



INFORMATION PACKET MEMORANDUM

To: Mayor and Members of Council

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Date: July 12, 2018

Subject: Irrigation Ditch Overview

EXECUTIVE SUMMARY

Boulder city limits contain a number of private irrigation ditches that deliver water diverted from Boulder Creek and South Boulder Creek to shareholders, such as homes, farms, businesses, industries and city departments, including Public Works, Open Space and Mountain Parks and Parks and Recreation. Irrigation ditches provide numerous benefits to both shareholders and the community at large but can also present challenges that at times result in community requests for city assistance. This memo provides an overview of irrigation ditches in Boulder, including a summary of their ownership and management structure, operation and maintenance practices and property rights. It also includes an analysis of benefits and typical issues related to ditches, as well as a summary of city roles relative to ditches, which can involve city ownership interest as a ditch company shareholder and city staff holding ditch company board positions.

FISCAL IMPACT

City costs related to ditches consist of annual ditch company shareholder assessments, variable costs associated with city maintenance obligations and time allocated to ditches by certain staff positions. City costs can be a million dollars or more per year out of city departmental operating budgets. Depending on the maintenance and other issues that arise in any given year, costs can vary by several hundred thousand dollars from year to year. In 2017, city ditch related costs were roughly a million dollars.

COMMUNITY SUSTAINABILITY ASSESSMENTS AND IMPACTS

- **Economic:** Irrigation ditch water is essential to local agriculture and the local economy. However, ditch companies' financial structure and duty to maintain low operating costs for shareholders can result in restoration and maintenance expenses for private property owners.
- **Environmental:** Ditches create habitat for vegetation and wildlife and provide an alternative to treated drinking water for outdoor irrigation. However, ditch maintenance activities can cause significant ecological disturbances, which on city open space can require mitigation work by city staff.
- **Social:** Irrigation ditches benefit agriculture and can create a sense of community among shareholders and neighbors. Conversely, the differing interests of ditch companies and property owners can result in significant conflict.

BACKGROUND

Irrigation ditches were a fundamental feature of Boulder's settlement in the late 1800s, and their physical locations and form as earthen channels remains largely unchanged for those ditches still in existence today. In most cases, irrigation ditches predate other forms of city development, including most streets, buildings and houses.

Irrigation ditches are manmade channels that divert water from natural streams for delivery to shareholders who are often located many miles away. Ditch shareholders use the water for various purposes mostly related to agricultural irrigation, and ditches typically operate seasonally from April through October. The amount of water flowing in a ditch is governed by shareholder need and whether there is enough water in the stream to accommodate the ditch company's water rights. Ditch flows can be dramatically influenced by water intercepted during storms, and in some cases the city has stormwater carriage agreements with certain ditch companies.

Ditch companies rarely own the land underlying the ditch. Instead, they typically have prescriptive easements to access, operate and maintain the ditch. Prescriptive easements are not granted by the underlying property owner and are not recorded in property records, and even though they are vaguely defined by law as "whatever is reasonable and necessary in the operation and maintenance of the ditch," they constitute vested, legally-recognized property rights. City regulatory authority over ditches is limited, as irrigation ditches are primarily governed by state property and water rights laws.

Ditch companies are typically privately owned and operated and are not-for-profit corporations whose mission is delivering water to shareholders. Ditch companies are made up of and funded by their shareholders and are governed by an elected, volunteer board of directors. Board members are responsible for managing the ditch, including overseeing operations and use of company funds on behalf of shareholder interests. Day-to-day ditch operations are managed by a person called a "ditch superintendent" or "ditch rider."

The City of Boulder has an ownership interest varying from 2 to 100 percent of shares in more than 30 different irrigation ditch companies. In cases where the city has a large share, city staff sometimes fulfill ditch company board positions. Public Works staff currently hold board positions for three different ditch companies and Open Space and Mountain Parks staff hold board positions for eleven companies as detailed in Attachment 1.

City staff are also involved in ditch matters related to certain city maintenance responsibilities, development review concerning ditch easements, annexations for properties with ditch shares and assistance resolving ditch-related conflicts between property owners and ditch companies. For more information on the various city ditch-related roles, including how staff manage potential conflicts of interest when serving as ditch company board members, please refer to Attachment 2.

