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

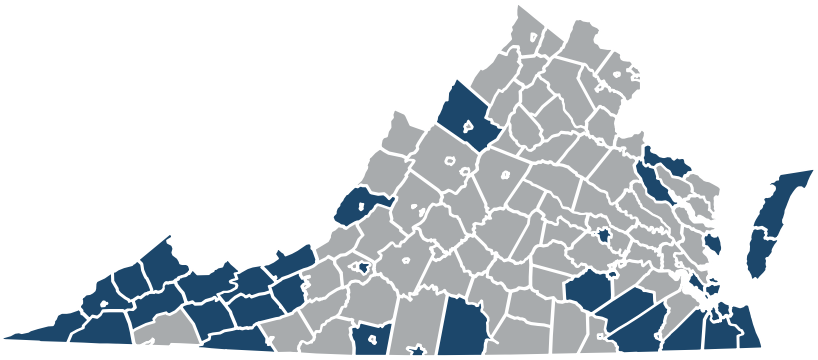
Reflects the number of households in each flood or hurricane zone weighted by risk severity to provide a people-focused risk metric.

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

July 29, 2021 from 10am to 12pm

Hampton
Newport News
Poquoson

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.

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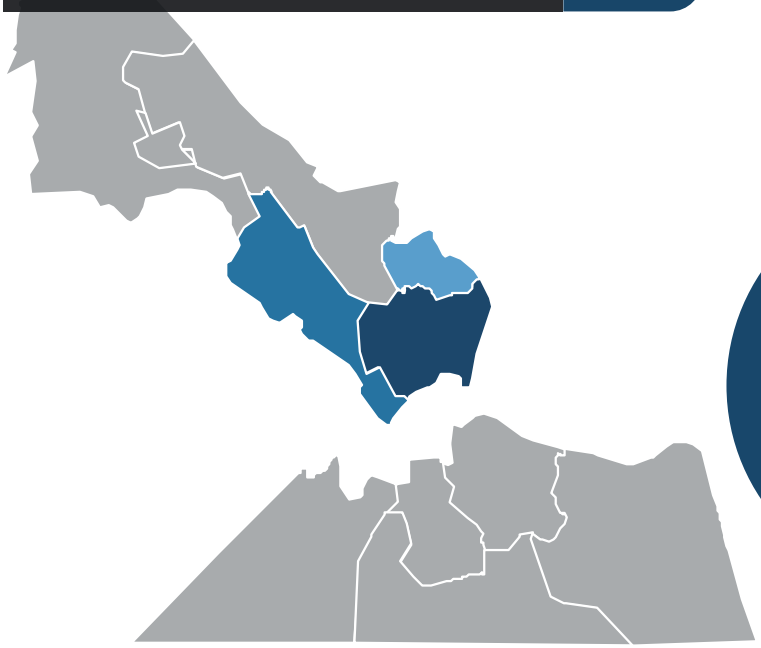
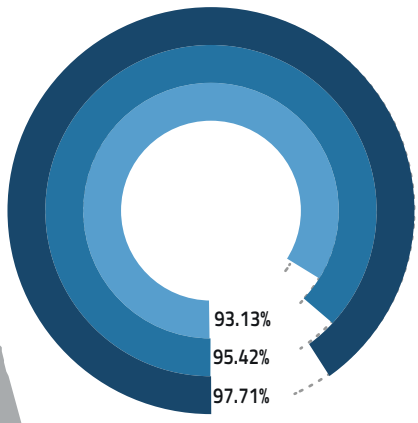
Combining population vulnerability and hazard risk at a sub-locality level can identify potential priority areas to support with future mitigation projects.

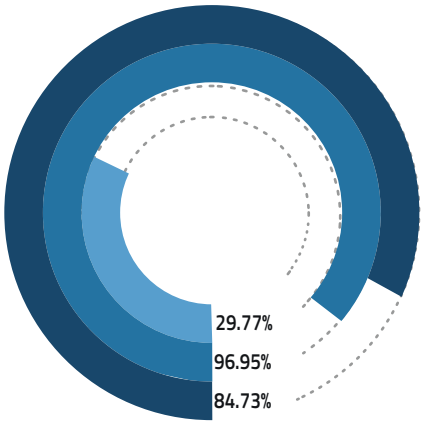


OVERALL PERCENTILE

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
POQUOSON CITY

NOVEMBER 2020

Topics

The analysis provides **Poquoson City** 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
- ❑ Summary
- ❑ 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 Analyzed 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

93rd

Your locality has more households in more severe flood/hurricane zones than 93% of other Virginia localities

Hazard Risk[1] Rank

10th

Your locality's Hazard Risk score is ranked 10th 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
15	0	4,400	1,320
4th out of 132 Localities	N/A out of 132 Localities	6th out of 132 Localities	10th 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
4,543	1,362	0	0
7th out of 132 Localities	11th 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 blocks/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

30th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 30% of other Virginia localities

Population Vulnerability[1] Rank

93rd

Your locality's Population Vulnerability score is ranked 93rd out of 132 Virginia localities

How POQUOSON CITY Compares to Other Localities Across the Eight Vulnerability Attributes

Low Income	Elevated Health Risk	Age	Communities of Color
9th percentile	71st percentile	60th percentile	15th percentile

# of Children in Household	# of People in Household	Unemployment Risk	Lack of Vehicle Access
97th percentile	97th percentile	21st percentile	43rd 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

Population Vulnerability & Hazard Risk Summary

Understanding population vulnerability and hazard risk in your locality can help support future mitigation projects.

Population Vulnerability[1] Percentile

30th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 30% of other Virginia localities

Hazard Risk[2] Percentile

93rd

Your locality has more households in more severe flood/hurricane zones than 93% of other Virginia localities

Population Vulnerability[1] Rank

93rd

Your locality's Population Vulnerability score is ranked 93rd out of 132 Virginia localities

Hazard Risk[2] Rank

10th

Your locality's Hazard Risk score is ranked 10th out of 132 Virginia localities

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

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]

$4,394,445

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]

$163,140

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

11

Average Project Size

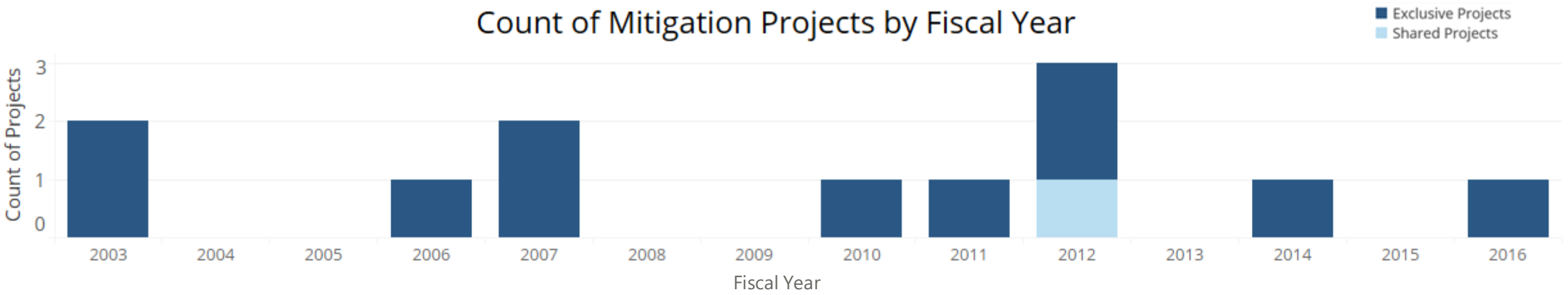
$399K

Shared Projects

1

Average Counties Per Project

14.0

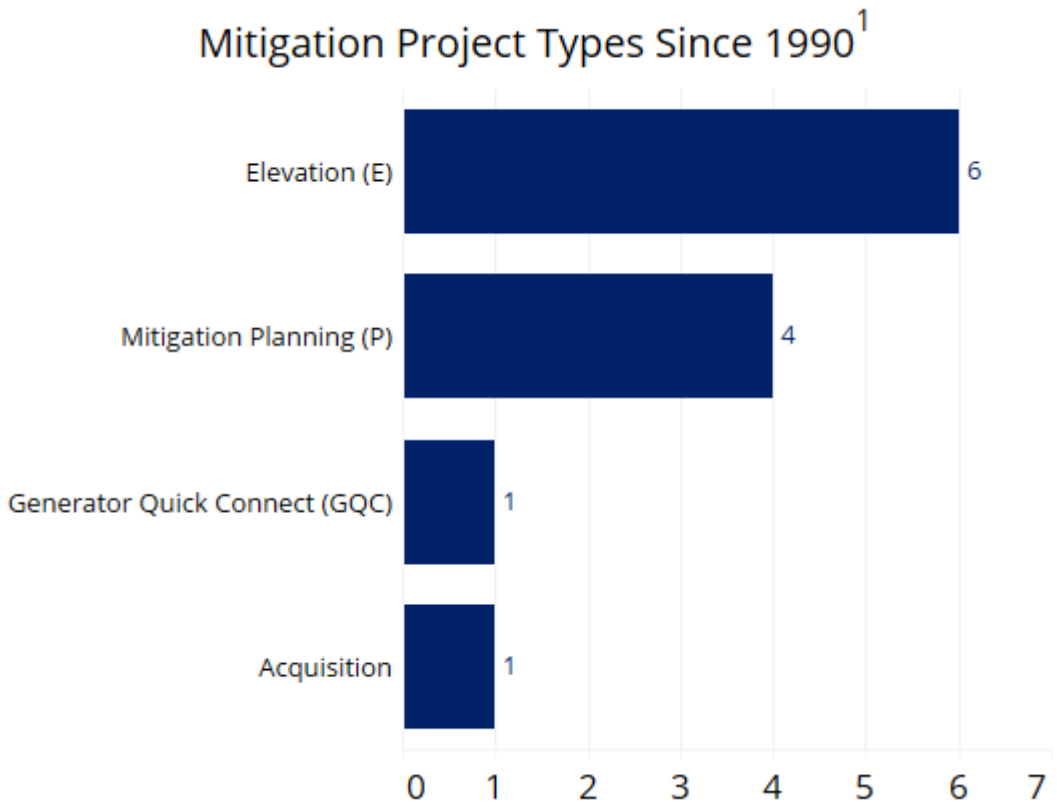


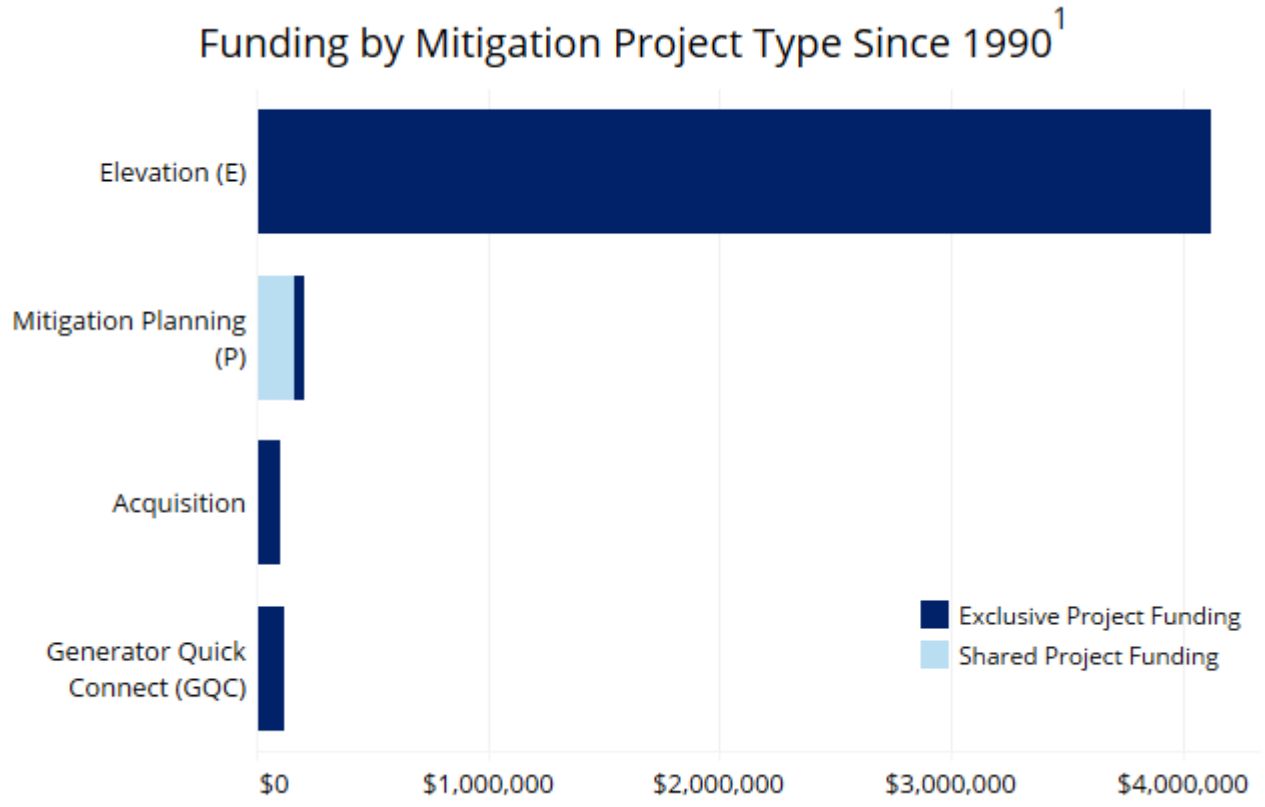
1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

