

Charleston County Vulnerability Assessment

RSAC UPDATE

12.12.2023



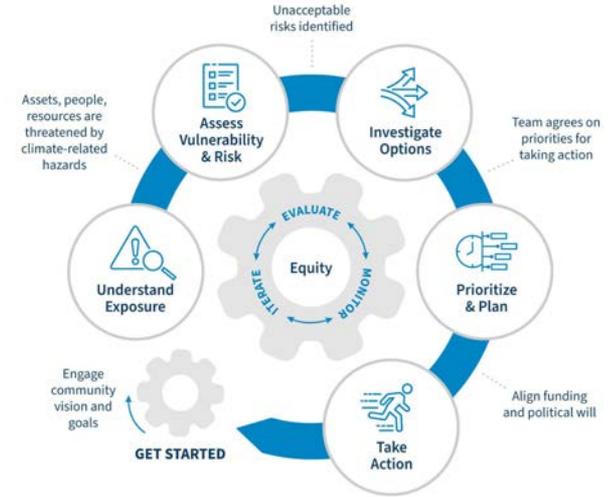
County-wide Vulnerability Assessment

Multi-threat
Spatial
Actionable



Preliminary Strategies & Actions

Effective
Equitable
Whole-of-gov



Co-development with Staff Workgroup

Meaningful involvement of Community Leaders Group

Advised by the Resilience Committee (RSAC)

Agenda

1. Spatial Vulnerability Assessment Approach
2. Preliminary Assessment Workshop with the Staff Workgroup
3. Community Engagement

OVERVIEW OF ASSESSMENT APPROACH

Spatial Vulnerability Assessment Types

Property-based Assessments

- Vulnerability of and risk to built-environment and services
- For flooding and wildfire assessments
- Also, roads and connectivity analysis

Extreme Heat Assessment

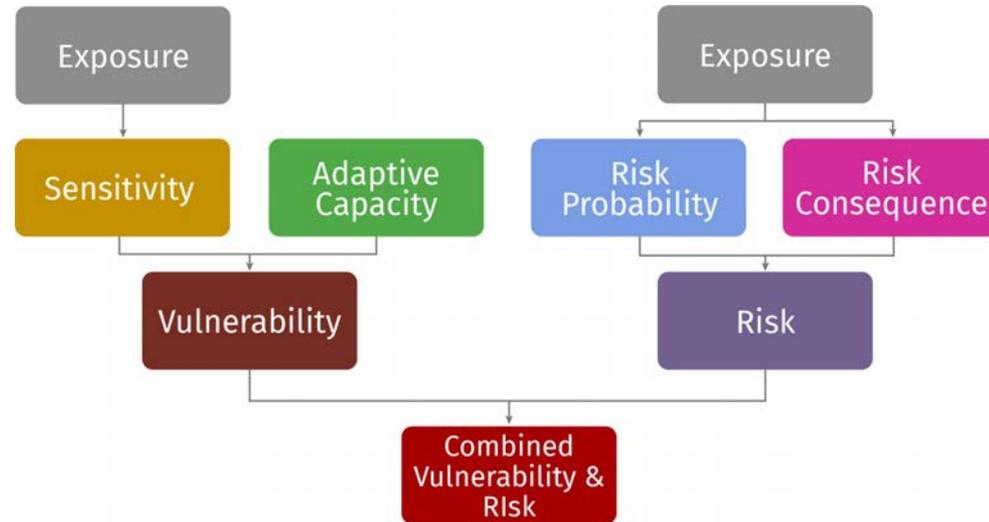
- Urban heat island and public health concepts
- Neighborhood-scale vulnerability

PROPERTY-BASED ASSESSMENTS METHODOLOGY

Consistent analytical framework applied across threats and asset types

Assessment Factors

- ✓ Location of parcel and building (exposure)
- ✓ Asset type and use (sensitivity)
- ✓ Effective year built & floodplain development BFE requirements (adaptive capacity)
- ✓ Depth of flooding (risk consequence)
- ✓ Likelihood of flooding (risk probability)



ASSET CATEGORIES

Infrastructure, Critical Services and other Gov-Owned Properties

utility properties; critical government-owned facilities; hospitals (privately-owned); city, county, state, and federal properties

Commercial Properties

hotels/motels, offices, retail, supermarkets, medical, etc.