ANALYSIS

Irrigation ditches are important to the history and culture of Boulder and have supported local agriculture for over 150 years, including irrigation of city open space and parks as well as residential and commercial properties. Ditches provide a network of green, vegetated corridors throughout the city and can provide a sense of community among shareholders and neighbors as well as habitats for wildlife. Many property owners value ditches for their aesthetic benefits and peaceful sounds, and the water rights associated with ditches are a vital component of city water supply.

While irrigation ditches provide many community benefits and essential shareholder functions, living next to or near a ditch also involves constraints and impacts. Home and business owners whose property is subject to a ditch easement are limited in vegetation and development options within the easement. Ditch maintenance, including vegetation removal, dredging, bank rebuilding and other cleanup activities, is often a source of conflict between property owners and ditch companies. Ditch companies also selectively remove large trees to maintain access and flow capacity, and the loss of trees is most often unwelcomed by property owners and the community.

Other common ditch issues include standing water and ditch seepage. Standing water can be a source of unpleasant odors and mosquito breeding when ditches are not running and can be particularly prevalent at the boundaries between urban development and agricultural and open space land. Seepage can cause basement infiltration, saturated ground in yards and trails and wet areas on streets and sidewalks.

The most common issues of concern for adjacent property owners relate to ditch operational and maintenance practices that are not subject to city regulatory authority but are instead protected by state property and water rights laws. Ditch companies strive to maintain low operating costs for shareholders, among which are agricultural operators with often limited financial resources. Between the goal of controlling costs, the legal protection afforded to ditch companies and the fact that most property development occurred after ditches were well established, the onus typically is on property owners to address common issues such as basement seepage and restoration following ditch maintenance. When conflicts arise, public perception tends to favor property owners and community interests, while the legal framework tends to support ditch companies. In most cases, all parties have valid but competing interests.

NEXT STEPS

Resolution of ditch-related conflicts requires cooperation and compromise as well as creative solutions that strike an appropriate balance of the interests involved. Current staff work plan objectives include expanding community education, continued work on ditch signage, outreach and volunteer opportunities and continuing to work on solutions for common ditch-related issues. New and existing property owners can learn more about living next to a ditch by referring to Attachments 3, 4 and 5 of this memo, which include an irrigation ditch brochure, frequently asked questions (FAQ) and an irrigation ditch map. Both the brochure and the FAQ provide links

for additional resources and contact information that community members can use to learn additional information or request assistance with a specific ditch-related matter.

ATTACHMENTS

Attachment A – Irrigation Ditch Table with City of Boulder Interests

Attachment B – Supplemental Information

Attachment C- Irrigation Ditch Brochure

Attachment D - Irrigation Ditch Frequently Asked Questions

Attachment E – Irrigation Ditch Map

CITY OF BOULDER OWNERSHIP INTEREST IN IRRIGATION DITCHES					
IRRIGATION DITCH NAME ** Runs within Boulder city limits	DITCH COMPANY BOARD -OF- DIRECTOR POSITIONS	CITY OF BOULDER SHARE OWNERSHIP	CITY OF BOULDER OWNERSHIP	SOURCE	
1	Agitator Ditch	Utilities Staff	OSMP	25%	South Boulder Creek
2	Anderson Ditch**	Utilities Staff	Utilities; Transportation	62%	Boulder Creek
3	Anderson Extension**			0%	South Boulder Creek
4	Andrew's Farewell		OSMP	8%	South Boulder Creek
5	Arnold Harrop		OSMP	100%	Boulder Creek (seepage)
6	Boulder & White Rock Ditch**		Utilities; OSMP	4%	Boulder Creek
7	Boulder Left Hand Ditch**	OSMP Staff	OSMP	2%	Boulder Creek
8	Butte Mill Ditch**	OSMP Staff	OSMP	49%	Boulder & South Boulder Creeks
9	Cottonwood #2 Ditch		OSMP	38%	South Boulder Creek
10	Davidson Ditch	OSMP Staff	OSMP	17%	South Boulder Creek
11	Davidson Highline Ditch	OSMP Staff	OSMP	1%	South Boulder Creek
12	Dry Creek Davidson Ditch	OSMP Staff	OSMP	41%	South Boulder Creek
13	Dry Creek No. 2 Ditch**	OSMP Staff	Parks; OSMP	35%	South Boulder Creek
14	East Boulder Ditch		OSMP	2%	South Boulder Creek
15	Eggleston Ditch 1		OSMP	100%	Coal Creek
16	Eggleston Ditch 4		OSMP	100%	Coal Creek
17	Enterprise Ditch		OSMP	11%	South Boulder Creek
18	Farmers Ditch**	Utilities Staff	Utilities; OSMP	74%	Boulder Creek
19	Farmers Reservoir & Irrigation Co.		OSMP	2%	South Boulder Creek
20	Green Ditch**	OSMP Staff	OSMP	80%	Boulder Creek
21	Howard Ditch**	OSMP Staff	Parks; OSMP	80%	South Boulder Creek

