Who Lives in Floodplains?
Research & Strategies to Keep Everyone Safe

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Photo courtesy of OWH

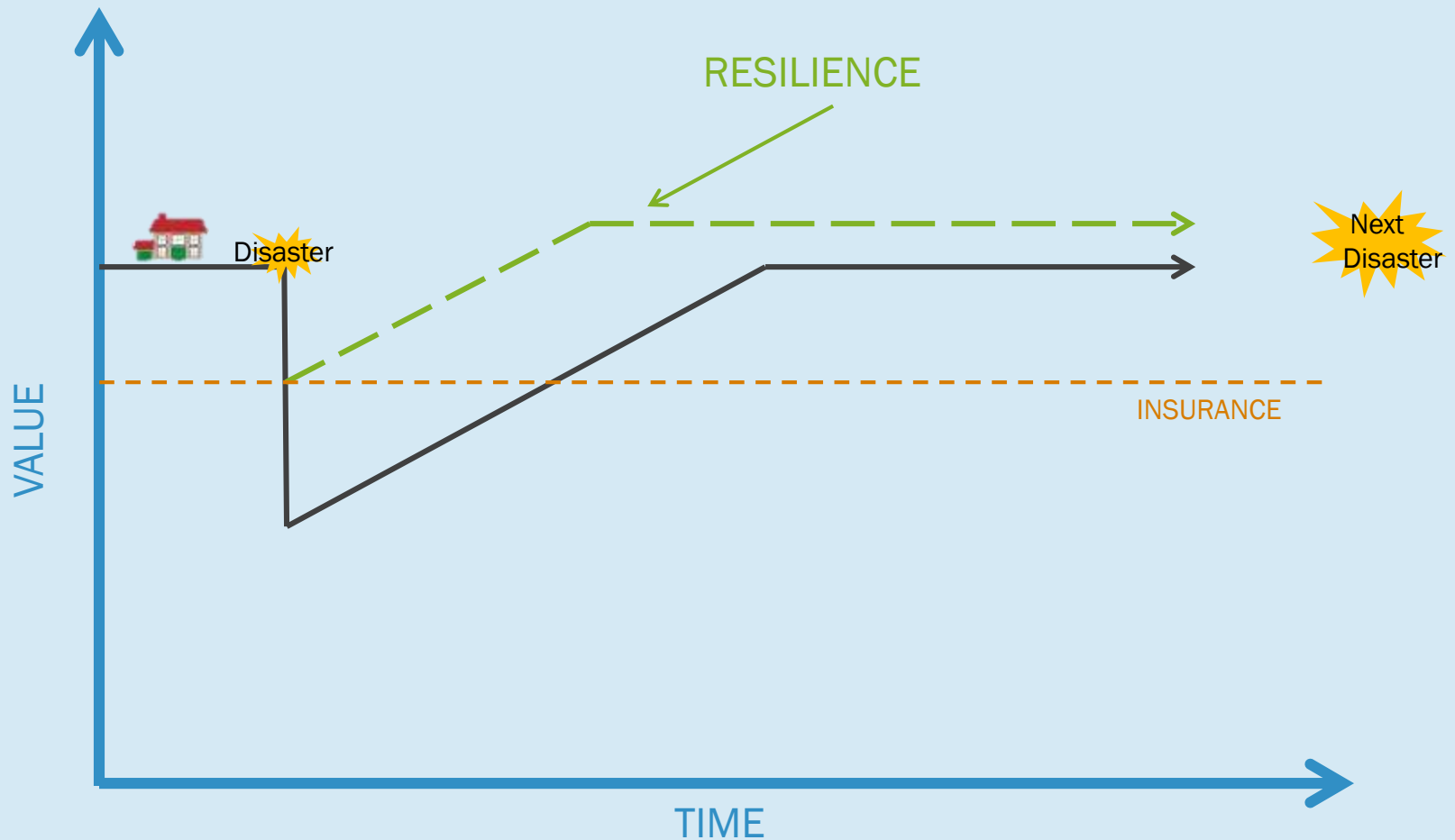# SOCIAL VULNERABILITY & FLOOD RISK

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Social Vulnerability

➢Goal for all of us is to reduce loss of life and property as well as reduce disaster relief costs

➢Further goal is to make sure that, in a disaster, no one falls farther or more often than anyone else

➢We need to understand the characteristics of those who live in harm's way

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What is a "flood resilience?"

