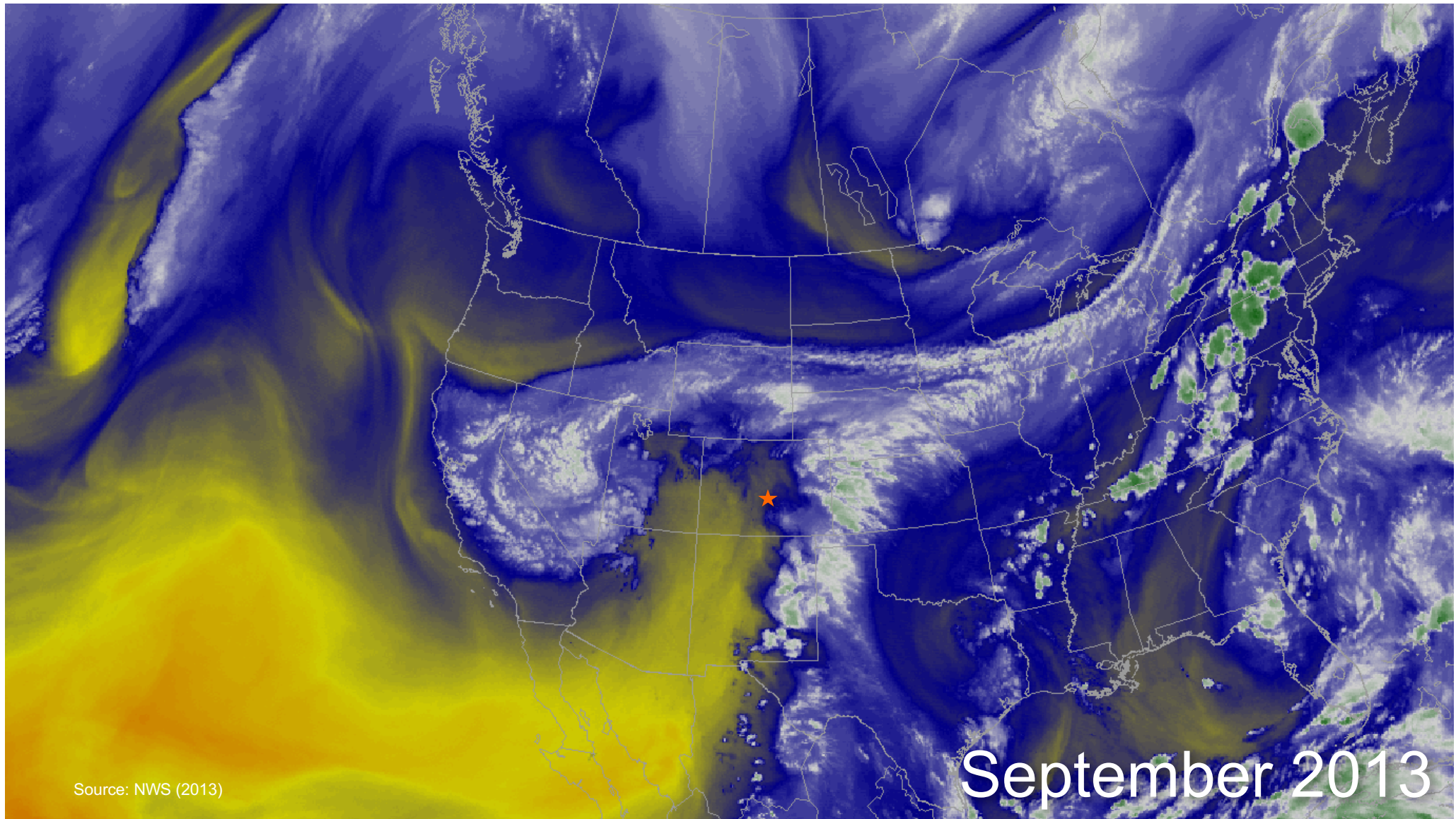


# The Socio-Spatial Dimensions of Disaster Risk in Mobile Home Parks

Andrew Rumbach & Esther Sullivan | University of Colorado Denver







Source: NWS (2013)

September 2013





Source: Denver Post (2013)





Source: Denver Post (2013)





