NEFRC
NORTHEAST FLORIDA REGIONAL COUNCIL

2023 North Florida Climate Exposure Analysis



Introduction

The North Florida Resiliency Plan for Health and Medical Lifeline has developed Climate Exposure Analyses (CEAs) for the 18 counties in the Region-3 Healthcare Coalition Alliance.

The CEAs identify and explain the exposure to the region's in-patient and dialysis centers. These facilities were identified through the Agency for Health Care Administration. The CEAs look at storm surge, flooding, and sea level rise for each county. Each hazard event contains a table showing the number and types of facilities that are vulnerable to such an event. This will allow for recommendations to be developed that will help the facilities become more resilient to such events.

The CEAs for each county can be found in the following pages.

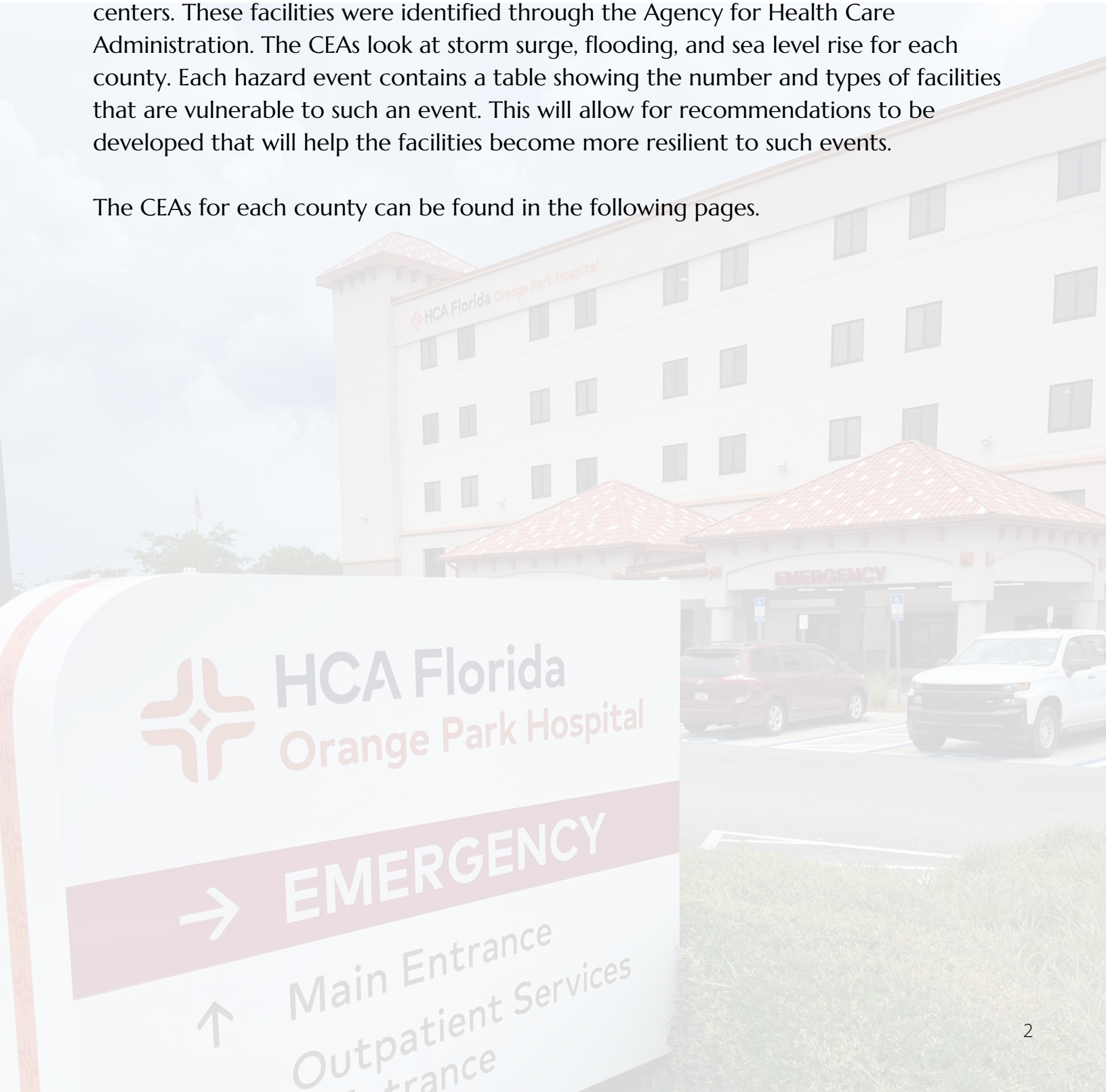


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ALACHUA COUNTY

CLIMATE EXPOSURE ANALYSIS



MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Alachua County can expect no exposure to storm surge or sea level rise.
- Developed land in Alachua County can expect to be moderately exposed to flooding, with no exposure to storm surge or sea level rise.
- Alachua County healthcare facilities can expect to be moderately exposed to flooding, with 21 out of 49 facilities exposed.
- Roads near hospitals in Alachua County are expected to have low to moderate exposure during flood events.

County Exposure Summary Table

The following table provides a brief overview of Alachua County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise. As an inland county, storm surge and sea level rise are not applicable (N/A) to this county.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 96,338)	% of Healthcare Facilities Exposed (Total: 43)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	N/A	N/A	N/A
Storm Surge	Category 2	N/A	N/A	N/A
Storm Surge	Category 3	N/A	N/A	N/A
Storm Surge	Category 4	N/A	N/A	N/A
Storm Surge	Category 5	N/A	N/A	N/A
Floodplain	100-year	49.1	34.9	25.1
Floodplain	500-year	49.6	34.9	36.7
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	N/A	N/A	N/A

The “percentage of developed land in county exposed” is based on the land use and cover data used by the Suwannee River Water Management District and the Florida Department of Environmental Protection’s Bureau of Watershed Restoration. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (96,338 acres), which is 17.19 % of the total land area in the county (560,409 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. 25% of essential roadways would be exposed during a 100-year flood event, and 37% would be exposed during a 500-year flood event.

As an inland county, Alachua County is still vulnerable to flood events; however, it is not vulnerable to storm surge or sea level rise. There are 43 healthcare facilities within the methodology of this analysis.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Alachua County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at 43 AHCA-licensed facilities in the county.

Flooding

Flooding is a hazard in which a moderate percentage of the county is exposed. Flooding caused by rainfall events is categorized by the chance of it occurring within a given timeframe. For example, there is a 1% chance of a 100-year flood event occurring in any given year. If a 100-year flood event were to occur, 49.1% or 47,302 acres of developed land in the county would be exposed. A 500-year flood would mean a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 49.6% or 47,784 acres of developed land in the county would be exposed.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total # of Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**11**	**5**	**5**
Dialysis Centers	**12**	**2**	**2**
Hospitals	**5**	**2**	**2**
Hospice	**1**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**3**	**2**	**2**
Nursing Homes	**9**	**4**	**4**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**2**	**0**	**0**
Total	**43**	**15**	**15**

The number of facilities within the 500-year floodplain also includes all the facilities within the 100-year floodplain. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In the case of Alachua County, there are no additional healthcare facilities present in the 500-year floodplain, even though a larger area of land is included in it. This is a coincidence based on the location of these healthcare facilities.

In both 100-year and 500-year flood events, most of the intermediate care facilities for the developmentally disabled and almost half of the hospitals, assisted living facilities, and nursing homes could be exposed.

In addition to the healthcare facility impacts, many of the essential roadways and other critical infrastructure in the county would be inundated by water during the measured flood events. This will limit the effectiveness of first responders if an emergency occurs during the onset of one of these hazard events. Roadways are considered essential if they are located within a 1-mile buffer of a hospital. This analysis identifies that a 100-year flood event would inundate 25.1% of the major roads in the county, while a 500-year event would inundate 40.1% of the major roads. While this is considered low to moderate exposure, it could limit access to healthcare facilities and impact resident evacuations.



BAKER COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Due to Baker County's location, storm surge and sea level rise are not applicable.
- Developed land in Baker County can expect moderate exposure during flood events.
- In 100- and 500-year flood events, one hospital can expect to be exposed. No other healthcare facilities in the county should expect to be exposed.
- During the 100- and 500-year flood events, 63% of essential roadways can expect to be exposed.

County Exposure Summary Table

The following table provides a brief overview of Baker County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise. As an inland county, storm surge and sea level rise are not applicable (N/A) to this county.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 19,952)	% of Healthcare Facilities Exposed (Total: 6)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	N/A	N/A	N/A
Storm Surge	Category 2	N/A	N/A	N/A
Storm Surge	Category 3	N/A	N/A	N/A
Storm Surge	Category 4	N/A	N/A	N/A
Storm Surge	Category 5	N/A	N/A	N/A
Floodplain	100-year	56.0	16.7	63.2
Floodplain	500-year	56.5	16.7	63.2
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	N/A	N/A	N/A

The “percentage of developed land in county exposed” is based on the land use and cover data used by the St. Johns River Water Management District and the Florida Department of Environmental Protection’s Bureau of Watershed Restoration. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (19,951.74 acres), which is 5.33% of the total land area in the county (374,547.2 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. 63% of essential roadways would be exposed during a 100- or 500-year flood event.

As an inland county, Baker is still vulnerable to coastal hazard events; however, it would not be vulnerable to storm surge or sea level rise.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Baker County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at six AHCA-licensed facilities in the county.

Flooding

Flooding is a major hazard with a high percentage of the county exposed. Flooding caused by storm events is categorized by the chance of it occurring within a given timeframe. There is a 1% chance of a 100-year flood occurring in any given year. If such a flood event were to occur, 56% of the county would be exposed to inundation; up to 11,173 acres of developed land could be exposed. A 500-year flood would mean there is a 0.2% chance of such a flood occurring in any given year. In a 500-year flood, 56.5% or 11,273 acres of the county could be inundated. The impacts of a 100-year or 500-year flood event could have a large impact on the infrastructure within the county.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within FloodPlain			
Healthcare Facility Type	**Total # of Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**1**	**0**	**0**
Dialysis Centers	**1**	**0**	**0**
Hospitals	**2**	**1**	**1**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**2**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**6**	**1**	**1**

The number of facilities within the 500-year floodplain includes all the facilities within the 100-year floodplain as well. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In Baker County's case, no additional healthcare facilities are present in the 500-year floodplain, even though a larger area of land is included in it. This is a coincidence based on the location of these healthcare facilities.

If a 100-year flood event occurs, 56% of Baker County would be inundated by water. Each year, a 500-year flood event has a 0.2% of occurring, and if this event occurs, the percentage of inundation of Baker County would be 59%. In both the 100-year and 500-year flood events, there would be an impact on one healthcare facility. The healthcare facility that could be exposed is one of the two hospitals in the county.

Essential roadways will also be exposed during 100- and 500-year flood events. 63% of essential roadways could be exposed during both 100- and 500-year flood events. Roadways are considered essential if they are located within a 1-mile buffer of a hospital. Impacts on essential roadways could limit the effectiveness of first responders if an emergency occurs during the onset of one of these hazard events.



