



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 ULI's 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 ULI. ULI is a global

00:00:49 --> 00:00:53: nonprofit and we're focused on responsible land use and

00:00:53 --> 00:00:54: sustainable

00:00:53 --> 00:00:54: development.

00:00:56 --> 00:01:00: We have members all around the world, over 48,000

00:01:00 --> 00:01:04: 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, planners, et

00:01:10 --> 00:01:11: cetera, et cetera.

00:01:10 --> 00:01:11: You can see this chart.

00:01:13 --> 00:01:17: I work for ULI's Urban Resilience program, which 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

00:01:25 --> 00:01:29: vulnerabilities.

00:01:25 --> 00:01:29: We do this by advancing industry understanding of resilience,

00:01:29 --> 00:01:34: cultivating

00:01:29 --> 00:01:34: champions for resilience, and supporting communities and

00:01:34 --> 00:01:35: 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 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, leadership, public about why you're making the decisions you're making

00:16:23 --> 00:16:27: and the data behind those decisions?

00:16:27 --> 00:16:29: On the next slide, you'll see kind of array of

00:16:30 --> 00:16:32: the type of technical assistance that we can provide through this program.

00:16:33 --> 00:16:36: It has taken the form of everything from developing a tool that helps entities track water use over time.

00:16:36 --> 00:16:36: So let's say you change your code to make your landscape standards more water efficient, and you need to see

00:16:37 --> 00:16:41: if that is actually happening.

00:16:41 --> 00:16:44: One of the forms of technical assistance that could come from this program is tracking that to see if those changes are making a difference.

00:16:44 --> 00:16:47: We've also helped planners get a better understanding of what

00:16:47 --> 00:16:50: a new development might use when it comes to water use, how to estimate water demands by zone or future

00:16:50 --> 00:16:52:

00:16:53 --> 00:16:55:

00:16:55 --> 00:16:57:

00:16:58 --> 00:16:59:

00:17:00 --> 00:17:04:

00:17:04 --> 00:17:07:

00:17:07 --> 00:17:10:

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

00:26:19 --> 00:26:22: 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

00:27:41 --> 00:27:44: observations, artificial intelligence, machine

00:27:44 --> 00:27:48: learning, and advanced analytics.

00:27:48 --> 00:27:52: At the Internet of Water, we focus on helping our

00:27:52 --> 00:27:55: partners on with modernizing their water data systems.

00:27:55 --> 00:27:58: So we work with them to ensure their open water

00:27:58 --> 00:28:01: data follows the fair and care principles.

00:28:01 --> 00:28:04: I'm not going to go over them here right now,

00:28:04 --> 00:28:08: but I will add a link afterwards after we, you

00:28:08 --> 00:28:11: know, after I'm finished speaking to those to both sets

00:28:12 --> 00:28:15: of principles which are really important for open data.

00:28:15 --> 00:28:17: I I'm going to next.

00:28:17 --> 00:28:18: Thanks, Emily.

00:28:18 --> 00:28:23: Yeah.

00:28:23 --> 00:28:29: So, so we are indeed talking about a project that

00:28:30 --> 00:28:33: is a story of modern data modernization, data fusion, data

00:28:33 --> 00:28:36: storytelling and partnerships.

00:28:36 --> 00:28:40: It started with the Arizona Water Company.

00:28:40 --> 00:28:42: They are a private water company that serves over 30

00:28:42 --> 00:28:47: communities throughout Arizona.

00:28:47 --> 00:28:52: So going back to what Meryl and Abby were talking

00:28:53 --> 00:28:57: about, they were a Growing Water Smart community team.

00:28:57 --> 00:29:00: They actually went twice because Arizona Water Company

00:29:00 --> 00:29:04: serves more

00:29:04 --> 00:29:07: than you know, serves so many communities.

