

# Flood Risk & Social Vulnerability in Two CA Counties

## What is social vulnerability?

Social vulnerability captures how well people can **prepare for, withstand, and recover from** hazards. Two tract-level indicators I map here are:

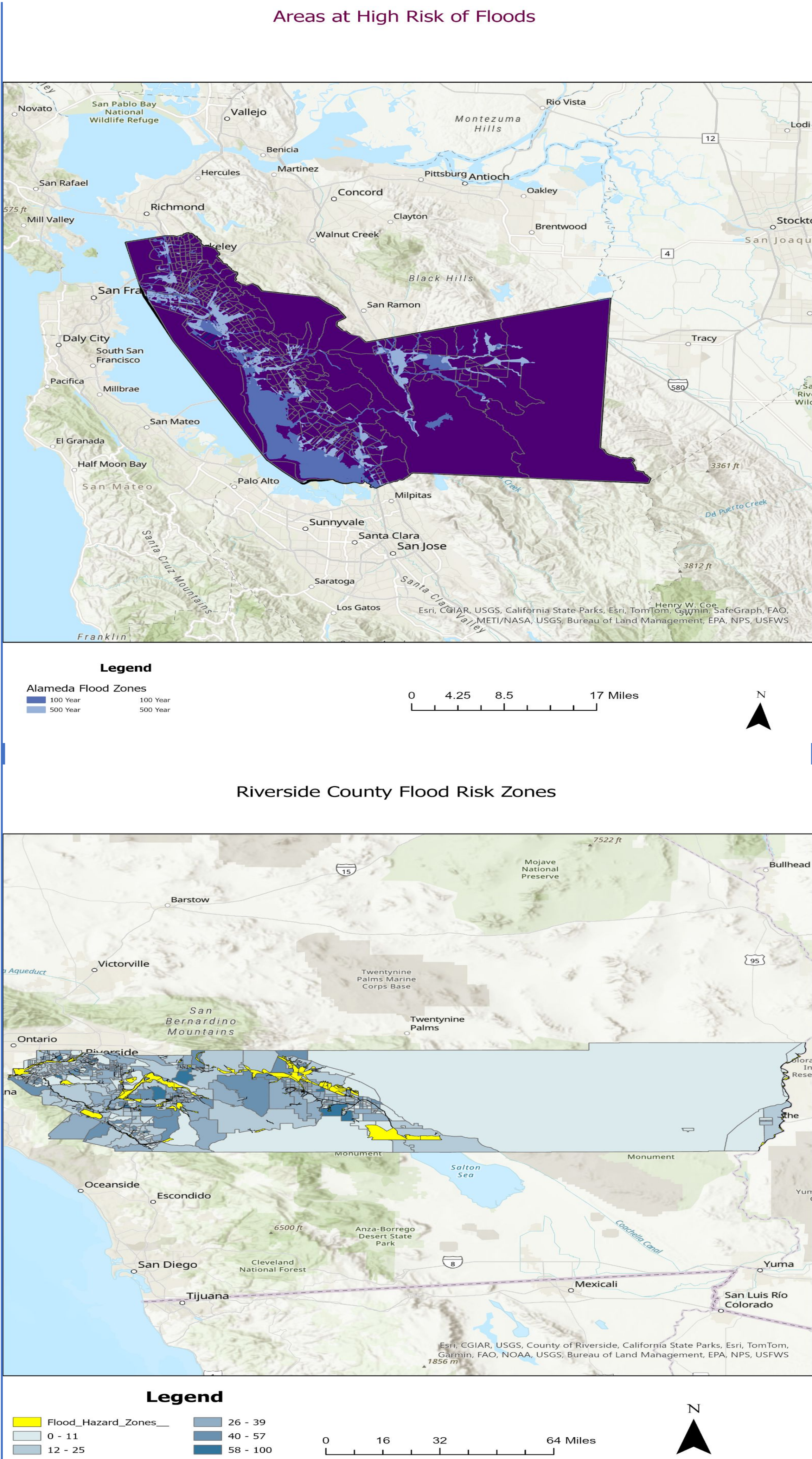
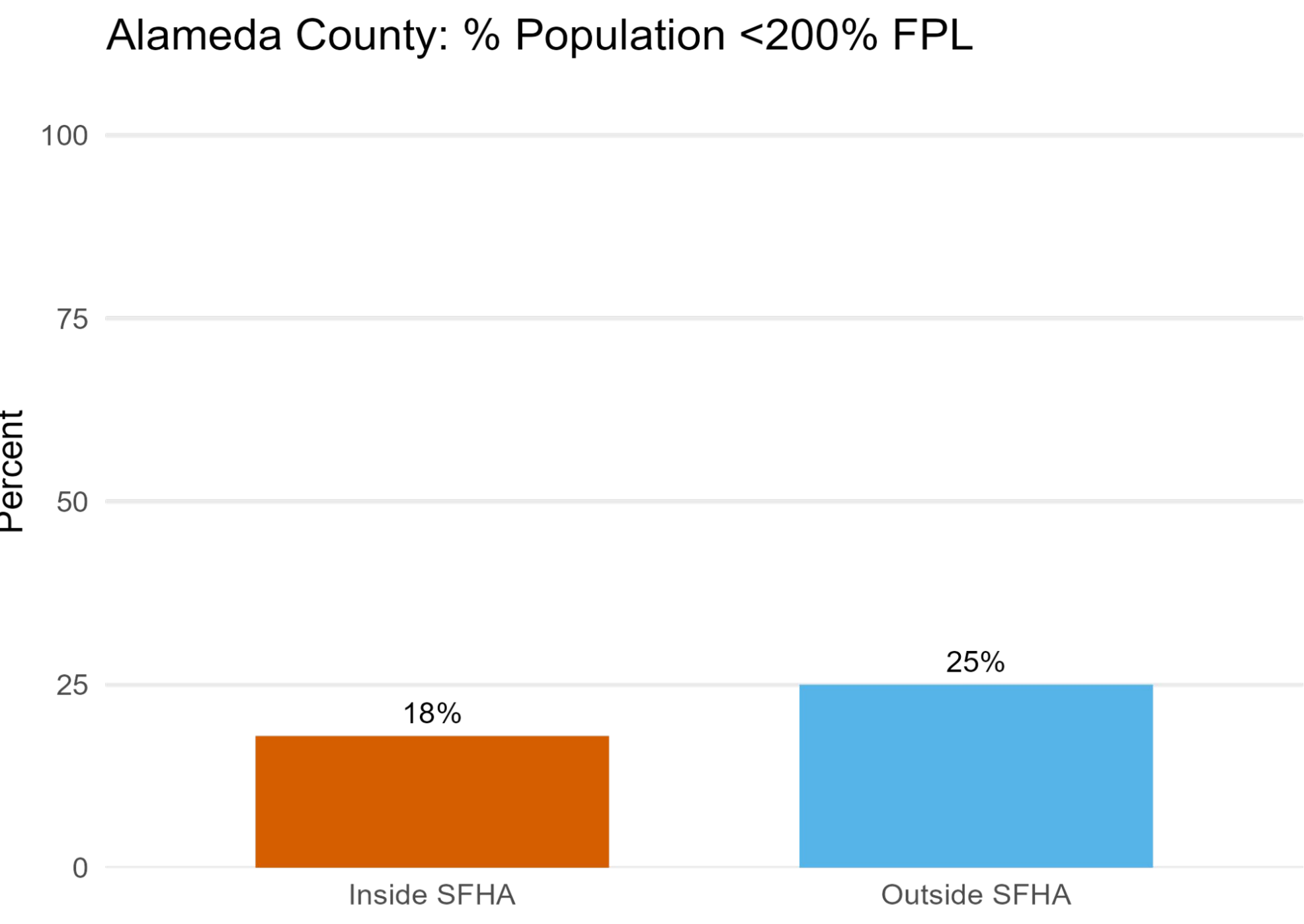
- **Poverty (≤200% of the federal poverty level) Alameda County** (ACS C17002)
- Severe rent burden (≥50% of income on rent) Riverside County (ACS B25070)
- These do not cause floods, but they signal limited financial slack when floods occur (insurance, evacuation, repairs, temporary housing).