Residential Properties

single, multifamily, condos, mobile homes/parks, assisted housing, congregate living facilities

Industrial Properties

Warehouses and other industrial properties

Cultural and Community

recreation; non-emergency services like childcare centers; parks and community centers; historical property; faith-based

Open Space

protected/managed lands; agriculture properties; vacant lands

Key Takeaways on Flooding Conditions Evaluated

1. **Better flood data available now** than what has been available in the past
2. **Multiple sources, varying extents** for similar recurrence interval and type of flooding
3. **Decision relevance of scenarios will vary.** Different uses for different flooding conditions

FLOODING ASSESSMENTS - Current & Future

FEMA NATIONAL FLOOD HAZARD LAYER (NFHL)

Current Conditions

Storm Surge and Riverine

1% and 0.2% annual chance (100-year and 500-year)

NOAA HIGH TIDE FLOODING

Current Conditions - 1.87ft MHHW

Astronomical high tide (“sunny-day”)

3-14 days/year in the last decade

USGS CoSMoS COMPOUND FLOODING - NEW

Current and +1.6 ft SLR

Compound riverine, storm surge, pluvial, tidal

5% and 1% annual chance (20-year and 100-year)

WOODWELL RESEARCH CENTER - NEW

Current and +2.5 ft SLR

Riverine, storm surge, pluvial

1% annual chance (100-year)

8 conditions

2 SLR thresholds

4 recurrence intervals

All mechanisms of flooding

48 asset-threat individual assessments

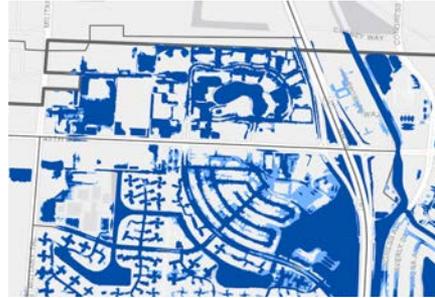
Assets

+

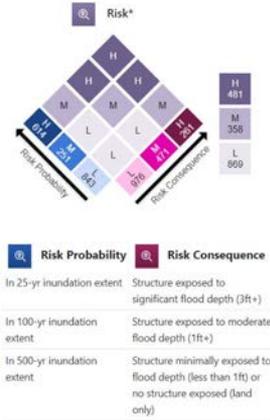
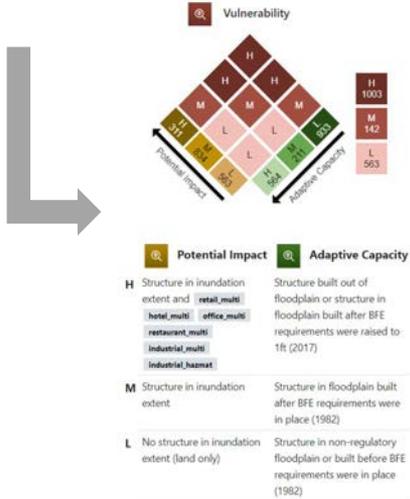
Threats

+

Localized Input



Vulnerability and Risk



* Risk values denote the scope of the risk, but are not probabilistic loss estimates.

