Webinar

ULI Houston Resilient Land Use Cohort Technical Assistance Panel Presentation

Date: May 27, 2021

00:00:09 --> 00:00:09: Good
00:00:09 --> 00:00:12: afternoon ladies and gentlemen, my name is David Kim.
00:00:12 --> 00:00:16: I'm the executive director of Urban Land Institute Houston.
00:00:16 --> 00:00:19: Thank you for joining our public presentation.
00:00:19 --> 00:00:21: By our technical assistance panel,
00:00:21 --> 00:00:24: that would be discussing extreme heat and extreme heat mitigation.
00:00:24 --> 00:00:27: We are partly the resilient land use cohort here at
00:00:27 --> 00:00:28: ULI.
00:00:28 --> 00:00:31: I'll explain more about that in just a minute,
00:00:31 --> 00:00:33: but before we before we go any further,
00:00:33 --> 00:00:36: I want to hand over the Mike virtually to our
00:00:36 --> 00:00:40: sponsor at the City of Houston in Chief Resilience Officer
00:00:40 --> 00:00:41: Marissa Aho,
00:00:41 --> 00:00:43: Marissa take it away. Thank you so much.
00:00:43 --> 00:00:44: Thank
00:00:44 --> 00:00:46: you for having us thank you,
00:00:46 --> 00:00:48: David. I wanted to thank you all.
00:00:48 --> 00:00:51: I Buffalo Bayou partnership. And everyone who was involved in
00:00:51 --> 00:00:54: putting this technical assistance panel together.
00:00:54 --> 00:00:56: I want to thank the TAP,
00:00:56 --> 00:01:00: panelists and all of the subject matter experts for their
00:01:00 --> 00:01:04: time and talent and contributing to this so critical work
00:01:04 --> 00:01:07: as we approach another summer in Houston,
00:01:07 --> 00:01:09: we are mentally, if not physically,
00:01:09 --> 00:01:13: preparing for the heat. And when I got to Houston
00:01:14 --> 00:01:15: a few years ago,
00:01:15 --> 00:01:19: I want I was warned about the summer heat and
00:01:19 --> 00:01:20: quickly asked.

00:01:20 --> 00:01:23: About about where the data was last year.
00:01:23 --> 00:01:25: Working with some amazing partners,
00:01:25 --> 00:01:29: we were able to get more data on urban heat
00:01:29 --> 00:01:33: islands as well as a number of heat indicators that
00:01:33 --> 00:01:37: we analyzed in our climate impact assessment,
00:01:37 --> 00:01:39: which looks out to 2100.
00:01:39 --> 00:01:43: We learned that the average August afternoon there is a
00:01:43 --> 00:01:48: 17 degree temperature difference between our coolest and hottest neighborhoods.
00:01:48 --> 00:01:50: We also learned that Houston.
00:01:50 --> 00:01:54: Summers are going to be longer are heat waves are
00:01:54 --> 00:01:58: going to be longer the days above 100 degrees are
00:01:58 --> 00:02:02: going to increase the nights above 80 degrees are going
00:02:02 --> 00:02:07: to increase. These factors impact our health and our well
00:02:07 --> 00:02:07: being.
00:02:07 --> 00:02:10: Our energy use. How we travel.
00:02:10 --> 00:02:15: If we have travel choices and ultimately our personal finances
00:02:15 --> 00:02:17: and our regional economy.
00:02:17 --> 00:02:21: And are most vulnerable. People in places are disproportionately affected,
00:02:21 --> 00:02:25: as they may not have the ability access or means
00:02:25 --> 00:02:29: to beat the heat and stay safe and healthy on
00:02:29 --> 00:02:30: high heat days.
00:02:30 --> 00:02:34: I remember getting to go to the movies a very
00:02:34 --> 00:02:36: rare occasion in my youth,
00:02:36 --> 00:02:40: for a discounted matinees on really hot days growing up
00:02:40 --> 00:02:44: because the apartment I lived in with my mom didn't
00:02:44 --> 00:02:48: have air conditioning and I'm sure that that was a
00:02:48 --> 00:02:51: difficult financial choice for her to make,
00:02:51 --> 00:02:55: but it also made a really lovely memory for me
00:02:55 --> 00:02:59: on how we had to avoid being being in a
00:02:59 --> 00:03:00: really hot place.
00:03:00 --> 00:03:02: That was unhealthy for us.
00:03:02 --> 00:03:06: Extreme Heat is a silent killer.
00:03:06 --> 00:03:09: Leading to more US deaths each year than all other
00:03:09 --> 00:03:11: natural disasters combined.
00:03:11 --> 00:03:14: And I think sometimes we don't.
00:03:14 --> 00:03:19: We don't, we don't. Prioritize that as much as we
00:03:19 --> 00:03:20: should.
00:03:20 --> 00:03:21: Uh, we everyone
00:03:21 --> 00:03:22: needs to
00:03:22 --> 00:03:23: do more to

00:03:23 --> 00:03:28: prepare for what is very accurately described as a slow
00:03:28 --> 00:03:29: moving disaster.
00:03:29 --> 00:03:32: That is why I was so very excited to see
00:03:32 --> 00:03:34: you allies scorched.
00:03:34 --> 00:03:38: Report focused on extreme heat and and real estate that
00:03:38 --> 00:03:40: was released in 2019.
00:03:40 --> 00:03:44: The built environment can play a major role in either
00:03:44 --> 00:03:48: exacerbating our heat related challenges or mitigating them.
00:03:48 --> 00:03:51: One of the hurdles that we face is that we
00:03:51 --> 00:03:55: don't have unlimited resources to address these challenges,
00:03:55 --> 00:03:58: so we need to find solutions that are achievable and
00:03:58 --> 00:04:02: scalable and we need to reach a tipping point where
00:04:02 --> 00:04:06: nature based solutions in Houston are the norm and not
00:04:06 --> 00:04:11: the exception. So in addition to clearly articulating the risk,
00:04:11 --> 00:04:15: we also need to clearly articulate articulate the benefits of
00:04:15 --> 00:04:18: adapting and mitigating to heat.
00:04:18 --> 00:04:22: I am so very appreciative of being able to partner
00:04:22 --> 00:04:26: with you ally and advance this critical work and to
00:04:26 --> 00:04:30: highlight what more we can do to prepare this region
00:04:30 --> 00:04:35: to be climate ready for this slow moving disaster of
00:04:35 --> 00:04:37: urban and extreme heat.
00:04:37 --> 00:04:38: Thank you very
00:04:38 --> 00:04:41: much. Marissa,
00:04:41 --> 00:04:43: thank you for sharing your personal story.
00:04:43 --> 00:04:46: Thank you for sharing what has motivated you to pick
00:04:46 --> 00:04:46: us.
00:04:46 --> 00:04:49: Important stand on this issue and we're grateful to partner
00:04:49 --> 00:04:52: with the city of Houston on taking advantage of our
00:04:52 --> 00:04:55: Members expertise to make some recommendations and some strategies and
00:04:55 --> 00:04:59: tactics that hopefully will help everyone figure out how important
00:04:59 --> 00:05:01: it is to work together in this issue.
00:05:01 --> 00:05:04: It's in our economic, moral and environment or self interest
00:05:04 --> 00:05:05: to work together on this.
00:05:05 --> 00:05:07: So for those who don't know,
00:05:07 --> 00:05:10: I wanted to spend a few seconds talking about urban
00:05:10 --> 00:05:10: land.
00:05:10 --> 00:05:12: Institute and resilient land use cohort.
00:05:12 --> 00:05:14: You will live a global,
00:05:14 --> 00:05:17: nonprofit, nonpartisan organization. We have over 45,000 members across the

00:05:17 --> 00:05:18: planet,

00:05:18 --> 00:05:21: over 800 in Houston. As you can see in this

00:05:21 --> 00:05:21: slide,

00:05:21 --> 00:05:23: we do a lot of things,

00:05:23 --> 00:05:27: including getting members together to volunteer their time and expertise

00:05:27 --> 00:05:30: to provide reports on how to address complicated land use,

00:05:30 --> 00:05:34: enroll state development issues such as extreme heat mitigation that

00:05:34 --> 00:05:37: Marissa asks us to do starting last year.

00:05:37 --> 00:05:40: So about the resilient land use cohort may be wondering

00:05:40 --> 00:05:42: what is the resilient land discord.

00:05:42 --> 00:05:45: Our luck, so our luck is located under one of

00:05:45 --> 00:05:47: the centers at Urban Land Institute,

00:05:47 --> 00:05:51: our Urban Resilience Center, and so the Urban Resilience Center

00:05:51 --> 00:05:54: again brings together both team members and members of ULI

00:05:54 --> 00:05:57: to look at how can we leverage our expertise to

00:05:57 --> 00:06:00: focus on addressing complicated land use and roll state issues,

00:06:00 --> 00:06:02: especially in dense urban areas.

00:06:02 --> 00:06:05: And one of the ways we do that is we

00:06:05 --> 00:06:07: can be in panels of members.

00:06:07 --> 00:06:10: To again address complicated real estate questions provide strategies and

00:06:10 --> 00:06:13: implementation and thought leadership so that way public sector,

00:06:13 --> 00:06:16: private sector nonprofit folks can get together and figure out.

00:06:16 --> 00:06:18: OK, so we know there's a problem.

00:06:18 --> 00:06:22: And how can we address it and what should each

00:06:22 --> 00:06:26: one of us do to get there and move the

00:06:26 --> 00:06:27: ball forward.

00:06:27 --> 00:06:30: So next slide please. So do resilient language cohort is

00:06:30 --> 00:06:33: part is a group of district councils across the United

00:06:33 --> 00:06:37: States and North America that are working together to provide

00:06:37 --> 00:06:39: technical assistance, advisory services and knowledge sharing.

00:06:39 --> 00:06:42: We're focused on climate change and other vulnerabilities across.

00:06:42 --> 00:06:45: As you can see, eight major cities in the United

00:06:45 --> 00:06:46: States.