00:29:07 --> 00:29:10: They brought Casa Grande 1st and then they brought

00:29:10 --> 00:29:13: 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

00:29:25 --> 00:29:29: eventual realization that

00:29:29 --> 00:29:31: they, Arizona Water Company badly needed to have better

00:29:31 --> 00:29:36: understanding

00:29:36 --> 00:29:41: of their land and water data.

00:29:41 --> 00:29:47: More specifically, looking at, as you just saw parcel level

00:29:47 --> 00:29:52: data including water allocation, actual water use, projected

00:29:52 --> 00:29:56: future demand,

00:29:56 --> 00:30:00: certificates of assured water supply and projected subdivision

00:30:00 --> 00:30:04: developments.

00:30:04 --> 00:30:06: So the Lincoln Institute partnered with Arizona Water

00:30:06 --> 00:30:11: Company, Casa

00:30:11 --> 00:30:12: Grande Pinal County and the University of Arizona.

00:30:12 --> 00:30:15: We signed an MOU in 2022 and then we started

00:30:15 --> 00:30:17: on a long day to discovery journey, which Emily will

00:30:17 --> 00:30:19: dig into in a minute.

00:30:19 --> 00:30:20: From 2023, Arizona Water Company contracted CGS to

00:30:20 --> 00:30:25: continue hub

00:30:25 --> 00:30:28: development.

00:30:28 --> 00:30:32: So I'm going to leave it to you, Emily, to

00:30:32 --> 00:30:35: tell us about the hub all.

00:30:35 --> 00:30:38: Right.

00:30:38 --> 00:30:42: Thanks, Faith.

00:30:42 --> 00:30:46: So talking a little more from what Faith said about

00:30:46 --> 00:30:48: some of these challenges, and one of them was just

00:30:48 --> 00:30:52: getting all of these folks to the table because there's

00:30:52 --> 00:30:55: often times uncertainty about sharing data and how it will

00:30:55 --> 00:30:58: be handled and permissions and all that.

00:30:58 --> 00:31:00: So there's the data challenge, there's the water scarcity

00:31:00 --> 00:31:04: challenge.

00:31:04 --> 00:31:05: And as our previous presenter said, you know, there's data

00:31:05 --> 00:31:08: cleaning challenges, there's a lot of challenges.

00:31:08 --> 00:31:12: So we're going into this knowing we we've got a

00:31:12 --> 00:31:15: lot to to deal with, but one of the main

00:31:15 --> 00:31:18: ones that's that's kind of behind all of this is

00:31:18 --> 00:31:21: just a water scarcity issue.

00:31:21 --> 00:31:24: So a little bit of of a history on Arizona

00:31:24 --> 00:31:27: 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
00:37:36 --> 00:37:38: how 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
00:38:17 --> 00:38:18: growth in 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
00:38:33 --> 00:38:36: geometries 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

00:45:16 --> 00:45:19: groundwater

00:45:19 --> 00:45:22: shortage, but they would get the preliminary plat, apply for

00:45:22 --> 00:45:25: the certificate of assured water, then a final plat would

00:45:26 --> 00:45:29: be created and then development would start.

00:45:29 --> 00:45:29: So that's kind of the general process in terms of

00:45:30 --> 00:45:33: 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

00:45:54 --> 00:45:58: of

00:45:58 --> 00:46:00: Assured Water Supply is, you know, the utility's effort to

00:46:01 --> 00:46:02: make development easier for moving forward.

00:46:03 --> 00:46:06: Thank you so much.

00:46:06 --> 00:46:08: I would say, sorry, Marianne, just a quick comment is

00:46:09 --> 00:46:09: that I think it's the first of its kind in

00:46:09 --> 00:46:12: Arizona.

00:46:13 --> 00:46:14: So this is a ground breaking kind of policy that

00:46:15 --> 00:46:16: came from this research.

00:46:16 --> 00:46:17: Excellent.

00:46:18 --> 00:46:18: Thank you both so much.

00:46:18 --> 00:46:20: So we're out of time.

