TOWN OF CASTLE ROCK COLORADO

# Water Resources Strategic Master Plan 2021


CASTLE ROCK Qwater
Securing our future drop by drop

April 2022

# Acronyms, Abbreviations and Definitions

| | |
|---|---|
| AF | acre-feet |
| AF/yr | acre-feet per year |
| aka | also known as |
| ASR | Aquifer Storage and Recovery |
| AWWA | American Water Works Association |
| BEC | Box Elder Creek |
| CCBWQA | Cherry Creek Basin Water Quality Authority |
| CCPWA | Cherry Creek Project Water Authority |
| CDPHE | Colorado Department of Public Health & Environment |
| CEC | Constituents of Emerging Concern |
| cfs | cubic feet per second |
| CIP | Capital Improvement Plan |
| CO | Colorado |
| Corps | United States Army Corps of Engineers |
| COS | Cost-of-service |
| CPMD | Castle Pines Metropolitan District |
| CRW | Castle Rock Water |
| CWCB | Colorado Water Conservation Board |
| DOC | Dissolved Organic Carbon |
| DWSD | Dominion Water & Sanitation District |
| ECCV | East Cherry Creek Valley Water and Sanitation District |
| EPA | United States Environmental Protection Agency |
| °F | degrees Fahrenheit |
| FMP | Financial Management Plan |
| FRICO | Farmer's Reservoir & Irrigation Company |
| gpcd | gallons per capita per day |
| gpd | gallons per day |
| gpm | gallons per minute |
| HAA5s | Haloacetic Acids |
| HID | Henrylyn Irrigation District |
| LIRFs | Lawn Irrigation Return Flows |
| MG | million gallons |
| MGD | million gallons per day |
| MS4 | Municipal Separate Storm Sewer System |
| NEPA | National Environmental Policy Act |
| O&M | Operations & Maintenance |
| PCRWPL | Plum Creek Raw Water Pipeline |
| PCWPF | Plum Creek Water Purification Facility |
| PCWRA | Plum Creek Water Reclamation Authority |
| PWSD | Parker Water & Sanitation District |
| RHR | Rueter-Hess Reservoir |
| RHWPF | Rueter-Hess Water Purification Facility |

| | |
|---|---|
| RO | Reverse Osmosis |
| SDF | System Development Fee |
| SEO | State Engineer's Office |
| sf | square feet |
| SFE | Single Family Equivalent |
| SMWSA | South Metro Water Supply Authority |
| SWPP | Source Water Protection Plan |
| TDS | Total Dissolved Solids |
| TOC | Total Organic Carbon |
| Town | Town of Castle Rock |
| TTHMs | Trihalomethanes |
| UCMR | Unregulated Contaminant Monitoring Rule |
| UV | Ultraviolet |
| w/ | with |
| w/o | without |
| WEMP | Water Efficiency Master Plan |
| WISE | Water Infrastructure and Supply Efficiency |
| WQCD | Water Quality Control Division |
| WRIP | Water Resources Implementation Plan |
| WRMP | Water Resources Master Plan |
| WRSMP | Water Resources Strategic Master Plan |
| WTP | Water Treatment Plant |
| Yr/YR | Year |

## Definitions

Conjunctive Use – The coordinated use of surface and groundwater to meet a water provider's demands.

Non-Renewable Water – Non-renewable water resources are not replenished at all or for a very long time by nature. This includes water in the Denver Basin aquifer underlying Castle Rock. Renewable water resources are rechargeable due to the hydrological cycle.

Non-Tributary Groundwater – Water outside of a designated groundwater basin whose pumping will essentially not deplete surface streams within 100 years. As specified by Senate Bill 213 in 1973, it is available to the overlying landowner at a rate of one percent per year, assuming a 100-year life of the aquifer. It is important to note that this is not a determination that the aquifer could actually provide the permitted well with a 100-year water supply. This assumption is only used to calculate an annual allocation.

Not Non-Tributary Groundwater – Water that is allocated similarly to non-tributary groundwater based on overlying land ownership, but because of its withdrawal effects to

nearby surface streams, an adjudicated augmentation plan is required prior to this type of water being put to use.

Reclaimed Water – Wastewater treatment plant effluent that has been recaptured for beneficial uses such as municipal, irrigation, or industrial use.

Recycled Water – See reusable or reuse water below.

Renewable Water – Renewable water includes all surface water and groundwater resources that are renewed on a yearly basis due to the hydrologic cycle without consideration of the capacity to harvest and use this resource.

Reusable or Reuse Water – Also known as recycled water. Water reuse reclaims water from a variety of sources then treats and reuses it for beneficial purposes such as irrigation, potable water supplies, groundwater replenishment, industrial processes, and environmental restoration. Water reuse can provide alternatives to existing water supplies and be used to enhance water security, sustainability, and resilience.

Surface Water – Surface water is any body of water found on the Earth's surface, including both the saltwater in the ocean and the freshwater in rivers, streams, and lakes. In Colorado, a legal framework called the prior appropriation system regulates the use of surface water and tributary groundwater.

Sustainable Water – See Renewable Water above.

Tributary Groundwater – Water below the Earth's surface that is hydrologically connected to a surface stream.

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# Acknowledgments

The development of the Town of Castle Rock (Town) Water Resources Strategic Master Plan was a collaborative effort led by the Water Resources staff at Castle Rock Water. The following staff members made significant contributions of time and input on this document:

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- Jared Wagner, GIS Technician

East Plum Creek as it flows through Castle Rock

# Executive Summary

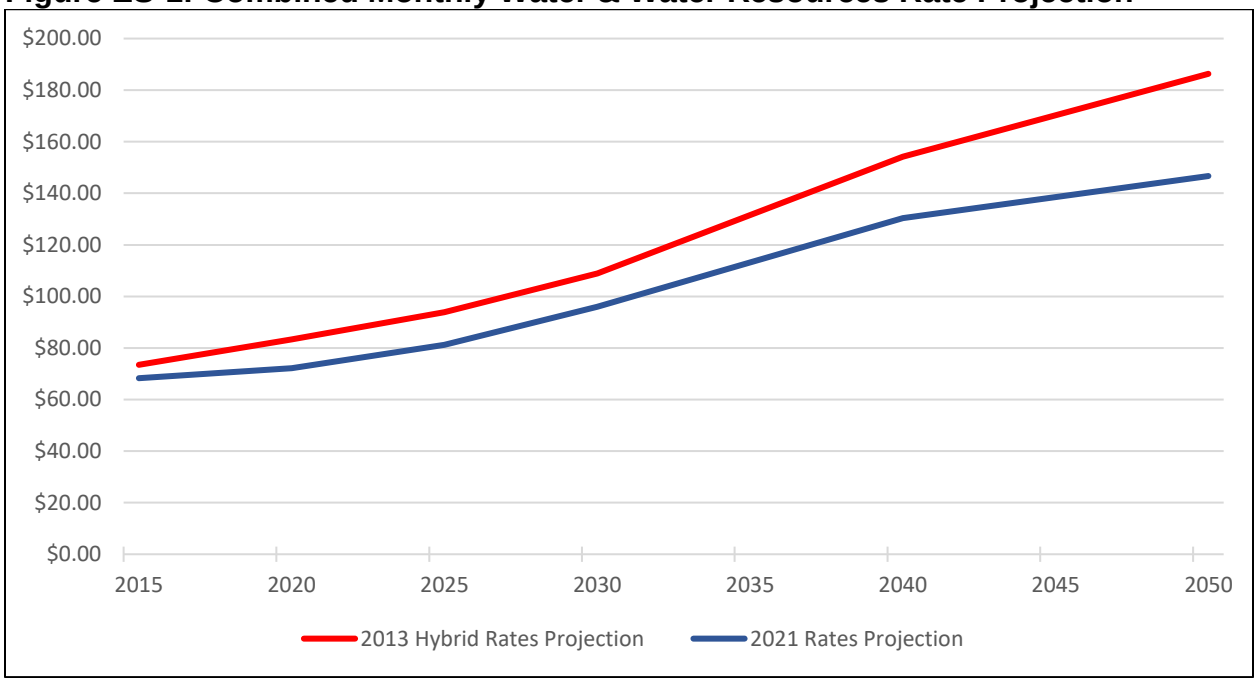
Castle Rock Water's (CRW) goal is to provide a sustainable, reliable and renewable water supply, now and into the future, for all of Castle Rock's citizens and businesses, when and where they want it, and at prices that remain reasonable, viable and competitive with surrounding communities. Securing adequate water supplies for the Town's current population base and our projected future demands is critical for our residents. Water is the life-blood of any community, and it is incumbent upon Castle Rock Water to meet the mission of having affordable water available when customers turn on the tap. The overarching goal is to continue to develop a water supply portfolio that consists of 75% renewable water sources and 25% non-renewable sources by 2050. After 2050, CRW will continue the development of renewable sources working towards a 100% renewable supply in normal or wet hydrologic years by 2065 to complement the existing non-renewable supply. To this end, we have updated our Water Resources Strategic Master Plan (WRSMP) that lays out how we are going to meet that goal over the next thirty-plus years.

This document builds on the ideas that were put forth in the 2016 WRSMP and previous plans. The plan has been reviewed with the community through an extensive outreach program, which included several Town Council Member District Open Houses, Your Town Academy, and an open house event at the CRW campus. Additionally, messaging about the WRSMP was put out through Town Talk, Outlook and Facebook and an online survey was conducted to solicit direct input from residents. CRW staff also reached out to the development community with presentations to the Economic Development Council (EDC) Water Subcommittee and the Development Roundtable.

In addition to laying out the projects and programs to achieve our renewable water goals and adequate water supply in general, this WRSMP identifies the investments needed from the community to meet Castle Rock's long-term water goals. CRW is an enterprise of the Town and CRW's customers pay rates and fees to cover utility services, including renewable water. The money to pay for renewable water comes from existing customers and new developments. The current plan estimates long-term investments of $523 million will be needed from existing and future customers through 2060.

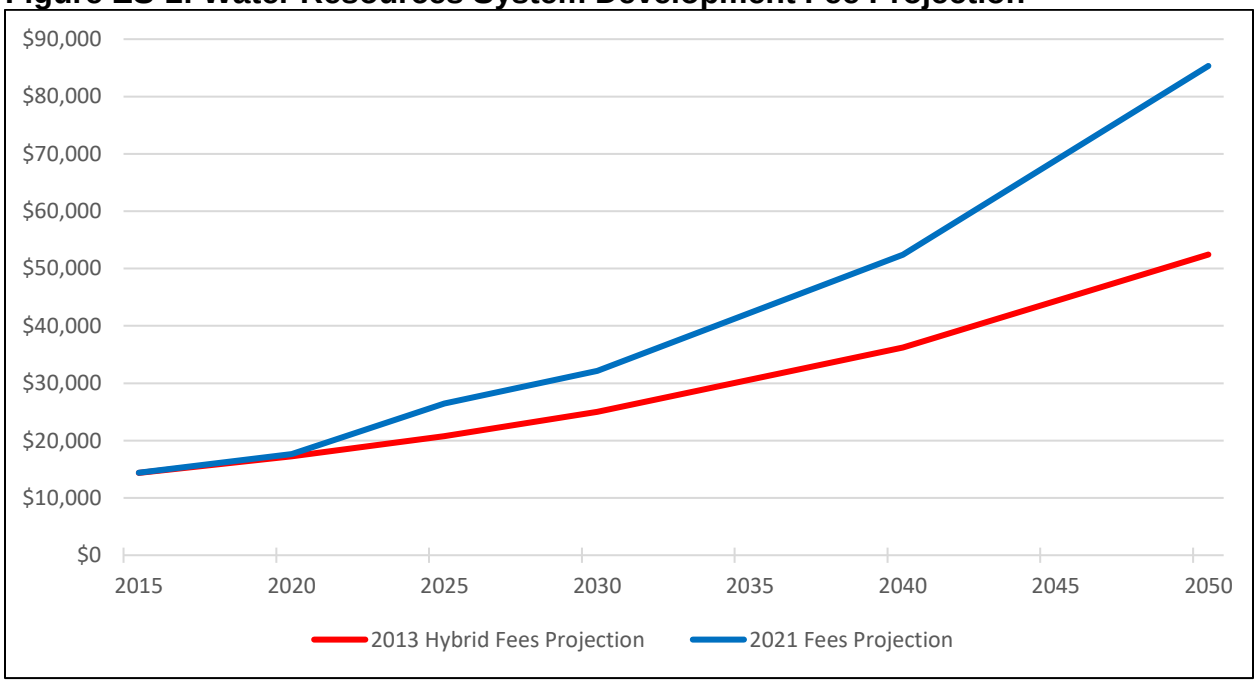
So what does this mean to a typical residential customer? For 2022, CRW customers pay a fixed renewable water fee on their monthly bills of $26.93. In order to fully fund our renewable water plan, these fixed fees are projected to increase slowly over time. The current projections for increases in this fixed fee as well as the standard volumetric water rates and other charges are shown in **Figure ES-1**.

**Figure ES-1: Combined Monthly Water & Water Resources Rate Projection**




New development contributes in a big way to our renewable water program even before a new customer moves in. Each new house built in Castle Rock has to pay a renewable water resources fee of $26,458. These fees also are projected to increase over time as shown in **Figure ES-2**.

**Figure ES-2: Water Resources System Development Fee Projection**



Again, implementation of this plan does mean that renewable water rates and fees will increase over time for the community. For this reason, CRW conducts annual rates and fees studies which are presented to Town Council. The primary goal of these annual studies is to minimize rate and fee increases to the maximum extent possible. We also compare our rates and fees annually to those of similar water providers in the South Metro and Front Range region. Comparisons using 2021 adopted rates versus CRW's 2022 proposed rates are shown in **Figures ES-3** to **ES-5**. CRW has been closely monitoring projected future rates and fees since 2013 when some of our biggest long-term water projects were approved by Council. The good news is the current plan shows future rates and fees not increasing as quickly as they were projected to increase back in 2013. For new development; however, system development fees are projected to increase more quickly than they were projected to in 2013. As shown in Figure ES-3, our rates and fees continue to be competitive with our surrounding communities and water districts. CRW is constantly looking at ways to reduce costs, save money on projects, and reduce rates for customers.

**Figure ES-3: 2021 Adopted Rates vs CR Water 2022 Proposed Rates – Typical Monthly Winter Bill (per 5,000 gallons)**

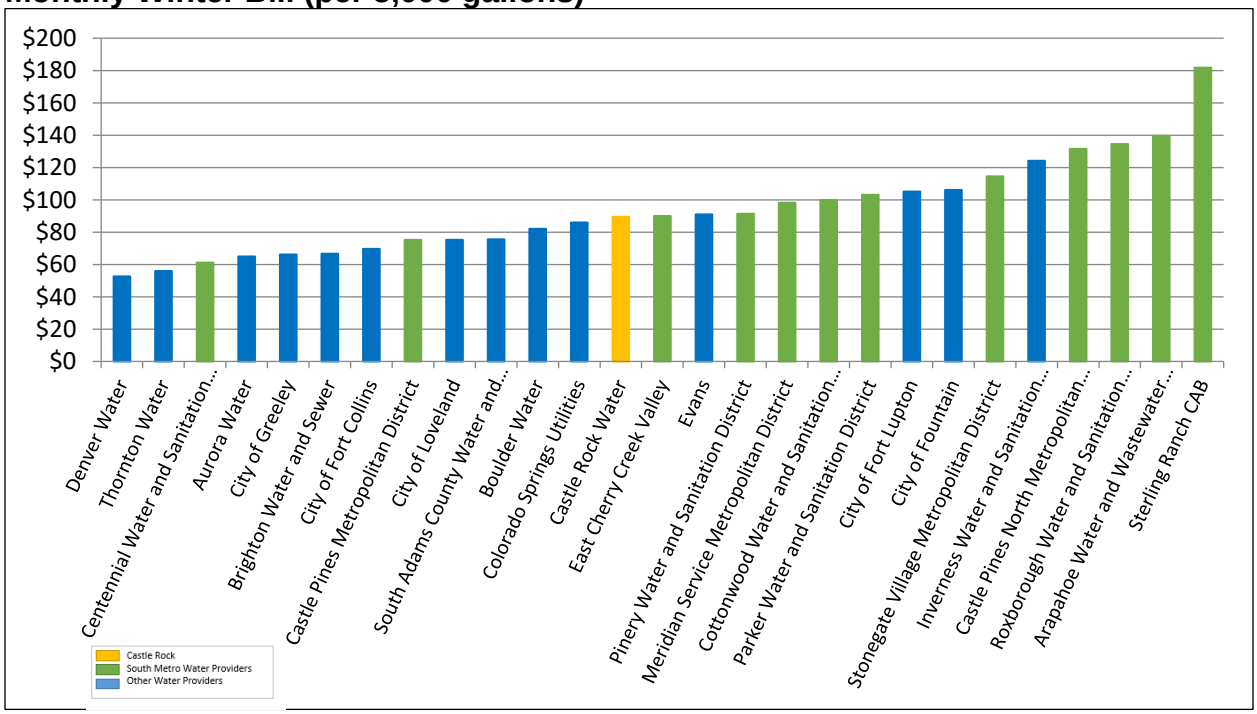


**Figure ES-4: 2021 Adopted Rates vs CR Water 2022 Proposed Rates – Typical Monthly Summer Bill (per 15,000 gallons)**

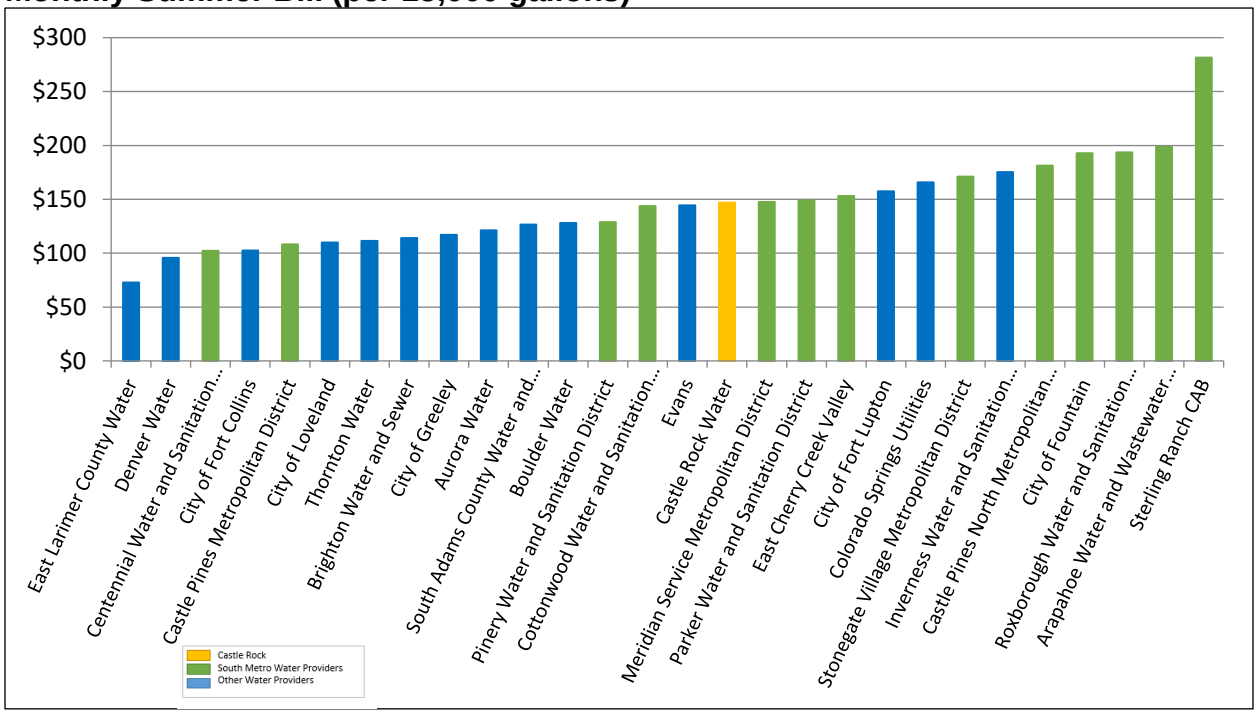
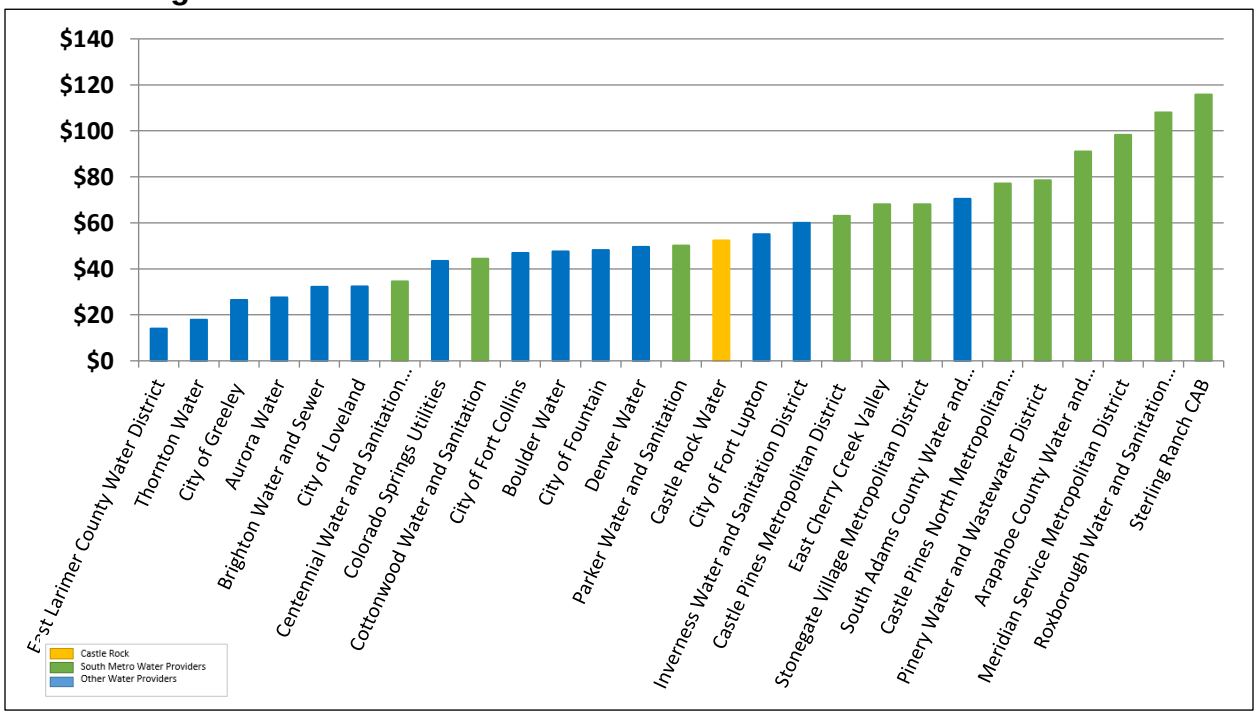



**Figure ES-5: 2021 Total Adopted Fixed Charges vs CR Water 2022 Proposed Fixed Charges**



It is important to understand a significant portion of the renewable water infrastructure is funded by renewable water fees paid by new development. The renewable water fees paid for by new development reduce the long-term impact to our existing customers because the Town must construct the base renewable water infrastructure whether or not the Town continues to grow.

The Town's preferred water supply strategy is similar to that which was delineated in the 2016 WRSMP, and includes conservation, local renewable water, storage, imported renewable water, groundwater and strong finances.

**Conservation -** Continue to emphasize conservation in order to achieve a per capita demand of 100 gallons per person per day by 2050. This would account for an additional 18% savings in water use and essentially would act as a new source of supply, representing approximately 2,500 acre-feet (AF) of water annually at a population of approximately 122,000. If the Town's existing customers (approximately 80,000 people) are able to reduce water consumption from 118 gallons per person per day to 100 gallons per person per day, the water use savings would represent approximately 1,610 AF/yr. This kind of savings would reduce the need to develop new water supplies potentially avoiding $70 million to over $110 million in future investments. Key initiatives in this plan related to conservation include reducing the amount of irrigated turf in the community (e.g. eliminating all turf in front yards for new development), installing advanced metering infrastructure to allow residents to better manage their water use, and expansion of greywater systems in new development.

**Local Renewable Water** - Fully develop and utilize the Town's current renewable water rights which include senior and junior native surface water rights, lawn irrigation return flows (LIRF), and water reuse in both the Cherry Creek basin and Plum Creek basin. The Town currently has approximately 900 AF of firm yield from the alluvial well system along East Plum Creek which utilizes native rights and reuse water, 8,650 acre-feet of additional junior or highly variable water, and an additional 5,350 acre-feet of reliable supplies which include LIRFs and reuse water. Water that the Town pumps and uses from the Denver Basin aquifer, WISE supplies and future imported supplies can be reused to extinction. The Town diverts reuse water at the Plum Creek Diversion near Sedalia and sends this water back to PCWPF for treatment. Reuse supplies that cannot be used directly either are stored in Castle Rock Reservoir No. 1 (CRR1) or captured in Chatfield Reservoir for storage and future use. Our reuse water represents around one-third of our future projected water supply. Key initiatives in local renewable water include implementing direct potable reuse over the next five years (i.e. taking water directly from the treated end of the water reclamation facility to the front end of the water purification facility), developing a project to pump water stored in Chatfield Reservoir back to Castle Rock, and completing a new pipeline from our Plum Creek Raw Water Return Pipeline to Rueter-Hess Reservoir.

**Storage** - Manage our reservoir storage program to optimize the placement of supplies during periods when they are not needed by our customers. CRW is planning for

enough storage to satisfy a full year's worth of demand by 2050, or approximately 20,000 AF. Current storage space includes Rueter-Hess Reservoir (8,000 AF), Chatfield Reservoir (590 AF, expandable to 2,000 AF under an option agreement with the State), Castle Rock Reservoir No. 1 (240 AF), and aquifer storage (430 AF/yr) within the Denver Basin. Additional key storage projects over the coming years include constructing Castle Rock Reservoir No. 2 (790 AF), expanding Castle Rock Reservoir No. 1 (to 560 AF), completing construction of Walker Reservoir (150 AF of storage for Castle Rock), evaluating ASR in the Box Elder Creek and Lost Creek basins, and purchasing our storage options in Chatfield Reservoir (1,410 AF remaining).

**Import Renewable Water** - Work in partnership with other entities to import additional supplies and to reduce the cost impact to our customers. The Town has been a member of the South Metro Water Supply Authority since 2004 and has worked in partnership with them to develop the WISE Authority and project. The WISE project has been operating since 2018 but there is more infrastructure to complete for the long term and full scale operation of the project. Significant progress has also been made on the Box Elder project with a water rights case proceeding and most of the needed water rights purchased. Going forward, key actions on imported renewable water include completing remaining WISE infrastructure, designing and constructing Box Elder project infrastructure, developing an alternative transfer mechanism (ATM) with agricultural stakeholders for the Box Elder project, and evaluating and determining our level of participation in the South Platte Valley Water Partnership.

**Groundwater** - Continue to maintain, develop and protect the Town's Denver Basin groundwater supply. The Town currently has approximately 13,500 AF of firm yield from the existing Denver Basin well system. This supply will help meet the demands of our customers in the short term and provide reliability and drought protection in the long term. Areas of focus in the next five years include defending our groundwater rights against harmful changes to management of those rights by the State, constructing new wells, acquiring additional groundwater rights, and adding new groundwater sources to our groundwater treatment plans that have available capacity.

**Finances** - Work within a sustainable financial plan that generates the capital funds required for the transition to a sustainable, renewable supply and maintains our existing supplies and supply infrastructure. Priorities going forward will be to use debt to mitigate and smooth needed rate increases, ensure growth is paying for growth through close scrutiny of system development fees, and partner with other water providers to maximize economies of scale for infrastructure.

As previously mentioned, this water supply strategy is predicted to require a steady increase in customer rates and fees. To ensure increases are minimal to the extent possible, a rates and fees study is conducted annually to ensure that the rates and fees collected to cover these costs are adjusted accordingly each year to avoid rate shock in any given year.

This water supply strategy will take time and significant capital expenditures. Our long-term water resources program currently predicts that the Town will spend $523 million through 2060 to meet our goals. This prediction will change as projects come to fruition and costs are re-evaluated each year. Again, a rates and fees study is conducted annually to ensure that the money collected to cover these costs is adjusted accordingly each year and to minimize and smooth the cost increase impact to our customers.


Castle Rock Water's Administration & Customer Service Building

# Chapter 1 – Introduction & Discussion of Previous Plans

Castle Rock Water (CRW) takes a holistic approach to management of its water system incorporating water supply, demand forecasting, community direction, water quality, environmental protection and enhancement, financial planning and public input. Planning and preparing for a secure water future is paramount for a public water provider. A successful water supply strategy includes:

1. Multiple alternative water sources and supply combinations;

2. Efficient uses of the Town's existing water supplies and rights;

3. Consideration of viewpoints of multiple stakeholders as well as input from our customers;

4. Realistic and affordable financial investment; and

5. Consideration of the potential risks and numerous solutions to mitigate as many of these risks as possible.

The Town has recognized the importance of strategic water supply planning since the early 2000s. The following subsections describe the supply planning efforts prior to this 2021 Plan update.


## 1.1 2006 Water Resources Strategic Master Plan

This document was prepared to address the future water needs for the Town to achieve a sustainable long-term water supply. Prior to the implementation of this plan, the Town was overly reliant on supplies from the Denver Basin Aquifer to provide the water needs

of the Town for the future. When realizing the impact that over-pumping was having on the aquifer levels, and the fact that this source of water would be unsustainable for the future, the Town developed the following vision:

"A community-endorsed strategic plan establishing feasible water resource development opportunities to assure a long-term sustainable water supply for the Town of Castle Rock."

From this vision, a preferred water supply strategy was developed which included:

- Implementation of a Water Conservation Plan;
- Full development and use of the Town's current water rights;
- Full use of the water rights from reusable water the Town is entitled to use;
- Development of partnerships with other South Metro providers to import surface water to reach an overall water supply mix of renewable and reusable water that is 75% sustainable;
- Development of reservoir storage to maximize efficient management of water supply;
- Continue to maintain and develop the Town's Denver Basin groundwater supply to meet the demands of continuing growth in the short-term, and to provide reliability and a smaller supply role in the long term; and
- Development of a financing plan to generate the capital funds required for transitioning to a sustainable supply.

This plan also included a breakdown of where these sources of water would come from in the future as presented in **Table 1-1**.

Castle Rock

## Table 1-1: Comparison of Preferred Alternative Distribution of Water Supply Sources to 2005 Sources

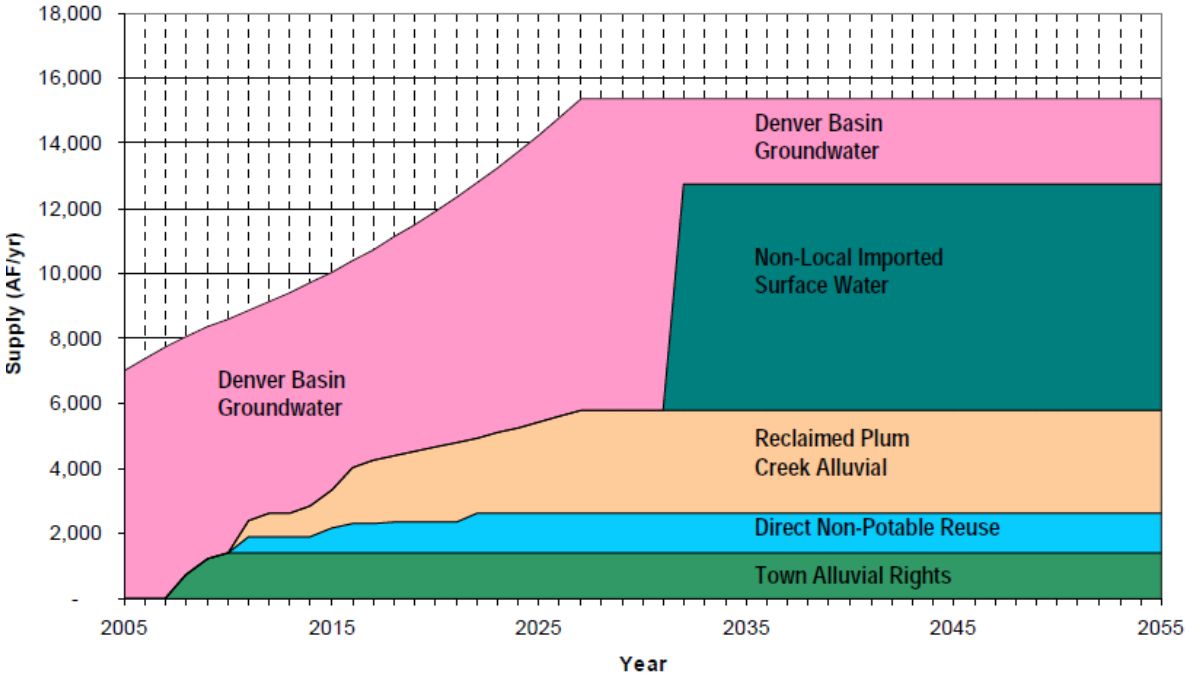
| Water Source | Water Supply Amount (acre-feet per year) | | | |
|---|---|---|---|---|
| | 2005 | | 2055 | |
| Denver Basin Groundwater | 7,030 | 100% | 2,650 | 17% |
| Town's Plum Creek Alluvial Rights * | - | - | 1,400 | 9% |
| Water Reuse Program which includes: | - | - | 4411 | 29% |
| • Reclaimable – Plum Creek Alluvial (Potable) 3,166 acre-feet per year (21%)** | | | | |
| • Reclaimable – Direct Non-potable (Irrigation) 1,245 acre-feet per year (8%)** | | | | |
| Imported Surface Water * | - | - | 6,940 | 45% |
| TOTAL | 7,030 | 100% | 15,400 | 100% |

* Renewable source of water supply
** Portion attributed to Imported Surface Water is considered a renewable source

Plum Creek Water Purification Facility

**Figure 1-1** shows the planned vision as it was imagined in 2006, when the various water sources would be brought on-line.

**Figure 1-1: Timing of Water Sources**




One notable item that is mentioned in this plan indicates that some reusable water would be used for non-potable irrigation. Due to the expense of developing a separate non-potable distribution system in Town, this option has not been implemented as originally envisioned; however, a separate reuse line was put into service in November 2019 to deliver non-potable reuse water for irrigation purposes to the Town's Red Hawk Golf Course. This line typically delivers 400,000 gallons per day during peak irrigation season and eliminates the burden of supplying treated, potable water to the golf course.

Additionally, this plan anticipated that non-local imported surface water would come online in 2031 when in actuality, the Town began receiving water from the Water Infrastructure and Supply Efficiency (WISE) project in 2018, thirteen years ahead of schedule!

The 2006 plan indicated that the Town's projected build-out population would be 100,000 residents by 2030, with a demand of 18,750 acre-feet (AF) per year (AF/yr), without conservation measures implemented. With an assumed 18% reduction using conservation measures, the future demand decreased to 15,400 AF/yr.

## 1.2 2008 Water Resources Implementation Plan

The 2008 Water Resources Implementation Plan (WRIP) document delineated the plan for development and use of local renewable supplies, drawing on detailed analyses of alternative infrastructure systems that would capture, store, convey, treat, and distribute the renewable water from various points of diversion. This plan was a cooperative effort between the Town, Castle Pines Metropolitan District (CPMD) and Castle Pines North Metropolitan District (CPNMD) and discussed a regional approach to management of the local renewable supplies. These supplies included:

- East and West Plum Creek alluvial and surface water rights;
- Reusable return flows from the Plum Creek Water Reclamation Authority (PCWRA);
- Lawn irrigation return flows (LIRFs); and
- Future imported renewable water supplies.

The plan recommended a phased approach to implementing renewable water projects. The specific projects identified in the WRIP included:

- Construction of an interconnection between Centennial Water & Sanitation District's potable water system to divert, treat and deliver a portion of the local renewable supplies via Centennial's South Platte River diversions and treatment/distribution infrastructure. **This project was not implemented.**

- Acquisition of capacity in the East Cherry Creek Valley (ECCV) Northern Water Supply system to treat and deliver additional local renewable supplies plus future imported water supplies. **Castle Rock did acquire capacity in this pipeline, and it will be used for our Box Elder project.**

- Construction of new pipelines to deliver water from the ECCV northern pipeline's terminus to the participant's service area. **This project has been implemented with the exception of a connection to the northern pipeline. It is being used for WISE water.**

- Acquisition of storage in Rueter-Hess Reservoir (RHR) to store off-peak deliveries of water through the ECCV's northern system for subsequent periods of peak demand. **Castle Rock purchased 8,000 AF of storage.**

- Construction of a new regional WTP to treat water withdrawn from storage in RHR. **PWSD has built a water treatment plant and CRW is planning to invest in the expansion of that plant.**

- Development and implementation of an aquifer storage and recovery (ASR) pilot testing program to convert groundwater wells to ASR and evaluate the technical feasibility of ASR for seasonal storage. **CRW has implemented an ASR program with plans to expand infrastructure.**

- Possible future development of a reclaimed water distribution system to serve certain non-potable water demands (primarily irrigation) in the Castle Rock service area. **This project was determined to be cost prohibitive.**

- Possible future local diversion of Plum Creek water rights and reusable water through a surface diversion, a new Plum Creek Reservoir, and a series of Lower Plum Creek alluvial wells, with conveyance to an expanded Regional WTP for treatment and subsequent distribution to the participants. **Castle Rock successfully completed implementation of this project in early 2021.**

As noted above, a number of these items have been implemented and are further described in Section 1.5.

### 1.3 2010 Water Resources Master Plan Update

The 2010 Water Resources Master Plan (WRMP) update provided a summary of the Town's regional involvement, a review of the major plan assumptions, an update on the progress of the implementation actions outlined by previous plans, a list of current capital improvement projects, and the means by which the Town planned to fund improvements.

This plan reiterated the preferred water supply strategy from the 2006 plan, and provided a breakdown of our water supply source percentages through the planning period (2055). This breakdown is shown in **Table 1-2**.

**Table 1-2: Distribution of Water Supply Sources**

| Water Source | Water Supply Amount (acre-feet per year) | | | |
|---|---|---|---|---|
| | 2010 | | 2055 | |
| Denver Basin Groundwater | 6,140 | 100% | 3,850 | 25% |
| Town's Plum Creek Alluvial Rights | | | 1,440 | ** |
| Water Reuse Program | | | 5,700 | 37% |
| Imported Surface Water | | | 4,410 | 38% |
| **TOTAL** | **6,140** | **100%** | **15,400** *** | **100%** |

** Due to the uncertainty associated with some of the Town's junior water rights, they were not considered as a firm supply. Some of these rights have since been determined to be relatively firm except under the worst hydrologic conditions.
*** Included conservation of approximately 16% from 2006 usage patterns.

## 1.4 2016 Water Resources Strategic Master Plan

The 2016 WRSMP built upon the work and ideas that were described in the previous water resource planning efforts. The plan delineated CRW's preferred water supply strategy, which includes:

1. Continuing to develop a water supply portfolio that consists of 75% renewable water sources and 25% non-renewable sources by 2050. After 2050, continue development of renewable sources working towards a 100% renewable supply.

2. Implementing the ideas that were delineated in the 2015 Water Efficiency Master Plan to achieve a per capita demand of 100 gallons per person per day by 2050.

3. Fully developing and utilizing the Town's current renewable water rights which include senior and junior native surface water rights, LIRFs, and water reuse in both the Cherry Creek basin and Plum Creek basin.

4. Fully utilizing our reusable water which represents approximately 35% of our future projected water supply.

5. Working in partnership with other entities to import additional supplies and to reduce the cost impact to our customers.

6. Managing our reservoir storage program to optimize the placement of supplies during periods when they are not needed by our customers.

7. Continuing to maintain, develop and protect the Town's Denver Basin groundwater supply. This supply will help meet the demands of our customers in the short term and provide reliability and drought protection in the long term.

8. Working within a sustainable financial plan that generates the capital funds required for the transition to a sustainable, renewable supply and maintains our existing supplies and supply infrastructure.

The 2016 Plan projected future water supplies similar to those identified in the 2021 Plan (as shown in Table 1-3).

**Table 1-3: Castle Rock's Projected Future Water Supply for Year 2055 as Presented in the 2016 WRSMP**

| Water Source | Minimum Raw Water Supply | | Maximum Raw Water Supply | |
|---|---|---|---|---|
| | Volume (Acre-Feet/Year) | % of Annual Supply | Volume (Acre-Feet/Year) | % of Annual Supply |
| **Denver Basin Groundwater** | 2,835 | 25% | 3,980 | 21% |
| **Local Renewable Surface Water** | | | | |
| Junior Local Plum Creek Alluvial Rights [1] | 8,300 | | 8,300 | |
| Senior Plum Creek Native Water Rights | 1,440 | 13% | 1,440 | 7% |
| Cherry Creek Alluvial Rights [1] | 55 | | 55 | |
| South Platte Water Right [2] | 200 | | 200 | |
| Spot Water Purchases at Chatfield | Variable | | Variable | |
| **Reusable Water** | | | | |
| Plum Creek LIRFs | 365 | 3% | 655 | 3% |
| Cherry Creek LIRFs | 200 | 2% | 300 | 2% |
| Water Reuse Program[3] | 4,090 | 36% | 7,630 | 40% |
| **Imported Surface Water[4]** | 2,450 | 22% | 5,170 | 27% |
| **Total** | 11,380 | 100% | 19,135 | 100% |

Notes:
1. Junior water rights that are not reliable and require augmentation during a call. Not included in total supplies available.
2. This is a junior water right at the Chatfield Reservoir. Chatfield Reservoir storage will firm up the yield during a dry year. Location is also an alternate location for capturing and accessing the Town's reuse rights and junior Plum Creek rights. Not included in the total water supplies available.
3. Includes reuse supplies in both the Plum Creek basin and Cherry Creek basin.
4. Includes WISE, Box Elder, and other future supplies that may come in partnership with SMWSA and PWSD.

## 1.5 Notable Accomplishments from the 2016 Plan

The following activities either have been initiated or completed since the 2016 WRSMP was put into effect. Each of these accomplishments helps CRW achieve its goal of developing a long term renewable water supply.

Promote Water Conservation

- Continued to offer rebates for turf removal and replacement with low or no water use material (ColoradoScaping).
- Eliminated Kentucky blue grass for new residential development.
- Continued rebates for irrigation controller and sprinkler head replacement, and indoor water saving units.
- Continued to provide irrigation system audits for customers upon request.
- Added a five-year limit to the Water Wiser designation for our customers so that they would have the opportunity to re-engage with our Water Conservation Division to refresh their knowledge on the most efficient use of water, particularly outdoor usage.
- Added remote learning options for our Water Wiser customers.
- Encouraged new developments to create Water Efficiency Plans for their planned communities.
- Offered rebates to customers to convert conventional toilets to ultra-high-efficiency toilets which use 0.8 gallons per flush or less.
- Adjusted non-residential water budgets to be based on irrigated area and plant type.
- Began the pilot testing of greywater systems.

Develop Storage

- Acquired the Castle Rock Reservoir No. 1 near Sedalia, CO which is a 240 acre-foot (AF) storage reservoir.
- Purchased additional storage space in Chatfield Reservoir and entered into a lease agreement with the State of Colorado (Colorado Water Conservation Board) to store water in the optioned storage space. Castle Rock began storing its water in Chatfield in May 2020.
- Began design of Castle Rock Reservoir No. 2 near Sedalia, CO which is expected to be a 790 AF off-channel reservoir.
- Began the design of the Plum Creek to Rueter-Hess Pipeline project which will allow Castle Rock to store reusable (and in the future, renewable) supplies from the Plum Creek Basin into Rueter-Hess Reservoir for future treatment, and delivery through Parker Water and Sanitation District (PWSD).
- Drilled two additional ASR wells and obtained final permits for the first two ASR wells.

Utilize Local Renewable Water Sources

- Implemented a permanent surface water diversion structure (CR-1) along East Plum Creek, adjacent to the Plum Creek Water Purification Facility (PCWPF), with a capacity of over three million gallons per day (MGD).

- Acquired the Plum Creek Diversion from United Water and Sanitation District in 2017 and subsequently improved the diversion, which has a current diversion rate capacity of 40 cubic feet per second (cfs).
- Constructed the Plum Creek Pump Station and Plum Creek Raw Water Return Pipeline, which allows renewable and reusable water to be sent back to Castle Rock for treatment (at PCWPF) and use by our customers.
- Constructed Advanced Treatment Processes at the PCWPF, thus providing CRW the ability to treat reusable water.
- Began Zone 2 and 3 Lawn Irrigation Return Flow (LIRF) study, which may eventually account for up to 750 AF of renewable or reusable water per year.
- Became members of the Cherry Creek Project Water Authority (CCPWA), which will provide an additional 250 AF of renewable water (on average) annually.

Import Additional Renewable Water Resources

- Obtained an additional 1,000 AF of subscription in the WISE project.
- Purchased approximately 1,500 AF of water rights in the Lost Creek Basin in Weld County to support the Box Elder Creek (BEC) Project and the alluvial well field on our BEC property.
- Constructed WISE Local Infrastructure (Canyons Pipeline and Outter Marker Road Pipeline) to be able to physically receive WISE water into Castle Rock.
- Purchased additional capacity in the Western Pipeline, Ridgegate Pipeline, and the ECCV Northern Pipeline.
- Started taking WISE water in April 2018.
- Filed a water court application for the BEC Project (2019) that will ensure we can use the 2,260 AF of water rights purchased (as of the end of 2021) for the project in Castle Rock.

Protect Non-Renewable Groundwater as a Drought Supply

- Acquired additional Denver Basin groundwater rights at Bell Mountain Ranch, Cherokee Ranch, and through our purchase of the United assets in Douglas County.
- Acquired additional groundwater rights east of Castle Rock as part of our participation with the CCPWA.
- Implemented a regular and robust well rehabilitation and maintenance program.
- Drilled eight new Denver Basin wells within Town to supplement our ability to draw upon Denver Basin water to firm our water resources.

Ensure Financial Resources to Fund the Plan

- Conducted annual rates and fees studies and adopted appropriate rates and fees to ensure that planned projects have adequate funding to implement.
- Kept rates below the rates originally projected in 2013 when the largest imported water projects were approved.
- Increased system development fees by 84% since 2015 to ensure growth was paying for growth.

Photos of the Castle Rock Community

# Chapter 2 – Plan Purpose and Need

The purpose of the 2021 update to the Water Resources Strategic Master Plan is to build upon the work and ideas that have been put forth in the Town's previous plans as Castle Rock continues to grow. Additionally, this updated Plan will set a future goal of being supplied 100% with sustainable, renewable water by 2065 (during average and wet hydrologic conditions) and describe a general framework of how the Town might get there.

It is the responsibility of a water utility to ensure that adequate water is available for our customers now and into the future. In developing this document, we understand the following facts which help us craft our preferred water supply plan:

- Availability of deep groundwater, which the Town has been reliant upon for decades, will continue to decrease in the future and ultimately not meet the Town's long-term water needs. Regulatory pressure is also a risk if the State were to impose limits on the total volume of water that can be withdrawn from permitted Denver Basin wells.

- Availability of sustainable water supplies in the region and State are limited and will continue to decrease. It is imperative that we plan for the most efficient use (and reuse) of these supplies. This plan will include the implementation of Direct Potable Reuse as one of our supply sources.

- Regional efforts to construct infrastructure such as reservoirs, pipelines, and treatment facilities are occurring and Castle Rock will continue to support and participate in these projects where it makes sense. This infrastructure helps bring water to the area and, through economies of scale by partnering with other entities, reduces the cost impact to our customers for long-term renewable water supply.

The 2021 WRSMP will cover the following information:

- A discussion of our new predictive supply-demand model for the amount of water that will be required for our community as we continue to grow over the next fifty years.

- An overview of our current sources of supply and storage, and the future water supply sources that we are considering, or will be bringing on-line.

- An account of the regional partnerships and projects that we are involved in and a discussion of others that may be viable in the future.

- A review of the Town's water conservation efforts and how increased water efficiency can reduce the need to obtain additional future supplies. Also, a discussion of additional conservation programs that will help to achieve our conservation goals.

- A section of how we manage our local watershed and protect our groundwater resources.

- How unpredictability in climate might impact our future water supplies, such as warmer and drier conditions, or irrigation seasons that start earlier and end later, for example.

- How our plan relates to the Colorado State Water Plan.

- What impact a reliable and secure water portfolio will have on the cost to our residents.

With or without growth, the existing deep groundwater supply that the Town has been so reliant upon is a non-renewing resource that is not by itself sustainable for the Town in the long-term. Thus, it is imperative that the Town develop a plan for a secure water future within the limits that are economically feasible for our community. Part of our long-term plan will be utilizing the deep groundwater aquifers for ASR. This will help extend the life of the aquifers and allow us to store renewable water during the lower-demand season.

As part of a thorough Plan, educating our customers and soliciting feedback is essential. CRW provided education on the various water resource project achievements from the past five years and expectations for the next five years in handouts, on our website, in newsletters, within direct emails, and a news release. Face-to-face discussions also were conducted at Town Council open houses and a WRSMP open house. These various efforts directed customers to an online survey to gauge awareness and acceptance. A total of 409 people responded to the survey.

The respondents tended to support the efforts of the Plan which is evidenced by data below:

- 87% of the respondents were aware of and generally familiar with water issues for the community.
- 76% support strong conservation efforts to help support water supply, with some respondents favoring more aggressive (20%) or even more extensive (20%) efforts.
- 84% of the respondents were neutral to strongly supporting reuse water as a supply.

- 82% of the respondents were neutral to strongly supporting importing water as a supply.
- 85% were neutral to strongly confident in the financial management of the plans.
- 76% were neutral to strongly confident in the planning for long-term sustainability.

An open-ended comment section was provided and many respondents remarked on how they felt growth was not being managed appropriately and it could be responsible for the cost and supply impacts. Several remarks recommended rates be more closely tied with usage, water waste be policed more, and that development have more "ColoradoScape"[1] (xeriscape) requirements.

The general support for the plans shows that CRW customers are understanding the need and the potential solutions for water supply. CRW is responding to growth by ensuring infrastructure is in place and raising system development fees when growth occurs more quickly. CRW is also closely modeling needed water supply to meet the growth that is occurring. Most of the customer comments are addressed throughout the plan and answers will be communicated to the public in ongoing outreach. Major themes of this plan include how we plan our water supply around potential growth and what additional conservation measures are being considered to most efficiently use the water we have.

An example of a ColoradoScape at Festival Park in Castle Rock

[1] ColoradoScape means a natural landscape, comprised of low to very-low water use plant material, which blends in with the native Castle Rock landscape. Plant material must be maintained in its natural, native form. This landscaping utilizes a combination of hardscape and landscape materials, providing a variety of colors, textures, sizes, shapes, and seasonal interest.

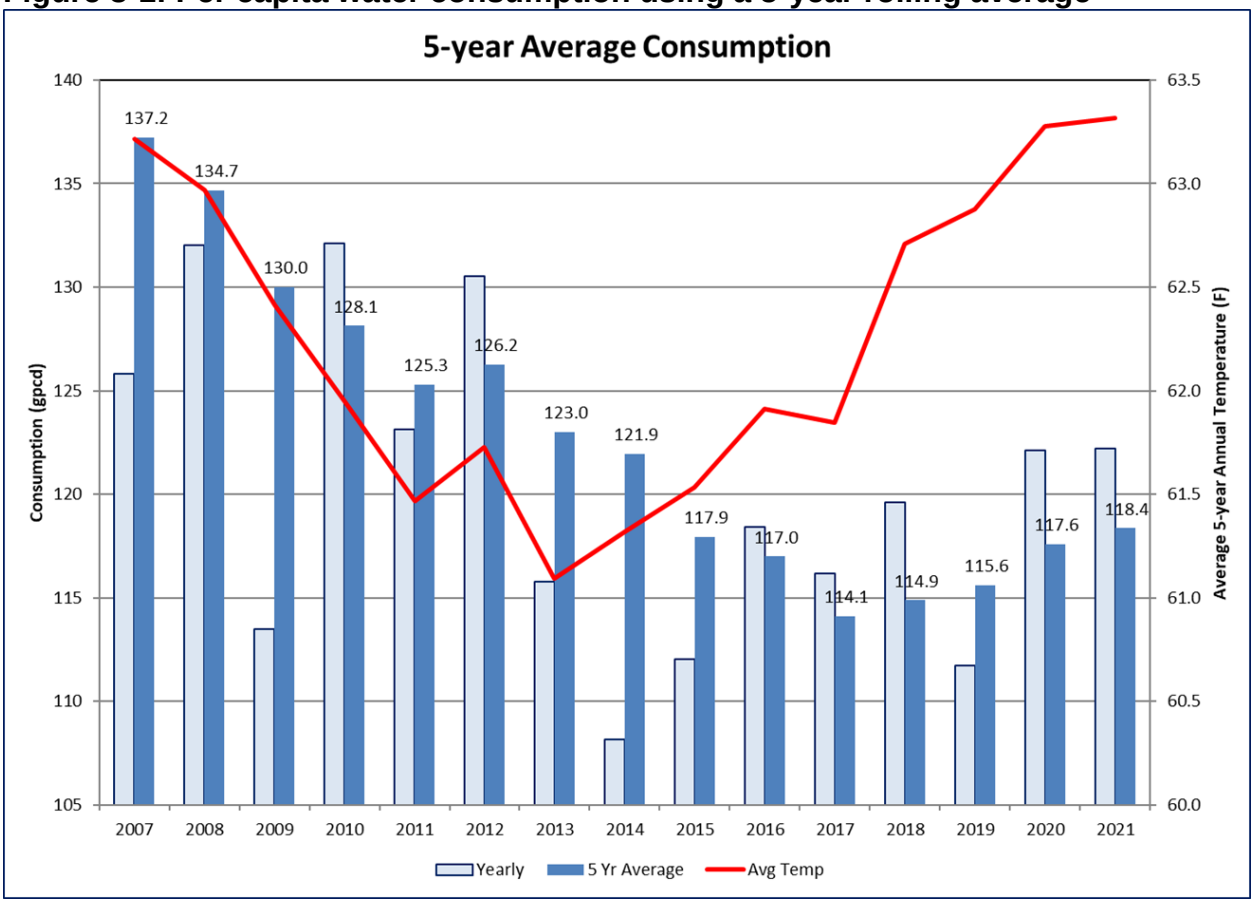
# Chapter 3 - Water Demand Forecast

Castle Rock utilizes a water supply and demand forecasting model that was recently updated by a water resources consultant in 2021. This model includes the Town's existing water rights and infrastructure, as well as placeholders for future supplies to be incorporated for investigation and analysis. A feature of the new model is the ability to conduct Monte Carlo simulations which allow for a better understanding of the risks associated with various uncertainties in demand or supplies, such as conservation efforts, declines in well production, peak demands associated with weather variability, or hydrologic variations in available streamflow. CRW staff uses the model to make projections of future supply and demands out to 2065, which are then used for planning, decision-making, timing of infrastructure projects, and in attaining our goals of reaching 75% renewable water usage by 2050, and 100% renewable water usage (in average and wet water years) by 2065.

Colorado's Water Plan, which was adopted in 2015, has a 2050 water conservation goal of 129 gallons per capita per day (gpcd) for the Denver Metro Basin, of which Castle Rock is a part. However, as shown by **Figure 3-1** the Town's current 5-year potable water consumption average is 118 gpcd to serve the community. Therefore, the Town already is below the future 2050 water conservation goal set by the Colorado Water Conservation Board (CWCB). One of the goals of the Town's 2015 Water Efficiency Master Plan ultimately is to reach 100 gpcd. As part of this master planning effort, staff has developed our water demand forecast models using a high-conservation (100 gpcd) demand, an intermediate conservation demand (118 gpcd) and a low-conservation (130 gpcd) demand to evaluate these possibilities over a range of future population outcomes.

A typical residential irrigation system in action

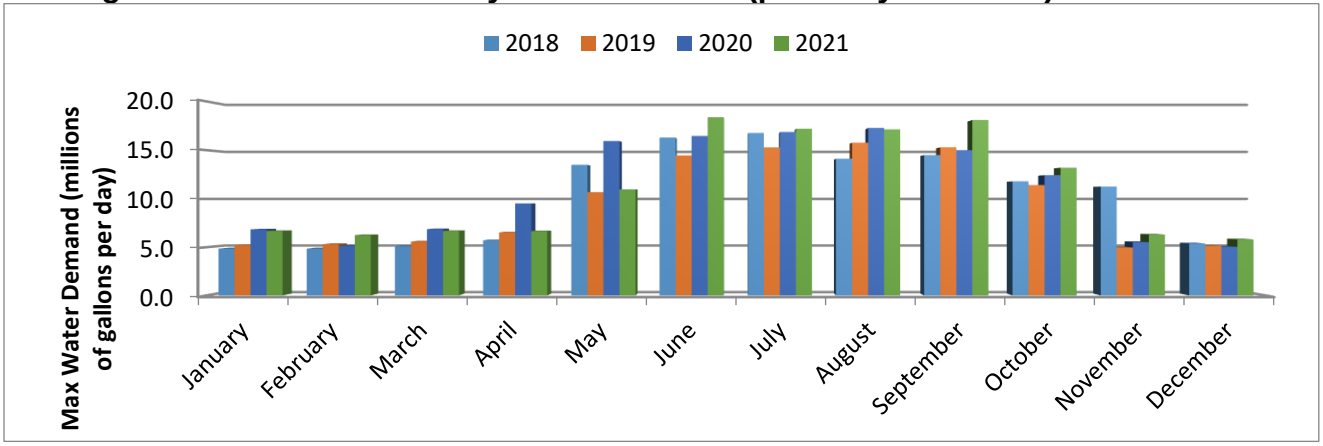
**Figure 3-1: Per capita water consumption using a 5-year rolling average**




The Town's model also takes into account available storage capacities for excess water supplies that may occur during wet years. Castle Rock owns capacity in Rueter-Hess Reservoir, has space reserved in the Chatfield Reservoir Reallocation Project, maintains a 240 AF storage reservoir along Plum Creek (Castle Rock Reservoir No. 1), and is in the midst of designing a 790 AF storage reservoir (Castle Rock Reservoir No. 2). In addition, Castle Rock is nearly ready to begin operating two ASR wells with two others slated to begin operation later in 2022. Finally, late in 2021, CRW invested in 150 AF of storage in a new reservoir currently under construction, Walker Reservoir. This reservoir will be used to maximize renewable water from Castle Rock's share of the CCPWA water supplies. During years when excess supplies are available, the Town will store unused supplies to smooth out demands across multiple years and during peak usage seasons. Additionally, the Town currently is designing a pipeline to deliver excess renewable water from the Plum Creek Basin for storage in Rueter-Hess Reservoir. Finally, as of October 2021, Castle Rock filed a junior water right application for water storage in Prewitt and Fremont Butte reservoirs in northeast Colorado. The Town intends to partner with PWSD to store renewable water from the lower South Platte River and then pump this water back to RHR for subsequent treatment and delivery; however, this project likely will not be operating until 2040 or beyond.

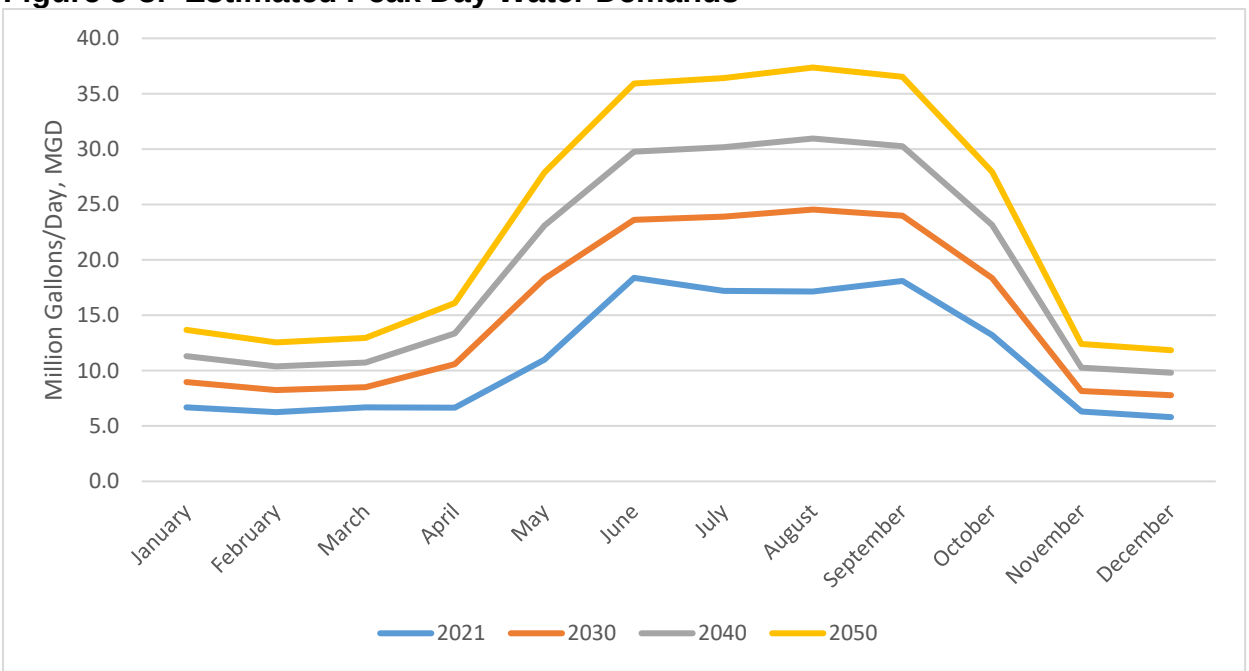
Evaluations of historic monthly peak (maximum day) water demands for the past four years are provided in **Figure 3-2**.

**Figure 3-2: Historic Monthly Water Demand (peak day demands)**




Future peak demands are also modelled to help determine future infrastructure sizing needs. **Figure 3-3** shows estimates of the peak demand curve up to 2050. The graph indicates that the Town's peak demands will be approaching 40 million gallons per day by 2050 during the summer months, assuming a built-out population of 150,000 and a per capita water usage of 118 gpcd.

**Figure 3-3: Estimated Peak Day Water Demands**



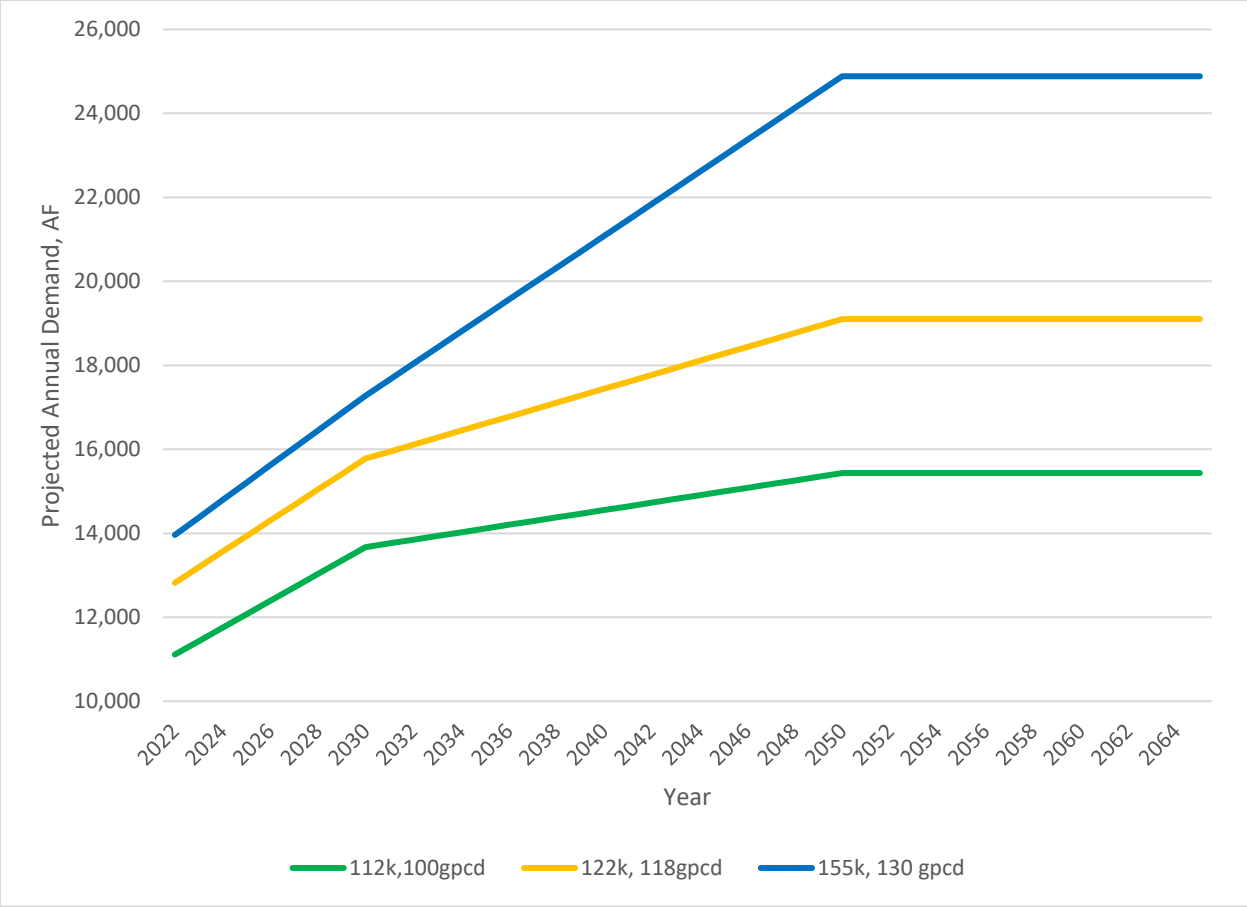
Projecting future growth values can be difficult, but Town planners currently project a future built-out population of 122,000 people. However, if existing entitlements build to 100%, the future population (by 2050) could be as high as 140,000 with future annexations and extraterritorial service adding a demand equivalent of an additional 15,000 people.

