

RESILIENCY AND HAZARD MITIGATION PLAN



PUBLIC MEETING #2

Planning for a
More Resilient
New Bern

February 2020

Welcome!

- › We appreciate your attendance. Please reference the ***Meeting Information Sheet*** for further information.
 - › Hybrid meeting format
 - › **Meeting Rules of Conduct**
 - Be respectful and courteous of others
 - Keep yourself on mute / turn off your video to lessen distractions
 - Wait for your turn for your question to be asked
 - If your question does not get addressed during the meeting, the planning team will respond in a timely manner
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- › How to ask questions:
- › If participating virtually, please send in questions in the "Chat" feature – OR – use the "raise your hand" feature.
- › If participating in-person, please come to the podium microphone to ask your question.

Meet Tonight's Speakers & Moderators



**Matt
Hutchins**
NEMAC+FernLeaf



**Amanda
Ohlensehlen**
City of New Bern



Colleen Roberts
City of New Bern



Amanda Zullo
Moffatt & Nichol



Flood Vulnerability and Risk Assessment

- › Update of where we are in the assessment process
- › Identification of community assets and potential threats/hazards
- › Draft assessment results and findings (overview)
- › Next steps
- › Questions and feedback



Purpose of the Assessment

The purpose of the assessment is to provide a **resource to inform strategies and actions** that can build community resilience and mitigate the impacts of flooding

- › Builds on and integrates with the City's planning efforts
- › Uses an assessment framework to understand vulnerability and risk
- › Is solutions-oriented and informs targeted use of limited resources

Ultimately, the information will be used to develop a ***Resiliency and Hazard Mitigation Plan***



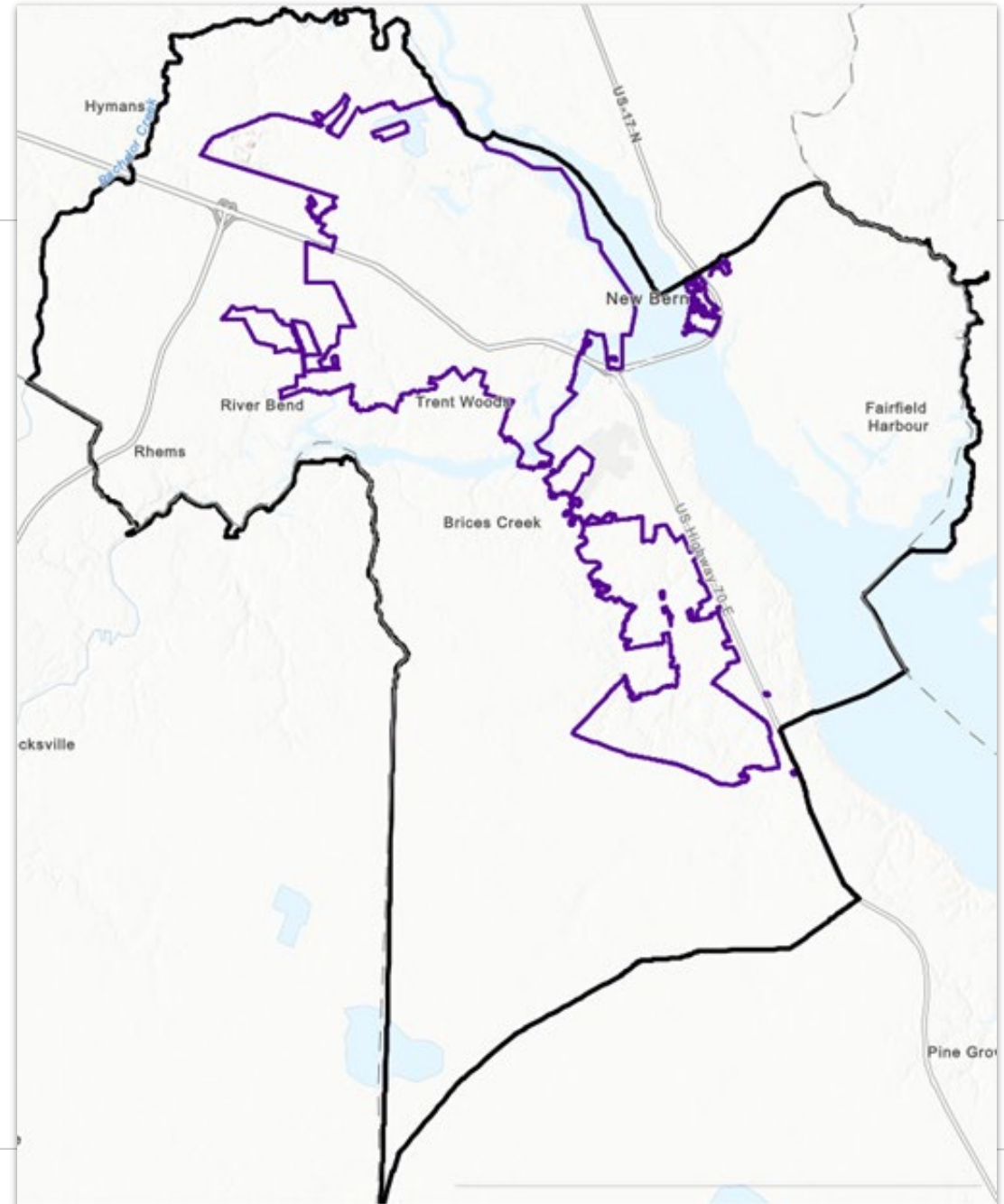
What is Resilience?

Resiliency is the ability of a community, business, school, family, or individual to **withstand** an adverse event, **recover** from it, and **respond** to it.

Current focus is on flood risk, looking at the physical, social, and economic impacts of flooding and how flooding affects our homes, businesses, workplaces, and other community assets.

Study Area

- › Includes City of New Bern and surrounding area
- › Main focus area is within the City Limits (purple line)