Indicators of Social Vulnerability

➢Demographic characteristics
- o Age, race/ethnicity, family structure, gender, language proficiency

➢Socioeconomic status
- o Income, wealth, education, occupation

➢Land tenure
- o Owners, renters

➢Health
- o Access, stress, disease, mortality, sanitation

➢Neighborhood characteristics
- o Transportation, population density, housing, resource dependency

➢Risk perception
- o Awareness, prior experience, knowledge of flood protection, risk denial/acceptance, trust in officials

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Flood Hazards

➢Cause long-term damage to home/property

➢Pose health risks

➢Lasts for many days

➢Difficult bureaucracy of flood insurance

➢Bias to ignore risk

➢Complicated hazard to understand

➢Misconceptions of insurance coverage vs disaster relief

NEBRASKA FLOODPLAINS

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Nebraska DNR Project

➢ We wanted to try to answer the question "Who lives in floodplains?"

➢ For example, if there is a larger than expected Hispanic/Latino population, then we can help communities do better outreach

➢ Knowing who lives there can help us plan better after flood disasters

➢ Help us identify gaps in flood risk reduction or flood risk perception

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Process

➢Used Census 2010 data for communities across the state

➢Selected 60 communities to analyze individually

➢Used the following Census data indicators:

- Housing:
  - Occupancy status
  - Tenure
- Household structure:
  - Household size
  - Household type
- Demographics:
  - Race/ethnicity
  - Gender
  - Age

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Data Constraints

➢ Census organized into geographical units:
- o State
- o County
- o Tract
- o Block group
- o Block

➢ Data is different in each unit – block is smallest unit, but only decadal data available

➢ Much more data at block group level, but difficult to correspond with floodplain boundaries

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Communities Analyzed
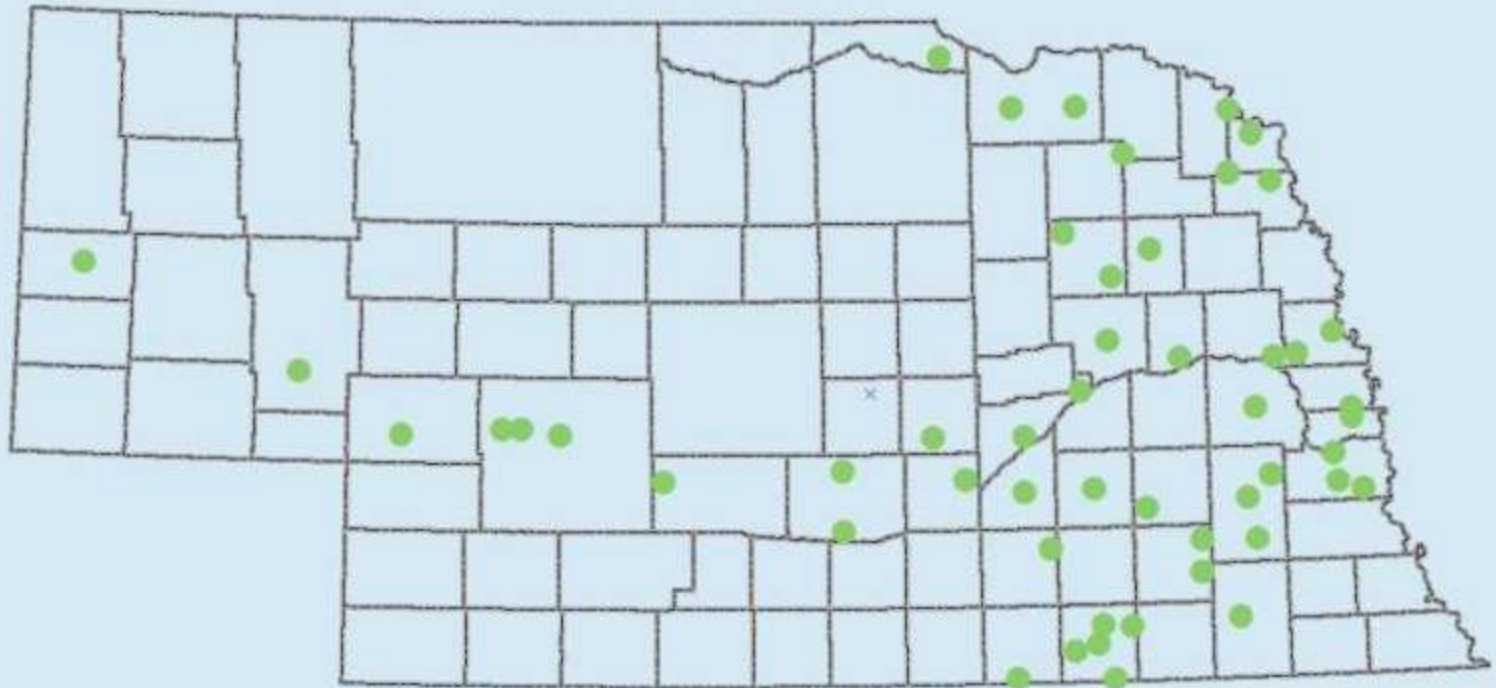
Communities Analyzed

