Webinar

Water Wise Development Coalition Meeting - 8

Date: February 12, 2025

00:00:12 --> 00:00:14: Hello, everyone, and welcome.
00:00:14 --> 00:00:18: Thank you for joining us for Ulis Water Wise Development
00:00:18 --> 00:00:18: Coalition.
00:00:19 --> 00:00:22: I'm Marian Epig, Senior Director of Resilience for the Urban
00:00:22 --> 00:00:25: Land Institute, and we are so excited that you're joining
00:00:25 --> 00:00:26: us here today.
00:00:26 --> 00:00:29: If you don't mind, we'd love for you to take
00:00:29 --> 00:00:32: a moment to put in your name, organization, and where
00:00:32 --> 00:00:35: you're calling in from today in the chat box.
00:00:40 --> 00:00:43: We have quite a few new people joining us for
00:00:43 --> 00:00:46: this meeting, so I thought I'd just take a moment
00:00:46 --> 00:00:49: to talk a little bit about ULIULI is a global
00:00:49 --> 00:00:53: nonprofit and we're focused on responsible land use and sustainable
00:00:53 --> 00:00:54: development.
00:00:56 --> 00:01:00: We have members all around the world, over 48,000 members
00:01:00 --> 00:01:04: and they really span the gamut in terms of land
00:01:04 --> 00:01:10: use professions, including developers, architects, Lanners, et cetera, et cetera.
00:01:10 --> 00:01:11: You can see this chart.
00:01:13 --> 00:01:17: I work for UI's Urban Resilience program, which focuses focuses
00:01:17 --> 00:01:21: on how building cities and communities can be more resilient
00:01:21 --> 00:01:25: to the impacts of climate change and other environmental vulnerabilities.
00:01:25 --> 00:01:29: We do this by advancing industry understanding of resilience, cultivating
00:01:29 --> 00:01:34: champions for resilience, and supporting communities and becoming more climate
00:01:34 --> 00:01:35: resilience.
00:01:35 --> 00:01:39: We've published a lot of reports on climate resilience.
00:01:39 --> 00:01:42: Some of the covers you can see down here and

00:01:42 --> 00:01:45: most of them are available for free on our website.

00:01:47 --> 00:01:51: The Water Wise Development Coalition was created after we published

00:01:51 --> 00:01:56: this report on water wise strategies for drought resilient development.

00:01:56 --> 00:01:59: And this is all basically a how to guide on

00:01:59 --> 00:02:03: how to do water wise, real estate development and also

00:02:03 --> 00:02:04: land use.

00:02:04 --> 00:02:06: And it's free and available to anyone.

00:02:09 --> 00:02:12: If you're interested on other types of water issues like

00:02:13 --> 00:02:16: flooding and coastal resilience, we have other reports that are

00:02:16 --> 00:02:17: available.

00:02:17 --> 00:02:18: I put a few on the screen.

00:02:18 --> 00:02:22: Harvesting the value of water is really about flooding and

00:02:22 --> 00:02:24: surge is about coastal resilience.

00:02:24 --> 00:02:27: And we have many other resources available for flood resilience

00:02:27 --> 00:02:29: at the QR code on the right.

00:02:30 --> 00:02:35: This coalition, though, is primarily focused on how do we

00:02:35 --> 00:02:38: be more efficient and conserve water.

00:02:39 --> 00:02:43: And we started this coalition in partnership with the Alliance

00:02:43 --> 00:02:46: for Water Efficiency, the Sonoran Institute, and the Water Now

00:02:46 --> 00:02:50: Alliance to convene land use and real estate professionals with

00:02:50 --> 00:02:54: public sector decision makers to advance water smart real estate

00:02:54 --> 00:02:56: development and supportive policies.

00:02:57 --> 00:03:01: So if you're new to the coalition, we meet quarterly

00:03:01 --> 00:03:04: on Zoom and participants have a say in meeting topics.

00:03:04 --> 00:03:07: So we hope that you'll stick with us over time.

00:03:10 --> 00:03:14: Today's agenda is packed with amazing speakers all talking about

00:03:14 --> 00:03:17: how we can use data to improve our land use

00:03:17 --> 00:03:20: and water use decision making.

00:03:21 --> 00:03:23: We'll have a handful of speakers.

00:03:23 --> 00:03:26: The first presentation will be by Merrill Corbin from the

00:03:26 --> 00:03:29: Sonoran Institute and Abby Neil from Brendel Group, and they'll

00:03:29 --> 00:03:32: be talking about Sonoran Institute's metrics project.

00:03:33 --> 00:03:37: Faith Sternlieb and Emily Wiggins from the Center for Geospatial

00:03:37 --> 00:03:42: Spatial Solutions at the Lincoln Institute of Land Policy will

00:03:42 --> 00:03:45: be presenting their water data resources.

00:03:45 --> 00:03:48: And then Mazda Karabi from the One Water Solutions Institute

00:03:49 --> 00:03:52: at the Colorado State University will be talking about water

00:03:52 --> 00:03:55: forecasting for land use decision making with their tools that

00:03:55 --> 00:03:59: they've developed and lessons learned from the communities that they've

00:03:59 --> 00:04:00: worked with.

00:04:01 --> 00:04:04: And we'll follow these presentations with individual Q and As

00:04:04 --> 00:04:07: after each presentation, but then also group discussion and resource

00:04:07 --> 00:04:08: sharing at the end.

00:04:09 --> 00:04:11: So we hope you'll stay with us for the hour

00:04:11 --> 00:04:11: and a half.

00:04:14 --> 00:04:17: And I'm going to turn it over to our first

00:04:17 --> 00:04:21: set of speakers from the Sonoran Institute's Metrics project.

00:04:23 --> 00:04:26: And if you're just joining us, we ask that you

00:04:26 --> 00:04:29: please put in your name, organization and where you're calling

00:04:29 --> 00:04:30: in from into the chat box.

00:04:31 --> 00:04:35: And also, please feel free during the presentations and after

00:04:35 --> 00:04:38: to use the chat box for questions and comments, but

00:04:38 --> 00:04:41: we'll also have verbal Q&A after each presentation.

00:04:43 --> 00:04:43: Go ahead, Meryl.

00:04:44 --> 00:04:45: All right, Can you see my screen?

00:04:46 --> 00:04:47: OK, great.

00:04:47 --> 00:04:51: Thanks, Marianne, and thank you all for joining us today.

00:04:52 --> 00:04:53: My name is Meryl Corbin.

00:04:53 --> 00:04:55: I am the Director of the Growing Water Smart program

00:04:55 --> 00:04:56: at the Snoring Institute.

00:04:57 --> 00:04:59: And joining me today is Abby Neal.

00:04:59 --> 00:05:02: She's the lead water resource engineer with the Brindle Group

00:05:02 --> 00:05:04: and Metrics program team member.

00:05:04 --> 00:05:07: And we're here to talk about our Growing Water Smart

00:05:07 --> 00:05:09: Metrics technical assistance program.

00:05:12 --> 00:05:13: OK.

00:05:13 --> 00:05:15: But first, I wanted to provide a little bit of

00:05:15 --> 00:05:18: background about the Snoring Institute and the Growing Water Smart

00:05:18 --> 00:05:18: program.

00:05:18 --> 00:05:22: So the Snoring Institute has nearly 35 years of experience

00:05:22 --> 00:05:27: working in the Western US and Northern Mexico on conservation

00:05:27 --> 00:05:28: efficiency issues.
00:05:28 --> 00:05:31: And our mission is to connect people and communities with
00:05:31 --> 00:05:34: the natural resources that nourish and sustain them.
00:05:34 --> 00:05:37: And we do this through four programs, but we're here
00:05:38 --> 00:05:40: today to talk about Growing Water Smart, which is a
00:05:41 --> 00:05:45: training and assistance program that empowers local leaders to develop
00:05:45 --> 00:05:49: plans and policies to support community, community and Regional Water
00:05:49 --> 00:05:49: resilience.
00:05:50 --> 00:05:53: It was developed in 2017 with the Sonoran Institute and
00:05:53 --> 00:05:56: the Babbitt Center for Land and Water Policy, which is
00:05:56 --> 00:05:59: a center at the Lincoln Institute of Land Policy.
00:06:00 --> 00:06:04: And a key component to help communities advance their land
00:06:04 --> 00:06:08: use plans and policies is to provide them with technical
00:06:08 --> 00:06:12: assistance to help them make data-driven decisions.
00:06:12 --> 00:06:15: And in 2020, we created the Metrics Program, which is
00:06:15 --> 00:06:20: a technical assistance program that helps track the quantity, quality
00:06:20 --> 00:06:24: and impact of integrated water and land use planning.
00:06:25 --> 00:06:28: And we'll talk today about this effort in with a
00:06:28 --> 00:06:32: case study for with Fort Lupton Co who have attended
00:06:32 --> 00:06:35: 2 workshops in between those two workshops.
00:06:35 --> 00:06:37: They were a Metrics program partner.
00:06:40 --> 00:06:44: So Growing Water Smart focuses on, I'm getting pop up
00:06:44 --> 00:06:46: from the chats.
00:06:46 --> 00:06:47: Let me try to minimize this.
00:06:47 --> 00:06:50: OK, so Growing Water Smart focuses on the power of
00:06:50 --> 00:06:54: land use planning and water resource management and in particular,
00:06:54 --> 00:06:56: where these two fields overlap.
00:06:56 --> 00:07:00: And we believe that integrating water resource management into where
00:07:00 --> 00:07:04: and how we develop and redevelop can reduce water demand
00:07:04 --> 00:07:09: while creating more resilience and sustainable and equitable communities.
00:07:12 --> 00:07:14: And we do that through 5 strategies.
00:07:14 --> 00:07:19: We've identified water smart planning, adequate and sustainable water supply
00:07:19 --> 00:07:24: standards, water smart land use policies, protecting and enhancing river
00:07:24 --> 00:07:28: and watershed health, and efficient water demand programs

as key

00:07:29 --> 00:07:33: ways of providing communities with tools to develop plans and

00:07:33 --> 00:07:37: policies that are best suited for those communities and to

00:07:37 --> 00:07:41: create more integrated approach to linking water and land use

00:07:41 --> 00:07:44: to with the end effort of reducing demand.

00:07:46 --> 00:07:50: And so we hold growing water smart workshops throughout Colorado,

00:07:51 --> 00:07:54: Arizona, California and along the US Mexico border.

00:07:54 --> 00:07:58: And we've seen trends in these regions within these five

00:07:58 --> 00:07:58: strategies.

00:07:59 --> 00:08:02: So I wanted to highlight the trends that we're seeing

00:08:02 --> 00:08:05: as well as the, the, the data needs that would

00:08:05 --> 00:08:09: be helpful to address those trends or potential policies and

00:08:09 --> 00:08:10: then those outcomes.

00:08:11 --> 00:08:15: So our first strategy is water smart planning and communities

00:08:15 --> 00:08:19: can create guiding plans to integrate land use planning and

00:08:19 --> 00:08:21: water efficiency and conservation plans.

00:08:22 --> 00:08:27: So we're seeing that communities outgrowing water smart workshops identify

00:08:27 --> 00:08:30: the the need to understand municipal water to serve their

00:08:30 --> 00:08:32: their current demand trends.

00:08:33 --> 00:08:36: And so a data need around this is how the

00:08:36 --> 00:08:41: amount of water that a water provider distributes to serve

00:08:41 --> 00:08:45: municipal demands and linking that with per capita demand and

00:08:45 --> 00:08:47: a potential outcome.

00:08:48 --> 00:08:51: Excuse me, let me catch, let me catch my breath

00:08:51 --> 00:08:51: one second.

00:08:55 --> 00:08:58: An outcome for this metric is really the basis for

00:08:58 --> 00:09:02: understanding water use and water efficiency and conservation trends over

00:09:02 --> 00:09:04: a longer period of time.

00:09:06 --> 00:09:11: The next strategy is adequate and sustainable water supply standards,

00:09:11 --> 00:09:15: which ensures that the development has demonstrated that it has

00:09:15 --> 00:09:17: enough water to sustain that development.

00:09:18 --> 00:09:22: And we're seeing that communities really want to understand, does

00:09:22 --> 00:09:26: their community, their region or the state at large have

00:09:26 --> 00:09:30: reliable water supply to meet their municipal demands.

00:09:30 --> 00:09:34: And so some key data needs are hydrologic and water

00:09:34 --> 00:09:38: allocation models with the end goal or outcome of adopting

00:09:38 --> 00:09:43: adequate water supply rules, linking water supply to to development.

00:09:45 --> 00:09:48: The next strategy is water smart land use policies.

00:09:48 --> 00:09:52: So this is really addressing urban form, outdoor water use,

00:09:52 --> 00:09:56: indoor water use and new and new development and redevelopment.

00:09:57 --> 00:10:00: And a trend that we're seeing is communities are really

00:10:00 --> 00:10:02: focused on outdoor water use.

00:10:02 --> 00:10:06: So how much water are they currently allocating or using

00:10:06 --> 00:10:07: for outdoor?

00:10:08 --> 00:10:11: And a key data need is understanding the total water

00:10:11 --> 00:10:13: distributed and billing and meter information.

00:10:14 --> 00:10:18: And what we're seeing are otential outcomes are landscape codes

00:10:18 --> 00:10:21: that require low water material, but also understanding like what

00:10:21 --> 00:10:24: are those quantifiable savings over time.

00:10:28 --> 00:10:31: The the next area of opportunity is, is using land

00:10:31 --> 00:10:34: use plans and policies to protect and enhance watershed health.

00:10:34 --> 00:10:40: So those opportunities include low impact development, green infrastructure, and

00:10:40 --> 00:10:43: then really making strategic use of all water resources and

00:10:44 --> 00:10:44: uses.

00:10:44 --> 00:10:49: And we're seeing that communities are wanting to understand can

00:10:49 --> 00:10:52: they align the white right water quality with the right

00:10:52 --> 00:10:54: use within their system.

00:10:54 --> 00:10:58: So I'm really focused on reusing water supplies and how

00:10:58 --> 00:11:03: they can do that throughout the water supply, the water

00:11:03 --> 00:11:03: chain.

00:11:03 --> 00:11:08: So one data need is understanding total water distributed.

00:11:08 --> 00:11:12: And then what reuse supplies or reclaimed or grey water

00:11:12 --> 00:11:13: opportunities do you have?

