

# Webinar

## The Business Case for Mass Timber and Wildfire Resilience: Creating Value & Reducing Fuels

Date: December 02, 2022

00:00:04 --> 00:00:07: Welcome everyone. Thank you for joining us for this UI  
 00:00:07 --> 00:00:11: webinar, the business case for mass timber and wildfire  
 00:00:11 --> 00:00:13: resilience,  
 00:00:14 --> 00:00:18: creating value and producing fuels.  
 00:00:18 --> 00:00:19: In recent years, we've witnessed increasingly devastating  
 00:00:20 --> 00:00:24: wildfires, both in  
 00:00:24 --> 00:00:25: the US and abroad.  
 00:00:28 --> 00:00:31: Climate change is impacting the health of our overly dense  
 00:00:31 --> 00:00:35: forests in North America.  
 00:00:35 --> 00:00:39: And mega fires are predicted to increase both in severity  
 00:00:39 --> 00:00:40: and frequency. And today, today's session expert panelists  
 00:00:41 --> 00:00:46: will give  
 00:00:46 --> 00:00:48: an overview of the science behind wildfires and the impacts  
 00:00:49 --> 00:00:52: on real estate.  
 00:00:52 --> 00:00:55: Stressing the urgency for immediate action to maintain  
 00:00:55 --> 00:00:58: livability of  
 00:00:59 --> 00:01:01: the western United States.  
 00:01:02 --> 00:01:05: We'll focus focus on the United States, but many lessons  
 00:01:05 --> 00:01:09: learned today can be applied to other countries. I do  
 00:01:09 --> 00:01:13: want to stress, however, that forestry practices vary from  
 00:01:13 --> 00:01:16: country  
 00:01:16 --> 00:01:16: to country and even within regions of countries.  
 00:01:17 --> 00:01:20: We'll conclude today with a deep dive on the business  
 case for mass timber, the building scale solution that offers  
 the ability to increase demand for our forest products,  
 creating  
 an economic rationale for helping to thin our overly dense  
 forest.  
 Today we hope to answer a few questions for you

00:01:20 --> 00:01:24: all, including why should you care about wildfire resilience?  
00:01:25 --> 00:01:27: This might be obvious to some of you in high  
00:01:27 --> 00:01:31: risk fire areas, and perhaps less so to those farther  
00:01:31 --> 00:01:34: away in urban areas further from direct fire zones.  
00:01:35 --> 00:01:38: How did the choices we make every day in real  
00:01:38 --> 00:01:40: estate impact forest health and climate change?  
00:01:41 --> 00:01:44: And what else can you do to help change common  
00:01:44 --> 00:01:47: misconceptions around forest health and wildfires?  
00:01:48 --> 00:01:49: Next slide.  
00:01:53 --> 00:01:55: My name is Melissa Crosskey, and I'll be moderating the  
00:01:55 --> 00:01:56: webinar today.  
00:01:57 --> 00:02:00: I'm both a licensed architect and structural engineer in the  
00:02:00 --> 00:02:03: state of California and have a broad perspective on the  
00:02:03 --> 00:02:06: building industry. I'm a technical director with woodworks, the  
00:02:06 --> 00:02:09: Wood  
00:02:09 --> 00:02:13: Products Council, and have led the expansion of our  
00:02:13 --> 00:02:13: audience  
00:02:15 --> 00:02:19: to real estate developers. There are national partnerships  
00:02:19 --> 00:02:22: with you.  
00:02:23 --> 00:02:25: Well, I.  
00:02:25 --> 00:02:28: They work on generating resources for the developer  
00:02:28 --> 00:02:28: audience, including  
00:02:30 --> 00:02:34: our business case studies, which we'll hear about more  
00:02:34 --> 00:02:39: today.  
00:02:39 --> 00:02:43: I spent quite a bit of my time trying to  
00:02:43 --> 00:02:45: convince developers to share their financial secrets and our  
00:02:46 --> 00:02:48: business  
00:02:48 --> 00:02:51: case series.  
00:02:51 --> 00:02:53: I'm vice chair of Uri Sustainable Development Council and  
00:02:54 --> 00:02:58: manage  
00:02:58 --> 00:03:02: our national partnerships with USLI greenprint leaders in the  
00:03:02 --> 00:03:06: building  
00:03:07 --> 00:03:12: industry who are working to reduce the environmental  
00:03:12 --> 00:03:12: footprint of  
00:03:12 --> 00:03:12: our built environment.  
00:03:12 --> 00:03:12: In my free time you can spend you can find  
00:03:12 --> 00:03:12: me on the water paddle boarding, raising wild dolphins and  
00:03:12 --> 00:03:12: cleaning plastic out of our water.  
00:03:12 --> 00:03:12: Our first speaker today is Molly McCabe. She's CEO and  
00:03:12 --> 00:03:12: founder of Hayden Tanner, a development and investor  
00:03:12 --> 00:03:12: advisory firm,  
00:03:12 --> 00:03:12: accelerating impact and sustainability in the built  
00:03:12 --> 00:03:12: environment.  
00:03:12 --> 00:03:12: She's also co-founder of the Lotus Campaign, which provides  
00:03:12 --> 00:03:12: housing

00:03:12 --> 00:03:16: driven solutions for homelessness by engaging profit non private for

00:03:16 --> 00:03:21: profit real estate community. Molly is past chair of Mutualized

00:03:21 --> 00:03:25: responsible Property Investment Council and has been involved with many

00:03:25 --> 00:03:29: ULI reports, technical assistance channels and other efforts.

00:03:30 --> 00:03:34: She's an industry leader and has authored books on sustainable

00:03:34 --> 00:03:37: and resilient property development, investment and financing.

00:03:38 --> 00:03:41: Molly is a mom, a dog lover, an amateur, handy

00:03:41 --> 00:03:43: woman, and serial entrepreneur.

00:03:44 --> 00:03:47: Today, Motley will be talking with us about assessing wildfire risk at the market scale.

00:03:47 --> 00:03:48:

00:03:50 --> 00:03:54: Our second speaker today is Paul Hessburg. Paul is a leading research ecologist with the USDA US Forest Service and

00:03:54 --> 00:03:58:

00:03:58 --> 00:04:02: affiliate professor at the UW School of Environment and for Science and the OU College of Forestry.

00:04:02 --> 00:04:05:

00:04:07 --> 00:04:10: He leads a team of researchers that studies a variety of topics, including the landscape and disturbance ecology of the

00:04:10 --> 00:04:14:

00:04:14 --> 00:04:16: US forest past, present and future.

00:04:17 --> 00:04:21: Climate change effects on our forest wildfire resilience mechanisms and

00:04:21 --> 00:04:27: landscape restoration and adoption. Paul's attend speaker has done numerous

00:04:27 --> 00:04:30: talks on the new era of mega fires and has

00:04:30 --> 00:04:33: authored over 200 books, articles and chapters.

00:04:34 --> 00:04:38: In 2017, he researched he he received the Distinguished Scientist

00:04:38 --> 00:04:40: Award from the Chief of the US Forest Service.

00:04:42 --> 00:04:45: In his free time, Paul and his wife Mary enjoy

00:04:45 --> 00:04:49: a variety of outdoor outdoor activities, including including kayaking.

00:04:50 --> 00:04:53: So when Paul and I aren't talking about fires, forests and mass timber, we're sharing epic paddling and ventures.

00:04:53 --> 00:04:55:

00:04:56 --> 00:04:59: Today, Paul will provide a brief overview on the science behind increasingly catastrophic wildfires in the western United States.

00:05:00 --> 00:05:04:

00:05:05 --> 00:05:08: And our final speaker of the day is Noel Johnson.

00:05:09 --> 00:05:12: Known as a real estate developer, consultant and nonprofit leader.

00:05:13 --> 00:05:17: His real estate experience spans over \$1 billion of investment and over 20 developments.

00:05:17 --> 00:05:19:

00:05:20 --> 00:05:23: As a developer, he's completed the most mass timber deals  
00:05:23 --> 00:05:24: in the United States.  
00:05:25 --> 00:05:28: His consulting work serves firms facing business strategy  
and built  
00:05:28 --> 00:05:30: environment challenges.  
00:05:31 --> 00:05:35: Noah's managing partner of Conrad Investment  
Management, Woodworks's partner on  
00:05:35 --> 00:05:37: the mass timber business case studies.  
00:05:38 --> 00:05:41: He teaches entrepreneurship at Lewis and Clark College and  
as  
00:05:41 --> 00:05:44: president of Teacup Nordic Ski area. In the winter months,  
00:05:44 --> 00:05:47: you'll find him cross country skiing on Mount Hood.  
00:05:49 --> 00:05:53: Today, knolls presentation, economically viable real estate  
responses to fire  
00:05:53 --> 00:05:56: and climate will focus on mass timber and building scale  
00:05:56 --> 00:05:59: solution that can contribute value while reducing.  
00:05:59 --> 00:06:00: Force goals.  
00:06:01 --> 00:06:02: Forest fire fuels.  
00:06:03 --> 00:06:07: For questions, we encourage you to submit all your questions  
00:06:07 --> 00:06:10: throughout the webinar, and we'll have time at the end  
00:06:10 --> 00:06:12: for the panelists to address them.  
00:06:13 --> 00:06:14: Next slide.  
00:06:17 --> 00:06:21: What works is a UI green print innovation partner and  
00:06:21 --> 00:06:25: we are a nonprofit organization. We're largely funded by the  
00:06:25 --> 00:06:30: US Forest Service, Forestry Innovation Investment and  
Softwood Lumber Board.  
00:06:30 --> 00:06:34: We also have a series of national wood product  
manufacturers.  
00:06:34 --> 00:06:38: We don't sell anything. We are completely product neutral.  
Rather  
00:06:38 --> 00:06:42: we advocate for the use of wood and commercial and  
00:06:42 --> 00:06:46: multifamily buildings and really our bread and butter is free  
00:06:46 --> 00:06:47: project assistance.  
00:06:47 --> 00:06:50: We're off. We're there to offer free project assistance for  
00:06:50 --> 00:06:54: developers and their design teams on any commercial and  
multifamily  
00:06:54 --> 00:06:55: buildings in the United States.  
00:06:56 --> 00:06:59: We have a series of regional directors throughout the country  
00:07:00 --> 00:07:02: who can answer any question that you have on wood  
00:07:02 --> 00:07:06: buildings, whether it's innovative mass timber, what's  
possible with the  
00:07:06 --> 00:07:09: new tallwood code provisions, maximizing heights and areas,  
and a  
00:07:09 --> 00:07:11: variety of other technical topics.