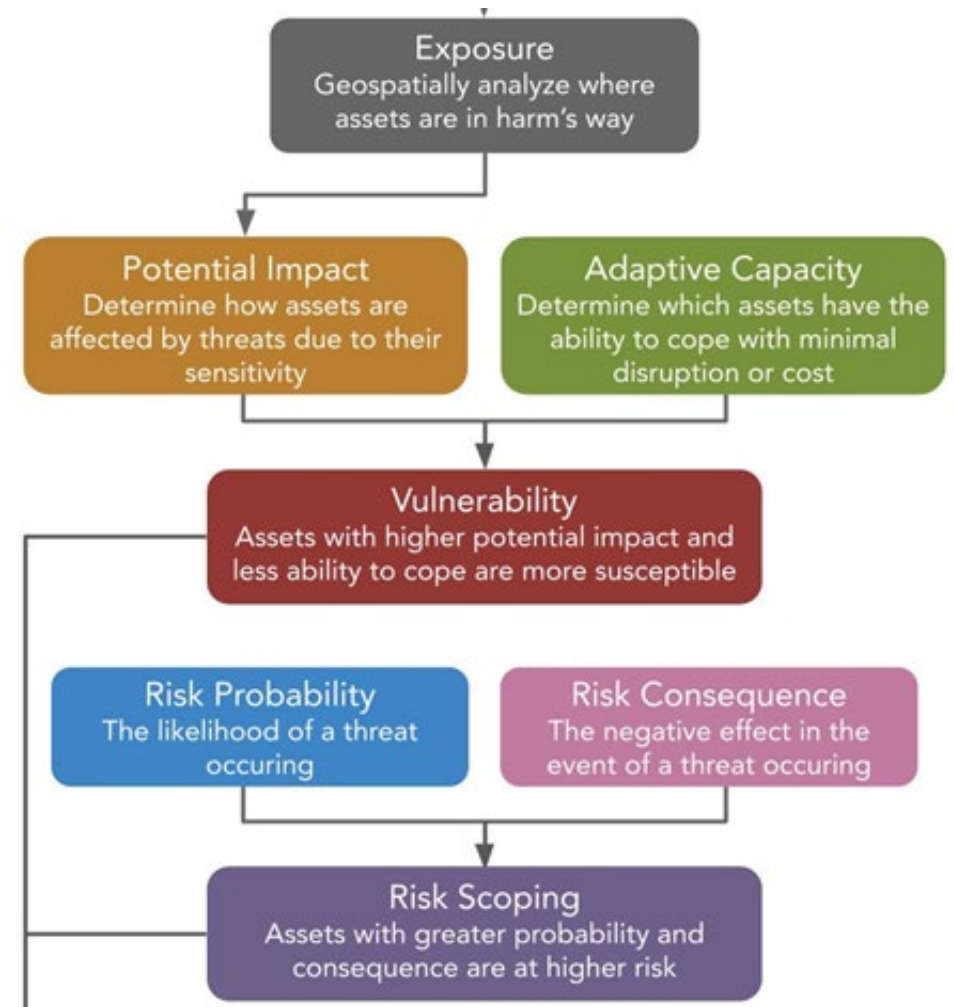


Assessment Framework



U.S. Climate
Resilience Toolkit
toolkit.climate.gov

- › **Vulnerability:** Susceptibility based on sensitivity/potential impact and adaptive capacity
- › **Risk Scoping:** The probability and negative consequence of threats.



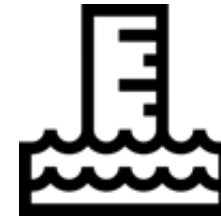


Flooding Threats and Hazards



FLOODING

- › Floodplain Inundation (100-yr and 500-yr)
- › Storm Surge Inundation (Cat 1-2)
- › Storm Surge Inundation (Cat 3-5)
- › Tidal Flooding (Current High Tide)



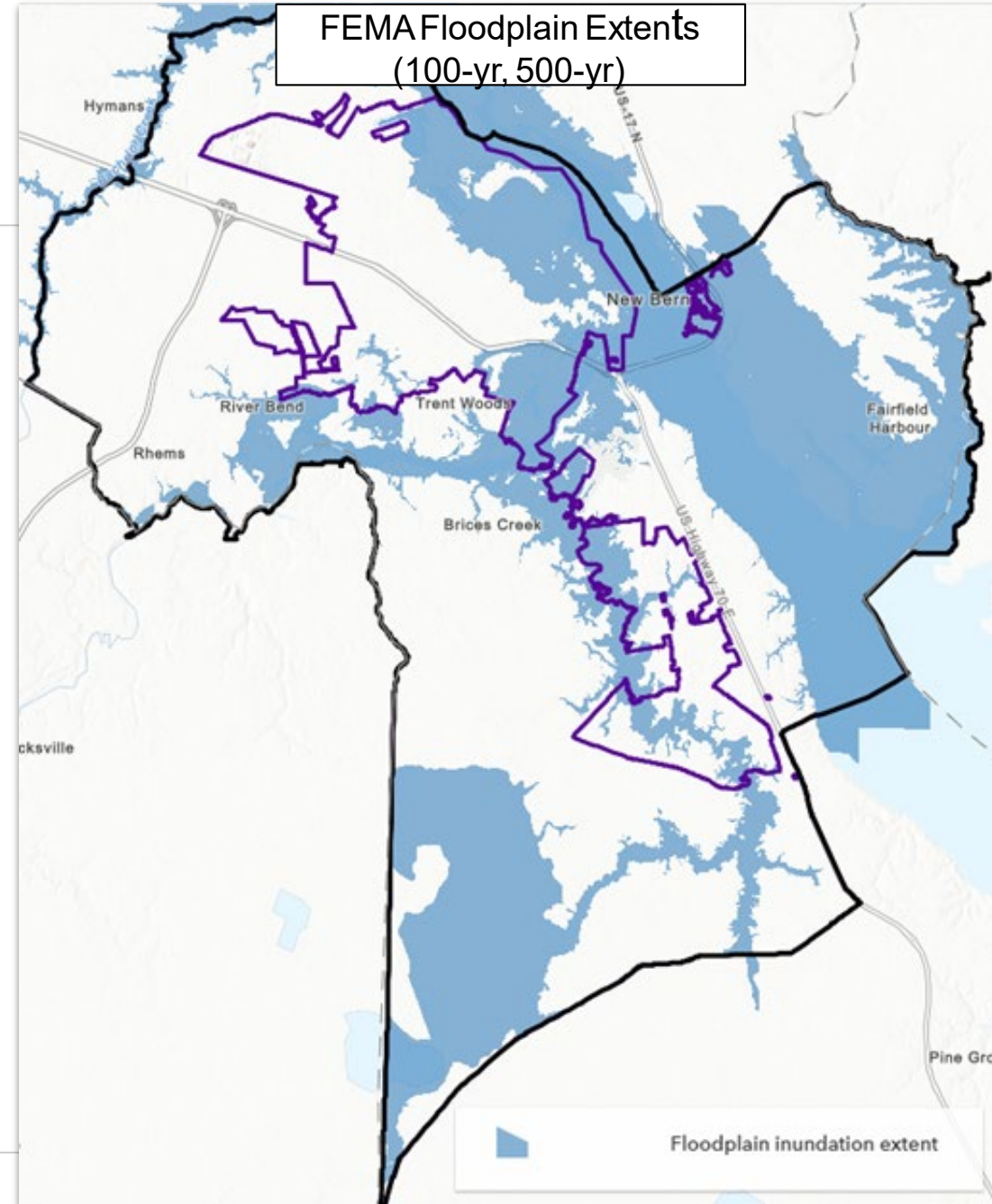
SEA LEVEL RISE

- › 3 ft above MHHW
- › 5 ft above MHHW

MHHW = Mean Higher High Water:
the average daily height of the highest tide

Sources of Threat Information

Floodplain Inundation (100-yr and 500-yr)	FEMA DFIRM (Effective June, 2020)
Storm Surge	National Storm Surge Hazard Maps (NOAA)
Tidal Flooding (Current)	High Tide Flooding (NOAA Office for Coastal Management)
Sea Level Rise (levels above MHHW)	NOAA Sea Level Rise Viewer (NOAA Office for Coastal Management)