Source: Denver Post (2013)



# Literature on Mobile Homes and Disasters

- Affordable housing is important to community resilience, but disproportionately exposed to natural hazards (Comerio 1998)
- Affordable housing contributes to sustainable disaster recovery, but equity often arise (Bolin & Stanford 1991)
- Mobile homes physically vulnerable to extreme wind events (e.g. Golden 1990, Eidson et al. 2000, Ashley 2007)
- Mobile homes tend to be located in more hazardous areas relative to site-built housing (Shen 2005, Baker, Hamshaw & Hamshaw, Yeo 2003)
- High social vulnerability among mobile home park residents (Cutter, Mitchell & Scott 2000; Fothergill & Peek 2000)
- Indices of risk use proportion of mobile homes as indicator of vulnerability (e.g. Morrow 1999, Cutter et al. 2003)



**How do mobile home parks  
contribute to household and  
community risk to natural  
hazards?**





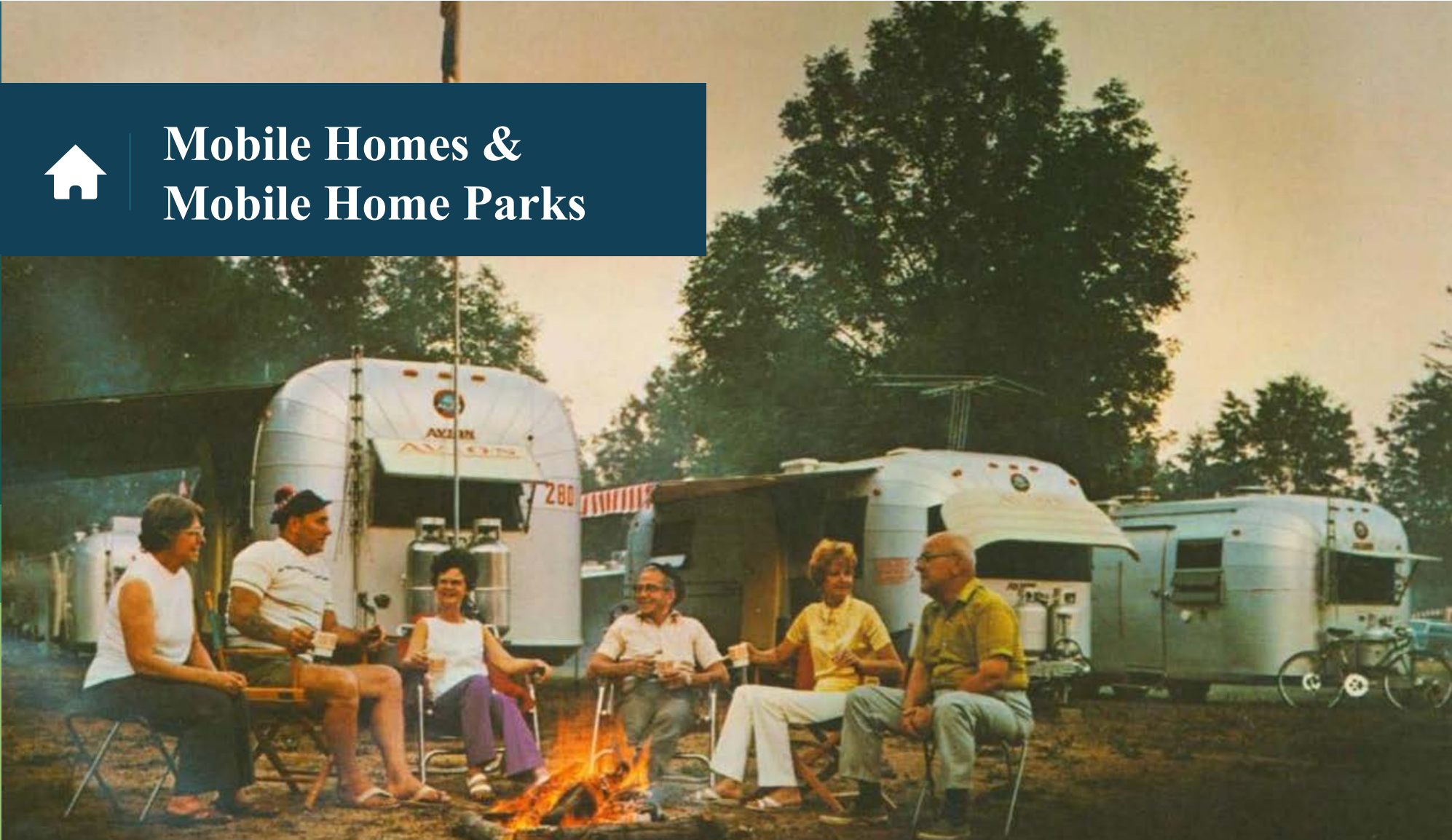
## Outline

1. Mobile homes and mobile home parks
2. The 2013 Colorado floods – research design and community case studies
3. Four socio-spatial dimensions of flood risk from mobile home parks
4. Disasters and the crisis of housing affordability
5. Next steps





## Mobile Homes & Mobile Home Parks







Sources: Spartan trailers (1959), MHI (1999, 1992, and 2014)