00:06:46 --> 00:06:49: We are very fortunate to receive a very generous grant

00:06:49 --> 00:06:52: from JP Morgan Chase through the UI Foundation that has
00:06:52 --> 00:06:54: enabled us to gather these Members.
00:06:54 --> 00:06:57: Today, you're going to hear from all of them.
00:06:57 --> 00:07:00: Just a few minutes, I promise.
00:07:00 --> 00:07:03: OK, so let's go ahead and go on to again.
00:07:03 --> 00:07:05: Thank you JP Morgan Chase.
00:07:05 --> 00:07:07: Thank you, City of Houston and I especially want to
00:07:07 --> 00:07:08: thank our stakeholders.
00:07:08 --> 00:07:11: Our panel was very fortunate to interview over 30 individuals
00:07:11 --> 00:07:14: here and outside of Houston to get their candid feedback
00:07:14 --> 00:07:16: on Tuesday of this week online.
00:07:16 --> 00:07:19: One of the advantages of being on zoom life supposed
00:07:19 --> 00:07:22: to hear from these people and understand what people are
00:07:22 --> 00:07:23: thinking.
00:07:23 --> 00:07:25: What's important, how big an issue is heat mitigation in
00:07:25 --> 00:07:27: their neighborhoods and in the city?
00:07:27 --> 00:07:30: And why should it matter and what are some things
00:07:30 --> 00:07:32: we can do to deal with this issue?
00:07:32 --> 00:07:35: So again, thank you to all of our stakeholders from
00:07:35 --> 00:07:36: across the public sector,
00:07:36 --> 00:07:37: private sector, and nonprofit sector.
00:07:40 --> 00:07:42: I as last not least.
00:07:42 --> 00:07:45: I especially want to thank the panel of Members you're
00:07:45 --> 00:07:48: going to hear from all of them over the next
00:07:48 --> 00:07:49: 3545 minutes or so,
00:07:49 --> 00:07:51: and we have two amazing Co chairs,
00:07:51 --> 00:07:53: Dolly and Angela, and five other members.
00:07:53 --> 00:07:56: These folks live in work not only in Houston but
00:07:56 --> 00:07:58: outside of Houston as well,
00:07:58 --> 00:08:01: and we've been very fortunate since the beginning this week
00:08:01 --> 00:08:02: to work with these members.
00:08:02 --> 00:08:04: They volunteered their time and expertise.
00:08:04 --> 00:08:05: We're very grateful to them.
00:08:05 --> 00:08:08: Thank you for your leadership and thank you for your
00:08:08 --> 00:08:09: support.
00:08:09 --> 00:08:10: I also cannot lose this.
00:08:10 --> 00:08:13: Opportunity to acknowledge our amazing team here at ULI Misty
00:08:13 --> 00:08:13: lock,
00:08:13 --> 00:08:15: Elizabeth Foster and Kelly Enis,
00:08:15 --> 00:08:17: who's been involved spending a lot of time on zoom
00:08:17 --> 00:08:20: with our panels and stakeholders to figure out how we

00:08:20 --> 00:08:22: can move the ball forward on this issue.
00:08:25 --> 00:08:28: So without further ado, I'm going to hand this off
00:08:28 --> 00:08:29: to Angela Cotey at Gilbane,
00:08:29 --> 00:08:32: who's going to help set the stage and then short
00:08:32 --> 00:08:35: handed off to other panelists who's going to share some
00:08:35 --> 00:08:38: expertise and some faucet had gathered over the past 48
00:08:38 --> 00:08:39: plus hours. Thank you. Angela Daley,
00:08:39 --> 00:08:41: and everybody else is doing this.
00:08:41 --> 00:08:42: We really do appreciate it.
00:08:44 --> 00:08:46: Great, thank you very much David.
00:08:46 --> 00:08:49: Let's dive right in 'cause there is a lot of
00:08:49 --> 00:08:53: great information and this amazing panel has come up with
00:08:53 --> 00:08:54: some fabulous stuff.
00:08:54 --> 00:08:58: So there were. Two basic themes from what we worked
00:08:58 --> 00:09:01: on for the last three days and the first one
00:09:02 --> 00:09:06: is really understanding what the urban heat island effect is
00:09:06 --> 00:09:09: in Houston and how are we going to communicate the
00:09:09 --> 00:09:13: issues so all the stakeholders are in agreement and know
00:09:13 --> 00:09:16: what the problem is and respect that.
00:09:16 --> 00:09:18: And the second one was how do we as a
00:09:18 --> 00:09:23: community hold each other accountable for the future of our
00:09:23 --> 00:09:27: city and preparing and educating all of the people and?
00:09:27 --> 00:09:28: Everyone that calls Houston home,
00:09:28 --> 00:09:31: how are we going to all come together to to
00:09:31 --> 00:09:33: manage this issue?
00:09:35 --> 00:09:37: So the big question too,
00:09:37 --> 00:09:38: is why does Houston need this?
00:09:38 --> 00:09:42: I mean we we talk about heat and I think
00:09:42 --> 00:09:42: UM,
00:09:42 --> 00:09:45: Marissa, you did a great job of.
00:09:45 --> 00:09:47: Given us some facts and I think that we need
00:09:48 --> 00:09:49: to spread that word.
00:09:49 --> 00:09:52: If you just look at what's on the slides right
00:09:52 --> 00:09:55: now that Houston is going to have 22 more days
00:09:55 --> 00:09:56: that exceed 100,
00:09:56 --> 00:10:00: I'm not quite sure. If anybody thinks about that every
00:10:00 --> 00:10:03: day other than they dread the fact that summer is
00:10:03 --> 00:10:04: coming,
00:10:04 --> 00:10:07: so how do we? How do we manage that?
00:10:07 --> 00:10:10: And I think everyone would agree that some of our
00:10:10 --> 00:10:14: current practices and our past decisions haven't necessarily set us

00:10:14 --> 00:10:17: up for success long term in Houston.
00:10:17 --> 00:10:20: We need to understand that some of the things like
00:10:20 --> 00:10:22: our orientation of our buildings,
00:10:22 --> 00:10:24: that the density of our buildings.
00:10:24 --> 00:10:28: No one looks at Houston as this.
00:10:28 --> 00:10:31: Green plush place. It's more of the concrete jungle when
00:10:31 --> 00:10:32: they get to town,
00:10:32 --> 00:10:34: so how do we? How do we change some of
00:10:34 --> 00:10:35: these things?
00:10:35 --> 00:10:39: How do we? Influence the material choices that have been
00:10:39 --> 00:10:42: made and the material choices that are going to be
00:10:42 --> 00:10:44: made in the future.
00:10:44 --> 00:10:47: And there there's a lot as we go through this
00:10:47 --> 00:10:51: that will be shared on how we can take some
00:10:51 --> 00:10:52: of the existing.
00:10:52 --> 00:10:56: Environment that we have here in Houston and make it
00:10:56 --> 00:10:56: better.
00:10:56 --> 00:10:59: And how did when we build new environments we're going
00:10:59 --> 00:11:02: to do it as a team and a much more
00:11:02 --> 00:11:06: efficiently and better understanding the environment that we're in much
00:11:06 --> 00:11:12: better as well. So the city of Houston didn't move
00:11:12 --> 00:11:14: to the next slide,
00:11:14 --> 00:11:19: uhm? Had three desired. This one wants to make sure
00:11:19 --> 00:11:24: that all the stakeholders in Houston are on the same
00:11:24 --> 00:11:24: page.
00:11:24 --> 00:11:28: They asked for some recommendations of how we can do
00:11:28 --> 00:11:29: this.
00:11:29 --> 00:11:33: How can we have clear priorities and move everyone in
00:11:33 --> 00:11:35: the same direction equally?
00:11:35 --> 00:11:37: And finally, what is there?
00:11:37 --> 00:11:41: What's the final product that we can develop as a
00:11:41 --> 00:11:45: panel to give them a way of communicating all of
00:11:45 --> 00:11:46: this information,
00:11:46 --> 00:11:50: gathering it, and sharing it so that the responsibility and
00:11:50 --> 00:11:54: accountability can spread equally across the city into all the.
00:11:54 --> 00:11:59: Stakeholders. So our scope. Uhm,
00:11:59 --> 00:12:02: we had some hefty goals for the last three days,
00:12:02 --> 00:12:04: that's for sure. And, uh,
00:12:04 --> 00:12:07: the first piece is what were we doing right in
00:12:08 --> 00:12:08: Houston?
00:12:08 --> 00:12:12: I think for for some of the things that I

00:12:12 --> 00:12:12: said,
00:12:12 --> 00:12:15: we had done wrong, I'm we are going to go
00:12:15 --> 00:12:19: through some of the amazing progress that Houston has made
00:12:19 --> 00:12:21: with improvement for heat resilience.
00:12:21 --> 00:12:25: We worked on ideas of what can be done immediately.
00:12:25 --> 00:12:27: What can we do long term?
00:12:27 --> 00:12:29: What are things that are affordable?
00:12:29 --> 00:12:33: What are things that may have more of a cost
00:12:33 --> 00:12:37: impact but may have a longer lasting result?
00:12:37 --> 00:12:40: We talked about policies, what could be changed,
00:12:40 --> 00:12:45: initiated and and and what sort of incentives and different
00:12:45 --> 00:12:47: ways of educating the community.
00:12:47 --> 00:12:52: And finally examples of what has been done here in
00:12:52 --> 00:12:56: Houston and what's been done globally.
00:12:56 --> 00:13:01: 22 produce a better product overall and see measurable results
00:13:01 --> 00:13:05: when it came to heat in our in our environments.
00:13:09 --> 00:13:13: I love this slide because it kind of shows how
00:13:13 --> 00:13:17: how all of our brains work so differently over the
00:13:17 --> 00:13:20: last three days and what we all spent quite a
00:13:20 --> 00:13:22: few hours interviewing some incredible stakeholders,
00:13:22 --> 00:13:26: which I think some of them are on the phone
00:13:26 --> 00:13:27: and we really,
00:13:27 --> 00:13:31: truly appreciate your input and we had folks from the
00:13:31 --> 00:13:31: government,
00:13:31 --> 00:13:35: education, nonprofits, developers. We had low income housing developers.
00:13:35 --> 00:13:39: We had everyone you could think of that would have.
00:13:39 --> 00:13:42: A major stake in this on on the phone and
00:13:42 --> 00:13:46: ask them questions and they gave us their honest feedback
00:13:46 --> 00:13:50: and we were all kind of surprised as we went
00:13:50 --> 00:13:53: through at the there were three major points that kept
00:13:53 --> 00:13:56: surfacing regardless of who the stakeholder was.
00:13:56 --> 00:13:59: They were all very concerned about education.
00:13:59 --> 00:14:02: They wanted to make sure that they knew what was
00:14:02 --> 00:14:03: going on.
00:14:03 --> 00:14:05: What are the the details?
00:14:05 --> 00:14:08: But how did they get it down to the the
00:14:08 --> 00:14:09: grassroots?
00:14:09 --> 00:14:12: The users, the residents that are going to be living
00:14:12 --> 00:14:13: in these environments.
00:14:13 --> 00:14:16: How do they take care of their their homes or