**Figure 3-4** shows CRW's varying projected population growth rates at various conservation scenarios. The base scenario is 118 gpcd at a population of 122,000, and corresponds to a projected demand of 19,100 AF by 2050 (note the assumption that once a built-out population is reached, no more population growth is planned). This base scenario assumes that Castle Rock will be facing a warmer and drier climate in the future with irrigation demands beginning earlier in the year and lasting deeper into the fall.

For planning purposes, we estimate high-case and low-case scenarios to encompass a range of possibilities. In order to plan for varying scenarios, CRW has identified that projected demands could be as low as 15,434 AF under the high water conservation scenario of 100 gpcd, and 112,000 people versus 24,883 AF under a low water conservation scenario of 130 gpcd with 155,000 people.

A few examples of some the many Castle Rock Water CIP projects

**Figure 3-4: Town's Population Growth versus Water Demand Projections at Varying Growth Rates and Consumption Rates**




In Chapter 7 of this plan, the effects of climate variability and how it impacts future water demand will be discussed in detail. The State Water Plan indicates that Colorado could see a result of up to 8% more water needed in the future due to the impacts of a warmer and drier future. With that, **Figure 3-5** shows the same demand curves as presented in **Figure 3-4**, along with a 4-percent and 8-percent additional water demand curve. This tells us that we may need as much as 26,874 AF of water in the future if climate impacts are severe and conservation measures are not embraced by the community. A more likely range of future demands with climate change impacts included is between 16,700 and 20,600 AF.

**Figure 3-5: Town's Population Growth versus Water Demand Projections with Potential Climate Change Impacts**

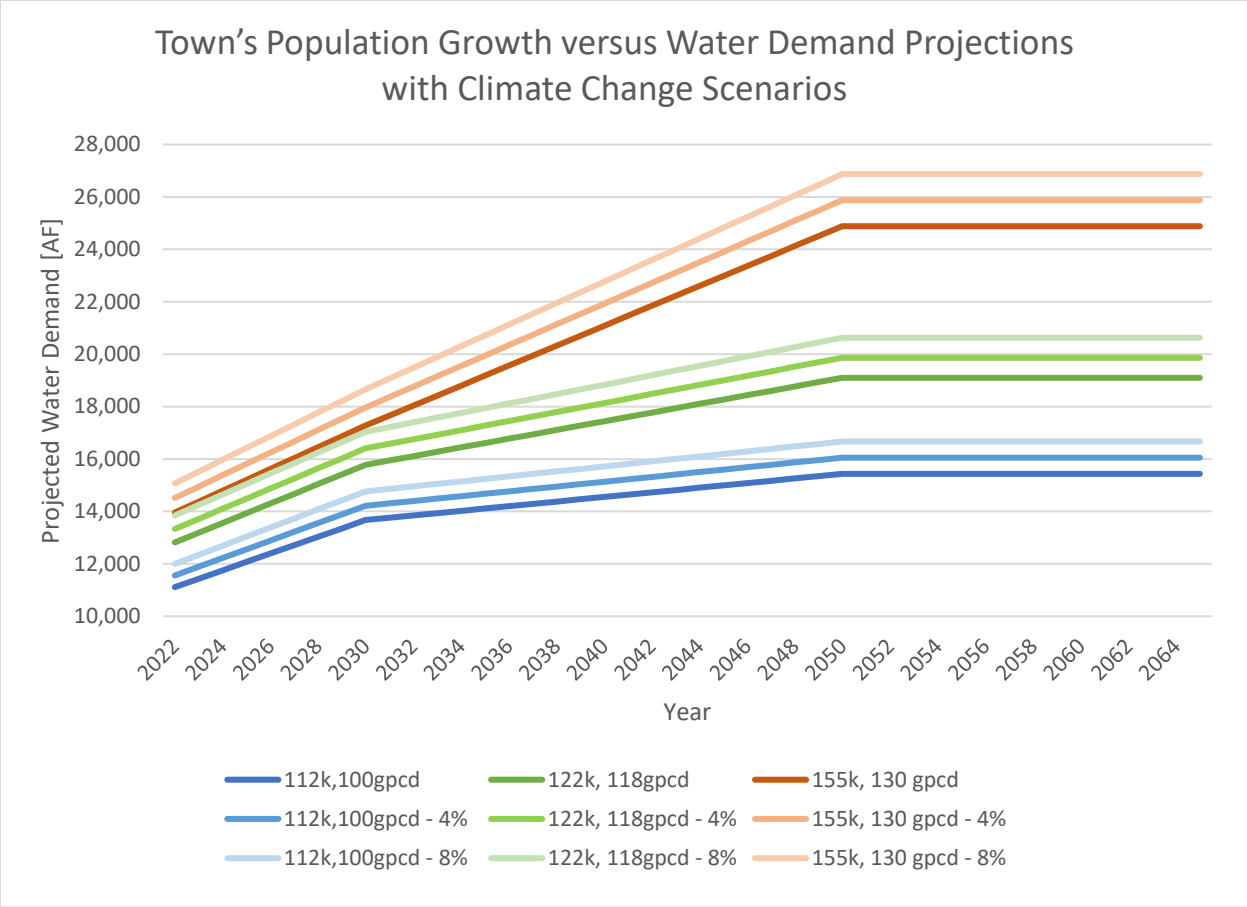
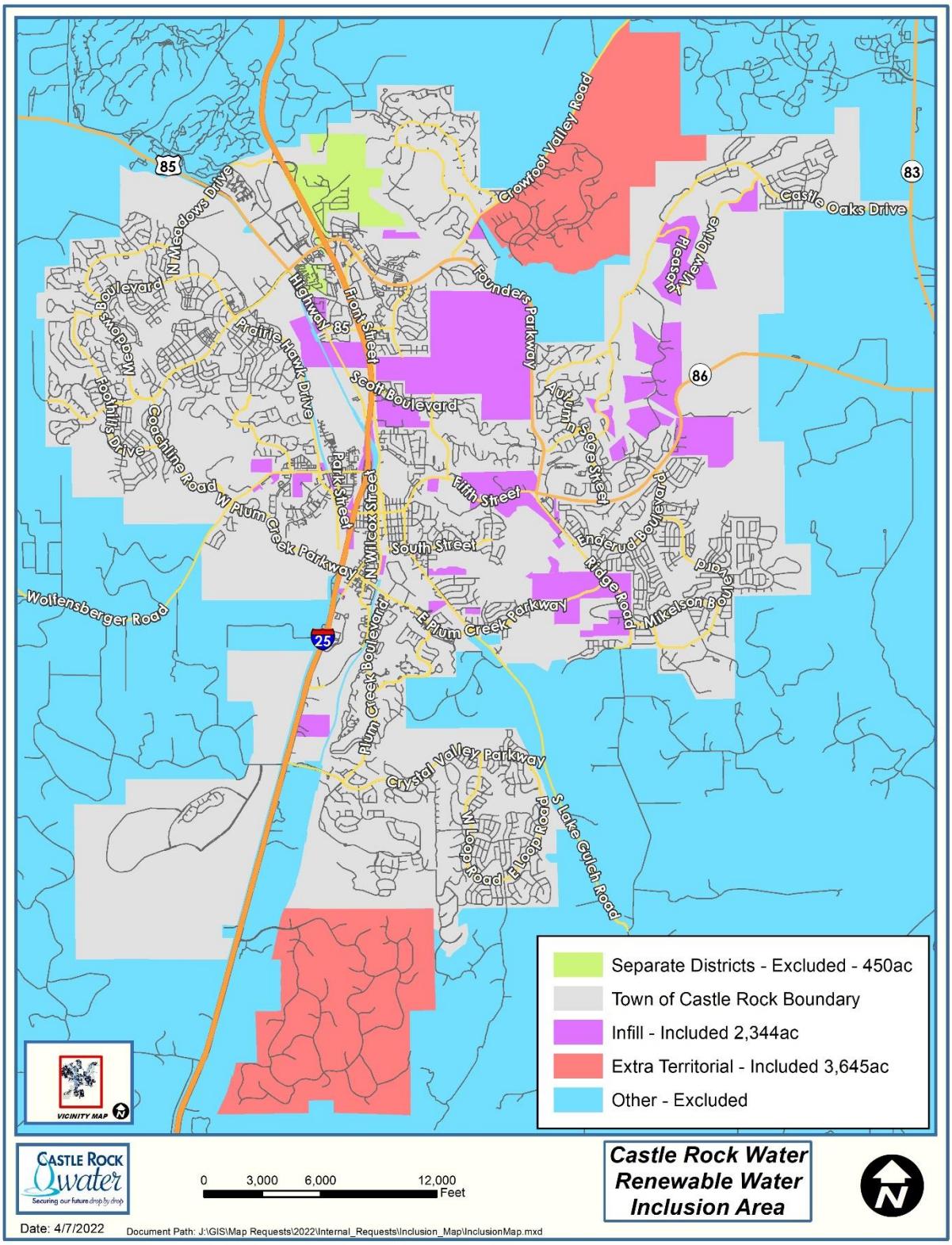



**Figure 3-6** shows additional areas that have been included in the analysis of entitlements for the plan as a high use scenario. For planning purposes, it makes sense to assume that infill areas someday will be part of the Town through annexation. Additionally, the area to the south of Town in the rust color is Bell Mountain Ranch and the Town will be serving this area through an intergovernmental agreement effective in early 2022. Other areas which are not included in the high use scenario that eventually could be served by CRW include Silver Heights and Castleton Center, shown in green in the figure as separate water districts. Other impacts on future water demands include future annexations, nearby water districts that may request service and redevelopment of certain geographies such as the implied consent area of Town.

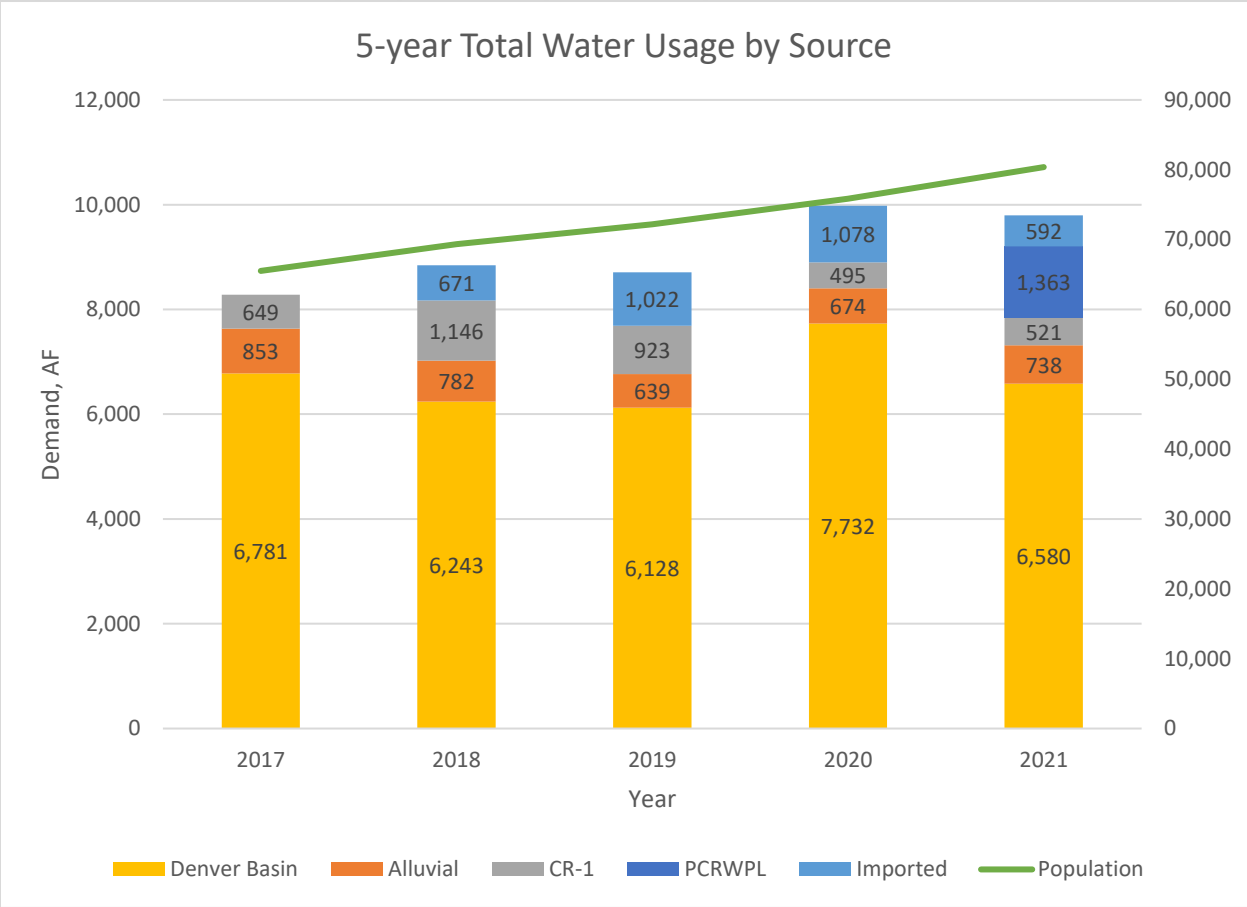
## Figure 3-6: Castle Rock Water Inclusion and Exclusion Area



## 3.1 Demand Management

Demands will continue to be impacted by weather, conservation, costs, and population growth. **Figure 3-7** shows actual total water usage (in acre-feet) by year and by population over the last five years, including the source of supply. **Table 3-1** shows estimated outdoor water usage over the last five years. Weather, especially temperature, can have a big impact on demands. **Figure 3-8** provides information on how weather has impacted demand over the last five years. Additional information on how climate change could further impact water demand and supply is provided in Chapter 7.

**Figure 3-7: Water Usage by Source (2017-2021)**

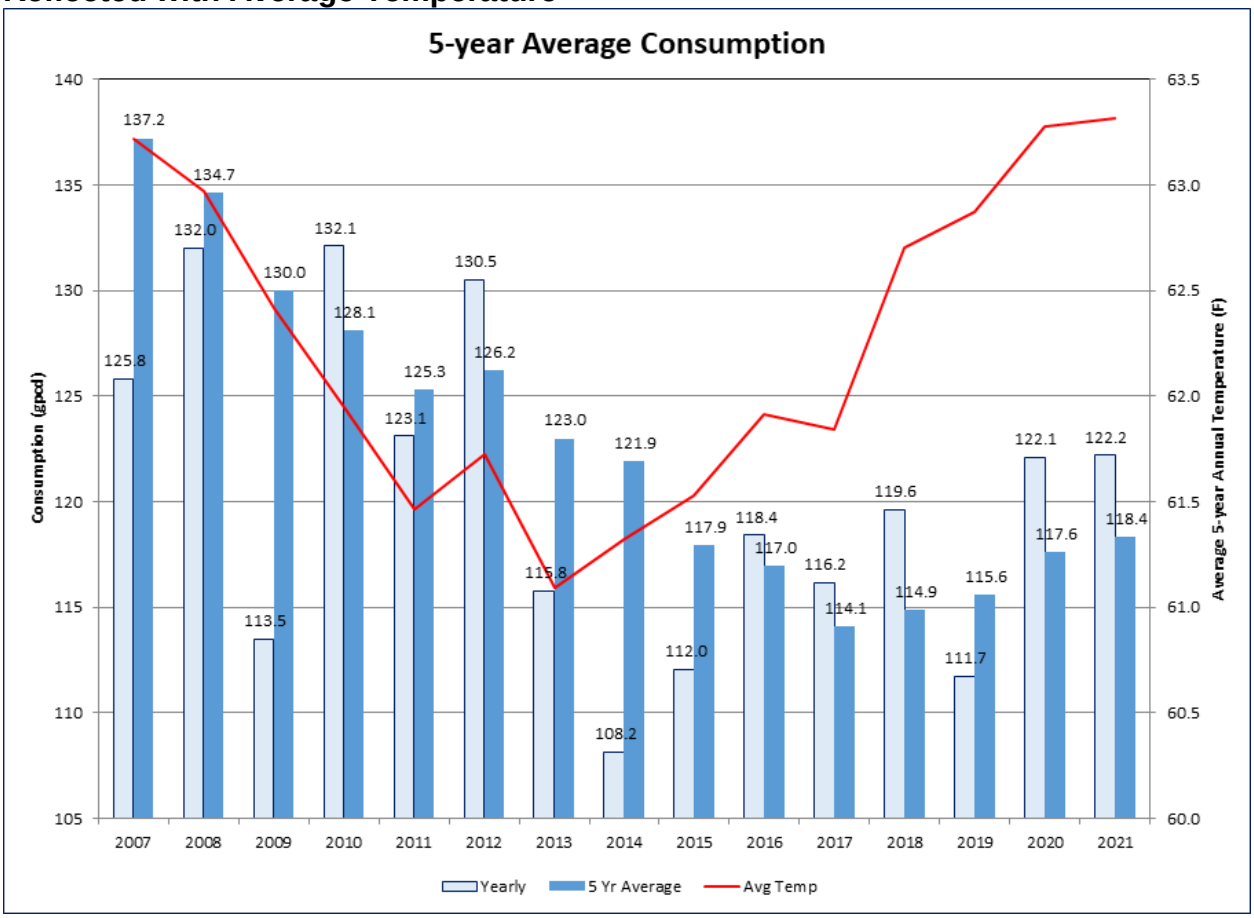


An example of outdoor water usage

**Table 3-1: Outdoor Water Usage (2017-2021)**

| Year | Total Demand (AF) | Estimated Volume Outdoor Use (AF) | % Outdoor Use |
|---|---|---|---|
| 2017 | 8,282 | 3,479 | 42% |
| 2018 | 8,842 | 3,891 | 44% |
| 2019 | 8,711 | 3,746 | 43% |
| 2020 | 9,979 | 4,590 | 46% |
| 2021 | 9,795 | 4,114 | 42% |

**Figure 3-8: Single Year and Five Year Average Water Consumption (2017-2021) Reflected with Average Temperature**




One important way that CRW can help reduce demand is through a variety of water conservation programs. CRW currently promotes a number of conservation programs that have helped reduce per capita demands from 165 gpcd during the early 2000s to right around 118 gpcd today. Some of these current programs include:

- Water Wiser Educational Courses (in person and on-line)
- Water Wiser Certification Expiration (renewal needed after five years)
- Water Budget Rate Structure
- Turf Conversion Incentives ($1.20 per square foot of turf replaced)
- Toilet Retrofit Program
- Rebates for smart irrigation controllers, rotary nozzles and whole home water monitoring devices
- Irrigation Audit/Sprinkler Inspections
- Conservation Contests (e.g. ColoradoScape makeover)
- Conservation Educational Tips
- Dedicated Conservation Website (CRConserve.com)

In addition to these conservation programs, the Town created minimum water efficiency design criteria (created in 2014 and updated in 2021), which can be used by new developments to create a development-specific Water Efficiency Plan (WEP). These criteria include indoor and outdoor water conservation efforts, as well as specific water budgets for properties included within a water efficiency plan area.

Beyond these existing programs, the one water conservation measure that likely will have the most impact will be a major limitation of grass turf for lawns. The Town already has banned the use of Kentucky blue grass for all new grass spaces. However, with nearly half of the Town's annual water use going to outdoor demands, major limitations on turf grasses will be an important way to reduce demands going forward.

By way of example, if the Town does not allow turf for any new front yards; limits backyards to no more than 500 square feet (sf) of irrigated turf; and the assumption is made that 155,000 people will be the ultimate population served then the Town could see a reduction of 64% of future outdoor water use (based on what the outdoor water use would be without further turf limitations than today). This would translate to a usage of approximately 100 gpcd at build-out. Without imposing strict turf limitations, it will be very challenging to achieve our usage rate goal of 100 gpcd.

Additional water conservation programs which further could impact demand include:

- Advanced metering infrastructure
- Formal meter testing programs
- Water budget rate structure changes
- Changes to the Town plumbing code to allow only 0.8 gallon-per-flush toilets on new construction
- Landscape and irrigation retrofits to Town parks and right-of-ways
- Indoor conservation incentive programs
- Increasing the existing customer rebate amounts for ColoradoScape renovations and 0.8 gallon per flush toilets
- Bill credits for Water Wiser exempt homeowners to follow every-third day watering requirements
- Hot water recirculation systems
- Irrigation audits

## 3.2 Impacts of Future Demands

One of the key uses of the water supply and demand forecasting model is to determine when new water supplies will be required to be on line. CRW staff used the model to evaluate the timing of the Box Elder project using the current conservation (120 gpcd) and high conservation (100 gpcd) scenarios. This model run predicts that Box Elder will need to come on line between 2027 and 2030 if our customers continue using water at the current rate of 120 gpcd. If conservation is embraced more seriously, the Box Elder project may come on line after 2030. Regardless, intergovernmental agreements, easement acquisitions, and engineering design efforts for the numerous infrastructure projects associated with Box Elder will need to begin starting in 2023.

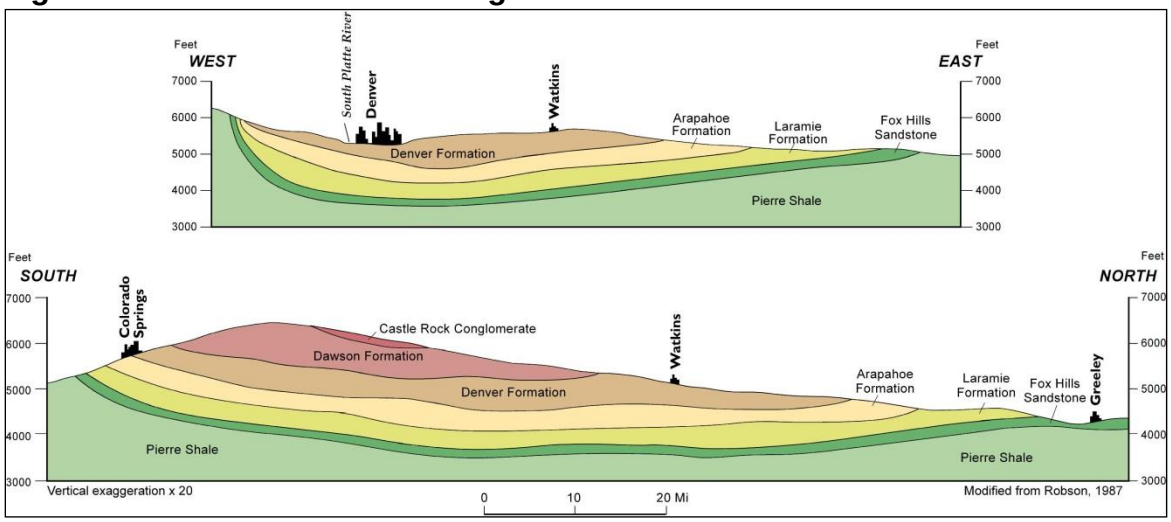
An example of a residential ColoradoScape in Castle Rock

# Chapter 4 – Water Supply and Storage

## 4.1 Overview

Castle Rock overlies the Denver Basin, a geologic formation with four principal aquifers: the Dawson, Denver, Arapahoe, and the deepest of the four, the Laramie-Fox Hills, as shown in **Figure 4-1**. These aquifers are a non-renewable water source that recharge extremely slowly with the recharge rate a tiny fraction of the rate of withdrawal. Estimated recharge periods are from months to years for the Dawson aquifer to several centuries for the Laramie-Fox Hills aquifer. As of 2021, approximately 67.2 percent of the Town's water is pumped from the Town's sixty-one deep groundwater wells located in the Denver Basin Aquifer. Approximately 32.8 percent of the water supply comes from renewable water resources which include fourteen active shallow alluvial wells along East Plum Creek. The Town also operates two surface water diversions: CR-1 located along East Plum Creek, just south of the PCWPF, and the Plum Creek Diversion, located along the main stem of Plum Creek near Sedalia. These two diversions help the Town fully utilize our renewable surface water rights in the Plum Creek Basin as well as reusable water that is discharged from the Plum Creek Water Reclamation Authority (PCWRA) back into East Plum Creek. By bringing the Plum Creek Diversion, Pump Station and Raw Water Pipeline fully on-line in 2021, along with advanced treatment process improvements at PCWPF, Castle Rock has been able to achieve a reusable water usage rate of nearly 51 percent in 2021.

**Figure 4-1: Denver Basin Geologic Formation**




The Town currently owns all of the Denver Basin groundwater rights underneath the Town, as well as some renewable water rights. The Town has more than 40,000 acre-feet of groundwater rights, but the Town does not have the necessary infrastructure in place to access all of these water rights. Groundwater is considered a non-renewable resource, and therefore, it is imperative that we continue transitioning to the Town's ultimate water

portfolio goal of 75% renewable and 25% non-renewable by 2050. As a measure of comparison, a typical family uses approximately a half an acre-foot of water per year (~163,000 gallons) which would look like a basketball court filled with fifty inches of water, or about the size of the lap pool at the Town's Recreation Center. Each year, the entire Town uses about 3.25 billion gallons of water, which is enough water to fill a football field-sized swimming pool 1-1/2 miles deep!

Castle Rock has long recognized the need to diversify its water portfolio and extend the life of its aquifers. The Town recognizes its limited Denver Basin ground water supply source ultimately will not meet water needs. With that, CRW's major supply programs include:

- Continuing implementation of an aggressive water conservation and efficiency plan;
- Developing and fully using the Town's current renewable water rights and protecting and efficiently using the Denver Basin groundwater rights;
- Fully using of the water rights from reusable water the Town owns; and
- Fostering partnerships to import surface water to reach an overall water supply mix of renewable and reusable water that is 75% sustainable with the ultimate goal of 100% sustainability.

One goal of the Water Resources Strategic Master Plan is to evaluate the major water supply options potentially available to the Town in a manner that will result in an optimal mix of conservation, reuse, groundwater and renewable water sources in order to provide the Town with a long-term, sustainable water supply for the Town's future water needs. Transitioning to renewable water supplies for 75% of the Town's future water needs by 2050, and to fully renewable by 2065, will lessen the reliance on the Denver Basin.

The potential water resources available to the Town by 2050 fall within four primary categories as shown in **Table 4-1**: existing Town-owned groundwater, Town-owned local surface water, imported surface water, and reusable supplies in both the Plum Creek and Cherry Creek basins.

**Table 4-1: Castle Rock's Projected Future Water Supply for Year 2050**

| Water Source | Minimum Raw Water Supply | | Maximum Raw Water Supply | |
|---|---|---|---|---|
| | Volume (Acre-Feet/Year) | % of Annual Supply | Volume (Acre-Feet/Year) | % of Annual Supply |
| **Denver Basin Groundwater** | 3,960 | 25% | 6,223 | 25% |
| **Local Renewable Surface Water** | | | | |
| Junior Local Plum Creek Alluvial Rights[1] | 8,300 | | 8,300 | |
| Senior Plum Creek Native Water Rights | 1,440 | 9% | 1,440 | 6% |
| Cherry Creek Alluvial Rights[2] | 150 | 1% | 952 | 4% |
| South Platte Water Right[3] | 200 | 1.3% | 200 | 0.8% |
| Spot Water Purchases at Chatfield | Variable | | Variable | |
| **Reusable Water** | | | | |
| Plum Creek LIRFs | 365 | 2.4% | 655 | 2.6% |
| Cherry Creek LIRFs | 200 | 1.3% | 300 | 1.2% |
| Water Reuse Program[4] | 4,785 | 31% | 7,480 | 30% |
| **Imported Surface Water**[5] | 4,500 | 29% | 7,500 | 30% |
| **Total** | 15,600 | 100% | 24,750 | 100% |

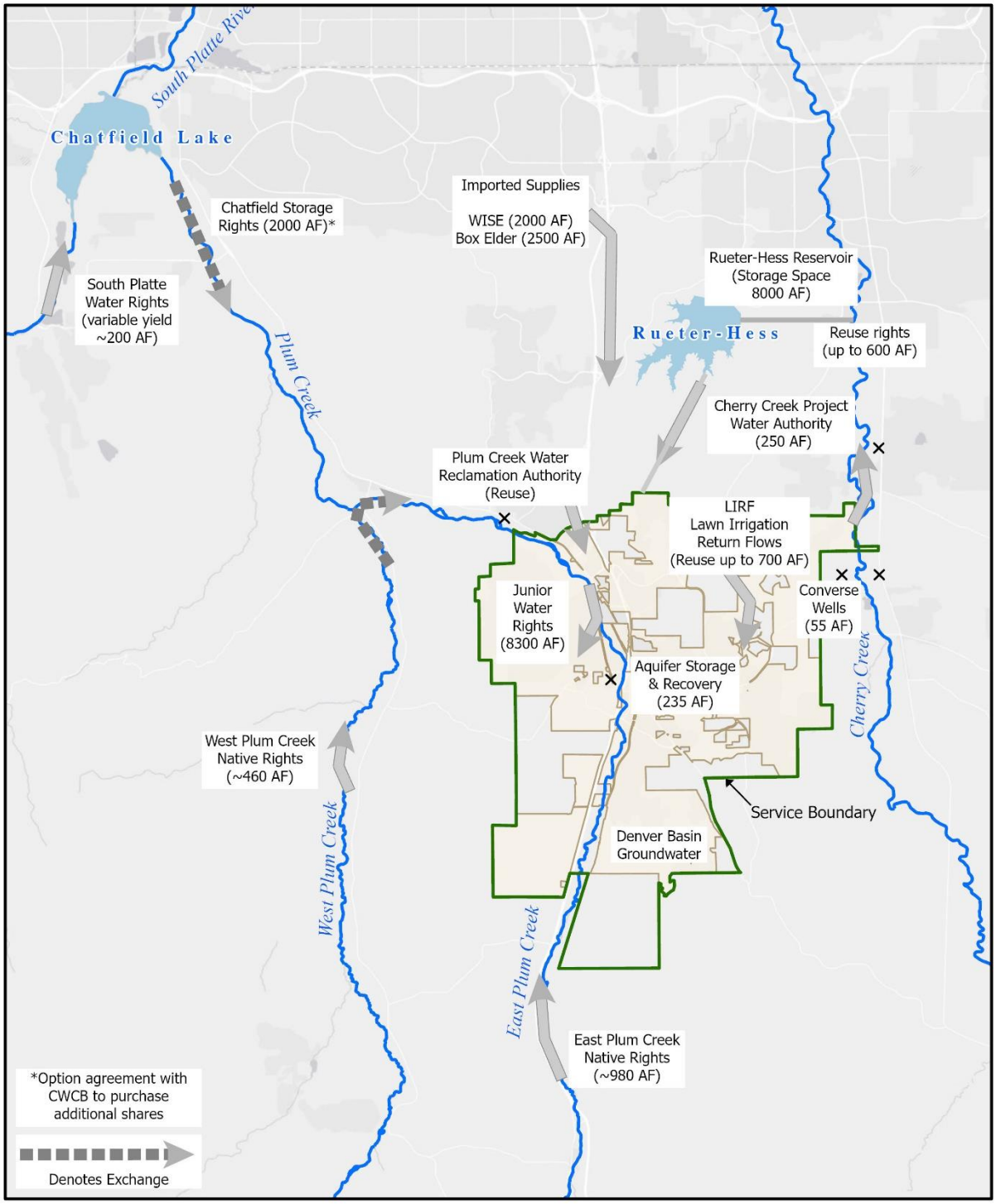
Notes:

5. Junior water rights that are not reliable and require augmentation during a call. Not included in total supplies available.
6. Includes water from the Converse wells and average renewable yield from the CCPWA.
7. This is a junior water right at the Chatfield Reservoir. Chatfield Reservoir storage will firm up the yield during a dry year. Location is also an alternate location for capturing and accessing the Town's reuse rights and junior Plum Creek rights.
8. Includes reuse supplies in both the Plum Creek basin and Cherry Creek basin.
9. Includes WISE, BEC, and other future supplies that may come in partnership with SMWSA and PWSD.

**Figure 4-2** shows the Town's current planned sources of water supplies and storage locations. **Appendix A** shows Castle Rock's surface and storage water rights and tributary plans for augmentation, as well as changes of water rights associated with tributary structures (as of December 2021).

Area water providers are a major asset to each other in that they have the ability to share their existing and future infrastructure regionally with other water providers. Regional infrastructure helps offset capital costs and future operation and maintenance costs that otherwise would be incurred by a single entity.

**Figure 4-2: Diagram Indicating Current Planned Source Water and Storage Locations**



## 4.2 Groundwater

A key water supply that is available to the Town is our groundwater rights within the Denver Basin aquifers and alluvial ground water rights from the Plum Creek alluvium. Through November 2021, 68.5% of the Town's annual demands were met using Denver Basin water and 7.2% of the demands were from renewable alluvial groundwater.

**Appendix B** shows the Town's current Denver Basin groundwater rights as of November 2021, which are 40,134 AF on paper. While the Town owns nearly all of the water rights within its service boundary, access to this water on an annual basis is limited to the amount of infrastructure constructed, the location of that infrastructure and water levels in the aquifer. As water levels in the aquifer decline, the pumping capacities of the wells also decline. If the Town wanted to retrieve the same annual volume of water each year, additional wells would need to be constructed as water levels decline. In 2021, the maximum day demand of the customers was 18.4 MGD. Over the past five years, the maximum day trend has increased approximately 8% annually. The maximum annual amount of Denver Basin groundwater supplies that CRW has produced over the past five years is 7,577 AF. CRW estimates that the current infrastructure allows for the pumping of approximately 8,400 AF/yr of these water rights. Denver Basin groundwater aquifers are experiencing declining water levels each year (average declines have ranged from 0 to 10 feet over the past five years across the Dawson, Denver and Arapahoe Aquifers). A key recommendation from this plan update is to engage a consultant to develop a formal review of declining water levels in CRW's deep groundwater wells and help predict the impact on water production.

Studies[2] of the Denver Basin aquifer have indicated a significant decline caused by heavy municipal pumping as Colorado's population has surged over the past two decades. Fortunately, Castle Rock has been working earnestly to fortify our access to renewable water and has been implementing renewable water projects since the last Plan update in 2016, which helps to decrease our reliance on non-renewable water sources. There is much more to do and we are well positioned to continue making progress with renewable projects going forward. One other consideration about the importance of our Denver Basin supply is the interruptible nature of the WISE water. Per the WISE agreement, flows can be interrupted for 24 months over a 10-year period. This would equate to 4,000 AF for Castle Rock during that time which would need to be made up from other sources including our Denver Basin groundwater supplies.

[2] (1)Black and Veatch. *South Metro Water Supply Study*. Prepared for the South Metro Water Supply Authority (SMWSA), 2004.
(2)CDM Smith. *SMWSA Regional Aquifer Assessment Final Report*. Prepared for the South Metro Water Supply Authority, 2010.
(3)CDM-Smith. *SB06-196 Underground Water Storage Study Final Report*. Prepared for the Colorado Water Conservation Board, 2007.
(4)Sale, T.C., A. Bailey, A. Maurer, B. Baker, and C. Hemenway. "2010 Studies Supporting Sustainable Use of the Denver Basin Aquifers In the Vicinity of Castle Rock, CO". Unpublished project report for the Town of Castle Rock, 2010.
(5)Paschke., S.S. *Groundwater Availability of the Denver Basin Aquifer System*, Colorado: U.S. Geological Survey Professional Paper 1770, pg. 274, 2011.

## 4.3 Surface Water

Significant strides have been made since the 2016 Plan update about bringing renewable water to the Town. The Town has four primary areas where renewable water can be obtained in adequate quantities to achieve our renewable water goal, which include:

- Using the Town's local surface water supplies including existing senior water rights along East and West Plum Creek and Cherry Creek (as part of the Cherry Creek Project Water Authority [CCPWA]);

- Importing water through the South Metro WISE Project;

- Importing water from the middle and lower South Platte River (through one or more projects including the BEC Project, and junior water rights in the upper South Platte through the Chatfield Reallocation Project).

- Reusing those legally available supplies that are treated at the Plum Creek Water Reclamation Authority or the Pinery Wastewater Treatment Facility and returned back to either Plum Creek or Cherry Creek.

Castle Rock Water staff performing stream flow monitoring in East Plum Creek

The scope of the renewable projects is so expansive; Castle Rock alone cannot develop the financial or political capabilities to implement them. The Town's involvement in local and regional efforts is crucial to the Town's success in the renewable water arena. The Town currently is participating in several regional programs as part of the WISE Project, the Chatfield Reallocation Storage Project, and the CCPWA. A number of additional partnerships may be beneficial as part of the BEC Project, and multiple projects have been completed and more are forthcoming with PWSD.

### 4.3.1 Local Surface Water

The Town's senior water rights on East and West Plum Creek are an important renewable water source currently tapped by alluvial wells and two surface water diversions. The Town owns rights on East Plum Creek with an average annual yield of 980 AF, and rights on West Plum Creek with an average annual yield of 460 AF. Castle Rock continues to explore options to increase our renewable water rights in the Plum Creek Basin. Any water rights that come available this close to Town become a high priority for investigation and potential acquisition.

In 2013, the Town began operating the PCWPF to treat renewable water supplies from the various alluvial wells, blended with Denver Basin groundwater. The CR-1 surface water diversion was brought online in 2016, providing further ability to capture renewable water on East Plum Creek. In 2021, CRW completed the addition of advanced treatment processes at PCWPF giving the plant the ability to effectively treat reuse water along with a combination of surface water, alluvial water and deep groundwater, up to 6 mgd. Concurrent with these improvements, surface water and reuse water started flowing from the Plum Creek Diversion and CRR1 as additional renewable water into PCWPF. We will soon embark on the design of the next expansion of this facility to a treatment capacity of 12 mgd.

In 2021, Castle Rock purchased a 41.25% stake in the CCPWA. The CCPWA is a group of water providers that formed an Authority to construct and operate water projects, consisting of renewable and Denver Basin water, in the Cherry Creek Basin to provide a relatively firm water yield of between 500 to 2,000 AF per year. The CCPWA is comprised of four participants with shares in the project as follows:

Castle Rock Water: 41.25%
Inverness Water & Sanitation District: 31.118%
Denver Southeast Suburban (AKA "The Pinery"): 20.489%
Cottonwood Water & Sanitation District: 7.143%

The assets that Castle Rock owns as part of this project include:

- Senior absolute renewable water rights of approximately 80.69 AF annually;
- Junior absolute renewable water rights of up to 240 AF annually;

- Junior conditional renewable water rights of up to 201.5 AF annually;
- Denver Basin groundwater rights of up to 3,175 AF annually;
- 41.25% of two Denver Basin groundwater wells;
- 41.25% of two property parcels (63 acres and 167 acres) including mineral rights;
- Easements for tributary and Denver Basin wells; and
- An augmentation plan and various related water rights.

All of the water rights have been decreed for use in Castle Rock's service area. CRW's water rights consultant analyzed the renewable water rights in this portfolio and believes that the yield will vary from 75 to 533 AF per year, with an average yield of about 247 AF of renewable water. In addition to the renewable water, Castle Rock would have the option to use some of the Denver Basin water rights to provide a larger firm yield of up to 825 AF annually with additional capital infrastructure. Castle Rock currently is pursuing an Intergovernmental Agreement (IGA) with the Pinery to deliver 250 AF of treated water annually (and up to 1.0 mgd) from this project directly into Castle Rock's distribution system at the existing system interconnect serving the Cobblestone Ranch area of Town, but benefiting the overall renewable water goal. This project may require additional infrastructure such as chemical addition for pH adjustment and a water softening process.

Additional water rights that the Town owns in the Cherry Creek basin include 62% of the rights in the Converse Wells along Cherry Creek, which amounts to 55 AF of water per year. These rights have been changed for municipal use in water court. The Town is exploring how best to put these rights to use and participation in the CCPWA provides more options.

The Town has emergency interconnects with both the Pinery Water & Wastewater District (constructed in 2013) and CPMD (constructed in 2015). None of the parties has had to use the emergency interconnects, but connecting neighboring systems and infrastructure helps provide resilience during potential emergencies.

CRW is interested in partnering in a pump station and pipeline from Chatfield Reservoir to Castle Rock. An engineering consultant, under contract with the South Metro Water Supply Authority, developed a conceptual study (the "Chatfield Coordinated Water Work Study", dated September 2020) evaluating opportunities for joint use of existing and proposed water pumping and conveyance infrastructure both below the Chatfield Reservoir dam outlet and above the reservoir. This conceptual study delineated several different options, but Castle Rock has realized some near-term importance of physically bringing water from Chatfield Reservoir back to Town. Namely, the lower total dissolved solids (TDS) present in the Chatfield water could be blended with the Town's other reuse and native Plum Creek supplies in order to obtain a finished water quality with a maximum of 450 mg/L TDS. Castle Rock likely will be partnering with Denver

Water in the near term on the temporary use of some of their infrastructure to get water out of Chatfield and be designing a new pipeline back to the Castle Rock Reservoir system. This water then could be moved back to Castle Rock for treatment or pumped to RHR for storage there, further freeing up space in Chatfield. CRW intends to contract for the design of this project in 2022.

### 4.3.2 Imported Water

Imported renewable water supplies are a key component of Castle Rock's water supply portfolio.

South Metro Water Supply Authority (SMWSA), formed in 2004, is an organization comprised of thirteen (13) individual water providers in Douglas and Arapahoe counties that works collaboratively to foster and secure long-term water supplies through water acquisition and infrastructure development. By taking a unified approach to regional water rights, South Metro garnishes increased negotiating power and has positioned itself to cooperate with the state's largest water providers such as Denver Water and Aurora Water.

A cornerstone project for the SMWSA is the WISE project. The Town began participating in the WISE project feasibility and agreement negotiations in 2009, originally subscribing to 1,000 AF of WISE water in 2013, and in April 2018, the Town started receiving WISE water supplies into the water system.

As part of the WISE project through South Metro WISE Authority, the ten partners in conjunction with Denver Water purchased the Western Pipeline from ECCV Water & Sanitation District. This purchase regionalized existing infrastructure and provided a way for the WISE Authority members to obtain water from the South Platte River. The Western Pipeline is located along C-470 and E-470 as shown on **Figure 4-3** (referred to as the *Existing WISE/BEC Pipeline* on the map).

Castle Rock has developed partnerships with PWSD, DWSD, and Pinery Water & Wastewater District for design, construction and implementation of infrastructure necessary to deliver WISE water between the Western Pipeline and the Town. This additional infrastructure includes the Ridgegate Pipeline, the Canyons Pipeline, the Outter Marker Road Pipeline and the Parker Midsection Pipeline (which is being constructed starting in 2022).

Additionally, CRW owns 2.8 mgd capacity in the ECCV Northern Pipeline through South Metro Water Supply Authority, as shown on **Figure 4-4.** The pipeline will be used to deliver treated water from the BEC Project to the Town. The Town also has purchased excess capacity from several other entities in various portions of WISE infrastructure. A summary of CRW's capacities is shown in **Table 4-2**.

**Table 4-2: Summary of Infrastructure Capacities for WISE and Alternative Source of Supply Flows**

| Infrastructure Section | Current Capacity [MGD] | Capacity Needed [MGD] | Gap [MGD] |
|---|---|---|---|
| ECCV N-S Pipeline | 2.8 | 3.0 | 0.2 |
| State Land Board Line* | 2.83 | * | * |
| Binney Connection | 5.29 | 6.0 | 0.71 |
| Western Pipeline | 7.78 | 9.0 | 1.22 |
| Ridgegate Pipeline | 4.0 | 9.0 | 5.0 |
| Canyons Pipeline | 8.6 | 21.0 | 12.4** |
| Outter Marker Road Pipeline | 10.1 | 21.0 | 10.9*** |

*The State Land Board Line is the pipeline currently used for WISE deliveries and only will be utilized until the Binney Connection is completed (in 2022). After such time, this pipeline only will be used for emergency flows or flows in excess of 30 MGD from Aurora.
**A new pipeline around the western side of RHR is planned within the next 15 years to meet this capacity need.
***A parallel, 36-inch diameter pipeline is planned within the next 15 years to meet this capacity need.

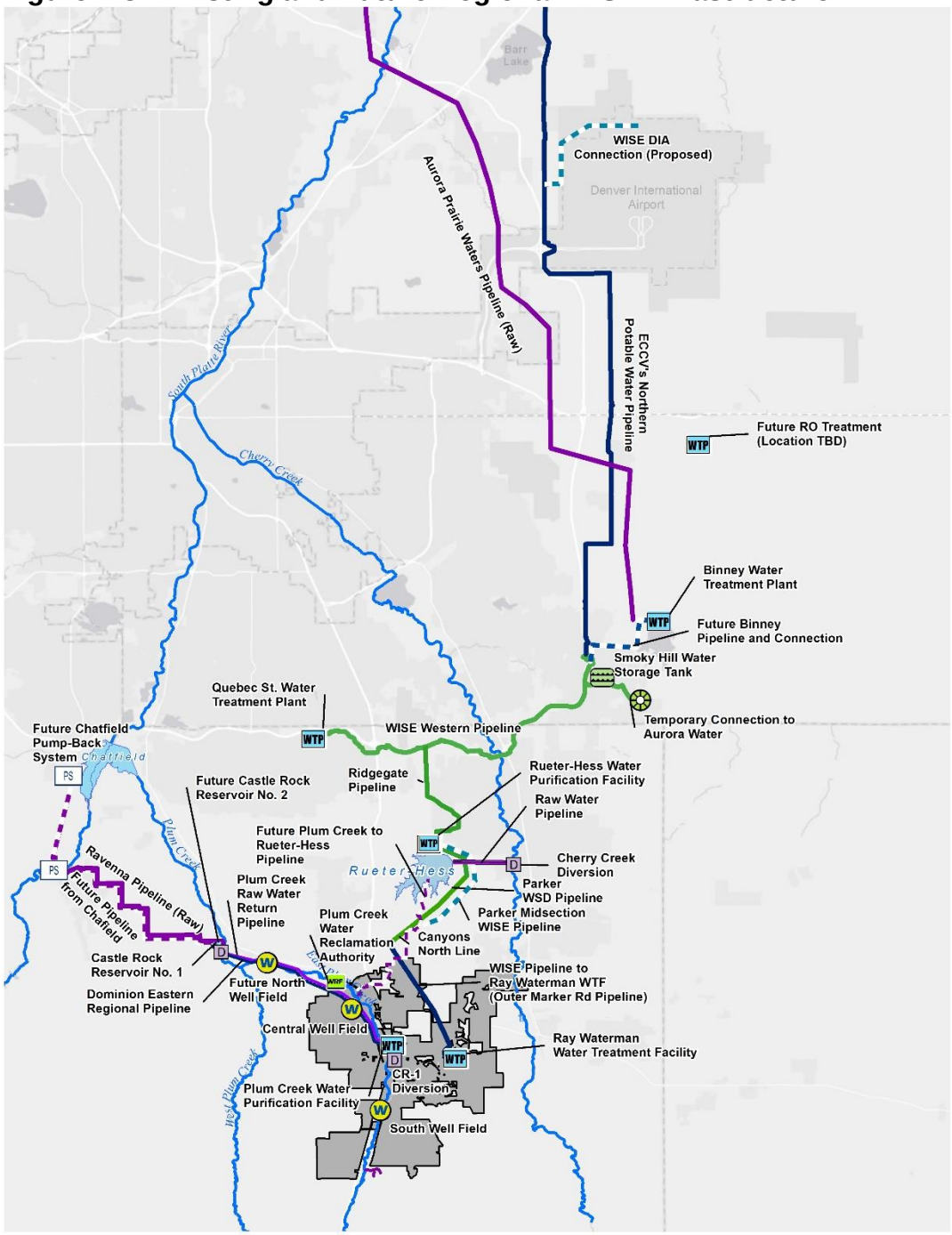
In 2018, to help address some of the continued and rapid growth occurring in Castle Rock, the Town purchased an additional 1,000 AF of WISE subscription that originally had been reserved as the Douglas County Option. This brought the Town's total subscription of WISE water to 2,000 AF.

WISE water deliveries can be variable depending on drought conditions; however, the longest period of time without deliveries can only be 24 months per the Water Delivery Agreement between the South Metro WISE Authority, Aurora Water, and Denver Water.

Wise Pipeline during Construction

The WISE project is not complete in terms of infrastructure. Additional infrastructure still required for long-term operation of the WISE project includes the DIA connection project and a salinity reduction water treatment facility. **Figure 4-3** shows the locations of the WISE delivery infrastructure relative to the Town.

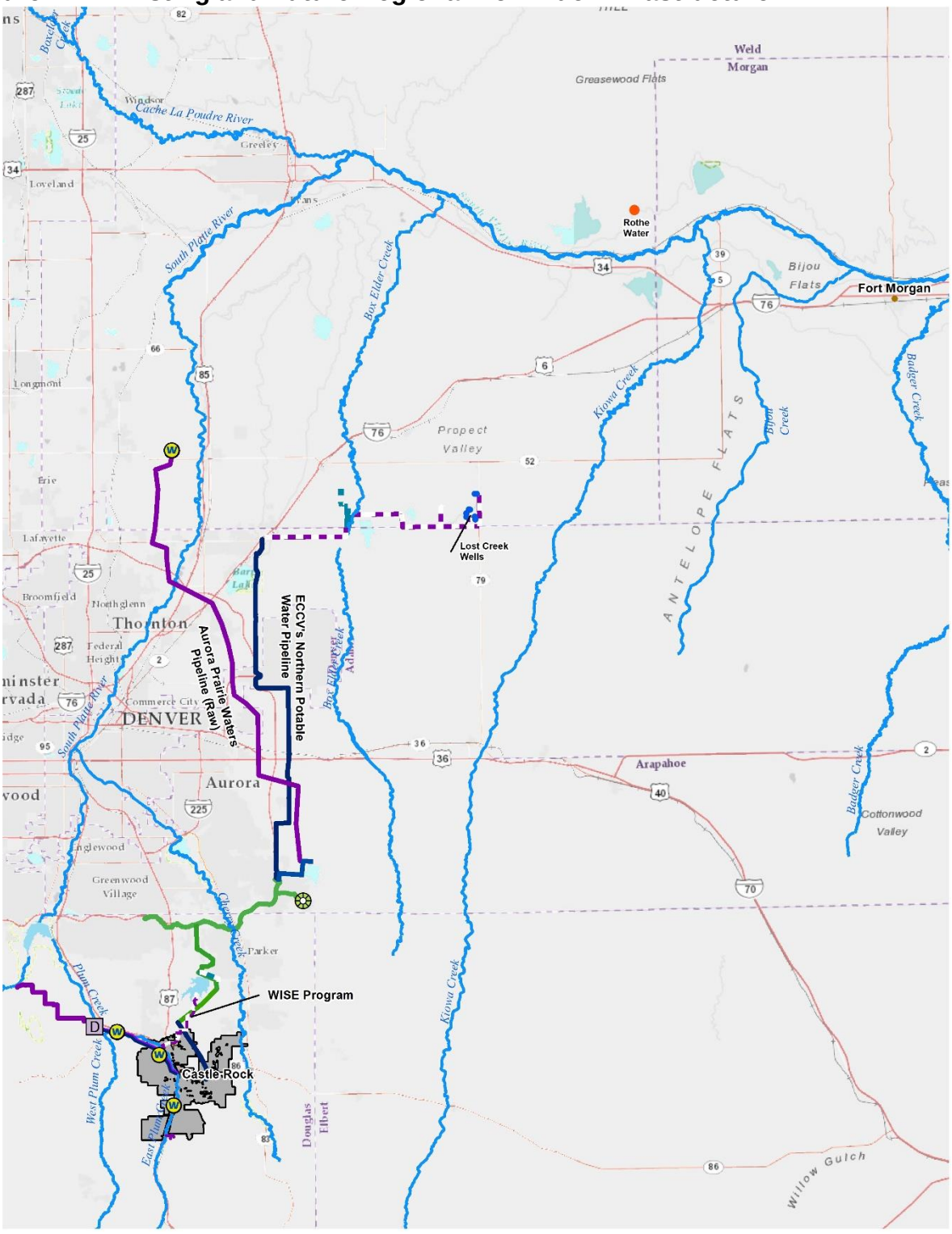
**Figure 4-3: Existing and Future Regional WISE Infrastructure**



The next major imported water project is known as the Box Elder Creek (BEC) Project and includes the following three components: (1) the BEC well field, (2) water rights acquisition, and (3) treatment and transmission infrastructure. The purpose of the BEC well field is to serve as a point of diversion (the place where we get our wet water) for acquired water rights. This well field is located approximately six miles east of Lochbuie, CO in southern Weld County as shown on **Figure 4-4**. The well field contains eleven existing permitted alluvial wells, 850 acres of property, approximately 300 acre-feet of consumptive use water rights from Henrylyn Irrigation District, and five shares of Farmers Reservoir and Irrigation Company (FRICO) water. In late 2016, the Town closed on the purchase of the BEC property.

Looking northeast across Rueter-Hess Reservoir

## Figure 4-4: Existing and Future Regional Box Elder Infrastructure



In addition, the Town has acquired 2,261.5 AF of water rights that can be used for augmentation of pumping of the future BEC wells. This includes 770 AF of retimed water from the purchase of the Rothe Recharge Project. This project diverts water from the South Platte River at the Riverside Canal (located east of Greeley) under a water right with an effective 1988 priority date. This water is delivered from the Riverside Canal into several recharge ponds which then makes its way through the alluvial sands as groundwater return flow to the South Platte River, approximately sixteen miles downstream of the point where Box Elder Creek enters the South Platte River. The hydrogeologic transport of this water through the alluvium takes a number of years. The Town also has acquired 1,491.5 AF of renewable water rights in the Lost Creek Basin, located approximately six miles east of the BEC property. CRW continues to investigate opportunities for an additional 240 AF of water rights so that the nominal annual yield of BEC will be 2,500 AF.

The Town filed its water court application for the BEC Project in December 2019 and as of the end of 2021 is continuing to negotiate with opposers to the project. The Town anticipates a final decree sometime in 2023. Presently, the plan is to begin design on project infrastructure (e.g. wells, pipelines, pumping facilities) in 2025, with full project implementation by 2030.

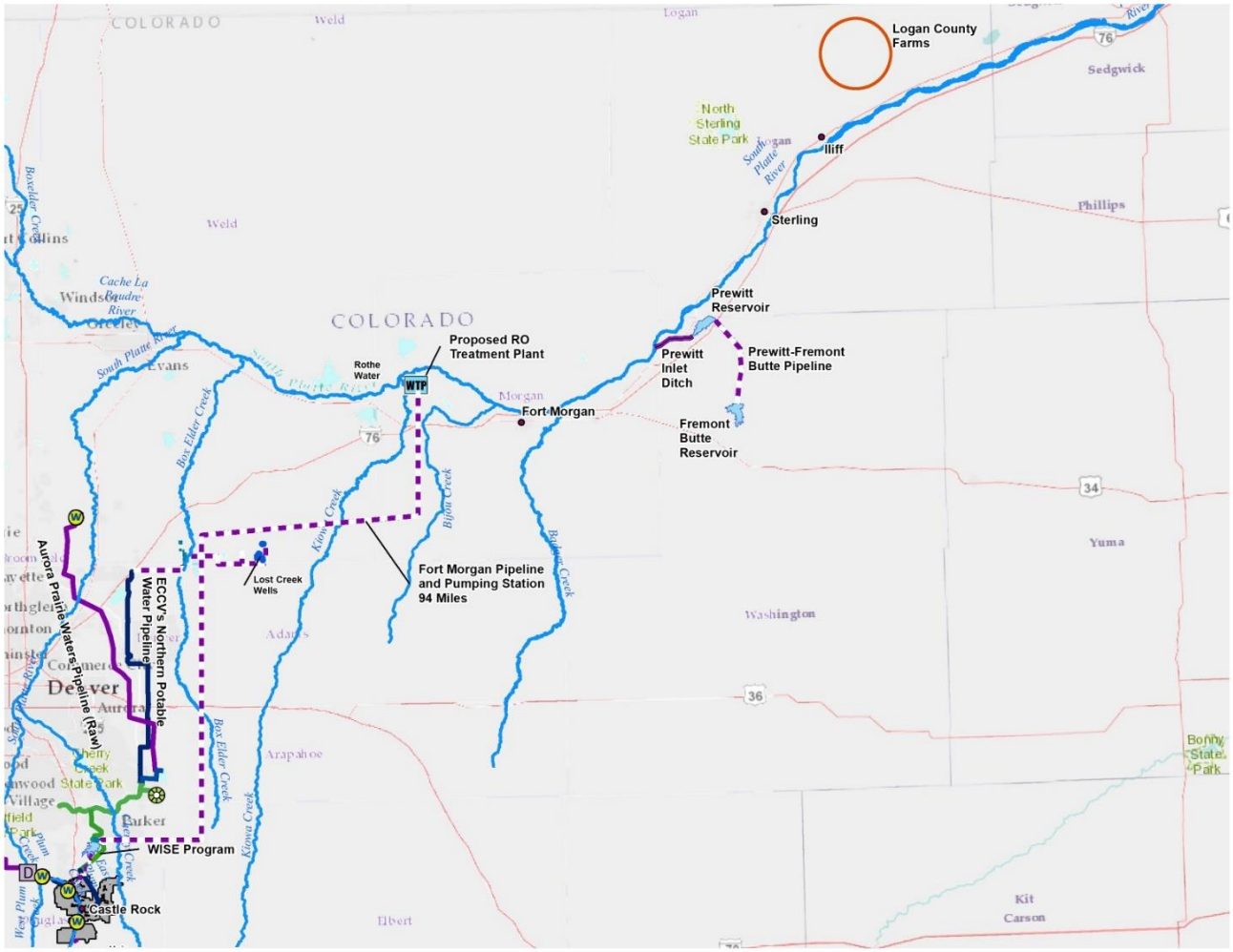
The Town has had multiple discussions with PWSD over the past several years about partnering on their “South Platte Valley Water Partnership Project” (formerly known as the Logan Farms or Fort Morgan Project). Similar to PWSD, the Town has filed a Water Court application for a conditional water storage right in Prewitt Reservoir via the Prewitt Inlet Canal, and a conditional water storage right in Fremont Butte Reservoir (see **Figure 4-5**). A delivery pipeline will be constructed from Prewitt Reservoir to Fremont Butte Reservoir, and water also will be able to be sent back to Prewitt Reservoir and pumped out into a long transmission pipeline to RHR. In partnership with PWSD, Castle Rock will be able to have this water treated and delivered to the Town’s service area for use by our customers. This new water right also will be able to be used to extinction meaning after using it we can pick it up at our various local surface diversions and storage reservoirs for reuse. Specifically, the Town is claiming a 111 cubic foot per second (cfs) flow rate from the South Platte River into the Prewitt Inlet Canal and 722 AF storage right (with one annual refill of the same volume) into Prewitt Reservoir. This water also could be conveyed to and from the future Fremont Butte Reservoir. Additionally, the Town is claiming an 8,000 AF conditional storage right (with one annual refill of the same volume) at Fremont Butte Reservoir.

The South Platte Valley Water Partnership Project is a long-term renewable water project for both PWSD and Castle Rock, and likely will involve other future partners. One early phase of the project may involve a pipeline from the Lost Creek area of Weld County where Castle Rock currently owns nearly 1,500 AF of water rights. This infrastructure would give the Town the opportunity to move this water to RHR in a timeframe of around ten years. Construction of other major

infrastructure associated with this project likely will occur in the 2040 timeframe and beyond, with conceptual project costs of approximately $400 million. Castle Rock's share of this project may be in the $80 million to $120 million range.

**Figure 4-5** shows the approximate location of the farm properties owned by PWSD, the reverse osmosis (RO) water treatment facility, the pipeline and pumping system, and Rueter-Hess Reservoir (RHR).

**Figure 4-5: Logan County Farms and Fort Morgan Project Infrastructure Location**



### 4.3.3 Reusable Water

A primary goal of this Plan is to reuse all of the reusable supply available to CRW. In 2021, CRW was able to use nearly 33% of this supply directly, with almost all the rest being able to put into storage in Chatfield Reservoir. Most of the water used by the Town that is collected and conveyed to the PCWRA treatment plant for treatment and discharge to East Plum Creek can be treated and reused by the Town. Similarly, a portion of the water used for lawn, park, and golf course irrigation that returns to East Plum Creek also can be reused by following the proper procedures.

In 2021, the Town began using this water by capturing the reusable effluent that is discharged directly to East Plum Creek after the water undergoes some natural treatment processes within the stream and mixes with native flows. The reusable water is delivered back to the Town for further treatment at PCWPF to meet drinking water quality standards and then sent into the water distribution system. Reuse water that is not diverted at the existing Plum Creek Diversion and put into Castle Rock Reservoir No. 1 (and soon within Castle Rock Reservoir No. 2) can be captured and stored in Chatfield Reservoir as previously indicated. Furthermore, CRW is currently designing infrastructure to move excess reuse water from the Plum Creek Basin to RHR.

A small portion of the Town's reusable effluent is treated by the Pinery Wastewater Treatment Plant and discharged into Cherry Creek. The Town has full rights to reuse this water. The Town captures some of these water rights at PWSD's Cherry Creek Diversion Structure for storage in RHR. At the end of 2021, the Town had approximately 118 acre-feet of water in storage in RHR with about 10 AF per month available for diversion. In the future, CRW anticipates the reusable flows will increase to approximately 600 acre-feet from additional growth of already zoned properties and future annexations/development of land. However, water deliveries to the reservoir are dependent on the operation of the Cherry Creek Pump Station, which turns off during river calls or for maintenance, so the Town may not always be able to divert all water that is available. Ultimately, CRW plans to treat its water that is in storage in RHR and return it to the Town through the WISE infrastructure. This will entail an additional partnership with PWSD to expand its Rueter-Hess Water Purification Facility (RHWPF) with 12 mgd of reserved capacity for Castle Rock.

The Town also can claim LIRFs[3] that accrue to Plum Creek and Cherry Creek. These flows will amount to approximately 700 acre-feet by 2050, assuming that 10% of the irrigation water applied is returned to the respective stream channel. As of the end of 2021, CRW was in the process of evaluating LIRF flows so they may be adjudicated through Water Court.

[3] Lawn Irrigation Return Flow (LIRF) – Irrigation water that is applied to lawns and not consumed by vegetation which percolates through the soil and travels to the nearest streambed.

In 2019, CRW completed a 3.5 mile, 8-inch diameter reclaimed water pipeline from the Plum Creek Water Reclamation Authority's treatment facility to the Town's Red Hawk Ridge Golf Course for irrigation use. The golf course had been using a dedicated deep groundwater well to pump untreated raw water to the golf course pond for use in turf irrigation. Peak summer irrigation demand at the golf course can exceed 600,000 gallons per day and this demand exceeded the golf course's available supply by approximately 200,000 gallons per day. Frequently, in high demand season, CRW staff would supplement the golf course with raw water from the municipal supply system to meet the additional irrigation demand. With the implementation of this project, CRW is able to provide reuse water to Red Hawk Ridge for irrigation and free up Denver Basin groundwater and treated potable water for higher beneficial use.