00:07:13 --> 00:07:15: In the chat, we just dropped a link to our  
00:07:16 --> 00:07:20: project assistance. You can also e-mail our helpdesk  
[email protected] and  
00:07:20 --> 00:07:23: you'll get a response and one to two days.  
00:07:24 --> 00:07:26: And next slide.  
00:07:28 --> 00:07:30: And with that, I'll hand it over to you, Molly  
00:07:30 --> 00:07:32: McCabe, our first speaker.  
00:07:33 --> 00:07:36: Thanks so much, Melissa. As Melissa noted, I will frame  
00:07:36 --> 00:07:39: for you what's at stake and why you as investors,  
00:07:39 --> 00:07:43: developers, community members, parents, grandparents,  
and especially for those of  
00:07:44 --> 00:07:46: you who are not in areas that are immediately at  
00:07:46 --> 00:07:49: risk of burning, why you should care about the risk  
00:07:49 --> 00:07:52: of wildfire and the implications of the changing climate that  
00:07:52 --> 00:07:56: make wildfires more likely and damaging. Paul's going to talk  
00:07:56 --> 00:07:58: about, you know, how we got here with regards to  
00:07:58 --> 00:08:01: land use and forest health and give us some big  
00:08:01 --> 00:08:04: picture policy and community scale solutions.  
00:08:04 --> 00:08:07: In response to to wildfire risk and Noel will offer  
00:08:07 --> 00:08:10: up some reactions to this new reality and some ideas  
00:08:10 --> 00:08:13: on how we can practically address these changing conditions  
in  
00:08:13 --> 00:08:16: the form of building solutions that respond in a very  
00:08:16 --> 00:08:20: intentional way that's sensitive to what's happening within the  
built  
00:08:20 --> 00:08:23: environment and this asset class. So before we get there,  
00:08:24 --> 00:08:25: go to the next slide please.  
00:08:26 --> 00:08:30: Let me point you to some really valuable resources that  
00:08:30 --> 00:08:33: UI is put together. UI has done a number of  
00:08:33 --> 00:08:38: reports, most specifically the Firebreak report which is  
available online  
00:08:39 --> 00:08:42: at [uli.org](http://uli.org) URL. I interviewed about 50 members of or  
00:08:42 --> 00:08:46: 50 developers and others in the in land use policy  
00:08:46 --> 00:08:49: makers and so forth in the region that.  
00:08:50 --> 00:08:53: Is at risk of wildfire and can give you some  
00:08:53 --> 00:08:57: really specific district and best scale best practices at a  
00:08:57 --> 00:09:01: site scale solution. We also did a Sonoma County Advisory  
00:09:01 --> 00:09:06: Services panel which looked at the fires that happened in  
00:09:06 --> 00:09:10: Sonoma County back in 2018-2019, 2020 and then finally  
you  
00:09:10 --> 00:09:14: Li has partnered with First St Foundation on Risk Factor  
00:09:14 --> 00:09:15: Pro which shows.  
00:09:16 --> 00:09:21: Very specific property, property effects of wildfire and climate

risk.

**00:09:22 --> 00:09:27:** Around flooding, wildfire and heat impacts. Next slide.

**00:09:29 --> 00:09:31:** So here let me talk a little bit about why

**00:09:31 --> 00:09:32:** we should care.

**00:09:33 --> 00:09:37:** Prosperity of along the globe is really focused around places

**00:09:37 --> 00:09:42:** where it's temperate and Mediterranean. There's a correlation between prosperity

**00:09:42 --> 00:09:46:** and temperate climates. The more moderate climates produce civilization and

**00:09:46 --> 00:09:50:** therefore that's where all the capital flowed. As the climate

**00:09:50 --> 00:09:55:** impacts are intensifying, those cities that have temperate climates are

**00:09:55 --> 00:09:59:** going to see livability becoming more increasingly challenged and with

**00:09:59 --> 00:09:59:** some.

**00:10:00 --> 00:10:04:** Areas facing daily daytime temperatures that are so high that

**00:10:04 --> 00:10:06:** even workers can't be safe outside.

**00:10:09 --> 00:10:13:** With the addition of rising sea levels, salination of groundwater

**00:10:13 --> 00:10:15:** and the expansion of arid terrain.

**00:10:16 --> 00:10:20:** We're going to find governments and private sector citizens burdened

**00:10:20 --> 00:10:24:** with the need for more infrastructure and individual property level

**00:10:24 --> 00:10:29:** improvements. These changes will affect agriculture and economic productivity and

**00:10:29 --> 00:10:32:** will drive migration to more habitable areas. Next slide.

**00:10:35 --> 00:10:38:** So the reality is that having a stable climate is

**00:10:39 --> 00:10:42:** the core to a thriving and stable world.

**00:10:43 --> 00:10:46:** So if you don't live in what's called the wooley.

**00:10:47 --> 00:10:51:** Why should you care? That's the the Wildlands Urban Interface

**00:10:51 --> 00:10:55:** Society and the real estate industry today are grossly unprepared

**00:10:55 --> 00:10:59:** for this coming era of instability due to climate change.

**00:10:59 --> 00:11:03:** And it's just not. It's not just about warmer temperatures,

**00:11:03 --> 00:11:06:** it is about that loss of stability and and what

**00:11:06 --> 00:11:08:** happens in an increasingly.

**00:11:09 --> 00:11:11:** Less stable world. Next slide.

**00:11:14 --> 00:11:18:** The bottom line is that hotter and more frequent wildfires

**00:11:18 --> 00:11:23:** are causing increasing amounts of infrastructure destruction, economic hardship and

**00:11:23 --> 00:11:27:** trauma throughout the United States and the world. It affects

**00:11:27 --> 00:11:31:** large regions, including even the most prepared

communities.

**00:11:31 --> 00:11:36:** It impacts adjacent areas that receive evacuate evacuees from those

**00:11:36 --> 00:11:38:** wildfire migration patterns.

**00:11:40 --> 00:11:44:** And also those evacuees who are moving because of strict

**00:11:44 --> 00:11:48:** preventative measures which are rising, causing rising prices and less

**00:11:48 --> 00:11:50:** favorable conditions to live in.

**00:11:51 --> 00:11:55:** The occurrence of wildfires and the scale of their consequences

**00:11:55 --> 00:11:59:** and how they have changed in recent decades are directly

**00:11:59 --> 00:12:03:** related to current climate and development trends, as well as

**00:12:03 --> 00:12:07:** to historical Land Management strategies. Climate change and housing and

**00:12:07 --> 00:12:12:** the housing affordability crisis especially, are exacerbating the severity of

**00:12:12 --> 00:12:16:** wildfires and the difficulty of managing them as we move

**00:12:16 --> 00:12:21:** more housing into those areas that previously weren't developed next.

**00:12:21 --> 00:12:21:** Slide, please.

**00:12:25 --> 00:12:30:** Wildfire risk across the United States has been increasing dramatically

**00:12:30 --> 00:12:35:** over the last decades. From 1980 to 2022, there have

**00:12:35 --> 00:12:39:** been 21 wildfire events with losses exceeding \$1 billion.

**00:12:40 --> 00:12:46:** This growing risk threatens economic stability, natural resources and quality

**00:12:46 --> 00:12:49:** of life for the communities and property owners affected.

**00:12:52 --> 00:12:57:** These costs are exceedingly high. In recent years, damage estimates

**00:12:57 --> 00:13:00:** between 2012 and 2016 totaled 8.5 billion.

**00:13:01 --> 00:13:03:** Noah has reporting that.

**00:13:04 --> 00:13:09:** Between 2018 and 2021, that number has increased to \$79.8

**00:13:09 --> 00:13:15:** billion of direct costs. That represents nearly a tenfold increase.

**00:13:16 --> 00:13:17:** Next slide.

**00:13:20 --> 00:13:22:** I want to note that this particular slide is courtesy

**00:13:22 --> 00:13:24:** of the 1st St Foundation.

**00:13:25 --> 00:13:31:** Per Noah's research, that \$79 billion is projected to rise

**00:13:31 --> 00:13:36:** to 141 billion between the years of 2020 and 2029.

**00:13:37 --> 00:13:41:** And these direct cost estimates are only a fraction of

**00:13:41 --> 00:13:46:** the larger economic costs associated with wildfires. The estimate does

**00:13:46 --> 00:13:50:** not include many of the costs associated with Land Management

00:13:50 --> 00:13:55: or long-term indirect or additional costs, for example, supporting wildfire

00:13:55 --> 00:13:56: suppression.

00:13:57 --> 00:14:01: Is one of the most expensive things that we do.

00:14:01 --> 00:14:05: It costs the government about \$2 billion annually today, and

00:14:05 --> 00:14:09: estimates from the Office of Management and Budget suggest

00:14:09 --> 00:14:13: that these costs could rise to 2.83 billion under conservative

00:14:13 --> 00:14:17: climate change scenarios and as much as 4.3 billion in

00:14:17 --> 00:14:19: higher emission scenarios.

00:14:20 --> 00:14:23: And even those states who are capable of suppressing the

00:14:23 --> 00:14:27: most destructive wildfires today find we'll find their resources stretched

00:14:27 --> 00:14:31: thinner, unable to use their those fine those finances for

00:14:31 --> 00:14:32: other things such as.

00:14:33 --> 00:14:38: Parks such as such as police, such as as libraries,

00:14:38 --> 00:14:39: things like that.

00:14:40 --> 00:14:42: So next slide please.

