

Wildfire and Egress 4th Meeting

Jen Schmidt and John See
November 7th, 2022



Resilient Landscapes



Fire Adapted Communities



Wildfire Response

What can you do to increase the chances your home will survive?

- Goal: separate your house from the wildfire



What can you do to increase the chances your home will survive?

- Palm of embers is enough to catch your house on fire



What can you do to increase the chances your home will survive?

- Remove ignition sources
 - On your house
 - Around your house

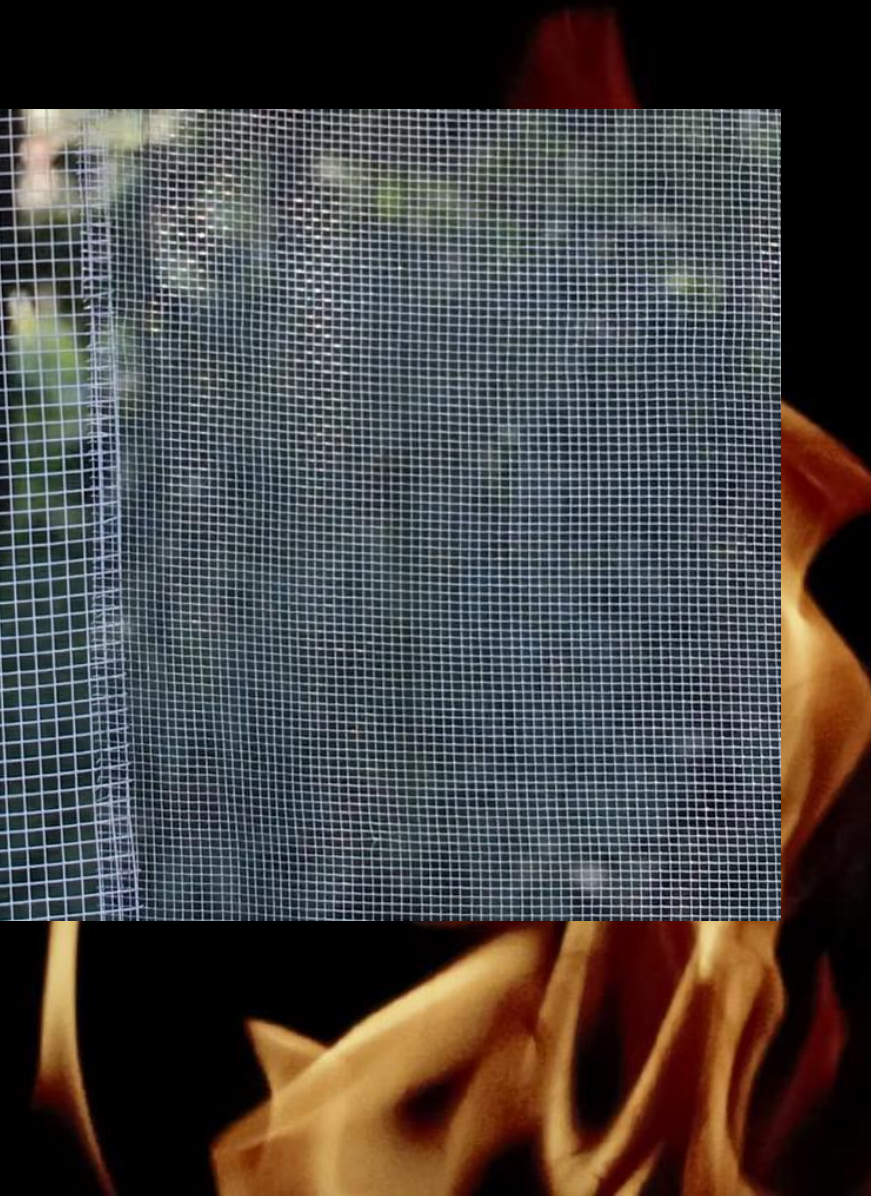


Embers pile up.....

Note the gutters
and vegetation
around the
house



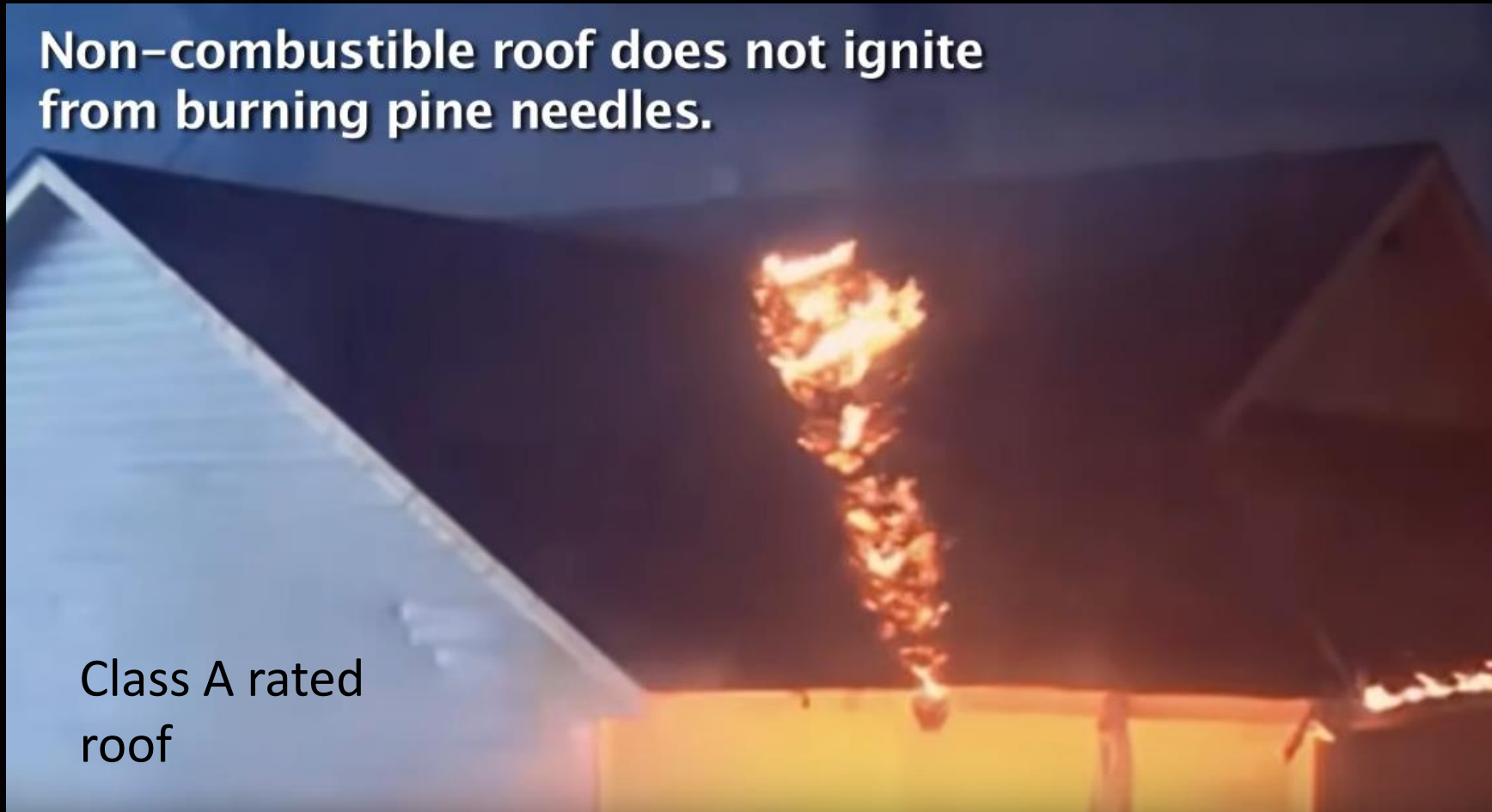
Embers enter.....