00:14:16 --> 00:14:17: their buildings?
00:14:17 --> 00:14:20: Another big thing was the priority.
00:14:20 --> 00:14:25: I think there was some clear evidence that this may
00:14:25 --> 00:14:30: not be a priority to major stakeholders in the city
00:14:30 --> 00:14:31: of Houston.
00:14:31 --> 00:14:34: List of what some of the facts are.
00:14:34 --> 00:14:36: We all know that there are a lot of major
00:14:36 --> 00:14:39: issues in Houston weather it's flooding.
00:14:39 --> 00:14:42: There's there's just a lot of things that people have.
00:14:42 --> 00:14:46: Even our last power crisis over the the winter.
00:14:46 --> 00:14:49: There's a lot of things that the city is concerned
00:14:49 --> 00:14:49: about.
00:14:49 --> 00:14:52: And where does heat fall into this priority list?
00:14:52 --> 00:14:56: And I think everyone has a little bit different point
00:14:56 --> 00:14:58: of view on that and finally cost.
00:14:58 --> 00:15:01: There was a lot of concern about.
00:15:01 --> 00:15:03: How much this was going to cost?
00:15:03 --> 00:15:06: Not just the people who may be building the built
00:15:06 --> 00:15:07: environment,
00:15:07 --> 00:15:10: but the end users, the residents and how do they
00:15:10 --> 00:15:12: maintain that over the years.
00:15:12 --> 00:15:15: So I'm going to pass it off to Mer because
00:15:15 --> 00:15:18: she is going to take us right into what some
00:15:18 --> 00:15:20: of our recommendations are.
00:15:20 --> 00:15:22: So thank you. Thanks,
00:15:22 --> 00:15:25: Angela, thank you for having us today.
00:15:25 --> 00:15:28: And yeah, just going to jump right into the foundational
00:15:28 --> 00:15:32: recommendations and and you can see here a number of
00:15:32 --> 00:15:36: stakeholder levels that we considered in this process and were
00:15:36 --> 00:15:38: represented in our stakeholder group,
00:15:38 --> 00:15:40: of course. So you know,
00:15:40 --> 00:15:43: heat resilience and mitigation is is truly,
00:15:43 --> 00:15:46: truly the one of the epitomes of a sustainability puzzle.
00:15:46 --> 00:15:50: You know, sustainability is the three peas people planet and
00:15:50 --> 00:15:51: profit,
00:15:51 --> 00:15:54: and in this case. All of those are affected by
00:15:54 --> 00:15:56: heat resilience issues.
00:15:56 --> 00:15:59: So what we know for ourselves in our individual roles
00:15:59 --> 00:16:02: and our companies and also as a committee here,
00:16:02 --> 00:16:06: is that foundationally the stakeholders are at the heart of
00:16:06 --> 00:16:06: this.

00:16:06 --> 00:16:09: You know everyone can benefit or suffer.
00:16:09 --> 00:16:12: They can help or they can hurt those efforts and
00:16:12 --> 00:16:15: the timeline of getting to the ultimate goal.
00:16:15 --> 00:16:18: You know they can choose to ignore it or they
00:16:18 --> 00:16:20: can embrace it,
00:16:20 --> 00:16:23: but it's going to be put in front of them.
00:16:23 --> 00:16:26: It's going to be evident more and more,
00:16:26 --> 00:16:29: especially when you think about those 22 days.
00:16:29 --> 00:16:32: That's almost a whole more whole additional month.
00:16:32 --> 00:16:34: Each year, over 100 degrees,
00:16:34 --> 00:16:37: and so you know, no matter what.
00:16:37 --> 00:16:39: Everyone needs to have a voice in a seat at
00:16:39 --> 00:16:40: the table.
00:16:40 --> 00:16:43: We need to pull people together and Co create the
00:16:43 --> 00:16:44: conclusions.
00:16:44 --> 00:16:48: The benefits that that are going to assist everyone and
00:16:48 --> 00:16:52: there are so many precedents for this that we may
00:16:52 --> 00:16:54: note along the way today.
00:16:54 --> 00:16:57: But a core tenant of this effort moving forward has
00:16:57 --> 00:17:02: to include all these stakeholders in an equitable way.
00:17:02 --> 00:17:03: I'm going to pass it to John
00:17:03 --> 00:17:07: now. Yeah thanks Mary so.
00:17:08 --> 00:17:12: When cities are tap tackle issues like this,
00:17:12 --> 00:17:16: I think it's important to understand the city as a
00:17:16 --> 00:17:17: system.
00:17:17 --> 00:17:20: So when Angela described the problem,
00:17:20 --> 00:17:25: we have the backdrop of climate change and increasing temperatures,
00:17:25 --> 00:17:29: more hot days, more heat waves and in a way
00:17:29 --> 00:17:34: that's not something that one city can do anything about
00:17:34 --> 00:17:35: directly,
00:17:35 --> 00:17:39: 'cause it's really a global problem.
00:17:39 --> 00:17:43: We can only. Do something about our local contributions to
00:17:43 --> 00:17:44: that problem,
00:17:44 --> 00:17:46: but on top of that,
00:17:46 --> 00:17:48: there's the urban heat island effect.
00:17:48 --> 00:17:52: So because of the way cities are are built,
00:17:52 --> 00:17:55: we absorb more heat and cities,
00:17:55 --> 00:17:59: and you know factors that go into that were some
00:17:59 --> 00:18:01: of the things she noted,
00:18:01 --> 00:18:03: like tree canopy, ground vegetation,
00:18:03 --> 00:18:06: impervious surface and surface reflectance or albedo,

00:18:06 --> 00:18:10: and how those play out.
00:18:10 --> 00:18:14: Those are facts. Play out also involved demographics in the
00:18:14 --> 00:18:18: city and so mapping those things across the cities.
00:18:18 --> 00:18:23: Important this and in Houston the city is already pulling
00:18:23 --> 00:18:27: a lot of this data together and so this gives
00:18:27 --> 00:18:30: you a baseline of these important factors.
00:18:30 --> 00:18:34: But when you you map them next slide please.
00:18:34 --> 00:18:39: So when you map them you find that.
00:18:39 --> 00:18:43: For instance, that tree canopy is not evenly distributed across
00:18:43 --> 00:18:44: the city,
00:18:44 --> 00:18:47: so some neighborhoods have more shade than others.
00:18:47 --> 00:18:51: Some are absorbing more heat than others.
00:18:51 --> 00:18:54: And so understanding those patterns is important,
00:18:54 --> 00:18:58: and then you can overlay that kind of information with
00:18:58 --> 00:19:01: demographic data to see which groups in the in the
00:19:01 --> 00:19:06: Community which populations are more affected than others.
00:19:06 --> 00:19:09: And it helps target where action is most needed and
00:19:09 --> 00:19:11: helps prioritize efforts.
00:19:11 --> 00:19:13: Then on top of that,
00:19:13 --> 00:19:17: so you know understanding all those factors is one thing,
00:19:17 --> 00:19:21: and understanding how climate is shifting is another thing.
00:19:21 --> 00:19:25: But you have to understand how these impacts play out
00:19:26 --> 00:19:27: across the landscape.
00:19:27 --> 00:19:32: So modeling helps and a lot of communities are starting
00:19:32 --> 00:19:35: to model air temperature in different ways,
00:19:35 --> 00:19:40: and Houston's mapped it last year with the.
00:19:40 --> 00:19:44: Citizen science mapping effort, but there are models you can
00:19:44 --> 00:19:48: use where you map the air temperature and then you
00:19:48 --> 00:19:52: can model different scenarios such as what if you increase
00:19:52 --> 00:19:56: tree canopy? How much is that going to cool the
00:19:56 --> 00:20:00: city and that gives you a sense of the scale
00:20:00 --> 00:20:04: of effort that's going to be needed as well as
00:20:04 --> 00:20:09: locations where more that's going to make more difference.
00:20:09 --> 00:20:13: So. Next, slide, so we're going to go into opportunities
00:20:13 --> 00:20:15: and challenges.
00:20:15 --> 00:20:19: The city wanted us to look at things in this
00:20:19 --> 00:20:19: way.
00:20:19 --> 00:20:24: In this presentation. It's a little bit hard to separate
00:20:24 --> 00:20:25: them out,
00:20:25 --> 00:20:28: 'cause in many cases challenges represent opportunities,
00:20:28 --> 00:20:30: and so in the presentation,
00:20:30 --> 00:20:32: they're kind of blended together.

