

**From your perspective as a community leader in Northern Colorado, what is your key takeaway from today's session?**

- I really enjoyed hearing Jessica Thrasher speak about the importance of diversity, equity, and inclusion (DEI) within our water community. It really opened my eyes to how limiting we can be without considering there are other languages not being represented in our industry, which of course can be unwelcoming to those people who speak those languages. I was inspired by the Water Fellows Program that Jessica leads and hope to be able to integrate DEI measures within my work and my circles. I am personally going to be updating my website at the City this year and plan to translate all of my resources into Spanish, to hopefully be a bit more open and incorporating of Spanish-speakers within Greeley. Also, I really enjoyed learning more about how agriculture is helping the overall baseflows of the South Platte River, which is something I was not aware of before yesterday's session. It was profound to hear that the first white settlers who arrived in Colorado stated that the rivers would dry up during the summer, but of course with the use of agriculture and irrigation that does not happen anymore, which creates ecosystems for birds, fish, and vegetation within those riparian corridors. I really enjoyed learning about seepage or accretions from irrigation flows that then flow back into the river, which allow for the river to have a baseflow during those dry months, and creates a very green and fertile area. I loved the aerial photo that Jim Yahn showed of his property to show the contrast of seepage from the irrigated lands compared to the unirrigated, dry lands. I'm not super educated and/or familiar with agriculture so this month's topic was very interesting to me and I learned a lot.
- Just utilizing water efficiently is not enough to "fix" the issue surrounding agriculture's massive water consumption in CO - storage is a huge component, the market's desire for specific crops (and for meat), labor, and more are crucial components. Technological advances to assist with higher yield of crops is one of the most important things to focus on moving forward. Dense development is important!
- Loved hearing from the Ag side of it and once again, felt like we could spend DAYS on the subject. VERY much appreciated the Thornton speaker, she was very positive for a topic that I am sure is NOT always positive for them but was helpful to hear their perspective. If anything, it helps to grow our perspectives when it comes to talking about their water program and how they are growing it. It's that collaboration piece that we all need to be reminded of on these tough subjects. It was also enlightening to hear from the final speaker regarding the DEI piece. Knowing the resources out there for translation was great to see and really opened my eyes to looking at another piece of the "water pie" because I can honestly say I wouldn't have thought about DEI and water until this and I think it is a GREAT piece to include in this program!
- From Denver to the state line, we use/reuse the water in the South Platte seven times. Impact of surface irrigation on the flow of the river -- historical vs. Today. 1.8MAF of supply per year vs. 4.5MAF diverted = South Platte is net water short. "Flush three times and save a farmer" vs. "If it's yellow, let it mellow" the importance of municipal wastewater to farmers. If you increase efficiency in agriculture, need to also increase water storage. Agriculture is adjusting to use less water -- crops, livestock. Salinity is not currently regulated. When Thornton or other metro area cities pump the water from NE S. Platte = higher treatment costs b/c of higher salinity. Impact of the failure of Two Forks: 1) split all the municipalities/water districts up and became more competitive 2)

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everyone started looking to ag for their water rights. Jessica's example about mobile home parks water supply issues was very impactful.