Community Assets



PROPERTY AND PUBLIC SERVICES

Residential

Commercial & Industrial

Government-Owned

Critical Facilities (schools and public safety)

Parks and Cultural (community centers and religious)

Historic



ECONOMIC FACTORS

Sales volume

Jobs



PEOPLE AND SOCIOECONOMICS

Sensitive populations

Public housing

SNAP food retailers



ROADS & MOBILITY

Major and minor road systems

Access to critical services

Same exposure, different vulnerability





Example assessment considerations

City-specific factors are used to define what makes city assets highly vulnerable and at risk to flooding

✓ Use or type of property and buildings in the floodplain

- e.g. single family vs multi-family

✓ First Floor Elevations (FFE)

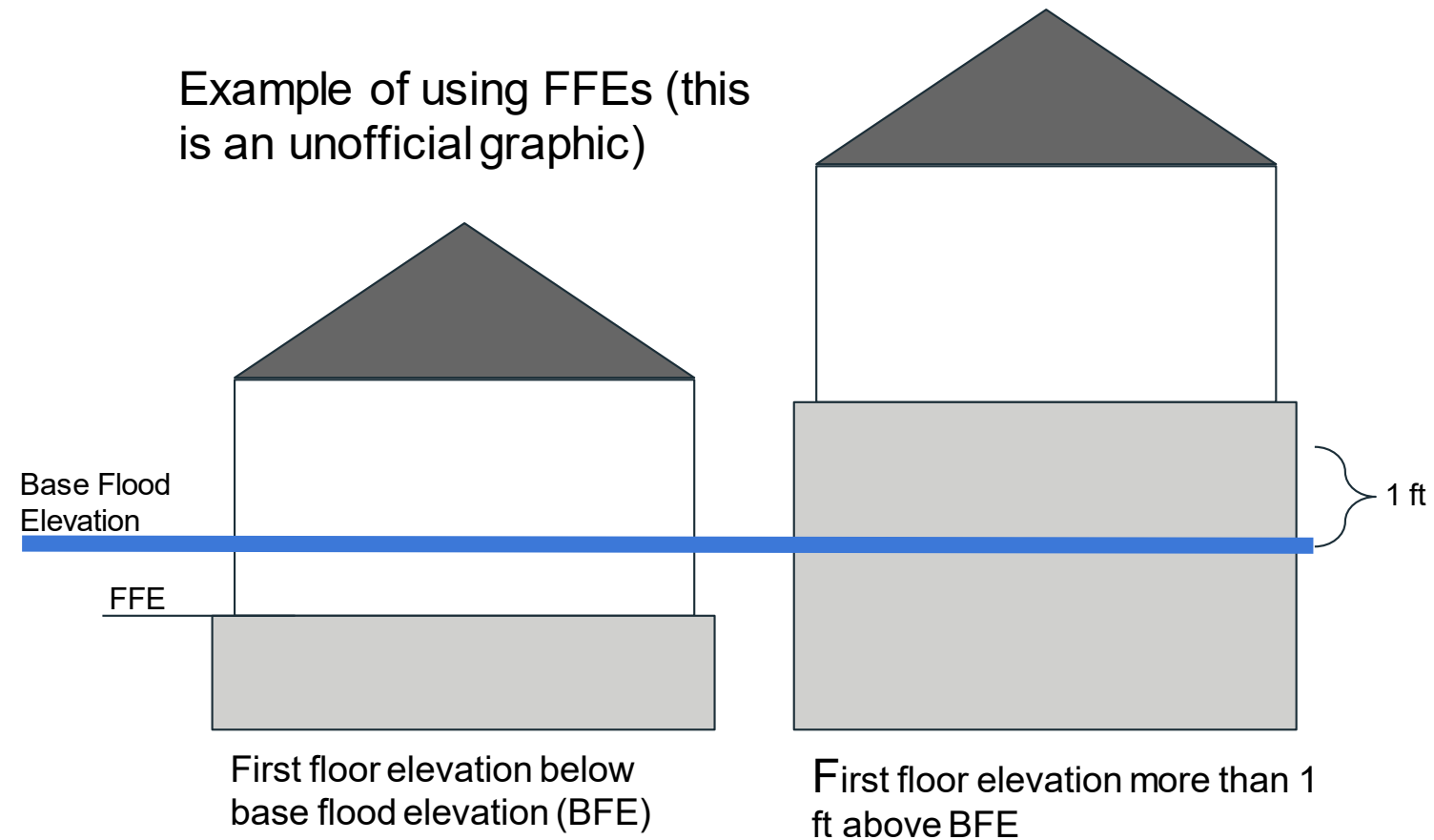
- Indicator of ability to cope with flood inundation

✓ Likelihood of flooding

- e.g. 100-yr vs 500-yr flood risk

✓ Potential depth of flood inundation

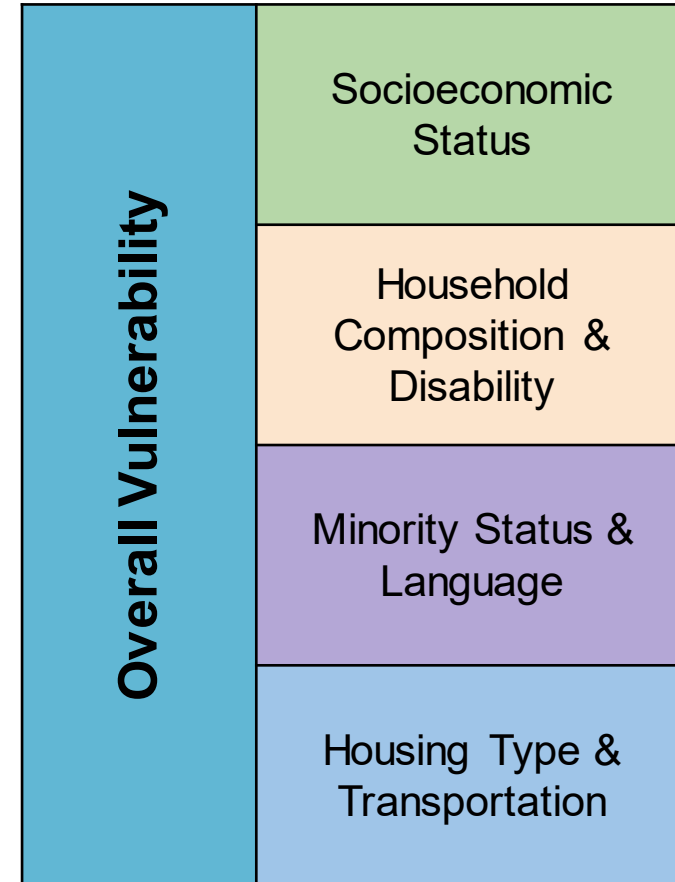
- Potential depth as it relates to established base flood