00:20:32 --> 00:20:36: So I'm going to hand it over to David to
00:20:36 --> 00:20:37: unravel that.
00:20:39 --> 00:20:42: Hi so I just want to quickly go over one
00:20:42 --> 00:20:45: of the areas we found that was a bit of
00:20:45 --> 00:20:48: a challenge but also offers some opportunities.
00:20:48 --> 00:20:51: That's a community awareness. We want to really get the
00:20:52 --> 00:20:53: community engaged,
00:20:53 --> 00:20:56: but before we get them engaged we need to build
00:20:56 --> 00:20:59: up build a base level of knowledge for them.
00:20:59 --> 00:21:03: Specifically. What is an extreme heat event?
00:21:03 --> 00:21:05: Where does it occur? Oddly enough,
00:21:05 --> 00:21:07: even our stakeholders, when we when we had them on
00:21:07 --> 00:21:08: a panel,
00:21:08 --> 00:21:10: we asked them questions about extreme heat events and some
00:21:10 --> 00:21:11: of them responded.
00:21:11 --> 00:21:12: Hey, that doesn't happen here.
00:21:12 --> 00:21:15: That happens over there. On the other side of the
00:21:15 --> 00:21:15: city.
00:21:15 --> 00:21:17: So we want to dispel some of those.
00:21:17 --> 00:21:20: Some of those rumors we want to make sure that
00:21:20 --> 00:21:23: everyone has a base level of knowledge and that they
00:21:23 --> 00:21:25: understand that extreme heat is dangerous.
00:21:25 --> 00:21:29: We want to try to highlight how will they know
00:21:29 --> 00:21:33: when they're in extreme heat event and and what do
00:21:33 --> 00:21:36: they do when those events occur.
00:21:36 --> 00:21:41: However, we also do this as an opportunity because gathering
00:21:41 --> 00:21:46: the Community's input to these type of types of challenges.
00:21:46 --> 00:21:51: May allow us to 22.
00:21:51 --> 00:21:56: Bring together solutions that are better and more locally tailored
00:21:56 --> 00:21:59: so that that we think is also an opportunity and
00:21:59 --> 00:22:03: there are examples of this across the country where cities
00:22:03 --> 00:22:07: have engaged with local communities to to come up with
00:22:07 --> 00:22:09: the solutions that that don't work.
00:22:09 --> 00:22:13: I'm going to hand it off now to Bonnie who's
00:22:13 --> 00:22:17: going to talk about the economic opportunities and challenges.
00:22:18 --> 00:22:21: Thanks very much Andrew. So we had the opportunity to
00:22:21 --> 00:22:25: talk to some C department staff as well as practitioners
00:22:25 --> 00:22:29: around the opportunities and challenges that may exist to fund

00:22:29 --> 00:22:32: any future work that's either undertaken by the result of
00:22:32 --> 00:22:35: programs or policies that are put in place,
00:22:35 --> 00:22:39: or initiatives that developers are looking to undertake.
00:22:39 --> 00:22:42: And we identified several existing programs within the city that
00:22:42 --> 00:22:45: are already being used that can be leveraged or expanded
00:22:45 --> 00:22:48: to help provide additional funding to reduce or offset any
00:22:48 --> 00:22:51: of these incremental costs that may occur in two of
00:22:51 --> 00:22:51: those.
00:22:51 --> 00:22:54: That one of those programs was the existing tax abatement
00:22:54 --> 00:22:58: program that's currently being used to help promote green infrastructure.
00:22:58 --> 00:23:01: Another was the the Tax Increment reinvestment zones or tours
00:23:01 --> 00:23:04: that are currently being piloted for helping it.
00:23:04 --> 00:23:08: Condensed parking structures so you know even that by itself
00:23:08 --> 00:23:11: is indirectly would help reduce heat island effect by you
00:23:11 --> 00:23:11: know,
00:23:11 --> 00:23:15: consolidating or reducing the number of surface logs and perhaps
00:23:15 --> 00:23:18: looking at like how that can actually be targeted towards.
00:23:18 --> 00:23:22: You know, heat island reduction or mitigation efforts.
00:23:22 --> 00:23:26: In one of the challenges that also is an opportunity
00:23:26 --> 00:23:28: you know to work through is,
00:23:28 --> 00:23:32: you know, ensuring equitable distribution of any funds or programs
00:23:32 --> 00:23:35: or incentives that are put in place to ensure that
00:23:35 --> 00:23:38: you know the access to those systems or these programs
00:23:38 --> 00:23:41: actually reach the people who are most needed.
00:23:41 --> 00:23:44: You know this is something that the city of Austin
00:23:44 --> 00:23:47: recently undertook in their climate action plan.
00:23:47 --> 00:23:51: Update was equity was a lens through which you know
00:23:51 --> 00:23:54: all tactics or ideas were were measured.
00:23:54 --> 00:23:56: And the last from an economic perspective.
00:23:56 --> 00:24:00: From the you know, challenges with his recognizing that any
00:24:00 --> 00:24:03: you know cuz you know new code requirements that were
00:24:03 --> 00:24:04: put in place.
00:24:04 --> 00:24:07: No ads cost, pressures to any project across the board,
00:24:07 --> 00:24:10: but also potentially has the impact to affect those projects.
00:24:10 --> 00:24:13: You know, low income housing projects more more so than
00:24:13 --> 00:24:14: others.
00:24:14 --> 00:24:17: And I said all new code impacts ad costs that
00:24:17 --> 00:24:17: isn't.

00:24:17 --> 00:24:19: That is not universally true,
00:24:19 --> 00:24:21: so there's a. There's a possibility that it could,
00:24:21 --> 00:24:24: and so that's something that needs to be taken.
00:24:24 --> 00:24:28: A look at. Another area that we focused on was
00:24:28 --> 00:24:29: energy resilience,
00:24:29 --> 00:24:32: so this really stems from examining the connection that exists
00:24:32 --> 00:24:33: between health and heat,
00:24:33 --> 00:24:36: and the idea that one of the ways you are
00:24:36 --> 00:24:39: able to escape heat is through air conditioning,
00:24:39 --> 00:24:41: which works well if you have access to quality air
00:24:42 --> 00:24:44: conditioning and also works if you have power.
00:24:44 --> 00:24:47: Some of the health experts that we spoke to you
00:24:48 --> 00:24:51: identified the link between the fact you know lots of
00:24:51 --> 00:24:52: power.
00:24:52 --> 00:24:56: Just through. Never mind. Now also just it correct and
00:24:56 --> 00:25:01: so I mean looking at that connection and being able
00:25:01 --> 00:25:06: to help provide better access to air conditioning for those
00:25:06 --> 00:25:08: who are who needed the other point.
00:25:08 --> 00:25:11: That was another point that was raised.
00:25:11 --> 00:25:14: Was that on Windows are generally not built into a
00:25:14 --> 00:25:16: lot of Houston's housing stock.
00:25:16 --> 00:25:19: Whether it's multifamily or single family residential,
00:25:19 --> 00:25:21: you know, not can stem a lot from the fact
00:25:21 --> 00:25:25: that you know the local climate does not conductive to
00:25:25 --> 00:25:27: natural ventilation.
00:25:27 --> 00:25:30: On an annual basis to temperatures or humidity levels,
00:25:30 --> 00:25:33: however, that that does remove an option for when there
00:25:34 --> 00:25:36: is a power outage or AC is not available.
00:25:36 --> 00:25:40: So the heat tent can tend to build up within
00:25:40 --> 00:25:43: a home and so having access to operable windows would
00:25:43 --> 00:25:48: be an opportunity to provide some relief during those seasons.
00:25:48 --> 00:25:52: And so I'm John, talked somewhere about mapping in the
00:25:52 --> 00:25:55: analysis that can be used to help target specific,
00:25:55 --> 00:25:57: you know, priorities towards. You know,
00:25:57 --> 00:26:00: maybe underserved or low income communities,
00:26:00 --> 00:26:02: and one of the ways that can be looked at
00:26:03 --> 00:26:06: is looking at the heat mapping in those communities that
00:26:07 --> 00:26:09: are more significantly affected by,
00:26:09 --> 00:26:11: you know, heat island effects.
00:26:11 --> 00:26:15: And looking at you know their availability to air conditioning.
00:26:15 --> 00:26:18: And looking at the positioning of the existing.

00:26:18 --> 00:26:21: Cooling centers, so that was one of those are some
00:26:21 --> 00:26:25: of the opportunities that May identified so far and I
00:26:25 --> 00:26:28: will pass it on to Rachel who's going to take
00:26:28 --> 00:26:29: a look
00:26:29 --> 00:26:32: at some other ones that came up under codes and
00:26:32 --> 00:26:32: policies.
00:26:32 --> 00:26:35: Thanks, Bonnie. Some of the things that we also looked
00:26:35 --> 00:26:39: at as opportunities and challenges are some of the competing
00:26:39 --> 00:26:41: code priorities within the City of Houston.
00:26:41 --> 00:26:45: For example, the construction of detention basins often remove large
00:26:45 --> 00:26:46: forested areas,
00:26:46 --> 00:26:48: and when those forested areas are mitigated.
00:26:48 --> 00:26:52: They're not replacing canopy or square footage per square footage,
00:26:52 --> 00:26:55: so there's kind of a net loss and canopy another
00:26:55 --> 00:26:59: another one of the challenges that we looked at is
00:26:59 --> 00:27:03: that some of the cost increases that would come with
00:27:03 --> 00:27:06: any sort of of code requirements would also would be
00:27:06 --> 00:27:08: passed on to owners,
00:27:08 --> 00:27:12: and in turn those owners could could potentially pass on
00:27:12 --> 00:27:14: the cost of those to low income,
00:27:14 --> 00:27:18: housing renters. We also recognize that there's a lack of
00:27:18 --> 00:27:23: interagency communication between some of the jurisdictional entities and among
00:27:24 --> 00:27:26: those are things like text dot,
00:27:26 --> 00:27:30: you know, planning. Sometimes the planning and development ordinances can
00:27:30 --> 00:27:32: conflict with urban forestry requirements and etc.
00:27:32 --> 00:27:36: Another thing that we recognized was that the existing city
00:27:36 --> 00:27:40: of Houston Tree Mitigation Ordinance does not account for the
00:27:40 --> 00:27:44: size of a tree canopy removal and replacement.
00:27:44 --> 00:27:46: They're really just looking at the caliper.
00:27:46 --> 00:27:49: Or the the diameter size of the tree trunks was
00:27:49 --> 00:27:52: starting to look at ways that we can replace Canopy
00:27:52 --> 00:27:56: Square footage per canopy square footage could help mitigate heat
00:27:56 --> 00:27:59: Island effect. One of the great things that we did
00:27:59 --> 00:28:03: notice is that the mayor's focus for resilience has provided
00:28:03 --> 00:28:04: a clear direction on priority,
00:28:04 --> 00:28:08: so it really is having that kind of clear direction