00:11:14 --> 00:11:17: And then how can you use that water for either

00:11:17 --> 00:11:21: irrigation or cooling or other opportunities to reduce demand and

00:11:21 --> 00:11:24: sort of use that water, kind of stretching the water

00:11:24 --> 00:11:27: throughout your system to meet all of your needs?

00:11:29 --> 00:11:33: The 5th and the last strategy that we've identified is,

00:11:33 --> 00:11:37: you know, once a development is online, how can water

00:11:37 --> 00:11:43: providers and communities support conservation and efficiency and through water

00:11:43 --> 00:11:45: demand programs.

00:11:45 --> 00:11:49: So this includes conservation oriented rate structures, but also educating

00:11:49 --> 00:11:53: the community on their role and responsibility to be water

00:11:53 --> 00:11:53: rise.

00:11:53 --> 00:11:56: So we often see at workshops, a big part of

00:11:56 --> 00:11:59: this is what is the community outreach and engagement look

00:11:59 --> 00:12:00: like.

00:12:00 --> 00:12:03: And one way or one trend that is quite popular

00:12:03 --> 00:12:08: is really understanding like what are the conservation oriented rate

00:12:08 --> 00:12:11: structures that can incentivize efficiency.

00:12:11 --> 00:12:15: And when you're thinking about that, it's important to understand

00:12:15 --> 00:12:18: what is the total water distributed and the per capita

00:12:18 --> 00:12:21: water demands and that also link to the goals that

00:12:21 --> 00:12:21: you have.

00:12:21 --> 00:12:24: So are those more indoor programs?

00:12:24 --> 00:12:26: Are they outdoor, are they landscape?

00:12:26 --> 00:12:29: And there's lots of different community values that we have

00:12:29 --> 00:12:32: to consider when thinking about water efficient demand programs.

00:12:34 --> 00:12:37: And so I mentioned we wanted to talk about Fort

00:12:37 --> 00:12:38: Lupton.

00:12:38 --> 00:12:42: So one reason that we're we're highlighting this team and

00:12:42 --> 00:12:45: using them as a case study is they had a

00:12:45 --> 00:12:48: really diverse experience on their team roster.

00:12:48 --> 00:12:51: So they had elected officials as well as land use

00:12:51 --> 00:12:56: planners, engineers, utility billing managers, communication, marketing.

00:12:56 --> 00:12:59: They really had A-Team that was diverse and brought a

00:13:00 --> 00:13:01: lot of education and experience.

00:13:02 --> 00:13:07: And they attended Growing Water Smarts in team May of

00:13:07 --> 00:13:08: 2023.

00:13:08 --> 00:13:11: And then after that workshop, they, they really spent a

00:13:11 --> 00:13:13: lot of their time focusing on what's the big picture,

00:13:14 --> 00:13:16: what do we have, what are our current plans and

00:13:16 --> 00:13:18: efforts and where can we find alignment.

00:13:18 --> 00:13:21: And then they worked with the Sonoran Institute and the

00:13:21 --> 00:13:25: Brindle Group on ATA project, which Abby will talk about

00:13:25 --> 00:13:26: here in a moment.

00:13:27 --> 00:13:29: And then they came back to Growing Water Smart.

00:13:29 --> 00:13:34: So they attended Growing Water Smart in September of

2024.

00:13:34 --> 00:13:37: And they were you able to utilize the data that

00:13:37 --> 00:13:41: they developed with the TA projects to understand, you know,

00:13:41 --> 00:13:46: what are those opportunities to leverage this information across multiple

00:13:46 --> 00:13:50: plans and have a more integrated water conservation effort across

00:13:50 --> 00:13:51: the city.

00:13:51 --> 00:13:51: OK.

00:13:55 --> 00:13:57: So if this sounds interesting to you and you happen

00:13:57 --> 00:14:00: to live on the West slope of Colorado, we do

00:14:00 --> 00:14:03: have an upcoming workshop and this will be April 28th

00:14:03 --> 00:14:04: through the 30th.

00:14:04 --> 00:14:06: And we can talk a little bit about this more

00:14:06 --> 00:14:08: at the end when we're talking about opportunities.

00:14:08 --> 00:14:11: But if this sounds interesting to you, I'd be happy

00:14:11 --> 00:14:12: to chat more.

00:14:14 --> 00:14:16: With that, I will hand it over to Abby.

00:14:17 --> 00:14:17: Great.

00:14:17 --> 00:14:18: Thank you, Meryl.

00:14:19 --> 00:14:21: I'm going to drop a link into the chat for

00:14:21 --> 00:14:25: this Green Water Spark metrics guidebook that Meryl has mentioned

00:14:25 --> 00:14:28: a couple of times, and I just would encourage you

00:14:28 --> 00:14:30: all to take a look at it.

00:14:30 --> 00:14:31: It is tailored to Colorado.

00:14:31 --> 00:14:34: So I know we have a handful, a number of

00:14:34 --> 00:14:37: folks who are not from Colorado on the call, but

00:14:37 --> 00:14:41: a lot of the fundamental concepts in this metrics guidebook

00:14:41 --> 00:14:42: do apply to everybody.

00:14:43 --> 00:14:47: And today we're going to focus on a specific example

00:14:47 --> 00:14:51: of a technical assistance offering that Sonoran has to support

00:14:51 --> 00:14:55: communities and calculating some of the metrics that are outlined

00:14:55 --> 00:14:56: in the guidebook.

00:14:57 --> 00:15:02: So if you go to the next slide, please, there

00:15:02 --> 00:15:07: are 24 different metrics in the guidebook.

00:15:08 --> 00:15:10: I won't read through all of them here, but the

00:15:10 --> 00:15:15: Snort Institute offers technical assistance to help communities, water providers

00:15:15 --> 00:15:18: and other entities calculate what these metrics are.

00:15:19 --> 00:15:22: If you go to the next slide, zoom through this

00:15:22 --> 00:15:25: pretty quickly so we can get to the example it
00:15:25 --> 00:15:29: that technical assistance takes the form of 6 to 8
00:15:29 --> 00:15:30: months of assistance.
00:15:31 --> 00:15:32: We open that up every August.
00:15:32 --> 00:15:34: So if you get to the end of this and
00:15:34 --> 00:15:36: you're super interested, be sure to look through look for
00:15:37 --> 00:15:39: the next hopeful announcement that will be out in August.
00:15:39 --> 00:15:41: I also want to have a shout out to the
00:15:41 --> 00:15:44: Colorado Water Conservation Board that helps fund this program.
00:15:44 --> 00:15:48: We've done 3 rounds so far supporting 6 different communities
00:15:48 --> 00:15:52: and we're going to talk specifically about Fort Lepton today.
00:15:53 --> 00:15:57: So on the next slide, these are some of the
00:15:57 --> 00:15:59: high level program benefits.
00:15:59 --> 00:16:02: If I were to distill it down super succinctly, the
00:16:02 --> 00:16:05: whole goal of the program is to help communities, water
00:16:05 --> 00:16:10: providers, entities make data, different data-driven decisions that help with
00:16:10 --> 00:16:13: data management, tracking progress over time, as well as the
00:16:13 --> 00:16:17: ability to invest resources where you're going to have the
00:16:17 --> 00:16:18: most bang for your buck.
00:16:19 --> 00:16:21: And then also how to communicate all of that out.
00:16:21 --> 00:16:23: So how do you talk to your counsel, your Commission,
00:16:23 --> 00:16:27: leadership, public about why you're making the decisions you're making
00:16:27 --> 00:16:29: and the data behind those decisions?
00:16:30 --> 00:16:32: On the next slide, you'll see kind of array of
00:16:33 --> 00:16:36: the type of technical assistance that we can provide through
00:16:36 --> 00:16:36: this program.
00:16:37 --> 00:16:41: It has taken the form of everything from developing a
00:16:41 --> 00:16:44: tool that helps entities track water use over time.
00:16:44 --> 00:16:47: So let's say you change your code to make your
00:16:47 --> 00:16:50: landscape standards more water efficient, and you need to see
00:16:50 --> 00:16:52: if that is actually happening.
00:16:53 --> 00:16:55: One of the forms of technical assistance that could come
00:16:55 --> 00:16:57: from this program is tracking that to see if those
00:16:58 --> 00:16:59: changes are making a difference.
00:17:00 --> 00:17:04: We've also helped planners get a better understanding of what
00:17:04 --> 00:17:07: a new development might use when it comes to water
00:17:07 --> 00:17:10: use, how to estimate water demands by zone or future

00:17:10 --> 00:17:13: land use, as well as some Policy Research to help

00:17:14 --> 00:17:18: communities understand what tools they have in their toolkit to

00:17:18 --> 00:17:21: advance integrated land use and water planning.

00:17:22 --> 00:17:25: So on the next slide, the city of Fort Lupton,

00:17:25 --> 00:17:27: I think I just want to call out a few

00:17:27 --> 00:17:30: details about the city of Fort Lupton that does make

00:17:30 --> 00:17:31: them unique.

00:17:31 --> 00:17:34: The 1st is that I'll note that the city and

00:17:34 --> 00:17:36: the water agency are the same.

00:17:36 --> 00:17:38: So when your land use authority and your water use

00:17:38 --> 00:17:41: authority are not the same, there's just some additional coordination

00:17:41 --> 00:17:43: challenges for the city of Fort Lupton, they are the

00:17:43 --> 00:17:45: same entity, which is awesome.

00:17:46 --> 00:17:48: I think the other reason the city of Fort Lupton

00:17:48 --> 00:17:50: is such a great success, in addition to the examples

00:17:50 --> 00:17:53: that Merrill shared, is they had a really clear end

00:17:53 --> 00:17:54: use in mind.

00:17:54 --> 00:17:57: So they joined this program after going through the Growing

00:17:57 --> 00:18:01: Water Smart workshop and they were updating a comprehensive plan

00:18:01 --> 00:18:04: and they wanted to understand water demands by land use

00:18:04 --> 00:18:07: and forecasted water demands by land use to inform that

00:18:07 --> 00:18:07: process.

00:18:08 --> 00:18:11: And it was clear and it had guardrails.

00:18:11 --> 00:18:13: And so it let us stay really focused and do

00:18:13 --> 00:18:16: a pretty deep dive into their water and land use

00:18:16 --> 00:18:17: data.

00:18:18 --> 00:18:21: So for those of you who might not be familiar

00:18:21 --> 00:18:24: with Fort Lupton and Colorado, on the next slide is

00:18:24 --> 00:18:27: just a map of Fort Lupton on the left and

00:18:27 --> 00:18:30: as well as their future land use on the right.

00:18:31 --> 00:18:34: Fort Lepton, for those who might not be familiar, is

00:18:34 --> 00:18:36: located about 25 miles north of Denver.

00:18:36 --> 00:18:39: I have that future land use map because again, their

00:18:39 --> 00:18:43: goal was really to inform their comprehensive plan and understanding

00:18:43 --> 00:18:46: how much water these future land use areas might use

00:18:46 --> 00:18:48: in the future to help with their overall planning.

00:18:49 --> 00:18:53: So on the next slide, I will do my best

00:18:53 --> 00:18:56: to distill this process down succinctly.

00:18:57 --> 00:19:00: I'll note it's not a simple process, as I'm sure

00:19:00 --> 00:19:03: those on this call can appreciate, but the very first
00:19:03 --> 00:19:07: step, which I'm a water resource engineer and a data
00:19:07 --> 00:19:10: nerd, so I might be biased in this opinion, but
00:19:10 --> 00:19:13: the very first thing for kind of any of this
00:19:13 --> 00:19:14: is cleaning up your data.
00:19:14 --> 00:19:16: So we spent a lot of time cleaning up our
00:19:17 --> 00:19:19: water use data as well as the land use data.
00:19:19 --> 00:19:22: You have to have good data in to get good
00:19:22 --> 00:19:23: outcomes on the back end.
00:19:24 --> 00:19:26: So that was the first step.
00:19:26 --> 00:19:29: The second step was trying to figure out how to
00:19:29 --> 00:19:32: integrate that water use data with land use data.
00:19:32 --> 00:19:35: So we used water meters and we matched those to
00:19:36 --> 00:19:36: zones.
00:19:36 --> 00:19:40: We are doing everything on a parcel basis, which allowed
00:19:40 --> 00:19:42: us to roll things up both on a per zone
00:19:42 --> 00:19:45: basis as well as a future land use basis.
00:19:45 --> 00:19:48: We made those ties we then needed to get from
00:19:49 --> 00:19:52: current state, which is what we were using the zoning
00:19:52 --> 00:19:54: data for, to future state.
00:19:54 --> 00:19:56: So how do we get to that future land use
00:19:56 --> 00:19:56: type?
00:19:57 --> 00:20:00: So we did some work to match current zoning, the
00:20:00 --> 00:20:02: future land use.
00:20:02 --> 00:20:04: This is another one I'll highlight.
00:20:04 --> 00:20:07: It sounds like that was very simple, but for all
00:20:07 --> 00:20:11: the planners on the call, zoning to future land use
00:20:11 --> 00:20:12: isn't 1 to one.
00:20:12 --> 00:20:15: I'm not a planner, but we did some things like
00:20:15 --> 00:20:18: reclassing PU DS that are kind of ambiguous.
00:20:19 --> 00:20:22: We also took into consideration the fact that a future
00:20:22 --> 00:20:25: land use might be representative of multiple zones.
00:20:25 --> 00:20:31: So we said, all right, single family future land use,
00:20:31 --> 00:20:36: maybe that's 10% zone R1, a 10% zone R2A and
00:20:36 --> 00:20:38: 7080% multi family.
00:20:38 --> 00:20:40: So we did an exercise to figure out how to
00:20:40 --> 00:20:43: slice and dice our zones to match to the future
00:20:43 --> 00:20:43: land use.
00:20:44 --> 00:20:47: That in turn allowed us to assign water use by
00:20:47 --> 00:20:51: zone and then determine those future land use water use
00:20:52 --> 00:20:52: assumptions.
00:20:54 --> 00:20:57: So for those who might need some visuals on the