Social vulnerability is a key consideration

- › Vulnerable populations are disproportionately affected by hazard events
- › Information used throughout the project to understand multiple aspects of social vulnerability
 - CDC's Social Vulnerability Index (SVI)
 - Critical Community Assets (community centers, food SNAP retailers, public housing)
 - Understanding from community input and past experiences (e.g. Hurricane Florence)



From CDC's SVI

Overview of Assessment Results (DRAFT FOR INPUT)



High levels of vulnerability associated with flooding and storm surge

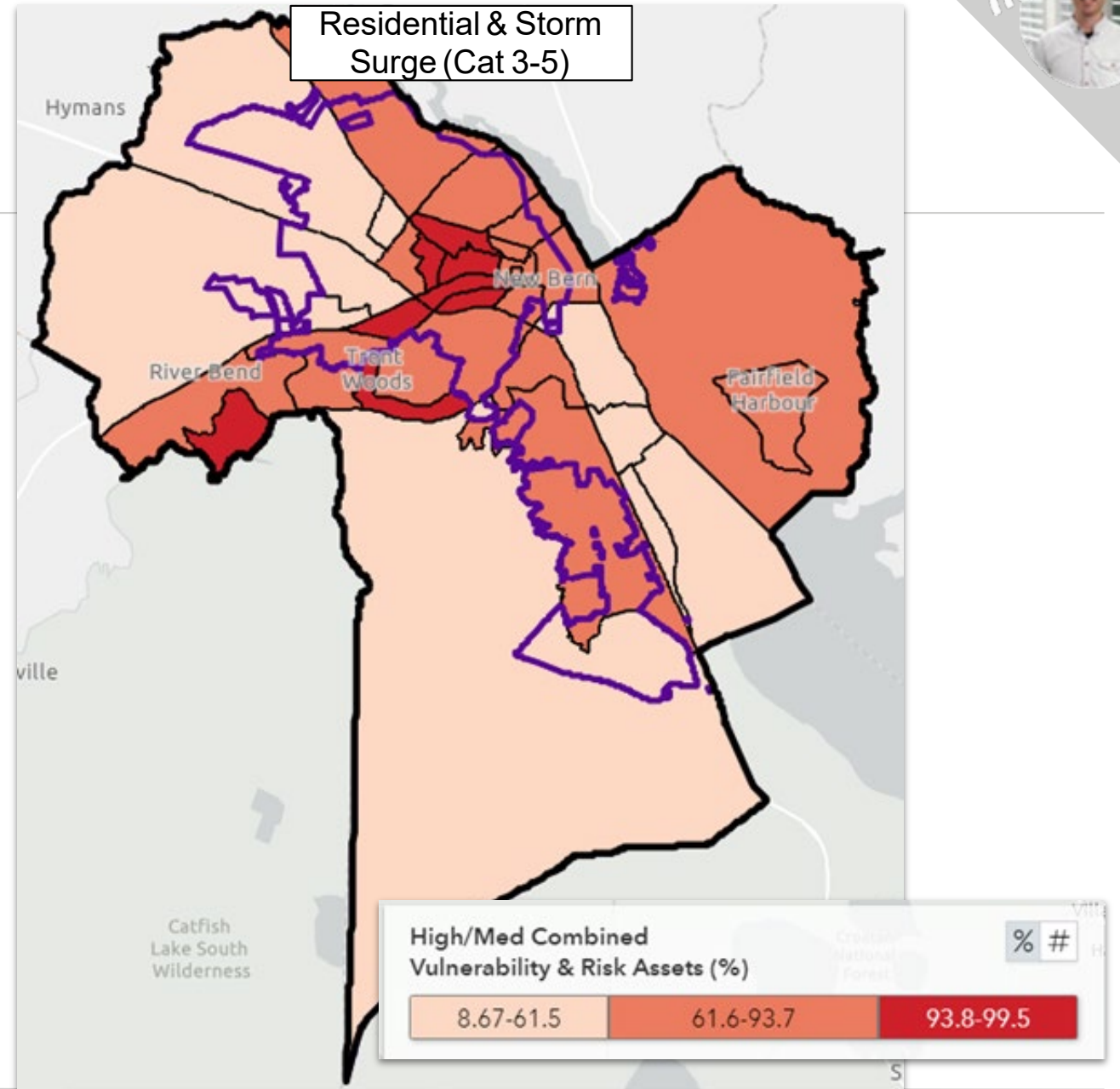
	Floodplain Inundation	Storm Surge (Cat 1-2)	Storm Surge (Cat 3-5)
Commercial & Industrial (Businesses)	110 (11%)	93 (10%)	729 (75%)
Residential (Homes)	1,935 (17%)	1,909 (17%)	7,897 (68%)
Critical Facilities (Schools, utilities, public safety)	25 (13%)	19 (10%)	109 (56%)

