Irrigation Ditch Frequently Asked Questions

City of Boulder - 2016

Table of Contents

1) General ..... Page 3

2) Ditch Companies ..... Page 6

3) Ditch Maintenance ..... Page 8

4) For Homeowners ..... Page 9

5) For Developers ..... Page 10

6) Ditch Map ..... Page 12

7) More Information ..... Page 13

1) General

What do irrigation ditches do?

The original purpose of most irrigation ditches was to deliver water to farmland under the ditch. Ditches also delivered drinking water to the homes of early Boulder settlers. Local agriculture and development in the late 1800's in the Boulder area would not have been possible without irrigation ditches.

BLACK CAT FARM IS ONE EXAMPLE OF LOCAL AGRICULTURE IRRIGATED BY DITCHES

Ditches as structures have not changed much over time and still serve agriculture and homes, but also serve parks, cities, and businesses. Although the purpose of ditches is to deliver water in a safe and efficient manner, irrigation ditches are often also valued for their incidental aesthetic and environmental benefits.

Did you know? Approximately 53 miles of irrigation ditch still run through the City of Boulder today. Seven miles of ditches have been buried in underground pipelines as development has progressed.

How do irrigation ditches benefit the local community?

Irrigation ditch water is essential to sustaining local agriculture. Many of the producers that depend on this water sell their goods to local restaurants and businesses and at the farmer's market. Ditches also provide an economical and environmentally friendly alternative to using treated drinking water to irrigate parks, schools, and open spaces. Irrigation ditches also sometimes carry municipal water attributable to shares owned by the city that is eventually treated and delivered to customers.

What is the difference between an irrigation ditch and a stream?

Streams are natural water bodies. Irrigation ditches are manmade channels that take water from natural streams for delivery to homes, farms, businesses, industries and other uses. The water flowing in streams is generally naturally occurring. The flow of water in a ditch is controlled by people who work for a ditch company. Most ditches deliver water from April to October, but some ditches continue to run over the winter. The amount, timing, and use of the water diverted into a ditch are based upon one or multiple water rights.

Why does a ditch flow only some of the time?

Irrigation ditches typically run from April through October. An irrigation ditch will only run if shareholders need water and if there is enough water in the creek under the ditch's water rights. Some ditches run water in the winter to fill reservoirs. During times of fluctuating demand and supply, irrigation ditch flows can vary greatly, with some ditches turning on or off with little notice. Some ditches also intercept surface and stormwater drainage, so flows can fluctuate during storm events.

Did you know? The Smith & Goss Ditch was originally constructed in 1859 only a year after the first miners settled in the area. Water delivered through the Smith & Goss is still used to irrigate portions of central Boulder that now include Boulder High School and the University of Colorado.

What is the difference between an irrigation ditch and a lateral?