# Mobile homes are not really mobile...



Sources: Spartan trailers (1959), MHI (1999, 1992, and 2014)



# Terminology

- A manufactured home is a “dwelling unit of at least 320 square feet in size with a permanent chassis to assure the initial and continued transportability of the home”
- A mobile home differs from a manufactured home according to the date it was built. On June 15, 1976 HUD began regulating the construction, design and installation of manufactured homes. A mobile home is a unit built prior to 1976.
- A mobile home park is a community where mobile home owners or renters pay a lot rent on the land beneath their home.
- Modular homes are built using factory constructed parts which are then transported and assembled on-site.





## Why Mobile Homes?

- **Affordable:** On average, half the price per sq. ft. of site-built housing
- **Attainable:** Fewer barriers than other types of affordable housing
- **Available:** Rise in popularity mirrors decline in federal subsidies for affordable housing
- **American Dream:** An ownership strategy with similar amenities to single-family homes



Source: Housing Estates (2014)





## Mobile Homes in the United States

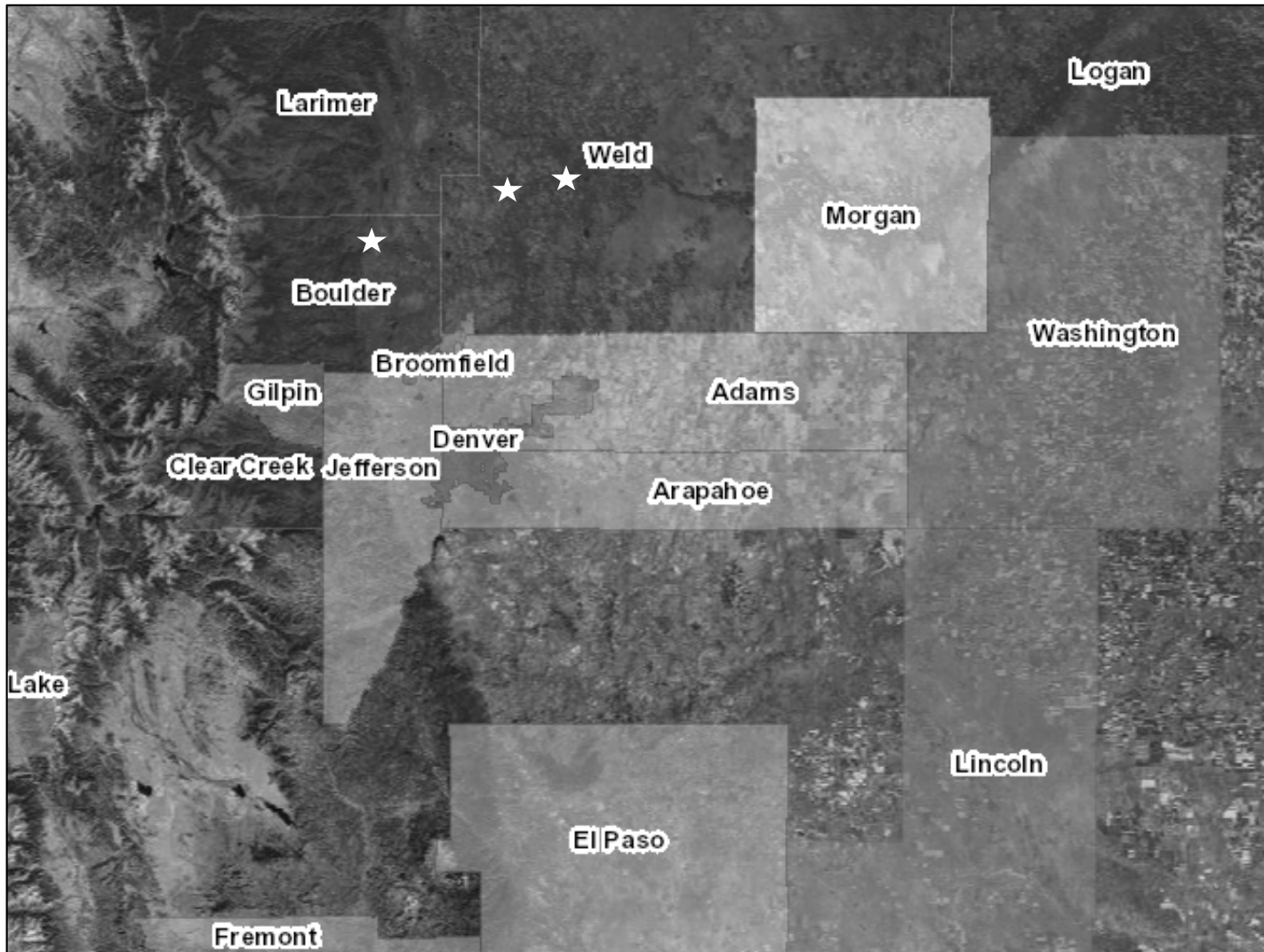
**10 million households** live in mobile homes in the United States today, about 18 million people (U.S. Census Bureau 2016)