CITY OF BOULDER OWNERSHIP INTEREST IN IRRIGATION DITCHES					
IRRIGATION DITCH NAME ** Runs within Boulder city limits	DITCH COMPANY BOARD -OF- DIRECTOR POSITIONS	CITY OF BOULDER SHARE OWNERSHIP	CITY OF BOULDER OWNERSHIP	SOURCE	
22	Jones Donnelly Ditch**	OSMP Staff	OSMP	28%	South Boulder Creek
23	Left Hand Ditch/North Tollgate	OSMP Staff	OSMP; Utilities	15%	Left Hand Creek
24	Leyner Cottonwood Ditch		OSMP	7%	South Boulder Creek
25	LF Spicer Ditch		OSMP	100%	South Boulder Creek (seepage)
26	Marshallville Ditch		OSMP	38%	South Boulder Creek
27	McCarty Ditch**			0%	Boulder Creek
28	McGinn Ditch		OSMP	38%	South Boulder Creek
29	North Boulder Farmers Ditch**		Utilities; OSMP; Parks	25%	Boulder Creek
30	Orcine Ditch		OSMP	100%	Boulder Creek (seepage)
31	Shearer Ditch**		OSMP	100%	South Boulder Creek
32	Silver Lake Ditch**		Parks; OSMP; Utilities	7%	Boulder Creek
33	Smith & Goss Ditch**		Utilities	2%	Boulder Creek
34	South Boulder Bear Creek Ditch	OSMP Staff	OSMP	9%	South Boulder Creek
35	South Boulder Canon Ditch**		OSMP	9%	South Boulder Creek
36	Swede Ditch		OSMP	0.05%	St. Vrain Creek
37	Wellman Ditch**			0%	Boulder Creek
38	William C. Hake Ditch		OSMP	44%	Coal Creek

Attachment B – Supplemental Information

Below is supplemental information about topics covered in the memo.

City Staff Considerations Relative to Ditches - When city staff hold ditch company board positions, which typically is a formal requirement noted in their city job descriptions, they have a duty to represent all ditch shareholder interests and cannot prioritize city interests to the detriment of other shareholders.

If a community request for city assistance involves a ditch company for which the city holds board positions, city staffing assignments are made to minimize any conflicts of interest. The staff members who hold the ditch board positions will recuse themselves from voting on such issues on behalf of the ditch company as may be appropriate, and property owner and city interests will often be represented by city staff who do not hold ditch board positions.

Ditches Relative to City Infrastructure - Even though the city may have shares in a ditch and hold board positions, the ditch is still a private facility and is not city infrastructure like a street or drinking water distribution system pipe. Accordingly, the city does not have control over day-to-day ditch operations and maintenance.

Ditches and City Stormwater - Portions of the city's stormwater system were designed in an earlier time when it was common to locate municipal stormwater outfalls in irrigation ditches. The city has formal agreements with certain ditch companies to reserve capacity in the ditch for city stormwater, including provision of city funds for maintaining ditch capacity.

City Maintenance of Ditches – When city facilities such as a multi-use paths, parks or roads are constructed within ditch easements, the city will often enter a written agreement with the affected ditch company whereby the city takes on certain maintenance responsibilities. There are many such agreements for city ditch maintenance responsibility for specific ditch sections throughout the city, however, ditch companies self-perform most maintenance. City staff also work closely with the ditch companies to minimize disturbances and mitigate impacts of ditch maintenance work on city open space.

City Development Review Process and Ditches - If a business or residence proposes development within a ditch easement, city process requires the applicant to obtain ditch company approval, which typically comes in the form of a formal agreement with the ditch company. City staff frequently provide support for this agreement process.