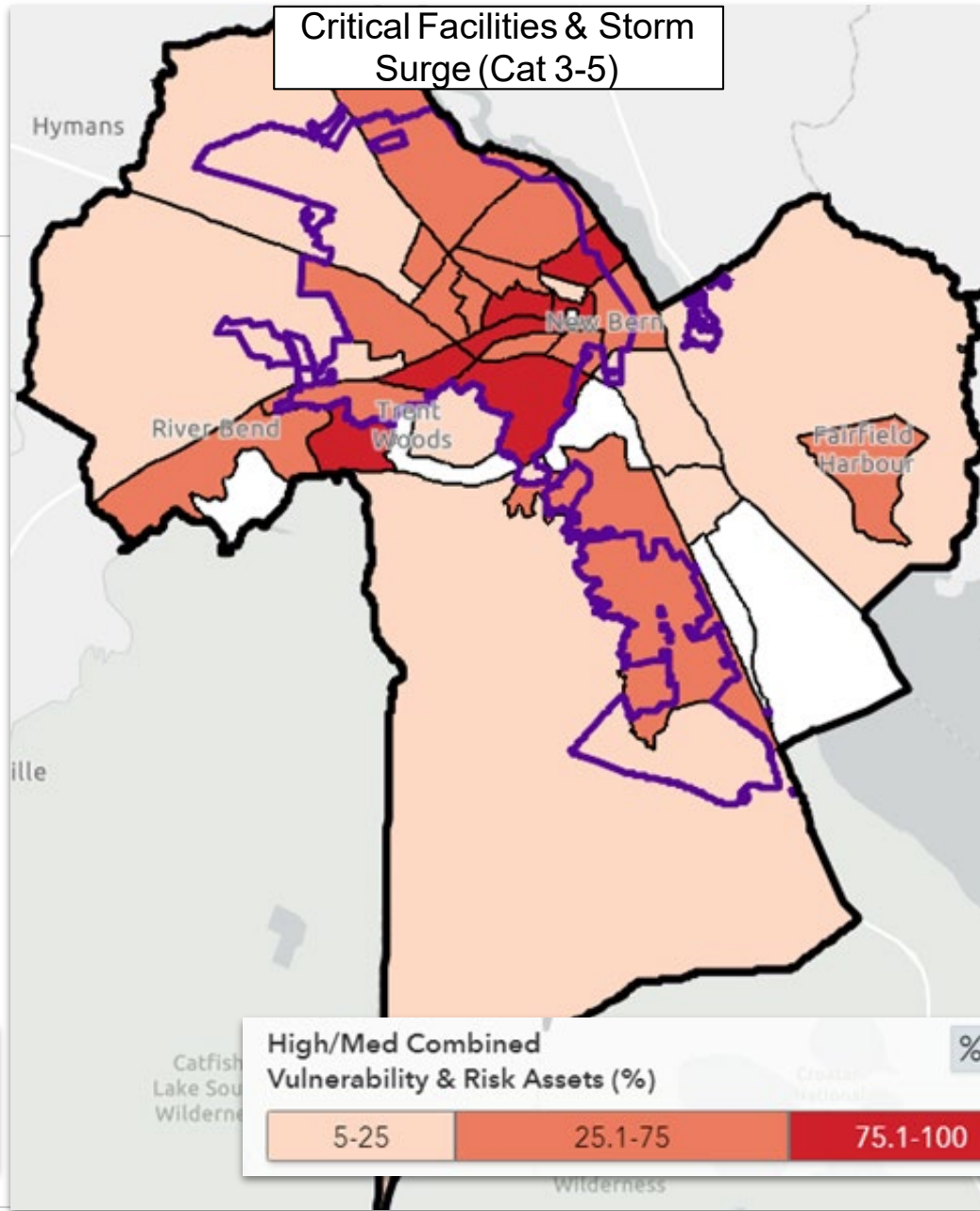
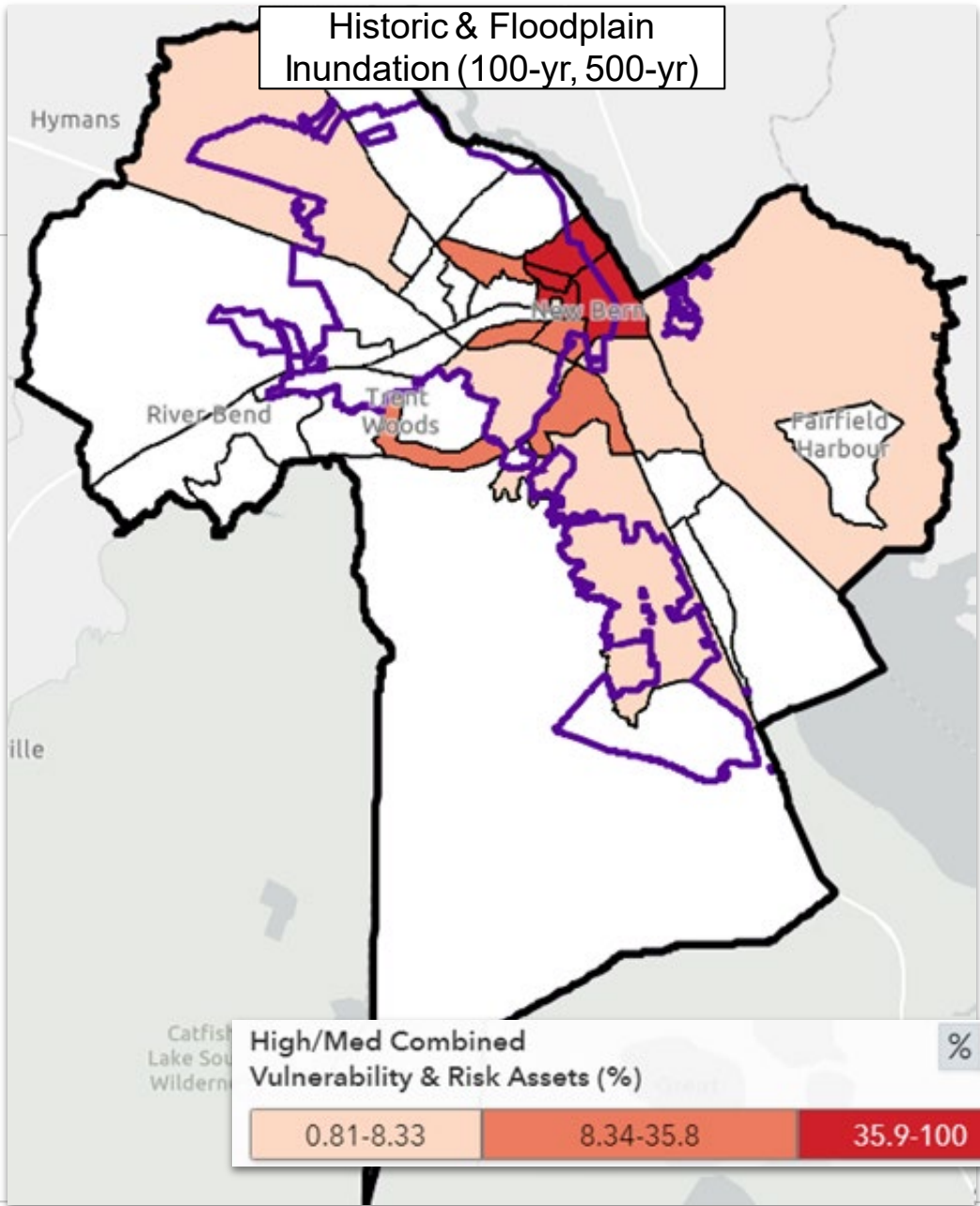
- › Numbers and percentages are property parcels with medium to high vulnerability and risk inside the City Limits



Certain areas of the City are more vulnerable

- › Planning-scale maps help identify neighborhood areas with highest levels of vulnerability
- › More than 90% of residential property is vulnerable to storm surge (Cat 3-5) in several neighborhood areas





