**	**100th**	67th	89th	100th	89th	100th	11st	0th	100th
2	**30700**	**64**	**89th**	89th	44th	56th	100th	89th	44th	33rd	33rd
3	**31100**	**192**	**78th**	22nd	100th	67th	22nd	67th	67th	11st	89th
4	**31500**	**140**	**67th**	0th	67th	89th	44th	33rd	100th	67th	22nd
5	**30800**	**228**	**56th**	44th	78th	44th	67th	44th	22nd	78th	0th

Note: See the appendix for a complete data table for all census tracts

1. Population Vulnerability should be interpreted as an average household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Census tracts at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

Data table | Population Vulnerability & Hazard Risk

			Percentiles										Within-locality Household Counts							
#	Census Tract	# of Households	Overall	Population Vulnerability	Communities of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unem-ployment Risk	Age	Lack of Vehicle Access	Hazard Risk	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr Zone D
1	**31100**	**192**	**100th**	78th	22nd	100th	67th	22nd	67th	67th	11st	89th	78th	0	15	149	28	0	0	0	0
2	**30800**	**228**	**89th**	56th	44th	78th	44th	67th	44th	22nd	78th	0th	89th	0	10	198	20	0	0	0	0
3	**31500**	**140**	**78th**	67th	0th	67th	89th	44th	33rd	100th	67th	22nd	67th	0	21	82	37	0	0	0	0
4	**31200**	**409**	**67th**	33rd	100th	22nd	33rd	11st	22nd	78th	22nd	67th	100th	0	29	263	117	0	0	0	0
5	**30700**	**64**	**56th**	89th	89th	44th	56th	100th	89th	44th	33rd	33rd	33rd	0	4	57	3	0	0	0	0
6	**31000**	**121**	**33rd**	44th	56th	56th	78th	33rd	11st	89th	44th	56th	56th	0	18	74	29	0	0	0	0
7	**31600**	**46**	**33rd**	100th	67th	89th	100th	89th	100th	11st	0th	100th	0th	0	5	24	17	0	0	0	0
8	**31300**	**95**	**22nd**	11st	11st	33rd	0th	78th	78th	0th	100th	11st	44th	0	22	71	2	0	0	0	0
9	**31400**	**62**	**11st**	22nd	78th	0th	22nd	56th	56th	56th	89th	44th	22nd	0	1	49	12	0	0	0	0
10	**30900**	**53**	**0th**	0th	33rd	11st	11st	0th	0th	33rd	56th	78th	11st	0	6	42	5	0	0	0	0

1. Note: These figures only account for census areas that have households in flood and/or hurricane zones

Data table | FEMA Funding[1]

Grantee	Year of Fiscal Year	Exclusive vs Shared	Subgrantee	Project Counties	Project Type(s)	Federal Funds Obligated
WISE COUNTY	2019	Shared	LENOWISCO PLANNING DISTRICT COMMISSION	LEE; SCOTT; WISE; NORTON (CITY)	91.5: Local Multijurisdictional Multihazard Mitigation Plan - UPDATE	$71,250
	2016	Exclusive	Wise (County)	WISE	200.1: Acquisition of Private Real Property (Structures and Land) - Riverine	$1,544,249
	2004	Exclusive	Wise (County)	WISE	200.1: Acquisition of Private Real Property (Structures and Land) - Riverine	$27,825
	2002	Exclusive	Wise (County)	WISE	200.1: Acquisition of Private Real Property (Structures and Land) - Riverine	$583,138
		Shared	Wise (County)	WISE; ALLEGHANY	200.1: Acquisition of Private Real Property (Structures and Land) - Riverine	$377,655

1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

COVID-19 Unified Command/VEST Health Equity Working Group

MITIGATION PROJECTS ANALYSIS
SCOTT COUNTY

NOVEMBER 2020

Topics

The analysis provides **Scott County** with information to support planning and preparation of projects for the Building Resilient Infrastructure and Communities (BRIC) grant application with an equity focus.

- ❑ Introduction to Data-Driven Approach
- ❑ Hazard Risk
- ❑ Population Vulnerability
- ❑ Prioritization
- ❑ FEMA Funding and Past Projects
- ❑ Considerations for Next Steps

This analysis ***expands the scope of population vulnerability*** to provide a ***data-driven equity lens*** for disaster mitigation project design

Data-Driven Approach

The Health360 platform informs population vulnerability and enables a data-driven approach to operationalizing equity in mitigation projects.

Powered By Health360

230M+
U.S. Adults Scored

Data updated every
1 Month

Contains over
1,500+
variables on Social Determinants of Health and other metrics

150+
Advanced predictive algorithms

400+
Variables used in the mortality predictive algorithm

Provides 360° view of a person

Algorithms rebuilt every 2 years

40+
Clients served

What is hazard risk and how is it calculated?

Household Hazard risk reflects the number of households in each flood or hurricane zone, weighted by severity.

Hazard Risk

Number of households in each zone:

Flood zones
- 100 year coastal
- 100 year riverine flood way
- 100 year riverine
- 500 year riverine

Hurricane zones
- Segmented A, B, C, D

- Households that reside in the flood and hurricane zones are considered to be **at-risk for environmental disasters**
- Hazard Risk reflects **the number of households located in Flood and Hurricane Zones**
- Hazard Risk is not a measure of **infrastructure, elevation, or financial risks**, but is a measure of the number of at-risk households in an area, weighted by the severity of the risk, to **provide a people-focused risk metric**

Note: Severity of the risk per household is captured on an ordinal scale from 1 – least severe (Hurricane Zone D, 500 Year Riverine) to 4 – most severe (Hurricane Zone A, 100 Year Coastal)

Hazard Risk = (# of Households in Particular Hurricane or Flood Zones) X (Specified Zone Risk Level (1 through 4 depending on risk severity))

Hazard Risk in Your Locality

The figures below indicate how your locality's hazard risk[1] compares to others in Virginia as well as how many households reside in each flood or hurricane zone.

Hazard Risk[1] Percentile

61st

Your locality has more households in more severe flood/hurricane zones than 61% of other Virginia localities

Hazard Risk[1] Rank

52nd

Your locality's Hazard Risk score is ranked 52nd out of 132 Virginia localities

Households in Flood Zones & Locality Rank

← Severity			
100 Year Coastal	100 Year Riverine Floodway	100 Year Riverine	500 Year Riverine
0	17	497	77
N/A out of 132 Localities	40th out of 132 Localities	36th out of 132 Localities	51st out of 132 Localities

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk

Households in Hurricane Zones & Locality Rank

← Severity			
Zone A	Zone B	Zone C	Zone D
0	0	0	0
N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities

Evacuation zones designated as A through D are in place across coastal Virginia

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
2. Note that the total sum of households may be more than the households in your locality because some are located in both flood and hurricane zones

What is population vulnerability and how is it calculated?

The Population Vulnerability score provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

Population Vulnerability

Prevalence of:

1. Communities of color
2. Elevated health risk
3. Low income
4. # of people in household
5. # of children in household
6. Unemployment risk
7. Age (older adults)
8. Lack of vehicle access

- Population Vulnerability **expands upon the 2018 Virginia Hazard Mitigation plan definition** of population vulnerability (density and percentage of total population)
- Population Vulnerability **only considers localities with households in flood or hurricane zones (132 localities)**
- Population Vulnerability **identifies the locality and census tracts/census blocks** with the most vulnerable individuals/households on average
- Population Vulnerability should be interpreted as a **household's ability to safely respond** to an environmental disaster

Population Vulnerability in Your Locality

The figures below indicate how your locality's population vulnerability[1] score and composite attributes compare to other localities in Virginia.

Population Vulnerability[1] Percentile

67th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 67% of other Virginia localities

Population Vulnerability[1] Rank

44th

Your locality's Population Vulnerability score is ranked 44th out of 132 Virginia localities

How SCOTT COUNTY Compares to Other Localities Across the Eight Vulnerability Attributes

Low Income	Elevated Health Risk	Age	Communities of Color
82nd percentile	**62nd** percentile	**40th** percentile	**5th** percentile

# of Children in Household	# of People in Household	Unemployment Risk	Lack of Vehicle Access
63rd percentile	**63rd** percentile	**37th** percentile	**60th** percentile

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones

Using Population Vulnerability & Hazard Risk to Prioritize Census Tracts

Combining population vulnerability and hazard risk at a sub-locality level can identify potential priority areas to support with future mitigation projects.

Population Vulnerability

Prevalence of:

1. Communities of color
2. Elevated health risk
3. Low income
4. # of people in household
5. # of children in household
6. Unemployment risk
7. Age (older adults)
8. Lack of vehicle access

+

Hazard Risk

Number of households in each zone:

Flood zones

- 100 year coastal
- 100 year riverine floodway
- 100 year riverine
- 500 year riverine

Hurricane zones

- Segmented A, B, C, D

=

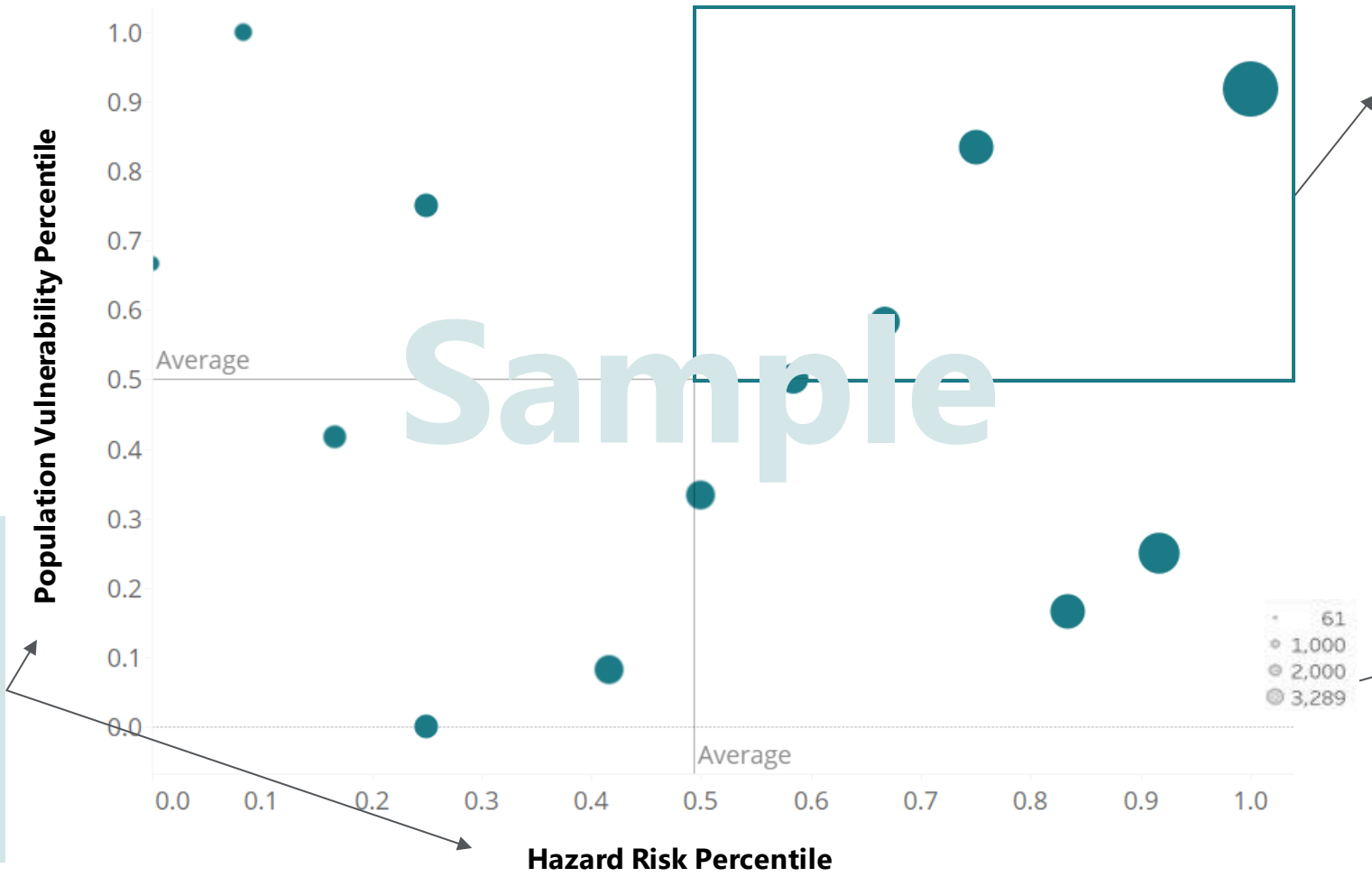
Prioritized Census Tracts

- High Population Vulnerability
- High Hazard Risk

Census tracts with both more households in severe flood/hurricane zones AND households with more vulnerable occupants

How to interpret the Census Tract plots

The chart below represents a *sample* locality and offers guidance on how to interpret the information when planning mitigation efforts.