- It was interesting because it felt like farming was an opportunity we pushed to create a booming economy, even though nature wouldn't have it normally. Therefore it felt like we created our own wicked problem.
- I am really grateful to have had an opportunity to really understand the concept of return flows and the distinction of consumptive use of water. I had just a vague understanding about what this meant prior to the session so I really appreciate the clarity. One of my biggest takeaways from today's session was how central returns flows are for the proper functioning of our whole water system. One thing that resonated with me was an important reminder that we have to understand the whole picture before advocating for solutions to our "water problems." This is obviously not unique to water - it's common to any complex problem involving competing interests. It's a great reminder that if a solution seems like a no brainer but it still hasn't been adopted, it's clearly more complicated than you think! I took away that the agricultural land in our area is very valuable in terms of production - I didn't realize that our agricultural land is somewhat unique in that way. We can't simply take this land out of production to "solve" our water problems without creating new and different challenges. I no longer think that is the ultimate solution. I also didn't realize that higher efficiency irrigation processes can also create problems in terms of reducing return flows. This session reinforced the incredible power of market forces and consumer demand. The agricultural industry will ultimately shift to meet consumer demand. I am still unsure of what we would ideally like that demand to be. Black eyed peas? Another alternative crop or suite of crops? I am finding myself really wishing we knew what the ideal state would look like so we could work collectively in the same direction, within our different spheres of influence, toward the same goal. I took away that while the members of the agriculture industry generally care about source water protection and understand the value of healthy forests and risk of wildfire, this is really not an area that they have the interest or resources to engage with. I didn't realize that they actually don't place much value on the quality of water - just quantity. Although it is disappointing, I definitely understand why! This is a really valuable perspective to hear. I took away that we all can make strides in enhancing DEI in our work. It can look different for each of us - some of our efforts can be more significant than others but all of us can take action.
- The Ag perspective was a useful perspective and having some discussions about how the priority in the river was allocated was an important issue to delve into and very useful reminder for me. I was disappointed in the seeming drift of the conversations in the morning. I did find the ATM discussing very useful and helpful and the examples were very helpful to grasping the concepts. Overall, I would give the entire day a B-.
- As a community leader in Northern Colorado, what resonated with me most from today's session was during the first two speakers, Jim & Joel, and how they broke down possible changes in water usage and how little difference some fought-for changes would actually make.
- I found Jim Yahn's presentation most interesting. He is clearly and expert with great experience (over 30 years) managing the North Sterling Irrigation District. Of highest interest to me was what we learned about "return flows". I did not have any understanding of return flow basins and know very little about augmentation plans. Augmentation plans, as I understand them, function primarily to replace or augment

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water drilled from wells with surface water. Jim presented some data that was most interesting. In an average year, the South Platte basin will receive 1.4 million acre feet in water from snow and rain. The basin will use for all purposes 4.8 million acre feet in an average year. The gap is covered by return flows. Another takeaway that was interesting is that in the S. Platte and Republican river basins there are 831,000 acres of irrigated farm ground. Joel Schneekoth's presentation was interesting as he "piggy-backed" on Jim's presentation to talk with us about the types of crops that can and should be grown based upon both water availability as driven by the various markets farmers sell to. An interesting takeaway was that 80% of Colorado's population is served by the South Platte basin. The South Platte basin is water short - ergo the need to transport water from other basins. Another takeaway for me in Joel's presentation was that furrow/ditch irrigation is a ~40% efficient water use. Center pivot sprinklers are 90% efficient. It was also interesting to learn that with today's technology (equipment, irrigation systems, seed, etc.) that one person can efficiently farm ~800 acres with furrow irrigation, while that same one person (who is working his/her butt off in both cases) can efficiently farm up to 2,000 acres with a center-pivot sprinkler irrigation system. There remains controversy over the consumption use of water in crop production. What is the most efficient and reasonable amount of water to grow a corn crop versus barley versus other cash crops. Karen presented to use about the salinity of water. She is leading a Salinity Study group in her role with the Water Center. What do we do with the brine? How do we accurately measure salinity? Interesting stuff. Brett Bovee presented about water sharing agreements. This seemed to be a relatively new approach to "squeeze" the most beneficial use out of water resources. In any given year, most municipalities have acquired excess water. Newer, less mature communities may not be in that position, so lease agreements are in place. Another interesting takeaway was the location of water treatment plants - along the foothills where the river water is coming right off the mountain runoff. Emily Hunt from the City of Thornton did a good job explaining Thornton's rationale for the purchase of farms in northern Colorado ~40 years ago. The Water Supply and Storage Company diversion and ditch system is well designed and has excellent early priority water rights. She updated us on the City's efforts to avoid serious consequences for the region and the environment with its "buy and dry" plans. When the City completes its piping system (assuming they get the approvals needed from Larimer and Weld Counties), Emily told us the City will have ~17,000 acres to sell.