Assessment Results at Multiple Scales



Asset-level Results

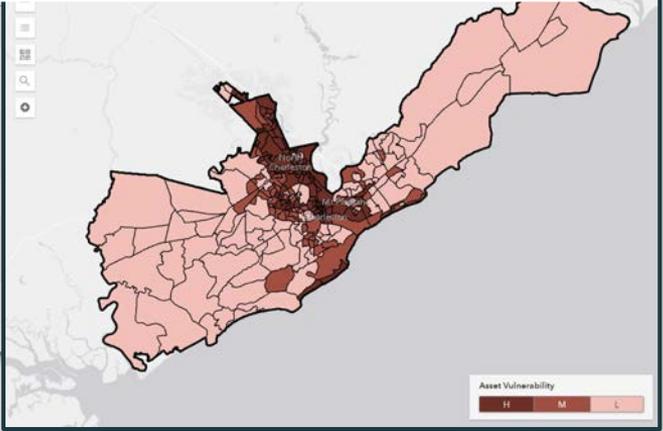
Wilbert Tables

Region Selected area Total Percent

Region:		Current High Tide Flooding	Current 100-year Flooding (Woodwell)	Future Flooding ft SLR
region_study_area	Total			
Commercial	6768.0	142	3,180	3,907
Critical and Government-owned	3887.0	76	1,596	1,889
Cultural and Community	1205.0	41	446	554
Industrial	1445.0	37	917	993
Open Space (Managed, Working, Vacant)	27174.0	6,735	22,368	23,340
Residential	133039.0	1,655	55,562	80,028

Countywide and Jurisdiction Summaries

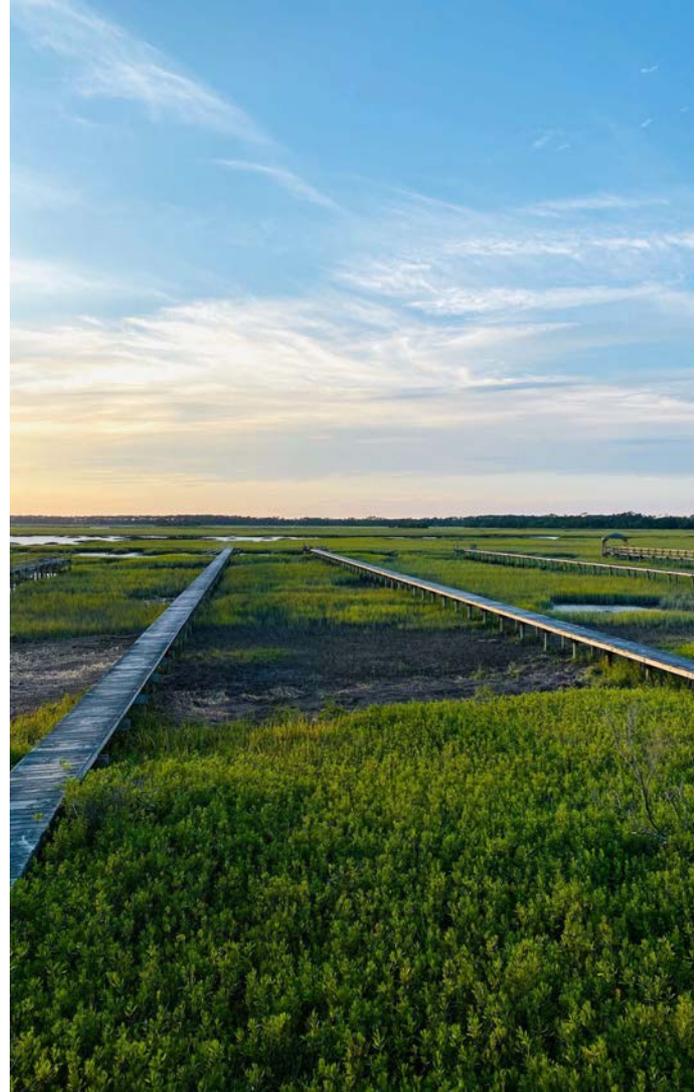
Spatial Patterns Census Block Group/ Tract