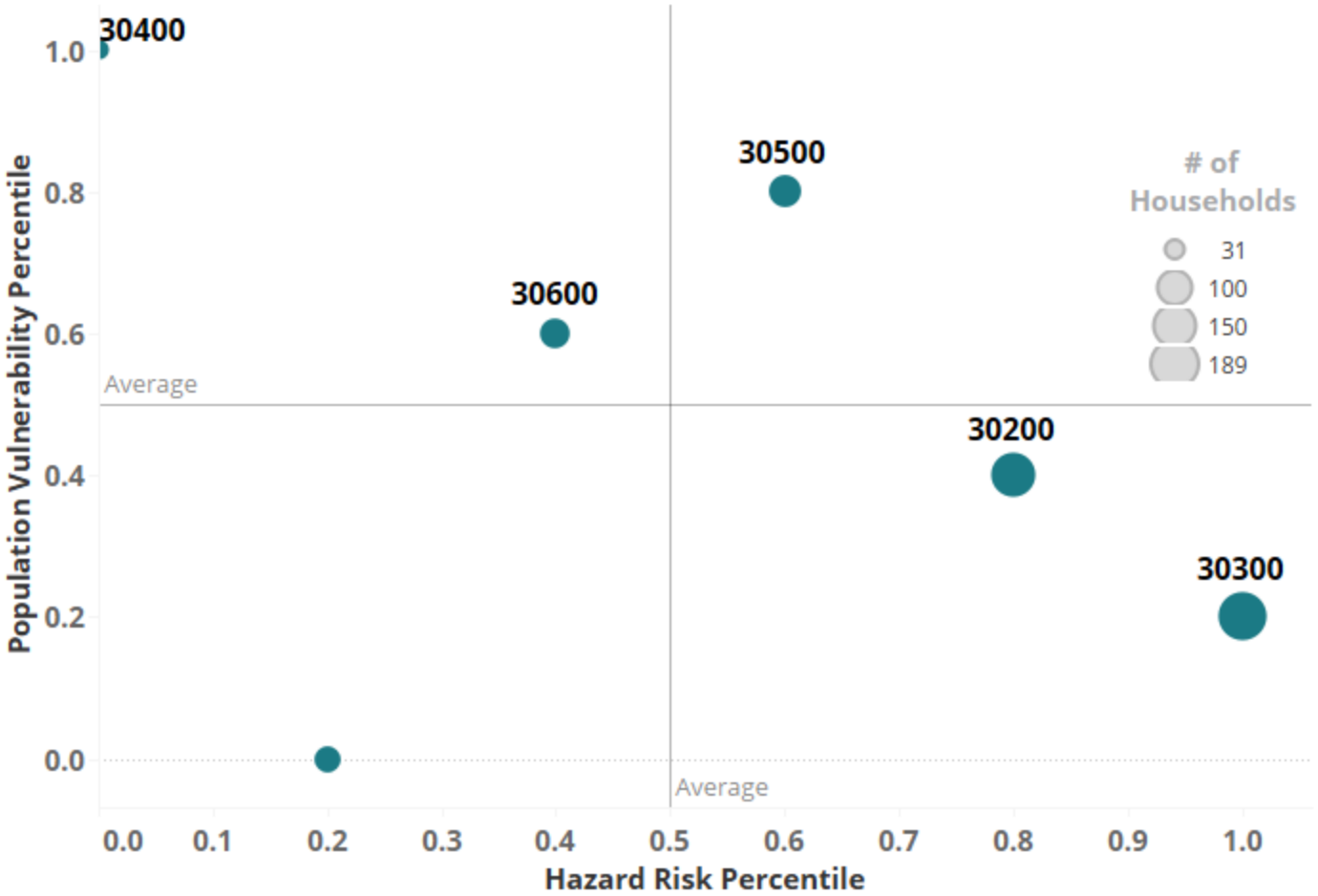
Circles in the upper right quadrant represent areas that you might consider prioritizing due to high population vulnerability and hazard risk

The x- and y-axes measure the percentiles of hazard risk and population vulnerability for each area

Size of the circle indicates the number of households in each area

Prioritizing Census Tracts in Scott County

Areas with the most vulnerable populations and households in severe flood and hurricane zones present prioritization opportunities for mitigation projects.



Priority Areas in Flood and Hurricane Zones

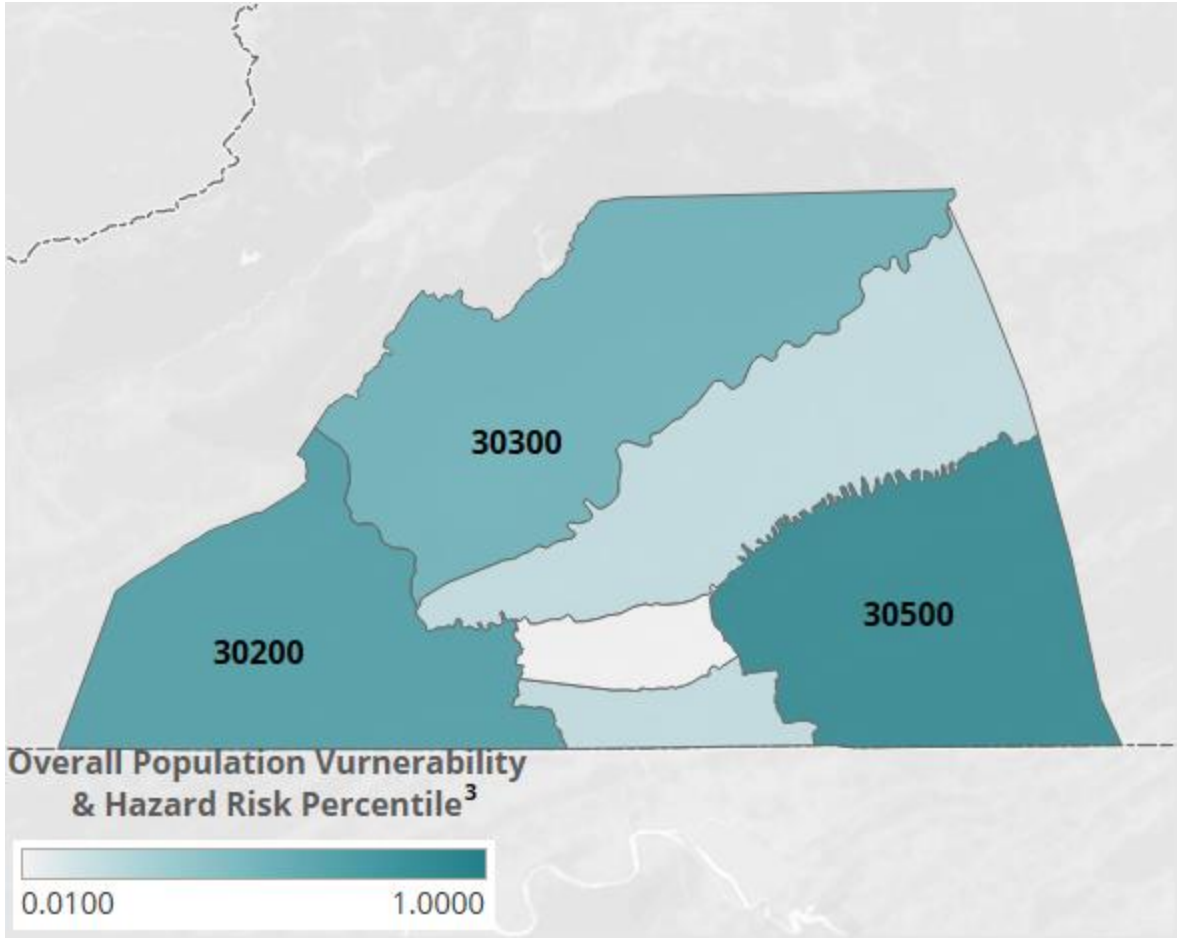
			Within-Scott County Percentiles		
#	Area	# of Households	Overall Percentile	Population Vulnerability[1] Percentile	Hazard Risk[2] Percentile
1	30500	84	100th	80th	60th
2	30200	159	80th	40th	80th
3	30300	189	60th	20th	100th
4	30600	72	20th	60th	40th
5	30400	31	20th	100th	0th
6	30100	56	0th	0th	20th

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity

Prioritizing Census Tracts in Scott County continued

Areas with the most vulnerable populations and households in severe flood and hurricane zones present prioritization opportunities for mitigation projects.

Potential Priority Areas in Scott County



Priority Areas in Flood and Hurricane Zones

#	Area	# of Households	Within-Scott County Percentiles: Overall Percentile	Within-Scott County Percentiles: Population Vulnerability[1] Percentile	Within-Scott County Percentiles: Hazard Risk[2] Percentile
1	**30500**	**84**	**100th**	80th	60th
2	**30200**	**159**	**80th**	40th	80th
3	**30300**	**189**	**60th**	20th	100th
4	**30600**	**72**	**20th**	60th	40th
5	**30400**	**31**	**20th**	100th	0th
6	**30100**	**56**	**0th**	0th	20th

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
3. Sub-localities at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

Priority Census Tracts Summary

When evaluating future mitigation project opportunities, it may be helpful to consider the underlying attributes of population vulnerability and the number of houses in each flood/hurricane zone.

			Within-Scott County Percentiles										
#	Census Tract	# of Households	Overall	Population Vulnerability[1]	Communities of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unemployment Risk	Age	Lack of Vehicle Access
1	**30500**	**84**	**100th**	**80th**	40th	100th	40th	60th	20th	60th	60th	40th
2	**30200**	**159**	**80th**	**40th**	80th	0th	80th	20th	40th	40th	20th	100th
3	**30300**	**189**	**60th**	**20th**	60th	60th	60th	0th	0th	80th	40th	20th

			W/I-Scott County Percentiles		Scott County Household Counts[3]							
#	Census Tract	# of Households	Overall	Hazard Risk[2]	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr Zone D
1	**30500**	**84**	**100th**	**60th**	-	-	84	-	-	-	-	-
2	**30200**	**159**	**80th**	**80th**	-	9	146	4	-	-	-	-
3	**30300**	**189**	**60th**	**100th**	-	3	149	37	-	-	-	-

1. Population Vulnerability should be interpreted as an average household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
3. Note that the total sum of households may be more than the households in your locality because some are located in both flood and hurricane zones

Review of FEMA Funding & Past Mitigation Projects

Review of Mitigation Projects In Your Locality

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.