Note: see the appendix for a complete data table of these mitigation projects

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

Note: see the appendix for a complete data table of these mitigation projects

COVID-19 Impacts

COVID-19 In Your Locality

Since the beginning of the COVID-19 Pandemic, Poquoson City has experienced the following:

Cases[1]

Total	Per 100k
97 **124th** out of 133 localities[2]	**806** **125th** out of 133 localities

Hospitalizations[1]

Total	Per 100k
3 **128th** out of 133 localities	**25** **129th** out of 133 localities

Deaths[1]

Total	Per 100k
2 **112th** out of 133 localities	**17** **102nd** 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 **population vulnerability** and it's various components 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 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

Data table | FEMA Funding[1]

Grantee	Year of Fiscal Year	Exclusive vs Shared	Subgrantee	Project Counties	Project Type(s)	Federal Funds Obligated
POQUOSON CITY	2016	Exclusive	Poquoson	POQUOSON (CITY)	601.1: Generators	$119,962
	2014	Exclusive	City of Poquoson	POQUOSON CITY	202.2: Elevation of Private Structures - Coastal	$459,519
	2012	Exclusive	Poquoson	POQUOSON (CITY)	202.2: Elevation of Private Structures - Coastal	$2,212,228
		Shared	HAMPTON ROADS PLANNI..	ISLE OF WIGHT; JAMES CITY; WILLIAMSBURG (CITY); VIRGI..	91.1: Local Multihazard Mitigation Plan	$163,140
	2011	Exclusive	HAMPTON ROADS PLANNI..	POQUOSON (CITY)	91.1: Local Multihazard Mitigation Plan	$22,848
	2010	Exclusive	Poquoson	POQUOSON (CITY)	200.2: Acquisition of Private Real Property (Structures and ..	$103,301
	2007	Exclusive	City of Poquoson	POQUOSON CITY	91.1: Local Multihazard Mitigation Plan; ..	$24,624
	2006	Exclusive	Poquoson	POQUOSON (CITY)	202.2: Elevation of Private Structures - Coastal	$38,589
	2003	Exclusive	Poquoson	POQUOSON (CITY)	202.1: Elevation of Private Structures - Riverine	$554,436
					202.2: Elevation of Private Structures - Coastal	$858,938

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

COVID-19 Unified Command/VEST Health Equity Working Group

MITIGATION PROJECTS ANALYSIS

NEWPORT NEWS
NOVEMBER 2020

Topics

The analysis provides **Newport News** 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

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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

95th

Your locality has more households in more severe flood/hurricane zones than 95% of other Virginia localities

Hazard Risk[1] Rank

7th

Your locality's Hazard Risk score is ranked 7th 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
9	15	2,093	1,147
5th out of 132 Localities	42nd out of 132 Localities	10th out of 132 Localities	12th 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
1,877	6,294	0	8,827
10th out of 132 Localities	6th out of 132 Localities	N/A out of 132 Localities	5th 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

97th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 97% of other Virginia localities

Population Vulnerability[1] Rank

5th

Your locality's Population Vulnerability score is ranked 5th out of 132 Virginia localities

How NEWPORT NEWS CITY Compares to Other Localities Across the Eight Vulnerability Attributes

Low Income	Elevated Health Risk	Age	Communities of Color
90th percentile	89th percentile	10th percentile	95th percentile

# of Children in Household	# of People in Household	Unemployment Risk	Lack of Vehicle Access
65th percentile	29th percentile	89th percentile	95th 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

=

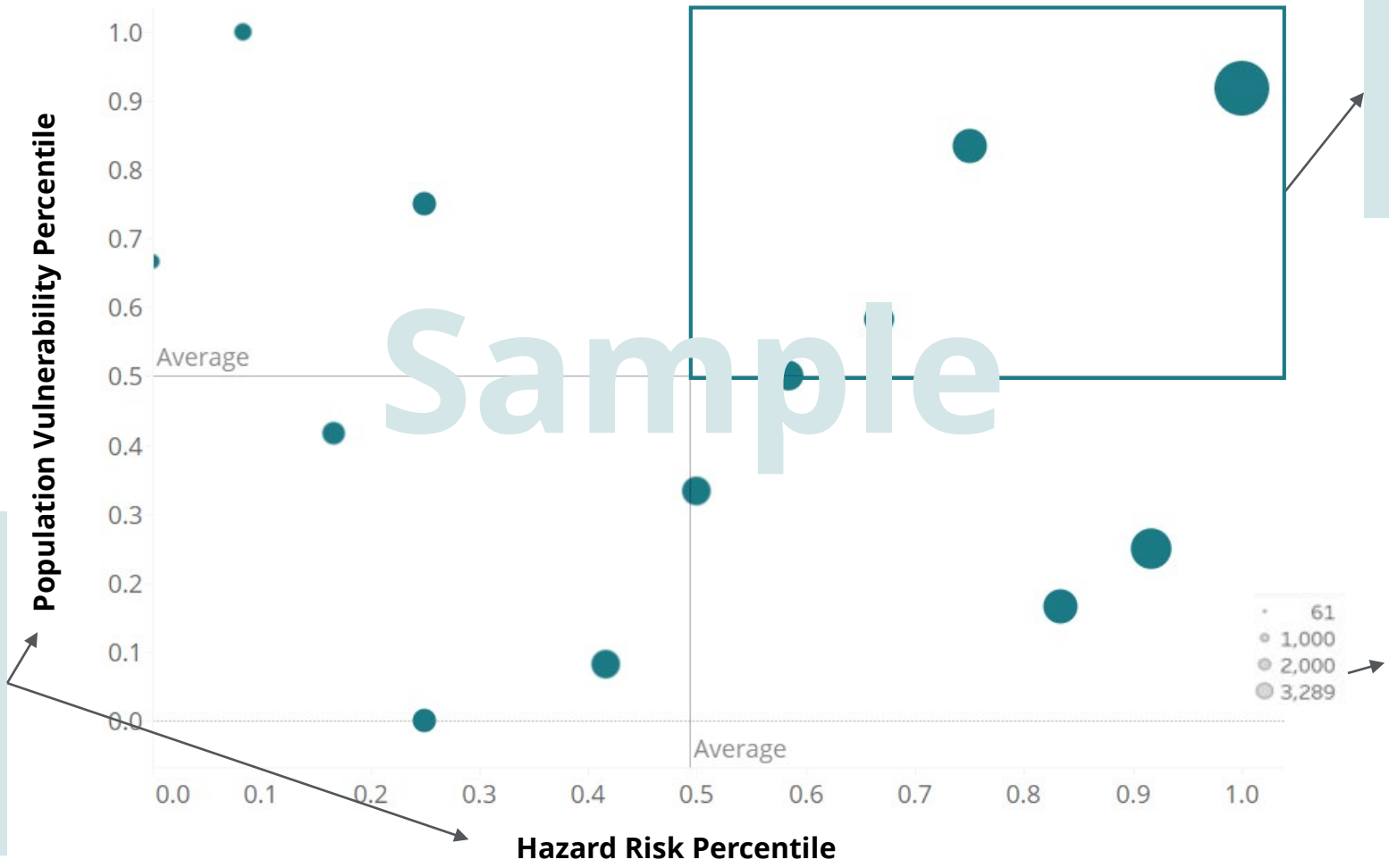
Prioritized Census Tracts

- 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.



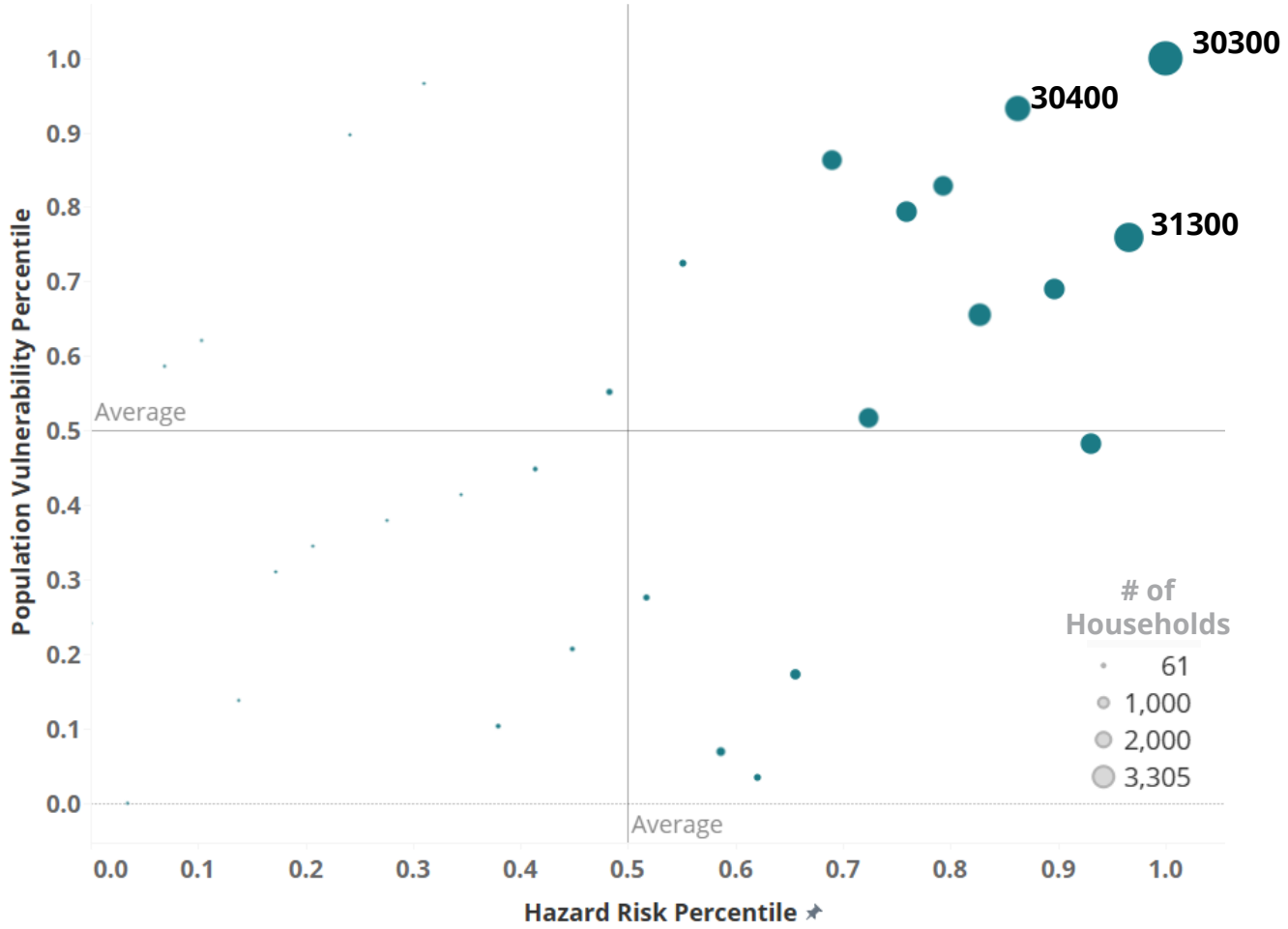
Circles in the upper right quadrant represent areas that you might consider prioritizing due to high population vulnerability and hazard risk