## Why this project?

Where I’m from (Karachi), flooding consistently hits lower-income neighborhoods hardest. I wanted to see how that vulnerability looks in California.

## Research question:

Are communities facing poverty or severe rent burden more likely to be located in FEMA flood zones and what does that imply for evacuation, insurance, and recovery planning??



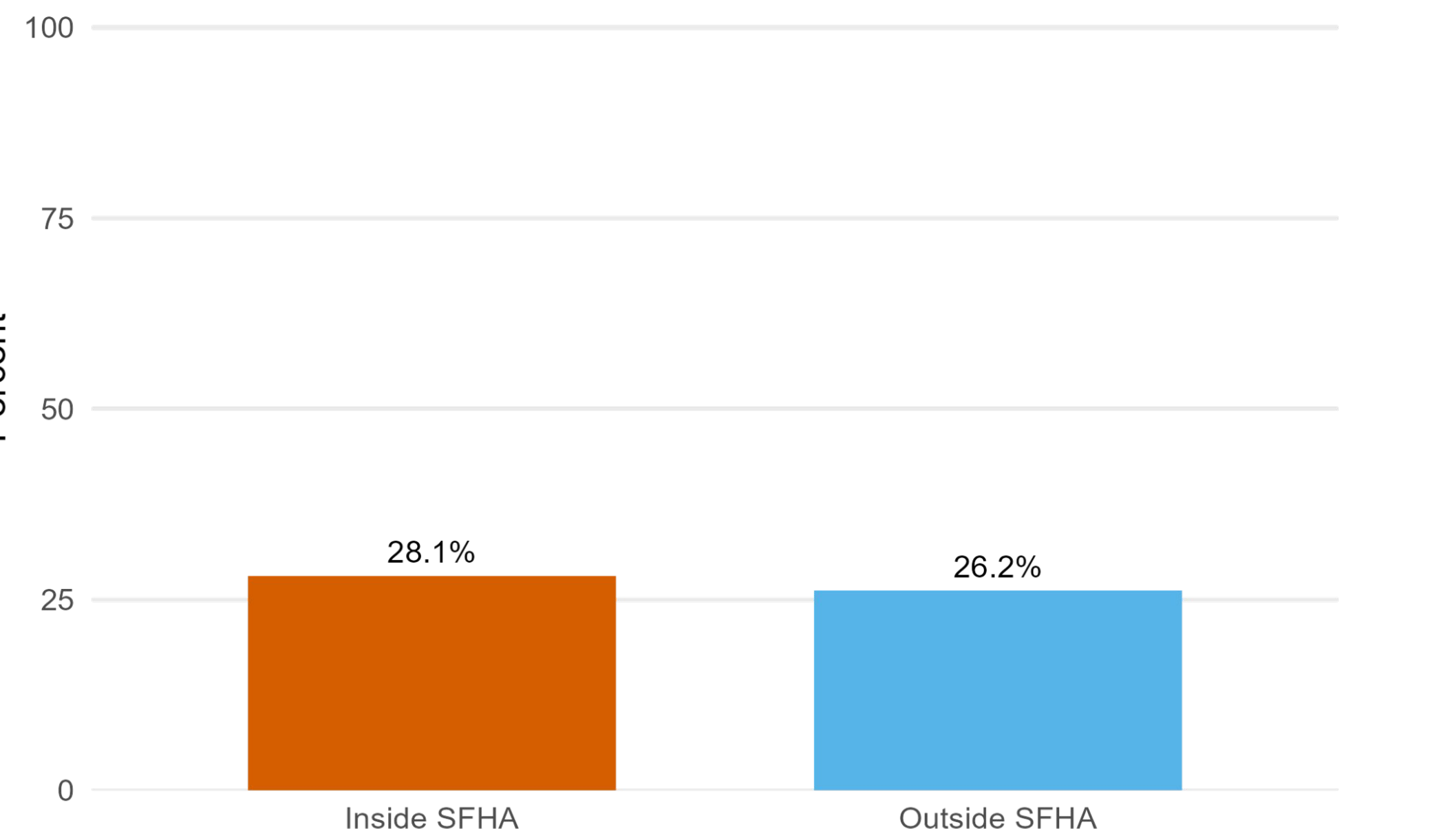
## Results, Discussion, and Conclusions:

### Key Findings:

- **Alameda (Poverty):**
  - *Outside SFHA: 25% below 200% FPL*
  - *Inside SFHA: 18% below 200% FPL*
- In **Alameda**, higher poverty rates are **not** concentrated inside FEMA flood zones. Vulnerability may be driven more by housing costs and displacement risk near, but not necessarily inside, mapped floodplains.
- **Riverside Renters Burden:**
  - *Outside SFHA: 26.2%*
  - *Inside SFHA: 28.1%*
- In **Riverside**, renters **inside** SFHAs show a modestly higher severe rent burden, suggesting limited financial slack for evacuation, repairs, or temporary housing after a flood.
- **Actionable geography.** The maps identify neighborhoods to prioritize for preparedness, shelter siting, and outreach.

## Challenges & data limits:

- ACS estimates have **margins of error**; tract-level rates can be noisy.
- SFHA is a regulatory flood layer; it may miss local or future risk.



## Conclusion:

Income and rent burden help locate **who** is least able to cope with a flood, not just **where** water may go.