Total Exclusive Project Funding[1]

$231,262

This is the total amount of federal funding alloted to mitigation projects solely owned by your locality from 1990-2019

Total Shared Project Funding[1]

$71,250

This is the total amount of federal funding allotted to mitigation projects owned by your locality and at least 1 other from 1990-2019

Exclusive Projects

1

Average Project Size

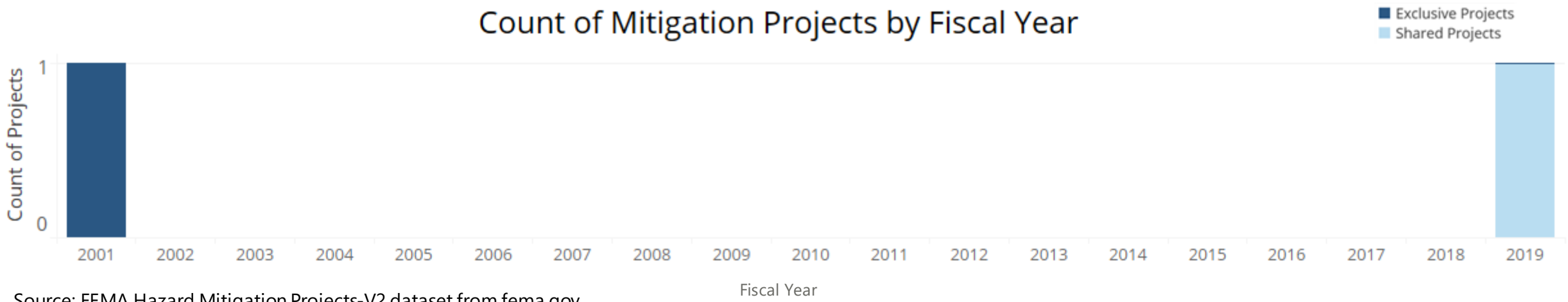
$231K

Shared Projects

1

Average Counties Per Project

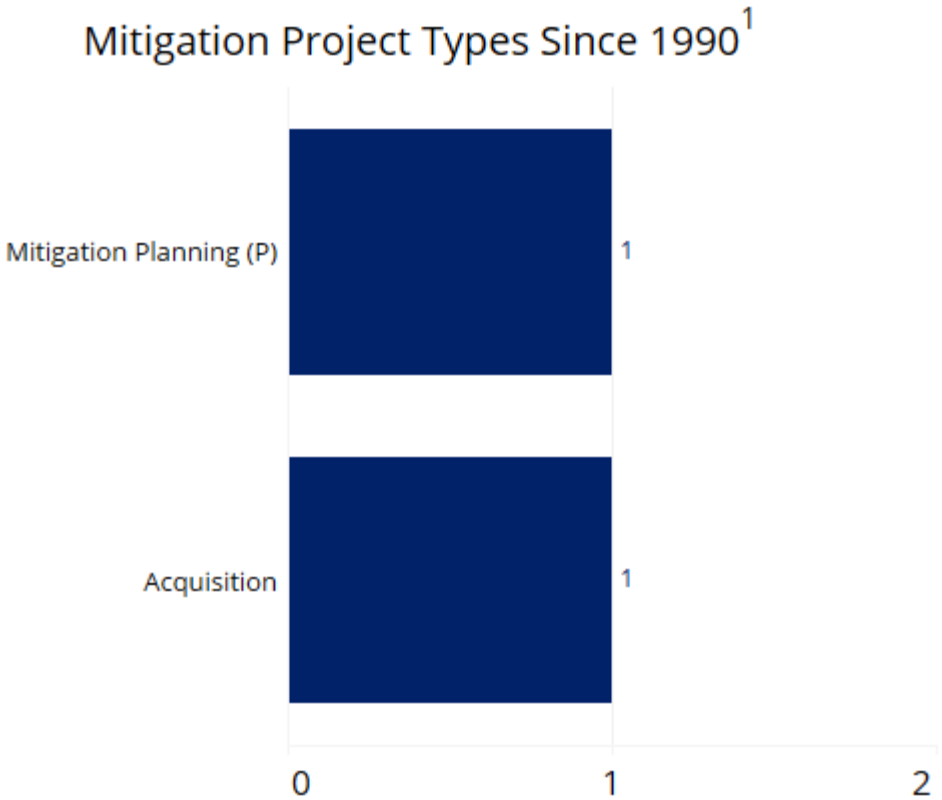
4.0

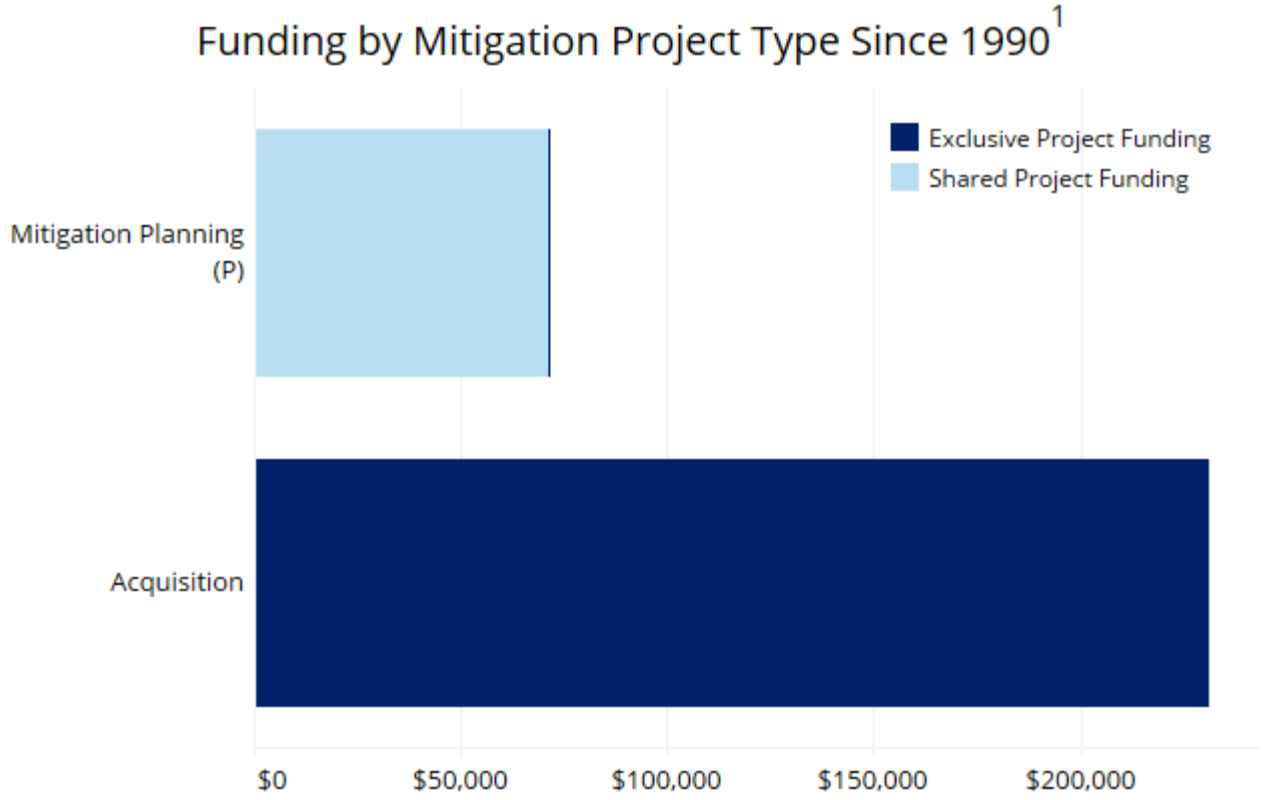


1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Past Mitigation Projects – Top Project Types

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.





1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

COVID-19 Impacts

COVID-19 In Your Locality

Since the beginning of the COVID-19 Pandemic, Scott County has experienced the following:

Cases[1]

Total	Per 100k
392 **80th** out of 133 localities[2]	**1,781** **68th** out of 133 localities

Hospitalizations[1]

Total	Per 100k
28 **73rd** out of 133 localities	**127** **56th** out of 133 localities

Deaths[1]

Total	Per 100k
6 **82nd** out of 133 localities	**27** **79th** out of 133 localities

1. COVID-19 case, hospitalization, and death figures are sourced from the Virginia Department of Health as of **10/28/2020**
2. COVID-19 Impact rankings are for all 133 Virginia localities, rather than the 132 included in the BRIC analysis for having at least one household in a flood or hurricane zone

Considerations for Next Steps

Considerations for Next Steps

When evaluating future mitigation project opportunities, the population vulnerability and hazard risk metrics can supplement existing measures to design mitigation projects with an equity lens.

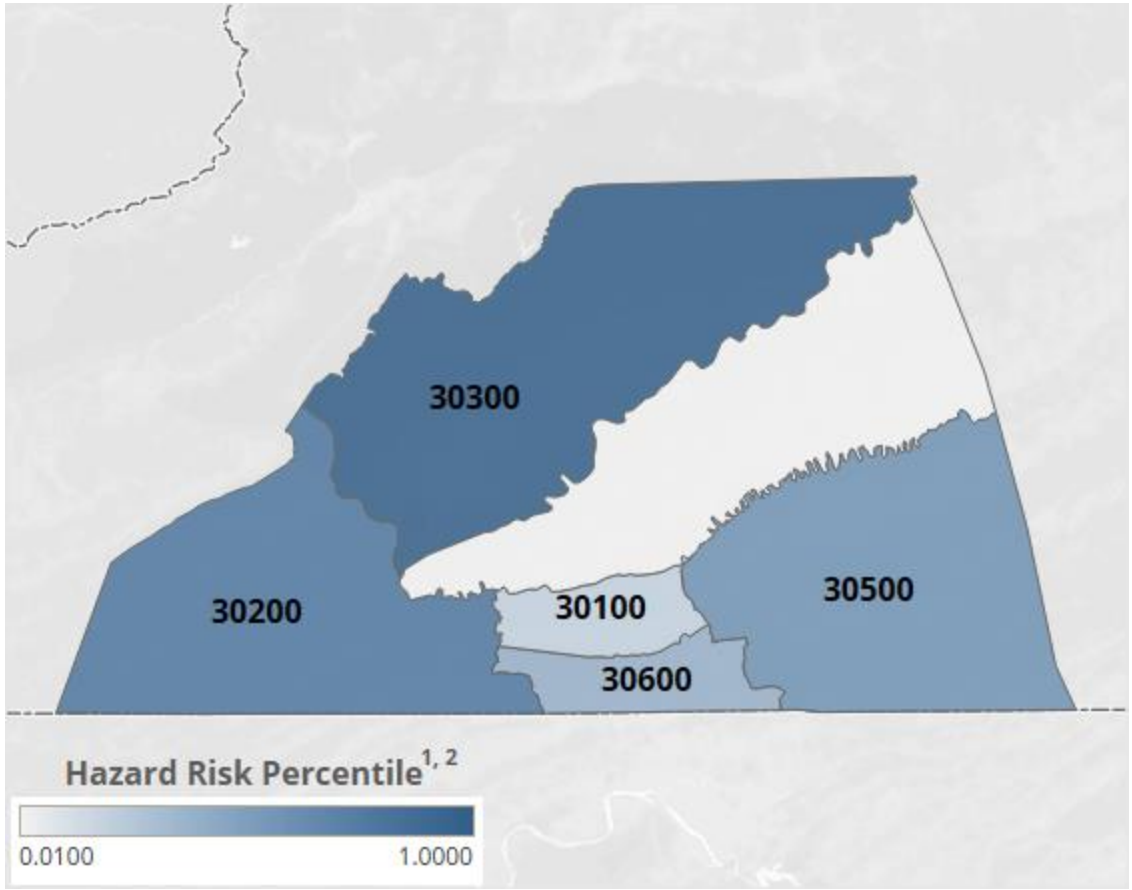
- Consider targeting **priority areas** when designing future mitigation projects
- Consider analysis at the **census tract/block level** to understand population vulnerability and hazard risks at a granular level to support decisions on mitigation projects
- Consider **supplementing these people-focused metrics** with existing infrastructure, elevation, and financial analysis for a holistic mitigation planning approach that includes equity considerations
- Consider **past project types** and **prior funding** in the overall mitigation strategy

Appendix

What areas in your locality have the greatest hazard risk?