City Annexation Process and Ditches - When a property undergoes an annexation or development process, city staff advise property owners of their options related to ditch shares under city code and sometimes separate ditch agreement¹ provisions. The code or agreement provisions allow property owners to retain their water rights or ditch shares upon request for City water service but grant the city preferential options for future acquisition of such rights and shares at the time such water is sold off the property. During the annexation process, the City and property owner may negotiate for the conveyance of ditch shares or other water rights associated with the property to the City as part of the annexation.

City Water Supply and Ditches Thirty percent of the city's annual drinking water supply on average is attributable to irrigation ditch shares acquired by the city over time. In most cases, the city's ditch shares have been changed through the water court process to allow for an alternative point of diversion such as the city's water supply reservoirs.

¹ Section 11-1-19 of the Boulder Revised Code addresses water and ditch rights, including reference to separate city and ditch company agreements that control when in effect.

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. Due to the poorly defined easement it is best to contact the ditch company if work will occur within 50 feet of the ditch.

What if I want more information?

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



City of Boulder - Utilities

1739 Broadway
Boulder, CO 80302
Phone: 303-441-3266

Irrigation Ditches

What is an Irrigation Ditch?

Irrigation ditches are manmade channels that deliver water from natural streams to homes, farms, businesses, industries and other uses. Irrigation ditches typically run from April through October when water users need water for irrigation, although ditches sometimes run in the winter to fill reservoirs.

What do Irrigation Ditches do?

The original purpose of most irrigation ditches was to deliver water to farmlands. Local agriculture and development in the late 1800's of the Boulder area would not have been possible without irrigation ditches. Ditches as structures have not changed much over time and still serve agriculture, but also deliver water to parks, cities, homes and businesses.

Background: Smith & Goss Ditch along Arapahoe circa 1950s. Photo courtesy of Carnegie Branch Library for Local History/ Boulder Historical Society collection.

What is a Ditch Company?

In general, ditch companies are private, not-for-profit companies made up of shareholders. Shareholders receive water based on their ownership in the company and pay a fee to support ditch operations and maintenance. Shareholders can be individuals or institutions, such as a school district or a government agency.

How do Irrigation Ditches benefit the local community?

Irrigation ditch water is essential to sustaining local agriculture. Without this water few crops could be grown in our arid climate. 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.

Top Right: Farmers Ditch in North Boulder
Middle Right: Boulder Farmers Market
Bottom Right: Anderson Ditch at Columbia Cemetery





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. Homeowners may choose to dispose of materials left in the easement following maintenance, as ditch companies generally do not haul vegetation and trash away. Sediment should be left undisturbed, as ditch companies commonly use it to build and maintain the ditch banks.

Why do ditch companies remove trees?

Although trees thrive along waterways and are valued by the community for their aesthetic and environmental benefits, 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.

Left: Construction of Farmers Ditch Siphon near North Boulder Park in 1953. Photo courtesy of Carnegie Branch Library for Local History/Boulder Historical Society collection.

Living next to a Ditch

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, lease water, or have a contractual right to the water. Shares can be purchased from the previous property owner, from other shareholders, or directly from the ditch company if and when available.

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

Seepage from irrigation ditches is a historic and common occurrence. 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.

Why can't I find information about the ditch easement?

Ditch Companies rarely own recorded easements or the land underlying the ditch. Instead, they typically have prescriptive easements to access, operate and maintain the ditch. The width of a prescriptive easement can vary and is defined as

whatever is "reasonable and necessary" to maintain, access and operate the ditch. 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 predates their ownership and/or development of the property.

Can I deposit yard waste in the ditch?

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.





Irrigation Ditch Frequently Asked Questions

City of Boulder - 2016



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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.



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.