00:46:20 --> 00:46:23: We're going to move to our next speaker.

00:46:23 --> 00:46:25: But again, if you have questions for these speakers, please

00:46:26 --> 00:46:27: put them in the chat box and they'll respond.

00:46:41 --> 00:46:43: Go ahead, Mazdock.

00:46:45 --> 00:46:46: 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

00:47:06 --> 00:47:08: this

00:47:08 --> 00:47:14: great meeting, and I'm so delighted.

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

00:47:14 --> 00:47:19: presenters

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

00:47:19 --> 00:47:22: 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

00:47:38 --> 00:47:43: mechanisms,

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

00:47:43 --> 00:47:47: 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

00:48:04 --> 00:48:07: 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

00:48:17 --> 00:48:22: supports.

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

00:48:22 --> 00:48:25: 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

00:48:34 --> 00:48:38: 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

00:48:38 --> 00:48:44: and so on, and

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

00:48:50 --> 00:48:55: separate water for 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 forecasting water use for a variety of scenarios and including land use and population change, climate scenarios, and also conservation plans that may be considered.

00:49:03 --> 00:49:08: So for example, in Colorado, the state has done a tremendous job by developing planning scenarios for future water use analysis and water supply demand assessments in Colorado for early community across Colorado.

00:49:08 --> 00:49:14: We have taken Colorado's water plant planning scenarios and I've translated the drivers of changing our state including again, population, land use and climate for all communities to be able to do integrate land use and water supply planning.

00:49:14 --> 00:49:17: So scenario assessment is the third module of the tool.

00:49:17 --> 00:49:20: And the last part for these variety of scenarios, Polaris characterizes reliability and resilience, resilience of 1 water supply system.

00:49:20 --> 00:49:25: So essentially do we have enough water for population and socio economic and land use futures that we envision for the region.

00:49:25 --> 00:49:30: And the second, there is a module that essentially analysis water distribution networks that are needed to support the type of land use, population and growth trajectories that we envision for for the region.

00:49:30 --> 00:49:32: So again, water supply needs and then water distribution needs that are automatically arranged and assessed in the software.

00:49:32 --> 00:49:36: So some of the metrics that we have already been talking about today are included in the Polaris store.

00:49:36 --> 00:49:41: So some of the examples for water use and while consumption intensity are gallons per capita per day or GPCD

00:49:41 --> 00:49:45: gallons per household per day, million gallons per acre of development by different zoning regulations and districts and

00:49:45 --> 00:49:48:

00:49:48 --> 00:49:52:

00:49:52 --> 00:49:57:

00:49:57 --> 00:50:05:

00:50:05 --> 00:50:09:

00:50:09 --> 00:50:14:

00:50:14 --> 00:50:15:

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00:50:35 --> 00:50:40:

00:50:40 --> 00:50:41:

00:50:41 --> 00:50:44:

00:50:44 --> 00:50:48:

00:50:48 --> 00:50:51:

00:50:51 --> 00:50:55:

00:50:55 --> 00:50:59:

00:50:59 --> 00:51:04:

1,000,000 gallons
per meter.

00:51:04 --> 00:51:05: And these water metrics and others that are included are

00:51:05 --> 00:51:10: characterized in different or by different land use categories

00:51:10 --> 00:51:15: that

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

00:51:21 --> 00:51:27: household occupancy, green

00:51:27 --> 00:51:29: spaces and open spaces, gross domestic products,

00:51:29 --> 00:51:35: employment, and other

00:51:35 --> 00:51:40: socio economic factors.

00:51:40 --> 00:51:45: So the tool automatically features this data, population

00:51:45 --> 00:51:48: demographics and

00:51:48 --> 00:51:51: other information related to land use activities from the

00:51:51 --> 00:51:54: United

00:51:54 --> 00:51:56: States Census Bureau and in for other countries or other

00:51:56 --> 00:52:00: regions throughout the world.