When designing mitigation projects, it may be helpful to consider specific census tracts that have the greatest number of households residing in the more severe flood and/or hurricane zones.

Hazard Risk[1] in Scott County



Top-5 Census Tracts for Hazard Risk[1]

				Scott County Household Counts							
#	Census Tract	# of House-holds	Hazard Risk Percentile	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr. Zone D
1	**30300**	**189**	**100th**	0	3	149	37	0	0	0	0
2	**30200**	**159**	**80th**	0	9	146	4	0	0	0	0
3	**30500**	**84**	**60th**	0	0	84	0	0	0	0	0
4	**30600**	**72**	**40th**	0	3	50	19	0	0	0	0
5	**30100**	**56**	**20th**	0	1	38	17	0	0	0	0

Note: see the appendix for a complete data table for all Census Tracts

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
2. Census tracts at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

What is population vulnerability and how is it calculated? *continued*

The vulnerability score for each Virginia household reflects an estimate of the household's ability to safely respond in the event of an environmental disaster.

Population Vulnerability

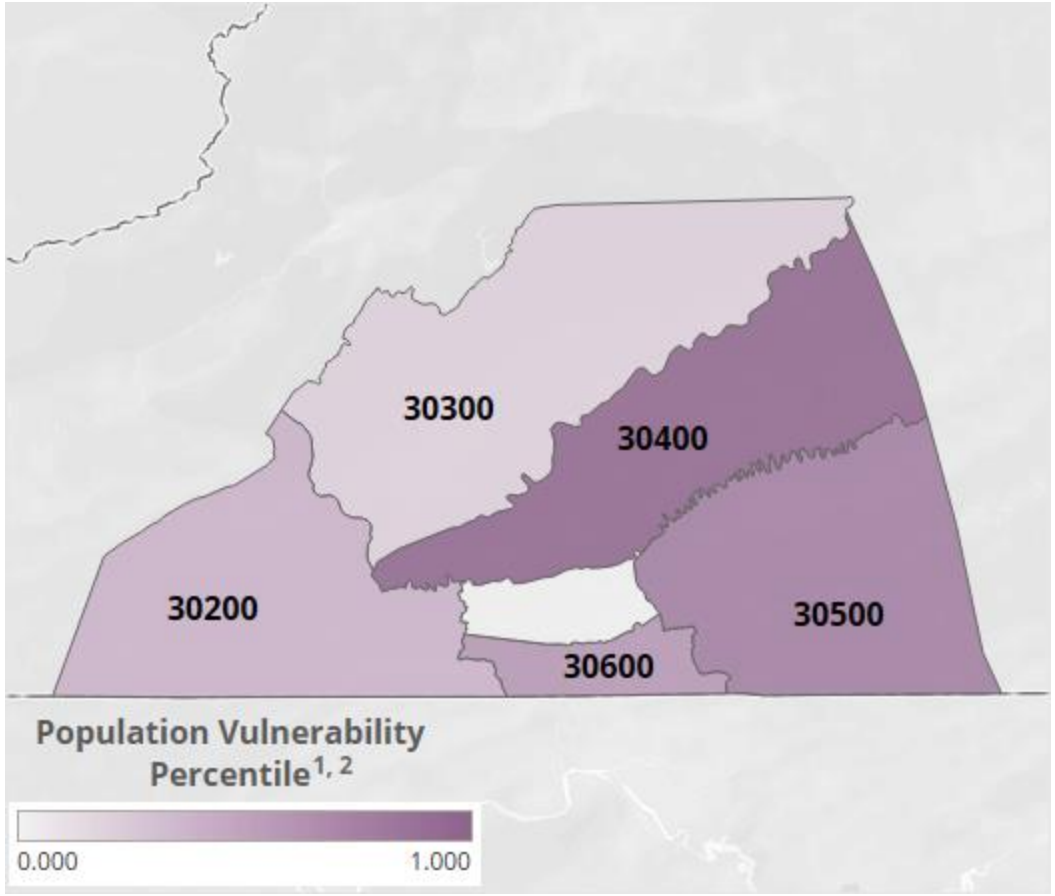
Attribute[1]	Weighting[2]	Description (in a household)
Low Income	18%	Number of adults with income less than $30,000
Elevated Health Risk	17%	Number of adults with one or more serious health conditions
Age (Older Adults)	15%	Number of adults who are age 65 and older
Communities of Color	13%	Number of Black or African American or Hispanic or Latino adults
# of Children in Household	12%	Number of children
# of People in Household	10%	Number of adults and children
Unemployment Risk	8%	Number of adults at high risk of unemployment
Lack of Vehicle Access	6%	Does the household lack access to a motor vehicle?

1. Two attributes - English as a Primary Language and Prevalence of Mobile Housing - were dropped from consideration based on the 8/20/2020 BRIC Working Group Session
2. Attribute contributions to Population Vulnerability were weighted as a result of the BRIC Working Group Session on 8/20/2020

What areas in your locality have the greatest population vulnerability?

When designing mitigation projects, it may be helpful to consider specific census tracts that are home to the most vulnerable individuals in the event of an environmental disaster.

Population Vulnerability[1] in Scott County



Top-5 Census Tracts for Population Vulnerability[1]

			Within-Scott County Percentiles								
#	Census Tract	# of House-holds	Pop. Vul.	Comm. of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unem. Risk	Age	Vehicle Access
1	**30400**	**31**	**100th**	100th	80th	100th	100th	80th	0th	100th	0th
2	**30500**	**84**	**80th**	40th	100th	40th	60th	20th	60th	60th	40th
3	**30600**	**72**	**60th**	20th	40th	0th	80th	60th	100th	80th	80th
4	**30200**	**159**	**40th**	80th	0th	80th	20th	40th	40th	20th	100th
5	**30300**	**189**	**20th**	60th	60th	60th	0th	0th	80th	40th	20th

Note: See the appendix for a complete data table for all census tracts

1. Population Vulnerability should be interpreted as an average household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Census tracts at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

Data table | Population Vulnerability & Hazard Risk

			Percentiles											Within-locality Household Counts							
#	Census Tract	# of Households	Overall	Population Vulnerability	Communities of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unem-ployment Risk	Age	Lack of Vehicle Access	Hazard Risk	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr Zone D
1	**30500**	**84**	**100th**	80th	40th	100th	40th	60th	20th	60th	60th	40th	60th	0	0	84	0	0	0	0	0
2	**30200**	**159**	**80th**	40th	80th	0th	80th	20th	40th	40th	20th	100th	80th	0	9	146	4	0	0	0	0
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4	**30600**	**72**	**20th**	60th	20th	40th	0th	80th	60th	100th	80th	80th	40th	0	3	50	19	0	0	0	0
5	**30400**	**31**	**20th**	100th	100th	80th	100th	100th	80th	0th	100th	0th	0th	0	1	30	0	0	0	0	0
6	**30100**	**56**	**0th**	0th	0th	20th	20th	40th	100th	20th	0th	60th	20th	0	1	38	17	0	0	0	0

1. Note: These figures only account for census areas that have households in flood and/or hurricane zones

Data table | FEMA Funding[1]

Grantee	Year of Fiscal Year	Exclusive vs Shared	Subgrantee	Project Counties	Project Type(s)	Federal Funds Obligated
	2019	Shared	LENOWISCO PLANNING DISTRICT COMMISSION	LEE; SCOTT; WISE; NORTON (CITY)	91.5: Local Multijurisdictional Multihazard Mitigation Plan - UPDATE	$71,250
SCOTT COUNTY						
	2001	Exclusive	Scott (County)	SCOTT	200.1: Acquisition of Private Real Property (Structures and Land) - Riverine	$231,262

1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

COVID-19 Unified Command/VEST Health Equity Working Group

MITIGATION PROJECTS ANALYSIS
LEE COUNTY

NOVEMBER 2020

Topics

The analysis provides **Lee County** with information to support planning and preparation of projects for the Building Resilient Infrastructure and Communities (BRIC) grant application with an equity focus.

- ❑ Introduction to Data-Driven Approach
- ❑ Hazard Risk
- ❑ Population Vulnerability
- ❑ Prioritization
- ❑ FEMA Funding and Past Projects
- ❑ Considerations for Next Steps

This analysis ***expands the scope of population vulnerability*** to provide a ***data-driven equity lens*** for disaster mitigation project design

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The Health360 platform informs population vulnerability and enables a data-driven approach to operationalizing equity in mitigation projects.

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Clients served

What is hazard risk and how is it calculated?

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Hazard Risk

Number of households in each zone:

Flood zones
- 100 year coastal
- 100 year riverine flood way
- 100 year riverine
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- Segmented A, B, C, D

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Note: Severity of the risk per household is captured on an ordinal scale from 1 – least severe (Hurricane Zone D, 500 Year Riverine) to 4 – most severe (Hurricane Zone A, 100 Year Coastal)

Hazard Risk = (# of Households in Particular Hurricane or Flood Zones) X (Specified Zone Risk Level (1 through 4 depending on risk severity))

Hazard Risk in Your Locality

The figures below indicate how your locality's hazard risk[1] compares to others in Virginia as well as how many households reside in each flood or hurricane zone.

Hazard Risk[1] Percentile

57th

Your locality has more households in more severe flood/hurricane zones than 57% of other Virginia localities

Hazard Risk[1] Rank

57th

Your locality's Hazard Risk score is ranked 57th out of 132 Virginia localities

Households in Flood Zones & Locality Rank

← Severity			
100 Year Coastal	100 Year Riverine Floodway	100 Year Riverine	500 Year Riverine
0	46	382	58
N/A out of 132 Localities	27th out of 132 Localities	44th out of 132 Localities	57th out of 132 Localities

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk

Households in Hurricane Zones & Locality Rank

← Severity			
Zone A	Zone B	Zone C	Zone D
0	0	0	0
N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities	N/A out of 132 Localities

Evacuation zones designated as A through D are in place across coastal Virginia

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
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The Population Vulnerability score provides a people-focused metric that can be combined with infrastructure, elevation, and financial metrics to support a holistic approach to mitigation planning.

Population Vulnerability

Prevalence of:

1. Communities of color
2. Elevated health risk
3. Low income
4. # of people in household
5. # of children in household
6. Unemployment risk
7. Age (older adults)
8. Lack of vehicle access

- Population Vulnerability **expands upon the 2018 Virginia Hazard Mitigation plan definition** of population vulnerability (density and percentage of total population)
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- Population Vulnerability should be interpreted as a **household's ability to safely respond** to an environmental disaster

Population Vulnerability in Your Locality

The figures below indicate how your locality's population vulnerability[1] score and composite attributes compare to other localities in Virginia.

Population Vulnerability[1] Percentile

73rd

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 73% of other Virginia localities

Population Vulnerability[1] Rank

36th

Your locality's Population Vulnerability score is ranked 36th out of 132 Virginia localities

How LEE COUNTY Compares to Other Localities Across the Eight Vulnerability Attributes

Low Income	Elevated Health Risk	Age	Communities of Color
94th percentile	61st percentile	47th percentile	4th percentile

# of Children in Household	# of People in Household	Unemployment Risk	Lack of Vehicle Access
48th percentile	56th percentile	50th percentile	66th percentile

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones

Using Population Vulnerability & Hazard Risk to Prioritize Census Tracts

Combining population vulnerability and hazard risk at a sub-locality level can identify potential priority areas to support with future mitigation projects.