00:28:08 --> 00:28:11: from the top is really kind of helping to resolve
00:28:11 --> 00:28:12: some of these issues.
00:28:15 --> 00:28:17: And we come into the next slide.
00:28:17 --> 00:28:21: And another area of challenges that we and opportunities that
00:28:21 --> 00:28:23: we looked at is kind of the culture of property
00:28:23 --> 00:28:27: rights and how homeownership influences large scale mitigation efforts.
00:28:27 --> 00:28:31: So, for instance, we thought that it would be a
00:28:31 --> 00:28:34: good idea to find ways to motivate and highlight the
00:28:34 --> 00:28:38: value of property owned owner and developer cooperation and how
00:28:38 --> 00:28:41: it can affect the heat island mitigation on a a
00:28:41 --> 00:28:44: large scale across the whole city.
00:28:44 --> 00:28:48: And this is kind of looking at residential tree canopy's.
00:28:48 --> 00:28:49: In people's backyards, for instance,
00:28:49 --> 00:28:53: a lot of times you know homeowners will identify trees
00:28:53 --> 00:28:54: as a hazard,
00:28:54 --> 00:28:56: especially in hurricanes. Or, you know,
00:28:56 --> 00:28:59: maybe it's hanging over their pool and dumping leaves into
00:29:00 --> 00:29:00: a pool.
00:29:00 --> 00:29:03: When really these trees are are really effective heat mitigation
00:29:03 --> 00:29:04: agents.
00:29:04 --> 00:29:07: And another thing that we looked at is,
00:29:07 --> 00:29:09: like I mentioned before on the previous slide,
00:29:09 --> 00:29:13: how the Tree mitigation ordinance could be encouraged to be
00:29:13 --> 00:29:14: complied with by developers,
00:29:14 --> 00:29:18: and also how you know we could look at opportunities.
00:29:18 --> 00:29:21: To study canopy size in addition to mitigation and I'm
00:29:21 --> 00:29:21: sorry,
00:29:21 --> 00:29:24: caliper mitigation and the last point is to address the
00:29:24 --> 00:29:28: cultural perceptive perception of property rights in Houston.
00:29:28 --> 00:29:31: You know a lot of times you know property owners
00:29:31 --> 00:29:31: are,
00:29:31 --> 00:29:34: you know they want to do what they want to
00:29:34 --> 00:29:38: do with their property and it's it's hard to encourage
00:29:38 --> 00:29:42: people to do things that will have an effect on
00:29:42 --> 00:29:45: a citywide basis when there's no benefit to them directly.
00:29:45 --> 00:29:48: And so we're going to move forward and.
00:29:48 --> 00:29:52: Talk about tactics and actions and and these are kind
00:29:52 --> 00:29:56: of up on the ground level tactics that we identify
00:29:56 --> 00:29:59: as ways to mitigate the heat island effect,

00:29:59 --> 00:30:02: and you know kind of look at these through the
00:30:03 --> 00:30:07: lens of landscape and both large scale and small scale
00:30:07 --> 00:30:08: implementation.
00:30:08 --> 00:30:12: And the first thing is really decreasing hardscape and increasing
00:30:12 --> 00:30:15: softscape and vegetated areas so you know,
00:30:15 --> 00:30:17: moving away from materials like asphalt,
00:30:17 --> 00:30:21: dirt colored concrete. Dark colored pavers that really do absorb
00:30:21 --> 00:30:24: and reemit a whole lot of heat and moving more
00:30:24 --> 00:30:29: towards soft scapes like plantings and groundcovers or papers that
00:30:29 --> 00:30:31: have a really nice Sri value.
00:30:31 --> 00:30:35: We also talked about green roofs are as effective strategies
00:30:35 --> 00:30:38: that can not only be a great tool and mitigating
00:30:38 --> 00:30:39: key,
00:30:39 --> 00:30:42: but they also become an amenity to the people in
00:30:42 --> 00:30:43: the building,
00:30:43 --> 00:30:46: both if they're accessible to go out on and also
00:30:46 --> 00:30:49: they're very visually attractive.
00:30:49 --> 00:30:53: From above and another another strategy that we talked about.
00:30:53 --> 00:30:58: Our bio stripped bioswales because they not only provide softscape
00:30:58 --> 00:31:02: but they also addressed some of Houston's drainage issues.
00:31:02 --> 00:31:05: Bicycles can also be a very attractive,
00:31:05 --> 00:31:07: UM amenity to our project.
00:31:07 --> 00:31:11: We talked about protecting existing tree canopy's and prioritizing canopy
00:31:11 --> 00:31:14: density when new trees are put on a project and
00:31:15 --> 00:31:17: that kind of ties back into some of the tree
00:31:17 --> 00:31:23: mitigation ordinances that we talked about earlier in the project.
00:31:23 --> 00:31:26: One of the big things that we had talked about
00:31:26 --> 00:31:30: that was mentioned in multiple stakeholder meetings was working with
00:31:30 --> 00:31:34: utility companies to increase pole heights to allow space for
00:31:34 --> 00:31:37: taller trees. Along public right of ways.
00:31:37 --> 00:31:40: Right now, the city of Houston has a requirement for
00:31:40 --> 00:31:43: street new street trees on a new project,
00:31:43 --> 00:31:46: but a lot of times these trees are being planted
00:31:46 --> 00:31:49: directly under power lines and so utility companies will come
00:31:49 --> 00:31:52: along and they essentially cut the canopy in half and
00:31:52 --> 00:31:56: reduce how effective they are at mitigating heat and

providing
00:31:56 --> 00:31:56: shade.
00:31:56 --> 00:32:00: Uhm, we also identified a whole slew of resources that
00:32:00 --> 00:32:04: could be made available both to developers,
00:32:04 --> 00:32:08: homeowners and residents as a way to expand their knowledge
00:32:08 --> 00:32:12: of planting and establish good tree care things like a
00:32:12 --> 00:32:16: or entities like the Houston Botanical Garden has a really
00:32:16 --> 00:32:20: great community outreach. Houston Wilderness and Trees for Houston are
00:32:20 --> 00:32:21: all great,
00:32:21 --> 00:32:25: really organizations and and then we also talked about how,
00:32:25 --> 00:32:29: especially in underrepresented. Communities working directly with the community to
00:32:29 --> 00:32:31: identify where new shading would be,
00:32:31 --> 00:32:34: you know, wanted and needed because a lot of these
00:32:34 --> 00:32:37: communities rely on sidewalks and walking paths,
00:32:37 --> 00:32:41: and these can get put in areas that aren't necessarily
00:32:41 --> 00:32:41: used.
00:32:41 --> 00:32:44: If they're, you know, applied from like a top down
00:32:44 --> 00:32:45: approach.
00:32:45 --> 00:32:49: And so now I'm going to pass it onto Dolly.
00:32:49 --> 00:32:52: Who's going to talk more about project specific strategies and
00:32:52 --> 00:32:52: landscape.
00:32:54 --> 00:32:59: Thank you Rachel. So to continue this thought about potential
00:32:59 --> 00:33:03: shading over walking pathways and how they can improve upon
00:33:03 --> 00:33:07: urban heat island for kind of the greater neighborhood areas.
00:33:07 --> 00:33:11: As we dived into the specifics and the.
00:33:11 --> 00:33:15: Science with some of our heath experts and stakeholders and
00:33:15 --> 00:33:19: we saw that essentially urban heat islands developers.
00:33:19 --> 00:33:24: This is a thermodynamic system and the way air flows
00:33:24 --> 00:33:28: and follows depends also on and can be mitigated through
00:33:29 --> 00:33:31: kind of greenways and pathways,
00:33:31 --> 00:33:36: so potentially focusing on the urban form and St Network
00:33:36 --> 00:33:41: is something that will can the tool used to leverage
00:33:41 --> 00:33:42: greenways.
00:33:42 --> 00:33:46: And more shading areas can be a good strategy.
00:33:46 --> 00:33:49: Looking at bike lanes, pathways,
00:33:49 --> 00:33:54: open space is essentially as a resource for additional vegetation,