00:52:00 --> 00:52:05: If one is interested to use the tool, user can

00:52:05 --> 00:52:07: upload their data for this information.

00:52:07 --> 00:52:11: Abby did a great job describing the the nature of

00:52:11 --> 00:52:16: the process for integrated land use and water supply analysis

00:52:16 --> 00:52:21: or water consumption analysis.

00:52:21 --> 00:52:27: And Polaris essentially streamlines the same process.

00:52:27 --> 00:52:33: We take the zoning and all land use Polygon bandwidth,

00:52:33 --> 00:52:34: overlay that with the water meter data and once they're

00:52:34 --> 00:52:38: uploaded, the tool uses robust methods to then characterize

00:52:38 --> 00:52:42: historical

00:52:42 --> 00:52:44: water consumption and then including things such as trends

00:52:44 --> 00:52:47: in

00:52:47 --> 00:52:52: water use intensity.

00:52:52 --> 00:52:56: So if a in many communities across the country, we

00:52:56 --> 00:53:03: observe that water consumption intensity or water use

00:53:03 --> 00:53:08: intensity has

00:53:08 --> 00:53:11: been decreasing.

00:53:11 --> 00:53:15: So for example, GPCD has been going down.

00:53:15 --> 00:53:17: The tool automatically characterizes those trends and then

00:53:17 --> 00:53:20: forecasts for

00:53:20 --> 00:53:23: a variety of scenarios in future how much water supply

00:53:23 --> 00:53:26: will be in or how much water demands will be

00:53:26 --> 00:53:29: influenced and then subsequently what water supply needs

00:53:29 --> 00:53:32: we have.

00:53:32 --> 00:53:35: The specific module of the tool that I would like

00:53:35 --> 00:53:38: to highlight is the scenario planning tool, which which is

00:53:38 --> 00:53:41: really the context of what most of the groups that

00:53:41 --> 00:53:44: 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 2050-2060 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

01:12:23 --> 01:12:27: like

01:12:27 --> 01:12:29: higher construction that might be using more water?

01:12:29 --> 01:12:35: 'Cause I was just really curious.

01:12:35 --> 01:12:41: About like how or how like why mature neighborhoods and

01:12:41 --> 01:12:42: cities just kind of lower that GPCD in this going

01:12:43 --> 01:12:45: into the future?

01:12:45 --> 01:12:48: Kinda this is a great question.

01:12:48 --> 01:12:52: There are there are mere the factors that influence that,

01:12:52 --> 01:12:55: but the simplest just again, I'm just simplifying in the

01:12:55 --> 01:12:56: absence of the time since we don't have time to

01:12:56 --> 01:13:01: go through all of that.

01:13:01 --> 01:13:04: A part of that is construction and in general during

01:13:04 --> 01:13:08: the build conditions you need somewhere.

01:13:08 --> 01:13:12: But more importantly, and this is the, the most important

01:13:12 --> 01:13:14: factor is that more mature cities tend to have infill

01:13:14 --> 01:13:19: patterns of growth rather than sprawl.

01:13:19 --> 01:13:22: So as we add more people, so essentially as household

01:13:23 --> 01:13:28: occupancy goes up, GPCD tends to go down.

01:13:28 --> 01:13:31: So that's really the and then essentially primary reason for

01:13:31 --> 01:13:35: that is less irrigate landscape in in our type of

01:13:35 --> 01:13:39: region where we do have irrigated landscape and by smaller

01:13:39 --> 01:13:43: yards and landscape areas, outdoor water goes down.

01:13:44 --> 01:13:48: Indoor also tends to slightly go down but not much.

01:13:48 --> 01:13:52: But on aggregate GPC tends to go down as household

01:13:52 --> 01:13:53: occupancy goes up and more mature cities tend to have

01:13:53 --> 01:13:56: 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
01:17:51 --> 01:17:54: hosting
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

01:18:34 --> 01:18:38: how

01:18:38 --> 01:18:42: that may affect the choice, design, management and

01:18:42 --> 01:18:45: evaluation of

01:18:45 --> 01:18:47: demand management, demand management strategies.