00:20:57 --> 00:20:59: next slide, we can kind of run through some of
00:20:59 --> 00:21:01: these as a high level, I don't have a cool
00:21:01 --> 00:21:04: picture for cleaning water use data because that doesn't have
00:21:04 --> 00:21:06: a cool picture associated with it.
00:21:06 --> 00:21:08: But I will still say it's very important though.
00:21:08 --> 00:21:11: Again, that first step was matching our meters to zones.
00:21:11 --> 00:21:14: You can see Fort Lupton zones on the right.
00:21:15 --> 00:21:18: We then took this zoning information and on the next
00:21:18 --> 00:21:21: slide we were pairing that up to the future land
00:21:21 --> 00:21:21: use types.
00:21:23 --> 00:21:27: We also were identifying undeveloped parcels to by whether or
00:21:27 --> 00:21:29: not they had a water meter.
00:21:29 --> 00:21:31: So if they did not have a water meter, we
00:21:31 --> 00:21:33: assumed they were undeveloped.
00:21:33 --> 00:21:35: This was just important because if we had water use
00:21:36 --> 00:21:37: data, we just use the water use data.
00:21:37 --> 00:21:41: So we only applied to our assumptions to those undeveloped
00:21:41 --> 00:21:44: parcels that you can see a little snippet of on
00:21:44 --> 00:21:45: this slide.
00:21:48 --> 00:21:51: And then the very next thing was tying water use
00:21:51 --> 00:21:52: to this.
00:21:52 --> 00:21:55: So again, we were using our water use by zones
00:21:55 --> 00:22:00: to create that percentage mix of, you know, single family
00:22:00 --> 00:22:04: R1, single family R1A to kind of mix and match.
00:22:04 --> 00:22:07: And then finally we got some outputs with lots of
00:22:07 --> 00:22:09: other little steps in between.
00:22:11 --> 00:22:12: There's lots of ways to look at this data.
00:22:13 --> 00:22:16: I I purposely cut off the legends just for data
00:22:16 --> 00:22:17: privacy reasons.
00:22:17 --> 00:22:20: But this is showing like total water use on a
00:22:21 --> 00:22:24: parcel, so dark blue is more water use.
00:22:24 --> 00:22:28: Unsurprisingly, larger parcels are having more water use because they
00:22:28 --> 00:22:28: are bigger.
00:22:30 --> 00:22:34: On the next slide, we also normalize things to acres.
00:22:34 --> 00:22:37: So this is gallons per acre data and you can
00:22:37 --> 00:22:39: see that our more dense developments.
00:22:39 --> 00:22:41: So like our multi family, it does have a higher
00:22:41 --> 00:22:42: water use intensity.
00:22:43 --> 00:22:46: That makes sense though, because there's theoretically going to be

00:22:46 --> 00:22:50: more people living in that multi family parcel than your
00:22:50 --> 00:22:51: single family.
00:22:51 --> 00:22:55: And then again, commercial higher water use assumptions for those.
00:22:56 --> 00:22:59: So that takes us to the end of our Fort
00:22:59 --> 00:23:01: Lepton example.
00:23:01 --> 00:23:06: And I think we can pause now for questions and
00:23:06 --> 00:23:08: comments if there are any.
00:23:08 --> 00:23:10: And Marianne, feel free to jump in.
00:23:10 --> 00:23:10: Yeah.
00:23:10 --> 00:23:13: Thank you so much for that presentation.
00:23:13 --> 00:23:15: I'd love to open it up for questions.
00:23:15 --> 00:23:18: We have two minutes for questions, but if you have
00:23:18 --> 00:23:20: questions that go beyond those two minutes, you can put
00:23:20 --> 00:23:21: them in the chat box.
00:23:23 --> 00:23:25: Nick, do you want to just unmute and ask your
00:23:25 --> 00:23:26: question?
00:23:29 --> 00:23:30: Yeah, sure can.
00:23:32 --> 00:23:32: You hear me?
00:23:34 --> 00:23:34: Or Merrill?
00:23:35 --> 00:23:37: Yes, go ahead, Go ahead, Nick.
00:23:38 --> 00:23:38: Yeah, I was just.
00:23:38 --> 00:23:42: Wondering if agriculture farm use, you know any other any
00:23:42 --> 00:23:46: other uses besides residential is taking into account and into
00:23:46 --> 00:23:47: the analysis?
00:23:48 --> 00:23:51: Yeah, so this we were specifically working with the city
00:23:51 --> 00:23:55: of city of Fort Lepton doesn't serve agricultural users.
00:23:55 --> 00:23:58: So we did not take agricultural users into account because
00:23:58 --> 00:24:01: that's not a customer base they serve.
00:24:01 --> 00:24:06: So we were focusing on residential, multi family, commercial and
00:24:06 --> 00:24:10: institutional and kind of narrowed it down to their service
00:24:11 --> 00:24:14: area population to come up with that list.
00:24:15 --> 00:24:15: OK, that makes sense.
00:24:15 --> 00:24:18: But if there is a if there is a municipality
00:24:18 --> 00:24:22: that that does service AG use, it would be included
00:24:22 --> 00:24:23: in the analysis, correct?
00:24:24 --> 00:24:24: OK.
00:24:24 --> 00:24:24: Understood.
00:24:25 --> 00:24:25: Thanks.
00:24:25 --> 00:24:25: Yeah.
00:24:25 --> 00:24:26: Good question.

00:24:29 --> 00:24:30: Oh, I have a question.
00:24:31 --> 00:24:31: Go ahead.
00:24:33 --> 00:24:36: Hey, how did you get your utility information?
00:24:38 --> 00:24:38: Yeah.
00:24:38 --> 00:24:40: So that's a great question to you.
00:24:40 --> 00:24:42: So I made that comment at the beginning where I
00:24:42 --> 00:24:46: said Fort Lupton was a great example because their water
00:24:46 --> 00:24:49: authority and their land use authority are the same entity.
00:24:50 --> 00:24:53: So the City of Fort Lupton supplies water to the
00:24:53 --> 00:24:54: City of Fort Lupton area.
00:24:54 --> 00:24:58: So it was easy because they are the same organization.
00:24:59 --> 00:25:01: In places where that isn't the case, we usually have
00:25:01 --> 00:25:04: to do a data sharing agreement and coordinate to make
00:25:04 --> 00:25:05: that happen.
00:25:10 --> 00:25:10: Interesting.
00:25:10 --> 00:25:11: Thank you.
00:25:12 --> 00:25:13: All right, well, we're out of time.
00:25:13 --> 00:25:16: If you have any other questions for this group, please
00:25:16 --> 00:25:18: put it in the chat box and they can respond.
00:25:18 --> 00:25:22: I'll turn it over to our next set of presentations
00:25:22 --> 00:25:25: from the Center for Geospatial Solutions.
00:25:28 --> 00:25:31: All right, I will share my screen.
00:25:36 --> 00:25:40: Thanks so much, Marianne, for hosting us.
00:25:41 --> 00:25:44: So Many thanks to the Coalition.
00:25:44 --> 00:25:46: And I see a lot of names.
00:25:46 --> 00:25:50: I recognize people I haven't seen in a while, but
00:25:50 --> 00:25:51: I'm really happy you're on.
00:25:54 --> 00:25:58: I think there is somebody who does not have us
00:25:58 --> 00:25:59: not muted.
00:25:59 --> 00:26:00: Can everyone please mute?
00:26:02 --> 00:26:02: Wonderful.
00:26:05 --> 00:26:08: Emily, I think that's you actually, if you don't mind
00:26:08 --> 00:26:08: me.
00:26:11 --> 00:26:12: Thank you.
00:26:12 --> 00:26:15: So my name is Faith Sternlyb and I'm the Associate
00:26:15 --> 00:26:19: Director for Global Engagement for the Internet of Water team
00:26:19 --> 00:26:22: at the Center for Geospatial Solutions.
00:26:22 --> 00:26:25: We refer to as CGS for the Future, a center
00:26:25 --> 00:26:28: of the Lincoln Institute of Land Policy, which you just
00:26:28 --> 00:26:31: heard a little bit about some of their other efforts.
00:26:33 --> 00:26:37: I, I wanted to actually reach out and put a

00:26:37 --> 00:26:39: plug in for Marianne Dickinson.
00:26:40 --> 00:26:42: She is one of our newest members at the Lincoln
00:26:42 --> 00:26:45: Institute and a member of the Coalition.
00:26:45 --> 00:26:48: So hey Marianne, I will give at first a quick
00:26:49 --> 00:26:53: primer on CGS and the Internet of Water and what
00:26:53 --> 00:26:57: we do and give a little background on our work
00:26:57 --> 00:27:01: in the Pinal County Water Data Hub in Central AZ.
00:27:01 --> 00:27:04: And then I'll hand it over to my colleague Emily,
00:27:04 --> 00:27:07: who is a senior analyst with CGS and will walk
00:27:07 --> 00:27:10: us through the technical aspects of the project as well
00:27:10 --> 00:27:12: as policy implications next.
00:27:16 --> 00:27:20: So CGS, the Center for Geospatial Solutions is a center
00:27:20 --> 00:27:23: of the Lincoln Institute of Land Policy.
00:27:23 --> 00:27:27: We work with non profit and private organizations as well
00:27:27 --> 00:27:31: as local, state and federal governments to help them address
00:27:31 --> 00:27:35: challenges at the Nexus of land, water and people through
00:27:35 --> 00:27:41: geographic information systems and analysis, earth observations, artificial intelligence, machine
00:27:41 --> 00:27:44: learning, and advanced analytics.
00:27:44 --> 00:27:48: At the Internet of Water, we focus on helping our
00:27:48 --> 00:27:52: partners on with modernizing their water data systems.
00:27:52 --> 00:27:55: So we work with them to ensure their open water
00:27:55 --> 00:27:58: data follows the fair and care principles.
00:27:58 --> 00:28:01: I'm not going to go over them here right now,
00:28:01 --> 00:28:04: but I will add a link afterwards after we, you
00:28:04 --> 00:28:08: know, after I'm finished speaking to those to both sets
00:28:08 --> 00:28:11: of principles which are really important for open data.
00:28:12 --> 00:28:15: I I'm going to next.
00:28:15 --> 00:28:17: Thanks, Emily.
00:28:17 --> 00:28:18: Yeah.
00:28:18 --> 00:28:23: So, so we are indeed talking about a project that
00:28:23 --> 00:28:29: is a story of modern data modernization, data fusion, data
00:28:30 --> 00:28:33: storytelling and partnerships.
00:28:33 --> 00:28:36: It started with the Arizona Water Company.
00:28:36 --> 00:28:40: They are a private water company that serves over 30
00:28:40 --> 00:28:42: communities throughout Arizona.
00:28:42 --> 00:28:47: So going back to what Meryl and Abby were talking
00:28:47 --> 00:28:52: about, they were a Growing Water Smart community team.
00:28:53 --> 00:28:57: They actually went twice because Arizona Water Company serves more
00:28:57 --> 00:29:00: than you know, serves so many communities.
00:29:00 --> 00:29:04: They brought Casa Grande 1st and then they brought another

00:29:04 --> 00:29:05: community after that.

00:29:06 --> 00:29:10: So after a couple, so after the Growing Water Smart

00:29:11 --> 00:29:16: workshop and then in 2020, they attended right when COVID

00:29:16 --> 00:29:16: hit.

00:29:17 --> 00:29:20: And then through COVID, they were able to implement 2

00:29:20 --> 00:29:25: technical assistance projects, which brought about the eventual realization that

00:29:25 --> 00:29:29: they, Arizona Water Company badly needed to have better understanding

00:29:29 --> 00:29:31: of their land and water data.

00:29:31 --> 00:29:36: More specifically, looking at, as you just saw parcel level

00:29:36 --> 00:29:41: data including water allocation, actual water use, projected future demand,

00:29:41 --> 00:29:47: certificates of assured water supply and projected subdivision developments.

00:29:48 --> 00:29:52: So the Lincoln Institute partnered with Arizona Water Company, Casa

00:29:52 --> 00:29:56: Grande Pinal County and the University of Arizona.

00:29:56 --> 00:30:00: We signed an MOU in 2022 and then we started

00:30:00 --> 00:30:04: on a long day to discovery journey, which Emily will

00:30:04 --> 00:30:06: dig into in a minute.

00:30:06 --> 00:30:11: From 2023, Arizona Water Company contracted CGS to continue hub

00:30:11 --> 00:30:12: development.

00:30:13 --> 00:30:15: So I'm going to leave it to you, Emily, to

00:30:15 --> 00:30:17: to tell us about the hub all.

00:30:19 --> 00:30:19: Right.

00:30:19 --> 00:30:20: Thanks, Faith.

00:30:22 --> 00:30:25: So talking a little more from what Faith said about

00:30:25 --> 00:30:28: some of these challenges, and one of them was just

00:30:28 --> 00:30:32: getting all of these folks to the table because there's

00:30:32 --> 00:30:35: often times uncertainty about sharing data and how it will

00:30:35 --> 00:30:38: be handled and permissions and all that.

00:30:38 --> 00:30:42: So there's the data challenge, there's the water scarcity challenge.

00:30:43 --> 00:30:46: And as our previous presenter said, you know, there's data

00:30:46 --> 00:30:48: cleaning challenges, there's a lot of challenges.

00:30:49 --> 00:30:52: So we're going into this knowing we we've got a

00:30:52 --> 00:30:55: lot to to deal with, but one of the main

00:30:55 --> 00:30:58: ones that's that's kind of behind all of this is

00:30:58 --> 00:31:00: just a water scarcity issue.

00:31:01 --> 00:31:04: So a little bit of of a history on Arizona

00:31:04 --> 00:31:05: groundwater.