➤ 51 chosen based on flood attributes
  - o Communities with levees (on flood maps) analyzed separately
➤ Wanted communities that had some area in the floodplain and some not in the floodplain to compare
➤ Communities either entirely in or out of the floodplain were captured in state-wide totals
  - o For example, DeWitt was not analyzed individually
➤ Each indicator was compared between "floodplain populations" and "non-floodplain populations"
➤ Wanted to examine cities/villages as they have the most concentrated flood risk

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Results for the 51 communities

➢ Housing:
- o Occupancy status
- o Tenure

➢ Household structure:
- o Household size
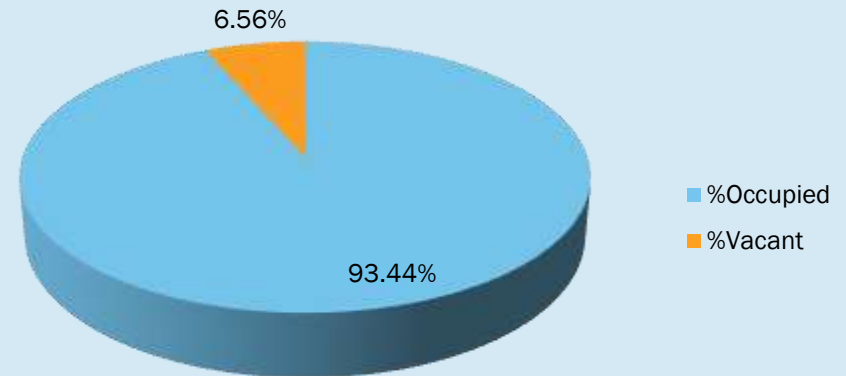- o Household type

➢ Demographics:
- o Race/ethnicity
- o Gender
- o Age

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Housing – Occupancy Status

Floodplain

8.73%

91.27%

■ %Occupied
■ %Vacant

Not Floodplain

6.56%

93.44%

■ %Occupied
■ %Vacant

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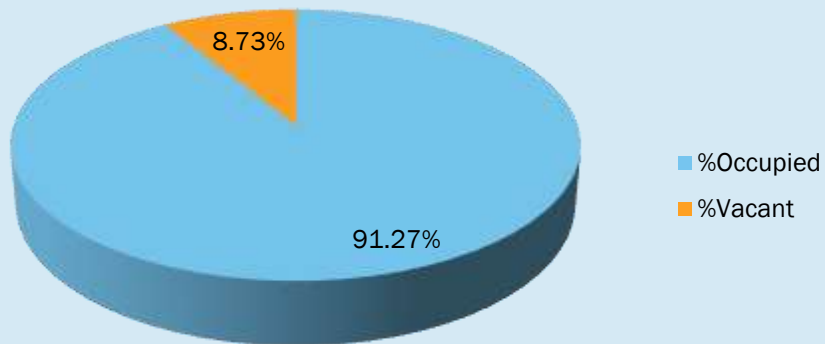
Housing - Tenure

Floodplain
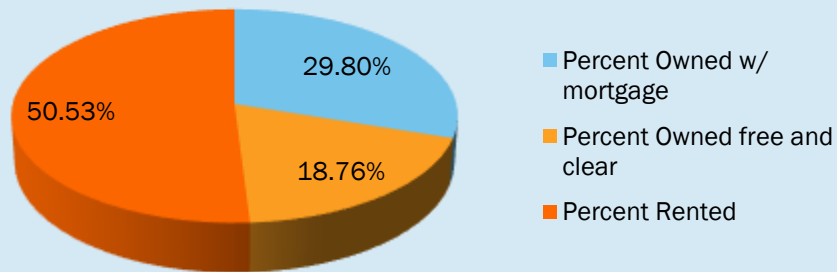
- Percent Owned w/ mortgage — 29.80%
- Percent Owned free and clear — 18.76%
- Percent Rented — 50.53%

Not Floodplain

- Percent Owned w/ mortgage — 43.41%
- Percent Owned free and clear — 18.88%
- Percent Rented — 37.71%