BRADFORD COUNTY

CLIMATE EXPOSURE ANALYSIS

Bradford County Florida
"It's Better in Bradford"

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Bradford County can expect to have three out of its eight healthcare facilities exposed to flooding.
- In the event of a 100 and 500-year flood, Bradford County's only hospital would be impacted.
- A large portion of essential roadways in Bradford County will be impacted by the 100 and 500-year flood events.

County Exposure Summary Table

The following table provides a brief overview of Bradford County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise. As an inland county, storm surge and sea level rise are not applicable (N/A) to this county.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 24,784)	% of Healthcare Facilities Exposed (Total: 8)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	N/A	N/A	N/A
Storm Surge	Category 2	N/A	N/A	N/A
Storm Surge	Category 3	N/A	N/A	N/A
Storm Surge	Category 4	N/A	N/A	N/A
Storm Surge	Category 5	N/A	N/A	N/A
Floodplain	100-year	63.7	37.5	82.8
Floodplain	500-year	64.8	37.5	89.7
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	N/A	N/A	N/A

The “percentage of developed land in county exposed” is based on the land use and cover data used by the St. Johns River Water Management District and the Florida Department of Environmental Protection’s Bureau of Watershed Restoration. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (24,783.9 acres), which is 13.17% of the total land area in the county (188,134.4 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. 83% of essential roadways would be exposed during a 100-year flood event, increasing to 90% of them being exposed during a 500-year flood event.

As an inland county, Bradford is still vulnerable to flooding; however, it would not be vulnerable to storm surge or sea level rise. This analysis looks at eight AHCA-licensed facilities in the county.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Bradford County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. As of November 2022, the county has eight licensed healthcare facilities.

Flooding

Flooding is the main hazard that Bradford County faces. Flooding caused by storm events is categorized by the chance of it occurring within a given timeframe. For example, in any given year, there is a 1% chance of a 100-year flood event. If a 100-year flood event were to occur, 64% of the county, or 15,787 acres of developed land, would be exposed to inundation. A 500-year flood has a 0.2% chance of occurring in any given year. In the event of a 500-year flood, 65% of the county, or 16,060 acres of developed land, would be inundated by flooding.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total # of Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**2**	**0**	**0**
Dialysis Centers	**1**	**0**	**0**
Hospitals	**1**	**1**	**1**
Intermediate Care Facility for Developmentally Disabled	**2**	**1**	**1**
Nursing Homes	**2**	**1**	**1**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**8**	**3**	**3**

The number of facilities within the 500-year floodplain includes all the facilities within the 100-year floodplain as well. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the flood plain, it is included in the facility count. In the case of Bradford County, there are no additional healthcare facilities present in the 500-year floodplain, even though a larger area of land is included in it.

If a 100-year flood event were to occur, three out of eight of the healthcare facilities in Bradford County would be impacted. These three facilities are the one hospital, one intermediate care facility for developmentally disabled people, and one nursing homes.

If a 500-year flood event were to occur, the same three facilities that were exposed by the 100-year flood event would be exposed. No additional facilities would be exposed.

In addition to the healthcare facility impacts, many of the essential roadways and other critical infrastructure in the county would be inundated by water during the measured flood events. This will limit the effectiveness of first responders if an emergency occurs during the onset of one of these hazard events. Essential roadways in the county would be impacted to different degrees by the hazard exposure elements. Roadways are considered essential if they are located within a 1-mile buffer of a hospital. 82.8% of the essential roadways in Bradford County would be exposed during a 100-year flood event, and 89.7% would be exposed during a 500-year flood event. Either event could greatly impact resident evacuations and access to healthcare facilities.



CLAY COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities.

This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Clay County can expect to be highly exposed to flooding, with low to moderate exposure to sea level rise and storm surge.
- The greatest exposure for healthcare facilities in Clay County comes from storm surge associated with Categories 4 and 5 storms.
- 72% of essential roads are projected to be exposed during a Category 5 storm surge.

County Exposure Summary Table

The following table provides a brief overview of Clay County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise.

Exposure Element	Level	% of County Exposed (Total Acres: 76,621)	% of Healthcare Facilities Exposed (Total: 37)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	29.7	13.5	18.6
Storm Surge	Category 2	36.7	18.9	18.6
Storm Surge	Category 3	38.4	27.0	22.2
Storm Surge	Category 4	41.2	40.5	42.4
Storm Surge	Category 5	44.2	51.4	72.4
Floodplain	100-year	79.5	21.6	32.8
Floodplain	500-year	80.0	21.6	43.3
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	23.3	5.4	0.0
Sea Level Rise	Intermediate Low 2070 (2 ft)	24.4	5.4	0.0
Sea Level Rise	Intermediate High 2070 (3 ft)	27.0	5.4	0.0

The “percentage of developed land in county exposed” is based on the land use and cover data used by the St. Johns River Water Management District. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (76,621 acres), which is 19.8% of the total land area in the county (386,950.4 acres). All references to county exposure in this CEA are for the developed land only.
The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. Essential roadways in the county would be impacted to different degrees by the hazard exposure elements. During a Category 1 event, 19% of essential roadways would be exposed. The exposure would increase to 42% during a Category 4 event and to 72% during a Category 5 event.

Clay is vulnerable to the exposure elements predicted above. While Clay County is not a coastal county, storm surge and sea level rise impacts can be experienced due to the St. Johns River and its tributaries.

Essential roadways in the county would be impacted to different degrees by the hazard exposure elements. Roadways are considered essential if they are located within a 1-mile buffer of a hospital. None of the sea level rise scenarios will expose any essential roadways. Essential roadways are expected to have low to moderate exposure during flood events and Category 1 through 4 storm surges. Category 5 storm surge is expected to expose 72% of essential roadways.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Clay County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. As of November 2022, the county has 37 licensed healthcare facilities included in this analysis.

Storm Surge

This section will provide a brief overview of healthcare facilities that would be impacted by storm surge. Note that facilities vulnerable to Category 1 storm surge would be impacted by all higher categories, Categories 2-5. Therefore, the number of facilities in each category also includes the number of facilities in the preceding categories.

Storm surge is a hazardous event that can impact areas for days before and after a storm. For each category of storm surge (1-5), there is a maximum area of the county that would be inundated by the maximum amount of water associated with that category of storm, which is depicted in the table above. A storm surge of Category 1 could inundate 30% of the county or 22,986 acres of developed land and five healthcare facilities. A storm surge of Category 5 could inundate 44% of the county or 33,713 acres of developed land and 19 healthcare facilities.

Number of Facilities Vulnerable to Storm Surge by Category						
Healthcare Facility Type	**Total # of Facilities in the County**	**Cat 1**	**Cat 2**	**Cat 3**	**Cat 4**	**Cat 5**
Assisted Living Facilities	**16**	**3**	**3**	**4**	**5**	**7**
Dialysis Centers	**7**	**0**	**1**	**2**	**3**	**4**
Hospitals	**3**	**1**	**1**	**1**	**1**	**2**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**	**0**	**0**	**0**
Nursing Homes	**11**	**1**	**2**	**3**	**6**	**6**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**	**0**	**0**	**0**
Total	**37**	**5**	**7**	**10**	**15**	**19**

As referenced in the County Exposed Summary Table, 51% percent of the county's healthcare facilities would be vulnerable to a Category 5 storm surge. This could expose over half of the nursing homes and almost half of the assisted living facilities. Due to mobility limitations, the resident population of these facilities could be considered more vulnerable to hazardous events. Additionally, two out of the three hospitals could be exposed.

Flooding

Flooding is a major hazard that could expose a high percentage of the county. Flooding caused by rainfall events is categorized by the chance of it occurring within a given timeframe. There is a 1% chance of a 100-year flood occurring in any given year. A 500-year flood would mean a 0.2% chance of such a flood occurring in any given year. In both a 100-year and 500-year flood, 80% of the county is projected to be exposed, which comes out to 61,297 acres of developed land. Additionally, eight out of the 37 healthcare facilities in the county are projected to be exposed to both scenarios. The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**16**	**4**	**4**
Dialysis Centers	**7**	**1**	**1**
Hospitals	**3**	**1**	**1**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**11**	**2**	**2**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**37**	**8**	**8**

The number of facilities within the 500-year floodplain includes all the facilities within the 100-year floodplain as well. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but a larger area will be exposed when it does. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In the case of Clay County, no additional healthcare facilities are present in the 500-year floodplain, even though a larger area of land is included in it. This is a coincidence based on the location of these healthcare facilities.

In a 100-year and 500-year flood event, a quarter of all assisted living facilities, one dialysis center, one out of the three hospitals, and two nursing homes could be exposed.

Sea Level Rise

Sea level rise is an increase in the average level between high tide and low tide where the surface of the sea meets a shoreline. Sea level rise causes areas of land to be slowly covered by water and is independent of storms. The National Oceanic and Atmospheric Administration (NOAA) produces predictions of sea level rise based on different scenarios, which range from lower to higher projections. This analysis uses the Intermediate-Low and Intermediate-High Sea Level Rise Projections for the years 2040 and 2070 (called planning horizons). Data suggests that 23% of the county, or 17,623 acres of developed land, would be exposed to a sea level rise of 1 ft, and 5% of the healthcare facilities would be located within this exposed area.

The following table provides an overview of the number of healthcare facilities impacted by sea level rise projections for the years 2040 and 2070.

Number of Facilities Vulnerable to Sea Level Rise				
Healthcare Facility Type	**Total # Facilities in the County**	**1 foot (2040)**	**2 feet (2070)**	**3 feet (2070)**
Assisted Living Facilities	**16**	**2**	**2**	**2**
Dialysis Centers	**7**	**0**	**0**	**0**
Hospitals	**3**	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**	**0**
Nursing Homes	**11**	**0**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**	**0**
Total	**37**	**2**	**2**	**2**

As referenced in the County Exposed Summary Table, many of the facilities adjacent to a tidally influenced body of water would be the most vulnerable to this event. In total, two facilities, both of which are assisted living facilities, would be exposed to a sea level rise of 1 foot and above. No additional healthcare facilities are projected to be exposed to a sea level rise of 2 or 3 feet.



COLUMBIA COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Developed land Columbia County can expect to be moderately exposed to flooding, with no exposure to storm surge and sea level rise.
- One of the two hospitals in the county could be exposed during a 100- and 500-year flood event.
- In both a 100-year flood event and a 500-year flood event, 52.7% of all major roadways could be exposed to flooding.

County Exposure Summary Table

The following table provides a brief overview of Columbia County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise. As an inland county, storm surge and sea level rise are not applicable (N/A) to this county.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 53,636)	% of Healthcare Facilities Exposed (Total: 23)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	N/A	N/A	N/A
Storm Surge	Category 2	N/A	N/A	N/A
Storm Surge	Category 3	N/A	N/A	N/A
Storm Surge	Category 4	N/A	N/A	N/A
Storm Surge	Category 5	N/A	N/A	N/A
Floodplain	100-year	52.4	30.4	52.7
Floodplain	500-year	53.9	34.8	52.7
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	N/A	N/A	N/A

The “percentage of developed land in county exposed” is based on the land use and cover data used by the Suwannee River Water Management District and the Florida Department of Environmental Protection’s Bureau of Watershed Restoration. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (53,635.9 acres), which is 10.51% of the total land area in the county (510,432 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. 53% of essential roadways in the county would be exposed during a 100- or 500-year flood event.