00:33:54 --> 00:33:58: shading and cooling surfaces and looking at transit stations,
00:33:58 --> 00:34:01: we can address safety, comfort,
00:34:01 --> 00:34:06: and the ability to cope with heat outside and providing
00:34:06 --> 00:34:11: vegetation along sidewalks as a barrier or buffer for heat
00:34:11 --> 00:34:12: from.
00:34:12 --> 00:34:16: Cars and asphalt. Looking at dual function shapes,
00:34:16 --> 00:34:21: structures not only from a perspective of.
00:34:21 --> 00:34:25: Relief from heat, but also something that can provide safety,
00:34:25 --> 00:34:27: seating, and perhaps drinking water.
00:34:27 --> 00:34:30: That's something that's shown in this image,
00:34:30 --> 00:34:34: but also was addressed in some of the studies done
00:34:34 --> 00:34:35: in Arizona.
00:34:35 --> 00:34:39: Uhm, and the potentially water features that can serve as
00:34:39 --> 00:34:40: heat sinks,
00:34:40 --> 00:34:44: but also sprinklers and splash pads for children.
00:34:44 --> 00:34:51: Uhm? And now mayor will address more building scale strategies.
00:34:51 --> 00:34:52: Yeah.
00:34:53 --> 00:34:56: So one of those concentration areas for us as a
00:34:56 --> 00:34:59: team in our conversations with the developers,
00:34:59 --> 00:35:02: but also in general is to look at the tactics
00:35:02 --> 00:35:06: that are most applicable to buildings you know in new
00:35:06 --> 00:35:07: developments.
00:35:07 --> 00:35:11: More and more of these buildings are incorporating green roofs
00:35:11 --> 00:35:13: at minimum white or light colored roofs.
00:35:13 --> 00:35:17: LED lighting has become standard and the wonderful thing about
00:35:17 --> 00:35:17: those,
00:35:17 --> 00:35:20: of course, is there's less heat being emitted.
00:35:20 --> 00:35:23: You also need fewer lights.
00:35:23 --> 00:35:26: When you're using LED so it helps with the local
00:35:26 --> 00:35:27: ecosystem or habitat,
00:35:27 --> 00:35:29: sand and animals, but you know,
00:35:29 --> 00:35:33: Rachel talked about lighter surfaces and one thing I would
00:35:33 --> 00:35:36: point out there is that we also want to look
00:35:36 --> 00:35:40: beyond just the initial lightness or reflectance of those surfaces.
00:35:40 --> 00:35:44: We also want to look at those products that are
00:35:44 --> 00:35:46: going to stay light colored.
00:35:46 --> 00:35:48: You know it doesn't it.
00:35:48 --> 00:35:52: It's it's costly to purchase something that's going to be
00:35:52 --> 00:35:53: stained in the in.

00:35:53 --> 00:35:55: You know the first few years,
00:35:55 --> 00:35:58: or if it's like a concrete that's very porous.
00:35:58 --> 00:36:01: It's going to gain a lot of dirt,
00:36:01 --> 00:36:04: and it's going to lose its reflectance quickly,
00:36:04 --> 00:36:06: so we want to focus as much as possible on
00:36:06 --> 00:36:10: things that are going to be easily maintained and retain
00:36:10 --> 00:36:11: that reflectance.
00:36:11 --> 00:36:14: Also, you know we're seeing a lot of buildings,
00:36:14 --> 00:36:17: and we heard from a number of the stakeholders they're
00:36:17 --> 00:36:21: already doing the double glazed windows and adding vestibules or
00:36:21 --> 00:36:24: air barriers at the entry points to buildings.
00:36:24 --> 00:36:28: Which of course is very good practice when when it's
00:36:28 --> 00:36:28: possible,
00:36:28 --> 00:36:32: looking at the building orientation and we mentioned this back
00:36:32 --> 00:36:34: at the beginning as well,
00:36:34 --> 00:36:38: but that can be critical to the energy model for
00:36:38 --> 00:36:40: that building or even looking at,
00:36:40 --> 00:36:43: you know how much is spent or or how much
00:36:43 --> 00:36:47: effort is put in to create the right envelope based
00:36:47 --> 00:36:51: on what the solar gain from a particular orientation.
00:36:51 --> 00:36:54: And you know part of that too.
00:36:54 --> 00:36:57: Is that you know, cool roof is one thing,
00:36:57 --> 00:37:01: but we're also seeing a number of designers working on
00:37:01 --> 00:37:03: what's called cool walls,
00:37:03 --> 00:37:06: meaning that not only is it well insulated,
00:37:06 --> 00:37:10: but that it's got a great light surface to it,
00:37:10 --> 00:37:13: so it's helping with that reflectance too.
00:37:13 --> 00:37:15: And overall a new development.
00:37:15 --> 00:37:18: I think most people know that it comes down to
00:37:19 --> 00:37:21: looking at the overall site,
00:37:21 --> 00:37:24: looking for solutions as part of an overall.
00:37:24 --> 00:37:30: Promote dynamic system and working with your designers to ensure
00:37:30 --> 00:37:35: that they are they understand your goal of having less
00:37:35 --> 00:37:39: heat entering and leaving next slide please.
00:37:39 --> 00:37:43: So then when we look at retrofits and adaptations,
00:37:43 --> 00:37:47: you know heat mitigation. If we're just thinking about the
00:37:47 --> 00:37:51: built environment and and that new development can't bear the
00:37:51 --> 00:37:55: full brunt of changing gears for this for this location,
00:37:55 --> 00:37:58: it has to be for other buildings as well.

00:37:58 --> 00:38:02: And so these retrofits are really critical to helping with
00:38:02 --> 00:38:03: heat mitigation,
00:38:03 --> 00:38:07: and so while an existing building may not be able
00:38:07 --> 00:38:10: to adapt for a green roof.
00:38:10 --> 00:38:13: Because it may not have the structural integrity to do
00:38:13 --> 00:38:13: so,
00:38:13 --> 00:38:16: or there may be other issues in in trying to
00:38:16 --> 00:38:17: incorporate that.
00:38:17 --> 00:38:20: Of course it can still do a white or light
00:38:20 --> 00:38:24: colored roofing membrane and you know could still upgrade those
00:38:24 --> 00:38:28: windows and add a vestibule to the beginning of or
00:38:28 --> 00:38:31: the front of the building in this photo to the
00:38:31 --> 00:38:31: left.
00:38:31 --> 00:38:35: Here you can see that they've created a wonderful overhang
00:38:35 --> 00:38:38: that's providing a shade kind of transition into the building,
00:38:38 --> 00:38:40: and so you have some.
00:38:40 --> 00:38:44: Temperature change that makes it easier to cool your building,
00:38:44 --> 00:38:50: but once again, definitely working with your designers to identify
00:38:50 --> 00:38:53: where those great opportunities are too.
00:38:53 --> 00:38:55: Make a more efficient building.
00:38:55 --> 00:38:58: All right, I'm going to pass it on and we're
00:38:58 --> 00:39:01: going to talk about policy and city initiatives.
00:39:03 --> 00:39:07: Thank you, mayor. So really in this section what we're
00:39:07 --> 00:39:10: trying to do is we're trying to highlight some of
00:39:10 --> 00:39:14: the ways we can encourage the stakeholders to adopt these
00:39:14 --> 00:39:18: new technologies and be apart of these initiatives and try
00:39:18 --> 00:39:22: try to make resiliency more of a focus for for
00:39:22 --> 00:39:23: city development.
00:39:23 --> 00:39:26: One of the first places we could start is by
00:39:26 --> 00:39:30: doing by impacting areas the city controls and the first
00:39:30 --> 00:39:32: thing we we came up with was actually.
00:39:32 --> 00:39:35: It seemed quite counter intuitive.
00:39:35 --> 00:39:41: Moving more activity outdoors into the areas.
00:39:41 --> 00:39:45: Some of the areas actually that that Dolly had mentioned.
00:39:45 --> 00:39:47: You know the public areas,
00:39:47 --> 00:39:50: the parks, the sidewalks, the transit stops.
00:39:50 --> 00:39:52: But really getting people more outdoors.
00:39:52 --> 00:39:54: That seems counterintuitive at first,
00:39:54 --> 00:39:56: but if you think about it,
00:39:56 --> 00:40:00: a lot of the heat emergencies that occur normally occurred

00:40:00 --> 00:40:04: towards the beginning of the summer when we haven't yet
00:40:04 --> 00:40:06: acclimated to the heat.
00:40:06 --> 00:40:10: So if we can get everyone outdoors and more in
00:40:10 --> 00:40:11: tune with the heat.
00:40:11 --> 00:40:16: Perhaps that can mitigate some of the the extreme heat
00:40:16 --> 00:40:16: impacts.
00:40:16 --> 00:40:19: Also, we were thinking, you know,
00:40:19 --> 00:40:23: for the public buildings that the city controls and all
00:40:24 --> 00:40:26: its own controls in homes.
00:40:26 --> 00:40:29: We were thinking, why not use those as benchmarks and
00:40:30 --> 00:40:33: examples for for these heat mitigation technologies.
00:40:33 --> 00:40:36: You know, we can have them implemented,
00:40:36 --> 00:40:42: installed, measure their performance. Quantify how much they they've caused
00:40:43 --> 00:40:44: and the benefits,
00:40:44 --> 00:40:48: and then go ahead and showcase those two developers and
00:40:48 --> 00:40:51: other stakeholders to highlight to them what.
00:40:51 --> 00:40:57: What are the options that we have available next slide?
00:40:57 --> 00:41:00: So in terms of the developers and the stakeholders,
00:41:00 --> 00:41:03: we also wanted to put together a tool kit similar
00:41:03 --> 00:41:06: to what regional had had recommended for in terms of
00:41:06 --> 00:41:08: just specifically for landscaping.
00:41:08 --> 00:41:11: But however, for overall heat resiliency hit mitigation.
00:41:11 --> 00:41:14: We were thinking we put together a package for for
00:41:14 --> 00:41:17: developers to look at where they can look at.
00:41:17 --> 00:41:21: You know, some of these heat resilient strategies that you
00:41:21 --> 00:41:25: may have both for vertical and horizontal.
00:41:25 --> 00:41:27: Take a look at the profitability.
00:41:27 --> 00:41:31: Uh, perhaps talk to some experts that have either designed
00:41:31 --> 00:41:36: these type of technologies or I've actually used it in
00:41:36 --> 00:41:38: their developments and even perhaps.
00:41:38 --> 00:41:41: You know, be able to actually visit some of the
00:41:42 --> 00:41:44: buildings and see see how they've performed,
00:41:44 --> 00:41:48: and he resiliency is is a is a big topic
00:41:48 --> 00:41:51: across the country and across the world,
00:41:51 --> 00:41:52: especially in in larger cities.
00:41:52 --> 00:41:56: They all have been attacking this problem from from different
00:41:56 --> 00:42:00: directions and so the best practices are are evolving and
00:42:00 --> 00:42:03: we want to make sure that we are sharing this
00:42:03 --> 00:42:07: with with the stakeholders so that they understand what direction
00:42:07 --> 00:42:09: to go and then finally.