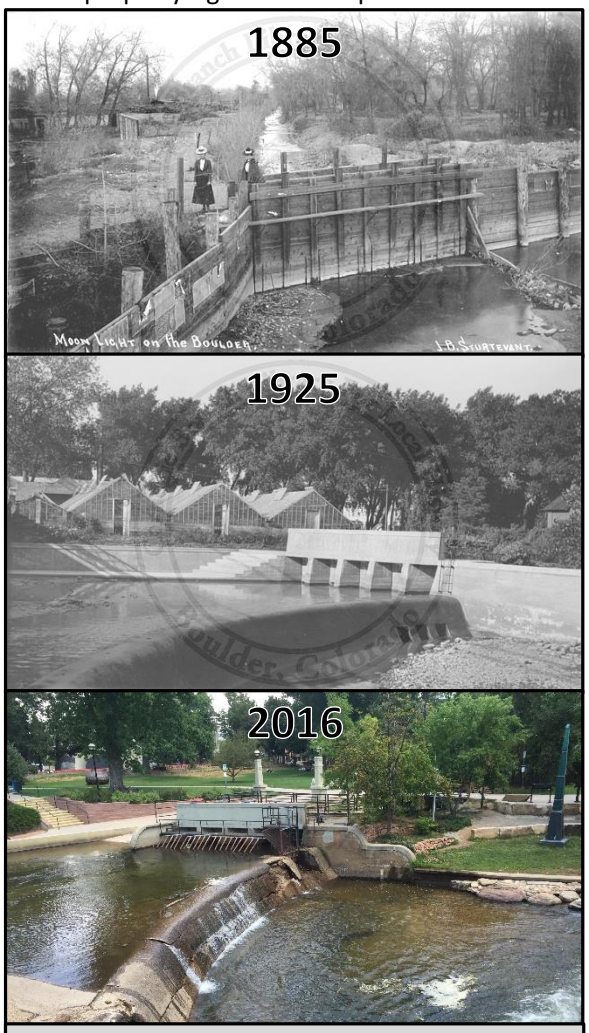
Most ditches include the main ditch and a number of branches called laterals. The main ditch diverts water from a creek and can be fairly large and visible. A lateral branches off of the main ditch and carries less water for delivery to specific properties. Shareholders who receive water through a lateral are typically responsible for the lateral's management, operation, and maintenance. Laterals may also be privately owned and operated, and not formally affiliated with the ditch company.

Did you know? 98 ditch companies were diverting water from Boulder Creek by 1882.

THE HOWELL DITCH (LEFT) RUNS NEXT TO BOULDER CREEK (RIGHT). DITCHES TYPICALLY HAVE FLATTER SLOPES AND SLOWER FLOWS THAN NATURAL DRAINAGES.

What is a prescriptive easement and why can't I find any related documentation?

Ditch Companies rarely own the land underlying the ditch or a recorded easement. Instead, they typically have prescriptive easements to access, operate and maintain the ditch. Prescriptive easements are not purchased, negotiated or granted by the underlying property owner, but are established by visible and continuous use that dates back to the original construction of the ditch and may evolve over time based on operation and maintenance practices. Even though these easements may seem informal, they constitute vested property rights that are protected under state law. Because prescriptive easements are rarely quantified or documented, home and business owners may be surprised to discover that their property is subject to a ditch easement that predated their ownership, and in many cases predated the development of their property.



IRRIGATION DITCH DIVERSION AT BROADWAY IN CENTRAL PARK THROUGH THE YEARS. SOURCE: CARNEGIE BRANCH LIBRARY FOR LOCAL HISTORY/BOULDER HISTORICAL

How wide is the ditch easement?

The width of a prescriptive easement can vary and is defined as whatever is "reasonable and necessary" to maintain, access, and operate the ditch. Ditch maintenance can include access by heavy machinery, removal of sediment and vegetation (including trees), and the placement of material on the ditch banks.

Did you know? The original property owners benefited from, and sometimes were, the original founders of the ditch; therefore, they often encouraged the ditch to be constructed across or adjacent to their land.

What are the recreation opportunities associated with ditches?

Ditch companies have liability concerns and discourage public access and recreation within the ditch easement. Ditches have steep banks, enclosed sections, and unpredictable flows, which can be dangerous.

2) Ditch Companies

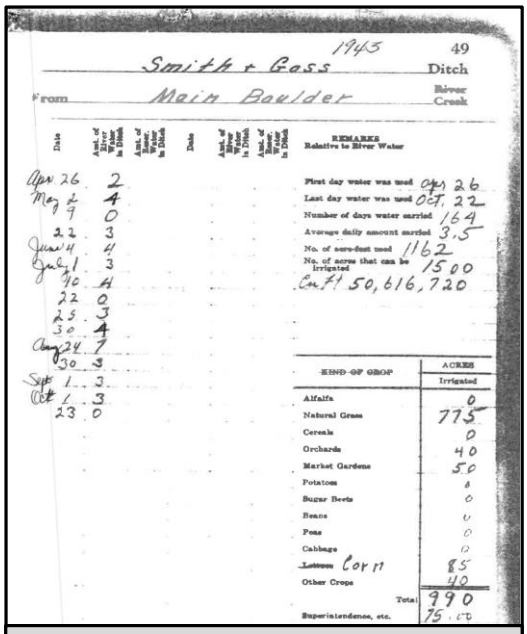
What is a ditch company?