As an inland county, Columbia is still vulnerable to coastal hazard events; however, it would not be vulnerable to storm surge or sea level rise.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Columbia County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at 23 AHCA-licensed facilities in the county.

Flooding

Flooding is the main hazard that Columbia County faces. Flooding caused by storm events is categorized by the chance of it occurring within a given timeframe. For example, in any given year, there is a 1% chance of a 100-year flood event occurring.

If a 100-year flood event were to occur, 52.4% of the county would be exposed to inundation; this means that 28,105 acres would be exposed. A 500-year flood has a 0.2% chance of occurring in any given year. In a 500-year flood, 53.9% or 28,910 acres of the county would be inundated by flooding.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total # of Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**11**	**4**	**4**
Dialysis Centers	**3**	**1**	**2**
Hospitals	**2**	**1**	**1**
Intermediate Care Facility for Developmentally Disabled	**2**	**1**	**1**
Nursing Homes	**4**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**1**	**0**	**0**
Total	**23**	**7**	**8**

The number of facilities within the 500-year floodplain includes all the facilities within the 100-year floodplain as well. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In Columbia County's case, two additional healthcare facilities are present in the 500-year floodplain.

If a 100-year flood event were to occur, seven out of 23 of the healthcare facilities in Columbia County could be impacted. This means that 30.4% of the healthcare facilities in Columbia County would be impacted. These seven facilities include four assisted living facilities and one dialysis center, both of which serve special populations that may need additional support when hazard events occur.

If a 500-year flood event were to occur, eight facilities would be exposed. This is equivalent to 34.8% of the healthcare facilities in the county being exposed. Assisted living facilities comprise the most significant portion of these facilities, and these residents are at high risk during hazard events. Additionally, two out of the three dialysis centers in the county would be vulnerable to inundation.

In addition to the healthcare facility impacts, many of the essential roadways and other critical infrastructure in the county would be inundated by water during the measured flood events. This will limit the effectiveness of first responders if an emergency occurs during the onset of one of these hazard events. Roadways are considered essential if they are located within a 1-mile buffer of a hospital. In both a 100-year flood event and a 500-year flood event, 52.7% of all major roadways would be exposed to flooding. This will limit access to health facilities and impact resident evacuations.



DIXIE COUNTY

CLIMATE EXPOSURE ANALYSIS

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Developed land in Dixie County can expect minimal to moderate exposure to storm surge, depending on the category.
- A 100-year flood event would inundate 80% of developed land in the county.
- A 100-year flood event and 500-year flood events are the only exposure elements that would impact the single healthcare facility in the county as part of this analysis.

County Exposure Summary Table

The following table provides a brief overview of Dixie County's vulnerability to the measured exposure elements of storm surge, flooding, and sea level rise. As Dixie County does not have any hospitals, the percentage of roads exposed within 1 mile of hospitals is not applicable (N/A).

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 20,972)	% of Healthcare Facilities Exposed (Total: 1)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	14.0	0.0	N/A
Storm Surge	Category 2	15.6	0.0	N/A
Storm Surge	Category 3	17.2	0.0	N/A
Storm Surge	Category 4	53.6	0.0	N/A
Storm Surge	Category 5	61.7	0.0	N/A
Floodplain	100-year	80.0	100.0	N/A
Floodplain	500-year	82.9	100.0	N/A
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	10.7	0.0	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	11.5	0.0	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	11.8	0.0	N/A

The “percentage of developed land in county exposed” is based on the land use and cover data used by the Suwannee River Water Management District and the Florida Department of Environmental Protection’s Bureau of Watershed Restoration. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (20,971.75 acres), which is 4.65% of the total land area in the county (451,219.2 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. As Dixie County does not have any hospitals, this aspect of the analysis was omitted.

As a coastal county, Dixie is vulnerable to the exposure elements predicted above. This analysis used Geographic Information Systems (GIS), which suggests that the one healthcare facility in the county is located within the interior and would not be directly vulnerable to inundation from most of these exposure events.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Dixie County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at one AHCA-licensed facility in the county, a nursing home.

Storm Surge

This section will provide a brief overview of healthcare facilities that would be impacted by storm surge. Note that facilities vulnerable to Category 1 storm surge would be impacted by all higher categories, Categories 2-5. Therefore, the number of facilities in each category also includes the number of facilities in the preceding categories.

Storm surge is a hazardous event that can impact areas for days before and after a storm. For each category of storm surge (1-5), there is a maximum area of the county that would be inundated by the maximum amount of water associated with that category of storm, which is depicted in the table above. A storm surge of Category 1 would impact 14% of the county; 2,936 acres of developed land could be exposed. A storm surge of Category 5 would impact 61.7% of the county; 12,939 acres of developed land could be exposed. None of the storm surge categories would expose the healthcare facility.

Number of Facilities Vulnerable to Storm Surge by Category						
Healthcare Facility Type	**Total # of Facilities in the County**	**Cat 1**	**Cat 2**	**Cat 3**	**Cat 4**	**Cat 5**
Assisted Living Facilities	**0**	**0**	**0**	**0**	**0**	**0**
Dialysis Centers	**0**	**0**	**0**	**0**	**0**	**0**
Hospitals	**0**	**0**	**0**	**0**	**0**	**0**
Intermediate Care Facilities for Developmentally Disabled	**0**	**0**	**0**	**0**	**0**	**0**
Nursing Homes	**1**	**0**	**0**	**0**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**	**0**	**0**	**0**
Total	**1**	**0**	**0**	**0**	**0**	**0**

As referenced in the County Exposure Summary Table, the county's healthcare facility, a nursing home, would not be exposed to any category storm surge.

Flooding

Flooding is a major hazard, with a high percentage of the county exposed. Flooding caused by storm events is categorized by the chance of occurring within a given timeframe. There is a 1% chance of a 100-year flood occurring in any given year. If such a flood event were to occur, 80% of the county, or 16,778 acres of developed land, could be exposed to inundation. A 500-year flood would mean a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 82.9% of the county could be inundated by flooding, exposing 17,386 acres of developed land. The impacts of a 100-year or 500-year flood event would likely have a significant impact on the infrastructure within the county.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**0**	**0**	**0**
Dialysis Centers	**0**	**0**	**0**
Hospitals	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**1**	**1**	**1**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**1**	**1**	**1**

The number of facilities within the 500-year floodplain includes all the facilities within the 100-year floodplain as well. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but a larger area will be exposed when it does. If any part of a parcel is intersected by the floodplain, it is included in the facility count.
The single nursing home in Dixie County would be exposed during 100- and 500-year flood events.

Sea Level Rise

Sea level rise is an increase in the average level between high tide and low tide where the surface of the sea meets a shoreline. Sea level rise causes areas of land to be slowly covered by water and is independent of storms. The National Oceanic and Atmospheric Administration (NOAA) produces predictions of sea level rise based on different scenarios ranging from lower to higher projections. This analysis uses the Intermediate-Low and Intermediate-High Sea Level Rise Projections for the years 2040 and 2070 (called planning horizons). As referenced above, the one healthcare facility in the county is inland and would not be vulnerable to this event.
The table below provides an overview of the number of healthcare facilities impacted by sea level rise projections for the years of 2040 and 2070.

Number of Facilities Vulnerable to Sea Level Rise				
Healthcare Facility Type	**Total Facilities in the County**	**1 foot (2040)**	**2 feet (2070)**	**3 feet (2070)**
Assisted Living Facilities	**0**	**0**	**0**	**0**
Dialysis Centers	**0**	**0**	**0**	**0**
Hospitals	**0**	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**	**0**
Nursing Homes	**1**	**0**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**	**0**
Total	**1**	**0**	**0**	**0**

The one healthcare facility in the county would not be impacted by sea level rise of any measured category.



DUVAL COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Developed land in Duval County can expect low to high exposure, depending on the hazard events.
- Duval County healthcare facilities can expect very low to moderate exposure, depending on the hazard events.
- Developed land in Duval County can expect high exposure during Category 5 storm surge and 100- and 500-year flood events.
- Between 75% and 84% of essential roadways in Duval County can expect to be exposed during a Category 4 or Category 5 storm surge.

- One-third of hospitals can expect to be exposed during flood events.
- In every sea level rise scenario (1 ft, 2 ft, and 3 ft), three out of the 14 hospitals can expect to be exposed.

County Exposure Summary Table

The following table provides a brief overview of Duval County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 181,272)	% of Healthcare Facilities Exposed (Total: 151)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	40.2	14.6	34.7
Storm Surge	Category 2	46.4	23.2	55.3
Storm Surge	Category 3	52.5	26.5	61.0
Storm Surge	Category 4	62.7	37.7	74.7
Storm Surge	Category 5	69.9	45.0	83.5
Floodplain	100-year	70.7	21.9	36.9
Floodplain	500-year	73.2	25.2	53.2
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	28.5	7.9	17.5
Sea Level Rise	Intermediate Low 2070 (2 ft)	31.0	7.9	17.5
Sea Level Rise	Intermediate High 2070 (3 ft)	31.8	8.6	23.5

The “percentage of developed land in county exposed” is based on the land use and cover data used by the St. Johns River Water Management District. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (181,272 acres), which is 37.13% of the total land area in the county (488,096 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. Essential roadways in the county would be impacted to different degrees by the hazard exposure elements. During a Category 1 storm event, 35% of essential roadways would be exposed. The exposure would increase to 55% during a Category 2 event, 75% during a Category 4 event, and 84% during a Category 5 event.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Duval County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at 151 AHCA-licensed facilities in the county.

Storm Surge

This section will provide a brief overview of healthcare facilities that would be impacted by storm surge. Note that facilities vulnerable to Category 1 storm surge would be impacted by all higher categories, Categories 2-5. Therefore, the number of facilities in each category also includes the number of facilities in the preceding categories.

Storm surge is a hazardous event that can impact areas for days before and after a storm. For each category of storm surge (1-5), there is a maximum area of the county that would be inundated by the maximum amount of water associated with that category of storm, which is depicted in the table below. A storm surge of Category 1 would impact 40% of the county and 15% of all healthcare facilities. A storm surge of Category 5 would impact 70% of the county and 45% of healthcare facilities.

Number of Facilities Vulnerable to Storm Surge by Category						
Healthcare Facility Type	**Total # of Facilities in the County**	**Cat 1**	**Cat 2**	**Cat 3**	**Cat 4**	**Cat 5**
Assisted Living Facilities	**74**	**11**	**17**	**19**	**30**	**34**
Dialysis Centers	**21**	**1**	**1**	**1**	**1**	**2**
Hospice	**2**	**0**	**0**	**0**	**0**	**0**
Hospitals	**14**	**4**	**6**	**7**	**7**	**7**
Intermediate Care Facility for Developmentally Disabled	**6**	**0**	**1**	**1**	**2**	**3**
Nursing Homes	**33**	**6**	**10**	**11**	**16**	**21**
Residential Treatment Centers for Children	**1**	**0**	**0**	**1**	**1**	**1**
Residential Treatment Facilities	**0**	**0**	**0**	**0**	**0**	**0**
Total	**151**	**22**	**35**	**40**	**57**	**68**

As referenced in the County Exposed Summary Table, 45% percent of the county's healthcare facilities would be vulnerable to a Category 5 storm surge. This would impact approximately two-thirds of the nursing homes and almost half of the assisted living facilities in the county. Due to potential mobility limitations, the resident population of these facilities could be considered more vulnerable to hazardous events.