Roofs don't need to be metal, but what is your siding?

Non-combustible roof does not ignite from burning pine needles.

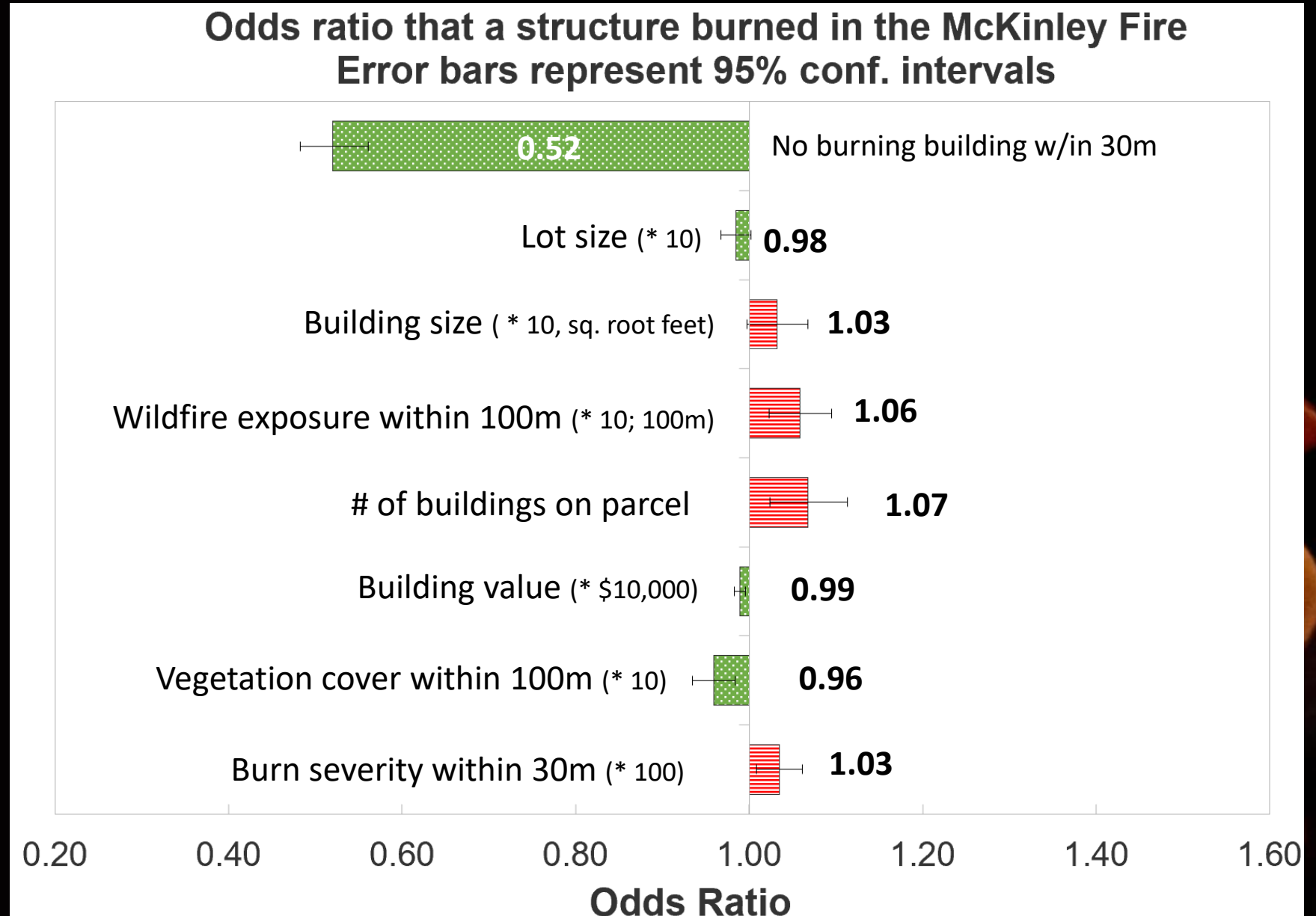
Class A rated
roof



McKinley wildfire research: results

When there is no building burning within 30m: 48% lower odds of the structure burning

For every 100 increase in burn severity 3% increase odds of the building burning



Links

- **Your Home Can Survive a Wildfire -**
https://www.youtube.com/watch?v=vL_syp1ZScM



Egress and Safety Zones

Goals for the mapping

1. Identify areas that have egress issues
2. Make recommendations to improve egress



Examples of egress issues

- Road too narrow (single lane) and limited right of ways – **solutions** road widening or vegetation clearing
- No egress – **solution** draw a new road/trail
- Confusing on how to get out – **solution** signage
- Limited access to right of ways that are normally available – **solution** open gate or make connector trail
- Egress goes through hazardous vegetation – **solution** vegetation thinning
- Poor road condition – **solution** resurfacing
- Too steep – **solution** re-route
- Too low weight limit – **solution** fix culverts/bridges
- Tree limbs too low over road – **solution** vegetation removal

Stay or go?