**2.9 million mobile homes** are located in land-lease communities known as mobile home parks

**6.4%** of occupied housing in the United States are mobile homes, with highest proportion in SC (19%), NC (17%) and NM (17%)

**3x** Mobile home parks are a substantial share of our affordable housing, providing three times the units as public housing (HUD 2016)





# Research Design and Case Studies

Source: FEMA (2013)



## Research Methods

**Household  
surveys  
(n=101) and  
follow-up  
interviews with  
Spanish-  
speaking HHs  
(n=11)**

**Direct  
observation of  
recovery  
meetings**

**Interviews with  
recovery  
decision-makers  
(n=41)**

**Review of  
recovery plans  
and supporting  
documents**





City of Evans

Source: Denver Post (2013)





Town of Lyons

Source: LEAF (2015)





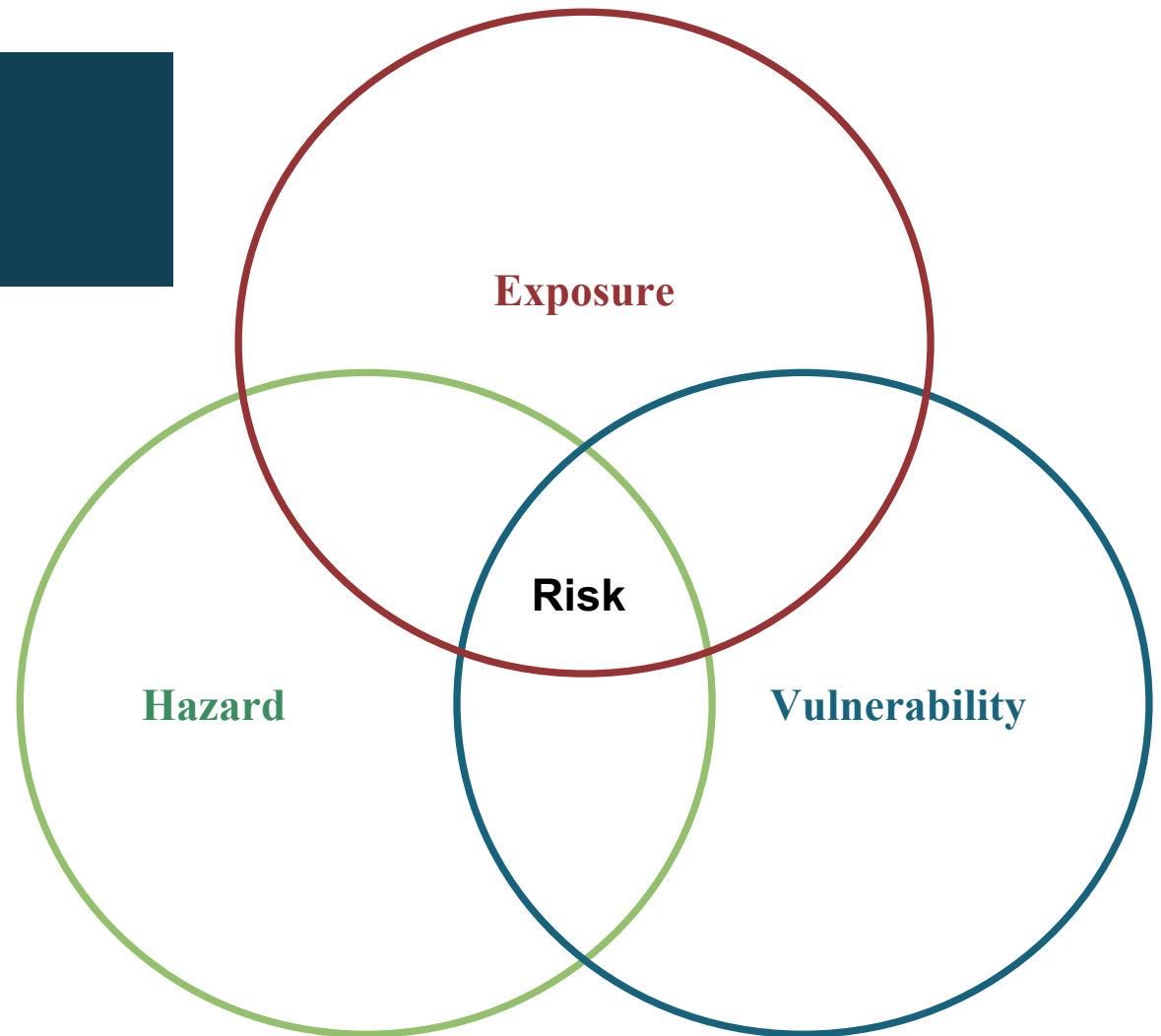
# Town of Milliken

Source: Greeley Tribune (2014)



## Conceptualizing Disaster Risk

**Risk** is the likelihood of a natural hazard and its consequences for a household, community, or system





# Mobile Home Parks & Community Risk

- Rapid population growth
- Housing shortfall - record prices and low vacancy rates
- Mobile homes account for 4.2% of state housing stock (93,719)
- Industries that require large numbers of migrant laborers
- Communities without capacity to manage affordable housing
- Mobile home parks sited on marginal land
- Outdated floodplain maps



Source: University of Texas (2017)

“Our affordable housing was unsustainable...the flood only accelerated that.”

- Town of Lyons elected official



If I'm a property owner and I've been charging \$500 a month rent and the flood hits and housing is now a premium, if I want to turn around and charge you \$1,500 a month rent, there's nothing you can do about it. You either take it or leave it. People were being asked to move out of housing they had lived in for a long time because it could be rented for more.”

- Flood Recovery Case Manager, Weld County



# Community Bias

Source: Greeley Tribune (2014)



“They would play loud music late [at night], and we heard there were quite a few families living in those trailers...we heard a few [methamphetamine] labs were put out of business [by the flood.]”

- Evans community leader

“Those folks – and I heard this secondhand – those folks that didn’t have like, one American person in their household and weren’t eligible for any type of FEMA [assistance]...those people just never returned and some went back to Mexico...they probably had it the worst.”