Flooding

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events. Flooding is a major hazard, with a high percentage of the county exposed. Flooding caused by storm events is categorized by the chance of occurring within a given timeframe. There is a 1% chance of a 100-year flood in any given year. If such a flood event were to occur, 70.7% of the county could be exposed to inundation. A 500-year flood would mean there is a 0.2% chance of such a flood occurring in any given year. In a 500-year flood, 73.2% of the county could be inundated by flooding. The impacts of a 100-year or 500-year flood event would likely have a significant impact on the infrastructure within the county.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**74**	**16**	**16**
Dialysis Centers	**21**	**0**	**1**
Hospice	**2**	**0**	**0**
Hospitals	**14**	**5**	**6**
Intermediate Care Facility for Developmentally Disabled	**6**	**0**	**0**
Nursing Homes	**33**	**11**	**14**
Residential Treatment Centers for Children	**1**	**1**	**1**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**151**	**33**	**38**

The number of facilities within the 500-year floodplain also includes all the facilities within the 100-year floodplain. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In Duval County's case, three additional healthcare facilities are present in the 500-year floodplain.

If a 100-year flood event occurs, 71% of Duval County could be inundated by water. 33 out of 151 healthcare facilities in the county are projected to be exposed. This includes five out of 14 hospitals, 11 out of 33 nursing homes, and 16 out of 74 assisted living facilities. Additionally, the only residential treatment center for children is also vulnerable to flooding.

A 500-year flood event has a 0.2% of occurring, and if this event occurs, the percentage of inundation of Duval County could rise to 73%. 38 out of 151 healthcare facilities in the county are projected to be exposed. This includes 6 out of 14 hospitals and 14 out of 33 nursing homes in the county.

Sea Level Rise

The table below provides an overview of the number of healthcare facilities impacted by sea level rise projections for the years 2040 and 2070.

Sea level rise is an increase in the average level between high and low tide where the sea’s surface meets a shoreline. Sea level rise causes land areas to be slowly covered by water and is independent of storms. The National Oceanic and Atmospheric Administration (NOAA) produces predictions of sea level rise based on different scenarios, which range from lower to higher projections. This analysis uses the Intermediate-Low and Intermediate-High Sea Level Rise Projections for 2040 and 2070 (called planning horizons). As referenced above, some of the healthcare facilities in the county are located near the coast and thus are more vulnerable. Data suggests that 29% of the county would be exposed to a sea level rise of 1 foot, and 8% of the healthcare facilities would be located within this exposed area.

Number of Facilities Vulnerable to Sea Level Rise				
Healthcare Facility Type	**Total Facilities in the County**	**1 foot (2040)**	**2 feet (2070)**	**3 feet (2070)**
Assisted Living Facilities	**74**	**6**	**6**	**7**
Dialysis Centers	**21**	**0**	**0**	**0**
Hospice	**2**	**0**	**0**	**0**
Hospitals	**14**	**3**	**3**	**3**
Intermediate Care Facility for Developmentally Disabled	**6**	**0**	**0**	**0**
Nursing Homes	**33**	**3**	**3**	**3**
Residential Treatment Centers for Children	**1**	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**	**0**
Total	**151**	**12**	**12**	**13**

As referenced in the County Exposed Summary Table, 12 out of the 151 applicable healthcare facilities in Duval County would be exposed to a sea level rise of either 1 or 2 feet. 13 healthcare facilities would be exposed to a sea level rise of 3 feet.



FLAGLER COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Flagler County's healthcare facilities can expect very low to low exposure to the hazard events, except for moderate exposure to Category 5 storm surge.
- Flagler County can expect low to moderate exposure to storm surge.
- Flagler County can expect low exposure to sea level rise.
- Flagler County can expect high exposure to 100- and 500-year flood events.
- The only hazard event that will affect essential roadways in Flagler County is a Category 5 storm surge.

County Exposure Summary Table

The following table provides a brief overview of Flagler County's exposure to the measured exposure elements.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 37,100)	% of Healthcare Facilities Exposed (Total: 27)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	21.3	3.7	0.0
Storm Surge	Category 2	24.0	18.5	0.0
Storm Surge	Category 3	26.3	18.5	0.0
Storm Surge	Category 4	43.5	22.2	0.0
Storm Surge	Category 5	50.6	48.1	75.1
Floodplain	100-year	67.1	11.1	0.0
Floodplain	500-year	70.6	11.1	0.0
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	14.7	0.0	0.0
Sea Level Rise	Intermediate Low 2070 (2 ft)	15.1	0.0	0.0
Sea Level Rise	Intermediate High 2070 (3 ft)	15.6	0.0	0.0

The “percentage of developed land in county exposed” is based on the land use and cover data used by the St. Johns River Water Management District and the Florida Department of Environmental Protection’s Bureau of Watershed Restoration. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (37,099.56 acres), which is 11.92% of the total land area in the county (311,168 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. Essential roadways in the county would be impacted to different degrees by the hazard exposure elements. The only event that would impact essential roadways is a Category 5 storm surge event, with 75% of roads being exposed.

As a coastal county, Flagler is vulnerable to the exposure elements predicted above. There are 27 healthcare facilities within the methodology of this analysis. Some of the county’s healthcare facilities are located near the coast, and part of the analysis developed using Geographic Information Systems (GIS) suggests that these facilities would be vulnerable to the exposure elements listed above.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Flagler County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at 27 AHCA-licensed facilities in the county.

Storm Surge

This section will provide a brief overview of healthcare facilities that would be impacted by storm surge. Note that facilities vulnerable to Category 1 storm surge would be impacted by all higher categories, Categories 2-5. Therefore, the number of facilities in each category also includes the number of facilities in the preceding categories.

Storm surge is a hazard event that can impact areas for days before and after a storm. For each category of storm surge (1-5), there is a maximum area of the county that would be inundated by the maximum amount of water associated with that category of storm, which is depicted in the table below. A storm surge of Category 1 would expose 21.3% of the county, equaling 7,902 acres of developed land; additionally, 3.7% of all healthcare facilities in the county could be exposed. A storm surge of Category 5 would impact 50.6%, or 18,772 acres, of the county and 48.1% of healthcare facilities.

Number of Facilities Vulnerable to Storm Surge by Category						
Healthcare Facility Type	**Total # of Facilities in the County**	**Cat 1**	**Cat 2**	**Cat 3**	**Cat 4**	**Cat 5**
Assisted Living Facilities	**20**	**1**	**4**	**4**	**4**	**11**
Dialysis Centers	**4**	**0**	**0**	**0**	**1**	**1**
Hospitals	**1**	**0**	**0**	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**	**0**	**0**	**0**
Nursing Homes	**2**	**0**	**1**	**1**	**1**	**1**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**	**0**	**0**	**0**
Total	**27**	**1**	**5**	**5**	**6**	**13**

As referenced in the County Exposure Summary Table, 48% of the county's healthcare facilities would be vulnerable to a Category 5 storm surge. This weather event would impact over half of the assisted living facilities and half of the nursing homes. Due to mobility limitations, the resident population of these facilities could be considered more vulnerable to hazardous events. However, the only hospital in the county would not be exposed.

Flooding

Flooding is another hazard with a high percentage of the county exposed. Flooding caused by rainfall events is categorized by the chance of occurring within a given timeframe. For example, there is a 1% chance of a 100-year flood event occurring in any given year. If a 100-year flood event were to occur, 67% of the county would be exposed to inundation; this equates to 24,857 acres of developed land being exposed. A 500-year flood would mean a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 71% of the county, or 26,341 acres, would be inundated by flooding.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**20**	**2**	**2**
Dialysis Centers	**4**	**0**	**0**
Hospitals	**1**	**0**	**0**
Hospice	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**2**	**1**	**1**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**27**	**3**	**3**

The number of facilities within the 500-year floodplain also includes all the facilities within the 100-year floodplain. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In Flagler County's case, no additional healthcare facilities are present in the 500-year floodplain, even though a larger area of land is included in it.

In both a 100-year and 500-year flood event, three out of 27 of the healthcare facilities in Flagler County would be exposed. These three facilities include one nursing home and two assisted living facilities.

Sea Level Rise

Sea level rise is an increase in the average level between high tide and low tide where the surface of the sea meets a shoreline. Sea level rise causes areas of land to be slowly covered by water and is independent of storms. The National Oceanic and Atmospheric Administration (NOAA) produces predictions of sea level rise based on different scenarios, which range from lower to higher projections. This analysis uses the Intermediate-Low and Intermediate-High Sea Level Rise Projections for the years 2040 and 2070 (called planning horizons). As referenced above, many of the healthcare facilities in the county are located near the coast and thus are more vulnerable. Data suggests that between 14.7 and 15.6% of the developed land in Flagler County would be exposed to sea level rise of varying levels, meaning between 5,454 and 5,788 acres in the county could be exposed.

The table below provides an overview of the number of healthcare facilities impacted by sea level rise projections for the years of 2040 and 2070.

Number of Facilities Vulnerable to Sea Level Rise				
Healthcare Facility Type	**Total Facilities in the County**	**1 foot (2040)**	**2 feet (2070)**	**3 feet (2070)**
Assisted Living Facilities	**20**	**0**	**0**	**0**
Dialysis Centers	**4**	**0**	**0**	**0**
Hospitals	**1**	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**	**0**
Nursing Homes	**2**	**0**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**	**0**
Total	**27**	**0**	**0**	**0**

As referenced in the County Exposed Summary Table, none of the healthcare facilities in Flagler County are vulnerable to sea level rise.



GILCHRIST COUNTY

CLIMATE EXPOSURE ANALYSIS



MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts on healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Gilchrist County is not vulnerable to sea level rise or storm surge.
- Gilchrist County can expect low exposure to a 100-year flood event and only marginally more exposure to a 500-year flood event.
- One dialysis center and one of the two nursing homes in the county would be exposed during a 500-year flood event.
- None of the county's essential roadways would be exposed during a 100- or 500-year flood event.

County Exposure Summary Table

The The following table provides a brief overview of Gilchrist County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise. As an inland county, storm surge and sea level rise are not applicable (N/A) to this county. As Gilchrist County does not have any hospitals, the percentage of roads exposed within 1 mile of hospitals is not applicable (N/A).

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 68,420)	% of Healthcare Facilities Exposed (Total: 38)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	N/A	N/A	N/A
Storm Surge	Category 2	N/A	N/A	N/A
Storm Surge	Category 3	N/A	N/A	N/A
Storm Surge	Category 4	N/A	N/A	N/A
Storm Surge	Category 5	N/A	N/A	N/A
Floodplain	100-year	30.0	33.3	N/A
Floodplain	500-year	32.6	66.7	N/A
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	N/A	N/A	N/A

As an inland county, Gilchrist is still vulnerable to coastal hazard events; however, it would not be vulnerable to storm surge or sea level rise. Gilchrist County is susceptible to 100-year and 500-year flood events.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Gilchrist County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at three AHCA-licensed facilities in the county.

