

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

00:02:15 --> 00:02:17: finances

00:02:17 --> 00:02:21: and our regional economy.

00:02:21 --> 00:02:25: And are most vulnerable. People in places are

00:02:25 --> 00:02:29: disproportionately affected,

00:02:29 --> 00:02:30: as they may not have the ability access or means

00:02:30 --> 00:02:34: to beat the heat and stay safe and healthy on

00:02:34 --> 00:02:36: high heat days.

00:02:36 --> 00:02:36: I remember getting to go to the movies a very

00:02:36 --> 00:02:40: rare occasion in my youth,

00:02:40 --> 00:02:44: for a discounted matinees on really hot days growing up

00:02:44 --> 00:02:48: because the apartment I lived in with my mom didn't

00:02:48 --> 00:02:51: have air conditioning and I'm sure that that was a

00:02:51 --> 00:02:55: difficult financial choice for her to make,

00:02:55 --> 00:02:59: but it also made a really lovely memory for me

00:02:59 --> 00:03:00: on how we had to avoid being being in a

00:03:00 --> 00:03:02: really hot place.

00:03:02 --> 00:03:06: That was unhealthy for us.

00:03:06 --> 00:03:09: Extreme Heat is a silent killer.

00:03:09 --> 00:03:11: Leading to more US deaths each year than all other

00:03:11 --> 00:03:14: natural disasters combined.

00:03:14 --> 00:03:19: And I think sometimes we don't.

00:03:19 --> 00:03:20: We don't, we don't. Prioritize that as much as we

00:03:20 --> 00:03:21: should.

00:03:21 --> 00:03:22: Uh, we everyone

00:03:22 --> 00:03:23: needs to

00:03:23 --> 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
00:04:55 --> 00:04:59: some strategies and
00:04:59 --> 00:04:59: tactics that hopefully will help everyone figure out how
00:04:59 --> 00:05:01: 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
00:08:13 --> 00:08:13: 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

00:11:06 --> 00:11:12: we're in much

00:11:12 --> 00:11:14: better as well. So the city of Houston didn't move

00:11:14 --> 00:11:19: to the next slide,

00:11:19 --> 00:11:24: uhm? Had three desired. This one wants to make sure

00:11:24 --> 00:11:24: that all the stakeholders in Houston are on the same

00:11:24 --> 00:11:28: page.

00:11:28 --> 00:11:29: They asked for some recommendations of how we can do

00:11:29 --> 00:11:33: this.

00:11:33 --> 00:11:35: How can we have clear priorities and move everyone in

00:11:35 --> 00:11:37: the same direction equally?

00:11:37 --> 00:11:41: And finally, what is there?

00:11:41 --> 00:11:45: What's the final product that we can develop as a

00:11:45 --> 00:11:46: panel to give them a way of communicating all of

00:11:46 --> 00:11:50: this information,

00:11:50 --> 00:11:54: gathering it, and sharing it so that the responsibility and

00:11:54 --> 00:11:59: accountability can spread equally across the city into all the