In general, ditch companies are private, not-for-profit companies made up of shareholders. Shareholders receive water from the ditch company and are required to pay a fee (assessment) to support ditch operations and maintenance. Both the assessments paid and amount of water received are in proportion to a shareholder's ownership (shares) in the company. Shareholders can be individuals or institutions, such as a school district, or a government agency, such as a city or county.

How does a ditch company operate?

Most ditch companies are operated by a voluntary board of directors. Board members are elected at annual shareholders' meetings and typically are shareholders themselves. In some cases, board members are also city employees who serve on the board as a representative of the city's share ownership. In Boulder, city staff who serve on ditch boards most often work in either the Public Works or Open Space and Mountain Parks Departments. Board members have a duty to operate the ditch company and make decisions on behalf of the interests of all shareholders in the ditch.

Day to day operations of the ditch are controlled by a person called a ditch superintendent or "ditch rider". The ditch rider generally maintains the ditch to safely carry water and manages water deliveries to shareholders. Deliveries are made depending on shareholder demand, water availability in the creek, and the ditch's respective water rights are in priority.


1943 49
Smith & Goss Ditch
From Main Boulder River Creek

Date	Amt. of Water in Ditch	Amt. of Water in Ditch	Date	Amt. of Water in Ditch	Amt. of Water in Ditch
Apr 26	2				
May 2	4				
9	0				
22	3				
June 4	4				
July 1	3				
10	4				
22	0				
25	3				
30	4				
Aug 24	7				
30	3				
Sept 1	3				
Oct 1	3				
23	0				

REMARKS Relative to River Water
First day water was used Apr 26
Last day water was used Oct. 22
Number of days water carried 164
Average daily amount carried 3.5
No. of acre-feet used 1162
No. of acres that can be irrigated 1500
Cu. Ft. 50,616,720

END OF CROP	ACRES Irrigated
Alfalfa	0
Natural Grass	775
Cereals	0
Orchards	40
Market Gardens	50
Potatoes	0
Sugar Beets	0
Beans	0
Peas	0
Cabbage	0
~~Lettuce~~ Corn	85
Other Crops	40
Total	990
Superintendence, etc.	75

A PAGE FROM THE DITCH RIDER'S BOOK ON SMITH & GOSS DITCH (1943). DIVERSION RECORDS, IRRIGATED ACRES AND TYPE OF CROPS GROWN ARE ALL RECORDED.

Did you know? In 1953 Farmers Ditch constructed the largest siphon in Boulder, eliminating 3,300 ft. of open ditch by burying it under North Boulder Park.

What are the primary responsibilities of a ditch company?

