CLIMATE READY DC

Local Solutions: Eastern Regional Climate Preparedness Conference

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DEPARTMENT OF ENERGY & ENVIRONMENT

GOVERNMENT OF THE DISTRICT OF COLUMBIA

Climate Ready DC Plan

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Three-part Analysis to:

1. **Analyze Climate Impacts** ✓
2. **Assess Risks & Vulnerabilities** ✓
3. **Identify & Prioritize Solutions** (underway)



How Will Climate Change Affect DC?

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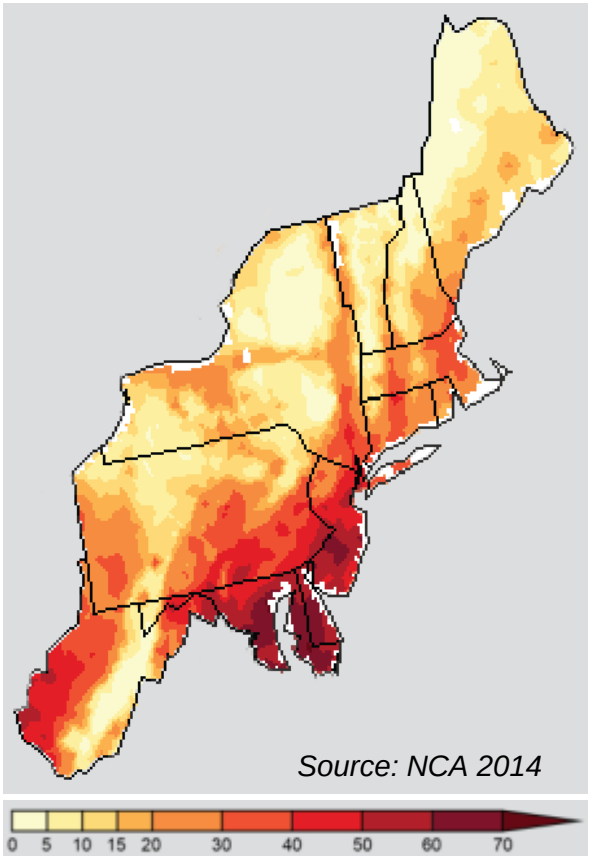
Temperature