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Prevalence of:

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+

Hazard Risk

Number of households in each zone:

Flood zones

- 100 year coastal
- 100 year riverine floodway
- 100 year riverine
- 500 year riverine

Hurricane zones

- Segmented A, B, C, D

=

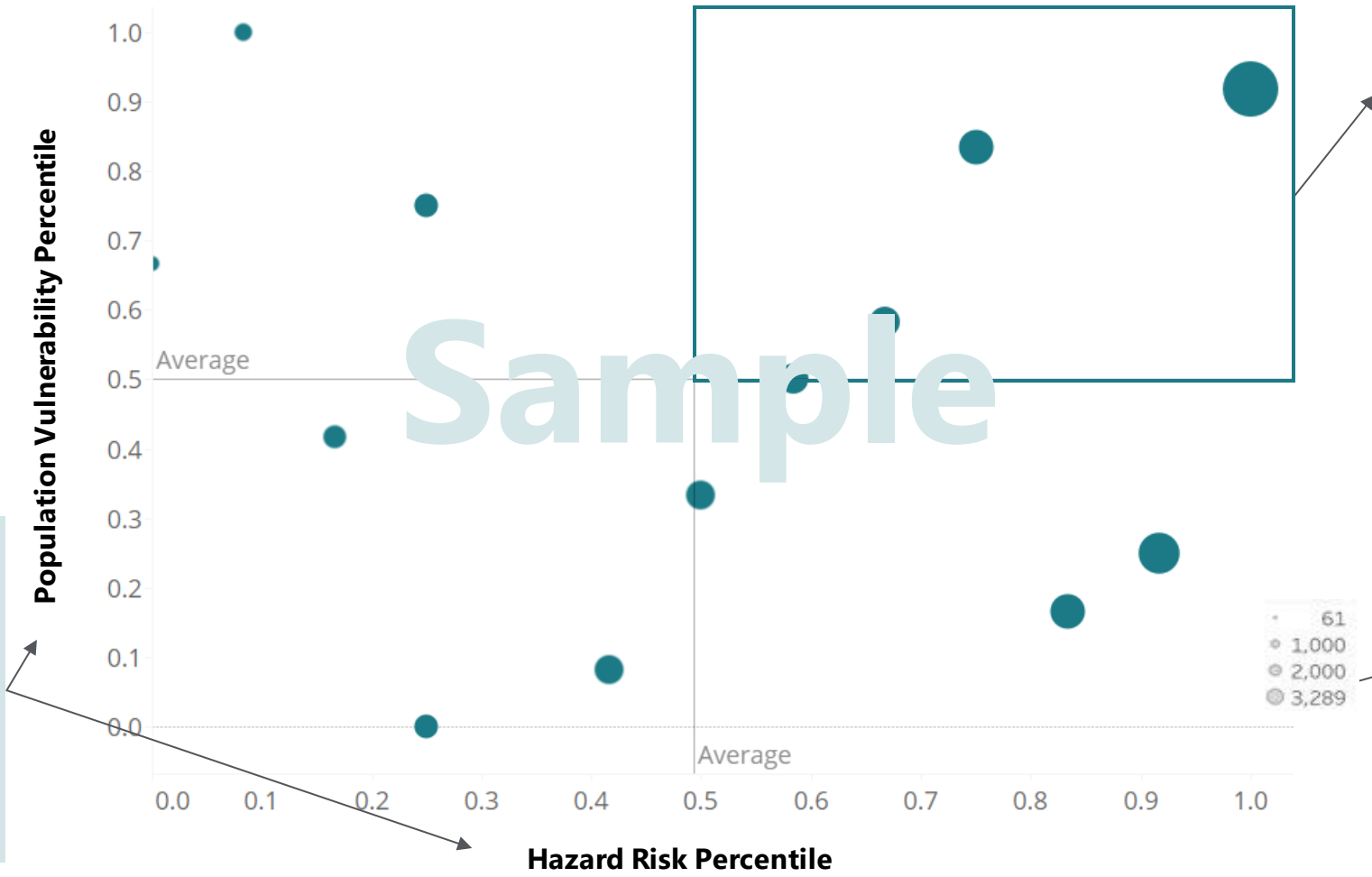
Prioritized Census Tracts

- High Population Vulnerability
- High Hazard Risk

Census tracts with both more households in severe flood/hurricane zones AND households with more vulnerable occupants

How to interpret the Census Tract plots

The chart below represents a *sample* locality and offers guidance on how to interpret the information when planning mitigation efforts.



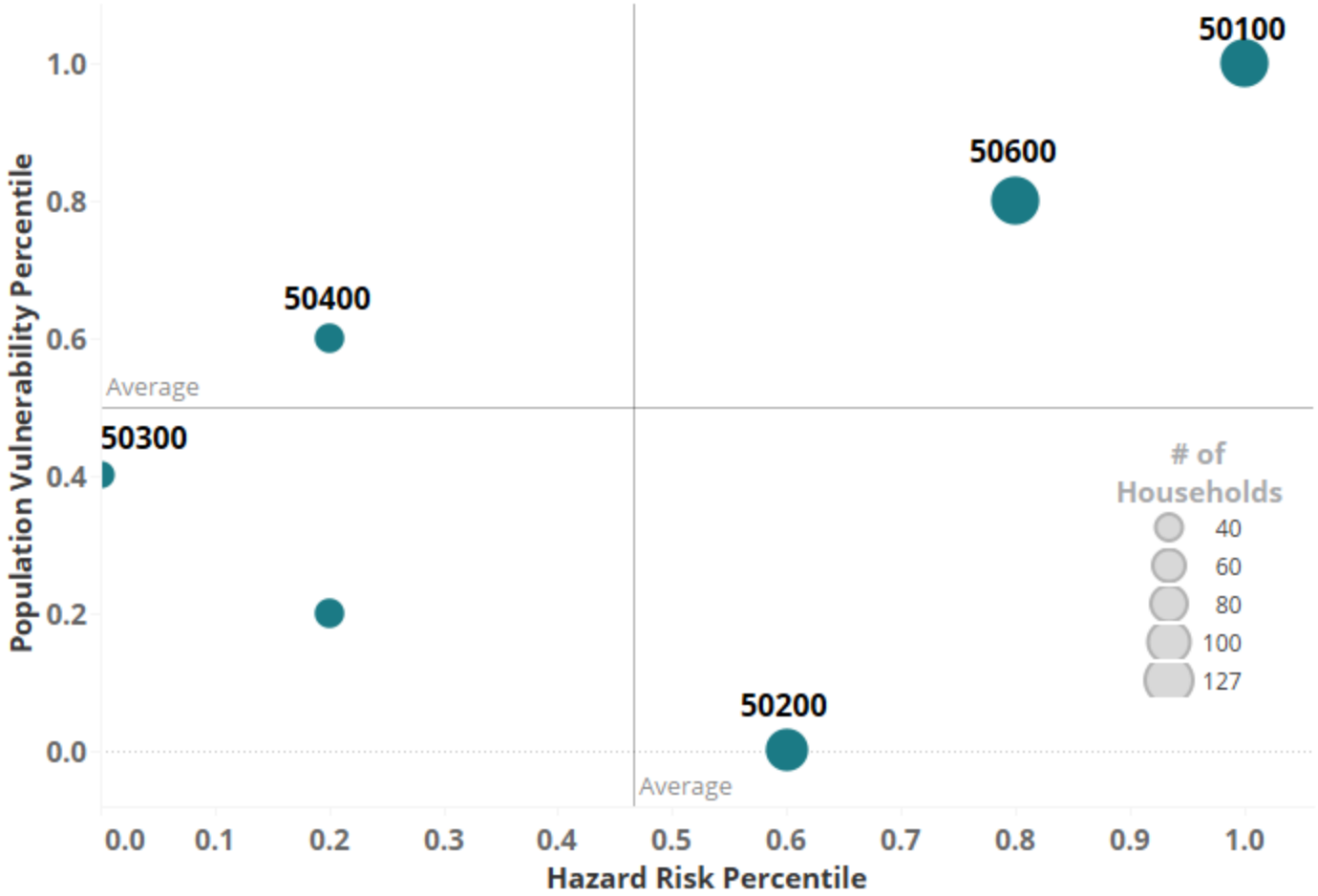
Circles in the upper right quadrant represent areas that you might consider prioritizing due to high population vulnerability and hazard risk

The x- and y-axes measure the percentiles of hazard risk and population vulnerability for each area

Size of the circle indicates the number of households in each area

Prioritizing Census Tracts in Lee County

Areas with the most vulnerable populations and households in severe flood and hurricane zones present prioritization opportunities for mitigation projects.



Priority Areas in Flood and Hurricane Zones

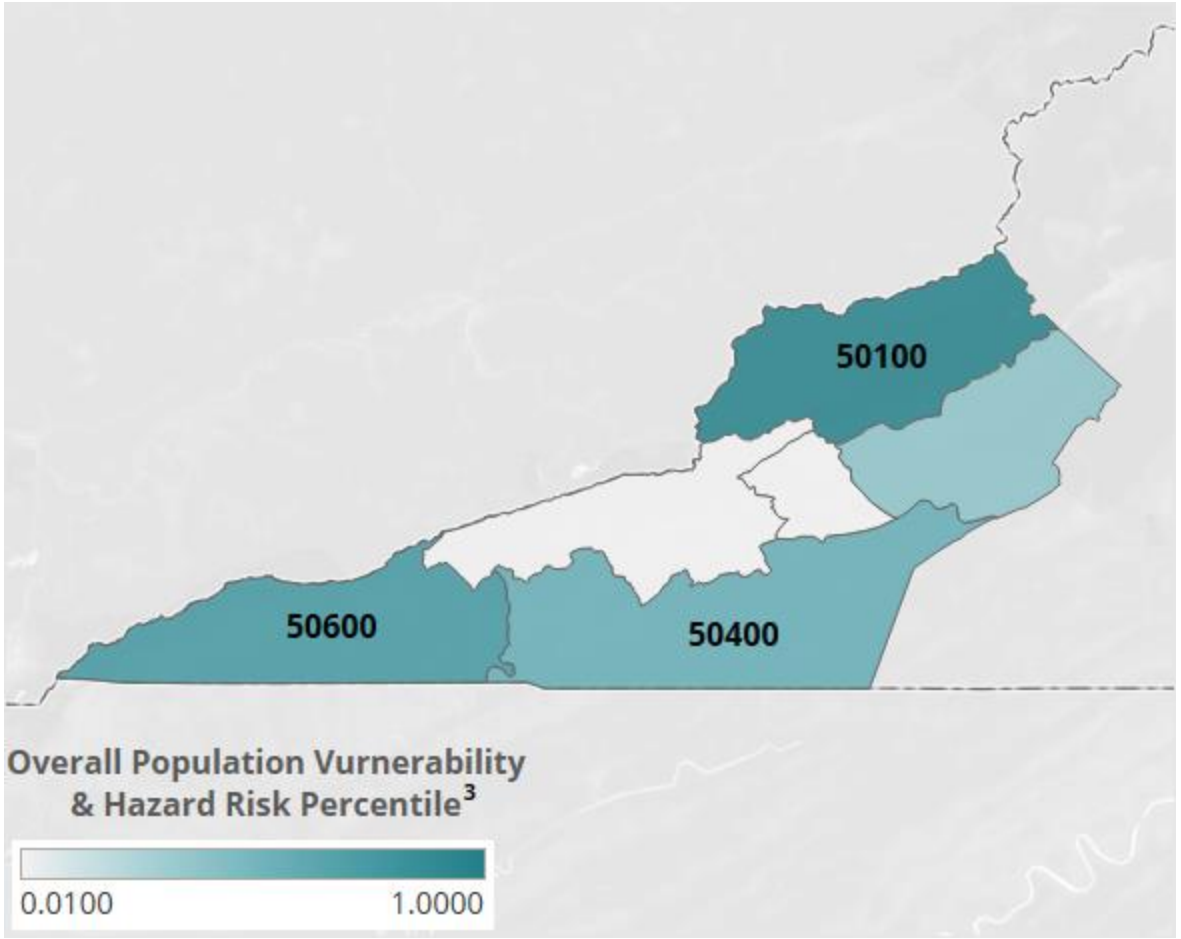
			Within-Lee County Percentiles		
#	Area	# of Households	Overall Percentile	Population Vulnerability[1] Percentile	Hazard Risk[2] Percentile
1	50100	126	100th	100th	100th
2	50600	127	80th	80th	80th
3	50400	48	60th	60th	20th
4	50200	99	40th	0th	60th
5	50300	40	0th	40th	0th
6	50500	46	0th	20th	20th

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity

Prioritizing Census Tracts in Lee County continued

Areas with the most vulnerable populations and households in severe flood and hurricane zones present prioritization opportunities for mitigation projects.