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 Newport News

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

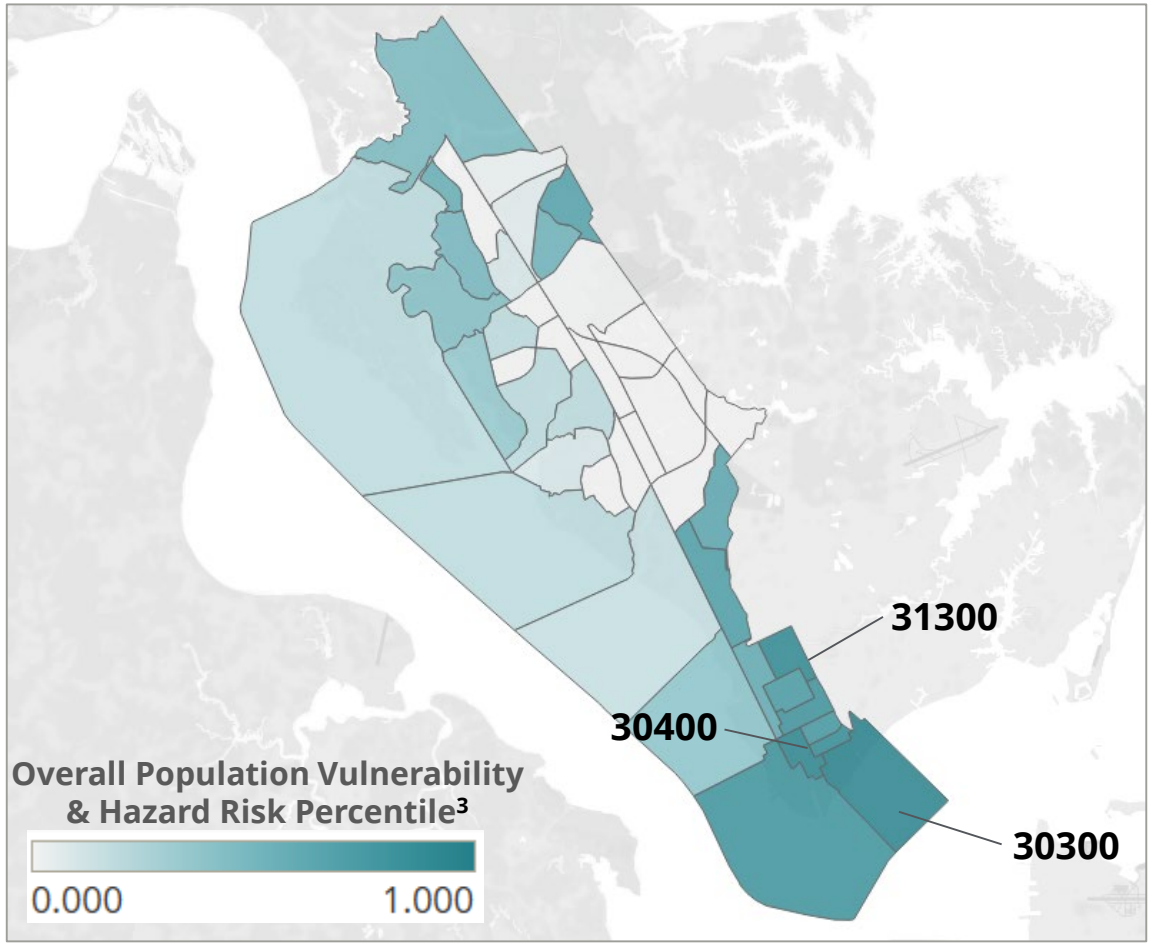
			Within-Newport News Percentiles		
#	Area	# of Households	Overall Percentile	Population Vulnerability[1] Percentile	Hazard Risk[2] Percentile
1	30300	3,305	100th	100th	100th
2	30400	1,808	97th	93rd	86th
3	31300	2,433	93rd	76th	97th
4	30500	1,118	90th	83rd	79th
5	30100	1,306	86th	69th	90th
6	30800	1,068	83rd	86th	69th
7	30600	1,266	79th	79th	76th
8	30900	1,435	76th	66th	83rd

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 Newport News 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 Newport News



Priority Areas in Flood and Hurricane Zones

#	Area	# of Households	Within-Newport News Percentiles: Overall Percentile	Population Vulnerability[1] Percentile	Hazard Risk[2] Percentile
1	**30300**	**3,305**	**100th**	100th	100th
2	**30400**	**1,808**	**97th**	93rd	86th
3	**31300**	**2,433**	**93rd**	76th	97th
4	**30500**	**1,118**	**90th**	83rd	79th
5	**30100**	**1,306**	**86th**	69th	90th
6	**30800**	**1,068**	**83rd**	86th	69th
7	**30600**	**1,266**	**79th**	79th	76th
8	**30900**	**1,435**	**76th**	66th	83rd

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-Newport News 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	**30300**	**3,305**	**100th**	**100th**	93rd	90th	100th	62nd	72nd	59th	55th	69th
2	**30400**	**1,808**	**97th**	**93rd**	90th	79th	97th	55th	76th	72nd	34th	86th
3	**31300**	**2,433**	**93rd**	**76th**	76th	59th	69th	59th	62nd	66th	52nd	66th

			W/I-Newport News Percentiles		Newport News 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	**30300**	**3,305**	**100th**	**100th**	9	0	640	502	1000	1688	0	617
2	**30400**	**1,808**	**97th**	**86th**	0	0	0	0	0	0	0	1808
3	**31300**	**2,433**	**93rd**	**97th**	0	5	761	148	629	1700	0	104

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]

$1,393,212

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]

$518,351

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

5

Average Exclusive Project Size

$279K

Shared Projects

6

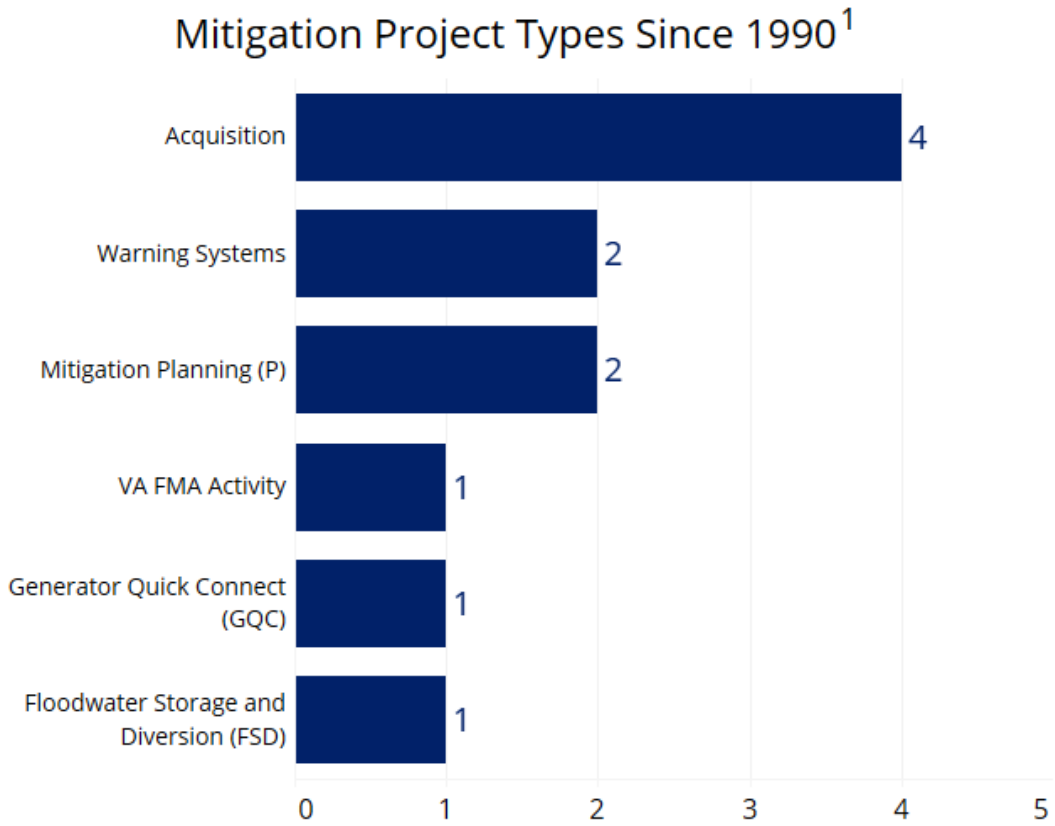
Average Counties Per Shared Project

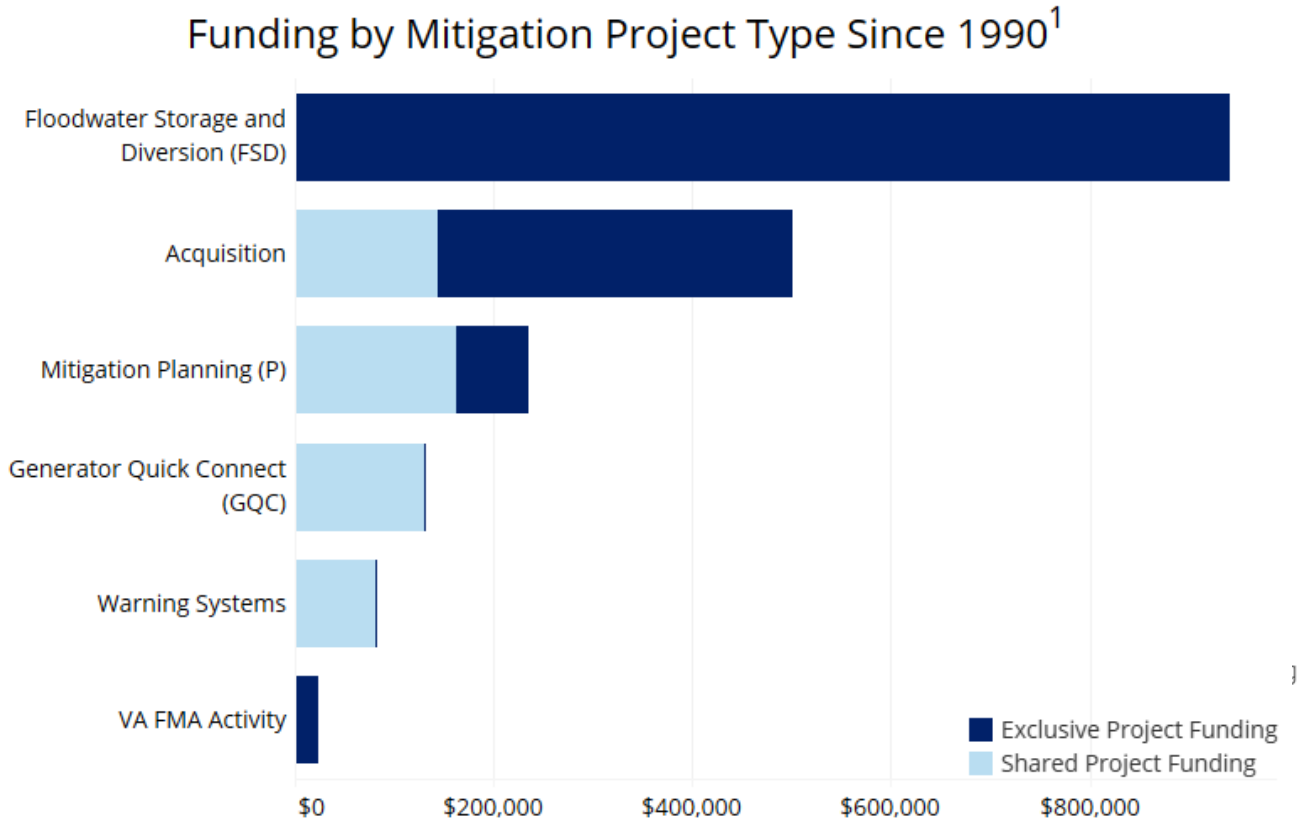
4.0

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

Past Mitigation Projects – Top Project Types

From 1990-2019, the top projects included Acquisition, Warning Systems, and Mitigation Planning. The project types that received the most funding were Floodwater Storage & Diversion and Acquisition.