Number of days > 90°F

Precipitation

Sea Level Rise

Extreme Weather

Storm Surge

Timescales: 2020s, 2050s, 2080s

Extreme Heat Events
Days Over 95°F Heat Index

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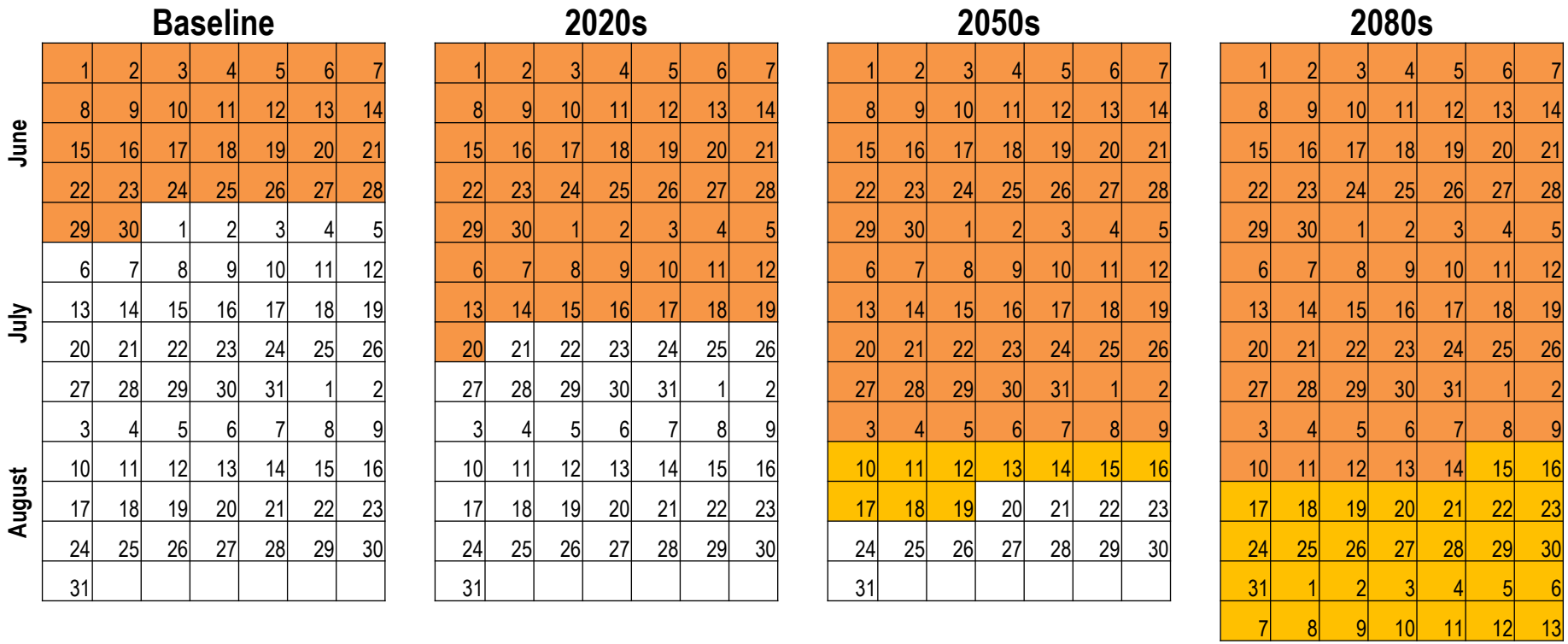
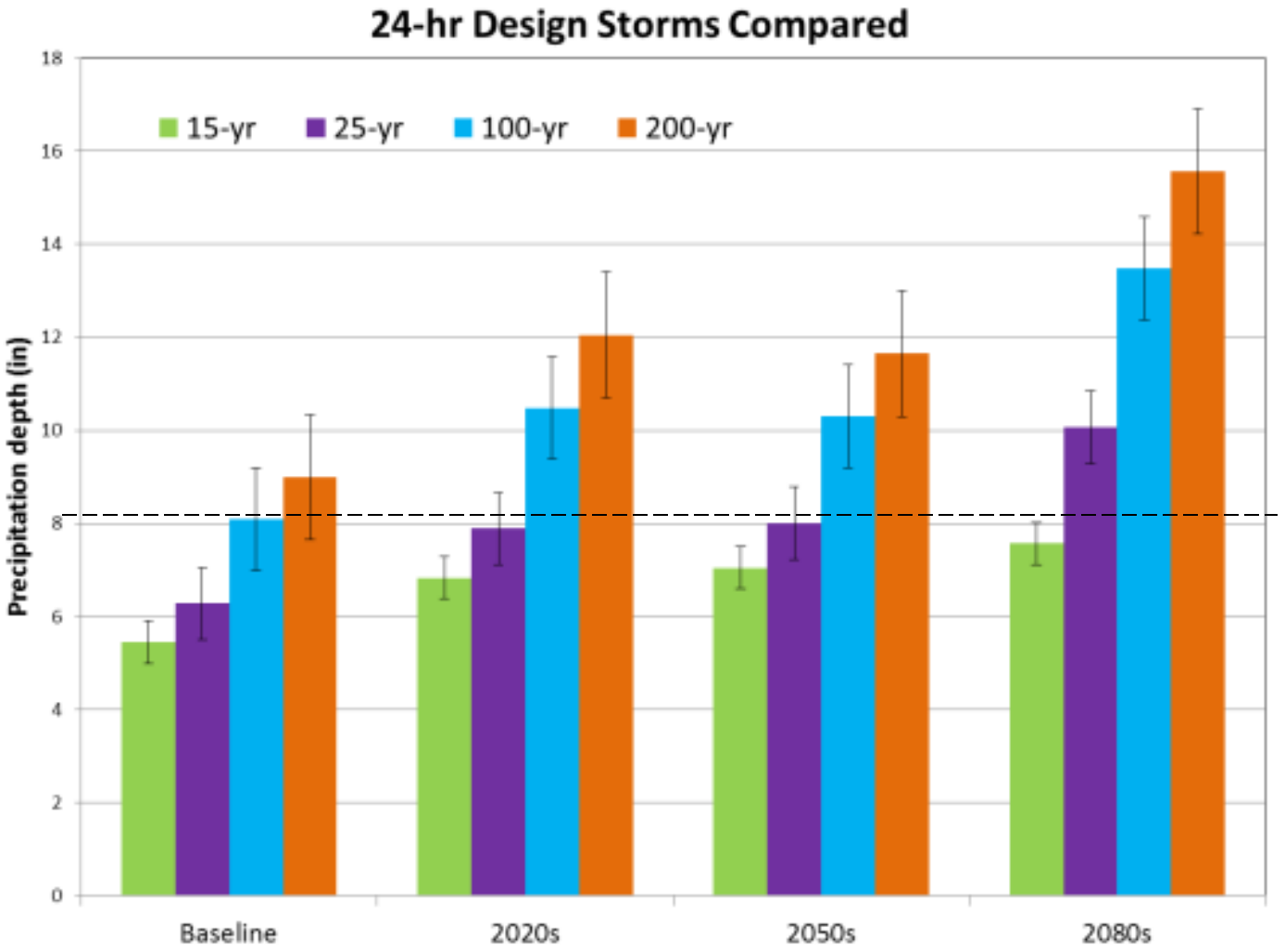


Extreme Precipitation Events



Today's 100-year rain event (8 inches)

Extreme precipitation events, when a large amount of rain/snow falls in a short period of time are projected to become **more frequent** and **more intense.**

Mapping Sea Level Rise

Relative sea level rise (RSLR) inundation mapping in Washington, DC.