00:14:45 --> 00:14:48: So you as an ambassador, why should you care? And

00:14:48 --> 00:14:51: in particular, if your city is not going to burn

00:14:51 --> 00:14:54: or your community is not at risk, why should you

00:14:54 --> 00:14:57: care? Well, I think if you can see this picture

00:14:57 --> 00:15:00: from San Francisco, you can note that this bright orange

00:15:00 --> 00:15:03: skyscape is really a wake up call to all of

00:15:03 --> 00:15:06: us and an exclamation on the point of these changing

00:15:06 --> 00:15:11: conditions. Climate change definitely causes more wildfires, more days when

00:15:11 --> 00:15:14: we have them, and more days when we will have

00:15:14 --> 00:15:14: heavy snow.

00:15:15 --> 00:15:20: Countervailing my market and migration forces may be creating near

00:15:20 --> 00:15:22: term opportunities in regions.

00:15:23 --> 00:15:26: But those regions have longer term climate risks.

00:15:28 --> 00:15:29: Next slide, please.

00:15:31 --> 00:15:34: What we know now is that metro areas have a

00:15:34 --> 00:15:36: fundamental threat.

00:15:37 --> 00:15:38: From climate risk.

00:15:39 --> 00:15:41: Different than it was before.

00:15:42 --> 00:15:46: The analytical challenges of defining and addressing systemic risk and

00:15:46 --> 00:15:49: resilience factors like migration.

00:15:50 --> 00:15:54: Run up against the need to make immediate investment decisions



00:15:54 --> 00:15:59: about opportunities in high risk areas. Often we find ourselves

00:15:59 --> 00:16:02: pushing out further to develop due to the high cost

00:16:02 --> 00:16:05: of land and increase fees and regulation.

00:16:06 --> 00:16:10: The real estate industry runs the risk of maintaining sort

00:16:10 --> 00:16:12: of a business as usual approach to investment.

00:16:14 --> 00:16:17: We are looking often at policy or legislation as the

00:16:17 --> 00:16:21: driver for our decision making, making only slight adjustments so

00:16:22 --> 00:16:25: that we don't get into trouble with the regulators or

00:16:25 --> 00:16:28: client or our clients despite the need frankly for more

00:16:28 --> 00:16:30: climate sensitive strategies.

00:16:32 --> 00:16:36: And wildfires are really one of the big bigger climate

00:16:37 --> 00:16:41: challenges that are impacting real estate as well as other

00:16:41 --> 00:16:43: investable assets.

00:16:44 --> 00:16:48: Anyone who wants to invest increasingly needs to navigate.

00:16:49 --> 00:16:50: This shifting environment.

00:16:53 --> 00:16:54: Next slide, please.

00:16:57 --> 00:16:59: Between 1964 and 1990.

00:17:00 --> 00:17:02: We've seen an extraordinary increase.

00:17:03 --> 00:17:08: Currently, we have 79 million homes that currently have wildfire

00:17:08 --> 00:17:12: risk. 4.2 million of those homes have cumulative burn probabilities

00:17:12 --> 00:17:16: greater than 26%. That means that 25%, one in four

00:17:16 --> 00:17:19: of these homes will burn over the course of their

00:17:19 --> 00:17:20: mortgage.

00:17:21 --> 00:17:24: Insurance, if it's even available, will not cover the cost

00:17:24 --> 00:17:25: to rebuild.

00:17:27 --> 00:17:28: So who's actually at risk?

00:17:32 --> 00:17:35: Well, right now the insurance industry is actually in great

00:17:35 --> 00:17:39: turmoil. They're grappling between those increasing costs. And what we're

00:17:39 --> 00:17:43: finding is that many of those insurers are actually declining

00:17:43 --> 00:17:46: to continue to ensure in places like California, the state

00:17:46 --> 00:17:49: has had to put in moratoriums in place so that

00:17:49 --> 00:17:52: those insurers will in fact state in that economy for

00:17:52 --> 00:17:53: some period of time.

00:17:54 --> 00:17:55: Next slide, please.

00:17:56 --> 00:18:01: Increasingly, we're investing in in risky places and increasingly risky

00:18:01 --> 00:18:02: assets.

00:18:03 --> 00:18:06: Last December in 2021, the wildfires in Boulder County were

00:18:06 --> 00:18:08: especially haunting.

00:18:08 --> 00:18:12: In some places, in a few hours, homes were engulfed,

00:18:12 --> 00:18:14: and then whole neighborhoods.

00:18:15 --> 00:18:19: The fires cost at least \$500 million in damages and

00:18:19 --> 00:18:23: store destroyed 1100 buildings. That's in December, and many of

00:18:23 --> 00:18:25: those households were underinsured.

00:18:27 --> 00:18:28: Next slide, please.

00:18:31 --> 00:18:34: \$1.3 trillion of property.

00:18:34 --> 00:18:38: Resides currently in the wildland urban interface. At risk of

00:18:38 --> 00:18:38: fire.

00:18:39 --> 00:18:42: There are other things that come into play as we

00:18:42 --> 00:18:45: look at the risk to real estate and the risk

00:18:45 --> 00:18:49: to your businesses and to your communities into your home

00:18:49 --> 00:18:49: life.

00:18:50 --> 00:18:51: Business interruption.

00:18:51 --> 00:18:54: You know, if you decide if you're making decisions on

00:18:54 --> 00:18:58: where you want to move, you probably should think about

00:18:58 --> 00:19:01: what's the financial cost of setting up your business in

00:19:01 --> 00:19:04: those locations? What's the potential financial cost of a

00:19:04 --> 00:19:06: risk? They're delays in construction.

00:19:09 --> 00:19:12: As developers, we're opting adding things to our buildings.

00:19:12 --> 00:19:15: And

00:19:12 --> 00:19:15: so some of the asset features that we're currently adding

00:19:15 --> 00:19:18: now are air filtration systems that will address harmful air

00:19:18 --> 00:19:22: quality. We're also coming up with backup systems to deal

00:19:22 --> 00:19:25: with things like public safety power shutoffs. And if you're

00:19:25 --> 00:19:28: not in California and other places, you don't know that

00:19:28 --> 00:19:31: sometimes your power can be shut off. For in Sonoma

00:19:31 --> 00:19:33: County, it was, you know, hours and sometimes days at

00:19:33 --> 00:19:36: a time that really impacts your ability to do business

00:19:36 --> 00:19:38: and there's a whole component.

00:19:38 --> 00:19:42: Around economic viability for small businesses in particular

00:19:42 --> 00:19:43: and large

00:19:42 --> 00:19:43: businesses as well.

00:19:45 --> 00:19:49: They're expenses for flame resistant roofs, energy efficient

00:19:45 --> 00:19:49: air conditioning.

00:19:51 --> 00:19:53: You know, and those kinds of costs take big bites

00:19:53 --> 00:19:56: out of anyone's budget, but in particular for those who

00:19:56 --> 00:19:57: are on limited incomes.

00:19:59 --> 00:20:02: And increasingly we're finding that people are taking climate

00:19:59 --> 00:20:02: risk

00:20:02 --> 00:20:05: into consideration when they choose where to live and where  
00:20:05 --> 00:20:06: to open businesses.  
00:20:07 --> 00:20:08: Next slide, please.  
00:20:14 --> 00:20:17: If you think back to say California and we, I,  
00:20:17 --> 00:20:20: I chaired the panel on the Sonoma Wildfire panel and  
00:20:21 --> 00:20:24: what we found for example was in the wine country  
00:20:24 --> 00:20:27: as all those plumes of smoke and the fires wafted  
00:20:28 --> 00:20:33: through those community, we saw complete communities  
shut down. Vacation  
00:20:33 --> 00:20:38: spots became evacuation zones, revenues from wineries and  
local businesses  
00:20:38 --> 00:20:43: completely dried up impacting wages, productivity, the  
community tax base.  
00:20:43 --> 00:20:47: And dislocating community members to faraway places, the  
impact on  
00:20:47 --> 00:20:50: the nearby property markets was pretty substantial.  
00:20:51 --> 00:20:55: And again, we're finding that housing affordability is really  
impacted.  
00:20:55 --> 00:20:59: A recent core logic analysis showed that housing values and  
00:20:59 --> 00:21:01: rents in the wake of wildfires.  
00:21:02 --> 00:21:06: When a particular area was significantly impacted, the areas  
housing  
00:21:06 --> 00:21:10: and distracted to the housing supply, prices and rents went  
00:21:10 --> 00:21:14: up dramatically. So for example in Santa Rosa, the biggest  
00:21:14 --> 00:21:17: city in Sonoma County housing prices, it had about 6%  
00:21:17 --> 00:21:20: of its housing stock destroyed in the 2017 Tubbs Fire.  
00:21:20 --> 00:21:23: Those people had to move somewhere and what they found  
00:21:24 --> 00:21:26: is that annual growth rate of rents tripled.  
00:21:28 --> 00:21:29: And home prices jumped.  
00:21:32 --> 00:21:35: We're also at risk of watersheds and the municipal water  
00:21:35 --> 00:21:38: supply being at risk energy costs, many, many places are  
00:21:38 --> 00:21:40: subject to you know, hydro and other types of of  
00:21:41 --> 00:21:44: systems that are impacted when the fires run through the  
00:21:44 --> 00:21:45: through the communities.  
00:21:47 --> 00:21:49: And then there's the cost of fighting fires and the  
00:21:49 --> 00:21:53: competition for resources, which I mentioned earlier. If you're  
spending  
00:21:53 --> 00:21:56: money fighting fires, you're putting in new systems to  
address  
00:21:56 --> 00:21:59: it, you can't use that money for anything else. And  
00:21:59 --> 00:22:02: finally, let's talk just a little bit about health. Next  
00:22:02 --> 00:22:03: slide, please.  
00:22:04 --> 00:22:05: Heat and wildfires.  
00:22:06 --> 00:22:09: Wildfire smoke damaged the body, and for many, what it