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, Newport News has experienced the following:

Cases[1]

Total	Per 100k
3,166	**1,757**
12th out of 133 localities[2]	**67th** out of 133 localities

Hospitalizations[1]

Total	Per 100k
116	**64**
20th out of 133 localities	**108th** out of 133 localities

Deaths[1]

Total	Per 100k
51	**28**
15th out of 133 localities	**75th** 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.

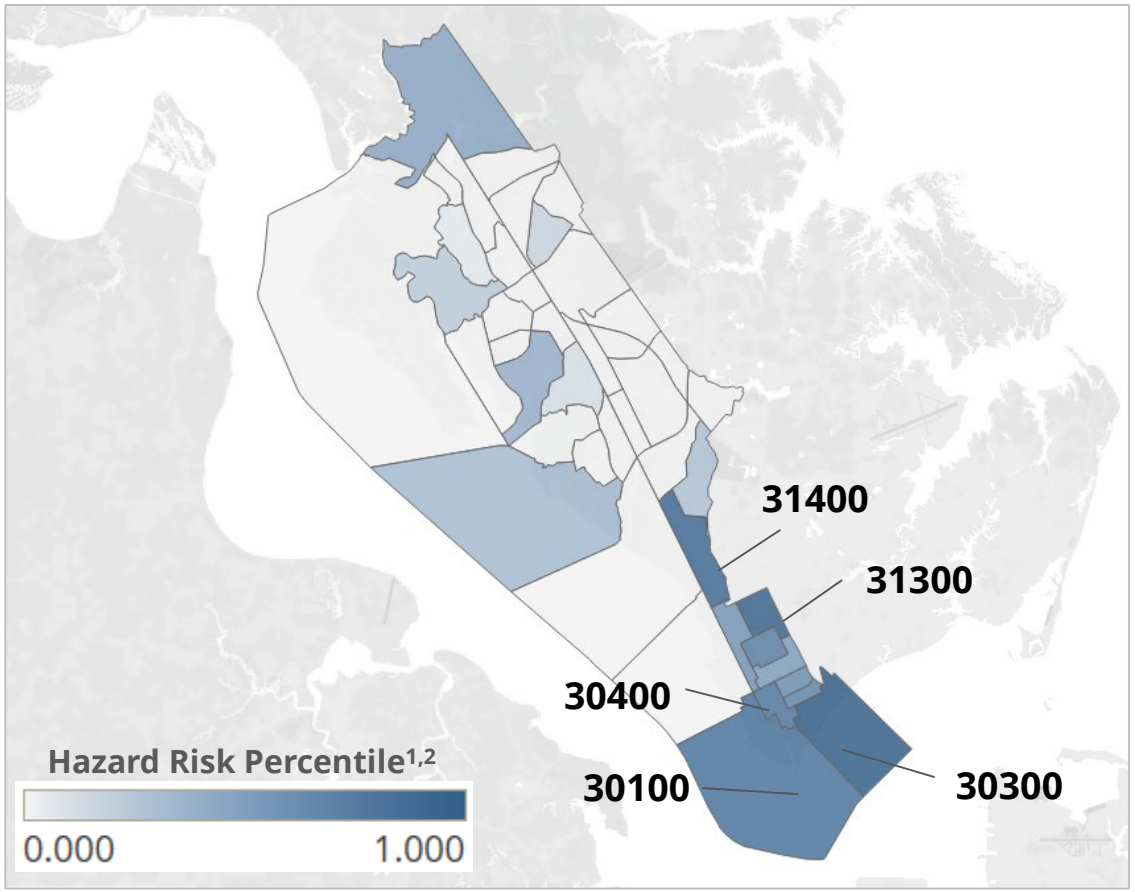
- Consider targeting **priority areas** when designing future mitigation projects
- Consider analysis at the **census tract/block level** to understand population vulnerability and hazard risks at a granular level to support decisions on mitigation projects
- Consider **supplementing these people-focused 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 Newport News



Top-5 Census Tracts for Hazard Risk[1]

				Newport News 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**	**3,305**	**100th**	9	0	640	502	1000	1688	0	617
2	**31300**	**2,433**	**97th**	0	5	761	148	629	1700	0	104
3	**31400**	**1,209**	**93rd**	0	0	341	121	165	1014	0	0
4	**30100**	**1,306**	**90th**	0	0	13	13	0	774	0	532
5	**30400**	**1,808**	**86th**	0	0	0	0	0	0	0	1808

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

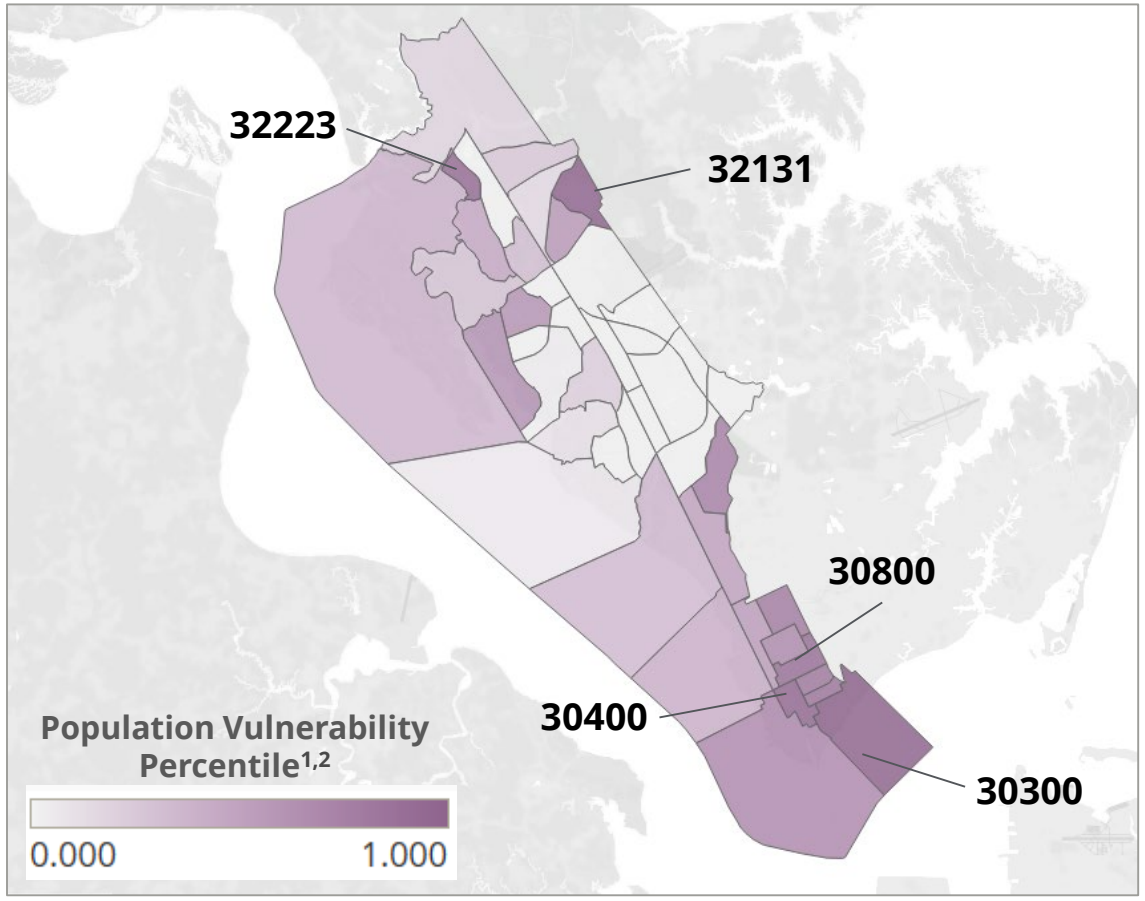
Attribute[1]	Weighting[2]	Description (in a household)
Low Income	18%	Number of adults with income less than $30,000
Elevated Health Risk	17%	Number of adults with one or more serious health conditions
Age (Older Adults)	15%	Number of adults who are age 65 and older
Communities of Color	13%	Number of 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 Newport News



Top-5 Census Tracts for Population Vulnerability[1]

			Within-Newport News 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	**30300**	**3,305**	**100th**	93rd	90th	100th	62nd	72nd	59th	55th	69th
2	**32131**	**30**	**97th**	100th	52nd	45th	97th	97th	0th	62nd	0th
3	**30400**	**1,808**	**93rd**	90th	79th	97th	55th	76th	72nd	34th	86th
4	**32223**	**23**	**90th**	97th	93rd	48th	76th	45th	69th	76th	0th
5	**30800**	**1,068**	**86th**	86th	69th	93rd	45th	55th	93rd	41st	83rd

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	**30300**	**3,305**	**100th**	100th	93rd	90th	100th	62nd	72nd	59th	55th	69th	100th	9	0	640	502	1000	1688	0	617
2	**30400**	**1,808**	**97th**	93rd	90th	79th	97th	55th	76th	72nd	34th	86th	86th	0	0	0	0	0	0	0	1808
3	**31300**	**2,433**	**93rd**	76th	76th	59th	69th	59th	62nd	66th	52nd	66th	97th	0	5	761	148	629	1700	0	104
4	**30500**	**1,118**	**90th**	83rd	83rd	83rd	86th	41st	59th	83rd	38th	76th	79th	0	0	30	63	42	410	0	666
5	**30100**	**1,306**	**86th**	69th	66th	55th	76th	21st	48th	86th	10th	93rd	90th	0	0	13	13	0	774	0	532
6	**30800**	**1,068**	**83rd**	86th	86th	69th	93rd	45th	55th	93rd	41st	83rd	69th	0	0	0	0	0	0	0	1068
7	**30600**	**1,266**	**79th**	79th	79th	76th	90th	38th	69th	76th	28th	90th	76th	0	0	0	0	0	231	0	1035
8	**30900**	**1,435**	**76th**	66th	69th	34th	83rd	34th	38th	90th	21st	55th	83rd	0	0	0	0	0	169	0	1266
9	**31400**	**1,209**	**72nd**	48th	41st	62nd	55th	48th	41st	52nd	59th	48th	93rd	0	0	341	121	165	1014	0	0
10	**32131**	**30**	**69th**	97th	100th	52nd	45th	97th	97th	0th	62nd	0th	31st	0	0	15	15	0	0	0	0
11	**31601**	**36**	**66th**	72nd	72nd	97th	31st	79th	86th	34th	69th	41st	55th	0	0	37	99	0	17	0	0
12	**31200**	**1,097**	**62nd**	52nd	55th	41st	79th	24th	24th	79th	31st	72nd	72nd	0	4	129	54	4	16	0	1077
13	**32223**	**23**	**59th**	90th	97th	93rd	48th	76th	45th	69th	76th	0th	24th	0	0	5	17	0	0	0	1
14	**32132**	**120**	**55th**	55th	48th	86th	41st	66th	52nd	62nd	66th	28th	48th	0	3	73	44	0	0	0	0
15	**32224**	**62**	**52nd**	45th	45th	72nd	28th	83rd	83rd	45th	48th	38th	41st	0	0	22	24	5	0	0	18

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

Data table | FEMA Funding[1]