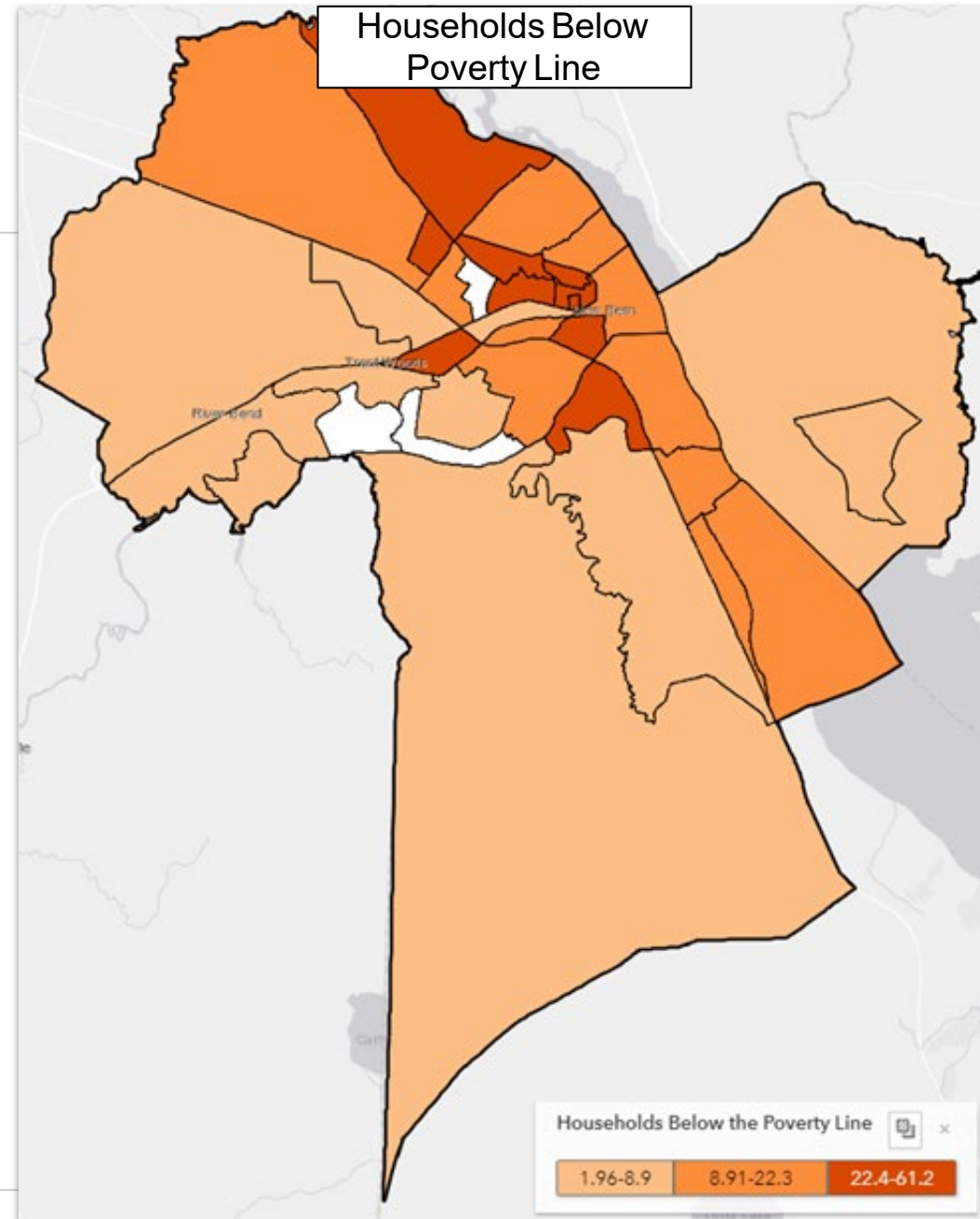
DRAFT



Areas with sensitive populations are vulnerable

Residential vulnerability is high in areas with high percentages (more than 22%) of households are living below the poverty line (dark orange)

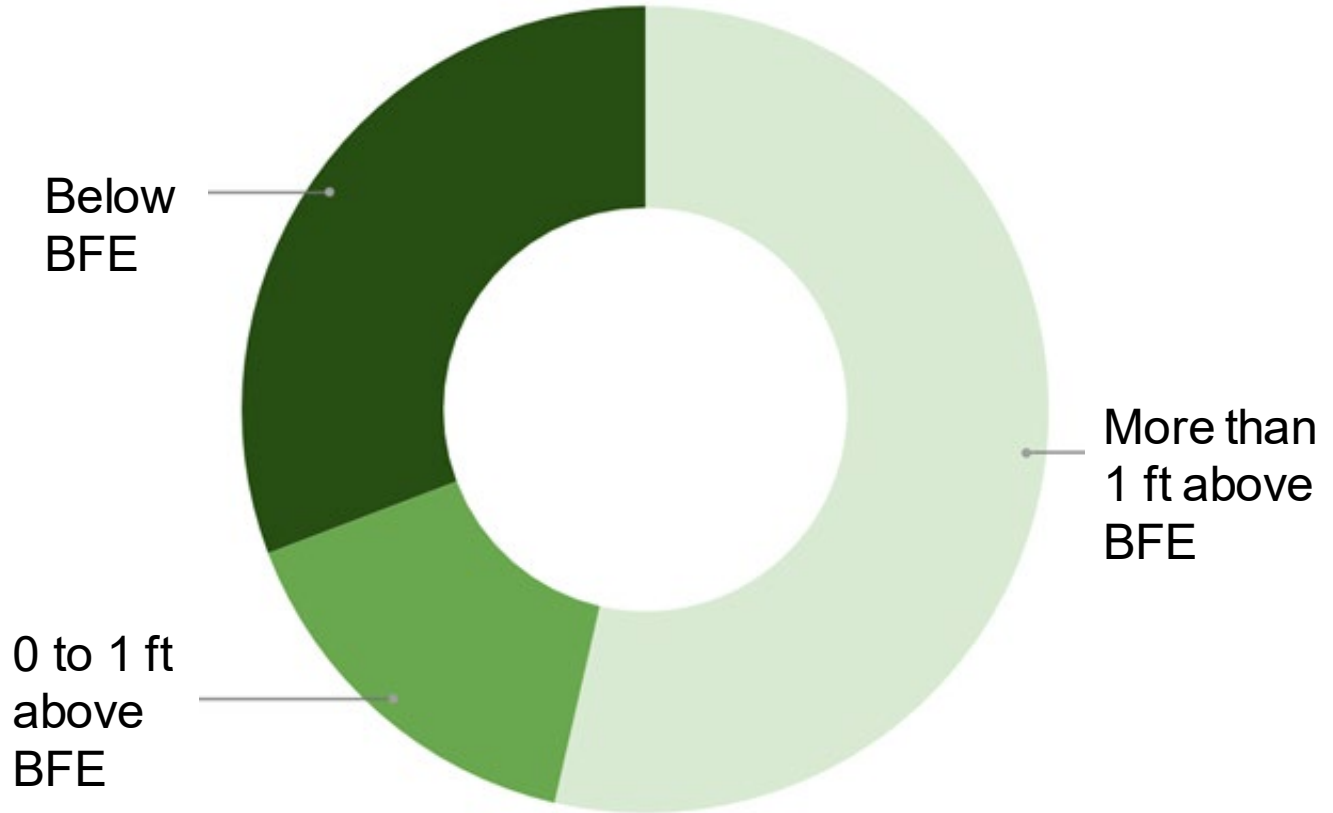
- > 81% properties are vulnerable to storm surge (Cat 3-5)
- > 27% properties vulnerable to floodplain inundation (100-yr, 500-yr)