00:22:09 --> 00:22:12: does is it moves all of our activities indoors. People  
00:22:12 --> 00:22:15: don't go to local restaurants, they don't shop at local  
00:22:15 --> 00:22:17: stores, they don't get exercise.  
00:22:20 --> 00:22:24: And now, during many of these elongated fire fire seasons,  
00:22:24 --> 00:22:28: people don't even step outside for longer than it takes  
00:22:28 --> 00:22:31: to walk to their cars. Life has become more air  
00:22:31 --> 00:22:36: conditioned. Already the impacts add up to billion dollars of  
00:22:36 --> 00:22:39: lost wages and lost work. Next slide please.  
00:22:44 --> 00:22:48: So many people do not think about the relationship between,  
00:22:48 --> 00:22:48: you know.  
00:22:49 --> 00:22:52: Climate change and other things. They think of climate  
00:22:52 --> 00:22:55: change  
00:22:55 --> 00:22:58: and wildfires being in a sort of a discrete, discrete  
00:22:59 --> 00:23:02: category, but in fact climate change is a threat multiplier.  
00:23:02 --> 00:23:05: And we need to address how we can look at  
00:23:05 --> 00:23:09: the relationship between how we build and where we build,  
00:23:09 --> 00:23:12: and how emissions from burning fossil fuels contribute to  
00:23:13 --> 00:23:16: heat,  
00:23:16 --> 00:23:18: drought, wildfires and other extreme weather events.  
00:23:18 --> 00:23:21: Sometimes small sounding changes can make a big  
00:23:21 --> 00:23:21: difference. We  
00:23:22 --> 00:23:24: have a limited window in which to use our knowledge  
00:23:24 --> 00:23:26: and abilities to change the course of the future for  
00:23:26 --> 00:23:28: good.  
00:23:29 --> 00:23:29: So where do we go from here? Well, we know  
00:23:31 --> 00:23:34: what we need to do, each of us individually, and  
00:23:34 --> 00:23:37: a society is to reduce our footprint.  
00:23:37 --> 00:23:40: And.  
00:23:40 --> 00:23:42: We are witnessing a paradigm shift where the private sector  
00:23:44 --> 00:23:47: now sees climate action is no longer a threat for  
00:23:47 --> 00:23:49: job losses, but rather is an opportunity for create job  
00:23:49 --> 00:23:52: creation and economic revitalization. So.  
00:23:52 --> 00:23:54: The clearest path to reducing future losses is thinking about  
00:23:54 --> 00:23:55: where and what you build and how you build, where  
00:24:02 --> 00:24:03: you invest and how you place your wealth in light  
00:24:04 --> 00:24:05: of climate change. So with that, I'm going to pass  
00:24:07 --> 00:24:08: it along to Paul.  
00:24:09 --> 00:24:13: Thanks, Molly.  
00:24:15 --> 00:24:19: That's a great setup.  
Morgan. Yeah. Thank you.  
So my assignment today is to talk to you about.  
The constellation of factors that have come together produced the

00:24:19 --> 00:24:23: current lack of landscape resilience and to discuss some things

00:24:24 --> 00:24:27: that we can do about it. Next slide. Appreciate the

00:24:27 --> 00:24:29: excellent setup, Molly.

00:24:31 --> 00:24:35: We we know that there's a significant threat. There's no

00:24:35 --> 00:24:38: need to do convincing there. But it's good to talk

00:24:38 --> 00:24:43: about those things that work together to create the current

00:24:43 --> 00:24:48: predicament. Fire exclusion, historical timber harvest, climate change and smoke

00:24:48 --> 00:24:53: management are but three significant influences, whether you realize it

00:24:53 --> 00:24:57: or not, going back into the early to mid 1800s,

00:24:57 --> 00:25:01: the introduction by your American colonists of European.

00:25:01 --> 00:25:05: Diseases caused a mass depopulation of the western United States,

00:25:05 --> 00:25:09: actually the entire United States, there's a lot of indigenous

00:25:09 --> 00:25:13: burning going on, and so it declined really rapidly beginning

00:25:13 --> 00:25:17: there. Livestock grazing began in sheep and cattle grazing in

00:25:17 --> 00:25:20: the West on a massive scale. And if you think

00:25:20 --> 00:25:24: about it, cattle and sheep are eating the grasses and

00:25:24 --> 00:25:27: that had been the conveyor belt for spreading many of

00:25:27 --> 00:25:29: the historical environments.

00:25:30 --> 00:25:34: We developed built environments increasingly as the West became settled

00:25:35 --> 00:25:39: and once people were they had structure and infrastructure that

00:25:39 --> 00:25:42: was valuable to them. They wanted fires no longer to

00:25:42 --> 00:25:46: be around them. And finally in the 20th century, usually

00:25:46 --> 00:25:48: in about the 20s and 30s of the 1900s, we

00:25:48 --> 00:25:52: see fire suppression having a massive influence on excluding fire.

00:25:53 --> 00:25:56: Early timber harvest logged the large old fire tolerant trees

00:25:57 --> 00:26:00: and then a lot of shade loving intolerant trees replaced.

00:26:00 --> 00:26:05: The spaces where the large trees were removed, climate change

00:26:05 --> 00:26:10: beginning in about 1985 and beyond quite significantly brought us

00:26:10 --> 00:26:16: warmer, drier and now windier climates. And these conditions, they're

00:26:16 --> 00:26:20: escalating. So year round fire season in California is is

00:26:20 --> 00:26:25: a normal condition now. And in many other states throughout

00:26:25 --> 00:26:28: the W 40 to 80 days of exposure is is

00:26:28 --> 00:26:30: occurring and finally we add.

00:26:30 --> 00:26:34: Uh, smoke management. There's no time when the air

quality

00:26:34 --> 00:26:38: was like the air quality that we're striving for. Much  
00:26:38 --> 00:26:41: of the United States burned over the courses of the  
00:26:42 --> 00:26:46: millennia, and so we're looking at unsustainable air quality.  
And  
00:26:46 --> 00:26:50: that is the influence of actually increasing severe fire and  
00:26:50 --> 00:26:54: poor air quality because we're not doing the prescribed  
burning  
00:26:54 --> 00:26:57: that would improve that air quality.  
00:26:58 --> 00:27:02: And in addition to that, we've got a growing wildland  
00:27:02 --> 00:27:06: interface and urban areas that are increasing the desire for  
00:27:06 --> 00:27:09: improved smoke management. Next slide please.  
00:27:12 --> 00:27:14: So I want to show you some photos that sort  
00:27:14 --> 00:27:17: of dial in the changes that we're seeing. 1st I'm  
00:27:17 --> 00:27:21: going to show you the frequent fire forests. These are  
00:27:21 --> 00:27:24: the dry pine dry mixed conifer forests that top photo  
00:27:24 --> 00:27:27: from the 1930s and the the sites that are more  
00:27:27 --> 00:27:30: open are S aspects and Ridge tops and the bottom.  
00:27:30 --> 00:27:32: You can see in 2010 that many of those open  
00:27:32 --> 00:27:35: areas have filled in well in those open areas in  
00:27:35 --> 00:27:38: the top photo firewood have spread on the ground and  
00:27:39 --> 00:27:41: many times there wouldn't have been enough fuel.  
00:27:42 --> 00:27:44: For the fire to continue spreading so you can see  
00:27:44 --> 00:27:48: there's strong topographic control on where forest occurred  
and how  
00:27:48 --> 00:27:50: it would burn next slide.  
00:27:53 --> 00:27:57: In moderately frequent fire forests like you see on the  
00:27:57 --> 00:28:00: top, you see this really diverse patchwork of areas that  
00:28:00 --> 00:28:05: were recently burned, older burns, open conditions, more  
closed conditions  
00:28:05 --> 00:28:09: and this was a really important patchwork condition, if you  
00:28:09 --> 00:28:12: will. When you take fire out of the woods, you  
00:28:12 --> 00:28:16: get the the conditions in the bottom slide and you  
00:28:16 --> 00:28:19: can see that the Gray and brown trees and red  
00:28:19 --> 00:28:23: trees there, these are bark beetles that are responding to  
00:28:23 --> 00:28:24: overly dense.  
00:28:24 --> 00:28:28: Forest conditions killing large swaths of trees. Next slide,  
please.  
00:28:30 --> 00:28:33: Even in the upper elevation cold forest, you can see  
00:28:33 --> 00:28:37: in the top photo those Gray areas are recently burned  
00:28:37 --> 00:28:41: areas, areas where hardwood shrubs and hardwood trees  
have come  
00:28:41 --> 00:28:44: back. And these were essentially a governor on the flow

00:28:44 --> 00:28:48: of fire across many cold forest landscapes because a lot

00:28:48 --> 00:28:52: of hardwood conditions act as a wet blanket under many

00:28:52 --> 00:28:55: fire behavior conditions. And you can see that that forest

00:28:55 --> 00:28:58: patchwork has filled in and it's now in many areas

00:28:59 --> 00:29:00: that were burned.

00:29:00 --> 00:29:02: Previously a continuous carpet of forest.

00:29:04 --> 00:29:05: Next slide, please.

00:29:06 --> 00:29:09: So, so just about everywhere you look, there was some

00:29:10 --> 00:29:13: manner of change in forest conditions as a result of

00:29:13 --> 00:29:17: those factors that I discussed before. And so I want

00:29:17 --> 00:29:21: to highlight a couple of stabilizing feedbacks and the low

00:29:21 --> 00:29:26: and moderate severity fire force. That frequency tended to thin

00:29:26 --> 00:29:30: forest patches and reduce density of forests and the fuels

00:29:30 --> 00:29:34: on the ground and so that tended to promote more

00:29:34 --> 00:29:35: frequent fires.

00:29:35 --> 00:29:39: Of low severity and so that's a stabilizing local feedback.

00:29:39 --> 00:29:40: Next slide please.

00:29:42 --> 00:29:45: And when you take that feedback out of the woods,

00:29:45 --> 00:29:49: what you get is regeneration and release of small and

00:29:49 --> 00:29:52: medium sized trees that fill in the gaps. And those

00:29:52 --> 00:29:55: act as fuel ladders, places where.

00:29:55 --> 00:29:58: Fire from the ground can climb up the canopies of

00:29:58 --> 00:30:02: the smaller trees into the crowns of larger trees, and

00:30:02 --> 00:30:05: that gives us severe fire behavior and severe fire effects.

00:30:05 --> 00:30:06: Next slide, please.

00:30:10 --> 00:30:13: In addition to this local stabilizing feedback, we have a

00:30:13 --> 00:30:17: landscape scale feedback that we've lost these higher

00:30:17 --> 00:30:22: severity fires.