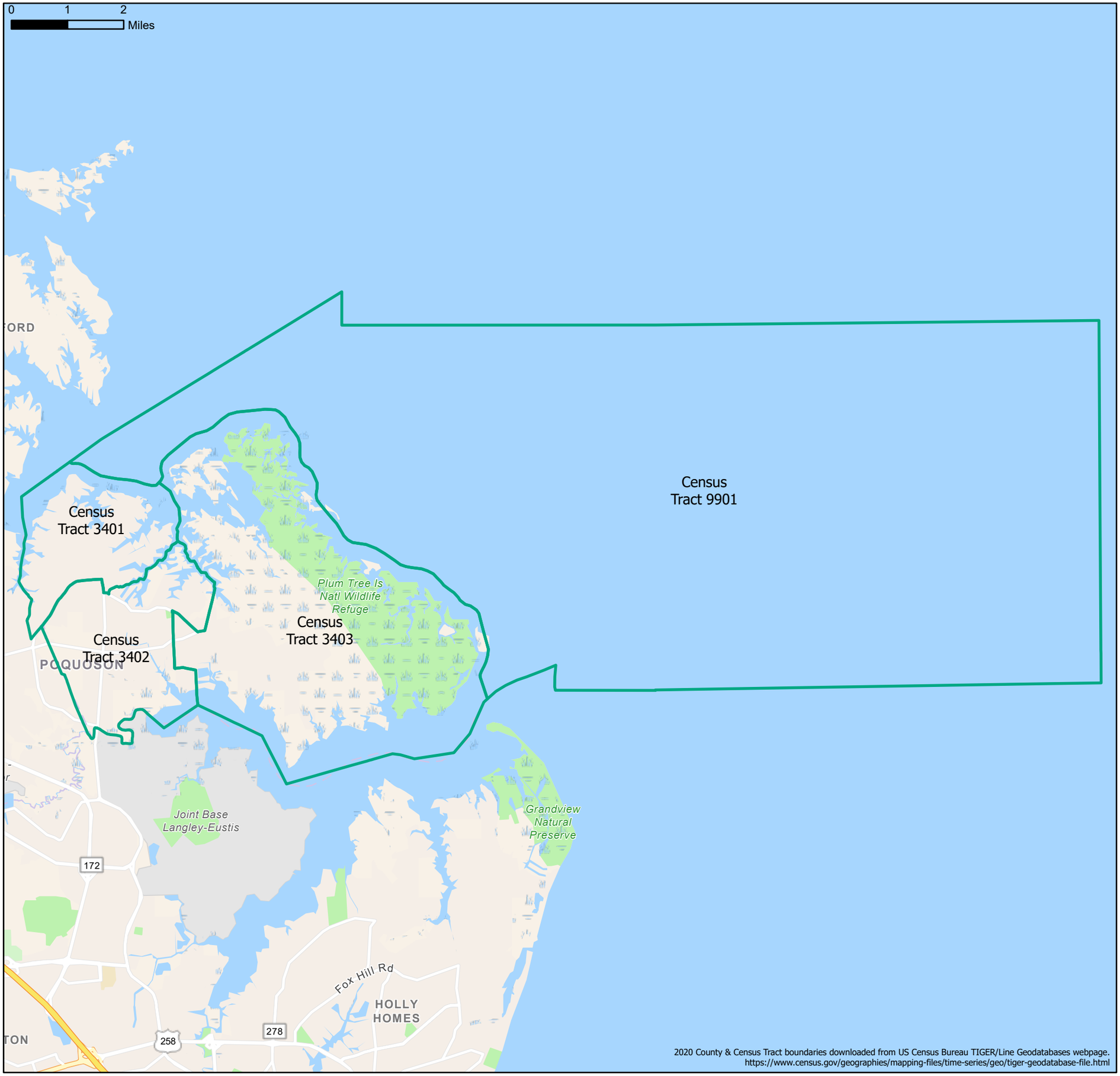
Grantee	Year of Fiscal Year	Exclusive vs Shared	Subgrantee	Project Counties	Project Type(s)	Federal Funds Obligated
NEWPORT NEWS CITY	2019	Exclusive	Newport News	NEWPORT NEWS (CITY)	500.3: Flood Control - Dam	$941,415
	2017	Shared	Statewide	STATEWIDE; HAMPTON (CITY); NEWPORT NEWS (CITY)	106.1: Other Non Construction (Regular Project Only); ..	$80,814
	2012	Shared	HAMPTON ROADS PLAN..	ISLE OF WIGHT; JAMES CITY; WILLIAMSBURG (CITY); VIRGINIA BEAC..	91.1: Local Multihazard Mitigation Plan	$163,140
	2010	Shared	Newport News	NEWPORT NEWS (CITY); HAMPTON (CITY)	601.1: Generators	$130,007
	2003	Exclusive	NEWPORT NEWS EMERGENCY SVC	NEWPORT NEWS (CITY)	91.1: Local Multihazard Mitigation Plan	$71,798
					200.4: Acquisition of Public Real Property (Structures and Land) - Coas..	$231,882
	2000	Shared	Newport News	ISLE OF WIGHT	200.2: Acquisition of Private Real Property (Structures and Land) - Coas..	$39,739
	1999	Exclusive	Newport News	NEWPORT NEWS (CITY)	200.1: Acquisition of Private Real Property (Structures and Land) - River..	$124,117
			Newport News, City Of	NEWPORT NEWS (CITY)	VA FMA Locality	$24,000
		Shared	Isle of Wight (County)	ISLE OF WIGHT; NEWPORT NEWS (CITY)	200.1: Acquisition of Private Real Property (Structures and Land) - River..	$104,651

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

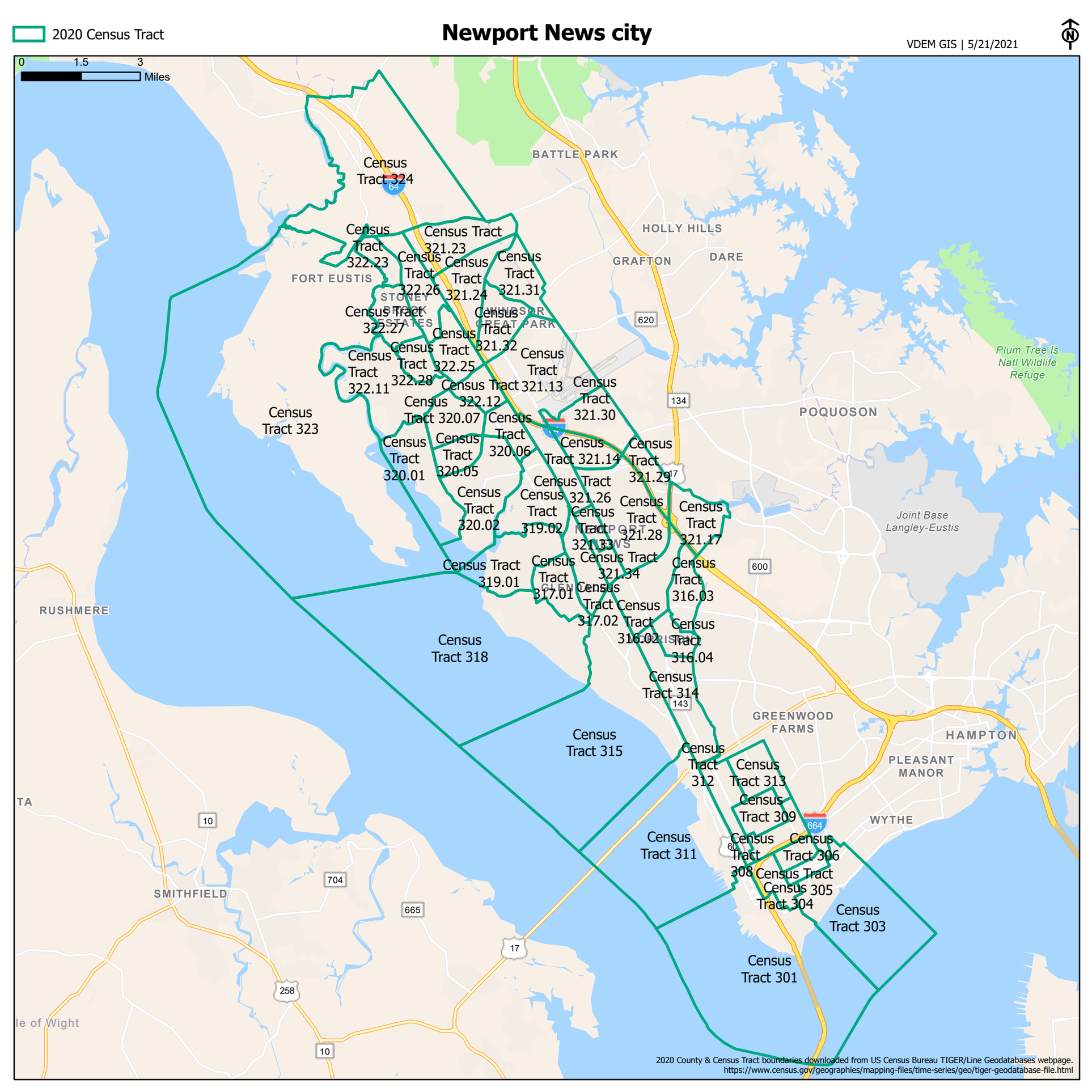
2020 Census Tract

Poquoson city

VDEM GIS | 5/21/2021



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


2020 Census Tract
Newport News city
VDEM GIS | 5/21/2021
0
1.5
3
Miles
Census Tract 324
Census Tract 322.23
Census Tract 321.23
Census Tract 322.26
Census Tract 321.24
Census Tract 321.31
Census Tract 322.27
Census Tract 321.32
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Census Tract 322.28
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Census Tract 323
Census Tract 320.06
Census Tract 321.14
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Census Tract 317.01
Census Tract 317.02
Census Tract 316.02
Census Tract 316.04
Census Tract 318
Census Tract 314
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Census Tract 313
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Census Tract 311
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Census Tract 306
Census Tract 305
Census Tract 304
Census Tract 303
Census Tract 301
BATTLE PARK
HOLLY HILLS
GRAFTON
DARE
FORT EUSTIS
STONEY BROOK ESTATES
WINDSOR GREAT PARK
POQUOSON
Plum Tree Is Natl Wildlife Refuge
Joint Base Langley-Eustis
NEWPORT NEWS
GLEN
RUSHMERE
GREENWOOD FARMS
HAMPTON
PLEASANT MANOR
WYTHE
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134
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600
143
10
704
665
258
664
2020 County & Census Tract boundaries downloaded from US Census Bureau TIGER/Line Geodatabases webpage.
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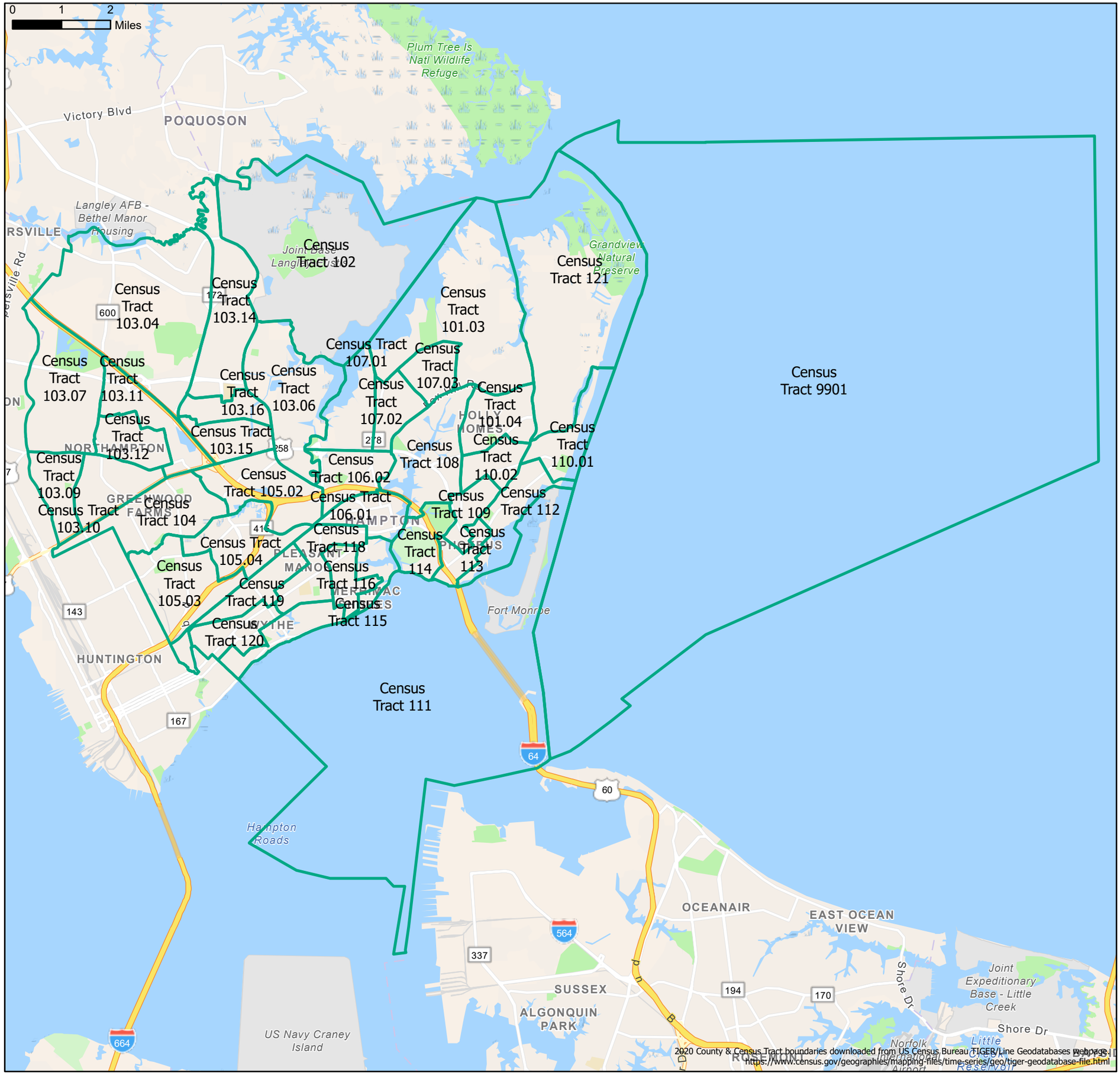
2020 Census Tract