- Jim Yahn's presentation on water use along the South Platte River Basin was really helped to solidify the concept of reuse and striking to understand that historical irrigation practices actually sustains more flow in the river. It was interesting to hear that efficiency is a double edged sword when looking at available water in the river. I really enjoyed hearing from Emily Hunt with Thornton Water and understanding the processes Thornton went through in obtaining the Northern Colorado Water rights. It's interesting to see that most communities are up in arms about the sale that occurred over 40 years ago and hearing from the banking perspective from the 1980's and how the sale of water was one of the only ways to keep local farming operations alive at that time. I look at Thornton and hope that my own organization can be so fortunate to have the fore thought on planning for the future of water in my community.
- The issue of Ag use of water is also complicated. In some ways the ag use of water over the years has "strengthened" the river by adding year round flows, so a decrease to that

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use (efficiency) could also have environmental and other side effects that we aren't anticipating. The solution to this could be storage, but again we know the complications relating to that.

- Since we're in the South Platte River basin everything said today was relevant to our class. What resonated the most with me was the reinforcement of my opinion that we should support local agriculture for food security reasons. And, of course agriculture/horticulture on the high plains requires irrigation.
- I was shocked at how big of an impact return flows had on the system. This was quite eye opening.
- Ag day was really good, and I enjoyed pretty much all of the speakers. I will be honest with you and Karen – I unfortunately did not enjoy the last speaker (Jessica Thrasher) and I also don't know how it fit into the day in general. But my overall takeaways were really good. I had never considered "return flows" from Ag, and how that impacted water in the rivers or aquifers. It was also really interesting to hear from Thornton regarding their land ownership in Weld and Larimer.
- For me, the PowerPoint by Emily Hunt from the City of Thornton resonated the most today as it affects The Town of Severance. We have several properties in our GMA (Growth Management Area) that the City owns, and I have often wondered what is going to occur with them once the water is transferred off the land. However, what hit home even more, was the statement she made regarding Two Forks Dam, that this was the catalyst that caused several municipal organizations to become less regional. I can see how this would change the thinking of many, but this cannot stay the status quo.
- Ag doesn't want to waste precious water either. It seems like ag and domestic use are pointing the finger at one another saying, "you need to do better".
- During the discussion at the beginning of the day, to rehash what our last session was about, I brought up some of the things that had been bugging me about how our class conversations have seemed to be focused on development and it also seemed that many of my classmates' perspectives are that development is good (that's what I perceived). I SO appreciate Jennifer's perspective and explanation of why our discussions leaned that way. As a city planner, it's her job to ensure that her jurisdiction can support the growing population. And that growing population isn't necessarily because of so many people moving here. It's also due to the fact that the world population is growing. Of course, we can't just let people go homeless, but it's her job as a planner to make informed decisions to predict into the future what this area is able to support in terms of development – doing it sustainably and within the constraints put on us by our natural resources. UGH! It's still SO depressing though when you see new developments going up. Additionally, what's even more depressing is that the majority of the population here in NoCo (or all of Colorado for that matter) don't know the slightest bit about our water resources, how they get their clean, reliable water. I think I've said this before in a previous takeaway – we need more groups that can educate the public about this! I am working to improve BTWC's ability to do that! Increased agricultural (or municipal) water use efficiencies can potentially negatively impact water users further downstream – that just blows my mind. Finally, I just took the opportunity to look through our class participant list and everyone's bios again. How refreshing to be reading these after having been sitting with my peers for a few months! It has given me a new perspective about everyone and I hope to start making more connections now that I can bring pieces of their lives to the conversation. I also appreciate Tatum's

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comment about the need for planners to have more opportunities for professional development so they aren't necessarily uber focused on whatever expertise or experience they had when working in a different part of the country. They should have opportunities for seeing different perspectives before making all sorts of development and planning related decisions. ALSO – **water plans need to be communicating with development plans!!!!** Which, by the way, the County is going through a water master planning process right now. I just recently heard of a North Front Range Water Quality Planning Association (NFRWQPA). WHAT???. I can't keep track of all of this nor do I have the time to participate. I will follow up with Jessica about the intern program!