- Are you physically fit to fight spot fires in and around your home for up to 10 hours or more?
- Are you and your family members mentally, physically and emotionally able to cope with the intense smoke, heat, stress and noise of a wildfire while defending your home?
- Can you protect your home while also caring for members of your family, pets, etc.?
- Do you have the necessary resources, training, and properly maintained equipment to effectively fight a fire?
- Does your home have defensible space of at least 100 feet and is it cleared of flammable materials and vegetation?
- Is your home constructed of ignition resistant materials?

If any answer is NO, get out early

Shelter-in-Place...

...If You Can't Evacuate

- Sometimes it is just not possible to evacuate from an area



Finding your escape route in a wildfire | Need to Know



<https://www.youtube.com/watch?v=VL9M1T2eV10>



Last resort: safety zones

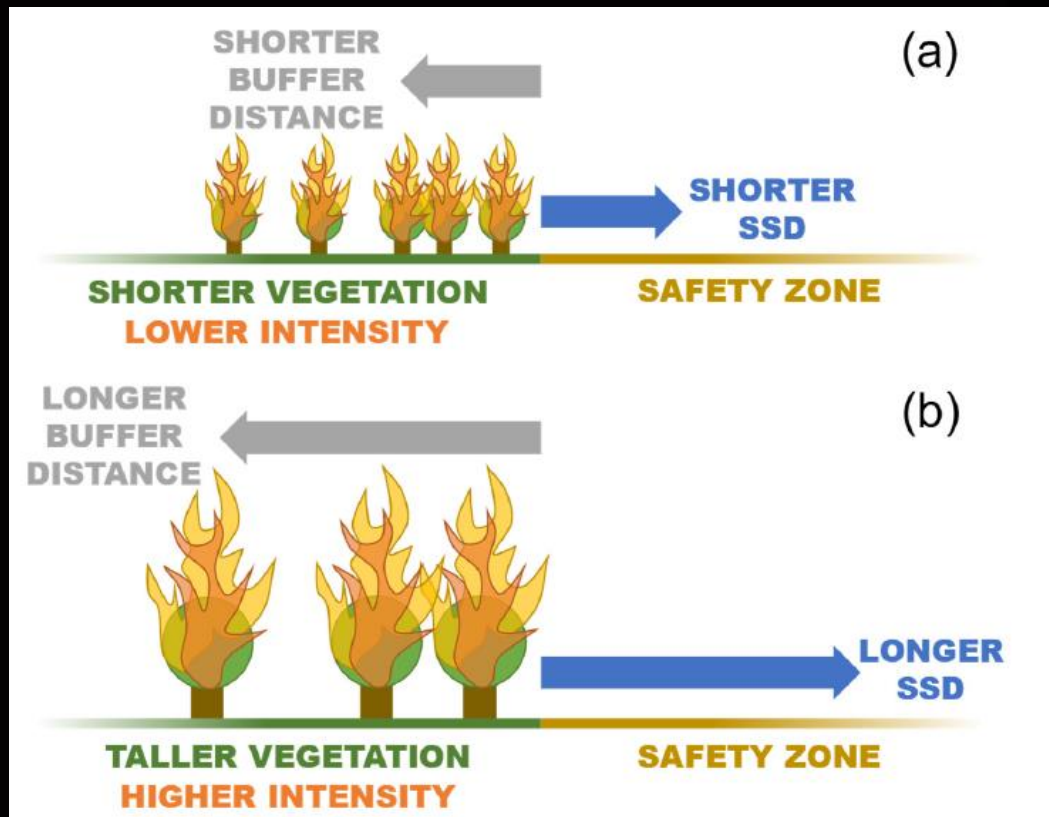


Figure 8—Large Safety zone prepared using mechanical means on the Bald Sisters.

Last resort: safety zones

Safe Separation Distance =

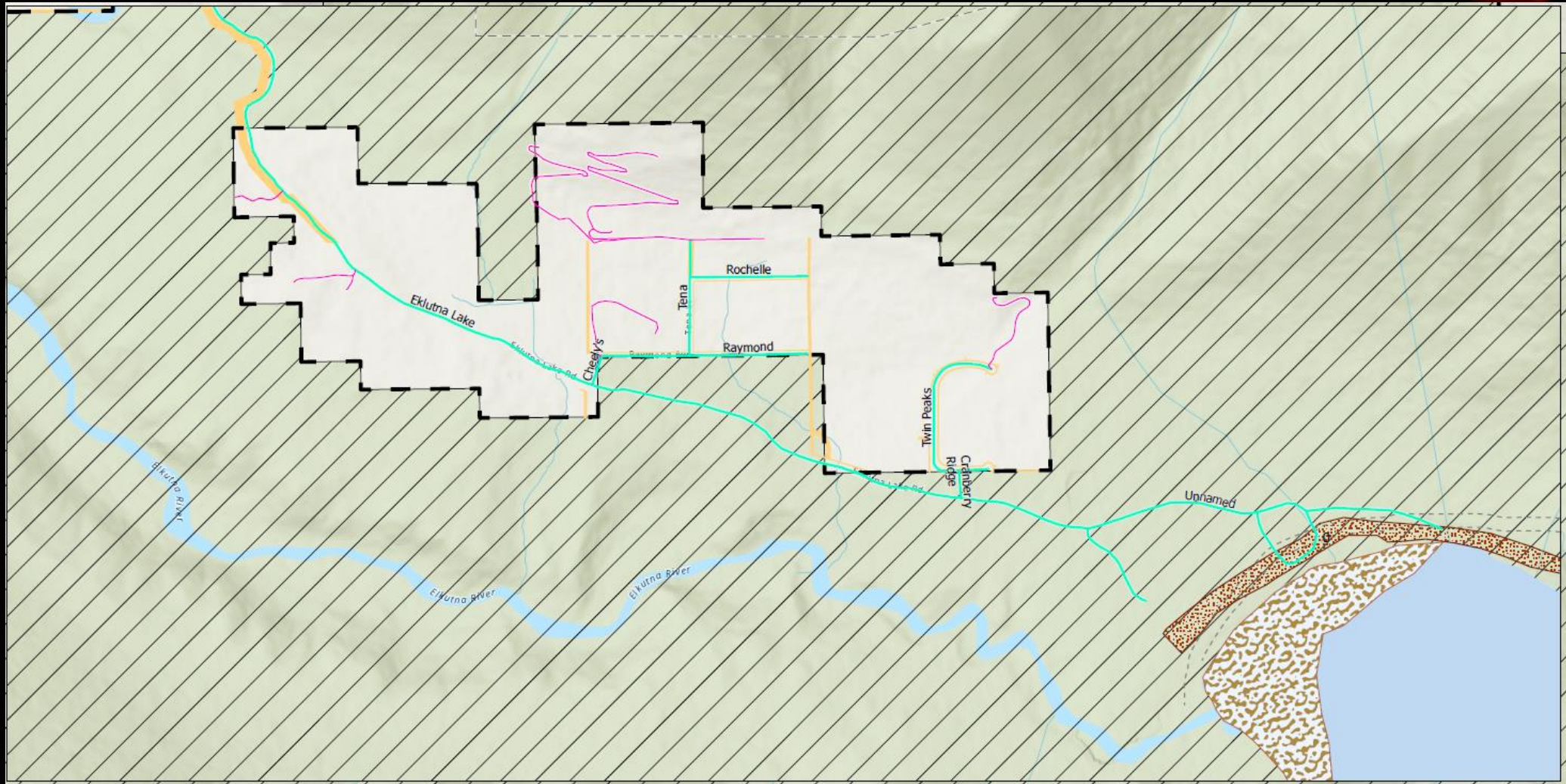
8 * (the number from the table) * (height of the vegetation)