00:31:05 --> 00:31:08: The main thing that we're going to focus on for
00:31:08 --> 00:31:13: this project was the implications of the assured water supply
00:31:13 --> 00:31:16: program that went into effect in 1995.
00:31:16 --> 00:31:21: And those rules require developers to demonstrate renewable water for
00:31:21 --> 00:31:22: 100 years.
00:31:22 --> 00:31:26: So they are required to show that they can demonstrate
00:31:26 --> 00:31:30: water groundwater supply to developments that are within a assured
00:31:30 --> 00:31:33: water supply region for 100 years, kind of a big
00:31:33 --> 00:31:34: commitment.
00:31:34 --> 00:31:40: Unfortunately, in 2019, modelling of the groundwater in Pinal County's
00:31:40 --> 00:31:45: region, but the Greater Pinal Active Management Area showed an
00:31:45 --> 00:31:49: unmet demand of 8.1 million acre feet, 2 million of
00:31:49 --> 00:31:53: which were associated with the assured water supply program.
00:31:54 --> 00:31:58: So there was kind of this crisis and challenge that
00:31:58 --> 00:32:03: arose that there wasn't enough groundwater, highlighting that some of
00:32:03 --> 00:32:07: you may have seen sensational headlines such as these to
00:32:07 --> 00:32:11: the effect of that, you know, is there enough water
00:32:11 --> 00:32:12: for agriculture?
00:32:12 --> 00:32:14: Is there enough water for more development?
00:32:14 --> 00:32:17: How can we build more houses with more demand when
00:32:17 --> 00:32:18: there's this water shortage?
00:32:19 --> 00:32:21: You can see the mayor of Casa Grande actually there
00:32:21 --> 00:32:23: on the right, and he's saying, you know, we have
00:32:23 --> 00:32:25: to be frugal with the water we have.
00:32:25 --> 00:32:28: And how do we solve these challenges of these competing
00:32:28 --> 00:32:29: interests?
00:32:29 --> 00:32:32: How does the water utility meet the demands and of
00:32:32 --> 00:32:33: all of these challenges?
00:32:33 --> 00:32:37: So where are we talking about?
00:32:37 --> 00:32:40: Again, as Faith said, CAS Grande and the larger Pinal
00:32:40 --> 00:32:43: County, you can see on the image on the right,
00:32:43 --> 00:32:47: the lighter blue color is the Pinal Active Management Area.
00:32:47 --> 00:32:50: And you can see in the pie graph on the
00:32:50 --> 00:32:54: left, the Pinal AMA has mostly agricultural water use, but
00:32:54 --> 00:32:58: there is some tribal, municipal, and industrial use as well.
00:32:58 --> 00:33:01: But you can see overall for the middle pie graph,
00:33:01 --> 00:33:04: a large majority of it comes from groundwater.

00:33:04 --> 00:33:08: So that's why we're really concerned with the groundwater supply

00:33:08 --> 00:33:11: in the Pinal County area and in the Pinal AMA.

00:33:13 --> 00:33:16: So when we're looking at solving these challenges, we kind

00:33:16 --> 00:33:19: of narrowed down onto a couple of features that we

00:33:19 --> 00:33:22: know we needed to incorporate into this project and effort.

00:33:22 --> 00:33:25: One of them was that it quickly became apparent we

00:33:25 --> 00:33:27: had to do this on a parcel level.

00:33:27 --> 00:33:30: As you just saw in the previous presentation, you got

00:33:30 --> 00:33:33: to, you got to drill down to that parcel level

00:33:33 --> 00:33:35: for the kind of analysis at that scale.

00:33:36 --> 00:33:40: So we wanted to make sure we, we started with

00:33:40 --> 00:33:43: the most level of detail and you can always aggregate

00:33:43 --> 00:33:47: up, but looking at the parcels as well as the

00:33:47 --> 00:33:51: water meters at the specific level for every, every meter

00:33:51 --> 00:33:54: in, in the Casa Grande, Greater Casa Grande area.

00:33:55 --> 00:33:57: We also knew that there needed to be a common

00:33:57 --> 00:34:00: workspace for folks because we're talking about working with the

00:34:00 --> 00:34:03: water utility and as Faith said, the county and the

00:34:03 --> 00:34:04: city as well.

00:34:04 --> 00:34:06: So we used Arc JS Online as a tool to

00:34:06 --> 00:34:11: share data responsibly and control the permissions and the access

00:34:11 --> 00:34:14: that people had because we didn't want to let any

00:34:14 --> 00:34:19: of that personal identifiable information or individual water use get

00:34:19 --> 00:34:21: to someone where it shouldn't be.

00:34:22 --> 00:34:26: Along with that, you know, good documentation of all of

00:34:26 --> 00:34:29: the data, making sure it's clear what it is and

00:34:29 --> 00:34:32: the degree of temporal nature of it.

00:34:32 --> 00:34:36: Because, you know, water meters are read monthly for our

00:34:36 --> 00:34:36: data.

00:34:36 --> 00:34:40: And so there's a natural requirement to update the data

00:34:40 --> 00:34:41: and keep it current.

00:34:41 --> 00:34:44: Tax parcel data changes when land is sold.

00:34:44 --> 00:34:47: So you really need to be conscious of the versioning.

00:34:48 --> 00:34:50: Along with that, we wanted to make sure that we

00:34:50 --> 00:34:53: scripted the workflows that we were using frequently.

00:34:53 --> 00:34:56: So everything was clear cut and straightforward as we, you

00:34:56 --> 00:34:59: know, controlled the versioning and made sure that everyone was

00:34:59 --> 00:35:02: on the same page on the currency of the data

00:35:02 --> 00:35:03: we were looking at.
00:35:04 --> 00:35:07: Of course, we're looking at water, but you can't look
00:35:07 --> 00:35:08: at water without considering land.
00:35:08 --> 00:35:12: So while we are focusing on an urban area, there's
00:35:12 --> 00:35:16: definitely zoning data and other land use data that we
00:35:16 --> 00:35:19: incorporated into this overall project.
00:35:20 --> 00:35:22: Finally, some elements of data visualization.
00:35:22 --> 00:35:23: I'll show a couple visuals.
00:35:24 --> 00:35:27: And then ultimately what we hope to accomplish with this
00:35:27 --> 00:35:30: is finding some tools and findings that could be used
00:35:30 --> 00:35:34: to inform legal and policy decisions moving forward, which is
00:35:34 --> 00:35:37: actually something that has already come to fruition as we
00:35:37 --> 00:35:39: continue to move along with this effort.
00:35:41 --> 00:35:43: So as I mentioned, we started at the parcel level
00:35:43 --> 00:35:46: and you can see down on the bottom we have
00:35:46 --> 00:35:49: our little parcels, little houses and the individual water meters.
00:35:50 --> 00:35:52: And then looking up at the next level for the
00:35:52 --> 00:35:55: unit of analysis, we were looking at the certificate of
00:35:55 --> 00:35:56: assured water supply areas.
00:35:56 --> 00:36:00: So that's what was the program that was instituted in
00:36:00 --> 00:36:00: 1995.
00:36:00 --> 00:36:04: And these areas are, are kind of like a subdivision
00:36:04 --> 00:36:05: or a neighborhood size.
00:36:05 --> 00:36:11: They depend region to region, but they're largely subdivision level
00:36:11 --> 00:36:11: sizes.
00:36:12 --> 00:36:15: Sometimes one subdivision has, you know, two or three.
00:36:15 --> 00:36:20: And the the variety of subdivisions in the areas contributes
00:36:20 --> 00:36:23: to a variety of of the data, but you want
00:36:23 --> 00:36:26: to look at that level because those are the regions
00:36:26 --> 00:36:30: for which a designated amount of water was permitted for
00:36:30 --> 00:36:32: per year for the 100 years.
00:36:32 --> 00:36:35: So by aggregating up the water data to that level,
00:36:35 --> 00:36:37: we can see is this region using the amount of
00:36:37 --> 00:36:40: water they're permitted to use, are they using less, Are
00:36:40 --> 00:36:41: they using more?
00:36:42 --> 00:36:45: And we can look at it across the landscape by
00:36:45 --> 00:36:49: considering the entirety of the utility sub region across Casa
00:36:49 --> 00:36:52: Grande and you know, making sure that all of the
00:36:52 --> 00:36:56: region that Arizona Water Company serves in this area is
00:36:56 --> 00:36:58: covered for our purposes.
00:36:59 --> 00:37:03: So as I mentioned, we're already moving forward with some

00:37:03 --> 00:37:06: great outcomes and policy that is being put into place
00:37:06 --> 00:37:07: with this work.
00:37:09 --> 00:37:12: Namely because of all the challenges with the lack of
00:37:12 --> 00:37:15: groundwater and the modelling, there has been kind of a
00:37:16 --> 00:37:19: freeze on a lot of new growth because more certificates
00:37:19 --> 00:37:22: of assured water supply have not been able to be
00:37:22 --> 00:37:22: issued.
00:37:23 --> 00:37:26: So that's obviously not good for developers and for, you
00:37:26 --> 00:37:29: know, all of the interests of having more people move
00:37:29 --> 00:37:29: to the area.
00:37:30 --> 00:37:32: So what we're trying to do is figure out how
00:37:32 --> 00:37:36: we can plan for growth, but responsibly and understanding how
00:37:36 --> 00:37:38: that growth will happen.
00:37:38 --> 00:37:41: And so by doing that with our data and analysis
00:37:41 --> 00:37:44: that we've worked on and then combining that from the
00:37:44 --> 00:37:47: water data from, you know, the water utility and the
00:37:47 --> 00:37:51: certificates of assured water supply, which do come from the
00:37:51 --> 00:37:54: state, we looked at data from Pinal County, so their
00:37:54 --> 00:37:56: permit data and the city's permit data.
00:37:56 --> 00:37:59: So that permit data, they issue a permit every time
00:37:59 --> 00:38:03: house is ready for occupancy, so we can understand the
00:38:03 --> 00:38:06: rate and the timing at which these houses are being
00:38:06 --> 00:38:09: built and kind of coming online for residential purposes.
00:38:09 --> 00:38:13: Then we also looked at data from the Maricopa Association
00:38:13 --> 00:38:17: of Governments and they produce projections on future growth in
00:38:17 --> 00:38:18: the region.
00:38:18 --> 00:38:20: So we're able to understand how much growth is going
00:38:20 --> 00:38:21: to be expected.
00:38:21 --> 00:38:24: We're looking out to 2040 right now and where that
00:38:24 --> 00:38:26: growth is going to occur actually.
00:38:27 --> 00:38:29: So by looking at all of this data, we can
00:38:29 --> 00:38:33: both understand the current water use in those caused geometries
00:38:33 --> 00:38:36: and when the housing units were built and the current
00:38:36 --> 00:38:38: amount of housing units.
00:38:38 --> 00:38:41: So all of that can be extrapolated kind of to
00:38:41 --> 00:38:44: look at the future and kind of try and predict
00:38:44 --> 00:38:47: trends with, you know, intelligent and fine scale data.
00:38:49 --> 00:38:53: So again, looking into the future, Arizona Water Company is
00:38:53 --> 00:38:56: seeking now what is called an alternative designation of a

00:38:56 --> 00:38:59: short water supply, bit of a mouthful.
00:38:59 --> 00:39:01: So it's very conveniently called an ADOS.
00:39:02 --> 00:39:05: And so the ADAS is kind of a, a step
00:39:05 --> 00:39:10: around the cause certificate of assured Water supply program, where
00:39:10 --> 00:39:14: the utility will be designated as a water provider for
00:39:14 --> 00:39:14: the region.
00:39:15 --> 00:39:18: And it will allow the developers and the water utility
00:39:18 --> 00:39:22: to more easily develop with the understanding that there is
00:39:22 --> 00:39:24: enough water for what is promised.
00:39:24 --> 00:39:28: This is actually a new policy that was recently passed
00:39:28 --> 00:39:31: late last year by the state legislature.
00:39:31 --> 00:39:32: So it's brand new.
00:39:32 --> 00:39:35: We're we're kind of building the ship as we're sailing
00:39:35 --> 00:39:35: it.
00:39:36 --> 00:39:38: But because we took the time to do all of
00:39:38 --> 00:39:42: the key features and think through the level of information
00:39:42 --> 00:39:45: that we would need, we're able to provide the answers
00:39:45 --> 00:39:47: the state is asking for as we pursue this.
00:39:47 --> 00:39:48: Adolf.
00:39:48 --> 00:39:51: So you know, how much water is each is each
00:39:51 --> 00:39:55: region using, how much water is promised in those other
00:39:55 --> 00:39:59: certificate of assured certificate of assured water supply areas.
00:39:59 --> 00:40:03: Because if even if there's no houses built on it
00:40:03 --> 00:40:07: yet, that's still a legal permitted water that has to
00:40:07 --> 00:40:11: be, you know, served to that area by the certificate
00:40:11 --> 00:40:13: of assured water supply.
00:40:13 --> 00:40:13: So.
00:40:13 --> 00:40:16: The utility is really just trying to understand how much
00:40:16 --> 00:40:19: water is promised, how much water is being served, and
00:40:19 --> 00:40:22: where that next promised water is probably going to occur.
00:40:23 --> 00:40:26: So happily throughout this effort, we have found that for
00:40:26 --> 00:40:30: all of the existing subdivisions that are built out, meaning
00:40:30 --> 00:40:33: all of the houses are built, they all have water
00:40:33 --> 00:40:37: meters, they're largely all, you know, serving water, they're occupied.
00:40:38 --> 00:40:41: We are finding across the board in this region, those
00:40:41 --> 00:40:45: subdivisions or certificate of assured water regions I should say,
00:40:45 --> 00:40:49: because they're not quite the same, are using about 1/3
00:40:49 --> 00:40:52: of the water that was originally certified to them.
00:40:52 --> 00:40:56: So that means if your subdivision was granted 100 acre

00:40:56 --> 00:40:59: feet per year, you're using 30 acre feet, 40 acre
00:40:59 --> 00:41:00: feet instead.
00:41:01 --> 00:41:05: So that's great news because that means things like low
00:41:05 --> 00:41:09: flow toilets and 0 escaping and other water saving measures
00:41:09 --> 00:41:14: that perhaps weren't as common back when this program started
00:41:14 --> 00:41:15: in 1995 are working.
00:41:15 --> 00:41:19: They're showing a clear reduction in the amount of water
00:41:19 --> 00:41:20: that's being used.
00:41:21 --> 00:41:24: So we have proof now, we have data-driven proof that
00:41:24 --> 00:41:27: there is less need for water in these places and
00:41:27 --> 00:41:30: we can show spatially where that is happening, which is
00:41:30 --> 00:41:34: going to help inform the future development because we know
00:41:34 --> 00:41:37: these huge amounts of water that are granted to some
00:41:37 --> 00:41:41: of these cause regions are far more than are realistically
00:41:41 --> 00:41:41: being used.
00:41:43 --> 00:41:46: So now as a spatial and GIS person, selfishly, this
00:41:47 --> 00:41:49: is what really gets me excited.
00:41:49 --> 00:41:52: This is a map again of the the Casa Grande
00:41:52 --> 00:41:55: area and the different sub regions that the Arizona Water
00:41:55 --> 00:41:56: Company serves.
00:41:56 --> 00:41:59: And you can see in the blue to yellow scale,
00:41:59 --> 00:42:02: the blue regions are areas where the Maricopa Association of
00:42:02 --> 00:42:06: Governments say not a lot of more residential units expected
00:42:06 --> 00:42:09: to grow there, not a lot of development expected to
00:42:09 --> 00:42:10: grow there.
00:42:10 --> 00:42:12: And they do that modeling on their own.
00:42:12 --> 00:42:14: So OK, not too much growth there, don't have to
00:42:15 --> 00:42:16: worry about it too much.
00:42:16 --> 00:42:18: The more yellow regions are where they do expect more
00:42:18 --> 00:42:19: growth.
00:42:19 --> 00:42:22: So you can see kind of up here in the
00:42:22 --> 00:42:25: Coolidge area, there is a lot of growth up to
00:42:25 --> 00:42:30: 2200 residential units that are expected to come online between
00:42:30 --> 00:42:31: 2020 and 2040.
00:42:31 --> 00:42:34: So we know where the growth is going to be.
00:42:34 --> 00:42:37: And then in the green hatch, those are our certificate
00:42:37 --> 00:42:39: of assured water supply areas.
00:42:39 --> 00:42:42: So in some cases like these here, we see that
00:42:42 --> 00:42:46: there is growth expected in those regions that are already
00:42:46 --> 00:42:50: promised water, but we also see that there's growth expected