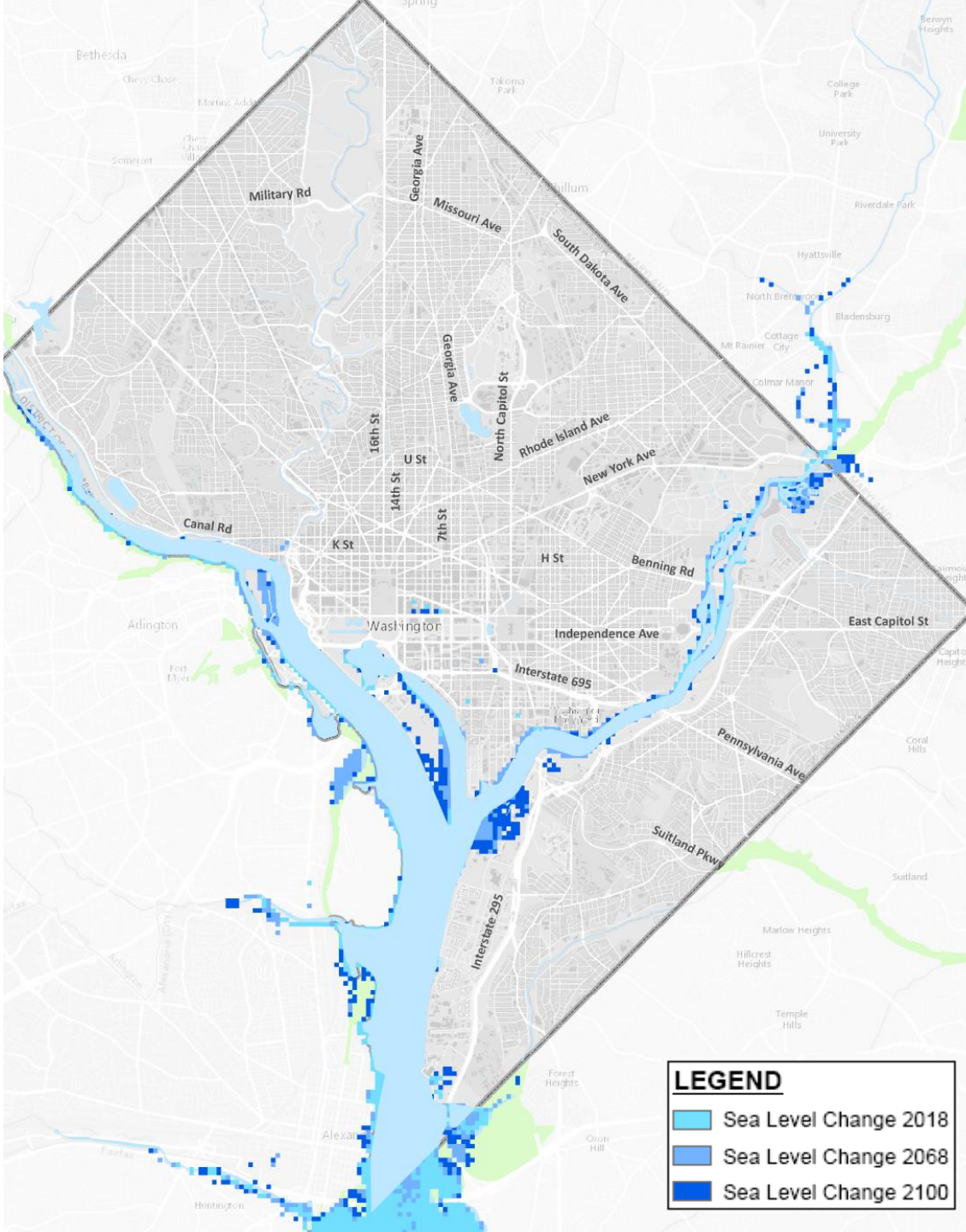
2020s: 2.4 inches

2050s: 1.4 feet

2080s: 3.4 feet

Map shows U.S. Army Corps of Engineers “High” scenario, for years 2018, 2068, and 2100.

Source: USACE North Atlantic Coast Comprehensive Study map overlaid on GIS map base created by Kleinfelder, 2015.