00:30:17 --> 00:30:22: They created pathworks of meadows and prairies,

00:30:22 --> 00:30:26: shrublands, young, middle-aged

00:30:22 --> 00:30:26: and older forests and conditions were open and closed and

00:30:26 --> 00:30:30: there were patches of hardwood and all of these patterns

00:30:30 --> 00:30:34: work together to spatially regulate the future size and severity

00:30:34 --> 00:30:37: of fires. These these feedbacks are really critical to the

00:30:37 --> 00:30:40: landscape and sort of that's the net.

00:30:40 --> 00:30:43: Effect of a lot of these fire exclusion influences. Next

00:30:43 --> 00:30:44: slide please.

00:30:46 --> 00:30:50: Climate change. Molly tied up the vital role of climate

00:30:50 --> 00:30:51: change.

00:30:51 --> 00:30:54: In the top left you can see the 1951 to

00:30:55 --> 00:30:58: 1980. This is sort of a Goldilocks, a mild and

00:30:58 --> 00:31:03: equitable climate of that mid century. Before we really see

00:31:03 --> 00:31:07: the climate ratcheting up. And now as you advance clockwise  
00:31:07 --> 00:31:11: to 198393 you can see the climate is warming and  
00:31:11 --> 00:31:16: these are northern hemisphere summer temperatures. And  
as you continue  
00:31:16 --> 00:31:21: you can see summer temperatures from 94 to 2004  
increasingly  
00:31:21 --> 00:31:21: warm.  
00:31:21 --> 00:31:26: By 2005 to 2015, we're really out-of-the-box and our climate  
00:31:26 --> 00:31:31: is significantly warmer with many more extremely hot days  
and  
00:31:31 --> 00:31:36: the trends are continuing. After 2015, the conditions are even  
00:31:36 --> 00:31:39: hotter in summer. Next slide please.  
00:31:41 --> 00:31:43: So what I want to show you here is that  
00:31:43 --> 00:31:47: the exposure that's provided by the warming of the climate,  
00:31:47 --> 00:31:50: by the end of this century, we're going to see  
00:31:51 --> 00:31:54: summers in the northern hemisphere to last nearly half the  
00:31:54 --> 00:31:59: year. That's going to diminish the snowpack where forests  
grow  
00:31:59 --> 00:32:02: as a consequence of snow accumulation, and it's going to  
00:32:03 --> 00:32:06: cure out fuels earlier and longer during the season. So  
00:32:06 --> 00:32:10: we can expect a tripling or quadrupling of burned area  
00:32:10 --> 00:32:12: by the end of this century.  
00:32:12 --> 00:32:13: Next slide, please.  
00:32:14 --> 00:32:17: Here I want to show you in several states here  
00:32:17 --> 00:32:20: in the West how the high fire years are associated  
00:32:20 --> 00:32:24: with not enough water. That's the climatic water balance or  
00:32:24 --> 00:32:28: climatic water deficit. That's simply the difference between  
what vegetation  
00:32:29 --> 00:32:32: cover needs to grow and the amount that's available. You  
00:32:32 --> 00:32:35: can see low fire years in the left or where  
00:32:35 --> 00:32:38: there's plenty of water and the high fire years are  
00:32:38 --> 00:32:41: where there's simply not enough water and even the live  
00:32:41 --> 00:32:43: vegetation is curing out. Next slide.  
00:32:46 --> 00:32:49: All right, what does this mean? So on the left  
00:32:49 --> 00:32:52: map of the United States, I'm showing hazardous fuels and  
00:32:52 --> 00:32:55: the likelihood of containment. Hot colors.  
00:32:56 --> 00:32:59: High hazard potential, cool colors less so.  
00:32:59 --> 00:33:03: You can see the West really has a bullseye on  
00:33:03 --> 00:33:06: it on the right side. What does that mean when  
00:33:06 --> 00:33:09: fires escape? If in fact we have a poor likelihood  
00:33:09 --> 00:33:14: of containment, what is the consequence when these fires  
escape?  
00:33:14 --> 00:33:17: And this is the risks to home in percentile. So



00:33:17 --> 00:33:21: if you look at the the hottest colors, what you're  
00:33:21 --> 00:33:24: seeing is most of the risk to homes is living  
00:33:24 --> 00:33:28: in the West, some also high risk in Florida and  
00:33:28 --> 00:33:29: Texas and Oklahoma.  
00:33:30 --> 00:33:33: So the key ideas here are the worst wildfires in  
00:33:33 --> 00:33:36: the US are ahead of us. Fire suppression alone can't  
00:33:36 --> 00:33:40: solve this, and it won't protect us by itself. Next  
00:33:40 --> 00:33:41: slide, please.  
00:33:43 --> 00:33:47: Some key takeaways for forest landscapes I think it's  
important  
00:33:47 --> 00:33:52: for for folks to be advocates of promoting changes,  
improvements  
00:33:52 --> 00:33:57: in wildfire resilience in the landscapes that surround the  
wildland  
00:33:57 --> 00:33:58: urban interface.  
00:33:58 --> 00:34:02: Key things to promote are to recreate these diverse patterns  
00:34:03 --> 00:34:07: of forest age, density, composition at hardwoods back to the  
00:34:07 --> 00:34:12: forest, rebuild Pathworks, rebuild open and closed canopy  
forest mosaics  
00:34:12 --> 00:34:16: and promote these adaptation changes. Next slide please.  
00:34:18 --> 00:34:22: And built environments. Adopt the International Wooley code.  
All of  
00:34:22 --> 00:34:26: it. Those separate egress roads out of new developments are  
00:34:26 --> 00:34:30: really important. About 70% of all new housing starts in  
00:34:30 --> 00:34:34: the West are in high fire danger environments. This critical  
00:34:34 --> 00:34:38: maintaining defensible spaces. Go to Google Firewise to find  
out  
00:34:38 --> 00:34:43: what that means. In rural environments, maintaining the  
capacity to  
00:34:43 --> 00:34:47: douse fires, water storage tanks, hoses and pumps, build  
with  
00:34:47 --> 00:34:48: wood, we approved.  
00:34:48 --> 00:34:52: Building products again, Google Firewise for what that list  
looks  
00:34:52 --> 00:34:52: like.  
00:34:53 --> 00:34:57: Promote living in wood rather than smoke. Then out the  
00:34:57 --> 00:35:01: trees. Use those in mass timber products. Reduce the  
associated  
00:35:01 --> 00:35:05: smoke. Prescribe burning saves half to 90% of the smoke  
00:35:05 --> 00:35:10: over wildfires. Avoid developing in high fire danger.  
Environments build  
00:35:10 --> 00:35:11: up, not out.  
00:35:12 --> 00:35:16: Appropriate air filtration is going to be critical. Smoke going  
00:35:16 --> 00:35:19: to be with us, whether wild or prescribed fire, it's

00:35:19 --> 00:35:22: important to be able to live safely and work safely.

00:35:22 --> 00:35:26: And finally, emergency shelters and Emergency Management plans are going

00:35:26 --> 00:35:29: to be key for shut INS and folks who really

00:35:29 --> 00:35:32: don't have access to safe environments. Next slide, please.

00:35:34 --> 00:35:38: We have time tested methods to to create more resilient

00:35:38 --> 00:35:43: landscapes. They're listed here thinning and prescribed burning. An open

00:35:43 --> 00:35:47: canopy forest is a more fire safe forest. Prescribed burning

00:35:47 --> 00:35:51: is needed to maintain these treatments. It really reduces the

00:35:51 --> 00:35:55: smoke associated with wildfire smoke as I said by many

00:35:55 --> 00:35:59: times and that makes our communities more livable. Less period

00:36:00 --> 00:36:04: of smoke, less smoke overall using managed wildfires and Backcountry.

00:36:04 --> 00:36:07: This is away from urban areas. Allow them to do

00:36:07 --> 00:36:11: some of the thinning work that's necessary. Work at a

00:36:11 --> 00:36:14: fast pace on a large scale. This opportunity will have

00:36:14 --> 00:36:17: passed in the next couple of decades and then doing

00:36:17 --> 00:36:22: the maintenance work that's needed. This is an enduring transgenerational

00:36:22 --> 00:36:25: commitment. We need to do the work and pass on

00:36:25 --> 00:36:29: forests that are prepared for the next generation. And finally,

00:36:29 --> 00:36:33: these resilience treatments provide a green fiber source for mass

00:36:33 --> 00:36:35: timber products. It's an end to end.

00:36:35 --> 00:36:39: Scan for forest carbon storage and healthy living environments next

00:36:39 --> 00:36:40: slide, please.

00:36:42 --> 00:36:46: So you would ask why a research ecologist might white

00:36:46 --> 00:36:49: say why mass timber? And the reason is we have

00:36:50 --> 00:36:54: many interacting challenges that cross many spaces, large and severe

00:36:54 --> 00:36:59: wildfires like we've been talking about, extended droughts, insect and

00:36:59 --> 00:37:04: disease, which is creating increasing amounts of fuel. Communities are

00:37:04 --> 00:37:08: at risk, local economies are at risk. These issues cross

00:37:08 --> 00:37:13: many boundaries and the problems align with doing work across

00:37:13 --> 00:37:14: several spaces.

00:37:14 --> 00:37:16: That creates the corresponding benefits.