**PRELIMINARY ASSESSMENT WORKSHOP - STAFF
WORK GROUP**

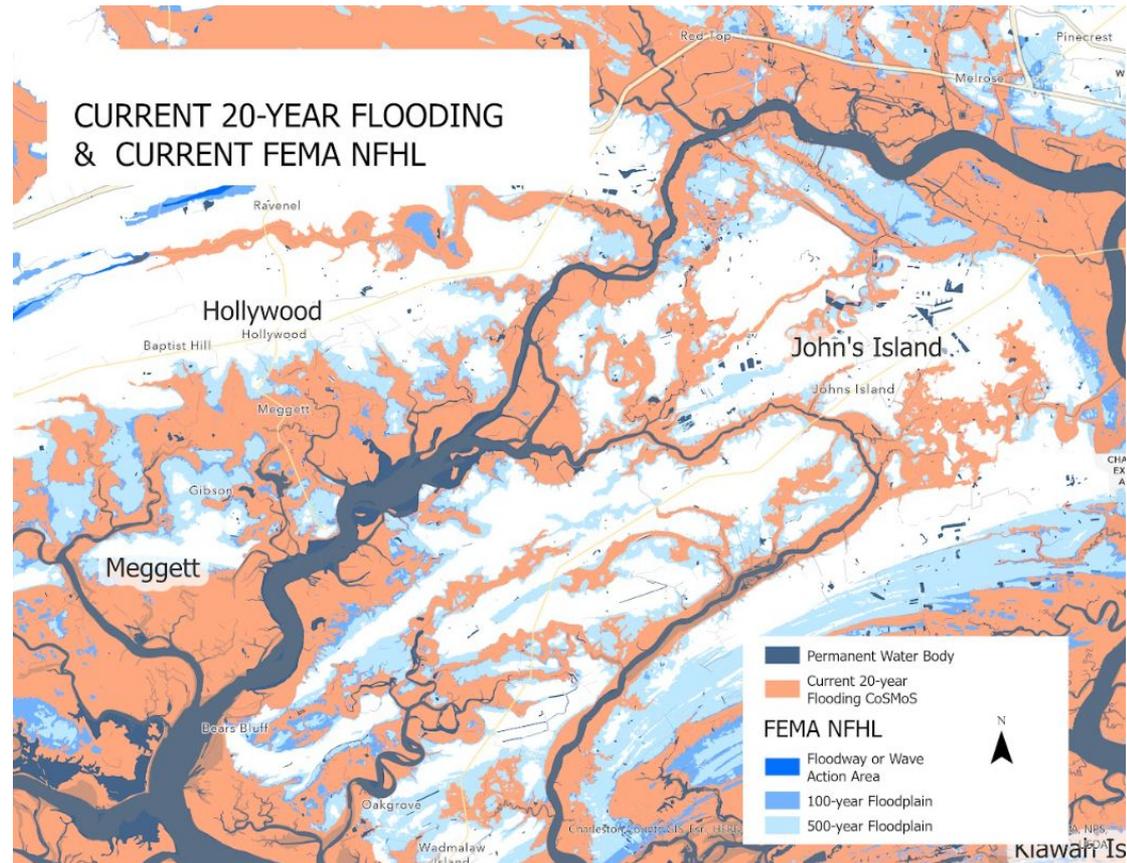
WORKSHOP OBJECTIVES

1. Become familiar with information available through the assessment
2. Discuss potential consequences and impacts of selected vulnerabilities [the “so what”]



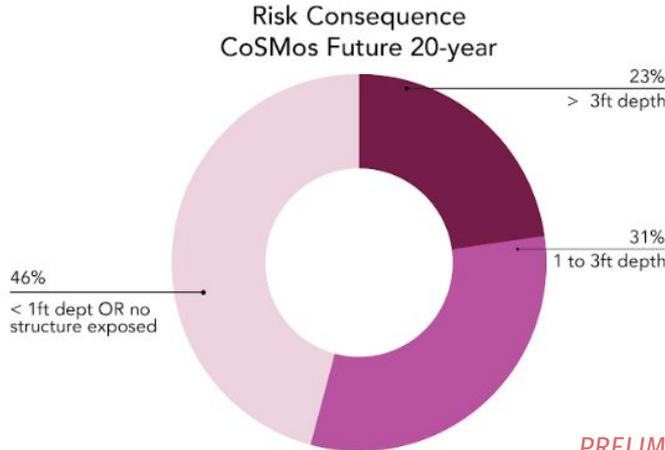
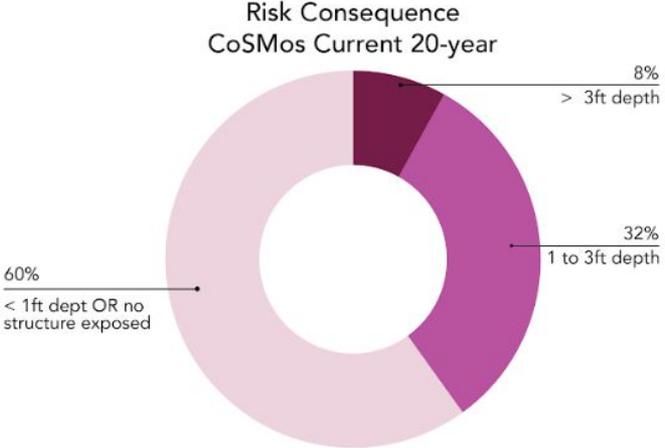
THEME 1: 20-year Recurrence Interval Flooding