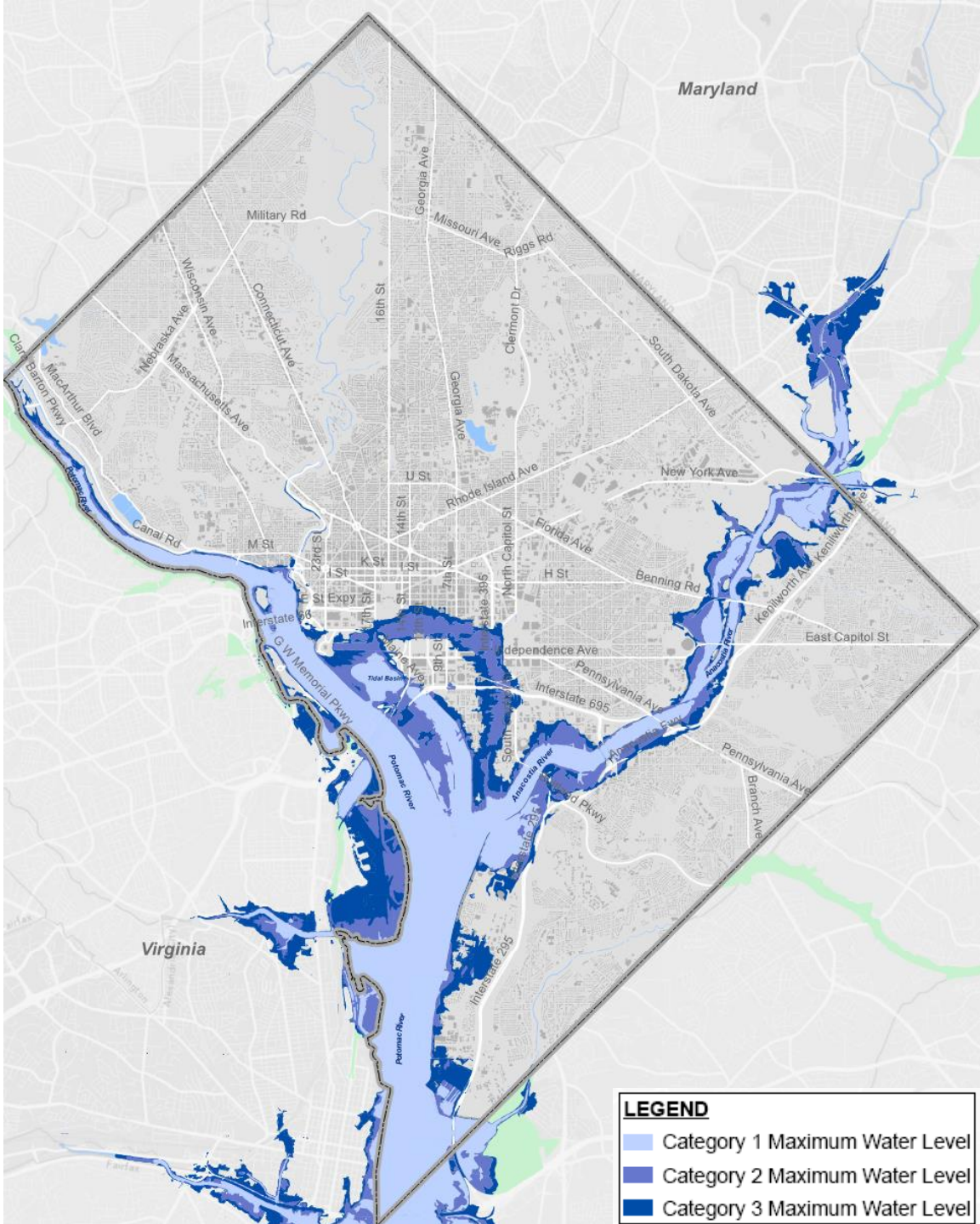


Storm Surge

Storm surge flooding will be exacerbated in the future by climate change due to sea level rise and storm intensification.

Maps shows the extent of storm surge flooding resulting from present day Category 1, 2, and 3 storms.