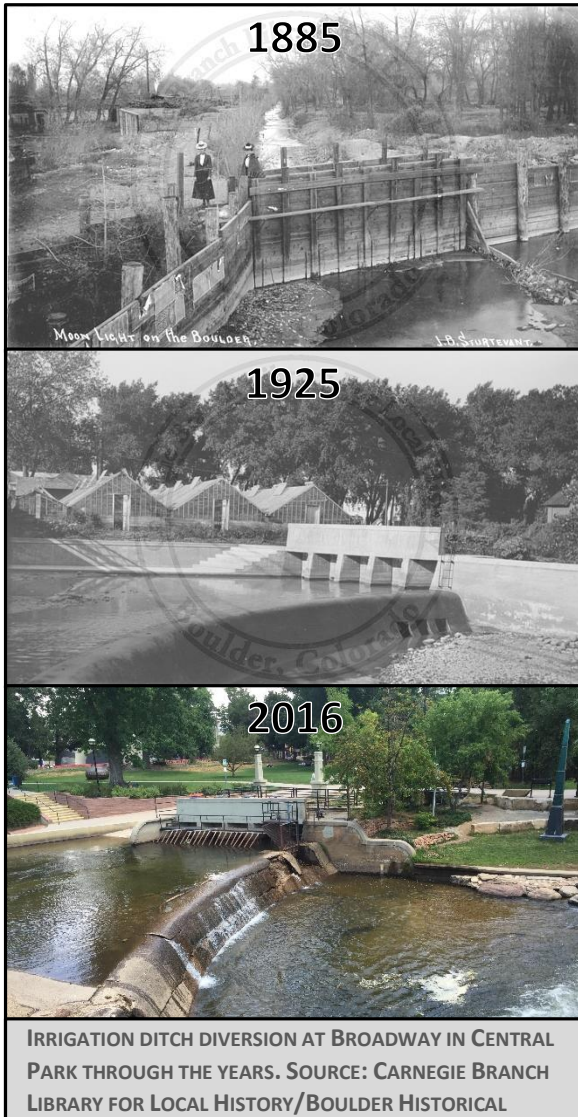


THE HOWELL DITCH (LEFT) RUNS NEXT TO BOULDER CREEK (RIGHT). DITCHES TYPICALLY HAVE FLATTER SLOPES AND SLOWER FLOWS THAN NATURAL DRAINAGES.

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.



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.

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

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.

Date	Acres of Water in Ditch	Date	Acres of Water in Ditch	REMARKS Relative to River Water
Apr 26	2			First day water was used Apr 26
May 1	4			Last day water was used Oct 22
May 9	0			Number of days water used 164
22	3			Average daily amount used 3.5
June 4	4			No. of acres that can be irrigated 1500
July 1	3			Cost \$ 50,616.720
90	4			
22	0			
25	3			
30	4			
Aug 24	7			
30	3			
Sept 1	3			
Oct 1	3			
23	0			

KIND OF CROP	ACRES	
	Irrigated	
Alfalfa	0	
Natural Grass	775	
Cereals	0	
Orchards	40	
Market Gardens	50	
Potatoes	4	
Sugar Beets	0	
Beans	0	
Pears	0	
Cabbage	0	
Lettuces Cor n	85	
Other Crops	40	
Total	990	
Superintendent, etc.	75	170

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.

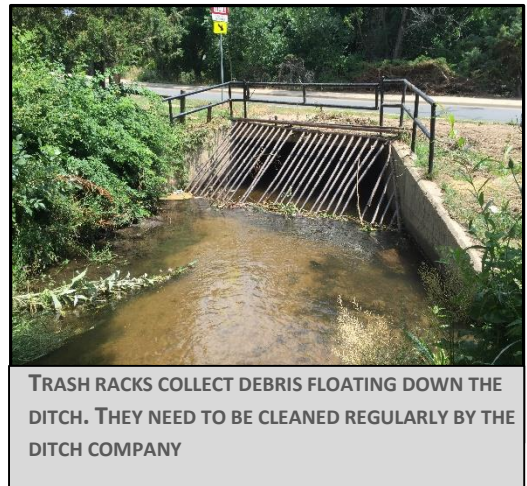
Trash and Debris

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.

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.



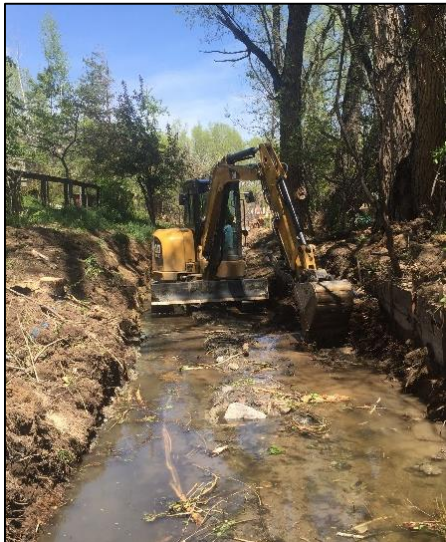
4) For Homeowners

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



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

provide more information about ditches running through or adjacent to prospective properties and should be consulted in real estate transactions.