Ability to cope with flood inundation is a driver of vulnerability

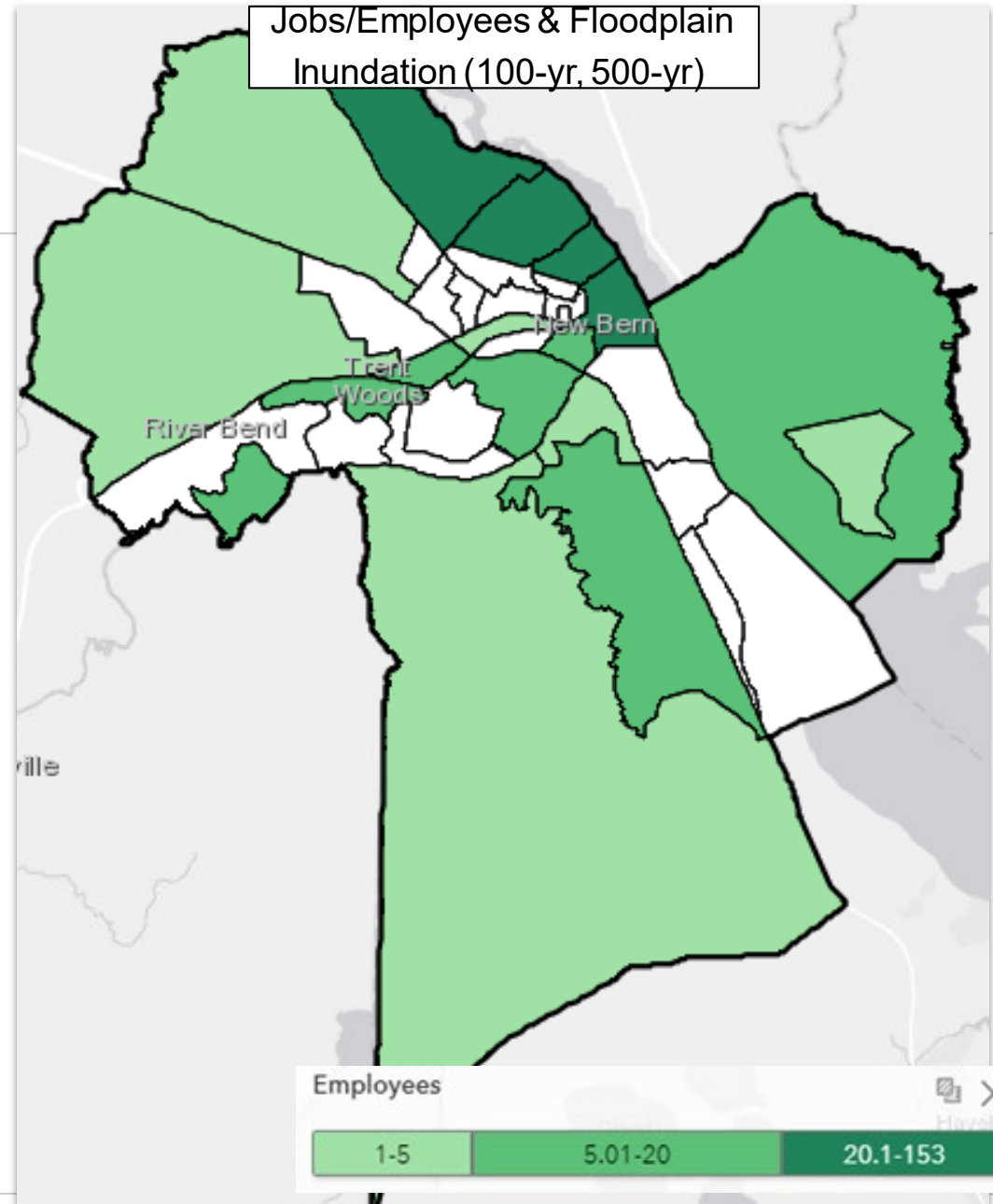
- > 31% of properties have buildings below base flood elevation (BFE). Most of these constructed before development requirements were in place
- > 69% are at or above base flood elevation



All properties prone to floodplain inundation



Places of employment are also vulnerable to flooding



	Floodplain Inundation	Storm Surge (Cat 1-2)	Storm Surge (Cat 3-5)
Jobs (employees at vulnerable business locations)	1,060 (17%)	990 (16%)	4,630 (74%)
Sales Volume (sales at vulnerable business locations)	\$88M (6%)	\$197M (14%)	\$1.2B (86%)

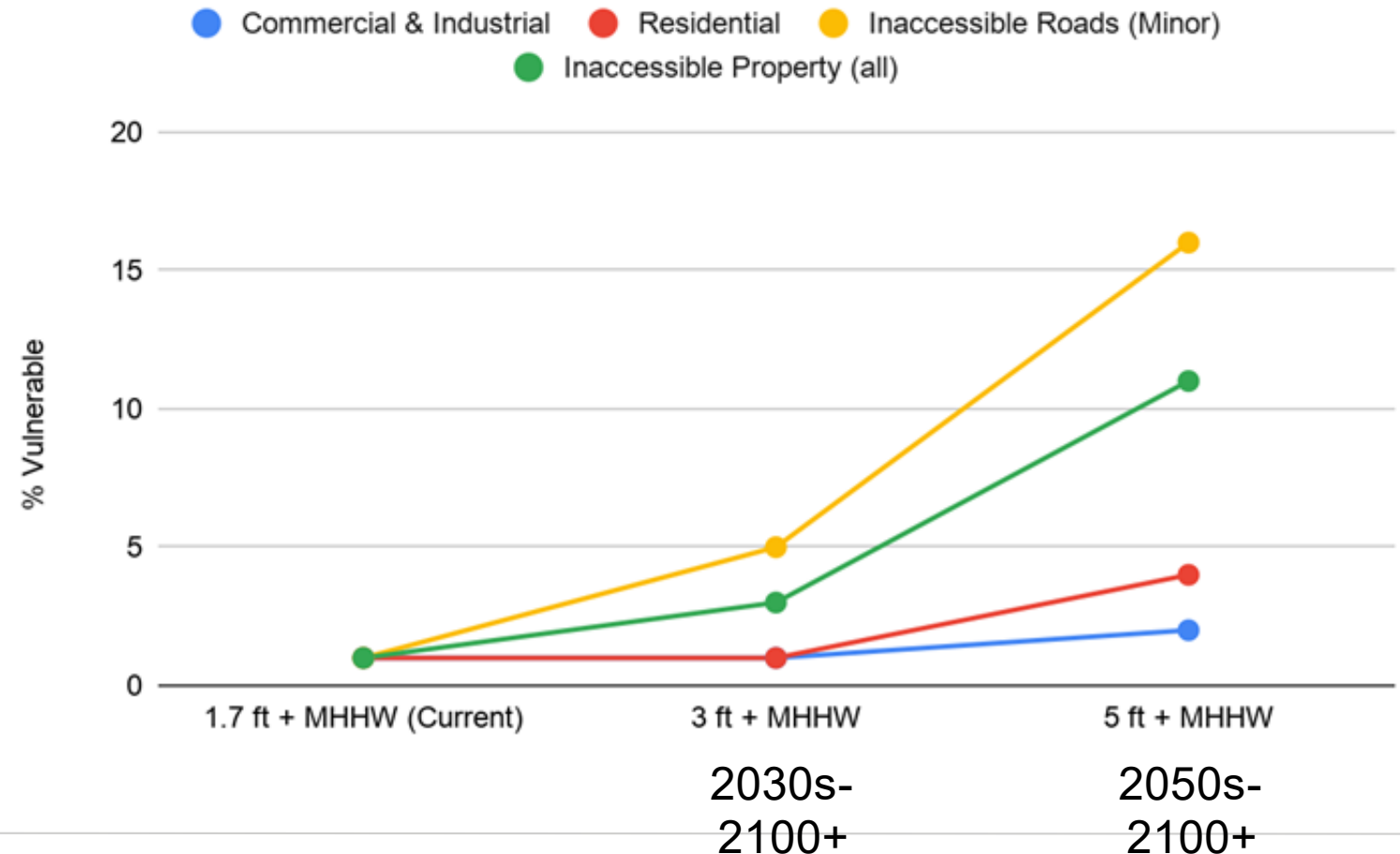
Numbers and percentages in the table above are those associated with medium to high vulnerability and risk inside the City Limits