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Household Structure - Size

Household Structure - Type

Floodplain

45.05%   54.97%

- % Family Households
- % Nonfamily households
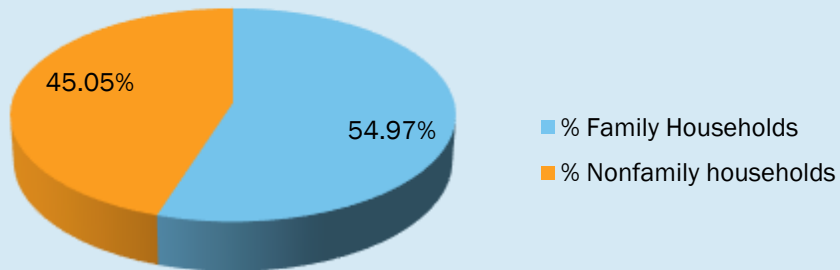
- ➢ 34.72% hh'er living alone
- ➢ 11.11% female hh'er, no husband present

Not Floodplain

38.70%   61.30%

- % Family Households
- % Nonfamily households
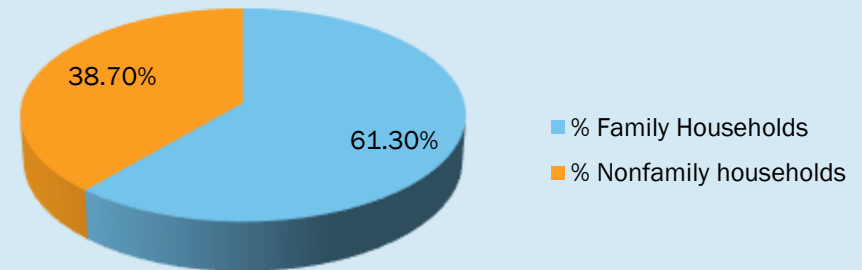
- ➢ 30.65% hh'er living alone
- ➢ 10.28% female hh'er, no husband present

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Demographics – Race/Ethnicity

Floodplain
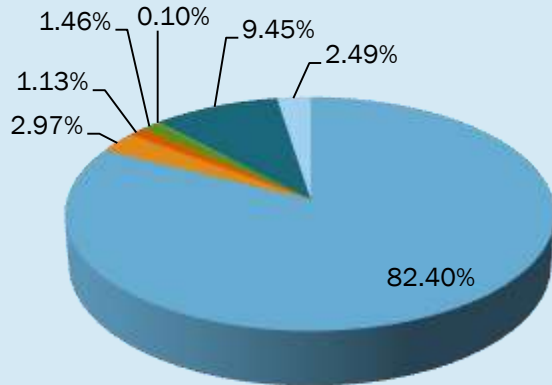
1.46%   0.10%   9.45%
1.13%
2.97%   2.49%

82.40%

- % White
- % Black/African American
- % American Indian and Alaska Native
- % Asian
- % Native Hawaiian and Other Pacific Islander
- % Some other Race
- % Two or More Races

Not Floodplain
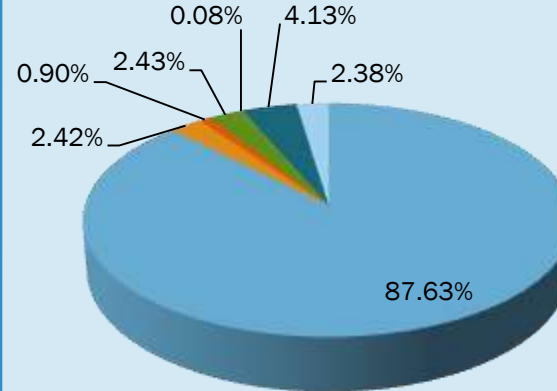
0.08%   4.13%
0.90%   2.43%   2.38%
2.42%

87.63%

- % White
- % Black/African American
- % American Indian and Alaska Native
- % Asian
- % Native Hawaiian and Other Pacific Islander
- % Some other Race
- % Two or More Races

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Demographics – Hispanic/Latino