Flooding

Flooding is the main hazard that Gilchrist County faces. Flooding caused by storm events is categorized by the chance of it occurring within a given timeframe. For example, there is a 1% chance of a 100-year flood event occurring in any given year. If a 100-year flood event were to occur, 30% of the county would be exposed to inundation; this means that 5,875 acres would be exposed. A 500-year flood has a 0.2% chance of occurring in any given year. In the event of a 500-year flood, 32.6% or 6,384 acres of the county would be inundated by flooding.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total # of Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**0**	**0**	**0**
Dialysis Centers	**1**	**0**	**1**
Hospitals	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**2**	**1**	**1**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**3**	**1**	**2**

As referenced in the County Exposed Summary Table, 45% percent of the county's healthcare facilities would be vulnerable to a Category 5 storm surge. This would impact over half of the assisted living facilities and half of the nursing homes, and due to mobility limitations, the resident population of these facilities could be considered more vulnerable to hazardous events.

Flooding

Flooding is another major hazard with a high percentage of the county exposed. Flooding caused by rainfall events is categorized by the chance of it occurring within a given timeframe. If a 100-year flood event were to occur, 73% of the county would be exposed to inundation. In any given year, there is a 1% chance of that type of flood occurring. A 500-year flood would mean there is a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 77% of the county would be inundated by flooding, potentially impacting 16 out of the 38 healthcare facilities.
The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**0**	**0**	**0**
Dialysis Centers	**1**	**0**	**1**
Hospitals	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**2**	**1**	**1**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**3**	**1**	**2**

The number of facilities within the 500-year floodplain also includes all the facilities within the 100-year floodplain. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but a larger area will be exposed when it does. If any part of a healthcare facility parcel is intersected by the floodplain, it is included in the facility count.

If a 100-year flood event were to occur, one of the three healthcare facilities in Gilchrist County would be exposed. This means that 33.3% of the healthcare facilities in Gilchrist County would be exposed. The facility that is predicted to be exposed is a nursing home, which serves special populations that may need additional support when hazard events occur.

If a 500-year flood event were to occur, two facilities would be exposed. This is equivalent to 66.6% of the healthcare facilities in the county being exposed. In addition to the nursing home, the only dialysis center in the county would be exposed.

For this analysis, roadways are considered essential if they are located within a 1-mile buffer of a hospital. As Gilchrist County does not have any hospitals, this aspect of the analysis was omitted.



HAMILTON COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Hamilton County is an inland county and is not vulnerable to storm surge and sea level rise events.
- Developed land in Hamilton County can expect high exposure to 100- and 500-year flood events.
- A quarter of the healthcare facilities in the county would be vulnerable to a 100-year flood event and a 500-year flood event.
- None of the essential roadways in Hamilton County would be exposed during the measured flood events.

County Exposure Summary Table

The following table provides a brief overview of Hamilton County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise. As an inland county, storm surge and sea level rise are not applicable (N/A) to this county. As Hamilton County does not have any hospitals, the percentage of roads exposed within 1 mile of hospitals is not applicable (N/A).

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 50,728)	% of Healthcare Facilities Exposed (Total: 4)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	N/A	N/A	N/A
Storm Surge	Category 2	N/A	N/A	N/A
Storm Surge	Category 3	N/A	N/A	N/A
Storm Surge	Category 4	N/A	N/A	N/A
Storm Surge	Category 5	N/A	N/A	N/A
Floodplain	100-year	83.9	25.0	0.0
Floodplain	500-year	84.4	25.0	0.0
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	N/A	N/A	N/A

The “percentage of developed land in county exposed” is based on the land use and cover data used by the Suwannee River Water Management District and the Florida Department of Environmental Protection’s Bureau of Watershed Restoration. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (50,727.7 acres), which is 15.42% of the total land area in the county (329,152 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. None of the essential roadways would be exposed during a hazard event.

As an inland county, Hamilton is still vulnerable to coastal hazard events; however, it would not be vulnerable to storm surge or sea level rise. There are four healthcare facilities within the methodology of this analysis.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Hamilton County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at four AHCA-licensed facilities in the county.

Flooding

Flooding is a major hazard with a high percentage of the county exposed. Flooding caused by storm events is categorized by the chance of it occurring within a given timeframe. In any given year, there is a 1% chance of a 100-year flood occurring. If such a flood event were to occur, 83.9% of the county would be exposed to inundation; this is equivalent to 42,560 acres of developed land being exposed. A 500-year flood would mean there is a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 84.4% or 42,814 acres of the county would be inundated by flooding. The impacts of a 100-year flood event or 500-year flood event would likely have a large impact on the infrastructure within the county.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total # of Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**3**	**1**	**1**
Dialysis Centers	**0**	**0**	**0**
Hospitals	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**1**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**4**	**1**	**1**

The number of facilities within the 500-year floodplain includes all the facilities within the 100-year floodplain as well. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In Hamilton County, there are no additional healthcare facilities present in the 500-year floodplain, even though a larger area of land is included in it.

If a 100-year flood event occurs, 84% of Hamilton County would be inundated by water and a 500-year flood event the inundation would increase to 85%. In both the 100-year and 500-year flood events, there would be an impact on one healthcare facility, an assisted living facility.

For this analysis, roadways are considered essential if they are located within a 1-mile buffer of a hospital. As Hamilton County does not have any hospitals this aspect of the analysis was omitted. Impacts on essential roadways could limit the effectiveness of first responders if an emergency occurs during the onset of one of these hazard events.



LAFAYETTE COUNTY

CLIMATE EXPOSURE ANALYSIS

LAFAYETTE COUNTY FLORIDA

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Lafayette County can expect moderate exposure to flooding, but no exposure to storm surge or sea level rise.
- Two out of the three healthcare facilities in Lafayette County can expect to be exposed during flood events.
- The essential roadways in Lafayette County are not expected to be exposed during any flood event.

County Exposure Summary Table

The following table provides a brief overview of Lafayette County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise. As an inland county, storm surge and sea level rise are not applicable (N/A) to this county.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 7,266)	% of Healthcare Facilities Exposed (Total: 3)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	N/A	N/A	N/A
Storm Surge	Category 2	N/A	N/A	N/A
Storm Surge	Category 3	N/A	N/A	N/A
Storm Surge	Category 4	N/A	N/A	N/A
Storm Surge	Category 5	N/A	N/A	N/A
Floodplain	100-year	44.2	66.7	0.0
Floodplain	500-year	47.4	66.7	0.0
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	N/A	N/A	N/A

The “percentage of developed land in county exposed” is based on the land use and cover data used by the Suwannee River Water Management District and the Florida Department of Environmental Protection’s Bureau of Watershed Restoration. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (7,266.15 acres), which is 2.1% of the total land area in the county (347,744 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. None of the essential roadways would be exposed during a hazard event.

As an inland county, Lafayette is still vulnerable to coastal hazard events; however, it would not be vulnerable to storm surge or sea level rise. There are three healthcare facilities within the methodology of this analysis.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Lafayette County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at three AHCA-licensed facilities in the county.

Flooding

Flooding is a hazard that would expose a moderate percentage of the county. Flooding caused by rainfall events is categorized by the chance of it occurring within a given timeframe. For example, in any given year, there is a 1% chance of a 100-year flood event occurring. If a 100-year flood event were to occur, 44% or 3,212 acres of the county could be exposed to flooding. A 500-year flood would mean there is a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 47% or 3,444 acres of the county could be exposed to flooding.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total # of Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**2**	**2**	**2**
Dialysis Centers	**0**	**0**	**0**
Hospitals	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**1**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**3**	**2**	**2**

The number of facilities within the 500-year floodplain includes all the facilities within the 100-year floodplain as well. This is because there is a greater chance of a 100-year flood occurring and therefore a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In the case of Lafayette County, there are no additional healthcare facilities present in the 500-year floodplain even though a larger area of land is included in it. This is a coincidence based on the location of these healthcare facilities.

In a 100-year and 500-year flood event, both assisted living facilities in Lafayette County would be exposed, but the only nursing home in the county would not be exposed. The assisted living facilities serve special populations that may need additional support when hazard events occur.

Although there are impacts on the healthcare facilities in the county, none of the essential roadways would be exposed during a flood event. Roadways are considered essential if they are located within a 1-mile buffer of a hospital. Impacts on essential roadways could limit the effectiveness of first responders if an emergency occurs during the onset of one of these hazard events.



LEVY COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Developed land in Levy County can expect very low to low exposure to storm surge and sea level rise.
- Levy County can expect moderate exposure during 100- and 500-year flood events, with approximately half of the developed land being exposed.
- None of the healthcare facilities in Levy County would be exposed during any of the measured hazard events.

County Exposure Summary Table

The following table provides a brief overview of Levy County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise. As Levy County does not have any hospitals, the percentage of roads exposed within 1 mile of hospitals is not applicable (N/A).

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 66,053)	% of Healthcare Facilities Exposed (Total: 3)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	6.7	0.0	N/A
Storm Surge	Category 2	9.1	0.0	N/A
Storm Surge	Category 3	9.6	0.0	N/A
Storm Surge	Category 4	12.4	0.0	N/A
Storm Surge	Category 5	16.0	0.0	N/A
Floodplain	100-year	49.9	0.0	N/A
Floodplain	500-year	50.4	0.0	N/A
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	1.1	0.0	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	1.4	0.0	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	1.6	0.0	N/A

The “percentage of developed land in county exposed” is based on the land use and cover data used by the Southwest Florida Water Management District and the Florida Department of Environmental Protection’s Bureau of Watershed Restoration. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (66,052.6 acres), which is 9.22% of the total land area in the county (715,660.8 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. As Levy County does not have any hospitals, this aspect of the analysis was omitted.

As a coastal county, parts of Levy are vulnerable to the exposure elements measured above. The analysis was developed using Geographic Information Systems (GIS) and shows that the three healthcare facilities used in this analysis are located inland and are not vulnerable to these exposure events.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Levy County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at three AHCA-licensed facilities in the county.

Storm Surge

This section will provide a brief overview of healthcare facilities that would be impacted by storm surge. Note that facilities vulnerable to Category 1 storm surge would be impacted by all higher categories, Categories 2-5. Therefore, the number of facilities in each category also includes the number of facilities in the preceding categories.

Storm surge is a hazardous event that can impact areas for days before and after a storm. For each category of storm surge (1-5), there is a maximum area of the county that would be inundated by the maximum amount of water associated with that category of storm, which is depicted in the table below. A storm surge of Category 1 would impact 6.7% of the county or 4,426 acres of developed land. A storm surge of Category 5 would impact 16% of the county or 10,568 acres of developed land. No healthcare facilities would be impacted by a storm surge of any category.

Number of Facilities Vulnerable to Storm Surge by Category						
Healthcare Facility Type	**Total # of Facilities in the County**	**Cat 1**	**Cat 2**	**Cat 3**	**Cat 4**	**Cat 5**
Assisted Living Facilities	**0**	**0**	**0**	**0**	**0**	**0**
Dialysis Centers	**1**	**0**	**0**	**0**	**0**	**0**
Hospitals	**0**	**0**	**0**	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**	**0**	**0**	**0**
Hospice	**1**	**0**	**0**	**0**	**0**	**0**
Nursing Homes	**1**	**0**	**0**	**0**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**	**0**	**0**	**0**
Total	**3**	**0**	**0**	**0**	**0**	**0**

In the event of a storm surge event, the impact on healthcare facilities in Levy County would be very low. As referenced in the County Exposure Summary Table, none of the county's healthcare facilities would be vulnerable to a Category 1 to Category 5 storm surge.