Δ	Slope (%)				Fire Intensity
	0	20	>30		
Wind (mph)	0	1	1	2	Low
		1	1.5	2.5	Medium
		1	2	3	High
	10	1.5	2	3.5	Low
		2	2.5	4	Medium
		2	3	5	High
	>20	2.5	3.5	5	Low
		3	4	6	Medium
		3.5	5	6	High

A study of the impact of slope and wind on firefighter safety zone effectiveness by B. Butler (2014)

<https://wildfiretoday.com/2014/05/23/proposed-new-guidelines-for-safety-zones/>

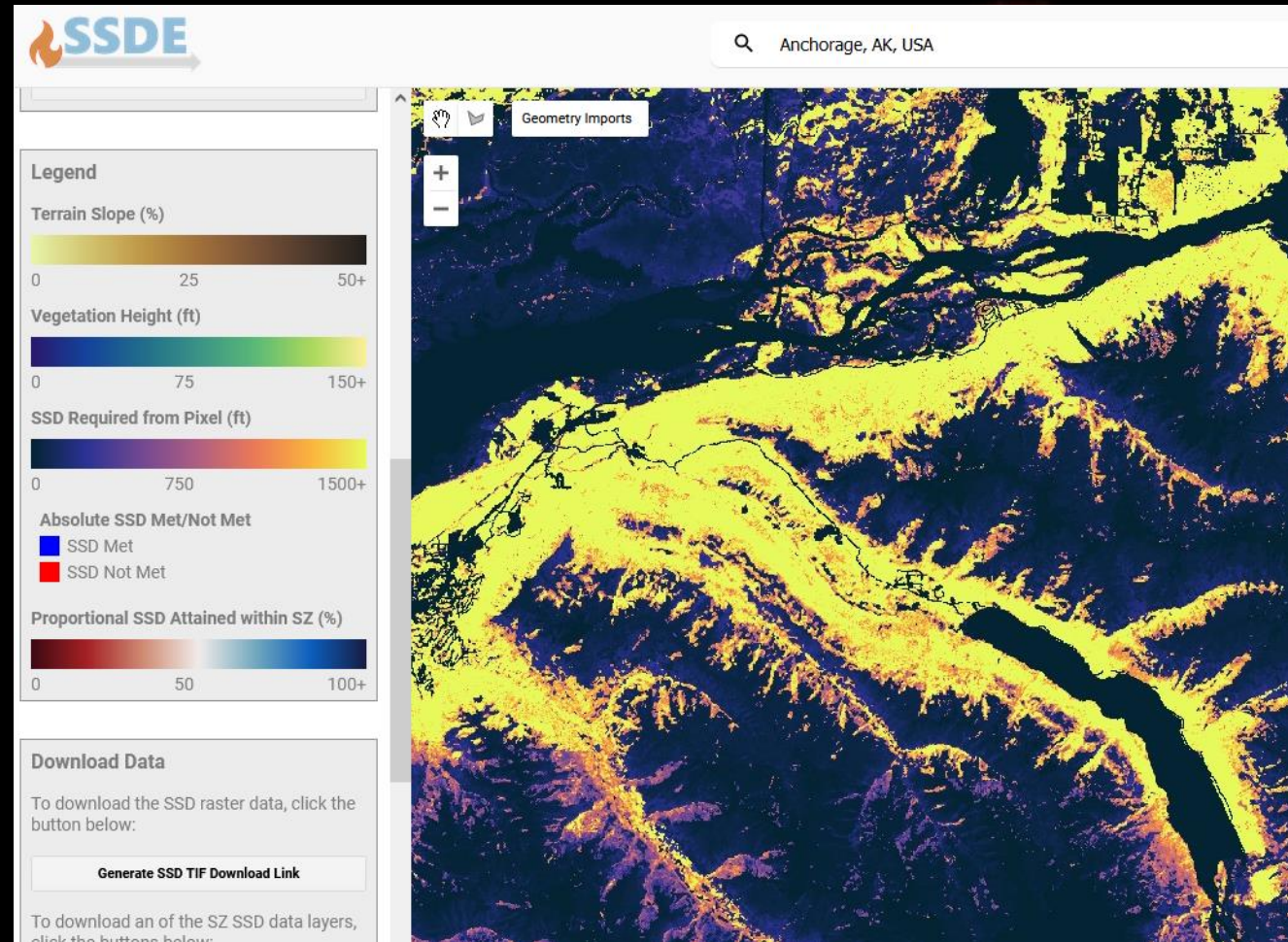
Example from Eklutna



Example from Eklutna

Online tool:

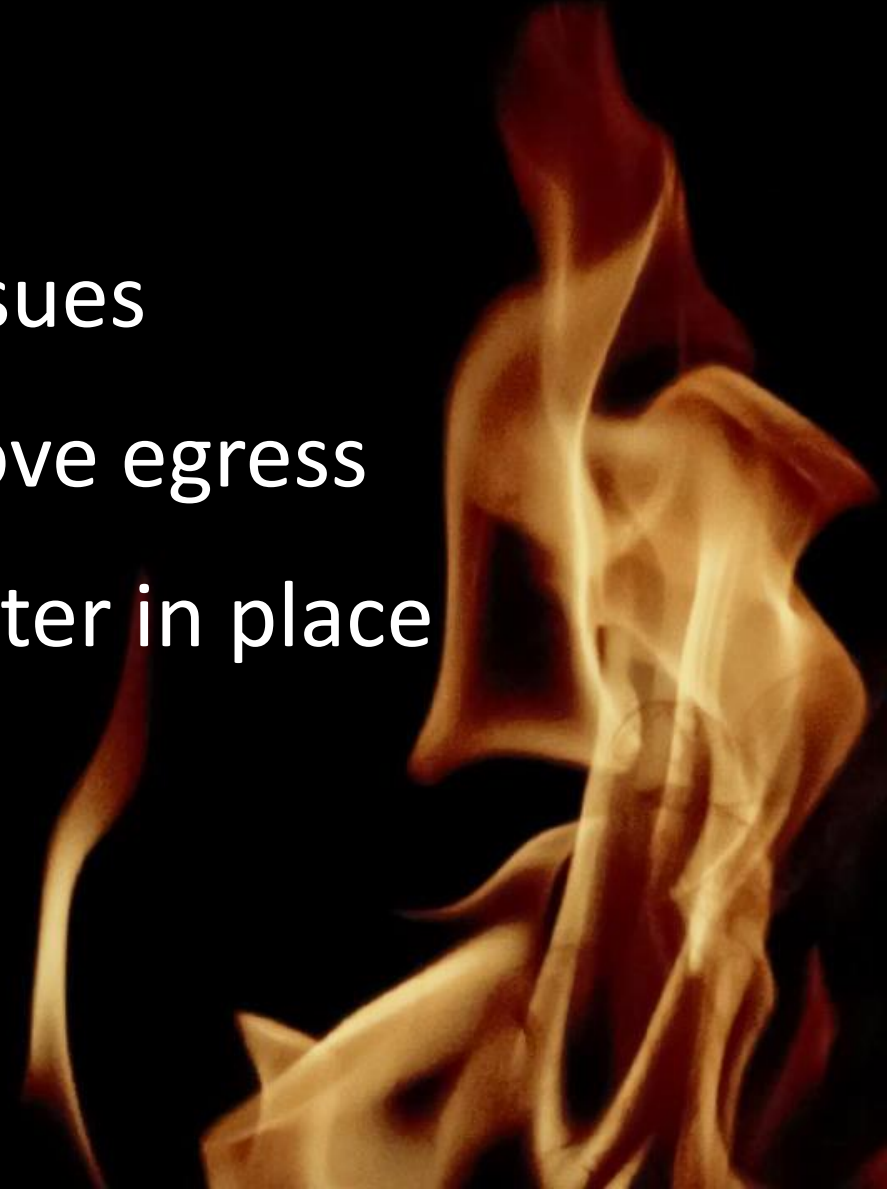
<https://firesafetygis.users.earthengine.app/view/ssde-en>



Egress and Safety Zones

Goals for the mapping

1. Identify areas that have egress issues
2. Make recommendations to improve egress
3. Identify areas for emergency shelter in place (example from Eklutna)



Vulnerable populations:

- Physical
 - Age
 - Children (< 18 years old)
 - Seniors (65 or older)
 - Medical conditions
- Psychological
 - Mental health
- Social
 - Lower income
 - Uninsured



Community Vulnerability Framework



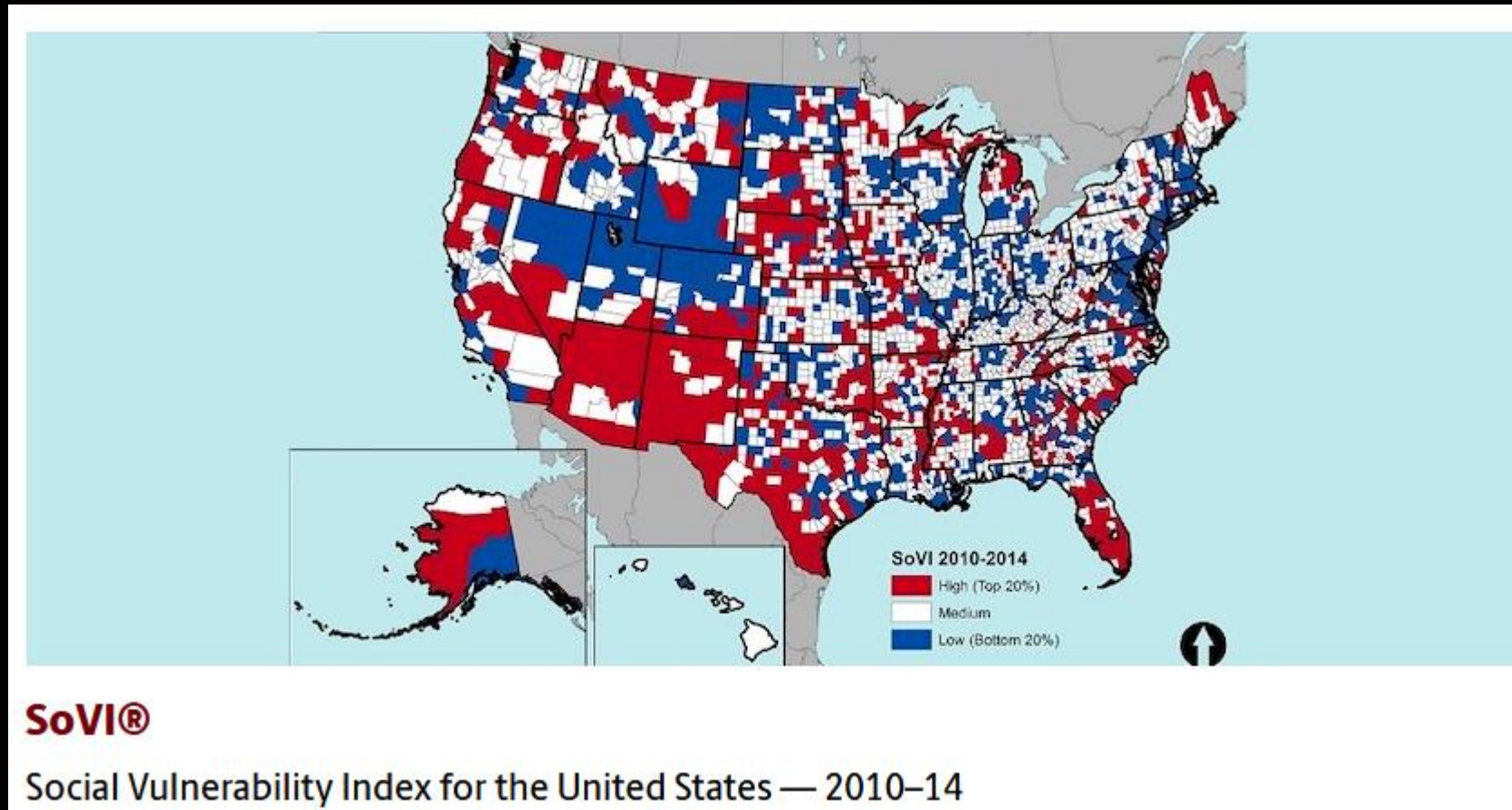
Not all communities are equally equipped to prevent, respond to and recover from hazards¹