00:42:50 --> 00:42:53: where there are no 'CAUSE certificates.
00:42:53 --> 00:42:56: So how are those places going to get water?
00:42:56 --> 00:42:59: Well, the next step that Arizona Water Company is doing
00:43:00 --> 00:43:02: is taking their water meter or excuse me, their water
00:43:03 --> 00:43:05: mains, which are the white lines, if you can see
00:43:05 --> 00:43:08: here and saying do we have infrastructure to move water
00:43:08 --> 00:43:12: around from our groundwater wells from one location to another?
00:43:12 --> 00:43:14: Where are we going to need infrastructure?
00:43:14 --> 00:43:17: And then the dashed line are the future planned water
00:43:17 --> 00:43:18: mains.
00:43:18 --> 00:43:21: So are those future planned mains in the right place
00:43:21 --> 00:43:24: for where we expect the growth to be and are
00:43:24 --> 00:43:27: we having enough water going through the system to meet
00:43:27 --> 00:43:29: the needs for that future growth?
00:43:30 --> 00:43:33: So this project, as Faith mentioned, has been going on
00:43:33 --> 00:43:36: for several years now and it's hard to distill down
00:43:36 --> 00:43:39: to a couple minutes, but I'm happy to take a
00:43:39 --> 00:43:40: few questions.
00:43:40 --> 00:43:43: And otherwise, if you have more detailed follow-ups, here's our
00:43:43 --> 00:43:46: emails and you're welcome to reach out and get in
00:43:46 --> 00:43:46: touch.
00:43:49 --> 00:43:50: Wonderful.
00:43:50 --> 00:43:51: Thank you so much, Faith.
00:43:51 --> 00:43:54: And Emily, if you don't mind stopping sharing and people
00:43:54 --> 00:43:56: are welcome to unmute for a couple minutes.
00:43:56 --> 00:43:59: We have 2 minutes for questions again, and then we'll
00:43:59 --> 00:44:01: move on to the next set of presentations.
00:44:01 --> 00:44:03: But you're always welcome to use the chat box.
00:44:08 --> 00:44:09: Any questions?
00:44:13 --> 00:44:15: Scott, do you wanna unmute?
00:44:16 --> 00:44:20: Yeah, happy to unmute and thanks so much, Dave and
00:44:20 --> 00:44:20: Emily.
00:44:21 --> 00:44:24: My question was more on like, like the timing of
00:44:24 --> 00:44:27: the assured water supply certificate and what that means for
00:44:27 --> 00:44:29: the development process.
00:44:29 --> 00:44:33: Like does the assured water certificate cover a broad area
00:44:33 --> 00:44:36: and it's associated with the zoning or is it only
00:44:36 --> 00:44:40: when like the subdivision is permitted for, you know, what
00:44:40 --> 00:44:43: kind of specific use is that when they get that
00:44:43 --> 00:44:45: kind of promised water supply?
00:44:45 --> 00:44:48: And is there like a time frame associated with that

00:44:48 --> 00:44:50: or is it kind of imperfect?
00:44:50 --> 00:44:52: We know it's 100 year, but in terms of before
00:44:52 --> 00:44:54: ground is broken and everything.
00:44:55 --> 00:44:55: Yeah.
00:44:55 --> 00:44:59: So I'm gonna say there's a lot of detail to
00:44:59 --> 00:44:59: that.
00:44:59 --> 00:45:03: But broadly how the cycle works is the developer would
00:45:03 --> 00:45:07: have a preliminary plat of the development made and often
00:45:07 --> 00:45:09: times that comes with like a master plan.
00:45:10 --> 00:45:12: And so they then applied.
00:45:12 --> 00:45:16: Again, this is not actively happening because of the groundwater
00:45:16 --> 00:45:19: shortage, but they would get the preliminary plat, apply for
00:45:19 --> 00:45:22: the certificate of assured water, then a final plat would
00:45:22 --> 00:45:25: be created and then development would start.
00:45:26 --> 00:45:29: So that's kind of the general process in terms of
00:45:29 --> 00:45:29: timing.
00:45:30 --> 00:45:33: It depends is my answer in the in the instances
00:45:34 --> 00:45:37: that we've seen, but I believe if if memory serves
00:45:37 --> 00:45:42: for Casa Grande and Pinal County, the preliminary plat is
00:45:42 --> 00:45:45: only valid for a year after it's filed.
00:45:45 --> 00:45:47: So you have a bit of a narrow window to
00:45:47 --> 00:45:49: get that certificate of assured water supply.
00:45:50 --> 00:45:54: So it's a challenging process, and this alternative designation of
00:45:54 --> 00:45:58: Assured Water Supply is, you know, the utility's effort to
00:45:58 --> 00:46:00: make development easier for moving forward.
00:46:01 --> 00:46:02: Thank you so much.
00:46:03 --> 00:46:06: I would say, sorry, Marianne, just a quick comment is
00:46:06 --> 00:46:08: that I think it's the first of its kind in
00:46:09 --> 00:46:09: Arizona.
00:46:09 --> 00:46:12: So this is a ground breaking kind of policy that
00:46:13 --> 00:46:14: came from this research.
00:46:15 --> 00:46:16: Excellent.
00:46:16 --> 00:46:17: Thank you both so much.
00:46:18 --> 00:46:18: So we're out of time.
00:46:18 --> 00:46:20: We're going to move to our next speaker.
00:46:20 --> 00:46:23: But again, if you have questions for these speakers, please
00:46:23 --> 00:46:25: put them in the chat box and they'll respond.
00:46:26 --> 00:46:27: Go ahead, Mazdock.
00:46:41 --> 00:46:43: Mazdaq, we can't hear you if you're talking.
00:46:45 --> 00:46:46: Yes, I wasn't mute.

00:46:46 --> 00:46:47: I apologize.

00:46:47 --> 00:46:49: My good afternoon, everybody.

00:46:49 --> 00:46:51: My name is Mazdaq Robbie.

00:46:51 --> 00:46:54: I am a professor of civil and environmental engineering at

00:46:54 --> 00:46:55: Colorado State University.

00:46:55 --> 00:46:57: I also serve as the director of the One World

00:46:58 --> 00:46:58: Solutions Institute.

00:46:59 --> 00:47:02: First of all, I would like to thank the Wire

00:47:02 --> 00:47:06: Wise Development Coalition for inviting me to participate in this

00:47:06 --> 00:47:08: great meeting, and I'm so delighted.

00:47:08 --> 00:47:14: I'm going after the wonderful presentations by the previous presenters

00:47:14 --> 00:47:19: because obviously the process of integrating land use planning and

00:47:19 --> 00:47:22: water supply planning is one that requires a lot of

00:47:23 --> 00:47:27: steps and often is conducted in a different fashion depending

00:47:27 --> 00:47:30: on the communities that we are serving.

00:47:31 --> 00:47:34: So what I'm going to present today is a web-based

00:47:34 --> 00:47:38: software that we have developed via variety of funding mechanisms,

00:47:38 --> 00:47:43: but particularly in collaboration with Colorado Water Conservation Board.

00:47:43 --> 00:47:47: The software that I described is public domain software and

00:47:47 --> 00:47:49: can be applied anywhere in the world.

00:47:50 --> 00:47:53: It's not specific to a local or a specific region,

00:47:53 --> 00:47:56: but some of the data that we show since the

00:47:56 --> 00:48:00: project was or is being continued to be funded by

00:48:00 --> 00:48:04: Colorado while conservation board, the examples or the focus of

00:48:04 --> 00:48:07: data analysis will be in Colorado.

00:48:08 --> 00:48:11: OK, So what does Polaris do?

00:48:11 --> 00:48:17: There are 4 fundamental steps or analysis that Polaris supports.

00:48:17 --> 00:48:22: 1 is characterization of the relationship between land use practices,

00:48:22 --> 00:48:25: zoning regulations and policy and water consumption.

00:48:25 --> 00:48:28: So how does land use and water consumption relate?

00:48:29 --> 00:48:34: Second is breaking down is water use consumption metrics and

00:48:34 --> 00:48:38: intensities with land use practices, but also by sectors of

00:48:38 --> 00:48:44: different languages like residential, commercial, industrial and so on, and

00:48:44 --> 00:48:50: also algorithms using machine learning that automatically

separate water for

00:48:50 --> 00:48:55: indoor water uses, outdoor and the other water budget components

00:48:55 --> 00:48:56: that may be considered.

00:48:57 --> 00:49:02: The third function of the tool is scenario assessment for

00:49:03 --> 00:49:08: forecasting water use for a variety of scenarios and including

00:49:08 --> 00:49:14: land use and population change, climate scenarios, and also conservation

00:49:14 --> 00:49:17: plans that may be considered.

00:49:17 --> 00:49:20: So for example, in Colorado, the state has done a

00:49:20 --> 00:49:25: tremendous job by developing planning scenarios for future water use

00:49:25 --> 00:49:30: analysis and water supply demand assessments in Colorado for early

00:49:30 --> 00:49:32: community across Colorado.

00:49:32 --> 00:49:36: We have taken Colorado's water plant planning scenarios and I've

00:49:36 --> 00:49:41: translated the drivers of changing our state including again, population,

00:49:41 --> 00:49:45: land use and climate for all communities to be able

00:49:45 --> 00:49:48: to do integrate land use and water supply planning.

00:49:48 --> 00:49:52: So scenario assessment is the third module of the tool.

00:49:52 --> 00:49:57: And the last part for these variety of scenarios, Polaris

00:49:57 --> 00:50:05: characterizes reliability and resilience, resilience of 1 water supply system.

00:50:05 --> 00:50:09: So essentially do we have enough water for population and

00:50:09 --> 00:50:14: socio economic and land use futures that we envision for

00:50:14 --> 00:50:15: the region.

00:50:15 --> 00:50:20: And the second, there is a module that essentially analysis

00:50:20 --> 00:50:24: water distribution networks that are needed to support the type

00:50:24 --> 00:50:29: of land use, population and growth trajectories that we envision

00:50:29 --> 00:50:30: for for the region.

00:50:30 --> 00:50:35: So again, water supply needs and then water distribution needs

00:50:35 --> 00:50:40: that are automatically arranged and assessed in the software.

00:50:41 --> 00:50:44: So some of the metrics that we have already been

00:50:44 --> 00:50:48: talking about today are included in the Polaris store.

00:50:48 --> 00:50:51: So some of the examples for water use and while

00:50:51 --> 00:50:55: consumption intensity are gallons per capita per day or GPCD

00:50:55 --> 00:50:59: gallons per household per day, million gallons per acre of

00:50:59 --> 00:51:04: development by different zoning regulations and districts and

1,000,000 gallons

00:51:04 --> 00:51:05: per meter.

00:51:05 --> 00:51:10: And these water metrics and others that are included are

00:51:10 --> 00:51:15: characterized in different or by different land use categories that

00:51:15 --> 00:51:21: are characterized by population density, housing density, household occupancy, green

00:51:21 --> 00:51:27: spaces and open spaces, gross domestic products, employment, and other

00:51:27 --> 00:51:29: socio economic factors.

00:51:29 --> 00:51:35: So the tool automatically features this data, population demographics and

00:51:35 --> 00:51:40: other information related to land use activities from the United

00:51:40 --> 00:51:45: States Census Bureau and in for other countries or other

00:51:45 --> 00:51:48: regions throughout the world.

00:51:48 --> 00:51:51: If one is interested to use the tool, user can

00:51:51 --> 00:51:54: upload their data for this information.

00:51:56 --> 00:52:00: Abby did a great job describing the the nature of

00:52:00 --> 00:52:05: the process for integrated land use and water supply analysis

00:52:05 --> 00:52:07: or water consumption analysis.

00:52:07 --> 00:52:11: And Polaris essentially streamlines the same process.

00:52:12 --> 00:52:16: We take the zoning and all land use Polygon bandwidth,

00:52:16 --> 00:52:21: overlay that with the water meter data and once they're

00:52:21 --> 00:52:27: uploaded, the tool uses robust methods to then characterize historical

00:52:27 --> 00:52:33: water consumption and then including things such as trends in

00:52:33 --> 00:52:34: water use intensity.

00:52:34 --> 00:52:38: So if a in many communities across the country, we

00:52:38 --> 00:52:42: observe that water consumption intensity or water use intensity has

00:52:43 --> 00:52:44: been decreasing.

00:52:44 --> 00:52:47: So for example, GPCD has been going down.

00:52:47 --> 00:52:52: The tool automatically characterizes those trends and then forecasts for

00:52:52 --> 00:52:56: a variety of scenarios in future how much water supply

00:52:56 --> 00:52:59: will be in or how much water demands will be

00:52:59 --> 00:53:03: influenced and then subsequently what water supply needs we have.

00:53:05 --> 00:53:08: The specific module of the tool that I would like

00:53:08 --> 00:53:11: to highlight is the scenario planning tool, which which is

00:53:12 --> 00:53:15: really the context of what most of the groups that

00:53:15 --> 00:53:17: we work with are interested in.

00:53:17 --> 00:53:23: I summarize the scenario planning characteristics and capacities in six

00:53:23 --> 00:53:23: groups.

00:53:24 --> 00:53:27: So the tool allows the user to upload for a

00:53:27 --> 00:53:28: community.

00:53:28 --> 00:53:32: If there is a comprehensive plan, you can just simply

00:53:32 --> 00:53:36: upload the comprehensive plan and the tool takes that and

00:53:36 --> 00:53:41: forecasts water demands for that comprehensive plan using trends and

00:53:41 --> 00:53:45: patterns observed in the water meter data and the current

00:53:45 --> 00:53:48: zoning and land use data and then reconciles all of

00:53:49 --> 00:53:53: the discrepancies that may be involving that comprehensive plan.