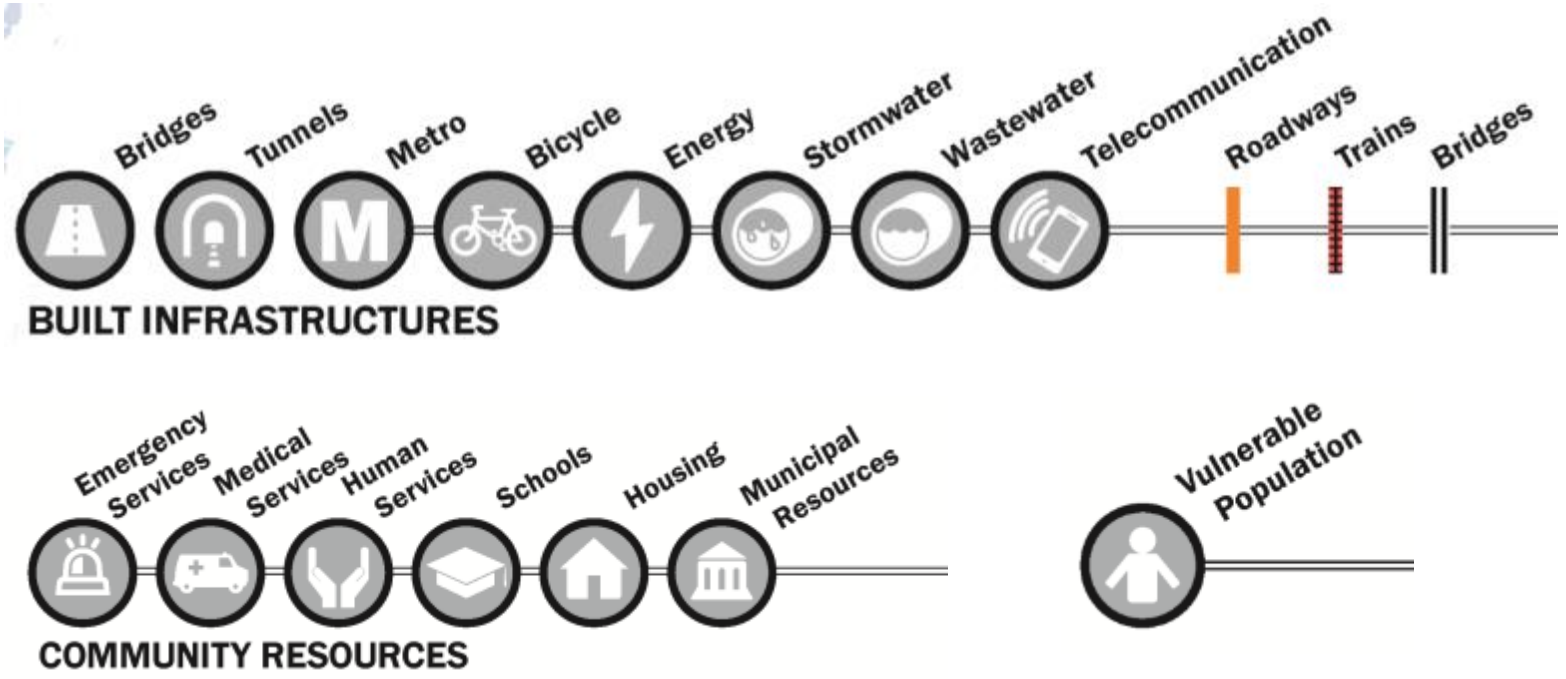
Source: USACE North Atlantic Coast Comprehensive Study map using the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) numerical modeloverlaid on GIS map base created by Kleinfelder, 2015.



Vulnerability & Risk Assessment

Goal: Identify the District's infrastructure, public facilities, and populations at greatest risk to climate change.