Utility of this
higher frequency
return interval



THEME 1: 20-year Recurrence Interval Flooding

Increasing
vulnerability in
the future

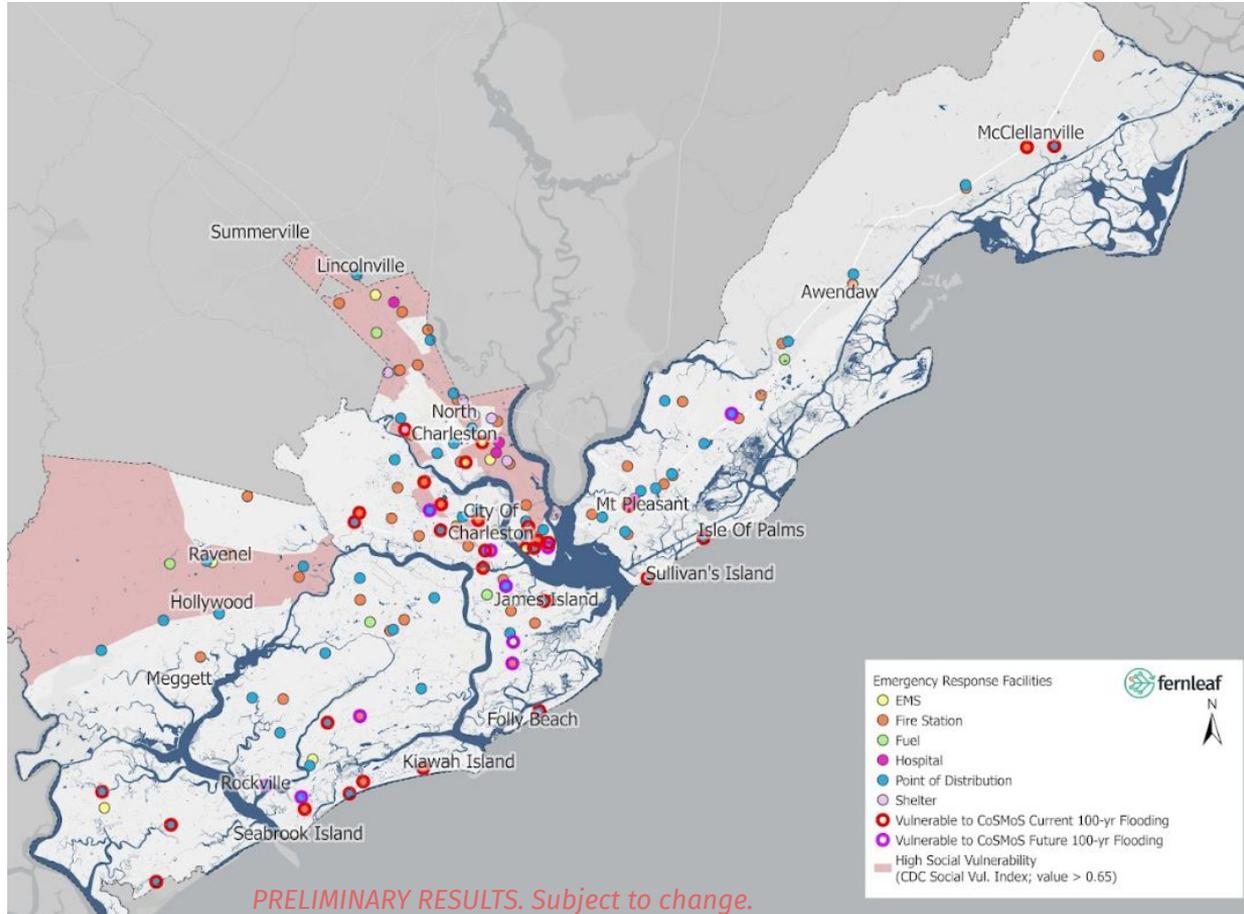


PRELIMINARY RESULTS. Subject to change.