Vulnerability to tidal flooding is currently low but could increase with sea level rise

- › Roads and Mobility- potentially inaccessible roads (minor) and property
- › Range in timing of future sea level rise projections
- › Time ranges indicate timing of potential tidal flooding and persistent inundation (based on NOAA High to Int. Low projections)

Vulnerability to Tidal Flooding and Sea Level Rise





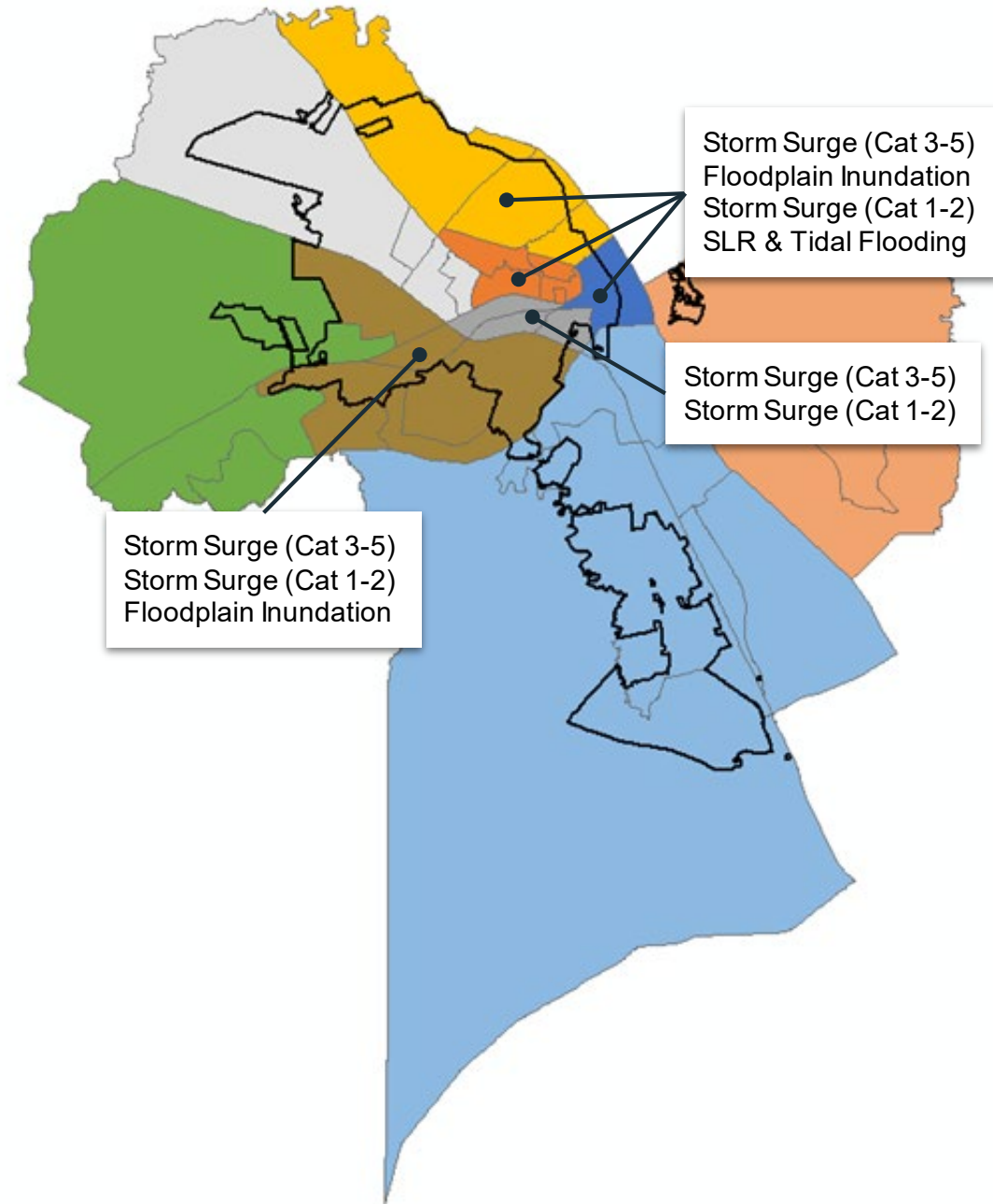
Additional considerations of sea level rise

- › This assessment of sea level is a screening-level analysis
- › Assessment highlights challenges but also opportunities
- › There are also others risks associated with sea level rise
 - Increased frequency of tidal flooding
 - Increased risk to storm surge and coastal flooding



Key issues vary across the City

- › Assessment provides ability to target key threats and specific types of vulnerabilities
- › Potential solutions can be tailored in areas of the City in order to address specific issues



Potential Resilience and Flood Mitigation Solutions (Next Phase)

Strategies and Actions

- › Information from the assessment will be used to develop specific risk-based goals, strategies, and actions
- › Strategies and actions may range from Infrastructure to Policy and Outreach (among others)
- › Actions will be identified that the City can implement successfully over time



Public Participation



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› Questions about the material presented today

› Thoughts and input for moving forward

› Specific expectations for this project

› **How to ask questions:**

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Questions?

Our team is available to answer any questions related to:

- › Assessment process or methodology
- › Draft results and insights
- › Next steps
- › Anything else?



THANK YOU



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