Floodplain

Not Floodplain

17.70%

82.30%

■ % Not Hispanic/Latino
■ % Hispanic/Latino

9.44%

90.56%

■ % Not Hispanic/Latino
■ % Hispanic/Latino

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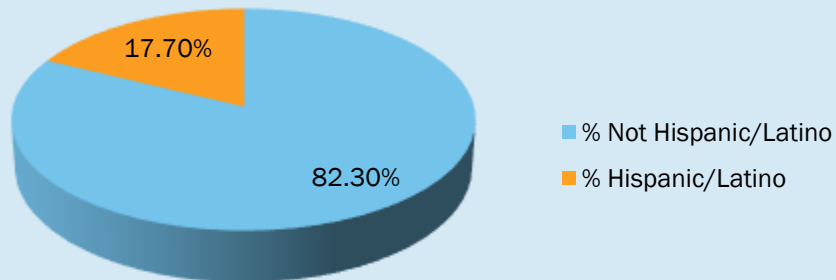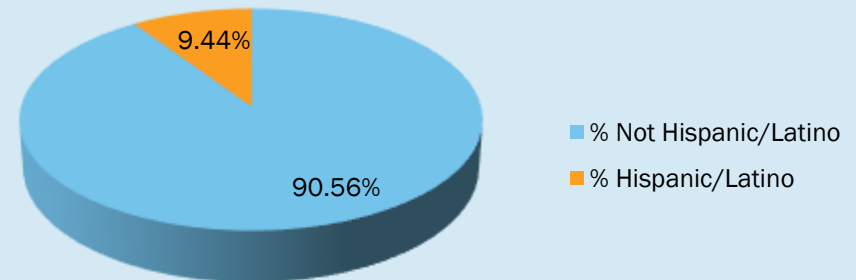
Demographics - Sex

Floodplain

49.01% 50.97%