## 4.4 Water Storage

Storage is a key component of managing all of CRW's supplies, meeting peak demands during irrigation season, managing water quality and preparing for droughts. CRW has secured 11,180 AF of storage, all of which is either under contract, existing in service, in design, or under construction. CRW's goal is to have a full year's worth of demand available in storage at the beginning of any given water year. CRW will consider other opportunities for storage as they may come forward. There will likely be water storage opportunities associated with the Box Elder project and the South Platte Valley Water Partnership in the future.

### 4.4.1 Rueter-Hess Reservoir

The Town secured 8,000 acre-feet of water storage capacity in RHR in 2008. CRW shares RHR with PWSD, Castle Pines North Metro District and Stonegate Village Metropolitan District. RHR is a 75,719 AF capacity off-stream reservoir permitted and operated by PWSD. RHR was constructed to serve as a regional water management facility for multiple water providers in northern Douglas County, including PWSD, Castle Rock, and Stonegate Village Metropolitan District. Being able to store water in RHR will aid the Town in its ability to meet peak demands, enhance regional water management, and help extend the yield of the Denver Basin aquifers. As of the end of 2021, the Town had approximately 110 AF of water stored in this space. CRW is in the process of designing a new pump station and 16-inch diameter, 8-mile pipeline from the Plum Creek Basin to RHR. This new water transmission infrastructure will be capable of conveying at least 1,000 acre-feet of raw water to RHR each year.

Castle Rock is working with a consultant to design a pump station and pipeline from the Plum Creek Raw Water Return Pipeline, which pumps water back to PCWPF from the Plum Creek Diversion and Castle Rock Reservoir No. 1, to convey water to RHR. This pipeline will give CRW the ability to move supplies to storage during periods of lower demand. The Town also will be working with

PWSD to design an expansion of their RHWPF so that Castle Rock will eventually have 12 mgd of treatment capacity in this plant in order to treat and deliver our stored RHR water in the future.

In 2020, the Town entered into an Intergovernmental Agreement (IGA) with Denver Water, PWSD and ECCV for the Rueter-Hess Drought Water Supply Pilot Plan. This four-year pilot plan involves storage of water in RHR under the current terms of the RHR 404 permit. The way the pilot will operate is that Denver Water will transfer "Pilot Water" into the WISE System using the existing Conduit 111 / WISE Pipeline interconnection. Pilot Water will be pumped through WISE infrastructure to PWSD's Rueter-Hess Water Purification Facility (RHWPF) where it combines with other water and enters PWSD's potable water distribution system. When PWSD uses the Pilot Water in the manner described above, PWSD has a reduced need to withdraw water supplies stored in RHR. Therefore, PWSD will book over water stored in a PWSD RHR storage account into a new PWSD subaccount titled "Pilot Plan Storage Account." Denver Water will coordinate with Castle Rock to identify a mutually agreeable time for Castle Rock to transfer water in its Chatfield Reservoir storage account to a Denver Water Chatfield Reservoir storage account for water being transferred from the RHR Pilot Plan Storage Account to the Castle Rock Water RHR storage account.

The benefit of this agreement to Castle Rock is that it gives an opportunity to add additional supplies into RHR, where through other agreements with PWSD, we can treat and deliver additional potable water to our customers. PWSD will realize higher water levels in RHR and Denver Water will be able investigate potential future options for storing water in RHR. The pilot project will also use some of ECCV's pumping and piping infrastructure to move water to PWSD's system, and because the primary benefit is for Castle Rock, the Town will pay energy recovery costs and administrative fees to ECCV during the pilot project. The objective of the Pilot Plan is to test relatively small amounts of water transfers (i.e. 100 to 200 AF per transfer). Most likely, between 500 and 1,000 AF of water will be transferred into and out of RHR over the entire Pilot Plan duration.

### 4.4.2 Chatfield Reservoir

As of the end of 2021, the Town owns 590 AF of storage space in the Chatfield Reallocation Storage Project. This project is a partnership between CRW, Centennial Water and Sanitation District, the Colorado Water Conservation Board, Central Colorado Water Conservancy District, Denver Water, Castle Pines Metro District, Castle Pines North Metro District, Colorado Parks and Wildlife, Dominion Water and Sanitation District, and the Center of Colorado Water Conservancy District. The project is operated through the Chatfield Reservoir Management Company (CRMC), whose Board of Directors is made up from the member organizations. The Town has an option agreement with the State to purchase an additional 1,410 AF of space by 2034, to bring the total project participation level to

2,000 acre-feet. In May 2020, the Chatfield Reallocation Storage Project began storing water. The Town also benefits from an agreement with CWCB to be able to store water in the optioned space for $50/AF annually.

Based on historic call information on the South Platte River, the anticipated yield for our junior water storage right is approximately 200 AF per year; however, this can be variable and is highly unpredictable. On the other hand, the location of the Chatfield Reservoir gives the Town an alternate location to capture and store the Town's reuse rights and junior Plum Creek rights. In 2021, Castle Rock stored approximately 1,600 AF of water and was able to bring back some of this water by exchange to the Plum Creek Diversion and lease some water to other providers, bringing additional revenue to the Water Resources fund.

### 4.4.3 Aquifer Storage and Recovery

Over the last five years, the Town has worked diligently with the U. S. Environmental Protection Agency (EPA) to obtain approval for a Final Area Permit (CO52409-00000) for Class V ASR Wells. This permit will allow the Town to add wells and water sources as the ASR program expands.

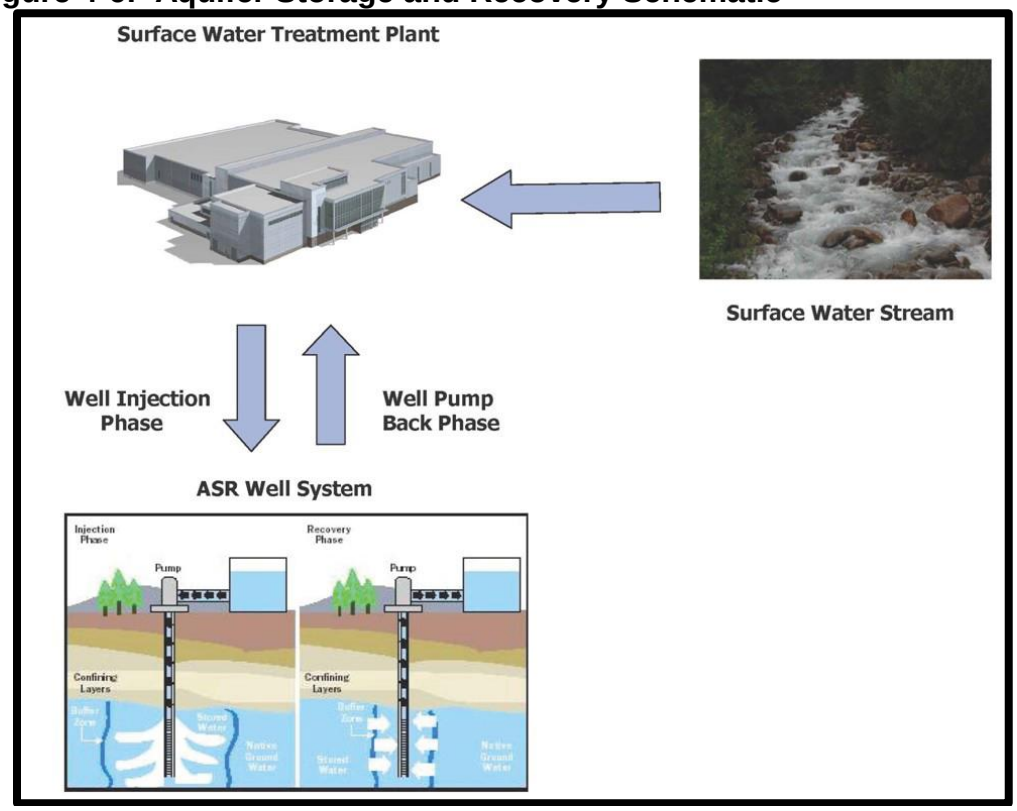
Currently, the Town has two wells that are included in the permit with two new wells under construction and two additional wells in the planning phase for ASR. The treated water from PCWPF is currently a permitted source. The finished water from the Ray Waterman Treatment Plant (RWTP) and WISE are expected to be approved as sources in 2022. Town staff will submit the application for the two new wells at RWTP to EPA in early 2022. Full ASR operations are expected to start at both facilities in 2022.

Ray Waterman Treatment Plant

The Town is collaborating with a well contractor on power generation through an ASR pilot project at our RWTP well facility. This collaborative project is pilot testing a new ASR valve developed by the contractor that will generate power as water is recharged from the distribution system downhole to the receiving aquifers. The well facility currently is under construction with expected completion in Spring 2022.

**Figure 4-6** shows a basic schematic of how ASR systems operate. Staff estimates that storage of renewable water in these wells will occur during the months of November through April. Typical ASR wells have a maximum injection rate of 80% of the average pumping rate. Based on the information available, staff believes that up to a total of 600 AF/yr of renewable water could be stored in the two existing and two new ASR wells. CRW is planning four additional ASR wells within the next five years.

**Figure 4-6: Aquifer Storage and Recovery Schematic**




### 4.4.4 Castle Rock Reservoir System

CRW currently operates Castle Rock Reservoir No. 1 (CRR1) which is a 240 AF capacity, off-channel reservoir located approximately one mile west of Sedalia, Colorado. Water is diverted off of the main stem of Plum Creek using the Town's Plum Creek Diversion and pumped using the Plum Creek Diversion Pump Station into CRR1. The diversion and CRR1 were both purchased from United Water and Sanitation District in 2017. CRW has retained an engineering consulting firm to design Castle Rock Reservoir No. 2 (CRR2), which will be adjacent to CRR1 and have a capacity of approximately 790 AF. CRR2 is expected to begin construction in mid-2022 with completion expected in 2024. Thereafter, CRR1 will be expanded to approximately 590 AF. This reservoir system is a critical part of CRW's municipal water infrastructure in that it provides a place of storage for reusable and native water rights, which can then be pumped back to the PCWPF for treatment and delivery to the Town's customers. In the future, CRW plans to pump water back from Chatfield Reservoir to the Castle Rock Reservoir system for further resource management.

### 4.4.5 Walker Reservoir

Walker Reservoir is a water storage facility located approximately ½-mile northwest of Franktown, Colorado and is currently being constructed by the CCPWA. When completed, Walker Reservoir will have a 650 AF capacity and CRW will own 150 AF, or approximately 23% of the capacity. Walker Reservoir will serve multiple functions by being able to store tributary and non-tributary water and to release water for direct use, augmentation and release and re-diversion downstream to RHR.

## 4.5 Planned Capital Projects

CRW has budgeted for the following water resources capital improvement projects over the next fifteen years. These projects further will increase our renewable water quantities and/or our ability to treat and deliver renewable water to our customers.

### 4.5.1 Plum Creek Water Purification Facility Expansion

CRW has retained an engineering consulting firm to evaluate the expansion capabilities of PCWPF from the current production capacity of 6 MGD. Their study will summarize the expansion components by treatment process within the existing facility, identify locations where modular expansion can be made, and provide an Engineer's Opinion of Probable Construction Cost and construction timelines for each expansion. Most of the unit processes will need to be expanded by an additional 6 MGD with the next plant expansion, however, the membranes and GAC units are good candidates for modular expansion (e.g. in 2 MGD increments). The Town intends to expand PCWPF to an ultimate production capacity of twelve MGD of finished water by 2031.

### 4.5.2 Direct Potable Reuse

CRW is working with a consultant to assist the Town with permitting for Direct Potable Reuse (DPR) at PCWPF. CRW currently practices indirect potable reuse (IPR) via the capture of water at the Plum Creek Diversion, which contains treated effluent from the PCWRA. CRW previously designed and constructed PCWPF with the intent of shifting from IPR to DPR at some point in the future. The Colorado Department of Public Health and Environment (CDPHE) is in the process of finalizing rules for DPR. The major components of our DPR program will include a Communication and Outreach Plan; Enhanced Source Control Program; Wastewater System Monitoring and Management; Advanced Drinking Water Treatment Assessment; Operations Plan; and Application and Reporting to CDPHE.

### 4.5.3 Box Elder Creek (BEC) Project

The BEC Project includes the BEC well field (and 850 acres of property in Weld and Adams County), and water rights to be used for augmentation and treatment and transmission infrastructure. The purpose of the BEC well field is to serve as a point of diversion of the physical water that will be treated and ultimately delivered to the Town. In late 2016, the Town closed on the purchase of the BEC property. In addition, the Town has acquired 2,261.5 AF of water rights that can be used for augmentation of pumping of the future BEC wells. This includes 770 acre-feet of retimed water from the purchase of the Rothe Recharge Project and 1,491.5 AF of renewable water rights in the Lost Creek Basin, located approximately six miles east of the BEC property. CRW continues to investigate opportunities for an additional 240 AF of water rights so that the nominal annual yield of BEC will be 2,500 AF. Acquiring this quantity of water will be a priority over the next five-year period.

The Town filed its water court application for the BEC project in December 2019 and as of the end of 2021 is continuing to negotiate with opposers to the project. The Town anticipates a final decree sometime in 2023.

Presently, the plan is to begin design on project infrastructure (e.g. wells, pipelines, pumping facilities) in 2025 with full project implementation by 2030.

### 4.5.4 Chatfield Reallocation Storage Project

As of the end of 2021, the Town owns 590 AF of storage space in the Chatfield Reservoir Reallocation Project with an option to purchase an additional 1,410 AF of storage shares from the CWCB over the next 10 to 12 years. Since May 2020, the Town has realized the benefit of being able to store water within its storage space and in the optioned space still held by CWCB. In 2021, Castle Rock stored in excess of 1,600 AF of reusable effluent in Chatfield and was able to bring some of this water back to the Plum Creek Diversion by exchange, and sell water to other providers helping to offset some of the costs of our various water resources capital projects.

Plum Creek to Chatfield Reservoir

## 4.6 Water Quality

Being a conjunctive use water system, CRW's water supplies naturally have variable raw water chemistries. It is important to evaluate the quality of each source, whether it is already treated (i.e. WISE water) or whether it is a raw water source that CRW will treat. It also is critical for CRW to review and understand the blended water quality and how each source interacts in our system. The following sections provide general information on water quality as well as a summary of expected water quality for each proposed source.

To supply drinking water to our customers, the Town is required by federal and state regulations to maintain a chlorine residual of 0.28 mg/L in our distribution system. CRW provides secondary disinfection with chloramines, which have proven to have a longer-lasting residual in the distribution system, and have less potential to develop disinfection by-products [Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5s)], as compared to free chlorine.

To maintain fresh water in the potable water distribution system, CRW staff completes the following:

- Cycles water storage tanks to keep fresh water flowing in and out of the tanks.

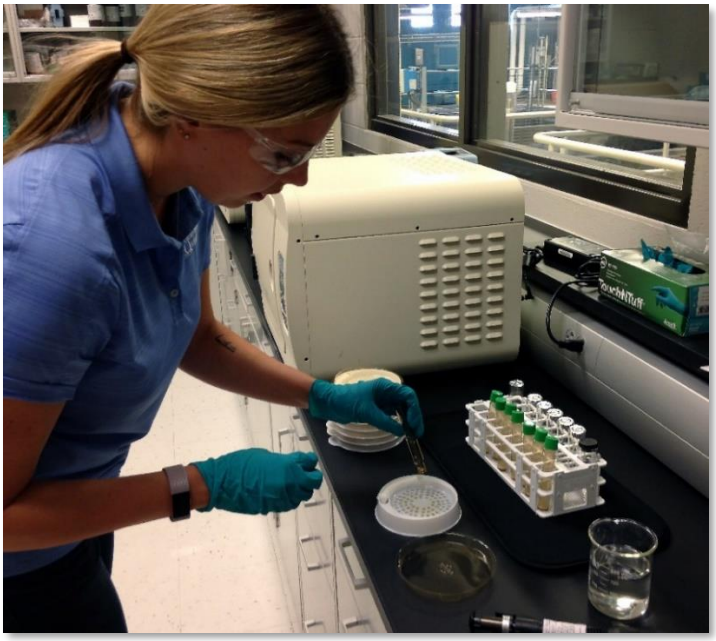
- Maintains a flushing program on dead-end lines throughout the distribution system.
- Identifies areas of limited water use and conduct routine checks on those areas. If necessary, crews flush these areas to provide fresh water for customers.

Total Organic Carbon and Disinfection By-Products

- Currently, the Town samples for dissolved organic carbons (DOC), total organic carbons (TOC), and light transmittance (at a wavelength of 254 nanometers) to determine if any disinfection by-product precursors exist in the water supply. These values likely will increase as the water sources transition to include more surface water supplies such as WISE and reusable water. The Town will need to monitor these values in the future to determine if additional treatment processes are necessary.

Total Dissolved Solids (TDS)

- CRW staff monitors the concentration of TDS in the various water sources that are blended at PCWPF with the goal of having a finished water quality that does not exceed 450 mg/L TDS. At times, raw water within East Plum Creek (at the CR-1 Diversion) and at the Plum Creek Diversion can far exceed 500 mg/L. At those times, CRW operations staff will cease diversions until TDS concentrations have decreased. Elevated TDS in East Plum Creek is attributed to the application of road salt within the watershed during the snow season. Efforts are being made to optimize the use of road salt to decrease the impact to water quality.



A CRW staff member performing water quality analysis

The Town continues to participate in upcoming rule makings and water quality regulatory discussions to stay informed. Certain federally-permitted activities and capital improvement projects require that Section 401 Water Quality Certification is required from the CDPHE, Water Quality Control Division (WQCD). The purpose of 401 Certification is for the State to ensure that federally-authorized projects are fully compliant with state water quality standards and regulations.

## 4.7 Environmental and Permitting Considerations

Each proposed capital improvement project will need permits of various types and also will need to be evaluated for compliance with various environmental regulations, including the National Environmental Policy Act (NEPA), Threatened and Endangered Species Act, Clean Water Act, Clean Air Act, and Floodplain Development. Some projects may require cultural assessments, investigation, inventorying, mapping, and reporting of cultural features as well as coordination with the US Army Corps of Engineers (Corps) regarding tribal coordination and communication. Federal coordination on any project requires additional time, effort and money. When possible, the Town will explore economically feasible alternatives that require fewer permitting complications, as this will reduce the time and cost for the project.

## 4.8 Legal Considerations

The State of Colorado follows the “Colorado Doctrine” for water rights which was started in the 1860s. The prior appropriation system is a legal procedure by which water users can obtain a court decree for their water right. The court decrees are assigned a priority date. The decree also includes conditions that prevent injury to other water users. When senior water users call for water in the South Platte Basin, for example, the Town must cease pumping all water that is junior in appropriation dates to the senior water user. For example, in dry times, the Town may not be able to pump any of the alluvial wells if a more senior water user is calling for the water downstream (Citizen’s Guide to Colorado Water Law, pg. 5-7).

The Town monitors potential future legislation for impacts to our water rights and supplies. For example, the Town has filed a motion against the State Engineer to argue against the volumetric limits they are attempting to impose on Denver Basin groundwater withdrawals. The Town also uses outside water counsel services to stay informed of new water rights cases that potentially could injure the Town’s water rights.

# Chapter 5 – Watershed Management and Groundwater Protection

## 5.1 Overview

Our various water resources come from several different watersheds. The water quality and the benefits of several different water resources being used and being considered has a strong dependency on how the watershed is being managed and by whom.

A watershed is a geographical area through which water flows across the land and drains into a common body of water, whether a stream, river, lake, or ocean. The watershed boundary generally follows the highest ridgeline around the stream channels and meets at the bottom or lowest elevation of the land where the water flows out of the watershed. For example, the confluence of Plum Creek and the South Platte River (at Chatfield Reservoir) is the lowest point of the Plum Creek Watershed. The Town is currently divided into two alluvial watersheds: the Plum Creek Basin and the Cherry Creek Basin. The dividing line generally follows Founders Parkway. The Town also owns assets in the BEC drainage basin and Lost Creek basin in Weld County, Colorado as well as water that flows into Chatfield as part of the Upper South Platte watershed.

CRW developed a Source Water Protection Plan (SWPP) in 2017 as a collaborative effort with multiple stakeholders including local citizens and landowners, private businesses, water operators, local and state governments, and agency representatives and with technical assistance from the Colorado Rural Water Association. In 2022, CRW is updating the SWPP to incorporate the portion of East Plum Creek from the Meadows Parkway Bridge downstream to the confluence with West Plum Creek, as well as West Plum Creek in its entirety.

Management of watersheds is important because the surface water features and stormwater runoff within a watershed may enter aquifers or other bodies of water and management can impact water quality. Currently, the Town operates fourteen wells that are located in the alluvium of East Plum Creek and two surface water diversions, one on East Plum Creek near the PCWPF (the CR-1 Diversion) and the Plum Creek Diversion located on the main stem on Plum Creek near Sedalia, Colorado. The Town also owns alluvial wells in the Cherry Creek basin (the Converse Wells and other alluvial wells as part of the CCPWA). Watershed management is important to protect water quality for all of these water sources. Further, watershed management and groundwater protection are closely related to measures that have been developed by CRW's Stormwater Division.

The following are general examples of goals for a watershed management and groundwater protection program:

1. Avoid erosion and sediment loss in susceptible areas to the extent practicable;

2. Preserve areas that provide important water quality benefits (e.g. wetlands) and/or are necessary to maintain riparian and aquatic biota;

3. Protect, to the extent practicable, the natural integrity of water bodies and natural drainage systems (e.g. seeps and springs) associated with site development; and

4. Identify the priority local watershed pollutant reduction opportunities (e.g. improve existing urban and runoff control structures).

Each of the above management measures is to encourage land use and development planning on a watershed scale that takes into consideration sensitive areas that, by being protected, will maintain and improve water quality.

Some practices include:

1. Protect areas that provide water quality benefits, including wetlands, riparian vegetation and wildlife. This can be accomplished through buffers, easements, deed restrictions and covenants. Developers can be encouraged to protect the water resources as a selling point (aesthetic and ecological amenity).

2. Protect the integrity of water resources from the effects of site development and infrastructure. This can be accomplished by establishing setbacks from natural drainage areas including seeps, springs, and groundwater recharge zones. Protecting or promoting vegetated buffers around natural drainage areas to provide additional protection[4].

As part of protecting the Town's groundwater, CRW identified eleven potential risks and the measures that are used for protection. The risks are identified as construction, development, landscaping, natural disasters, pet waste, roads / deicing practices, soil erosion, solid waste, storage tanks, stormwater runoff, and wastewater treatment plants. **Appendix C** identifies the risks and the measures that are in place to help protect the Town's local renewable source water. As CRW considers new renewable long-term water resources, the risks associated with these resources from a watershed standpoint are considered.

In addition to using the measures described in **Appendix C** to protect the watershed and the Town's source water, when constructing new wells, staff contracts with licensed well drillers and pump installers. In the contracting documents and permits, wells are required to follow the Colorado Water Well Construction Rules that are designed to "protect public health and preserve groundwater resources by ensuring proper construction and/or

[4](http://www.waterboards.ca.gov/water_issues/programs/nps/encyclopedia/3_1a_plandes_wtrsdgrdwtr_protect.shtml)

abandonment of wells and the proper installation of pumping equipment." The Colorado Water Well Construction Rules are located at the following website:

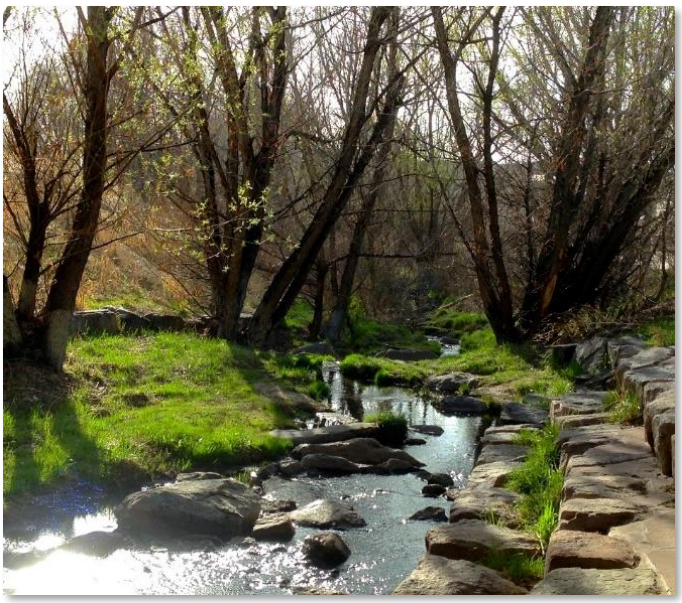
http://water.state.co.us/groundwater/BOE/Pages/BOERules.aspx.

## 5.2 Specific Watersheds and Our Water Resources

### Plum Creek Watershed

The Plum Creek Basin is managed by the Chatfield Watershed Authority (CWA). The Authority is charged with protecting beneficial uses through the control of phosphorus and chlorophyll-*a* in Chatfield Reservoir. Phosphorus is a nutrient found naturally in sediment and also in manmade products such as fertilizers and detergents, and has the potential to contribute to algae blooms in the reservoir. Chlorophyll-*a* is the measurable substance in algae and is an indicator of water quality in the reservoirs. CWA's regulatory authority is established through the Water Quality Control Regulation No. 73 through the State.

The CWA traditionally has been governed by a board made up of 22 paying membership entities, counties, municipalities, water and sanitation districts, and other public and private entities that have material impact on the watershed or a vested interest in the Authority. A governing agreement was adopted in 2016 that establishes a five-member board of local elected officials including Douglas County, Jefferson County, Castle Rock, and two at-large board seats for water and wastewater districts and other paying



Springtime along East Plum Creek

members. The CWA developed a Chatfield Watershed Plan in 2015 that is a living document to guide watershed efforts and decision-making to promote water quality protection in the Chatfield Watershed. This document will be revised from time-to-time as the watershed develops and new management techniques become necessary.

The mission of the CWA is to promote protection of water quality in the Chatfield Watershed for recreation, fisheries, drinking water supplies and other beneficial uses. To protect these beneficial uses, the CDPHE, Water Quality Control Commission, adopted Control Regulation No. 73 which includes water quality standards for phosphorus and chlorophyll-*a* (CWA Website). The Town has been involved with the Authority for over 25 years and plans to continue participation as a means to help protect the Town's drinking water supply.

## Cherry Creek Watershed

The Cherry Creek Basin is managed by the Cherry Creek Basin Water Quality Authority (CCBWQA). The Authority is charged with protecting beneficial uses through the control of phosphorus and chlorophyll-*a* in Cherry Creek Reservoir. Phosphorus is a nutrient found naturally in sediment and also in manmade products such as fertilizers and detergents, and has the potential to contribute to algae blooms in the reservoirs. Chlorophyll-*a* is the measurable substance in algae and is an indicator of water quality in the reservoir. Their regulatory authority is established through the Water Quality Control Regulation No. 72 through the State.

The CCBWQA's focus is protecting, preserving, and enhancing beneficial uses and water quality needed to support the beneficial uses in Cherry Creek Reservoir and Cherry Creek watershed (CCBWQA Annual Report, 2015, pg. ES-1). The CCBWQA was created in 1988. Currently there are fifteen members of the CCBWQA. Castle Rock is one of the members and is represented on the Board and Technical Advisory Committee. The CCBWQA "develops water quality strategies to (1) minimize point, nonpoint, and regulated stormwater pollutant source nutrient contributions; (2) implement pollutant reduction programs; and (3) monitor water quality to evaluate progress. Together, these strategies create an effective water quality management approach" (CCBWQA Annual Report, pg. 1-1).

## Box Elder Creek Watershed

The BEC well field project is located in the BEC drainage basin of Weld County, Colorado. The property may be in a future growth area of the revised Municipal Separate Storm Sewer System (MS4) permit, but the growth areas for the BEC drainage basin have not been created. The watershed is long (100 miles) and narrow (3-5 miles) and extends from El Paso County to the South Platte River in Weld County. The watershed is located in El Paso County, Adams County, City of Aurora, Arapahoe County, Elbert County, and very small portions of Douglas County. It passes through areas also controlled by the Mile High Flood District and the Southeast Metro Stormwater Authority.

The water quality in the BEC basin is consistent with water quality on the South Platte River with high TDS and high nitrate levels. Water supplies from the BEC watershed will require advanced water treatment to remove the high levels of TDS and nitrates.

Autumn along East Plum Creek

# Chapter 6 – Economic Analysis and Program Financing

CRW uses a cost-of-service (COS) model to determine rates and fees for water, wastewater, stormwater, and water resources. User charge revenue requirements are also calculated independently for all four enterprise funds. The basic philosophy behind a COS methodology is that utilities should be self-sustaining enterprises that are adequately financed with rates and fees that are based on sound engineering and economic principles. The guidelines of water ratemaking are established by the AWWA in the Manual M1 – *Principles of Water Rates, Fees and Charges*. As a result of the most recent COS study for the Town, our consultant developed projected revenue requirements from 2022-2026 that will recover the Town's revenue requirements for operating expenses and capital improvements associated with our plan for meeting renewable water requirements.

**Table 6-1** presents the water resources fund user charge revenue requirements for the period from 2022 through 2026, based on the 2021 Rates and Fees Study.

**Table 6-1: Water Resources Fund User Charge Revenue Requirements**

| Item | FY2022 | FY2023 | FY2024 | FY2025 | FY2026 |
|---|---|---|---|---|---|
| Operating and Maintenance | $11,692,577 | $12,815,762 | $13,741,875 | $14,016,050 | $14,214,919 |
| PCWPF Water Treatment Charge | $49,210 | $49,210 | $49,210 | $49,210 | $0 |
| Debt Service | $3,766,750 | $3,793,950 | $3,819,950 | $3,849,200 | $3,871,200 |
| Transfers Out | $596,657 | $386,443 | $145,083 | $129,217 | $369,359 |
| Cash Funded Capital | $0 | $0 | $0 | $0 | $0 |
| Minor Capital Outlay | $0 | $0 | $0 | $0 | $0 |
| Required Reserves/ (Use of Reserves) | ($2,133,236) | ($2,910,464) | ($2,558,044) | ($1,572,318) | ($740,431) |
| **Total Revenue Requirements** | **$13,971,958** | **$14,134,901** | **$15,198,074** | **$16,471,359** | **$17,715,047** |
| | | | | | |
| Non-Rate Revenues | ($1,653,158) | ($852,000) | ($924,785) | ($1,126,453) | ($1,422,843) |
| Capital Adjustment | ($1,687,348) | ($1,888,169) | ($2,075,495) | ($2,302,756) | ($2,374,405) |
| **Revenues Required from Rates** | **$10,631,452** | **$11,394,732** | **$12,197,794** | **$13,042,150** | **$13,917,799** |

In order to maintain system development fee (SDF) revenues to match increases in capital costs over time, the SDFs for water resources need to continue to be evaluated annually and escalated appropriately to cover the long-term capital needs of the enterprise. **Table 6-2** provides the proposed water resources SDF from 2022 to 2026.

The 2021 Rates & Fees Study indicated that large rate increases were needed in order to fund the updated long-term renewable water capital plan, beginning in 2029. In order to mitigate significant impact on the rate payers, CRW has created a model that solves for the large rate increases through both the issuance of debt in 2022 and marginal rate

increases through 2044. As a result, $30 million in water and sewer revenue bonds were issued in February 2022 with a 2.39% interest rate and a twenty-year term.

**Table 6-2: Proposed Water Resources SDF Implementation Schedule based on the 2021 Rates and Fees Study**

| Meter Size | SFE | Meter Capacity (GPM) | 2022 | 2023 | 2024 | 2025 | 2026 and thereafter |
|---|---|---|---|---|---|---|---|
| 5/8" x ¾" | 0.67 | 20 | $17,683 | $17,683 | $17,683 | $17,683 | $17,683 |
| ¾" x ¾" | 1 | 30 | $26,458 | $26,458 | $26,458 | $26,458 | $26,458 |
| 1" | 1.67 | 50 | $44,076 | $44,076 | $44,076 | $44,076 | $44,076 |
| 1.5" | 3.33 | 100 | $87,888 | $87,888 | $87,888 | $87,888 | $87,888 |
| 2" C2 | 6.67 | 200 | $176,042 | $176,042 | $176,042 | $176,042 | $176,042 |
| 2" T2 | 8.33 | 250 | $219,853 | $219,853 | $219,853 | $219,853 | $219,853 |
| 3" C2 | 16.67 | 500 | $439,972 | $439,972 | $439,972 | $439,972 | $439,972 |
| 3" T2 | 21.67 | 650 | $571,936 | $571,936 | $571,936 | $571,936 | $571,936 |
| 4" C2 | 33.33 | 1,000 | $879,679 | $879,679 | $879,679 | $879,679 | $879,679 |
| 4" T2 | 41.67 | 1,250 | $1,099,796 | $1,099,796 | $1,099,796 | $1,099,796 | $1,099,796 |
| 6" C2 | 66.67 | 2,000 | $1,759,621 | $1,759,621 | $1,759,621 | $1,759,621 | $1,759,621 |
| 6" T2 | 83.33 | 2,500 | $2,199,328 | $2,199,328 | $2,199,328 | $2,199,328 | $2,199,328 |

The Town currently assesses all water resources customers a monthly service charge per SFE. The water resources charge calculated per SFE for each of the meter sizes is presented below in **Table 6-3.**

**Table 6-3: Current Monthly Water Resources Charge based on the 2021 Rates and Fees Study**

| Meter Size | Monthly Charge |
|---|---|
| 5/8” x ¾” | $26.93 |
| 3/4” | $26.93 |
| 1” | $102.08 |
| 1.5” | $193.13 |
| 2” | $322.95 |
| 3” | $606.57 |
| 4” | $1,547.39 |
| 6” | $2,502.22 |

Our long-term water resources program predicts that the Town will spend $523 million (in 2021 dollars) through 2060 to meet our goals of a sustainable, renewable water supply. To achieve this, a rates and fees study is conducted annually to ensure that the rates and fees collected to cover these costs are adjusted accordingly to be the minimum required to meet the long-term renewable water needs of the community.

One of our key performance indicators for the WRSMP is how we are doing on minimizing the needed increases to rates and fees. **Figure 6-1** shows progress to-date relative to the financial analysis of the long-term renewable water plan done in 2013.

**Figure 6-1: Financial Analysis of Long-Term Renewable Water Plan as Compared to 2013 Projections of Plan**

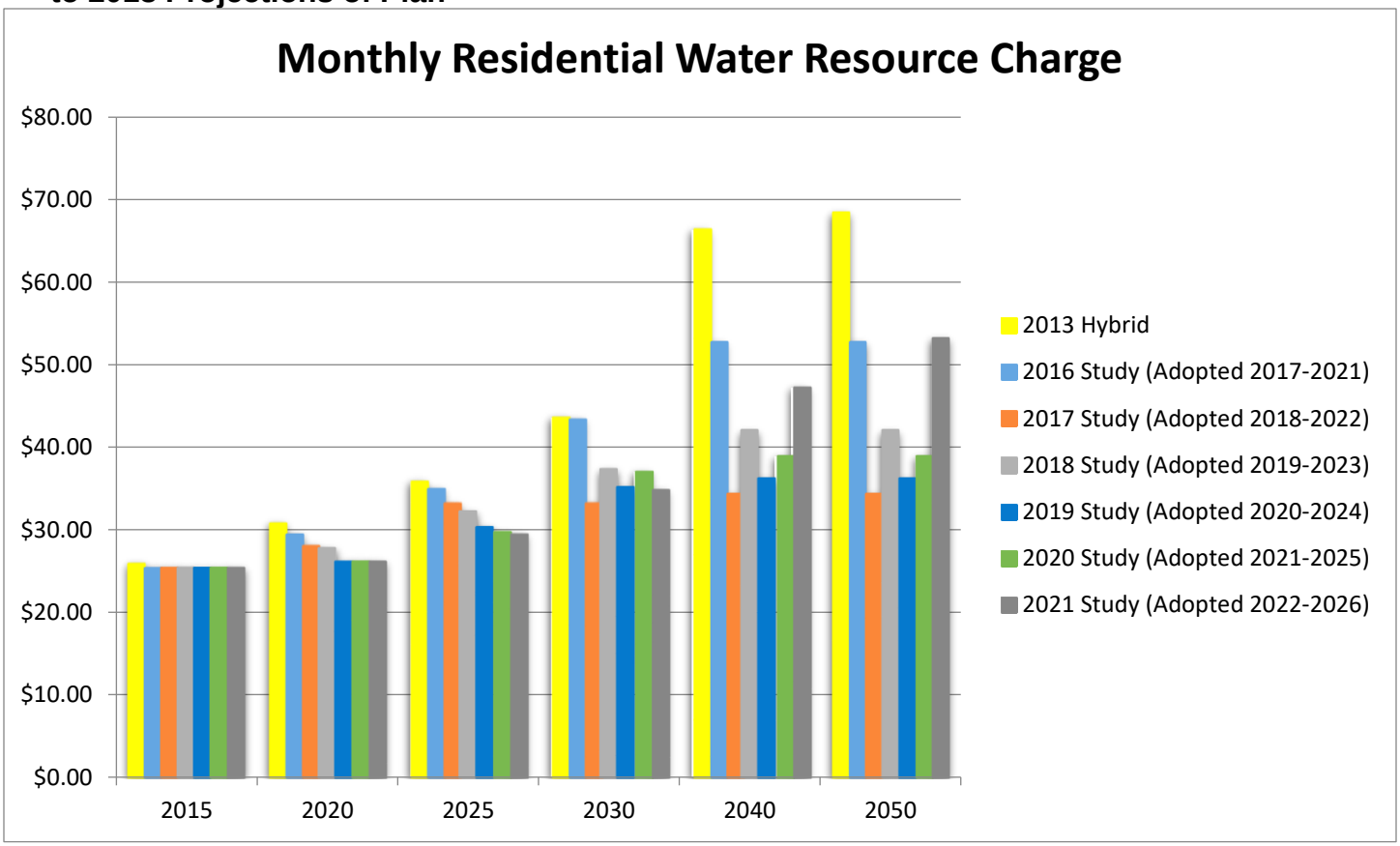



**Table 6-4** shows the investments to-date on the major water resource capital improvement projects (CIP) that CRW has completed or started since the inception of the long-term renewable water plan. **Table 6-5** shows the projected investments through 2065 by major capital project.

## Table 6-4: Investments of Major Water Resources Projects

| Project | Investments to Date[1] |
|---|---|
| WISE (including local infrastructure) | $52.60 million |
| Plum Creek Water Purification Facility (PCWPF) | $48.16 million |
| Rueter-Hess Reservoir | $44.60 million |
| Plum Creek Diversion Structure and Raw Water Pipeline | $35.87 million |
| Box Elder Project and Purchase of Water Rights | $29.82 million |
| Alluvial Wells and Raw Water Pipelines | $8.47 million |
| Cherry Creek Water Project Authority | $5.42 million |
| Chatfield Reallocation Storage Project | $4.90 million |
| East Cherry Creek Valley North-South Pipeline Capacity | $2.63 million |
| Aquifer Storage & Recovery | $1.83 million |
| Castle Rock Reservoir No. 2 | $0.56 million (design only) |
| Alluvial Well Field Rehabilitation | $0.47 million |
| Pipeline: Plum Creek to RHR | $0.26 million (design only) |
| **Total** | **$235.59 million** |

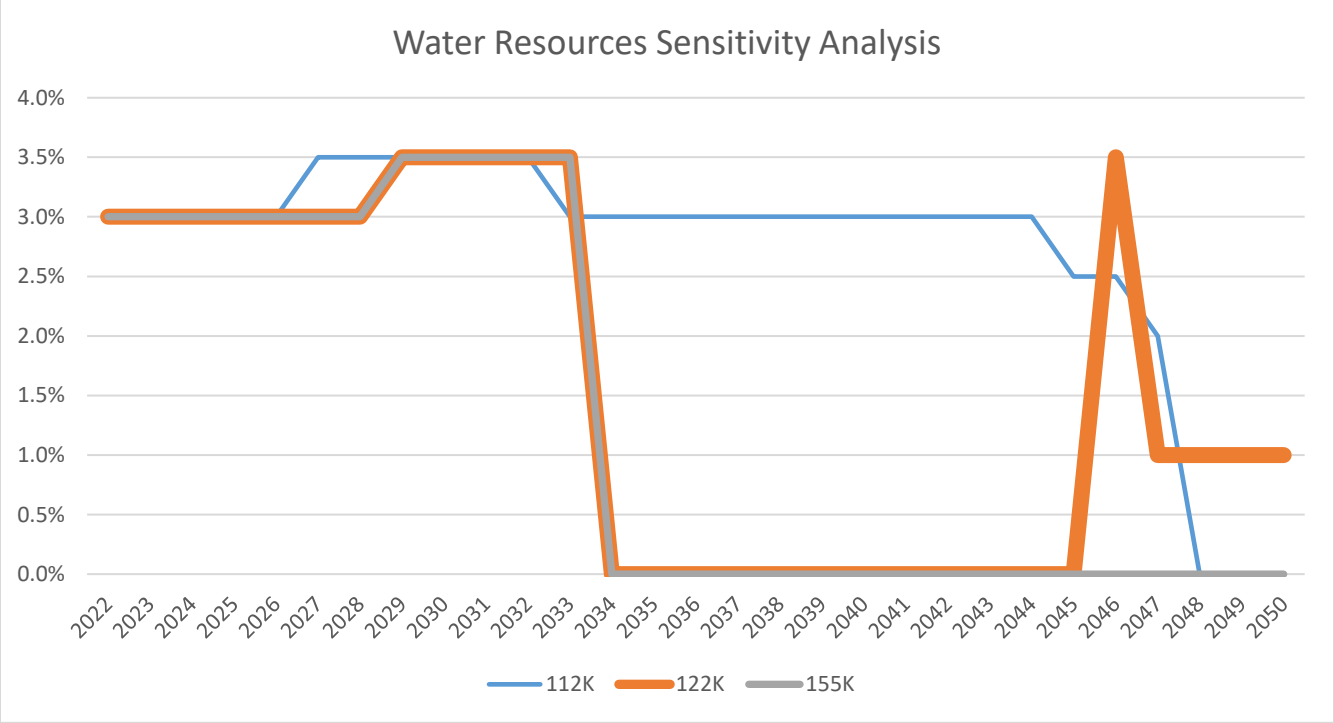
Notes:
1. Costs through November 2021

## Table 6-5: Projected Investments of Major Water Resources Projects through 2060

| Project | Projected Investments |
|---|---|
| WISE (including local infrastructure) | $144.01 million |
| South Platte Valley Water Partnership | $112.00 million |
| Box Elder Project | $83.34 million |
| Plum Creek Water Purification Facility (PCWPF) | $40.30 million |
| Purchase Capacity in RHWPF (with PWSD) | $32.40 million |
| Chatfield Pump Back System | $31.70 million |
| Water Rights Acquisition (not associated with Box Elder) | $14.38 million |
| Chatfield Reallocation Storage Project | $12.00 million |
| Castle Rock Reservoir System | $11.66 million |
| Pipeline: Plum Creek to RHR | $10.00 million |
| Alluvial Wells and Raw Water Pipelines | $8.47 million |
| Pipeline: Central Wellfield to PCWPF | $6.86 million |
| Cherry Creek Basin Infrastructure | $6.57 million |
| Aquifer Storage & Recovery | $5.18 million |
| Alluvial Well Field Rehabilitation | $3.90 million |
| **Total** | **$522.77 million** |

The Town conducted a water resources sensitivity analysis in 2022 to determine how the population growth could affect the water resources fees. **Figure 6-2** shows the fee increases at various populations: 112,000, 122,000, and 155,000 people. In the 122,000 population model, $33 million in debt is called for in 2045. In order to fund additional debt service payments, a rate increase in 2046 of 3.5% is required as well as 1% increases from 2047 through 2056.

**Figure 6-2: Water Resources Population vs. Rates and Fees Sensitivity Analysis**



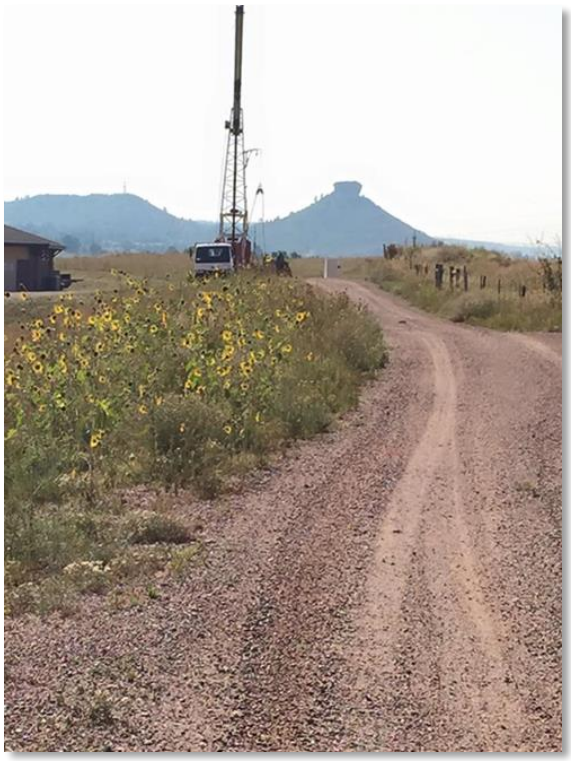

The Town has developed a Financial Management Plan (FMP) which outlines CRW's main financial policies, procedures and outlays for the future. The plan also establishes the goals and the principles to guide CRW staff, the Finance Department, Town Manager and Council members to make consistent and informed future financial decisions. Key performance indicators are used to help measure performance and develop conclusions and recommendations to drive continuous improvement.

The goals were derived based on CRW's main vision to become a national leader in the water industry, and our mission to provide our community exceptional service. Each of the goals has been set in place to help CRW achieve this. The FMP has been created to help guide CRW with making the best possible financial decisions to help achieve and maintain the goals. The FMP goals are:

- To minimize future rates at or below the 2013 Hybrid Model levels;
- To minimize debt carrying costs at or below industry standards;

- To minimize risk by balancing fixed versus variable revenues and expenses equal to or matching as appropriate;
- To keep costs at or under budget for capital and operational budgets each year by fund and to continuously strive towards more efficient operations;
- To keep our rates and fees competitive with surrounding communities;
- To keep adequate reserves and maintain fund balances between minimums and maximums;
- To keep rates and fees affordable within various national affordability indices
- To develop regional partnerships to provide economies of scale to reduce total costs of infrastructure to our customers; and
- To be an industry leader in the application of financial management benchmarking ourselves against others locally and nationally.

The goals are compared to key performance indicators to determine if CRW is meeting the goals of the FMP. Prior to the 3.0% rate increase in Water Resources in 2022, rates have not increased since a 3% increase in 2016. SDF's increased by 43% in 2022 in order to ensure that new development pays its fair share and no financial burden for growth is placed on existing customers. Each year, the Town does a Cost of Service model using updated CIP cost estimates and CIP schedules as previously mentioned to ensure that the rates and fees increases are smooth and affordable for the customers.



Well 223 undergoing maintenance activities

# Chapter 7 – Monitoring Risks Associated with Climate Change

Colorado has warmed 2 °F in the last thirty years and 2.5 °F in the last fifty years. This warming has resulted in an increasing trend in heat waves and, along with other factors, has led to a shift in the timing of peak runoff by one to four weeks, drier soils, and more frequent and severe wildfire events (for example, the Cameron Peak Fire in October 2020 and the Marshall Fire in December 2021). Future estimates project temperatures rising an additional 2.5 °F to 5 °F by 2050, meaning the warmest summers from our past may become the average summers in our future. With increasing temperatures come increasing water demands, timing shifts in snow pack runoff, water quality concerns, stressed ecosystems and transportation infrastructure, impacts to energy demand; and extreme weather events[5].

**Figure 7-1** represents the five-year (2016-2021) monthly average water consumption by customer category in relation to average monthly temperature during that same time period. As expected, cooler temperatures relate to reduced water consumption and warmer temperatures relate to increased water consumption. Our demands are calculated based on population estimates and per capita water usage estimates. During times of increased temperatures, the Town becomes more reliant on groundwater supplies, stored water supplies, and additional conservation efforts to meet the peak demands.

Man-made water feature at PS Miller Park

[5] *Colorado Climate Plan – State Level Policies and Strategies to Mitigate and Adapt.* Colorado Department of Natural Resources - Water Conservation Board. 2015, pg 3.

**Figure 7-1: 5-year Monthly Average Water Consumption by Category, 2016-2021**

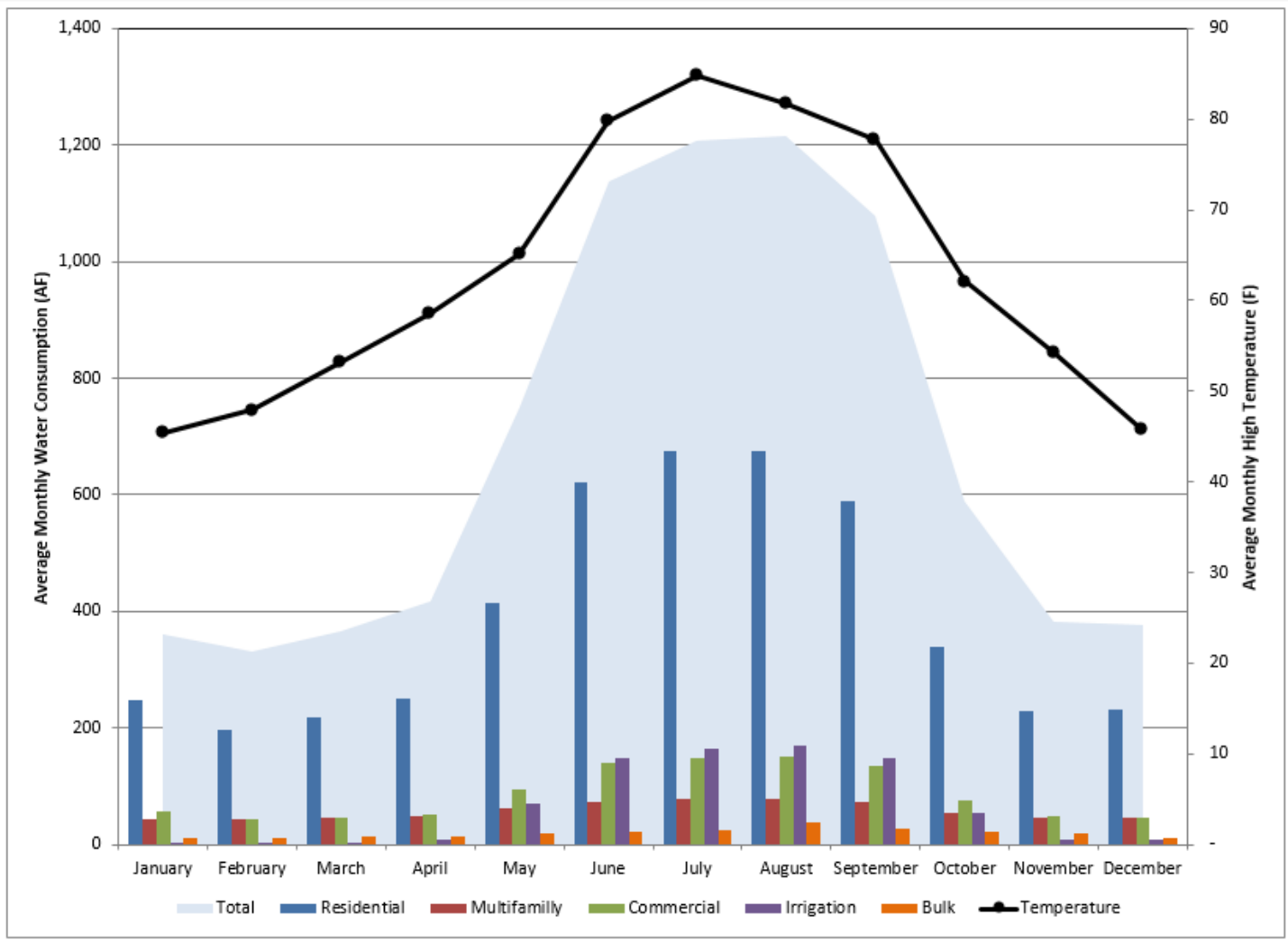
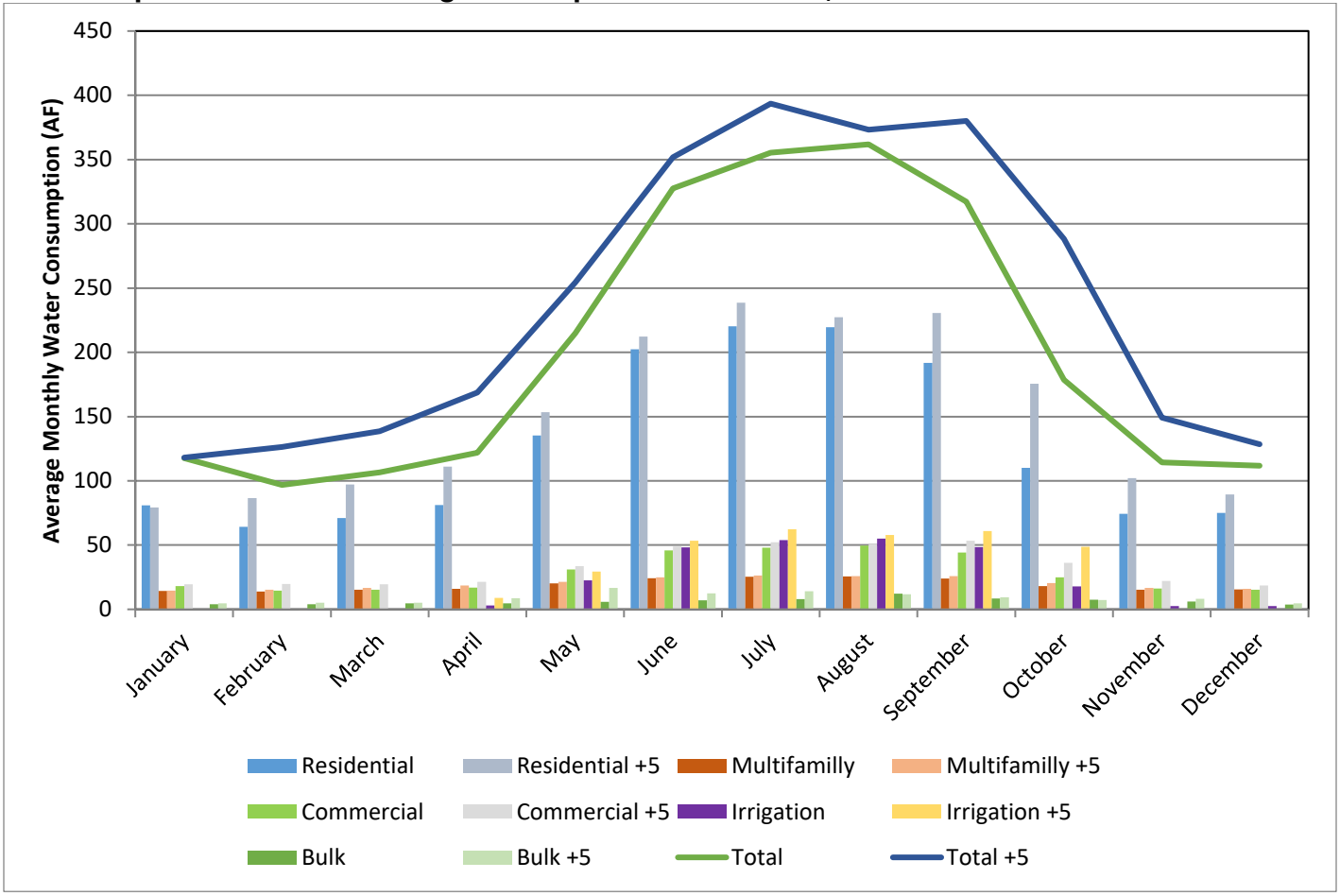


**Figure 7-2** represents the five-year (2016-2021) monthly average water consumption by customer category in relation to average monthly temperature versus a five-degree temperature increase. As expected, warmer temperatures increased water consumption.

**Figure 7-2: 5-year Monthly Average Water Consumption by Category at Average Temperature Versus 5-Degree Temperature Increase, 2016-2021**




Streams that flow from our mountains to our reservoirs will warm, allowing for higher nutrient and bacteria content in the water; and wildfire in watersheds may result in sediment loading from recent burns. With warmer temperatures overall runoff likely will decrease while crops (grass and landscaping) simultaneously will need more water to grow as evapotranspiration rates increase[6]. This may affect water-rights holders who traditionally divert surface water during the crop growing season or those with limited access and rights to water storage facilities. Increasing temperatures also likely will result in decreased late summer streamflow because of the earlier season snowmelt and the projection that precipitation is likely to increase in winter months, but decrease in summer months. Concurrently, increased population, higher irrigation requirements, and a longer growing season will put additional pressure on a limited water supply.

[6] Colorado Climate Plan – State Level Policies and Strategies to Mitigate and Adapt.

These additional climate pressures could also push Castle Rock into drought situations more often than in years past because supplies may not be able to satisfy customer water demands at all times. In these situations, the Town would rely on the Drought Management Plan (May 2018) for mitigation and response strategies, which could include mandatory curtailment of water usage for certain activities like outdoor watering for our customers. The Drought Management Plan will continue to be updated as we develop plans for dealing with climate related water impacts. The next update of the Drought Management Plan is currently planned for 2023.

The Colorado Climate Plan indicates that the effects of climate change on annual municipal water demands are projected to increase from 0-8 percent, with 4 percent being the median increase[7] (which equates to 764 acre-feet when the annual demand is 19,100 acre-feet). The Town plans to take this potential increase of demand into account with our future water supply modeling and conservation program activities.

A warming climate has the potential to impact the Town's water supplies in several ways, including the following:

- Increasing water demand for irrigation. This increases the importance of moving customers away from high water use plant material and towards more drought resistant plants.

- Additional evaporative losses from our supplies stored in surface reservoirs (Rueter-Hess, Chatfield, Walker, and Castle Rock Reservoirs No. 1 and No. 2). The Town can offset some of these evaporative losses with an expansion of our ASR program that experiences zero evaporation losses.

- Added demand on our deep aquifer, non-renewable supplies. While the deep groundwater does not diminish due to climate change, its use could increase with a warmer climate since renewable supplies can become scarcer during these times.

- Increased treatment costs for surface water supplies due to warmer source-water temperatures, increased organic loading and decreased water quality.

- Increased evapotranspiration (ET) will impact the water budget rate structure, as well as our stored water.

- Renewable supplies in East and West Plum Creek could be impacted with less water available during the late summer months. This may increase the Town's need to store more water and/or build or purchase more storage infrastructure.

- South Platte and WISE supplies could shift regular availability, which would require the Town to store supplies during times when supplies are available.

[7] Colorado Climate Plan – State Level Policies and Strategies to Mitigate and Adapt, pg. 10.

- Water rights could be impacted with increased calls on the rivers and creeks.

The Colorado Climate Plan lists a number of strategies and recommendations for water providers, which the Town has been embracing for several years.

- Promote water efficiency and conservation.
    - The Town's Water Efficiency Master Plan (WEMP) and various conservation programs will be used to prepare for impacts from climate change. The WEMP will be updated in 2022. Reducing outdoor irrigation for existing and future development in Castle Rock will be a priority.
- Conduct comprehensive integrated water resource planning.
    - CRW updates its Water Resources Strategic Master Plan, as well as its other water-related plans (water, wastewater, stormwater) every five years as part of an integrated water resource planning process.
- Examine water sharing agreements with other entities.
    - The Town has multiple IGAs with other providers including PWSD, the Pinery, DWSD and Castle Pines Metro District, to name a few.
- Prepare for water quality impacts.
    - Increased stream and reservoir temperatures and decreased streamflow may result in higher concentrations of pollutants such as sediment, nutrients and salinity and increased levels of organic matter. CRW recently has completed advanced treatment process upgrades at the PCWPF water treatment facility that can treat many of these water quality concerns. Increased TDS; however, will be dealt with water blending strategies in the near-term and projects such as the Chatfield Pump Back will help with this issue. Longer-term, additional treatment strategies such as side-stream reverse osmosis (RO) may be necessary to deal with degraded source water quality. However, RO creates another problem with disposal of a concentrated salt stream.
- Optimize the use of our fully consumable water.
    - CRW is using the Plum Creek Diversion to capture fully consumable return flows and transmit those supplies back to our PCWPF for retreatment and reuse. A pipeline also is currently under design that would be able to transfer some of this water to RHR for storage. Fully consumable water that

is not diverted continues to flow down Plum Creek to be stored in Chatfield. CRW has plans to be the first water provider in Colorado to utilize direct potable reuse to ensure we take full advantage of fully consumable water. Direct potable reuse ensures that there are no losses from evaporation, seepage into the sands of dry creeks, or use by competing water providers of our fully consumable water supplies. Direct potable reuse currently is planned for 2025, but the exact date that this comes online is dependent on the finalization of the regulatory framework by the CDPHE for this type of water use.

- Continue to expand and develop our non-renewable groundwater supplies.
    - CRW is planning to add new Denver Basin well facilities that also incorporate ASR to give us the ability to draw upon additional decreed water resources and store renewable water. These new well facilities provide additional protection from increasing average temperatures and resiliency during drought situations.
- Encourage and participate in reservoir enlargement projects that have multiple uses including municipal, agricultural, recreational, and environmental benefits.
    - The Town is a participant in the Chatfield Reallocation Storage Project, which benefits many types of users, and RHR for which recreational and environmental uses are currently being developed. Additionally, as a participant in the CCPWA, Castle Rock will have new storage space (150 AF) in Walker Reservoir upstream of RHR. Construction of Walker Reservoir began in late 2021 and is expected to be complete in early 2023. Castle Rock Reservoir No. 2 (~800 AF) is nearing design completion and is expected to be operational by 2024, and a junior water storage right was filed for Prewitt and Fremont Butte Reservoirs in northeast Colorado as much longer-term storage infrastructure.
- Focus on expansion of our ASR system to provide water storage resistance to evaporative losses.
- Incorporate climate variability and change into long-term water planning efforts.
    - Both our WEMP and our Water Resources Strategic Master Plan have recognized the fact that climate variability most likely will put additional pressures on our water supplies. Additionally, CRW is continuing to require new developers in the Town to include Town-approved Water Efficiency Plans as part of their development agreements. Another water saving initiative includes major limitations on turf grass for new developments.

- The Town will continue to monitor the long-range projections for climate variability and collaborate with other water utilities in the region to incorporate the best information available into our future water planning efforts. For example, CRW has been participating regularly with the Front Range Drought Coordination Group and the CWCB Water Availability Task Force.

Plum Creek flowing through Castle Rock

# Chapter 8 – Relationship to the State Water Plan

In May 2013, then Governor John Hickenlooper issued an Executive Order directing the CWCB to develop Colorado's Water Plan, and on November 19, 2015, this landmark $20 billion plan was adopted. Creation of this plan was a grassroots effort drawing upon eight years of work, dialogue and consensus building that water leaders from across the state engaged in through Interbasin Compact Committees and Basin Roundtables. The water plan aligns with the state's water values: vibrant and sustainable cities, visible and productive agriculture, a robust recreation industry, and a thriving environment that includes healthy watersheds, rivers and wildlife. The main purpose of the plan is to address an estimated water-supply gap of 560,000 acre-feet of water by 2050, due to a population expansion from the current 5.8 million to over 10 million. While Castle Rock is seeing population growth, this planned growth has been incorporated into our long-term plan and will provide economies of scale that will help spread the costs of our long-term plan amongst more customers and minimize rate impacts to existing customers. The Colorado Water Plan is slated for a comprehensive update in 2022, with a draft plan scheduled to be released for public comment in June 2022. CRW has been involved in the revision to the State Water Plan through the South Metro Water Supply Authority (SMWSA). The team will review and comment on the final draft plan once it is released in June 2022.

The main goals of the State Water Plan from the original plan are not expected to change significantly in the 2022 update and are as follows:

- Continue to apply and strengthen the doctrine of prior appropriation. Colorado's water law is respected because it works. First, it stipulates that water rights are property rights that can be bought and sold by willing parties and that can be transferred to new users. Second, it provides certainty among competing water uses by telling us which rights have priority. Third, it has accommodated Colorado values as they developed over time, from mining and agricultural to municipal and energy development. This is important for Castle Rock because it provides certainty on the yield of the water rights we own.