THEME 2: County-owned Critical Services & Infrastructure

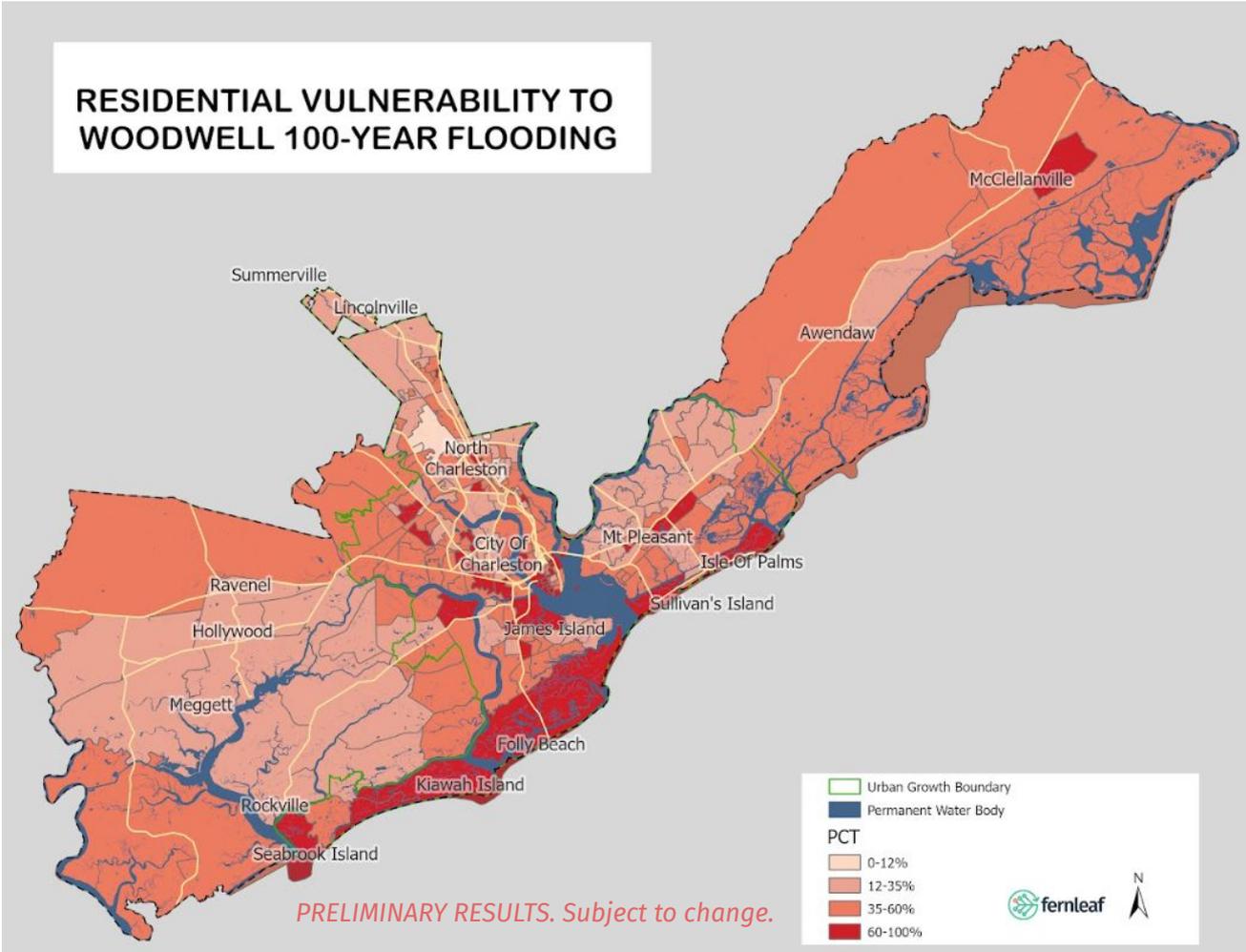
**Vulnerability of
emergency response
services**