1. Identify the District's Critical Assets



Vulnerability & Risk Assessment

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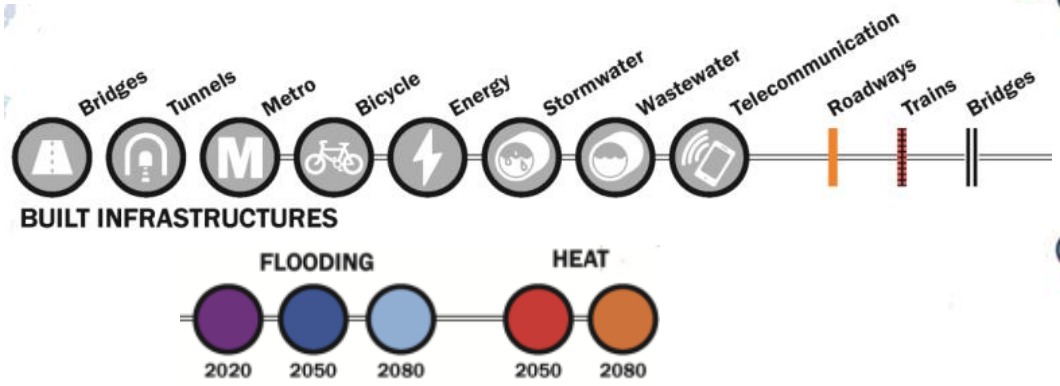
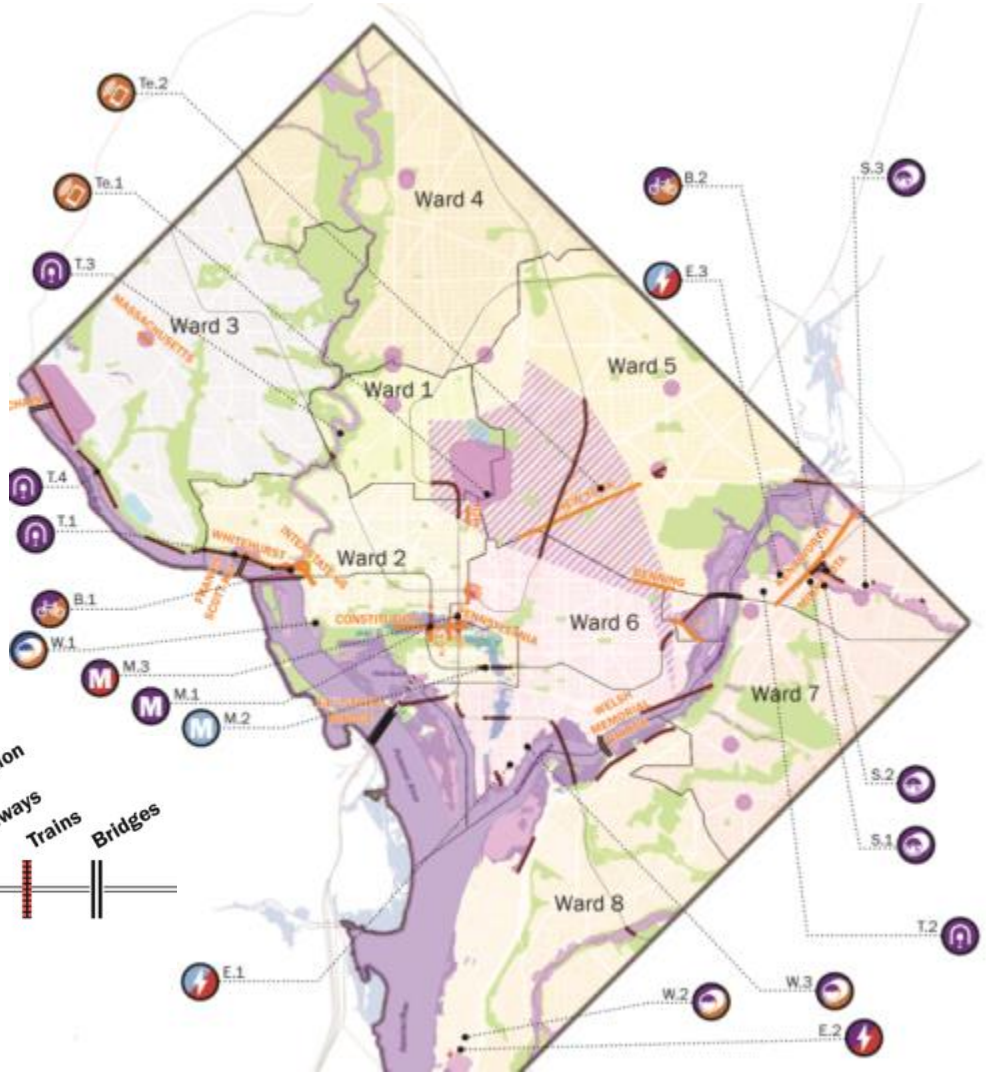
2. **Determine the exposure of critical assets to climate hazards**





Vulnerability & Risk Assessment

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3. Score and rank assets based on comparative risk

- Risk = Probability of Exposure * Consequence of Impact
- Consequence scores based on qualitative assessment conducted with stakeholders for each type of asset

Scoring Criteria

Score	Area of Service Loss	Duration of Service Loss	Cost of Damage	Impacts to Public Safety Services	Impacts to Economic Activities	Impacts to Public Health/ Environment	Impacts to Vulnerable Populations
3 (Most Severe)	Two or more Wards	> 7 days	> $1m	High	High	High	High
2 (Moderate Seve	Ward	1 - 7 days	$100k - $1m	Moderate	Moderate	Moderate	Moderate
1 (Least Severe)	Neighborhood (not entire Ward)	< 1 day	< $100k	Low	Low	Low	Low

Vulnerability & Risk Assessment

Step 4: Identify areas with the largest number of vulnerable residents

Adaptive Capacity

Factors that influence an individual's ability to bounce back or adapt to stresses caused by climate change.

- Unemployment
- Level of education
- Poverty Prevalence

Sensitivity

Social, biological or economic factors that make individuals more sensitive to climate impacts.