01:18:47 --> 01:18:51: The goal for this project is to really understand trends

01:18:51 --> 01:18:55: in peak demands, what are driving those trends.

01:18:55 --> 01:18:59: Also exploring how climate change might be impacting peak

01:18:59 --> 01:19:04: demands

01:19:04 --> 01:19:06: and then evaluating demand management strategies that

01:19:06 --> 01:19:07: utility may take

01:19:07 --> 01:19:12: to help reduce utility costs, The need for expanded

01:19:12 --> 01:19:15: infrastructure,

01:19:15 --> 01:19:18: really emphasizing the role that water conservation efficiency

01:19:18 --> 01:19:22: strategies may

01:19:22 --> 01:19:27: play in peak water demand management.

01:19:27 --> 01:19:29: This project will include a more detailed quantitative data

01:19:29 --> 01:19:33: analysis.

01:19:33 --> 01:19:35: We have a number of partner utilities who are providing

01:19:35 --> 01:19:37: their data, but we developed this survey as a way

01:19:37 --> 01:19:40: to kind of supplement the quantitative data analysis and get

01:19:40 --> 01:19:42: some qualitative information on how utilities are, you know,

01:19:42 --> 01:19:44: thinking

01:19:44 --> 01:19:48: about peak water demand management.

01:19:48 --> 01:19:51: And we really want to ensure broad representation in this

01:19:51 --> 01:19:53: study and get a lot of perspective.

01:19:53 --> 01:19:55: So if you're able to fill out the survey or

01:19:55 --> 01:19:57: share it out to folks that you think you know

01:19:57 --> 01:19:59: would be interested in filling it out.

01:19:59 --> 02:00:01: I just popped a link to that in the chat

02:00:01 --> 02:00:03: as well.

02:00:03 --> 02:00:05: 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 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

01:22:09 --> 01:22:11: 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

01:22:19 --> 01:22:24: just

01:22:19 --> 01:22:24: to Colorado utilities, municipalities, water providers and their

01:22:24 --> 01:22:27: 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

01:23:02 --> 01:23:06: Dashboard.

01:23:07 --> 01:23:11: And this is really designed to help Colorado water, drinking water and wastewater systems navigate and apply for the SRFS.

01:23:11 --> 01:23:15:

01:23:16 --> 01:23:20: It's really designed to be an interactive tool and really helps can help you like focus on honing in on

01:23:20 --> 01:23:22: different sustainable water project elements to add to your application.

01:23:22 --> 01:23:27:

01:23:27 --> 01:23:30: And so through this program, you can request some pro bono water Now technical assistance support to yeah, just help

01:23:30 --> 01:23:34: you with any steps along the way of the process.

01:23:34 --> 01:23:37: So check out that dashboard.

01:23:37 --> 01:23:38: It just went Live Today.

01:23:39 --> 01:23:40:

01:23:41 --> 01:23:45: And then finally we have an event coming up June 11th in Denver.

01:23:45 --> 01:23:47: We're going to be celebrating and honoring our emerging leader

01:23:47 --> 01:23:51: Awards or emerging leaders through an award ceremony.

01:23:51 --> 01:23:54: And this is going to be set alongside AWWAS ACE

01:23:55 --> 01:24:00: conference in Denver.

01:24:00 --> 01:24:02: So if you're going to be in town for that

01:24:02 --> 01:24:04: or you're local as well and you'd like to learn

01:24:04 --> 01:24:06: more about our emerging leader award ceremony and join us

01:24:06 --> 01:24:09: for a really fun night of honoring these leaders, dinner,

01:24:10 --> 01:24:13: drinks, things like that.

01:24:13 --> 01:24:14: Reach out to me.

01:24:15 --> 01:24:16: I can send you more information.

01:24:16 --> 01:24:17:

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.

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