- Emphasize water conservation with a goal of increasing municipal and industrial conservation by 400,000 acre-feet per year. Every acre-foot of conserved water used to meet new demands is an acre-foot of water that does not need to come from other existing uses. At ten million people, this is a reduction of approximately 35 gpcd. As we have proven here in Castle Rock, conservation is achievable if it is made a priority and structured properly.

- Ensure that financing options are available for water projects. Since the plan was adopted, the CWCB has supported over 240 water projects throughout the State and has provided financial support of over $500 million in grants and loans to various water projects. Castle Rock has received approximately $475,000 of this

funding for several projects, including the addition of the advanced water treatment processes to PCWPF, design of Castle Rock Reservoir No. 2, a water storage study with Aurora Water in the Lost Creek Basin, and development of our Drought Management Plan in 2018.

- Encourage projects that enhance the environment, provide recreation, increase supplies and meet compact compliance. Two great examples of projects that CRW has participated in are the Chatfield Reservoir Reallocation Project and the proposed recreation enhancements at RHR.

- Increase efficiency and effectiveness in water project permitting while properly mitigating negative environmental impacts.

- Continue to strengthen water outreach, education, and public engagement to equip our residents with the necessary information to make informed water choices. In January 2022, the State and Water Education Colorado launched Water '22, a statewide, year-long initiative that implores Coloradans to take an active role in securing the state's water future. One of the key ways Water '22 asks Coloradans to engage is by taking a pledge to engage in "22 Ways to Care for Colorado Water in 2022," which includes simple actions that can save at least 22 gallons of water per day while keeping waterways clean. This amounts to 8,000 gallons a year for every Coloradan or 48 billion gallons a year across Colorado, which will help protect and preserve the state's rivers, watersheds and water supplies.

- Boost the amount of water involved in voluntary alternative transfer projects up to 50,000 acre-feet annually from 3,000 acre-feet annually now. This strategy aims to slow the loss of irrigated agricultural land. CRW is pursuing alternative transfer mechanisms to partner with agricultural entities in a number of our projects, including the BEC Project and the Platte Valley Water Partnership.

- Link county land use planning with water supply planning so that by 2025, 75 percent of residents live in communities where new development is tied to water availability. Land use planning in Castle Rock is already linked such that new development can only occur if water is available. Castle Rock is working to strengthen the relationship with Douglas County in this respect as well.

## 8.1 How Castle Rock Compares

The Town not only is well-aligned, but a leader in implementing the goals of the State Water Plan on many fronts:

- Water Conservation – Soon after adopting the 2006 WRSMP, our customers decreased their water consumption from 165 gpcd to 135 gpcd. In 2015, the WEMP was approved by Town Council and subsequently approved by the CWCB. A key point of this plan was to save an additional 18% in water

consumption by our customers by 2055 to achieve a consumption rate of 100 gpcd. The current five-year average consumption rate is 118 gpcd. In comparison, the State Water Plan had set a goal of 129 gpcd for our region by 2050. Conservation programs like major limitations on turf grass for new construction and water efficiency plans for new development will help the Town achieve this goal. The WEMP will be updated in 2022 and identify new areas of focus for the next five years to meet our overall goal. One key item that will be in the updated WEMP is our ColoradoScape initiative, including eliminating turf in the front yard for all future new houses.

- Financing – Every year, CRW conducts a rates and fees study that looks closely at the projects we must do to meet the demands of our existing and growing population to maintain a high level of customer service. With that, we adjust the amounts that our customers pay for water availability, water service, usage and tap fees. We also evaluate the need to issue debt to keep pace with our capital program. This system has allowed us to be self-sustaining and requires that new growth pays its share for water.

- Education and Outreach – CRW has been reaching out to its customers for over fifteen years with information that helps them make better decisions about water. Examples of this include historical consumption information on water bills, Water Wiser educational sessions, ColoradoScape design workshops, water treatment facility tours, and classroom visits. CRW plans to partner with the State on its Water '22 initiative.

- Water Storage – The Town is a key participant in two regional water storage projects, RHR and Chatfield Reservoir. The Town owns 8,000 AF of storage space in RHR and nearly 590 AF in Chatfield, with an option to purchase up to a total of 2,000 AF in the future. Both of these projects incorporate water storage, recreation and environmental enhancement and help the State meet the goal of developing an additional 400,000 acre-feet of water storage projects by 2050. Additional storage projects include participation in Walker Reservoir as part of the CCPWA, and Castle Rock Reservoir No. 2 located near Sedalia along Plum Creek, which together will add nearly 1,000 AF of additional storage space. After 2040, Castle Rock intends to partner with PWSD in the Prewitt and Fremont Butte Reservoirs in northeast Colorado to divert, store and pump back junior water rights off the lower South Platte River.

- Land Use/Water Supply Linkage – In 2015, Town Council adopted changes to the municipal code that allow new developments to submit voluntary water efficiency plans, to be approved by CRW, that provide more flexibility on density, reduced SDF's, and ensure that existing supplies will go further. Because land use and water both fall under the Town's jurisdiction, 100% of our residents live in a community where new development is tied to water availability.

CRW has proven to be a leading agency for implementation of the State Water Plan's goals and we will continue to develop and implement new programs that will continue to bolster the Town's water future.

# Chapter 9 – References

*2010 Water Resources Master Plan Update.* Prepared by Castle Rock Water Engineering, March 2011.

*2015 Annual Report on Activities Cherry Basin Water Quality Authority.* Prepared by Cherry Creek Basin Water Quality Authority, 2015.

*2015 Town of Castle Rock Water Efficiency Master Plan.* Prepared by Town of Castle Rock Water Resources Division – Water Conservation Group.

*American Water Works Association, Manual of Water Supply Practices M50: Water Resources Planning. Denver, CO: 2001, 1st ed.*

*Citizen's Guide to Colorado Water Law, 4th ed.* Prepared by Colorado Foundation for Water Education. 2015

*Colorado Climate Plan – State Level Policies and Strategies to Mitigate and Adapt.* Colorado Department of Natural Resources - Water Conservation Board. 2015.

*Colorado's Water Plan: Collaborating on Colorado's Water Future*. Colorado Department of Natural Resources - Water Conservation Board. November 2015.

*Hydrology Report for Lower Box Elder Creek Watershed Outfall Systems Planning and Flood Hazard Area Delineation*. Prepared by Wright Water Engineers, Inc. March 2000.

*Parker Water & Sanitation District 2015 Long-Term Water Supply Plan.* Providence Infrastructure Consultants. July 24, 2015.

*Town of Castle Rock Ordinance 2015-46: An Ordinance Amending Titles 3, 4 and 13 of the Castle Rock Municipal Code by Changing the Water, Wastewater and Storm Water Monthly Service Charges and Fees, the Renewable Water Resource Fee, the Water and Wastewater Development fees and the Storm Water Development Impact Fee, and Authorizing the Administrative Adoption of the Utility Administrative Fee Schedule.* Prepared by Town of Castle Rock. 2015.

*Town of Castle Rock Proposed Diversion to Rueter-Hess Reservoir - DRAFT.* W.W. Wheeler. January 2014.

*Water Quality in the South Platte River Basin Colorado, Nebraska, and Wyoming, 1992-95*, Circular 1167. U.S. Department of the Interior and U.S. Geological Survey. 1998.

# Appendix A

# Castle Rock's Surface and Storage Water Rights and Augmentation and Changes of Water Rights

# TOWN OF CASTLE ROCK

# WATER RIGHTS PORTFOLIO

# (Updated September 2020)

LYONS GADDIS

ATTORNEYS & COUNSELORS

| Tab | Item |
|---|---|
| 1 | Active Cases |
| 2 | Findings of Reasonable Diligence Deadlines |
| 3 | Plum Creek Surface and Storage Water Rights |
| 4 | Plum Creek Groundwater |
| 5 | Plum Creek Exchanges |
| 6 | Plum Creek Augmentation Plans and Changes of Water Rights |
| 7 | Denver Basin Groundwater |
| 8 | Box Elder Creek Application |
| 9 | Rothe-Sublette Recharge |
| 10 | Lost Creek Groundwater |
| 11 | Contract for Lost Creek Groundwater – pending<br>+ Contract Deadlines Table |
| 12 | Contract for Cherry Creek Project Water Authority – pending<br>+ Contract Deadlines Table |

**TOWN OF CASTLE ROCK WATER COURT CASES**
**(SEPTEMBER 2020)**

| Pending Cases as Applicant | | | |
|---|---|---|---|
| **Case No.** | **Applicant** | **Claims** | **Comments and Deadlines** |
| **19CW3039** | Castle Rock | Addition of Groundwater to Denver Basin Wellfields | Before the Water Referee<br>Multiple opposers<br>9/29/20 – Status conference |
| **19CW3229** | Castle Rock | Diligence exchange from PCWRA WWTP to TCR WWTP | Referee ruling entered 8/18/20<br>Protests due 9/8/20 |
| **19CW3231** | Castle Rock | Box Elder Project augmentation plan | Before the Water Referee<br>Multiple opposers<br>9/15/20 – Status conference to determine deadlines |
| **19CW3232** | Castle Rock | Plum Creek Reuse Exchanges | Before the Water Referee<br>10/31/20 –Applicant's response to opposers<br>1/15/21 – Opposer's additional comments<br>1/28/21 – Status conference |
| **Upcoming Case as Applicant** | | | |
| **20CW___(TBD)** | Castle Rock | Diligence for Plum Creek Diversion (aka Ravenna Diversion) and Castle Rock Reservoir Nos. 1 and 2 (aka Sedalia Reservoirs) | 11/30/2020 Deadline<br>Ref: 05CW270 |
| **Pending Cases as Opposer** | | | |
| **Case No.** | **Applicant** | **Claims** | **Comments and Deadlines** |
| **17CW3122** | Perry Park Water and Sanitation District | Change of Gove Ditch water right and amended plan for augmentation on West Plum Creek | Before the Water Judge<br>Very close to settling with all opposers<br>9/10/20 – Status conference<br>10/12/20 – Trial briefs and witness lists and exhibits due<br>10/26/20 - 10/28/20 – Trial |
| **18CW3038** | Castle Pines North Metropolitan District | Changes of Lupton Bottom and Meadow Island #1 Ditches water rights, with reuse on Plum Creek | Before the Water Judge<br>In negotiations<br>9/26/20 – Status conference<br>10/19/20 – Trial briefs and witness lists and exhibits due<br>11/02/20 – 11/12/20 – Trial |
| **18CW3039** | Dominion Water & Sanitation District | Conditional surface, storage and exchanges, including at Castle Rock's structures, on Plum Creek | Before the Water Judge<br>Negotiating an excess capacity agreement<br>11/2/20 – Status conference<br>7/26/21 – 7/30/21 Trial |

**TOWN OF CASTLE ROCK WATER COURT CASES**
**(SEPTEMBER 2020)**

| | | | |
|---|---|---|---|
| **18CW3232** | Castle Pines Metropolitan District | Change of water rights and for conditional appropriative rights of exchange, at Castle Rock's structures on Plum Creek | Will be re-referred<br>Awaiting CPN's decision of how to proceed<br>Currently no other upcoming court dates or deadlines |
| **19CW3211** | Parker Water & Sanitation District | Expansion of nontributary well fields | Before the Water Referee<br>10/16/20 – Applicant's comments and revised proposed ruling<br>12/18/20 – Opposers' comments due<br>1/7/21 – Status conference |
| **19CW3253** | Parker Water & Sanitation District and Lower South Platte Water Conservancy District | Storage rights, appropriative rights of exchange and change of water rights on South Platte near Box Elder Creek | Before the Water Referee<br>Competing appropriation dates<br>10/30/20 – Opposers' comments due<br>12/30/20 – Applicant's response due<br>1/19/21 – Status conference |
| **20CW3005** | Denver JetCenter | Make absolute on West Plum Creek | Before Water Referee<br>Ensure diverted in priority<br>10/12/20 – Opposers' comments due<br>10/15/20 – Status conference |
| **20CW3031** | Spruce Mountain Properties, Inc. | Make absolute on West Plum Creek | Before Water Referee<br>Ensure diverted in priority<br>9/8/20 – Status conference |
| **20030071** | Colorado Oil & Gas Commission | Oil and gas rulemaking | Before the Oil & Gas Commission<br>Protect Castle Rock's structures from contamination<br>8/24/20 – 9/10/20 – Oil & Gas Commission hearing |
| **Upcoming Case as Opposer** | | | |
| **21CW___(TBD)** | State of Colorado | Protest to abandonment list | 7/1/2021 Deadline |

# Castle Rock's Due Diligence Deadlines

## (Revised September 2020)

| Water Right | Original Case | Last Diligence Case | Deadline |
|---|---|---|---|
| • Sedalia Reservoir<br>• Plum Creek Diversion | 05CW270 | NA | 11/30/2020 |
| • Castle Rock Surface Diversion No. 1<br>• Castle Rock Surface Diversion No. 2<br>• Chatfield Reservoir to Castle Rock Surface Diversion No. 1 Exchanges<br>• Confluence of East and West Plum Creeks to Castle Pines Diversion Point S-1 Exchanges<br>• PCWRA Wastewater Treatment Outfall to Castle Pines Diversion Point S-1 Exchange<br>• Plum Creek Reservoir Outlet to Castle Pines Diversion Point S-1 Exchanges<br>• Confluence of East and West Plum Creeks to Castle Rock Surface Diversion No. 1 Exchanges<br>• PCWRA Wastewater Treatment Outfall to Castle Rock Surface Diversion No. 1 Exchange<br>• Plum Creek Reservoir Outlet to Castle Rock Surface Diversion No. 1 Exchanges. Chatfield Reservoir to Castle Rock Surface Diversion No. 1 Exchanges | 12CW296 | NA | 4/30/2022 |
| • Chatfield Reservoir | 89CW169 | 16CW3102 | 1/31/2023 |
| • Heckendorf Well Nos. 1 to 3<br>• Exchange from TCR WWTP to Douglas Lane | 84CW656 | 09CW167 | 4/30/2024 |
| • Chatfield Reservoir-Castle Rock Pump Station<br>• Chatfield Reservoir- Castle Rock Refill | 16CW3178 | NA | 10/31/2024 |
| • Well Nos. AL-1 to AL-20<br>• Exchange from S11, T8S, R67W to AL-4<br>• Exchange from PCWRA WWTP to AL-20<br>• Exchange on West Plum Creek from S1, T8S, R68W to Alluvial Well Field | 85CW480 | 19CW3078 | 9/30/2025 |
| • Plum Creek Diversion<br>• Castle Rock Reservoir Nos. 1 and 2<br>• Exchange from Castle Rock Reservoir Nos. 1 and 2 to Castle Rock Surface Diversion No. 1<br>• Exchange from PCWRA to Castle Rock Surface Diversion No. 1 | 17CW3211 | NA | 10/31/2025 |
| • Exchange from Confluence East and West Plum Creek to Douglas Lane<br>• Exchange from Confluence East and West Plum Creek to Wells in Meadows and East Plum Creek Well Field | 87CW309 | 19CW3042 | 2/28/2026 |
| • Exchange from PCWRA WWTP to Douglas Lane | 87CW240 | 19CW3043 | 2/28/2026 |
| • Well Nos. 176 to 186<br>• Exchange from Chatfield Reservoir to CR Well 181 | 86CW378/379 | 19CW3030 | 6/30/2026 |

| | | | |
|---|---|---|---|
| • Exchange from Confluence of East and West Plum Creeks to CR Well 181 | | | |
| • Exchange from PCWRA WWTP to TCR WWTP | 89CW212 | 19CW3229 | Pending |

# CASTLE ROCK'S SURFACE AND STORAGE WATER RIGHTS
# (Revised September 2020)

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs) | Amount Owned (cfs) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|
| **OLD TOWN WATER RIGHTS** | | | | | | | | | |
| Castle Rock Ditch and Reservoir | Decree dated 12/10/1883; 79CW281; 90CW143 | East Plum Creek | 4/1/1880 | 2.0 absolute | 2.0 | 380 | Municipal | Wells CR 2, CR 8, CR 3, CR 4, CR 9, CR 11, CR 12, CR 13, CR 81 | **79CW281**<br>• Authorized alternate points of diversion at the following wells CR 2, CR 8, CR 3, CR 4, CR 9, CR 11, CR 12, CR 13<br>• Limited consumption to 50% of diversions<br>• Limited diversions at alternate points to ≤ 267 af from 10/1 to 4/1<br>• Created cumulative volumetric limit of 700 af for Castle Rock Ditch and Reservoir, Eureka Ditch and Water Works System<br><br>**90CW143**<br>• Authorized alternate point of diversion at CR 81 |
| Eureka Ditch | Decree dated 03/03/1890; 79CW281; 90CW143 | East Plum Creek | 3/31/1883 | 7.0 absolute | 2.0 | 280 | Municipal | Wells CR 2, CR 8, CR 3, CR 4, CR 9, CR 11, CR 12, CR 13, CR 81 | SAME AS ABOVE – OLD TOWN WATER RIGHTS |
| Water Works System | Decree dated 11/28/1908; 79CW281; 90CW143 | East Plum Creek | 9/20/1891 | 1.0 absolute | 1.0 | 40 | Municipal | Wells CR 2, CR 8, CR 3, CR 4, CR 9, CR 11, CR 12, CR 13, CR 81 | SAME AS ABOVE– OLD TOWN WATER RIGHTS |
| **NOE RANCH WATER RIGHTS** | | | | | | | | | |
| Cook Creek Ditch | Decree dated 12/10/1883; 87CW240; 90CW143; 09CW166; 12CW296 (pending) | East Plum Creek | 6/30/1870 | 3.8 absolute | 3.8 | 77 | Irrigation, municipal, industrial, storage, augmentation, exchange | CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | **87CW240**<br>• Authorized alternate points of diversion at the following wells CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87<br>• Changed water rights from irrigation to irrigation, municipal, industrial, storage, augmentation and exchange<br>• Established a cumulative volumetric limitation of 249 af for Cook Creek and Hillside Ditches<br>• Designated as augmentation source for certain wells in the East Plum Creek Well Field<br><br>**90CW143**<br>• Authorized alternate point of diversion at CR 81<br>• Designated as augmentation source for CR 81<br><br>**09CW166**<br>• Authorized storage of consumptive use credits associated with water right in Chatfield Reservoir<br><br>**12CW296**<br>• Authorized use of consumptive use credits in various exchanges |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs) | Amount Owned (cfs) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|
| Hillside Ditch | Decree dated 12/10/1883; 87CW240; 90CW143; 09CW166; 12CW296 (pending) | East Plum Creek | 7/1/1881 | 3.65 absolute | 3.65 | 172 | Irrigation, municipal, industrial, storage, augmentation, exchange | CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | SAME AS ABOVE – NOE RANCH WATER RIGHTS |
| **DOUGLAS PARK WATER RIGHTS** | | | | | | | | | |
| Benjamin Quick Ditch | Decree dated 12/10/1883; 87CW309; 09CW166; 12CW296 (pending) | West Plum Creek | 6/15/1866 | 3.8 absolute | 3.8 | 103 | Irrigation, municipal, industrial, storage, augmentation, exchange | None | **87CW309**<br>• Changed water rights from irrigation to irrigation, municipal, industrial, storage, augmentation and exchange<br>• Established cumulative volumetric limitation of 2,900 in any consecutive 10 year period for Benjamin Quick Ditch, John Kinner No. 1 Ditch, John Kinner No. 2 Ditch, Huntsville Ditch<br>• Designated as augmentation source for wells in the East Plum Creek, West Plum Creek and Meadows Well Fields<br><br>**09CW166**<br>• Authorized storage of consumptive use credits associated with water right in Chatfield Reservoir<br><br>**12CW296**<br>• Authorized use of consumptive use credits in various exchanges |
| John Kinner Ditch | Decree dated 12/10/1883; 87CW309; 09CW166; 12CW296 (pending) | West Plum Creek | 3/1/1868 | 3.52 absolute | 3.52 | 21 | Irrigation, municipal, industrial, storage, augmentation, exchange | None | SAME AS ABOVE – DOUGLAS PARK WATER RIGHTS |
| Huntsville Ditch | Decree dated 12/10/1883; 87CW309; 09CW166; 12CW296 (pending) | West Plum Creek | 3/1/1880 | 9.12 absolute | 4.0 | 208 | Irrigation, municipal, industrial, storage, augmentation, exchange | None | SAME AS ABOVE – DOUGLAS PARK WATER RIGHTS |
| John Kinner Ditch No. 2 | Decree dated 12/10/1883; 87CW309; 09CW166; 12CW296 (pending) | West Plum Creek | 4/1/1885 | 3.52 absolute | 3.52 | 120 | Irrigation, municipal, industrial, storage, augmentation, exchange | None | SAME AS ABOVE – DOUGLAS PARK WATER RIGHTS |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs) | Amount Owned (cfs) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|
| **HIGH LINE WATER RIGHTS** | | | | | | | | | |
| High Line Ditch, Priority No. 57 | Decree dated 12/10/1883; 81CW049; 00CW78; 09CW166 | East Plum Creek | 9/1/1871 | 3.52 absolute | 0.585 | 40 with other priorities | Irrigation, municipal, industrial, storage, augmentation, exchange | None | **81CW049**<br>• Limited diversions to 60 af for High Line Ditch priorities from 4/1 to 7/31<br>• Limited depletions to 40 af for High Line Ditch priorities from 4/1 to 7/31<br>• Limited cumulative maximum diversions for High Line Ditch priorities to 1.665 cfs<br>• Castle Rock owns 29 AF of 40 AF<br><br>**95CW240**<br>• Changed water rights from irrigation to irrigation, storage and augmentation<br>• Designated as augmentation source for Well Nos. CR 15, CR 17 and EDI Well Den-1 (5.0 cfs of priorities not owned by Castle Rock)<br><br>**00CW78**<br>• Designated as augmentation source for Well No. 205 (NNT)<br><br>**09CW166**<br>• Changed water rights to add municipal, industrial and exchange uses<br>• Authorized storage of consumptive use credits associated with Ball Ditch water rights in Chatfield Reservoir<br><br>**12CW296**<br>• Authorized use of consumptive use credits in various exchanges |
| High Line Ditch, Priority No. 73 | Decree dated 12/10/1883; 81CW049; 00CW78; 09CW166 | East Plum Creek | 6/30/1873 | 1.4 absolute | 0.233 | 40 with other priorities | Irrigation, municipal, industrial, storage, augmentation, exchange | None | SAME AS ABOVE – HIGH LINE WATER RIGHTS |
| High Line Ditch, Priority No. 102 | Decree dated 12/10/1883; 81CW049; 00CW78; 09CW166 | East Plum Creek | 6/30/1878 | 15.08 absolute | 0.848 | 40 with other priorities | Irrigation, municipal, industrial, storage, augmentation, exchange | None | SAME AS ABOVE – HIGH LINE WATER RIGHTS |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs) | Amount Owned (cfs) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|
| **BALL DITCH WATER RIGHTS** | | | | | | | | | |
| Ball Ditch | Decree dated 12/10/1883; W-7604-74; 09CW166; 12CW296 (pending) | West Plum Creek | 4/19/1872 | 3.0 absolute | 0.1429 | 49 | Irrigation, municipal, storage, augmentation, exchange | NA | **W-7604-74**<br>• Established a volumetric limit of 182 af over 10 years<br><br>**09CW166**<br>• Changed water rights from irrigation to irrigation, municipal, storage, augmentation and exchange uses<br>• Authorized storage of consumptive use credits associated with Ball Ditch water rights in Chatfield Reservoir<br><br>**12CW296**<br>• Authorized use of consumptive use credits in various exchanges |
| **CASTLE ROCK SURFACE DIVERSION WATER RIGHTS** | | | | | | | | | |
| Castle Rock Surface Diversion No. 1 | 12CW296 | East Plum Creek | 8/31/2015 | 30.0 conditional | 30.0 | NA | Irrigation, municipal, storage, augmentation, exchange | NA | **12CW296** Approved conditional water right<br>• Authorized use as upstream terminus of various exchanges<br><br>**DUE DILIGENCE DEADLINE: 4/30/2022** |
| Castle Rock Surface Diversion No. 2 | 12CW296 | East Plum Creek | 8/31/2015 | 30.0 conditional | 30.0 | NA | Irrigation, municipal, storage, augmentation, exchange | NA | **12CW296**<br>• Authorized conditional water right<br>• Authorized alternate points of diversion at Castle Rock Surface Diversion No. 3, Castle Pines Diversion Point S-1 and Castle Pines Diversion Point S-2<br>• Authorized use as upstream terminus of various exchanges<br><br>**DUE DILIGENCE DEADLINE: 4/30/2022** |
| Chatfield Reservoir-Castle Rock Pump Station | 16CW3178 | Plum Creek and South Platte River | 4/27/2016 | 30.0 conditional | 30.0 | | All municipal uses, industrial, augmentation, replacement and exchange, | NA | **DUE DILIGENCE DEADLINE: 10/31/2024** |
| Plum Creek Diversion | 05CW270 | Plum Creek | 10/13/2011 | 3.0 conditional | 3.0 | 332.3 | All municipal | NA | **DUE DILIGENCE DEADLINE 11/30/2020** |
| Plum Creek Diversion | 17CW3211 | Plum Creek | 12/28/2017 | 40.0 conditional | 40.0 | NA | All municipal uses, including industrial, augmentation, replacement and exchange | NA | **DUE DILIGENCE DEADLINE 10/31/2025** |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs) | Amount Owned (cfs) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|
| **STORAGE WATER RIGHTS** | | | | | | | | | |
| Chatfield Reservoir | 89CW169; 09CW166; 12CW296 16CW3178 | Plum Creek and South Platte River | 4/6/1989 | - | - | 2000 conditional | Municipal | NA | **09CW166**<br>• Authorized storage of consumptive use credits associated with Noe Ranch, Douglas Park, High Line and Ball Ditch water rights in storage |
| Chatfield Reservoir-Castle Rock Refill | | | 4/27/2016 | | | 2000 conditional | All municipal uses, including industrial, augmentation, replacement and exchange | NA | DUE DILIGENCE DEADLINE: 10/31/2024 |
| Sedalia Reservoir (aka Castle Rock Reservoir Nos. 1 and 2 | 05CW270 | Plum Creek | 10/13/2011 | 2.0 absolute 1,0 conditional | 3.0 | 215 absolute<br><br>34 conditional<br><br>174 conditional refill | All municipal | NA | DUE DILIGENCE DEADLINE: 11/30/2020 |
| Castle Rock Reservoir No. 1 | 17CW3211 | Plum Creek | 12/28/2017 | 40.0 conditional | 40.0 | 610 conditional | Municipal uses, including industrial, augmentation, replacement, exchange, in-reservoir fish and wildlife, and in-reservoir recreation | NA | DUE DILIGENCE DEADLINE: 10/31/2025 |
| Castle Rock Reservoir No. 2 | 17CW3211 | Plum Creek | 12/28/2017 | 40.0 conditional | 40.0 | 1,130 conditional | Municipal uses, including industrial, augmentation, replacement, exchange, in-reservoir fish and wildlife, and in-reservoir recreation | NA | DUE DILIGENCE DEADLINE: 10/31/2025 |

# CASTLE ROCK'S TRIBUTARY GROUNDWATER RIGHTS AND STRUCTURES
# (Revised September 2020)

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs, gpm) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Drilled | Producing | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| **EAST PLUM CREEK WELL FIELD** | **(AKA SOUTH WELL FIELD)** | | | | | | | | | |
| Second Fairgrounds Well (CR 2) | 79CW280 ; 79CW281; Cons. 86CW378/379; 87CW240; 87CW309; 90CW143 | East Plum Creek | 9/30/1950 | 0.44 cfs, absolute (198 gpm) | NA | Municipal | Cook Creek Ditch, Hillside Ditch, Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System<br><br>CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | Yes | No | **79CW280** - Limited cumulative annual diversions under junior priorities equal 800 af with CR 2, CR 3, CR 4 and CR 8<br><br>**79CW281**<br>• Made an alternate point of diversion for Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System<br>• Limited diversions at alternate points from 10/1 to 4/1 to ≤ 267af<br><br>**84CW656**<br>• Designated as an augmented structure<br>• Made an alternate point for CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81, CR 82 thru CR 87)<br><br>**Cons. 86CW378/379 -** Designated as an augmented structure<br><br>**87CW240**<br>• Designated as an augmented structure<br>• Made an alternate point of diversion for Cook Creek Ditch and Hillside Ditch, CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81, CR 82 thru CR 87<br><br>**87CW309 -** Designated as an augmented structure<br><br>**90CW143 -** Made an alternate point of diversion for CR 81 |
| Extra Well (CR 3) | 79CW280 ; 79CW281; Cons. 86CW378/379; 87CW240; 87CW309; 90CW143 | East Plum Creek | 12/31/1954 | 0.27 cfs, absolute (121 gpm) | 200 af | Municipal | Cook Creek Ditch, Hillside Ditch, Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System<br><br>CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | Yes | No | SAME AS ABOVE – CR 2 |
| Anderson Well (CR 4) | 79CW280 ; 79CW281; Cons. 86CW378/379; 87CW240; 87CW309; 90CW143 | East Plum Creek | 12/31/1954 | 0.27 cfs, absolute (121 gpm) | 200 af | Municipal | Cook Creek Ditch, Hillside Ditch, Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System<br><br>CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, | Yes | No | SAME AS ABOVE – CR 2 |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs, gpm) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Drilled | Producing | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CR 81 thru CR 87 | | | |
| First Park Well (CR 8) | 79CW280 ; 79CW281; Cons. 86CW378/379; 87CW240; 87CW309; 90CW143 | East Plum Creek | 6/30/1951 | 0.27 cfs, absolute (121 gpm) | 200 af | Municipal | Cook Creek Ditch, Hillside Ditch, Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System<br><br>CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | Yes | No | SAME AS ABOVE – CR 2 |
| Rock Street Well (CR 9) | 79CW281; 84CW656; Cons. 86CW378/379; 87CW240; 87CW309; 90CW143 | East Plum Creek | NA | NA | NA | NA | Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System, Cook Creek Ditch and Hillside Ditch<br><br>CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | Yes | No | **79CW281** – Made an alternate point of diversion for Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System<br><br>**84CW656**<br>• Designated as an augmented structure<br>• Made an alternate point for CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81, CR 82 thru CR 87)<br><br>**Cons. 86CW378/379** - Designated as an augmented structure<br><br>**87CW240**<br>• Designated as an augmented structure<br>• Made an alternate point of diversion for Cook Creek Ditch and Hillside Ditch, CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81, CR 82 thru CR 87<br><br>**87CW309** - Designated as an augmented structure<br><br>**90CW143** – Made an alternate point of diversion for CR 81 |
| First Miller Well (CR 11) | 79CW281; 84CW656; Cons. 86CW378/379; 87CW240; 87CW309; 90CW143 | East Plum Creek | NA | NA | NA | NA | Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System, Cook Creek Ditch and Hillside Ditch<br><br>CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | Yes | Yes | SAME AS ABOVE – CR 9 |
| Second Miller Well (CR 12) | 79CW281; 84CW656; Cons. 86CW378/379; 87CW240; 87CW309; 90CW143 | East Plum Creek | NA | NA | NA | NA | Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System, Cook Creek Ditch and Hillside Ditch<br><br>CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | Yes | Yes | SAME AS ABOVE – CR 9 |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs, gpm) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Drilled | Producing | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| Third Miller Well (CR 13) | 79CW281; 84CW656; Cons. 86CW378/379; 87CW240; 87CW309; 90CW143 | East Plum Creek | NA | NA | NA | NA | Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System, Cook Creek Ditch and Hillside Ditch<br><br>CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | Yes | Yes | SAME AS ABOVE – CR 9 |
| Heckendorf Well No. 1 (CR 78)<br><br>(formerly CR14) | 84CW656;Cons. 86CW378/379; 87CW309; 90CW143 09CW137<br><br>Last diligence: 17CW3161 | East Plum Creek | 4/12/1984 | 120 gpm absolute<br><br>130 gpm conditional | NA | All municipal, augmentation | Cook Creek Ditch and Hillside Ditch<br><br>CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | Yes | No | **84CW656**<br>• Designated as an augmented structure<br>• Made an alternate point for CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81, CR 82 thru CR 87<br><br>**Cons. 86CW378/379** - Designated as an augmented structure<br><br>**87CW309** - Designated as an augmented structure<br><br>**90CW143** – Made an alternate point of diversion for CR 81<br><br>Due diligence deadline: 4/30/2024 |
| Heckendorf Well No. 2 (CR 79)<br><br>(formerly CR15) | 84CW656;Cons. 86CW378/379; 87CW309; 90CW143 09CW137<br><br>Last diligence: 17CW3161 | East Plum Creek | 4/12/1984 | 56 gpm absolute<br><br>194 gpm conditional | NA | All municipal, augmentation | Cook Creek Ditch and Hillside Ditch<br><br>CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | Yes | Yes | SAME AS ABOVE – CR 78 |
| Heckendorf Well No. 3 (CR 80)<br><br>(formerly CR16) | 84CW656;Cons. 86CW378/379; 87CW309; 90CW143 09CW137<br><br>Last diligence: 17CW3161 | East Plum Creek | 4/12/1984 | 186 gpm absolute<br><br>64 gpm conditional | NA | All municipal, augmentation | Cook Creek Ditch and Hillside Ditch<br><br>CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | Yes | Yes | SAME AS ABOVE – CR 78 |
| CR Well 2-8-67-T1 (aka Cemetery Well) (CR 81) | Cons. 86CW378/379; 87CW309; 90CW143 | East Plum Creek | NA | 100 gpm | 121 | NA | Cook Creek Ditch, Hillside Ditch, Castle Rock Ditch, Eureka Ditch, Water Works System, Heckendorf Well Nos. 1 thru 3, CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 13 | No | No | **Cons. 86CW378/379** - Designated as an augmented structure<br><br>**90CW143**<br>• Changed point of diversion and name of well<br>• Designated as an augmented structure<br>• Made an alternate point of diversion for Cook Creek Ditch, Hillside Ditch, Castle Rock Ditch, Eureka Ditch, Water Works System, Douglas Lane Pipeline, Sellers Gulch Reservoir No. 1<br>• Made an alternate point of diversion to CR 2, CR 3, CR 4, CR 8, CR 9, |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs, gpm) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Drilled | Producing | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | CR 11 thru CR 13, CR 78-80<br>• Limited diversions to ≤ 100 gpm and ≤ 161 af annually<br><br>**87CW309** - Designated as an augmented structure |
| CR Well 11-8-67-T1 (CR 82) | Cons. 86CW378/379; 87CW309; 90CW143 | East Plum Creek | NA | 100 gpm | NA | NA | Cook Creek Ditch and Hillside Ditch, CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | No | No | **Cons. 86CW378/379** - Designated as an augmented structure<br><br>**87CW240**<br>• Designated as an augmented structure<br>• Made an alternate point of diversion for Cook Creek Ditch and Hillside Ditch, CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81, CR 82 thru CR 87, Douglas Lane Pipeline<br><br>**87CW309** - Designated as an augmented structure |
| CR Well 11-8-67-T2 (CR 83) | 87CW240; Cons. 86CW378/379; 87CW309; 90CW143 | East Plum Creek | NA | 100 gpm | NA | NA | Cook Creek Ditch and Hillside Ditch, CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | No | No | SAME AS ABOVE – CR 82 |
| CR Well 11-8-67-T3 (CR 84) | 87CW240; Cons. 86CW378/379; 87CW309; 90CW143 | East Plum Creek | NA | 100 gpm | NA | NA | Cook Creek Ditch and Hillside Ditch, CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | No | No | SAME AS ABOVE – CR 82 |
| CR Well 11-8-67-T4 (CR 85) | 87CW240; Cons. 86CW378/379; 87CW309; 90CW143 | East Plum Creek | NA | 100 gpm | NA | NA | Cook Creek Ditch and Hillside Ditch, CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | No | No | SAME AS ABOVE – CR 82 |
| CR Well 11-8-67-T5 (CR 86) | 87CW240; Cons. 86CW378/379; 87CW309; 90CW143 | East Plum Creek | NA | 100 gpm | NA | NA | Cook Creek Ditch and Hillside Ditch, CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81, CR 82 thru CR 87, Douglas Lane Pipeline Cook Creek Ditch and Hillside Ditch, CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | No | No | SAME AS ABOVE – CR 82 |
| CR Well 14-8-67-T1 (CR 87) | 87CW240; Cons. 86CW378/379; 87CW309; 90CW143 | East Plum Creek | NA | 100 gpm | NA | NA | Cook Creek Ditch and Hillside Ditch, CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 81 thru CR 87 | No | No | SAME AS ABOVE – CR 82 |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs, gpm) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Drilled | Producing | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| **WEST PLUM CREEK WELL FIELD** | | | | | | | | | | |
| CR 176 | Cons. 86CW378/379; 87CW309; 10CW245<br><br>Last diligence: 19CW3030 | West Plum Creek | 3/3/1992 | 350 gpm conditional | NA | NA | NA | No | No | **Cons. 86CW378/379** - Designated as an augmented structure<br><br>**87CW309** - Designated as an augmented structure<br><br>Due diligence deadline: 6/30/2026 |
| CR 177 | Cons. 86CW378/379; 87CW309; 10CW245<br><br>Last diligence: 19CW3030 | West Plum Creek | 3/3/1992 | 350 gpm conditional | NA | NA | NA | No | No | SAME AS ABOVE – WEST PLUM CREEK WELL FIELD |
| CR 178 | Cons. 86CW378/379; 87CW309; 10CW245<br><br>Last diligence: 19CW3030 | West Plum Creek | 3/3/1992 | 350 gpm conditional | NA | NA | NA | No | No | SAME AS ABOVE – WEST PLUM CREEK WELL FIELD |
| CR 179 | Cons. 86CW378/379; 87CW309; 10CW245<br><br>Last diligence: 19CW3030 | West Plum Creek | 3/3/1992 | 350 gpm conditional | NA | NA | NA | No | No | SAME AS ABOVE – WEST PLUM CREEK WELL FIELD |
| CR 180 | Cons. 86CW378/379; 87CW309; 10CW245<br><br>Last diligence: 19CW3030 | West Plum Creek | 3/3/1992 | 350 gpm conditional | NA | NA | NA | No | No | SAME AS ABOVE – WEST PLUM CREEK WELL FIELD |
| CR 181 | Cons. 86CW378/379; 87CW309; 10CW245<br><br>Last diligence: | West Plum Creek | 3/3/1992 | 350 gpm conditional | NA | NA | NA | No | No | SAME AS ABOVE – WEST PLUM CREEK WELL FIELD |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs, gpm) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Drilled | Producing | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | 19CW3030 | | | | | | | | | |
| **MEADOWS WELL FIELD** | **(AKA CENTRAL WELL FIELD)** | | | | | | | | | |
| AL-1 (CR 184) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | Yes | Yes | **85CW480**<br>• Designated as an augmented structure<br>• Constrained use of water to 4140 acres (Meadows Development)<br>• Established maximum cumulative diversion AL-1 to AL-20 of 5000 gpm<br><br>**Cons. 86CW378/379 -** Designated as an augmented structure<br><br>**87CW309 -** Designated as an augmented structure<br><br>Due diligence deadline: 9/30/2025 |
| AL-2 (CR 185) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | Yes | Yes | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-3 (CR 186) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-4 (CR 187) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-5 (CR 188) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-6 (CR 189) | 85CW480; Cons. 86CW378/379; 87CW309; | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs, gpm) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Drilled | Producing | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | 12CW232<br><br>Last diligence: 19CW3078 | | | | | | | | | |
| AL-7 (CR 190) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-8 (CR 191) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | Yes | Yes | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-9 (CR 192) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | Yes | Yes | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-10 (CR 193) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-11 (CR 194) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-12 (CR 195) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs, gpm) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Drilled | Producing | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | Last diligence: 19CW3078 | | | | | | | | | |
| AL-13 (CR 196) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-14 (CR 197) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-15 (CR 198) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-16 (CR 199) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-17 (CR 200) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-18 (CR 201) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |

| Water Rights | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs, gpm) | Max Annual Yield (af) | Decreed Uses | Decreed Alternate Points Relevant to Castle Rock | Drilled | Producing | Terms and Conditions of Decrees and Other Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| AL-19 (CR 202) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |
| AL-20 (CR 203) | 85CW480; Cons. 86CW378/379; 87CW309; 12CW232<br><br>Last diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 250 gpm | NA | NA | NA | No | No | SAME AS ABOVE – MEADOWS WELL FIELD |

# CASTLE ROCK'S EXCHANGES
# (Revised September 2020)

| Exchange From Point (Downstream Terminus) | Exchange to Point (Upstream Terminus) | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs) | Substitute Supplies | Terms and Conditions and Comments |
|---|---|---|---|---|---|---|---|
| **AUGMENTATION PLAN 84CW656** | | | | | | | |
| Castle Rock Wastewater Treatment Plant Discharge | Douglas Lane Pipeline | 84CW656; 09CW167<br><br>Last Diligence: 17CW3161 | East Plum Creek | 4/12/1984 | 5.7 conditional | 573 af NT Dawson<br>310 af NT Denver<br>657 af Arapahoe<br>(Wells CR 1, CR 5, CR 6, CR 7, CR 10) | Due diligence deadline: 4/30/2024 |
| **AUGMENTATION PLAN 86CW378/379** | | | | | | | |
| Chatfield Reservoir | CR 181 | Cons. 86CW378/379; 10CW245<br><br>Last Diligence: 19CW3030 | Plum Creek, West Plum Creek | 3/3/1992 | 4.7 conditional | 1936 af Dawson NNT<br>3548 af Dawson<br>4522 af Denver NNT<br>5117 af Denver<br>9183 af Arapahoe<br>4252 af Laramie-Fox Hills | Due diligence deadline: 6/30/2026 |
| Confluence East and West Plum Creek | CR 181 | Cons. 86CW378/379; 10CW245<br><br>Last Diligence: 19CW3030 | West Plum Creek | 3/3/1992 | 4.7 conditional | SAME AS ABOVE | SAME AS ABOVE FOR 86CW378/279<br><br>Exchanges on Plum Creek and East Plum Creek to East Plum Creek Wells and Douglas Lane Pipeline abandoned in 10CW245 and 19CW3030 |
| **AUGMENTATION PLAN 87CW240** | | | | | | | |
| Castle Rock Wastewater Treatment Plant Discharge | CR 81 | 87CW240; 10CW244<br><br>Last Diligence: 19CW3043 | East Plum Creek | 11/27/1987 | 0.8 conditional<br><br>0.8 absolute | Cook Creek Ditch<br>Hillside Ditch<br>(Noe Ranch) | Due diligence deadline: 2/28/2026<br><br>Established a continuous call for 0.8 cfs on East Plum Creek, which will be increased to 1.6 cfs if becomes absolute<br><br>A portion of exchange to Douglas Lane Pipeline was abandoned in 10CW244. |

| Exchange From Point (Downstream Terminus) | Exchange to Point (Upstream Terminus) | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs) | Substitute Supplies | Terms and Conditions and Comments |
|---|---|---|---|---|---|---|---|
| **AUGMENTATION PLAN 87CW309** | | | | | | | |
| Confluence East and West Plum Creek | East Plum Creek Well Field and Meadows Well Field | 87CW309; 10CW243<br><br>Last Diligence: 19CW3042 | East Plum Creek | 3/25/1992 | 2.0 conditional | Benjamin Quick Ditch, John Kinner No. 1 Ditch, John Kinner No. 2 Ditch, Huntsville Ditch | Due diligence deadline: 2/28/2026 |
| **AUGMENTATION PLAN 89CW212** | | | | | | | |
| Plum Creek Wastewater Authority Treatment Plant Discharge | Castle Rock Wastewater Treatment Plant | 89CW212 13CW3028<br><br>Last Diligence: 19CW3228 | East Plum Creek | 12/23/1989 | 5.7 conditional<br>0.5 absolute | 573 af NT Dawson<br>310 af NT Denver<br>657 af Arapahoe<br>(Wells CR 1, CR 5, CR 6, CR 7, CR 10) | Due diligence deadline: 9/30/26 (based on expected decree to be entered 9/2020) |
| **AUGMENTATION PLAN 85CW480** | | | | | | | |
| AL-4 (CR187) | NW ¼ § 11, T8S, R67W | 85CW480; 03CW349; 12CW232<br><br>Last Diligence: 19CW3078 | East Plum Creek | 11/14/1985 | 11.14 conditional | 1966 af NT Arapahoe<br>946 af NT LFH<br>93 af NT Dawson<br>2990 af NNT Denver<br>1477 af NNT Lower Dawson<br>80 af NT Lower Dawson<br>96 af NT LFH<br>51 af NT Arapahoe<br>48 af NT Arapahoe | Due diligence deadline: 9/30/2025<br><br>Exchanges only to wells within 100 feet of alluvium |
| AL-20 (CR203) | Plum Creek Wastewater Authority Treatment Plant Discharge | 85CW480<br><br>Last Diligence: 12CW232 | East Plum Creek | 11/14/1985 | 11.14 conditional | SAME AS ABOVE | SAME AS ABOVE FOR 85CW480 |
| NW ¼ § 1, T8S, R68W | Confluence of East and West Plum Creek<br><br>Up East Plum Creek to Meadows Well Field | 85CW480<br><br>Last Diligence: 12CW232 | East and West Plum Creeks | 11/14/1985 | 11.14 conditional | SAME AS ABOVE | SAME AS ABOVE FOR 85CW480 |

| Exchange From Point (Downstream Terminus) | Exchange to Point (Upstream Terminus) | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs) | Substitute Supplies | Terms and Conditions and Comments |
|---|---|---|---|---|---|---|---|
| 12CW296 | | | | | | | |
| Chatfield Reservoir | Castle Rock Surface Diversion No. 1 | 12CW296<br><br>Last Diligence: NA<br><br>17CW3044 – Simple change for Castle Rock Diversion Point No. 1 | Plum Creek and East Plum Creek | 12/18/2012 | 15.0 conditional | Effluent from all sources<br>Chatfield Reservoir storage right<br>Consumptive use credits from<br>- High Line Ditch,<br>- Cook Creek Ditch, Hillside Ditch (Noe Ranch)<br>- Benjamin Quick Ditch, John Kinner No. 1 Ditch, John Kinner No. 2 Ditch, Huntsville Ditch (Douglas Park)<br>- Ball Ditch water rights | Due diligence deadline: 4/30/2022 |
| Confluence East and West Plum Creek | Castle Pines Diversion Point S-1 | 12CW296<br><br>Last Diligence: NA | East Plum Creek | 12/18/2012 | 2.09 conditional | Consumptive use credits from<br>- Benjamin Quick Ditch, John Kinner No. 1 Ditch, John Kinner No. 2 Ditch, Huntsville Ditch (Douglas Park)<br>- Ball Ditch water rights | SAME AS ABOVE FOR 12CW296 |
| Plum Creek Water Reclamation Authority Treatment Plant Discharge | Castle Pines Diversion Point S-1 | 12CW296<br><br>Last Diligence: NA | East Plum Creek | 12/18/2012 | 10.8 conditional | Effluent from all sources | SAME AS ABOVE FOR 12CW296 |
| Plum Creek Reservoir Outlet | Castle Pines Diversion Point S-1 | 12CW296<br><br>Last Diligence: NA | East Plum Creek | 12/18/2012 | 15.0 conditional | Effluent from all sources<br>Consumptive use credits from<br>- High Line Ditch,<br>- Cook Creek Ditch, Hillside Ditch (Noe Ranch)<br>- Benjamin Quick Ditch, John Kinner No. 1 Ditch, John Kinner No. 2 Ditch, Huntsville Ditch (Douglas Park)<br>- Ball Ditch water rights | SAME AS ABOVE FOR 12CW296 |
| Confluence East and West Plum Creek | Castle Rock Diversion Point No. 1 | 12CW296<br><br>Last Diligence: NA<br><br>17CW3044 – Simple change for Castle Rock Diversion Point No. 1 | East Plum Creek | 8/20/2013 | 2.09 conditional | Consumptive use credits from<br>- Benjamin Quick Ditch, John Kinner No. 1 Ditch, John Kinner No. 2 Ditch, Huntsville Ditch (Douglas Park)<br>- Ball Ditch water rights | SAME AS ABOVE FOR 12CW296 |

| Exchange From Point (Downstream Terminus) | Exchange to Point (Upstream Terminus) | Case Nos. | Source | Appropriation Date | Decreed Amount (cfs) | Substitute Supplies | Terms and Conditions and Comments |
|---|---|---|---|---|---|---|---|
| Plum Creek Water Reclamation Authority Treatment Plant Discharge | Castle Rock Diversion Point No. 1 | 12CW296<br><br>Last Diligence: NA<br><br>17CW3044 – Simple change for Castle Rock Diversion Point No. 1 | East Plum Creek | 8/20/2013 | 10.8 conditional | Effluent from all sources | SAME AS ABOVE FOR 12CW296 |
| Plum Creek Reservoir Outlet | Castle Rock Diversion Point No. 1 | 12CW296<br><br>Last Diligence: NA<br><br>17CW3044 – Simple change for Castle Rock Diversion Point No. 1 | East Plum Creek | 8/20/2013 | 15.0 conditional | Effluent from all sources<br>Consumptive use credits from<br>- High Line Ditch,<br>- Cook Creek Ditch, Hillside Ditch (Noe Ranch)<br>- Benjamin Quick Ditch, John Kinner No. 1 Ditch, John Kinner No. 2 Ditch, Huntsville Ditch (Douglas Park)<br>- Ball Ditch water rights | SAME AS ABOVE FOR 12CW296 |
| Chatfield Reservoir | Castle Rock Surface Diversion No. 1 | 12CW296<br><br>Last Diligence: NA<br><br>17CW3044 – Simple change for Castle Rock Diversion Point No. 1 | Plum Creek and East Plum Creek | 8/31/2015 | 15.0 conditional | Effluent from all sources<br>Chatfield Reservoir storage right<br>Consumptive use credits from<br>- High Line Ditch,<br>- Cook Creek Ditch, Hillside Ditch (Noe Ranch)<br>- Benjamin Quick Ditch, John Kinner No. 1 Ditch, John Kinner No. 2 Ditch, Huntsville Ditch (Douglas Park)<br>- Ball Ditch water rights<br>Castle Rock Surface Diversion No. 1<br>Castle Rock Surface Diversion No. 2 | SAME AS ABOVE FOR 12CW296 |
| **17CW3211** | | | | | | | |
| Castle Rock Reservoir Nos. 1 and 2 Outlet | Castle Pines Diversion Points S-1 and S-2 and Castle Rock Surface Diversion Nos. 1, 2 and 3 | 17CW3211<br><br>Last Diligence: NA | Plum Creek and East Plum Creek | 12/28/2017 | 15.0 conditional | Castle Rock Reservoir Nos. 1 and 2 storage rights<br>Effluent from<br>- nontributary groundwater<br>- Water Infrastructure System Efficiency (“WISE”)<br>- Plum Creek Diversion surface right | Due diligence deadline: 10/31/2025 |
| PCWRA Outfall | Castle Rock Surface Diversion No. 1 | 17CW3211<br><br>Last Diligence: NA | East Plum Creek | 12/28/2017 | 10.8 conditional | Castle Rock Reservoir Nos. 1 and 2 storage rights<br>- Plum Creek Diversion surface right | SAME AS ABOVE FOR 17CW3211 |

# CASTLE ROCK'S TRIBUTARY PLANS FOR AUGMENTATION AND CHANGES OF WATER RIGHTS ASSOCIATED WITH TRIBUTARY STRUCTURES (Revised Updated September 2020)

| Case Nos. | Augmented Structures and/or Alternate Points of Diversion | Augmentation Sources | Credit for Sewered Return Flows? | Credit for Lawn Irrigation Return Flows? | Terms and Conditions of Decrees or Other Comments |
|---|---|---|---|---|---|
| 79CW281 | Wells CR 2, CR 8, CR 3, CR 4, CR 9, CR11, thru CR 16 (as alternate points ONLY) | Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System (Old Town Water Rights) | No | No | • As amended by 84CW656, requires 50% of diversions be returned to East Plum Creek<br>• Requires contemporaneous diversions and returns<br>• Prohibits credit for 50% of diversions<br>• Retained jurisdiction has expired as to all issues |
| 84CW656 | Wells CR 2, CR 8, CR 3, CR 4, CR 9, CR11, thru CR 16 | 573 af NT Dawson;<br>310 af NT Denver;<br>657 af Arapahoe<br>(Wells CR 1, CR 5, CR 6, CR 7, CR 10)<br><br>Discharge of effluent, lawn irrigation return flows, direct discharge from well head, seepage | Yes<br>- available immediately<br>- must meter effluent discharged to Plum Creek | Yes<br>- after 1 year for Zone 1<br>- after 2 years for Zone 2<br>- after studies for Zone 3 | • Quantifies consumption for indoor use as 5% of diversions and irrigation and evaporation consumption by formula<br>• Establishes dominion and control over nontributary return flows<br>• Requires Castle Rock to conduct "nitial measurements for Zones 1 and 2 to utilize LIRFs<br>• Requires Castle Rock to collect 7 years of data to determine lagged return flows from Zone 3 under retained jurisdiction<br>• Operates by exchange. See exchange table.<br>• Retained jurisdiction expired as to all issues, except LIRFs from Zones 2 and 3 |
| 89CW212 | Wells CR 2, CR 8, CR 3, CR 4, CR 9, CR11, thru CR 16 | SAME AS 84CW656 ABOVE | Yes<br>SAME AS 84CW656 ABOVE | Yes<br>SAME AS 84CW656 ABOVE | • Amends 84CW656 so that discharges can come from PCWRA<br>• Operates by exchange from PCWRA outfall to former Castle Rock WWTP outfall. See exchange table. |
| 85CW480 | - Meadows Wells (CR 184 thru CR 203) (formerly AL-1 through AL-20) | 80CW377 – 1966 af NT Arapahoe<br>80CW375 – 946 af NT LFH<br>79CW270 – 93 af NT Dawson<br>80CW376 – 2990 af NNT Denver<br>84CW197 – 1477 af NNT Lower Dawson<br>80 af NT Lower Dawson<br>79CW271 – 96 af NT LFH<br>79CW272 – 51 af NT Arapahoe<br>85CW470 – 48 af NT Arapahoe<br><br>Discharge of effluent, lawn irrigation return flows, direct discharge from well head, seepage | Yes<br>- To determine in-house return flows, measured discharges reduced by 3% | Yes<br>- after 1 year for Zone 1<br>- after 2 years for Zone 2<br>- after studies for Zone 3 | • Requires compliance with decrees for nontributary and not non-tributary groundwater; nontributary ground water utilized for augmentation subject to 2% relinquishment; not nontributary groundwater must be fully augmented<br>• Establishes estimated annual diversion requirement of 8300 af/year<br>• Requires returns flows to occur between east boundary of Meadows and confluence East and West Plum Creeks<br>• Requires replacement of delayed pumping depletions per tables<br>• Requires daily measurements during irrigation season, weekly non-irrigation season<br>• Operates by exchange. See exchange table.<br>• Retained jurisdiction on injury extends to 10 years after notice of 60 % build out<br>• Retained jurisdiction as to well depletions not expired<br>• Retained jurisdiction on LIRFs has expired |

| Case Nos. | Augmented Structures and/or Alternate Points of Diversion | Augmentation Sources | Credit for Sewered Return Flows? | Credit for Lawn Irrigation Return Flows? | Terms and Conditions of Decrees or Other Comments |
|---|---|---|---|---|---|
| Cons. 86CW378/379 | - West Plum Creek Well Field (CR 176 – CR 181) | Various decrees yielding:<br>- 1936 af Dawson NNT<br>- 3548 af Dawson<br>- 4522 af Denver NNT<br>- 5117 af Denver<br>- 9183 af Arapahoe<br>- 4252 af Laramie-Fox Hills<br><br>Discharge of effluent, lawn irrigation return flows, direct discharge from well head, seepage, storage releases | Yes<br>- available immediately<br>- must meter effluent discharged to Plum Creek | Yes<br>- after 1 year for Zone 1<br>- after 5 years for Zone 2<br>- after studies for Zone 3 | • Requires nontributary groundwater utilized for augmentation subject to 2% relinquishment<br>• Requires not nontributary groundwater to be fully augmented<br>• Prohibits claim for LIRFs unless there is a surface flow at Titan Road gage<br>• Requires Castle Rock to conduct initial measurements for Zones 1 and 2 to utilize LIRFs<br>• Limits diversions at West Plum Creek Well Field when Craig Ditch is calling to Benjamin Quick Ditch only<br>• Requires studies every 4 years of water table at Larson Wells; if unable to get sustained yield, Castle Rock must provide water<br>• Conditions on diversions upstream of Titan Road gage<br>• Operates by exchange. See exchange table.<br>• Requires 3 year study on lagged depletions of East Plum Creek well field<br>• Establishes dominion and control over nontributary return flows<br>• Retained jurisdiction has not expired as to any issues, including LIRFs from Zones 2 and 3 and injury to Castle Pines |
| 87CW240 | - CR 2, CR 3, CR 4, CR 8, CR 9, CR 11 thru CR 16, CR 82 thru CR 87 | Cook Creek Ditch and Hillside Ditch (Noe Ranch Water Rights) by discharge of effluent, lawn irrigation return flows, exchange, seepage, storage releases | Yes<br>- available immediately<br>- must meter effluent discharged to Plum Creek | Yes<br>- after 1 year for Zone 1<br>- after 2 years for Zone 2<br>- after studies for Zone 3 | • Operates between 4/1 and 9/30 annually<br>• Allows Castle Rock to fully consume consumptive use component of Cook Creek Ditch and Hillside Ditch<br>• Prohibits operation plan without live stream between Noe Road and Douglas Lane<br>• Need to conduct initial measurements for Zones 1 and 2 to utilize LIRFs; every 5 years must conduct new measurements<br>• Operates by exchange. See exchange table.<br>• Retained jurisdiction has expired as to all issues, except LIRFs from Zones 2 and 3 and injury to Castle Pines |
| 90CW143 | CR 81 | - Castle Rock Ditch and Reservoir, Eureka Ditch, Water Works System (Old Town Water Rights)<br>- Cook Creek Ditch and Hillside Ditch (Noe Ranch Water Rights) | Yes<br>- available immediately<br>- must meter effluent discharged to Plum Creek | Yes<br>- after 1 year for Zone 1<br>- after 2 years for Zone 2<br>- after studies for Zone 3 | • Amended augmentation plans decreed to 84CW656 and 87CW240 |
| 87CW309 | - East Plum Creek Well Field (CR 2, CR 3, CR 4, CR 8, CR 9, CR 11, CR 12, CR 13, CR 78 thru CR 87)<br>- West Plum Creek Well Field (CR 176 – CR 181)<br>- Meadows Wells (CR 184 thru CR 203)<br>- Douglas Lane Pipeline | Benjamin Quick Ditch, John Kinner No. 1 Ditch, John Kinner No. 2 Ditch, Huntsville Ditch (Douglas Park Water Rights) by discharge of effluent, lawn irrigation return flows, direct discharge | Yes<br>- available immediately<br>- must meter effluent discharged to Plum Creek | Yes<br>- after 1 year for Zone 1<br>- after 5 years for Zone 2<br>- after studies for Zone 3 | • Prohibits claims for LIRFs unless there is a surface flow at Titan Road gage<br>• Operates between 4/1 and 9/30 annually<br>• Limits diversions at West Plum Creek Well Field when Craig Ditch is calling to Benjamin Quick Ditch only<br>• Requires studies every 4 years of water table at Larson Wells; if Larson Wells are unable to get sustained yield, Castle Rock must provide water<br>• Conditions on diversions upstream of Titan Road gage for Castle Pines Metro District<br>• Operates by exchange. See exchange table.<br>• Retained jurisdiction has not expired as to any issues, including LIRFs from Zones 2 and 3 and injury to Castle Pines |
| 09CW166 | Chatfield Reservoir | NA | No | No | • Authorized storage of consumptive use credits from the following water rights<br>o Cook Creek Ditch and Hillside Ditch (Noe Ranch Water Rights)<br>o Benjamin Quick Ditch, John Kinner No. 1 Ditch, John Kinner No. 2 Ditch, Huntsville Ditch (Douglas Park Water Rights)<br>o High Line Ditch Water Rights<br>o Ball Ditch Water Rights |

| | |
|---|---|
| Weld County District Court<br>Water Division No. 1, State of Colorado<br>901 Ninth Avenue<br>P.O. Box 2038<br>Greeley, CO 80632-2038<br>(970) 351-7300 | |
| CONCERNING THE APPLICATION OF THE TOWN OF CASTLE ROCK<br><br>IN WELD COUNTY | Court Use Only |
| Jeffrey J. Kahn, # 6894<br>Madoline Wallace-Gross, # 32255<br>Carey S. Smith, #48773<br>Lyons Gaddis Kahn Hall Jeffers Dworak & Grant, P.C.<br>Attorneys for Applicant Town of Castle Rock<br>P.O. Box 978<br>Longmont, CO 80502-0978<br>Telephone: 303-776-9900<br>E-mail: *jkahn@lyonsgaddis.com ; mwg@lyonsgaddis.com; csmith@lyonsgaddis.com* | Case No. 19CW___<br><br>Water Division No. 1 |
| **APPLICATION FOR CONDITIONAL UNDERGROUND WATER RIGHTS, A CONDITIONAL RECHARGE WATER RIGHT, CONDITIONAL RIGHT OF APPROPRIATIVE EXCHANGE, APPROVAL OF A CHANGE OF WATER RIGHTS AND A PLAN FOR AUGMENTATION** | |

1. **Applicant**: Town of Castle Rock, Attn: Mark Marlowe, Director of Castle Rock Water, 175 Kellogg Court, Castle Rock, CO 80109, (720)733-6000, *mmarlowe@crgov.com*. Serve all pleadings on: Jeffrey J. Kahn, Madoline Wallace-Gross and Carey S. Smith, Lyons Gaddis Kahn Hall Jeffers Dworak & Grant, P.C., P.O. Box 978, Longmont, CO 80502-0978, (303)776-9900 *jkahn@lyonsgaddis.com, mwg@lyonsgaddis.com, csmith@lyonsgaddis.com.*

2. **Background:** Applicant owns an 850 acre property in Weld and Adams Counties ("Property") depicted on **EXHIBIT A.** Applicant intends to construct a municipal water system on the Property to withdraw tributary groundwater from Box Elder Creek to serve Applicant's customers ("Box Elder Project"). To this end, Applicant seeks to adjudicate conditional underground water rights, a conditional recharge water right and a conditional rights of appropriative exchange. Moreover, Applicant seeks approval of a change of junior underground water rights and a plan for augmentation to augment out-of-priority well depletions.