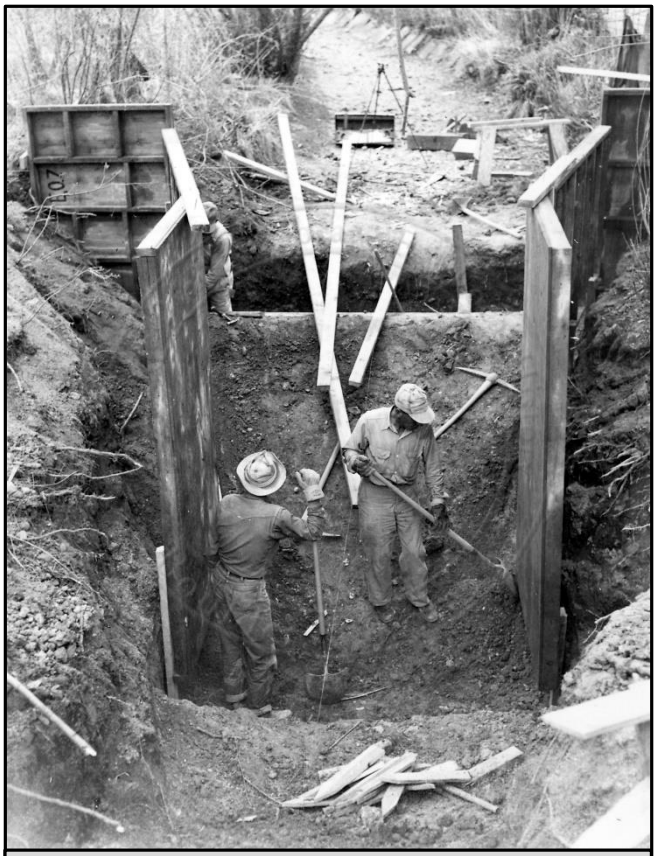
A ditch company is primarily responsible for delivering water to its shareholders. Ditch companies are required by state statute to maintain the ditch in good repair (*i.e.* to minimize overtopping and to efficiently deliver water).

What does a ditch company own?

Ditch companies hold the right to divert water for the beneficial use by their shareholders, and the physical structures needed to deliver it to shareholders. Ditch companies also have easement rights to access, operate, and maintain the ditch. Although ditch companies often do not own the land underlying the ditch, ditch easements subject any surrounding property to certain limitations for building and planting. In general, the underlying property owner cannot alter the property within the easement in a way that interferes with the operation and maintenance of the ditch.

When do I need an agreement with a ditch company?

Building, planting, or other modification within the ditch easement typically requires ditch company approval in the form of a written agreement. The approval process can take up to several months. Typically ditch companies require property owners or project proponents to reimburse the ditch company for its legal and engineering review costs associated with the project. The agreement protects both the ditch company's rights as well as the project improvements.



CONSTRUCTION OF THE FARMERS DITCH SIPHON UNDER NORTH BOULDER PARK (1953). SOURCE: CARNEGIE BRANCH LIBRARY FOR LOCAL HISTORY/BOULDER HISTORICAL SOCIETY COLLECTION.

What is Boulder's relationship to ditch companies?

Boulder works closely with irrigation ditch companies as a neighboring water user who shares common water sources, such as Boulder Creek. The City of Boulder is also a shareholder in more than 30 different ditch companies. Roughly 30 percent of the city's drinking water supply originates from irrigation ditch water rights. These rights allow Boulder to divert water into the city's municipal water supply system for treatment and delivery to customers. The city also uses ditch water to support the preservation of local agriculture on its open space land and through its agricultural leasing program, and to minimize the use of treated water at city facilities, such as city parks. In some cases, Boulder has agreements with the ditch company to carry storm water when excess ditch capacity is available.

3) Ditch Maintenance

What can be expected during ditch maintenance?

Ditch Companies perform routine maintenance as necessary to ensure unobstructed flow of water. Routine maintenance may include brush and tree removal, dredging, bank rebuilding and other cleanup activities. Frequently ditch companies use dredged material to reinforce the ditch bank; therefore, it is best to work with the respective ditch company before moving any dirt within the easement. Homeowners may choose to dispose of other materials left in the easement following maintenance, as ditch companies generally do not haul vegetation and trash away.

Ditch companies typically operate on a limited budget and may perform more extensive maintenance work on a several year schedule; such work may include the removal of large trees and more extensive dredging and sediment removal.

Trash and Debris

While some vegetation naturally accumulates in the ditch, other debris like grass clippings, yard waste, plastic bags, and litter can obstruct ditch flow as well as pollute downstream waterways and lakes. Trash or yard waste should not be deposited in ditches.

Did you know? There are 17 irrigation ditches that flow within the city limits and more than 40 irrigation ditches throughout the greater Boulder Valley.