Potential Priority Areas in Lee County



Priority Areas in Flood and Hurricane Zones

			Within-Lee County Percentiles		
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5	50300	40	0th	40th	0th
6	50500	46	0th	20th	20th

1. Population Vulnerability should be interpreted as a household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
3. Sub-localities at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

Priority Census Tracts Summary

When evaluating future mitigation project opportunities, it may be helpful to consider the underlying attributes of population vulnerability and the number of houses in each flood/hurricane zone.

			Within-Lee County Percentiles										
#	Census Tract	# of Households	Overall	Population Vulnerability[1]	Communities of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unemployment Risk	Age	Lack of Vehicle Access
1	**50100**	**126**	**100th**	**100th**	40th	80th	100th	80th	60th	40th	40th	0th
2	**50600**	**127**	**80th**	**80th**	20th	100th	40th	20th	20th	80th	20th	80th
3	**50400**	**48**	**60th**	**60th**	100th	60th	20th	100th	80th	20th	100th	40th

			W/I-Lee County Percentiles		Lee County Household Counts[3]							
#	Census Tract	# of Households	Overall	Hazard Risk[2]	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr Zone D
1	**50100**	**126**	**100th**	**100th**	-	27	64	35	-	-	-	-
2	**50600**	**127**	**80th**	**80th**	-	-	113	14	-	-	-	-
3	**50400**	**48**	**60th**	**20th**	-	-	47	1	-	-	-	-

1. Population Vulnerability should be interpreted as an average household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
3. Note that the total sum of households may be more than the households in your locality because some are located in both flood and hurricane zones

Review of FEMA Funding & Past Mitigation Projects

Review of Mitigation Projects In Your Locality

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.

Total Exclusive Project Funding[1]

$0

This is the total amount of federal funding alloted to mitigation projects solely owned by your locality from 1990-2019

Total Shared Project Funding[1]

$71,250

This is the total amount of federal funding allotted to mitigation projects owned by your locality and at least 1 other from 1990-2019

Exclusive Projects

0

Average Project Size

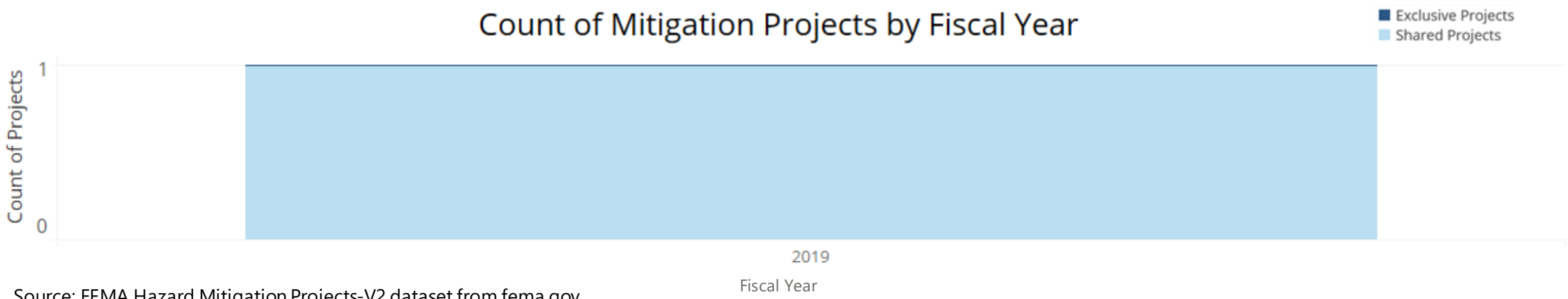
$0

Shared Projects

1

Average Counties Per Project

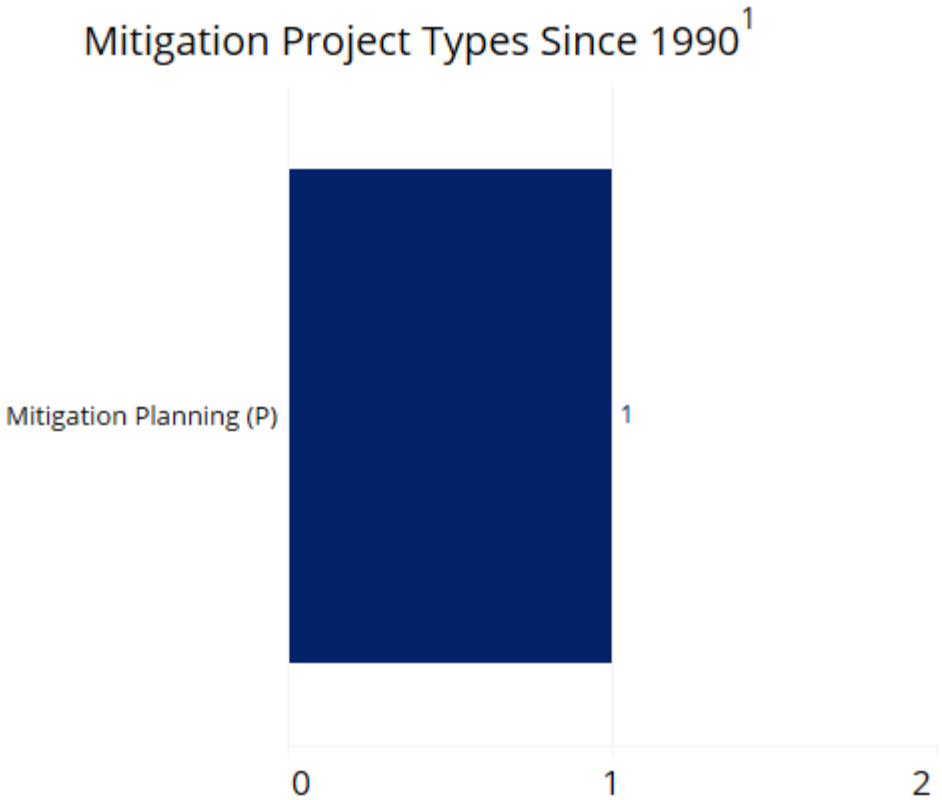
4.0

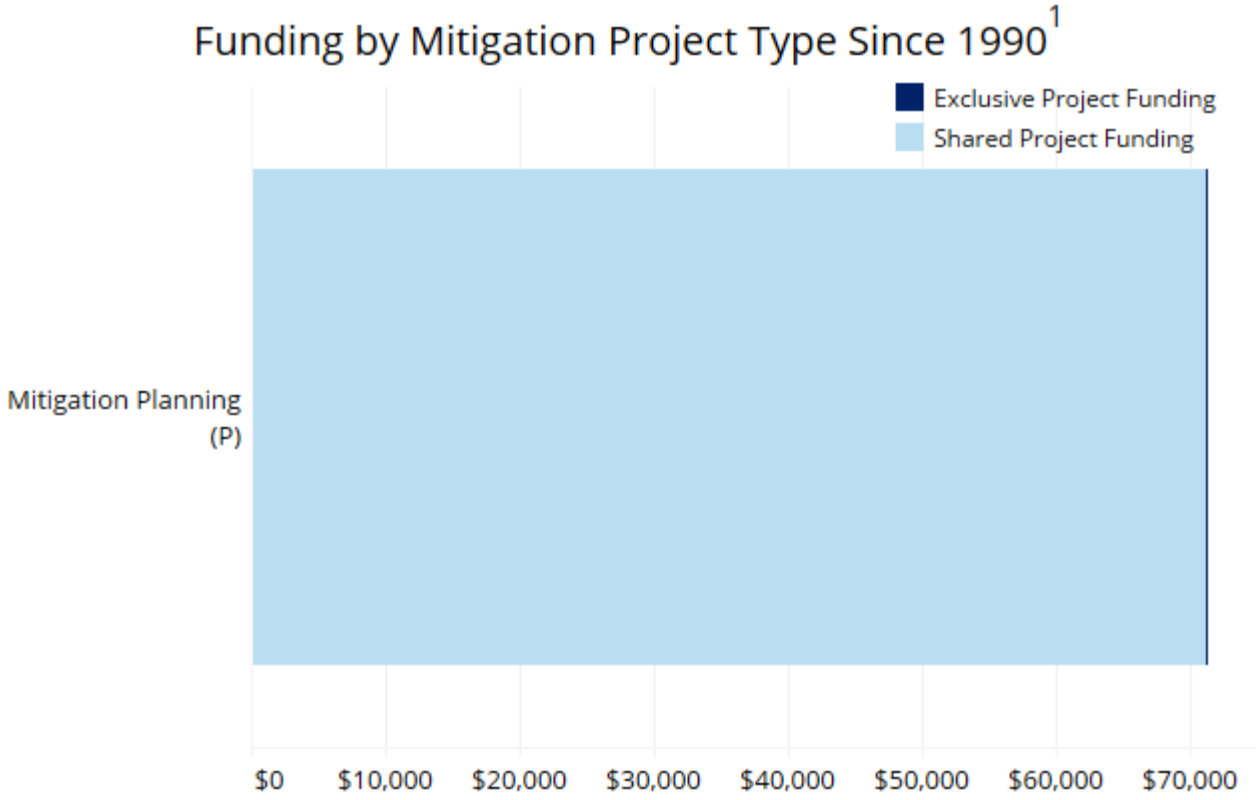


1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Past Mitigation Projects – Top Project Types

The figures below provide information regarding mitigation projects[1] in your locality from 1990-2019 that may be helpful to consider in planning potential future mitigation projects.





1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

COVID-19 Impacts

COVID-19 In Your Locality

Since the beginning of the COVID-19 Pandemic, Lee County has experienced the following:

Cases[1]

Total	Per 100k
496 **67th** out of 133 localities[2]	**2,055** **49th** out of 133 localities

Hospitalizations[1]

Total	Per 100k
33 **63rd** out of 133 localities	**137** **53rd** out of 133 localities

Deaths[1]

Total	Per 100k
10 **62nd** out of 133 localities	**41** **51st** out of 133 localities

1. COVID-19 case, hospitalization, and death figures are sourced from the Virginia Department of Health as of **10/28/2020**
2. COVID-19 Impact rankings are for all 133 Virginia localities, rather than the 132 included in the BRIC analysis for having at least one household in a flood or hurricane zone

Considerations for Next Steps

Considerations for Next Steps

When evaluating future mitigation project opportunities, the population vulnerability and hazard risk metrics can supplement existing measures to design mitigation projects with an equity lens.