## CONDITIONAL UNDERGROUND WATER RIGHTS

3. **Names of Structures: TCR Box Elder Well Nos. 1 to 20.** A map depicting the location of the proposed wells is attached hereto as **EXHIBIT A.**

3.1 Legal Descriptions of Points of Diversion. All wells are in Weld County, Colorado.

| *Abbreviated Well Name* | *xUTM* | *yUTM* | *Q40* | *Q160* | *Sect.* | *T.* | *R.* | *Distance* | *Line* | *Distance* | *Line* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TCR-1 (10159) | 532,977 | 4,431,929 | SE | NW | 24 | 1N | 65W | 2554 | N | 2288 | W |
| TCR-2 (10160) | 532,804 | 4,431,927 | SE | NW | 24 | 1N | 65W | 2559 | N | 1720 | W |
| TCR-3 (4360) | 532,552 | 4,430,495 | SW | NW | 25 | 1N | 65W | 2011 | N | 895 | W |
| TCR-4 (8905) | 533,284 | 4,429,685 | SW | SE | 25 | 1N | 65W | 616 | S | 1962 | E |
| TCR-5 (8358) | 533,170 | 4,429,513 | SW | SE | 25 | 1N | 65W | 51 | S | 2331 | E |
| TCR-6 (8359) | 533,160 | 4,429,104 | SW | NE | 36 | 1N | 65W | 1334 | N | 2368 | E |
| TCR-7 (2629) | 533,294 | 4,429,091 | SW | NE | 36 | 1N | 65W | 1382 | N | 1929 | E |
| TCR-8 (8357) | 533,343 | 4,428,694 | SW | NE | 36 | 1N | 65W | 2634 | N | 1773 | E |
| TCR-9 (19548T) | 533,255 | 4,428,476 | NW | SE | 36 | 1N | 65W | 1930 | S | 2064 | E |
| TCR-10 (19548S) | 533,192 | 4,427,901 | SW | SE | 36 | 1N | 65W | 30 | S | 2278 | E |
| TCR-11 | 532,415 | 4,430,820 | NW | NW | 25 | 1N | 65W | 980 | N | 320 | W |
| TCR-12 | 533,095 | 4,430,108 | NW | SE | 25 | 1N | 65W | 2030 | S | 2593 | E |
| TCR-13 | 533,110 | 4,430,641 | SW | NE | 25 | 1N | 65W | 1528 | N | 2558 | E |
| TCR-14 | 533,097 | 4,430,867 | NW | NE | 25 | 1N | 65W | 763 | N | 2610 | E |
| TCR-15 | 533,465 | 4,430,900 | NW | NE | 25 | 1N | 65W | 720 | N | 1400 | E |
| TCR-16 | 533,062 | 4,432,311 | SE | NW | 24 | 1N | 65W | 1350 | N | 2564 | W |
| TCR-17 | 533,930 | 4,429,472 | NW | NW | 31 | 1N | 64W | 80 | N | 174 | W |
| TCR-18 | 533,109 | 4,429,904 | NW | SE | 25 | 1N | 65W | 1361 | S | 2542 | E |
| TCR-19 | 532,931 | 4,430,697 | SE | NW | 25 | 1N | 65W | 1346 | N | 2152 | W |
| TCR-20 | 533,100 | 4,428,319 | NW | SE | 36 | 1N | 65W | 1414 | S | 2575 | E |

3.2. Well Permit Numbers and Decrees for Other Water Rights Diverted from Structures: These water rights will be collectively referred to as "Junior Irrigation Water Rights."

| *Abbreviated Well Name* | Existing Water Right and Well Permit Number | Approp. Date | Absolute Amount (cfs) | Case Number, Court and Decree Date |
|---|---|---|---|---|
| TCR-1 (10159) | Bollers 1, No. 10159-R-R | April 30, 1952 | 1.78 | W-2548, Dec.1, 1977 |
| TCR-2 (10160) | Bollers. 2, No. 10160 | August 30, 1955 | 1.22 | W-2548, Dec.1, 1977 |
| TCR-3 (4360) | Gettman 1, No. 4360-RF | December 31, 1934 | 1.11 | W-2220, Mar. 29, 1973 |
| TCR-4 (8905) | Land 2, No. 8905-R-F | May 28, 1958 | 2.66 | W-992, Oct. 27, 1972 |
| TCR-5 (8358) | Land 1, No. 8358-R-F | April 30, 1950 | 3.33 | W-992, Oct. 27, 1972 |
| TCR-6 (8359) | Well No. 6, No. 8359 | December 31, 1925 | 1.88 | W-2950, Oct. 4, 1973 |
| TCR-7 (2629) | Well No. 7, No. 2629FR | June 25, 1960 | 2.04 | W-2950, Oct. 4, 1973 |
| TCR-8 (8357) | Well No. 5, No. 8357RF | May 25, 1945 | 2.00 | W-2950, Oct. 4, 1973 |
| TCR-9 (19548T) | Box Elder Ranch 3, No. T19548-RF | August 31, 1953 | 2.22 | CA 16704, May 28, 1971 and 82CW053, Sept. 15, 1983 |
| TCR-10 (19548S) | Box Elder Ranch 2, No. S19548-RF | March 31, 1949 | 1.45 | CA 16704, May 28, 1971 and 82CW053, Sept. 15, 1983 |

| | | | | |
|---|---|---|---|---|
| 19548R | Box Elder Ranch 1, No. R19548-RF | May 31, 1937 | 1.11 | CA 16704, May 28, 1971 and 82CW053, Sept. 15, 1983 |

3.3. Source: Box Elder Creek, tributary to South Platte River.

3.4. Date of Appropriations: December 11, 2019.

3.5. How Appropriations were Initiated: Applicant initiated these appropriations by purchasing the Property, conducting engineering studies to determine the need for alluvial wells, posting notice at the points of diversion, and passing a director's resolution evidencing the appropriation and filing this application.

3.6. Date Applied to Beneficial Use: Not applicable.

3.7. Flow Rates Claimed: 390 g.p.m. conditional each; 1550 g.p.m. conditional cumulative.

3.8. Volumetric Limits: 2,500 a.f. conditional cumulative with all wells.

3.9. Alternate Points: The well locations identified in ¶ 3.1 are alternate points of diversion for the underground water rights sought herein.

3.10. Proposed Uses: Direct use and storage for all municipal uses, including industrial, augmentation, replacement and exchange, with the right to use, reuse and successively use the return flows to extinction.

3.11. Place of Use: Lands within Applicant's water service area boundaries, as such boundaries currently exist or may exist in the future, and lands outside such boundaries by contract. A map of the Applicant's current service area is attached hereto as **EXHIBIT B.**

3.12. Reuse and Successive Use Operations: Applicant intends to fully consume water diverted pursuant to these underground water rights, and the Town is appropriating the sewered and nonsewered return flows generated from the water rights that accrue to Plum Creek and its tributaries. Sewered effluent attributable to these water rights will be discharged at the Plum Creek Water Reclamation Authority Wastewater Treatment Plant Outfall ("PCWRA Outfall") located in the SW ¼ SW ¼ Section 21, T. 7., R. 67 W., 6th P.M., at a point 770 feet from the south section line and 100 feet from the west section line. The UTM coordinates are NAD 83, Zone 13, Easting 508185, Northing 4363729. The sewered effluent will be reused and successively used by exchange on Plum Creek pursuant to the application in Case No. 19CW____. Applicant retains the right to claim lawn irrigation return flows attributable to these water rights in a separate Water Court application.

## CONDITIONAL RECHARGE WATER RIGHT

4. **Name of Structure: TCR – Recharge Water Right.** A map depicting the location of the recharge ponds and filling structure is attached hereto as **EXHIBIT A.**

4.1. Legal Description of Diversion Structure: TCR- Box Elder Surface Diversion –NW ¼ NW ¼ Section 31, T. 1 N., R. 64 W., 6th PM in Weld County, Colorado, at a point 820 feet from the north section line and 600 feet from the west section line.

4.2. Diversion Rate Claimed: 1.4 c.f.s., conditional, cumulative for all ponds.

4.3. Source: Box Elder Creek, tributary to South Platte River.

4.4. Volume Claimed: 1022 a.f., conditional, cumulative for all recharge ponds.

4.5. Surface Areas of Recharge Ponds: 2.4 acres each, 7.2 acres cumulative.

4.6. Legal Descriptions of Recharge Ponds: All recharge ponds are in Weld County, Colorado.

| *Well Name* | *xUTM* | *yUTM* | *Q40* | *Q160* | *Section* | *T.* | *R.* | *Distance* | *Line* | *Distance* | *Line* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TCR-RP-1 | 532,809 | 4,430,637 | SE | NW | 25 | 1N | 65W | 1543 | N | 1753 | W |
| TCR-RP-2 | 532,880 | 4,432,495 | NE | NW | 24 | 1N | 65W | 744 | N | 1965 | W |
| TCR- RP-3 | 533,150 | 4,428,900 | SW | NE | 36 | 1N | 65W | 1980 | N | 2450 | E |

4.7. Date of Appropriations: December 11, 2019.

4.8. How Appropriation was Initiated: Applicant initiated this appropriation by purchasing the Property, conducting engineering studies to determine the need for recharge ponds, posting notice, passing a director's resolution evidencing the appropriation and filing this application.

4.9. Date Applied to Beneficial Use: Not applicable.

4.10. Proposed Uses: Augmentation and replacement.

4.11. Operation: Applicant will divert water at the TCR-Box Elder Surface Diversion and deliver the water to the recharge ponds described in ¶ 4.6. The water will seep from the recharge ponds resulting in accretions to the alluvial aquifer of Box Elder Creek that will be used for augmentation and replacement.

## CHANGE OF WATER RIGHTS

5. **Decreed Water Rights for Which Change is Sought**. Junior Irrigation Water Rights described in ¶ 3.2.

5.1. **Legal Descriptions of Points of Diversion**. See ¶ 3.1 for TCR Box Elder Well Nos. 1 to 11.

5.2. **Decreed Source for All Wells:** Groundwater tributary to Box Elder Creek.

5.3. **Decreed Uses for All Wells:** Irrigation.

5.4. **Amount of Water Applicant Intends to Change:** See ¶ 3.2 herein.

5.5. **Detailed Description of Proposed Change:**

5.5.1. **Historical Use.** The groundwater has historically been used to irrigate approximately 695 acres on the Property. The historically irrigated acres are depicted on the map attached hereto as **EXHIBIT C**. Summaries of pumping records for the groundwater rights are attached hereto as **EXHIBIT D**. Well pumping was augmented by Central Colorado Water Conservancy District, pursuant to Case No. 02CW335 until 2016.

5.5.2. **Historical Consumptive Use.** Applicant has determined the historical consumptive use attributable to use of the groundwater rights for irrigation. Applicant estimates that in-priority diversions of the groundwater rights have a historical consumptive use of 457 average annual acre-feet.

5.6. **Changes Sought:** Applicant seeks to change the water rights as detailed below:

5.6.1. **Change of Point of Diversion.** Applicant will no longer divert the underground water rights at the original points of diversion. In-priority historical consumptive use will be left in Box Elder Creek for augmentation and replacement The point at which Applicant will claim in-priority historical consumptive use is NW ¼ NW ¼ Section 31, T. 1 N., R. 64 W., 6th PM in Weld County, Colorado, at a point 820 feet from the north section line and 600 feet from the west section line.

5.6.2. **Change of Type of Use:** Augmentation and replacement.

5.6.3. **Change of Place of Use:** Augmentation of depletions on the Property.

## PLAN FOR AUGMENTATION

6. **Augmented Structures:** TCR Box Elder Well Nos. 1 to 20 described in ¶ 3.1. A map of the augmented structures is attached hereto as **EXHIBIT A.**

7. **Water Rights Used for Augmentation:** Maps of the water rights used for augmentation are attached hereto as **EXHIBITS E and F.**

7.1. **TCR Box Elder Recharge Right.** See ¶ 4.

7.2. **Historical Consumptive Use Associated with the Junior Irrigation Water Rights.** See ¶ 5.

7.3. **Groundwater from the Lost Creek Designated Groundwater Basin ("Lost Creek Groundwater").** All water rights are in Weld County.

7.3.1. Decrees and Court: Case Nos. 98CV1727 District Court, Adams County entered June 22, 2004; 99CV097 District Court, Adams County entered June 22, 2004.

7.3.2. Permit Numbers, Legal Descriptions and Diversion Limits. All of the wells are in T. 1 N., R. 63 W., 6th P.M. in Weld County.

| *Well Permit Nos.* | *Q40* | *Q160* | *Section* | *Approp. Dates* | *Flow Rates (gpm)* | *Volumetric Limits (af)* | *Maximum Banking Reserve (af)* |
|---|---|---|---|---|---|---|---|
| Amended Final Permit No. 12123-RFP | NW | SW | 27 | May 28, 1944 | 1,000 | 163.1 | 755.7 |
| Amended Final Permit No. 12124-RFP | NE | SW | 27 | June 22, 1954 | 900 | 106.4 | 835.8 |
| Amended Final Permit No. 31526-FP | NE | SE | 22 | May 1, 1939 | 1,100 | 144.4 | 616.8 |
| Amended Final Permit No. 31527-FP | NW | SE | 22 | May 1, 1944 | 1,100 | 139.1 | 632.7 |
| Amended Final Permit No. 31643-FP | SW | NW | 34 | June 8, 1946 | 1,150 | 111.3 | 266.1 |
| Amended Final Permit No. 14860-RFP | NW | NW | 34 | May 20, 1954 | 950 | 74.3 | 377.1 |
| Amended Final Permit No. 31640-FP | SW | NE | 34 | December 10, 1968 | 900 | 297.2 | 308.4 |
| **TOTAL** | | | | | | **1035.8** | **3792.6** |

7.3.3. Decreed Uses. Domestic, irrigation, commercial, municipal, industrial, commercial, stock watering, recreation, fish and wildlife purposes, augmentation, residential and fire protection. The amounts of water described herein may be exported from the Lost Creek Groundwater Basin.

7.4. **Nontributary and Not Nontributary Groundwater.**

7.4.1. Decrees and Court.

7.4.1.1. Case No. 2001CW150, District Court, Water Division 1, entered on March 26, 2003.

7.4.1.2. Case No. 2002CW228, District Court, Water Division 1, entered on November 13, 2003.

7.4.1.3. Case No. 2004CW317 District Court, Water Division 1, entered on January 6, 2006.

7.4.2. Decreed Uses. Use, reuse and successive use of the subject groundwater; and after use, lease, sell, or otherwise dispose of the water for municipal, domestic, agricultural, commercial, irrigation, stock watering, recreational, fish and wildlife, fire protection and any other beneficial use on or off the overlying land. The water may be immediately used or stored for subsequent use, used for exchange purposes, for direct replacement of depletions, and for other augmentation purposes, including taking credit for all return flows resulting from the use of such water for augmentation for or as an offset against any out-of-priority depletions.

7.4.3. Volumetric Limits.

| *Aquifer* | *Bollers (1)* | *Haffner (1)* | *Prosser (1)* | *Gettman (2)* | *Waites (2)* | *Box Elder (3)* | *Totals (af)* |
|---|---|---|---|---|---|---|---|
| Upper Arapahoe (NNT) | 10.7 | 0 | 0.4 | 8.5 | 18.4 | 20.3 | **58.3** |
| Lower Arapahoe (NT) | 20.1 | 8.2 | 0.6 | 11.3 | 21.0 | 61.0 | **122.2** |
| Laramie-Fox Hills (NT) | 35.5 | 13.1 | 0.9 | 18.1 | 32.4 | 80.8 | **180.8** |
| **TOTALS** | | | | | | | **361.3** |

(1) The amounts available from the Bollers, Haffner, and Prosser parcels were decreed in Case No. 2004CW317.
(2) The amounts available from the Gettman and Waites parcels were decreed in Case No. 2002CW228.
(3) The amount available from the Box Elder Parcel was decreed in Case No. 2001CW105.

7.5. Rothe-Sublette Recharge Credits.

7.5.1. Case Number and Court. 89CW027, District Court, Water Division No. 1, entered April 30, 1996.

7.5.2. Ownership. Applicant owns 60.4% of the first 1,275 acre feet of recharge credits up to but not to exceed 770 a.f. in any year.

7.5.3. Legal Descriptions and Volumes.

7.5.3.1. Riverside Canal: SW ¼ SW ¼ of Section 20, T 5 N, R 63 W, 6th P.M., Weld County.

7.5.3.2. Riverside Reservoir: Sections 5, 7, and 8, T 4 N, R 61 W, 6th P.M. and Sections 12, 13, and 14, T 4 N, R 62 W, 6th P.M.

7.5.3.3. Sublette Recharge Ponds: All locations in T. 4 N, R. 61 W, 6th P.M. Weld County.

| Pond # | Q40 | Q160 | Section | Feet from Line | Feet from Line | Decreed Amounts (a.f.) |
|---|---|---|---|---|---|---|
| 1 | SE ¼ | SW ¼ | 2 | 700 feet North of South Section line | 1,800 feet East of West Section line | 6 |
| 2 | SE ¼ | SW ¼ | 2 | 400 feet North of South Section line | 1,700 feet East of West Section line | 58 |
| 3 | NE ¼ | NW ¼ | 11 | 1,300 feet South of North Section line | 1,600 feet East of West Section line | 21 |
| 4 | SE ¼ | NW ¼ | 11 | 1,800 feet South of North Section line | 1,600 feet East of West Section line | 14 |
| 5 | NW ¼ | NW ¼ | 11 | 1,050 feet South of North Section line | 350 feet East of West Section line | 30 |
| 6 | SW ¼ | NW ¼ | 11 | 1,700 feet South of North Section line | 300 feet East of West Section line | 24 |
| 7 | SE ¼ | NE ¼ | 10 | 2,400 feet South of North Section line | 300 feet West of East Section line | 2 |
| 8 | SE ¼ | NE ¼ | 10 | 2,200 feet South of North Section line | 800 feet West of East Section line | 18 |
| 9 | SW ¼ | NE ¼ | 10 | 2,500 feet South of North Section line | 1,400 feet West of East Section line | 10 |
| 10 | SW ¼ | NE ¼ | 10 | 2,100 feet South of North Section line | 2,100 feet West of East Section line | 4 |
| 11 | SE ¼ | SE ¼ | 10 | 1,100 feet North of South Section line | 800 feet West of East Section line | 10 |
| 12 | NE ¼ | NW ¼ | 14 | 1,250 feet South of North Section line | 1,400 feet East of West Section line | 9 |
| 13 | NE ¼ | NE ¼ | 15 | 900 feet South of North Section line | 400 Feet West of East Section line | 19 |
| 14 | SW ¼ | NW ¼ | 14 | 2,600 feet South of North Section line | 10 feet East of West Section line | 51 |
| 15 | SE ¼ | NE ¼ | 15 | 2,500 feet South of North Section line | 350 feet West of East Section line | 96 |
| 16 | NE ¼ | NE ¼ | 15 | 1,200 feet South of North Section line | 1,200 feet West of East Section line | 170 |
| 17 | SE ¼ | NE ¼ | 15 | 2,400 feet South of North Section line | 1,200 feet West of East Section line | 16 |
| 18 | SW ¼ | NE ¼ | 15 | 2,400 feet South of North Section line | 2,000 feet West of East Section line | 8 |
| 19 | SW ¼ | NE ¼ | 15 | 1,900 feet South of North Section line | 2,100 feet West of East Section line | 4 |
| 20 | SE ¼ | NW ¼ | 15 | 2,400 feet South of North Section line | 1,800 feet East of West Section line | 165 |
| 21 | NE ¼ | SW ¼ | 15 | 1,500 feet North of South Section line | 2,100 feet East of West Section line | 60 |

7.5.4. Decreed Uses: Livestock, piscatorial, irrigation, domestic, wildlife habitat, recreation, augmentation, exchange, and substitution.

7.5.5. Appropriation Date: March 11, 1985

7.5.6. Flow Rate: 150 c.f.s.

7.6. **Water Stored in Chatfield Reservoir.** Legal Description of Chatfield Reservoir. The right abutment of the dam is located in Douglas County, in Sections 6 and 7, T. 6 S., R. 68 W. 6th P.M. The left abutment of the dam is located in Jefferson County, in Section 1, T. 6 S., R. 69 W. 6th P.M.

7.6.1. **Chatfield Reservoir-Castle Rock Refill Water Storage Right.**

7.6.1.1. Decree and Court: Case No. 2016CW3178, District Court, Water Division No. 1, entered October 23, 2018.

7.6.1.2. Legal Description. See ¶ 7.6

7.6.1.3. Appropriation Date: April 27, 2016

7.6.1.4. Decreed Uses. Storage and release for all municipal uses, industrial augmentation, replacement, and exchange with the right to use, reuse, and successively use the return flows to extinction.

7.6.1.5. Volumetric Limits: 2,000 a.f.

7.6.2. **Consumptive Use Credits:** Consumptive use credits quantified and stored in Chatfield Reservoir pursuant to Applicant's decree in Case No. 09CW166, District Court, Water Division No. 1. The consumptive use credits are attributable to Applicant's: 1) High Line Ditch Water Rights; 2) Noe Ranch Water Rights; 3) Douglas Park Water Rights; and 4) Ball Ditch Water Rights as described in **EXHIBIT G.**

7.6.3. **Effluent:** Applicant's effluent discharged from the PCWRA Outfall and stored in Chatfield Reservoir consisting of the following sources: 1) nontributary groundwater and fully-augmented not nontributary groundwater described in **EXHIBIT H**; and 2) Applicant's deliveries from the Water Infrastructure System Efficiency ("WISE") project described in **EXHIBITS I** and **J**, limited to 10,000 acre-feet over a 10 year period; 3) consumptive use credits from the Noe Ranch and Douglas Park Water Rights described in ¶7.6.2, to the extent such credits were not fully-consumed in the first use; 4) water diverted under Castle Rock Surface Diversion Nos. 1 and 2 described in Case No. 12CW296; 5) water diverted under the Plum Creek Diversion or Castle Rock Reservoir Nos. 1 and 2 water rights described in Case No. 17CW3211; and 6) water diverted from Well Nos. TCR-1 to TCR-20.

7.7. **Additional sources authorized pursuant to C.R.S. §37-92-305(8).**

8. **Complete Statement of Plan for Augmentation:** Applicant seeks a plan for augmentation to replace depletions to Box Elder Creek from out-of-priority diversions from Well Nos. TCR-1 to TCR-20.

Applicant will replace out-of-priority depletions in time, place and amount to prevent injury to other water rights. Water diverted from Well Nos. TCR-1 to TCR-20 will be piped to the Town of Castle Rock for all municipal uses by its customers within Applicant's service area boundaries and outside Applicant's service area boundaries by contract. A map of the Applicant's service area is attached hereto as **EXHIBIT C.**

8.1. Depletions. Applicant seeks a plan for augmentation to replace lagged depletions accruing to Box Elder Creek out-of-priority from pumping TCR Well Nos. 1 to 20 described in ¶ 3.1 herein. The timing of depletions associated with Applicant's wells are identified in the table attached hereto as **EXHIBIT K**. The locations of the depletions are identified in the map attached hereto as **EXHIBIT L.** As Applicant intends to pipe the water pumped from the alluvial wells to the Applicant's service area, pumping will be 100 percent consumptive to Box Elder Creek. The water pumped to the Applicant's service area will be available for use, reuse and successive use pursuant to the application filed in Case No. 19CW___.

8.2. Replacements and Operations. Applicant will replace out-of-priority depletions in time, place and amount to prevent injury using the sources described in ¶ 7 herein.

8.2.1. Recharge Operations: Recharge credits generated from delivery of following water rights to the recharge ponds described in ¶4.6 will accrue to Box Elder Creek at the points shown in **EXHIBIT L**. The timing of accretions associated with Applicant's recharge ponds are identified in the table attached hereto as **EXHIBIT K**. Applicant proposes to recharge up to 1800 a.f. annually, cumulative from all sources.

8.2.1.1. TCR Box Elder Recharge Right described in ¶ 4.6.

8.2.1.2. Lost Creek Groundwater described in ¶ 7.3 piped to the Property.

8.2.1.3. Nontributary Groundwater described in ¶7.4.

8.2.2. Direct Discharges: The following water rights will be piped and discharged to Box Elder Creek at a point in the NW ¼ NW ¼ Section 31, T. 1., R. 64 W., 6th PM in Weld County, Colorado, at a point 820 feet from the north section line and 600 feet from the west section line.

8.2.2.1. Lost Creek Groundwater described in ¶ 7.3 piped to the Property.

8.2.2.2. Nontributary Groundwater described in ¶7.4.

8.2.3. Exchange of Rothe-Sublette Recharge Credits: Recharge credits generated from operation of the Rothe-Sublette Project described in ¶ 7.5 will accrue to the South Platte River. To the extent necessary to prevent injury, the recharge credits will be exchanged to the confluence of Box Elder Creek and the South Platte River ("Confluence"), pursuant to the exchange described in ¶ 9 below.

8.2.4. Chatfield Reservoir Operations: Water stored in Chatfield Reservoir by Applicant will be released from storage and carried in the South Platte River to the Confluence. The Water Commissioner will assess transit losses.

8.2.5. Terms and Conditions re Rothe-Sublette Recharge Credits and Chatfield Reservoir. Applicant may use the water released from Chatfield Reservoir or accruing to the South Platte River from the Rothe-Sublette Recharge Credits to augment lagged well depletions from TCR Well Nos. 1 to 20, as long such augmentation does not injure intervening water rights with priorities senior to December 11, 2019. Applicant may prevent the commencement of diversions on Box Elder Creek between the Confluence and TCR Well Nos. 1 to 20 if such intervening water rights have priorities junior to December 11, 2019 and would deprive Applicant of the ability to utilize the water released from Chatfield Reservoir or accruing to the South Platte River from the Rothe-Sublette Recharge Credits for augmentation.

## CONDITIONAL RIGHTS OF APPROPRIATIVE EXCHANGE

9. Name of Exchange: **TCR Box Elder - Rothe-Sublette Exchange.** A map depicting the location of the exchange is attached hereto as **EXHIBIT E.**

9.1. Background. Recharge credits generated from operation of the Rothe-Sublette Project will accrue to the South Platte River and be exchanged up the South Platte River to the confluence with Box Elder Creek.

9.2. Downstream Terminus: The point of accretion of the recharge credits to the South Platte River, the most downstream of which is located in the NW ¼ NE ¼ Section 29, T.5 N, R. 63 W, 6th P.M. in Weld County, at a point 1020 feet from the north section line and 1800 from the east section line.

9.3. Upstream Terminus: Confluence of Box Elder Creek and South Platte River in the SW ¼ SW ¼, Section 14, T. 4. N., R. 61 W., 6th P.M., in Weld County, at a point 1260 feet from the south section line and 900 feet from the west section line.

9.4. Sources of Substitute Supply: Rothe-Sublette Recharge Credits described in ¶ 7.5.

9.5. Claimed Uses: Augmentation.

9.6. Rate of Exchange: 2.0 c.f.s., conditional.

9.7. Volumetric Limit: 770 a.f., conditional.

9.8. Date of Initiation of Appropriation: December 11, 2019.

9.9. How Appropriation was Initiated: Applicant initiated this appropriation by purchasing the Property and the recharge rights, conducting engineering studies to determine the water

availability for and the need for the proposed exchange and passing a director's resolution evidencing the appropriation and filing this application.

9.10. Date Applied to Beneficial Use: Not applicable.

10. Integrated Water Supply Plan. The water rights described herein are components of Applicant's integrated water supply system, which consists of underground water rights, storage water rights, appropriative rights of exchange, surface water rights, non-tributary groundwater rights and plans for augmentation. Pursuant to C.R.S. § 37- 92-301(4)(B), work on one feature of the integrated system shall be considered in finding that reasonable diligence has been shown for all features of the integrated system.

11. Owners of Land upon which the Structures are or will be Located:

11.1. TCR Well Nos. 1 to 20, TCR-Recharge Pond Nos. 1 to 3 and TCR-Box Elder Surface Diversion are located on land owned by Applicant.

11.2. Amended Final Permit No. 12123-RFP is located on land owned by Turnpike, LLC, 4202 County Road, 65, Keenesburg, CO 80643.

11.3. Amended Final Permit No. 12124-RFP is located on land owned by Turnpike, LLC, 4202 County Road, 65, Keenesburg, CO 80643.

11.4. Amended Final Permit No. 31526-FP is located on land owned by Front Range Resources, LLC, 1001 Bannock Street, Unit 226, Denver, CO 80204.

11.5. Amended Final Permit No. 31527-FP is located on land owned by Front Range Resources, LLC, 1001 Bannock Street, Unit 226, Denver, CO 80204.

11.6. Amended Final Permit No. 31643-FP is located on land owned by Turnpike, LLC, 4202 County Road, 65, Keenesburg, CO 80643.

11.7. Amended Final Permit No. 14860-RFP is located on land owned by Donald and Brigitte Gustafson, 33020 County Road 4, Weld County, CO 80643; mailing address: 49001 E. 144th Ave., Bennett, CO 80102.

11.8. Amended Final Permit No. 31640-FP is located on land owned by Kevin and Lorie Helzer, 33518 County Road 4, Weld County, CO 80643.

11.9. Box Elder Ranch 1, No. R19548-RF is located on property owned by John and Robbin Thompson, 32265 E. 167th Dr., Hudson, CO 80642.

11.10. Riverside Canal headgate is located on land owned by Riverside Irrigation District, 217 Kiowa Ave., Fort Morgan, CO 80701.

11.11. Riverside Reservoir is located on land owned by Riverside Irrigation District, 217 Kiowa Avenue, PO Box 455, Fort Morgan, CO 80701 and/ or by the United States of America, 2850 Youngfield Street, Lakewood, CO 80215.

11.12. R-S Ponds 1 to 21 is located on land owned by Sublette, Inc., PO Box 21, Orchard, CO 80649.

11.13. Chatfield Reservoir is located on land owned by US Army Corps of Engineers, 9307 S. Wadsworth Blvd., Littleton, CO 80128.

WHEREFORE, Applicant respectfully requests the Court enter a decree adjudicating Applicant's claimed water rights, approving the change of water rights and approving the proposed plan for augmentation.

Dated: December 13, 2019

LYONS GADDIS KAHN HALL
JEFFERS DWORAK & GRANT, PC

By_____
Madoline Wallace-Gross
*mwg@lyonsgaddis.com*
ATTORNEYS FOR APPLICANT,
TOWN OF CASTLE ROCK

## VERIFICATION AND ACKNOWLEDGMENT OF APPLICANT OR OTHER PERSON HAVING KNOWLEDGE OF THE FACTS STATED IN THIS APPLICATION

I, Gary Thompson, P.E., being first duly sworn, hereby state that I have read this **APPLICATION FOR CONDITIONAL UNDERGROUND WATER RIGHTS, CONDITIONAL RECHARGE WATER RIGHTS, CONDITIONAL RIGHT OF APPROPRIATIVE EXCHANGE, APPROVAL OF A CHANGE OF WATER RIGHTS AND A PLAN FOR AUGMENTATION** that I have personal knowledge of the facts stated and, that I verify its contents to the best of my knowledge, information, and belief.

Gary B Thompson 12-13-19
Gary Thompson, P.E. Date

The foregoing instrument was acknowledged before me in the County of Arapahoe, State of Colorado, this 13 day of December, 2019, by the person whose signature appears above.

Witness my hand and official seal.

MIRIAM GAINES
Notary Public
State of Colorado
Notary ID # 19914013354
My Commission Expires 10-06-2023

Miriam Gaines
Notary Public

My Commission Expires: 10-06-2023

The person signing this verification is Applicant's water resources engineer.

## EXHIBIT LIST

A. Map of Applicant's Property and Structures

B. Map of CR Service Area

C. Map of Acreage Irrigated by Junior Water Rights

D. Summaries of Pumping Records

E. Map of Augmentation and Exchange Sources – Weld County sources

F. Map of Augmentation Sources – Chatfield Reservoir

G. Description of Consumptive Use Credits

H. Description of Nontributary Groundwater

I. WISE – Denver

J. WISE - Aurora

K. Table of Timing of Depletions and Accretions

L. Map of Points of Depletion and Accretion

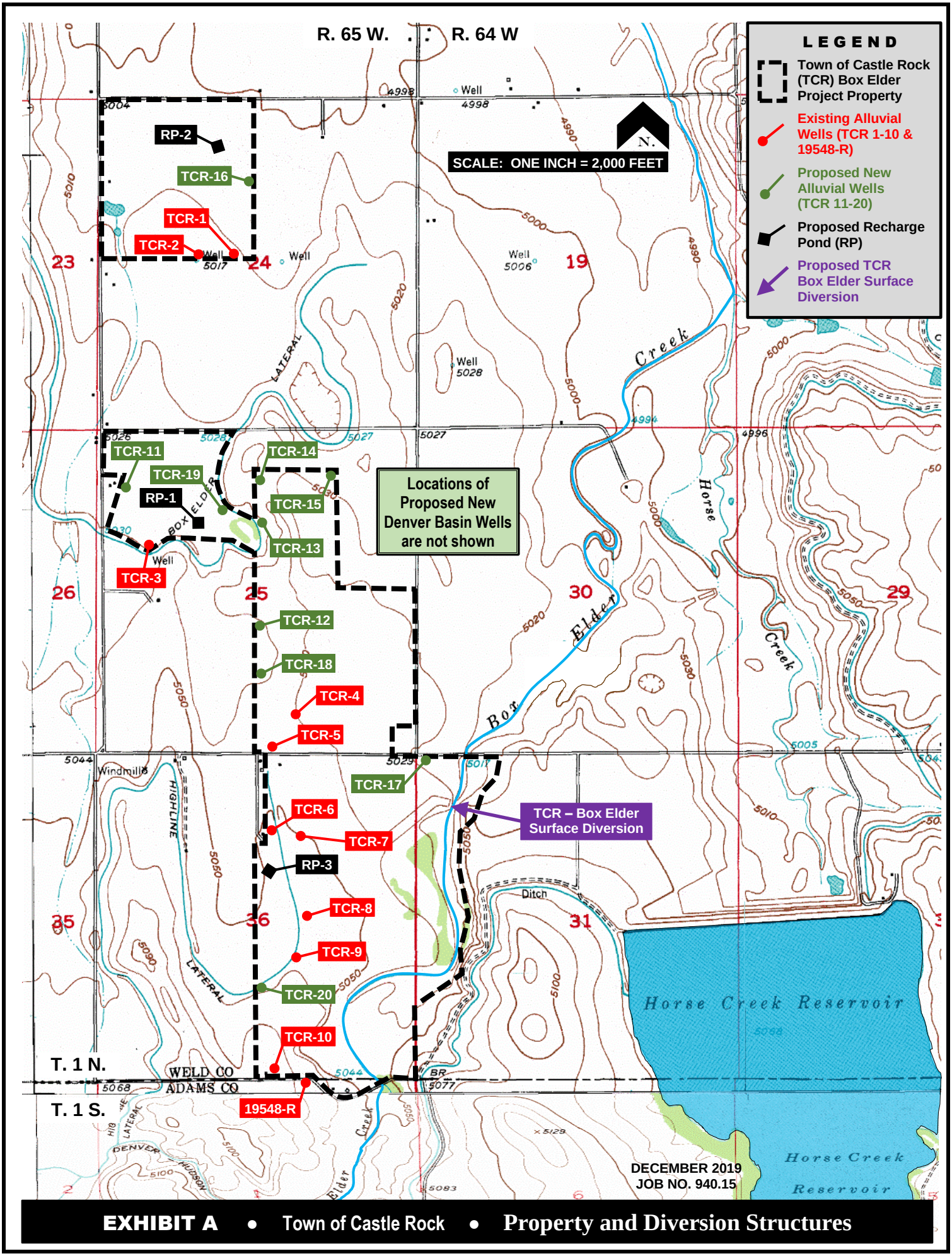
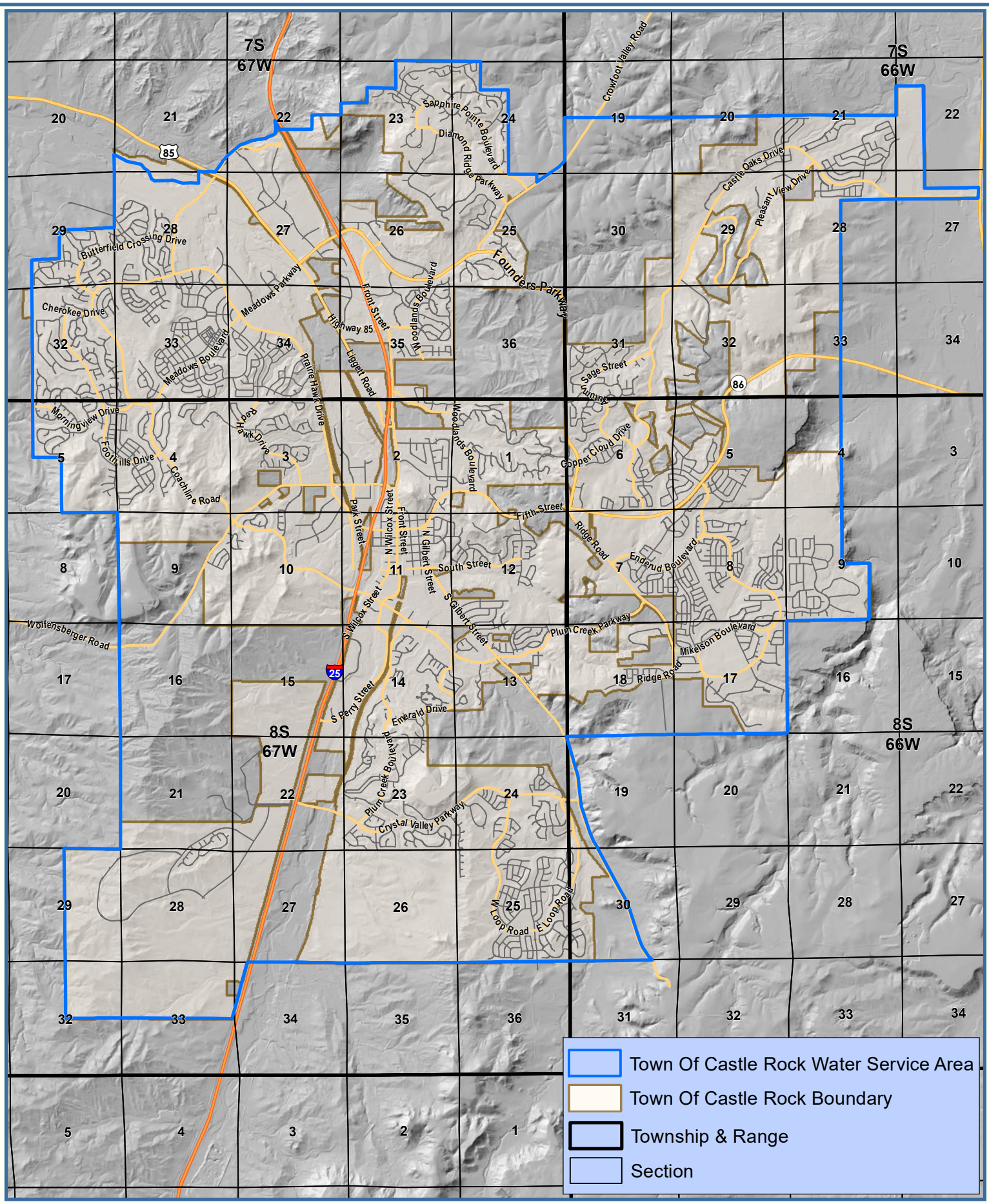



**EXHIBIT A** • Town of Castle Rock • **Property and Diversion Structures**




CASTLE ROCK Qwater
Securing our future drop by drop

0 0.5 1 2 Miles

1 inch = 5,833 feet

N

Date: 12/12/2019

**Exhibit B - Town of Castle Rock Water Service Area**

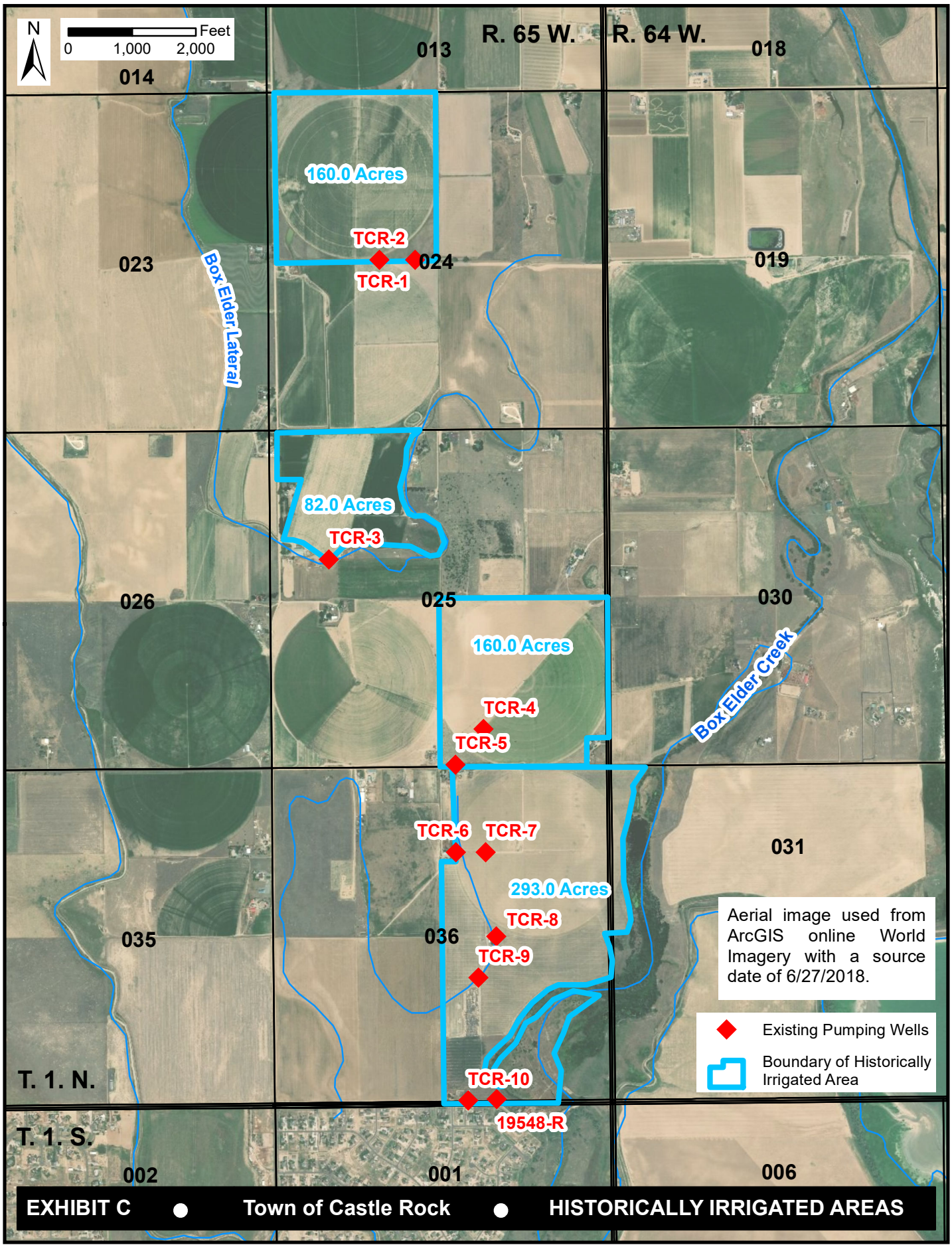

N
Feet
0
1,000
2,000
R. 65 W.
R. 64 W.
013
018
014
160.0 Acres
TCR-2
TCR-1
024
023
019
Box Elder Lateral
82.0 Acres
TCR-3
026
025
030
160.0 Acres
Box Elder Creek
TCR-4
TCR-5
TCR-6
TCR-7
031
293.0 Acres
TCR-8
035
036
TCR-9
Aerial image used from ArcGIS online World Imagery with a source date of 6/27/2018.
Existing Pumping Wells
Boundary of Historically Irrigated Area
T. 1. N.
TCR-10
19548-R
T. 1. S.
002
001
006
EXHIBIT C • Town of Castle Rock • HISTORICALLY IRRIGATED AREAS

**Exhibit D.1**
**Well Pumping - TCR-1 (Permit No. 10159-R-R, SEO ID: 205439)**
**(acre-feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 15.1 | 30.2 | 66.8 | 45.0 | 15.8 | 1.2 | 0.0 | 0.0 | 174.2 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 19.0 | 56.2 | 49.8 | 22.5 | 2.0 | 0.0 | 0.0 | 149.9 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 5.7 | 32.3 | 61.9 | 46.8 | 11.5 | 1.2 | 0.0 | 0.0 | 159.5 |
| 1977 | 0.0 | 0.0 | 0.0 | 0.4 | 15.6 | 48.6 | 62.5 | 45.9 | 24.3 | 2.2 | 0.1 | 0.0 | 199.5 |
| 1978 | 0.0 | 0.0 | 0.0 | 1.7 | 0.7 | 28.1 | 68.7 | 47.1 | 22.9 | 0.9 | 0.0 | 0.0 | 170.1 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 15.1 | 66.3 | 27.7 | 22.1 | 1.7 | 0.0 | 0.0 | 133.2 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 39.5 | 72.9 | 52.4 | 25.1 | 1.6 | 0.0 | 0.0 | 192.0 |
| 1981 | 0.0 | 0.0 | 0.0 | 1.8 | 4.1 | 42.5 | 58.3 | 50.2 | 18.2 | 1.7 | 0.2 | 0.0 | 176.9 |
| 1982 | 0.0 | 0.0 | 0.0 | 1.1 | 6.6 | 18.6 | 55.2 | 53.2 | 14.4 | 1.2 | 0.0 | 0.0 | 150.3 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 47.4 | 58.3 | 28.4 | 2.6 | 0.0 | 0.0 | 144.0 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 7.1 | 30.8 | 62.3 | 47.0 | 21.8 | 0.0 | 0.0 | 0.0 | 169.1 |
| 1985 | 0.0 | 0.0 | 0.0 | 0.5 | 12.7 | 35.0 | 54.9 | 55.5 | 12.3 | 0.7 | 0.0 | 0.0 | 171.5 |
| 1986 | 0.0 | 0.0 | 0.0 | 0.2 | 5.3 | 35.8 | 65.3 | 52.0 | 18.7 | 0.7 | 0.0 | 0.0 | 178.1 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.3 | 6.1 | 32.1 | 67.5 | 46.6 | 18.4 | 1.3 | 0.0 | 0.0 | 172.4 |
| 1988 | 0.0 | 0.0 | 0.0 | 0.4 | 4.8 | 42.1 | 65.5 | 47.1 | 15.9 | 2.3 | 0.0 | 0.0 | 178.1 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.2 | 10.9 | 21.7 | 62.1 | 43.5 | 11.9 | 1.8 | 0.0 | 0.0 | 152.1 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.1 | 3.2 | 44.9 | 54.2 | 40.8 | 18.8 | 0.8 | 0.0 | 0.0 | 162.7 |
| 1991 | 0.0 | 0.0 | 0.0 | 0.6 | 11.3 | 31.2 | 53.5 | 43.9 | 17.7 | 0.9 | 0.0 | 0.0 | 159.1 |
| 1992 | 0.0 | 0.0 | 0.0 | 0.4 | 13.1 | 29.2 | 50.3 | 26.1 | 4.8 | 0.4 | 0.0 | 0.0 | 124.2 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 22.7 | 61.8 | 45.7 | 10.8 | 0.3 | 0.0 | 0.0 | 148.1 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.1 | 11.0 | 45.6 | 62.8 | 47.0 | 22.2 | 1.3 | 0.0 | 0.0 | 190.0 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 58.0 | 63.7 | 16.8 | 2.9 | 0.2 | 0.0 | 145.9 |
| 1996 | 0.0 | 0.0 | 0.0 | 0.7 | 9.9 | 41.5 | 52.0 | 53.9 | 11.9 | 1.5 | 0.0 | 0.0 | 171.5 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 6.6 | 22.7 | 59.9 | 35.8 | 23.0 | 1.1 | 0.0 | 0.0 | 149.1 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 5.7 | 28.5 | 63.0 | 52.6 | 25.8 | 1.2 | 0.1 | 0.0 | 177.0 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 34.2 | 53.5 | 51.0 | 18.7 | 1.8 | 0.5 | 0.0 | 161.9 |
| 2000 | 0.0 | 0.0 | 0.0 | 4.9 | 14.5 | 50.1 | 80.1 | 57.7 | 16.7 | 1.3 | 0.0 | 0.0 | 225.1 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 24.0 | 34.4 | 42.4 | 18.8 | 2.7 | 0.0 | 0.0 | 122.4 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 44.4 | 59.8 | 33.0 | 15.8 | 1.2 | 0.0 | 0.0 | 159.5 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.7 | 37.0 | 39.5 | 25.5 | 0.0 | 0.0 | 0.0 | 110.7 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 26.5 | 48.4 | 28.7 | 10.8 | 0.0 | 0.0 | 0.0 | 116.7 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 19.9 | 58.2 | 29.3 | 12.1 | 0.0 | 0.0 | 0.0 | 123.6 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 7.6 | 35.2 | 42.2 | 31.1 | 10.5 | 0.0 | 0.0 | 0.0 | 126.7 |
| 2007 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2008 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 | 5.7 | 0.2 | 0.0 | 13.9 | 7.1 | 0.2 | 31.8 |
| 2009 | 0.0 | 4.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 13.3 | 6.9 | 0.4 | 0.0 | 0.0 | 24.9 |
| 2010 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 7.8 | 21.7 | 19.6 | 23.2 | 4.7 | 0.0 | 0.0 | 82.1 |
| 2012 | 0.0 | 0.0 | 3.5 | 3.2 | 8.9 | 8.7 | 31.5 | 14.6 | 2.9 | 2.7 | 0.1 | 0.0 | 75.9 |
| 2013 | 0.0 | 0.0 | 3.4 | 0.2 | 12.1 | 17.9 | 14.3 | 7.0 | 0.2 | 0.0 | 0.0 | 0.0 | 55.2 |
| 2014 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 9.0 |
| 2015 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 22.2 | 2.2 | 16.5 | 0.0 | 0.0 | 0.0 | 44.8 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.9 | 25.9 | 14.9 | 4.9 | 1.6 | 0.0 | 0.0 | 62.2 |
| 2017 | 0.0 | 0.0 | 5.3 | 1.3 | 1.0 | 6.9 | 22.2 | 16.4 | 5.4 | 1.3 | 0.0 | 0.0 | 59.8 |
| Avg | 0.0 | 0.1 | 0.3 | 0.4 | 5.1 | 24.0 | 47.2 | 35.9 | 14.7 | 1.5 | 0.2 | 0.0 | 129.3 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.

**Exhibit D.2**
**Well Pumping - TCR-2 (Permit No. 10160, SEO ID: 205440)**
**(acre-feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 15.1 | 30.2 | 66.8 | 45.0 | 15.8 | 1.2 | 0.0 | 0.0 | 174.2 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 19.0 | 56.2 | 49.8 | 22.5 | 2.0 | 0.0 | 0.0 | 149.9 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 5.7 | 32.3 | 61.9 | 46.8 | 11.5 | 1.2 | 0.0 | 0.0 | 159.5 |
| 1977 | 0.0 | 0.0 | 0.0 | 0.4 | 15.6 | 48.6 | 62.5 | 45.9 | 24.3 | 2.2 | 0.1 | 0.0 | 199.5 |
| 1978 | 0.0 | 0.0 | 0.0 | 1.7 | 0.7 | 28.1 | 68.7 | 47.1 | 22.9 | 0.9 | 0.0 | 0.0 | 170.1 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 15.1 | 66.3 | 27.7 | 22.1 | 1.7 | 0.0 | 0.0 | 133.2 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 39.5 | 72.9 | 52.4 | 25.1 | 1.6 | 0.0 | 0.0 | 192.0 |
| 1981 | 0.0 | 0.0 | 0.0 | 1.8 | 4.1 | 42.5 | 58.3 | 50.2 | 18.2 | 1.7 | 0.2 | 0.0 | 176.9 |
| 1982 | 0.0 | 0.0 | 0.0 | 1.1 | 6.6 | 18.6 | 55.2 | 53.2 | 14.4 | 1.2 | 0.0 | 0.0 | 150.3 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 47.4 | 58.3 | 28.4 | 2.6 | 0.0 | 0.0 | 144.0 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 7.1 | 30.8 | 62.3 | 47.0 | 21.8 | 0.0 | 0.0 | 0.0 | 169.1 |
| 1985 | 0.0 | 0.0 | 0.0 | 0.5 | 12.7 | 35.0 | 54.9 | 55.5 | 12.3 | 0.7 | 0.0 | 0.0 | 171.5 |
| 1986 | 0.0 | 0.0 | 0.0 | 0.2 | 5.3 | 35.8 | 65.3 | 52.0 | 18.7 | 0.7 | 0.0 | 0.0 | 178.1 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.3 | 6.1 | 32.1 | 67.5 | 46.6 | 18.4 | 1.3 | 0.0 | 0.0 | 172.4 |
| 1988 | 0.0 | 0.0 | 0.0 | 0.4 | 4.8 | 42.1 | 65.5 | 47.1 | 15.9 | 2.3 | 0.0 | 0.0 | 178.1 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.2 | 10.9 | 21.7 | 62.1 | 43.5 | 11.9 | 1.8 | 0.0 | 0.0 | 152.1 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.1 | 3.2 | 44.9 | 54.2 | 40.8 | 18.8 | 0.8 | 0.0 | 0.0 | 162.7 |
| 1991 | 0.0 | 0.0 | 0.0 | 0.6 | 11.3 | 31.2 | 53.5 | 43.9 | 17.7 | 0.9 | 0.0 | 0.0 | 159.1 |
| 1992 | 0.0 | 0.0 | 0.0 | 0.4 | 13.1 | 29.2 | 50.3 | 26.1 | 4.8 | 0.4 | 0.0 | 0.0 | 124.2 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 22.7 | 61.8 | 45.7 | 10.8 | 0.3 | 0.0 | 0.0 | 148.1 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.1 | 11.0 | 45.6 | 62.8 | 47.0 | 22.2 | 1.3 | 0.0 | 0.0 | 190.0 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 58.0 | 63.7 | 16.8 | 2.9 | 0.2 | 0.0 | 145.9 |
| 1996 | 0.0 | 0.0 | 0.0 | 0.7 | 9.9 | 41.5 | 52.0 | 53.9 | 11.9 | 1.5 | 0.0 | 0.0 | 171.5 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 6.6 | 22.7 | 59.9 | 35.8 | 23.0 | 1.1 | 0.0 | 0.0 | 149.1 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 5.7 | 28.5 | 63.0 | 52.6 | 25.8 | 1.2 | 0.1 | 0.0 | 177.0 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 34.2 | 53.5 | 51.0 | 18.7 | 1.8 | 0.5 | 0.0 | 161.9 |
| 2000 | 0.0 | 0.0 | 0.0 | 4.9 | 14.5 | 50.1 | 80.1 | 57.7 | 16.7 | 1.3 | 0.0 | 0.0 | 225.1 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 24.0 | 34.4 | 42.4 | 18.8 | 2.7 | 0.0 | 0.0 | 122.4 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 44.4 | 59.8 | 33.0 | 15.8 | 1.2 | 0.0 | 0.0 | 159.5 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.7 | 37.0 | 39.5 | 25.5 | 0.0 | 0.0 | 0.0 | 110.7 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 26.5 | 48.4 | 28.7 | 10.8 | 0.0 | 0.0 | 0.0 | 116.7 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 19.9 | 58.2 | 29.3 | 12.1 | 0.0 | 0.0 | 0.0 | 123.6 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 7.6 | 35.2 | 42.2 | 31.1 | 10.5 | 0.0 | 0.0 | 0.0 | 126.7 |
| 2007 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 1.6 | 2.4 | 0.1 | 0.0 | 0.0 | 0.0 | 8.6 |
| 2008 | 0.0 | 0.0 | 4.9 | 4.1 | 4.8 | 0.3 | 5.4 | 1.7 | 1.6 | 0.1 | 10.1 | 0.3 | 33.3 |
| 2009 | 0.0 | 3.5 | 4.5 | 0.0 | 0.4 | 0.2 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.0 |
| 2010 | 0.0 | 0.0 | 1.4 | 0.1 | 0.0 | 0.0 | 9.9 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 12.0 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 12.0 | 32.9 | 28.7 | 34.8 | 7.1 | 0.0 | 0.0 | 123.2 |
| 2012 | 0.0 | 0.0 | 5.2 | 4.7 | 13.1 | 12.9 | 46.1 | 21.5 | 4.2 | 4.0 | 0.1 | 0.0 | 111.9 |
| 2013 | 0.0 | 0.0 | 5.0 | 0.3 | 16.7 | 22.3 | 11.7 | 0.4 | 9.5 | 0.0 | 0.0 | 0.0 | 66.1 |
| 2014 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.7 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 12.1 |
| 2015 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 5.4 | 31.6 | 3.1 | 23.8 | 0.0 | 0.0 | 0.0 | 64.1 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 | 31.3 | 20.2 | 6.7 | 2.2 | 0.0 | 0.0 | 67.9 |
| 2017 | 0.0 | 0.0 | 7.4 | 1.8 | 1.4 | 9.6 | 31.3 | 22.0 | 7.9 | 2.4 | 0.0 | 0.0 | 83.6 |
| Avg | 0.0 | 0.1 | 0.6 | 0.6 | 5.5 | 24.3 | 48.6 | 36.2 | 15.3 | 1.3 | 0.3 | 0.0 | 132.7 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.

**Exhibit D.3**
**Well Pumping - TCR-3 (Permit No. 4360-RF, SEO ID: 206390)**
**(acre-feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 15.6 | 30.8 | 70.9 | 47.7 | 16.7 | 1.2 | 0.0 | 0.0 | 182.9 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 18.6 | 59.2 | 52.9 | 23.8 | 2.1 | 0.0 | 0.0 | 156.9 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 5.4 | 33.2 | 65.4 | 49.5 | 11.8 | 1.3 | 0.0 | 0.0 | 166.7 |
| 1977 | 0.0 | 0.0 | 0.0 | 0.2 | 16.3 | 50.8 | 66.0 | 48.5 | 26.0 | 2.3 | 0.1 | 0.0 | 210.2 |
| 1978 | 0.0 | 0.0 | 0.0 | 1.6 | 0.3 | 28.6 | 73.0 | 49.9 | 24.5 | 0.9 | 0.0 | 0.0 | 178.9 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 14.7 | 69.7 | 28.5 | 23.4 | 1.8 | 0.0 | 0.0 | 138.2 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 40.5 | 77.5 | 55.7 | 26.7 | 1.7 | 0.0 | 0.0 | 202.3 |
| 1981 | 0.0 | 0.0 | 0.0 | 1.6 | 3.9 | 44.4 | 61.5 | 53.3 | 19.3 | 1.8 | 0.2 | 0.0 | 185.9 |
| 1982 | 0.0 | 0.0 | 0.0 | 1.2 | 6.5 | 18.4 | 58.2 | 56.4 | 15.0 | 1.2 | 0.0 | 0.0 | 156.9 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 48.9 | 61.9 | 30.3 | 2.7 | 0.0 | 0.0 | 150.2 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 7.0 | 31.6 | 65.9 | 49.7 | 23.2 | 0.0 | 0.0 | 0.0 | 177.4 |
| 1985 | 0.0 | 0.0 | 0.0 | 0.5 | 12.9 | 36.1 | 57.8 | 59.1 | 12.8 | 0.7 | 0.0 | 0.0 | 180.0 |
| 1986 | 0.0 | 0.0 | 0.0 | 0.1 | 5.0 | 36.9 | 69.4 | 55.2 | 19.9 | 0.7 | 0.0 | 0.0 | 187.2 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.3 | 5.7 | 32.8 | 71.7 | 49.3 | 19.5 | 1.4 | 0.0 | 0.0 | 180.7 |
| 1988 | 0.0 | 0.0 | 0.0 | 0.4 | 4.3 | 43.6 | 69.6 | 49.8 | 16.7 | 2.4 | 0.0 | 0.0 | 186.8 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.2 | 11.3 | 21.8 | 66.6 | 46.6 | 12.7 | 1.9 | 0.0 | 0.0 | 161.1 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 47.9 | 58.2 | 43.7 | 20.1 | 0.9 | 0.0 | 0.0 | 173.7 |
| 1991 | 0.0 | 0.0 | 0.0 | 0.6 | 11.6 | 32.3 | 57.1 | 47.0 | 19.0 | 1.0 | 0.0 | 0.0 | 168.5 |
| 1992 | 0.0 | 0.0 | 0.0 | 0.4 | 13.5 | 30.4 | 53.9 | 27.2 | 5.2 | 0.4 | 0.0 | 0.0 | 131.0 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 | 23.1 | 66.7 | 49.3 | 11.5 | 0.3 | 0.0 | 0.0 | 157.5 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.0 | 11.4 | 48.5 | 67.8 | 50.4 | 23.9 | 1.3 | 0.0 | 0.0 | 203.4 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 60.8 | 67.9 | 17.4 | 3.1 | 0.2 | 0.0 | 152.5 |
| 1996 | 0.0 | 0.0 | 0.0 | 0.6 | 9.9 | 43.2 | 54.6 | 57.3 | 12.3 | 1.6 | 0.0 | 0.0 | 179.5 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 6.6 | 22.8 | 64.3 | 37.9 | 24.7 | 1.1 | 0.0 | 0.0 | 157.4 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 45.7 | 34.0 | 19.8 | 1.2 | 0.1 | 0.0 | 105.8 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.4 | 29.3 | 23.8 | 18.5 | 2.0 | 0.6 | 0.0 | 86.6 |
| 2000 | 0.0 | 0.0 | 0.0 | 1.0 | 5.1 | 35.9 | 79.7 | 46.0 | 17.5 | 1.3 | 0.0 | 0.0 | 186.6 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 61.5 | 50.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 111.4 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30.0 | 55.3 | 64.0 | 10.2 | 0.0 | 0.0 | 159.5 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.3 | 56.5 | 38.0 | 16.3 | 0.0 | 0.0 | 0.0 | 127.0 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.8 | 68.4 | 38.0 | 14.4 | 0.0 | 0.0 | 0.0 | 130.5 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 7.3 | 30.0 | 55.4 | 38.3 | 4.2 | 0.0 | 0.0 | 0.0 | 135.2 |
| 2007 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 2.5 |
| 2008 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 2.7 | 2.8 | 4.0 | 8.3 | 10.4 | 0.3 | 28.7 |
| 2009 | 0.0 | 4.9 | 0.4 | 2.4 | 3.8 | 1.7 | 5.3 | 9.7 | 6.4 | 0.2 | 0.0 | 0.0 | 34.7 |
| 2010 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 12.7 | 1.6 | 0.3 | 0.0 | 0.0 | 18.0 |
| 2012 | 0.0 | 0.0 | 9.7 | 1.1 | 14.7 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.0 |
| 2013 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.5 | 12.7 | 0.0 | 0.0 | 0.0 | 33.1 |
| 2014 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.9 |
| 2015 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 25.7 | 2.8 | 15.0 | 0.0 | 0.0 | 0.1 | 43.6 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.7 | 2.9 | 12.5 | 4.2 | 0.0 | 0.0 | 33.2 |
| 2017 | 0.0 | 0.0 | 0.0 | 18.9 | 1.3 | 1.1 | 10.9 | 10.6 | 9.7 | 1.9 | 0.0 | 0.0 | 54.4 |
| Avg | 0.0 | 0.1 | 0.2 | 0.7 | 4.4 | 20.8 | 46.5 | 34.8 | 15.3 | 1.4 | 0.3 | 0.0 | 124.5 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.

