CLIMATE CHANGE IN HAMPTON ROADS

PHASE II: STORM SURGE VULNERABILITY AND PUBLIC OUTREACH

Agenda Item #23

Presented to the
Hampton Roads Planning District Commission

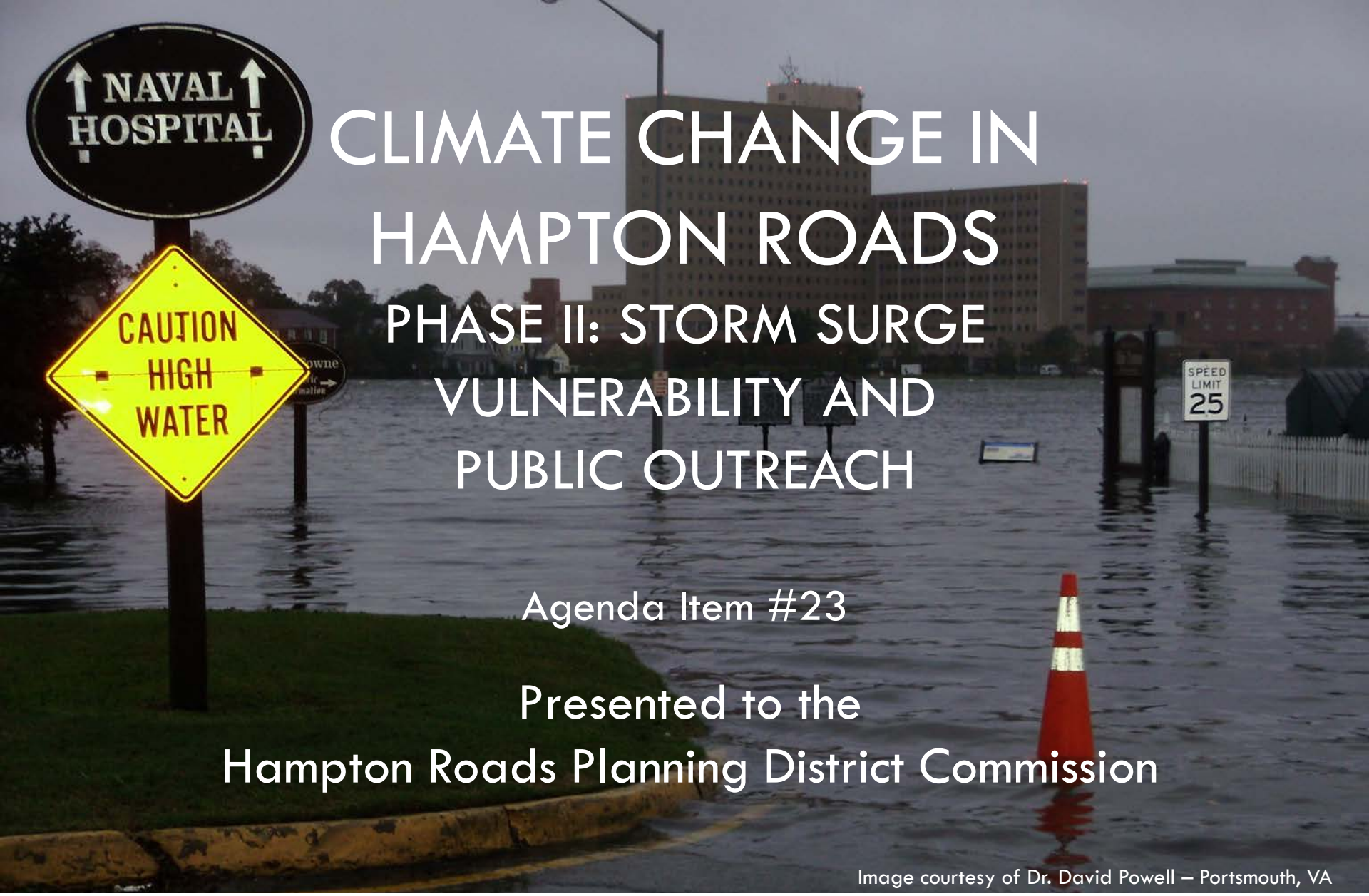

Image courtesy of Dr. David Powell – Portsmouth, VA

June 16, 2011

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HAMPTON ROADS PDC PLANNING DISTRICT COMMISSION

Report Organization

- **Sea Level Rise in Hampton Roads**
- Case Studies
- **Data**
- **Methodology**
- **Results**
- Public Outreach
- Policy Options
- **Conclusions and Next Steps**