Social vulnerability or adaptive capacity refers to the **social, economic and cultural attributes that can limit or confer access to resources**, making some communities more vulnerable and exacerbating the impacts of wildfire²

Wildfire Vulnerability Framework illustrates community vulnerability as a function of both the physical wildfire risk and the adaptive capacity of a community.³

¹ Cutter et al., 2003, Coughland et al., 2019 ² Coughlan et al., 2019, ³ Davies et al., 2018

Social Vulnerability Index for the United States — 2010–14



https://sc.edu/study/colleges_schools/artsandsciences/centers_and_institutes/hvri/data_and_resources/sovi/index.php



Vulnerable populations:

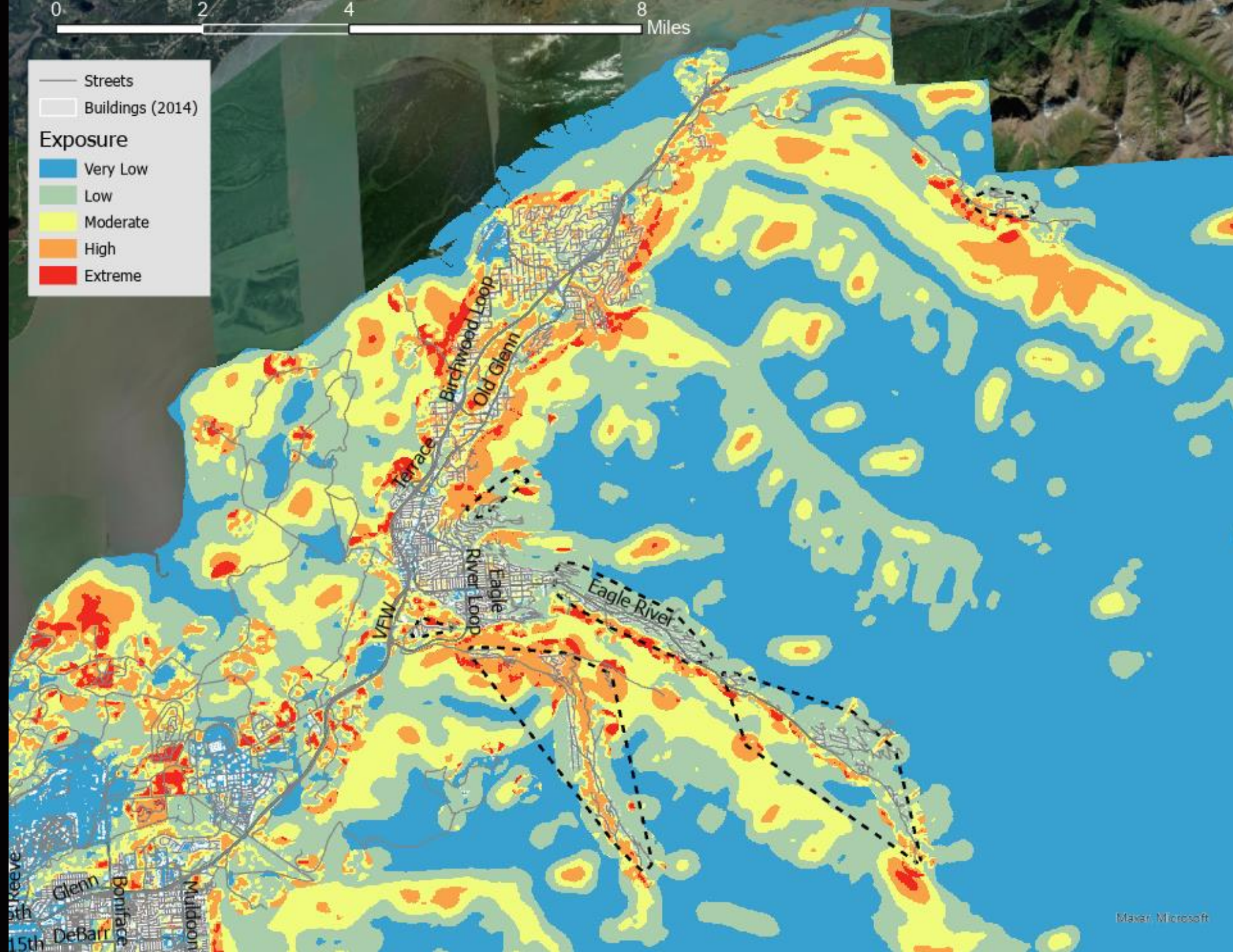
- No database at Chugach Electric
- No database with Office of Emergency Management

Who should maintain one????