**Exhibit D.4**
**Well Pumping - TCR-5 (Permit No. 8358-RF - SEO ID: 206929)**
**(acre-feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 15.2 | 30.0 | 69.2 | 46.5 | 16.3 | 1.2 | 0.0 | 0.0 | 178.4 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 18.2 | 57.8 | 51.6 | 23.3 | 2.0 | 0.0 | 0.0 | 153.0 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 32.4 | 63.9 | 48.3 | 11.5 | 1.3 | 0.0 | 0.0 | 162.7 |
| 1977 | 0.0 | 0.0 | 0.0 | 0.2 | 15.9 | 49.5 | 64.4 | 47.3 | 25.3 | 2.3 | 0.1 | 0.0 | 205.0 |
| 1978 | 0.0 | 0.0 | 0.0 | 1.6 | 0.3 | 27.9 | 71.2 | 48.7 | 23.9 | 0.9 | 0.0 | 0.0 | 174.5 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 14.3 | 68.0 | 27.8 | 22.8 | 1.8 | 0.0 | 0.0 | 134.8 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 39.5 | 75.6 | 54.3 | 26.0 | 1.6 | 0.0 | 0.0 | 197.4 |
| 1981 | 0.0 | 0.0 | 0.0 | 1.5 | 3.9 | 43.3 | 60.0 | 52.0 | 18.8 | 1.7 | 0.2 | 0.0 | 181.4 |
| 1982 | 0.0 | 0.0 | 0.0 | 1.1 | 6.4 | 18.0 | 56.8 | 55.0 | 14.6 | 1.2 | 0.0 | 0.0 | 153.1 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 47.7 | 60.4 | 29.5 | 2.7 | 0.0 | 0.0 | 146.5 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 30.9 | 64.3 | 48.5 | 22.6 | 0.0 | 0.0 | 0.0 | 173.1 |
| 1985 | 0.0 | 0.0 | 0.0 | 0.5 | 12.6 | 35.3 | 56.4 | 57.7 | 12.5 | 0.7 | 0.0 | 0.0 | 175.6 |
| 1986 | 0.0 | 0.0 | 0.0 | 0.1 | 4.9 | 36.0 | 67.7 | 53.9 | 19.4 | 0.7 | 0.0 | 0.0 | 182.6 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.3 | 5.5 | 32.0 | 70.0 | 48.1 | 19.1 | 1.4 | 0.0 | 0.0 | 176.3 |
| 1988 | 0.0 | 0.0 | 0.0 | 0.4 | 4.2 | 42.5 | 67.9 | 48.6 | 16.3 | 2.4 | 0.0 | 0.0 | 182.3 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.1 | 11.1 | 21.3 | 65.0 | 45.4 | 12.3 | 1.9 | 0.0 | 0.0 | 157.1 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 46.7 | 56.8 | 42.6 | 19.6 | 0.9 | 0.0 | 0.0 | 169.5 |
| 1991 | 0.0 | 0.0 | 0.0 | 0.6 | 11.3 | 31.5 | 55.7 | 45.8 | 18.5 | 1.0 | 0.0 | 0.0 | 164.4 |
| 1992 | 0.0 | 0.0 | 0.0 | 0.4 | 13.2 | 29.7 | 52.5 | 26.6 | 5.1 | 0.4 | 0.0 | 0.0 | 127.8 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 22.5 | 65.1 | 48.1 | 11.2 | 0.3 | 0.0 | 0.0 | 153.6 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.0 | 11.1 | 47.3 | 66.2 | 49.2 | 23.4 | 1.3 | 0.0 | 0.0 | 198.4 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 59.3 | 66.3 | 17.0 | 3.0 | 0.2 | 0.0 | 148.8 |
| 1996 | 0.0 | 0.0 | 0.0 | 0.6 | 9.7 | 42.2 | 53.2 | 55.9 | 12.0 | 1.6 | 0.0 | 0.0 | 175.1 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 22.3 | 62.7 | 37.0 | 24.1 | 1.1 | 0.0 | 0.0 | 153.6 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 20.7 | 62.2 | 49.1 | 24.8 | 1.2 | 0.1 | 0.0 | 161.6 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 28.0 | 49.7 | 45.8 | 19.1 | 1.9 | 0.6 | 0.0 | 145.6 |
| 2000 | 0.0 | 0.0 | 0.0 | 3.8 | 12.6 | 47.1 | 81.9 | 56.0 | 17.1 | 1.3 | 0.0 | 0.0 | 219.6 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.2 | 43.9 | 59.0 | 20.6 | 0.0 | 0.0 | 0.0 | 145.7 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 73.9 | 52.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 133.9 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.7 | 36.5 | 65.1 | 62.3 | 10.1 | 0.0 | 0.0 | 184.6 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 13.5 | 65.8 | 47.8 | 15.1 | 0.0 | 0.0 | 0.0 | 142.8 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 10.0 | 75.7 | 47.3 | 13.6 | 0.0 | 0.0 | 0.0 | 148.8 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 29.7 | 60.5 | 45.4 | 4.7 | 0.0 | 0.0 | 0.0 | 148.8 |
| 2007 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.6 | 32.5 | 2.8 | 0.1 | 32.6 | 2.3 | 0.0 | 78.9 |
| 2008 | 0.0 | 0.0 | 23.0 | 4.4 | 10.2 | 8.3 | 15.6 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 62.0 |
| 2009 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2010 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2012 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2013 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2014 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2015 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2017 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Avg | 0.0 | 0.0 | 0.5 | 0.4 | 4.5 | 22.6 | 47.1 | 36.0 | 14.1 | 1.8 | 0.1 | 0.0 | 127.2 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.

**Exhibit D.5**
**Well Pumping - TCR-4 (Permit No. 8905-RF - SEO ID: 206930)**
**(acre-feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 15.2 | 30.0 | 69.2 | 46.5 | 16.3 | 1.2 | 0.0 | 0.0 | 178.4 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 18.2 | 57.8 | 51.6 | 23.3 | 2.0 | 0.0 | 0.0 | 153.0 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 32.4 | 63.9 | 48.3 | 11.5 | 1.3 | 0.0 | 0.0 | 162.7 |
| 1977 | 0.0 | 0.0 | 0.0 | 0.2 | 15.9 | 49.5 | 64.4 | 47.3 | 25.3 | 2.3 | 0.1 | 0.0 | 205.0 |
| 1978 | 0.0 | 0.0 | 0.0 | 1.6 | 0.3 | 27.9 | 71.2 | 48.7 | 23.9 | 0.9 | 0.0 | 0.0 | 174.5 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 14.3 | 68.0 | 27.8 | 22.8 | 1.8 | 0.0 | 0.0 | 134.8 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 39.5 | 75.6 | 54.3 | 26.0 | 1.6 | 0.0 | 0.0 | 197.4 |
| 1981 | 0.0 | 0.0 | 0.0 | 1.5 | 3.9 | 43.3 | 60.0 | 52.0 | 18.8 | 1.7 | 0.2 | 0.0 | 181.4 |
| 1982 | 0.0 | 0.0 | 0.0 | 1.1 | 6.4 | 18.0 | 56.8 | 55.0 | 14.6 | 1.2 | 0.0 | 0.0 | 153.1 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.2 | 47.7 | 60.4 | 29.5 | 2.7 | 0.0 | 0.0 | 146.5 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 30.9 | 64.3 | 48.5 | 22.6 | 0.0 | 0.0 | 0.0 | 173.1 |
| 1985 | 0.0 | 0.0 | 0.0 | 0.5 | 12.6 | 35.3 | 56.4 | 57.7 | 12.5 | 0.7 | 0.0 | 0.0 | 175.6 |
| 1986 | 0.0 | 0.0 | 0.0 | 0.1 | 4.9 | 36.0 | 67.7 | 53.9 | 19.4 | 0.7 | 0.0 | 0.0 | 182.6 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.3 | 5.5 | 32.0 | 70.0 | 48.1 | 19.1 | 1.4 | 0.0 | 0.0 | 176.3 |
| 1988 | 0.0 | 0.0 | 0.0 | 0.4 | 4.2 | 42.5 | 67.9 | 48.6 | 16.3 | 2.4 | 0.0 | 0.0 | 182.3 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.1 | 11.1 | 21.3 | 65.0 | 45.4 | 12.3 | 1.9 | 0.0 | 0.0 | 157.1 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 | 46.7 | 56.8 | 42.6 | 19.6 | 0.9 | 0.0 | 0.0 | 169.5 |
| 1991 | 0.0 | 0.0 | 0.0 | 0.6 | 11.3 | 31.5 | 55.7 | 45.8 | 18.5 | 1.0 | 0.0 | 0.0 | 164.4 |
| 1992 | 0.0 | 0.0 | 0.0 | 0.4 | 13.2 | 29.7 | 52.5 | 26.6 | 5.1 | 0.4 | 0.0 | 0.0 | 127.8 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 22.5 | 65.1 | 48.1 | 11.2 | 0.3 | 0.0 | 0.0 | 153.6 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.0 | 11.1 | 47.3 | 66.2 | 49.2 | 23.4 | 1.3 | 0.0 | 0.0 | 198.4 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 59.3 | 66.3 | 17.0 | 3.0 | 0.2 | 0.0 | 148.8 |
| 1996 | 0.0 | 0.0 | 0.0 | 0.6 | 9.7 | 42.2 | 53.2 | 55.9 | 12.0 | 1.6 | 0.0 | 0.0 | 175.1 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 22.3 | 62.7 | 37.0 | 24.1 | 1.1 | 0.0 | 0.0 | 153.6 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 20.7 | 62.2 | 49.1 | 24.8 | 1.2 | 0.1 | 0.0 | 161.6 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 28.0 | 49.7 | 45.8 | 19.1 | 1.9 | 0.6 | 0.0 | 145.6 |
| 2000 | 0.0 | 0.0 | 0.0 | 3.8 | 12.6 | 47.1 | 81.9 | 56.0 | 17.1 | 1.3 | 0.0 | 0.0 | 219.6 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.2 | 43.9 | 59.0 | 20.6 | 0.0 | 0.0 | 0.0 | 145.7 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 | 73.9 | 52.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 133.9 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.7 | 36.5 | 65.1 | 62.3 | 10.1 | 0.0 | 0.0 | 184.6 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 13.5 | 65.8 | 47.8 | 15.1 | 0.0 | 0.0 | 0.0 | 142.8 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 2.2 | 10.0 | 75.7 | 47.3 | 13.6 | 0.0 | 0.0 | 0.0 | 148.8 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 8.3 | 29.7 | 60.5 | 45.4 | 4.7 | 0.0 | 0.0 | 0.0 | 148.8 |
| 2007 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2008 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.2 | 2.9 | 25.2 | 19.5 | 14.1 | 0.5 | 74.5 |
| 2009 | 0.0 | 4.6 | 6.7 | 11.1 | 10.6 | 3.1 | 15.1 | 8.4 | 14.4 | 0.5 | 0.0 | 0.0 | 74.4 |
| 2010 | 0.0 | 0.0 | 0.0 | 8.3 | 8.0 | 4.1 | 13.5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 34.8 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 18.7 | 8.6 | 29.5 | 11.7 | 2.4 | 0.0 | 0.0 | 70.9 |
| 2012 | 0.0 | 0.0 | 19.0 | 2.2 | 34.6 | 18.2 | 41.3 | 34.9 | 0.0 | 0.0 | 0.0 | 9.9 | 160.0 |
| 2013 | 0.0 | 0.0 | 0.1 | 0.0 | 13.8 | 24.5 | 49.3 | 22.2 | 22.8 | 1.5 | 0.0 | 0.0 | 134.3 |
| 2014 | 0.1 | 0.0 | 0.1 | 0.0 | 11.1 | 0.4 | 3.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 14.9 |
| 2015 | 0.0 | 0.0 | 15.6 | 0.0 | 0.0 | 6.6 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 23.9 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.1 | 29.7 | 59.8 | 2.8 | 7.3 | 2.5 | 0.0 | 107.3 |
| 2017 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.1 | 55.1 | 31.9 | 6.9 | 0.0 | 0.0 | 0.0 | 109.1 |
| Avg | 0.0 | 0.1 | 0.9 | 0.7 | 6.1 | 24.4 | 51.3 | 40.3 | 16.1 | 1.8 | 0.4 | 0.2 | 142.3 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.

**Exhibit D.6**
**Well Pumping - TCR-6 (Permit No. 8359 - SEO ID: 205188)**
**(acre-feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 18.3 | 41.0 | 27.6 | 9.7 | 0.7 | 0.0 | 0.0 | 106.5 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 11.5 | 34.4 | 30.5 | 13.8 | 1.2 | 0.0 | 0.0 | 91.6 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 19.7 | 37.9 | 28.7 | 7.0 | 0.8 | 0.0 | 0.0 | 97.4 |
| 1977 | 0.0 | 0.0 | 0.0 | 0.2 | 9.5 | 29.7 | 38.3 | 28.1 | 14.9 | 1.3 | 0.0 | 0.0 | 122.1 |
| 1978 | 0.0 | 0.0 | 0.0 | 1.0 | 0.4 | 17.0 | 42.1 | 28.9 | 14.1 | 0.5 | 0.0 | 0.0 | 104.0 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 9.0 | 40.6 | 16.9 | 13.5 | 1.1 | 0.0 | 0.0 | 81.2 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 24.0 | 44.7 | 32.1 | 15.4 | 1.0 | 0.0 | 0.0 | 117.5 |
| 1981 | 0.0 | 0.0 | 0.0 | 1.1 | 2.5 | 25.9 | 35.7 | 30.8 | 11.1 | 1.0 | 0.1 | 0.0 | 108.2 |
| 1982 | 0.0 | 0.0 | 0.0 | 0.7 | 4.0 | 11.2 | 33.8 | 32.6 | 8.8 | 0.7 | 0.0 | 0.0 | 91.7 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 28.8 | 35.8 | 17.4 | 1.6 | 0.0 | 0.0 | 87.9 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 18.7 | 38.2 | 28.8 | 13.3 | 0.0 | 0.0 | 0.0 | 103.4 |
| 1985 | 0.0 | 0.0 | 0.0 | 0.3 | 7.7 | 21.3 | 33.6 | 34.1 | 7.5 | 0.4 | 0.0 | 0.0 | 104.8 |
| 1986 | 0.0 | 0.0 | 0.0 | 0.1 | 3.2 | 21.8 | 40.1 | 31.9 | 11.5 | 0.4 | 0.0 | 0.0 | 108.9 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.2 | 3.6 | 19.5 | 41.4 | 28.5 | 11.3 | 0.8 | 0.0 | 0.0 | 105.4 |
| 1988 | 0.0 | 0.0 | 0.0 | 0.2 | 2.8 | 25.6 | 40.2 | 28.9 | 9.7 | 1.4 | 0.0 | 0.0 | 108.8 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.1 | 6.7 | 13.3 | 38.6 | 27.0 | 7.4 | 1.1 | 0.0 | 0.0 | 94.3 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 27.9 | 33.7 | 25.4 | 11.7 | 0.5 | 0.0 | 0.0 | 101.0 |
| 1991 | 0.0 | 0.0 | 0.0 | 0.4 | 6.9 | 19.2 | 33.2 | 27.3 | 11.0 | 0.6 | 0.0 | 0.0 | 98.6 |
| 1992 | 0.0 | 0.0 | 0.0 | 0.2 | 8.1 | 18.0 | 31.2 | 16.1 | 3.0 | 0.3 | 0.0 | 0.0 | 76.9 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 13.9 | 38.5 | 28.5 | 6.7 | 0.2 | 0.0 | 0.0 | 91.9 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 28.3 | 39.1 | 29.2 | 13.8 | 0.8 | 0.0 | 0.0 | 118.1 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 35.4 | 39.1 | 10.2 | 1.8 | 0.1 | 0.0 | 89.1 |
| 1996 | 0.0 | 0.0 | 0.0 | 0.4 | 6.0 | 25.3 | 31.8 | 33.0 | 7.3 | 0.9 | 0.0 | 0.0 | 104.8 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 13.9 | 37.2 | 22.2 | 14.3 | 0.7 | 0.0 | 0.0 | 92.3 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 17.3 | 38.6 | 32.3 | 15.8 | 0.7 | 0.1 | 0.0 | 108.3 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 21.1 | 33.2 | 31.7 | 11.6 | 1.1 | 0.3 | 0.0 | 100.4 |
| 2000 | 0.0 | 0.0 | 0.0 | 3.0 | 8.8 | 30.7 | 49.1 | 35.4 | 10.2 | 0.8 | 0.0 | 0.0 | 137.9 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 10.0 | 12.8 | 16.5 | 5.2 | 0.0 | 0.0 | 0.0 | 45.5 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 | 42.9 | 29.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.2 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 12.1 | 33.5 | 28.7 | 6.0 | 0.0 | 0.0 | 83.3 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 33.7 | 23.9 | 6.5 | 0.0 | 0.0 | 0.0 | 64.2 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.1 | 23.3 | 5.9 | 0.0 | 0.0 | 0.0 | 68.4 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 29.8 | 21.5 | 2.2 | 0.0 | 0.0 | 0.0 | 66.0 |
| 2007 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.4 | 20.9 | 12.3 | 0.4 | 14.0 | 1.0 | 0.0 | 55.0 |
| 2008 | 0.0 | 0.0 | 5.8 | 3.2 | 5.6 | 12.8 | 14.5 | 1.2 | 0.0 | 1.4 | 1.0 | 0.0 | 45.6 |
| 2009 | 0.0 | 4.9 | 7.6 | 1.8 | 1.2 | 0.1 | 0.0 | 0.0 | 3.4 | 2.8 | 0.5 | 0.0 | 22.3 |
| 2010 | 0.0 | 0.0 | 0.0 | 1.1 | 0.5 | 2.5 | 5.8 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 10.3 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 15.6 | 28.9 | 28.1 | 3.8 | 0.0 | 0.0 | 81.3 |
| 2012 | 0.0 | 0.0 | 10.4 | 1.2 | 14.0 | 15.0 | 41.4 | 32.2 | 0.0 | 5.1 | 0.2 | 0.0 | 119.4 |
| 2013 | 0.0 | 0.0 | 4.9 | 0.2 | 26.0 | 35.5 | 1.2 | 0.0 | 10.0 | 1.8 | 0.8 | 0.0 | 80.6 |
| 2014 | 0.0 | 0.0 | 8.1 | 9.9 | 21.3 | 32.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 71.8 |
| 2015 | 0.0 | 0.0 | 7.9 | 0.0 | 0.0 | 5.3 | 44.3 | 48.5 | 14.2 | 1.5 | 0.0 | 0.0 | 121.8 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.6 | 42.1 | 47.5 | 6.3 | 0.3 | 0.0 | 0.0 | 122.8 |
| 2017 | 0.0 | 0.1 | 2.5 | 0.0 | 0.0 | 25.3 | 55.1 | 48.7 | 7.1 | 2.1 | 0.0 | 0.0 | 141.0 |
| Avg | 0.0 | 0.1 | 1.1 | 0.6 | 4.2 | 16.9 | 32.0 | 25.7 | 9.5 | 1.4 | 0.1 | 0.0 | 91.7 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.

**Exhibit D.7**
**Well Pumping - TCR-7 (Permit No. 2629-FR - SEO ID: 206189)**
**(acre-feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 18.3 | 41.0 | 27.6 | 9.7 | 0.7 | 0.0 | 0.0 | 106.5 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 11.5 | 34.4 | 30.5 | 13.8 | 1.2 | 0.0 | 0.0 | 91.6 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 19.7 | 37.9 | 28.7 | 7.0 | 0.8 | 0.0 | 0.0 | 97.4 |
| 1977 | 0.0 | 0.0 | 0.0 | 0.2 | 9.5 | 29.7 | 38.3 | 28.1 | 14.9 | 1.3 | 0.0 | 0.0 | 122.1 |
| 1978 | 0.0 | 0.0 | 0.0 | 1.0 | 0.4 | 17.0 | 42.1 | 28.9 | 14.1 | 0.5 | 0.0 | 0.0 | 104.0 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 9.0 | 40.6 | 16.9 | 13.5 | 1.1 | 0.0 | 0.0 | 81.2 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 24.0 | 44.7 | 32.1 | 15.4 | 1.0 | 0.0 | 0.0 | 117.5 |
| 1981 | 0.0 | 0.0 | 0.0 | 1.1 | 2.5 | 25.9 | 35.7 | 30.8 | 11.1 | 1.0 | 0.1 | 0.0 | 108.2 |
| 1982 | 0.0 | 0.0 | 0.0 | 0.7 | 4.0 | 11.2 | 33.8 | 32.6 | 8.8 | 0.7 | 0.0 | 0.0 | 91.7 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 28.8 | 35.8 | 17.4 | 1.6 | 0.0 | 0.0 | 87.9 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 18.7 | 38.2 | 28.8 | 13.3 | 0.0 | 0.0 | 0.0 | 103.4 |
| 1985 | 0.0 | 0.0 | 0.0 | 0.3 | 7.7 | 21.3 | 33.6 | 34.1 | 7.5 | 0.4 | 0.0 | 0.0 | 104.8 |
| 1986 | 0.0 | 0.0 | 0.0 | 0.1 | 3.2 | 21.8 | 40.1 | 31.9 | 11.5 | 0.4 | 0.0 | 0.0 | 108.9 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.2 | 3.6 | 19.5 | 41.4 | 28.5 | 11.3 | 0.8 | 0.0 | 0.0 | 105.4 |
| 1988 | 0.0 | 0.0 | 0.0 | 0.2 | 2.8 | 25.6 | 40.2 | 28.9 | 9.7 | 1.4 | 0.0 | 0.0 | 108.8 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.1 | 6.7 | 13.3 | 38.6 | 27.0 | 7.4 | 1.1 | 0.0 | 0.0 | 94.3 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 27.9 | 33.7 | 25.4 | 11.7 | 0.5 | 0.0 | 0.0 | 101.0 |
| 1991 | 0.0 | 0.0 | 0.0 | 0.4 | 6.9 | 19.2 | 33.2 | 27.3 | 11.0 | 0.6 | 0.0 | 0.0 | 98.6 |
| 1992 | 0.0 | 0.0 | 0.0 | 0.2 | 8.1 | 18.0 | 31.2 | 16.1 | 3.0 | 0.3 | 0.0 | 0.0 | 76.9 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 13.9 | 38.5 | 28.5 | 6.7 | 0.2 | 0.0 | 0.0 | 91.9 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 28.3 | 39.1 | 29.2 | 13.8 | 0.8 | 0.0 | 0.0 | 118.1 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 35.4 | 39.1 | 10.2 | 1.8 | 0.1 | 0.0 | 89.1 |
| 1996 | 0.0 | 0.0 | 0.0 | 0.4 | 6.0 | 25.3 | 31.8 | 33.0 | 7.3 | 0.9 | 0.0 | 0.0 | 104.8 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 13.9 | 37.2 | 22.2 | 14.3 | 0.7 | 0.0 | 0.0 | 92.3 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 17.3 | 38.6 | 32.3 | 15.8 | 0.7 | 0.1 | 0.0 | 108.3 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 21.1 | 33.2 | 31.7 | 11.6 | 1.1 | 0.3 | 0.0 | 100.4 |
| 2000 | 0.0 | 0.0 | 0.0 | 3.0 | 8.8 | 30.7 | 49.1 | 35.4 | 10.2 | 0.8 | 0.0 | 0.0 | 137.9 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 10.0 | 12.8 | 16.5 | 5.2 | 0.0 | 0.0 | 0.0 | 45.5 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 | 42.9 | 29.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.2 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 12.1 | 33.5 | 28.7 | 6.0 | 0.0 | 0.0 | 83.3 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 33.7 | 23.9 | 6.5 | 0.0 | 0.0 | 0.0 | 64.2 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.1 | 23.3 | 5.9 | 0.0 | 0.0 | 0.0 | 68.4 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 29.8 | 21.5 | 2.2 | 0.0 | 0.0 | 0.0 | 66.0 |
| 2007 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 11.1 | 15.0 | 8.0 | 1.2 | 14.5 | 1.0 | 0.0 | 52.2 |
| 2008 | 0.0 | 0.0 | 9.4 | 5.0 | 4.4 | 4.4 | 9.5 | 1.4 | 0.7 | 1.5 | 0.2 | 0.0 | 36.4 |
| 2009 | 0.0 | 6.9 | 2.8 | 0.4 | 0.3 | 0.0 | 2.5 | 9.2 | 3.3 | 1.2 | 0.2 | 0.0 | 27.0 |
| 2010 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 2.8 | 0.2 | 0.0 | 7.3 | 5.3 | 0.2 | 17.0 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.8 | 11.4 | 21.1 | 20.2 | 2.7 | 0.0 | 0.0 | 59.3 |
| 2012 | 0.0 | 0.0 | 7.6 | 0.9 | 9.9 | 10.5 | 31.4 | 24.2 | 0.0 | 3.9 | 0.1 | 0.0 | 88.4 |
| 2013 | 0.0 | 0.0 | 3.9 | 0.2 | 20.8 | 28.5 | 1.0 | 0.0 | 7.8 | 1.5 | 0.7 | 0.0 | 64.3 |
| 2014 | 0.0 | 0.0 | 7.6 | 7.7 | 16.7 | 24.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 56.3 |
| 2015 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 4.2 | 36.8 | 41.2 | 12.1 | 1.3 | 0.0 | 0.0 | 101.7 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.4 | 3.4 | 61.4 | 4.4 | 0.3 | 0.0 | 0.0 | 85.9 |
| 2017 | 0.0 | 0.0 | 2.2 | 0.0 | 0.0 | 21.2 | 45.5 | 43.7 | 5.7 | 0.9 | 0.0 | 0.0 | 119.2 |
| Avg | 0.0 | 0.2 | 0.9 | 0.5 | 3.9 | 16.0 | 30.2 | 25.5 | 9.2 | 1.4 | 0.2 | 0.0 | 87.9 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.

**Exhibit D.8**
**Well Pumping - TCR-8 (Permit No. 8357RF - SEO ID: 205187)**
**(acre-feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 18.3 | 41.0 | 27.6 | 9.7 | 0.7 | 0.0 | 0.0 | 106.5 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 11.5 | 34.4 | 30.5 | 13.8 | 1.2 | 0.0 | 0.0 | 91.6 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 19.7 | 37.9 | 28.7 | 7.0 | 0.8 | 0.0 | 0.0 | 97.4 |
| 1977 | 0.0 | 0.0 | 0.0 | 0.2 | 9.5 | 29.7 | 38.3 | 28.1 | 14.9 | 1.3 | 0.0 | 0.0 | 122.1 |
| 1978 | 0.0 | 0.0 | 0.0 | 1.0 | 0.4 | 17.0 | 42.1 | 28.9 | 14.1 | 0.5 | 0.0 | 0.0 | 104.0 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 9.0 | 40.6 | 16.9 | 13.5 | 1.1 | 0.0 | 0.0 | 81.2 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 24.0 | 44.7 | 32.1 | 15.4 | 1.0 | 0.0 | 0.0 | 117.5 |
| 1981 | 0.0 | 0.0 | 0.0 | 1.1 | 2.5 | 25.9 | 35.7 | 30.8 | 11.1 | 1.0 | 0.1 | 0.0 | 108.2 |
| 1982 | 0.0 | 0.0 | 0.0 | 0.7 | 4.0 | 11.2 | 33.8 | 32.6 | 8.8 | 0.7 | 0.0 | 0.0 | 91.7 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 28.8 | 35.8 | 17.4 | 1.6 | 0.0 | 0.0 | 87.9 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 18.7 | 38.2 | 28.8 | 13.3 | 0.0 | 0.0 | 0.0 | 103.4 |
| 1985 | 0.0 | 0.0 | 0.0 | 0.3 | 7.7 | 21.3 | 33.6 | 34.1 | 7.5 | 0.4 | 0.0 | 0.0 | 104.8 |
| 1986 | 0.0 | 0.0 | 0.0 | 0.1 | 3.2 | 21.8 | 40.1 | 31.9 | 11.5 | 0.4 | 0.0 | 0.0 | 108.9 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.2 | 3.6 | 19.5 | 41.4 | 28.5 | 11.3 | 0.8 | 0.0 | 0.0 | 105.4 |
| 1988 | 0.0 | 0.0 | 0.0 | 0.2 | 2.8 | 25.6 | 40.2 | 28.9 | 9.7 | 1.4 | 0.0 | 0.0 | 108.8 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.1 | 6.7 | 13.3 | 38.6 | 27.0 | 7.4 | 1.1 | 0.0 | 0.0 | 94.3 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 27.9 | 33.7 | 25.4 | 11.7 | 0.5 | 0.0 | 0.0 | 101.0 |
| 1991 | 0.0 | 0.0 | 0.0 | 0.4 | 6.9 | 19.2 | 33.2 | 27.3 | 11.0 | 0.6 | 0.0 | 0.0 | 98.6 |
| 1992 | 0.0 | 0.0 | 0.0 | 0.2 | 8.1 | 18.0 | 31.2 | 16.1 | 3.0 | 0.3 | 0.0 | 0.0 | 76.9 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 13.9 | 38.5 | 28.5 | 6.7 | 0.2 | 0.0 | 0.0 | 91.9 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 28.3 | 39.1 | 29.2 | 13.8 | 0.8 | 0.0 | 0.0 | 118.1 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 35.4 | 39.1 | 10.2 | 1.8 | 0.1 | 0.0 | 89.1 |
| 1996 | 0.0 | 0.0 | 0.0 | 0.4 | 6.0 | 25.3 | 31.8 | 33.0 | 7.3 | 0.9 | 0.0 | 0.0 | 104.8 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 13.9 | 37.2 | 22.2 | 14.3 | 0.7 | 0.0 | 0.0 | 92.3 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 17.3 | 38.6 | 32.3 | 15.8 | 0.7 | 0.1 | 0.0 | 108.3 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 21.1 | 33.2 | 31.7 | 11.6 | 1.1 | 0.3 | 0.0 | 100.4 |
| 2000 | 0.0 | 0.0 | 0.0 | 3.0 | 8.8 | 30.7 | 49.1 | 35.4 | 10.2 | 0.8 | 0.0 | 0.0 | 137.9 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 10.0 | 12.8 | 16.5 | 5.2 | 0.0 | 0.0 | 0.0 | 45.5 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 | 42.9 | 29.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.2 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 12.1 | 33.5 | 28.7 | 6.0 | 0.0 | 0.0 | 83.3 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 33.7 | 23.9 | 6.5 | 0.0 | 0.0 | 0.0 | 64.2 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.1 | 23.3 | 5.9 | 0.0 | 0.0 | 0.0 | 68.4 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 29.8 | 21.5 | 2.2 | 0.0 | 0.0 | 0.0 | 66.0 |
| 2007 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 13.4 | 7.7 | 4.2 | 0.1 | 18.7 | 1.3 | 0.0 | 46.1 |
| 2008 | 0.0 | 0.0 | 9.8 | 0.0 | 1.9 | 9.5 | 2.3 | 1.3 | 0.9 | 0.0 | 0.0 | 0.6 | 26.1 |
| 2009 | 0.0 | 8.4 | 6.3 | 1.3 | 5.0 | 2.3 | 5.1 | 13.3 | 7.4 | 1.9 | 0.3 | 0.0 | 51.4 |
| 2010 | 0.0 | 0.0 | 1.5 | 2.7 | 6.3 | 10.3 | 8.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 29.7 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2012 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2013 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2014 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2015 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| 2017 | 0.1 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 |
| Avg | 0.0 | 0.2 | 0.4 | 0.3 | 3.0 | 13.9 | 27.1 | 21.1 | 8.2 | 1.1 | 0.1 | 0.0 | 75.4 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.

**Exhibit D.9**
**Well Pumping - TCR-9 (Permit No. 19548-T - SEO ID: 105799)**
**(acre-feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 18.3 | 41.0 | 27.6 | 9.7 | 0.7 | 0.0 | 0.0 | 106.5 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 11.5 | 34.4 | 30.5 | 13.8 | 1.2 | 0.0 | 0.0 | 91.6 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 19.7 | 37.9 | 28.7 | 7.0 | 0.8 | 0.0 | 0.0 | 97.4 |
| 1977 | 0.0 | 0.0 | 0.0 | 0.2 | 9.5 | 29.7 | 38.3 | 28.1 | 14.9 | 1.3 | 0.0 | 0.0 | 122.1 |
| 1978 | 0.0 | 0.0 | 0.0 | 1.0 | 0.4 | 17.0 | 42.1 | 28.9 | 14.1 | 0.5 | 0.0 | 0.0 | 104.0 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 9.0 | 40.6 | 16.9 | 13.5 | 1.1 | 0.0 | 0.0 | 81.2 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 24.0 | 44.7 | 32.1 | 15.4 | 1.0 | 0.0 | 0.0 | 117.5 |
| 1981 | 0.0 | 0.0 | 0.0 | 1.1 | 2.5 | 25.9 | 35.7 | 30.8 | 11.1 | 1.0 | 0.1 | 0.0 | 108.2 |
| 1982 | 0.0 | 0.0 | 0.0 | 0.7 | 4.0 | 11.2 | 33.8 | 32.6 | 8.8 | 0.7 | 0.0 | 0.0 | 91.7 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 28.8 | 35.8 | 17.4 | 1.6 | 0.0 | 0.0 | 87.9 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 18.7 | 38.2 | 28.8 | 13.3 | 0.0 | 0.0 | 0.0 | 103.4 |
| 1985 | 0.0 | 0.0 | 0.0 | 0.3 | 7.7 | 21.3 | 33.6 | 34.1 | 7.5 | 0.4 | 0.0 | 0.0 | 104.8 |
| 1986 | 0.0 | 0.0 | 0.0 | 0.1 | 3.2 | 21.8 | 40.1 | 31.9 | 11.5 | 0.4 | 0.0 | 0.0 | 108.9 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.2 | 3.6 | 19.5 | 41.4 | 28.5 | 11.3 | 0.8 | 0.0 | 0.0 | 105.4 |
| 1988 | 0.0 | 0.0 | 0.0 | 0.2 | 2.8 | 25.6 | 40.2 | 28.9 | 9.7 | 1.4 | 0.0 | 0.0 | 108.8 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.1 | 6.7 | 13.3 | 38.6 | 27.0 | 7.4 | 1.1 | 0.0 | 0.0 | 94.3 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 27.9 | 33.7 | 25.4 | 11.7 | 0.5 | 0.0 | 0.0 | 101.0 |
| 1991 | 0.0 | 0.0 | 0.0 | 0.4 | 6.9 | 19.2 | 33.2 | 27.3 | 11.0 | 0.6 | 0.0 | 0.0 | 98.6 |
| 1992 | 0.0 | 0.0 | 0.0 | 0.2 | 8.1 | 18.0 | 31.2 | 16.1 | 3.0 | 0.3 | 0.0 | 0.0 | 76.9 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 13.9 | 38.5 | 28.5 | 6.7 | 0.2 | 0.0 | 0.0 | 91.9 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 28.3 | 39.1 | 29.2 | 13.8 | 0.8 | 0.0 | 0.0 | 118.1 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 35.4 | 39.1 | 10.2 | 1.8 | 0.1 | 0.0 | 89.1 |
| 1996 | 0.0 | 0.0 | 0.0 | 0.4 | 6.0 | 25.3 | 31.8 | 33.0 | 7.3 | 0.9 | 0.0 | 0.0 | 104.8 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 13.9 | 37.2 | 22.2 | 14.3 | 0.7 | 0.0 | 0.0 | 92.3 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 17.3 | 38.6 | 32.3 | 15.8 | 0.7 | 0.1 | 0.0 | 108.3 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 21.1 | 33.2 | 31.7 | 11.6 | 1.1 | 0.3 | 0.0 | 100.4 |
| 2000 | 0.0 | 0.0 | 0.0 | 3.0 | 8.8 | 30.7 | 49.1 | 35.4 | 10.2 | 0.8 | 0.0 | 0.0 | 137.9 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 10.0 | 12.8 | 16.5 | 5.2 | 0.0 | 0.0 | 0.0 | 45.5 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 | 42.9 | 29.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.2 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 12.1 | 33.5 | 28.7 | 6.0 | 0.0 | 0.0 | 83.3 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 33.7 | 23.9 | 6.5 | 0.0 | 0.0 | 0.0 | 64.2 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.1 | 23.3 | 5.9 | 0.0 | 0.0 | 0.0 | 68.4 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 29.8 | 21.5 | 2.2 | 0.0 | 0.0 | 0.0 | 66.0 |
| 2007 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2008 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2009 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2010 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2012 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2013 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2014 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2015 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2017 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Avg | 0.0 | 0.0 | 0.0 | 0.2 | 2.7 | 13.1 | 26.5 | 20.7 | 8.0 | 0.6 | 0.0 | 0.0 | 71.9 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.

**Exhibit D.10**

**Well Pumping - TCR-10 (Permit No. 19548-S - SEO ID: 105798)**

**(acre-feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 18.3 | 41.0 | 27.6 | 9.7 | 0.7 | 0.0 | 0.0 | 106.5 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 11.5 | 34.4 | 30.5 | 13.8 | 1.2 | 0.0 | 0.0 | 91.6 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 19.7 | 37.9 | 28.7 | 7.0 | 0.8 | 0.0 | 0.0 | 97.4 |
| 1977 | 0.0 | 0.0 | 0.0 | 0.2 | 9.5 | 29.7 | 38.3 | 28.1 | 14.9 | 1.3 | 0.0 | 0.0 | 122.1 |
| 1978 | 0.0 | 0.0 | 0.0 | 1.0 | 0.4 | 17.0 | 42.1 | 28.9 | 14.1 | 0.5 | 0.0 | 0.0 | 104.0 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 9.0 | 40.6 | 16.9 | 13.5 | 1.1 | 0.0 | 0.0 | 81.2 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 24.0 | 44.7 | 32.1 | 15.4 | 1.0 | 0.0 | 0.0 | 117.5 |
| 1981 | 0.0 | 0.0 | 0.0 | 1.1 | 2.5 | 25.9 | 35.7 | 30.8 | 11.1 | 1.0 | 0.1 | 0.0 | 108.2 |
| 1982 | 0.0 | 0.0 | 0.0 | 0.7 | 4.0 | 11.2 | 33.8 | 32.6 | 8.8 | 0.7 | 0.0 | 0.0 | 91.7 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 28.8 | 35.8 | 17.4 | 1.6 | 0.0 | 0.0 | 87.9 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 18.7 | 38.2 | 28.8 | 13.3 | 0.0 | 0.0 | 0.0 | 103.4 |
| 1985 | 0.0 | 0.0 | 0.0 | 0.3 | 7.7 | 21.3 | 33.6 | 34.1 | 7.5 | 0.4 | 0.0 | 0.0 | 104.8 |
| 1986 | 0.0 | 0.0 | 0.0 | 0.1 | 3.2 | 21.8 | 40.1 | 31.9 | 11.5 | 0.4 | 0.0 | 0.0 | 108.9 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.2 | 3.6 | 19.5 | 41.4 | 28.5 | 11.3 | 0.8 | 0.0 | 0.0 | 105.4 |
| 1988 | 0.0 | 0.0 | 0.0 | 0.2 | 2.8 | 25.6 | 40.2 | 28.9 | 9.7 | 1.4 | 0.0 | 0.0 | 108.8 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.1 | 6.7 | 13.3 | 38.6 | 27.0 | 7.4 | 1.1 | 0.0 | 0.0 | 94.3 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 27.9 | 33.7 | 25.4 | 11.7 | 0.5 | 0.0 | 0.0 | 101.0 |
| 1991 | 0.0 | 0.0 | 0.0 | 0.4 | 6.9 | 19.2 | 33.2 | 27.3 | 11.0 | 0.6 | 0.0 | 0.0 | 98.6 |
| 1992 | 0.0 | 0.0 | 0.0 | 0.2 | 8.1 | 18.0 | 31.2 | 16.1 | 3.0 | 0.3 | 0.0 | 0.0 | 76.9 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 13.9 | 38.5 | 28.5 | 6.7 | 0.2 | 0.0 | 0.0 | 91.9 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 28.3 | 39.1 | 29.2 | 13.8 | 0.8 | 0.0 | 0.0 | 118.1 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 35.4 | 39.1 | 10.2 | 1.8 | 0.1 | 0.0 | 89.1 |
| 1996 | 0.0 | 0.0 | 0.0 | 0.4 | 6.0 | 25.3 | 31.8 | 33.0 | 7.3 | 0.9 | 0.0 | 0.0 | 104.8 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 13.9 | 37.2 | 22.2 | 14.3 | 0.7 | 0.0 | 0.0 | 92.3 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 17.3 | 38.6 | 32.3 | 15.8 | 0.7 | 0.1 | 0.0 | 108.3 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 21.1 | 33.2 | 31.7 | 11.6 | 1.1 | 0.3 | 0.0 | 100.4 |
| 2000 | 0.0 | 0.0 | 0.0 | 3.0 | 8.8 | 30.7 | 49.1 | 35.4 | 10.2 | 0.8 | 0.0 | 0.0 | 137.9 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 10.0 | 12.8 | 16.5 | 5.2 | 0.0 | 0.0 | 0.0 | 45.5 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 | 42.9 | 29.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.2 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 12.1 | 33.5 | 28.7 | 6.0 | 0.0 | 0.0 | 83.3 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 33.7 | 23.9 | 6.5 | 0.0 | 0.0 | 0.0 | 64.2 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.1 | 23.3 | 5.9 | 0.0 | 0.0 | 0.0 | 68.4 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 29.8 | 21.5 | 2.2 | 0.0 | 0.0 | 0.0 | 66.0 |
| 2007 | 0.0 | 0.0 | 0.0 | 1.3 | 5.5 | 13.6 | 16.4 | 10.4 | 6.5 | 3.5 | 1.0 | 0.1 | 58.4 |
| 2008 | 0.0 | 0.0 | 0.4 | 1.5 | 5.8 | 13.2 | 19.1 | 6.8 | 4.9 | 1.8 | 1.1 | 0.0 | 54.6 |
| 2009 | 0.0 | 1.3 | 1.4 | 1.1 | 2.6 | 3.0 | 6.3 | 8.6 | 2.7 | 1.2 | 0.4 | 0.0 | 28.5 |
| 2010 | 0.0 | 0.0 | 0.0 | 2.2 | 3.1 | 4.8 | 6.4 | 2.8 | 1.0 | 0.0 | 0.0 | 0.0 | 20.3 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2012 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2013 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2014 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2015 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2017 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Avg | 0.0 | 0.0 | 0.0 | 0.3 | 3.1 | 13.9 | 27.6 | 21.4 | 8.3 | 0.8 | 0.1 | 0.0 | 75.5 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.

**Exhibit D.11**
**Well Pumping - Permit No. 19548-R - SEO ID: 105797**
**(acre-feet)**

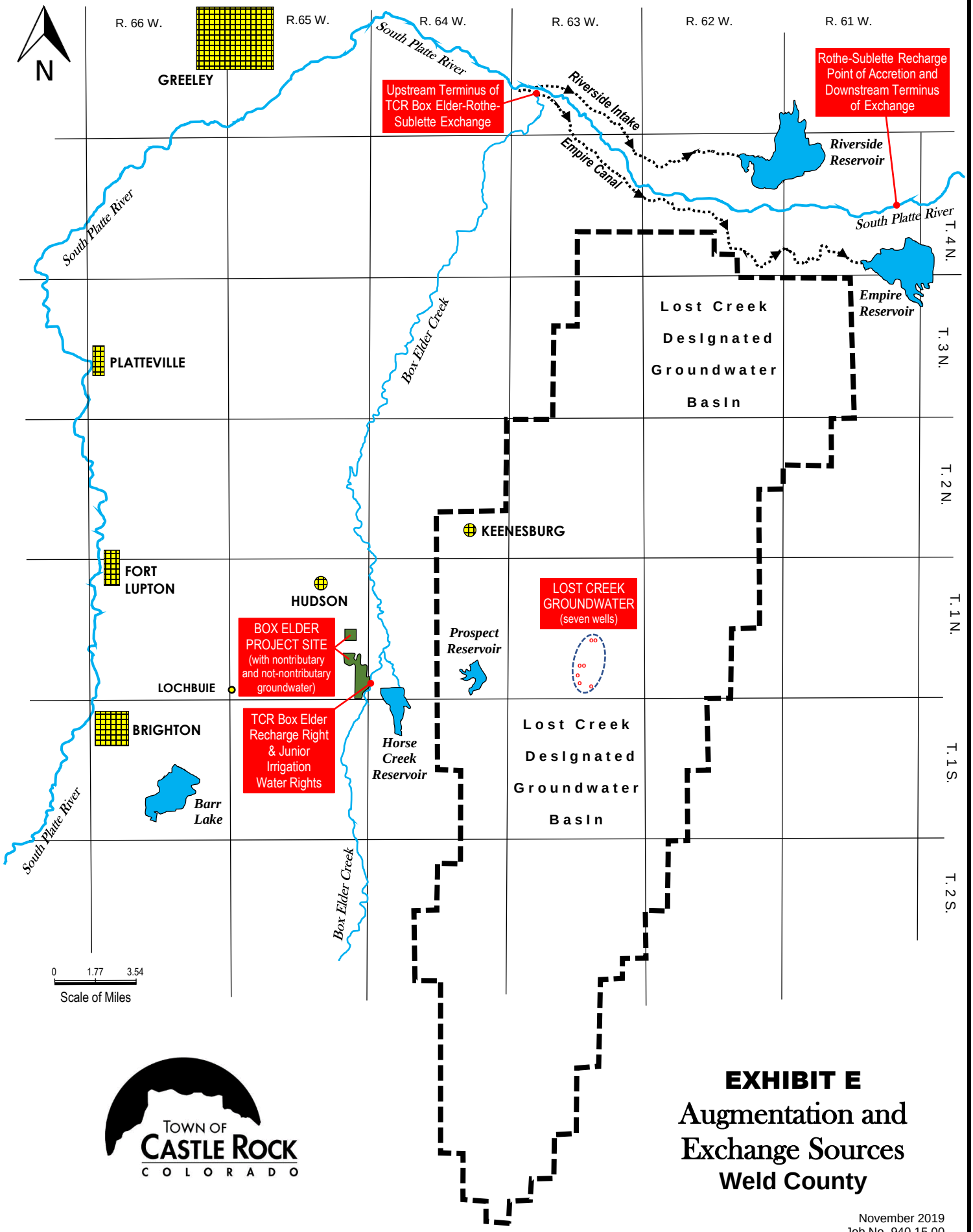
| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 9.2 | 18.3 | 41.0 | 27.6 | 9.7 | 0.7 | 0.0 | 0.0 | 106.5 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 11.5 | 34.4 | 30.5 | 13.8 | 1.2 | 0.0 | 0.0 | 91.6 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 19.7 | 37.9 | 28.7 | 7.0 | 0.8 | 0.0 | 0.0 | 97.4 |
| 1977 | 0.0 | 0.0 | 0.0 | 0.2 | 9.5 | 29.7 | 38.3 | 28.1 | 14.9 | 1.3 | 0.0 | 0.0 | 122.1 |
| 1978 | 0.0 | 0.0 | 0.0 | 1.0 | 0.4 | 17.0 | 42.1 | 28.9 | 14.1 | 0.5 | 0.0 | 0.0 | 104.0 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 9.0 | 40.6 | 16.9 | 13.5 | 1.1 | 0.0 | 0.0 | 81.2 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 24.0 | 44.7 | 32.1 | 15.4 | 1.0 | 0.0 | 0.0 | 117.5 |
| 1981 | 0.0 | 0.0 | 0.0 | 1.1 | 2.5 | 25.9 | 35.7 | 30.8 | 11.1 | 1.0 | 0.1 | 0.0 | 108.2 |
| 1982 | 0.0 | 0.0 | 0.0 | 0.7 | 4.0 | 11.2 | 33.8 | 32.6 | 8.8 | 0.7 | 0.0 | 0.0 | 91.7 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 28.8 | 35.8 | 17.4 | 1.6 | 0.0 | 0.0 | 87.9 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 18.7 | 38.2 | 28.8 | 13.3 | 0.0 | 0.0 | 0.0 | 103.4 |
| 1985 | 0.0 | 0.0 | 0.0 | 0.3 | 7.7 | 21.3 | 33.6 | 34.1 | 7.5 | 0.4 | 0.0 | 0.0 | 104.8 |
| 1986 | 0.0 | 0.0 | 0.0 | 0.1 | 3.2 | 21.8 | 40.1 | 31.9 | 11.5 | 0.4 | 0.0 | 0.0 | 108.9 |
| 1987 | 0.0 | 0.0 | 0.0 | 0.2 | 3.6 | 19.5 | 41.4 | 28.5 | 11.3 | 0.8 | 0.0 | 0.0 | 105.4 |
| 1988 | 0.0 | 0.0 | 0.0 | 0.2 | 2.8 | 25.6 | 40.2 | 28.9 | 9.7 | 1.4 | 0.0 | 0.0 | 108.8 |
| 1989 | 0.0 | 0.0 | 0.0 | 0.1 | 6.7 | 13.3 | 38.6 | 27.0 | 7.4 | 1.1 | 0.0 | 0.0 | 94.3 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 | 27.9 | 33.7 | 25.4 | 11.7 | 0.5 | 0.0 | 0.0 | 101.0 |
| 1991 | 0.0 | 0.0 | 0.0 | 0.4 | 6.9 | 19.2 | 33.2 | 27.3 | 11.0 | 0.6 | 0.0 | 0.0 | 98.6 |
| 1992 | 0.0 | 0.0 | 0.0 | 0.2 | 8.1 | 18.0 | 31.2 | 16.1 | 3.0 | 0.3 | 0.0 | 0.0 | 76.9 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 13.9 | 38.5 | 28.5 | 6.7 | 0.2 | 0.0 | 0.0 | 91.9 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 28.3 | 39.1 | 29.2 | 13.8 | 0.8 | 0.0 | 0.0 | 118.1 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 | 35.4 | 39.1 | 10.2 | 1.8 | 0.1 | 0.0 | 89.1 |
| 1996 | 0.0 | 0.0 | 0.0 | 0.4 | 6.0 | 25.3 | 31.8 | 33.0 | 7.3 | 0.9 | 0.0 | 0.0 | 104.8 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 4.0 | 13.9 | 37.2 | 22.2 | 14.3 | 0.7 | 0.0 | 0.0 | 92.3 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 17.3 | 38.6 | 32.3 | 15.8 | 0.7 | 0.1 | 0.0 | 108.3 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 21.1 | 33.2 | 31.7 | 11.6 | 1.1 | 0.3 | 0.0 | 100.4 |
| 2000 | 0.0 | 0.0 | 0.0 | 3.0 | 8.8 | 30.7 | 49.1 | 35.4 | 10.2 | 0.8 | 0.0 | 0.0 | 137.9 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 10.0 | 12.8 | 16.5 | 5.2 | 0.0 | 0.0 | 0.0 | 45.5 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 | 42.9 | 29.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 81.2 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 | 12.1 | 33.5 | 28.7 | 6.0 | 0.0 | 0.0 | 83.3 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 33.7 | 23.9 | 6.5 | 0.0 | 0.0 | 0.0 | 64.2 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.1 | 23.3 | 5.9 | 0.0 | 0.0 | 0.0 | 68.4 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 29.8 | 21.5 | 2.2 | 0.0 | 0.0 | 0.0 | 66.0 |
| 2007 | 0.0 | 0.0 | 0.0 | 1.3 | 5.5 | 13.6 | 16.4 | 10.4 | 6.5 | 3.5 | 1.0 | 0.1 | 58.4 |
| 2008 | 0.0 | 0.0 | 0.4 | 1.5 | 5.8 | 13.2 | 19.1 | 6.8 | 4.9 | 1.8 | 1.1 | 0.0 | 54.6 |
| 2009 | 0.0 | 1.3 | 1.4 | 1.1 | 2.6 | 3.0 | 6.3 | 8.6 | 2.7 | 1.2 | 0.4 | 0.0 | 28.5 |
| 2010 | 0.0 | 0.0 | 0.0 | 2.2 | 3.1 | 4.8 | 6.4 | 2.8 | 1.0 | 0.0 | 0.0 | 0.0 | 20.3 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2012 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2013 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2014 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2015 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2017 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Avg | 0.0 | 0.0 | 0.0 | 0.3 | 3.1 | 13.9 | 27.6 | 21.4 | 8.3 | 0.8 | 0.1 | 0.0 | 75.5 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.

**Exhibit D.12**
**Well Pumping - Summation of All Wells**
**(acre-feet)**

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1974 | 0.0 | 0.0 | 0.0 | 0.0 | 131.3 | 261.4 | 588.8 | 396.0 | 138.9 | 10.3 | 0.2 | 0.0 | 1526.8 |
| 1975 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 161.8 | 493.5 | 438.9 | 197.8 | 17.4 | 0.0 | 0.0 | 1312.2 |
| 1976 | 0.0 | 0.0 | 0.0 | 0.0 | 47.9 | 280.7 | 544.3 | 411.7 | 99.9 | 10.9 | 0.0 | 0.0 | 1395.3 |
| 1977 | 0.0 | 0.0 | 0.0 | 2.3 | 136.7 | 425.1 | 549.5 | 403.4 | 214.9 | 19.3 | 0.5 | 0.0 | 1751.7 |
| 1978 | 0.0 | 0.0 | 0.0 | 14.3 | 4.8 | 243.0 | 605.6 | 414.7 | 202.5 | 7.6 | 0.0 | 0.0 | 1492.4 |
| 1979 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 127.6 | 581.9 | 240.8 | 194.5 | 15.1 | 0.0 | 0.0 | 1161.4 |
| 1980 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 342.8 | 642.8 | 462.0 | 221.3 | 13.7 | 0.0 | 0.0 | 1685.6 |
| 1981 | 0.0 | 0.0 | 0.0 | 14.5 | 34.8 | 371.6 | 511.8 | 442.2 | 160.0 | 14.7 | 1.6 | 0.0 | 1551.4 |
| 1982 | 0.0 | 0.0 | 0.0 | 9.8 | 56.2 | 158.9 | 484.6 | 468.6 | 125.7 | 10.3 | 0.0 | 0.0 | 1314.1 |
| 1983 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 58.8 | 412.1 | 514.1 | 250.8 | 22.6 | 0.0 | 0.0 | 1258.3 |
| 1984 | 0.0 | 0.0 | 0.0 | 0.0 | 60.7 | 267.5 | 548.4 | 413.6 | 191.9 | 0.1 | 0.0 | 0.0 | 1482.1 |
| 1985 | 0.0 | 0.0 | 0.0 | 4.5 | 109.5 | 304.4 | 481.6 | 489.9 | 107.3 | 6.0 | 0.0 | 0.0 | 1503.2 |
| 1986 | 0.0 | 0.0 | 0.0 | 1.7 | 44.3 | 310.9 | 575.7 | 458.3 | 164.9 | 6.4 | 0.0 | 0.0 | 1562.1 |
| 1987 | 0.0 | 0.0 | 0.0 | 2.7 | 50.7 | 278.0 | 595.1 | 409.9 | 162.0 | 11.7 | 0.0 | 0.0 | 1510.3 |
| 1988 | 0.0 | 0.0 | 0.0 | 3.5 | 39.0 | 366.5 | 577.4 | 414.3 | 139.6 | 20.1 | 0.2 | 0.0 | 1560.6 |
| 1989 | 0.0 | 0.0 | 0.0 | 1.6 | 95.6 | 187.2 | 552.7 | 386.5 | 105.7 | 16.1 | 0.0 | 0.0 | 1345.3 |
| 1990 | 0.0 | 0.0 | 0.0 | 0.5 | 26.0 | 398.2 | 482.4 | 362.7 | 167.2 | 7.3 | 0.1 | 0.0 | 1444.3 |
| 1991 | 0.0 | 0.0 | 0.0 | 5.2 | 98.3 | 273.2 | 474.5 | 390.2 | 157.5 | 8.3 | 0.0 | 0.0 | 1407.3 |
| 1992 | 0.0 | 0.0 | 0.0 | 3.3 | 114.5 | 256.3 | 446.9 | 229.0 | 42.7 | 3.7 | 0.0 | 0.0 | 1096.5 |
| 1993 | 0.0 | 0.0 | 0.0 | 0.0 | 57.9 | 197.3 | 551.1 | 407.6 | 95.8 | 2.4 | 0.0 | 0.0 | 1312.0 |
| 1994 | 0.0 | 0.0 | 0.0 | 0.3 | 96.3 | 404.1 | 560.3 | 418.2 | 198.1 | 11.2 | 0.0 | 0.0 | 1688.5 |
| 1995 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 32.4 | 508.1 | 562.5 | 146.5 | 25.9 | 1.4 | 0.0 | 1276.8 |
| 1996 | 0.0 | 0.0 | 0.0 | 5.7 | 85.2 | 362.6 | 455.6 | 475.1 | 103.6 | 13.3 | 0.0 | 0.0 | 1501.2 |
| 1997 | 0.0 | 0.0 | 0.0 | 0.0 | 56.8 | 196.3 | 533.0 | 316.4 | 204.7 | 9.4 | 0.0 | 0.0 | 1316.6 |
| 1998 | 0.0 | 0.0 | 0.0 | 0.0 | 39.3 | 207.6 | 527.4 | 431.0 | 215.8 | 10.4 | 1.2 | 0.0 | 1432.7 |
| 1999 | 0.0 | 0.0 | 0.0 | 0.0 | 12.6 | 263.6 | 435.1 | 407.6 | 163.7 | 16.5 | 4.9 | 0.0 | 1304.0 |
| 2000 | 0.0 | 0.0 | 0.0 | 36.2 | 111.9 | 414.1 | 698.4 | 485.4 | 146.2 | 11.0 | 0.0 | 0.0 | 1903.4 |
| 2001 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 152.2 | 233.5 | 302.1 | 109.9 | 5.3 | 0.0 | 0.0 | 809.5 |
| 2002 | 0.0 | 0.0 | 0.0 | 0.0 | 70.3 | 555.3 | 453.7 | 72.2 | 31.7 | 2.4 | 0.0 | 0.0 | 1185.5 |
| 2003 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 57.2 | 249.6 | 465.7 | 411.6 | 66.0 | 0.0 | 0.0 | 1250.1 |
| 2004 | 0.0 | 0.0 | 0.0 | 0.0 | 5.9 | 97.1 | 487.1 | 334.2 | 106.9 | 0.0 | 0.0 | 0.0 | 1031.2 |
| 2005 | 0.0 | 0.0 | 0.0 | 0.0 | 12.5 | 69.7 | 570.8 | 331.2 | 101.3 | 0.0 | 0.0 | 0.0 | 1085.4 |
| 2006 | 0.0 | 0.0 | 0.0 | 0.0 | 39.2 | 235.7 | 439.4 | 320.3 | 47.6 | 0.0 | 0.0 | 0.0 | 1082.2 |
| 2007 | 0.0 | 0.0 | 0.0 | 2.6 | 13.1 | 71.1 | 112.4 | 51.3 | 14.9 | 86.9 | 7.6 | 0.1 | 360.1 |
| 2008 | 0.0 | 0.0 | 53.6 | 19.6 | 38.6 | 66.6 | 106.1 | 25.6 | 42.2 | 48.3 | 45.1 | 2.1 | 447.7 |
| 2009 | 0.0 | 39.7 | 31.4 | 19.2 | 26.4 | 13.5 | 41.1 | 71.1 | 47.3 | 9.4 | 1.7 | 0.0 | 300.7 |
| 2010 | 0.0 | 0.0 | 2.9 | 16.5 | 22.9 | 27.8 | 53.0 | 8.2 | 2.1 | 7.3 | 5.3 | 0.2 | 146.2 |
| 2011 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | 47.1 | 93.4 | 140.5 | 119.7 | 21.0 | 0.0 | 0.0 | 434.7 |
| 2012 | 0.0 | 0.0 | 55.4 | 13.3 | 95.1 | 65.7 | 191.7 | 127.4 | 7.0 | 15.7 | 0.5 | 9.9 | 581.6 |
| 2013 | 0.0 | 0.0 | 17.4 | 0.9 | 89.5 | 128.8 | 77.6 | 50.1 | 63.0 | 4.9 | 1.5 | 0.0 | 433.6 |
| 2014 | 0.1 | 0.0 | 15.8 | 17.6 | 49.1 | 56.8 | 54.7 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 196.0 |
| 2015 | 0.0 | 0.0 | 29.7 | 0.0 | 0.0 | 25.4 | 162.2 | 97.8 | 81.6 | 2.8 | 0.0 | 0.4 | 400.0 |
| 2016 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 70.4 | 146.2 | 206.7 | 37.6 | 15.9 | 2.5 | 0.1 | 479.5 |
| 2017 | 0.1 | 0.1 | 18.8 | 22.0 | 3.7 | 79.1 | 220.2 | 173.2 | 42.7 | 8.6 | 0.0 | 0.0 | 568.5 |
| Avg | 0.0 | 0.9 | 5.1 | 5.0 | 45.5 | 203.9 | 411.6 | 318.9 | 127.0 | 14.0 | 1.7 | 0.3 | 1133.8 |

Note: Values from 1974-2006 are estimated and values from 2007-2017 are based on metered records.



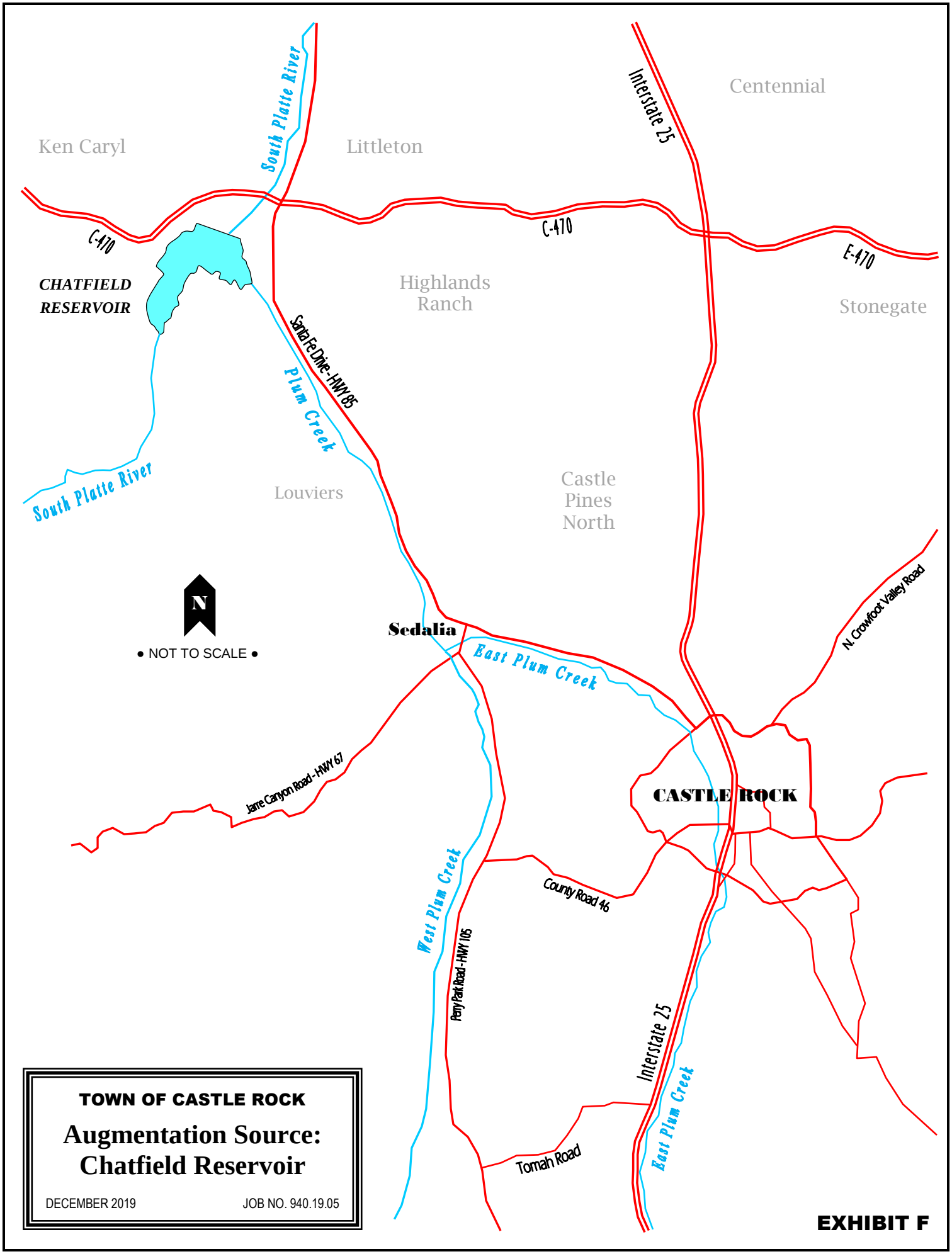

TOWN OF CASTLE ROCK COLORADO

# EXHIBIT E

## Augmentation and Exchange Sources

## Weld County

November 2019
Job No. 940.15.00


Ken Caryl
Littleton
Centennial
South Platte River
Interstate 25
C-470
E-470
CHATFIELD
RESERVOIR
Highlands
Ranch
Stonegate
Santa Fe Drive - HWY 85
Plum Creek
South Platte River
Louviers
Castle
Pines
North
N
• NOT TO SCALE •
Sedalia
East Plum Creek
N. Crowfoot Valley Road
Jarre Canyon Road - HWY 67
CASTLE ROCK
West Plum Creek
County Road 46
Perry Park Road - HWY 105
Interstate 25
East Plum Creek
Tomah Road
TOWN OF CASTLE ROCK
Augmentation Source:
Chatfield Reservoir
DECEMBER 2019
JOB NO. 940.19.05
EXHIBIT F

# EXHIBIT G

**Consumptive Use Credits:** Consumptive use credits quantified and stored in Chatfield Reservoir pursuant to Applicant's decree in Case No. 09CW166, District Court, Water Division No. 1. The consumptive use credits are attributable to Applicant's: 1) High Line Ditch Water Rights; 2) Noe Ranch Water Rights; 3) Douglas Park Water Rights; and 4) Ball Ditch Water Rights as described below.

1. High Line Ditch Water Rights: Applicant owns 1.665 c.f.s. of 20.0 c.f.s. of the High Line Ditch Water Rights, which are described below.