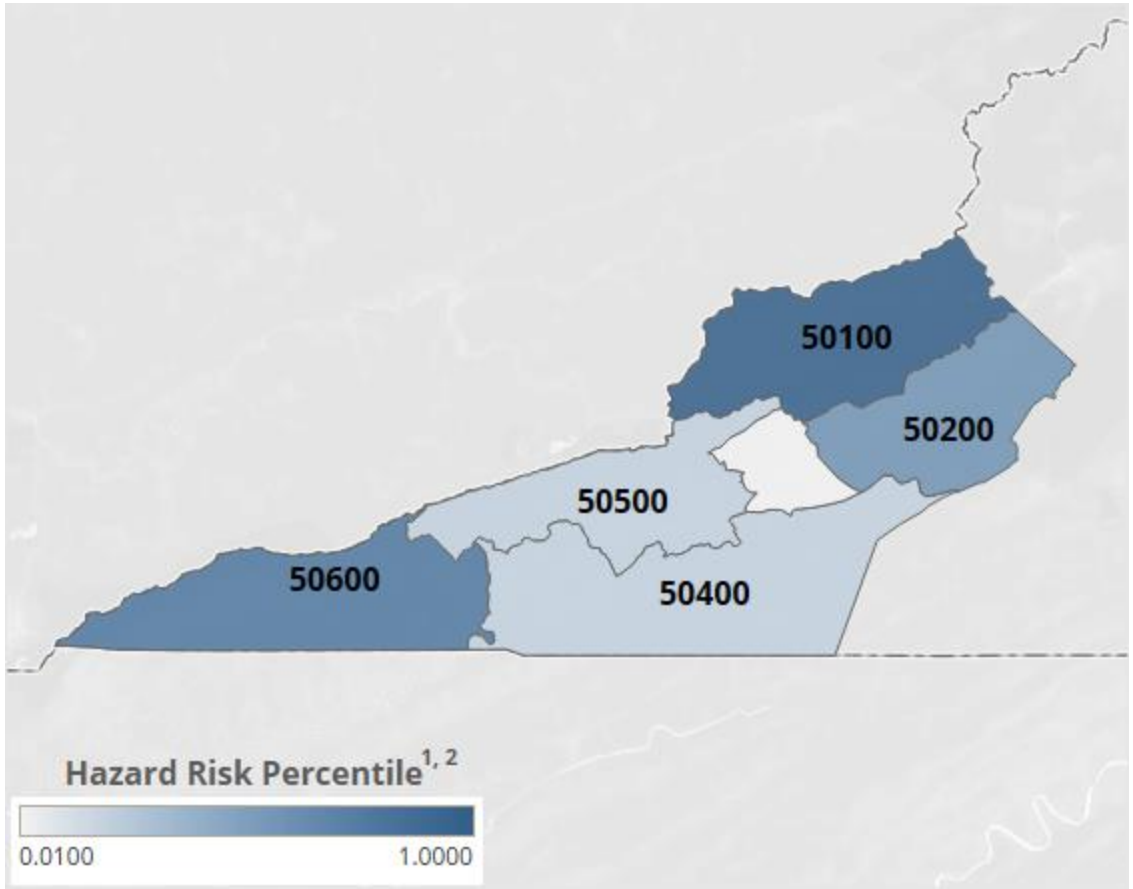
- Consider targeting **priority areas** when designing future mitigation projects
- Consider analysis at the **census tract/block level** to understand population vulnerability and hazard risks at a granular level to support decisions on mitigation projects
- Consider **supplementing these people-focused metrics** with existing infrastructure, elevation, and financial analysis for a holistic mitigation planning approach that includes equity considerations
- Consider **past project types** and **prior funding** in the overall mitigation strategy

Appendix

What areas in your locality have the greatest hazard risk?

When designing mitigation projects, it may be helpful to consider specific census tracts that have the greatest number of households residing in the more severe flood and/or hurricane zones.

Hazard Risk[1] in Lee County



Top-5 Census Tracts for Hazard Risk[1]

				Lee County Household Counts							
#	Census Tract	# of House-holds	Hazard Risk Percentile	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr. Zone D
1	**50100**	**126**	**100th**	0	27	64	35	0	0	0	0
2	**50600**	**127**	**80th**	0	0	113	14	0	0	0	0
3	**50200**	**99**	**60th**	0	7	87	5	0	0	0	0
4	**50400**	**48**	**20th**	0	0	47	1	0	0	0	0
5	**50500**	**46**	**20th**	0	7	39	0	0	0	0	0

Note: see the appendix for a complete data table for all Census Tracts

1. Hazard risk reflects the number of households located in Flood and Hurricane Zones, weighted by severity
2. Census tracts at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

What is population vulnerability and how is it calculated? *continued*

The vulnerability score for each Virginia household reflects an estimate of the household's ability to safely respond in the event of an environmental disaster.

Population Vulnerability

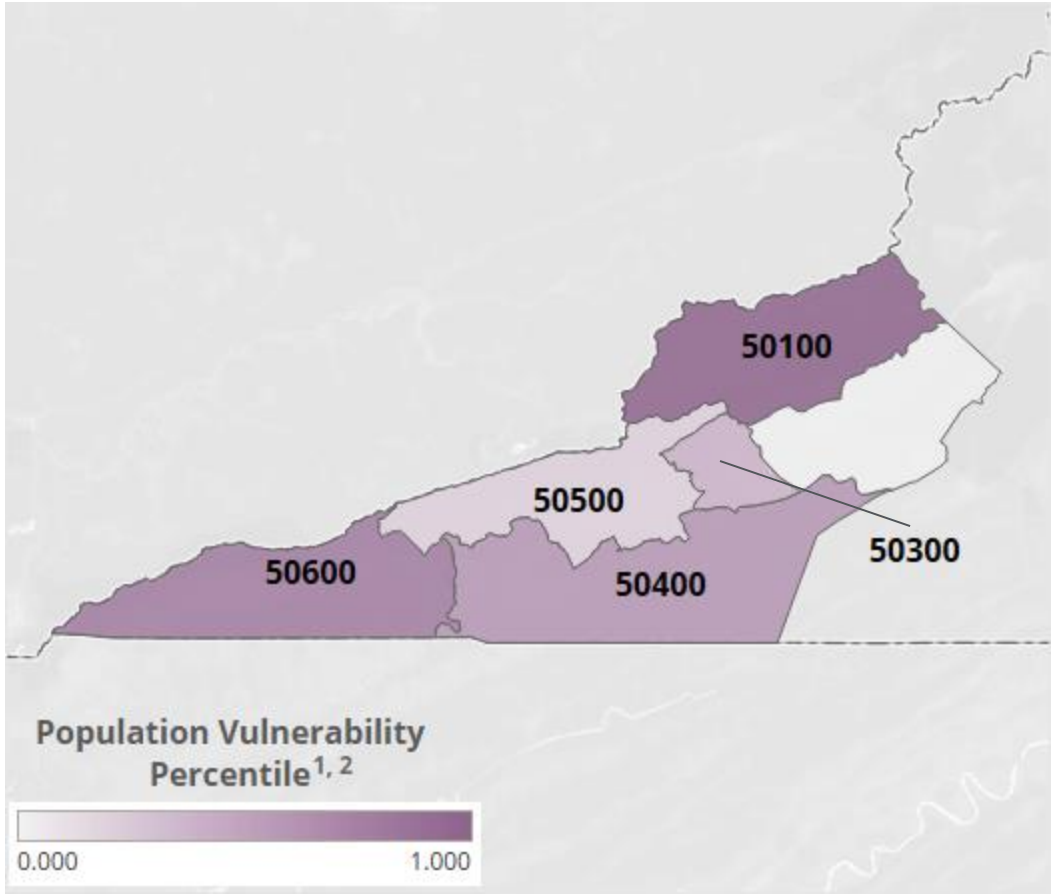
Attribute[1]	Weighting[2]	Description (in a household)
Low Income	18%	Number of adults with income less than $30,000
Elevated Health Risk	17%	Number of adults with one or more serious health conditions
Age (Older Adults)	15%	Number of adults who are age 65 and older
Communities of Color	13%	Number of Black or African American or Hispanic or Latino adults
# of Children in Household	12%	Number of children
# of People in Household	10%	Number of adults and children
Unemployment Risk	8%	Number of adults at high risk of unemployment
Lack of Vehicle Access	6%	Does the household lack access to a motor vehicle?

1. Two attributes - English as a Primary Language and Prevalence of Mobile Housing - were dropped from consideration based on the 8/20/2020 BRIC Working Group Session
2. Attribute contributions to Population Vulnerability were weighted as a result of the BRIC Working Group Session on 8/20/2020

What areas in your locality have the greatest population vulnerability?

When designing mitigation projects, it may be helpful to consider specific census tracts that are home to the most vulnerable individuals in the event of an environmental disaster.

Population Vulnerability[1] in Lee County



Top-5 Census Tracts for Population Vulnerability[1]

			Within-Lee County Percentiles								
#	Census Tract	# of House-holds	Pop. Vul.	Comm. of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unem. Risk	Age	Vehicle Access
1	**50100**	**126**	**100th**	40th	80th	100th	80th	60th	40th	40th	0th
2	**50600**	**127**	**80th**	20th	100th	40th	20th	20th	80th	20th	80th
3	**50400**	**48**	**60th**	100th	60th	20th	100th	80th	20th	100th	40th
4	**50300**	**40**	**40th**	0th	0th	80th	40th	100th	100th	0th	100th
5	**50500**	**46**	**20th**	80th	40th	60th	0th	0th	60th	60th	60th

Note: See the appendix for a complete data table for all census tracts

1. Population Vulnerability should be interpreted as an average household's ability to safely respond to an environmental disaster and only considers households located in flood or hurricane zones
2. Census tracts at the 0th percentile (areas in white) do not have households in Flood or Hurricane Zones

Data table | Population Vulnerability & Hazard Risk

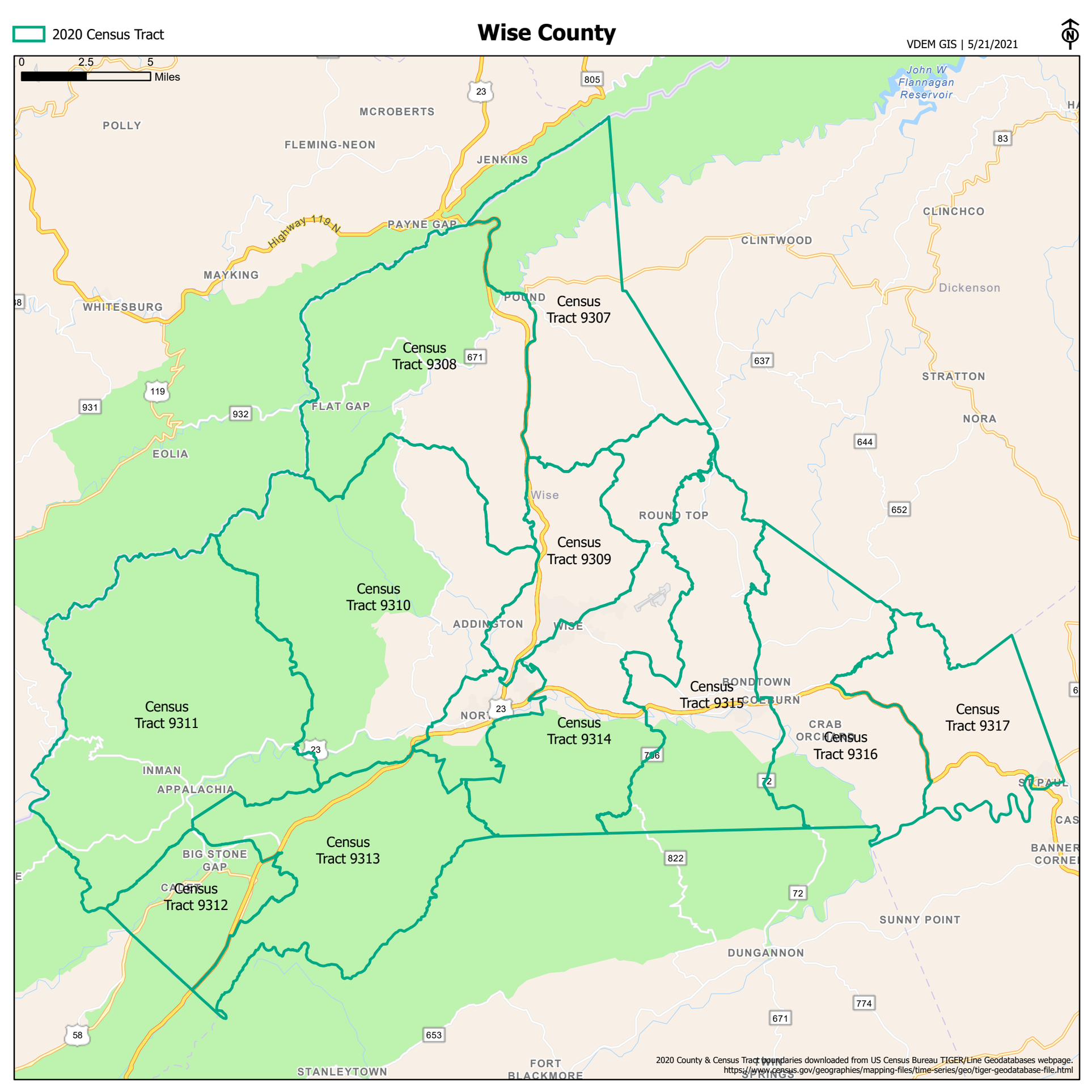
			Percentiles										Within-locality Household Counts							
#	Census Tract	# of Households	Overall	Population Vulnerability	Communities of Color	Elevated Health Risk	Low Income	# of People	# of Children	Unem-ployment Risk	Age	Lack of Vehicle Access	Hazard Risk	100 Year Coastal	100 Year Riverine FW	100 Year Riverine	500 Year Riverine	Hurr. Zone A	Hurr. Zone B	Hurr. Zone C	Hurr Zone D
1	**50100**	**126**	**100th**	100th	40th	80th	100th	80th	60th	40th	40th	0th	100th	0	27	64	35	0	0	0	0
2	**50600**	**127**	**80th**	80th	20th	100th	40th	20th	20th	80th	20th	80th	80th	0	0	113	14	0	0	0	0
3	**50400**	**48**	**60th**	60th	100th	60th	20th	100th	80th	20th	100th	40th	20th	0	0	47	1	0	0	0	0
4	**50200**	**99**	**40th**	0th	60th	20th	0th	60th	40th	0th	80th	20th	60th	0	7	87	5	0	0	0	0
5	**50500**	**46**	**0th**	20th	80th	40th	60th	0th	0th	60th	60th	60th	20th	0	7	39	0	0	0	0	0
6	**50300**	**40**	**0th**	40th	0th	0th	80th	40th	100th	100th	0th	100th	0th	0	5	32	3	0	0	0	0