■ % Male
■ % Female

Not Floodplain

50.79% 49.29%

■ % Male
■ % Female

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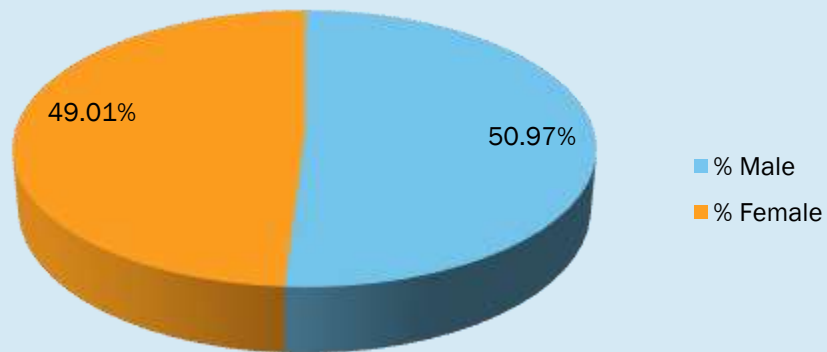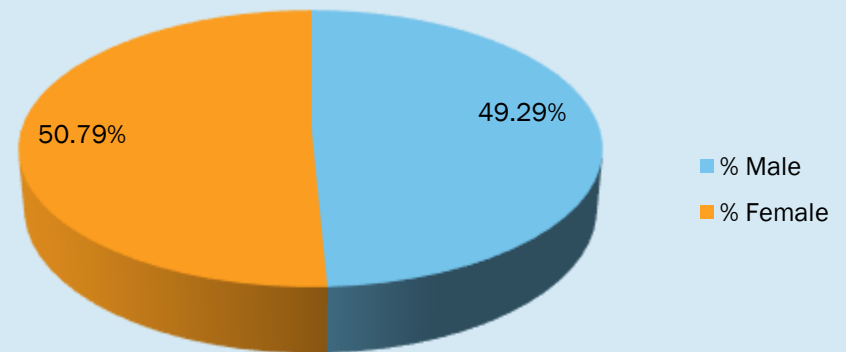
Higher vacancy rate in floodplain
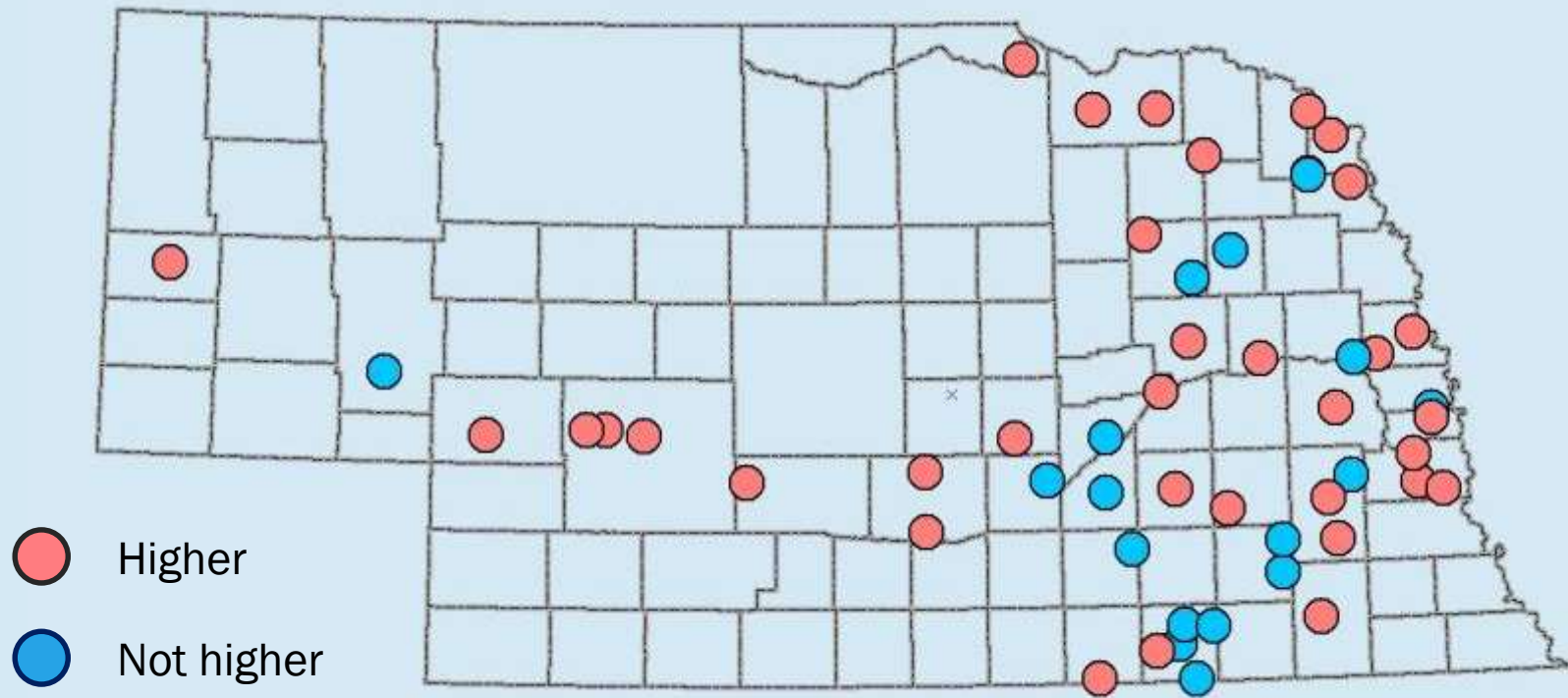
Higher percentage of properties rented