TRASH RACKS COLLECT DEBRIS FLOATING DOWN THE DITCH. THEY NEED TO BE CLEANED REGULARLY BY THE DITCH COMPANY

Trees

Trees thrive along waterways and are valued by the community for their aesthetic and environmental benefits. Unfortunately, trees and roots can compromise the ditch bank, reduce flow capacity, block maintenance access, and create snags that can collect debris and result in flooding. Ditch companies selectively remove trees from within the easement to support ditch operations and reduce flooding risk.

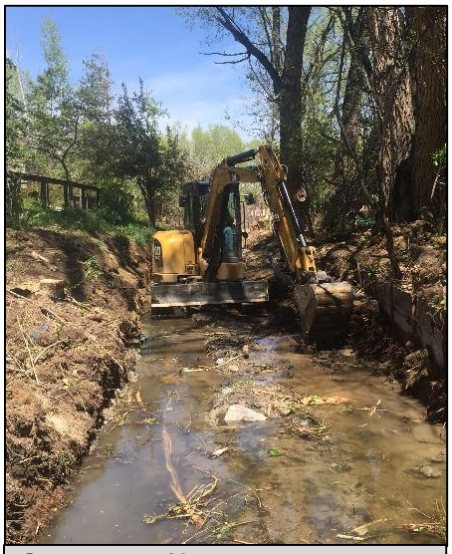
4) For Homeowners

What do I do if the ditch is seeping into my house?

Seepage from irrigation ditches is a historic and common occurrence. The amount of seepage can change not only as the ditch runs, but also with seasons and weather patterns. It is generally up to the land owner to address seepage on their property. An expert, such as an engineer or plumber, can evaluate the situation and examine possible mitigation options such as a sump pump or drainage system. Additionally, because plant and tree roots can exacerbate seepage, it is best to avoid planting near the ditch bank.

How are irrigation ditches addressed during real estate transactions?

Professionals working outside of the water resource field may not be aware of water rights, ditch operations, ditch easements, and the relevant state law. Because prescriptive easements are rarely documented, they may not come up in a title search. City of Boulder Water Resources staff or individual ditch companies can provide more information about ditches running through or adjacent to prospective properties and should be consulted in real estate transactions.



SEDIMENT AND VEGETATION REMOVAL IMPROVES THE EFFICIENCY OF THE FLOW OF WATER AND CAN ADDRESS ISSUES SUCH AS SEEPAGE.

How can I start using the water from the ditch on my property?

Even though a property may have a ditch running through it, landowners may only use the water if they own shares in the ditch company or lease water for use on lands under the ditch, or have some other contractual right to the delivery of water with the ditch company. Shares can be purchased from the previous property owner, from other shareholders, or directly from the ditch company if and when available. Once the shares have been purchased, the landowner should work closely with ditch company staff to facilitate the delivery of water.

5) For Developers

What authorization is needed to work or develop in the ditch easement?

Work within the ditch easement, whether permanent or temporary, will require an agreement with the ditch company. Ditch Company approval protects both landowner and ditch company interests. For example, without an agreement, the Ditch Company may remove features within the easement during operation and maintenance activities. Because prescriptive easements for the ditch are difficult to quantify and define, it is recommended that a developer contact the respective ditch company if work will occur within 50 feet of either side of a ditch.

FARMERS DITCH WAS USED TO HISTORICALLY IRRIGATE A FARM THROUGH THIS BOULDER NEIGHBORHOOD.

A ditch company discharge agreement and/or city dewatering and/or stormwater permit may also be required if the surrounding drainage is modified or if a sump pump will discharge into the ditch. This includes temporary dewatering activities during construction. The city's Planning & Development Services Department can provide guidance on other local, state, and federal regulations.

What is the process for getting an agreement with the ditch company?