00:37:17 --> 00:37:22: It also provides more sustainable building materials. The thinning that

00:37:22 --> 00:37:26: is needed to make these forests more fire safe yields  
00:37:26 --> 00:37:30: tremendous wood and fiber assets to mass timber. Next slide  
00:37:30 --> 00:37:30: please.  
00:37:33 --> 00:37:37: The Forest Service is keenly interested in mass timber  
strategy  
00:37:37 --> 00:37:42: and investments. Over \$55 million have been invested so far  
00:37:42 --> 00:37:47: in education, technical assistance, development of research  
and codes and  
00:37:47 --> 00:37:52: other initiatives. I believe that Melissa and Lindsey can  
provide  
00:37:52 --> 00:37:57: resources if you're interested in diving deeper here, last slide  
00:37:57 --> 00:37:57: please.  
00:38:00 --> 00:38:03: I want to thank you for your time and attention.  
00:38:03 --> 00:38:07: Hopefully it makes sense that creating resilient landscapes  
surrounding our  
00:38:08 --> 00:38:12: communities is actually critical to making our communities  
more livable  
00:38:12 --> 00:38:15: and sustainable and healthy environments for living.  
00:38:18 --> 00:38:21: That's great. Thank you so much Paul and and and  
00:38:21 --> 00:38:24: before you Molly for setting this up and I think  
00:38:24 --> 00:38:28: having some rather sober motor motivation to what I'm going  
00:38:28 --> 00:38:28: to try and.  
00:38:29 --> 00:38:35: Discuss, because I think obviously in challenge there's  
always opportunity  
00:38:35 --> 00:38:39: and the the fun part about this thinking is to  
00:38:39 --> 00:38:43: be a protagonist and to think about what are viable  
00:38:43 --> 00:38:47: responses. And you know, Paul just did a very nice  
00:38:47 --> 00:38:50: job of laying out a number of them. I think  
00:38:50 --> 00:38:55: before I go into the details, it's helpful within the  
00:38:55 --> 00:38:59: real estate investors mindset within the developers tasks.  
00:39:00 --> 00:39:03: To keep a bit of an empathy towards the fact  
00:39:03 --> 00:39:07: that we have a responsibility, the chart on the left  
00:39:07 --> 00:39:11: in the green is noting that the built environment bears  
00:39:11 --> 00:39:15: a huge amount of responsibility with respect to emissions.  
And  
00:39:15 --> 00:39:19: on the right, it's sort of just motivating what Paul  
00:39:19 --> 00:39:22: did so well. But if we go to the next  
00:39:22 --> 00:39:25: slide, it is one of many economist cover stories, and  
00:39:26 --> 00:39:29: I use the Economist as sort of a barometer for.  
00:39:29 --> 00:39:34: The global mindset or what's of issue, as Molly noted,  
00:39:34 --> 00:39:38: a climate change is a risk magnifier. And of course  
00:39:38 --> 00:39:41: there's so many risks out there that some of my  
00:39:42 --> 00:39:46: friends I've noticed on that on this webinar today and

00:39:46 --> 00:39:50: others who have the daunting task to invest in a  
00:39:50 --> 00:39:55: fiduciary fiduciary in a responsible fiduciary sort of long term  
00:39:55 --> 00:40:00: stewardship way, invest the resources, the money if  
pensions.

00:40:00 --> 00:40:03: In the like, there's a lot of things to navigate  
00:40:03 --> 00:40:06: and so as the next slide shows.

00:40:07 --> 00:40:10: The issues of wildfire and how it can impact society,  
00:40:10 --> 00:40:13: they're both local in terms of, like a lot of  
00:40:14 --> 00:40:18: people know, people who have been impacted. It's not  
ethereal

00:40:18 --> 00:40:22: and it's visually stunning. It plays really well on the  
00:40:22 --> 00:40:23: Evening News.

00:40:23 --> 00:40:26: But it's one of many in a context of real  
00:40:26 --> 00:40:28: challenges that confront.

00:40:29 --> 00:40:32: Where and how we build the assets and the investments  
00:40:32 --> 00:40:36: that we're thinking into the future about because as the  
00:40:36 --> 00:40:37: next slide shows.

00:40:38 --> 00:40:40: The consequences that Paul laid out.

00:40:41 --> 00:40:44: Are essentially creating a lot of feedstock, not a lot,  
00:40:44 --> 00:40:47: but some of the feedstock on the left that can  
00:40:48 --> 00:40:51: go to become on the right a beautiful home. And  
00:40:51 --> 00:40:54: in this case this literally these logs on the left  
00:40:54 --> 00:40:57: from Southern Oregon are the CLT on the right that  
00:40:57 --> 00:41:00: you see in one of my recent mass timber home  
00:41:00 --> 00:41:04: developments, the subdivision in in Portland OR.

00:41:04 --> 00:41:08: And so maybe there's some good that's coming out of  
00:41:08 --> 00:41:13: this challenge that can motivate us because the next slide  
00:41:13 --> 00:41:16: is to remind us that there's no free lunch in  
00:41:16 --> 00:41:20: this world, right. The Economist in me is is always  
00:41:20 --> 00:41:25: needing to say this because if we're trying to consume  
00:41:25 --> 00:41:29: more responsibly from our EV vehicles, you can see two  
00:41:29 --> 00:41:33: of them here parked inside of a mass timber garage.

00:41:34 --> 00:41:37: And if we're trying to build new homes, as Molly  
00:41:37 --> 00:41:41: said, we're probably going to have a substantial amount of  
00:41:42 --> 00:41:46: climate driven migration. So the let's build less, IE let's  
00:41:46 --> 00:41:50: consume less housing is probably not a realistic scenario  
when

00:41:50 --> 00:41:54: we have substantial movement of peoples we're going to  
either

00:41:54 --> 00:41:55: be.

00:41:55 --> 00:41:59: Using our forests or we're going to be using our  
00:41:59 --> 00:42:02: minds. This is literally a picture of the whole rust  
00:42:02 --> 00:42:06: Mahoning mine in northern Minnesota, where my family is

from,  
00:42:06 --> 00:42:10: where I'm born and raised in Minnesota. So there isn't.  
00:42:11 --> 00:42:15: An option where there is no difficult decisions to be  
00:42:15 --> 00:42:19: made. They're all hard decisions. And I do think that  
00:42:19 --> 00:42:23: the response that mass timber provides and we can go  
00:42:23 --> 00:42:28: to the next slide is a comparatively reasonable response.  
This  
00:42:28 --> 00:42:32: comes from the observation that's shown on the right.  
00:42:33 --> 00:42:39: From the journal Nature that's illustrating how wood timber  
both  
00:42:39 --> 00:42:45: stores carbon. It's sequesters it but also probably emits less  
00:42:45 --> 00:42:50: than our other main structural materials that are steel and  
00:42:50 --> 00:42:55: cement, concrete being being made from cement and steel.  
00:42:56 --> 00:43:00: This is by weight and so different buildings will use  
00:43:00 --> 00:43:04: different proportions of these three elements. I'm never  
expecting or  
00:43:05 --> 00:43:08: going to be arguing that mass timber in a pure  
00:43:08 --> 00:43:11: way is the right way because steel and concrete do  
00:43:11 --> 00:43:16: phenomenal things. But I do believe a more thoughtful hybrid  
00:43:16 --> 00:43:20: mix as we're building our homes, our office buildings,  
whatever,  
00:43:20 --> 00:43:24: into the future is a viable and interesting response to  
00:43:24 --> 00:43:26: the challenges that we face.  
00:43:26 --> 00:43:27: Because.  
00:43:28 --> 00:43:30: New buildings. Let's assume they'll be built.  
00:43:31 --> 00:43:34: They need to satisfy not just one, but multiple stakeholders.  
00:43:34 --> 00:43:37: If you're an occupant, you simply want something that's  
beautiful,  
00:43:37 --> 00:43:40: fair enough, and you want to have an enjoyable experience.  
00:43:40 --> 00:43:43: But you're also interested increasingly, and I think more and  
00:43:43 --> 00:43:47: more will be what's the social, responsible, healthy option as  
00:43:47 --> 00:43:47: an occupant.  
00:43:48 --> 00:43:52: I think if you're an investor, you're also having different  
00:43:52 --> 00:43:55: pressures to put money in the direction of ESG values.  
00:43:55 --> 00:43:58: But at the same time, you need to also be  
00:43:58 --> 00:44:03: looking for lower volatility, differentiated cash flows,  
especially given the  
00:44:03 --> 00:44:07: tumult that we are seeing and that the initial economist  
00:44:07 --> 00:44:10: slides remind us of are going to be with us  
00:44:10 --> 00:44:13: and they're probably going to be increasing. So with the  
00:44:13 --> 00:44:14: next slide.  
00:44:15 --> 00:44:20: We are going into the business case studies.  
00:44:21 --> 00:44:24: That take these broader ideas and look at it on

00:44:24 --> 00:44:29: the individual asset level. Credit goes to woodworks for funding

00:44:29 --> 00:44:33: this multi year study where we are authoring just like

00:44:33 --> 00:44:38: you would in Business School case studies that look at

00:44:38 --> 00:44:42: the multitude of apartment buildings be they high rise, mid

00:44:42 --> 00:44:46: rise or normal Type 5 office buildings big and small,

00:44:46 --> 00:44:50: but they're really and the next slide shows this there

00:44:51 --> 00:44:51: really all.

00:44:51 --> 00:44:56: Examples of what we would call sort of normal development,

00:44:56 --> 00:45:01: the 90% of the capitalism market out there that's producing

00:45:01 --> 00:45:06: the built environment. There's a lot of government projects, there's

00:45:07 --> 00:45:11: a lot of higher Ed projects, maybe nonprofit or foundation

00:45:11 --> 00:45:15: kind of 1 off passion projects. But of course this

00:45:15 --> 00:45:20: scale of change is coming from the standard development

00:45:20 --> 00:45:22: world

00:45:20 --> 00:45:22: and there's so.

00:45:22 --> 00:45:25: That is to say, we need to, as we're studying

00:45:25 --> 00:45:29: replicable and scalable examples, we need to be paying

00:45:29 --> 00:45:32: attention

00:45:29 --> 00:45:32: to what we're studying. The scale of the project, the

00:45:32 --> 00:45:35: impetus for it, the location of it, its asset class

00:45:35 --> 00:45:39: does it neatly in normally fit and the sponsor, for

00:45:39 --> 00:45:42: example, is the sponsor doing the project, the developer, the

00:45:43 --> 00:45:47: protagonist, knowledgeable? Do they have had they

00:45:47 --> 00:45:51: considered other options,

00:45:47 --> 00:45:51: the traditional options, and why did they opt in to

00:45:51 --> 00:45:52: do a mass timber?

00:45:52 --> 00:45:56: Project O, that's the study methodology that is hopefully well

00:45:56 --> 00:46:00: founded and with the next slide helps us go into

00:46:00 --> 00:46:04: an example here. This is a San Francisco well respected

00:46:04 --> 00:46:08: San Francisco developer that's done an office building in a

00:46:08 --> 00:46:13: great location. This is called the one deharo office project.

00:46:13 --> 00:46:16: The next slide shows how we look at the project

00:46:16 --> 00:46:20: team. They are name brand normal well recognized teams.