Flooding

Flooding is a hazard, with a moderate percentage of the county exposed. Flooding caused by storm events is categorized by the chance of it occurring within a given timeframe. There is a 1% chance of a 100-year flood occurring in any given year. If such a flood event were to occur, 49.9% of the county would be exposed to inundation; 32,960 acres of developed land could be exposed. A 500-year flood would mean a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 50.4% of the county would be inundated by flooding; 33,291 acres of developed land could be exposed. The impacts of a 100-year or 500-year flood event could have a noticeable impact on the infrastructure within the county.
The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**0**	**0**	**0**
Dialysis Centers	**1**	**0**	**0**
Hospitals	**0**	**0**	**0**
Hospice	**1**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**1**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**3**	**0**	**0**

The number of facilities within the 500-year floodplain includes all the facilities within the 100-year floodplain as well. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the floodplain, it is included in the facility count.
Despite approximately half of all developed land in Levy County being exposed to both 100- and 500-year flood events, no healthcare facilities in the county would be exposed.

Sea Level Rise

Sea level rise is an increase in the average level between high tide and low tide where the surface of the sea meets a shoreline. Sea level rise causes areas of land to be slowly covered by water and is independent of storms. The National Oceanic and Atmospheric Administration (NOAA) produces predictions of sea level rise based on different scenarios, which range from lower to higher projections. This analysis uses the Intermediate-Low and Intermediate-High Sea Level Rise Projections for the years 2040 and 2070 (called planning horizons). As referenced above, many of the healthcare facilities in the county are located near the coast and thus are more vulnerable. Data suggest that 1.1% of the county, or 727 acres of developed land, would be exposed to a sea level rise of 1 foot. For a sea level rise of 3 feet, 1.6% of the county is projected to be affected, equaling 1,057 acres of developed land. None of the healthcare facilities would be located within this exposed area.

The table below provides an overview of the number of healthcare facilities impacted by sea level rise projections for the years 2040 and 2070.

Number of Facilities Vulnerable to Sea Level Rise				
Healthcare Facility Type	**Total Facilities in the County**	**1 foot (2040)**	**2 feet (2070)**	**3 feet (2070)**
Assisted Living Facilities	**0**	**0**	**0**	**0**
Dialysis Centers	**1**	**0**	**0**	**0**
Hospitals	**0**	**0**	**0**	**0**
Hospice	**1**	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**	**0**
Nursing Homes	**1**	**0**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**	**0**
Total	**3**	**0**	**0**	**0**

As referenced in the County Exposed Summary Table, none of the healthcare facilities in the county would be impacted by sea level rise of any measured category.



MARION COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Marion County can expect moderate exposure to flooding, with no exposure to sea level rise or storm surge.
- Marion County healthcare facilities can expect to be moderately exposed to flooding, with between 30 and 33 facilities exposed, depending on the flood event.
- While a moderate percentage of healthcare facilities can expect to be exposed to flood events, four out of the five hospitals and five of the six free-standing emergency departments in the county would be impacted in each scenario.
- All residential treatment facilities are projected to be exposed to 100- and 500-year flood events.

County Exposure Summary Table

The following table provides a brief overview of Marion County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 216,032)	% of Healthcare Facilities Exposed (Total: 74)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	N/A	N/A	N/A
Storm Surge	Category 2	N/A	N/A	N/A
Storm Surge	Category 3	N/A	N/A	N/A
Storm Surge	Category 4	N/A	N/A	N/A
Storm Surge	Category 5	N/A	N/A	N/A
Floodplain	100-year	58.6	40.5	49.7
Floodplain	500-year	59.7	44.6	62.2
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	N/A	N/A	N/A

The “percentage of developed land in county exposed” is based on the land use and cover data used by the Southwest Florida Water Management District and the Florida Department of Environmental Protection’s Bureau of Watershed Restoration. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (216,031.7 acres), which is 21.2% of the total land area in the county (1,016,588.8 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. 50% of essential roadways in the county would be exposed during a 100-year flood event, and 62% would be exposed during a 500-year flood event.

As an inland county, Marion County is still vulnerable to flood events; however, it is not vulnerable to storm surge or sea level rise.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Marion County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at 74 AHCA-licensed facilities in the county.

Flooding

Flooding is a major hazard with a high percentage of the county exposed. Flooding caused by rainfall events is categorized by the chance of it occurring within a given timeframe. For example, there is a 1% chance of a 100-year flood event occurring in any given year. If a 100-year flood event were to occur, 59% of the county, or 126,595 acres, would be exposed to flooding. A total of 30 out of 74 healthcare facilities could be exposed during a 100-year flood event. A 500-year flood would mean there is a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 60% of the county, or 128,971 acres, would be exposed to flooding, potentially exposing 33 out of the 74 healthcare facilities.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total # of Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**34**	**9**	**11**
Dialysis Centers	**7**	**2**	**2**
Hospice	**4**	**2**	**2**
Hospitals	**5**	**4**	**4**
Intermediate Care Facility for Developmentally Disabled	**3**	**0**	**1**
Nursing Homes	**12**	**5**	**5**
Free Standing Emergency Departments	**6**	**5**	**5**
Residential Treatment Centers for Children	**3**	**0**	**0**
Residential Treatment Facilities	**3**	**3**	**3**
Total	**74**	**30**	**33**

The number of facilities within the 500-year floodplain also includes all the facilities within the 100-year floodplain. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In Marion County's case, three additional healthcare facilities are present in the 500-year floodplain.

If a 100-year flood event were to occur, 126,595 acres of developed land in the county would be exposed to inundation. Additionally, this analysis identifies that 41% or 30 of its healthcare facilities would be exposed to a 100-year flood event. These healthcare facilities include four of the five hospitals and five of the six free-standing emergency departments in Marion County.

In the event of a 500-year flood, 128,971 acres of developed land in the county would be exposed to flooding. The number of healthcare facilities that would also be exposed minimally increased to 45% or 33 facilities.

In addition to the healthcare facility impacts, many of the essential roadways and other critical infrastructure in the county would be inundated by water during the measured flood events. This will limit the effectiveness of first responders if an emergency occurs during the onset of one of these hazard events. Roadways are considered essential if they are located within a 1-mile buffer of a hospital. This analysis identifies that a 100-year flood event would inundate 50% of the major roads in the county, while a 500-year event would inundate 62% of the major roads. While this is considered moderate exposure, it could limit access to healthcare facilities and impact resident evacuations.



NASSAU COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Almost all the essential roadways in Nassau County can be exposed during Category 3 storm surge, and all the essential roadways in Nassau County can be exposed during a Category 4 and Category 5 storm surge.
- Over two-thirds of developed land in Nassau County can expect to be exposed during Category 5 storm surge or during a 500-year flood event.
- In every sea level rise scenario (1 ft, 2 ft, and 3 ft), only one out of the 15 healthcare facilities in the county will be exposed.

County Exposure Summary Table

The following table provides a brief overview of Nassau County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 41,096)	% of Healthcare Facilities Exposed (Total: 15)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	37.2	13.3	17.7
Storm Surge	Category 2	41.9	20.0	73.5
Storm Surge	Category 3	50.4	40.0	98.9
Storm Surge	Category 4	62.4	53.3	100.0
Storm Surge	Category 5	69.0	60.0	100.0
Floodplain	100-year	63.8	33.3	28.2
Floodplain	500-year	66.4	40.0	36.3
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	29.7	6.7	17.7
Sea Level Rise	Intermediate Low 2070 (2 ft)	30.9	6.7	17.7
Sea Level Rise	Intermediate High 2070 (3 ft)	31.6	6.7	17.7

The “percentage of developed land in county exposed” is based on the land use and cover data used by the St. Johns River Water Management District. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (41,095.6 acres), which is 9.89% of the total land area in the county (415,155.2 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. Essential roadways in the county would be impacted to different degrees by the hazard exposure elements. During a Category 1 event, 18% of essential roadways would be exposed. The exposure would increase to 74% during a Category 2 event and to 100% during a Category 4 or Category 5 event.

As a coastal county, Nassau is vulnerable to the exposure elements predicted above. There are 15 healthcare facilities within the methodology of this analysis.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Nassau County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at 15 AHCA-licensed facilities in the county.

Storm Surge

This section will provide a brief overview of healthcare facilities that would be impacted by storm surge. Note that facilities vulnerable to Category 1 storm surge would be impacted by all higher categories, Categories 2-5. Therefore, the number of facilities in each category also includes the number of facilities in the preceding categories.

Storm surge is a hazard event that can impact areas for days before and after a storm. For each category of storm surge (1-5), there is a maximum area of the county that would be inundated by the maximum amount of water associated with that category of storm, which is depicted in the table below. A storm surge of Category 1 would expose 2 healthcare facilities. A storm surge of Category 5 would expose 9 healthcare facilities.

Number of Facilities Vulnerable to Storm Surge by Category						
Healthcare Facility Type	**Total # of Facilities in the County**	**Cat 1**	**Cat 2**	**Cat 3**	**Cat 4**	**Cat 5**
Assisted Living Facilities	**7**	**1**	**2**	**3**	**4**	**4**
Dialysis Centers	**2**	**1**	**1**	**1**	**1**	**1**
Hospitals	**1**	**0**	**0**	**1**	**1**	**1**
Intermediate Care Facility for Developmentally Disabled	**3**	**0**	**0**	**1**	**1**	**2**
Nursing Homes	**2**	**0**	**0**	**0**	**1**	**1**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**	**0**	**0**	**0**
Total	**15**	**2**	**3**	**6**	**8**	**9**

As referenced in the County Exposed Summary Table, 60% percent of the county's healthcare facilities would be vulnerable to a Category 5 storm surge. This would expose over half of the assisted living facilities, one out of two nursing homes, and the only hospital in the county. Due to potential mobility limitations, the resident population of these facilities could be considered more vulnerable to hazardous events.

Flooding

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Flooding is a hazard with a moderate to high percentage of the county exposed. Flooding caused by storm events is categorized by the chance of it occurring within a given timeframe. In any given year, there is a 1% chance of a 100-year flood occurring. If such a flood event were to occur, 64% of the county could be exposed to inundation, with 26,219 acres of developed land possibly being exposed.A 500-year flood would mean there is a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 66% of the county could be inundated by flooding, exposing 27,287 acres of developed land. The impacts of a 100-year flood event or 500-year flood event would likely have a large impact on the infrastructure within the county.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**7**	**4**	**4**
Dialysis Centers	**2**	**0**	**1**
Hospitals	**1**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**3**	**0**	**0**
Nursing Homes	**2**	**1**	**1**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**15**	**5**	**6**

The number of facilities within the 500-year floodplain also includes all the facilities within the 100-year floodplain. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but a larger area will be exposed when it does. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In the case of Nassau County, one additional healthcare facility is present in the 500-year floodplain.

If a 100-year flood event occurs, 64% of Nassau County could be inundated by water. Five out of the 15 healthcare facilities in the county are projected to be exposed. This includes four out of seven assisted living facilities and one of two nursing homes.

A 500-year flood event has a 0.2% of occurring, and if this event occurs, the percentage of inundation of Nassau County could rise to 66%. Six out of the 15 healthcare facilities in the county are projected to be exposed. This includes four out of seven assisted living facilities, one of two dialysis centers, and one of two nursing homes. The only hospital in the county will not be exposed during a 500-year flood event.