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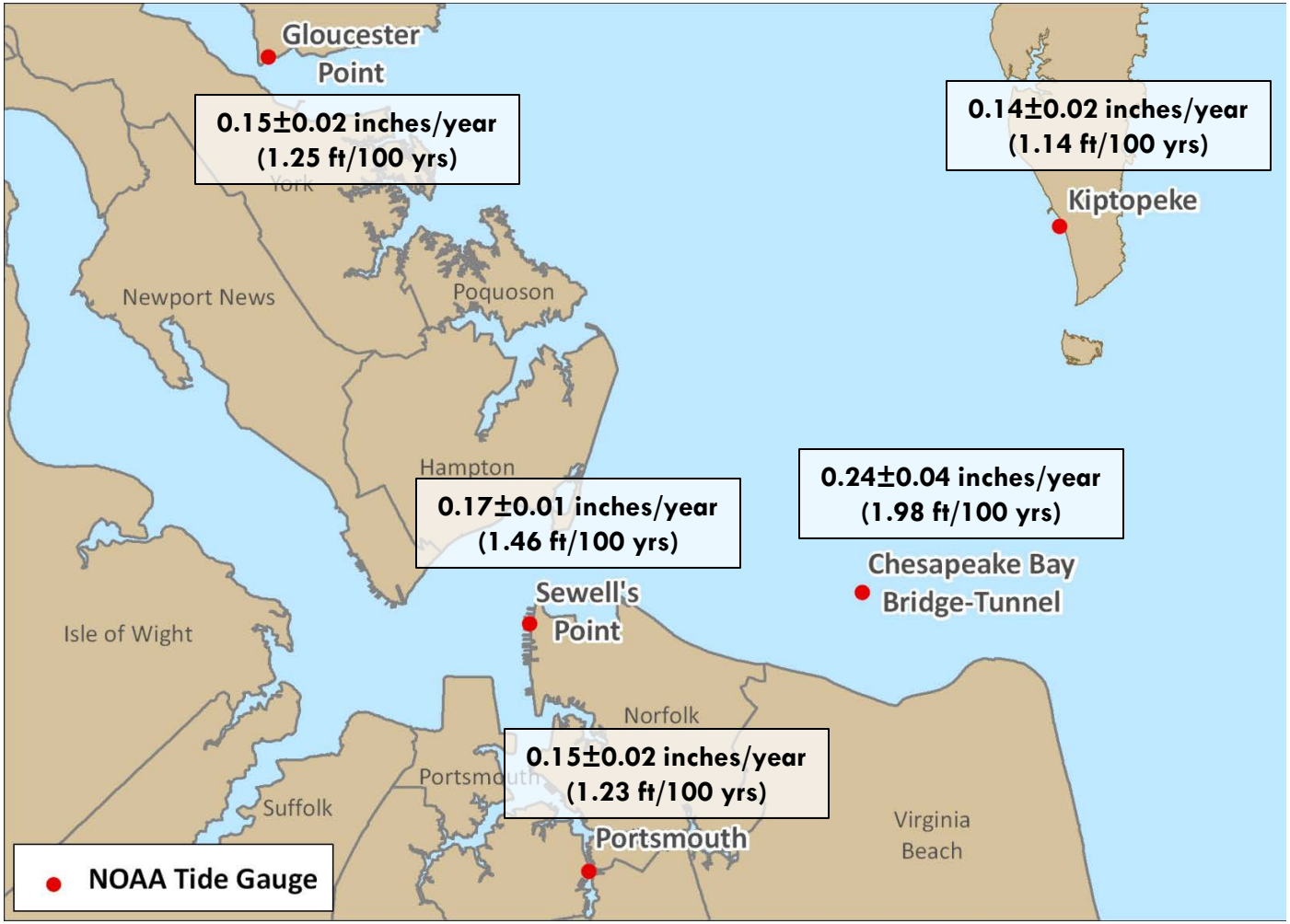
Sea Level Rise in Hampton Roads

- Absolute sea level rise refers to the increase in mass or volume of the oceans
  - Typically reported as a global average
- Relative sea level rise is measured at the local level and includes the vertical movement of land
  - Typically reported for specific points such as tide gauges