00:46:21 --> 00:46:22: This

00:46:21 --> 00:46:22: is helpful because.

00:46:22 --> 00:46:25: We know that they know what they're doing and they

00:46:25 --> 00:46:29: wouldn't have done something silly. The next project, the

00:46:29 --> 00:46:32: next

00:46:29 --> 00:46:32: slide gives us a sense of the project itself, some

00:46:33 --> 00:46:35: of the details. I'm not going to spend time on

00:46:36 --> 00:46:39: the project, but I'm just giving you a sense of

00:46:39 --> 00:46:43: what each individual case studies content contains. The next

slide

00:46:43 --> 00:46:47: will show you the quantitative details. As Melissa mentioned, this

00:46:47 --> 00:46:51: is not easy to necessarily convince developers, investors to share,

00:46:52 --> 00:46:53: but we are genuinely.

00:46:53 --> 00:46:57: Looking at an asset individually in the context of its

00:46:57 --> 00:47:00: sub market and its asset class to say what was

00:47:00 --> 00:47:05: the market return that should have been generally expected and

00:47:05 --> 00:47:09: then what did this projects Performa IE what was it

00:47:09 --> 00:47:13: thinking it would achieve and then what did it achieve?

00:47:13 --> 00:47:16: Because at the end of the day a project that

00:47:16 --> 00:47:19: cost twice as much and has a whole return is

00:47:20 --> 00:47:23: not going to be a scalable or replicable project.

00:47:23 --> 00:47:28: It will attract the volume of changed mindsets that we're

00:47:28 --> 00:47:31: hoping could be in the future. So we can respond

00:47:31 --> 00:47:36: to what Molly and Paul have been well describing. The

00:47:36 --> 00:47:41: next slide gives the qualitative learnings, not just quantitative learnings.

00:47:42 --> 00:47:46: And we're able to from the quantitative and qualitative in

00:47:46 --> 00:47:49: the next slide sort of discern what.

00:47:51 --> 00:47:54: Learnings we can from these projects, I will say that

00:47:54 --> 00:47:58: our analysis is generally framed by a very traditional sort

00:47:58 --> 00:47:59: of.

00:47:59 --> 00:48:02: Real Estate 101 mindset which is the net income in

00:48:02 --> 00:48:06: the numerator, the costs in the denominator and or the

00:48:06 --> 00:48:09: purchase price like what is the value. These are three

00:48:09 --> 00:48:13: things, cost, purchase price value depending on your perspective and

00:48:13 --> 00:48:17: what seat you're sitting in that are the denominator and

00:48:17 --> 00:48:21: then the return often called the cap rate depending again

00:48:21 --> 00:48:24: which seat you're sitting on. That's the basic measure that

00:48:24 --> 00:48:27: we're trying to make sure we we sort of look

00:48:27 --> 00:48:28: at all of this.

00:48:29 --> 00:48:32: In that context, so going into learnings in the next

00:48:32 --> 00:48:35: slide from the dozen that we've been able to deeply

00:48:35 --> 00:48:40: study both quantitatively and qualitatively looking at the project, talking

00:48:40 --> 00:48:44: to multiple sources on the project team, talking to informed

00:48:44 --> 00:48:47: participants in each sub market. So we are trying our

00:48:47 --> 00:48:50: best to make sure we're getting the real scoop at

00:48:50 --> 00:48:53: the asset level and at the submarket level what we're

00:48:54 --> 00:48:54: seeing.

00:48:55 --> 00:48:58: In some ways it's dumb simple, but we don't know

00:48:58 --> 00:49:01: until we know. Which is to say, these things are

00:49:01 --> 00:49:05: leasing up fast, which is awesome. That's a hugely important

00:49:05 --> 00:49:10: thing and these things are attracting really high quality

00:49:10 --> 00:49:11: tenants

00:49:10 --> 00:49:11: if you're in the office.

00:49:12 --> 00:49:16: Asset class, they're attracting absolutely who you want in

00:49:16 --> 00:49:20: terms

00:49:16 --> 00:49:20: of a credit tenant. If you're in the apartment, you're

00:49:20 --> 00:49:24: getting outstanding, qualified residents excited to move in.

00:49:25 --> 00:49:28: If with, with, with respect to the lease up, the

00:49:29 --> 00:49:33: apartments are phenomenally having phenomenal absorption

00:49:35 --> 00:49:38: rates.

00:49:35 --> 00:49:38: And then with the office buildings we're seeing tremendous

00:49:38 --> 00:49:42: pre

00:49:38 --> 00:49:42: leasing which is so huge that the tenant improvements and

00:49:42 --> 00:49:45: the and and that can happen while the building is

00:49:45 --> 00:49:48: being constructed. And so when the building's done it's not

00:49:48 --> 00:49:52: empty but it's literally got seats on seats doing things

00:49:52 --> 00:49:55: in that building. These are the two key trends irrespective

00:49:55 --> 00:49:59: of office or multifamily that we're seeing mass timber

00:49:59 --> 00:50:04: buildings

00:49:59 --> 00:50:04: sharing other buildings, other individual assets have

00:50:04 --> 00:50:06: interesting storylines of

00:50:04 --> 00:50:06: outstanding rents or of.

00:50:06 --> 00:50:10: Actually saved costs, but what we see universally are these

00:50:10 --> 00:50:14: two trends. The next slide will go into specific to

00:50:14 --> 00:50:17: multifamily a little bit deeper we're seeing.

00:50:18 --> 00:50:18: That.

00:50:19 --> 00:50:23: Basically everyone loves the the look and feel of it

00:50:23 --> 00:50:27: and if you of course can broaden your target market

00:50:27 --> 00:50:32: that helps you irrespective of everything else. I mentioned the

00:50:32 --> 00:50:36: pre leasing and you can see here that pre leasing

00:50:36 --> 00:50:40: translates to lower costs in certain ways and what is

00:50:40 --> 00:50:43: also of interest I think and again this is a

00:50:43 --> 00:50:45: bit of a prognostication but.

00:50:46 --> 00:50:49: These things, when you wake up in the morning and

00:50:49 --> 00:50:51: you walk out, you know you're in a different home.

00:50:52 --> 00:50:54: You're not in the standard multifamily home.

00:50:55 --> 00:50:58: And there's a distinction with that, that when the next

00:50:58 --> 00:51:01: thing gets built right next door has a bit of

00:51:01 --> 00:51:02: a durability.



00:51:03 --> 00:51:06: Against future supply. So if you're an investor, your asset  
00:51:06 --> 00:51:09: that might be 10 years old continues to sort of  
00:51:09 --> 00:51:12: have some distinction and stand apart. That's hard to do  
00:51:12 --> 00:51:15: and that's awesome to have if you're holding an asset  
00:51:15 --> 00:51:18: for a longer term. The final thing that I think  
00:51:18 --> 00:51:21: is really helpful and increasingly important is it's really a  
00:51:21 --> 00:51:24: tangible example of the brand values. So I can't tell  
00:51:24 --> 00:51:27: you how many times I go into development deals and  
00:51:27 --> 00:51:30: they call themselves like ecovillage and they look, smell and  
00:51:30 --> 00:51:33: act exactly like the standard run-of-the-mill.  
00:51:33 --> 00:51:33: Project.  
00:51:34 --> 00:51:37: And that sort of greenwashing is I think something we  
00:51:37 --> 00:51:40: all have seen and and and don't really like. In  
00:51:40 --> 00:51:43: this case, it's a very concrete way of aligning an  
00:51:43 --> 00:51:47: asset, an investment and new development with the brand  
that  
00:51:47 --> 00:51:50: is increasingly being sought by members of society.  
00:51:52 --> 00:51:55: On the next slide, the office market is in some  
00:51:55 --> 00:52:00: ways similar, but there's some important distinctions because  
in the  
00:52:00 --> 00:52:04: second bullet point, you'll see here that if you're an,  
00:52:04 --> 00:52:08: if you're a firm operating in society today, you're being  
00:52:08 --> 00:52:13: asked by different stakeholders what you're doing, for  
example, to  
00:52:13 --> 00:52:17: attract and retain great talent. So if you deliver them  
00:52:17 --> 00:52:21: this better space, that's a comparative advantage that you  
can  
00:52:21 --> 00:52:22: demonstrate.  
00:52:22 --> 00:52:26: Uh, to your ownership, to your stockholders that you are  
00:52:26 --> 00:52:31: taking action towards ensuring you've got the best talent from  
00:52:31 --> 00:52:35: the regulatory side, IE the local governments. We all know  
00:52:35 --> 00:52:39: that some firms are favored and they're the good guys  
00:52:39 --> 00:52:41: and some firms are seen not as this is a  
00:52:41 --> 00:52:43: way that I believe.  
00:52:44 --> 00:52:48: Firms can be showing the regulatory side how they are  
00:52:48 --> 00:52:52: trying to behave as a business, as a member of  
00:52:52 --> 00:52:58: society. I think these are important and increasingly  
challenging questions  
00:52:58 --> 00:52:59: for CEO's to to navigate.  
00:53:00 --> 00:53:04: And of course we're also seeing, I want to highlight  
00:53:04 --> 00:53:07: the very bottom if you're an office owner, it's a  
00:53:07 --> 00:53:11: hard market right now and what we've seen is tremendous  
00:53:11 --> 00:53:15: sub leasing and or these buildings staying occupied even