- Public Official, Town of Milliken





# Concentrated Vulnerability

Source: High Country News (2015)





## Mobile Home Park Residents In Our Study

- Surveyed 45 households living in mobile homes at time of the flood
- Median household income was \$25,000
- 13.3% of households had one or more member under 65 with disability, compared to state average of 7.2%
- 82% had member under 5 or over 65
- 67% of households primarily spoke Spanish at home



Source: Greeley Tribune (2014)



# Effects of Concentrated Vulnerability

- MHP residents were less likely to be insured or report having adequate financial resources to recover
- Cost burdens forced relocation of households from community/region



Source: Greeley Tribune (2014)

“It was a drastic change, right? Because we had, all my life, 20 years in [Evans]. And then suddenly having to move here, the school. Everything was a change. The girls didn’t want to be here in [community]. They wanted to be in Evans. And my husband also...but I looked in Evans for a mobile home, but we didn’t find anything. If we found something...it was something I couldn’t afford...My mother and sister lived [in the same community], and they have bought in [a different community]...it has affected us very much, right?...I don’t see them very often.”

- Household displaced from Evans



# Effects of Concentrated Vulnerability

- MHP residents were less likely to be insured or report having adequate financial resources to recover
- Cost burdens forced relocation of households from community/region
- Less engaged with public officials
- Less community advocacy relative to other neighborhoods



Source: Greeley Tribune (2014)

“What we saw in the initial response...is it was more of a transient population – there was a number of undocumented immigrants within that...So we didn’t see a lot of community groups or bands of residents after the flood saying ‘hey what are going to do to bring [them] back to Evans?’”

- Recovery Planner, City of Evans



# Effects of Concentrated Vulnerability

- MHP residents were less likely to be insured or report having adequate financial resources to recover
- Cost burdens forced relocation of households from community/region
- Less engaged with public officials
- Less community advocacy relative to other neighborhoods
- Language and cultural norms were barrier to participation in meetings
- Reports of increased scrutiny over paperwork



Source: Greeley Tribune (2014)

“I did have a lot of questions, but I didn’t understand them [those presenting at the meeting]. I couldn’t talk to them...we didn’t know what was going on...”

- Flood Affected Household, Town of Milliken



# “Halfway Homeowners” Divided Asset Ownership

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a new way of living at  
**AMAZING LOW COST!**

IN A  
COMPLETELY FURNISHED

**NEW  
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**REDMAN TRAILER COMPANY**  
40 BRIDGE STREET, ALMA, MICHIGAN

NOVEMBER 1951

275

The illustration shows a New Moon trailer, a mobile living unit. It features a large front window and a side window. To the right of the trailer, there are two inset photographs showing the interior of the trailer. The top inset shows a living area with a patterned sofa, a coffee table, and a lamp. The bottom inset shows a kitchen area with a sink, stove, and cabinets. The trailer is parked on a light-colored surface.

Source: Redman Trailers (1951)



## Divided Asset Ownership and Risk

- Landlords make recovery decisions, including closing parks



Source: Greeley Tribune (2014)





Source:  
Denver Post  
(2014)





Source:  
Riverbend  
(2016)





## Divided Asset Ownership and Risk

- Landlords make recovery decisions, including closing parks
- Residents forced to abandon homes, losing effective savings
- Ineligible for recovery programs targeted at homeowners
- Properties treated as commercial businesses rather than housing under laws & regulations



Source: Greeley Tribune (2014)