Sea Level Rise in Hampton Roads

- Trends are based on measurements from last 30 to 80 years
- Regional average is 1-2 feet of sea level rise over 100 years



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Data and Methodology

- Developed based on case study research and available data
- Use asset datasets from several sources with storm surge areas to estimate regional and local vulnerability to hurricane storm surge flooding and sea level rise
- Use geographic information systems (GIS) analysis to show which assets are in vulnerable areas and sum the results by locality and storm surge category

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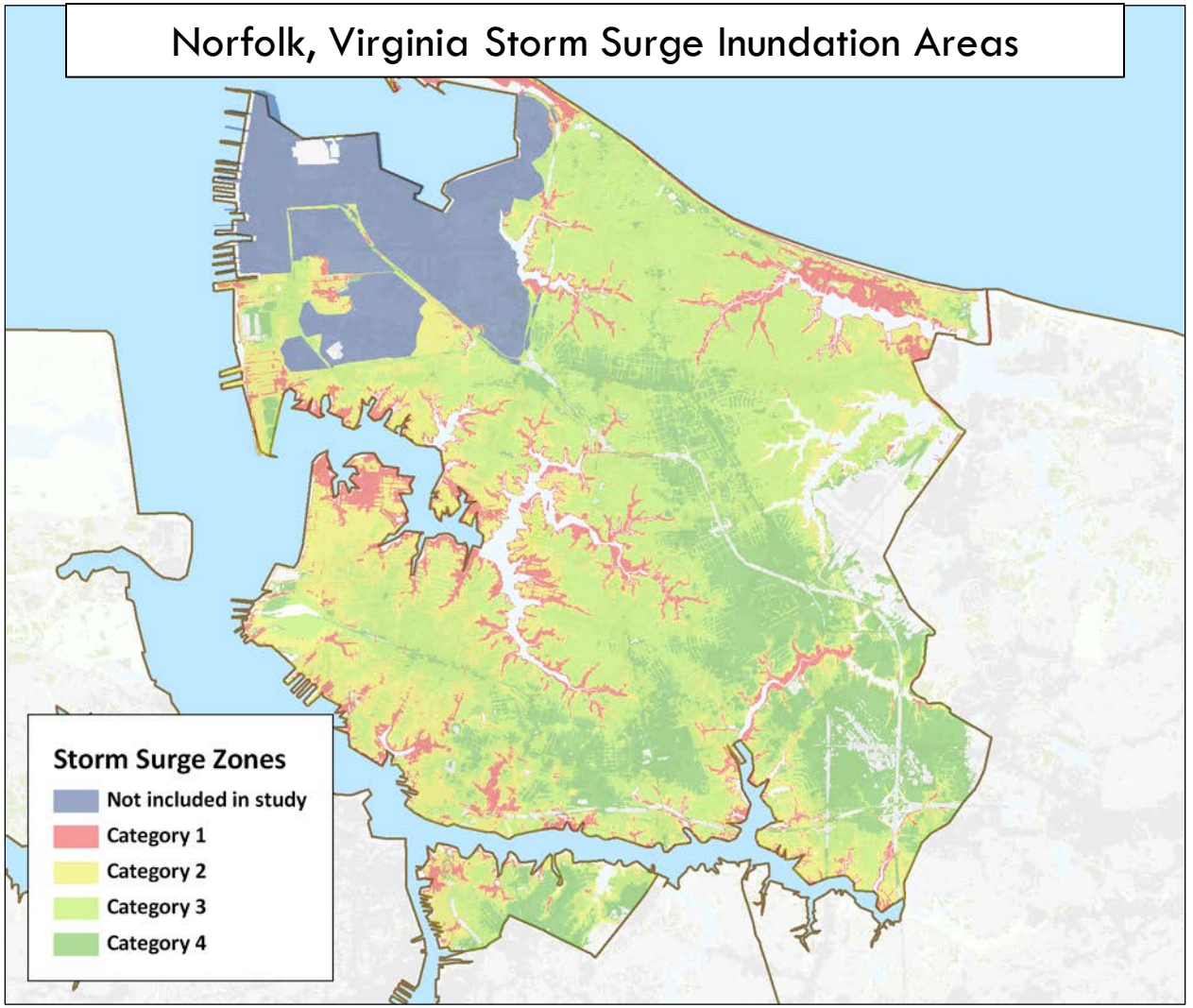
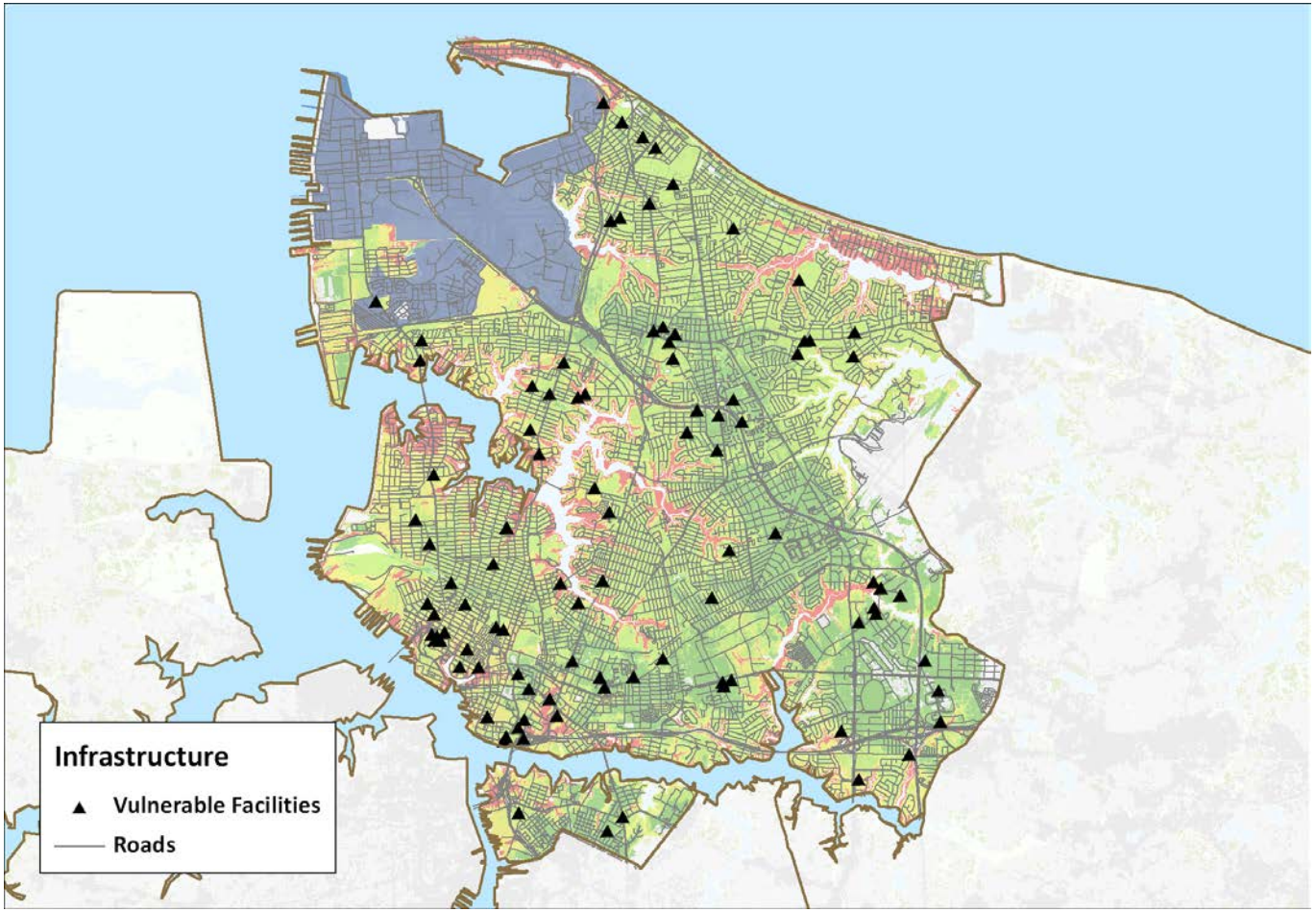
Results – Norfolk (example)

- Local results are included for each of the twelve Hampton Roads localities included in the 2008 Virginia Hurricane Evacuation Study