Hampton city

VDEM GIS | 5/21/2021



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

COVID-19 Unified Command/VEST Health Equity Working Group

MITIGATION PROJECTS ANALYSIS
HAMPTON CITY

NOVEMBER 2020

Topics

The analysis provides **Hampton City** 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

98th

Your locality has more households in more severe flood/hurricane zones than 98% of other Virginia localities

Hazard Risk[1] Rank

4th

Your locality's Hazard Risk score is ranked 4th 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
55	135	19,027	12,692
2nd out of 132 Localities	7th out of 132 Localities	3rd out of 132 Localities	3rd 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
22,773	17,128	15,619	17,924
2nd out of 132 Localities	5th out of 132 Localities	4th out of 132 Localities	3rd 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

85th

On average, a household in a flood or hurricane zone in your locality is more vulnerable than a household in 85% of other Virginia localities

Population Vulnerability[1] Rank

21st

Your locality's Population Vulnerability score is ranked 21st out of 132 Virginia localities

How HAMPTON CITY Compares to Other Localities Across the Eight Vulnerability Attributes

Low Income	Elevated Health Risk	Age	Communities of Color
57th percentile	77th percentile	23rd percentile	90th percentile

# of Children in Household	# of People in Household	Unemployment Risk	Lack of Vehicle Access
61st percentile	46th percentile	65th percentile	65th 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

=

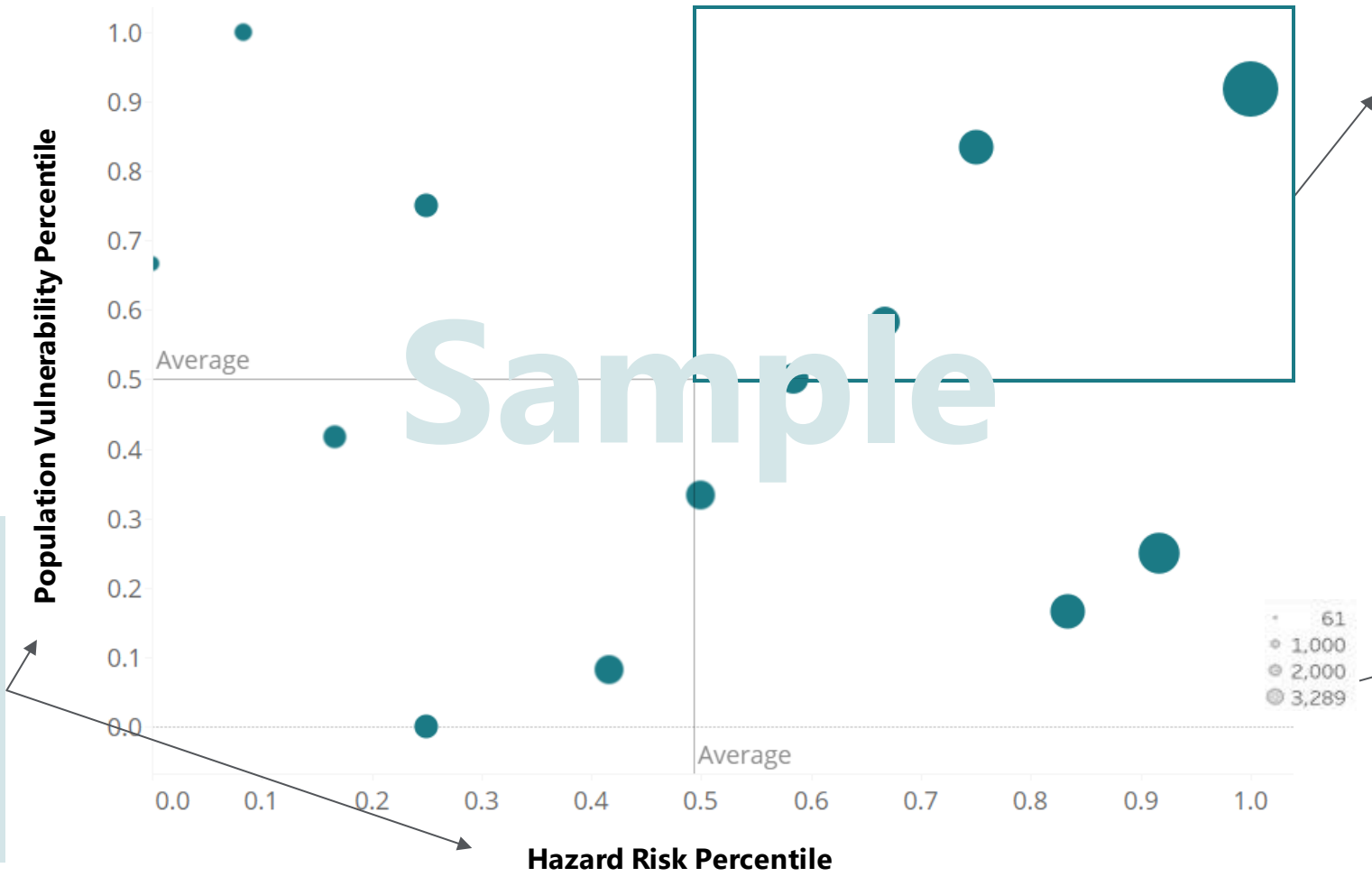
Prioritized Census Tracts

- 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.



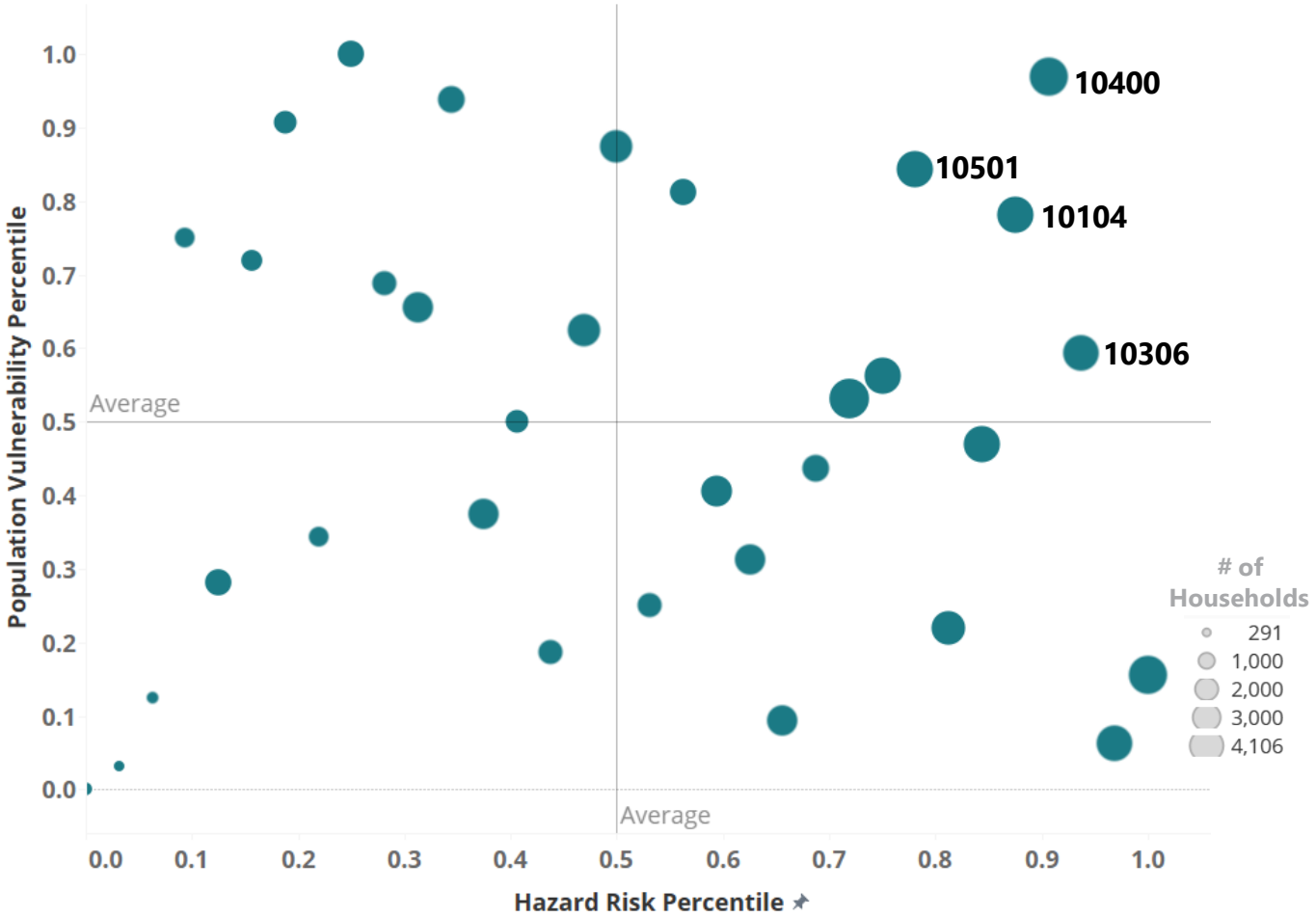
Circles in the upper right quadrant represent areas that you might consider prioritizing due to high population vulnerability and hazard risk