00:42:09 --> 00:42:14: These certifications are. There are some some certifications available out

00:42:14 --> 00:42:17: there for not only for just the climate impact of

00:42:17 --> 00:42:20: these buildings that are being developed,

00:42:20 --> 00:42:22: but also the internal comfort.

00:42:22 --> 00:42:26: And we think that if we can have them promoted

00:42:26 --> 00:42:31: then it should help for better adoption of the initiatives

00:42:31 --> 00:42:33: that we were proposing.

00:42:33 --> 00:42:35: Next slide. OK, so I'm going to hand it over

00:42:36 --> 00:42:39: to Diane who's been talking more about the policy and

00:42:39 --> 00:42:42: the guidelines that the city could could look into.

00:42:43 --> 00:42:47: Thank you Andrew. So we previously talked about the challenges

00:42:47 --> 00:42:51: of competing code priorities and and the opportunity that strong

00:42:51 --> 00:42:55: leadership from the City side can present to implement the

00:42:55 --> 00:42:59: ideas we talked about so far.

00:42:59 --> 00:43:03: It is important to acknowledge that there can be some

00:43:03 --> 00:43:05: more alignment between city programs,

00:43:05 --> 00:43:09: initiatives and regulations to foster innovative strategies for heat and

00:43:10 --> 00:43:11: other resilient scope benefits.

00:43:11 --> 00:43:15: And and then drawing from existing policy and expanding such

00:43:15 --> 00:43:20: as the tax abatement which could provide economic incentives and

00:43:20 --> 00:43:23: precedent vehicles for additional initiatives.

00:43:23 --> 00:43:28: And looking at the neighborhood analysis as we mentioned before,

00:43:28 --> 00:43:32: we can provide localized strategies as conditions vary and there

00:43:32 --> 00:43:36: is no signal approach towards across all neighborhoods.

00:43:36 --> 00:43:41: We can develop terminology and concepts that are personal to

00:43:41 --> 00:43:46: locations and to communities and expand on ideas for policy

00:43:47 --> 00:43:52: as shading standards have been developed in Maricopa County.

00:43:52 --> 00:43:55: Based on the needs of certain areas in the city,

00:43:56 --> 00:43:59: they can pursue development agreements and it can be a

00:43:59 --> 00:44:03: vehicle to incorporate heat resilience elements in new developments and

00:44:03 --> 00:44:07: an additional ideas and strategies that can be driven then

00:44:07 --> 00:44:11: coordinated with neighborhood leaders and the city.

00:44:11 --> 00:44:13: Uhm, looking at the building code.

00:44:13 --> 00:44:16: UM, we think there should be.

00:44:16 --> 00:44:19: It can be more focused on human health and with

00:44:19 --> 00:44:23: a side benefit for heat resilience to talk more about

00:44:23 --> 00:44:27: personal comfort and healthy living environments.

00:44:27 --> 00:44:31: As Ghani mentioned before, to put forward thinking of how

00:44:31 --> 00:44:35: to allow ventilation when the air conditioner potentially can fail

00:44:35 --> 00:44:38: and there is no energy to be able to expect

00:44:38 --> 00:44:43: these situations where we do need to open a window

00:44:43 --> 00:44:44: in ventilate.

00:44:44 --> 00:44:48: There are multiple tools available today off the shelf for

00:44:48 --> 00:44:53: our performance based analysis for design and for the development

00:44:53 --> 00:44:53: community.

00:44:53 --> 00:44:57: Whether it's for energy use and save heat,

00:44:57 --> 00:45:00: radiation, microclimates, air flow, and other models,

00:45:00 --> 00:45:05: there are certain studies that connect qualitative experiences of the

00:45:05 --> 00:45:09: user and comfort with quantifiable value and cost impact for

00:45:09 --> 00:45:10: property owners.

00:45:10 --> 00:45:14: Going back to the three peas people planet.

00:45:14 --> 00:45:19: In profit this mere mentioned before there can be performance

00:45:19 --> 00:45:23: based analysis that can identify this balance and and it

00:45:23 --> 00:45:28: can be promoted this guidelines or something that the city

00:45:28 --> 00:45:31: will ask developers to do or at least support the

00:45:31 --> 00:45:37: idea of making this measurements and metrics more specifically following

00:45:37 --> 00:45:38: Rachel's comments,

00:45:38 --> 00:45:43: editing the city of Houston Landscape Ordinance to better address

00:45:43 --> 00:45:45: dissipating heat energy.

00:45:45 --> 00:45:49: Uhm, somehow addressed the canopy size mitigation instead of the

00:45:49 --> 00:45:54: trunk size and and specifically introducing metrics and evaluation into

00:45:54 --> 00:45:55: the permitting process.

00:45:55 --> 00:45:59: There are multiple examples from around the country organizations and

00:45:59 --> 00:46:00: collaborations,

00:46:00 --> 00:46:02: and John will expand that.

00:46:04 --> 00:46:07: Yeah, so so. I think City City,

00:46:07 --> 00:46:11: especially city governments you know often like to be first.

00:46:11 --> 00:46:15: But we also I think like to see other places

00:46:15 --> 00:46:20: go first and try things out so that we can
00:46:20 --> 00:46:21: learn from them.
00:46:21 --> 00:46:25: And I think the state of practice around heat management
00:46:25 --> 00:46:25: is.
00:46:25 --> 00:46:28: It's fair to say it's not as far along as
00:46:29 --> 00:46:31: it is for managing flooding,
00:46:31 --> 00:46:34: but a lot of cities in the US and around
00:46:34 --> 00:46:38: the world have recognized that this is a you know,
00:46:38 --> 00:46:40: a growing threat. This increasing temperatures,
00:46:40 --> 00:46:42: more heatwaves, and so forth,
00:46:42 --> 00:46:47: and so there are a number of cities that.
00:46:47 --> 00:46:52: Have developed planning approaches and policy tools that I think
00:46:52 --> 00:46:54: you are worth looking at.
00:46:54 --> 00:46:59: These kinds of things are not always transferable between cities,
00:46:59 --> 00:47:04: but they're useful to learn from and see if they're
00:47:04 --> 00:47:08: at least adaptable to a specific city like Houston.
00:47:08 --> 00:47:11: So some examples of UM,
00:47:11 --> 00:47:16: policies and plans so Chicago has a green roof floor
00:47:16 --> 00:47:17: area bonus.
00:47:17 --> 00:47:21: Uhm, that's encouraged developers to install a green roofs.
00:47:21 --> 00:47:25: I think Chicago has around 500 green roofs in place
00:47:25 --> 00:47:28: in some of this grew out of the 1996 Chicago
00:47:28 --> 00:47:29: heat wave,
00:47:29 --> 00:47:33: where there was a lot of a lot of people
00:47:33 --> 00:47:35: died from from that event,
00:47:35 --> 00:47:38: and you know, a lot of is also driven by
00:47:38 --> 00:47:40: stormwater management efforts.
00:47:40 --> 00:47:44: But you know, fortunately, green infrastructure of sort of covers
00:47:44 --> 00:47:47: both heat and flooding or heat and storm water in.
00:47:47 --> 00:47:51: Washington DC that certainly case they have the secretary.
00:47:51 --> 00:47:55: Very interesting stormwater credit trading system as they try to
00:47:55 --> 00:47:57: manage runoff and water quality,
00:47:57 --> 00:48:00: but that's led to, for instance,
00:48:00 --> 00:48:03: a lot of green roofs getting installed in DC,
00:48:03 --> 00:48:07: and I believe that DCS she has the most green
00:48:07 --> 00:48:08: roofs of U.S.
00:48:08 --> 00:48:14: cities. Then there are these site level greening or cooling
00:48:14 --> 00:48:19: rating systems at some cities have implemented so Seattle I
00:48:19 --> 00:48:23: think was first with the green factor.

00:48:23 --> 00:48:27: So basically you're looking at the site and applying all
00:48:27 --> 00:48:32: the different tactics that we talked about before planting trees
00:48:32 --> 00:48:36: and soiling green roofs installing reflective surfaces.
00:48:36 --> 00:48:39: And then trying to achieve a score on those and
00:48:39 --> 00:48:43: so that there's a certain amount of that that's achieved
00:48:43 --> 00:48:44: on each site.
00:48:44 --> 00:48:47: Washington DC has a similar thing with its green score
00:48:47 --> 00:48:50: system and in Cambridge where I'm working,
00:48:50 --> 00:48:52: we've developed the cool factor.
00:48:52 --> 00:48:57: That's like those, but focuses more on the cooling strategies.
00:48:57 --> 00:49:01: So that can be a useful performance based approach to
00:49:01 --> 00:49:07: addressing this issue as opposed to prescribing specific measures.
00:49:07 --> 00:49:12: A lot of cities are developing urban forest master plans.
00:49:12 --> 00:49:15: We did this recently in Cambridge,
00:49:15 --> 00:49:20: so that's looking comprehensively based on tree canopy mapping overtime
00:49:20 --> 00:49:22: to see what's happening,
00:49:22 --> 00:49:27: or tree canopy and then looking at its distribution.
00:49:27 --> 00:49:30: And then using that information to.
00:49:33 --> 00:49:36: Identify priorities in terms of where trees need to be
00:49:36 --> 00:49:37: established.
00:49:37 --> 00:49:40: Where need where tree canopy needs to be preserved,
00:49:40 --> 00:49:44: as well as factoring and the management and maintenance of
00:49:44 --> 00:49:44: it,
00:49:44 --> 00:49:46: but also looking at both the public,
00:49:46 --> 00:49:50: the trees that are on public property as well as
00:49:50 --> 00:49:52: the trees on private property.
00:49:52 --> 00:49:55: In most cities most trees are on private property,
00:49:55 --> 00:49:58: so looking at that as a system and then tree
00:49:58 --> 00:50:02: ordinances can be customized to take into account what what?
00:50:02 --> 00:50:05: Comes out of those plans.
00:50:05 --> 00:50:09: And then there are a number of cities that have
00:50:09 --> 00:50:13: developed specific urban heat plans or strategies.
00:50:13 --> 00:50:20: So Dallas has a recent urban Heat Island management study.
00:50:20 --> 00:50:24: That that maps and models heat there and and recommends
00:50:24 --> 00:50:27: strategies based on the modeling.
00:50:27 --> 00:50:31: Boston is in the midst of doing a similar thing.
00:50:31 --> 00:50:36: Louisville Ky has an interesting one of the earlier urban
00:50:36 --> 00:50:39: Heat island projects that also did modeling,

00:50:39 --> 00:50:44: and Philadelphia has a neighborhood scale plan that focuses a

00:50:44 --> 00:50:47: lot on social resilience and social impacts,

00:50:47 --> 00:50:50: and so those are, you know.