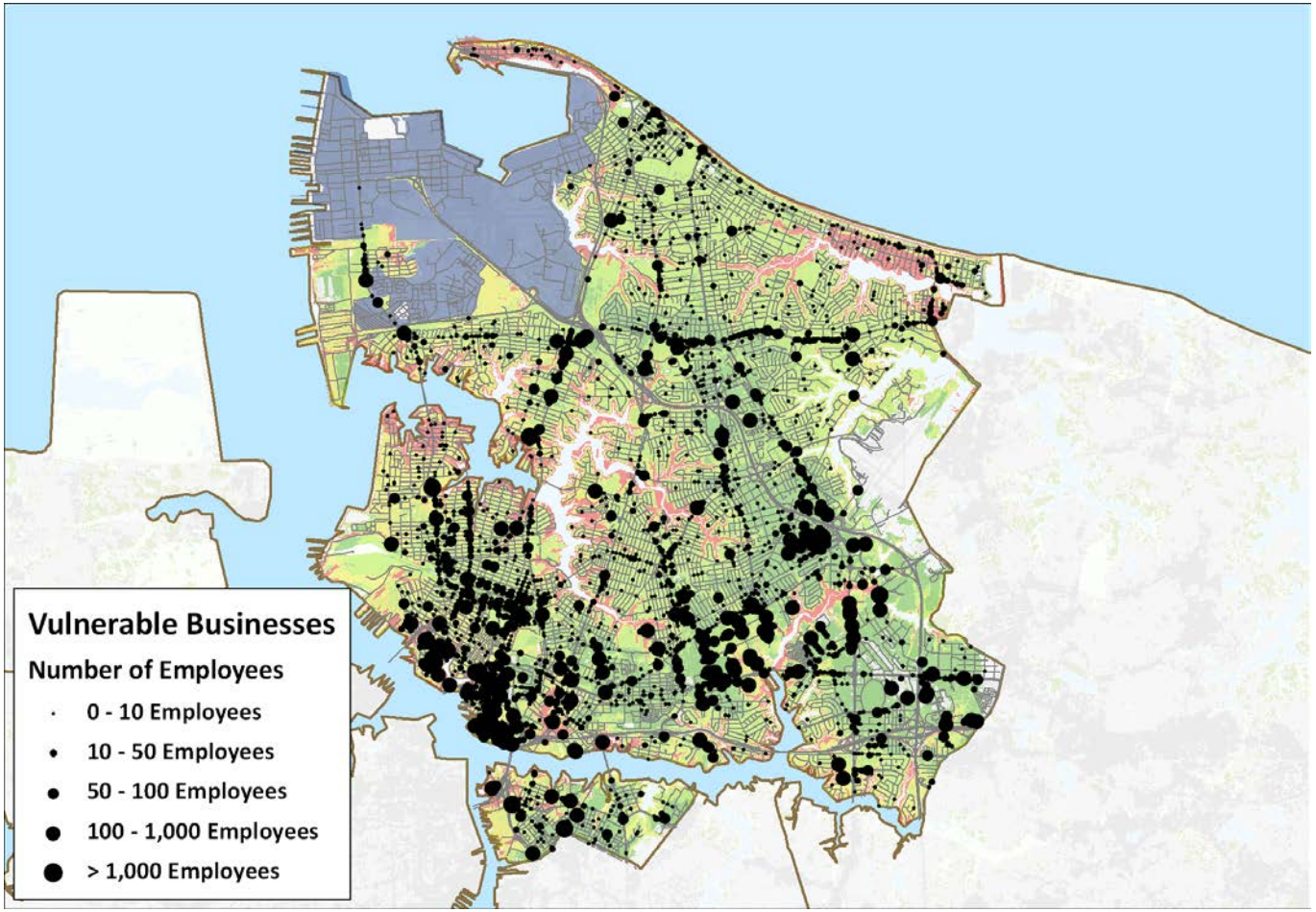


Results – Norfolk (example)



Roads and Critical Infrastructure Vulnerable to Storm Surge in Norfolk, Virginia

Results – Norfolk (example)