The process starts with informing the ditch company of design plans. This is best done as early on as possible, as they may provide informal input that can save time and money later. The ditch company will then refer the plans to an engineer and attorney of their choice for review. Once the scope of work and the details of the agreement are approved by both parties, a written agreement is typically drafted by the ditch company attorney. Both parties must sign the agreement before work can begin.

How long will it take to get an agreement with the ditch company?

Typically, the agreement process can take two to six months or longer. The time required can vary significantly depending on project extent, time of year, and the resources available to the ditch company. Each ditch company likely has a different approach to handling agreements. For example, some ditch companies may have to wait until the annual meeting to make decisions on larger projects. To streamline the process, include the ditch company as early as possible and throughout the project.

Development or Permitting Questions?

City of Boulder Planning and Development Services

Email: plandevelop@bouldercolorado.gov

Phone: 303-441-1880

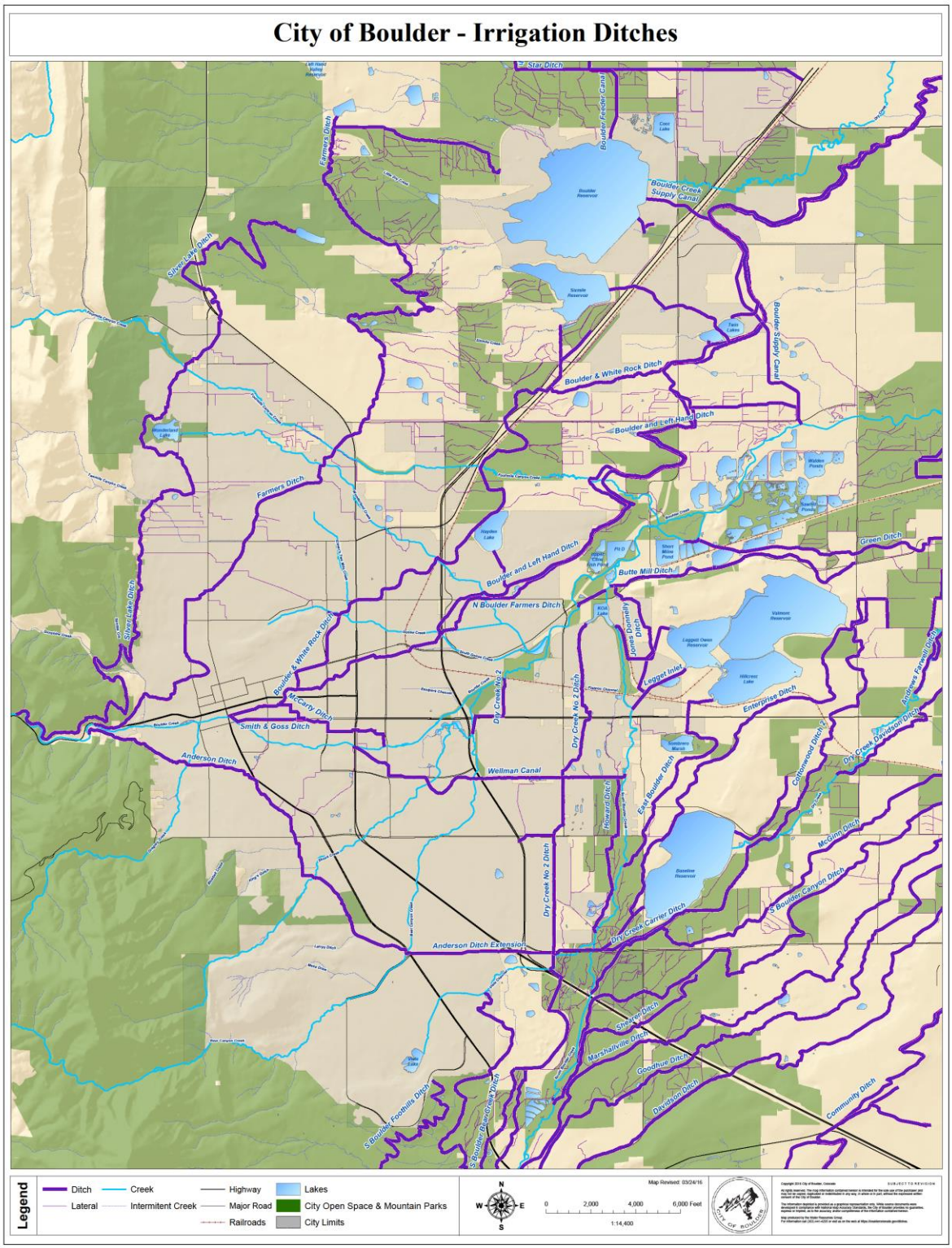
Fax: 303-441-4241

www.bouldercolorado.gov/plan-develop

What costs are associated with development within the ditch easement?

Ditch companies charge fees to recover costs associated with the project. Costs are related to the review performed by the ditch company's attorneys and engineers as well as administrative fees and are generally dependent on project complexity. Ditch companies may also charge a "crossing fee" as partial consideration for granting permission to modify their ditch easement.

6) Ditch Map


City of Boulder - Irrigation Ditches
Star Ditch
Boulder Feeder Canal
Boulder Reservoir
Boulder Creek Supply Canal
Silver Lake Ditch
Sunset Reservoir
Boulder Supply Canal
Boulder & White Rock Ditch