during  
00:53:15 --> 00:53:19: this COVID disruption and this sort of work from home  
00:53:19 --> 00:53:23: shift that again it's too early to make strong conclusions  
00:53:23 --> 00:53:26: of, but that is worth its weight in gold. So  
00:53:26 --> 00:53:30: that's an important observation. Let's go one more slide here.  
00:53:30 --> 00:53:34: I believe yes. And so I believe we're inviting you  
00:53:34 --> 00:53:37: to learn more. This is these are a sample of  
00:53:37 --> 00:53:41: the projects that we've been able to complete. We're working  
00:53:41 --> 00:53:44: on more and excited to release those. Soon this QR  
00:53:44 --> 00:53:47: code will pause and you can take a picture with  
00:53:47 --> 00:53:51: your phone to to link right there. And with this,  
00:53:51 --> 00:53:53: we can go to the next slide and go to  
00:53:53 --> 00:53:57: Q&A if I'm understanding it correctly, which I think.  
00:53:58 --> 00:53:58: Might be Melissa.  
00:54:00 --> 00:54:02: Yes, we're going to go to Q&A now and if  
00:54:03 --> 00:54:06: all of the speakers can please turn their videos back  
00:54:06 --> 00:54:10: on. And I also want to mention that this webinar  
00:54:10 --> 00:54:13: will be recorded and a copy of the slides will  
00:54:13 --> 00:54:17: be available on ULI Knowledge Finder and about two weeks,  
00:54:17 --> 00:54:20: along with a PDF and a list of resources on  
00:54:20 --> 00:54:22: wildfires and mass timber.  
00:54:23 --> 00:54:26: And and we only have a few minutes here for  
00:54:26 --> 00:54:29: questions, so I'm going to jump right into questions. The  
00:54:29 --> 00:54:33: first question is from Molly. Molly, as a real estate  
00:54:33 --> 00:54:37: developer, you've explored mass timber for some of your  
projects.  
00:54:37 --> 00:54:40: Can you share with us some of the challenges that  
00:54:40 --> 00:54:43: you faced in pursuing mass timber and in an area  
00:54:43 --> 00:54:46: where you'd be one of the first developers?  
00:54:47 --> 00:54:47: To do so.  
00:54:48 --> 00:54:51: Yes, I can and we would definitely be the I  
00:54:51 --> 00:54:55: I actually am working on a project currently in Montana  
00:54:55 --> 00:54:58: and we would be the first one in the market  
00:54:58 --> 00:55:00: and so some of the challenges are a.  
00:55:01 --> 00:55:04: Contractors who are not familiar with it and so therefore  
00:55:04 --> 00:55:07: their ability to sort of figure out how to make  
00:55:07 --> 00:55:10: it happen and how to price it. In Montana in  
00:55:10 --> 00:55:13: particular as it relates to the building codes, we did  
00:55:13 --> 00:55:16: not, we just approved the most current building codes but  
00:55:16 --> 00:55:19: we skipped the last one and So what by skipping  
00:55:19 --> 00:55:22: the last one we sort of missed out in that  
00:55:22 --> 00:55:25: you know preparation and understanding of of some of the

00:55:25 --> 00:55:28: mass timber things that are showing up in the building  
00:55:28 --> 00:55:31: code. So we're kind of playing catch up so I  
00:55:31 --> 00:55:31: think.  
00:55:31 --> 00:55:34: Those are, those are particular as it relates to some  
00:55:34 --> 00:55:37: of the things that Noel said. You know we don't  
00:55:37 --> 00:55:40: know whether or not we will get higher rents or  
00:55:40 --> 00:55:43: better you know any of those things because it's just  
00:55:43 --> 00:55:47: we don't necessarily have what I would call credit tenants  
00:55:47 --> 00:55:49: so to speak in our market. We believe that those  
00:55:50 --> 00:55:52: are the cases and we have a lot of excitement  
00:55:52 --> 00:55:56: around it, but that's definitely been one of the challenges  
00:55:56 --> 00:55:59: from our perspective of getting it adopted here.  
00:56:00 --> 00:56:04: And no, would you like to offer some advice following  
00:56:04 --> 00:56:07: up on that for developers who are in markets where  
00:56:07 --> 00:56:10: they might be the first in mass timber?  
00:56:11 --> 00:56:13: Yeah, I think the simple advice I've always given is  
00:56:13 --> 00:56:16: ensure that you're working with a team that is less.  
00:56:16 --> 00:56:19: It's not necessarily the experience, but it's the mindset, right?  
00:56:20 --> 00:56:22: Are you going to roll your sleeves up, not assume  
00:56:22 --> 00:56:25: and do some hard work, right? Doing something new and  
00:56:25 --> 00:56:28: being the protagonist is going to be a challenge. And  
00:56:28 --> 00:56:31: so if you surround yourself with sort of committed persons  
00:56:31 --> 00:56:33: that are really from the architect of the engineer to  
00:56:34 --> 00:56:36: the contractor to trying to find the persons in your,  
00:56:36 --> 00:56:40: in your, in your permitting departments, whether it's building  
code  
00:56:40 --> 00:56:40: or land use.  
00:56:41 --> 00:56:43: That are going to work hard on this idea. That's  
00:56:43 --> 00:56:45: the 1st and most important step I'd suggest.  
00:56:47 --> 00:56:50: And I'll just add to that that woodworks, we've also  
00:56:50 --> 00:56:54: expanded our audience to general contractors being small  
and many  
00:56:55 --> 00:56:59: face the same problem as you finding experience builders  
and  
00:56:59 --> 00:57:03: we're always there with our project assistance to help  
navigate  
00:57:03 --> 00:57:05: new territory and educate entire teams.  
00:57:07 --> 00:57:09: And Paul, the next question is for you.  
00:57:10 --> 00:57:13: And the US, you've told me that you know, our  
00:57:13 --> 00:57:17: the public perception of the US Forest Service has has  
00:57:17 --> 00:57:20: been in the past to suppress fires. But what we  
00:57:20 --> 00:57:23: heard from you today is that we're not going to.  
00:57:23 --> 00:57:27: Battle these mega files fires with fire suppression. So if

00:57:27 --> 00:57:30: you could please paint a picture for us of what  
00:57:30 --> 00:57:34: the future of the forest ServiceNow looks like or should  
00:57:34 --> 00:57:35: look like.  
00:57:37 --> 00:57:42: So it's a great question. Going forward, the Forest Service  
00:57:42 --> 00:57:47: and other state organizations are going to continue to  
suppress  
00:57:47 --> 00:57:49: fires with their best resources.  
00:57:50 --> 00:57:54: My point really is that resource availability is always going  
00:57:54 --> 00:57:57: to be lacking and so a multi tool toolkit is  
00:57:57 --> 00:58:01: going to be necessary to to essentially exceed the pace  
00:58:01 --> 00:58:04: and scaling of wildfires, changing the landscape. And I I  
00:58:04 --> 00:58:08: talked about some of those additional tools. But if you  
00:58:08 --> 00:58:12: stop and think about it, just doing a reactive trying  
00:58:12 --> 00:58:15: to suppress fires isn't getting the job done and it's  
00:58:15 --> 00:58:18: also not leaving for us in a condition we want  
00:58:18 --> 00:58:21: them and so a lot of different tools are going  
00:58:21 --> 00:58:22: to be required.  
00:58:22 --> 00:58:26: But obviously there's no position where fire suppression will  
will  
00:58:26 --> 00:58:29: stop happening. It just can't get the job done by  
00:58:29 --> 00:58:30: itself.  
00:58:32 --> 00:58:33: Right and.  
00:58:35 --> 00:58:39: I wanted to share with you in closing just a  
00:58:39 --> 00:58:44: few kind of misconceptions, common misconceptions in the  
industry that  
00:58:45 --> 00:58:49: that I think are speakers really did a fantastic job  
00:58:49 --> 00:58:53: of addressing today and I just want to reinforce them  
00:58:53 --> 00:58:58: and leave you all with a few final thoughts. Wildfires  
00:58:58 --> 00:59:03: impact both urban and rural development and a variety of  
00:59:03 --> 00:59:05: different ranges that.  
00:59:05 --> 00:59:09: Molly pointed out. From our municipal water supply to energy  
00:59:09 --> 00:59:12: infrastructure, air quality and beyond.  
00:59:13 --> 00:59:16: And we heard Paul talk about the need to restore  
00:59:16 --> 00:59:20: patchwork force and it's a common misconception that the  
easy  
00:59:20 --> 00:59:24: button for sustainability is to plant more trees. But in  
00:59:24 --> 00:59:28: our forests in North America, we actually need to work  
00:59:28 --> 00:59:33: towards restoring through the patchwork through prescriptive  
burning and also  
00:59:33 --> 00:59:38: creating value creating demand for high value forest products  
like  
00:59:38 --> 00:59:42: mass timber, which can create an economic rationale for  
helping  
00:59:42 --> 00:59:43: to thinner.

00:59:43 --> 00:59:47: Of course, I think the one of the former Cal  
00:59:47 --> 00:59:53: Fire chiefs, Ken Pimlott, said it best with the extreme  
00:59:53 --> 00:59:58: catastrophic wildfires ahead of us. We need every tool in  
00:59:58 --> 01:00:00: our tool belt and.  
01:00:01 --> 01:00:04: Paul shared Paul, Molly shared quite a few of them  
01:00:04 --> 01:00:07: with you today and we've also included some other  
resources  
01:00:07 --> 01:00:10: that you I's resilience team has on those.  
01:00:11 --> 01:00:15: And lastly, a lot of developers have the tendency to  
01:00:15 --> 01:00:18: think when they come to us with mass timber, their  
01:00:18 --> 01:00:21: first question is what does it cost and if it's  
01:00:21 --> 01:00:24: not cheaper, I'm not going to build it. And our  
01:00:24 --> 01:00:29: business case studies that we've talked about today, mass  
timber  
01:00:29 --> 01:00:32: is consistently a slight premium. And I hope that you  
01:00:32 --> 01:00:36: have all learned that there are other ways to contribute  
01:00:36 --> 01:00:40: value and contribute to the financial bottom line as well  
01:00:40 --> 01:00:42: as stakeholder and investor.  
01:00:42 --> 01:00:42: Desires.  
01:00:44 --> 01:00:46: Even though it might be a slight premium.  
01:00:46 --> 01:00:47: And.  
01:00:48 --> 01:00:51: We are out of time, but I would like to  
01:00:51 --> 01:00:54: invite you all to continue say thank you all of  
01:00:54 --> 01:00:57: you for joining us today and invite you to continue  
01:00:57 --> 01:00:59: the resilience conversation.  
01:00:59 --> 01:00:59: At.  
01:01:00 --> 01:01:03: The 4th annual Resilience Summit, which will be held in  
01:01:03 --> 01:01:06: conjunction with the UL I spring meeting and Toronto and  
01:01:06 --> 01:01:10: you have all of our e-mail addresses. Please feel free  
01:01:10 --> 01:01:13: to reach out with any questions and thank you again.

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