1. Note: These figures only account for census areas that have households in flood and/or hurricane zones

Data table | FEMA Funding[1]

Grantee	Year of Fiscal Year	Exclusive vs Shared	Subgrantee	Project Counties	Project Type(s)	Federal Funds Obligated
LEE COUNTY	2019	Shared	LENOWISCO PLANNING DISTRICT COMMISSION	LEE; SCOTT; WISE; NORTON (CITY)	91.5: Local Multijurisdictional Multihazard Mitigation Plan - UPDATE	$71,250

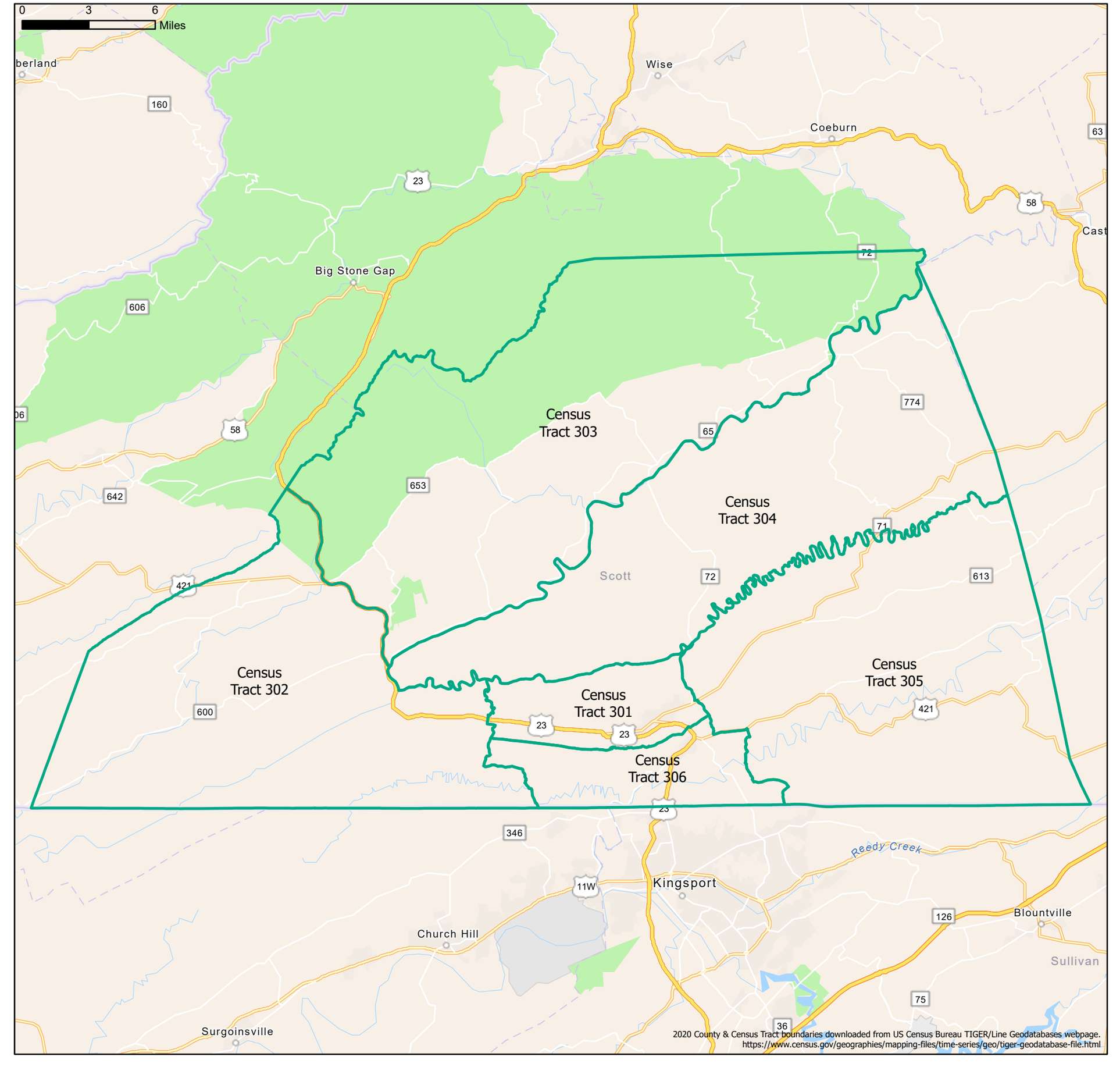
1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov


2020 Census Tract
Wise County
VDEM GIS | 5/21/2021
0 2.5 5 Miles
Census Tract 9307
Census Tract 9308
Census Tract 9309
Census Tract 9310
Census Tract 9311
Census Tract 9312
Census Tract 9313
Census Tract 9314
Census Tract 9315
Census Tract 9316
Census Tract 9317
John W Flannagan Reservoir
POLLY
MCROBERTS
FLEMING-NEON
JENKINS
PAYNE GAP
Highway 119 N
MAYKING
WHITESBURG
POUND
CLINTWOOD
CLINCHCO
Dickenson
STRATTON
NORA
FLAT GAP
EOLIA
Wise
ROUND TOP
ADDINGTON
WISE
BONDTOWN
COEBURN
CRAB ORCHARD
ST PAUL
INMAN
APPALACHIA
BIG STONE GAP
SUNNY POINT
DUNGANNON
STANLEYTOWN
FORT BLACKMORE
805
23
83
119
931
932
671
637
644
652
796
72
822
58
653
774
2020 County & Census Tract boundaries downloaded from US Census Bureau TIGER/Line Geodatabases webpage.
https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-geodatabase-file.html

Scott County

2020 Census Tract

VDEM GIS | 5/21/2021



2020 County & Census Tract boundaries downloaded from US Census Bureau TIGER/Line Geodatabases webpage.
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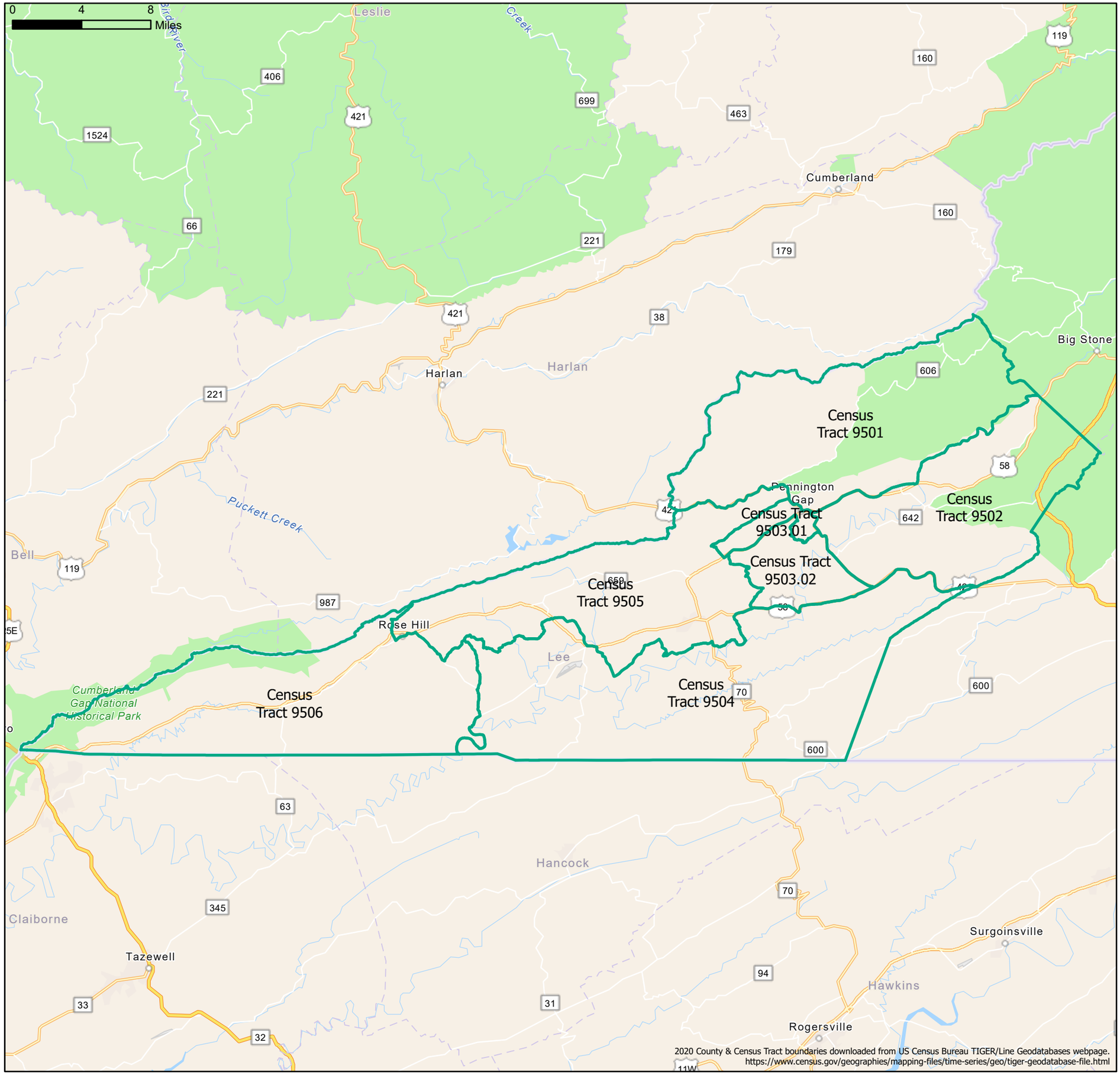
2020 Census Tract

Lee County

VDEM GIS | 5/21/2021



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