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 Hampton City

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

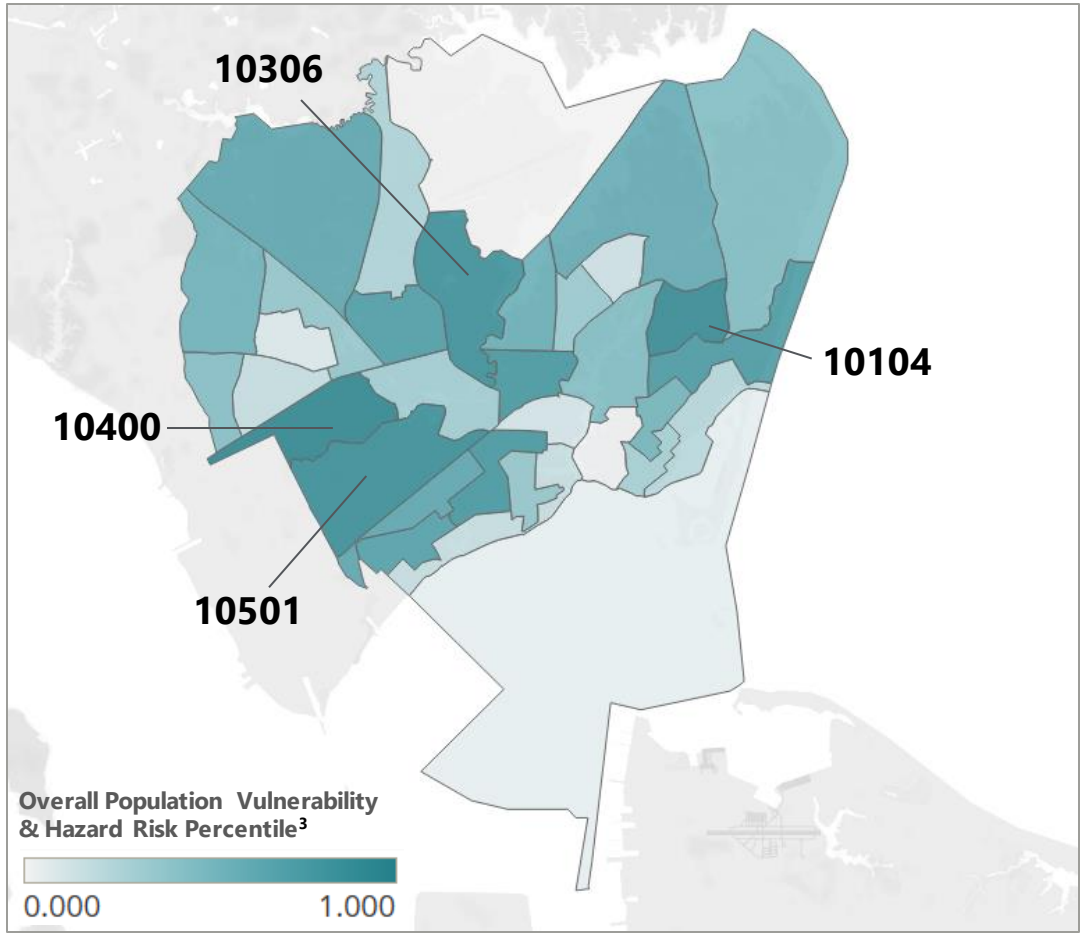
#	Area	# of Households	Within-Hampton City Percentiles: Overall Percentile	Within-Hampton City Percentiles: Population Vulnerability[1] Percentile	Within-Hampton City Percentiles: Hazard Risk[2] Percentile
1	10400	3,813	100th	97th	91st
2	10104	3,442	97th	78th	88th
3	10501	3,404	94th	84th	78th
4	10306	3,366	91st	59th	94th
5	11800	2,749	84th	88th	50th
6	10602	1,763	84th	81st	56th
7	11000	3,450	81st	47th	84th
8	10313	3,577	78th	56th	75th

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 Hampton City 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 Hampton City



Priority Areas in Flood and Hurricane Zones

			Within-Hampton City Percentiles		
#	Area	# of Households	Overall Percentile	Population Vulnerability[1] Percentile	Hazard Risk[2] Percentile
1	10400	3,813	100th	97th	91st
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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-Hampton City 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	**10400**	**3813**	**100th**	**97th**	97th	94th	81st	75th	66th	53rd	88th	81st
2	**10104**	**3442**	**97th**	**78th**	63rd	38th	66th	84th	100th	75th	31st	38th
3	**10501**	**3404**	**94th**	**84th**	88th	59th	47th	50th	50th	63rd	69th	28th

			W/I-Hampton City Percentiles		Hampton City 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	**10400**	**3,813**	**100th**	**91st**	0	16	771	435	3,259	1	547	6
2	**10104**	**3,442**	**97th**	**88th**	0	0	171	2,332	11	3,421	10	0
3	**10501**	**3,404**	**94th**	**78th**	0	16	412	316	1,812	0	669	923

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]

$11,089,923

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]

$373,961

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

19

Average Exclusive Project Size

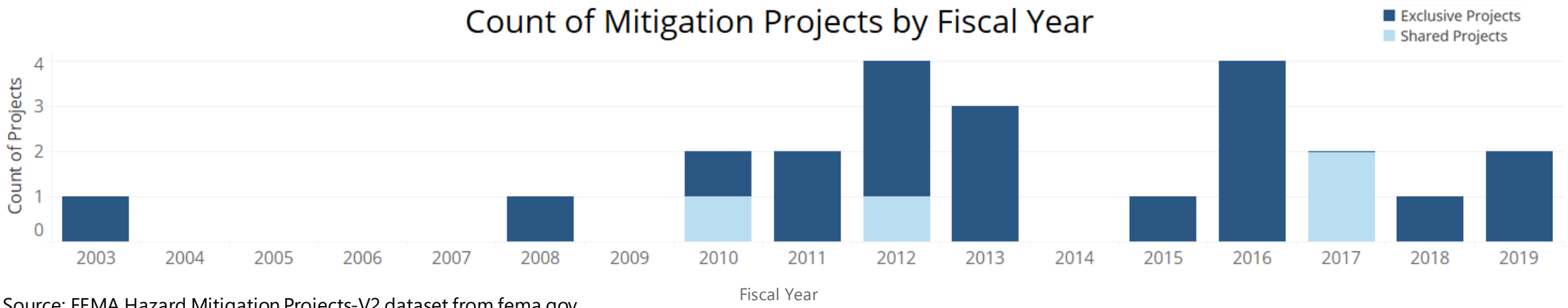
$584K

Shared Projects

4

Average Counties Per Shared Project

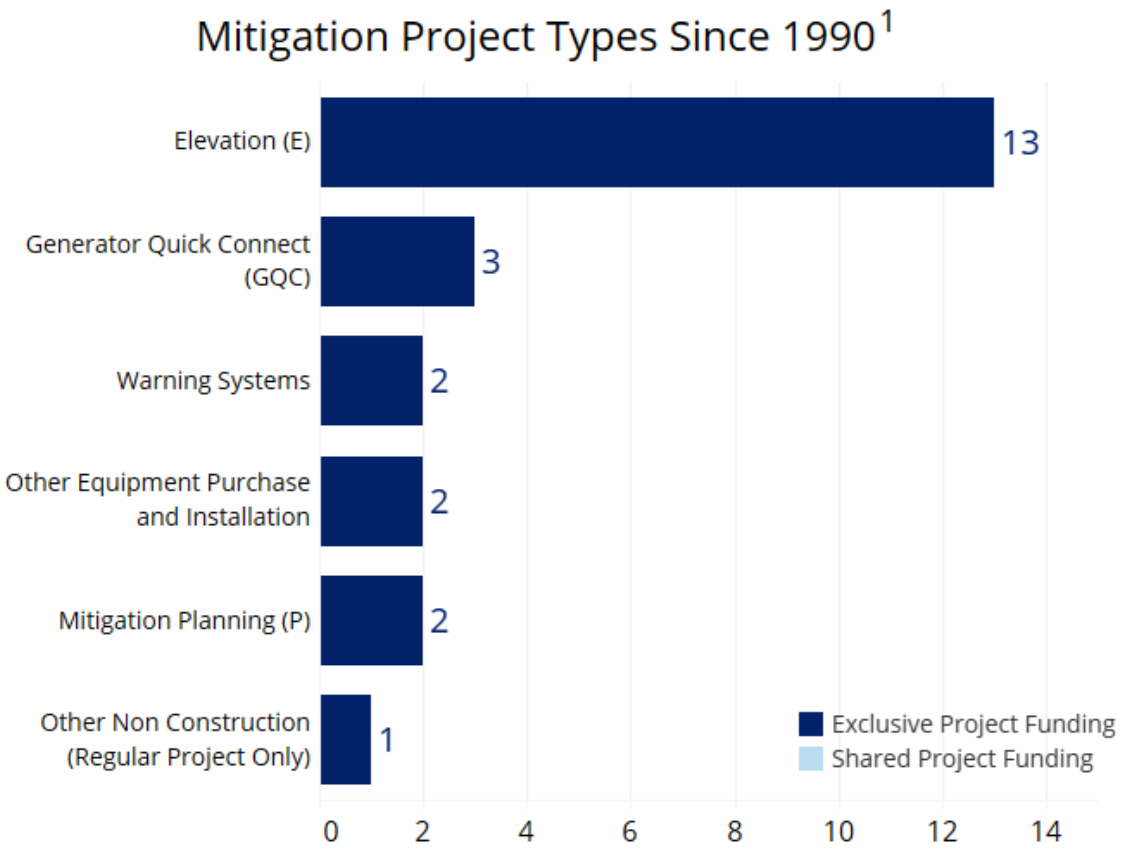
5.0

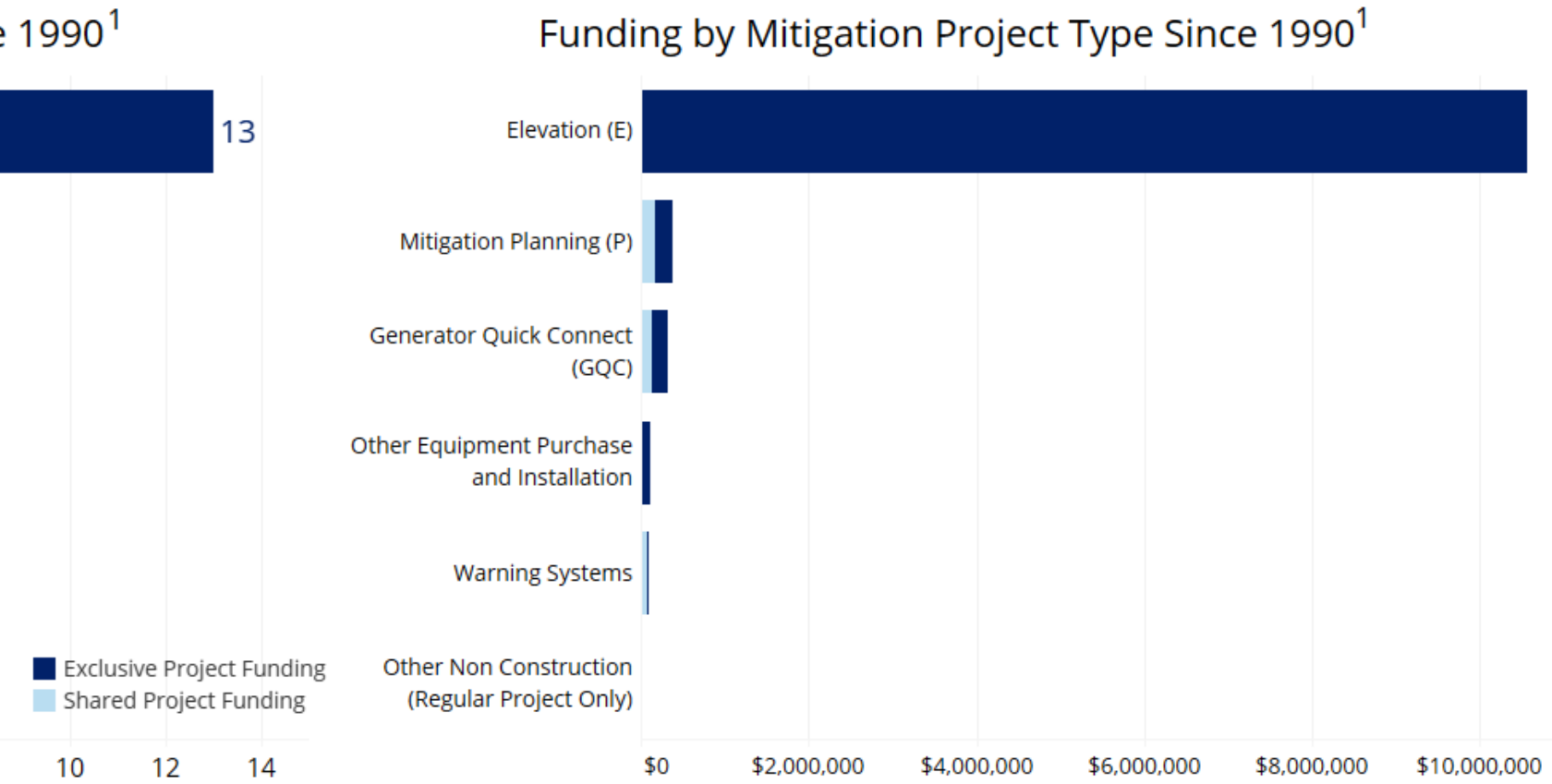


1. Source: FEMA Hazard Mitigation Projects-V2 dataset from fema.gov

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, Hampton City has experienced the following:

Cases[1]

Total	Per 100k
2,039	**1,504**
20th out of 133 localities[2]	**75th** out of 133 localities

Hospitalizations[1]

Total	Per 100k
86	**63**
27th out of 133 localities	**102nd** out of 133 localities

Deaths[1]

Total	Per 100k
31	**23**
23rd 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 **10/19/2020**
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.