**What questions do you have after today's session? Any areas you want to explore further?**

- I would love to learn more about the South Platte salinity issues. As Karen stated in her presentation, it sounds like the stakeholder group is going to be looking at urban stormwater runoff, which can be a huge source of salt in the urban setting due to ice melt, and that is very much of interest to me as a stormwater quality specialist. At the City, I am looking at ways to help contain our salt and figure out best management practices for application and as that's a big feat.
- I'd like to learn more about water sharing agreements - it seems like low water years would make it even worse for both/all participating parties? How is the state working with the agriculture industry to provide incentive for more water to be available for direct human needs (not crops/animals)? Not really a question, but I think it would be super helpful to have a list of important terminology/acronyms for each session, so we are all on the same page. This list could be provided to speakers so they don't have to repeat definitions over and over. (for example, defining "priority call", acronyms like CFS, etc).
- I have really enjoyed the wide range of topics you guys are covering in this program and trying to include so many areas is so helpful. I am sure I could spend hours listening to each one! Hearing from so many municipalities has been so great and has made me expand our speakers to include some of them so that my members might learn more!
- During the Thornton presentation, Emily mentioned that in the 1041 process if another jurisdiction approves the project, that ruling can overrule another jurisdiction's decision. Can you explain this? How can the state encourage more collaboration between municipalities/water districts? It just seems that the current system of competition is not efficient nor does it promote equity. Either statewide collaboration or regional.
- What could be a replacement industry that is equally lucrative, but not so heavily subsidized with our finite natural resources?
- I am definitely curious to follow more about the Thornton Northern Properties Stewardship Plan. I am interested to know what people in Larimer and Weld counties think about the plan. I hear general grumbings about Thornton buying up all of the water rights so I am just interested to know how receptive people working on the stewardship plan in our area actually are.
- Nothing
- After today's session, I'd like to explore the JEDI in Water Leadership program.
- I would like to explore further just how "return flows" work. Underground flows versus surface flows, both natural and pumped?
- We didn't touch on it from for Thornton Water but I would like to understand the impetus that is driving the pipeline construction today versus looking at conservation methods and whether they are considering raw water systems versus treated systems. I would also like to learn more about what communities and farmers are currently doing to mitigate salinity in their water use from Karen's presentation.
- I would like to know what the City of Thornton had to do in terms of an Augmentation Plan. The "system" that they will be taking the water from is not (I don't think) connected back to the same area, so how do they not affect the downstream components.

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- I think more information about the salinity in all our water systems would be helpful. How does this compare to water systems in other states. Is there technology that can help mitigate salinity in large river basins? I know nations are using desalination systems, is the cost so prohibitive so as to preclude us from using it, especially on the eastern farmlands?
- Nothing
- I asked Emily Hunt (Thornton) about economic impacts of taking land out of production (or severely reduced production), and she didn't have an answer for that question. That is one thing that I'd be interested to hear.
- So, I do not have any questions; however, I would like to explore further and get more information on local ditches in this area and near Severance. I have some contacts with the smaller ditches in Severance, however, I now believe it would be very beneficial to have a relationship with as many of those ditch companies as possible.
- If everyone is being more efficient with water, then why aren't we feeling like our water is being used more efficiently? Are we growing at such a pace that these milestones are not recognizable? What is so ridiculous about farmland preservation along the front range north of Denver? I was sort of laughed out of the room when I said municipalities are trying to do this - I'm not ashamed or anything, but more wondering why ag water purveyors thought that wasn't sustainable. If that's the case though, shouldn't we be planning the transfer of ag water from ag to municipal use. I think metro ag water purveyors, like FRICO and Henry Lynn, wouldn't agree that there's no ag future in their water though.
- So if we are negatively impacting water users further down river on the S. Platte through our increased water efficiencies here, why do City's try to get citizens to not waste? Therefore, what kinds of water conservation should we be focused on? Whose job is it to invest in sourcewater protection if there are SO many users downriver? I'm trying to get City of Loveland and Greeley to invest in our forestry program to mitigate wildfire impacts. Sounds like Nebraska, and everyone in between, should also be!