Sea Level Rise

Sea level rise is an increase in the average level between high tide and low tide where the surface of the sea meets a shoreline. Sea level rise causes areas of land to be slowly covered by water and is independent of storms. The National Oceanic and Atmospheric Administration (NOAA) produces predictions of sea level rise based on different scenarios ranging from lower to higher projections. This analysis uses the Intermediate-Low and Intermediate-High Sea Level Rise Projections for the years 2040 and 2070 (called planning horizons). As referenced above, some of the healthcare facilities in the county are located near the coast and thus are more vulnerable. Data suggests that 30% of the county would be exposed to a sea level rise of 1 ft, impacting 12,329 acres of developed land; 7% of the healthcare facilities would be located within this exposed area.

The following table provides an overview of the number of healthcare facilities impacted by sea level rise projections for the years 2040 and 2070.

Number of Facilities Vulnerable to Sea Level Rise				
Healthcare Facility Type	**Total Facilities in the County**	**1 foot (2040)**	**2 feet (2070)**	**3 feet (2070)**
Assisted Living Facilities	**7**	**1**	**1**	**1**
Dialysis Centers	**2**	**0**	**0**	**0**
Hospitals	**1**	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**3**	**0**	**0**	**0**
Nursing Homes	**2**	**0**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**	**0**
Total	**15**	**1**	**1**	**1**

As referenced in the County Exposed Summary Table, only a small portion of the facilities in the county would be exposed to sea level rise. In all the sea level rise scenarios, only one out of the 15 healthcare facilities in the county would be exposed. The exposed facility will be an assisted living facility.



PUTNAM COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Developed land in Putnam County can expect to be highly exposed to flooding, with very low to low exposure to storm surge and sea level rise.
- Depending on the hazard event, Putnam County healthcare facilities can expect to have very low to low exposure.

County Exposure Summary Table

The following table provides a brief overview of Putnam County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 67,266)	% of Healthcare Facilities Exposed (Total: 16)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	16.9	0.0	0.0
Storm Surge	Category 2	18.5	0.0	0.0
Storm Surge	Category 3	19.2	0.0	0.0
Storm Surge	Category 4	21.6	0.0	0.0
Storm Surge	Category 5	25.7	6.3	0.0
Floodplain	100-year	76.7	18.8	17.8
Floodplain	500-year	76.7	18.8	17.8
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	12.4	0.0	0.0
Sea Level Rise	Intermediate Low 2070 (2 ft)	12.8	0.0	0.0
Sea Level Rise	Intermediate High 2070 (3 ft)	17.4	0.0	0.0

The “percentage of developed land in county exposed” is based on the land use and cover data used by the St. Johns River Water Management District. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (67,265.5 acres), which is 14.43% of the total land area in the county (466,150.4 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. Essential roadways in the county would be impacted to different degrees by the hazard exposure elements. Essential roadways would not be exposed to storm surge or sea level rise. 18% of essential roadways would be exposed during a 100- or 500-year flood event.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Putnam County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at 16 AHCA-licensed facilities in the county.

Storm Surge

This section will provide a brief overview of healthcare facilities that would be impacted by storm surge. Note that facilities vulnerable to Category 1 storm surge would be impacted by all higher categories, Categories 2-5. Therefore, the number of facilities in each category includes the number of facilities in the preceding categories as well.

Storm surge is a hazard event that can impact areas for days before and after a storm. For each category of storm surge (1-5), there is a maximum area of the county that would be inundated by the maximum amount of water associated with that category of storm, which is depicted in the table above. The only category of storm surge that would have an impact on a healthcare facility is Category 5, which would affect one of the three nursing homes in Putnam County.

Number of Facilities Vulnerable to Storm Surge by Category						
Healthcare Facility Type	**Total # of Facilities in the County**	**Cat 1**	**Cat 2**	**Cat 3**	**Cat 4**	**Cat 5**
Assisted Living Facilities	**9**	**0**	**0**	**0**	**0**	**0**
Dialysis Centers	**2**	**0**	**0**	**0**	**0**	**0**
Hospitals	**1**	**0**	**0**	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**	**0**	**0**	**0**
Nursing Homes	**3**	**0**	**0**	**0**	**0**	**1**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**1**	**0**	**0**	**0**	**0**	**0**
Total	**16**	**0**	**0**	**0**	**0**	**1**

As referenced in the County Exposed Summary Table, 6% of the county's healthcare facilities would be vulnerable to a Category 5 storm surge which would impact one nursing home. Due to mobility limitations, the resident population of this facility could be more vulnerable to hazardous events.

Flooding

Flooding is another major hazard, with a high percentage of the county exposed. Flooding caused by rainfall events is categorized by the chance of it occurring within a given timeframe. For example, in any given year, there is a 1% chance of a 100-year flood event occurring. If a 100-year flood event were to occur, 77% of the county would be exposed to inundation. A 500-year flood would mean there is a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 77% of the county would be inundated by flooding. In both 100- and 500-year flood events, 51,795 acres of developed land could be exposed.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**9**	**2**	**2**
Dialysis Centers	**2**	**0**	**0**
Hospitals	**1**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**3**	**1**	**1**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**1**	**0**	**0**
Total	**16**	**3**	**3**

The number of facilities within the 500-year floodplain includes all the facilities within the 100-year floodplain as well. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In a 100-year and 500-year flood event, one nursing home and two assisted living facilities would be vulnerable to this hazard.

Sea Level Rise

Sea level rise is an increase in the average level between high tide and low tide where the surface of the sea meets a shoreline. Sea level rise causes areas of land to be slowly covered by water and is independent of storms. The National Oceanic and Atmospheric Administration (NOAA) produces predictions of sea level rise based on different scenarios, which range from lower to higher projections. This analysis uses the Intermediate-Low and Intermediate-High Sea Level Rise Projections for the years 2040 and 2070 (called planning horizons). As referenced above, many of the healthcare facilities in the county are located near the water and thus are more vulnerable. Data suggests that 12% of the county would be exposed to a sea level rise of 1 foot and 17% of the county would be exposed to a sea level rise of 3 ft. Between 8,072 and 11,435 acres of developed land in Putnam County could be exposed to sea level rise.

The table below provides an overview of the number of healthcare facilities impacted by sea level rise projections for the years of 2040 and 2070.

Number of Facilities Vulnerable to Sea Level Rise				
Healthcare Facility Type	**Total Facilities in the County**	**1 foot (2040)**	**2 feet (2070)**	**3 feet (2070)**
Assisted Living Facilities	**9**	**0**	**0**	**0**
Dialysis Centers	**2**	**0**	**0**	**0**
Hospitals	**1**	**0**	**0**	**0**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**	**0**
Nursing Homes	**3**	**0**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**1**	**0**	**0**	**0**
Total	**16**	**0**	**0**	**0**

As referenced in the County Exposed Summary Table, none of the facilities are vulnerable to this event.



ST. JOHNS COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts on healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure Level Terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- St. Johns County can expect to be moderately to highly exposed to storm surge and flooding, with low exposure to sea level rise.
- St. Johns County healthcare facilities can expect to be moderately exposed to storm surge and flooding, with between 11 and 17 facilities exposed, depending on the category.
- While a low percentage of healthcare facilities can expect to be exposed to Sea Level Rise, at least 1 hospital out of the 3, would be exposed in all 3 scenarios (1 ft, 2 ft, and 3 ft).

County Exposure Summary Table

The following table provides a brief overview of St. Johns County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 68,420)	% of Healthcare Facilities Exposed (Total: 38)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	48.1	28.9	9.2
Storm Surge	Category 2	58.8	34.2	34.7
Storm Surge	Category 3	64.2	34.2	34.7
Storm Surge	Category 4	71.7	36.8	66.1
Storm Surge	Category 5	77.0	44.7	66.1
Floodplain	100-year	73.4	43.2	62.3
Floodplain	500-year	76.8	43.2	73.4
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	28.1	13.2	9.2
Sea Level Rise	Intermediate Low 2070 (2 ft)	29.3	13.2	9.2
Sea Level Rise	Intermediate High 2070 (3 ft)	36.1	23.7	9.2

The “percentage of developed land in county exposed” is based on the land use and cover data used by the St. Johns River Water Management District. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (68,420 acres), which is 17.79% of the total land area in the county (384,409.6 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals.

As a coastal county, St. Johns is vulnerable to the exposure elements predicted above. There are 38 healthcare facilities within the methodology of this analysis. Many of the county’s healthcare facilities are located near the coast, and part of the analysis developed using Geographic Information Systems (GIS) suggests that these facilities would be vulnerable to the exposure elements listed above.

Essential roadways in the county would be impacted to different degrees by the hazard exposure elements. Most potentially damaging is storm surge, with a Category 4 or 5 event impacting 66% of the county’s major roadways. In the event of Category 2 or 3, the percentage of impacted roads decreases to a moderate 34%, which could still limit access to at least 34% of the healthcare facilities. A 100-year flood event would also have an impact on roadway infrastructure in the area with 62% of roads exposed. While this is considered moderate exposure, it could limit access to over 43% of health facilities (including 1 of the 3 hospitals) and impact resident evacuations.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in St. Johns County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at 38 AHCA-licensed facilities in the county.

Storm Surge

This section will provide a brief overview of healthcare facilities that would be impacted by storm surge. Note that facilities vulnerable to Category 1 storm surge would be impacted by all higher categories, Categories 2-5. Therefore, the number of facilities in each category includes the number of facilities in the preceding categories as well.

Storm surge is a hazard event that can impact areas for days before and after a storm. For each category of storm surge (1-5), there is a maximum area of the county that would be inundated by the maximum amount of water associated with that category of storm, which is depicted in the table below. A storm surge of Category 1 would impact 29% of all healthcare facilities and 48% of the county. A storm surge of Category 5 would impact 77% of the county and 45% of healthcare facilities.

Number of Facilities Vulnerable to Storm Surge by Category						
Healthcare Facility Type	**Total # of Facilities in the County**	**Cat 1**	**Cat 2**	**Cat 3**	**Cat 4**	**Cat 5**
Assisted Living Facilities	**20**	**6**	**8**	**8**	**9**	**12**
Dialysis Centers	**2**	**0**	**0**	**0**	**0**	**0**
Hospitals	**3**	**1**	**1**	**1**	**1**	**1**
Intermediate Care for Developmentally Disabled	**1**	**0**	**0**	**0**	**0**	**0**
Nursing Homes	**8**	**3**	**3**	**3**	**3**	**4**
Residential Treatment Centers for Children	**3**	**0**	**0**	**0**	**0**	**0**
Residential Treatment Facilities	**1**	**1**	**1**	**1**	**1**	**1**
Total	**38**	**11**	**13**	**13**	**14**	**17**

As referenced in the County Exposed Summary Table, 45% percent of the county's healthcare facilities would be vulnerable to a Category 5 storm surge. This would impact over half of the assisted living facilities and half of the nursing homes in the county. Due to mobility limitations, the resident population of these facilities could be considered more vulnerable to hazardous events.