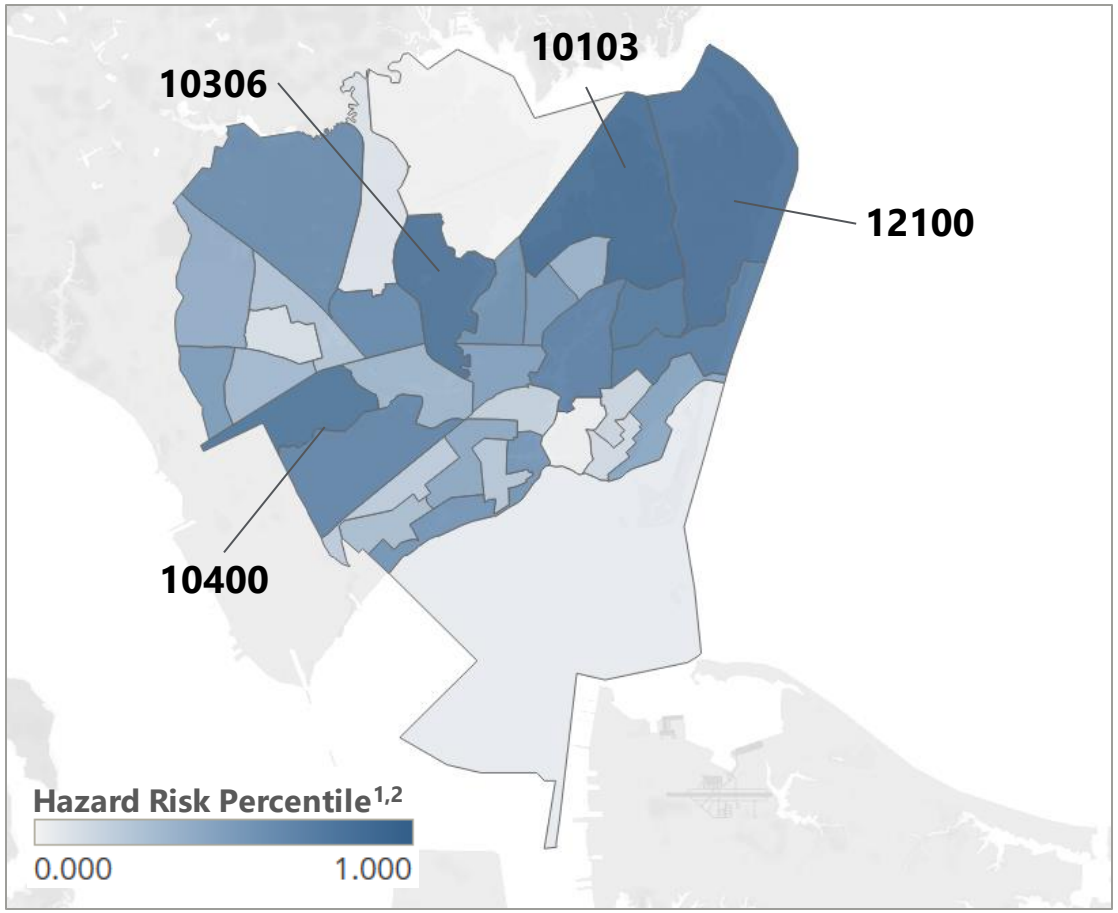
- Consider targeting **priority areas** when designing future mitigation projects
- Consider analysis at the **census tract/block level** to understand population vulnerability and hazard risks at a granular level to support decisions on mitigation projects
- Consider **supplementing these people-focused 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 Hampton City



Top-5 Census Tracts for Hazard Risk[1]

				Hampton City 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	**10103**	**3,737**	**100th**	12	0	3,435	262	3,348	389	0	0
2	**12100**	**3,317**	**97th**	0	0	2,595	600	3,317	0	0	0
3	**10306**	**3,366**	**94th**	0	0	2,290	505	2,442	924	0	0
4	**10400**	**3,813**	**91st**	0	16	771	435	3,259	1	547	6
5	**10104**	**3,442**	**88th**	0	0	171	2,332	11	3,421	10	0

Note: see the appendix for a data table for the Top 15 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

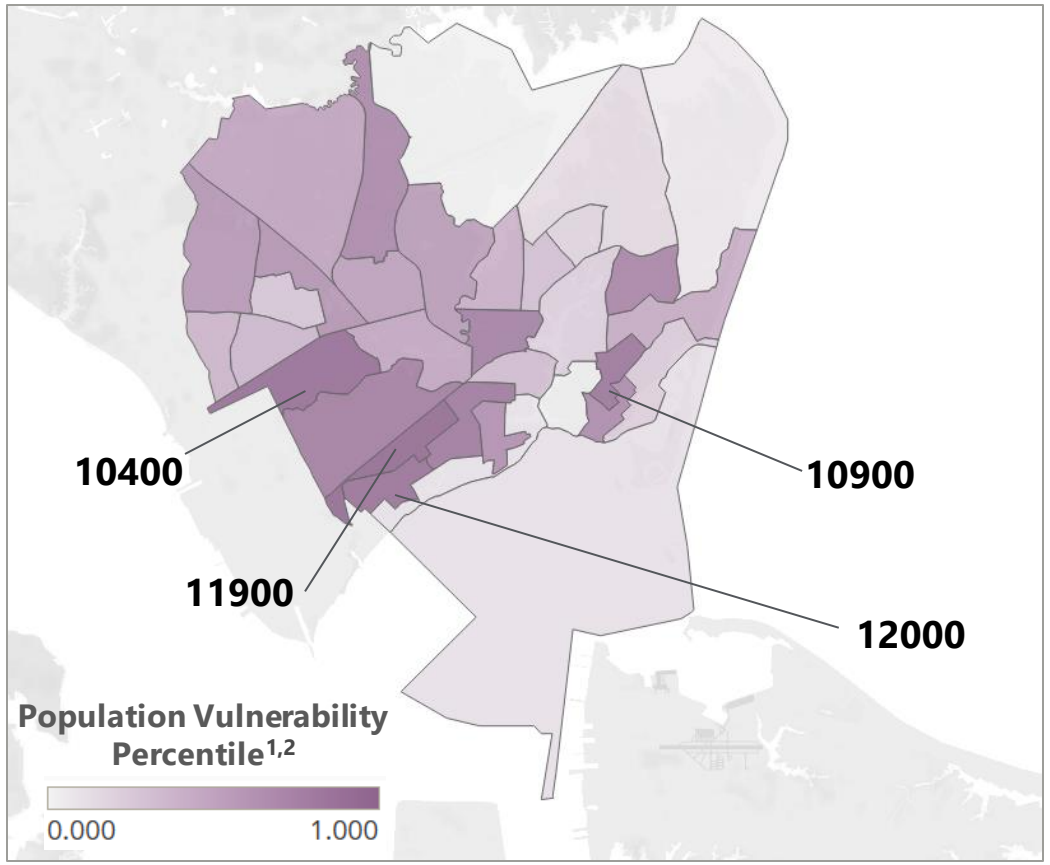
Attribute[1]	Weighting[2]	Description (in a household)
Low Income	18%	Number of adults with income less than $30,000
Elevated Health Risk	17%	Number of adults with one or more serious health conditions
Age (Older Adults)	15%	Number of adults who are age 65 and older
Communities of Color	13%	Number of 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 Hampton City



Top-5 Census Tracts for Population Vulnerability[1]

			Within-Hampton City 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	**11900**	**1,809**	**100th**	100th	100th	97th	66th	63rd	78th	66th	78th
2	**10400**	**3,813**	**97th**	97th	94th	81st	75th	66th	53rd	88th	81st
3	**12000**	**1,884**	**94th**	69th	97th	88th	63rd	72nd	44th	47th	72nd
4	**10900**	**1,350**	**91st**	91st	41st	91st	59th	75th	91st	63rd	91st
5	**11800**	**2,749**	**88th**	72nd	91st	75th	41st	38th	38th	53rd	75th

Note: See the appendix for a data table for the Top 15 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	10400	3,813	100th	97th	97th	94th	81st	75th	66th	53rd	88th	81st	91st	0	16	771	435	3259	1	547	6
2	10104	3,442	97th	78th	63rd	38th	66th	84th	100th	75th	31st	38th	88th	0	0	171	2332	11	3421	10	0
3	10501	3,404	94th	84th	88th	59th	47th	50th	50th	63rd	69th	28th	78th	0	16	412	316	1812	0	669	923
4	10306	3,366	91st	59th	41st	81st	34th	53rd	59th	66th	56th	6th	94th	0	0	2290	505	2442	924	0	0
5	11800	2,749	84th	88th	72nd	91st	75th	41st	38th	38th	53rd	75th	50th	0	0	52	75	99	0	1328	1322
6	10602	1,763	84th	81st	75th	9th	100th	31st	31st	72nd	41st	97th	56th	0	0	500	787	127	1547	89	0
7	11000	3,450	81st	47th	34th	34th	63rd	34th	34th	59th	38th	53rd	84th	22	0	698	788	1057	1054	1339	0
8	10313	3,577	78th	56th	53rd	50th	84th	3rd	9th	100th	13rd	66th	75th	0	0	0	346	0	1063	2492	22
9	12000	1,884	75th	94th	69th	97th	88th	63rd	72nd	44th	47th	72nd	34th	0	0	45	67	397	0	796	691
10	10304	4,106	69th	53rd	78th	63rd	25th	81st	91st	16th	22nd	22nd	72nd	0	0	57	492	0	0	2053	2053
11	11900	1,809	69th	100th	100th	100th	97th	66th	63rd	78th	66th	78th	25th	0	0	7	48	162	0	496	1151
12	10103	3,737	66th	16th	16th	47th	9th	97th	78th	25th	91st	9th	100th	12	0	3435	262	3348	389	0	0
13	10701	1,910	63rd	44th	56th	6th	56th	22nd	25th	88th	34th	88th	69th	0	0	1012	609	1502	408	0	0
14	10307	2,845	59th	63rd	94th	84th	0th	100th	81st	3rd	94th	0th	47th	0	0	257	662	0	0	0	2845
15	10900	1,350	56th	91st	91st	41st	91st	59th	75th	91st	63rd	91st	19th	0	0	19	280	0	736	614	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
HAMPTON CITY	2019	Exclusive	Hampton	HAMPTON (CITY)	601.1: Generators	$110,625
					602.1: Other Equipment Purchase an..	$92,206
	2018	Exclusive	City of Hampt..	Null	202.2: Elevation of Private Structures ..	$547,000
	2017	Shared	Statewide	STATEWIDE; HAMPTON (CITY); NEWPO..	106.1: Other Non Construction (Regul..	$80,814
	2016	Exclusive	City of Hampt..	Null	202.1: Elevation of Private Structures ..	$2,516,700
			Hampton	HAMPTON (CITY)	202.2: Elevation of Private Structures ..	$1,553,438
					601.1: Generators	$82,500
	2015	Exclusive	City of Hampt..	Null	202.2: Elevation of Private Structures ..	$325,883
	2013	Exclusive	City of Hampton	Null	202.1: Elevation of Private Structures ..	$1,180,000
					202.2: Elevation of Private Structures ..	$875,000
	2012	Exclusive	City of Hampt..	Null	202.2: Elevation of Private Structures ..	$502,787
			Hampton	HAMPTON (CITY)	202.1: Elevation of Private Structures ..	$1,161,827
		Shared	HAMPTON R..	ISLE OF WIGHT; JAMES CITY; WILLIAMS..	91.1: Local Multihazard Mitigation Plan	$163,140
	2011	Exclusive	Hampton	HAMPTON (CITY)	202.2: Elevation of Private Structures ..	$1,377,057
					602.1: Other Equipment Purchase an..	$18,055
	2010	Exclusive	Hampton	HAMPTON (CITY)	106.1: Other Non Construction (Regul..	$9,650
		Shared	Newport News	NEWPORT NEWS (CITY); HAMPTON (CI..	601.1: Generators	$130,007
	2008	Exclusive	City of Hampt..	Null	91.1: Local Multihazard Mitigation Plan	$209,250
	2003	Exclusive	Hampton	HAMPTON (CITY)	202.2: Elevation of Private Structures ..	$527,946

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