00:11:59 --> 00:12:02: Stakeholders. So our scope. Uhm,

00:12:02 --> 00:12:04: we had some hefty goals for the last three days,

00:12:04 --> 00:12:07: that's for sure. And, uh,

00:12:07 --> 00:12:08: 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

00:15:36 --> 00:15:38: were

00:15:38 --> 00:15:40: represented in our stakeholder group,

00:15:40 --> 00:15:43: 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 lots 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 conducive 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
00:25:48 --> 00:25:52: 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
00:26:39 --> 00:26:41: competing
00:26:41 --> 00:26:45: code priorities within the City of Houston.
00:26:45 --> 00:26:46: For example, the construction of detention basins often
00:26:46 --> 00:26:48: remove large
00:26:48 --> 00:26:52: forested areas,
00:26:52 --> 00:26:55: and when those forested areas are mitigated.
00:26:55 --> 00:26:59: They're not replacing canopy or square footage per square
00:26:59 --> 00:27:03: footage,
00:27:03 --> 00:27:06: so there's kind of a net loss and canopy another
00:27:06 --> 00:27:08: another one of the challenges that we looked at is
00:27:08 --> 00:27:12: that some of the cost increases that would come with
00:27:12 --> 00:27:14: any sort of of code requirements would also would be
00:27:14 --> 00:27:18: passed on to owners,
00:27:18 --> 00:27:23: and in turn those owners could could potentially pass on
00:27:23 --> 00:27:26: the cost of those to low income,
00:27:26 --> 00:27:30: housing renters. We also recognize that there's a lack of
00:27:30 --> 00:27:32: interagency communication between some of the
00:27:32 --> 00:27:36: jurisdictional entities and among
00:27:36 --> 00:27:40: those are things like text dot,
00:27:40 --> 00:27:44: you know, planning. Sometimes the planning and
00:27:44 --> 00:27:46: development ordinances can
00:27:46 --> 00:27:49: conflict with urban forestry requirements and etc.
00:27:49 --> 00:27:52: Another thing that we recognized was that the existing city
00:27:52 --> 00:27:56: of Houston Tree Mitigation Ordinance does not account for
00:27:56 --> 00:27:59: the
00:27:59 --> 00:28:03: size of a tree canopy removal and replacement.
00:28:03 --> 00:28:04: They're really just looking at the caliper.
00:28:04 --> 00:28:08: Or the the diameter size of the tree trunks was
starting to look at ways that we can replace Canopy
Square footage per canopy square footage could help
mitigate heat
Island effect. One of the great things that we did
notice is that the mayor's focus for resilience has provided
a clear direction on priority,
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 perceive 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
00:38:24 --> 00:38:28: 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
00:38:44 --> 00:38:50: building,
00:38:44 --> 00:38:50: but once again, definitely working with your designers to
00:38:50 --> 00:38:53: 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, please? To enter them in,

00:54:57 --> 00:54:59: I know we're practically at 2:30.

00:54:59 --> 00:55:03: I'm checking the QA function right now.

00:55:03 --> 00:55:06: Let's see here. Will probably I'm not seeing anything opened yet.

00:55:06 --> 00:55:09: Let's see here. Will probably I'm not seeing anything opened yet.

00:55:09 --> 00:55:09: Is anything in a chat?

00:55:09 --> 00:55:11: Let me check that real quick.

00:55:11 --> 00:55:14: OK, I don't see anything in a chat just yet.

00:55:14 --> 00:55:17: OK, I don't see anything in a chat just yet.

00:55:17 --> 00:55:20: OK, so you may be wondering what's gonna happen next.

00:55:20 --> 00:55:22: I'm buying one more minute worth of time for someone who's trying to type in a question.

00:55:22 --> 00:55:25: So what will happen is that for those who are interested,

00:55:25 --> 00:55:26: this recording will be available for the public.

00:55:26 --> 00:55:29: To view, we also will have a report that will come out in writing and that will be released later on this calendar year,

00:55:29 --> 00:55:29: and when that reports available will be distributing that online so that those who are interested in this issue can see the recommendations.

00:55:29 --> 00:55:32: I am now checking to Q&A time wait.

00:55:32 --> 00:55:35: Oh, thank you Kathleen. I saw your entry in the Q&A chat so she was one of the speakers that we interviewed on Tuesday.

00:55:35 --> 00:55:38: So thank you again. I'm really grateful that you all have had a chance to view this.

00:55:38 --> 00:55:39: We look forward to sharing both presentation and report later on.

00:55:39 --> 00:55:43: I cannot thank the panel and our team enough for taking time a lot of time this week to put together these recommendations,

00:55:43 --> 00:55:45: we hope that with the help of the panel off by a partnership that we can help the city and other stakeholders.

00:55:45 --> 00:55:46: Better understand how to move forward on addressing this issue.

00:55:46 --> 00:55:50: We all know it's getting hotter in Houston and the question is what can we do about it?

00:55:50 --> 00:55:53: We all know it's getting hotter in Houston and the question is what can we do about it?

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00:55:57 --> 00:56:00: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:00 --> 00:56:02: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:02 --> 00:56:06: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:06 --> 00:56:06: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:06 --> 00:56:09: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:09 --> 00:56:11: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:11 --> 00:56:13: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:13 --> 00:56:16: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:16 --> 00:56:19: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:19 --> 00:56:20: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:20 --> 00:56:23: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:23 --> 00:56:26: We all know it's getting hotter in Houston and the question is what can we do about it?

00:56:26 --> 00:56:28: We all know it's getting hotter in Houston and the 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.

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