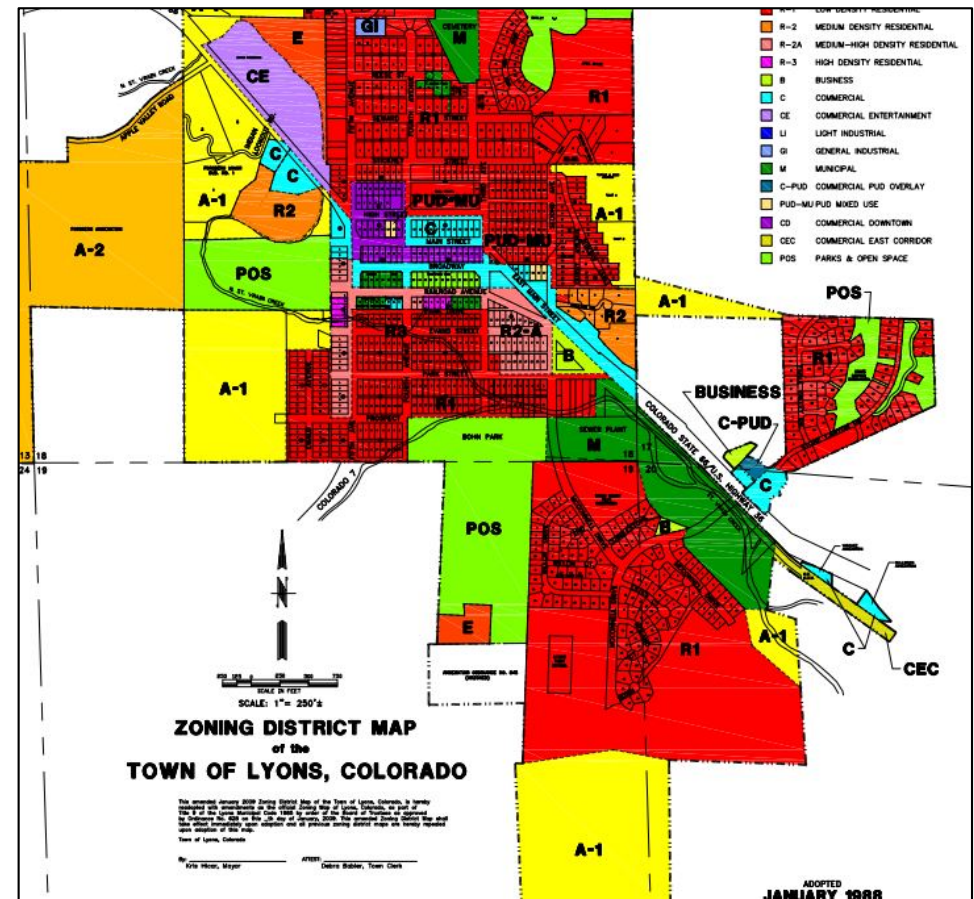
**Regulatory Barriers**





## Regulatory Barriers

- Local governments have regulatory powers over MHPs in most states, including CO
- MHPs tend to be stigmatized within plans and governance
- “Constructive exclusion” allows MHPs only on land where they already exist, or pushes to peripheral land without supporting infrastructure



Source: Town of Lyons (2009)

“We’ve got new standards; we’ve got new standards for density that were probably written ten years ago: landscape bufferage, that kind of thing, access and design. And so, to the [mobile home park] owner, we said, ‘you are under these new standards, even if it’s a disaster and act of God it’s still considered an abandonment of use.’”

- Planner, Weld County



“I believe he [mobile home park owner] have initially had the idea that he was going going to put back exactly what he had. Well, that trailer park has flooded a half dozen times in the past, you know, two or three decades. It’s not uncommon...and there was actually outcry from the community saying ‘gosh I hope you don’t let them rebuild again.’ So that helped us make the decision.”

– Elected Official, City of Evans



## Regulatory Barriers

- Regulatory requirements in-place prior to flood impeded recovery
- Substantial damage triggered contemporary code compliance
- Elected officials reluctant to zone new mobile home parks or pursue federal funds for land acquisition and/or infrastructure
- Mobility of pre-1976 homes was severely restricted



Source: Daily Camera (2014)