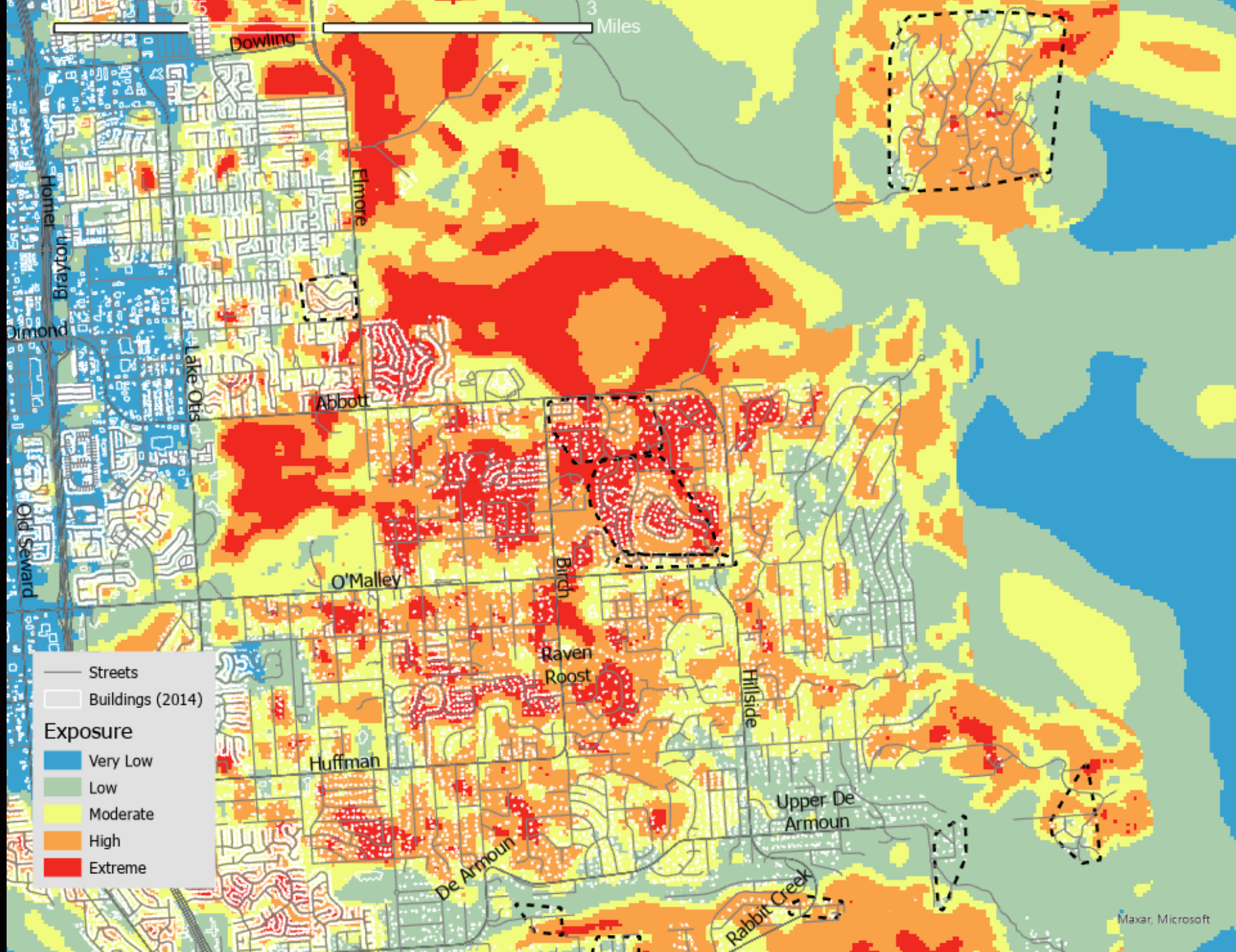
Our mapping

White indicates buildings



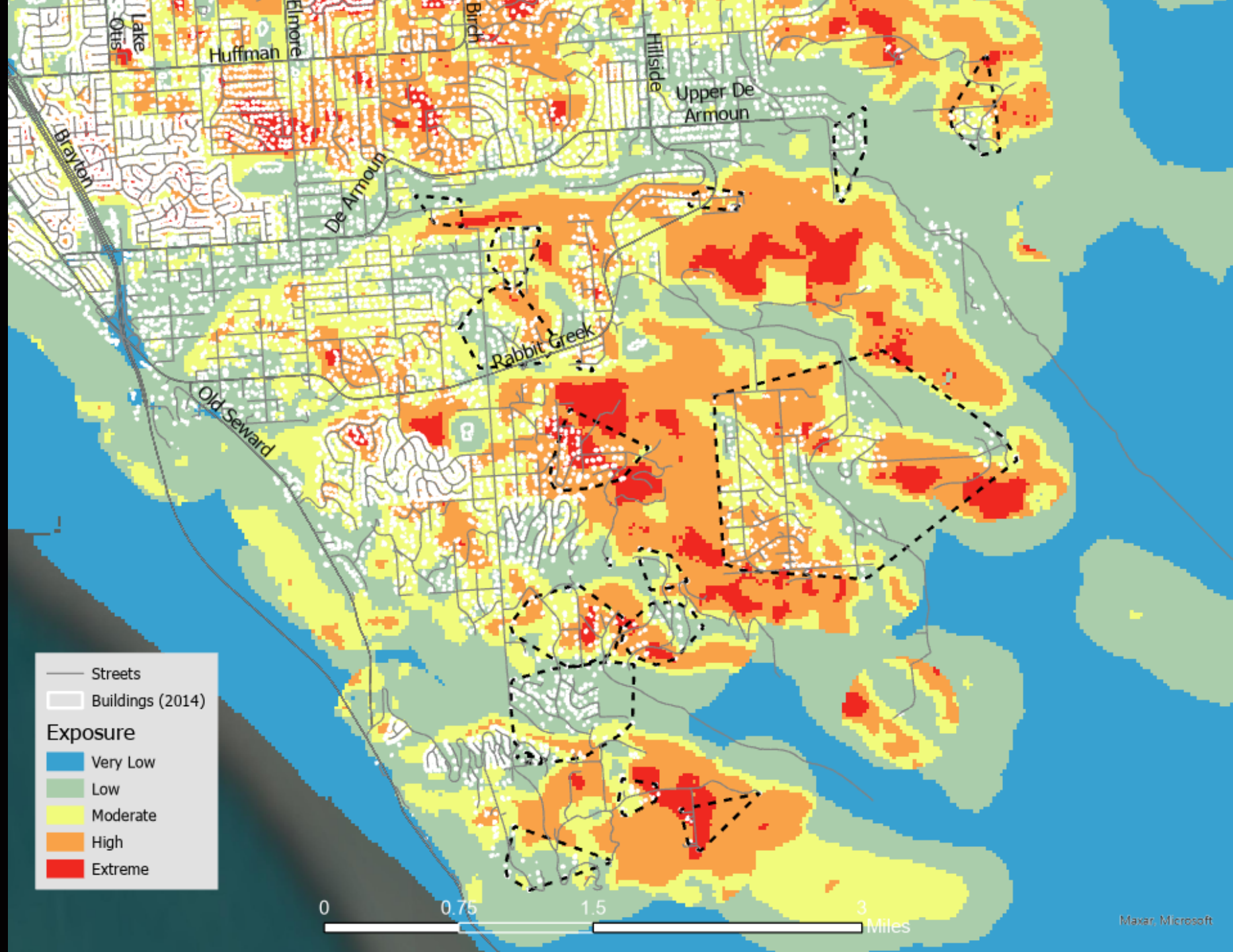
Our mapping

White indicates buildings

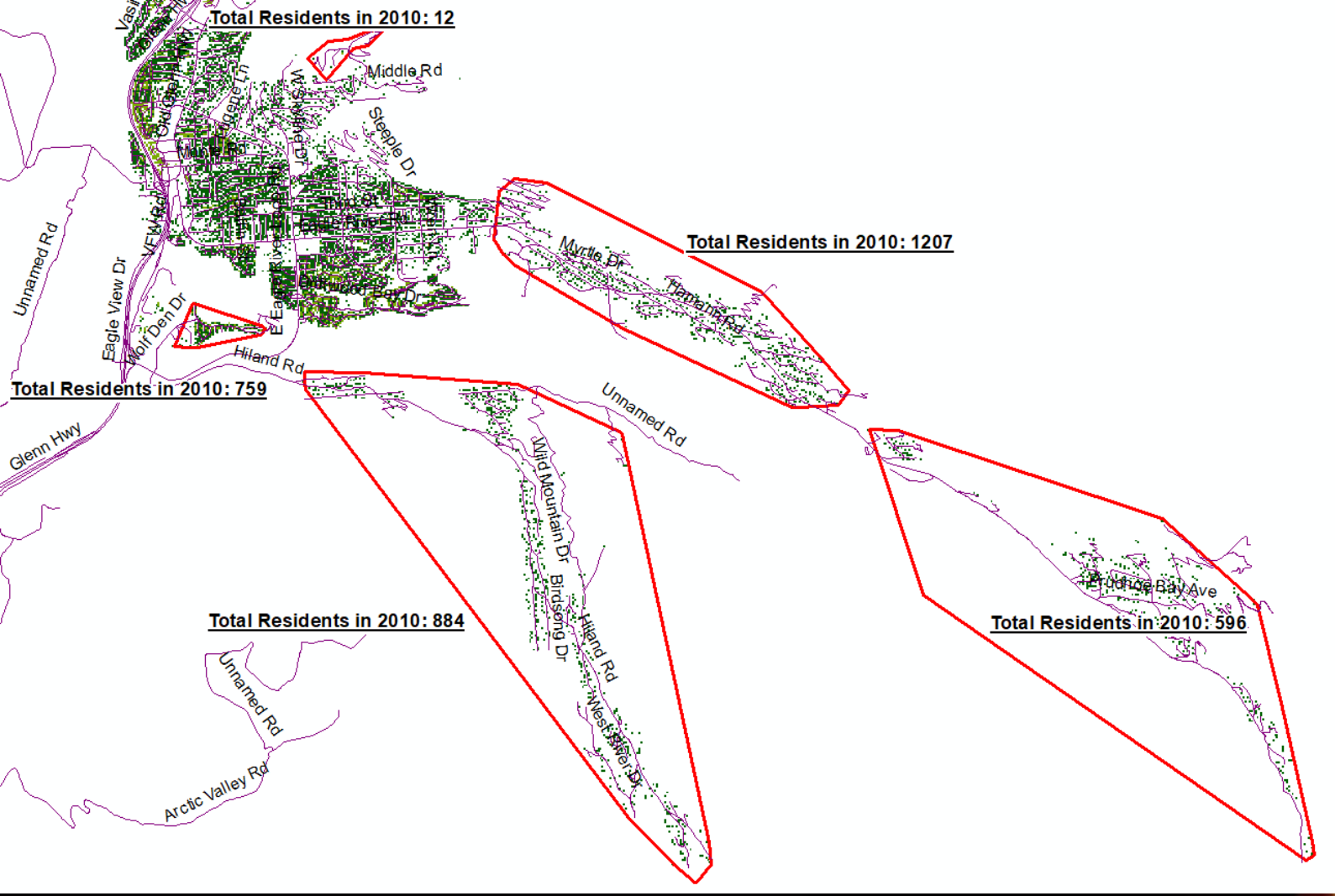


Our mapping

White indicates buildings



Vulnerability: number of residents per evacuation



How do we get there?

- Meeting 1: Kick off [Sept]
- Meeting 2 (best in person): [Sept]
 - Identify potential evacuation points
 - Hands on mapping exercise to update dead end maps, draw potential new egress routes, and identify egress issues
- Meeting 3: [Oct]
 - Vulnerable individuals or places that may need assistance evacuating
 - Circle back to evacuation points
 - Review wildfire hazard maps



How do we get there?

- Meeting 4 (best in person): [NOVEMBER]
 - Updated digital egress maps based on mapping exercise
 - Updated egress maps overlaid with wildfire hazards
 - Use maps to identify egress and wildfire areas of concern
- Meeting 5: [Nov]
 - Review maps with egress and wildfire issues and discuss mitigation actions



How do we get there?

- Meeting 6: [Dec]
 - Near final egress maps with community identified areas of egress and wildfire concerns
 - Review egress issues and maybe prioritize within community councils
 - Review suggested mitigation areas and actions
- Meeting 7: [Jan]
 - Final approval of products to be used in a report (i.e. maps, mitigation action items, egress issues, etc.)