Boulder and Left Hand Ditch
Farmers Ditch
Walden Ponds
Green Ditch
Butte Mill Ditch
N Boulder Farmers Ditch
Valmont Reservoir
Leggett Owen Reservoir
Legget Inlet
Enterprise Ditch
Andrews Farwell Ditch
McCarry Ditch
Smith & Goss Ditch
Anderson Ditch
Wellman Canal
Dry Creek No 2 Ditch
East Boulder Ditch
Howard Ditch
Cottonwood Ditch 2
Dry Creek Davidson Ditch
McGinn Ditch
Baseline Reservoir
S Boulder Canyon Ditch
Dry Creek Carrier Ditch
Anderson Ditch Extension
Shearer Ditch
Marshallville Ditch
Goodhue Ditch
Davidson Ditch
Community Ditch
S Boulder Foothills Ditch
Legend
Ditch
Creek
Highway
Lakes
Lateral
Intermitent Creek
Major Road
City Open Space & Mountain Parks
Railroads
City Limits
Map Revised: 03/24/16
0 2,000 4,000 6,000 Feet
1:14,400

7) More Information

For more information related to irrigation ditches in and around the City of Boulder, please contact City of Boulder Water Resources staff at 303-441-3266 or visit our website at www.bouldercolorado.gov/water/ditches.

The following resources also provide additional information:

- City of Boulder Irrigation Ditches: www.bouldercolorado.gov/water/ditches
- Boulder Valley Comprehensive Plan: www.bouldercolorado.gov/bvcp
- City of Boulder Source Water Master Plan: www.bouldercolorado.gov/water/water-utility-master-plan
- Boulder County Ditch Map: www.bouldercounty.org/doc/transportation/ditchmap.pdf
- CSU Extension Ditch Fact Sheet: www.extension.colostate.edu/topic-areas/natural-resources/irrigation-ditches-and-their-operation-6-701
- Colorado Division of Water Resources, Division No. 1: www.water.state.co.us/DivisionsOffices/Div1SPlatteRiverBasin/Pages/Div1SPlatteRB.aspx
- Colorado Decision Support System (CWCB and DWR water management system), available at: www.cdss.state.co.us/pages/CDSSHome.aspx
- Colorado Water Law for Non-Lawyers, by P. Andrew Jones and Tom Czech
- Ditch and Reservoir Company Alliance: www.darca.org
- Colorado Foundation for Water Education: www.yourwatercolorado.org