Higher

Not higher

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Higher percentage of Hispanic/Latino population

Higher

Not higher

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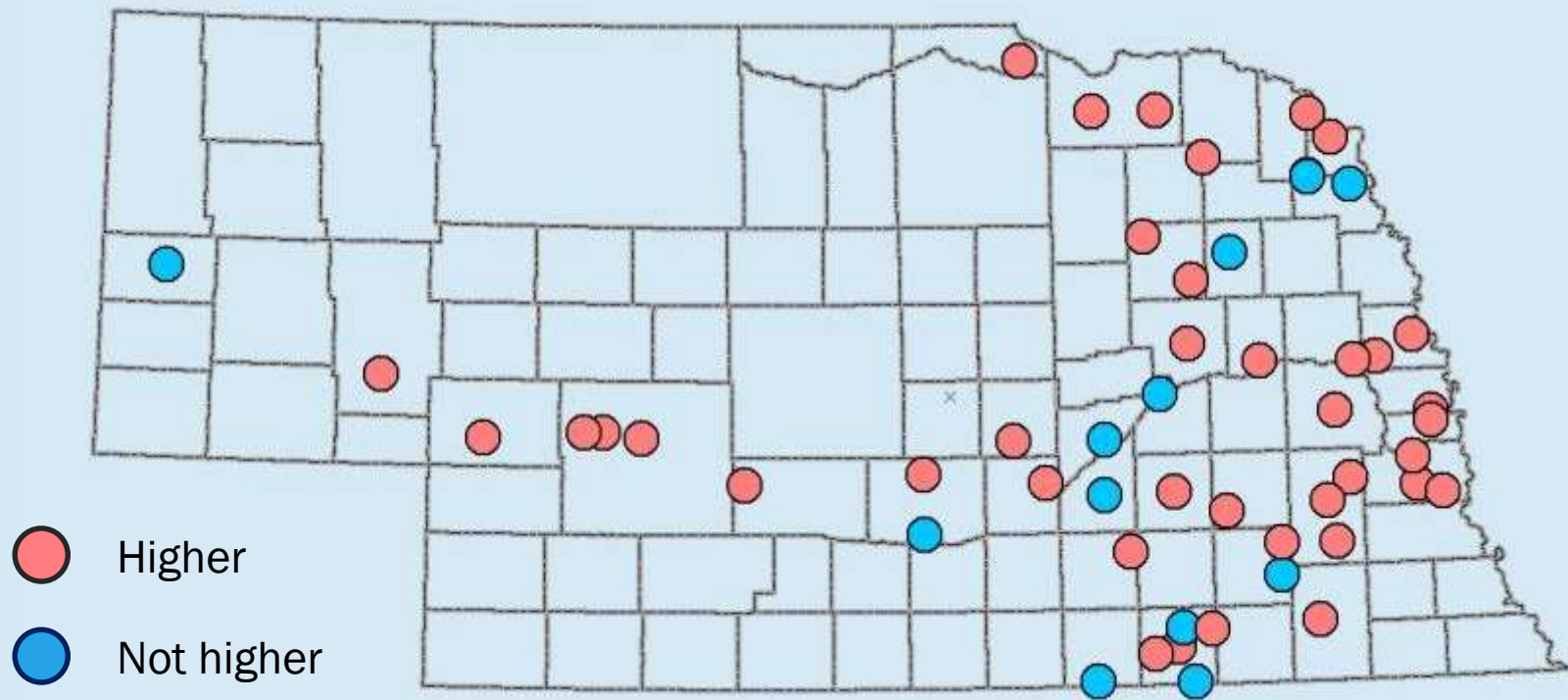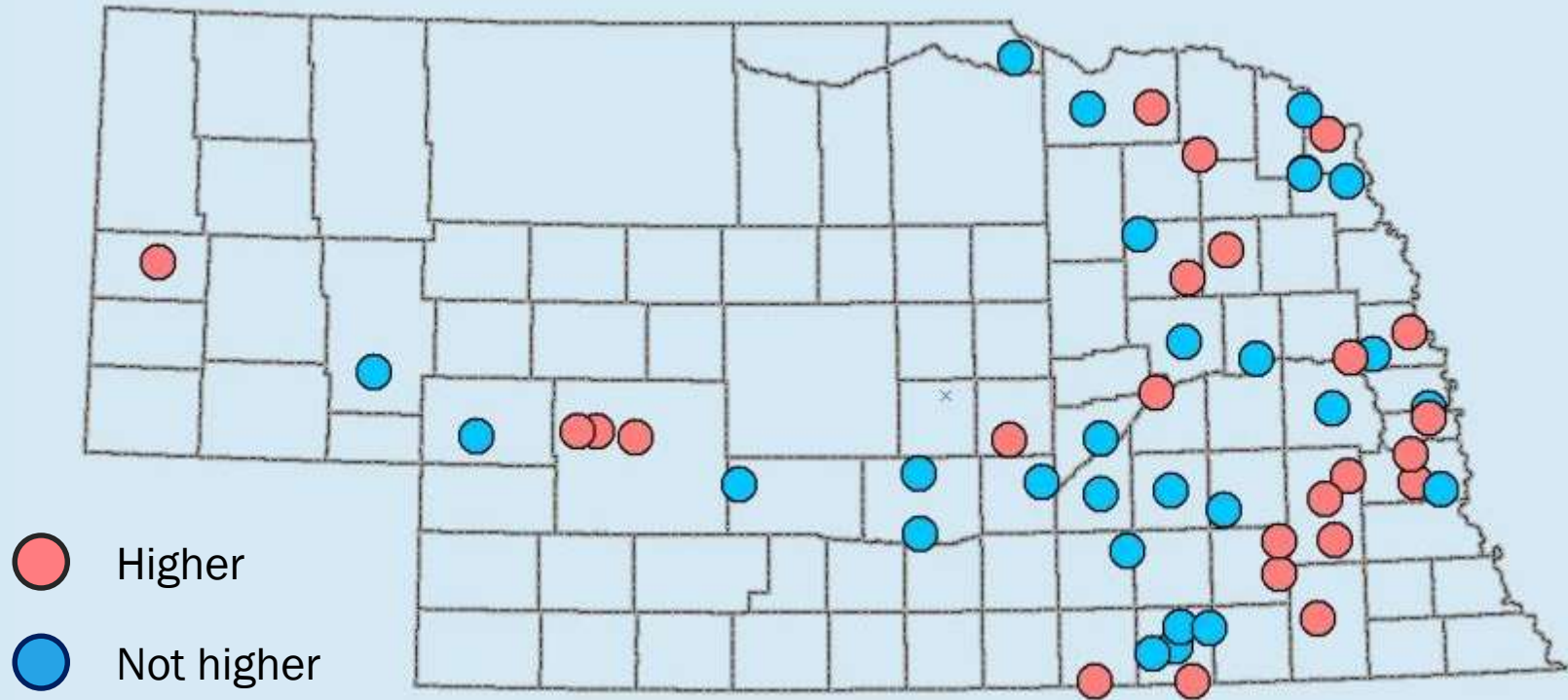
Key Results from Cities Analyzed