**Vulnerability of
non-critical services**



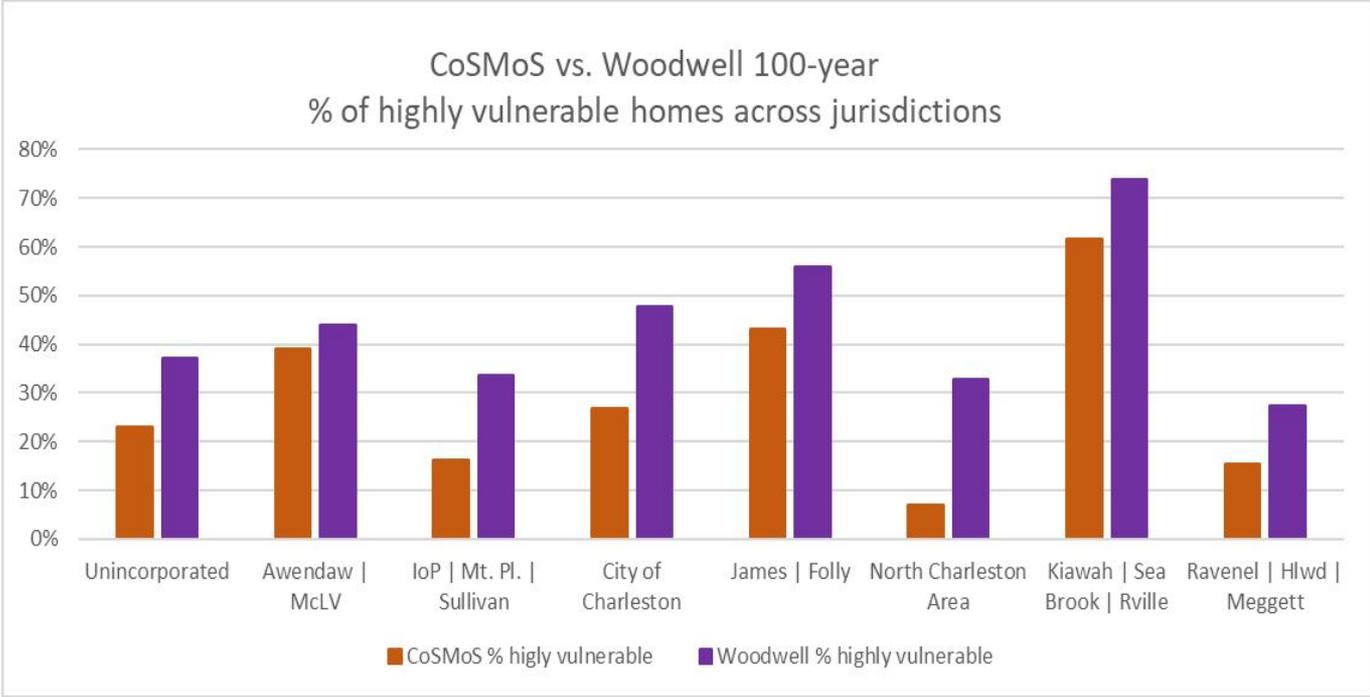
THEME 3: Residential Vulnerability

Differences
across 100-year
datasets



THEME 3: Residential Vulnerability

Distribution across jurisdictions



PRELIMINARY RESULTS. Subject to change.

COMMUNITY ENGAGEMENT - UPDATE

GUIDING PRINCIPLES

Meaningful Community Involvement in Resilience Planning

Prioritizing frontline communities while seeking broad participation from different groups

Involvement from the beginning results in stronger solutions

Fostering democratic participation and equity through co-creation; bridging the divide between community and governance

Building relationships and trust is key which takes time and resources

COMMUNITY INVOLVEMENT APPROACH

WHO

4-6 community leaders

From frontline communities (underserved or historically marginalized *and* climate-impacted)

HOW

Four **hands-on workshops as a focus group**

2-way information sharing, collaborative analyses and building consensus.

Report back at each meeting

Led by Community Lattice

WHY

Get **early feedback** to align assessment with lived experiences

Develop **shared understanding** of vulnerabilities and of **goals and priorities** to reduce them

Cultivate **relationships** for long-term collaboration and broader involvement after this phase of the work

Questions?

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