Flooding

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Flooding is a major hazard with a high percentage of the county exposed. Flooding caused by storm events is categorized by the chance of it occurring within a given timeframe. In any given year, there is a 1% chance of a 100-year flood occurring. If such a flood event were to occur, 73.4% of the county would be exposed to inundation. A 500-year flood would mean there is a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 76.8% of the county would be inundated by flooding. The impacts of a 100-year flood event or 500-year flood event would likely have a large impact on the infrastructure within the county.

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**20**	**10**	**10**
Dialysis Centers	**2**	**0**	**0**
Hospitals	**3**	**1**	**1**
Intermediate Care Facility for Developmentally Disabled	**1**	**0**	**0**
Nursing Homes	**8**	**4**	**4**
Residential Treatment Centers for Children	**3**	**0**	**0**
Residential Treatment Facilities	**1**	**1**	**1**
Total	**38**	**16**	**16**

The number of facilities within the 500-year floodplain includes all the facilities within the 100-year floodplain as well. This is because there is a greater chance of a 100-year flood occurring and therefore a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In the case of St. Johns County, there are no additional healthcare facilities present in the 500-year floodplain, even though a larger area of land is included in it. This is a coincidence based on the location of these healthcare facilities.

If a 100-year flood event occurs, 73% of St. Johns County would be inundated by water. Half of all the assisted living facilities and nursing homes would be vulnerable to this hazard. One hospital and one residential treatment facility would be impacted by the 100-year flood event.

A 500-year flood event has a 0.2% of occurring, and if this event occurs, the percentage of inundation of St. Johns County would be 77%. In both the 100-year and 500-year flood events, there would be an impact on 16 healthcare facilities.

Sea Level Rise

The table below provides an overview of the number of healthcare facilities impacted by the Intermediate-Low and Intermediate-High Sea Level Rise projections for the years 2040 and 2070 planning horizons.

Sea Level Rise is an increase in the average level of the sea water surface meets a shoreline. Sea level rise causes areas of land to be slowly covered by water and is independent of storms. The National Oceanic and Atmospheric Administration (NOAA) produces predictions of sea level rise based on different scenarios, which range from lower to higher projections. This analysis uses the Intermediate-Low and Intermediate-High Sea Level Rise Projections for the years 2040 and 2070 (called planning horizons). As referenced above, many of the healthcare facilities in the county are located near the coast and thus are more vulnerable. Data suggests that 28% of the county would be exposed to a sea level rise of 1 foot, and 13% of the healthcare facilities would be located within this exposed area, including 1 of the 3 hospitals.

Number of Facilities Vulnerable to Sea Level Rise				
Healthcare Facility Type	**Total Facilities in the County**	**1 foot (2040)**	**2 feet (2070)**	**3 feet (2070)**
Assisted Living Facilities	**20**	**2**	**2**	**4**
Dialysis Centers	**2**	**0**	**0**	**0**
Hospitals	**3**	**1**	**1**	**1**
Intermediate Care Facilities for Developmentally Disabled	**1**	**0**	**0**	**0**
Nursing Homes	**8**	**2**	**2**	**3**
Residential Treatment Centers for Children	**3**	**0**	**0**	**0**
Residential Treatment Facilities	**1**	**0**	**0**	**1**
Total	**38**	**5**	**5**	**9**

As referenced in the County Exposed Summary Table, many of the facilities adjacent to a tidally influenced body of water would be the most vulnerable to this event. In total five facilities would be exposed to a Sea Level Rise of 1 ft and above. These same five facilities would be impacted by a Sea Level Rise of 2 ft. For a Sea Level Rise of 3 ft, four additional facilities would be impacted, for a total of nine facilities.



SUWANNEE COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Suwannee County can expect low to moderate exposure to flooding but no exposure to storm surge or sea level rise.
- Suwannee County healthcare facilities can expect to be moderately exposed to flooding.
- The only hospital in the county could be exposed during flood events.
- Almost two-thirds of the essential roadways in Suwannee County could be exposed during flood events.

County Exposure Summary Table

The following table provides a brief overview of Suwannee County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise. As an inland county, storm surge and sea level rise are not applicable (N/A) to this county.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 45,953)	% of Healthcare Facilities Exposed (Total: 8)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	N/A	N/A	N/A
Storm Surge	Category 2	N/A	N/A	N/A
Storm Surge	Category 3	N/A	N/A	N/A
Storm Surge	Category 4	N/A	N/A	N/A
Storm Surge	Category 5	N/A	N/A	N/A
Floodplain	100-year	31.9	37.5	63.6
Floodplain	500-year	33.8	62.5	63.6
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	N/A	N/A	N/A

The “percentage of developed land in county exposed” is based on the land use and cover data used by the Suwannee River Water Management District and the Florida Department of Environmental Protection’s Bureau of Watershed Restoration. The land use data is based on the Florida Department of Transportation’s data classification that separates urban and built-up land from other land use. The inundated area was calculated from the total acreage of built-up land use in the county (45,952.5 acres), which is 10.43% of the total land area in the county (440,697.6 acres). All references to county exposure in this CEA are for the developed land only.

The roads used in this CEA are derived from the Florida Department of Transportation functional classification data. The "percentage of roads exposed" includes the length of the roads that are impacted and within the 1-mile buffer of hospitals. 64% of essential roadways would be exposed during a 100- or 500-year flood event.

As an inland county, Suwannee is still vulnerable to flooding; however, it would not be vulnerable to storm surge or sea level rise.

Healthcare Facility Exposure Analysis

The following section provides a brief overview of the hazard exposure of healthcare facilities in Suwannee County. Facility types are defined by the Agency for Health Care Administration (AHCA) and are measured by the total number of facilities impacted by each event. This analysis looks at eight AHCA-licensed facilities in the county.

Flooding

Flooding is a hazard that a low to moderate percentage of the county could be exposed to. Flooding caused by storm events is categorized by the chance of it occurring within a given timeframe. There is a 1% chance of a 100-year flood occurring in any given year. If such a flood event were to occur, 32% of the county would be exposed to inundation, meaning 14,659 acres of developed land could be exposed. A 500-year flood would mean there is a 0.2% chance of such a flood occurring in any given year. In the event of a 500-year flood, 34% of the county would be inundated by flooding; this could impact 15,532 acres of developed land.

The table below provides an overview of the number of healthcare facilities impacted by the 100-year and 500-year flood events.

Number of Facilities within FloodPlain			
Healthcare Facility Type	**Total # of Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**3**	**1**	**2**
Dialysis Centers	**1**	**0**	**0**
Hospitals	**1**	**1**	**1**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**3**	**1**	**2**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**8**	**3**	**5**

The number of facilities within the 500-year floodplain includes all the facilities within the 100-year floodplain as well. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but a larger area will be exposed when it does. If any part of a parcel is intersected by the floodplain, it is included in the facility count.

If a 100-year flood occurs, 32% of Suwannee County would be inundated by water. Three of the eight healthcare facilities would be vulnerable to this hazard, including the only hospital in the county.

If a 500-year flood event occurs, the percentage of inundation of Suwannee County would be 34%. Five of the healthcare facilities in the county would be exposed. Two out of the three nursing homes and two out of the three assisted living facilities would be vulnerable. These facilities serve special populations that may need additional support when hazardous events occur.

In addition to the healthcare facility impacts, many of the essential roadways and other critical infrastructure in the county would be inundated by water during the measured flood events. This will limit the effectiveness of first responders if an emergency occurs during the onset of one of these hazard events. Roadways are considered essential if they are located within a 1-mile buffer of a hospital. 64% of roads within 1 mile of hospitals in the county would be exposed in a 100-year and 500-year flood event. This would limit access to health facilities and impact resident evacuations.



UNION COUNTY

CLIMATE EXPOSURE ANALYSIS

MAY 2023 // PREPARED BY NEFRC

What is a Climate Exposure Analysis?

This Climate Exposure Analysis (CEA) is an examination of the inundation caused by various storm surge, flooding, and sea level rise scenarios and the resulting exposure to water of the county, its healthcare facilities, and its roads that provide access to these healthcare facilities. This CEA does not specify the depth of the water that will result from a particular scenario at a particular location, only that the designated area will be exposed to some amount of water. The CEA is the first step in identifying potential impacts to healthcare facilities in the county.

The color coding and terminology used throughout this CEA follow the specifications of the table below. These are an adaptation of the likelihood scale used by the Intergovernmental Panel on Climate Change Reports.

Exposure level terminology	Percent Exposed	Color
Very high	90-100%	Purple
High	66-90%	Red
Moderate	33-66%	Orange
Low	10-33%	Yellow
Very low	0-10%	Green

Exposure Summary

- Developed land in Union County can expect moderate exposure to flood events.
- Half of the road within 1 mile of hospitals are in 100- and 500-year floodplains and are therefore expected to be exposed during those flood events.
- One of the two hospitals in the county would be exposed during a 100- and 500-year flood event.

County Exposure Summary Table

The following table provides a brief overview of Union County's vulnerability to the predicted exposure elements of storm surge, flooding, and sea level rise. As an inland county, storm surge and sea level rise are not applicable (N/A) to this county.

Exposure Element	Level	% of Developed Land in County Exposed (Total Acres: 9,185)	% of Healthcare Facilities Exposed (Total: 2)	% of Roads Exposed within 1 mile of Hospitals
Storm Surge	Category 1	N/A	N/A	N/A
Storm Surge	Category 2	N/A	N/A	N/A
Storm Surge	Category 3	N/A	N/A	N/A
Storm Surge	Category 4	N/A	N/A	N/A
Storm Surge	Category 5	N/A	N/A	N/A
Floodplain	100-year	55.9	50.0	50.3
Floodplain	500-year	55.9	50.0	50.3
Sea Level Rise	Intermediate Low and Intermediate High 2040 (1 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate Low 2070 (2 ft)	N/A	N/A	N/A
Sea Level Rise	Intermediate High 2070 (3 ft)	N/A	N/A	N/A

Number of Facilities within Floodplain			
Healthcare Facility Type	**Total # of Facilities in the County**	**100-year Flood Event**	**500-year Flood Event**
Assisted Living Facilities	**0**	**0**	**0**
Dialysis Centers	**0**	**0**	**0**
Hospitals	**2**	**1**	**1**
Intermediate Care Facility for Developmentally Disabled	**0**	**0**	**0**
Nursing Homes	**0**	**0**	**0**
Residential Treatment Centers for Children	**0**	**0**	**0**
Residential Treatment Facilities	**0**	**0**	**0**
Total	**2**	**1**	**1**

The number of facilities within the 500-year floodplain also includes all the facilities within the 100-year floodplain. This is because there is a greater chance of a 100-year flood occurring and, therefore, a smaller chance of a parcel being exposed to it. Conversely, there is a much smaller chance of a 500-year flood occurring, but when it does, a larger area will be exposed. If any part of a parcel is intersected by the floodplain, it is included in the facility count. In the case of both a 100- and 500-year flood event, one of the two hospitals in Union County would be exposed.

In addition to the healthcare facility impacts, many of the essential roadways and other critical infrastructure in the county would be inundated by water during the measured flood events. This will limit the effectiveness of first responders if an emergency occurs during the onset of one of these hazard events. Roadways are considered essential if they are located within a 1-mile buffer of a hospital. A 100-year flood event would significantly impact roadway infrastructure in the area, with 98.9% of roads exposed, and all major roadways would be exposed to the 500-year flood event. This will limit access to health facilities and would impact resident evacuations.