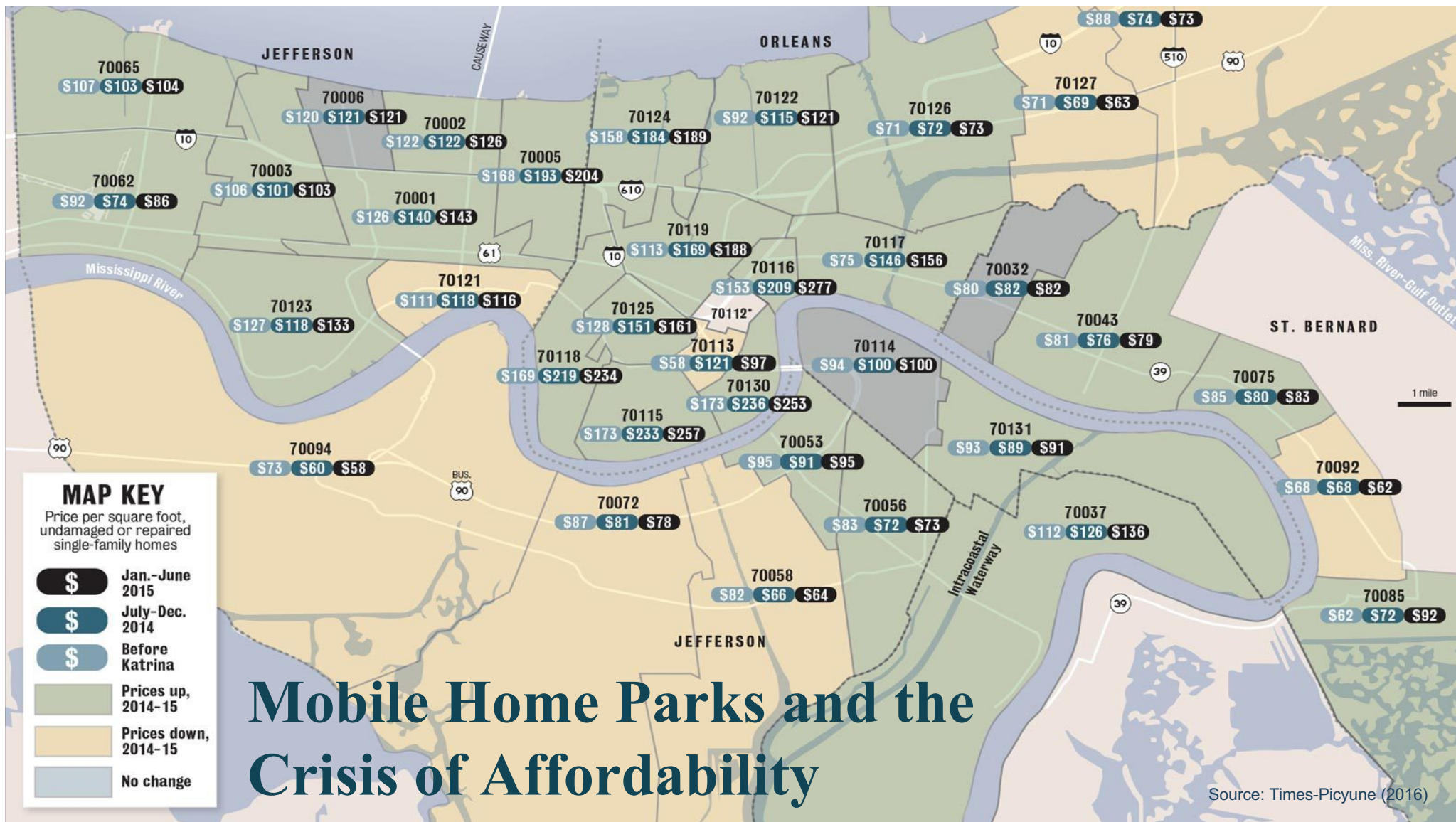
# Theorizing Mobile Home Parks & Risk

- Mobile home parks fill important gaps in the housing market, and are disproportionately exposed to natural hazards
- Concentrated social vulnerability of residents makes them less able to prepare for, respond to, and recover from disaster events, with important differences across communities
- Divided asset ownership adds unique vulnerability because it limits the rights of MHP residents and the resources they can access
- Regulatory barriers increase risk before, and after, disasters by limiting ability to improve, relocate, or rebuild MHPs
- Community bias contributes to uneven recovery – is a barrier to meaningful involvement of MHP residents, stigmatizes housing type

# Next Steps...











Source: ABC News (2017)





Source: NBC News (2017)



Source: Dallas Morning News (2017)





# Hurricane Harvey and Mobile Home Parks

## Research Questions for the Houston MSA

Are Houston's mobile home parks disproportionately located in hazard-prone areas?

Are Houston's mobile home park residents disproportionately socially vulnerable?

Do local regulations uniquely contribute to both *risk* and *recovery*:

- **barriers to rebuilding in place** for mobile home residents?
- **barriers to relocating** mobile home residents?
- **barriers to eligibility** for recovery programs?



## Acknowledgements

This presentation is based on research funded by the National Science Foundation (award #1446031), the Natural Hazards Center, and the University of Colorado Denver.



University  
of Colorado  
Denver



# Questions?

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