➢ Higher vacancy rate in floodplain

➢ Much higher percentage of properties rented in floodplain

➢ Higher percentage of non-family households and of those living alone in floodplain

➢ Slightly higher percentage of family households consisting of female householder with no husband present in floodplain

➢ More diverse population in floodplain

➢ Much higher percentage Hispanic/Latino in floodplain

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Lincoln Results

➢Significant factors:

- o 16,000 people live in floodplains
- o 68% rent in floodplains, 40% in community
- o Double the percentage of African American and American Indian/Alaska Native in floodplain
- o 12% Hispanic/Latino in floodplain, 6% in community
- o 55% nonfamily households in floodplain, 40% in community

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Renters in Floodplains

➢ Renters insurance does not cover flood damage

➢ Renters very unlikely to know about flood risk

➢ More likely to be lower income, minority, more vulnerable to impacts from flooding

➢ Nearly 20,000 renters live in floodplains in the communities analyzed

➢ Data from FEMA suggests fewer than 40 contents-only coverage purchased in Nebraska

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Conclusions

➢ In targeted areas/communities, we have a population at risk from flooding that is likely to be more vulnerable to flooding impacts than the overall population

➢ Communities need to play a larger role in helping their citizens understand the risk from flooding

➢ Our state and communities need to encourage renters to protect their property/contents

➢ We can play a bigger role in helping Hispanic/Latino communities better understand flood risk, floodplain regulations, and flood insurance

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Conclusions - Housing

➤ Vacancy rate in floodplains is significantly higher than not-floodplain areas
  - ○ Not surprising given the mandatory flood insurance requirement and the rising cost of flood insurance
  - ○ Shows need for property-specific risk reduction measures – elevation, acquisition, floodproofing, etc. to reduce risk and reduce costs of flood insurance
  - ○ Flood events will only spur higher vacancy rates

➤ Higher percentage of renters in floodplains
  - ○ Renters less likely to purchase flood insurance for contents or know about flood risk
  - ○ May be lower socio-economic status and with less access to resources in a post-flood context
  - ○ Often lack information about financial aid in recovery
  - ○ After flood, temporary shelter may be unaffordable or unavailable

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Conclusions - Housing

➢ Slightly higher percentage of properties owned free & clear in floodplains statewide

- ○ Homeowners are less likely to know about flood risk and are less likely to be covered by flood insurance
- ○ Sandpit lakes may have higher percentages of properties owned free & clear with properties elevated barely above the 1% annual chance flood levels – still at risk from flooding

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Conclusions – Household Structure

➢ Higher percentage of 1-person households in floodplain
- o These households may have less access to financial resources after a flood
- o With only one householder, flood recovery may conflict with job responsibilities

➢ In targeted communities, slightly higher percentage of households with 7 or more people in floodplain
- o Large number of dependents may lead to financial vulnerability after a flood
- o Often have limited finances to outsource care of dependents/family members

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Conclusions – Household Structure

➢ Higher percentage of nonfamily households in floodplains
  - Consistent with indication of higher percentage of 1-person households, with householder living alone
  - Similar potential vulnerabilities

➢ In targeted communities, higher percentage of family households where female householder is present with no husband present
  - Likely more limited financial resources for post-flood situation
  - Job responsibilities likely conflict with individual flood recovery
  - Resilience to flooding affected

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Conclusions - Demographics

➤ In targeted communities, higher percentage of minorities, higher percentage of Hispanic/Latino population in floodplain areas
- Language/cultural barrier may pose challenges after flood event
- May correspond with lower socio-economic levels

➤ No significant difference in gender between floodplain areas versus not-floodplain areas

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What can we do to keep everyone safe?

➢ Better outreach:
  - Flood risk is real
  - Anyone can get covered from flood damage – renters, homeowners without mortgage, everyone
  - Flood insurance is the only way to be covered from flooding
  - Targeted populations outreach – Spanish-speaking populations in key communities

➢ More flood risk reduction efforts
  - High vacancy rate indicates need for risk reduction efforts – home elevation, acquisition, planning, etc.

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What can we do to keep everyone safe?

➢Establish relationship between planners + emergency managers + floodplain administrators

➢Key to integrating public safety into planning mechanisms

➢Including social vulnerability in comprehensive plans and hazard mitigation plans

➢Focus on neighborhoods and specific development issues

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Thank you!

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