**Are there any components of what you learned today that are applicable for your current position or profession?**

- Absolutely. Definitely what I already mentioned in the first two questions, but I'm really excited to start introducing DEI efforts in my daily work at the City of Greeley. That was very impactful to me and hope I can make some of those changes that Jessica talked about in my day to day life.
- I think I say this every session, but the focus on collaboration is so important! The concept of alternative transfer methods is super interesting - not really directly applicable for me, but the idea of finding a solution that works for multiple parties is something I work with often!
- I feel like a broken record but each month I take away some key points from each speaker and have shared those in passing with either my members at our lunches (I am referring to it as Julie's year of water trivia ha ha) because again, housing/development and water go hand in hand so I hope to keep raising awareness of the topic and just making the topic not so "scary". If I can learn about some of this stuff, I know some of my members can and WOULD be good messengers so feel like I am continuing to keep the topic at the forefront for us!
- I appreciated the entire day, but in particular the presentation by Thornton on the pipeline and it's northern project was really applicable. As a candidate, I've gotten a few questions about it.
- Minimal, but very interesting topics.
- Agriculture is not a logical industry to provide funding support and/or be a partner for forest health initiatives to reduce the risk of wildfire in our area (at least right now). We can (and need to) engage in DEI initiatives at various levels of our work now. General enhanced understanding of the role of agriculture in the complex system of water in our region.
- Nothing
- Some of the information that Emily shared could be applicable to my current position, in that knowing more about the Thornton water project better prepares me for common conversation within the water world.
- As an interested citizen, the components of the day's learning that most interested me is to learn more about return flows and with most of our presentations in our class, how do we accomplish more storage. Also, it is going to be interesting to see how fast agricultural lands end up being taken out of production and the water use going to municipal and industrial.
- Jessica Thrashers presentation on Equity in water was very applicable to my current situation and I plan to look at some of the resources she provided to attempt to tackle the language barrier components to information coming out of my department. I am part of the Larimer County Water Master Plan Stakeholders group and hearing the amount of barriers required to even consider alternative leasing programs from Brett Bovee felt overwhelming and disheartening. It really goes back to the beneficial use as well as the use it or lose requirements of the current water law.
- The presentation regarding the City of Thornton and the affects on the region around Ault are very prevalent. I think there will be a lot of people asking questions about this, especially as the fry up's really start to happen. This is going to be a big deal, and will continue to have a lot of discussion around it.



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- I thought the fact that Coloradans use the water from the S. Platte from Denver to the KS/NE border seven times is really interesting and concerning given the water pollution that likely occurs.
- Nothing
- Actually, oil and gas companies do work with farmers and ditch companies to rent or buy water to use in completions activities, so there is a tie with oil and gas & Ag. Other than that, for my campaign as Commissioner and as I've said before, I'm learning a lot and appreciate hearing from so many people on water topics that affect so many people and businesses.
- As always, almost everything related to water pertains to my current position.
- As I stated in class, planners need to be more involved with this stage of the development process - it should be part of our Comprehensive Planning actions. No one entity is tracking how many straws are in this milkshake we call water in the west, nor is anyone tracking what all the straws have in the way of future development either. Planners need to know if we need to say 'no' before development moves forward without enough water for the future; it's our job to provide these facts to decision-makers, but we need the facts to communicate them.
- YES – education and fundraising (who will invest?)