Businesses Vulnerable to Storm Surge
in Norfolk, Virginia

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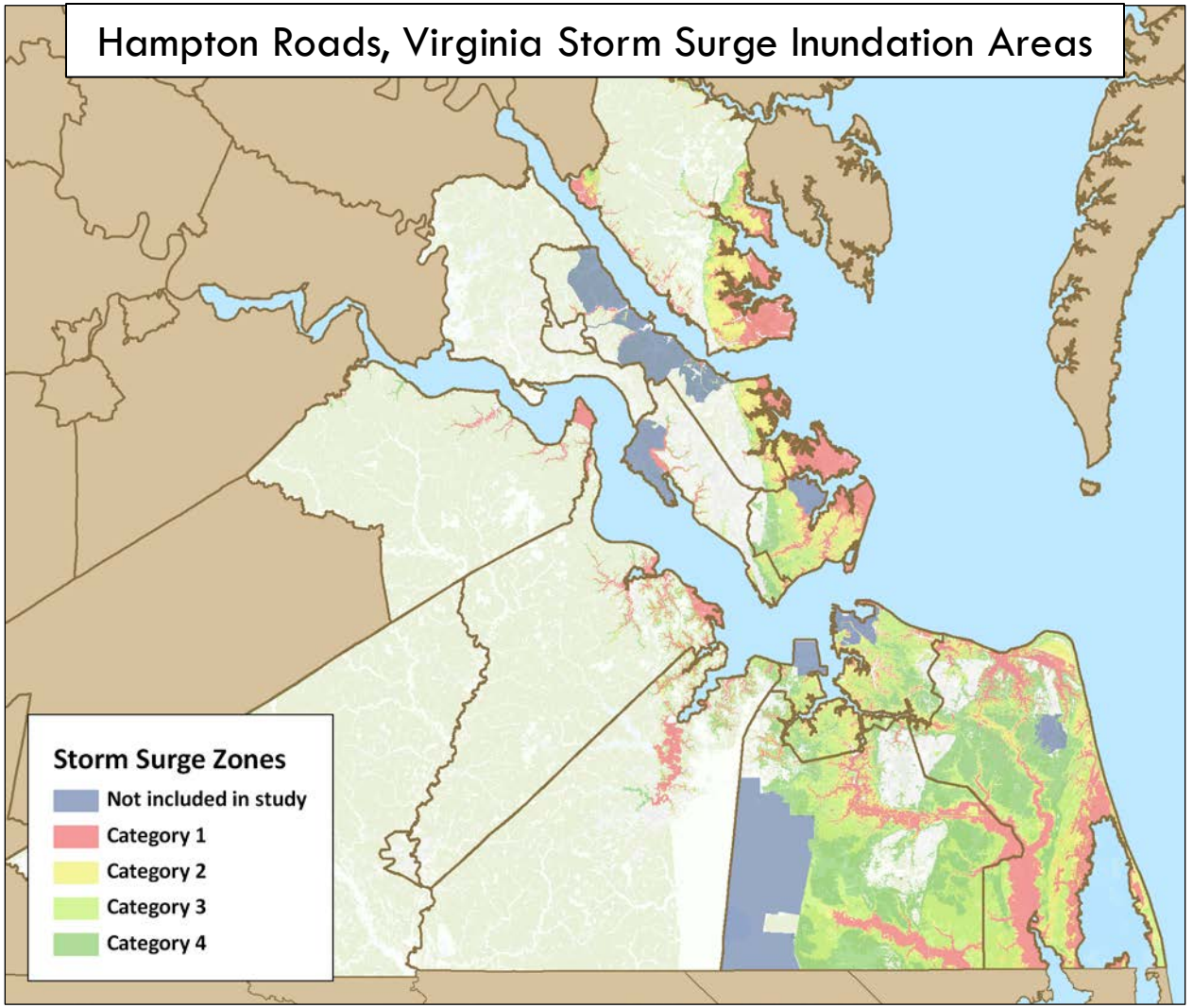
Results – Region

- Overall, high level of exposure to storm surge across the region
- Southside is more vulnerable to larger events than the Peninsula
- Significant population, infrastructure, critical facilities, and businesses at risk



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Conclusions

- Hampton Roads is significantly vulnerable to storm surge and sea level rise
- Baseline assumption of sea level rise equal to historical trend is appropriate
- Acceleration of sea level rise will depend on many factors, so it should be monitored and planning assumptions updated as needed
- New data should be incorporated as available

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Next Steps

- HRPDC staff will continue:
  - To analyze regional vulnerability to sea level rise using elevation data
  - To research and develop policy options
  - To work with other regional partners, such as ODU and VIMS, on related projects

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Recommended Action

- Approve report for distribution