    1.1. Original Adjudication: District Court, Douglas County, entered December 10, 1883.

    1.2. Legal Description: NE¼ NE¼ Section 4, T. 9 S., R 67 W. of the 6th P.M.

    1.3. Source: East Plum Creek, tributary to South Platte River.

    1.4. Appropriation Dates and Amounts:

| Priority | Appropriation Dates | Decreed Amounts (c.f.s./absolute) | Applicant's Ownership (c.f.s.) |
|---|---|---|---|
| 57 | September 1, 1871 | 3.52 | 0.585 |
| 73 | June 30, 1873 | 1.4 | 0.233 |
| 102 | June 30, 1878 | 15.08 | 0.848 |
| | TOTAL | 20.0 | 1.665 |

    1.5. Use: Irrigation.

    1.6. Previous Change Decrees for Applicant's Interest in the High Line Ditch Water Rights: In Case No. 81CW49, Applicant's interest in the High Line Ditch Water Rights was quantified and the point of diversion changed to six alternate points of diversion for direct use for irrigation. In Case No. 95CW114 Applicant's interest in the High Line Ditch Water Rights was further changed to allow for irrigation, storage and augmentation uses. In Case No. 00CW78, Applicant's interest in the High Line Ditch Water Rights was further changed to allow use for augmentation purposes for Castle Rock Well No. 205. In Case No. 09CW166, decreed on October 2, 2013, Applicant obtained a decree authorizing storage of these water rights in Chatfield Reservoir, in the new storage space to be created by the Chatfield Reallocation Project.

    1.7. Historical Use of Applicant's Interest: The historical consumptive use of Applicant's interest in the High Line Ditch Water Rights was quantified by the Water Court in Case No. 81CW49 and reaffirmed in Case No. 09CW166.

    1.8. Amount Available for Use for Exchange: Any amount of consumptive use credits attributable to the High Line Ditch Water Rights lawfully stored in Chatfield

Reservoir pursuant to Case No. 09CW166 may be released from storage and exchanged pursuant to this decree.

2. *Noe Ranch Water Rights*: Applicant's Noe Ranch Water Rights consist of water rights decreed to the Cook Creek Ditch and the Hillside Ditch.

2.1. Cook Creek Ditch: 3.8 c.f.s. of the Cook Creek Ditch Water Right.

2.1.1. Original Adjudication: District Court, Douglas County, entered December 10, 1883.

2.1.2. Legal Description: SE¼ NW¼ Section 16, T. 10 S., R. 67 W. of the 6th P.M.

2.1.3. Source: Cook Creek, tributary to East Plum Creek and South Platte River.

2.1.4. Appropriation Date: June 30, 1870; Priority No. 48.

2.1.5. Original Amount: 3.8 c.f.s., absolute.

2.1.6. Use: Irrigation.

2.2. Hillside Ditch: 3.65 c.f.s. of the Hillside Ditch Water Right.

2.2.1. Original Adjudication: District Court, Douglas County, entered December 10, 1883.

2.2.2. Legal Description: SE¼ SW¼ Section 16, T. 10 S., R. 67 W. of the 6th P.M.

2.2.3. Source: Cook Creek, tributary to East Plum Creek and South Platte River.

2.2.4. Appropriation Date: July 1, 1881; Priority No. 128.

2.2.5. Original Amount: 3.65 c.f.s., absolute.

2.2.6. Use: Irrigation.

2.2.7. Previous Change of Applicant's interest in the Noe Ranch Water Rights: In Case No. 87CW240, Applicant's Noe Ranch Water Rights were quantified and changed to use for irrigation, municipal, industrial, storage, augmentation, exchange and replacement purposes. Alternate points of diversion were also approved for these water rights at 18 wells and a surface diversion and a plan for augmentation was approved to utilize the historical consumptive use credits to replace out-of-priority depletions from such wells. In Case No. 09CW166, Applicant obtained Court approval to store these water rights in Chatfield Reservoir, in the new storage space to be created by the Chatfield Reallocation Project.

2.2.8. Historical Use of Applicant's Interest: The consumptive use attributable to Applicant's interest in the Noe Ranch Water Rights was quantified in Case No. 87CW240 and reaffirmed in Case No. 09CW166.

2.3. Amount Available for Use for Exchange: Any amount of consumptive use credits attributable to the Noe Ranch Water Rights lawfully stored in Chatfield Reservoir pursuant to Case No. 09CW166 may be released from storage and exchanged pursuant to this decree.

3. Douglas Park Water Rights*:* Applicant's Douglas Park Water Rights consist of water rights decreed to the Benjamin Quick Ditch, the John Kinner Ditch, the John Kinner Ditch No. 2 and the Huntsville Ditch.

3.1. Benjamin Quick Ditch: 3.8 c.f.s. of the Benjamin Quick Ditch Water Right.

3.1.1. Original Adjudication: District Court, Douglas County, entered December 10, 1883.

3.1.2. Legal Description: SW¼ NE¼ Section 34, T. 9 S., R. 68 W. of the 6th P.M. Note the actual point of diversion is in Section 24, and Applicant believes that this was a clerical error in the original case.

3.1.3. Source: West Plum Creek, tributary to the South Platte River.

3.1.4. Appropriation Date: June 15, 1866; Priority No. 24.

3.1.5. Original Amount: 3.8 c.f.s., absolute.

3.1.6. Use: Irrigation.

3.2. John Kinner Ditch: 3.52 c.f.s. of the John Kinner Ditch Water Right.

3.2.1. Original Adjudication: District Court, Douglas County, entered December 10, 1883.

3.2.2. Legal Description: SW¼ NW¼ Section 13, T. 9 S., R. 68 W. of the 6th P.M.

3.2.3. Source: West Plum Creek, tributary to the South Platte River.

3.2.4. Appropriation Date: March 1, 1868; Priority No. 38.

3.2.5. Original Amount: 3.52 c.f.s., absolute.

3.2.6. Use: Irrigation.

3.3. John Kinner No. 2 Ditch: 3.52 c.f.s. of the John Kinner No. 2 Ditch Water Right.

3.3.1. Original Adjudication: District Court, Douglas County, entered March 3, 1890.

3.3.2. Legal Description: SW¼ NW¼ Section 13, T. 9 S., R. 68 W. of the 6th P.M.

3.3.3. Source: West Plum Creek, tributary to the South Platte River.

3.3.4. Appropriation Date: April 1, 1885; Priority No. 150.

3.3.5. Original Amount: 3.52 c.f.s., absolute.

3.3.6. Use: Irrigation.

3.4. Huntsville Ditch: 4.0 c.f.s. of the Huntsville Ditch Water Right.

3.4.1. Original Adjudication: District Court, Douglas County, entered December 10, 1883.

3.4.2. Legal Description: NE¼ SW¼ Section 24, T. 9 S., R. 68 W. of the 6th P.M.

3.4.3. Source: West Plum Creek, tributary to the South Platte River.

3.4.4. Appropriation Date: March 1, 1880.

3.4.5. Original Amount: 9.12 c.f.s., absolute, reduced by 5.12 c.f.s. to 4.0 c.f.s. in Case No. W-5729, described below.

3.4.6. Use: Irrigation.

3.5. Previous Change Decrees for Applicant's Interest in the Douglas Park Water Rights: In Case No. W-5729, the point of diversion for Applicant's interest in the Douglas Park Water Rights was changed to wells and 5.12 c.f.s. of 9.12 c.f.s. of the Huntsville Ditch Water Right was abandoned. In Case No. 87CW309, Applicant's interest in the Douglas Park Water Rights was quantified and changed to use for municipal and industrial purposes, including storage for later use, and augmentation, exchange and replacement purposes within Applicant's municipal limits. The Court also approved use of the consumptive use credits to replace out-of-priority depletions from Applicant's wells and storage of the remaining consumptive use credits in Chatfield Reservoir. In Case No. 09CW166, Applicant confirmed the ability to store these water rights in Chatfield Reservoir, in the new storage space to be created by the Chatfield Reallocation Project.

3.6. Historical Use of Applicant's Interest: The consumptive use attributable to Applicant's interest in the Douglas Park Water Rights was quantified in Case No. 87CW309 and reaffirmed in Case No. 09CW166.

3.7. Amount Available for Exchange: Any amount of consumptive use credits attributable to the Douglas Park Water Rights lawfully stored in Chatfield Reservoir pursuant to Case No. 09CW166 may be released from storage and exchanged pursuant to this decree.

4. Ball Ditch Water Right: Applicant owns 0.1429 c.f.s. of 3.0 c.f.s. of the Ball Ditch Water Right, which is described below.

4.1. Original Adjudication: District Court, Douglas County, entered December 10, 1883.

4.2. Legal Description: NW¼ NW¼ Section 26, T. 8 S., R. 68 W. of the 6th P.M.

4.3. Source: West Plum Creek, tributary to South Platte River.

4.4. Appropriation Date: April 19, 1872; Priority No. 59.

4.5. Original Amount: 3.0 c.f.s., absolute.

4.6. Use: Irrigation.

4.7. Previous Change Decree for Applicant's Interest in the Ball Ditch Water Right: In Case No. W-7604-74, an alternate point of diversion for Applicant's interest in the Ball Ditch Water Right was approved at the Hounshell Sump No. 1 for irrigation use. The Court found that the water right had historically irrigated 10.75 acres.

4.8. Historical Use of Applicant's Interest: In Case No. 09CW166, Applicant quantified and changed Applicant's interest in the Ball Ditch Water Right for augmentation use and for storage in Chatfield Reservoir, in the new storage space to be created by the Chatfield Reallocation Project.

4.9. Amount Available for Exchange: Any amount of consumptive use credits attributable to the Douglas Park Water Rights lawfully stored in Chatfield Reservoir pursuant to Case No. 09CW166 may be released from storage and exchanged pursuant to this decree.

**EXHIBIT H**

**TOWN OF CASTLE ROCK WATER RIGHTS - DENVER BASIN GROUNDWATER**

**Decreed Annual Yield in Acre-Feet**

| WATER RIGHT NAME OR FORMER OWNER | CASE NUMBER(S) | Decree Year | LOWER DAWSON NON-TRIB | LOWER DAWSON NOT NON-TRIB | UPPER DAWSON NOT NON-TRIB | DENVER NON-TRIB | DENVER NOT NON-TRIB | ARAPAHOE NON-TRIB | LARAMIE FOX HILLS NON-TRIB |
|---|---|---|---|---|---|---|---|---|---|
| Archer | 04CW124 | 2004 | 4 | | | 15.3 | | 17.2 | 7.3 |
| Bell Mountain Ranch | 80CW158 | 1981 | 0.2 | | | 667.5 | | | 289.2 |
| Bell Mountain Ranch | 84CW385 | 1988 | 32.8 | | | | 378.2 | 203.7 | 149.5 |
| Brookwood | 96CW123 | 1996 | 3.2 | | 3.5 | 39.3 | | 34.5 | 18.9 |
| Burchett | 04CW133 | 2004 | 5.1 | | 7.7 | 20.8 | | 20.2 | 8.1 |
| Burt | 01CW152 | 2003 | 9.1 | | | | 18.3 | 17.9 | 8.4 |
| Cambridge Heights | 03CW021 | 2004 | 0.7 | | 0.6 | 2.6 | | 2.6 | 1.3 |
| Canyons South | 81CW417 & 84CW386(A) | 1987 | 538 | | | 724 | | 893 | 591 |
| Castle Oaks (Douglas County) | 94CW011 | 1995 | | | | 61.1 | | 53.8 | 30.8 |
| Castle Oaks & Tanager Investments | 79CW365 | 1988 | 1,002 | | | 1,251 | | 1,105 | 691.5 |
| Castle Pines (Town portion) | 85CW468 thru 85CW471 | 1993 | | 34.4 | | | 103 | 241 | 82 |
| Castle Pines (Town portion) | 79CW270 | 1981 | | 83 | | | | | |
| Castle Pines (Town portion) | 79CW271 | 1981 | | | | | | | 96 |
| Castle Pines (Town portion) | 79CW272 | 1981 | | | | | | 51 | |
| Castle Pines Commercial | 85CW472 thru 85CW476 | 1992 | | 32 | | | 124 | 130 | 63 |
| Castle Plaza | 97CW168 | 2000 | | | | 7.2 | | 4.6 | 2.3 |
| Castle Ridge | 96CW198 | 1997 | 9.2 | | | 35 | | 36.1 | 15.9 |
| Castle Rock (EDI - Plum Cr Partners) | 06CW157 | 2007 | 6.1 | | | 15.3 | | 13.8 | 5.4 |
| Castle Rock Downtown Area | 79CW279 | 1982 | 573 | | | 310 | | 657 | |
| Castle Rock Investments | 03CW20 | 2003 | 4.5 | 0.1 | 0.2 | 4.9 | 0.2 | 6.8 | 3.6 |
| Castle Rock Land Co | 99CW23 | 1999 | | | | | | 187 | 97 |
| Castle Rock WWTP Parcel | 97CW168 | 2000 | 3.9 | | | 6.7 | | 5 | 2.6 |
| Cedar Hill Cemetery (Douglas County) | 99CW010 | 1999 | | | | | 11.6 | | 4.8 |
| Cherokee Ranch | 98CW219 | 1999 | | | | | 1614 | 1574 | 761 |
| Church of the Rock | 95CW287 | 1996 | | | | | 41.8 | 31.7 | 13.4 |
| Colorado Department of Transportation | 95CW34 | 1995 | | | | | | 87.9 | |
| Covenant | 06CW210 | 2007 | 8.3 | 1.3 | | 33.5 | | 22.7 | 10.6 |
| Demis | 06CW094 | 2006 | | | | 1 | | 0.8 | 0.3 |
| Diamond Ridge Estates | 99CW39 | 2000 | | 83.5 | | | 123.2 | 201.9 | 97.4 |
| Ditmars (Crystal Valley) | 83CW252(A) & (B) | 1986 | 146 | | | 615 | 115 | 879 | 349 |
| Dominion (Crystal Valley Ranch) | 03CW116 | 2003 | | | | 153.1 | | 247 | 93.4 |
| Douglas Lane (Lanterns) | 00CW146 | 2001 | 60 | | 21.1 | | 211.1 | 174.6 | 82.1 |
| EDI (Plum Creek Partners) | 85CW197 | 1988 | 9 | | | | 33 | 32 | 14 |
| EDI (Plum Creek Partners) | 85CW367 & 83CW104 | 1988 | 103 | | | | | 345 | 140 |
| EDI (Plum Creek Partners) | 85CW388 | 1988 | | | | 59 | 309 | | |
| Enderud (Founders Village) | 79CW364, 85CW271, 85CW272 | 1987 | 158.7 | | | 155.1 | | 198.1 | 95.6 |
| Epiphany | 07CW027 | 2007 | | | | 4.2 | | 2.9 | 1.2 |
| Fletcher-Birney (Oaks) | 82CW304, 82CW306 & 84CW281 | 1985 | 77 | | | 71 | | 119 | 33 |
| Foust (Bella Mesa) | 94CW21 | 1994 | 7.6 | | | 39 | | 38.7 | 21.9 |
| Glen Scott (Woodlands) | 85CW260 & 261, 86CW29 | 1987 | 206.7 | | | 167 | | 202.4 | 115 |
| Graham | 96CW162 | 1997 | | | | | 3.32 | 2.3 | 1.12 |
| Heckendorf (Crystal Crossing) | 84CW173 | 1985 | 96 | | | | | 102 | 22 |
| Heckendorf (Crystal Crossing) | 84CW173 | 1985 | | | | 101 | | | |
| Heir, Seidensticker | 03CW116 | 2003 | | | | 153.1 | | 247 | |
| Home Depot (Cooper Hook) | 01CW072 | 2001 | | 3.3 | | | 22.3 | 33 | 10.8 |
| Implied Consent Area | 97CW168 | 2000 | 55 | | | 680 | 397 | 288 | 458 |
| Lanterns | 84CW252 | 1985 | 149 | | | 225 | | 292 | 95 |
| Lenz (pt. Crystal Valley/pt. County) | 99CW111 | 1999 | | | | 19.6 | | 24.1 | 9.1 |
| Lincoln Meadows & Wolfensberger | 79CW271 | 1981 | | | | | | | 96 |
| Lincoln Meadows & Wolfensberger | 79CW272 | 1981 | | | | | | 51 | |
| Lincoln Meadows & Wolfensberger | 99CW23 | 1999 | | | | | | 187 | 197 |
| Lincoln Meadows & Wolfensberger | 84CW194 thru 84CW197 | 1985 | 71 | 1,486 | | | 2,990 | 1,966 | 915 |
| Maher Ranch | 99CW146 | 2000 | 4.7 | | | 14.5 | | 12.5 | 7.2 |
| Maher Ranch | 99CW195 | 2000 | | 17.7 | | | 22.7 | 24.8 | 12.2 |
| Maher Ranch (incl. pt. Diamond Ridge) | 84CW109, 110, 113 & 114 | 1987 | 116 | 22 | | 178 | 38 | 220 | 114 |
| Maher Ranch/Diamond Ridge | 99CW039 | 2000 | | 144 | | | 187 | 208 | 101 |
| Main Place | 01CW058 | 2001 | | | 0.5 | | 6.2 | 5.6 | 1.8 |
| MBE (Crystal Valley) | 00CW156 | 2001 | | | | 105.9 | | 119 | |
| Memmen Park | 97CW168 | 2000 | 1.6 | | | 29.6 | | 19 | 10.4 |
| Memmen-Young (Homestead Village) | 85CW266 & 267 | 1987 | 88 | | | 83 | | 109 | 50 |
| Metzler Ranch (incl. Milestone/DCJC) | 85CW274 & 275, 86CW28 | 1987 | 80 | 272 | | 79 | 268 | 372 | 206 |
| Mikelson (Founders Village) | 80CW284 | 1987 | 513.6 | | | 544 | | 701.2 | 265.1 |
| Mikelson (Founders Village) | 95CW182 | 1996 | 3.4 | | 2.2 | 10.7 | | 10.7 | 5.2 |
| MSP (Westfield Trade Center) | 86CW072 | 1990 | 70 | | | | 143 | 134 | 70 |
| Plum Creek Ridge | 04CW042 | 2004 | | | | | | 1.9 | 6.1 |
| Rampart Ventures (Castle Highlands) | 86CW047 | 1987 | 22 | 11 | | | 79 | 56 | 25 |
| Rangeview Ranch (Heritage Farm) | 86CW377 | 1989 | 332 | | | 196 | | 303 | 209 |
| Rice | 96CW147 | 1997 | | 1.7 | | | 3.6 | 2.4 | 1.2 |
| Schaap | 10CW113 | 2010 | 4.2 | | | | 11.1 | 9.5 | 4.7 |
| Scott | 98CW375 | 1999 | 13.9 | 3.2 | | 25.6 | 5.4 | 23.6 | 13.5 |
| Sellers Creek & Maple Grove Land LTD | 98CW298 | 1999 | | | | 163 | | 255.9 | |
| Sir Thomas (Hazen Moore) | 98CW370 | 1999 | | 18.2 | | | 24.9 | 22 | 12.4 |
| Steyn | 10CW114 | 2010 | 1.2 | | | | 3 | | 1.4 |
| Techtrack (Dawson Ridge) | W-9496-78, 80CW365 & 83CW356 | 1988 | | | | 570 | | 1,200 | 300 |
| U.S. Homes (Red Hawk) | 94CW275 & 95CW16 | 1995 | | 178 | | | 356 | 253 | 123 |
| Weaver (Founders/Castle Oaks) | 85CW262 & 263 | 1987 | 235.6 | | | 250.1 | | 390.9 | 201.5 |
| Zemp/Clingman | 01CW021 | 2002 | 12.6 | 25.6 | | 21.1 | 42.9 | 48.7 | 25.4 |
| | **TOTALS** | | **4,805.0** | **2,417.0** | **35.8** | **7,224.7** | **7,307.6** | **15,533.2** | **7,120.6** |
| | | | | | | | | **GRAND TOTAL** | **44,443.9** |

Updated by W. W. Wheeler & Associates, Inc. - December 11, 2019

# EXHIBIT I

## REUSABLE SUPPLIES FROM THE CITY AND COUNTY OF DENVER FOR USE IN THE WISE PARTNERSHIP

1. Beery Ditch (Case No. W-7739-74 WD1), Appropriation Date: June 15, 1861. Pursuant to this decree, Denver Water is entitled to divert and consumptively use 1,600 acre-feet annually.

2. Four Mile Ditch (Case No. 80CW313 WD1), Appropriation Date: June 1, 1868. Pursuant to this decree, Denver Water is entitled to divert and consumptively use 544 acre-feet annually.

3. Brown Ditch (Case No. 86CW014 WD1), Appropriation Date: November 30, 1862. Pursuant to this decree, Denver Water is entitled to divert and consumptively use 158 acre-feet annually.

4. Nevada Ditch (Case No. 90CW172 WD1), Appropriation Dates: Priority No. 4 –August 30, 1861; Priority No. 19 - December 30, 1865. Pursuant to this decree, Denver Water is entitled to divert and consumptively use 1,209 acre-feet annually.

5. Last Chance Ditch (Case No. 92CW014 WD1), Appropriation Dates: Priority No. 14 - December 30, 1863; Priority No. 39 - March 3, 1868. Pursuant to this decree, Denver Water is entitled to divert and consumptively use 242 acre-feet annually.

6. Pioneer Union Ditch (Case No. 91CW100 WD1), Appropriation Dates: Priority No. 5 - December 10, 1861; Priority No. 11 - September 1, 1862. Pursuant to this decree, Denver Water is entitled to divert and consumptively use 498.6 acre-feet annually.

7. Hodgson Ditch (Case No. 91CW102 WD1), Appropriation Date: Priority No. 3 – June 1, 1861. Pursuant to this decree, Denver Water is entitled to divert and consumptively use 44 acre-feet annually.

8. Harriman Ditch (Case No. 91CW103 WD1), Appropriation Dates: Priority No. 23 – March 16, 1869; Priority No. 25 – May 1, 1871; Priority No. 30 – March 1, 1882. Pursuant to this decree, Denver Water is entitled to divert and consumptively use 615.3 acre-feet annually.

9. Robert Lewis Ditch (Case No. 91CW105 WD1), Appropriation Date: Priority No. 19 - October 1, 1865. Pursuant to this decree, Denver Water is entitled to divert and consumptively use 207.78 acre-feet annually.

10. Simonton Ditch (Case No. 91CW106 WD1), Appropriation Date: Priority No. 2 – December 25, 1860.

11. Warrior Ditch (Case No. 91CW109 WD1), Appropriation Dates: Priority No. 4 - December 1, 1861; Priority No. 8 - April 16, 1862; Priority No. 14 -October 31, 1864. Pursuant to this decree, Denver Water is entitled to divert and consumptively use 939.1 acre-feet annually.

12. Blue River Diversion Project (Water District No. 36, Summit County Case Nos. 1805 and 1806 and Consolidated Case Nos. 2782, 5016, and 5017, U.S. District Court), Appropriation Date of June 24, 1946.

## REUSABLE SUPPLIES FROM THE CITY AND COUNTY OF DENVER FOR USE IN THE WISE PARTNERSHIP

13. Straight Creek Conduit of the Roberts Tunnel Collection System (Water District No. 36, C.A. No. 2371), Appropriation Date: January 21, 1957.

14. Fraser River and Williams Fork Diversion Projects (Water District No. 51, Grand County, C.A. No. 657), Appropriation Date of July 4, 1921. This source may be used as a substitute supply to the extent allowed by the 1940 Agreement, as otherwise modified by the parties to the 1940 Agreement.

15. Darling Creek Extension of the Williams Fork Diversion Project (Water District 51, Grand County, C.A. No. 1430), Appropriation Date of August 26, 1953.

16. Moffat Tunnel Collection System (Water District No. 51, Grand County, C.A. No. 1430), Appropriation Date of August 30, 1963.

17. Hamilton-Cabin Creek Ditch, Extension and Enlargement of Hamilton-Cabin Creek Ditch, Meadow Creek Reservoir (Water District No. 51, Grand County, C.A. No. 657*),* Appropriation Date of July 2, 1932.

18. LFH-1 Well (Permit Nos. 32363-F and 35393-F), withdrawing non-tributary water from the Laramie-Fox Hills Aquifer, decreed in Case No. 88CW149, W.D.1 for an average annual amount of 141 acre-feet.

19. Denver Metro Wells (Case No. 2003CW186 WD1) withdrawing non-tributary and not-non tributary water from the Arapahoe, Upper Arapahoe, and Laramie-Fox Hills Aquifers in the average annual amount of 29,605 acre-feet.

20. South Platte Gravel Pit Storage Right (Case No. 2001CW286 WD1), Appropriation Date: December 28, 2001.

21. South Platte Gravel Pit Complex First Enlargement (Case No. 2009CW264 WD1), Appropriation Date: December 29, 2009.

22. Recycled Plant Water Right and Exchange (Case No. 2001CW287 WD1), Appropriation Date: December 28, 2001.

23. Lupton Lakes South Platte Storage Right, (Case No. 2007CW322 WD1), Appropriation Date: December 28, 2007.

24. Farmers and Gardeners Ditch Water Right, (Case No. 2009CW084 WD1), Appropriation Date: March 15, 1863.

25. Lawn Irrigation Return Flows (Case No. 2004CW121 WD1), Decree Date: May 15, 2012.

# EXHIBIT J

**REUSABLE SUPPLIES FROM THE CITY OF AURORA**
**FOR USE IN THE WISE PARTNERSHIP**

**As of 06/2013**

**I. SOUTH PLATTE RIVER:**

| NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS[1] |
|---|---|---|---|---|---|---|
| | | | | | | |
| **MCDOWELL RANCH** | | | | | | **W-8345-76** |
| GUIRAUD 1 & 2 | 08.70 cfs | MIDDLE FORK SOUTH PLATTE | 1867/07/01 | 1889/10/18 | 23 | 1.2 cfs |
| GUIRAUD DITCH | 20.27 cfs | MIDDLE FORK SOUTH PLATTE | 1867/07/01 | 1889/10/18 | 23 | 2.2 cfs |
| CANON DITCH | 41.59 cfs | MIDDLE FORK SOUTH PLATTE | 1867/07/15 | 1889/10/18 | 23 | 5.5 cfs |
| SMALL DITCH | 16.00 cfs | MIDDLE FORK SOUTH PLATTE | 1867/07/15 | 1889/10/18 | 23 | 1.1 cfs |
| FEHRINGER NO. 1 DITCH | 17.90 cfs | MIDDLE FORK SOUTH PLATTE | 1875/04/20 | 1889/10/18 | 23 | 1.0 cfs |
| FEHRINGER NO. 2 DITCH[4] | 13.60 cfs | MIDDLE FORK SOUTH PLATTE | 1878/04/20 | 1889/10/18 | 23 | 1.0 cfs |
| | | | | | | |
| **SCHATTINGER RANCH** | | | | | | **84CW055** |
| BRUBAKER DITCH | 02.06 cfs | JEFFERSON CREEK | 1875/05/15 | 1889/10/18 | 23 | 1.8 cfs |
| CINCINNATI DITCH | 05.59 cfs | FRENCH CREEK | 1879/06/20 | 1889/10/18 | 23 | 5.6 cfs |
| LAVACK DITCH and ENLARGEMENT | 10.00 cfs | TAILWATER | 1877/05/15 | 1889/10/18 | 23 | |
| And LAVACK NO. 2 DITCH | 03.00 cfs | VOLZ GULCH | 1877/07/01 | 1889/10/18 | 23 | 2.4 cfs |
| HENRY DITCH | 01.00 cfs | MOUNTAIN CREEK | 1879/07/25 | 1889/10/18 | 23 | 1.0 cfs |
| | | | | | | |
| **ROCKER 7 RANCH** | | | | | | **84CW056** |
| CROSIER HAWXHURST DITCH | 01.34 cfs | JEFFERSON CREEK | 1875/04/25 | 1889/10/18 | 23 | 0.4 cfs |
| HAWXHURST DITCH | 04.00 cfs | JEFFERSON CREEK | 1876/04/25 | 1889/10/18 | 23 | 1.0 cfs |
| SNYDER CREEK DITCH | 09.50 cfs | SNYDER CREEK | 1884/07/08 | 1918/05/18 | 23 | 2.2 cfs |
| | | | | | | |
| **TETER RANCH** | | | | | | **86CW222** |
| DEMICK DITCH | 08.00 cfs | MICHIGAN CREEK | 1875/04/12 | 1889/10/18 | 23 | 5.20 cfs |
| DEMICK ENLAREMENT | 04.00 cfs | MICHIGAN CREEK | 1882/03/01 | 1889/10/18 | 23 | 2.90 cfs |
| | | | | | | |
| **JOHNSTON RANCH** | | | | | | **86CW223** |
| HOPSON DITCH | 06.00 cfs | UNNAMED CREEK | 1872/05/15 | 1889/10/18 | 23 | 1.3 cfs |
| HOLTHUSEN DITCH | 01.31 cfs | NO NAME CREEK | 1875/07/01 | 1889/10/18 | 23 | 1.3 cfs |
| PEABODY DITCH | 03.00 cfs | TARRYALL CREEK | 1880/04/20 | 1889/10/18 | 23 | 1.9 cfs |
| PEABODY NO. 2 DITCH | 04.00 cfs | TARRYALL CREEK | 1881/05/10 | 1889/10/18 | 23 | 1.8 cfs |
| | | | | | | |
| **SIBLEY RANCH** | | | | | | **84CW057** |
| WILKEN DITCH | 10.00 cfs | TARRYALL CREEK | 1871/05/15 | 1889/10/18 | 23 | 1.0 cfs |
| RATCLIFF NO. 1 DITCH | 20.00 cfs | ROCK CREEK | 1872/05/01 | 1889/10/18 | 23 | 0.3 cfs |
| ROCK CREEK DITCH | 02.70 cfs | ROCK CREEK | 1872/06/15 | 1889/10/18 | 23 | 0.2 cfs |

[1] Flow rates shown in this column indicate maximum rates and include flow rates for both the municipal use water and delayed return flow obligations, if any, as specified in each particular change decree

| NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS[1] |
|---|---|---|---|---|---|---|
| RATCLIFF NO. 2 DITCH | 04.21 cfs | ROCK CREEK | 1873/05/20 | 1889/10/18 | 23 | 0.8 cfs |
| BORDEN NO. 2 DITCH | 04.63 cfs | TARRYALL CREEK | 1874/11/01 | 1889/10/18 | 23 | 0.6 cfs |
| MARY G. BORDEN DITCH | 03.00 cfs | TARRYALL CREEK | 1874/11/30 | 1889/10/18 | 23 | 0.3 cfs |
| RATCLIFF NO. 3 DITCH | 04.06 cfs | ROCK CREEK | 1875/05/01 | 1889/10/18 | 23 | 0.6 cfs |
| MCMANUS DITCH | 10.00 cfs | TARRYALL | 1876/05/01 | 1889/10/18 | 23 | 0.3 cfs |
| LEE NO. 1 DITCH | 01.08 cfs | ROCK CREEK | 1876/06/01 | 1889/10/18 | 23 | 0.3 cfs |
| LEE NO. 2 DITCH | 00.50 cfs | ROCK CREEK | 1877/05/01 | 1889/10/18 | 23 | 0.1 cfs |
| ROCK CREEK NO. 1 DITCH | 01.35 cfs | ROCK CREEK | 1877/06/30 | 1889/10/18 | 23 | 0.5 cfs |
| BORDEN DITCH ENLARGEMENT | 05.00 cfs | TARRYALL CREEK | 1879/12/31 | 1889/10/18 | 23 | 1.9 cfs |
| DUNBAR NO. 3 DITCH | 02.00 cfs | TARRYALL CREEK | 1880/05/30 | 1889/10/18 | 23 | 0.3 cfs |
| RATCLIFF NO. 4 DITCH | 03.16 cfs | ROCK CREEK | 1880/06/01 | 1889/10/18 | 23 | 0.2 cfs |
| RATCLIFF NO. 5 DITCH | 03.16 cfs | ROCK CREEK | 1880/06/09 | 1889/10/18 | 23 | 0.2 cfs |
| DUNBAR NO. 2 DITCH | 04.05 cfs | TARRYALL CREEK | 1880/08/01 | 1889/10/18 | 23 | 0.5 cfs |
| RATCLIFF NO. 7 DITCH | 02.05 cfs | ROCK CREEK | 1882/05/01 | 1889/10/18 | 23 | 0.2 cfs |
| RATCLIFF NO. 6 DITCH | 02.05 cfs | ROCK CREEK | 1882/05/01 | 1889/10/18 | 23 | 0.2 cfs |
| RATCLIFF NO. 9 DITCH | 04.10 cfs | ROCK CREEK | 1882/05/21 | 1889/10/18 | 23 | 0.2 cfs |
| RATCLIFF NO. 8 DITCH | 04.32 cfs | ROCK CREEK | 1882/05/21 | 1889/10/18 | 23 | 0.2 cfs |
| LEE NO. 3 DITCH | 00.39 cfs | ROCK CREEK | 1884/05/15 | 1889/10/18 | 23 | 0.3 cfs |
| LEE NO. 4 DITCH | 00.39 cfs | ROCK CREEK | 1884/05/21 | 1889/10/18 | 23 | 0.2 cfs |
| | | | | | | |
| **FURMAN RANCH** | | | | | | **88CW262** |
| LASSELL DITCH | 09.60 cfs | MICHIGAN CREEK | 1882/05/01 | 1889/10/18 | 23 | 1.5 cfs |
| FREMONT DITCH | 20.00 cfs | TARRYALL CREEK | 1889/07/01 | 1896/05/23 | 23 | 5.7 cfs |
| SCHATTINGER WASTE DITCH | 07.00 cfs | SLOUGH | 1895/10/09 | 1913/05/22 | 23 | 6.7 cfs |
| | | | | | | |
| **MICHIGAN CREEK RANCH** | | | | | | **88CW263** |
| WHITTEN DITCH | 06.48 cfs | MICHIGAN CREEK | 1880/03/15 | 1889/10/18 | 23 | 2.4 cfs |
| PACKER DITCH | 12.00 cfs | TARRYALL CREEK | 1880/06/20 | 1889/10/18 | 23 | 2.0 cfs |
| McCARTNEY DITCH | 46.875 cfs | TARRYALL CREEK | 1885/05/20 | 1889/10/18 | 23 | 2.6 cfs |
| WHITTEN DITCH NO. 2 | 04.00 cfs | MICHIGAN CREEK | 1885/06/01 | 1913/05/22 | 23 | 3.5 cfs |
| WHITTEN DITCH NO. 3 | 05.00 cfs | MICHIGAN CREEK | 1885/06/01 | 1913/05/22 | 23 | Combined with No. 2 |
| WHITTEN DITCH NO. 4 | 07.00 cfs | MICHIGAN CREEK | 1885/06/01 | 1913/05/22 | 23 | Combined with No. 2 |
| | | | | | | |
| **AUGUSTINE RANCH** | | | | | | **CA 3684 , CA-3705 and W-7528** |
| PRINCE DITCH | 10.00 cfs | MIDDLE FORK SOUTH PLATTE | 1868/08/01 | 1889/10/18 | 23 | 9.6 cfs |
| PRINCE DITCH ENLARGEMENT | 45.60 cfs | MIDDLE FORK SOUTH PLATTE | 1876/05/10 | 1889/10/18 | 23 | 3.4 cfs |
| | | | | | | |
| **HIGH CREEK RANCH** | | | | | | **W-7931-75** |
| ALDEN AND MILLIGAN DITCH | 10.00 cfs | FOUR MILE CREEK | 1873/08/31 | 1889/10/18 | 23 | 0.8 cfs |
| KESTER SWEET DITCH | 05.08 cfs | SOUTH FORK SOUTH PLATTE | 1874/06/01 | 1889/10/18 | 23 | 2.6 cfs |
| HUBBARD DITCH | 19.00 cfs | SOUTH FORK SOUTH PLATTE | 1876/05/22 | 1889/10/18 | 23 | 5.0 cfs |
| MILLIGAN DITCH | 17.55 cfs | FOUR MILE CREEK | 1877/05/01 | 1889/10/18 | 23 | 1.1 cfs |
| FRANKS DITCH | 09.00 cfs | SOUTH FORK SOUTH PLATTE | 1877/06/15 | 1889/10/18 | 23 | 1.5 cfs |
| DIXON-DECOURSEY DITCH | 04.00 cfs | SOUTH FORK SOUTH PLATTE | 1877/06/15 | 1889/10/18 | 23 | 2.1 cfs |
| ELISHA ALDEN DITCH2 | 19.03 cfs | MIDDLE FORK SOUTH PLATTE | 1879/05/21 | 1889/10/18 | 23 | 3.4 cfs |

| NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS[1] |
|---|---|---|---|---|---|---|
| ROGERS DITCH | 42.74 cfs | SOUTH FORK SOUTH PLATTE | 1880/05/10 | 1889/10/18 | 23 | 1.8 cfs |
| | | | | | | |
| **TROUT CREEK RANCH** | | | | | | **W-9242-78(A)** and Stipulation to Modify Decree |
| TROUT CREEK DITCH | ENTIRE FLOW | TROUT CREEK | 1862/07/01 | 1889/10/18 | 23 | 6.8 cfs |
| SIGAFUS DITCH (No. 1) | 25.00 cfs | MIDDLE FORK SOUTH PLATTE | 1873/05/25 | 1889/10/18 | 23 | 16.1 cfs |
| SIGAFUS FIRST ENLARGEMENT | 25.00 cfs | MIDDLE FORK SOUTH PLATTE | 1875/05/01 | 1889/10/18 | 23 | |
| SIGSFUS SECOND ENLARGEMENT | 10.00 cfs | MIDDLE FORK SOUTH PLATTE | 1876/05/10 | 1913/05/22 | 23 | 5.1 cfs |
| SIGAFUS DITCH (No 2) | 02.00 cfs | MIDDLE FORK SOUTH PLATTE | 1874/12/31 | 1913/05/22 | 23 | |
| | | | | | | |
| **PLATTE-ANSLEY RANCH** | | | | | | **W-9242-78(B)** |
| BONNELL DITCH | 27.00 cfs | MIDDLE FORK SOUTH PLATTE | 1882/05/08 | 1889/10/18 | 23 | 8.4 cfs T |
| BONNELL DITCH-2 | 10.00 cfs | SOUTH PLATTE | 1882/06/20 | 1889/10/18 | 23 | |
| RAYNOR & EDMONDSON DITCH-1 | 20.00 cfs | SOUTH PLATTE | 1882/06/10 | 1889/10/18 | 23 | 2.9 cfs |
| RAYNOR & EDMONDSON DITCH-2 | 25.00 cfs | SOUTH PLATTE | 1879/07/15 | 1889/10/18 | 23 | 2.6 cfs |
| RAYNOR & EDMONDSON DITCH-3 | 05.85 cfs | SOUTH PLATTE | 1882/06/15 | 1889/10/18 | 23 | 1.3 cfs |
| RAYNOR & EDMONDSON DITCH-4 | 02.00 cfs | SOUTH PLATTE | 1882/06/28 | 1889/10/18 | 23 | 0.5 cfs |
| RAYNOR & EDMONDSON DITCH-5 | 20.00 cfs | SOUTH PLATTE | 1882/06/14 | 1889/10/18 | 23 | 2.1 cfs |
| EDMONDSON SEEPAGE DITCH | 10.00 cfs | SEEPAGE | 1882/06/10 | 1918/05/18 | 23 | |
| SPRING BRANCH DITCH | ENTIRE FLOW | SPRING | 1879/07/01 | 1889/10/18 | 23 | 1.5 cfs |
| DITCH NO. 52 | 10.00 cfs | | | 1889/10/18 | 23 | |
| ALKALINE DITCH | 27.00 cfs | MIDDLE FORK SOUTH PLATTE | 1885/07/05 | 1889/10/18 | 23 | |
| | | | | | | |
| **JANITELL RANCH** | | | | | | **W-7936-75** |
| BURNS AND SESSIONS DITCH | 09.36 cfs | JEFFERSON CREEK | 1874/10/01 | 1889/10/18 | 23 | 5.99 cfs |
| RANDALL & NICHOLAS DITCH | 10.00 cfs | MICHIGAN CREEK | 1874/10/14 | 1889/10/18 | 23 | 1.62 cfs |
| BRUBAKER DITCH | 05.19 cfs | JEFFERSON CREEK | 1875/05/15 | 1889/10/18 | 23 | 2.03 cfs |
| OHLER GULCH DITCH | ENTIRE FLOW | OHLER GULCH | 1878/04/01 | 1889/10/18 | 23 | 1.63 cfs |
| O'NEIL DITCH | 01.10 cfs | TARRYALL CREEK | 1879/05/10 | 1889/10/18 | 23 | 5.26 cfs |
| ANCHOR DITCH | 04.10 cfs | JEFFERSON CREEK | 1879/05/20 | 1889/10/18 | 23 | 5.50 cfs |
| CINCINNATI DITCH | 00.90 cfs | MICHIGAN CREEK | 1879/06/20 | 1889/10/18 | 23 | 0.64 cfs |
| WHITTEN DITCH | 04.50 cfs | MICHIGAN CREEK | 1880/03/15 | 1889/10/18 | 23 | 0.14 cfs |
| SESSIONS DITCH | 02.35 cfs | MICHIGAN CREEK | 1880/07/31 | 1889/10/18 | 23 | 0.83 cfs |
| SKELTON DITCH | 06.50 cfs | MICHIGAN CREEK | 1880/11/01 | 1889/10/18 | 23 | 3.37 cfs |
| MESA DITCH | 05.00 cfs | MICHIGAN CREEK | 1881/11/15 | 1889/10/18 | 23 | |
| CRAIG DITCH | 06.60 cfs | JEFFERSON CREEK | 1882/05/05 | 1889/10/18 | 23 | 1.63 cfs |
| LITMER DITCH | 02.00 cfs | JEFFERSON CREEK | 1882/06/15 | 1889/10/18 | 23 | 0.79 cfs |
| SCHATTINGER DITCH | 02.16 cfs | MICHIGAN CREEK | 1883/06/01 | 1889/10/18 | 23 | 0.19 cfs |
| LITMER DITCH ENLARGEMENT | 01.42 cfs | JEFFERSON CREEK | 1883/11/13 | 1889/10/18 | 23 | |
| OHLER DITCH | 07.00 cfs | JEFFERSON CREEK | 1888/06/25 | 1889/10/18 | 23 | 3.22 cfs |
| | | | | | | |
| **HURON RANCH** | | | | | | **W-7595-74** |
| PRUDEN DITCH | 13.51 cfs | PRUDEN CREEK | 1874/06/15 | 1889/10/18 | 23 | 1.1 cfs |
| SADLER DITCH | 49.00 cfs | MIDDLE FORK SOUTH PLATTE | 1875/05/31 | 1889/10/18 | 23 | 4.8 cfs |
| BALM OF GILEAD DITCH | 13.50 cfs | BALM OF GILEAD CRK | 1876/07/15 | 1889/10/18 | 23 | 0.9 cfs |

| NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS[1] |
|---|---|---|---|---|---|---|
| FOSTER DITCH | 42.00 cfs | MIDDLE FORK SOUTH PLATTE | 1876/07/31 | 1889/10/18 | 23 | 4.5 cfs |
| HOT SPRINGS DITCH | 28.00 cfs | SOUTH FORK SOUTH PLATTE | 1877/05/15 | 1889/10/18 | 23 | 8.8 cfs |
| CENTRAL DITCH | 33.00 cfs | MIDDLE FORK SOUTH PLATTE | 1877/06/01 | 1889/10/18 | 23 | 3.7 cfs |
| FRITZ DITCH2 | 24.00 cfs | SOUTH FORK SOUTH PLATTE | 1877/07/01 | 1889/10/18 | 23 | 5.1 cfs |
| PIERCE DITCH | 55.00 cfs | SOUTH FORK SOUTH PLATTE | 1880/06/01 | 1889/10/18 | 23 | 2.5 cfs |
| WESTERN DITCH | 66.00 cfs | MIDDLE FORK SOUTH PLATTE | 1881/10/01 | 1889/10/18 | 23 | 25.9 cfs |
| ROGERS NORTH DITCH | 16.80 cfs | MIDDLE FORK SOUTH PLATTE | 1879/05/15 | 1889/10/18 | 23 | 0.6 cfs |
| DIVINE HILL DITCH | 49.00 cfs | MIDDLE FORK SOUTH PLATTE | 1882/05/31 | 1889/10/18 | 23 | 8.6 cfs |
| HARRINGTON SOUTH DITCH | 43.00 cfs | MIDDLE FORK SOUTH PLATTE | 1882/09/15 | 1889/10/18 | 23 | 4.4 cfs |
| RICHARDS LOWER DITCH | 45.00 cfs | MIDDLE FORK SOUTH PLATTE | 1882/09/15 | 1889/10/18 | 23 | |
| HARRINGTON & RICKARDS DITCH | 94.00 cfs | MIDDLE FORK SOUTH PLATTE | 1884/10/15 | 1889/10/18 | 23 | 9.5 cfs |
| ROBBINS NO. 1 DITCH | 02.00 cfs | SIMS CREEK | 1872/05/01 | 1913/05/22 | 23 | |
| ROBBINS-SIMS DITCH | 01.80 cfs | SIMS CREEK | 1873/05/01 | 1913/05/22 | 23 | |
| ROBBINS NO. 2 DITCH | 01.80 cfs | SIMS CREEK | 1873/06/01 | 1913/05/22 | 23 | |
| SIMS DITCH | 04.00 cfs | SIMS CREEK | 1876/06/01 | 1913/05/22 | 23 | |
| SPRING DITCH NO. 1 | 01.90 cfs | SIMS CREEK | 1877/05/01 | 1913/05/22 | 23 | |
| SPRING DITCH NO. 2 | 00.72 cfs | NO NAME CREEK | 1877/05/01 | 1913/05/22 | 23 | |
| THREE MILE DITCH | 05.00 cfs | 3 MILE CREEK | 1904/04/01 | 1913/05/22 | 23 | |
| LEFT HAND DITCH | 05.00 cfs | LEFT HAND CREEK | 1906/04/01 | 1913/05/22 | 23 | |
| HENRY E. ROGERS DITCH NO. 1 | 08.00 cfs | CROSS CREEK | 1874/05/15 | 1918/05/18 | 23 | |
| HENRY E. ROGERS DITCH NO. 2 | 01.00 cfs | UNION CREEK | 1874/06/15 | 1918/05/18 | 23 | |
| PONCHO VILLA DITCH | 02.00 cfs | BUFFALO SLOUGH | 1917/05/31 | 1918/05/18 | 23 | |
| JARDON DITCH | 01.00 cfs | SOUTH FORK SOUTH PLATTE | 1919/06/10 | 1953/03/24 | 23 | |
| LEFT HAND GULCH DITCH | 01.05 cfs | LEFT HAND CREEK | 1927/01/10 | 1953/03/24 | 23 | |
| BROWN DITCH | 03.40 cfs | SPRING CREEK | 1947/09/22 | 1953/03/24 | 23 | |
| SIMMS DITCH | 04.80 cfs | EAST FOREST RANGER STA. CREEK | 1947/09/23 | 1953/03/24 | 23 | |
| SPRING CREEK DITCH | 08.00 cfs | SPRING CREEK | 1947/09/25 | 1953/03/24 | 23 | |
| MAGNA NO. 1 EAST DITCH | 15.00 cfs | SPRING CREEK | 1947/10/04 | 1953/03/24 | 23 | |
| MAGNA NO. 1 WEST DITCH | 07.35 cfs | SPRING CREEK | 1947/10/04 | 1953/03/24 | 23 | |
| JORDAN EAST DITCH | 13.65 cfs | WEST FORK SPRING CREEK | 1947/10/11 | 1953/03/24 | 23 | |
| JORDAN WEST DITCH | 00.60 cfs | SPRING CREEK | 1947/10/11 | 1953/03/24 | 23 | |
| HARRINGTON & RICKARDS RANCH | 01.00 cfs | MIDDLE FORK SOUTH PLATTE | 1884/12/31 | 1913/05/22 | 23 | |
| TOTAL-SOUTH SIDE JUNIORS | | | 1889/12/02 | | 23 | 4.3 cfs |
| | | | | | | |
| **BADGER BASIN RANCH** | | | | | | **W-9234-78** |
| DANIEL FYFFE DITCH | 06.00 cfs | FOUR MILE CREEK | 1874/06/01 | 1889/10/18 | 23 | 0.41 cfs |
| DONOVAN DITCH | 45.00 cfs | FOUR MILE CREEK | 1878/05/15 | 1889/10/18 | 23 | 2.48 cfs |
| MAIN OR HOTEL DITCH | 29.00 cfs | SOUTH FORK SOUTH PLATTE | 1879/04/15 | 1889/10/18 | 23 | 5.73 cfs |
| THOMPSON DITCH | 31.00 cfs | MIDDLE FORK SOUTH PLATTE | 1881/04/02 | 1889/10/18 | 23 | 7.86 cfs |
| HARRIS DITCH | 16.45 cfs | FOUR MILE CREEK | 1881/05/01 | 1889/10/18 | 23 | 0.49 cfs |
| HARTSEL FOURMILE DITCH2 | 22.00 cfs | FOUR MILE CREEK | 1885/06/08 | 1889/10/18 | 23 | 1.33 cfs |
| HIGH CREEK NO. 2 DITCH | 02.00 cfs | HIGH CREEK | 1880/06/01 | 1913/05/22 | 23 | 0.26 cfs |
| FOURMILE NO. 1 DITCH | 02.00 cfs | FOUR MILE CREEK | 1880/06/01 | 1913/05/22 | 23 | 0.75 cfs |
| FOURMILE NO. 2 DITCH | 02.00 cfs | FOUR MILE CREEK | 1880/06/01 | 1913/05/22 | 23 | 0.41 cfs |
| EUHLER DITCH | 06.50 cfs | MIDDLE FORK SOUTH PLATTE | 1892/03/01 | 1918/05/18 | 23 | 0.76 cfs |
| FIRST FIELD DITCH | 03.00 cfs | THREE MILE SLOUGH | 1892/09/01 | 1918/05/18 | 23 | 0.34 cfs |

| NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS[1] |
|---|---|---|---|---|---|---|
| THREE MILE DITCH | 05.25 cfs | THREE MILE SLOUGH | 1892/10/31 | 1918/05/18 | 23 | 0.22 cfs |
| | | | | | | |
| **COIL RANCH** | | | | | | **W-9448-78** |
| MILLER & CHAPMAN DITCH | 10.00 cfs | MIDDLE FORK SOUTH PLATTE | 1873/05/23 | 1889/10/18 | 23 | 2.84 cfs |
| ANDERSON NO. 3 DITCH | 06.40 cfs | MIDDLE FORK SOUTH PLATTE | 1873/07/01 | 1889/10/18 | 23 | 3.13 cfs |
| ANDERSON NO. 2 DITCH | 10.45 cfs | MIDDLE FORK SOUTH PLATTE | 1875/05/25 | 1889/10/18 | 23 | 4.23 cfs |
| MILLER & CHAPMAN DITCH ENLARGEMENT | 02.00 cfs | MIDDLE FORK SOUTH PLATTE | 1878/06/20 | 1889/10/18 | 23 | 0.38 cfs |
| ANDERSON No. 1 DITCH | 22.00 cfs | MIDDLE FORK SOUTH PLATTE | 1881/04/20 | 1889/10/18 | 23 | 3.13 cfs |
| DF MILLER NO. 1 DITCH | 126.20 cfs | MIDDLE FORK SOUTH PLATTE | 1881/05/10 | 1889/10/18 | 23 | 2.86 cfs |
| PARK DITCH | 60.00 cfs | MIDDLE FORK SOUTH PLATTE | 1882/06/10 | 1889/10/18 | 23 | 2.69 cfs |
| "DITCH" DITCH | 50.00 cfs | MIDDLE FORK SOUTH PLATTE | 1887/05/24 | 1889/10/18 | 23 | |
| | | | | | | |
| **MCNULTY RANCH** | | | | | | **79CW274** |
| CHAPELLE DITCH | 05.00 cfs | SOUTH FORK SOUTH PLATTE | 1873/09/01 | 1889/10/18 | 23 | 1.48 cfs |
| KESTER SWEET DITCH | 20.31 cfs | SOUTH FORK SOUTH PLATTE | 1874/06/01 | 1889/10/18 | 23 | 7.94 cfs |
| BURLINGAME DITCH | 06.75 cfs | SOUTH FORK SOUTH PLATTE | 1878/08/10 | 1889/10/18 | 23 | 0.21 cfs |
| WEAVER NO. 3 DITCH | 01.35 cfs | SOUTH FORK SOUTH PLATTE | 1887/07/12 | 1889/10/18 | 23 | 0.09 cfs |
| BURLINGAME NO. 3 DITCH | 01.62 cfs | SOUTH FORK SOUTH PLATTE | 1888/06/10 | 1889/10/18 | 23 | 0.19 cfs |
| MILLER DEYARMAN DITCH | 00.75 cfs | SOUTH FORK SOUTH PLATTE | 1885/06/01 | 1913/05/22 | 23 | 0.13 cfs |
| | | | | | | |
| **WALKER RANCH** | | | | | | **79CW351** |
| HAVER NO. 1 DITCH | 24.32 cfs | SOUTH FORK SOUTH PLATTE | 1873/06/25 | 1889/10/18 | 23 | 0.88 cfs |
| PARMALEE & SHOEMAKER NO. 1 DITCH | 30.54 cfs | SOUTH FORK SOUTH PLATTE | 1875/05/20 | 1889/10/18 | 23 | 1.37 cfs |
| PARMALEE & SHOEMAKER NO. 3 DITCH | 30.48 cfs | SOUTH FORK SOUTH PLATTE | 1876/06/15 | 1889/10/18 | 23 | 0.86 cfs |
| ISLAND DITCH | 12.67 cfs | SOUTH FORK SOUTH PLATTE | 1876/06/30 | 1889/10/18 | 23 | 0.72 cfs |
| HAVER NO. 2 DITCH | 29.98 cfs | SOUTH FORK SOUTH PLATTE | 1876/07/01 | 1889/10/18 | 23 | 1.12 cfs |
| PARMALEE & SHOEMAKER NO. 2 DITCH | 44.30 cfs | SOUTH FORK SOUTH PLATTE | 1877/06/01 | 1889/10/18 | 23 | 2.61 cfs |
| HAVER NO. 3 DITCH | 09.47 cfs | SOUTH FORK SOUTH PLATTE | 1887/05/01 | 1889/10/18 | 23 | 2.53 cfs |
| | | | | | | |
| **BLACK MOUNTAIN RANCH** | | | | | | **84CW010** |
| BINKLEY NO. 2 DITCH | 20.00 cfs | TWELVE MILE CREEK | 1878/08/013 | 1889/10/18 | 23 | 0.59 cfs |
| BURLINGAME DITCH | 20.25 cfs | SOUTH FORK SOUTH PLATTE | 1878/08/10 | 1889/10/18 | 23 | 1.61 cfs |
| BINKLEY DITCH | 25.00 cfs | TWELVE MILE CREEK | 1879/09/01 | 1889/10/18 | 23 | 0.09 cfs |
| SOUDERS & WOLFE NO. 6 DITCH | 11.68 cfs | SOUTH FORK SOUTH PLATTE | 1887/05/25 | 1889/10/18 | 23 | 0.21 cfs |
| ROGERS DITCH | 14.30 cfs | HIGH CREEK | 1884/06/01 | 1893/10/30 | 23 | 0.19 cfs |
| ROGERS AND MILLER DITCH | 12.50 cfs | TWELVE MILE CREEK | 1901/05/27 | 1913/05/22 | 23 | 0.68 cfs |
| WINKLER DITCH | 01.50 cfs | TWELVE MILE CREEK | 1879/06/01 | 1913/05/22 | 23 | 0.35 cfs |
| | | | | | | |
| **COLLARD RANCH** | | | | | | **88CW228** |
| DUNBAR DITCH | 07.00 cfs | TARRYALL CREEK | 1876/04/05 | 1889/10/18 | 23 | 3.66 cfs |
| DUNBAR DITCH NO. 1 | 18.00 cfs | TARRYALL CREEK | 1881/06/01 | 1889/10/18 | 23 | 1.43 cfs |
| | | | | | | |
| **INDIAN MOUNTAIN RANCH** | | | | | | **84CW065** |
| HARLAND DITCH | 27.00 cfs | TARRYALL CREEK | 1878/05/20 | 1889/10/18 | 23 | 3.28 cfs |

| NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS[1] |
|---|---|---|---|---|---|---|
| SLATER DITCH | 14.00 cfs | TARRYALL CREEK | 1880/05/20 | 1889/10/18 | 23 | 1.25 cfs |
| | | | | | | |
| **JOHNSON RANCH** | | | | | | **92CW156** |
| BAKER & LILLEY DITCH | 07.30 cfs | DEADMAN GULCH | 1875/06/01 | 1889/10/18 | 23 | 1.52 cfs |
| W.R. HEAD DITCH | 05.70 cfs | JEFFERSON CREEK | 1879/09/01 | 1889/10/18 | 23 | 3.91 cfs |
| **NOTE:** Decree shows allowed diversions of 2.99 cfs + 0.92 cfs = 3.91 cfs. | | | | | | |
| W.R.HEAD NO. 3 DITCH | 01.80 cfs | JEFFERSON CREEK | 1881/05/10 | 1889/10/18 | 23 | 0.73 cfs |
| **NOTE:** Decree shows allowed diversions of 0.57 cfs + 0.16 cfs = 0.73 cfs. | | | | | | |
| W.R.HEAD NO. 4 DITCH | 02.44 cfs | JEFFERSON CREEK | 1881/05/15 | 1889/10/18 | 23 | 1.65 cfs |
| | | | | | | |
| **STEINER RANCH** | | | | | | **93CW140** |
| BRUBAKER DITCH | 2.063 cfs | JEFFERSON CREEK | 1875/05/15 | 1889/10/18 | 23 | 1.70 cfs |
| | | | | | | |
| **COLUMBINE RESERVOIR** | 29,242 af<br>150 cfs<br>Conditional | TARRYALL CREEK | 1988/10/03 | 1990/08/23 | 23 | **83CW360** |
| | | | | | | |
| **LAST CHANCE DITCH NO.2** | | | | | | **91CW117** |
| PLATTE CANYON DITCH | 08.50 cfs | SOUTH PLATTE | 1863/12/30 | 1883/12/10 | 8 | 1.92 cfs |
| LAST CHANCE DITCH (PR-39) | 32.00 cfs | SOUTH PLATTE | 1868/03/03 | 1883/12/10 | 8 | 3.64 cfs |
| **NOTE:** These flow rates appear as max rates in decree. | | | | | | |
| | | | | | | |
| **STRONTIA SPRINGS DIVERSION** | 225 cfs | SOUTH PLATTE | 2004/08/30 | 2009/07/13 | 8 | **04CW218** |
| | | | | | | |
| **TUCSON SOUTH / ARR-B STORAGE FACILITY** | 10,400 AF | SOUTH PLATTE | 2003/12/08 | 2007/08/01 | 2 | **03CW414** |
| | | | | | | |
| **AURORA , QUINCY, AND EAST RESERVOIRS** | 18,707 AF<br>2,693 AF<br>25,000 AF | SOUTH PLATTE | 2003/12/08 | 2008/05/14 | 2 | **03CW415** |
| | | | | | | |
| **PRAIRIE WATERS PROJECT**<br>Involves a conditional underground storage right, surface storage right, tributary ground water rights, and appropriative rights of exchange | 19,000 AF<br>19,000 AF<br>77.4 cfs<br>21,000 AF | SOUTH PLATTE | 2006/04/28 | 2009/05/06 | | **2006CW104** |
| | | | | | | |
| **ROBERT W. WALKER RESERVOIR** | 2,000 AF | SOUTH PLATTE | 1997/10/21 | 2000/05/10 | 2 | **97CW272**<br>**06CW129** |
| | | | | | | |
| **STILLWATER RANCH RESERVOIR** | 1,600 AF | SOUTH PLATTE | 1997/09/12 | 2000/05/10 | 2 | **97CW392**<br>**06CW130** |
| | | | | | | |
| **BURLINGTON DITCH AND RESERVOIR (Aurora Owns 1Paired Share)** | | | | | | |
| DUGGAN DITCH | 16.28 cfs | SOUTH PLATTE | 1864/04/01 | 1883/04/28 | 2 | |
| BARR LAKE | 1990.35 af | SOUTH PLATTE | 1885/11/20 | 1893/07/08 | 2 | |

| NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS[1] |
|---|---|---|---|---|---|---|
| BURLINGTON DITCH | 200.00 cfs | SOUTH PLATTE | 1885/11/20 | 1893/07/08 | 2 | |
| BARR LAKE (OASIS) | 9090.90 af | SOUTH PLATTE | 1885/11/20 | 1893/07/08 | 2 | |
| BURLINGTON DITCH | 250.00 cfs | SAND CREEK | 1885/12/01 | 1893/07/08 | 2 | |
| BURLINGTON DITCH | 50.00 cfs | FIRST CREEK | 1886/09/01 | 1893/07/08 | 2 | |
| BURLINGTON DITCH | 250.00 cfs | SECOND CREEK | 1886/11/15 | 1893/07/08 | 2 | |
| BURLINGTON DITCH | 250.00 cfs | THIRD CREEK | 1887/09/15 | 1893/07/08 | 2 | |
| DUCK LAKE (ALTURA RESV.) | 750 af | GENEVA CREEK | 1904/09/15 | 1918/05/18 | 80 | |
| | | | | | | |
| **WELLINGTON RESERVOIR CO. (Aurora owns 1 paired share)** | | | | | | |
| DUGGAN DITCH | 7.99 cfs | SOUTH PLATTE | 1864/04/01 | 1883/04/28 | 2 | |
| WELLINGTON RESERVOIR | 2747.72 af | BUFFALO CREEK | 1892/05/31 | 1922/06/21 | 80 | |
| WELLINGTON RESERVOIR ENLARGEMENT | 1652 af | BUFFALO CREEK | 1920/06/05 | 1922/06/21 | 80 | |
| MENDENHALL FEEDER DITCH | 25.00 cfs | MENDENHALL CREEK | 1892/09/03 | 1922/06/21 | 80 | |
| HICKS CREEK FEEDER DITCH | 25.00 cfs | HICKS CREEK | 1921/12/31 | 1922/06/21 | 80 | |
| | | | | | | |
| **FULTON DITCH**<br>**(Aurora Owns 156 Shares)** | 79.7 cfs<br>74.25 cfs<br>50.23 cfs | SOUTH PLATTE<br>SOUTH PLATTE<br>SOUTH PLATTE | 1865/05/01<br>1876/07/08<br>1879/11/05 | 1883/04/28<br>1883/04/28<br>1883/04/28 | 2<br>2<br>2 | **CA-6009**<br>**(Not Changed to municipal use.)**. |
| | | | | | | |
| **BRIGHTON DITCH**<br>**(Aurora Owns 9.583 Shares)** | 22.22 cfs<br>22.58 cfs | SOUTH PLATTE<br>SOUTH PLATTE | 1863/12/01<br>1871/11/01 | 1883/04/28<br>1883/04/28 | 2<br>2 | **07CW037**<br>**(Change Decree entered March 23, 2011 granted 9.023 shares)** |
| | | | | | | |
| **NEW BRANTNER EXTENSION DITCH COMPANY**<br>**(Aurora Owns 50.3 Shares)** | 29.77 cfs<br>5.93 cfs<br>12.18 cfs<br>63.30 cfs | SOUTH PLATTE<br>SOUTH PLATTE<br>SOUTH PLATTE<br>SOUTH PLATTE | 1860/04/01<br>1863/01/05<br>1872/07/01<br>1881/01/15 | 1883/04/28<br>1883/04/28<br>1883/04/28<br>1883/04/28 | 2<br>2<br>2<br>2 | **CA-6009**<br>**(Not Changed to municipal use.)** |
| | | | | | | |
| **LUPTON BOTTOM DITCH CO.**<br>**(Aurora Owns 10.5 Shares)** | 47.70 cfs<br>92.87 cfs | SOUTH PLATTE<br>SOUTH PLATTE | 1863/05/15<br>1873/09/15 | 1883/04/28<br>1883/04/28 | 2<br>2 | **CA-6009**<br>**(Not Changed to municipal use.)** |
| | | | | | | |
| **LUPTON MEADOWS DITCH CO.**<br>**(Aurora Owns 341 Shares)** | | | | | | **CA-6009**<br>**(Not Changed to municipal use.)** |
| LUPTON BOTTOM DITCH | 47.70 cfs | SOUTH PLATTE | 1863/05/15 | 1883/04/28 | 2 | |
| MEADOW ISLAND DITCH NO. 1 | 22.00 cfs | SOUTH PLATTE | 1866/05/01 | 1883/04/28 | 2 | |
| LUPTON BOTTOM DITCH | 92.87 cfs | SOUTH PLATTE | 1873/09/15 | 1883/04/28 | 2 | |
| MEADOW ISLAND DITCH NO. 1 | 94.80 cfs | SOUTH PLATTE | 1882/04/29 | 1883/04/28 | 2 | |
| | | | | | | |
| **MEADOW ISLAND NO. 1**<br>**(Aurora Owns 24 Shares)** | 22.00 cfs<br>94.80 cfs | SOUTH PLATTE<br>SOUTH PLATTE | 1866/05/01<br>1882/04/29 | 1883/04/28<br>1883/04/28 | 2<br>2 | **CA-6009**<br>**(Not Changed to municipal use.)** |
| | | | | | | |

| NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS[1] |
|---|---|---|---|---|---|---|
| **PLATTEVILLE DITCH** | 47.88 cfs | SOUTH PLATTE | 1862/07/01 | 1883/0428 | 2 | **CA-6009** |
| **(Aurora Owns 2.375 Share)** | 5.25 cfs | SOUTH PLATTE | 1871/01/01 | 1882/04/28 | 2 | **(Not Changed to municipal** |
| | 94.25 cfs | SOUTH PLATTE | 1873/10/15 | 1883/04/08 | 2 | **use.)** |
| | | | | | | |
| **WESTERN MUTUAL DITCH COMPANY** | 27.45 cfs | SOUTH PLATTE | 1866/05/05 | 1883/04/28 | 2 | **(Not Changed to municipal** |
| **(Aurora Owns 30 Shares)** | 71.12 cfs | SOUTH PLATTE | 1871/08/10 | 1883/04/28 | 2 | **use.)** |
| | 86.43 cfs | SOUTH PLATTE | 1894/01/26 | 1918/08/02 | 2 | |
| | | | | | | |
| **FARMERS INDEPENDENT DITCH CO.** | 61.6 cfs | SOUTH PLATTE | 1865/11/20 | | | **(Not Changed to municipal** |
| **(Aurora Owns 20 Shares)** | 85.4 cfs | SOUTH PLATTE | 1876/11/20 | | | **use)** |
| | | | | | | |
| **UNION DITCH CO.** | 100.00 cfs | SOUTH PLATTE | 1874/11/05 | | | **(Not Changed to municipal** |
| **(Aurora Owns 11 Shares)** | 84.03 cfs | SOUTH PLATTE | 1881/11/02 | | | **use)** |
| | | | | | | |
| **AURORA LAWN IRRIGATION RETURN FLOWS** | N/A | | | 2008/12/18 | | **02CW341** |
| | | | | | | |
| **SHOP CREEK LIRFs** | N/A | | | 2001/08/01 | | **Case Nos. 95CW226 and 227** |

II. ARKANSAS RIVER:

| NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS |
|---|---|---|---|---|---|---|
| | | | | | | |
| **BURROUGHS RANCH** | | | | | | **W-4799 & 82CW182** |
| YOUNGER NO. 1 DITCH | 5.71 cfs | Arkansas River | 1879/05/15 | 1902/07/15 | 11 | 0.77 cfs |
| YOUNGER NO. 2 DITCH | 6.29 cfs | Arkansas River | 1879/05/15 | 1902/07/15 | 11 | 0.85 cfs |
| BEAVER DAM DITCH | 1.43 cfs | Arkansas River | 1881/05/15 | 1902/07/15 | 11 | 0.08 cfs |
| YOUNGER WASTE DITCH | 3.00 cfs | Springs and Seepage | 1892/05/01 | 1911/06/09 | 11 | zero |
| | | | | | | |
| **BUFFALO PARK RANCH** | | | | | | **89CW042** |
| UPPER DITCH | 4.80 cfs | Half Moon Creek | 1881/05/07 | 1890/06/19 | 11 | 1.4 cfs |
| ABBOTT & LOPER DITCH | 1.00 cfs | Half Moon Creek | 1882/04/25 | 1890/06/19 | 11 | 0.4 cfs |
| ABBOTT & LOPER DITCH (2nd) | 5.40 cfs | Half Moon Creek | 1887/05/07 | 1890/06/19 | 11 | 1.5 cfs |
| ABBOTT & LOPER DITCH (3rd) | 0.50 cfs | Half Moon Creek | 1885/03/19 | 1911/01/27 | 11 | zero |
| HALFMOON DITCH | 0.30 cfs | Half Moon Creek | 1887/05/28 | 1890/06/19 | 11 | zero |
| LORD-COLAHAN DITCH | 1.50 cfs | Half Moon Creek | 1890/06/19 | 1910/07/12 | 11 | zero |
| LORD-COLAHAN DITCH (2nd) | 0.14 cfs | Half Moon Creek | 1887/06/01 | 1911/01/27 | 11 | zero |
| HARL DITCH | 1.00 cfs | Half Moon Creek | 1885/03/19 | 1911/01/27 | 11 | zero |
| HARL DITCH (2nd) | 2.80 cfs | Half Moon Creek | 1901/09/01 | 1911/01/27 | 11 | zero |
| COLAHAN NO. 1 DITCH | 0.20 cfs | Half Moon Creek | 1885/06/01 | 1911/01/27 | 11 | zero |
| COLAHAN NO. 1 DITCH (2nd) | 0.40 cfs | Half Moon Creek | 1901/09/01 | 1911/01/27 | 11 | zero |
| COLAHAN & LOPER DITCH | 0.50 cfs | Half Moon Creek | 1887/06/01 | 1911/01/27 | 11 | zero |
| | | | | | | |
| **SPURLIN-SHAW RANCH** | | | | | | **98CW137(A&B)** |
| DeLappe Ditch | 5.00 cfs | Arkansas River | 1887/06/16 | 1908/01/21 | 11 | zero |

| | | | | | | |
|---|---|---|---|---|---|---|
| Henderson - DeLappe Ditch | 10.00 cfs | Lake Fork Creek | 1887/05/01 | 1907/07/10 | 11 | 3.14 cfs |
| Wells & Starr Ditch | 8.00 cfs | Arkansas River | 1882/05/01 | 1907/07/10 | 11 | 1.73 cfs |
| Henderson Rock Creek Ditch | 3.44 cfs | Rock Creek | 1878/08/01 | 1913/07/14 | 11 | 1.23 cfs |
| | | | | | | |
| **HAYDEN RANCH** | | | | | | **98CW137(A&B)** |
| Upper River Ditch | 14.00 cfs | Arkansas River | 1879/05/15 | 1901/01/31 | 11 | 4.01 cfs |
| Pioneer Ditch | 7.00 cfs | Arkansas River | 1878/04/08 | 1901/01/31 | 11 | 2.57 cfs |
| Champ Ditch | 5.00 cfs | Arkansas River | 1877/06/25 | 1901/01/31 | 11 | 0.28 cfs |
| Wheel Ditch | 16.00 cfs | Arkansas River | 1880/05/05 | 1901/01/31 | | 0.10 cfs |
| | | | | | | |
| **COLORADO CANAL COMPANIES** | | | | | | **84CW062, 84CW063, & 84CW064** |
| Colorado Canal | 756.28 cfs | Arkansas River | 1890/06/09 | 1896/03/23 | 14 | |
| | | | | | | |
| Lake Meredith Reservoir | 26,028 AF | Arkansas River | 1898/03/09 | 1916/11/25 | 14 | |
| | | | | | | |
| Lake Henry Reservoir | 6,355 AF | Arkansas River | 1891/12/31 | 1916/11/25 | 14 | |
| Lake Henry Reservoir | 2,000 AF | Arkansas River | 1900/09/10 | 1932/10/13 | 14 | |
| Lake Henry Reservoir | 3,561 AF | Arkansas River | 1909/06/15 | 1916/11/25 | 14 | |
| | | | | | | |
| **ROCKY FORD DITCH COMPANY** | | | | | | **83CW018 & 99CW169(A)** |
| ROCKY FORD DITCH | 111.76 cfs | Arkansas River | 1874/05/15 | 1905/04/08 | 17 | 58.00 cfs |
| ROCKY FORD DITCH | 96.54 cfs | Arkansas River | 1890/05/06 | 1905/04/08 | 17 | Zero |
| | | | | | | |
| **ROCKY FORD DITCH EXCHANGES** | | | | | | |
| ROCKY FORD I EXCHANGES | 500.00 cfs | Arkansas River | 1987/12/21 | 1987/12/31 | | **87CW063** |
| ROCKY FORD II EXCHANGES | 500.00 cfs | Arkansas River | 1999/12/28 | 1999/12/31 | | **99CW170(A&B)** |
| | | | | | | |
| **BOX CREEK RES. EXCHANGES** | 50.00 cfs | | | Pending | | **01CW145** |
| | | | | | | |

**III. COLORADO RIVER:**

WATER ORIGINATING IN THE COLORADO RIVER SYSTEM IS DIVERTED INTO THE ARKANSAS RIVER SYSTEM AND TRANSPORTED VIA THE OTERO PIPELINE SYSTEM TO THE SOUTH PLATTE RIVER BASIN:

A. HOMESTAKE SYSTEM: DISTRICT COURT, EAGLE COUNTY, CASE NO. 1193, ORIGINAL DECREE ENTERED JULY 23, 1958, AMENDED AND SUPPLEMENTAL DECREE ENTERED JUNE 8, 1982; DISTRICT COURT, WATER DIVISION 5, CASE NOS. 88-CW-449, DECREE ENTERED AUGUST 20, 2002; DISTRICT COURT, WATER DIVISION 5, CASE NOS. 95-CW-272 AND 98-CW-270 (PENDING).