00:53:53 --> 00:53:59: So again, having discussed some of these potential challenges, communities

00:53:59 --> 00:54:03: can do water efficiency planning using the tools.

00:54:03 --> 00:54:08: So indoor outdoor water conservation and how those activities in

00:54:08 --> 00:54:14: different zoning districts can affect or influence water consumption and

00:54:14 --> 00:54:19: water supply needs for future sub area plans, transit oriented

00:54:19 --> 00:54:23: plans, growth area plans, such As for example, if you

00:54:23 --> 00:54:27: have a growth management area, the user can upload those.

00:54:27 --> 00:54:31: The tool automatically incorporates that in scenario planning.

00:54:31 --> 00:54:36: And finally, the data will support water supply master planning

00:54:36 --> 00:54:37: for communities.

00:54:38 --> 00:54:41: And we are really lucky that many communities across Colorado

00:54:41 --> 00:54:43: have already started working with us.

00:54:44 --> 00:54:47: And you will see as I finish my presentation that

00:54:47 --> 00:54:52: because of the extensive nature of our collaboration and partnerships,

00:54:52 --> 00:54:57: now we can conduct regional and statewide analysis and assessments

00:54:57 --> 00:55:01: that would not be feasible in the absence of this

00:55:01 --> 00:55:04: group that we are working together to develop.

00:55:05 --> 00:55:08: And not only the Polaris tool, but also the assessments

00:55:08 --> 00:55:12: and water supply needs and more demand characterizations that we

00:55:12 --> 00:55:12: see.

00:55:12 --> 00:55:14: So you can see the and name of some of

00:55:15 --> 00:55:19: the groups that have already shared data and participated in

00:55:19 --> 00:55:23: our activities, but there are several other municipalities that

were

00:55:23 --> 00:55:27: immediately engaged with to be able to start the process.

00:55:27 --> 00:55:30: And some of those folks are also on this call

00:55:30 --> 00:55:31: and we really appreciate it.

00:55:32 --> 00:55:35: So I'm just presenting here some of the outputs of

00:55:35 --> 00:55:39: the the model that are automatically generated by the tool.

00:55:39 --> 00:55:42: You can look at total water volume or water intensity

00:55:42 --> 00:55:45: over months depending on how much of data you have.

00:55:46 --> 00:55:49: You can look at data total or for specific zoning

00:55:49 --> 00:55:54: districts the tool automatically characterizes water use on a monthly

00:55:54 --> 00:55:55: basis.

00:55:55 --> 00:55:58: So you for example, in this specific community, you can

00:55:58 --> 00:56:01: see that here is the total wire use in terms

00:56:01 --> 00:56:04: of 1,000,000 gallons per acre and how residential low and

00:56:04 --> 00:56:08: mixed-use residential compare for the outdoor components.

00:56:08 --> 00:56:12: So clearly residential law uses more water than mixed-use and

00:56:12 --> 00:56:16: in some areas where we have denser developments or whether

00:56:17 --> 00:56:21: they are maybe there are industrial districts and what are

00:56:21 --> 00:56:23: used outdoor is lower than others.

00:56:23 --> 00:56:27: So again, the tool automatically characterizes what are used by

00:56:27 --> 00:56:31: sector and by component, whether it's indoor or outdoor, and

00:56:31 --> 00:56:33: all of the visualization components are there.

00:56:35 --> 00:56:37: I also want to highlight a really neat feature of

00:56:37 --> 00:56:41: the tool, which is the water historical water withdrawals module

00:56:41 --> 00:56:42: of the tool.

00:56:43 --> 00:56:46: Any user or any community can specify how much water

00:56:46 --> 00:56:50: withdrawals typically they have on a monthly or annual basis

00:56:50 --> 00:56:52: from different components.

00:56:52 --> 00:56:55: Like for example, in this case, we have a river

00:56:55 --> 00:57:00: wire system, supply system, and reservoir so they can visualize

00:57:00 --> 00:57:04: how their water withdrawals from different components look like.

00:57:04 --> 00:57:09: And then the tool text is information for future assessments

00:57:09 --> 00:57:15: to characterize reliability of existing water supply systems for future

00:57:15 --> 00:57:15: needs.

00:57:16 --> 00:57:20: So here's the scenario assessment and comparison module of the

00:57:20 --> 00:57:20: two.

00:57:20 --> 00:57:24: You can see that we can compare historical water use

00:57:24 --> 00:57:28: with the baseline scenario, for example, and a variety of

00:57:28 --> 00:57:33: other scenarios that a community can develop for assessments, including

00:57:33 --> 00:57:36: those six categories of scenarios that I mentioned.

00:57:37 --> 00:57:39: And then time series of forecasts are available.

00:57:39 --> 00:57:44: The forecast horizon can be any horizon that the community

00:57:44 --> 00:57:48: wants to have 20-30 or 20502060 and so on.

00:57:48 --> 00:57:52: And again, as I said, by characterizing historical water supply

00:57:52 --> 00:57:57: and withdrawals, then we estimate the reliability of existing systems

00:57:58 --> 00:58:00: for meeting the future demands.

00:58:00 --> 00:58:03: So this is this are just some of the screenshots

00:58:03 --> 00:58:05: that I'm presenting from the tool.

00:58:05 --> 00:58:08: And the tool also have really robust mapping tools.

00:58:08 --> 00:58:11: You can then look at, for example, in this case,

00:58:12 --> 00:58:16: I'm looking at this specific area, looking at the housing

00:58:16 --> 00:58:19: density, number of houses per square mile or you can

00:58:19 --> 00:58:23: look at water use intensity, in this case million gallons

00:58:24 --> 00:58:24: per acre.

00:58:24 --> 00:58:28: But you can toggle between the attributes, what year that

00:58:28 --> 00:58:32: you want to look at, and the tool automatically maps

00:58:32 --> 00:58:35: all of those for the uses that we have now.

00:58:35 --> 00:58:39: I just showed specific applications of the tool for a

00:58:39 --> 00:58:42: specific community when they upload their own data.

00:58:42 --> 00:58:45: Again, this is a software as a service, meaning that

00:58:45 --> 00:58:50: although the One Word Solutions Institute supports provides Technical Support

00:58:50 --> 00:58:53: for using the tool, we don't need to be involved.

00:58:53 --> 00:58:55: Everything is autonomous.

00:58:55 --> 00:58:59: Communities can use the tool even without interactions with our

00:58:59 --> 00:59:03: group and I think that's a significant barrier that the

00:59:03 --> 00:59:08: tool memory is because of data sharing agreements and privacy

00:59:08 --> 00:59:09: considerations.

00:59:10 --> 00:59:14: And as I mentioned, as more communities at least in

00:59:14 --> 00:59:18: Colorado have started using the tool, now we can actually

00:59:18 --> 00:59:23: see a trends at various spatial scales that are appearing

00:59:23 --> 00:59:25: to us and we didn't know before.

00:59:25 --> 00:59:28: So for example, if I if you look at all

00:59:28 --> 00:59:33: of the municipalities that have shared the data in using

00:59:33 --> 00:59:37: Polaris, we can see that as percent imperviousness in a
00:59:37 --> 00:59:39: municipality goes up.
00:59:39 --> 00:59:42: Again, these are each point is a different city as
00:59:42 --> 00:59:46: percent imperviousness goes up, water use intensity in million gallons
00:59:47 --> 00:59:48: per acre goes up.
00:59:48 --> 00:59:52: So again, some basic information that if one is interested
00:59:52 --> 00:59:57: to know what happens when we add imperviousness to our
00:59:57 --> 01:00:02: areas, this immediately would give you at municipal scales, these
01:00:02 --> 01:00:07: are the type of relationships that we see in Colorado,
01:00:07 --> 01:00:10: but also we can dive deeper into trends.
01:00:10 --> 01:00:13: So for example, if I look at all of the
01:00:13 --> 01:00:18: zonings, different zoning districts that now are available in the
01:00:18 --> 01:00:23: tool, we can see that for example, outdoor water consumption
01:00:23 --> 01:00:26: significantly goes down in municipal areas.
01:00:26 --> 01:00:31: In the residential sector and the gallons per capita per
01:00:31 --> 01:00:37: day GPCD also substantially reduced as housing density increases.
01:00:37 --> 01:00:43: So again water consumption intensity per capita decreases substantially in
01:00:43 --> 01:00:48: Colorado and this there is a very, very strong model
01:00:48 --> 01:00:50: that characterizes that.
01:00:50 --> 01:00:54: So for regional and statewide planning, we can simply use
01:00:54 --> 01:00:58: this type of relationships to understand how water demand would
01:00:58 --> 01:01:00: change in this kind of areas.
01:01:01 --> 01:01:04: Now if we look at other metrics such as million
01:01:04 --> 01:01:07: gallons per acre, we see that as a matter of
01:01:07 --> 01:01:12: fact million gallons per acre exponentially grows in urban regions
01:01:12 --> 01:01:13: or municipal regions.
01:01:14 --> 01:01:17: If you look at imperviousness as the descriptor and we
01:01:17 --> 01:01:20: can see that water use in there was in the
01:01:20 --> 01:01:25: domestic sector increases to some level of imperviousness and then
01:01:25 --> 01:01:26: it decreases.
01:01:26 --> 01:01:32: But CII commercial, institutional and industrial water use substantially exponentially
01:01:32 --> 01:01:33: grows in this area.
01:01:33 --> 01:01:38: So again, if we are developing conservation plants or water
01:01:38 --> 01:01:42: reuse plans, this type of analysis become available to us

01:01:42 --> 01:01:44: using the Polaris tool.

01:01:45 --> 01:01:48: And then you can see the same thing when we

01:01:48 --> 01:01:51: look at the per area water use intensity as a

01:01:51 --> 01:01:56: function of household density, meaning household units per acre.

01:01:57 --> 01:02:00: And also what we can see is trends in water

01:02:00 --> 01:02:00: use.

01:02:00 --> 01:02:02: In this case, we are showing the percent change in

01:02:02 --> 01:02:04: gallons per capita per day water use.

01:02:04 --> 01:02:08: We can see that new communities actually GPCD goes up

01:02:09 --> 01:02:13: as communities start developing for, you know, in the initial

01:02:13 --> 01:02:18: stages when they are new, the development is new development.

01:02:18 --> 01:02:23: GPCD doesn't necessarily go down over time, but for more

01:02:23 --> 01:02:28: mature cities, particularly as population increases and we have more

01:02:28 --> 01:02:31: infill, GPCD tends to decrease over time.

01:02:31 --> 01:02:35: So again, there are some of the capacities that the

01:02:35 --> 01:02:40: tool provides that can really inform regional, so municipal water

01:02:40 --> 01:02:44: supply utility, but also regional and statewide assessment.

01:02:45 --> 01:02:48: The final type of products that I will highlight is

01:02:48 --> 01:02:52: that the tool also has really robust AI and machine

01:02:52 --> 01:02:58: learning algorithms that translates forecasted population to evolution of land

01:02:58 --> 01:02:58: use.

01:02:58 --> 01:03:01: So for example, if you look at Symbol Spring, which

01:03:01 --> 01:03:04: is one of our partners, population in 2021 is about

01:03:04 --> 01:03:05: 13,000 people.

01:03:06 --> 01:03:10: And in one of the Colorado's water plant scenario, scenario

01:03:10 --> 01:03:14: E which is hot growth, the population estimate is about

01:03:14 --> 01:03:17: 25,000 people in city of Colorado Springs.

01:03:18 --> 01:03:22: The tool has this very robust mechanisms to take land

01:03:22 --> 01:03:27: use land cover products and then translate that changing population

01:03:27 --> 01:03:29: to changing land use.

01:03:29 --> 01:03:32: So again, I'll go back and forth a little bit

01:03:32 --> 01:03:35: so we can see how those changes in population under

01:03:35 --> 01:03:39: this hot growth scenario would influence actual land use.

01:03:39 --> 01:03:43: There are many, many of these type of products for

01:03:43 --> 01:03:46: climate change assessment, land, land cover change and so on

01:03:47 --> 01:03:48: that I can describe.

01:03:48 --> 01:03:51: But for in, in the interest of time, I, I

01:03:52 --> 01:03:56: will just stay with this land use land cover map

01:03:56 --> 01:03:56: here.

01:03:57 --> 01:04:00: The final point that I'll make is that I think

01:04:00 --> 01:04:03: Meryl mentioned that the integration of water and land use,

01:04:03 --> 01:04:07: water wise development is not only water supply development and

01:04:07 --> 01:04:09: water supply characteristics.

01:04:10 --> 01:04:13: At the One Water Solutions Institute, we develop a number

01:04:13 --> 01:04:17: of tools that reconciles land use and water considerations and

01:04:17 --> 01:04:20: the other two tools that we have many, many of

01:04:20 --> 01:04:21: them.

01:04:21 --> 01:04:25: The two tools that I immediately would like to introduce

01:04:25 --> 01:04:28: to you are our Net 0 Water toolkit that is

01:04:28 --> 01:04:32: focused on building to municipal scale conservation, end uses, end

01:04:32 --> 01:04:35: use efficiency and reuse strategies.

01:04:35 --> 01:04:40: And the classic tool, which is a stormwater infrastructure tool

01:04:40 --> 01:04:45: for making decisions about mixing green and grey infrastructure to

01:04:45 --> 01:04:49: meet water quality and sustainability goals of the community.

01:04:49 --> 01:04:53: So this particular tool classic has been developed in using

01:04:53 --> 01:04:57: funds from the from EPA in partnership with both the

01:04:57 --> 01:04:58: Research Foundation.

01:04:59 --> 01:05:01: Again, thank you for this opportunity.

01:05:02 --> 01:05:06: Please feel free to contact me if you're interested to

01:05:06 --> 01:05:09: get some Technical Support for the use of tool or

01:05:09 --> 01:05:13: any other tool that you find interesting from our One

01:05:13 --> 01:05:15: Bar Solutions Institute.

01:05:17 --> 01:05:17: Wonderful.

01:05:17 --> 01:05:21: Thank you so much, Rozdak, if you don't mind.

01:05:21 --> 01:05:24: Yeah, I'd love to just open it up for questions.

01:05:24 --> 01:05:26: And I think this could be time for Q&A for

01:05:26 --> 01:05:29: any of the panelists, and we'll have 15 minutes.