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: plandevlop@bouldercolorado.gov

Phone: 303-441-1880

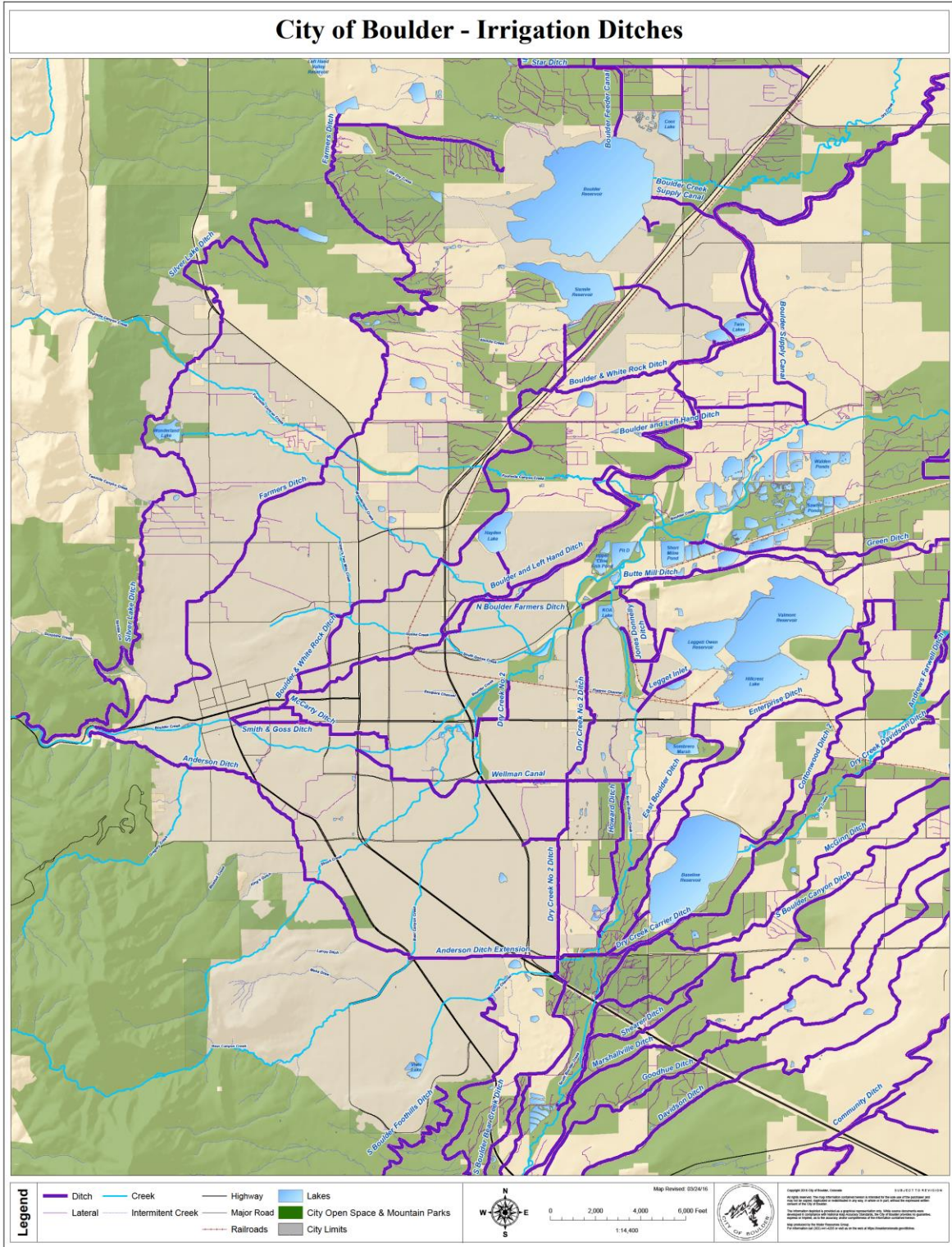
Fax: 303-441-4241

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



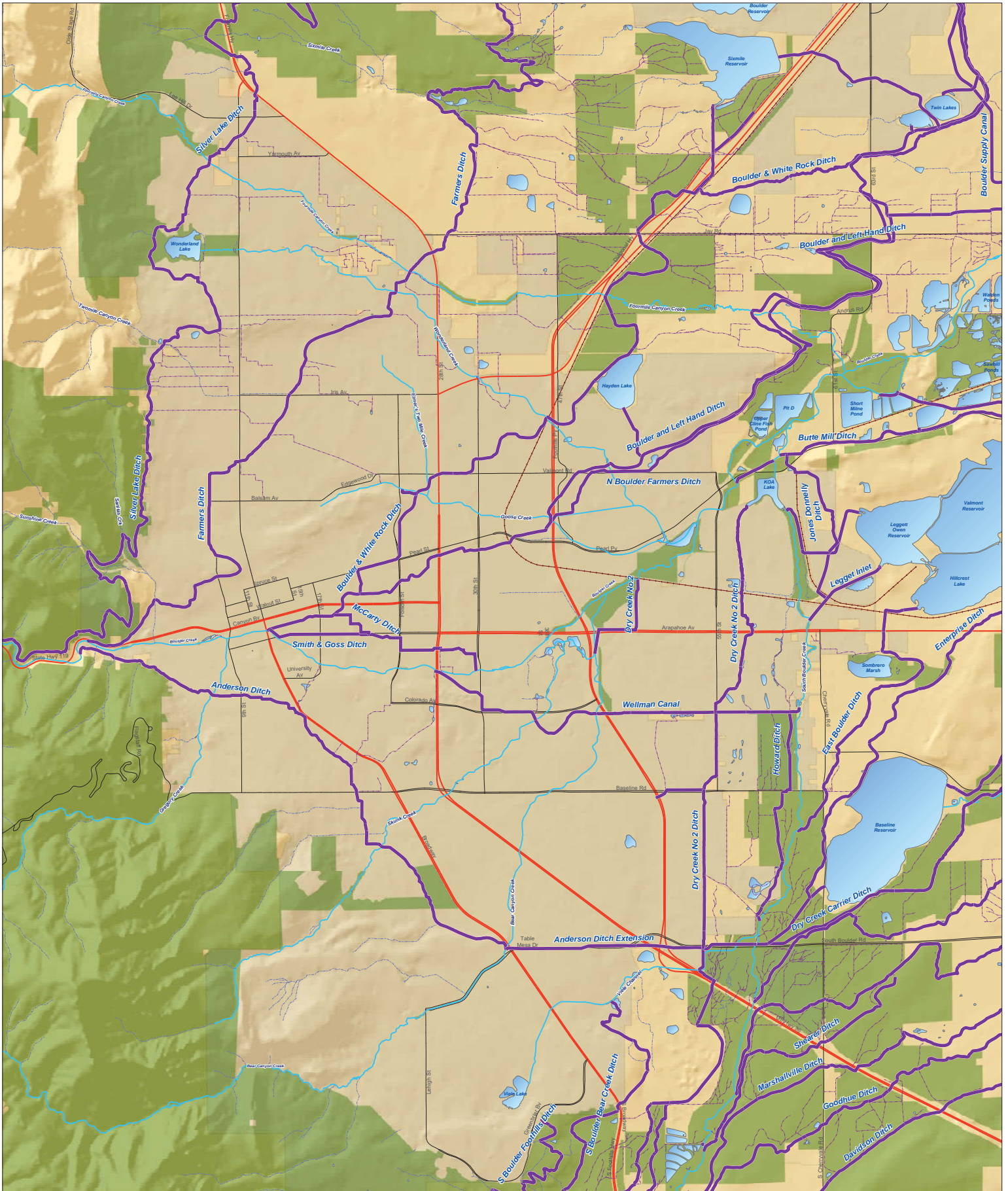
7) More Information

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

Attachment E - Irrigation Ditches within the City of Boulder



Legend

- Ditch
- Creek
- Highway
- Lakes
- City Open Space & Mountain Parks
- Lateral
- - - Intermittent Creek
- Major Road
- City Limits
- Railroads

Map Revised: 03/24/16

Miles

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Map produced by the City of Boulder Office of the Chief Information Officer.
For information call (303) 441-4200 or visit us on the web at <http://boulder.colorado.gov/it>.

SUBJECT TO REVISION