- Age
- Obesity
- Asthma
- Poverty
- Unemployment
- Education

Vulnerability & Risk Assessment
Key Findings

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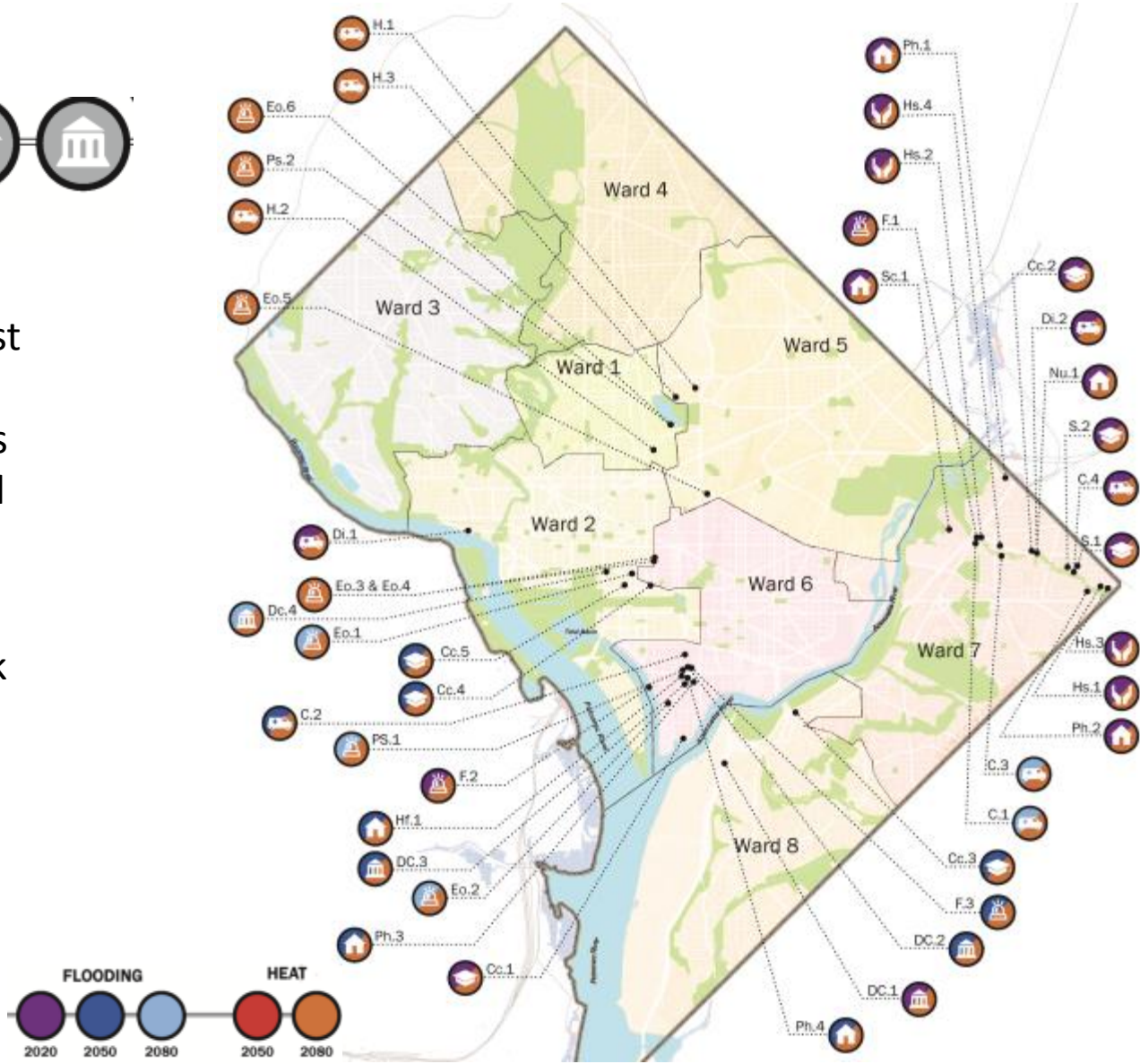
COMMUNITY RESOURCES

Ward 7 is home to the largest number of vulnerable community resources such as schools, medical services and human services.

Public safety resources at risk of flooding, including police, fire, and local and federal emergency operations centers, are concentrated in **Downtown** and **Southwest**.