01:05:29 --> 01:05:32: So yeah, we invite you to unmute and just ask

01:05:32 --> 01:05:33: away.

01:05:35 --> 01:05:37: Maddie Bill Sesnick here.

01:05:38 --> 01:05:42: I I'm very much supportive of machine learning tools, but

01:05:42 --> 01:05:47: in forecasting future data sets, they, they tend to be

01:05:47 --> 01:05:52: difficult to use because they're basically looking at past correlations

01:05:52 --> 01:05:55: and associations and machine learning.

01:05:56 --> 01:05:59: So if you're looking out to the future and trying

01:05:59 --> 01:06:03: to perhaps characterize future trends, especially in in water demand

01:06:03 --> 01:06:07: and land use, I'm really interested in things that might

01:06:07 --> 01:06:08: be trend Breakers.

01:06:08 --> 01:06:12: So if you have a a geography or a location

01:06:12 --> 01:06:17: that is susceptible, vulnerable, likely to incur trend breaking events,

01:06:18 --> 01:06:22: use of things like gallon per capita a day assumes

01:06:22 --> 01:06:26: that the population to employment ratio will be constant into

01:06:27 --> 01:06:27: the future.

01:06:28 --> 01:06:32: And and there are some locations in which there may

01:06:32 --> 01:06:37: be employment expansion and less population expansion.

01:06:38 --> 01:06:40: So those kinds of trends are very significant.

01:06:40 --> 01:06:45: Also trends where future urban land uses might begin to

01:06:45 --> 01:06:50: incorporate more hydroponic or urban farming would change water use

01:06:50 --> 01:06:53: characteristics very significantly.

01:06:53 --> 01:06:57: So looking at the past relationships might not be really

01:06:57 --> 01:06:59: good at getting at the nuance of the future.

01:07:00 --> 01:07:04: So I'm curious how we leverage machine learning tools which

01:07:04 --> 01:07:07: can be fantastic and yet apply the the kind of

01:07:07 --> 01:07:11: trend breaking characteristics that might occur.

01:07:11 --> 01:07:12: Great question Bill.

01:07:12 --> 01:07:13: I really appreciate that.

01:07:13 --> 01:07:16: Let me add very quick comments here because I know

01:07:16 --> 01:07:18: that there may be other questions.

01:07:18 --> 01:07:21: So, so we, we first of all the Polaris tool

01:07:21 --> 01:07:26: provides an opportunity to even create new land uses with

01:07:26 --> 01:07:28: completely new new wire use intensity.

01:07:28 --> 01:07:32: So you may say, you know, analyze the trends, learn

01:07:32 --> 01:07:36: from historical conditions and forecast them, but this part of

01:07:36 --> 01:07:40: my development is new development and this is the type

01:07:40 --> 01:07:43: of intensity that we we can envision for those.

01:07:43 --> 01:07:46: You haven't observed that in the past, but it may

01:07:46 --> 01:07:47: be feasible in future.

01:07:47 --> 01:07:50: So another example of that is that in Colorado now,

01:07:50 --> 01:07:53: now that we have this significant group of communities partnering,

01:07:54 --> 01:07:57: there may be a municipality that didn't have a historical

01:07:57 --> 01:07:59: land use, but another municipality had done it.

01:08:00 --> 01:08:03: So once they identify those, we can say no.

01:08:04 --> 01:08:08: In our Front Range communities, we have seen that land

01:08:08 --> 01:08:08: use.
01:08:09 --> 01:08:10: Would you like to borrow that?
01:08:10 --> 01:08:12: Or you can completely define the new characteristics.
01:08:12 --> 01:08:15: So the tool allows the user to specify new land
01:08:15 --> 01:08:19: use categories and then say how much of the new
01:08:19 --> 01:08:23: development or redevelopment will be assigned to those new development.
01:08:24 --> 01:08:27: The other component of that Bill is that there is
01:08:27 --> 01:08:32: a concept in machine learning called knowledge guided machine learning
01:08:32 --> 01:08:36: and knowledge they look machine learning allows to add process
01:08:36 --> 01:08:40: oriented concepts to to constrain the type of forecast that
01:08:40 --> 01:08:40: we see.
01:08:40 --> 01:08:42: So some of these are managed to do that.
01:08:42 --> 01:08:46: I would love to have this conversation, but you are
01:08:46 --> 01:08:49: right on in terms of the nuances of using new
01:08:49 --> 01:08:53: technology in our applications that can actually inform our planning
01:08:54 --> 01:08:54: processes.
01:08:54 --> 01:08:57: And we need new data to help support that.
01:08:57 --> 01:08:59: I'm part of a trend forecasting group at APA and,
01:09:00 --> 01:09:03: you know, we're very sensitive to these kinds of changes.
01:09:03 --> 01:09:03: Thank you.
01:09:03 --> 01:09:04: Good answers of.
01:09:04 --> 01:09:05: Course, thank you.
01:09:05 --> 01:09:06: No, no worries.
01:09:07 --> 01:09:08: Mike has a question.
01:09:08 --> 01:09:10: Marion, if you don't mind, I would like to answer
01:09:10 --> 01:09:12: about the household occupancy data.
01:09:12 --> 01:09:15: And just just quickly, so Mike, we'll go Mike 1st
01:09:15 --> 01:09:18: and then we'll have Scott and then Kelly, 'cause I
01:09:18 --> 01:09:19: see her hand is raised.
01:09:19 --> 01:09:19: Go ahead.
01:09:19 --> 01:09:19: OK.
01:09:21 --> 01:09:24: My answer to Mike's question is that we get data
01:09:25 --> 01:09:27: live from US Census website.
01:09:27 --> 01:09:31: So you can conduct analysis every year we get the
01:09:31 --> 01:09:35: data and process that for that corresponding year from US
01:09:35 --> 01:09:37: Census information.
01:09:37 --> 01:09:40: For other countries where we don't have US Census and
01:09:40 --> 01:09:42: by the way, we use Census block group as the
01:09:42 --> 01:09:44: special resolution of our analysis.

01:09:45 --> 01:09:50: But for other countries user can upload the data at

01:09:50 --> 01:09:53: one snapshot or over time.

01:09:53 --> 01:09:57: And again the Polaris tool unfortunately in this short time

01:09:57 --> 01:10:02: I couldn't demonstrate all of this has a population forecasting

01:10:02 --> 01:10:06: module that and that applies to household density and occupancy

01:10:06 --> 01:10:10: too that we use those logistic role models or linear

01:10:10 --> 01:10:15: or power functions to forecast future population household density, household

01:10:15 --> 01:10:19: occupancy and other socio economic factors Bosomic.

01:10:22 --> 01:10:23: That's great.

01:10:23 --> 01:10:25: Mike, did that answer your question?

01:10:27 --> 01:10:27: Yeah, I think so.

01:10:27 --> 01:10:30: I you know, my, it was really in regards to

01:10:30 --> 01:10:33: like, you know, how do you know what the occupancy

01:10:34 --> 01:10:35: is on a specific address?

01:10:37 --> 01:10:40: Mike, we don't know this household occupancy at a specific

01:10:40 --> 01:10:40: address.

01:10:40 --> 01:10:45: US Census data has household occupancy and other metrics at

01:10:45 --> 01:10:49: census block group and the way Polaris, the way Polaris

01:10:50 --> 01:10:54: works, it reconciles census block and block group data to

01:10:54 --> 01:11:00: the zoning district polygons and establishes relationships at that level.

01:11:00 --> 01:11:04: We don't have household occupancy at parcel level or building

01:11:04 --> 01:11:05: level.

01:11:06 --> 01:11:07: Understood.

01:11:07 --> 01:11:07: Thank you.

01:11:09 --> 01:11:09: Great.

01:11:09 --> 01:11:09: OK.

01:11:09 --> 01:11:11: Scott, do you want to unmute?

01:11:11 --> 01:11:18: And that's your question, Scott Williamson?

01:11:20 --> 01:11:24: Oh, sorry, I don't have another question.

01:11:24 --> 01:11:25: Oh, you put one in the chat.

01:11:25 --> 01:11:29: At what point in the development process is the developer

01:11:29 --> 01:11:31: promised water supply?

01:11:31 --> 01:11:33: Yes, that was for fate.

01:11:34 --> 01:11:37: OK, Faith and Emily, do you want to unmute?

01:11:37 --> 01:11:39: We answered that we didn't.

01:11:39 --> 01:11:39: Answer.

01:11:39 --> 01:11:40: That Yep.

01:11:41 --> 01:11:41: OK, great.

01:11:42 --> 01:11:43: I didn't see that response.
01:11:43 --> 01:11:48: We answered after Scott wrote in the chat.
01:11:49 --> 01:11:52: You invited him to speak up and he did and
01:11:52 --> 01:11:54: then and then we answered verbally.
01:11:54 --> 01:11:56: Would you like us to put a a response to
01:11:56 --> 01:11:57: the chat?
01:11:57 --> 01:11:58: No, that's great.
01:11:58 --> 01:11:59: Thank you so much.
01:11:59 --> 01:12:03: Sorry, Kelly, you have your hand raised.
01:12:03 --> 01:12:03: Go ahead.
01:12:04 --> 01:12:06: Hi, my name is Ellie.
01:12:06 --> 01:12:09: And I was kind of I have a question for
01:12:10 --> 01:12:15: about what are the factors that affect new communities to
01:12:15 --> 01:12:19: have a higher GPCD in the beginning.
01:12:19 --> 01:12:23: And I was wondering whether that's usually associated with like
01:12:23 --> 01:12:27: higher construction that might be using more water?
01:12:27 --> 01:12:29: 'Cause I was just really curious.
01:12:29 --> 01:12:35: About like how or how like why mature neighborhoods and
01:12:35 --> 01:12:41: cities just kind of lower that GPCD in this going
01:12:41 --> 01:12:42: into the future?
01:12:43 --> 01:12:45: Kinda this is a great question.
01:12:45 --> 01:12:48: There are there are mere the factors that influence that,
01:12:48 --> 01:12:52: but the simplest just again, I'm just simplifying in the
01:12:52 --> 01:12:55: absence of the time since we don't have time to
01:12:55 --> 01:12:56: go through all of that.
01:12:56 --> 01:13:01: A part of that is construction and in general during
01:13:01 --> 01:13:04: the build conditions you need somewhere.
01:13:04 --> 01:13:08: But more importantly, and this is the, the most important
01:13:08 --> 01:13:12: factor is that more mature cities tend to have infill
01:13:12 --> 01:13:14: patterns of growth rather than sprawl.
01:13:14 --> 01:13:19: So as we add more people, so essentially as household
01:13:19 --> 01:13:22: occupancy goes up, GPCD tends to go down.
01:13:23 --> 01:13:28: So that's really the and then essentially primary reason for
01:13:28 --> 01:13:31: that is less irrigate landscape in in our type of
01:13:31 --> 01:13:35: region where we do have irrigated landscape and by smaller
01:13:35 --> 01:13:39: yards and landscape areas, outdoor water goes down.
01:13:39 --> 01:13:43: Indoor also tends to slightly go down but not much.
01:13:44 --> 01:13:48: But on aggregate GPC tends to go down as household
01:13:48 --> 01:13:52: occupancy goes up and more mature cities tend to have
01:13:52 --> 01:13:53: that.
01:13:53 --> 01:13:56: And then obviously more mature cities may have more or

01:13:57 --> 01:14:02: higher financial capacity for putting conservation programs together and support

01:14:02 --> 01:14:04: that kind of activity as well.

01:14:04 --> 01:14:04: OK.

01:14:07 --> 01:14:09: Thank you so much for your response.

01:14:09 --> 01:14:12: I was going to just add that, yeah, I think

01:14:12 --> 01:14:16: what Mozart said about the landscape, like the size of

01:14:16 --> 01:14:19: the landscape is actually a huge point because we see

01:14:19 --> 01:14:23: at least 50% of water going towards landscaping.

01:14:23 --> 01:14:25: So if you have less landscaping, let's say you live

01:14:26 --> 01:14:28: in a multi family building and you don't have your

01:14:28 --> 01:14:31: own yard, you're not going to be watering it as

01:14:31 --> 01:14:31: much.

01:14:31 --> 01:14:33: So I think that is actually a huge factor.

01:14:35 --> 01:14:43: Does anyone have any other questions, Any questions for any

01:14:43 --> 01:14:46: of the panelists?

01:14:50 --> 01:14:50: Excellent.

01:14:50 --> 01:14:53: Well, I just want to take this moment to thank

01:14:53 --> 01:14:57: all of our speakers, but wonderful presentations and thank you

01:14:57 --> 01:14:59: for all of your resources.

01:14:59 --> 01:15:02: Before people jump off, we have some resources that we

01:15:02 --> 01:15:04: would like to share with you all as well.

01:15:09 --> 01:15:13: So just in terms of this coalition, many of you

01:15:13 --> 01:15:18: have been on prior coalition meetings where we started resource

01:15:18 --> 01:15:24: lists for water wise, landscapes, policies and affordability.

01:15:24 --> 01:15:26: And I'm wondering if you would like us to create

01:15:26 --> 01:15:30: a resource list for data resources including the ones that

01:15:30 --> 01:15:33: were mentioned today and any others that you share with

01:15:33 --> 01:15:33: us.

01:15:34 --> 01:15:36: Does that sound interesting to people?

01:15:36 --> 01:15:37: Yes.

01:15:37 --> 01:15:37: OK.

01:15:37 --> 01:15:38: I'm seeing some yeses.

01:15:38 --> 01:15:39: Great.

01:15:40 --> 01:15:40: OK.

01:15:41 --> 01:15:45: Another thing that I'm currently working on is getting input

01:15:45 --> 01:15:49: on how land use decision making has or hasn't changed

01:15:49 --> 01:15:53: since the court decision, Sackett versus EPA.