B. TWIN LAKES SYSTEM: DISTRICT COURT, WATER DIVISION 5, CASE NO. W-1901, DECREE ENTERED MAY 12, 1976, AND DISTRICT COURT, WATER DIVISION 5, CASE NO. 95-CW-321, DECREE ENTERED APRIL 20, 2001.

C. BUSK-IVANHOE SYSTEM:

D. COLUMBINE DITCH SYSTEM:

| NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS (FULLY REUSABLE) |
|---|---|---|---|---|---|---|
| | | | | | | |
| **HOMESTAKE SYSTEM** | 1195 cfs | Tributaries to the Colorado River | 09/22/1952 | 07/23/1958 | 37 | **Case No. 1193**, District Court, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | Eagle County |
| | 1530 cfs | Eagle River and other tributaries to the Colorado River | 1988/12/19 | | | **Case No. 88CW449**, Water Division 5 |
| | 800 AF | Eagle River and other tributaries to the Colorado River | 1995/02/13 | | | **Case Nos.95CW272(A)** & **98CW270** Water Division 5 |
| | | | | | | |
| **TWIN LAKES SYSTEM** | 57,000 AF (Average) | Roaring Fork River, tributary to the Colorado River | 1930/08/23 | 05/12/1976 | | **Case No. W-1901**, Water Division 5 |
| | 4,650 AF | Roaring Fork River, tributary to the Colorado River | 1994/06/08 | 04/20/2001 | | **Case No. 95CW321**, Water Division 5 |
| | | | | | | |
| **HOMESTAKE EXCHANGE** | 800 AF | Homestake Reservoir | 1995/02/13 | 2003/02/06 | | **Case No. 98CW270** |
| | | | | | | |
| **BUSK-IVANHOE SYSTEM**<br>Ivanhoe Reservoir<br>Ivanhoe Reservoir & Tunnel<br>Lyle Ditch<br>Pan Ditch<br>Hidden Lake Creek Ditch | <br>1,200 AF<br>35 cfs<br>50 cfs<br>25 cfs<br>70 cfs | Ivanhoe Creek, Hidden Lake Creek, Pan Creek, and Lyle Creek, all tributary to the Frying Pan River, tributary to the Colorado River | <br>1921/06/27<br>1921/06/27<br>1924/09/28<br>1924/10/05<br>1927/08/30 | | 38 | **Case No. 09CW142**<br>**WD-2**<br>**(Pending)** |
| | | | | | | |
| **COLUMBINE DITCH SYSTEM** | 60 cfs | Tributaries to the East Fork of the Eagle River | 1936/10/03 | | 37 | **Case No. 09CW187** Water Division 5 |
| | 60 cfs | Tributaries to the East Fork of the Eagle River | 2009/12/17 | | 37 | **Case No. 09CW188** Water Division 5 |

## IV. DENVER BASIN DEEP AQUIFER GROUND WATER:

| CASE NO. and NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS (FULLY REUSABLE) |
|---|---|---|---|---|---|---|
| **01CW297—Aurora**<br>ARAPAHOE COUNTY,<br>Post-1985, North of Quincy | 4879 AF<br>2604 AF<br>2227 AF<br>2990 AF | Denver Aquifer<br>Upper Arapahoe Aquifer<br>Lower Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 03/01/2005 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **01CW298—Aurora**<br>ARAPAHOE COUNTY,<br>Pre-1985 | 207 AF<br>8455 AF<br>3334 AF<br>3658 AF<br>7067 AF | Lower Dawson Aquifer<br>Denver Aquifer<br>Upper Arapahoe Aquifer<br>Lower Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 03/01/2005 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **01CW299—Aurora**<br>DOUGLAS COUNTY,<br>Post-1985 | 63.9 AF | Upper Dawson Aquifer | N/A | 03/01/2005 | | Same as Decreed Amount (Less Replacement Deductions) |
| **01CW300—Aurora**<br>ARAPAHOE COUNTY,<br>Post-1985, South of Quincy | 1007 AF<br>1988 AF<br>206 AF<br>246 AF<br>164 AF<br>1386 AF | Lower Dawson Aquifer<br>Denver Aquifer<br>Upper Arapahoe Aquifer<br>Lower Arapahoe Aquifer<br>Undiff. Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 03/01/2005 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **01CW301—Aurora**<br>ADAMS COUNTY, | 1691 AF<br>1190 AF | Denver Aquifer<br>Upper Arapahoe Aquifer | N/A | 12/07/2004 | | Same as Decreed Amounts (Less Relinquishment and |

| CASE NO. and NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS (FULLY REUSABLE) |
|---|---|---|---|---|---|---|
| Pre-1985 | 1495 AF<br>2561 AF | Lower Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | | | | Replacement Deductions) |
| **01CW302—Aurora**<br>ADAMS COUNTY,<br>Post-1985 | 3052 AF<br>1199 AF<br>1221 AF<br>1712 AF | Denver Aquifer<br>Upper Arapahoe Aquifer<br>Lower Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 08/23/2005 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **84CW241-Aurora**<br>ARARAHOE COUNTY,<br>(Bradbury Family Partnership) | 42 AF<br>150 AF<br>176 AF<br>101 AF | Lower Dawson Aquifer<br>Denver Aquifer<br>Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 11/04/1988 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **98CW420-Aurora**<br>ARAPAHOE COUNTY,<br>Aurora (Quick and Bellamah) | 278 AF | Arapahoe Aquifer | N/A | 04/28/1999 | | Same as Decreed Amount (Less Relinquishment Deduction) |
| **96CW211-Aurora**<br>ARAPAHOE COUNTY<br>Havana Office Park Well | 33 AF | Arapahoe Aquifer | N/A | 10/20/1997 | | Same as Decreed Amount (Less Relinquishment Deduction) |
| **91CW-007—Aurora**<br>ARAPAHOE COUNTY,<br>Senac Wells | 1141 AF | Arapahoe Aquifer | N/A | 04/30/1993 | | Same as Decreed Amount (Less Relinquishment Deduction) |
| **86CW-219—Aurora**<br>ARAPAHOE COUNTY,<br>Senac Wells | 776 AF<br>297 AF<br>171 AF | Denver Aquifer<br>Upper Arapahoe Aquifer<br>Lower Arapahoe Aquifer | N/A | 06/25/1987 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **80CW360(A)—Aurora**<br>ARAPAHOE COUNTY,<br>Kings Point | 189 AF<br>94 AF | Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 03/01/1984 Replacement Decree: | | Same as Decreed Amounts (Less Relinquishment Deductions) |
| **83CW350—Aurora**<br>ARAPAHOE COUNTY,<br>Kings Point | 277 AF<br>390 AF<br>86 AF | Denver Aquifer<br>Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 10/18/1984 Replacement Decree: | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **85CW145(A)&(B)—First Capital**<br>ARAPAHOE COUNTY,<br>Kings Point | 80 AF<br>230 AF<br>138 AF<br>98 AF | Dawson Aquifer<br>Denver Aquifer<br>Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 02/03/1999 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **87CW207/208-Douglas Farms**<br>DOUGLAS COUNTY<br>Rockinghorse | 68 AF<br>166 AF<br>166 AF<br>110 AF | Dawson Aquifer<br>Denver Aquifer<br>Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 08/07/1989 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **84CW564-Miller**<br>DOUGLAS COUNTY<br>Rockinghorse | 64 AF<br>105 AF<br>200 AF<br>99 AF | Dawson Aquifer<br>Denver Aquifer<br>Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 09/29/1989 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **97CW075-Gartrell Land, LLC**<br>DOUGLAS COUNTY<br>Rockinghorse | 36 AF<br>94 AF<br>154 AF<br>104 AF | Dawson Aquifer<br>Denver Aquifer<br>Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 09/10/1997 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **PERMIT NO. 5127-F–Aurora**<br>ARAPAHOE COUNTY,<br>Cherry Creek Well | 485 AF | Arapahoe Aquifer | N/A | 02/14/1964 | | Same as Decreed Amount |

| CASE NO. and NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS (FULLY REUSABLE) |
|---|---|---|---|---|---|---|
| **PERMIT NO. 5128-F—Aurora**<br>ARAPAHOE COUNTY,<br>Cherry Creek Well | 351 AF | Arapahoe Aquifer | N/A | 02/14/1964 | | Same as Decreed Amount |
| **PERMIT NO. 5129-F–Aurora**<br>ARAPAHOE COUNTY,<br>Cherry Creek Well | 521 AF | Arapahoe Aquifer | N/A | 02/14/1964 | | Same as Decreed Amount |
| **84CW183(A)-First Capital Corp.**<br>DOUGLAS COUNTY,<br>Kings Point | 101 AF<br>210 AF | Lower Dawson<br>Denver | N/A | 03/10/1989 | | Same as Decreed Amounts<br>(Less Relinquishment and Replacement Deductions) |
| **84CW183(B)-Seventeen Mile V.**<br>DOUGLAS COUNTY,<br>Kings Point | 217 AF<br>155 AF | Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 12/28/1988 | | Same as Decreed Amounts<br>(Less Relinquishment and Replacement Deductions) |
| **82CW115(A)-Eugene Tepper**<br>ARAPAHOE COUNTY, | 120 AF<br>250 AF<br>112 AF | Denver Aquifer<br>Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 10/11/1985 | | Same as Decreed Amount |
| **80CW330(A)-Alpert Corp.**<br>ARAPAHOE COUNTY, | 237 AF<br>167 AF | Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 07/21/1987 | | Same as Decreed Amounts |
| **80CW330(B)-Alpert Corp.**<br>ARAPAHOE COUNTY, | | Lower Dawson<br>Denver | N/A | 12/01/1987 | | |
| **85CW171-Deutsch & Alpert**<br>ARAPAHOE COUNTY, | 96 AF | Laramie-Fox Hills Aquifer | N/A | 04/29/1987 | | Same as Decreed Amount<br>(Less Relinquishment Deduction) |
| **80CW237 and 238— Danford-Champlin Farms**<br>ADAMS COUNTY,<br>(Front Range Airport System) | 2016 AF<br>1344 AF | Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 03/26/1984 | | Same as Decreed Amounts |
| **85CW253— Williams Investments**<br>ADAMS COUNTY,<br>(Box Elder Creek) | 207 AF<br>118 AF<br>85 AF<br>139 AF | Denver Aquifer<br>Upper Arapahoe Aquifer<br>Lower Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 01/13/1988 | | |
| **80CW232—Planet Cos.**<br>ADAMS COUNTY,<br>87CW210 (Diligence) | 50 AF<br>125 AF<br>32 AF | Denver Aquifer<br>Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 11/23/1983<br><br>12/31/1991 | | Same as Decreed Amount |
| **82CW488/84CW030-GVR Partnership/Alperts**<br>ADAMS COUNTY<br>Green Valley Ranch | 701 AF<br>892 AF<br>1264 AF | Upper Arapahoe Aquifer<br>Lower Arapahoe Aquifer<br>Laramie-Fox Hills Aquifer | N/A | 04/29/1987 | | Same as Decreed Amount<br>(Less Relinquishment Deduction) |
| **83CW112-Box Elder Investment**<br>ADAMS COUNTY | 1597 AF | Arapahoe Aquifer | N/A | 06/18/1985 | | Same as Decreed Amount |
| **84CW096-Kaufman, Jensen & Small**<br>ADAMS COUNTY | 109 AF | Arapahoe Aquifer | N/A | 04/03/1985 | | Same as Decreed Amount |
| **85CW135(B)-Monaghan Farms**<br>ADAMS COUNTY | 2008 AF<br>1506 AF | Upper Arapahoe Aquifer<br>Lower Arapahoe Aquifer | N/A | 06/30/1988 | | Same as Decreed Amount<br>(Less Relinquishment Deduction) |

| CASE NO. and NAME | DECREED AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | ADJUDICATION & CHANGED AMOUNTS (FULLY REUSABLE) |
|---|---|---|---|---|---|---|
| **85CW414(F)-Fulenwider**<br>ADAMS COUNTY | 221 AF<br>192 AF | Upper Arapahoe Aquifer<br>Lower Arapahoe Aquifer | N/A | 04/24/1998 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |
| **85CW414(V)-Van Schaak**<br>ADAMS COUNTY | 355 AF<br>308 AF | Upper Arapahoe Aquifer<br>Lower Arapahoe Aquifer | N/a | 04/24/1998 | | Same as Decreed Amounts (Less Relinquishment and Replacement Deductions) |

**Notes:**

(1) Some of the ground water amounts listed above are classified as not-nontributary, and accordingly must be augmented prior to use. Nevertheless, once such ground water rights are augmented, the full decreed amounts are reusable.

(2) Some of the decreed nontributary ground water is subject to a 2% relinquishment requirement.

(3) Decreed Amounts are amounts adjudicated in the Water Court decree. In some instances, only a portion of the overlying land area has been annexed to the City. In those instances, only a corresponding portion of the decreed amount has been deeded to Aurora.

## V. WATER RIGHTS PURSUANT TO CONTRACTS

| NAME | AMOUNT | DECREED SOURCE | APPROP. DATE | ADJUD. DATE | WATER DIST. | |
|---|---|---|---|---|---|---|
| | | | | | | |
| **East Cherry Creek Valley Water & Sanitation District Reusable Effluent** | | | N/A | N/A | | |

**Exhibit K. Lag-timing parameters as inputs to bounded-aquifer Glover equation.** *Rev. 12/11/19*

| | Permit No. | Project ID | xUTM | yUTM | Sy | *T* | *a* | *b* | *W* | $(a^2 Sy)/T$ |
|---|---|---|---|---|---|---|---|---|---|---|
| *1* | PW-10159 | TCR-1 | 532,977 | 4,431,929 | 0.10 | 6,800 | 6,725 | 2,875 | 9,600 | 665 |
| *2* | PW-10160 | TCR-2 | 532,804 | 4,431,927 | 0.10 | 6,800 | 7,300 | 2,300 | 9,600 | 784 |
| *3* | PW-4360 | TCR-3 | 532,552 | 4,430,495 | 0.10 | 6,100 | 7,300 | 1,800 | 9,100 | 874 |
| *4* | PW-8905 | TCR-4 | 533,284 | 4,429,685 | 0.10 | 4,000 | 3,900 | 4,000 | 7,900 | 380 |
| *5* | PW-8358 | TCR-5 | 533,170 | 4,429,513 | 0.10 | 4,000 | 4,200 | 3,700 | 7,900 | 441 |
| *6* | PW-8359 | TCR-6 | 533,160 | 4,429,104 | 0.10 | 4,000 | 3,400 | 4,600 | 8,000 | 289 |
| *7* | PW-2629 | TCR-7 | 533,294 | 4,429,091 | 0.10 | 3,900 | 3,000 | 5,000 | 8,000 | 231 |
| *8* | PW-8357 | TCR-8 | 533,343 | 4,428,694 | 0.10 | 4,050 | 2,600 | 5,500 | 8,100 | 167 |
| *9* | PW-19548T | TCR-9 | 533,255 | 4,428,476 | 0.10 | 4,900 | 2,800 | 5,200 | 8,000 | 160 |
| *10* | PW-19548S | TCR-10 | 533,191 | 4,427,900 | 0.10 | 4,050 | 2,300 | 5,000 | 7,300 | 131 |
| *11* | NA | TCR-11 | 532,415 | 4,430,820 | 0.10 | 6,100 | 7,800 | 1,300 | 9,100 | 997 |
| *12* | NA | TCR-12 | 533,100 | 4,430,110 | 0.10 | 5,000 | 5,000 | 3,500 | 8,500 | 500 |
| *13* | NA | TCR-13 | 533,110 | 4,430,640 | 0.10 | 5,000 | 5,400 | 3,100 | 8,500 | 583 |
| *14* | NA | TCR-14 | 533,100 | 4,430,870 | 0.10 | 5,000 | 5,400 | 3,100 | 8,500 | 583 |
| *15* | NA | TCR-15 | 533,465 | 4,430,900 | 0.10 | 4,000 | 4,300 | 4,100 | 8,400 | 462 |
| *16* | NA | TCR-16 | 533,060 | 4,432,310 | 0.10 | 6,800 | 6,500 | 3,100 | 9,600 | 621 |
| *17* | NA | TCR-17 | 533,930 | 4,429,470 | 0.10 | 1,000 | 900 | 5,000 | 5,900 | 81 |
| *18* | NA | TCR-18 | 533,110 | 4,429,900 | 0.10 | 4,800 | 4,900 | 3,600 | 8,500 | 500 |
| *19* | NA | TCR-19 | 532,930 | 4,430,700 | 0.10 | 5,100 | 6,400 | 2,900 | 9,300 | 803 |
| *20* | NA | TCR-20 | 533,100 | 4,428,320 | 0.10 | 5,000 | 3,300 | 4,200 | 7,500 | 218 |
| - | NA | OP-1 | NA | NA | 0.10 | 5,000 | 5,000 | 3,500 | 8,500 | 500 |
| *R1* | (recharge pond) | RP-1 | 532,810 | 4,430,640 | 0.10 | 5,900 | 6,500 | 2,400 | 8,900 | 716 |
| *R2* | (recharge pond) | RP-2 | 532,880 | 4,432,490 | 0.10 | 7,000 | 6,700 | 2,900 | 9,600 | 641 |
| *R3* | (recharge pond) | RP-3 | 533,150 | 4,428,900 | 0.10 | 4,000 | 3,450 | 4,550 | 8,000 | 298 |

Notes:

(1) *T* = transmissivity ($ft^2$/day); *Sy* = specific yield (unitless)

(2) *a* = effective distance between well and creek (feet)

(3) *b* = effective distance between well and west edge of aquifer; W = effective aquifer width (W = a + b)

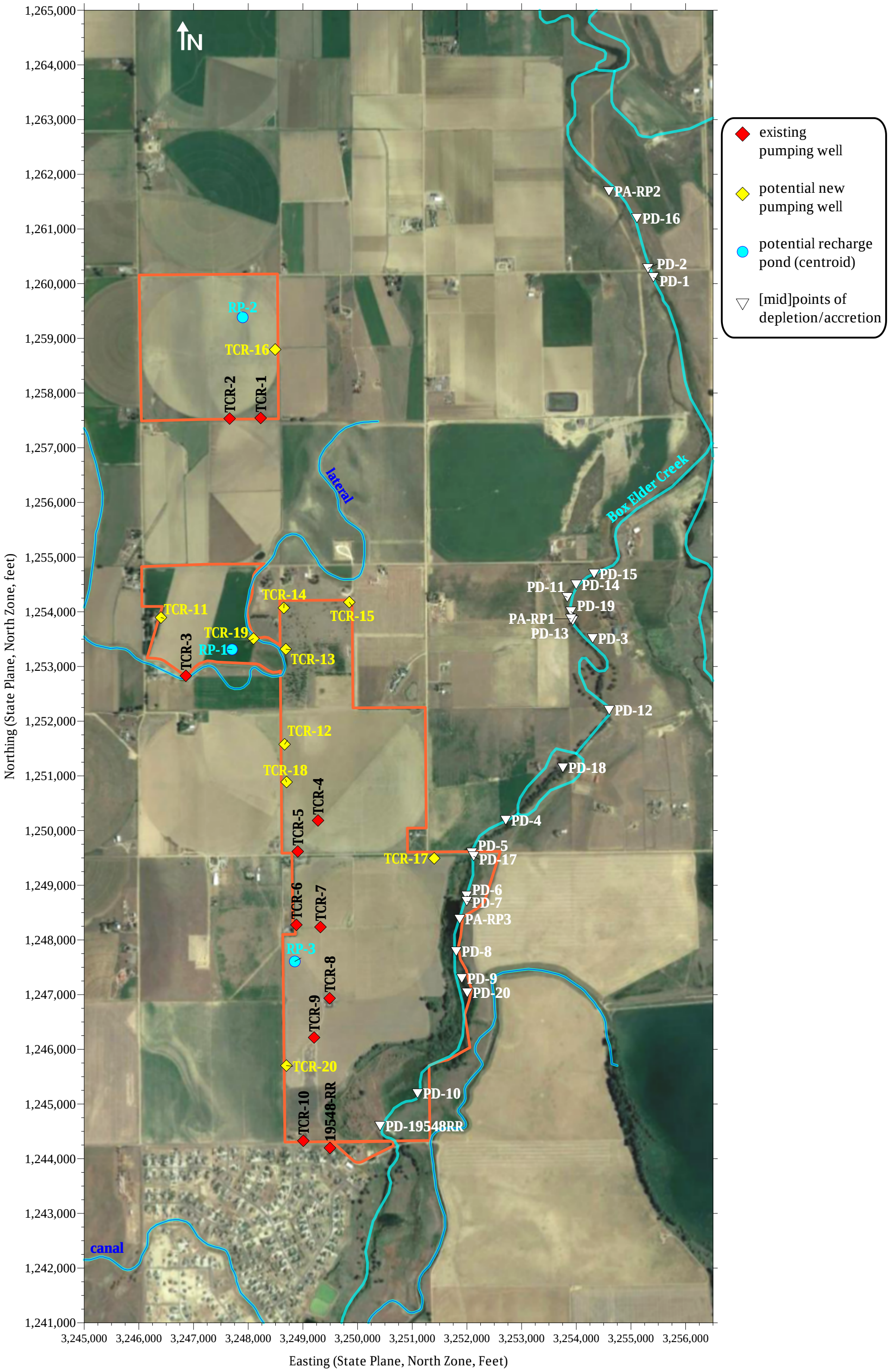
(4) The term $(a^2 Sy/T)$ provides a relative comparison of lag timing (days), but is skewed for small *b* and there is best not used directly.

(5) UTM coordinates in meters.

(6) These are effective Glover parameter values determined by calibration to groundwater model's depletion curves.

(7) "OP-1" (Operational Scenario 1) is the effective timing of a set of 10 project wells pumping in combination.

**Exhibit L. Project structures and points of depletion/accretion.** (Revised 12/10/2019)




**Project: Box Elder Creek (BCP) Project, Town of Castle Rock (TCR)**

Miller Groundwater Engineering, LLC

## TOWN OF CASTLE ROCK WATER RIGHTS - DENVER BASIN GROUNDWATER

### Average Annual Yield in Acre-Feet

| WATER RIGHT NAME | CASE NUMBER(S) | LOWER DAWSON NON-TRIB | LOWER DAWSON NOT NON-TRIB | UPPER DAWSON NOT NON-TRIB | DENVER NON-TRIB | DENVER NOT NON-TRIB | ARAPAHOE NON-TRIB | LARAMIE FOX HILLS NON-TRIB |
|---|---|---|---|---|---|---|---|---|
| Archer | 04CW124 | 4 | | | 15.3 | | 17.2 | 7.3 |
| Brookwood | 96CW123 | 3.2 | | | 39.3 | | 34.5 | 18.9 |
| Burchett | 04CW133 | 5.1 | | | 20.8 | | 20.2 | 8.1 |
| Burt | 01CW152 | 9.1 | | | | 18.3 | 17.9 | 8.4 |
| Cambridge Heights | 03CW021 | 0.7 | | 0.6 | 2.6 | | 2.6 | 1.3 |
| Canyons South | 81CW417 & 84CW386(A) | 538 | | | 724 | | 893 | 591 |
| Castle Oaks (Douglas County) | 94CW011 | | | | 61.1 | | 53.8 | 30.8 |
| Castle Oaks & Tanager Investments | 79CW365 | 617 | | | 1,134 | | 1,105 | 425.86 |
| Castle Pines (Town portion) | 85CW469 thru 85CW471 | 0 | 0 | | | 119.3 | 156.5 | 8.3 |
| Castle Pines Commercial | 85CW472 thru 85CW476 | | 5.3 | | | 20.9 | 204.7 | 10.6 |
| Castle Pines (Town portion) | 85CW470 | | | | | | 0 | |
| Castle Plaza | 97CW168 | | | | 7.2 | | 4.6 | 2.3 |
| Castle Ridge | 96CW198 | 9.2 | | | 35 | | 36.1 | 15.9 |
| Castle Rock (EDI - Plum Creek Partners) | 06CW157 | 6.1 | | | | 15.3 | 13.8 | 5.4 |
| Castle Rock Investments | 03CW20 | 4.5 | 0.1 | 0.2 | 4.9 | 0.2 | 6.8 | 3.6 |
| Castle Rock Land Co | 99CW23 | | | | | | 187 | 97 |
| Castle Rock WWTP Parcel | 97CW168 | 3.9 | | | 6.7 | | 5 | 2.6 |
| Cedar Hill Cemetery (Douglas County) | 99CW010 | 3.7 | | | | 11.3 | | 4.8 |
| Church of the Rock | 95CW287 | | | | | 41.8 | 31.7 | 13.4 |
| Colorado Department of Transportation | 95CW34 | | | | | | 87.9 | |
| Covenant | 06CW210 | 8.3 | 1.3 | | | | 22.7 | 10.6 |
| Demis | 06CW094 | | | | 1 | | 0.8 | 0.3 |
| Diamond Ridge Estates | 99CW39 | | 83.5 | | | 123.2 | 201.9 | 97.4 |
| Ditmars (Crystal Valley) | 83CW252(A) & (B) | 146 | | | 602 | 128 | 879 | 349 |
| Douglas Lane (Lanterns) | 00CW146 | 60 | | 21.1 | | 211.1 | 174.6 | 82.1 |
| EDI (Plum Creek) | 85CW367 | 49.47 | | | | | 198.67 | 76.97 |
| EDI (Plum Creek) | 85CW388 | | | | 54.32 | 147.38 | | |
| EDI (Plum Creek) | 85CW197 | 9 | | | | 33 | 32 | 14 |
| Enderud (Founders Village) | 79CW364, 85CW271, 85CW272 | 460.31 | | | 468.50 | | 620.30 | 280.92 |
| Epiphany | 07CW027 | | | | 4.2 | | 2.9 | 1.2 |
| Fletcher-Birney (Oaks) | 82CW304, 82CW306 & 84CW281 | 77.2 | | | 70.5 | | 118.7 | 33.3 |
| Foust (Bella Mesa) | 94CW21 | 7.6 | | | 39 | | 38.7 | 21.9 |
| Glen Scott (Woodlands) | 85CW260 & 261, 86CW29 | 175.60 | | | 135.86 | 6.11 | 171.86 | 97.65 |
| Graham | 96CW162 | | | | | 3.32 | 2.3 | 1.12 |
| Heckendorf (Crystal Crossing) | 84CW173 | 89.6 | | | | | 95.2 | 20.5 |
| Heir, Seidensticker | 03CW116 | | | | 153.1 | | 247 | |
| Home Depot (Cooper Hook) | 01CW072 | | 3.3 | | | 22.3 | 33 | 10.8 |
| Implied Consent Area | 97CW168 | 55 | | | 680 | 397 | 288 | 458 |
| Lanterns | 84CW252 | 149 | | | 225 | | 292 | 95 |
| Lenz (pt. Crystal Valley/pt. County) | 99CW111 | | | | 19.6 | | 24.1 | 9.1 |
| Lincoln Meadows & Wolfensberger | 84CW194 thru 84CW197 | | 1,519 | | | 2,907 | 1,915 | 893 |
| Lincoln Meadows & Wolfensberger | 79CW271 | | | | | | | 96 |
| Lincoln Meadows & Wolfensberger | 79CW272 | | | | | | 51 | |
| Lincoln Meadows & Wolfensberger | 99CW23 | | | | | | 187 | 197 |
| Maher Ranch | 99CW146 | 4.7 | | | 14.5 | | 12.5 | 7.2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Maher Ranch | 99CW195 | | 17.7 | | | 22.7 | 24.8 | 12.2 |
| Maher Ranch (incl. pt. Diamond Ridge) | 95CW15, 84CW109, 110, 113 & 114 | 106.8 | | | 143.3 | | 220 | 97.1 |
| Main Place | 01CW058 | | | 0.5 | | 6.2 | 5.6 | 1.8 |
| MBE (Crystal Valley) | 00CW156 | | | | 105.7 | | 119 | |
| Memmen Park | 97CW168 | 1.6 | | | 29.6 | | 19 | 10.4 |
| Memmen-Young (Homestead Village) | 85CW266 & 267 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Metzler Ranch (incl. Milestone/DCJC) | 85CW274 & 275, 86CW28 | 80 | 272 | | 79 | 268 | 372 | 206 |
| Mikelson (Founders Village) | 80CW284 | 367.4 | | | 385.2 | | 495.1 | 184.5 |
| Mikelson (Founders Village) | 95CW182 | 3.4 | | 2.2 | 10.7 | | 10.7 | 5.2 |
| Mikelson (Founders Village) | 85CW262 & 263 | 14.3 | | | 15.2 | | 23.7 | 12.2 |
| Plum Creek Ridge | 04CW042 | | | | | | 1.9 | 6.1 |
| Rampart Ventures (Castle Highlands) | 86CW047 | 22 | | | | | 56 | |
| Rangeview Ranch (Heritage Farm) | 86CW377 | 332 | | | 196 | | 303 | 209 |
| Rice | 96CW147 | | 1.7 | | | 3.6 | 2.4 | 1.2 |
| Schaap | 10CW113 | 4.2 | | | | 11.1 | 9.5 | 4.7 |
| Scott | 98CW375 | 13.9 | 3.2 | | 25.6 | 5.4 | 23.6 | 13.5 |
| Sellers Creek & Maple Grove Land LTD | 98CW298 | | | | 163 | | 255.9 | |
| Sir Thomas (Hazen Moore) | 98CW370 | | 18.2 | | | 24.9 | 22 | 12.4 |
| Steyn | 10CW114 | 1.2 | | | | 3 | | 1.4 |
| U.S. Homes (Red Hawk) | 94CW275 & 95CW16 | | 178 | | | 356 | 253 | 123 |
| Weaver (Founders/Castle Oaks) | 85CW262 & 263 | 72.88 | | | 77.35 | | 120.24 | 32.8 af |
| Zemp/Clingman | 01CW021 | 12.6 | 25.6 | | 21.1 | 42.9 | 48.7 | 25.4 |
| | **TOTALS** | **3,528.3** | **2,129.3** | **24.6** | **5,755.4** | **4,949.3** | **10,873.6** | **5,027.4** |
| | | | | | | **GRAND TOTAL** | | **32,287.9** |

# ROTHE SUBLETTE RECHARGE

60.4% of the first 1,275 acre feet of recharge credits available under Case No, 89CW027 (District Court, Water Division No. 1), up to but not to exceed 770 acre feet in any year, on April 30, 1996

# CASTLE ROCK'S LOST CREEK DESIGNATED GROUNDWATER
# (UPDATED SEPTEMBER 2020)

| Amended Final Permit No. | Priority Date | Annual Volume (AF) | Max. Pumping (GPM) | Acres | Permit Location |
|---|---|---|---|---|---|
| 12123RFP | 05/28/44 | 415.0 | 1000.0 | 320.0 | NW 1/4 of the SW 1/4 of Section 27, T1N, R63W of the 6th P.M. (Parcel D) |
| 12124RFP | 06/22/54 | 385.0 | 900.0 | 320.0 | NE 1/4 of the SW 1/4 of Section 27, T1N, R63W of the 6th P.M. (Parcel D) |
| 31526FP | 05/01/39 | 350.0 | 1100.0 | 280.0 | NE 1/4 of the SE 1/4 of Section 22, T1N, R63W of the 6th P.M. (Parcel F) |
| 31527FP | 05/01/44 | 350.0 | 00.0 | 280.0 | NW 1/4 of the SE 1/4 of Section 22, T1N, R63W of the 6th P.M. (Parcel F) |
| 31643FP | 06/08/46 | 200.0 | 1150.0 | 160.0 | SW 1/4 of the NW 1/4 of Section 34, T1N, R63W of the 6th P.M. (Parcel L2) |
| 14860RFP | 05/20/54 | 200.0 | 950.0 | 160.0 | NW 1/4 of the NW 1/4 of Section 34, T1N, R63W of the 6th P.M. (Parcel L2) |
| 31640FP | 12/10/68 | 400.0 | 900.0 | 157.0 | SW 1/4 of the NE 1/4 of Section 34, T1N, R63W of the 6th P.M. (Parcel M) |

# CONTRACT TO PURCHASE LOST CREEK DESIGNATED GROUNDWATER
# (UPDATED SEPTEMBER 2020)

| Final Permit No. | Priority Date | Annual Volume (AF) | Max. Pumping (GPM) | Acres | Permit Location |
|---|---|---|---|---|---|
| 31542-FP | 7/29/1964 | 193.3 | 1000 | 223 | S ½ Section 23, Township 1 North, Range 63 West (Parcel L1A&B) |
| 8533-FP | 8/15/1951 | 84.0 | 950 | 320 comingled | SW ¼ NW ¼ Section 29, Township 1 North, Range 63 West (Parcel A2) |
| 8534-FP | 3/1/1952 | 81.5 | 600 | 320 comingled | SW ¼ NW ¼ Section 29, Township 1 North, Range 63 West (Parcel A2) |
| 8535-FP | 5/1/1954 | 96.9 | 1100 | 320 comingled | SW ¼ NW ¼ Section 29, Township 1 North, Range 63 West (Parcel A2) |

# CHERRY CREEK PROJECT WATER AUTHORITY

## Denver Basin Ground Water Rights

| Aquifer | Nontrib. (af/y) | Not-Nontrib. (af/y) |
|---|---|---|
| Dawson | 933.7 | 31.0 |
| Denver | 2,093.4 | 407.0 |
| Arapahoe | 2,480.9 | 0 |
| Laramie-Fox Hills | 1,753.1 | 0 |
| Total | 7,261.1 | 438.0 |

## Tributary Water Rights

| Type | Rate (cfs) | Annual Volume (af/y) |
|---|---|---|
| Senior (pre-1900) | 5.91 | 190 |
| Junior Absolute (1900-1980) | 20.74 | 667 |
| Junior Conditional (post-1980) | 10.02 | 813[1] |
| Total | 36.67 | 2,857 |

## Ownership Percentages

| Member | Current |
|---|---|
| ACWWA | 41.250% |
| CWSD | 7.143% |
| IWSD | 31.118% |
| Pinery | 20.489% |

# Table 1

## Summary of Denver Basin Ground Water Rights
## Cherry Creek Project Water Authority

**Nontributary Ground Water Rights**

| Parcel | Lower Dawson | Denver | Arapahoe | LFH | Total | Case(s) |
|---|---|---|---|---|---|---|
| Newton | 92 | 289 | 381 | 219 | 981 | 93CW093 |
| Burgoyne | 0 | 11.6 | 11 | 7.2 | 29.8 | 93CW093 |
| Stevens | 241.6 | 265 | 168 | 382 | 1056.6 | 93CW093 |
| Shafroth | 309.8 | 616 | 871 | 547 | 2343.8 | 89CW046, 93CW093 |
| Parker | 14 | 10 | 17 | 11 | 52 | 84CW128, 84CW129 |
| Vessel | 50 | 69 | 78 | 55 | 252 | 84CW128, 84CW129 |
| Franktown | 78.9 | 92 | 87 | 75 | 332.9 | 84CW129, 86CW205 |
| Walker | 13.4 | 65.8 | 60.9 | 40.9 | 181 | 88CW096 |
| Castlewood | 134 | 420 | 488 | 249 | 1291 | 93CW093, 94CW065 |
| Grange | 0 | 255 | 319 | 167 | 741 | 85CW168 |
| Total | 933.7 | 2093.4 | 2480.9 | 1753.1 | 7261.1 | |

**Not Nontributary Ground Water Rights**

| Parcel | Upper Dawson | Denver | Total | Case(s) |
|---|---|---|---|---|
| Burgoyne | 3.26 | | 3.26 | 93CW093 |
| Stevens | | 407 | 407 | 93CW093 |
| Franktown | 27.7 | | 27.7 | 93CW093 |
| Total | 30.96 | 407 | 437.96 | |

## Table 2

## Summary of Tributary Water Rights
## Cherry Creek Project Water Authority

| Structure Name | Approp Date Mon | Day | Year | (1) Rate (cfs) | (2) Ann Limit (af/y) | (2) 10-yr Max (af) | Monthly Volumetric Limits Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Permit No. | Diversion Season | Original Case | Prior Change Case(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Senior Tributary Absolute Water Rights** | | | | | | | | | | | | | | | | | | |
| John Jones Ditch | 5 | 31 | 1866 | 1.31 | 77.9 | 399.3 | 6.60 | 8.37 | 12.23 | 13.95 | 14.05 | 12.74 | 9.98 | 0.00 | n/a | Mar 1 - Sep 30 | 1883 Adjud | 08CW186 (pending) |
| Lemen Ditch (Christiansen Well No. 3) | 6 | 1 | 1866 | 1.41 | 72.8 | 728.0 | | 5.07 | 8.95 | 14.55 | 14.97 | 13.31 | 10.93 | 5.23 | n/a | Apr 1 - Oct 31 | 1883 Adjud | W-517, 07CW66 |
| Barnes Ditch (Christiansen Well No. 2) | 3 | 1 | 1885 | 4.50 | 44.7 | 287.0 | | 3.11 | 5.48 | 8.91 | 9.17 | 8.15 | 6.69 | 3.20 | n/a | Apr 1 - Oct 31 | 1890 Adjud | W-516, 07CW66 |
| **Total** | | | | 5.91 | **195.4** | **1414.3** | | | | | | | | | | | | |
| **Junior Tributary Absolute Water Rights** | | | | | | | | | | | | | | | | | | |
| Christiansen No. 3 | 11 | 15 | 1952 | 3.98 | 4.0 | 19.0 | | 0.28 | 0.49 | 0.80 | 0.82 | 0.73 | 0.60 | 0.29 | 16062-R | Apr 1 - Oct 31 | CA-3635 | 07CW66 |
| Christiansen No. 4 | 10 | 23 | 1963 | 0.89 | 14.4 | 49.0 | | 0.12 | 1.62 | 3.10 | 3.92 | 3.35 | 2.07 | 0.22 | 120948 | Apr 1 - Oct 31 | CA-3635 | 07CW66 |
| Belcher Well | 7 | 1 | 1950 | 2.68 | | | No historical consumptive use | | | | | | | | 19973-R | | W-772 | 95CW280 |
| Hewins No. 2 | 3 | 21 | 1956 | 2.68 | 31.6 | | | | 2.3 | 9.5 | 11.7 | 10.4 | 6.2 | | 20686-R | May 16 - Sep 30 | CA-3635 | 95CW280 |
| Kelty No. 1 | 9 | 6 | 1950 | 1.73 | 31.9 | | | | 1.7 | 8.1 | 12.4 | 11.2 | 7.1 | | 18871-R | May 16 - Sep 30 | CA-3636 | 95CW280 |
| Sutton | 9 | 15 | 1956 | 1.37 | 53.8 | | | | 4.1 | 15.9 | 19.9 | 17.2 | 10.6 | | 6889-R | May 16 - Sep 30 | CA-3635 | 95CW280 |
| Parker No. 1 | 12 | 31 | 1945 | 1.06 | 49.6 | 413.0 | | 4.5 | 5.7 | 10.2 | 8.9 | 8.3 | 8.2 | 3.8 | 13486-F | Apr 1 - Oct 31 | W-1776 | 84CW680, 95CW280 |
| Vessel No. 1 | 3 | 16 | 1956 | 2.33 | 188.0 | 1567.0 | | 17 | 21 | 38 | 34 | 32 | 31 | 15 | 23256-F | Apr 1 - Oct 31 | W-1776 | 84CW680, 95CW280 |
| Franktown No. 1 | 9 | 4 | 1950 | 3.01 | 143.0 | 1192.0 | | 13 | 16 | 29 | 26 | 24 | 23 | 12 | 18870-R | Apr 1 - Oct 31 | W-1776 | 84CW680, 95CW280 |
| Franktown No. 2 | 11 | 5 | 1907 | 3.44 | 128.0 | 1067.0 | | 12 | 15 | 25 | 23 | 22 | 21 | 10 | 14438-F | Apr 1 - Oct 31 | W-1776 | 84CW680, 95CW280 |
| Walker No. 1 | 10 | 10 | 1952 | 1.33 | 41.0 | | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | R19220-RF | Apr 1 - Oct 31 | W-1869 | 88CW97, 95CW280 |
| Walker Sump No. 1 | 6 | 20 | 1954 | 1.11 | | | | | | | | | | | 20003-R | Apr 1 - Oct 31 | W-1869 | 88CW97, 95CW280 |
| **Total without Franktown No. 2** | | | | **22.2** | **557.3** | **4823.0** | | **44.9** | **62.9** | **124.6** | **127.6** | **117.2** | **98.8** | **41.3** | | | | |
| **Junior Tributary Conditional Water Rights** | | | | | | | | | | | | | | | | | | |
| Franktown QAL-3 | 4 | 19 | 1984 | 3.34 | | | | | | | | | | | 10721-AD | Year-round | 84CW680 | 95CW280 |
| Vessel QAL-3 | 4 | 19 | 1984 | 3.34 | 813 | | Proposed monthly limits on consumptive use (3) | | | | | | | | 45029-F | Year-round | 84CW680 | 95CW280 |
| Parker QAL-2 | 4 | 19 | 1984 | 3.34 | | | | | | | | | | | 10719-AD | Year-round | 84CW680 | 95CW280 |
| **Total** | | | | 10.02 | **813** (3) | | | | | | | | | | | | | |

NOTES:

(1) Decreed rate rounded to nearest hundreth of a cubic foot per second.

(2) Decreed annual amount and 10-year amount rounded to nearest tenth of an acre-foot.

(3) Proposed annual limit and monthly limits on consumptive use based on contemplated draft analysis in pending Case No. 10CW318.

# Appendix B

# Castle Rock Water's Denver Basin Groundwater Rights

**TOWN OF CASTLE ROCK WATER RIGHTS - DENVER BASIN GROUNDWATER IN WELLFIELD**
**Case Nos. 97CW168 and 19CW3039**
**Average Annual Yield in Acre-Feet**

| WATER RIGHT NAME | CASE NUMBER(S) | LOWER DAWSON NON-TRIB | LOWER DAWSON NOT NON-TRIB | UPPER DAWSON NOT NON-TRIB | DENVER NON-TRIB | DENVER NOT NON-TRIB | ARAPAHOE NON-TRIB | LARAMIE FOX HILLS NON-TRIB |
|---|---|---|---|---|---|---|---|---|
| Archer | 04CW124 | 4 | | | 15.3 | | 17.2 | 7.3 |
| Brookwood | 96CW123 | 3.2 | | | 39.3 | | 34.5 | 18.9 |
| Burchett | 04CW133 | 5.1 | | | 20.8 | | 20.2 | 8.1 |
| Burt | 01CW152 | 9.1 | | | | 18.3 | 17.9 | 8.4 |
| Cambridge Heights | 03CW021 | 0.7 | | 0.6 | 2.6 | | 2.6 | 1.3 |
| Canyons South | 81CW417 & 84CW386(A) | 538 | | | 724 | | 893 | 591 |
| Castle Oaks (Douglas County) | 94CW011 | | | | 61.1 | | 53.8 | 30.8 |
| Castle Oaks & Tanager Investments | 79CW365 | 617 | | | 1,134 | | 1,105 | 425.86 |
| Castle Pines (Town portion) | 85CW469 thru 85CW471 | | | | | 254.6 | 363.5 | 54.6 |
| Castle Pines Commercial | 85CW472 thru 85CW476 | | 32.0 | | | 124.0 | 130.0 | 63.0 |
| Castle Plaza | 97CW168 | | | | 7.2 | | 4.6 | 2.3 |
| Castle Ridge | 96CW198 | 9.2 | | | 35 | | 36.1 | 15.9 |
| Castle Rock (EDI - Plum Creek Partners) | 06CW157 | 6.1 | | | | 15.3 | 13.8 | 5.4 |
| Castle Rock Investments | 03CW20 | 4.5 | 0.1 | 0.2 | 4.9 | 0.2 | 6.8 | 3.6 |
| Castle Rock Land Co | 99CW23 | | | | | | 187 | 97 |
| Castle Rock WWTP Parcel | 97CW168 | 3.9 | | | 6.7 | | 5 | 2.6 |
| Cedar Hill Cemetery (Douglas County) | 99CW010 | 3.7 | | | | 11.3 | | 4.8 |
| Church of the Rock | 95CW287 | | | | | 41.8 | 31.7 | 13.4 |
| Colorado Department of Transportation | 95CW34 | | | | | | 87.9 | |
| Covenant | 06CW210 | 8.3 | 1.3 | | | | 22.7 | 10.6 |
| Demis | 06CW094 | | | | 1 | | 0.8 | 0.3 |
| Diamond Ridge Estates | 99CW39 | | 83.5 | | | 123.2 | 201.9 | 97.4 |
| Ditmars (Crystal Valley) | 83CW252(A) & (B) | 146 | | | 602 | 128 | 879 | 349 |
| Douglas Lane (Lanterns) | 00CW146 | 60 | | 21.1 | | 211.1 | 174.6 | 82.1 |
| EDI (Plum Creek) | 85CW367 | 49.47 | | | | | 198.67 | 76.97 |
| EDI (Plum Creek) | 85CW388 | | | | 54.32 | 147.38 | | |
| EDI (Plum Creek) | 85CW197 | 9 | | | | 33 | 32 | 14 |
| Enderud (Founders Village) | 79CW364, 85CW271, 85CW272 | 460.31 | | | 468.50 | | 620.30 | 280.92 |
| Epiphany | 07CW027 | | | | 4.2 | | 2.9 | 1.2 |
| Fletcher-Birney (Oaks) | 82CW304, 82CW306 & 84CW281 | 77.2 | | | 70.5 | | 118.7 | 33.3 |
| Foust (Bella Mesa) | 94CW21 | 7.6 | | | 39 | | 38.7 | 21.9 |
| Glen Scott (Woodlands) | 85CW260 & 261, 86CW29 | 175.60 | | | 135.86 | 6.11 | 171.86 | 97.65 |
| Graham | 96CW162 | | | | | 3.32 | 2.3 | 1.12 |
| Heckendorf (Crystal Crossing) | 84CW173 | 89.6 | | | | | 95.2 | 20.5 |
| Heir, Seidensticker | 03CW116 | | | | 153.1 | | 247 | |
| Home Depot (Cooper Hook) | 01CW072 | | 3.3 | | | 22.3 | 33 | 10.8 |
| Implied Consent Area | 97CW168 | 55 | | | 680 | 397 | 288 | 458 |
| Lanterns | 84CW252 | 149 | | | 225 | | 292 | 95 |
| Lenz (pt. Crystal Valley/pt. County) | 99CW111 | | | | 19.6 | | 24.1 | 9.1 |
| Lincoln Meadows & Wolfensberger | 84CW194 thru 84CW197 | | 1,519 | | | 2,907 | 1,915 | 893 |
| Lincoln Meadows & Wolfensberger | 79CW271 & 79CW272 | | | | | | 51 | 96 |
| Lincoln Meadows & Wolfensberger | 99CW23 | | | | | | 187 | 197 |
| Maher Ranch | 99CW146 | 4.7 | | | 14.5 | | 12.5 | 7.2 |
| Maher Ranch | 99CW195 | | 17.7 | | | 22.7 | 24.8 | 12.2 |
| Maher Ranch (incl. pt. Diamond Ridge) | 95CW15, 84CW109, 110, 113 & 114 | 106.8 | | | 143.3 | | 220 | 97.1 |
| Main Place | 01CW058 | | | 0.5 | | 6.2 | 5.6 | 1.8 |
| MBE (Crystal Valley) | 00CW156 | | | | 105.7 | | 119 | |
| Memmen Park | 97CW168 | 1.6 | | | 29.6 | | 19 | 10.4 |
| Memmen-Young (Homestead Village) | 85CW266 & 267 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Metzler Ranch (incl. Milestone/DCJC) | 85CW274 & 275, 86CW28 | 80 | 272 | | 79 | 268 | 372 | 206 |
| Mikelson (Founders Village) | 80CW284 | 367.4 | | | 385.2 | | 495.1 | 184.5 |
| Mikelson (Founders Village) | 95CW182 | 3.4 | | 2.2 | 10.7 | | 10.7 | 5.2 |
| Mikelson (Founders Village) | 85CW262 & 263 | 14.3 | | | 15.2 | | 23.7 | 12.2 |
| Plum Creek Ridge | 04CW042 | | | | | | 1.9 | 6.1 |
| Rampart Ventures (Castle Highlands) | 86CW047 | 22 | | | | | 56 | |
| Rangeview Ranch (Heritage Farm) | 86CW377 | 332 | | | 196 | | 303 | 209 |
| Rice | 96CW147 | | 1.7 | | | 3.6 | 2.4 | 1.2 |
| Schaap | 10CW113 | 4.2 | | | | 11.1 | 9.5 | 4.7 |
| Scott | 98CW375 | 13.9 | 3.2 | | 25.6 | 5.4 | 23.6 | 13.5 |
| Sellers Creek & Maple Grove Land LTD | 98CW298 | | | | 163 | | 255.9 | |
| Sir Thomas (Hazen Moore) | 98CW370 | | 18.2 | | | 24.9 | 22 | 12.4 |
| Steyn | 10CW114 | 1.2 | | | | 3 | | 1.4 |
| U.S. Homes (Red Hawk) | 94CW275 & 95CW16 | | 178 | | | 356 | 253 | 123 |
| Weaver (Founders/Castle Oaks) | 85CW262 & 263 | 72.88 | | | 77.35 | | 120.24 | 32.8 |
| Zemp/Clingman | 01CW021 | 12.6 | 25.6 | | 21.1 | 42.9 | 48.7 | 25.4 |
| | **TOTALS** | **3,528.5** | **2,155.9** | **24.6** | **5,755.0** | **5,187.7** | **11,005.9** | **4,733.1** |

Updated January 6, 2022

**GRAND TOTAL** **32,390.8**

# Appendix C

# Source Water Protection

## Appendix C – Source Water Protection

| Identified Risk | Protection Measures/Best Management Practices |
|---|---|
| Construction | Contractors must acquire a permit, submit construction plans for approval, and comply with periodic inspection and testing regulations in an effort to protect valuable land and water resources. Specific regulations are outlined in municipal code regarding source water protection measures (*4.02 Watershed Protection District, 4.03 Illicit Discharge and Connection, Chapter 13 General Provisions*) as well as the *Landscape and Irrigation Performance Standards and Criteria Manual* and the TESC Manual (Temporary Erosion and Sediment Control) requirements. These regulations apply to public and private construction and also take into consideration state and federal mandates. |
| Development | Developers must acquire a permit, submit construction plans for approval, and comply with periodic inspection and testing regulations in an effort to protect valuable land and water resources. Specific regulations are outlined in municipal code regarding source water protection measures (*4.02 Watershed Protection District, 4.03 Illicit Discharge and Connection*) as well as the *Landscape and Irrigation Performance Standards and Criteria Manual* and the *TESC Manual* (Temporary Erosion and Sediment Control) requirements. These regulations take into consideration state and federal mandates. |
| Landscaping | Industry professionals including designers, installers and maintenance contractors performing commercial landscape and/or irrigation work are required to gain certification through the Town and adhere to the *Landscape and Irrigation Performance Standards and Criteria Manual* and the *TESC Manual* (Temporary Erosion and Sediment Control) requirements. Residents must follow municipal code (*Chapter 13, General Provisions*) and landscaping code which addresses erosion and permeable area, as well as strict water efficiency requirements. |
| Natural Disasters (Flood, Fire, Drought) | Natural disasters are addressed through an Emergency Response Plan and through coordination with local emergency response agencies. In addition, Castle Rock Water is a member agency of CoWARN. Exercises are conducted periodically and include table-top activities, walk-through's and practice drills. Coordination with outside agencies such as the local law enforcement and fire department are included with the exercises. Additionally, security measures in place include emergency backup power for all water treatment plants and pump stations, remote operated isolation valves on select water storage tanks and remote SCADA monitoring and control. |

| Identified Risk | Protection Measures/Best Management Practices |
|---|---|
| Pet Waste | In Municipal code *4.03.020 Definitions*, animal waste is defined as a pollutant and *4.03.090 Discharge prohibitions* states that no person shall throw, drain or otherwise discharge, cause or allow others under his or her control to throw, drain or otherwise discharge into the MS4 any pollutants or waters containing pollutants, other than stormwater. |
| Roads/Deicing Practices | Public Works maintains the roads for snow and ice removal with assistance from Castle Rock Water. A granular magnesium chloride product is mixed with other salts to minimize hazardous chemicals put into the waterways. A liquid magnesium chloride product is used for extreme roadway conditions. Town's Municipal Code under *10.10 Snow Routes* outlines street priorities, snow plow routes and resident regulations regarding parking in streets and clearing sidewalks. Snow plow routes are mapped online. Through outreach, residents are encouraged to place shoveled snow on lawn or permeable areas. |
| Soil Erosion | The Town has a permitting program for erosion and sediment control on public and private construction projects within the limits of the Town that have been adopted to promote environmentally-sound construction practices. The *Temporary Erosion and Sediment Control (TESC)* program covers all development and construction projects. A Stormwater Hotline (720-733-2235) is available for residents to report erosion issues. |
| Solid Wastes | Solid wastes are specifically identified in municipal code (*4.03 Illicit Discharge and Connection*) that all activities including construction must reduce the discharge of pollutants directly or indirectly to stormwater and additionally, (*4.03.100 - Industrial or construction activity discharges*) construction shall apply for and comply with all provisions of code and permits in the disposal of solid wastes. |
| Storage Tanks | The Town has 14 active finished water storage tanks that are constructed of reinforced concrete and sealed for water quality protection. These tanks are spread throughout the distribution system and serve different pressure zones. Each tank is inspected by a certified operator at least monthly. Operators inspect each tank's security devices, the outside/appearance of the tank, the water quality in the tank and also all water quality protection devices. Data is recorded in a Cartegraph asset management program. Additionally, tanks are drained and cleaned with a structural inspection by a qualified engineer every three years. Certain tanks are taken offline each winter due to low water demand allowing for increased turnover in tanks that remain in service, improved water quality and tank maintenance activities. |
| Stormwater Runoff | Castle Rock Water manages stormwater runoff, drainage-ways and detention ponds including the operation, upgrades, maintenance |

| Identified Risk | Protection Measures/Best Management Practices |
|---|---|
| | and improvements of the Town's storm drainage facilities. A stormwater hotline is provided for residents to report problems and illicit discharge. Per the Town's *Stormwater Management Facility Operation and Maintenance (O&M) Standard Guidelines*, property owners are responsible for the maintenance of stormwater management facilities on their property incorporating all drainage facilities, including inlets, pipes, culverts, channels, ditches, hydraulic structures, and detention basins located unless modified by specific agreement. The Town maintains runoff control plans for all major Town facilities. CRW also participates in the county household chemical roundup events through outreach, and educates customers on potential contaminants, thus helping to reduce the potential for contaminants to enter either storm sewers or sanitary sewers. |
| Wastewater Treatment Plants | To treat the Town's wastewater, the Town of Castle Rock is a member of the PCWRA and contracts with the Pinery Water and Wastewater District (Pinery). The Town owns 71% of the capacity at PCWRA and actively participates in its management through the board of directors. The Town contracts wastewater services through an intergovernmental agreement with the Pinery for the portion of the Town in Cobblestone Ranch that flows to the Pinery. These facilities operate under permits issued by the CDPHE, and maintains compliance with water quality standards. |

# Appendix D

# Resolution