Vulnerability & Risk Assessment
Key Findings

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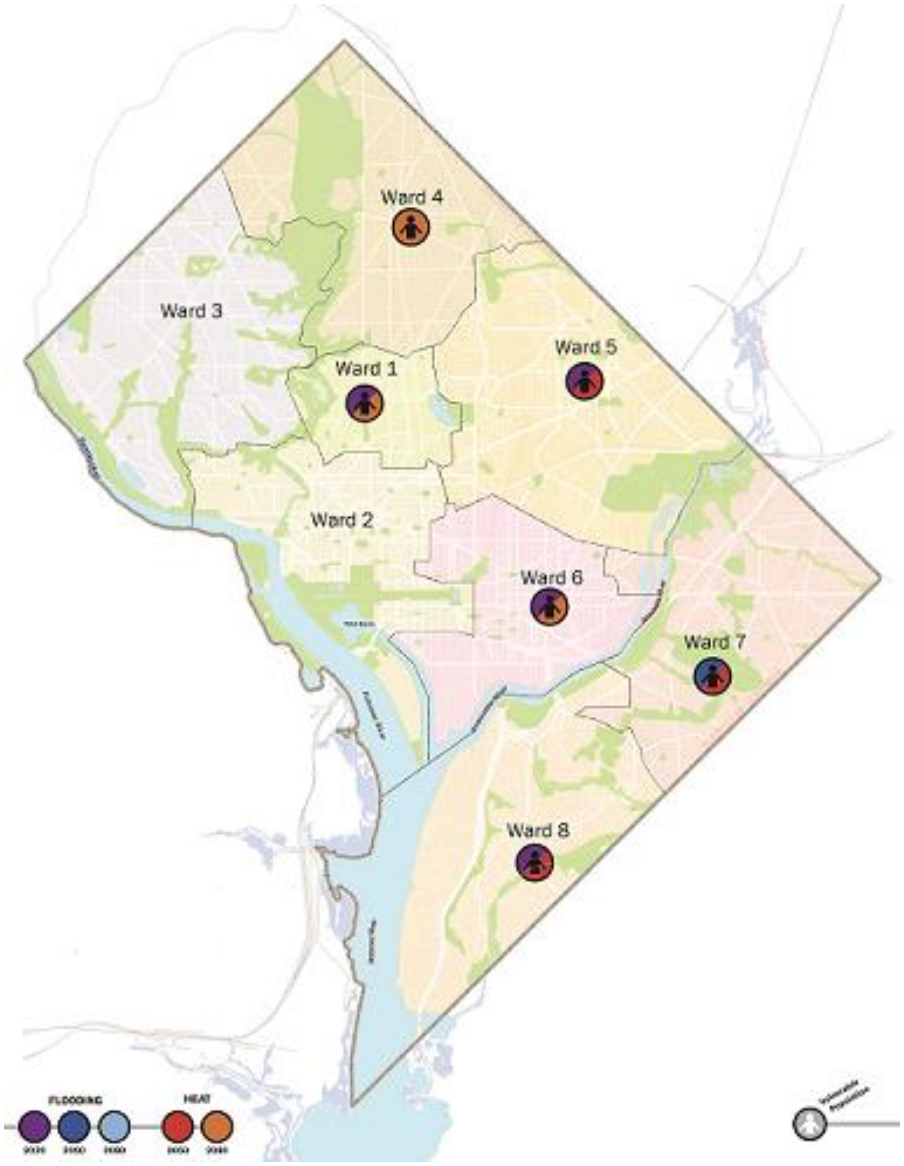
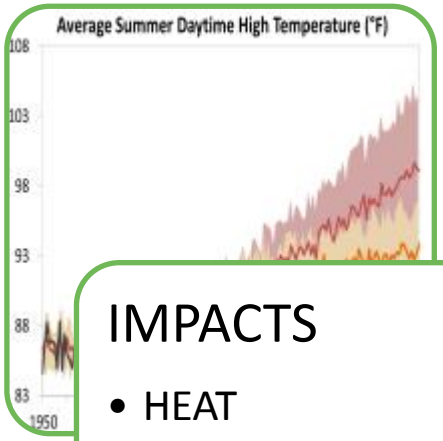
Vulnerable Populations

Wards 7 and 8 are home to the largest number of residents with a higher vulnerability to climate change impacts – especially an increase in extreme heat – due to economic and demographic factors (e.g. income, age, obesity, asthma, etc.)



Climate Ready DC Plan Framework



IMPACTS

- HEAT
- PRECIPITATION
- SEA LEVEL RISE
- FLOODING

RISKS

- HEALTH
- INFRASTRUCTURE FAILURES
- WATER QUALITY

ACTIONS

- POLICIES
- STANDARDS
- PROJECTS

Plan Organization

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Transportation & Utilities

Buildings & Development

Neighborhoods & Communities

Governance & Implementation

Neighborhoods + Communities

Goal: Make neighborhoods and communities safer and more prepared by strengthening community, social, and economic resiliency.

Sample Actions
Improve emergency preparedness and planning related to climate change • Encourage participation in disaster preparedness training • Expand efforts to reach vulnerable populations and provide training to healthcare and service providers • Evaluate health risks related to climate change and improve public awareness • Conduct an in-depth assessment of the needs of vulnerable populations
Reduce risks of extreme heat and the urban heat island • Develop thermal mapping of the District to identify hot-spots • Reduce the heat island with cool/green roofs, green space, and trees • Evaluate existing heat-emergency plan and warning system and the accessibility of cooling centers
Strengthen community cohesion for safety and resilience • Improve neighborhood walkability and connectivity • Ensure neighborhood access to resources like food and medical services • Build capacity for community level preparedness and resilience planning • Encourage healthy lifestyles through active design and planning
Implement neighborhood-scale resilience solutions • Explore the creation of Community Resilience Hubs • Help private entities conduct risk assessments and preparedness planning

Challenges & Lessons Learned

- Need to consider both the human and physical aspects of vulnerability, i.e. people and the facilities that serve them.
- Get started with the information that you have, but recognize the need for deeper, neighborhood-level assessment.
- Identifying areas of vulnerability is not the same as connecting with at-risk individuals and communities.
- Implementation will require partnerships with public and private service providers that interact directly with at-risk individuals.

Discussion Questions

- What are some additional social or economic factors that could impact adaptive capacity or sensitivity in your communities?
- What are the critical services or facilities that at-risk communities rely on within your cities before, during, or after a disaster?
- What public or private institutions in your communities could you partner with to directly engage with at-risk communities or individuals?

Contact

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