01:15:53 --> 01:15:58: That's the one that basically changed federal regulation over United

01:15:58 --> 01:16:02: States wetlands and changed the definition of the waters of
01:16:02 --> 01:16:03: the United States.
01:16:04 --> 01:16:07: So if you or other people you know have some
01:16:07 --> 01:16:11: information or experiences related to how land use decision making
01:16:12 --> 01:16:16: is changing since that Supreme Court decision, I'd love to
01:16:16 --> 01:16:17: hear from you.
01:16:17 --> 01:16:18: Please just e-mail me.
01:16:18 --> 01:16:21: My e-mail is right on my face, but if you
01:16:22 --> 01:16:24: want me to put in the chat, I can.
01:16:26 --> 01:16:28: You're also welcome to put notes in the chat box
01:16:28 --> 01:16:29: as always.
01:16:31 --> 01:16:35: And then we're going to share some opportunities with you.
01:16:35 --> 01:16:38: So I'll turn it over to the some of my
01:16:38 --> 01:16:38: partners.
01:16:38 --> 01:16:41: But I guess 1st, I'm going to talk about the
01:16:41 --> 01:16:42: 2025 Resilience Summit.
01:16:42 --> 01:16:46: ULI is hosting its spring meeting in Denver this year
01:16:46 --> 01:16:46: in May.
01:16:46 --> 01:16:50: And the Resilience Summit is a day long summit in
01:16:50 --> 01:16:54: conjunction with our spring meeting that is just dedicated to
01:16:54 --> 01:16:59: resilience topics and we'll have content related to water wise
01:16:59 --> 01:16:59: development.
01:17:00 --> 01:17:01: And we hope you guys will join us.
01:17:01 --> 01:17:05: You can find out more information and the pricing for
01:17:05 --> 01:17:08: registration by scanning that QR code.
01:17:08 --> 01:17:11: But if also if you'd like additional information, you're welcome
01:17:11 --> 01:17:12: to reach out.
01:17:14 --> 01:17:16: And then I'll turn it over to my friends at
01:17:16 --> 01:17:19: Alliance for Water Efficiency to talk about some of their
01:17:19 --> 01:17:21: resources that they have for you.
01:17:22 --> 01:17:25: Thank you, Marianne, can you hear me OK?
01:17:26 --> 01:17:26: Go ahead, Pete.
01:17:27 --> 01:17:28: It's nice to meet you all.
01:17:28 --> 01:17:30: This is my first time on this coalition call.
01:17:32 --> 01:17:34: Great presentations by everyone.
01:17:34 --> 01:17:36: I really enjoyed listening so thank you for that.
01:17:36 --> 01:17:41: Just wanted to share a few quick opportunities and updates
01:17:41 --> 01:17:42: from AWE.
01:17:43 --> 01:17:46: So first of all, if you haven't heard about our
01:17:46 --> 01:17:50: Water Efficiency and Conservation symposium yet, we will be hosting
01:17:51 --> 01:17:54: our third annual symposium in August 6th through 8th in

01:17:54 --> 01:17:55: Chicago.

01:17:55 --> 01:17:59: And our call for abstracts has been opened and it

01:17:59 --> 01:18:02: will be open until March 7th.

01:18:02 --> 01:18:06: On the slides, you'll see some core topics that we're

01:18:06 --> 01:18:09: hoping to explore in this year's symposium, so I'll pop

01:18:09 --> 01:18:12: the link here in the chat and we're excited to

01:18:12 --> 01:18:14: see everyone's submissions.

01:18:15 --> 01:18:18: If you have any questions about the symposium, feel free

01:18:18 --> 01:18:21: to reach out and then go ahead on the next

01:18:21 --> 01:18:21: slide.

01:18:22 --> 01:18:26: AWE is currently working on a project with the Water

01:18:26 --> 01:18:30: Resource Foundation, Water Research Foundation.

01:18:30 --> 01:18:34: Apologies on evaluating changes in peak water demand and how

01:18:34 --> 01:18:38: that may affect the choice, design, management and evaluation of

01:18:38 --> 01:18:42: demand management, demand management strategies.

01:18:42 --> 01:18:45: The goal for this project is to really understand trends

01:18:45 --> 01:18:47: in peak demands, what are driving those trends.

01:18:47 --> 01:18:51: Also exploring how climate change might be impacting peak demands

01:18:51 --> 01:18:55: and then evaluating demand management strategies that utility may take

01:18:55 --> 01:18:59: to help reduce utility costs, The need for expanded infrastructure,

01:18:59 --> 01:19:04: really emphasizing the role that water conservation efficiency strategies may

01:19:04 --> 01:19:06: play in peak water demand management.

01:19:07 --> 01:19:12: This project will include a more detailed quantitative data analysis.

01:19:12 --> 01:19:15: We have a number of partner utilities who are providing

01:19:15 --> 01:19:18: their data, but we developed this survey as a way

01:19:18 --> 01:19:22: to kind of supplement the quantitative data analysis and get

01:19:22 --> 01:19:27: some qualitative information on how utilities are, you know, thinking

01:19:27 --> 01:19:29: about peak water demand management.

01:19:30 --> 01:19:33: And we really want to ensure broad representation in this

01:19:33 --> 01:19:35: study and get a lot of perspective.

01:19:35 --> 01:19:37: So if you're able to fill out the survey or

01:19:38 --> 01:19:40: share it out to folks that you think you know

01:19:40 --> 01:19:42: would be interested in filling it out.

01:19:42 --> 01:19:44: I just popped a link to that in the chat

01:19:44 --> 01:19:44: as well.

01:19:45 --> 01:19:48: And that survey is also available until March 7th.

01:19:49 --> 01:19:49: Thank you.

01:19:50 --> 01:19:54: And then lastly, more on the policy side of our

01:19:54 --> 01:19:54: work.

01:19:55 --> 01:19:59: AWE along with partners in the plumbing industry have drafted

01:19:59 --> 01:20:02: a letter to the new US EPA administration expressing our

01:20:02 --> 01:20:05: support for the Watersons program.

01:20:05 --> 01:20:09: This is response to executive order signed by President Trump,

01:20:09 --> 01:20:13: which directs agency heads to identify strategies to change policies

01:20:13 --> 01:20:16: that limit limit the ability to choose from a variety

01:20:16 --> 01:20:19: of goods and appliances specifically.

01:20:19 --> 01:20:22: Listing dishwashers, washing machines, toilets and shower heads.

01:20:22 --> 01:20:26: And so our message for this letter is that Watersense

01:20:26 --> 01:20:30: as a voluntary program actually increases consumer choice, fosters innovation

01:20:30 --> 01:20:33: and provides A framework for competition.

01:20:33 --> 01:20:37: So if you are your organization or interesting sign on

01:20:37 --> 01:20:40: to this letter, please reach out to AW's Director of

01:20:40 --> 01:20:41: Policy, Andrew Morris.

01:20:42 --> 01:20:43: His emails on the slide.

01:20:44 --> 01:20:47: And we're hoping to wrap up this process by the

01:20:47 --> 01:20:48: end of the week.

01:20:48 --> 01:20:50: So if you also want to know what next steps

01:20:50 --> 01:20:52: are, you can reach out to Andrew.

01:20:53 --> 01:20:54: And those are my updates.

01:20:54 --> 01:20:56: Thanks for letting me share with the group.

01:20:58 --> 01:20:58: Thank you, Amanda.

01:20:59 --> 01:21:02: And I know Mike had an event that he wants

01:21:02 --> 01:21:03: to talk about.

01:21:03 --> 01:21:05: Mike, do you want to just unmute?

01:21:06 --> 01:21:07: Thanks, Marianne.

01:21:07 --> 01:21:09: I just wanted to give a quick plug for the

01:21:09 --> 01:21:11: Next Generation Water Summit.

01:21:11 --> 01:21:14: Some of you have been there before and we certainly

01:21:14 --> 01:21:15: welcome you back once again.

01:21:16 --> 01:21:18: So take place June 5 and 6.

01:21:18 --> 01:21:21: It is a hybrid event, so the in person component

01:21:21 --> 01:21:23: is in Santa Fe, NM, but you can also attend

01:21:23 --> 01:21:24: remotely.

01:21:24 --> 01:21:28: Our theme to a nod to Marianne's Resilience Summit is

01:21:28 --> 01:21:31: increasing resilience and unpredictable climate.
01:21:33 --> 01:21:34: And so you're all are welcome to attend and there's
01:21:34 --> 01:21:35: a little bit of a teaser.
01:21:36 --> 01:21:39: I know many of you know Marianne Dickinson, she will
01:21:39 --> 01:21:41: be keynoting on Friday of that event.
01:21:41 --> 01:21:42: So hope you all can attend.
01:21:42 --> 01:21:45: I will put the link to the event in the
01:21:45 --> 01:21:45: chat.
01:21:45 --> 01:21:47: It's Next Generation Water Summit.
01:21:47 --> 01:21:47: Dot com.
01:21:47 --> 01:21:48: Thank you, Marianne.
01:21:48 --> 01:21:49: Wonderful.
01:21:49 --> 01:21:50: Thank you, Mike.
01:21:52 --> 01:21:54: Oh, and then some water now updates.
01:21:56 --> 01:21:57: Victoria, are you there?
01:21:57 --> 01:21:58: Go ahead.
01:21:58 --> 01:21:58: I'm here.
01:21:58 --> 01:21:59: Thanks, Marianne.
01:22:00 --> 01:22:03: I'll throw these links in the chat, but just wanted
01:22:03 --> 01:22:05: to give a few quick plugs about some of the
01:22:05 --> 01:22:09: programs we have coming going on and upcoming deadlines and
01:22:09 --> 01:22:11: resources that are going out right now.
01:22:11 --> 01:22:15: So the first one is for our project accelerator program.
01:22:15 --> 01:22:19: This is a technical assistance program available right now just
01:22:19 --> 01:22:24: to Colorado utilities, municipalities, water providers and their partners to
01:22:24 --> 01:22:27: help them jumpstart sustainable water projects.
01:22:27 --> 01:22:31: So we deadlines coming up this Friday for this Colorado
01:22:32 --> 01:22:33: specific round.
01:22:33 --> 01:22:34: So I just threw the link in the chat.
01:22:34 --> 01:22:35: You can learn more at our website.
01:22:36 --> 01:22:39: But yeah, through this, we provide 250 hours of pro
01:22:39 --> 01:22:42: bono technical assistance over about a six to 12 month
01:22:42 --> 01:22:44: period to help you scope and launch a project.
01:22:46 --> 01:22:49: If you're outside of Colorado, we do have another national
01:22:49 --> 01:22:52: accelerator round that's going to be coming up later this
01:22:52 --> 01:22:55: spring, so get on our e-mail list and stay tuned.
01:22:56 --> 01:22:59: The next resource I want to share that we just
01:22:59 --> 01:23:02: launched today is a new tool and resource hub called
01:23:02 --> 01:23:06: our Colorado State Revolving Fund Technical Assistance Dashboard.

01:23:07 --> 01:23:11: And this is really designed to help Colorado water, drinking
01:23:11 --> 01:23:15: water and wastewater systems navigate and apply for the SRFS.
01:23:16 --> 01:23:20: It's really designed to be an interactive tool and really
01:23:20 --> 01:23:22: helps can help you like focus on honing in on
01:23:22 --> 01:23:27: different sustainable water project elements to add to your application.
01:23:27 --> 01:23:30: And so through this program, you can request some pro
01:23:30 --> 01:23:34: bono water Now technical assistance support to yeah, just help
01:23:34 --> 01:23:37: you with any steps along the way of the process.
01:23:37 --> 01:23:38: So check out that dashboard.
01:23:39 --> 01:23:40: It just went Live Today.
01:23:41 --> 01:23:45: And then finally we have an event coming up June
01:23:45 --> 01:23:47: 11th in Denver.
01:23:47 --> 01:23:51: We're going to be celebrating and honoring our emerging leader
01:23:51 --> 01:23:54: Awards or emerging leaders through an award ceremony.
01:23:55 --> 01:24:00: And this is going to be set alongside AWWAS ACE
01:24:00 --> 01:24:02: conference in Denver.
01:24:02 --> 01:24:04: So if you're going to be in town for that
01:24:04 --> 01:24:06: or you're local as well and you'd like to learn
01:24:06 --> 01:24:09: more about our emerging leader award ceremony and join us
01:24:10 --> 01:24:13: for a really fun night of honoring these leaders, dinner,
01:24:13 --> 01:24:14: drinks, things like that.
01:24:15 --> 01:24:16: Reach out to me.
01:24:16 --> 01:24:17: I can send you more information.
01:24:17 --> 01:24:20: We're we're still putting together the details for that, but
01:24:20 --> 01:24:21: save the date for now.
01:24:21 --> 01:24:22: So thank you.
01:24:22 --> 01:24:24: My email's at the bottom of the slide if anyone
01:24:24 --> 01:24:25: has questions.
01:24:26 --> 01:24:27: Thank you, Vic.
01:24:28 --> 01:24:31: And then final, just a quick look at upcoming topics
01:24:31 --> 01:24:32: for the coalition.
01:24:33 --> 01:24:36: Are these dates will probably need to be shifted a
01:24:36 --> 01:24:39: little bit, but this spring we're going to have a
01:24:39 --> 01:24:41: coalition meeting on water reuse.
01:24:41 --> 01:24:44: So if you know of speakers who you think would
01:24:44 --> 01:24:46: be great to hear from or you have some burning
01:24:46 --> 01:24:49: questions related to water reuse that you think we should
01:24:49 --> 01:24:52: focus on, please either put them in the chat box
01:24:52 --> 01:24:52: or e-mail me.

01:24:52 --> 01:24:54: We'd love to hear from you.
01:24:54 --> 01:24:58: Then in the summer we're thinking about focusing on the
01:24:58 --> 01:25:00: 1 water approach and what that means for land use
01:25:01 --> 01:25:01: decision making.
01:25:02 --> 01:25:06: And then in the fall, we're thinking of focusing on
01:25:06 --> 01:25:11: the Colorado Water Wise Guidebook on best practices in water
01:25:11 --> 01:25:12: wise land use.
01:25:12 --> 01:25:15: If any of these topics interest you and you have
01:25:15 --> 01:25:18: suggestions for speakers, we'd love to hear from you.
01:25:18 --> 01:25:21: Or if there's other ideas you want to share, please
01:25:21 --> 01:25:22: share them.
01:25:22 --> 01:25:23: We'd love to hear from you.
01:25:23 --> 01:25:26: What you guys share helps us shape the topics that
01:25:26 --> 01:25:29: we focus on in the speakers that we invite.
01:25:32 --> 01:25:34: With that, I think we can all sign off.
01:25:34 --> 01:25:36: It was so wonderful seeing you all.
01:25:36 --> 01:25:39: Thank you for joining us today and a huge thank
01:25:39 --> 01:25:40: you to our speakers.
01:25:40 --> 01:25:41: We can't thank you enough.
01:25:41 --> 01:25:45: That was such wonderful presentations and we appreciate you.
01:25:54 --> 01:25:54: Bye all.
01:25:54 --> 01:25:55: Thank you.