00:50:50 --> 00:50:53: These aren't exhaustive. There's a lot happening in Arizona,

00:50:53 --> 00:50:57: two in the Phoenix and Tucson areas that are important

00:50:57 --> 00:50:59: to to look at and then.

00:50:59 --> 00:51:03: You know, I think a key thing in all of

00:51:03 --> 00:51:06: this is you know the city is not going to

00:51:06 --> 00:51:10: do all of the is not going to solve this

00:51:10 --> 00:51:13: problem on its own. It has to be a collaborative

00:51:13 --> 00:51:17: effort across the community involving all the stakeholders.

00:51:17 --> 00:51:20: And so there are some interesting collaborations that happen both

00:51:20 --> 00:51:23: within cities and across regions that are interesting models.

00:51:23 --> 00:51:27: So Los Angeles has a specific urban cooling collaborative that

00:51:27 --> 00:51:30: brings together research institutions.

00:51:30 --> 00:51:35: City and county government and private stakeholders to learn together

00:51:35 --> 00:51:39: what the problem is and figure out together how to

00:51:39 --> 00:51:43: reduce the urban heat island effect and the the impacts

00:51:43 --> 00:51:45: of of extreme heat and LA.

00:51:45 --> 00:51:49: In Boston, there's the Green Ribbon Commission,

00:51:49 --> 00:51:51: which was convened by the city,

00:51:51 --> 00:51:55: but it's really run separately from the city and it

00:51:55 --> 00:51:58: basically brings together the large institutions.

00:51:58 --> 00:52:06: All the major universities. And the large employers to again

00:52:06 --> 00:52:07: learn.

00:52:07 --> 00:52:09: And collaborate about climate change impacts.

00:52:09 --> 00:52:11: You know, initially in Boston,

00:52:11 --> 00:52:14: starting on sea level rise and flooding.

00:52:14 --> 00:52:16: But they're not, you know,

00:52:16 --> 00:52:20: working on heat as well.

00:52:20 --> 00:52:24: And then there are other similar collaborations of Southeast Florida

00:52:24 --> 00:52:26: regional climate change.

00:52:26 --> 00:52:30: Come back started up focusing on sea level rise by

00:52:30 --> 00:52:34: the Red Band recently also folding in extreme heat and

00:52:34 --> 00:52:39: and and that involves multiple jurisdictions in that part of

00:52:39 --> 00:52:44: the state and San Diego has a similar collaborative.

00:52:44 --> 00:52:47: I'm so you know, Houston would not be alone and

00:52:47 --> 00:52:50: take taking these on and there are models for how

00:52:51 --> 00:52:54: it can be done as a community rather than having
00:52:54 --> 00:52:57: it be city level. So I'll turn it over to
00:52:57 --> 00:53:02: mirror. Thanks John. So just in brief,
00:53:03 --> 00:53:06: if you could go to the next slide,
00:53:06 --> 00:53:09: please returning to the topic we started with of foundational
00:53:09 --> 00:53:13: aspects to enacting heat resilience programs and practices,
00:53:13 --> 00:53:16: we come back naturally to the stakeholders.
00:53:16 --> 00:53:19: I think you've heard from most of us here today
00:53:19 --> 00:53:23: that everyone plays a role in this and has a
00:53:23 --> 00:53:27: level of responsibility here in in improving the city.
00:53:27 --> 00:53:32: And So what we see is integral to next steps.
00:53:32 --> 00:53:35: Is to dig in deep on stakeholder charettes and identify
00:53:36 --> 00:53:39: what is personal and meaningful for each one.
00:53:39 --> 00:53:42: What specific tactics need to be employed to benefit them
00:53:42 --> 00:53:47: or get them motivated and where those partnerships and collaborations
00:53:47 --> 00:53:49: can move this forward as quickly as possible.
00:53:49 --> 00:53:53: So thank you and I'm going to pass it back
00:53:53 --> 00:53:55: to David for Q&A.
00:53:57 --> 00:53:58: Thank you very much to the panel.
00:53:58 --> 00:54:01: I realized we're almost at 2:30 PM and we promised
00:54:01 --> 00:54:03: to get this panel to end on time.
00:54:03 --> 00:54:06: I do want to make sure we have time for
00:54:06 --> 00:54:06: questions.
00:54:06 --> 00:54:09: Anyone has a question? I want to make sure that
00:54:09 --> 00:54:11: if you do have a question,
00:54:11 --> 00:54:13: by the way, please enter it into Q&A function on
00:54:13 --> 00:54:16: the zoom call so we can keep track of the
00:54:16 --> 00:54:16: questions.
00:54:16 --> 00:54:19: Last but not least, I do want to acknowledge Buffalo
00:54:19 --> 00:54:19: Bayou partnership.
00:54:19 --> 00:54:22: We will be acknowledging them for certain report,
00:54:22 --> 00:54:24: but they provided some opportunities for us to study some
00:54:24 --> 00:54:27: ongoing projects that helped us ground our recommendations.
00:54:27 --> 00:54:29: In real life, projects are ongoing,
00:54:29 --> 00:54:32: so we're grateful to ANO sent in Rosenberg and the
00:54:32 --> 00:54:36: team for sharing some of what they're planning to do.
00:54:36 --> 00:54:39: It's hopped out Penner to understand what can be possible
00:54:39 --> 00:54:41: and achievable here in Houston,
00:54:41 --> 00:54:43: so I know we're almost at 2:30.
00:54:43 --> 00:54:45: I want to thank the panel.
00:54:45 --> 00:54:47: I'm gonna thank our sponsor,

00:54:47 --> 00:54:49: JP Morgan Chase. Thank you lie team.
00:54:49 --> 00:54:51: I'm checking the Q&A function.
00:54:51 --> 00:54:53: I know we've got like 3 minutes left.
00:54:53 --> 00:54:57: So does anyone have any questions into from our attendees,
00:54:57 --> 00:54:59: please? To enter them in,
00:54:59 --> 00:55:03: I know we're practically at 2:30.
00:55:03 --> 00:55:06: I'm checking the QA function right now.
00:55:06 --> 00:55:09: Let's see here. Will probably I'm not seeing anything opened
00:55:09 --> 00:55:09: yet.
00:55:09 --> 00:55:11: Is anything in a chat?
00:55:11 --> 00:55:14: Let me check that real quick.
00:55:14 --> 00:55:17: OK, I don't see anything in a chat just yet.
00:55:20 --> 00:55:22: OK, so you may be wondering what's gonna happen next.
00:55:22 --> 00:55:25: I'm buying one more minute worth of time for someone
00:55:25 --> 00:55:26: who's trying to type in a question.
00:55:26 --> 00:55:29: So what will happen is that for those who are
00:55:29 --> 00:55:29: interested,
00:55:29 --> 00:55:32: this recording will be available for the public.
00:55:32 --> 00:55:35: To view, we also will have a report that will
00:55:35 --> 00:55:38: come out in writing and that will be released later
00:55:38 --> 00:55:39: on this calendar year,
00:55:39 --> 00:55:43: and when that reports available will be distributing that online
00:55:43 --> 00:55:45: so that those who are interested in this issue can
00:55:45 --> 00:55:46: see the recommendations.
00:55:46 --> 00:55:50: I am now checking to Q&A time wait.
00:55:50 --> 00:55:53: Oh, thank you Kathleen. I saw your entry in the
00:55:53 --> 00:55:55: Q&A chat so she was one of the speakers that
00:55:55 --> 00:55:57: we interviewed on Tuesday.
00:55:57 --> 00:56:00: So thank you again. I'm really grateful that you all
00:56:00 --> 00:56:02: have had a chance to view this.
00:56:02 --> 00:56:06: We look forward to sharing both presentation and report later
00:56:06 --> 00:56:06: on.
00:56:06 --> 00:56:09: I cannot thank the panel and our team enough for
00:56:09 --> 00:56:11: taking time a lot of time this week to put
00:56:11 --> 00:56:13: together these recommendations,
00:56:13 --> 00:56:16: we hope that with the help of the panel off
00:56:16 --> 00:56:19: by a partnership that we can help the city and
00:56:19 --> 00:56:20: other stakeholders.
00:56:20 --> 00:56:23: Better understand how to move forward on addressing this issue.
00:56:23 --> 00:56:26: We all know it's getting hotter in Houston and the
00:56:26 --> 00:56:28: question is what can we do about it?

00:56:28 --> 00:56:30: It's in our self interest to do so,
00:56:30 --> 00:56:32: so I think I should try to give back two
00:56:32 --> 00:56:34: minutes of people's time.
00:56:34 --> 00:56:36: So if weight put on.
00:56:36 --> 00:56:41: Uh, let's see here. Fantastic people are signing in from
00:56:41 --> 00:56:42: Florida,
00:56:42 --> 00:56:45: Awesome. Well thank you. Thank you for chiming in from
00:56:45 --> 00:56:46: out of state.
00:56:46 --> 00:56:49: We do appreciate it and we wish you all a
00:56:49 --> 00:56:50: very good week.
00:56:50 --> 00:56:53: A Happy Memorial Day holiday and I try to stay
00:56:53 --> 00:56:55: cool this summer.
00:56:55 --> 00:56:55: Thank you.
